Municipal Joint Services Board

AGENDA

April 22nd, 2026
Municipality of the District of Lunenburg Council Chambers

We begin by acknowledging we are gathered today in Mi'kma'ki, the ancestral present and future territory of the Mi'kmaw people. Today we gather with respect, cooperation, and coexistence following the intent of the living peace and friendship treaties.

1. **CALL TO ORDER**

2. **APPROVAL OF AGENDA – Added Items**

3. **APPROVAL OF MINUTES OF WEDNESDAY MARCH 25th, 2026, MEETING, AS CIRCULATED.**

4. **NEW BUSINESS:**
   - 4.1. Memo – Customer Account Policy
     - 4.1.1. Customer Account Policy
     - 4.1.2. 2014-05-23 MJSB Credit Sales Policy
     - 4.1.3. 2014-05-23 MJSB Revenue Collection Policy
   - 4.2. Memo - 2025 Annual Hydrogeological Assessment Report
     - 4.2.1. Annual 2025 Hydrogeological Assessment Report
   - 4.3. Memo – Cybersecurity Maturity Assessment
     - 4.3.1. Cybersecurity Assessment and ITSS Update
   - 4.4. Memo - Dredging and Dewatering Septic Lagoon Contract Award

5. **ADDED ITEMS:**
   - 5.1. Discussion re: LCLC Board decision/direction re: MJSB

6. **CORRESPONDENCE / INFORMATION**
   - 6.1. Waste Management Update
     - 6.1.1.WMSS Tonnage and Revenue Report

7. **IN CAMERA:**
   - Nil
8. **NEXT MEETING DATE** – Wednesday May 27th, 2026

9. **ADJOURNMENT**

Minutes of the Municipal Joint Services Board, Lunenburg Region
Held in the Municipality of the District of Lunenburg Council Chambers
Wednesday, March 25, 2026, 6:30 pm.

ATTENDANCE

MUNICIPALITY OF THE DISTRICT OF LUNENBURG
Mayor McLean-Wile
Councillor Oickle- Vice Chair
Councillor Burns
Tim MacEwan, CAO

TOWN OF BRIDGEWATER
Mayor Mitchell - Chair
Councilor Conklin
Councilor Fougere
Mark Flint, D. CAO

TOWN OF MAHONE BAY
Mayor Lohnes-Croft
Councillor McCarron
Councillor Palfreyman (alternate)
Dylan Heide, CAO

REGRETS
Councilor Feeney, Town of Mahone Bay

ALSO IN ATTENDANCE WERE
Councillor Hubley, Municipality of the District of Lunenburg (alternate)
Gabe Welsh, Director of Solid Waste Management
Lisa Bozek, Director of IT
J. C. Reddy, Power, Leefe, Reddy & Rafuse
Jill Rafuse, COO
Tamara Fraser, Recording Secretary

1. **CALL TO ORDER**

Mayor Mitchell called the meeting to order at 6:47 pm.

He began by acknowledging that we are gathered today in Mi'kma'ki, the ancestral present and future territory of the Mi'kmaw people. Today we gather with respect, cooperation, and coexistence following the intent of the living peace and friendship treaties.

2. **APPROVAL OF AGENDA**

Mayor Mitchell added Item 4.5 General Insurance to the agenda.

The agenda was approved with added item 4.5 General Insurance. Carried.

3. **ADOPTION OF MINUTES OF February 25, 2026, MEETING AS CIRCULATED**

Having no additions or revisions, the Minutes of February 25, 2026, Municipal Joint Services Board were adopted as circulated.

4. **NEW BUSINESS**

4.1 LCLC Governance Review and Recommendations

Mayor Mitchell advised this is an Information item from the presentation provided during the joint meeting with the LCMPCC.

The Board discussed the recommendations on the LCLC governance.

Moved by, Mayor McLean-Wile seconded by Mayor Lohnes-Croft to receive the LCLC Governance Review and Recommendations. Carried.

4.2 Office Relocation

Ms. Rafuse gave an update on the office relocation, carried forward from the February 25, 2026, meeting. A copy of her report is attached to the agenda.

She advised the MJSB Corporate office is requesting relocation to the WellTide building.

Moved by Councillor Oickle, seconded by Councillor Conklin, to approve the relocation of MJSB staff from their current office space. Carried.

Moved by Councillor Oickle, seconded by Councillor Conklin, to authorize the MJSB to enter into a five-year lease agreement for approximately 2000ft2 of office space with the owners of the WellTide facility (option 2) as per the rates quoted in Appendix C. Carried.

Moved by Councillor Oickle, Seconded by Councillor Fougere, to authorize a termination notice to the current landlord to end the existing lease at 210 Aberdeen to correspond with the rent commencement date at the WellTide facility (option 2). Carried.

Moved by Councillor Oickle, seconded by, Mayor Lohnes-Croft, to Approve the required budget amendment to support the transition to the new facility and terms of the new lease. Carried.

Moved by Councillor Oickle, seconded by Mayor McLean-Wile, to authorize the complete the fit-up of the new office space to the maximum upset value of $337,675 (includes Non-refundable HST) as a one-time cost. This covers the procurement and delivery of design services, construction, and furniture, fixtures, IT equipment and associated relocation services. Carried.

Ms. Crowder advised that the additional budget for the WellTide office would need to be approved by the partner councils as it was not included in the Board's approved 2025-26 Budget.

Moved by Councillor Hubley, seconded by Councillor Fougere, to recommend the additional budget for the WellTide office to the councils as a supplementary budget for the upfitting costs of the office relocation and rental increase. Carried.

4.3 Signing Authority Update

Ms. Rafuse explained this is a housekeeping item.

She noted that Mr. Feeney needs to be removed from the bank as a signing authority and Mr. Welsh added.

Moved by Mayor McLean-Wile, seconded by Councillor Burns, that the Board approve updating the Company's TD Canada Trust bank account signing authorities to include the Director of Waste Management Shared Services Gabe Welsh. Carried.

4.4 Waste Transfer Services Contract Extension

Mr. Welsh advised that the existing waste transfer contract with GE began in December 2021 and will expire March 31, 2026. The agreement includes an option for us to inform GE that we are extending the contract, for an additional two-year term ending on March 31, 2028.

He explained that the contract rates were established through a competitive procurement process in 2021 and have increased at an average annual rate of 2.89%. The proposed two-year extension would maintain this same escalation structure, providing predictable and manageable increases.

Based on the 2024–2025 contract value of approximately $403,000, this would result in an approximately $12,000 annual increase, not accounting for any increase in tonnage.

Material	Unit	2025-26	2026-27	2027-28
Landfill	tonnes	$ 18.95	$ 19.50	$ 20.06
C&D	tonnes	$ 21.60	$ 22.22	$ 22.86
Shingles	tonnes	$ 21.60	$ 22.22	$ 22.86
Oversize Compost	tonnes	$ 21.60	$ 22.22	$ 22.86
Oversize Wood	tonnes	$ 44.89	$ 46.19	$ 47.53
Wood	tonnes	$ 21.60	$ 22.22	$ 22.86
Wood Chips	hourly	$ 171.90	$ 176.87	$ 181.98

Moved by Mayor Lohnes-Croft, seconded by Mayor McLean-Wile, that the MJSB extend the existing Waste Transfer Services contract with GE Environmental Ltd (GE), for an additional two-year term ending on March 31, 2028.

4.5 General Insurance

Ms. Rafuse advised that in February 2025, the Board provided authorization to award the General Insurance portion of RFP2024-04 Regional General Insurance and Insurance Brokerage Services to Arthur J. Gallagher Canada for a three (3) year term from April 1st, 2025 thru March 31st, 2028, with the right to extend the contract up to an additional two, one-year extensions.

Only the value of the 2025/26 insurance cost was approved at that time as the insurance policies and quotes are updated annually and require authorization to bind coverage each year.

Ms. Rafuse advised that the cost of the 2025/26 general insurance was $106,760.15. The cost of the 2026/27 general insurance is $100,731.88. She noted the MJSB is waiting for an additional quote for fuel tank coverage at the waste site which is anticipated to be about $2,500. To ensure sufficient authority, MJSB is requesting approval not to exceed $107,000. This amount falls within the budget already approved by the Board.

Moved by Councillor Fougere, seconded by Councillor Burns, that the Board authorize sign off on the 2026/27 "Client Authorization to Bind Coverage" with Arthur J. Gallagher Canada for General Insurance for the Municipal Joint Services Board, Lunenburg Region at a cost not to exceed $107,000. Carried.

5. **ADDED ITEMS:**

Nil

6. **CORRESPONDENCE/ INFORMATION**

6.1 Wheeled Loader Repairs

Attached to the agenda was a report on the failed hydraulic system of the Cat 938 loader. This was an information item.

The report noted that the repair of the hydraulic system would cost $61,677.48 and to minimize disruption, the COO approved awarding the repair to Toromont Cat in accordance with the MJSB Procurement Policy.

6.2 Waste Management Update

The WMSS Tonnage and Revenue Report was circulated with the agenda as an information item.

7. **IN CAMERA**

At 7:20 p.m., it was moved by Councillor Burns, and seconded by Mayor McLean-Wile, that the Municipal Shared Services Board go In Camera to discuss the following item:

7.1 Municipal Government Act Section 22(2)(c) – Personnel Matter – Interim Controller
7.2 Municipal Government Act Section 22(2)(c) – Personnel Matters – Term Position – Information Management Specialist

Carried.

Municipal Shared Services Board In Camera in session.
At 7:30 p.m.; it was moved by Councillor Oickle, seconded by Mayor Lohnes-Croft, that the Municipal Shared Services Board come out of In Camera and return to open session. Carried.

Municipal Shared Services Board in session.

7.1 Municipal Government Act Section 22(2)(c) – Personnel Matter – Interim Controller

Moved by Councillor Oickle, seconded by Mayor Lohnes-Croft, that the Board approve entering into a contract with Stevens Business Services Ltd to retain an interim controller, at a cost not to exceed $42,000 including HST, to fulfill the financial duties of the Director of Finance and Corporate Services until the position can be staffed and work can be transitioned to the new Director. Carried.

7.2 Municipal Government Act Section 22(2)(c) – Personnel Matters – Term Position – Information Management Specialist

Moved by Councillor McCarron Katherine, seconded by Mayor Lohnes-Croft, that the Board approve a three-month term position of the Information Management Specialist to complete the Document Management Initiative. Carried.

8. **ADJOURNMENT**

There being no further business at 7:32 pm., the meeting was adjourned.

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MAYOR MITCHELL, CHAIR JILL RAFUSE, COO

To: Municipal Joint Services Board
From: Gabe Welsh
Date: April 22nd, 2026
Subject: Agenda Item 4.1 Memo – Customer Account Policy

DECISION X **DIRECTION** **INFORMATION**

RECOMMENDATION / MOTION

That the Board approve the attached Customer Account Policy with an effective date of May 1st, 2026 and to repeal the existing Credit Sale Policy and Revenue Collection Policy.

BACKGROUND

South Shore Waste Solutions utilizes two policies currently to set up and administer customer accounts at the waste site, the Credit Sale Policy and the Revenue Collection Policy. Both came into effect May 23rd, 2014 and have not been reviewed or updated since.

With the implementation of the new scale software, MJSB will be able to enforce credit limits on accounts and improve the tracking of the status of accounts. While reviewing the credit limits it was discovered that other significant changes are required to these policies to reflect current operational realities and best practices.

ANALYSIS

The current Credit Sale Policy and Revenue Collection Policy are outdated. The table below shows the updates.

Key Elements	Current Policies	New Policy
Credit Approvals	All by COO	Delegations to finance staff and Director Finance and Corporate Services to accelerate account creation
Basis of Credit Approval	Undefined	Defined

Key Elements		Current Policies	New Policy
Credit Limits	Individual customer, small business	$500	Established based on customers: - Operational need - Payment history and demonstrated creditworthiness - Anticipated usage within a standard billing cycle considering frequency of use, estimated volume and material type, and applicable tipping fees
	Major Commercial Entities	$3500	
	Emergency Credit	$5000	
	Maximum	$5000	
Collections Procedures		Defined but missing clarity around partial payments and escalation. Conflicting text between policies.	Added clauses for partial payment, improved clarity around escalation, included option for payment arrangements to be approved by COO.
Credit Privilege Reinstatement		Undefined	Defined
Confidentiality/Privacy Statement		None	Included
Dispute Resolution		None	Included

While it has been rare for MJSB to experience overdue accounts and disputes, having a renewed policy framework should provide additional clarity for all parties about expectations and how to manage the customer accounts.

FINANCIAL IMPLICATIONS

The implementation of the new Customer Account Policy has several financial implications that strengthen the MJSB's overall financial position. By requiring verified creditworthiness before extending credit, the policy reduces exposure to high-risk

customers and lowers the likelihood of uncollectible accounts. This directly supports more predictable cash flow and reduces the need for write-offs.

The policy's structured 30-60-90 day collections process ensures that overdue accounts are identified and addressed earlier, improving the timeliness of revenue collection. More consistent follow-up reduces aging in accounts receivable and helps maintain liquidity for operational needs. The clear consequences for delinquency—including suspension of credit and site access—provide stronger leverage to recover outstanding balances.

Interest charges on overdue accounts create an additional financial safeguard. While interest revenue is not expected to be a major income source, it compensates the MJSB for the cost of carrying overdue balances and encourages timely payment. The authority to waive interest only in cases of administrative error ensures fairness without undermining the deterrent effect.

By eliminating advance credits and security deposits, the policy simplifies financial administration and reduces the risk of holding funds that must later be reconciled or refunded. This reduces staff workload and minimizes the potential for accounting errors.

Overall, the policy is expected to reduce financial risk, improve cash flow stability, strengthen revenue recovery, and decrease administrative inefficiencies, all of which contribute to a more financially resilient organization.

CONCLUSION / NEXT STEPS

If/when the Board approves the new Customer Account Policy, existing customer account holders would be provided with a copy of the updated policy with a letter advising them that it comes into effect on May 1st, 2026. Customers with accounts without activity since April 1st, 2025 will be advised that their accounts will be closed, unless they contact the MJSB. Customer accounts with annual balances of less than $500 will be reviewed and customers may be contacted to confirm the ongoing need for the account.

ATTACHMENTS

Customer Account Policy – New
Credit Sale Policy – to be repealed
Revenue Collection Policy – to be repealed

Municipal Joint Services Board

Customer Account Policy

	NAME	TITLE	SIGNATURE	DATE
Author	Gabe Welsh	Director, Waste Management Services		
Reviewer	Sandy Stevens Tamara Fraser Jim Gomm	Interim Controller Accounts Payable Clerk Site Manager, Operations		
Authoriser	Jill Rafuse	MJSB Chief Operating Officer		
Board Approval				

Effective Date:	**May 1st, 2026**
Review Date:	

1. Effective Date

This policy takes effect on May 1st, 2026. This policy replaces the following:

- MJSB 02 – Credit Sales Policy
- MJSB 04 – Revenue Collection Policy

2. Purpose

This policy establishes the principles, authority, and framework governing the extension of credit and the management of customer accounts to ensure consistent, fair, and financially responsible practices that protect public resources while supporting access to MJSB services.

3. Scope

This policy applies to all individuals, businesses, and organizations that hold, or apply for, an MJSB customer credit account.

4. Guiding principles

MJSB administers customer accounts in accordance with the following principles:

Accountability: Credit decisions are documented, authorized, and aligned with delegated authority.

Consistency: Credit terms, enforcement, and hardship considerations are applied uniformly.

Risk Management: Financial exposure is controlled through defined limits, monitoring, and timely intervention.

Transparency: Customers are informed of terms, expectations, and consequences of non-payment.

Timeliness: Accounts are monitored proactively and overdue balances addressed promptly.

Respect and Privacy: Interactions are professional and personal information is protected in accordance with legislation.

5. Policy Statement

MJSB may extend credit to customers as a convenience to support access to services. Credit is discretionary, not an entitlement, and is subject to the credit terms, billing requirements, approval authorities, and enforcement measures established under this policy.

All customers are expected to pay invoices in accordance with approved billing terms. Failure to comply may result in interest charges, suspension or revocation of credit privileges, restriction of access to services, and escalation to collection or legal action, as appropriate.

Credit limits, billing and payment terms, collection timeframes, approval authorities, and reinstatement conditions set out in Section 6 form an integral and enforceable part of this policy.

This policy is applied consistently and independently of elected officials. Authority for credit decisions, enforcement actions, exceptions, and collection activities rests solely with MJSB staff in accordance with delegated authority and this policy.

6. Policy Requirements

The following requirements apply to all MJSB customer credit accounts and form an integral part of this policy.

6.1. Credit Eligibility and Limits

Credit limits for MJSB credit accounts are established by MJSB based on a customer's:

- Operational need
- Anticipated usage within a standard billing cycle considering frequency of use, estimated volume and material type, and applicable tipping fees
- Payment history and demonstrated creditworthiness

Customers may request a credit limit, however, all credit limits are discretionary and are subject to MJSB approval, adjustment, reduction, or denial. Approval within a typical range is not guaranteed. The minimum credit limit is $500.

Typical Credit Limit Ranges

Typical Monthly Usage Pattern	Examples	Typical Credit Limit
Occasional	A few loads per month, infrequent residential, commercial or small business use	$500 to $1,000
Regular	Weekly or periodic use; small contractors or businesses with steady activity.	Up to $5,000
Frequent	Daily or near daily use; contractors or licensed haulers	Up to $20,000
High Volume	Regular route collections, municipal or inter-municipal partners. Typically established through agreements or contracts.	>$20,000

Emergency Credit may be approved by the Chief Operating Officer (COO), or designate, where operationally necessary and for a defined duration.

6.2. Credit Assessment

All credit applications are subject to review and verification.

Reference checks may be required for new applicants.

For new businesses or higher-risk accounts, a personal guarantee may be required.

Credit check and trade references may be required for credit limits exceeding $5,000.

Security deposits are not accepted.

6.3. Credit Approval Authority

Credit approvals and exceptions are subject to MJSB delegated authority as follows:

Role	Approval Authority
Finance and Administration Staff	< $1,000
Director Finance and Corporate Services	< $ 20,000
Chief Operating Officer	> $20,000 Plus all contractor/partner accounts, exceptions and emergency credit requests

High-risk credit approvals are subject to escalation in accordance with delegated authority levels.

Approval thresholds will be reviewed periodically by the COO and adjusted through administrative directive from the MJSB Board as required, without requiring full policy amendment

6.4. Billing and Payment Terms

Invoices are issued every two weeks unless stipulated in an agreement or contract between the customer and MJSB. Standard payment terms are Net 30 days from the invoice date.

Interest on overdue balances is applied in accordance with the Interest Act to recover the cost of carrying unpaid receivables. The current annual rate is 12.68%, calculated at 1% per month and compounded monthly. The Director Finance and Corporate Services may waive interest where billing errors or administrative delays have occurred.

Payments must correspond to issued invoices.

Overpayments will be applied to outstanding account balances.

6.5. Monitoring, Collection and Enforcement

Customer accounts are monitored on an ongoing basis.

Non-compliance with payment terms may result in progressive enforcement actions, including interest charges, suspension or revocation of credit privileges, restriction of access to services, and escalation to external collections or legal action.

A consistent collections framework is applied, generally escalating at 30, 60, and 90 days overdue. Partial payments do not alter overdue status unless an approved payment arrangement is in place. The Finance and Administration staff will pursue collections in the following stages:

Timeline	Action Required	Partial Payments	Consequences
30 Days Overdue	Finance & Administration staff initiate follow-up by telephone, email, or letter.	Partial payments are accepted but do not change the account's overdue status. Interest	Customer is advised that failure to pay may result in suspension of credit privileges at 60 days overdue.

Timeline	Action Required	Partial Payments	Consequences
	Customer is reminded of outstanding balance, interest charges, and payment expectations.	continues to accrue on the unpaid balance.	
60 Days Overdue	Account is escalated to the Accountant or Director Finance and Corporate Services. A formal written notice is issued requiring immediate payment and outlining next steps.	Partial payments may be accepted but do not prevent suspension of the credit account. Account remains in collections status until paid in full.	Credit privileges are suspended. Customer may be restricted to cash/debit terms. Access to MJSB sites or services may be suspended depending on operational requirements.
90 Days Overdue	A final demand letter is issued by the COO or designate. Customer is given a final deadline for payment. If unpaid, the account is referred to a third-party collection agency or legal action (e.g., Small Claims Court).	Partial payments do not stop external collection action unless a payment arrangement is approved by the COO.	Account is classified as delinquent. All credit privileges are revoked. Customer may be restricted to cash/debit terms. Access to MJSB sites or services may be suspended depending on operational requirements. Account may be sent to collections, Small Claims, Court or legal proceedings.

6.6. Payment Arrangements and Hardship Consideration

In exceptional circumstances, short-term payment arrangements may be approved by the COO or designate. Hardship considerations are intended to support timely resolution while maintaining fairness to all customers and protecting public funds. Payment arrangements do not extend credit limits and do not constitute financial assistance.

6.7. Reinstatement of Credit Privileges

Suspended or revoked credit privileges may be reinstated only after all outstanding amounts have been paid in full, including principal, accrued interest, and any applicable collection or legal costs.

Reinstatement of credit privileges is not guaranteed. MJSB may require submission of a new credit application. Customers with a history of chronic delinquency or persistent default may be permanently restricted to cash or debit payment terms.

6.8. Dispute Resolution

Customers must contact the MJSB within 15 days of the invoice date to resolve disputes. Should the dispute not be resolved, the Customer must submit their formal dispute in writing to MJSB.

MJSB will acknowledge receipt of a formal dispute within five (5) business days and will review the invoice and supporting records and provide a written decision, including any adjustments, within twenty (20) business days.

Undisputed amounts remain payable under normal terms - only the disputed portion is placed on hold and interest does not accrue on the disputed amount during review.

Collections continue for undisputed overdue amounts and disputed amounts remain on hold until resolved.

Repeated unfounded disputes may result in suspension of the customer's account.

6.9. Write-Offs

Accounts may be recommended for write-off only after all reasonable collection efforts have been exhausted. Write-offs are an administrative accounting action and do not extinguish the underlying debt. Written-off accounts may continue to be pursued if new information becomes available or if collection becomes feasible in the future.

All write-offs require approval by the MJSB Board. Material or unusual write-offs will be reported to the Board as they occur, with summarized reporting of all write-offs to the Board at least annually for oversight and transparency.

6.10. Account Closure

Customers may request closure of their MJSB customer account by submitting a written notice to MJSB. The request must identify the account number and specify the intended closure date. Once the request is received, no new credit transactions may be incurred, although customers may continue to access services on a cash or debit basis.

MJSB will issue a final invoice within ten business days of receiving the closure request. The final invoice will include all outstanding charges up to the closure date, along with any applicable interest. The account will remain open until the final balance is paid in full. Partial payments do not constitute account closure, and standard payment terms continue to apply until the balance is settled.

If the final review results in an overpayment, a refund will be issued in accordance with the Refunds section of this policy. No advance credits will be held on closed accounts. Customers wishing to re-establish credit must submit a new credit application and meet all current creditworthiness requirements.

MJSB may close accounts that were inactive in the previous 12-month period or when the annual volume is less than $500. Customers will be provided with written notification 30 days prior to account closure.

6.11. Privacy and Information Protection

Personal information is collected, used, disclosed, and safeguarded in accordance with the Freedom of Information and Protection of Privacy Act and related legislation. Information collected is limited to what is necessary to administer customer accounts and assess creditworthiness.

The MJSB will obtain the customer's written consent before conducting any credit checks, contacting financial institutions or trade references.

Personal information will be used only for the purpose for which it was collected, disclosed only as authorized by law or with the individual's consent, stored and accessed within Canada, unless permitted by regulation under the Act.

The MJSB will take reasonable administrative, technical, and physical measures to protect personal information against unauthorized access, use, disclosure, or loss.

If a privacy breach occurs that poses a significant risk of harm, the MJSB will notify the affected customer and the Information and Privacy Commissioner as required under the Act.

7. Roles and Responsibilities

The following roles and responsibilities outline the authority, duties, and accountability of staff involved in administering credit, billing, and collections under this policy.

7.1. Customers

Customers are responsible for:

- Providing accurate, complete, and truthful information when applying for credit
- Notifying MJSB of any changes that may affect their account
- Advising MJSB of any changes in ownership
- Reviewing invoices promptly and ensuring payments are made by the due date
- Communicating early if temporary hardship may affect their ability to pay
- Complying with all credit terms and approved payment arrangements
- Responding to requests for information in a timely manner
- Submitting personal information voluntarily for the purpose of administering their account

7.2. Finance and Administration Staff

Finance & Administration staff are responsible for:

- Receiving and processing customer credit applications
- Conducting credit, reference and verification checks, as required
- Issuing invoices and applying payments accurately and promptly
- Monitoring accounts receivable and identifying overdue accounts
- Initiating follow-up in accordance with the 30-60-90 day collections framework

- Preparing documentation for escalated collection, legal, or write-off actions
- Maintaining accurate, complete, and secure customer account records
- Ensuring personal information is handled in compliance with privacy legislation
- Issuing final invoices upon account closure
- Processing refunds in accordance with policy
- Providing customers with timely and accurate information regarding account status

7.3. Director Finance and Corporate Services

The Director, Finance & Corporate Services is responsible for:

- Overseeing the implementation and ongoing administration of the Customer Account Policy
- Ensuring credit assessments, billing practices, and collection activities are applied consistently and in accordance with policy
- Reviewing escalated credit applications, high-value credit limit requests, and complex account issues prior to referral to the COO
- Monitoring accounts receivable aging and identifying emerging financial risks
- Ensuring appropriate and timely follow-up actions are taken to address overdue or high-risk accounts
- Ensuring compliance with privacy legislation related to the collection, use, and storage of personal and financial information

7.4. Chief Operating Officer (COO)

The Chief Operating Officer (COO) is responsible for:

- Exercising overall authority for the administration of customer credit
- Suspending, reinstating, denying, or revoking credit based on financial risk
- Ensuring credit practices align with organizational risk tolerance, policy, and legislation
- Managing escalated collection issues and approving exceptional payment arrangements

- Authorizing referral of delinquent accounts to external collections or legal action
- Reviewing accounts proposed for write-off and confirming all reasonable collection efforts have been completed. Presenting recommended write-offs to the MJSB Board for final approval in line with governance and legislative requirements

7.5. MJSB Board

The MJSB Board of Directors is responsible for:

- Providing oversight of the credit and collections framework to ensure alignment with financial policies, organizational risk tolerance, and legislative obligations
- Approving credit-related policies and delegating appropriate authority to the Chief Operating Officer
- Reviewing and approving high-value or exceptional write-off requests
- Receiving regular reports on accounts receivable performance, delinquency trends, and write-off activity to support informed governance and financial stewardship
- Ensuring that credit practices are transparent, equitable, and consistent with the Municipal Government Act and applicable privacy legislation

8. Compliance, Enforcement, and Exceptions

Non-compliance with payment terms may result in suspension of credit privileges, restriction of access to services, and escalation to collection or legal action. Exceptions must be approved by the COO or designate and documented.

9. References

Freedom of Information and Protection of Privacy Act (FOIPOP)

Bill 150 – Freedom of Information and Protection of Privacy Act

Municipal Government Act (MGA)

Limitation of Actions Act

Personal Information International Disclosure Protection Act (PIIDPA)

Small Claims Court Act

Collection Agencies Act

Appendix A- Definitions

Account in Good Standing - An account where all invoices are paid by the due date, no payment arrangements are in default, and no collection actions are underway.

Account Suspension - A temporary restriction that prevents a customer from incurring new charges on credit due to non-payment, policy violations, or financial risk concerns.

Credit Limit - The maximum dollar amount of credit approved for a customer, as determined by the COO based on verified creditworthiness and organizational risk tolerance.

Creditworthiness - A customer's demonstrated ability and reliability to meet financial obligations within agreed-upon terms. It is assessed using objective financial and behavioural indicators, which may include:

- Verified identity and business information
- Payment history with the MJSB
- Trade or bank references
- Credit bureau information (where applicable)
- Financial stability indicators (e.g., ability to generate revenue, absence of outstanding judgments)
- Length of time in business or relationship with the MJSB
- Evidence of operational need and capacity to pay

A customer is considered creditworthy when the available information indicates a low risk of non-payment and supports the extension of credit in a responsible and consistent manner.

Credit Account - An account established by the MJSB that allows a customer to receive services or materials and pay for them at a later date under approved credit terms.

Delinquent Account -A credit account with an outstanding balance that remains unpaid 90 days past the invoice date or has been escalated to external collections or legal action.

Emergency Credit - Short-term credit extended outside normal limits or procedures to address an urgent operational need. Emergency credit requires approval by the COO or designate. Examples include: storm cleanup, infrastructure failure, emergency response.

Final Invoice - The last invoice issued to a customer upon account closure, including all outstanding charges, adjustments, and applicable interest.

Hardship Consideration - A temporary, time-limited payment arrangement approved in exceptional circumstances where a customer is experiencing unforeseen financial difficulty. Hardship considerations do not extend credit beyond approved limits and do not constitute financial assistance.

Interest Charges - Fees applied to overdue balances in accordance with the Interest Act (Canada) and this policy, intended to compensate the organization for the cost of carrying unpaid receivables.

Major Commercial Entity - A business, contractor, or organization with significant operational activity, service volume, or financial capacity that may warrant higher credit limits based on assessed creditworthiness and operational need.

Persistent Default - A pattern of repeated late payments, partial payments, or failure to meet agreed-upon payment terms, resulting in ongoing overdue balances or repeated collection interventions.

Payment Arrangement - A short-term, documented agreement that outlines revised payment timelines for an outstanding balance. Payment arrangements do not alter the customer's credit limit and must be approved by the COO or designate.

Site Access - The ability of a customer to enter or use MJSB facilities, services, or disposal sites. When access is suspended, the customer is prohibited from using MJSB sites until the outstanding balance is paid in full or credit privileges are reinstated.

Write-Off An administrative action that removes an uncollectible amount from active accounts receivable for financial reporting purposes. A write-off does not eliminate the customer's obligation to pay.

Uncollectible Account An account where all reasonable collection efforts have been exhausted and recovery is unlikely without disproportionate cost or risk.

Appendix B- Version Control

Version	Approved Date	Approved by	Key Changes
1	May 23rd, 2014	MJSB COO & Board Chair	
2	May 1st, 2026	MJSB COO, Jill Rafuse & Board Chair, Mayor David Mitchell	• Credit limits • Delegations for credit approvals • Basis for credit approvals • Collections procedures • Credit privilege reinstatement • Confidentiality/privacy statement • Dispute resolution • Clear roles and responsibilities

MUNICIPAL JOINT SERIVES BOARD, LUNENBURG REGION
POLICY MJSB – 02
CREDIT SALES POLICY

Introduction

The proposed Policy provides basic guidelines to the MJSB Finance and Administration personnel with respect to the set-up of a customer's credit account. New customers are eligible to apply for a credit account with the Municipal Joint Services Board to a limit of $500. For major commercial entities or contractors, the limit may be increased to $3,500.

Existing customers with excellent credit history may apply for an increase in the credit limit for special projects or commercial activities. All applications for credit accounts are subject to reference checks. Credit applications for more than $3,500 limit are subject to trade and bank reference checks. In some cases, a guarantee by the customers' financial institution may be considered.

General Policy Application

1. New customers requesting a credit account with the MJSB must complete a credit application form which authorized staff of the MJSB can access the customer's trade and financial information.

2. The Chief Operating Officer may authorize additional credit, as appropriate, to existing customers in good standing, after a positive review of the customer's credit worthiness.

3. Emergency credit, as appropriate, can be approved by the Chief Operating Officer for a maximum of $5,000, providing that a written personal guarantee for all charges is provided by the principal operator(s).

4. Interest will be charged similar to the prevailing rate charged by the MJSB (1% per month or 12.68 % per annum, compounded monthly) on the overdue account as per Section I of the MJSB Policy MJSB – 04.

5. Credit Applications are subject to reference checks as per Section I, III and IV of the application if credit limit is $500. For credit up to $3,500 Sections I, II, III, and IV of the application must be completed and reviewed by the Chief Operating Officer.

6. Collection Procedures on past due accounts

- 30 days overdue: Collection letter – customers with accounts one month in arrears will receive a **warning letter** notifying them that accounts in arrears for over 60 days will be suspended from dumping at the site and/or be suspended from their direct haul privileges.

- 60 days overdue: Follow-up **telephone calls and second warning letter** to customers with accounts two months in arrears.
- Customers with accounts 60 days overdue will have their credit suspended and will not have access to the Waste Site until their account is paid in full. Customers will be placed on cash basis thereafter.
- More than 90 days overdue: **Legal action** including Small Claims Court for customers with accounts three months in arrears. **Collection agencies** will be used where appropriate.

7. All other sales will be on a cash (or debit) basis. The site does not accept personal cheques.

Date of Approval by the Municipal Joint Services Board: May 23, 2014

Policy Effective Date : May 23, 2014

CHIEF OPERATING OFFICER

CHAIR

MUNICIPAL JOINT SERVICES BOARD LUNENBURG REGION
REVENUE COLLECTION POLICY
POLICY NO. MJSB - 04

Introduction

This policy is designed to provide a consistent approach with respect to Revenue Collection by the Finance and Admin division of the Municipal Joint Services Board (MJSB). The purpose of the Revenue Collection Policy is to provide equitable, fair and executable guidelines in the administration of accounts collection on behalf of the MJSB.

The policy applies to all individuals, businesses and organizations that have an amount owing on account to the MJSB. The procedures are designed to allow Finance and Administration to uniformly and fairly apply the provisions of the policy.

Interest

1. The Municipal Joint Services Board will apply an annual interest charge of 12.68% per annum (compounded monthly) to outstanding accounts.
2. Interest charges on an account may be relieved by the Chief Operating Officer if it is determined that insufficient support for the billing or insufficient follow up by staff has resulted in undue interest charges.
3. Where the Accountant determines that both the customer and staff may be jointly responsible for delays in billing, or in providing appropriate details to support or refute the billing or for lack of timely follow up, the Chief Operating Officer may grant partial interest relief on an account up to the applicable spending authorization limit.

Refunds

1. Payments received in error or paid in excess of the invoice total will be refunded to the payer by cheque or applied as a credit to the account.
2. No refunds will be made by cash, credit or debit cards. Refunds will not be made if invoices are outstanding on the account; however, reduction of the amount owing the account will be applied.
3. No adjustments to accounts can be made, except as outlined above by any staff member unless where there was an error in the original billing and corresponding approval by appropriate managerial levels of staff involved is provided.

Guiding Principles

The following principles will guide the collection practices of the Municipal Joint Services Board:

(a) To ensure all customers are treated uniformly and fair;
(b) To clearly articulate the guidelines staff will apply in the collection process;
(c) To follow through with necessary action upon default in keeping with the policy;
(d) To work with customers in need of financial aid due to unforeseen circumstance and to ensure that the agreed payment plan is beneficial to both the MJSB and the customer;
(e) To be respectful and consistent in all cases; and
(f) Staff will ensure they comply with Protection of Privacy Legislation and maintain a high level of integrity of the collection process.

General Revenues

The billing cycle for the MJSB is Net 30 days, that is, the due date is 30 days from date of billing. Any unpaid invoices beyond 30 days will be subject to late payment charges of 1% per month or 12.68% annually, compounded monthly.

Collection Procedures

1. Invoices will be sent bi-weekly showing the account status.
2. Payment of invoiced charges will be due 30 days from the invoice date.
3. Statements will be provided to all customers with current and outstanding balances.
4. Phone contact will be provided to accounts with 60 day overdue balance.

Overdue Account Collection Procedures

1. When accounts have gone past the due date of Net 30, the Accounting staff or designate shall follow up with a phone call.
2. The Accounting Staff and/or designate will pursue collection and follow up in the most cost and time efficient manner, including but not limited to, telephoning, electronic mail and postal mail, until the account overdue status reaches 60 days or until the account becomes current.
3. After 60 days any persistently overdue accounts will be turned over to the Accountant and more serious action will be taken to collect, including:
    1) Requiring a payment arrangement;
    2) A refusal to do further business; credit account is suspended and customer will not have access to the Site until the balance in account is paid in full.
    3) Advising the customers of a collection assignment to a collection agency or a legal action which could be taken through small claims court action;

4) Where internal collection efforts have not been successful, the account will be turned over to the Chief Operating Officer and/or third party collection agency, contracted by the Municipal Joint Services Board.

4. Accounts which have been persistently overdue despite the efforts of the Accounts Receivable and Accountant will be taken to the Chief Operating Officer or designate to review collection efforts.
5. The Chief Operating Officer will present a list to the Municipal Joint Services Board of outstanding accounts, for which collection efforts have failed (e.g. customers are in bankruptcy protection), for final review and authorization to formally write the accounts off. This list will include all accounts written off during the specified time period.
6. No accounts will be sent to write off unless all efforts have been exhausted in its collection and will only be so sent to the Chief Operating Officer or designate after recommendation of supervisor and/or manager.
7. Only the Municipal Joint Services Board can approve final write off of any revenue account. Such write off reports will be provided not less than once per year.
8. Records will be maintained for those accounts that have been written off. Should any customer who has had funds previously written off wish to establish an account with the Municipal Joint Services Board, he/she will be required to reimburse the Municipal Joint Services Board funds that were previously written off and granting credit will be conditional upon the completion of a successful third party credit check with the associated fees.

Date of Approval by the Municipal Joint Services Board: May 23, 2014

Policy Effective Date : May 23, 2014

CHIEF OPERATING OFFICER

CHAIR

To: Municipal Joint Services Board
From: Mark Dauphinee
Date: April 22, 2026
Subject: Agenda Item 4.2.- 2025 Annual Hydrogeological Assessment Report

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DECISION		DIRECTION		INFORMATION	x

RECOMMENDATION / MOTION

That the Board accept the 2025 Annual Hydrogeological Assessment Report for informational purposes.

BACKGROUND

As a component of our approved Environmental Management Plan (EMP), South Shore Waste Solutions (SSWS) has an annual hydrogeological assessment completed by a Qualified Person as recognized by Nova Scotia Environment and Climate Change (NSECC).

Fracflow Consultants Inc. has been completing our annual assessment since Tom Austin retired from Able Environmental. Staff are preparing a Request for Proposals this year for a 5-year agreement for these services.

ANALYSIS

There are no immediate concerns regarding impacts from the site.

Some surface water sampling indicates impacts from leachate mixing. Surface water impacts from leachate, at a closed landfill/active waste transfer site with a long and varied history like SSWS, are expected. There is no evidence that the site has exceeded the environments' natural ability to safely attenuate runoff.

Relatively minor impacts to groundwater quality, arising from mixing with leachate, were identified.

There were some minor discrepancies with the sampling and laboratory analysis completed in 2025. We are addressing these with the service providers to ensure accurate and complete analysis going forward.

FINANCIAL IMPLICATIONS

With the acceptance of the recommendations contained in this report by NSECC, some increased costs will be incurred to cover the additional recommended sampling. The approved FY26-27 Operating Budget includes $50,000 for the completion of the required site monitoring activities. This budget is increased from $40,000 last year to account for the cyclical nature of our sampling requirements as well as the anticipated expansion of sampling requirements.

ATTACHMENTS

2025 Annual Hydrogeological Report SWSS

Final Report

Annual (2025) Hydrogeological Assessment Report
South Shore Waste Solutions
Whynotts Settlement, NS

Prepared by:

Fracflow Consultants Inc.
2 Fielding Ave., Suite D
Dartmouth, NS
B3B 1E1

Submitted to:

Municipal Joint Services Board - Lunenburg Region
P.O. Box 209
131 North Street
Bridgewater, NS B4V 1B0

Professional Seal and Signature

File 817

February 18, 2026

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Executive Summary

Fracflow Consultants Inc. was contracted by the Municipal Joint Services Board (Lunenburg Region) to review the annual (2025) water sampling results, the annual aquatic invertebrate habitat assessment report, and prepare the annual hydrogeological assessment report for South Shore Waste Solutions (SSWS). The environmental monitoring program (EMP) was modified to meet the new requirements of the Solid Waste Management Facility (SWMF) Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal that were issued by Nova Scotia Environment and Climate Change (NSECC), in July 2023. The highlights from this year's activities are summarized below.

Surface Water Conditions

Chemical concentrations in surface water were compared with the guidelines for the protection of Freshwater Aquatic Life (FWAL). Total aluminum, total iron, total manganese, and nitrite were the most common parameters to exceed guideline values. Total arsenic, total boron, total chloride, total copper, nitrate, ammonia, pH and total zinc were elevated in local areas.

There were no petroleum hydrocarbons detected in any of the surface water samples that were analyzed. There were also no volatile organic compounds (VOCs) detected in any of the surface water samples that were analyzed, but not all of the organic chemicals listed under Column 3, Schedule 1, of the new guidelines were quantified by AGAT Laboratories.

The analysis of semi-volatile organic compounds (SVOCs) seeks to identify the presence of two groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All SVOC parameters that were analyzed by AGAT Laboratories were below their respective detection limits.

Surface water impacts from leachate, at a closed landfill/active waste transfer site with a long and varied history like at SSWS, were expected. It is arguably more important to know how the various chemical indicators like alkalinity, boron, chloride, and pH are trending over time at each sampling station, rather than point-in-time exceedances of FWAL guideline values. Time-series plots are presented for all surface water monitoring stations in this report. Runoff from the northwest side of the landfill contained relatively high boron at Station C1 (average 660 µg/L) and Station C2 (average 345 µg/L), suggesting the surface water is mixing with leachate at those

locations. The proportions of leachate that are mixing with surface water at those locations appears to be increasing.

The chemistry of surface water discharging from Storm Ponds SP1, SP2 and SP3 all appear to be controlled by mixing with leachate, from one or more sources, with the strongest impacts occurring at SP2. There was no active flow from any of the Storm Ponds during sampling in October 2025, however, deteriorating surface water quality at SP2 is a concern, if and when active discharge occurs during storm events.

Surface water in Covey Lake is now being monitored at its outflow, at Station C3A. Monitoring at other stations (C3, C4 and C5) that provided duplicate measurements of pond water quality have been suspended. Historical data from Station C3 has been combined with data from C3A to track the history of lake water chemistry. Major ion concentrations in water samples from Covey Lake indicate a chemically dilute surface water, and there is no evidence to suggest that the natural attenuation capacity of Covey Lake has been exceeded.

The chemistry of surface water in Wagners Brook also appears to show evidence of growing impacts from leachate, from one or more sources. At Station W2, concentrations of boron have increased from 88 µg/L in 2018, to 1,060 µg/L in 2025. The concentrations of chloride, nitrate, and nitrite exceeded FWAL guidelines and are also a concern at W2. At the time of sampling in October 2025, the measured flow rate was approximately 2,100 litres per minute, increasing to approximately 3,100 litres per minute downstream at Station W3. It will be difficult to judge the significance of the changes in water chemistry in Wagners Brook until more flow data are collected during future sampling events and correlated with water quality.

Groundwater Conditions

Trends in groundwater elevation presented in this report showed no significant changes at most monitoring wells since 2019, when the 3D numerical flow and transport model was constructed by Fracflow. It appears that the simulated hydraulic gradients and flow directions remain a valid representation of the average steady-state condition at this site. There are still a large number of wells that have yet to be trended and compared with model predictions, but that will happen when wells that are sampled every three years are sampled in 2026.

Inorganic chemical concentrations in groundwater were compared with the Canadian Drinking Water Quality (CDWQ) guidelines. Samples collected from monitoring wells MW4A, MW103,

and MW105 did not exceed any of the guideline values for the chemical parameters that were analyzed. Dissolved arsenic, dissolved manganese, nitrite, pH and/or total dissolved solids (TDS) were the only parameters to exceed guideline values in groundwater samples from monitoring wells MW104, MW106, MW107, MW112, MW123, MW212, MW213, MW6A, and MW6B. Note that TDS and total kjeldhal nitrogen (TKN) are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by AGAT Laboratories. Estimates of TDS were calculated by Fracflow and used for discussion purposes in this report.

Dissolved boron was 1,670 µg/L at MW106, and 4,560 µg/L at MW107. While both were below the CDWQ guideline value of 5,000 µg/L, the measured concentrations were substantially higher than the range of dissolved boron concentrations that were detected elsewhere in groundwater (73 µg/L to 499 µg/L). That suggests significant mixing with leachate, from one or more sources, at MW106 and MW107, which are part of well Cluster 2 at the northwest side of the closed landfill.

Groundwater samples were also analyzed for petroleum hydrocarbons, VOCs, and SVOCs. There were no petroleum hydrocarbons detected in any of the samples that were analyzed. There was a limited sample volume available from monitoring well MW6B, which limited the analysis to the volatile parameters of benzene, toluene, ethylbenzene, and xylenes (BTEX). Total extractable hydrocarbons (TEH) at MW6B were not determined.

VOCs were not encountered in groundwater samples during any of the historical sampling events and, for that reason, broad scans for VOCs are exempted from monitoring in groundwater under the current Approval. VOC analysis in groundwater was limited to the BTEX components from the petroleum hydrocarbon analysis. As noted above, there were none detected.

SVOC analysis identifies the presence of two groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All parameters that were analyzed by AGAT Laboratories were below detection limits, with one exception. The PAH compound naphthalene was detected at MW106 (1.94 µg/L), MW107 (1.51 µg/L), and MW213 (2.05 µg/L). Each of those wells are part of Cluster 2 at the northwest corner of the closed landfill. There are no guidelines for naphthalene specified in the Guidelines for Canadian Drinking Water Quality.

Relatively minor impacts to groundwater quality, arising from mixing with leachate, were identified at well Clusters 1, 8, 9 and 10. The most significant impacts exist in shallow groundwater at MW107, in Cluster 2. Alkalinity (average 663 mg/L), boron (average 2,576 µg/L), and chloride (average 161 mg/L) are relatively high in shallow groundwater at MW107. Each of those parameters increased in concentration from 2004 to 2012. After 2012, concentrations remained high and relatively stable, but some periods of significant dilution were noted. More chemical variability is observed at MW107, compared with MW106, because MW107 is a shallow water-table well and it is subject to sudden changes in chemistry associated with precipitation events. The overall chemical concentrations and trends at MW107 may be indicative of an advancing leachate plume that has stabilized, with short-term swings in concentrations related to periodic dilution during recharge events. It is also possible that groundwater quality at MW107 is being influenced by the application of biosolids, which are a source of boron.

Leachate Conditions

Monitoring well MW106 was selected as a proxy for identifying landfill leachate evolution and impacts across the site because it is the deeper of the two impacted wells at Cluster 2 and, therefore, is less susceptible to seasonal dilution, which otherwise masks the evolutionary signal. Alkalinity (average 513 mg/L), boron (average 1,171 µg/L), and chloride (average 92 mg/L) are relatively high in intermediate groundwater at that well location and each of those parameters increased in concentration from 2004 to 2016. Since 2016, concentrations peaked and remained relatively stable. The mixed fluids at MW106 have evolved from a low TDS, Ca-Na-HCO_3 type water to a relatively high TDS, Ca-Mg-Na-HCO_3 type water. Calcite reached its saturation level in 2010 and has likely been precipitating in groundwater in the area around MW106 up to and including 2025. The process of continued calcite precipitation would act to reduce soil permeability and migration rates in the local area.

Recommendations

Recommendations arising from the review of 2025 monitoring data are presented in Chapter 6 of this report. Those recommendations include:

- Efforts to improve the quality of field-measured water quality readings, especially in view of the large differences between field-measured and laboratory-measured values of specific conductance;

- Deletion of surface water Station CC6 as it provides a near-mirror image of water quality at C3A and is, therefore, considered redundant;

- Ensure that all chemical parameters for surface waters listed under Columns 2 and 3, Schedule 1, of the new guidelines are part of the laboratories analytical package. Verify that a complete and accurate analytical report has been provided by the laboratory before those samples in its custody exceed holding times. Volatile organic compounds (VOCs) that were not analyzed for surface water in 2025 included dichlorodifluoromethane (Freon 12), ethylene dibromide, hexane, methyl ethyl ketone (2-butanone), methyl isobutyl ketone, and methyl t-butyl ether (MTBE);

- An updated elevation survey for the monitoring well network is recommended in order to improve confidence in flow system mapping and inferences regarding the directions of plume movement. Steps have been taken by MJSB to undertake this work during the 2026-2027 fiscal year;

- Total dissolved solids (TDS) and total kjeldhal nitrogen (TKN) in groundwater samples are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by the laboratory. TDS was approximated by Fracflow for discussion purposes in this report. Ensure that all chemical parameters for groundwater listed under Columns 1 and 3, Schedule 1, of the new guidelines are part of the laboratories analytical package, and are quantified and reported before holding times are exceeded.

- Surface water quality in Storm Pond 2 (SP2) and Wagners Brook (W2) are of concern. MJSB should closely monitor the discharge from SP2 in 2026 and be prepared to sample for general chemistry, total metals, fecal coliform and measure flow rate, during storm events when active discharge occurs. At the same time, samples should be collected from Station W2 and flow rates should be measured. The goal should be to collect 3 to 4 samples of surface water from SP2 and W2 for analysis in 2026, and to measure the rate of discharge during each sampling event, so that flow and quality can be correlated at each station. Current concerns will be abated somewhat if there is an inverse correlation between flow and chemical concentrations, such that increased dilution occurs during periods of high runoff.

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1.0 INTRODUCTION

Fracflow Consultants Inc. was contracted by the Municipal Joint Services Board (Lunenburg Region) to review the annual (2025) water sampling results, the annual aquatic invertebrate habitat assessment report, and prepare the annual hydrogeological assessment report for the South Shore Waste Solutions (SSWS).

Surface water and groundwater monitoring is being completed in accordance with the Environmental Monitoring Program (EMP) that was developed by ABL (2016) and later revised based on consultation with Fracflow (2017, 2018, 2019, 2024, 2025). Sampling locations and sampling frequencies continue to follow the EMP, with the addition of new sites for monitoring benthic communities in surface water. A significant change adopted in 2025 is an expanded analytical program that was designed to comply with the *Solid Waste Management Facility Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal* (July, 2023). This annual report documents the scope of work, investigation methods, and results for 2025.

1.1 Site Location and Description

The SSWS is located in Whynotts Settlement, Lunenburg County, at 908 Mullock Road (PID no. 60245289) The general location map is presented in **Figure 1**, which can be found in **Appendix 1** along with all other figures referenced herein. A brief review of the landfill history and the geology and hydrogeology of the site is provided below for completeness.

1.1.1 Landfill Operations

The SSWS landfill is a first-generation, natural attenuation type landfill that was operated in tandem with a municipal waste incinerator facility for disposal of incinerator ash, and mixed, non-combustible municipal waste from the mid-1970s until 1995. The majority of that waste was disposed of in the central and eastern portions of the site. Completed landfill cells were covered with a capping layer of *in situ* silt/clay till with layer depth varying from 800 mm to 1500 mm, with the exception of one area adjacent to the former incinerator. That area had no clay cap and was covered with wood bark waste. The depth of wood bark waste was unknown, but assumed to

be greater than 800 mm. The incinerator was decommissioned in 1995 and replaced by a recyclable and compostable municipal waste processing facility.

Between 1995 and 2011, the landfill was used for disposal of residual waste from the recycling and composting facility, non-recyclable and compostable wastes from residential, commercial and industrial waste generators and residual construction and demolition wastes. During operations, daily landfill cover was provided by a polyethylene plastic film, held in place by both waste wood bark and chips, *in situ* excavated clay till and remediated soils from the contaminated soil pad.

The SSWS also handled white goods, wood, metal, drywall and asphalt shingles from construction and demolition waste. A household hazardous waste depot was operated at the facility five days per week, and there were isolated disposal cells used for burial of asbestos waste, and steel wire waste from the Michelin Tire factory. Hydrocarbon-contaminated soils were accepted and treated by open-air remediation on an unlined, dirt pad in the centre of the landfill. The SSWS site also included a septage waste treatment lagoon and septage sludge drying beds at the southeast corner of the site. Biosolids were used as a seeding base for the landfill caps and continue to be applied over the entire site.

The landfill is now closed and all areas have been graded and capped in accordance with approved procedures (ABL, 2014). The west side of the landfill was capped as part of the Phase 1 closure plan in 2010, while the central and eastern areas of the landfill were capped as part of the closure plan in 2013 (ABL, 2014). All cells were covered with a capping layer of locally-derived silt/clay till with layer depth varying from 800 mm to 1,500 mm.

1.1.2 Baseline Hydrogeology

The landfill was constructed on top of a drumlin, consisting of Lawrencetown clay till, which overlies a more sandy slate till. There is a surface water divide that runs across the site in a northwest-southeast direction (**Figure 1**). On the north side of that divide, surface water flows toward Covey Lake. On the south side, surface water flows into Wagner Brook and eventually into the LaHave River. The average direction of groundwater flow is expected to mimic the direction of surface water flow.

Results from the baseline drilling program (JWEL, 1987) showed that native materials in the central area of the landfill consisted of 3.6 m of dense to very dense brown silty sand and gravel till, overlying 4.7 m of very dense dark brown sandy silt till, followed by at least 7.3 m of hard, reddish brown clayey silt till. Occasional cobbles were encountered throughout the borehole. Borehole BH4, drilled in the southeast corner of the landfill, encountered only 9.3 m of till overlying grey, weathered slate bedrock of the Goldenville Formation. Seven boreholes were drilled in total during the baseline drilling program.

The site was originally described as having two and maybe three distinct 'aquifers'. The general characteristics of each 'aquifer', as reported by others, are summarized below. The Upper Aquifer was reported to consist of an unconfined, granular till and weathered portions of the lower silt till. The depth to water varied between 1.7 m and 4.0 m below ground surface. The horizontal hydraulic gradient varied between 0.07 and 0.12. The hydraulic conductivity (K) was reported to be 6.5×10^{-7} m/s (JWEL, 1987).

The Middle Aquifer was reported to consist of a confined, clayey silt till. The depth to water varied between 2.4 m and 13.4 m below ground surface. The horizontal hydraulic gradient varied between 0.08 and 0.13. The K values were reported to be between 6.5×10^{-8} m/s and 4.9×10^{-11} m/s (JWEL, 1987).

The Lower Aquifer was reported to consist of a confined, slate bedrock. The depth to water was 6.7 m. The horizontal hydraulic gradient was reported to be 0.1. The K value was reported to be 5.5×10^{-10} m/s (JWEL, 1987). In one well drilled by ADI Nolan Davis (1993), the bedrock consisted of a competent dark grey slate with minor interbeds of greywacke. Fracture planes were dipping at 60° to 75° from the core axis and the fracture spacing was typically measured to be between 100 mm and 150 mm.

Downward-directed vertical hydraulic gradients were measured in three nested wells (BH1, BH3 and BH6) during the baseline study (JWEL, 1987). Those vertical gradients were reported to be 0.25, 0.65 and 0.38, respectively.

1.1.3 Landfill Hydrogeology

Landfill operations increased the maximum height of land by approximately 15 m, raising the surface from about 91 m to 107 m. The mounding of fill and waste materials may also have

contributed to a subdued rise in the natural water table, depending on the relative permeability values in the vertical column. The permeability of the till has been altered significantly by burial of waste over an area of approximately 500 m × 700 m area, excavation of cover material from the site, and reworking of that material. Overall, there has probably been an increase in the lateral and vertical permeability of the native subsurface materials where they were reworked during landfill operations.

According to Acres International Limited (1992), the K values were reported to be in the 10^{-8} to 10^{-6} m/s range with one high result in the order of 10^{-4} m/s. The K values of the till and till/weathered slate were reported to be 2 x 10^{-7} m/s and 1 x 10^{-8} cm/s, respectively, which are significantly higher than reported in the baseline study. The report indicated that the permeability of the existing 'clay' cap was in the order of 1 x 10^{-7} m/s to 1 x 10^{-10} m/s. A conservative upper limit for the long-term leachate generation rate was reported to be in the order of 20 percent, or 300 mm per year, based on an average annual precipitation of 1,487 mm for Bridgewater when that work was done.

More recent hydrogeological work was completed over the western (Phase 1) area of the site by Strum (2011). The K value for native till at MW210 was calculated to be 8 × 10^{-9} m/s. The K value for fractured slate at MW213 was calculated to be 9.1 × 10^{-8} m/s. The depth to water in December 2010 varied between 2.85 m and 16 m below ground surface and the local direction of groundwater flow was determined to be toward the north-northeast. It is important to note that landfill gas influences caused extreme fluctuations in groundwater levels in some monitoring wells, especially at MW202 and MW204. In addition, it was noted that elevation data for the monitoring well network may not be accurate as a result of alterations to prevent and repair damage during capping activities in 2010.

1.2 Existing Facilities and Approvals

Surface water and groundwater monitoring is being conducted with reference to the site-specific terms and conditions of Approval No. 2010-071658-04 for Construction and Operation of the Municipal Solid Waste Landfill. Other Approvals that govern other aspects of site operations are as follows:

- Approval for Construction and Operation of a Compost Facility (2017-113159-00);

- Approval for Construction and Operation of a Household Hazardous Waste Depot (2005-045516-02);
- Approval for Construction and Operation of a Municipal Septage, Treatment and Disposal Facility (2010-074001-02); and
- Approval for Construction and Operation of a Waste Transfer Facility (2005-049876-R05).

1.3 Application for Amendment to the Monitoring Program

Until the end of 2024, MJSB (Lunenburg Region) was monitoring in accordance with a revised Environmental Monitoring Program (EMP) that was submitted to NSECC in 2019. The following summarizes the former EMP (ABL, 2023):

- Monitoring of groundwater at thirty-one locations in Areas of High Concern annually (5 wells), Areas of Moderate Concern once every two years (9 wells), and Areas of Low Concern once every three years (17 wells).

- Chemical analysis of groundwater samples in accordance with the Municipal Solid Waste Guidelines except VOCs, which have never been detected in groundwater from any well. VOCs were removed from the monitoring requirement in the 2016 EMP.

- Annual sampling of surface waters in accordance with the Municipal Solid Waste Guidelines. Note that the Approval required semi-annual sampling of surface water stations (13), once for the list of indicator parameters and once for the list of comprehensive parameters.

Fracflow compared the scope of the current monitoring programs for the Landfill and C&D site with the new Solid Waste Management Facility (SWMF) Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal, as issued by NSECC in July 2023. The Approval Holder, MJSB (Lunenburg Region) was required to evaluate its monitoring program and advise of any changes that may be required to comply with the new guidelines by September 4, 2024. Fracflow worked with MJSB to develop a list of proposed amendments to ensure compliance with the new guidelines. The proposed amendments along with other supporting information were submitted to NSECC, by MJSB, in December 2024. Changes to the monitoring program were reviewed and approved by NSECC, in an email authorization from

Environment Inspector Jesse McLean, to the Environmental Services Supervisor for SSWS, Mark Dauphinee, dated September 16, 2025.

Sampling locations and sampling frequencies continue to follow the EMP, with the addition of new sites for monitoring benthic communities in surface water. An expanded analytical program was adopted in 2025, to comply with the new guidelines, and those changes are summarized below.

Changes to the Groundwater Monitoring Program

The scope of the analytical program for groundwater was expanded to include the following:

- Full list of general chemistry and metals parameters as required under Column 1 of Schedule 1 of the new guidelines, for an annual event;
- Petroleum hydrocarbons as required under Column 3 of Schedule 1 for an annual event;
- Groundwater is exempt from any broad volatile organic compound (VOC) scans because VOCs were not encountered in historical sampling events. VOC analysis is limited to the volatile fractions that are associated with petroleum hydrocarbons; and
- Semi-volatile organic compounds (SVOCs), which includes polycyclic aromatic hydrocarbons (PAHs) and chlorophenols as listed under Column 3 of Schedule 1 for an annual event.

Changes to the Surface Water Monitoring Program

The scope of the analytical program for surface water was expanded to include the following:

- Full list of general chemistry and metals parameters as required under Column 2 of Schedule 1 for semi-annual sampling (sampling was limited to an annual event in 2025);
- Petroleum hydrocarbons as required under Column 3 of Schedule 1 for an annual event;
- A complete VOC scan as required under Column 3 of Schedule 1 for an annual event; and

- Semi-volatile organic compounds (SVOCs), which includes polycyclic aromatic hydrocarbons (PAHs) and chlorophenols as listed under Column 3 of Schedule 1 for an annual event.

Changes to the Leachate Monitoring Program

There are no locations designated for leachate sampling at this site. However, monitoring well MW106 was selected by Fracflow as a proxy for identifying leachate evolution and impacts across the site. Samples from this well were analyzed for the same parameters as surface water, which is Column 2 and 3 of Schedule 1 in the new guidelines. Monitoring well MW106 is the well of intermediate depth in Cluster 2 and, therefore, is less susceptible to seasonal dilution than shallow well MW107, which would otherwise mask the evolutionary signal of leachate.

1.4 General Scope of Work

All field sampling was conducted by a former MJSB (Lunenburg Region) employee who is retained under a separate contract to conduct the required monitoring. The general scope of work that was completed in 2025 consisted of the activities described below.

- Inspected thirteen (13) monitoring wells and measured water levels in all wells that were not dry. All well locations are shown in **Figure 2**.

- Purged and sampled four of five wells in the Areas of High Concern (MW106, MW107, MW211, MW213 - MW212 excluded), plus all nine monitoring wells in the Areas of Moderate Concern (MW4A, MW4B, MW103, MW112, MW123, MW6A, MW6B, MW104 and MW105). Groundwater samples were submitted to AGAT Laboratories for chemical analyses. Analytical results for groundwater samples were compared with the Canadian Drinking Water Quality (CDWQ) guidelines.

- Inspected eleven surface water monitoring stations, collected samples from the ten stations that were flowing (W1 was dry) and submitted those samples to AGAT Laboratories for chemical analyses. Analytical results for the surface water samples were compared with the guidelines for the protection of Freshwater Aquatic Life (FWAL). All past and current surface water monitoring stations are shown in **Figure 3**.

- Stream flows at actively flowing surface water stations were estimated by measuring the width and depth of the stream channel and tracking the time for a floating object to travel a measured distance downstream.

- Compiled all data for presentation in the required format and submitted this report to MJSB (Lunenburg Region), in draft and final form.

1.5 Statement of Limitations

This hydrogeological assessment was conducted by Glenn Bursey, M.Sc., P.Geo. Glenn is a Senior Hydrogeologist and Principal of Fracflow Consultants Inc. and a Qualified Person recognized by NSECC. He has 35 years of post-graduate consulting experience, he is a registered Professional Geoscientist with the Association of Professional Geoscientists of Nova Scotia and a Certified Environmental Site Assessor with the Auditing Association of Canada.

The findings and conclusions presented in this report are based exclusively on the observations and physical/chemical data for the locations tested. Fracflow did not participate in the sampling campaigns and has relied on MJSB (Lunenburg Region) to provide a valid dataset for this report.

One limitation on the interpretations of groundwater flow and plume movement relates to accuracy of the reference elevations for the various monitoring wells. It is expected that the reported survey elevations have changed since the landfill was capped and closed. An updated survey is recommended in order to improve confidence in the flow system configuration and directions of plume movement. MJSB (Lunenburg Region) prepared a scope of work and has obtained a quote from Berrigan Surveys Limited. The survey is expected to be completed in the 2026-2027 fiscal year.

The reader should understand that subsurface conditions can vary in time and space, at and between the various sampling locations. The findings and conclusions presented in this report are probabilities based on available facts, inferences and opinions and reflect professional judgement of the significance of data gathered during the course of this assessment. Notwithstanding the foregoing limitations, this report is believed to provide a reasonable representation of current conditions at the SSWS.

Information contained in this report is part of Fracflow's instruments of service. Such information shall not be used for any purpose other than for matters related to this project. Any other use, reuse or modification of this document without Fracflow's prior written consent will be at the recipient's sole risk and without liability or legal exposure to Fracflow.

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2.0 FIELD METHODS AND MEASUREMENTS

Field methods that were used to collect water samples from surface water stations and monitoring wells in 2025, along with field-recorded observations and measurements, are described below.

2.1 Surface Water Sampling

Surface water stations C1, C2, C3A, CC6, CC7, SP1, SP2, SP3, W1, W2 and W3 were inspected on October 28, 2025. All stations were sampled except for station W1, which was dry and unable to be sampled. The locations of former and active sampling stations are shown in **Figure 3**.

2.1.1 Estimates of Flow

The flow rate of a water course can have a significant bearing on the colour, turbidity and chemical concentrations in surface water. A dilution effect is normally experienced in spring and fall, and chemical concentrations tend to increase as baseflow (i.e., low flow) conditions develop in summer and winter. It is, therefore, important to consider the flow rate at each sampling station when interpreting water quality data, but that activity was not part of previous sampling campaigns.

Fracflow prefers to use a flow probe when conditions permit, but a reasonably good estimate can be derived by measuring the width of the stream, depth of water and the time for a floating object to travel a known distance down the stream. Alternatively, a rough approximation of flow can be visually derived by experienced field staff.

Estimates of flow were recorded by MJSB (Lunenburg Region) during the October 2025 sampling event. Stream width and depth were measured, and the transit time for a floating object through a measured channel length was recorded. Flow rates varied from a minimum of 387 Lpm at Station C1 to a maximum of 4,955 at Station CC7. There was no active discharge occurring at any of the three Storm Ponds. All measured flow rates are reported in **Table 1**.

2.1.2 Water Quality Readings

Temperature, pH, specific conductance, and dissolved oxygen concentrations were recorded using field-portable, calibrated, water quality instruments. Field-measured values are reported in **Table 1**.

2.1.3 Sample Collection and Handling

All surface water stations were inspected on October 28, 2025. All samples of surface water were placed in bottles supplied by AGAT Laboratories. The sampling technician wore disposable nitrile gloves during sample collection. All samples were labeled in the field and placed in chilled coolers for transport to AGAT. Chain-of-custody forms were completed and submitted to the laboratory, specifying the chemical analyses required for each sampling event.

2.2 Groundwater Sampling

All monitoring wells were inspected on October 1, 2025 and groundwater samples were collected from eleven monitoring wells on that date. Monitoring Wells that were sampled were limited to five wells in the Areas of High Concern (MW106, MW107, MW211, MW213), and nine wells in Areas of Moderate Concern (MW4A, MW4B, MW112, MW103, MW123, MW6A, MW6B, MW104 and MW105). The locations of all monitoring wells are shown in **Figure 2**.

2.2.1 Water-Level Measurements and Flow Directions

Static water levels for the full list of monitoring wells presented in Appendix A of the Landfill Approval were measured using a Solinst electronic water-level indicator, prior to purging. The water levels were recorded with reference to the top of the well riser pipes. The height of each riser pipe above ground was also recorded. The elevation of the top of each riser pipe was obtained from the existing database and the groundwater elevations were calculated accordingly.

The depths to water and the calculated groundwater elevations are presented in **Table 2** for the sampling event in October 2025 and for historical measurements that date back to 2006.

Figure 4 and **Figure 5** present a computer-simulated rendering of the shape of the water table, and the shape of the piezometric surface in the underlying fractured bedrock, respectively. The significance of that information is discussed in Chapter 4.

2.2.2 Purging

Industry standard normally requires that three standing volumes of groundwater be purged from each monitoring well before a groundwater sample is collected, in order to consider it representative of the *in-situ* water quality. Fracflow has assumed that the sampling contractor removed approximately three well volumes using the dedicated sampling systems, in the absence of written field notes to confirm.

Temperature, pH, specific conductance, and dissolved oxygen concentrations were recorded using field-portable, calibrated, water quality instruments. Field-measured values are reported in **Table 3**.

2.2.3 Sample Collection and Handling

Groundwater samples were collected using dedicated sampling equipment. Samples were field-filtered through a 0.45 micron filter unit connected to a hand pump. The sampling technician wore disposable nitrile gloves during sample collection. Groundwater samples were placed in bottles supplied by AGAT Laboratories for chemical analysis. All samples were stored in coolers with ice packs or ice and shipped to AGAT Laboratories with the necessary COC forms for each sampling event.

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3.0 ANALYTICAL DATA

An expanded analytical program was adopted in 2025 to comply with the Solid Waste Management Facility Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal (July, 2023). This change required new data tables to be prepared to accommodate the expanded list of chemical parameters for standard water chemistry, metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and petroleum hydrocarbons. New data tables were also required to accommodate a wide range of new water quality guidelines. All summary tables for 2025 are presented in **Appendix 2**, along with the original analytical reports in **Appendix 3**.

Data collected up to and including 2024 were presented in a format that will no longer be used, and those former tables referenced outdated guideline values. Those data are now archived in **Appendix 4**, for convenient reference by the reader.

3.1 Chemical Analysis of Surface Water

Table 1 presents the field measurements available for the October 20205 sampling event. **Table 4** presents the general chemistry and total metals data, and **Table 5** presents total petroleum hydrocarbon (TPH) data. Volatile organic compounds (VOCs) are presented in **Table 6**, and semi-volatile organic compounds (SVOCs) are presented in **Table 7**. All analytical results are compared with historical data and the Canadian Council of Ministers of the Environment (CCME) guidelines for the Protection of Freshwater Aquatic Life (FWAL). Any concentrations in excess of the applicable guideline values are highlighted by shading in the data tables.

Appendix 3 contains copies of the analytical reports issued by AGAT. The results are discussed in Section 4 of this report.

Note: Several VOC compounds that are required to be analyzed under Column 3, Schedule 1 of the guidelines were not included in the analytical package offered by AGAT Laboratories. Those compounds were dichlorodifluoromethane (FREON 12), ethylene dibromide, hexane, methyl ethyl ketone (2-butanone), methyl isobutyl ketone, and methyl t-butyl ether (MTBE). Fracflow

recommends that MJSB confirm the list of VOC parameters to be analyzed by AGAT in 2026 prior to contracting. If necessary, another accredited commercial laboratory should be retained.

3.2 Chemical Analysis of Groundwater

Table 3 presents the field measurements for groundwater samples collected in 2025. **Table 8** presents the general chemistry and total metals data, and **Table 9** presents total petroleum hydrocarbon (TPH) data. **Table 10** presents the results of the volatile organic compound (VOC) analyses (limited to BTEX), and semi-volatile organic compounds (SVOCs) are presented in **Table 11**. All analytical results are compared with historical data and the Canadian Drinking Water Quality (CDWQ) guidelines. Any concentrations in excess of the applicable guideline values are highlighted by shading in the data tables.

Appendix 3 contains copies of the analytical reports issued by AGAT. The results are discussed in Section 4 of this report.

Note: Total dissolved solids (TDS) and total kjeldhal nitrogen (TKN) are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by AGAT Laboratories. Fracflow recommends that MJSB confirm the list of inorganic chemical parameters to be analyzed by AGAT in 2026 prior to contracting. If necessary, another accredited commercial laboratory should be retained if all of the required parameters are not supplied.

3.3 Chemical Analysis of Leachate

There are no leachate sampling stations available at SSWS. However, groundwater samples from monitoring well MW106 are being us as a proxy for leachate quality at this site. Refer to **Table 8**, **Table 9**, **Table 10** and **Table 11** for the analytical results for MW106.

3.4 Quality Assurance and Quality Control

A comparison of field-measured values of pH and specific-conductance with laboratory-measured values provides a good first check on the quality of the field and analytical data sets. The pH is subject to significant change during storage and transport to the laboratory, but the direction in which the pH shift occurred should make sense based on other aspects of water quality (e.g. reducing versus oxidizing waters). Field-measured and laboratory-reported specific conductance should be reasonably close. The differences between field-measured and laboratory-measured values of specific conductance and pH are presented in **Table 1** for surface water and in **Table 3** for groundwater.

Relative percent differences (RPD) in conductance were less than 10 percent for surface water samples from C3A, CC6 and CC7, all of which were chemically dilute based on their low values of specific conductance. Surface water samples from C1, C2, SP1, SP2, SP3, W2 and W3 had high to very high RPDs, varying between 13 and 110 percent, which reflects a high degree of uncertainty in either the field-measured or laboratory-measured values. For groundwater, eight of the ten samples had RPD values in excess of 10 percent, and as high as 167 percent for groundwater samples with high TDS.

RPD values for the pH of surface water samples were less than 10 percent for samples from SP2, SP3, W2 and W3. High RPDs were calculated for surface water samples from C1, C2, C3A, CC6, CC7, and SP1. High RPDs were also calculated for groundwater pH at MW4A, MW103, MW104, MW123, MW213, and MW6A.

Back-calculating specific conductance using laboratory-reported values of TDS provides a close-approximation to the laboratory-reported values of specific conductance. It appears that the water quality meter that was used to measure specific conductance in the field was not calibrated for any water having a specific conductance in excess of 100 µS/cm, or there was a probe malfunction. Differences in field-measured and laboratory-measured pH are most likely due to metals oxidation and/or degassing of carbon dioxide during storage and transport to the laboratory.

The other important aspect of quality assurance and quality control (QAQC) is to verify the quality and completeness of the laboratory reports as soon as they are received, before any remaining sample volumes exceed their holding times. As noted above, a number of the chemical parameters that are required to be reported, as listed under Columns 1, 2 and 3 of Schedule 1 in

the new guidelines, were not analyzed. Cadmium and chromium detection limits for surface water were also elevated above guideline values for several samples.

Charge balance error (CBE) or ion balance was calculated by AGAT Laboratories as part of a basic QAQC program to validate the analytical dataset. CBE in excess of 10 percent provides an indication of a deficiency in either cations or anions, and the need to recheck the quality of analytical data. Surface water samples had a CBE of less than 10 percent, with the one exception being CC7 (13.9 percent). Most groundwater samples had a CBE of less than 10 percent, with the exceptions being MW112 (19.3 percent) and MW6B (not calculated due to incomplete analysis).

4.0 HYDROGEOLOGICAL ASSESSMENT

A Professional Hydrogeologist from Fracflow Consultants Inc. completed the Annual (2025) Water Quality Monitoring Report for the South Shore Waste Solutions (SSWS). This assessment includes analysis and commentary on water levels, groundwater flow directions, water quality trends, contaminant plume movement, and hydraulic gradients.

4.1 Surface Water

4.1.1 Surface Water Flow

Surface water quality typically varies in response to seasonal precipitation and flow rate. Flow rates have not been monitored or recorded at those surface water stations where active flow occurs. In the absence of such data, variability in precipitation over the past decade is considered below.

According to Environment and Climate Change Canada's climate normals (1991-2020) for its nearest climate station at Bridgewater (www.climate.weatheroffice.ec.gc.ca), the mean annual precipitation was 1,561.2 mm. Rainfall represented 87.6 percent of that total. The mean annual temperature for the same climate station was 7.4°C. Annual totals for precipitation at Bridgewater for the last twelve years were not available, therefore, the results for the nearest coastal station at Western Head (71 km away) are presented in the table below (rounded to the nearest millimetre).

Year	Total Precipitation (mm)	Year	Total Precipitation (mm)
2014	1697	2020	1158
2015	1592	2021	1265
2016	1295	2022	1492
2017	1533	2023	1642
2018	1361	2024	1053
2019	1249	2025	1113

Precipitation has varied considerably relative to the normal values. Stream flow should correlate directly with that annual variability in precipitation. Higher than normal precipitation occurred in 2014, 2015, and 2023. Lower than normal precipitation occurred for nine of the last twelve years. That contrasts with exceptionally dry years in 2024 and 2025 when one can expect low-flow conditions to have prevailed.

4.1.2 Surface Water Quality - Inorganic Chemistry

Inorganic chemical parameters that exceeded FWAL guideline values were identified in **Table 4** and are listed in the summary table below. Note that cadmium and chromium detection limits were often higher than their respective guideline values.

Station ID	Al	As	B	Cl	Cu	Fe	Mn	NO_2	NO_3	NH_3	pH	Zn
C1	●		●					●				
C2	●											
C3A						●		●				
CC6								●				
CC7	●					●	●	●			●	
SP1	●	●				●	●	●				●
SP2	●	●	●	●	●	●	●	●	●	●		●
SP3	●	●	●			●	●	●		●		
W1		Dry - No Sample Collected										
W2				●	●	●	●	●				●
W3	●			●		●	●	●			●	●

Acronyms: Aluminum (Al), Ammonia (NH_3), Arsenic (As), Boron (B), Chloride (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Nitrite (NO_2), Nitrate (NO_3), Ammonia), pH (pH) and Zinc (Zn).

Site-specific FWAL guidelines were calculated for ammonia, using field-measured pH and water temperature.

There is no FWAL guideline value for total dissolved solids (TDS). Since there are no known natural sources of high TDS in surface water at the SSWS, concentrations in excess of 100 mg/L provides a general indication of a potential leachate impact, whether from buried fly ash, buried domestic waste, and/or biosolids that are applied over the eantire site. Samples of surface water having TDS concentrations in excess of 100 mg/L were collected at all stations except the two at Covey Lake, C3A and CC6.

4.1.3 Surface Water Quality - Organic Chemistry

All surface water stations that could be sampled were analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). The results are presented in **Table 5**, **Table 6** and **Table 7**, respectively. The only exception was Station W1 on Wagner Brook, which was dry.

There were no petroleum hydrocarbons detected in any of the surface water samples that were analyzed. There were also no VOCs detected in any of the surface water samples that were analyzed, but not all of the organic chemicals listed under Column 3, Schedule 1 of the new guidelines were quantified by AGAT Laboratories. Those compounds were dichlorodifluoromethane (also known as Freon 12), ethylene dibromide, n-hexane, methyl ethyl ketone (2-butanone), methyl isobutyl ketone, and methyl t-butyl ether (MTBE).

SVOC analyses scan for the presence of two main groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All parameters that were analyzed by AGAT Laboratories were below detection limits, but there are a few notable points:

- Guidelines require 1-methylnaphthalene and 2-methylnaphthalene to be analyzed as separate compounds. AGAT analyzed those two compounds, but reported a combined result; and

- Guidelines require benzo(b/j)fluoranthene to be analyzed. Benzo(b)fluoranthene was reported by AGAT, but not benzo(j)fluoranthene.

4.1.4 Inorganic Chemical Trends in Surface Water

Fracflow selected alkalinity, boron, chloride and pH as indicators of leachate mixing with surface water and groundwater at SSWS. Time-series plots were prepared for those parameters at each of the surface water stations that were sampled in 2025.

Station C1 (Runoff Northwest Side of Landfill)

Alkalinity, boron, chloride, and pH are plotted in **Figure 6** to show their trends at Station C1 between 2011 and 2025. Chloride (average 51.6 mg/L) has remained relatively steady during the monitoring period, but alkalinity (average 75.9 mg/L) has decreased from 161 mg/L in 2021 to 40 mg/L in 2025. The decrease in alkalinity is coupled with a decrease in pH and rising boron. Boron has averaged 660 µg/L over the monitoring period, but recent patterns show an increase from 47 µg/L in 2020, to 1,530 µg/L in 2025. There appears to be a growing proportion of leachate mixing with surface water at Station C1, which is adjacent to well Cluster 2 where groundwater impacts from leachate have been identified.

Station C2 (Runoff Northwest Side of Landfill)

Alkalinity, boron, chloride, and pH are plotted in **Figure 7** to show their trends at Station C2 between 2011 and 2025. Changes to those indicators parameters at Station C2, which is location downstream from Station C1, are similar to the patterns identified at Station C1, but more subdued. Boron, for example, has averaged 345 µg/L over the monitoring period, but recent patterns show an increase from 262 µg/L in 2020, to 670 µg/L in 2025.

Former Station C3 and Active Station C3A (South Shore of Covey Lake)

Station C3 is no longer being monitored. That location, along with Stations C4 and C5, were all sampling surface water from Covey Lake. In accordance with recommendations made by Fracflow, lake water is now being monitored at the outflow of the lake, at Station C3A. Historical trends in alkalinity, boron, chloride, and pH at Station C3 are merged with the recent chemistry from Station C3A to show trends in quality at Covey Lake between 2011 and 2025 (**Figure 8**).

Covey Lake water remains fresh with low ion concentrations. Low alkalinity, which averaged 8.9 mg/L, and low chloride, which averaged 7.8 mg/L, reflect the lake's chemically-dilute

nature. The one notable trend is a slow increase in boron, from 32 µg/L to in 2018, to 96 µg/L in 2025.

Station CC6 (Control site, North Shore of Covey Lake)

Alkalinity, boron, chloride, and pH are plotted in **Figure 9** to show their trends at Station CC6 between 2010 and 2025. Those chemical trends are very similar to those observed at other lake-water monitoring stations, and are a near-mirror image to the trends shown for Stations C3 and C3A.

Station CC7 (Control Stream, North Shore of Covey Lake)

Alkalinity, boron, chloride, and pH are plotted in **Figure 10** to show their trends at Station CC7 between 2017 and 2025. Alkalinity (average 3.58 mg/L) and chloride (average 5.6 mg/L) indicate a very fresh, chemically dilute surface water. The pH is acidic, varying from 4.36 to 5.94 for the period of record. Boron averaged 6.1 µg/L between 2017 and 2025 and is indicative of its background concentration in surface water.

Station SP1 (Outlet of Storm Pond 1)

Alkalinity, boron, chloride, and pH are plotted in **Figure 11** to show their trends at Station SP1 between 2017 and 2025. Alkalinity (average 110 mg/L) and chloride (average 47.7 mg/L) have remained relatively steady during the monitoring period, appearing to vary in response to seasonal changes in precipitation and runoff patterns. Boron (average 844 µg/L) is relatively high at this location. Overall, the overall chemistry of the water discharging from Storm Pond 1 appears to be controlled by mixing with landfill leachate.

Station SP2 (Outlet of Storm Pond 2)

Alkalinity, boron, chloride, and pH are plotted in **Figure 12** to show their trends at Station SP2 between 2017 and 2025. Alkalinity (average 237 mg/L) and chloride (average 95 mg/L) have been rising during the monitoring period. Chloride in particular has been trending upward, from 67 mg/L in 2022, to 262 mg/L in 2025. Boron (average 2,230 µg/L) is relatively high at this location and has increased from 1,050 µg/L in 2021, to 7,310 µg/L in 2025. The overall chemistry of the water discharging from Storm Pond 2 appears to be controlled by mixing with leachate, from one or more sources, with a greater proportion of leachate entering this storm

pond compared with SP1. Storm Pond 2 does receive direct input from the compost leachate collection ponds, which have been aerated since Spring 2024.

Station SP3 (Outlet of Storm Pond 3)

Alkalinity, boron, chloride, and pH are plotted in **Figure 13** to show their trends at Station SP3 between 2017 and 2025. Alkalinity (average 220 mg/L) and chloride (average 50.2 mg/L) have fluctuated during the monitoring period. Boron (average 1,239 µg/L) is relatively high at this location, and has increased from 548 µg/L in 2021, to 1,650 µg/L in 2025. The overall chemistry of the water discharging from Storm Pond 3 appears to be controlled by mixing with landfill leachate, but the degree of impact is less significant compared with SP2.

Station W1 (Wagner Brook Upstream of Site and Mullock Road)

Station W1 was dry in 2024 and 2025 and no samples were collected. Alkalinity, boron, chloride, and pH are plotted in **Figure 14** to show their trends between 2011 and 2023. Alkalinity (average 5.8 mg/L) and chloride (average 9.8 mg/L) indicate a chemically dilute surface water. The pH fluctuated between 5.36 and 7.12 during the monitoring period, but has remained generally acidic (average 6.05) and appears to vary seasonally. Boron (average 9.9 µg/L) is low and shows no evidence of any significant mixing with leachate, although values have been trending upward from 6 µg/L in 2019 to 72 µg/L in 2023.

Station W2 (Wagner Brook Leaving the Site)

Alkalinity, boron, chloride, and pH are plotted in **Figure 15** to show their trends at Station W2 between 2011 and 2025. Alkalinity (average 111 mg/L) and chloride (average 63.9 mg/L) indicate mixing with leachate. The pH varied over a narrow range, from 6.87 to 7.78, and has been generally circum-neutral (average 7.31) during the monitoring period. The concentrations of boron (average 278 µg/L) were low-to-moderate between 2011 and 2018, but have increased from 88 µg/L in 2018, to 1,060 µg/L in 2025 due to growing contributions from leachate.

Station W3 (Wagner Brook Crossing Mullock Road Downstream of Site)

Alkalinity, boron, chloride, and pH are plotted in **Figure 16** to show their trends at Station W3 between 2011 and 2025. Alkalinity (average 49.9 mg/L) and chloride (average 36.9 mg/L) are lower than measured at the upstream Station W2, due to ongoing chemical dilution with

increased distance from the site. The pH varied over a narrow range, from 6.46 to 7.90, and has been generally circum-neutral (average 7.27) during the monitoring period. The concentrations of boron (average 154 µg/L) were low-to-moderate between 2011 and 2018, but have increased from 63 µg/L in 2018, to 661 µg/L in 2025 due to growing contributions from leachate.

4.2 Groundwater

Thirty-nine (39) monitoring wells were constructed at SSWS since groundwater monitoring began in 1987. Ten (10) of those wells were either permanently damaged by machinery or have limited function due to low water levels and/or plugging with silt.

There are five (5) wells in Areas of High Concern that are sampled annually (5 wells), nine (9) wells in Areas of Moderate Concern that are sampled biennially, and seventeen (17) wells in Areas of Low Concern that are sampled every three years. Well construction details for all monitoring wells are summarized in **Table A5.1** in **Appendix 5**.

4.2.1 Water Levels and Groundwater Flow Patterns

It is generally accepted that the shape of the water table will tend to mimic the ground surface contours, although in a subdued fashion. **Figure 4** presents a contour map of the computed water table across the entire model area based on hydraulic head data available up to and including October 2018. Groundwater flows away from an east-west trending water divide located in the centre of the study area.

The same direction of flow is inferred in the underlying fractured bedrock based on the contoured hydraulic heads shown in **Figure 5**. The horizontal hydraulic gradient between the 85 m contour at Mullock Road and the 70 m contour near Covey Lake is estimated to be 0.025 (i.e., dh/dl = 15 m/592 m).

Current and historical groundwater elevations were plotted for those monitoring wells that were sampled during the October 2025 sampling event, along with the other wells that form a cluster. Similar plots will be prepared and updated for those monitoring wells that will be sampled in 2026, as part of the once-every-three-years group of wells.

Cluster 1 (MW4A, MW4B, MW112)

Water levels trends in the three monitoring wells that form Cluster 1 are presented in **Figure 17**. MW4B is the shallow well in the nest and it has the highest average groundwater elevation of 69.4 m, but was dry in 2025. Intermediate well MW4A and deep well MW112 both have relatively low groundwater elevations of 66.1 m and 65.9 m, respectively. Those data suggest the hydraulic gradient is directed downward such that this well cluster is located in an area of groundwater recharge. Groundwater elevations were relatively steady between 2011 and 2019, but show significant annual variation from 2020 to 2025.

The difference in average groundwater elevation between shallow overburden well MW4B and deep bedrock well MW112 was 3.4 m (dh), in 2024 (could not be calculated for 2025). The distance between the bottom of the shallow well screen in MW4B and the top of the deep well screen in MW112 is 10.2 m (dl). The downward-directed vertical hydraulic gradient (dh/dl) at that location is 0.039 for the average condition.

Cluster 2 (MW106, MW107, MW213)

Water levels trends in the three monitoring wells that form Cluster 2 are presented in **Figure 18**. MW107 is the shallow well in the nest and it has the highest average groundwater elevation of 79.6 m. Intermediate well MW106 is the intermediate well and it has a slightly lower average groundwater elevation of 78.9 m. Deep well MW213 has a relatively low average groundwater elevation of 70.5 m. Those data suggest the hydraulic gradient is directed downward such that this well cluster is located in an area of groundwater recharge. Groundwater elevations were relatively steady at each of those three wells during the 2011 to 2025.

The difference in average groundwater elevation between shallow overburden well MW107 and deep bedrock well MW213 was 9.11 m (dh), in 2025. The distance between the bottom of the shallow well screen in MW107 and the top of the deep well screen in MW213 is 21.9 m (dl). The downward-directed vertical hydraulic gradient (dh/dl) at that location is 0.415 for the average condition.

Cluster 8 (MW103, MW123)

Water levels trends in the two monitoring wells that form Cluster 8 are presented in **Figure 19**. Note that monitoring well G2 was part of this cluster of wells, but it is not longer functioning.

MW103 is the shallow well in the nest and it has the lower average groundwater elevation of 81.1 m. MW123 is the deep well MW213, which has the higher average groundwater elevation of 81.9 m. Average elevations cannot be used to assess vertical hydraulic gradients for the entire period of record. As shown in **Figure 19**, there was a reversal in the direction of the vertical hydraulic gradient between 2016 and 2017. Until 2016, the gradient was directed downward (recharge), but after that year the gradient was directed upward (discharge). Well Cluster 8 is adjacent to Storm Pond 2 and it is possible that surface water in that pond was a source of recharge to the groundwater flow system. Such recharge may have been abated as a result of sediment accumulation at the base of the pond. Alternatively, the switch in gradient may be related to capping of the landfill.

The difference in average groundwater elevation between shallow overburden well MW103 and deep bedrock well MW123 was 3.2 m (dh), in 2025. The distance between the bottom of the shallow well screen in MW103 and the top of the deep well screen in MW123 is 16.8 m (dl). The up-directed vertical hydraulic gradient (dh/dl) at that location is 0.19 in 2025.

Cluster 9 (MW6A, MW6B, MW211)

Water levels trends in the three monitoring wells that form Cluster 8 are presented in **Figure 20**. MW6B is the shallow well in the nest and it has the highest average groundwater elevation of 76.4 m. Intermediate well MW6A is the intermediate well and it has a slightly lower average groundwater elevation of 72.7 m. Deep well MW211 has a relatively low average groundwater elevation of 69.9 m, up to 2024 (not sampled in 2025). Those data suggest the hydraulic gradient was directed downward such that this well cluster was located in an area of groundwater recharge until 2018. Groundwater elevations were relatively steady at MW6A and MW6B, but have been unsteady at MW211since 2018, and deep groundwater appears to be discharging upward to the intermediate well depth in 2019, 2020 and 2024.

Cluster 10 (MW104, MW105, MW212)

Water levels trends in the three monitoring wells that form Cluster 10 are presented in **Figure 21**. MW105 is the shallow well in the nest and it has the highest average groundwater elevation of 76.4 m. Intermediate well MW104 is the intermediate well and it has a slightly lower average groundwater elevation of 75.2 m. Deep well MW212 has a relatively low average groundwater elevation of 65.2. Those data suggest the hydraulic gradient is directed downward

such that this well cluster is located in an area of groundwater recharge. Groundwater elevations were relatively steady at each of those three wells during the 2011 to 2025.

The difference in average groundwater elevation between shallow overburden well MW105 and deep bedrock well MW212 is 11.2 m (dh). The distance between the bottom of the shallow well screen in MW105 and the top of the deep well screen in MW212 is 21.6 m (dl). The vertical hydraulic gradient (dh/dl) at that location is 0.52 for the average condition.

General Comment on Trends in Groundwater Elevation

The above trends in groundwater elevation show no significant changes at most monitoring wells since the 3D numerical flow and transport model was constructed in 2019. One can conclude that the simulated hydraulic gradients and flow directions remain a valid representation of the average steady-state condition at this site. The reversal in vertical hydraulic gradient at Cluster 8, and the trend in groundwater elevation at deep well MW211, in Cluster 9, are somewhat anomalous and demonstrate how short-term transient conditions can depart from the average condition on a year-to-year basis.

4.2.2 Groundwater Quality - Inorganic Chemistry

Inorganic chemical parameters that exceeded CDWQ guideline values in groundwater at each well location were identified in **Table 8**. Note that total dissolved solids (TDS) and total kjeldhal nitrogen (TKN) are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by AGAT Laboratories. For the purpose of this report, estimates of TDS were calculated by Fracflow and added to **Table 8**.

Dissolved arsenic, dissolved manganese, nitrite, pH and total dissolved solids (TDS) were the main parameters of concern. Chemical parameters in excess of guideline values are highlighted by well location in the summary table below.

Monitoring Well	Well Cluster	As	Mn	NO_2	pH	TDS
MW4A	1					
MW112			●			
MW106	2		●		●	●
MW107			●	●	●	●
MW213			●			
MW103	8					
MW123		●				
MW6A	9	●				
MW6B					●	
MW212	10		●			
MW104		●				
MW105						

Acronyms: Arsenic (As), Manganese (Mn), Nitrite (NO_2), pH (pH), and total dissolved solids (TDS).

4.2.3 Groundwater Quality - Organic Chemistry

Groundwater samples were analyzed for petroleum hydrocarbons (**Table 9**), VOCs (**Table 10**), and SVOCs (**Table 11**).

There were no petroleum hydrocarbons detected in any of the samples that were analyzed. Note that there was a limited sample volume available from MW6B. The volatile parameters of benzene, toluene, ethylbenzene, and xylenes (BTEX) were analyzed, but the total extractable hydrocarbons (THE) were not determined.

VOCs were not encountered in groundwater during any of the historical sampling events and broad scans for VOCs are exempted from monitoring in groundwater under the current Approval. VOC analysis in groundwater was limited to the BTEX components from the petroleum hydrocarbon analysis. As noted above, there were none detected.

SVOC analysis scans for the presence of two groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All parameters that were analyzed by AGAT Laboratories were below detection limits, with one exception. The PAH compound naphthalene was detected at MW106 (1.94 µg/L), MW107 (1.51 µg/L), and MW213 (2.05 µg/L). Each of those wells are part of Cluster 2 at the northwest corner of the closed landfill. There are no guidelines for naphthalene specified in the Guidelines for Canadian Drinking Water Quality.

4.2.4 Inorganic Chemical Trends in Groundwater

Selected leachate indicator parameters, namely alkalinity, boron, chloride, and pH were plotted for the monitoring wells that were sampled in 2025, to examine chemical trends in groundwater for the period of record.

Cluster 1 (MW4A, MW4B, MW112)

Alkalinity, boron, chloride, and pH are plotted for MW4A and MW112 in **Figure 22** and **Figure 23**, respectively. Monitoring well MW4B was dry in 2025.

At MW4A, which is the well of intermediate depth, alkalinity (average 99.7 mg/L) was steady during the 2004 to 2025 monitoring period. Chloride was generally low (average 6.7 mg/L), but did show some fluctuations, reaching a peak value of 22 mg/L in 2017. The pH varied widely from 6.94 to 8.35. Boron (average 138 µg/L) was almost a mirror image of the chloride trend. Those changes in chemistry coupled with the low chloride suggest the presence of natural groundwater with minimal to no mixing with leachate.

At MW112, which is the deep well in this cluster, alkalinity, boron, chloride and pH all showed significant variation between 2010 and 2016. After that, the degree of change year-over-year was relatively small. Between 2018 and 2025, alkalinity has declined from 162 mg/L to 97 mg/L, boron has declined from 282 µg/L to 170 µg/L, and chloride has fluctuated between 6 mg/L and 8 mg/L. The pH has been in decline from a peak value of 9.25 in 2015, to 6.98 in 2025. Those changes in chemistry coupled with the low chloride suggest the presence of natural groundwater with minimal to no mixing with leachate.

Cluster 2 (MW106, MW107, MW213)

Alkalinity, boron, chloride, and pH are plotted in **Figure 24** to show their trends at monitoring well **MW106** in Cluster 2. Alkalinity (average 513 mg/L), boron (average 1,171 µg/L), and chloride (average 92 mg/L) are relatively high in intermediate groundwater at this location and each of those parameters increased in concentration from 2004 to 2016, and have since peaked and remained relatively stable. The pH varied widely during the monitoring period, from 6.36 to 8.80. The concentrations and trends were indicative of an advancing leachate plume at Cluster 2, from 2004 to 2016, followed a quasi steady-state condition between 2016 and 2025.

Alkalinity, boron, chloride, and pH are plotted in **Figure 25** to show their trends at monitoring well **MW107** in Cluster 2. Alkalinity (average 663 mg/L), boron (average 2,576 µg/L), and chloride (average 161 mg/L) are relatively high in shallow groundwater at this location. Each of those parameters increased in concentration from 2004 to 2012. Thereafter, concentrations have remained relatively stable, but some periods of significant dilution are noted in 2017, when chloride dropped from 132 mg/L to 11 mg/L, and in 2021 when boron fell from 3,160 µg/L to 597 µg/L. More chemical variability is observed at MW107, compared with MW106, because MW107 is a shallow water-table well and it is subject to sudden changes in chemistry associated with precipitation events. The pH varied during the monitoring period, from 6.48 to 7.70. The overall concentrations and trends at MW107 are indicative of an advancing leachate plume that has stabilized, with short-term swings in concentrations related to periodic dilution during recharge events. It is also possible that groundwater quality at MW107 is being influenced by the application of biosolids, which are a source of boron.

Alkalinity, boron, chloride, and pH are plotted in **Figure 26** to show their trends at monitoring well **MW213** in Cluster 2. Alkalinity (average 109 mg/L), boron (average 104 µg/L), and chloride (average 5.7 mg/L) are relatively low in deep groundwater at this location. Alkalinity has been stable for the entire twenty-year monitoring period, showing a standard deviation of only 6.3 mg/L after twenty-nine sampling events. Deep groundwater at MW213 is generally indicative of background groundwater quality.

Cluster 8 (MW103, MW123)

Alkalinity, boron, chloride, and pH are plotted in **Figure 27** to show their trends at monitoring well **MW103** in Cluster 8. Alkalinity (average 74.1 mg/L), boron (average 148 µg/L), and chloride (average 6.2 mg/L) are considered to be low concentrations for shallow groundwater at

this location. Available data for MW103 suggest the presence of natural groundwater with minimal to no mixing with leachate

Recall from an earlier discussion in this report about the reversal in vertical hydraulic gradient at MW103. **Figure 19** showed a change from a recharge to a discharge condition, from 2016 to 2017. Chemical responses that occurred at that time include a decrease in boron from 232 µg/L to 67 µg/L, and an increase in alkalinity from 62 mg/L to 91 mg/L. Those changes in chemistry coupled with the low chloride suggest the presence of natural groundwater with minimal to no mixing with leachate.

Alkalinity, boron, chloride, and pH are plotted in **Figure 28** to show their trends at monitoring well **MW123** in Cluster 8. Alkalinity (average 80.8 mg/L), boron (average 158 µg/L), and chloride (average 6.0 mg/L) are considered to be low concentrations for deep groundwater at this location. MW123 also experienced a change in hydraulic head, from 2016 to 2017, as shown in **Figure 19**. Chemical responses that occurred at that time include an increase in boron from 67 µg/L to 262 µg/L, and a decrease in alkalinity from 93 mg/L to 70 mg/L. Those changes in chemistry coupled with the low chloride suggest the presence of natural groundwater with minimal to no mixing with leachate.

Cluster 9 (MW6A, MW6B, MW211)

MW6A is the well of intermediate depth at Cluster 9. Alkalinity, boron, chloride, and pH are plotted in **Figure 29** to show their trends at this monitoring well. Average concentrations of alkalinity (90.3 mg/L), boron (167 µg/L), and chloride (7.4 mg/L) for the 1987 to 2025 period of record are considered to be low in groundwater from this well. Boron is the only parameter to show a significant change from a baseline concentration of 0.02 µg/L in 1987, to an average of 187 µg/L for the period from 2010 to 2025.

MW6B is the well of shallow depth at Cluster 9. The water level was low in 2025 and insufficient fluid volume precluded analysis of alkalinity and chloride, but did include boron and pH. Alkalinity, boron, chloride, and pH are plotted in **Figure 30** to show their trends at this monitoring well. Average concentrations of alkalinity (167 mg/L up to 2024), boron (151 µg/L up to 2025), and chloride (89.1 mg/L up to 2024) are indicate of mixing with landfill leachate. Leachate impacts developed after 2004, when chloride was 5 mg/L and increased to 128 mg/L in 2010. Boron has been rising since 2019, increasing from 16 µg/L to 499 µg/L in 2025.

MW211 is the deep well at Cluster 9. This well contained sludge and could not be sampled in 2025. Water quality trends are not graphically illustrated in this report. Alkalinity (average 210 mg/L), boron (average 286 µg/L), and chloride (average 25.6 mg/L) all showed an increase in concentrations in 2018 followed by declining concentrations thereafter. The pH trended in the opposite direction. The general patterns, up to 2024, suggested an advancing leachate plume that reached the monitoring wells and is now migrating beyond that location.

Cluster 10 (MW104, MW105, MW212)

Alkalinity, boron, chloride, and pH are plotted in **Figure 31** to show their trends at monitoring well **MW104** in Cluster 10. Alkalinity (average 85.0 mg/L), boron (average 146.8 µg/L), and chloride (average 4.6 mg/L) are relatively low in intermediate groundwater at this location and and remained relatively stable during the monitoring period.

Alkalinity, boron, chloride, and pH are plotted in **Figure 32** to show their trends at monitoring well **MW105** in Cluster 10. Alkalinity (average 228 mg/L), boron (average 47.2 µg/L), and chloride (average 69.9 mg/L) are relatively moderate in shallow groundwater at this location. Chemical concentrations have increased from 2004 to 2025, while pH has decreased, which is indicative of an advancing leachate plume.

Alkalinity, boron, chloride, and pH are plotted in **Figure 33** to show their trends at monitoring well **MW212** in Cluster 10. Alkalinity (average 110 mg/L), boron (average 133 µg/L), and chloride (average 5.7 mg/L) are relatively low in deep groundwater at this location. There is no evidence of any significant leachate impacts at this well location.

4.2.5 Groundwater Classifications and Chemical Evolution

The major cations of calcium, magnesium, sodium, potassium, and the major anions of chloride, sulphate and bicarbonate are often the best indicators of leachate impacts in groundwater. Groundwater samples from MW106 and MW107 have been the most highly impacted samples collected at SSWS. MW106 was selected as a proxy for identifying leachate evolution and impacts across the site because it is the deepest well at Cluster 2 and, therefore, is less susceptible to seasonal dilution, which can mask the evolutionary signal of leachate. Groundwater samples that were collected from MW106 in 2004, 2006, 2010, 2012, 2014, 2015 and 2017 were classified using a trilinear (Piper) diagram and compared with background

groundwater from MW110. There were no significant changes in groundwater chemistry at MW106 after 2017, as can be seen from the trends in **Figure 24**.

The trilinear diagram consists of two equilateral triangles, positioned at the lower left and right, and a diamond-shaped field centred above. The triangle on the left is used to plot the relative proportions of calcium, magnesium, and sodium plus potassium (i.e., cations), the sum total equaling 100 % as chemical equivalents. The triangle on the right is used to plot the relative proportion of total bicarbonate, sulphate and chloride (i.e., anions), the sum total also equaling 100 % as chemical equivalents. A sample plotted on the cation and anion triangles is then projected into the diamond field to plot the point of intersection, from which a chemical classification is obtained. The trilinear diagrams presented in this report were developed using the AquaChem geochemical software developed by Waterloo Hydrogeologic (2006).

All samples from MW106 and one background sample from MW110 are shown in trilinear space in **Figure 34**. The major ion concentrations for each sample that were used to generate that plot are presented in **Table 12**, along with the concentrations of total dissolved solids (TDS), calcite saturation indices calculated using PHREEQC (Parkhurst and Apello, 1999), and various ion ratios. The groundwater has evolved from a low TDS, Ca-Na-HCO_3 type water to a relatively high TDS, Ca-Mg-Na-HCO_3 type water. Bear in mind that calcite reached saturation levels in 2010 and has likely been precipitating in groundwater in the area around MW106 up to and including 2025. That process would act to reduce soil permeability and migration rates.

Figure 35 shows how the major ion concentration and calcite saturation levels have changed during the 2004 to 2025 monitoring period. Groundwater samples from MW106 are being used as a proxy for leachate and the patterns shown in **Figure 35** are considered to be indicative of changes in leachate chemistry, at least in the area around well Cluster 2.

4.2.6 Mapping the Landfill Leachate Plume

Alkalinity (as HCO_3), boron, chloride and pH are used as indicator parameters for tracking leachate impacts in groundwater at the SSWS. HCO_3 was used in the flow and transport simulations completed by Fracfow (2019) to predict the migration of landfill leachate, as discussed below.

The incinerator and landfill opened around 1975. Plume development by the year 2015 is reflected in the distribution of HCO_3 in till below the waste cells and in the underlying fractured bedrock in **Figure 35** and **Figure 36**, respectively. A strong leachate signal exists in proximity to the waste cells and some minor lateral spreading of HCO_3 is evident in the deep till between the landfill and the lake shore. In the underlying fractured bedrock, the leachate plume in the eastern and central areas of the site has strengthened in the direction of Covey Lake. A weak leachate plume is migrating in fractured bedrock toward the lake on the western side of the landfill.

The transport model was used to predict plume development into the year 2035. Concentrations of HCO_3 for that year are shown at the water table and below the landfill cells in **Figure 37** and **Figure 38**, respectively. A strong leachate signal remains in proximity to the waste cells and a significant plume is developing in the deep till between the landfill and the lake shore. In the underlying fractured bedrock, the leachate plume in the eastern and central areas of the site continues to strengthen in the direction of Covey Lake, as does the leachate plume that is migrating in fractured bedrock toward the lake on the western side of the landfill. Plumes that began to develop in the east, in 1978, and west, in 1995, are now co-mingling.

The model has provided a much more realistic rendering of the shape, extent and direction of migration of the leachate plume compared with the simplified, conceptual plume maps that were hand-contoured in previous years. It is apparent that migration of the leachate plume is controlled by the strong, downward-directed hydraulic gradients that have developed between Mullock Road and Covey Lake. Those gradients have limited the lateral spreading of the plume to the east and west of the site, and Covey Lake is identified as the main receptor of concern. The 3D transport model also showed that the primary pathway for migration of the leachate toward the lake is through the upper fractured bedrock and not the till.

4.2.7 Other Leachate Sources

Other sources of leachate at SSWS are being generated from composting operations and from application of biosolids over the cap of the closed landfill. Leachate from those sources have a number of chemical constituents that are similar to the chemical constituents that are derived from landfill leachate, including ammonia, boron, chloride, nitrate, nitrite, and organic carbon.

Surface water quality at Storm Pond 2 (SP2) and Wagner’s Brook (W2) is different from proxy-leachate samples from monitoring well MW106. The sample from SP2 had higher

chloride (162 mg/L), nitrate (3.7 mg/L), nitrite (1.7 mg/L) and ammonia (3.65 mg/L), compared with the sample from MW106. Station W2 had similar chloride (258 mg/L), higher nitrate (5.53 mg/L) and higher nitrite (2.54 mg/L) compared with SP2. A striking chemical characteristic of the sample from SP2 was its high concentration of total organic carbon (TOC). It is Fracflow's current opinion that the primary source of TOC at SP2 is from the application of biosolids and aerated leachate from the compost leachate collection ponds. Both leachate types may also be sources of chloride, nitrite and nitrate at SP2 and W2.

It is not possible to confirm the sources of chloride, carbon and nitrogen and the significance of their impacts to surface water quality at SP2 and W2 without knowing how water quality is correlated with flow rate. If concentrations increase during periods of high flow, that will be of greater concern than any chemical dilution that might occur during periods of high flow. SP2 and W2 should also be sampled and monitored for fecal coliform.

Leachate from composting operations and biosolids applications are not expected to influence groundwater quality to the same extent that they have influenced surface water quality.

5.0 AQUATIC INVERTEBRATE HABITAT ASSESSMENT

MJSB (Lunenburg Region) conducts aquatic habitat assessments on an annual basis to monitor and detect any impacts from site activities on adjacent watercourses and water bodies. Envirosphere Consultants Limited has provided that service since 2013. The results of the 2025 assessment by Envirosphere is presented below.

Sampling took place on September 25, 2025, at two sites on streams in the vicinity of the Lunenburg Community Recycling Centre. Site S6 is located on an unnamed surface water stream exiting southeast of the recycling centre, which eventually feeds into Wagner Brook near station W2. Station CS2, the reference site, is located on a different unnamed surface water stream about 3 km south of the recycling centre, on the opposite side of Mullock Road.

Monitoring of biological effects on the unnamed stream (site S6) feeding Wagner Brook could not be fully completed this year due to dry conditions. Examination of the reference site (site CS2) was conducted, to compare with previous years results. It was Envirosphere's opinion that physical conditions and water quality at Site CS2 were acceptable for the maintenance of aquatic life and biological communities (benthic invertebrates). At the time of sampling, pH at the site was slightly below neutral and suspended sediment (TSS) levels were low, both within recommended CCME guidelines for freshwater aquatic life. The dissolved oxygen concentrations were below recommended guidelines. Environmental conditions and benthic communities typically undergo short-term changes or variations in characteristics between sampling periods (during the year and between years), and the variability observed was reported to be consistent with such natural variation. The presence of 'pollution sensitive' EPT organisms at site CS2 and moderate taxon richness indicate suitable conditions for benthic organisms, despite the low water level that were observed at the time of monitoring. The EPT ratio refers to the abundance of Ephemeroptera, Trichoptera, and Plecoptera to the total number of animals.

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6.0 CONCLUSIONS AND RECOMMENDATIONS

Fracflow Consultants Inc. was contracted by the Municipal Joint Services Board (Lunenburg Region) to review the annual (2025) water sampling results, the annual aquatic invertebrate habitat assessment report, and prepare the annual hydrogeological assessment report for the South Shore Waste Solutions (SSWS).

The monitoring program was designed to meet the requirements of the new Solid Waste Management Facility (SWMF) Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal were issued by Nova Scotia Environment and Climate Change in July 2023. The main conclusions and recommendations arising from the 2025 assessment are summarized in separate sections below.

6.1 Conclusions

6.1.1 Surface Water

Inorganic chemical concentrations in surface water were compared with the guidelines for the protection of Freshwater Aquatic Life (FWAL). Total aluminum, total iron, total manganese, and nitrite were the most common parameters to exceed guideline values. Total arsenic, total boron, total chloride, total copper, nitrate, ammonia, pH and total zinc were elevated in local areas. The locations and concentrations are identified in **Table 4**.

There were no petroleum hydrocarbons detected in any of the surface water samples that were analyzed. There were also no VOCs detected in any of the surface water samples that were analyzed, but not all of the organic chemicals listed under Column 3, Schedule 1 of the new guidelines were quantified by AGAT Laboratories. Those compounds were dichlorodifluoromethane (also known as Freon 12), ethylene dibromide, n-hexane, methyl ethyl ketone (2-butanone), methyl isobutyl ketone, and methyl t-butyl ether (MTBE).

SVOC analyses scan for the presence of two main groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All parameters that were analyzed by AGAT Laboratories were below their respective detection limits for surface water samples.

Surface water impacts from leachate, at a closed landfill/active waste transfer site with a long and varied history like SSWS, are expected. It is arguably more important to know how the various chemical indicators are trending over time at each sampling station, rather than point-in-time exceedances of FWAL guideline values. Time-series plots were presented for all surface water monitoring stations in Chapter 4 of this report. Runoff from the northwest side of the landfill contained relatively high boron at Station C1 (average 660 µg/L) and Station C2 (average 345 µg/L), suggesting the surface water is mixing with leachate at those locations. There appears to be a growing proportion of leachate mixing with surface water at those locations. At the upstream site, Station C1, boron has increased from 47 µg/L in 2020, to 1,530 µg/L in 2025.

Surface water in Covey Lake is now being monitored at its outflow, at Station C3A. Monitoring at other stations (C3, C4 and C5) that provided duplicate measurements of pond water quality have been suspended. Historical data from Station C3 has been combined with data from C3A to track the history of lake water chemistry. Major ion concentrations in water samples from Covey Lake indicate a chemically dilute surface water. Boron concentrations have been increased from an average of 30 µg/L, between 2011 and 2015, to 96 µg/L in 2025. The FWAL guideline for boron is 1,500 µg/L so the observed concentrations in Covey Lake have not compromised the natural attenuation capacity of the lake.

The chemistry of surface water discharging from Storm Ponds SP1, SP2 and SP3 all appear to be controlled by mixing with landfill leachate, with the strongest impacts occurring at SP2. Since 2017, ion concentrations have been increasing at SP2. Boron, for example, has increased from 465 µg/L in 2018, to 7,310 µg/L in 2025. There was no active flow from any of the Storm Ponds during sampling in October 2025. Deteriorating surface water quality at SP2 is a concern if and when active discharge occurs during storm events.

The chemistry of surface water in Wagners Brook also appears to show evidence of growing impacts from leachate. At Station W2, alkalinity (average 111 mg/L) and chloride (average 64 mg/L) indicate mixing with leachate. Concentrations of boron were low-to-moderate between 2011 and 2018, but have increased from 88 µg/L in 2018, to 1,060 µg/L in 2025. Chloride, nitrate, nitrite and several metals exceeded FWAL guidelines. At the time of sampling in October 2025, the measured flow rate was approximately 2,100 litres per minute, increasing to approximately 3,100 litres per minute downstream at Station W3. It will be difficult to judge the significance of the changes in water chemistry in Wagners Brook until more flow data are collected during future sampling events and correlated with water quality.

6.1.2 Groundwater

Trends in groundwater elevation presented in this report showed no significant changes at most monitoring wells since 2019, when the 3D numerical flow and transport model was constructed by Fracflow. It appears that the simulated hydraulic gradients and flow directions remain a valid representation of the average steady-state condition at this site. There are still a large number of wells that have yet to be trended and compared with model predictions, but that will happen when wells that are sampled every three years are sampled in 2026.

Inorganic chemical concentrations in groundwater were compared with the Canadian Drinking Water Quality (CDWQ) guidelines. Samples collected from monitoring wells MW4A, MW103, and MW105 did not exceed any of the guideline values for the chemical parameters that were analyzed. Dissolved arsenic, dissolved manganese, nitrite, pH and total dissolved solids (TDS) were the only parameters to exceed guideline values. Note that TDS and total kjeldhal nitrogen (TKN) are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by AGAT Laboratories. For the purpose of this report, estimates of TDS were calculated by Fracflow. The locations and concentrations of inorganic chemicals are identified in **Table 8**.

Dissolved boron was 1,670 µg/L at MW106, and 4,560 µg/L at MW107. While both were below the CDWQ guideline value of 5,000 µg/L, the measured concentrations were substantially higher than the range of dissolved boron concentrations that were detected elsewhere in groundwater (73 µg/L to 499 µg/L). That suggests significant mixing with leachate at those two well locations.

Groundwater samples were analyzed for petroleum hydrocarbons, VOCs, and SVOCs. There were no petroleum hydrocarbons detected in any of the groundwater samples that were analyzed. Note that there was a limited sample volume available from MW6B. The volatile parameters of benzene, toluene, ethylbenzene, and xylenes (BTEX) were analyzed, but the total extractable hydrocarbons (THE) were not determined. VOCs were not encountered in groundwater during any of the historical sampling events and broad scans for VOCs are exempted from monitoring in groundwater under the current Approval. VOC analysis in groundwater was limited to the BTEX components from the petroleum hydrocarbon analysis. As noted above, there were none detected in the groundwater samples.

SVOC analysis identifies the presence of two groups of organic compounds, those being polycyclic aromatic hydrocarbons (PAHs) and chlorophenols. All parameters that were analyzed by AGAT Laboratories were below detection limits, with one exception. The PAH compound naphthalene was detected in groundwater samples from MW106 (1.94 µg/L), MW107 (1.51 µg/L), and MW213 (2.05 µg/L). Each of those wells are part of Cluster 2 at the northwest corner of the closed landfill. There are no guidelines for naphthalene specified in the Guidelines for Canadian Drinking Water Quality.

Relatively minor impacts to groundwater quality, arising from mixing with leachate, were identified at well Clusters 1, 8, 9 and 10. The most significant impacts exist in shallow groundwater at MW107, in Cluster 2. Alkalinity (average 663 mg/L), boron (average 2,576 µg/L), and chloride (average 161 mg/L) are relatively high in shallow groundwater at that location. Each of those parameters increased in concentration from 2004 to 2012. After 2012, concentrations remained high and relatively stable, but some periods of significant dilution were noted. More chemical variability is observed at MW107, compared with MW106, because MW107 is a shallow water-table well and it is subject to sudden changes in chemistry associated with precipitation events. The overall chemical are indicative of an advancing leachate plume that has stabilized, with short-term swings in concentrations related to periodic dilution during recharge events. It is also possible that groundwater quality at MW107 is being influenced by the application of biosolids, which are a source of boron.

6.1.3 Leachate Conditions

Monitoring well MW106 was selected as a proxy for identifying leachate evolution and impacts across the site because it is the deeper of the two impacted wells at Cluster 2 and, therefore, is less susceptible to seasonal dilution, which otherwise masks the evolutionary signal. Alkalinity (average 513 mg/L), boron (average 1,171 µg/L), and chloride (average 92 mg/L) are relatively high in intermediate groundwater at that well location and each of those parameters increased in concentration from 2004 to 2016. Since 2016, concentrations peaked and remained relatively stable. Groundwater has evolved at MW106 from a low TDS, Ca-Na-HCO_3 type water to a relatively high TDS, Ca-Mg-Na-HCO_3 type water. Bear in mind that calcite reached saturation levels in 2010 and has likely been precipitating in groundwater in the area around MW106 up to and including 2025. That process would act to reduce soil permeability and migration rates.

6.2 Recommendations

Recommendations arising from this year's review are listed in point form below, for ease of reference.

1. In 2025, field-measured specific conductance poorly matched with laboratory-reported values of specific conductance. Field-measured and laboratory-measured pH differed significantly for some samples, but that is often the case because pH is only valid if recorded within 15 minutes of sampling (laboratory-reported values are not normally indicative of field conditions). Temperature, pH, specific conductance, and dissolved oxygen content need to be recorded for both surface water and groundwater at the time of sampling, using properly calibrated water quality instruments, and flow rates should continue to be measured when sampling surface water stations. There are a number of reasons for those recommendations: pH and temperature are required in order to calculate guideline values for parameters such as ammonia; dissolved oxygen is needed to determine if surface water and groundwater samples are chemically oxidized or chemically reduced; and specific conductance (electrical conductivity normalized to 25°C) is generally conservative parameter than should be used to compare with laboratory-reported conductance for quality control. Flow rate is also important for performing mass-balance calculations for surface water.

2. Surface water stations C3, C4 and C5 were all providing redundant results for the quality of surface water in Covey Lake and, in Fracflow's opinion, were not likely to provide any meaningful information on potential impacts to lake water from leachate. That is because the results from 3D modelling has shown that impacted groundwater is likely to be discharging through the lake sediment, several 10's of metres offshore. Shoreline samples provide no opportunity for mixing and homogenization of groundwater seepage with lake water to occur. In 2025, Stations C3, C4 and C5 were deleted and replaced with Station C3A at the outlet of Covey Lake. Sampling at the outlet of the lake provides the most representative sample of a well-mixed lake water. <u>After reviewing the 2025 analytical results for Stations C3A and CC6, Fracflow can confirm that CC6 also provides a near-mirror image of water quality at C3A and, therefore, deletion of Station CC6 is recommended in 2026</u>.

3. For surface waters, several VOC compounds that are required to be analyzed under Column 3, Schedule 1 of the guidelines were not included in the analytical package

offered by AGAT Laboratories. Those compounds were dichlorodifluoromethane (Freon 12), ethylene dibromide, hexane, methyl ethyl ketone (2-butanone), methyl isobutyl ketone, and methyl t-butyl ether (MTBE). Fracflow recommends that MJSB confirm the complete list of VOC parameters to be analyzed by AGAT in 2026 prior to contracting, and verify delivery of the required analyses immediately after receipt of the laboratory report. Another accredited commercial laboratory should be retained if all of the required parameters are not going to be supplied

4. An updated elevation survey for the monitoring well network is recommended in order to improve confidence in flow system mapping and inferences regarding the directions of plume movement. Available elevation data for some wells in the monitoring well network may not be accurate as a result of well alterations and earthwork to prevent and repair damage to those wells during capping activities in 2010. MJSB (Lunenburg Region) prepared a scope of work and obtained a quote from a qualified land surveyor in 2025. With budget approval by MJSB, the elevation survey is expected to be completed in the 2026-2027 fiscal year.

5. Total dissolved solids (TDS) and total kjeldhal nitrogen (TKN) in groundwater samples are required to be analyzed under Column 1, Schedule 1 of the guidelines, but were not included in the analyses completed by AGAT Laboratories. TDS was approximated by Fracflow and reported here. Fracflow recommends that MJSB confirm the complete list of inorganic chemical parameters to be analyzed by AGAT in 2026 prior to contracting, and verify delivery of the required analyses immediately after receipt of the laboratory report. If necessary, another accredited commercial laboratory should be retained if all of the required parameters are not going to be supplied.

6. Surface water quality in Storm Pond 2 (SP2) and Wagners Brook (W2) are of concern. Fracflow recommends that MJSB closely monitor the discharge from SP2 and W2 in 2026 and be prepared to sample for general chemistry, total metals, fecal coliform, and measure flow rate, during storm events when active discharge occurs. The goal should be to collect 3 to 4 samples of surface water from SP2 and W2 for analysis in 2026, and to measure the rate of discharge during each sampling event, so that flow and quality can be correlated at each station. Current concerns will be abated somewhat if there is an inverse correlation between flow and chemical concentrations, such that increased dilution occurs during periods of high runoff.

6.3 Sampling Schedule for 2026

Surface water stations that are scheduled for sampling in 2026 are C1, C2, C3A, CC7, SP1, SP2, SP3, W1, W2 and W3. **Station CC6 is recommended for deletion**. Surface water samples are to be collected semi-annually for the full list of general chemistry and metals parameters as required under Column 2, Schedule 1, of the new guidelines. The annual sampling event for surface waters is to include the full list of general chemistry, metals, and organic parameters specific under Column 2 and Column 3, Schedule 1, of the new guidelines. Flow measurements will also be made at also stations with active flow. Fracflow recommends additional monitoring at SP2 and W2 for general chemistry, metals, flow and fecal coliform, on 3 to 4 occasions in 2026 when active flow is occurring.

Measure water levels monitoring wells on a semi-annual basis, as per the Approval, and collect groundwater samples annually for chemical analysis, as per Column 1 and 3, Schedule 1 of the new guidelines. Monitoring wells to be sampled in 2026 include the group of wells that are scheduled for annual sampling, and the group of wells that are sampled every three years:

- Wells that are sampled annually and expected to be included in the 2026 program are MW103, MW106, MW107, MW213, MW211, MW212, and MW123.

- Wells that are sampled every three years and expected to be included in the 2026 program are MW109, MW110, MW111, MW2B, MW115, MW116, MW102, MW108, G5, G6, MW101, FWM1A, FMW1B, WS2A, WS2B, FMW2A and FMW2B.

Groundwater from monitoring well MW106 is recognized as a proxy for leachate and is scheduled for sampling, as noted above.

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7.0 REFERENCES

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APPENDIX 1

Figures

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Figure 1 Site location map.

Project No. 817		Scale 1 Km Grid	
Location	Whynotts Settlement, NS	Date	February 2026

FFC

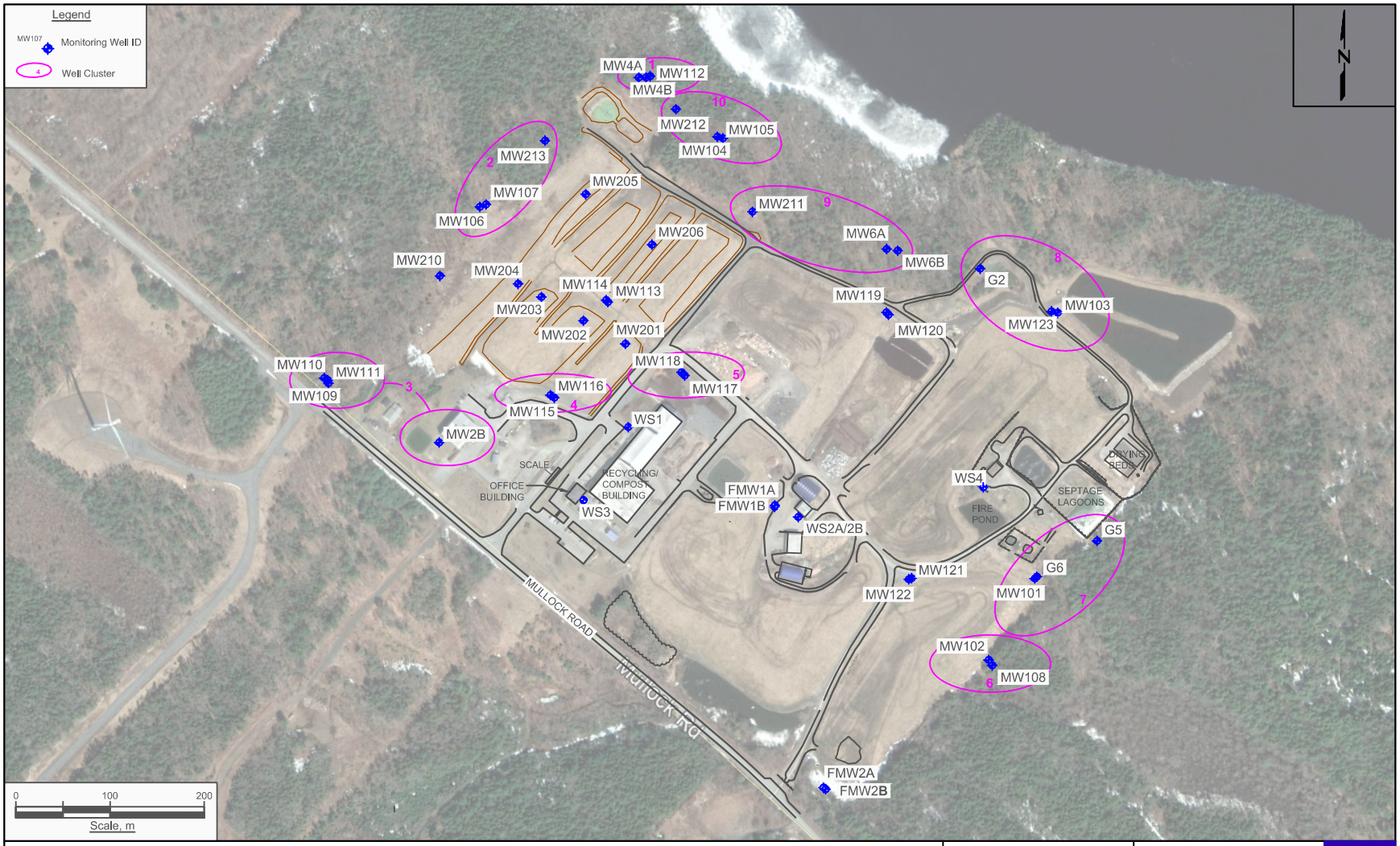

Figure 2 Locations of monitoring wells and their cluster designations.

Project No. 817	Scale As shown
Location Whynotts Settlement, NS	Date February 2026

FFC

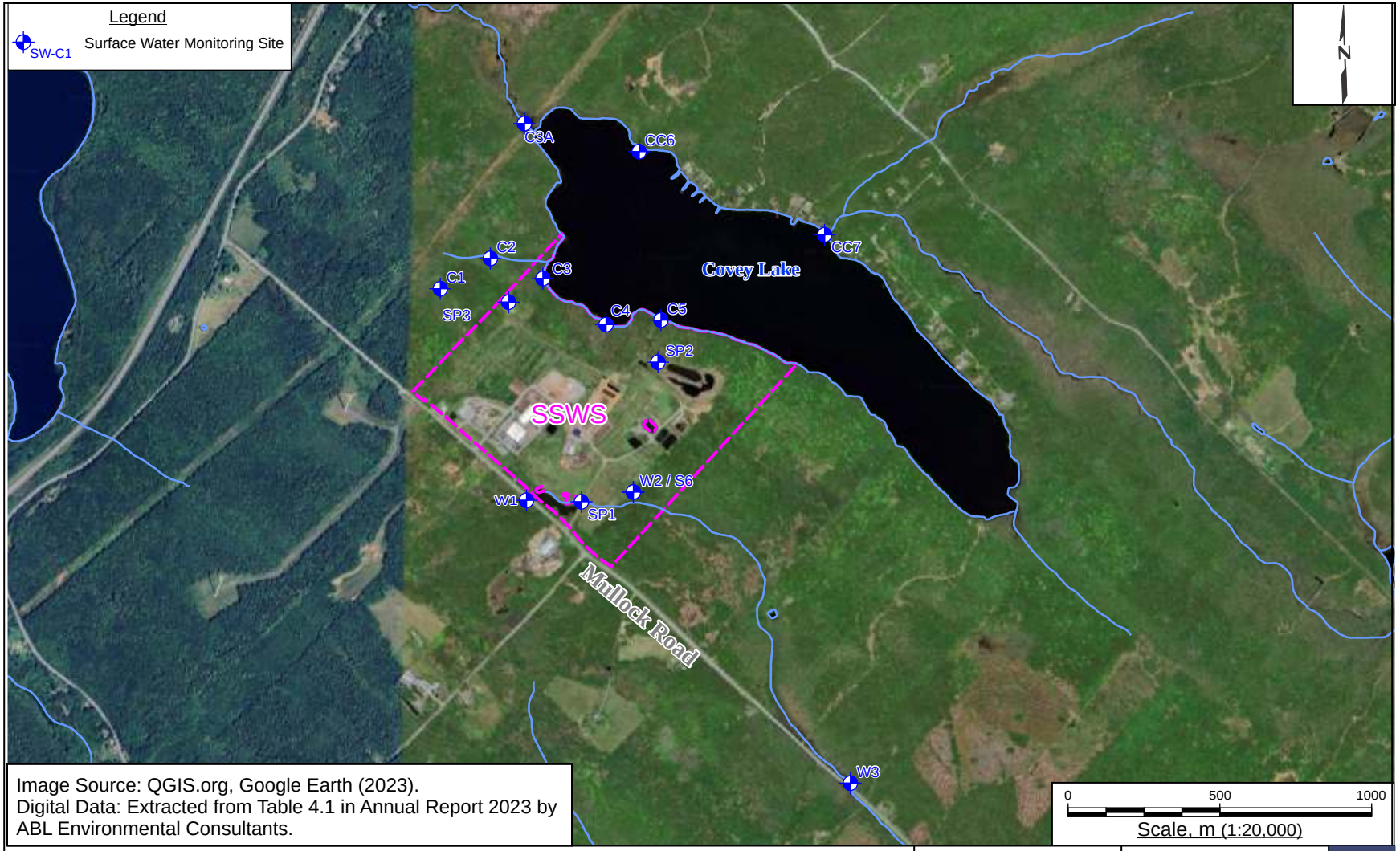

Figure 3 Site plan showing the locations of surface water monitoring stations.

Project No. 882	Scale As Shown
Location Lunenburg, NS	Date February 2026

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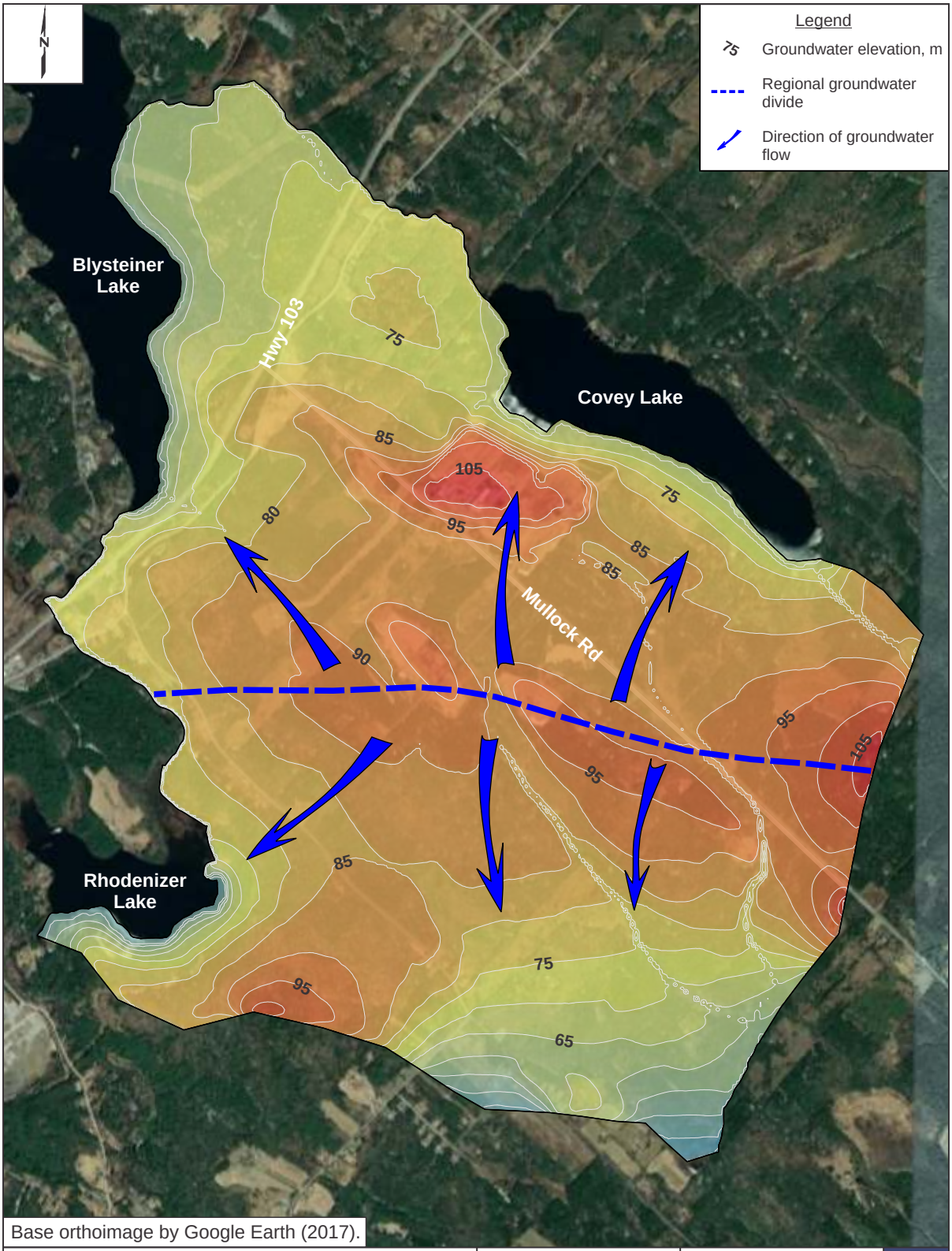

Base orthoimage by Google Earth (2017).

Figure 4 Contour map of computed groundwater elevations at the water table across the entire model area.	Project No. 817	Document Reference FFC-NS-817
	Location Whynotts Settlement, NS	Date February 2026

FFC

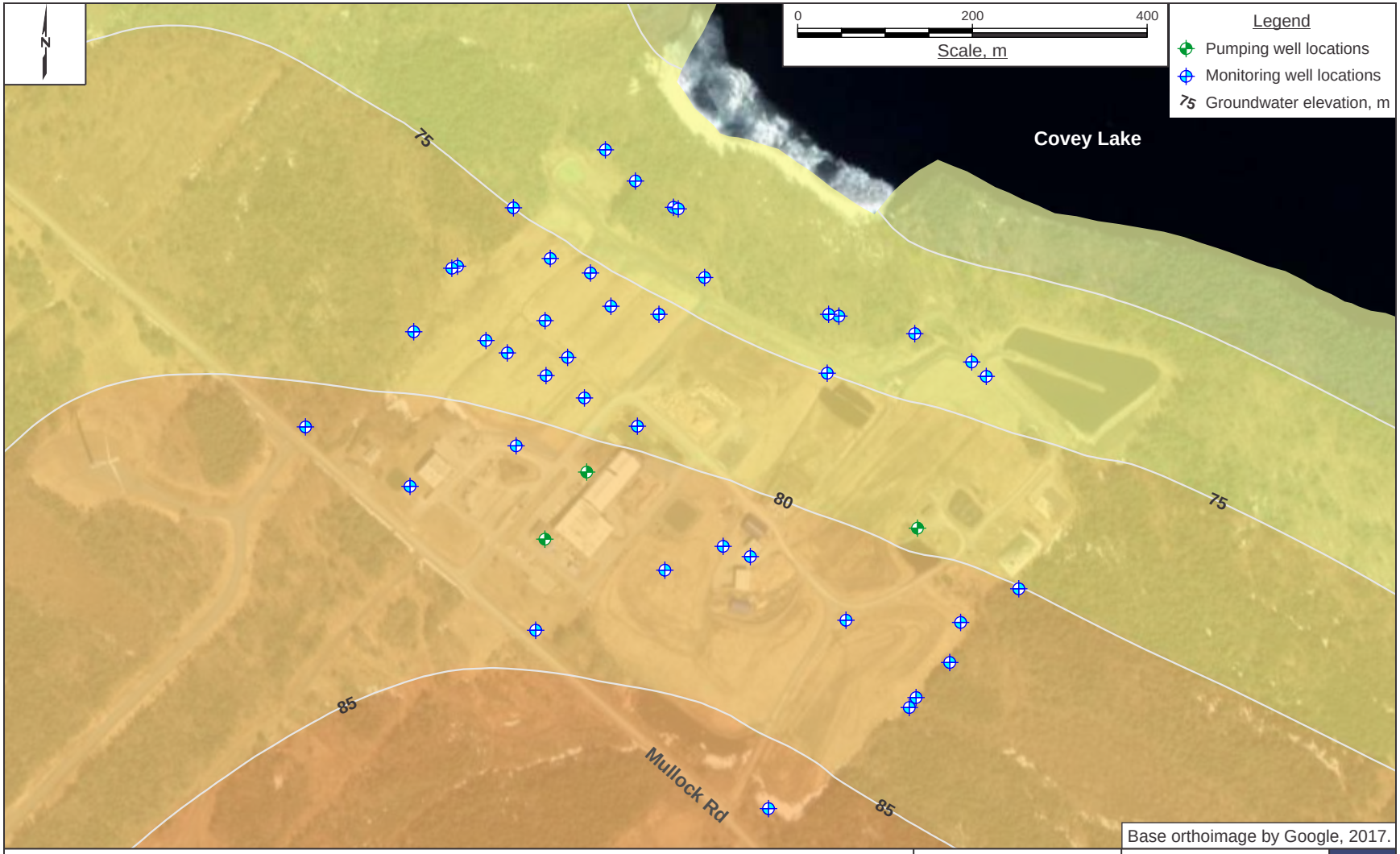

Figure 5 Contour map of computed groundwater elevations in shallow bedrock.

Project No. 817	Document Reference FFC-NS-817
Location Whynotts Settlement, NS	Date February 2026

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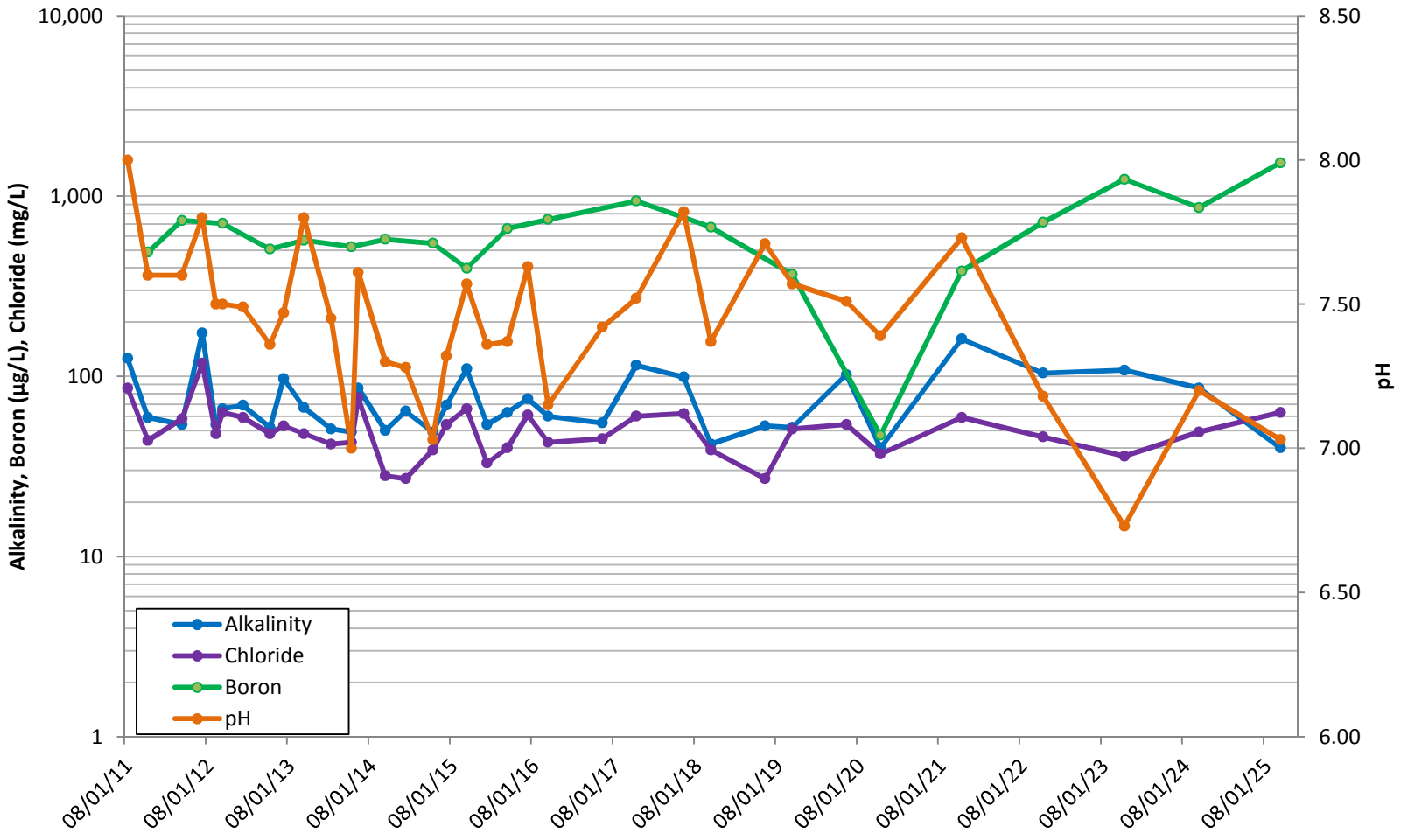

Figure 6 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station C1, from 2011 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

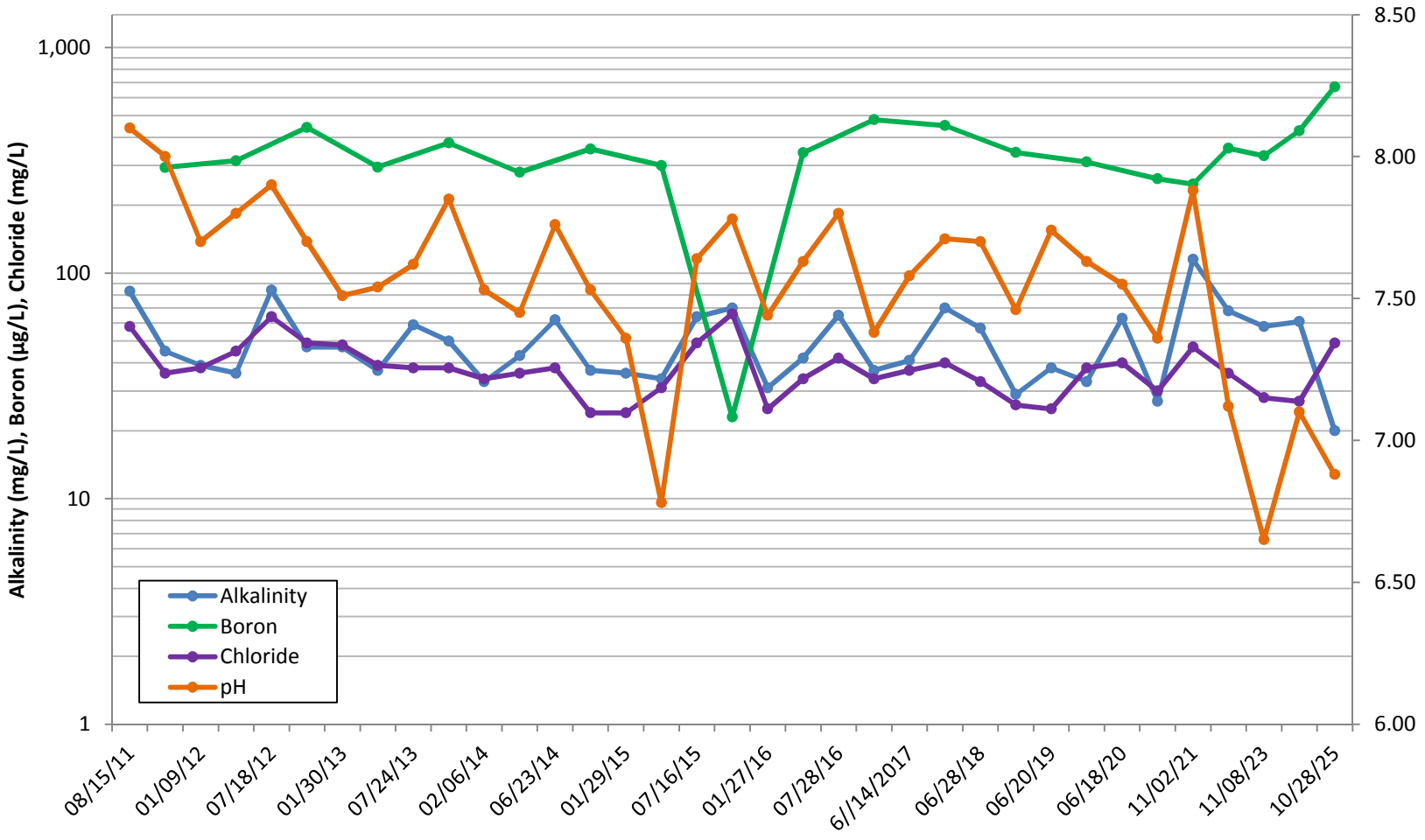

Figure 7 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station C2, from 2011 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

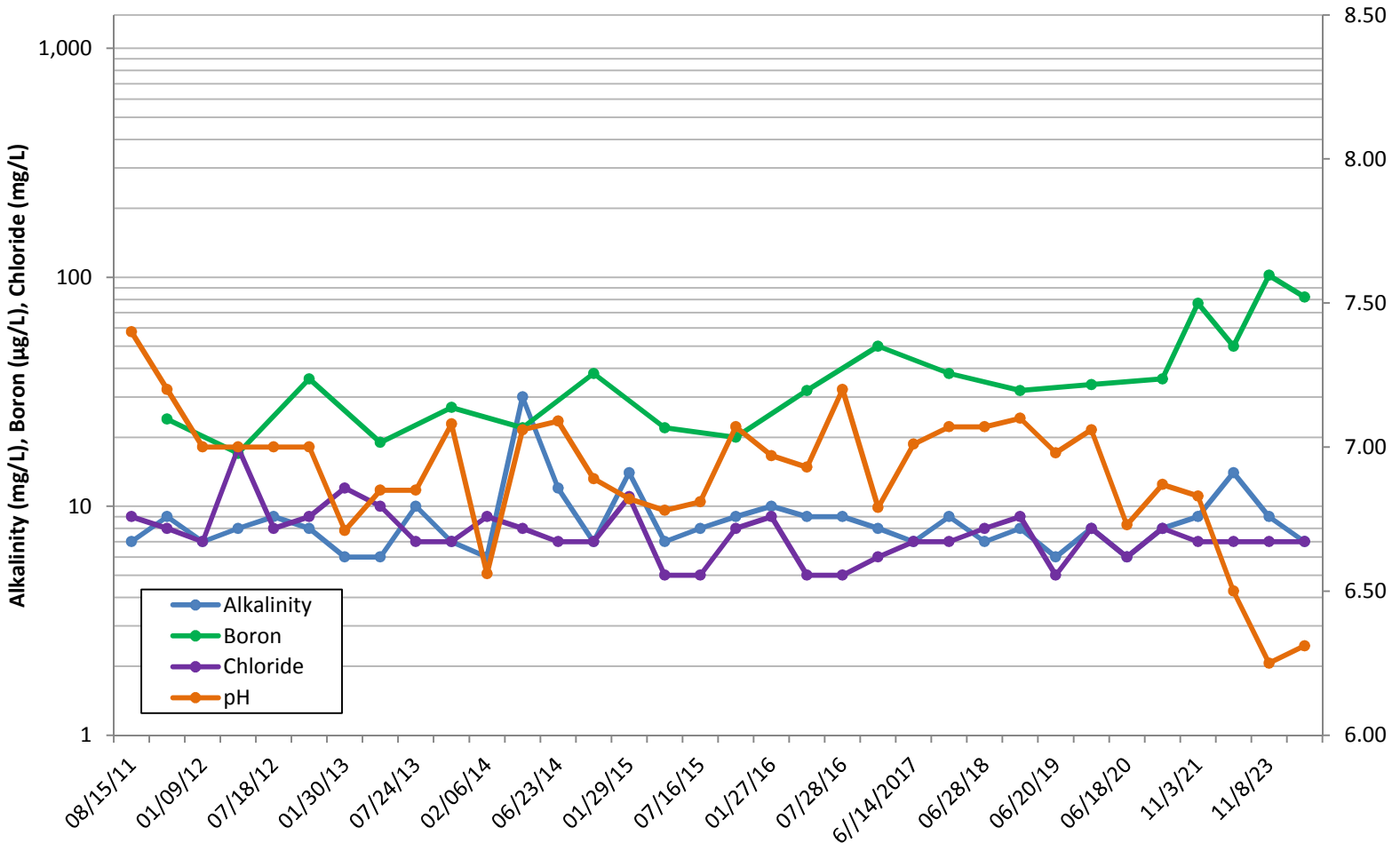

Figure 8 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of surface water samples from C3 (2011-2024) and C3A (2025).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

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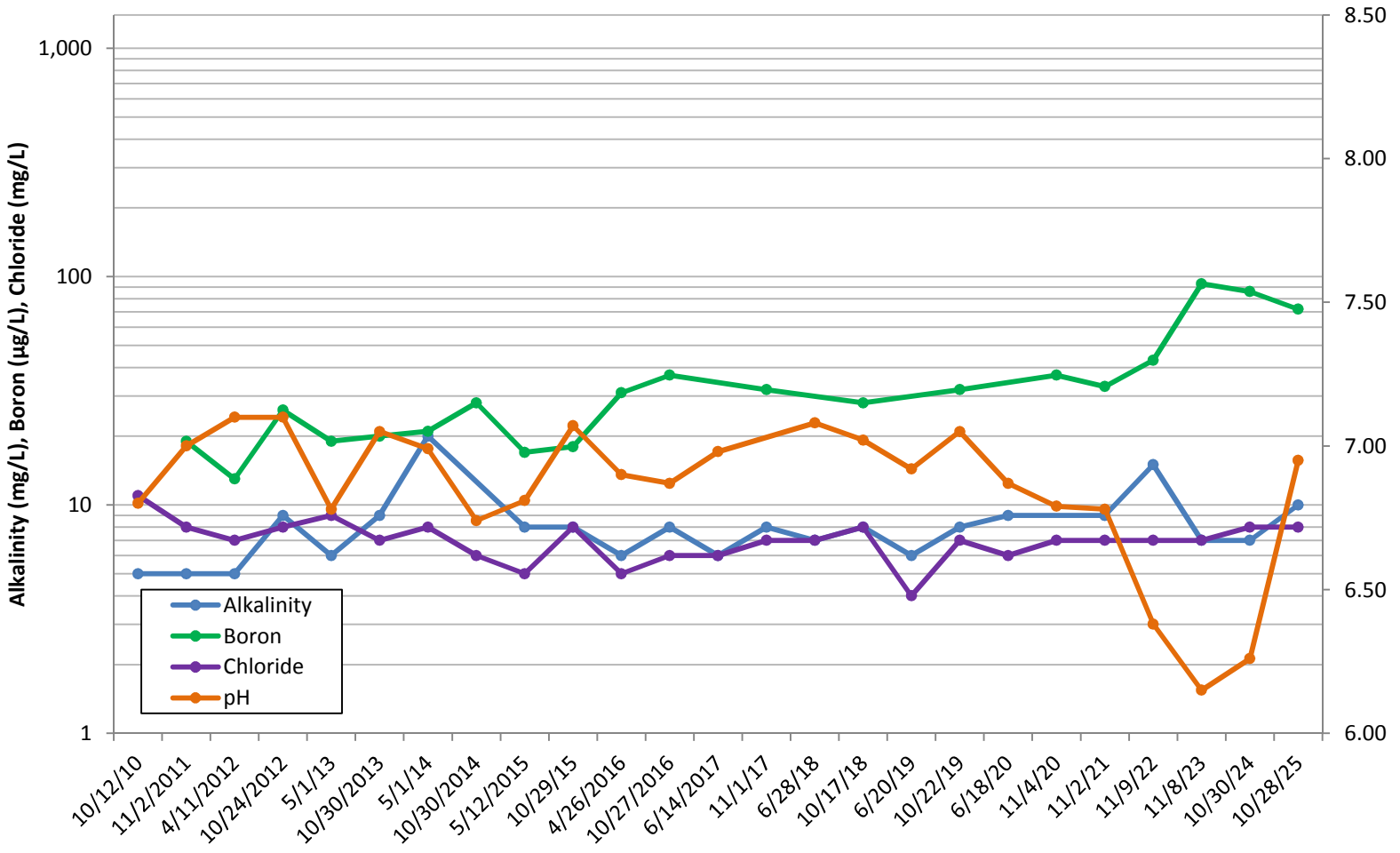

Figure 9 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station CC6, from 2010 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

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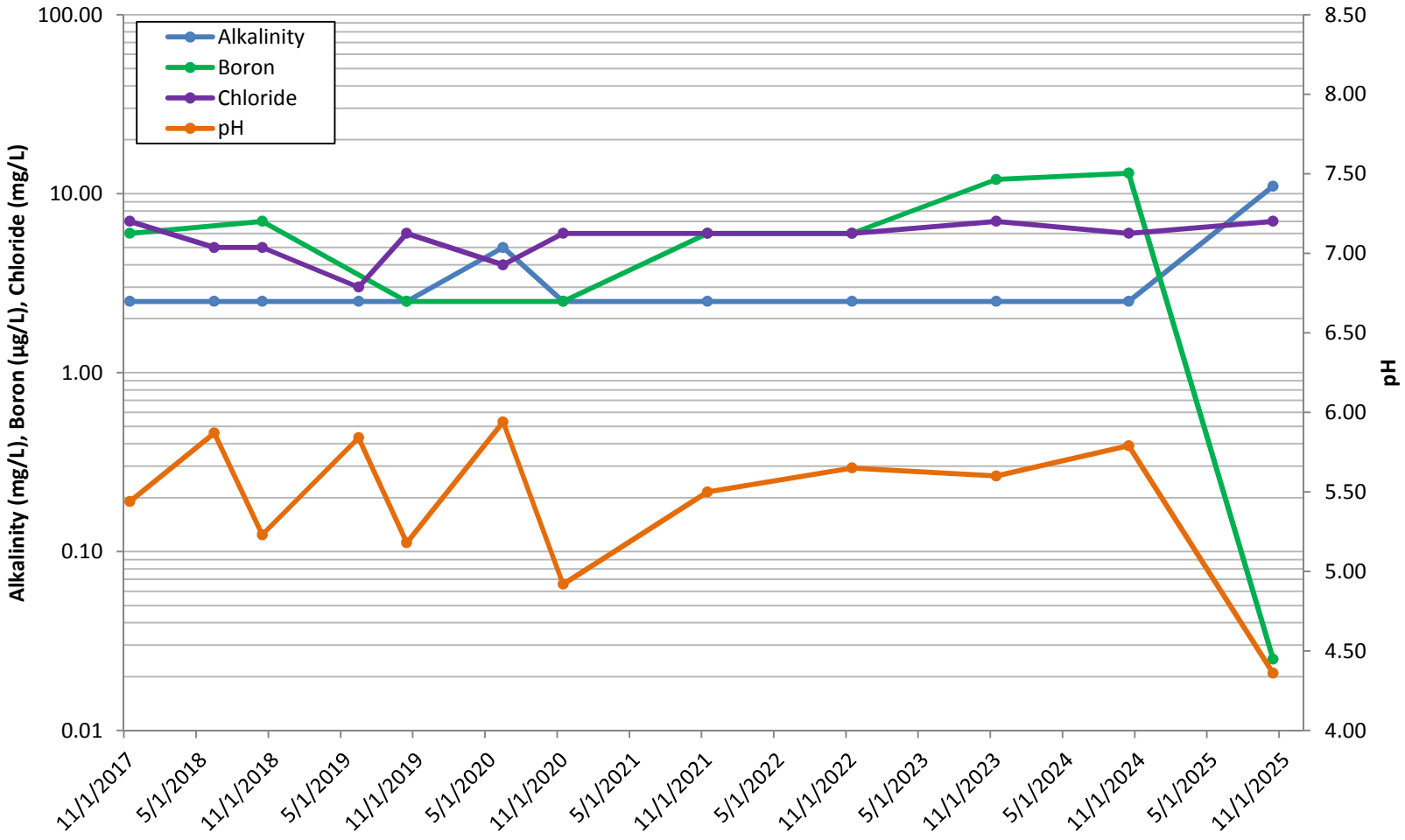

Figure 10 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station CC7, from 2017 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

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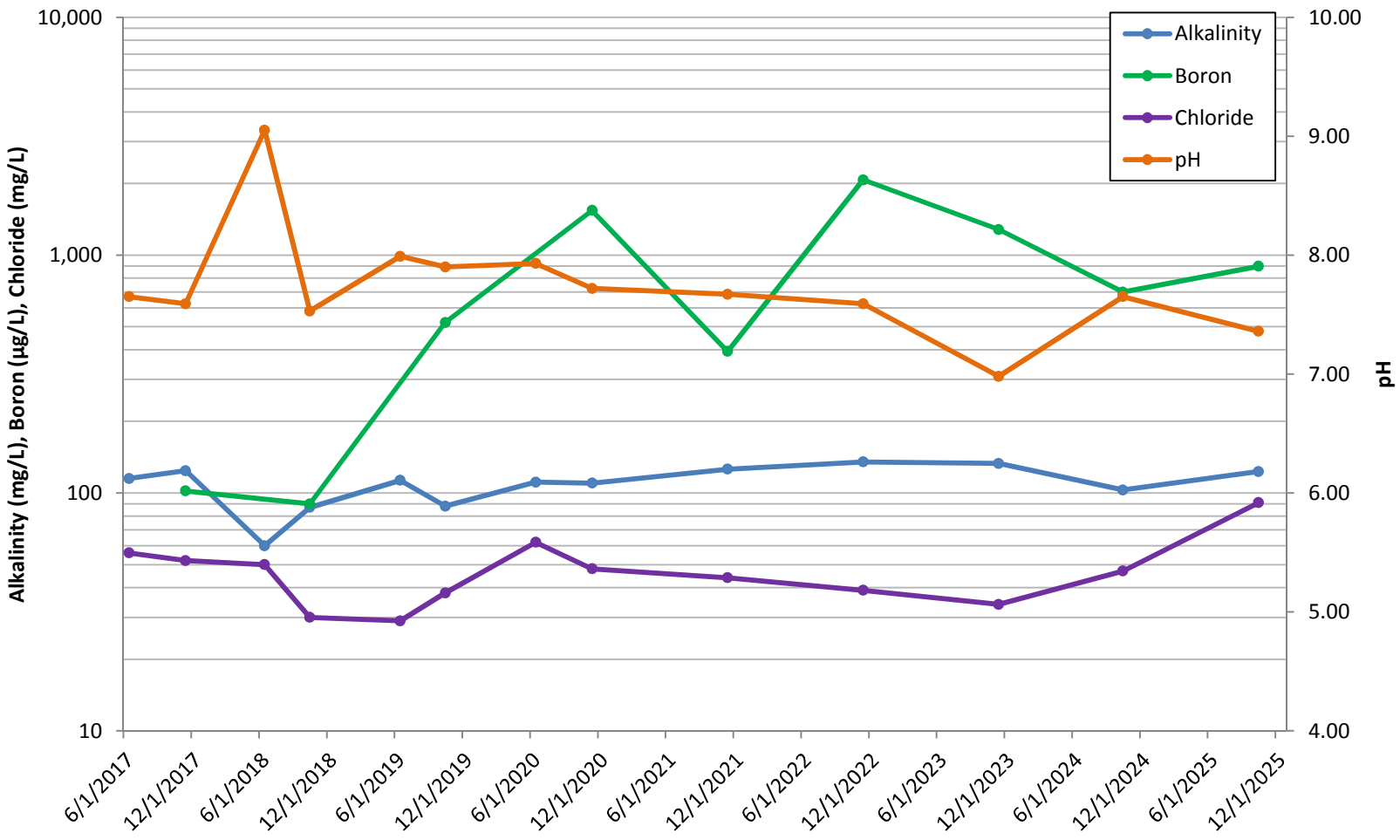

Figure 11 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station SP1, from 2017 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

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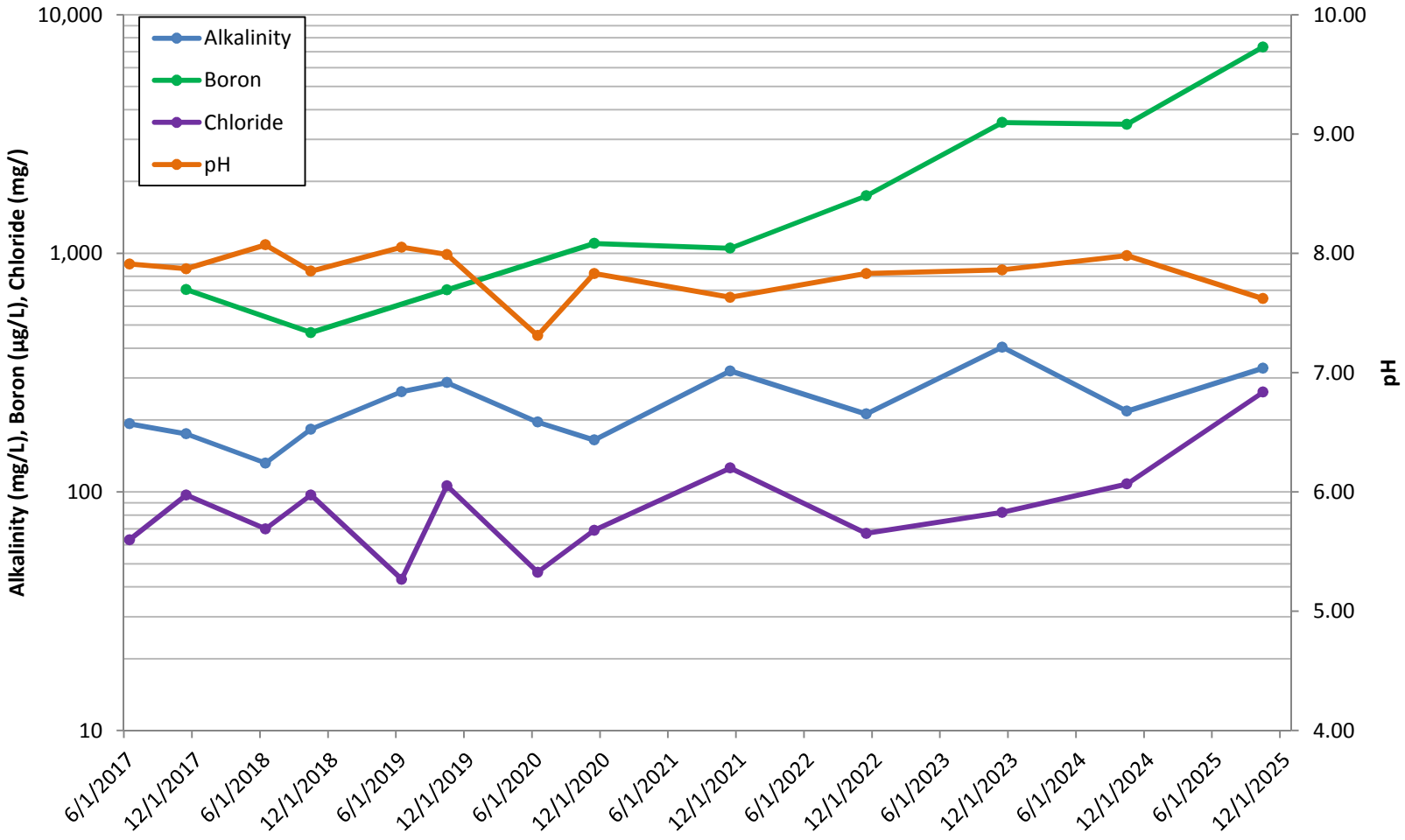

Figure 12 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station SP2, from 2017 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

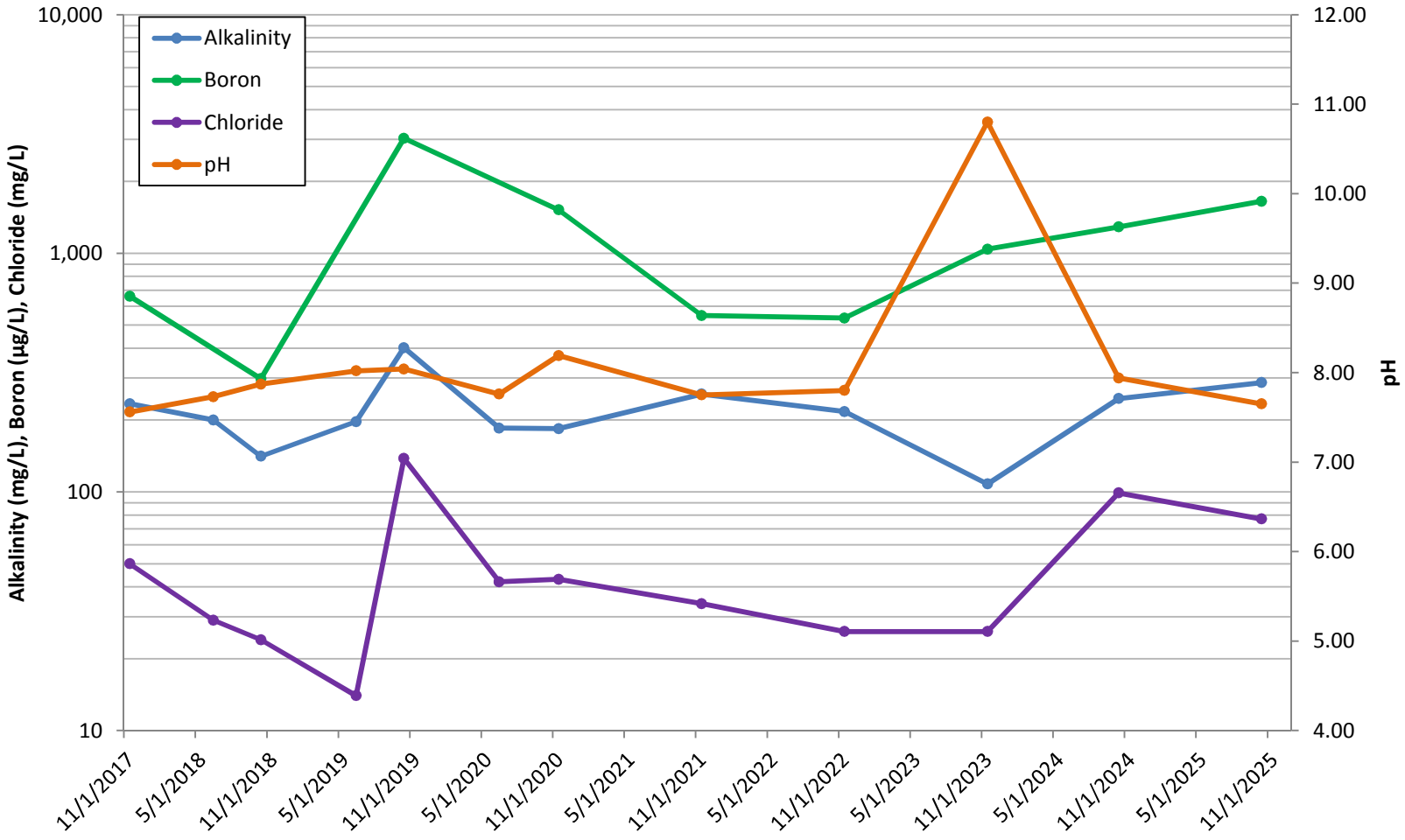

Figure 13 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station SP3, from 2017 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

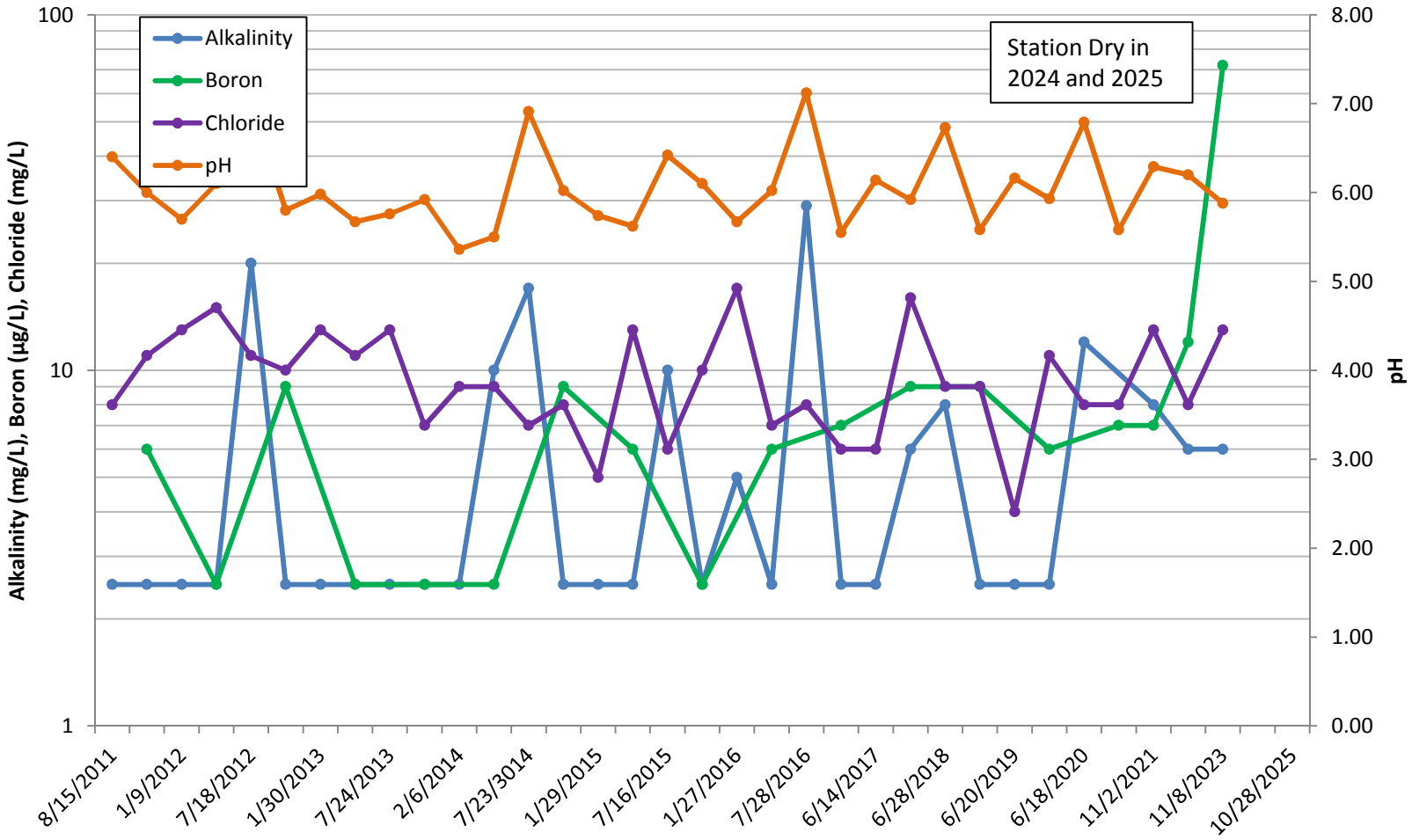

Figure 14 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station W1, from 2011 to 2023.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

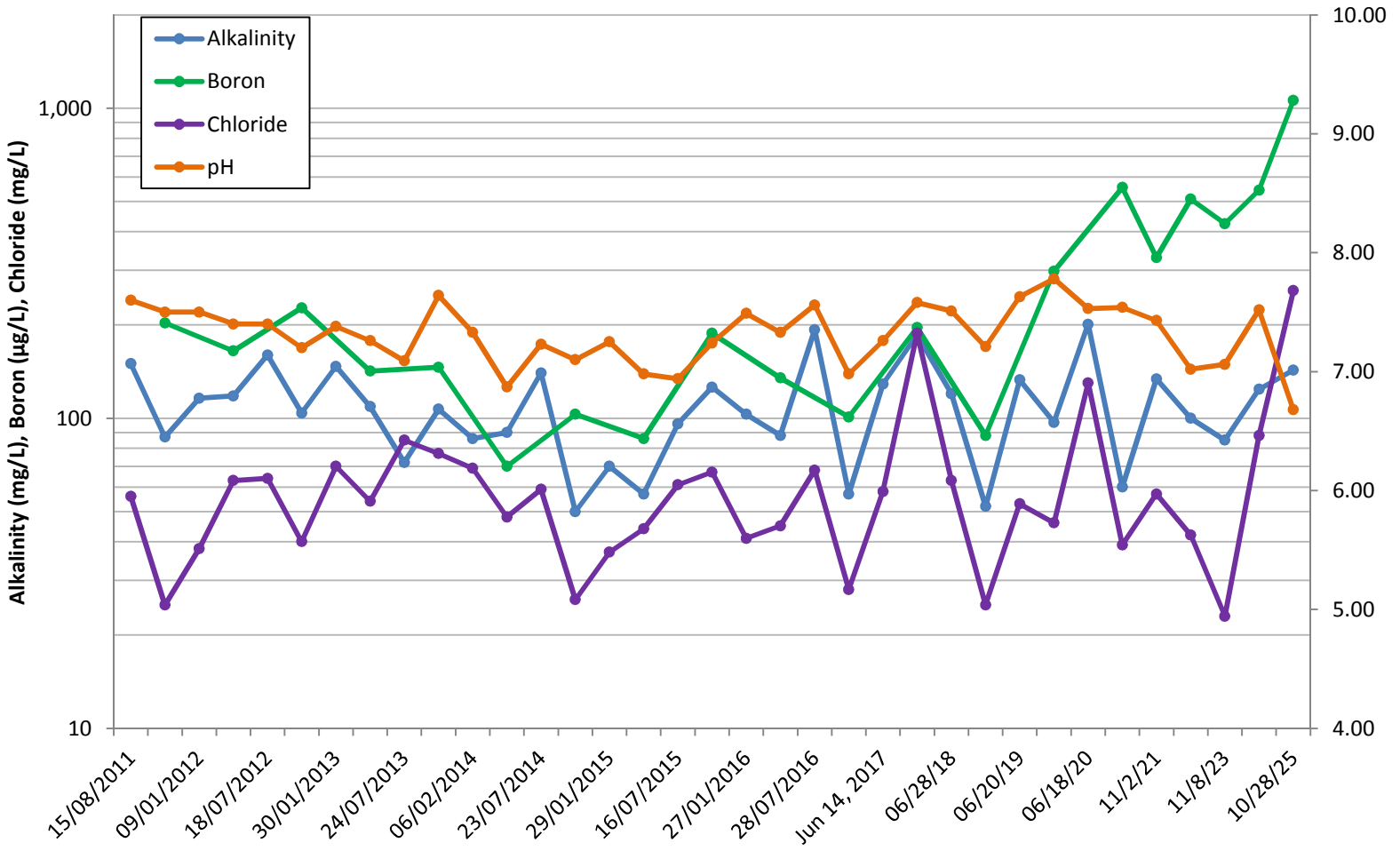

Figure 15 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station W2, from 2011 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

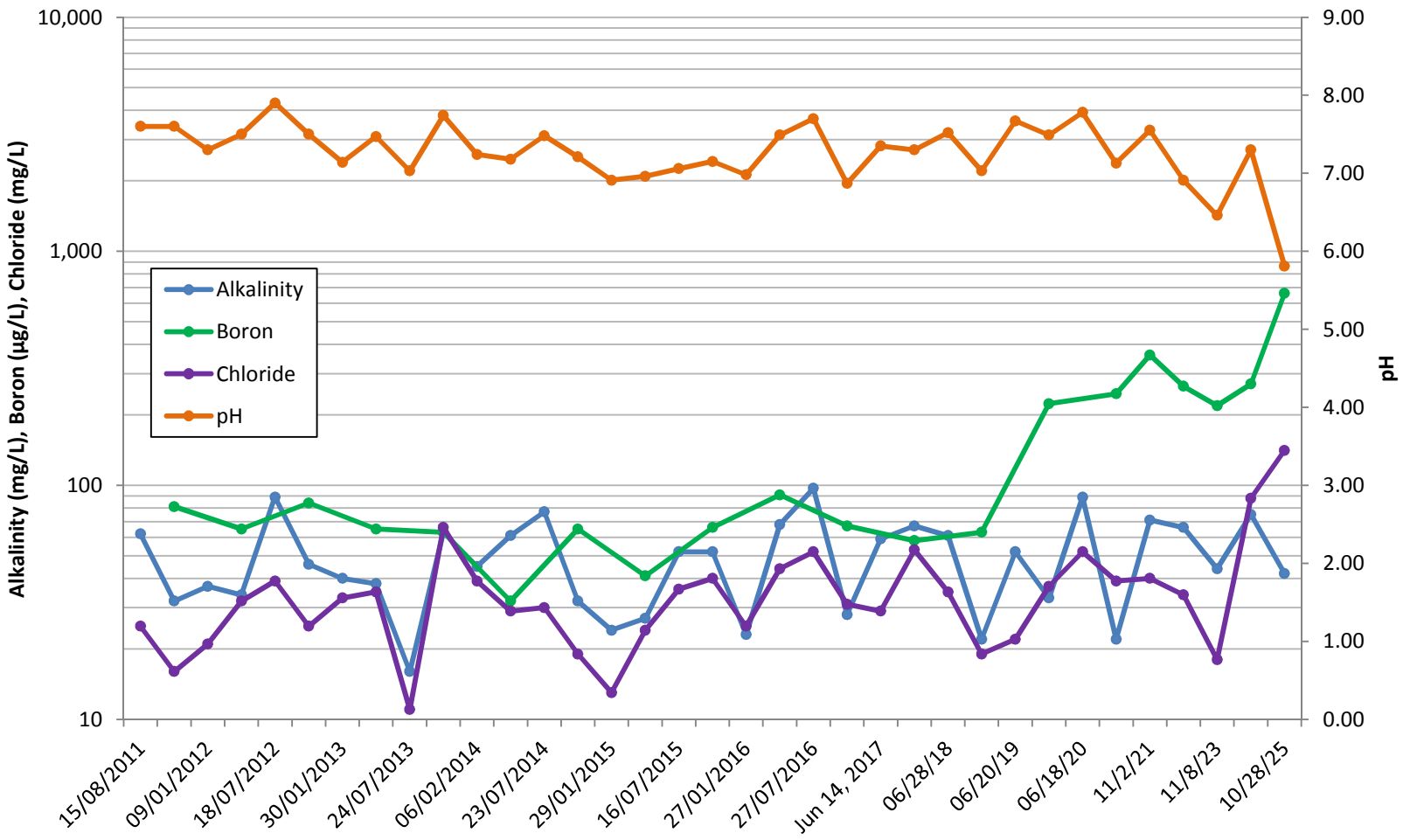

Figure 16 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from surface water station W3, from 2011 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

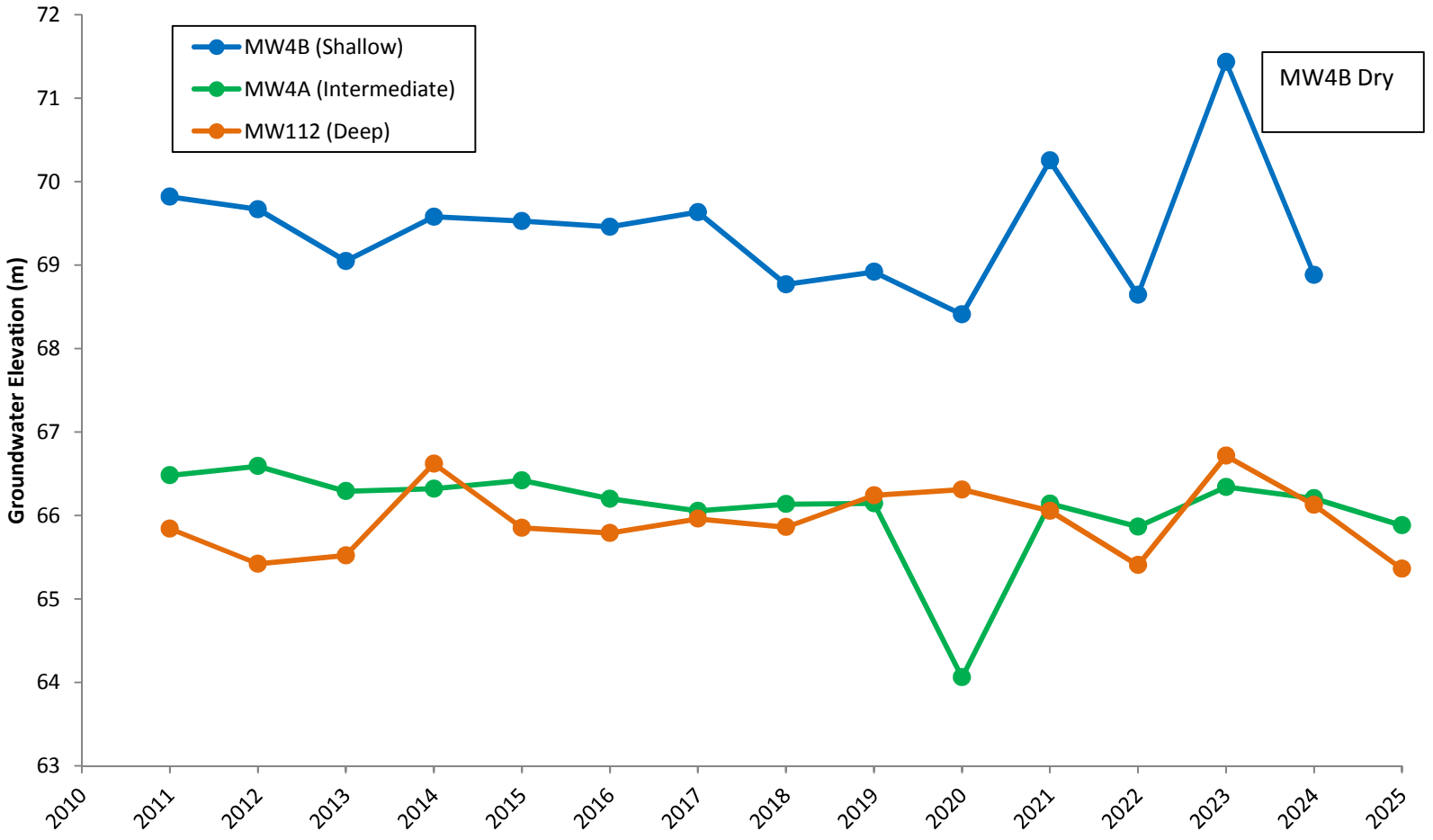

Figure 17 Water level trends at Cluster 1 (MW4A, MW4B and MW112).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

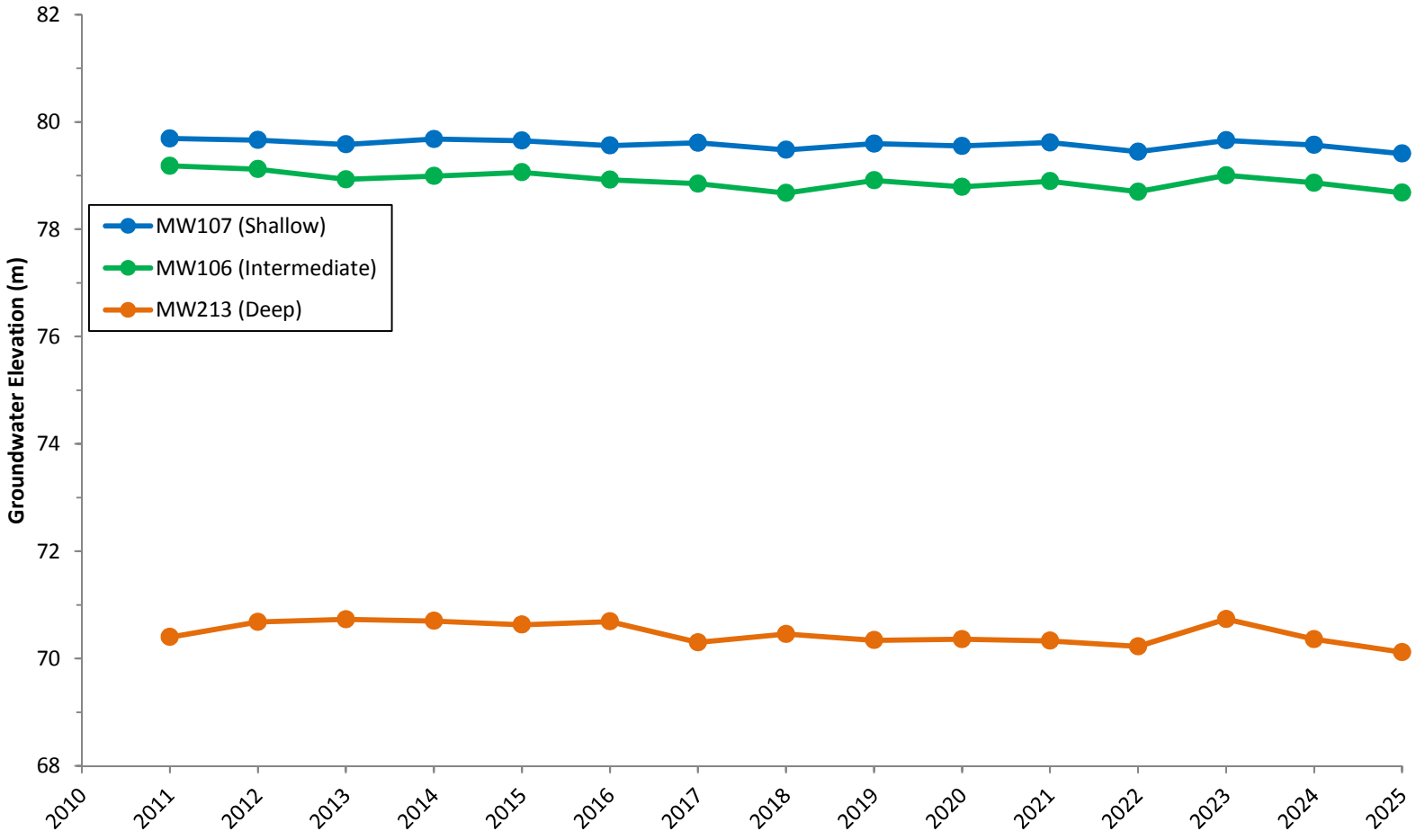

Figure 18 Water level trends at Cluster 2 (MW106, MW107, and MW213).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

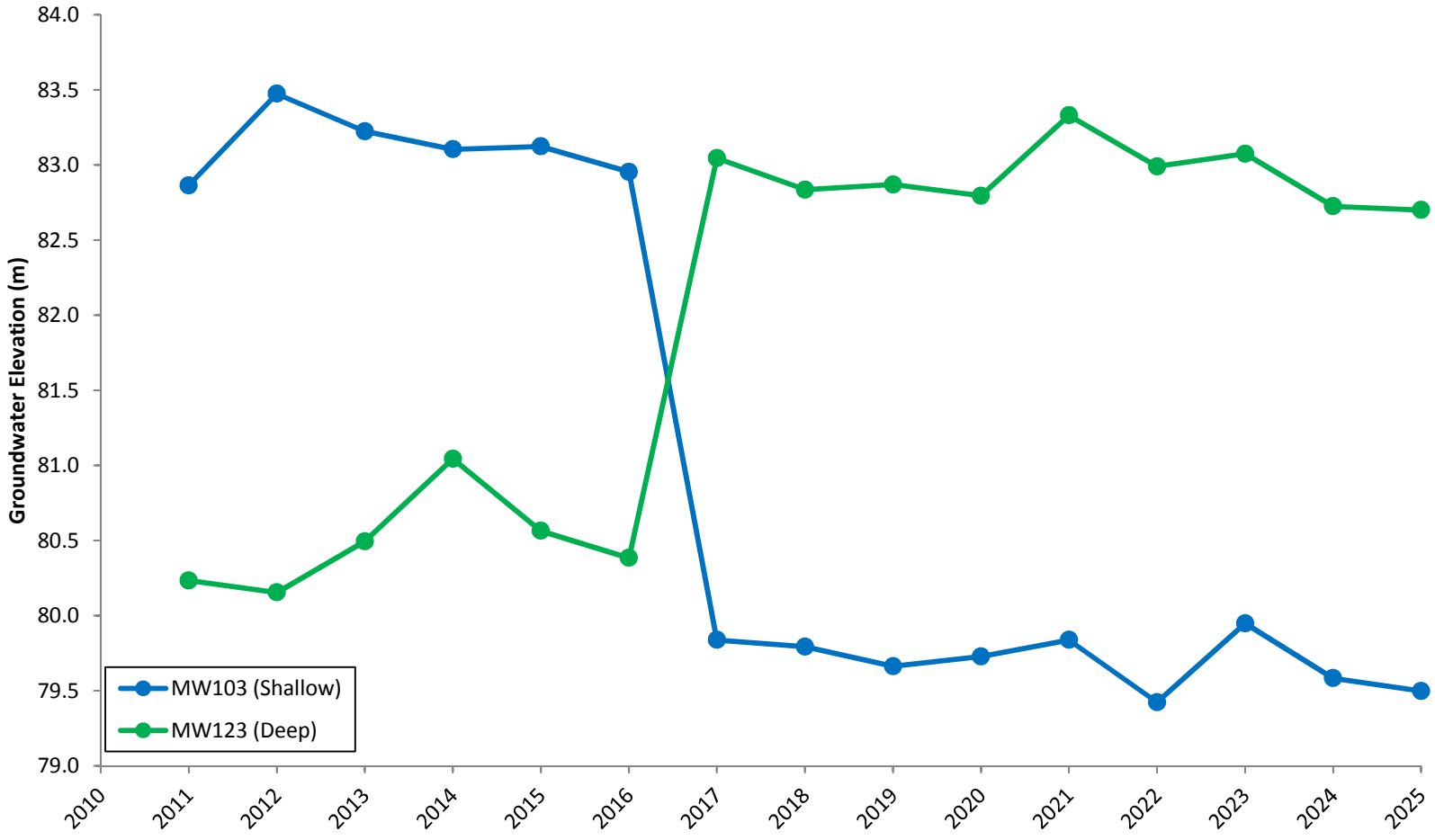

Figure 19 Water level trends at Cluster 8 (MW103, MW123).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

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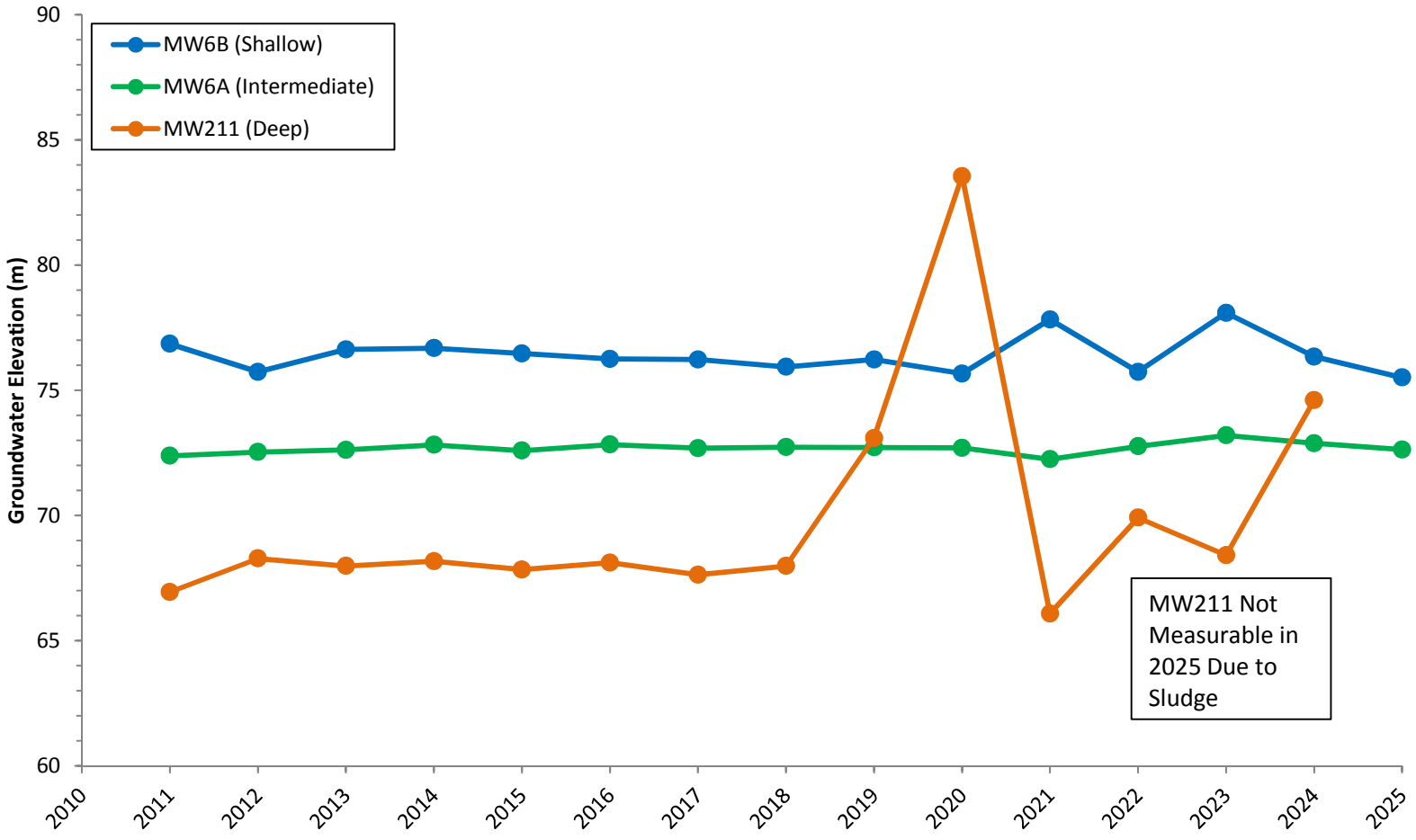

Figure 20 Water level trends at Cluster 9 (MW6A, MW6B and MW211).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

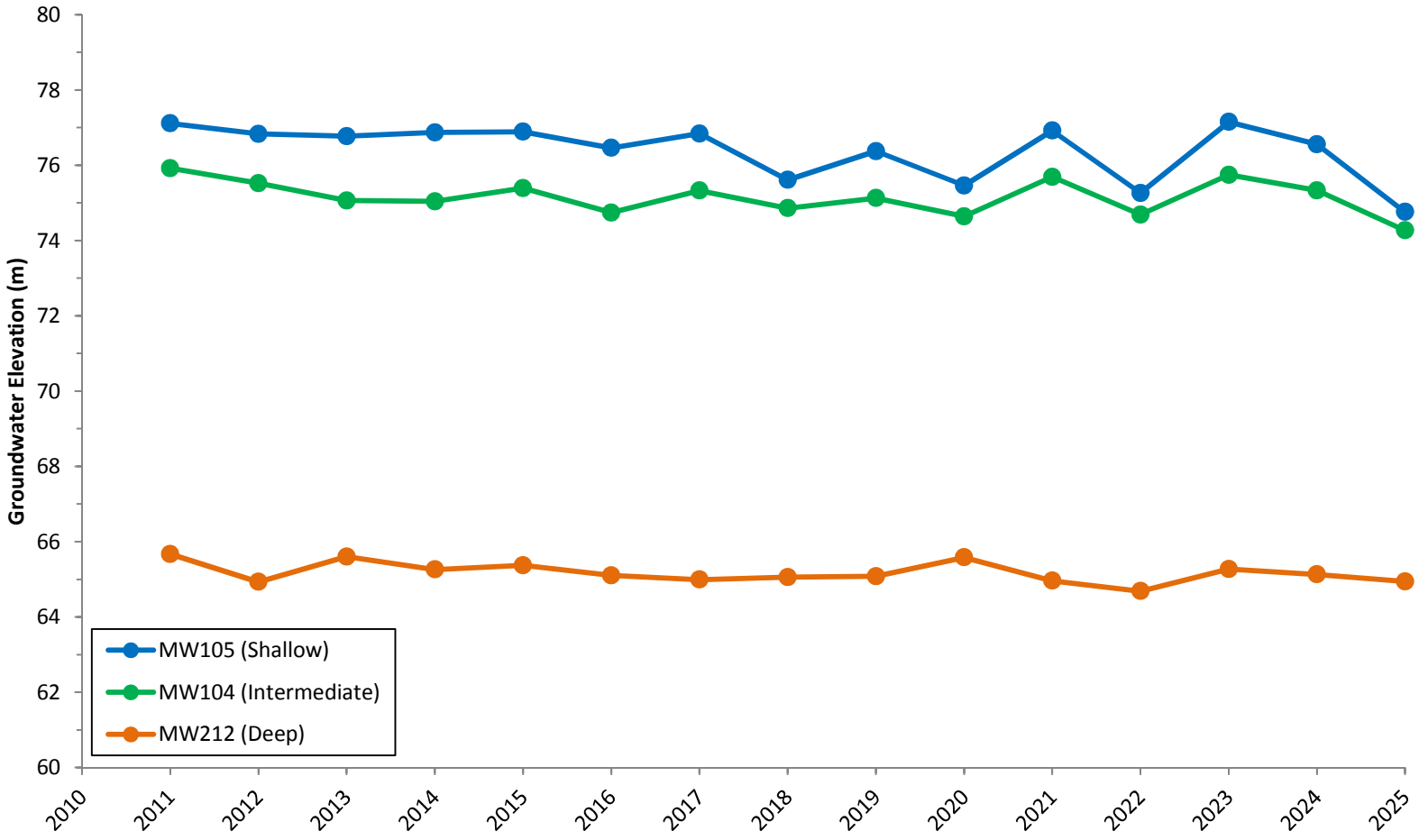

Figure 21 Water level trends at Cluster 10 (MW104, MW105, and MW212).

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

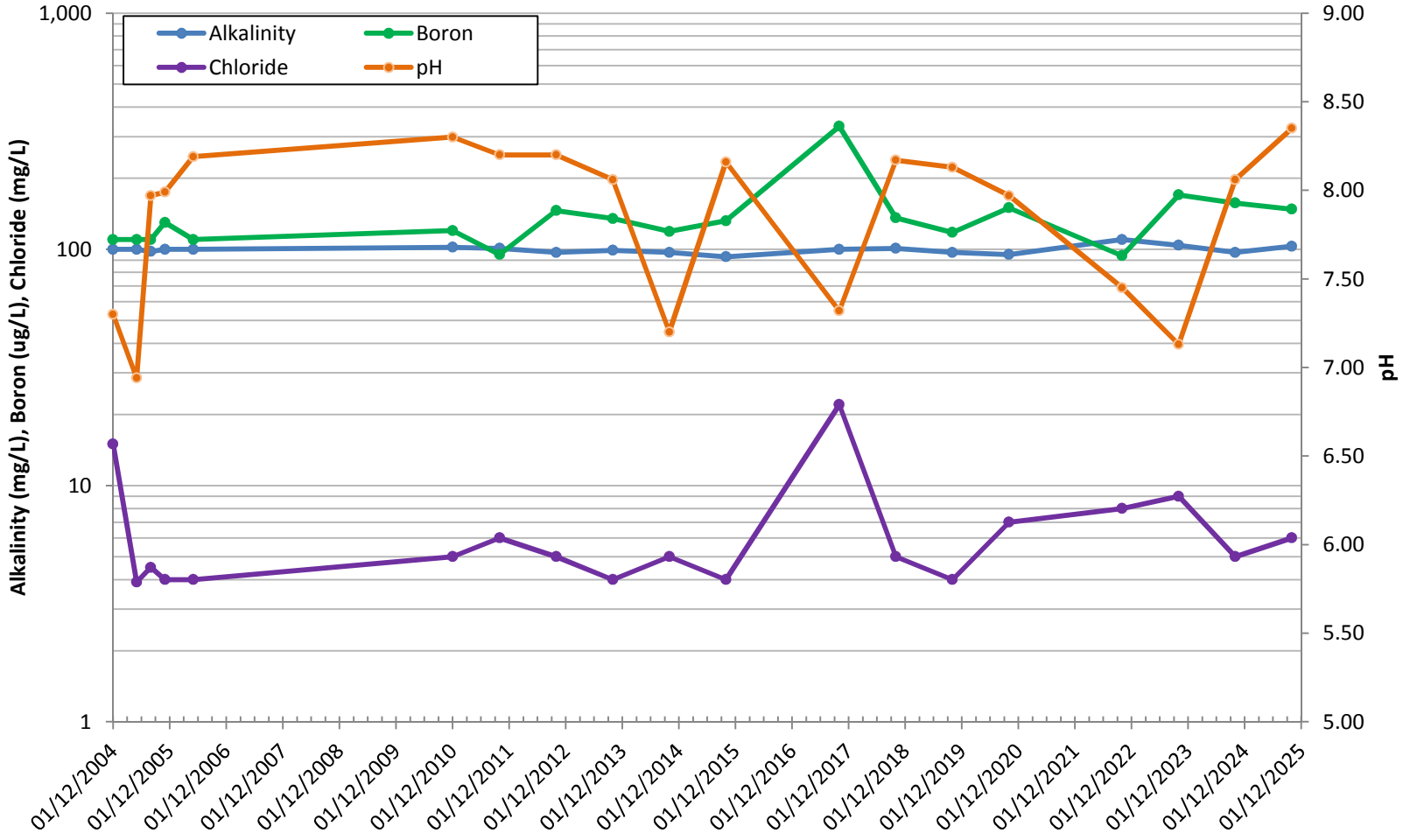

Figure 22 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW4A, from 2004 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

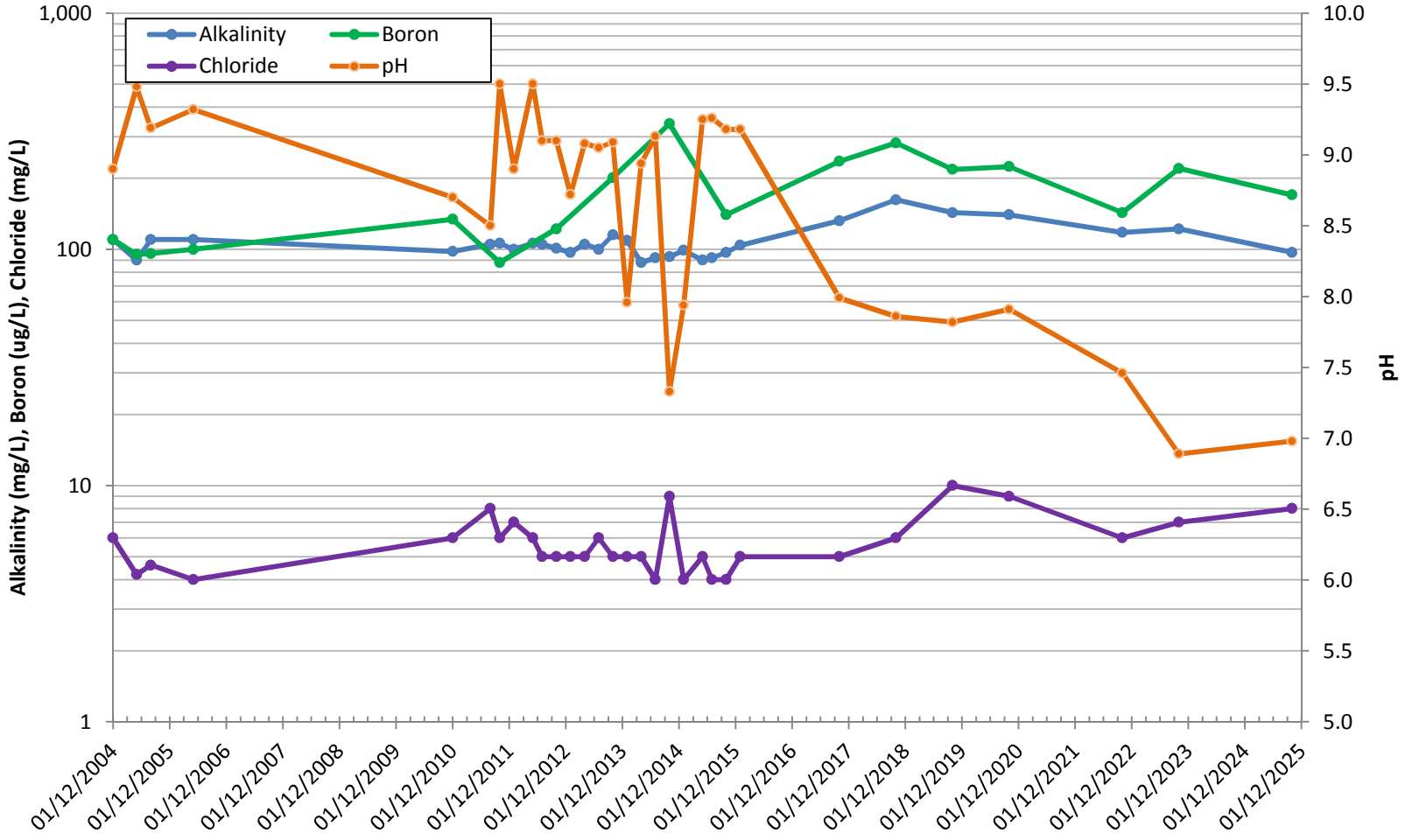

Figure 23 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW112, from 2004 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

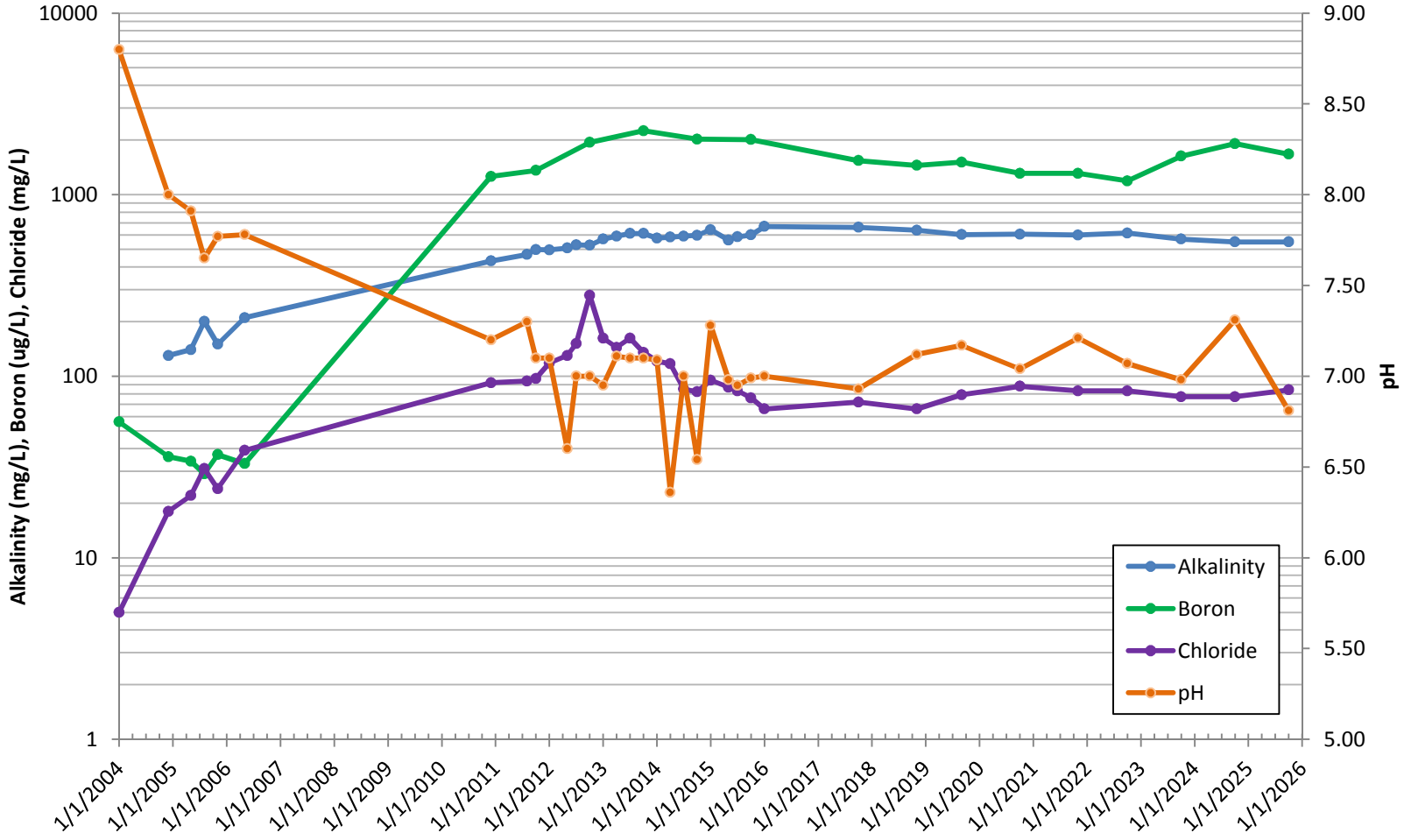

Figure 24 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW106, from 2004 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

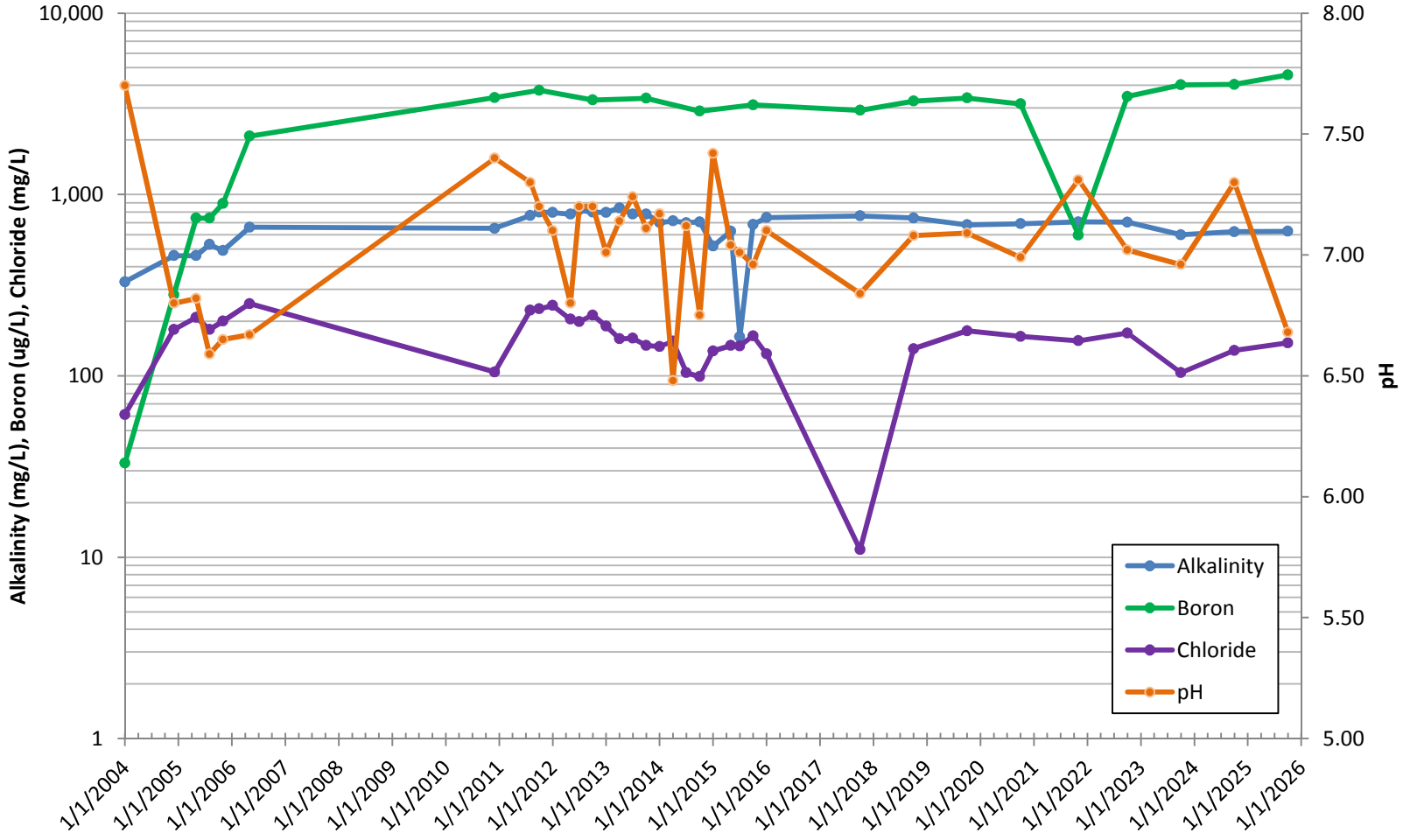

Figure 25 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW107, from 2004 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

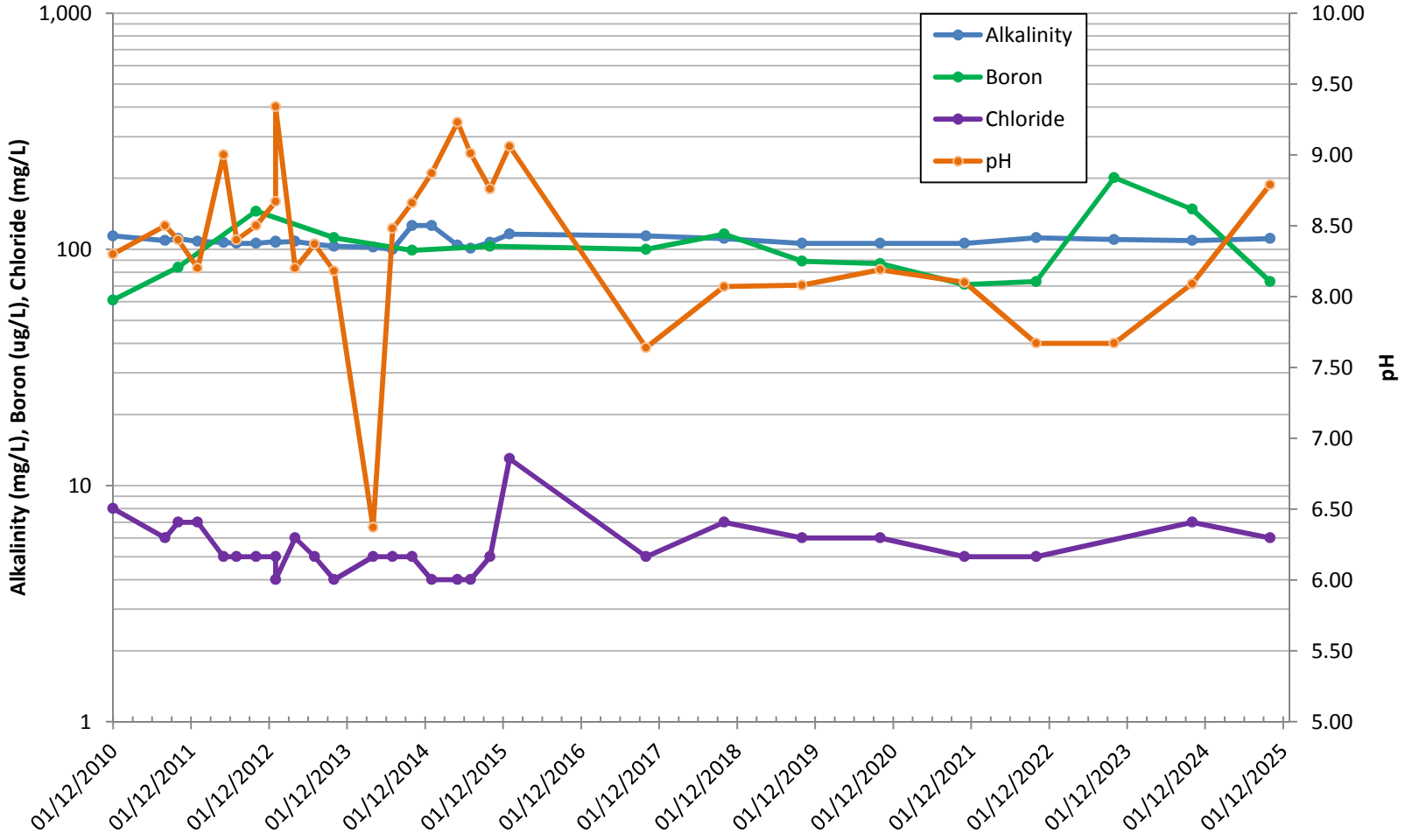

Figure 26 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW213, from 2010 to 2025.

Project No.	Scale
817	As Shown
Location	Date
Whynotts Sett.	February 2026

FFC

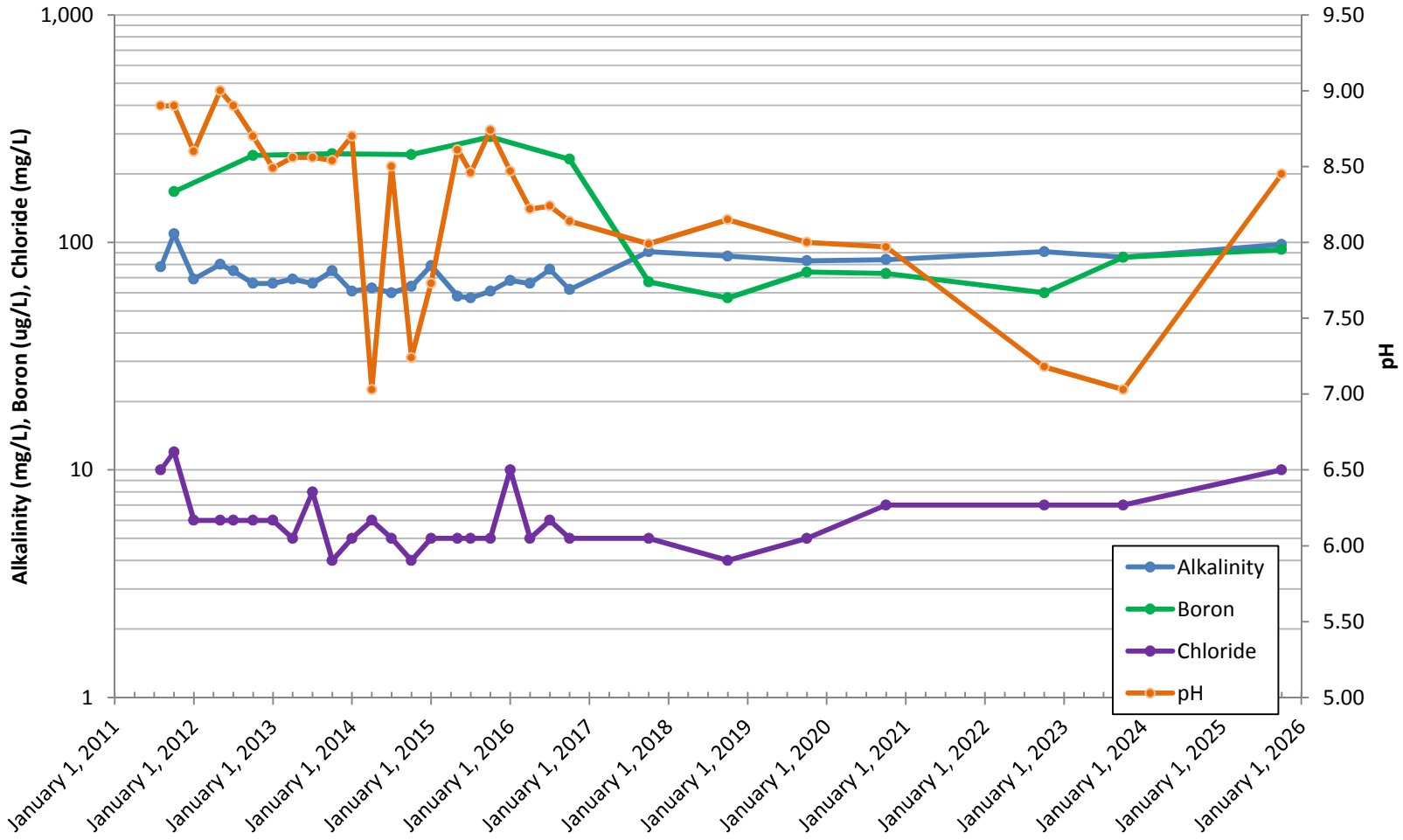

Figure 27 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW103, from 2010 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

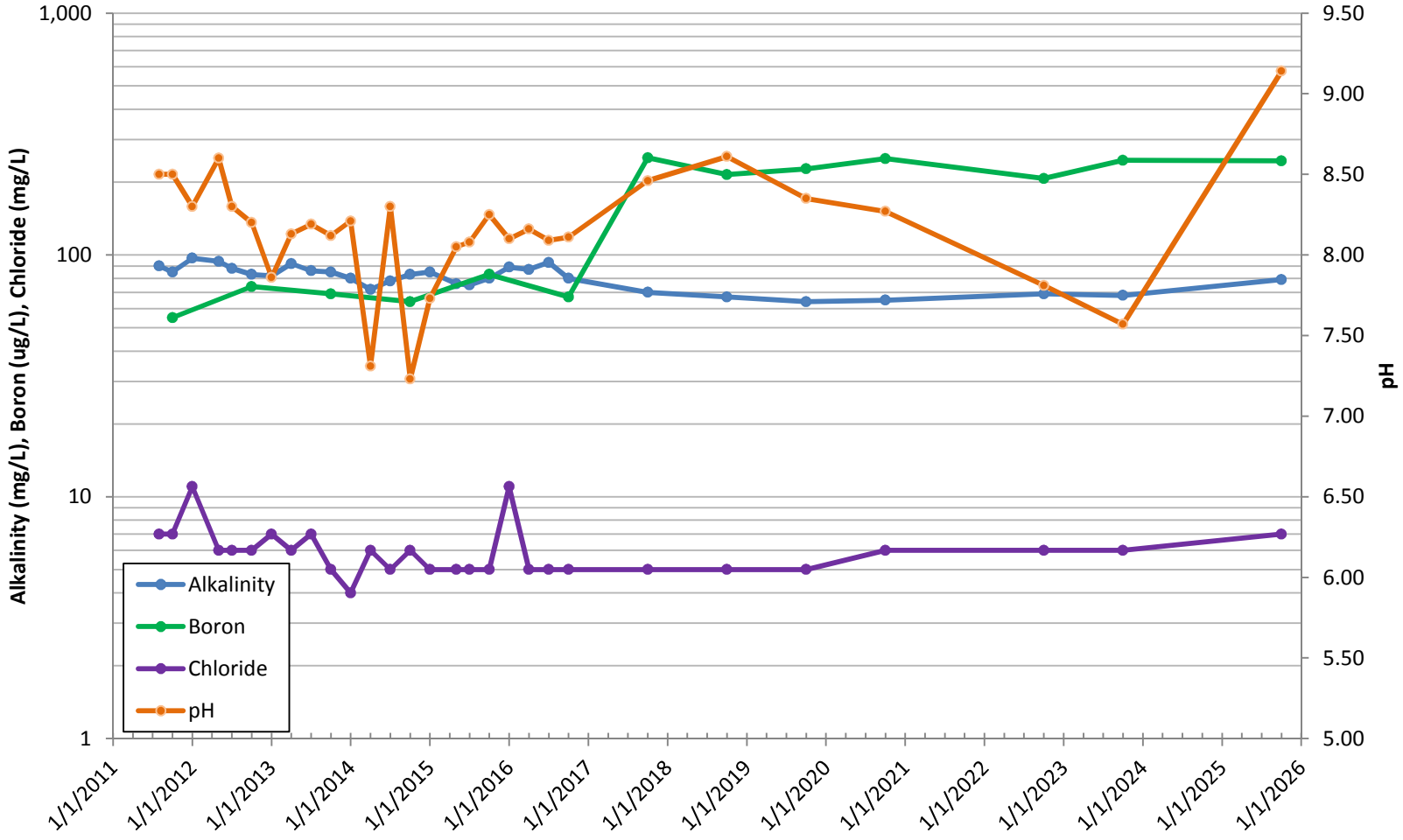

Figure 28 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW123, from 2010 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

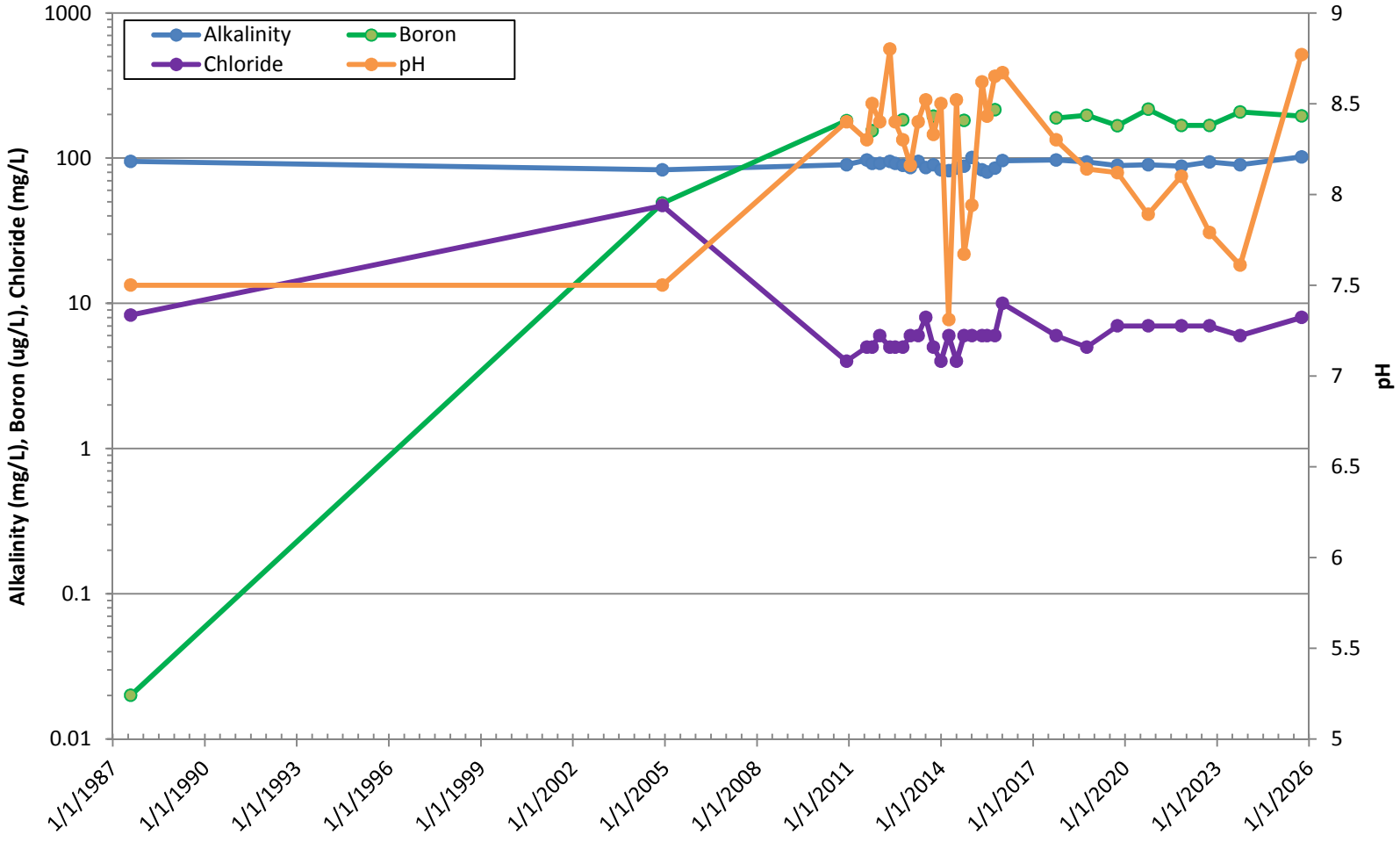

Figure 29 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW6A, from 2010 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

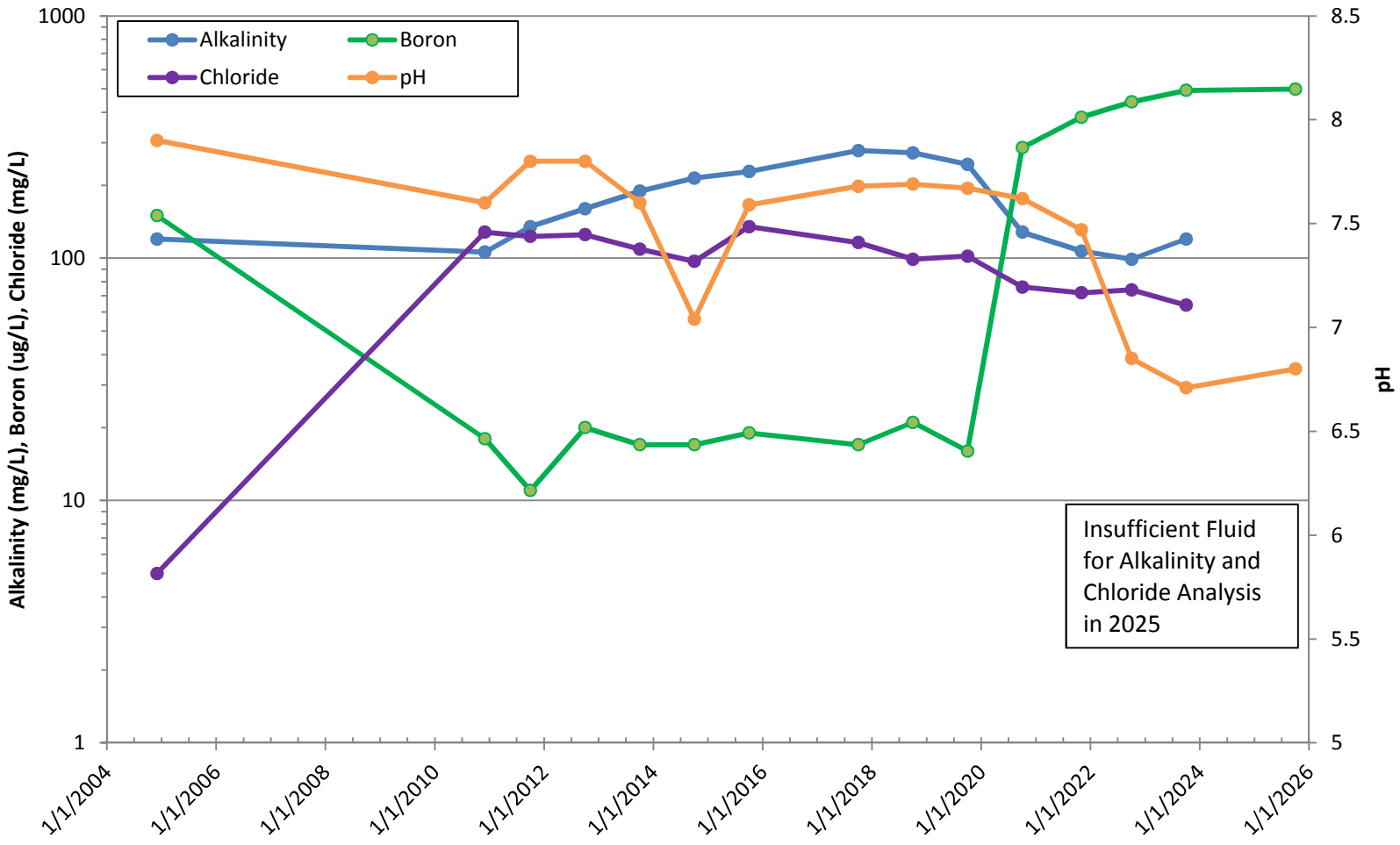

Figure 29 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW6B, from 2010 to 2025.

Project No. 817	Scale As Shown
Location Whynotts Sett.	Date February 2026

FFC

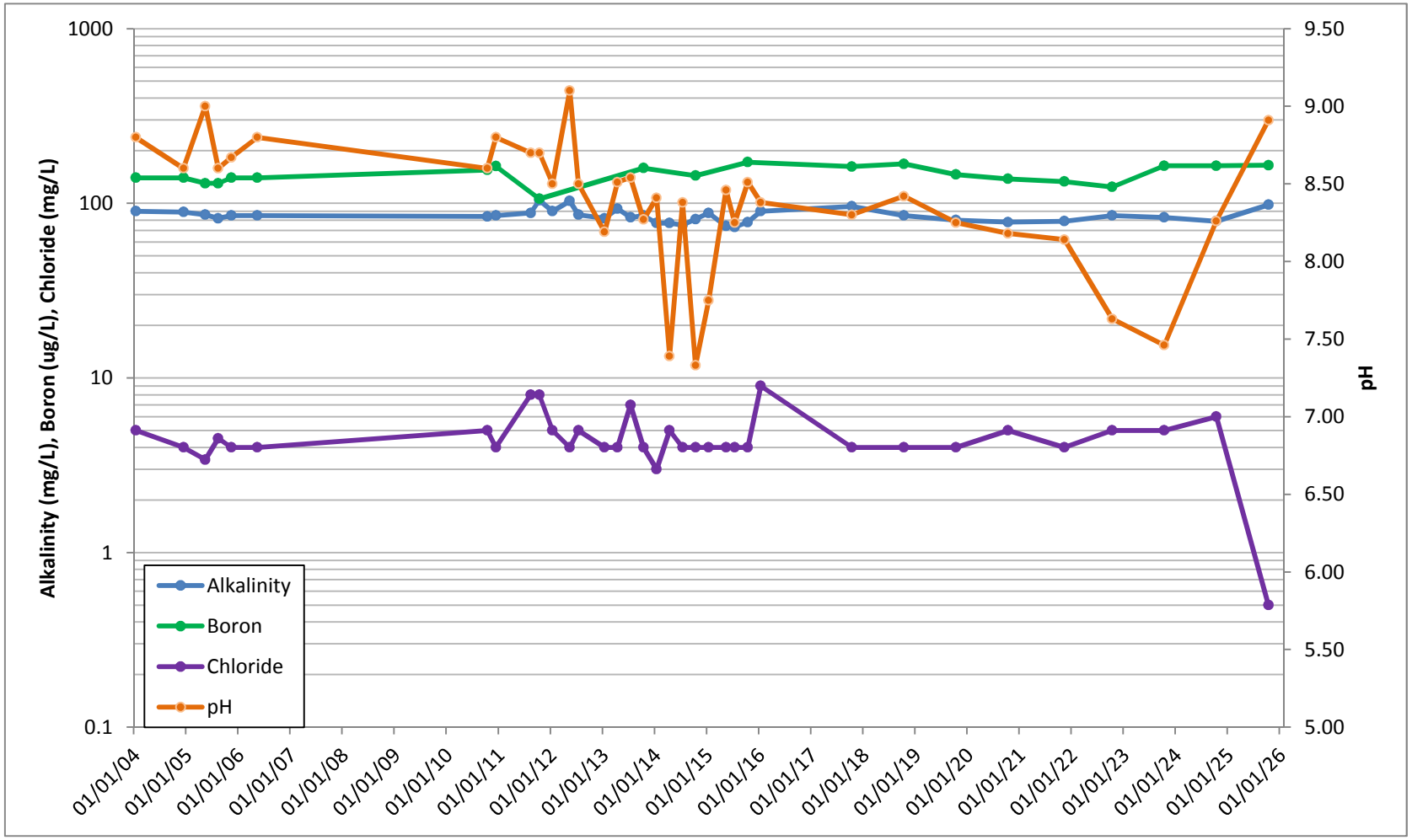

Figure 31 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW104, from 2004 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

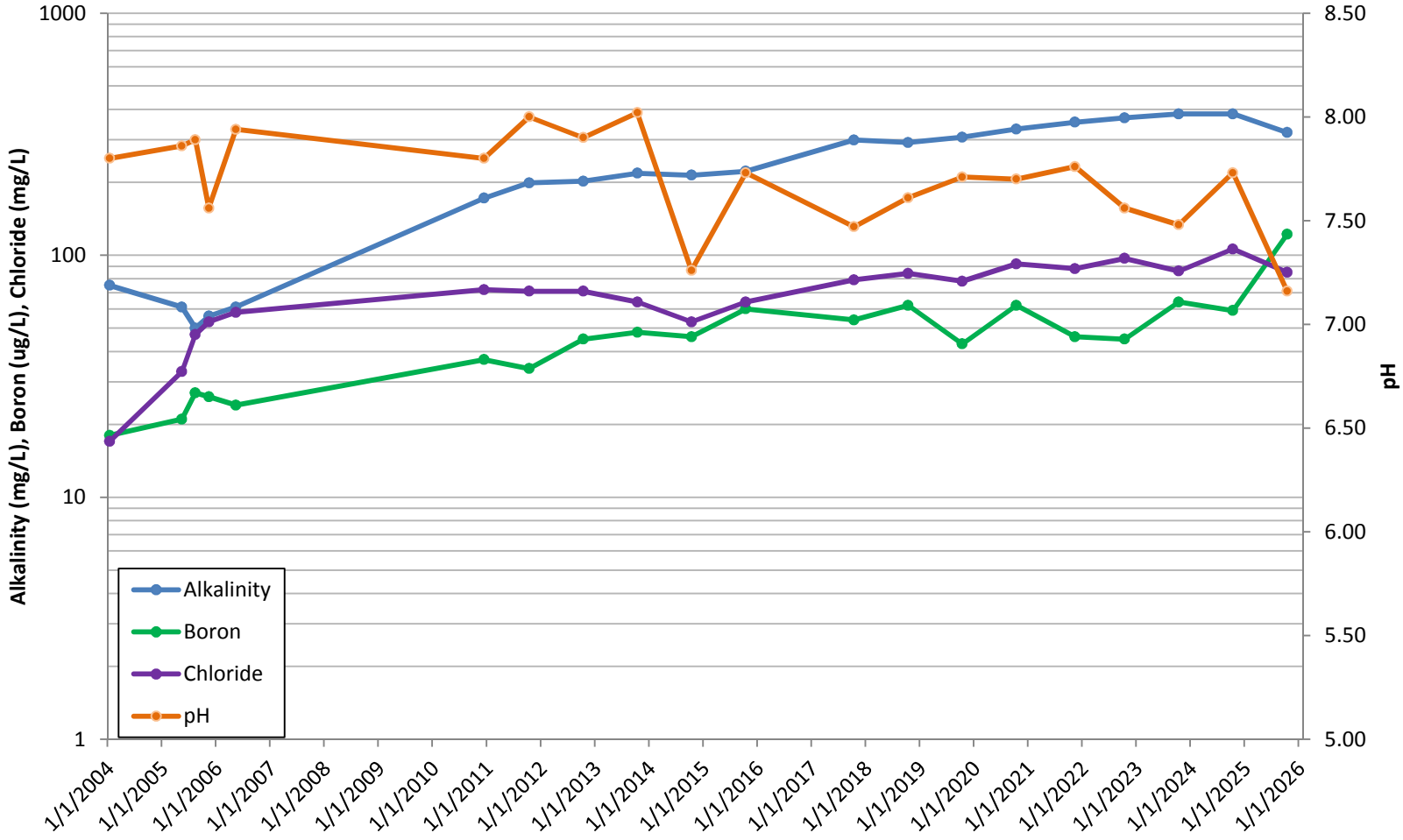

Figure 32 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW105, from 2004 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

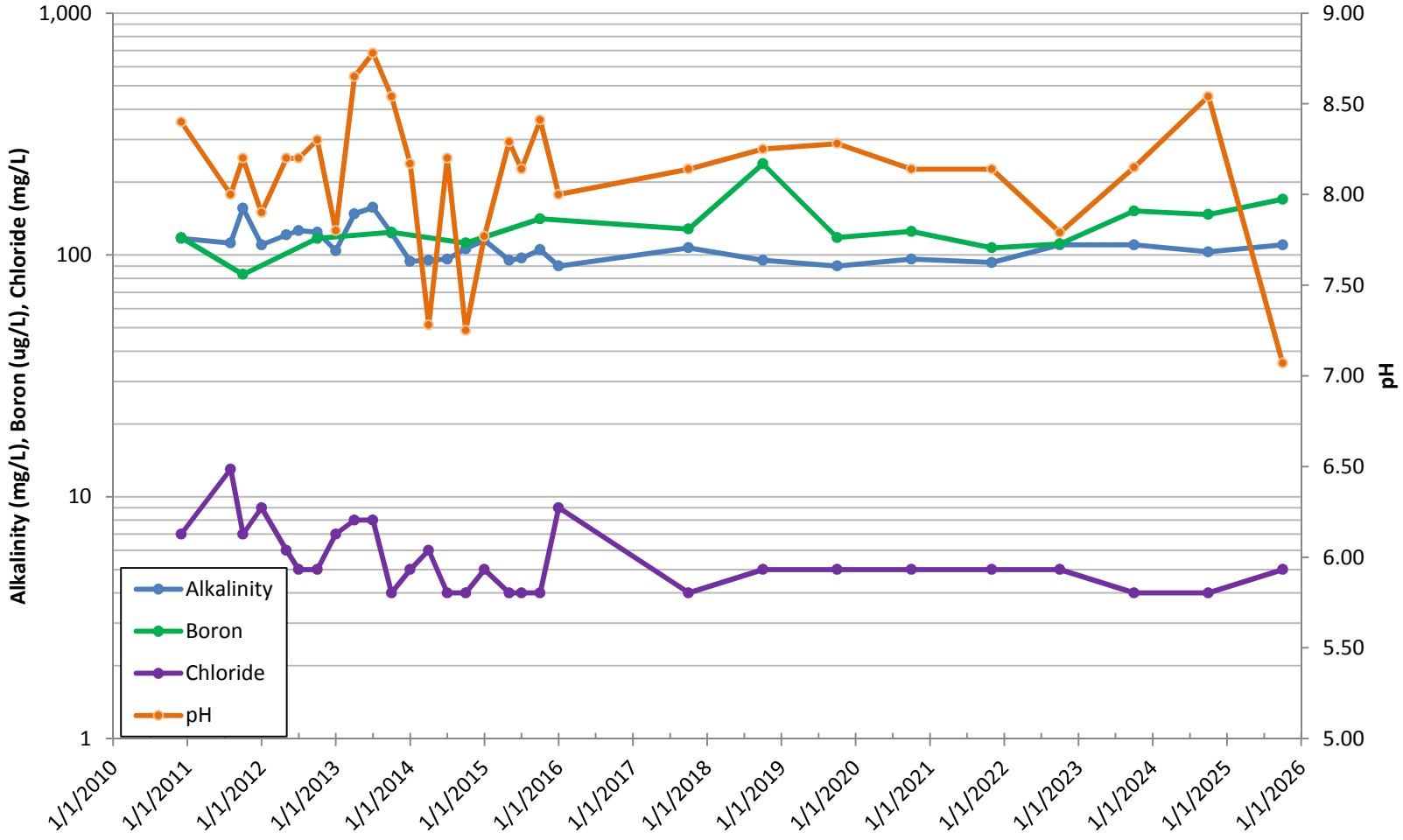

Figure 33 Alkalinity (mg/L), boron (µg/L), chloride (mg/L) and pH of samples collected from monitoring well MW212, from 2010 to 2025.

Project No.	Scale
817	As Shown
Location	**Date**
Whynotts Sett.	February 2026

FFC

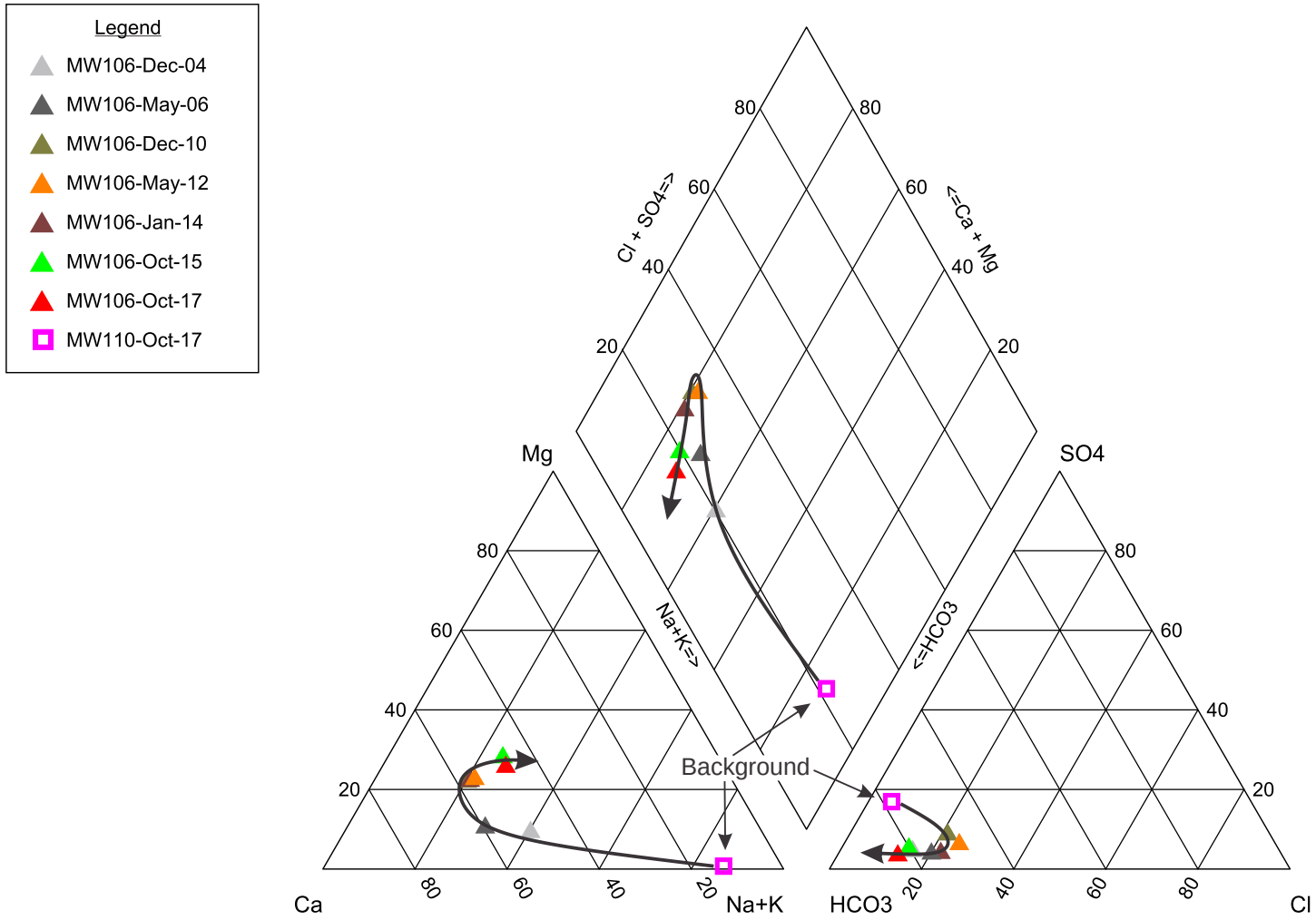

Figure 34 Trilinear plot showing the evolution of groundwater chemistry at MW106.

Project No. 817	Scale As shown
Location Whynotts Settlement, NS	Date February 2026

FFC

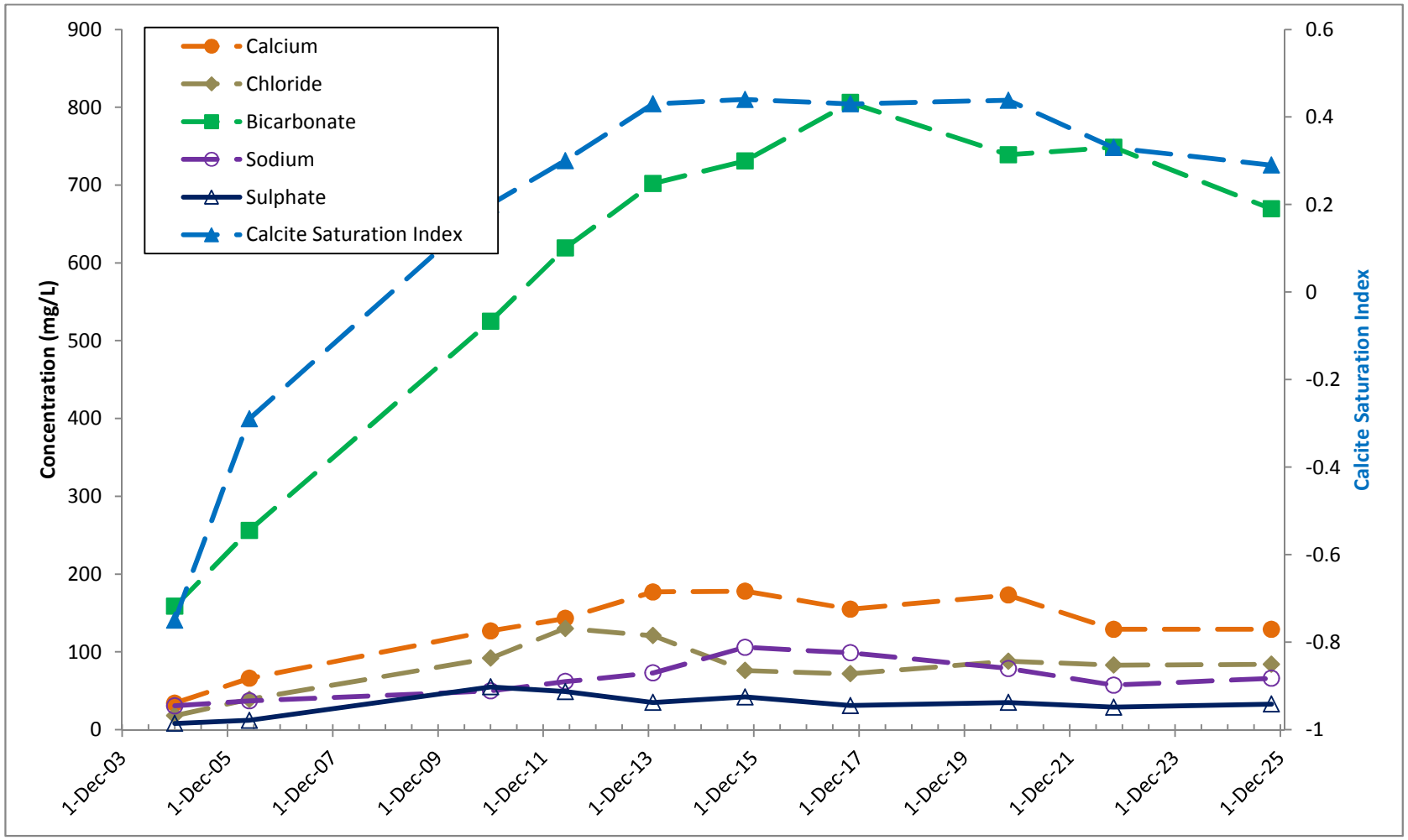

Figure 35 Trends in major ion concentrations and calcite saturation indices for groundater samples from MW106 (2004-2025).

Project No.	Scale
817	As shown
Location	**Date**
Whynotts Set.	February 2026

FFC

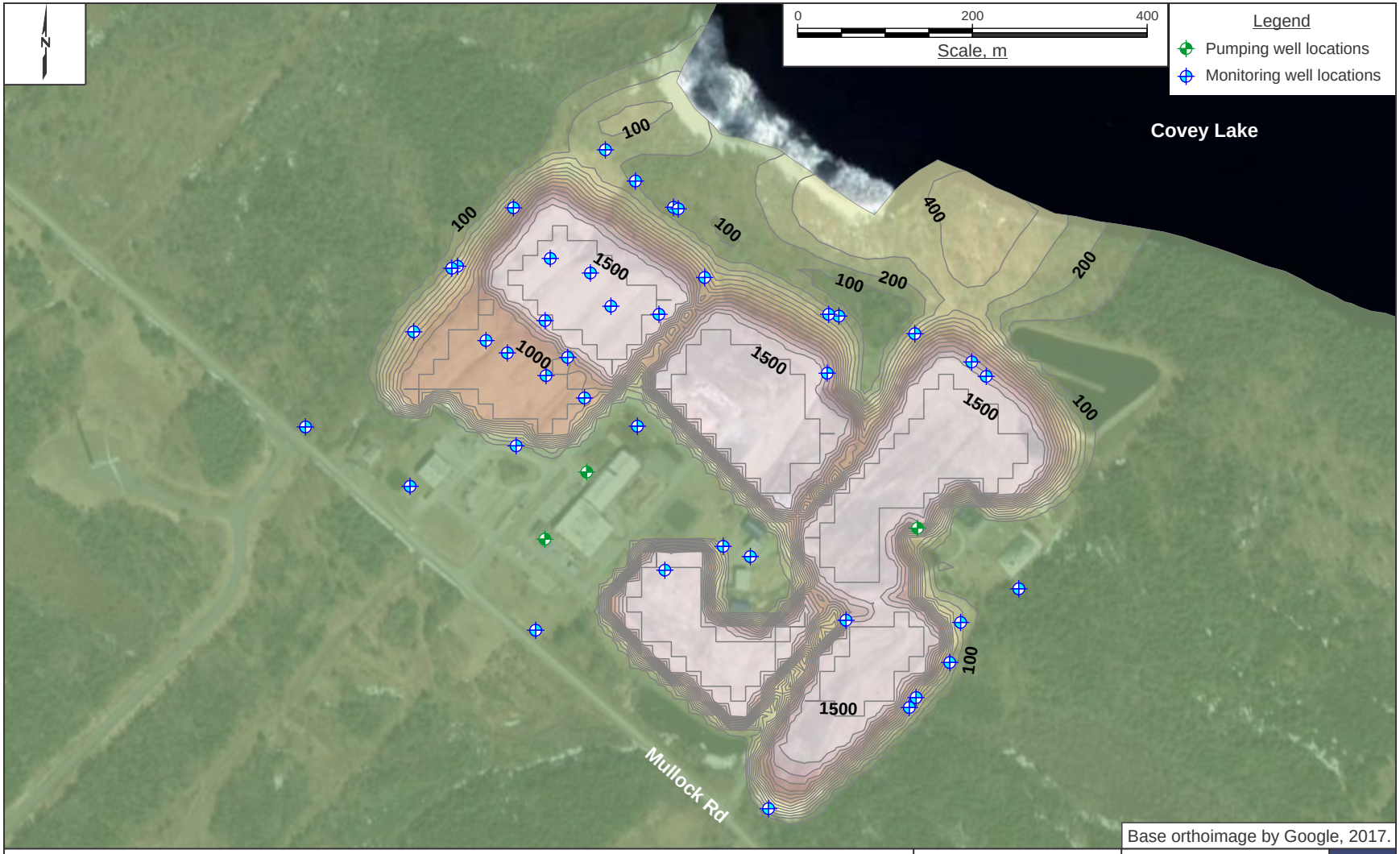

Figure 36 Contour map of bicarbonate concentrations in till below the waste cells after 40 years of landfill operation (2015).

Project No. 817	Document Reference FFC-NS-817
Location Whynotts Settlement, NS	Date February 2026

FFC

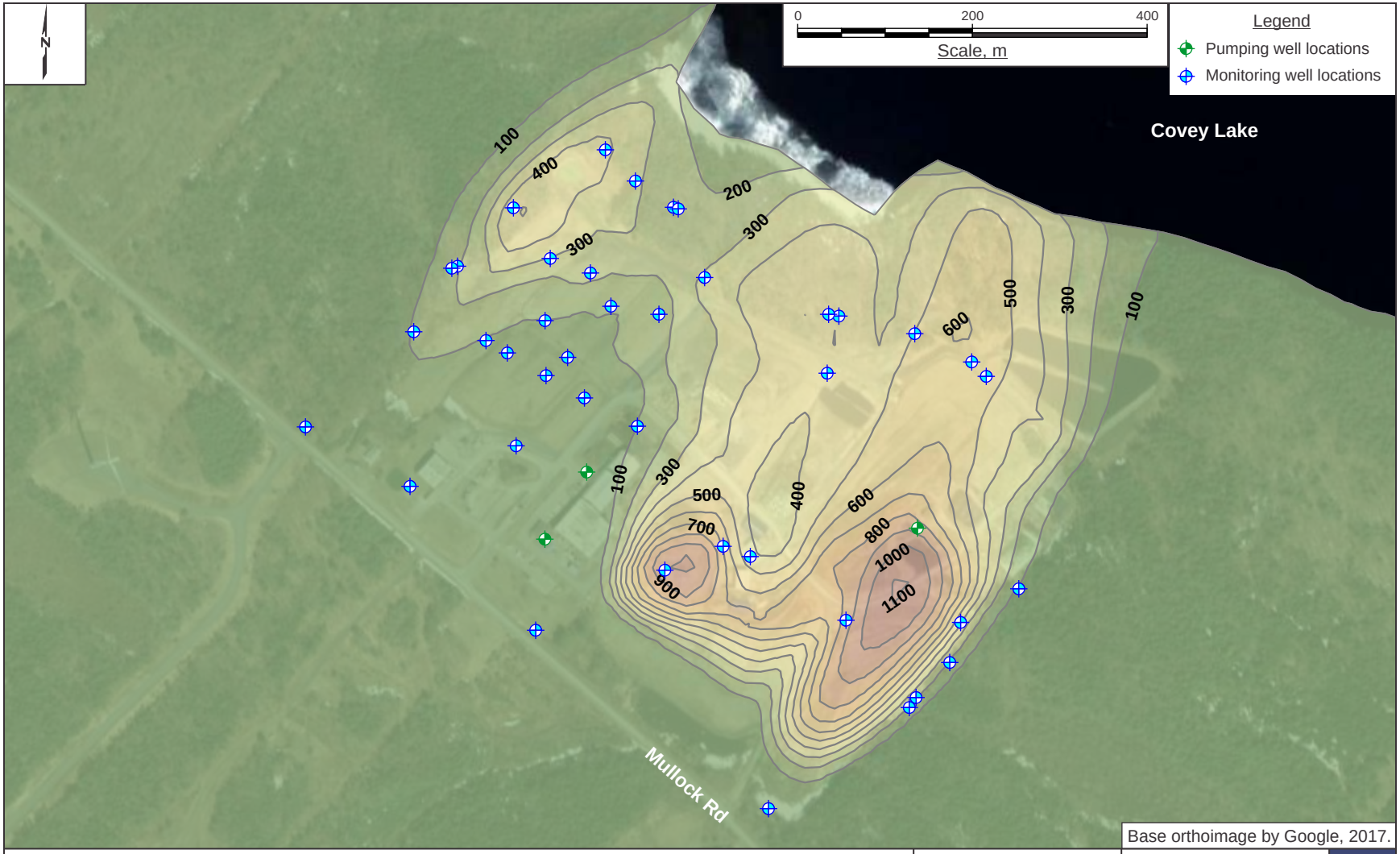

Figure 37 Contour map of bicarbonate concentrations in the upper fractured bedrock after 40 years of landfill operation (2015).

Project No.	Document Reference
817	FFC-NS-817
Location	Date
Whynotts Settlement, NS	February 2026

FFC

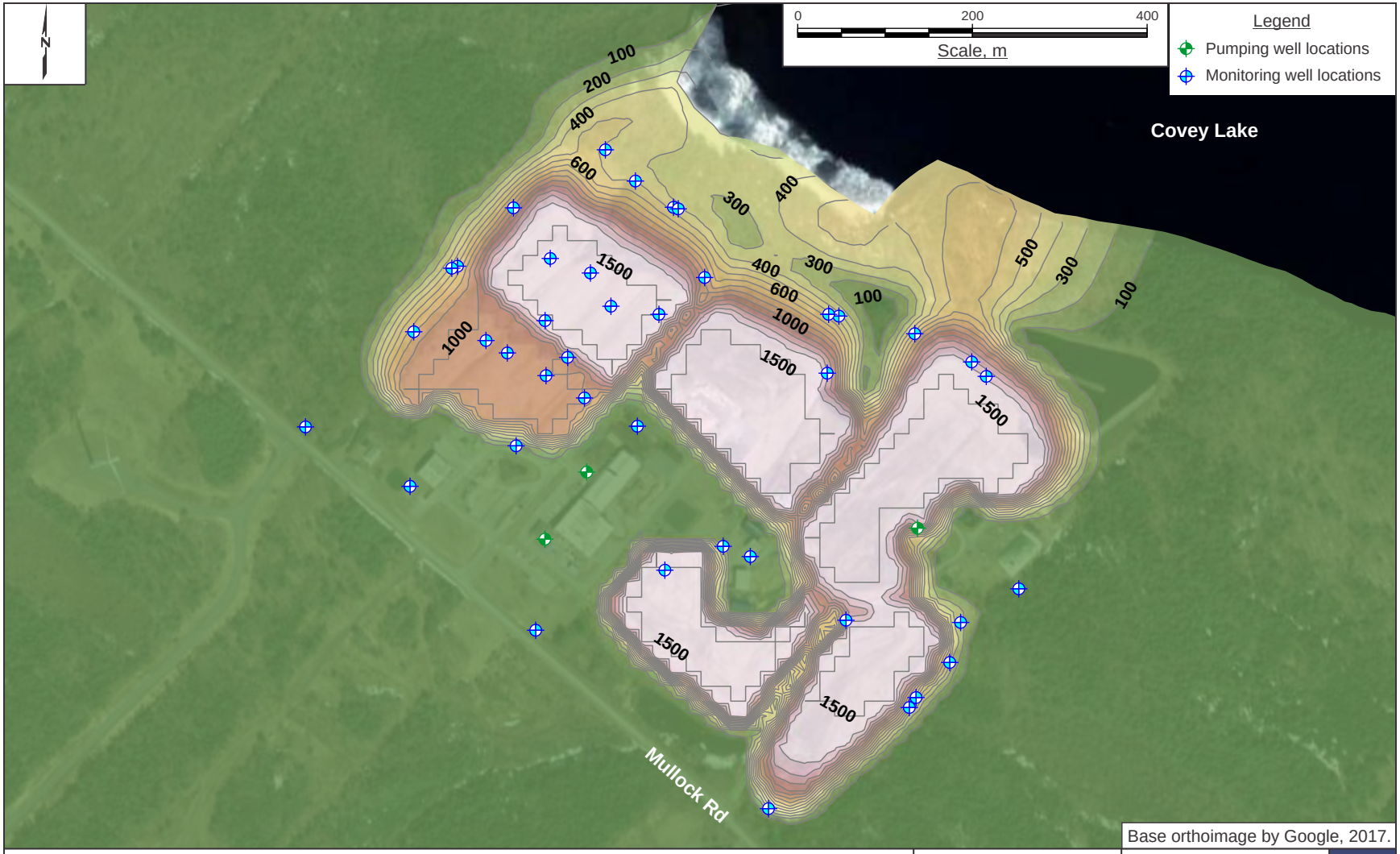

Figure 38 Contour map of bicarbonate concentrations in till below the waste cells after 60 years of landfill operation (2035).

Project No. 817	Document Reference FFC-NS-817
Location Whynotts Settlement, NS	Date February 2026

FFC

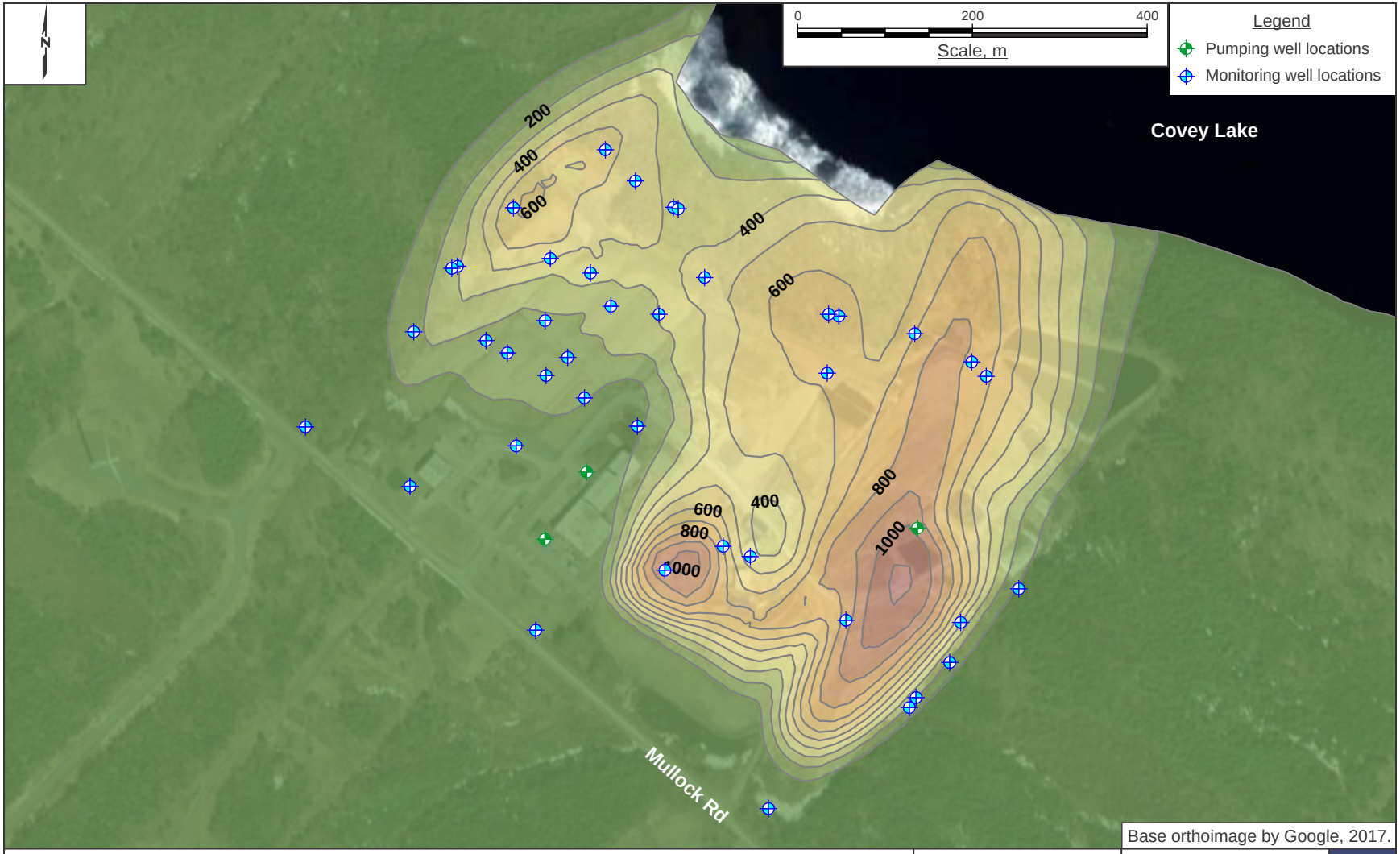

Figure 39 Contour map of bicarbonate concentrations in the upper fractured bedrock after 60 years of landfill operation (2035).

Project No. 817	Document Reference FFC-NS-817
Location Whynotts Settlement, NS	Date February 2026

FFC

APPENDIX 2

Data Tables

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Table 1 Field measurements at surface water sampling stations on October 28, 2025.

Parameter	Units	Station ID										
		C1	C2	C3A (New)	CC6	CC7	SP1	SP2	SP3	W1	W2	W3
Flow Conditions												
Stream Width	Metres (m)	1.04	1.52	---	---	2.74	---	---	---	---	1.52	2.44
Stream Depth	Metres (m)	0.15	0.18	---	---	0.18	---	---	---	---	0.33	0.51
Travel Distance	Metres (m)	1.22	1.52	---	---	3.05	---	---	---	---	3.05	4.27
Time of Travel	Seconds (s)	30	41	---	---	18	---	---	---	---	44	103
Velocity	Metres/Second (m/s)	0.041	0.037	---	---	0.169	---	---	---	---	0.069	0.041
Flow Rate	Litres/Minute (Lpm)	387	604	---	---	4,955	---	---	---	Dry	2,092	3,079
Water Quality												
Temperature	°C	8.5	7.9	7.8	8.2	7.2	6.8	8.4	7.8	---	8.7	6.7
pH	Std. Units	7.03	6.88	7.01	6.95	4.36	7.36	7.62	7.65	---	6.68	5.81
Conductance	µS/cm	279	220	64	61	64	536	1424	771	---	401	266
Dissolved Oxygen	mg/L	6.74	7.49	8.22	8.48	4.40	9.14	6.48	6.65	---	6.34	5.88
Turbidity	Visual/Relative	Slight	Slight	Clear	Clear	Clear	Slight	Moderate	Moderate	---	Slight	Clear
Quality Control												
Lab Conductance		706	488	68	64	69	835	2340	882	---	1300	910
Relative Difference		-86.6%	-75.8%	-5.4%	-4.1%	-7.8%	-43.6%	-48.7%	-13.4%	---	-105.6%	-109.6%
Lab pH		5.65	5.49	5.44	5.38	5.37	6.23	7.37	7.07	---	6.39	5.83
Relative Difference		21.8%	22.5%	25.2%	25.5%	-20.8%	16.6%	3.3%	7.9%	---	4.4%	-0.3%

Note:

Relative percent difference (RPD) is defined as (Field-Lab)/((Field+Lab)/2) × 100. 1. Differences in excess of 10 percent are shaded yellow.

Table 2 Depths to water in cell piezometers and monitoring wells for the 2011 to 2025 period of record.

a) Cell Piezometers (depth in metres)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average	slope
MW113	4.73	4.95	4.95	4.90	4.88		4.89	4.98						No Data	No Data	4.90	0.016
MW114	3.95	4.19	4.16	4.39	4.17		4.11	4.22						No Data	No Data	4.17	0.016
MW124	6.56	6.75	6.94	6.93	6.80									No Data	No Data	6.80	0.066
MW201	2.72	2.64	2.61	2.56	2.63		2.75	2.88						No Data	No Data	2.68	0.025
MW204	3.72	3.64	3.64	3.60	3.65		3.83	3.96	3.67	3.91	3.65	3.81	3.30	3.80	3.92	3.72	0.006
MW206	2.88	3.05	3.07	3.09	3.02		3.04	3.12	2.67	3.09	3.03	3.03	2.65	3.07	3.20	3.00	-0.001

b) Monitoring Wells (depth in metres)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average	slope
BH11(G6)	5.63	6.82	6.94	6.99	6.61	6.92	7.29	7.14	7.49	7.60	7.12	7.50	7.46	7.61	7.86	7.13	0.100
FMW1A									1.52	1.46	1.46	1.87	1.29	1.67	1.99	1.61	0.060
FMW1B									1.98	2.07	1.79	2.07	2.87	1.93	2.39	2.16	0.072
FMW2A									3.62	3.56	3.44	3.81	3.41	3.44	3.69	3.56	-0.002
FMW2B									4.13	4.09	3.99	4.39	3.78	3.98	4.29	4.09	0.001
G2	5.91	6.15	5.90	6.04	5.88	5.66										5.92	-0.055
G5							3.06	3.32	2.32	2.16	2.30	2.46	1.70	2.26	2.91	2.50	-0.079
MW101	1.23	1.29	1.32	1.23	1.55	1.39	1.25	1.37	1.64	1.41	1.35	1.36	1.31	1.96	2.69	1.49	0.052
MW102	4.03	3.68	3.90	3.78	3.81	3.81	3.94	3.98	3.85	4.12	3.78	4.08	3.55	3.72	3.61	3.84	-0.010
MW103	5.08	4.47	4.72	4.84	4.82	4.99	8.11	8.15	8.28	8.22	8.11	8.52	8.00	8.36	8.45	6.87	0.337
MW104	2.63	3.03	3.49	3.51	3.16	3.81	3.23	3.69	3.43	3.91	2.86	3.87	2.81	3.22	4.28	3.39	0.036
MW105	1.33	1.61	1.67	1.57	1.55	1.98	1.60	2.83	2.07	2.98	1.52	3.18	1.29	1.89	3.68	2.05	0.089
MW106	4.13	4.19	4.38	4.32	4.25	4.39	4.46	4.64	4.40	4.52	4.42	4.61	4.31	4.45	4.63	4.41	0.023
MW107	4.13	4.16	4.24	4.14	4.17	4.26	4.21	4.34	4.23	4.27	4.20	4.38	4.17	4.25	4.41	4.24	0.011
MW108	3.68	3.48	3.67	3.46	3.71	3.94	4.04	4.00	3.91	4.12	3.88	4.14	3.62	3.93	3.68	3.82	0.021
MW110	3.16	3.33	3.06	3.26	3.20	3.58	3.75	4.50	4.03	4.58	3.53	4.63	3.14	4.11	4.89	3.78	0.092
MW111	3.91	4.19	4.16	4.02	4.07	4.55	4.60	5.39	4.63	5.45	4.36	5.47	4.10	4.90	5.76	4.64	0.091
MW112	6.80	7.22	7.12	6.02	6.79	6.85	6.68	6.78	6.40	6.33	6.59	7.24	5.93	6.52	7.28	6.70	-0.014
MW115	2.24	2.28	2.33	2.40	2.31	2.45	2.49	2.67	2.55	2.62	2.45	2.90	2.24	2.61	3.01	2.50	0.035
MW116	1.83	2.00	1.97	2.05	1.96	2.14	2.11	2.36	2.33	2.32	2.19	2.76	1.94	2.42	2.93	2.22	0.050
MW123	7.85	7.93	7.59	7.04	7.52	7.70	5.04	5.25	5.22	5.29	4.76	5.10	5.01	5.36	5.39	6.14	-0.237
MW211	22.18	20.84	21.14	20.95	21.28	21.01	21.49	21.14	16.03	5.58	23.04	19.21	20.71	14.52	---	19.22	-0.434
MW212	10.56	11.30	10.63	10.97	10.86	11.13	11.24	11.18	11.15	10.65	11.27	11.55	10.96	11.10	11.29	11.06	0.029
MW213	16.29	16.01	15.96	15.99	16.06	16.00	16.39	16.24	16.35	16.33	16.36	16.47	15.96	16.33	16.57	16.22	0.026
MW2B	2.82	2.96	3.02	2.95	2.94	3.10	3.15	3.41	3.24	3.47	3.13	3.58	3.05	3.41	3.71	3.19	0.046
MW4A	6.38	6.27	6.57	6.54	6.44	6.66	6.81	6.73	6.72	8.80	6.72	7.00	6.52	6.66	6.98	6.79	0.047
MW4B	3.92	4.07	4.69	4.16	4.21	4.28	4.11	4.97	4.82	5.33	3.49	5.10	2.31	4.86	---	4.31	-0.001
MW6A	6.92	6.77	6.68	6.48	6.71	6.47	6.62	6.58	6.59	6.60	7.06	6.54	6.10	6.42	6.67	6.61	-0.019
MW6B	2.45	3.57	2.67	2.62	2.83	3.05	3.08	3.37	3.08	3.64	1.48	3.57	1.21	2.96	3.79	2.89	-0.003

Notes:

1. Red indicates well has been destroyed.

2. A positive slope suggests a declining water level while a negative slope suggests a rising water level. Spurious readings greatly influence the reliability of the assessment.

Table 3 Field measurements for groundwater samples on October 7, 2025.

Parameter	Units	Monitoring Well													
		MW4A	MW4B	MW112	MW106	MW107	MW213	MW123	MW103	BH6A	BH6B	MW211	MW212	MW104	MW105
Flow Conditions															
Cluster Designation	---	1	1	1	2	2	2	8	8	9	9	9	10	10	10
Area of Concern	---	Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate	Moderate	High	High	Moderate	Moderate
Water Quality															
Temperature	°C	8.8	---	8.8	9.4	10.9	8.5	9.4	9.2	8.8	10.6	---	---	8.6	10.1
pH	Std. Units	8.35	---	6.98	6.81	6.68	8.79	9.14	8.45	8.77	6.8	---	---	8.91	7.16
Conductance	µS/cm	199	---	164	109	139	237	226	296	199	489	---	---	172	839
Dissolved Oxygen	mg/L	3.14	---	4.24	2.75	4.17	5.54	2.42	1.84	4.28	8.28	---	---	2.81	3.44
Turbidity	Visual/Relative	High	---	Moderate	High	Moderate	Slight	High	Slight	Clear	High	Sludge	---	Moderate	Slight
Quality Control															
Lab Conductance		221	---	207	1,240	1,580	276	272	325	231	---	---	245	202	916
Relative Difference		-10.7%	---	-23.2%	-167.6%	-167.7%	-15.4%	-18.4%	-9.2%	-14.9%	---	---	---	-16.0%	-8.8%
Lab pH		6.48		6.36	6.88	6.99	7.00	6.52	6.50	6.53	---	---	7.07	6.60	7.08
Relative Difference		25.2%		9.3%	-1.0%	-4.5%	22.7%	33.5%	26.1%	29.3%	---	---	---	29.8%	1.1%

Notes:

1. MW211 could not be sampled due to a low water level and high sludge content.

2. MW4B was scheduled for sampling, but the well was dry.

3. Relative percent difference (RPD) is defined as (Field-Lab)/((Field+Lab)/2) × 100. 1. Differences in excess of 10 percent are shaded yellow.

Table 4 General chemistry, total metals and other parameters for surface water.

		AGAT Sample ID	7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511	---	7190512	7190513
		Sampling Date	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025
		COC Number	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	---	25X362783	25X362783
		Field ID	C1	C2	C3A	CC6	CC7	SP1	SP2	SP3	W1	W2	W3
General Chemistry													
	Units	**FWAL**											
Sodium	mg/L		47	31	6	6	5	67	215	62	Dry - No Sample Collected	137	76
Potassium	mg/L		4	2	2	2	1	23	176	29		25	12
Calcium	mg/L		65	39	4	3	4	73	138	75		83	69
Magnesium	mg/L		21	14	2	1	2	12	36	22		14	14
Alkalinity as (CaCO3)	mg/L		40	20	12	10	11	123	330	287		143	42
Sulphate	mg/L		208	141	5	5	5	163	384	47		95	176
Chloride	mg/L	120 (1)	63	49	8	8	7	91	**262**	77		**258**	**141**
Nitrate+Nitrite (as N)	mg/L		<0.84	<0.20	0.38	0.41	0.38	1.39	5.4	0.58		8.07	<1.25
Nitrate (as N)	mg/L	2.935 (2)	<0.25	<0.10	0.1	0.12	0.1	0.42	**3.7**	0.09		**5.53**	<0.25
Nitrite	mg/L	0.06	**0.59**	**<0.10**	**0.28**	**0.29**	**0.28**	**0.97**	**1.7**	**0.49**		**2.54**	**1**
Ammonia (as N)	mg/L	Calculated (3)	<0.03	<0.03	<0.03	<0.03	0.82	1.3	**3.65**	**2.77**		1.43	<0.03
Kjeldahl Nitrogen	mg/L		<0.10	<0.10	<0.10	<0.10	1.79	4.51	31.4	7.17		3.74	0.42
Total Organic Carbon	mg/L		7.7	8.1	5.5	5.5	16	18	120	33		16	8.9
Conductivity (RCAp)	us/cm		706	488	68	64	69	835	2,340	882		1,300	910
pH	units	6.5-9.0	7.03	6.88	7.01	6.95	**4.36**	7.36	7.62	7.65		6.68	**5.81**
Hardness (as CaCO3)	mg/L		251	156	14.9	13.8	16.4	232	494	277		263	228
TDS	mg/L		520	340	<5	66	110	550	1800	604		818	618
Ion Balance	%	**	1.7	2.1	4.5	3.2	13.9	0.3	3.9	2.2		2.2	1.3
Total Suspended Solids	mg/L	50	<5	<5	<5	<5	<5	28	38	10		8.0	<5
Other													
BOD	mg/L		<6	<2	<6	<2	<6	10	19	6		3	<6
COD	mg/L		23	23	22	17	49	68	357	93		44	24
Total Phosphorous (by ICP-MS)	mg/L		3.6	3.23	0.56	0.32	3.47	0.82	3.63	4.5		2.06	2.02
Phenolics (note 13)	mg/L		0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001		<0.001	<0.001
Metals													
Aluminum	mg/L	0.005-0.1 (4)	**0.166**	**0.134**	0.058	0.029	**0.175**	**0.381**	**0.489**	**0.202**	Dry - No Sample Collected	0.055	**0.051**
Antimony	mg/L		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.002		<0.002	<0.002
Arsenic	mg/L	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	**0.007**	**0.0192**	**0.0108**		<0.002	<0.002
Barium	mg/L		0.035	0.027	<0.005	0.008	0.006	0.044	0.044	0.051		0.058	0.03
Boron	mg/L	1.5 (5)	**1.530**	0.670	0.096	0.072	<0.050	0.898	**7.310**	**1.650**		1.060	0.661
Cadmium	mg/L	Calculated (6)	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00045	<0.00009		<0.00009	<0.00009
Chromium	mg/L	0.0010 (7)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.002		<0.002	<0.002
Copper	mg/L	Calculated (8)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	**0.081**	<0.002		**0.013**	<0.002
Iron	mg/L	0.3	0.21	0.131	**0.788**	0.256	**0.867**	**3.77**	**1.81**	**0.522**		**3.48**	**1.37**
Lead	mg/L	Calculated (9)	0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	**0.0095**	<0.0005		<0.0005	<0.0005
Manganese	mg/L	Calculated (10)	0.275	0.06	0.216	0.195	**0.623**	**4.41**	**1.78**	**4.71**		**1.71**	**2.76**
Mercury	mg/L	0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026		<0.000026	<0.000026
Nickel	mg/L	Calculated (11)	0.005	0.002	<0.002	<0.002	<0.002	0.016	0.043	0.01		0.011	0.013
Uranium	mg/L	0.015 (12)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	0.0036	0.0003		0.0002	<0.0002
Vanadium	mg/L		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.002		<0.002	<0.002
Zinc	mg/L	0.007 (12)	0.006	<0.005	<0.005	<0.005	<0.005	**0.026**	**0.095**	<0.005		**0.051**	**0.029**

Notes:

- FWAL - Fresh Water Aquatic Life Guidelines are based on long-term exposures - see explanatory notes.
- Concentrations in excess of guideline values are shaded grey and shown in bold font.
- Detection limits above guidelines are shaded purple.
- Values below the detection limit are reported as "<".
- Specifc notes related to application of guideline values are flagged in brackets (e.g., Lead (9), means see explanatory note 9).

Explanatory Notes: Surface Water - General Chemistry and Metals (Updated by Fracflow May 202

1) The guideline for **chloride** is based on a long-term exposure scenario (effective November 2011).

2) The guideline for **nitrate** of 13 mg-nitrate/L is equivalent to 2.9 mg nitrate-nitrogen/L. The laboratory reports mg nitrate-nitrogen/L.

temperature of 10°C, the guideline value is 10.3 mg/L. At a pH of 7.5 and temperature of 15°C, the guideline value is 2.2 mg/L (see Factsheet, FWAL). Field-measured pH and temperature should be used when calculating the guideline value.

4) The **aluminum** guideline varies from 0.005 mg/L for pH <6.5 units to 0.1 mg/L for pH >6.5 units.

5) The guideline for **boron** is based on long-term exposure (effective December 2009).

6) The guideline for **cadmium** is dependent on hardness (updated January 2014). Based on a long term exposure scenario, the guideline is 0.04 μg/L for hardness of 0 to <17 mg/L and 0.37 μg/L for hardness >280 mg/L. For hardness between 17 and 280 mg/L, Cd guideline (ug/L) = $10^{\{0.83\ [\log\ (\text{hardness in mg/L})]\ -\ 2.46\}}$. Prior to 2014, the guideline for cadmium was calculated as: Cd guideline (ug/L) = $10^{\{0.86\ [\log\ (\text{hardness in mg/L})]\ -\ 3.2\}}$. For samples where hardness is not analyzed, the minimum of 0.04 μg/L guideline is used.

7) The guidelines for **trivalent** and **hexavalent chromium** are 8.9 μg/L and 1 μg/L, respectively (FWAL 1997). **Total chromium** is reported by the laboratory and compared to the more stringent guideline (1 μg/L).

8) The guideline for **copper** is dependent on hardness: Cu guideline (ug/L) = $e^{0.8545[\ln(\text{hardness in mg/L } CaCC_3)]-1.465}$ * 0.2, with the minimum guideline being 2 μg/L (effective 2012). Previously, copper was evaluated in comparison to a range presented by CCME (i.e., 2 to 4 μg/L).

9) The guideline for **lead** is calculated as: Pb guideline (μg/L) = $e^{1.273[\ln(\text{hardness in mg/L } CaCO_3)]-4.705}$. The guideline varies from 1 μg/L for hardness 0 to 60 mg/L CaCO3 to 7 μg/L for hardness >180 mg/L CaCO3.

10) Manganese guideline is calculated based on pH and hardness (see Excel calculating tool).

11) The guideline for **nickel** is dependent on hardness: Ni guideline (ug/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$, with the minimum guideline being 25 μg/L (effective 2012). Previously, nickel was evaluated in comparison to a range presented by CCME (i.e., 25 to 150 μg/L).

12) The guidelines for **silver** (2015), **uranium** (2011) and **zinc** (2018) are based on long-term exposure.

Table 5 Concentrations of petroleum hydrocarbons in surface water.

		AGAT ID	7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511	---	7190512	7190513
		Sampling Date	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025
		COC Number	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	---	25X362783	25X362783
		Field ID	C1	C2	C3A	CC6	CC7	SP1	SP2	SP3	W1	W2	W3
	Units	FWAL											
Benzene	mg/L	0.59	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	Dry - No Sample Collected	<0.0010	<0.0010
Toluene	mg/L	0.03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010
Ethylbenzene	mg/L	0.07	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010
Total Xylenes	mg/L	0.07	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020		<0.0020	<0.0020
C6 - C10 (less BTEX)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		<0.010	<0.010
>C10-C16 Hydrocarbons	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050
>C16-C21 Hydrocarbons	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050
>C21-<C32 Hydrocarbons	mg/L		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		<0.100	<0.100
Modified TPH (Tier1)	mg/L		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		<0.100	<0.100
Return to Baseline at C32	mg/L		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Hydrocarbon Resemblance	mg/L		None	None	None	None	None	None	None	None		None	None

Notes:

1. FWAL - Fresh Water Aquatic Life Guidelines (ECCC, 2024), based on long-term exposures.
2. Concentrations in excess of guideline values are shaded grey and shown in bold font.
3. Concentrations detected, but less than guideline values, are shaded yellow.
4. Values below the detection limit are reported as "<".

Table 6 Concentrations of volatile organic compounds in surface water.

	AGAT Sample ID		7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511	---	7190512	7190513
	Sampling Date		10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025
	COC Number		25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	---	25X362783	25X362783
	Field ID		C1	C2	C3A	CC6	CC7	SP1	SP2	SP3	W1	W2	W3
	Units	FWAL											
Acetone (2-Propanone)	µg/L		<10	<10	<10	<10	<10	<10	<10	<10	Dry - No Sample Collected	<10	<10
Benzene	µg/L	590	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Bromodichloromethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Bromoform	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Bromomethane	µg/L		<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89		<0.89	<0.89
Carbon Tetrachloride	µg/L		<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56		<0.56	<0.56
Chlorobenzene	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0
Chloroform	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Dibromochloromethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
1,2-Dichlorobenzene	µg/L	0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		<0.7	<0.7
1,3-Dichlorobenzene	µg/L	150	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
1,4-Dichlorobenzene	µg/L	26	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Dichlorodifluoromethane (Freon 12) (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
1,1-Dichloroethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
1,2-Dichloroethane	µg/L		<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
1,1-Dichloroethylene	µg/L		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6
cis-1,2-Dichloroethylene	µg/L		<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
trans-1,2-Dichloroethylene	µg/L		<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
1,2-Dichloropropane	µg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		<0.7	<0.7
cis-1,3-Dichloropropene	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Ethylbenzene	µg/L	70	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
Ethylene Dibromide (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
n-Hexane (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
Methylene Chloride(Dichloromethane)	µg/L	98.1	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
Methyl Ethyl Ketone (2-Butanone) (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
Methyl Isobutyl Ketone (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
Methyl t-butyl ether (MTBE) (Note 5)	µg/L		---	---	---	---	---	---	---	---		---	---
Styrene	µg/L	72	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
1,1,1,2-Tetrachloroethane	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
1,1,2,2-Tetrachloroethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Tetrachloroethylene	µg/L		<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
Toluene	µg/L	30	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2
1,1,1-Trichloroethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
1,1,2-Trichloroethane	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Trichloroethylene	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Vinyl Chloride	µg/L		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6
p+m-Xylene	µg/L		<4	<4	<4	<4	<4	<4	<4	<4		<4	<4
o-Xylene	µg/L		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
Total Xylenes	µg/L	70	<4	<4	<4	<4	<4	<4	<4	<4		<4	<4

Notes:

1. FWAL - Fresh Water Aquatic Life Guidelines (CCME updates), based on long-term exposures.
2. Concentrations in excess of guideline values are shaded grey and shown in bold font.
3. Concentrations detected, but less than guideline values, are shaded yellow.
4. Values below the detection limit are reported as "<".
5. Not included in the analytical report from AGAT Laboratories.

Table 7 Concentrations of semi-volatile organic compounds in surface water.

	AGAT Sample ID		7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511	---	7190512	7190513
	Sampling Date		10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025	10/28/2025
	COC Number		25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	25X362783	---	25X362783	25X362783
	Field ID		C1	C2	C3A	CC6	CC7	SP1	SP2	SP3	W1	W2	W3
Semi-Volatiles													
	Units	**FWAL**											
1-Methylnaphthalene (see Note 7)	µg/L		---	---	---	---	---	---	---	---		---	---
2-Methylnaphthalene (see Note 7)	µg/L		---	---	---	---	---	---	---	---		---	---
2-and 1-methyl Napthalene (see Note 7)	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	Dry - No Sample Collected	<0.5	<0.5
Acenaphthene	µg/L	5.8	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30
Acenaphthylene	µg/L		<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31		<0.31	<0.31
Anthracene (see Note 9)	µg/L	0.012	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30
Benzo(a)anthracene (see Note 9)	µg/L	0.018	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Benzo(a)pyrene	µg/L	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Benzo(b)fluoranthene (see Note 8)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Benzo(b/j)fluoranthene (see Note 8)	µg/L		---	---	---	---	---	---	---	---		---	---
Benzo(g,h,i)perylene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Benzo(k)fluoranthene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Chrysene	µg/L		<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27		<0.27	<0.27
Dibenzo(a,h)anthracene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Fluoranthene (see **Note 9**)	µg/L	0.04	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27		<0.27	<0.27
Fluorene	µg/L	3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31		<0.31	<0.31
Indeno(1,2,3-cd)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Naphthalene	µg/L	1.1	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30
Phenanthrene	µg/L	0.4	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32		<0.32	<0.32
Pyrene (see Note 9)	µg/L	0.025	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Phenolics													
2-Chlorophenol	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	Dry - No Sample Collected	<0.5	<0.5
2,4-Dichlorophenol (see Note 9)	µg/L	0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3
2,4-Dimethylphenol	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2
Pentachlorophenol	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Phenol (see Note 4)	µg/L	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0
2,4,5-Trichlorophenol (see Note 5)	µg/L	18	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2
2,4-Dinitrophenol	µg/L		<10	<10	<10	<10	<10	<10	<10	<10		<10	<10

Notes:

1. FWAL - Fresh Water Aquatic Life Guidelines (CCME updates), based on long-term exposures.
2. Concentrations in excess of guideline values are shaded grey and shown in bold font.
3. Concentrations detected, but less than guideline values, are shaded yellow.
4. Guideline is for the total of all mono-hydric and di-hydric phenols.
5. Guideline is for the total of all trichlorophenols.
6. Values below the detection limit are reported as "<".
7. 2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.
8. The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
9. Reported RDL is above Guideline.

Table 8 General chemistry, dissolved metals and other parameters for groundwater samples.

			Cluster 1			Cluster 2				Cluster 8		Cluster 9			Cluster 10		
	AGAT Sample ID		7127808	---	7127868	7127869	7127870	7127871	7127872	7127873	7127874	7127875	---	7127876	7127877	7127878
	Sampling Date		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
	COC Number		25X354552	---	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	---	25X354552	25X354552	25X354552
	Field ID		MW4A	MW4B	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A	MW 6B	MW 211	MW 212	MW 104	MW 105
General Chemistry																
	Units	CDWQ MAC (AO)														
Sodium	mg/L	(200)	31.4		9.4	66.1	108	56.3	63.4	53.8	49.7	40.3		52.5	38.1	44.8
Potassium	mg/L		1.5		3.4	3.1	15.3	1.5	1.1	0.8	0.8	2.4		1.2	0.9	2.7
Calcium	mg/L		18.6		17	129	99.6	10.5	12	6.8	6.8	43		9.2	9	83.4
Magnesium	mg/L		2.2		4.7	55.3	57.1	1.5	1.1	0.2	0.4	16.9		0.9	0.5	27.8
Alkalinity (as CaCO3)	mg/L		103		97	549	627	111	98	79	102	---		110	98	321
Sulphate	mg/L	(500)	13		20	33	19	34	69	62	21	---		21	19	65
Chloride	mg/L	(250)	6		8	84	152	6	10	7	8	---		5	<1	85
Nitrate+Nitrite (as N)	mg/L		<0.13		<0.15	<0.21	1.73	<0.1	<0.18	<0.15	<0.13	---		<0.1	<0.11	<0.1
Nitrate (as N)	mg/L	10	0.08		0.1	0.16	0.7	<0.05	0.13	0.1	0.08	---		<0.05	0.06	<0.05
Nitrite	mg/L	1	<0.05		<0.05	<0.05	**1.03**	<0.05	<0.05	<0.05	<0.05	---		<0.05	<0.05	<0.05
Ammonia (as N)	mg/L		0.05		0.13	0.41	4.51	0.09	0.06	0.07	0.05	0.05		0.1	0.06	0.04
Total Kjeldahl Nitrogen (Note 5)	mg/L		---	Dry - Not Sampled	---	---	---	---	---	---	---	---	Sludge Present - Not Sampled	---	---	---
Dissolved Organic Carbon	mg/L		1.5		2.2	5.8	19	2	1.3	1.8	1.6	4.6		1.8	0.88	2.3
Conductivity (RCAp)	us/cm		221		207	1,240	1,580	276	325	272	231	---		245	202	916
pH	units	7.0 - 10.5	8.35		**6.98**	**6.81**	**6.68**	8.79	8.45	9.14	8.77	**6.80**		7.07	8.91	7.16
Hardness (as CaCO3)	mg/L		55.5		61.8	550	484	32.4	34.5	17.8	18.6	177		26.7	24.5	323
Total Dissolved Solids (TDS) (Note 5)	mg/L	(500)	181		160	**931**	**1128**	222	235	192	197	---		208	173	612
Ion Balance	%		0.3		19.3	0.1	6.9	0.7	2.9	6	2.8	---		1.4	4	9.1
Other																
COD	mg/L		38		72	39	57	6	<3	8	<3	12		7	4	4
Total Phosphorous	mg/L		2.35		1.98	9.87	8.72	3.33	2.81	1.84	1.96	2.64		2.02	1.86	5.6
Phenolics	mg/L		<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001
Metals																
Aluminum	mg/L	2.9	0.013		0.013	0.019	0.012	0.011	<0.005	0.024	0.02	0.011		0.018	0.023	0.007
Antimony	mg/L	0.006	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002
Arsenic	mg/L	0.010	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	**0.022**	**0.012**	<0.002		<0.002	**0.025**	<0.002
Barium	mg/L	2	<0.005		0.026	0.075	0.008	0.012	0.008	<0.005	<0.005	0.023		0.005	<0.005	0.046
Boron	mg/L	5	0.148		0.17	1.67	4.56	0.073	0.093	0.245	0.195	0.499		0.17	0.165	0.122
Cadmium	mg/L	0.007	<0.000017		<0.000017	0.000017	<0.000017	0.000038	<0.000017	0.000019	<0.000017	0.000031		<0.000017	<0.000017	<0.000017
Chromium	mg/L	0.05	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001
Copper	mg/L	2, (1)	<0.002		0.003	0.005	0.004	<0.002	<0.002	<0.002	<0.002	0.005		<0.002	<0.002	<0.002
Iron-New Guideline-Dec/24	mg/L	(0.1)	<0.050		0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	<0.050
Lead	mg/L	0.005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.12, (0.02)	0.017	Dry - Not Sampled	**0.237**	**1.52**	**0.769**	**0.032**	<0.002	0.016	0.005	<0.002	Sludge Present - Not Sampled	**0.03**	0.003	<0.002
Mercury	mg/L	0.001	<0.000026		<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026	<0.000026		<0.000026	<0.000026	<0.000026
Nickel	mg/L		<0.002		0.005	0.007	0.088	<0.002	<0.002	<0.002	<0.002	0.006		<0.002	<0.002	<0.002
Uranium	mg/L	0.02	<0.0001		<0.0001	0.0044	0.0078	0.0004	<0.0001	0.0012	0.0003	0.0001		0.0002	0.001	0.0036
Vanadium	mg/L		<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002
Zinc	mg/L	5	0.019		0.012	0.034	0.007	<0.005	<0.005	<0.005	0.007	0.021		<0.005	0.007	<0.005

Notes:

1. CDWQ - Canadian Drinking Water Quality Guidelines
2. Maximum Acceptable Concentration (MAC); Aesthetic Objectives (AO) shown in brackets.
3. Concentrations in excess of guideline values are shaded grey and shown in bold font.
4. Values below the detection limit are reported as "<".
5. Total kjeldhal nitrogen and total dissolved solids were not reported by AGAT. Values for TDS were calculated by Fracflow and added in the table above.

Table 9 Concentrations of petroleum hydrocarbons in groundwater.

	AGAT Sample ID		7127808	---	7127868	7127869	7127870	7127871	7127872	7127873	7127874	7127875	7127876	---	7127877	7127878
	Sampling Date		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
	COC Number		25X354552	---	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	---	25X354552	25X354552
	Field ID		MW4A	MW4B	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A	MW 6B	MW 212	MW 211	MW 104	MW 105
Petroleum Hydrocarbons	**UNITS**	**CDWQ (MAC)**														
Benzene	mg/L	0.005	<0.001	Dry - Not Sampled	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Dry - Not Sampled	<0.001	<0.001
Toluene	mg/L	0.06	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
Ethylbenzene	mg/L	0.14	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
Total Xylenes	mg/L	0.09	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002
C6 - C10 (less BTEX)	mg/L		<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L		<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	Insufficient Sample Volume Available	<0.05		<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L		<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05		<0.05	<0.05
>C21-<C32 Hydrocarbons	mg/L		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1
Modified TPH (Tier1)	mg/L		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1
Reached Baseline at C32	mg/L		Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes
Hydrocarbon Resemblance	mg/L		None		None	None	None	None	None	None	None		None		None	None

Note:

1. GDWQ - Canadian Drinking Water Quality Guidelines; MAC refers to Maximum Acceptable Concentration; NA means Not Applicable.
2. Concentrations in excess of guideline values are shaded grey and shown in bold print.
3. Concentrations detected, but not in excess of guideline values, are shaded yellow.
4. Values below the detection limit are reported as "<".

Table 10 Concentrations of volatile organic compounds (VOCs) in groundwater.

	AGAT Sample ID		7127808	---	7127868	7127869	7127870	7127871	7127872	7127873	7127874	7127875	---	7127876	7127877	7127878
	Sampling Date		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
	COC Number		25X354552	---	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	---	25X354552	25X354552	25X354552
	Field ID		MW4A	MW4B	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A	MW 6B	MW 211	MW 212	MW 104	MW 105
Volatile Organic Compounds	**UNITS**	**CDWQ (MAC)**		Dry- Not Sampled												
Acetone (2-Propanone)	µg/L															
Benzene	µg/L	5	<1		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Bromodichloromethane (see **Note 5**)	µg/L	100														
Bromoform (see **Note 5**)	µg/L	100														
Bromomethane	µg/L															
Carbon Tetrachloride	µg/L	2														
Chlorobenzene	µg/L															
Chloroform (Note 4)	µg/L	100														
Dibromochloromethane (see **Note 5**)	µg/L	100														
1,2-Dichlorobenzene	µg/L															
1,3-Dichlorobenzene	µg/L															
1,4-Dichlorobenzene	µg/L	5														
Dichlorodifluoromethane (FREON 12)	µg/L															
1,1-Dichloroethane	µg/L															
1,2-Dichloroethane	µg/L	5														
1,1-Dichloroethylene	µg/L	14														
cis-1,2-Dichloroethylene	µg/L															
trans-1,2-Dichloroethylene	µg/L															
1,2-Dichloropropane	µg/L															
cis-1,3-Dichloropropene	µg/L															
Ethylbenzene	µg/L	140	<1		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Ethylene Dibromide	µg/L															
Hexane	µg/L															
Methylene Chloride(Dichloromethane)	µg/L	50														
Methyl Ethyl Ketone (2-Butanone)	µg/L															
Methyl Isobutyl Ketone	µg/L															
Methyl Tertiary-Butyl Ether (MTBE)	µg/L															
Styrene	µg/L															
1,1,1,2-Tetrachloroethane	µg/L															
1,1,2,2-Tetrachloroethane	µg/L															
Tetrachloroethylene	µg/L	10														
Toluene	µg/L	60	<1		<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,1,1-Trichloroethane	µg/L															
1,1,2-Trichloroethane	µg/L															
Trichloroethylene	µg/L	5														
Vinyl Chloride	µg/L	2														
p+m-Xylene	µg/L															
o-Xylene	µg/L															
Total Xylenes	µg/L	90	<2		<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2

Dry - Not Sampled

Notes:

1. GDWQ - Canadian Drinking Water Quality Guidelines; MAC refers to Maximum Acceptable Concentration.
2. Concentrations in excess of guideline values are shaded grey and shown in bold font.
3. Concentrations detected, but less than guideline values, are shaded yellow.
4. Values below the detection limit are reported as "<".
5. The 0.1 mg/L guideline is for Trihalomethanes (THMs), which refers to the total of Bromodichloromethane, Bromoform, Chloroform and Dibromochloromethane.
6. Groundwaters exempt fro, a complete VOC analysis. VOCs limited to the BTEX components of a Total Petroleum Hydrocarbon analysis.

Table 11 Concentrations of semi-volatile organic compounds (SVOCs) in groundwater.

		AGAT Sample ID	7127808	---	7127868	7127869	7127870	7127871	7127872	7127873	7127874	7127875	---	7127876	7127877	7127878
		Sampling Date	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
		COC Number	25X354552	---	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	25X354552	---	25X354552	25X354552	25X354552
		Field ID	MW4A	MW4B	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A	MW 6B	MW211	MW 212	MW 104	MW 105
Polyaromatic Hydrocarbons	**UNITS**	**CDWQ (MAC)**														
1-Methylnaphthalene	µg/L		<0.05	Dry - Not Sampled	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	Dry - Not Sampled	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/L		<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05
Acenaphthene	µg/L		<0.30		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30	<0.30
Acenaphthylene	µg/L		<0.31		<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31		<0.31	<0.31	<0.31
Anthracene	µg/L		<0.30		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30	<0.30
Benzo(a)anthracene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.04	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	µg/L		<0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03	<0.03
Benzo(g,h,i)perylene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Chrysene	µg/L		<0.27		<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27		<0.27	<0.27	<0.27
Dibenzo(a,h)anthracene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Fluoranthene	µg/L		<0.27		<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27		<0.27	<0.27	<0.27
Fluorene	µg/L		<0.31		<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31		<0.31	<0.31	<0.31
Indeno(1,2,3-cd)pyrene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Naphthalene	µg/L		<0.30		<0.30	1.94	1.51	2.05	<0.30	<0.30	<0.30	<0.30		<0.30	<0.30	<0.30
Phenanthrene	µg/L		<0.32		<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32		<0.32	<0.32	<0.32
Pyrene	µg/L		<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
Phenolics	**UNITS**															
2-Chlorophenol	µg/L		<0.5	Dry - Not Sampled	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	Dry - Not Sampled	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3
2,4-Dimethylphenol	µg/L		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L		<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2
Pentachlorophenol	µg/L		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
Phenol	µg/L		<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	µg/L		<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2
2,4-Dinitrophenol	µg/L		<10		<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10

Notes:

1. CDWQ - Canadian Drinking Water Quality Guidelines; MAC refers to Maximum Acceptable Concentration.

2. Concentrations in excess of guideline values are shaded grey and shown in bold font.

3. Concentrations detected, but below guideline values, are shaded yellow.

4. Values below the detection limit are reported as "<".

Table 12 Major ion concentrations (mg/L) and groundwater classifications for groundwater samples from MW106.

Sample Date	Ca	Mg	Na	K	Cl	SO_4	HCO_3	TDS	Classification	Calcite Saturation Index (SI)	Na/Cl	Ca/Na	$\frac{(Na+K)}{(Ca+Mg)}$
7-Dec-04	34.1	4.1	30.7	1.2	18.0	8.0	159	185	Ca-Na-HCO_3	-0.75	1.71	1.11	0.84
30-May-06	66.0	7.5	37.0	1.4	39.0	12.0	256	287	Ca-Na-HCO_3	-0.29	0.95	1.78	0.52
10-Dec-10	127	30.3	49.8	1.9	92.0	55.0	525	652	Ca-Mg-HCO_3-Cl	0.20	0.54	2.55	0.33
1-May-12	143	36.4	61.9	2.1	130	49.0	619	822	Ca-Mg-HCO_3-Cl	0.30	0.48	2.31	0.36
30-Jan-14	177	43.2	72.9	1.4	121	35.0	702	822	Ca-Mg-Na-HCO_3-Cl	0.43	0.60	2.43	0.34
15-Oct-15	178	66.5	106	4.2	76.0	42.0	731	852	Ca-Mg-Na-HCO_3	0.44	1.39	1.68	0.45
19-Oct-17	155	52.5	98.9	2.1	72.0	31.0	806	796	Ca-Mg-Na-HCO_3	0.43	1.37	1.57	0.49
22-Oct-20	173	62.7	79	2.5	88.0	35.0	739	960	Ca-Mg-Na-HCO_3	0.44	0.89	2.20	0.34
17-Oct-22	129	48.1	57	2.5	83.0	29.0	749	738	Ca-Mg-HCO_3	0.33	0.69	2.26	0.34
7-Oct-25	129	55.3	66.1	3.1	84.0	33.0	669	931	Ca-Mg-Na-HCO_3	0.29	0.79	1.95	0.38

Notes:

1. Calcite precipitation (SI values > 0) begins in 2010, exerting a controlling influence on calcium in groundwater.

2. Na/Cl and (Na+K)/(Ca+Mg) ratios decrease from 2004 to 2012, probably a result of sodium depletion associated with ion exchange processes.

3. Bicarbonate appears to be the best indicator of leachate impacts.

APPENDIX 3

Laboratory Analytical Reports

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AGAT Laboratories

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CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD
P.O. Box 209, 131 North Street
Bridgewater , NS B4V3X9
(902) 543-2991
ATTENTION TO: Kevin Wentzell
PROJECT:
AGAT WORK ORDER: 25X362783
TRACE ORGANICS REVIEWED BY: Radhika Chakraberty, Trace Organics Lab Manager
WATER ANALYSIS REVIEWED BY: Kaliegh Cullen, Report Writer
DATE REPORTED: Nov 12, 2025
PAGES (INCLUDING COVER): 30
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
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- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
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- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water]

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

SAMPLE DESCRIPTION:				C1	C2	C3A	CC6	CC7	SP1	SP2	SP3
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511
Naphthalene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Acenaphthylene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Acenaphthene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluorene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Phenanthrene	µg/L		0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
Anthracene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluoranthene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Benzo(b)fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Phenol	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bis(2-chloroethyl)ether	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Cresol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-chloroisopropyl)ether	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m&p-Cresol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachloroethane	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,2,4-Trichlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Chloroaniline	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
2-and 1-methyl Napthalene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water]

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		C1	C2	C3A	CC6	CC7	SP1	SP2	SP3
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**	**7190311**	**7190505**	**7190506**	**7190507**	**7190508**	**7190509**	**7190510**	**7190511**
2,4,6-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Biphenyl	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethyl phthalate	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dinitrotoluene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dinitrotoluene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6-Tetrachlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diethyl phthalate	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3,3'-dichlorobenzidine	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dinitrophenol	µg/L		10	<10	<10	<10	<10	<10	<10	<10	<10
Sediment				1	1	1	1	1	1	1	1
Surrogate	**Unit**	**Acceptable Limits**									
2-Fluorophenol	%	50-140		102	79	88	79	79	108	102	79
phenol-d6 surrogate	%	50-140		85	85	74	96	96	77	96	93
2,4,6-Tribromophenol	%	50-140		74	74	103	74	93	104	98	99
Chrysene-d12	%	50-140		103	103	99	105	88	77	77	85

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water]

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		W2	W3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190512	7190513
Naphthalene	µg/L		0.30	<0.30	<0.30
Acenaphthylene	µg/L		0.31	<0.31	<0.31
Acenaphthene	µg/L		0.30	<0.30	<0.30
Fluorene	µg/L		0.31	<0.31	<0.31
Phenanthrene	µg/L		0.32	<0.32	<0.32
Anthracene	µg/L		0.30	<0.30	<0.30
Fluoranthene	µg/L		0.27	<0.27	<0.27
Pyrene	µg/L		0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L		0.20	<0.20	<0.20
Chrysene	µg/L		0.27	<0.27	<0.27
Benzo(b)fluoranthene	µg/L		0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L		0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	µg/L		0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L		0.20	<0.20	<0.20
Phenol	µg/L		1.0	<1.0	<1.0
Bis(2-chloroethyl)ether	µg/L		0.5	<0.5	<0.5
2-Chlorophenol	µg/L		0.5	<0.5	<0.5
o-Cresol	µg/L		0.5	<0.5	<0.5
Bis(2-chloroisopropyl)ether	µg/L		0.5	<0.5	<0.5
m&p-Cresol	µg/L		0.5	<0.5	<0.5
Hexachloroethane	µg/L		0.5	<0.5	<0.5
2,4-Dimethylphenol	µg/L		0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.3	<0.3	<0.3
1,2,4-Trichlorobenzene	µg/L		0.5	<0.5	<0.5
p-Chloroaniline	µg/L		1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L		0.4	<0.4	<0.4
2-and 1-methyl Napthalene	µg/L		0.5	<0.5	<0.5

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water]

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

				SAMPLE DESCRIPTION:	W2	W3
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**		**7190512**	**7190513**
2,4,6-Trichlorophenol	µg/L		0.2		<0.2	<0.2
2,4,5-Trichlorophenol	µg/L		0.2		<0.2	<0.2
1,1-Biphenyl	µg/L		0.5		<0.5	<0.5
Dimethyl phthalate	µg/L		0.5		<0.5	<0.5
2,6-Dinitrotoluene	µg/L		0.5		<0.5	<0.5
2,4-Dinitrotoluene	µg/L		0.5		<0.5	<0.5
2,3,4,6-Tetrachlorophenol	µg/L		0.5		<0.5	<0.5
Diethyl phthalate	µg/L		0.5		<0.5	<0.5
Hexachlorobenzene	µg/L		0.5		<0.5	<0.5
Pentachlorophenol	µg/L		0.5		<0.5	<0.5
3,3'-dichlorobenzidine	µg/L		0.5		<0.5	<0.5
Bis(2-Ethylhexyl)phthalate	µg/L		0.5		<0.5	<0.5
2,4-Dinitrophenol	µg/L		10		<10	<10
Sediment					1	1
Surrogate	**Unit**	**Acceptable Limits**				
2-Fluorophenol	%	50-140			105	105
phenol-d6 surrogate	%	50-140			85	88
2,4,6-Tribromophenol	%	50-140			74	96
Chrysene-d12	%	50-140			119	102

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7190311-7190513 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

HALIFAX - Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

SAMPLE DESCRIPTION:				C1	C2	C3A	CC6	CC7	SP1	SP2	SP3
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190311	7190505	7190506	7190507	7190508	7190509	7190510	7190511
Chloromethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	µg/L		0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Bromomethane	µg/L		0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89
Chloroethane	µg/L		5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	µg/L		5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	µg/L		10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethylene	µg/L		0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Methylene Chloride	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
trans-1,2-Dichloroethylene	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloroethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	ug/L		2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	µg/L		0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
Benzene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/L		0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Trichloroethylene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
2-Hexanone	µg/L		10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Dibromochloromethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1,2-Tetrachloroethane	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

HALIFAX - Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		C1	C2	C3A	CC6	CC7	SP1	SP2	SP3
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**	**7190311**	**7190505**	**7190506**	**7190507**	**7190508**	**7190509**	**7190510**	**7190511**
Ethylbenzene	µg/L		2	<2	<2	<2	<2	<2	<2	<2	<2
m,p-Xylenes	µg/L		4	<4	<4	<4	<4	<4	<4	<4	<4
Bromoform	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L		1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L		0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Xylenes	µg/L		4	<4	<4	<4	<4	<4	<4	<4	<4
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8	%	50-140		79	82	75	98	89	107	95	94

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

HALIFAX - Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		W2	W3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190512	7190513
Chloromethane	µg/L		1	<1	<1
Vinyl Chloride	µg/L		0.6	<0.6	<0.6
Bromomethane	µg/L		0.89	<0.89	<0.89
Chloroethane	µg/L		5	<5	<5
Trichlorofluoromethane	µg/L		5	<5	<5
Acetone	µg/L		10	<10	<10
1,1-Dichloroethylene	µg/L		0.6	<0.6	<0.6
Methylene Chloride	µg/L		2	<2	<2
trans-1,2-Dichloroethylene	µg/L		2	<2	<2
1,1-Dichloroethane	µg/L		1	<1	<1
cis-1,2-Dichloroethylene	ug/L		2	<2	<2
Chloroform	µg/L		1	<1	<1
1,2-Dichloroethane	µg/L		2	<2	<2
1,1,1-Trichloroethane	µg/L		1	<1	<1
Carbon Tetrachloride	µg/L		0.56	<0.56	<0.56
Benzene	µg/L		1	<1	<1
1,2-Dichloropropane	µg/L		0.7	<0.7	<0.7
Trichloroethylene	µg/L		1	<1	<1
Bromodichloromethane	µg/L		1	<1	<1
cis-1,3-Dichloropropene	µg/L		0.5	<0.5	<0.5
trans-1,3-Dichloropropene	µg/L		0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L		1	<1	<1
Toluene	µg/L		2	<2	<2
2-Hexanone	µg/L		10.0	<10.0	<10.0
Dibromochloromethane	µg/L		1	<1	<1
1,2-Dibromoethane	µg/L		0.5	<0.5	<0.5
Tetrachloroethylene	µg/L		2	<2	<2
1,1,1,2-Tetrachloroethane	µg/L		0.5	<0.5	<0.5
Chlorobenzene	µg/L		1.0	<1.0	<1.0

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

HALIFAX - Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		W2	W3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**	**7190512**	**7190513**
Ethylbenzene	µg/L		2	<2	<2
m,p-Xylenes	µg/L		4	<4	<4
Bromoform	µg/L		1	<1	<1
Styrene	µg/L		1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L		1	<1	<1
o-Xylene	µg/L		1	<1	<1
1,3-Dichlorobenzene	µg/L		1	<1	<1
1,4-Dichlorobenzene	µg/L		1	<1	<1
1,2-Dichlorobenzene	µg/L		0.7	<0.7	<0.7
Xylenes	µg/L		4	<4	<4
Surrogate	**Unit**	**Acceptable Limits**			
Toluene-d8	%	50-140		103	86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7190311-7190513 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: R. Chakraberty

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition, Column 3 - TPH

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		C1	C2	C3A	CC6	CC7	SP1	SP2	SP3
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**	**7190311**	**7190505**	**7190506**	**7190507**	**7190508**	**7190509**	**7190510**	**7190511**
Benzene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylene (Total)	mg/L		0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
C6-C10 (less BTEX)	mg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C21-C32 Hydrocarbons	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Resemblance Comment				NA	NA	NA	NA	NA	NA	NA	NA
Return to Baseline at C32				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sediment				No	No	No	No	No	No	No	No
VPH - Extraction PIRI				Y	Y	Y	Y	Y	Y	Y	Y
EPH - Extraction PIRI				Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	**Unit**	**Acceptable Limits**									
Isobutylbenzene - EPH	%	70-130		106	112	111	113	110	113	113	108
Isobutylbenzene - VPH	%	70-130		100	91	101	102	105	101	96	101
n-Dotriacontane - EPH	%	70-130		105	112	111	112	110	111	113	110

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition, Column 3 - TPH

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

				SAMPLE DESCRIPTION:	W2	W3
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2025-10-28 12:00	2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**		**7190512**	**7190513**
Benzene	mg/L		0.001		<0.001	<0.001
Toluene	mg/L		0.001		<0.001	<0.001
Ethylbenzene	mg/L		0.001		<0.001	<0.001
Xylene (Total)	mg/L		0.002		<0.002	<0.002
C6-C10 (less BTEX)	mg/L		0.01		<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L		0.05		<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L		0.05		<0.05	<0.05
>C21-C32 Hydrocarbons	mg/L		0.1		<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1		<0.1	<0.1
Resemblance Comment					NA	NA
Return to Baseline at C32					Yes	Yes
Sediment					No	No
VPH - Extraction PIRI					Y	Y
EPH - Extraction PIRI					Y	Y
Surrogate	**Unit**	**Acceptable Limits**				
Isobutylbenzene - EPH	%	70-130			110	114
Isobutylbenzene - VPH	%	70-130			91	107
n-Dotriacontane - EPH	%	70-130			113	113

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7190311-7190513 Benzo(b)fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample. Benzo(j+k)fluoranthene is not an accredited parameter.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Halifax (unless marked by *)

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29 **DATE REPORTED: 2025-11-12**

		SAMPLE DESCRIPTION:		C1		C2		C3A		CC6
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190311	RDL	7190505	RDL	7190506	RDL	7190507
pH				5.65		5.49		5.44		5.38
Chloride	mg/L		5	63	2	49	1	8	1	8
Sulphate	mg/L		10	208	4	141	2	5	2	5
Alkalinity	mg/L		5	40	5	20	5	12	5	10
Electrical Conductivity	umho/cm		1	706	1	488	1	68	1	64
Nitrate as N	mg/L		0.25	<0.25	0.10	<0.10	0.05	0.10	0.05	0.12
Nitrite as N	mg/L		0.25	0.59	0.10	<0.10	0.05	0.28	0.05	0.29
Ammonia as N	mg/L		0.03	<0.03	0.03	<0.03	0.03	<0.03	0.03	<0.03
Total Sodium	mg/L		0.1	47.0	0.1	30.6	0.1	6.1	0.1	5.9
Total Potassium	mg/L		0.1	3.8	0.1	2.3	0.1	1.7	0.1	1.6
Total Calcium	mg/L		0.1	65.2	0.1	39.3	0.1	3.5	0.1	3.2
Total Magnesium	mg/L		0.1	21.4	0.1	14.0	0.1	1.5	0.1	1.4
Hardness	mg/L			251		156		14.9		13.8
Total Aluminum	ug/L		5	166	5	134	5	58	5	29
Total Antimony	ug/L		2	<2	2	<2	2	<2	2	<2
Total Arsenic	ug/L		2	<2	2	<2	2	<2	2	<2
Total Barium	ug/L		5	35	5	27	5	<5	5	8
Total Boron	ug/L		50	1530	50	670	50	96	50	72
Total Cadmium	ug/L		0.09	<0.09	0.09	<0.09	0.09	<0.09	0.09	<0.09
Total Chromium	ug/L		2	<2	2	<2	2	<2	2	<2
Total Copper	ug/L		2	<2	2	<2	2	<2	2	<2
Total Iron	ug/L		50	205	50	131	50	788	50	256
Total Lead	ug/L		0.5	2.0	0.5	<0.5	0.5	<0.5	0.5	<0.5
Total Manganese	ug/L		2	275	2	60	2	216	2	195
Total Nickel	ug/L		2	5	2	2	2	<2	2	<2
Total Phosphorus	mg/L		0.02	3.60	0.02	3.23	0.02	0.56	0.02	0.32
Total Uranium	ug/L		0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Total Vanadium	ug/L		2	<2	2	<2	2	<2	2	<2
Total Zinc	ug/L		5	6	5	<5	5	<5	5	<5

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		C1		C2		C3A		CC6
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190311	RDL	7190505	RDL	7190506	RDL	7190507
Mercury Digest				Y		Y		Y		Y
Total Mercury	ug/L		0.026	<0.026	0.026	<0.026	0.026	<0.026	0.026	<0.026
Total Dissolved Solids	mg/L		5	520	5	340	5	<5	5	66
Total Suspended Solids	mg/L		5	<5	5	<5	5	<5	5	<5
Chemical Oxygen Demand	mg/L		3	23	3	23	3	22	3	17
Residual Chlorine present				N		N		N		N
BOD setup				Y		Y		Y		Y
Biochemical Oxygen Demand, Total	mg/L		6	<6	2	<2	6	<6	2	<2
Total Organic Carbon	mg/L		0.50	7.7	0.50	8.1	0.50	5.5	0.50	5.5
Ion Balance (% Difference)	%			1.7		2.1		4.5		3.2

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

		SAMPLE DESCRIPTION:		CC7		SP1		SP2		SP3
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190508	RDL	7190509	RDL	7190510	RDL	7190511
pH				5.37		6.23		7.37		7.07
Chloride	mg/L		1	7	2	91	10	262	1	77
Sulphate	mg/L		2	5	4	163	20	384	2	47
Alkalinity	mg/L		5	11	5	123	5	330	5	287
Electrical Conductivity	umho/cm		1	69	1	835	1	2340	1	882
Nitrate as N	mg/L		0.05	0.10	0.10	0.42	0.5	3.7	0.05	0.09
Nitrite as N	mg/L		0.05	0.28	0.10	0.97	0.5	1.7	0.05	0.49
Ammonia as N	mg/L		0.03	0.82	0.03	1.30	0.03	3.65	0.03	2.77
Total Sodium	mg/L		0.1	5.2	0.1	67.0	0.5	215	0.1	61.5
Total Potassium	mg/L		0.1	1.4	0.1	23.0	0.5	176	0.1	28.6
Total Calcium	mg/L		0.1	3.6	0.1	72.7	0.5	138	0.1	74.8
Total Magnesium	mg/L		0.1	1.8	0.1	12.3	0.5	36.3	0.1	21.8
Hardness	mg/L			16.4		232		494		277
Total Aluminum	ug/L		5	175	5	381	25	489	5	202
Total Antimony	ug/L		2	<2	2	<2	10	<10	2	<2
Total Arsenic	ug/L		2	<2	2	7	2	19.2	2	10.8
Total Barium	ug/L		5	6	5	44	25	44	5	51
Total Boron	ug/L		50	<50	50	898	50	7310	50	1650
Total Cadmium	ug/L		0.09	<0.09	0.09	<0.09	0.45	<0.45	0.09	<0.09
Total Chromium	ug/L		2	<2	2	<2	10	<10	2	<2
Total Copper	ug/L		2	<2	2	<2	10	81	2	<2
Total Iron	ug/L		50	867	50	3770	250	1810	50	522
Total Lead	ug/L		0.5	<0.5	0.5	0.8	2.5	9.5	0.5	<0.5
Total Manganese	ug/L		2	623	2	4410	10	1780	2	4710
Total Nickel	ug/L		2	<2	2	16	10	43	2	10
Total Phosphorus	mg/L		0.02	3.47	0.02	0.82	0.10	3.63	0.02	4.50
Total Uranium	ug/L		0.2	<0.2	0.2	0.9	1.0	3.6	0.2	0.3
Total Vanadium	ug/L		2	<2	2	<2	10	<10	2	2
Total Zinc	ug/L		5	<5	5	26	25	95	5	<5

Certified By: Kaleigh Cullen

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

				SAMPLE DESCRIPTION:		CC7		SP1		SP2		SP3
				SAMPLE TYPE:		Water		Water		Water		Water
				DATE SAMPLED:		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00		2025-10-28 12:00
Parameter	**Unit**	**G / S**	**RDL**	**7190508**	**RDL**	**7190509**	**RDL**	**7190510**	**RDL**	**7190511**		
Mercury Digest				Y		Y		Y		Y		
Total Mercury	ug/L		0.026	<0.026	0.026	<0.026	0.026	<0.026	0.026	<0.026		
Total Dissolved Solids	mg/L		5	110	5	550	5	1800	5	604		
Total Suspended Solids	mg/L		5	<5	5	28	5	38	5	10		
Chemical Oxygen Demand	mg/L		3	49	3	68	3	357	3	93		
Residual Chlorine present				N		N		N		N		
BOD setup				Y		Y		Y		Y		
Biochemical Oxygen Demand, Total	mg/L		6	<6	2	10	2	19	2	6		
Total Organic Carbon	mg/L		0.50	16	0.50	18	0.50	120	0.50	33		
Ion Balance (% Difference)	%			13.9		0.3		3.9		2.2		

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SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

				SAMPLE DESCRIPTION:		W3
				SAMPLE TYPE:		Water
				DATE SAMPLED:		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190512	RDL	7190513
pH				6.39		5.83
Chloride	mg/L		5	258	5	141
Sulphate	mg/L		10	95	10	176
Alkalinity	mg/L		5	143	5	42
Electrical Conductivity	umho/cm		1	1300	1	910
Nitrate as N	mg/L		0.25	5.53	0.25	<0.25
Nitrite as N	mg/L		0.25	2.54	0.25	1.00
Ammonia as N	mg/L		0.03	1.43	0.03	<0.03
Total Sodium	mg/L		0.5	137	0.1	76.0
Total Potassium	mg/L		0.1	24.5	0.1	11.6
Total Calcium	mg/L		0.1	82.8	0.1	68.7
Total Magnesium	mg/L		0.1	13.6	0.1	13.8
Hardness	mg/L			263		228
Total Aluminum	ug/L		5	55	5	51
Total Antimony	ug/L		2	<2	2	<2
Total Arsenic	ug/L		2	<2	2	<2
Total Barium	ug/L		5	58	5	30
Total Boron	ug/L		50	1060	50	661
Total Cadmium	ug/L		0.09	<0.09	0.09	<0.09
Total Chromium	ug/L		2	<2	2	2
Total Copper	ug/L		2	13	2	<2
Total Iron	ug/L		50	3480	50	1370
Total Lead	ug/L		0.5	<0.5	0.5	<0.5
Total Manganese	ug/L		2	1710	2	2760
Total Nickel	ug/L		2	11	2	13
Total Phosphorus	mg/L		0.02	2.06	0.02	2.02
Total Uranium	ug/L		0.2	0.2	0.2	<0.2
Total Vanadium	ug/L		2	<2	2	<2
Total Zinc	ug/L		5	51	5	29

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SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

				SAMPLE DESCRIPTION:		W3
				SAMPLE TYPE:		Water
				DATE SAMPLED:		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190512	RDL	7190513
Mercury Digest				Y		Y
Total Mercury	ug/L		0.026	<0.026	0.026	<0.026
Total Dissolved Solids	mg/L		5	818	5	618
Total Suspended Solids	mg/L		5	8	5	<5
Chemical Oxygen Demand	mg/L		3	44	3	24
Residual Chlorine present				N		N
BOD setup				Y		Y
Biochemical Oxygen Demand, Total	mg/L		2	3	6	<6
Total Organic Carbon	mg/L		0.50	16	0.50	8.9
Ion Balance (% Difference)	%			2.2		1.3

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PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

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SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2

DATE RECEIVED: 2025-10-29 **DATE REPORTED: 2025-11-12**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7190311	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. RDL for BOD is raised due to insufficient DO depletion at selected dilution levels.
7190505	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result.
7190506	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. RDL for BOD is raised due to insufficient DO depletion at selected dilution levels.
7190507	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. Ion Balance is biased high, contributing parameters have been confirmed.
7190508	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. RDL for BOD is raised due to insufficient DO depletion at selected dilution levels. The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.
7190509	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result.
7190510	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. Sediment present in sample.
7190511-7190512	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result.
7190513	Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited. pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result. RDL for BOD is raised due to insufficient DO depletion at selected dilution levels.

Analysis performed at AGAT Halifax (unless marked by *)

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AGAT WORK ORDER: 25X362783

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Total Phosphorous, TKN & Phenols

DATE RECEIVED: 2025-10-29

DATE REPORTED: 2025-11-12

SAMPLE DESCRIPTION:				C1	C2	C3A	CC6	CC7	SP1		SP2
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water		Water
DATE SAMPLED:				2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00	2025-10-28 12:00		2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190311	7190505	7190506	7190507	7190508	7190509	RDL	7190510
Total Phosphorus	mg/L		0.006	0.009	0.010	0.007	<0.006	0.038	0.085	0.006	0.351
Total Kjeldahl Nitrogen	mg/L		0.10	<0.10	<0.10	<0.10	<0.10	1.79	4.51	0.14	31.4
Phenols	mg/L		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001

SAMPLE DESCRIPTION:				SP3		W2	W3
SAMPLE TYPE:				Water		Water	Water
DATE SAMPLED:				2025-10-28 12:00		2025-10-28 12:00	2025-10-28 12:00
Parameter	Unit	G / S	RDL	7190511	RDL	7190512	7190513
Total Phosphorus	mg/L		0.008	0.877	0.006	0.074	0.013
Total Kjeldahl Nitrogen	mg/L		0.10	7.17	0.10	3.74	0.42
Phenols	mg/L		0.001	0.001	0.001	<0.001	<0.001

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7190510-7190511 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Nov 12, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Solid Waste Management - Construction and Demolition, Column 3 - TPH															
Benzene	1	7185097	< 0.001	< 0.001	NA	< 0.001	89%	70%	130%	96%	70%	130%			
Toluene	1	7185097	< 0.001	< 0.001	NA	< 0.001	105%	70%	130%	106%	70%	130%			
Ethylbenzene	1	7185097	< 0.001	< 0.001	NA	< 0.001	109%	70%	130%	118%	70%	130%			
Xylene (Total)	1	7185097	< 0.002	< 0.002	NA	< 0.002	97%	70%	130%	116%	70%	130%			
C6-C10 (less BTEX)	1	7185097	< 0.01	< 0.01	NA	< 0.01	101%	70%	130%	86%	70%	130%	101%	70%	130%
>C10-C16 Hydrocarbons	1	7190311	< 0.05	< 0.05	NA	< 0.05	70%	70%	130%	103%	70%	130%	101%	70%	130%
>C16-C21 Hydrocarbons	1	7190311	< 0.05	< 0.05	NA	< 0.05	76%	70%	130%	103%	70%	130%	101%	70%	130%
>C21-C32 Hydrocarbons	1	7190311	< 0.1	< 0.1	NA	< 0.1	82%	70%	130%	103%	70%	130%	101%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. Matrix spike performed on a different sample than the duplicate.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Base Neutrals and Acids [Water]															
Naphthalene	7190311	< 0.30	< 0.30	NA	< 0.30	81%	50%	140%	71%	50%	140%	76%	50%	140%
Acenaphthylene	7190311	< 0.31	< 0.31	NA	< 0.31	91%	50%	140%	75%	50%	140%	79%	50%	140%
Acenaphthene	7190311	< 0.30	< 0.30	NA	< 0.30	75%	50%	140%	83%	50%	140%	72%	50%	140%
Fluorene	7190311	< 0.31	< 0.31	NA	< 0.31	75%	50%	140%	88%	50%	140%	80%	50%	140%
Phenanthrene	7190311	< 0.32	< 0.32	NA	< 0.32	84%	50%	140%	74%	50%	140%	94%	50%	140%
Anthracene	7190311	< 0.30	< 0.30	NA	< 0.30	84%	50%	140%	90%	50%	140%	75%	50%	140%
Fluoranthene	7190311	< 0.27	< 0.27	NA	< 0.27	89%	50%	140%	89%	50%	140%	109%	50%	140%
Pyrene	7190311	< 0.20	< 0.20	NA	< 0.20	79%	50%	140%	81%	50%	140%	85%	50%	140%
Benzo(a)anthracene	7190311	< 0.20	< 0.20	NA	< 0.20	79%	50%	140%	72%	50%	140%	88%	50%	140%
Chrysene	7190311	< 0.27	< 0.27	NA	< 0.27	81%	50%	140%	81%	50%	140%	75%	50%	140%
Benzo(b)fluoranthene	7190311	< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	78%	50%	140%	109%	50%	140%
Benzo(k)fluoranthene	7190311	< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	78%	50%	140%	113%	50%	140%
Benzo(a)pyrene	7190311	< 0.01	< 0.01	NA	< 0.01	98%	50%	140%	78%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	7190311	< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	86%	50%	140%	96%	50%	140%
Dibenzo(a,h)anthracene	7190311	< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	84%	50%	140%	100%	50%	140%
Benzo(g,h,i)perylene	7190311	< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	87%	50%	140%	93%	50%	140%
Phenol	7190311	< 1.0	< 1.0	NA	< 1.0	91%	50%	140%	80%	50%	140%	99%	50%	140%
Bis(2-chloroethyl)ether	7190311	< 0.5	< 0.5	NA	< 0.5	76%	50%	140%	100%	50%	140%	85%	50%	140%
2-Chlorophenol	7190311	< 0.5	< 0.5	NA	< 0.5	86%	50%	140%	114%	50%	140%	81%	50%	140%
o-Cresol	7190311	< 0.5	< 0.5	NA	< 0.5	99%	50%	140%	113%	50%	140%	107%	50%	140%
Bis(2-chloroisopropyl)ether	7190311	< 0.5	< 0.5	NA	< 0.5	73%	50%	140%	72%	50%	140%	86%	50%	140%
m&p-Cresol	7190311	< 0.5	< 0.5	NA	< 0.5	101%	50%	140%	74%	50%	140%	87%	50%	140%
Hexachloroethane	7190311	< 0.5	< 0.5	NA	< 0.5	77%	50%	140%	91%	50%	140%	99%	50%	140%
2,4-Dimethylphenol	7190311	< 0.5	< 0.5	NA	< 0.5	90%	30%	130%	109%	30%	130%	84%	30%	130%
2,4-Dichlorophenol	7190311	< 0.3	< 0.3	NA	< 0.3	93%	50%	140%	86%	50%	140%	119%	50%	140%
1,2,4-Trichlorobenzene	7190311	< 0.5	< 0.5	NA	< 0.5	76%	50%	140%	89%	50%	140%	68%	50%	140%
p-Chloroaniline	7190311	< 1.0	< 1.0	NA	< 1.0	99%	50%	140%	106%	50%	140%	114%	50%	140%

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Quality Assurance

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AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 12, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Hexachlorobutadiene	7190311		< 0.4	< 0.4	NA	< 0.4	92%	50%	140%	80%	50%	140%	87%	50%	140%
2,4,6-Trichlorophenol	7190311		< 0.2	< 0.2	NA	< 0.2	75%	50%	140%	108%	50%	140%	107%	50%	140%
2,4,5-Trichlorophenol	7190311		< 0.2	< 0.2	NA	< 0.2	74%	50%	140%	101%	50%	140%	76%	50%	140%
1,1-Biphenyl	7190311		< 0.5	< 0.5	NA	< 0.5	77%	50%	140%	91%	50%	140%	94%	50%	140%
Dimethyl phthalate	7190311		< 0.5	< 0.5	NA	< 0.5	80%	50%	140%	83%	50%	140%	91%	50%	140%
2,6-Dinitrotoluene	7190311		< 0.5	< 0.5	NA	< 0.5	79%	50%	140%	88%	50%	140%	84%	50%	140%
2,4-Dinitrotoluene	7190311		< 0.5	< 0.5	NA	< 0.5	85%	50%	140%	77%	50%	140%	70%	50%	140%
2,3,4,6-Tetrachlorophenol	7190311		< 0.5	< 0.5	NA	< 0.5	101%	50%	140%	71%	50%	140%	77%	50%	140%
Diethyl phthalate	7190311		< 0.5	< 0.5	NA	< 0.5	79%	50%	140%	88%	50%	140%	76%	50%	140%
Hexachlorobenzene	7190311		< 0.5	< 0.5	NA	< 0.5	86%	50%	140%	77%	50%	140%	71%	50%	140%
Pentachlorophenol	7190311		< 0.5	< 0.5	NA	< 0.5	73%	50%	140%	101%	50%	140%	73%	50%	140%
3,3'-dichlorobenzidine	7190311		< 0.5	< 0.5	NA	< 0.5	71%	30%	130%	88%	30%	130%	71%	30%	130%
Bis(2-Ethylhexyl)phthalate	7190311		< 0.5	< 0.5	NA	< 0.5	83%	50%	140%	91%	50%	140%	82%	50%	140%
2,4-Dinitrophenol	7190311		< 10	< 10	NA	< 10	101%	30%	130%	72%	30%	130%	78%	30%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

HALIFAX - Volatile Organic Compounds in Water (ug/L)

Chloromethane	5694	7194489	< 1	< 1	NA	< 1	84%	50%	140%	97%	50%	140%	100%	50%	140%
Vinyl Chloride	5694	7194489	< 0.6	< 0.6	NA	< 0.6	80%	50%	140%	105%	50%	140%	100%	50%	140%
Bromomethane	5694	7194489	< 0.89	< 0.89	NA	< 0.89	99%	50%	140%	128%	50%	140%	86%	50%	140%
Chloroethane	5694	7194489	< 5	< 5	NA	< 5	79%	50%	140%	100%	50%	140%	97%	50%	140%
Trichlorofluoromethane	5694	7194489	< 5	< 5	NA	< 5	94%	50%	140%	121%	60%	130%	116%	50%	140%
Acetone	5694	7194489	< 10	< 10	NA	< 10	78%	50%	140%	78%	50%	140%	81%	50%	140%
1,1-Dichloroethylene	5694	7194489	< 0.6	< 0.6	NA	< 0.6	59%	50%	140%	88%	60%	130%	88%	50%	140%
Methylene Chloride	5694	7194489	< 2	< 2	NA	< 2	91%	50%	140%	99%	60%	130%	97%	50%	140%
trans-1,2-Dichloroethylene	5694	7194489	< 2	< 2	NA	< 2	66%	50%	140%	90%	60%	130%	89%	50%	140%
1,1-Dichloroethane	5694	7194489	< 1	< 1	NA	< 1	83%	50%	140%	96%	60%	130%	95%	50%	140%
cis-1,2-Dichloroethylene	5694	7194489	< 2	< 2	NA	< 2	57%	50%	140%	78%	60%	130%	82%	50%	140%
Chloroform	5694	7194489	< 1	< 1	NA	< 1	92%	50%	140%	101%	60%	130%	100%	50%	140%
1,2-Dichloroethane	5694	7194489	< 2	< 2	NA	< 2	88%	50%	140%	94%	60%	130%	96%	50%	140%
1,1,1-Trichloroethane	5694	7194489	< 1	< 1	NA	< 1	89%	50%	140%	108%	60%	130%	105%	50%	140%
Carbon Tetrachloride	5694	7194489	< 0.56	< 0.56	NA	< 0.56	97%	50%	140%	118%	60%	130%	114%	50%	140%
Benzene	5694	7194489	< 1	< 1	NA	< 1	100%	50%	140%	92%	60%	130%	102%	50%	140%
1,2-Dichloropropane	5694	7194489	< 0.7	< 0.7	NA	< 0.7	102%	50%	140%	87%	60%	130%	93%	50%	140%
Trichloroethylene	5694	7194489	< 1	< 1	NA	< 1	97%	50%	140%	97%	60%	130%	111%	50%	140%
Bromodichloromethane	5694	7194489	< 1	< 1	NA	< 1	126%	50%	140%	97%	60%	130%	109%	50%	140%
cis-1,3-Dichloropropene	5694	7194489	< 0.5	< 0.5	NA	< 0.5	91%	50%	140%	82%	60%	130%	87%	50%	140%
trans-1,3-Dichloropropene	5694	7194489	< 0.5	< 0.5	NA	< 0.5	85%	50%	140%	79%	60%	130%	84%	50%	140%
1,1,2-Trichloroethane	5694	7194489	< 1	< 1	NA	< 1	128%	50%	140%	96%	60%	130%	105%	50%	140%
Toluene	5694	7194489	< 2	< 2	NA	< 2	77%	50%	140%	86%	60%	130%	102%	50%	140%

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 12, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
2-Hexanone	5694	7194489	< 10.0	< 10.0	NA	< 10.0	92%	50%	140%	74%	50%	140%	95%	50%	140%
Dibromochloromethane	5694	7194489	< 1	< 1	NA	< 1	127%	50%	140%	96%	60%	130%	114%	50%	140%
1,2-Dibromoethane	5694	7194489	< 0.5	< 0.5	NA	< 0.5	109%	50%	140%	89%	60%	130%	103%	50%	140%
Tetrachloroethylene	5694	7194489	< 2	< 2	NA	< 2	120%	50%	140%	114%	60%	130%	116%	50%	140%
1,1,1,2-Tetrachloroethane	5694	7194489	< 0.5	< 0.5	NA	< 0.5	133%	50%	140%	102%	60%	130%	110%	50%	140%
Chlorobenzene	5694	7194489	< 1.0	< 1.0	NA	< 1.0	87%	50%	140%	85%	60%	130%	100%	50%	140%
Ethylbenzene	5694	7194489	< 2	< 2	NA	< 2	59%	50%	140%	81%	60%	130%	100%	50%	140%
m,p-Xylenes	5694	7194489	< 4	< 4	NA	< 4	80%	50%	140%	103%	60%	130%	112%	50%	140%
Bromoform	5694	7194489	< 1	< 1	NA	< 1	139%	50%	140%	104%	60%	130%	124%	50%	140%
Styrene	5694	7194489	< 1	< 1	NA	< 1	53%	50%	140%	80%	60%	130%	95%	50%	140%
1,1,2,2-Tetrachloroethane	5694	7194489	< 1	< 1	NA	< 1	129%	50%	140%	90%	60%	130%	101%	50%	140%
o-Xylene	5694	7194489	< 1	< 1	NA	< 1	85%	50%	140%	103%	60%	130%	111%	50%	140%
1,3-Dichlorobenzene	5694	7194489	< 1	< 1	NA	< 1	85%	50%	140%	94%	60%	130%	95%	50%	140%
1,4-Dichlorobenzene	5694	7194489	< 1	< 1	NA	< 1	88%	50%	140%	99%	60%	130%	107%	50%	140%
1,2-Dichlorobenzene	5694	7194489	< 0.7	< 0.7	NA	< 0.7	91%	50%	140%	103%	60%	130%	112%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RPD will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: R. Chakraberty

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Nov 12, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2															
pH	7185097		5.58	5.59	0.3%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Chloride	7214877		25	25	0.7%	< 1	85%	80%	120%	NA	80%	120%	NA	70%	130%
Sulphate	7214877		5	4	NA	< 2	82%	80%	120%	NA	80%	120%	81%	70%	130%
Alkalinity	7185097		11	11	NA	< 5	98%	80%	120%	NA			NA		
Electrical Conductivity	7185097		1980	1980	0.1%	< 1	98%	90%	110%	NA			NA		
Nitrate as N	7214877		0.75	0.72	3.2%	< 0.05	87%	80%	120%	NA	80%	120%	NA	70%	130%
Nitrite as N	7214877		0.19	0.20	NA	< 0.05	102%	80%	120%	NA	80%	120%	91%	70%	130%
Ammonia as N	7190310		0.04	<0.03	NA	< 0.03	100%	80%	120%	99%	80%	120%	107%	70%	130%
Total Sodium	7218982		121	130	7.2%	< 0.1	103%	70%	130%	101%	80%	120%	NA	70%	130%
Total Potassium	7218982		2.0	2.1	4.7%	< 0.1	105%	70%	130%	103%	80%	120%	109%	70%	130%
Total Calcium	7218982		55.5	59.2	6.4%	< 0.1	106%	70%	130%	97%	80%	120%	NA	70%	130%
Total Magnesium	7218982		9.6	10.2	6.2%	< 0.1	104%	70%	130%	104%	80%	120%	110%	70%	130%
Total Aluminum	7218982		9	8	NA	< 5	104%	70%	130%	105%	80%	120%	109%	70%	130%
Total Antimony	7218982		<2	<2	NA	< 2	100%	70%	130%	99%	80%	120%	104%	70%	130%
Total Arsenic	7190310		<2	<2	NA	< 2	96%	70%	130%	99%	80%	120%	96%	70%	130%
Total Barium	7218982		11	12	NA	< 5	100%	70%	130%	99%	80%	120%	104%	70%	130%
Total Boron	7218982		<50	<50	NA	< 50	101%	70%	130%	101%	80%	120%	106%	70%	130%
Total Cadmium	7190404		<0.09	<0.09	NA	< 0.09	99%	70%	130%	100%	80%	120%	75%	70%	130%
Total Chromium	7218982		<2	<2	NA	< 2	101%	70%	130%	100%	80%	120%	105%	70%	130%
Total Copper	7218982		206	220	6.7%	< 2	102%	70%	130%	101%	80%	120%	112%	70%	130%
Total Iron	7218982		709	752	6.0%	< 50	105%	70%	130%	103%	80%	120%	108%	70%	130%
Total Lead	7218982		26.9	28.6	6.1%	< 0.5	103%	70%	130%	104%	80%	120%	110%	70%	130%
Total Manganese	7218982		12	13	7.2%	< 2	103%	70%	130%	104%	80%	120%	108%	70%	130%
Total Nickel	7218982		9	9	NA	< 2	101%	70%	130%	101%	80%	120%	107%	70%	130%
Total Phosphorus	7218982		1.69	1.77	4.9%	< 0.02	84%	70%	130%	88%	80%	120%	87%	70%	130%
Total Uranium	7218982		0.3	0.3	NA	< 0.2	99%	70%	130%	100%	80%	120%	106%	70%	130%
Total Vanadium	7218982		<2	<2	NA	< 2	101%	70%	130%	99%	80%	120%	105%	70%	130%
Total Zinc	7218982		328	355	7.8%	< 5	91%	70%	130%	90%	80%	120%	NA	70%	130%
Total Mercury	7179362		<0.026	<0.026	NA	< 0.026	101%	80%	120%	100%	80%	120%	105%	70%	130%
Total Dissolved Solids	7190587		346	352	1.7%	< 5	120%	80%	120%	NA			NA		
Total Suspended Solids	7197113		<5	<5	NA	< 5	94%	80%	120%	NA			102%	80%	120%
Chemical Oxygen Demand	7190398		35	35	0.0%	< 3	97%	80%	120%	NA			96%	80%	120%
Biochemical Oxygen Demand, Total	7193411		658	642	2.5%	< 2	72%	70%	130%	NA			NA		
Total Organic Carbon	7190506	7190506	5.5	5.5	0.0%	< 0.5	99%	80%	120%	NA	80%	120%	97%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 2															
Chloride	7214878		28	28	1%	< 1	86%	80%	120%	NA	80%	120%	NA	70%	130%
Sulphate	7214878		5	5	NA	< 2	82%	80%	120%	NA	80%	120%	83%	70%	130%

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Nov 12, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nitrate as N	7214878		1.09	1.01	7.4%	< 0.05	104%	80%	120%	NA	80%	120%	NA	70%	130%
Nitrite as N	7214878		0.50	0.46	7.5%	< 0.05	105%	80%	120%	NA	80%	120%	97%	70%	130%
Ammonia as N	7190513	7190513	<0.03	<0.03	NA	< 0.03	98%	80%	120%	97%	80%	120%	109%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Total Phosphorous, TKN & Phenols

Total Phosphorus	7198432		0.034	0.035	2.9%	< 0.006	97%	70%	130%	107%	80%	120%	98%	70%	130%
Total Kjeldahl Nitrogen	7179692		<0.10	<0.10	NA	< 0.10	102%	70%	130%	103%	80%	120%	101%	70%	130%
Phenols	7190310		<0.001	<0.001	NA	< 0.001	95%	90%	110%	95%	90%	110%	91%	80%	120%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Total Phosphorous, TKN & Phenols

Phenols	7190509	7190509	0.001	0.001	NA	< 0.001	96%	90%	110%	94%	90%	110%	86%	80%	120%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By: Kaleigh Cullen

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Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluorene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenanthrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(b)fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(k)fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Dibenzo(a,h)anthracene	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-chloroethyl)ether	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Chlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
o-Cresol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-chloroisopropyl)ether	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
m&p-Cresol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Hexachloroethane	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dimethylphenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
1,2,4-Trichlorobenzene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
p-Chloroaniline	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS

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CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD **AGAT WORK ORDER: 25X362783**

PROJECT: **ATTENTION TO: Kevin Wentzell**

SAMPLING SITE: **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Hexachlorobutadiene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-and 1-methyl Napthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
1,1-Biphenyl	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Dimethyl phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,6-Dinitrotoluene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dinitrotoluene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,3,4,6-Tetrachlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Diethyl phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Hexachlorobenzene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pentachlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
3,3'-dichlorobenzidine	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dinitrophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Sediment			N/A
Chloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Vinyl Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromomethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichlorofluoromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Acetone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Methylene Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,2-Dichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
1,1-Dichloroethane	TO-0330	EPA SW-846 8260	GC/MS
cis-1,2-Dichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Chloroform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Carbon Tetrachloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Benzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloropropane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Bromodichloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
2-Hexanone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Dibromochloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dibromoethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Tetrachloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylbenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
m,p-Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromoform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Styrene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
o-Xylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,3-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,4-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Sediment			GC/MS/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
VPH - Extraction PIRI			GC/MS
EPH - Extraction PIRI	ORG-120-5101		GC/FID

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD **AGAT WORK ORDER: 25X362783**

PROJECT: **ATTENTION TO: Kevin Wentzell**

SAMPLING SITE: **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Hardness	CALCULATION	SM 2340B	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP/CEC
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorus	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Mercury Digest	MET-121-6100 & MET-121-6107	EPA 245.5	CV/AA
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
Total Dissolved Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X362783

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Chemical Oxygen Demand	INOR-121-6013	SM 5220 D	SPECTROPHOTOMETER
Residual Chlorine present		SM 4500	INCUBATOR
BOD setup			INCUBATOR
Biochemical Oxygen Demand, Total	INOR-121-6023	SM 5210 B	INCUBATOR
Total Organic Carbon	INOR-121-6052	SM 5310 B	TOC ANALYZER
Ion Balance (% Difference)			CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA
Phenols	INOR-93-6072	mod from SM 510C, EPA 420.2, ISO 3696, ASTM D1193	SEGMENTED FLOW ANALYSIS

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CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD
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(902) 543-2991
ATTENTION TO: Kevin Wentzell
PROJECT:
AGAT WORK ORDER: 25X354552
TRACE ORGANICS REVIEWED BY: Karel MacDonald, Team Lead
WATER ANALYSIS REVIEWED BY: Kaliegh Cullen, Report Writer
DATE REPORTED: Oct 24, 2025
PAGES (INCLUDING COVER): 21
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
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- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.
- This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, CCN and NELAP.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water] - Custom

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW4A	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127808	7127868	7127869	7127870	7127871	7127872	7127873	7127874
Naphthalene	µg/L		0.30	<0.30	<0.30	1.94	1.51	2.05	<0.30	<0.30	<0.30
Acenaphthylene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Acenaphthene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluorene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Phenanthrene	µg/L		0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
Anthracene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluoranthene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Benzo(b/j)fluoranthene	µg/L		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Benzo(k)fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Phenol	µg/L		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1-Methylnaphthalene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dinitrophenol	µg/L		10	<10	<10	<10	<10	<10	<10	<10	<10
Sediment				1	1	1	1	1	1	1	1

Certified By: Karl MacDonald

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water] - Custom

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:	MW4A	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A
		SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Surrogate	Unit	Acceptable Limits	7127808	7127868	7127869	7127870	7127871	7127872	7127873	7127874
2-Fluorophenol	%	50-140	85	89	71	85	75	85	79	102
phenol-d6 surrogate	%	50-140	74	74	72	79	75	74	96	85
2,4,6-Tribromophenol	%	50-140	78	102	81	84	71	102	98	74
Chrysene-d12	%	50-140	96	82	86	90	95	88	74	102

Certified By: Karel MacDonald

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water] - Custom

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW 6B	MW 212	MW 104	MW 105
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127875	7127876	7127877	7127878
Naphthalene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30
Acenaphthylene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31
Acenaphthene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30
Fluorene	µg/L		0.31	<0.31	<0.31	<0.31	<0.31
Phenanthrene	µg/L		0.32	<0.32	<0.32	<0.32	<0.32
Anthracene	µg/L		0.30	<0.30	<0.30	<0.30	<0.30
Fluoranthene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27
Pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L		0.27	<0.27	<0.27	<0.27	<0.27
Benzo(b/j)fluoranthene	µg/L		0.03	<0.03	<0.03	<0.03	<0.03
Benzo(k)fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Phenol	µg/L		1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.3	<0.3	<0.3	<0.3	<0.3
1-Methylnaphthalene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	µg/L		0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/L		0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dinitrophenol	µg/L		10	<10	<10	<10	<10
Sediment				1	1	1	1

Certified By: Karl MacDonald

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Base Neutrals and Acids [Water] - Custom

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:	MW 6B	MW 212	MW 104	MW 105
		SAMPLE TYPE:	Water	Water	Water	Water
		DATE SAMPLED:	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Surrogate	Unit	Acceptable Limits	7127875	7127876	7127877	7127878
2-Fluorophenol	%	50-140	77	89	105	102
phenol-d6 surrogate	%	50-140	74	99	85	98
2,4,6-Tribromophenol	%	50-140	102	105	74	78
Chrysene-d12	%	50-140	85	87	103	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7127808-7127878 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Karel MacDonald

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition, Column 3 - TPH

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW4A	MW 112	MW 106	MW 107	MW 213	MW 103	MW 123	MW 6A
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127808	7127868	7127869	7127870	7127871	7127872	7127873	7127874
Benzene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylene (Total)	mg/L		0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
C6-C10 (less BTEX)	mg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
>C21-C32 Hydrocarbons	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Resemblance Comment				NA	NA	NA	NA	NA	NA	NA	NA
Return to Baseline at C32				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sediment				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPH - Extraction PIRI				Y	Y	Y	Y	Y	Y	Y	Y
EPH - Extraction PIRI				Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	Unit	Acceptable Limits									
Isobutylbenzene - EPH	%	70-130		99	78	96	83	99	93	96	94
Isobutylbenzene - VPH	%	70-130		105	106	106	96	118	112	117	102
n-Dotriacontane - EPH	%	70-130		103	80	103	85	105	100	102	100

Certified By: Karel MacDonald

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition, Column 3 - TPH

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW 212	MW 104	MW 105
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127876	7127877	7127878
Benzene	mg/L		0.001	<0.001	<0.001	<0.001
Toluene	mg/L		0.001	<0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.001	<0.001	<0.001	<0.001
Xylene (Total)	mg/L		0.002	<0.002	<0.002	<0.002
C6-C10 (less BTEX)	mg/L		0.01	<0.01	<0.01	<0.01
>C10-C16 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05
>C16-C21 Hydrocarbons	mg/L		0.05	<0.05	<0.05	<0.05
>C21-C32 Hydrocarbons	mg/L		0.1	<0.1	<0.1	<0.1
Modified TPH (Tier 1)	mg/L		0.1	<0.1	<0.1	<0.1
Resemblance Comment				NA	NA	NA
Return to Baseline at C32				Yes	Yes	Yes
Sediment				Yes	Yes	Yes
VPH - Extraction PIRI				Y	Y	Y
EPH - Extraction PIRI				Y	Y	Y
Surrogate	Unit	Acceptable Limits				
Isobutylbenzene - EPH	%	70-130		94	99	100
Isobutylbenzene - VPH	%	70-130		106	123	123
n-Dotriacontane - EPH	%	70-130		97	105	107

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7127808-7127878 Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Halifax (unless marked by *)

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition, Column 3 - TPH (VPH only)

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW 6B
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2025-10-07
Parameter	Unit	G / S	RDL	7127875
Benzene	mg/L		0.001	<0.001
Toluene	mg/L		0.001	<0.001
Ethylbenzene	mg/L		0.001	<0.001
Xylene (Total)	mg/L		0.002	<0.002
C6-C10 (less BTEX)	mg/L		0.01	<0.01
Sediment				Yes
VPH - Extraction PIRI				Y
Surrogate	Unit	Acceptable Limits		
Isobutylbenzene - VPH	%	70-130		106

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

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AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW4A	MW 112		MW 106		MW 107		MW 213
		SAMPLE TYPE:		Water	Water		Water		Water		Water
		DATE SAMPLED:		2025-10-07	2025-10-07		2025-10-07		2025-10-07		2025-10-07
Parameter	Unit	G / S	RDL	7127808	7127868	RDL	7127869	RDL	7127870	RDL	7127871
pH				6.48	6.36		6.88		6.99		7.00
Chloride	mg/L		1	6	8	1	84	5	152	1	6
Sulphate	mg/L		2	13	20	2	33	2	19	2	34
Alkalinity	mg/L		5	103	97	5	549	5	627	5	111
Electrical Conductivity	umho/cm		1	221	207	1	1240	1	1580	1	276
Nitrate as N	mg/L		0.05	0.08	0.10	0.05	0.16	0.05	0.70	0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	0.05	<0.05	0.05	1.03	0.05	<0.05
Ammonia as N	mg/L		0.03	0.05	0.13	0.03	0.41	0.03	4.51	0.03	0.09
Dissolved Sodium	mg/L		0.1	31.4	9.4	0.1	66.1	0.1	108	0.1	56.3
Dissolved Potassium	mg/L		0.1	1.5	3.4	0.1	3.1	0.1	15.3	0.1	1.5
Dissolved Calcium	mg/L		0.1	18.6	17.0	0.2	129	0.1	99.6	0.1	10.5
Dissolved Magnesium	mg/L		0.1	2.2	4.7	0.1	55.3	0.1	57.1	0.1	1.5
Hardness	mg/L			55.5	61.8		550		484		32.4
Dissolved Aluminum	ug/L		5	13	13	5	19	5	12	5	11
Dissolved Antimony	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Dissolved Arsenic	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Dissolved Barium	ug/L		5	<5	26	5	75	5	8	5	12
Dissolved Boron	ug/L		50	148	170	50	1670	50	4560	50	73
Dissolved Cadmium	ug/L		0.017	<0.017	<0.017	0.017	0.017	0.017	<0.017	0.017	0.038
Dissolved Chromium	ug/L		1	<1	<1	1	<1	1	<1	1	<1
Dissolved Copper	ug/L		2	<2	3	2	5	2	4	2	<2
Dissolved Iron	ug/L		50	<50	50	50	<50	50	<50	50	<50
Dissolved Lead	ug/L		0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Dissolved Manganese	ug/L		2	17	237	2	1520	2	769	2	32
Dissolved Nickel	ug/L		2	<2	5	2	7	2	88	2	<2
Dissolved Phosphorus	mg/L		0.02	2.35	1.98	0.02	9.87	0.02	8.72	0.02	3.33
Dissolved Uranium	ug/L		0.1	<0.1	<0.1	0.1	4.4	0.1	7.8	0.1	0.4
Dissolved Vanadium	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Dissolved Zinc	ug/L		5	19	12	5	34	5	7	5	<5
Dissolved Mercury	ug/L		0.026	<0.026	<0.026	0.026	<0.026	0.026	<0.026	0.026	<0.026

Certified By: Kaleigh Cullen

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW4A	MW 112		MW 106		MW 107		MW 213
		SAMPLE TYPE:		Water	Water		Water		Water		Water
		DATE SAMPLED:		2025-10-07	2025-10-07		2025-10-07		2025-10-07		2025-10-07
Parameter	Unit	G / S	RDL	7127808	7127868	RDL	7127869	RDL	7127870	RDL	7127871
Chemical Oxygen Demand	mg/L		3	38	72	3	39	3	57	3	6
Dissolved Organic Carbon	mg/L		0.50	1.5	2.2	0.50	5.8	0.50	19	0.50	2.0
% Difference/ Ion Balance (NS)	%			0.3	19.3		0.1		6.9		0.7
Anion Sum	meq/L			2.51	2.59		14.0		17.3		3.10
Cation Sum	meq/L			2.52	1.75		14.0		15.1		3.14

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AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

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SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW 103	MW 123	MW 6A	MW 6B	MW 212	MW 104	MW 105
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127872	7127873	7127874	7127875	7127876	7127877	7127878
pH				6.50	6.52	6.53		7.07	6.60	7.08
Chloride	mg/L		1	10	7	8		5	<1	85
Sulphate	mg/L		2	69	62	21		21	19	65
Alkalinity	mg/L		5	98	79	102		110	98	321
Electrical Conductivity	umho/cm		1	325	272	231		245	202	916
Nitrate as N	mg/L		0.05	0.13	0.10	0.08		<0.05	0.06	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	0.06	0.07	0.05	0.05	0.10	0.06	0.04
Dissolved Sodium	mg/L		0.1	63.4	53.8	49.7	40.3	52.5	38.1	44.8
Dissolved Potassium	mg/L		0.1	1.1	0.8	0.8	2.4	1.2	0.9	2.7
Dissolved Calcium	mg/L		0.1	12.0	6.8	6.8	43.0	9.2	9.0	83.4
Dissolved Magnesium	mg/L		0.1	1.1	0.2	0.4	16.9	0.9	0.5	27.8
Hardness	mg/L			34.5	17.8	18.6	177	26.7	24.5	323
Dissolved Aluminum	ug/L		5	<5	24	20	11	18	23	7
Dissolved Antimony	ug/L		2	<2	<2	<2	<2	<2	<2	<2
Dissolved Arsenic	ug/L		2	<2	22	12	<2	<2	25	<2
Dissolved Barium	ug/L		5	8	<5	<5	23	5	<5	46
Dissolved Boron	ug/L		50	93	245	195	499	170	165	122
Dissolved Cadmium	ug/L		0.017	<0.017	0.019	<0.017	0.031	<0.017	<0.017	<0.017
Dissolved Chromium	ug/L		1	1	<1	<1	<1	<1	<1	<1
Dissolved Copper	ug/L		2	<2	<2	<2	5	<2	<2	<2
Dissolved Iron	ug/L		50	<50	<50	<50	<50	<50	<50	<50
Dissolved Lead	ug/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Manganese	ug/L		2	<2	16	5	<2	30	3	<2
Dissolved Nickel	ug/L		2	<2	<2	<2	6	<2	<2	<2
Dissolved Phosphorus	mg/L		0.02	2.81	1.84	1.96	2.64	2.02	1.86	5.60
Dissolved Uranium	ug/L		0.1	<0.1	1.2	0.3	0.1	0.2	1.0	3.6
Dissolved Vanadium	ug/L		2	<2	<2	<2	<2	<2	<2	<2
Dissolved Zinc	ug/L		5	<5	<5	7	21	<5	7	<5
Dissolved Mercury	ug/L		0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026

Certified By: Kaleigh Cullen

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Certificate of Analysis

AGAT WORK ORDER: 25X354552

PROJECT:

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1

DATE RECEIVED: 2025-10-08

DATE REPORTED: 2025-10-24

		SAMPLE DESCRIPTION:		MW 103	MW 123	MW 6A	MW 6B	MW 212	MW 104	MW 105
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07	2025-10-07
Parameter	Unit	G / S	RDL	7127872	7127873	7127874	7127875	7127876	7127877	7127878
Chemical Oxygen Demand	mg/L		3	<3	8	<3	12	7	4	4
Dissolved Organic Carbon	mg/L		0.50	1.3	1.8	1.6	4.6	1.8	0.88	2.3
% Difference/ Ion Balance (NS)	%			2.9	6.0	2.8		1.4	4.0	9.1
Anion Sum	meq/L			3.69	3.07	2.71		2.78	2.36	10.2
Cation Sum	meq/L			3.48	2.72	2.56		2.86	2.18	8.47

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7127808-7127878 Metals analysis completed on a filtered sample.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculations are accredited.
pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: Kaleigh Cullen

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD
AGAT WORK ORDER: 25X354552
PROJECT:
ATTENTION TO: Kevin Wentzell
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 24, 2025			DUPLICATE				REFERENCE MATERIAL				METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Solid Waste Management - Construction and Demolition, Column 3 - TPH															
Benzene	1	7127434	< 0.001	< 0.001	NA	< 0.001	99%	70%	130%	99%	70%	130%			
Toluene	1	7127434	< 0.001	< 0.001	NA	< 0.001	92%	70%	130%	107%	70%	130%			
Ethylbenzene	1	7127434	< 0.001	< 0.001	NA	< 0.001	88%	70%	130%	88%	70%	130%			
Xylene (Total)	1	7127434	< 0.002	< 0.002	NA	< 0.002	93%	70%	130%	85%	70%	130%			
C6-C10 (less BTEX)	1	7127434	< 0.01	< 0.01	NA	< 0.01	115%	70%	130%	96%	70%	130%	94%	70%	130%
>C10-C16 Hydrocarbons	1		< 0.05	< 0.05	NA	< 0.05	77%	70%	130%	96%	70%	130%	74%	70%	130%
>C16-C21 Hydrocarbons	1		< 0.05	< 0.05	NA	< 0.05	80%	70%	130%	96%	70%	130%	74%	70%	130%
>C21-C32 Hydrocarbons	1		< 0.1	< 0.1	NA	< 0.1	79%	70%	130%	96%	70%	130%	74%	70%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. Matrix spike performed on a different sample than the duplicate.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Base Neutrals and Acids [Water] - Custom															
Naphthalene	7127808		< 0.30	< 0.30	NA	< 0.30	83%	50%	140%	80%	50%	140%	70%	50%	140%
Acenaphthylene	7127808		< 0.31	< 0.31	NA	< 0.31	85%	50%	140%	70%	50%	140%	80%	50%	140%
Acenaphthene	7127808		< 0.30	< 0.30	NA	< 0.30	82%	50%	140%	86%	50%	140%	70%	50%	140%
Fluorene	7127808		< 0.31	< 0.31	NA	< 0.31	77%	50%	140%	102%	50%	140%	72%	50%	140%
Phenanthrene	7127808		< 0.32	< 0.32	NA	< 0.32	80%	50%	140%	71%	50%	140%	79%	50%	140%
Anthracene	7127808		< 0.30	< 0.30	NA	< 0.30	78%	50%	140%	73%	50%	140%	79%	50%	140%
Fluoranthene	7127808		< 0.27	< 0.27	NA	< 0.27	86%	50%	140%	101%	50%	140%	76%	50%	140%
Pyrene	7127808		< 0.20	< 0.20	NA	< 0.20	88%	50%	140%	80%	50%	140%	82%	50%	140%
Benzo(a)anthracene	7127808		< 0.20	< 0.20	NA	< 0.20	90%	50%	140%	74%	50%	140%	76%	50%	140%
Chrysene	7127808		< 0.27	< 0.27	NA	< 0.27	91%	50%	140%	86%	50%	140%	77%	50%	140%
Benzo(k)fluoranthene	7127808		< 0.20	< 0.20	NA	< 0.20	91%	50%	140%	93%	50%	140%	90%	50%	140%
Benzo(a)pyrene	7127808		< 0.01	< 0.01	NA	< 0.01	89%	50%	140%	108%	50%	140%	91%	50%	140%
Indeno(1,2,3-cd)pyrene	7127808		< 0.20	< 0.20	NA	< 0.20	81%	50%	140%	87%	50%	140%	101%	50%	140%
Dibenzo(a,h)anthracene	7127808		< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	97%	50%	140%	75%	50%	140%
Benzo(g,h,i)perylene	7127808		< 0.20	< 0.20	NA	< 0.20	70%	50%	140%	78%	50%	140%	79%	50%	140%
Phenol	7127808		< 1.0	< 1.0	NA	< 1.0	71%	50%	140%	83%	50%	140%	71%	50%	140%
2-Chlorophenol	7127808		< 0.5	< 0.5	NA	< 0.5	73%	50%	140%	81%	50%	140%	87%	50%	140%
2,4-Dimethylphenol	7127808		< 0.5	< 0.5	NA	< 0.5	79%	30%	130%	79%	30%	130%	77%	30%	130%
2,4-Dichlorophenol	7127808		< 0.3	< 0.3	NA	< 0.3	82%	50%	140%	72%	50%	140%	83%	50%	140%
1-Methylnaphthalene	7127808		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	82%	50%	140%	78%	50%	140%
2-Methylnaphthalene	7127808		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	73%	50%	140%	69%	50%	140%
2,4,6-Trichlorophenol	7127808		< 0.2	< 0.2	NA	< 0.2	87%	50%	140%	72%	50%	140%	82%	50%	140%
2,4,5-Trichlorophenol	7127808		< 0.2	< 0.2	NA	< 0.2	87%	50%	140%	73%	50%	140%	84%	50%	140%
Pentachlorophenol	7127808		< 0.5	< 0.5	NA	< 0.5	74%	50%	140%	90%	50%	140%	71%	50%	140%
2,4-Dinitrophenol	7127808		< 10	< 10	NA	< 10	80%	30%	130%	88%	30%	130%	72%	30%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X354552

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Oct 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By: Karel MacDonald

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Quality Assurance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD
AGAT WORK ORDER: 25X354552
PROJECT:
ATTENTION TO: Kevin Wentzell
SAMPLING SITE:
SAMPLED BY:

Water Analysis

RPT Date: Oct 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1															
pH	7126213		5.87	5.89	0.4%	<	101%	80%	120%	NA	80%	120%	NA	80%	120%
Chloride	7136004		36	36	0.9%	< 1	80%	80%	120%	NA	80%	120%	NA	70%	130%
Sulphate	7136004		4	4	NA	< 2	90%	80%	120%	NA	80%	120%	87%	70%	130%
Alkalinity	7126213		18	18	NA	< 5	103%	80%	120%	NA			NA		
Electrical Conductivity	7126213		271	267	1.5%	< 1	99%	90%	110%	NA			NA		
Nitrate as N	7136004		0.12	0.10	NA	< 0.05	92%	80%	120%	NA	80%	120%	107%	70%	130%
Nitrite as N	7136004		0.50	0.48	3.8%	< 0.05	94%	80%	120%	NA	80%	120%	105%	70%	130%
Ammonia as N	7126347		0.13	0.12	NA	< 0.03	100%	80%	120%	108%	80%	120%	101%	70%	130%
Dissolved Sodium	7127871	7127871	56.3	56.5	0.3%	< 0.1	116%	70%	130%	110%	80%	120%	NA	70%	130%
Dissolved Potassium	7127871	7127871	1.5	1.5	0.7%	< 0.1	115%	70%	130%	108%	80%	120%	97%	70%	130%
Dissolved Calcium	7127871	7127871	10.5	11.0	4.9%	< 0.1	115%	70%	130%	108%	80%	120%	94%	70%	130%
Dissolved Magnesium	7127871	7127871	1.5	1.5	0.4%	< 0.1	114%	70%	130%	107%	80%	120%	94%	70%	130%
Dissolved Aluminum	7127871	7127871	11	14	NA	< 5	114%	70%	130%	107%	80%	120%	104%	70%	130%
Dissolved Antimony	7127871	7127871	<2	<2	NA	< 2	107%	70%	130%	102%	80%	120%	91%	70%	130%
Dissolved Arsenic	7127871	7127871	<2	<2	NA	< 2	110%	70%	130%	104%	80%	120%	91%	70%	130%
Dissolved Barium	7127871	7127871	12	12	NA	< 5	107%	70%	130%	102%	80%	120%	91%	70%	130%
Dissolved Boron	7127871	7127871	73	76	NA	< 50	109%	70%	130%	98%	80%	120%	90%	70%	130%
Dissolved Cadmium	7127871	7127871	0.156	0.038	NA	< 0.017	108%	70%	130%	104%	80%	120%	91%	70%	130%
Dissolved Chromium	7127871	7127871	<1	<1	NA	< 1	109%	70%	130%	102%	80%	120%	89%	70%	130%
Dissolved Copper	7127871	7127871	<2	2	NA	< 2	112%	70%	130%	107%	80%	120%	96%	70%	130%
Dissolved Iron	7127871	7127871	<50	<50	NA	< 50	111%	70%	130%	106%	80%	120%	93%	70%	130%
Dissolved Lead	7127871	7127871	<0.5	<0.5	NA	< 0.5	108%	70%	130%	103%	80%	120%	93%	70%	130%
Dissolved Manganese	7127871	7127871	32	33	3.0%	< 2	111%	70%	130%	104%	80%	120%	92%	70%	130%
Dissolved Nickel	7127871	7127871	<2	<2	NA	< 2	113%	70%	130%	108%	80%	120%	94%	70%	130%
Dissolved Phosphorus	7127871	7127871	3.33	3.40	2.0%	< 0.02	113%	80%	120%	97%	80%	120%	NA	70%	130%
Dissolved Uranium	7127871	7127871	0.4	0.3	NA	< 0.1	106%	70%	130%	101%	80%	120%	90%	70%	130%
Dissolved Vanadium	7127871	7127871	<2	<2	NA	< 2	111%	70%	130%	105%	80%	120%	91%	70%	130%
Dissolved Zinc	7127871	7127871	<5	7	NA	< 5	126%	70%	130%	122%	80%	120%	113%	70%	130%
Dissolved Mercury	7122372		<0.026	<0.026	NA	< 0.026	107%	80%	120%	99%	80%	120%	101%	70%	130%
Chemical Oxygen Demand	7127417		<3	<3	NA	< 3	97%	80%	120%	NA			100%	80%	120%
Dissolved Organic Carbon	7127874	7127874	1.6	1.7	NA	< 0.5	101%	80%	120%	NA	80%	120%	101%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

Certified By: Kaleigh Cullen

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QC Exceedance

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X354552

PROJECT:

ATTENTION TO: Kevin Wentzell

RPT Date: Oct 24, 2025		REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Sample Id	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
Solid Waste Management - Construction and Demolition / Municipal Waste Transfer, Column 1										
Dissolved Zinc	7127871	126%	70%	130%	122%	80%	120%	113%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD
AGAT WORK ORDER: 25X354552
PROJECT:
ATTENTION TO: Kevin Wentzell
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluorene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenanthrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(b/j)fluoranthene	ORG 5505	EPA SW-846 3510C & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Dibenzo(a,h)anthracene	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Chlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dimethylphenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
1-Methylnaphthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Methylnaphthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pentachlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dinitrophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS

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Method Summary

CLIENT NAME: MUNICIPAL JOINT SERVICES BOARD

AGAT WORK ORDER: 25X354552

PROJECT:

ATTENTION TO: Kevin Wentzell

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Sediment			N/A
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Sediment			GC/MS/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
VPH - Extraction PIRI			GC/MS
EPH - Extraction PIRI	ORG-120-5101		GC/FID

APPENDIX 4

Historical Data Tables

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Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C1 Formally S1

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S1 08/15/11	S1 11/03/11	S1 09/01/12	S1 04/11/12	S1 07/18/12	S1 10/24/12	S1 01/30/13	S1 05/01/13	S1 07/24/13	S1 10/30/13	S1 02/06/14	S1 05/01/14	S1 06/23/14	S1 10/30/14	S1 01/29/15	S1 05/12/15	S1 07/16/15

TABLE 1 : Water Quality Analysis - General Chemistry

					2619190	2870149	3053873	3256904	3531699	3856853	4105763	4306767	4587384	4906218	5143034	5328741	5610708	6020965	6283431	6534303	6748982
Alkalinity (as $CaCO_3$)	mg/L	-		-	126	59	54	54	174	66	69	52	97	67	51	49	86	50	64	49	69
Sulphate	mg/L	≤500	AO	-	25	19	22	23	27	29	32	22	16	16	24	21	18	13	14	17	15
Chloride	mg/L	≤250	AO	-	86	44	48	58	118	63	59	48	53	48	42	43	76	28	27	39	54
Nitrate + Nitrite (as N)	mg/L	-		-																	
Nitrate (as N)	mg/L	10	MAC	13	0.41	0.36	0.62	0.43	0.27	0.58	0.59	0.54	0.37	0.22	0.77	0.27	0.07	0.07	0.27	0.14	0.3
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	<0.05	<0.05	0.05	0.16	0.05	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	570	299	312	344	709	409	427	347	429	369	335	282	456	260	265	262	335
Total Organic Carbon						6.4		5.1		7		3.5		6.3		4.5		5.8		1.5	
pH	units	6.5-8.5	AO	-	8	7.6	7.5	7.6	7.8	7.5	7.49	7.36	7.47	7.8	7.45	7	7.61	7.3	7.28	7.03	7.32
TDS (Calculated)	mg/L	≤500	AO	-	314	176	204	264	444	212	278	158	234	178	250	112	290	134	160	174	402
Total Kjeldahl Nitrogen as N	mg/L	-		-	2.4	1	0.6	1.46	0.9	1.1	0.7	0.6	1.5	0.9	1	0.4	2	0.8	<0.4	0.5	0.6
Total Phosphorous as P	mg/L	-		-	0.04	<0.03	<0.03	<0.03	<0.03	0.11	<0.03	<0.03	<0.03	<0.02	<0.03	0.06	0.12	0.03	0.25	0.05	<0.03
Total Suspended Solids	mg/L	-		-	<5	19	7	6	<5	<5	10	<5	6	<5	13	<5	<5	<5	6	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	30	17	23	22	21	29	7	15	9	21	13	9	88	24	11	13	6
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619190	2870149	3053873	3256904	3531699	3856853	4105763	4306767	4587384	4906218		5328741	5610708	6020965	6283431	6534303	6748982
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2		<2		<2	
Barium	µg/L	1000	MAC	-		15		15		15		16		11		14		11		14	
Boron	µg/L	5000	MAC	1500		488		732		706		508		568		523		575		547	
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		**0.027**		<0.017		<0.017		<0.017	
Chromium	µg/L	50	MAC	-		<2		<2		<2		2		<1		<1		<1		<1	
Copper	µg/L	≤1000	AO	2-4		3		<2		<2		<2		<2		<2		<2		2	
Iron	µg/L	≤300	AO	300		**930**		**690**		150		190		150		210		230		190	
Lead	µg/L	10	MAC	1-7		1.3		0.6		<0.5		0.5		<0.5		<0.5		<0.5		<0.5	
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		**0.031**	
Zinc	µg/L	≤5000	AO	30		<5		<5		6		<5		<5		8		<5		8	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C1 Formally S1

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S1 10/29/15	S1 01/27/16	S1 04/26/16	S1 07/28/16	S1 10/27/16	C1 06/14/17	C1 11/01/17	C1 06/28/18	C1 10/17/18	C1 06/20/19	C1 10/22/19	C1 06/18/20	C1 11/04/20	C1 11/2/21	C1 11/9/22	C1 11/8/23	C1 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																					
					7146981	7354887	7514923	7740326	7964852	8470978	8873108	9367796	9632615	293703	641338	1210739	1647807		4507109	5440844	6277632
Alkalinity (as $CaCO_3$)	mg/L	-		-	110	54	63	75	60	55	115	99	42	53	52	102	40	161	104	108	86
Sulphate	mg/L	≤500	AO	-	19	20	19	18	63	19	19	22	29	11	35	24	35	17	19	12	30
Chloride	mg/L	≤250	AO	-	66	33	40	61	43	45	60	62	39	27	51	54	37	59	46	36	49
Nitrate + Nitrite (as N)	mg/L	-		-																	
Nitrate (as N)	mg/L	10	MAC	13	0.16	0.74	0.16	0.06	<0.05	<0.05	0.05	0.1	0.223	0.06	<0.05	0.07	0.15	<0.05	<0.05	0.12	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.09**
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	<0.03	0.08	0.03	<0.03	<0.03	<0.03	0.05	0.32	<0.03	0.03	<0.03	<0.03	0.45	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	476	249	338	256	343	295	443	436	261	270	328	436	289	566	387	354	428
Total Organic Carbon					8.1		3.4		6.2		8.9		8		6.4		5.5	10.7	4.9	6.7	3.8
pH	units	6.5-8.5	AO	-	7.57	7.36	7.37	7.63	7.15	7.42	7.52	7.82	7.37	7.71	7.57	7.51	7.39	7.73	7.18	6.73	7.2
TDS (Calculated)	mg/L	≤500	AO	-	228	126	164	298	220	168	214	250	140	280	160	240	120	292	274	184	244
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.5	0.5	<0.4	0.9	1.1	0.5	0.6	<0.4	0.82	<0.04	<0.4	,8	0.5	0.42	<.1	0.17	<0.10
Total Phosphorous as P	mg/L	-		-	0.06	0.03	0.02	0.05	<0.02	<0.03	0.03	<0.03	0.02	<0.03	0.03	<0.03	<0.02	0.02	0.007	0.019	<0.006
Total Suspended Solids	mg/L	-		-	<5	<5	<5	31	<5	<5	<5	19	<5	<5	<5	13	<5	21	<5	5	<5
Biochemical Oxygen Demand	mg/L				<2	3	<2	<2	<2	<2	<2	<2	2	2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	20	12	17	14	14	11	23	21	18	15	17	11	16	21	15	14	8
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.004	<0.001	0.006	0.004	0.004	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7146981	7354887	7514923	7740326	7964852												
Arsenic	µg/L	10	MAC	5.0	<2		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-	11		13		16		12		13		13		12	9	16	17	9
Boron	µg/L	5000	MAC	1500	397		660		741		939		672		368		47	383	716	1240	864
Cadmium	µg/L	5	MAC	0.017	<0.017		<0.017		**0.02**		<0.017		<0.09		**0.023**		**0.021**	<0.09	**0.017**	<0.028	<0.017
Chromium	µg/L	50	MAC	-	<1		<1		<1		1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2		<2		<2		<2		4		<2		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300	250		120		100		260		110		210		250	**312**	280	**770**	130
Lead	µg/L	10	MAC	1-7	<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.05	<0.5	<5	<0.5
Mercury	µg/L	1	MAC	0.026	<0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	6		<5		<5		<5		<5		<5		<5	<5	<5	<7	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 200

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Prot

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C2 Formally S2

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S2 08/15/11	S2 11/03/11	S2 01/09/12	S2 04/11/12	S2 07/18/12	S2 10/24/12	S2 01/30/13	S2 05/01/13	S2 07/24/13	S2 10/30/13	S2 02/06/14	S2 05/01/14	S2 06/23/14	S2 10/30/14	S2 01/29/15	S2 05/12/15	S2 07/16/15	S2 10/29/15

TABLE 1 : Water Quality Analysis - General Chemistry

					2619195	2870159	3053878	3256919	3531717	3856883	4105769	4306777	4587401	4906228	5143041	5328747	5610776	6020976	6283463	6534313	6748993	7146991
Alkalinity (as $CaCO_3$)	mg/L	-		-	83	45	39	36	84	47	47	37	59	50	33	43	62	37	36	34	64	70
Sulphate	mg/L	≤500	AO	-	14	14	15	17	17	20	23	16	11	12	17	16	10	10	12	12	14	13
Chloride	mg/L	≤250	AO	-	58	36	38	45	64	49	48	39	38	38	34	36	38	24	24	31	49	66
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	0.33	0.26	0.41	0.43	0.17	>32	0.41	0.41	0.21	0.14	0.44	<0.05	0.09	0.05	0.24	0.09	<0.05	0.07
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	0.07	<0.05	<0.05	0.14	0.07	<0.05	<0.05	<0.03	<0.03	<0.03	0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	399	238	243	255	385	307	320	267	290	286	257	218	299	211	213	199	318	320
Total Organic Carbon						5.4		3.9		5.8		2.8		6.1		3.5		9.7		1.8		6
pH	units	6.5-8.5	AO	-	8.1	8	7.7	7.8	7.9	7.7	7.51	7.54	7.62	7.85	7.53	7.45	7.76	7.53	7.36	6.78	7.64	7.78
TDS (Calculated)	mg/L	≤500	AO	-	204	140	166	200	236	156	196	120	162	122	120	62	**716**	96	155	146	432	156
Total Kjeldahl Nitrogen as N	mg/L	-		-	2.4	<0.4	0.6	1.1	0.4	<0.04	0.8	<0.4	0.9	<0.4	1.8	0.4	1.1	0.4	<0.4	<0.4	<0.4	0.4
Total Phosphorous as P	mg/L	-		-	0.04	<0.03	0.05	<0.03	<0.03	0.03	<0.03	<0.03	0.03	<0.02	0.03	0.06	<0.03	0.03	0.11	0.07	<0.03	0.18
Total Suspended Solids	mg/L	-		-	<5	<5	8	6	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	22	13	9	8	8	22	5	<3	25	22	7	12	17	34	14	11	8	20
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619195	2870159	3053878	3256919	3531717	3856883	4105769	4306777	4587401	4906228	5143041	5328747	5610776	6020976	6283463	6534313	6748993	7146991
Arsenic	µg/L	10	MAC	5.0		< 2		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-		9		10		12		12		8		10		8		10		<5
Boron	µg/L	5000	MAC	1500		294		315		443		295		378		280		355		300		23
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		<0.017		<0.017		<0.017		<0.017		<0.017
Chromium	µg/L	50	MAC	-		<2		<2		<2		4		<1		<1		<1		<1		<1
Copper	µg/L	≤1000	AO	2-4		2		<2		<2		<2		<2		<2		<2		2		<2
Iron	µg/L	≤300	AO	300		**340**		**330**		150		280		210		180		270		230		240
Lead	µg/L	10	MAC	1-7		0.8		<0.5		<0.5		5.1		<0.5		<0.5		<0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		**0.026**		<0.026
Zinc	µg/L	≤5000	AO	30		7		<5		<5		<5		<5		8		5		5		<5

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002

SW-C2 Formally S2

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S2 01/27/16	S2 04/26/16	S2 07/28/16	S2 10/27/16	C2 6//14/2017	C2 11/01/17	C2 06/28/18	C2 10/17/18	C2 06/20/19	C12 10/22/19	C2 06/18/20	C2 11/04/20	C2 11/2/21	C2 11/9/22	C2 11/8/23	C2 10/30/24
Alkalinity (as $CaCO_3$)	mg/L	-		-	31	42	65	37	41	70	57	29	38	33	63	27	115	68	58	61
Sulphate	mg/L	≤500	AO	-	12	13	11	44	15	12	10	17	9	23	16	24	13	14	7	12
Chloride	mg/L	≤250	AO	-	25	34	42	34	37	40	33	26	25	38	40	30	47	36	28	27
Nitrate + Nitrite (as N)	mg/L	-		-																
Nitrate (as N)	mg/L	10	MAC	13	0.29	0.09	0.13	<0.05	<0.05	<0.05	0.06	0.14	<0.05	<0.05	0.06	0.08	<0.05	<0.05	<0.05	0.06
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.06**
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	0.03	<0.03	0.04	<0.03	<0.03	<0.03	0.07	<0.03	0.04	<0.03	<0.03	,04	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	182	256	210	245	236	290	259	207	219	244	309	219	425	280	216	308
Total Organic Carbon						3		6		7.5		7		6.1		5.6	10.4	4.6	6.1	4.4
pH	units	6.5-8.5	AO	-	7.44	7.63	7.8	7.38	7.58	7.71	7.7	7.46	7.74	7.63	7.55	7.36	7.88	7.12	6.65	7.1
TDS (Calculated)	mg/L	≤500	AO	-	82	112	228	154	140	124	160	120	180	120	180	80	254	220	144	168
Total Kjeldahl Nitrogen as N	mg/L	-		-	1.2	<0.4	0.8	<0.4	0.6	<0.4	<0.4	0.26	<0.4	<0.4	3.2	<0.4	0.33		0.11	<0.10
Total Phosphorous as P	mg/L	-		-	0.9	0.02	0.33	<0.02	<0.03	0.03	<0.03	0.02	<0.03	<0.02	<0.03	<0.02	0.02	<0.006	<0.006	0.007
Total Suspended Solids	mg/L	-		-	<5	<5	9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	2
Chemical Oxygen Demand	mg/L	-		-	11	13	12	13	10	20	13	18	13	17	7	13	19	11	14	7
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.004	0.001	0.003	0.002	0.001	0.001

TABLE 1 : Water Quality Analysis - General Chemistry

					7354982	7314934	7740341	7964863	8470980	8873132	9367797	9632625	293708	641342	1210741	1647823		4507185	5441076	6277654
Alkalinity (as $CaCO_3$)	mg/L	-		-	31	42	65	37	41	70	57	29	38	33	63	27	115	68	58	61
Sulphate	mg/L	≤500	AO	-	12	13	11	44	15	12	10	17	9	23	16	24	13	14	7	12
Chloride	mg/L	≤250	AO	-	25	34	42	34	37	40	33	26	25	38	40	30	47	36	28	27
Nitrate + Nitrite (as N)	mg/L	-		-																
Nitrate (as N)	mg/L	10	MAC	13	0.29	0.09	0.13	<0.05	<0.05	<0.05	0.06	0.14	<0.05	<0.05	0.06	0.08	<0.05	<0.05	<0.05	0.06
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.06**
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	0.03	<0.03	0.04	<0.03	<0.03	<0.03	0.07	<0.03	0.04	<0.03	<0.03	,04	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	182	256	210	245	236	290	259	207	219	244	309	219	425	280	216	308
Total Organic Carbon						3		6		7.5		7		6.1		5.6	10.4	4.6	6.1	4.4
pH	units	6.5-8.5	AO	-	7.44	7.63	7.8	7.38	7.58	7.71	7.7	7.46	7.74	7.63	7.55	7.36	7.88	7.12	6.65	7.1
TDS (Calculated)	mg/L	≤500	AO	-	82	112	228	154	140	124	160	120	180	120	180	80	254	220	144	168
Total Kjeldahl Nitrogen as N	mg/L	-		-	1.2	<0.4	0.8	<0.4	0.6	<0.4	<0.4	0.26	<0.4	<0.4	3.2	<0.4	0.33		0.11	<0.10
Total Phosphorous as P	mg/L	-		-	0.9	0.02	0.33	<0.02	<0.03	0.03	<0.03	0.02	<0.03	<0.02	<0.03	<0.02	0.02	<0.006	<0.006	0.007
Total Suspended Solids	mg/L	-		-	<5	<5	9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	2
Chemical Oxygen Demand	mg/L	-		-	11	13	12	13	10	20	13	18	13	17	7	13	19	11	14	7
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.004	0.001	0.003	0.002	0.001	0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7354982	7314934	7740341	7964863												
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		10		13		9		11		11		9	8	12	8	8
Boron	µg/L	5000	MAC	1500		342		479		451		343		311		262	248	358	331	428
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.017		<0.017		<0.09		<0.017		<0.017	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-		<1		<1		<1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		<2		<2		4		<2		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300		180		60		210		140		160		270	**340**	220	**570**	100
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.05	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		<5		<5		<5		<5	<5	<5	<7	7

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, Protection of Aquatic Life values based on CCME Water Quality Guidelines for the

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelin

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C3 Formally S3

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S3 08/15/11	S3 11/03/11	S3 01/09/12	S3 04/11/12	S3 07/18/12	S3 10/24/12	S3 01/30/13	S3 05/01/13	S3 07/24/13	S3 10/30/13	S3 02/06/14	S3 05/01/14	S3 06/23/14	S3 10/30/14	S3 01/29/15	S3 05/12/15	S3 07/16/15	S3 10/29/15

TABLE 1 : Water Quality Analysis - General Chemistry

					2619200	2870173	3053883	3256930	3531725	3856873	4105774	4306788	4587409	4906247	5143047	5328757	5610805	6020986	6283472	6534327	6749009	7147001
Alkalinity (as $CaCO_3$)	mg/L	-		-	7	9	7	8	9	8	6	6	10	7	6	30	12	7	14	7	8	9
Sulphate	mg/L	≤500	AO	-	3	3	3	5	3	4	6	4	3	4	5	5	4	4	7	3	4	4
Chloride	mg/L	≤250	AO	-	9	8	7	18	8	9	12	10	7	7	9	8	7	7	11	5	5	8
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	0.12	0.12	0.18	1.37	0.05	0.8	0.22	0.31	<0.05	0.1	0.32	0.15	<0.05	<0.05	0.23	0.12	<0.05	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	0.06	0.15	0.12	0.12	0.7	<0.05	<0.05	0.04	<0.03	0.13	0.09	<0.03	<0.03	0.06	0.09	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	62	55	51	50	49	60	78	65	60	67	70	66	64	66	98	52	49	53
Total Organic Carbon						12.3		6.6		6.8		4.2		8.5		6.1		5.4		4.3		6.2
pH	units	6.5-8.5	AO	-	7.4	7.2	7	7	7	7	6.71	6.85	6.85	7.08	6.56	7.06	7.09	6.89	6.82	6.78	6.81	7.07
TDS (Calculated)	mg/L	≤500	AO	-	<5	48	72	44	42	28	94	38	42	18	44	<5	46	36	90	82	84	18
Total Kjeldahl Nitrogen as N	mg/L	-		-	2	0.5	0.6	1.34	3.8	3.5	0.8	<0.4	<0.4	0.4	1.7	0.5	0.8	<0.4	<0.4	<0.4	0.9	1.2
Total Phosphorous as P	mg/L	-		-	0.05	<0.03	<0.03	<0.03	<0.03	0.03	0.04	<0.03	<0.3	0.02	<0.03	0.07	<0.03	0.05	0.3	0.07	<0.03	0.13
Total Suspended Solids	mg/L	-		-	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				2	<2	<2	<2	<2	<2	2	<2	<2	<2	2	2	2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	21	30	29	14	14	19	24	<3	<3	24	8	14	<3	21	14	11	19	20
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619200	2870173	3053883	3256930	3531725	3856873	4105774	4306788	4587409	4906247	5143047	5328757	5610805	6020986	6283472	6534327	6749009	7147001
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-		<5		<5		<5		<5		<5		<5		<5		<5		<5
Boron	µg/L	5000	MAC	1500		24		17		36		19		27		22		38		22		20
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		<0.017		<0.017		<0.017		<0.017		<0.017
Chromium	µg/L	50	MAC	-		<2		<2		<2		<2		<1		<1		16		<1		<1
Copper	µg/L	≤1000	AO	2-4		3		<2		<2		<2		<2		<2		<2		<2		<2
Iron	µg/L	≤300	AO	300		**410**		160		300		160		260		150		**330**		180		230
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		6.6		<0.5		<0.5		<0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		**0.038**		<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		<5		<5		<5		10		<5		6		7

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C3 Formally S3

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	S3 01/27/16	S3 04/26/16	S3 07/28/16	S3 10/27/16	C3 6//14/2017	C3 11/01/17	C3 06/28/18	C3 10/17/18	C3 06/20/19	C3 10/22/19	C3 06/18/20	C3 11/04/20	C3 11/3/21	C3 11/9/22	C3 11/8/23	C3 10/30/24

TABLE 1 : Water Quality Analysis - General Chemistry

					7354898	7514946	7740358	7964873	8470984	8873133	9367798	9632626	293709	641343	1210742	1647824		4507189	5441077	6277655
Alkalinity (as $CaCO_3$)	mg/L	-		-	10	9	9	8	7	9	7	8	6	8	6	8	9	14	9	7
Sulphate	mg/L	≤500	AO	-	6	4	4	9	7	6	5	6	4	7	5	6	6	6	4	5
Chloride	mg/L	≤250	AO	-	9	5	5	6	7	7	8	9	5	8	6	8	7	7	7	7
Nitrate + Nitrite (as N)	mg/L	-		-														<0.05		
Nitrate (as N)	mg/L	10	MAC	13	0.15	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	0.21	0.06	,12	0.11	<0.05	<0.05	<0.05	0.17	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	0.06	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.08	0.05	0.05	<0.03	<0.03	<0.03	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	82	56	51	66	59	61	67	74	55	66	59	67	67	64	61	58
Total Organic Carbon						5.2		7.8		8.1		7		8.5		6.2	11.8	6.8	10.6	5.6
pH	units	6.5-8.5	AO	-	6.97	6.93	7.2	6.79	7.01	7.07	7.07	7.1	6.98	7.06	6.73	6.87	6.83	**6.5**	**6.25**	**6.31**
TDS (Calculated)	mg/L	≤500	AO	-	<5	34	44	42	38	16	42	40	160	40	80	<5	70	98	58	32
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.7	0.8	1	<0.4	0.6	<0.4	<0.4	0.25	<0.4	<0.4	1.4	<0.4	0.42	0.2	0.34	<0.10
Total Phosphorous as P	mg/L	-		-	1	0.02	0.05	<0.02	0.04	0.03	<0.03	<0.02	<0.03	0.02	<0.03	<0.02	<0.02	<0.006	0.012	0.023
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	3	<2	2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	6	9	18	18	16	14	14	12	14	20	13	21	16	19	30	17
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		0.003	<0.004	0.001	<0.001	0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7354898	7514946	7740358	7964873												
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		<5		<5		<5		<5		<5		<5	<5	<5	<5	<5
Boron	µg/L	5000	MAC	1500		32		50		38		32		34		36	77	50	102	82
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.017		<0.017		<0.09		<0.017		<0.017	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-		<1		<1		<1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		<2		<2		3		<2		<2	1	<2	<2	<2
Iron	µg/L	≤300	AO	300		100		14		200		110		160		280	243	**310**	**690**	**340**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		<5		<5		<5		<5	<5	<5	<7	5

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 200

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Pro

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C4 Formally S5

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S5 08/15/11	S5 11/03/11	S5 01/09/12	S5 04/11/12	S5 07/18/12	S5 10/24/12	S5 01/30/13	S5 05/01/13	S5 07/24/13	S5 10/30/13	S5 02/06/14	S5 05/01/14	S5 06/23/14	S5 10/30/14	S5 01/29/15	S5 05/12/15	S5 07/16/15	S5 10/29/15
TABLE 1 : Water Quality Analysis - General Chemistry																						
					2619211	2870195	3053893	3256955	3531738	3856893	4105787	4306808	4587426	4906270	5143059	5328779	5610830	6021007	6283490	6534355	6749030	7147065
Alkalinity (as $CaCO_3$)	mg/L	-		-	10	9	6	6	13	<5	<5	7	9	8	<5	25	13	11	8	7	8	8
Sulphate	mg/L	≤500	AO	-	4	3	3	3	3	5	5	4	4	4	3	5	4	4	3	3	4	4
Chloride	mg/L	≤250	AO	-	8	8	7	7	7	9	11	9	12	7	4	8	6	7	5	5	5	7
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	0.11	0.12	0.19	0.26	<0.05	0.09	0.22	0.31	0.22	0.09	0.17	0.15	<0.05	0.06	0.19	0.02	<0.05	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	0.07	0.15	0.13	0.16	<0.05	0.05	<0.05	0.04	<0.03	0.09	0.09	<0.03	<0.03	0.07	0.09	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	62	54	51	47	50	61	72	66	60	67	30	67	63	70	49	52	49	53
Total Organic Carbon						11.9		6.7		6.9		2.1		8.8		6.3		10		4		6.4
pH	units	6.5-8.5	AO	-	7.3	7.1	7.00	7.10	7.00	7.00	6.68	6.84	6.80	7.03	**5.72**	7.09	7.09	6.85	6.77	6.78	6.80	7.02
TDS (Calculated)	mg/L	≤500	AO	-	<5	50	70	38	50	22	80	48	36	34	16	<5	50	22	104	66	82	14
Total Kjeldahl Nitrogen as N	mg/L	-		-	2.4	1.2	0.6	1.31	0.7	<0.4	0.8	0.7	2.6	0.5	1.2	0.5	0.6	0.7	0.6	<0.4	1.4	0.6
Total Phosphorous as P	mg/L	-		-	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.02	0.07	0.07	<0.03	0.05	0.23	0.08	<0.03	0.1
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	<2	<2	2	<2	<2	<2	3	<2	<2	<2	3	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	23	34	37	17	16	16	19	<3	23	24	14	14	13	8	14	12	<0.001	12
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001		<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619211	2870195	3053893	3256955	3531738	3856893	4105787	4306808	4587426	4906270	5143059	5328779	5610830	6021007	6283490	6534355	6749030	7147065
Arsenic	µg/L	10	MAC	5.0		2		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-		5		<5		<5		<5		<5		<5		<5		<5		9
Boron	µg/L	5000	MAC	1500		22		13		28		17		21		22		34		18		5
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		<0.017		<0.017		<0.017		<0.017		**0.053**
Chromium	µg/L	50	MAC	-		<2		<2		<2		13		<1		<1		1		<1		<1
Copper	µg/L	≤1000	AO	2-4		3		<2		<2		<2		<2		<2		<2		<2		<2
Iron	µg/L	≤300	AO	300		**400**		150		**320**		130		250		150		**370**		160		240
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		**10.1**		<0.5		<0.5		<0.5		<0.5		0.8
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		<0.026		<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		8		<5		<5		14		<5		9		14

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C4 Formally S5

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S5 01/27/16	S5 04/26/16	S5 07/28/16	S5 10/27/16	C4 6/14/2017	C4 11/01/17	C4 06/28/18	C4 10/17/18	C4 06/20/19	C4 10/22/19	C4 06/18/20	C4 11/04/20	C4 11/2/21	C4 11/9/22	C4 11/8/23	C4 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																				
					7354913	7514982	7740378	7964893	8470991	8873134	9367799	9632627	293710	641344	1210743	1647825		4507190	5441078	6277656
Alkalinity (as $CaCO_3$)	mg/L	-		-	<5	7	9	8	7	9	7	8	7	8	7	9	9	17	8	7
Sulphate	mg/L	≤500	AO	-	4	4	4	7	6	6	5	5	4	6	5	6	6	6	4	5
Chloride	mg/L	≤250	AO	-	7	5	5	6	7	7	8	8	5	7	6	7	7	7	7	7
Nitrate + Nitrite (as N)	mg/L	-		-			<0.05													
Nitrate (as N)	mg/L	10	MAC	13	0.13	0.14	<0.05	0.05	<0.05	<0.05	<0.05	0.05	0.06	0.06	0.12	<0.05	<0.05	<0.05	0.13	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	0.06	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	0.09	<0.03	0.05	<0.03	<0.03	<0.03	0.04	<0.03
Conductance (RCAp)	uS/cm	-		-	60	57	52	59	59	61	66	73	57	64	59	67	67	64	59	59
Total Organic Carbon						5.1		7.4		7.1		6		7.6		6.3	10.4	6.7	10.9	5.4
pH	units	6.5-8.5	AO	-	**6.30**	6.92	7.13	6.87	7.00	7.09	7.08	7.09	6.97	7.06	6.79	6.85	6.81	**6.40**	**6.17**	**6.28**
TDS (Calculated)	mg/L	≤500	AO	-	22	40	50	24	32	20	44	40	60	20	80	<5	60	54	60	42
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4	1.1	1.4	0.4	0.6	<0.4	<0.4	0.23	<0.4	<0.4	1.7	<0.4	0.37	0.18	0.31	<0.10
Total Phosphorous as P	mg/L	-		-	1.53	0.02	0.06	<0.02	<0.03	0.03	<0.03	<0.02	<0.03	0.02	<0.03	<0.02	0.12	<0.006	0.011	0.027
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				2	2	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	24	17	14	14	11	11	16	13	23	19	11	20	13	16	28	18
Total Phenolics	mg/L	-		-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.004	0.001	<0.001	0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7354913	7514982	7740378	7964893												
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		<5		<5		<5		<5		<5		<5	<5	<5	<5	<5
Boron	µg/L	5000	MAC	1500		30		39		34		30		33		33	52	46	98	85
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.017		<0.017		<0.09		<0.017		<0.017	<0.09	<0.017	**0.017**	<0.017
Chromium	µg/L	50	MAC	-		2		<1		<1		<1		<1		<1	<1	2	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		<2		<2		2		<2		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300		90		160		200		120		190		230	221	300	**710**	**370**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		<0.5		1.8		<5	<0.5	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		<5		<5		<5		<5	<5	<5	<7	<5

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2(

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Pr

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-C5

Formally SW-3

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SW3 12/09/10	SW3 08/15/11	SW3 11/03/11	SW3 01/09/12	SW3 04/11/12	SW3 07/18/12	SW3 10/24/12	SW3 01/30/13	SW3 05/01/13	SW3 07/24/13	SW3 10/30/13	SW3 02/06/14	SW3 05/01/14	SW3 06/23/14	SW3 10/30/14	SW3 01/29/15	SW3 05/12/15
					2187927	2619185	2870115	3053868	3256855	3531765	3856823	4105758	4306736	4587362	4906177	5143071	5328687	5610850	6020930	6283514	6534267
Alkalinity (as $CaCO_3$)	mg/L	-		-	41	8	8	8	6	8	8	8	7	10	9	<5	26	9	16	7	10
Sulphate	mg/L	≤500	AO	-	22	4	4	4	3	3	5	5	5	3	5	3	5	5	5	3	3
Chloride	mg/L	≤250	AO	-	30	9	8	7	7	8	10	11	10	7	7	5	8	7	8	4	5
Nitrate + Nitrite (as N)	mg/L	-		-	-																
Nitrate (as N)	mg/L	10	MAC	13	2.05	0.14	0.14	0.21	0.26	0.06	0.1	0.28	0.34	<0.05	0.2	<0.05	0.15	<0.05	0.06	0.28	0.14
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.06	<0.05	0.07	0.15	0.13	0.14	0.62	0.05	<0.05	0.04	<0.03	0.08	0.07	<0.03	<0.03	0.07	0.08
Conductance (RCAp)	uS/cm	-		-	257	62	53	52	47	52	64	72	68	60	66	39	67	64	71	44	54
Total Organic Carbon					-		12		6.4		7.5		4.4		8.8		6.2		9.6		4.2
pH	units	6.5-8.5	AO	-	6.9	7.4	7	7	7.1	7.2	7	6.68	6.84	6.93	7.13	**5.94**	7.12	7.16	6.95	6.7	6.91
TDS (Calculated)	mg/L	≤500	AO	-	120	20	135	64	38	38	24	64	40	42	10	28	<5	62	44	26	76
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.7	4.9	0.5	0.6	1.98	0.6	1.1	0.6	0.7	0.9	<0.4	1.2	1.1	0.8	0.4	0.4	0.5
Total Phosphorous as P	mg/L	-		-	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	0.03	0.02	0.21	0.07	<0.03	0.04	0.75	0.07
Total Suspended Solids	mg/L	-		-	19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5
Biochemical Oxygen Demand	mg/L				8	<2	<2	<2	<2	<2	<2	3	<2	<2	<2	4	<2	<2	<2	2	<2
Chemical Oxygen Demand	mg/L	-		-	18	21	30	35	13	16	17	21	8	20	26	12	10	12	30	17	13
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 : Water Quality Analysis - General Chemistry

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

						2619185	2870115	3053868	3256855	3531765	3856823	4105758	4306736	4587362	4906177	5143071	5328687	5610850	6020930	6283514	6534267
Arsenic	µg/L	10	MAC	5.0	**14**		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-	307		<5		<5		<5		<5		<5		<5		<5		<5
Boron	µg/L	5000	MAC	1500	104		22		16		36		22		21		23		36		19
Cadmium	µg/L	5	MAC	0.017	**0.967**		<0.3		<0.3		<0.3		<0.3		<0.017		<0.017		<0.017		<0.017
Chromium	µg/L	50	MAC	-	10		3		<2		<2		<2		<1		<1		<1		<1
Copper	µg/L	≤1000	AO	2-4	24		3		<2		<2		<2		<2		<2		<2		<2
Iron	µg/L	≤300	AO	300	**25900**		**380**		160		**340**		150		280		180		300		170
Lead	µg/L	10	MAC	1-7	**15.6**		<0.5		<0.5		<0.5		9.6		<0.5		<0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026	**0.12**		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		<0.026
Zinc	µg/L	≤5000	AO	30	**105**		<5		<5		<5		<5		<5		10		<5		9

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-

SW-C5 Formally SW-3

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SW3 07/16/15	SW3 10/29/15	SW3 01/27/16	SW3 04/26/16	SW3 07/28/16	SW3 10/27/16	C5 6/14/2017	C5 11/01/17	C5 06/28/18	C5 10/17/18	C5 06/20/19	C5 10/22/19	C5 06/18/20	C5 11/04/20	C5 11/2/21	C5 11/9/22	C5 Non 8, 2023	C5 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																						
					6748972	7146950	7354882	7514887	7740321	7964819	8470996	8873135	9367800	9632628	293711	641345	1210744	1647826		4507195	5441079	6277657
Alkalinity (as $CaCO_3$)	mg/L	-		-	9	9	<5	7	9	9	7	8	8	8	6	8	8	8	9	12	8	7
Sulphate	mg/L	≤500	AO	-	4	4	2	4	11	8	7	5	6	5	4	6	5	6	6	6	4	5
Chloride	mg/L	≤250	AO	-	5	10	3	5	5	6	7	6	8	8	5	7	6	8	7	7	7	7
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.12	0.14	0.13	<0.05	0.15	<0.05	<0.05	<0.05	<0.05	0.06	0.11	0.12	<0.05	<0.05	<0.05	0.13	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	<0.03	0.09	<0.03	<0.03	0.08	<0.03	<0.003	0.04	0.09	0.06	0.05	<0.03	<0.03	0.05	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	50	52	29	58	52	65	61	60	74	71	55	64	60	67	67	67	60	58
Total Organic Carbon						6.1		5.3		7.8		8.2		7		7.4		6,.2	10.2	6.8	10.9	5.2
pH	units	6.5-8.5	AO	-	6.81	7.21	**6.02**	6.96	7.16	6.84	6.95	7.07	7.13	7.08	6.96	7.08	6.82	6.86	6.78	6.58	**6.17**	**6.27**
TDS (Calculated)	mg/L	≤500	AO	-	84	26	<5	<5	58	44	34	20	46	80	220	40	80	<5	64	64	58	24
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.5	0.6	0.9	0.5	3.1	0.4	0.8	0.6	<0.4	0.23	<0.4	<0.4	1.1	<0.4	0.29	18	0.34	<0.10
Total Phosphorous as P	mg/L	-		-	<0.03	0.1	0.51	0.03	0.05	<0.02	0.06	0.03	<0.03	<0.02	<0.03	0.03	<0.03	<0.02	0.13	0.007	0.012	0.039
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	16	5	16	<5	<5	<5	<5	<5	<5	<5	8	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	3	<2	3	<2	<2	<2	<2	3	2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	11	14	14	17	15	20	23	15	16	13	17	23	14	20	17	13	22	17
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					6748972	7146950	7354882	7514887	7740321	7964819												
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		<5		<5		<5		<5		<5		<5		<5	<5	<5	<5	<5
Boron	µg/L	5000	MAC	1500		21		33		45		35		31		35		33	39	45	90	83
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.017		<0.017		<0.017		<0.09		<0.017		<0.017	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-		<1		<1		<1		<1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		<2		<2		<2		3		<2		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300		220		100		170		210		90		190		260	230	300	**770**	**330**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.05	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		6		<5		<5		<5		<5		<5		<5	<5	<5	<7	11

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (

Protection of Aquatic Life values based on CCME Water Quality Guidelines f

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-CC6 Formally SW-5

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SW5 11/2/2011	SW5 4/11/2012	SW5 10/24/2012	SW5 5/1/13	SW5 10/30/2013	SW5 5/1/14	SW5 10/30/2014	SW5 5/12/2015	SW5 10/29/15	SW5 4/26/2016	SW5 10/27/2016	CC6 6/14/2017	CC6 11/1/17	CC6 6/28/18	CC6 10/17/18	CC6 6/20/19	CC6 10/22/19
Alkalinity (as $CaCO_3$)	mg/L	-		-	5	5	9	6	9	20	<5	8	8	6	8	6	8	7	8	6	8
Sulphate	mg/L	≤500	AO	-	3	3	4	4	4	5	4	3	4	4	7	6	5	5	5	4	6
Chloride	mg/L	≤250	AO	-	8	7	8	9	7	8	6	5	8	5	6	6	7	7	8	4	7
Nitrate + Nitrite (as N)	mg/L	-		-																	
Nitrate (as N)	mg/L	10	MAC	13	0.13	0.28	<0.05	0.31	0.11	0.19	<005	0.12	0.05	0.14	0.06	<0.05	0.05	<0.05	<0.05	0.06	0.06
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.06	0.12	0.05	<0.05	<0.03	0.04	<0.03	0.08	<0.03	0.06	<0.03	<0.03	0.03	<0.03	0.03	0.09	0.05
Conductance (RCAp)	uS/cm	-		-	50	46	59	62	65	63	59	52	52	56	60	57	61	66	69	54	61
Total Organic Carbon					11.7	6.5	8.1	4.3	9	6	9.4	4.3	6.4	5.2	7.4		8.7		7		7.5
pH	units	6.5-8.5	AO	-	7	7.1	7.1	6.78	7.05	6.99	6.74	6.81	7.07	6.9	6.87	6.98		7.08	7.02	6.92	7.05
TDS (Calculated)	mg/L	≤500	AO	-	52	42	30	32	18	<5	26	72	26	42	28	46	5	48	100	240	40
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.9	1.25	0.4	0.4	<0.4	1.3	2.6	<0.4	0.6	0.6	0.5	0.6	0.4	<0.4	0.19	<0.4	<0.4
Total Phosphorous as P	mg/L	-		-	<0.03	<0.03	<0.03	<0.03	0.02	0.07	0.04	0.06	0.05	0.02	<0.02	0.12	0.03	<0.03	0.02	<0.03	<0.02
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5
Biochemical Oxygen Demand	mg/L				2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	<2	<2	4	<2	<2
Chemical Oxygen Demand	mg/L	-		-	32	15	18	13	23	15	28	8	21	21	19	18	16	16	14	19	21
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2	<0.001	<0.001	0.001	<0.001		<0.001

TABLE 1 : Water Quality Analysis - General Chemistry

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2870125	3256867	3856833	4306747	4906193	5328707	6020944	6534279	7146961	7514900	7964830						
Arsenic	µg/L	10	MAC	5.0	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2
Barium	µg/L	1000	MAC	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5		<5		<5
Boron	µg/L	5000	MAC	1500	19	13	26	19	20	21	28	17	18	31	37		32		28		32
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	<0.3	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017		<0.017		<0.09		<0.017
Chromium	µg/L	50	MAC	-	2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1		<1		<1		<1
Copper	µg/L	≤1000	AO	2-4	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2		<2		<2
Iron	µg/L	≤300	AO	300	**390**	190	**310**	180	300	140	**320**	140	230	100	150		200		120		140
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	2.7	<0.5	<0.5	<0.5	<0.5	1.9	<0.5	<0.5		<0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026	<0.05	<0.05	<0.05	<0.05	<0.076	<0.026	<0.026	**0.034**	<0.026	<0.026	<0.026		<0.026		<0.026		<0.026
Zinc	µg/L	≤5000	AO	30	<5	<5	<5	6	<5	9	<5	6	<5	<5	<5		<5		<5		<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08

SW-CC6 Formally SW-5

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	CC6 6/18/20	CC6 11/4/20	CC6 11/2/21	CC6 11/9/22	CC6 11/8/23	CC6 10/30/24
					1210745	1647827		4507196	5441080	6277658
Alkalinity (as $CaCO_3$)	mg/L	-		-	9	<5	9	15	7	7
Sulphate	mg/L	≤500	AO	-	5	6	6	6	3	5
Chloride	mg/L	≤250	AO	-	6	7	7	7	7	8
Nitrate + Nitrite (as N)	mg/L	-		-						
Nitrate (as N)	mg/L	10	MAC	13	0.12	<0.05	<0.05	<0.05	0.13	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.05	<0.03	<0.03	0.04	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	59	63	67	65	56	58
Total Organic Carbon						7	10.3	7.2	10.9	5.3
pH	units	6.5-8.5	AO	-	6.87	6.79	6.78	**6.38**	**6.15**	**6.26**
TDS (Calculated)	mg/L	≤500	AO	-	80	<5	68	110	50	18
Total Kjeldahl Nitrogen as N	mg/L	-		-	3	0.9	0.41	0.21	0.38	<0.10
Total Phosphorous as P	mg/L	-		-	<0.03	<0.02	0.08	0.015	0.01	0.019
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	14	104	22	17	27	14
Total Phenolics	mg/L	-		-	<0.004	<0.001	<0.001	<0.001	0.001	<0.001

TABLE 1 : Water Quality Analysis - General Chemistry

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		<5	<5	<5	<5	<5
Boron	µg/L	5000	MAC	1500		37	33	43	93	86
Cadmium	µg/L	5	MAC	0.017		<0.017	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300		**350**	290	270	**660**	**340**
Lead	µg/L	10	MAC	1-7		<0.5	<0.05	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5	<5	<5	<7	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (

Protection of Aquatic Life values based on CCME Water Quality Guidelines

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-CC7 Formally SW-6

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of	CC7 11/1/2017	CC7 06/28/18	CC7 10/17/18	CC7 06/20/19	CC7 10/22/19	CC7 06/18/20	CC7 11/04/20	CC7 11/2/21	CC7 11/9/22	CC7 11/8/23	CC7 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry															
					8873137	**9367802**	**9632630**	**293713**	**641347**	**121746**	**1647828**		**4507198**	**5441081**	**6277659**
Alkalinity (as $CaCO_3$)	mg/L	-		-	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5
Sulphate	mg/L	≤500	AO	-	<2	<2	4	<2	4	<2	3	<2	2	<2	<2
Chloride	mg/L	≤250	AO	-	7	5	5	3	6	4	6	6	6	7	6
Nitrate + Nitrite (as N)	mg/L	-		-											
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	>0.05	<0.05	**0.09**
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	0.25	0.08	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03
Conductance (RCAp)	uS/cm	-		-	46	38	52	27	47	31	45	42	43	38	43
Total Organic Carbon					17.3		16		15.9		16.9	18.2	14.4	8.7	12
pH	units	6.5-8.5	AO	-	**5.44**	**5.87**	**5.23**	**5.84**	**5.18**	**5.94**	**4.92**	**5.5**	**5.65**	**5.6**	**5.79**
TDS (Calculated)	mg/L	≤500	AO	-	28	56	100	240	40	20	40	76	114	46	24
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4	<0.4	0.26	<0.4	<0.4	1.1	4	0.5	0.2	0.1	<0.10
Total Phosphorous as P	mg/L	-		-	0.03	<0.03	<0.02	<0.03	<0.02	<0.03	0.66	0.03	0.011	<0.006	<0.006
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	9	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	46	45	25	33	35	41	44	45	31	22	34
Total Phenolics	mg/L	-		-	<0.001	0.001	0.001		<0.001	<0.004	0.003	<0.001	0.004	<0.001	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan															
Arsenic	µg/L	10	MAC	5.0	<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-	6		6		5		<5	<5	6	<5	<5
Boron	µg/L	5000	MAC	1500	6		7		<5		<5	6	6	12	13
Cadmium	µg/L	5	MAC	0.017	**0.03**		<0.09		**0.031**		**0.031**	<0.09	**0.033**	<0.017	**0.022**
Chromium	µg/L	50	MAC	-	1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2		<2		<2		<2	<1	<2	<2	<2
Iron	µg/L	≤300	AO	300	**570**		250		240		300	**341**	**660**	**370**	**380**
Lead	µg/L	10	MAC	1-7	<0.5		<0.5		<0.5		<0.5	0.6	1	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026	<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5		5		6		<5	<5	<5	<7	6

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-SP1

New

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SP1 6/14/2017	SP1 11/1/2017	SP1 06/28/18	SP1 10/17/18	SP1 06/20/19	SP1 10/22/19	SP1 06/18/20	SP1 11/04/20	SP1 11/2/21	SP1 11/9/22	SP1 11/8/23	SP1 10/30/24
Alkalinity (as $CaCO_3$)	mg/L	-		-	115	124	60	87	113	88	111	110	126	135	133	103
Sulphate	mg/L	≤500	AO	-	60	44	35	77	24	80	60	86	46	95	40	57
Chloride	mg/L	≤250	AO	-	56	52	50	30	29	38	62	48	44	39	34	47
Nitrate + Nitrite (as N)	mg/L	-		-												
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.11	<0.05	1.85	<0.05	0.88	0.6	1.27	0.06	0.17	0.64	<0.05
Nitrite	mg/L	3.2	MAC	0.06	**0.08**	**0.07**	<0.05	**0.1**	<0.05	**0.25**	**0.21**	<0.05	<0.05	**0.14**	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	3.59	0.57	0.03	0.95	0.71	1.49	0.84	2.56	0.15	2.15	2.99	2.48
Conductance (RCAp)	uS/cm	-		-	539	510	426	507	443	496	585	590	520	612	493	536
Total Organic Carbon						18.6		15		17.9		19.5	16	22.6	21.6	14
pH	units	6.5-8.5	AO	-	7.65	7.59	**9.05**	7.53	7.99	7.9	7.93	7.72	7.67	7.59	6.98	7.65
TDS (Calculated)	mg/L	≤500	AO	-	330	296	254	400	440	320	340	320	326	442	298	276
Total Kjeldahl Nitrogen as N	mg/L	-		-	6.5	4.8	<0.4	2.82	2.9	3.2	3.9	12.6	2.94	4.98	5.79	2.71
Total Phosphorous as P	mg/L	-		-	<0.03	0.35	0.05	0.13	0.04	0.07	<0.003	<0.02	0.16	190	0.121	0.188
Total Suspended Solids	mg/L	-		-	<5	13	<5	8	<5	8	19	11	5	<5	24	<5
Biochemical Oxygen Demand	mg/L				4	11	3	6	5	4	14	2	4	3	9	3
Chemical Oxygen Demand	mg/L	-		-	45	91	36	48	41	42	52	681	61	62	65	40
Total Phenolics	mg/L	-		-	<0.001	<0.001	0.001	0.002		<0.001	<0.004	0.004	0.002	0.001	0.003	<0.001

TABLE 1 : Water Quality Analysis - General Chemistry

					8471020	8873140		9632631	293714	641348	1210747	1647829	3164076	4507119	5441082	6277660
Arsenic	µg/L	10	MAC	5.0	-	3		3		3		3	3	3	3	2
Barium	µg/L	1000	MAC	-	-	14		17		11		21	8	26	13	20
Boron	µg/L	5000	MAC	1500	-	102		90		521		**1540**	394	**2070**	1280	699
Cadmium	µg/L	5	MAC	0.017	-	<0.017		<0.09		<0.017		**0.032**	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-	-	1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	-	2		8		4		7	9	8	<2	<2
Iron	µg/L	≤300	AO	300	-	**1420**		**840**		**1130**		**1660**	**1090**	**1910**	**1910**	**1370**
Lead	µg/L	10	MAC	1-7	-	<0.5		<0.5		0.6		0.6	1	0.7	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026	-	<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	-	<5		9		9		9	9	8	<7	6

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-SP2 **** create new column

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SP2 6/14/2017	SP2 11/1/2017	SP2 06/28/18	SP2 10/17/18	SP2 06/20/19	SP2 10/22/19	SP2 06/18/20	SP2 11/04/20	SP2 11/2/21	SP2 11/9/22	SP2 11/8/23	SP2 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																
					8471015	8873139	9367804	9632632	293715	641349	1210748	1647830		4507204	5440183	6277661
Alkalinity (as $CaCO_3$)	mg/L	-		-	193	175	132	183	263	287	196	165	321	212	404	218
Sulphate	mg/L	≤500	AO	-	149	236	79	211	63	177	129	261	258	243	100	192
Chloride	mg/L	≤250	AO	-	63	97	70	97	43	106	46	69	126	67	82	108
Nitrate + Nitrite (as N)	mg/L	-		-	0.12											
Nitrate (as N)	mg/L	10	MAC	13	0.14	<0.05	<0.05	2,43	0.08	0.06	0.08	0.95	0.38	0.11	<0.05	0.07
Nitrite	mg/L	3.2	MAC	0.06		<0.05	<0.05	**0.32**	**0.09**	<0.05	**0.09**	<0.05	**0.2**	<0.05	<0.05	**0.46**
Ammonia (as N)	mg/L	-		-	6.15	0.08	0.05	1.08	0.63	7.34	1.11	1.09	0.27	0.6	8.67	3.47
Conductance (RCAp)	uS/cm	-		-	874	1120	742	1210	878	1250	823	1020	1460	1090	1260	1240
Total Organic Carbon						33.2		36		67.6		23.9	32.4	30.4	78.7	50
pH	units	6.5-8.5	AO	-	7.91	7.87	8.07	7.85	8.05	7.99	7.31	7.83	7.63	7.83	7.86	7.98
TDS (Calculated)	mg/L	≤500	AO	-	**568**	**728**	498	**880**	**680**	**840**	**540**	**600**	**932**	**760**	**862**	**770**
Total Kjeldahl Nitrogen as N	mg/L	-		-	11.8	4.1	2.4	6.18	8.3	21.5	5.5	9.4	8.41	4.15	24.4	8.17
Total Phosphorous as P	mg/L	-		-	0.29	0.08	0.14	11	0.19	0.85	0.06	0.12	1.16	0.08	0.398	0.092
Total Suspended Solids	mg/L	-		-	15	<5	<5	<5	<5	94	10	28	28	12	20	<5
Biochemical Oxygen Demand	mg/L				4	<2	5	2	13	15	5	12	14	7	22	4
Chemical Oxygen Demand	mg/L	-		-	99	81	110	97	99	207	73	99	265	76	233	170
Total Phenolics	mg/L	-		-	<0.001	<0.001	0.002	0.004		0.003	<0.004	0.005	0.037	<0.001	0.008	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan																
Arsenic	µg/L	10	MAC	5.0		4		**6**		**21**		3	**5**	4	**18**	4
Barium	µg/L	1000	MAC	-		31		30		110		21	20	31	35	35
Boron	µg/L	5000	MAC	1500		704		465		702		1100	1050	**1740**	**3530**	**3470**
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.09		**0.032**		**0.025**	<0.09	<0.017	0.037	<0.017
Chromium	µg/L	50	MAC	-		2		1		3		2	<1	2	<4	<1
Copper	µg/L	≤1000	AO	2-4		3		10		7		6	7	2	<2	<2
Iron	µg/L	≤300	AO	300		270		90		**1320**		**1180**	**387**	**430**	**510**	**780**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		1.1		0.6	0.5	<0.5	1.6	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		14		8	5	<5	13	<5

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-SP3 Formally SW2

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	SP3 11/01/17	SP3 06/28/18	SP3 10/17/18	SP3 06/20/19	SP3 10/22/19	SP3 06/18/20	SP3 11/04/20	SP3 11/2/21	SP3 11/9/22	SP3 11/8/23	SP3 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry															
					8873138	9367804	9632633	293716	641350	1210749	1647831		4507205	5441084	6277662
Alkalinity (as $CaCO_3$)	mg/L	-		-	234	200	141	197	402	185	184	257	217	108	246
Sulphate	mg/L	≤500	AO	-	143	28	125	33	399	99	275	180	184	66	129
Chloride	mg/L	≤250	AO	-	50	29	24	14	138	42	43	34	26	26	99
Nitrate + Nitrite (as N)	mg/L	-		-											
Nitrate (as N)	mg/L	10	MAC	13	2.85	<0.05	**22.6**	0.09	<0.05	<0.05	**17.8**	0.6	**11.3**	0.59	<0.05
Nitrite	mg/L	3.2	MAC	0.06	**0.09**	<0.05	**0.2**	<0.05	<0.05	<0.05	**0.06**	**0.46**	**0.19**	<0.05	**0.11**
Ammonia (as N)	mg/L	-			0.25	<0.03	0.48	0.16	19	0.34	<0.03	0.61	1.06	0.43	3.47
Conductance (RCAp)	uS/cm	-		-	884	551	843	521	1970	739	1080	953	878	672	1140
Total Organic Carbon					24.8		38		148		36.7	29.4	29.8	26.8	42
pH	units	6.5-8.5	AO	-	7.56	7.73	7.87	8.02	8.04	7.76	8.19	7.75	7.8	**10.8**	7.94
TDS (Calculated)	mg/L	≤500	AO	-	190	320	**640**	20	**1440**	**520**	**720**	**592**	**636**	452	**666**
Total Kjeldahl Nitrogen as N	mg/L	-		-	4.5	<0.4	5.38	<0.4	42	9.5	14.2	5.23	4.69	2.62	6.36
Total Phosphorous as P	mg/L	-		-	0.12	0.05	0.32	<0.03	0.77	0.07	0.04	0.16	0.102	0.149	0.744
Total Suspended Solids	mg/L	-		-	<5	5	5	<5	6	14	6	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				3	4	2	4	274	2	3	4	<6	<6	6
Chemical Oxygen Demand	mg/L	-		-	74	54	98	60	329	74	102	106	76	62	119
Total Phenolics	mg/L	-		-	<0.001	0.001	0.004		0.056	<0.004	0.004	0.027	0.008	0.004	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan															
Arsenic	µg/L	10	MAC	5.0	4		**7**		**14**		**5**	**6**	4	3	**11**
Barium	µg/L	1000	MAC	-	17		16		36		13	12	22	9	34
Boron	µg/L	5000	MAC	1500	661		298		**3030**		**1520**	548	535	1040	1290
Cadmium	µg/L	5	MAC	0.017	<.017		<0.09		**0.157**		**0.032**	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-	1		<1		2		1	<1	1	<4	<1
Copper	µg/L	≤1000	AO	2-4	10		32		28		22	21	16	3	<2
Iron	µg/L	≤300	AO	300	**340**		120		**490**		180	**311**	**400**	<180	**350**
Lead	µg/L	10	MAC	1-7	<0.5		<0.5		3.4		<0.5	0.7	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026	<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5		9		28		9	18	7	<7	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-W1

Formally S-1A (Control)

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S1A 15/08/2011	S1A 02/11/2011	S1A 09/01/2012	S1A 11/04/2012	S1A 18/07/2012	S1A 24/10/2012	S1A 30/01/2013	S1A 01/05/2013	S1A 24/07/2013	S1A 30/10/2013	S1A 06/02/2014	S1A 01/05/2014	S1A 23/07/3014	S1A 30/10/2014	S1A 29/01/2015	S1A 12/05/2015	S1A 16/07/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					2619149	2870207	3053898	3256965	3531772	3856905	4105792	4306818	4587433	4906280	5143084	5328800	5610864	6020678	6283523	6534355	6748865
Alkalinity (as $CaCO_3$)	mg/L	-		-	<5	<5	<5	<5	20	<5	<5	<5	<5	<5	<5	10	17	<5	<5	<5	10
Sulphate	mg/L	≤500	AO	-	10	10	12	13	8	11	13	10	10	9	12	11	7	9	8	9	8
Chloride	mg/L	≤250	AO	-	8	11	13	15	11	10	13	11	13	7	9	9	7	8	5	13	6
Nitrate + Nitrite (as N)	mg/L	-		-																	
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	0.08	0.11	0.11	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	0.07	0.07	<0.05	0.6
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	<0.05	<0.05	<0.05	0.21	0.6	<0.05	<0.05	0.03	<0.03	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	0.04
Conductance (RCAp)	uS/cm	-		-	66	68	80	86	91	69	88	78	90	65	73	62	88	60	51	80	64
Total Organic Carbon						4.6		2.5		3.3		2.1		3.8		2.7		4.6		2.7	
pH	units	6.5-8.5	AO	-	**6.4**	**6**	**5.7**	**6.1**	7	**5.8**	**5.98**	**5.67**	**5.76**	**5.92**	**5.36**	**5.5**	6.91	**6.02**	**5.74**	**5.62**	**6.42**
TDS (Calculated)	mg/L	≤500	AO	-	24	26	72	60	76	30	<5	44	62	24	24	<5	78	30	52	68	78
Total Kjeldahl Nitrogen as N	mg/L	-		-	2.7	0.7	<0.4	140	1.3	<0.4	0.4	0.7	3.1	<0.4	0.7	<0.4	0.6	0.4	<0.4	<0.4	
Total Phosphorous as P	mg/L	-		-	0.04	0.4	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.02	<0.03	0.07	<0.03	0.05	0.47	0.08	0.03
Total Suspended Solids	mg/L	-		-	<5	9	45	<5	9	5	<5	8	<5	16	<5	6	<5	6	<5	6	<5
Biochemical Oxygen Demand	mg/L				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	-		-	13	12	17	<3	12	10	6	<3	22	14	<3	7	9	27	33	11	14
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619149	2870207	3053898	3256965	3531772	3856905	4105792	4306818	4587433	4906280	5143084	5328800	5610864	6020678	6283523	6534355	6748865
Arsenic	µg/L	10	MAC	5.0		<2		2		<2		<2		<2		<2		<2		<2	
Barium	µg/L	1000	MAC	-		7		7		9		9		7		8		8		10	
Boron	µg/L	5000	MAC	1500		6		<5		9		<5		<5		<5		9		6	
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		**0.051**		**0.039**		**0.039**		**0.062**	
Chromium	µg/L	50	MAC	-		<2		<2		<2		2		<1		<1		1		<1	
Copper	µg/L	≤1000	AO	2-4		3		<2		<2		<2		<2		<2		<2		<2	
Iron	µg/L	≤300	AO	300		**880**		120		150		**380**		270		270		**570**		**620**	
Lead	µg/L	10	MAC	1-7		1		<0.5		<0.5		2.8		<0.5		<0.5		0.7		0.9	
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		<0.026	
Zinc	µg/L	≤5000	AO	30		11		9		16		15		13		16		11		15	

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-W1

Formally S-1A (Control)

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S1A 29/10/2015	S1A 27/01/2016	S1A 26/04/2016	S1A 28/07/2016	S1A 27/10/2016	W1 6/14/2017	W1 11/1/2017	W1 28/06/2018	W1 17/10/2018	W1 20/06/2019	W1 22/10/2019	W1 18/06/2020	W1 04/11/2020	W1 11/2/21	W1 11/9/22	W1 11/8/23	W1 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																					
					7147095	7354815	7514997	7740394	7964903	8471026	8873141	9367806	9632634	293717	641351	1210750	1647832		4507206	5441085	
Alkalinity (as $CaCO_3$)	mg/L	-		-	<5	5	<5	29	<5	<5	6	8	<5	<5	<5	12	<5	8	6	6	
Sulphate	mg/L	≤500	AO	-	9	10	9	8	12	9	9	6	13	8	12	8	11	12	9	5	**Brook Dry**
Chloride	mg/L	≤250	AO	-	10	17	7	8	6	6	16	9	9	4	11	8	8	13	8	13	**No Data**
Nitrate + Nitrite (as N)	mg/L	-		-																	
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	0.7	<0.05	<0.05	<0.05	0.07	0.55	<0.05	<0.05	
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	0.03	0.19	<0.03	0.2	<0.03	0.04	<0.03	0.08	0.06	0.07	<0.03	<0.03	<0.03	0.03	
Conductance (RCAp)	uS/cm	-		-	67	104	67	112	62	54	92	79	74	54	73	72	67	68	66	88	
Total Organic Carbon					3.2		2.7		4.6		7.8		7		4.6		5.1	12	4.4	6.1	
pH	units	6.5-8.5	AO	-	**6.1**	**5.67**	**6.02**	7.12	**5.55**	**6.14**	**5.92**	6.73	**5.58**	**6.16**	**5.93**	6.79	**5.58**	**6.29**	**6.2**	**5.88**	
TDS (Calculated)	mg/L	≤500	AO	-	12	30	48	94	28	52	36	50	80	120	80	60	<5	64	112	60	
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4	1	1.4	1	<0.4	0.7	<0.4	<0.4	0.19	8.8	<0.4	0.7	3.8	0.23	0.1	0.16	
Total Phosphorous as P	mg/L	-		-	0.08	<0.03	0.04	0.08	<0.02	0.15	0.03	<0.03	<0.02	48	0.02	<0.03	<0.02	<0.02	0.013	0.014	
Total Suspended Solids	mg/L	-		-	<5	38	24	9	<5	<5	<5	12	<5	5	<5	5	<5	16	<5	<5	
Biochemical Oxygen Demand	mg/L				<2	<2	<2	4	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	
Chemical Oxygen Demand	mg/L	-		-	9	12	17	17	12	11	6	10	13	15	14	17	15	12	13	14	
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002		0.003	<0.004	<0.001	<0.001	<0.001	<0.001	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7147095	7354815	7514997	7740394	7964903												
Arsenic	µg/L	10	MAC	5.0	<2		<2		<2		<2		<2		<2		2	<2	<2	<2	
Barium	µg/L	1000	MAC	-	7		8		9		10		10		8		8	6	11	6	
Boron	µg/L	5000	MAC	1500	<5		6		7		9		9		6		7	7	12	72	
Cadmium	µg/L	5	MAC	0.017	**0.019**		**0.05**		**0.094**		**0.071**		**0.11**		**0.091**		**0.111**	<0.09	**0.071**	**0.031**	
Chromium	µg/L	50	MAC	-	<1		<1		<1		1		<1		<1		<1	<1	<1	<4	
Copper	µg/L	≤1000	AO	2-4	<2		<2		<2		<2		3		<2		<2	1	<2	<2	
Iron	µg/L	≤300	AO	300	**460**		**450**		180		280		<50		120		200	**515**	270	**1790**	
Lead	µg/L	10	MAC	1-7	1.5		0.6		<0.5		<0.5		0.5		<0.5		<5	<0.5	<0.5	<0.5	
Mercury	µg/L	1	MAC	0.026	<0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	
Zinc	µg/L	≤5000	AO	30	14		8		15		11		13		15		13	7	11	<7	

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 200

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Pro

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-W2

Formally S-5A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S5A 15/08/2011	S5A 02/11/2011	S5A 09/01/2012	S5A 11/04/2012	S5A 18/07/2012	S5A 24/10/2012	S5A 30/01/2013	S5A 01/05/2013	S5A 24/07/2013	S5A 30/10/2013	S5A 06/02/2014	S5A 01/05/2014	S5A 23/07/2014	S5A 30/10/2014	S5A 29/01/2015	S5A 12/05/2015	S5A 16/07/2015	S5A 29/10/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					2619160	2870244	3053915	3256997	3531783	3856958	4105807	4306849	4587454	4906310	5143106	5328843	5610887	6020839	6283558	6534411	6748937	7147192
Alkalinity (as $CaCO_3$)	mg/L	-		-	150	87	116	118	160	104	147	109	72	107	86	90	140	50	70	57	96	126
Sulphate	mg/L	≤500	AO	-	11	33	23	14	9	29	16	12	42	58	29	13	11	26	16	11	22	30
Chloride	mg/L	≤250	AO	-	56	25	38	63	64	40	70	54	85	77	69	48	59	26	37	44	61	67
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.23	0.12	0.14	0.10	<0.05	0.10	0.34	0.65	0.63	0.26	<0.05	<0.05	<0.05	0.12	0.09	0.07	0.08
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.15**	**0.12**	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.09**	<0.05
Ammonia (as N)	mg/L	-		-	2.29	0.78	1.5	2.38	2.56	0.58	5.31	6.11	3.88	7.49	6.32	3	2.95	97	3.78	1.99	2.67	3.24
Conductance (RCAp)	uS/cm	-		-	501	310	391	450	509	397	584	461	540	636	552	372	557	249	310	292	443	541
Total Organic Carbon						6.9		5.4		6.7		6.9		29.8		24.9		7.2		4.2		11.3
pH	units	6.5-8.5	AO	-	7.6	7.5	7.5	7.4	7.4	7.2	7.38	7.26	7.09	7.64	7.33	6.87	7.23	7.1	7.25	6.98	6.94	7.24
TDS (Calculated)	mg/L	≤500	AO	-	196	180	244	248	396	204	274	220	242	308	232	132	306	112	156	176	404	268
Total Kjeldahl Nitrogen as N	mg/L	-		-	13.6	1	1.9	3.7	3.6	1.6	6.9	5.2	4.4	19.5	6.9	3.9	5.8	2.1	5	2.9	3.5	4.8
Total Phosphorous as P	mg/L	-		-	0.08	0.03	<0.03	0.03	0.04	<0.03	0.07	0.05	1.11	0.09	0.38	0.14	0.17	0.06	0.18	0.17	0.41	0.1
Total Suspended Solids	mg/L	-		-	41	33	29	36	43	41	28	49	42	36	19	34	48	17	21	18	35	71
Biochemical Oxygen Demand	mg/L				4	3	3	<2	3	4	5	2	4	32	16	23	4	2	9	6	3	4
Chemical Oxygen Demand	mg/L	-		-	30	19	32	15	26	<3	29	<3	40	85	57	72	24	19	28	20	25	37
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.007	0.005	<0.001	<0.001	0.01	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619160	2870244	3053915	3256997	3531783	3856958	4105807	4306849	4587454	4906310	5143106	5328843	5610887	6020839	6283558	6534411	6748937	7147192
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-		31		48		52		41		39		24		22		18		42
Boron	µg/L	5000	MAC	1500		203		165		227		142		146		70		103		86		188
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		**0.159**		**0.035**		**0.119**		**0.03**		<0.017
Chromium	µg/L	50	MAC	-		<2		<2		4		<2		<1		<1		<1		1		<1
Copper	µg/L	≤1000	AO	2-4		10		<2		6		4		12		3		9		3		<2
Iron	µg/L	≤300	AO	300		**11300**		**18000**		**15700**		**14800**		**16800**		**11800**		**11900**		**10800**		**15400**
Lead	µg/L	10	MAC	1-7		1.7		1.1		1.9		1.1		1		0.5		0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		<0.026		<0.026
Zinc	µg/L	≤5000	AO	30		**49**		**52**		**85**		**44**		**34**		20		28		17		15

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-W2 Formally S-5A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S5A 27/01/2016	S5A 26/04/2016	S5A 28/07/2016	S5A 27/10/2016	W2 Jun 14, 2017	W2 Nov 1, 2017	W2 06/28/18	W2 10/17/18	W2 06/20/19	W2 10/22/19	W2 06/18/20	W2 11/04/20	W2 11/2/21	W2 11/9/22	W2 11/8/23	W2 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																				
					7354843	7515044	7740446	7964933	8471030	8873142	9367807	9632635	293718	641352	1210751	1647833		4507207	5441086	6277663
Alkalinity (as $CaCO_3$)	mg/L	-		-	103	88	193	57	129	186	120	52	133	97	201	60	134	100	85	124
Sulphate	mg/L	≤500	AO	-	41	16	22	55	18	62	19	48	10	35	21	46	14	33	18	21
Chloride	mg/L	≤250	AO	-	41	45	68	28	58	188	63	25	53	46	130	39	57	42	23	88
Nitrate + Nitrite (as N)	mg/L	-		-																
Nitrate (as N)	mg/L	10	MAC	13	2.07	0.19	0.07	0.36	0.08	4.86	0.21	0.76	2.57	0.23	1.01	0.47	0.05	0.17	0.14	0.2
Nitrite	mg/L	3.2	MAC	0.06	**0.07**	<0.05	**0.2**	<0.05	<0.05	**0.89**	**0.12**	0.05	**0.12**	**0.17**	**0.27**	<0.05	<0.05	<0.05	<0.05	**0.09**
Ammonia (as N)	mg/L	-		-	3.2	2.8	5.65	1	3.42	5.61	1.64	0.98	0.06	1.74	2.1	1.05	2.59	1.94	1.17	2.42
Conductance (RCAp)	uS/cm	-		-	389	404	372	287	481	1170	541	351	582	440	888	365	525	417	325	649
Total Organic Carbon						6.9		5.4		26.7		7		7.8		8.7	12.7	8.3	7.3	9
pH	units	6.5-8.5	AO	-	7.49	7.33	7.56	6.98	7.26	7.58	7.51	7.21	7.63	7.78	7.53	7.54	7.43	7.02	7.06	7.52
TDS (Calculated)	mg/L	≤500	AO	-	242	198	368	186	272	**630**	294	180	420	180	500	140	264	308	178	308
Total Kjeldahl Nitrogen as N	mg/L	-		-	5.9	4.2	6.6	3.1	4.5	9.9	1.4	1.78	<0.4	2.2	5.3	3	3.34	2.3	1.81	2.39
Total Phosphorous as P	mg/L	-		-	0.32	0.07	0.06	<0.02	0.04	3.04	<0.03	0.06	<0.03	0.05	0.14	<0.02	<0.02	0.01	0.028	0.021
Total Suspended Solids	mg/L	-		-	16	20	36	21	32	33	16	18	32	18	30	9	15	5	8	6
Biochemical Oxygen Demand	mg/L				4	4	<2	3	4	38	3	3	16	6	7	<2	3	<2	<2	2
Chemical Oxygen Demand	mg/L	-		-	36	24	27	17	27	92	22	25	62	21	63	26	30	24	16	25
Total Phenolics	mg/L	-		-	0.001	<0.001	<0.001	<0.001	<0.001		<0.001	0.002		0.001	<0.004	0.002	0.004	0.002	0.002	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					7354843	7515044	7740446	7964933												
Arsenic	µg/L	10	MAC	5.0		<2		<2		**5**		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		26		23		26		21		33		21	13	31	21	33
Boron	µg/L	5000	MAC	1500		135		101		196		88		298		555	330	509	424	544
Cadmium	µg/L	5	MAC	0.017		**0.029**		**0.157**		**0.058**		**0.16**		**0.068**		**0.135**	<0.09	**0.029**	**0.025**	<0.017
Chromium	µg/L	50	MAC	-		<1		<1		1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		7		8		14		3		8	9	2	<2	<2
Iron	µg/L	≤300	AO	300		**8620**		**10200**		**5060**		**4190**		**7100**		**6300**	**1970**	**6530**	**6290**	**400**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		0.6		<0.5		<0/5	0.6	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		10		**40**		18		**30**		23		**33**	22	12	9	6

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the P

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guideline

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Table 1 Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

SW-W3

Formally S-6A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S6A 15/08/2011	S6A 02/11/2011	S6A 09/01/2012	S6A 11/04/2012	S6A 18/07/2012	S6A 24/10/2012	S6A 30/01/2013	S6A 01/05/2013	S6A 24/07/2013	S6A 30/10/2013	S6A 06/02/2014	S6A 01/05/2014	S6A 23/07/2014	S6A 30/10/2014	S6A 29/01/2015	S6A 12/05/2015	S6A 16/07/2015	S6A 29/10/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					2619165	2870254	3053920	3257012	3531795	3856971	4105813	4306859	4587461	4906321	5143112	5328857	5610894	6020873	6283569	6534428	6748943	7147203
Alkalinity (as $CaCO_3$)	mg/L	-		-	62	32	37	34	89	46	40	38	16	63	45	61	77	32	24	27	52	52
Sulphate	mg/L	≤500	AO	-	10	17	16	10	<2	12	11	8	6	29	14	3	3	13	6	6	4	13
Chloride	mg/L	≤250	AO	-	25	16	21	32	39	25	33	35	11	66	39	29	30	19	13	24	36	40
Nitrate + Nitrite (as N)	mg/L	-		-																		
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.18	0.32	0.28	0.12	<0.05	0.34	0.74	0.12	0.66	0.56	0.1	0.22	0.26	0.24	0.47	0.37	0.39
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.06**	<0.05	<0.05	<0.05	**0.09**	**0.16**
Ammonia (as N)	mg/L	-		-	0.1	0.08	0.12	<0.05	0.16	1.38	0.86	0.05	0.07	1.78	2.09	1.13	1.82	<0.03	0.91	0.05	0.09	0.09
Conductance (RCAp)	uS/cm	-		-	233	153	183	193	294	204	232	237	102	439	299	212	294	200	142	155	239	263
Total Organic Carbon						6.6		6.2		7.9		5.3		14.9		9.2		10.6		5.3		10.1
pH	units	6.5-8.5	AO	-	7.6	7.6	7.3	7.5	7.9	7.5	7.14	7.47	7.03	7.74	7.24	7.18	7.48	7.21	6.91	6.96	7.06	7.15
TDS (Calculated)	mg/L	≤500	AO	-	128	20	138	122	184	104	56	122	24	192	118	72	198	74	126	114	322	130
Total Kjeldahl Nitrogen as N	mg/L	-		-	2.6	<0.4	0.4	1.17	0.8	1.1	2.4	0.5	0.7	2.5	3.4	1.6	3.1	0.6	1.1	<0.4	1.2	0.6
Total Phosphorous as P	mg/L	-		-	0.06	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	0.03	0.04	0.11	0.1	0.09	0.05	1.2	0.07	<0.03	0.1
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				4	2	<2	<2	2	<2	<2	<2	2	<2	2	2	4	<2	<2	2	<2	2
Chemical Oxygen Demand	mg/L	-		-	41	21	25	14	26	<3	14	<3	22	41	20	20	38	26	14	8	15	28
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0,001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2619165	2870254	3053920	3257012	3531795	3856971	4105813	4306859	4587461	4906321	5143112	5328857	5610894	6020873		6534428	6748943	7147203
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2		<2		<2		<2
Barium	µg/L	1000	MAC	-		9		5		11		6		12		25		13		6		35
Boron	µg/L	5000	MAC	1500		81		65		84		65		63		32		65		41		66
Cadmium	µg/L	5	MAC	0.017		<0.3		<0.3		<0.3		<0.3		<0.017		<0.017		<0.017		<0.017		<0.017
Chromium	µg/L	50	MAC	-		<2		<2		**157**		<2		<1		<1		<1		<1		<1
Copper	µg/L	≤1000	AO	2-4		3		<2		<2		<2		<2		<2		2		<2		<2
Iron	µg/L	≤300	AO	300		**530**		**410**		**660**		**610**		**660**		**2760**		**450**		**480**		**380**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		1.5		<0.5		<0.5		<0.5		<0.5		<0.5
Mercury	µg/L	1	MAC	0.026		<0.05		<0.05		<0.05		<0.05		<0.026		<0.026		<0.026		<0.026		<0.026
Zinc	µg/L	≤5000	AO	30		<5		<5		<5		7		<5		8		<5		8		5

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Table 1 Surface Water Analysis Results- MODL Landfill, Lunenburg, NS (Project #

SW-W3 Formally S-6A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	S6A 27/01/2016	S6A 26/04/2016	S6A 27/07/2016	S6A 27/10/2016	W3 Jun 14, 2017	W3 Nov 1, 2017	W3 06/28/18	W3 10/17/18	W3 06/20/19	W3 10/22/19	W3 06/18/20	W3 11/04/20	W3 11/2/21	W3 11/9/22	W3 11/8/23	W3 10/30/24
TABLE 1 : Water Quality Analysis - General Chemistry																				
					7354848	7515055	7740469	7964953	8471034	8873143	9367808	9632636	293719	641386	1210752	1647834		4507208	5441087	6277664
Alkalinity (as $CaCO_3$)	mg/L	-		-	23	68	97	28	59	67	61	22	52	33	89	22	71	66	44	75
Sulphate	mg/L	≤500	AO	-	13	8	4	43	8	7	10	36	5	40	11	38	5	9	6	8
Chloride	mg/L	≤250	AO	-	25	44	52	31	29	53	35	19	22	37	52	39	40	34	18	88
Nitrate + Nitrite (as N)	mg/L	-		-		1.1														
Nitrate (as N)	mg/L	10	MAC	13	0.49	<0.05	<0.05	0.23	0.08	<0.05	0.16	0.44	0.33	0.05	0.48	0.38	0.29	<0.05	0.1	0.1
Nitrite	mg/L	3.2	MAC	0.06	<0.05		**0.21**	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**	<0.05	<0.05	<0.05	<0.05	**0.16**
Ammonia (as N)	mg/L	-		-	0.06	1.09	0.67	0.05	0.08	0.03	0.19	0.06	0.15	0.1	0.06	<0.03	0.24	0.52	0.14	<0.03
Conductance (RCAp)	uS/cm	-		-	178	352	260	232	238	326	294	234	227	298	401	273	322	274	175	493
Total Organic Carbon						9.7		10.8		15.5		10		11.1		11.6	19.5	15.1	11.4	10
pH	units	6.5-8.5	AO	-	6.98	7.49	**7.7**	**6.87**	7.35	7.3	7.52	7.03	7.67	7.49	7.78	7.13	7.55	6.91	**6.46**	7.3
TDS (Calculated)	mg/L	≤500	AO	-	72	180	258	158	168	182	168	140	240	160	260	100	198	224	92	232
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.6	3.3	2.6	0.8	1.4	0.8	<0.4	0.6	3.7	<0.4	1.4	1.2	0.8	0.7	0.52	<0.10
Total Phosphorous as P	mg/L	-		-	0.1	0.18	**0.09**	<0.02	<0.03	0.04	<0.03	0.03	0.12	0.03	<0.03	1.14	<0.02	<0.006	0.073	0.17
Total Suspended Solids	mg/L	-		-	<5	<5	<5	<5	<5	<5	8	<5	11	5	<5	<5	<5	<5	<5	<5
Biochemical Oxygen Demand	mg/L				<2	5	5	<2	<2	<2	4	<2	27	<2	6	<2	<2	<6	<2	<6
Chemical Oxygen Demand	mg/L	-		-	15	24	52	26	30	33	29	33	<2	26	32	30	37	40	24	29
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002		0.001	<0.004	0.003	<0.001	<0.001	<0.001	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan																				
					7354848	7515055	7740469	7964953												
Arsenic	µg/L	10	MAC	5.0		<2		<2		<2		<2		<2		<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-		8		14		10		13		8		9	<2	20	12	10
Boron	µg/L	5000	MAC	1500		91		67		58		63		223		246	360	265	219	271
Cadmium	µg/L	5	MAC	0.017		<0.017		<0.017		<0.017		<0.09		<0.017		<0.017	<0.09	<0.017	<0.017	<0.017
Chromium	µg/L	50	MAC	-		<1		<1		1		<1		<1		<1	<1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4		<2		<2		<2		6		<2		2	3	<2	<2	<2
Iron	µg/L	≤300	AO	300		**410**		220		**660**		190		180		**500**	**684**	**1620**	**1780**	**470**
Lead	µg/L	10	MAC	1-7		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Mercury	µg/L	1	MAC	0.026		<0.026		<0.026		<0.026		<0.026		<0.026		<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30		<5		6		<5		<5		<5		5	<5	<5	<7	6

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the P

Shading and bold indicates exceedence of MAC or AO.

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW4A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	BH4A 21/12/2004	BH4A 5/4/2005	BH4A 8/23/2005	BH4A 11/23/2005	BH4A 5/30/2006	MW4A 12/6/2010	MW4A 10/25/2011
TABLE 1 : Water Quality Analysis - General Chemistry											
									M29372	2181957	2843100
Sodium	mg/L	≤200	AO	-	35.3	37	37	36	39	33.6	29.3
Potassium	mg/L	-		-	1.9	1.1	1.2	1	1.1	0.8	0.8
Calcium	mg/L	-		-	15.2	15	13	14	15	14	11.6
Magnesium	mg/L	-		-	1.4	1.4	1.2	1.3	1.4	1.1	1
Alkalinity (as $CaCO_3$)	mg/L	-		-	100	100	98	100	100	102	101
Sulphate	mg/L	≤500	AO	-	12	7.2	8.1	9	-	8	9
Chloride	mg/L	≤250	AO	-	15	3.9	4.5	4	4	5	6
Nitrate + Nitrite (as N)	mg/L	-		-	0.37	0.1	nd	nd	0.05	0.15	
Nitrate (as N)	mg/L	10	MAC	13	0.35	0.1	nd	nd	0.05	0.15	0.08
Nitrite	mg/L	3.2	MAC	0.06	0.02	nd	0.02	nd	nd	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	2.7	nd	nd	0.07	0.09	0.1	0.06
Dissolved Org. Carbon	mg/L	-		-	< 100	-	-	-	8	2.3	6
Conductance (RCAp)	uS/cm	-		-	242	210	210	210	230	216	215
pH	units	6.5-8.5	AO	-	7.3	6.94	7.97	7.99	8.19	8.3	8.2
TDS (Calculated)	mg/L	≤500	AO	-	151	138	135	137	141	120	134
Total Kjeldahl Nitrogen as N	mg/L	-		-	1.6	0.3	1.3	0.6	0.3	<0.4	1
Total Phosphorous as P	mg/L	-		-	2.2	0.29	0.32	0.28	0.51	0.21	0.12
Total Suspended Solids	mg/L	-		-	883	110	170	36	35	<5	1840
Chemical Oxygen Demand	mg/L	-		-	26	<20	62	nd	20	8	4
Total Phenolics	mg/L	-		-	0.002	nd	nd	nd	nd	<0.001	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan											
					N/A	N/A	N/A	N/A	M29372	2181957	2843100
Arsenic	µg/L	10	MAC	5.0	**6**	3.9	4.4	**5**	**5**	4	4
Barium	µg/L	1000	MAC	-	nd	nd	nd	nd	nd	<5	<5
Boron	µg/L	5000	MAC	1500	110	110	110	130	110	120	95
Cadmium	µg/L	5	MAC	0.017	nd	nd	nd	nd	nd	<0.3	<0.3
Chromium	µg/L	50	MAC	8.9	nd	nd	nd	2	5	<2	<2
Copper	µg/L	≤1000	AO	2-4	nd	nd	nd	nd	nd	<2	<2
Iron	µg/L	≤300	AO	300	nd	nd	nd	nd	nd	<50	<50
Lead	µg/L	10	MAC	1-7	nd	nd	nd	nd	nd	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	**220**	12	31	32	20	12	10
Mercury	µg/L	1	MAC	0.026	nd	nd	nd	nd	nd	<0.05	**0.12**
Zinc	µg/L	≤5000	AO	30	7	nd	nd	nd	nd	<4	<4

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

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Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW4A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW4A 10/10/2012	MW4A 10/16/2013	MW4A 10/16/2014	MW4A 10/15/2015	MW4A 10/19/2017	MW4A Ovt 11, 2018	MW4A 10/9/2019	MW4A 10/22/2020
TABLE 1 : Water Quality Analysis - General Chemistry												
					3806108	**4851899**	**5952059**	**7090096**	**8835073**	**919082**		**1601453**
Sodium	mg/L	≤200	AO	-	35.8	44.8	34.4	34.1	18.2	38	43.6	29.6
Potassium	mg/L	-		-	0.9	1.1	0.8	1.2	1.3	0.9	0.9	1.5
Calcium	mg/L	-		-	13.1	14.1	12.3	16.9	30	15.4	17.5	18
Magnesium	mg/L	-		-	1.2	1.2	1.1	1.2	7.4	1.2	1.2	2.2
Alkalinity (as $CaCO_3$)	mg/L	-		-	97	99	97	93	100	101	97	95
Sulphate	mg/L	≤500	AO	-	8	8	7	8	29	8	9	17
Chloride	mg/L	≤250	AO	-	5	4	5	4	22	5	4	7
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.09	0.07	0.06	0.51	0.12	<0.05	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.07	0.06	<0.03	0.06	<0.03	0.09	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	3.2	2.5	2.5	4.1	3.8	2.8	<0.5	4.3
Conductance (RCAp)	uS/cm	-		-	221	226	242	216	330	226	230	249
pH	units	6.5-8.5	AO	-	8.2	8.06	7.2	8.16	7.32	8.17	8.13	7.97
TDS (Calculated)	mg/L	≤500	AO	-	102	114	168	132	188	100	120	240
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.9	1.2	0.4	1.1	1.2	0.29	<0.4	2.3
Total Phosphorous as P	mg/L	-		-	0.6	0.16	0.6	1.63	1.48	0.55	0.71	<0.03
Total Suspended Solids	mg/L	-		-	452	312	214	1340	4290	256	318	412
Chemical Oxygen Demand	mg/L	-		-	<3	7	13	69	11	11	3	19
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan												
					3806108	**4851899**	**5952059**	**7090096**				
Arsenic	µg/L	10	MAC	5.0	4	4	4	**5**	<2	**5**	4	3
Barium	µg/L	1000	MAC	-	<5	<5	<5	<5	18	<5	<5	6
Boron	µg/L	5000	MAC	1500	146	135	119	132	332	136	118	150
Cadmium	µg/L	5	MAC	0.017	<0.3	**0.024**	**0.033**	**0.042**	<0.017	<0.09	<0.09	<0.09
Chromium	µg/L	50	MAC	8.9	<2	1	1	<1	3	2	2	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	<2	<2	<2	<2	<2
Iron	µg/L	≤300	AO	300	<50	<50	<50	85	260	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	23	3	6	**81**	10	10	3	25
Mercury	µg/L	1	MAC	0.026	**0.6**	**0.093**	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<4	<4	<4	<5	<5	<5	<5	<5

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 20

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Pr

Shading and bold indicates exceedence of MAC or AO.

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* results reporting as CFU/ml

Samples collected on dates indicated.

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW4A

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW4A 10/17/2022	MW4A 10/24/2023	MW4A 10/17/2024
TABLE 1 : Water Quality Analysis - General Chemistry							
					4425303	5394315	6235083
Sodium	mg/L	≤200	AO	-	30.3		33.5
Potassium	mg/L	-		-	1.2		1.4
Calcium	mg/L	-		-	19.7		16.1
Magnesium	mg/L	-		-	2.1		1.9
Alkalinity (as $CaCO_3$)	mg/L	-		-	110	104	97
Sulphate	mg/L	≤500	AO	-	20	12	11
Chloride	mg/L	≤250	AO	-	8	9	5
Nitrate + Nitrite (as N)	mg/L	-		-			
Nitrate (as N)	mg/L	10	MAC	13	0.06	0.52	0.18
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.25	<0.05
Ammonia (as N)	mg/L	-		-	0.04	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	0.5	3.4	1.4
Conductance (RCAp)	uS/cm	-		-	272	231	228
pH	units	6.5-8.5	AO	-	7.45	7.13	8.06
TDS (Calculated)	mg/L	≤500	AO	-	142	154	132
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.34	0.82	<0.10
Total Phosphorous as P	mg/L	-		-	0.299	1.79	454
Total Suspended Solids	mg/L	-		-	210	1620	20
Chemical Oxygen Demand	mg/L	-		-	3	34	<3
Total Phenolics	mg/L	-		-	0.001	0.001	<0.001
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan							
Arsenic	µg/L	10	MAC	5.0	2	<2	<2
Barium	µg/L	1000	MAC	-	8	<50	<5
Boron	µg/L	5000	MAC	1500	94	170	157
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.017	<1
Chromium	µg/L	50	MAC	8.9	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<4
Iron	µg/L	≤300	AO	300	<50	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	5		14
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<7	<5

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.
MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 20
Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Pr
Shading and bold indicates exceedence of MAC or AO.
Underlining and Bold indicate exceedence of PAL Guidelines.
Shading, bold and underlining indicates exceedence of both Community and PAL guideline
* results reporting as CFU/ml
Samples collected on dates indicated.

n/a = no established value (guideline).
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nd = indicates non-detectable concentrations.
nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW104

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-104 1/2/2004	MW-104 07/12/2004	MW-104 04/05/2005	MW-104FD 04/05/2005	MW-104 23/08/2005	MW-104FD 23/08/2005	MW-104 21/11/2005	MW-104FD 21/11/2005
TABLE 1 : Water Quality Analysis - General Chemistry												
					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sodium	mg/L	≤200	AO	-	36.1	38.1	35	35	39	40	40	39
Potassium	mg/L	-		-	1.3	1	0.7	0.8	0.9	1	1	0.9
Calcium	mg/L	-		-	10.3	9.8	9.5	9.8	11	9.8	11	-
Magnesium	mg/L	-		-	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Alkalinity (as $CaCO_3$)	mg/L	-		-	90	89	86	84	82	79	85	
Sulphate	mg/L	≤500	AO	-	<20	15	17	18	20	19	20	20
Chloride	mg/L	≤250	AO	-	5	4	3.4	3.1	4.5	4.4	4	-
Nitrate + Nitrite (as N)	mg/L	-		-	<0.05	nd	0.09	nd	0.06	0.08	0.12	0.11
Nitrate (as N)	mg/L	10	MAC	13	<0.05	nd	0.09	nd	nd	0.06	0.11	0.1
Nitrite	mg/L	3.2	MAC	0.06	<0.1	0.03	nd	nd	0.03	0.02	0.01	0.01
Ammonia (as N)	mg/L	-		-	0.6	nd	nd	nd	0.06	0.06	nd	-
Dissolved Org. Carbon	mg/L	-		-	-	< 50	-	-	-	-	-	-
Conductance (RCAp)	uS/cm	-		-	213	198	200	200	200	200	200	
pH	units	6.5-8.5	AO	-	**8.8**	**8.6**	**9**	**8.88**	**8.6**	**8.79**	**8.67**	**8.65**
TDS (Calculated)	mg/L	≤500	AO	-	139	128	124	124	132	129	134	132
Total Kjeldahl Nitrogen as N	mg/L	-		-	-	1.1	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-		-	-	2.3	-	-	-	-	-	-
Total Suspended Solids	mg/L	-		-	100	14300	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-		-	-	27	-	-	-	-	-	-
Total Phenolics	mg/L	-		-	-	nd	-	-	-	-	-	-

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	µg/L	10	MAC	5.0	**20**	**22**	**16**	**16**	**17**	**17**	**16**	**16**
Barium	µg/L	1000	MAC	-	9	6	nd	nd	nd	nd	nd	nd
Boron	µg/L	5000	MAC	1500	140	140	130	120	130	110	140	140
Cadmium	µg/L	5	MAC	0.017	<0.3	nd	nd	nd	nd	nd	nd	nd
Chromium	µg/L	50	MAC	-	<2	2	nd	nd	nd	nd	3	nd
Copper	µg/L	≤1000	AO	2-4	4	2	nd	nd	nd	2.6	3	nd
Iron	µg/L	≤300	AO	300	**510**	240	nd	nd	nd	nd	nd	nd
Lead	µg/L	10	MAC	1-7	0.7	1.2	nd	nd	nd	nd	nd	nd
Manganese	µg/L	≤50	AO	-	31	16	7.4	8.4	9.3	10	9	9
Mercury	µg/L	1	MAC	0.026	-	nd	nd	nd	nd	**0.04**	nd	nd
Zinc	µg/L	≤5000	AO	30	5	8	5.6	8.6	nd	nd	6	nd

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW104

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-104 30/05/2006	MW-1040D 30/05/2006	MW104 06/12/2010	MW104 03/08/2011	MW104 25/10/2011	MW104 25/01/2012	MW104 01/05/2012	MW104 11/07/2012
TABLE 1 : Water Quality Analysis - General Chemistry												
					M29369	N/A	2181963	2589586	2843146	3080461	3299798	3509887
Sodium	mg/L	≤200	AO	-	nd	-	34.7	37.9	34.5	40.2	47.1	39.6
Potassium	mg/L	-		-	39	-	0.8	0.6	1.2	0.8	0.8	0.7
Calcium	mg/L	-		-	12	-	9.7	7.7	10	9.3	8.4	8.8
Magnesium	mg/L	-		-	0.6	-	0.6		0.5	0.6	0.5	0.4
Alkalinity (as $CaCO_3$)	mg/L	-		-	85	-	85	88	104	90	103	86
Sulphate	mg/L	≤500	AO	-	18	-	16	16	16	19	20	18
Chloride	mg/L	≤250	AO	-	4	-	4	8	8	5	4	5
Nitrate + Nitrite (as N)	mg/L	-		-	0.06	-	0.16					
Nitrate (as N)	mg/L	10	MAC	13	0.06	-	0.16	0.26	0.3	0.18	0.16	0.24
Nitrite	mg/L	3.2	MAC	0.06	nd	-	<0.05		<0.05			
Ammonia (as N)	mg/L	-		-	nd	-	<0.05		<0.05			
Dissolved Org. Carbon	mg/L	-		-	-	-	1.1	5.5	1.5	6.8	2.7	1.1
Conductance (RCAp)	uS/cm	-		-	210	-	203	194	201	224	218	208
pH	units	6.5-8.5	AO	-	**8.8**	-	**8.8**	**8.7**	**8.7**	**8.5**	**9.1**	**8.5**
TDS (Calculated)	mg/L	≤500	AO	-	132	-	122	90	91	60	167	389
						-						
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.1	-	<0.4		0.9			
Total Phosphorous as P	mg/L	-		-	0.53	-	0.17		0.09			
Total Suspended Solids	mg/L	-		-	500	-	8	823	1600	1660	1710	367
Chemical Oxygen Demand	mg/L	-		-	nd	-	9	<3	<3	9	4	<3
Total Phenolics	mg/L	-		-	nd	-	<0.001		<0.001			

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					M29369	N/A	2181963	2589586	2843146	3080461	3299798	3509887
Arsenic	µg/L	10	MAC	5.0	**18**	-	**18**		**21**			
Barium	µg/L	1000	MAC	-	nd	-	<5		6			
Boron	µg/L	5000	MAC	1500	140	-	163		106			
Cadmium	µg/L	5	MAC	0.017	nd	-	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-	8	-	<2		<2			
Copper	µg/L	≤1000	AO	2-4	2	-	<2		5			
Iron	µg/L	≤300	AO	300	nd	-	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	8	-	<2	0.4	<2			
Mercury	µg/L	1	MAC	0.026	nd	-	<0.05		<0.05			
Zinc	µg/L	≤5000	AO	30	7	-	<4		7			

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW104

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW104 10/10/2010	MW104 24/01/2013	MW104 10/04/2013	MW104 18/07/2013	MW104 16/10/2013	MW104 30/01/2014	MW104 03/04/2014	MW104 Jul 17,2014

TABLE 1 : Water Quality Analysis - General Chemistry

					3806148	4091637	4255932	4569112	4851951	5127461	5260048	5589225
Sodium	mg/L	≤200	AO	-	39.8	41.6	37.9	35.6	45.7	39.8	47.2	43.1
Potassium	mg/L	-		-	0.8	0.8	0.8	0.8	0.9	0.5	0.8	0.9
Calcium	mg/L	-		-	9.7	10.6	9.3	10	9.3	9.8	9.1	10.1
Magnesium	mg/L	-		-	0.6	0.5	0.5		0.5	0.4	0.3	0.6
Alkalinity (as $CaCO_3$)	mg/L	-		-	84	82	93	83	85	77	77	75
Sulphate	mg/L	≤500	AO	-	18	20	17	19	18	17	21	20
Chloride	mg/L	≤250	AO	-	5	4	4	7	4	3	5	4
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.41			0.19	0.23	0.17	0.19
Nitrite	mg/L	3.2	MAC	0.06	<0.05		**0.12**	**0.16**	<0.05			
Ammonia (as N)	mg/L	-		-	<0.05				<0.03			
Dissolved Org. Carbon	mg/L	-		-	0.7	<0.5	<0.5	0.8	1.4	1.4	1	1.3
Conductance (RCAp)	uS/cm	-		-	214	228	227	236	225	245	211	243
pH	units	6.5-8.5	AO	-	**8.6**	8.19	**8.51**	**8.54**	8.27	8.41	7.39	8.38
TDS (Calculated)	mg/L	≤500	AO	-	120	49	207	177	56	124	162	152
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4				0.4			
Total Phosphorous as P	mg/L	-		-	0.7				0.1			
Total Suspended Solids	mg/L	-		-	526	389	274	967	238	134	140	169
Chemical Oxygen Demand	mg/L	-		-	<3	10	7	10	<3	5	<3	<3
Total Phenolics	mg/L	-		-	<0.001				<0.001			

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					3806148	4091637	4255932	4569112	4851951	5127461	5260048	5589225
Arsenic	µg/L	10	MAC	5.0	**23**				**21**			
Barium	µg/L	1000	MAC	-	<5				<5			
Boron	µg/L	5000	MAC	1500	155				159			
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	**0.017**	<0.017	<0.017	**0.042**	<0.017
Chromium	µg/L	50	MAC	-	<2				<1			
Copper	µg/L	≤1000	AO	2-4	<2				<2			
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	<2				<2			
Mercury	µg/L	1	MAC	0.026	<0.05				<0.026			
Zinc	µg/L	≤5000	AO	30	<4				<4			

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW104

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW104 16/10/2014	MW104 22/01/2015	MW104 07/05/2015	MW104 30/07/2015	MW104 15/10/2015	MW104 21/01/2016	MW104 19/10/2017	MW104 11/10/2018
TABLE 1 : Water Quality Analysis - General Chemistry												
					5952110	6268629	6520865	6802893	7089872	7341465	8835077	9619085
Sodium	mg/L	≤200	AO	-	35.4	44.7	34.7	38.9	44.1	41.9	38.9	37.6
Potassium	mg/L	-		-	0.7	0.8	0.6	0.6	1	0.8	0.7	0.8
Calcium	mg/L	-		-	9.5	9.9	8.7	8.7	11.9	9.9	8.8	9.9
Magnesium	mg/L	-		-	0.5	0.05	0.5	0.4	0.6	0.5	0.4	0.5
Alkalinity (as $CaCO_3$)	mg/L	-		-	81	88	74	73	78	90	96	85
Sulphate	mg/L	≤500	AO	-	15	17	17	17	18	15	16	14
Chloride	mg/L	≤250	AO	-	4	4	4	4	4	9	4	4
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	1.2	0.18	0.14	0.15	0.21	0.13	0.23	0.14
Nitrite	mg/L	3.2	MAC	0.06	<0.05				<0.05		<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03				<0.03		<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	1.8	2.7	1	1.8	2.4	2.6	<0.5	2.1
Conductance (RCAp)	uS/cm	-		-	242	229	211	203	208	270	217	211
pH	units	6.5-8.5	AO	-	7.33	7.75	8.46	8.25	**8.51**	8.38	8.3	8.42
TDS (Calculated)	mg/L	≤500	AO	-	150	86	140	118	120	132	62	260
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4				<0.4		0.6	<0.1
Total Phosphorous as P	mg/L	-		-	0.22				0.24		1.16	0.37
Total Suspended Solids	mg/L	-		-	169	267	215	250	175	205	892	3800
Chemical Oxygen Demand	mg/L	-		-	<3	<3	<3	<3	9	13	<3	18
Total Phenolics	mg/L	-		-	<0.001				<0.001		<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					5952110	6268629	6520865	6802893	7089872	7341465		
Arsenic	µg/L	10	MAC	5.0	**21**				**22**		**25**	**26**
Barium	µg/L	1000	MAC	-	<5				<5		<5	<5
Boron	µg/L	5000	MAC	1500	144				172		162	168
Cadmium	µg/L	5	MAC	0.017	<0.017	**0.018**	**0.031**	**0.023**	**0.029**	**0.025**	<0.017	<0.09
Chromium	µg/L	50	MAC	-	1				<1		2	1
Copper	µg/L	≤1000	AO	2-4	<2				<2		<2	<2
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	<2				<2		<2	<2
Mercury	µg/L	1	MAC	0.026	<0.026				<0.026		<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<4				<5		6	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW104

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW104 09/10/2019	MW104 22/10/2020	MW104 11/2/2021	MW104 10/17/2022	MW104 10/24/2023	MW104 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					606904	1601457	3164150	4425344	5394319	6235085
Sodium	mg/L	≤200	AO	-	38.5	38.4	39.4	36.8		38.3
Potassium	mg/L	-		-	0.8	0.8	0.7	0.7		0.9
Calcium	mg/L	-		-	9.7	10.5	9	8.9		10.5
Magnesium	mg/L	-		-	0.5	0.6	0.5	0.5		0.6
Alkalinity (as $CaCO_3$)	mg/L	-		-	80	78	79	85	83	79
Sulphate	mg/L	≤500	AO	-	14	21	17	24	19	19
Chloride	mg/L	≤250	AO	-	4	5	4	5	5	6
Nitrate + Nitrite (as N)	mg/L	-		-						
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.18	0.17	0.26	0.18	0.19
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	1.1	2.3	<1	0.9	0.82	1
Conductance (RCAp)	uS/cm	-		-	207	217	229	224	214	219
pH	units	6.5-8.5	AO	-	8.25	8.18	8.14	7.63	7.46	8.26
TDS (Calculated)	mg/L	≤500	AO	-	120	240	136	150	164	168
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.4	8.9	<0.10	0.22	0.13	<0.10
Total Phosphorous as P	mg/L	-		-	0.13	0.11	0.258	0.34	0.766	0.334
Total Suspended Solids	mg/L	-		-	154	290	316	542	364	29
Chemical Oxygen Demand	mg/L	-		-	<3	21	<3	<3	<3	<3
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0	**24**	**23**	**25**	**24**	**22**	**21**
Barium	µg/L	1000	MAC	-	<5	<5	<5	<5	<5	<5
Boron	µg/L	5000	MAC	1500	146	138	133	124	164	164
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.09	<0.09	<0.09	<0.017	<1
Chromium	µg/L	50	MAC	-	1	<1	1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	3	<2	<4
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	<2	<2	<2	<2		<2
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<5	<5	<5	<7	<5

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW105

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-105 1/2/2004	MW-105 5/4/2005	MW-105 8/23/2005	MW-105 11/21/2005	MW-105 5/30/2006	MW105 12/6/2010	MW105 10/25/2011	MW105 10/10/2012
					N/A	N/A	N/A	N/A	M29374	2181962	2843158	3806158
Sodium	mg/L	≤200	AO	-	14.4	15	25	17	17	20	24.3	27.3
Potassium	mg/L	-		-	1.5	0.9	1.2	1.2	1.1	1.2	1.3	1.4
Calcium	mg/L	-		-	22.4	23	26	30	33	68	70.8	79.8
Magnesium	mg/L	-		-	4.4	5.4	4.9	6.9	7.2	13.2	14.6	20.7
Alkalinity (as $CaCO_3$)	mg/L	-		-	75	61	50	56	61	172	199	202
Sulphate	mg/L	≤500	AO	-	10	8.3	6.9	7	6	13	22	27
Chloride	mg/L	≤250	AO	-	17	33	47	53	58	72	71	71
Nitrate + Nitrite (as N)	mg/L	-		-	<0.05	nd	0.11	0.09	0.1	0.27		
Nitrate (as N)	mg/L	10	MAC	13	<0.05	nd	0.1	0.09	0.1	0.27	0.71	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.01	nd	0.01	nd	nd	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.05	nd	0.06	nd	nd	<0.05	<0.05	<0.05
Dissolved Org. Carbon	mg/L	-		-	<50	-	-	-	-	1	5.5	1.4
Conductance (RCAp)	uS/cm	-		-	201	250	260	290	320	580	627	656
pH	units	6.5-8.5	AO	-	7.8	7.86	7.89	7.56	7.94	7.8	8	7.9
TDS (Calculated)	mg/L	≤500	AO	-	133	135	160	166	176	318	392	374
Total Kjeldahl Nitrogen as N	mg/L	-		-	-	-	-	-	0.1	<0.4	<0.4	<0.04
Total Phosphorous as P	mg/L	-		-	-	-	-	-	0.1	0.04	<0.03	0.27
Total Suspended Solids	mg/L	-		-	174	-	-	-	98	<5	115	438
Chemical Oxygen Demand	mg/L	-		-	-	-	-	-	5	11	3	<3
Total Phenolics	mg/L	-		-	-	-	-	-	nd	<0.001	<0.001	<0.001

TABLE 1 : Water Quality Analysis - General Chemistry

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					N/A	N/A	N/A	N/A	M29374	2181962	2843158	3806158
Arsenic	µg/L	10	MAC	5.0	**5**	3.1	4	3	3	4	3	3
Barium	µg/L	1000	MAC	-	16	11	14	13	13	24	27	30
Boron	µg/L	5000	MAC	1500	18	21	27	26	24	37	34	45
Cadmium	µg/L	5	MAC	0.017	<0.3	nd	nd	nd	nd	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-	3	nd	nd	3	nd	3	<2	<2
Copper	µg/L	≤1000	AO	2-4	<2	nd	61	12	nd	<2	<2	<2
Iron	µg/L	≤300	AO	300	<50	nd	nd	nd	nd	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	nd	1.7	nd	nd	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	36	3.7	10	9	3	4	4	5
Mercury	µg/L	1	MAC	0.026	-	nd	nd	nd	nd	<0.05	**0.08**	<0.05
Zinc	µg/L	≤5000	AO	30	<5	5.5	**58**	nd	nd	<4	<4	<4

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW105

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW105 10/16/2013	MW105 10/16/2014	MW105 10/15/2015	MW105 10/19/2017	MW105 10/11/2018	MW105 10/9/2019	MW105 10/22/2020	MW105 11/2/2021
TABLE 1 : Water Quality Analysis - General Chemistry												
					4851984	**5952124**	**7089882**	**8835078**	**9619086**	**606806**	**1601458**	**3164151**
Sodium	mg/L	≤200	AO	-	34	23	35.5	31.5	32.3	38.6	41.4	39.4
Potassium	mg/L	-		-	1.8	1.5	2.6	1.5	1.7	1.7	2.5	2.2
Calcium	mg/L	-		-	77.8	89.8	108	114	115	128	147	122
Magnesium	mg/L	-		-	18.8	18.8	25.3	25.5	27.6	29.2	33.1	32.5
Alkalinity (as $CaCO_3$)	mg/L	-		-	218	214	222	299	292	307	332	354
Sulphate	mg/L	≤500	AO	-	31	33	49	57	59	55	66	65
Chloride	mg/L	≤250	AO	-	64	53	64	79	84	78	92	88
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.72	0.73	0.54	0.29	0.08	0.12	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	4	2.3	1.3	<0.5	<0.5	<0.5	<0.5	3
Conductance (RCAp)	uS/cm	-		-	690	800	723	898	864	946	993	1120
pH	units	6.5-8.5	AO	-	8.02	7.26	7.73	7.47	7.61	7.71	7.7	7.76
TDS (Calculated)	mg/L	≤500	AO	-	334	460	440	160	500	440	**700**	**560**
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.4	<0.4	<0.4	0.9	<0.1	<0.4	1	0.1
Total Phosphorous as P	mg/L	-		-	<0.02	<0.03	0.13	0.16	0.06	0.07	<0.03	0.063
Total Suspended Solids	mg/L	-		-	148	33	53	186	70	150	69	56
Chemical Oxygen Demand	mg/L	-		-	5	8	13	54	5	3	27	10
Total Phenolics	mg/L	-		-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.042
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan												
					4851984	**5952124**	**7089882**					
Arsenic	µg/L	10	MAC	5.0	2	3	2	2	3	2	3	2
Barium	µg/L	1000	MAC	-	30	34	39	45	46	41	68	81
Boron	µg/L	5000	MAC	1500	48	46	60	54	62	43	62	46
Cadmium	µg/L	5	MAC	0.017	**0.017**	<0.017	**0.026**	**0.019**	<0.09	<0.09	<0.09	<0.09
Chromium	µg/L	50	MAC	-	2	3	<1	9	6	5	7	8
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	<2	<2	<2	<2	<2
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	21	3	5	19	7	<2	<2	5
Mercury	µg/L	1	MAC	0.026	**0.042**	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	4	<4	**37**	8	<5	<5	<5	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30(

MW105

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW105 10/17/2022	MW105 10/24/2023	MW105 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					4425345	5394373	6235086
Sodium	mg/L	≤200	AO	-	37.2		37.1
Potassium	mg/L	-		-	2.1		2.6
Calcium	mg/L	-		-	130		142
Magnesium	mg/L	-		-	31.5		35.5
Alkalinity (as $CaCO_3$)	mg/L	-		-	369	383	383
Sulphate	mg/L	≤500	AO	-	70	55	68
Chloride	mg/L	≤250	AO	-	97	86	106
Nitrate + Nitrite (as N)	mg/L	-		-			
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.25	0.22
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.25	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	2.3	2.9	2.6
Conductance (RCAp)	uS/cm	-		-	1070	1100	1130
pH	units	6.5-8.5	AO	-	7.56	7.48	7.73
TDS (Calculated)	mg/L	≤500	AO	-	**614**	**642**	**656**
Total Kjeldahl Nitrogen as N	mg/L	-		-	<0.1	0.17	<0.10
Total Phosphorous as P	mg/L	-		-	0.013	0.1	0.332
Total Suspended Solids	mg/L	-		-	16	35	26
Chemical Oxygen Demand	mg/L	-		-	13	5	5
Total Phenolics	mg/L	-		-	0.003	0.004	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0	3	<2	<2
Barium	µg/L	1000	MAC	-	103	58	57
Boron	µg/L	5000	MAC	1500	45	64	59
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.026	<1
Chromium	µg/L	50	MAC	-	2	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	39	<4
Iron	µg/L	≤300	AO	300	70	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	1.8	<1
Manganese	µg/L	≤50	AO	-	<2		<2
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	28	16

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL gu

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW106 Note for Kevin Difficulty with this tab create a new column and input data into it. Don't use initial column.

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-106 1/2/2004	MW-106 12/7/2004	MW-106 5/4/2005	MW-106 8/23/2005	MW-106 11/21/2005	MW-106 5/30/2006	MW106 12/10/2010
TABLE 1 : Water Quality Analysis - General Chemistry											
										M29375	2195076
Sodium	mg/L	≤200	AO	-	28.2	30.7	34	40	35	37	49.8
Potassium	mg/L	-		-	1.3	1.2	1.5	2.2	1.4	1.6	1.9
Calcium	mg/L	-		-	8.5	34.1	40	61	45	66	127
Magnesium	mg/L	-		-	0.9	4.1	4.3	7	4.8	7.5	30.3
Alkalinity (as $CaCO_3$)	mg/L	-		-	<500	130	140	200	150	210	431
Sulphate	mg/L	≤500	AO	-	10	8	7.8	9.7	11	12	55
Chloride	mg/L	≤250	AO	-	5	18	22	31	24	39	92
Nitrate + Nitrite (as N)	mg/L	-		-	<5	nd	nd	nd	0.07	nd	<0.05
Nitrate (as N)	mg/L	10	MAC	13	<5	nd	nd	nd	0.06	nd	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.01	0.02	nd	0.02	0.01	nd	<0.05
Ammonia (as N)	mg/L	-		-	<5	nd	nd	nd	nd	nd	0.09
Dissolved Org. Carbon	mg/L	-		-	-	< 50	-	-	-	-	2.2
Conductance (RCAp)	uS/cm	-		-	179	332	380	440	380	520	1090
pH	units	6.5-8.5	AO	-	**8.8**	8	7.91	7.65	7.77	7.78	7.2
TDS (Calculated)	mg/L	≤500	AO	-	382	185	209	285	223	287	**652**
Total Kjeldahl Nitrogen as N	mg/L	-		-	-	0.3	-	-	-	0.2	0.8
Total Phosphorous as P	mg/L	-		-	-	2.3	-	-	-	0.28	<0.03
Total Suspended Solids	mg/L	-		-	360	540	-	-	-	1500	31
Chemical Oxygen Demand	mg/L	-		-	-	36	-	-	-	nd	25
Total Phenolics	mg/L	-		-	-	nd	-	-	-	nd	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					N/A	N/A	N/A	N/A	N/A	M29375	2195076
Arsenic	µg/L	10	MAC	5.0	**19**	**12**	**8.1**	4.6	**7**	4	**5**
Barium	µg/L	1000	MAC	-	16	15	15	21	17	26	82
Boron	µg/L	5000	MAC	1500	56	36	34	29	37	33	1260
Cadmium	µg/L	5	MAC	0.017	<0.3	nd	nd	nd	nd	nd	<0.3
Chromium	µg/L	50	MAC	-	<2	nd	2.3	nd	nd	nd	2
Copper	µg/L	≤1000	AO	2-4	7	nd	nd	nd	nd	nd	<2
Iron	µg/L	≤300	AO	300	**1000**	nd	nd	nd	nd	nd	**3590**
Lead	µg/L	10	MAC	1-7	1.4	0.6	nd	nd	nd	nd	<0.5
Manganese	µg/L	≤50	AO	-	**56**	**240**	**220**	**380**	**270**	**490**	**3250**
Mercury	µg/L	1	MAC	0.026	-	nd	nd	nd	nd	nd	<0.05
Zinc	µg/L	≤5000	AO	30	11	6	6.6	17	5	nd	<4

Notes:

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL guidelines.

* results reporting as CFU/ml

Samples collected on dates indicated.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002

MW106 Note for Kevin Difficulty with

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-106 8/3/2011	MW106 10/25/2011	MW106 1/25/2012	MW106 5/1/2012	MW106 7/11/2012	MW106 10/10/2012	MW106 1/24/2013	MW106 4/10/2013

TABLE 1 : Water Quality Analysis - General Chemistry

					2589610	2843065	3080070	3299803	3509895	3806078	4091606	4255910
Sodium	mg/L	≤200	AO	-	63.8	59	58	61.9	71.4	87	92.3	85.5
Potassium	mg/L	-		-	1.7	2	2.6	2.1	1.8	2.4	2.1	2.4
Calcium	mg/L	-		-	155	143	152	143	153	171	190	169
Magnesium	mg/L	-		-	34.5	31.4	31.2	36.4	46.8	52.1	53.8	54.2
Alkalinity (as $CaCO_3$)	mg/L	-		-	468	498	496	508	529	526	569	591
Sulphate	mg/L	≤500	AO	-	50	54	53	49	52	52	46	41
Chloride	mg/L	≤250	AO	-	94	97	118	130	151	**279**	162	144
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	0.11	<0.05	<0.05	<0.05	0.1	0.19	2.63	
Nitrite	mg/L	3.2	MAC	0.06		<0.05				<0.05		<0.05
Ammonia (as N)	mg/L	-		-		<0.5				0.05		
Dissolved Org. Carbon	mg/L	-		-	21.5	18.7	26.8	6.1	23.1	15.5	3.7	<0.5
Conductance (RCAp)	uS/cm	-		-	1140	1190	1300	1360	1410	1490	1660	1600
pH	units	6.5-8.5	AO	-	7.3	7.1	7.1	6.6	7	7	6.95	7.11
TDS (Calculated)	mg/L	≤500	AO	-	**680**	**750**	**742**	**822**	**916**	**920**	**770**	**868**
Total Kjeldahl Nitrogen as N	mg/L	-		-		0.8				0.9		
Total Phosphorous as P	mg/L	-		-		<0.03				0.11		
Total Suspended Solids	mg/L	-		-	5230	149	1250	1310	401	328	763	306
Chemical Oxygen Demand	mg/L	-		-	18	16	29	19	17	24	30	24
Total Phenolics	mg/L	-		-		<0.001				<0.001		

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2589610	2843065	3080070	3299803	3509895	3806078	4091606	4255910
Arsenic	µg/L	10	MAC	5.0		4				4		
Barium	µg/L	1000	MAC	-		74				108		
Boron	µg/L	5000	MAC	1500		1360				**1940**		
Cadmium	µg/L	5	MAC	0.017	<0.3	<.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-		<2				2		
Copper	µg/L	≤1000	AO	2-4		<2				<2		
Iron	µg/L	≤300	AO	300	**6130**	**10200**	**4270**	209	**14500**	**14300**	**21700**	**4600**
Lead	µg/L	10	MAC	1-7	<0.5	<.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-		**3260**				**3860**		
Mercury	µg/L	1	MAC	0.026		<0.05				<0.05		
Zinc	µg/L	≤5000	AO	30		<4				<4		

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.
MAC and AO values based on CCME Community Water Quality Guidelines (CCMI
Protection of Aquatic Life values based on CCME Water Quality Guidelines for th
Shading and bold indicates exceedence of MAC or AO.
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Shading, bold and underlining indicates exceedence of both Community and PAL guid
* results reporting as CFU/ml
Samples collected on dates indicated.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002

MW106 Note for Kevin Difficulty with

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW106 7/18/2013	MW106 10/16/2013	MW106 1/30/2014	MW106 4/3/2014	MW106 7/17/2014	MW106 10/16/2014	MW106 1/22/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					4569100	4851861	5127433	5260024	5589203	5952003	6268599
Sodium	mg/L	≤200	AO	-	95.7	114	72.9	108	100		112
Potassium	mg/L	-		-	2.4	2.6	1.4	2	4	2.2	2.6
Calcium	mg/L	-		-	187	166	177	199	176	167	165
Magnesium	mg/L	-		-	58.2	54.5	43.2	38.7	57.5	51.7	61.3
Alkalinity (as $CaCO_3$)	mg/L	-		-	611	611	576	583	591	597	641
Sulphate	mg/L	≤500	AO	-	42	41	35	42	34	34	42
Chloride	mg/L	≤250	AO	-	162	135	121	117	85	82	95
Nitrate + Nitrite (as N)	mg/L	-		-							
Nitrate (as N)	mg/L	10	MAC	13	0.23	0.4	<0.05	<0.05	0.53	<0.05	0.71
Nitrite	mg/L	3.2	MAC	0.06		<0.05				<0.05	
Ammonia (as N)	mg/L	-		-		0.07				0.05	
Dissolved Org. Carbon	mg/L	-		-	4.7	<0.5	10.5	13.4	14.6	18.1	23.2
Conductance (RCAp)	uS/cm	-		-	1710	1560	1740	1460	1670	1570	1530
pH	units	6.5-8.5	AO	-	7.1	7.1	7.09	**6.36**	7.00	6.54	7.28
TDS (Calculated)	mg/L	≤500	AO	-	470	**834**	**822**	**844**	**822**	**890**	**806**
Total Kjeldahl Nitrogen as N	mg/L	-		-		1.5				1.1	
Total Phosphorous as P	mg/L	-		-		<0.02				1.06	
Total Suspended Solids	mg/L	-		-	1170	704	246	456	288	186	656
Chemical Oxygen Demand	mg/L	-		-	19	84	27	20	29	22	19
Total Phenolics	mg/L	-		-		<0.001				0.001	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					4569100	4851861	5127433	5260024	5589203	5952003	6268599
Arsenic	µg/L	10	MAC	5.0		4				**5**	
Barium	µg/L	1000	MAC	-		108				106	
Boron	µg/L	5000	MAC	1500		**2250**				**2020**	
Cadmium	µg/L	5	MAC	0.017	<0.017	<0.017	**0.023**	<0.017	<0.017	<0.017	**0.019**
Chromium	µg/L	50	MAC	-		2				4	
Copper	µg/L	≤1000	AO	2-4		<2				<2	
Iron	µg/L	≤300	AO	300	**28600**	**17300**	**19100**	**16700**	**15700**	**15400**	**15600**
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-		**3170**				**2720**	
Mercury	µg/L	1	MAC	0.026		<0.036				<0.026	
Zinc	µg/L	≤5000	AO	30		4				4	

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.
MAC and AO values based on CCME Community Water Quality Guidelines (CCMI
Protection of Aquatic Life values based on CCME Water Quality Guidelines for th
Shading and bold indicates exceedence of MAC or AO.
Underlining and Bold indicate exceedence of PAL Guidelines.
Shading, bold and underlining indicates exceedence of both Community and PAL guid
* results reporting as CFU/ml
Samples collected on dates indicated.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002

MW106 Note for Kevin Difficulty with

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW106 5/7/2015	MW106 7/30/2015	MW106 10/15/2015	MW106 1/21/2016	MW106 10/19/2017	MW106 11-10-2018	MW106 09-10-2019	MW106 10/22/2020

TABLE 1 : Water Quality Analysis - General Chemistry

					6520837	6802867	7089673	7341427	8835070	9619079	606799	1601450
Sodium	mg/L	≤200	AO	-	84.7	90.8	106	93.8	98.9	83.5	86.2	78.6
Potassium	mg/L	-		-	1.8	1.6	4.2	2.9	2.1	1.6	1.3	2.5
Calcium	mg/L	-		-	153	187	178	167	155	157	165	173
Magnesium	mg/L	-		-	52.9	59.6	66.5	55.5	52.5	64.7	62.6	62.7
Alkalinity (as $CaCO_3$)	mg/L	-		-	562	586	600	668	661	636	602	606
Sulphate	mg/L	≤500	AO	-	36	2	42	33	31	25	31	35
Chloride	mg/L	≤250	AO	-	87	83	76	66	72	66	79	88
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.11	<0.05	<0.05	0.78	<0.05	<0.05	<0.05
Nitrite	mg/L	3.2	MAC	0.06			<0.05		<0.05	<.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-			<0.03		0.04	<.03	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	14.2	15.9	6.4	6.5	<0.5	<0.5	5.4	5
Conductance (RCAp)	uS/cm	-		-	1400	1350	1360	1510	1420	1340	1400	1380
pH	units	6.5-8.5	AO	-	6.98	6.95	6.99	7.00	6.93	7.12	7.17	7.04
TDS (Calculated)	mg/L	≤500	AO	-	**806**	**856**	**852**	**836**	**796**	780	780	960
Total Kjeldahl Nitrogen as N	mg/L	-		-			0.7		0.7	0.52	<0.4	3.5
Total Phosphorous as P	mg/L	-		-			0.19		0.23	0.18	0.38	<0.03
Total Suspended Solids	mg/L	-		-	244	1000	144	282	230	156	46	340
Chemical Oxygen Demand	mg/L	-		-	12	40	<3	53	18	18	12	35
Total Phenolics	mg/L	-		-			<0.001		<0.001	<0.001	<0.001	0.066

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					6520837	6802867	7089673	7341427	8835070			
Arsenic	µg/L	10	MAC	5.0			3		3	<2	<2	3
Barium	µg/L	1000	MAC	-			101		93	57	53	87
Boron	µg/L	5000	MAC	1500			**2010**		**1540**	1450	**1510**	**1310**
Cadmium	µg/L	5	MAC	0.017	<0.017	<0.017	**0.023**	<0.017	<0.017	<0.09	<0.09	<0.09
Chromium	µg/L	50	MAC	-			<1		27	10	11	<1
Copper	µg/L	≤1000	AO	2-4			<2		<2	>2	<2	<2
Iron	µg/L	≤300	AO	300	**5160**	**17600**	**15200**	**10300**	**8900**	7000	**12400**	**13800**
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-			**2820**		**1870**	30400	**1770**	**1720**
Mercury	µg/L	1	MAC	0.026			<0.026		<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30			7		<5	<5	<5	<5

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.
MAC and AO values based on CCME Community Water Quality Guidelines (CCMI
Protection of Aquatic Life values based on CCME Water Quality Guidelines for th
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* results reporting as CFU/ml
Samples collected on dates indicated.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002

MW106 Note for Kevin Difficulty with

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW106 11-02-2021	MW106 10/17/2022	MW106 10-24-2023	MW106 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					3164121	**4425335**	**5394312**	**6235071**
						avg		
Sodium	mg/L	≤200	AO	-	79.6	57.2		64.8
Potassium	mg/L	-		-	2.6	2.5		3.16
Calcium	mg/L	-		-	153	129		145
Magnesium	mg/L	-		-	63	48.1		55.3
Alkalinity (as $CaCO_3$)	mg/L	-		-	599	614	569	549
Sulphate	mg/L	≤500	AO	-	32	29	29	26
Chloride	mg/L	≤250	AO	-	83	83	77	77
Nitrate + Nitrite (as N)	mg/L	-		-				
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	<0.05	0.1
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	0.08	0.08	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	13	6,4	6.7	0.5
Conductance (RCAp)	uS/cm	-		-	1470	1360	1280	1280
pH	units	6.5-8.5	AO	-	7.21	7.07	6.98	7.31
TDS (Calculated)	mg/L	≤500	AO	-	770	**738**	**744**	**770**
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.48	0.47	0.58	0.26
Total Phosphorous as P	mg/L	-		-	0.079	0.239	0.614	
Total Suspended Solids	mg/L	-		-	658	151	325	1.61
Chemical Oxygen Demand	mg/L	-		-	18	20	16	3
Total Phenolics	mg/L	-		-	0.049	0.063	0.006	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

						avg		
Arsenic	µg/L	10	MAC	5.0	<2	2	<2	<2
Barium	µg/L	1000	MAC	-	121	157	81	92
Boron	µg/L	5000	MAC	1500	**1310**	1190	**1630**	**1910**
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.09	<0.017	<1
Chromium	µg/L	50	MAC	-	28	5	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	<4
Iron	µg/L	≤300	AO	300	**510**	**10700**	**6030**	**9480**
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	**1460**	**1470**		**1560**
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<0.5	<7	<5

Notes:

MAC = Maximum Concentration; **AO** = Aesthetic Objective.
MAC and AO values based on CCME Community Water Quality Guidelines (CCMI
Protection of Aquatic Life values based on CCME Water Quality Guidelines for th
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Samples collected on dates indicated.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW107

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW-107 1/2/2004	MW-107 12/7/2004	MW-107 5/4/2005	MW-107 8/23/2005	MW-107 11/21/2005	MW-107 5/30/2006	MW107 12/10/2010	MW-107 8/3/2011
TABLE 1 : Water Quality Analysis - General Chemistry												
					N/A	N/A	N/A	N/A	N/A	M29376	2195063	2589615
Sodium	mg/L	≤200	AO	-	29.8	49.9	69	75	89	160	102	140
Potassium	mg/L	-		-	2.3	2.1	2.3	2.5	2.7	3.1	4.9	6.9
Calcium	mg/L	-		-	99.8	162	170	170	170	190	149	213
Magnesium	mg/L	-		-	27.1	49	51	49	49	60	41.3	63.7
Alkalinity (as $CaCO_3$)	mg/L	-		-	330	460	460	530	490	660	650	765
Sulphate	mg/L	≤500	AO	-	15	13	15	12	13	18	99	62
Chloride	mg/L	≤250	AO	-	61	180	210	180	200	250	105	230
Nitrate + Nitrite (as N)	mg/L	-		-	<0.05	nd	nd	nd	nd	nd	<0.05	
Nitrate (as N)	mg/L	10	MAC	13	<0.05	nd	nd	nd	nd	nd	<0.05	0.21
Nitrite	mg/L	3.2	MAC	0.06	<0.01	nd	nd	0.02	nd	nd	<0.05	
Ammonia (as N)	mg/L	-		-	<0.05	nd	nd	nd	nd	nd	6.66	
Dissolved Org. Carbon	mg/L	-		-	-	<50	-	-	-	-	7.6	36.3
Conductance (RCAp)	uS/cm	-		-	845	1540	1500	1300	1400	1900	1530	1990
pH	units	6.5-8.5	AO	6.5 to 9	7.7	6.8	6.82	6.59	6.65	6.67	7.4	7.3
TDS (Calculated)	mg/L	≤500	AO	-	458	**767**	**826**	**838**	**849**	**1080**	**960**	**1239**
Total Kjeldahl Nitrogen as N	mg/L	-		-	-	0.4	-	-	-	1.4	8.5	
Total Phosphorous as P	mg/L	-		-	-	1.1	-	-	-	1.6	0.14	
Total Suspended Solids	mg/L	-		-	2560	8580	-	-	-	1300	<5	154
Chemical Oxygen Demand	mg/L	-		-	-	104	-	-	-	82	55	76
Total Phenolics	mg/L	-		-	-	nd	-	-	-	0.001	<0.001	
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan												
					N/A	N/A	N/A	N/A	N/A	M29376	2195063	2589615
Arsenic	µg/L	10	MAC	5.0	2	< 20	<20	<20	**<u>20</u>**	nd	2	
Barium	µg/L	1000	MAC	-	72	< 50	<50	<50	50	nd	15	
Boron	µg/L	5000	MAC	1500	33	280	740	740	890	**<u>2100</u>**	**<u>3420</u>**	
Cadmium	µg/L	5	MAC	0.017	<0.3	< 3	<3	<3	**<u>3</u>**	nd	**<u>2.2</u>**	<0.3
Chromium	µg/L	50	MAC	8.9	4	< 20	<20	<20	**<u>20</u>**	nd	4	
Copper	µg/L	≤1000	AO	2-4	<3	< 20	<20	<20	20	nd	49	
Iron	µg/L	≤300	AO	300	<50	< 500	**<u>1600</u>**	**<u>1300</u>**	**<u>860</u>**	nd	180	<50
Lead	µg/L	10	MAC	1-7	<0.5	< 5	<5	<5	5	nd	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	**1200**	**410**	**600**	**390**	**380**	**360**	**10300**	
Mercury	µg/L	1	MAC	0.026	-	**<u>0.06</u>**	**<u>0.06</u>**	0.02	**<u>0.04</u>**	**<u>0.11</u>**	<0.05	
Zinc	µg/L	≤5000	AO	30	10	< 50	<50	<50	**<u>50</u>**	nd	5	

Notes:

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW107

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW107 10/25/2011	MW107 1/25/2012	MW107 5/1/2012	MW107 7/11/2012	MW107 10/10/2012	MW107 1/24/2013	MW107 4/10/2013	MW107 7/18/2013	MW107 10/16/2013
TABLE 1 : Water Quality Analysis - General Chemistry													
					2843078	**3080081**	**3299808**	**3509901**	**3806088**	**4091612**	**4255917**	**4569107**	**4851873**
Sodium	mg/L	≤200	AO	-	117	111	122	111	136	132	117	108	143
Potassium	mg/L	-		-	8.8	12.8	8.3	8.8	10.3	9.2	9.9	15	20.1
Calcium	mg/L	-		-		207	208	178	209	215	200	194	185
Magnesium	mg/L	-		-	55.3	55.7	62.1	62.9	64.1	64.5	60.2	55.7	58.7
Alkalinity (as $CaCO_3$)	mg/L	-		-	799	795	778	821	798	797	841	779	779
Sulphate	mg/L	≤500	AO	-	46	40	36	34	30	26	42	64	65
Chloride	mg/L	≤250	AO	-	234	244	205	199	216	188	160	161	147
Nitrate + Nitrite (as N)	mg/L	-		-									
Nitrate (as N)	mg/L	10	MAC	13	0.12	0.76	0.22	1.59	<0.25	2.84		0.25	0.08
Nitrite	mg/L	3.2	MAC	0.06	<0.05				<0.25		**0.81**		**0.26**
Ammonia (as N)	mg/L	-		-	11.8				12.7				15.9
Dissolved Org. Carbon	mg/L	-		-	33.6	35.7	29.6	26.4	28.5	15.1	<0.5	4.8	10.4
Conductance (RCAp)	uS/cm	-		-	2000	2080	1940	2000	2040	2170	2070	2080	1910
pH	units	6.5-8.5	AO	6.5 to 9	7.2	7.1	6.8	7.2	7.2	7.01	7.14	7.24	7.11
TDS (Calculated)	mg/L	≤500	AO	-	**1220**	**1220**	**1200**	**1210**	**1170**	**984**	**1090**	**1100**	**1110**
Total Kjeldahl Nitrogen as N	mg/L	-		-	11.2				76.8				16.5
Total Phosphorous as P	mg/L	-		-	<0.03				<0.03				<0.02
Total Suspended Solids	mg/L	-		-	1490	486	515	233	263	241	114	75	70
Chemical Oxygen Demand	mg/L	-		-	60	70	66	67	67	73	62	61	22
Total Phenolics	mg/L	-		-	<0.001				<0.001				0.003
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan													
					2843078	**3080081**	**3299808**	**3509901**	**3806088**	**4091612**	**4255917**	**4569107**	**4851873**
Arsenic	µg/L	10	MAC	5.0	2				<2				<2
Barium	µg/L	1000	MAC	-	11				10				7
Boron	µg/L	5000	MAC	1500	**3750**				**3320**				**3390**
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	**0.156**	**0.142**
Chromium	µg/L	50	MAC	8.9	4				4				7
Copper	µg/L	≤1000	AO	2-4	4				5				6
Iron	µg/L	≤300	AO	300	<50	<50	<50	71	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	**21800**				**21700**				**28400**
Mercury	µg/L	1	MAC	0.026	**0.1**				<0.05				**0.037**
Zinc	µg/L	≤5000	AO	30	<4				<4				<4

Notes:

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW107

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW107 1/30/2014	MW107 4/3/2014	MW107 7/17/2014	MW107 10/16/2014	MW107 1/22/2015	MW107 5/7/2015	MW107 7/30/2015	MW107 10/15/2015	MW107 1/21/2016

TABLE 1 : Water Quality Analysis - General Chemistry

					2127438	5260030	5589208	5952027	6268604	6520842	6802872	7089683	7341432
Sodium	mg/L	≤200	AO	-	85.1	126	111		118	79.5	82	103	88.8
Potassium	mg/L	-		-	12	8.3	17	10.8	16.7	7.1	7.5	21.3	14.2
Calcium	mg/L	-		-	194	219	189	186	189	162	194	207	203
Magnesium	mg/L	-		-	45.8	43.5	55.9	53.8	63.4	52.1	53.7	68.5	62.5
Alkalinity (as $CaCO_3$)	mg/L	-		-	699	715	698	706	519	628	164	684	746
Sulphate	mg/L	≤500	AO	-	47	54	37	32	32	24	2	28	22
Chloride	mg/L	≤250	AO	-	145	155	104	99	137	147	146	166	132
Nitrate + Nitrite (as N)	mg/L	-		-									
Nitrate (as N)	mg/L	10	MAC	13	0.11	0.13	1.13	0.13	0.74	<0.05	0.15	0.19	0.18
Nitrite	mg/L	3.2	MAC	0.06				<0.05				<0.05	
Ammonia (as N)	mg/L	-		-				12				10.1	
Dissolved Org. Carbon	mg/L	-		-	25.7	20.7	0.9	33.9	36.6	24.2	58.3	16.3	20.4
Conductance (RCAp)	uS/cm	-		-	2050	1760	1980	1950	1830	1620	1530	1690	1750
pH	units	6.5-8.5	AO	6.5 to 9	7.17	**6.48**	7.12	6.75	7.42	7.04	7.01	6.96	7.1
TDS (Calculated)	mg/L	≤500	AO	-	**1040**	**982**	**1050**	**1050**	**994**	**942**	**964**	**1030**	**1070**
Total Kjeldahl Nitrogen as N	mg/L	-		-				14.9				11	
Total Phosphorous as P	mg/L	-		-				0.07				0.18	
Total Suspended Solids	mg/L	-		-	232	112	106	50	52	29	61	100	31
Chemical Oxygen Demand	mg/L	-		-	58	53	61	57	54	45	52	61	55
Total Phenolics	mg/L	-		-				0.002				<0.001	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2127438	5260030	5589208	5952027	6268604	6520842	6802872	7089683	7341432
Arsenic	µg/L	10	MAC	5.0				2				<2	
Barium	µg/L	1000	MAC	-				5				<5	
Boron	µg/L	5000	MAC	1500				**2880**				**3120**	
Cadmium	µg/L	5	MAC	0.017	**0.076**	**0.074**	**0.142**	**0.139**	**0.159**	**0.157**	**0.181**	**0.134**	**0.1**
Chromium	µg/L	50	MAC	8.9				8				<1	
Copper	µg/L	≤1000	AO	2-4				3				3	
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-				**3100**				**31000**	
Mercury	µg/L	1	MAC	0.026				<0.026				<0.026	
Zinc	µg/L	≤5000	AO	30				6				<5	

Notes:

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

Shading and bold indicates exceedence of MAC or AO.

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Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW107

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW107 10/19/2017	MW107 10/11/2018	MW107 10/9/2019	Mw107 10/22/2020	MW107 11/2/2021	MW107 10/17/2022	MW107 10/24/2023	MW107 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					8835071		606800	1601451	3164147	4425336	5394313	6235080
Sodium	mg/L	≤200	AO	-	82.5	89	94.9	84.4	18.5	89.6		94.6
Potassium	mg/L	-		-	15.5	9.5	2.3	15.3	3	13.7		15.2
Calcium	mg/L	-		-	192	211	214	179	28.7	162		162
Magnesium	mg/L	-		-	57.9	64.7	8.3	57.8	9.5	52.9		52.2
Alkalinity (as $CaCO_3$)	mg/L	-		-	762	742	680	689	706	703	599	623
Sulphate	mg/L	≤500	AO	-	54	44	45	45	47	41	37	22
Chloride	mg/L	≤250	AO	-	11	141	177	165	156	172	104	138
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	0.77	<0.05	0.49	0.15	<0.05	0.11	0.64	0.27
Nitrite	mg/L	3.2	MAC	0.06	**0.09**	**0.09**	**0.24**	**0.2**	**0.28**	<0.05	**1.05**	<0.05
Ammonia (as N)	mg/L	-		-	11.4	4.24	8.44	6.78	1.62	7.59	2.71	2.95
Dissolved Org. Carbon	mg/L	-		-	11.7	21.7	25.9	17.1	20	20	19	18
Conductance (RCAp)	uS/cm	-		-	1870	1820	1840	1750	1920	1700	1450	1610
pH	units	6.5-8.5	AO	6.5 to 9	6.84	7.08	7.09	6.99	7.31	7.02	6.96	7.3
TDS (Calculated)	mg/L	≤500	AO	-	**1080**	**1100**	**1120**	**1200**	**970**	**940**	**900**	**910**
Total Kjeldahl Nitrogen as N	mg/L	-		-	11.3	11.5	11.2	24	9.38	9.46	7.92	4.08
Total Phosphorous as P	mg/L	-		-	<0.03	0.04	0.1	<0.03	0.058	0.06	0.086	0.145
Total Suspended Solids	mg/L	-		-	53	48	40	48	19	38	38	21
Chemical Oxygen Demand	mg/L	-		-	58	53	54	73	61	57	45	48
Total Phenolics	mg/L	-		-	<0.001	0.003	0.002	0.057	0.048	0.067	0.007	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0	<2	<2	<2	<2	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-	6	6	<5	<5	6	6	5	6
Boron	µg/L	5000	MAC	1500	**2910**	**3270**	**3400**	**3160**	597	**3470**	**4020**	**4040**
Cadmium	µg/L	5	MAC	0.017	**0.092**	<0.09	<0.09	<0.09	<0.09	<0.09	**0.03**	<1
Chromium	µg/L	50	MAC	8.9	**30**	**14**	2	<1	**28**	8	<4	<1
Copper	µg/L	≤1000	AO	2-4	5	3	<2	3	6	3	4	<4
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	100	90	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	**31000**	**30400**	**27100**	**29100**	**4110**	**23900**		**22400**
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	11	<5	<5	<5	<5	<5	<7	<5

Notes:

MAC = Maximum Concentration; **AO =** Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

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nd = indicates non-detectable concentrations.

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW211

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW211 12/10/2010	MW-211 8/3/2011	MW211 10/25/2011	MW211 1/25/2012	MW211 5/1/2012	MW211 7/11/2012	MW211 10/10/2012	MW211 1/24/2013
TABLE 1 : Water Quality Analysis - General Chemistry												
					2195104	**2589650**	**2843170**	**3080190**	**3299829**	**3509949**	**3806168**	**4091642**
Sodium	mg/L	≤200	AO	-	77.9	78.7	59.3	55	49.3	47.6	47.3	56.5
Potassium	mg/L	-		-	2.6	1.7	1.8	2	1.3	1	1.1	1.1
Calcium	mg/L	-		-	17.4	18.5	21.9	28	19.2	14	9.9	11.1
Magnesium	mg/L	-		-	2.1	3.5	4.7	7.4	4.4	2.3	2.1	2.7
Alkalinity (as $CaCO_3$)	mg/L	-		-	145	210	193	202	142	132	110	111
Sulphate	mg/L	≤500	AO	-	72	5	13	17	20	21	20	19
Chloride	mg/L	≤250	AO	-	20	23	23	25	10	6	6	7
Nitrate + Nitrite (as N)	mg/L	-		-	0.26							
Nitrate (as N)	mg/L	10	MAC	13	0.21	<0.05	<0.05	<0.05	0.05		<0.05	0.31
Nitrite	mg/L	3.2	MAC	0.06	0.05		<0.05			<0.05	<0.05	
Ammonia (as N)	mg/L	-		-	<0.05		<0.05				<0.05	
Dissolved Org. Carbon	mg/L	-		-	12.6	10.9	5.1	7.4	2.9	1.9	1.4	<0.5
Conductance (RCAp)	uS/cm	-		-	462	447	445	484	326	299	273	292
pH	units	6.5-8.5	AO	-	**8.5**	8.2	8.1	7.9	8.2	8	8.2	7.95
TDS (Calculated)	mg/L	≤500	AO	-	278	146	250	268	200	170	156	54
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.9		0.5				<0.4	
Total Phosphorous as P	mg/L	-		-	0.71		<0.03				0.28	
Total Suspended Solids	mg/L	-		-	810	213	255	583	194	156	238	369
Chemical Oxygen Demand	mg/L	-		-	54	19	20	19	12	<3	<3	7
Total Phenolics	mg/L	-		-	<0.001		0.036				0.006	
TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan												
					2195104	**2589650**	**2843170**	**3080190**	**3299829**	**3509949**	**3806168**	**4091642**
Arsenic	µg/L	10	MAC	5.0	2		<2				<2	
Barium	µg/L	1000	MAC	-	9		20				7	
Boron	µg/L	5000	MAC	1500	216		195				120	
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-	5		<2				<2	
Copper	µg/L	≤1000	AO	2-4	3		<2				<2	
Iron	µg/L	≤300	AO	300	<50	178	150	**967**	105	60	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	**86**		**830**				**138**	
Mercury	µg/L	1	MAC	0.026	**0.15**		**0.05**				<0.05	
Zinc	µg/L	≤5000	AO	30	<4		11				<4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

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MW211

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW211 4/9/2013	MW211 7/18/2013	MW211 10/16/2013	MW211 1/30/2014	MW211 4/3/2014	MW211 7/17/2014	MW211 10/16/2014	MW211 1/22/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					4255939	4569127	4852002	5127467	5260053	5589230	5952209	6268634
Sodium	mg/L	≤200	AO	-	49.9	47.4	68.6	48.7	60.5	55.3	44.4	59.8
Potassium	mg/L	-		-	1.2	1.1	1.6	0.7	1.1	1.2	0.9	0.9
Calcium	mg/L	-		-	25.1	18.6	22.5	9.8	11.2	9.8	7.9	7.3
Magnesium	mg/L	-		-	4.2	3.4	6.4	1.7	1.8	2.4	1.6	1.8
Alkalinity (as $CaCO_3$)	mg/L	-		-	161	154	159	101	104	96	104	108
Sulphate	mg/L	≤500	AO	-	16	21	23	16	24	17	13	15
Chloride	mg/L	≤250	AO	-	12	10	16	4	6	4	4	5
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Nitrite	mg/L	3.2	MAC	0.06			<0.05				<0.05	
Ammonia (as N)	mg/L	-		-			<0.03				<0.03	
Dissolved Org. Carbon	mg/L	-		-	<0.5	2.1	3	2.8	2.5	1.6	2.4	2.7
Conductance (RCAp)	uS/cm	-		-	378	390	413	297	277	296	284	262
pH	units	6.5-8.5	AO	-	7.93	7.99	8.13	8.26	7.45	**8.84**	8.42	**8.69**
TDS (Calculated)	mg/L	≤500	AO	-	220	204	204	132	182	148	174	116
Total Kjeldahl Nitrogen as N	mg/L	-		-			0.6				<0.4	
Total Phosphorous as P	mg/L	-		-			<0.02				0.19	
Total Suspended Solids	mg/L	-		-	56	115	1880	122	142	114	46	122
Chemical Oxygen Demand	mg/L	-		-	7	<3	<3	8	6	7	10	6
Total Phenolics	mg/L	-		-			0.009				0.004	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					4255939	4569127	4852002	5127467	5260053	5589230	5952209	6268634
Arsenic	µg/L	10	MAC	5.0			<2				<2	
Barium	µg/L	1000	MAC	-			13				<5	
Boron	µg/L	5000	MAC	1500			229				115	
Cadmium	µg/L	5	MAC	0.017	<0.3	**0.05**	<0.017	**0.045**	<0.017	**0.048**	**0.055**	**0.062**
Chromium	µg/L	50	MAC	-			<1				1	
Copper	µg/L	≤1000	AO	2-4			<2				<2	
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Manganese	µg/L	≤50	AO	-			**548**				9	
Mercury	µg/L	1	MAC	0.026			**0.048**				<0.026	
Zinc	µg/L	≤5000	AO	30			5				<4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

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* results reporting as CFU/ml

Samples collected on dates indicated.

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MW211

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW211 5/7/2015	MW211 7/30/2015	MW211 10/15/2015	MW211 1/21/2015	MW211 10/19/2017	MW211 10/11/2018	MW211 10/9/2019	MW211 10/22/2020

TABLE 1 : Water Quality Analysis - General Chemistry

					6520870	6802898	7089901	7341452	8835080	9619088	606807	1601459
Sodium	mg/L	≤200	AO	-	41.5	48	55.6	50.9	47.9	58.5	94.9	70.7
Potassium	mg/L	-		-	0.7	0.9	1.3	0.9	0.9	1.2	1.9	3.4
Calcium	mg/L	-		-	7	9.2	10.2	7.8	9.5	22.5	198	148
Magnesium	mg/L	-		-	1.7	2.2	2.8	1.8	2.5	7.2	77.6	61.6
Alkalinity (as $CaCO_3$)	mg/L	-		-	96	110	112	107	174	144	615	584
Sulphate	mg/L	≤500	AO	-	13	19	19	13	30	17	82	81
Chloride	mg/L	≤250	AO	-	6	10	9	10	21	14	150	110
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.12	<0.05	<0.05	0.16	<0.05	<0.05	0.07
Nitrite	mg/L	3.2	MAC	0.06			<0.05		<0.05	<0.05	**0.24**	**0.15**
Ammonia (as N)	mg/L	-		-			<0.03		<0.03	<0.03	0.16	0.17
Dissolved Org. Carbon	mg/L	-		-	2.5	1.4	3.3	3.1	4.7	1.8	13.7	12.3
Conductance (RCAp)	uS/cm	-		-	251	293	289	299	460	370	1610	1450
pH	units	6.5-8.5	AO	-	**8.95**	8.28	8.44	**9.07**	8.03	**8.81**	7.18	7.16
TDS (Calculated)	mg/L	≤500	AO	-	144	188	154	156	354	140	**960**	**980**
Total Kjeldahl Nitrogen as N	mg/L	-		-			<0.4		<0.4	<0.1	1.2	4.2
Total Phosphorous as P	mg/L	-		-			0.25		0.11	0.11	0.06	<0.03
Total Suspended Solids	mg/L	-		-	48	62	114	146	23	35	9	2990
Chemical Oxygen Demand	mg/L	-		-	9	10	12	<3	10	12	55	62
Total Phenolics	mg/L	-		-			0.002		<0.001	0.002	0.012	0.04

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					6520870	6802898	7089901	7341452				
Arsenic	µg/L	10	MAC	5.0			<2		<2	<2	,2	3
Barium	µg/L	1000	MAC	-			5		5	10	70	69
Boron	µg/L	5000	MAC	1500			144		134	202	849	674
Cadmium	µg/L	5	MAC	0.017	**0.086**	**0.136**	**0.064**	**0.065**	**0.033**	<0.09	<0.09	<0.09
Chromium	µg/L	50	MAC	-			<1		2	2	10	16
Copper	µg/L	≤1000	AO	2-4			<2		<2	<2	3	<2
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	**330**	**1430**
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4
Manganese	µg/L	≤50	AO	-			14		9	**482**	**23700**	**10700**
Mercury	µg/L	1	MAC	0.026			<0.026		<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30			**31**		<5	<5	6	7

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MAC and AO values based on CCME Community Water Quality Guidelines (CCM

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW211

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW211 11/2/2021	MW211 10/17/2022	MW211 10/24/2023	MW211 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					3164152	4425340	5394374	6235082
Sodium	mg/L	≤200	AO	-	60.7	58.3		15.6
Potassium	mg/L	-		-	1.5	2.4		3.3
Calcium	mg/L	-		-	16.7	97.1		32.2
Magnesium	mg/L	-		-	0.1	27.7		6.5
Alkalinity (as $CaCO_3$)	mg/L	-		-	685	461	460	114
Sulphate	mg/L	≤500	AO	-	77	31	37	11
Chloride	mg/L	≤250	AO	-	94	32	70	9
Nitrate + Nitrite (as N)	mg/L	-		-				
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	0.86	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.25	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	0.35	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	4	6.5	10	2.4
Conductance (RCAp)	uS/cm	-		-	1740	970	1140	285
pH	units	6.5-8.5	AO	-	7.49	7.12	7.4	7.74
TDS (Calculated)	mg/L	≤500	AO	-	**876**	**530**	**736**	180
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.34	0.46	0.74	<0.10
Total Phosphorous as P	mg/L	-		-	0.078	0.007	0.063	0.198
Total Suspended Solids	mg/L	-		-	85	17	32	54
Chemical Oxygen Demand	mg/L	-		-	3	21	37	9
Total Phenolics	mg/L	-		-	0.007	0.049	0.005	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-	41	66	22	29
Boron	µg/L	5000	MAC	1500	187	299	439	207
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.09	**0.022**	<1
Chromium	µg/L	50	MAC	-	6	3	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	<4
Iron	µg/L	≤300	AO	300	<50	<50	<180	270
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	2	**5930**		**486**
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<5	<7	5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW212

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW212 12/10/2010	MW-212 8/3/2011	MW212 10/25/2011	MW212 1/25/2012	MW212 5/1/2012	MW212 7/11/2012	MW212 10/10/2012	MW212 1/24/2013
TABLE 1 : Water Quality Analysis - General Chemistry												
					2195114	2589655	2843132	3081633	3299834	3509959	3806138	4091631
Sodium	mg/L	≤200	AO	-	45.1	23.9	48.1	42.9	47.7	43.5	47.9	54.1
Potassium	mg/L	-		-	5	1.6	1.5	1.7	1.1	1	1.1	1
Calcium	mg/L	-		-	8.2	31.6	19.2	17.6	19.3	12.9	10.9	10.4
Magnesium	mg/L	-		-	1	3.4	2.2	2.4	1.9	1.4	1.4	1.3
Alkalinity (as $CaCO_3$)	mg/L	-		-	117	112	156	110	121	126	124	104
Sulphate	mg/L	≤500	AO	-	15	9	9	19	9	17	9	20
Chloride	mg/L	≤250	AO	-	7	13	7	9	6	5	5	7
Nitrate + Nitrite (as N)	mg/L	-		-	<0.05							
Nitrate (as N)	mg/L	10	MAC	13	<0.05	<0.05	<0.05	0.1	<0.05	<0.05	<0.05	0.35
Nitrite	mg/L	3.2	MAC	0.06	<0.05		<0.05				<0.05	
Ammonia (as N)	mg/L	-		-	0.14		<0.05				<0.05	
Dissolved Org. Carbon	mg/L	-		-	5.4	15.5	12.7	3.2	2.3	1.6	3.1	<0.5
Conductance (RCAp)	uS/cm	-		-	263	269	327	271	262	267	267	278
pH	units	6.5-8.5	AO	-	8.4	8	8.2	7.9	8.2	8.2	8.3	7.8
TDS (Calculated)	mg/L	≤500	AO	-	132	104	206	70	166	100	142	56
Total Kjeldahl Nitrogen as N	mg/L	-		-	3.7		3.6				0.4	
Total Phosphorous as P	mg/L	-		-	1.93		<0.03				0.39	
Total Suspended Solids	mg/L	-		-	4230	304	89	1250	774	8620	481	1890
Chemical Oxygen Demand	mg/L	-		-	114	31	47	5	8	<3	14	8
Total Phenolics	mg/L	-		-	<0.001		0.052				0.038	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2195114	2589655	2843132	3081633	3299834	3509959	3806138	4091631
Arsenic	µg/L	10	MAC	5.0	<2		3				<2	
Barium	µg/L	1000	MAC	-	<5		8				8	
Boron	µg/L	5000	MAC	1500	118		83				117	
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-	<2		<2				3	
Copper	µg/L	≤1000	AO	2-4	<2		<2				<2	
Iron	µg/L	≤300	AO	300	<50	57	<50	127	**311**	<50	<50	76
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-	**74**		**779**				**328**	
Mercury	µg/L	1	MAC	0.026	<0.05		<0.05				<0.05	
Zinc	µg/L	≤5000	AO	30	<4		<4				<4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

Shading and bold indicates exceedence of MAC or AO.

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

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nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW212

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW212 4/9/2013	MW212 7/18/2013	MW212 10/16/2013	MW212 1/30/2014	MW212 4/3/2014	MW212 7/17/2014	MW212 10/16/2014	MW212 1/22/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					4255949	4569137	4851940	5127478	5260073	5589240	5952098	6268621
Sodium	mg/L	≤200	AO	-	81.2	101	82.3	51.1	64.2	56.7	45.9	56.5
Potassium	mg/L	-		-	1.1	1	0.9	0.7	1.1	1.2	1	1.1
Calcium	mg/L	-		-	1.3	0.9	4.7	8.6	9.3	10.5	11.8	11.2
Magnesium	mg/L	-		-	0.3	0.1	1.6	1	0.9	1.5	1.3	1.3
Alkalinity (as $CaCO_3$)	mg/L	-		-	148	157	123	94	95	96	106	115
Sulphate	mg/L	≤500	AO	-	62	61	54	22	37	19	20	20
Chloride	mg/L	≤250	AO	-	8	8	4	5	6	4	4	5
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	0.49	0.1	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite	mg/L	3.2	MAC	0.06			<0.05				<0.05	
Ammonia (as N)	mg/L	-		-			0.03				<0.03	
Dissolved Org. Carbon	mg/L	-		-	<0.5	1.5	4	2.4	1.9	1.8	2.5	3.5
Conductance (RCAp)	uS/cm	-		-	440	653	374	307	293	299	310	265
pH	units	6.5-8.5	AO	-	**8.65**	**8.78**	**8.54**	8.17	7.28	8.2	7.25	7.77
TDS (Calculated)	mg/L	≤500	AO	-	340	352	172	134	194	166	152	132
Total Kjeldahl Nitrogen as N	mg/L	-		-			1.6				1.7	
Total Phosphorous as P	mg/L	-		-			0.05				1.4	
Total Suspended Solids	mg/L	-		-	5580	18800	1180	2650	698	340	1470	432
Chemical Oxygen Demand	mg/L	-		-	<3	<3	13	58	6	<3	30	10
Total Phenolics	mg/L	-		-			0.012				<0.001	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					4255949	4569137	4851940	5127478	5260073	5589240	5952098	6268621
Arsenic	µg/L	10	MAC	5.0			2				<2	
Barium	µg/L	1000	MAC	-			20				7	
Boron	µg/L	5000	MAC	1500			124				112	
Cadmium	µg/L	5	MAC	0.017	<0.3	**0.045**	**0.055**	**0.022**	**0.064**	**0.027**	**0.017**	**0.031**
Chromium	µg/L	50	MAC	-			1				2	
Copper	µg/L	≤1000	AO	2-4			<2				<2	
Iron	µg/L	≤300	AO	300	<50	<50	**3020**	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	3.3	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-			**96**				**327**	
Mercury	µg/L	1	MAC	0.026			**0.057**				<0.026	
Zinc	µg/L	≤5000	AO	30			7				<4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCMI

Protection of Aquatic Life values based on CCME Water Quality Guidelines for th

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW212

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW212 5/7/2015	MW212 7/30/2015	MW212 10/15/2015	MW212 1/21/2016	MW212 10/19/2017	MW212 10/11/2018	MW212 10/9/2019	MW212 10/22/2020

TABLE 1 : Water Quality Analysis - General Chemistry

					6520860	6802888	7089857	7341447	8835076	9619084	606804	1601456
Sodium	mg/L	≤200	AO	-	45.8	48.6	55.3	39.6	45.1	44.3	50.8	48.2
Potassium	mg/L	-		-	0.9	0.8	1.5	1	1	1.1	1	1
Calcium	mg/L	-		-	8.5	8.4	7.4	17.9	10.9	11	9.3	9.4
Magnesium	mg/L	-		-	1	0.9	1.3	1.8	1.2	1.4	1	1.2
Alkalinity (as $CaCO_3$)	mg/L	-		-	95	97	105	90	107	95	90	96
Sulphate	mg/L	≤500	AO	-	21	15	20	23	19	19	17	19
Chloride	mg/L	≤250	AO	-	4	4	4	9	4	5	5	5
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13	0.06	<0.05	<0.05	<0.05	0.1	<0.05	<0.05	0.08
Nitrite	mg/L	3.2	MAC	0.06			<0.05		<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-			0.05		<0.03	<0.03	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	2.3	3.1	4.1	4.3	0.9	2.6	2	<0.5
Conductance (RCAp)	uS/cm	-		-	255	244	259	288	261	247	241	247
pH	units	6.5-8.5	AO	-	8.29	8.14	8.41	8	8.14	8.25	8.28	8.14
TDS (Calculated)	mg/L	≤500	AO	-	159	148	124	142	180	140	140	220
Total Kjeldahl Nitrogen as N	mg/L	-		-			1.9		<0.4	0.79	<0.4	0.9
Total Phosphorous as P	mg/L	-		-			1.15		0.49	2.44	0.29	0.03
Total Suspended Solids	mg/L	-		-	1630	554	343	99	532	332	52	263
Chemical Oxygen Demand	mg/L	-		-	22	11	26	5	39	183	6	30
Total Phenolics	mg/L	-		-			0.003		<0.001	<0.001	<0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					6520860	6802888	7089857	7341447				
Arsenic	µg/L	10	MAC	5.0			2		<2	<2	<2	<2
Barium	µg/L	1000	MAC	-			6		6	6	6	<5
Boron	µg/L	5000	MAC	1500			141		128	238	118	125
Cadmium	µg/L	5	MAC	0.017	**0.052**	**0.071**	**0.044**	**0.029**	**0.025**	<0.09	<0.09	<0.09
Chromium	µg/L	50	MAC	-			<1		2	2	1	1
Copper	µg/L	≤1000	AO	2-4			<2		<2	<2	<2	<2
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	≤50	AO	-			**170**		45	**66**	**86**	2
Mercury	µg/L	1	MAC	0.026			<0.026		<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30			8		<5	<5	<5	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCMI

Protection of Aquatic Life values based on CCME Water Quality Guidelines for th

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-300

MW212

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)	Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW212 11/2/2021	MW212 10/17/2022	MW212 10/24/2023	MW212 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					3164149	4425343	5394318	6235084
Sodium	mg/L	≤200	AO	-	46.5	46		47.7
Potassium	mg/L	-		-	0.9	0.9		1.1
Calcium	mg/L	-		-	8.8	8.8		9.5
Magnesium	mg/L	-		-	1.1	1		1.1
Alkalinity (as $CaCO_3$)	mg/L	-		-	93	110	110	103
Sulphate	mg/L	≤500	AO	-	17	18	16	21
Chloride	mg/L	≤250	AO	-	5	5	4	4
Nitrate + Nitrite (as N)	mg/L	-		-				
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.07	0.08	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-	<0.03	0.07	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	2	1.3	2.4	1.3
Conductance (RCAp)	uS/cm	-		-	258	258	251	260
pH	units	6.5-8.5	AO	-	8.14	7.79	8.15	**8.54**
TDS (Calculated)	mg/L	≤500	AO	-	116	148	142	176
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.19	0.17	0.21	<0.01
Total Phosphorous as P	mg/L	-		-	0.2	0.122	0.434	0.246
Total Suspended Solids	mg/L	-		-	98	44	579	350
Chemical Oxygen Demand	mg/L	-		-	6	22	<3	<3
Total Phenolics	mg/L	-		-	0.004	<0.001	0.001	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

Arsenic	µg/L	10	MAC	5.0	<2	<2	<2	<2
Barium	µg/L	1000	MAC	-	6	8	7	<5
Boron	µg/L	5000	MAC	1500	107	111	152	147
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.09	<0.017	<1
Chromium	µg/L	50	MAC	-	1	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	4	<4
Iron	µg/L	≤300	AO	300	<50	<50	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	1.8	<1
Manganese	µg/L	≤50	AO	-	25	20		7
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<5	<7	6

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCMI

Protection of Aquatic Life values based on CCME Water Quality Guidelines for th

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* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-3002)

MW213

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW213 22/12/2010	MW-213 03/08/2011	MW213 25/10/2011	MW213 25/01/2012	MW213 01/05/2012	MW213 11/07/2012	MW213 10/10/2012	MW231 24/01/2013

TABLE 1 : Water Quality Analysis - General Chemistry

					2212264	2589660	2843089	3080086	3299839	3509966	3806098	4091618
Sodium	mg/L	≤200	AO	-	47.8	163	88.9	56.8	50	55	61.6	64.3
Potassium	mg/L	-		-	2.5	2.3	2.3	2	1.1	1.1	1.2	1.1
Calcium	mg/L	-		-	8.8	17.8	12.5	12.1	6.6	7.5	7.6	8.1
Magnesium	mg/L	-		-	1.2	1.7	1.3	1.4	0.9	0.8	0.9	0.8
Alkalinity (as $CaCO_3$)	mg/L	-		-	114	109	111	108	107	106	106	108
Sulphate	mg/L	≤500	AO	-	31	103	137	66	25	19	24	26
Chloride	mg/L	≤250	AO	-	8	6	7	7	5	5	5	5
Nitrate + Nitrite (as N)	mg/L	-		-	0.12							
Nitrate (as N)	mg/L	10	MAC	13	0.12	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	0.39
Nitrite	mg/L	3.2	MAC	0.06	<0.05		<0.05				<0.05	
Ammonia (as N)	mg/L	-		-	0.07		<0.05				0.11	
Dissolved Org. Carbon	mg/L	-		-	3.7	7.4	<0.5	1.7	2.2	2.4	1.4	<0.5
Conductance (RCAp)	uS/cm	-		-	277	428	500	361	273	244	275	303
pH	units	6.5-8.5	AO	-	8.3	**8.5**	8.4	8.2	**9**	8.4	**8.5**	**8.67**
TDS (Calculated)	mg/L	≤500	AO	-	170	270	8	180	174	184	142	46
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.6		0.8				1.6	
Total Phosphorous as P	mg/L	-		-	0.23		0.09				0.34	
Total Suspended Solids	mg/L	-		-	334	1060	1130	952	233	310	276	161
Chemical Oxygen Demand	mg/L	-		-	22	12	6	9	9	<3	22	10
Total Phenolics	mg/L	-		-	<0.001		0.027				0.011	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					2212264	2589660	2843089	3080086	3299839	3509966	3806098	4091618
Arsenic	µg/L	10	MAC	5.0	<2		3				2	
Barium	µg/L	1000	MAC	-	<5		9				<5	
Boron	µg/L	5000	MAC	1500	61		84				145	
Cadmium	µg/L	5	MAC	0.017	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	µg/L	50	MAC	-	<2		<2				<2	
Copper	µg/L	≤1000	AO	2-4	<2		4				<2	
Iron	µg/L	≤300	AO	300	<50	<50	60	<50	239	<50	<50	96
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Manganese	µg/L	≤50	AO	-	**84**		**58**				18	
Mercury	µg/L	1	MAC	0.026	<0.05		**0.33**				**0.12**	
Zinc	µg/L	≤5000	AO	30	<4		7				<4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCME, 2007).

Protection of Aquatic Life values based on CCME Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2007).

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* results reporting as CFU/ml

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nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW213

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW213 10/04/2013	MW213 19/07/2013	MW213 16/10/2013	MW213 30/01/2013	MW213 03/04/2014	MW213 17/07/2014	MW213 16/10/2014	MW213 22/01/2015

TABLE 1 : Water Quality Analysis - General Chemistry

					4255922	4569112	4851885	5127446	5260036	5589214	5952040	6268609
Sodium	mg/L	≤200	AO	-	57.3	58.3	73.8	61.2	82.2	78.7	58.3	79.4
Potassium	mg/L	-		-	1.2	1.2	1.4	0.08	1.1	1.5	1	1.1
Calcium	mg/L	-		-	8.1	8.5	8.2	7.6	6.8	8.8	7.1	6.9
Magnesium	mg/L	-		-	0.9	0.9	1		0.5	1.1	0.8	1
Alkalinity (as $CaCO_3$)	mg/L	-		-	108	105	103	107	102	100	126	126
Sulphate	mg/L	≤500	AO	-	15	17	20	29	44	19	32	35
Chloride	mg/L	≤250	AO	-	6	5	4	4	5	5	5	4
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13		<0.05	0.1	0.08	<0.05	0.05	<0.05	0.09
Nitrite	mg/L	3.2	MAC	0.06	<0.05		<0.05				<0.05	
Ammonia (as N)	mg/L	-		-			0.05				0.04	
Dissolved Org. Carbon	mg/L	-		-	<0.5	<0.5	2.4	1.5	0.8	<0.5	<0.5	3.2
Conductance (RCAp)	uS/cm	-		-	258	276	263	350	324	304	342	344
pH	units	6.5-8.5	AO	-	8.2	8.37	8.18	**9.34**	**6.37**	8.48	**8.66**	**8.87**
TDS (Calculated)	mg/L	≤500	AO	-	228	218	156	270	200	304	278	344
Total Kjeldahl Nitrogen as N	mg/L	-		-			0.4				2.7	
Total Phosphorous as P	mg/L	-		-			0.13				0.3	
Total Suspended Solids	mg/L	-		-	352	102	261	350	686	306	1070	68
Chemical Oxygen Demand	mg/L	-		-	4	<3	<3	13	<3	8	9	<3
Total Phenolics	mg/L	-		-			<0.001				<0.001	

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					4255922	4569112	4851885	5127446	5260036	5589214	5952040	6268609
Arsenic	µg/L	10	MAC	5.0			3				3	
Barium	µg/L	1000	MAC	-			6				<5	
Boron	µg/L	5000	MAC	1500			112				99	
Cadmium	µg/L	5	MAC	0.017	<0.3	**0.069**	**0.053**	**0.072**	**0.161**	**0.088**	**0.08**	**0.017**
Chromium	µg/L	50	MAC	-			<1				<1	
Copper	µg/L	≤1000	AO	2-4			<2				<2	
Iron	µg/L	≤300	AO	300	<50	<50	<50	<50	<50	<50	<50	169
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.5
Manganese	µg/L	≤50	AO	-			12				6	
Mercury	µg/L	1	MAC	0.026			**0.101**				<0.026	
Zinc	µg/L	≤5000	AO	30			<4				4	

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

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Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW213

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW213 07/05/2015	MW213 30/07/2015	MW213 15/10/2015	MW213 21/01/2016	MW213 19/10/2017	MW213 11/10/2018	MW213 09/10/2019	MW213 22/10/2020

TABLE 1 : Water Quality Analysis - General Chemistry

					6520847	6802877	7089693	7341437	8835072	9619081	606801	1601452
Sodium	mg/L	≤200	AO	-	72.4	64.5	85.1	66.1	71.6	72	59.9	55.1
Potassium	mg/L	-		-	1	0.9	1.4	1.1	1.2	0.5	1.1	1.2
Calcium	mg/L	-		-	8.3	7	7.4	7.6	9.1	4.1	7.5	8.5
Magnesium	mg/L	-		-	1	0.8	1	0.9	1.1	1.8	0.9	1
Alkalinity (as $CaCO_3$)	mg/L	-		-	104	101	107	116	114	111	106	106
Sulphate	mg/L	≤500	AO	-	28	35	25	21	23	16	18	23
Chloride	mg/L	≤250	AO	-	4	4	5	13	5	7	6	6
Nitrate + Nitrite (as N)	mg/L	-		-								
Nitrate (as N)	mg/L	10	MAC	13		0.06	0.06	0.05	0.12	<0.05	0.08	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05		<0.05		<0.05	<0.05	<0.05	<0.05
Ammonia (as N)	mg/L	-		-			0.09		0.17	0.16	0.27	0.07
Dissolved Org. Carbon	mg/L	-		-	1.7	0.9	1.8	<0.5	5.5	3.3	<0.5	4.7
Conductance (RCAp)	uS/cm	-		-	323	310	270	345	282	269	270	279
pH	units	6.5-8.5	AO	-	**9.23**	**9.01**	**8.76**	**9.06**	7.64	8.07	8.08	8.19
TDS (Calculated)	mg/L	≤500	AO	-	260	184	202	170	172	420	120	320
Total Kjeldahl Nitrogen as N	mg/L	-		-			0.4		<0.4	<0.1	0.6	2.1
Total Phosphorous as P	mg/L	-		-			0.4		0.51	0.36	0.72	<0.03
Total Suspended Solids	mg/L	-		-	194	360	614	617	138	1320	98	558
Chemical Oxygen Demand	mg/L	-		-	<3	6	16	6	49	16	21	25
Total Phenolics	mg/L	-		-			<0.001		0.008	<0.001	<0.001	0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					6520847	6802877	7089693	7341437				
Arsenic	µg/L	10	MAC	5.0			4		3	4	<2	2
Barium	µg/L	1000	MAC	-			5		16	26	11	10
Boron	µg/L	5000	MAC	1500			103		100	116	89	87
Cadmium	µg/L	5	MAC	0.017	**0.212**	**0.23**	**0.09**	**0.108**	**0.101**	**0.11**	<0.09	<0.09
Chromium	µg/L	50	MAC	-			<1		3	4	2	<1
Copper	µg/L	≤1000	AO	2-4			<2		<2	2	<2	<2
Iron	µg/L	≤300	AO	300	**483**	<50	<50	<50	**450**	**6880**	50	<50
Lead	µg/L	10	MAC	1-7	3.4	<0.5	<0.5	<0.5	3.1	6.7	<0.5	<0.5
Manganese	µg/L	≤50	AO	-			16		**91**	**135**	39	11
Mercury	µg/L	1	MAC	0.026			<0.026		<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30			<5		13	29	<5	<5

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

Shading and bold indicates exceedence of MAC or AO.

Underlining and Bold indicate exceedence of PAL Guidelines.

Shading, bold and underlining indicates exceedence of both Community and PAL gu

* results reporting as CFU/ml

Samples collected on dates indicated.

n/a = no established value (guideline).

- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

Groundwater Analysis Results- MODL Landfill, Lunenburg, NS (Project # 08-30

MW213

Analytes	Units	Guidelines For Canadian Drinking Water Quality (Community)		Canadian Water Quality Guidelines for the Protection of Aquatic Life	MW213 11/2/2021	MW213 10/17/2022	MW213 10/24/2023	MW213 10/17/2024

TABLE 1 : Water Quality Analysis - General Chemistry

					3164148	4423557	5394314	6235081
Sodium	mg/L	≤200	AO	-	56	49.3		47.1
Potassium	mg/L	-		-	1.1	1		1.31
Calcium	mg/L	-		-	8.3	7.6		10.7
Magnesium	mg/L	-		-	1.2	1		1.37
Alkalinity (as $CaCO_3$)	mg/L	-		-	106	112	110	109
Sulphate	mg/L	≤500	AO	-	26	18	18	16
Chloride	mg/L	≤250	AO	-	5	5	<5	7
Nitrate + Nitrite (as N)	mg/L	-		-				
Nitrate (as N)	mg/L	10	MAC	13	<0.05	0.06	<0.25	<0.05
Nitrite	mg/L	3.2	MAC	0.06	<0.05	<0.05	<0.25	<0.05
Ammonia (as N)	mg/L	-		-	0.21	0.58	<0.03	<0.03
Dissolved Org. Carbon	mg/L	-		-	3	1.6	4.9	2.1
Conductance (RCAp)	uS/cm	-		-	308	259	258	258
pH	units	6.5-8.5	AO	-	8.1	7.67	7.67	8.09
TDS (Calculated)	mg/L	≤500	AO	-	186	158	164	180
Total Kjeldahl Nitrogen as N	mg/L	-		-	0.17	<0.1	0.2	<0.10
Total Phosphorous as P	mg/L	-		-	0.4	0.285	0.528	0.34
Total Suspended Solids	mg/L	-		-	117	180	260	9
Chemical Oxygen Demand	mg/L	-		-	<3	6	3	5
Total Phenolics	mg/L	-		-	0.007	0.001	0.002	<0.001

TABLE 1 (part b): Water Quality Analysis - General Chemistry - Metals Scan

					3164148			
Arsenic	µg/L	10	MAC	5.0	<2	3	<2	<2
Barium	µg/L	1000	MAC	-	13	13	11	11
Boron	µg/L	5000	MAC	1500	71	73	201	148
Cadmium	µg/L	5	MAC	0.017	<0.09	<0.09	**0.028**	<1
Chromium	µg/L	50	MAC	-	2	<1	<4	<1
Copper	µg/L	≤1000	AO	2-4	<2	<2	<2	<4
Iron	µg/L	≤300	AO	300	<50	<50	<180	<50
Lead	µg/L	10	MAC	1-7	<0.5	<0.5	<0.5	<1
Manganese	µg/L	≤50	AO	-	5	23		15
Mercury	µg/L	1	MAC	0.026	<0.026	<0.026	<0.026	<0.026
Zinc	µg/L	≤5000	AO	30	<5	<5	<7	6

MAC = Maximum Concentration; **AO** = Aesthetic Objective.

MAC and AO values based on CCME Community Water Quality Guidelines (CCM

Protection of Aquatic Life values based on CCME Water Quality Guidelines for t

Shading and bold indicates exceedence of MAC or AO.

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* results reporting as CFU/ml

Samples collected on dates indicated.

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- = no established value/no analysis performed (analysis).

nd = indicates non-detectable concentrations.

nd( ) = elevated detection limits.

APPENDIX 5

Well Construction Details

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Table A5.1 Summary of well construction and hydraulic conductivity data.

Well ID	Type	Media Type	Well Depth		Ground Elevation		Bedrock Surface Elevation	Bedrock Surface Depth		Top of Screen Elevation	Top of Screen Depth		Bottom of Screen Elevation	Bottom of Screen Depth	Length of Screen	Ground Water Elevation	GroundWater Depth		Hydraulic Conductivity
			(m bgs)	Note	(m)	Note	(m)	(m bgs)	Note	(m)	(m bgs)	Note	(m)	(m bgs)	(m)	(m)	(m bgs)	Note	(m/s)
WS1	Single Well	Bedrock	91.4	1	109.0	1	72.1	36.9	1							78.40	30.6	Avg	9.02E-09
WS2A	Nested Well	Bedrock	44.7		103.0	1	73.0	30.0	1	61.3	41.7		58.3	44.7	3.05	85.62	17.378	1	6.80E-07
WS2B	Nested Well	Bedrock	65.9		103.0	1	73.0	30.0	1	41.7	61.3		37.1	65.9	4.57	85.55	17.447	1	2.70E-06
FMW1A	Nested Well	Native Till	5.2		102.0	1	---	---	2	99.9	2.1		96.8	5.2	3.05	101.50	0.499	1	8.50E-10
FMW1B	Nested Well	Native Till	20.1		102.0	1	---	---	2	84.9	17.1		81.9	20.1	3.05	100.71	1.289	1	4.30E-09
FMW2A	Nested Well	Native Till	3.9		92.0	1	---	---	2	91.2	0.8		88.1	3.9	3.05	89.15	2.855	1	1.70E-06
FMW2B	Nested Well	Bedrock	19.9		92.0	1	87.3	4.66		75.1	16.9		72.1	19.9	3.05	89.21	2.790	1	4.00E-07
MW2B	Single Well	Native Till	9.2		109.7	2	---	---	2	104.2	5.5	1	100.6	9.2	3	107.32	2.415	2	---
MW210	Single Well	Native Till	15.0		95.4	2	---	---	2	83.4	12.0		80.4	15.0	3	90.87	4.54	3	8.00E-09
MW211	Single Well	Bedrock	31.6	3	88.3	2	64.6	23.7		60.0	28.3		56.7	31.6	3	67.82	20.517	2	5.52E-09
MW212	Single Well	Bedrock	30.7	3	75.4	2	62.8	12.6		48.4	27.1		45.4	30.7	3	65.08	10.361	2	3.69E-08
MW213	Single Well	Bedrock	30.7	3	85.9	2	66.1	19.8		58.6	27.3		55.2	30.7	3	70.51	15.42	2	4.28E-07
MW4B	Nested Well	Native Till	3.5	3	72.7	2	---	---	2	72.2	1.9		69.2	3.5	3	68.77	3.883	3	---
MW4A	Nested Well	Native Till	10.4		71.6	3	---	---		---	---		61.2	10.4	3.49	66.14	5.415	3	---
MW112	Nested Well	Native Till	17.0	3	71.2	3	---	---		57.3	13.9	1	54.2	17.0		65.18	5.981	2	---
MW106	Nested Well	Native Till	11.6	3	82.6	3	---	---		74.1	8.5	1	71.0	11.6		78.72	3.887	2	8.51E-08
MW107	Nested Well	Native Till	6.2	3	83.1	3	---	---		79.8	3.2	1	76.8	6.2		79.35	3.72	2	2.02E-08
MW110	Nested Well	Native Till	13.9	3	109.3	3	---	---		98.3	10.9	1	95.3	13.9		105.41	3.847	2	---
MW111	Nested Well	Native Till	7.5	3	109.4	3	---	---		104.9	4.5	1	101.9	7.5		104.76	4.638	2	---
MW115	Nested Well	Native Till	12.3	3	108.1	3	---	---		98.7	9.4	1	95.8	12.3		106.21	1.913	2	---
MW116	Nested Well	Native Till	6.3	3	108.1	3	---	---		103.4	4.7	1	101.8	6.3		106.44	1.705	2	---
MW102	Nested Well	Native Till	10.9	3	89.4	3	---	---	3	80.1	9.3	1	78.5	10.9		86.16	3.219	2	---
MW108	Nested Well	Bedrock	7.7	3	89.5	3	81.4	8.1	3	83.2	6.3	1	81.8	7.7		86.08	3.412	2	---
G5	Single Well	Native Till	7.9	3	97.8	3	---	---		91.3	6.5	1	89.9	7.9		94.66	3.109	2	9.52E-08
MW101	Nested Well	Native Till	4.2	3	91.9	3	---	---		89.1	2.8	1	87.7	4.2		91.65	0.262	2	9.80E-09
G6 (BH11)	Nested Well	Native Till	17.3	3	92.0	3	---	---		76.1	15.9	1	74.7	17.3		85.69	6.26	2	3.05E-09
MW103	Nested Well	Native Till	14.2	3	87.6	3	---	---	3	74.8	12.8	1	73.4	14.2		82.69	4.907	2	---
MW123	Nested Well	Native Till	33.9	3	87.7	3	---	---	3	56.6	31.0	1	53.7	33.9		79.88	7.766	2	7.03E-09
MW119	Nested Well	Native Till	12.8	3	93.7	3	---	---		---	---		80.9	12.8		92.55	1.15	3	---
MW120	Nested Well	Native Till	6.5	3	93.7	3	---	---		---	---		87.2	6.5		92.61	1.09	3	---
MW121	Nested Well	Native Till	12.8	4	97.0	1	---	---		---	---		84.2	12.8		95.08	1.92	3	---
MW122	Nested Well	Native Till	6.5	4	97.0	1	---	---		---	---		90.5	6.5		95.23	1.77	3	---
MW6A	Nested Well	Native Till	14.1	3	78.9	3	---	---		70.2	8.7	1	64.8	14.1		73.12	5.777	2	---
MW6B	Nested Well	Native Till	4.4	3	78.8	3	---	---		75.5	3.4	1	74.5	4.4		76.10	2.721	2	---
MW104	Nested Well	Native Till	12.4	3	78.0	3	---	---		68.6	9.4	1	65.6	12.4		75.07	2.876	2	---
MW105	Nested Well	Native Till	6.2	3	77.7	3	---	---		74.6	3.1	1	71.5	6.2		75.45	2.196	2	---
MW113	Nested Well	Waste Cell	6.6	3	104.9	3	---	---		99.7	5.2	1	98.3	6.6		101.27	3.586	2	---
MW114	Nested Well	Waste Cell	12.5	3	104.9	3	---	---		95.4	9.5	1	92.4	12.5		101.23	3.644	2	---

Table A5.1 Summary of well construction and hydraulic conductivity data.

Well ID	Type	Media Type	Well Depth		Ground Elevation		Bedrock Surface Elevation	Bedrock Surface Depth		Top of Screen Elevation	Top of Screen Depth		Bottom of Screen Elevation	Bottom of Screen Depth	Length of Screen	Ground Water Elevation	GroundWater Depth		Hydraulic Conductivity
			(m bgs)	Note	(m)	Note	(m)	(m bgs)	Note	(m)	(m bgs)	Note	(m)	(m bgs)	(m)	(m)	(m bgs)	Note	(m/s)
MW201	Single Well	Waste Cell	5.5		108.4	2	---	---	2	107.4	1.0	1	102.9	5.5		106.38	1.981	2	---
MW202	Single Well	Waste Cell	10.2		109.5	2	---	---	2	106.7	2.8		99.3	10.2		---	---	4	---
MW203	Single Well	Waste Cell	6.9		108.3	2	---	---	2	107.7	0.6		101.4	6.9		---	---	4	---
MW204	Single Well	Waste Cell	10.6	2	105.8	2	---	---	2	104.9	0.9		95.2	10.6		102.76	3.058	2	---
MW205	Single Well	Waste Cell	10.7		102.5	2	---	---	2	101.6	0.9		91.9	10.7		---	---	4	---
MW206	Single Well	Waste Cell	7.3		103.2	2	---	---	2	102.3	0.9		95.9	7.3		100.91	2.261	2	---

General Notes:

1. Well logs either from Strum's "08-3002 MODL Landfill - 2010 Monitoring Well Installation and Ecological Assessment" in Background Documents, or produced by FFC during phase 2.

Well Depth Notes:

1 - Depth of WS1 is the observed depth to the torgue arrestor at 85 m.
2 - Inconsistency in well log between depth of well and difference in top and bottom elevations.
3 - From FFC video inspection.
4 - Data from ABL Environmental, "Strum MW Statics and Survey Table_ABL Modified. Xls".

Ground Elevation Notes:

1 - Elevation taken from Topcon survey by Fracflow, which suffered high vertical error and correlated with 5 m provincial topographic contour.
2 - From available well logs.
3 - Data from ABL Environmental, "Strum MW Statics and Survey Table_ABL Modified. Xls".

Bedrock Elevation/Depth Notes:

1 - Bedrock depth inferred from length of casing observed by video inspection.
2 - Not encountered
3 - From "Strum MW Statics and Survey Table_ABL Modified. Xls", however video inspection shows MW103 is MW123 and vice versa; MW102 is MW108 and vice versa.

Top of Screen Notes:

1 - From FFC video inspection.
2 - Not visible during FFC video inspection.

Groundwater Depth Notes:

1 - Measured after development by FFC in Oct 2018.
2 - Water level data from "Groundwater Field Sheets 2018" in ABL-2018.
3 - Measured by FFC in June-July 2018.
4 - Well no longer accessible. Water level from original well log.

To: Municipal Joint Services Board
From: Lisa Bozek, Director of IT Shared Services
Date: 2026-04-22
Subject: Agenda Item 0.0 Memo – Cybersecurity Assessment Results and Plan

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DECISION		DIRECTION		INFORMATION	X

BACKGROUND

In December 2025, IT Shared Services (ITSS) completed a comprehensive Cybersecurity Maturity Assessment and Security Audit. This assessment updated and extended the previous 2020 security audit and was conducted to:

1. Provide an up-to-date view of the IT environment,
2. Identify gaps between policy and practice,
3. Assess legislative readiness for the modernized Freedom of Information and Protection of Privacy Act (Bill 150), and
4. Recommend strategic actions for policy and practice.

The assessment evaluated both documented and day-to-day cybersecurity practices against the National Institute of Standards and Technology (NIST) and the Canadian Centre for Cyber Security (CCCS) *baseline*[1] controls. A five-level maturity model was used to evaluate both policy and practical capabilities, ranging from ad-hoc (level 1) to optimized (level 5).

Key deliverables included an IT asset inventory, top strategic recommendations for policy and practice and targeted technical reviews across MJSB and partner municipality environments.

All cybersecurity and information-handling work is ultimately guided by risk-based decision-making. Starting with risk helps the organization understand what matters most to operations and services, where potential impacts could occur, and how urgent different issues are. This risk-based approach provides the purpose behind security activities and

[1] Using the NIST low baseline (~149 controls) instead of the entire catalog (1000+ controls) enables an organization to implement a security posture that is proportional to its risk, preventing the waste of time and money on unnecessary advanced protections.

ensures that technical and operational efforts are focused on protecting municipal services, residents, and public trust.

ANALYSIS

Cybersecurity Maturity Assessment Results

The 2025 assessment shows that MJSB has progressed to a "developing" level of maturity (level 2) across both policy and practice. This reflects positive progress since 2020, when the organization was assessed as having an "ad-hoc" (level 1) posture. One of the most significant improvements is MJSB's security posture within Microsoft systems, which is now well above what is typical for organizations of a similar size. Most companies our size are in the 40-60% range. Higher maturity organizations target 75% plus. MJSB's 2025 score has reached 90%.

Score Ranges	**Policy**	**Practice**	**Microsoft Secure Score**
2020	1.0-1.9 / 5	1.8-2.6 / 5	24%
2025	2.0-2.1 / 5	2.0-2.6 / 5	89.6%

The most notable gaps and risks are:

1. Third-party vendor and cloud oversight risk management (Bill 150 alignment),
2. Internal lateral movement if a breach occurs on an authenticated endpoint, and
3. Incident response and privacy readiness (Bill 150 alignment).

To meet modern regulatory and cyber-insurance expectations, third-party oversight, network protection, incident response and breach handling must be strengthened. We are addressing some, if not all these risks in the 2026-27 workplan.

Target Maturity

Most cybersecurity protections are already in place and working day to day. Staff are doing the right things to keep systems and information safe. However, many of these practices are informal and not applied the same way everywhere.

The next step is to formalize and align shared policies, standards, and response playbooks across all municipalities. The goal is to create a defensible, auditable governance framework making MJSB's target a level 3 maturity ("managed").

FINANCIAL IMPLICATIONS

An amount of $30,000 for cybersecurity consulting services has been included in the 2026-27 budget. These funds are being used to support specialized expertise in areas such as incident response testing and privacy breach readiness. MJSB will continue to work with its cybersecurity Consultant to lead and support these activities as part of the overall implementation of the cybersecurity program.

CONCLUSION

Since 2020, ITSS has strengthened its day-to-day cybersecurity practices, and the 2025 assessment confirms that the current focus is appropriately shifting toward formalizing governance, policy, and consistency across partner municipalities.

Municipal Shared Services
ITSS Update

2025-26 KPIs, Cybersecurity Assessment, 2026-27 Workplan

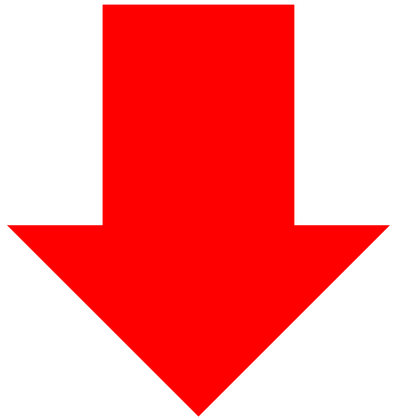
April 22, 2026

Lisa Bozek, Director ITSS

Cybersecurity Maturity Assessment

Cybersecurity: What is the Intention?

We are trying to reduce the *probability* of a *material* cyber event in the next business cycle.



Reduce:
-Probability
-Impact
-Liability
-Reputational damage

Increase:
-Defensibility
-Resilience
-Compliance

2025 Cybersecurity Maturity Assessment

1. 2025-26 Strategic Priority (last assessment 2020)
2. Provide an up-to-date view of the IT environment
3. Identify gaps in both policy and practice
4. Assess readiness for Bill 150 (modernized FOIPOP Act)
5. Recommend strategic actions (policy & practice)

Score Ranges	Policy	Practice
2020	1.0–1.9	1.8–2.6
2025	2.0–2.4	2.0–2.6

Level 1	Level 2	Level 3	Level 4	Level 5
Ad Hoc	Developing	Managed	Defined	Continuous improvement

Target

Microsoft Secure Score
24%
89.6%

High & Medium Risk Findings

Likelihood

Impact

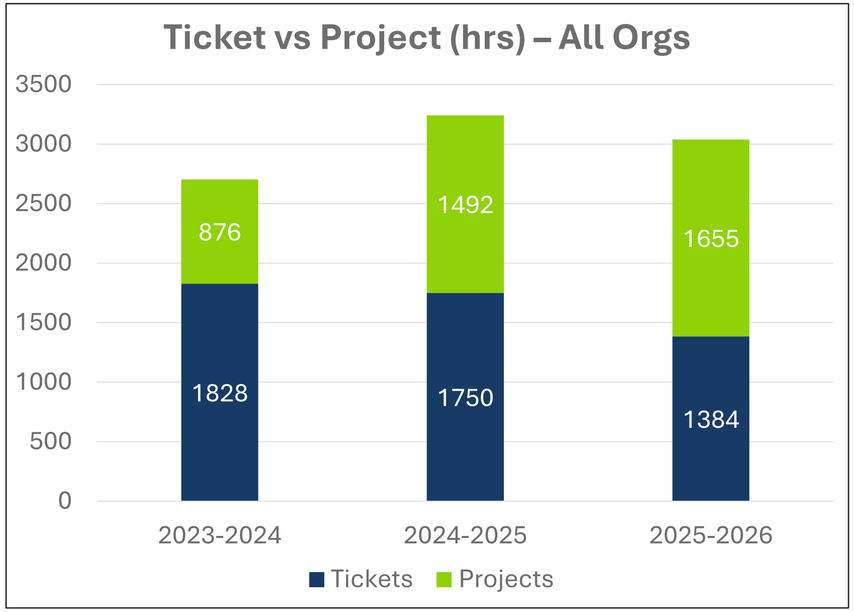
	Very Unlikely	Unlikely	Possible	Likely
Severe		Risk Assessment Maturity*		3rd party + cloud oversight gaps*
Significant		Endpoint / Microsoft365 hardening closure	Internal lateral movement (with local admin rights)	Incident response + privacy readiness*
Moderate		System Protection	Asset Mgt + Data Protection*	
Insignificant				

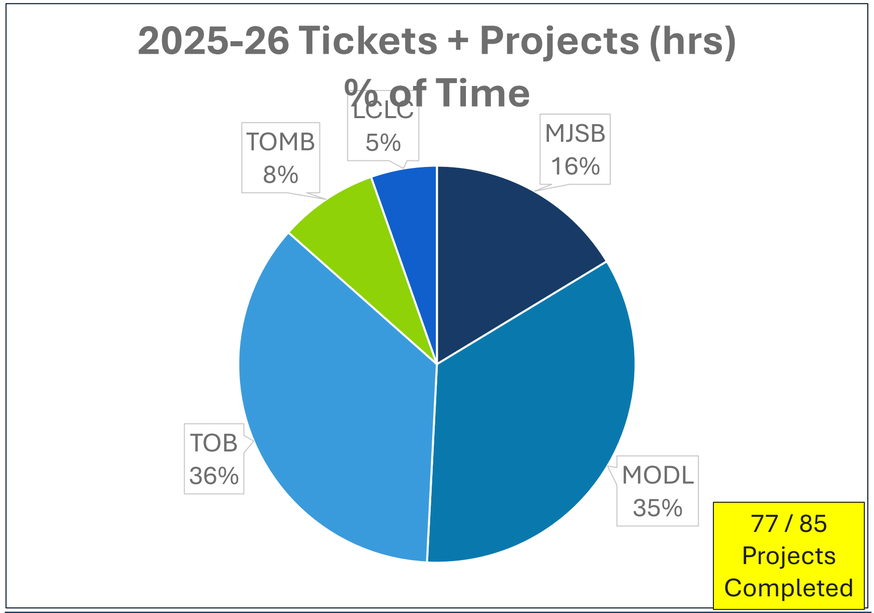
- We are addressing these risks in the 2026-27+ workplan.
- All actions are driven by risk management decisions.
- *Bill 150 aligned

Legend
High Risk
Medium Risk
Low Risk

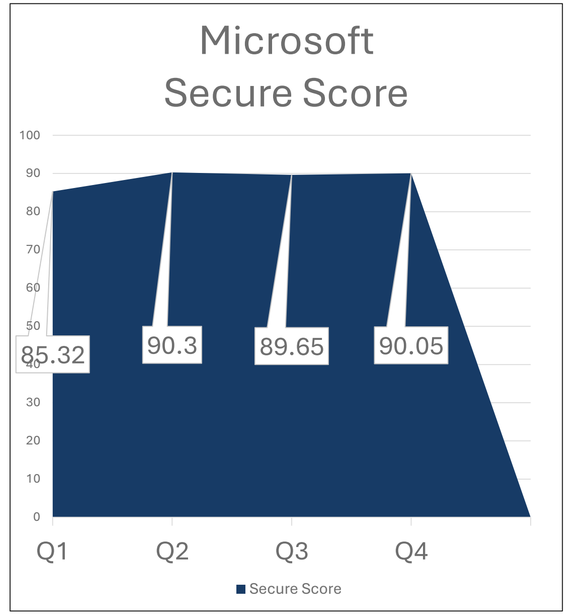
FY 2025-26 KPIs

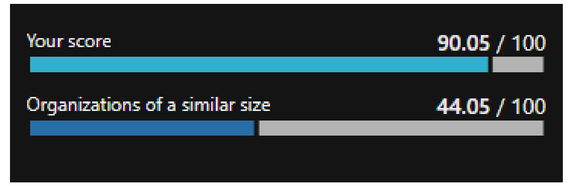
FY 2025-26 - KPI Summary





77 / 85 Projects Completed





2,202 Total Annual Tickets

84% Tickets Resolved > 1h

% Seasonal events drive predictable workload

28% Ticket volume Phishing Related

Collective Partner Projects

Records Mgt – Migration to Laserfiche Cloud	TOB + MODL complete
Microsoft Training – OneDrive + Teams	TOB complete
SCADA – Security hardening recommendations	In progress
Eastlink Desktop Phone Replacement - Needs Assessment	Complete
Cybersecurity Program – Beauceron training platform rollout, Maturity Assessment	Complete

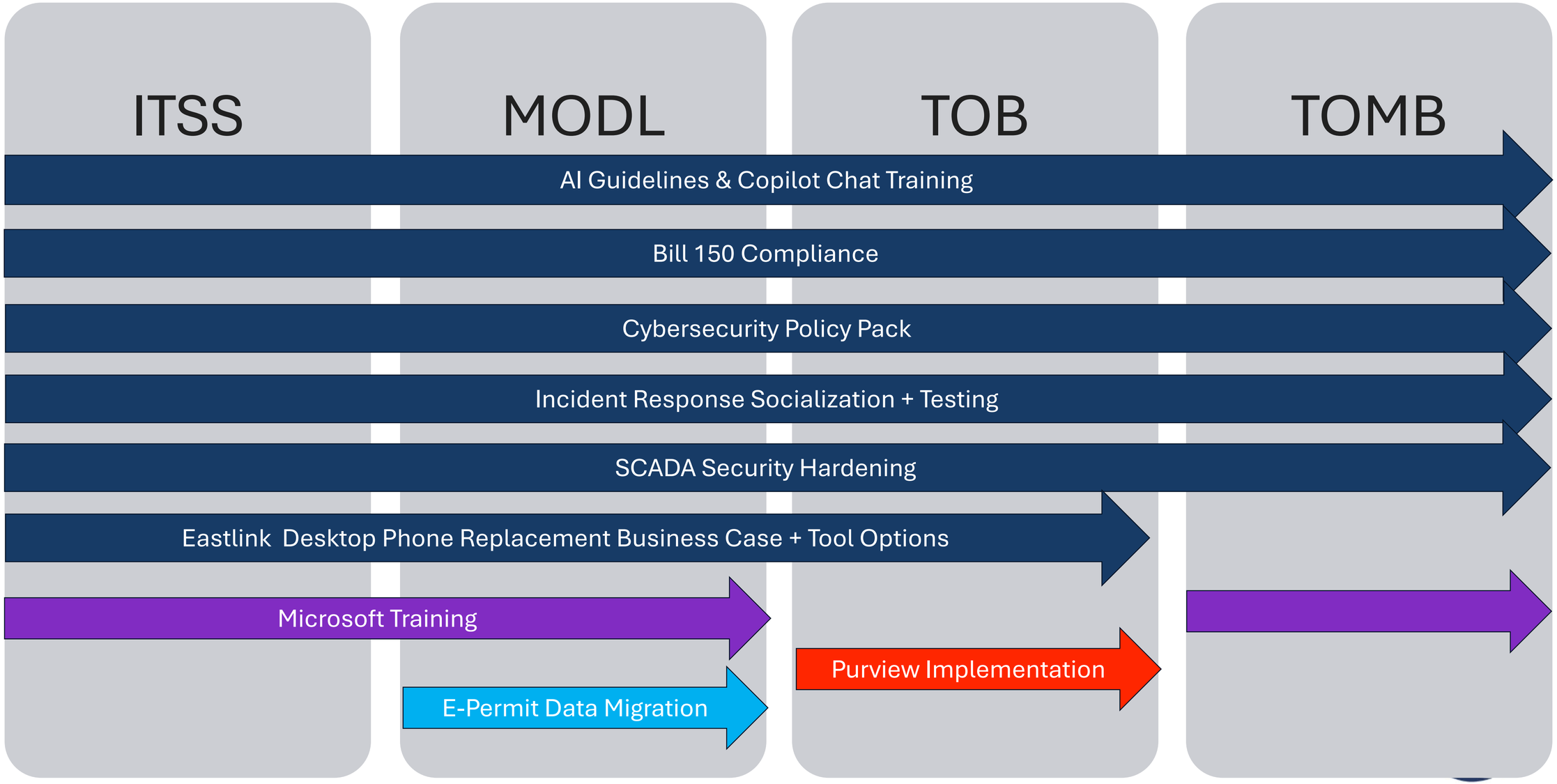
80% Users Onboarded Beauceron

“Strong” Security Culture Score

4 Risky Sign-in Attempts

FY 2026-27 Workplan

FY2026-27 – IT Workplan



To: Municipal Joint Services Board
From: Mark Dauphinee
Date: April 22, 2026
Subject: Agenda Item 4.4 Award of RFP 2025-007 Dredging and Dewatering Septic Lagoons

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DECISION	X	DIRECTION		INFORMATION	

RECOMMENDATION / MOTION

That the Board approve the award of Request for Proposal (RFP) 2025-007 Dredging and Dewatering Septic Lagoons to Bishop Water Inc for $121,719 +HST.

BACKGROUND

The primary lagoon accepts the discharge from our septage dewatering plant that includes the remaining fraction of solids that is not removed by our Fournier Press. These solids slowly build up in our lagoon thereby reducing the volume of water in the lagoon that is available for treatment of the effluent. The primary lagoon has not been desludged since being put into service in its current configuration in 2011. Sludge is visible over a large area at the inlet to the lagoon indicating that we have a significant reduction in water volume in our primary lagoon. The primary lagoon for our septage treatment plant requires sludge removal to continue to meet our regulatory requirement for effluent discharges.

During planning for FY25/26 Capital Budget a Class D cost estimate of $50,000 was prepared based on Mahone Bay's recent experience dredging their lagoon. Upon further investigation the methodology utilized by Mahone Bay was found to be untenable. Discussions with numerous potential service providers validated the new approach and provided a better understanding of the magnitude of the cost of this process.

We will collaborate closely with the service provider to adjust operating schedules in a way that minimizes odour impacts on residents, ensuring that activities are timed to reduce disruption as much as possible. In parallel, we will implement a proactive communications approach, keeping the Board and residents informed at each stage of the project rollout through timely updates, clear expectations, and responsive engagement to address any concerns as they arise.

ANALYSIS

RFP 2025-007 was issued publicly on September 19, 2025, and closed on October 8, 2025. Four submissions were received in response to the RFP, including a bid from Bishop Water. The bids were evaluated on price, references, and proposed methodology. Bishop Water's proposal provides the best value for the MJSB.

FINANCIAL IMPLICATIONS

The approved FY25-26 Capital Budget included $50,000 for the completion of the dredging and dewatering of the primary septic lagoon. The FY26-27 Capital Budget includes $135,000 intended to cover the contract with Bishop Water as well as a 10% contingency to cover any unforeseen extra charges.

The table below outlines the proposals received with anticipated total cost for duration of the contract exclusive of HST:

Proponent	Projected total cost
Bishop Water	$121,719.00
Clean Harbors	$242,198.64
GFL Environmental Service	$208,390.33
VEI Contracting	$156,000.00

To: Municipal Joint Services Board (MJSB)
From: Gabe Welsh - Director of Waste Management
Date: April 22, 2026
Subject: Agenda Item 6.1 – Waste Management Update

DECISION		DIRECTION		INFORMATION	X

TONNAGE REPORT UPDATE

Material volumes for the 2025–26 fiscal year finished very close to budget. While there were modest variations across individual waste streams, total tonnage processed through the site was 41,664 tonnes compared to a budget of 41,548 tonnes.

Recycling volumes were trending higher through the entire year, indicating that education and enforcement programs are helping increase proper sorting. They were further buoyed by the additional volumes of Circular Material owned product coming from neighbouring regions.

Materials associated with construction & demolition (Mixed C&D, Shingles) were down from both budget and historical trends (approximately 13%). Taking note of this trend has lead to a more conservative budget on these items for 2026-27. Wood volumes were also down slightly, however this is partially attributable to the new Firesmart Brush program introduced by the MJSB partners.

Septage volumes were down slightly (approximately 5%). This was mostly driven by a reduction in volume from the Town of Lunenburg plant that has been working more efficiently.

FINANCIAL IMPLICATIONS

Overall financial performance was in line with budgeted numbers (approximately 0.5% to the positive). In developing the 2025–26 tonnage forecast, the South Shore Waste Solutions (SSWS) team made a deliberate effort to refine its assumptions and improve accuracy based on operational experience and historical data.

This approach proved effective. In prior years, forecasts were intentionally conservative, which often resulted in larger year-end surpluses but also introduced operational pressures during the year. The 2025–26 results reflect a more balanced and realistic budgeting approach that supported both sound financial planning and day-to-day operations.

WASTE COLLECTION ROUTES

New collection routes for the District of Lunenburg and the Town of Bridgewater were implemented on March 30, 2026. This change transitioned collection from a five-day schedule to a four-day schedule, with no regular collection on Mondays.

As with any significant service change, some initial challenges and confusion were anticipated. In advance of implementation, proactive communication efforts were undertaken to support residents through the transition. Public notices were shared through radio and print media over the preceding three months, and social media messaging, including a countdown campaign, was active throughout March.

Following implementation, daily route-specific communications were provided to assist residents in identifying their new collection days.

The transition period was further complicated by technical issues with the Region 6 Waste App, which experienced outages during the first week of the new routes. In addition, the hauling contractor encountered equipment and staffing challenges in the third week, resulting in some collection delays. The drivers are adjusting to the route changes.

Similar challenges have been reported by other municipalities that have transitioned to a four-day collection schedule. Those municipalities have noted that, once the initial adjustment period passed, the revised schedule ultimately resulted in positive outcomes for both municipal operations and residents.

The MJSB would like to sincerely acknowledge and thank partner councils and residents for their patience, understanding, and support during this period of transition.

RECYCLABLE MATERIAL PROCESSING

At the December MJSB Board Meeting, the Board authorized staff to enter the addendum with Scotia Recycling Ltd (SRL) for processing of non-obligated Industrial, Commercial, Institutional (ICI) recyclables, subject to the legal review confirming there are no material issues.

SRL had indicated that they would need an increased rate to continue to process the ICI material due to the significant reduction in volume. Upon legal review and negotiations with SRL, MJSB staff were able to reach an agreement that maintained the contracted processing rate. This avoided the potential high-end annual cost increase of approximately $50,000.

ATTACHMENTS

6.1.1 WMSS Tonnage & Revenue Report – March 2026

Municipal Joint Services Board
Lunenburg Regional Community Recycling Centre
March 2026

	town of BRIDGEWATER		TOWN OF Mahone Bay				Total Partners Tonnage		Outside Tonnage		Total Tonnage					Total Revenue			
	YTD 2025-26	YTD 2024-25	YTD 2025-26	YTD 2024-25	YTD 2025-26	YTD 2024-25	YTD 2025-26	YTD 2024-25	YTD 2025-26	YTD 2024-25	YTD 2025-26	YTD BU 2025-26	YTD 2024-25	vs. BU	vs. LY	YTD 2025-26	BU 2025-26	YTD 2024-25	vs. BU
Curbside Recyclables	505	496	96	96	1,387	1,279	1,988	1,871	384	-	2,372	1,798	1,871	574	502				
ICI Recyclables	230	177	29	22	159	112	418	311	73	57	491	397	368	94	123	$ 893,466	$ 826,868	$ 814,561	$ 66,598
GE Cardboard	811	896	67	24	313	264	1,191	1,184	12	-	1,202	1,206	1,184	- 4	18				
Total Recycables	1,547	1,570	191	142	1,859	1,654	3,597	3,366	469	57	4,066	3,402	3,423	663	642	$ 893,466	$ 826,868	$ 814,561	$ 66,598
													-	-	-				
Curbside Organics	1,091	1,100	179	154	2,579	2,552	3,848	3,806	-	-	3,848	3,845	3,806	3	42	$ 446,377	$ 445,983	$ 428,226	$ 395
Billable Organic	687	588	61	66	177	179	925	832	1,807	1,896	2,732	2,592	2,729	140	4	$ 329,281	$ 315,547	$ 320,230	$ 13,734
Bio Solid	537	456	-	-	77	50	614	506	231	239	845	851	745	- 7	100	$ 159,705	$ 165,200	$ 114,533	-$ 5,496
Total Organics	2,315	2,145	239	219	2,833	2,781	5,387	5,145	2,038	2,135	7,425	7,288	7,280	137	145	$ 935,363	$ 926,730	$ 862,989	$ 8,633
													-	-	-				
Billable Waste	2,735	2,641	182	212	2,178	2,313	5,095	5,165	440	341	5,535	5,571	5,507	- 37	28	$ 1,173,679	$ 1,177,323	$ 1,113,550	-$ 3,644
Curbside Landfill	1,021	1,061	170	148	3,988	3,703	5,179	4,913	-	-	5,179	4,966	4,913	213	266	$ 999,597	$ 958,442	$ 919,929	$ 41,155
C & D	828	987	189	79	2,396	2,619	3,414	3,685	268	311	3,682	3,912	3,996	- 230	- 315	$ 495,782	$ 552,365	$ 513,958	-$ 56,583
Asphalt	81	171	7	15	367	574	455	760	22	40	477	789	800	- 312	- 323	$ 39,915	$ 64,419	$ 65,269	-$ 24,505
Clean Wood	227	306	40	59	538	766	805	1,130	24	24	829	1,047	1,154	- 219	- 326	$ 38,387	$ 48,172	$ 53,098	-$ 9,785
Painted / Ply Wood	130	159	41	25	475	398	646	582	17	28	662	607	610	56	52	$ 66,111	$ 59,621	$ 62,171	$ 6,490
Pressure Treated Wood	76	62	19	14	193	205	288	281	37	12	325	301	293	24	32	$ 70,123	$ 63,608	$ 60,570	$ 6,515
Wood Clean Up	29	31	4	3	127	134	161	168	-	-	161	153	168	8	- 7	$ 22,031	$ 21,003	$ 21,806	$ 1,028
Drywall	22	69	4	6	98	125	124	200	-	-	124	143	200	- 19	- 76	$ 14,753	$ 16,187	$ 22,598	-$ 1,434
Curbside Metal Clean Up	5	3	1	0	20	23	26	26	-	-	26	23	26	3	- 1	$ -	$ -	$ -	$ -
Metal	28	24	4	3	159	150	190	177	3	10	194	177	187	17	7	$ -	$ -	$ -	$ -
FireSmart Brush	74	-	33	-	336	-	443	-	-	-	443	-	-	443	443	$ 24,389	$ -	$ -	$ 24,389
Total Other	5,256	5,514	695	564	10,876	11,009	16,826	17,087	811	767	17,636	17,691	17,854	- 54	- 217	$ 2,944,767	$ 2,961,141	$ 2,832,950	-$ 16,374
														-	-				
Septic/Treatment Plant	196	72	20	52	11,616	12,479	11,833	12,603	704	1,714	12,537	13,167	14,317	- 630	- 1,780	$ 497,677	$ 527,020	$ 565,919	-$ 29,343
Sub Totals	**9,313**	**9,300**	**1,145**	**978**	**27,184**	**27,923**	**37,642**	**38,201**	**4,022**	**4,673**	**41,664**	**41,548**	**42,873**	**116**	**- 1,210**	**$ 5,271,274**	**$ 5,241,759**	**$ 5,076,419**	**$ 29,515**