THOMPSON-NICOLA REGIONAL DISTRICT

Utility Systems Committee Agenda

WEDNESDAY, JUNE 24, 2026

Time: 10:00 AM

Place: Board Room
4th Floor
465 Victoria Street
Kamloops, BC
Zoom Info

Page

1. CALL TO ORDER

2. FIRST NATIONS LAND ACKNOWLEDGEMENT

The TNRD acknowledges that we connect with many First Nation Communities across our vast regional district and today are located on the Tk̓emlúps te Secwépemc territory, situated within the unceded ancestral lands of the Secwépemc Nation. The TNRD appreciates the partnership that we have with Tk̓emlúps te Secwépemc, and respect the territory and land on which we gather today.

3. ADDITIONS TO OR DELETIONS FROM THE AGENDA

4. MINUTES

4.1 December 10, 2025, Utility Systems Committee Meeting Minutes 3 - 6

December 10, 2025 Minutes - Draft

RECOMMENDATION:

THAT, the minutes of the Utility Systems Committee dated December 10, 2025, be adopted, as circulated.

5. REPORTS

5.1 Groundwater Exploration Program Report – Spences Bridge CWS

7 - 93

Report from Manager of Utility Services, T. McCabe, dated June 24, 2026.

The purpose of this report is to provide the Committee with the final report and summary of the Groundwater Exploration Program at the Spences Bridge Community Water System.

Committee Report
Attachment

5.2 Operations Update

Verbal report from Manager of Utility Services, T. McCabe.

5.3 Capital Projects Update

Verbal report from Manager of Utility Services, T. McCabe.

6. NEW BUSINESS

7. ADJOURNMENT

THOMPSON - NICOLA REGIONAL DISTRICT

Utility Systems Committee Minutes

Wednesday, December 10, 2025

MINUTES of a Meeting of the UTILITY SYSTEMS COMMITTEE held in the Board Room on Wednesday, December 10, 2025 commencing at 1:30 PM.

PRESENT:	Director M. Grenier (Chair)	Electoral Area "J" (Copper Desert Country)
	Director Haughton (Vice-Chair)	Electoral Area “L” (Grasslands) Electoral
	Director U. Tsao	Electoral Area "A" (Wells Gray Country)
	Director L. Onslow	Electoral Area "B" (Thompson-Headwaters)
	Director J. Smith	Electoral Area "E" (Bonaparte Plateau)
	Director T. Thorpe	Electoral Area "I" (Blue Sky Country)
	Director J. Hayward	Electoral Area "O" (Lower North Thompson)
	Director L. Morris	Electoral Area "P" (Rivers and the Peaks)

STAFF: Mr. S. Hildebrand, Chief Administrative Officer
Ms. M. Jeremiah, Corporate Officer
Ms. K. Nickerson Wright, Deputy Corporate Officer
Mr. J. Vieira, General Manager of Operations
Mr. T. McCabe, Manager of Utility Services
Mr. Q. Smith, Utility Services Supervisor
Mr. M. Winiski, Asset Manager
Ms. N. Tweedy, Recording Secretary

PRESS: None

OTHERS: 2 interested persons

1 CALL TO ORDER

The Chair called the meeting to order at 1:30 PM and respectfully acknowledged the Tk'emlúps te Secwe̓pemc Territory in which the meeting was held.

2 FIRST NATIONS LAND ACKNOWLEDGEMENT

The TNRD acknowledges that we connect with many First Nation Communities across our vast regional district and today are located on the Tk̓emlúps te Secwépemc territory, situated within the unceded ancestral lands of the Secwépemc Nation. The TNRD appreciates the partnership that we have with Tk̓emlúps te Secwépemc, and respect the territory and land on which we gather today.

3 ADDITIONS TO OR DELETIONS FROM THE AGENDA

None.

4 MINUTES

4.1 Utility Systems Committee Meeting Minutes June 25, 2025

Moved by Director Tsao
Seconded by Director Thorpe

THAT, the minutes of the Utility Systems Committee dated June 25, 2025 be adopted, as circulated.

CARRIED

5 DELEGATIONS / INVITED PRESENTATIONS

None.

6 REPORTS

6.1 Capital Projects Update

Presentation

The Committee received a presentation from Manager of Utility Services T. McCabe highlighting the funding received for capital projects and a summary of current costs and funding. Mr. McCabe also provided a project update on current and plans for future projects as outlined in the attached presentation.

6.2 Operations Update

Presentation

The Committee received a presentation from Utility Services Supervisor Q. Smith who gave an overview of staffing changes within the Utility Services division. Mr. Smith also shared an operational update on the community water and wastewater systems, and highlighted upcoming areas of focus as outlined in the attached presentation.

On question, Mr. McCabe provided a status update on the Pritchard Community Water System permitting through the Ministry of Environment and discussed the feasibility of groundwater exploration for the Evergreen Community Water System.

6.3 Vavenby Community Water System Rate Increase

Presentation

The Committee received a report from General Manager of Operations J. Vieira and Manager of Utility Services T. McCabe dated December 10, 2025 outlining the current financial situation of the Vavenby Community Water System and sought the Committee's direction on a proposed rate increase of nineteen percent (19%) per year over the next three years (2026, 2027, and 2028).

On question, Mr. McCabe provided an overview of costs related to a recent watermain break in Vavenby.

On question, Mr. Vieira discussed the potential impact to the Vavenby Community Water System should the Board chose not to proceed with the proposed rate increase.

Moved by Director Tsao
Seconded by Director Thorpe

THAT, the Committee recommend to the Board of Directors that user fees for the Vavenby Community Water System be increased by 19% in 2026, 19% in 2027, and 19% in 2028.

CARRIED

6.4 Utility Systems Funding Analysis

Presentation

The Committee received a report from General Manager of Operations J. Vieira, dated December 10, 2025 which provided an analysis of the current financial state of each of the 11 TNRD Community Water Systems as outlined in the attached presentation.

On question, Mr. Vieira noted the Board approved the increases to the TNRD Utility Rates Bylaw up to 2028 in accordance with the five-year financial plan and anticipates that a review will be conducted prior to January 1, 2029, to establish rates over a similar five-year cycle.

On question, Mr. Winiski identified the challenges of assessing linear assets, noting that their condition cannot be directly observed and therefore requires assumptions to be made.

7 NEW BUSINESS

None.

8 ADJOURNMENT

The Chair adjourned the meeting at 4:11 PM.

Certified Correct:

Chair

Corporate Officer

THOMPSON-NICOLA
REGIONAL DISTRICT
The Region of BC's Best

Utility Services

COMMITTEE REPORT

TO:	Utility Systems Committee	**DATE:**	June 24, 2026
FROM:	Utility Services		
SUBJECT:	Groundwater Exploration Program Report – Spences Bridge CWS		

For Information Only.

Tyrone McCabe
Manager of Utility Services

Approved for Committee Consideration
CAO

PURPOSE:

To provide the Committee with the final report and summary of the Groundwater Exploration Program at the Spences Bridge Community Water System.

SUMMARY:

The Groundwater Exploration Program was undertaken to improve long-term water system resiliency by identifying an additional groundwater source to reduce reliance on a single aquifer. The investigation successfully developed a new well capable of supplying sufficient water for current and future demand, with quality meeting all health-based drinking water standards and indicating a secure, low-risk source. However, elevated sulfate, total dissolved solids, and hardness result in very hard water, which may lead to scaling, increased maintenance requirements, and potential impacts to infrastructure over time, suggesting that treatment or material considerations may be needed.

BACKGROUND:

In April 2025, the Thompson-Nicola Regional District (TNRD) initiated a Groundwater Exploration Program to address both water quality challenges and system resiliency across its community water systems. This program reflects a strategic approach to improving long-term sustainability, particularly for smaller systems where groundwater sources are typically more cost-effective and require less intensive treatment than surface water.

The program was designed using a phased methodology to manage technical and financial risk. Phase 1 consisted of desktop hydro-geological assessments to evaluate the likelihood of accessing groundwater, followed by Phase 2, which included targeted field exploration and test well drilling in areas identified as having a high probability of success. This staged approach ensures that further investment is supported by technical evidence.

Funding for the program was secured through the Canada Community Building Fund (CCBF), enabling the work to proceed without impacts to taxation or user fees. The Board authorized up to $210,000 for Spences Bridge (Electoral Area “I”), supporting both assessment and exploratory drilling activities.

The objective of the program differs between the various water systems. At Spences Bridge, where groundwater already meets regulatory standards, the focus is on improving system resiliency. The existing wells draw from a single aquifer, creating a potential vulnerability; therefore, the exploration program aims to identify and develop an additional groundwater source to provide redundancy and enhance long-term supply reliability.

DISCUSSION:

The newly developed well provides a reliable groundwater supply, with a sustained pumping rate of approximately 18.9 L/s and a recommended long-term yield of 9.5 L/s, sufficient to meet current and future community demand with an appropriate safety factor. Water quality meets all health-based drinking water guidelines, with low turbidity and no evidence of surface water influence, indicating a secure and low-risk potable source.

However, elevated sulfate, total dissolved solids (TDS), and hardness result in very hard water that may exceed aesthetic objectives. These conditions can promote mineral scaling within metallic fittings, valves, and pipes, reducing hydraulic capacity and increasing maintenance needs. Elevated dissolved solids may also contribute to corrosive or scale-forming conditions depending on system chemistry, potentially shortening the lifespan of distribution infrastructure. While not a health concern, consideration of treatment or appropriate materials selection may help mitigate these long-term system impacts.

ALIGNMENT TO THE 2023-2026 STRATEGIC PLAN:

This report is consistent with the following Strategic Focus Areas and Priorities set out in the Board's Strategic Plan:

- **Livability & the Built Environment**
  - Core service delivery
  - Electoral Area specific infrastructure projects
- **Relationships & Reconciliation**
  - External partnerships and collaboration
- **Economic Sustainability & Resiliency**
  - Infrastructure or utility system improvements
- **Emergency Planning & Response**
  - Strengthening community resilience
  - Emergency preparedness
- **Responsible Governance & Service Excellence**
  - Transparency and accountability
  - Capital/ asset management
  - Public reporting and access to information

Attachment

WWAL25-053-04VR_Spences Bridge Test Well Completion Report

Report prepared by Manager of Utility Services, with support from Microsoft Copilot. Content has been reviewed and finalized in accordance with TNRD's AI Policy and Guidelines for Responsible Use.

western water
ASSOCIATES LTD
Consultants in Hydrogeology and Environmental Science

TNRD Spences Bridge Test Well Construction and Testing Report

Prepared for:

Thompson-Nicola Regional District
c/o TRUE Consulting
2089 Falcon Road,
Kamloops, BC,
V2C 4J2

May 2026
Project: 25-053-04VR

western water
ASSOCIATES LTD
Consultants in Hydrogeology and Environmental Science

May 22, 2026

Project: 25-053-04VR

Thompson-Nicola Regional District
c/o TRUE Consulting
2089 Falcon Road,
Kamloops, BC,
V2C 4J2

Attn: Liam Baker, P.Eng.

Re: TNRD Spences Bridge Test Well Completion Report

Western Water Associates Ltd. was retained to oversee the drilling and evaluation of a test well on the north side of the Thompson River. At present, the Spences Bridge community water system is fed by three wells, all located in close proximity on Cooks Ferry Indian Band Kumcheen I.R. #1, on the south side of the Thompson River.

This report documents the drilling and testing of this test well (TW1) and includes the results of water quality sampling, an assessment well yield and a preliminary assessment of the well's Groundwater At Risk of containing Pathogens status.

We trust that the professional opinions and advice presented in this document are sufficient for your current requirements. Should you have any questions, or if we can be of further assistance in this matter, please contact the undersigned.

WESTERN WATER ASSOCIATES LTD.

EGBC Permit to Practice # 1001419

Reviewed by:

PROFESSIONAL PROVINCE OF R. M. RHODES #32839 BRITISH COLUMBIA GEOSCIENTIST

22 May-2026

Malakye Abel, BSc
Environmental Scientist

Ryan Rhodes, P.Geo.
Senior Hydrogeologist

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List of Abbreviations / Acronyms

asl	above sea level
AO	Aesthetic Objectives
bgl	below ground level
btoc	below top of casing
CALA	Canadian Association for Laboratory Accreditation
CFIB	Cooks Ferry Indian Band
ENV	Ministry of Environment and Parks
ft	feet
GARP	Groundwater at Risk of Containing Pathogens
GUDI	Groundwater Under the Direct Influence
GCDWQ	Guidelines for Canadian Drinking Water Quality
K	Hydraulic Conductivity
L/s	Litres per second
m	Metres (except when used in 'gpm" where m denotes minutes)
MAC	Maximum Acceptable Concentrations
m-asl	metres above sea level
m^3/s	Cubic metres per second (flow)
MFLNRORD	Ministry of Forests, Lands, Natural Resource Operations & Rural Development
T	Transmissivity
TNRD	Thompson-Nicola Regional District
TRUE	TRUE Consulting
US gpm	U.S. gallons per minute
VOC	Volatile Organic Compounds
WPID	Well Plate Identification Number
WTN	Well Tag Number
WWAL	Western Water Associates Ltd.

1. INTRODUCTION

At the request of the Thompson-Nicola Regional District (TNRD) and their civil engineer TRUE Consulting, Western Water Associates Ltd. (WWAL) oversaw the tendering and construction of a test well for potential inclusion in the Spences Bridge community water system. The well is not yet registered in provincial databases but has been assigned Well Plate Identification (WPID) 73983. The well is informally referred to in this report as TW1.

1.1 Project Background

The Spences Bridge community water system is operated by the Thompson Nicola Regional District (TNRD) and is a partnership between the TNRD and Cooks Ferry Indian Band (CFIB). The water system supplies potable water to the main community of Spences Bridge, which is primarily on the North side of the Thompson River, as well as to several CFIB reserves. The system serves approximately 283 service connections and a population of about 200 residents.

A 2018 Water Master Plan for the system (TRUE 2018) reported that for 2015 – 2017, summer maximum day demand (MDD) was on the order of 800 – 1000 m^3/day. Considering the relatively small population serviced, the summer water demand of 4 – 5 m^3/capita/day was extremely high. Since 2018, the TNRD has successfully implemented measures to address leakage and reduce system water demands. Based on 2022 and 2023 data, average day demand is in the 220 m^3/day to 290 m^3/day range. Excluding outliers, the typical summer MDD has been reduced to approximately 600 m^3/day.

The community water system is currently fed by three wells located on CFIB Kumcheen IR 1 (Figure 1), near the confluence of the Thompson and Nicola rivers. The three wells, all drilled between 2005 and 2010, are in close proximity with very similar depths in the 33 – 35 m range and are completed in unconfined Aquifer 716. The combined output of the three wells as currently configured is ~14 L/s (1,200 m^3/day).

The concentration of all supply wells in a single location, particularly on land not controlled by the TNRD, presents a vulnerability in the water system. Development of an additional supply well on the north side of the Thompson River is being sought to improve system resilience. WWAL completed a groundwater feasibility study for the north side of the Thompson River in the Spences Bridge area in 2025 (WWAL 2025). That study found there was good potential of intercepting a moderately productive aquifer on the north side of the river.

1.2 Scope of Services

WWAL provided the following services to the TNRD:

1) Reviewed available background information including hydrogeological reports, area geology and aquifer mapping, reported sewerage system information, well logs and hydrology information.
2) Completed a BC Onecall for the TW1 drill site recommended in the 2025 feasibility study.
3) Prepared technical specifications for well drilling, development and testing to be used as the basis for obtaining competitive pricing from qualified drilling and pump contractor firms. Received and reviewed the submitted proposals and advised the TNRD on contract award.

4) Provided full time field oversight during well drilling, completed field grain size analysis and designed a well screen in concert with the well driller.
5) Designed and oversaw a well testing program that included a step test, constant rate test and monitoring of another well believed to be in the same aquifer. Attempts were made to monitor other wells during the testing but ultimately was not possible. Near the end of the pumping test program, WWAL collected water quality samples for laboratory analysis.
6) Compiled, analyzed and evaluated the data collected and prepared this well completion report.
7) Provided advice on groundwater licensing and Interior Health New Source Approval to incorporate the test well into the water system.

2. SITE DESCRIPTION

2.1 Physiography, Hydrology and Climate

Spences Bridge is located approximately 50 km south of Cache Creek and 30 km north of Lytton, B.C. The community is primarily located on the north bank of the Thompson River, with Highway 1 passing through the northern part of the of community. Spences Bridge is within the Thompson Plateau, a region of semi-arid terraced valleys along the Thompson River filled by various Quaternary sediments. Just to the northeast of Spences Bridge, the Nicola River meets the Thompson River, the largest surface water feature in the area. The Thompson River flows south and joins the Fraser River in Lytton. A CN Rail line runs along the north side of the Thompson River, and a CP Rail line runs along the south side

The community (on the north side of the Thompson River) occupies gently south-sloping terraces above the Thompson River. Elevations in the community range from approximately 265 m above sea level (m asl) north of Highway 1 to 235 m asl closer to the Thompson River. North of Highway 1, topography steepens significantly. The selected site for the drilling is in Spences Bridge Park. Spences Bridge Park was chosen because it was the highest ranked test well site evaluated in the 2025 groundwater feasibility study (WWAL 2025). The test well site is property of the TNRD, located centrally within the lowest terrace north of the Thompson River, with a ground elevation of ~238 m asl based on Google Earth elevations. The Thompson River is typically 10 – 15 m lower than developed areas of this terrace. Access to the land is currently only feasible by crossing the property to the south, 4850 Chucker Crescent, which is owned by the CFIB. Figure 1 (attached) illustrates the general location of the test well within the community. Figure 2 depicts the test well site within Spences Bridge Park along with nearby features of interest.

Spences Bridge Nicola climate station (Environment Canada Station ID 1167637) operated in Spences Bridge from 1980 to 2002. Based on that data, July and August are typically the warmest months with an average daily temperature of 22.1 °C, while December is the coldest month, with an average daily temperature of -2.8 °C for this period. Mean monthly precipitation ranged from 12.4 mm in February up to 30.0 mm in July, the wettest month. Total annual precipitation averaged 263.7 mm. Note that the above information is from published climate normals from past decades. Most climate change models for the interior of B.C. predict shifts in the overall seasonal pattern of temperature and precipitation from past "normals." The main changes expected are warmer, drier summers, and somewhat wetter winters with more precipitation falling as rain (as opposed to snow), particularly in lower elevations. Earlier peak runoff

from snowmelt is another outcome of climate change that has already been documented in BC. Table 2.1 provides an overview of climate normal data for the Spences Bridge Nicola climate station.

Table 2.1 1981-2010 Climate Normal Data for Spences Bridge Nicola Climate Station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature													
Daily Average (°C)	-2.4	0.8	6.4	11	15.4	19.1	22.1	22.1	17.1	9.5	2.4	-2.8	10.1
Daily Maximum (°C)	0.7	5.0	12.4	17.8	22.3	25.9	29.6	29.7	24.2	14.7	5.9	0.1	15.7
Daily Minimum (°C)	-5.6	-3.4	0.4	4.2	8.4	12.3	14.6	14.4	10	4.3	-1.0	-5.7	4.4
Precipitation													
Rainfall (mm)	10.8	10	10.3	13.8	25.6	29.6	30	22.2	23.5	21.7	21.5	14.5	233.3
Snowfall (cm)	7.9	2.4	2.2	0	0	0	0	0	0	0.4	5	12.5	30.4
Total Precipitation (mm)	18.8	12.4	12.5	13.8	25.6	29.6	30	22.2	23.5	22.1	26.4	27	263.7

2.2 Geologic Setting

A geological overview of Spences Bridge by BC Groundwater Consulting Services Ltd. was conducted in 2018. Their geological interpretation indicates that the Thompson River valley is filled with various unconsolidated sediments of varying thicknesses and extent. Sediment is bounded by bedrock valley walls which become prominent at higher elevations. Unconsolidated deposits reportedly consist of sand and gravel, which overlay silt/clay, which subsequently overlies compacted gravel (BC Groundwater Consulting Services Ltd., 2018). There is a limited number of documented well logs to define the spatial extent and depth of these formations.

The community is situated on glaciofluvial and fluvial terraces, the lower benches being capped by more recent fluvial deposits from the Thompson River. Alluvial/colluvial fans are apparent north of Highway 1 and have been deposited atop the older fluvial terraces. Bedrock outcrop occurs both north and south of the river and is mapped as the Spences Bridge Group, part of the Pimainus Formation, which mainly consists of andesitic volcanic rock, dated to the lower Cretaceous, 97 to 112 million years before present (Geological Survey of Canada, 2020).

2.3 Hydrogeologic Setting

Provincial mapping identifies one aquifer in near proximity to Spences Bridge: Aquifer 716 (ENV, 2019). Aquifer 716 is an unconfined sand and gravel hosted in alluvial fan and fluvial deposits in a relatively small area near the confluence of the Nicola and Thompson Rivers (Figure 1). The aquifer is characterized by the Province as having high productivity, moderate demand and high vulnerability due to its mostly unconfined nature. All three of the current Spences Bridge community supply wells are completed in Aquifer 716.

No aquifers have been mapped on the north side of the river, and relatively few wells are present as most residents rely on the community water supply. The handful of wells that have been drilled, including the test well completed for this project, indicate three aquifer systems may be present. Figure 3 (attached)

presents a conceptual cross-section through the community and depicts subsurface stratigraphy and interpreted aquifers.

- In the northern part of the community in the location of WTN 112481 there appears to be an isolated shallow aquifer system present against the valley wall. This is the only well that intercepts that aquifer, which is relatively shallow.
- **Clay-Till Aquitard**. The bulk of the valley fill deposits are interpreted to be clay rich till. This deposit is on the order of 25 to 60 m thick, is reportedly dry and inferred to act as an aquitard.
- **Upper Unmapped Aquifer**. Underlying the till is the "Upper unmapped aquifer", in which TW1 is completed. Deposits comprising the aquifer at the test well location were clean medium to coarse sand and gravel. This aquifer is not clearly identified at the location of other reported wells, but may correlate with deposits seen in WTN 133132 and WTN 129047, however drilling for those wells bypassed what could be the Upper Unnamed Aquifer and the wells were ultimately screened at greater depths. The upper unmapped aquifer is considered to be well confined.
- **Silt/clay/gravel – inferred leaky confining unit**. Underlying the upper unmapped aquifer is a silty clay with gravel unit, identified at both WTN 133132 and WTN 129407.
- **Lower Unmapped Aquifer**. This aquifer is inferred to have been intercepted and screened in WTN 133132 and WTN 129407. At the location of WTN 133132, the aquifer rests on bedrock, while at WTN 129407, the aquifer rests on clay. The Lower Unmapped Aquifer is relatively thin at both locations, on the order of 4 – 5 m, and is considered to be well confined.

The Upper and Lower Unmapped Aquifer systems identified are interpreted to be formed by historical glaciofluvial deposits predating the most recent (Fraser) glaciation event, that were subsequently buried by glacial till and/or glaciolacustrine sediments.

3. WELL CONSTRUCTION AND DEVELOPMENT

The test well is located in Spences Bridge Park. WWAL prepared technical specifications and a bid package for the drilling, development and testing of a test well in the fall of 2025. Based on the results of that process, JR Drilling was awarded the drilling contract. Drilling of the test well began on November 6, 2025.

3.1 Well Drilling

Drilling was completed with a Foremost DR24 dual rotary drilling rig by JR Drilling of Cranbrook, BC. Drilling commenced with installing a 250 mm (10-inch) diameter temporary surface casing to a depth of 5.3 m (17.5 ft) bgl. A 200 mm (8-inch) casing was then installed inside the temporary casing and advanced to 53.3 m (175 ft) bgl. Following screen installation and exposure, the temporary surface casing was removed while the annulus between casings was filled with bentonite chips and hydrated to create a surface seal compliant with the *BC Groundwater Protection Regulation*.

Water produced during drilling infiltrated into the ground at the site. Formation samples were collected by WWAL at 1.5 m (5 ft) intervals and stored onsite in Ziploc bags. Samples were collected at 0.75 m intervals for depths from 48.8 m (160 ft) to 53.3 (175 ft) for field grain size analysis to aid in well screen design. The general lithology encountered as interpreted by WWAL hydrogeologists is summarized in

Table 3.1 and Appendix A provides a schematic of the well construction. Field grain size analysis results are provided in Appendix B. Key well construction details are summarized in Table 3.2.

Table 3.1 Lithology Observed at TW1

Depth (bgl)				Lithology	Comments	Hydrostratigraphy
From		To				
ft	m	ft	m			
0	0	7.5	2.3	Brown, fine silty fill, dry		
7.5	2.3	20	6.1	Cobbles, boulders, dry	Hard drilling	
20	6.1	97.5	29.7	Uniform gray clay, damp throughout		Aquitard
97.5	29.7	115	35.1	Clay and fine sand, some water	Water produced when sand is encountered.	Transition to Upper Unnamed Aquifer
115	35.1	135	41.1	Coarse sand, medium gravel, water bearing		Upper Unnamed Aquifer, with interbed clay deposit
135	41.1	147.5	45.0	Gray clay, trace coarse semi-angular gravels	Some water produced	
147.5	45.0	175	53.3	Medium sand and gravel, very productive	Heaving	

Table 3.2 Select Construction Details for TW1

Details	TW1
Well Coordinates	50.424097°, -121.339659°
Production Casing diameter (nominal)	8” (200 mm)
Total Depth (bgl)	53.3 m (175 ft)
Static Water Level (btoc)	10.8 m (35.3 ft) - December 2, 2025
Top of Well Screen Assembly (bgl)	49.7 m (163 ft)
Screen Assembly length	3.7 m (12 ft)
Screen Assembly Interval (bgl)	49.6 m to 53.3 m (163 ft – 175 ft)
Screen Details (bgl)	0 slot (riser): 49.6 – 50.3 m (163 – 165 ft) 60 slot: 50.3 – 53.3 m (165 – 175 ft)
Screen Size	8-inch telescoping (7.50” O.D.; 6.92” I.D.)
Screen Theoretical Transmitting Capacity	22.3 L/s (353 US gpm)

Notes: bgl = below ground level. btoc = below top of casing.

3.2 Well Development

The drilling of TW1 concluded on November 8, 2025 and the screen was ordered from Variperm Canada Limited. The screen was installed and exposed on November 24, 2025; heaving of sandy material occurred and had to be drilled out to allow for screen installation. Development was completed with dual rotary rig with compressed air surging; in total 16 hours of development was completed. Water generated during development activities was routed to the empty lot of 4850 Chucker Crescent, south of TW1, where it infiltrated to ground.

4. WELL TESTING METHODS

WWAL oversaw a test pumping program for newly drilled TW1 in December 2025. Testing included a variable rate step test with three 60-minute steps, followed by a 48-hour constant rate test. Aqua Tech Services (Qualified Pump Installer #05110206) supplied, installed and operated a temporary submersible pump for the testing program.

Under the oversight of WWAL hydrogeologist Ryan Rhodes, P.Geo., and environmental scientist Malakye Abel, the testing program began on December 2, 2025 and concluded on December 5, 2025. Water level measurements were collected with an electric well sounder to the nearest one hundredth of a foot, referenced to the top of casing. Flows were controlled with a gate valve on the discharge head and measured with a calibrated flow meter. Pumping test water was directed through a layflat hose to an existing culvert along Chucker Crescent that ultimately discharges to the Thompson River. WWAL measured turbidity in the Thompson River prior to and during the pumping test to ensure water quality guidelines in the river were being met.

Sand production was measured during the pumping tests with a Rossum™ Sand Tester.

While installing the temporary submersible pump, a possible constriction in the well casing was reported by Aqua Tech at 38 m (125 ft). The pump was raised and lowered again and passed the constriction. To be cautious, the pump was pulled back and set slightly above 38 m for the testing. Following the testing program, Aqua Tech Services completed a camera survey of the well-casing but no construction deficiencies were identified in the 38 m depth range, nor elsewhere in the well.

To derive aquifer properties and assess well interference effects, access to observation wells for the duration of the testing of TW1 was sought. The CFIB provided access to an unused well near the Band Office (WPID 12066). No log was available for the well, but it is a 150 mm diameter well with a measured depth of 48.4 m (159 ft) and a static water level of 10.8 m (35.3 ft). Assuming similar lithology was encountered in WPID 12066 as TW1, the wells are inferred to be completed in the same Upper Unnamed Aquifer. A water level transducer was installed in the well and set to record water level measurements at 5-minute intervals.

The TNRD facilitated communications with Mr. James Kohut, owner of wells WTN 97171 and WTN 133132, and extended an offer to monitor these wells during the testing program. Mr. Kohut expressed interest in participating but was out of Province during the testing program and access to those wells was not available.

WWAL made an attempt to contact the residents of 3705 North Frontage Road on which WTN 112481 is located to extend an offer to monitor that well during the testing. While it appeared that someone was home, the door was not answered.

WWAL also made an offer to monitor WTN 129047 at the Acacia Grove RV Park. The well owner agreed to the monitoring, but when an attempt to gain access was made prior to the testing program, it was discovered that the well head had been winterized and did not allow access to the well for water level monitoring. With permission of the well owner, the well was purged and a water sample was collected (discussed further in Section 6).

5. WELL TESTING RESULTS

Raw pumping test data were plotted into a series of graphs (Appendix C) and analyzed to evaluate well performance and derive aquifer properties. The following sections summarize the results of our analysis and provide recommendations for operation of the well and recommended pumping rates.

TW1 testing started on December 2, 2025 with a variable rate step test at rates of 6.3, 12.6 and 18.9 L/s (100, 200, and 300 US gpm). After the step test, water level recovery measurements were made, and a 48-hour constant rate test at 18.9 L/s (300 US gpm) was completed, followed by additional water level recovery monitoring.

5.1 Step Test Results

Step test data and a hydrograph are presented in Appendix C (Table C1 and Figure C1).

At each step of the test, water levels responded quickly to pumping and stabilized or approached stabilization within several minutes for the first few steps. During the third step at 18.9 L/s, full water level stabilization did not occur. Following pump shut-off, water levels recovered by 90% in forty minutes and 93% after one hundred minutes. Summary step test data are provided in Table 5.1 below. Specific capacity values derived from the testing data declined with higher pumping rates as expected.

5.2 Constant Rate Test Results

Data and hydrographs for the constant rate test are provided in Appendix C, Table C2 and Figure C2. As with the step test, water levels responded quickly to the onset of pumping and water levels continued to decline throughout the testing. At the end of the 48-hour test, 3.41 m (11.2 ft) of drawdown occurred. The specific capacity at the end of the 48-hour pumping period was 5.5 L/s/m (27 US gpm/ft).

Following the end of the 48-hour test, initial water level recovery was fairly rapid, with 50% recovery occurring after 100 minutes. After that, the water level recovery response was slower. Longer-term water level recovery measurements for the aquifer were completed using the transducer installed in CFIB well, WPID 12066, which measured water levels for 30 days after drawdown testing stopped (see Figure C3). This data showed that complete recovery occurred after 15 days. After 15 days, water levels recovered beyond the pre-test static levels. WWAL reviewed hydrometric data from the Thompson River at hydrometric station 08LF051 which is located just south of Spences Bridge to see if river stage may have affected aquifer levels. Figure 5.1 below shows the Thompson River stage and discharge in the time prior to, during and following the pumping test program. The data indicate that the testing was completed during

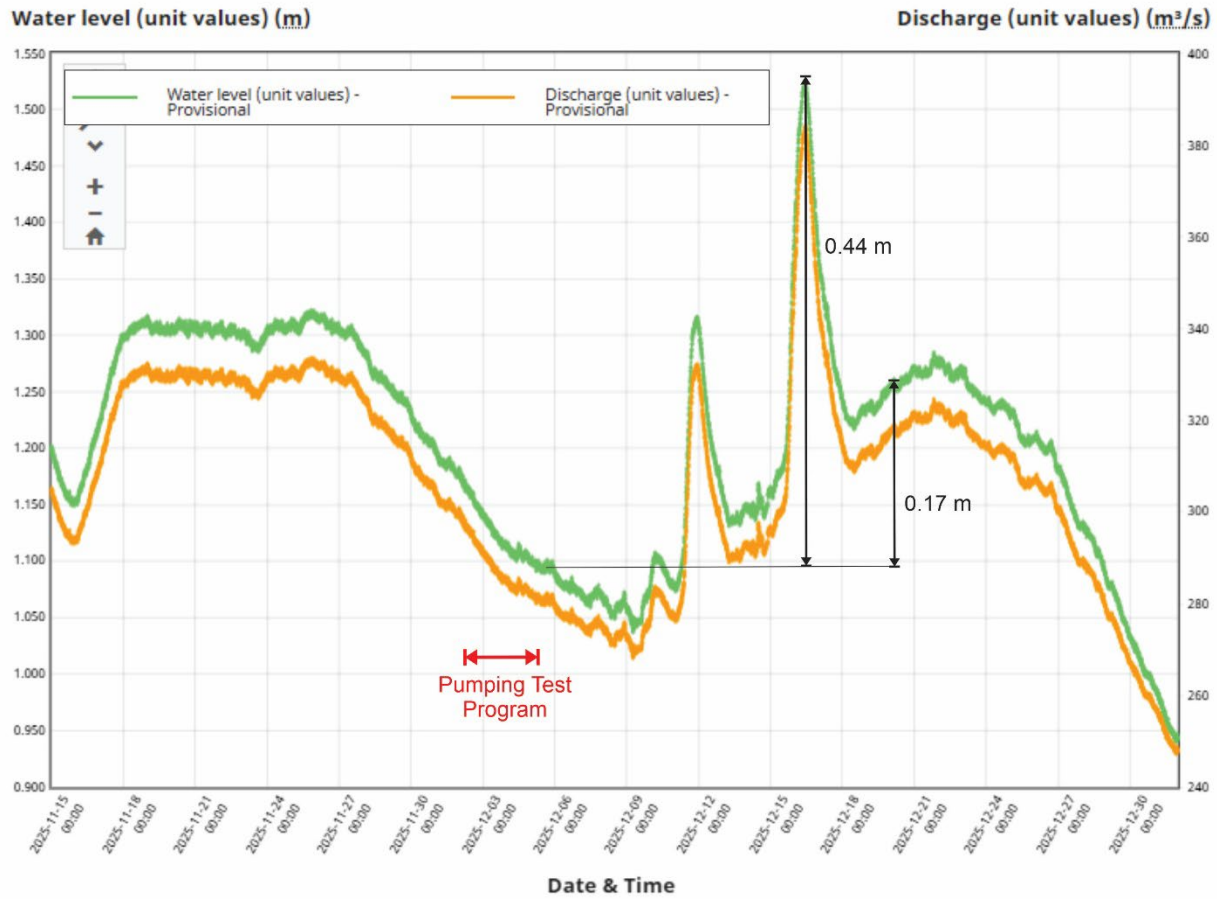
a period of declining water levels, but in the weeks following the testing, river levels rose significantly. Two major storms are apparent in the hydrograph, the second of which resulted in a temporary spike in river levels on the order of 0.44 m above the river level during the testing. 15 days after the testing, river levels were 0.17 m higher than the testing period. The data indicates that rising river levels have some control on aquifer levels, potentially through increased aquifer recharge, but more likely through a pressure effect induced on the confined aquifer exerted by the additional weight of water on the overlying aquitard.

Table 5.1 TW1 Specific Capacity Summary

Flow Rate		Step/Test Duration	Drawdown		Specific Capacity		Available Drawdown* Remaining	
L/sec	US gpm	minutes	metres	feet	L/s/m	US gpm/ft	metres remaining	% remaining
Step Test – December 2, 2025								
6.3	100	60	0.40	1.30	16.4	79.2	23.9	98
12.6	200	60	0.98	3.21	13.0	62.6	23.3	96
18.9	300	60	1.73	5.69	10.9	52.7	22.6	93
Constant Rate Test – December 3-5, 2025								
18.9	300	2880	3.41	11.20	5.5	26.8	20.9	86

*Available Drawdown = Top of confined aquifer (35.1 m bgl) – Static Water Level (10.8 m bgl) = 24.3 m

Figure 5.1 Thompson River Hydrograph Before and After the TW1 Pumping Test



5.3 Well Interference

To assess potential well interference effects, water levels in the CFIB well, located approximately 408 m from TW1, were monitored throughout the testing program. Pretest water level in the CIFB well was 8.96 m btoc; the difference between the depth to water in that well and TW1 are expected to be primarily related to topographical differences at each location.

Well interference effects are shown on Figure C1 (Appendix C) for the step test, but are best illustrated on Figure C2 for the constant rate test. The data indicate both wells are completed in the same aquifer system, and that 1.6 m of drawdown was induced on WPID 12066 during the constant rate test (which saw TW1 water levels drawdown 3.41 m).

The closest operational wells to TW1 are WTN 133132 (172 m) and WTN 129047 (340 m). As discussed above and shown on the cross-section Figure 3, these wells are interpreted to be completed in a deeper aquifer or deeper zone of the aquifer sourced by TW1. As these wells were not monitored, interference effects at these locations can only be speculated on. WTN 133132 is the closest and is a licenced irrigation well. The well owner by email reported some anecdotal operational details for the well, which indicated that the well is operated for up to 16 hours a day at a pumping rate 2.5 L/s (40 US gpm) for essentially the entire irrigation season. The well reportedly never draws down more than 3.0 m (10 ft), from a static of approximately 30.5 m (100 ft) below ground. Information associated with the public well record for the

well indicates there is approximately 33.5 m of available drawdown in the well. When considering operational drawdown (3.0 m), and assuming interference effects on the order of 2.5 m (a value between the drawdown at TW1 and interference observed at WPID 12066), there would still be significant available drawdown remaining in WTN 133132.

The above analysis is speculative, relies on anecdotal information and makes the assumption that TW1 would be operated at the tested rate of 18.9 L/s for extended periods. That is a conservative assumption, as community supply well operation is episodic, with repeated periods of pumping and rest which allow for aquifer recovery. Overall, it is our opinion that the potential for excessive interference to result from TW1 should it be put into use on WTN 133132 is low. Additional testing would be required if lingering concerns on this issue exist. This testing could be completed by installing a transducer in TW1 for the summer irrigation season while WTN 133132 is operated.

WTN 129047 is located at a similar distance from TW1 as WPID 12066 which was monitored during the testing. If WTN 129047 was completed in the same aquifer as TW1 (which may not be the case based on out interpretation of the site hydrostratigraphy), interference effects would be of the same order of magnitude as those observed at WPID 10622. This is minor compared to the significant available drawdown (43 + m) present in that well.

Overall, well interference effects are not identified as a major concern or constraint to community supply use of TW1. More information could be collected to quantify and verify this opinion if deemed necessary in the future.

5.4 Long-term Well Yield and Recommended Operating Rate

WWAL typically assesses the long-term yield of a well using the CPCN 100-day drawdown methodology (Allen et. al 1999). This methodology uses constant rate pumping test data and projects the water level drawdown on a semi-logarithmic plot out to 100 days of continuous pumping. The available drawdown and pumping rate are factors in the calculation, and a 30% safety factor is typically applied to account for seasonal water level fluctuations, well interference effects and longer-term climate change effects. The CPCN calculation parameters and results are shown on Figure C4, and assume that the available drawdown is the distance between the static water level and the top of the Upper Unnamed Aquifer (18.9 m). The results of the calculation indicate a sustainable well yield of 44.7 L/s. The CPCN methodology recommends that in the event that the calculated yield is higher than the pumping rate used during testing, the well yield be limited to the tested rate, which in this case is 18.9 L/s (300 US gpm).

Other factors must be considered in determining a well's safe or recommended operating rate. Screen transmitting capacity can be a constraint in some cases. In the case of TW1, the theoretical transmitting capacity of the screen installed is 22.3 L/s and is not a constraint.

Aquifer recovery is another consideration. In the case of TW1, the well was pumped at 18.9 L/s for two days, but the aquifer did not fully recover for approximately 15 days. While observed full aquifer recovery is positive, the data indicate that a continuous withdrawal of 18.9 L/s may not be sustainable. We would recommend a preliminary long-term sustainable yield rating of 9.5 L/s (150 US gpm) for preliminary project planning. This may be overly conservative but is a good starting point.

Recent water consumption data suggest that the Average Day Demand of the community water system is on the order of 290 m^3/day, which is equivalent to a continuous flow of 3.3 L/s. Summer peak demands are approximately double that. These values are well within the preliminary long-term sustainable yield proposed above.

In terms of normal operation of the well, which would see alternating periods of operation and rest, any pumping rate up to 18.9 L/s can be used.

5.5 Aquifer Hydraulic Properties

The pumping test data were analyzed using AQTESOLV Professional, Version 4.50 (HydroSOLVE, 2007). Analytical solutions were matched to the time-drawdown datasets for TW1, and the analysis results are presented in Appendix D. Drawdown responses from both the pumping well (WPID 73983) and the observation well (WPID 12066) were evaluated and plotted. The Cooper-Jacob (1946) straight-line approximation to the Theis solution for a confined aquifer was used in the analysis, assuming partial penetration of the pumping well. Derivative analysis was completed to determine the appropriate portion of the drawdown curve to fit the solution curve (when radial flow conditions were occurring). The analysis indicated an aquifer transmissivity on the order of 1,700 m^2/day.

5.6 Hydraulic Connection to Surface Water

The lithology observed during drilling and the drawdown and recovery response during the pumping test program indicate a well confined aquifer system that is not in direct hydraulic connection with the Thompson River. Comparative field parameter measurements made from the well water and river (discussed in the Water Quality section) also indicate a clear distinction between the two waters. Aquifer recharge is inferred to occur through two potential mechanisms: slow leakage of river water through the overlying confining sediments, or mountain block recharge (discharge of groundwater from bedrock aquifers into the confined sand and gravel aquifer). If slow leakage of river water is a contributor to recharge, the hydraulic connection between the river and aquifer is not considered to be strong as it pertains to water licensing implications under the *Water Sustainability Act*. Water licensing considerations are discussed further in Section 8.

5.7 Sand Production

Sand production was assessed throughout the pumping test program using a Rossum™ sand tester. A Rossum sand tester is a small centrifuge that is mounted on the discharge header which takes a small side stream of the discharge water at a known flow rate and separates the entrained sand for measurement. A calculation is made to determine the amount of sand produced in parts per million (ppm). 5 ppm sand or less from a municipal supply well is considered acceptable, and is the guideline stated in the American Water Works Association A-100 standard for well construction.

During the step test, virtually no sand was produced from the well, with only a few grains gathered during the test. Minor sand production during initial pumping of a well is to be expected, and the volumes observed are not concerning. Sand production was quantified several times during the constant rate test, with all results less than 1 ppm sand.

6. WATER QUALITY

WWAL collected one water quality sample from TW1 approximately 20 minutes prior to the conclusion of the constant rate test. These samples were collected to analyze the comprehensive Interior Health New Source Approval suite of parameters. Field water quality parameters (pH, temperature, conductivity, turbidity) were measured several times over the course of the test. Field parameters were also collected from the shore of the Thompson River, upstream of the pumping discharge. Field parameters collected at the end of testing for TW1, and the Thompson River are summarized in Table 6.1. The difference in field parameters between the aquifer and the river further indicates a confined aquifer.

Table 6.1 Field Parameter Measurements

Time	Location	pH	Electrical Conductivity (uS)	TDS (ppm)	Turbidity (NTU)
12/5/2025 5:30 am	TW1	7.70	890	630	0.14
12/5/2025 5:00 am	Thompson River	8.56	82	57.2	0.10

Prior to collecting water samples, the sampling tap was wiped down with a chlorine solution and opened for 5 minutes to flush any stagnant, non-representative water from the discharge assembly. To avoid contamination, a disposable pair of nitrile gloves was worn throughout sample collection. The samples were collected in clean, laboratory supplied bottles and transported to the laboratory in an ice-filled cooler within 24 hours. Water quality testing was completed by CARO, a laboratory accredited by the Canadian Association of Laboratory Accreditation (CALA).

An additional water sample was also collected at WTN 129047 in Acacia Grove RV Park with the permission of the owner; however, the well was only pumped for 20 minutes before collecting the sample and was analyzed for a smaller subset of essential drinking water parameters. This sample was collected for comparison to TW1, and to help determine if the two wells were completed in the same aquifer.

WWAL defines the term potable as water which is pure enough and of sufficient quality to be consumed or used by humans with low risk of immediate or long-term harm. Under this definition, biological, chemical and physical parameters must be at concentrations below health-based Maximum Acceptable Concentrations (MAC), as outlined in the Guidelines for Canadian Drinking Water Quality (GCDWQ). The GCDWQ also outlines Aesthetic Objectives (AO), which address select parameters that may affect the taste, odour and/or colour of water. Exceedances of AO guidelines does not necessarily mean that water treatment is required but may be desired to provide more palatable water to consumers or to prevent water system operation and maintenance issues. Table 6.2 below provides the water quality testing results for all samples alongside limited water quality data from what is inferred to be WPID 12066 (This data was obtained from a 2007 Summit Environmental report for a well identified as TW05-01 located on IR19, which is presumed to be unused well at the CFIB office. The water quality results presented for that well were collected after a relatively brief 4-hour pumping period). Complete laboratory reports for two wells sampled by WWAL are provided in Appendix E.

The analytical results for TW1 indicate that TDS and sulfate exceed their aesthetic objectives, and the water is very hard. Iron and manganese are below their respective aesthetic objectives, which is somewhat surprising given the interpreted aquifer setting and results from other wells in the area. No bacteria were detected, and nitrate and chloride concentrations, both indicators of septic system impacts, were present at low concentrations. Sodium, another septic impact indicator, was somewhat elevated, but inferred to be naturally occurring. Boron was raised as potential concern by a resident in the community, but Boron was present at low concentrations. The concern over Boron is believed to stem from a historical report (Summit 2007) which confirmed elevated Boron in a test well in Spences Bridge, but that test well is believed to be located on the south side of the Thompson River near the current bridge. A hydrocarbon screening was completed to assess for potential impacts from a former service station located on the property north of the well site. All hydrocarbon and volatile organic compounds (VOC) sampled for were below respective detection limits.

In terms of comparison to other available water quality data for wells on the north side of the river, the water quality from TW1 is better with much lower concentrations of iron and manganese. As noted, data for the other two wells were obtained after relatively short pumping periods which may have been a factor in those other results. TW1 does however have elevated sulfate, TDS and hardness of the same magnitude as the other wells.

Table 6.2: Water Quality Summary

		Sample ID	TW1 (WPID 73983)	WTN 129047	TW05-01 IR 19 (WPID 12066)
		Sample Date	2025-12-05	2025-12-02	2005
Parameters	**Units**	**GCDWQ**	**Result**	**Result**	**Result**
pH (Lab/Field)	pH units	7.0 - 10.5	7.68/7.70	7.69	-
Conductivity (Lab/Field)	uS/cm	N/A	1430/890	1560	-
Temperature, at pH (Lab/Field)	°C	N/A	21.5/5.7	20.9	-
Turbidity (Lab/Field)	NTU	OG < 1	0.45/0.41	5.27	5.0
UV Transmittance @ 254 nm - Unfiltered	% T	N/A	96.9	-	-
Langelier Index	-	N/A	0.7	0.7	-
Colour, True	CU	AO ≤ 15	<5.0	<5.0	-
General Parameters and Nutrients					
Hardness, Total (as CaCO3)	mg/L	None Required	738	804	845
Alkalinity, Total (as CaCO3)	mg/L	N/A	267	237	-
Chloride	mg/L	AO ≤ 250	7.91	6.46	-
Fluoride	mg/L	MAC = 1.5	0.16	0.24	-
Nitrate (as N)	mg/L	MAC = 10	<0.010	<0.010	-
Nitrite (as N)	mg/L	MAC = 1	<0.010	<0.010	-
Sulfate	mg/L	AO ≤ 500	576	703	-
Carbon, Total Organic	mg/L	N/A	1.15	-	-
Solids, Total Dissolved	mg/L	AO ≤ 500	1070	1210	845
Total Metals					
Aluminum	mg/L	MAC = 2.9 /OG <0.1	<0.0050	0.0067	-
Antimony	mg/L	MAC = 0.006	<0.00020	<0.00020	-
Arsenic	mg/L	MAC = 0.01	0.00051	0.00172	-
Barium	mg/L	MAC = 2	0.0231	0.0171	-
Boron	mg/L	MAC = 5	0.845	1.89	-
Cadmium	mg/L	MAC = 0.007	0.000011	<0.000010	-
Calcium	mg/L	None Required	168	185	-
Chromium	mg/L	MAC = 0.05	<0.00050	<0.00050	-
Copper	mg/L	MAC = 2; AO ≤ 1	0.00092	0.00135	-
Iron	mg/L	AO ≤ 0.1	0.038	0.445	0.74
Lead	mg/L	MAC = 0.005	<0.00020	<0.00020	0.23
Magnesium	mg/L	None Required	77.4	82.8	-
Manganese	mg/L	MAC = 0.12; AO = 0.02	0.0129	0.489	-
Sodium	mg/L	AO ≤ 200	74.3	80.3	-
Uranium	mg/L	MAC = 0.02	0.00467	0.00423	-
Zinc	mg/L	AO ≤ 5	0.0123	0.0131	-
Microbiological					
Coliforms, Total	CFU/100 mL	MAC = 0	<1	<1	-
E. coli	CFU/100 mL	MAC = 0	<1	<1	-
Disinfection Data			2.1		
Chlorine Demand	mg/L	N/A	2.1	-	-
Total Halo-acetic Acids (HAAs)	mg/L	MAC = 0.08	<0.0112	-	-
Total Trihalomethanes (THMs)	mg/L	MAC = 0.1	<0.0112	-	-

- = Not analyzed; N/A = Not applicable; MAC = Maximum allowable concentration (highlighted orange if above guideline); AO = Aesthetic objective (highlighted green if above guideline); OG = Operational guideline, for water treatment plants

7. GARP STATUS – TW1

A preliminary Stage 1 hazard screening and assessment checklist for groundwater at risk of containing pathogens (GARP) was completed for TW1 in accordance with the current Provincial guidance document (MOH 2017). Stage 1 screening is intended to provide an initial assessment of a well's potential to be GARP. According to the guidance document, if one or more identified hazards pose an obvious risk of pathogenic contamination of a groundwater source, the source would be determined to be 'at risk' or GARP until further investigation is completed.

The guidance document defines GARP as any groundwater source that is likely to be contaminated from any sources of human disease-causing microorganisms (pathogens) including various types of bacteria, viruses and protozoa (e.g., Giardia and Cryptosporidium). Contamination may be continuous or, as is more often the case, intermittent. Potential sources of pathogens may include sewage discharge to land, leaking municipal sewage pipes (especially force mains), agricultural waste stockpiles, runoff intrusion into poorly constructed wells, and surface water that is hydraulically connected to ground water (groundwater under the direct influence of surface water - GUDI).

Although some groundwater supply sources may be hydraulically connected to surface water, only in situations where conditions allow microbial pathogens to freely travel from surface water to the groundwater source is there a potential threat to human health. In these cases, there is incomplete or unreliable subsurface filtration of infiltrating surface water. According to the guidance document, if a groundwater source is determined to be GUDI, then the water must be treated to the same level as surface water with respect to pathogen removal and inactivation. The determination of GARP status is ultimately the responsibility of the drinking water officer. However, the opinion of a qualified professional hydrogeologist is often considered in assessing the potential of a well source to be GARP.

There is some overlap between the definitions of GARP and GUDI, which may lead to misinterpretation. GARP is a broader definition, considering any possible source of contamination. GUDI should be considered a potential risk contributing to a well's GARP determination. There may be cases where a well is shown to not be GUDI, however the well is still considered GARP. Table 7.1 presents the GARP Stage 1 screening criteria and assessment for TW1.

The GARP screening flags one potential risk – a small two grave cemetery located 97 m from the well. This cemetery and reduction in the typical 120 m setback is discussed more in Section 9, but due the hydrogeologic setting (well confined and deep aquifer), the cemetery is not considered a GARP risk. While the well is within 300 m of several septic systems, there is a thick confining layer above the aquifer inhibiting viral transport, and water quality samples do not indicate septic related impacts on groundwater.

It is WWAL's opinion that TW1 is a low GARP risk source.

Table 7.1: TW1 GARP Stage 1 Hazard Screening

Hazards Water Supply System Wells	Screening		Assessment		Notes
	Not Present	Present	At Risk	At Low Risk	
A. Water Quality Results					
A1: Exhibits recurring presence of total coliform bacteria, fecal coliform bacteria, or Escherichia coli (*E. coli*).	X			X	Limited data, but bacteriological parameters were not detected in water quality analysis from TW1 on December 5, 2025.
A2: Has reported intermittent turbidity or has a history of consistent turbidity greater than 1 NTU.	X			X	Limited data, but turbidity analysis in the field and were less than 1 NTU on December 5, 2025.
B. Well Location					
B1: Situated inside setback distances from possible sources of contamination as per section 8 of the Health Hazard Regulation		X		X	The well meets all setbacks in the Health Hazard Regulation, with the exception of a two grave cemetery located 97 m northwest of the well. The typical setback between a well and cemetery is 120 m under the Health Hazard Regulation. At low risk due to the aquifer being well confined.
B2: Has an intake depth <15 m below ground surface that is located within a natural boundary of surface water or a flood prone area.	X			X	The top of the well screen assembly is located at 49.6 m bgs, and the well is not located in the natural boundary of a stream or in a flood prone area.
B3: Has an intake depth between the high-water mark and surface water bottom (or <15 m below the normal water level), and located within, or less than 150 m from the natural boundary of any surface water.	X			X	While the well site is within 150 m of the river, the well screen is below the bottom of the river. See Figure 3 cross-section.
B4: Located within 300 m of a source of probable enteric viral contamination without a barrier to viral transport.	X			X	The nearest septic system is located ~45 m north of the well. Several septic systems are present with 300 m, but there is a thick (~25 m) confining clay layer above the aquifer. The risk to the well septic systems is deemed low.
C. Well Construction					
C1: Does not meet GWPR (Part 3 Div. 3) for surface sealing.	X			X	The well has an appropriate surface seal.
C2: Does not meet GWPR (Part 4) and WSA (section 54) for well caps and covers	X			X	The wellhead was raised above ground with the ground surface and a vermin-proof well cap.
C3: Does not meet GWPR (section 63) and DWPA (Section 16) for floodproofing.	X			X	The wellhead meets the requirements.
C4: Does not meet GWPR (Part 3 and Part 7) for wellhead protection.	X			X	The well as an adequate stick-up above ground which can be maintained in the final completion.
D. Aquifer Type and Setting					
D1: Has an intake depth <15 m below ground surface.	X			X	The top of the well screen assembly is located at 49.6 m bgs.
D2: Is situated in a highly vulnerable, unconfined, unconsolidated or fractured bedrock aquifer.	X			X	The Aquifer is highly confined and low vulnerability.
D3: Is completed in a karst bedrock aquifer, regardless of depth.	X			X	No.

8. GROUNDWATER LICENSING

The TNRD and CFIB submitted an existing use water licence application for their community water system and has received licences #504091 and #502813 which are summarized in Table 8.1. Both licenses include the three current supply wells on Kumcheen IR#1 as points of diversion, and allows for a total annual diversion of 190,046 m³/yr. Recent water consumption data from 2022/2023 indicates average day demand is in the 220 m³/day to 290 m³/day range. If the high end of this range is used, the resulting annual water consumption is 105,850 m³/yr, which is well within the licensed volume.

Table 8.1 Spences Bridge Community Water System Licenses

Licence Number	Licence Status	Purpose Use	Source Name	Quantity (m^3/yr)	Primary Licensee Name
504091	Current	00A - Waterworks: Local Provider	716	38009	Cook's Ferry Indian Band (115871)
502813	Current	00A - Waterworks: Local Provider	716	152037	Thompson Nicola Regional District (29039)

Should the TNRD decide to proceed with use of TW1 for the water system, there are two potential licensing pathways.

1) Amend the existing water licences to include TW1 as a point of diversion and any new water system works.
2) Apply for a new licence for TW1. The existing licenses are explicit that the water is being sourced from Aquifer 716, while TW1 is interpreted to be completed in a separate aquifer system. TW1 may therefore require a separate licence, to be obtained through a new licence application.

Provincial water licensing staff should be contacted to discuss the situation and confirm their preferred approach to licensing TW1. For either option, we believe it is very likely that TW1 can be licensed.

9. INTERIOR HEALTH NEW SOURCE APPROVAL

Should the decision be made to incorporate TW1 into the Spences Bridge Community Water System, the source will require permitting with Interior Health. The first step in the process is New Source Approval, and this report can be submitted in support of that approval.

Figure 2 presents orthophoto coverage of Spences Bridge and a 300 m radius around TW1. Surrounding land use is predominantly residential, with some commercial operations (pub, hotel) and some agricultural activities to the north. All developments in the area would be serviced by private onsite septic systems. Major transportation corridors Highway 1 and the CN Rail line fall within 300 m of the well. A search of the BC Site Registry Database which includes information on reported and suspected contaminated sites does not indicate any sites within 300 m of the well.

Potential contamination of TW1 is mitigated by the presence of a thick (~30 m) confining clay till layer and a substantial (~10 m) unsaturated zone, which together would attenuate the transport of pathogens and limit the vertical migration of potential chemical contaminants. Water quality testing supports this

conceptual model, as septic disposal to ground which has been occurring in the community for decades has not impacted water in the confined aquifer, nor was there any evidence of hydrocarbon contamination. We consider the aquifer to be very secure and suitable as a community water supply.

When siting the well, WWAL considered the location of cemeteries in the community. Two were reported, the closest being a small, unregistered gravesite containing two graves. This cemetery is located 97 m to the northwest of the well site. The Health Hazard Regulation requirements for setbacks to cemeteries states "unless contamination of the well would be impossible because of the physical conformation, 120 m {setback} from any cemetery or dumping ground". Prior to drilling, lithology in area well logs was reviewed and the thick clay till layer was identified and deemed likely to be present at the site, and its presence was proved out during drilling. It is our opinion that contamination of the well from the historic grave site is extremely unlikely, and an encroachment on the typical 120 m setback does not pose any additional risk to TW1.

10. CONCLUSIONS

C1 A new 200 mm (8-inch) diameter well (TW1) has been installed for potential inclusion in the Spences Bridge Community water system. TW1 is completed in an unmapped confined aquifer, completed with a 60-slot screen at a depth of 50.3 – 53.3 m (165 – 175 ft). Construction complies with the requirements of the *Groundwater Protection Regulation*.

C2 TW1 was tested at rates as high as 18.9 L/s (300 US gpm) for 48 hours and produces sand free water. While the CPCN calculation indicates a higher potential sustainable yield, the operating rate should be capped at 18.9 L/s (300 US gpm), as this was the highest yield proven in testing. Water level recovery monitoring completed after the testing program demonstrated that full recovery occurred, but it took approximately two weeks to occur. As a result, we suggest a preliminary sustainable yield of the aquifer of 9.5 L/s (150 US gpm).

C3 The testing program included monitoring of one other well to assess well interference. Modest well interference was noted, but is not deemed excessive. Other wells are known to exist in the community, but based on our interpretation of the aquifer setting and available water quality data, may be completed in a deeper aquifer. The other wells in the community also have significant available drawdown (>30 m). Overall, we find the potential for excessive interference between TW1 and other wells in the area to be low, but additional assessment of well interference could be completed if concerns are expressed.

C4 Comprehensive water quality testing for TW1 did not identify any exceedance of health-based Guidelines for Canadian Drinking Water Quality. Sulfate and TDS concentrations were found to be above the AO guidelines, and the water is considered extremely hard. Turbidity measured near the end of the pumping test of TW1 and did not surpass 1 NTU.

C5 TW1 was assessed with a Level 1 GARP screening and is considered a low GARP risk source owing to the well confined nature of the aquifer. This interpretation was supported by water quality testing, which showed an absence of nitrate and low chloride concentrations in the aquifer despite decades of wastewater disposal to ground occurring in the community.

11. RECOMMENDATIONS

We make the following recommendations should the decision be made to incorporate TW1 into the community water system.

R1 We recommend a maximum operating rate of up to 18.9 L/s (300 US gpm) for TW1.

R2 We recommend that the bottom of the permanent pump assembly be installed at 35 m depth. A deeper pump setting is possible but not necessary.

R3 To prevent dewatering and compaction of the confined aquifer, pumping water levels should not be drawn down below 35 m below ground, which corresponds to the top of the Upper Unnamed Aquifer. By setting the pump at 35 m, dewatering the aquifer will not be possible.

R4 Well completions should include one 25 mm (1-inch) inner diameter PVC tube (and two if possible) that extends from the top of the casing to the top of the pump assembly. One tube would house a permanent water level transducer, while the second would facilitate manual water level measurements and potentially well chlorination from surface. The installation depth of the transducer should be accurately recorded by the pump installer. The transducer readout should be programmed to read depth of water above the transducer (not percent of water column). Detailed installation records should be provided by the contractor.

R5 Installation of the pitless adapter on TW1 will require the upper surface seal to be removed. The surface seals must be replaced by the pump contractor as part of this process to remain compliant with the *Groundwater Protection Regulation*.

R6 As with all production wells, operational performance (pumping rate and drawdown) should be monitored on an ongoing basis. We recommend that the water system operator complete an annual performance test on the well, consisting of running the well in isolation for one hour at a specified and consistent rate, and recording the water level and flow rate every five minutes. By comparing the results of these brief drawdown tests year over year, the need for periodic well re-development can be assessed. We suggest that when a 15% decline in specific capacity (pumping rate divided by drawdown) is observed, a well redevelopment program should be scheduled for the well.

R7 An abandoned septic tank was identified on 4850 Chucker Crescent. While it is not considered an active source of contamination, it should be abandoned as it presents a potential safety hazard.

R8 Engage with the Province to discuss the preferred licensing pathway for TW1 (i.e. add to existing licences with an amendment or licensed separately under a new licence application).

REFERENCES

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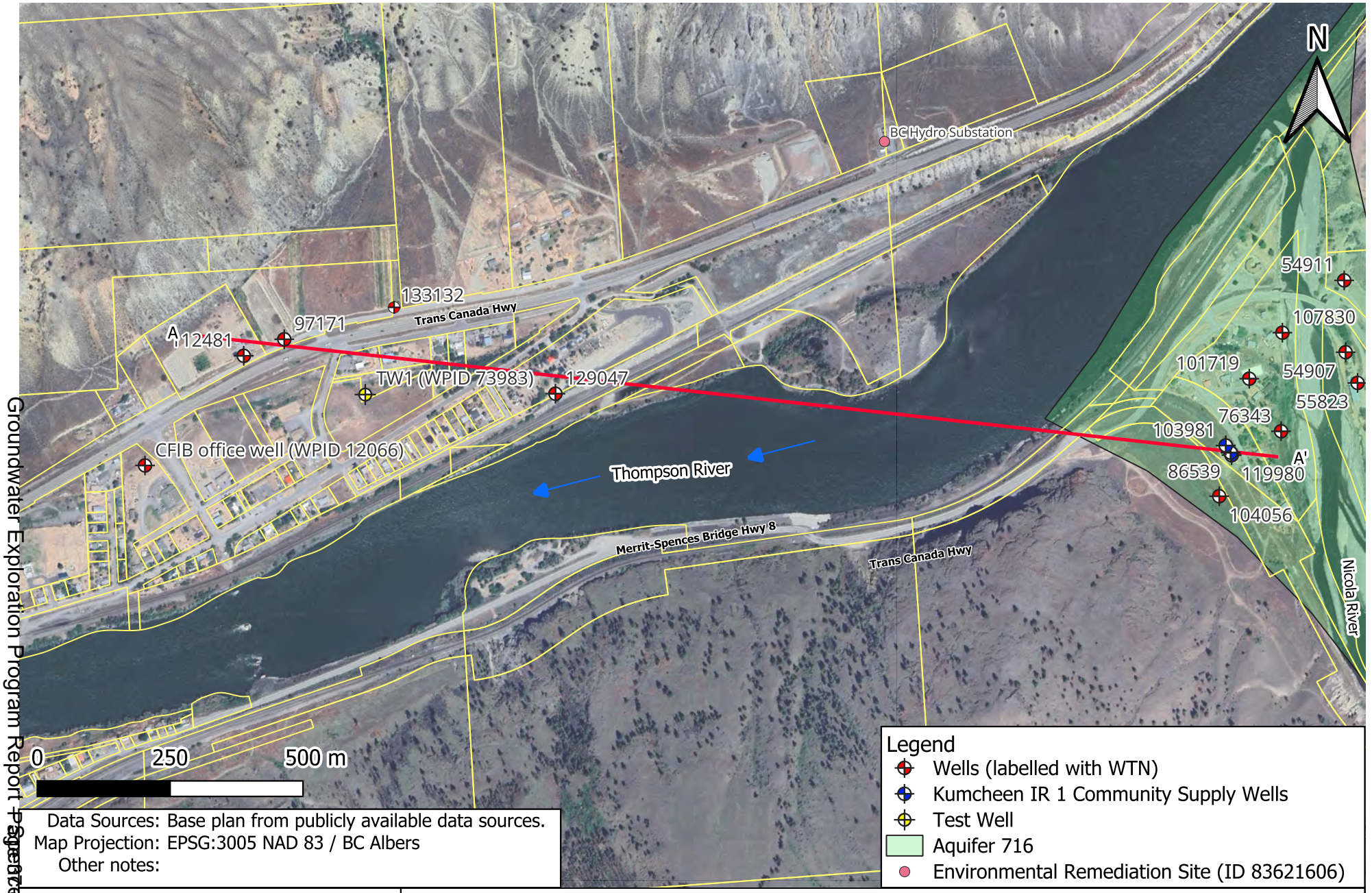
Figures

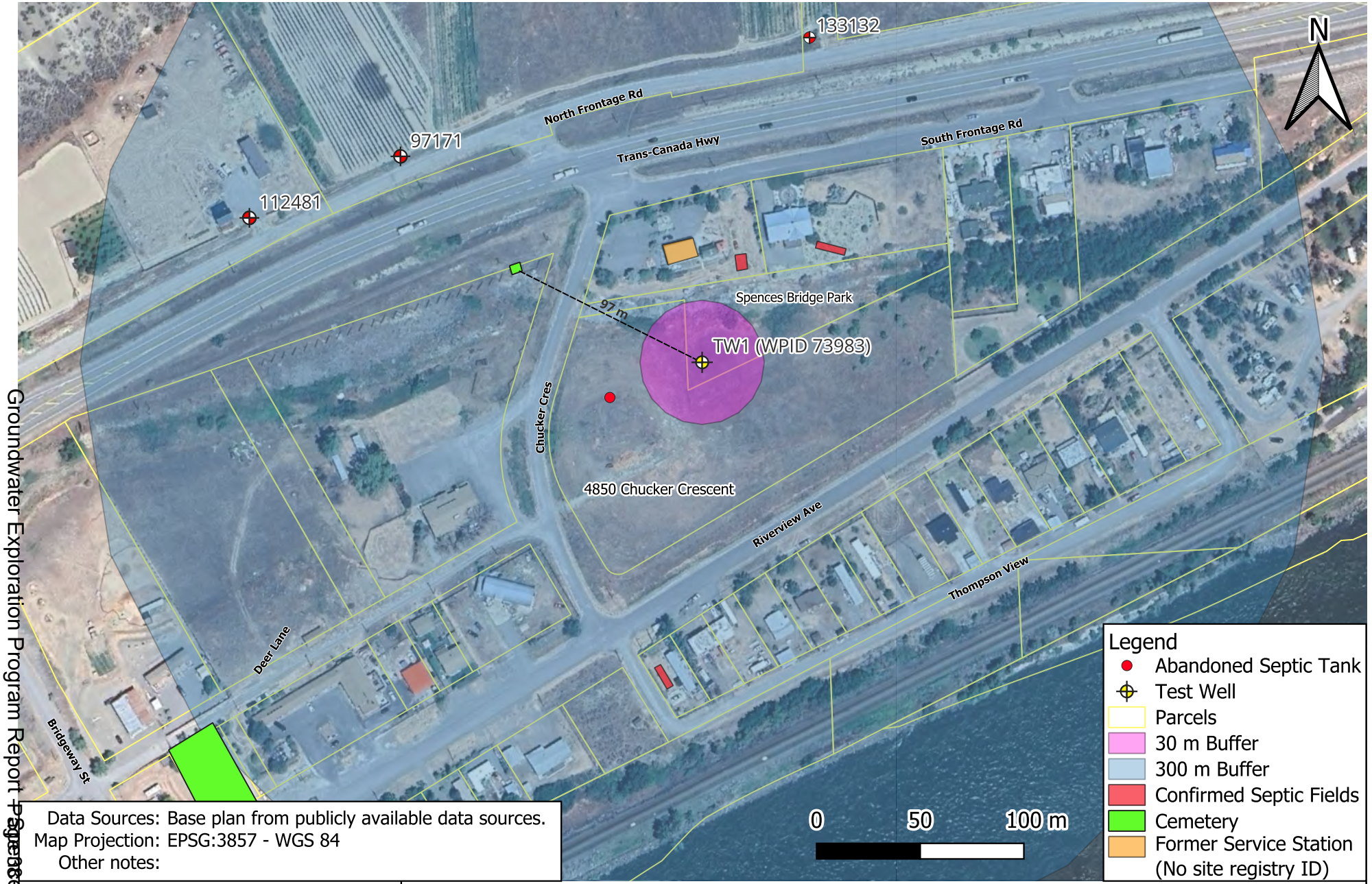
Figures 1-3; Site Overview, Test Well Site Map, Cross-Section A-A'

c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR



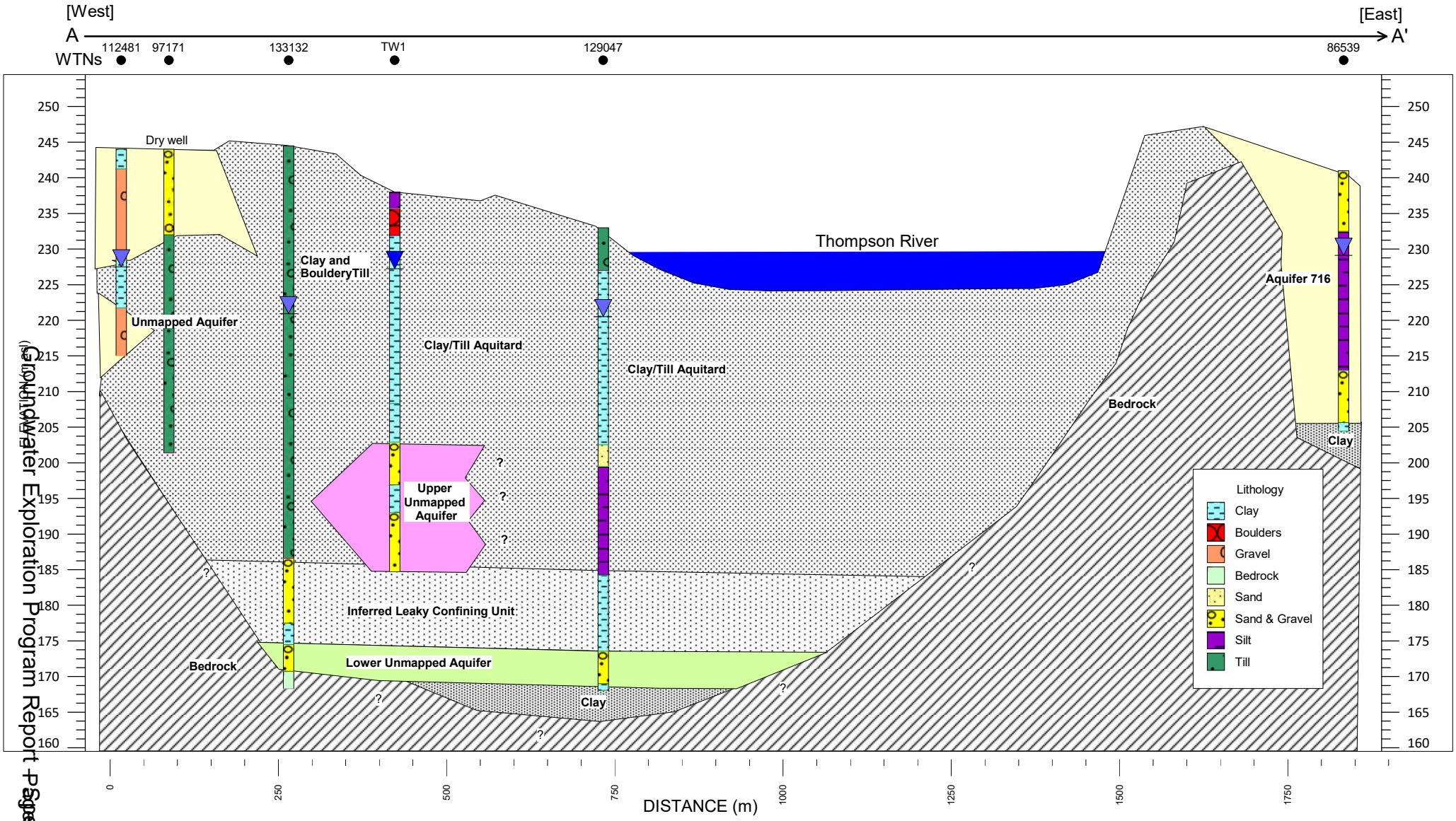
Data Sources: Base plan from publicly available data sources.
Map Projection: EPSG:3005 NAD 83 / BC Albers
Other notes:

Spences Bridge Test Well Completion Report	TITLE **Figure 1:** General Site Location		
western water ASSOCIATES LTD	DRAWN MA	DATE January 6, 2026	CLIENT TNRD
	REVIEWED RR	PROJECT NO. 25-053-04VR	REVISION NO. B



Data Sources: Base plan from publicly available data sources.
Map Projection: EPSG:3857 - WGS 84
Other notes:

Spences Bridge Test Well Completion Report	TITLE **Figure 2:** Test Well Site Map		
western water ASSOCIATES LTD	DRAWN MA	DATE January 6, 2026	CLIENT TNRD
	REVIEWED RR	PROJECT NO. 25-053-04VR	REVISION NO. B



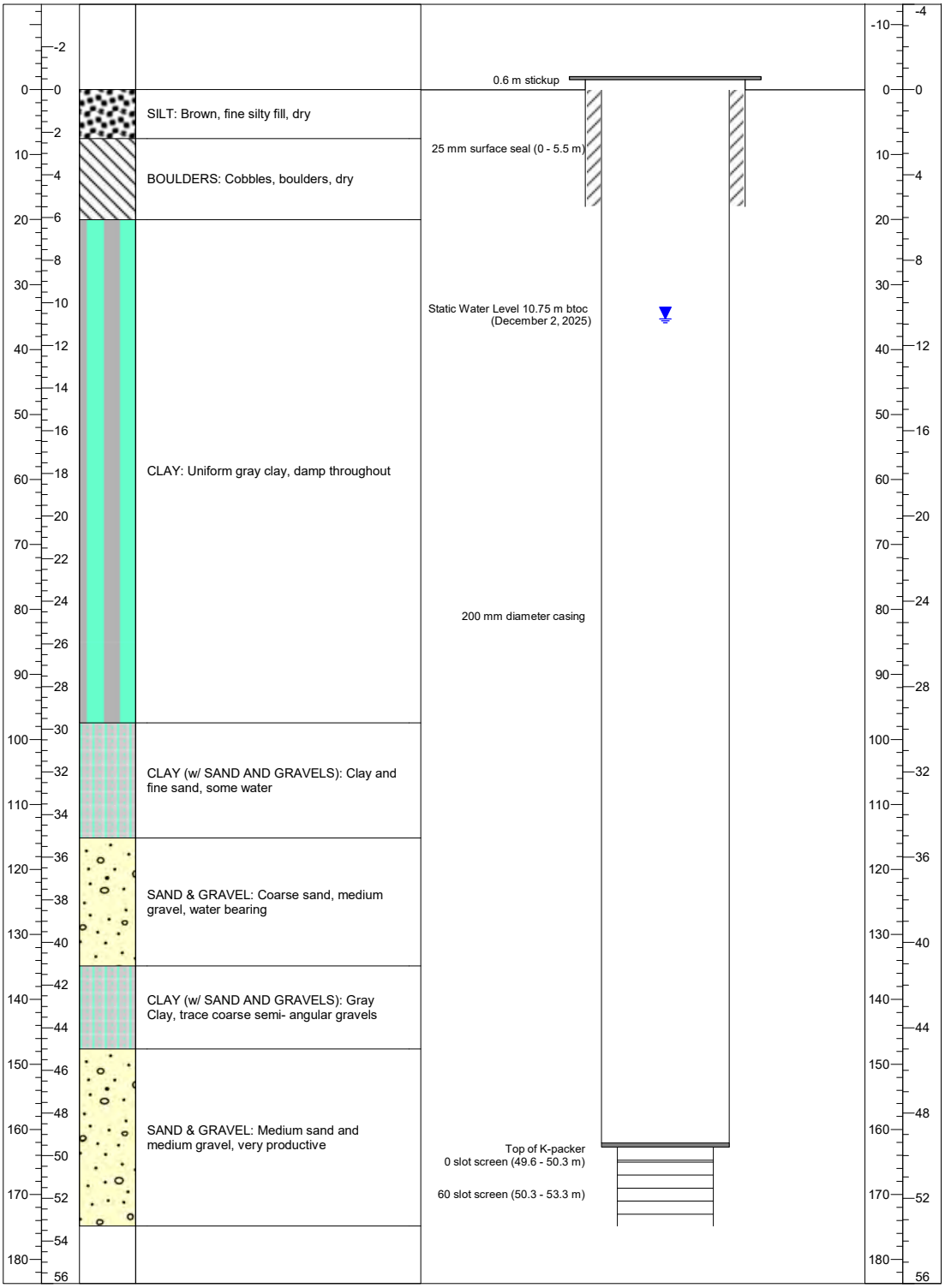
Sences Bridge Well Completion Report	**Figure 3. Cross-section A-A' (see Figure 2 for cross-section line)**		
western water ASSOCIATES LTD	Drawn: Malakye Abel	Client: TNRD	
	Reviewed: Ryan Rhodes, P.Geo.	Project Number: 25-053-04VR	
	Revision: B	Date: January 19, 2026	

Notes:
1) Map Projection: NAD83 UTM Zone 10
2) Lithology descriptions from GWELLS and WWAL;
3) Topography from Google Earth (2025);
4) The hydrostratigraphy shown on this drawing are interpreted from well data. Actual hydrostratigraphy may vary from that indicated on this drawing.

Appendix A

WWAL TW1 Completion Schematic, Screen Specifications Schematic

c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR



Project Number: 25-053-04VR
Client: TNRD
Location: Spences Bridge Park, Spences Bridge, BC
Driller: JR Drilling

Drilling Date: 11/6/2025
Easting: 617938
Northing: 5587102
Elevation: 238 m asl - Google Earth (2025)
Logged by: MA
Method: Dual Rotary

Sales Quote

Quote No. K25043
Quote Date: 2025-11-12

Customer:
JR Drilling Ltd.
PO Box 436
Cranbrook, BC V1C 4H9

Danny Elliott
office@jrdrilling.com
250.426.5070

FET Variperm:
Tom Littlefair
(403) 930-0436
Tom.Littlefair@f-e-t.com

Delivery Date: 2025-11-20
Notes:
TWRO - Spences Bridge Well

Description	UOM	Quantity
8" Telescope Screen Assembly	FT	1
Screen ID: 6.930", OD: 7.500"		
0.122" x 0.175" 304L SS House Rib Wire (40)		
0.090" x 0.140" 304L SS Keystone Wrap Wire		
2ft c/w "ZERO" (0.004") Slot Size on Top		
10ft c/w 0.060" Slot Size on Bottom		
12ft Actual Screen Length		
Weld Ring x Weld Ring w/Plate Bottom & Bail Loop		
304L Stainless Steel Construction		
K-Packer 7-1/2" x 8-1/8" ID Casing Weld on - Carbon Steel	EA	1
KP-038-00		
(Welded on top of screen assembly)		

FET | Variperm

Sales Quote

Quote No. K25043
Quote Date: 2025-11-12

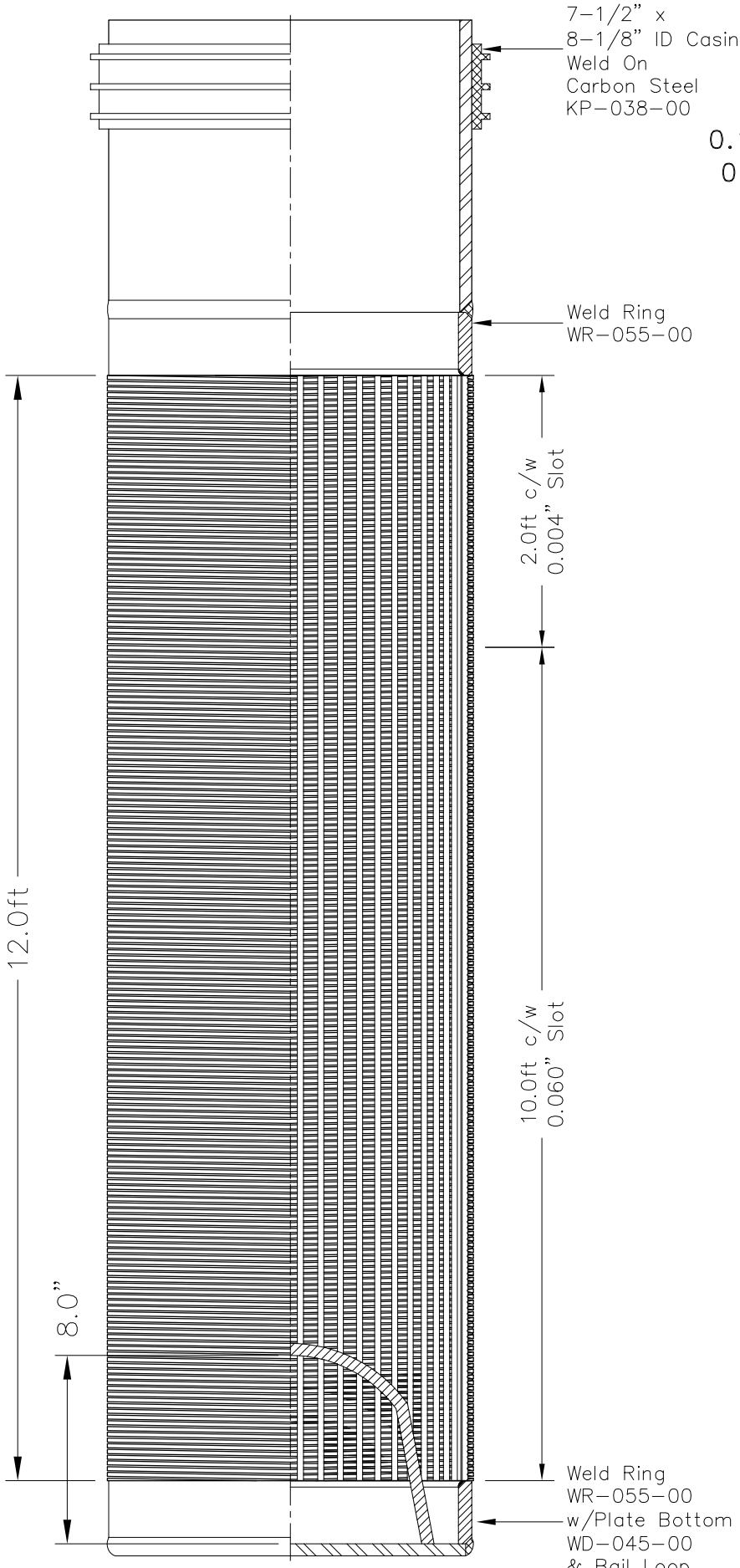
Specification Worksheet

Spec Type	Spec No.	Spec Code
	SCREEN	8" Telescope Screen w/0.060" Slot Opening
	WRAP OFA	113.097 in2/ft
	WRAP OFA	40.00%
	FLOW CAPACITY	35.251 US Gallons/minute
	FLOW CAPACITY	29.354 Imperial Gallons/minute
	COLLAPSE STRENGTH	117 PSI
	DEPTH RATING	270 ft below Static Water Level
	YIELD STRENGTH	14,272 lbs
	SCREEN	
	SCREEN	All Flow Calculations Based on 1ft of Screen & 0.1ft/sec of Entrance Velocity

F-E-T Variperm

November 12, 2025

8" Telescope Screen Assembly
Screen ID: 6.930", OD: 7.500"
0.122" x 0.175" House Rib Wire (40)
0.090" x 0.140" Keystone Wrap Wire
12.0ft Actual Screen Length
304L Stainless Steel Construction



JR Drilling Ltd.
(1x)

Specifications Subject to Customers Approval.

Not To Scale

\acadfile\customer\JR Drilling\nov122501.dwg

Appendix B

Field Grain Size Analysis

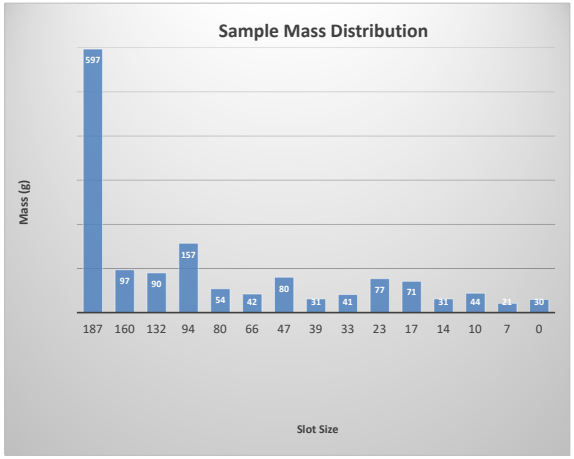
c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR

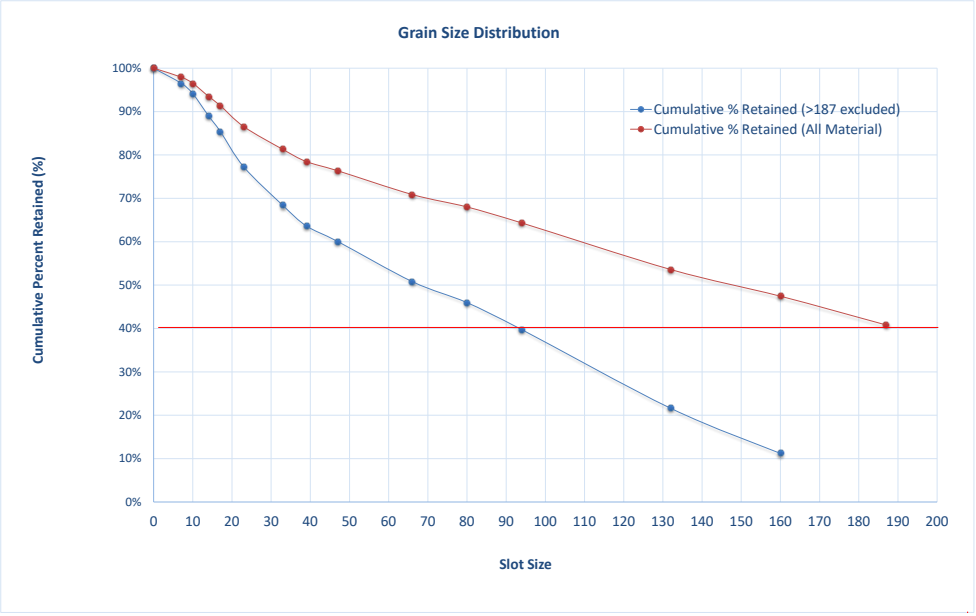
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**145**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	597		41%		41%
Gravel	3.35	5	160	97	11%	7%	11%	47%
Fine Gravel		6	132	90	10%	6%	22%	54%
Coarse Sand	2	8	94	157	18%	11%	40%	64%
Medium Sand	1.7	10	80	54	6%	4%	46%	68%
Medium Sand	1.4	12	66	42	5%	3%	51%	71%
Medium Sand	1	16	47	80	9%	5%	60%	76%
Medium Sand		18	39	31	4%	2%	64%	78%
Medium Sand	0.841	20	33	41	5%	3%	68%	81%
Fine Sand	0.595	30	23	77	9%	5%	77%	87%
Fine Sand	0.42	40	17	71	8%	5%	85%	91%
Fine Sand		45	14	31	4%	2%	89%	94%
Fine Sand	0.25	60	10	44	5%	3%	94%	97%
Fine Sand		80	7	21	2%	1%	97%	98%
			0	30	3%	2%	100%	100%
Total (All)				1463	100%	100%		
Total (exclude >187)				866				





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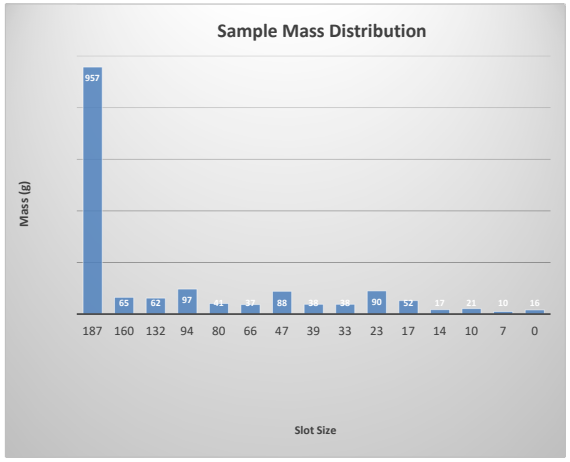
Consultants in Hydrogeology and Water Resources Management

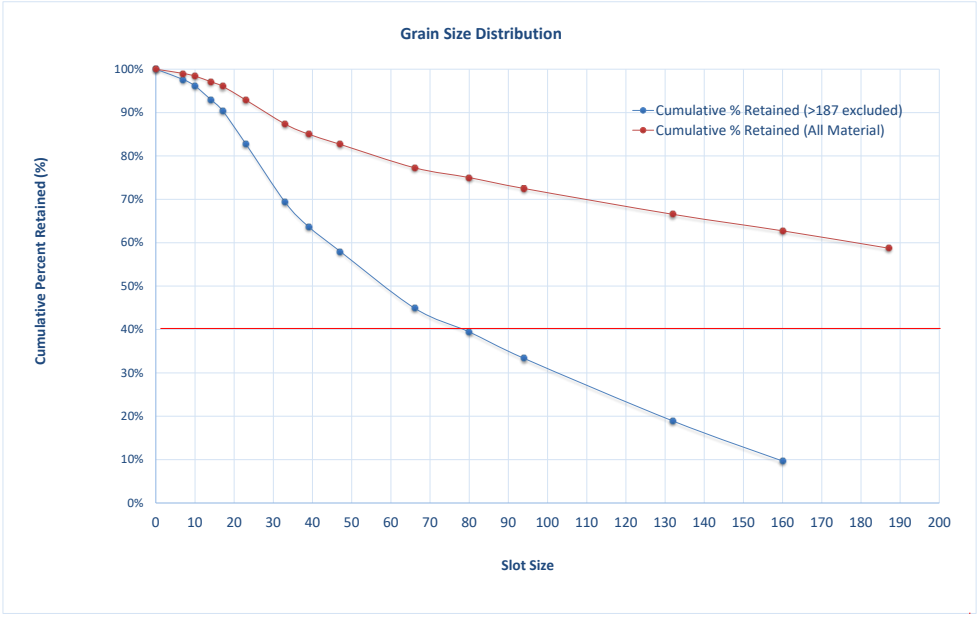
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**147.5**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	957		59%		59%
Gravel	3.35	5	160	65	10%	4%	10%	63%
Fine Gravel		6	132	62	9%	4%	19%	67%
Coarse Sand	2	8	94	97	14%	6%	33%	72%
Medium Sand	1.7	10	80	41	6%	3%	39%	75%
Medium Sand	1.4	12	66	37	6%	2%	45%	77%
Medium Sand	1	16	47	88	13%	5%	58%	83%
Medium Sand		18	39	38	6%	2%	64%	85%
Medium Sand	0.841	20	33	38	6%	2%	69%	87%
Fine Sand	0.595	30	23	90	13%	6%	83%	93%
Fine Sand	0.42	40	17	52	8%	3%	90%	96%
Fine Sand		45	14	17	3%	1%	93%	97%
Fine Sand	0.25	60	10	21	3%	1%	96%	98%
Fine Sand		80	7	10	1%	1%	98%	99%
			0	16	2%	1%	100%	100%
Total (All)				1629	100%	100%		
Total (exclude >187)				672				





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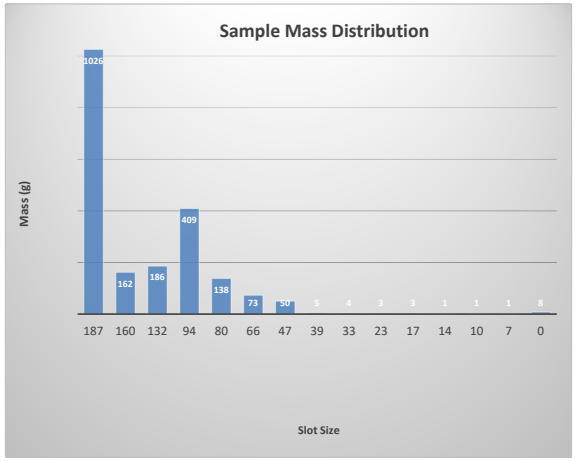
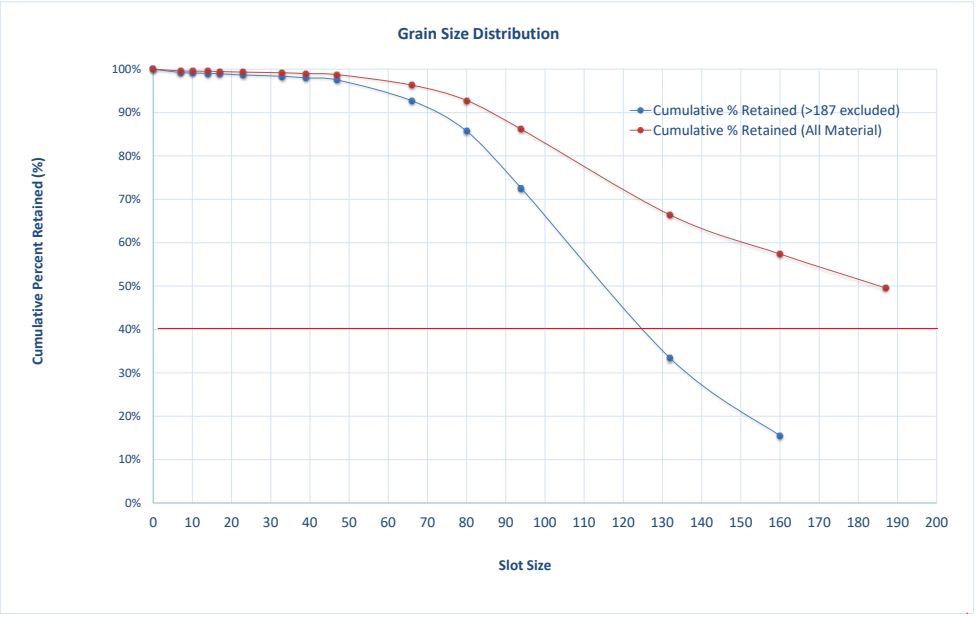
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**155**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	1026		50%		50%
Gravel	3.35	5	160	162	16%	8%	16%	57%
Fine Gravel		6	132	186	18%	9%	33%	66%
Coarse Sand	2	8	94	409	39%	20%	73%	86%
Medium Sand	1.7	10	80	138	13%	7%	86%	93%
Medium Sand	1.4	12	66	73	7%	4%	93%	96%
Medium Sand	1	16	47	50	5%	2%	98%	99%
Medium Sand		18	39	5	0%	0%	98%	99%
Medium Sand	0.841	20	33	4	0%	0%	98%	99%
Fine Sand	0.595	30	23	3	0%	0%	99%	99%
Fine Sand	0.42	40	17	3	0%	0%	99%	99%
Fine Sand		45	14	1	0%	0%	99%	100%
Fine Sand	0.25	60	10	1	0%	0%	99%	100%
Fine Sand		80	7	1	0%	0%	99%	100%
			0	8	1%	0%	100%	100%
Total (All)				2070	100%	100%		
Total (exclude >187)				1044				





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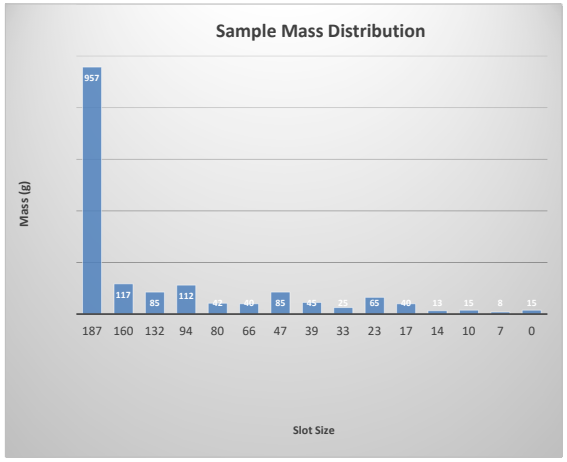
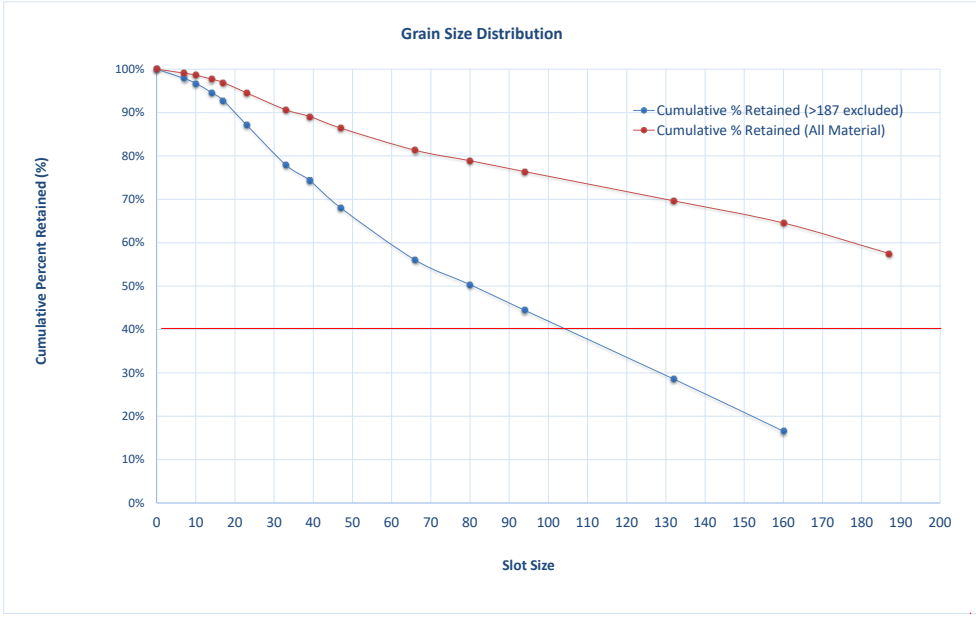
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**165-167.5**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	957		58%		58%
Gravel	3.35	5	160	117	17%	7%	17%	65%
Fine Gravel		6	132	85	12%	5%	29%	70%
Coarse Sand	2	8	94	112	16%	7%	44%	76%
Medium Sand	1.7	10	80	42	6%	3%	50%	79%
Medium Sand	1.4	12	66	40	6%	2%	56%	81%
Medium Sand	1	16	47	85	12%	5%	68%	86%
Medium Sand		18	39	45	6%	3%	74%	89%
Medium Sand	0.841	20	33	25	4%	2%	78%	91%
Fine Sand	0.595	30	23	65	9%	4%	87%	95%
Fine Sand	0.42	40	17	40	6%	2%	93%	97%
Fine Sand		45	14	13	2%	1%	95%	98%
Fine Sand	0.25	60	10	15	2%	1%	97%	99%
Fine Sand		80	7	8	1%	0%	98%	99%
			0	15	2%	1%	100%	100%
Total (All)				1664	100%	100%		
Total (exclude >187)				707				





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Consultants in Hydrogeology and Water Resources Management

Field Particle Size Analysis

Project No. 25-053-04VR

Client: TNRD

Location: Spences Bridge, BC

UTM Zone 10 Easting 121.339659°W
Northing 50.424097°N

WPID 73983

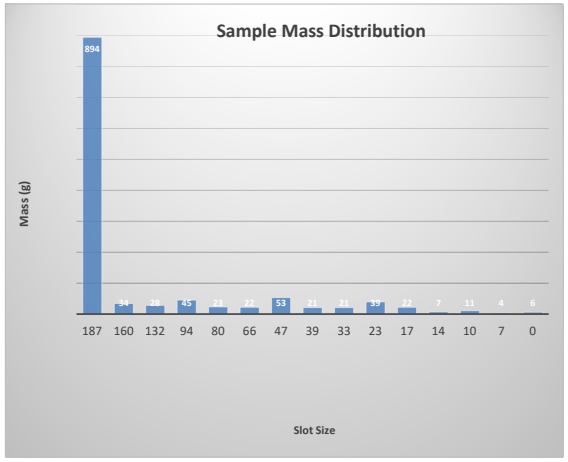
Sample depth (bgs) ft 167.5-170

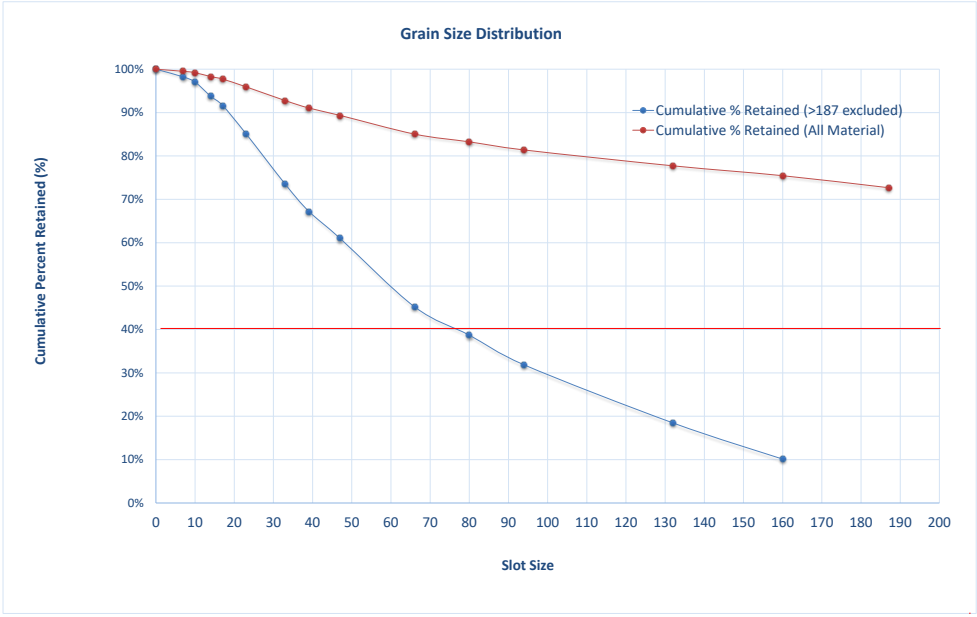
Date (dd-mmm-yy) 8-Nov-25

Field soil description/notes: f sand & coarse gravel, some silt

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	894		73%		73%
Gravel	3.35	5	160	34	10%	3%	10%	75%
Fine Gravel		6	132	28	8%	2%	18%	78%
Coarse Sand	2	8	94	45	13%	4%	32%	81%
Medium Sand	1.7	10	80	23	7%	2%	39%	83%
Medium Sand	1.4	12	66	22	7%	2%	45%	85%
Medium Sand	1	16	47	53	16%	4%	61%	89%
Medium Sand		18	39	21	6%	2%	67%	91%
Medium Sand	0.841	20	33	21	6%	2%	74%	93%
Fine Sand	0.595	30	23	39	12%	3%	85%	96%
Fine Sand	0.42	40	17	22	7%	2%	92%	98%
Fine Sand		45	14	7	2%	1%	94%	98%
Fine Sand	0.25	60	10	11	3%	1%	97%	99%
Fine Sand		80	7	4	1%	0%	98%	100%
			0	6	2%	0%	100%	100%
Total (All)				1230	100%	100%		
Total (exclude >187)				336				





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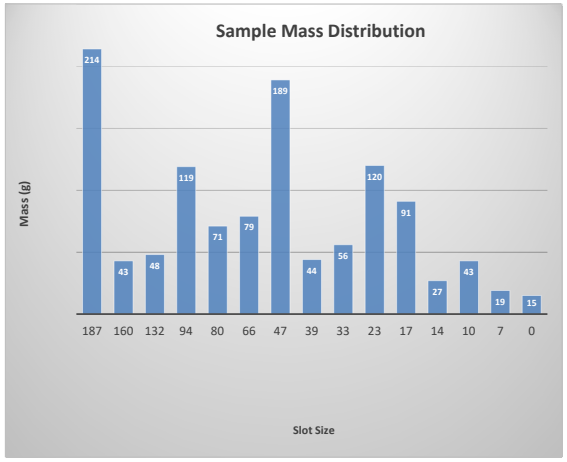
Consultants in Hydrogeology and Water Resources Management

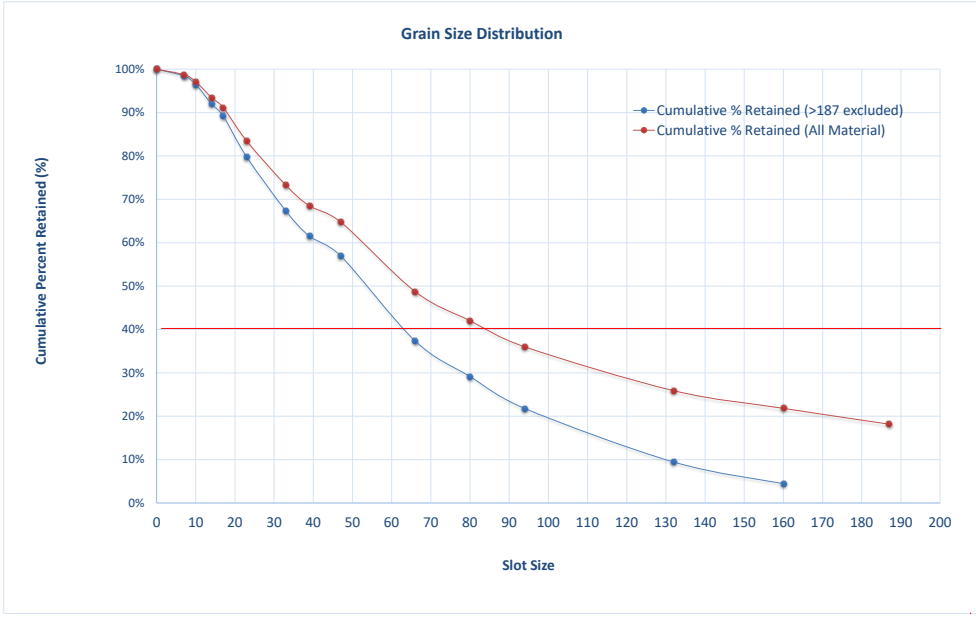
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**170-172.5**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel, some silt**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	214		18%		18%
Gravel	3.35	5	160	43	4%	4%	4%	22%
Fine Gravel		6	132	48	5%	4%	9%	26%
Coarse Sand	2	8	94	119	12%	10%	22%	36%
Medium Sand	1.7	10	80	71	7%	6%	29%	42%
Medium Sand	1.4	12	66	79	8%	7%	37%	49%
Medium Sand	1	16	47	189	20%	16%	57%	65%
Medium Sand		18	39	44	5%	4%	62%	69%
Medium Sand	0.841	20	33	56	6%	5%	67%	73%
Fine Sand	0.595	30	23	120	12%	10%	80%	83%
Fine Sand	0.42	40	17	91	9%	8%	89%	91%
Fine Sand		45	14	27	3%	2%	92%	93%
Fine Sand	0.25	60	10	43	4%	4%	96%	97%
Fine Sand		80	7	19	2%	2%	98%	99%
			0	15	2%	1%	100%	100%
Total (All)				1178	100%	100%		
Total (exclude >187)				964				





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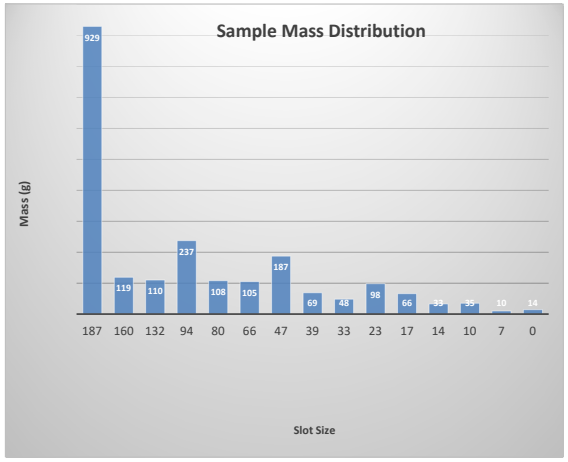
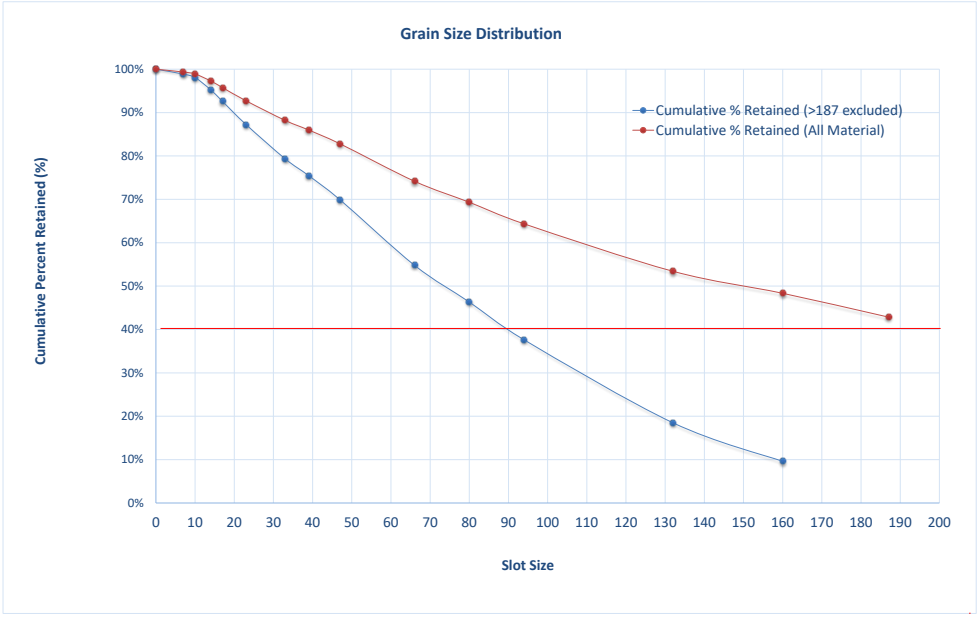
Field Particle Size Analysis

Project No.		**25-053-04VR**
Client:		**TNRD**
Location:		**Spences Bridge, BC**
UTM Zone 10	**Easting**	**121.339659°W**
	Northing	**50.424097°N**
WPID		**73983**
Sample depth (bgs) ft		**172.5-175**
Date (dd-mmm-yy)		**8-Nov-25**
Field soil description/notes:		**f sand & coarse gravel**

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	929		43%		43%
Gravel	3.35	5	160	119	10%	5%	10%	48%
Fine Gravel		6	132	110	9%	5%	18%	53%
Coarse Sand	2	8	94	237	19%	11%	38%	64%
Medium Sand	1.7	10	80	108	9%	5%	46%	69%
Medium Sand	1.4	12	66	105	8%	5%	55%	74%
Medium Sand	1	16	47	187	15%	9%	70%	83%
Medium Sand		18	39	69	6%	3%	75%	86%
Medium Sand	0.841	20	33	48	4%	2%	79%	88%
Fine Sand	0.595	30	23	98	8%	5%	87%	93%
Fine Sand	0.42	40	17	66	5%	3%	93%	96%
Fine Sand		45	14	33	3%	2%	95%	97%
Fine Sand	0.25	60	10	35	3%	2%	98%	99%
Fine Sand		80	7	10	1%	0%	99%	99%
			0	14	1%	1%	100%	100%
Total (All)				2168	100%	100%		
Total (exclude >187)				1239				





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Consultants in Hydrogeology and Water Resources Management

Field Particle Size Analysis

Project No. 25-053-04VR

Client: TNRD

Location: Spences Bridge, BC

UTM Zone 10 Easting 121.339659°W
Northing 50.424097°N

WPID 73983

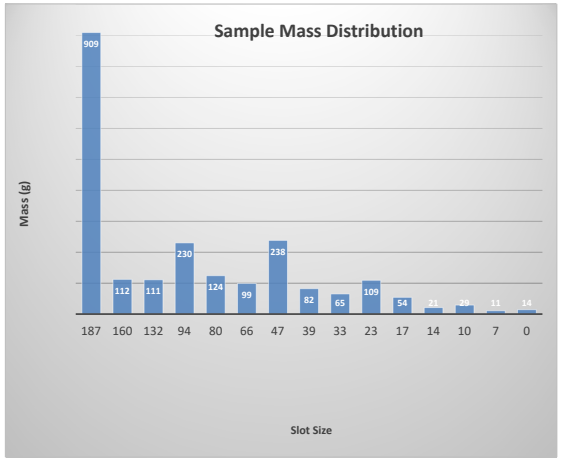
Sample depth (bgs) ft 175

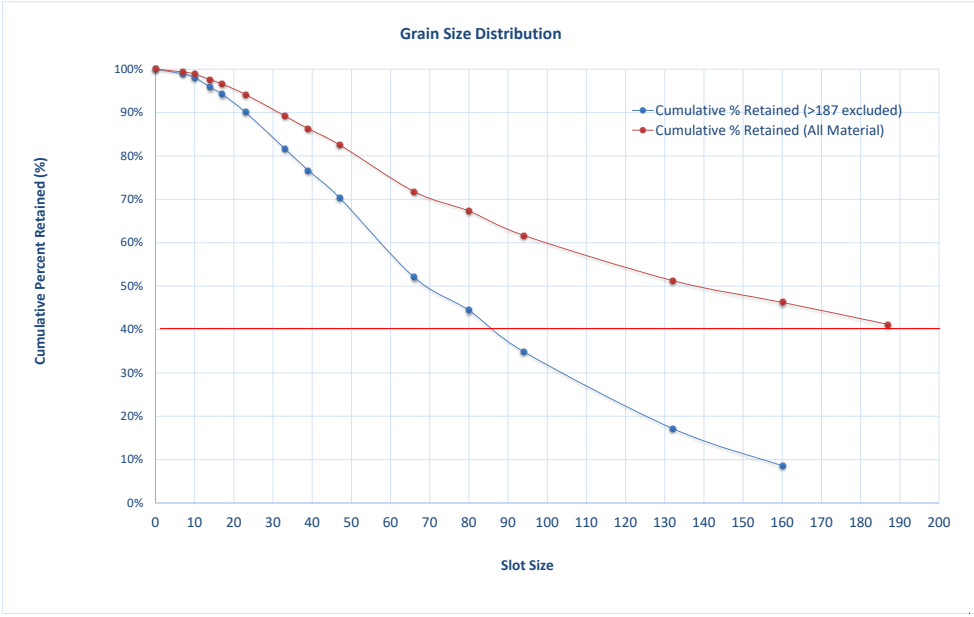
Date (dd-mmm-yy) 8-Nov-25

Field soil description/notes: f sand & coarse gravel

Fill in yellow cells with weight of eac htray

Sediment Type	Nominal aperture size (mm)	Mesh Size	Slot Size Range	Sieve Fraction Retained	> 187 excluded	All Material	Cumulative % Retained (>187 Excluded)	Cumulative % Retained (All Material)
				Weight (g)		% Wt.		%
Coarse Gravel		4	187	909		41%		41%
Gravel	3.35	5	160	112	9%	5%	9%	46%
Fine Gravel		6	132	111	9%	5%	17%	51%
Coarse Sand	2	8	94	230	18%	10%	35%	62%
Medium Sand	1.7	10	80	124	10%	6%	44%	67%
Medium Sand	1.4	12	66	99	8%	4%	52%	72%
Medium Sand	1	16	47	238	18%	11%	70%	83%
Medium Sand		18	39	82	6%	4%	77%	86%
Medium Sand	0.841	20	33	65	5%	3%	82%	89%
Fine Sand	0.595	30	23	109	8%	5%	90%	94%
Fine Sand	0.42	40	17	54	4%	2%	94%	97%
Fine Sand		45	14	21	2%	1%	96%	98%
Fine Sand	0.25	60	10	29	2%	1%	98%	99%
Fine Sand		80	7	11	1%	0%	99%	99%
			0	14	1%	1%	100%	100%
Total (All)				2208	100%	100%		
Total (exclude >187)				1299				





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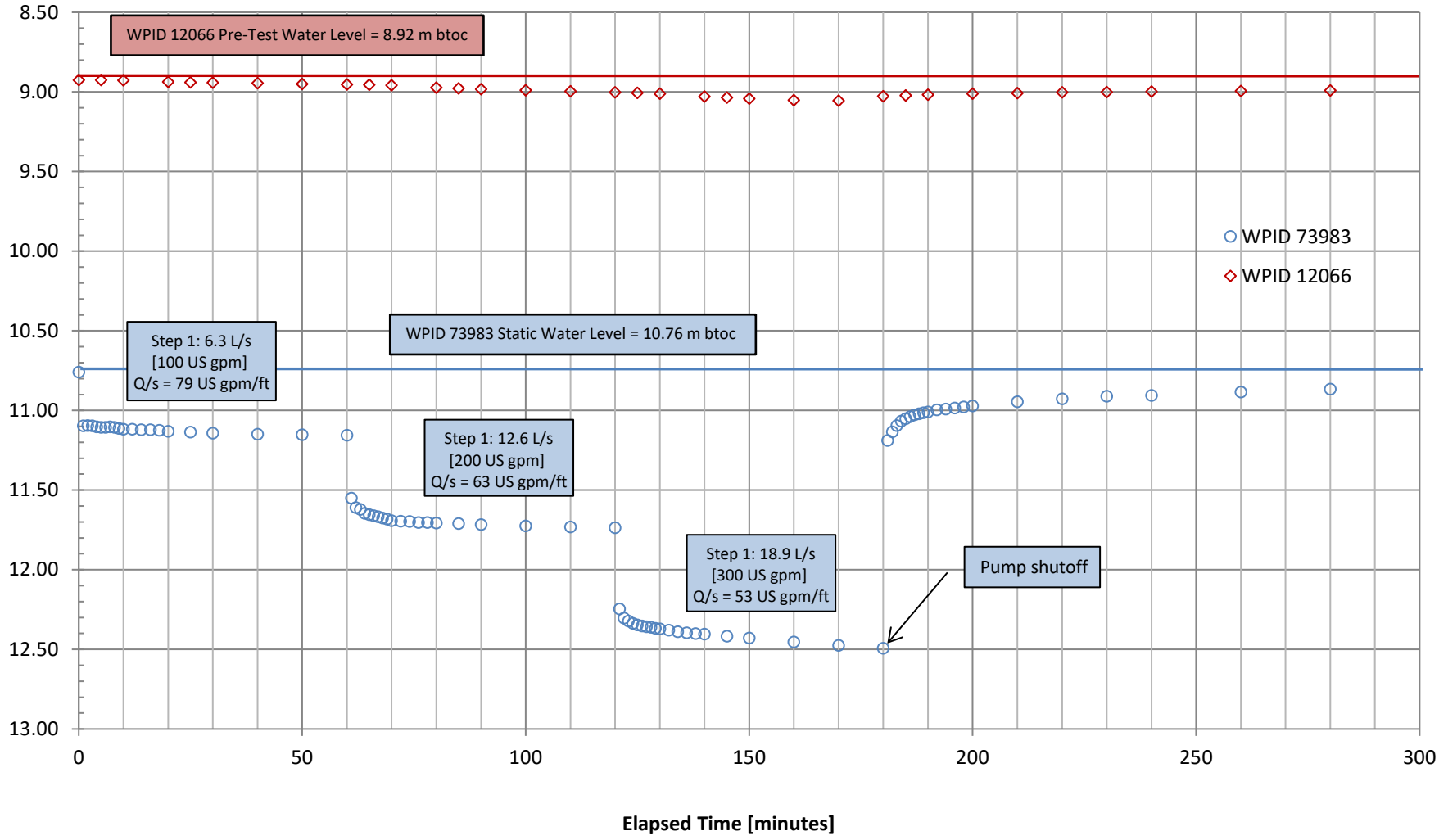
Appendix C

Tables C1 - C2, Figures C1 - C4: Pumping Test Data and Graphs

c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR

Project No: 25-053-04 Table C1 - Step Test, Spences Bridge WPID 73983, December 2, 2025												
Contractor: Aqua Tech Services Ltd.	Data Entry by: MA		Checked by: RR									
Well depth = 53.34 m (175 ft)	Well diameter = 8 inches		Measurement method = Flow Meter			Pump Depth = 38.1 m (125 ft)						
Comments	Real Time	Time since pump started, t (minutes)	Water level measurement (btoc) (m)	Water level measurement (btoc) (ft)	Water level change, s (m)	Drawdown (ft)	Drawdown (m)	Pumping Rate (l/s)	Pumping Rate (USgpm)	Specific Capacity		CFIB Well (WPID 12066)
										L/s/m	Usgpm/ft	Water level measurement (btoc) (m)
STATIC	12/2/2025 20:05	0	10.76	35.30	--	0.00	0.00	0	0	--	--	8.92
Step 1	12/2/2025 20:06	1	11.10	36.41	0.34	1.11	0.34	6	102	19.0	91.9	
	12/2/2025 20:07	2	11.09	36.40	0.00	1.10	0.34	6	102	19.2	92.7	
	12/2/2025 20:08	3	11.10	36.41	0.00	1.11	0.34	6	102	19.0	91.9	
	12/2/2025 20:09	4	11.10	36.43	0.01	1.13	0.34	6	102	18.7	90.3	
	12/2/2025 20:10	5	11.11	36.44	0.00	1.14	0.35	6	102	18.5	89.5	8.92
	12/2/2025 20:11	6	11.11	36.44	0.00	1.14	0.35	6	102	18.5	89.5	
	12/2/2025 20:12	7	11.10	36.43	0.00	1.13	0.34	6	102	18.7	90.3	
	12/2/2025 20:13	8	11.11	36.44	0.00	1.14	0.35	6	102	18.5	89.5	
	12/2/2025 20:14	9	11.11	36.46	0.01	1.16	0.35	6	103	18.4	88.8	
	12/2/2025 20:15	10	11.12	36.48	0.01	1.18	0.36	6	103	18.1	87.3	8.93
	12/2/2025 20:17	12	11.12	36.48	0.00	1.18	0.36	6	103	18.1	87.3	
	12/2/2025 20:19	14	11.12	36.49	0.00	1.19	0.36	6	103	17.9	86.6	
	12/2/2025 20:21	16	11.12	36.49	0.00	1.19	0.36	6	103	17.9	86.6	
	12/2/2025 20:23	18	11.12	36.50	0.00	1.20	0.37	6	103	17.8	85.8	
	12/2/2025 20:25	20	11.13	36.52	0.01	1.22	0.37	6	103	17.5	84.4	8.94
	12/2/2025 20:30	25	11.14	36.54	0.01	1.24	0.38	6	103	17.2	83.1	8.94
	12/2/2025 20:35	30	11.14	36.56	0.01	1.26	0.38	6	103	16.9	81.8	8.94
	12/2/2025 20:45	40	11.15	36.58	0.01	1.28	0.39	6	103	16.7	80.5	8.95
	12/2/2025 20:55	50	11.15	36.59	0.00	1.29	0.39	6	103	16.5	79.8	8.95
	12/2/2025 21:05	60	11.16	36.60	0.00	1.30	0.40	6	103	16.4	79.2	8.95
Step 2	12/2/2025 21:06	61	11.55	37.90	0.40	2.60	0.79	13	201	16.0	77.3	
	12/2/2025 21:07	62	11.61	38.09	0.06	2.79	0.85	13	201	14.9	72.0	
	12/2/2025 21:08	63	11.62	38.13	0.01	2.83	0.86	13	201	14.7	71.0	
	12/2/2025 21:09	64	11.65	38.21	0.02	2.91	0.89	13	201	14.3	69.1	
	12/2/2025 21:10	65	11.65	38.24	0.01	2.94	0.90	13	201	14.2	68.4	8.96
	12/2/2025 21:11	66	11.66	38.26	0.01	2.96	0.90	13	201	14.1	67.9	
	12/2/2025 21:12	67	11.67	38.28	0.01	2.98	0.91	13	201	14.0	67.5	
	12/2/2025 21:13	68	11.68	38.31	0.01	3.01	0.92	13	201	13.8	66.8	
	12/2/2025 21:14	69	11.68	38.33	0.01	3.03	0.92	13	201	13.7	66.3	
	12/2/2025 21:15	70	11.69	38.36	0.01	3.06	0.93	13	201	13.6	65.7	8.96
	12/2/2025 21:17	72	11.69	38.37	0.00	3.07	0.94	13	201	13.6	65.5	
	12/2/2025 21:19	74	11.70	38.38	0.00	3.08	0.94	13	201	13.5	65.3	
	12/2/2025 21:21	76	11.70	38.40	0.01	3.10	0.94	13	201	13.4	64.8	
	12/2/2025 21:23	78	11.70	38.40	0.00	3.10	0.94	13	201	13.4	64.8	
	12/2/2025 21:25	80	11.71	38.41	0.00	3.11	0.95	13	201	13.4	64.6	8.97
	12/2/2025 21:30	85	11.71	38.42	0.00	3.12	0.95	13	201	13.3	64.4	8.98
	12/2/2025 21:35	90	11.72	38.44	0.01	3.14	0.96	13	201	13.2	64.0	8.98
	12/2/2025 21:45	100	11.73	38.47	0.01	3.17	0.97	13	201	13.1	63.4	8.99
	12/2/2025 21:55	110	11.73	38.49	0.01	3.19	0.97	13	201	13.0	63.0	9.00
	12/2/2025 22:05	120	11.74	38.51	0.01	3.21	0.98	13	201	13.0	62.6	9.00
Step 3	12/2/2025 22:06	121	12.25	40.18	0.51	4.88	1.49	19	300	12.7	61.5	
	12/2/2025 22:07	122	12.30	40.37	0.06	5.07	1.55	19	300	12.2	59.2	
	12/2/2025 22:08	123	12.32	40.43	0.02	5.13	1.56	19	300	12.1	58.5	
	12/2/2025 22:09	124	12.34	40.48	0.02	5.18	1.58	19	300	12.0	57.9	
	12/2/2025 22:10	125	12.35	40.51	0.01	5.21	1.59	19	300	11.9	57.6	9.01
	12/2/2025 22:11	126	12.35	40.53	0.01	5.23	1.59	19	300	11.9	57.4	
	12/2/2025 22:12	127	12.36	40.55	0.01	5.25	1.60	19	300	11.8	57.1	
	12/2/2025 22:13	128	12.36	40.56	0.00	5.26	1.60	19	300	11.8	57.0	
	12/2/2025 22:14	129	12.37	40.58	0.01	5.28	1.61	19	300	11.8	56.8	
	12/2/2025 22:15	130	12.37	40.59	0.00	5.29	1.61	19	300	11.7	56.7	9.01
	12/2/2025 22:17	132	12.38	40.62	0.01	5.32	1.62	19	300	11.7	56.4	
	12/2/2025 22:19	134	12.39	40.65	0.01	5.35	1.63	19	300	11.6	56.1	
	12/2/2025 22:21	136	12.40	40.67	0.01	5.37	1.64	19	300	11.6	55.9	
	12/2/2025 22:23	138	12.40	40.69	0.01	5.39	1.64	19	300	11.5	55.7	
	12/2/2025 22:25	140	12.40	40.70	0.00	5.40	1.65	19	300	11.5	55.6	9.03
	12/2/2025 22:30	145	12.42	40.74	0.01	5.44	1.66	19	300	11.4	55.1	9.04
	12/2/2025 22:35	150	12.43	40.78	0.01	5.48	1.67	19	300	11.3	54.7	9.04
	12/2/2025 22:45	160	12.45	40.86	0.02	5.56	1.69	19	300	11.2	54.0	9.05
	12/2/2025 22:55	170	12.47	40.93	0.02	5.63	1.72	19	300	11.0	53.3	9.06
	12/2/2025 23:05	180	12.49	40.99	0.02	5.69	1.73	19	300	10.9	52.7	9.03
Recovery	12/2/2025 23:06	181	11.19	36.71	#REF!	1.41	0.43	0	0	0.0	0.0	
	12/2/2025 23:07	182	11.13	36.53	-0.05	1.23	0.37	0	0	0.0	0.0	
	12/2/2025 23:08	183	11.09	36.40	-0.04	1.10	0.34	0	0	0.0	0.0	
	12/2/2025 23:09	184	11.07	36.31	-0.03	1.01	0.31	0	0	0.0	0.0	
	12/2/2025 23:10	185	11.05	36.26	-0.02	0.96	0.29	0	0	0.0	0.0	9.02
	12/2/2025 23:11	186	11.04	36.22	-0.01	0.92	0.28	0	0	0.0	0.0	
	12/2/2025 23:12	187	11.03	36.18	-0.01	0.88	0.27	0	0	0.0	0.0	
	12/2/2025 23:13	188	11.02	36.16	-0.01	0.86	0.26	0	0	0.0	0.0	
	12/2/2025 23:14	189	11.01	36.14	-0.01	0.84	0.26	0	0	0.0	0.0	
	12/2/2025 23:15	190	11.01	36.12	-0.01	0.82	0.25	0	0	0.0	0.0	9.02
	12/2/2025 23:17	192	11.00	36.08	-0.01	0.78	0.24	0	0	0.0	0.0	
	12/2/2025 23:19	194	10.99	36.06	-0.01	0.76	0.23	0	0	0.0	0.0	
	12/2/2025 23:21	196	10.98	36.04	-0.01	0.74	0.23	0	0	0.0	0.0	
	12/2/2025 23:23	198	10.98	36.02	-0.01	0.72	0.22	0	0	0.0	0.0	
	12/2/2025 23:25	200	10.97	36.00	-0.01	0.70	0.21	0	0	0.0	0.0	9.01
	12/2/2025 23:35	210	10.94	35.91	-0.03	0.61	0.19	0	0	0.0	0.0	9.01
	12/2/2025 23:45	220	10.93	35.85	-0.02	0.55	0.17	0	0	0.0	0.0	9.00
	12/2/2025 23:55	230	10.91	35.80	-0.02	0.50	0.15	0	0	0.0	0.0	9.00
	12/3/2025 0:05	240	10.91	35.78	-0.01	0.48	0.15	0	0	0.0	0.0	9.00
	12/3/2025 0:25	260	10.88	35.71	-0.02	0.41	0.12	0	0	0.0	0.0	8.99
	12/3/2025 0:45	280	10.87	35.65	-0.02	0.35	0.11	0	0	0.0	0.0	8.99



Spences Bridge TW1
(WPID 73983) & CFIB Well (WPID 12066)

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Consultants in Hydrogeology and Water Resources Management

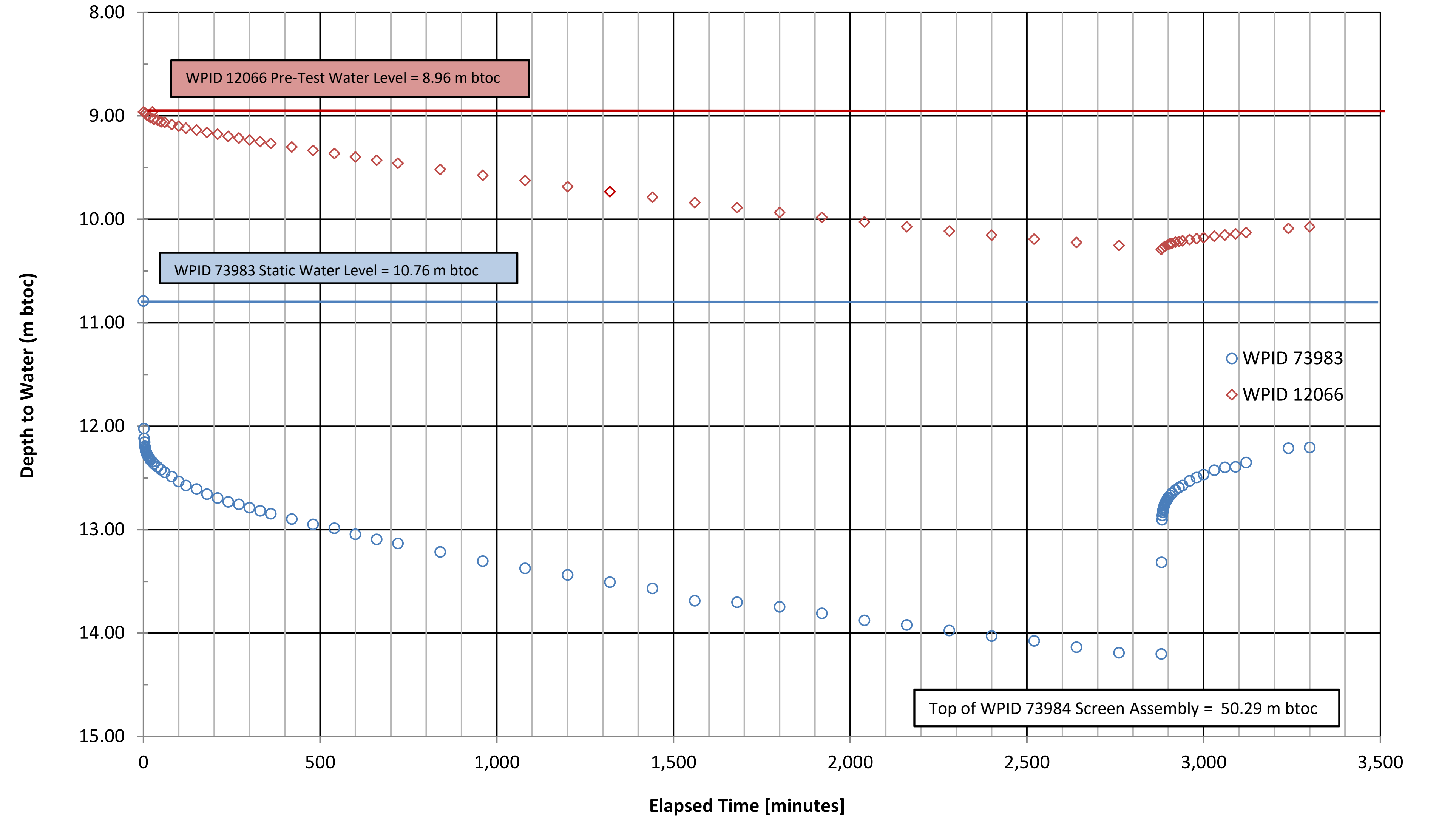
TITLE

Figure C1 - Constant Rate Hydrograph (6.3, 12,6, 18.9 L/s; 100, 200, 300 US gpm) and recovery

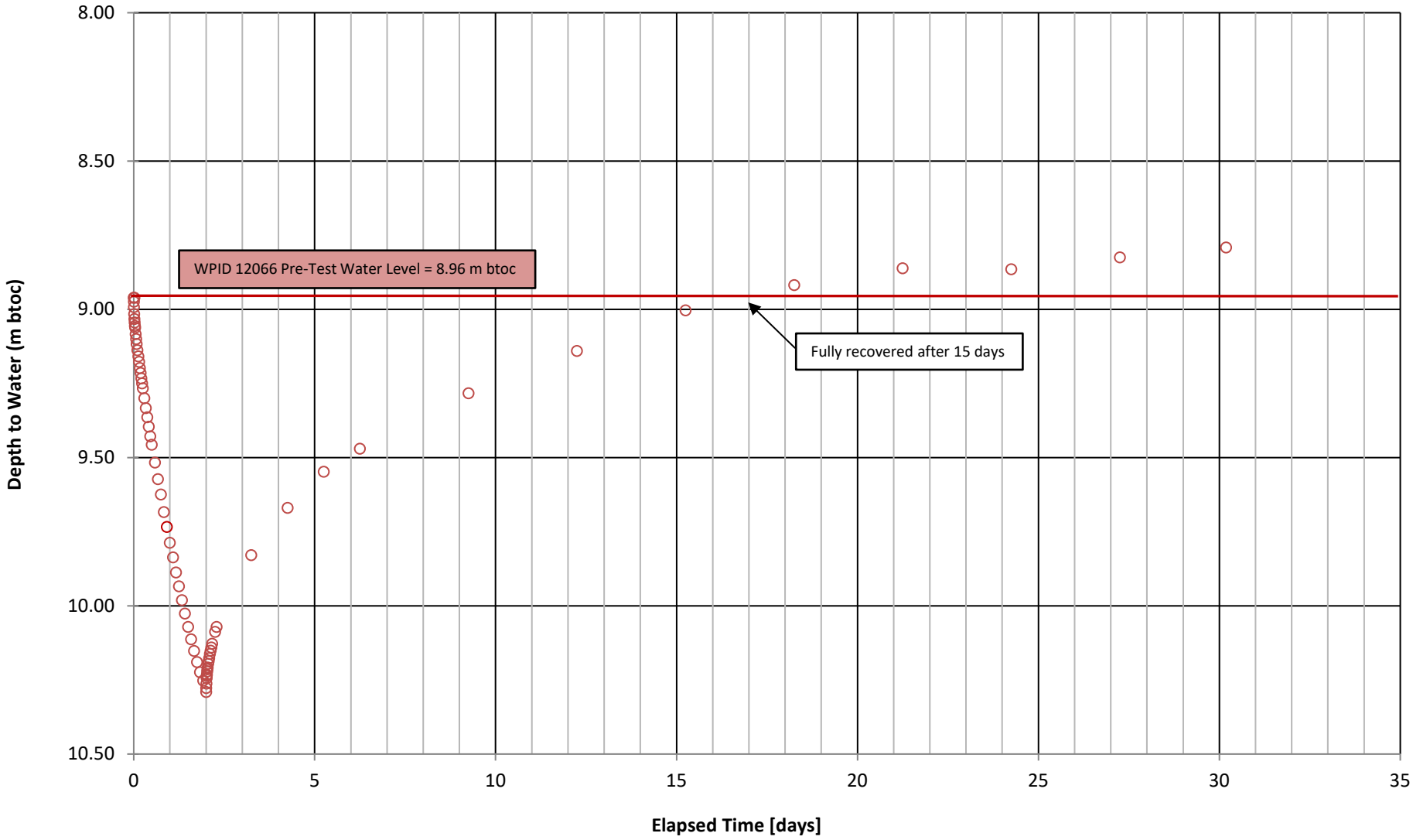
DRAWN	MA	TEST DATE	December 2, 2025	JOB NO.	25-053-04VR
CHECKED	RR	SCALE		DWG. NO.	n/a
REVIEWED		DATE DRAWN	January 5, 2026	FIGURE NO.	n/a

Project No: 25-053-04 Table C2 - Constant Rate Test, Spences Bridge WPID 73983, December 3-5, 2025												
Contractor: Aqua Tech Services Ltd.	Data Entry by: MA		Checked by: RR									
Well depth = 53.34 m (175 ft)	Well diameter = 8 inches		Measurement method = Flow Meter			Pump Depth = 38.1 m (125 ft)						
Comments	Real Time	Time since pump started, t (minutes)	Water level measurement (btoc) (m)	Water level measurement (btoc) (ft)	Water level change, s (m)	Drawdown (ft)	Drawdown (m)	Pumping Rate (l/s)	Pumping Rate (USgpm)	Specific Capacity		CFIB Well (WPID 12066)
										L/s/m	Usgpm/ft	Water level measurement (btoc) (m)
STATIC	12/3/25 6:00	0	10.79	35.40	--	0.00	0.00	0	0	--	--	8.96
	12/3/25 6:01	1	12.02	39.45	1.23	4.05	1.23	19	300	15.3	74.1	
	12/3/25 6:02	2	12.12	39.76	0.09	4.36	1.33	19	300	14.2	68.8	
	12/3/25 6:03	3	12.15	39.88	0.04	4.48	1.37	19	300	13.9	67.0	
	12/3/25 6:04	4	12.19	40.01	0.04	4.61	1.41	19	300	13.5	65.1	
	12/3/25 6:05	5	12.21	40.06	0.02	4.66	1.42	19	300	13.3	64.4	8.97
	12/3/25 6:06	6	12.23	40.12	0.02	4.72	1.44	19	300	13.2	63.6	
	12/3/25 6:07	7	12.24	40.16	0.01	4.76	1.45	19	300	13.0	63.0	
	12/3/25 6:08	8	12.25	40.20	0.01	4.80	1.46	19	300	12.9	62.5	
	12/3/25 6:09	9	12.26	40.24	0.01	4.84	1.48	19	300	12.8	62.0	
	12/3/25 6:10	10	12.27	40.26	0.01	4.86	1.48	19	300	12.8	61.7	8.99
	12/3/25 6:12	12	12.29	40.31	0.02	4.91	1.50	19	300	12.6	61.1	
	12/3/25 6:14	14	12.30	40.35	0.01	4.95	1.51	19	300	12.5	60.6	
	12/3/25 6:16	16	12.30	40.37	0.01	4.97	1.51	19	300	12.5	60.4	
	12/3/25 6:18	18	12.32	40.41	0.01	5.01	1.53	19	300	12.4	59.9	
	12/3/25 6:20	20	12.33	40.45	0.01	5.05	1.54	19	300	12.3	59.4	9.02
	12/3/25 6:25	25	12.34	40.50	0.02	5.10	1.55	19	300	12.2	58.8	8.96
	12/3/25 6:30	30	12.37	40.57	0.02	5.17	1.58	19	300	12.0	58.0	9.03
	12/3/25 6:40	40	12.39	40.66	0.03	5.26	1.60	19	300	11.8	57.0	9.04
	12/3/25 6:50	50	12.42	40.75	0.03	5.35	1.63	19	300	11.6	56.1	9.06
	12/3/25 7:00	60	12.45	40.84	0.03	5.44	1.66	19	300	11.4	55.1	9.06
	12/3/25 7:20	80	12.49	40.97	0.04	5.57	1.70	19	300	11.1	53.9	9.08
	12/3/25 7:40	100	12.54	41.13	0.05	5.73	1.75	19	300	10.8	52.4	9.10
	12/3/25 8:00	120	12.57	41.25	0.04	5.85	1.78	19	300	10.6	51.3	9.12
	12/3/25 8:30	150	12.61	41.37	0.04	5.97	1.82	19	300	10.4	50.3	9.14
	12/3/25 9:00	180	12.66	41.53	0.05	6.13	1.87	19	300	10.1	48.9	9.16
	12/3/25 9:30	210	12.69	41.65	0.04	6.25	1.90	19	300	9.9	48.0	9.18
	12/3/25 10:00	240	12.73	41.77	0.04	6.37	1.94	19	300	9.7	47.1	9.20
	12/3/25 10:30	270	12.76	41.85	0.02	6.45	1.97	19	300	9.6	46.5	9.22
	12/3/25 11:00	300	12.79	41.96	0.03	6.56	2.00	19	300	9.5	45.7	9.23
	12/3/25 11:30	330	12.82	42.06	0.03	6.66	2.03	19	300	9.3	45.0	9.25
	12/3/25 12:00	360	12.85	42.15	0.03	6.75	2.06	19	300	9.2	44.4	9.27
	12/3/25 13:00	420	12.90	42.32	0.05	6.92	2.11	19	300	9.0	43.4	9.30
	12/3/25 14:00	480	12.95	42.49	0.05	7.09	2.16	19	300	8.8	42.3	9.33
	12/3/25 15:00	540	12.99	42.61	0.04	7.21	2.20	19	300	8.6	41.6	9.36
	12/3/25 16:00	600	13.04	42.80	0.06	7.40	2.26	19	300	8.4	40.5	9.40
	12/3/25 17:00	660	13.09	42.96	0.05	7.56	2.30	19	300	8.2	39.7	9.43
	12/3/25 18:00	720	13.13	43.09	0.04	7.69	2.34	19	300	8.1	39.0	9.46
	12/3/25 20:00	840	13.22	43.36	0.08	7.96	2.43	19	300	7.8	37.7	9.52
	12/3/25 22:00	960	13.30	43.65	0.09	8.25	2.51	19	300	7.5	36.4	9.57
	12/4/25 0:00	1080	13.37	43.88	0.07	8.48	2.58	19	300	7.3	35.4	9.63
	12/4/25 2:00	1200	13.44	44.09	0.06	8.69	2.65	19	300	7.1	34.5	9.68
	12/4/25 4:00	1320	13.51	44.32	0.07	8.92	2.72	19	300	7.0	33.6	9.73
	12/4/25 6:00	1440	13.57	44.52	0.06	9.12	2.78	19	300	6.8	32.9	9.79
	12/4/25 8:00	1560	13.69	44.91	0.12	9.51	2.90	19	300	6.5	31.5	9.84
	12/4/25 10:00	1680	13.70	44.96	0.02	9.56	2.91	19	300	6.5	31.4	9.89
	12/4/25 12:00	1800	13.75	45.10	0.04	9.70	2.96	19	300	6.4	30.9	9.93
	12/4/25 14:00	1920	13.81	45.31	0.06	9.91	3.02	19	300	6.3	30.3	9.98
	12/4/25 16:00	2040	13.88	45.53	0.07	10.13	3.09	19	300	6.1	29.6	10.03
	12/4/25 18:00	2160	13.92	45.68	0.05	10.28	3.13	19	300	6.0	29.2	10.07
	12/4/25 20:00	2280	13.97	45.85	0.05	10.45	3.19	19	300	5.9	28.7	10.11
	12/4/25 22:00	2400	14.03	46.03	0.05	10.63	3.24	19	300	5.8	28.2	10.15
	12/5/25 0:00	2520	14.07	46.18	0.05	10.78	3.29	19	300	5.8	27.8	10.19
	12/5/25 2:00	2640	14.14	46.38	0.06	10.98	3.35	19	300	5.7	27.3	10.22
	12/5/25 4:00	2760	14.19	46.56	0.05	11.16	3.40	19	300	5.6	26.9	10.25
	12/5/25 6:00	2880	14.20	46.60	0.01	11.20	3.41	19	300	5.5	26.8	10.29
Recovery	12/5/25 6:01	2881	13.32	43.69	#REF!	8.29	2.53	0	0	0.0	0.0	
	12/5/25 6:02	2882	12.90	42.34	-0.41	6.94	2.12	0	0	0.0	0.0	
	12/5/25 6:03	2883	12.86	42.20	-0.04	6.80	2.07	0	0	0.0	0.0	
	12/5/25 6:04	2884	12.83	42.10	-0.03	6.70	2.04	0	0	0.0	0.0	10.28
	12/5/25 6:05	2885	12.81	42.03	-0.02	6.63	2.02	0	0	0.0	0.0	
	12/5/25 6:06	2886	12.80	42.00	-0.01	6.60	2.01	0	0	0.0	0.0	
	12/5/25 6:07	2887	12.79	41.95	-0.02	6.55	2.00	0	0	0.0	0.0	
	12/5/25 6:08	2888	12.77	41.90	-0.02	6.50	1.98	0	0	0.0	0.0	
	12/5/25 6:09	2889	12.76	41.86	-0.01	6.46	1.97	0	0	0.0	0.0	
	12/5/25 6:10	2890	12.75	41.83	-0.01	6.43	1.96	0	0	0.0	0.0	10.26
	12/5/25 6:12	2892	12.74	41.79	-0.01	6.39	1.95	0	0	0.0	0.0	
	12/5/25 6:14	2894	12.72	41.75	-0.01	6.35	1.94	0	0	0.0	0.0	
	12/5/25 6:16	2896	12.71	41.71	-0.01	6.31	1.92	0	0	0.0	0.0	
	12/5/25 6:18	2898	12.70	41.67	-0.01	6.27	1.91	0	0	0.0	0.0	
	12/5/25 6:20	2900	12.69	41.64	-0.01	6.24	1.90	0	0	0.0	0.0	10.24
	12/5/25 6:25	2905	12.67	41.57	-0.02	6.17	1.88	0	0	0.0	0.0	10.24
	12/5/25 6:30	2910	12.65	41.50	-0.02	6.10	1.86	0	0	0.0	0.0	10.23
	12/5/25 6:40	2920	12.62	41.40	-0.03	6.00	1.83	0	0	0.0	0.0	10.22
	12/5/25 6:50	2930	12.59	41.32	-0.02	5.92	1.80	0	0	0.0	0.0	10.21
	12/5/25 7:00	2940	12.57	41.25	-0.02	5.85	1.78	0	0	0.0	0.0	10.21
	12/5/25 7:20	2960	12.53	41.11	-0.04	5.71	1.74	0	0	0.0	0.0	10.20
	12/5/25 7:40	2980	12.50	41.00	-0.03	5.60	1.71	0	0	0.0	0.0	10.19
	12/5/25 8:00	3000	12.47	40.91	-0.03	5.51	1.68	0	0	0.0	0.0	10.18
	12/5/25 8:30	3030	12.43	40.77	-0.04	5.37	1.64	0	0	0.0	0.0	10.16
	12/5/25 9:00	3060	12.40	40.68	-0.03	5.28	1.61	0	0	0.0	0.0	10.15
	12/5/25 9:30	3090	12.39	40.66	-0.01	5.26	1.60	0	0	0.0	0.0	10.14
	12/5/25 10:00	3120	12.35	40.52	-0.04	5.12	1.56	0	0	0.0	0.0	10.13
	12/5/25 12:00	3240	12.21	40.07	-0.14	4.67	1.42	0	0	0.0	0.0	10.09
	12/5/25 13:00	3300	12.21	40.05	-0.01	4.65	1.42	0	0	0.0	0.0	10.07
	12/6/25 12:00	4680										9.83
	12/7/25 12:00	6120										9.67

Comments	Real Time	Time since pump started, t (minutes)	Water level measurement (btoc) (m)	Water level measurement (btoc) (ft)	Water level change, s (m)	Drawdown (ft)	Drawdown (m)	Pumping Rate (l/s)	Pumping Rate (USgpm)	Specific Capacity		CFIB Well (WPID 12066)
										L/s/m	Usgpm/ft	Water level measurement (btoc) (m)
	12/8/25 12:00	7560										9.55
	12/9/25 12:00	9000										9.47
	12/12/25 12:00	13320										9.28
	12/15/25 12:00	17640										9.14
	12/18/25 12:00	21960										9.00
	12/21/25 12:00	26280										8.92
	12/24/25 12:00	30600										8.86
	12/27/25 12:00	34920										8.87
	12/30/25 12:00	39240										8.83
	1/2/26 10:30	43470	10.53									8.79



Spences Bridge TW1 (WPID 73983) & CFIB Well (WPID 12066)	TITLE	**Figure C2 - 48 hour Constant Rate Test (18.9 L/s, 300 US gpm) and recovery**			
western water ASSOCIATES LTD Consultants in Hydrogeology and Water Resources Management	DRAWN MA	TEST DATE	December 3, 2025	JOB NO.	25-053-04VR
	CHECKED RR	SCALE	n/a	DWG. NO.	n/a
	REVIEWED	FDATE DRAWN	January 5, 2026	FIGURE NO.	n/a



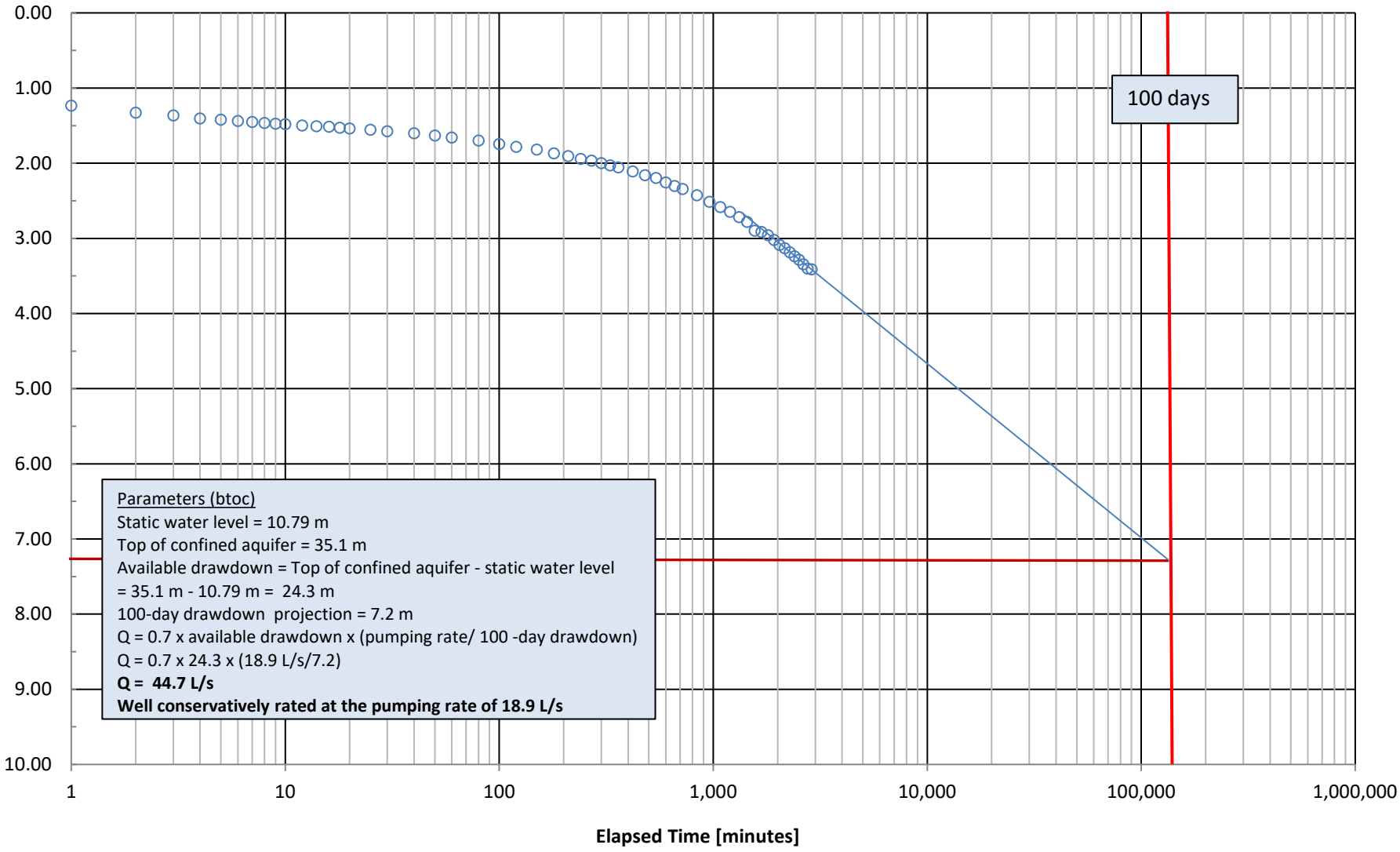
Spences Bridge CFIB Well
(WPID 12066)

western water ASSOCIATES LTD
Consultants in Hydrogeology and Water Resources Management

TITLE

Figure C3 - 48 hour Constant Rate Test Hydrograph (18.9 L/s, 300 US gpm) and Long-term Recovery

DRAWN	MA	TEST DATE	December 3, 2025	JOB NO.	25-053-04VR
CHECKED	RR	SCALE	n/a	DWG. NO.	n/a
REVIEWED		FDATE DRAWN	January 5, 2026	FIGURE NO.	n/a



Spences Bridge TW1
(WPID 73983)

western water ASSOCIATES LTD
Consultants in Hydrogeology and Water Resources Management

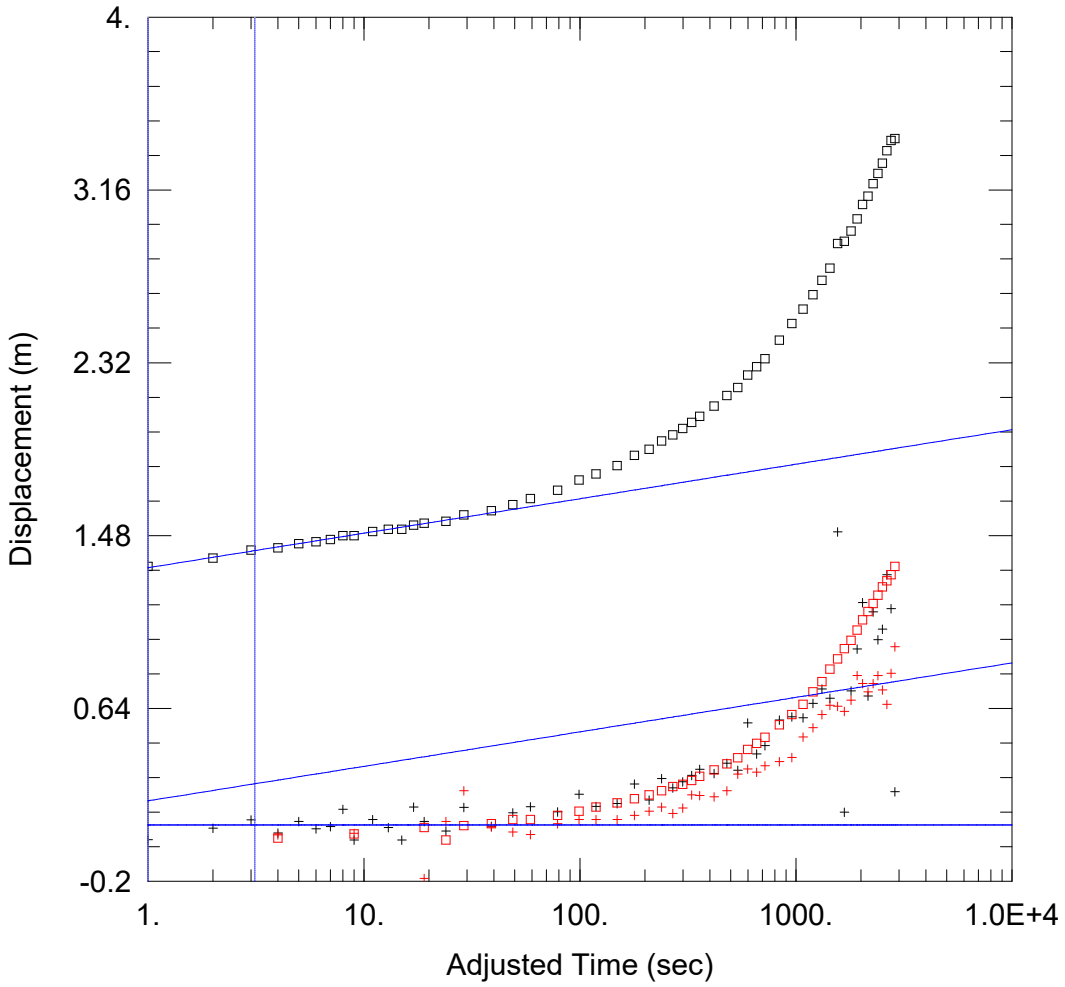
TITLE
Figure C4 - Semi Log Plot- 48 hour Constant Rate Test (18.9 L/s, 300 US gpm)

DRAWN	MA	TEST DATE	December 3, 2025	JOB NO.	25-053-04VR
CHECKED	RR	SCALE	n/a	DWG. NO.	n/a
REVIEWED		FDATE DRAWN	January 5, 2026	FIGURE NO.	n/a

Appendix D

AQTESOLV Results

c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR



PUMPING TEST ANALYSIS

Data Set: C:\...\Aqtesolv analysis.aqt
Date: 01/27/26 Time: 09:17:57

PROJECT INFORMATION

Company: WWAL
Client: TNRD
Project: 25-053-04VR
Location: Spences Bridge
Test Well: TW1
Test Date: Dec 2-5, 2025

AQUIFER DATA

Saturated Thickness: 28.2 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
TW1	0	0
CFIB Well	408	0

Observation Wells

Well Name	X (m)	Y (m)
TW1	0	0
CFIB Well	408	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 0.02069 m^2/sec S = 2.051E-8

Appendix E

Laboratory Water Quality Results

c/o Thompson-Nicola Regional District
Spences Bridge Well Completion Report
WWAL Ref: 25-053-04VR

CERTIFICATE OF ANALYSIS

REPORTED TO	Western Water Associates Ltd 1003 Kalamalka Lake Vernon, BC V1T6V4		
ATTENTION	Ryan Rhodes	**WORK ORDER**	25L0846
PO NUMBER		**RECEIVED / TEMP**	2025-12-05 08:29 / 8.8°C
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

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

Big Picture Sidekicks

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.

We've Got Chemistry

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

Ahead of the Curve

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

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

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

Authorized By:

Echo Fex
Junior Account Manager

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Test Well (25L0846-01) | Matrix: Water | Sampled: 2025-12-05 05:30						
Anions						
Chloride	**7.91**	AO ≤ 250	0.10	mg/L	2025-12-05	
Fluoride	**0.16**	MAC = 1.5	0.10	mg/L	2025-12-05	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2025-12-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-12-05	
Sulfate	**576**	AO ≤ 500	1.0	mg/L	2025-12-05	
BCMOE Aggregate Hydrocarbons						
VHw (6-10)	< 100	N/A	100	µg/L	2025-12-12	
VPHw	< 100	N/A	100	µg/L	N/A	
EPHw10-19	< 250	N/A	250	µg/L	2025-12-12	
EPHw19-32	< 250	N/A	250	µg/L	2025-12-12	
LEPHw	< 250	N/A	250	µg/L	N/A	
HEPHw	< 250	N/A	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*94*		*60-140*	%	*2025-12-12*	
Calculated Parameters						
Hardness, Total (as CaCO3)	**738**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.7**	N/A	-5.0		2025-12-10	CT6
Nitrogen, Total	**0.0580**	N/A	0.0500	mg/L	N/A	
Nitrogen, Organic	**0.0580**	N/A	0.0500	mg/L	N/A	
Solids, Total Disolved (calc)	**1070**	N/A	25.0	mg/L	N/A	
Disinfection By-Product Formation Potential						
Incubation pH	**6.8**	N/A	0.1	pH units	2025-12-12	
Incubation Temperature	**25**	N/A	1	°C	2025-12-12	
Incubation Duration	**7**	N/A		Days	2025-12-12	
Free Chlorine, Initial Dose	**5.8**	N/A	0.1	mg/L	2025-12-05	
Free Chlorine, Final Concentration	**3.7**	N/A	0.1	mg/L	2025-12-12	
Chlorine Demand, Free	**2.1**	N/A	0.10	mg/L	N/A	
Total Haloacetic Acids (HAA5)	**0.0120**	MAC = 0.08	0.0100	mg/L	N/A	
Monochloroacetic Acid	< 0.0100	N/A	0.0100	mg/L	2025-12-17	
Monobromoacetic Acid	< 0.0100	N/A	0.0100	mg/L	2025-12-17	
Dichloroacetic Acid	**0.0056**	N/A	0.0050	mg/L	2025-12-17	
Trichloroacetic Acid	**0.0064**	N/A	0.0050	mg/L	2025-12-17	
Dibromoacetic Acid	< 0.0050	N/A	0.0050	mg/L	2025-12-17	
Bromodichloromethane	**0.0080**	N/A	0.0050	mg/L	2025-12-23	
Bromoform	< 0.0050	N/A	0.0050	mg/L	2025-12-23	
Chloroform	< 0.0112	N/A	0.0100	mg/L	2025-12-23	RA3
Dibromochloromethane	< 0.0050	N/A	0.0050	mg/L	2025-12-23	
Total Trihalomethanes	< 0.0112	MAC = 0.1	0.0112	mg/L	N/A	
Total Trihalomethanes (as CHCl3)	< 0.0112	N/A	0.0112	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	*128*		*70-130*	%	*2025-12-17*	
Surrogate: Toluene-d8	*86*		*70-130*	%	*2025-12-23*	
Surrogate: 4-Bromofluorobenzene	*82*		*70-130*	%	*2025-12-23*	

TEST RESULTS

REPORTED TO Western Water Associates Ltd
PROJECT 25-053-04VR

WORK ORDER 25L0846
REPORTED 2025-12-23 17:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Test Well (25L0846-01) | Matrix: Water | Sampled: 2025-12-05 05:30, Continued						
Dissolved Metals						
Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2025-12-09	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2025-12-09	
Arsenic, dissolved	**0.00051**	N/A	0.00050	mg/L	2025-12-09	
Barium, dissolved	**0.0247**	N/A	0.0050	mg/L	2025-12-09	
Boron, dissolved	**0.858**	N/A	0.0500	mg/L	2025-12-09	
Cadmium, dissolved	**0.000010**	N/A	0.000010	mg/L	2025-12-09	
Calcium, dissolved	**167**	N/A	0.20	mg/L	2025-12-09	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2025-12-09	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2025-12-09	
Copper, dissolved	**0.00070**	N/A	0.00040	mg/L	2025-12-09	
Iron, dissolved	**0.036**	N/A	0.010	mg/L	2025-12-09	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2025-12-09	
Magnesium, dissolved	**76.0**	N/A	0.010	mg/L	2025-12-09	
Manganese, dissolved	**0.0135**	N/A	0.00020	mg/L	2025-12-09	
Mercury, dissolved	< 0.000010	N/A	0.000010	mg/L	2025-12-10	
Molybdenum, dissolved	**0.00877**	N/A	0.00010	mg/L	2025-12-09	
Nickel, dissolved	**0.00042**	N/A	0.00040	mg/L	2025-12-09	
Potassium, dissolved	**3.91**	N/A	0.10	mg/L	2025-12-09	
Selenium, dissolved	**0.00512**	N/A	0.00050	mg/L	2025-12-09	
Sodium, dissolved	**72.4**	N/A	0.10	mg/L	2025-12-09	
Strontium, dissolved	**1.58**	N/A	0.0010	mg/L	2025-12-09	
Uranium, dissolved	**0.00458**	N/A	0.000020	mg/L	2025-12-09	
Zinc, dissolved	**0.0054**	N/A	0.0040	mg/L	2025-12-09	
General Parameters						
Alkalinity, Total (as CaCO3)	**267**	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Bicarbonate (as CaCO3)	**267**	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2025-12-08	
Carbon, Total Organic	**1.15**	N/A	0.50	mg/L	2025-12-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-12-06	
Conductivity (EC)	**1430**	N/A	2.0	µS/cm	2025-12-08	
Cyanide, Total	**0.0020**	MAC = 0.2	0.0020	mg/L	2025-12-06	
Nitrogen, Total Kjeldahl	**0.058**	N/A	0.050	mg/L	2025-12-11	
pH	**7.68**	7.0-10.5	0.10	pH units	2025-12-08	HT2
Phosphorus, Total (as P)	< 0.0050	N/A	0.0050	mg/L	2025-12-11	
Silica, Reactive (as SiO2)	**12.3**	N/A	0.40	mg/L	2025-12-08	
Temperature, at pH	**21.5**	N/A		°C	2025-12-08	HT2
Turbidity	**0.45**	OG < 1	0.10	NTU	2025-12-06	
UV Transmittance @ 254 nm - Unfiltered	**96.9**	N/A	0.10	% T	2025-12-06	
Microbiological Parameters						

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Test Well (25L0846-01) | Matrix: Water | Sampled: 2025-12-05 05:30, Continued						
Microbiological Parameters, Continued						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-12-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-12-05	
Polycyclic Aromatic Hydrocarbons (PAH)						
Acenaphthene	< 0.050	N/A	0.050	µg/L	2025-12-11	
Acenaphthylene	< 0.200	N/A	0.200	µg/L	2025-12-11	
Acridine	< 0.050	N/A	0.050	µg/L	2025-12-11	
Anthracene	< 0.010	N/A	0.010	µg/L	2025-12-11	
Benz(a)anthracene	< 0.010	N/A	0.010	µg/L	2025-12-11	
Benzo(a)pyrene	< 0.010	MAC = 0.04	0.010	µg/L	2025-12-11	
Benzo(b+j)fluoranthene	< 0.050	N/A	0.050	µg/L	2025-12-11	
Benzo(g,h,i)perylene	< 0.050	N/A	0.050	µg/L	2025-12-11	
Benzo(k)fluoranthene	< 0.050	N/A	0.050	µg/L	2025-12-11	
2-Chloronaphthalene	< 0.100	N/A	0.100	µg/L	2025-12-11	
Chrysene	< 0.050	N/A	0.050	µg/L	2025-12-11	
Dibenz(a,h)anthracene	< 0.010	N/A	0.010	µg/L	2025-12-11	
Fluoranthene	< 0.030	N/A	0.030	µg/L	2025-12-11	
Fluorene	< 0.050	N/A	0.050	µg/L	2025-12-11	
Indeno(1,2,3-cd)pyrene	< 0.050	N/A	0.050	µg/L	2025-12-11	
1-Methylnaphthalene	< 0.100	N/A	0.100	µg/L	2025-12-11	
2-Methylnaphthalene	< 0.100	N/A	0.100	µg/L	2025-12-11	
Naphthalene	< 0.200	N/A	0.200	µg/L	2025-12-11	
Phenanthrene	< 0.100	N/A	0.100	µg/L	2025-12-11	
Pyrene	< 0.020	N/A	0.020	µg/L	2025-12-11	
Quinoline	< 0.050	N/A	0.050	µg/L	2025-12-11	
Surrogate: Acridine-d9	*103*		*50-140*	%	*2025-12-11*	
Surrogate: Naphthalene-d8	*72*		*50-140*	%	*2025-12-11*	
Surrogate: Perylene-d12	*73*		*50-140*	%	*2025-12-11*	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2025-12-09	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-12-09	
Arsenic, total	**0.00051**	MAC = 0.01	0.00050	mg/L	2025-12-09	
Barium, total	**0.0231**	MAC = 2	0.0050	mg/L	2025-12-09	
Boron, total	**0.845**	MAC = 5	0.0500	mg/L	2025-12-09	
Cadmium, total	**0.000011**	MAC = 0.007	0.000010	mg/L	2025-12-09	
Calcium, total	**168**	None Required	0.20	mg/L	2025-12-09	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-12-09	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-12-09	
Copper, total	**0.00092**	MAC = 2	0.00040	mg/L	2025-12-09	
Iron, total	**0.038**	AO ≤ 0.1	0.010	mg/L	2025-12-09	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-12-09	
Magnesium, total	**77.4**	None Required	0.010	mg/L	2025-12-09	
Manganese, total	**0.0129**	MAC = 0.12	0.00020	mg/L	2025-12-09	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Test Well (25L0846-01) | Matrix: Water | Sampled: 2025-12-05 05:30, Continued						
Total Metals, Continued						
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-12-10	
Molybdenum, total	**0.00883**	N/A	0.00010	mg/L	2025-12-09	
Nickel, total	**0.00045**	N/A	0.00040	mg/L	2025-12-09	
Potassium, total	**3.64**	N/A	0.10	mg/L	2025-12-09	
Selenium, total	**0.00508**	MAC = 0.05	0.00050	mg/L	2025-12-09	
Sodium, total	**74.3**	AO ≤ 200	0.10	mg/L	2025-12-09	
Strontium, total	**1.51**	MAC = 7	0.0010	mg/L	2025-12-09	
Uranium, total	**0.00467**	MAC = 0.02	0.000020	mg/L	2025-12-09	
Zinc, total	**0.0123**	AO ≤ 5	0.0040	mg/L	2025-12-09	
Volatile Organic Compounds (VOC)						
Benzene	< 0.5	MAC = 5	0.5	µg/L	2025-12-12	
Ethylbenzene	< 1.0	MAC = 140	1.0	µg/L	2025-12-12	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2025-12-12	
Styrene	< 1.0	N/A	1.0	µg/L	2025-12-12	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2025-12-12	
Xylenes (total)	< 2.0	MAC = 90	2.0	µg/L	2025-12-12	
Surrogate: Toluene-d8	*85*		*70-130*	%	*2025-12-12*	
Surrogate: 4-Bromofluorobenzene	*83*		*70-130*	%	*2025-12-12*	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA3	The Reporting Limit has been raised due to comparable level detected in the blank(s).

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
BTEX in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
Carbon, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Chlorine Demand in Water	THFMP / SM 5710 B* (2021)	THFMP / Chlorination, 7-day Incubation		Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
EPH in Water	EPA 3511* / BCMOE EPHw	Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID)	✓	Richmond
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
HEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
LEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Organic in Water	*** DEFAULT SPECIFIC METHOD ***	Unspecified		N/A
Nitrogen, Total in Water	*** DEFAULT SPECIFIC METHOD ***	Unspecified		N/A
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
Polycyclic Aromatic Hydrocarbons in Water	EPA 3511* / EPA 8270D	Hexane MicroExtraction (Base/Neutral) / GC-MSD (SIM)	✓	Richmond
Silica, Reactive in Water	SM 4500-SiO2 C (2021)	Colorimetry (Molybdosilicate)	✓	Edmonton
Solids, Total Disolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Transmittance at 254 nm - Unfiltered in Water	SM 5910 B* (2021)	Ultraviolet Absorption	✓	Kelowna
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
Turbidity in Water	SM 2130 B (2020)	Nephelometry	✓	Kelowna

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analysis Description	Method Ref.	Technique	Accredited	Location
VH in Water	EPA 5030B / BCMOE VHw	Purge&Trap / Gas Chromatography (GC-FID)	✓	Richmond
VPHw in Water	BCMOE VPH	Calculation: VH - (Benzene + Toluene + Ethylbenzene + Xylenes + Styrene)		N/A

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

Glossary of Terms:

RL	Reporting Limit (default)
% T	Percent Transmittance
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
BCMOE	British Columbia Environmental Laboratory Manual, British Columbia Ministry of Environment
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 samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any 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. Results in **red** indicate values above the regulatory limits where these have been included. Any Bold and/or highlighted results do not 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: efex@caro.ca

Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

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 B5L2193										
Blank (B5L2193-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B5L2193-BS1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	4.03	0.10	mg/L	4.00		101	88-108			
Nitrate (as N)	4.06	0.010	mg/L	4.00		101	90-110			
Nitrite (as N)	2.19	0.010	mg/L	2.00		109	85-115			
Sulfate	16.1	1.0	mg/L	16.0		101	90-110			
BCMOE Aggregate Hydrocarbons, Batch B5L2826										
Blank (B5L2826-BLK1)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
VHw (6-10)	< 100	100	µg/L							
Blank (B5L2826-BLK2)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
VHw (6-10)	< 100	100	µg/L							
LCS (B5L2826-BS2)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
VHw (6-10)	1760	100	µg/L	2160		82	70-130			
LCS (B5L2826-BS4)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
VHw (6-10)	1830	100	µg/L	2160		85	70-130			
BCMOE Aggregate Hydrocarbons, Batch B5L2983										
Blank (B5L2983-BLK1)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
EPHw10-19	< 250	250	µg/L							
EPHw19-32	< 250	250	µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	*2010*		*µg/L*	2490		*81*	*60-140*			
LCS (B5L2983-BS2)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
EPHw10-19	21800	250	µg/L	17400		126	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B5L2983, Continued										
LCS (B5L2983-BS2), Continued				Prepared: 2025-12-12, Analyzed: 2025-12-12						
EPHw19-32	32300	250	µg/L	24800		130	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	*2430*		*µg/L*	2490		*97*	*60-140*			
LCS Dup (B5L2983-BSD2)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
EPHw10-19	23200	250	µg/L	17400		134	70-130	6	20	SPK1
EPHw19-32	32300	250	µg/L	24800		130	70-130	< 1	20	
Surrogate: 2-Methylnonane (EPH/F2-4)	*2600*		*µg/L*	2490		*104*	*60-140*			
Disinfection By-Product Formation Potential, Batch B5L2222										
Blank (B5L2222-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-12						
Incubation Temperature	25	1	°C							
Incubation Duration	7		Days							
Disinfection By-Product Formation Potential, Batch B5L3252										
Blank (B5L3252-BLK1)				Prepared: 2025-12-16, Analyzed: 2025-12-16						
Monochloroacetic Acid	< 0.0100	0.0100	mg/L							
Monobromoacetic Acid	< 0.0100	0.0100	mg/L							
Dichloroacetic Acid	< 0.0050	0.0050	mg/L							
Trichloroacetic Acid	< 0.0050	0.0050	mg/L							
Dibromoacetic Acid	< 0.0050	0.0050	mg/L							
Surrogate: 2-Bromopropionic Acid	*0.0136*		*mg/L*	0.0116		*117*	*70-130*			
LCS (B5L3252-BS1)				Prepared: 2025-12-16, Analyzed: 2025-12-16						
Monochloroacetic Acid	0.0556	0.0100	mg/L	0.0558		100	70-130			
Monobromoacetic Acid	0.0367	0.0100	mg/L	0.0374		98	70-130			
Dichloroacetic Acid	0.0551	0.0050	mg/L	0.0563		98	70-130			
Trichloroacetic Acid	0.0184	0.0050	mg/L	0.0186		99	70-130			
Dibromoacetic Acid	0.0190	0.0050	mg/L	0.0188		101	70-130			
Surrogate: 2-Bromopropionic Acid	*0.0105*		*mg/L*	0.0116		*90*	*70-130*			
LCS Dup (B5L3252-BSD1)				Prepared: 2025-12-16, Analyzed: 2025-12-16						
Monochloroacetic Acid	0.0570	0.0100	mg/L	0.0558		102	70-130	3	30	
Monobromoacetic Acid	0.0385	0.0100	mg/L	0.0374		103	70-130	5	30	
Dichloroacetic Acid	0.0571	0.0050	mg/L	0.0563		101	70-130	4	30	
Trichloroacetic Acid	0.0190	0.0050	mg/L	0.0186		102	70-130	3	30	
Dibromoacetic Acid	0.0186	0.0050	mg/L	0.0188		99	70-130	2	30	
Surrogate: 2-Bromopropionic Acid	*0.0128*		*mg/L*	0.0116		*110*	*70-130*			
Disinfection By-Product Formation Potential, Batch B5L3781										
Blank (B5L3781-BLK1)				Prepared: 2025-12-23, Analyzed: 2025-12-23						
Bromodichloromethane	< 0.0050	0.0050	mg/L							
Bromoform	< 0.0050	0.0050	mg/L							
Chloroform	0.0316	0.0100	mg/L							BLK
Dibromochloromethane	< 0.0050	0.0050	mg/L							
Surrogate: Toluene-d8	*0.0201*		*mg/L*	0.0250		*80*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0179*		*mg/L*	0.0249		*72*	*70-130*			
LCS (B5L3781-BS1)				Prepared: 2025-12-23, Analyzed: 2025-12-23						
Chloroform	3.54	3.00	mg/L	2.01		176	70-130			SPK
Surrogate: Toluene-d8	*0.0222*		*mg/L*	0.0250		*89*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0215*		*mg/L*	0.0249		*86*	*70-130*			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B5L2579										
Blank (B5L2579-BLK1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
LCS (B5L2579-BS1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, dissolved	4.06	0.0050	mg/L	4.00		101	80-120			
Antimony, dissolved	0.0413	0.00020	mg/L	0.0400		103	80-120			
Arsenic, dissolved	0.404	0.00050	mg/L	0.400		101	80-120			
Barium, dissolved	0.0412	0.0050	mg/L	0.0400		103	80-120			
Boron, dissolved	0.401	0.0500	mg/L	0.400		100	80-120			
Cadmium, dissolved	0.0411	0.000010	mg/L	0.0400		103	80-120			
Calcium, dissolved	4.11	0.20	mg/L	4.00		103	80-120			
Chromium, dissolved	0.0405	0.00050	mg/L	0.0400		101	80-120			
Cobalt, dissolved	0.0406	0.00010	mg/L	0.0400		102	80-120			
Copper, dissolved	0.0405	0.00040	mg/L	0.0400		101	80-120			
Iron, dissolved	4.15	0.010	mg/L	4.00		104	80-120			
Lead, dissolved	0.0413	0.00020	mg/L	0.0400		103	80-120			
Magnesium, dissolved	4.08	0.010	mg/L	4.00		102	80-120			
Manganese, dissolved	0.0415	0.00020	mg/L	0.0400		104	80-120			
Molybdenum, dissolved	0.0418	0.00010	mg/L	0.0400		105	80-120			
Nickel, dissolved	0.0403	0.00040	mg/L	0.0400		101	80-120			
Potassium, dissolved	4.18	0.10	mg/L	4.00		104	80-120			
Selenium, dissolved	0.396	0.00050	mg/L	0.400		99	80-120			
Sodium, dissolved	4.02	0.10	mg/L	4.00		100	80-120			
Strontium, dissolved	0.0409	0.0010	mg/L	0.0400		102	80-120			
Uranium, dissolved	0.0423	0.000020	mg/L	0.0400		106	80-120			
Zinc, dissolved	0.406	0.0040	mg/L	0.400		101	80-120			
Duplicate (B5L2579-DUP1)		**Source: 25L0846-01**		Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, dissolved	< 0.0050	0.0050	mg/L		< 0.0050				20	
Antimony, dissolved	< 0.00020	0.00020	mg/L		< 0.00020				20	
Arsenic, dissolved	0.00055	0.00050	mg/L		0.00051				20	
Barium, dissolved	0.0246	0.0050	mg/L		0.0247				20	
Boron, dissolved	0.861	0.0500	mg/L		0.858			< 1	20	
Cadmium, dissolved	0.000013	0.000010	mg/L		0.000010				20	
Calcium, dissolved	166	0.20	mg/L		167			< 1	20	
Chromium, dissolved	< 0.00050	0.00050	mg/L		< 0.00050				20	
Cobalt, dissolved	< 0.00010	0.00010	mg/L		< 0.00010				20	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B5L2579, Continued										
Duplicate (B5L2579-DUP1), Continued		**Source: 25L0846-01**		Prepared: 2025-12-09, Analyzed: 2025-12-09						
Copper, dissolved	0.00070	0.00040	mg/L		0.00070				20	
Iron, dissolved	0.035	0.010	mg/L		0.036				20	
Lead, dissolved	< 0.00020	0.00020	mg/L		< 0.00020				20	
Magnesium, dissolved	76.2	0.010	mg/L		76.0			< 1	20	
Manganese, dissolved	0.0133	0.00020	mg/L		0.0135			1	20	
Molybdenum, dissolved	0.00872	0.00010	mg/L		0.00877			< 1	20	
Nickel, dissolved	0.00046	0.00040	mg/L		0.00042				20	
Potassium, dissolved	3.86	0.10	mg/L		3.91			1	20	
Selenium, dissolved	0.00489	0.00050	mg/L		0.00512			5	20	
Sodium, dissolved	72.5	0.10	mg/L		72.4			< 1	20	
Strontium, dissolved	1.59	0.0010	mg/L		1.58			< 1	20	
Uranium, dissolved	0.00463	0.000020	mg/L		0.00458			1	20	
Zinc, dissolved	0.0057	0.0040	mg/L		0.0054				20	
Dissolved Metals, Batch B5L2674										
Blank (B5L2674-BLK1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B5L2674-BS1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00275	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00282	0.000010	mg/L	0.00250		113	80-120			
LCS (B5L2674-BS3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00272	0.000010	mg/L	0.00250		109	80-120			
LCS (B5L2674-BS4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00263	0.000010	mg/L	0.00250		105	80-120			
LCS (B5L2674-BS5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00277	0.000010	mg/L	0.00250		111	80-120			
LCS (B5L2674-BS6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00274	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	0.00277	0.000010	mg/L	0.00250		111	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B5L2674, Continued										
Duplicate (B5L2674-DUP2)		**Source: 25L0846-01**		Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, dissolved	< 0.000010	0.000010	mg/L		< 0.000010				20	
General Parameters, Batch B5L2203										
Blank (B5L2203-BLK1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Carbon, Total Organic	< 0.50	0.50	mg/L							
Blank (B5L2203-BLK2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Carbon, Total Organic	< 0.50	0.50	mg/L							
LCS (B5L2203-BS1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Carbon, Total Organic	9.40	0.50	mg/L	10.0		94	78-116			
LCS (B5L2203-BS2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Carbon, Total Organic	9.49	0.50	mg/L	10.0		95	78-116			
General Parameters, Batch B5L2227										
Blank (B5L2227-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B5L2227-BLK2)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B5L2227-BS1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Ammonia, Total (as N)	0.929	0.050	mg/L	1.00		93	85-115			
LCS (B5L2227-BS2)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Ammonia, Total (as N)	0.923	0.050	mg/L	1.00		92	85-115			
General Parameters, Batch B5L2270										
Blank (B5L2270-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
Blank (B5L2270-BLK2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
Blank (B5L2270-BLK3)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
LCS (B5L2270-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.6	0.10	NTU	15.8		99	90-110			
LCS (B5L2270-BS2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.6	0.10	NTU	15.8		99	90-110			
LCS (B5L2270-BS3)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.7	0.10	NTU	15.8		99	90-110			
General Parameters, Batch B5L2283										
Blank (B5L2283-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	< 0.0020	0.0020	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5L2283, Continued										
Blank (B5L2283-BLK2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B5L2283-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0197	0.0020	mg/L	0.0200		98	82-120			
LCS (B5L2283-BS2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0183	0.0020	mg/L	0.0200		91	82-120			
LCS Dup (B5L2283-BSD1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0191	0.0020	mg/L	0.0200		95	82-120	3	10	
LCS Dup (B5L2283-BSD2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0198	0.0020	mg/L	0.0200		99	82-120	8	10	
General Parameters, Batch B5L2299										
Blank (B5L2299-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
UV Transmittance @ 254 nm - Unfiltered	< 0.10	0.10	% T							
LCS (B5L2299-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
UV Transmittance @ 254 nm - Unfiltered	45.2	0.10	% T	45.1		100	95-105			
General Parameters, Batch B5L2300										
Blank (B5L2300-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Colour, True	< 5.0	5.0	CU							
LCS (B5L2300-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Colour, True	18	5.0	CU	20.0		89	85-115			
General Parameters, Batch B5L2311										
Blank (B5L2311-BLK1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	20.2		°C							
Blank (B5L2311-BLK2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	21.3		°C							
LCS (B5L2311-BS1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	110	1.0	mg/L	100		110	80-120			
LCS (B5L2311-BS2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Western Water Associates Ltd
PROJECT 25-053-04VR

WORK ORDER 25L0846
REPORTED 2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5L2311, Continued										
LCS (B5L2311-BS3)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	107	1.0	mg/L	100		107	80-120			
LCS (B5L2311-BS4)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
Reference (B5L2311-SRM1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
pH	7.04	0.10	pH units	7.01		100	98-102			
Reference (B5L2311-SRM2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
pH	7.02	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B5L2389										
Blank (B5L2389-BLK1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Silica, Reactive (as SiO2)	< 0.40	0.40	mg/L							
LCS (B5L2389-BS1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Silica, Reactive (as SiO2)	5.11	0.40	mg/L	5.00		102	90-110			
Duplicate (B5L2389-DUP1)		**Source: 25L0846-01**		Prepared: 2025-12-08, Analyzed: 2025-12-08						
Silica, Reactive (as SiO2)	12.6	0.40	mg/L		12.3			3	5	
General Parameters, Batch B5L2692										
Blank (B5L2692-BLK1)				Prepared: 2025-12-10, Analyzed: 2025-12-11						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B5L2692-BLK2)				Prepared: 2025-12-10, Analyzed: 2025-12-11						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B5L2692-BS1)				Prepared: 2025-12-10, Analyzed: 2025-12-11						
Nitrogen, Total Kjeldahl	0.951	0.050	mg/L	1.00		95	85-115			
LCS (B5L2692-BS2)				Prepared: 2025-12-10, Analyzed: 2025-12-11						
Nitrogen, Total Kjeldahl	0.948	0.050	mg/L	1.00		95	85-115			
General Parameters, Batch B5L2797										
Blank (B5L2797-BLK1)				Prepared: 2025-12-11, Analyzed: 2025-12-11						
Phosphorus, Total (as P)	< 0.0050	0.0050	mg/L							
LCS (B5L2797-BS1)				Prepared: 2025-12-11, Analyzed: 2025-12-11						
Phosphorus, Total (as P)	0.0977	0.0050	mg/L	0.100		98	85-115			
Microbiological Parameters, Batch B5L2142										
Blank (B5L2142-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5L2142-BLK2)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5L2142-BLK3)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5L2142, Continued										
Blank (B5L2142-BLK3), Continued				Prepared: 2025-12-05, Analyzed: 2025-12-05						
E. coli	< 1	1	CFU/100 mL							
Polycyclic Aromatic Hydrocarbons (PAH), Batch B5L2815										
Blank (B5L2815-BLK1)				Prepared: 2025-12-11, Analyzed: 2025-12-11						
Acenaphthene	< 0.050	0.050	µg/L							
Acenaphthylene	< 0.200	0.200	µg/L							
Acridine	< 0.050	0.050	µg/L							
Anthracene	< 0.010	0.010	µg/L							
Benz(a)anthracene	< 0.010	0.010	µg/L							
Benzo(a)pyrene	< 0.010	0.010	µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L							
Benzo(k)fluoranthene	< 0.050	0.050	µg/L							
2-Chloronaphthalene	< 0.100	0.100	µg/L							
Chrysene	< 0.050	0.050	µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L							
Fluoranthene	< 0.030	0.030	µg/L							
Fluorene	< 0.050	0.050	µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L							
1-Methylnaphthalene	< 0.100	0.100	µg/L							
2-Methylnaphthalene	< 0.100	0.100	µg/L							
Naphthalene	< 0.200	0.200	µg/L							
Phenanthrene	< 0.100	0.100	µg/L							
Pyrene	< 0.020	0.020	µg/L							
Quinoline	< 0.050	0.050	µg/L							
Surrogate: Acridine-d9	*23.1*		*µg/L*	25.0		*92*	*50-140*			
Surrogate: Naphthalene-d8	*17.4*		*µg/L*	25.0		*69*	*50-140*			
Surrogate: Perylene-d12	*21.7*		*µg/L*	25.0		*87*	*50-140*			
LCS (B5L2815-BS1)				Prepared: 2025-12-11, Analyzed: 2025-12-11						
Acenaphthene	4.80	0.050	µg/L	4.98		96	50-140			
Acenaphthylene	4.52	0.200	µg/L	4.92		92	50-140			
Acridine	5.11	0.050	µg/L	4.95		103	50-140			
Anthracene	6.12	0.010	µg/L	4.98		123	50-140			
Benz(a)anthracene	4.78	0.010	µg/L	4.98		96	50-140			
Benzo(a)pyrene	4.68	0.010	µg/L	4.92		95	50-140			
Benzo(b+j)fluoranthene	11.0	0.050	µg/L	9.85		111	50-140			
Benzo(g,h,i)perylene	4.51	0.050	µg/L	4.92		92	50-140			
Benzo(k)fluoranthene	3.77	0.050	µg/L	4.95		76	50-140			
2-Chloronaphthalene	4.58	0.100	µg/L	4.92		93	50-140			
Chrysene	6.03	0.050	µg/L	4.90		123	50-140			
Dibenz(a,h)anthracene	4.57	0.010	µg/L	5.00		91	50-140			
Fluoranthene	3.95	0.030	µg/L	5.00		79	50-140			
Fluorene	4.83	0.050	µg/L	5.08		95	50-140			
Indeno(1,2,3-cd)pyrene	5.04	0.050	µg/L	4.92		102	50-140			
1-Methylnaphthalene	4.95	0.100	µg/L	4.95		100	50-140			
2-Methylnaphthalene	3.37	0.100	µg/L	4.95		68	50-140			
Naphthalene	4.57	0.200	µg/L	4.95		92	50-140			
Phenanthrene	4.17	0.100	µg/L	4.92		85	50-140			
Pyrene	4.22	0.020	µg/L	5.02		84	50-140			
Quinoline	5.28	0.050	µg/L	5.02		105	50-140			
Surrogate: Acridine-d9	*23.6*		*µg/L*	25.0		*94*	*50-140*			
Surrogate: Naphthalene-d8	*17.1*		*µg/L*	25.0		*68*	*50-140*			
Surrogate: Perylene-d12	*22.2*		*µg/L*	25.0		*89*	*50-140*			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B5L2815, Continued										
LCS Dup (B5L2815-BSD1)				Prepared: 2025-12-11, Analyzed: 2025-12-11						
Acenaphthene	5.86	0.050	µg/L	4.98		118	50-140	20	30	
Acenaphthylene	4.33	0.200	µg/L	4.92		88	50-140	4	30	
Acridine	5.14	0.050	µg/L	4.95		104	50-140	< 1	30	
Anthracene	5.25	0.010	µg/L	4.98		106	50-140	15	30	
Benz(a)anthracene	5.57	0.010	µg/L	4.98		112	50-140	15	30	
Benzo(a)pyrene	4.91	0.010	µg/L	4.92		100	50-140	5	30	
Benzo(b+j)fluoranthene	12.2	0.050	µg/L	9.85		124	50-140	10	30	
Benzo(g,h,i)perylene	4.74	0.050	µg/L	4.92		96	50-140	5	30	
Benzo(k)fluoranthene	3.48	0.050	µg/L	4.95		70	50-140	8	30	
2-Chloronaphthalene	5.41	0.100	µg/L	4.92		110	50-140	17	30	
Chrysene	5.59	0.050	µg/L	4.90		114	50-140	8	30	
Dibenz(a,h)anthracene	4.70	0.010	µg/L	5.00		94	50-140	3	30	
Fluoranthene	4.48	0.030	µg/L	5.00		90	50-140	13	30	
Fluorene	5.66	0.050	µg/L	5.08		112	50-140	16	30	
Indeno(1,2,3-cd)pyrene	5.22	0.050	µg/L	4.92		106	50-140	4	30	
1-Methylnaphthalene	3.89	0.100	µg/L	4.95		79	50-140	24	30	
2-Methylnaphthalene	3.66	0.100	µg/L	4.95		74	50-140	8	30	
Naphthalene	5.61	0.200	µg/L	4.95		113	50-140	21	30	
Phenanthrene	4.99	0.100	µg/L	4.92		101	50-140	18	30	
Pyrene	4.92	0.020	µg/L	5.02		98	50-140	15	30	
Quinoline	4.33	0.050	µg/L	5.02		86	50-140	20	30	
Surrogate: Acridine-d9	*25.3*		*µg/L*	25.0		*101*	*50-140*			
Surrogate: Naphthalene-d8	*21.1*		*µg/L*	25.0		*84*	*50-140*			
Surrogate: Perylene-d12	*24.0*		*µg/L*	25.0		*96*	*50-140*			
Total Metals, Batch B5L2510										
Blank (B5L2510-BLK1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B5L2510-BS1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, total	3.95	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0398	0.00020	mg/L	0.0400		100	80-120			
Arsenic, total	0.407	0.00050	mg/L	0.400		102	80-120			
Barium, total	0.0387	0.0050	mg/L	0.0400		97	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5L2510, Continued										
LCS (B5L2510-BS1), Continued				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Boron, total	0.384	0.0500	mg/L	0.400		96	80-120			
Cadmium, total	0.0391	0.000010	mg/L	0.0400		98	80-120			
Calcium, total	3.97	0.20	mg/L	4.00		99	80-120			
Chromium, total	0.0412	0.00050	mg/L	0.0400		103	80-120			
Cobalt, total	0.0406	0.00010	mg/L	0.0400		101	80-120			
Copper, total	0.0401	0.00040	mg/L	0.0400		100	80-120			
Iron, total	4.06	0.010	mg/L	4.00		102	80-120			
Lead, total	0.0405	0.00020	mg/L	0.0400		101	80-120			
Magnesium, total	4.01	0.010	mg/L	4.00		100	80-120			
Manganese, total	0.0402	0.00020	mg/L	0.0400		100	80-120			
Molybdenum, total	0.0403	0.00010	mg/L	0.0400		101	80-120			
Nickel, total	0.0404	0.00040	mg/L	0.0400		101	80-120			
Potassium, total	3.98	0.10	mg/L	4.00		99	80-120			
Selenium, total	0.389	0.00050	mg/L	0.400		97	80-120			
Sodium, total	4.03	0.10	mg/L	4.00		101	80-120			
Strontium, total	0.0402	0.0010	mg/L	0.0400		100	80-120			
Uranium, total	0.0410	0.000020	mg/L	0.0400		103	80-120			
Zinc, total	0.395	0.0040	mg/L	0.400		99	80-120			
Duplicate (B5L2510-DUP1)				**Source: 25L0846-01**	Prepared: 2025-12-09, Analyzed: 2025-12-09					
Aluminum, total	< 0.0050	0.0050	mg/L		< 0.0050				20	
Antimony, total	< 0.00020	0.00020	mg/L		< 0.00020				20	
Arsenic, total	0.00051	0.00050	mg/L		0.00051				20	
Barium, total	0.0238	0.0050	mg/L		0.0231				20	
Boron, total	0.836	0.0500	mg/L		0.845			1	20	
Cadmium, total	0.000012	0.000010	mg/L		0.000011				20	
Calcium, total	171	0.20	mg/L		168			2	20	
Chromium, total	< 0.00050	0.00050	mg/L		< 0.00050				20	
Cobalt, total	< 0.00010	0.00010	mg/L		< 0.00010				20	
Copper, total	0.00090	0.00040	mg/L		0.00092				20	
Iron, total	0.039	0.010	mg/L		0.038				20	
Lead, total	< 0.00020	0.00020	mg/L		< 0.00020				20	
Magnesium, total	78.0	0.010	mg/L		77.4			< 1	20	
Manganese, total	0.0131	0.00020	mg/L		0.0129			2	20	
Molybdenum, total	0.00905	0.00010	mg/L		0.00883			3	20	
Nickel, total	0.00047	0.00040	mg/L		0.00045				20	
Potassium, total	3.68	0.10	mg/L		3.64			1	20	
Selenium, total	0.00514	0.00050	mg/L		0.00508			1	20	
Sodium, total	74.4	0.10	mg/L		74.3			< 1	20	
Strontium, total	1.53	0.0010	mg/L		1.51			2	20	
Uranium, total	0.00474	0.000020	mg/L		0.00467			1	20	
Zinc, total	0.0125	0.0040	mg/L		0.0123				20	
Total Metals, Batch B5L2674										
Blank (B5L2674-BLK1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5L2674, Continued										
Blank (B5L2674-BLK5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5L2674-BS1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00275	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00282	0.000010	mg/L	0.00250		113	80-120			
LCS (B5L2674-BS3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00272	0.000010	mg/L	0.00250		109	80-120			
LCS (B5L2674-BS4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00263	0.000010	mg/L	0.00250		105	80-120			
LCS (B5L2674-BS5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00277	0.000010	mg/L	0.00250		111	80-120			
LCS (B5L2674-BS6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00274	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00277	0.000010	mg/L	0.00250		111	80-120			
Duplicate (B5L2674-DUP3)		**Source: 25L0846-01**		Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L		< 0.000010				20	
Volatile Organic Compounds (VOC), Batch B5L2826										
Blank (B5L2826-BLK1)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
Benzene	< 0.5	0.5	µg/L							
Ethylbenzene	< 1.0	1.0	µg/L							
Methyl tert-butyl ether	< 1.0	1.0	µg/L							
Styrene	< 1.0	1.0	µg/L							
Toluene	< 1.0	1.0	µg/L							
Xylenes (total)	< 2.0	2.0	µg/L							
Surrogate: Toluene-d8	*26.1*		*µg/L*	25.0		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.3*		*µg/L*	24.9		*94*	*70-130*			
Blank (B5L2826-BLK2)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
Benzene	< 0.5	0.5	µg/L							
Ethylbenzene	< 1.0	1.0	µg/L							
Methyl tert-butyl ether	< 1.0	1.0	µg/L							
Styrene	< 1.0	1.0	µg/L							
Toluene	< 1.0	1.0	µg/L							
Xylenes (total)	< 2.0	2.0	µg/L							
Surrogate: Toluene-d8	*19.5*		*µg/L*	25.0		*78*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.7*		*µg/L*	24.9		*79*	*70-130*			
LCS (B5L2826-BS1)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
Benzene	20.2	0.5	µg/L	20.1		101	70-130			
Ethylbenzene	18.9	1.0	µg/L	20.1		94	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:05

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B5L2826, Continued										
LCS (B5L2826-BS1), Continued				Prepared: 2025-12-12, Analyzed: 2025-12-12						
Methyl tert-butyl ether	19.8	1.0	µg/L	20.0		99	70-130			
Styrene	17.2	1.0	µg/L	20.1		85	70-130			
Toluene	21.0	1.0	µg/L	20.1		104	70-130			
Xylenes (total)	57.7	2.0	µg/L	60.3		96	70-130			
Surrogate: Toluene-d8	*19.5*		*µg/L*	25.0		*78*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*21.0*		*µg/L*	24.9		*84*	*70-130*			
LCS (B5L2826-BS3)				Prepared: 2025-12-12, Analyzed: 2025-12-12						
Benzene	22.8	0.5	µg/L	20.1		113	70-130			
Ethylbenzene	18.8	1.0	µg/L	20.1		94	70-130			
Methyl tert-butyl ether	16.0	1.0	µg/L	20.0		80	70-130			
Styrene	17.2	1.0	µg/L	20.1		86	70-130			
Toluene	23.8	1.0	µg/L	20.1		118	70-130			
Xylenes (total)	60.1	2.0	µg/L	60.3		100	70-130			
Surrogate: Toluene-d8	*19.2*		*µg/L*	25.0		*77*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.4*		*µg/L*	24.9		*78*	*70-130*			

QC Qualifiers:

BLK	Analyte concentration in the Method Blank is above the Reporting Limit (RL).
SPK	The recovery of this analyte was outside of established control limits.
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	Western Water Associates Ltd 1003 Kalamalka Lake Vernon, BC V1T6V4		
ATTENTION	Ryan Rhodes	**WORK ORDER**	25L0846
PO NUMBER		**RECEIVED / TEMP**	2025-12-05 08:29 / 8.8°C
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

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

Big Picture Sidekicks

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.

We've Got Chemistry

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

Ahead of the Curve

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

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

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

Authorized By:

Echo Fex
Junior Account Manager

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Acacia Grove (25L0846-02) | Matrix: Water | Sampled: 2025-12-02 12:00						
Anions						
Chloride	**6.46**	AO ≤ 250	0.10	mg/L	2025-12-05	
Fluoride	**0.24**	MAC = 1.5	0.10	mg/L	2025-12-05	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2025-12-05	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-12-05	
Sulfate	**703**	AO ≤ 500	1.0	mg/L	2025-12-05	
Calculated Parameters						
Hardness, Total (as CaCO3)	**804**	None Required	0.500	mg/L	N/A	
Langelier Index	**0.7**	N/A	-5.0		2025-12-10	CT6
Solids, Total Dissolved	**1210**	AO ≤ 500	25.0	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**237**	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Bicarbonate (as CaCO3)	**237**	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-12-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-12-06	HT1
Conductivity (EC)	**1560**	N/A	2.0	µS/cm	2025-12-08	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-12-06	
pH	**7.69**	7.0-10.5	0.10	pH units	2025-12-08	HT2
Temperature, at pH	**20.9**	N/A		°C	2025-12-08	HT2
Turbidity	**5.27**	OG < 1	0.10	NTU	2025-12-06	HT1
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-12-05	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-12-05	HT3
Total Metals						
Aluminum, total	**0.0067**	OG < 0.1	0.0050	mg/L	2025-12-09	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-12-09	
Arsenic, total	**0.00172**	MAC = 0.01	0.00050	mg/L	2025-12-09	
Barium, total	**0.0171**	MAC = 2	0.0050	mg/L	2025-12-09	
Boron, total	**1.89**	MAC = 5	0.0500	mg/L	2025-12-09	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2025-12-09	
Calcium, total	**185**	None Required	0.20	mg/L	2025-12-09	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-12-09	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-12-09	
Copper, total	**0.00135**	MAC = 2	0.00040	mg/L	2025-12-09	
Iron, total	**0.445**	AO ≤ 0.1	0.010	mg/L	2025-12-09	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-12-09	
Magnesium, total	**82.8**	None Required	0.010	mg/L	2025-12-09	
Manganese, total	**0.489**	MAC = 0.12	0.00020	mg/L	2025-12-09	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-12-10	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Acacia Grove (25L0846-02) | Matrix: Water | Sampled: 2025-12-02 12:00, Continued						
Total Metals, Continued						
Molybdenum, total	**0.00831**	N/A	0.00010	mg/L	2025-12-09	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-12-09	
Potassium, total	**4.25**	N/A	0.10	mg/L	2025-12-09	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-12-09	
Sodium, total	**80.3**	AO ≤ 200	0.10	mg/L	2025-12-09	
Strontium, total	**2.17**	MAC = 7	0.0010	mg/L	2025-12-09	
Uranium, total	**0.00423**	MAC = 0.02	0.000020	mg/L	2025-12-09	
Zinc, total	**0.0131**	AO ≤ 5	0.0040	mg/L	2025-12-09	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
HT3	Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
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	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the 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
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
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

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04

General Comments:

The results in this report apply to samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any 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. Results in **red** indicate values above the regulatory limits where these have been included. Any Bold and/or highlighted results do not 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: efex@caro.ca

Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
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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 B5L2193										
Blank (B5L2193-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B5L2193-BS1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	4.03	0.10	mg/L	4.00		101	88-108			
Nitrate (as N)	4.06	0.010	mg/L	4.00		101	90-110			
Nitrite (as N)	2.19	0.010	mg/L	2.00		109	85-115			
Sulfate	16.1	1.0	mg/L	16.0		101	90-110			
General Parameters, Batch B5L2270										
Blank (B5L2270-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
Blank (B5L2270-BLK2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
Blank (B5L2270-BLK3)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	< 0.10	0.10	NTU							
LCS (B5L2270-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.6	0.10	NTU	15.8		99	90-110			
LCS (B5L2270-BS2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.6	0.10	NTU	15.8		99	90-110			
LCS (B5L2270-BS3)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Turbidity	15.7	0.10	NTU	15.8		99	90-110			
General Parameters, Batch B5L2283										

APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5L2283, Continued										
Blank (B5L2283-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	< 0.0020	0.0020	mg/L							
Blank (B5L2283-BLK2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B5L2283-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0197	0.0020	mg/L	0.0200		98	82-120			
LCS (B5L2283-BS2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0183	0.0020	mg/L	0.0200		91	82-120			
LCS Dup (B5L2283-BSD1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0191	0.0020	mg/L	0.0200		95	82-120	3	10	
LCS Dup (B5L2283-BSD2)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Cyanide, Total	0.0198	0.0020	mg/L	0.0200		99	82-120	8	10	
General Parameters, Batch B5L2300										
Blank (B5L2300-BLK1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Colour, True	< 5.0	5.0	CU							
LCS (B5L2300-BS1)				Prepared: 2025-12-06, Analyzed: 2025-12-06						
Colour, True	18	5.0	CU	20.0		89	85-115			
General Parameters, Batch B5L2311										
Blank (B5L2311-BLK1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	20.2		°C							
Blank (B5L2311-BLK2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	21.3		°C							
LCS (B5L2311-BS1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	110	1.0	mg/L	100		110	80-120			
LCS (B5L2311-BS2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
LCS (B5L2311-BS3)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Alkalinity, Total (as CaCO3)	107	1.0	mg/L	100		107	80-120			
LCS (B5L2311-BS4)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5L2311, Continued										
Reference (B5L2311-SRM1)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
pH	7.04	0.10	pH units	7.01		100	98-102			
Reference (B5L2311-SRM2)				Prepared: 2025-12-08, Analyzed: 2025-12-08						
pH	7.02	0.10	pH units	7.01		100	98-102			
Microbiological Parameters, Batch B5L2142										
Blank (B5L2142-BLK1)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5L2142-BLK2)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5L2142-BLK3)				Prepared: 2025-12-05, Analyzed: 2025-12-05						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Total Metals, Batch B5L2502										
Blank (B5L2502-BLK1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B5L2502-BS1)				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Aluminum, total	3.98	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0404	0.00020	mg/L	0.0400		101	80-120			
Arsenic, total	0.405	0.00050	mg/L	0.400		101	80-120			
Barium, total	0.0398	0.0050	mg/L	0.0400		99	80-120			
Boron, total	0.407	0.0500	mg/L	0.400		102	80-120			
Cadmium, total	0.0393	0.000010	mg/L	0.0400		98	80-120			
Calcium, total	3.96	0.20	mg/L	4.00		99	80-120			
Chromium, total	0.0408	0.00050	mg/L	0.0400		102	80-120			
Cobalt, total	0.0405	0.00010	mg/L	0.0400		101	80-120			
Copper, total	0.0401	0.00040	mg/L	0.0400		100	80-120			

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REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25L0846
PROJECT	25-053-04VR	**REPORTED**	2025-12-23 17:04

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5L2502, Continued										
LCS (B5L2502-BS1), Continued				Prepared: 2025-12-09, Analyzed: 2025-12-09						
Iron, total	4.06	0.010	mg/L	4.00		101	80-120			
Lead, total	0.0402	0.00020	mg/L	0.0400		101	80-120			
Magnesium, total	4.07	0.010	mg/L	4.00		102	80-120			
Manganese, total	0.0404	0.00020	mg/L	0.0400		101	80-120			
Molybdenum, total	0.0403	0.00010	mg/L	0.0400		101	80-120			
Nickel, total	0.0404	0.00040	mg/L	0.0400		101	80-120			
Potassium, total	3.99	0.10	mg/L	4.00		100	80-120			
Selenium, total	0.393	0.00050	mg/L	0.400		98	80-120			
Sodium, total	4.04	0.10	mg/L	4.00		101	80-120			
Strontium, total	0.0407	0.0010	mg/L	0.0400		102	80-120			
Uranium, total	0.0406	0.000020	mg/L	0.0400		102	80-120			
Zinc, total	0.394	0.0040	mg/L	0.400		99	80-120			
Total Metals, Batch B5L2674										
Blank (B5L2674-BLK1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5L2674-BLK7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5L2674-BS1)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00275	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS2)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00282	0.000010	mg/L	0.00250		113	80-120			
LCS (B5L2674-BS3)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00272	0.000010	mg/L	0.00250		109	80-120			
LCS (B5L2674-BS4)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00263	0.000010	mg/L	0.00250		105	80-120			
LCS (B5L2674-BS5)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00277	0.000010	mg/L	0.00250		111	80-120			
LCS (B5L2674-BS6)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00274	0.000010	mg/L	0.00250		110	80-120			
LCS (B5L2674-BS7)				Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00277	0.000010	mg/L	0.00250		111	80-120			

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5L2674, Continued										
Matrix Spike (B5L2674-MS3)	**Source: 25L0846-02**			Prepared: 2025-12-10, Analyzed: 2025-12-10						
Mercury, total	0.00266	0.000010	mg/L	0.00250	< 0.000010	106	70-130			