WASTEWATER TREATMENT PLANT 2023 ANNUAL REPORT

DISTRICT OF LAKE COUNTRY





This annual report for the year 2023 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 June 2021. 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:

Sarah Graham, Engineering Technician

March 21, 2024

Date

March 21, 2024

Davin Larsen AScT, Wastewater Crew Leader

March 21, 2024

Kiel Wilkie AScT, Utilities Manager

Date

Date

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	6
2.4 Plant Modifications	6
2.5 Facility Classification and Operator Certification	6
2.6 Qualified Professional	7
2.7 Plans-Works	7
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	9
2.13 Domestic Wells	9
2.14 Groundwater Extraction	9
2.15 Irrigation	
3.0 Monitoring Requirements	
3.1 Influent and Effluent Monitoring	
3.2 Groundwater Monitoring	
3.3 Modification of the Monitoring Program	
3.4 Sampling Facilities & Procedures	
3.5 Analytical Procedures	
3.6 Quality Assurance	
4.0 Reporting Requirements	
4.1 Non–Compliance Notification and Reporting	

4.2 EMS Reporting
4.3 Annual Reporting12
4.3.1 Exceedances
4.3.2 Groundwater Reporting12
4.3.3 Plant Performance Trends13
4.3.4 Lab reports
4.3.5 Quality Assurance Data13
4.3.6 Sludge Management Recording13
4.3.7 Evaluation of Authorized works13
4.3.8 Contingency Plan13
Appendix A - Total Daily FlowsA
Appendix B – Accredited Laboratory ReportsB
Appendix C – Non-Compliance ReportingC
Appendix D - Groundwater Monitoring ReportD
Appendix E – Monitoring Wells Locations E
Appendix F – Plant Performance Trends F

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. In 2012, the infiltration capacity was enhanced with the installation of 3 open basins. Additionally, in 2015, one of the existing subsurface fields was restored to its original condition with new pipe and media.



Figure 1: Effluent RI Basin 1

The discharge is authorized in accordance with the provisions

outlined in Operational Certificate – #14651, initially issued on November 5, 1998, and amended on June 22, 2021.

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 determined by subtracting the recirculated water meter total from the effluent flow meter total as the recirculated effluent is taken from the effluent discharge line after the effluent flow meter and used throughout the plant as process water. In 2023 the annual average discharge was 1,892 m³/d (compared to 1,934 m³/d in 2022).

Detailed monthly flow data is provided in <u>Table 1</u>, with daily flows available in <u>Appendix A</u>. Exceedances of the authorized discharge rate occurred in three months; additional information on these instances can be found in <u>section 4.3.1</u> of this report.

Currently, there are ongoing plans for the City of Kelowna to accept excess effluent from the facility until future disposal methods are authorized by the Ministry of Environment and Climate Change Strategy. This arrangement is intended to alleviate capacity limitations.

	Influent		Efflue	ent		Septage
2023	Flow	Flow	Minimum	Maximum	Daily Avg	Flow
	(m³/month)	(m³/month)	(m³/day)	(m°/day)	(m°/day)	(m°/month)
January	53,185	58,175	1,550	2,102	1,877	556
February	45,559	60,309	1,950	2,298	2,154 ¹	553
March	49,947	62,157	1,800	2,565	2,005 ¹	996
April	49,840	59,774	1,776	2,347	1,992	1,338
May	52,717	60,383	1,883	2,436	2,013 ¹	1,565
June	49,450	54,461	1,698	2,024	1,878	1,536
July	52,041	59,851	1,829	2,136	1,931	982
August	47,682	54,227	1,201	2,039	1,749	1,092
September	47,551	53,181	1,666	2,002	1,773	1,094
October	50,243	56,146	1,570	1,978	1,811	1,328
November	47,315	53,320	1,712	1,914	1,777	1,000
December	48,814	54,874	1,646	1,859	1,770	481
Total	594,344	686,858	-	-	1,892	12,521

Table 1: Daily, Monthly, and Average Effluent Flows

¹Refer to <u>section 4.3.1</u> of this report for explanation of these exceedances.

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.).



Table 2: Effluent Monthly Grab Samples - Accredited Lab Analysis

Figure 2: In-house Laboratory

Daily Permit	CBOD₅ (mg/L) 10	TSS (mg/L) 20	Ortho – P (mg/L) 1.5	Total Soluble N (mg/L) 10	рН
	17 ^{1,2}	11 ²	0.022	1 E2 ²	7 672
February	1/ ¹	11	0.02	2.69	6.05
March	4	7	0.09	1.20	7.77
April	5	6	0.46	1.70	7.59
May	<7	4	0.03	1.46	7.71
June	<5	<2	0.37	0.63	7.90
July	3	2	0.13	0.89	7.90
August	<3	2	0.03	0.91	8.05
September	<2	<2	0.06	2.35	7.86
October	2	<2	0.25	1.61	7.62
November	<3	<2	0.57	3.69	7.49
December	3	<4	0.18	3.72	7.63
Annual Average	4.2	3.8	0.18 ¹	1.84	7.61

Annual Average	-	-	0.15	6	-
Permit Maximums					

¹Refer to <u>section 4.3.1</u> of this report for explanation of these exceedances. ²Two samples were taken in January, displayed is the average of the results.

The 2023 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). There was one instance of non-compliance on January 4, 2023, with CBOD₅ concentrations exceeding the operational certificate requirements of 10 mg/L, with a recorded concentration of 21.7 mg/L. A follow-up sample was taken on January 17, 2023, and still showed levels above the acceptable threshold, registering at 12.0 mg/L, although there was an indication that the CBOD₅ concentration was decreasing. Detailed results from the accredited laboratory can be found in <u>Appendix B</u> and the non-compliance report can be found in <u>Appendix C</u>.

This non-compliance can be attributed to the deterioration of the plant process due to the seasonal cold weather conditions. Typically, the treatment process experiences difficulty fully recovering from seasonal cold weather until mid-April. However, on January 13, 2023 effluent filters were installed and commissioned. Subsequently, $CBOD_5$ levels have shown a significant decrease, as demonstrated in Table 2, and figure 3. These filters are anticipated to continue to enhance effluent quality and mitigate the occurrence of exceedances in the future.



Figure 3: 2023 influent Temperature Vs Effluent CBOD

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 3.8 mg/L, and the maximum monthly average was 11 mg/L, occurring in January. There were no occasions in 2023 when TSS was higher than the operational certificate requirement of 20 mg/L, with the maximum concentration for 2023 being 11 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.

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 0.18 mg/L. This was above the operational certificate requirement of 0.15 mg/L for an annual average. The higher-than-average Ortho-Phosphorus results are assumed to be caused by the LCWWTP Phase 4 upgrades which were substantially completed in September 2023. Leading up to substantial completion, operations of the LCWWTP were in constant change as vessels were being commissioned and tested, creating an abnormal operation situation that saw some decreases in effluent quality.

At no time in 2023 did the effluent Ortho Phosphorus exceed the daily limit of 1.5 mg/L, with the maximum concentration of 0.57 mg/L occurring in November. 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 2023, there was no instance where the Soluble Nitrogen limit of 10.0 mg/L was exceeded, with the maximum concentration being 3.72 mg/L measured on December 14, 2023. The yearly average for Soluble Nitrogen was 1.84 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 2023.

2.3 Bypasses

There were no plant bypasses required in 2023.

2.4 Plant Modifications

The District of Lake Country successfully reached substantial completion of the LCWWTP Phase 4 upgrades in September 2023 at a cost of \$12,500,000. These upgrades enhanced redundancy and capacity by integrating a second secondary clarifier and third bioreactor. Additionally, effluent quality saw improvements through the installation of effluent disc filters. These modifications were approved prior to construction and align with the district's goals to serve an expanding population, care for the environment, and protect public health.



Figure 3: Effluent Disc Filters

Figure 4: New Secondary Clarifer

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 <u>Table 3</u>.

Operator	Wastewater Treatment Level	Wastewater Collections Level
Davin Larsen (Crew Lead)	IV	II
Mike Davis	IV	П
Aaron Geck*	IV	I. I.
Shelby McFarlane	II	-
Jeremy Engelbrecht*	IV	-

Table 3: EOCP certification level

*Aaron Geck left the district in the summer of 2023 and Jeremy Engelbrecht entered the vacant position in the Fall of 2023.

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

2022	Monthly Totals				
2022	Number of Loads	Dry Weight (Tonnes)*			
January	17	144.6			
February	14	125.5			
March	18	156.8			
April	23	202.5			
Мау	23	178.1			
June	23	195.6			
July	19	151.5			
August	19	175.6			
September	22	138.4			
October	20	145.3			
November	18	144.3			
December	16	132.1			
Total	232	1,890.3			

Table 4: Dewatered Sludge Quantities

*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. 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 2023. There were no overflow occurrences in 2023.

2.12 Sewage Collection System

The District of Lake Country's Wastewater Collection system comprises 12 lift stations and 76.5 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 3,915 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.

In 2023, upgrades were carried out at the Davidson and The Lakes Lift stations. These upgrades included the installation of working platforms inside the wet wells to enhance worker safety and efficiency.



Figure 6: Davidson Lift Station



Figure 7: The Lakes Lift Station

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.

Historically, flow from pool discharge has posed noticeable impacts on the collection system and lift stations. These connections have been identified, and property owners have been notified of District bylaws concerning waste disposal into the sanitary system. An inspection and follow-up program has been executed, resulting in the mitigation of pool discharge.

Additionally, the District utilizes 4 "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.

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. <u>Table 1</u> provides a summary of the LCWWTP influent and effluent flows, while <u>Table 2</u> tabulates the accredited lab data for effluent samples. Additionally, <u>Table 5</u> presents the influent accredited lab data. Copies of the accredited lab reports are available in <u>Appendix B</u>.

	CBOD5 (mg/L)	TSS (mg/L)	Total P (mg/L)	Total Nitrogen (mg/L)	рН
January	316	174	10.50	92.30	8.25
February	226	262	9.49	66.90	7.83
March	349	336	10.60	94.00	7.99
April	330	279	10.90	95.90	8.17
May	375	280	8.63	59.90	7.63
June	331	165	5.42	91.90	7.95
July	674	848	13.90	118.00	7.84
August	322	293	14.40	99.50	7.72
September	800	645	19.80	97.20	7.71
October	348	352	11.10	88.80	7.97
November	425	362	11.00	86.30	7.59
December	373	362	12.30	87.20	7.69
Annual Average	406	363	11.50	89.83	7.86

Table 5: 2023 Influent accredited lab data

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 monitoring program was amended as part of the 2021 Operational Certificate. Since the issuance of the Operational Certificate in June 2022, there have been no further official changes to the monitoring plan. However, H6 Domestic Well 9719 McCarthy Road is no longer accessible, and the property's residence is unoccupied. The property has been sold and is now utilized for an industrial marijuana operation with enhanced security measures. An Operational Certificate amendment request to exclude this well from the groundwater monitoring program scope was submitted to the Ministry of Environment and Climate Change Strategy on June 27, 2023.

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 authorization permit 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 <u>Appendix C</u>.

4.2 EMS Reporting

All laboratory data analyzed by a qualified professional 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 3 non-compliances in 2023. Non-Compliance Reports were sent to Ministry of Environment and Climate Change Strategy for each incidence and can be found in <u>Appendix C</u>. A summary of those exceedances/non compliances are below:

Daily flow limit exceedance (1) – The monthly permit limit for the rate of discharge was falsely exceeded in February, March, and May of 2023, with recorded flow volumes reaching 2,154 m³/day, 2,005 m³/day, and 2,013 m³/day, respectively. These instances were attributed to excessive use of recycled effluent within the plant process, resulting from the commissioning of the LCWWTP phase 4 upgrades (refer to section 2.4 of this report). While the actual flow leaving the plant is estimated to be below the permit limit, it cannot be confirmed. The discrepancy in effluent readings stems from recycled water being taken after the final flow meter and reintroduced back into the process, leading to an inflated effluent flow meter reading. Upon completion of phase 4 commissioning, this level of reuse will no longer be necessary.

CBOD exceedance (1) - On January 4, 2023, the monthly sample analyzed by an accredited lab indicated a non-compliance. The CBOD₅ concentrations exceeded the 10 mg/L operational certificate requirement, reaching 21.7 mg/L. A subsequent sample on January 17, 2023 also exceeded the threshold, registering at 12.0 mg/L. The non-compliance was attributed to plant process deterioration due to seasonal cold weather. Effluent filters were installed on January 13, 2023 which led to a significant decrease in CBOD₅ levels, and potentially mitigating future exceedances during cold weather conditions.

Ortho Phosphorus exceedance (1) – The Ortho-Phosphorus annual average for 2023, at 0.18 mg/L, slightly exceeded the operational certificate requirement of 0.15 mg/L. This increase is attributed to the LCWWTP Phase 4 upgrades, which caused operational changes resulting in decreased effluent quality. However, despite these challenges, the effluent Ortho-Phosphorus levels never exceeded the daily limit of 1.5 mg/L in 2023, with the highest concentration of 0.57 mg/L recorded in November.

4.3.2 Groundwater Reporting

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

4.3.3 Plant Performance Trends

Refer to <u>Appendix F</u> 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 <u>Appendix B</u>.

4.3.5 Quality Assurance Data

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

4.3.6 Sludge Management Recording

Please refer to section 2.10 of this report

4.3.7 Evaluation of Authorized works

The LCWWTP currently maintains a 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. The District is strategically addressing the challenges posed by the community's growth and subsequent flow increases. One highlighted measure involves exploring alternative methods of effluent disposal to effectively manage these demands on the LCWWTP.

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 Climate Change Strategy on January 12th, 2022. There have been no further updates to the plan since its submission.

Appendix A - Total Daily Flows

	FINAL EFFLUENT FLOW (M3)											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
1	1,887	2,048	2,126	1,776	2,039	2,024	1,854	2,039	1,754	1,761	1,802	1,755
2	1,974	2,191	2,074	1,972	2,245	1,885	1,928	1,943	1,709	1,907	1,852	1,747
3	1,908	2,170	2,046	1,885	2,436	1,825	2,044	1,887	1,779	1,709	1,736	1,809
4	1,938	2,181	2,084	1,883	2,293	1,875	1,975	1,960	2,002	1,664	1,712	1,763
5	1,813	2,298	2,141	1,879	1,965	1,827	1,930	1,888	1,811	1,737	1,896	1,746
6	1,883	2,204	1,815	1,918	1,977	1,931	1,901	1,857	1,789	1,709	1,773	1,827
7	1,881	2,216	1,984	1,942	2,025	1,845	1,867	1,960	1,756	1,655	1,782	1,794
8	2,016	1,950	2,034	1,939	2,046	1,868	1,898	1,915	1,701	1,740	1,734	1,731
9	1,893	2,004	2,035	1,934	1,962	1,894	1,867	1,975	1,791	1,889	1,725	1,773
10	1,892	2,142	1,981	1,987	1,943	1,908	1,924	1,826	1,845	1,785	1,735	1,859
11	1,713	2,184	2,074	2,169	1,951	1,941	1,933	1,774	1,744	1,787	1,733	1,759
12	1,854	2,262	2,146	2,335	1,913	1,912	1,976	1,810	1,801	1,570	1,740	1,767
13	1,624	2,181	2,172	2,347	1,924	1,895	1,964	1,914	1,791	1,778	1,813	1,786
14	1,658	2,150	2,103	2,167	1,997	1,808	1,901	1,910	1,754	1,872	1,803	1,766
15	1,754	2,093	2,067	1,898	2,008	1,716	1,842	1,862	1,715	1,978	1,778	1,711
16	1,599	2,182	2,047	2,029	1,974	1,761	1,920	1,836	1,753	1,895	1,735	1,753
17	1,550	2,159	2,042	1,909	2,032	1,698	1,829	1,829	1,798	1,860	1,713	1,817
18	2,064	2,183	1,909	1,938	2,002	1,898	1,904	1,523	1,686	1,858	1,749	1,758
19	2,102	2,182	1,944	1,933	1,895	1,900	1,891	1,201	1,666	1,811	1,849	1,753
20	1,918	2,236	1,867	1,889	1,913	1,889	1,942	1,340	1,702	1,813	1,743	1,787
21	1,970	2,148	1,837	1,877	1,971	1,906	2,002	1,378	1,726	1,813	1,722	1,776
22	2,042	2,185	1,814	1,937	2,200	1,864	1,848	1,577	1,763	1,922	1,758	1,803
23	1,939	2,141	1,856	2,089	1,997	1,840	1,889	1,620	1,760	1,864	1,791	1,854
24	1,807	2,111	1,800	2,206	1,939	1,836	2,136	1,562	1,859	1,857	1,738	1,812
25	1,749	2,143	1,874	2,282	2,008	1,925	2,059	1,594	1,787	1,854	1,813	1,646
26	1,834	2,233	1,824	1,934	1,883	1,927	2,002	1,679	1,784	1,842	1,914	1,702
27	1,820	2,055	2,565	1,939	1,887	1,946	1,976	1,691	1,881	1,843	1,835	1,758
28	1,932	2,077	1,990	1,852	2,004	1,948	1,925	1,692	1,755	1,835	1,748	1,740
29	2,042		2,157	1,911	1,991	1,969	1,904	1,727	1,793	1,926	1,812	1,730
30	2,095		1,866	2,018	1,963	1,878	1,879	1,709	1,726	1,835	1,786	1,761
31	2,024		1,883		1,973		1,941	1,749		1,777		1,831

Appendix B – Accredited Laboratory Reports



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23A0198
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-01-04 10:58 / 10.3°C 2023-01-10 15:54 44930.38203

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, Dist PROJECT Raw Influent- PE1		rict of (Wastewater) 4651		WORK ORDER REPORTED	23A0198 2023-01-1	0 15:54
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2336	627) (23A0198-01) Ma	atrix: Wastewater Samp	led: 2023-01-04 10:25			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-01-05	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-01-05	
Phosphate (as P)		6.93	0.0050	mg/L	2023-01-05	
Calculated Parameter	s					
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		92.3	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as C	aCO3)	356	1.0	mg/L	2023-01-05	
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Alkalinity, Bicarbonat	e (as CaCO3)	356	1.0	mg/L	2023-01-05	
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Ammonia, Total (as N	1)	63.6	0.050	mg/L	2023-01-05	
BOD, 5-day		368	2.0	mg/L	2023-01-10	
BOD, 5-day Carbona	ceous	316	2.0	mg/L	2023-01-10	
Nitrogen, Total Kjelda	ahl	92.3	0.050	mg/L	2023-01-06	
рН		8.25	0.10	pH units	2023-01-05	HT2
Phosphorus, Total (a	s P)	10.5	0.0050	mg/L	2023-01-05	
Solids, Total Suspend	ded	174	2.0	mg/L	2023-01-07	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER 2 REPORTED 2

23A0198 2023-01-10 15:54

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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)	WORK ORDER	23A0198
PROJECT	Raw Influent- PE14651	REPORTED	2023-01-10 15:54

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3A0211

Blank (B3A0211-BLK1)			Prepared: 2023	3-01-05, Analyze	ed: 2023-01-05	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3A0211-BS1)			Prepared: 2023	3-01-05, Analyze	ed: 2023-01-05	
Nitrate (as N)	3.89	0.010 mg/L	4.00	97	90-110	
Nitrite (as N)	1.98	0.010 mg/L	2.00	99	85-115	
Phosphate (as P)	0.907	0.0050 mg/L	1.00	91	80-120	

General Parameters, Batch B3A0230

Blank (B3A0230-BLK1)			Prepared: 202	23-01-04, Analyze	ed: 2023-01-05	5
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
Blank (B3A0230-BLK2)			Prepared: 202	23-01-04, Analyze	ed: 2023-01-05	5
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
LCS (B3A0230-BS1)			Prepared: 202	23-01-04, Analyze	ed: 2023-01-05	5
Phosphorus, Total (as P)	0.108	0.0050 mg/L	0.100	108	85-115	
LCS (B3A0230-BS2)			Prepared: 202	23-01-04, Analyze	ed: 2023-01-05	5
Phosphorus, Total (as P)	0.107	0.0050 mg/L	0.100	107	85-115	

General Parameters, Batch B3A0251

Blank (B3A0251-BLK1)			Prepared: 2023-01-05, Analyzed: 2023-01-05	
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		
Blank (B3A0251-BLK2)			Prepared: 2023-01-05, Analyzed: 2023-01-05	
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		
		-		Page 4 of 6



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	ict of (Wastewa 651	ater)			WORK REPOR	ORDER TED	23A0 2023)198 8-01-10	15:54
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3A0251, Co.	ntinued								
Blank (B3A0251-BLK2), Continued			Prepared	· 2023-01-0	5 Analyze	d: 2023-0	1-05		
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L			<u>-,</u>				
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3A0251-BS1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Alkalinity, Total (as CaCO3)	98.8	1.0 mg/L	100		99	80-120			
LCS (B3A0251-BS2)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Alkalinity, Total (as CaCO3)	98.8	1.0 mg/L	100		99	80-120			
Reference (B3A0251-SRM1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
pH	7.01	0.10 pH units	7.01		100	98-102			
Reference (B3A0251-SRM2)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0)1-05		
рН	7.00	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B3A0268									
Blank (B3A0268-BLK1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3A0268-BLK2)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3A0268-BLK3)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B3A0268-BS1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-05		
Ammonia, Total (as N)	0.920	0.050 mg/L	1.00		92	90-115			
LCS (B3A0268-BS2)			Prepared	: 2023-01-0	6, Analyze	d: 2023-0	1-06		
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00		102	90-115			
LCS (B3A0268-BS3)			Prepared	: 2023-01-0	6, Analyze	d: 2023-0	1-06		
Ammonia, Total (as N)	1.01	0.050 mg/L	1.00		101	90-115			
General Parameters, Batch B3A0298 Blank (B3A0298-BLK1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	01-06		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3A0298-BLK2)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0	1-06		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3A0298-BS1)			Prepared	: 2023-01-0	5. Analvze	d: 2023-0)1-06		
Nitrogen, Total Kjeldahl	0.951	0.050 mg/L	1.00		95	85-115			
LCS (B3A0298-BS2)			Prepared	: 2023-01-0	5. Analvze	d: 2023-0	1-06		
Nitrogen, Total Kjeldahl	0.950	0.050 mg/L	1.00		95	85-115			
General Parameters, Batch B3A0338 Blank (B3A0338-BLK1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0)1-10		
BOD, 5-day	< 2.0	2.0 mg/L			• 				
LCS (B3A0338-BS1)			Prepared	: 2023-01-0	5, Analyze	d: 2023-0)1-10		
BOD, 5-day	188	44.2 mg/L	198		95	85-115			



REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE1	rict of (Wastewa 4651	ter)			WORK REPOR	ORDER RTED	23A0 2023)198 -01-10	15:54
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B3A0339									
Blank (B3A0339-B	BLK1)			Prepared	l: 2023-01-0)5, Analyze	ed: 2023-0	1-10		
BOD, 5-day Carbona	aceous	< 2.0	2.0 mg/L							
LCS (B3A0339-BS	51)			Prepared	I: 2023-01-0)5, Analyze	ed: 2023-0	1-10		
BOD, 5-day Carbona	aceous	203	38.1 mg/L	198		102	85-115			
General Parameter	rs, Batch B3A0453									
Blank (B3A0453-B	BLK1)			Prepared	I: 2023-01-0)7, Analyze	ed: 2023-0	1-07		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B3A0453-BS	51)			Prepared	I: 2023-01-0)7, Analyze	ed: 2023-0	1-07		
Solids, Total Suspend	ded	87.0	10.0 mg/L	100		87	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	23A0199
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-01-04 10:58 / 10.3°C 2023-01-10 15:55 44930.38203

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842				WORK ORDER REPORTED	23A0199 2023-01-1	0 15:55
Analyte		Result	RL	Units	Analyzed	Qualifier
Amry WW (E2629	82) (23A0199-01) Matrix:	Wastewater Sampled: 202	23-01-04 09:05			
BOD, 5-day Carbo	naceous	6.1	2.0	mg/L	2023-01-10	
Solids, Total Susp	ended	9.5	2.0	mg/L	2023-01-07	



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** Amry- MR17842 PROJECT

WORK ORDER 23A0199 REPORTED

2023-01-10 15:55

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	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

C	Blossary of Terms	S:
	RL	Reporting Limit (default)
	mg/L	Milligrams per litre
	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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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)	WORK ORDER	23A0199
PROJECT	Amry- MR17842	REPORTED	2023-01-10 15:55

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
General Parameters, Batch B3A0339									
Blank (B3A0339-BLK1)			Prepared	l: 2023-01-0)5, Analyze	d: 2023-0	01-10		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3A0339-BS1)			Prepared	l: 2023-01-0)5, Analyze	d: 2023-0	01-10		
BOD, 5-day Carbonaceous	203	38.1 mg/L	198		102	85-115			
General Parameters, Batch B3A0453									
Blank (B3A0453-BLK1)			Prepared	l: 2023-01-0)7, Analyze	d: 2023-0	01-07		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3A0453-BS1)			Prepared	l: 2023-01-0)7, Analyze	d: 2023-0	01-07		
Solids, Total Suspended	87.0	10.0 mg/L	100		87	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	23A0204
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-01-04 10:58 / 10.3°C 2023-01-12 11:20 44930.38203

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔪 Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

Nickel

Molybdenum

Phosphorus

Potassium

Selenium

Silver

Sulfur

Sodium

Strontium

Tellurium

Thallium

Thorium

Titanium

Tungsten

Uranium

Vanadium

Zinc

Tin

REPORTED TO PROJECT	Lake Country, District of (Wastewa BioSolids- PE14651	t of (Wastewater)		WORK ORDER REPORTED	23A0204 2023-01-1	2 11:20
Analyte	Re	sult	RL	Units	Analyzed	Qualifier
Biosolids (E2336	528) (23A0204-01) Matrix: Sludge	Sampled: 20	23-01-04 09:15			
General Parameter	rs					
Moisture		81.2	1.0	% wet	2023-01-09	
Nitrogen, Total Kj	eldahl	5.43	0.0004	% dry	2023-01-06	
pH (1:2 H2O Solu	ition)	5.66	0.10	pH units	2023-01-11	PH1
Solids, Total	· · · · · · · · · · · · · · · · · · ·	18.8	0.1	% wet	2023-01-09	
Solids, Volatile		85.5	0.1	% dry	2023-01-09	
Strong Acid Leach	able Metals					
Aluminum		2280	40	mg/kg dry	2023-01-11	
Antimony		1.31	0.10	mg/kg dry	2023-01-11	
Arsenic		1.72	0.30	mg/kg dry	2023-01-11	
Barium		77.1	1.0	mg/kg dry	2023-01-11	
Beryllium	<	0.10	0.10	mg/kg dry	2023-01-11	
Bismuth		29.2	0.10	mg/kg dry	2023-01-11	
Boron		13.3	2.0	mg/kg dry	2023-01-11	
Cadmium	().842	0.040	mg/kg dry	2023-01-11	
Calcium	1	1500	100	mg/kg dry	2023-01-11	
Chromium		11.1	1.0	mg/kg dry	2023-01-11	
Cobalt		1.82	0.10	mg/kg dry	2023-01-11	
Copper		309	0.40	mg/kg dry	2023-01-11	
Iron		4130	20	mg/kg dry	2023-01-11	
Lead		6.78	0.20	mg/kg dry	2023-01-11	
Lithium		1.73	0.10	mg/kg dry	2023-01-11	
Magnesium		5150	10	mg/kg dry	2023-01-11	
Manganese		93.0	0.40	mg/kg dry	2023-01-11	
Mercury).387	0.040	mg/kg dry	2023-01-11	

8.75

9.88

18400

7210

4.44

1.35

1220

60.5

6030

< 0.10

< 0.10

< 0.50

14.2

63.1

0.96

9.78

8.2

466

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

2023-01-11

0.10 mg/kg dry

0.60 mg/kg dry

10 mg/kg dry

40 mg/kg dry

0.20 mg/kg dry

0.10 mg/kg dry

0.20 mg/kg dry

1000 mg/kg dry

0.10 mg/kg dry

0.10 mg/kg dry

0.50 mg/kg dry

0.20 mg/kg dry

0.20 mg/kg dry

0.050 mg/kg dry

1.0 mg/kg dry

2.0 mg/kg dry

1.0 mg/kg dry

50 mg/kg dry



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater) PROJECT BioSolids- PE14651			WORK ORDER REPORTED		2 11:20						
Analyte	Result	RL	Units	Analyzed	Qualifier						
Biosolids (E233628) (23A0204-01) Matrix: Sludge Sampled: 2023-01-04 09:15, Continued											
Strong Acid Leach	able Metals, Continued										
Zirconium	3.0	2.0	mg/kg dry	2023-01-11							
Sample Qualifie	ers: o of water to soil was greater than 2:1 due to limited sample vol	ume or matrix									
	5 ••• ••• ••• ••• ••• ••• ••• •••										



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23A0 REPORTED 2023

23A0204 2023-01-12 11:20

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2017)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2017)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2017)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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)	WORK ORDER	23A0204
PROJECT	BioSolids- PE14651	REPORTED	2023-01-12 11:20

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	Source	% REC	REC	% RPD RPD	Qualifier
· · · · · , · ·			Level	Result		Limit	Limit	

General Parameters, Batch B3A0296

Blank (B3A0296-BLK1)			Prepared: 202	3-01-05, Analyz	ed: 2023-01-06		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet					
Duplicate (B3A0296-DUP1)	Source: 23A0204-01		Prepared: 202	3-01-05, Analyz	ed: 2023-01-06		
Nitrogen, Total Kjeldahl	5.12	0.0004 % dry	5	.43	6	25	
Reference (B3A0296-SRM1)	Prepared: 2023-01-05, Analyzed: 2023-01-06						
Nitrogen, Total Kjeldahl	0.169	0.010 % wet	0.197	86	58.8-150		

General Parameters, Batch B3A0531

Sou	ırce: 23A0204-01	Prepared: 2023	-01-09, Analyzed	1: 2023-01-09		
99.0	1.0 % wet	81.	.2	19.8	40	
19.0	0.1 % wet	18.	.8	1	7.5	
85.6	0.1 % dry	85.	.5	< 1	15	
Prepared: 2023-01-09, Analyzed: 2023-01-09						
99.0	1.0 % wet	13.0	101	80-120		
87.5	0.1 % wet	87.0	101	80-120		
2.5	0.1 % dry	2.58	98	80-200		
	Sou 99.0 19.0 85.6 99.0 87.5 2.5	Source: 23A0204-01 99.0 1.0 % wet 19.0 0.1 % wet 85.6 0.1 % dry 99.0 1.0 % wet 87.5 0.1 % wet 2.5 0.1 % dry	Source: 23A0204-01 Prepared: 2023 99.0 1.0 % wet 81 19.0 0.1 % wet 18 85.6 0.1 % dry 85 Prepared: 2023 99.0 1.0 % wet 13.0 87.5 0.1 % wet 87.0 2.5 0.1 % dry 2.58	Source: 23A0204-01 Prepared: 2023-01-09, Analyzed 99.0 1.0 % wet 81.2 10 19.0 0.1 % wet 18.8 18.8 85.6 0.1 % dry 85.5 10 Prepared: 2023-01-09, Analyzed 99.0 1.0 % wet 13.0 101 87.5 0.1 % wet 87.0 101 2.5 0.1 % dry 2.58 98	Source: 23A0204-01 Prepared: 2023-01-09, Analyzed: 2023-01-09 99.0 1.0 % wet 81.2 19.8 19.0 0.1 % wet 18.8 1 85.6 0.1 % dry 85.5 < 1	Source: 23A0204-01 Prepared: 2023-01-09, Analyzed: 2023-01-09 99.0 1.0 % wet 81.2 19.8 40 19.0 0.1 % wet 18.8 1 7.5 85.6 0.1 % dry 85.5 < 1

General Parameters, Batch B3A0650

Duplicate (B3A0650-DUP1) Source: 23A0204-01			Prepared: 2023-01-10, Analyzed: 2023-	-01-11	
pH (1:2 H2O Solution)	5.66	0.10 pH units	5.66	< 1	10

Strong Acid Leachable Metals, Batch B3A0850

Blank (B3A0850-BLK1)		Prepa	ed: 2023-01-11, Analyzed: 2023-01-11
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651					WORK (REPOR	11:20			
Analyte	Res	sult	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3A0850, Continued

Blank (B3A0850-BLK1), Continued			Prepared: 2023-01-11, Analyze	ed: 2023-01-11	
Cadmium	< 0.040	0.040 mg/kg dry			
Calcium	< 100	100 mg/kg dry			
Chromium	< 1.0	1.0 mg/kg dry			
Cobalt	< 0.10	0.10 mg/kg dry			
Copper	< 0.40	0.40 mg/kg dry			
Iron	< 20	20 mg/kg dry			
Lead	< 0.20	0.20 mg/kg dry			
Lithium	< 0.10	0.10 mg/kg dry			
Magnesium	< 10	10 mg/kg dry			
Manganese	< 0.40	0.40 mg/kg dry			
Mercury	< 0.040	0.040 mg/kg dry			
Molybdenum	< 0.10	0.10 mg/kg dry			
Nickel	< 0.60	0.60 mg/kg dry			
Phosphorus	< 10	10 mg/kg dry			
Potassium	< 40	40 mg/kg dry			
Selenium	< 0.20	0.20 mg/kg dry			
Silver	< 0.10	0.10 mg/kg dry			
Sodium	< 50	50 mg/kg dry			
Strontium	< 0.20	0.20 mg/kg dry			
Sulfur	< 1000	1000 mg/kg dry			
Tellurium	< 0.10	0.10 mg/kg dry			
Thallium	< 0.10	0.10 mg/kg dry			
Thorium	< 0.50	0.50 mg/kg dry			
Tin	< 0.20	0.20 mg/kg dry			
Titanium	< 1.0	1.0 mg/kg dry			
Tungsten	< 0.20	0.20 mg/kg dry			
Uranium	< 0.050	0.050 mg/kg dry			
	< 1.0	1.0 mg/kg dry			
	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg dry			
LCS (B3A0850-BS1)			Propared: 2023 01 11 Apolyz	d. 2023-01-11	
E00 (B3A0030-B01)			Frepareu. 2023-01-11, Analyze	50. 2025-01-11	
Aluminum	1020	40 mg/kg dry	1000 102	80-120	
Aluminum Antimony	1020 10.2	40 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102	80-120 80-120 80-120	
Aluminum Antimony Arsenic	1020 10.2 9.78	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry	1000 102 10.0 102 10.0 98	80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium	1020 10.2 9.78 10.4	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 104	80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium	1020 10.2 9.78 10.4 9.65	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 104 10.0 96	80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth	1020 10.2 9.78 10.4 9.65 10.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron	1020 10.2 9.78 10.4 9.65 10.0 9.7	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 97	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 100 10.0 100 10.0 100	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 97 10.0 100 10.0 100 10.0 100 10.0 100 10.0 100 1000 103	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 100 10.0 100 10.0 100 10.0 100 10.0 100 10.0 103 10.0 103	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102 10.0 98 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 100 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.2	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 97 10.0 100 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 96 10.0 96 10.0 97 10.0 100 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 102 1000 102	80.120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 2.0 mg/kg dry 100 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 96 10.0 96 10.0 104 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102	80.120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 2.0 mg/kg dry 100 mg/kg dry 100 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 102 10.0 101 10.0 96	80.120 80.120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 2.0 mg/kg dry 100 mg/kg dry 100 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry	1000 102 10.0 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 102 10.0 103 10.0 103 10.0 102 1000 102 10.0 101 10.0 101 10.0 101 10.0 101 10.0 101 10.0 101	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 102 10.0 102 10.0 102 10.0 101 10.0 101 10.0 101 10.0 101 10.0 101 10.0 103 1000 101 10.0 103 10.0 101 10.0 103	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 102 10.0 103 10.0 102 1000 101 10.0 101 10.0 101 10.0 103 10.0 101 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 <	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 96 10.0 96 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 103 10.0 102 1000 101 10.0 101 10.0 103 10.0 101 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 <t< td=""><td>80.120 80.120</td><td></td></t<>	80.120 80.120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3 10.3 10.3 10.3 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.00 mg/kg dry 1.00 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 98 10.0 104 10.0 96 10.0 100 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 103 10.0 103 10.0 102 1000 102 1000 101 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 1.00 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 <	80.120 80.120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3 10.3 10.3 10.3 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.00 mg/kg dry 1.00 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.60 mg/kg dry 10 mg/kg dry 10 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 98 10.0 104 10.0 96 10.0 100 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 101 10.0 103 10.0 103 1.00 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 <	80.120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Magnesium Marganese Mercury Molybdenum Nickel Phosphorus Potassium Octassium	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3 10.3 10.3 10.3 10.3 1.03 10.3 10.	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.00 mg/kg dry 1.00 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.4	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 103 10.0 102 1000 102 1000 101 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 102 1000 <	80.120 80.120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Marganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Oti	1020 10.2 9.78 10.4 9.65 10.0 9.7 10.0 1030 10.3 10.3 10.3 10.2 1020 10.1 9.56 1010 10.3 10.3 10.3 10.3 10.3 10.3 10.3	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.60 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry	Interplated 2023-01-11, Analyze 1000 102 10.0 102 10.0 98 10.0 104 10.0 96 10.0 100 10.0 96 10.0 100 10.0 100 10.0 103 10.0 103 10.0 103 10.0 102 1000 102 1000 102 10.0 103 10.0 102 10.0 103 10.0 102 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 103 10.0 102 1000 100 1000 100 1000 100 1000 <	80.120 80.120	

Γ



REPORTED TO PROJECT	D TO Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23A0204 2023-01-12 11:20			
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B3A085	50, Contii	nued							
LCS (B3A0850-BS	1), Continued			Prepared	: 2023-01-11	, Analyze	d: 2023-0	1-11		
Sodium		1050	50 mg/kg dry	1000		105	80-120			
Strontium		10.3	0.20 mg/kg dry	10.0		103	80-120			
Sulfur		10100	1000 mg/kg dry	10000		101	80-120			
Tellurium		9.84	0.10 mg/kg dry	10.0		98	80-120			
Thallium		10.2	0.10 mg/kg dry	10.0		102	80-120			
Thorium		10.1	0.50 mg/kg dry	10.0		101	80-120			
Tin		10.3	0.20 mg/kg dry	10.0		103	80-120			
Titanium		10.8	1.0 mg/kg dry	10.0		108	80-120			
Tungsten		10.2	0.20 mg/kg dry	10.0		102	80-120			
Uranium		10.1	0.050 mg/kg dry	10.0		101	80-120			
Vanadium		10.4	1.0 mg/kg dry	10.0		104	80-120			
Zinc		10.2	2.0 mg/kg dry	10.0		102	80-120			
Zirconium		10.4	2.0 mg/kg dry	10.0		104	80-120			
Reference (B3A08	50-SRM1)			Prepared	: 2023-01-11	, Analyze	d: 2023-0	1-11		
Aluminum		12100	40 mg/kg dry	11500		105	70-130			
Antimony		0.67	0.10 mg/kg dry	0.724		92	70-130			
Arsenic		86.3	0.30 mg/kg dry	82.1		105	70-130			
Barium		40.9	1.0 mg/kg dry	40.0		102	70-130			
Beryllium		0.40	0.10 mg/kg dry	0.369		109	70-130			
Calcium		5640	100 mg/kg dry	5170		109	70-130			
Chromium		67.6	1.0 mg/kg dry	63.1		107	70-130			
Cobalt		11.1	0.10 mg/kg dry	10.4		107	70-130			
Copper		21.0	0.40 mg/kg dry	19.8		106	70-130			
Iron		20700	20 mg/kg dry	20200		102	70-130			
Lead		17.3	0.20 mg/kg dry	17.3		100	70-130			
Magnesium		6410	10 mg/kg dry	6090		105	70-130			
Manganese		327	0.40 mg/kg dry	315		104	70-130			
Mercury		0.126	0.040 mg/kg dry	0.110		115	70-130			
Molybdenum		0.60	0.10 mg/kg dry	0.619		97	70-130			
Nickel		32.9	0.60 mg/kg dry	31.7		104	70-130			
Phosphorus		452	10 mg/kg dry	420		108	70-130			
Silver		1.56	0.10 mg/kg dry	1.75		89	70-130			
Strontium		22.8	0.20 mg/kg dry	20.3		112	70-130			
Titanium		785	1.0 mg/kg dry	645		122	70-130			
Uranium		1.23	0.050 mg/kg dry	1.18		104	70-130			
Vanadium		37.9	1.0 mg/kg dry	33.5		113	70-130			
Zinc		40.2	2.0 mg/kg dry	40.2		100	70-130			


CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23A1590
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-01-17 11:07 / 9.4°C 2023-01-24 18:07 44943.37658

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District Final Effluent- PE1465	of (Wastewater) i1		WORK ORDER REPORTED	23A1590 2023-01-2	24 18:07
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	233626) (23A1590-01) N	/atrix: Wastewater Sam	npled: 2023-01-17 09:40			
Anions						
Chloride		119	0.10	mg/L	2023-01-19	
Nitrate (as N)		0.699	0.010	mg/L	2023-01-19	
Nitrite (as N)		0.200	0.010	mg/L	2023-01-19	
Phosphate (as P)		0.0253	0.0050	mg/L	2023-01-19	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	0.899	0.0100	mg/L	N/A	
Nitrogen, Total		3.64	0.0500	mg/L	N/A	
General Parameter	rs					
Alkalinity, Total (as	s CaCO3)	198	1.0	mg/L	2023-01-18	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-01-18	
Alkalinity, Bicarbo	nate (as CaCO3)	198	1.0	mg/L	2023-01-18	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-01-18	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-01-18	
Ammonia, Total (a	as N)	0.743	0.050	mg/L	2023-01-18	
BOD, 5-day Carbo	onaceous	12.0	2.0	mg/L	2023-01-23	
Nitrogen, Total Kje	eldahl	2.74	0.050	mg/L	2023-01-19	
рН		7.83	0.10	pH units	2023-01-18	HT2
Phosphorus, Total	l (as P)	0.383	0.0050	mg/L	2023-01-19	
Solids, Total Susp	ended	6.2	2.0	mg/L	2023-01-19	

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 TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23A1590 2023-01-24 18:07

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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)	WORK ORDER	23A1590
PROJECT	Final Effluent- PE14651	REPORTED	2023-01-24 18:07

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3A1540

Blank (B3A1540-BLK1)			Prepared: 202	3-01-18, Analyze	ed: 2023-01-18	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3A1540-BS1)			Prepared: 202	3-01-18, Analyze	ed: 2023-01-18	
Chloride	15.8	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)	1.96	0.010 mg/L	2.00	98	85-115	
Phosphate (as P)	1.02	0.0050 mg/L	1.00	102	80-120	
LCS (B3A1540-BS2)			Prepared: 202	3-01-19, Analyze	ed: 2023-01-19	
Chloride	15.8	0.10 mg/L	16.0	99	90-110	
Nitrate (as N)	3.97	0.010 mg/L	4.00	99	90-110	
Nitrite (as N)	1.97	0.010 mg/L	2.00	98	85-115	
Phosphate (as P)	0.983	0.0050 ma/L	1.00	98	80-120	

General Parameters, Batch B3A1601

Blank (B3A1601-BLK1)			Prepared: 202	23-01-18, Analyzeo	d: 2023-01-18	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3A1601-BLK2)			Prepared: 202	23-01-18, Analyzed	d: 2023-01-18	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3A1601-BLK3)			Prepared: 202	23-01-18, Analyzed	d: 2023-01-18	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3A1601-BS1)			Prepared: 202	23-01-18, Analyzeo	d: 2023-01-18	
Ammonia, Total (as N)	0.991	0.050 mg/L	1.00	99	85-115	
LCS (B3A1601-BS2)			Prepared: 202	23-01-18, Analyzeo	d: 2023-01-18	
Ammonia, Total (as N)	1.00	0.050 mg/L	1.00	100	85-115	
LCS (B3A1601-BS3)			Prepared: 202	23-01-18, Analyzed	d: 2023-01-18	
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00	99	85-115	



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE14	ict of (Wastewa 4651	ter)			WORK REPOR	ORDER TED	23A 2023	1590 3-01-24	18:07
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3A1601, Co	ntinued								
Duplicate (B3A1601	-DUP3)	Sou	rce: 23A1590-01	Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-18		
Ammonia, Total (as N)		0.752	0.050 mg/L	•	0.743			1	15	
Matrix Spike (B3A16	01-MS3)	Sou	rce: 23A1590-01	Prenared	· 2023-01-1	8 Analyze	d. 2023-0)1-18		
Ammonia, Total (as N)		0.979	0.050 mg/L	0.250	0.743	94	75-125			
General Parameters,	Batch B3A1640									
Blank (B3A1640-BL	(1)			Prepared	· 2023-01-1	8 Analyze	d· 2023-0)1-19		
Nitrogen, Total Kieldahl	,	< 0.050	0.050 mg/L	rioparoa	. 2020 01 1	0,7 1101720	4. 2020 (<u>, , , , , , , , , , , , , , , , , , , </u>		
Blenk (B2A4640 BL	(2)			Droporod	. 2022 01 1	9 Analyza	4. 2022 (1 10		
Nitrogon Total Kieldehl	~2)	< 0.050	0.050 mg/l	Fiepaieu	. 2023-01-1	o, Analyze	u. 2023-t)1-19		
		< 0.050	0.030 mg/L							
LCS (B3A1640-BS1)				Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-19		
Nitrogen, Total Kjeldahl		1.05	0.050 mg/L	1.00		105	85-115			
LCS (B3A1640-BS2)				Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-19		
Nitrogen, Total Kjeldahl		0.999	0.050 mg/L	1.00		100	85-115			
General Parameters, Blank (B3A1662-BLI	Batch B3A1662	< 2.0	2.0 mg//	Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-23		
BOD, 5-day Carbonace	ous	< 2.0	2.0 Mg/L							
LCS (B3A1662-BS1)				Prepared	: 2023-01-1	8, Analyze	d: 2023-0	01-23		
BOD, 5-day Carbonace	ous	192	40.1 mg/L	198		97	85-115			
General Parameters,	Batch B3A1676									
Blank (B3A1676-BL	(1)			Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-18		
Alkalinity, Total (as CaC	:03)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphtha	lein (as CaCO3) (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (a	s CaCO3)	< 1.0	1.0 mg/L							
Blank (B3A1676-BL	(2)			Prepared	: 2023-01-1	9, Analyze	d: 2023-0)1-19		
Alkalinity, Total (as CaC	:03)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphtha	lein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (a	s CaCO3)	< 1.0	1.0 mg/L							
				Duenened		0 Analyza	4. 2022 (1 40		
LUS (B3A16/6-BS1)	.03)	105	10 mg/l	Prepared	2023-01-1	8, Analyze	a: 2023-0)1-18		
	.03)	105	1.0 mg/L	100	0000 04 4	105	00-120			
LCS (B3A1676-BS2)		100		Prepared	: 2023-01-1	9, Analyze	d: 2023-0	01-19		
Aikalinity, Iotal (as CaC	03)	106	1.0 mg/L	100		106	80-120			
Reference (B3A1676	S-SRM1)			Prepared	: 2023-01-1	8, Analyze	d: 2023-0)1-18		
рН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B3A1676	S-SRM2)			Prepared	: 2023-01-1	9, Analyze	d: 2023-0	01-19		
рН		7.01	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT	Lake Country, Final Effluent-	District of (Wastewa PE14651	ater)			WORK REPOR	ORDER	23A1 2023	1590 8-01-24	18:07
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B3A169	1								
Blank (B3A1691-B	LK2)			Prepared	I: 2023-01-1	18, Analyze	d: 2023-0	1-19		
Phosphorus, Total (a	s P)	< 0.0050	0.0050 mg/L							
Blank (B3A1691-B	LK3)			Prepared	I: 2023-01-1	18, Analyze	d: 2023-0	1-19		
Phosphorus, Total (a	s P)	< 0.0050	0.0050 mg/L							
LCS (B3A1691-BS	2)			Prepared	I: 2023-01-1	18, Analyze	d: 2023-0	1-19		
Phosphorus, Total (a	s P)	0.0992	0.0050 mg/L	0.100		99	85-115			
LCS (B3A1691-BS	3)			Prepared	I: 2023-01-1	18, Analyze	d: 2023-0	1-19		
Phosphorus, Total (a	s P)	0.100	0.0050 mg/L	0.100		100	85-115			
General Parameter	s, Batch B3A1764	1								
Blank (B3A1764-B	LK1)			Prepared	l: 2023-01-1	19, Analyze	d: 2023-0	1-19		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B3A1764-BS	1)			Prepared	I: 2023-01-2	20, Analyze	d: 2023-0	1-20		
Solids, Total Suspend	ded	85.0	10.0 mg/L	100		85	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	23A0201
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-01-04 10:58 / 10.3°C 2023-01-10 15:59 44930.38203

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District o Final Effluent- PE14657	f (Wastewater)		WORK ORDER REPORTED	23A0201 2023-01-1	0 15:59
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	33626) (23A0201-01) M	atrix: Wastewater Sample	ed: 2023-01-04 10:10			
Anions						
Chloride		134	0.10	mg/L	2023-01-05	
Nitrate (as N)		0.553	0.010	mg/L	2023-01-05	
Nitrite (as N)		0.137	0.010	mg/L	2023-01-05	
Phosphate (as P)		0.0147	0.0050	mg/L	2023-01-05	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	0.690	0.0100	mg/L	N/A	
Nitrogen, Total		4.30	0.100	mg/L	N/A	
General Parameter	S					
Alkalinity, Total (as	s CaCO3)	184	1.0	mg/L	2023-01-05	
Alkalinity, Phenolp	hthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Alkalinity, Bicarbor	nate (as CaCO3)	184	1.0	mg/L	2023-01-05	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Alkalinity, Hydroxid	de (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05	
Ammonia, Total (a	is N)	0.725	0.050	mg/L	2023-01-05	
BOD, 5-day Carbo	onaceous	21.7	2.0	mg/L	2023-01-10	
Nitrogen, Total Kje	eldahl	3.61	0.050	mg/L	2023-01-08	
рН		7.51	0.10	pH units	2023-01-05	HT2
Phosphorus, Total	(as P)	0.894	0.0050	mg/L	2023-01-05	
Solids, Total Susp	ended	15.1	2.0	mg/L	2023-01-07	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	> 242000	1	MPN/100 mL	2023-01-04	
Coliforms, Fecal (Q-Tray)	> 242000	1	MPN/100 mL	2023-01-04	

Anions				
Chloride	127	0.10	mg/L	2023-01-05
Nitrate (as N)	0.577	0.010	mg/L	2023-01-05
Nitrite (as N)	0.151	0.010	mg/L	2023-01-05
Phosphate (as P)	0.0153	0.0050	mg/L	2023-01-05
Calculated Parameters				
Nitrate+Nitrite (as N)	0.728	0.0100	mg/L	N/A
Nitrogen, Total	4.41	0.100	mg/L	N/A
Nitrogen, Organic	3.01	0.100	mg/L	N/A
General Parameters				
Alkalinity, Total (as CaCO3)	180	1.0	mg/L	2023-01-05
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05
Alkalinity, Bicarbonate (as CaCO3)	180	1.0	mg/L	2023-01-05
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-01-05



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	rict of (Wastewater) 4651			WORK ORDER REPORTED	23A0201 2023-01-1	0 15:59
Analyte		Result		RL	Units	Analyzed	Qualifier
Duplicate (23A02	201-02) Matrix: Wate	ər Sampled: 2023-0	1-04 10:10, Con	tinued			
General Parameter	rs, Continued						
Alkalinity, Hydroxi	ide (as CaCO3)	< 1.0		1.0	mg/L	2023-01-05	
Ammonia, Total (a	as N)	0.675		0.050	mg/L	2023-01-05	
BOD, 5-day Carbo	onaceous	16.1		2.0	mg/L	2023-01-10	
Nitrogen, Total Kje	eldahl	3.68		0.050	mg/L	2023-01-08	
рН		7.50		0.10	pH units	2023-01-05	HT2
Phosphorus, Tota	l (as P)	0.878		0.0050	mg/L	2023-01-05	
Solids, Total Susp	ended	17.0		2.0	mg/L	2023-01-07	
Microbiological Pa	arameters						
Coliforms, Total (C	Q-Tray)	> 242000		1	MPN/100 mL	2023-01-04	
Coliforms, Fecal (Q-Tray)	> 242000		1	MPN/100 mL	2023-01-04	
Sample Qualifie	ers:						
HT2 The 1 recomm	5 minute recommer nended.	nded holding time	(from sampling	to analysis) ha	as been excee	ded - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23A0201 2023-01-10 15:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	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

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. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

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)	WORK ORDER	23A0201
PROJECT	Final Effluent- PE14651	REPORTED	2023-01-10 15:59

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3A0211

Phosphate (as P)

Blank (B3A0211-BLK1)			Prepared: 202	3-01-05, Analyze	ed: 2023-01-05	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3A0211-BS1)			Prepared: 202	3-01-05, Analyze	ed: 2023-01-05	
Chloride	16.1	0.10 mg/L	16.0	101	90-110	
Nitrate (as N)	3.89	0.010 mg/L	4.00	97	90-110	
Nitrite (as N)	1.98	0.010 mg/L	2.00	99	85-115	

1 00

91

80-120

0.0050 mg/L

0 907

General Parameters, Batch B3A0230

Blank (B3A0230-BLK1)			Prepared: 20	23-01-04, Analyze	d: 2023-01-0)5
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
Blank (B3A0230-BLK2)			Prepared: 20	23-01-04, Analyze	ed: 2023-01-0	05
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
LCS (B3A0230-BS1)			Prepared: 20	23-01-04, Analyze	ed: 2023-01-0	05
Phosphorus, Total (as P)	0.108	0.0050 mg/L	0.100	108	85-115	
LCS (B3A0230-BS2)			Prepared: 20	23-01-04, Analyze	ed: 2023-01-0	05
Phosphorus, Total (as P)	0.107	0.0050 mg/L	0.100	107	85-115	

General Parameters, Batch B3A0251

Blank (B3A0251-BLK1)			Prepared: 2023-01-05, Analyzed: 2023-01-05	
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		
Blank (B3A0251-BLK2)			Prepared: 2023-01-05, Analyzed: 2023-01-05	
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L		



REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	rict of (Wastewa 4651	ter)			WORK (REPORT	ORDER TED	23A0 2023)201 }-01-10	15:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3A0251, Co	ontinued								
Blank (B3A0251-BL	.K2), Continued			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-05		
Alkalinity, Phenolphtha	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (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 (B3A0251-BS1)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-05		
Alkalinity, Total (as Ca	CO3)	98.8	1.0 mg/L	100		99	80-120			
LCS (B3A0251-BS2)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-05		
Alkalinity, Total (as Ca	CO3)	98.8	1.0 mg/L	100		99	80-120			
Reference (B3A025	1-SRM1)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-05		
рН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B3A025	1-SRM2)			Prepared	: 2023-01-0	5. Analvzed	: 2023-0	1-05		
рН	,	7.00	0.10 pH units	7.01		100	98-102			
General Parameters Blank (B3A0268-BL	, Batch B3A0268 .K1)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-05		
Ammonia, Total (as N)		< 0.050	0.050 mg/L			· · ·				
Blank (B3A0268-BL	K2)			Prepared	: 2023-01-0	5. Analvzed	: 2023-0	1-05		
Ammonia, Total (as N)		< 0.050	0.050 mg/L			-, · · · · · , <u>-</u>				
Blank (B3A0268-Bl	K3)			Prepared	· 2023-01-0	5 Analyzed	· 2023-0	1-05		
Ammonia. Total (as N)		< 0.050	0.050 ma/L	rioparoa	. 2020 01 0	0, 7 analy200	. 2020 0			
LCS (B3A0269 BS1	<u>،</u>			Prenared	· 2023_01_0	5 Analyzed	. 2023-0	1_05		
Ammonia Total (as N))	0.920	0.050 mg/l	1 100	. 2023-01-0	0, Analyzeu 02	90-115	1-05		
		0.320	0.000 mg/L	5	0000 04 0	32	30-113	4 00		
LCS (B3A0268-BS2)	4.00	0.050 "	Prepared	: 2023-01-0	6, Analyzed	: 2023-0	1-06		
Ammonia, Iotal (as N)		1.02	0.050 mg/L	1.00		102	90-115			
LCS (B3A0268-BS3)			Prepared	: 2023-01-0	6, Analyzed	: 2023-0	1-06		
Ammonia, Total (as N)		1.01	0.050 mg/L	1.00		101	90-115			
General Parameters	, Batch B3A0339									
Blank (B3A0339-BL	.K1)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-10		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3A0339-BS1)			Prepared	: 2023-01-0	5, Analyzed	: 2023-0	1-10		
BOD, 5-day Carbonac	eous	203	38.1 mg/L	198		102	85-115			
General Parameters	, Batch B3A0444									
Blank (B3A0444-BL	.K1)			Prepared	: 2023-01-0	6, Analyzed	: 2023-0	1-08		
Nitrogen, Total Kjeldah	l	< 0.050	0.050 mg/L							
LCS (B3A0444-BS1)			Prepared	: 2023-01-0	6, Analyzed	: 2023-0	1-08		
Nitrogen, Total Kjeldah	1	0.970	0.050 mg/L	1.00		97	85-115			
General Parameters	, Batch B3A0453									



REPORTED TO PROJECT	Lake Cou Final Effl	untry, District of (Wastewater) uent- PE14651				WORK REPOR	ORDER RTED	23A0 2023)201 3-01-10	15:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B3	8A0453, Continued								
Blank (B3A0453-B	LK1)			Prepared	: 2023-01-0)7, Analyze	ed: 2023-0)1-07		
Solids, Total Suspend	led	< 2.0	2.0 mg/L							
LCS (B3A0453-BS	1)			Prepared	: 2023-01-0)7, Analyze	ed: 2023-0	1-07		
Solids, Total Suspend	led	87.0	10.0 mg/L	100		87	85-115			
Microbiological Par Blank (B3A0204-B	rameters, E LK1)	Satch B3A0204	1 MPN/100 m	Prepared	: 2023-01-0)4, Analyze	ed: 2023-0)1-04		
Blank (B3A0204 B	u k 2)			Prenared	· 2023-01-0	Analyze	d. 2023-0	1_04		
Coliforms, Fecal (Q-T	ray)	< 1	1 MPN/100 m	L	. 2023-01-0	A, Analyze	u. 2020-0	/1-04		
Blank (B3A0204-B	LK3)			Prepared	: 2023-01-0)4, Analyze	ed: 2023-0	1-04		
Coliforms, Total (Q-Tr	ray)	< 1	1 MPN/100 m	L						
Blank (B3A0204-B	LK4)			Prepared	: 2023-01-0)4, Analyze	ed: 2023-0)1-04		
Coliforms, Fecal (Q-1	ray)	< 1	1 MPN/100 m	L						
Blank (B3A0204-B	LK5)			Prepared	: 2023-01-0)4, Analyze	ed: 2023-0)1-04		
Coliforms, Total (Q-Tr	ray)	< 1	1 MPN/100 m	L						



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23B0984
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-02-08 15:52 / 7.0°C 2023-02-15 10:37 44965.33173

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO L PROJECT R	ake Country, District o aw Influent- PE1465	of (Wastewater) 1		WORK ORDER REPORTED	23B0984 2023-02-1	5 10:37
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2336	27) (23B0984-01) M	atrix: Wastewater Sample	ed: 2023-02-08 09:10			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-02-10	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-02-10	
Phosphate (as P)		6.99	0.0050	mg/L	2023-02-10	
Calculated Parameters	5					
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		66.9	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as Ca	aCO3)	288	1.0	mg/L	2023-02-12	
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0	mg/L	2023-02-12	
Alkalinity, Bicarbonate	e (as CaCO3)	288	1.0	mg/L	2023-02-12	
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0	mg/L	2023-02-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-02-12	
Ammonia, Total (as N)	43.1	0.050	mg/L	2023-02-10	
BOD, 5-day		434	2.0	mg/L	2023-02-14	
BOD, 5-day Carbonad	ceous	226	2.0	mg/L	2023-02-14	
Nitrogen, Total Kjelda	hl	66.9	0.050	mg/L	2023-02-12	
рН		7.83	0.10	pH units	2023-02-12	HT2
Phosphorus, Total (as	; P)	9.49	0.0050	mg/L	2023-02-10	
Solids, Total Suspend	ed	262	2.0	mg/L	2023-02-15	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED

23B0984 2023-02-15 10:37

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23B0984
PROJECT	Raw Influent- PE14651	REPORTED	2023-02-15 10:37

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	Qualifier
Anions, Batch B3B0885									
Blank (B3B0885-BLK1)			Prepared	: 2023-02-0	9, Analyze	ed: 2023-0	02-09		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Phosphate (as P)	< 0.0050	0.0050 mg/L							
Blank (B3B0885-BLK2)			Prepared	: 2023-02-1	0, Analyze	ed: 2023-0	02-10		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Blank (B3B0885-BLK3)			Prepared	: 2023-02-1	0, Analyze	ed: 2023-0	02-10		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B3B0885-BS1)			Prepared	: 2023-02-0	9, Analyze	ed: 2023-0	02-09		
Nitrate (as N)	3.95	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.07	0.010 mg/L	2.00		103	85-115			
Phosphate (as P)	1.05	0.0050 mg/L	1.00		105	80-120			
LCS (B3B0885-BS2)			Prepared	: 2023-02-1	0, Analyze	ed: 2023-0	02-10		
Nitrate (as N)	3.95	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	2.09	0.010 mg/L	2.00		104	85-115			
LCS (B3B0885-BS3)			Prepared	: 2023-02-1	0, Analyze	ed: 2023-0	02-10		
Nitrate (as N)	3.89	0.010 mg/L	4.00		97	90-110			
Nitrite (as N)	2.04	0.010 mg/L	2.00		102	85-115			
Phosphate (as P)	1.00	0.0050 mg/L	1.00		100	80-120			

Blank (B3B0956-BLK1)	Prepared: 2	2023-02-09, Analyzed	: 2023-02-	-14		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L				
LCS (B3B0956-BS1)			Prepared: 2	2023-02-09, Analyzed	: 2023-02-	-14
BOD, 5-day Carbonaceous	153	34.9 mg/L	198	77	85-115	SPK1

General Parameters, Batch B3B0958



REPORTED TO Lake PROJECT Raw I	Country, District of (Waste Influent- PE14651	water)		-	WORK C	RDER ED	23B0 2023)984 3-02-15	10:37
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batcl	h B3B0958, Continued								
Blank (B3B0958-BLK1)			Prepared	: 2023-02-09	. Analvzed	: 2023-02	2-14		
BOD, 5-day	< 2.0	2.0 mg/L			, ,				
LCS (B3B0958-BS1)			Prepared	: 2023-02-09	. Analvzed	: 2023-02	2-14		
BOD, 5-day	191	43.3 mg/L	198		96	85-115			
General Parameters, Batcl	h B3B0999								
Blank (B3B0999-BLK1)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3B0999-BLK2)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3B0999-BLK3)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3B0999-BS1)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	0.110	0.0050 mg/L	0.100		110	85-115			
LCS (B3B0999-BS2)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	0.110	0.0050 mg/L	0.100		110	85-115			
LCS (B3B0999-BS3)			Prepared	: 2023-02-09	, Analyzed	: 2023-02	2-10		
Phosphorus, Total (as P)	0.110	0.0050 mg/L	0.100		110	85-115			
General Parameters, Batcl	h B3B1070								
Blank (B3B1070-BLK1)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3B1070-BLK2)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3B1070-BLK3)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B3B1070-BS1)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	1.00	0.050 mg/L	1.00		100	85-115			
LCS (B3B1070-BS2)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	0.997	0.050 mg/L	1.00		100	85-115			
LCS (B3B1070-BS3)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00		99	85-115			
General Parameters, Batcl	h B3B1084								
Blank (B3B1084-BLK1)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3B1084-BLK2)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3B1084-BS1)			Prepared	: 2023-02-10	, Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldahl	1.07	0.050 mg/L	1.00		107	85-115			



REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE1	rict of (Wastewa 4651	ter)			WORK REPOR	ORDER RTED	23B0 2023)984 -02-15	10:37
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3B1084, Co	ontinued								
LCS (B3B1084-BS2	:)			Prepared	l: 2023-02-1	0, Analyze	d: 2023-0	2-12		
Nitrogen, Total Kjeldah	nl	1.06	0.050 mg/L	1.00		106	85-115			
General Parameters	, Batch B3B1215									
Blank (B3B1215-BL	-K1)			Prepared	1: 2023-02-1	2, Analyze	d: 2023-0	2-12		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (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 (B3B1215-BL	.K2)			Prepared	l: 2023-02-1	3, Analyze	ed: 2023-0	2-13		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (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 (B3B1215-BS1)			Prepared	l: 2023-02-1	2, Analyze	d: 2023-0	2-12		
Alkalinity, Total (as Ca	CO3)	93.6	1.0 mg/L	100		94	80-120			
LCS (B3B1215-BS2)			Prepareo	l: 2023-02-1	3, Analyze	ed: 2023-0	2-13		
Alkalinity, Total (as Ca	CO3)	88.2	1.0 mg/L	100		88	80-120			
Reference (B3B121	5-SRM1)			Prepared	l: 2023-02-1	2, Analyze	ed: 2023-0	2-12		
pН		7.03	0.10 pH units	7.01		100	98-102			
Reference (B3B121	5-SRM2)			Prepared	l: 2023-02-1	3, Analyze	ed: 2023-0	2-13		
pH	·	7.01	0.10 pH units	7.01		100	98-102			
General Parameters	, Batch B3B1371									
Blank (B3B1371-BL	.K1)			Prepared	1: 2023-02-1	4, Analyze	d: 2023-0	2-15		
Solids, Total Suspende	ed	< 2.0	2.0 mg/L							
LCS (B3B1371-BS1)			Prepareo	1: 2023-02-1	4, Analyze	d: 2023-0	2-15		
Solids Total Suspende	ed	91.0	10.0 mg/l	100		91	85-115		-	

Duplicate (B3B1371-DUP1)	Source: 2	23B0984-01	Prepared: 2023-02-14, Analyzed: 2023-	02-15	
Solids, Total Suspended	266	2.0 mg/L	262	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

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23B0992
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-02-08 15:52 / 7.0°C 2023-02-16 12:06 44965.33173

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	EPORTED TOLake Country, District of (Wastewater)ROJECTAmry- MR17842			WORK ORDER REPORTED	23B0992 2023-02-1	12 2-16 12:06	
Analyte		Result	RL	Units	Analyzed	Qualifier	
Amry WW (E2629	82) (23B0992-01) Matrix	: Wastewater Sampled: 20	23-02-08 09:10				
General Parameters	5						
BOD, 5-day Carbo	naceous	< 4.2	2.0	mg/L	2023-02-14		
Solids, Total Suspe	ended	9.2	2.0	mg/L	2023-02-15		



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry- MR17842

 WORK ORDER
 23B09

 REPORTED
 2023-0

23B0992 2023-02-16 12:06

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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)	WORK ORDER	23B0992
PROJECT	Amry- MR17842	REPORTED	2023-02-16 12:06

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
General Parameters,Batch B3B0956									
Blank (B3B0956-BLK1)			Prepared	1: 2023-02-0	9, Analyze	d: 2023-0)2-14		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3B0956-BS1)			Prepared	: 2023-02-0	9, Analyze	d: 2023-0)2-14		
BOD, 5-day Carbonaceous	153	34.9 mg/L	198		77	85-115			SPK1
Duplicate (B3B0956-DUP1)	Sour	ce: 23B0992-01	Prepared	: 2023-02-0	9, Analyze	d: 2023-0)2-14		
BOD, 5-day Carbonaceous	< 4.2	2.0 mg/L		< 4.2				20	
General Parameters,Batch B3B1495									
Blank (B3B1495-BLK1)			Prepared	: 2023-02-1	5, Analyze	d: 2023-0)2-15		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3B1495-BS1)			Prepared	1: 2023-02-1	5, Analyze	d: 2023-0)2-15		
Solids, Total Suspended	90.0	10.0 mg/L	100		90	85-115			

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

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23B0990
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-02-08 15:52 / 7.0°C 2023-02-16 13:55 44965.33173

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER23REPORTED20

23B0990 2023-02-16 13:55

Analyte	Result	RL	Units	Analyzed	Qualifier
Biosolids (E233628) (23B0990-	01) Matrix: Sludge Sampled: 2023-02-07 09:50				
General Parameters					
Moisture	80.0	1.0	% wet	2023-02-12	
Nitrogen. Total Kieldahl	5.14	0.0004	% drv	2023-02-14	
pH (1:2 H2O Solution)	5.90	0.10	pH units	2023-02-15	MASS2
Solids, Total	19.2	0.1	% wet	2023-02-16	
Solids, Volatile	84.9	0.1	% dry	2023-02-16	
Strong Acid Leachable Metals					
Aluminum	2080	40	ma/ka drv	2023-02-13	
Antimony	1.30	0.10	ma/ka drv	2023-02-13	
Arsenic	1.74	0.30	ma/ka drv	2023-02-13	
Barium	74.3	1.0	ma/ka drv	2023-02-13	
Bervllium	< 0.10	0.10	ma/ka drv	2023-02-13	
Bismuth	35.5	0.10	ma/ka drv	2023-02-13	
Boron	15.0	2.0	ma/ka drv	2023-02-13	
Cadmium	0.807	0.040	mg/kg dry	2023-02-13	
Calcium	12000	100	ma/ka drv	2023-02-13	
Chromium	10.3	1.0	mg/kg dry	2023-02-13	
Cobalt	1.50	0.10	mg/kg dry	2023-02-13	
Copper	289	0.40	mg/kg dry	2023-02-13	
Iron	3760	20	mg/kg dry	2023-02-13	
Lead	9.40	0.20	mg/kg dry	2023-02-13	
Lithium	1.51	0.10	mg/kg dry	2023-02-13	
Magnesium	4400	10	mg/kg dry	2023-02-13	
Manganese	101	0.40	mg/kg dry	2023-02-13	
Mercury	0.359	0.040	mg/kg dry	2023-02-13	
Molybdenum	7.31	0.10	mg/kg dry	2023-02-13	
Nickel	9.14	0.60	mg/kg dry	2023-02-13	
Phosphorus	15300	10	mg/kg dry	2023-02-13	
Potassium	5550	40	mg/kg dry	2023-02-13	
Selenium	3.46	0.20	mg/kg dry	2023-02-13	
Silver	1.50	0.10	mg/kg dry	2023-02-13	
Sodium	1000	50	mg/kg dry	2023-02-13	
Strontium	59.7	0.20	mg/kg dry	2023-02-13	
Sulfur	5600	1000	mg/kg dry	2023-02-13	
Tellurium	< 0.10	0.10	mg/kg dry	2023-02-13	
Thallium	< 0.10	0.10	mg/kg dry	2023-02-13	
Thorium	< 0.50	0.50	mg/kg dry	2023-02-13	
Tin	14.9	0.20	mg/kg dry	2023-02-13	
Titanium	58.6	1.0	mg/kg dry	2023-02-13	
Tungsten	0.85	0.20	mg/kg dry	2023-02-13	
Uranium	9.90	0.050	mg/kg dry	2023-02-13	
Vanadium	6.9	1.0	mg/kg dry	2023-02-13	
Zinc	511	2.0	ma/ka drv	2023-02-13	

Γ



				_					
REPORTED TO Lake Country, District of (Wastewater) PROJECT BioSolids- PE14651			WORK ORDER REPORTED	23B0990 2023-02-1	6 13:55				
Analyte	Result	RL	Units	Analyzed	Qualifier				
Biosolids (E233628) (23B0990-01) Matrix: Sludge Sampled: 2023-02-07 09:50, Continued									
Strong Acid Leach	able Metals, Continued								
Zirconium	4.0	2.0	mg/kg dry	2023-02-13					
Sample Qualifie	ers:								
MASS2 The rati	o of water to sample for pH analysis is greater than 2:1 due to	o limited sample. Resu	llts may be biased lo	DW.					



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23E REPORTED 202

23B0990 2023-02-16 13:55

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23B0990
PROJECT	BioSolids- PE14651	REPORTED	2023-02-16 13:55

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
General Parameters, Batch B3B1277									
Blank (B3B1277-BLK1)			Prepared	l: 2023-02-1	3, Analyze	ed: 2023-0)2-14		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet							
Duplicate (B3B1277-DUP1)	Sou	rce: 23B0990-01	Prepared	l: 2023-02-1	3, Analyze	ed: 2023-0)2-14		
Nitrogen, Total Kjeldahl	5.09	0.0004 % dry		5.14			1	25	
Reference (B3B1277-SRM1)			Prepared	I: 2023-02-1	3, Analyze	ed: 2023-0)2-14		
Nitrogen, Total Kjeldahl	0.151	0.010 % wet	0.197		77	58.8-150			

General Parameters, Batch B3B1291

Duplicate (B3B1291-DUP1)		23B0990-01	Prepared: 2023-02-13, Analyzed: 202	23-02-15	
pH (1:2 H2O Solution)	5.89	0.10 pH units	5.90	< 1	10

General Parameters, Batch B3B1480

Duplicate (B3B1480-DUP1)	Source	e: 23B0990-01	Prepared: 2023-02	-16, Analyze	d: 2023-02-16	
Solids, Total	19.1	0.1 % wet	19.2		< 1	7.5
Solids, Volatile	84.8	0.1 % dry	84.9		< 1	15
Reference (B3B1480-SRM1)			Prepared: 2023-02	-16, Analyze	d: 2023-02-16	
Solids, Total	87.4	0.1 % wet	87.0	100	80-120	
Solids, Volatile	2.6	0.1 % dry	2.58	99	80-200	

Strong Acid Leachable Metals, Batch B3B1304

Blank (B3B1304-BLK1)

Due ve e ve e de	0000 00 40	بامحسر بالحجار	2022 02 42
Prepared.	2023-02-13.	Analyzeu.	2023-02-13

Aluminum	< 40	40 mg/kg dry
Antimony	< 0.10	0.10 mg/kg dry
Arsenic	< 0.30	0.30 mg/kg dry
Barium	< 1.0	1.0 mg/kg dry
Beryllium	< 0.10	0.10 mg/kg dry
Bismuth	< 0.10	0.10 mg/kg dry
Boron	< 2.0	2.0 mg/kg dry
Cadmium	< 0.040	0.040 mg/kg dry
Calcium	< 100	100 mg/kg dry



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23B0 2023)990 -02-16	13:55
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3B1304, Continued

Blank (B3B1304-BLK1), Continued			Prepared: 2023	3-02-13, Analyze	d: 2023-02-13	
Chromium	< 1.0	1.0 mg/kg dry				
Cobalt	< 0.10	0.10 mg/kg dry				
Copper	< 0.40	0.40 mg/kg dry				
Iron	< 20	20 mg/kg dry				
Lead	< 0.20	0.20 mg/kg dry				
Lithium	< 0.10	0.10 mg/kg dry				
Magnesium	< 10	10 mg/kg dry				
Manganese	< 0.40	0.40 mg/kg dry				
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 mg/kg dry				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	< 0.20	0.20 mg/kg dry				
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
LCS (B3B1304-BS1)			Prepared: 2023	3-02-13, Analyze	d: 2023-02-13	
Aluminum	982	10 ma/ka dry	1000	98	80-120	
Antimony	10.4		10.0	104	80-120	
Arsenic	9.52	0.08 mg/kg dry	10.0		80-120	
Barium	9.7		10.0	97	80-120	
Bervllium	10.3	0.02 mg/kg dry	10.0	103	80-120	
Bismuth	10.3	0.10 mg/kg dry	10.0	103	80-120	
Boron	10.2	0.5 mg/kg dry	10.0	102	80-120	
Cadmium	9.87	0.010 mg/kg dry	10.0	99	80-120	
Calcium	970	100 mg/kg dry	1000	97	80-120	
Chromium	9.7	0.2 mg/kg dry	10.0	97	80-120	
Cobalt	9.81	0.02 mg/kg dry	10.0	98	80-120	
Copper	9.62	0.10 mg/kg dry	10.0	96	80-120	
Iron	979	5 mg/kg dry	1000	98	80-120	
Lead	9.78	0.05 mg/kg dry	10.0	98	80-120	
Lithium	10.1	0.02 ma/ka drv	10.0	101	80-120	
Magnesium	979	10 mg/kg dry	1000	98	80-120	
Manganese	9.91	0.10 mg/kg dry	10.0	99	80-120	
Mercury	0.989	0.010 mg/kg dry	1.00	99	80-120	
Molvbdenum	10.4	0.02 ma/ka drv	10.0	104	80-120	
Nickel	9.67	0.15 mg/kg drv	10.0	97	80-120	
Phosphorus	987	10 mg/kg drv	1000	99	80-120	
Potassium	990	40 mg/kg drv	1000	99	80-120	
Selenium	10.1	0.05 mg/kg drv	10.0	101	80-120	
Silver						
	10.0	0.02 mg/kg dry	10.0	100	80-120	
Sodium	10.0 989	0.02 mg/kg dry 50 mg/kg dry	10.0 1000	100 99	80-120 80-120	

Γ



REPORTED TO PROJECT	Lake Country, Dist BioSolids- PE1465	rict of (Wastewa 51	ter)			WORK REPOR	ORDER TED	23B0 2023)990 -02-16	13:55
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B	3B1304, Continue	d							
LCS (B3B1304-BS	51), Continued			Prepared	l: 2023-02-1	3, Analyze	d: 2023-0	2-13		
Sulfur		10300	1000 mg/kg dry	10000		103	80-120			
Tellurium		10.3	0.10 mg/kg dry	10.0		103	80-120			
Thallium		9.92	0.02 mg/kg dry	10.0		99	80-120			
Thorium		9.61	0.50 mg/kg dry	10.0		96	80-120			
Tin		10.6	0.05 mg/kg dry	10.0		106	80-120			
Titanium		10.6	1.0 mg/kg dry	10.0		106	80-120			
Tungsten		10.5	0.05 mg/kg dry	10.0		105	80-120			
Uranium		10.1	0.012 mg/kg dry	10.0		101	80-120			
Vanadium		9.8	0.2 mg/kg dry	10.0		98	80-120			
Zinc		9.8	0.5 mg/kg dry	10.0		98	80-120			
Zirconium		10.8	2.0 mg/kg dry	10.0		108	80-120			
Reference (B3B13	04-SRM1)			Prepared	l: 2023-02-1	3, Analyze	d: 2023-0	2-13		
Aluminum		11400	40 mg/kg dry	11300		101	70-130			
Antimony		0.62	0.10 mg/kg dry	0.710		88	70-130			
Arsenic		85.5	0.30 mg/kg dry	80.5		106	70-130			
Barium		39.5	1.0 mg/kg dry	39.2		101	70-130			
Beryllium		0.39	0.10 mg/kg dry	0.362		109	70-130			
Calcium		5300	100 mg/kg dry	5070		105	70-130			
Chromium		66.7	1.0 mg/kg dry	61.9		108	70-130			
Cobalt		10.8	0.10 mg/kg dry	10.2		106	70-130			
Copper		21.1	0.40 mg/kg dry	19.4		109	70-130			
Iron		20300	20 mg/kg dry	19800		102	70-130			
Lead		17.2	0.20 mg/kg dry	17.0		101	70-130			
Magnesium		6010	10 mg/kg dry	5970		101	70-130			
Manganese		320	0.40 mg/kg dry	309		104	70-130			
Mercury		0.121	0.040 mg/kg dry	0.108		112	70-130			
Molybdenum		0.61	0.10 mg/kg dry	0.607		101	70-130			
Nickel		32.3	0.60 mg/kg dry	31.1		104	70-130			
Phosphorus		439	10 mg/kg dry	412		107	70-130			
Silver		1.50	0.10 mg/kg dry	1.72		87	70-130			
Strontium		20.6	0.20 mg/kg dry	19.9		103	70-130			
Titanium		690	1.0 mg/kg dry	632		109	70-130			
Uranium		1.18	0.050 mg/kg dry	1.16		102	70-130			
Vanadium		35.8	1.0 mg/kg dry	32.8		109	70-130			
Zinc		41.7	2.0 mg/kg dry	39.4		106	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23B0986
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-02-08 15:52 / 7.0°C 2023-02-16 11:58 44965.3173

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Distric PROJECT Final Effluent- PE146		f (Wastewater)		WORK ORDER REPORTED	23B0986 2023-02-1	6 11:58
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	233626) (23B0986-01) Ma	atrix: Wastewater Sample	ed: 2023-02-08 08:45			
Anions						
Chloride		132	0.10	mg/L	2023-02-10	
Nitrate (as N)		0.993	0.010	mg/L	2023-02-10	
Nitrite (as N)		0.125	0.010	mg/L	2023-02-10	
Phosphate (as P)		0.0680	0.0050	mg/L	2023-02-10	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	1.12	0.0100	mg/L	N/A	
Nitrogen, Total		4.55	0.0500	mg/L	N/A	
General Parameter	'S					
Alkalinity, Total (as	s CaCO3)	2.0	1.0	mg/L	2023-02-13	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-02-13	
Alkalinity, Bicarbo	nate (as CaCO3)	2.0	1.0	mg/L	2023-02-13	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-02-13	
Alkalinity, Hydroxid	de (as CaCO3)	< 1.0	1.0	mg/L	2023-02-13	
Ammonia, Total (a	is N)	1.57	0.050	mg/L	2023-02-10	
BOD, 5-day Carbo	onaceous	8.7	2.0	mg/L	2023-02-14	
Nitrogen, Total Kje	eldahl	3.43	0.050	mg/L	2023-02-12	
pН		6.05	0.10	pH units	2023-02-13	HT2
Phosphorus, Total	(as P)	0.435	0.0050	mg/L	2023-02-10	
Solids, Total Susp	ended	4.4	2.0	mg/L	2023-02-15	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	> 242000	1	MPN/100 mL	2023-02-09	
Coliforms, Fecal (Q-Tray)	64900	1	MPN/100 mL	2023-02-09	

Field Blank (23B0986-02) | Matrix: Water | Sampled: 2023-02-08 09:00

Anions				
Chloride	< 0.10	0.10 mg	/L 2023-02-10	
Nitrate (as N)	< 0.010	0.010 mg	/L 2023-02-10	
Nitrite (as N)	< 0.010	0.010 mg	/L 2023-02-10	
Phosphate (as P)	< 0.0050	0.0050 mg	/L 2023-02-10	
Calculated Parameters				
Nitrate+Nitrite (as N)	< 0.0100	0.0100 mg	/L N/A	
Nitrogen, Total	< 0.0500	0.0500 mg	/L N/A	
General Parameters				
Alkalinity, Total (as CaCO3)	2.5	1.0 mg	/L 2023-02-13	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg	/L 2023-02-13	
Alkalinity, Bicarbonate (as CaCO3)	2.5	1.0 mg	/L 2023-02-13	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg	/L 2023-02-13	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg	/L 2023-02-13	



REPORTED TOLake CountryPROJECTFinal Effluent		ntry, District of (Wastewater ient- PE14651	istrict of (Wastewater) E14651			WORK ORDER REPORTED	23B0986 2023-02-1	6 11:58
Analyte		Resul	:		RL	Units	Analyzed	Qualifier
Field Blank (23B	0986-02) M	latrix: Water Sampled: 20	23-02-08	09:00, Cor	ntinued			
General Parameter	rs, Continuec	1						
Ammonia, Total (۽	as N)	< 0.05	C		0.050	mg/L	2023-02-10	
BOD, 5-day Carb	onaceous	< 4.	2		2.0	mg/L	2023-02-14	
Nitrogen, Total Kje	eldahl	< 0.05	C		0.050	mg/L	2023-02-12	
рН		6.2	6		0.10	pH units	2023-02-13	HT2
Phosphorus, Tota	ıl (as P)	< 0.005	C		0.0050	mg/L	2023-02-10	
Solids, Total Susp	pended	< 2.0	C		2.0	mg/L	2023-02-15	
Microbiological Pa	arameters							
Coliforms, Total ((Q-Tray)	<	1		1	MPN/100 mL	2023-02-09	
Coliforms, Fecal ((Q-Tray)	<	1		1	MPN/100 mL	2023-02-09	
Sample Qualific	ers:							
HT2 The 1	5 minute r	recommended holding time) (from	sampling	to analysis) ha	as been exceed	ed - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23B0986 2023-02-16 11:58

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	NA / 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	\checkmark	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)	\checkmark	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

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)	WORK ORDER	23B0986
PROJECT	Final Effluent- PE14651	REPORTED	2023-02-16 11:58

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 B3B0885									

Blank (B3B0885-BLK1)			Prepared: 202	3-02-09, Analyze	d: 2023-02-09	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3B0885-BLK2)			Prepared: 202	3-02-10, Analyze	d: 2023-02-10	
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 (B3B0885-BLK3)			Prepared: 202	3-02-10, Analyze	d: 2023-02-10	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3B0885-BS1)			Prepared: 202	3-02-09, Analyze	d: 2023-02-09	
LCS (B3B0885-BS1) Chloride	16.0	0.10 mg/L	Prepared: 202 16.0	3-02-09, Analyze 100	d: 2023-02-09 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N)	16.0 3.95	0.10 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00	3-02-09, Analyze 100 99	d: 2023-02-09 90-110 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N)	16.0 3.95 2.07	0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00	3-02-09, Analyze 100 99 103	d: 2023-02-09 90-110 90-110 85-115	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	16.0 3.95 2.07 1.05	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00	3-02-09, Analyze 100 99 103 105	d: 2023-02-09 90-110 90-110 85-115 80-120	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2)	16.0 3.95 2.07 1.05	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 16.0 2.00 1.00 Prepared: 2023	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride	16.0 3.95 2.07 1.05 16.6	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N)	16.0 3.95 2.07 1.05 16.6 3.95	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.10 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104 99	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N) Nitrite (as N)	16.0 3.95 2.07 1.05 16.6 3.95 2.09	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104 99 104	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110 85-115	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N) LCS (B3B0885-BS3)	16.0 3.95 2.07 1.05 16.6 3.95 2.09	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00 Prepared: 2023	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 99 104 3-02-10, Analyze	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110 85-115 d: 2023-02-10	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N) Nitrate (as N) Nitrate (as N) Nitrite (as N) Nitrite (as N) Chloride Nitrite (as N) Chloride Nitrite (as N) Chloride	16.0 3.95 2.07 1.05 16.6 3.95 2.09 16.1	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00 Prepared: 2023 16.0 4.00 2.00	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104 3-02-10, Analyze 104 3-02-10, Analyze 100	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110 85-115 d: 2023-02-10 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N) Nitrate (as N) Nitrate (as N) Nitrite (as N) LCS (B3B0885-BS3) Chloride Nitrite (as N) Nitrite (as N)	16.0 3.95 2.07 1.05 16.6 3.95 2.09 16.1 3.89	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.10 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00 Prepared: 2023 16.0 4.00 4.00 2.00	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104 3-02-10, Analyze 104 3-02-10, Analyze 100 97	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110 85-115 d: 2023-02-10 90-110 90-110 90-110	
LCS (B3B0885-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3B0885-BS2) Chloride Nitrate (as N) Nitrite (as N) Nitrite (as N) Nitrite (as N) LCS (B3B0885-BS3) Chloride Nitrite (as N) Nitrite (as N) Nitrite (as N) Nitrite (as N) Nitrate (as N) Nitrite (as N)	16.0 3.95 2.07 1.05 16.6 3.95 2.09 16.1 3.89 2.04	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00 Prepared: 2023 16.0 4.00 2.00 2.00	3-02-09, Analyze 100 99 103 105 3-02-10, Analyze 104 3-02-10, Analyze 104 3-02-10, Analyze 100 97 102	d: 2023-02-09 90-110 90-110 85-115 80-120 d: 2023-02-10 90-110 90-110 85-115 d: 2023-02-10 90-110 90-110 90-110 90-110 85-115	

General Parameters, Batch B3B0956



REPORTED TO PROJECT	D TO Lake Country, District of (Wastewater) Final Effluent- PE14651				WORK ORDER REPORTED			23B0986 2023-02-16 11:58		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3B0956, (Continued								
Blank (B3B0956-BL	K1)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-14		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3B0956-BS1)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-14		
BOD, 5-day Carbonace	eous	153	34.9 mg/L	198		77	85-115			SPK1
General Parameters	, Batch B3B0999									
Blank (B3B0999-BL	K1)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3B0999-BL	K2)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3B0999-BL	K3)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3B0999-BS1)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	0.110	0.0050 mg/L	0.100		110	85-115			
LCS (B3B0999-BS2)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	0.110	0.0050 mg/L	0.100		110	85-115			
LCS (B3B0999-BS3)			Prepared	: 2023-02-09), Analyzed	: 2023-02	2-10		
Phosphorus, Total (as	P)	0.110	0.0050 mg/L	0.100		110	85-115			
General Parameters	Batch B3B1070									
Blank (B3B1070-BL	K1)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3B1070-BL	K2)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3B1070-BL	K3)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B3B1070-BS1)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		1.00	0.050 mg/L	1.00		100	85-115			
LCS (B3B1070-BS2)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		0.997	0.050 mg/L	1.00		100	85-115			
LCS (B3B1070-BS3)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-10		
Ammonia, Total (as N)		0.990	0.050 mg/L	1.00		99	85-115			
General Parameters	, Batch B3B1084									
Blank (B3B1084-BL	K1)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldah	I	< 0.050	0.050 mg/L							
Blank (B3B1084-BL	K2)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldah	- 	< 0.050	0.050 mg/L	· .		· ·				
LCS (B3B1084-BS1)			Prepared	: 2023-02-10), Analyzed	: 2023-02	2-12		
Nitrogen, Total Kjeldah	I	1.07	0.050 mg/L	1.00		107	85-115			


REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	rict of (Wastewa 4651	ter)			WORK (REPOR	ORDER TED	23B0 2023)986 -02-16	11:58
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3B1084, Co	ontinued								
LCS (B3B1084-BS2)				Prepared	: 2023-02-1	0, Analyzed	d: 2023-0)2-12		
Nitrogen, Total Kjeldahl		1.06	0.050 mg/L	1.00		106	85-115			
General Parameters,	Batch B3B1215									
Blank (B3B1215-BLI	K1)			Prepared	1: 2023-02-1	2, Analyzed	d: 2023-0)2-12		
Alkalinity, Total (as CaC	:03)	< 1.0	1.0 mg/L	•		· · ·				
Alkalinity, Phenolphtha	lein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (a	is CaCO3)	< 1.0	1.0 mg/L							
Blank (B3B1215-BLI	K2)			Prepared	: 2023-02-1	3, Analyzeo	d: 2023-0)2-13		
Alkalinity, Total (as CaC	:03)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphtha	llein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (a	is CaCO3)	< 1.0	1.0 mg/L 1.0 mg/L							
LCS (B3B1215-BS1)				Prepared	: 2023-02-1	2. Analvzed	1: 2023-0)2-12		
Alkalinity. Total (as CaC	03)	93.6	1.0 ma/L	100		94	80-120			
LCS (P2P1215 PS2)	,			Propared	. 2023 02 1	3 Analyzog	4. 2023 (12 12		
Alkalinity Total (as CaC	:03)	88.2	1.0 mg/l	100	1. 2025-02-1	88	80-120	2-15		
Beference (B2B1216	500) 5 60M4)	00.2	1.0 mg/2	Droporod	. 2022 02 1	2 Apolyzor	4. 2022 (12 12		
	5-5RIVIT)	7.03	0.10 pH units	7.01	1. 2023-02-1	2, Analyzeu	08-102)2-12		
		7.05	0.10 pri units	7.01		0.0	90-102	0.40		
Reference (B3B1215	5-SRM2)	7.04		Prepared	1: 2023-02-1	3, Analyzed	1: 2023-0)2-13		
рН		7.01	0.10 pH units	7.01		100	98-102			
General Parameters,	Batch B3B1495									
Blank (B3B1495-BLI	K1)			Prepared	1: 2023-02-1	5, Analyzed	d: 2023-0)2-15		
Solids, Total Suspender	d	< 2.0	2.0 mg/L							
LCS (B3B1495-BS1)				Prepared	: 2023-02-1	5, Analyzed	d: 2023-0)2-15		
Solids, Total Suspende	d	90.0	10.0 mg/L	100		90	85-115			
Microbiological Para	meters Batch B3B	0932								
				Davasa		0 A				
BIANK (B3B0932-BL	K1)			Prepared	: 2023-02-0	9, Analyzeo	a: 2023-0	12-09		
Coliforms, Total (Q-Tray	()	< 1	1 MPN/100	mL						
Blank (B3B0932-BL	K2)			Prepared	: 2023-02-0	9, Analyzeo	d: 2023-0)2-09		
Coliforms, Fecal (Q-Tra	y)	< 1	1 MPN/100	mL						
Duplicate (B3B0932	-DUP1)	Sour	ce: 23B0986-02	Prepared	: 2023-02-0	9, Analyzeo	d: 2023-0)2-09		
Coliforms, Total (Q-Tray	()	< 1	1 MPN/100	mL	< 1				80	

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.

Γ



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23C2356
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-03-21 11:27 / 13.4°C 2023-03-28 14:03 45006.37738

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

 WORK ORDER
 230

 REPORTED
 202

23C2356 2023-03-28 14:03

Analyte	Result	RL	Units	Analyzed	Qualifier
Biosolids (E233628) (23C2356	6-01) Matrix: Sludge Sampled: 2023-03-21 10:25				
General Parameters					
Moisture	77.3	1.0	% wet	2023-03-23	
Nitrogen, Total Kjeldahl	4.65	0.0004	% dry	2023-03-28	
pH (1:2 H2O Solution)	5.53	0.10	pH units	2023-03-27	PH1
Solids, Total	22.7	0.1	% wet	2023-03-23	
Solids, Volatile	87.8	0.1	% dry	2023-03-23	
Strong Acid Leachable Metals					
Aluminum	1750	40	mg/kg dry	2023-03-27	
Antimony	1.36	0.10	mg/kg dry	2023-03-27	
Arsenic	1.85	0.30	mg/kg dry	2023-03-27	
Barium	80.2	1.0	mg/kg dry	2023-03-27	
Beryllium	< 0.10	0.10	mg/kg dry	2023-03-27	
Bismuth	22.9	0.10	mg/kg dry	2023-03-27	
Boron	10.2	2.0	mg/kg dry	2023-03-27	
Cadmium	0.779	0.040	mg/kg dry	2023-03-27	
Calcium	13100	100	mg/kg dry	2023-03-27	
Chromium	10.1	1.0	mg/kg dry	2023-03-27	
Cobalt	1.34	0.10	mg/kg dry	2023-03-27	
Copper	287	0.40	mg/kg dry	2023-03-27	
Iron	4010	20.0	mg/kg dry	2023-03-27	
Lead	6.36	0.20	mg/kg dry	2023-03-27	
Lithium	1.30	0.10	mg/kg dry	2023-03-27	
Magnesium	3290	10	mg/kg dry	2023-03-27	
Manganese	77.6	0.40	mg/kg dry	2023-03-27	
Mercury	0.354	0.040	mg/kg dry	2023-03-27	
Molybdenum	9.17	0.10	mg/kg dry	2023-03-27	
Nickel	9.15	0.60	mg/kg dry	2023-03-27	
Phosphorus	11800	10	mg/kg dry	2023-03-27	
Potassium	4310	40	mg/kg dry	2023-03-27	
Selenium	3.28	0.20	mg/kg dry	2023-03-27	
Silver	1.28	0.10	mg/kg dry	2023-03-27	
Sodium	903	50	mg/kg dry	2023-03-27	
Strontium	54.3	0.20	mg/kg dry	2023-03-27	
Sulfur	6320	1000	mg/kg dry	2023-03-27	
Tellurium	< 0.10	0.10	mg/kg dry	2023-03-27	
Thallium	< 0.10	0.10	mg/kg dry	2023-03-27	
Thorium	< 0.50	0.50	mg/kg dry	2023-03-27	
Tin	12.1	0.20	mg/kg dry	2023-03-27	
Titanium	49.1	1.0	mg/kg dry	2023-03-27	
Tungsten	0.66	0.20	mg/kg dry	2023-03-27	
Uranium	8.14	0.050	mg/kg dry	2023-03-27	
Vanadium	5.9	1.0	mg/kg dry	2023-03-27	
Zinc	564	2.0	ma/ka drv	2023-03-27	

Γ



REPORTED TO PROJECT	PORTED TOLake Country, District of (Wastewater)COJECTBioSolids- PE14651		WORK ORDER REPORTED	23C2356 2023-03-2	8 14:03				
Analyte	Result	RL	Units	Analyzed Qu					
Biosolids (E2336	Biosolids (E233628) (23C2356-01) Matrix: Sludge Sampled: 2023-03-21 10:25, Continued								
Strong Acid Leach	able Metals, Continued								
Zirconium	2.4	2.0) mg/kg dry	2023-03-27					
Sample Qualifie PH1 The rati	ers: o of water to soil was greater than 2:1 due to limited sample volu	ume or matrix							



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23C REPORTED 202

23C2356 2023-03-28 14:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23C2356
PROJECT	BioSolids- PE14651	REPORTED	2023-03-28 14:03

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

General Parameters, Batch B3C2262

Duplicate (B3C2262-DUP1)	Sour	ce: 23C2356-01	Prepared: 2023	8-03-23, Analyz	ed: 2023-03-23		
Moisture	99.0	1.0 % wet	77	. .3	24.6	40	
Solids, Total	22.5	0.1 % wet	22	2.7	< 1	7.5	
Solids, Volatile	87.8	0.1 % dry	87	⁷ .8	< 1	9	
Reference (B3C2262-SRM1)			Prepared: 2023	8-03-23, Analyz	ed: 2023-03-23		
Moisture	99.0	1.0 % wet	13.0	100	80-120		
Solids Total	87 1	0.1 % wet	87.0	100	80-120		

2.58

100

80-200

0.1 % dry

2.6

General Parameters, Batch B3C2764

Solids, Volatile

Blank (B3C2764-BLK1)			Prepared: 202	3-03-27, Analyz	ed: 2023-03-28	
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet				
Reference (B3C2764-SRM1)			Prepared: 202	3-03-27, Analyz	ed: 2023-03-28	
Nitrogen, Total Kjeldahl	0.191	0.010 % wet	0.197	97	58.8-150	

Strong Acid Leachable Metals, Batch B3C2770

Blank (B3C2770-BLK1)			Prepared: 2023-03-27, Analyzed: 2023-03-27
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	
Cadmium	< 0.040	0.040 mg/kg dry	
Calcium	< 100	100 mg/kg dry	
Chromium	< 1.0	1.0 mg/kg dry	
Cobalt	< 0.10	0.10 mg/kg dry	
Copper	< 0.40	0.40 mg/kg dry	
Iron	< 20.0	20.0 mg/kg dry	
Lead	< 0.20	0.20 mg/kg dry	
Lithium	< 0.10	0.10 mg/kg dry	



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	order Ted	23C2 2023	2356 -03-28	14:03
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3C2770, Continued

Blank (B3C2770-BLK1), Continued			Prepared: 2	023-03-27, Analyzed	2023-03-27	
Magnesium	< 10	10 mg/kg dry				
Manganese	< 0.40	0.40 mg/kg dry				
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 ma/ka drv				
Selenium	< 0.20	0.20 ma/ka drv				
Silver	< 0.10	0.10 ma/ka drv				
Sodium	< 50	50 mg/kg dry				
Strontium	< 0.20	0.20 mg/kg dry				
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
LCS (B3C2770-BS1)			Prepared: 2	023-03-27, Analyzed	2023-03-28	
Aluminum	1190	40 mg/kg dry	1000	119	80-120	
Antimony	9.46	0.10 mg/kg dry	10.0	95	80-120	
Arsenic	9.75	0.30 mg/kg dry	10.0	97	80-120	
Barium	11.3	1.0 mg/kg dry	10.0	113	80-120	
Beryllium	10.0	0.10 mg/kg dry	10.0	100	80-120	
Bismuth	9.37	0.10 mg/kg dry	10.0	94	80-120	
Boron	10.2	2.0 mg/kg dry	10.0	102	80-120	
Cadmium	9.97	0.040 mg/kg dry	10.0	100	80-120	
Calcium	1100	100 mg/kg dry	1000	110	80-120	
Chromium	10.5	1.0 mg/kg dry	10.0	105	80-120	
Cobalt	10.2	0.10 mg/kg dry	10.0	102	80-120	
Copper	10.6	0.40 mg/kg dry	10.0	106	80-120	
Iron	1020	20.0 mg/kg dry	1000	102	80-120	
Lead	10.3	0.20 mg/kg dry	10.0	103	80-120	
Lithium	9.94	0.10 mg/kg dry	10.0	99	80-120	
Magnesium	1090	10 mg/kg dry	1000	109	80-120	
Manganese	10.1	0.40 mg/kg dry	10.0	101	80-120	
Mercury	0.952	0.040 mg/kg dry	1.00	95	80-120	
Molybdenum	9.34	0.10 mg/kg dry	10.0	93	80-120	
Nickel	10.3	0.60 mg/kg dry	10.0	103	80-120	
Phosphorus	1020	10 mg/kg dry	1000	102	80-120	
Potassium	1030	40 mg/kg dry	1000	103	80-120	
Selenium	9.86	0.20 mg/kg dry	10.0	99	80-120	
Silver	9.99	0.10 mg/kg dry	10.0	100	80-120	
Sodium	1010	50 mg/kg dry	1000	101	80-120	
Strontium	10.9	0.20 mg/kg dry	10.0	109	80-120	
Sulfur	10100	1000 mg/kg dry	10000	101	80-120	
Tellurium	9.29	0.10 mg/kg dry	10.0	93	80-120	
Thallium	10.1	0.10 mg/kg dry	10.0	101	80-120	
Thorium	10.0	0.50 mg/kg dry	10.0	100	80-120	
Tin	9.54	0.20 mg/kg dry	10.0	95	80-120	
Titanium	9.9	1.0 mg/kg dry	10.0	99	80-120	

Γ



REPORTED TO PROJECT	ORTED TOLake Country, District of (Wastewater)JECTBioSolids- PE14651		water)			WORK ORDER REPORTED		23C2356 2023-03-28 2		14:03	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
Strong Acid Leach	able Metals, Batch B3C2770	, Contin	nued								
LCS (B3C2770-BS	1), Continued			Prepared	1: 2023-03-27,	Analyze	d: 2023-0	3-28			
Tungsten		9.75	0.20 mg/kg dry	10.0		97	80-120				
Uranium		10.3	0.050 mg/kg dry	10.0		103	80-120				
Vanadium		10.8	1.0 mg/kg dry	10.0		108	80-120				
Zinc		10.9	2.0 mg/kg dry	10.0		109	80-120				
Zirconium		9.6	2.0 mg/kg dry	10.0		96	80-120				
Reference (B3C27	70-SRM1)			Prepared	1: 2023-03-27,	Analyze	d: 2023-0	3-27			
Aluminum		10400	40 mg/kg dry	12100		86	70-130				
Antimony		0.60	0.10 mg/kg dry	0.634		95	70-130				
Arsenic		78.8	0.30 mg/kg dry	83.6		94	70-130				
Barium		37.1	1.0 mg/kg dry	41.4		90	70-130				
Beryllium		0.36	0.10 mg/kg dry	0.377		96	70-130				
Bismuth		0.27	0.10 mg/kg dry	0.291		94	70-130				
Calcium		5330	100 mg/kg dry	5380		99	70-130				
Chromium		60.6	1.0 mg/kg dry	66.0		92	70-130				
Cobalt		10.1	0.10 mg/kg dry	10.8		93	70-130				
Copper		19.2	0.40 mg/kg dry	20.3		95	70-130				
Iron		19000	20.0 mg/kg dry	20400		93	70-130				
Lead		15.7	0.20 mg/kg dry	16.7		94	70-130				
Lithium		16.8	0.10 mg/kg dry	16.8		100	70-130				
Magnesium		5670	10 mg/kg dry	6170		92	70-130				
Manganese		296	0.40 mg/kg dry	319		93	70-130				
Mercury		0.106	0.040 mg/kg dry	0.114		93	70-130				
Molybdenum		0.57	0.10 mg/kg dry	0.607		93	70-130				
Nickel		30.3	0.60 mg/kg dry	32.5		93	70-130				
Phosphorus		378	10 mg/kg dry	432		88	70-130				
Silver		1.47	0.10 mg/kg dry	1.55		95	70-130				
Strontium		19.5	0.20 mg/kg dry	22.5		87	70-130				
Thallium		< 0.10	0.10 mg/kg dry	0.0765		92	70-130				
Thorium		2.96	0.50 mg/kg dry	2.96		100	70-130				
Tin		1.21	0.20 mg/kg dry	1.32		92	70-130				
Titanium		601	1.0 mg/kg dry	730		82	70-130				
Uranium		1.12	0.050 mg/kg dry	1.15		97	70-130				
Vanadium		33.3	1.0 mg/kg dry	36.3		92	70-130				
Zinc		36.7	2.0 mg/kg dry	39.7		93	70-130				



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23C2352
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-03-21 11:27 / 13.4°C 2023-03-27 14:37 45006.37738

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, District o PROJECT Final Effluent- PE14657	f (Wastewater) 1		WORK ORDER REPORTED	23C2352 2023-03-2	7 14:37
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (23C2352-01) M	atrix: Wastewater Samp	oled: 2023-03-21 10:35			
Anions					
Chloride	120	0.10	mg/L	2023-03-22	
Nitrate (as N)	0.816	0.010	mg/L	2023-03-22	
Nitrite (as N)	0.049	0.010	mg/L	2023-03-22	
Phosphate (as P)	0.0868	0.0050	mg/L	2023-03-22	
Calculated Parameters					
Nitrate+Nitrite (as N)	0.865	0.0100	mg/L	N/A	
Nitrogen, Total	3.12	0.0500	mg/L	N/A	
Nitrogen, Organic	1.93	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	174	1.0	mg/L	2023-03-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Alkalinity, Bicarbonate (as CaCO3)	174	1.0	mg/L	2023-03-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Ammonia, Total (as N)	0.327	0.050	mg/L	2023-03-23	
BOD, 5-day Carbonaceous	4.1	2.0	mg/L	2023-03-27	
Nitrogen, Total Kjeldahl	2.26	0.050	mg/L	2023-03-24	
рН	7.77	0.10	pH units	2023-03-22	HT2
Phosphorus, Total (as P)	0.533	0.0050	mg/L	2023-03-23	
Solids, Total Suspended	7.0	2.0	mg/L	2023-03-27	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	112000	1	MPN/100 mL	2023-03-22	
Coliforms, Fecal (Q-Tray)	16600	1	MPN/100 mL	2023-03-22	
Trip Blank (23C2352-02) Matrix: Water 3	Sampled: 2023-03-21				
Anions					
Chloride	< 0.10	0.10	mg/L	2023-03-22	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-03-22	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-22	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-03-22	
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	

G

Seneral Parameters				
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	2023-03-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-03-22	
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L	2023-03-22	



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	rict of (Wastewater) 4651		WORK ORDER REPORTED	23C2352 2023-03-2	7 14:37
Analyte		Result	RL	Units	Analyzed	Qualifier
Trip Blank (23C2	.352-02) Matrix: Wat	er Sampled: 2023-03-21,	Continued			
General Parameter	rs, Continued					
Alkalinity, Carbon	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Alkalinity, Hydroxi	ide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-03-23	
BOD, 5-day Carbo	onaceous	< 3.6	2.0	mg/L	2023-03-27	
Nitrogen, Total Kje	eldahl	< 0.050	0.050	mg/L	2023-03-24	
рН		5.36	0.10	pH units	2023-03-22	HT2
Phosphorus, Tota	l (as P)	< 0.0050	0.0050	mg/L	2023-03-23	
Solids, Total Susp	pended	< 2.0	2.0	mg/L	2023-03-27	
Microbiological Pa	arameters					
Coliforms, Total (C	Q-Tray)	< 1	1	MPN/100 mL	2023-03-22	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2023-03-22	
Sample Qualifie	ers:					
HT2 The 1 recomm	5 minute recommen nended.	ided holding time (from	sampling to analysis) ha	as been exceed	ed - field	analysis is

- ---



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23C2352 2023-03-27 14:37

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / 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	\checkmark	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)	\checkmark	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)	WORK ORDER	23C2352
PROJECT	Final Effluent- PE14651	REPORTED	2023-03-27 14:37

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3C2182

Blank (B3C2182-BLK1)			Prepared: 2023	3-03-22, Analyz	ed: 2023-03-22	
Chloride	< 0.05	0.05 mg/L				
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3C2182-BS1)			Prepared: 202	3-03-22, Analyz	ed: 2023-03-22	
Chloride	16.1	0.05 mg/L	16.0	101	90-110	

GIIDIIde	10.1	0.05 mg/L	10.0	101	90-110	
Nitrate (as N)	3.93	0.010 mg/L	4.00	98	90-110	
Nitrite (as N)	2.11	0.010 mg/L	2.00	105	85-115	
Phosphate (as P)	0.997	0.0050 mg/L	1.00	100	80-120	

General Parameters, Batch B3C2279

Blank (B3C2279-BLK1)			Prepared: 2023	-03-22, Analyze	ed: 2023-03-22	
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 (B3C2279-BLK2)			Prepared: 2023	-03-22, Analyze	ed: 2023-03-22	
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 (B3C2279-BLK3)			Prepared: 2023	-03-22, Analyze	ed: 2023-03-22	
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 (B3C2279-BS1)			Prepared: 2023	-03-22, Analyze	ed: 2023-03-22	
Alkalinity, Total (as CaCO3)	94.8	1.0 mg/L	100	95	80-120	
						Page 5 of 7



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	strict of (Wastewa 14651	tewater) WORK ORDER 23C23 REPORTED 2023-0		ORK ORDER230PORTED202		2352 3-03-27 14:37			
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3C2279, (Continued								
LCS (B3C2279-BS2)			Prepared:	2023-03-22	2. Analvzec	1: 2023-0)3-22		
Alkalinity, Total (as Cal	, CO3)	95.3	1.0 mg/L	100		95	80-120			
LCS (B3C2279-BS3)			Prepared:	2023-03-22	2, Analyzed	1: 2023-0)3-22		
Alkalinity, Total (as Ca	, CO3)	96.4	1.0 mg/L	100		96	80-120			
Reference (B3C227	9-SRM1)			Prepared:	2023-03-22	2, Analyzed	1: 2023-0)3-22		
pH	,	7.01	0.10 pH units	7.01		100	98-102			
Reference (B3C227	9-SRM2)			Prepared:	2023-03-22	2, Analyzeo	l: 2023-0)3-22		
pH	•	7.02	0.10 pH units	7.01		100	98-102			
Reference (B3C227	9-SRM3)			Prepared:	2023-03-22	2, Analyzeo	1: 2023-0)3-22		
рН	•	7.01	0.10 pH units	7.01		100	98-102			
General Parameters	, Batch B3C2307									
Blank (B3C2307-BL	K1)			Prepared:	2023-03-22	2, Analyzeo	1: 2023-0)3-27		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3C2307-BS1)	407	00.7	Prepared:	2023-03-22	2, Analyzed	1: 2023-0)3-27		
BOD, 5-day Carbonac	eous	187	29.7 mg/L	198		94	85-115			
Duplicate (B3C2307	'-DUP1)	Sou	rce: 23C2352-02	Prepared:	2023-03-22	2, Analyzeo	1: 2023-0)3-27		
General Parameters	, Batch B3C2370	< 3.0	2.0 Mg/L		< 3.0				20	
Blank (B3C2370-BL	K1)			Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3C2370-BL	K2)			Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3C2370-BS1)			Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Phosphorus, Total (as	P)	0.112	0.0050 mg/L	0.100		112	85-115			
LCS (B3C2370-BS2)			Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Phosphorus, Total (as	P)	0.110	0.0050 mg/L	0.100		110	85-115			
				. .						
Blank (B3C2391-BL	K1)	< 0.050	0.050 mg/l	Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Ammonia, Iotai (as N)		< 0.050	0.050 mg/L							
Blank (B3C2391-BL	K2)	< 0.050	0.050	Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Ammonia, Iotai (as N)		< 0.050	0.050 mg/L							
Blank (B3C2391-BL	K3)		0.050 //	Prepared:	2023-03-23	3, Analyzeo	1: 2023-0)3-23		
Ammonia, Iotal (as N)		< 0.050	0.050 mg/L	_						
LCS (B3C2391-BS1)	1.10	0.050	Prepared:	2023-03-23	3, Analyzed	1: 2023-0)3-23		
Ammonia, Iotal (as N)		1.10	0.050 mg/L	1.00		110	85-115			
LCS (B3C2391-BS2)		0.050 "	Prepared:	2023-03-23	3, Analyzed	1: 2023-0)3-23		
Ammonia, Iotal (as N)		1.12	0.050 mg/L	1.00		112	85-115			



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	trict of (Wastewa 14651	ter)			WORK REPOR	ORDER TED	23C2 2023	2352 -03-27	14:37
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B3C2391, C	Continued								
LCS (B3C2391-BS	3)			Prepared	: 2023-03-2	3, Analyze	d: 2023-0	3-23		
Ammonia, Total (as N	1)	1.12	0.050 mg/L	1.00		112	85-115			
General Parameter	rs, Batch B3C2422									
Blank (B3C2422-B	BLK1)			Prepared	: 2023-03-2	3, Analyze	d: 2023-0)3-24		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
Blank (B3C2422-B	SLK2)			Prepared	: 2023-03-2	3, Analyze	d: 2023-0)3-24		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L							
LCS (B3C2422-BS	:1)			Prepared	: 2023-03-2	3, Analyze	d: 2023-0)3-24		
Nitrogen, Total Kjelda	ahl	1.04	0.050 mg/L	1.00		104	85-115			
LCS (B3C2422-BS	2)			Prepared	: 2023-03-2	3, Analyze	d: 2023-0	3-24		
Nitrogen, Total Kjelda	ahl	1.02	0.050 mg/L	1.00		102	85-115			
General Parameter	rs, Batch B3C2654									
Blank (B3C2654-B	SLK1)			Prepared	: 2023-03-2	7, Analyze	d: 2023-0	3-27		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L	-		-				
LCS (B3C2654-BS	:1)			Prepared	: 2023-03-2	7, Analyze	d: 2023-0	3-27		
Solids, Total Suspend	ded	94.0	10.0 mg/L	100		94	85-115			
Microbiological Pa	rameters,Batch B30	22265								
Blank (B3C2265-B	SLK1)			Prepared	: 2023-03-2	2, Analyze	d: 2023-0	3-22		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						
Blank (B3C2265-B	SLK2)			Prepared	: 2023-03-2	2, Analyze	d: 2023-0	3-22		
Coliforms, Fecal (Q-	Fray)	< 1	1 MPN/100	mL						
Blank (B3C2265-B	LK3)			Prepared	: 2023-03-2	2, Analyze	d: 2023-0	3-22		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23C2354
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-03-21 11:27 / 13.4°C 2023-03-27 14:39 45006.37738

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District of Amry- MR17842	[:] (Wastewater)		WORK ORDER REPORTED	23C2354 2023-03-2	7 14:39
Analyte		RL	Units	Analyzed	Qualifier	
Amry WW (E2629	82) (23C2354-01) Matrix	:: Wastewater Sampled: 202	23-03-21 10:00			
BOD, 5-day Carbo	onaceous	8.2	2.0	mg/L	2023-03-27	
Solids, Total Susp	ended	17.3	2.0	mg/L	2023-03-27	



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry- MR17842

 WORK ORDER
 23C2354

 REPORTED
 2023-03-27 14:39

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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)						
mg/L	Milligrams per litre						
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)	WORK ORDER	23C2354
PROJECT	Amry- MR17842	REPORTED	2023-03-27 14:39

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
General Parameters, Batch B3C2307									
Blank (B3C2307-BLK1)			Prepared	I: 2023-03-2	2, Analyze	d: 2023-(03-27		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3C2307-BS1)			Prepared	I: 2023-03-2	2, Analyze	d: 2023-(03-27		
BOD, 5-day Carbonaceous	187	29.7 mg/L	198		94	85-115			
General Parameters, Batch B3C2654									
Blank (B3C2654-BLK1)			Prepared	I: 2023-03-2	27, Analyze	d: 2023-(03-27		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3C2654-BS1)			Prepared	I: 2023-03-2	27, Analyze	d: 2023-(03-27		
Solids, Total Suspended	94.0	10.0 mg/L	100		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	WORK ORDER	23C2347
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-03-21 11:27 / 13.4°C 2023-03-27 14:16 45006.37738

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District c Raw Influent- PE14651	of (Wastewater)		WORK ORDER REPORTED	23C2347 2023-03-2	7 14:16
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E23	3627) (23C2347-01) Ma	atrix: Wastewater Sample	d: 2023-03-21 10:50			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-03-22	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-03-22	
Phosphate (as P)		8.60	0.0050	mg/L	2023-03-22	
Calculated Paramet	ters					
Nitrate+Nitrite (as I	N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	,	94.0	2.00	mg/L	N/A	
General Parameters	;					
Alkalinity, Total (as	CaCO3)	362	1.0	mg/L	2023-03-22	
Alkalinity, Phenolph	nthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Alkalinity, Bicarbon	ate (as CaCO3)	362	1.0	mg/L	2023-03-22	
Alkalinity, Carbona	te (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Alkalinity, Hydroxid	le (as CaCO3)	< 1.0	1.0	mg/L	2023-03-22	
Ammonia, Total (as	s N)	68.9	0.050	mg/L	2023-03-23	
BOD, 5-day		364	2.0	mg/L	2023-03-26	
BOD, 5-day Carbo	naceous	349	2.0	mg/L	2023-03-27	
Nitrogen, Total Kjel	ldahl	94.0	0.050	mg/L	2023-03-24	
pН		7.99	0.10	pH units	2023-03-22	HT2
Phosphorus, Total	(as P)	10.6	0.0050	mg/L	2023-03-23	
Solids, Total Suspe	ended	336	2.0	mg/L	2023-03-27	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER

23C2347 2023-03-27 14:16

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23C2347
PROJECT	Raw Influent- PE14651	REPORTED	2023-03-27 14:16

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	Source	% REC	REC	% RPD RPD	Qualifier
·			Level	Result		Limit	Limit	

Anions, Batch B3C2182

Blank (B3C2182-BLK1)			Prepared: 2023	3-03-22, Analyze	ed: 2023-03-22	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3C2182-BS1)			Prepared: 2023	3-03-22, Analyze	ed: 2023-03-22	
Nitrate (as N)	3.93	0.010 mg/L	4.00	98	90-110	
Nitrite (as N)	2.11	0.010 mg/L	2.00	105	85-115	
Phosphate (as P)	0.997	0.0050 mg/L	1.00	100	80-120	

General Parameters, Batch B3C2279

Blank (B3C2279-BLK1)			Prepared: 2023-03-22, Analyzed: 2023-03-22
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 (B3C2279-BLK2)			Prepared: 2023-03-22, Analyzed: 2023-03-22
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 (B3C2279-BLK3)			Prepared: 2023-03-22, Analyzed: 2023-03-22
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 (B3C2279-BS1)			Prepared: 2023-03-22, Analyzed: 2023-03-22
Alkalinity, Total (as CaCO3)	94.8	1.0 mg/L	100 95 80-120



REPORTED TO L PROJECT F	ake Country, District of Raw Influent- PE14651	(Wastew	ater)			WORK (REPOR	ORDER TED	23C2 2023	2347 3-03-27	14:16
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3C2279, Continu	ed								
LCS (B3C2279-BS2)				Prepared	: 2023-03-22	, Analyzed	d: 2023-0	3-22		
Alkalinity, Total (as CaCo	03)	95.3	1.0 mg/L	100		95	80-120			
LCS (B3C2279-BS3)				Prepared	: 2023-03-22	, Analyzed	d: 2023-0	3-22		
Alkalinity, Total (as CaCo	03)	96.4	1.0 mg/L	100		96	80-120			
Reference (B3C2279-	-SRM1)			Prepared	: 2023-03-22	, Analyzed	d: 2023-0	3-22		
рН	•	7.01	0.10 pH units	7.01		100	98-102			
Reference (B3C2279-	SRM2)			Prepared	: 2023-03-22	, Analyzed	d: 2023-0	3-22		
pH	,	7.02	0.10 pH units	7.01		100	98-102			
Reference (B3C2279-	SRM3)			Prepared	: 2023-03-22	, Analyzed	d: 2023-0	3-22		
рН	/	7.01	0.10 pH units	7.01		100	98-102			
General Parameters,	Batch B3C2306									
Blank (B3C2306-BLK	1)			Prepared	: 2023-03-22	, Analyzec	1: 2023-0	3-26		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B3C2306-BS1)				Prepared	: 2023-03-22	, Analyzed	1: 2023-0	3-26		
General Parameters, Blank (B3C2307-BLK BOD, 5-day Carbonaced	Batch B3C2307 1)	< 2.0	2.0 mg/L	Prepared	: 2023-03-22	, Analyzec	1: 2023-0	3-27		
LCS (B3C2307-BS1)				Prepared	: 2023-03-22	. Analyzed	d: 2023-0	3-27		
BOD, 5-day Carbonaced	ous	187	29.7 mg/L	198		94	85-115			
General Parameters, Blank (B3C2370-BLK Phosphorus, Total (as P)	Batch B3C2370 1)) <	< 0.0050	0.0050 mg/L	Prepared	: 2023-03-23	, Analyzec	1: 2023-0	3-23		
Blank (B3C2370-BLK	2)			Prepared	: 2023-03-23	, Analyzeo	d: 2023-0	3-23		
Phosphorus, Total (as P)) <	< 0.0050	0.0050 mg/L							
LCS (B3C2370-BS1)				Prepared	: 2023-03-23	, Analyzeo	d: 2023-0	3-23		
Phosphorus, Total (as P))	0.112	0.0050 mg/L	0.100		112	85-115			
LCS (B3C2370-BS2)				Prepared	: 2023-03-23	, Analyzeo	d: 2023-0	3-23		
Phosphorus, Total (as P)		0.110	0.0050 mg/L	0.100		110	85-115			
General Parameters,	Batch B3C2391									
Blank (B3C2391-BLK	1)			Prepared	: 2023-03-23	, Analyzeo	d: 2023-0	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3C2391-BLK	2)			Prepared	: 2023-03-23	, Analyzeo	d: 2023-0	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3C2391-BLK	3)			Prepared	: 2023-03-23	, Analyzec	d: 2023-0	3-23		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							

Γ



REPORTED TO PROJECT	Lake Country, District of (Wa Raw Influent- PE14651	stewater)			WORK C	ORDER TED	23C2 2023	2347 3-03-27	14:16
Analyte	Resu	ılt RL Un	its Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B3C2391, Continued								
LCS (B3C2391-BS	1)		Prepared	I: 2023-03-23	, Analyzed	: 2023-0	3-23		
Ammonia, Total (as N	l) 1. ⁻	10 0.050 mg	/L 1.00		110	85-115			
LCS (B3C2391-BS	2)		Prepared	I: 2023-03-23	, Analyzed	: 2023-0	3-23		
Ammonia, Total (as N	l) 1.*	12 0.050 mg	/L 1.00		112	85-115			
LCS (B3C2391-BS	3)		Prepared	I: 2023-03-23	, Analyzed	: 2023-0	3-23		
Ammonia, Total (as N) 1. ⁻	12 0.050 mg	/L 1.00		112	85-115			
Blank (B3C2422-B Nitrogen, Total Kjelda	s, Batch B3C2422 LK1) hl < 0.05	50 0.050 mg	Preparec	l: 2023-03-23	8, Analyzed	: 2023-0	3-24		
Blank (B3C2422-B	LK2)		Prepared	l: 2023-03-23	, Analyzed	: 2023-0	3-24		
Nitrogen, Total Kjelda	hl < 0.0	50 0.050 mg	/L		-				
LCS (B3C2422-BS	1)		Prepared	l: 2023-03-23	, Analyzed	: 2023-0	3-24		
Nitrogen, Total Kjelda	hl 1.0	04 0.050 mg	/L 1.00		104	85-115			
LCS (B3C2422-BS	2)		Prepared	I: 2023-03-23	, Analyzed	: 2023-0	3-24		
Nitrogen, Total Kjelda	hl 1.0	02 0.050 mg	/L 1.00		102	85-115			
General Parameter	s, Batch B3C2654		Droporos	1. 2022 02 27	Applyzod	. 2022 0	0.07		
Solida Total Support	LN1)	20 20	// Preparec	1. 2023-03-27	, Analyzed	. 2023-0	3-21		
		u 2.0 mg	/L Due u		. A		0.07		
LCS (B3C2654-BS	1)	0 40.0	Prepareo	1: 2023-03-27	, Analyzed	: 2023-0	3-27		
Solids, Total Suspend	iea 94	.0 10.0 mg	/L 100		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	WORK ORDER	23D2061
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-04-19 11:25 / 11.8°C 2023-04-26 15:02 45035.39452

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔰 🛛 Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



ROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651		WORK ORDER REPORTED	23D2061 2023-04-2	6 15:02
Analyte	Result	RL	Units	Analyzed	Quali
Biosolids (E2336	28) (23D2061-01) Matrix: Sludge Sampled: 2023	04-19 09:40			
General Parameter	'S				
General Parameter Moisture	rs 78.8	1.0	% wet	2023-04-23	
General Parameter Moisture Nitrogen, Total Kje	rs 78.8 Pidahi 3.92	1.0 0.0004	% wet % dry	2023-04-23 2023-04-21	
General Parameter Moisture Nitrogen, Total Kje pH (1:2 H2O Solu	rs 78.8 2Idahl 3.92 tion) 5.72	1.0 0.0004 0.10	% wet % dry pH units	2023-04-23 2023-04-21 2023-04-20	
General Parameter Moisture Nitrogen, Total Kje pH (1:2 H2O Solu Solids, Total	78.8 28 29 20 21.1	1.0 0.0004 0.10 0.1	% wet % dry pH units % wet	2023-04-23 2023-04-21 2023-04-20 2023-04-24	

•		
Aluminum	1420	40 mg/kg dry 2023-04-26
Antimony	0.97	0.10 mg/kg dry 2023-04-26
Arsenic	1.19	0.30 mg/kg dry 2023-04-26
Barium	97.2	1.0 mg/kg dry 2023-04-26
Beryllium	< 0.10	0.10 mg/kg dry 2023-04-26
Bismuth	24.1	0.10 mg/kg dry 2023-04-26
Boron	9.4	2.0 mg/kg dry 2023-04-26
Cadmium	0.630	0.040 mg/kg dry 2023-04-26
Calcium	8910	100 mg/kg dry 2023-04-26
Chromium	8.5	1.0 mg/kg dry 2023-04-26
Cobalt	1.01	0.10 mg/kg dry 2023-04-26
Copper	279	0.40 mg/kg dry 2023-04-26
Iron	2360	20.0 mg/kg dry 2023-04-26
Lead	6.02	0.20 mg/kg dry 2023-04-26
Lithium	0.94	0.10 mg/kg dry 2023-04-26
Magnesium	2420	10 mg/kg dry 2023-04-26
Manganese	76.3	0.40 mg/kg dry 2023-04-26
Mercury	0.375	0.040 mg/kg dry 2023-04-26
Molybdenum	6.04	0.10 mg/kg dry 2023-04-26
Nickel	6.99	0.60 mg/kg dry 2023-04-26
Phosphorus	8440	10 mg/kg dry 2023-04-26
Potassium	2750	40 mg/kg dry 2023-04-26
Selenium	2.90	0.20 mg/kg dry 2023-04-26
Silver	1.12	0.10 mg/kg dry 2023-04-26
Sodium	475	50 mg/kg dry 2023-04-26
Strontium	36.6	0.20 mg/kg dry 2023-04-26
Sulfur	4360	1000 mg/kg dry 2023-04-26
Tellurium	< 0.10	0.10 mg/kg dry 2023-04-26
Thallium	< 0.10	0.10 mg/kg dry 2023-04-26
Thorium	< 0.50	0.50 mg/kg dry 2023-04-26
Tin	11.3	0.20 mg/kg dry 2023-04-26
Titanium	55.6	1.0 mg/kg dry 2023-04-26
Tungsten	0.54	0.20 mg/kg dry 2023-04-26
Uranium	5.28	0.050 mg/kg dry 2023-04-26
Vanadium	4.2	1.0 mg/kg dry 2023-04-26
Zinc	481	2.0 mg/kg dry 2023-04-26

Qualifier



REPORTED TO PROJECT	ED TOLake Country, District of (Wastewater)TBioSolids- PE14651		WORK ORDER REPORTED		3 15:02	
Analyte	Result	F	RL Units	Analyzed	Qualifier	
Biosolids (E2336	28) (23D2061-01) Matrix: Sludge Sampled: 2023-04-1	9 09:40, Contir	nued			
Strong Acid Leach	able Metals, Continued					
Zirconium	< 4.0		2.0 mg/kg dry	2023-04-26	RA1	
Sample Qualifie	ers:					
RA1 The Re	porting Limit has been raised due to matrix interference.					



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23 REPORTED 20

23D2061 2023-04-26 15:02

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23D2061
PROJECT	BioSolids- PE14651	REPORTED	2023-04-26 15:02

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
General Parameters, Batch B3D1960									
Blank (B3D1960-BLK1)			Prepared	1: 2023-04-2	1, Analyze	ed: 2023-0)4-21		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet							
Reference (B3D1960-SRM1)			Prepared	1: 2023-04-2	1, Analyze	ed: 2023-0)4-21		
Nitrogen, Total Kjeldahl	0.116	0.010 % wet	0.197		59	58.8-150			
General Parameters, Batch B3D2081									
Duplicate (B3D2081-DUP1)	Sour	rce: 23D2061-01	Prepared	1: 2023-04-2	3, Analyze	ed: 2023-0)4-23		
Moisture	99.0	1.0 % wet		78.8			22.7	40	
Reference (B3D2081-SRM1)			Prepared	1: 2023-04-2	3, Analyze	ed: 2023-0)4-23		
Moisture	99.0	1.0 % wet	13.0		101	80-120			
General Parameters,Batch B3D2082									
Duplicate (B3D2082-DUP1)	Sour	rce: 23D2061-01	Prepared	d: 2023-04-2	3, Analyze	ed: 2023-0)4-24		
pH (1:2 H2O Solution)	5.70	0.10 pH units		5.72			< 1	10	
General Parameters,Batch B3D2104									
Reference (B3D2104-SRM1)			Prepared	1: 2023-04-2	4, Analyze	ed: 2023-0)4-24		
Solids, Total	87.4	0.1 % wet	87.0		101	80-120			
Solids, Volatile	2.6	0.1 % dry	2.58		101	80-200			
Strong Acid Leachable Metals, Batch B3	D2411								
Blank (B3D2411-BLK1)			Prepared	1: 2023-04-2	6, Analyze	ed: 2023-0	04-26		
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Barium	< 1.0	1.0 mg/kg dry							
Beryllium	< 0.10	0.10 mg/kg dry							
Bismuth	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23D2 2023	2061 -04-26	15:02
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3D2411, Continued

Blank (B3D2411-BLK1), Continued			Prepared: 2023-04	-26, Analyze	d: 2023-04-26
Cadmium	< 0.040	0.040 mg/kg dry			
Calcium	< 100	100 mg/kg dry			
Chromium	< 1.0	1.0 mg/kg dry			
Cobalt	< 0.10	0.10 mg/kg dry			
Copper	< 0.40	0.40 mg/kg dry			
Iron	< 20.0	20.0 mg/kg dry			
Lead	< 0.20	0.20 mg/kg dry			
Lithium	< 0.10	0.10 mg/kg dry			
Magnesium	< 10	10 mg/kg dry			
Manganese	< 0.40	0.40 mg/kg dry			
Mercury	< 0.040	0.040 mg/kg dry			
Molybdenum	< 0.10	0.10 mg/kg dry			
Nickel	< 0.60	0.60 mg/kg dry			
Phosphorus	< 10	10 mg/kg dry			
Potassium	< 40	40 mg/kg dry			
Selenium	< 0.20	0.20 mg/kg dry			
Silver	< 0.10	0.10 mg/kg dry			
Sodium	< 50	50 mg/kg dry			
Strontium	< 0.20	0.20 mg/kg dry			
	< 1000	1000 mg/kg dry			
	< 0.10	0.10 mg/kg dry			
	< 0.10	0.10 mg/kg dry			
	< 0.50	0.50 mg/kg dry			
Tin The share	< 0.20	0.20 mg/kg dry			
	< 1.0	1.0 mg/kg dry			
	< 0.20	0.20 mg/kg dry			
Vanadium	< 0.050	0.050 mg/kg dry			
	< 1.0				
Zinc	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg ury			
LCS (B3D2411-BS1)			Prepared: 2023-04	-26, Analyze	d: 2023-04-26
Aluminum	189	40 mg/kg dry	200	94	80-120
Antimony	1.94	0.10 mg/kg dry	2.00	97	80-120
Arsenic	1.84	0.30 mg/kg dry	2.00	92	80-120
Barium	2.0	1.0 mg/kg dry	2.00	100	80-120
Beryllium	1.92	0.10 mg/kg dry	2.00	96	80-120
Bismuth	1.96	0.10 mg/kg dry	2.00	98	80-120
Boron	2.0	2.0 mg/kg dry	2.00	99	80-120
Cadmium	1.97	0.040 mg/kg dry	2.00	98	80-120
Calcium	212	100 mg/kg dry	200	106	80-120
Chromium	1.9	1.0 mg/kg dry	2.00	93	80-120
Cobalt	1.89	0.10 mg/kg dry	2.00	95	80-120
Copper	1.90	0.40 mg/kg dry	2.00	95	80-120
Iron	194	20.0 mg/kg dry	200	97	80-120
	1.97	0.20 mg/kg dry	2.00	98	80-120
Lithium	1.89	0.10 mg/kg dry	2.00	94	80-120
Magnesium	194	10 mg/kg dry	200	97	80-120
wanganese	1.91	0.40 mg/kg dry	2.00	96	δU-12U
	0.180	0.040 mg/kg dry	0.200	90	δU-12U
Niekel	1.96	0.10 mg/kg dry	2.00	98	80.120
INICKEI	1.88	0.60 mg/kg dry	2.00	94	80.120
Priosphorus	189	10 mg/kg dry	200	94	80.120
Solonium	194	40 mg/kg dry	200	97	00-120 80 120
	1.92		2.00	90	00-120 90 120
SIIVEI	1.98	0.10 mg/kg ary	2.00	99	00-120



REPORTED TO PROJECT	Lake Country, District BioSolids- PE14651	of (Wastewa	ter)			WORK REPOR	ORDER TED	23D2 2023	2061 3-04-26	15:02
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch B3D24	11, Continue	d							
LCS (B3D2411-BS	1), Continued			Prepared	I: 2023-04-2	6, Analyze	d: 2023-0)4-26		
Sodium	", · · · · · ·	193	50 ma/ka dry	200		97	80-120			
Strontium		1.93	0.20 mg/kg dry	2 00		97	80-120			
Sulfur		2040	1000 mg/kg dry	2000		102	80-120			
Tellurium		1.91	0.10 mg/kg dry	2.00		95	80-120			
Thallium		1.97	0.10 mg/kg dry	2.00		99	80-120			
Thorium		1.94	0.50 mg/kg dry	2.00		97	80-120			
Tin		1.92	0.20 mg/kg dry	2.00		96	80-120			
Titanium		1.9	1.0 mg/kg dry	2.00		95	80-120			
Tungsten		1.96	0.20 mg/kg dry	2.00		98	80-120			
Uranium		1.98	0.050 mg/kg dry	2.00		99	80-120			
Vanadium		1.9	1.0 mg/kg dry	2.00		96	80-120			
Zinc		< 2.0	2.0 mg/kg drv	2.00		94	80-120			
Zirconium		2.0	2.0 mg/kg drv	2.00		98	80-120			
Reference (B3D24	11-SRM1)			Prepared	l: 2023-04-2	6, Analyze	d: 2023-0)4-26		
Aluminum		11500	40 mg/kg dry	12100		95	70-130			
Antimony		0.64	0.10 mg/kg dry	0.634		101	70-130			
Arsenic		83.7	0.30 mg/kg dry	83.6		100	70-130			
Barium		40.9	1.0 mg/kg dry	41.4		99	70-130			
Beryllium		0.38	0.10 mg/kg dry	0.377		101	70-130			
Bismuth		0.31	0.10 mg/kg dry	0.291		105	70-130			
Calcium		5060	100 mg/kg dry	5380		94	70-130			
Chromium		63.6	1.0 mg/kg dry	66.0		96	70-130			
Cobalt		10.6	0.10 mg/kg dry	10.8		99	70-130			
Copper		20.9	0.40 mg/kg dry	20.3		103	70-130			
Iron		20000	20.0 mg/kg dry	20400		98	70-130			
Lead		16.8	0.20 mg/kg dry	16.7		100	70-130			
Lithium		17.0	0.10 mg/kg dry	16.8		101	70-130			
Magnesium		6120	10 mg/kg dry	6170		99	70-130			
Manganese		311	0.40 mg/kg dry	319		98	70-130			
Mercury		0.113	0.040 mg/kg dry	0.114		99	70-130			
Molybdenum		0.58	0.10 mg/kg dry	0.607		95	70-130			
Nickel		32.3	0.60 mg/kg dry	32.5		99	70-130			
Phosphorus		429	10 mg/kg dry	432		99	70-130			
Silver		1.59	0.10 mg/kg dry	1.55		102	70-130			
Strontium		20.9	0.20 mg/kg dry	22.5		93	70-130			
Thallium		< 0.10	0.10 mg/kg dry	0.0765		106	70-130			
Thorium		2.99	0.50 mg/kg dry	2.96		101	70-130			
Tin		1.15	0.20 mg/kg dry	1.32		87	70-130			
Titanium		679	1.0 mg/kg dry	730		93	70-130			
Uranium		1.14	0.050 mg/kg dry	1.15		100	70-130			
Vanadium		35.6	1.0 mg/kg dry	36.3		98	70-130			
Zinc		37.8	2.0 mg/kg dry	39.7		95	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23D2056
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-04-19 11:25 / 11.8°C 2023-04-26 13:52 45035.39452

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District o Raw Influent- PE14651	of (Wastewater)		WORK ORDER REPORTED		6 13:52
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2:	33627) (23D2056-01) Ma	atrix: Wastewater Sampl	ed: 2023-04-19 09:50			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-04-21	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-04-21	
Phosphate (as P)		8.84	0.0050	mg/L	2023-04-20	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		95.9	2.00	mg/L	N/A	
General Parameter	rs					
Alkalinity, Total (as	s CaCO3)	400	1.0	mg/L	2023-04-21	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Alkalinity, Bicarbo	nate (as CaCO3)	400	1.0	mg/L	2023-04-21	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Ammonia, Total (a	as N)	72.2	0.050	mg/L	2023-04-20	
BOD, 5-day		500	2.0	mg/L	2023-04-25	
BOD, 5-day Carbo	onaceous	330	2.0	mg/L	2023-04-25	
Nitrogen, Total Kje	eldahl	95.9	0.050	mg/L	2023-04-23	
рН		8.17	0.10	pH units	2023-04-21	HT2
Phosphorus, Total	l (as P)	10.9	0.0050	mg/L	2023-04-21	
Solids, Total Susp	ended	279	2.0	mg/L	2023-04-22	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED 23D2056 2023-04-26 13:52

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23D2056
PROJECT	Raw Influent- PE14651	REPORTED	2023-04-26 13:52

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	Source	% RFC	REC	% RPD RPD	Qualifier
	nooun		Level	Result	/0 IX20	Limit	Limit	

Anions, Batch B3D1781

Blank (B3D1781-BLK1)			Prepared: 202	23-04-20, Analyze	ed: 2023-04-20		
Nitrate (as N)	< 0.010	0.010 mg/L					
Nitrite (as N)	< 0.010	0.010 mg/L					
Phosphate (as P)	< 0.0050	0.0050 mg/L					
Blank (B3D1781-BLK2)			Prepared: 202	23-04-20, Analyze	ed: 2023-04-20		
Nitrate (as N)	< 0.010	0.010 mg/L					
Nitrite (as N)	< 0.010	0.010 mg/L					
Phosphate (as P)	< 0.0050	0.0050 mg/L					
			Prepared: 2023-04-20, Analyzed: 2023-04-20				
LCS (B3D1781-BS1)			Prepared: 202	23-04-20, Analyze	ed: 2023-04-20		
LCS (B3D1781-BS1) Nitrate (as N)	3.96	0.010 mg/L	Prepared: 202 4.00	23-04-20, Analyze 99	ed: 2023-04-20 90-110		
LCS (B3D1781-BS1) Nitrate (as N) Nitrite (as N)	3.96 2.06	0.010 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00	23-04-20, Analyze 99 103	ed: 2023-04-20 90-110 85-115		
LCS (B3D1781-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P)	3.96 2.06 0.960	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00	23-04-20, Analyze 99 103 96	ed: 2023-04-20 90-110 85-115 80-120		
LCS (B3D1781-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3D1781-BS2)	3.96 2.06 0.960	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202	23-04-20, Analyze 99 103 96 23-04-20, Analyze	ed: 2023-04-20 90-110 85-115 80-120 ed: 2023-04-20		
LCS (B3D1781-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3D1781-BS2) Nitrate (as N)	3.96 2.06 0.960 3.95	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00	23-04-20, Analyze 99 103 96 23-04-20, Analyze 99	ed: 2023-04-20 90-110 85-115 80-120 ed: 2023-04-20 90-110		
LCS (B3D1781-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3D1781-BS2) Nitrate (as N) Nitrate (as N)	3.96 2.06 0.960 3.95 2.09	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00 2.00	23-04-20, Analyze 99 103 96 23-04-20, Analyze 99 104	ed: 2023-04-20 90-110 85-115 80-120 ed: 2023-04-20 90-110 85-115		

General Parameters, Batch B3D1711

Blank (B3D1711-BLK1)			Prepared: 2023	3-04-19, Analyzeo	d: 2023-04-21			
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L						
Blank (B3D1711-BLK2)			Prepared: 2023	3-04-19, Analyzed	d: 2023-04-21			
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L						
Blank (B3D1711-BLK3)			Prepared: 2023	3-04-19, Analyzed	d: 2023-04-21			
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L						
LCS (B3D1711-BS1)			Prepared: 2023-04-19, Analyzed: 2023-04-21					
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100	102	85-115			
LCS (B3D1711-BS2)			Prepared: 2023-04-19, Analyzed: 2023-04-21					
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100	102	85-115			


REPORTED TO Lake Country, Dist PROJECT Raw Influent- PE1	rict of (Wastewa 4651	ater)			WORK REPOF	ORDER RTED	23D2 2023	2056 3-04-26	13:52
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3D1711, Co	ontinued								
LCS (B3D1711-BS3)			Prepared	: 2023-04-1	9. Analvze	d: 2023-0	04-21		
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100		101	85-115	-		
General Parameters, Batch B3D1778									
Blank (B3D1778-BI K1)			Prepared	· 2023-04-2	0 Analyze	d. 2023-	04-20		
Ammonia, Total (as N)	< 0.050	0.050 mg/L			0,7				
Blank (B3D1778-BLK2)			Prepared	. 2023-04-2		d. 2023-0	04-20		
Ammonia Total (as N)	< 0.050	0.050 mg/l	Перагец	1. 2025-04-2	0, Analyze	u. 2020-0	04-20		
		0.000 mg/L	Deserved		0 A	.l. 0000	04.00		
Blank (B3D1778-BLK3)	40.050	0.050	Prepared	1: 2023-04-2	0, Analyze	a: 2023-0	04-20		
Ammonia, iotai (as N)	< 0.050	0.050 mg/L							
LCS (B3D1778-BS1)			Prepared	: 2023-04-2	0, Analyze	ed: 2023-0	04-20		
Ammonia, Total (as N)	0.994	0.050 mg/L	1.00		99	85-115			
LCS (B3D1778-BS2)			Prepared	: 2023-04-2	0, Analyze	d: 2023-0	04-20		
Ammonia, Total (as N)	0.988	0.050 mg/L	1.00		99	85-115			
LCS (B3D1778-BS3)			Prepared	: 2023-04-2	0, Analyze	d: 2023-0	04-20		
Ammonia, Total (as N)	0.995	0.050 mg/L	1.00		100	85-115			
General Parameters, Batch B3D1823 Blank (B3D1823-BLK1)			Prepared	: 2023-04-2	0, Analyze	ed: 2023-(04-25		
BOD, 5-day	< 2.0	2.0 mg/L							
LCS (B3D1823-BS1)			Prepared	: 2023-04-2	0, Analyze	d: 2023-0	04-25		
BOD, 5-day	198	61.0 mg/L	198		100	85-115			
General Parameters, Batch B3D1824 Blank (B3D1824-BLK1) BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L	Prepared	: 2023-04-2	0, Analyze	ed: 2023-	04-25		
LCS (B3D1824-BS1)			Prepared	: 2023-04-2	0, Analyze	d: 2023-0	04-25		
BOD, 5-day Carbonaceous	177	55.1 mg/L	198		89	85-115			
General Parameters, Batch B3D1911									
Blank (B3D1911-BLK1)			Prepared	: 2023-04-2	1, Analyze	d: 2023-0	04-21		
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 1.0 mg/l							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3D1911-BLK2)			Prepared	: 2023-04-2	1, Analyze	ed: 2023-0	04-21		
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, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							



REPORTED TO PROJECT	Lake Country, Dis Raw Influent- PE	strict of (Wastewa 14651	iter)			WORK REPOF	ORDER RTED	23D2 2023	2056 8-04-26	13:52
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Paramete	rs, Batch B3D1911, C	continued								
LCS (B3D1911-BS	51)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-21		
Alkalinity, Total (as C	aCO3)	95.2	1.0 mg/L	100		95	80-120			
LCS (B3D1911-BS	32)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-21		
Alkalinity, Total (as C	aCO3)	96.9	1.0 mg/L	100		97	80-120			
Reference (B3D19	911-SRM1)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-21		
pH		7.00	0.10 pH units	7.01		100	98-102			
Reference (B3D19	911-SRM2)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-21		
рН	,	7.01	0.10 pH units	7.01		100	98-102			
General Parameter Blank (B3D1956-E	rs, Batch B3D1956 BLK1)	< 0.050	0.050. mg/l	Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-23		
Blank (B3D1956-E	BLK2)	< 0.000	0.000 mg/L	Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-23		
Nitrogen, Total Kjeld	ahl	< 0.050	0.050 mg/L							
LCS (B3D1956-BS	51)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-23		
Nitrogen, Total Kjeld	ahl	0.893	0.050 mg/L	1.00		89	85-115			
LCS (B3D1956-BS	52)			Prepared	: 2023-04-2	21, Analyze	ed: 2023-0	4-23		
Nitrogen, Total Kjeld	ahl	0.903	0.050 mg/L	1.00		90	85-115			
General Parameter	rs, Batch B3D2038			Dropored	. 2022 04 0	2 Analyza	4. 2022 0	4.00		
Solide Total Support	ded	< 2.0	2.0 mg/l	Prepared	. 2023-04-2	zz, Analyze	eu. 2023-U	14-22		
LCS (B3D2038-BS	51)	~ 2.0	2.0 Hig/L	Prepared	: 2023-04-2	2, Analyze	ed: 2023-0	4-22		
Solids, Total Suspen	ded	98.0	10.0 mg/L	100		98	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	23D2057
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-04-19 11:25 / 11.8°C 2023-04-26 13:53 45035.39452

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔰 🛛 Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District o Final Effluent- PE14651	f (Wastewater)		WORK ORDER REPORTED	23D2057 2023-04-2	6 13:53
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	33626) (23D2057-01) M	atrix: Wastewater Sample	d: 2023-04-19 10:20			
Anions						
Chloride		129	0.10	mg/L	2023-04-21	
Nitrate (as N)		1.45	0.010	mg/L	2023-04-21	
Nitrite (as N)		0.065	0.010	mg/L	2023-04-21	
Phosphate (as P)		0.463	0.0050	mg/L	2023-04-21	RE2
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	1.52	0.0100	mg/L	N/A	
Nitrogen, Total	,	3.73	0.0500	mg/L	N/A	
Nitrogen, Organic		2.03	0.0500	mg/L	N/A	
General Parameter	s					
Alkalinity. Total (as	s CaCO3)	171	1.0	ma/L	2023-04-21	
Alkalinity, Phenolp	hthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Alkalinity, Bicarbo	nate (as CaCO3)	171	1.0	mg/L	2023-04-21	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Alkalinity, Hydroxid	de (as CaCO3)	< 1.0	1.0	mg/L	2023-04-21	
Ammonia, Total (a	s N)	0.183	0.050	mg/L	2023-04-20	
BOD, 5-day Carbo	onaceous	4.6	2.0	mg/L	2023-04-25	
Nitrogen, Total Kje	eldahl	2.21	0.050	mg/L	2023-04-21	
pН		7.59	0.10	pH units	2023-04-21	HT2
Phosphorus, Total	(as P)	0.943	0.0050	mg/L	2023-04-21	
Solids, Total Susp	ended	5.6	2.0	mg/L	2023-04-22	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	173000	1	MPN/100 mL	2023-04-20	
Coliforms, Fecal (Q-Tray)	61300	1	MPN/100 mL	2023-04-20	
Duplicate (23D20	57-02) Matrix: Water S	ampled: 2023-04-19 10:25				
Chlorida		430	0.40	ma/l	2022 04 24	
		130	0.10	mg/L	2023-04-21	
		1.42	0.010	mg/L	2023-04-21	
Decembers (co. D)		0.003	0.010	mg/L	2023-04-21	
Enosonale (as P)		0.4/9	0.0050	IIIg/L	2023-04-21	

Nitrate+Nitrite (as N)	1.48	0.0100 mg/L	N/A	
Nitrogen, Total	3.80	0.0500 mg/L	N/A	
General Parameters				
Alkalinity, Total (as CaCO3)	171	1.0 mg/L	2023-04-21	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-04-21	
Alkalinity, Bicarbonate (as CaCO3)	171	1.0 mg/L	2023-04-21	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L	2023-04-21	



REPORTED TO Lake Country, Dist PROJECT Final Effluent- PE1		rict of (Wastewater) 4651	t of (Wastewater) 51			23D2057 2023-04-2	6 13:53	
Analyte		Result		RL	Units	Analyzed	Qualifier	
Duplicate (23D20	157-02) Matrix: Wate	er Sampled: 2023-0	04-19 10:25, Con	tinued				
General Parameter	rs, Continued							
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0		1.0	mg/L	2023-04-21		
Ammonia, Total (a	as N)	0.183		0.050	mg/L	2023-04-20		
BOD, 5-day Carbo	onaceous	4.8		2.0	mg/L	2023-04-25		
Nitrogen, Total Kje	əldahl	2.32		0.050	mg/L	2023-04-21		
рН		7.60		0.10	pH units	2023-04-21	HT2	
Phosphorus, Total	l (as P)	0.936		0.0050	mg/L	2023-04-21		
Solids, Total Susp	ended	6.0		2.0	mg/L	2023-04-22		
Microbiological Pa	rameters							
Coliforms, Total (C	Q-Tray)	> 242000		1	MPN/100 mL	2023-04-20		
Coliforms, Fecal (Q-Tray)	64900		1	MPN/100 mL	2023-04-20		
Sample Qualifie	ers:							
HT2 The 1 recomm	5 minute recommer 1ended.	nded holding time	(from sampling	to analysis) ha	as been excee	ded - field	analysis is	

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



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER REPORTED 23D2057 2023-04-26 13:53

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / 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	\checkmark	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)	\checkmark	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

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)	WORK ORDER	23D2057
PROJECT	Final Effluent- PE14651	REPORTED	2023-04-26 13:53

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	Source	% REC	REC	% RPD RPD	Qualifier
·			Level	Result		Limit	Limit	

Anions, Batch B3D1811

Phosphate (as P)

Blank (B3D1811-BLK1)			Prepared: 202	3-04-21, Analyze	ed: 2023-04-21	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3D1811-BS1)			Prepared: 202	3-04-21, Analyze	ed: 2023-04-21	
Chloride	15.9	0.10 mg/L	16.0	99	90-110	
Nitrate (as N)	3.94	0.010 mg/L	4.00	99	90-110	
Nitrite (as N)	2.09	0.010 mg/L	2.00	105	85-115	

1 00

0.0050 mg/L

General Parameters, Batch B3D1711

Blank (B3D1711-BLK1)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L			
Blank (B3D1711-BLK2)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L			
Blank (B3D1711-BLK3)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L			
LCS (B3D1711-BS1)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100	102 85-115	
LCS (B3D1711-BS2)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100	102 85-115	
LCS (B3D1711-BS3)			Prepared: 202	3-04-19, Analyzed: 2023-04-2 ⁻	1
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100	101 85-115	

General Parameters, Batch B3D1778

Blank (B3D1778-BLK1)

Ammonia, Total (as N)

< 0.050 0.050 mg/L

1 13

Prepared: 2023-04-20, Analyzed: 2023-04-20

113

80-120

Caring About Results, Obviously.



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	rict of (Wastewa 4651	ter)				ORDER TED	23D2 2023	2057 -04-26	13:53
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3D1778, Co	ontinued								
Blank (B3D1778-BL	K2)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-20		
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L							
Blank (B3D1778-BL	K3)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-20		
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L			· · ·				
LCS (B3D1778-BS1)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-20		
Ammonia, Total (as N)	,	0.994	0.050 mg/L	1.00		99	85-115			
LCS (B3D1778-BS2)			Prepared	: 2023-04-2). Analvzed	: 2023-0	4-20		
Ammonia, Total (as N)	/	0.988	0.050 mg/L	1.00		99	85-115	-		
LCS (B3D1778-BS3)			Prepared	2023-04-2) Analyzed	· 2023-0	4-20		
Ammonia. Total (as N)	/	0.995	0.050 ma/L	1.00	. 2020 01 2	100	85-115	. 20		
General Parameters Blank (B3D1816-BL	, Batch B3D1816 K1)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-21		
Nitrogen, Total Kjeldah	I	< 0.050	0.050 mg/L							
Blank (B3D1816-BL	K2)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-21		
Nitrogen, Total Kjeldah	, I	< 0.050	0.050 mg/L							
LCS (B3D1816-BS1)			Prepared	: 2023-04-20), Analyzed	: 2023-0	4-21		
Nitrogen, Total Kjeldah	, 	1.08	0.050 mg/L	1.00		108	85-115			
LCS (B3D1816-BS2)			Prepared	: 2023-04-2). Analvzed	: 2023-0	4-21		
Nitrogen, Total Kjeldah	/ 	1.07	0.050 mg/L	1.00		107	85-115			
General Parameters Blank (B3D1824-BL	, Batch B3D1824 K1)		2.0	Prepared	: 2023-04-20), Analyzed	: 2023-0	4-25		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3D1824-BS1)	4		Prepared	: 2023-04-20), Analyzed	1: 2023-0	4-25		
BOD, 5-day Carbonac General Parameters Blank (B3D1911-BI	eous , Batch B3D1911 K1)	177	55.1 mg/L	198 Prepared	· 2023-04-2	89 1 Analyzed	85-115	4-21		
Alkalinity, Total (as Cal	, CO3)	< 1.0	1.0 mg/L			,,250				
Alkalinity, Phenolphtha	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3) as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3D1911-BL	K2)			Prepared	: 2023-04-2	1, Analyzed	: 2023-0	4-21		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphtha	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	as CaCO3)	< 1.0	1.0 mg/L 1.0 mg/l							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3D1911-BS1)			Prepared	: 2023-04-2	1, Analyzed	: 2023-0	4-21		
Alkalinity, Total (as Ca	CO3)	95.2	1.0 mg/L	100		95	80-120			



REPORTED TO PROJECT	Lake Country, D Final Effluent- P	istrict of (Wastewat E14651	er)			WORK REPOR	ORDER TED	23D2 2023	2057 -04-26	13:53
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B3D1911,	Continued								
LCS (B3D1911-BS	2)			Prepared	l: 2023-04-2	1, Analyze	d: 2023-0	4-21		
Alkalinity, Total (as C	aCO3)	96.9	1.0 mg/L	100		97	80-120			
Reference (B3D19	11-SRM1)			Prepared	l: 2023-04-2	1, Analyze	d: 2023-0	4-21		
рН		7.00	0.10 pH units	7.01		100	98-102			
Reference (B3D19	11-SRM2)			Prepared	l: 2023-04-2	1, Analyze	d: 2023-0	4-21		
рН		7.01	0.10 pH units	7.01		100	98-102			
General Parameter	s, Batch B3D2038									
Blank (B3D2038-B	LK1)			Prepared	l: 2023-04-2	2, Analyze	d: 2023-0	4-22		
Solids, Total Suspend	led	< 2.0	2.0 mg/L							
LCS (B3D2038-BS	1)			Prepared	I: 2023-04-2	2, Analyze	d: 2023-0	4-22		
Solids, Total Suspend	led	98.0	10.0 mg/L	100		98	85-115			
Microbiological Pa	rameters, Batch B	3D1792								
Blank (B3D1792-B	LK1)			Prepared	l: 2023-04-2	0, Analyze	d: 2023-0	4-20		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100 i	nL						
Blank (B3D1792-B	LK2)			Prepared	l: 2023-04-2	0, Analyze	d: 2023-0	4-20		
Coliforms, Fecal (Q-1	īray)	< 1	1 MPN/100 i	mL						



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23D2063
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-04-19 11:25 / 11.8°C 2023-04-26 13:55 45035.39452

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842			WORK REPOR	ORDER 23D2063 TED 2023-04-	26 13:55
Analyte		Result	RL Units	Analyzed	Qualifier
Amry WW (E2629	82) (23D2063-01) Matr	ix: Wastewater Sampled: 202	23-04-19 09:15		
General Parameters	S	5.0	2.0	2022 04 25	
Solids, Total Susp	ended	5.3	2.0 mg/L 2.0 mg/L	2023-04-25	



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** Amry- MR17842 PROJECT

WORK ORDER 23D2063 REPORTED

2023-04-26 13:55

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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)
mg/L	Milligrams per litre
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.



Solids, Total Suspended

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Lake Country, District of (Wastewater)	WORK ORDER	23D2063
PROJECT	Amry- MR17842	REPORTED	2023-04-26 13:55

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
General Parameters,Batch B3D1824									
Blank (B3D1824-BLK1)			Prepared	l: 2023-04-2	20, Analyze	d: 2023-0	04-25		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3D1824-BS1)			Prepared	l: 2023-04-2	20, Analyze	d: 2023-0	04-25		
BOD, 5-day Carbonaceous	177	55.1 mg/L	198		89	85-115			
Duplicate (B3D1824-DUP1)	Sour	ce: 23D2063-01	Prepared	l: 2023-04-2	20, Analyze	d: 2023-0	04-25		
BOD, 5-day Carbonaceous	5.5	2.0 mg/L		5.3				20	
General Parameters,Batch B3D2038									
Blank (B3D2038-BLK1)			Prepared	l: 2023-04-2	22, Analyze	d: 2023-0	04-22		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3D2038-BS1)			Prepared	l: 2023-04-2	22, Analyze	d: 2023-0	04-22		

100

98

85-115

10.0 mg/L

98.0



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E2838
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-23 14:13 / 16.1°C 2023-05-30 08:11 45069.35214

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842				WORK ORDER REPORTED	23E2838 2023-05-3	0 08:11
Analyte		Result	RL	Units	Analyzed	Qualifier
Amry WW (E2629	982) (23E2838-01) Matri	x: Wastewater Sampled: 202	23-05-23 11:52			
BOD 5 day Carbo	5	< 7.2	2.0	mall	2022 05 20	
Solids, Total Suspe	ended	18.0	2.0	mg/L	2023-05-25	



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry- MR17842

 WORK ORDER
 23E283

 REPORTED
 2023-03

23E2838 2023-05-30 08:11

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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)	WORK ORDER	23E2838
PROJECT	Amry- MR17842	REPORTED	2023-05-30 08:11

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
General Parameters, Batch B3E2636									
Blank (B3E2636-BLK1)			Prepared	I: 2023-05-2	24, Analyze	d: 2023-(05-29		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3E2636-BS1)			Prepared	I: 2023-05-2	24, Analyze	d: 2023-(05-29		
BOD, 5-day Carbonaceous	196	61.0 mg/L	198		99	85-115			
General Parameters, Batch B3E2793									
Blank (B3E2793-BLK1)			Prepared	I: 2023-05-2	25, Analyze	d: 2023-0	05-25		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3E2793-BS1)			Prepared	I: 2023-05-2	25, Analyze	d: 2023-(05-25		
Solids, Total Suspended	109	10.0 mg/L	100		109	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	23E3829
PO NUMBER PROJECT PROJECT INFO	Monitoring Wells Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-30 14:40 / 16.9°C 2023-06-06 14:13 45076.59410

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🚺 Ahe

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, Dis Monitoring Wells	strict of (Wastewater)		WORK ORDER REPORTED	23E3829 2023-06-0	6 14:13
Analyte		Result	RL	Units	Analyzed	Qualifier
MW-2 (23E3829-0	01) Matrix: Water	Sampled: 2023-05-30 10:10				
Anions						
Chloride		8.06	0.10	mg/L	2023-06-01	
Nitrate (as N)		0.955	0.010	mg/L	2023-06-01	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-06-01	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-06-01	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	0.955	0.0100	mg/L	N/A	
Nitrogen, Total		1.11	0.0500	mg/L	N/A	
General Parameter	rs					
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)		450	2.0	µS/cm	2023-06-03	
Nitrogen, Total Kje	eldahl	0.150	0.050	mg/L	2023-06-04	
pН		8.01	0.10	pH units	2023-06-03	HT2
Phosphorus, Tota	l (as P)	0.0148	0.0050	mg/L	2023-06-01	
Turbidity		2.93	0.10	NTU	2023-05-31	
Microbiological Pa	rameters					
E. coli (Q-Tray)		<1	1	MPN/100 mL	2023-05-31	
Total Metals						
Sodium, total		16.2	0.10	mg/L	2023-06-04	

MW-10 (23E3829-02) | Matrix: Water | Sampled: 2023-05-30 12:26

Anions					
Chloride	104	0.10	mg/L	2023-06-01	
Nitrate (as N)	2.26	0.010	mg/L	2023-06-01	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-06-01	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-06-01	
Calculated Parameters					
Nitrate+Nitrite (as N)	2.26	0.0100	mg/L	N/A	
Nitrogen, Total	2.48	0.0500	mg/L	N/A	
General Parameters					
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)	884	2.0	µS/cm	2023-06-03	
Nitrogen, Total Kjeldahl	0.217	0.050	mg/L	2023-06-04	
рН	7.99	0.10	pH units	2023-06-03	HT2
Phosphorus, Total (as P)	0.0817	0.0050	mg/L	2023-06-01	
Turbidity	6.77	0.10	NTU	2023-05-31	
Microbiological Parameters					
E. coli (Q-Tray)	< 1	1	MPN/100 mL	2023-05-31	

Caring About Results, Obviously.



REPORTED TO PROJECT	Lake Country, District Monitoring Wells	t of (Wastewater)		WORK ORDER REPORTED	23E3829 2023-06-0	6 14:13
Analyte		Result	RL	Units	Analyzed	Qualifier
MW-10 (23E3829-	02) Matrix: Water Sa	ampled: 2023-05-30 12:26, Co	ontinued			
Total Metals						
Sodium, total		70.3	0.10	mg/L	2023-06-04	
MW-12 (23E3829-	03) Matrix: Water Sa	ampled: 2023-05-30 12:10				
Anions						
Chloride		113	0.10	mg/L	2023-06-01	
Nitrate (as N)		2.39	0.010	mg/L	2023-06-01	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-06-01	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-06-01	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	2.39	0.0100	mg/L	N/A	
Nitrogen, Total		2.53	0.0500	mg/L	N/A	
General Parameters	s					
Ammonia, Total (a	s N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)	,	912	2.0	μS/cm	2023-06-03	
Nitrogen, Total Kje	ldahl	0.139	0.050	mg/L	2023-06-04	
pН		8.02	0.10	pH units	2023-06-03	HT2
Phosphorus, Total	(as P)	0.0812	0.0050	mg/L	2023-06-01	
Turbidity		9.95	0.10	NTU	2023-05-31	
Microbiological Pai	rameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-05-31	
Total Metals						
Sodium, total		81.0	0.10	mg/L	2023-06-04	
MW-14 (23E3829-	04) Matrix: Water Sa	ampled: 2023-05-30 09:35				
Anions						
Chloride		96.9	0.10	mg/L	2023-06-01	
Nitrate (as N)		< 0.010	0.010	mg/L	2023-06-01	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-06-01	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-06-01	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		0.168	0.0500	mg/L	N/A	
General Parameters	s					
Ammonia, Total (a	s N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)		1040	2.0	μS/cm	2023-06-03	
Nitrogen Total Kie	ldahl	0 168	0.050	mg/L	2023-06-04	

Caring About Results, Obviously.

Page 3 of 10



	Lake Country, District of (Wastewater) Monitoring Wells					
REPORTED TO PROJECT				WORK ORDER REPORTED	23E3829 2023-06-0	06 14:13
Analyte		Result	RL	Units	Analyzed	Qualifier
MW-14 (23E3829	04) Matrix: Water S	ampled: 2023-05-30 09:35, Co	ontinued			
General Parameter	s, Continued					
рН		8.00	0.10	pH units	2023-06-03	HT2
Phosphorus, Total	(as P)	0.118	0.0050	mg/L	2023-06-01	
Turbidity		6.99	0.10	NTU	2023-05-31	
Microbiological Pa	rameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-05-31	
Total Metals						
Sodium, total		66.8	0.10	mg/L	2023-06-04	
MW-18 (23E3829	05) Matrix: Water S	ampled: 2023-05-30 13:50				
Anions						
Chloride		95.0	0.10	mg/L	2023-06-01	
Nitrate (as N)		0.849	0.010	mg/L	2023-06-01	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-06-01	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-06-01	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	0.849	0.0100	mg/L	N/A	
Nitrogen, Total		0.959	0.0500	mg/L	N/A	
General Parameter	s					
Ammonia, Total (a	s N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)	,	765	2.0	μS/cm	2023-06-03	
Nitrogen, Total Kje	ldahl	0.110	0.050	mg/L	2023-06-04	
pН		8.07	0.10	pH units	2023-06-03	HT2
Phosphorus, Total	(as P)	1.82	0.0050	mg/L	2023-06-01	
Turbidity		301	0.10	NTU	2023-05-31	
Microbiological Pa	rameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-05-31	
Total Metals						
Sodium, total		78.7	0.10	mg/L	2023-06-04	

Equipment Blank (23E3829-06) | Matrix: Water | Sampled: 2023-05-30 11:28

Anions				
Chloride	0.44	0.10 mg/L	2023-06-01	RE2
Nitrate (as N)	0.024	0.010 mg/L	2023-06-01	RE2
Nitrite (as N)	< 0.010	0.010 mg/L	2023-06-01	
Phosphate (as P)	< 0.0050	0.0050 mg/L	2023-06-01	

Calculated Parameters



REPORTED TO PROJECT	Lake Country, I Monitoring Wel	District of (Wastewater) lls		WORK ORDER REPORTED	23E3829 2023-06-0	6 14:13
Analyte		Result	RL	Units	Analyzed	Qualifier
Equipment Blank	((23E3829-06) I	Matrix: Water Sampled: 2023-05-30	11:28, Continued			
Calculated Parame	eters, Continued					
Nitrate+Nitrite (as	N)	0.0242	0.0100	mg/L	N/A	
Nitrogen, Total		< 0.0500	0.0500	mg/L	N/A	
General Parameter	rs					
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-06-01	
Conductivity (EC)		7.1	2.0	µS/cm	2023-06-03	RE2
Nitrogen, Total Kje	əldahl	< 0.050	0.050	mg/L	2023-06-04	
рН		6.04	0.10	pH units	2023-06-03	HT2
Phosphorus, Total	l (as P)	0.0052	0.0050	mg/L	2023-06-01	RE2
Turbidity		0.29	0.10	NTU	2023-05-31	RE2
Microbiological Pa	rameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-05-31	
Total Metals						
Sodium, total		0.56	0.10	mg/L	2023-06-04	
Sample Qualifie	ers:					
HT2 The 1 recomm RE2 Result v	5 minute recom rended. was confirmed by re	ımended holding time (from sampl e-analysis prior to reporting.	ing to analysis) ha	as been exceed	led - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Monitoring Wells

WORK ORDER 23 REPORTED 20

23E3829 2023-06-06 14:13

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli in Water	NA / 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
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	\checkmark	Kelowna
Note: An asterisk in the Method Refe	erence indicates that the CAR	D 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
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
μS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23E3829
PROJECT	Monitoring Wells	REPORTED	2023-06-06 14:13

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 B3E3325

Blank (B3E3325-BLK1)			Prepared: 202	23-06-01, Analyze	d: 2023-06-01
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			
Phosphate (as P)	< 0.0050	0.0050 mg/L			
Blank (B3E3325-BLK2)			Prepared: 202	23-06-01, Analyze	d: 2023-06-01
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			
Phosphate (as P)	< 0.0050	0.0050 mg/L			
LCS (B3E3325-BS1)			Prepared: 202	23-06-01, Analyze	d: 2023-06-01
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
Nitrite (as N)	2.06	0.010 mg/L	2.00	103	85-115
Phosphate (as P)	1.01	0.0050 mg/L	1.00	101	80-120
LCS (B3E3325-BS2)			Prepared: 202	23-06-01, Analyze	d: 2023-06-01
Chloride	16.1	0.10 mg/L	16.0	100	90-110
Nitrate (as N)	4.07	0.010 mg/L	4.00	102	90-110
Nitrite (as N)	2.02	0.010 mg/L	2.00	101	85-115
Phosphate (as P)	1.06	0.0050 mg/L	1.00	106	80-120
LCS (B3E3325-BS3)			Prepared: 202	23-06-02, Analyze	d: 2023-06-02
Chloride	16.0	0.10 mg/L	16.0	100	90-110
Nitrate (as N)	4.14	0.010 mg/L	4.00	104	90-110
Nitrite (as N)	2.04	0.010 mg/L	2.00	102	85-115
Phosphate (as P)	1.05	0.0050 mg/L	1.00	105	80-120

General Parameters, Batch B3E3447

Blank (B3E3447-BLK1)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	
Blank (B3E3447-BLK2)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	



REPORTED TO PROJECT	Lake Country, Distric Monitoring Wells	ct of (Wastewa	ater)	WORK ORDER23REPORTED20			23E3 2023	.3829 3-06-06 14:13		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3E3447, Con	tinued								
Blank (B3E3//7-Bl	K3)			Prenared	2023-05-31	Analyzed	· 2023-0	5-31		
Turbidity	10)	< 0.10	0.10 NTU	T Toparoa.	2020 00 01	, / (10)/200	. 2020 0	0 01		
LCS (B3E3447-BS1))			Prenared	2023-05-31	Analyzed	· 2023-0	5-31		
Turbidity	/	1.78	0.10 NTU	1.69	2020 00 01	105	90-110	001		
LCS (B3E3447-BS2))			Prepared:	2023-05-31	. Analvzed	: 2023-0	5-31		
Turbidity	,	15.3	0.10 NTU	14.6		105	90-110			
LCS (B3E3447-BS3))			Prepared:	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity		145	0.10 NTU	140		104	90-110			
Duplicate (B3E3447	'-DUP3)	Sou	ırce: 23E3829-05	Prepared:	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity		337	0.10 NTU		301			11	15	
General Parameters	, Batch B3E3485									
Blank (B3E3485-BL	K1)			Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K2)			Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K3)			Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Iotal (as	Р)	< 0.0050	0.0050 mg/L							
LCS (B3E3485-BS1))	0.404	0.0050	Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Iotal (as	Р)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS2)		0.404	0.0050	Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Iotal (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS3)) P)	0 102	0.0050 mg/l	Prepared:	2023-05-31	, Analyzed	2023-0	6-01		
General Parameters	, Batch B3F0032	0.102	0.0030 mg/L	0.100		102	85-115			
Blank (B3F0032-BL	K1)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K2)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K3)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K4)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K5)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B3F0032-BS1)				Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.915	0.050 mg/L	1.00		92	85-115			
LCS (B3F0032-BS2)				Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.934	0.050 mg/L	1.00		93	85-115			



REPORTED TO PROJECT	Lake Country, Distr Monitoring Wells	ict of (Wastewa	ter)			WORK (REPOR	ORDER TED	23E3 2023	829 -06-06	14:13
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3F0032, Col	ntinued								
LCS (B3F0032-BS3)				Prepared	: 2023-06-0	1, Analyzed	1: 2023-0	6-01		
Ammonia, Total (as N)		0.935	0.050 mg/L	1.00		94	85-115			
LCS (B3F0032-BS4)				Prepared	: 2023-06-0	1, Analyzeo	1: 2023-0	6-01		
Ammonia, Total (as N)		0.937	0.050 mg/L	1.00		94	85-115			
LCS (B3F0032-BS5)				Prepared	: 2023-06-0	1, Analyzeo	1: 2023-0	6-01		
Ammonia, Total (as N)		0.947	0.050 mg/L	1.00		95	85-115			
General Parameters	, Batch B3F0224									
Blank (B3F0224-BL	K1)			Prepared	: 2023-06-0	2, Analyzeo	1: 2023-0	6-04		
Nitrogen, Total Kjeldah	1	< 0.050	0.050 mg/L							
Blank (B3F0224-BL	K2)			Prepared	: 2023-06-0	2, Analyzeo	1: 2023-0	6-04		
Nitrogen, Total Kjeldah	I	< 0.050	0.050 mg/L							
LCS (B3F0224-BS1)				Prepared	: 2023-06-0	2, Analyzeo	1: 2023-0	6-04		
Nitrogen, Total Kjeldah	I	0.974	0.050 mg/L	1.00		97	85-115			
LCS (B3F0224-BS2)				Prepared	: 2023-06-0	2, Analyzeo	1: 2023-0	6-04		
Nitrogen, Total Kjeldah	I	0.983	0.050 mg/L	1.00		98	85-115			
General Parameters	,Batch B3F0322 K1)			Prepared	: 2023-06-0	3, Analyzeo	1: 2023-0	6-03		
Conductivity (EC)	•	< 2.0	2.0 µS/cm	•						
Blank (B3F0322-BL	K2)			Prepared	: 2023-06-0	3, Analyzeo	1: 2023-0	6-03		
Conductivity (EC)	· ·	< 2.0	2.0 µS/cm	-		-				
LCS (B3F0322-BS3)				Prepared	: 2023-06-0	3, Analyzeo	1: 2023-0	6-03		
Conductivity (EC)		1410	2.0 µS/cm	1410		100	95-105			
LCS (B3F0322-BS4)				Prepared	: 2023-06-0	3, Analyzeo	1: 2023-0	6-03		
Conductivity (EC)		1420	2.0 µS/cm	1410		101	95-105			
Reference (B3F0322	2-SRM1)			Prepared	: 2023-06-0	3, Analyzed	l: 2023-0	6-03		
рН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B3F0322	2-SRM2)			Prepared	: 2023-06-0	3, Analyzed	1: 2023-0	6-03		
рН		7.01	0.10 pH units	7.01		100	98-102			
Microbiological Para	ameters, Batch B3E3	387		Broporod	· 2022 05 2		1. 2022 0	5 21		
E. coli (Q-Trav)	N1)	< 1	1 MPN/100 r	nL	. 2023-03-3	r, Analyzet	1. 2023-0	5-51		
Blank (B2E2207 Bl	K2)	•		Prenared	· 2023-05 2	1 Analyzog	1. 2023 0	15_31		
F coli (Q-Trav)	rx2)	< 1	1 MPN/100 r	nl	. 2023-03-3	r, Analyzet	1. 2023-0	5-51		
Blank (D2E2207 D	K3)	~ 1	1 101 10/1001	Droparad	· 2023 05 3	1 Analyza	1. 2022 0	5_31		
	nəj	< 1	1 MPNI/100 r	nl	. 2023-03-3	r, Analyzed	1. 2023-0	5-51		
Plank (P2E2207 D	KA)	~ 1	1 101 10/1001	Dropored	. 2022 05 2	1 Apply	1. 2022 0	5 21		
F coli (Q-Trav)	N4)	< 1	1 MPN/100 r	nl	. 2023-03-3	r, Analyzed	1. 2023-0	5-51		



REPORTED TO PROJECT	Lake Cou Monitorir	untry, District of (Wastewater) ng Wells)			WORK REPOR	VORK ORDER 23E3829 REPORTED 2023-06-06				
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
Microbiological Pa	rameters, E	Batch B3E3387, Continued									
Blank (B3E3387-B	LK5)			Prepared	I: 2023-05-3	31, Analyze	ed: 2023-0	5-31			
E. coli (Q-Tray)		< 1	1 MPN/100	mL							
Blank (B3E3387-B	LK6)			Prepared	I: 2023-05-3	31, Analyze	ed: 2023-0	5-31			
E. coli (Q-Tray)	-	< 1	1 MPN/100	mL							
Blank (B3E3387-B	LK7)			Prepared	I: 2023-05-3	31, Analyze	ed: 2023-0	5-31			
E. coli (Q-Tray)		< 1	1 MPN/100	mL							
Total Metals, Batc	h B3F0320										
Blank (B3F0320-B	LK1)			Prepared	I: 2023-06-0)3, Analyze	ed: 2023-0	6-04			
Sodium, total		< 0.10	0.10 mg/L								
LCS (B3F0320-BS	1)			Prepared	I: 2023-06-0)3, Analyze	ed: 2023-0	6-06			
Sodium, total		4.37	0.10 mg/L	4.00		109	80-120				

[



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E2832
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-23 14:13 / 16.1°C 2023-05-30 08:21 45069.35214

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Distric PROJECT Raw Influent- PE146		f (Wastewater)		WORK ORDER REPORTED	23E2832 2023-05-3	0 08:21
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2	33627) (23E2832-01) Ma	trix: Wastewater Sample	d: 2023-05-23 11:20			
Anions						
Nitrate (as N)		0.010	0.010	mg/L	2023-05-24	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-05-24	
Phosphate (as P)		6.19	0.0050	mg/L	2023-05-24	
Calculated Parame	eters					
Nitrate+Nitrite (as	5 N)	0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		59.9	2.00	mg/L	N/A	
General Parameter	rs					
Alkalinity, Total (a	s CaCO3)	300	1.0	mg/L	2023-05-27	
Alkalinity, Phenol	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Alkalinity, Bicarbo	nate (as CaCO3)	300	1.0	mg/L	2023-05-27	
Alkalinity, Carbon	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Alkalinity, Hydroxi	ide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Ammonia, Total (a	as N)	50.0	0.050	mg/L	2023-05-24	
BOD, 5-day		362	2.0	mg/L	2023-05-29	
BOD, 5-day Carbo	onaceous	375	2.0	mg/L	2023-05-29	
Nitrogen, Total Kje	eldahl	59.9	0.050	mg/L	2023-05-28	
рН		7.63	0.10	pH units	2023-05-27	HT2
Phosphorus, Tota	l (as P)	8.63	0.0050	mg/L	2023-05-25	
Solids, Total Susp	pended	280	2.0	mg/L	2023-05-25	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED

23E2832 2023-05-30 08:21

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	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)	WORK ORDER	23E2832
PROJECT	Raw Influent- PE14651	REPORTED	2023-05-30 08:21

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	Source	% REC	REC	% RPD RPD	Qualifier
·			Level	Result		Limit	Limit	

Anions, Batch B3E2571

Blank (B3E2571-BLK1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3E2571-BS1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
Nitrate (as N)	4.08	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	2.09	0.010 mg/L	2.00	104	85-115	
Phosphate (as P)	1.07	0.0050 mg/L	1.00	107	80-120	

General Parameters, Batch B3E2577

Blank (B3E2577-BLK1)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L		
Blank (B3E2577-BLK2)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L		
Blank (B3E2577-BLK3)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L		
Blank (B3E2577-BLK4)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L		
LCS (B3E2577-BS1)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	0.995	0.050 mg/L	1.00 100 85-115	
LCS (B3E2577-BS2)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00 99 85-115	
LCS (B3E2577-BS3)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	1.03	0.050 mg/L	1.00 103 85-115	
LCS (B3E2577-BS4)			Prepared: 2023-05-24, Analyzed: 2023-05-24	
Ammonia, Total (as N)	0.951	0.050 mg/L	1.00 95 85-115	

General Parameters, Batch B3E2634



REPORTED TO PROJECT	Lake Country, Dis Raw Influent- PE1	trict of (Wastewa 14651	ater)			WORK C	RDER ED	23E2 2023	2832 3-05-30	08:21
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3E2634, C	continued								
Blank (B3E2634-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day	•	< 2.0	2.0 mg/L							
LCS (B3E2634-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day	,	192	58.3 mg/L	198		97	85-115			
General Parameters	, Batch B3E2636									
Blank (B3E2636-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3E2636-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day Carbonac	eous	196	61.0 mg/L	198		99	85-115			
General Parameters	, Batch B3E2678									
Blank (B3E2678-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K2)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K4)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3E2678-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3E2678-BS2)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B3E2678-BS3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.100	0.0050 mg/L	0.100		100	85-115			
LCS (B3E2678-BS4)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
General Parameters	, Batch B3E2728									
Blank (B3E2728-BL	.K1)		0.0	Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-25		
Solids, Total Suspende	ed	< 2.0	2.0 mg/L							
LCS (B3E2728-BS1)			Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-25		
Solids, Total Suspende	ed	95.0	10.0 mg/L	100		95	85-115			
Duplicate (B3E2728	3-DUP1)	Sou	Irce: 23E2832-01	Prepared	: 2023-05-25	i, Analyzed	: 2023-0	5-25		
Solids, Total Suspende	ed	268	2.0 mg/L		280			4	20	
General Parameters	, Batch B3E2921									
Blank (B3E2921-BL	.K1)			Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
Nitrogen, Total Kjeldah	ıl	< 0.050	0.050 mg/L							



REPORTED TO L PROJECT F	.ake Country, E Raw Influent- P	District of (Wastew E14651	ater)			WORK REPOR	ORDER RTED	23E2 2023	832 -05-30	08:21
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3E2921,	Continued								
Blank (B3E2921-BLK	2)			Prepared	I: 2023-05-2	26, Analyze	ed: 2023-0	5-28		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
LCS (B3E2921-BS1)				Prepared	I: 2023-05-2	26, Analyze	ed: 2023-0	5-28		
Nitrogen, Total Kjeldahl		0.883	0.050 mg/L	1.00		88	85-115			
LCS (B3E2921-BS2)				Prepared	I: 2023-05-2	26, Analyze	ed: 2023-0	5-28		
Nitrogen, Total Kjeldahl		0.887	0.050 mg/L	1.00		89	85-115			
General Parameters, Blank (B3E3026-BLK	Batch B3E3026 1)			Preparec	l: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
Alkalinity, Total (as CaCO	03)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthale	ein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as	s CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
Blank (B3E3026-BLK	2)			Prepared	I: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
Alkalinity, Total (as CaCO	03)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthale	ein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as	s CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
LCS (B3E3026-BS1)				Prepared	I: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
Alkalinity, Total (as CaCO	03)	94.9	1.0 mg/L	100		95	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	71.9	1.0 mg/L	50.0		144	0-200			
LCS (B3E3026-BS2)				Prepared	I: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
Alkalinity, Total (as CaCO	03)	95.9	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	70.0	1.0 mg/L	50.0		140	0-200			
Reference (B3E3026-	SRM1)			Prepared	I: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
pН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B3E3026-	SRM2)			Prepared	I: 2023-05-2	27, Analyze	ed: 2023-0	5-27		
рН		7.01	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	23E2835
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-23 14:13 / 16.1°C 2023-05-30 08:10 45069.35214

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Alkalinity, Bicarbonate (as CaCO3)

TEST RESULTS

REPORTED TO PROJECT	Lake Country, District o Final Effluent- PE14657		WORK ORDER REPORTED	23E2835 2023-05-3	0 08:10	
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	233626) (23E2835-01) M	atrix: Wastewater Sampl	ed: 2023-05-23 11:00			
Anions						
Chloride		120	0.10	mg/L	2023-05-24	
Nitrate (as N)		0.264	0.010	mg/L	2023-05-24	
Nitrite (as N)		0.125	0.010	mg/L	2023-05-24	
Phosphate (as P)		0.0263	0.0050	mg/L	2023-05-24	
Calculated Parame	ters					
Nitrate+Nitrite (as	N)	0.390	0.0100	ma/L	N/A	
Nitrogen, Total	,	2.91	0.0500	mg/L	N/A	
Nitrogen, Organic		1.45	0.0500	mg/L	N/A	
General Parameter	'S					
Alkalinity, Total (as	s CaCO3)	171	1.0	ma/L	2023-05-27	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Alkalinity, Bicarbo	nate (as CaCO3)	171	1.0	mg/L	2023-05-27	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-05-27	
Ammonia, Total (a	is N)	1.07	0.050	mg/L	2023-05-24	
BOD, 5-day Carbo	onaceous	< 7.3	2.0	mg/L	2023-05-29	
Nitrogen, Total Kje	eldahl	2.52	0.050	mg/L	2023-05-26	
рН		7.71	0.10	pH units	2023-05-27	HT2
Phosphorus, Total	(as P)	0.270	0.0050	mg/L	2023-05-25	
Solids, Total Susp	ended	3.6	2.0	mg/L	2023-05-25	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	> 242000	1	MPN/100 mL	2023-05-23	
Coliforms, Fecal (Q-Tray)	92100	1	MPN/100 mL	2023-05-23	
Trip Blank (23E28	335-02) Matrix: Water \$	Sampled: 2023-05-23 08:5	0			
Anions						
Chloride		< 0.10	0.10	mg/L	2023-05-24	
Nitrate (as N)		< 0.010	0.010	mg/L	2023-05-24	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-05-24	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-05-24	
Calculated Parame	ters					

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				
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	2023-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-05-27	

1.0 mg/L

< 1.0

Page 2 of 7

2023-05-27



REPORTED TO PROJECT	Lake Country, Di Final Effluent- Pf	strict of (Wastewater) E14651			WORK ORDER REPORTED	23E2835 2023-05-3	30 08:10
Analyte		Result		RL	Units	Analyzed	Qualifier
Trip Blank (23E28	835-02) Matrix: W	ater Sampled: 2023-	05-23 08:50, C	Continued			
General Parameter	rs, Continued						
Alkalinity, Carbona	ate (as CaCO3)	< 1.0		1.0	mg/L	2023-05-27	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0		1.0	mg/L	2023-05-27	
Ammonia, Total (a	as N)	< 0.050		0.050	mg/L	2023-05-24	
BOD, 5-day Carbo	onaceous	< 7.3		2.0	mg/L	2023-05-29	
Nitrogen, Total Kje	eldahl	< 0.050		0.050	mg/L	2023-05-26	
рН		5.41		0.10	pH units	2023-05-27	HT2
Phosphorus, Total	l (as P)	< 0.0050		0.0050	mg/L	2023-05-25	
Solids, Total Susp	vended	< 2.0		2.0	mg/L	2023-05-25	
Microbiological Pa	rameters						
Coliforms, Total (C	Q-Tray)	< 1		1	MPN/100 mL	2023-05-23	
Coliforms, Fecal (Q-Tray)	< 1		1	MPN/100 mL	2023-05-23	
Sample Qualifie HT2 The 1	ers: 5 minute recomm	nended holding time	(from samplin	ng to analysis) ha	as been exceed	ded - field	analysis is

recommended.


REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23E2835 2023-05-30 08:10

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / 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	\checkmark	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)	\checkmark	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

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)	WORK ORDER	23E2835
PROJECT	Final Effluent- PE14651	REPORTED	2023-05-30 08:10

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3E2571

Phosphate (as P)

Blank (B3E2571-BLK1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3E2571-BS1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
Chloride	16.3	0.10 mg/L	16.0	102	90-110	
Nitrate (as N)	4.08	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	2.09	0.010 mg/L	2.00	104	85-115	

1 00

107

80-120

0.0050 mg/L

1 07

General Parameters, Batch B3E2577

Blank (B3E2577-BLK1)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK2)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK3)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK4)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3E2577-BS1)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	0.995	0.050 mg/L	1.00	100	85-115	
LCS (B3E2577-BS2)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00	99	85-115	
LCS (B3E2577-BS3)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	1.03	0.050 mg/L	1.00	103	85-115	
LCS (B3E2577-BS4)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
				, ,		



REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	rict of (Wastewa 4651	ater)			WORK C	RDER ED	23E2 2023	2835 8-05-30	08:10
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3E2577, Co	ontinued								
Duplicate (B3E2577	7-DUP4)	Sou	rce: 23E2835-01	Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-24		
Ammonia, Total (as N)		1.05	0.050 mg/L		1.07			1	15	
Matrix Spike (B3E2	577-MS4)	Sou	rce: 23E2835-01	Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-24		
Ammonia, Total (as N)		1.24	0.050 mg/L	0.204	1.07	87	75-125			
General Parameters	, Batch B3E2636									
Blank (B3E2636-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3E2636-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-29		
BOD, 5-day Carbonac	eous	196	61.0 mg/L	198		99	85-115			
General Parameters	, Batch B3E2678									
Blank (B3E2678-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K2)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K4)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3E2678-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3E2678-BS2	:)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B3E2678-BS3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.100	0.0050 mg/L	0.100		100	85-115			
LCS (B3E2678-BS4	.)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
General Parameters	, Batch B3E2728									
Blank (B3E2728-BL	.K1)		0.0	Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-25		
Solids, Total Suspende	ed	< 2.0	2.0 mg/L							
LCS (B3E2728-BS1)			Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-25		
Solids, Total Suspende	ed	95.0	10.0 mg/L	100		95	85-115			
General Parameters	, Batch B3E2782									
Blank (B3E2782-BL	.K1)			Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-26		
Nitrogen, Total Kjeldah	าไ	< 0.050	0.050 mg/L							
Blank (B3E2782-BL	.K2)			Prepared	: 2023-05-25	, Analyzed	: 2023-0	5-26		
Nitrogen, Total Kjeldah	าไ	< 0.050	0.050 mg/L							



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	ict of (Wastewa 4651	iter)			WORK REPOR	ORDER TED	23E2 2023	2835 3-05-30	08:10
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3E2782, Co	ntinued								
LCS (B3E2782-BS1))			Prepared	: 2023-05-2	5, Analyze	d: 2023-0	5-26		
Nitrogen, Total Kjeldah	1	1.08	0.050 mg/L	1.00		108	85-115			
LCS (B3E2782-BS2))			Prepared	: 2023-05-2	5, Analyze	d: 2023-0	5-26		
Nitrogen, Total Kjeldah		1.08	0.050 mg/L	1.00		108	85-115			
General Parameters	, Batch B3E3026									
Blank (B3E3026-BL	K1)			Prepared	: 2023-05-2	7, Analyze	d: 2023-0	5-27		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphtha	alein (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							
Blank (B3E3026-BL	K2)	\$ 1.0	1.0 mg/L	Prepared	: 2023-05-2	7. Analvze	d: 2023-0	5-27		
Alkalinity. Total (as Ca	, CO3)	< 1.0	1.0 mg/L			, ,		-		
Alkalinity, Phenolphtha	alein (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 (a	as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3E3026-BS1))			Prepared	: 2023-05-2	7, Analyze	d: 2023-0	5-27		
Alkalinity, Total (as Ca	CO3)	94.9	1.0 mg/L	100		95	80-120			
Alkalinity, Phenolphtha	alein (as CaCO3)	71.9	1.0 mg/L	50.0		144	0-200			
LCS (B3E3026-BS2))			Prepared	: 2023-05-2	7, Analyze	d: 2023-0	5-27		
Alkalinity, Total (as Ca	CO3)	95.9	1.0 mg/L	100		96	80-120			
Alkalinity, Phenolphtha	alein (as CaCO3)	70.0	1.0 mg/L	50.0		140	0-200			
Reference (B3E302	6-SRM1)			Prepared	: 2023-05-2	7, Analyze	d: 2023-0	5-27		
рН		7.01	0.10 pH units	7.01		100	98-102			
Reference (B3E302	6-SRM2)			Prepared	: 2023-05-2	7, Analyze	d: 2023-0	5-27		
рН		7.01	0.10 pH units	7.01		100	98-102			
Microbiological Para Blank (B3E2437-BL	ameters, Batch B3E2 K1)	437		Prepared	: 2023-05-2	3, Analyze	d: 2023-0	5-23		
Coliforms, Total (Q-Tra	y)	< 1	1 MPN/100	mL						
Blank (B3E2437-Bl	K2)			Prepared	· 2023-05-2	3 Analyze	d [.] 2023-0	5-23		
Coliforms. Total (Q-Tra	v)	< 1	1 MPN/100	mL		0,7		0 20		
Blank (B3E2437-BL	K3)			Prepared	· 2023-05-2	3 Analyze	d [.] 2023-0	5-23		
Coliforms, Fecal (Q-Tra	ay)	< 1	1 MPN/100	mL		o,,,		0 20		
Duplicate (B3E2437	-DUP3)	Sou	rce: 23E2835-02	Prepared	: 2023-05-2	3, Analyze	d: 2023-0	5-23		
Coliforms, Fecal (Q-Tra	ay)	< 1	1 MPN/100	mL	< 1				80	RS2

RS2 The Reporting Limits for this sample have been raised due to limited sample volume.



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E2836
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-23 14:13 / 16.1°C 2023-05-31 10:03 45069.35214

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔰 🛛 Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Iron

Lead

Lithium

Mercury

Nickel

Magnesium

Manganese

Molybdenum

Phosphorus

Potassium

Selenium

Silver

Sulfur

Sodium

Strontium

Tellurium

Thallium

Thorium

Titanium

Tungsten

Uranium

Vanadium

Zinc

Tin

REPORTED TO Lake Country, Dis PROJECT BioSolids- PE1463		istrict of (Wastewater) 651		WORK ORDER REPORTED	23E2836 2023-05-3	1 10:03	
Analyte		Result	RL	Units	Analyzed	Qualifier	
Biosolids (E2336	628) (23E2836-01)	Matrix: Sludge Sampled: 2023-05	-23 10:50				
General Parameter	rs						
Moisture		76.9	1.0	% wet	2023-05-26		
Nitrogen, Total Kje	eldahl	4.50	0.0004	% dry	2023-05-31		
pH (1:2 H2O Solu	ition)	5.55	0.10	pH units	2023-05-24	PH1	
Solids, Total		20.8	0.1	% wet	2023-05-29		
Solids, Volatile		85.3	0.1	% dry	2023-05-29		
Strong Acid Leach	able Metals						
Aluminum		3000	40	mg/kg dry	2023-05-29		
Antimony		1.27	0.10	mg/kg dry	2023-05-29		
Arsenic		1.62	0.30	mg/kg dry	2023-05-29		
Barium		108	1.0	mg/kg dry	2023-05-29		
Beryllium		< 0.10	0.10	mg/kg dry	2023-05-29		
Bismuth		28.7	0.10	mg/kg dry	2023-05-29		
Boron		7.7	2.0	mg/kg dry	2023-05-29		
Cadmium		1.66	0.040	mg/kg dry	2023-05-29		
Calcium		11800	100	mg/kg dry	2023-05-29		
Chromium		19.0	1.0	mg/kg dry	2023-05-29		
Cobalt		1.50	0.10	mg/kg dry	2023-05-29		
Copper		341	0.40	mg/kg dry	2023-05-29		

20.0 mg/kg dry

0.20 mg/kg dry

0.10 mg/kg dry

0.40 mg/kg dry

0.040 mg/kg dry

0.10 mg/kg dry

0.60 mg/kg dry

10 mg/kg dry

40 mg/kg dry

0.20 mg/kg dry

0.10 mg/kg dry 50 mg/kg dry

0.20 mg/kg dry

1000 mg/kg dry

0.10 mg/kg dry

0.10 mg/kg dry

0.50 mg/kg dry

0.20 mg/kg dry

1.0 mg/kg dry

0.20 mg/kg dry

0.050 mg/kg dry

1.0 mg/kg dry

2.0 mg/kg dry

10 mg/kg dry

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

2023-05-29

3000

7.65

1.19

3370

76.3

0.408

12.0

9.21

13200

3520

4.45

1.82

581

58.9

5650

< 0.10

< 0.10

< 0.50

15.0

62.6

1.49

8.44

6.2

720



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651		WORK ORDER REPORTED	23E2836 2023-05-3	1 10:03						
Analyte	Result	RL	Units	Analyzed	Qualifier						
Biosolids (E233628) (23E2836-01) Matrix: Sludge Sampled: 2023-05-23 10:50, Continued											
Strong Acid Leach	able Metals, Continued										
Zirconium	5.0	2.0	mg/kg dry	2023-05-29							
Sample Qualifie PH1 The rati	ع ت: ۲ s: o of water to soil was greater than 2:1 due to limited sample volu	ime or matrix									



REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

 WORK ORDER
 23E2

 REPORTED
 2023

23E2836 2023-05-31 10:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23E2836
PROJECT	BioSolids- PE14651	REPORTED	2023-05-31 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	Qualifier
General Parameters, Batch B3E2531									
Duplicate (B3E2531-DUP1)	Sou	rce: 23E2836-01	Prepared	I: 2023-05-2	3, Analyze	ed: 2023-0)5-24		
pH (1:2 H2O Solution)	5.54	0.10 pH units		5.55			< 1	2	
General Parameters, Batch B3E2789									
Duplicate (B3E2789-DUP1)	Sou	rce: 23E2836-01	Prepared	I: 2023-05-2	6, Analyze	ed: 2023-0)5-29		
Solids, Total	20.9	0.1 % wet		20.8			< 1	7.5	
Solids, Volatile	85.5	0.1 % dry		85.3			< 1	9	
Reference (B3E2789-SRM1)			Prepared	I: 2023-05-2	6, Analyze	ed: 2023-0)5-29		
Solids, Total	87.2	0.1 % wet	87.0		100	80-120			
Solids, Volatile	2.8	0.1 % dry	2.58		107	80-200			
General Parameters, Batch B3E3275									
Blank (B3E3275-BLK1)			Prepared	I: 2023-05-3	0, Analyze	ed: 2023-0)5-31		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet							
Reference (B3E3275-SRM1)			Prepared	I: 2023-05-3	0, Analyze	ed: 2023-0)5-31		
Nitrogen, Total Kjeldahl	0.183	0.010 % wet	0.197		93	58.8-150			

Strong Acid Leachable Metals, Batch B3E3047

Blank (B3E3047-BLK1)			Prepared: 2023-05-27, Analyzed: 2023-05-29
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	
Cadmium	< 0.040	0.040 mg/kg dry	
Calcium	< 100	100 mg/kg dry	
Chromium	< 1.0	1.0 mg/kg dry	
Cobalt	< 0.10	0.10 mg/kg dry	
Copper	< 0.40	0.40 mg/kg dry	



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23E2 2023	2836 -05-31	10:03
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3E3047, Continued

Blank (B3E3047-BLK1), Continued			Prepared: 2023	-05-27, Analyze	d: 2023-05-29	
Iron	< 20.0	20.0 ma/ka drv				
Lead	< 0.20	0.20 ma/ka drv				
Lithium	< 0.10	0.10 ma/ka drv				
Magnesium	< 10	10 mg/kg dry				
Manganese	< 0.40	0.40 mg/kg dry				
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 mg/kg dry				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	< 0.20	0.20 mg/kg dry				
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
L 00 (D050047 D04)			Dranaradi 2022	OF 07 Apolyza	4. 2022 05 20	
LCS (B3E3047-BS1)			Prepared. 2025	-05-27, Analyze	0. 2023-05-29	
Aluminum	183	40 mg/kg dry	200	92	80-120	
Aluminum Antimony	183 1.79	40 mg/kg dry 0.10 mg/kg dry	200 2.00	92 90	80-120 80-120	
Aluminum Antimony Ansenic	183 1.79 1.76	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry	200 2.00 2.00	92 90 88	80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium	183 1.79 1.76 1.8	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry	200 2.00 2.00 2.00	92 90 88 89	80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium	183 1.79 1.76 1.8 1.84	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry	200 2.00 2.00 2.00 2.00	92 90 88 89 92	80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth	183 1.79 1.76 1.8 1.84 1.72	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86	80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86 93	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86 93 93 90	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 100 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86 93 90 90 92	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86 93 90 92 92 92 92	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 92	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry	200 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	92 90 88 89 92 86 93 90 92 92 92 92 91 90	80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron	183 1.79 1.76 1.8 1.84 1.72 < 2.0	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 90 90 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.80 192 1.85 1.85	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 90 96 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.80 192 1.85 1.79 (101)	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 96 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.8 1.83 1.83 1.83 1.83 1.85 1.79 1.81 1.8	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 10 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 90 96 92 90 90 91	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 1.79 181 1.85 1.75	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 90 96 92 90 91 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.18 0.18 0.18 0.18 0.18 0.18 0.18	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 90 96 92 90 91 92 90 91 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.80 192 1.85 1.79 181 1.85 0.185 1.84 1.84	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 96 92 90 90 91 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.8 1.83 1.83 1.80 192 1.85 1.79 181 1.85 0.185 1.84 1.84 1.84 1.81	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 96 92 90 90 91 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus Phosphorus	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.80 192 1.85 1.79 181 1.85 0.185 1.84 1.81 186 191	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 90 91 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus Potassium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 0.185 1.79 181 1.85 0.185 1.84 1.81 1.86 186 181	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Other	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.185 1.84 1.81 1.84 1.81 1.88 181 1.88 1.82 1.82	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry 0.20 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Silver Outime	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.185 1.79 181 1.85 0.185 1.84 1.81 1.84 1.81 1.88 1.82 1.8 1.82 1.8	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 2.0 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.50 mg/kg dry 0.20 mg/kg dry	200 2.00	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Maganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Silver Sodium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.185 1.79 181 1.85 0.185 1.84 1.81 1.84 1.81 1.88 1.82 1.82 185	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry 0.	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Silver Sodium Strontium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.185 1.79 181 1.85 0.185 1.84 1.81 1.88 1.82 1.82 1.85 1.78 1.78 1.78 1.78	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.40 mg/kg dry 0.60 mg/kg dry 0.20 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Maganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Silver Sodium Strontium Sulfur Totlustume	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.83 1.83 1.83 1.83 1.85 1.79 181 1.85 0.185 1.84 1.81 1.84 1.81 1.88 1.82 1.85 1.78 1900 4 75	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	
Aluminum Antimony Arsenic Barium Beryllium Bismuth Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Marganese Mercury Molybdenum Nickel Phosphorus Potassium Selenium Silver Sodium Strontium Tellurium Thellium	183 1.79 1.76 1.8 1.84 1.72 < 2.0 1.80 184 1.8 1.83 1.80 192 1.85 1.79 181 1.85 0.185 1.84 1.81 1.85 0.185 1.84 1.81 1.88 1.82 1.85 1.78 1900 1.75 4.75	40 mg/kg dry 0.10 mg/kg dry 0.30 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.040 mg/kg dry 1.0 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.20 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.10 mg/kg dry 0.40 mg/kg dry 0.40 mg/kg dry 0.10 mg/kg dry 0.20 mg/kg dry 0	200 2.00 2	92 90 88 89 92 86 93 90 92 92 92 92 91 90 96 92 90 91 92 92 92 92 92 92 92 92 92 92 92 92 92	80-120 80-120	

Γ



REPORTED TO Lake Country, Distric PROJECT BioSolids- PE14651		strict of (Wastewa 651	ter)			WORK ORDER REPORTED		23E2836 2023-05-31 10:03		10:03
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch I	B3E3047, Continue	d							
LCS (B3E3047-BS	1), Continued			Prepared	l: 2023-05-2	7, Analyze	d: 2023-0)5-29		
Thorium		1.78	0.50 mg/kg dry	2.00		89	80-120			
Tin		1.84	0.20 mg/kg dry	2.00		92	80-120			
Titanium		2.0	1.0 mg/kg dry	2.00		100	80-120			
Tungsten		1.82	0.20 mg/kg dry	2.00		91	80-120			
Uranium		1.84	0.050 mg/kg dry	2.00		92	80-120			
Vanadium		1.8	1.0 mg/kg dry	2.00		92	80-120			
Zinc		< 2.0	2.0 mg/kg dry	2.00		96	80-120			
Zirconium		< 2.0	2.0 mg/kg dry	2.00		94	80-120			
Reference (B3E30	47-SRM1)			Prepared	l: 2023-05-2	7, Analyze	d: 2023-0)5-29		
Aluminum		11400	40 mg/kg dry	12100		95	70-130			
Antimony		0.63	0.10 mg/kg dry	0.634		99	70-130			
Arsenic		79.5	0.30 mg/kg dry	83.6		95	70-130			
Barium		36.2	1.0 mg/kg dry	41.4		87	70-130			
Beryllium		0.35	0.10 mg/kg dry	0.377		93	70-130			
Bismuth		0.26	0.10 mg/kg dry	0.291		90	70-130			
Calcium		4860	100 mg/kg dry	5380		90	70-130			
Chromium		61.5	1.0 mg/kg dry	66.0		93	70-130			
Cobalt		10.3	0.10 mg/kg dry	10.8		95	70-130			
Copper		18.9	0.40 mg/kg dry	20.3		93	70-130			
Iron		19300	20.0 mg/kg dry	20400		95	70-130			
Lead		15.7	0.20 mg/kg dry	16.7		94	70-130			
Lithium		15.6	0.10 mg/kg dry	16.8		93	70-130			
Magnesium		5780	10 mg/kg dry	6170		94	70-130			
Manganese		302	0.40 mg/kg dry	319		95	70-130			
Mercury		0.109	0.040 mg/kg dry	0.114		95	70-130			
Molybdenum		0.57	0.10 mg/kg dry	0.607		95	70-130			
Nickel		30.5	0.60 mg/kg dry	32.5		94	70-130			
Phosphorus		411	10 mg/kg dry	432		95	70-130			
Silver		1.38	0.10 mg/kg dry	1.55		89	70-130			
Strontium		19.3	0.20 mg/kg dry	22.5		86	70-130			
		< 0.10	0.10 mg/kg dry	0.0765		90	70-130			
Ihorium		2.78	0.50 mg/kg dry	2.96		94	70-130			
litanium		649	1.0 mg/kg dry	730		89	70-130			
Uranium		1.00	0.050 mg/kg dry	1.15		87	70-130			
Vanadium		33.8	1.0 mg/kg dry	36.3		93	70-130			
Zinc		36.7	2.0 mg/kg dry	39.7		92	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E3847
PO NUMBER PROJECT PROJECT INFO	Amry - West Well Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-30 14:40 / 16.9°C 2023-06-06 14:05 45076.59410

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District of (\ Amry - West Well	Wastewater)			WORK ORDER REPORTED	23E3847 2023-06-0)6 14:05
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
Amry West Well ([23E3847-01) Matrix: Wate	r Sampled: 2	2023-05-30 10:48				
Anions							
Chloride		67.2	AO ≤ 250	0.10	mg/L	2023-06-01	
Nitrate (as N)		0.061	MAC = 10	0.010	mg/L	2023-06-01	
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-06-01	
Phosphate (as P)		< 0.0050	N/A	0.0050	mg/L	2023-06-01	
Calculated Parame	ters						
Nitrate+Nitrite (as	N)	0.0613	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		0.232	N/A	0.0500	mg/L	N/A	
General Parameter	S						
Ammonia, Total (a	is N)	< 0.050	None Required	0.050	mg/L	2023-06-01	
BOD, 5-day		< 6.3	N/A	2.0	mg/L	2023-06-06	
Conductivity (EC)		753	N/A	2.0	µS/cm	2023-06-04	
Nitrogen, Total Kje	eldahl	0.171	N/A	0.050	mg/L	2023-06-05	
pН		7.48	7.0-10.5	0.10	pH units	2023-06-04	HT2
Phosphorus, Total	(as P)	0.0568	N/A	0.0050	mg/L	2023-06-01	
Turbidity		1.40	OG < 1	0.10	NTU	2023-05-31	
Microbiological Pa	rameters						
Coliforms, Total (C	Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-05-31	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-05-31	
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-05-31	
Total Metals							
Sodium, total		57.3	AO ≤ 200	0.10	mg/L	2023-06-04	
Sample Qualifie	e rs: 5 minute recommended h	olding time	(from sampling to	analysis) ha	as been exceed	ed - field	analysis is

recommended.



REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - West Well

WORK ORDER REPORTED 23E3847 2023-06-06 14:05

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli in Water	NA / 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	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	\checkmark	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
μS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - West Well

WORK ORDER 2 REPORTED 2

23E3847 2023-06-06 14:05

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23E3847
PROJECT	Amry - West Well	REPORTED	2023-06-06 14:05

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 B3E3325

Blank (B3E3325-BLK1)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01
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			
Phosphate (as P)	< 0.0050	0.0050 mg/L			
Blank (B3E3325-BLK2)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01
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			
Phosphate (as P)	< 0.0050	0.0050 mg/L			
LCS (B3E3325-BS1)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01
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
Nitrite (as N)	2.06	0.010 mg/L	2.00	103	85-115
Phosphate (as P)	1.01	0.0050 mg/L	1.00	101	80-120
LCS (B3E3325-BS2)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01
Chloride	16.1	0.10 mg/L	16.0	100	90-110
Nitrate (as N)	4.07	0.010 mg/L	4.00	102	90-110
Nitrite (as N)	2.02	0.010 mg/L	2.00	101	85-115
Phosphate (as P)	1.06	0.0050 mg/L	1.00	106	80-120
LCS (B3E3325-BS3)			Prepared: 20	23-06-02, Analyze	d: 2023-06-02
Chloride	16.0	0.10 mg/L	16.0	100	90-110
Nitrate (as N)	4.14	0.010 mg/L	4.00	104	90-110
Nitrite (as N)	2.04	0.010 mg/L	2.00	102	85-115
Phosphate (as P)	1.05	0.0050 mg/L	1.00	105	80-120

General Parameters, Batch B3E3447

Blank (B3E3447-BLK1)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	
Blank (B3E3447-BLK2)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	



REPORTED TO PROJECT	Lake Country, Distr Amry - West Well	ict of (Wastewa	ater)			WORK C	RDER ED	23E3 2023	847 -06-06	14:05
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3E3447, Col	ntinued								
Blank (B3E3447-BL	(3)			Prepared:	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity	,	< 0.10	0.10 NTU	•		· · · · ·				
LCS (B3E3447-BS1)				Prepared	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity		1.78	0.10 NTU	1.69		105	90-110			
LCS (B3E3447-BS2)				Prepared	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity		15.3	0.10 NTU	14.6		105	90-110			
LCS (B3E3447-BS3)				Prepared:	2023-05-31	, Analyzed	: 2023-0	5-31		
Turbidity		145	0.10 NTU	140		104	90-110			
General Parameters,	Batch B3E3485									
Blank (B3E3485-BL	K1)			Prepared	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as I	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K2)			Prepared	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as F	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K3)			Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as I	P)	< 0.0050	0.0050 mg/L							
LCS (B3E3485-BS1)				Prepared:	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as I	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS2)				Prepared	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as I	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS3)				Prepared	2023-05-31	, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as I	P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameters,	Batch B3F0032									
Blank (B3F0032-BLI	(1)			Prepared	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BLI	(2)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BLI	(3)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BLI	\$ 4)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	(5)			Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B3F0032-BS1)				Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.915	0.050 mg/L	1.00		92	85-115			
LCS (B3F0032-BS2)				Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.934	0.050 mg/L	1.00		93	85-115			
LCS (B3F0032-BS3)				Prepared:	2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.935	0.050 mg/L	1.00		94	85-115			



Analyte Result RL Unit Spike Level Source Result % REC EEC % RPD Lmit Qualifier General Parameters, Batch B3F0032, Continued 100 94 85-115	REPORTED TO	₋ake Country, Di Amry - West We	strict of (Wastewa I	ater)			WORK ORDER REPORTED		23E3 2023	23E3847 2023-06-06 14:05		
General Parameters, Batch B3F8082, Continued LCS (B3F032-854) Prepared: 2023-06-01, Analyzed: 2023-06-01 Ammonia, Total (as N) 0.937 0.050 mg/L 1.00 94 85-115 CCS (B3F0032-856) Prepared: 2023-06-01, Analyzed: 2023-06-01 Ammonia, Total (as N) 0.947 0.050 mg/L 1.00 95 85-115 General Parameters, Batch B3F0074 Blank (B3F074-BLK1) Prepared: 2023-06-01, Analyzed: 2023-06-06 B00, 5-day < 2.0	Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
LCS (B3F0032-B54) Prepared: 2023-06-01, Analyzed: 2023-06-01 Ammonia, Total (us N) 0.937 0.050 mg/L 1.00 94 95:115 LCS (B3F0032-B55) Prepared: 2023-06-01, Analyzed: 2023-06-01 Anamonia, Total (us N) 0.947 0.050 mg/L 1.00 95 95:115 General Parameters, Batch B3F0074 Prepared: 2023-06-01, Analyzed: 2023-06-06 B00, S-day 2.0 mg/L LCS (B3F0074-BLX1) Prepared: 2023-06-01, Analyzed: 2023-06-06 B00, S-day 2.0 2.0 mg/L LCS (B3F0074-BLX1) Prepared: 2023-06-01, Analyzed: 2023-06-06 B00, S-day 100 52.5 mg/L 198 86 B00, S-day 2.0 2.0 mg/L LCS (B3F0074-BLX1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 2.0 2.0 mg/L LCS (B3F0354-BLX2) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 2.0 mg/L ICS (B3F0354-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 mg/L ICS (B3F0354-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 mg/L ICS (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) <td< td=""><td>General Parameters,</td><td>Batch B3F0032,</td><td>Continued</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	General Parameters,	Batch B3F0032,	Continued									
Commonia, Total (as N) 0.937 0.050 mg/L 1.00 94 85-115 LCS (83F032-855) Prepared: 2023-06-01, Analyzed: 2023-06-01 Ammonia, Total (as N) 0.947 0.050 mg/L 1.00 95 85-115 General Parameters, Batch B3F0074 Blank (B3F0074-BLK1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BOD. 5-day <2.0	LCS (B3F0032-BS4)				Prepared	: 2023-06-01.	Analvzed	: 2023-0	6-01			
LCS (B3F0032-BSS) Prepared: 2023-06-01, Analyzed: 2023-06-01 Ammonia, Total (as N) 0.947 0.050 mg/L 1.00 95 85-115 Concarl Parameters, Batch B3F0074 Prepared: 2023-06-01, Analyzed: 2023-06-06 200-5-day <20	Ammonia, Total (as N)		0.937	0.050 mg/L	1.00		94	85-115				
Ammonia, Total (as N) 0.847 0.050 mg/L 1.00 95 85-115 General Parameters, Batch B3F0074 Blank (B3F0074-BLK1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BDD, 5-day <2.0	LCS (B3F0032-BS5)				Prepared	: 2023-06-01	Analyzed	: 2023-0	6-01			
Blank (B3F0074-BLK1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BOD, 5-day 2.0 mgL LCS (B37074-BS1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BOD, 5-day 170 52.5 mgL 198 86 85-115 General Parameters, Batch B3F0354 Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) <2.0	Ammonia, Total (as N)		0.947	0.050 mg/L	1.00		95	85-115				
Blank (BSF0074-BLK1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BCD, 5-day < 2.0 mg/L	General Parameters,	Batch B3F0074										
BOD. 5-day < 2.0	Blank (B3F0074-BLK	1)			Prepared	: 2023-06-01,	Analyzed	: 2023-0	6-06			
LCS (B3F0074-BS1) Prepared: 2023-06-01, Analyzed: 2023-06-06 BOD, 5-day 170 52.5 mg/L 198 86 85-115 General Parameters, Batch B3F0354 Prepared: 2023-06-04, Analyzed: 2023-06-04 20.0 µS/cm 1410 98 95-105 Conductivity (EC) 1380 2.0 µS/cm 1410 98	BOD, 5-day		< 2.0	2.0 mg/L								
BOD, 5-day 170 52.5 mg/L 198 86 85-115 General Parameters, Batch B3F0354 Blank (B3F0354-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0 2.0 µS/cm Prepared: 2023-06-04, Analyzed: 2023-06-04 Blank (B3F0354-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0 µS/cm LCS (B3F0354-BS3) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-05 Prepared: 2023-06-05 Prepared: 2023-06-05 Prepared: 2023-06-05 Pr	LCS (B3F0074-BS1)				Prepared	: 2023-06-01,	Analyzed	: 2023-0	6-06			
General Parameters, Batch B3F0354 Biank (B3F0354-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0	BOD, 5-day		170	52.5 mg/L	198		86	85-115				
Blank (B3F0354-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0 µS/cm	General Parameters,	Batch B3F0354										
Conductivity (EC) < 2.0 2.0 μS/cm Blank (B3F0354-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0 2.0 μS/cm LCS (B3F0354-BS3) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 μS/cm LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 μS/cm 1410 98 95-105 LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 μS/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahi < 0.050 0.050 mg/L LCS (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahi < 0.050 mg/L 1.00 1	Blank (B3F0354-BLK	1)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04			
Blank (B3F0354-BLX2) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) < 2.0	Conductivity (EC)		< 2.0	2.0 µS/cm								
Conductivity (EC) < 2.0 2.0 µS/cm LCS (B3F0354-BS3) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 PM 7.02 0.10 PH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 PM 7.02 0.10 PH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl <0.050	Blank (B3F0354-BLK	2)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04			
LCS (B3F0354-BS3) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 2023-06-04 2023-06-04 Conductivity (EC) 1380 2.0 µS/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 98 98-102 PH 7.02 0.10 pH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 PH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl <0.050	Conductivity (EC)		< 2.0	2.0 µS/cm								
Conductivity (EC) 1380 2.0 μ/s/cm 1410 98 95-105 LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 200 μ/s/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 98 95-105 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 98 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 98 98-102 Reference (B3F0360-BLK1) 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 0.050 mg/L 0.00 98-102 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 0.050 0.050 0.050 Nitrogen, Total Kjeldahl <0.050	LCS (B3F0354-BS3)				Prepared	: 2023-06-04,	Analyzed	: 2023-0	6-04			
LCS (B3F0354-BS4) Prepared: 2023-06-04, Analyzed: 2023-06-04 Conductivity (EC) 1380 2.0 μS/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050	Conductivity (EC)		1380	2.0 µS/cm	1410		98	95-105				
Conductivity (EC) 1380 2.0 μS/cm 1410 98 95-105 Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Prepared: 2023-06-04, Analyzed: 2023-06-04 Perepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analy	LCS (B3F0354-BS4)				Prepared	: 2023-06-04,	Analyzed	: 2023-0	6-04			
Reference (B3F0354-SRM1) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Total Kjeldahl 7.01 100 98-102 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl <0.050	Conductivity (EC)		1380	2.0 µS/cm	1410		98	95-105				
pH 7.02 0.10 pH units 7.01 100 98-102 Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L Prepared: 2023-06-04, Analyzed: 2023-06-05 Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 mg/L LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31, Analyzed: 2023-05-31 Coliforms, Total (Q-Tray) <1 MPN/100 mL	Reference (B3F0354	SRM1)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04			
Reference (B3F0354-SRM2) Prepared: 2023-06-04, Analyzed: 2023-06-04 pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Prepared: 2023-06-04, Analyzed: 2023-06-05 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31, Analyzed: 2023-05-31 Prepared: 2023-05-31, Analyzed: 2023-05-31	рН		7.02	0.10 pH units	7.01		100	98-102				
pH 7.02 0.10 pH units 7.01 100 98-102 General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 mg/L Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 mg/L LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31 Analyzed: 2023-05-31 Coliforms, Total (Q-Tray) < 1 MPN/100 mL	Reference (B3F0354-	SRM2)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04			
General Parameters, Batch B3F0360 Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050	рН		7.02	0.10 pH units	7.01		100	98-102				
Blank (B3F0360-BLK1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050	General Parameters,	Batch B3F0360										
Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050	Blank (B3F0360-BLK	1)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05			
Blank (B3F0360-BLK2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl < 0.050 mg/L	Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L								
Nitrogen, Total Kjeldahl < 0.050 0.050 mg/L LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 1.00 105 85-115 Blank (B3E3387-BLK1) Prepared: 2023-05-31, Analyzed: 2023-05-31 Colliforms, Total (Q-Tray) < 1	Blank (B3F0360-BLK	2)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05			
LCS (B3F0360-BS1) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31 Goliforms, Total (Q-Tray) <1	Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L								
Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31 Colliforms, Total (Q-Tray) <1 1 MPN/100 mL	LCS (B3F0360-BS1)				Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05			
LCS (B3F0360-BS2) Prepared: 2023-06-04, Analyzed: 2023-06-05 Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31 Blank (B3E3387-BLK1) Prepared: 2023-05-31, Analyzed: 2023-05-31 Colliforms, Total (Q-Tray) <1	Nitrogen, Total Kjeldahl		1.05	0.050 mg/L	1.00		105	85-115				
Nitrogen, Total Kjeldahl 1.05 0.050 mg/L 1.00 105 85-115 Microbiological Parameters, Batch B3E3387 Prepared: 2023-05-31, Analyzed: 2023-05-31 Blank (B3E3387-BLK1) Prepared: 2023-05-31, Analyzed: 2023-05-31 Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL	LCS (B3F0360-BS2)				Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05			
Microbiological Parameters, Batch B3E3387 Blank (B3E3387-BLK1) Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL	Nitrogen, Total Kjeldahl		1.05	0.050 mg/L	1.00		105	85-115				
Blank (B3E3387-BLK1) Prepared: 2023-05-31, Analyzed: 2023-05-31 Coliforms, Total (Q-Tray) <1	Microbiological Parai	neters, Batch B3	E3387									
Coliforms, Total (Q-Tray) < 1 1 MPN/100 mL	Blank (B3E3387-BLK	1)			Prepared	: 2023-05-31	Analyzed	: 2023-0	5-31			
	Coliforms, Total (Q-Tray)	< 1	1 MPN/100 r	nL							
			< 1	1 WPN/100 r	Da		Amelia		F 04			
Blank (B3E3387-BLK2) Prepared: 2023-05-31, Analyzed: 2023-05-31 Coliforms: Total (O, Trav) < 1	Blank (B3E3387-BLK	2)	- 1	1 MDN/400 -	Prepared	: 2023-05-31,	, Analyzed	: 2023-0	5-31			
E. coli (Q-Tray) <1 1 MPN/100 mL	E. coli (Q-Tray)	<u> </u>	< 1	1 MPN/100 r	nL							



REPORTED TO PROJECT	Lake Country, Distric Amry - West Well	t of (Wastewater	-)			WORK REPOR	ORDER TED	23E3 2023	3847 -06-06	14:05
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Pa	arameters, Batch B3E338	37, Continued								
Blank (B3E3387-E	BLK3)			Prepared	l: 2023-05-3	31, Analyze	d: 2023-0	5-31		
Coliforms, Fecal (Q-	Tray)	< 1	1 MPN/100 n	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 n	٦L						
Blank (B3E3387-E	BLK4)			Prepared	I: 2023-05-3	31, Analyze	d: 2023-0	5-31		
Coliforms, Fecal (Q-	Tray)	< 1	1 MPN/100 n	۱L						
E. coli (Q-Tray)	.,	< 1	1 MPN/100 n	nL						
Blank (B3E3387-E	BLK5)			Prepared	l: 2023-05-3	31, Analyze	d: 2023-0	5-31		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100 n	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 n	۱L						
Blank (B3E3387-E	BLK6)			Prepared	I: 2023-05-3	31, Analyze	d: 2023-0	5-31		
Coliforms, Fecal (Q-	Tray)	< 1	1 MPN/100 n	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 n	٦L						
Blank (B3E3387-E	BLK7)			Prepared	I: 2023-05-3	31, Analyze	d: 2023-0	5-31		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100 n	nL					-	
E. coli (Q-Tray)		< 1	1 MPN/100 n	nL						

Total Metals, Batch B3F0320

Blank (B3F0320-BLK1)			Prepared: 2	2023-06-03, Analyzed: 2023-06-04			
Sodium, total	< 0.10	0.10 mg/L					
LCS (B3F0320-BS1)		Prepared: 2023-06-03, Analyzed: 2023-06-06					
Sodium, total	4.37	0.10 mg/L	4.00	109 80-120			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E3844
PO NUMBER PROJECT PROJECT INFO	Amry - East Well Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-30 14:40 / 16.9°C 2023-06-06 13:59 45076.59410

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake (PROJECT Amry	Country, District of (Wastewater) - East Well			WORK ORDER REPORTED	23E3844 2023-06-06 13:59		
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier	
Amry East Well (23E3844	I-01) Matrix: Water Sampled: 2	023-05-30 11:15					
Anions							
Chloride	21.7	AO ≤ 250	0.10	mg/L	2023-06-01		
Nitrate (as N)	5.70	MAC = 10	0.010	mg/L	2023-06-01		
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-01		
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-06-01		
Calculated Parameters							
Nitrate+Nitrite (as N)	5.70	N/A	0.0100	mg/L	N/A		
Nitrogen, Total	5.94	N/A	0.0500	mg/L	N/A		
General Parameters							
Ammonia. Total (as N)	< 0.050	None Required	0.050	ma/L	2023-06-01		
BOD. 5-dav	< 6.3	N/A	2.0	mg/L	2023-06-06		
Conductivity (EC)	549	N/A	2.0	µS/cm	2023-06-04		
Nitrogen, Total Kjeldahl	0.243	N/A	0.050	mg/L	2023-06-05		
pH	7.38	7.0-10.5	0.10	pH units	2023-06-04	HT2	
Phosphorus, Total (as P)	0.0159	N/A	0.0050	mg/L	2023-06-01		
Turbidity	0.71	OG < 1	0.10	NTU	2023-05-31		
Microbiological Parameters	1						
Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-05-31		
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-05-31		
E. coli (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-05-31		
Total Metals							
Sodium, total	31.4	AO ≤ 200	0.10	mg/L	2023-06-04		
Field Blank (23E3844-02)	Matrix: Water Sampled: 2023-	05-30 11:32					
Anions							
Chloride	0.38	AO ≤ 250	0.10	mg/L	2023-06-01	RE2	
Nitrate (as N)	0.023	MAC = 10	0.010	mg/L	2023-06-01	RE2	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-01		
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-06-01		
Calculated Parameters							
Nitrate+Nitrite (as N)	0.0229	N/A	0.0100	mg/L	N/A		
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A		
General Parameters				-			
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-06-01		

	Caring A		Fage 2 01 9		
Phosphorus, Total (as P)	< 0.0050	N/A	0.0050 mg/L	2023-06-01	Daga 0 of 0
рН	6.38	7.0-10.5	0.10 pH units	2023-06-04	HT2
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050 mg/L	2023-06-05	
Conductivity (EC)	7.5	N/A	2.0 µS/cm	2023-06-04	RE2
BOD, 5-day	< 6.3	N/A	2.0 mg/L	2023-06-06	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2023-06-01	



				1 B			
REPORTED TO PROJECT	Lake Country, District o Amry - East Well	f (Wastewater)			WORK ORDER REPORTED	23E3844 2023-06-0	6 13:59
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
Field Blank (23E	3844-02) Matrix: Water	Sampled: 2023-0	5-30 11:32, Contir	nued			
General Parameter	rs, Continued						
Turbidity		< 0.10	OG < 1	0.10	NTU	2023-05-31	
Microbiological Pa	arameters						
Coliforms, Total (0	Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-05-31	
Coliforms, Fecal ((Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-05-31	
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-05-31	
Total Metals							
Sodium, total		0.52	AO ≤ 200	0.10	mg/L	2023-06-04	
Sample Qualifie	ers:						
HT2 The 1 recomm RE2 Result	5 minute recommended nended. was confirmed by re-analysis	holding time (fr	om sampling to	analysis) ha	as been exceed	ed - field	analysis is



REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - East Well

WORK ORDER REPORTED

23E3844 2023-06-06 13:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli in Water	NA / 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	\checkmark	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)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	\checkmark	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
μS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - East Well

WORK ORDER 23 REPORTED 20

23E3844 2023-06-06 13:59

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23E3844
PROJECT	Amry - East Well	REPORTED	2023-06-06 13:59

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	Source	% REC	REC	% RPD	RPD	Qualifier
•			Level	Result		Limit		Limit	

Anions, Batch B3E3325

Blank (B3E3325-BLK1)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3E3325-BLK2)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3E3325-BS1)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01	
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	
Nitrite (as N)	2.06	0.010 mg/L	2.00	103	85-115	
Phosphate (as P)	1.01	0.0050 mg/L	1.00	101	80-120	
LCS (B3E3325-BS2)			Prepared: 20	23-06-01, Analyze	d: 2023-06-01	
Chloride	16.1	0.10 mg/L	16.0	100	90-110	
Nitrate (as N)	4.07	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	2.02	0.010 mg/L	2.00	101	85-115	
Phosphate (as P)	1.06	0.0050 mg/L	1.00	106	80-120	
LCS (B3E3325-BS3)			Prepared: 20	23-06-02, Analyze	d: 2023-06-02	
Chloride	16.0	0.10 mg/L	16.0	100	90-110	
Nitrate (as N)	4.14	0.010 mg/L	4.00	104	90-110	
Nitrite (as N)	2.04	0.010 mg/L	2.00	102	85-115	
Phosphate (as P)	1.05	0.0050 mg/L	1.00	105	80-120	

General Parameters, Batch B3E3447

Blank (B3E3447-BLK1)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	
Blank (B3E3447-BLK2)			Prepared: 2023-05-31, Analyzed: 2023-05-31
Turbidity	< 0.10	0.10 NTU	



REPORTED TO PROJECT	Lake Country, Distrie Amry - East Well	ct of (Wastew	ater)			WORK C	RDER ED	23E3 2023	844 -06-06	13:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3E3447, Con	ntinued								
Blank (B3E3447-BL	K3)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	5-31		
Turbidity		< 0.10	0.10 NTU							
LCS (B3E3447-BS1)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	5-31		
Turbidity		1.78	0.10 NTU	1.69		105	90-110			
LCS (B3E3447-BS2)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	5-31		
Turbidity		15.3	0.10 NTU	14.6		105	90-110			
LCS (B3E3447-BS3)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	5-31		
Turbidity		145	0.10 NTU	140		104	90-110			
General Parameters	, Batch B3E3485									
Blank (B3E3485-BL	K1)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K2)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E3485-BL	K3)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3E3485-BS1)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS2)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3E3485-BS3)			Prepared	: 2023-05-31	l, Analyzed	: 2023-0	6-01		
Phosphorus, Total (as	P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameters	, Batch B3F0032									
Blank (B3F0032-BL	K1)			Prepared	: 2023-06-01	, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K2)			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K3)			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K4)			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3F0032-BL	K5)			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
LCS (B3F0032-BS1))			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.915	0.050 mg/L	1.00		92	85-115			
LCS (B3F0032-BS2))			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.934	0.050 mg/L	1.00		93	85-115			
LCS (B3F0032-BS3))			Prepared	: 2023-06-01	l, Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.935	0.050 mg/L	1.00		94	85-115			



REPORTED TO PROJECT	Lake Country, District Amry - East Well	t of (Wastewa	ater)			WORK C REPORT	RDER ED	23E3 2023	3844 3-06-06	13:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3F0032, Conti	inued								
LCS (B3F0032-BS4))			Prepared	: 2023-06-01	Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.937	0.050 mg/L	1.00		94	85-115			
LCS (B3F0032-BS5))			Prepared	: 2023-06-01	Analyzed	: 2023-0	6-01		
Ammonia, Total (as N)		0.947	0.050 mg/L	1.00		95	85-115			
General Parameters	, Batch B3F0074									
Blank (B3F0074-BL	K1)			Prepared	: 2023-06-01	Analyzed	: 2023-0	6-06		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B3F0074-BS1))			Prepared	: 2023-06-01	Analyzed	: 2023-0	6-06		
BOD, 5-day		170	52.5 mg/L	198		86	85-115			
Duplicate (B3F0074	-DUP1)	Sou	rce: 23E3844-01	Prepared	: 2023-06-01	Analyzed	: 2023-0	6-06		
BOD, 5-day		< 6.3	2.0 mg/L		< 6.3				22	
General Parameters	, Batch B3F0354									
Blank (B3F0354-BL	K1)			Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-04		
Conductivity (EC)		< 2.0	2.0 µS/cm							
Blank (B3F0354-BL	K2)			Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-04		
Conductivity (EC)		< 2.0	2.0 µS/cm							
LCS (B3F0354-BS3)				Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04		
Conductivity (EC)		1380	2.0 µS/cm	1410		98	95-105			
LCS (B3F0354-BS4)				Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-04		
Conductivity (EC)		1380	2.0 µS/cm	1410		98	95-105			
Reference (B3F0354	4-SRM1)	7.00	0.40	Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-04		
рн		7.02	0.10 pH units	7.01		100	98-102			
Reference (B3F0354	4-SRM2)	7.00	0.40	Prepared	: 2023-06-04	Analyzed	: 2023-0	6-04		
рн		7.02	0.10 pH units	7.01		100	98-102			
General Parameters	, Batch B3F0360									
Blank (B3F0360-BL	K1)			Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-05		
Nitrogen, Total Kjeldah		< 0.050	0.050 mg/L							
Blank (B3F0360-BL	K2)			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05		
Nitrogen, Total Kjeldah		< 0.050	0.050 mg/L							
LCS (B3F0360-BS1))			Prepared	: 2023-06-04	, Analyzed	: 2023-0	6-05		
Nitrogen, Total Kjeldah		1.05	0.050 mg/L	1.00		105	85-115			
LCS (B3F0360-BS2))			Prepared	: 2023-06-04	Analyzed	: 2023-0	6-05		
Nitrogen, Total Kjeldah		1.05	0.050 mg/L	1.00		105	85-115			
Microbiological Para	ameters, Batch B3E338	37								
Blank (B3E3387-Bl	K (1)			Prenared	· 2023-05-31	Analyzed	· 2023-0	5_31		

DIALIK (DSESSOT-DEKT)		Fiepareu. 2023-03-31, Analyzeu. 2023-03-31
Coliforms, Total (Q-Tray)	< 1	1 MPN/100 mL
E. coli (Q-Tray)	< 1	1 MPN/100 mL



REPORTED TO PROJECT	Lake Country, District o Amry - East Well	of (Wastewater)				WORK REPOR	ORDER TED	23E3 2023	844 -06-06	13:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Par	ameters, Batch B3E3387	', Continued								
Blank (B3E3387-BL	_K2)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 m	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Blank (B3E3387-BL	_K3)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Fecal (Q-Tr	ray)	< 1	1 MPN/100 m	 1L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Blank (B3E3387-BL	_K4)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Fecal (Q-Tr	ray)	< 1	1 MPN/100 m	<u>.</u> ۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Blank (B3E3387-BL	_K5)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 m	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Blank (B3E3387-BL	_K6)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Fecal (Q-Tr	ray)	< 1	1 MPN/100 m	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Blank (B3E3387-BL	_K7)			Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 m	۱L						
E. coli (Q-Tray)		< 1	1 MPN/100 m	۱L						
Duplicate (B3E338	7-DUP5)	Source:	23E3844-01	Prepared	: 2023-05-3	1, Analyze	d: 2023-0)5-31		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100 m	۱L	< 1				80	RS2
E. coli (Q-Tray)		< 1	1 MPN/100 m	ıL	< 1				80	RS2
Total Metals, Batch	B3F0320									
Blank (B3F0320-BL	_K1)			Prepared	: 2023-06-0	3, Analyze	d: 2023-0	06-04		
Sodium, total		< 0.10	0.10 mg/L							
LCS (B3F0320-BS1	1)			Prepared	: 2023-06-0	3, Analyze	d: 2023-0)6-06		
Sodium, total		4.37	0.10 mg/L	4.00		109	80-120			
OC Qualifiers										

RS2 The Reporting Limits for this sample have been raised due to limited sample volume.



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23F3861
PO NUMBER PROJECT PROJECT INFO	Lake Country WWTP	RECEIVED / TEMP REPORTED	2023-06-28 13:41 / 20.3°C 2023-07-11 20:24

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



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

WORK ORDER REPORTED 23F3861 2023-07-11 20:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Raw Influent (23F3861-01) Matrix: Water	Sampled: 2023	-06-28 09:55				
Anions						
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-29	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-29	
Phosphate (as P)	5.66	N/A	0.0050	mg/L	2023-06-29	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	91.9	N/A	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	455	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Bicarbonate (as CaCO3)	455	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Ammonia, Total (as N)	69.6	None Required	0.050	mg/L	2023-07-01	
BOD, 5-day	337	N/A	2.0	mg/L	2023-07-05	
BOD, 5-day Carbonaceous	331	N/A	2.0	mg/L	2023-07-05	
Nitrogen, Total Kjeldahl	91.9	N/A	0.050	mg/L	2023-07-04	
рН	7.95	7.0-10.5	0.10	pH units	2023-06-30	HT2
Phosphorus, Total (as P)	5.42	N/A	0.0050	mg/L	2023-07-04	
Solids, Total Suspended	165	N/A	2.0	mg/L	2023-06-29	

Final Effluent (23F3861-02) | Matrix: Water | Sampled: 2023-06-28 09:30

Anions					
Chloride	125	AO ≤ 250	0.10	mg/L	2023-06-29
Nitrate (as N)	0.280	MAC = 10	0.010	mg/L	2023-06-29
Nitrite (as N)	0.113	MAC = 1	0.010	mg/L	2023-06-29
Phosphate (as P)	0.368	N/A	0.0050	mg/L	2023-06-29
Calculated Parameters					
Nitrate+Nitrite (as N)	0.393	N/A	0.0100	mg/L	N/A
Nitrogen, Total	2.10	N/A	0.0500	mg/L	N/A
General Parameters					
Alkalinity, Total (as CaCO3)	200	N/A	1.0	mg/L	2023-06-30
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Alkalinity, Bicarbonate (as CaCO3)	200	N/A	1.0	mg/L	2023-06-30
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Ammonia, Total (as N)	0.240	None Required	0.050	mg/L	2023-07-01
BOD, 5-day Carbonaceous	< 4.9	N/A	2.0	mg/L	2023-07-05
Nitrogen, Total Kjeldahl	1.70	N/A	0.050	mg/L	2023-07-04
рН	7.90	7.0-10.5	0.10	pH units	2023-06-30 HT2



REPORTED TO PROJECT	Lake Country, District of Lake Country WWTP	(Wastewater)			WORK ORDER REPORTED	23F3861 2023-07-1	1 20:24
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
Final Effluent (23	F3861-02) Matrix: Water	Sampled: 2023-	06-28 09:30, Cont	inued			
General Parameters	s, Continued						
Phosphorus Total	(as P)	0.731	N/A	0 0050	ma/l	2023-07-04	
Solids. Total Susp	ended	< 2.0	N/A	2.0	mg/L	2023-06-29	
Microbiological Pa	rameters						
Coliforms, Total (C)-Trav)	> 2420	MAC = 0	1	MPN/100 mL	2023-06-29	
Coliforms, Fecal (Q-Trav)	> 2420	N/A	1	MPN/100 mL	2023-06-29	
Biosolids (23F38) General Parameters Moisture	61-03) Matrix: Soil Sam s	npled: 2023-06-28 72.8	10:05	1.0	% wet	2023-07-05	
Strong Acid Looob	abla Matala						
Aluminum		1700	N1/A	10	·······	0000 07 00	
Aluminum		1780	N/A	40	mg/kg dry	2023-07-06	
Anumony		2.45	N/A	0.10	mg/kg dry	2023-07-06	
Barium		74.2	N/A	1.0	mg/kg dry	2023-07-00	
Bervllium		< 0.10	N/A	0.10	mg/kg dry	2023-07-06	
Bismuth		16.5	N/A	0.10	mg/kg dry	2023-07-06	
Boron		9.9	N/A	2.0	mg/kg dry	2023-07-06	
Cadmium		0.668	N/A	0.040	mg/kg dry	2023-07-06	
Calcium		8740	N/A	100	mg/kg dry	2023-07-06	
Chromium		9.5	N/A	1.0	mg/kg dry	2023-07-06	
Cobalt		1.03	N/A	0.10	mg/kg dry	2023-07-06	
Copper		245	N/A	0.40	mg/kg dry	2023-07-06	
Iron		3670	N/A	20.0	mg/kg dry	2023-07-06	
Lead		6.08	N/A	0.20	mg/kg dry	2023-07-06	
Lithium		0.83	N/A	0.10	mg/kg dry	2023-07-06	
Magnesium		2860	N/A	10	mg/kg dry	2023-07-06	
Manganese		75.8	N/A	0.40	mg/kg dry	2023-07-06	
Mercury		0.290	N/A	0.040	mg/kg dry	2023-07-06	
Molybdenum		7.07	N/A	0.10	mg/kg dry	2023-07-06	
Nickel		7.49	N/A	0.60	mg/kg dry	2023-07-06	
Phosphorus		10200	N/A	10	mg/kg dry	2023-07-06	
Potassium		2610	N/A	40	mg/kg dry	2023-07-06	
Selenium		2.74	N/A	0.20	mg/kg dry	2023-07-06	
Silver		1.30	N/A	0.10	mg/kg dry	2023-07-06	
Sodium		428	N/A	50	mg/kg dry	2023-07-06	
Strontium		41.3	N/A	0.20	mg/kg dry	2023-07-06	
Sultur		5400	N/A	1000	mg/kg dry	2023-07-06	
		< 0.10	N/A	0.10	mg/kg dry	2023-07-06	
		< 0.10		0.10	mg/kg ary	2023-07-00	
THOHUM		< 0.50	IN/A	0.50	ing/kg ury	2023-07-00	



REPORTED TO
PROJECT

Lake Country, District of (Wastewater) Lake Country WWTP WORK ORDER REPORTED 23F3861 2023-07-11 20:24

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Biosolids (23F3861-03) Matrix	k: Soil Sampled: 2023-06-28	10:05, Continued			
Strong Acid Leachable Metals, Co	ontinued				
Tin	11.2	N/A	0.20 mg/kg dry	2023-07-06	
Titanium	52.9	N/A	1.0 mg/kg dry	2023-07-06	
Tungsten	0.49	N/A	0.20 mg/kg dry	2023-07-06	
Uranium	5.97	N/A	0.050 mg/kg dry	2023-07-06	
Vanadium	4.2	N/A	1.0 mg/kg dry	2023-07-06	
Zinc	455	N/A	2.0 mg/kg dry	2023-07-06	
Zirconium	3.1	N/A	2.0 mg/kg dry	2023-07-06	

Amry (23F3861-04) | Matrix: Water | Sampled: 2023-06-28 09:37

General Parameters						
BOD, 5-day Carbonaceous	7.5	N/A	2.0 mg/L	2023-07-05		
Solids, Total Suspended	28.9	N/A	2.0 mg/L	2023-06-29		

Field Blank (23F3861-05) | Matrix: Water | Sampled: 2023-06-28 09:45

Anions						
Chloride	< 0.10	AO ≤ 250	0.10	mg/L	2023-06-29	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-29	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-29	
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-06-29	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-07-01	
BOD, 5-day Carbonaceous	< 4.9	N/A	2.0	mg/L	2023-07-05	
Chemical Oxygen Demand	< 20	N/A	20	mg/L	2023-06-30	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2023-07-04	
рН	5.37	7.0-10.5	0.10	pH units	2023-06-30	HT2
Phosphorus, Total (as P)	< 0.0050	N/A	0.0050	mg/L	2023-07-04	
Solids, Total Suspended	< 2.0	N/A	2.0	mg/L	2023-06-29	
Microbiological Parameters						
Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-06-29	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-06-29	

Γ



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

WORK ORDER 23 REPORTED 20

23F3861 2023-07-11 20:24

Sample Qualifiers:

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



REPORTED TOLake Country, District of (Wastewater)**PROJECT**Lake Country WWTP

WORK ORDER REPORTED

23F3861 2023-07-11 20:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2022)	Closed Reflux, Colorimetry	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Moisture in Soil	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
SALM in Soil	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
% wet	Percent (as received basis)
<	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/kg dry	Milligrams per kilogram (dry weight basis)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



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

WORK ORDER 2 REPORTED 2

23F3861 2023-07-11 20:24

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:<u>bwhitehead@caro.ca</u>

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)	WORK ORDER	23F3861
PROJECT	Lake Country WWTP	REPORTED	2023-07-11 20:24

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	RI Units	Spike	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result	<i>/</i> 01120	Limit	Limit	Qualifier

Anions, Batch B3F3345

Blank (B3F3345-BLK1)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29			
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						
Phosphate (as P)	< 0.0050	0.0050 mg/L						
Blank (B3F3345-BLK2)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29			
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						
Phosphate (as P)	< 0.0050	0.0050 mg/L						
LCS (B3F3345-BS1)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29			
Chloride	15.6	0.10 mg/L	16.0	98	90-110			
Nitrate (as N)	4.00	0.010 mg/L	4.00	100	90-110			
Nitrite (as N)	1.91	0.010 mg/L	2.00	95	85-115			
Phosphate (as P)	0.991	0.0050 mg/L	1.00	99	80-120			
LCS (B3F3345-BS2)			Prepared: 2023-06-29, Analyzed: 2023-06-29					
Chloride	15.7	0.10 mg/L	16.0	98	90-110			
Nitrate (as N)	4.00	0.010 mg/L	4.00	100	90-110			
Nitrite (as N)	1.93	0.010 mg/L	2.00	96	85-115			
Phosphate (as P)	1.01	0.0050 mg/L	1.00	101	80-120			

General Parameters, Batch B3F3388

Blank (B3F3388-BLK1)			Prepared: 2023-06-29,	Analyzed	1: 2023-06-29			
Solids, Total Suspended	< 2.0	2.0 mg/L						
L 00 (D252200 D04)			Prepared: 2023-06-29, Analyzed: 2023-06-29					
LCS (B3F3388-BS1)			Prepared: 2023-06-29,	Analyzed	1: 2023-06-29			

General Parameters, Batch B3F3451

Blank (B3F3451-BLK1)

BOD, 5-day Carbonaceous

< 2.0 2.0 mg/L

Prepared: 2023-06-30, Analyzed: 2023-07-05

Page 8 of 12


REPORTED TO Lake Country, Distri PROJECT Lake Country WWT	ct of (Wastewa P	ter)			WORK REPOR	ORDER TED	23F3 2023	861 -07-11	20:24
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3F3451, Cor	ntinued								
LCS (B3F3451-BS1)			Prepared	: 2023-06-3	0. Analvze	d: 2023-(07-05		
BOD. 5-day Carbonaceous	181	40.7 mg/L	198		<u>91</u>	85-115			
Duplicate (B3F3451-DUP1)	Sou	rce: 23F3861-02	Prepared	: 2023-06-3	0. Analvze	d: 2023-0	07-05		
BOD, 5-day Carbonaceous	< 4.9	2.0 mg/L		< 4.9	-, j			20	
General Parameters, Batch B3F3452									
Blank (B3F3452-BLK1)			Prepared	: 2023-06-3	0, Analyze	d: 2023-0	07-05		
BOD, 5-day	< 2.0	2.0 mg/L			, ,				
LCS (B3F3452-BS1)			Prepared	: 2023-06-3	0. Analvze	d: 2023-(07-05		
BOD, 5-day	192	51.8 mg/L	198		97	85-115			
General Parameters, Batch B3F3471			Droporod	. 2022 06 2		4. 2022 (<u>)6 20</u>		
Chamical Oxygon Domand	< 20	20 mg/l	Fiepaleu	. 2023-00-3	0, Analyze	u. 2023-0	50-50		
	× 20	20 mg/L	Dranarad	. 2022 06 2	0 Analyza	4. 2022 (20 20		
LCS (B3F3471-BS1)	530	20 mg/l	500	. 2023-00-3	108	80-115	00-30		
General Parameters, Batch B3F3472 Blank (B3F3472-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L	Prepared	: 2023-06-3	0, Analyze	d: 2023-(06-30		
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
	< 1.0	1.0 mg/L							
LCS (B3F3472-BS1)	44.2	1.0	Prepared	: 2023-06-3	0, Analyze	d: 2023-0	06-30		
Alkalinity, Total (as CaCO3)	31.8	1.0 mg/L	50.0		64	0-200			
Reference (B3F3472-SRM1)			Prepared	· 2023-06-3	0 Analyze	d [.] 2023-(06-30		
рН	7.03	0.10 pH units	7.01	0 _ 0 0 0 0	100	98-102			
General Parameters, Batch B3G0012 Blank (B3G0012-BLK1)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3G0012-BLK2)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3G0012-BLK3)			Prepared	: 2023-07-0	1, Analyze	d: 2023-0	07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L	-		-				
LCS (B3G0012-BS1)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.961	0.050 mg/L	1.00		96	85-115			
LCS (B3G0012-BS2)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.992	0.050 mg/L	1.00		99	85-115			
LCS (B3G0012-BS3)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.965	0.050 mg/L	1.00		96	85-115			0.4
	Ca	ing About Resul	ts. Obviou	slv.				Pa	ige 9 of 1



REPORTED TO Lake Country, Distri PROJECT Lake Country WWT		strict of (Wastewa VTP	ct of (Wastewater) P			WORK ORDER 23F REPORTED 202			3861 3-07-11 20:24	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B3G0012, C	Continued								
Duplicate (B3G001	2-DUP2)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)1. Analvze	ed: 2023-0	07-01		
Ammonia, Total (as N)	0.227	0.050 mg/L		0.240	, ,			15	
Matrix Spike (B3G))012-MS2)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)1. Analvze	ed: 2023-0)7-01		
Ammonia, Total (as N)	0.444	0.050 mg/L	0.204	0.240	100	75-125			
General Parameters	s, Batch B3G0073									
Blank (B3G0073-Bl	LK1)			Prepared	I: 2023-07-0)3, Analyze	ed: 2023-0	07-04		
Nitrogen, Total Kjeldal	nl	< 0.050	0.050 mg/L							
Blank (B3G0073-Bl	LK2)			Prepared	I: 2023-07-0)3, Analyze	ed: 2023-0	07-04		
Nitrogen, Total Kjeldal	nl	< 0.050	0.050 mg/L							
LCS (B3G0073-BS	1)			Prepared	I: 2023-07-0)3. Analvze	ed: 2023-0)7-04		
Nitrogen, Total Kjeldal	<u>י</u> ו	1.05	0.050 mg/L	1.00		105	85-115			
LCS (B3G0073-BS2	2)			Prepared	I: 2023-07-0)3. Analvze	ed: 2023-0	07-04		
Nitrogen, Total Kjeldal	าไ	1.07	0.050 mg/L	1.00		107	85-115	_		
General Parameters	s, Batch B3G0088									
Blank (B3G0088-Bl	LK1)			Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0	07-04		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3G0088-BS	1)			Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0	07-04		
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115			
Duplicate (B3G008	8-DUP1)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0)7-04		
Phosphorus, Total (as	P)	0.736	0.0050 mg/L		0.731			< 1	15	
Matrix Spike (B3G0	088-MS1)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0)7-04		
Phosphorus, Total (as	P)	0.823	0.0100 mg/L	0.102	0.731	90	70-125			
Microbiological Par Blank (B3F3334-BL	ameters, Batch B3F .K1)	-3334		Prepared	1: 2023-06-2	29. Analvze	ed: 2023-0)6-29		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL						
Blank (B3F3334-BL	-K2)			Prepared	I: 2023-06-2	29. Analvze	ed: 2023-0)6-29		
Coliforms, Fecal (Q-Ti	ray)	< 1	1 MPN/100	mL		, _				
Blank (B3F3334-BL	-K3)			Prepared	l· 2023-06-2	9 Analyze	ed: 2023-0)6-29		
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL		<u></u>				
Blank (B3F3334-Bl	K4)			Prepared	l· 2023-06-2	9 Analyze	ed: 2023-0)6-29		
Coliforms, Fecal (Q-Ti	ray)	< 1	1 MPN/100	mL		, / indiy20	. 2020			
Strong Acid Leacha	ble Metals, Batch B	33G0441								
Blank (B3G0441-Bl	LK1)			Prepared	I: 2023-07-0)6, Analyze	ed: 2023-0	07-06		
Aluminum		< 40	40 mg/kg dry	1						
Antimony		< 0.10	0.10 mg/kg dry	/						
Barium		< 0.30	1.0 mg/kg dry	/ /						
Beryllium		< 0.10	0.10 mg/kg dry	/						
Bismuth		< 0.10	0.10 mg/kg dry	/					De	ao 10 of 1

Page 10 of 12

Γ



Selenium

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT	Lake Country, District of (Wastewater) Lake Country WWTP				WORK REPOR	ORDER TED	23F3 2023	861 -07-11	20:24
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3G0441, Continued

Blank (B3G0441-BLK1), Continued			Prepared: 2023-07-06, Ana	alyzed: 2023-07-0	6
Boron	< 2.0	2.0 mg/kg dry			
Cadmium	< 0.040	0.040 mg/kg dry			
Calcium	< 100	100 mg/kg dry			
Chromium	< 1.0	1.0 mg/kg dry			
Cobalt	< 0.10	0.10 mg/kg dry			
Copper	< 0.40	0.40 mg/kg dry			
Iron	< 20.0	20.0 mg/kg dry			
Lead	< 0.20	0.20 mg/kg dry			
Lithium	< 0.10	0.10 mg/kg dry			
Magnesium	< 10	10 mg/kg dry			
Manganese	< 0.40	0.40 mg/kg dry			
Mercury	< 0.040	0.040 mg/kg dry			
Molybdenum	< 0.10	0.10 mg/kg dry			
Nickel	< 0.60	0.60 mg/kg dry			
Phosphorus	< 10	10 mg/kg dry			
Potassium	< 40	40 mg/kg dry			
Selenium	< 0.20	0.20 mg/kg dry			
Silver	< 0.10	0.10 mg/kg dry			
Sodium	< 50	50 mg/kg dry			
Strontium	< 0.20	0.20 mg/kg dry			
Sulfur	< 1000	1000 mg/kg dry			
Tellurium	< 0.10	0.10 mg/kg dry			
Thallium	< 0.10	0.10 mg/kg dry			
Thorium	< 0.50	0.50 mg/kg dry			
Tin	< 0.20	0.20 mg/kg dry			
Titanium	< 1.0	1.0 mg/kg dry			
Tungsten	< 0.20	0.20 mg/kg dry			
Uranium	< 0.050	0.050 mg/kg dry			
Vanadium	< 1.0	1.0 mg/kg dry			
Zinc	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg dry			
LCS (B3G0441-BS1)			Prepared: 2023-07-06, Ana	alvzed: 2023-07-0	06
Aluminum	189	40 mg/kg dry	200 95	5 80-120	-
Antimony	1.93	0.10 mg/kg dry	2.00 96	80-120	
Arsenic	19.1	0.30 ma/ka drv	20.0 96	80-120	
Barium	1.9	1.0 mg/kg dry	2.00 97	/ 80-120	
Beryllium	1.92	0.10 mg/kg dry	2.00 96	80-120	
Bismuth	1.93	0.10 mg/kg dry	2.00 96	80-120	
Boron	21.3	2.0 mg/kg dry	20.0 10	7 80-120	
Cadmium	1.93	0.040 mg/kg dry	2.00 97	7 80-120	
Calcium	194	100 mg/kg dry	200 97	7 80-120	
Chromium	2.0	1.0 mg/kg dry	2.00 98	8 80-120	
Cobalt	1.95	0.10 mg/kg dry	2.00 98	8 80-120	
Copper	1.96	0.40 mg/kg dry	2.00 98	8 80-120	
Iron	197	20.0 mg/kg dry	200 99	80-120	
Lead	1.95	0.20 mg/kg dry	2.00 97	7 80-120	
Lithium	1.88	0.10 mg/kg dry	2.00 94	80-120	
Magnesium	193	10 mg/kg dry	200 96	80-120	
Manganese	1.94	0.40 mg/kg dry	2.00 97	7 80-120	
Mercury	0.202	0.040 mg/kg dry	0.200 10	1 80-120	
Molybdenum	1.93	0.10 mg/kg dry	2.00 97	7 80-120	
Nickel	1.92	0.60 mg/kg dry	2.00 96	80-120	
Phosphorus	185	10 mg/kg dry	200 93	8 80-120	
Potassium	192	40 mg/kg dry	200 96	80-120	

20.0

98

80-120

40 mg/kg dry

0.20 mg/kg dry

19.7

Γ



REPORTED TO PROJECT	Lake Country, District of Lake Country WWTP	of (Wastew	vater)			WORK ORDER REPORTED		23F3861 2023-07-11 20:24		20:24
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B3G04	41, Contin	ued							
LCS (B3G0441-BS	31). Continued			Prepared	I: 2023-07-0	6, Analyze	d: 2023-0)7-06		
Silver	,,	1 80	0.10 ma/ka dry	2 00		90	80-120			
Sodium		196	50 mg/kg dry	200		98	80-120			
Strontium		1.94	0.20 mg/kg dry	2 00		97	80-120			
Sulfur		2010	1000 mg/kg dry	2000		101	80-120			
Tellurium		1 87	0.10 mg/kg dry	2 00		94	80-120			
Thallium		1.94	0.10 mg/kg dry	2.00		97	80-120			
Thorium		1.95	0.50 mg/kg dry	2.00		97	80-120			
Tin		1.96	0.20 mg/kg dry	2.00		98	80-120			
Titanium		1.9	1.0 mg/kg dry	2.00		97	80-120			
Tungsten		2.04	0.20 mg/kg dry	2.00		102	80-120			
Uranium		1.99	0.050 ma/ka drv	2.00		99	80-120			
Vanadium		1.9	1.0 ma/ka drv	2.00		94	80-120			
Zinc		18.8	2.0 ma/ka drv	20.0		94	80-120			
Zirconium		2.0	2.0 ma/ka drv	2.00		101	80-120			
Reference (B3G04	41-SRM1)			Prepared	I: 2023-07-0	6, Analyze	d: 2023-0)7-06		
Aluminum		10100	40 ma/ka drv	12100		84	70-130			
Antimony		0.56	0.10 mg/kg dry	0.634		89	70-130			
Arsenic		74.4	0.30 ma/ka drv	83.6		89	70-130			
Barium		35.9	1.0 ma/ka drv	41.4		87	70-130			
Bervllium		0.32	0.10 ma/ka drv	0.377		84	70-130			
Bismuth		0.25	0.10 ma/ka drv	0.291		86	70-130			
Calcium		4370	100 ma/ka drv	5380		81	70-130			
Chromium		56.5	1.0 mg/kg dry	66.0		86	70-130			
Cobalt		9.32	0.10 mg/kg dry	10.8		86	70-130			
Copper		18.2	0.40 mg/kg dry	20.3		90	70-130			
Iron		17800	20.0 mg/kg dry	20400		87	70-130			
Lead		14.9	0.20 mg/kg dry	16.7		89	70-130			
Lithium		15.1	0.10 mg/kg dry	16.8		90	70-130			
Magnesium		5330	10 mg/kg dry	6170		86	70-130			
Manganese		275	0.40 mg/kg dry	319		86	70-130			
Mercury		0.102	0.040 mg/kg dry	0.114		89	70-130			
Molybdenum		0.54	0.10 mg/kg dry	0.607		89	70-130			
Nickel		27.5	0.60 mg/kg dry	32.5		85	70-130			
Phosphorus		379	10 mg/kg dry	432		88	70-130			
Silver		1.36	0.10 mg/kg dry	1.55		88	70-130			
Strontium		16.0	0.20 mg/kg dry	22.5		71	70-130			
Thallium		< 0.10	0.10 mg/kg dry	0.0765		79	70-130			
Thorium		2.22	0.50 mg/kg dry	2.96		75	70-130			
Titanium		524	1.0 mg/kg dry	730		72	70-130			
Uranium		0.993	0.050 mg/kg dry	1.15		86	70-130			
Vanadium		29.3	1.0 mg/kg dry	36.3		81	70-130			
Zinc		34.7	2.0 mg/kg dry	39.7		87	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23F3861
PO NUMBER PROJECT PROJECT INFO	Lake Country WWTP	RECEIVED / TEMP REPORTED	2023-06-28 13:41 / 20.3°C 2023-07-11 20:24

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



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

WORK ORDER REPORTED 23F3861 2023-07-11 20:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Raw Influent (23F3861-01) Matrix: Water	Sampled: 2023	-06-28 09:55				
Anions						
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-29	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-29	
Phosphate (as P)	5.66	N/A	0.0050	mg/L	2023-06-29	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	91.9	N/A	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	455	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Bicarbonate (as CaCO3)	455	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Ammonia, Total (as N)	69.6	None Required	0.050	mg/L	2023-07-01	
BOD, 5-day	337	N/A	2.0	mg/L	2023-07-05	
BOD, 5-day Carbonaceous	331	N/A	2.0	mg/L	2023-07-05	
Nitrogen, Total Kjeldahl	91.9	N/A	0.050	mg/L	2023-07-04	
рН	7.95	7.0-10.5	0.10	pH units	2023-06-30	HT2
Phosphorus, Total (as P)	5.42	N/A	0.0050	mg/L	2023-07-04	
Solids, Total Suspended	165	N/A	2.0	mg/L	2023-06-29	

Final Effluent (23F3861-02) | Matrix: Water | Sampled: 2023-06-28 09:30

Anions					
Chloride	125	AO ≤ 250	0.10	mg/L	2023-06-29
Nitrate (as N)	0.280	MAC = 10	0.010	mg/L	2023-06-29
Nitrite (as N)	0.113	MAC = 1	0.010	mg/L	2023-06-29
Phosphate (as P)	0.368	N/A	0.0050	mg/L	2023-06-29
Calculated Parameters					
Nitrate+Nitrite (as N)	0.393	N/A	0.0100	mg/L	N/A
Nitrogen, Total	2.10	N/A	0.0500	mg/L	N/A
General Parameters					
Alkalinity, Total (as CaCO3)	200	N/A	1.0	mg/L	2023-06-30
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Alkalinity, Bicarbonate (as CaCO3)	200	N/A	1.0	mg/L	2023-06-30
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30
Ammonia, Total (as N)	0.240	None Required	0.050	mg/L	2023-07-01
BOD, 5-day Carbonaceous	< 4.9	N/A	2.0	mg/L	2023-07-05
Nitrogen, Total Kjeldahl	1.70	N/A	0.050	mg/L	2023-07-04
рН	7.90	7.0-10.5	0.10	pH units	2023-06-30 HT2



REPORTED TO PROJECT	Lake Country, District of Lake Country WWTP	(Wastewater)			WORK ORDER REPORTED	23F3861 2023-07-1	1 20:24
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
Final Effluent (23	F3861-02) Matrix: Water	Sampled: 2023-	06-28 09:30, Cont	inued			
General Parameters	s, Continued						
Phosphorus Total	(as P)	0.731	N/A	0 0050	ma/l	2023-07-04	
Solids. Total Susp	ended	< 2.0	N/A	2.0	mg/L	2023-06-29	
Microbiological Pa	rameters						
Coliforms, Total (C)-Trav)	> 2420	MAC = 0	1	MPN/100 mL	2023-06-29	
Coliforms, Fecal (Q-Trav)	> 2420	N/A	1	MPN/100 mL	2023-06-29	
Biosolids (23F38) General Parameters Moisture	61-03) Matrix: Soil Sam s	npled: 2023-06-28 72.8	10:05	1.0	% wet	2023-07-05	
Strong Acid Locoby	abla Matala						
Aluminum		1700	N1/A	10	·······	0000 07 00	
Aluminum		1780	N/A	40	mg/kg dry	2023-07-06	
Anumony		2.45	N/A	0.10	mg/kg dry	2023-07-06	
Barium		74.2	N/A	1.0	mg/kg dry	2023-07-06	
Bervllium		< 0.10	N/A	0.10	mg/kg dry	2023-07-06	
Bismuth		16.5	N/A	0.10	mg/kg dry	2023-07-06	
Boron		9.9	N/A	2.0	mg/kg dry	2023-07-06	
Cadmium		0.668	N/A	0.040	mg/kg dry	2023-07-06	
Calcium		8740	N/A	100	mg/kg dry	2023-07-06	
Chromium		9.5	N/A	1.0	mg/kg dry	2023-07-06	
Cobalt		1.03	N/A	0.10	mg/kg dry	2023-07-06	
Copper		245	N/A	0.40	mg/kg dry	2023-07-06	
Iron		3670	N/A	20.0	mg/kg dry	2023-07-06	
Lead		6.08	N/A	0.20	mg/kg dry	2023-07-06	
Lithium		0.83	N/A	0.10	mg/kg dry	2023-07-06	
Magnesium		2860	N/A	10	mg/kg dry	2023-07-06	
Manganese		75.8	N/A	0.40	mg/kg dry	2023-07-06	
Mercury		0.290	N/A	0.040	mg/kg dry	2023-07-06	
Molybdenum		7.07	N/A	0.10	mg/kg dry	2023-07-06	
Nickel		7.49	N/A	0.60	mg/kg dry	2023-07-06	
Phosphorus		10200	N/A	10	mg/kg dry	2023-07-06	
Potassium		2610	N/A	40	mg/kg dry	2023-07-06	
Selenium		2.74	N/A	0.20	mg/kg dry	2023-07-06	
Silver		1.30	N/A	0.10	mg/kg dry	2023-07-06	
Sodium		428	N/A	50	mg/kg dry	2023-07-06	
Strontium		41.3	N/A	0.20	mg/kg dry	2023-07-06	
Sultur		5400	N/A	1000	mg/kg dry	2023-07-06	
		< 0.10	N/A	0.10	mg/kg dry	2023-07-06	
		< 0.10		0.10	mg/kg ary	2023-07-00	
THORIUM		< 0.50	IN/A	0.50	ng/kg ury	2023-07-00	



REPORTED TO
PROJECT

Lake Country, District of (Wastewater) Lake Country WWTP WORK ORDER REPORTED 23F3861 2023-07-11 20:24

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Biosolids (23F3861-03) Matrix	k: Soil Sampled: 2023-06-28	10:05, Continued			
Strong Acid Leachable Metals, Co	ontinued				
Tin	11.2	N/A	0.20 mg/kg dry	2023-07-06	
Titanium	52.9	N/A	1.0 mg/kg dry	2023-07-06	
Tungsten	0.49	N/A	0.20 mg/kg dry	2023-07-06	
Uranium	5.97	N/A	0.050 mg/kg dry	2023-07-06	
Vanadium	4.2	N/A	1.0 mg/kg dry	2023-07-06	
Zinc	455	N/A	2.0 mg/kg dry	2023-07-06	
Zirconium	3.1	N/A	2.0 mg/kg dry	2023-07-06	

Amry (23F3861-04) | Matrix: Water | Sampled: 2023-06-28 09:37

General Parameters										
BOD, 5-day Carbonaceous	7.5	N/A	2.0 mg/L	2023-07-05						
Solids, Total Suspended	28.9	N/A	2.0 mg/L	2023-06-29						

Field Blank (23F3861-05) | Matrix: Water | Sampled: 2023-06-28 09:45

Anions						
Chloride	< 0.10	AO ≤ 250	0.10	mg/L	2023-06-29	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-29	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-29	
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-06-29	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-06-30	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-07-01	
BOD, 5-day Carbonaceous	< 4.9	N/A	2.0	mg/L	2023-07-05	
Chemical Oxygen Demand	< 20	N/A	20	mg/L	2023-06-30	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2023-07-04	
рН	5.37	7.0-10.5	0.10	pH units	2023-06-30	HT2
Phosphorus, Total (as P)	< 0.0050	N/A	0.0050	mg/L	2023-07-04	
Solids, Total Suspended	< 2.0	N/A	2.0	mg/L	2023-06-29	
Microbiological Parameters						
Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-06-29	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-06-29	

Γ



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

WORK ORDER 23 REPORTED 20

23F3861 2023-07-11 20:24

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 TOLake Country, District of (Wastewater)**PROJECT**Lake Country WWTP

WORK ORDER REPORTED

23F3861 2023-07-11 20:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2022)	Closed Reflux, Colorimetry	\checkmark	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Moisture in Soil	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
SALM in Soil	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
% wet	Percent (as received basis)
<	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/kg dry	Milligrams per kilogram (dry weight basis)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

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

WORK ORDER 2 REPORTED 2

23F3861 2023-07-11 20:24

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:<u>bwhitehead@caro.ca</u>

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)	WORK ORDER	23F3861
PROJECT	Lake Country WWTP	REPORTED	2023-07-11 20:24

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	Source	% REC	REC	% RPD RPD	Qualifier
,	Rooun		Level	Result	<i>/</i> 01120	Limit	Limit	quainoi

Anions, Batch B3F3345

Blank (B3F3345-BLK1)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3F3345-BLK2)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3F3345-BS1)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29	
Chloride	15.6	0.10 mg/L	16.0	98	90-110	
Nitrate (as N)	4.00	0.010 mg/L	4.00	100	90-110	
Nitrite (as N)	1.91	0.010 mg/L	2.00	95	85-115	
Phosphate (as P)	0.991	0.0050 mg/L	1.00	99	80-120	
LCS (B3F3345-BS2)			Prepared: 202	3-06-29, Analyze	d: 2023-06-29	
Chloride	15.7	0.10 mg/L	16.0	98	90-110	
Nitrate (as N)	4.00	0.010 mg/L	4.00	100	90-110	
Nitrite (as N)	1.93	0.010 mg/L	2.00	96	85-115	
Phosphate (as P)	1.01	0.0050 mg/L	1.00	101	80-120	

General Parameters, Batch B3F3388

Blank (B3F3388-BLK1)			Prepared: 2023-06-29,	Analyzed	1: 2023-06-29		
Solids, Total Suspended	< 2.0	2.0 mg/L					
			Prepared: 2023-06-29, Analyzed: 2023-06-29				
LCS (B3F3388-BS1)			Prepared: 2023-06-29,	Analyzed	1: 2023-06-29		

General Parameters, Batch B3F3451

Blank (B3F3451-BLK1)

BOD, 5-day Carbonaceous

< 2.0 2.0 mg/L

Prepared: 2023-06-30, Analyzed: 2023-07-05

Page 8 of 12



REPORTED TO Lake Country, Distri PROJECT Lake Country WWT	ict of (Wastewater) ГР				WORK ORDER2REPORTED2			3F3861 023-07-11 20:24	
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3F3451, Cor	ntinued								
LCS (B3F3451-BS1)			Prepared	: 2023-06-3	0. Analvze	d: 2023-(07-05		
BOD. 5-day Carbonaceous	181	40.7 mg/L	198		91	85-115			
Duplicate (B3F3451-DUP1)	Sou	rce: 23F3861-02	Prepared	: 2023-06-3	0. Analvze	d: 2023-0	07-05		
BOD, 5-day Carbonaceous	< 4.9	2.0 mg/L		< 4.9	-, j			20	
General Parameters, Batch B3F3452									
Blank (B3F3452-BLK1)			Prepared	: 2023-06-3	0, Analyze	d: 2023-0	07-05		
BOD, 5-day	< 2.0	2.0 mg/L							
LCS (B3F3452-BS1)			Prepared	: 2023-06-3	0. Analvze	d: 2023-(07-05		
BOD, 5-day	192	51.8 mg/L	198		97	85-115			
General Parameters, Batch B3F3471			Droporod	. 2022 06 2		4. 2022 (<u>)6 20</u>		
Chamical Oxygon Domand	< 20	20 mg/l	Fiepaleu	. 2023-00-3	0, Analyze	u. 2023-0	50-50		
	× 20	20 mg/L	Dranarad	. 2022 06 2	0 Analyza	4. 2022 (20 20		
LCS (B3F3471-BS1)	530	20 mg/l	500	. 2023-00-3	108	80-115	00-30		
General Parameters, Batch B3F3472 Blank (B3F3472-BLK1) Alkalinity, Total (as CaCO3) Alkalinity, Phenolphthalein (as CaCO3)	< 1.0 < 1.0	1.0 mg/L 1.0 mg/L	Prepared	: 2023-06-3	0, Analyze	d: 2023-(06-30		
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
	< 1.0	1.0 mg/L							
LCS (B3F3472-BS1)	44.2	1.0	Prepared	: 2023-06-3	0, Analyze	d: 2023-0	06-30		
Alkalinity, Total (as CaCO3)	31.8	1.0 mg/L	50.0		64	0-200			
Reference (B3F3472-SRM1)			Prepared	· 2023-06-3	0 Analyze	d [.] 2023-(06-30		
рН	7.03	0.10 pH units	7.01	0 _ 0 0 0 0	100	98-102			
General Parameters, Batch B3G0012 Blank (B3G0012-BLK1)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3G0012-BLK2)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3G0012-BLK3)			Prepared	: 2023-07-0	1, Analyze	d: 2023-0	07-01		
Ammonia, Total (as N)	< 0.050	0.050 mg/L	-		-				
LCS (B3G0012-BS1)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.961	0.050 mg/L	1.00		96	85-115			
LCS (B3G0012-BS2)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.992	0.050 mg/L	1.00		99	85-115			
LCS (B3G0012-BS3)			Prepared	: 2023-07-0	1, Analyze	d: 2023-(07-01		
Ammonia, Total (as N)	0.965	0.050 mg/L	1.00		96	85-115			0.4
	Ca	ing About Resul	ts. Obviou	slv.				Pa	ige 9 of 1



REPORTED TO Lake Country, Distri PROJECT Lake Country WWT		strict of (Wastewa VTP	ict of (Wastewater) ⁻P			WORK REPOF	WORK ORDER REPORTED		3861 3-07-11	1 7-11 20:24	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters	s, Batch B3G0012, C	Continued									
Duplicate (B3G001	2-DUP2)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)1. Analvze	ed: 2023-0	07-01			
Ammonia, Total (as N)	0.227	0.050 mg/L		0.240	, ,			15		
Matrix Spike (B3G))012-MS2)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)1. Analvze	ed: 2023-0)7-01			
Ammonia, Total (as N)	0.444	0.050 mg/L	0.204	0.240	100	75-125				
General Parameters	s, Batch B3G0073										
Blank (B3G0073-Bl	LK1)			Prepared	I: 2023-07-0)3, Analyze	ed: 2023-0	07-04			
Nitrogen, Total Kjeldal	nl	< 0.050	0.050 mg/L								
Blank (B3G0073-Bl	LK2)			Prepared	I: 2023-07-0)3, Analyze	ed: 2023-0	07-04			
Nitrogen, Total Kjeldal	nl	< 0.050	0.050 mg/L								
LCS (B3G0073-BS	1)			Prepared	I: 2023-07-0)3. Analvze	ed: 2023-0)7-04			
Nitrogen, Total Kjeldal	<u>י</u> ו	1.05	0.050 mg/L	1.00		105	85-115				
LCS (B3G0073-BS2	2)			Prepared	I: 2023-07-0)3. Analvze	ed: 2023-0	07-04			
Nitrogen, Total Kjeldal	าไ	1.07	0.050 mg/L	1.00		107	85-115	_			
General Parameters	s, Batch B3G0088										
Blank (B3G0088-Bl	LK1)			Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0	07-04			
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L								
LCS (B3G0088-BS	1)			Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0	07-04			
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115				
Duplicate (B3G008	8-DUP1)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0)7-04			
Phosphorus, Total (as	P)	0.736	0.0050 mg/L		0.731			< 1	15		
Matrix Spike (B3G0	088-MS1)	Sou	rce: 23F3861-02	Prepared	I: 2023-07-0)4, Analyze	ed: 2023-0)7-04			
Phosphorus, Total (as	P)	0.823	0.0100 mg/L	0.102	0.731	90	70-125				
Microbiological Par Blank (B3F3334-BL	ameters, Batch B3F .K1)	-3334		Prepared	1: 2023-06-2	29. Analvze	ed: 2023-0)6-29			
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL							
Blank (B3F3334-BL	-K2)			Prepared	I: 2023-06-2	29. Analvze	ed: 2023-0)6-29			
Coliforms, Fecal (Q-Ti	ray)	< 1	1 MPN/100	mL		, _					
Blank (B3F3334-BL	-K3)			Prepared	l· 2023-06-2	9 Analyze	ed: 2023-0)6-29			
Coliforms, Total (Q-Tra	ay)	< 1	1 MPN/100	mL		<u></u>					
Blank (B3F3334-Bl	K4)			Prepared	l· 2023-06-2	9 Analyze	ed: 2023-0)6-29			
Coliforms, Fecal (Q-Ti	ray)	< 1	1 MPN/100	mL		, / indiy20	. 2020				
Strong Acid Leacha	ble Metals, Batch B	33G0441									
Blank (B3G0441-Bl	LK1)			Prepared	I: 2023-07-0)6, Analyze	ed: 2023-0	07-06			
Aluminum		< 40	40 mg/kg dry	1							
Antimony		< 0.10	0.10 mg/kg dry	/							
Barium		< 0.30	1.0 mg/kg dry	/ /							
Beryllium		< 0.10	0.10 mg/kg dry	/							
Bismuth		< 0.10	0.10 mg/kg dry	/					De	ao 10 of 1	

Page 10 of 12

Γ



Selenium

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT	TED TOLake Country, District of (Wastewater)CTLake Country WWTP				WORK REPOR	ORDER TED	23F3 2023	861 -07-11	20:24
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3G0441, Continued

Blank (B3G0441-BLK1), Continued			Prepared: 2023-07-06, Ana	alyzed: 2023-07-0	6
Boron	< 2.0	2.0 mg/kg dry			
Cadmium	< 0.040	0.040 mg/kg dry			
Calcium	< 100	100 mg/kg dry			
Chromium	< 1.0	1.0 mg/kg dry			
Cobalt	< 0.10	0.10 mg/kg dry			
Copper	< 0.40	0.40 mg/kg dry			
Iron	< 20.0	20.0 mg/kg dry			
Lead	< 0.20	0.20 mg/kg dry			
Lithium	< 0.10	0.10 mg/kg dry			
Magnesium	< 10	10 mg/kg dry			
Manganese	< 0.40	0.40 mg/kg dry			
Mercury	< 0.040	0.040 mg/kg dry			
Molybdenum	< 0.10	0.10 mg/kg dry			
Nickel	< 0.60	0.60 mg/kg dry			
Phosphorus	< 10	10 mg/kg dry			
Potassium	< 40	40 mg/kg dry			
Selenium	< 0.20	0.20 mg/kg dry			
Silver	< 0.10	0.10 mg/kg dry			
Sodium	< 50	50 mg/kg dry			
Strontium	< 0.20	0.20 mg/kg dry			
Sulfur	< 1000	1000 mg/kg dry			
Tellurium	< 0.10	0.10 mg/kg dry			
Thallium	< 0.10	0.10 mg/kg dry			
Thorium	< 0.50	0.50 mg/kg dry			
Tin	< 0.20	0.20 mg/kg dry			
Titanium	< 1.0	1.0 mg/kg dry			
Tungsten	< 0.20	0.20 mg/kg dry			
Uranium	< 0.050	0.050 mg/kg dry			
Vanadium	< 1.0	1.0 mg/kg dry			
Zinc	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg dry			
LCS (B3G0441-BS1)			Prepared: 2023-07-06, Ana	alvzed: 2023-07-0	06
Aluminum	189	40 mg/kg dry	200 95	5 80-120	-
Antimony	1.93	0.10 mg/kg dry	2.00 96	80-120	
Arsenic	19.1	0.30 ma/ka drv	20.0 96	80-120	
Barium	1.9	1.0 mg/kg dry	2.00 97	/ 80-120	
Beryllium	1.92	0.10 mg/kg dry	2.00 96	80-120	
Bismuth	1.93	0.10 mg/kg dry	2.00 96	80-120	
Boron	21.3	2.0 mg/kg dry	20.0 10	7 80-120	
Cadmium	1.93	0.040 mg/kg dry	2.00 97	7 80-120	
Calcium	194	100 mg/kg dry	200 97	7 80-120	
Chromium	2.0	1.0 mg/kg dry	2.00 98	8 80-120	
Cobalt	1.95	0.10 mg/kg dry	2.00 98	8 80-120	
Copper	1.96	0.40 mg/kg dry	2.00 98	8 80-120	
Iron	197	20.0 mg/kg dry	200 99	80-120	
Lead	1.95	0.20 mg/kg dry	2.00 97	7 80-120	
Lithium	1.88	0.10 mg/kg dry	2.00 94	80-120	
Magnesium	193	10 mg/kg dry	200 96	80-120	
Manganese	1.94	0.40 mg/kg dry	2.00 97	7 80-120	
Mercury	0.202	0.040 mg/kg dry	0.200 10	1 80-120	
Molybdenum	1.93	0.10 mg/kg dry	2.00 97	7 80-120	
Nickel	1.92	0.60 mg/kg dry	2.00 96	80-120	
Phosphorus	185	10 mg/kg dry	200 93	8 80-120	
Potassium	192	40 mg/kg dry	200 96	80-120	

20.0

98

80-120

40 mg/kg dry

0.20 mg/kg dry

19.7

Γ



REPORTED TO PROJECT	Lake Country, District of Lake Country WWTP	of (Wastew	vater)	WORK ORDER 23 REPORTED 20		WORK ORDER REPORTED		23F3861 2023-07-11 20:24		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B3G04	41, Contin	ued							
LCS (B3G0441-BS	31). Continued			Prepared	I: 2023-07-0	6, Analyze	d: 2023-0)7-06		
Silver	,,	1.80	0.10 ma/ka dry	2 00		90	80-120			
Sodium		196	50 mg/kg dry	200		98	80-120			
Strontium		1.94	0.20 mg/kg dry	2 00		97	80-120			
Sulfur		2010	1000 mg/kg dry	2000		101	80-120			
Tellurium		1 87	0.10 mg/kg dry	2 00		94	80-120			
Thallium		1.94	0.10 mg/kg dry	2.00		97	80-120			
Thorium		1.95	0.50 mg/kg dry	2.00		97	80-120			
Tin		1.96	0.20 mg/kg dry	2.00		98	80-120			
Titanium		1.9	1.0 mg/kg dry	2.00		97	80-120			
Tungsten		2.04	0.20 mg/kg dry	2.00		102	80-120			
Uranium		1.99	0.050 ma/ka drv	2.00		99	80-120			
Vanadium		1.9	1.0 ma/ka drv	2.00		94	80-120			
Zinc		18.8	2.0 ma/ka drv	20.0		94	80-120			
Zirconium		2.0	2.0 ma/ka drv	2.00		101	80-120			
Reference (B3G04	41-SRM1)			Prepared	I: 2023-07-0	6, Analyze	d: 2023-0)7-06		
Aluminum		10100	40 ma/ka drv	12100		84	70-130			
Antimony		0.56	0.10 mg/kg dry	0.634		89	70-130			
Arsenic		74.4	0.30 ma/ka drv	83.6		89	70-130			
Barium		35.9	1.0 ma/ka drv	41.4		87	70-130			
Bervllium		0.32	0.10 ma/ka drv	0.377		84	70-130			
Bismuth		0.25	0.10 ma/ka drv	0.291		86	70-130			
Calcium		4370	100 ma/ka drv	5380		81	70-130			
Chromium		56.5	1.0 mg/kg dry	66.0		86	70-130			
Cobalt		9.32	0.10 mg/kg dry	10.8		86	70-130			
Copper		18.2	0.40 mg/kg dry	20.3		90	70-130			
Iron		17800	20.0 mg/kg dry	20400		87	70-130			
Lead		14.9	0.20 mg/kg dry	16.7		89	70-130			
Lithium		15.1	0.10 mg/kg dry	16.8		90	70-130			
Magnesium		5330	10 mg/kg dry	6170		86	70-130			
Manganese		275	0.40 mg/kg dry	319		86	70-130			
Mercury		0.102	0.040 mg/kg dry	0.114		89	70-130			
Molybdenum		0.54	0.10 mg/kg dry	0.607		89	70-130			
Nickel		27.5	0.60 mg/kg dry	32.5		85	70-130			
Phosphorus		379	10 mg/kg dry	432		88	70-130			
Silver		1.36	0.10 mg/kg dry	1.55		88	70-130			
Strontium		16.0	0.20 mg/kg dry	22.5		71	70-130			
Thallium		< 0.10	0.10 mg/kg dry	0.0765		79	70-130			
Thorium		2.22	0.50 mg/kg dry	2.96		75	70-130			
Titanium		524	1.0 mg/kg dry	730		72	70-130			
Uranium		0.993	0.050 mg/kg dry	1.15		86	70-130			
Vanadium		29.3	1.0 mg/kg dry	36.3		81	70-130			
Zinc		34.7	2.0 mg/kg dry	39.7		87	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23G2313
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-07-18 12:17 / 14.6°C 2023-07-25 15:43 45125.34547

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER 2 REPORTED 2

23G2313 2023-07-25 15:43

Analyte	Result	RL	Units	Analyzed	Qualifier
Biosolids (E233628) (23G2313-01) Matrix: Sludge Sampled: 2023-07-1	3 09:30			
General Parameters					
Moisture	78.8	1.0	% wet	2023-07-22	
Nitrogen. Total Kieldahl	4.29	0.0004	% drv	2023-07-21	
pH (1:2 H2O Solution)	5.48	0.10	pH units	2023-07-25	
Solids, Total	21.2	0.1	% wet	2023-07-22	
Solids, Volatile	85.2	0.1	% dry	2023-07-22	
Strong Acid Leachable Metals					
Aluminum	1560	40	ma/ka drv	2023-07-24	
Antimony	0.99	0.10	mg/kg dry	2023-07-24	
Arsenic	1.37	0.30	mg/kg dry	2023-07-24	
Barium	63.3	1.0	mg/kg dry	2023-07-24	
Beryllium	< 0.10	0.10	mg/kg dry	2023-07-24	
Bismuth	22.0	0.10	mg/kg dry	2023-07-24	
Boron	11.5	2.0	mg/kg dry	2023-07-24	
Cadmium	0.651	0.040	mg/kg dry	2023-07-24	
Calcium	8970	100	mg/kg dry	2023-07-24	
Chromium	10.6	1.0	mg/kg dry	2023-07-24	
Cobalt	2.84	0.10	mg/kg dry	2023-07-24	
Copper	263	0.40	mg/kg dry	2023-07-24	
Iron	2550	20.0	mg/kg dry	2023-07-24	
Lead	7.22	0.20	mg/kg dry	2023-07-24	
Lithium	0.91	0.10	mg/kg dry	2023-07-24	
Magnesium	3130	10	mg/kg dry	2023-07-24	
Manganese	55.5	0.40	mg/kg dry	2023-07-24	
Mercury	0.410	0.040	mg/kg dry	2023-07-24	
Molybdenum	7.98	0.10	mg/kg dry	2023-07-24	
Nickel	8.21	0.60	mg/kg dry	2023-07-24	
Phosphorus	11200	10	mg/kg dry	2023-07-24	
Potassium	3000	40	mg/kg dry	2023-07-24	
Selenium	3.16	0.20	mg/kg dry	2023-07-24	
Silver	1.19	0.10	mg/kg dry	2023-07-24	
Sodium	454	50	mg/kg dry	2023-07-24	
Strontium	45.6	0.20	mg/kg dry	2023-07-24	
Sulfur	4510	1000	mg/kg dry	2023-07-24	
Tellurium	< 0.10	0.10	mg/kg dry	2023-07-24	
Thallium	< 0.10	0.10	mg/kg dry	2023-07-24	
Thorium	< 0.50	0.50	mg/kg dry	2023-07-24	
Tin	12.0	0.20	mg/kg dry	2023-07-24	
Titanium	44.9	1.0	mg/kg dry	2023-07-24	
Tungsten	29.3	0.20	mg/kg dry	2023-07-24	
Uranium	6.60	0.050	mg/kg dry	2023-07-24	
Vanadium	4.7	1.0	mg/kg dry	2023-07-24	
Zinc	563	2.0	mg/kg dry	2023-07-24	



REPORTED TO PROJECT	PORTED TOLake Country, District of (Wastewater)DJECTBioSolids- PE14651		WORK ORDER REPORTED		5 15:43						
Analyte	Result	RL	Units	Analyzed	Qualifier						
Biosolids (E2336	Biosolids (E233628) (23G2313-01) Matrix: Sludge Sampled: 2023-07-18 09:30, Continued										
Strong Acid Leach	able Metals, Continued										
Zirconium	2.3	2.0	mg/kg dry	2023-07-24							



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23G REPORTED 2023

23G2313 2023-07-25 15:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23G2313
PROJECT	BioSolids- PE14651	REPORTED	2023-07-25 15:43

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

General Parameters, Batch B3G2065

Duplicate (B3G2065-DUP1)	Sour	ce: 23G2313-01	Prepared: 2023	8-07-22, Analyz	ed: 2023-07-22	
Moisture	99.0	1.0 % wet	78	8.8	22.7	40
Solids, Total	21.3	0.1 % wet	21	.2	< 1	7.5
Solids, Volatile	85.3	0.1 % dry	85	5.2	< 1	15
Reference (B3G2065-SRM1)			Prepared: 2023	-07-22, Analyz	ed: 2023-07-22	
Moisture	99.0	1.0 % wet	7.0	99	80-120	
Solids, Total	91.9	0.1 % wet	93.0	99	80-120	
Solids, Volatile	7.0	0.1 % dry	6.26	113	80-200	

General Parameters, Batch B3G2101

Blank (B3G2101-BLK1)			Prepared: 2023	3-07-20, Analyze	d: 2023-07-21		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet					
Duplicate (B3G2101-DUP1)	Sou	urce: 23G2313-01	Prepared: 2023	3-07-20, Analyze	d: 2023-07-21		
Nitrogen, Total Kjeldahl	4.65	0.0004 % dry	4.	.29	8	25	
Reference (B3G2101-SRM1)			Prepared: 2023	3-07-20, Analyze	d: 2023-07-21		
Nitrogen, Total Kjeldahl	0.217	0.010 % wet	0.197	110	0-200		

General Parameters, Batch B3G2386

Duplicate (B3G2386-DUP1)	icate (B3G2386-DUP1) Source: 23G2313-01			Prepared: 2023-07-23, Analyzed: 2023-07-25			
pH (1:2 H2O Solution)	5.50	0.10 pH units	5.48	< 1	10		

Strong Acid Leachable Metals, Batch B3G2361

Blank (B3G2361-BLK1)			Prepared: 2023-07-23, Analyzed: 2023-07-24
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23G2 2023	2313 -07-25	15:43
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3G2361, Continued

Blank (B3G2361-BLK1), Continued			Prepared: 202	23-07-23, Analyze	d: 2023-07-24	
Cadmium	< 0.040	0.040 mg/kg dry				
Calcium	< 100	100 mg/kg dry				
Chromium	< 1.0	1.0 mg/kg dry				
Cobalt	< 0.10	0.10 mg/kg dry				
Copper	< 0.40	0.40 mg/kg dry				
Iron	< 20.0	20.0 mg/kg dry				
Lead	< 0.20	0.20 mg/kg dry				
Lithium	< 0.10	0.10 mg/kg dry				
Magnesium	< 10	10 mg/kg dry				
Manganese	0.47	0.40 mg/kg dry				BLK
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 mg/kg dry				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	< 0.20	0.20 mg/kg dry				
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
LCS (B3G2361-BS1)			Prepared: 202	3-07-23, Analyze	d: 2023-07-24	
Aluminum	186	40 ma/ka drv	200	93	80-120	
Antimony	1.84	0.10 mg/kg dry	2.00	92	80-120	
Arsenic	18.6	0.30 mg/kg dry	20.0	93	80-120	
Barium	1.9	1.0 mg/kg dry	2.00	93	80-120	
Bervllium	1.87	0.10 mg/kg dry	2.00	93	80-120	
Bismuth	1.82	0.10 mg/kg dry	2.00	91	80-120	
Boron	18.7	2.0 ma/ka drv	20.0	94	80-120	
Cadmium	1.83	0.040 ma/ka drv	2.00	92	80-120	
Calcium	189	100 mg/kg dry	200	94	80-120	
Chromium	1.9	1.0 mg/kg dry	2.00	94	80-120	
Cobalt	1.90	0.10 mg/kg dry	2.00	95	80-120	
Copper	1.88	0.40 mg/kg dry	2.00	94	80-120	
Iron	189	20.0 mg/kg dry	200	94	80-120	
Lead	1.85	0.20 ma/ka drv	2.00	92	80-120	
Lithium	1.87	0.10 mg/kg drv	2.00	93	80-120	
Magnesium	193	10 mg/kg dry	200	97	80-120	
Manganese	1.90	0.40 mg/kg dry	2 00	95	80-120	
Mercurv	0.187	0.040 ma/ka drv	0.200	94	80-120	
Molvbdenum	1.80	0.10 ma/ka drv	2.00	90	80-120	
Nickel	1 84	0.60 ma/ka drv	2.00		80-120	
Phosphorus	183	10 ma/ka drv	200		80-120	
Potassium	189	40 ma/ka drv	200	94	80-120	
Selenium	18.8	0.20 ma/ka drv	20.0	94	80-120	
Silver	1.85	0.10 ma/ka drv	2.00	92	80-120	

Γ



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK (REPOR	order Ted	23G2 2023	2313 -07-25	15:43
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leacha	ble Metals, Batch B3G2361, Continued								

LCS (B3G2361-BS1), Continued			Prepared:	2023-07-23, Analyzed: 2023-07-24	
Sodium	186	50 mg/kg dry	200	93 80-120	
Strontium	1.92	0.20 mg/kg dry	2.00	96 80-120	
Sulfur	1870	1000 mg/kg dry	2000	93 80-120	
Tellurium	1.80	0.10 mg/kg dry	2.00	90 80-120	
Thallium	1.82	0.10 mg/kg dry	2.00	91 80-120	
Thorium	1.89	0.50 mg/kg dry	2.00	94 80-120	
Tin	1.86	0.20 mg/kg dry	2.00	93 80-120	
Titanium	1.9	1.0 mg/kg dry	2.00	96 80-120	
Tungsten	1.90	0.20 mg/kg dry	2.00	95 80-120	
Uranium	1.95	0.050 mg/kg dry	2.00	97 80-120	
Vanadium	1.9	1.0 mg/kg dry	2.00	94 80-120	
Zinc	18.2	2.0 mg/kg dry	20.0	91 80-120	
Zirconium	< 2.0	2.0 mg/kg dry	2.00	93 80-120	

00	Qualifiers	
QU	Quaimers.	

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23G2304
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-07-18 12:17 / 14.6°C 2023-07-25 13:23 45125.34547

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahead

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District or Final Effluent- PE14651	ke Country, District of (Wastewater) nal Effluent- PE14651		WORK ORDER REPORTED	23G2304 2023-07-2	5 13:23
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E23	33626) (23G2304-01) Ma	atrix: Wastewater Sam	pled: 2023-07-18 09:56			
Anions						
Chloride		119	0.10	mg/L	2023-07-20	
Nitrate (as N)		0.199	0.010	mg/L	2023-07-20	
Nitrite (as N)		0.155	0.010	mg/L	2023-07-20	
Phosphate (as P)		0.132	0.0050	mg/L	2023-07-20	
Calculated Paramet	ers					
Nitrate+Nitrite (as I	N)	0.355	0.0100	ma/L	N/A	
Nitrogen, Total	,	2.51	0.0500	mg/L	N/A	
Nitrogen, Organic		1.63	0.0500	mg/L	N/A	
General Parameters	3					
Alkalinity, Total (as	CaCO3)	190	1.0	mg/L	2023-07-21	
Alkalinity, Phenolph	, hthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-07-21	
Alkalinity, Bicarbon	ate (as CaCO3)	190	1.0	mg/L	2023-07-21	
Alkalinity, Carbona	te (as CaCO3)	< 1.0	1.0	mg/L	2023-07-21	
Alkalinity, Hydroxid	le (as CaCO3)	< 1.0	1.0	mg/L	2023-07-21	
Ammonia, Total (as	s N)	0.531	0.050	mg/L	2023-07-20	
BOD, 5-day Carbo	naceous	3.4	2.0	mg/L	2023-07-25	
Nitrogen, Total Kjel	ldahl	2.16	0.050	mg/L	2023-07-25	
pН		7.90	0.10	pH units	2023-07-21	HT2
Phosphorus, Total	(as P)	0.369	0.0050	mg/L	2023-07-20	
Solids, Total Suspe	ended	2.0	2.0	mg/L	2023-07-21	
Microbiological Par	ameters					
Coliforms, Total (Q	-Tray)	242000	1	MPN/100 mL	2023-07-19	
Coliforms, Fecal (C	Q-Tray)	41100	1	MPN/100 mL	2023-07-19	
Duplicate (23G230	04-02) Matrix: Water S	ampled: 2023-07-18 09:	58			
Anions						
Chloride		118	0.10	mg/L	2023-07-20	
Nitrate (as N)		0.192	0.010	mg/L	2023-07-20	
Nitrite (as N)		0.149	0.010	mg/L	2023-07-20	
Phosphate (as P)		0.142	0.0050	mg/L	2023-07-20	
				0		

Calculated Parameters				
Nitrate+Nitrite (as N)	0.341	0.0100 mg/L	N/A	
Nitrogen, Total	2.33	0.0500 mg/L	N/A	
General Parameters				
Alkalinity, Total (as CaCO3)	190	1.0 mg/L	2023-07-21	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-07-21	
Alkalinity, Bicarbonate (as CaCO3)	190	1.0 mg/L	2023-07-21	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L	2023-07-21	



REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	trict of (Wastewater) 14651			WORK ORDER REPORTED	23G2304 2023-07-2	5 13:23
Analyte		Result		RL	Units	Analyzed	Qualifier
Duplicate (23G23	804-02) Matrix: Wat	er Sampled: 2023-	07-18 09:58, Co	ntinued			
General Parameter	rs, Continued						
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0		1.0	mg/L	2023-07-21	
Ammonia, Total (a	as N)	0.565		0.050	mg/L	2023-07-20	
BOD, 5-day Carbo	onaceous	3.3		2.0	mg/L	2023-07-25	
Nitrogen, Total Kje	eldahl	1.99		0.050	mg/L	2023-07-25	
pН		7.91		0.10	pH units	2023-07-21	HT2
Phosphorus, Tota	l (as P)	0.369		0.0050	mg/L	2023-07-20	
Solids, Total Susp	ended	< 3.3		2.0	mg/L	2023-07-24	
Microbiological Pa	rameters						
Coliforms, Total (C	Q-Tray)	242000		1	MPN/100 mL	2023-07-19	
Coliforms, Fecal (Q-Tray)	34500		1	MPN/100 mL	2023-07-19	
Sample Qualifie	ers:						
HT2 The 1	5 minute recommended	nded holding time	(from sampling	g to analysis) ha	as been excee	ded - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER REPORTED

23G2304 2023-07-25 13:23

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	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	\checkmark	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)	\checkmark	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)	WORK ORDER	23G2304
PROJECT	Final Effluent- PE14651	REPORTED	2023-07-25 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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3G2016

Blank (B3G2016-BLK1)			Prepared: 202	3-07-20, Analyze	d: 2023-07-20	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3G2016-BS1)			Prepared: 202	3-07-20, Analyze	ed: 2023-07-20	
Chloride	16.1	0.10 mg/L	16.0	101	90-110	
Nitrate (as N)	4.09	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	1.94	0.010 mg/L	2.00	97	85-115	
Phosphate (as P)	1.08	0.0050 mg/L	1.00	108	80-120	

General Parameters, Batch B3G2053

Blank (B3G2053-BLK1)			Prepared: 2023-0	7-20, Analyze	ed: 2023-07-20	
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L				
LCS (B3G2053-BS1)			Prepared: 2023-0	7-20, Analyze	ed: 2023-07-20	

General Parameters, Batch B3G2085

Blank (B3G2085-BLK1)			Prepared: 2023-07-20, Analyzed: 2023-07-20
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3G2085-BLK2)			Prepared: 2023-07-20, Analyzed: 2023-07-20
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3G2085-BLK3)			Prepared: 2023-07-20, Analyzed: 2023-07-20
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3G2085-BLK4)			Prepared: 2023-07-20, Analyzed: 2023-07-20
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3G2085-BLK5)			Prepared: 2023-07-20, Analyzed: 2023-07-20
Ammonia, Total (as N)	< 0.050	0.050 mg/L	



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE14	ict of (Wastewa 4651	iter)		_	WORK REPOR	ORDER TED	23G2 2023	2304 -07-25	13:23
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3G2085, Co	ntinued								
LCS (B3G2085-BS1)			Prepared	: 2023-07-20), Analyze	d: 2023-0	7-20		
Ammonia, Total (as N)		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B3G2085-BS2	?)			Prepared	: 2023-07-20), Analyze	d: 2023-0	7-20		
Ammonia, Total (as N)		0.982	0.050 mg/L	1.00		98	85-115			
LCS (B3G2085-BS3	3)			Prepared	: 2023-07-20), Analyze	d: 2023-0	7-20		
Ammonia, Total (as N)	-	0.956	0.050 mg/L	1.00		96	85-115			
LCS (B3G2085-BS4	.)			Prepared	: 2023-07-20), Analyze	d: 2023-0	7-20		
Ammonia, Total (as N)	,	0.966	0.050 mg/L	1.00		97	85-115			
LCS (B3G2085-BS5	5)			Prepared	: 2023-07-20), Analyze	d: 2023-0	7-20		
Ammonia, Total (as N)	,	0.933	0.050 mg/L	1.00		93	85-115	-		
General Parameters	, Batch B3G2114				0000 07 0			7.05		
Blank (B3G2114-BL	.K1)	< 2.0	2.0 mg/l	Prepared	: 2023-07-20	J, Analyze	a: 2023-0	7-25		
BOD, 5-day Carbonac	eous	< 2.0	2.0 mg/L							
LCS (B3G2114-BS1)	400	54.0	Prepared	: 2023-07-20), Analyze	d: 2023-0	7-25		
General Parameters Blank (B3G2168-BL	, Batch B3G2168 .K1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0	7-21		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	alein (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 (B3G2168-BL	_K2)			Prepared	: 2023-07-2 ⁻	1, Analyze	d: 2023-0	7-21		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3G2168-BS1)			Prepared	· 2023-07-2	1 Analyze	d [.] 2023-0	7-21		
Alkalinity Total (as Cat	7 CO3)	105	1.0 mg/l	100	. 2020 07 2	105	80-120			
Alkalinity, Phenolphth	alein (as CaCO3)	42.5	1.0 mg/L	50.0		85	0-200			
LCS (B3G2168-BS2	2)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0	7-21		
Alkalinity, Total (as Ca	CO3)	104	1.0 mg/L	100		104	80-120			
Alkalinity, Phenolphth	alein (as CaCO3)	37.8	1.0 mg/L	50.0		76	0-200			
Reference (B3G216	8-SRM1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0	7-21		
рН		7.02	0.10 pH units	7.01		100	98-102			
Reference (B3G216	68-SRM2)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0	7-21		
pН		7.02	0.10 pH units	7.01		100	98-102			

General Parameters, Batch B3G2213

Blank (B3G2213-BLK1)

Solids, Total Suspended

Prepared: 2023-07-21, Analyzed: 2023-07-21 2.0 mg/L

< 2.0



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	trict of (Wastewa 14651	iter)			WORK REPOR	ORDER TED	23G2 2023	2304 -07-25	13:23
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B3G2213, C	Continued								
LCS (B3G2213-BS	51)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-21		
Solids, Total Suspend	ded	96.0	10.0 mg/L	100		96	85-115			
General Parameter	rs, Batch B3G2279									
Blank (B3G2279-B	BLK1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-25		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L	-		-				
Blank (B3G2279-B	BLK2)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-25		
Nitrogen, Total Kjelda	ahl	< 0.050	0.050 mg/L	•		-				
LCS (B3G2279-BS	51)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-25		
Nitrogen, Total Kjelda	ahl	1.10	0.050 mg/L	1.00		110	85-115			
LCS (B3G2279-BS	32)			Prepared	: 2023-07-2	1. Analvze	d: 2023-0)7-25		
Nitrogen, Total Kjelda	ahl	1.11	0.050 mg/L	1.00		111	85-115			
General Parameter	rs, Batch B3G2377									
Blank (B3G2377-B	BLK1)			Prepared	: 2023-07-2	4, Analyze	d: 2023-0)7-24		
Solids, Total Suspend	ded	< 2.0	2.0 mg/L							
LCS (B3G2377-BS	51)			Prepared	: 2023-07-2	4, Analyze	d: 2023-0)7-24		
Solids, Total Suspend	ded	97.0	10.0 mg/L	100		97	85-115			
Microbiological Pa	rameters, Batch B30	G1951								
Blank (B3G1951-B	BLK1)			Prepared	: 2023-07-1	9, Analyze	d: 2023-0)7-19		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						
Blank (B3G1951-B	BLK2)			Prepared	: 2023-07-1	9, Analyze	d: 2023-0)7-19		
Coliforms, Fecal (Q-1	Tray)	< 1	1 MPN/100	mL		-				
Blank (B3G1951-B	BLK3)			Prepared	: 2023-07-1	9, Analyze	d: 2023-0	07-19		
Coliforms, Total (Q-T	ray)	< 1	1 MPN/100	mL						
Blank (B3G1951-B	BLK4)			Prepared	1: 2023-07-1	9, Analyze	d: 2023-0)7-19		
Coliforms, Fecal (Q-	Tray)	< 1	1 MPN/100	mL		-				



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23G2298
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-07-18 12:17 / 14.6°C 2023-07-25 13:28 45125.34547

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	_ake Country, District c Raw Influent- PE14651	f (Wastewater)		WORK ORDER REPORTED	23G2298 2023-07-2	25 13:28	
Analyte		Result	RL	Units	Analyzed	Qualifier	
Raw Influent (E2336	627) (23G2298-01) Ma	atrix: Wastewater Sampl	ed: 2023-07-18 10:05				
Anions							
Nitrate (as N)		< 0.010	0.010	mg/L	2023-07-20		
Nitrite (as N)		< 0.010	0.010	mg/L	2023-07-20		
Phosphate (as P)		6.09	0.0050	mg/L	2023-07-20		
Calculated Parameter	rs						
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A		
Nitrogen, Total		118	2.00	mg/L	N/A		
General Parameters							
Alkalinity, Total (as C	aCO3)	472	1.0	mg/L	2023-07-21		
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0	mg/L	2023-07-21		
Alkalinity, Bicarbonat	e (as CaCO3)	472	1.0	mg/L	2023-07-21		
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0	mg/L	2023-07-21		
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0	mg/L	2023-07-21		
Ammonia, Total (as N	N)	78.5	0.050	mg/L	2023-07-20		
BOD, 5-day		670	2.0	mg/L	2023-07-25		
BOD, 5-day Carbona	aceous	674	2.0	mg/L	2023-07-25		
Nitrogen, Total Kjelda	ahl	118	0.050	mg/L	2023-07-25		
рН		7.84	0.10	pH units	2023-07-21	HT2	
Phosphorus, Total (a	s P)	13.9	0.0050	mg/L	2023-07-20	RE2	
Solids, Total Suspend	ded	848	2.0	mg/L	2023-07-24	CST2	

Sample Qualifiers:

CST2 visually lots of suspensed solids

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.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED

23G2298 2023-07-25 13:28

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	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)	\checkmark	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)	WORK ORDER	23G2298
PROJECT	Raw Influent- PE14651	REPORTED	2023-07-25 13:28

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3G1883

Blank (B3G1883-BLK1)			Prepared: 2023	3-07-19, Analyze	ed: 2023-07-19	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3G1883-BS1)	Prepared: 2023	3-07-19, Analyze	ed: 2023-07-19			
Nitrate (as N)	4.07	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	1.94	0.010 mg/L	2.00	97	85-115	
Phosphate (as P)	1.07	0.0050 mg/L	1.00	107	80-120	

General Parameters, Batch B3G2053

Blank (B3G2053-BLK1)			Prepared: 2023-07-20,	Analyzeo	d: 2023-07-20
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L			
LCS (B3G2053-BS1)			Prepared: 2023-07-20,	Analyzeo	d: 2023-07-20
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100	104	85-115

General Parameters, Batch B3G2085

Blank (B3G2085-BLK1)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3G2085-BLK2)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3G2085-BLK3)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3G2085-BLK4)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3G2085-BLK5)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3G2085-BS1)			Prepared: 2023	3-07-20, Analyz	ed: 2023-07-20	
Ammonia, Total (as N)	1.02	0.050 mg/L	1.00	102	85-115	



REPORTED TO Lake Country, Distri PROJECT Raw Influent- PE14	strict of (Wastewater) 14651				WORK ORDER REPORTED		२ 23G2298 2023-07-25		13:28
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3G2085, Co.	ntinued								
LCS (B3G2085-BS2)			Prepared	: 2023-07-2	0. Analvze	d: 2023-0	7-20		
Ammonia, Total (as N)	0.982	0.050 mg/L	1.00		98	85-115			
LCS (B3G2085-BS3)			Prenared	· 2023-07-2	0 Analyze	d. 2023-0	17-20		
Ammonia. Total (as N)	0.956	0.050 mg/L	1.00	. 2020 01 2	96	85-115			
			Droporod	. 2022 07 2		4. 2022 0	2 20		
Ammonia Total (as N)	0.966	0.050 mg/l	1 00	1. 2023-07-2	0, Analyze	85-115	77-20		
	0.000	0.000 mg/L	D	0000 07 0	0. Augustume		7.00		
	0.022	0.050	Prepared	1: 2023-07-2	20, Analyze	a: 2023-0	17-20		
Ammonia, iotai (as N)	0.933	0.050 mg/L	1.00		93	80-110			
General Parameters, Batch B3G2114									
Blank (B3G2114-BLK1)			Prepared	: 2023-07-2	0, Analyze	d: 2023-0)7-25		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3G2114-BS1)			Prepared	: 2023-07-2	0. Analvze	d: 2023-0	7-25		
BOD, 5-day Carbonaceous	186	51.8 mg/L	198		94	85-115			
General Parameters, Batch B3G2115			Prepared	· 2023-07-2	20 Analyze	d. 2023-0	17-25		
BOD. 5-day	< 2.0	2.0 mg/L	Tioparoa	. 2020 01 2	.0, / (ildiy20	4. 2020 0			
			Proparad	. 2023 07 2		4. 2023 0	7 25		
BOD 5-day	187	18.5 mg/l	108	1. 2023-07-2	0, Analyze	85-115	11-25		
DOD, 5-day	107	40.5 Mg/L	190		30	00-110			
General Parameters, Batch B3G2168									
Blank (B3G2168-BLK1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-21		
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, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3G2168-BLK2)			Prepared	: 2023-07-2	21, Analyze	d: 2023-0)7-21		
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							
			Prenared	. 2023-07-2	21 Analyze	d. 2023-0	17-21		
Alkalinity Total (as CaCO3)	105	1.0 mg/l	100	1. 2020-01-2	105	80-120	//-21		
Alkalinity, Phenolphthalein (as CaCO3)	42.5	1.0 mg/L	50.0		85	0-200			
LCS (B3G2168-BS2)			Prepared	1: 2023-07-2	1, Analyze	d: 2023-0)7-21		
Alkalinity, Total (as CaCO3)	104	1.0 mg/L	100		104	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	37.8	1.0 mg/L	50.0		76	0-200			
Reference (B3G2168-SRM1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-21		
pH	7.02	0.10 pH units	7.01		100	98-102			
Reference (B3G2168-SRM2)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-21		
,,, _,, _	7.02	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT	Lake Country, District o Raw Influent- PE14651	f (Wastewate	er)			WORK (ORDER TED	23G2 2023	2298 -07-25	13:28
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B3G2279									
Blank (B3G2279-Bl	_K1)			Prepared:	2023-07-21	, Analyzed	1: 2023-0	7-25		
Nitrogen, Total Kjeldal	าไ	< 0.050	0.050 mg/L							
Blank (B3G2279-Bl	_K2)			Prepared:	2023-07-21	, Analyzed	l: 2023-0	7-25		
Nitrogen, Total Kjeldał	าไ	< 0.050	0.050 mg/L							
LCS (B3G2279-BS1	l)			Prepared:	2023-07-21	, Analyzed	1: 2023-0	7-25		
Nitrogen, Total Kjeldal	าไ	1.10	0.050 mg/L	1.00		110	85-115			
LCS (B3G2279-BS2	2)			Prepared:	2023-07-21	, Analyzed	1: 2023-0	7-25		
Nitrogen, Total Kjeldal	าไ	1.11	0.050 mg/L	1.00		111	85-115			
General Parameters	s, Batch B3G2377			Drenened	2022.07.24		. 2022 0	7.04		
Blank (B3G2377-Bl	_K1)		0.0	Prepared:	2023-07-24	, Analyzec	1: 2023-0	7-24		
Solids, Iotal Suspende	ea	< 2.0	2.0 mg/L							
LCS (B3G2377-BS1	1)			Prepared:	2023-07-24	l, Analyzec	1: 2023-0	7-24		
Solids, Total Suspende	ed	97.0	10.0 mg/L	100		97	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	23G2312
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-07-18 12:17 / 14.6°C 2023-07-25 13:11 45125.34547

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842		N F	WORK ORDER REPORTED		5 13:11			
Analyte	e Result			Jnits	Analyzed	Qualifier		
Amry WW (E262982) (23G2312-01) Matrix: Wastewater Sampled: 2023-07-18 10:05								
BOD 5-day Carbo	s	< 6.2	20 r	ng/l	2023-07-25			
Solids, Total Suspe	ended	5.8	2.0 r	ng/L	2023-07-23			



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** Amry- MR17842 PROJECT

23G2312 WORK ORDER REPORTED

2023-07-25 13:11

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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.



LCS (B3G2213-BS1)

Solids, Total Suspended

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Lake Country, District of (Wastewater)	WORK ORDER	23G2312
PROJECT	Amry- MR17842	REPORTED	2023-07-25 13:11

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
General Parameters, Batch B3G2114									
Blank (B3G2114-BLK1)			Prepared	: 2023-07-2	0, Analyze	d: 2023-0)7-25		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3G2114-BS1)			Prepared	: 2023-07-2	0, Analyze	d: 2023-0)7-25		
BOD, 5-day Carbonaceous	186	51.8 mg/L	198		94	85-115			
Duplicate (B3G2114-DUP1)	Sour	ce: 23G2312-01	Prepared	: 2023-07-2	0, Analyze	d: 2023-0)7-25		
BOD, 5-day Carbonaceous	< 6.2	2.0 mg/L		< 6.2				20	
General Parameters, Batch B3G2213									
Blank (B3G2213-BLK1)			Prepared	: 2023-07-2	1, Analyze	d: 2023-0)7-21		
Solids, Total Suspended	< 2.0	2.0 mg/L							

100

10.0 mg/L

96.0

Prepared: 2023-07-21, Analyzed: 2023-07-21

96

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	23H1729
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-08-11 11:08 / 21.8°C 2023-08-17 15:19 45149.34247

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842			WORK ORDER REPORTED	23H1729 2023-08-17 15:19				
Analyte	nalyte Result			Units	Analyzed	Qualifier		
Amry WW (E262982) (23H1729-01) Matrix: Wastewater Sampled: 2023-08-11 09:22								
General Parameters	5							
BOD, 5-day Carbo	onaceous	< 6.7	2.0	mg/L	2023-08-17			
Solids, Total Suspe	ended	9.4	2.0	mg/L	2023-08-15			



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** Amry- MR17842 PROJECT

WORK ORDER 23H1729 REPORTED

2023-08-17 15:19

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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)	WORK ORDER	23H1729
PROJECT	Amry- MR17842	REPORTED	2023-08-17 15:19

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
General Parameters, Batch B3H1239									
Blank (B3H1239-BLK1)			Prepared	1: 2023-08-1	2, Analyze	d: 2023-(08-17		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3H1239-BS1)			Prepared	: 2023-08-1	2, Analyze	d: 2023-(08-17		
BOD, 5-day Carbonaceous	168	55.6 mg/L	198		85	85-115			
Duplicate (B3H1239-DUP1)	Sou	rce: 23H1729-01	Prepared	: 2023-08-1	2, Analyze	d: 2023-0	08-17		
BOD, 5-day Carbonaceous	< 6.7	2.0 mg/L		< 6.7				20	
General Parameters, Batch B3H1474									
Blank (B3H1474-BLK1)			Prepared	1: 2023-08-1	5, Analyze	d: 2023-(08-15		

Solids, Total Suspended	< 2.0	2.0 mg/L			
LCS (B3H1474-BS1)			Prepared: 2023-08-15,	Analyze	d: 2023-08-15
Solids, Total Suspended	85.0	10.0 mg/L	100	85	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	23H1725
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-08-11 11:08 / 21.8°C 2023-08-17 15:28 45149.34247

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Dispension PROJECT Raw Influent- PE		t of (Wastewater) 51		WORK ORDER REPORTED	23H1725 2023-08-1	7 15:28
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2336	27) (23H1725-01) M	atrix: Wastewater Samp	led: 2023-08-11 10:25			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-08-13	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-08-13	
Phosphate (as P)		4.28	0.0050	mg/L	2023-08-13	
Calculated Parameter	s					
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		99.5	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as Ca	aCO3)	417	1.0	mg/L	2023-08-16	
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Alkalinity, Bicarbonate	e (as CaCO3)	417	1.0	mg/L	2023-08-16	
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Ammonia, Total (as N	l)	73.5	0.050	mg/L	2023-08-13	
BOD, 5-day		324	2.0	mg/L	2023-08-17	
BOD, 5-day Carbona	ceous	322	2.0	mg/L	2023-08-17	
Nitrogen, Total Kjelda	hl	99.5	0.050	mg/L	2023-08-16	
рН		7.72	0.10	pH units	2023-08-16	HT2
Phosphorus, Total (as	s P)	14.4	0.0050	mg/L	2023-08-16	
Solids, Total Suspend	led	293	2.0	mg/L	2023-08-15	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED 23H1725 2023-08-17 15:28

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	1	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)	WORK ORDER	23H1725
PROJECT	Raw Influent- PE14651	REPORTED	2023-08-17 15:28

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	Source	% REC	REC	% RPD RPD	Qualifier	
,	Rooun		Level	Result	<i>/</i> 01120	Limit	Limit	quainoi	

Anions, Batch B3H1293

Blank (B3H1293-BLK1)			Prepared: 202	23-08-13, Analyze	ed: 2023-08-13	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3H1293-BLK2)			Prepared: 202	23-08-14, Analyze	ed: 2023-08-14	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
			D 1 000			
LCS (B3H1293-BS1)			Prepared: 202	23-08-13, Analyze	ed: 2023-08-13	
LCS (B3H1293-BS1) Nitrate (as N)	4.05	0.010 mg/L	4.00	23-08-13, Analyze 101	ed: 2023-08-13 90-110	
LCS (B3H1293-BS1) Nitrate (as N) Nitrite (as N)	4.05	0.010 mg/L 0.010 mg/L	4.00 2.00	23-08-13, Analyze 101 100	ed: 2023-08-13 90-110 85-115	
LCS (B3H1293-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P)	4.05 2.00 1.04	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00	23-08-13, Analyze 101 100 104	ed: 2023-08-13 90-110 85-115 80-120	
LCS (B3H1293-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3H1293-BS2)	4.05 2.00 1.04	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202	23-08-13, Analyze 101 100 104 23-08-14, Analyze	ed: 2023-08-13 90-110 85-115 80-120 ed: 2023-08-14	
LCS (B3H1293-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3H1293-BS2) Nitrate (as N)	4.05 2.00 1.04 4.08	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00	23-08-13, Analyze 101 100 104 23-08-14, Analyze 102	ed: 2023-08-13 90-110 85-115 80-120 ed: 2023-08-14 90-110	
LCS (B3H1293-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3H1293-BS2) Nitrate (as N) Nitrate (as N) Nitrite (as N)	4.05 2.00 1.04 4.08 2.00	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00 2.00	23-08-13, Analyze 101 100 104 23-08-14, Analyze 102 100	ed: 2023-08-13 90-110 85-115 80-120 ed: 2023-08-14 90-110 85-115	

General Parameters, Batch B3H1239

Blank (B3H1239-BLK1)			Prepared: 202	3-08-12, Analyz	zed: 2023-08-17	
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L				
LCS (B3H1239-BS1)			Prepared: 202	3-08-12, Analyz	zed: 2023-08-17	
BOD, 5-day Carbonaceous	168	55.6 mg/L	198	85	85-115	
General Parameters, Batch B3H1243						
Blank (B3H1243-BLK1)			Prepared: 202	3-08-12, Analyz	zed: 2023-08-17	
BOD, 5-day	< 2.0	2.0 mg/L				

LCS (B3H1243-BS1)			Prepared: 202	23-08-12, Analyze	ed: 2023-08-17	
BOD, 5-day	180	57.2 mg/L	198	91	85-115	



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	ict of (Wastew 651	ater)			WORK C	ORDER TED	23H1 2023	1725 -08-17	15:28
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3H1282									
Blank (B3H1282-BLK1)			Prepared	: 2023-08-1	3, Analyzed	: 2023-0	8-13		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3H1282-BLK2)			Prepared	: 2023-08-1	3. Analvzed	: 2023-0	8-13		
Ammonia, Total (as N)	< 0.050	0.050 mg/L	•		, ,				
Blank (B3H1282-BLK3)			Prepared	: 2023-08-1	3, Analyzed	: 2023-0	8-13		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3H1282-BLK4)			Prepared	: 2023-08-1	3. Analvzed	: 2023-0	8-13		
Ammonia, Total (as N)	< 0.050	0.050 mg/L			-, j				
LCS (B3H1282-BS1)			Prepared	: 2023-08-1	3. Analvzed	: 2023-0	8-13		
Ammonia, Total (as N)	0.901	0.050 mg/L	1.00		90	85-115			
LCS (B3H1282-BS2)			Prepared	· 2023-08-1	3 Analyzed	· 2023-0	8-13		
Ammonia, Total (as N)	0.915	0.050 mg/L	1.00	. 2020 00 1	92	85-115	0 10		
LCS (B3H1282-BS3)			Prepared	· 2023-08-1	3 Analyzed	· 2023-0	8-13		
Ammonia, Total (as N)	0.928	0.050 mg/L	1.00	. 2020 00 1	93	85-115	0 10		
LCS (B3H1282-BS4)		ŭ	Prepared	· 2023-08-1	3 Analyzed	· 2023-0	8-13		
Ammonia, Total (as N)	0.929	0.050 mg/L	1.00	. 2020 00 1	93	85-115	0 10		
General Parameters, Batch B3H1474 Blank (B3H1474-BLK1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-15		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3H1474-BS1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-15		
General Parameters, Batch B3H1508 Blank (B3H1508-BLK1)	65.0	10.0 mg/L	Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3H1508-BLK2)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3H1508-BS1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Nitrogen, Total Kjeldahl	1.02	0.050 mg/L	1.00		102	85-115			
LCS (B3H1508-BS2)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Nitrogen, Total Kjeldahl	1.01	0.050 mg/L	1.00		101	85-115			
General Parameters, Batch B3H1571									
Blank (B3H1571-BLK1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3H1571-BLK2)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	8-16		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3H1571-BLK3)			Prepared	: 2023-08 <mark>-</mark> 1	5, Analyzed	: 2023-0	8-16		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							



REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE1	trict of (Wastewa 4651	ter)			WORK REPOR	ORDER TED	23H1 2023	725 -08-17	15:28
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3H1571, C	ontinued								
Blank (B3H1571-BL	.K4)			Prepared	I: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3H1571-BS1)			Prepared	l: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as	P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3H1571-BS2)			Prepared	I: 2023-08-1	5. Analvze	d: 2023-0	8-16		
Phosphorus, Total (as	P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B3H1571-BS3)			Prenared	l· 2023-08-1	5 Analyze	d. 2023-0	8-16		
Phosphorus Total (as	P)	0 101	0.0050 mg/l	0 100	1. 2020 00 1	101	85-115	0 10		
	· /	0.101	0.0000	Bronorod	1. 2022 00 1	5 Apolyzo	4. 2022 0	0 16		
Phosphorus Total (as	-) D\	0 102	0.0050 mg/l	0 100	1. 2023-00-1	102	95 115	10-10		
General Parameters Blank (B3H1585-BL Alkalinity, Total (as Car	 Batch B3H1585 K1) CO3) 	< 1.0	1.0 mg/L	Prepared	l: 2023-08-1	6, Analyze	d: 2023-0	8-16		
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate ((as CaCO3) as CaCO3)	< 1.0	1.0 mg/L							
	K 2)	1.0	1.0 mg/L	Bronorod	1. 2022 00 1	6 Analyza	4. 2022 0	0 16		
Alkelinity Total (as Cal	.K2)	< 1.0	10 mg/l	Prepared	1. 2023-00-1	o, Analyze	u. 2023-u	0-10		
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (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 (B3H1585-BS1)			Prepared	I: 2023-08-1	6, Analyze	d: 2023-0	8-16		
Alkalinity, Total (as Ca	CO3)	104	1.0 mg/L	100		104	80-120			
Alkalinity, Phenolphth	alein (as CaCO3)	44.1	1.0 mg/L	50.0		88	0-200			
LCS (B3H1585-BS2)			Prepared	I: 2023-08-1	6, Analyze	d: 2023-0	8-16		
Alkalinity, Total (as Ca	CO3)	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphth	alein (as CaCO3)	40.6	1.0 mg/L	50.0		81	0-200			
Reference (B3H158	5-SRM1)			Prepared	I: 2023-08-1	6, Analyze	d: 2023-0	8-16		
рН		7.02	0.10 pH units	7.01		100	98-102			
Reference (B3H158	5-SRM2)			Prepared	I: 2023-08-1	6, Analyze	d: 2023-0	8-16		
pН		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	23H1727
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-08-11 11:08 / 21.8°C 2023-08-18 09:54 45149.34247

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Dis PROJECT Final Effluent- PE	strict of (Wastewater) 14651		WORK ORDER REPORTED	23H1727 2023-08-1	8 09:54
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (23H1727-0	1) Matrix: Wastewater Sample	d: 2023-08-11 10:20			
Anions					
Chloride	119	0.10	ma/L	2023-08-14	
Nitrate (as N)	0.570	0.010	mg/L	2023-08-13	
Nitrite (as N)	0.035	0.010	mg/L	2023-08-13	
Phosphate (as P)	0.0291	0.0050	mg/L	2023-08-13	
Calculated Parameters			-		
Nitrate+Nitrite (as N)	0.605	0.0100	mg/L	N/A	
Nitrogen, Total	2.35	0.0500	mg/L	N/A	
Nitrogen, Organic	1.45	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	193	1.0	mg/L	2023-08-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Alkalinity, Bicarbonate (as CaCO3)	193	1.0	mg/L	2023-08-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	
Ammonia, Total (as N)	0.297	0.050	mg/L	2023-08-13	
BOD, 5-day Carbonaceous	< 3.3	2.0	mg/L	2023-08-17	
Nitrogen, Total Kjeldahl	1.75	0.050	mg/L	2023-08-16	
рН	8.05	0.10	pH units	2023-08-16	HT2
Phosphorus, Total (as P)	0.153	0.0050	mg/L	2023-08-16	
Solids, Total Suspended	2.0	2.0	mg/L	2023-08-15	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	199000	1	MPN/100 mL	2023-08-12	
Coliforms, Fecal (Q-Tray)	79200	1	MPN/100 mL	2023-08-12	
Trip Blank (23H1727-02) Matrix: Wa	ater Sampled: 2023-08-11 10:35				
Chlorida	2.42	0.40	ma/l	2022 00 44	
	0.18	0.10	mg/L	2023-08-14	
Nitrite (as N)		0.010	mg/L	2023-00-13	
	<u> </u>	0.010	IIIU/L	2020-00-10	

Calculated Parameters

Phosphate (as P)

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	
Gonoral Paramotors				

0.0050 mg/L

< 0.0050

General Parameters

Alkalinity, Total (as CaCO3)	4.8	1.0 mg/L	2023-08-16	RE2
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-08-16	RE2
Alkalinity, Bicarbonate (as CaCO3)	4.8	1.0 mg/L	2023-08-16	RE2

2023-08-13



REPORTED TO Lake Country, PROJECT Final Effluent-		trict of (Wastewater) 14651	ot of (Wastewater) 651		23H1727 2023-08-18 09:54	
Analyte		Result RL		Units	Analyzed	Qualifier
Trip Blank (23H1	727-02) Matrix: Wa	ter Sampled: 2023-08-11	10:35, Continued			
General Parameter	rs, Continued					
Alkalinity, Carbon	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	RE2
Alkalinity, Hydroxi	ide (as CaCO3)	< 1.0	1.0	mg/L	2023-08-16	RE2
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-08-13	
BOD, 5-day Carb	onaceous	< 3.3	2.0	mg/L	2023-08-17	
Nitrogen, Total Kje	eldahl	< 0.050	0.050	mg/L	2023-08-16	
pН		6.73	0.10	pH units	2023-08-16	HT2
Phosphorus, Tota	ll (as P)	< 0.0050	0.0050	mg/L	2023-08-16	
Solids, Total Susp	pended	< 2.0	2.0	mg/L	2023-08-15	
Microbiological Pa	arameters					
Coliforms, Total (0	Q-Tray)	< 1	1	MPN/100 mL	2023-08-12	
Coliforms, Fecal ((Q-Tray)	< 1	1	MPN/100 mL	2023-08-12	
Sample Qualifie	e rs: 5 minute recomme	nded holding time (from	n sampling to analysis) ha	as been excee	ded - field	analysis is
recomm	nended.	5	,			

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



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER REPORTED

23H1727 2023-08-18 09:54

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	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	\checkmark	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)	\checkmark	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)	WORK ORDER	23H1727
PROJECT	Final Effluent- PE14651	REPORTED	2023-08-18 09:54

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	RI Units	Spike	Source	% REC	REC	% RPD RPD	Qualifier
, analyte	Rooun		Level	Result	70 H 20	Limit	Limit	quantor

Anions, Batch B3H1293

Blank (B3H1293-BLK1)			Prepared: 202	23-08-13, Analyze	ed: 2023-08-13	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3H1293-BLK2)			Prepared: 202	23-08-14, Analyze	ed: 2023-08-14	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3H1293-BS1)			Prepared: 202	23-08-13, Analyze	ed: 2023-08-13	
Chloride	16.1	0.10 mg/L	16.0	101	90-110	
Nitrate (as N)	4.05	0.010 mg/L	4.00	101	90-110	
Nitrite (as N)	2.00	0.010 mg/L	2.00	100	85-115	
Phosphate (as P)	1.04	0.0050 mg/L	1.00	104	80-120	
LCS (B3H1293-BS2)			Prepared: 202	23-08-14, Analyze	ed: 2023-08-14	
Chloride	16.1	0.10 mg/L	16.0	100	90-110	
Nitrate (as N)	4.08	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	2.00	0.010 mg/L	2.00	100	85-115	
Dhaanhata (as D)						
Phosphate (as P)	1.04	0.0050 mg/L	1.00	104	80-120	

General Parameters, Batch B3H1239

Blank (B3H1239-BLK1)	Prepared: 202	3-08-12, Analyz	ed: 2023-08-17				
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L					
LCS (B3H1239-BS1)			Prepared: 202	3-08-12, Analyz	ed: 2023-08-17	,	
BOD, 5-day Carbonaceous	168	55.6 mg/L	198	85	85-115		

General Parameters, Batch B3H1282

Blank (B3H1282-BLK1)

Ammonia, Total (as N)

Prepared: 2023-08-13, Analyzed: 2023-08-13



REPORTED TO PROJECT	Lake Country, Dist Final Effluent- PE1	rict of (Wastewa 4651	ater)			WORK (REPORT	ORDER TED	23H ² 2023	1727 3-08-18	09:54
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3H1282, Co	ontinued								
Blank (B3H1282-BL	K2)			Prepared	: 2023-08-1;	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)	,	< 0.050	0.050 mg/L	•						
Blank (B3H1282-BL	K3)			Prepared	: 2023-08-1	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L	•						
Blank (B3H1282-BL	K4)			Prepared	: 2023-08-1	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)	•	< 0.050	0.050 mg/L	•						
LCS (B3H1282-BS1)				Prepared	: 2023-08-1;	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)		0.901	0.050 mg/L	1.00		90	85-115			
LCS (B3H1282-BS2)				Prepared	: 2023-08-1;	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)		0.915	0.050 mg/L	1.00		92	85-115			
LCS (B3H1282-BS3)				Prepared	: 2023-08-1;	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)		0.928	0.050 mg/L	1.00		93	85-115			
LCS (B3H1282-BS4)				Prepared	: 2023-08-1	3, Analyzed	: 2023-0)8-13		
Ammonia, Total (as N)		0.929	0.050 mg/L	1.00		93	85-115			
General Parameters,	Batch B3H1474			Prenared	· 2023-08-1	5 Analyzed	ŀ 2023-0	18-15		
Solids Total Suspende	d	< 2.0	2.0 mg/l	Перагец	. 2023-00-1	J, Analyzed	. 2023-0	0-10		
		2.0	2.0	Prepared	· 2023_08_1	5 Analyzed	· 2023-0	18_15		
Solids Total Suspende	d	85.0	10.0 mg/l	100	. 2023-00-1	85	85-115	0-10		
	<u> </u>						00 110			
General Parameters,	Batch B3H1508									
Blank (B3H1508-BL	K1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	08-16		
Nitrogen, Total Kjeldah		< 0.050	0.050 mg/L							
Blank (B3H1508-BL	K2)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0)8-16		
Nitrogen, Total Kjeldah		< 0.050	0.050 mg/L							
LCS (B3H1508-BS1)	1			Prepared	: 2023-08-1	5, Analyzed	: 2023-0)8-16		
Nitrogen, Total Kjeldah		1.02	0.050 mg/L	1.00		102	85-115			
LCS (B3H1508-BS2)	1			Prepared	: 2023-08-1	5, Analyzed	1: 2023-0	08-16		
Nitrogen, Total Kjeldah		1.01	0.050 mg/L	1.00		101	85-115			
General Parameters,	Batch B3H1571									
Blank (B3H1571-BL	K1)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0	08-16		
Phosphorus, Total (as I)	< 0.0050	0.0050 mg/L							
Blank (B3H1571-BL	K2)			Prepared	: 2023-08-1	5, Analyzed	: 2023-0)8-16		
Phosphorus, Total (as I	ر (د	< 0.0050	0.0050 mg/L							
Blank (B3H1571-BL	K3)			Prepared	: 2023-08-1	5, Analyzeo	: 2023-0	08-16		
Phosphorus, Total (as I)	< 0.0050	0.0050 mg/L							
Blank (B3H1571-BL	K4)			Prepared	: 2023-08-1	5, Analyzec	: 2023-0)8-16		
Phosphorus, Total (as I	D)	< 0.0050	0.0050 mg/L							



REPORTED TO Lake Country, District PROJECT Final Effluent- PE1465	of (Wastew 51	ater)			WORK REPOR	ORDER TED	23H ² 2023	1727 5-08-18	09:54
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3H1571, Conti	nued								
LCS (B3H1571-BS1)			Prepared	: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3H1571-BS2)			Prepared	: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B3H1571-BS3)			Prepared	: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as P)	0.101	0.0050 mg/L	0.100		101	85-115			
LCS (B3H1571-BS4)			Prepared	: 2023-08-1	5, Analyze	d: 2023-0	8-16		
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100		102	85-115			
General Parameters, Batch B3H1585			Prenared	· 2023-08-1	6 Analyze	4· 2023-0	18-16		
Alkalinity Total (as CaCO3)	< 1.0	1.0 mg/l	Перагеа	. 2020-00-1	o, Analyzo	u. 2020-0	0-10		
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 (B3H1585-BLK2)			Prepared	: 2023-08-1	6, Analyze	d: 2023-0	8-16		
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 CaCC3)	< 1.0	1.0 mg/L							
LCS (B3H1585-BS1)			Prepared	2023-08-1	6 Analyze	d [.] 2023-0	8-16		
Alkalinity Total (as CaCO3)	104	1.0 mg/l	100		104	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	44.1	1.0 mg/L	50.0		88	0-200			
LCS (B3H1585-BS2)			Prepared	1: 2023-08-1	6, Analyze	d: 2023-0	8-16		
Alkalinity, Total (as CaCO3)	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	40.6	1.0 mg/L	50.0		81	0-200			
Reference (B3H1585-SRM1)			Prepared	: 2023-08-1	6, Analyze	d: 2023-0	8-16		
рН	7.02	0.10 pH units	7.01		100	98-102			
Reference (B3H1585-SRM2)			Prepared	: 2023-08-1	6, Analyze	d: 2023-0	8-16		
рН	7.02	0.10 pH units	7.01		100	98-102			
Microbiological Parameters, Batch B3H126	8		_						
Blank (B3H1268-BLK1)			Prepared	: 2023-08-1	2, Analyze	a: 2023-0	18-12		
	< 1	1 MPN/100	mL .		• • ·	1 0000 -	0.40		
Blank (B3H1268-BLK2)			Prepared	: 2023-08-1	2, Analyze	a: 2023-0	18-12		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL						
Duplicate (B3H1268-DUP2)	Sou	urce: 23H1727-02	Prepared	: 2023-08-1	2, Analyze	d: 2023-0	8-12		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL	< 1				80	RS2

QC Qualifiers:

RS2 The Reporting Limits for this sample have been raised due to limited sample volume.



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23H1728
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-08-11 11:08 / 21.8°C 2023-08-18 15:40 45149.34247

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER 23H² REPORTED 2023

23H1728 2023-08-18 15:40

Analyte	Result	RL	Units	Analyzed	Qualifier
Biosolids (E233628) (23H1728-01	1) Matrix: Sludge Sampled: 2023-08-11 10:′	18			
General Parameters					
Moisture	82.9	1.0	% wet	2023-08-15	
Nitrogen, Total Kieldahl	6.63	0.0004	% drv	2023-08-17	
pH (1:2 H2O Solution)	5.58	0.10	pH units	2023-08-15	PH1
Solids, Total	17.1	0.1	% wet	2023-08-15	
Solids, Volatile	83.8	0.1	% dry	2023-08-15	
Strong Acid Leachable Metals					
Aluminum	3820	40	ma/ka drv	2023-08-18	
Antimony	1.59	0.10	ma/ka dry	2023-08-18	
Arsenic	1.89	0.30	ma/ka drv	2023-08-18	
Barium	107	1.0	ma/ka drv	2023-08-18	
Bervllium	< 0.10	0.10	ma/ka drv	2023-08-18	
Bismuth	24.9	0.10	mg/kg dry	2023-08-18	
Boron	20.6	2.0	mg/kg dry	2023-08-18	
Cadmium	0.930	0.040	mg/kg dry	2023-08-18	
Calcium	9170	100	ma/ka drv	2023-08-18	
Chromium	12.0	1.0	mg/kg dry	2023-08-18	
Cobalt	1.46	0.10	mg/kg dry	2023-08-18	
Copper	368	0.40	mg/kg dry	2023-08-18	
Iron	3190	20.0	mg/kg dry	2023-08-18	
Lead	7.87	0.20	mg/kg dry	2023-08-18	
Lithium	1.15	0.10	mg/kg dry	2023-08-18	
Magnesium	4870	10	mg/kg dry	2023-08-18	
Manganese	82.1	0.40	mg/kg dry	2023-08-18	
Mercury	0.503	0.040	mg/kg dry	2023-08-18	
Molybdenum	15.2	0.10	mg/kg dry	2023-08-18	
Nickel	10.3	0.60	mg/kg dry	2023-08-18	
Phosphorus	18400	10	mg/kg dry	2023-08-18	
Potassium	4330	40	mg/kg dry	2023-08-18	
Selenium	4.49	0.20	mg/kg dry	2023-08-18	
Silver	1.58	0.10	mg/kg dry	2023-08-18	
Sodium	638	50	mg/kg dry	2023-08-18	
Strontium	65.8	0.20	mg/kg dry	2023-08-18	
Sulfur	6610	1000	mg/kg dry	2023-08-18	
Tellurium	< 0.10	0.10	mg/kg dry	2023-08-18	
Thallium	< 0.10	0.10	mg/kg dry	2023-08-18	
Thorium	< 0.50	0.50	mg/kg dry	2023-08-18	
Tin	15.5	0.20	mg/kg dry	2023-08-18	
Titanium	66.7	1.0	mg/kg dry	2023-08-18	
Tungsten	0.87	0.20	mg/kg dry	2023-08-18	
Uranium	11.6	0.050	mg/kg dry	2023-08-18	
Vanadium	5.9	1.0	mg/kg dry	2023-08-18	
Zinc	724	2.0	ma/ka drv	2023-08-18	

Г



REPORTED TO Lake Country, District of (Wastewater) PROJECT BioSolids- PE14651			WORK ORDER REPORTED	23H1728 2023-08-1	8 15:40				
Analyte	Result	Result RL Units							
Biosolids (E233628) (23H1728-01) Matrix: Sludge Sampled: 2023-08-11 10:18, Continued									
Strong Acid Leach	able Metals, Continued								
Zirconium	6.3	2.0	mg/kg dry	2023-08-18					
Sample Qualifie PH1 The rati	ے۔ ک ו s: io of water to soil was greater than 2:1 due to limited sample vol	ume or matrix							



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23 REPORTED 20

23H1728 2023-08-18 15:40

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Solid	Carter 16.2 / SM 4500-H+ B (2021)	1:2 Soil/Water Slurry / Electrometry		Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
pH units	pH < 7 = acidic, ph > 7 = basic
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23H1728
PROJECT	BioSolids- PE14651	REPORTED	2023-08-18 15:40

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	Source	% REC	REC	% RPD RPD	Qualifier
·			Level	Result		Limit	Limit	

General Parameters, Batch B3H1301

Duplicate (B3H1301-DUP1)	(B3H1301-DUP1) Source: 23H1728-01			te (B3H1301-DUP1) Source: 23H1728-01 Prepared: 2023-08-15, Analyzed: 2023-08-15			e: 23H1728-01 Prepared: 2023-08-15, Analyzed: 2023-08-15		
Moisture	99.0	1.0 % wet	82.9		17.7	40			
Solids, Total	17.0	0.1 % wet	17.1		< 1	7.5			
Solids, Volatile	83.7	0.1 % dry	83.8		< 1	15			
Reference (B3H1301-SRM1)			Prepared: 2023-0	8-15, Analyze	ed: 2023-08-15				
Moisture	99.0	1.0 % wet	7.0	99	80-120				
Solids, Total	91.6	0.1 % wet	93.0	99	80-120				
Solids, Volatile	7.0	0.1 % dry	6.26	112	80-200				

General Parameters, Batch B3H1538

Duplicate (B3H1538-DUP1)	Source: 23H1728-01		Prepared: 2023-08-15, Analyzed: 2023-08-15		
pH (1:2 H2O Solution)	5.59	0.10 pH units	5.58	< 1	2

General Parameters, Batch B3H1651

Blank (B3H1651-BLK1)			Prepared: 2023-0	8-16, Analyze	ed: 2023-08-17		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet					
Duplicate (B3H1651-DUP1)	Source: 23H1728-01		Prepared: 2023-08-16, Analyzed: 2023-08-17				
Nitrogen, Total Kjeldahl	6.64	0.0004 % dry	6.63		< '	1	25
Reference (B3H1651-SRM1)	Prepared: 2023-08-16, Analyzed: 2023-08-17						
Nitrogen, Total Kjeldahl	0.171	0.010 % wet	0.197	87	58.8-150		

Strong Acid Leachable Metals, Batch B3H1929

Blank (B3H1929-BLK1)		Prepared: 2023-08-18, Analyzed: 2023-08-18
Aluminum	40 40 mg/kg dry	
Antimony < (0.10 0.10 mg/kg dry	
Arsenic < (0.30 0.30 mg/kg dry	
Barium <	1.0 1.0 mg/kg dry	
Beryllium < (0.10 0.10 mg/kg dry	
Bismuth < (0.10 0.10 mg/kg dry	
Boron	2.4 2.0 mg/kg dry	BLK



REPORTED TO PROJECT	Lake Country, District of (Wastew BioSolids- PE14651	ater)			WORK REPOR	ORDER TED	23H ² 2023	1728 -08-18	15:40
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3H1929, Continued

Blank (B3H1929-BLK1), Continued			Prepared: 2023-08-1	8, Analyze	ed: 2023-08-18	
Cadmium	< 0.040	0.040 mg/kg dry				
Calcium	< 100	100 mg/kg dry				
Chromium	< 1.0	1.0 mg/kg dry				
Cobalt	< 0.10	0.10 mg/kg dry				
Copper	< 0.40	0.40 mg/kg dry				
Iron	< 20.0	20.0 mg/kg dry				
Lead	< 0.20	0.20 mg/kg dry				
Lithium	< 0.10	0.10 mg/kg dry				
Magnesium	< 10	10 mg/kg dry				
Manganese	< 0.40	0.40 mg/kg dry				
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 mg/kg dry				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	0.23	0.20 mg/kg dry				BLK
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
LCS (B3H1929-BS1)			Prepared: 2023-08-1	8, Analyze	ed: 2023-08-18	
Aluminum	194	40 mg/kg dry	200	97	80-120	
Antimony	1.84	0.10 mg/kg dry	2.00	92	80-120	
Arsenic	19.6	0.30 mg/kg dry	20.0	98	80-120	
Barium	1.9	1.0 mg/kg dry	2.00	96	80-120	
Beryllium	1.90	0.10 mg/kg dry	2.00	95	80-120	
Bismuth	1.90	0.10 mg/kg dry	2.00	95	80-120	
Boron	19.6	2.0 mg/kg dry	20.0	98	80-120	
Cadmium	1.91	0.040 mg/kg dry	2.00	95	80-120	
Calcium	192	100 mg/kg dry	200	96	80-120	
Chromium	2.0	1.0 mg/kg dry	2.00	100	80-120	
Cobalt	1.98	0.10 mg/kg dry	2.00	99	80-120	
Copper	2.03	0.40 mg/kg dry	2.00	101	80-120	
Iron	198	20.0 mg/kg dry	200	99	80-120	
Lead	1.92	0.20 mg/kg dry	2.00	96	80-120	
Lithium	1.85	0.10 mg/kg dry	2.00	92	80-120	
Magnesium	202	10 mg/kg dry	200	101	80-120	
Manganese	1.99	0.40 mg/kg dry	2.00	100	80-120	
Mercury	0.196	0.040 mg/kg dry	0.200	98	80-120	
Molybdenum	1.91	0.10 mg/kg dry	2.00	96	80-120	
Nickel	2.02	0.60 mg/kg dry	2.00	101	80-120	
Phosphorus	192	10 mg/kg dry	200	96	80-120	
Potassium	191	40 mg/kg dry	200	96	80-120	
Selenium	19.4	0.20 mg/kg dry	20.0	97	80-120	
Silver	1.96	0.10 mg/kg dry	2.00	98	80-120	

Γ



REPORTED TO PROJECT	Lake Country, Dist BioSolids- PE1465	rict of (Wastewa 51	ter)			WORK REPOF	ORDER RTED	23H ² 2023	1728 -08-18	15:40
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch B	3H1929, Continue	d							
LCS (B3H1929-BS	61), Continued			Prepared	d: 2023-08-1	18, Analyze	ed: 2023-0	08-18		
Sodium		208	50 mg/kg dr	/ 200		104	80-120			
Strontium		1.94	0.20 mg/kg dr	/ 2.00		97	80-120			
Sulfur		1940	1000 mg/kg dr	/ 2000		97	80-120			
Tellurium		1.82	0.10 mg/kg dr	/ 2.00		91	80-120			
Thallium		1.93	0.10 mg/kg dr	/ 2.00		96	80-120			
Thorium		2.00	0.50 mg/kg dr	/ 2.00		100	80-120			
Tin		1.91	0.20 mg/kg dr	/ 2.00		95	80-120			
Titanium		2.0	1.0 mg/kg dr	/ 2.00		98	80-120			
Tungsten		1.97	0.20 mg/kg dr	/ 2.00		98	80-120			
Uranium		2.00	0.050 mg/kg dr	/ 2.00		100	80-120			
Vanadium		2.0	1.0 mg/kg dr	/ 2.00		100	80-120			
		19.5	2.0 mg/kg dr	/ 20.0		98	80-120			
Zirconium		2.0	2.0 mg/kg dr	/ 2.00		99	80-120			
Duplicate (B3H19)	29-DUP1)	Sou	rce: 23H1728-01	Prepareo	1: 2023-08-1	18, Analyze	ed: 2023-0	08-18	40	
Aluminum		4140	40 mg/kg dr	/	3820			8	40	
Anumony		1.07	0.10 mg/kg dr		1.59			5	30	
Arsenic		2.00	0.30 mg/kg dr	/	1.89			9	30	
Banum		< 0.10	0.10 mg/kg dr	,	- 0.10			9	40	
Beryllium		< 0.10	0.10 mg/kg dr	,	< 0.10			10	30	
Boron		21.4	2.0 mg/kg dr	/	24.9			5	30	
Codmium		0.007	2.0 mg/kg dr	/	0.030			7	30	
Calcium		10200	100 mg/kg dr	/	9170			10	30	
Chromium		13.3	1.0 mg/kg dr	/	12.0			10	30	
Cobalt		1.63	0.10 mg/kg dr	/	1 46			11	30	
Copper		400	0.40 mg/kg dr	/	368			8	30	
Iron		3450	20.0 mg/kg dr	/	3190			8	30	
Lead		10.5	0.20 mg/kg dr	/	7.87			29	40	
Lithium		1.29	0.10 ma/ka dr	/	1.15			12	30	
Magnesium		5370	10 mg/kg dr	/	4870			10	30	
Manganese		88.9	0.40 mg/kg dr	/	82.1			8	30	
Mercury		0.611	0.040 mg/kg dr	/	0.503			19	40	
Molybdenum		16.5	0.10 mg/kg dr	/	15.2			9	40	
Nickel		11.4	0.60 mg/kg dr	/	10.3			10	30	
Phosphorus		20100	10 mg/kg dr	/	18400			9	30	
Potassium		4530	40 mg/kg dr	/	4330			5	40	
Selenium		4.83	0.20 mg/kg dr	/	4.49			7	30	
Silver		1.62	0.10 mg/kg dr	/	1.58			2	40	
Sodium		675	50 mg/kg dr	/	638			6	40	
Strontium		71.3	0.20 mg/kg dr	/	65.8			8	40	
Sulfur		7130	1000 mg/kg dr	/	6610			8	30	
Tellurium		< 0.10	0.10 mg/kg dr	/	< 0.10				30	
Thallium		< 0.10	0.10 mg/kg dr	/	< 0.10				30	
Thorium		< 0.50	0.50 mg/kg dr	/	< 0.50				30	
		16.8	0.20 mg/kg dr	/	15.5			8	40	
		79.4	1.0 mg/kg dr	/	66.7			17	40	
rungsten		1.06	0.20 mg/kg dr	/	0.87			20	40	
Uranium		12.7	0.050 mg/kg dr		11.6			9	30	
		6.5	1.0 mg/kg dr	/	5.9			9	30	
∠inc Zinc anium		/85	2.0 mg/kg dr		/24			8	30	
∠irconium		6.1	2.0 mg/kg dr	-	6.3				40	
Reference (B3H19	929-SRM1)			Prepared	d: 2023-08-´	18, Analyze	ed: 2023-0	08-18		
Aluminum		14100	40 mg/kg dr	/ 12100		116	70-130			
Antimony		0.72	0.10 mg/kg dr	0.634		113	70-130			



REPORTED TO PROJECT	Lake Country, District BioSolids- PE14651	t of (Wastewate	r)			WORK REPOR	ORDER TED	23H ² 2023	1728 -08-18	15:40
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch B3H1	929, Continued								
Reference (B3H1929-SRM1), Continued				Prepared	I: 2023-08-1	8, Analyze	d: 2023-0	8-18		
Arconic		07.3	0.30 ma/ka day	83.6		116	70 130			

Arsenic	97.3	0.30 mg/kg dry	83.6	116	70-130	
Barium	46.9	1.0 mg/kg dry	41.4	113	70-130	
Beryllium	0.43	0.10 mg/kg dry	0.377	115	70-130	
Bismuth	0.32	0.10 mg/kg dry	0.291	110	70-130	
Calcium	6080	100 mg/kg dry	5380	113	70-130	
Chromium	75.9	1.0 mg/kg dry	66.0	115	70-130	
Cobalt	12.3	0.10 mg/kg dry	10.8	114	70-130	
Copper	23.1	0.40 mg/kg dry	20.3	114	70-130	
Iron	23500	20.0 mg/kg dry	20400	115	70-130	
Lead	18.9	0.20 mg/kg dry	16.7	113	70-130	
Lithium	19.5	0.10 mg/kg dry	16.8	116	70-130	
Magnesium	7240	10 mg/kg dry	6170	117	70-130	
Manganese	367	0.40 mg/kg dry	319	115	70-130	
Mercury	0.120	0.040 mg/kg dry	0.114	106	70-130	
Molybdenum	0.68	0.10 mg/kg dry	0.607	112	70-130	
Nickel	36.9	0.60 mg/kg dry	32.5	114	70-130	
Phosphorus	488	10 mg/kg dry	432	113	70-130	
Silver	1.76	0.10 mg/kg dry	1.55	114	70-130	
Strontium	24.3	0.20 mg/kg dry	22.5	108	70-130	
Thallium	< 0.10	0.10 mg/kg dry	0.0765	117	70-130	
Thorium	3.93	0.50 mg/kg dry	2.96	133	70-130	SRM
Titanium	816	1.0 mg/kg dry	730	112	70-130	
Uranium	1.28	0.050 mg/kg dry	1.15	111	70-130	
Vanadium	41.9	1.0 mg/kg dry	36.3	115	70-130	
Zinc	44.4	2.0 mg/kg dry	39.7	112	70-130	

QC Quali	fiers:														
BLK	Analyte con	centrat	ion ir	n the M	ethod Blar	nk is	above the	Reporting Li	mit (RL).						
SRM	Recovery of limits.	of one	or	more	analytes	on	Standard	Reference	Material	(SRM)	analysis	are	outside	of	control



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23 1371
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-09-12 11:54 / 21.8°C 2023-09-18 11:56 45181.38889

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO L PROJECT F	Lake Country, District of (Wastewater) Raw Influent- PE14651			WORK ORDER REPORTED	23l1371 2023-09-1	8 11:56
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E2336	627) (23l1371-01) Ma	trix: Wastewater Sample	əd: 2023-09-12 10:56			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-09-14	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-09-14	
Phosphate (as P)		13.3	0.0050	mg/L	2023-09-14	
Calculated Parameter	s					
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total		97.2	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as Ca	aCO3)	398	1.0	mg/L	2023-09-13	
Alkalinity, Phenolphth	nalein (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Alkalinity, Bicarbonate	e (as CaCO3)	398	1.0	mg/L	2023-09-13	
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Alkalinity, Hydroxide	(as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Ammonia, Total (as N	1)	61.0	0.050	mg/L	2023-09-13	
BOD, 5-day		800	2.0	mg/L	2023-09-18	
BOD, 5-day Carbona	ceous	800	2.0	mg/L	2023-09-18	
Nitrogen, Total Kjelda	ahl	97.2	0.050	mg/L	2023-09-15	
рН		7.71	0.10	pH units	2023-09-13	HT2
Phosphorus, Total (as	s P)	19.8	0.0050	mg/L	2023-09-14	
Solids, Total Suspend	ded	645	2.0	mg/L	2023-09-13	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED

23I1371 2023-09-18 11:56

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	1	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)	WORK ORDER	23 1371
PROJECT	Raw Influent- PE14651	REPORTED	2023-09-18 11:56

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 RI	RL Units	Spike	Source	% REC	REC	% RPD	RPD	Qualifier
,	Rooun		Level	Result	/01120	Limit	<i>7</i> 010 B	Limit	quaino

Anions, Batch B3I0937

Blank (B3l0937-BLK1)			Prepared: 202	3-09-13, Analyze	ed: 2023-09-13		
Nitrate (as N)	< 0.010	0.010 mg/L					
Nitrite (as N)	< 0.010	0.010 mg/L					
Phosphate (as P)	< 0.0050	0.0050 mg/L					
Blank (B3I0937-BLK2)			Prepared: 202	3-09-14, Analyze	ed: 2023-09-14		
Nitrate (as N)	< 0.010	0.010 mg/L					
Nitrite (as N)	< 0.010	0.010 mg/L					
Phosphate (as P)	< 0.0050	0.0050 mg/L					
			Prepared: 2023-09-13, Analyzed: 2023-09-13				
LCS (B310937-BS1)			Prepared: 202	23-09-13, Analyze	ed: 2023-09-13		
LCS (B3I0937-BS1) Nitrate (as N)	3.97	0.010 mg/L	Prepared: 202 4.00	23-09-13, Analyze 99	ed: 2023-09-13 90-110		
LCS (B3I0937-BS1) Nitrate (as N) Nitrite (as N)	3.97 2.09	0.010 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00	23-09-13, Analyze 99 105	ed: 2023-09-13 90-110 85-115		
LCS (B310937-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P)	3.97 2.09 1.07	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00	23-09-13, Analyze 99 105 107	ed: 2023-09-13 90-110 85-115 80-120		
LCS (B3I0937-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3I0937-BS2)	3.97 2.09 1.07	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202	23-09-13, Analyze 99 105 107 23-09-14, Analyze	ed: 2023-09-13 90-110 85-115 80-120 ed: 2023-09-14		
LCS (B310937-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Nitrate (as N)	3.97 2.09 1.07 3.95	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00	23-09-13, Analyze 99 105 107 23-09-14, Analyze 99	ed: 2023-09-13 90-110 85-115 80-120 ed: 2023-09-14 90-110		
LCS (B310937-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Nitrate (as N) Nitrate (as N)	3.97 2.09 1.07 3.95 2.09	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 4.00 2.00 1.00 Prepared: 202 4.00 2.00	23-09-13, Analyze 99 105 107 23-09-14, Analyze 99 104	ed: 2023-09-13 90-110 85-115 80-120 ed: 2023-09-14 90-110 85-115		

General Parameters, Batch B3I1128

Blank (B3I1128-BLK1)			Prepared: 2023-09-13, Analy	zed: 2023-09-13			
Ammonia, Total (as N)	< 0.010	0.010 mg/L					
Blank (B3I1128-BLK2)			Prepared: 2023-09-13, Analy	zed: 2023-09-13			
Ammonia, Total (as N)	0.042	0.010 mg/L					
Blank (B3I1128-BLK3)			Prepared: 2023-09-13, Analy	zed: 2023-09-13			
Ammonia, Total (as N)	0.041	0.010 mg/L					
LCS (B3I1128-BS1)			Prepared: 2023-09-13, Analy	zed: 2023-09-13			
Ammonia, Total (as N)	0.964	0.010 mg/L	1.00 96	85-115			
LCS (B3I1128-BS2)			Prepared: 2023-09-13, Analyzed: 2023-09-13				
Ammonia, Total (as N)	0.894	0.010 mg/L	1.00 89	85-115			



REPORTED TO Lake Country, Distri PROJECT Raw Influent- PE14	ct of (Wastewa 651	iter)			WORK REPOR	ORDER TED	2311 2023	371 3-09-18	11:56
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3I1128, Cont	tinued								
LCS (B3I1128-BS3)			Prepared	: 2023-09-1	3. Analvze	d: 2023-0)9-13		
Ammonia, Total (as N)	0.923	0.010 mg/L	1.00		92	85-115			
General Parameters. Batch B3/1208									
Plank (P211200 Pl K1)			Droparad	. 2022 00 1	2 Apolyzo	4. 2022 (0 19		
BOD 5-day Carbonaceous	< 2.0	2.0 mg/l	Flepaleu	1. 2023-09-1	5, Analyze	u. 2023-0	9-10		
	2.0	;	Droparad	. 2022 00 1	2 Analyza	4. 2022 (0 19		
BOD 5-day Carbonaceous	201	38.5 mg/l	198	1. 2023-09-1	3, Analyze	85-115	19-10		
	201	30.3 mg/L	190		102	05-115			
General Parameters, Batch B3/1209			Prenared	· 2023-09-1	3 Analyze	4· 2023-0	19-18		
BOD, 5-day	< 2.0	2.0 mg/L	Ticparea	1. 2020-00-1	o, Anaryzo	u. 2020-0	0-10		
LCS (B311209-BS1)		U	Prepared	: 2023-09-1	3. Analvze	d: 2023-()9-18		
BOD, 5-day	198	46.0 mg/L	198		100	85-115			
General Parameters, Batch B3I1221									
Blank (B3I1221-BLK1)			Prepared	: 2023-09-1	3, Analyze	d: 2023-0)9-13		
Alkalinity, Total (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							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3I1221-BLK2)			Prepared	1: 2023-09-1	3, Analyze	d: 2023-0)9-13		
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, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3 1221-BI K3)			Prenared	· 2023-09-1	3 Analyze	d. 2023-(9-13		
Alkalinity Total (as CaCO3)	< 1.0	1.0 mg/l	rioparoa		0,74101920	4. 2020 (
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 (B3I1221-BS1)			Prepared	: 2023-09-1	3, Analyze	d: 2023-0	9-13		
Alkalinity, Total (as CaCO3)	108	1.0 mg/L	100		108	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	15.1	1.0 mg/L	50.0		30	0-200			
LCS (B3I1221-BS2)			Prepared	: 2023-09-1	3, Analyze	d: 2023-0)9-13		
Alkalinity, Total (as CaCO3)	110	1.0 mg/L	100		110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	13.9	1.0 mg/L	50.0		28	0-200			
LCS (B3I1221-BS3)			Prepared	: 2023-09-1	3, Analyze	d: 2023-()9-13		
Alkalinity, Total (as CaCO3)	104	1.0 mg/L	100		104	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	32.7	1.0 mg/L	50.0		65	0-200			
Reference (B3I1221-SRM1)			Prepared	: 2023-09-1	3, Analyze	d: 2023-0)9-13		
pH	7.04	0.10 pH units	7.01		100	98-102			



REPORTED TO PROJECT	Lake Country, District of (W Raw Influent- PE14651	/astewate	r)			WORK (REPOR	ORDER TED	23113 2023	371 -09-18	11:56
Analyte	Re	sult	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	s, Batch B3I1221, Continued									
Reference (B3I122	21-SRM2)			Prepared:	2023-09-13	, Analyzec	1: 2023-0	9-13		
pН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3I122	21-SRM3)			Prepared:	2023-09-13	, Analyzed	1: 2023-0	9-13		
рН		7.04	0.10 pH units	7.01		100	98-102			
General Parameter	rs, Batch B3/1232			Droporod	2022 00 12	Apolyzor	1. 2022 0	0.14		
Phosphorus Total (as	- RI) < 0 (0.50	0.0050 mg/l	Flepaleu.	2023-09-13	, Analyzeu	1. 2023-0	19-14		
Blank (B3I1232-BL	- K2)		0.0000 mg/L	Prepared:	2023-09-13	, Analyzed	1: 2023-0	9-14		
Phosphorus, Total (as	s P) < 0.0	050	0.0050 mg/L							
LCS (B3I1232-BS1)			Prepared:	2023-09-13	, Analyzec	1: 2023-0	9-14		
Phosphorus, Total (as	s P) 0	.108	0.0050 mg/L	0.100		108	85-115			
LCS (B3I1232-BS2	2)			Prepared:	2023-09-13	, Analyzed	l: 2023-0	9-14		
Phosphorus, Total (as	s P) 0	.108	0.0050 mg/L	0.100		108	85-115			
General Parameter	s, Batch B3I1271 K1)			Prenared	2023-09-13	Analyzer	1. 2023-0	19-13		
Solids, Total Suspend	-KT) ded <	\$ 2.0	2.0 ma/L	Trepareu.	2023-03-13	, Analyzed	1. 2025-0	13-13		
LCS (B3I1271-BS1)			Prepared:	2023-09-13	, Analyzed	1: 2023-0	9-13		
Solids, Total Suspend	ded	100	10.0 mg/L	100		100	85-115			
General Parameter	s, Batch B3l1302									
Blank (B3I1302-BL	_K1)			Prepared:	2023-09-14	, Analyzec	l: 2023-0	9-15		
Nitrogen, Total Kjelda	ahl < 0	.050	0.050 mg/L							
LCS (B3I1302-BS1)			Prepared:	2023-09-14	, Analyzec	l: 2023-0	9-15		
Nitrogen, Total Kjelda	ahl 0	.998	0.050 mg/L	1.00		100	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	2311379
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-09-12 11:54 / 21.8°C 2023-09-18 11:48 45181.38889

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔰 🛛 Ahea

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4


REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842			WORK ORD REPORTED	ER 23I1379 2023-09-1	8 11:48	
Analyte Result			RL Units	Analyzed Quali		
Amry (E262982) (2311379-01) Matrix: Wa	stewater Sampled: 2023-09	-12 10:10			
General Parameter	'S					
BOD, 5-day Carbo	onaceous	< 6.9	2.0 mg/L	2023-09-18		
Solids, Total Susp	ended	6.0	2.0 mg/L	2023-09-13		



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry- MR17842

 WORK ORDER
 2311379

 REPORTED
 2023-09

23I1379 2023-09-18 11:48

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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)	WORK ORDER	2311379
PROJECT	Amry- MR17842	REPORTED	2023-09-18 11:48

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
General Parameters, Batch B3I1208									
Blank (B3I1208-BLK1)			Prepared	I: 2023-09-1	13, Analyze	d: 2023-0	09-18		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3I1208-BS1)			Prepared	I: 2023-09-1	13, Analyze	d: 2023-0	09-18		
BOD, 5-day Carbonaceous	201	38.5 mg/L	198		102	85-115			
General Parameters, Batch B3I1271									
Blank (B3I1271-BLK1)			Prepared	I: 2023-09-1	13, Analyze	d: 2023-0	09-13		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3I1271-BS1)			Prepared	l: 2023-09-1	13, Analyze	d: 2023-0	09-13		
Solids, Total Suspended	100	10.0 mg/L	100		100	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	2311382
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-09-12 11:54 / 21.8°C 2023-09-19 13:03 45181.38889

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.

We've Got Chemistry

Big Picture Sidekicks



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.

👗 Ahe

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER 2 REPORTED 2

23I1382 2023-09-19 13:03

Analyte Result		RL	Units	Analyzed	Qualifier	
Biosolids (E233628) (23l1382-01)	Matrix: Sludge Sampled: 2023-09	9-12 10:17				
General Parameters						
Moisture	63.8	10	% wet	2023-09-19		
Nitrogen, Total Kieldahl	2.61	0.0004	% drv	2023-09-19		
Solids. Total	19.7	0.1	% wet	2023-09-19		
Solids, Volatile	82.6	0.1	% dry	2023-09-19		
Strong Acid Leachable Metals						
Aluminum	2050	40	mg/kg dry	2023-09-17		
Antimony	1.35	0.10	mg/kg dry	2023-09-17		
Arsenic	1.57	0.30	mg/kg dry	2023-09-17		
Barium	93.7	1.0	mg/kg dry	2023-09-17		
Beryllium	< 0.10	0.10	mg/kg dry	2023-09-17		
Bismuth	18.6	0.10	mg/kg dry	2023-09-17		
Boron	10.7	2.0	mg/kg dry	2023-09-17		
Cadmium	0.754	0.040	mg/kg dry	2023-09-17		
Calcium	9660	100	mg/kg dry	2023-09-17		
Chromium	10.1	1.0	mg/kg dry	2023-09-17		
Cobalt	1.18	0.10	mg/kg dry	2023-09-17		
Copper	347	0.40	mg/kg dry	2023-09-17		
Iron	3120	20.0	mg/kg dry	2023-09-17		
Lead	9.50	0.20	mg/kg dry	2023-09-17		
Lithium	0.90	0.10	mg/kg dry	2023-09-17		
Magnesium	3110	10	mg/kg dry	2023-09-17		
Manganese	96.5	0.40	mg/kg dry	2023-09-17		
Mercury	0.344	0.040	mg/kg dry	2023-09-17		
Molybdenum	9.93	0.10	mg/kg dry	2023-09-17		
Nickel	8.90	0.60	mg/kg dry	2023-09-17		
Phosphorus	11100	10	mg/kg dry	2023-09-17		
Potassium	2670	40	mg/kg dry	2023-09-17		
Selenium	3.01	0.20	mg/kg dry	2023-09-17		
Silver	1.28	0.10	mg/kg dry	2023-09-17		
Sodium	540	50	mg/kg dry	2023-09-17		
Strontium	59.6	0.20	mg/kg dry	2023-09-17		
Sulfur	6040	1000	mg/kg dry	2023-09-17		
Tellurium	< 0.10	0.10	mg/kg dry	2023-09-17		
Thallium	< 0.10	0.10	mg/kg dry	2023-09-17		
Thorium	< 0.50	0.50	mg/kg dry	2023-09-17		
Tin	13.8	0.20	mg/kg dry	2023-09-17		
Titanium	112	1.0	mg/kg dry	2023-09-17		
Tungsten	0.63	0.20	mg/kg dry	2023-09-17		
Uranium	5.61	0.050	mg/kg dry	2023-09-17		
Vanadium	4.7	1.0	mg/kg dry	2023-09-17		
Zinc	610	2.0	mg/kg dry	2023-09-17		
Zirconium	2.8	2.0	mg/kg dry	2023-09-17		

Γ



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

WORK ORDER 23113 **REPORTED** 2023-

23I1382 2023-09-19 13:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	~	Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	2311382	
PROJECT	BioSolids- PE14651	REPORTED	2023-09-19 13:0)3

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
General Parameters, Batch B3I1530									
Duplicate (B3I1530-DUP1)	Sou	rce: 23 1382-01	Prepared	: 2023-09-1	9, Analyze	ed: 2023-0)9-19		
Moisture	99.0	1.0 % wet		63.8			43.2	40	
General Parameters,Batch B3l1657									
Reference (B3I1657-SRM1)			Prepared	: 2023-09-1	9, Analyze	ed: 2023-0)9-19		
Solids, Total	93.0	0.1 % wet	93.0		100	80-120			
Solids, Volatile	7.4	0.1 % dry	6.26		119	80-200			
General Parameters, Batch B3I1666									
Blank (B3I1666-BLK1)			Prepared	2023-09-1	8, Analyze	ed: 2023-0	9-19		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet							
Duplicate (B3I1666-DUP1)	Sou	rce: 23l1382-01	Prepared	: 2023-09-1	8, Analyze	ed: 2023-0)9-19		
Nitrogen, Total Kjeldahl	2.84	0.0004 % dry		2.61			9	25	
Reference (B3I1666-SRM1)			Prepared	: 2023-09-1	8, Analyze	ed: 2023-0)9-19		
Nitrogen, Total Kjeldahl	0.186	0.010 % wet	0.197		94	58.8-150			
Strong Acid Leachable Metals, Batch B3 Blank (B3l1573-BLK1)	811573		Prepared	: 2023-09-1	7, Analyze	ed: 2023-0)9-17		
Aluminum	< 40	40 mg/kg dry							
Antimony	< 0.10	0.10 mg/kg dry							
Arsenic	< 0.30	0.30 mg/kg dry							
Bandium	< 1.0								
Bismuth	< 0.10	0.10 mg/kg dry							
Boron	< 2.0	2.0 mg/kg dry							
Cadmium	< 0.040	0.040 mg/kg dry							
Calcium	< 100	100 mg/kg dry							
Chromium	< 1.0	1.0 mg/kg dry							
Cobalt	< 0.10	0.10 mg/kg dry							
Copper	< 0.40	0.40 mg/kg dry							
Iron	< 20.0	20.0 mg/kg dry							



REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23113 2023	382 -09-19	13:03
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3I1573, Continued

Blank (B3I1573-BLK1), Continued			Prepared:	2023-09-17, Analyze	ed: 2023-09-17	
Lead	< 0.20	0.20 mg/kg dry				
Lithium	< 0.10	0.10 mg/kg dry				
Magnesium	< 10	10 mg/kg dry				
Manganese	< 0.40	0.40 mg/kg dry				
Mercury	< 0.040	0.040 mg/kg dry				
Molybdenum	< 0.10	0.10 mg/kg dry				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 mg/kg dry				
Potassium	< 40	40 mg/kg dry				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	< 0.20	0.20 mg/kg dry				
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 mg/kg dry				
Thorium	< 0.50	0.50 mg/kg dry				
Tin	< 0.20	0.20 mg/kg dry				
Titanium	< 1.0	1.0 mg/kg dry				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
LCS (B3I1573-BS1)			Prepared:	2023-09-17, Analyze	d: 2023-09-18	
Aluminum	200	40 mg/kg dry	200	100	80-120	
Antimony	1.97	0.10 mg/kg dry	2.00	98	80-120	
Arsenic	20.0	0.30 mg/kg dry	20.0	100	80-120	
Barium	2.0	1.0 mg/kg dry	2.00	102	80-120	
Beryllium	1.99	0.10 mg/kg dry	2.00	100	80-120	
Bismuth	2.01	0.10 mg/kg dry	2.00	101	80-120	
Boron	20.7	2.0 mg/kg dry	20.0	103	80-120	
Cadmium	1.97	0.040 mg/kg dry	2.00	99	80-120	
Calcium	205	100 mg/kg dry	200	103	80-120	
Chromium	2.0	1.0 mg/kg dry	2.00	102	80-120	
Cobalt	2.04	0.10 mg/kg dry	2.00	102	80-120	
Copper	2.04	0.40 mg/kg dry	2.00	102	80-120	
Iron	208	20.0 mg/kg dry	200	104	80-120	
Lead	2.02	0.20 mg/kg dry	2.00	101	80-120	
Lithium	1.89	0.10 mg/kg dry	2.00	95	80-120	
Magnesium	205	10 mg/kg dry	200	103	80-120	
Manganese	2.10	0.40 mg/kg dry	2.00	105	80-120	
Mercury	0.209	0.040 mg/kg dry	0.200	104	80-120	
Molybdenum	1.96	0.10 mg/kg dry	2.00	98	80-120	
Nickel	2.02	0.60 mg/kg dry	2.00	101	80-120	
Phosphorus	201	10 mg/kg dry	200	100	80-120	
Potassium	203	40 mg/kg dry	200	101	80-120	
Selenium	20.4	0.20 mg/kg dry	20.0	102	80-120	
Silver	2.16	0.10 mg/kg dry	2.00	108	80-120	
Sodium	208	50 mg/kg dry	200	104	80-120	
Strontium	2.06	0.20 mg/kg dry	2.00	103	80-120	
Sulfur	2070	1000 mg/kg dry	2000	103	80-120	
Tellurium	1.91	0.10 mg/kg dry	2.00	96	80-120	
Thallium	1.99	0.10 mg/kg dry	2.00	99	80-120	
Thorium	2.04	0.50 mg/kg dry	2.00	102	80-120	



REPORTED TO PROJECT	Lake Country, Dis BioSolids- PE146	strict of (Wastewa 851	ter)			WORK REPOR	ORDER TED	23I1: 2023	382 -09-19	13:03
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch E	33l1573, Continued	1							
LCS (B3I1573-BS1	l), Continued			Prepared	: 2023-09-1	7, Analyze	d: 2023-0	9-18		
Tin		2.05	0.20 ma/ka drv	2.00		103	80-120			
Titanium		2.2	1.0 mg/kg drv	2.00		109	80-120			
Tungsten		2.06	0.20 mg/kg dry	2.00		103	80-120			
Uranium		2.05	0.050 mg/kg dry	2.00		102	80-120			
Vanadium		2.0	1.0 mg/kg dry	2.00		102	80-120			
Zinc		20.0	2.0 mg/kg dry	20.0		100	80-120			
Zirconium		2.1	2.0 mg/kg dry	2.00		103	80-120			
Reference (B3I157	/3-SRM1)			Prepared	: 2023-09-1	7, Analyze	d: 2023-0	9-17		
Aluminum		12700	40 mg/kg dry	12100		105	70-130			
Antimony		0.62	0.10 mg/kg dry	0.634		99	70-130			
Arsenic		83.4	0.30 mg/kg dry	83.6		100	70-130			
Barium		42.6	1.0 mg/kg dry	41.4		103	70-130			
Beryllium		0.38	0.10 mg/kg dry	0.377		100	70-130			
Bismuth		0.27	0.10 mg/kg dry	0.291		94	70-130			
Calcium		5460	100 mg/kg dry	5380		101	70-130			
Chromium		66.3	1.0 mg/kg dry	66.0		100	70-130			
Cobalt		10.8	0.10 mg/kg dry	10.8		100	70-130			
Copper		19.9	0.40 mg/kg dry	20.3		98	70-130			
Iron		20800	20.0 mg/kg dry	20400		102	70-130			
Lead		17.0	0.20 mg/kg dry	16.7		102	70-130			
Lithium		17.2	0.10 mg/kg dry	16.8		102	70-130			
Magnesium		6390	10 mg/kg dry	6170		104	70-130			
Manganese		325	0.40 mg/kg dry	319		102	70-130			
Mercury		0.110	0.040 mg/kg dry	0.114		97	70-130			
Molybdenum		0.61	0.10 mg/kg dry	0.607		100	70-130			
Nickel		32.7	0.60 mg/kg dry	32.5		101	70-130			
Phosphorus		443	10 mg/kg dry	432		102	70-130			
Silver		1.60	0.10 mg/kg dry	1.55		103	70-130			
Strontium		22.7	0.20 mg/kg dry	22.5		101	70-130			
Thallium		< 0.10	0.10 mg/kg dry	0.0765		106	70-130			
Thorium		3.34	0.50 mg/kg dry	2.96		113	70-130			
Titanium		759	1.0 mg/kg dry	730		104	70-130			
Uranium		1.12	0.050 mg/kg dry	1.15		97	70-130			
Vanadium		36.6	1.0 mg/kg dry	36.3		101	70-130			
Zinc		39.5	2.0 mg/kg dry	39.7		99	70-130			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	2311375
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-09-12 11:54 / 21.8°C 2023-09-18 16:54 45181.38889

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Distric PROJECT Final Effluent- PE146	t of (Wastewater) 651		WORK ORDER REPORTED	23I1375 2023-09-1	8 16:54
Analyte	Result	RL	Units	Analyzed	Qualifier
Final Effluent (E233626) (23I1375-01)	Matrix: Wastewater Sample	d: 2023-09-12 10:40			
Anions					
Chloride	124	0.10	mg/L	2023-09-14	
Nitrate (as N)	1.54	0.010	mg/L	2023-09-14	
Nitrite (as N)	0.155	0.010	mg/L	2023-09-14	
Phosphate (as P)	0.0626	0.0050	mg/L	2023-09-14	
Calculated Parameters					
Nitrate+Nitrite (as N)	1.70	0.0100	mg/L	N/A	
Nitrogen, Total	3.77	0.0500	mg/L	N/A	
Nitrogen, Organic	1.44	0.0500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	188	1.0	mg/L	2023-09-13	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Alkalinity, Bicarbonate (as CaCO3)	188	1.0	mg/L	2023-09-13	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Ammonia, Total (as N)	0.635	0.050	mg/L	2023-09-13	
BOD, 5-day Carbonaceous	< 2.3	2.0	mg/L	2023-09-18	
Nitrogen, Total Kjeldahl	2.07	0.050	mg/L	2023-09-17	
рН	7.86	0.10	pH units	2023-09-13	HT2
Phosphorus, Total (as P)	0.191	0.0050	mg/L	2023-09-14	
Solids, Total Suspended	< 2.0	2.0	mg/L	2023-09-13	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	> 242000	1	MPN/100 mL	2023-09-13	
Coliforms, Fecal (Q-Tray)	37800	1	MPN/100 mL	2023-09-13	
Duplicate (23I1375-02) Matrix: Wastew	vater Sampled: 2023-09-12 1	0:40			
Anions					
Chloride	125	0.10	mg/L	2023-09-14	
Nitrate (as N)	1.63	0.010	mg/L	2023-09-14	
Nitrite (as N)	0.150	0.010	mg/L	2023-09-14	

Calculated Parameters

Phosphate (as P)

Nitrate+Nitrite (as N)	1.78	0.0100 mg/L	N/A	
Nitrogen, Total	3.83	0.0500 mg/L	N/A	
Nitrogen, Organic	1.42	0.0500 mg/L	N/A	
General Parameters				

0.0050 mg/L

0.0544

Alkalinity, Total (as CaCO3)	191	1.0 mg/L	2023-09-13	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-09-13	
Alkalinity, Bicarbonate (as CaCO3)	191	1.0 mg/L	2023-09-13	

2023-09-14



REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	ict of (Wastewater) 4651		WORK ORDER REPORTED	23 1375 2023-09-1	8 16:54
Analyte		Result	RL	Units	Analyzed	Qualifier
Duplicate (231137	′5-02) Matrix: Waste	water Sampled: 2023-09-12	2 10:40, Continued			
General Parameter	rs, Continued					
Alkalinity, Carbon;	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-09-13	
Ammonia, Total (a	as N)	0.625	0.050	mg/L	2023-09-13	
BOD, 5-day Carbo	onaceous	< 2.3	2.0	mg/L	2023-09-18	
Nitrogen, Total Kje	əldahl	2.05	0.050	mg/L	2023-09-17	
pН		7.88	0.10	pH units	2023-09-13	HT2
Phosphorus, Total	(as P)	0.192	0.0050	mg/L	2023-09-14	
Solids, Total Susp	ended	< 2.0	2.0	mg/L	2023-09-13	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	199000	1	MPN/100 mL	2023-09-13	
Coliforms, Fecal (Q-Tray)	43500	1	MPN/100 mL	2023-09-13	
Sample Qualifie	ers: 5 minute recommer	nded holding time (from s∉	ampling to analysis) ha	as been excee	ded - field	analysis is

recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER

23I1375 2023-09-18 16:54

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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	\checkmark	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)	\checkmark	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

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)	WORK ORDER	23 1375
PROJECT	Final Effluent- PE14651	REPORTED	2023-09-18 16:54

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	Source	% REC	REC	% RPD	RPD	Qualifier
	nooun		Level	Result	/01120	Limit	<i>/</i> 0101	Limit	quanto

Anions, Batch B3l0937

Blank (B3I0937-BLK1)			Prepared: 202	23-09-13, Analyze	d: 2023-09-13	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3I0937-BLK2)			Prepared: 202	23-09-14, Analyze	d: 2023-09-14	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3I0937-BS1)			Prepared: 202	23-09-13, Analyze	d: 2023-09-13	
LCS (B3I0937-BS1) Chloride	15.9	0.10 mg/L	Prepared: 202 16.0	23-09-13, Analyze 100	d: 2023-09-13 90-110	
LCS (B3I0937-BS1) Chloride Nitrate (as N)	15.9 3.97	0.10 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00	23-09-13, Analyze 100 99	d: 2023-09-13 90-110 90-110	
LCS (B3I0937-BS1) Chloride Nitrate (as N) Nitrite (as N)	15.9 3.97 2.09	0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00	23-09-13, Analyze 100 99 105	d: 2023-09-13 90-110 90-110 85-115	
LCS (B3I0937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	15.9 3.97 2.09 1.07	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 16.0 4.00 2.00 1.00	23-09-13, Analyze 100 99 105 107	d: 2023-09-13 90-110 90-110 85-115 80-120	
LCS (B310937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2)	15.9 3.97 2.09 1.07	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202	23-09-13, Analyze 100 99 105 107 23-09-14, Analyze	d: 2023-09-13 90-110 90-110 85-115 80-120 d: 2023-09-14	
LCS (B310937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Chloride	15.9 3.97 2.09 1.07 16.0	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.0050 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0	23-09-13, Analyze 100 99 105 107 23-09-14, Analyze 100	d: 2023-09-13 90-110 90-110 85-115 80-120 d: 2023-09-14 90-110	
LCS (B310937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Chloride Nitrate (as N)	15.9 3.97 2.09 1.07 16.0 3.95	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.10 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00	23-09-13, Analyze 100 99 105 107 23-09-14, Analyze 100 99	d: 2023-09-13 90-110 85-115 80-120 d: 2023-09-14 90-110 90-110	
LCS (B310937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Chloride Nitrate (as N) Nitrate (as N)	15.9 3.97 2.09 1.07 16.0 3.95 2.09	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00 2.00	23-09-13, Analyze 100 99 105 107 23-09-14, Analyze 100 99 104	d: 2023-09-13 90-110 85-115 80-120 d: 2023-09-14 90-110 90-110 85-115	
LCS (B310937-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B310937-BS2) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	15.9 3.97 2.09 1.07 16.0 3.95 2.09 1.06	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00 2.00 1.00	23-09-13, Analyze 100 99 105 107 23-09-14, Analyze 100 99 104 106	d: 2023-09-13 90-110 85-115 80-120 d: 2023-09-14 90-110 90-110 85-115 80-120	

General Parameters, Batch B3I1128

Blank (B3I1128-BLK1)			Prepared: 2023-09-13, Analyzed: 2023-09-13	
Ammonia, Total (as N)	< 0.010	0.010 mg/L		
Blank (B3I1128-BLK2)			Prepared: 2023-09-13, Analyzed: 2023-09-13	
Ammonia, Total (as N)	0.042	0.010 mg/L		
Blank (B3I1128-BLK3)			Prepared: 2023-09-13, Analyzed: 2023-09-13	
Blank (B3I1128-BLK3) Ammonia, Total (as N)	0.041	0.010 mg/L	Prepared: 2023-09-13, Analyzed: 2023-09-13	
Blank (B3I1128-BLK3) Ammonia, Total (as N) LCS (B3I1128-BS1)	0.041	0.010 mg/L	Prepared: 2023-09-13, Analyzed: 2023-09-13 Prepared: 2023-09-13, Analyzed: 2023-09-13	
Blank (B3I1128-BLK3) Ammonia, Total (as N) LCS (B3I1128-BS1) Ammonia, Total (as N)	0.041	0.010 mg/L 0.010 mg/L	Prepared: 2023-09-13, Analyzed: 2023-09-13 Prepared: 2023-09-13, Analyzed: 2023-09-13 1.00 96 85-115	

Page 5 of 7



REPORTED TO L PROJECT F	ake Country, Distr inal Effluent- PE1	ict of (Wastewat 4651	er)			WORK REPOR	ORDER TED	23113 2023	375 -09-18	16:54
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3I1128, Con	ntinued								
LCS (B3I1128-BS2)				Prepared	2023-09-1	3 Analyze	d: 2023-()9-13		
Ammonia. Total (as N)		0.894	0.010 ma/L	1.00		89	85-115			
				Deserved		0. A		0.40		
Ammonia, Total (as N)		0.923	0.010 mg/L	Prepared 1.00	: 2023-09-1	3, Analyze 92	a: 2023-0 85-115	9-13		
General Parameters.	Batch B3I1208									
Riank (8311208-81 K1	N N			Prepared	· 2023-00-1	3 Analyza	4· 2023-(10-18		
BOD 5-day Carbonaceo) S	< 2.0	2.0 mg/l	Перагец	. 2023-03-1	5, Analyze	u. 2025-0	09-10		
		2.0	2.0 mg/2	Duenened		O Analuma	4. 2022 (0.40		
LCS (B311208-BS1)		204	20 5	Prepared	2023-09-1	3, Analyze		J9-18		
BOD, 5-day Carbonaceo	us	201	38.5 mg/L	198		102	85-115			
General Parameters.	Batch B3I1221									
	· · · · · · · · · · · · · · · · · · ·			Duenened		2 Analyza	4. 0000 (0.42		
Blank (B3I1221-BLK1)	. 1.0	1.0	Prepared	: 2023-09-1	3, Analyze	a: 2023-0	J9-13		
Alkalinity, Iotal (as CaCC	(25)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphinak	$\frac{1}{2} \left(as CaCOS \right)$	< 1.0	1.0 mg/L							
Alkalinity, Dicarbonate (a		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
Blank (B311221 BLK2)			Prenared	· 2023-00-1	3 Analyza	4· 2023-0	10-13		
)	< 1.0	10 mg/l	Перагец	. 2023-03-1	5, Analyze	u. 2025-0	09-10		
Alkalinity, Total (as CaCC	$\sin(as CaCO3)$	< 1.0	1.0 mg/L							
Alkalinity, Prenoiphtiale		< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as		< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
Blank (B3I1221-BI K3)			Prenared	· 2023-09-1	3 Analyze	4· 2023-(10-13		
Alkalinity Total (as CaCC))3)	< 1.0	1.0 mg/l	Перагец	. 2023-03-1	5, Analyze	u. 2025-0	09-10		
Alkalinity Phenolohthale	in (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (a	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 (B3I1221-BS1)				Prepared	: 2023-09-1	3. Analvze	d: 2023-0)9-13		
Alkalinity. Total (as CaCC)3)	108	1.0 ma/L	100		108	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	15.1	1.0 mg/L	50.0		30	0-200			
LCS (B3I1221-BS2)				Prepared	: 2023-09-1	3, Analyze	d: 2023-0)9-13		
Alkalinity, Total (as CaCC	03)	110	1.0 mg/L	100		110	80-120			
Alkalinity, Phenolphthale	ein (as CaCO3)	13.9	1.0 mg/L	50.0		28	0-200			
LCS (B3I1221-BS3)				Prepared	: 2023-09-1	3. Analvze	d: 2023-()9-13		
Alkalinity Total (as CaCC	131	104	1.0 mg/l	100		104	80-120			
Alkalinity, Phenolphthale	in (as CaCO3)	32.7	1.0 mg/L	50.0		65	0-200			
Reference (B3I1221-S	RM1)		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Prenared	: 2023-09-1	3. Analyze	d: 2023-()9-13		
pH		7.04	0.10 pH units	7.01	0_0 00 1	100	98-102			
- Poforonce (P214224 6	DM2	-	,	Droparad	· 2023 00 1	3 Analyza	4. 2023 (10_13		
Reference (B311221-S	ortiviz)	7.04	0.10		. 2023-09-1	3, Analyze	u. 2023-l	13-13		
μu		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3I1221-S	RM3)			Prepared	: 2023-09-1	3, Analyze	d: 2023-0)9-13		
рН		7.04	0.10 pH units	7.01		100	98-102			



REPORTED TO Lake Country, I PROJECT Final Effluent- I	District of (Wastewa PE14651	ater)			WORK REPOR	ORDER TED	2311: 2023	375 -09-18	16:54
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3I1232									
Blank (B3I1232-BLK1)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-14		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3I1232-BLK2)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-14		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3I1232-BS1)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-14		
Phosphorus, Total (as P)	0.108	0.0050 mg/L	0.100		108	85-115			
LCS (B3I1232-BS2)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-14		
Phosphorus, Total (as P)	0.108	0.0050 mg/L	0.100		108	85-115			
General Parameters, Batch B3I1271									
Blank (B3I1271-BLK1)			Prepared	: 2023-09-13	8, Analyze	d: 2023-0	9-13		
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3I1271-BS1)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-13		
Solids, Total Suspended	100	10.0 mg/L	100		100	85-115			
General Parameters, Batch B3I1451									
Blank (B3I1451-BLK1)			Prepared	: 2023-09-15	5, Analyze	d: 2023-0	9-17		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3I1451-BLK2)			Prepared	: 2023-09-15	5, Analyze	d: 2023-0	9-17		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3I1451-BS1)			Prepared	: 2023-09-15	5, Analyze	d: 2023-0	9-17		
Nitrogen, Total Kjeldahl	1.01	0.050 mg/L	1.00		101	85-115			
LCS (B3I1451-BS2)			Prepared	: 2023-09-15	5, Analyze	d: 2023-0	9-17		
Nitrogen, Total Kjeldahl	0.986	0.050 mg/L	1.00		99	85-115			
Microbiological Parameters, Batch E	3311198								
Blank (B3I1198-BLK1)			Prepared	: 2023-09-13	8, Analyze	d: 2023-0	9-13		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3I1198-BLK2)			Prepared	: 2023-09-13	8, Analyze	d: 2023-0	9-13		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3I1198-BLK3)			Prepared	: 2023-09-13	3, Analyze	d: 2023-0	9-13		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3I1198-BLK4)			Prepared	: 2023-09-13	, Analyze	d: 2023-0	9-13		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL						



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J0309
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-04 11:32 / 18.0°C 2023-10-12 11:17 45203.37681

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔪 Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District o Final Effluent- PE14651	f (Wastewater)		WORK ORDER REPORTED	23J0309 2023-10-1	2 11:17
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E23	3626) (23J0309-01) Ma	atrix: Wastewater Sample	ed: 2023-10-04 10:18			
Anions						
Chloride		124	0.10	mg/L	2023-10-05	
Nitrate (as N)		1.30	0.010	mg/L	2023-10-05	
Nitrite (as N)		0.106	0.010	mg/L	2023-10-05	
Phosphate (as P)		0.252	0.0050	mg/L	2023-10-05	
Calculated Paramete	ers					
Nitrate+Nitrite (as N)	1.40	0.0100	mg/L	N/A	
Nitrogen, Total	/	2.92	0.0500	mg/L	N/A	
Nitrogen, Organic		1.32	0.0500	mg/L	N/A	
General Parameters						
Alkalinity, Total (as (CaCO3)	193	1.0	mg/L	2023-10-07	
Alkalinity, Phenolph	thalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Alkalinity, Bicarbona	ate (as CaCO3)	193	1.0	mg/L	2023-10-07	
Alkalinity, Carbonate	e (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Alkalinity, Hydroxide	e (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Ammonia, Total (as	N)	0.197	0.050	mg/L	2023-10-04	
BOD, 5-day Carbon	aceous	2.3	2.0	mg/L	2023-10-10	
Nitrogen, Total Kjeld	lahl	1.52	0.050	mg/L	2023-10-10	
pH		7.62	0.10	pH units	2023-10-07	HT2
Phosphorus, Total (a	as P)	0.523	0.0050	mg/L	2023-10-05	
Solids, Total Susper	nded	< 2.0	2.0	mg/L	2023-10-10	
Microbiological Para	meters					
Coliforms, Total (Q-	Tray)	130000	1	MPN/100 mL	2023-10-04	
Coliforms, Fecal (Q	-Tray)	19400	1	MPN/100 mL	2023-10-04	
Field Blank (23J03	09-02) Matrix: Wastew	vater Sampled: 2023-10-(04 10:00			
Anions						
Chloride		< 0.10	0.10	mg/L	2023-10-05	
Nitrate (as N)		< 0.010	0.010	mg/L	2023-10-05	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-10-05	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-10-05	
Calculated Paramete	ers					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	

3.8

Γ

RE2



REPORTED TO PROJECT	Lake Country, Dis Final Effluent- PE	trict of (Wastewater) 14651		WORK ORDER REPORTED	23J0309 2023-10-1	2 11:17
Analyte		Result	RL	Units	Analyzed	Qualifier
Field Blank (23J0	0309-02) Matrix: Wa	astewater Sampled: 2023-10	0-04 10:00, Continued			
General Parameter	rs, Continued					
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-10-04	
BOD, 5-day Carbo	onaceous	< 1.7	2.0	mg/L	2023-10-10	
Nitrogen, Total Kje	eldahl	0.090	0.050	mg/L	2023-10-10	RE2
рН		6.09	0.10	pH units	2023-10-07	HT2
Phosphorus, Tota	l (as P)	< 0.0050	0.0050	mg/L	2023-10-05	
Solids, Total Susp	ended	< 2.0	2.0	mg/L	2023-10-10	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	< 1	1	MPN/100 mL	2023-10-04	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2023-10-04	
Sample Qualifie	ers:					
HI2 The 1 recomm	5 minute recomme nended.	nded holding time (from s	ampling to analysis) ha	as been exceed	ied - field	analysis is

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



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER REPORTED

23J0309 2023-10-12 11:17

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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	\checkmark	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)	\checkmark	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)	WORK ORDER	23J0309
PROJECT	Final Effluent- PE14651	REPORTED	2023-10-12 11:17

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	Source	% REC	REC	% RPD RPD	Qualifier
, and yes	Rooun		Level	Result	<i>/</i> 01120	Limit	Limit	quainoi

Anions, Batch B3J0299

Blank (B3J0299-BLK1)			Prepared: 202	3-10-05, Analyze	ed: 2023-10-05	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3J0299-BLK2)			Prepared: 202	3-10-06, Analyze	ed: 2023-10-06	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3J0299-BS1)			Prepared: 202	3-10-05, Analyze	ed: 2023-10-05	
LCS (B3J0299-BS1) Chloride	15.9	0.10 mg/L	Prepared: 202 16.0	3-10-05, Analyze 99	ed: 2023-10-05 90-110	
LCS (B3J0299-BS1) Chloride Nitrate (as N)	15.9 3.95	0.10 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00	3-10-05, Analyze 99 99	ed: 2023-10-05 90-110 90-110	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N)	15.9 3.95 2.03	0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00	3-10-05, Analyze 99 99 101	ed: 2023-10-05 90-110 90-110 85-115	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	15.9 3.95 2.03 0.846	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 16.0 4.00 2.00 1.00	3-10-05, Analyze 99 99 101 85	ed: 2023-10-05 90-110 90-110 85-115 80-120	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2)	15.9 3.95 2.03 0.846	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202	3-10-05, Analyze 99 99 101 85 3-10-06, Analyze	ed: 2023-10-05 90-110 90-110 85-115 80-120 ed: 2023-10-06	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Chloride	15.9 3.95 2.03 0.846 15.9	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0	3-10-05, Analyze 99 101 85 3-10-06, Analyze 99	ed: 2023-10-05 90-110 90-110 85-115 80-120 ed: 2023-10-06 90-110	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Chloride Nitrate (as N)	15.9 3.95 2.03 0.846 15.9 3.82	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.10 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00	3-10-05, Analyze 99 101 85 3-10-06, Analyze 99 96	ed: 2023-10-05 90-110 90-110 85-115 80-120 ed: 2023-10-06 90-110 90-110	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Chloride Nitrate (as N) Nitrate (as N)	15.9 3.95 2.03 0.846 15.9 3.82 2.01	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00 2.00	3-10-05, Analyze 99 101 85 3-10-06, Analyze 99 96 100	ed: 2023-10-05 90-110 90-110 85-115 80-120 ed: 2023-10-06 90-110 90-110 85-115	
LCS (B3J0299-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	15.9 3.95 2.03 0.846 15.9 3.82 2.01 1.05	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 202 16.0 4.00 2.00 1.00 Prepared: 202 16.0 4.00 2.00 1.00	3-10-05, Analyze 99 101 85 3-10-06, Analyze 99 96 100 105	ed: 2023-10-05 90-110 90-110 85-115 80-120 ed: 2023-10-06 90-110 90-110 85-115 80-120	

General Parameters, Batch B3J0211

Blank (B3J0211-BLK1)			Prepared: 202	23-10-04, Analyz	ed: 2023-10-0	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3J0211-BLK2)			Prepared: 202	23-10-04, Analyz	ed: 2023-10-0	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3J0211-BLK3)			Prepared: 202	23-10-04, Analyz	ed: 2023-10-0	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3J0211-BS1)			Prepared: 202	23-10-04, Analyz	ed: 2023-10-0	4
Ammonia, Total (as N)	0.932	0.050 mg/L	1.00	93	85-115	



REPORTED TO Lak PROJECT Fina	e Country, District of (Waste al Effluent- PE14651	rrict of (Wastewater) 14651			WORK ORDER23REPORTED20		23J0 2023	J0309 23-10-12 11:17	
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Bat	tch B3J0211, Continued								
LCS (B3.0211-BS2)			Prepared	· 2023-10-0	4 Analyze	d. 2023-1	10-04		
Ammonia. Total (as N)	0.942	0.050 ma/L	1.00		94	85-115			
			Proparad	. 2023 10 0		4. 2023	10.04		
Ammonia Total (as N)	0.912	0.050 mg/l	1 00	1. 2023-10-0	91	85-115	10-04		
	0.012	0.000 mg/L	1.00			00 110			
General Parameters, Bat	tch B3J0305								
Blank (B3J0305-BLK1)			Prepared	: 2023-10-0	4, Analyze	ed: 2023-	10-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BLK2)			Prepared	: 2023-10-0	4, Analyze	ed: 2023-´	10-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BLK3)			Prepared	: 2023-10-0	4, Analyze	ed: 2023-	10-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BLK4)			Prepared	: 2023-10-0	4, Analyze	ed: 2023-	10-05		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3J0305-BS1)			Prepared	: 2023-10-0	4. Analvze	ed: 2023-	10-05		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3 10305-BS2)			Prenared	· 2023-10-0	4 Analyze	d. 2023-	10-05		
Phosphorus Total (as P)	0.106	0.0050 mg/l	0 100	. 2020 10 0	106	85-115	10 00		
	0.100	0.0000	Droporod	. 2022 10 0		4. 2022	10.05		
Bhaapharua Total (as B)	0.105	0.0050 mg/l	0 100	1. 2023-10-0	105	95 115	10-05		
	0.105	0.0050 mg/L	0.100		105	00-110			
LCS (B3J0305-BS4)	0.400	0.0050 "	Prepared	1: 2023-10-0	4, Analyze	ed: 2023-7	10-05		
Phosphorus, Iotal (as P)	0.106	0.0050 mg/L	0.100		106	85-115			
General Parameters, Bat Blank (B3J0422-BLK1)	tch B3J0422		Prepared	: 2023-10-0	95, Analyze	ed: 2023-´	10-10		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3J0422-BS1)			Prepared	: 2023-10-0	5, Analyze	ed: 2023-´	10-10		
BOD, 5-day Carbonaceous	213	43.4 mg/L	198		107	85-115			
General Parameters, Bat	tch B3J0689								
Blank (B3J0689-BLK1)			Prepared	: 2023-10-0	7, Analyze	ed: 2023-	10-07		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3) < 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as C	(2003) < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1	1.0 mg/L 1.0 mg/l							
Alkalinity, Hydroxide (as Ca	CO3) < 1.0	1.0 mg/L							
Blank (B3J0689-BLK2)			Prepared	: 2023-10-0	7, Analyze	ed: 2023-1	10-07		
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3) < 1.0	1.0 mg/L							
Alkalinity, Dicarbonate (as C	(CO3) < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.	1.0 mg/L							
Alkalinity, Hydroxide (as Ca	CO3) < 1.0	1.0 mg/L							

Γ



REPORTED TO Lake Country, District PROJECT Final Effluent- PE146	of (Wastewa 51	ater)			WORK ORDER 23J03 REPORTED 2023)309 3-10-12 11:17		
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J0689, Conti	nued								
Blank (B3J0689-BLK3)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
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							
	< 1.0	1.0 mg/L	Prepared	· 2023-10-0	7 Analyze	d [.] 2023-1	10-07		
Alkalinity Total (as CaCO3)	110	1.0 mg/l	100	. 2020 10 0	110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	55.1	1.0 mg/L	50.0		110	0-200			
LCS (B3J0689-BS2)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
Alkalinity, Total (as CaCO3)	109	1.0 mg/L	100		109	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	56.1	1.0 mg/L	50.0		112	0-200			
LCS (B3J0689-BS3)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
Alkalinity, Total (as CaCO3)	110	1.0 mg/L	100		110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	51.4	1.0 mg/L	50.0		103	0-200			
Reference (B3J0689-SRM1)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
рН	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J0689-SRM2)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
рН	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J0689-SRM3)			Prepared	: 2023-10-0	7, Analyze	d: 2023-′	10-07		
pH	7.04	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B3J0726 Blank (B3J0726-BLK1) Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L	Prepared	: 2023-10-0	9, Analyze	d: 2023-1	10-10		
Blank (B3.10726-BI K2)			Prepared	· 2023-10-0	9 Analyze	d. 2023-	10-10		
Nitrogen. Total Kieldahl	< 0.050	0.050 ma/L	Tioparoa	. 2020 10 0	0,7 (nary20	4. 2020			
		0	Droporod	. 2022 10 0		4. 2022 4	10.10		
Nitrogen Total Kieldahl	0.064	0.050 mg/l	1 00	. 2023-10-0		95 115	10-10		
	0.304	0.000 mg/L							
LCS (B3J0726-BS2)			Prepared	: 2023-10-0	9, Analyze	d: 2023-2	10-10		
Nitrogen, Total Kjeldahl	0.983	0.050 mg/L	1.00		98	85-115			
General Parameters, Batch B3J0754									
Blank (B3J0754-BLK1)			Prepared	: 2023-10-1	0, Analyze	d: 2023-′	10-10		
Solids, Total Suspended	< 2.0	2.0 mg/L	-						
Microbiological Parameters,Batch B3J023 Blank (B3.10230-BLK1)	0		Prenared	· 2023-10-0	4 Analyze	d. 2023-1	10-04		
Coliforms, Total (Q-Trav)	< 1	1 MPN/100	mL	020-10-0	1,7 alary26	G. 2020-			
Blank (B2 10230 BI K2)			Dropored	· 2022 10 0	1 Analyza	4. 2022 4	10.04		
	~ 1	1 MDN/400	riepared	. 2023-10-0	4, Analyze	u. 2023-	10-04		
	<u> </u>								
Blank (B3J0230-BLK3)			Prepared	: 2023-10-0	4, Analyze	d: 2023-1	10-04		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100 i	mL						

Page 7 of 8



REPORTED TO PROJECT	Lake Country, District of (Wastewater) Final Effluent- PE14651				WORK REPOR	ORDER TED	23J0 2023	309 -10-12	11:17
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J0311
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-04 11:32 / 18.0°C 2023-10-13 16:38 45203.37681

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Vanadium

Zirconium

Zinc

REPORTED TO Lake Country, I PROJECT BioSolids- PE1		District of (Wastewater) 14651		WORK ORDER REPORTED	23J0311 2023-10-1	3 16:38
Analyte		Result	RL	Units	Analyzed	Qualifier
Biosolids (E2336	28) (23J0311-01) Ma	trix: Sludge Sampled: 2023-	10-04 09:50			
General Parameter	s					
Moisture		4.1	1.0	% wet	2023-10-10	
Nitrogen, Total Kje	eldahl	1.11	0.0004	% dry	2023-10-09	
Solids, Total		20.8	0.1	% wet	2023-10-12	
Solids, Volatile		85.9	0.1	% dry	2023-10-13	
Strong Acid Leach	able Metals					
Aluminum		2920	40	mg/kg dry	2023-10-10	
Antimony		1.67	0.10	mg/kg dry	2023-10-10	
Arsenic		2.03	0.30	mg/kg dry	2023-10-10	
Barium		132	1.0	mg/kg dry	2023-10-10	
Beryllium		< 0.10	0.10	mg/kg dry	2023-10-10	
Bismuth		31.1	0.10	mg/kg dry	2023-10-10	
Boron		16.3	2.0	mg/kg dry	2023-10-10	
Cadmium		2.69	0.040	mg/kg dry	2023-10-10	
Calcium		12800	100	mg/kg dry	2023-10-10	
Chromium		15.2	1.0	mg/kg dry	2023-10-10	
Cobalt		1.78	0.10	mg/kg dry	2023-10-10	
Copper		486	0.40	mg/kg dry	2023-10-10	
Iron		3870	20.0	mg/kg dry	2023-10-10	
Lead		10.8	0.20	mg/kg dry	2023-10-10	
Lithium		1.50	0.10	mg/kg dry	2023-10-10	
Magnesium		4310	10	mg/kg dry	2023-10-10	
Manganese		187	0.40	mg/kg dry	2023-10-10	
Mercury		0.351	0.040	mg/kg dry	2023-10-10	
Molybdenum		13.8	0.10	mg/kg dry	2023-10-10	
Nickel		12.5	0.60	mg/kg dry	2023-10-10	
Phosphorus		16200	10	mg/kg dry	2023-10-10	
Potassium		4410	40	mg/kg dry	2023-10-10	
Selenium		4.58	0.20	mg/kg dry	2023-10-10	
Silver		1.86	0.10	mg/kg dry	2023-10-10	
Sodium		797	50	mg/kg dry	2023-10-10	
Strontium		68.1	0.20	mg/kg dry	2023-10-10	
Sulfur		7480	1000	mg/kg dry	2023-10-10	
Tellurium		< 0.10	0.10	mg/kg dry	2023-10-10	
Thallium		< 0.10	0.10	mg/kg drv	2023-10-10	
Thorium		< 0.50	0.50	mg/kg drv	2023-10-10	
Tin		21.5	0.20	mg/kg drv	2023-10-10	
Titanium		82.1	1.0	ma/ka drv	2023-10-10	
Tunasten		1 56	0.20	ma/ka drv	2023-10-10	
Uranium		17.4	0.050	mg/kg drv	2023-10-10	

1.0 mg/kg dry

2.0 mg/kg dry

2.0 mg/kg dry

7.3

991

< 6.0

2023-10-10

2023-10-10

2023-10-10

Γ



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER REPORTED

23J0311 2023-10-13 16:38

Sample Qualifiers:

RA1 The Reporting Limit for this sample has been raised due to matrix interference.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

 WORK ORDER
 23J0311

 REPORTED
 2023-10

23J0311 2023-10-13 16:38

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23J0311
PROJECT	BioSolids- PE14651	REPORTED	2023-10-13 16:38

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	Qualifier
General Parameters, Batch B3J0548									

Blank (B3J0548-BLK1)			Prepared: 202	3-10-06, Analyze	ed: 2023-10-09	
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet				
Reference (B3J0548-SRM1)			Prepared: 202	3-10-06, Analyzo	ed: 2023-10-09	
Nitrogon, Total Kieldehl	0 178	0.010 % wet	0 107	01	58.8-150	

Strong Acid Leachable Metals, Batch B3J0737

Blank (B3J0737-BLK1)			Prepared: 2023-10-10, Analyzed: 2023-10-10
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	
Cadmium	< 0.040	0.040 mg/kg dry	
Calcium	< 100	100 mg/kg dry	
Chromium	< 1.0	1.0 mg/kg dry	
Cobalt	< 0.10	0.10 mg/kg dry	
Copper	< 0.40	0.40 mg/kg dry	
Iron	< 20.0	20.0 mg/kg dry	
Lead	< 0.20	0.20 mg/kg dry	
Lithium	< 0.10	0.10 mg/kg dry	
Magnesium	< 10	10 mg/kg dry	
Manganese	< 0.40	0.40 mg/kg dry	
Mercury	< 0.040	0.040 mg/kg dry	
Molybdenum	< 0.10	0.10 mg/kg dry	
Nickel	< 0.60	0.60 mg/kg dry	
Phosphorus	< 10	10 mg/kg dry	
Potassium	< 40	40 mg/kg dry	
Selenium	< 0.20	0.20 mg/kg dry	
Silver	< 0.10	0.10 mg/kg dry	
Sodium	< 50	50 mg/kg dry	
Strontium	< 0.20	0.20 mg/kg dry	
Sulfur	< 1000	1000 mg/kg dry	
Tellurium	< 0.10	0.10 mg/kg dry	



REPORTED TO PROJECT	D TO Lake Country, District of (Wastewater) BioSolids- PE14651				WORK (REPOR	order Ted	23J0 2023	311 -10-13	16:38
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3J0737, Continued

Blank (B3J0737-BLK1), Continued			Prepared: 2	2023-10-10, Analyzed: 2023-10-10	
Thallium	< 0.10	0.10 mg/kg dry			
Thorium	< 0.50	0.50 mg/kg dry			
Tin	< 0.20	0.20 mg/kg dry			
Titanium	< 1.0	1.0 mg/kg dry			
Tungsten	< 0.20	0.20 mg/kg dry			
Uranium	< 0.050	0.050 mg/kg dry			
Vanadium	< 1.0	1.0 mg/kg dry			
Zinc	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg dry			
LCS (B3J0737-BS1)			Prepared: 2	2023-10-10, Analyzed: 2023-10-10	
Aluminum	197	40 mg/kg dry	200	99 80-120	
Antimony	2.00	0.10 mg/kg dry	2.00	100 80-120	
Arsenic	20.0	0.30 mg/kg dry	20.0	100 80-120	
Barium	2.1	1.0 mg/kg dry	2.00	103 80-120	
Beryllium	2.08	0.10 mg/kg dry	2.00	104 80-120	
Bismuth	1.97	0.005 mg/kg dry	2.00	99 80-120	
Boron	21.6	2.0 mg/kg dry	20.0	108 80-120	
Cadmium	1.98	0.040 mg/kg dry	2.00	99 80-120	
Calcium	201	100 mg/kg dry	200	101 80-120	
Chromium	2.0	1.0 mg/kg dry	2.00	102 80-120	
Cobalt	2.02	0.10 mg/kg dry	2.00	101 80-120	
Copper	2.02	0.40 mg/kg dry	2.00	101 80-120	
Iron	205	20.0 mg/kg dry	200	102 80-120	
Lead	2.00	0.20 mg/kg dry	2.00	100 80-120	
Lithium	2.05	0.10 mg/kg dry	2.00	102 80-120	
Magnesium	204	10 mg/kg dry	200	102 80-120	
Manganese	2.01	0.40 mg/kg dry	2.00	101 80-120	
Mercury	0.209	0.040 mg/kg dry	0.200	104 80-120	
Molybdenum	1.97	0.10 mg/kg dry	2.00	98 80-120	
Nickel	2.01	0.60 mg/kg dry	2.00	100 80-120	
Phosphorus	193	10 mg/kg dry	200	96 80-120	
Potassium	198	40 mg/kg dry	200	99 80-120	
Selenium	20.2	0.20 mg/kg dry	20.0	101 80-120	
Silver	2.02	0.10 mg/kg dry	2.00	101 80-120	
Sodium	203	50 mg/kg dry	200	102 80-120	
Strontium	2.05	0.20 mg/kg dry	2.00	102 80-120	
Sulfur	2000	50 mg/kg dry	2000	100 80-120	
Tellurium	1.91	0.005 mg/kg dry	2.00	96 80-120	
Thallium	1.96	0.10 mg/kg dry	2.00	98 80-120	
Thorium	2.12	0.02 mg/kg dry	2.00	106 80-120	
Tin	2.03	0.20 mg/kg dry	2.00	102 80-120	
Titanium	2.0	1.0 mg/kg dry	2.00	100 80-120	
Tungsten	2.01	0.20 mg/kg dry	2.00	101 80-120	
Uranium	2.10	0.050 mg/kg dry	2.00	105 80-120	
Vanadium	2.0	1.0 mg/kg dry	2.00	100 80-120	
Zinc	19.6	2.0 mg/kg dry	20.0	98 80-120	
Zirconium	2.0	2.0 mg/kg dry	2.00	102 80-120	
Reference (B3J0737-SRM1)			Prepared: 2	2023-10-10, Analyzed: 2023-10-10	
Aluminum	12500	40 mg/kg dry	12100	103 70-130	
Antimony	0.65	0.10 mg/kg dry	0.634	103 70-130	
Arsenic	86.9	0.30 mg/kg dry	83.6	104 70-130	
Barium	43.7	1.0 mg/kg dry	41.4	105 70-130	
Beryllium	0.38	0.10 mg/kg dry	0.377	100 70-130	
Bismuth	0.33	0.10 mg/kg drv	0.291	112 70-130	

Γ



REPORTED TO PROJECT	Lake Country, District BioSolids- PE14651	of (Wastewate	er)			WORK REPOR	ORDER TED	23J0 2023	311 -10-13	16:38
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B3J07	737, Continued								
Reference (B3J0737-SRM1), Continued			Prepared	I: 2023-10-1	0, Analyze	d: 2023-1	0-10			

				, ,		
Calcium	5360	100 mg/kg dry	5380	100	70-130	
Chromium	69.2	1.0 mg/kg dry	66.0	105	70-130	
Cobalt	11.0	0.10 mg/kg dry	10.8	101	70-130	
Copper	20.3	0.40 mg/kg dry	20.3	100	70-130	
Iron	21700	20.0 mg/kg dry	20400	106	70-130	
Lead	18.4	0.20 mg/kg dry	16.7	110	70-130	
Lithium	17.2	0.10 mg/kg dry	16.8	103	70-130	
Magnesium	6580	10 mg/kg dry	6170	107	70-130	
Manganese	348	0.40 mg/kg dry	319	109	70-130	
Mercury	0.117	0.040 mg/kg dry	0.114	102	70-130	
Molybdenum	0.69	0.10 mg/kg dry	0.607	114	70-130	
Nickel	33.0	0.60 mg/kg dry	32.5	101	70-130	
Phosphorus	443	10 mg/kg dry	432	103	70-130	
Silver	1.81	0.10 mg/kg dry	1.55	117	70-130	
Strontium	22.2	0.20 mg/kg dry	22.5	99	70-130	
Thallium	< 0.10	0.10 mg/kg dry	0.0765	110	70-130	
Thorium	3.63	0.50 mg/kg dry	2.96	123	70-130	
Titanium	706	1.0 mg/kg dry	730	97	70-130	
Uranium	1.27	0.050 mg/kg dry	1.15	110	70-130	
Vanadium	37.1	1.0 mg/kg dry	36.3	102	70-130	
Zinc	40.0	2.0 mg/kg dry	39.7	101	70-130	



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J0311
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-04 11:32 / 18.0°C 2023-10-23 15:43 45203.37681

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

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.

32

Ahead of the Curve

regulation Through research, knowledge, and instrumentation, we are your analytical centre the for technical knowledge you need, 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Tungsten

Uranium

Zinc

Vanadium

Zirconium

REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651		WORK ORDER REPORTED	23J0311 2023-10-2	3 15:43
Analyte	Result	RL	Units	Analyzed	Qualifier
Biosolids (E233628) (23J0311-01) Matrix: Sludge Sampled: 2023-1	0-04 09:50			
General Parameters					
Moisture	80.0	1.0	% wet	2023-10-10	
Nitrogen, Total Kjeld	ahl 5.33	0.0004	% dry	2023-10-09	
Solids, Total	20.8	0.1	% wet	2023-10-12	
Solids, Volatile	85.9	0.1	% dry	2023-10-13	
Strong Acid Leachab	le Metals				
Aluminum	2920	40	mg/kg dry	2023-10-10	
Antimony	1.67	0.10	mg/kg dry	2023-10-10	
Arsenic	2.03	0.30	mg/kg dry	2023-10-10	
Barium	132	1.0	mg/kg dry	2023-10-10	
Beryllium	< 0.10	0.10	mg/kg dry	2023-10-10	
Bismuth	31.1	0.10	mg/kg dry	2023-10-10	
Boron	16.3	2.0	mg/kg dry	2023-10-10	
Cadmium	2.69	0.040	mg/kg dry	2023-10-10	
Calcium	12800	100	mg/kg dry	2023-10-10	
Chromium	15.2	1.0	mg/kg dry	2023-10-10	
Cobalt	1.78	0.10	mg/kg dry	2023-10-10	
Copper	486	0.40	mg/kg dry	2023-10-10	
Iron	3870	20.0	mg/kg dry	2023-10-10	
Lead	10.8	0.20	mg/kg dry	2023-10-10	
Lithium	1.50	0.10	mg/kg dry	2023-10-10	
Magnesium	4310	10	mg/kg dry	2023-10-10	
Manganese	187	0.40	mg/kg dry	2023-10-10	
Mercury	0.351	0.040	mg/kg dry	2023-10-10	
Molybdenum	13.8	0.10	mg/kg dry	2023-10-10	
Nickel	12.5	0.60	mg/kg dry	2023-10-10	
Phosphorus	16200	10	mg/kg dry	2023-10-10	
Potassium	4410	40	mg/kg dry	2023-10-10	
Selenium	4.58	0.20	mg/kg dry	2023-10-10	
Silver	1.86	0.10	mg/kg dry	2023-10-10	
Sodium	797	50	mg/kg dry	2023-10-10	
Strontium	68.1	0.20	mg/kg dry	2023-10-10	
Sulfur	7480	1000	mg/kg dry	2023-10-10	
Tellurium	< 0.10	0.10	mg/kg dry	2023-10-10	
Thallium	< 0.10	0.10	mg/kg dry	2023-10-10	
Thorium	< 0.50	0.50	mg/kg dry	2023-10-10	
Tin	21.5	0.20	mg/kg dry	2023-10-10	
Titanium	82.1	1.0	ma/ka drv	2023-10-10	

1.56

17.4

7.3

991

< 6.0

2023-10-10

2023-10-10

2023-10-10

2023-10-10

2023-10-10

Γ

0.20 mg/kg dry

1.0 mg/kg dry

2.0 mg/kg dry

2.0 mg/kg dry

0.050 mg/kg dry



REPORTED TO	Lake Country, District of (Wastewater)
PROJECT	BioSolids- PE14651

WORK ORDER REPORTED

23J0311 2023-10-23 15:43

Sample Qualifiers:

RA1 The Reporting Limit for this sample has been raised due to matrix interference.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

 WORK ORDER
 23J0311

 REPORTED
 2023-10

23J0311 2023-10-23 15:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23J0311
PROJECT	BioSolids- PE14651	REPORTED	2023-10-23 15:43

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
General Parameters, Batch B3J0548									

Blank (B3J0548-BLK1)			Prepared: 202	23-10-06, Analyze	ed: 2023-10-09	
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet				
Reference (B3J0548-SRM1)		Prepared: 2023-10-06, Analyzed: 2023-10-09				
Nitrogen, Total Kjeldahl	0.178	0.010 % wet	0.197	91	58.8-150	

Strong Acid Leachable Metals, Batch B3J0737

Blank (B3J0737-BLK1)			Prepared: 2023-10-10, Analyzed: 2023-10-10
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	
Cadmium	< 0.040	0.040 mg/kg dry	
Calcium	< 100	100 mg/kg dry	
Chromium	< 1.0	1.0 mg/kg dry	
Cobalt	< 0.10	0.10 mg/kg dry	
Copper	< 0.40	0.40 mg/kg dry	
Iron	< 20.0	20.0 mg/kg dry	
Lead	< 0.20	0.20 mg/kg dry	
Lithium	< 0.10	0.10 mg/kg dry	
Magnesium	< 10	10 mg/kg dry	
Manganese	< 0.40	0.40 mg/kg dry	
Mercury	< 0.040	0.040 mg/kg dry	
Molybdenum	< 0.10	0.10 mg/kg dry	
Nickel	< 0.60	0.60 mg/kg dry	
Phosphorus	< 10	10 mg/kg dry	
Potassium	< 40	40 mg/kg dry	
Selenium	< 0.20	0.20 mg/kg dry	
Silver	< 0.10	0.10 mg/kg dry	
Sodium	< 50	50 mg/kg dry	
Strontium	< 0.20	0.20 mg/kg dry	
Sulfur	< 1000	1000 mg/kg dry	
Tellurium	< 0.10	0.10 mg/kg dry	


REPORTED TO PROJECT	Lake Country, District of (Wastewater) BioSolids- PE14651				WORK REPOR	ORDER TED	23J0 2023	311 -10-23	15:43
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3J0737, Continued

Blank (B3J0737-BLK1), Continued			Prepared: 2	2023-10-10, Analyzed:	2023-10-10
Thallium	< 0.10	0.10 mg/kg dry			
Thorium	< 0.50	0.50 mg/kg dry			
Tin	< 0.20	0.20 mg/kg dry			
Titanium	< 1.0	1.0 mg/kg dry			
Tungsten	< 0.20	0.20 mg/kg dry			
Uranium	< 0.050	0.050 mg/kg dry			
Vanadium	< 1.0	1.0 mg/kg dry			
Zinc	< 2.0	2.0 mg/kg dry			
Zirconium	< 2.0	2.0 mg/kg dry			
LCS (B3J0737-BS1)			Prepared: 2	2023-10-10, Analyzed:	2023-10-10
Aluminum	197	40 mg/kg dry	200	99	80-120
Antimony	2.00	0.10 mg/kg dry	2.00	100	80-120
Arsenic	20.0	0.30 mg/kg dry	20.0	100	80-120
Barium	2.1	1.0 mg/kg dry	2.00	103	80-120
Beryllium	2.08	0.10 mg/kg dry	2.00	104	80-120
Bismuth	1.97	0.005 mg/kg dry	2.00	99	80-120
Boron	21.6	2.0 mg/kg dry	20.0	108	80-120
Cadmium	1.98	0.040 mg/kg dry	2.00	99	80-120
Calcium	201	100 mg/kg dry	200	101	80-120
Chromium	2.0	1.0 mg/kg dry	2.00	102	80-120
Cobalt	2.02	0.10 mg/kg dry	2.00	101	80-120
Copper	2.02	0.40 mg/kg dry	2.00	101	80-120
Iron	205	20.0 mg/kg dry	200	102	80-120
Lead	2.00	0.20 mg/kg dry	2.00	100	80-120
Lithium	2.05	0.10 mg/kg dry	2.00	102	80-120
Magnesium	204	10 mg/kg dry	200	102	80-120
Manganese	2.01	0.40 mg/kg dry	2.00	101	80-120
Mercury	0.209	0.040 mg/kg dry	0.200	104	80-120
Molybdenum	1.97	0.10 mg/kg dry	2.00	98	80-120
Nickel	2.01	0.60 mg/kg dry	2.00	100	80-120
Phosphorus	193	10 mg/kg dry	200	96	80-120
Potassium	198	40 mg/kg dry	200	99	80-120
Selenium	20.2	0.20 mg/kg dry	20.0	101	80-120
Silver	2.02	0.10 mg/kg dry	2.00	101	80-120
Sodium	203	50 mg/kg dry	200	102	80-120
Strontium	2.05	0.20 mg/kg dry	2.00	102	80-120
Sulfur	2000	50 mg/kg dry	2000	100	80-120
Tellurium	1.91	0.005 mg/kg dry	2.00	96	30-120
Thallium	1.96	0.10 mg/kg dry	2.00	98	80-120
Thorium	2.12	0.02 mg/kg dry	2.00	106	80-120
Tin	2.03	0.20 mg/kg dry	2.00	102	80-120
Titanium	2.0	1.0 mg/kg dry	2.00	100	80-120
Tungsten	2.01	0.20 mg/kg dry	2.00	101	80-120
Uranium	2.10	0.050 mg/kg dry	2.00	105	80-120
Vanadium	2.0	1.0 mg/kg dry	2.00	100	30-120
Zinc	19.6	2.0 mg/kg dry	20.0	98	30-120
Zirconium	2.0	2.0 mg/kg dry	2.00	102	80-120
Reference (B3J0737-SRM1)			Prepared: 2	2023-10-10, Analyzed:	2023-10-10
Aluminum	12500	40 mg/kg dry	12100	103	70-130
Antimony	0.65	0.10 ma/ka drv	0.634	103	70-130
Arsenic	86.9	0.30 ma/ka drv	83.6	104	70-130
Barium	43.7	1.0 ma/ka drv	41.4	105	70-130
Bervllium	0.38	0.10 ma/ka drv	0.377	100	70-130
Bismuth	0.33	0.10 mg/kg dry	0.291	112	70-130

Г



REPORTED TO PROJECT	Lake Country, District BioSolids- PE14651	of (Wastewate	er)			WORK REPOR	ORDER TED	23J0 2023	311 -10-23	15:43
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch B3J0	737, Continued								
Reference (B3J07	37-SRM1), Continued			Prepared	l: 2023-10-1	0, Analyze	d: 2023-1	10-10		

				· · · · · , ,		
Calcium	5360	100 mg/kg dry	5380	100	70-130	
Chromium	69.2	1.0 mg/kg dry	66.0	105	70-130	
Cobalt	11.0	0.10 mg/kg dry	10.8	101	70-130	
Copper	20.3	0.40 mg/kg dry	20.3	100	70-130	
Iron	21700	20.0 mg/kg dry	20400	106	70-130	
Lead	18.4	0.20 mg/kg dry	16.7	110	70-130	
Lithium	17.2	0.10 mg/kg dry	16.8	103	70-130	
Magnesium	6580	10 mg/kg dry	6170	107	70-130	
Manganese	348	0.40 mg/kg dry	319	109	70-130	
Mercury	0.117	0.040 mg/kg dry	0.114	102	70-130	
Molybdenum	0.69	0.10 mg/kg dry	0.607	114	70-130	
Nickel	33.0	0.60 mg/kg dry	32.5	101	70-130	
Phosphorus	443	10 mg/kg dry	432	103	70-130	
Silver	1.81	0.10 mg/kg dry	1.55	117	70-130	
Strontium	22.2	0.20 mg/kg dry	22.5	99	70-130	
Thallium	< 0.10	0.10 mg/kg dry	0.0765	110	70-130	
Thorium	3.63	0.50 mg/kg dry	2.96	123	70-130	
Titanium	706	1.0 mg/kg dry	730	97	70-130	
Uranium	1.27	0.050 mg/kg dry	1.15	110	70-130	
Vanadium	37.1	1.0 mg/kg dry	36.3	102	70-130	
Zinc	40.0	2.0 mg/kg dry	39.7	101	70-130	



APPENDIX 3: REVISION HISTORY

REPORTED TO PROJECT	ORTED TOLake Country, District of (Wastewater)OJECTBioSolids- PE14651		WORK ORDER23J0311REPORTED2023-10-23 15:43	
Sample ID	Changed	Change	Analysis	Analyte(s)
23J0311-01	2023-10-20	Result Revised	Moisture	Dry Weight



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J0314
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-04 11:32 / 18.0°C 2023-10-11 15:06 45203.37681

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔪 Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842				WORK ORDER REPORTED	23J0314 2023-10-1	1 15:06
Analyte		Result	RL	Units	Analyzed	Qualifier
Amry (E262982) (23J0314-01) Matrix: Wa	stewater Sampled: 2023-10	0-04 10:30			
General Parameters	S					
BOD, 5-day Carbo	onaceous	< 5.2	2.0	mg/L	2023-10-10	
Solids, Total Susp	ended	7.8	2.0	mg/L	2023-10-10	



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry- MR17842

 WORK ORDER
 23J0314

 REPORTED
 2023-10-11 15:06

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	~	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
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)	WORK ORDER	23J0314
PROJECT	Amry- MR17842	REPORTED	2023-10-11 15:06

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	Source	% REC	REC	% RPD	RPD Limit	Qualifier
			Lever	Result		Liiiit		Liiiit	
General Parameters, Batch B3J0422									
Blank (B3J0422-BLK1)			Prepared	I: 2023-10-0)5, Analyze	d: 2023-	10-10		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3J0422-BS1)			Prepared	I: 2023-10-0)5, Analyze	d: 2023- ⁻	10-10		
BOD, 5-day Carbonaceous	213	43.4 mg/L	198		107	85-115			
General Parameters, Batch B3J0754									
Blank (B3J0754-BLK1)			Prepared	l: 2023-10-1	0, Analyze	d: 2023-	10-10		

Solids, Total Suspended < 2.0 mg/L



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J0306
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-04 11:32 / 18.0°C 2023-10-11 15:02 45203.37681

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO PROJECT	Lake Country, District c Raw Influent- PE14651	of (Wastewater)		WORK ORDER REPORTED	23J0306 2023-10-1	1 15:02
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E233	627) (23J0306-01) Ma	trix: Wastewater Sampled	: 2023-10-04 10:38			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-10-05	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-10-05	
Phosphate (as P)		4.07	0.0050	mg/L	2023-10-05	RA5
Calculated Paramete	rs					
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	,	88.8	2.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as 0	CaCO3)	457	1.0	mg/L	2023-10-07	
Alkalinity, Phenolpht	halein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Alkalinity, Bicarbona	te (as CaCO3)	457	1.0	mg/L	2023-10-07	
Alkalinity, Carbonate	e (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Alkalinity, Hydroxide	e (as CaCO3)	< 1.0	1.0	mg/L	2023-10-07	
Ammonia, Total (as	N)	66.5	0.050	mg/L	2023-10-04	
BOD, 5-day		463	2.0	mg/L	2023-10-09	
BOD, 5-day Carbon	aceous	348	2.0	mg/L	2023-10-09	
Nitrogen, Total Kjeld	lahl	88.8	0.050	mg/L	2023-10-10	
рН		7.97	0.10	pH units	2023-10-07	HT2
Phosphorus, Total (a	as P)	11.1	0.0050	mg/L	2023-10-05	
Solids, Total Susper	nded	352	2.0	mg/L	2023-10-10	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
 RA5 The sample cannot be accurately quantified due to matrix interference. Result is Semi-Quantitative.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED 23J0306 2023-10-11 15:02

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23J0306
PROJECT	Raw Influent- PE14651	REPORTED	2023-10-11 15:02

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 R	RL Units	Spike	Source	% REC	REC	% RPD RPD	Qualifier
,	Rooun		Level	Result	<i>/</i> 01120	Limit	Limit	quainoi

Anions, Batch B3J0299

Blank (B3J0299-BLK1)			Prepared: 2023	3-10-05, Analyze	ed: 2023-10-05	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3J0299-BLK2)			Prepared: 202	3-10-06, Analyze	ed: 2023-10-06	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3J0299-BS1)			Prepared: 2023	3-10-05, Analyze	ed: 2023-10-05	
LCS (B3J0299-BS1) Nitrate (as N)	3.95	0.010 mg/L	Prepared: 2023 4.00	3-10-05, Analyze 99	ed: 2023-10-05 90-110	
LCS (B3J0299-BS1) Nitrate (as N) Nitrite (as N)	3.95 2.03	0.010 mg/L 0.010 mg/L	Prepared: 2023 4.00 2.00	3-10-05, Analyze 99 101	ed: 2023-10-05 90-110 85-115	
LCS (B3J0299-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P)	3.95 2.03 0.846	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 4.00 2.00 1.00	3-10-05, Analyze 99 101 85	ed: 2023-10-05 90-110 85-115 80-120	
LCS (B3J0299-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2)	3.95 2.03 0.846	0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 4.00 2.00 1.00 Prepared: 2023	3-10-05, Analyze 99 101 85 3-10-06, Analyze	ed: 2023-10-05 90-110 85-115 80-120 ed: 2023-10-06	
LCS (B3J0299-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Nitrate (as N)	3.95 2.03 0.846 3.82	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L	Prepared: 2023 4.00 2.00 1.00 Prepared: 2023 4.00	3-10-05, Analyze 99 101 85 3-10-06, Analyze 96	ed: 2023-10-05 90-110 85-115 80-120 ed: 2023-10-06 90-110	
LCS (B3J0299-BS1) Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3J0299-BS2) Nitrate (as N) Nitrate (as N) Nitrite (as N)	3.95 2.03 0.846 3.82 2.01	0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 4.00 2.00 1.00 Prepared: 2023 4.00 2.00	3-10-05, Analyze 99 101 85 3-10-06, Analyze 96 100	ed: 2023-10-05 90-110 85-115 80-120 ed: 2023-10-06 90-110 85-115	

General Parameters, Batch B3J0211

Blank (B3J0211-BLK1)			Prepared: 202	23-10-04, Analyze	ed: 2023-10-04	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3J0211-BLK2)			Prepared: 202	23-10-04, Analyze	ed: 2023-10-04	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3J0211-BLK3)			Prepared: 202	23-10-04, Analyze	ed: 2023-10-04	4
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3J0211-BS1)			Prepared: 202	23-10-04, Analyze	ed: 2023-10-04	4
Ammonia, Total (as N)	0.932	0.050 mg/L	1.00	93	85-115	
LCS (B3J0211-BS2)			Prepared: 202	23-10-04, Analyze	ed: 2023-10-04	4
Ammonia, Total (as N)	0.942	0.050 mg/L	1.00	94	85-115	



REPORTED TO PROJECT	Lake Country, District Raw Influent- PE1465	of (Wastev 1	water)			WORK C REPORT	RDER ED	23J0 2023	306 -10-11	15:02
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3J0211, Contin	ued								
LCS (B3J0211-BS3)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-04		
Ammonia, Total (as N)		0.912	0.050 mg/L	1.00		91	85-115			
General Parameters	s, Batch B3J0303									
Blank (B3J0303-BL	K1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-09		
BOD, 5-day Carbonad	eous	< 2.0	2.0 mg/L							
LCS (B3J0303-BS1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-09		
BOD, 5-day Carbonad	eous	171	29.7 mg/L	198		86	85-115			
General Parameters	, Batch B3J0304									
Blank (B3J0304-BL	K1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-09		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B3J0304-BS1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-09		
BOD, 5-day		203	40.9 mg/L	198		102	85-115			
General Parameters	s, Batch B3J0305									
Blank (B3J0305-BL	K1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BL	K2)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BL	K3)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3J0305-BL	K4)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3J0305-BS1)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J0305-BS2)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	0.106	0.0050 mg/L	0.100		106	85-115			
LCS (B3J0305-BS3)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J0305-BS4)			Prepared	: 2023-10-04,	Analyzed	: 2023-1	0-05		
Phosphorus, Total (as	P)	0.106	0.0050 mg/L	0.100		106	85-115			

General Parameters, Batch B3J0689

Blank (B3J0689-BLK1)			Prepared: 2023-10-07, Analyzed: 2023-10-07
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 (B3J0689-BLK2)			Prepared: 2023-10-07, Analyzed: 2023-10-07
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L	

Γ



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	ict of (Wastewa l651	iter)			WORK REPOR	ORDER	23J0 2023	306 -10-11	15:02
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J0689, Co	ntinued								
Blank (B3J0689-BLK2), Continued			Prepared	I: 2023-10-0	7, Analyze	d: 2023-	10-07		
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 (B3J0689-BLK3)			Prepared	l: 2023-10-0	7, Analyze	d: 2023-	10-07		
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							
			Droporod	1. 2022 10 0		4. 2022	10.07		
	110	10 mg/	-Tepareu	1. 2023-10-0		u. 2023-	10-07		
Alkalinity, Phenolophthalein (as CaCO3)	55.1	1.0 mg/L	50.0		110	0-200			
			5.00						
LCS (B3J0689-BS2)			Prepared	1: 2023-10-0	17, Analyze	d: 2023-	10-07		
Alkalinity, Total (as CaCO3)	109	1.0 mg/L	100		109	80-120			
Alkalinity, Phenoiphthalein (as CaCO3)	50.1	1.0 mg/L	50.0		112	0-200			
LCS (B3J0689-BS3)			Prepared	I: 2023-10-0	7, Analyze	d: 2023-	10-07		
Alkalinity, Total (as CaCO3)	110	1.0 mg/L	100		110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	51.4	1.0 mg/L	50.0		103	0-200			
Reference (B3J0689-SRM1)			Prepared	l: 2023-10-0	7, Analyze	d: 2023-	10-07		
pH	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J0689-SRM2)			Prepared	I: 2023-10-0	7, Analyze	d: 2023-	10-07		
pH	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J0689-SRM3)			Prepared	I: 2023-10-0	7. Analvze	d: 2023-	10-07		
pH	7.04	0.10 pH units	7.01		100	98-102			
Compared Development Auro - Details D2 (0720)									
Blank (B3.10726-Bi K1)			Prenared	1: 2023-10-0	9 Analyze	d: 2023-	10-10		
Nitrogen. Total Kieldahl	< 0.050	0.050 ma/L			_,,				
Blank (B3J0726-BLK2)	0.000	,	Prepared	l: 2023-10-0	9. Analvze	d: 2023-	10-10		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
L CS (B3 10726-BS1)		0 *	Propared	I. 2023-10-0		d. 2023-	10-10		
Nitrogen Total Kieldahl	0.964	0.050 mg/l	1 00	1. 2023-10-0	9, Analyze	85-115	10-10		
	0.004	0.000 mg/L	Due:		0 Am - 1	4. 0000	10.40		
LCS (B3J0726-BS2)		0.050 "	Prepared	1: 2023-10-0	9, Analyze	d: 2023-	10-10		
Nitrogen, Iotal Kjeldani	0.983	0.050 mg/L	1.00		98	85-115			
General Parameters, Batch B3J0754									
Blank (B3J0754-BLK1)			Prepared	I: 2023-10-1	0, Analyze	d: 2023-	10-10		
Solids, Total Suspended	< 2.0	2.0 mg/L							



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23K2725
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-11-22 13:33 / 14.1°C 2023-11-29 15:27 45252.44479

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🔰 🛛 Ahea

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

Uranium

Zinc

Vanadium

Zirconium

REPORTED TO PROJECT	Lake Country, District of (Waste BioSolids- PE14651	District of (Wastewater) 14651			WORK ORDER REPORTED	23K2725 2023-11-29 15:27	
Analyte		Result		RL	Units	Analyzed	Qualifier
Biosolids (E2336	28) (23K2725-01) Matrix: Sludg	ge Samp	bled: 2023-11-22 11:00				
General Parameter	5						
Moisture		80.5		1.0	% wet	2023-11-27	
Nitrogen, Total Kje	Idahl	5.12	0.0	004	% dry	2023-11-28	
Solids, Total		19.4		0.1	% wet	2023-11-29	
Solids, Volatile		82.6		0.1	% dry	2023-11-29	
Strong Acid Leach	ble Metals						
Aluminum		7280		40	mg/kg dry	2023-11-26	
Antimony		1.91		0.10	mg/kg dry	2023-11-26	
Arsenic		3.65		0.30	mg/kg dry	2023-11-26	
Barium		189		1.0	mg/kg dry	2023-11-26	
Beryllium		0.13		0.10	mg/kg dry	2023-11-26	
Bismuth		36.1		0.10	mg/kg dry	2023-11-26	
Boron		23.1		2.0	mg/kg dry	2023-11-26	
Cadmium		1.31	0	.040	mg/kg dry	2023-11-26	
Calcium		22300		100	mg/kg dry	2023-11-26	
Chromium		18.2		1.0	mg/kg dry	2023-11-26	
Cobalt		1.95		0.10	mg/kg dry	2023-11-26	
Copper		677		0.40	mg/kg dry	2023-11-26	
Iron		6080		20.0	mg/kg dry	2023-11-26	
Lead		10.1		0.20	mg/kg dry	2023-11-26	
Lithium		1.77		0.10	mg/kg dry	2023-11-26	
Magnesium		5770		10	mg/kg dry	2023-11-26	
Manganese		179		0.40	mg/kg dry	2023-11-26	
Mercury		0.696	0	.040	mg/kg dry	2023-11-26	
Molybdenum		14.7		0.10	mg/kg dry	2023-11-26	
Nickel		15.2		0.60	mg/kg dry	2023-11-26	
Phosphorus		22100		10	mg/kg dry	2023-11-26	
Potassium		5850		40	mg/kg dry	2023-11-26	
Selenium		5.39	I	0.20	mg/kg dry	2023-11-26	
Silver		2.05	1	0.10	mg/kg dry	2023-11-26	
Sodium		1770		50	mg/kg dry	2023-11-26	
Strontium		171		0.20	mg/kg dry	2023-11-26	
Sulfur		10400	1	000	mg/kg dry	2023-11-26	
Tellurium		< 0.10		0.10	mg/kg dry	2023-11-26	
Thallium		< 0.10		0.10	mg/kg dry	2023-11-26	
Thorium		< 0.50		0.50	mg/kg dry	2023-11-26	
Tin		22.0		0.20	mg/kg dry	2023-11-26	
Titanium		84.8		1.0	mg/kg dry	2023-11-26	
Tungsten		1.09		0.20	mg/kg dry	2023-11-26	

0.050 mg/kg dry

1.0 mg/kg dry

2.0 mg/kg dry

2.0 mg/kg dry

14.4

8.5

909

8.5

2023-11-26

2023-11-26

2023-11-26

2023-11-26

Г



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** BioSolids- PE14651 PROJECT

WORK ORDER 23K2725 REPORTED

2023-11-29 15:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	~	Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Solids, Total in Solid	SM 2540 G (2020)	Gravimetry		Richmond
Solids, Volatile in Solid	SM 2540 G (2020)	Gravimetry		Richmond

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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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 quidelines in any way.



REPORTED TO	Lake Country, District of (Wastewater)	WORK ORDER	23K2725
PROJECT	BioSolids- PE14651	REPORTED	2023-11-29 15:27

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	Source	% REC	REC	% RPD	RPD	Qualifier
, and yes	Rooun		Level	Result	/01120	Limit	<i>/</i> 010 D	Limit	quainor

General Parameters, Batch B3K2670

Blank (B3K2670-BLK1)			Prepared: 202	3-11-27, Analyz	ed: 2023-11-28		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet					
Duplicate (B3K2670-DUP1)	So	urce: 23K2725-01	Prepared: 202	3-11-27, Analyz	ed: 2023-11-28		
Nitrogen, Total Kjeldahl	5.34	0.0004 % dry	5	.12	4	25	
Reference (B3K2670-SRM1)			Prepared: 202	3-11-27, Analyz	ed: 2023-11-28		
Nitrogen, Total Kjeldahl	0.172	0.010 % wet	0.197	87	58.8-150		

Strong Acid Leachable Metals, Batch B3K2616

Blank (B3K2616-BLK1)			Prepared: 2023-11-26, Analyzed: 2023-11-26
Aluminum	< 40	40 mg/kg dry	
Antimony	< 0.10	0.10 mg/kg dry	
Arsenic	< 0.30	0.30 mg/kg dry	
Barium	< 1.0	1.0 mg/kg dry	
Beryllium	< 0.10	0.10 mg/kg dry	
Bismuth	< 0.10	0.10 mg/kg dry	
Boron	< 2.0	2.0 mg/kg dry	
Cadmium	< 0.040	0.040 mg/kg dry	
Calcium	< 100	100 mg/kg dry	
Chromium	< 1.0	1.0 mg/kg dry	
Cobalt	< 0.10	0.10 mg/kg dry	
Copper	< 0.40	0.40 mg/kg dry	
Iron	< 20.0	20.0 mg/kg dry	
Lead	< 0.20	0.20 mg/kg dry	
Lithium	< 0.10	0.10 mg/kg dry	
Magnesium	< 10	10 mg/kg dry	
Manganese	< 0.40	0.40 mg/kg dry	
Mercury	< 0.040	0.040 mg/kg dry	
Molybdenum	< 0.10	0.10 mg/kg dry	
Nickel	< 0.60	0.60 mg/kg dry	
Phosphorus	< 10	10 mg/kg dry	
Potassium	< 40	40 mg/kg dry	
Selenium	< 0.20	0.20 mg/kg dry	
Silver	< 0.10	0.10 mg/kg dry	
Sodium	< 50	50 mg/kg dry	



REPORTED TO Lake Country, PROJECT BioSolids- PE ²	District of (Wastewa 14651	ter)			WORK REPOR	ORDER	23K2 2023	2725 -11-29	15:27
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leachable Metals, Batc	ch B3K2616, Continue	d							
Blank (B3K2616-BLK1), Continued			Prepared	d: 2023-11-2	6, Analyze	d: 2023-1	1-26		
Strontium	< 0.20	0.20 mg/kg dry							
Sulfur	< 1000	1000 mg/kg dry							
Tellurium	< 0.10	0.10 mg/kg dry							
Thallium	< 0.10	0.10 mg/kg dry							
Thorium	< 0.50	0.50 mg/kg dry							
Tin	< 0.20	0.20 mg/kg dry							
Titanium	< 1.0	1.0 mg/kg dry							
Tungsten	< 0.20	0.20 mg/kg dry							
Uranium	< 0.050	0.050 mg/kg dry							
Vanadium	< 1.0	1.0 mg/kg dry							
Zinc	< 2.0	2.0 mg/kg dry							
Zirconium	< 2.0	2.0 mg/kg dry							
LCS (B3K2616-BS1)			Prepared	d: 2023-11-2	6, Analyze	d: 2023-1	1-26		
Aluminum	203	40 mg/kg dry	200		102	80-120			
Antimony	2.00	0.10 mg/kg dry	2.00		100	80-120			
Arsenic	20.2	0.30 mg/kg dry	20.0		101	80-120			
Barium	2.1	1.0 mg/kg dry	2.00		103	80-120			
Beryllium	2.04	0.10 mg/kg dry	2.00		102	80-120			
Bismuth	1.98	0.10 mg/kg dry	2.00		99	80-120			
Boron	21.1	2.0 mg/kg dry	20.0		106	80-120			
	2.00	0.040 mg/kg dry	2.00		100	80-120			
Chromium	207	1.0 mg/kg dry	200		104	80 120			
Cabalt	2.1		2.00		104	80 120			
	2.00		2.00		103	80-120			
Iron	218	20.0 mg/kg dry	2.00		104	80-120			
Lead	2.03	0.20. mg/kg dry	2.00		103	80-120			
	2.00	0.10 mg/kg dry	2.00		101	80-120			
Magnesium	208	10 mg/kg dry	200		104	80-120			
Magnese	2.11	0.40 mg/kg dry	2.00		101	80-120			
Mercurv	0.203	0.040 mg/kg dry	0.200		102	80-120			
Molvbdenum	2.02	0.10 ma/ka drv	2.00		101	80-120			
Nickel	2.05	0.60 mg/kg dry	2.00		103	80-120			
Phosphorus	199	10 mg/kg dry	200		99	80-120			
Potassium	209	40 mg/kg dry	200		105	80-120			
Selenium	20.4	0.20 mg/kg dry	20.0		102	80-120			
Silver	2.08	0.10 mg/kg dry	2.00		104	80-120			
Sodium	201	50 mg/kg dry	200		101	80-120			
Strontium	2.02	0.20 mg/kg dry	2.00		101	80-120			
Sulfur	2040	1000 mg/kg dry	2000		102	80-120			
Tellurium	1.97	0.10 mg/kg dry	2.00		98	80-120			
Thallium	1.93	0.10 mg/kg dry	2.00		97	80-120			
Thorium	2.15	0.50 mg/kg dry	2.00		108	80-120			
Tin	2.05	0.20 mg/kg dry	2.00		102	80-120			
Titanium	2.4	1.0 mg/kg dry	2.00		121	80-120			MES
Tungsten	2.09	0.20 mg/kg dry	2.00		105	80-120			
Uranium	2.08	0.050 mg/kg dry	2.00		104	80-120			
Vanadium	2.0	1.0 mg/kg dry	2.00		100	80-120			
	20.2	2.0 mg/kg dry	20.0		101	80-120			
∠irconium	2.1	2.0 mg/kg dry	2.00		103	80-120			
Reference (B3K2616-SRM1)			Prepared	d: 2023-11-2	6, Analyze	d: 2023-1	1-26		
Aluminum	12100	40 mg/kg dry	12100		100	70-130			
Antimony	0.64	0.10 mg/kg dry	0.634		100	70-130			
Arsenic	81.6	0.30 mg/kg dry	83.6		98	70-130			

Γ



REPORTED TO PROJECT	PORTED TO Lake Country, District of (Wastewater) DJECT BioSolids- PE14651			WORK ORDER REPORTED		23K2 2023	23K2725 2023-11-29 15:27		
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals,Batch B3K2616, Contin	ued							
Reference (B3K26	(16-SRM1), Continued		Prepared	1: 2023-11-2	26. Analvze	d: 2023-1	1-26		

Barium	42.9	1.0 mg/kg dry	41.4	104	70-130	
Beryllium	0.37	0.10 mg/kg dry	0.377	99	70-130	
Bismuth	0.28	0.10 mg/kg dry	0.291	97	70-130	
Calcium	5420	100 mg/kg dry	5380	101	70-130	
Chromium	66.8	1.0 mg/kg dry	66.0	101	70-130	
Cobalt	10.4	0.10 mg/kg dry	10.8	96	70-130	
Copper	20.3	0.40 mg/kg dry	20.3	100	70-130	
Iron	20100	20.0 mg/kg dry	20400	99	70-130	
Lead	16.6	0.20 mg/kg dry	16.7	100	70-130	
Lithium	16.6	0.10 mg/kg dry	16.8	99	70-130	
Magnesium	5990	10 mg/kg dry	6170	97	70-130	
Manganese	312	0.40 mg/kg dry	319	98	70-130	
Mercury	0.107	0.040 mg/kg dry	0.114	94	70-130	
Molybdenum	0.62	0.10 mg/kg dry	0.607	102	70-130	
Nickel	31.3	0.60 mg/kg dry	32.5	96	70-130	
Phosphorus	422	10 mg/kg dry	432	98	70-130	
Silver	1.48	0.10 mg/kg dry	1.55	95	70-130	
Strontium	22.3	0.20 mg/kg dry	22.5	99	70-130	
Thallium	< 0.10	0.10 mg/kg dry	0.0765	99	70-130	
Thorium	2.73	0.50 mg/kg dry	2.96	92	70-130	
Titanium	795	1.0 mg/kg dry	730	109	70-130	
Uranium	1.13	0.050 mg/kg dry	1.15	98	70-130	
Vanadium	35.5	1.0 mg/kg dry	36.3	98	70-130	
Zinc	38.6	2.0 mg/kg dry	39.7	97	70-130	

QC Qualifiers:

MES A number up to 10% (rounded down) of the analytes in a Multi-Element Scan may exceed control limits by up to 10% (absolute).



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23K2902
PO NUMBER PROJECT PROJECT INFO	Amry- MR17842 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-11-23 14:12 / 12.1°C 2023-11-30 13:14 45253.55601

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater) PROJECT Amry- MR17842		WORK ORDE REPORTED	ER 23K2902 2023-11-30	0 13:14	
Analyte		Result	RL Units	Analyzed	Qualifier
Amry (E262982) (23K2902-01) Matrix: W	astewater Sampled: 2023-11	-23 11:37		
General Parameter	'S				
BOD, 5-day Carbo	onaceous	< 5.5	2.0 mg/L	2023-11-30	
Solids, Total Susp	ended	7.8	2.0 mg/L	2023-11-28	



APPENDIX 1: SUPPORTING INFORMATION

Lake Country, District of (Wastewater) **REPORTED TO** Amry- MR17842 PROJECT

WORK ORDER 23K2902 REPORTED

2023-11-30 13:14

Analysis Description	Method Ref.	Technique	Accredited	Location
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
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)	WORK ORDER	23K2902
PROJECT	Amry- MR17842	REPORTED	2023-11-30 13:14

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
General Parameters, Batch B3K2570									
Blank (B3K2570-BLK1)			Prepared	l: 2023-11-2	25, Analyze	d: 2023-´	11-30		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3K2570-BS1)			Prepared	I: 2023-11-2	25, Analyze	d: 2023-´	11-30		
BOD, 5-day Carbonaceous	190	45.6 mg/L	198		96	85-115			
General Parameters, Batch B3K2737									
Blank (B3K2737-BLK1)	Prepared: 2023-11-28, Analyzed: 2023-11-28								
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B3K2737-BS1)			Prepared	l: 2023-11-2	28, Analyze	d: 2023-´	11-28		
Solids, Total Suspended	87.0	10.0 mg/L	100		87	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	23K2722
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-11-22 13:33 / 14.1°C 2023-11-29 13:16 45252.44479

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, Dist PROJECT Raw Influent- PE1		t of (Wastewater) 51		WORK ORDER REPORTED	23K2722 2023-11-2	9 13:16	
Analyte		Result	RL	Units	Analyzed	Qualifier	
Raw Influent (E23362	27) (23K2722-01) M	atrix: Wastewater Samp	led: 2023-11-22 10:55				
Anions							
Nitrate (as N)		< 0.010	0.010	mg/L	2023-11-23		
Nitrite (as N)		< 0.010	0.010	mg/L	2023-11-23		
Phosphate (as P)		4.92	0.0050	mg/L	2023-11-23	RA5	
Calculated Parameters	;						
Nitrate+Nitrite (as N)		< 0.0100	0.0100	mg/L	N/A		
Nitrogen, Total		86.3	2.00	mg/L	N/A		
General Parameters							
Alkalinity, Total (as Ca	CO3)	369	1.0	mg/L	2023-11-24		
Alkalinity, Phenolphtha	alein (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24		
Alkalinity, Bicarbonate	(as CaCO3)	369	1.0	mg/L	2023-11-24		
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24		
Alkalinity, Hydroxide (a	as CaCO3)	< 1.0	1.0	mg/L	2023-11-24		
Ammonia, Total (as N))	60.2	0.050	mg/L	2023-11-25		
BOD, 5-day		462	2.0	mg/L	2023-11-29		
BOD, 5-day Carbonad	ceous	425	2.0	mg/L	2023-11-29		
Nitrogen, Total Kjeldal	nl	86.3	0.050	mg/L	2023-11-26		
рН		7.59	0.10	pH units	2023-11-24	HT2	
Phosphorus, Total (as	P)	11.0	0.0050	mg/L	2023-11-24		
Solids, Total Suspend	ed	362	2.0	mg/L	2023-11-28		

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
 RA5 The sample cannot be accurately quantified due to matrix interference. Result is Semi-Quantitative.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED 23K2722 2023-11-29 13:16

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23K2722
PROJECT	Raw Influent- PE14651	REPORTED	2023-11-29 13:16

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result	/01120	Limit	Limit	Quu

Anions, Batch B3K2322

Blank (B3K2322-BLK1)			Prepared: 20	23-11-23, Analyze	d: 2023-11-23	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
Blank (B3K2322-BLK2)			Prepared: 20	23-11-23, Analyze	d: 2023-11-23	
Nitrate (as N)	< 0.010	0.010 mg/L				
Nitrite (as N)	< 0.010	0.010 mg/L				
LCS (B3K2322-BS1)			Prepared: 20	23-11-23, Analyze	d: 2023-11-23	
Nitrate (as N)	3.93	0.010 mg/L	4.00	98	90-110	
Nitrite (as N)	2.14	0.010 mg/L	2.00	107	85-115	
Phosphate (as P)	0.984	0.0050 mg/L	1.00	98	80-120	
LCS (B3K2322-BS2)			Prepared: 20	23-11-23, Analyze	d: 2023-11-23	
Nitrate (as N)	4.04	0.010 mg/L	4.00	101	90-110	
Nitrite (as N)	2.08	0.010 mg/L	2.00	104	85-115	
Phosphate (as P)	0.979	0.0050 mg/L	1.00	98	80-120	

General Parameters, Batch B3K2371

Blank (B3K2371-BLK1)			Prepared: 202	23-11-24, Analyze	ed: 2023-11-24		
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 (B3K2371-BLK2)			Prepared: 202	23-11-24, Analyze	ed: 2023-11-24		
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 (B3K2371-BS1)			Prepared: 2023-11-24, Analyzed: 2023-11-24				
Alkalinity, Total (as CaCO3)	103	1.0 mg/L	100	103	80-120		
Alkalinity, Phenolphthalein (as CaCO3)	60.4	1.0 mg/L	50.0	121	0-200		



REPORTED TO Lake Country, Distr PROJECT Raw Influent- PE14	District of (Wastewater) E14651				WORK (REPORT	ORDER TED	23K2 2023	2722 -11-29	29 13:16	
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters, Batch B3K2371, Co	ntinued									
LCS (B3K2371-BS2)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-24			
Alkalinity, Total (as CaCO3)	101	1.0 mg/L	100		101	80-120				
Alkalinity, Phenolphthalein (as CaCO3)	54.3	1.0 mg/L	50.0		109	0-200				
Reference (B3K2371-SRM1)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-24			
рН	7.03	0.10 pH units	7.01		100	98-102				
Reference (B3K2371-SRM2)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-24			
рН	7.02	0.10 pH units	7.01		100	98-102				
General Parameters, Batch B3K2405 Blank (B3K2405-BLK1)			Prepared	: 2023-11-23	3, Analyzed	: 2023-1	1-24			
Phosphorus, Iotal (as P)	< 0.0050	0.0050 mg/L								
Blank (B3K2405-BLK2)			Prepared	: 2023-11-2	3, Analyzed	: 2023-1	1-24			
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L								
LCS (B3K2405-BS1)			Prepared	: 2023-11-23	3, Analyzed	: 2023-1	1-24			
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100		104	85-115				
LCS (B3K2405-BS2)			Prepared	: 2023-11-23	3, Analyzed	: 2023-1	1-24			
Phosphorus, Total (as P)	0.103	0.0050 mg/L	0.100		103	85-115				
General Parameters, Batch B3K2458			Drenered	. 0000 44 0		0000 4	1.00			
Blank (B3K2458-BLK1)	< 2.0	2.0 mg/l	Prepared	2023-11-24	4, Analyzeo	: 2023-1	1-29			
	< 2.0	2.0 mg/L		0000 44 0		0000 4				
LCS (B3K2458-BS1)	105	10.7 "	Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-29			
BOD, 5-day Carbonaceous	195	46.7 mg/L	198		99	85-115				
General Parameters, Batch B3K2459										
Blank (B3K2459-BLK1)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-29			
BOD, 5-day	< 2.0	2.0 mg/L								
LCS (B3K2459-BS1)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-29			
BOD, 5-day	204	58.5 mg/L	198		103	85-115				
General Parameters,Batch B3K2486										
Blank (B3K2486-BLK1)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-26			
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L								
Blank (B3K2486-BLK2)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-26			
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L			-					
LCS (B3K2486-BS1)			Prepared	: 2023-11-24	4, Analyzed	: 2023-1	1-26			
Nitrogen, Total Kjeldahl	0.867	0.050 mg/L	1.00		87	85-115				
LCS (B3K2486-BS2)		-	Prepared	: 2023-11-24	4. Analvzed	: 2023-1	1-26			
Nitrogen, Total Kjeldahl	0.879	0.050 mg/L	1.00		88	85-115				
		J ¹								

General Parameters, Batch B3K2567



REPORTED TO PROJECT	Lake Country, Di Raw Influent- PE	strict of (Wastewa 14651	ter)			WORK REPOF	ORDER RTED	23K2 2023	2722 3-11-29	13:16
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameter	rs, Batch B3K2567,	Continued								
Blank (B3K2567-E	BLK1)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	< 0.050	0.050 mg/L							
Blank (B3K2567-E	BLK2)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	< 0.050	0.050 mg/L							
Blank (B3K2567-E	BLK3)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	< 0.050	0.050 mg/L							
Blank (B3K2567-E	BLK4)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	< 0.050	0.050 mg/L							
LCS (B3K2567-BS	51)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	0.928	0.050 mg/L	1.00		93	85-115			
LCS (B3K2567-BS	32)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	0.920	0.050 mg/L	1.00		92	85-115			
LCS (B3K2567-BS	3)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	0.928	0.050 mg/L	1.00		93	85-115			
LCS (B3K2567-BS	64)			Prepared	: 2023-11-2	5, Analyze	ed: 2023-1	1-25		
Ammonia, Total (as I	N)	0.920	0.050 mg/L	1.00		92	85-115			
General Parameter	rs, Batch B3K2737									
Blank (B3K2737-E	BLK1)			Prepared	: 2023-11-2	8, Analyze	d: 2023-1	1-28		
Solids, Total Suspen	ded	< 2.0	2.0 mg/L							
LCS (B3K2737-BS	51)			Prepared	: 2023-11-2	8, Analyze	ed: 2023-1	1-28		
Solids, Total Suspen	ded	87.0	10.0 mg/L	100		87	85-115			
Duplicate (B3K27	37-DUP1)	Sour	ce: 23K2722-01	Prepared	: 2023-11-2	8, Analyze	ed: 2023-1	1-28		
Solids, Total Suspen	ded	334	2.0 mg/L		362			8	20	



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23K2723
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-11-22 13:33 / 14.1°C 2023-11-29 14:49 45252.44479

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.

We've Got Chemistry

Big Picture Sidekicks



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.

Ahea

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO Lake Country, District of (Wastewater) PROJECT Final Effluent- PE14651				WORK ORDER REPORTED	23K2723 2023-11-2	9 14:49
Analyte		Result	RL	Units	Analyzed	Qualifier
Final Effluent (E2	233626) (23K2723-01) M	latrix: Wastewater Samp	led: 2023-11-22 10:50			
Anions						
Chloride		141	0.10	mg/L	2023-11-23	
Nitrate (as N)		3.52	0.010	mg/L	2023-11-23	
Nitrite (as N)		0.102	0.010	mg/L	2023-11-23	
Phosphate (as P)		0.571	0.0050	mg/L	2023-11-23	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	3.62	0.0100	ma/L	N/A	
Nitrogen Total	,	4 99	0.0500	mg/l	N/A	
Nitrogen, Organic		1.30	0.0500	mg/L	N/A	
General Parameter	rs					
Alkalinity, Total (as	s CaCO3)	177	1.0	mg/L	2023-11-24	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24	
Alkalinity, Bicarbo	nate (as CaCO3)	177	1.0	mg/L	2023-11-24	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24	
Ammonia, Total (a	as N)	0.073	0.050	mg/L	2023-11-25	
BOD, 5-day Carbo	onaceous	< 2.8	2.0	mg/L	2023-11-29	
Nitrogen, Total Kje	eldahl	1.37	0.050	mg/L	2023-11-26	
pH		7.49	0.10	pH units	2023-11-24	HT2
Phosphorus, Total	l (as P)	0.930	0.0050	mg/L	2023-11-24	
Solids, Total Susp	ended	< 2.0	2.0	mg/L	2023-11-28	
Microbiological Pa	rameters					
Coliforms. Total (C	Q-Trav)	77000	1	MPN/100 mL	2023-11-23	
Coliforms, Fecal (Q-Tray)	6370	1	MPN/100 mL	2023-11-23	
Trip Blank (23K2	723-02) Matrix: Wastew	ater Sampled: 2023-11-2	2 11:00			
Anions						
Chloride		< 0.10	0.10	mg/L	2023-11-23	
Nitrate (as N)		< 0.010	0.010	mg/L	2023-11-23	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-11-23	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-11-23	
Calculated Parame	eters					

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			

Alkalinity, Total (as CaCO3)	1.3	1.0 mg/L	2023-11-24
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L	2023-11-24
Alkalinity, Bicarbonate (as CaCO3)	1.3	1.0 mg/L	2023-11-24



TEST RESULTS

REPORTED TO PROJECT	Lake Country, Distr Final Effluent- PE1	ict of (Wastewater) 4651		WORK ORDER REPORTED	23K2723 2023-11-2	9 14:49
Analyte		Result	RL	Units	Analyzed	Qualifier
Trip Blank (23K2	723-02) Matrix: Was	stewater Sampled: 2023-1	11-22 11:00, Continued			
General Parameter	rs, Continued					
Alkalinity, Carbon	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-11-24	
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-11-25	
BOD, 5-day Carbo	onaceous	< 2.8	2.0	mg/L	2023-11-29	
Nitrogen, Total Kje	əldahl	< 0.050	0.050	mg/L	2023-11-26	
pН		6.15	0.10	pH units	2023-11-24	HT2
Phosphorus, Tota	l (as P)	< 0.0050	0.0050	mg/L	2023-11-24	
Solids, Total Susp	ended	< 2.0	2.0	mg/L	2023-11-28	
Microbiological Pa	arameters					
Coliforms, Total (C	Q-Tray)	< 1	1	MPN/100 mL	2023-11-23	
Coliforms, Fecal (Q-Tray)	< 1	1	MPN/100 mL	2023-11-23	
Sample Qualifie	ers:					
HT2 The 1 recomm	5 minute recommen nended.	ided holding time (from	sampling to analysis) ha	as been exceed	ed - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER REPORTED

23K2723 2023-11-29 14:49

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	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	\checkmark	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)	\checkmark	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)	WORK ORDER	23K2723
PROJECT	Final Effluent- PE14651	REPORTED	2023-11-29 14:49

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	RI Units	Spike	Source	% REC	REC	% RPD RPD	Qualifier
, analyte	Rooun		Level	Result	<i>/</i> 01120	Limit	Limit	quainoi

Anions, Batch B3K2322

Blank (B3K2322-BLK1)			Prepared: 2023	3-11-23, Analyze	d: 2023-11-23	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
Blank (B3K2322-BLK2)			Prepared: 2023	3-11-23, Analyze	d: 2023-11-23	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3K2322-BS1)			Prepared: 2023	3-11-23, Analyze	d: 2023-11-23	
LCS (B3K2322-BS1) Chloride	16.2	0.10 mg/L	Prepared: 2023 16.0	3-11-23, Analyze 102	d: 2023-11-23 90-110	
LCS (B3K2322-BS1) Chloride Nitrate (as N)	16.2 3.93	0.10 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00	3-11-23, Analyze 102 98	d: 2023-11-23 90-110 90-110	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N)	16.2 3.93 2.14	0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00	3-11-23, Analyze 102 98 107	d: 2023-11-23 90-110 90-110 85-115	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P)	16.2 3.93 2.14 0.984	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00	3-11-23, Analyze 102 98 107 98	d: 2023-11-23 90-110 90-110 85-115 80-120	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3K2322-BS2)	16.2 3.93 2.14 0.984	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023	3-11-23, Analyze 102 98 107 98 3-11-23, Analyze	d: 2023-11-23 90-110 90-110 85-115 80-120 d: 2023-11-23	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3K2322-BS2) Chloride	16.2 3.93 2.14 0.984 16.1	0.10 mg/L 0.010 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0	3-11-23, Analyze 102 98 107 98 3-11-23, Analyze 100	d: 2023-11-23 90-110 90-110 85-115 80-120 d: 2023-11-23 90-110	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3K2322-BS2) Chloride Nitrate (as N)	16.2 3.93 2.14 0.984 16.1 4.04	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00	3-11-23, Analyze 102 98 107 98 3-11-23, Analyze 100 101	d: 2023-11-23 90-110 90-110 85-115 80-120 d: 2023-11-23 90-110 90-110	
LCS (B3K2322-BS1) Chloride Nitrate (as N) Nitrite (as N) Phosphate (as P) LCS (B3K2322-BS2) Chloride Nitrate (as N) Nitrite (as N)	16.2 3.93 2.14 0.984 16.1 4.04 2.08	0.10 mg/L 0.010 mg/L 0.0050 mg/L 0.10 mg/L 0.010 mg/L 0.010 mg/L	Prepared: 2023 16.0 4.00 2.00 1.00 Prepared: 2023 16.0 4.00 2.00	3-11-23, Analyze 102 98 107 98 3-11-23, Analyze 100 101 104	d: 2023-11-23 90-110 90-110 85-115 80-120 d: 2023-11-23 90-110 90-110 85-115	

General Parameters, Batch B3K2371

		Prepared: 2023-11-24, Analyzed: 2023-11-24
< 1.0	1.0 mg/L	
		Prepared: 2023-11-24, Analyzed: 2023-11-24
< 1.0	1.0 mg/L	
< 1.0	1.0 mg/L	
< 1.0	1.0 mg/L	
	< 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0	< 1.0 1.0 mg/L < 1.0 1.0 mg/L



REPORTED TO Lake Country, Distri PROJECT Final Effluent- PE14	District of (Wastewater) PE14651				WORK ORDER REPORTED		23K2723 2023-11-29		14:49
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3K2371, Cor	ntinued								
Blank (B3K2371-BLK2), Continued			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-24		
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3K2371-BS1)			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-24		
Alkalinity, Total (as CaCO3)	103	1.0 mg/L	100		103	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	60.4	1.0 mg/L	50.0		121	0-200			
LCS (B3K2371-BS2)			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-24		
Alkalinity, Total (as CaCO3)	101	1.0 mg/L	100		101	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	54.3	1.0 mg/L	50.0		109	0-200			
Duplicate (B3K2371-DUP1)	Sou	ırce: 23K2723-01	Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-24		
Alkalinity, Total (as CaCO3)	172	1.0 mg/L		177			3	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	172	1.0 mg/L		177			3	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
pH	7.58	0.10 pH units		7.49			1	4	HT2
Poforonco (B3K2371-SPM1)		•	Prenared	· 2023-11-2	4 Analyze	d. 2023-1	1_24		
nH	7.03	0.10 pH units	7 01	. 2020-11-2	100	98-102	1-24		
	1.00	0.10 pri unito	D	0000 44 0	1. A		4.04		
Reference (B3K2371-SRM2)	7.00	0.40	Prepared	: 2023-11-2	4, Analyze	a: 2023-1	1-24		
рн	7.02	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B3K2405									
Blank (B3K2405-BLK1)			Prepared	: 2023-11-2	3, Analyze	d: 2023-1	1-24		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3K2405-BLK2)			Prepared	: 2023-11-2	3, Analyze	d: 2023-1	1-24		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3K2405-BS1)			Prepared	: 2023-11-2	3, Analyze	d: 2023-1	1-24		
Phosphorus, Total (as P)	0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B3K2405-BS2)			Prepared	: 2023-11-2	3, Analyze	d: 2023-1	1-24		
Phosphorus, Total (as P)	0.103	0.0050 mg/L	0.100		103	85-115			
General Parameters, Batch B3K2458									
Blank (B3K2458-BLK1)			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-29		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L	·						
LCS (B3K2458-BS1)			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-29		
BOD, 5-day Carbonaceous	195	46.7 mg/L	198		99	85-115			
General Parameters, Batch B3K2486									
Blank (B3K2486-BLK1)			Prepared	: 2023-11-2	4, Analyze	d: 2023-1	1-26		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L			2				
Blank (B3K2486-BI K2)		~	Prenared	· 2023-11-2	4 Analyze	d. 2023-1	1-26		
Nitrogen. Total Kieldahl	< 0.050	0.050 ma/L	, iopaidu	. 2020 11-2	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		. 20		



EPORTED TOLake Country, District of (Wastewater)ROJECTFinal Effluent- PE14651				WORK ORDER REPORTED			23K2723 2023-11-29 14:49			
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3K2486, Co	ontinued								
LCS (B3K2486-BS1))			Prepared	: 2023-11-24	4, Analyzec	l: 2023-1	1-26		
Nitrogen, Total Kjeldahl		0.867	0.050 mg/L	1.00		87	85-115			
LCS (B3K2486-BS2))			Prepared	: 2023-11-24	4, Analyzec	l: 2023-1	1-26		
Nitrogen, Total Kjeldahl		0.879	0.050 mg/L	1.00		88	85-115			
General Parameters,	Batch B3K2567									
Blank (B3K2567-BL	K1)			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3K2567-BL	K2)			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		< 0.050	0.050 mg/L							
Blank (B3K2567-BL	K3)			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)	·	< 0.050	0.050 mg/L							
Blank (B3K2567-BL	K4)			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		< 0.050	0.050 mg/L	-						
LCS (B3K2567-BS1))			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		0.928	0.050 mg/L	1.00		93	85-115			
LCS (B3K2567-BS2))			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		0.920	0.050 mg/L	1.00		92	85-115			
LCS (B3K2567-BS3))			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		0.928	0.050 mg/L	1.00		93	85-115			
LCS (B3K2567-BS4))			Prepared	: 2023-11-2	5, Analyzec	l: 2023-1	1-25		
Ammonia, Total (as N)		0.920	0.050 mg/L	1.00		92	85-115			
General Parameters,	Batch B3K2737									
Blank (B3K2737-BL	K1)			Prepared	: 2023-11-2	8, Analyzec	l: 2023-1	1-28		
Solids, Total Suspende	d	< 2.0	2.0 mg/L							
LCS (B3K2737-BS1))			Prepared	: 2023-11-2	8, Analyzec	l: 2023-1	1-28		
Solids, Total Suspende	d	87.0	10.0 mg/L	100		87	85-115			
Microbiological Para	meters, Batch B3K2	2352								
Blank (B3K2352-BL	K1)			Prepared	: 2023-11-2	3, Analyzeo	l: 2023-1	1-23		
Coliforms, Total (Q-Tra	y)	< 1	1 MPN/100	mL						
Blank (B3K2352-BL	K2)			Prepared	: 2023-11-2	3, Analyzeo	l: 2023-1	1-23		
Coliforms, Fecal (Q-Tra	ay)	< 1	1 MPN/100	mL						
Blank (B3K2352-BL	K3)			Prepared	: 2023-11-2	3, Analyzed	l: 2023-1	1-23		
Coliforms, Total (Q-Tra	y)	< 1	1 MPN/100	mL						

QC Qualifiers:

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

Γ


CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23L1913
PO NUMBER PROJECT PROJECT INFO	Final Effluent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED	2023-12-14 13:36 / 9.7°C 2023-12-21 13:52

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.

We've Got Chemistry

Big Picture Sidekicks



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.

칠 A

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



					-	
REPORTED TO Lake Country, District PROJECT Final Effluent- PE14		f (Wastewater)		WORK ORDER REPORTED	23L1913 2023-12-2	1 13:52
Analyte	Result		RL	Units	Analyzed	Qualifier
Final Effluent (E2	233626) (23L1913-01) Ma	atrix: Wastewater Samp	led: 2023-12-14 10:30			
Anions						
Chloride		121	0.10	mg/L	2023-12-15	
Nitrate (as N)		3.43	0.010	mg/L	2023-12-15	
Nitrite (as N)		0.052	0.010	mg/L	2023-12-15	
Phosphate (as P)		0.180	0.0050	mg/L	2023-12-15	
Calculated Parame	eters					
Nitrate+Nitrite (as	5 N)	3.48	0.0100	mg/L	N/A	
Nitrogen, Total		4.98	0.0500	mg/L	N/A	
Nitrogen, Organic	;	1.27	0.0500	mg/L	N/A	
General Parameter	rs					
Alkalinity, Total (a	s CaCO3)	175	1.0	mg/L	2023-12-20	
Alkalinity, Phenol	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Alkalinity, Bicarbo	nate (as CaCO3)	175	1.0	mg/L	2023-12-20	
Alkalinity, Carbon	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Alkalinity, Hydroxi	ide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Ammonia, Total (a	as N)	0.235	0.050	mg/L	2023-12-18	
BOD, 5-day Carb	onaceous	2.5	2.0	mg/L	2023-12-20	
Nitrogen, Total Kje	eldahl	1.50	0.050	mg/L	2023-12-20	
рН		7.63	0.10	pH units	2023-12-20	HT2
Phosphorus, Tota	l (as P)	0.323	0.0050	mg/L	2023-12-20	
Solids, Total Susp	bended	< 4.0	2.0	mg/L	2023-12-20	
Microbiological Pa	arameters					
Coliforms, Total (0	Q-Tray)	112000	1	MPN/100 mL	2023-12-15	
Coliforms, Fecal ((Q-Tray)	31300	1	MPN/100 mL	2023-12-15	
Duplicate (23L19	13-02) Matrix: Wastewa	ter Sampled: 2023-12-14	4 10:32			
Anions						
Chloride		123	0.10	mg/L	2023-12-15	
Nitrate (as N)		3.51	0.010	mg/L	2023-12-15	
Nitrite (as N)		0.053	0.010	mg/L	2023-12-15	
Phosphate (as P)		0.170	0.0050	mg/L	2023-12-15	
Calculated Parame	eters					
Nitrate+Nitrite (as	5 N)	3.57	0.0100	mg/L	N/A	
Nitrogen, Total		5.04	0.0500	mg/L	N/A	

General Parameters Alkalinity, Total (as CaCO3) 174 Alkalinity, Phenolphthalein (as CaCO3) < 1.0 174

1.24

Alkalinity, Bicarbonate (as CaCO3)

Nitrogen, Organic

N/A

2023-12-20

2023-12-20

2023-12-20 Γ

0.0500 mg/L

1.0 mg/L

1.0 mg/L

1.0 mg/L



REPORTED TO Lake Country, D PROJECT Final Effluent- P		rict of (Wastewater) 4651		WORK ORDER REPORTED	23L1913 2023-12-2	21 13:52
Analyte		Result	RL	Units	Analyzed	Qualifier
Duplicate (23L19	13-02) Matrix: Wast	ewater Sampled: 2023-12-14	10:32, Continued			
General Parameter	rs, Continued					
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Ammonia, Total (a	is N)	0.233	0.050	mg/L	2023-12-18	
BOD, 5-day Carbo	onaceous	2.7	2.0	mg/L	2023-12-20	
Nitrogen, Total Kje	əldahl	1.47	0.050	mg/L	2023-12-20	
рН		7.65	0.10	pH units	2023-12-20	HT2
Phosphorus, Total	(as P)	0.321	0.0050	mg/L	2023-12-20	
Solids, Total Susp	ended	< 4.0	2.0	mg/L	2023-12-20	
Microbiological Pa	rameters					
Coliforms, Total (C	Q-Tray)	130000	1	MPN/100 mL	2023-12-15	
Coliforms, Fecal (Q-Tray)	14700	1	MPN/100 mL	2023-12-15	
Sample Qualifie	ers: 5 minute recommen	ded holding time (from sa		as been exceed	ded - field	analysis is

recommended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Final Effluent- PE14651

WORK ORDER 2 REPORTED 2

23L1913 2023-12-21 13:52

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	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	\checkmark	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)	\checkmark	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)	WORK ORDER	23L1913
PROJECT	Final Effluent- PE14651	REPORTED	2023-12-21 13:52

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 B3L2484									
Blank (B3L2484-BLK1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-15		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B3L2484-BS1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-15		
Phosphate (as P)	0.910	0.0050 mg/L	1.00		91	80-120			
Anions, Batch B3L2602									
Blank (B3L2602-BLK1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-15		
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 (B3L2602-BS1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-15		
Chloride	16.2	0.10 mg/L	16.0		101	90-110			
Nitrate (as N)	4.04	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	1.98	0.010 mg/L	2.00		99	85-115			
General Parameters, Batch B3L2552									
Blank (B3L2552-BLK1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-20		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L							
LCS (B3L2552-BS1)			Prepared	: 2023-12-1	5, Analyze	ed: 2023-	12-20		
BOD, 5-day Carbonaceous	200	42.2 mg/L	198		101	85-115			
General Parameters, Batch B3L2697									
Blank (B3L2697-BLK1)			Prepared	: 2023-12-1	8, Analyze	ed: 2023-	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3L2697-BLK2)			Prepared	: 2023-12-1	8, Analyze	ed: 2023-	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3L2697-BLK3)			Prepared	: 2023-12-1	8, Analyze	ed: 2023-	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							



REPORTED TO Lake Country, Dist PROJECT Final Effluent- PE1	rict of (Wastewa 4651	ater)			WORK (REPOR	ORDER TED	23L1 2023	1913 3-12-21	13:52
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3L2697, Co	ontinued								
Plank (P21 2607 PLKA)			Prepared	· 2023-12-1	8 Analyzer	1. 2023-4	12-18		
Ammonia. Total (as N)	< 0.050	0.050 ma/L	Tiepareu	. 2020-12-10	o, Analyzee	1. 2020-	12-10		
LCS (B3I 2697-BS1)			Prenared	· 2023-12-1	8 Analyzer	1. 2023-4	12-18		
Ammonia, Total (as N)	0.979	0.050 mg/L	1.00	. 2020 12 1	98	85-115	12 10		
LCS (B3L2697-BS2)		U	Prepared	· 2023-12-1	8 Analyzed	1· 2023-	12-18		
Ammonia, Total (as N)	0.980	0.050 mg/L	1.00		98	85-115			
LCS (B3L2697-BS3)			Prepared	: 2023-12-18	8. Analvzec	1: 2023-1	12-18		
Ammonia, Total (as N)	0.951	0.050 mg/L	1.00		95	85-115	-		
LCS (B3L2697-BS4)			Prepared	: 2023-12-1	8, Analyzed	1: 2023-´	12-18		
Ammonia, Total (as N)	0.971	0.050 mg/L	1.00		97	85-115			
General Parameters, Batch B3L2879									
Blank (B3L2879-BLK1)			Prepared	: 2023-12-1	9, Analyzeo	l: 2023-′	12-20		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3L2879-BLK2)			Prepared	: 2023-12-1	9, Analyzeo	1: 2023-´	12-20		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3L2879-BS1)			Prepared	: 2023-12-1	9, Analyzeo	1: 2023-´	12-20		
Nitrogen, Total Kjeldahl	1.03	0.050 mg/L	1.00		103	85-115			
LCS (B3L2879-BS2)			Prepared	: 2023-12-1	9, Analyzeo	1: 2023-´	12-20		
Nitrogen, Total Kjeldahl	1.02	0.050 mg/L	1.00		102	85-115			
General Parameters, Batch B3L2931									
Blank (B3L2931-BLK1)			Prepared	: 2023-12-19	9, Analyzeo	1: 2023-	12-20		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3L2931-BLK2)			Prepared	: 2023-12-1	9, Analyzeo	1: 2023-7	12-20		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3L2931-BS1)			Prepared	: 2023-12-19	9, Analyzeo	1: 2023-7	12-20		
Phosphorus, Total (as P)	0.111	0.0050 mg/L	0.100		111	85-115			
LCS (B3L2931-BS2)			Prepared	: 2023-12-1	9, Analyzeo	1: 2023-7	12-20		
Phosphorus, Total (as P)	0.111	0.0050 mg/L	0.100		111	85-115			
General Parameters, Batch B3L2984									
Blank (B3L2984-BLK1)			Prepared	: 2023-12-2	0, Analyzeo	1: 2023-7	12-20		
Alkalinity, Iotal (as CaCO3) Alkalinity, Phenolophthalein (as CaCO3)	< 1.0	1.0 mg/L 1.0 mg/l							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
	< 1.0	i.u mg/∟	Description	. 0000 40 0	0 Anchi-		10.00		
Blank (B3L2984-BLK2)	- 1 0	10	Prepared	: 2023-12-20	u, Analyzeo	1: 2023-7	12-20		
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							



REPORTED TO PROJECT	Lake Country, District c Final Effluent- PE1465	of (Wastewater) 1)			WORK REPOR	ORDER TED	23L1 2023	913 -12-21	13:52
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3L2984, Contin	ued								
Blank (B3L2984-BL	<2), Continued			Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
Alkalinity, Hydroxide (a	as CaCO3)	< 1.0	1.0 mg/L							
Blank (B3L2984-BL	(3)			Prepared:	2023-12-20), Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaC	, CO3)	< 1.0	1.0 mg/L	•						
Alkalinity, Phenolphtha	llein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	(as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (a	as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (a	as CaCO3)	< 1.0	1.0 mg/L							
LCS (B3L2984-BS1)				Prepared:	2023-12-20), Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaC	03)	98.5	1.0 mg/L	100		98	80-120			
Alkalinity, Phenolphtha	llein (as CaCO3)	56.3	1.0 mg/L	50.0		113	0-200			
LCS (B3L2984-BS2)				Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaC	03)	99.0	1.0 mg/L	100		99	80-120			
Alkalinity, Phenolphtha	llein (as CaCO3)	53.5	1.0 mg/L	50.0		107	0-200			
LCS (B3L2984-BS3)				Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
Alkalinity. Total (as CaC	CO3)	107	1.0 ma/L	100		107	80-120			
Alkalinity, Phenolphtha	llein (as CaCO3)	50.3	1.0 mg/L	50.0		101	0-200			
Reference (B3L2984	I-SRM1)		i	Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
pH	-	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3L2984	I-SRM2)			Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
pН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3L2984	I-SRM3)			Prepared	2023-12-20), Analyze	d: 2023-1	2-20		
рН		7.05	0.10 pH units	7.01		101	98-102			
General Parameters, Blank (B3L3070-BLI	Batch B3L3070 <1)			Prepared	2023-12-20), Analyzeo	d: 2023-1	2-20		
Solids, Total Suspende	d	< 2.0	2.0 mg/L							
Microbiological Para	meters, Batch B3L2555									
Blank (B3L2555-BL	K 1)			Prepared	2023-12-15	5, Analyze	d: 2023-1	2-15		
Coliforms, Total (Q-Tray	y)	< 1	1 MPN/100 n	nL						
Blank (B3L2555-BL	< 2)			Prepared:	2023-12-15	5, Analyze	d: 2023-1	2-15		
Coliforms, Fecal (Q-Tra	ay)	< 1	1 MPN/100 n	nL						
Blank (B3L2555-BL	<3)			Prepared	2023-12-1	5, Analyze	d: 2023-1	2-15		
Coliforms, Total (Q-Tray	y)	< 1	1 MPN/100 n	nL						



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23L1914
PO NUMBER PROJECT PROJECT INFO	BioSolids- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED	2023-12-14 13:36 / 9.7°C 2023-12-27 07:56

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.

We've Got Chemistry

Big Picture Sidekicks



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.

🂫 A

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Uranium

Zinc

Vanadium

Zirconium

REPORTED TO PROJECT	Lake Country, District of (BioSolids- PE14651	ake Country, District of (Wastewater) oSolids- PE14651		WORK ORDER REPORTED	23L1914 2023-12-27 07:56	
Analyte		Result	RL	Units	Analyzed	Qualifier
Biosolids (E2336	28) (23L1914-01) Matrix: \$	Sludge Sampled:	2023-12-14 09:45			
General Parameter	S					
Moisture		81.9	1.0	% wet	2023-12-20	
Nitrogen, Total Kje	ldahl	6.32	0.0004	% dry	2023-12-20	
Solids, Total		18.1	0.1	% wet	2023-12-20	
Solids, Volatile		86.8	0.1	% dry	2023-12-20	
Strong Acid Leach	able Metals					
Aluminum		1670	40	mg/kg dry	2023-12-23	
Antimony		1.46	0.10	mg/kg dry	2023-12-23	
Arsenic		1.36	0.30	mg/kg dry	2023-12-23	
Barium		81.0	1.0	mg/kg dry	2023-12-23	
Beryllium		< 0.10	0.10	mg/kg dry	2023-12-23	
Bismuth		53.1	0.10	mg/kg dry	2023-12-23	
Boron		14.6	2.0	mg/kg dry	2023-12-23	
Cadmium		1.30	0.040	mg/kg dry	2023-12-23	
Calcium		10300	100	mg/kg dry	2023-12-23	
Chromium		10.3	1.0	mg/kg dry	2023-12-23	
Cobalt		1.39	0.10	mg/kg dry	2023-12-23	
Copper		284	0.40	mg/kg dry	2023-12-23	
Iron		2890	20.0	mg/kg dry	2023-12-23	
Lead		5.83	0.20	mg/kg dry	2023-12-23	
Lithium		0.98	0.10	mg/kg dry	2023-12-23	
Magnesium		4100	10	mg/kg dry	2023-12-23	
Manganese		81.9	0.40	mg/kg dry	2023-12-23	
Mercury		0.237	0.040	mg/kg dry	2023-12-23	
Molybdenum		7.67	0.10	mg/kg dry	2023-12-23	
Nickel		9.93	0.60	mg/kg dry	2023-12-23	
Phosphorus		14900	10	mg/kg dry	2023-12-23	
Potassium		4640	40	mg/kg dry	2023-12-23	
Selenium		3.20	0.20	mg/kg dry	2023-12-23	
Silver		1.35	0.10	mg/kg dry	2023-12-23	
Sodium		660	50	mg/kg dry	2023-12-23	
Strontium		64.4	0.20	mg/kg dry	2023-12-23	
Sulfur		5280	1000	mg/kg dry	2023-12-23	
Tellurium		< 0.10	0.10	mg/kg dry	2023-12-23	
Thallium		< 0.10	0.10	mg/kg dry	2023-12-23	
Thorium		< 0.50	0.50	mg/kg dry	2023-12-23	
Tin		12.2	0.20	mg/kg dry	2023-12-23	
Titanium		48.9	1.0	mg/kg dry	2023-12-23	
Tungsten		0.72	0.20	mg/kg dry	2023-12-23	

0.050 mg/kg dry

1.0 mg/kg dry

2.0 mg/kg dry

2.0 mg/kg dry

9.24

5.4

513

4.0

2023-12-23

2023-12-23

2023-12-23

2023-12-23

Γ



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**BioSolids- PE14651

 WORK ORDER
 23L1914

 REPORTED
 2023-12

23L1914 2023-12-27 07:56

Analysis Description	Method Ref.	Technique	Accredited	Location
Moisture in Solid	ASTM D2974-87*	Gravimetry (Dried at 105C)		N/A
Nitrogen, Total Kjeldahl in Solid	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	Kelowna
SALM in Solid	BCMOE SALM V.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond
Solids, Total in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		Kelowna
Solids, Volatile in Solid	Solids in Solids / SM 2540 G (2020)	Solids in Solids / Gravimetry		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)
% dry	Percent (dry weight basis)
% wet	Percent (as received basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/kg dry	Milligrams per kilogram (dry weight basis)
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23L1914
PROJECT	BioSolids- PE14651	REPORTED	2023-12-27 07:56

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result	/01120	Limit	Limit	

General Parameters, Batch B3L2880

Blank (B3L2880-BLK1)			Prepared: 202	3-12-19, Analyze	ed: 2023-12-20		
Nitrogen, Total Kjeldahl	< 0.010	0.010 % wet					
Duplicate (B3L2880-DUP1)	So	urce: 23L1914-01	Prepared: 202	3-12-19, Analyze	ed: 2023-12-20		
Nitrogen, Total Kjeldahl	5.44	0.0004 % dry	6	5.32	15	25	
Reference (B3L2880-SRM1)			Prepared: 202	3-12-19, Analyze	ed: 2023-12-20		
Nitrogen, Total Kjeldahl	0.178	0.010 % wet	0.197	90	58.8-150		

General Parameters, Batch B3L2912

Reference (B3L2912-SRM1) Prepared: 2023-12-20, Analyzed: 2023-12-20				2023-12-20, Analyzed: 2023-12-20
Moisture	99.0	1.0 % wet	7.0	99 80-120
Solids, Total	92.2	0.1 % wet	93.0	99 80-120
Solids, Volatile	6.8	0.1 % dry	6.26	109 80-200

Strong Acid Leachable Metals, Batch B3L3409

Blank (B3L3409-BLK1)			Prepared: 2023-12-22, Analyzed: 2023-12-23	
Aluminum	< 40	40 mg/kg dry		
Antimony	< 0.10	0.10 mg/kg dry		
Arsenic	< 0.30	0.30 mg/kg dry		
Barium	< 1.0	1.0 mg/kg dry		
Beryllium	< 0.10	0.10 mg/kg dry		
Bismuth	< 0.10	0.10 mg/kg dry		
Boron	2.0	2.0 mg/kg dry		BLK
Cadmium	< 0.040	0.040 mg/kg dry		
Calcium	< 100	100 mg/kg dry		
Chromium	< 1.0	1.0 mg/kg dry		
Cobalt	< 0.10	0.10 mg/kg dry		
Copper	< 0.40	0.40 mg/kg dry		
Iron	< 20.0	20.0 mg/kg dry		
Lead	< 0.20	0.20 mg/kg dry		
Lithium	< 0.10	0.10 mg/kg dry		
Magnesium	< 10	10 mg/kg dry		
Manganese	< 0.40	0.40 ma/ka dry		



REPORTED TO PROJECT	Lake Country, District of (Wastewate BioSolids- PE14651	r)			WORK REPOR	ORDER TED	23L1 2023	914 -12-27	07:56
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier

Strong Acid Leachable Metals, Batch B3L3409, Continued

Blank (B3L3409-BLK1), Continued			Prepared: 202	23-12-22, Analyze	d: 2023-12-23	
Mercurv	< 0.040	0.040 ma/ka drv				
Molvbdenum	< 0.10	0.10 ma/ka drv				
Nickel	< 0.60	0.60 mg/kg dry				
Phosphorus	< 10	10 ma/ka drv				
Potassium	< 40	40 ma/ka drv				
Selenium	< 0.20	0.20 mg/kg dry				
Silver	< 0.10	0.10 mg/kg dry				
Sodium	< 50	50 mg/kg dry				
Strontium	0.75	0.20 mg/kg dry				BLK
Sulfur	< 1000	1000 mg/kg dry				
Tellurium	< 0.10	0.10 mg/kg dry				
Thallium	< 0.10	0.10 ma/ka drv				
Thorium	< 0.50	0.50 ma/ka drv				
Tin	< 0.20	0.20 ma/ka drv				
Titanium	< 1.0	1.0 ma/ka drv				
Tungsten	< 0.20	0.20 mg/kg dry				
Uranium	< 0.050	0.050 mg/kg dry				
Vanadium	< 1.0	1.0 mg/kg dry				
Zinc	< 2.0	2.0 mg/kg dry				
Zirconium	< 2.0	2.0 mg/kg dry				
			Dranaradi 200	22 12 22 Analyza	4. 0000 40.00	
LCS (B3L3409-BS1)			Prepared: 202	23-12-22, Analyze	0: 2023-12-23	
Aluminum	211	40 mg/kg dry	200	106	80-120	
Antimony	2.04	0.10 mg/kg dry	2.00	102	80-120	
Arsenic	20.7	0.30 mg/kg dry	20.0	103	80-120	
Barium	2.0	1.0 mg/kg dry	2.00	100	80-120	
Beryllium	2.02	0.10 mg/kg dry	2.00	101	80-120	
Bismuth	2.03	0.10 mg/kg dry	2.00	101	80-120	
Boron	20.0	2.0 mg/kg dry	20.0	100	80-120	
Cadmium	2.00	0.040 mg/kg dry	2.00	100	80-120	
Calcium	207	100 mg/kg dry	200	103	80-120	
Chromium	2.1	1.0 mg/kg dry	2.00	103	80-120	
	2.07	0.10 mg/kg dry	2.00	103	80-120	
Copper	2.06	0.40 mg/kg dry	2.00	103	80-120	
Iron	210	20.0 mg/kg dry	200	105	80-120	
	2.04	0.20 mg/kg dry	2.00	102	80-120	
Lithium	2.05	0.10 mg/kg dry	2.00	103	80-120	
Magnesium	208	10 mg/kg dry	200	104	80-120	
Manganese	2.15	0.40 mg/kg dry	2.00	107	80-120	
Meluladara	0.204	0.040 mg/kg dry	0.200	102	80-120	
Nieles	1.93		2.00	96	80-120	
	2.07	0.60 mg/kg dry	2.00	104	80-120	
Prosphorus	205	10 mg/kg dry	200	102	80-120	
Polassium	214	40 mg/kg dry	200	107	80-120	
Silver	19.3	0.20 mg/kg dry	20.0	90	80-120	
Sodium	2.00	50 mg/kg dry	2.00	100	80.120	
Strontium	200		200	104	80.120	
Sulfur	2.19	1000 mg/kg dry	2.00	109	80-120	
Tellurium	1 01		2000	00	80-120	
Thallium	2.02		2.00	101	80-120	
Thorium	1 71		2.00	85	80-120	
Tin	1.7 1		2.00	00	80-120	
Titanium	21	1.0 ma/ka dry	2.00	106	80-120	
Tungsten	1 98	0.20 ma/ka dry	2.00	99	80-120	
Uranium	2 05	0.050 ma/ka dry	2.00	102	80-120	
	2.00			=		



REPORTED TO PROJECT	Lake Country, Dist BioSolids- PE1465	rict of (Wastewat	ter)			WORK (REPOR	ORDER TED	23L1 2023	914 -12-27	07:56
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Strong Acid Leach	able Metals, Batch B3	L3409, Continued	d							
LCS (B3L3409-BS	1), Continued			Prepared	: 2023-12-2	2, Analyze	d: 2023-1	2-23		
Vanadium		2.0	1.0 mg/kg dry	2.00		102	80-120			
Zinc		20.4	2.0 mg/kg dry	20.0		102	80-120			
Zirconium		< 2.0	2.0 mg/kg dry	2.00		82	80-120			
Reference (B3L34	09-SRM1)			Prepared	: 2023-12-2	2, Analyze	d: 2023-1	2-23		
Aluminum		13100	40 mg/kg dry	12100		108	70-130			
Antimony		0.69	0.10 mg/kg dry	0.634		109	70-130			
Arsenic		85.0	0.30 mg/kg dry	83.6		102	70-130			
Barium		42.1	1.0 mg/kg dry	41.4		102	70-130			
Beryllium		0.42	0.10 mg/kg dry	0.377		110	70-130			
Bismuth		0.31	0.10 mg/kg dry	0.291		106	70-130			
Calcium		6150	100 mg/kg dry	5380		114	70-130			
Chromium		70.8	1.0 mg/kg dry	66.0		107	70-130			
Cobalt		11.5	0.10 mg/kg dry	10.8		106	70-130			
Copper		20.6	0.40 mg/kg dry	20.3		101	70-130			
Iron		22100	20.0 mg/kg dry	20400		108	70-130			
Lead		17.9	0.20 mg/kg dry	16.7		107	70-130			
Lithium		18.6	0.10 mg/kg dry	16.8		110	70-130			
Magnesium		6760	10 mg/kg dry	6170		110	70-130			
Manganese		352	0.40 mg/kg dry	319		110	70-130			
Mercury		0.114	0.040 mg/kg dry	0.114		100	70-130			
Molybdenum		0.63	0.10 mg/kg dry	0.607		103	70-130			
Nickel		34.3	0.60 mg/kg dry	32.5		106	70-130			
Phosphorus		444	10 mg/kg dry	432		103	70-130			
Silver		1.65	0.10 mg/kg dry	1.55		106	70-130			
Strontium		26.9	0.20 mg/kg dry	22.5		119	70-130			
Thallium		< 0.10	0.10 mg/kg dry	0.0765		105	70-130			
Thorium		2.87	0.50 mg/kg dry	2.96		97	70-130			
Titanium		744	1.0 mg/kg dry	730		102	70-130			
Uranium		1.21	0.050 mg/kg dry	1.15		106	70-130			
Vanadium		39.8	1.0 mg/kg dry	36.3		110	70-130			
Zinc		42.3	2.0 mg/kg dry	39.7		107	70-130			

QC Qualifiers:

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23L1910
PO NUMBER PROJECT PROJECT INFO	Raw Influent- PE14651 Lake Country WWTP	RECEIVED / TEMP REPORTED	2023-12-15 10:40 / 9.7°C 2023-12-21 13:43

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.

We've Got Chemistry

Big Picture Sidekicks



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.

칠 Ah

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, District c Raw Influent- PE14651	of (Wastewater)		WORK ORDER REPORTED	23L1910 2023-12-2	1 13:43
Analyte		Result	RL	Units	Analyzed	Qualifier
Raw Influent (E23	33627) (23L1910-01) Ma	itrix: Wastewater Sampl	ed: 2023-12-14 10:45			
Anions						
Nitrate (as N)		< 0.010	0.010	mg/L	2023-12-15	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-12-15	
Phosphate (as P)		5.30	0.0050	mg/L	2023-12-15	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	,	87.2	2.00	mg/L	N/A	
General Parameter	'S					
Alkalinity, Total (as	s CaCO3)	386	1.0	mg/L	2023-12-20	
Alkalinity, Phenolp	ohthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Alkalinity, Bicarbo	nate (as CaCO3)	386	1.0	mg/L	2023-12-20	
Alkalinity, Carbona	ate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Alkalinity, Hydroxi	de (as CaCO3)	< 1.0	1.0	mg/L	2023-12-20	
Ammonia, Total (a	as N)	64.6	0.050	mg/L	2023-12-18	
BOD, 5-day		356	2.0	mg/L	2023-12-21	
BOD, 5-day Carbo	onaceous	373	2.0	mg/L	2023-12-20	
Nitrogen, Total Kje	eldahl	87.2	0.050	mg/L	2023-12-21	
рН		7.69	0.10	pH units	2023-12-20	HT2
Phosphorus, Total	l (as P)	12.3	0.0050	mg/L	2023-12-20	
Solids, Total Susp	ended	362	2.0	mg/L	2023-12-20	

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 TOLake Country, District of (Wastewater)**PROJECT**Raw Influent- PE14651

WORK ORDER REPORTED 23L1910 2023-12-21 13:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	\checkmark	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Biochemical Oxygen Demand, Carbonaceous in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	\checkmark	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)	\checkmark	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	\checkmark	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)	WORK ORDER	23L1910
PROJECT	Raw Influent- PE14651	REPORTED	2023-12-21 13:43

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 B3L2484									
Blank (B3L2484-BLK1)			Prepared	: 2023-12-1	5, Analyze	d: 2023-′	12-15		
Phosphate (as P)	< 0.0050	0.0050 mg/L							
LCS (B3L2484-BS1)			Prepared	: 2023-12-1	5, Analyze	d: 2023-	12-15		
Phosphate (as P)	0.910	0.0050 mg/L	1.00		91	80-120			
Anions, Batch B3L2602									
Blank (B3L2602-BLK1)			Prepared	: 2023-12-1	5, Analyze	d: 2023-′	12-15		
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
LCS (B3L2602-BS1)			Prepared	1: 2023-12-1	5, Analyze	d: 2023-´	12-15		
Nitrate (as N)	4.04	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	1.98	0.010 mg/L	2.00		99	85-115			
General Parameters, Batch B3L2552 Blank (B3I 2552-BI K1)			Prepared	[.] 2023-12-1	5 Analyze	d [.] 2023-1	12-20		
BOD, 5-day Carbonaceous	< 2.0	2.0 mg/L			0,7 1101 920		0		
LCS (B3L2552-BS1)			Prepared	1: 2023-12-1	5, Analyze	d: 2023-′	12-20		
BOD, 5-day Carbonaceous	200	42.2 mg/L	198		101	85-115			
General Parameters,Batch B3L2645									
Blank (B3L2645-BLK1)			Prepared	: 2023-12-1	6, Analyze	d: 2023-′	12-21		
BOD, 5-day	< 2.0	2.0 mg/L							
LCS (B3L2645-BS1)			Prepared	: 2023-12-1	6, Analyze	d: 2023-′	12-21		
BOD, 5-day	203	56.5 mg/L	198		102	85-115			
General Parameters, Batch B3L2697									
Blank (B3L2697-BLK1)			Prepared	: 2023-12-1	8, Analyze	d: 2023-′	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L						_	



REPORTED TO PROJECT	Lake Country, Dist Raw Influent- PE1	rict of (Wastewa 4651	ater)			WORK REPOR	ORDER TED	23L1 2023	910 5-12-21	13:43
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	s, Batch B3L2697, Co	ontinued								
Blank (B3L2697-BL	-K1), Continued			Prepared	: 2023-12-1	8, Analyze	d: 2023-1	12-18		
Blank (B3L2697-BL	_K2)			Prepared	: 2023-12-1	8, Analyze	d: 2023-1	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B3I 2697-Bl	K3)			Prepared	· 2023-12-1	8 Analyze	d [.] 2023-1	12-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L		0 _ 0	0,7				
Blank (B3I 2607 Bl	, КЛ)			Prepared	· 2023-12-1	8 Analyza	d. 2023-1	12-18		
Ammonia Total (as N	- IX+ /	< 0.050	0.050 mg/l	ricparcu	. 2020-12-1	0, Analyzo	u. 2020-	12-10		
	/	0.000	0.000 Mg/L	Droporod	. 2022 12 1	9 Analuza	4. 2022	10.40		
Ammonia Total (as N)	0.070	0.050 mg/l	1 00	. 2023-12-1		05 115	12-10		
)	0.979	0.030 mg/L	1.00		90	00-110			
LCS (B3L2697-BS2	2)			Prepared	: 2023-12-1	8, Analyze	d: 2023-1	12-18		
Ammonia, Total (as N)	0.980	0.050 mg/L	1.00		98	85-115			
LCS (B3L2697-BS3	3)			Prepared	: 2023-12-1	8, Analyze	d: 2023-1	12-18		
Ammonia, Total (as N)	0.951	0.050 mg/L	1.00		95	85-115			
LCS (B3L2697-BS4	l)			Prepared	: 2023-12-1	8, Analyze	d: 2023-1	12-18		
Ammonia, Total (as N)	0.971	0.050 mg/L	1.00		97	85-115			
General Parameters	s, Batch B3L2931			Droporod	. 2022 42 4	0 Analyza	4. 2022 4	12.20		
Bialik (D3L2931-DL	_K1)	< 0.0050	0.0050 mg/l	Prepared	. 2023-12-1	9, Analyze	u. 2023-	12-20		
		< 0.0030	0.0030 mg/L			<u> </u>				
Blank (B3L2931-BL	_K2)		0.0050 "	Prepared	: 2023-12-1	9, Analyze	d: 2023-1	12-20		
Phosphorus, Iotal (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3L2931-BS1)			Prepared	: 2023-12-1	9, Analyze	d: 2023-1	12-20		
Phosphorus, Total (as	P)	0.111	0.0050 mg/L	0.100		111	85-115			
LCS (B3L2931-BS2	2)			Prepared	: 2023-12-1	9, Analyze	d: 2023-1	12-20		
Phosphorus, Total (as	P)	0.111	0.0050 mg/L	0.100		111	85-115			
General Parameters	s, Batch B3L2986									
Blank (B3L2986-BL	_K1)			Prepared	: 2023-12-2	0, Analyze	d: 2023-1	12-20		
Alkalinity, Iotal (as Ca	ICO3) Jalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate	e (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 (B3L2986-BL	_K2)			Prepared	: 2023-12-2	0, Analyze	d: 2023-1	12-20		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth Alkalinity, Bicarbonate	alein (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 (B3L2986-BL	_K3)			Prepared	: 2023-12-2	0, Analyze	d: 2023-1	12-20		
Alkalinity, Total (as Ca	CO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphth	alein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate	(as CaCO3)	< 1.0	1.0 mg/L							



REPORTED TO L PROJECT F	ake Country, Distr Raw Influent- PE14	ict of (Wastewa 651	ter)			WORK REPOR	ORDER TED	23L1 2023	910 -12-21	13:43
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3L2986, Coi	ntinued								
Blank (B3L2986-BLK3	3), Continued			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
Alkalinity, Hydroxide (as	CaCO3)	< 1.0	1.0 mg/L							
LCS (B3L2986-BS1)				Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaCC	03)	102	1.0 mg/L	100		102	80-120			
Alkalinity, Phenolphthale	in (as CaCO3)	69.7	1.0 mg/L	50.0		139	0-200			
LCS (B3L2986-BS2)				Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaCC	03)	101	1.0 mg/L	100		101	80-120			
Alkalinity, Phenolphthale	in (as CaCO3)	60.2	1.0 mg/L	50.0		120	0-200			
LCS (B3L2986-BS3)				Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
Alkalinity, Total (as CaCC	03)	101	1.0 mg/L	100		101	80-120			
Alkalinity, Phenolphthale	in (as CaCO3)	59.6	1.0 mg/L	50.0		119	0-200			
Reference (B3L2986-	SRM1)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
pН		7.05	0.10 pH units	7.01		101	98-102			
Reference (B3L2986-	SRM2)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
рН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3L2986-	SRM3)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
рН	•	7.04	0.10 pH units	7.01		100	98-102			
General Parameters,	Batch B3L3029									
Blank (B3L3029-BLK1	I)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-21		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
Blank (B3L3029-BLK2	2)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-21		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
LCS (B3L3029-BS1)				Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-21		
Nitrogen, Total Kjeldahl		0.963	0.050 mg/L	1.00		96	85-115			
LCS (B3L3029-BS2)				Prepared	: 2023-12-2	0, Analyze	d: 2023-1	2-21		
Nitrogen, Total Kjeldahl		0.972	0.050 mg/L	1.00		97	85-115			
General Parameters,	Batch B3L3070									
Blank (B3L3070-BLK1	I)			Prepared	: 2023-12-2	20, Analyze	d: 2023-1	2-20		
Solids, Total Suspended		< 2.0	2.0 mg/L							
Duplicate (B3L3070-D	UP1)	Sour	ce: 23L1910-01	Prepared	: 2023-12-2	0, Analyze	d: 2023-1	2-20		
Solids, Total Suspended		370	2.0 mg/L		362			2	20	



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J2930
PO NUMBER PROJECT PROJECT INFO	Amry - West Well Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-24 16:45 / 12.2°C 2023-10-31 15:02 45223.35484

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Phosphorus, Total (as P)

REPORTED TO Lake Country, I PROJECT Amry - West W	District of (Wastewater) ell			WORK ORDER REPORTED	23J2930 2023-10-3	1 15:02
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Amry West Well (23J2930-01) Ma	atrix: Water Sampled: 20)23-10-24 10:35				
Anions						
Chloride	25.8	AO ≤ 250	0.10	mg/L	2023-10-27	
Nitrate (as N)	0.061	MAC = 10	0.010	mg/L	2023-10-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-10-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	0.0613	N/A	0 0100	ma/l	N/A	
Nitrogen Total	0.0010	N/A	0.0500	mg/L	N/A	
Gonoral Paramotors						
		None Dequired	0.050	ma/l	2022 40 25	
	< 0.050		0.050	mg/L	2023-10-25	
Conductivity (EC)	E 1.1	N/A	2.0	IIIg/L	2023-10-31	
Nitrogon, Total Kieldahl	0 44	N/A	0.050	mg/l	2023-10-29	
	7.02	T 0 10 5	0.050	ng/L	2023-10-31	ЦТ2
Phoephorus, Total (as P)	7.92	7.0-10.5	0.10		2023-10-29	пі
	0.0067	N/A	0.0050		2023-10-20	
Tublaty	0.25	00 < 1	0.10	NIO	2023-10-20	
Microbiological Parameters						
Coliforms, Total (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-10-25	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-10-25	
E. coli (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-10-25	
Total Metals						
Sodium, total	30.8	AO ≤ 200	0.10	mg/L	2023-10-27	
Duplicate (23J2930-02) Matrix: V	Vater Sampled: 2023-10-	-24 10:35				
Anions						
Chloride	25.8	AO ≤ 250	0.10	mg/L	2023-10-27	
Nitrate (as N)	0.063	MAC = 10	0.010	mg/L	2023-10-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	N/A	0.0050	mg/L	2023-10-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	0.0629	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.178	N/A	0.0500	mg/L	N/A	
General Parameters						
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-10-25	
BOD, 5-day	< 7.7	N/A	2.0	mg/L	2023-10-31	
Conductivity (EC)	508	N/A	2.0	μS/cm	2023-10-29	
Nitrogen, Total Kjeldahl	0.115	N/A	0.050	mg/L	2023-10-31	
pH	7.96	7.0-10.5	0.10	pH units	2023-10-29	HT2

Caring About Results, Obviously.

0.0056

N/A

0.0050 mg/L

Page 2 of 9

2023-10-26



REPORTED TO PROJECT	Lake Country, District of Amry - West Well	(Wastewater)			WORK ORDER REPORTED	23J2930 2023-10-3	31 15:02
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
Duplicate (23J29	30-02) Matrix: Water Sa	mpled: 2023-10	-24 10:35, Contir	ued			
General Parameter	s, Continued						
Turbidity		0.27	OG < 1	0.10	NTU	2023-10-26	
Microbiological Pa	rameters						
Coliforms, Total (0	Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-10-25	
Coliforms, Fecal (Q-Tray)	< 1	N/A	1	MPN/100 mL	2023-10-25	
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-25	
Total Metals							
Sodium, total		29.9	AO ≤ 200	0.10	mg/L	2023-10-26	
Sample Qualifie	ers:						
HT2 The 1 recomm	5 minute recommended lended.	holding time (from sampling f	o analysis) ha	as been exceed	ed - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - West Well

WORK ORDER REPORTED

23J2930 2023-10-31 15:02

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	\checkmark	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
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli 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	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	\checkmark	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
μS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - West Well

 WORK ORDER
 23J

 REPORTED
 202

23J2930 2023-10-31 15:02

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23J2930
PROJECT	Amry - West Well	REPORTED	2023-10-31 15:02

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3J2511

Phosphate (as P)

Blank (B3J2511-BLK1)		Prepared: 2023-10-26, Analyzed: 2023-10-26				
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				
Phosphate (as P) < 0.0050 0.0050 mg		0.0050 mg/L				
LCS (B3J2511-BS1)			Prepared: 202	3-10-26, Analyze	ed: 2023-10-26	
Chloride	16.7	0.10 mg/L	16.0	105	90-110	
Nitrate (as N)	4.04	0.010 mg/L	4.00	101	90-110	
Nitrite (as N)	2.16	0.010 mg/L	2.00	108	85-115	

1 00

103

80-120

0.0050 mg/L

1 0 3

General Parameters, Batch B3J2471

Blank (B3J2471-BLK1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.036	0.020 mg/L	
Blank (B3J2471-BLK2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	< 0.020	0.020 mg/L	
Blank (B3J2471-BLK3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.035	0.020 mg/L	
Blank (B3J2471-BLK4)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.025	0.020 mg/L	
Blank (B3J2471-BLK5)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.021	0.020 mg/L	
LCS (B3J2471-BS1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.877	0.020 mg/L	1.00 88 85-115
LCS (B3J2471-BS2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.908	0.020 mg/L	1.00 91 85-115
LCS (B3J2471-BS3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.907	0.020 mg/L	1.00 91 85-115



REPORTED TO PROJECT	Lake Country, Distric Amry - West Well	ct of (Wastew	ater)	WORK ORDER REPORTED			23J2 2023	23J2930 2023-10-31 15:02		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3J2471, Con	tinued								
LCS (B3J2471-BS4)				Prepared	: 2023-10-25	5. Analvzed	: 2023-1	0-25		
Ammonia, Total (as N)		0.907	0.020 mg/L	1.00		91	85-115			
LCS (B3J2471-BS5)				Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-25		
Ammonia, Total (as N)		0.913	0.020 mg/L	1.00		91	85-115			
General Parameters,	Batch B3J2593									
Blank (B3J2593-BL	< 1)			Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as	>)	< 0.0050	0.0050 mg/L							
Blank (B3J2593-BL	< 2)			Prepared	: 2023-10-25	ō, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as	>)	< 0.0050	0.0050 mg/L							
LCS (B3J2593-BS1)				Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as	>)	0.0983	0.0050 mg/L	0.100		98	85-115			
LCS (B3J2593-BS2)				Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as l	>)	0.0983	0.0050 mg/L	0.100		98	85-115			
General Parameters,	Batch B3J2686									
Blank (B3J2686-BL	K1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		< 0.10	0.10 NTU							
Blank (B3J2686-BL	K 2)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		< 0.10	0.10 NTU							
Blank (B3J2686-BL	K 3)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		< 0.10	0.10 NTU							
LCS (B3J2686-BS1)				Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS2)				Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS3)				Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
General Parameters,	Batch B3J2723									
Blank (B3J2723-BL	< 1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-31		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B3J2723-BS1)				Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-31		
BOD, 5-day		201	45.8 mg/L	198		102	85-115			
General Parameters,	Batch B3J2921									
Blank (B3J2921-BL	< 1)			Prepared	: 2023-10-29	9, Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							
Blank (B3J2921-BL	< 2)			Prepared	: 2023-10-29	9, Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							



REPORTED TO Lake Country, Dia PROJECT Amry - West Wel	strict of (Wastewa I			WORK REPOR	ORDER RTED	23J2930 2023-10-31 1		15:02	
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J2921, (Continued								
Blank (B3J2921-BLK3)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
Conductivity (EC)	< 2.0	2.0 µS/cm	•						
LCS (B3J2921-BS4)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B3J2921-BS5)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-	10-29		
Conductivity (EC)	1400	2.0 µS/cm	1410		99	95-105			
LCS (B3J2921-BS6)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
Conductivity (EC)	1420	2.0 µS/cm	1410		100	95-105			
Reference (B3J2921-SRM1)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
рН	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921-SRM2)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
рН	7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921-SRM3)			Prepared	: 2023-10-2	9, Analyze	ed: 2023-´	10-29		
рН	7.04	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B3J3003									
Blank (B3J3003-BLK1)			Prepared	: 2023-10-3	0, Analyze	ed: 2023-	10-31		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B3J3003-BLK2)			Prepared	: 2023-10-3	0, Analyze	ed: 2023-2	10-31		
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3J3003-BS1)			Prepared	: 2023-10-3	0, Analyze	ed: 2023-2	10-31		
Nitrogen, Total Kjeldahl	1.00	0.050 mg/L	1.00		100	85-115			
LCS (B3J3003-BS2)	0.007	0.050 //	Prepared	: 2023-10-3	0, Analyze	ed: 2023-	10-31		
Nitrogen, Iotal Kjeldahl	0.997	0.050 mg/L	1.00		100	85-115			
Microbiological Parameters, Batch B3. Blank (B3.12506-BI K1)	J2506		Prepared	· 2023-10-2	5 Analyze	ed: 2023-1	10-25		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL		, , 20				
E. coli (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3J2506-BLK2)			Prepared	: 2023-10-2	5, Analyze	ed: 2023-´	10-25		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3J2506-BLK3)			Prepared	: 2023-10-2	5, Analyze	ed: 2023-′	10-25		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL						
E. coli (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3J2506-BLK4)			Prepared	: 2023-10-2	5, Analyze	ed: 2023-	10-25		
Coliforms, Total (Q-Tray) E, coli (Q-Tray)	< 1	1 MPN/100 1 MPN/100	mL mL						
Blank (B3.12506-BI K5)			Prenared	· 2023-10-2	5 Analyze	ed: 2023-1	10-25		
Coliforms, Fecal (Q-Tray)	< 1	1 MPN/100	mL	. 2020 10-2	, , a ioi y 20				
Blank (B3.12506-BI K6)			Prenared	· 2023-10-2	5 Analyze	ed: 2023-1	10-25		
Coliforms, Total (Q-Tray)	< 1	1 MPN/100	mL	020 10-2	, /yZC				
E. coli (Q-Tray)	< 1	1 MPN/100	mL						
								D	ago Q of (



REPORTED TO PROJECT	Lake Country, Distric Amry - West Well	ct of (Wastewa	ter)			WORK REPOR	ORDER TED	23J2 2023	930 -10-31	15:02
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batc	h B3J2692									
Blank (B3J2692-B	SLK1)			Prepared	I: 2023-10-2	26, Analyze	d: 2023-1	0-26		
Sodium, total		< 0.10	0.10 mg/L							
LCS (B3J2692-BS	1)			Prepared	l: 2023-10-2	26, Analyze	d: 2023-1	0-26		
Sodium, total		3.86	0.10 mg/L	4.00		97	80-120			
Total Metals,Batc	h B3J2731									
Blank (B3J2731-B	SLK1)			Prepared	l: 2023-10-2	26, Analyze	d: 2023-1	0-27		
Sodium, total		< 0.10	0.10 mg/L							
LCS (B3J2731-BS	1)			Prepared	l: 2023-10-2	26, Analyze	ed: 2023-1	0-27		
Sodium, total		3.71	0.10 mg/L	4.00		93	80-120			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J1916
PO NUMBER PROJECT PROJECT INFO	Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-17 12:00 / 16.1°C 2023-10-24 15:06 45216.39861

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve



Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO Lake Country, Distric PROJECT Lake Country WWTF		of (Wastewater)			WORK ORDER REPORTED	23J1916 2023-10-2	4 15:06
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
10101A Kunschu	ıh Rd (23J1916-01) Matrix:	Water Samp	led: 2023-10-17 10:37	7			
Anions							
Chloride		87.7	AO ≤ 250	0.10	mg/L	2023-10-19	
Nitrate (as N)		4.03	MAC = 10	0.010	mg/L	2023-10-19	
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-10-19	
Phosphate (as P)		0.0123	N/A	0.0050	mg/L	2023-10-19	
Calculated Parame	eters						
Nitrate+Nitrite (as	N)	4.03	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		4.36	N/A	0.0500	mg/L	N/A	
General Parameter	rs						
Ammonia, Total (a	as N)	< 0.050	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)		754	N/A	2.0	µS/cm	2023-10-19	
Nitrogen, Total Kje	eldahl	0.334	N/A	0.050	mg/L	2023-10-22	
рН		7.23	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Tota	l (as P)	0.0107	N/A	0.0050	mg/L	2023-10-19	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		57.1	AO ≤ 200	0.10	mg/L	2023-10-19	

10050 McCarthy Rd (23J1916-02) | Matrix: Water | Sampled: 2023-10-17 10:22

Anions						
Chloride	0.43	AO ≤ 250	0.10	mg/L	2023-10-19	
Nitrate (as N)	0.011	MAC = 10	0.010	mg/L	2023-10-19	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-19	
Phosphate (as P)	0.0574	N/A	0.0050	mg/L	2023-10-19	
Calculated Parameters						
Nitrate+Nitrite (as N)	0.0110	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.379	N/A	0.0500	mg/L	N/A	
General Parameters						
Ammonia, Total (as N)	0.227	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)	265	N/A	2.0	µS/cm	2023-10-19	
Nitrogen, Total Kjeldahl	0.368	N/A	0.050	mg/L	2023-10-22	
рН	8.08	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Total (as P)	0.231	N/A	0.0050	mg/L	2023-10-19	
Microbiological Parameters						
E. coli (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-10-18	

Total Metals



REPORTED TO Lake Country, District of PROJECT Lake Country WWTP		/astewater)			WORK ORDER REPORTED	23J1916 2023-10-2	24 15:06
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
10050 McCarthy	Rd (23J1916-02) Matrix: Wa	iter Sampleo	d: 2023-10-17 10:22,	Continued			
Total Metals, Conti	inued						
Sodium, total		8.34	AO ≤ 200	0.10	mg/L	2023-10-19	
9989 Bottom Wo	od Lake Rd (23J1916-03) Ma	atrix: Water	Sampled: 2023-10-1	7 11:07			
Anions							
Chloride		40.3	AO ≤ 250	0.10	ma/L	2023-10-19	
Nitrate (as N)		4.54	MAC = 10	0.010	ma/L	2023-10-19	
Nitrite (as N)		< 0.010	MAC = 1	0.010	ma/L	2023-10-19	
Phosphate (as P)		0.0053	N/A	0.0050	mg/L	2023-10-19	
Calculated Parame	eters						
Nitrate+Nitrite (as	N)	4.54	N/A	0.0100	ma/L	N/A	
Nitrogen, Total		4.88	N/A	0.0500	mg/L	N/A	
General Parameter	rs						
Ammonia, Total (a	as N)	< 0.050	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)	,	393	N/A	2.0	uS/cm	2023-10-19	
Nitrogen. Total Kie	eldahl	0.345	N/A	0.050	ma/L	2023-10-22	
Ha		7.37	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Tota	l (as P)	0.0066	N/A	0.0050	mg/L	2023-10-19	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		20.0	AO ≤ 200	0.10	mg/L	2023-10-21	
9991 McCarthy R	td (23J1916-04) Matrix: Wat	er Sampled:	2023-10-17 10:05				
Chlorida				0.40	ma/l	2022 40 40	
Nitrate (as N)		80.9	$AU \ge 250$ $MAC = 10$	0.10	mg/L	2023-10-19	
Nitrite (as N)		4.30 < 0.010		0.010	mg/L	2023-10-19	
Phosphate (as D)		< 0.010	N/A	0.010	mg/L	2023-10-13	
Calculated Parame	ators	- 0.0000	11/2	0.0000		2020-10-13	
Nitrata+Nitrita (ac		1 26	NI/A	0.0100	ma/l	NI/A	
Nitrogen. Total	inj	4.30	N/A	0.0500	mg/L	N/A	
General Parameter	rs			0.0000	····ə· =		
Ammonia Total (a	as NI)		Nono Poquirod	0.050	ma/l	2023 10 19	
	15 INJ	< 0.050		0.050	uS/am	2023-10-18	
Nitrogen Tatal IC	aldahl	/68	N/A	2.0	µo/cm	2023-10-19	
	ziual II	0.285	N/A	0.050		2023-10-22	LITO
рп		7.82	1.0-10.5	0.10	pri units	2023-10-19	

Page 3 of 11



REPORTED TO PROJECT	Lake Country, District of Lake Country WWTP	District of (Wastewater) WWTP			WORK ORDER REPORTED	23J1916 2023-10-24 15:06	
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
9991 McCarthy R	d (23J1916-04) Matrix: W	ater Sampled:	: 2023-10-17 10:05, C	ontinued			
General Parameter	rs, Continued						
Phosphorus, Total	l (as P)	0.0119	N/A	0.0050	mg/L	2023-10-19	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		55.4	AO ≤ 200	0.10	mg/L	2023-10-19	
9815 McCarthy R	d (23J1916-05) Matrix: W	ater Sampled:	2023-10-17 09:58				
Anions							
Chloride		101	AO ≤ 250	0.10	mg/L	2023-10-19	
Nitrate (as N)		4.51	MAC = 10	0.010	mg/L	2023-10-19	
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-10-19	
Phosphate (as P)		< 0.0050	N/A	0.0050	mg/L	2023-10-19	
Calculated Parame	eters						
Nitrate+Nitrite (as	N)	4.51	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		4.80	N/A	0.0500	mg/L	N/A	
General Parameter	rs						
Ammonia, Total (a	as N)	< 0.050	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)	,	830	N/A	2.0	μS/cm	2023-10-19	
Nitrogen, Total Kje	eldahl	0.292	N/A	0.050	mg/L	2023-10-22	
рН		7.78	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Total	l (as P)	0.0097	N/A	0.0050	mg/L	2023-10-19	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		70.8	AO ≤ 200	0.10	mg/L	2023-10-21	
10101B Kunschu	h Rd (23J1916-06) Matrix	: Water Samp	led: 2023-10-17 10:5	4			
Anions		44.2	AO ≤ 250	0.10	mg/L	2023-10-19	
Anions Chloride		112			-		
Anions Chloride Nitrate (as N)		1.88	MAC = 10	0.010	mg/L	2023-10-19	
Anions Chloride Nitrate (as N) Nitrite (as N)		1.88	MAC = 10 MAC = 1	0.010 0.010	mg/L mg/L	2023-10-19 2023-10-19	

Nitrate+Nitrite (as N)	1.88	N/A	0.0100 mg/L	N/A
Nitrogen, Total	2.27	N/A	0.0500 mg/L	N/A



REPORTED TO PROJECT	Lake Country, District of (V Lake Country WWTP	Vastewater)			WORK ORDER REPORTED	23J1916 2023-10-2	4 15:06
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
10101B Kunschuh	ı Rd (23J1916-06) Matrix:	Water Sampl	led: 2023-10-17 10:	54, Continue	d		
General Parameters							
Ammonia, Total (as	N)	< 0.050	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)		846	N/A	2.0	µS/cm	2023-10-19	
Nitrogen, Total Kjel	dahl	0.389	N/A	0.050	mg/L	2023-10-22	
pН		7.77	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Total	(as P)	< 0.0050	N/A	0.0050	mg/L	2023-10-19	
Microbiological Para	ameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		74.6	AO ≤ 200	0.10	mg/L	2023-10-19	
Duplicate (23J191	6-07) Matrix: Water Sam	pled: 2023-10-	-17 10:22				
Anions							
Chloride		0.42	AO ≤ 250	0.10	mg/L	2023-10-19	
Nitrate (as N)		< 0.010	MAC = 10	0.010	mg/L	2023-10-19	
Nitrite (as N)		0.010	MAC = 1	0.010	mg/L	2023-10-19	
Phosphate (as P)		0.0567	N/A	0.0050	mg/L	2023-10-19	
Calculated Paramet	ers						
Nitrate+Nitrite (as N	۷)	0.0104	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		0.377	N/A	0.0500	mg/L	N/A	
General Parameters							
Ammonia, Total (as	N)	0.224	None Required	0.050	mg/L	2023-10-18	
Conductivity (EC)	,	264	N/A	2.0	μS/cm	2023-10-19	
Nitrogen, Total Kjel	dahl	0.367	N/A	0.050	mg/L	2023-10-22	
pН		8.16	7.0-10.5	0.10	pH units	2023-10-19	HT2
Phosphorus, Total	(as P)	0.231	N/A	0.0050	mg/L	2023-10-19	
Microbiological Para	ameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-10-18	
Total Metals							
Sodium, total		8.26	AO ≤ 200	0.10	mg/L	2023-10-21	
Ormala Oralifia							

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 TOLake Country, District of (Wastewater)**PROJECT**Lake Country WWTP

WORK ORDER 2 REPORTED 2

23J1916 2023-10-24 15:06

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli 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	\checkmark	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)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond

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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

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

WORK ORDER 2 REPORTED 2

23J1916 2023-10-24 15:06

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23J1916
PROJECT	Lake Country WWTP	REPORTED	2023-10-24 15:06

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result	/01120	Limit	Limit	Q

Anions, Batch B3J1644

BLK

General Parameters, Batch B3J1689

Blank (B3J1689-BLK1)			Prepared: 2023-10-18, Analyzed: 2023-10-18
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3J1689-BLK2)			Prepared: 2023-10-18, Analyzed: 2023-10-18
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3J1689-BLK3)			Prepared: 2023-10-18, Analyzed: 2023-10-18
Ammonia, Total (as N)	< 0.050	0.050 mg/L	
Blank (B3J1689-BLK4)			Prepared: 2023-10-18, Analyzed: 2023-10-18
Ammonia, Total (as N)	< 0.050	0.050 mg/L	


REPORTED TO Lake Country, District PROJECT Lake Country WWTP	of (Waste	water)			WORK (REPORT	ORDER TED	23J1 2023	916 -10-24	15:06
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J1689, Contin	nued								
LCS (B3J1689-BS1)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	0.945	0.050 mg/L	1.00		94	85-115			
LCS (B3J1689-BS2)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	0.951	0.050 mg/L	1.00		95	85-115			
LCS (B3J1689-BS3)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	0.948	0.050 mg/L	1.00		95	85-115			
LCS (B3J1689-BS4)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	0.969	0.050 mg/L	1.00		97	85-115			
Duplicate (B3J1689-DUP4)	S	ource: 23J1916-03	Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	< 0.050	0.050 mg/L		< 0.050				15	
Matrix Spike (B3J1689-MS4)	S	ource: 23J1916-03	Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-18		
Ammonia, Total (as N)	0.228	0.050 mg/L	0.204	< 0.050	112	75-125			
General Parameters, Batch B3J1776									
Blank (B3J1776-BLK1)			Prepared	: 2023-10-18	, Analyzec	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J1776-BLK2)			Prepared	: 2023-10-18	, Analyzec	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J1776-BLK3)			Prepared	: 2023-10-18	, Analyzec	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J1776-BLK4)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J1776-BLK5)			Prepared	: 2023-10-18	, Analyzec	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J1776-BLK6)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3J1776-BS1)			Prepared	: 2023-10-18	, Analyzec	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J1776-BS2)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.102	0.0050 mg/L	0.100		102	85-115			
LCS (B3J1776-BS3)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J1776-BS4)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J1776-BS5)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3J1776-BS6)			Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.105	0.0050 mg/L	0.100		105	85-115			
Duplicate (B3J1776-DUP4)	s	ource: 23J1916-03	Prepared	: 2023-10-18	, Analyzed	l: 2023-1	0-19		
Phosphorus, Total (as P)	0.0079	0.0050 mg/L		0.0066				15	



REPORTED TO Lake Country, District PROJECT Lake Country WWT	ct of (Wastewa P	ater)			WORK REPOR	ORDER TED	23J1 2023	916 -10-24	15:06
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J1776, Con	tinued								
Matrix Spike (B3J1776-MS4)	Sou	rce: 23J1916-03	Prepared	: 2023-10-1	8, Analyze	d: 2023-1	0-19		
Phosphorus, Total (as P)	0.112	0.0050 mg/L	0.102	0.0066	103	70-125			
General Parameters, Batch B3J1826									
Blank (B3J1826-BLK1)			Prepared	: 2023-10-1	9. Analvze	d: 2023-1	0-19		
Conductivity (EC)	< 2.0	2.0 µS/cm	•						
Blank (B3J1826-BLK2)			Prepared	: 2023-10-1	9. Analvze	d: 2023-1	0-19		
Conductivity (EC)	< 2.0	2.0 µS/cm			-, <i>j</i>				
Blank (B3J1826-BLK3)			Prepared	: 2023-10-1	9. Analvze	d: 2023-1	0-19		
Conductivity (EC)	< 2.0	2.0 µS/cm			-, <i>j</i>				
LCS (B3,11826-BS4)		· · · · · · · · · · · · · · · · · · ·	Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
Conductivity (EC)	1400	2.0 µS/cm	1410	0 _ 0 . 0 .	99	95-105	0.0		
LCS (B3,11826-BS5)			Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
Conductivity (EC)	1400	2.0 µS/cm	1410	. 2020 10 1	99	95-105	0 10		
LCS (B3,11826-BS6)			Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
Conductivity (EC)	1400	2.0 µS/cm	1410	0 _ 0 . 0 .	99	95-105	0.0		
Reference (B3.11826-SRM1)			Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
pH	7.03	0.10 pH units	7.01	0 _ 0 . 0 .	100	98-102	0.0		
Reference (B3.11826-SRM2)			Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
pH	7.03	0.10 pH units	7.01	0 _ 0 . 0 .	100	98-102	0.0		
Reference (B3.11826-SRM3)			Prepared	· 2023-10-1	9 Analyze	d [.] 2023-1	0-19		
pH	7.03	0.10 pH units	7.01	. 2020 10 1	100	98-102	0 10		
General Parameters, Batch B3J1997 Blank (B3J1997-BLK1) Nitrogen, Total Kjeldahl Blank (B2 11997 BLK2)	< 0.050	0.050 mg/L	Prepared	: 2023-10-2	0, Analyze	d: 2023-1	0-22		
Nitrogen Total Kieldahl	< 0.050	0.050 mg/l	Fiepaleu	. 2025-10-2	0, Analyze	u. 2023-1	0-22		
	• 0.000	0.000 mg/L	Bronorod	. 2022 10 2		4. 2022 1	0.22		
Nitrogen Total Kieldahl	1 08	0.050 mg/l	1 00	. 2025-10-2	108	85-115	0-22		
	1.00	0.000 mg/L	Dranarad	. 2022 40 2		4. 2022 1	0.00		
Nitrogen Total Kieldahl	1 10	0.050 mg/l	1 00	. 2023-10-2	110	85-115	0-22		
Microbiological Parameters, Batch B3J16	78	0.000 mg/L	1.00			00-110			
Blank (B3J1678-BLK1)			Prepared	: 2023-10-1	8, Analyze	d: 2023-1	0-18		
E. coli (Q-Tray)	<1	1 MPN/100	mL						
Blank (B3J1678-BLK3)			Prepared	: 2023-10-1	8, Analyze	d: 2023-1	0-18		
E. coli (Q-Tray)	< 1	1 MPN/100	mL						
Blank (B3J1678-BLK5)			Prepared	: 2023-10-1	8, Analyze	d: 2023-1	0-18		
E. coli (Q-Tray)	< 1	1 MPN/100	mL						



REPORTED TO PROJECT	Lake Country, Dis Lake Country WV	trict of (Wastewate VTP	er)			WORK REPOF	ORDER RTED	23J1 2023	916 3-10-24	15:06
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Pa	rameters, Batch B3J	1678, Continued								
Blank (B3J1678-Bl	LK7)			Prepared	J: 2023-10-1	18, Analyze	əd: 2023-1	0-18		
E. coli (Q-Tray)		< 1	1 MPN/100	mL						
Total Metals, Batcl	h B3J1865									
Blank (B3J1865-Bl	_K1)			Prepared	1: 2023-10-1	19, Analyze	ed: 2023-1	0-19		
Sodium, total		< 0.10	0.10 mg/L							
LCS (B3J1865-BS1	I)			Prepared	l: 202 <u>3-10-</u> 1	19, Analyze	ed: 2023-1	0-19		
Sodium, total		4.15	0.10 mg/L	4.00		104	80-120			
Matrix Spike (B3J1	1865-MS1)	Sour	ce: 23J1916-01	Prepared	1: 2023-10-´	19, Analyze	əd: 2023-1	0-19		
Sodium, total		58.8	0.10 mg/L	4.00	57.1	44	70-130			MS2
Total Metals, Batcl	h B3J2093									
Blank (B3J2093-Bl	LK1)			Prepared	J: 2023-10-2	21, Analyze	ed: 2023-1	0-21		
Sodium, total	·	< 0.10	0.10 mg/L							
LCS (B3J2093-BS1	1)			Prepared	1: 2023-10-2	21, Analyze	∋d: 2023-1	0-21		
Sodium, total		4.05	0.10 mg/L	4.00		101	80-120			
QC Qualifiers:										

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).

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



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J2919
PO NUMBER PROJECT PROJECT INFO	Monitoring Wells Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-24 16:45 / 12.2°C 2023-10-31 12:52 45223.35484

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Country, Dis Monitoring Wells	strict of (Wastewater)		WORK ORDER REPORTED	23J2919 2023-10-3 [.]	1 12:52
Analyte		Result	RL	Units	Analyzed	Qualifier
MW-2 (23J2919-0	01) Matrix: Water	Sampled: 2023-10-24 09:30				
Anions						
Chloride		9.42	0.10	mg/L	2023-10-27	
Nitrate (as N)		0.974	0.010	mg/L	2023-10-27	
Nitrite (as N)		< 0.010	0.010	mg/L	2023-10-27	
Phosphate (as P)		< 0.0050	0.0050	mg/L	2023-10-27	
Calculated Parame	eters					
Nitrate+Nitrite (as	N)	0.974	0.0100	mg/L	N/A	
Nitrogen, Total		1.05	0.0500	mg/L	N/A	
General Parameter	rs					
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-10-25	
Conductivity (EC)		429	2.0	µS/cm	2023-10-29	
Nitrogen, Total Kje	eldahl	0.081	0.050	mg/L	2023-10-30	
pН		7.59	0.10	pH units	2023-10-29	HT2
Phosphorus, Tota	l (as P)	< 0.0050	0.0050	mg/L	2023-10-26	
Turbidity		0.81	0.10	NTU	2023-10-26	
Microbiological Pa	rameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-10-25	
Total Metals						
Sodium, total		15.7	0.10	mg/L	2023-10-26	

MW-10 (23J2919-02) | Matrix: Water | Sampled: 2023-10-24 12:05

Anions					
Chloride	113	0.10	mg/L	2023-10-27	
Nitrate (as N)	3.26	0.010	mg/L	2023-10-27	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-10-27	
Calculated Parameters					
Nitrate+Nitrite (as N)	3.26	0.0100	mg/L	N/A	
Nitrogen, Total	3.36	0.0500	mg/L	N/A	
General Parameters					
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-25	
Conductivity (EC)	872	2.0	µS/cm	2023-10-29	
Nitrogen, Total Kjeldahl	0.100	0.050	mg/L	2023-10-30	
рН	7.81	0.10	pH units	2023-10-29	HT2
Phosphorus, Total (as P)	0.0229	0.0050	mg/L	2023-10-26	
Turbidity	2.48	0.10	NTU	2023-10-26	
Microbiological Parameters					
E. coli (Q-Tray)	< 1	1	MPN/100 mL	2023-10-25	

1 MPN/100 mL



REPORTED TO PROJECT	Lake Country, District of (Wastewater) Monitoring Wells		WORK ORDER REPORTED	23J2919 2023-10-3	1 12:52
Analyte	Result	RL	Units	Analyzed	Qualifier
MW-10 (23J2919-0	2) Matrix: Water Sampled: 2023-10-24 12:05, Continued				
Total Metals					
Sodium, total	68.8	0.10	mg/L	2023-10-26	
MW-12 (23J2919-0	3) Matrix: Water Sampled: 2023-10-24 11:50				
Anions					
Chloride	120	0.10	mg/L	2023-10-27	
Nitrate (as N)	2.12	0.010	mg/L	2023-10-27	
Nitrite (as N)	0.011	0.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-10-27	
Calculated Paramet	ers				
Nitrate+Nitrite (as I	N) 2.13	0.0100	mg/L	N/A	
Nitrogen, Total	2.37	0.0500	mg/L	N/A	
General Parameters					
Ammonia, Total (as	N) < 0.050	0 050	ma/l	2023-10-25	
Conductivity (FC)	905	2.0	uS/cm	2023-10-29	
Nitrogen, Total Kje	dahl 0.236	0.050	mg/L	2023-10-30	
pH	7.85	0.10	pH units	2023-10-29	HT2
Phosphorus, Total	(as P) 0.0602	0.0050	mg/L	2023-10-26	
Turbidity	14.4	0.10	NTU	2023-10-26	
Microbiological Par	ameters				
E. coli (Q-Tray)	< 1	1	MPN/100 mL	2023-10-25	
Total Metals					
Sodium, total	79.9	0.10	mg/L	2023-10-26	
MW-14 (23J2919-0	4) Matrix: Water Sampled: 2023-10-24 10:05				
Anions					
Chloride	116	0.10	mg/L	2023-10-27	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-10-27	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	0.0050	mg/L	2023-10-27	
Calculated Paramet	ers				
Nitrate+Nitrite (as I	N) < 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	0.352	0.0500	mg/L	N/A	
General Parameters					
Ammonia, Total (as	N) 0.115	0.050	mg/L	2023-10-25	
Conductivity (EC)	1080	2.0	μS/cm	2023-10-29	
Nitrogen, Total Kje	dahl 0.352	0.050	mg/L	2023-10-30	

Page 3 of 10



REPORTED TO PROJECT	Lake Country, District of (Wastewater) Monitoring Wells		WORK ORDER REPORTED	23J2919 2023-10-31	12:52
Analyte	Result	RL	Units	Analyzed	Qualifier
MW-14 (23J2919-	-04) Matrix: Water Sampled: 2023-10-24 10:05, Continued				
General Parameter	rs, Continued				
рН	7.83	0.10	pH units	2023-10-29	HT2
Phosphorus, Tota	l (as P) 0.387 0.1)050	mg/L	2023-10-26	
Turbidity	3.44	0.10	NTU	2023-10-26	
Microbiological Pa	rameters				
E. coli (Q-Tray)	< 1	1	MPN/100 mL	2023-10-25	
Total Metals					
Sodium, total	69.8	0.10	ma/L	2023-10-26	
MW-18 (23J2919- Anions	-05) Matrix: Water Sampled: 2023-10-24 13:45				
Chloride	128	0.10	mg/L	2023-10-27	
Nitrate (as N)	2.06 0	.010	mg/L	2023-10-27	
Nitrite (as N)	< 0.010 0	.010	mg/L	2023-10-27	
Phosphate (as P)	< 0.0050 0.0)050	mg/L	2023-10-27	
Calculated Parame	eters				
Nitrate+Nitrite (as	N) 2.06 0.0)100	mg/L	N/A	
Nitrogen, Total	2.49 0.4)500	mg/L	N/A	
General Parameter	rs				
Ammonia, Total (a	as N) < 0.050 0	.050	mg/L	2023-10-25	
Conductivity (EC)	889	2.0	μS/cm	2023-10-29	
Nitrogen, Total Kje	eldahl 0.432 C	.050	mg/L	2023-10-30	
рН	7.85	0.10	pH units	2023-10-29	HT2
Phosphorus, Tota	l (as P) 0.206 0.0)050	mg/L	2023-10-26	
Turbidity	108	0.10	NTU	2023-10-26	
Microbiological Pa	arameters				
E. coli (Q-Tray)	<1	1	MPN/100 mL	2023-10-25	
Total Metals					
Sodium, total	81.5	0.10	mg/L	2023-10-26	

Equipment Blank (23J2919-06) | Matrix: Water | Sampled: 2023-10-24 13:50

Anions				
Chloride	0.43	0.10 mg/L	2023-10-27	
Nitrate (as N)	0.066	0.010 mg/L	2023-10-27	
Nitrite (as N)	< 0.010	0.010 mg/L	2023-10-27	
Phosphate (as P)	< 0.0050	0.0050 mg/L	2023-10-27	

Calculated Parameters



recommended.

Result was confirmed by re-analysis prior to reporting.

RE2

TEST RESULTS

PROJECT	Monitoring Wells	5		REPORTED	2023-10-3	1 12:52
Analyte		Result	RL	Units	Analyzed	Qualifie
Equipment Blanl	« (23J2919-06) M	atrix: Water Sampled: 2023-10-24	13:50, Continued			
Calculated Parame	eters, Continued					
Nitrate+Nitrite (as	N)	0.0662	0.0100	mg/L	N/A	
Nitrogen, Total		0.0662	0.0500	mg/L	N/A	
General Parameter	rs					
Ammonia, Total (a	as N)	< 0.050	0.050	mg/L	2023-10-25	
Conductivity (EC)		10.0	2.0	µS/cm	2023-10-29	
Nitrogen, Total Kj	eldahl	< 0.050	0.050	mg/L	2023-10-30	
pН		7.96	0.10	pH units	2023-10-29	HT2
Phosphorus, Tota	l (as P)	0.0209	0.0050	mg/L	2023-10-26	RE2
Turbidity		0.66	0.10	NTU	2023-10-26	
Microbiological Pa	nameters					
E. coli (Q-Tray)		< 1	1	MPN/100 mL	2023-10-25	
Total Metals						
Sodium, total		1.13	0.10	mg/L	2023-10-27	RE2
Okanagan Lake	by Nuyens (23J29	19-07) Matrix: Water Sampled: 2	023-10-24 14:25			
Anions						
Chloride		6.08	0.10	mg/L	2023-10-27	
General Parameter	rs					
			0.050		0000 40 05	

Caring About Results, Obviously.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Monitoring Wells

WORK ORDER 23 REPORTED 20

23J2919 2023-10-31 12:52

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	~	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli 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)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	✓	Kelowna
Note: An asterisk in the Method Refe	erence indicates that the CAR	O 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
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
μS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
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)	WORK ORDER	23J2919
PROJECT	Monitoring Wells	REPORTED	2023-10-31 12:52

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3J2511

Phosphate (as P)

Blank (B3J2511-BLK1)			Prepared: 202	3-10-26, Analyze	ed: 2023-10-26	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3J2511-BS1)			Prepared: 202	3-10-26, Analyze	ed: 2023-10-26	
Chloride	16.7	0.10 mg/L	16.0	105	90-110	
Nitrate (as N)	4.04	0.010 mg/L	4.00	101	90-110	
Nitrite (as N)	2.16	0.010 mg/L	2.00	108	85-115	

1 00

103

80-120

0.0050 mg/L

1 0 3

General Parameters, Batch B3J2471

Blank (B3J2471-BLK1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.036	0.020 mg/L	
Blank (B3J2471-BLK2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	< 0.020	0.020 mg/L	
Blank (B3J2471-BLK3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.035	0.020 mg/L	
Blank (B3J2471-BLK4)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.025	0.020 mg/L	
Blank (B3J2471-BLK5)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.021	0.020 mg/L	
LCS (B3J2471-BS1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.877	0.020 mg/L	1.00 88 85-115
LCS (B3J2471-BS2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.908	0.020 mg/L	1.00 91 85-115
LCS (B3J2471-BS3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.907	0.020 mg/L	1.00 91 85-115



REPORTED TO Lake Country, Distric PROJECT Monitoring Wells	ct of (Wastew	ater)			WORK (REPORT	ORDER TED	23J2 2023	919 -10-31	12:52
Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J2471, Con	tinued								
LCS (B3J2471-BS4)			Prepared	· 2023-10-25	5 Analyzed	· 2023-10)-25		
Ammonia, Total (as N)	0.907	0.020 mg/L	1.00		91	85-115			
LCS (B3J2471-BS5)			Prepared	: 2023-10-25	5, Analyzed	: 2023-10)-25		
Ammonia, Total (as N)	0.913	0.020 mg/L	1.00		91	85-115			
Duplicate (B3J2471-DUP5)	Sou	urce: 23J2919-05	Prepared	: 2023-10-25	5, Analyzed	: 2023-10)-25		
Ammonia, Total (as N)	< 0.020	0.050 mg/L	•	< 0.050	-			15	
Matrix Spike (B3J2471-MS5)	Sou	urce: 23J2919-05	Prepared	: 2023-10-25	5, Analyzed	1: 2023-10)-25		
Ammonia, Total (as N)	0.218	0.020 mg/L	0.204	< 0.050	101	75-125			
General Parameters, Batch B3J2593									
Blank (B3J2593-BLK1)			Prepared	: 2023-10-25	5, Analyzed	1: 2023-10	0-26		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B3J2593-BLK2)			Prepared	: 2023-10-25	5, Analyzed	1: 2023-10	0-26		
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B3J2593-BS1)			Prepared	: 2023-10-25	5, Analyzed	: 2023-10)-26		
Phosphorus, Total (as P)	0.0983	0.0050 mg/L	0.100		98	85-115			
LCS (B3J2593-BS2)			Prepared	: 2023-10-25	5, Analyzed	: 2023-10)-26		
Phosphorus, Total (as P)	0.0983	0.0050 mg/L	0.100		98	85-115			
General Parameters, Batch B3J2686									
Blank (B3J2686-BLK1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	< 0.10	0.10 NTU							
Blank (B3J2686-BLK2)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	< 0.10	0.10 NTU							
Blank (B3J2686-BLK3)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	< 0.10	0.10 NTU							
LCS (B3J2686-BS1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS2)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS3)			Prepared	: 2023-10-26	6, Analyzed	: 2023-10	0-26		
Turbidity	1.74	0.10 NTU	1.69		103	90-110			
General Parameters, Batch B3J2809									
Blank (B3J2809-BLK1)		0.050 "	Prepared	: 2023-10-27	, Analyzed	: 2023-10)-30		
Nitrogen, Iotal Kjeldani	< 0.050	0.050 mg/L							
Blank (B3J2809-BLK2)		0.050 "	Prepared	: 2023-10-27	, Analyzed	: 2023-10)-30		
Nitrogen, Iotal Kjeldahl	< 0.050	0.050 mg/L							
LCS (B3J2809-BS1)			Prepared	: 2023-10-27	7, Analyzed	: 2023-10	0-30		
Nitrogen, Total Kjeldahl	0.967	0.050 mg/L	1.00		97	85-115			



REPORTED TO PROJECT	Lake Country, District of Monitoring Wells	of (Wastewate	er)			WORK C	RDER ED	23J2 2023	919 -10-31	12:52
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters,	Batch B3J2809, Contin	ued								
LCS (B3.12809-BS2)				Prepared	2023-10-27	' Analyzed	· 2023-1	0-30		
Nitrogen, Total Kjeldah		0.978	0.050 mg/L	1.00	2020 10 21	98	85-115	0.00		
Duplicate (B3.12809	-DI IP2)	Sourc	e. 23,12919-02	Prenared	2023-10-27	' Analyzed	· 2023-1	0-30		
Nitrogen, Total Kjeldah		0.113	0.050 mg/L	1 Toparoa	0.100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. 2020 1	0.00	15	
Matrix Spike (B3J28	(09-MS2)	Sourc	e: 23J2919-02	Prepared	2023-10-27	Analyzed	· 2023-1	0-30		
Nitrogen, Total Kjeldah	l	1.01	0.050 mg/L	1.00	0.100	91	65-135			
General Parameters,	Batch B3J2921									
Blank (B3J2921-BLI	K1)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm			-				
Blank (B3J2921-BL	K2)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							
Blank (B3J2921-BL	K3)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							
LCS (B3J2921-BS4)				Prepared:	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		1410	2.0 µS/cm	1410		100	95-105			
LCS (B3J2921-BS5)				Prepared:	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		1400	2.0 µS/cm	1410		99	95-105			
LCS (B3J2921-BS6)				Prepared:	2023-10-29	, Analyzed	: 2023-1	0-29		
Conductivity (EC)		1420	2.0 µS/cm	1410		100	95-105			
Reference (B3J2921	I-SRM1)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
pН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921	I-SRM2)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
pH		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921	I-SRM3)			Prepared	2023-10-29	, Analyzed	: 2023-1	0-29		
pH		7.04	0.10 pH units	7.01		100	98-102			
Microbiological Para	nmeters, Batch B3J2506									
Blank (B3J2506-BL	K1)			Prepared	2023-10-25	i, Analyzed	: 2023-1	0-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BL	K3)			Prepared	2023-10-25	i, Analyzed	: 2023-1	0-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BL	K4)			Prepared	2023-10-25	i, Analyzed	: 2023-1	0-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BL	K6)			Prepared	2023-10-25	i, Analyzed	: 2023-1	0-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Total Metals, Batch	B3J2692									
Blank (B3J2692-BL	K1)			Prepared	2023-10-26	, Analyzed	: 2023-1	0-26		
Sodium, total		< 0.10	0.10 mg/L							



Sodium, total

APPENDIX 2: QUALITY CONTROL RESULTS

18.6

REPORTED TO PROJECT	Lake Country, Distric Monitoring Wells	t of (Wastewater))			WORK REPOR	ORDER TED	23J2 2023	919 -10-31	12:52
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batcl	h B3J2692, Continued									
LCS (B3J2692-BS	1)			Prepared	l: 2023-10-2	26, Analyze	d: 2023-1	0-26		
Sodium, total		3.86	0.10 mg/L	4.00		97	80-120			
Matrix Spike (B3J2	2692-MS1)	Source:	23J2919-01	Prepared	I: 2023-10-2	26, Analyze	d: 2023-1	0-26		

4.00

15.7

70-130

74

0.10 mg/L

Γ



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC, V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23J2927
PO NUMBER PROJECT PROJECT INFO	Amry - East Well Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-10-24 16:45 / 12.2°C 2023-10-31 14:59 45223.35484

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



REPORTED TO PROJECT	Lake Co Amry - E	untry, District of East Well	f (Wastewate	er)			WORK ORDER REPORTED	23J2927 2023-10-3	1 14:59
Analyte			Resu	lt	Guideline	RL	Units	Analyzed	Qualifier
Amry East Well (2	23J2927-0	1) Matrix: Wat	er Sample	d: 202	3-10-24 11:10				
Anions									
Chloride			25	5.7	AO ≤ 250	0.10	mg/L	2023-10-27	
Nitrate (as N)			1.	01	MAC = 10	0.010	mg/L	2023-10-27	
Nitrite (as N)			< 0.0	10	MAC = 1	0.010	mg/L	2023-10-27	
Phosphate (as P)			< 0.00	50	N/A	0.0050	mg/L	2023-10-27	
Calculated Parame	ters								
Nitrate+Nitrite (as	N)		1.	01	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	,		1.	13	N/A	0.0500	mg/L	N/A	
General Parameter	s								
Ammonia, Total (a	s N)		< 0.0	50	None Require	d 0.050	mg/L	2023-10-25	
BOD, 5-day			< 7	.7	N/A	2.0	mg/L	2023-10-31	
Conductivity (EC)			5	01	N/A	2.0	μS/cm	2023-10-29	
Nitrogen, Total Kje	eldahl		0.1	20	N/A	0.050	mg/L	2023-10-31	
рН			7.	82	7.0-10.5	0.10	pH units	2023-10-29	HT2
Phosphorus, Total	(as P)		0.03	04	N/A	0.0050	mg/L	2023-10-26	
Turbidity			0.	99	0G < 1	0.10	NTU	2023-10-26	
Microbiological Pa	rameters								
Coliforms, Total (C	Q-Tray)			25	MAC = 0	1	MPN/100 mL	2023-10-25	
Coliforms, Fecal (Q-Tray)		<	: 1	N/A	1	MPN/100 mL	2023-10-25	
E. coli (Q-Tray)			<	: 1	MAC = 0	1	MPN/100 mL	2023-10-25	
Total Metals									
Sodium, total			23	8.7	AO ≤ 200	0.10	mg/L	2023-10-26	
Sample Qualifie	ers:								
HT2 The 1 recomm	5 minute ended.	recommended	holding tin	ne (fr	om sampling	to analysis) ha	as been exceed	ed - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - East Well

WORK ORDER 2 REPORTED 2

23J2927 2023-10-31 14:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	\checkmark	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Kelowna
Coliforms, Fecal in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	\checkmark	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	~	Kelowna
E. coli 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	\checkmark	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	\checkmark	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	\checkmark	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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Amry - East Well

WORK ORDER 23J29 **REPORTED** 2023-

23J2927 2023-10-31 14:59

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23J2927
PROJECT	Amry - East Well	REPORTED	2023-10-31 14:59

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	Source	% REC	REC	% RPD RPD	Qualifier
			Level	Result		Limit	Limit	

Anions, Batch B3J2511

Phosphate (as P)

Blank (B3J2511-BLK1)	Prepared: 2023-10-26, Analyzed: 2023-10-26					
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3J2511-BS1)			Prepared: 202	3-10-26, Analyze	ed: 2023-10-26	i
Chloride	16.7	0.10 mg/L	16.0	105	90-110	
Nitrate (as N)	4.04	0.010 mg/L	4.00	101	90-110	
Nitrite (as N)	2.16	0.010 mg/L	2.00	108	85-115	

1 00

103

80-120

0.0050 mg/L

1 0 3

General Parameters, Batch B3J2471

Blank (B3J2471-BLK1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.036	0.020 mg/L	
Blank (B3J2471-BLK2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	< 0.020	0.020 mg/L	
Blank (B3J2471-BLK3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.035	0.020 mg/L	
Blank (B3J2471-BLK4)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.025	0.020 mg/L	
Blank (B3J2471-BLK5)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.021	0.020 mg/L	
LCS (B3J2471-BS1)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.877	0.020 mg/L	1.00 88 85-115
LCS (B3J2471-BS2)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.908	0.020 mg/L	1.00 91 85-115
LCS (B3J2471-BS3)			Prepared: 2023-10-25, Analyzed: 2023-10-25
Ammonia, Total (as N)	0.907	0.020 mg/L	1.00 91 85-115



REPORTED TO PROJECT	Lake Country, Distri Amry - East Well	ict of (Wastewa	ater)	V F			WORK ORDER REPORTED		23J2927 2023-10-31 14:59	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters	, Batch B3J2471, Cor	ntinued								
LCS (B3J2471-BS4)			Prepared	: 2023-10-25	5, Analyzed	1: 2023-1	0-25		
Ammonia, Total (as N)		0.907	0.020 mg/L	1.00		91	85-115			
LCS (B3J2471-BS5)			Prepared	: 2023-10-25	5, Analyzed	1: 2023-1	0-25		
Ammonia, Total (as N)		0.913	0.020 mg/L	1.00		91	85-115			
General Parameters	, Batch B3J2593									
Blank (B3J2593-BL	K1)			Prepared	: 2023-10-25	5, Analyzed	l: 2023-1	0-26		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3J2593-BL	K2)			Prepared	: 2023-10-25	ō, Analyzed	l: 2023-1	0-26		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3J2593-BS1)			Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as	P)	0.0983	0.0050 mg/L	0.100		98	85-115			
LCS (B3J2593-BS2)			Prepared	: 2023-10-25	5, Analyzed	: 2023-1	0-26		
Phosphorus, Total (as	P)	0.0983	0.0050 mg/L	0.100		98	85-115			
General Parameters	, Batch B3J2686									
Blank (B3J2686-BL	K1)			Prepared	: 2023-10-26	δ, Analyzed	l: 2023 - 1	0-26		
Turbidity		< 0.10	0.10 NTU							
Blank (B3J2686-BL	K2)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		< 0.10	0.10 NTU							
Blank (B3J2686-BL	K3)			Prepared	: 2023-10-26	δ, Analyzed	l: 2023-1	0-26		
Turbidity		< 0.10	0.10 NTU							
LCS (B3J2686-BS1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS2)			Prepared	: 2023-10-26	δ, Analyzed	l: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
LCS (B3J2686-BS3)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-26		
Turbidity		1.74	0.10 NTU	1.69		103	90-110			
General Parameters	, Batch B3J2723									
Blank (B3J2723-BL	K1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-31		
BOD, 5-day		< 2.0	2.0 mg/L							
LCS (B3J2723-BS1)			Prepared	: 2023-10-26	6, Analyzed	: 2023-1	0-31		
BOD, 5-day		201	45.8 mg/L	198		102	85-115			
General Parameters	, Batch B3J2921									
Blank (B3J2921-BL	K1)			Prepared	: 2023-10-29), Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							
Blank (B3J2921-BL	K2)			Prepared	: 2023-10-29), Analyzed	: 2023-1	0-29		
Conductivity (EC)		< 2.0	2.0 µS/cm							



REPORTED TO Lake Country, Distri PROJECT Amry - East Well		ct of (Wastewater)				WORK REPOR	/ORK ORDER EPORTED		23J2927 2023-10-31	
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, B	atch B3J2921, Contin	ued								
Blank (B3J2921-BLK3)	1			Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
Conductivity (EC)		< 2.0	2.0 µS/cm	•						
LCS (B3J2921-BS4)				Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
Conductivity (EC)		1410	2.0 µS/cm	1410		100	95-105			
LCS (B3J2921-BS5)				Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
Conductivity (EC)		1400	2.0 µS/cm	1410		99	95-105			
LCS (B3J2921-BS6)				Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
Conductivity (EC)		1420	2.0 µS/cm	1410		100	95-105			
Reference (B3J2921-S	RM1)			Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
рН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921-S	RM2)			Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
рН		7.04	0.10 pH units	7.01		100	98-102			
Reference (B3J2921-S	RM3)			Prepared	2023-10-29), Analyze	d: 2023-1	10-29		
рН		7.04	0.10 pH units	7.01		100	98-102			
General Parameters,B	atch B3J3003									
Blank (B3J3003-BLK1))			Prepared	2023-10-30), Analyze	d: 2023-1	10-31		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
Blank (B3J3003-BLK2))			Prepared	2023-10-30), Analyze	d: 2023-1	10-31		
Nitrogen, Total Kjeldahl		< 0.050	0.050 mg/L							
LCS (B3J3003-BS1)				Prepared	2023-10-30), Analyze	d: 2023-1	10-31		
Nitrogen, Total Kjeldahl		1.00	0.050 mg/L	1.00		100	85-115			
LCS (B3J3003-BS2)				Prepared	2023-10-30), Analyze	d: 2023-1	10-31		
Nitrogen, Total Kjeldahl		0.997	0.050 mg/L	1.00		100	85-115			
Microbiological Paramo	eters, Batch B3J2506				0000 40 05			0.05		
Blank (B3J2506-BLK1)		<i>c</i> 1	1 MDN/100 r	Prepared	2023-10-25	o, Analyze	a: 2023-1	10-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BLK2)				Prepared	2023-10-25	5, Analyze	d: 2023-1	10-25		
Coliforms, Fecal (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BLK3)	1			Prepared	2023-10-25	5, Analyze	d: 2023-1	10-25		
Coliforms, Total (Q-Tray)		< 1	1 MPN/100 r	nL						
E. coli (Q-Tray)		< 1	1 MPN/100 r	nL						
Blank (B3J2506-BLK4)				Prepared	2023-10-25	ō, Analyze	d: 2023-1	10-25		
Coliforms, Total (Q-Tray)		< 1	1 MPN/100 r	nL						
		<u> </u>	1 IVIP'N/100 P	D	0000 10 00		-l. 0000	10.05		
Blank (B3J2506-BLK5)		~ 1	1 MDNI/100 -	Prepared	2023-10-25	o, Analyze	a: 2023-1	10-25		
		<u> </u>	i WPN/1001	D	0000 10 5			10.05		
Blank (B3J2506-BLK6)		- 4	4 MDN/400	Prepared	2023-10-25	o, Analyze	a: 2023-1	10-25		
E. coli (Q-Tray)		< 1	1 MPN/100 r 1 MPN/100 r	n∟ nL						



REPORTED TO Lake Country, D PROJECT Amry - East We		t of (Wastewater)			WORK REPOR	VORK ORDER 23. REPORTED 202		927 -10-31	14:59
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batc	ch B3J2692									
Blank (B3J2692-B	BLK1)			Prepared	: 2023-10-2	26, Analyze	d: 2023-1	0-26		
Sodium, total		< 0.10	0.10 mg/L							
LCS (B3J2692-BS	51)			Prepared	: 2023-10-2	26, Analyze	d: 2023-1	0-26		
Sodium, total		3.86	0.10 mg/L	4.00		97	80-120			



CERTIFICATE OF ANALYSIS

REPORTED TO	Lake Country, District of (Wastewater) 4062 Beaver Lake Rd LAKE COUNTRY, BC_V4V 1T5		
ATTENTION	Davin Larsen	WORK ORDER	23E2847
PO NUMBER PROJECT PROJECT INFO	Lake Country WWTP	RECEIVED / TEMP REPORTED COC NUMBER	2023-05-23 14:19 / 9.0°C 2023-05-30 09:01 45069.35281

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.

We've Got Chemistry

Big Picture Sidekicks



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.

32

Ahead of the Curve

Through research, regulation and instrumentation, knowledge, we are your analytical centre the for knowledge technical 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

Lubbert

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

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



Analyte Result Guideline RL Units Analyze 10101A Kunschuh Rd (23E2847-01) Matrix: Water Sampled: 2023-05-23 10:41 4 <td< th=""><th colspan="2">23E2847 2023-05-30 09:01</th></td<>	23E2847 2023-05-30 09:01	
10101A Kunschuh Rd (23E2847-01) Matrix: Water Sampled: 2023-05-23 10:41 Anions Chloride 85.9 AO ≤ 250 0.10 mg/L 2023-05-2 Nitrate (as N) 3.71 MAC = 10 0.010 mg/L 2023-05-2 Nitrite (as N) < 0.010 MAC = 1 0.010 mg/L 2023-05-2 Phosphate (as P) < 0.0050 N/A 0.0050 mg/L 2023-05-2 Calculated Parameters Nitrate+Nitrite (as N) 3.71 N/A 0.0100 mg/L N/A Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A	Qualifier	
Anions Chloride 85.9 AO ≤ 250 0.10 mg/L 2023-05-2 Nitrate (as N) 3.71 MAC = 10 0.010 mg/L 2023-05-2 Nitrite (as N) < 0.010 MAC = 1 0.010 mg/L 2023-05-2 Phosphate (as P) < 0.010 MAC = 1 0.010 mg/L 2023-05-2 Calculated Parameters N/A 0.0050 mg/L 2023-05-2 Nitrate+Nitrite (as N) 3.71 N/A 0.0100 mg/L 2023-05-2 Calculated Parameters 3.71 N/A 0.0100 mg/L N/A Nitrate+Nitrite (as N) 3.71 N/A 0.0100 mg/L N/A Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A		
Chloride 85.9 AO ≤ 250 0.10 mg/L 2023-05-2 Nitrate (as N) 3.71 MAC = 10 0.010 mg/L 2023-05-2 Nitrite (as N) < 0.010		
Nitrate (as N) 3.71 MAC = 10 0.010 mg/L 2023-05-2 Nitrite (as N) < 0.010	4	
Nitrite (as N) < 0.010 MAC = 1 0.010 mg/L 2023-05-2 Phosphate (as P) < 0.0050	4	
Phosphate (as P) < 0.0050 N/A 0.0050 mg/L 2023-05-2 Calculated Parameters Nitrate+Nitrite (as N) 3.71 N/A 0.0100 mg/L N/A Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A	4	
Strate+Nitrite (as N) 3.71 N/A 0.0100 mg/L N/A Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A	4	
Nitrate+Nitrite (as N) 3.71 N/A 0.0100 mg/L N/A Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A		
Nitrogen, Total 3.84 N/A 0.0500 mg/L N/A		
General Parameters		
Ammonia, Total (as N) 0.054 None Required 0.050 mg/L 2023-05-2	4	
Conductivity (EC) 774 N/A 2.0 µS/cm 2023-05-2	7	
Nitrogen, Total Kjeldahl 0.135 N/A 0.050 mg/L 2023-05-2	3	
pH 7.26 7.0-10.5 0.10 pH units 2023-05-2	7 HT2	
Phosphorus, Total (as P) 0.0123 N/A 0.0050 mg/L 2023-05-2	5	
Microbiological Parameters		
E. coli (Q-Tray) < 1 MAC = 0 1 MPN/100 mL 2023-05-2	3	
Total Metals		
Sodium, total 56.6 AO ≤ 200 0.10 mg/L 2023-05-2	9	

10050 McCarthy Rd (23E2847-02) | Matrix: Water | Sampled: 2023-05-23 10:30

Anions						
Chloride	0.41	AO ≤ 250	0.10	mg/L	2023-05-24	
Nitrate (as N)	0.020	MAC = 10	0.010	mg/L	2023-05-24	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-05-24	
Phosphate (as P)	0.0750	N/A	0.0050	mg/L	2023-05-24	
Calculated Parameters						
Nitrate+Nitrite (as N)	0.0203	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.290	N/A	0.0500	mg/L	N/A	
General Parameters						
Ammonia, Total (as N)	0.225	None Required	0.050	mg/L	2023-05-24	
Conductivity (EC)	273	N/A	2.0	µS/cm	2023-05-27	
Nitrogen, Total Kjeldahl	0.270	N/A	0.050	mg/L	2023-05-28	
рН	8.17	7.0-10.5	0.10	pH units	2023-05-27	HT2
Phosphorus, Total (as P)	0.232	N/A	0.0050	mg/L	2023-05-25	
Microbiological Parameters						
E. coli (Q-Tray)	< 1	MAC = 0	1	MPN/100 mL	2023-05-23	

Total Metals



REPORTED TO Lake Country, District of PROJECT Lake Country WWTP		astewater)			WORK ORDER REPORTED	23E2847 2023-05-3	0 09:01	
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier	
10050 McCarthy	Rd (23E2847-02) Matrix: Wa	ter Sample	d: 2023-05-23 10:30,	Continued				
Total Metals, Conti	nued							
Sodium, total		8.69	AO ≤ 200	0.10	mg/L	2023-05-29		
9989 Bottom Woo	od Lake Rd (23E2847-03) Ma	atrix: Water	Sampled: 2023-05-2	23 11:06				
Anions								
Chloride		38 7	AO ≤ 250	0.10	ma/l	2023-05-24		
Nitrate (as N)		4 02	MAC = 10	0.010	mg/L	2023-05-24		
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/l	2023-05-24		
Phosphate (as P)		< 0.0050	N/A	0.0050	mg/L	2023-05-24		
Calculated Parame	ters							
Nitrate+Nitrite (as	N)	4 02	N/A	0 0100	ma/l	N/A		
Nitrogen. Total		4.24	N/A	0.0500	mg/L	N/A		
General Parameter	ΓS							
Ammonia Total (a	e NI)	0.051	None Required	0.050	ma/l	2023-05-24		
Conductivity (EC)		0.051		2.0	uS/cm	2023-05-24		
Nitrogen Total Kie	aldahl	0 224	N/A	0.050	mg/l	2023-05-28		
nH		7 47	7 0-10 5	0.030	nH units	2023-05-20	HT2	
Phosphorus, Total	(as P)	0.0113	N/A	0.0050	mg/L	2023-05-27	1112	
Microbiological Pa	rameters				0			
F coli (Q-Trav)		< 1	MAC = 0	1	MPN/100 ml	2023-05-23		
Total Metals								
Sodium, total		20.3	AO ≤ 200	0.10	mg/L	2023-05-29		
9991 McCarthy R	d (23E2847-04) Matrix: Wate	er Sampled	: 2023-05-23 10:20					
Anions						0000		
		85.0	AO ≤ 250	0.10	mg/L	2023-05-24		
Nitrate (as N)		4.33	MAC = 10	0.010	mg/L	2023-05-24		
Decembers (co. D)		< 0.010		0.010	mg/L	2023-05-24		
	4	< 0.0050	IN/A	0.0050	mg/L	2023-05-24		
Calculated Parame	eters							
Nitrate+Nitrite (as	N)	4.33	N/A	0.0100	mg/L	N/A		
Nitrogen, Total		4.62	N/A	0.0500	mg/L	N/A		
General Parameter	'S							
Ammonia, Total (a	is N)	0.054	None Required	0.050	mg/L	2023-05-24		
Conductivity (EC)		789	N/A	2.0	µS/cm	2023-05-27		
Nitrogen, Total Kje	eldahl	0.287	N/A	0.050	mg/L	2023-05-28		
рН		7.65	7.0-10.5	0.10	pH units	2023-05-27	HT2	

Page 3 of 10



Nitrogen, Total

REPORTED TO Lake Country, Distri PROJECT Lake Country WWT		ct of (Wastewater) P			WORK ORDER REPORTED	23E2847 2023-05-30 09:01	
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
9991 McCarthy R	Rd (23E2847-04) Matrix: Wa	ater Sampled	: 2023-05-23 10:20, C	Continued			
General Parameter	rs, Continued						
Phosphorus, Tota	l (as P)	0.0150	N/A	0.0050	mg/L	2023-05-25	
Microbiological Pa	nrameters						
E coli (Q-Trav)		< 1	MAC = 0	1	MPN/100 ml	2023-05-23	
		· •		•		2020 00 20	
				0.40		0000 05 00	
Sodium, total		56.2	AO ≤ 200	0.10	mg/L	2023-05-29	
9815 McCarthy R	Rd (23E2847-05) Matrix: Wa	ater Sampled	: 2023-05-23 10:06				
Anions							
Chloride		97.7	AO ≤ 250	0.10	mg/L	2023-05-24	
Nitrate (as N)		4.22	MAC = 10	0.010	mg/L	2023-05-24	
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-05-24	
Phosphate (as P)		< 0.0050	N/A	0.0050	mg/L	2023-05-24	
Calculated Parame	eters						
Nitrate+Nitrite (as	5 N)	4.22	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		4.47	N/A	0.0500	mg/L	N/A	
General Parameter	rs						
Ammonia, Total (a	as N)	< 0.050	None Required	0.050	mg/L	2023-05-24	
Conductivity (EC)		849	N/A	2.0	µS/cm	2023-05-27	
Nitrogen, Total Kje	eldahl	0.253	N/A	0.050	mg/L	2023-05-28	
рН		7.70	7.0-10.5	0.10	pH units	2023-05-27	HT2
Phosphorus, Tota	l (as P)	0.0142	N/A	0.0050	mg/L	2023-05-25	
Microbiological Pa	arameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-05-23	
Total Metals							
Sodium, total		72.1	AO ≤ 200	0.10	mg/L	2023-05-29	
10101B Kunschu	ıh Rd (23E2847-06) Matrix:	: Water Samp	led: 2023-05-23 10:5	2	-		
Anions							
Chloride		8.13	AO ≤ 250	0.10	mg/L	2023-05-24	RE2
Nitrate (as N)		0.042	MAC = 10	0.010	mg/L	2023-05-24	RE2
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-05-24	RE2
Phosphate (as P)		< 0.0000	IN/A	0.0050	mg/L	2023-05-24	RE2
Calculated Parame	eters						
Nitrate+Nitrite (as	N)	0.0419	N/A	0.0100	mg/L	N/A	

N/A

0.0500 mg/L

0.358

N/A

Г



REPORTED TO Lake Country, District of PROJECT Lake Country WWTP		Wastewater)			WORK ORDER REPORTED	23E2847 2023-05-30 09:01	
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifier
10101B Kunschu	h Rd (23E2847-06) Matrix:	Water Samp	led: 2023-05-23 10:5	2, Continue	d		
General Parameters	5						
Ammonia, Total (a	s N)	0.050	None Required	0.050	mg/L	2023-05-24	
Conductivity (EC)		295	N/A	2.0	µS/cm	2023-05-27	
Nitrogen, Total Kje	Idahl	0.316	N/A	0.050	mg/L	2023-05-28	
рН		8.10	7.0-10.5	0.10	pH units	2023-05-27	HT2
Phosphorus, Total	(as P)	0.0089	N/A	0.0050	mg/L	2023-05-25	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-05-23	
Total Metals							
Sodium, total		13.9	AO ≤ 200	0.10	mg/L	2023-05-29	
Trip Blank (23E28	47-07) Matrix: Water Sar	npled: 2023-0	5-23 09:00				
Anions							
Chloride		< 0.10	AO ≤ 250	0.10	mg/L	2023-05-24	
Nitrate (as N)		< 0.010	MAC = 10	0.010	mg/L	2023-05-24	
Nitrite (as N)		< 0.010	MAC = 1	0.010	mg/L	2023-05-24	
Phosphate (as P)		< 0.0050	N/A	0.0050	mg/L	2023-05-24	
Calculated Parame	ters						
Nitrate+Nitrite (as	N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total		< 0.0500	N/A	0.0500	mg/L	N/A	
General Parameters	S						
Ammonia, Total (a	s N)	0.052	None Required	0.050	mg/L	2023-05-24	
Conductivity (EC)		< 2.0	N/A	2.0	µS/cm	2023-05-27	
Nitrogen, Total Kje	Idahl	< 0.050	N/A	0.050	mg/L	2023-05-28	
рН		5.67	7.0-10.5	0.10	pH units	2023-05-27	HT2
Phosphorus, Total	(as P)	< 0.0050	N/A	0.0050	mg/L	2023-05-25	
Microbiological Pa	rameters						
E. coli (Q-Tray)		< 1	MAC = 0	1	MPN/100 mL	2023-05-23	
Total Metals							
Sodium, total		< 0.10	AO ≤ 200	0.10	mg/L	2023-05-29	
Sample Qualifie	rs:						
HT2 The 15 recomm RE2 Result w	 minute recommended h ended. vas confirmed by re-analysis pr 	olding time (ior to reporting.	from sampling to a	analysis) ha	as been exceed	ed - field	analysis is



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TOLake Country, District of (Wastewater)**PROJECT**Lake Country WWTP

WORK ORDER 23 REPORTED 20

23E2847 2023-05-30 09:01

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	\checkmark	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli in Water	NA / 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)	\checkmark	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCI Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	\checkmark	Richmond

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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

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

WORK ORDER

23E2847 2023-05-30 09:01

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do <u>not</u> take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:bwhitehead@caro.ca

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)	WORK ORDER	23E2847
PROJECT	Lake Country WWTP	REPORTED	2023-05-30 09:01

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	Source	% REC	REC	% RPD RPD	Qualifier	
·			Level	Result		Limit	Limit		

Anions, Batch B3E2571

Phosphate (as P)

Blank (B3E2571-BLK1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
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				
Phosphate (as P)	< 0.0050	0.0050 mg/L				
LCS (B3E2571-BS1)			Prepared: 202	3-05-24, Analyze	ed: 2023-05-24	
Chloride	16.3	0.10 mg/L	16.0	102	90-110	
Nitrate (as N)	4.08	0.010 mg/L	4.00	102	90-110	
Nitrite (as N)	2.09	0.010 mg/L	2.00	104	85-115	

1 00

107

80-120

0.0050 mg/L

1 07

General Parameters, Batch B3E2577

Blank (B3E2577-BLK1)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK2)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK3)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
Blank (B3E2577-BLK4)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	< 0.050	0.050 mg/L				
LCS (B3E2577-BS1)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	0.995	0.050 mg/L	1.00	100	85-115	
LCS (B3E2577-BS2)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	0.990	0.050 mg/L	1.00	99	85-115	
LCS (B3E2577-BS3)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	
Ammonia, Total (as N)	1.03	0.050 mg/L	1.00	103	85-115	
LCS (B3E2577-BS4)			Prepared: 2023	3-05-24, Analyze	ed: 2023-05-24	



REPORTED TO Lake Country, Distric PROJECT Lake Country WWTF		of (Wastewater)				WORK ORDER REPORTED		ER 23E2847 2023-05-30 09:01		
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifie
General Parameters	, Batch B3E2678									
Blank (B3E2678-BL	.K1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
Blank (B3E2678-BL	.K2)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L			-				
Blank (B3E2678-BL	.K3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L			, ,				
Blank (B3E2678-BL	.K4)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	< 0.0050	0.0050 mg/L							
LCS (B3E2678-BS1)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	, Р)	0.105	0.0050 mg/L	0.100		105	85-115			
LCS (B3E2678-BS2)			Prepared	: 2023-05-24	Analvzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.104	0.0050 mg/L	0.100		104	85-115			
LCS (B3E2678-BS3)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	, Р)	0.100	0.0050 mg/L	0.100		100	85-115			
LCS (B3E2678-BS4)			Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	<u>,</u> Р)	0.101	0.0050 mg/L	0.100		101	85-115			
Duplicate (B3E2678	3-DUP3)	So	urce: 23E2847-02	Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.230	0.0050 mg/L	•	0.232	· · · ·		< 1	15	
Matrix Spike (B3E2	678-MS3)	So	urce: 23E2847-02	Prepared	: 2023-05-24	, Analyzed	: 2023-0	5-25		
Phosphorus, Total (as	P)	0.334	0.0050 mg/L	0.102	0.232	100	70-125			
General Parameters	6, Batch B3E2921			Prepared	· 2023-05-26	Analyzed	· 2023-0	5-28		
Nitrogen, Total Kjeldal	nl	< 0.050	0.050 mg/L	. repared	0 _ 0 _ 0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0 _ 0	0 20		
Blank (B3E2921-BL	.K2)			Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
Nitrogen, Total Kjeldah	, nl	< 0.050	0.050 mg/L	•						
LCS (B3E2921-BS1)			Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
Nitrogen, Total Kjeldal	nl	0.883	0.050 mg/L	1.00		88	85-115			
LCS (B3E2921-BS2)			Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
Nitrogen, Total Kjeldar	1	0.887	0.050 mg/L	1.00		89	85-115			
Duplicate (B3E292	I-DUP1)	So	urce: 23E2847-02	Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
Nitrogen, Total Kjeldal	nl	0.168	0.050 mg/L		0.270	-		47	15	
Matrix Spike (B3E2	921-MS1)	So	urce: 23E2847-02	Prepared	: 2023-05-26	, Analyzed	: 2023-0	5-28		
	•			•		-				

Blank (B3E3026-BLK1)			Prepared: 2023-05-27, Analyzed: 2023-05-27
Conductivity (EC)	< 2.0	2.0 µS/cm	
Blank (B2E2026 BLK2)			Prepared: 2023-05-27 Apolyzed: 2023-05-27
DIATIK (DJEJUZO-DLKZ)			1 Tepared: 2023-03-27, Analyzed: 2023-03-27
Conductivity (EC)	< 2.0	2.0 µS/cm	Trepared. 2020-00-27, Analyzed. 2020-00-27



REPORTED TO PROJECT	Lake Country, Dis Lake Country WV	ake Country, District of (Wastewater) ake Country WWTP				WORK (REPOR	ORDER TED	RDER 23E2847 2023-05-30 09:01			
Analyte		Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameter	rs, Batch B3E3026, C	Continued									
LCS (B3E3026-BS	3)			Prepared	: 2023-05-2	7, Analyzeo	1: 2023-0	5-27			
Conductivity (EC)		1410	2.0 µS/cm	1410		100	95-105				
LCS (B3E3026-BS	4)			Prepared	: 2023-05-2	7, Analyzeo	1: 2023-0	5-27			
Conductivity (EC)	-	1410	2.0 µS/cm	1410		100	95-105				
Reference (B3E30	26-SRM1)			Prepared	: 2023-05-2	7, Analyzeo	l: 2023-0	5-27			
pН		7.01	0.10 pH units	7.01		100	98-102				
Reference (B3E30	26-SRM2)			Prepared	: 2023-05-2	7, Analyzeo	1: 2023-0	5-27			
рН		7.01	0.10 pH units	7.01		100	98-102				
Microbiological Pa Blank (B3E2437-B	rameters, Batch B3I	E2437		Prepared	: 2023-05-2	3, Analyzeo	1: 2023-0	5-23			
E. coli (Q-Tray)		< 1	1 MPN/100	mL							
Blank (B3E2437-B	LK2)			Prepared	: 2023-05-2	3, Analyzeo	l: 2023-0	5-23			
E. coli (Q-Tray)		< 1	1 MPN/100	mL							
Total Metals, Batc	h B3E3003			Deserves		C. An alteration					
Blank (B3E3003-B	5LK1)	< 0.10	0.10 mg/l	Prepared	: 2023-05-2	b, Analyzeo	1: 2023-0	15-29			
Soulum, total		< 0.10	0.10 mg/L								
LCS (B3E3003-BS	1)			Prepared	: 2023-05-2	6, Analyzeo	1: 2023-0	5-29			
Sodium, total		3.85	0.10 mg/L	4.00		96	80-120				

Appendix C – Non-Compliance Reporting



MINISTRY OF ENVIRONMENT REGIONAL OPERATIONS BRANCH

NON-COMPLIANCE REPORTING MAILBOX NOTIFICATION TEMPLATE

 To:
 EnvironmentalCompliance@gov.bc.ca

 Subject:
 2023-01-10 Authorization #14651 Effluent Permit exceedance - BOD

 Attention:
 Bother and a state of the state of th

<u>Non-compliance Report for Authorization #</u> 14651 Accredited BOD result higher than permit limit. Date of Non-compliance: 2023-01-10 1300

Location of Non-compliance 4062 beaver lake rd 50.024865, -119.385069

Nature of Non-compliance: Monthly Accredited lab results came back 21.7 mg/l cBOD and permit limit states 20 mg/l cBOD.

Initial Response/Actions taken: Total suspended solids had been steadily increasing since cold weather snap in mid December. This has been a common event(annual) in cold weather situations, where plant performance is hindered.

Monitoring conducted: An additional sample was sent in to Caro January 16th, to confirm results and to see if new filter system has remedied the situation

Future action items:As part of the phase 4 upgrade to the Wastewater Treatment Plant, effluent filters have been installed and were commissioned on January 13th. We are expecting these filters to improve effluent quality, and reduce the occurrence of exceedances in cold weather situations.

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

Attachments: Caro Lab results - 14651 NCR20230110 Lab results.pdf



MINISTRY OF ENVIRONMENT REGIONAL OPERATIONS BRANCH

NON-COMPLIANCE REPORTING MAILBOX NOTIFICATION TEMPLATE

To:EnvironmentalCompliance@gov.bc.caSubject:14651-NCR-20230315 Effluent flow
limit exceedance

Attention:

Non-compliance Report for Authorization # 14651

Date of Non-compliance: 2023-02-28

Location of Non-compliance [4062 beaver lake rd 50.024865, -119.385069]:

Nature of Non-compliance: Monthly permit limit for effluent flow has been exceeded. Limit is currently at 2000m3/day(daily flow averaged over the month) and the February monthly total was 2161 m3 for February 2023.

Initial Response/Actions taken: for the month of February, the facility was using a high volume of reclaimed water. Reclaimed water is taken AFTER the final flow meter and reintroduced back into the process which is giving an abnormally high effluent flow meter reading. This event was due to process requirement stemming from our current upgrade and should not be required in the future when the upgrade is complete(scheduled for mid April)

Monitoring conducted: The increase in flow is due to a temporary internal recycle, and only reporting this as the effluent meter reading is over the permit limit. Actual flow leaving the plant, is estimated to be below permit limit, but cant confirm.

Future action items: Once phase 4 is completed this recycle will not be required and was only really needed during the colder weather.

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

Attachments: None.



MINISTRY OF ENVIRONMENT REGIONAL OPERATIONS BRANCH

NON-COMPLIANCE REPORTING MAILBOX NOTIFICATION TEMPLATE

To:EnvironmentalCompliance@gov.bc.caSubject:2024-01-04 Authorization #14651-2023 annual average Ortho-P
exceedance

Attention:Non-compliance Report for Authorization # 146512023 annual average for Ortho Phosporus not met

Date of Non-compliance: 2024-01-04 1300

Location of Non-compliance : 4062 beaver lake rd, 50.049367 & -119.392982

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 2023 came back with an annual average of 0.18 mg/l Ortho-P(measured as P).

Causes: The higher than average Ortho-P results are assumed to be caused by the following factors:

•The Phase 4 upgrade of the Lake Country WWTP was substantially completed in September 2023. Leading up to substantial completion, operations of the WWTP were in constant change as vessels were being bypassed, commissioned, and tested, creating an abnormal operating situation that saw some decrease in effluent quality.

•There is a typical drop in effluent quality in colder weather conditions. Even though this winter has been very mild, we have seen slight increase this winter as expected. Therefore in combination with the higher than normal warm weather results due to commissioning, Ortho-P levels presented higher than normal this year.

Future action items: The Phase 4 upgrades have now been completed and therefore it is expected that the Ortho-P levels will be more likely to be within range moving forward.

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

Attachments:

Note: This form is intended to facilitate communication regarding non-compliance events between authorisation holders and the ministry. Submission of this form by an authorization holder does not constitute an inspection or a finding of non-compliance in accordance with ministry compliance and enforcement policy and procedure.

All reportable spills must be reported to PEP at 1-800-663-3456.

More detailed information may be required by the ministry on follow-up.

Appendix D - Groundwater Monitoring Report


Date:	March 4, 2024
То:	Davin Larsen, AScT., District of Lake Country
	Sarah Graham, District of Lake Country
From:	Dr. Joanne Quarmby, R.P.Bio
File:	OC 14651
Subject:	Review of 2023 Groundwater Data - Centralised Plant

1. Introduction

Groundwater monitoring is required as part of the 2021 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.

Site Description		Monitorin	g Scope
Sile	Description	Groundwater Depth	Water Quality
MW-2	Background (up-gradient) well	Monthly	
MW-18	Down-gradient within treatment plant boundary	Continuous	Once in the environ
MW-10	Down-gradient near treatment plant boundary	Continuous	and fall for the
MW-12	Down-gradient near treatment plant boundary	Continuous	following parameters:
MW-14	Down-gradient, by Lodge Road	Monthly	sodium, chloride, conductance,
H1	10050 McCarthy Road		ammonia, nitrate/nitrite_TKN
H2	10101A Konschuh Road		total nitrogen, total
HЗ	9989 Bottom Wood Lake Road	Not required	phosphorus, orthophosphorus,
H4	10101B Konschuh Road		pH and <i>E. coli</i> .
H5	9815 McCarthy Road		
H6	9719 McCarthy Road		
H7	9991 McCarthy Road		

Table 1.1: Groundwater Monitoring Program

Reporting of the groundwater data is a requirement of the 2021 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.

MemorandumDate:March 4, 2024File:OC 14651Subject:Review of 2023 Groundwater Data – Centralised PlantPage: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. The highest groundwater levels were consistently observed at MW-10, located down-gradient near the plant boundary, with the lowest groundwater levels being 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. This well showed a clear decrease during the summer months. 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. 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

Memorandur	n
Date:	March 4, 2024
File:	OC 14651
Subject:	Review of 2023 Groundwater Data - Centralised Plant
Page:	3 of 10



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.





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 May 30th and the fall samples were taken on October 24th.

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, 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. Focusing on nitrate as the possible best tracer for the presence of effluent from the District's discharge (although nitrate could also be present as a result of agricultural activities which occur commonly in this area), the concentrations at MW-10 and MW-12 were higher than that in the background well MW-2, with the highest concentration being in MW-12. The concentration decreased at MW-14, with the reported concentration

Date:	March 4, 2024
File:	OC 14651
Subject:	Review of 2023 Groundwater Data - Centralised Plant
Page:	4 of 10



being below the analytical detection limit. Of interest, the nitrate concentration in MW-18, which is one of the closest wells to the point of effluent release, was lower than the background well. Unlike previous years, there was no consistency in the higher nitrate concentration being associated with the three closest down-gradient wells to the point of discharge (i.e. MW-18, MW-10 and MW-12).

Devementer	Unite	Location						
Parameter	Units	MW-2	MW-18	MW-10	MW-12	MW-14		
Total Nitrogen	mg/L	1.11	0.959	2.48	2.53	0.168		
TKN	mg/L	0.150	0.110	0.217	0.139	0.168		
Organic Nitrogen	mg/L	0.125	0.085	0.192	0.114	0.143		
Ammonia	mg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050		
Nitrate	mg/L	0.955	0.849	2.26	2.39	< 0.010		
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		
Total Phosphorus	mg/L	0.0148	1.82	0.0817	0.0812	0.118		
Orthophosphorus	mg/L	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050		
Sodium	mg/L	16.2	78.7	70.3	113	66.8		
Chloride	mg/L	8.06	95.0	104	81.0	96.9		
Conductivity	µS/cm	450	765	884	912	1,040		
рН	pH units	8.01	8.07	7.99	8.02	8.00		
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1		

Table 3.1: Summary of Spring Data

Total phosphorus was elevated at MW-18 compared with the other wells. This has been observed in the past. However, this is not expected to be related to the effluent release for the following reasons:

- Due to the treatment being biological nutrient removal, the effluent total phosphorus concentrations are expected to be low.
- Typically, orthophosphorus is the predominant form of phosphorus in a domestic wastewater effluent. However, this was not the case for MW-18, where phosphorus was mainly in the particulate form, with the orthophosphorus concentration being below the analytical detection limit.
- Phosphorus tends to bind readily to soils, so would be expected to be present in low concentrations in the groundwater.
- As with previous occasions when the total phosphorus concentration in MW-18 has been elevated, the turbidity was also elevated. For the 2023 data, the turbidity in the sample from MW-18 was in the order of 300 NTU compared with the other monitoring wells (3 to 10 NTU range). There is a

Me	mo	rai	าปเ	ım

Date:	March 4, 2024
File:	OC 14651
Subject:	Review of 2023 Groundwater Data – Centralised Plant
Page:	5 of 10



strong relationship between increases in particulate phosphorus when turbidity is elevated as a result of the presence of natural phosphorus associated with sediments and soils. Therefore, it is reasonable to assume that the source of the particulate phosphorus was from the natural soils rather than being related to the effluent release.

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 dilution as the effluent moves through the ground. Given the same assumptions for the parameters of most interest, focusing on nitrate, the concentration was elevated above the background well at MW-18, MW-10 and MW-12, with the highest concentration being at MW-10. 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.

Demonster	llu:to	Location						
Parameter	Units	MW-2	MW-18	MW-10	MW-12	MW-14		
Total Nitrogen	mg/L	1.05	2.49	3.36	2.37	0.352		
TKN	mg/L	0.081	0.432	0.100	0.236	0.352		
Organic Nitrogen	mg/L	0.056	0.407	0.075	0.211	0.237		
Ammonia	mg/L	< 0.050	< 0.050	< 0.050	< 0.050	0.115		
Nitrate	mg/L	0.974	2.06	3.26	2.12	< 0.010		
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		
Total Phosphorus	mg/L	< 0.0050	0.206	0.0229	0.0602	0.387		
Orthophosphorus	mg/L	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050		
Sodium	mg/L	15.7	0.206	68.8	79.9	69.8		
Chloride	mg/L	9.42	128	113	120	116		
Conductivity	µS/cm	429	889	872	905	1,080		
рН	pH units	7.59	7.85	7.81	7.85	7.83		
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1		

Table 3.2: Summary of Fall Data

In the spring, the highest concentrations were generally associated with MW-10 and MW-12, with the lowest concentrations being typically associated with the background well MW-2. However, for the fall, the highest concentrations were generally associated with MW-18 and MW-14, which are the wells closest and furthest

Date:March 4, 2024File:OC 14651Subject:Review of 2023 Groundwater Data – Centralised PlantPage:6 of 10



away from the wastewater treatment plant. As with the spring data, the lowest concentrations continued to be observed at MW-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 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 μ S/cm for the most sensitive crops to 5,000 μ 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 general common vegetation for the general area. For *E. coli*, there were several guidelines which range from absence up to \leq 1,000 CFU/100 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.

As with data from previous years, there was only one parameter (chloride) where data were higher than the most stringent guideline. Chloride concentrations were generally around the 100 mg/L at all down-gradient wells in both the spring and the fall, with the concentration in MW-10 being above 100 mg/L in the spring and the concentration for all down-gradient wells being above 100 mg/L in the fall. 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 is typically in the 100 to 130 mg/L range. However, based on other data, 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 with the chloride data, the potential influence from other anthropogenic sources of chloride (and possibly other parameters) on MW-14 should be considered.

Parameter	Unite	Quidalina	Location					
Parameter	Units	Guideine	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)						

Table 3.3: Guideline Comparison

Date:	March 4, 2024
File:	OC 14651
Subject:	Review of 2023 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 May 23rd and the fall samples were taken on October 17th. There are no data available for H6 as this site is no longer accessible and the home is no longer occupied. The property was sold and is now an industrial marijuana operation with high security. A request to amend the operational certificate to remove this well from the monitoring scope was submitted to the Ministry of Environment and Climate Change Strategy in June, 2023 (tracking number 426511). To date, no further information on this request has been provided to the District by the Ministry. The samples for H7 were taken by the home owner, and there is no guarantee that the approach used for sampling 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 2021 and 2022 data. However, the highest data for ammonia, pH and both phosphorus parameters were associated with H1 in both the spring and the fall.
- 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 in H2, H3, H5 and H7 in both the spring and the fall (plus H4 in the fall). Sodium, chloride and conductivity were the elevated in H2, H5 and H7 in the spring and H2, H4, H5 and H7 in the fall. For these parameters, the highest concentrations were observed in H5 during the spring and H4 in the fall. 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.

Parameter	Units	Location						
		MW-2	H1	H2	H3	H4	H5	H7
Total Nitrogen	mg/L	1.11	0.290	3.84	4.24	0.358	4.47	4.62
TKN	mg/L	0.150	0.270	0.135	0.224	0.316	0.253	0.287
Organic Nitrogen	mg/L	0.125	0.045	0.081	0.173	0.266	0.228	0.233
Ammonia	mg/L	< 0.050	0.225	0.054	0.051	0.050	< 0.050	0.054
Nitrate	mg/L	0.955	0.020	3.71	4.02	0.042	4.22	4.33
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Table 3.4: Summary of Spring Data

Date:March 4, 2024File:OC 14651Subject:Review of 2023 Groundwater Data – Centralised PlantPage:8 of 10



Table 3.4: Summary of Spring Data (continued...)

Parameter	Unito	Location						
	Units	MW-2	H1	H2	H3	H4	H5	H7
Total Phosphorus	mg/L	0.0148	0.232	0.0123	0.0113	0.0089	0.0142	0.0150
Orthophosphorus	mg/L	< 0.0050	0.0750	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sodium	mg/L	16.2	8.69	56.6	20.3	13.9	72.1	56.2
Chloride	mg/L	8.06	0.41	85.9	38.7	8.13	97.7	85.0
Conductivity	μS/cm	450	273	774	405	295	849	789
рН	pH units	8.01	8.17	7.26	7.47	8.10	7.70	7.65
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Parameter	Units	Location						
		MW-2	H1	H2	H3	H4	H5	H7
Total Nitrogen	mg/L	1.05	0.379	4.36	4.88	2.27	4.80	4.64
TKN	mg/L	0.081	0.368	0.334	0.345	0.389	0.292	0.285
Organic Nitrogen	mg/L	0.056	0.141	0.309	0.340	0.384	0.267	0.260
Ammonia	mg/L	< 0.050	0.227	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrate	mg/L	0.974	0.011	4.03	4.54	1.88	4.51	4.36
Nitrite	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Phosphorus	mg/L	< 0.0050	0.231	0.0107	0.0066	< 0.0050	0.0097	0.0119
Orthophosphorus	mg/L	< 0.0050	0.0574	0.0123	0.0053	< 0.0050	< 0.0050	< 0.0050
Sodium	mg/L	15.7	8.34	57.1	20.0	74.6	70.8	55.4
Chloride	mg/L	9.42	0.43	87.7	40.3	112.0	101.0	80.9
Conductivity	μS/cm	429	265	754	393	846	830	768
рН	pH units	7.59	8.08	7.23	7.37	7.77	7.78	7.82
E. coli	MPN/100 mL	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Table 3.5: Summary of Fall Data

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

Date:March 4, 2024File:OC 14651Subject:Review of 2023 Groundwater Data – Centralised PlantPage:9 of 10



parameters: nitrate, chloride, conductivity and pH, with the guideline for conductivity being based on a 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 elevated concentrations for H5 were observed in 2022 but not 2021. All other parameters were below the corresponding guidelines.

Paramotor	Units	Guidalina	Location					
Farailleler		Guidenne	H1	H2	H3	H4	H5	H7
Nitrate	mg/L	≤ 10 (drinking water)						
Chloride	mg/L	100 (irrigation)						
Conductivity	µS/cm	2,200 (irrigation)						
pН	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 wells more likely to be impacted would be H5 and H6, as these are the closest wells to the disposal area. The highest concentrations were typically associated with wells located further away, although sodium, chloride and conductivity were observed to be elevated in H5 in the spring. 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.

Date:March 4, 2024File:OC 14651Subject:Review of 2023 Groundwater Data – Centralised PlantPage:10 of 10



- 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 at H4 and H5 was above the most stringent guideline for the fall monitoring event only. This was the only parameter that was above the corresponding guidelines. 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 2023 data and the data from 2021 and 2022, with the increased chloride concentration for H5 becoming more clear with time.

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 2021 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.



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

https://netorg13426303-my.sharepoint.com/personal/joanne_quarmbyenv_ca/Documents/Lake Country/2023 Wastewater reports/2024-03-04 MEM 2023 groundwater data final.docx





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.

0 50 10	00 200 30 Meters					
Coordinate	System:	Scale:				
NAD 1983 (JIM Zone 11N	1:9,500				
Data Sources:						
- Imagery p - Parcels pr	rovided by ESRI. ovided by DataBC.					
Project #:	1577.0103.01					
Author:	CR					
Checked:		URBAN				
Status:		evetome				
Revision:	A	ayatemia				
Date:	2021 / 6 / 3					

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.

0 50 10	00 200 : Meters	
Coordinate NAD 1983 L	System: JTM Zone 11N	Scale:
Data Sourc - Imagery p - Parcels pro	es: rovided by ESRI. ovided by DataBC.	
Project #: Author: Checked: Status: Revision: Date:	1577.0103.01 CR A 2021/6/3	URBAN systems

Appendix F – Plant Performance Trends

Plant Performance Trends



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. This rise in nitrate concentrations is likely attributable to the commissioning of new works following a recent upgrade. Notably, despite this increase, the total nitrogen concentration remains below the permitted level, indicating effective regulatory compliance.

1.2 CBOD and TSS



The impact of prolonged cold temperatures on the treatment process is evident in the elevated concentrations of CBOD and TSS observed in January. Effluent filters were installed on January 13, 2023, and as depicted in the graph above, there was a dramatic improvement in effluent TSS and CBOD thereafter.

1.3 Orthophosphate and Total Phosphorus



The impact of prolonged cold temperatures on effluent quality is evident in the elevated concentrations of total phosphorus observed in the first quarter of the year. Typically, this is not a cause for concern as it coincides with a period of reduced bacterial activity, resulting in less efficient nutrient removal. However, in the fall, operational upsets stemming from the commissioning of new works following a recent upgrade contributed to higher-than-normal averages. This led to elevated concentrations persisting through the fall and ultimately resulted in a higher annual average than usual.



1.4 Plant Flow

Plant flow remains relatively consistent throughout the year.