

EDMONTON WATERWORKS

ANNUAL REPORT TO ALBERTA ENVIRONMENT AND PROTECTED AREAS

Approval Number 638-04-02

2025



Table of Contents

1.0 Overview

- 1.1 Overview
- 1.2 Process Schematic – Rossdale (Plants 1&2)
- 1.3 Process Schematic – E. L. Smith (Plant 4)
- 1.4 Summary of Violations and Notifications
- 1.5 Alberta Environment Operator Certifications
- 1.6 Demand Production Statistics (Estimated highlift flow)
- 1.7 Energy Consumption and Usage
- 1.8 Summary of Changes to the Operations Program

2.0 Raw Pumpage, Treated Pumpage and Distribution System

- 2.1 Storage Capacities of Reservoirs
- 2.2 Pumping Station Operating Pressure Ranges
- 2.3 Fire Hall and other City Pressure Monitors
- 2.4 Regional Customers
- 2.5 Pumping Facilities
- 2.6 Production Summary Raw Water Intake (ML)
- 2.7 Raw Water Intake (ML)
- 2.8 Treated Water Production (ML)

3.0 Water Quality

- 3.1 Raw Water Quality – North Saskatchewan River
- 3.2 Treated Water Quality Entering the Distribution System
- 3.3 Rossdale Filters 1 – 9 Particle Counts (no/mL,>2µm)
- 3.4 E.L Smith Filters 1 – 9 Particle Counts (no/mL,>2µm)
- 3.5 E.L Smith Filters 10 – 18 Particle Counts (no/mL,>2µm)
- 3.6 Rossdale Filters 1 – 9 Turbidity (NTU)
- 3.7 E.L Smith Filters 1 – 9 Turbidity (NTU)
- 3.8 E.L Smith Filters 10 – 18 Turbidity (NTU)
- 3.9 Combined Filter Effluent Water Quality
- 3.10 Rossdale UV Disinfection – Filters 1 – 3
- 3.11 Rossdale UV Disinfection – Filters 4 – 6
- 3.12 Rossdale UV Disinfection – Filters 7 – 9
- 3.13 E.L Smith UV Disinfection – UV Reactors 1 – 4
- 3.14 Log Removal

4.0 Chemicals

- 4.1 Liquid Alum Chemical Consumption
- 4.2 Primary Polymer (Magnafloc LT 27AG) Chemical Consumption

- 4.3 Carbon Chemical Consumption
- 4.4 Sodium Hypochlorite Chemical Consumption
- 4.5 Filter Polymer (Magnafloc LT 7981) Chemical Consumption
- 4.6 Aqua Ammonia Chemical Consumption
- 4.6-1 LAS Ammonia Chemical Consumption
- 4.7 Fluoride Chemical Consumption
- 4.8 Sodium Bisulfite Chemical Consumption

5.0 Waste Streams

- 5.1 Waste Stream Volumes (ML)
- 5.2 Rossdale Clarifier Blowdown, Clarifier Washdown and Backwash Water Waste Stream Data
- 5.3 Rossdale Waste Stream Data
- 5.4 E.L Smith Clarifier Blowdown, Clarifier Washdown and Backwash Water Waste Stream Data
- 5.5 E.L. Smith Waste Stream Data

6.0 Reservoir Chlorine Residual

- 6.1 Reservoir Chlorine Residual Part 1
- 6.2 Reservoir Chlorine Residual Part 2

7.0 Chemical Budget Flows and Chemical Usage

- 7.1 Orthophosphate Chemical

8.0 Quality Assurance

- 8.1 Summary of Parameters for Edmonton Drinking Water
- 8.2 Explanation of Notations Used
- 8.3 Bacteriological Data: Water Treatment Plants
- 8.4 Bacteriological Data: Distribution System
- 8.5 Summary of Giardia and Cryptosporidium
- 8.6 Treated Water Entering the Distribution System: Rossdale WTP
- 8.7 Treated Water Entering the Distribution System: E.L Smith WTP
- 8.8 Treated Water Entering the Plant Reservoir: Rossdale and E.L. Smith
- 8.9 Routine Distribution System: Excluding Field Reservoirs
- 8.10 Routine Distribution System: Water Quality Complaints Investigations
- 8.11 Castledowns Reservoir
- 8.12 Clareview Reservoir
- 8.13 Discovery Park Reservoir
- 8.14 Kaskitayo Reservoir
- 8.15 Londonderry Reservoir
- 8.16 Millwoods Reservoir
- 8.17 North Jasper Place Reservoir

- 8.18 Ormsby Reservoir
- 8.19 Papaschase 1 Reservoir
- 8.20 Papaschase 2 Reservoir
- 8.21 Rosslyn 1 Reservoir
- 8.22 Rosslyn 2 Reservoir
- 8.23 Thorncliff Reservoir
- 8.24 Raw River Water
- 8.25 Lead Management Program

Appendices

- **Appendix A – Residual Management Program**
- **Appendix B – Waste Stream Monitoring Program**
- **Appendix C – Distribution Main Extensions**

1.1 Overview

Through 2025, EPCOR Water Services (EWS) continued to satisfy all water demand requirements while meeting our strict water quality criteria. Total demand in 2025 was higher than the demand in 2024, 400 ML/d average versus 389 ML/d respectively, and higher than the previous 10-year average of 372 ML/d.

Rossdale and EL Smith WTPs converted from direct filtration to conventional mode on February 27, ahead of the anticipated runoff period. The 2025 spring runoff event was unprecedented in recent history, characterized by a triple colour peak. The entire runoff period lasted 42 days. The official start occurred on March 4, when raw water colour at the E.L. Smith (ELS) Water Treatment Plant (WTP) exceeded 10 TCU. The first peak event was characterized by a gradual rise in raw water colour with a peak value of ~17 TCU, and a peak turbidity of 4.75 NTU. The second peak lasted from March 24 to April 1 with a peak colour value of ~31 TCU on March 28. The third peak lasted from April 6 to April 16 with a peak colour value of ~40 TCU on April 10. The third peak was associated with fluctuating turbidity values followed by ice break-up on the North Saskatchewan River (NSR). Powdered Activated Carbon (PAC) dosing was initiated proactively as soon as flow was observed in upstream tributaries, which was five days after the conversion date.

Despite these proactive measures and the maintenance of excellent water quality throughout the city, the Spring Home Assessment Runoff Program (SHARP) customer satisfaction target was not met in 2025. The final customer satisfaction rating was 94.01%, narrowly missing the target of 94.40%. Contributing factors likely include the prolonged nature of the triple-peak event and a slight but measurable increase in both average odour intensity and population-normalized earthy/musty/moldy odour descriptors (especially in cold water samples). Despite these challenges, WTP Operations was able to maintain excellent water quality throughout the city for the entire runoff period.

Raw water conditions were generally favorable through the summer and fall.

E.L. Smith converted to DF on October 8, and Rossdale followed on October 15. In 2025, the WTPs achieved an average of 139 days in DF, which is above the internal target of 120 days for DF operations due to favorable raw water conditions. DF operation resulted in a reduction of total solids discharged to the NSR by 36.7% during the months of January, February,

November, and December compared to baseline conventional operation. The solid reductions during extended DF operation (WTPs operating in DF outside of November to February) were 45.9%.

In 2023, EWS began collecting water quality samples as part of the Wastestream Monitoring Program, which was approved by AEPA in December 2022. The goal of the program is to improve wastestream load quantification to better determine if acute and/or chronic guidelines and regional water quality triggers and limits are being met. A report summarizing the results to date is included as an appendix.

The WTPs continue to improve the integrated safety and environmental management system in accordance with the ISO 14001:2015 and 45001:2018 standard. In 2025, an external auditor completed a surveillance audit of the WTPs and reservoirs to both of these standards. There was only one minor non-conformance identified, related to document control. The minor non-conformance has been corrected.

EWS continued to upgrade the water treatment plants and the reservoir assets. Total expenditures in 2025 were approximately \$52.9M. Some of the major projects are as follows:

- EL Smith Stage 1 Filter Upgrades is on-going. Filter 6 is underway and will be completed in Q3 of 2026. This is the last filter to be upgraded in Stage 1 and the program addresses structural issues and allows for future deep bed filtration implementation.
- Construction of the Rossdale WTP Aqua Ammonia (AA) conversion to Liquid Ammonium Sulphate (LAS) was completed and was turned over to Operations. This conversion will provide a safer chemical for injection into potable water for converting free chlorine to chloramine. AA off-gasses easily and is a hazard to plant staff.
- Plants Flood Protection work progressed well in 2025 on this multi-year project. Earthen berms at EL Smith are mostly complete and concrete wall barriers around the Low Lift Pumphouses are underway. At Rossdale, earthen berm work commenced and concrete foundation work for the wall around the LLPH is underway as well. Outfall control gates at both Plants continues and are at various stages of construction. There are a total of 9 gates being installed in plant waste discharge pipes to the NSR.

- Construction was completed on the High Lift Pumphouse 5kV Switchgear and Electrical Room project, to address end of life electrical assets that feed all 6 pumps in the existing high lift pumphouse, along with air blowers and other ancillary equipment.
- Design for a new power feed to EL Smith from the Riverview substation was mostly completed by year end. Construction for this new feeder will start in Q2 of 2026. Currently, the plant has two feeders that are at risk as they share the same utility tunnel under the NSR and come from the same substation. A failure of one feeder could result in the loss of both, and all power would be lost to the plant.

In 2025, Water Distribution and Transmission Construction repaired 310 water main breaks on the water system in Edmonton, with the majority of main breaks occurring on cast iron pipes. EWS generally experiences a higher volume of breaks in the first quarter of the year attributed to deeper frost penetration as we incurred 145 in this time frame. The overall reliability of the water distribution system can be attributed to the water main replacement and cathodic protection programs as well as the use of more reliable pipe materials in both replacement and new water main construction.

The Uni-Directional Flushing program completed flushing and valve exercising in about 35% of Edmonton (2536 runs). This program is now an eight-year cycle with area prioritization emphasis placed on water quality parameters, percentage of Cast Iron Mains, and the relative success of the previous flush.

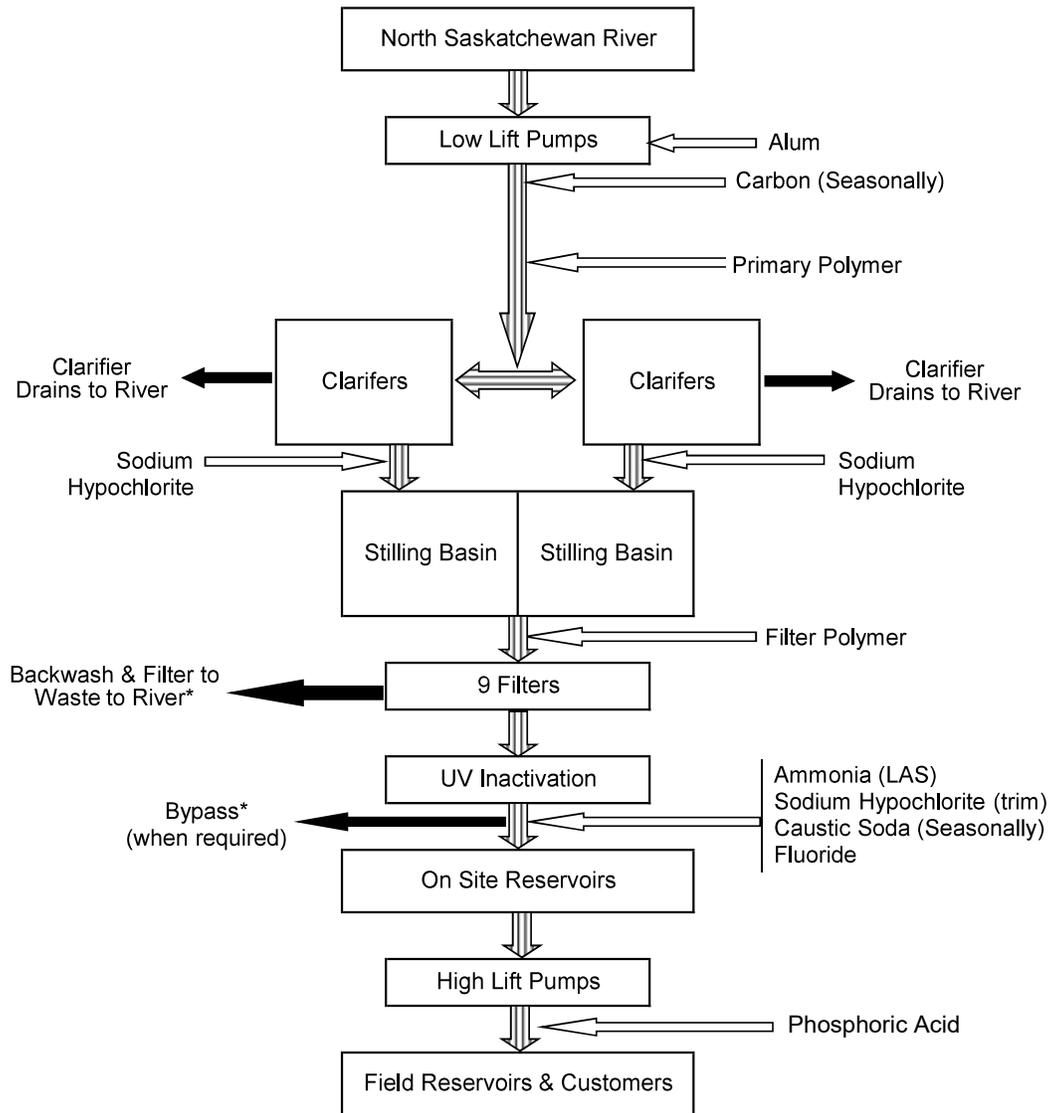
In 2025 there were 7 events that related to failed bacteriological samples. Within those events, there were 11 individual test results that were either Total Coliform Positive (TC+) or E. Coli Positive (EC+) for the Edmonton system. All failed bacteriological sample results were followed up and resamples taken until all test results were satisfactory—meaning all results were non-detectable. There were zero Approval contraventions related to failed bacteriological samples in 2025. There were 83 main breaks reported to AEPA due to the proximity of release to the stormwater collection system and the North Saskatchewan River. This spike is primarily attributed to weather-driven water main breaks (temperature fluctuations typically in the winter and spring months) rather than systemic operational failure.

As we move into 2026, we will continue to focus our efforts on the production of and distribution of high quality water, customer satisfaction, protection of the environment,

workplace safety and cost effectiveness. We will continue to ensure our customers receive best value for the services we provide them.

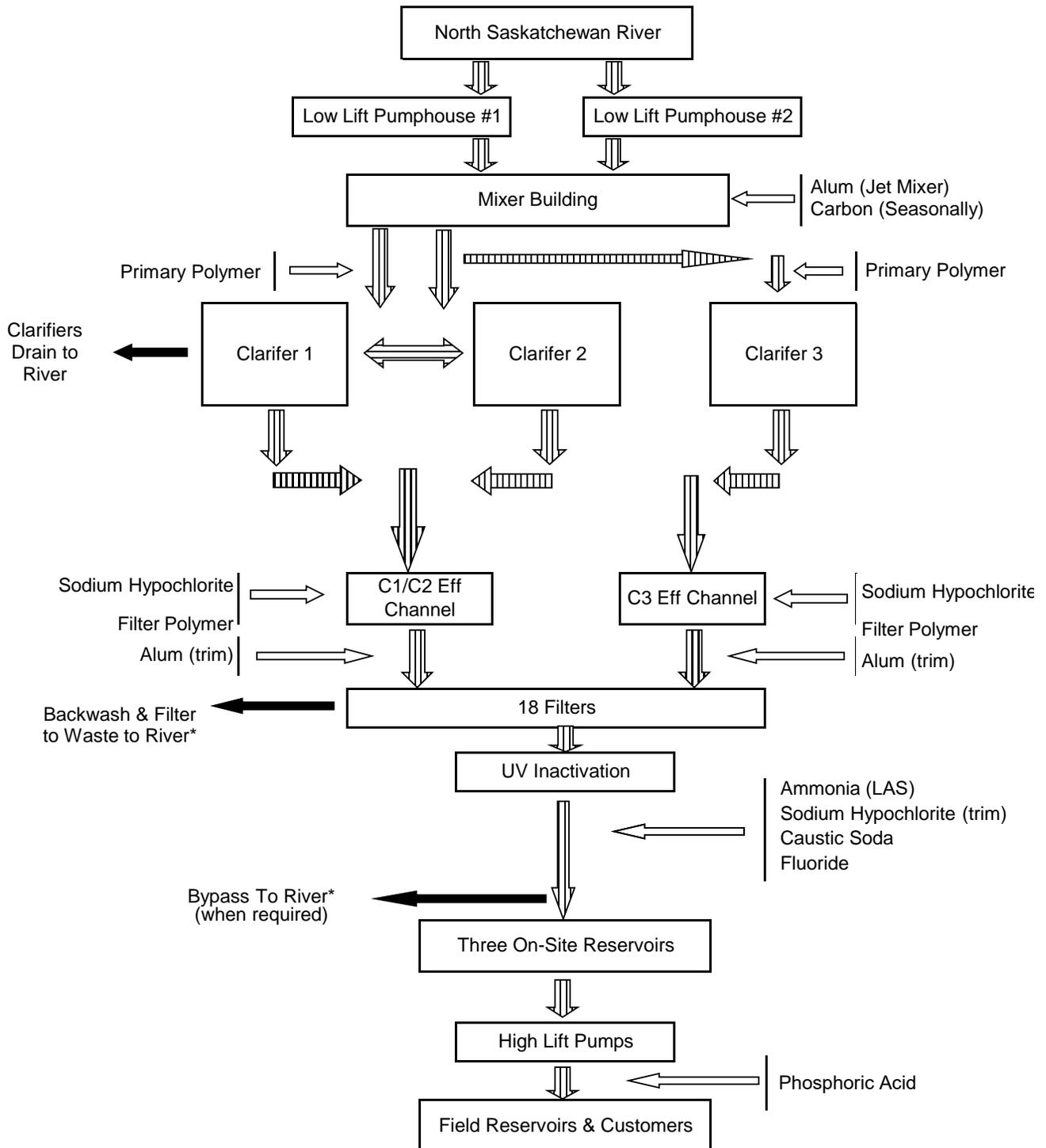
(End of Section)

1.2 Process Schematic - Rossdale (Plants 1 & 2)



* All chlorinated waste streams are dechlorinated prior to discharge to the river

1.3 Process Schematic - E. L. Smith (Plant 4)



* All chlorinated waste streams are dechlorinated prior to discharge to the river

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250102-242530-v1	About 76 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 2, 2025	436502
ENV-20250103-735840-v1	About 189 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 3, 2025	436514
ENV-20250104-060254-v1	An estimated 500 m ³ of potable chlorinated water at +/-1.5ppm was released near or at 4930 Highway 2 Service Road SW, Edmonton to the surface while the transmission main was in operation providing water to regional customers due to a leak on an air vent on the water transmission system inside a chamber. The dechlorinated water drained to the Blackmud Creek. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The chlorine levels were continually monitored during this entire duration. The leak was isolated until the repair was completed. Erosion control measures were implemented and in place over the duration of the isolation and repair of the air vent assembly.	January 4, 2025	436544
ENV-20250109-928758-v1	About 48 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 9, 2025	436677
ENV-20250116-439084-v1	About 179 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 14, 2025	436881
ENV-20250116-416201-v1	About 45 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 16, 2025	436879

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250120-304555-v1	About 29 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 19, 2025	436943
ENV-20250121-904546-v1).	About 155 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. This incident was reported due to possible media attention due to road closures on 99 St. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	January 21, 2025	437009
ENV-20250202-824230-v1	About 182 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 2, 2025	437359
ENV-20250204-022203-v1	About 81 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 4, 2025	437445
ENV-20250210-841169-v1	About 49 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 9, 2025	437558
ENV-20250211-781784-v1	About 75 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 11, 2025	437613
ENV-20250214-450184-v1	About 47 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 14, 2025	437703

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250214-348956-v1	About 39 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 14, 2025	437695
ENV-20240214-198820-v1	About 45 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 13, 2025	437683
ENV-20250215-507075-v1	About 42 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 15, 2025	437725
ENV-20250216-042632-v1	About 5 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 16, 2025	437734
ENV-20250217-744173-v1	About 72 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 17, 2025	437746
ENV-20250219-727289-v1	About 31 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 19, 2025	437826
ENV-20250219-709193-v1	About 76 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 19, 2025	437824

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250219-212076-v1	About 65 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 18, 2025	437798
ENV-20250220-511781-v1	About 42 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 20, 2025	437858
ENV-20250220-294281-v1	About 27 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 20, 2025	437841
ENV-20250221-189513-v1	About 56 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 21, 2025	437888
ENV-20250221-716917-v1	About 33 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 21, 2025	437936
ENV-20250222-452450-v1	About 49 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 22, 2025	437967
ENV-20250222-439837-v1	About 30 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 22, 2025	437966

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250223-055675-v1	About 36 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 23, 2025	437982
ENV-20250223-059804-v1	About 47 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 23, 2025	437983
ENV-20250223-517035-v1	About 41 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 23, 2025	437999
ENV-20250224-834911-v1	About 60 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 24, 2025	438001
ENV-20250226-830774-v1	About 55 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 26, 2025	438131
ENV-20250226-583534-v1	About 102 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	February 26, 2025	438103
ENV-20250227-936232-v1	About 137 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak is continuing to be isolated until the repair is completed.	February 27, 2025	438170

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250303-912671	Random in home sample taken at the kitchen tap failed for total coliforms at the address 3108 Paisley Rd SW on 02/27/2025. AEPA Ref # 438259. Call requested 371236 created and dispatched to crew for resampling including upstream and downstream locations. Resample results were negative for total coliforms.	February 27, 2025	438259
ENV-20250301-670787-v1	About 100 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 1, 2025	438234
ENV-20250303-932176-v1	About 52 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 3, 2025	438264
ENV-20250312-552700-v1	About 41 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 12, 2025	438534
ENV-20250313-811535-v1	About 122 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 13, 2025	438616
ENV-20250320-823623-v1	About 47 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 20, 2025	438787
ENV-20250321-759589-v1	About 27 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 21, 2025	438826

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250325-241759-v1	About 45 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	March 25, 2025	438945
ENV-20250402-841173-v1	About 471 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 2, 2025	439169
ENV-20250405-352913-v1	About 45 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 5, 2025	439261
ENV-20250407-346263-v1	About 131 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 7, 2025	439325
ENV-20250410-716725-v1	About 88 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 10, 2025	439451
ENV-20250413-121062-v1	About 212 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 13, 2025	439568
ENV-20250419-560604-v1	About 129 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 19, 2025	439772

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250422-244135-v1	About 42 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	April 22, 2025	439855
ENV-20250504-945340-v1	About 67 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	May 4, 2025	440321
ENV-20250524-463725-v1	About 75 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	May 23, 2025	440971
ENV-20250615-852217-v1	This event was the first and second identified leak where about 52 m ³ of potable chlorinated water at +/-1.5ppm was released from a water main to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	June 15, 2025	441879
ENV-20250616-790977-v1	This event is the third and fourth leak discovered from the same water main where about 52 m ³ total of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	June 16, 2025	441926
ENV-20250706-595674-v1	About 82 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	July 5, 2025	442624

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250715-795625	<p>EPCOR employee conducted post-construction water quality sampling at customer's property for commissioning of a recent lead water service renewal July 10, 2025. Sample was sent to EPCOR lab for processing.</p> <p>On July 12, the sample returned positive result for total Coliform. Customer and AEPA were immediately notified and EPCOR field crew dispatched to flush and resample July 12. Reference number 442904 was issued. Resampling was conducted upstream, downstream, and at original sampling point, and samples were sent to EPCOR lab for immediate processing. Lab results were good and met all water quality parameters.</p>	July 12, 2025	442904
ENV-20250716-654848-v1	<p>About 75 m³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.</p>	July 16, 2025	443045
ENV-20250717-491854-v1	<p>About 27 m³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.</p>	July 17, 2025	443087
ENV-20250724-470713-v1	<p>About 267 m³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.</p>	July 24, 2025	443374
ENV-20250805-040793-v1	<p>About 137 m³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.</p>	August 5, 2025	443794
ENV-20250807-654973-v1	<p>On August 6, 2025 at 01:15 hrs, EPCOR Operations collected a sample from Hydrant 3122 following a main break repair. On August 7, 2025 at 11:53 hrs, the laboratory results indicated that the sample failed for total coliforms. AEPA was notified of these lab results on August 7, 2025 at 12:00 hrs. Following the failed sample, an EPCOR emergency response member was dispatched to site to collect four (4) resamples. After the samples were collected the hydrant control valve was closed as a precautionary measure. On August 11, 2025, at 11:51 hrs, the lab reported that all resamples passed.</p>	August 7, 2025	443868

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250808-500468-v1	About 33 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 8, 2025	443913
ENV-20250811-184611-v1	About 50 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 11, 2025	444010
ENV-20250824-524937-v1	About 46 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 24, 2025	444514
ENV-20250821-631354-v1	On August 19, 2025 a potable water sample was collected at a janitor tap as part of the voluntary home sampling program. Sample collected failed for total coliforms. Resampling of a hydrant at the original site, as well as upstream and downstream was conducted. AEPA was notified of the original failing result at 8:48 hrs on August 21, 2025. On August 21, 2025 at 14:45 hrs, EPCOR Operations collected 2 samples from hydrant 13683 after resampling from the original TC+ failure at 10904 – 111 AVE which occurred from a sample inside the building. On August 23, 2025 at 13:27 hrs, the laboratory results indicated that 1 of the 2 samples failed for total coliforms from H13683. AEPA was notified of these lab results on August 23, 2025 at 13:40 hrs. Following a single failed sample from the initial set of resamples, an EPCOR emergency response member was dispatched to site to collect four (4) resamples. On August 25, 2025 at 12:02 hrs, the lab reported that all resamples passed.	August 21, 2025	444416
ENV-20250830-943087-v1	About 47 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 30, 2025	444768

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250830-938829-v1	About 55 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 30, 2025	444767
ENV-20250831-038926-v1	About 44 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	August 31, 2025	444769
ENV-20250905-684659	A notification to Alberta Environment and Protected Areas (AEPA) was called in on September 4, 2025, to inform them of a negative result documented in a report following a quarterly acute lethality testing that was performed on August 19, 2025 at the E.L. Smith WTP waste stream. Sampling and testing of the waste streams released to the NSR is not a requirement under the Approval to Operate (638-04-00) but is done voluntarily as part of the Edmonton Water Treatment Plants residuals management program. E.L. Smith WTP is permitted to discharge settled alum sludge from the coagulation-flocculation water treatment process back to the North Saskatchewan River (NSR) via an in-stream river diffuser. Waste stream toxicity samples are collected quarterly with results summarized annually as part of the Annual Edmonton Waterworks System report submitted to Alberta Environment and Parks. AEPA Reference No.444984.	September 4, 2025	444984
ENV-20250913-620960-v1 & ENV-20250911-864727-v1	On September 9, 2025 at 15:30 hrs, EPCOR Construction collected a sample from Hydrant (H12751) after a planned hydrant repair. On September 11, 2025 at 11:04 AM. the laboratory results indicated that the sample failed for Total Coliforms (TC) Alberta Environment and Protected Areas (AEPA) was notified of these lab results on September 11, 2025 at 12:08 PM. Following the failed sample, an EPCOR emergency response member was dispatched to site to collect four (4) resamples. After samples were collected the hydrant control valve was closed as a precautionary measure. On September 13, 2025 at 11:44 AM, the lab reported that 2 of 4 resamples passed. Samples at original sample point Hydrant 12751 had both failed for Total Coliforms (TC) again. Hydrant was not in service at the time of second sample and was subsequently super-chlorinated to disinfect before taking two additional resamples on September 14, at 10:00 AM. A third sample had a failure at hydrant 12751 on September 14th, with notification at 3:25 PM. Hydrant body is scheduled to be replaced on September 16 th . After replacement, 4 th resample results were acceptable.	September 9, 2025	445281/44536 2

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250907-434020-v1	A failed Total Coliform (TC) sample was collected at hydrant (H27511) located at 10808 85 AVE on Sept 7 2025 11:30am. Water distribution and transmission (WDT) construction crew member collected the sample. The failed result was called into Alberta Environment and Protected Areas (AEPA) and reference number 445073 was issued. Resample results were acceptable.	September 7, 2025	445073
ENV-20250911-864727-v1	A failed Total Coliform (TC) sample was obtained from a hydrant (H12751) at 77 ST & 157 Ave on Sept 11, 2025. EPCOR employee obtained this sample after this hydrant was repaired. The result was called into Alberta Environment and Protected Areas (AEPA) and reference number 445281 was issued. The hydrant body was replaced by the maintenance team. Resamples were taken upstream and downstream of the original failed sample location and all results were acceptable.	September 11, 2025	445281
ENV-20250919-738877-v1	A failed Total Coliform (TC) sample was taken from a hydrant (H8419) at 4524 81 AVE on Sept 17/25 at 3:20 AM. The sample was obtained by a Water Distribution and Transmission (WDT) Maintenance Laborer 2 employee. The result was called into Alberta Environment and Protected Areas (AEPA), and reference number 445571 was issued. Resamples were taken upstream and downstream of the original failed sample location and all results were acceptable.	September 17, 2025	445571
ENV-20250921-173634-v1	About 84 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	September 21, 2025	445629
ENV-20250925-199781-v1	About 196 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	September 25, 2025	445814
ENV-20250928-476645-v1	About 33 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	September 28, 2025	445894

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20250929-318501-v1	About 55 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	September 29, 2025	445906
ENV-20251001-361181	EPCOR's monthly water quality report for the month of August was not submitted on time to AEPA due to system login errors. Monthly reporting is a requirement under Approval 638-04 (as amended) but due to system error on the AEPA site EPCOR was unable to submit the uploaded documents prior to the September 30, 2025 deadline for the month of August. On October 1, 2025 an email was sent to AEPA with the reports attached as per the Drinking Water Quality User Agreement for cases where the system is unavailable. AEPA Reference # 446015	October 1, 2025	446015
ENV-20251008-565697-v1	About 54 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 8, 2025	446313
ENV-20251010-070008-v1	About 3 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 10, 2025	446392
ENV-20251010-989749-v1	About 5 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 10, 2025	446388
ENV-20251017-720623-v1	About 134 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 17, 2025	446606

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20251018-581028-v1	About 76 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 18, 2025	446648
ENV-20251023-420137	On October 21, 2025 at 15:20 hrs EPCOR Construction collected a water sample from a new flush point (bleeder valve from a plug) after a planned watermain abandonment. On October 23, 2025 at 11:21 hrs the laboratory results indicated that the sample failed for total coliforms. AEPA was notified of these lab results on October 23, 2025 at 16:31 hrs. Inspector then collected a new sample from the original failure point and from a kitchen tap located from a house six (6) services upstream on Oct 23,2025 at 14:30 hrs. Both samples passed Oct 25, 2025 at 11:10 hrs.	October 21, 2025	446870
ENV-20251027-485296-v1	About 107 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 27, 2025	446966
ENV-20251030-401122-v1	About 40 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	October 30, 2025	447158
ENV-20251128-385428	Through regular testing of our drinking water systems, there was a detection of Crypto oocyst in a Rossdale water treatment plant reservoir effluent sample from November 24, 2025. A new sample was taken at Rossdale on Friday November 28, and the result of that sample also detected a single crypto oocyst in 1000L sample in the same location of the WTP reservoir effluent. Test results were reported to Alberta Environment and Protected Areas on Friday, November 28 at 14:20 hrs. Note that both these values are below our trigger (>10/1000L) for converting back to conventional treatment. There is no approval limit for these values. Further subsequent sampling and results did not find any detection for Crypto oocysts in the reservoir or treated water.	November 28, 2025	448099

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20251201-290594-v1	About 45 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 1, 2025	448185
ENV-20251203-460328-v1	About 46 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 3, 2025	448224
ENV-20251204-657760-v1	About 20 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 4, 2025	448308
ENV-20251212-572923-v1	About 2 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 12, 2025	448523
ENV-20251214-308182-v1	About 47 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 14, 2025	448575
ENV-20251218-138150-v1	About 43 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 17, 2025	448684
ENV-20251220-311157-v1	About 46 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 20, 2025	448741

1.4 Summary of Violations and Notifications for 2025

EPCOR Incident Number	Description	Date of Incident	AEPA Reference Number
ENV-20251223-804851-v1	About 42 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 23, 2025	448805
ENV-20251227-066636-v1	About 55 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 27, 2025	448853
ENV-20251230-983355-v1	About 73 m ³ of potable chlorinated water at +/-1.5ppm was released to the surface due to a suspected leak within the water distribution system buried underground. The water drained to the nearby catch basin. Dechlorination pucks were placed in the path of water and the water entry point into the drainage infrastructure to dechlorinate the water. The leak was isolated until the repair was completed.	December 30, 2025	448917

(End of Section)

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

ROSSDALE WATER TREATMENT PLANT (LEVEL IV)		
	Director, Edmonton Water Treatment Plants	
	Senior Manager, Operations	WT II
	Manager, Operations	WT III, WWT III
Employee Name	Title	Alberta Environment Certification Level
	Operations Engineer in Training	
	Manager, Transmission Operations & Training	WT III
	Operator Foreman	WT IV
	HEI Foreman	WT IV
	Operator Foreman	WT IV
	Operator Foreman	WT IV
	Transmission Foreman	WT III
	Training Foreman	WT III
	Lead Operator	WT II
	Transmisison Operator	WT III
	Water Operator	WT II
	Water Operator	WT III
	Water Operator	WT III
	Operations Trainer	WT III
	Day Foreman	WT IV
	Operator Foreman	WT III
	Operator Foreman	WT III
	Water Operator	WT III
	Water Operator	WT III
	Lead Operator	WT III
	Lead Operator	WT III
	Water Operator	WT III, WD II
	Water Operator	WT III, WWT III
	Water Operator	WT III
	Water Operator	WT II
	Water Operator	WT II, WD II, WWT II, WWC II
	Water Operator	WT II, WD I
	Water Operator	WT II, WD II, WWT I, WWC II
	Water Operator	WT I, WD I, WWT I, WWC I
	Water Operator	Non-certified
	Water Operator	Non-certified

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

E.L. SMITH TREATMENT PLANT (LEVEL IV)

Director, Edmonton Water Treatment Plants

Senior Manager, Operations

WT II

Manager, Operations

Employee Name	Title	Alberta Environment Certification Level
	Operations Engineer	
	Operations Engineer	WWC I
	Day Foreman	WT IV
	HEI Foreman	WT IV
	Training Foreman	WT IV
	Operator Foreman	WT IV
	Operator Foreman	WT IV
	Operator Foreman	WT III
	Operator Foreman	WT IV
	Operator Foreman	WT IV
	Lead Operator	WT IV
	Lead Operator	WT IV
	Lead Operator	WT II
	Lead Operator	WT III
	Lead Operator	WT III
	Lead Operator	WT II, WD II, WWT I, WWC I
	Water Operator	WT III
	Water Operator	WT III, WWT II,
	Water Operator	WT III
	Water Operator	WT III, WWT III
	Water Operator	WT II, WD I, WWT II, WWC I
	Water Operator	Non-certified
	Water Operator	Non-certified

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

DISTRIBUTION SYSTEM (LEVEL IV FACILITY)
WATER DISTRIBUTION (WD) - NETWORK MAINTENANCE

Senior Manager, Maintenance and Construction

Manager, Distribution Maintenance

Manager, Dist. Maint Schedule

Employee Name	Title	Alberta Environment Certification Level
	Water Network Operator	WD IV WWC I
	Water Network Operator	WD IV
	Foreman III	WD III
	Foreman III	WD II
	Foreman I	WD III WWC I
	Foreman I	WD III
	Foreman I	WD IV
	Foreman I	WD II
	Foreman I	WD III
	Foreman I	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD I
	Equipment Operator III	WD II
	Equipment Operator III	WD I
	Equipment Operator III	WD I
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Equipment Operator III	WD II
	Labourer II	WD I
	Labourer II	WD II
	Labourer II	WD I
	Labourer III	WD III
	Labourer II	WD I
	Labourer III	WD I

Labourer II	WD I

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

DISTRIBUTION SYSTEM (LEVEL IV FACILITY)
WATER DISTRIBUTION (WD) - NETWORK MAINTENANCE

Senior Manager, Maintenance and Construction
Manager, Maintenance and Construction
Manager, Dist. Maint Scheduling

Employee Name	Title	Alberta Environment Certification Level
	Labourer II	WD I
	Labourer II	WD I
	Labourer II	WD I WWC I
	Labourer II	WD I WWC I WT I WWT I
	Truck Driver III	WD II
	Labourer II	WD II
	Truck Driver III	WD II
	Truck Driver III	WD II
	Truck Driver III	WD II
	Truck Driver III	WD I
	Truck Driver III	WD I
	Welder	WD II
	Maintenance Repairman I	WD II
	Maintenance Repairman I	WD I
	Maintenance Repairman I	WD I
	Labourer II	WD I
	Foreman I	WD I
	Water Sys Tech Support Specialist	WD IV

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

DISTRIBUTION SYSTEM (LEVEL IV FACILITY)
WATER DISTRIBUTION (WD) - CUSTOMER SERVICE

Senior Manager, Customer Service

Employee Name	Title	Alberta Environment Certification Level
	Team Lead, Dispatch	
	Dispatcher Coordinator	WD I
	Dispatcher Coordinator	WD I WWC I WT I WWT I
	Inspector – Water Metering	WD II
	Inspector – Water Metering	WD I
	Manager, Cross Connections	WD II
	Inspector – Cross Connections	WD I

1.5 Alberta Environment Operator Certifications (Effective to year end 2025)
Operator Contact Number: EPCOR Water Services Dispatch (24 hr) (780) 412-4500

DISTRIBUTION SYSTEM (LEVEL IV FACILITY)
WATER METERING (WD)

Manager, Metering Operations

Employee Name	Title	Alberta Environment Certification Level
	Foreman III	WD II
	Meter Installer I	WD I
	Meter Installer I	WD I
	Meter Installer II	WD III
	Meter Installer I	WD I WWC I
	Meter Installer I	WD III
	Meter Installer I	WD I
	Meter Installer I	WD II
	Meter Mechanic II	WD II
	Meter Installer II	WD I
	Meter Installer I	WD I
	Meter Installer I	WD I

1.6 Demand Production Statistics

2025

Month	ROSSDALE ZONE			E.L.SMITH ZONE			SYSTEM TOTAL			RESERVOIR PUMPAGE		
	Monthly Prod'n (ML)	Max Daily Prod'n (ML)	Peak Daily Demand (ML)	Monthly Prod'n (ML)	Max Daily Prod'n (ML)	Peak Daily Demand (ML)	Monthly Prod'n (ML)	Max Daily Prod'n (ML)	Peak Daily Demand (ML)	Rosssdale Zone (ML)	E.L.Smith Zone (ML)	Total (ML)
JANUARY	3,395	145	135	8,010	280	291	11,404	386	390	1,142	2,586	3,728
FEBRUARY	3,349	132	139	6,985	267	270	10,335	398	382	1,137	2,225	3,362
MARCH	4,367	169	214	7,128	266	264	11,495	427	381	1,542	2,459	4,001
APRIL	4,664	183	185	6,683	253	245	11,347	436	408	1,503	2,549	4,053
MAY	5,288	215	224	7,977	288	312	13,265	488	473	1,847	2,979	4,825
JUNE	5,319	243	240	7,819	309	328	13,138	550	520	1,534	3,285	4,819
JULY	5,314	220	227	8,298	313	317	13,613	533	486	1,531	3,352	4,883
AUGUST	5,301	220	211	8,140	306	317	13,441	527	515	1,448	3,313	4,761
SEPTEMBER	5,644	219	235	7,818	303	314	13,461	500	474	1,402	3,323	4,725
OCTOBER	5,076	206	216	6,693	244	275	11,769	440	403	1,081	2,885	3,966
NOVEMBER	4,014	175	160	7,331	267	265	11,345	425	392	903	2,762	3,665
DECEMBER	4,011	185	231	7,515	283	311	11,526	453	386	966	2,869	3,835

2025 - HIGH 5-DAY DEMAND

	PLANTS PROD (ML/d)	RES. GAIN / LOSS (%)	RES. GAIN / LOSS (ML)	TOTAL DEMAND (ML)
25-Aug-2025	463	-3.8	-24.0	487
26-Aug-2025	508	2.2	13.6	494
27-Aug-2025	527	1.9	11.8	515
28-Aug-2025	514	1.0	6.0	508
29-Aug-2025	502	0.1	0.6	501

AVERAGE: 501

Year to Date Data	2025	2024	% CHANGE
TOTAL PRODUCTION TO DATE (ML)	146,137	142,262	2.7
AVG. DAILY DEMAND TO DATE (ML)	400	389	3.0
PEAK DAILY DEMAND TO DATE (ML)	520	567	12.1
PEAK HOURLY DEMAND TO DATE (ML)	691	782	(11.6)
HIGH 5-DAY AVERAGE TO DATE (ML)	501	542	(7.5)

Peak daily demand of 520 ML/d occurred on June 09, 2025

Peak hourly demand of 691 ML/d occurred on June 8, 2025 at 20:00

(End of Section)

1.7 Energy Consumption and Usage

Power Consumption:

	2025	2024	Change %
Rossdale WTP	34,354,693	34,395,135	-0.17%
E.L Smith WTP	47,655,189	46,017,119	3.56%
Field Pump Stations	17,381,980	17,247,797	0.78%
TOTAL	99,391,862	97,677,417	1.76%

Gas Consumption (GJ):

	2025	2024	Change %
Plants	89,514	87,087	2.79%
Pumping Stations	4,185	4,605	-9.12%
TOTAL	93,699	91,692	2.19%

Water Production/Pumpage(ML):

	2025	2024	Change %
Rossdale WTP	55,742	55,323	0.76%
E.L Smith WTP	90,397	86,939	3.98%
Field Pump Stations	50,623	50,594	0.06%
TOTAL	146,139*	142,262*	2.73%

*The reservoirs and booster stations are not included in these totals.

Energy Usage

	2025	2024
Energy Consumption for Treatment and Pumpage (kWh)	99,391,862	97,677,417
Energy in kW.h per ML pumped	680	687
Gas Consumption – All Facilities (GJ)	93,699	91,692
Gas Consumption – All Field Pump Stations (GJ)	4,185	4,605

(End of Section)

1.8 Summary of Changes to the Operations Program

A summary of the significant changes to the 2025 Operations Program document from the previous year is as follows:

1. Introduction: Updated iMS name changes.
2. Section 1: Minor edits and update to include 2025 IWMS update.
3. Section 2.1: Minor changes – removed aqua ammonia; added that ROS uses 0.1 mg/L in DF under primary polymer; standardized LAS now used at both ROS and ELS; added link for Table 2.1.
4. Section 2.2: Minor changes to remove branded software and clarify network segmentation.
5. Sections 2.3 and 2.4: Minor edits.
6. Section 2.5: Edit changes to Table 2.5 for consistency.
7. Section 2.6: Removed ammonia from Table 2.7.
8. Section 2.7: Updated the bylaw name from Drainage to Water Services and updated the bylaw number. [Change was made throughout the document.]
9. Section 3.1: Updated tables 3.1 and 3.2 and condensed wording to clarify.
10. Section 3.2: Overhauled section for clarity, brevity, and removal of duplication. Added information on Critical Main inspections.
11. Section 3.3: Comments updated to reflect that CCC program now has risk-based approach.
12. Section 4.1: Review and clean-up only.
13. Section 4.2: Some updates to overall monitoring plan related to sampling.
14. Section 4.3: Some updates that are related to completed MOC's.
15. Sections 4.4 and 4.5: Clean-up of wording and updating references to lab procedures.
16. Section 4.6: Some updates that are related to program level updates.
17. Sections 5.1, 5.2.2, and 5.5: No changes.
18. Section 5.2.1: Removed description of initial installation of WTPs dechlorination systems, as systems have since been updated.
19. Section 5.3: Changed header to WTP Residuals Management. Removed reference to solids and refer to residuals management instead to better represent this work.
20. Section 5.4: Minor edits.
21. Section 6: No changes.
22. Section 7.1: Added HSE; included asset upgrades as use for capital funding; replaced Project Charter with the PPR and CPJS; Included description of the CDM process followed.

23. Section 7.2: Updated Regulatory description; clarified that Project Sponsors approve the project and not deliver the project.
24. Section 7.3: Added Project Sponsor approving projects; Added new bullet for the Director of Project Management; updated Program Manager to Portfolio Manager; new paragraph on project status reporting; added the PMO group as part of the project oversight process.
25. Section 7.4: Added comment on the 9-month Water extension.
26. Section 7.5: Deleted some incorrect SharePoint project storage uses.
27. Section 7.6: Added Capital Portfolio Managers and PMO for consistency with above updates.
28. Section 8: Reference to 'Emergency relocation for Dispatch Center' ERP removed.
29. Section 9: Changed EDGE to Energy and Environmental response line.
30. Section 10.1: Updated monitoring frequency of n-Nitrosodimethylamine in Table 10.4.
31. Sections 10.2 to 10.5: No changes.
32. Section 11: Updated certified operators information for the Water Distribution System.

2.1 Storage Capacities of Reservoirs

Reservoir Name	Available ML	Fire Storage (ML)	Operating Storage (ML)	Dead/ Emergency ML	Gross ML
Water Treatment Plant Reservoir Cells					
Rossdale Total	80.42	0.00	80.42	16.98	97.40
E.L. Smith Total	95.20	0.00	95.20	42.30	137.50
WTPs Sub Total	175.62	0.00	175.62	59.28	234.90
Field Reservoir Cells					
Roslyn	97.54	12.56	110.10	12.93	123.04
Clareview	50.51	2.95	53.46	11.14	64.60
Papaschase	66.80	9.71	76.51	5.63	81.59
Londonderry	39.10	2.58	41.68	3.56	45.24
North Jasper Place	29.74	4.66	34.40	11.66	46.06
Ormsby	37.41	2.99	40.40	4.87	45.27
Thornclyff	37.10	2.93	40.03	3.40	43.43
Kaskitayo	21.78	3.96	25.74	3.20	28.94
Mill Woods	46.98	5.92	52.90	3.33	56.23
Castle Downs	22.70	2.41	25.11	8.93	34.04
Discovery Park	5.00	1.44	6.44	0.71	6.93
Field Sub Total	454.65	52.11	506.77	69.36	575.37
Grand Total	630.27	52.11	682.39	128.64	810.27

(End of Section)

2.2 Pumping Station Pressures

WTP Highlift Pump Stations	Elevation, m	Pressure Alarms, kPa				Pressure Controls, kPa	
		LOLO	LO	HI	HIHI	Low (SAV)	High (PRV)
ELS North	621	910	940	1080	1100	-	1100
ELS South	621	910	940	1080	1100	-	1093
Rossdale West	622	800	830	950	980	500	980
Rossdale South	622	800	830	950	980	640	1000
Reservoir Pumping Stations	Elevation, m	LOLO	LO	HI	HIHI	Low (SD)	High (PRV)
Ormsby Intake	679	295	325	1000	1000	-	-
Ormsby Primary Discharge	679	325	355	460	490	-	600
Thorncliff Intake	672	310	340	480	500	-	-
Thorncliff Discharge	672	350	380	495	515	-	-
NJP Intake/Discharge	675	320	345	440	580	-	-
Rossllyn 1 Intake/Discharge	670	295	345	475	595	-	-
Rossllyn 2 Intake/Discharge	671	280	330	465	580	60/140	-
Clareview Intake	650	365	410	640	670	-	-
Clareview Discharge	649	430	480	620	660	-	610
Papaschase 1 Intake/Discharge	693	45	95	270	385	-	-
Ormsby LE Discharge	679	525	575	680	710	-	700
Castledowns Intake	679	230	260	400	430	-	-
Castledowns Discharge	678	400	450	530	710	-	520
Rossllyn 3 Discharge	669	510	540	630	700	-	610
Londonderry Intake	678	170	220	380	480	-	-
Londonderry Discharge	670	400	450	500	525	-	535
Kaskitayo Intake	674	280	315	480	550	-	-
Kaskitayo Discharge	674	490	550	690	720	-	690
Millwoods Intake	679	220	250	400	430	-	-
Mill Woods P6 Suction	679	-	-	-	-	60/140	-
Millwoods Discharge	679	490	520	620	650	-	610
Papachase 2 Intake	689	40	70	700	700	-	-
Papachase 2 Discharge	690	350	380	500	530	-	520
Discovery Park Intake	716	350	400	460	510	-	-
Discovery Park Discharge	716	280	330	470	520	-	-
Booster Pumping Stations	Elevation, m	LOLO	LO	HI	HIHI	Low (SD)	High (PRV)
Parkland Intake	682	270	290	380	400	60/140	-
Parkland Discharge 300mm	682	555	605	700	710	-	-
Parkland Discharge 600mm	682	555	605	700	710	-	-
Big Lake Intake	678	290	325	430	580	60/140	-
Big Lake Discharge	678	315	365	475	625	-	-
Terwillegar Intake	682	240	257	750	750	60/140	-
Terwillegar Discharge	683	440	480	650	690	-	-
Burnewood Intake	695	210	240	700	700	60/140	-
Burnewood Discharge	695	520	550	610	640	-	-
Laurel Intake	724	250	280	500	540	60/140	-
Laurel Discharge	724	490	540	580	600	-	-
Ellerslie Intake	695	230	260	320	350	60/140	-
Ellerslie Discharge	695	280	300	400	450	-	-
Walker Intake	724	200	230	300	410	60/100	-
Walker Discharge	724	630	680	830	880	-	-
Blackmud Creek Intake	690	200	230	300	410	60/140	-
Blackmud Creek Discharge	689	360	410	500	650	-	-

(End of Section)

2.3 Fire Stations & Other City Pressure Monitors

		Pressure Alarms, kPa			
Monitoring Stations	Elevation, m	LOLO	LO	HI	HIHI
Fire Hall Pressure Monitoring Stations					
Fire Hall #1 (Headquarters)	662	310	360	550	700
Fire Hall #2 (Downtown)	667	270	320	495	645
Fire Hall #3 (University)	668	370	420	520	670
Fire Hall #5 (Norwood)	664	235	285	515	665
Fire Hall #6 (Mill Creek)	664	360	410	520	670
Fire Hall #7 (Highlands)	656	280	330	550	700
Fire Hall #9 (Roper Station)	694	240	290	460	610
Fire Hall #11 (Capilano)	665	260	310	475	625
Fire Hall #15 (Coronet)	675	285	335	470	625
Fire Hall 12 (Meadowlark)	674	250	300	445	595
Fire Hall 13 (Rainbow Valley)	670	285	335	515	665
Fire Hall #16 (Mill Woods)	694	260	310	430	580
Fire Hall #17 (Castledowns)	681	230	280	470	620
Fire Hall #20 (Kaskitayo)	680	230	280	430	580
Fire Hall #22 (Oliver)	669	230	280	520	670
Fire Hall #24 (Terwillegar)	686	265	315	450	600
Fire Hall #26 (Meadows)	713	295	345	475	525
Firehall #27 (Eilerslie)	688	375	425	470	615
Fire Hall #28 (Heritage Valley)	698	290	300	400	550
Other City Pressure Monitoring Stations					
Northeast Line	656	350	380	500	530
U of A #1 (Sask Dr)	670	-	-	-	-
U of A #2 (83 Ave)	671	-	-	-	-
U of A #3 (116st)	672	-	-	-	-
Westview	697	320	340	500	n/a
Sobeys	682	305	355	490	640
HD Windermere	683	410	460	550	770
HD 17st	708	340	390	490	640

(End of Section)

2.4 Regional Customers

Customer	Elevation (m)	Pressure (kPa)			HGL (m)		
		Min	Low Normal	High Normal	Min	Low Normal	High Normal
Regional Water Customer Group* (RWCG) Members							
St. Albert (Akinsdale)	687	121	215	265	690	708	714
St. Albert (Oakmont)	655	402	450	700	696	701	727
Morinville	663	383	425	500	698	706	714
CRNWSC (Northeast)	643	470	519	578	691	696	702
Strathcona County (750mm)	664	349	280	500	700	693	715
CRPWSC (Parkland)	712	89	160	330	722	728	746
Sturgeon County	692	240	343	540	717	727	747
CRSWSC Intake (Discovery Pk)	716	390	400	460	756	757	763
Bulk Customers*							
Enoch Cree Nation	704	128	180	460	717	722	751
Namao	681	210	240	540	710	706	737

*Min values based on Water Supply Agreements. Normal range based on alarm limits.

(End of Section)

2.5 Pumping Facilities

Facilities	Year Built	Number of Pumps			Best Efficiency Flow by Pump (ML/d)							
		Fixed Speed	Variable Speed	Total	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8
Water Treatment Plants Highlift Pump Stations												
E.L. Smith Plant	1976	2	2	4	95	95	205	205				
Rossdale Plant	1947	4	2	6	105	105	105	105	95	105		
Field Reservoir & Booster Pump Stations												
Ormsby*	1969	2	1*	3	16	16	30					
Thornclyff	1970	3	0	3	12	12	12					
North Jasper Place	1974	3	1	4	15	15	26	26				
Roslyn 1	1955	3	0	3	17	17	17					
Roslyn 2	1969	1	0	1				17				
Clareview	1979	1	2	3	12	30	30					
Papaschase 1	1976/82	2	0	2	20	20						
Castledowns	1979	1	2	3			20	19	18			
Roslyn 3	1963	3	0	3	2	4				12	19	25
Londonderry	1974/79	1	2	3	2	2	6	6	15			
Ormsby, Lewis Estates	1969	0	3	3	16	16	16					
Parkland Booster	1973	3	2	5		4			12	19	25	
Big Lake Booster	2016	0	5	5	15	15	21					
Terwillegar Booster	1998	2	1	3	17	17	17					
Kaskitayo	1980	3	2	5	7	7	21	7	19			
Mill Woods	1977	3	2	6	16	16	30	25	16	15		
Papaschase 2	1968/71	2	1	3			14	21	21			
Burnewood Booster	1985	2	2	4	11	14	14	14				
Ellerslie Booster	2007	0	2	2	6	6						
Laurel Booster	2018	0	2	2	1	1						
Blackmud Creek Booster	1982	0	3	3		17	35	22				
Discovery Park	2020	0	5	5	1	3	3	11	11			
Walker Booster	2015	0	5	5	2	2	7	7	16			
TOTAL		36	42	78								

*Ormsby Pump #3 can be used to support Primary Pressure Zone or West Secondary Pressure Zone depending on the discharge header valve configuration. The totals include this pump once.

(End of Section)

2.6 Production Summary

Water Production	2025	2024	2023
Treated and Pumped into the System	146,139	142,262	140,752
Water Treated at Rossdale Plants	55,742	55,324	52,297
Water Treated at E. L. Smith Plant	90,397	86,938	88,455
Supplied to Residential Customers	72,756	71,649	66,655
Supplied to Commercial/Industrial Customers	26,292	24,494	27,203
Supplied to Suburban Customers	38,415	37,245	37,252
Supplied to Customers via Truck Fill & Hydrants	905	640	599
Percentage Accounted for from:	640	640	131,111
Metered & Bulk Sources	95%	94%	94%
Assumed System Leakage	5%	6%	6%
Average Day Pumpage (ML)	400	389	386
Peak Day Demand (ML)	520	567	545

Population Served	2025	2024	2023
Approximate Population Served (City)	1,223,300	1,179,700	1,140,300
Approximate Population Served (Region)	380,000	370,000	365,000
Approximate Population Served (Total)	1,603,300	1,549,700	1,505,300

Per Capita Consumption (L/cap)	2025	2024	2023
Average Day Demand	250	251	256
Peak Day Demand	324	366	362

(End of Section)

2.7 Raw Water Intake (ML)
2025

Month	Rossdale									E.L. Smith				Plants Combined Total
	Plant 1				Plant 2				Plant Total	Min	Max	Avg	Plant Total	
	Min	Max	Avg	Total	Min	Max	Avg	Total						
January	89	135	117	3,626	0.0	67	2.2	68	3,694	255	321	300	9,313	13,007
February	115	140	130	3,627	0.0	0.0	0.0	0.0	3,627	255	319	295	8,267	11,893
March	60	135	78	2,431	0.0	100	77	2,401	4,832	97	321	262	8,122	12,954
April	60	85	68	2,036	89	115	103	3,081	5,117	141	280	252	7,554	12,671
May	18	100	73	2,278	32	128	112	3,473	5,751	165	311	284	8,793	14,544
June	54	90	73	2,177	84	158	120	3,603	5,780	175	341	287	8,616	14,395
July	55	132	82	2,547	4.8	129	103	3,190	5,737	260	340	296	9,161	14,898
August	46	99	74	2,303	69	140	110	3,409	5,712	260	336	286	8,866	14,578
September	14	110	77	2,302	37	180	124	3,716	6,018	156	321	287	8,596	14,614
October	23	100	66	2,036	24	165	120	3,713	5,749	80	301	262	8,129	13,878
November	36	135	106	3,176	0.0	126	44	1,314	4,490	252	301	278	8,351	12,842
December	0.0	0.0	0.0	0.0	43	180	145	4,486	4,486	75	315	270	8,384	12,871
Annual Total				28,539				32,454	60,993				102,151	163,144
Annual Min/Max/Avg	0.0	140	78		0.0	180	89			75	341	280		

2.8 Treated Water Production (ML)

2025

Month	Rossdale (Plant 1 & Plant 2)				E.L. Smith				Plants Combined	
	Flow Meters				Flow Meters				Avg	Total
	Min	Max	Avg	Total	Min	Max	Avg	Total		
January	16	208	109	3,394	0.0	302	258	8,009	368	11,404
February	47	204	120	3,349	0.0	299	249	6,985	369	10,335
March	42	206	141	4,367	0.0	295	230	7,127	371	11,494
April	12	212	155	4,664	0.0	303	223	6,683	378	11,347
May	0.0	302	171	5,288	0.0	335	257	7,977	428	13,264
June	0.0	302	177	5,319	0.0	357	261	7,819	438	13,138
July	11	300	171	5,314	87	354	268	8,298	439	13,612
August	0.0	307	171	5,301	128	343	263	8,140	434	13,440
September	0.0	308	188	5,644	0.0	353	261	7,817	449	13,461
October	0.0	282	164	5,076	0.0	266	216	6,693	380	11,769
November	0.0	211	134	4,014	173	305	244	7,331	378	11,345
December	0.0	211	129	4,011	0.0	329	242	7,515	372	11,526
Annual Total				55,741				90,395		146,136
Annual Min/Max/Avg	0.0	308	153		0.0	357	248		400	

NOTES: ' -- ' indicates plant offline

3.1 Raw Water Quality - North Saskatchewan River

2025

Month	Rossdale									E.L. Smith								
	Turbidity (NTU)			pH			Colour (TCU)			Turbidity (NTU)			pH			Colour (TCU)		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
January	1.7	5.3	2.6	8.0	8.1	8.1	2.0	4.0	2.8	1.7	7.3	2.4	7.9	8.1	8.0	1.9	3.6	2.8
February	1.4	25	3.5	7.8	8.2	8.0	2.5	9.0	4.4	1.4	8.3	2.9	7.9	8.1	8.0	2.5	5.8	4.2
March	1.9	25	6.4	7.9	8.1	8.0	3.8	31.5	12.1	2.2	20	5.1	7.8	8.1	8.0	3.1	26.2	11.0
April	5.3	450	45	7.9	8.3	8.1	5.4	40.2	12.9	4.7	650	55	7.9	8.3	8.1	5.4	40.9	13.0
May	2.2	400	40	8.0	8.5	8.2	6.1	51.1	22.4	2.5	450	40	8.1	8.4	8.3	6.7	53.3	23.3
June	3.0	450	40	8.1	8.6	8.4	6.7	45.2	15.5	4.6	370	35	8.1	8.6	8.4	6.9	44.9	16.0
July	6.5	75	20	8.1	8.6	8.4	7.5	38.5	15.4	1.8	70	17	8.2	8.6	8.4	8.1	40.8	16.3
August	5.2	400	30	8.3	8.5	8.4	8.0	20.8	14.0	5.2	400	28	8.3	8.5	8.4	8.3	20.4	14.7
September	2.0	12	4.4	8.0	8.6	8.4	2.6	11.5	6.2	2.2	10	4.6	8.3	8.6	8.4	3.7	9.7	6.4
October	1.8	17	3.6	8.2	8.5	8.3	2.3	7.7	4.3	2.1	31	4.0	8.2	8.5	8.3	3.0	11.1	4.8
November	1.9	8.3	3.3	8.0	8.3	8.2	2.8	7.3	3.8	2.1	10	3.5	8.1	8.4	8.2	2.9	7.8	4.4
December	1.2	13	2.2	8.0	8.2	8.1	2.7	4.7	3.6	1.5	8.7	2.5	7.9	8.2	8.0	3.0	7.3	4.2
Annual Min/Max/Avg	1.2	450	17	7.8	8.6	8.2	2.0	51.1	9.8	1.4	650	17	7.8	8.6	8.2	1.9	53.3	10.1

NOTES: ' -- ' indicates plant offline

3.2 Treated Water Quality Entering the Distribution System 2025

Month	Rossdale														E.L. Smith													
	Turbidity (NTU)			Chloramine Residual (mg/L)			pH			Fluoride Residual (mg/L)			Total Hardness (mg/L as CaCO ₃)	Colour (TCU)	Turbidity (NTU)			Chloramine Residual (mg/L)			pH			Fluoride Residual (mg/L)			Total Hardness (mg/L as CaCO ₃)	Colour (TCU)
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg	Avg
January	0.04	0.10	0.07	1.80	2.16	2.03	7.8	8.0	7.9	0.65	0.83	0.71	175	0.5	0.06	0.07	0.06	1.88	2.02	1.94	7.6	7.9	7.8	0.67	0.76	0.69	175	0.6
February	0.04	0.10	0.07	1.90	2.21	2.08	7.6	8.0	7.9	0.68	0.74	0.72	194	0.9	0.06	0.08	0.06	1.88	2.02	1.95	7.7	8.0	7.9	0.64	0.78	0.68	195	0.8
March	0.05	0.10	0.06	1.90	2.21	2.02	7.6	7.8	7.7	0.68	0.75	0.71	177	0.5	0.05	0.07	0.06	1.83	2.12	1.93	7.5	7.9	7.7	0.63	0.74	0.66	177	0.4
April	0.03	0.09	0.06	1.90	2.26	2.07	7.7	7.9	7.8	0.63	0.74	0.69	160	0.6	0.05	0.09	0.06	1.76	2.11	1.90	7.5	7.8	7.7	0.63	0.73	0.69	161	0.6
May	0.03	0.08	0.05	1.90	2.26	2.07	7.6	7.9	7.8	0.66	0.79	0.73	169	0.9	0.05	0.07	0.06	1.82	2.18	2.00	7.5	7.9	7.8	0.60	0.70	0.65	170	1.1
June	0.03	0.10	0.07	2.00	2.32	2.16	7.1	8.0	7.8	0.65	0.78	0.70	177	0.7	0.06	0.09	0.06	1.93	2.18	2.06	7.6	8.0	7.8	0.59	0.72	0.64	177	1.1
July	0.03	0.11	0.07	2.00	2.32	2.14	7.7	7.9	7.8	0.65	0.79	0.74	171	0.7	0.05	0.07	0.06	1.86	2.08	1.98	7.6	8.0	7.7	0.57	0.63	0.60	172	1.2
August	0.04	0.08	0.07	1.90	2.32	2.16	7.8	7.9	7.8	0.72	0.80	0.76	170	0.7	0.05	0.06	0.06	1.93	2.22	2.05	7.5	7.9	7.8	0.60	0.63	0.62	171	1.1
September	0.04	0.09	0.07	2.00	2.36	2.24	7.6	7.9	7.7	0.69	0.80	0.74	164	0.5	0.06	0.08	0.06	1.97	2.23	2.15	7.6	7.9	7.8	0.60	0.64	0.62	164	0.6
October	0.03	0.13	0.07	1.90	2.36	2.08	7.5	8.2	7.9	0.66	0.77	0.70	169	0.7	0.06	0.11	0.08	1.88	2.22	2.05	7.6	8.0	7.9	0.60	0.66	0.63	169	0.9
November	0.04	0.16	0.07	1.90	2.32	2.04	8.0	8.2	8.1	0.63	0.73	0.69	172	0.6	0.07	0.09	0.08	1.87	2.07	1.96	7.5	8.1	8.0	0.63	0.70	0.67	172	0.9
December	0.04	0.14	0.06	1.80	2.36	2.11	7.7	8.2	7.9	0.62	0.74	0.72	187	0.5	0.07	0.10	0.07	1.79	2.06	1.93	7.9	8.0	8.0	0.61	0.78	0.66	186	0.9
Annual Min/Max/Avg	0.03	0.16	0.07	1.80	2.36	2.10	7.1	8.2	7.8	0.62	0.83	0.72	174	0.7	0.05	0.11	0.06	1.76	2.23	1.99	7.5	8.1	7.8	0.57	0.78	0.65	174	0.8

NOTES: ' -- ' indicates plant offline

3.3 Rossdale Filters 1 - 9 Particle Counts (no./mL >2um)

2025

Filter	1			2			3			4			5			6			7			8			9		
Month	Min	Max	Avg																								
January	1	40	3	1	15	3	1	31	5	1	29	5	1	27	6	1	31	3	1	34	4	1	37	4	1	28	4
February	1	40	4	1	42	4	1	39	6	1	41	6	1	25	5	1	44	3	1	42	6	1	41	6	1	48	5
March	1	42	3	1	46	3	1	45	3	1	47	5	1	45	2	1	44	2	1	44	3	1	43	2	1	47	2
April	1	28	4	1	26	3	1	39	4	1	31	4	1	36	6	1	30	3	1	36	7	1	35	4	1	35	4
May	1	25	4	1	35	3	1	35	3	1	25	4	1	30	5	1	24	4	1	31	4	1	28	4	1	32	4
June	1	21	3	1	23	3	1	18	3	1	21	4	1	41	5	1	33	4	1	24	4	1	30	3	1	24	3
July	1	21	3	1	27	3	1	38	3	1	20	3	1	26	5	1	33	4	1	20	4	1	27	4	1	16	4
August	1	19	2	1	20	1	1	25	1	1	38	2	1	21	3	1	27	2	1	20	2	1	21	2	1	12	2
September	1	19	2	1	35	2	1	15	2	1	36	3	1	25	3	1	35	2	1	25	3	1	35	2	1	42	2
October	1	42	6	1	37	5	1	43	4	1	45	6	1	38	9	1	27	6	1	27	6	1	37	6	1	34	5
November	1	32	5	1	42	4	1	45	5	1	41	6	1	34	7	1	33	5	1	31	5	1	27	5	1	43	5
December	1	15	2	1	26	1	1	20	2	1	43	2	1	30	3	1	44	2	1	22	2	1	34	2	1	23	2
Annual Min/Max/Avg	1	42	3	1	46	3	1	45	3	1	47	4	1	45	5	1	44	3	1	44	4	1	43	4	1	48	3

NOTE: ' - ' indicates filter offline

3.4 E.L. Smith Filters 1 - 9 Particle Counts (no./mL >2um)

2025

Filter	1			2			3			4			5			6			7			8			9		
Month	Min	Max	Avg																								
January	1	27	6	1	32	5	1	26	5	1	24	5	1	30	5	1	44	9	3	39	8	1	34	6	1	30	6
February	1	24	5	1	25	3	1	27	3	1	23	3	1	41	3	1	45	7	1	44	7	1	36	5	1	45	6
March	1	33	2	1	39	2	1	41	3	1	41	2	1	41	3	1	43	4	1	45	7	1	42	4	1	34	3
April	1	40	5	1	33	4	1	45	5	1	36	4	1	39	5	1	44	4	2	44	10	1	40	6	1	38	6
May	1	40	6	1	37	5	1	44	6	1	45	6	1	43	6	1	41	5	1	45	10	1	38	6	1	34	7
June	1	41	4	1	26	4	1	38	4	1	40	4	1	26	4	1	32	5	1	38	9	1	35	7	1	34	7
July	1	38	5	1	25	4	1	30	4	1	26	4	1	30	4	1	31	5	1	39	7	1	31	6	1	31	5
August	1	30	5	1	25	4	1	19	4	1	24	4	1	22	4	1	28	4	1	40	7	1	41	6	1	34	5
September	1	30	6	1	25	5	1	37	6	1	37	5	1	39	5	1	31	5	2	39	9	1	33	6	1	29	6
October	1	32	6	1	43	5	1	38	7	1	29	5	1	25	6	1	19	6	2	33	10	1	30	7	1	37	6
November	1	20	4	1	45	4	1	22	5	1	27	4	1	20	4	--	--	--	5	33	14	1	31	5	1	43	5
December	1	20	2	1	44	2	1	30	2	1	43	2	1	19	2	--	--	--	2	45	11	1	34	3	1	31	2
Annual Min/Max/Avg	1	41	5	1	45	4	1	45	4	1	45	4	1	43	4	1	45	5	1	45	9	1	42	5	1	45	5

NOTE: '--' indicates filter offline

3.5 E.L. Smith Filters 10 - 18 Particle Counts (no./mL >2um)

2025

Filter	10			11			12			13			14			15			16			17			18		
Month	Min	Max	Avg																								
January	1	44	7	1	30	6	2	31	8	1	29	6	1	42	7	1	43	6	1	39	6	1	30	5	1	45	6
February	1	45	8	1	43	5	1	45	9	1	45	5	1	46	5	1	44	4	1	45	5	1	45	4	1	45	5
March	1	40	3	1	40	4	1	45	4	1	32	3	1	33	3	1	28	2	1	35	3	1	31	3	1	45	2
April	1	41	6	1	38	6	1	45	6	1	41	6	1	35	6	1	43	5	1	45	5	1	35	5	1	41	5
May	1	36	6	1	36	6	1	42	7	1	45	7	1	42	7	1	45	6	1	30	6	1	31	6	1	36	6
June	1	30	6	1	33	6	1	33	7	1	39	6	1	30	7	1	34	5	1	24	5	1	42	6	1	27	5
July	1	28	5	1	29	5	1	33	6	1	40	6	1	32	6	1	29	5	1	43	5	1	35	6	1	37	4
August	1	30	4	1	29	4	1	29	4	1	38	5	1	25	5	1	38	4	1	29	4	1	34	4	1	27	4
September	1	28	5	1	26	5	1	33	5	1	42	6	1	40	7	1	42	5	1	20	5	1	21	6	1	22	4
October	1	34	5	1	31	6	1	30	6	1	22	6	1	48	7	1	20	5	1	23	6	1	19	7	1	23	5
November	1	27	5	1	29	5	1	30	5	1	22	5	1	31	5	1	30	5	1	42	5	1	17	5	1	41	4
December	1	41	3	1	45	3	1	35	3	1	20	2	1	16	3	1	15	2	1	22	2	1	34	2	1	18	2
Annual Min/Max/Avg	1	45	5	1	45	5	1	45	6	1	45	5	1	48	6	1	45	4	1	45	5	1	45	5	1	45	4

NOTES: ' -- ' indicates filter offline

3.6 Rossdale Filters 1 - 9 Turbidity (NTU)

2025

Filter	1			2			3			4			5			6			7			8			9		
Month	Min	Max	Avg																								
January	0.02	0.08	0.02	0.02	0.09	0.03	0.01	0.07	0.02	0.01	0.09	0.02	0.02	0.08	0.03	0.01	0.07	0.02	0.02	0.06	0.03	0.01	0.08	0.02	0.01	0.08	0.02
February	0.02	0.08	0.03	0.02	0.08	0.03	0.01	0.08	0.02	0.01	0.07	0.02	0.02	0.08	0.03	0.01	0.08	0.02	0.02	0.08	0.04	0.01	0.08	0.03	0.01	0.09	0.03
March	0.01	0.08	0.02	0.02	0.08	0.02	0.01	0.06	0.01	0.00	0.06	0.01	0.02	0.08	0.02	0.01	0.07	0.02	0.02	0.08	0.03	0.01	0.07	0.02	0.01	0.08	0.02
April	0.01	0.08	0.02	0.02	0.08	0.03	0.01	0.06	0.02	0.01	0.08	0.02	0.02	0.08	0.03	0.01	0.07	0.02	0.02	0.08	0.03	0.01	0.08	0.02	0.01	0.08	0.02
May	0.02	0.08	0.02	0.02	0.08	0.03	0.01	0.08	0.01	0.01	0.07	0.01	0.02	0.08	0.03	0.01	0.08	0.02	0.02	0.08	0.03	0.01	0.07	0.02	0.01	0.08	0.02
June	0.02	0.08	0.02	0.02	0.07	0.03	0.01	0.06	0.01	0.00	0.07	0.01	0.01	0.07	0.03	0.01	0.08	0.02	0.02	0.07	0.03	0.01	0.07	0.02	0.01	0.08	0.02
July	0.01	0.06	0.02	0.02	0.05	0.02	0.01	0.04	0.01	0.00	0.05	0.01	0.02	0.06	0.02	0.01	0.08	0.02	0.02	0.05	0.03	0.01	0.05	0.02	0.01	0.06	0.02
August	0.01	0.05	0.02	0.02	0.06	0.02	0.00	0.04	0.01	0.00	0.06	0.01	0.01	0.05	0.02	0.01	0.06	0.01	0.01	0.06	0.02	0.01	0.06	0.02	0.01	0.05	0.02
September	0.01	0.06	0.02	0.02	0.06	0.02	0.01	0.04	0.01	0.01	0.08	0.01	0.01	0.07	0.02	0.01	0.07	0.01	0.01	0.07	0.02	0.01	0.06	0.02	0.01	0.06	0.02
October	0.01	0.09	0.03	0.02	0.09	0.03	0.00	0.09	0.02	0.01	0.09	0.02	0.01	0.09	0.03	0.01	0.09	0.02	0.02	0.09	0.03	0.01	0.09	0.03	0.01	0.09	0.03
November	0.02	0.10	0.04	0.02	0.09	0.04	0.01	0.10	0.03	0.01	0.09	0.03	0.02	0.09	0.04	0.01	0.09	0.03	0.02	0.09	0.04	0.02	0.09	0.03	0.02	0.09	0.03
December	0.02	0.09	0.03	0.02	0.08	0.04	0.01	0.09	0.03	0.01	0.09	0.03	0.02	0.08	0.03	0.01	0.10	0.03	0.02	0.09	0.04	0.02	0.09	0.03	0.01	0.09	0.03
Annual Min/Max/Avg	0.01	0.10	0.03	0.02	0.09	0.03	0.01	0.10	0.02	0.01	0.09	0.02	0.01	0.09	0.03	0.01	0.10	0.02	0.01	0.09	0.03	0.01	0.09	0.02	0.01	0.09	0.02

NOTES: ' -- ' indicates filter offline

3.7 E.L. Smith Filters 1 - 9 Turbidity (NTU)

2025

Filter	1			2			3			4			5			6			7			8			9		
Month	Min	Max	Avg																								
January	0.01	0.08	0.01	0.02	0.07	0.02	0.00	0.05	0.01	0.02	0.06	0.02	0.01	0.09	0.01	0.03	0.08	0.03	0.01	0.06	0.01	0.02	0.07	0.02	0.01	0.07	0.01
February	0.01	0.05	0.01	0.02	0.07	0.02	0.00	0.05	0.01	0.02	0.06	0.02	0.01	0.06	0.01	0.02	0.08	0.03	0.01	0.07	0.01	0.01	0.08	0.03	0.01	0.08	0.01
March	0.01	0.07	0.02	0.01	0.08	0.02	0.01	0.06	0.01	0.01	0.08	0.03	0.01	0.08	0.01	0.02	0.08	0.03	0.01	0.06	0.01	0.01	0.08	0.02	0.01	0.08	0.01
April	0.01	0.08	0.02	0.02	0.08	0.02	0.01	0.07	0.01	0.01	0.08	0.03	0.01	0.08	0.01	0.02	0.08	0.03	0.01	0.08	0.01	0.01	0.08	0.02	0.01	0.08	0.01
May	0.01	0.08	0.02	0.02	0.08	0.03	0.00	0.07	0.01	0.01	0.07	0.03	0.00	0.06	0.01	0.03	0.08	0.03	0.01	0.07	0.01	0.01	0.08	0.02	0.01	0.07	0.01
June	0.01	0.07	0.02	0.02	0.08	0.03	0.00	0.07	0.01	0.02	0.08	0.03	0.00	0.07	0.01	0.03	0.08	0.03	0.01	0.07	0.01	0.01	0.08	0.02	0.01	0.08	0.01
July	0.01	0.08	0.02	0.02	0.08	0.03	0.00	0.07	0.01	0.02	0.07	0.03	0.00	0.07	0.01	0.03	0.08	0.03	0.01	0.06	0.01	0.01	0.08	0.02	0.01	0.06	0.01
August	0.01	0.08	0.02	0.02	0.08	0.03	0.00	0.06	0.01	0.02	0.07	0.03	0.01	0.06	0.01	0.03	0.08	0.03	0.01	0.07	0.01	0.01	0.07	0.02	0.01	0.07	0.01
September	0.01	0.07	0.02	0.02	0.07	0.03	0.01	0.06	0.01	0.02	0.08	0.03	0.01	0.06	0.01	0.03	0.08	0.03	0.01	0.07	0.01	0.01	0.08	0.02	0.01	0.05	0.01
October	0.01	0.10	0.03	0.02	0.10	0.04	0.00	0.09	0.02	0.02	0.10	0.04	0.00	0.09	0.02	0.03	0.08	0.04	0.01	0.09	0.02	0.01	0.10	0.04	0.01	0.09	0.02
November	0.01	0.09	0.02	0.02	0.10	0.03	0.00	0.08	0.01	0.02	0.09	0.04	0.00	0.09	0.01	--	--	--	0.01	0.09	0.02	0.01	0.10	0.04	0.01	0.10	0.03
December	0.01	0.08	0.02	0.02	0.10	0.03	0.00	0.08	0.01	0.02	0.09	0.03	0.01	0.08	0.01	--	--	--	0.01	0.09	0.01	0.01	0.09	0.03	0.01	0.09	0.02
Annual Min/Max/Avg	0.01	0.10	0.02	0.01	0.10	0.03	0.01	0.09	0.01	0.01	0.10	0.03	0.01	0.09	0.01	0.02	0.08	0.03	0.01	0.09	0.01	0.01	0.10	0.03	0.01	0.10	0.01

NOTES: '--' indicates filter offline

3.8 E.L. Smith Filters 10 - 18 Turbidity (NTU)

2025

Filter	10			11			12			13			14			15			16			17			18		
Month	Min	Max	Avg																								
January	0.02	0.09	0.03	0.01	0.07	0.01	0.00	0.06	0.01	0.02	0.08	0.03	0.03	0.08	0.04	0.04	0.08	0.04	0.03	0.08	0.04	0.03	0.09	0.04	0.02	0.07	0.03
February	0.02	0.09	0.04	0.01	0.08	0.01	0.00	0.07	0.02	0.02	0.09	0.04	0.03	0.09	0.04	0.04	0.09	0.04	0.04	0.09	0.04	0.03	0.09	0.04	0.02	0.08	0.03
March	0.02	0.08	0.03	0.01	0.08	0.01	0.01	0.08	0.01	0.02	0.08	0.04	0.03	0.08	0.04	0.04	0.08	0.04	0.04	0.08	0.04	0.02	0.08	0.04	0.02	0.08	0.03
April	0.02	0.08	0.03	0.01	0.07	0.01	0.00	0.08	0.01	0.01	0.08	0.03	0.02	0.09	0.04	0.04	0.08	0.05	0.02	0.08	0.05	0.03	0.08	0.04	0.02	0.08	0.03
May	0.02	0.08	0.03	0.01	0.07	0.00	0.00	0.07	0.01	0.01	0.08	0.03	0.03	0.08	0.04	0.04	0.08	0.05	0.04	0.08	0.04	0.04	0.08	0.04	0.02	0.08	0.03
June	0.02	0.08	0.03	0.01	0.08	0.00	0.00	0.07	0.01	0.01	0.08	0.03	0.03	0.08	0.04	0.04	0.08	0.05	0.04	0.08	0.04	0.04	0.08	0.05	0.02	0.07	0.03
July	0.02	0.08	0.02	0.01	0.07	0.00	0.00	0.07	0.01	0.03	0.08	0.03	0.03	0.08	0.04	0.04	0.08	0.05	0.04	0.08	0.04	0.04	0.08	0.05	0.02	0.07	0.03
August	0.02	0.08	0.02	0.01	0.08	0.00	0.00	0.07	0.01	0.02	0.07	0.03	0.02	0.08	0.04	0.02	0.08	0.05	0.02	0.08	0.04	0.02	0.08	0.04	0.02	0.07	0.03
September	0.02	0.07	0.03	0.01	0.05	0.00	0.00	0.05	0.01	0.03	0.08	0.03	0.03	0.08	0.04	0.02	0.08	0.05	0.04	0.08	0.04	0.04	0.08	0.05	0.03	0.07	0.03
October	0.02	0.10	0.04	0.01	0.09	0.02	0.00	0.10	0.03	0.03	0.09	0.05	0.04	0.09	0.05	0.05	0.10	0.06	0.04	0.10	0.06	0.04	0.09	0.05	0.03	0.10	0.04
November	0.02	0.10	0.04	0.01	0.09	0.01	0.00	0.09	0.02	0.02	0.09	0.04	0.03	0.09	0.05	0.03	0.10	0.06	0.04	0.09	0.06	0.03	0.10	0.05	0.03	0.09	0.05
December	0.02	0.10	0.04	0.01	0.09	0.01	0.00	0.09	0.02	0.02	0.09	0.04	0.02	0.09	0.04	0.05	0.09	0.06	0.03	0.10	0.05	0.04	0.09	0.05	0.03	0.10	0.04
Annual Min/Max/Avg	0.02	0.10	0.03	0.01	0.09	0.01	0.01	0.10	0.01	0.01	0.09	0.04	0.02	0.09	0.04	0.02	0.10	0.05	0.02	0.10	0.05	0.02	0.10	0.05	0.02	0.10	0.03

NOTES: ' -- ' indicates filter offline

3.9 Combined Filter Effluent Water Quality

2025

Month	Rossdale						E.L. Smith					
	Particle Counts (no./mL,>2um)			Turbidity (NTU)			Particle Counts (no./mL,>2um)			Turbidity (NTU)		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
January	2	22	4	0.03	0.12	0.04	1	14	6	0.01	0.05	0.02
February	1	20	5	0.03	0.10	0.04	1	20	5	0.02	0.04	0.02
March	1	19	2	0.02	0.09	0.03	1	29	3	0.01	0.05	0.02
April	1	18	4	0.02	0.10	0.03	1	20	5	0.01	0.05	0.02
May	1	17	3	0.03	0.09	0.04	1	17	6	0.01	0.04	0.02
June	1	13	3	0.03	0.09	0.03	1	25	5	0.02	0.04	0.02
July	1	15	3	0.03	0.09	0.03	1	12	5	0.01	0.05	0.02
August	1	15	2	0.03	0.07	0.03	1	11	4	0.02	0.03	0.02
September	1	18	2	0.03	0.08	0.03	1	17	5	0.02	0.04	0.02
October	1	34	5	0.03	0.12	0.04	1	17	6	0.02	0.06	0.04
November	1	16	5	0.03	0.21	0.05	2	10	5	0.02	0.05	0.03
December	1	14	2	0.03	0.24	0.04	1	12	3	0.02	0.05	0.03
Annual Min/Max/Avg	1	34	3	0.02	0.24	0.04	1	29	5	0.01	0.06	0.03

NOTES: ' -- ' indicates plant offline

3.10 Rossdale UV Disinfection - Filters 1 - 3

2025

Filter	1						2						3						Transmittance (%)		
	Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)					
	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg
January	35.1	127.7	45.1	10.4	31.2	404.6	34.4	99.9	46.5	10.4	29.4	416.8	34.8	127.8	46.8	11.0	28.9	385.5	94.2	97.1	96.0
February	34.0	61.0	38.7	10.2	30.3	393.3	34.8	80.0	39.4	10.1	28.7	388.0	33.9	64.0	38.2	12.6	29.4	352.3	90.9	96.8	94.2
March	35.0	77.5	42.2	11.1	27.2	528.0	35.2	120.8	51.8	11.0	30.3	498.2	34.1	73.1	41.5	10.2	28.2	464.5	94.0	98.0	95.8
April	34.5	90.5	36.8	12.0	31.3	557.9	35.3	65.4	44.6	11.0	33.7	525.1	34.0	85.1	37.4	11.1	29.8	492.2	93.1	96.7	95.0
May	34.4	59.6	35.6	12.7	35.1	556.1	34.3	63.9	36.5	12.3	32.3	621.9	34.5	65.7	35.7	13.4	32.3	590.9	88.2	94.8	91.6
June	32.3	48.1	35.5	13.4	36.0	591.7	34.2	50.3	35.9	17.1	37.1	642.7	34.6	50.6	35.6	13.7	35.4	565.6	88.1	94.9	92.1
July	33.9	44.5	35.5	14.6	34.2	608.4	34.0	49.0	35.7	14.4	33.0	612.6	34.0	54.5	35.5	13.2	35.0	589.8	89.7	94.7	92.1
August	34.6	38.1	35.5	16.5	33.6	598.7	34.4	57.1	35.8	12.7	34.7	631.0	34.3	55.2	35.5	12.5	36.0	598.1	89.5	94.9	92.6
September	34.7	97.5	37.5	11.9	36.2	621.5	34.0	78.6	42.0	14.6	36.6	651.5	34.2	102.3	38.1	11.9	36.3	527.3	92.2	96.6	95.0
October	30.3	106.6	41.9	10.0	34.7	557.7	34.9	124.8	46.3	9.4	34.4	629.2	34.0	128.5	42.1	9.1	35.1	605.8	90.9	97.5	95.3
November	34.6	68.4	42.0	9.9	31.7	452.0	34.9	91.9	46.7	10.0	31.9	476.2	33.6	87.1	41.1	11.0	31.3	458.9	91.6	96.1	95.0
December	32.9	99.9	43.0	10.1	30.2	461.4	35.1	111.8	46.3	10.7	33.8	506.7	34.0	103.7	40.3	11.7	30.3	436.7	92.0	96.3	95.3
Annual Total						6331						6600						6067			
Annual Min/Max/ Avg	30.3	127.7	39.1	9.9	36.2		34.0	124.8	42.3	9.4	37.1		33.6	128.5	39.0	9.1	36.3		88.1	98.0	94.2

NOTES: - Each filter has a UV reactor
 - Transmittance (%) is a grab sample of the filter effluent prior to the UV reactor of a random online filter
 '- - ' indicates filter and UV reactor offline

3.11 Rossdale UV Disinfection - Filters 4 - 6

2025

Filter	4						5						6						Transmittance (%)		
	Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)					
	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg
January	36.4	83.3	50.5	11.0	30.5	369.8	35.1	88.5	50.6	11.5	28.3	341.2	35.0	72.7	47.2	12.5	33.6	382.5	94.2	97.1	96.0
February	33.1	59.9	40.4	10.8	30.2	374.9	34.3	70.0	41.6	10.4	27.9	356.0	34.3	60.5	40.1	10.6	33.9	393.2	90.9	96.8	94.2
March	34.9	101.7	47.4	11.8	26.7	454.7	35.1	106.6	49.4	13.2	26.5	468.6	34.8	85.6	43.7	14.7	30.8	489.3	94.0	98.0	95.8
April	34.8	81.5	39.8	11.3	30.4	526.4	34.3	98.5	43.1	12.7	28.9	470.4	34.3	70.1	38.2	12.6	35.1	594.9	93.1	96.7	95.0
May	34.6	87.1	36.3	12.1	32.6	552.7	33.9	59.3	35.8	15.9	30.6	555.3	34.6	52.3	35.6	12.1	37.9	664.9	88.2	94.8	91.6
June	34.0	83.9	36.2	13.7	36.0	572.2	34.2	90.9	35.6	13.1	33.3	583.7	34.8	48.9	35.6	16.4	38.4	658.8	88.1	94.9	92.1
July	34.0	48.2	35.7	13.5	31.8	579.6	34.1	38.4	35.5	14.0	31.8	588.4	34.6	41.2	35.6	12.2	38.2	670.8	89.7	94.7	92.1
August	34.2	64.8	35.8	13.5	32.3	537.2	34.0	57.0	35.5	10.3	31.0	539.5	34.7	52.8	35.6	12.5	35.6	625.5	89.5	94.9	92.6
September	32.0	68.7	39.0	14.9	34.5	620.3	33.6	68.9	37.7	10.8	31.7	603.7	34.0	72.7	37.8	11.9	39.2	700.4	92.2	96.6	95.0
October	34.4	144.2	46.0	10.0	34.6	591.1	34.3	82.6	43.5	10.4	32.3	358.2	31.7	134.4	44.5	9.6	36.7	648.8	90.9	97.5	95.3
November	31.8	89.1	44.8	10.1	31.6	436.3	33.2	77.0	46.5	10.0	29.5	419.7	33.5	81.3	44.6	10.2	34.0	480.4	91.6	96.1	95.0
December	32.3	103.8	45.3	10.7	29.0	440.5	34.7	105.5	47.1	10.2	28.6	415.6	34.6	87.9	44.7	10.0	35.7	515.1	92.0	96.3	95.3
Annual Total						6056						5700						6825			
Annual Min/Max/ Avg	31.8	144.2	41.5	10.0	36.0		33.2	106.6	41.7	10.0	33.3		31.7	134.4	40.2	9.6	39.2		88.1	98.0	94.2

NOTES: - Each filter has a UV reactor
 - Transmittance (%) is a grab sample of the filter effluent prior to the UV reactor of a random online filter
 ' -- ' indicates filter and UV reactor offline

3.12 Rossdale UV Disinfection - Filters 7 - 9

2025

Filter	7						8						9						Transmittance (%)		
	Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)					
	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg
January	34.2	62.1	39.0	13.6	32.0	410.3	35.2	74.8	46.5	11.1	33.5	427.3	34.4	77.4	45.7	10.2	30.7	444.6	94.2	97.1	96.0
February	33.3	46.5	36.0	11.9	32.3	413.8	34.2	78.4	38.4	12.4	31.5	416.1	33.9	50.8	37.9	16.4	32.2	432.0	90.9	96.8	94.2
March	33.0	80.4	38.5	11.0	33.1	513.8	35.1	91.9	42.5	12.0	34.1	563.7	34.9	82.6	41.8	13.2	30.8	574.8	94.0	98.0	95.8
April	33.9	111.6	37.2	15.9	32.6	487.6	34.6	100.9	37.9	16.3	34.9	560.4	34.3	53.8	37.7	13.6	33.4	612.3	93.1	96.7	95.0
May	33.9	76.3	35.6	16.4	33.4	624.4	34.1	52.7	35.5	15.2	35.0	682.2	32.5	47.8	35.5	14.8	38.3	647.4	88.2	94.8	91.6
June	32.0	55.8	35.5	10.3	37.3	617.1	33.9	90.2	35.6	13.9	37.7	673.2	30.6	54.6	35.5	12.0	38.2	604.2	88.1	94.9	92.1
July	0.0	70.7	35.5	0.0	35.0	468.1	34.4	52.2	35.6	14.0	35.1	690.0	31.1	50.2	35.4	13.0	36.8	686.9	89.7	94.7	92.1
August	32.6	40.5	35.5	16.7	37.5	648.6	33.6	58.7	35.6	10.4	36.6	649.8	31.1	77.2	35.4	14.2	35.7	672.7	89.5	94.9	92.6
September	31.6	74.8	36.5	10.5	35.9	670.0	33.9	92.6	36.2	11.4	39.0	719.4	33.7	80.6	36.4	11.4	37.8	725.2	92.2	96.6	95.0
October	31.7	89.1	39.4	10.6	36.9	641.6	33.6	72.3	38.8	10.2	37.5	692.9	24.5	138.0	41.2	10.9	38.7	643.1	90.9	97.5	95.3
November	32.0	71.3	40.6	9.7	36.4	501.6	34.5	93.9	39.9	10.2	34.4	527.9	25.6	82.2	43.2	10.7	33.9	512.9	91.6	96.1	95.0
December	29.9	68.7	40.3	10.7	32.9	462.5	32.4	86.9	40.0	9.3	34.3	521.4	33.8	74.1	43.7	10.1	31.7	500.9	92.0	96.3	95.3
Annual Total						6459						7124						7057			
Annual Min/Max/Avg	0.0	111.6	37.5	0.0	37.5		32.4	100.9	38.4	9.3	39.0		24.5	138.0	39.2	10.1	38.7		88.1	98.0	94.2

NOTES: - Each filter has a UV reactor
 - Transmittance (%) is a grab sample of the filter effluent prior to the UV reactor of a random online filter
 ' -- ' indicates filter and UV reactor offline

3.13 E.L. Smith UV Disinfection - UV Reactors 1 - 4

2025

Filter	1						2						3						4						Transmittance (%)		
	Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)			Dosage (mJ/cm ²)			Flow (MLD)					
	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg	Min	Max	Total	Min	Max	Avg
January	45.0	204.8	63.8	67.7	138.9	2,752.1	44.9	281.8	65.4	47.9	125.8	2,668.7	44.5	212.9	60.8	47.1	144.6	2,849.6	--	--	--	--	--	0.0	95.1	96.9	96.0
February	44.9	116.4	64.6	61.9	106.7	2,392.2	44.6	113.6	63.1	59.8	135.6	2,318.2	44.8	117.4	64.1	67.2	138.0	2,560.1	--	--	--	--	--	0.0	92.8	96.2	94.5
March	47.1	298.2	62.2	20.2	128.1	1,049.2	45.1	238.4	66.1	30.3	99.1	1,849.1	45.8	272.1	72.2	31.7	116.4	2,494.6	44.3	208.8	47.6	34.7	92.7	1,931.9	95.1	97.7	96.8
April	42.6	164.1	63.9	40.0	99.5	1,672.1	43.3	153.2	68.5	27.6	85.1	745.2	43.9	276.2	68.8	39.4	100.2	2,362.7	44.2	106.7	47.6	29.2	89.1	2,199.2	93.6	97.3	95.8
May	37.6	160.9	54.9	42.9	120.8	1,558.7	45.3	94.9	63.6	50.8	139.4	1,964.6	45.4	130.1	62.6	52.7	140.5	2,271.7	36.3	116.8	48.8	53.9	108.2	2,388.2	89.0	94.4	91.6
June	42.3	144.7	59.6	29.0	115.1	2,216.2	44.5	191.1	66.0	25.0	107.6	1,130.2	44.8	117.5	65.0	31.0	116.7	2,592.9	41.3	90.0	47.3	44.1	102.8	2,137.2	89.7	94.0	92.0
July	45.1	90.4	59.6	53.3	114.9	2,737.6	45.9	169.0	67.5	28.4	95.6	545.6	44.7	104.5	62.4	53.9	119.3	2,841.9	40.7	103.7	47.0	30.0	100.9	2,501.7	90.6	93.5	91.9
August	46.4	109.1	60.9	27.8	120.2	681.5	45.6	87.3	56.2	31.3	112.6	2,567.7	44.4	172.4	57.2	44.3	113.3	2,631.2	46.0	67.2	47.6	50.9	109.1	2,484.3	91.1	95.0	92.4
September	43.9	118.1	65.4	27.0	93.4	731.6	45.2	123.7	68.7	47.9	112.9	2,220.1	43.9	93.4	66.9	50.5	107.4	2,555.8	44.4	63.5	47.2	48.5	106.9	2,574.4	92.8	96.5	94.7
October	40.8	97.6	67.1	52.6	105.3	2,446.6	39.0	88.0	59.5	53.8	96.5	233.3	40.6	116.7	66.5	50.5	97.8	2,226.9	40.1	108.3	47.2	48.5	93.2	2,210.0	90.6	97.2	94.7
November	45.8	89.7	60.1	50.5	104.3	2,142.2	44.9	118.9	59.8	45.8	87.1	1,968.1	44.6	125.4	57.7	47.6	88.9	2,024.4	46.0	48.7	48.1	31.0	78.7	1,525.6	92.2	95.9	95.0
December	45.8	179.7	56.0	61.8	107.7	956.6	44.8	124.1	62.7	38.8	101.8	2,340.4	44.1	126.6	66.2	45.5	116.4	2,529.6	45.0	144.2	48.1	42.3	100.9	2,177.2	93.6	96.0	95.1
Annual Total						21,337						20,551						29,942						22,130			
Annual Min/Max/Avg	37.6	298.2	61.7	20.2	138.9		39.0	281.8	63.6	25.0	139.4		40.6	276.2	64.2	31.0	144.6		36.3	208.8	47.6	29.2	109.1		89.0	97.7	94.2

NOTES: ' -- ' indicates UV reactor offline
 - Transmittance (%) is a grab sample of the combined filter effluent prior to the UV reactor

3.14 Log Removal
2025

Month	Rossdale									E.L. Smith								
	Log Removal									Log Removal								
	<i>Giardia</i>			Virus			<i>Cryptosporidium</i>			<i>Giardia</i>			Virus			<i>Cryptosporidium</i>		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
January	7.3	8.9	7.9	12	15	13	6.5	6.5	6.5	6.6	6.9	6.7	5.6	16	7.0	6.5	6.5	6.5
February	7.3	8.8	7.9	11	17	13	6.5	7.0	6.5	6.6	7.2	6.7	5.7	8.6	7.4	6.5	7.0	6.5
March	7.9	8.6	8.2	13	17	14	6.9	7.0	7.0	7.1	7.2	7.2	5.6	9.4	8.0	7.0	7.0	7.0
April	7.8	9.2	8.2	12	23	15	7.0	7.0	7.0	7.0	7.4	7.2	6.9	15	9.1	7.0	7.0	7.0
May	8.8	11.6	9.8	18	37	25	6.9	7.0	7.0	7.2	7.7	7.4	10	27	17	7.0	7.0	7.0
June	9.5	12.8	10.5	25	41	33	7.0	7.0	7.0	6.9	7.8	7.5	16	29	22	7.0	7.0	7.0
July	10.1	13.4	11.2	26	45	36	6.9	7.0	7.0	7.4	7.8	7.6	16	31	23	7.0	7.0	7.0
August	9.8	14.3	11.0	28	46	35	7.0	7.0	7.0	7.4	7.8	7.5	17	32	23	7.0	7.0	7.0
September	8.4	11.0	9.7	21	38	30	7.0	7.0	7.0	7.3	7.6	7.5	13	27	20	7.0	7.0	7.0
October	7.4	9.4	8.0	14	25	18	6.4	7.0	6.7	6.7	7.5	6.9	7.7	18	12	6.5	7.0	6.6
November	7.1	8.2	7.7	12	17	14	6.0	6.5	6.5	6.6	6.8	6.7	5.6	11	7.3	6.5	6.5	6.5
December	6.5	8.3	7.7	12	16	13	6.5	6.5	6.5	6.6	6.8	6.7	5.6	8.6	6.7	6.5	6.5	6.5
Annual Min/Max/Avg	6.5	14.3	9.0	11	46	22	6.0	7.0	6.8	6.6	7.8	7.1	5.6	32	13	6.5	7.0	6.8

NOTES: ' -- ' indicates plant offline

4.1 Liquid Alum Chemical Consumption

2025

Month	Dosage (mg/L)			Consumption (kg)			
	Rossdale		E.L. Smith	Rossdale			E.L. Smith
	Plant 1	Plant 2		Plant 1	Plant 2	Plant Total	
January	5.00	5.03	5.05	37,363	695	38,059	97,046
February	6.56	--	6.50	49,214	--	49,214	110,971
March	39.6	40.2	39.7	193,920	201,958	395,878	651,966
April	45.5	45.5	53.5	189,651	288,827	478,478	830,251
May	78.0	77.0	90.3	351,612	549,773	901,386	1,638,876
June	56.1	56.1	63.9	251,287	409,985	661,272	1,134,915
July	53.3	53.8	67.7	267,465	353,801	621,267	1,269,375
August	49.6	49.7	64.1	233,170	344,037	577,207	1,165,285
September	26.6	26.6	31.0	127,126	203,692	330,818	550,781
October	14.9	14.9	11.8	56,267	129,358	185,626	185,805
November	6.19	6.39	5.64	40,291	17,934	58,226	96,956
December	--	5.96	5.20	--	55,162	55,162	89,820
Annual Total				1,797,368	2,555,223	4,352,591	7,822,047
Annual Avg	34.9	39.0	37.3				

NOTES : '--' indicates plant offline

- Liquid alum consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 48.5%)

4.2 Primary Polymer (Magnafloc LT 27AG) Chemical Consumption 2025

Month	Dosage (mg/L)			Consumption (kg)			
	Rossdale		E.L. Smith	Rossdale			E.L. Smith
	Plant 1	Plant 2		Plant 1	Plant 2	Plant Total	
January	0.10	0.10	--	363	7	369	--
February	0.11	--	0.13	416	0	417	79.54
March	0.30	0.29	0.16	744	686	1,431	1,274.35
April	0.30	0.30	0.19	611	924	1,535	1,438.00
May	0.36	0.36	0.18	811	1,246	2,058	1,582.24
June	0.33	0.33	0.17	714	1,179	1,894	1,494.14
July	0.30	0.30	0.19	752	968	1,720	1,773.59
August	0.30	0.30	0.20	685	1,008	1,693	1,779.98
September	0.25	0.25	0.14	582	935	1,517	1,246.62
October	0.17	0.17	0.12	325	706	1,032	219.23
November	0.10	0.10	--	318	132	450	0.09
December	0.00	0.10	--	0	449	449	--
Annual Total				6,322	8,240	14,563	10,888
Annual Avg	0.22	0.26	0.18				

NOTES: ' -- ' indicates plant offline

- Primary polymer consumption (kg) at 100% by weight mixed at the sites to required solution

4.3 Carbon Chemical Consumption

2025

Month	Dosage (mg/L)			Consumption (kg)			
	Rossdale		E.L. Smith	Rossdale			E.L. Smith
	Plant 1	Plant 2		Plant 1	Plant 2	Plant Total	
January	--	--	--	--	--	--	--
February	--	--	0.48	--	--	--	148
March	25.0	25.4	21.6	34,168	37,821	71,989	104,201
April	21.0	21.0	19.6	13,773	22,171	35,943	49,622
May	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--
October	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--
Annual Total				47,941	59,992	107,933	153,970
Annual Avg	23.6	23.8	20.2				

NOTES: '--' indicates carbon not being used

4.4 Sodium Hypochlorite Chemical Consumption

2025

Month	Rossdale					E.L. Smith	
	Dosage (mg/L)		Consumption (kg)			Dosage (mg/L)	Consumption (kg)
	Plant 1	Plant 2	Plant 1	Plant 2	Plant Total		
	January	2.68	2.50	1,214,926	20,963	1,235,888	2.99
February	2.72	--	1,234,337	--	1,234,337	3.11	3,380,200
March	2.80	2.74	856,780	820,101	1,676,881	3.34	3,558,524
April	2.59	2.56	659,302	986,944	1,646,247	3.16	3,144,792
May	3.03	3.03	856,637	1,312,912	2,169,549	3.74	4,333,456
June	3.18	3.15	863,150	1,417,118	2,280,268	3.87	4,388,989
July	2.98	2.96	947,314	1,178,813	2,126,127	3.76	4,536,435
August	2.96	2.93	850,948	1,252,051	2,102,999	3.81	4,448,495
September	2.81	2.79	815,236	1,296,289	2,111,525	3.58	4,056,509
October	2.47	2.62	641,604	1,207,227	1,848,831	3.32	3,550,783
November	2.64	2.32	1,053,481	420,147	1,473,627	2.97	3,264,314
December	--	2.50	--	1,407,678	1,407,678	3.07	3,371,039
Annual Total			9,993,714	11,320,243	21,313,957		45,697,163
Annual Avg	2.81	2.78				3.39	

NOTES: ' -- ' indicates plant offline

- Sodium hypochlorite consumption (kg) at 0.8% by weight (sodium hypochlorite generated onsite at a concentration of 0.8%)
- Plant 1 was converted to sodium hypochlorite from chlorine on Feb 2, 2015.
- Plant 2 was converted to sodium hypochlorite from chlorine on Feb 10, 2015.
- Plant Total Consumption is the combined addition of Plant 1, Plant 2 and Post Filter Trim.

**4.5 Filter Polymer (Magnafloc LT 7981) Chemical Consumption
2025**

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	E.L. Smith	Rossdale	E.L. Smith
January	0.28	0.26	1,007	2,436
February	0.32	0.52	1,147	4,290
March	0.15	0.16	666	1,287
April	0.22	0.16	1,077	1,186
May	0.29	0.18	1,622	1,559
June	0.25	0.18	1,383	1,527
July	0.25	0.13	1,363	1,154
August	0.27	0.10	1,478	863
September	0.24	0.13	1,387	1,156
October	0.32	0.48	1,662	4,075
November	0.39	0.58	1,647	4,822
December	0.38	0.49	1,633	4,173
Annual Total			16,071	28,527
Annual Avg	0.28	0.28		

NOTES: ' -- ' indicates plant offline

- Filter polymer consumption (kg) at 100% by weight mixed at the sites to required solution

**4.6 Aqua Ammonia Chemical Consumption
2025**

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	E.L. Smith	Rossdale	E.L. Smith
January	0.59	--	11,126	--
February	0.58	--	10,772	--
March	0.57	--	13,684	--
April	0.57	--	14,416	--
May	0.50	--	2,424	--
June	0.48	--	2,093	--
July	--	--	--	--
August	--	--	--	--
September	--	--	--	--
October	--	--	--	--
November	--	--	--	--
December	--	--	--	--
Annual Total			54,514	--
Annual Avg	0.57	--		

NOTES: ' -- ' indicates plant offline

- Aqua ammonia consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 19.0%)

**4.6-1 LAS Ammonia Chemical Consumption
2025**

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	E.L. Smith	Rossdale	E.L. Smith
January	--	0.56	--	47,069
February	--	0.54	--	40,212
March	--	0.54	--	40,577
April	0.00	0.56	--	39,251
May	0.59	0.58	28,931.07	48,025
June	0.61	0.61	31,528.63	50,136
July	0.63	0.62	35,528.07	54,067
August	0.63	0.63	35,383.82	53,420
September	0.63	0.66	37,464.97	54,432
October	0.59	0.60	32,127.20	43,277
November	0.57	0.57	24,768.95	44,765
December	0.57	0.57	24,773.04	45,332
Annual Total			250,505.75	560,563
Annual Avg	0.60	0.59		

NOTES: ' -- ' indicates plant offline
 - LAS ammonia consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 19.0%)

**4.7 Caustic Soda Chemical Consumption
2025**

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	E.L. Smith	Rossdale	E.L. Smith
January	--	--	--	--
February	2.48	1.18	495	1,833
March	8.22	8.31	65,800	120,562
April	8.60	11.9	73,236	163,189
May	14.6	21.1	139,086	349,348
June	7.65	12.1	74,305	196,309
July	6.72	14.1	64,516	239,845
August	5.61	11.8	54,159	196,724
September	1.50	5.27	12,513	85,728
October	--	4.01	--	13,049
November	--	--	--	--
December	--	--	--	--
Annual Total			484,112	1,366,591
Annual Avg	7.73	11.7		

NOTES: ' -- ' indicates plant offline

- Caustic soda consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 50.0%)

**4.8 Fluoride Chemical Consumption
2025**

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	EL Smith	Rossdale	EL Smith
January	0.63	0.56	10,354	21,344
February	0.63	0.55	10,172	18,286
March	0.67	0.56	14,038	18,972
April	0.69	0.62	15,353	19,669
May	0.70	0.64	17,750	23,922
June	0.67	0.63	16,928	23,216
July	0.63	0.61	15,750	24,047
August	0.62	0.60	15,616	23,134
September	0.60	0.58	16,129	21,567
October	0.61	0.56	15,103	18,435
November	0.63	0.58	12,322	20,281
December	0.64	0.63	12,498	22,435
Annual Total			172,012	255,309
Annual Avg	0.64	0.59		

NOTES: ' -- ' indicates plant offline

- Fluoride consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 21.8%)

4.9 Sodium Bisulfite Chemical Consumption 2025

Month	Rossdale			E.L. Smith		
	Dosage (mg/L)	Consumption (kg)	De-chlorinated Waste Stream to Outfall (ML)	Dosage (mg/L)	Consumption (kg)	De-chlorinated Waste Stream to Outfall (ML)
January	31.0	22,566	285	14.4	53,952	1,436
February	31.1	22,065	273	13.5	49,965	1,405
March	21.7	25,709	452	20.8	57,262	1,109
April	17.1	19,762	446	20.6	54,693	986
May	23.7	29,218	456	22.4	54,446	933
June	24.1	28,917	453	17.5	41,309	902
July	26.0	26,444	415	16.4	42,118	974
August	25.2	27,210	404	18.9	40,888	834
September	28.2	26,385	367	16.9	40,307	887
October	27.4	45,343	666	15.1	58,932	1,539
November	30.5	34,879	478	14.9	45,266	1,155
December	21.2	26,114	472	15.4	40,023	1,031
Annual Total		334,612	5,166		579,163	13,188
Annual Avg	25.6			17.3		

NOTES: ' -- ' indicates Plant Offline

- Sodium bisulfite consumption (kg) at 38% by weight (solution delivered to sites at a concentration of 38.0%)

5.1 Waste Stream Volumes (ML)

2025

Month	Rossdale						E.L. Smith								
	Clarifier Blowdown	Clarifier Washdown	Backwash Water	Filter to Waste	Bypass	Plant Total	Clarifier Blowdown	Clarifier Washdown	Backwash Water	Filter to Waste	Bypass	LLP Flush	HLP Cooling	Plant Total	De-chlorinated Waste Flow to Outfall
January	73	20	122	25	5.4	245	688	--	351	181	45	1.2	31	1,298	1,436
February	102	--	126	31	0.0	259	640	--	375	196	33	3.9	27	1,276	1,405
March	291	20	131	38	4.4	485	401	--	290	227	44	0.7	28	991	1,109
April	309	--	94	36	13	452	222	--	285	288	47	1.1	19	861	986
May	273	--	109	38	42	462	249	10	305	181	38	0.7	27	810	933
June	288	--	101	34	36	459	231	--	323	160	35	3.3	29	782	902
July	238	20	107	48	10	424	273	13	374	161	18	2.0	32	873	974
August	254	--	102	33	21	410	246	13	310	123	3.4	0.6	31	727	834
September	--	--	108	39	10	157	--	--	331	147	19	0.9	34	531	887
October	345	32	174	115	35	701	250	--	500	629	15	1.2	26	1,421	1,539
November	216	--	181	69	6.7	473	231	--	426	324	0.0	1.8	26	1,009	1,155
December	176	--	153	78	49	455	255	--	350	223	46	0.9	31	905	1,031
Annual Total	2,564	93	1,507	584	233	4,981	3,686	35	4,219	2,841	344	18	339	11,483	13,188

- NOTES:
- Clarifier washdown volume(s) estimated for clarifier cleaning
 - LLP flush, HLP cooling and chlorinated waste flow to outfall are not applicable to the Rossdale WTP
 - De-chlorinated waste flow to outfall is the estimated chlorinated waste flow to outfall for dechlorination

**5.2 Rossdale Clarifier Blowdown Clarifier Washdown and Backwash Water Waste Stream Data
2025**

Month	Clarifier Blowdown		Clarifier Washdown		Backwash Water	
	TSS (kg)	Aluminum (kg)	TSS (kg)	Aluminum (kg)	TSS (kg)	Aluminum (kg)
January	14,805	1,661	229	16	24,746	8,566
February	24,799	2,102	0	0	26,169	9,059
March	144,648	17,225	585	74	8,815	3,051
April	834,181	20,967	0	0	7,305	2,528
May	681,771	38,761	0	0	7,634	2,643
June	589,217	28,724	0	0	6,812	2,358
July	291,602	26,828	1,175	68	6,509	2,253
August	454,913	25,317	0	0	6,886	2,384
September	98,078	14,463	0	0	4,811	1,665
October	66,533	8,185	196	29	22,510	7,792
November	43,054	2,559	0	0	32,012	11,081
December	29,134	2,403	0	0	20,168	6,981
Annual Total	3,272,737	189,193	2,184	187	174,376	60,361

NOTES: '-' indicates that clarifier washdown did not occur
 - Clarifier washdown waste stream solids, TSS and aluminum are calculated values

5.3 Rosedale Waste Stream Data

2025

Month	De-Chlorinated Waste Flow to Waste Stream 3						De-Chlorinated Waste Flow to Waste Stream 7					
	Total Chlorine (mg/L)			Sulfite (mg/L)			Total Chlorine (mg/L)			Sulfite (mg/L)		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
January	0.00	0.00	0.00	1.84	20.0	7.95	0.00	0.00	0.00	1.59	20.0	14.0
February	0.00	0.00	0.00	1.65	20.0	9.37	0.00	0.00	0.00	2.08	18.8	10.5
March	0.00	0.00	0.00	2.03	20.0	10.1	0.00	0.00	0.00	2.49	20.0	10.3
April	0.00	0.00	0.00	1.10	20.0	12.9	0.00	0.00	0.00	2.50	20.0	7.03
May	0.00	0.00	0.00	1.26	20.0	10.3	0.00	0.00	0.00	1.75	20.0	9.34
June	0.00	0.00	0.00	1.40	20.0	9.32	0.00	0.00	0.00	1.29	20.0	7.87
July	0.00	0.00	0.00	1.17	20.0	7.97	0.00	0.00	0.00	1.46	20.0	5.31
August	0.00	0.00	0.00	1.43	20.0	7.65	0.00	0.00	0.00	1.12	20.0	8.41
September	0.00	0.00	0.00	1.20	20.0	8.42	0.00	0.00	0.00	1.00	20.0	9.09
October	0.00	0.00	0.00	1.52	20.0	8.86	0.00	0.00	0.00	0.96	21.8	8.42
November	0.00	0.00	0.00	1.17	20.0	9.70	0.00	0.00	0.00	1.10	20.0	6.26
December	0.00	0.00	0.00	0.53	20.0	8.17	0.00	0.00	0.00	1.40	22.2	8.35
Annual Min/Max/Avg	0.00	0.00	0.00	0.53	20.0	9.22	0.00	0.00	0.00	0.96	22.2	8.73

**5.4 E.L. Smith Clarifier Blowdown Clarifier Washdown and Backwash Water Waste Stream Data
2025**

Month	Clarifier Blowdown		Clarifier Washdown		Backwash Water	
	TSS (kg)	Aluminum (kg)	TSS (kg)	Aluminum (kg)	TSS (kg)	Aluminum (kg)
January	63,634	4,235	0	0	48,143	16,665
February	70,234	4,843	0	0	49,708	17,207
March	299,355	28,239	0	0	19,557	6,770
April	934,766	36,123	0	0	32,010	11,080
May	872,306	70,760	477	40	19,861	6,875
June	518,349	48,726	0	0	25,181	8,716
July	447,591	54,512	31	215	31,902	11,043
August	515,602	50,203	772	54	27,212	9,420
September	137,274	23,535	0	0	13,155	4,554
October	49,960	7,729	0	0	47,502	16,443
November	68,415	4,210	0	0	59,962	20,756
December	63,056	3,920	0	0	42,915	14,855
Annual Total	4,040,543	337,035	1,280	309	417,107	144,383

NOTES: '-' indicates that clarifier wash did not occur
 - Clarifier washdown waste stream solids, TSS and aluminum are calculated values

**5.5 E.L. Smith Waste Stream Data
2025**

Month	De-chlorinated Waste Flow to Outfall								
	Sulphite (mg/L)			Total Chlorine (mg/L)			pH		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
January	0.45	20.0	6.45	0.00	0.00	0.00	7.41	7.86	7.74
February	0.66	20.0	7.51	0.00	0.00	0.00	7.57	7.93	7.76
March	0.25	20.0	12.6	0.00	0.00	0.00	6.66	7.83	7.44
April	0.10	20.0	13.6	0.00	0.00	0.00	5.59	8.90	6.60
May	0.30	20.0	13.3	0.00	0.00	0.00	6.02	8.22	6.96
June	0.23	20.0	9.23	0.00	0.00	0.00	6.77	8.95	7.25
July	0.10	20.0	11.7	0.00	0.00	0.00	7.05	7.86	7.58
August	0.10	20.0	10.8	0.00	0.00	0.00	6.68	7.99	7.52
September	0.10	20.0	7.42	0.00	0.00	0.00	6.75	7.98	7.43
October	0.11	20.0	4.78	0.00	0.00	0.00	6.83	8.29	7.88
November	0.01	20.0	4.13	0.00	0.00	0.00	6.90	8.99	8.09
December	0.10	20.0	3.72	0.00	0.00	0.00	6.64	9.94	7.82
Annual Min/Max/Avg	0.01	20.0	8.78	0.00	0.00	0.00	5.6	9.9	7.5

6.0 Reservoir Chlorine Residual (mg/L) - Part 1

2025

Reservoir	Papaschase 1			Ormsby			Clareview Discharge			Millwoods Discharge			Kaskitayo			Discovery Park		
Day	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Jan	1.55	1.92	1.64	1.58	1.86	1.72	1.44	1.85	1.67	1.86	2.01	1.92	1.74	2.06	1.89	1.10	1.78	1.50
Feb	1.57	1.88	1.65	1.25	1.87	1.68	1.60	1.90	1.74	1.81	1.98	1.85	1.67	1.95	1.79	0.98	1.55	1.31
Mar	1.13	1.83	1.57	1.37	1.80	1.65	1.50	1.86	1.63	1.72	1.95	1.82	1.54	1.87	1.73	0.98	1.74	1.39
Apr	1.41	1.87	1.52	1.47	1.82	1.60	1.51	1.88	1.61	1.72	1.95	1.82	1.58	2.02	1.80	0.93	2.19	1.53
May	1.03	1.85	1.38	1.35	1.60	1.48	1.33	1.72	1.51	1.55	1.91	1.74	1.55	1.92	1.74	0.90	2.04	1.40
Jun	1.21	2.15	1.50	1.35	1.65	1.49	1.41	1.78	1.58	1.63	1.95	1.77	1.54	1.98	1.76	0.74	1.56	1.06
Jul	1.19	2.00	1.47	1.21	1.79	1.55	1.38	1.78	1.58	1.56	1.91	1.70	1.52	1.96	1.76	0.85	1.35	1.07
Aug	1.29	2.06	1.46	1.28	1.80	1.59	1.33	1.85	1.53	1.55	1.95	1.68	1.41	1.99	1.74	0.67	1.92	1.22
Sep	1.35	2.07	1.56	1.56	2.06	1.82	1.34	1.97	1.59	1.62	2.09	1.84	1.65	2.30	1.95	0.74	1.64	1.11
Oct	1.37	2.00	1.50	1.62	2.05	1.86	1.23	1.95	1.51	1.75	2.07	1.88	1.80	2.20	2.00	1.11	1.73	1.55
Nov	1.60	2.06	1.71	1.65	2.09	1.88	1.28	1.92	1.51	1.77	2.04	1.86	1.77	2.14	1.95	1.18	1.74	1.50
Dec	1.51	1.94	1.69	1.60	1.99	1.86	1.16	1.82	1.46	1.57	1.92	1.73	1.65	2.04	1.77	0.94	1.60	1.20
Monthly Min/Max/ Avg	1.03	2.15	1.56	1.21	2.09	1.68	1.16	1.97	1.58	1.55	2.09	1.80	1.41	2.30	1.83	0.67	1.97	1.58

NOTES: '-' Indication Analyzer Offline

6.1 Reservoir Chlorine Residual (mg/L) - Part 2 2025

Reservoir	Rosslyn 1			Londonderry			N. Jasper Place			Rosslyn 2			Thornccliffe			Blackmud Creek		
Day	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Jan	1.65	1.72	1.68	1.54	1.87	1.71	1.44	1.91	1.54	1.47	1.73	1.59	1.53	1.99	1.69	1.61	2.13	1.83
Feb	1.60	1.73	1.66	1.43	1.93	1.77	1.33	1.92	1.62	1.50	1.90	1.60	1.54	1.98	1.68	1.48	1.76	1.64
Mar	1.54	1.74	1.64	1.33	1.93	1.69	1.38	1.90	1.56	1.46	1.90	1.58	1.39	1.92	1.61	1.49	1.60	1.55
Apr	1.57	1.69	1.64	1.30	1.93	1.69	1.29	1.93	1.48	1.39	1.93	1.58	1.44	1.97	1.61	1.02	1.77	1.52
May	1.38	1.65	1.51	1.27	1.78	1.57	1.13	1.82	1.35	1.20	1.98	1.41	1.20	1.97	1.41	1.12	1.67	1.38
Jun	1.33	1.56	1.44	1.25	1.84	1.50	1.11	1.87	1.27	1.19	2.11	1.32	1.16	2.05	1.38	1.13	1.83	1.66
Jul	1.21	1.51	1.39	1.10	1.64	1.41	1.10	1.86	1.27	1.00	2.12	1.24	1.13	2.04	1.32	1.19	1.59	1.47
Aug	1.02	1.51	1.33	0.99	1.68	1.37	1.09	2.08	1.25	1.00	2.10	1.22	1.09	2.08	1.26	1.28	1.71	1.49
Sep	1.28	1.72	1.49	1.20	1.80	1.49	1.14	2.11	1.28	1.04	2.13	1.34	1.29	2.21	1.54	1.50	1.69	1.60
Oct	1.49	1.69	1.61	1.31	1.82	1.58	1.29	1.99	1.46	1.35	2.16	1.53	1.60	2.17	1.70	1.36	1.78	1.52
Nov	1.45	1.74	1.61	1.51	1.79	1.65	1.40	2.01	1.60	1.32	1.97	1.57	1.59	2.01	1.71	1.27	1.46	1.32
Dec	1.52	1.72	1.61	1.39	1.83	1.64	1.50	1.99	1.64	1.40	1.99	1.58	1.56	2.00	1.71	1.19	1.29	1.25
Monthly Min/Max/ Avg	1.02	1.74	1.54	0.99	1.93	1.59	1.09	2.11	1.44	1.00	2.16	1.46	1.09	2.21	1.55	1.02	2.13	1.52

NOTES: '-' Indication Analyzer Offline

7.0 Chemical Budget - Flows and Chemical Usage

2025

	Raw Flows (ML)		Treated Flow (ML)		Alum (kg)		Carbon (kg)		Primary Polymer (kg)		Hypochlorite (kg)		Filter Polymer (kg)		Fluoride (kg)		SBS (kg)		Caustic (kg)		Aqua Ammonia		Las Ammonia
Month	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS	ROS	ELS
January	9,313	3,694	8,009	3,394	97,046	38,059	0	0	0	369	3,663,628	1,235,888	2,436	1,007	21,344	10,354	53,952	22,566	1	0	0.00	11,125.70	47,069.11
February	8,267	3,627	6,985	3,349	110,971	49,214	148	0	80	417	3,380,200	1,234,337	4,290	1,147	18,286	10,172	49,965	22,065	1,833	495	0.00	10,771.77	40,211.94
March	8,122	4,832	7,127	4,367	651,966	395,878	104,201	71,989	1,274	1,431	3,558,524	1,676,881	1,287	666	18,972	14,038	57,262	25,709	120,562	65,800	0.00	13,683.66	40,576.83
April	7,554	5,117	6,683	4,664	830,251	478,478	49,622	35,943	1,438	1,535	3,144,792	1,646,247	1,186	1,077	19,669	15,353	54,693	19,762	163,189	73,236	0.00	14,415.84	39,250.65
May	8,793	5,751	7,977	5,288	1,638,876	901,386	0	0	1,582	2,058	4,333,456	2,169,549	1,559	1,622	23,922	17,750	54,446	29,218	349,348	139,086	0.00	2,423.87	48,025.42
June	8,616	5,780	7,819	5,319	1,134,915	661,272	0	0	1,494	1,894	4,388,989	2,280,268	1,527	1,383	23,216	16,928	41,309	28,917	196,309	74,305	0.00	2,093.07	50,135.72
July	9,161	5,737	8,298	5,314	1,269,375	621,267	0	0	1,774	1,720	4,536,435	2,126,127	1,154	1,363	24,047	15,750	42,118	26,444	239,845	64,516	0.00	0.00	54,066.91
August	8,866	5,712	8,140	5,301	1,165,285	577,207	0	0	1,780	1,693	4,448,495	2,102,999	863	1,478	23,134	15,616	40,888	27,210	196,724	54,159	0.00	0.00	53,419.88
September	8,596	6,018	7,817	5,644	550,781	330,818	0	0	1,247	1,517	4,056,509	2,111,525	1,156	1,387	21,567	16,129	40,307	26,385	85,728	12,513	0.00	0.00	54,431.90
October	8,129	5,749	6,693	5,076	185,805	185,626	0	0	219	1,032	3,550,783	1,848,831	4,075	1,662	18,435	15,103	58,932	45,343	13,049	0	0.00	0.00	43,277.11
November	8,351	4,490	7,331	4,014	96,956	58,226	0	0	0	450	3,264,314	1,473,627	4,822	1,647	20,281	12,322	45,266	34,879	2	0	0.00	0.00	44,765.08
December	8,384	4,486	7,515	4,011	89,820	55,162	0	0	0	449	3,371,039	1,407,678	4,173	1,633	22,435	12,498	40,023	26,114	0	0	0.00	0.00	45,332.04
Annual Total	102,151	60,993	90,395	55,741	7,822,047	4,352,591	153,970	107,933	10,888	14,563	45,697,163	21,313,957	28,527	16,071	255,309	172,012	579,163	334,612	1,366,591	484,112	0.00	54,513.91	560,562.59

7.1 Orthophosphate Chemical

~ 2025 ~

Month	Dosage (mg/L)		Consumption (kg)	
	Rossdale	EL Smith	Rossdale	EL Smith
January	0.90	0.90	12,807	30,207
February	0.90	0.90	12,737	26,543
March	0.90	0.90	16,588	26,983
April	0.91	0.89	17,831	25,136
May	0.90	0.89	20,054	29,843
June	0.90	0.89	20,218	29,207
July	0.90	0.90	20,221	31,441
August	0.90	0.90	20,146	30,685
September	0.90	0.90	21,437	29,593
October	0.90	0.86	19,294	24,169
November	0.90	0.82	15,259	25,412
December	0.90	0.84	15,235	26,728
Annual Total			211,827	335,947
Annual Avg	0.90	0.88		

NOTES: ' -- ' indicates plant offline

- Phosphoric acid consumption (kg) at 100% by weight (solution delivered to sites at a concentration of 75%)
- NSF limit for Phosphoric acid (75%) is 13 mg/l)

8.1 SUMMARY OF PARAMETERS FOR EDMONTON DRINKING WATER

Water Treatment Plants



Parameter (Units)	#	Mean	Range
Alkalinity total (mg CaCO ₃ /L)	730	115.9	81.0 - 140.0
Aluminum (mg/L)	24	0.070	0.021 - 0.127
Arsenic (mg/L)	24	0.0002	<0.0002 - 0.0002
Bromate Dissolved (mg/L)	106	<0.005	<0.003 - <0.005
Bromodichloromethane (µg/L)	729	1.1	<0.5 - 2.6
Cadmium (mg/L)	24	<0.00002	<0.00002
Calcium Hardness (mg/L CaCO ₃)	708	114.6	80.0 - 136.0
Chlorate Dissolved (mg/L)	106	0.20	<0.1 - 0.49
Chloride Dissolved (mg/L)	106	6.36	3.09 - 14.20
Chlorine total (mg/L)	730	2.10	1.88 - 2.32
Chlorite Dissolved (mg/L)	106	<0.2	<0.005 - <0.2
Chloroform (µg/L)	729	19.7	3.5 - 82.8
Chromium (mg/L)	24	<0.0002	<0.0002
Colour (TCU)	730	0.9	<0.5 - 2.7
Conductivity (µS/cm)	105	392.2	339.0 - 476.0
Copper (mg/L)	24	0.002	<0.002
Cryptosporidium (oocysts/100L)	32	0.1	<0.09 - 0.1
Fluoride (mg/L)	730	0.69	0.52 - 0.80
Giardia (cysts/100L)	32	<0.1	<0.09 - <0.1
Haloacetic acids total (HAA5) (µg/L)	23	19.5	7.8 - 31.6
Iron (mg/L)	24	0.005	<0.005
Manganese (mg/L)	24	0.002	<0.002 - 0.005
Mercury (µg/L)	14	<0.0050	<0.0050
Mercury (mg/L)	20	0.0002	<0.0002
Nitrate (as N) dissolved (mg/L)	104	0.05	<0.01 - 0.18
Nitrite (as N) dissolved (mg/L)	104	0.01	<0.01 - 0.02
Nitrosodimethylamine, N- [NDMA] (µg/L)	23	0.00142	<0.0009 - 0.00142
pH	730	8	8
Potassium (mg/L)	24	0.9	0.6 - 1.9
Sodium (mg/L)	24	11.4	6.3 - 27.2
Sulphate Dissolved (mg/L)	106	71.3	57.8 - 116.0
Total Dissolved Solids (mg/L)	24	227.29	52.00 - 307.00
Total Hardness (mg/L CaCO ₃)	728	173.9	131.0 - 212.0
Total Organic Carbon (mg/L)	104	1.6	0.8 - 3.4
Trihalomethanes (µg/L)	729	20.9	4.3 - 84.7
Turbidity (NTU)	730	0.05	<0.04 - 0.52
Uranium (mg/L)	24	0.0005	<0.0005 - 0.0006
Zinc (mg/L)	24	0.005	<0.005

8.2 EXPLANATION OF NOTATIONS

Water Treatment Plants



Concentrations are reported as mg/L unless otherwise indicated.
Alkalinity and Hardness (Ca and Total) are reported as mg CaCO₃/L

%T	= % Transmittance
- ve	= Absent
+ ve	= Present
ng/L	= Nanograms per litre (1 ng/L)
µg/L	= Micrograms per litre (1 µg/L)
µS/cm	= Microsiemens per centimeter (unit of conductivity)
2/Y	= Twice per Year
AO	= Aesthetic Objective
Bq/L	= Becquerel(s) per litre (unit of radionuclide concentration)
CCPP	= Calcium Carbonate Precipitation Potential
CFU	= Colony Forming Units
Comm	= Commercial Laboratories
D	= Daily
EWSI	= EPCOR Water Services Inc.
FPA	= Flavour Profile Analysis
GCDWQ	= Guidelines for Canadian Drinking Water Quality
GM	= Geometric Mean
inoff	= Inoffensive (no objectionable odour)
M	= Monthly
MAC	= Maximum Acceptable Concentration
MDL	= Method Detection Limit
N/A	= Not Available
ND	= Not Detected
NTU	= Nephelometric Turbidity Units
PA	= Presence/Absence Testing
PBR	= Performance Based Rates
PHP	= phenolphthalein
PLPH	= Provincial Laboratory of Public Health
ppb	= Parts Per Billion
ppm	= Parts Per Million
Q	= Quarterly
QA	= Quality Assurance
QC	= Quality Control
RDL	= Reportable Detection Limit
TCU	= True Colour Units
TDS	= Total Dissolved Solids
TOC	= Total Organic Carbon
UV Abs/cm	= UV Absorbance per centimeter
WL	= Water Laboratory
WTP	= Water Treatment Plant

8.3 BACTERIOLOGICAL DATA

Water Treatment Plants



Location	#	Mean	Range
EL Smith Raw			
Cellular ATP (pg/mL)	6	71.2	21.5 - 158.5
Coliforms total (MPN/100 mL)	56	419.7	21.3 - 4962.0
E. coli (MPN/100 mL)	56	19.0	1.0 - 248.1
Rossdale Raw			
Cellular ATP (pg/mL)	13	55.2	7.6 - 175.2
Coliforms total (MPN/100 mL)	365	620.2	21.6 - 13734.0
E. coli (MPN/100 mL)	365	41.6	1.0 - 3328.0
EL Smith Treated			
Cellular ATP (pg/mL)	365	0.1	<0.10 - 1.6
Coliforms total (PA/100mL)	365	-VE	-VE
E. coli (PA/100mL)	365	-VE	-VE
Rossdale Treated			
Cellular ATP (pg/mL)	365	0.1	<0.10 - 1.3
Coliforms total (PA/100mL)	365	-VE	-VE
E. coli (PA/100mL)	365	-VE	-VE
EL Smith Reservoir			
Cellular ATP (pg/mL)	365	0.1	<0.10 - 1.8
Coliforms total (PA/100mL)	365	-VE	-VE
E. coli (PA/100mL)	365	-VE	-VE
Rossdale Reservoir			
Cellular ATP (pg/mL)	365	0.1	<0.10 - 0.5
Coliforms total (PA/100mL)	365	-VE	-VE
E. coli (PA/100mL)	365	-VE	-VE

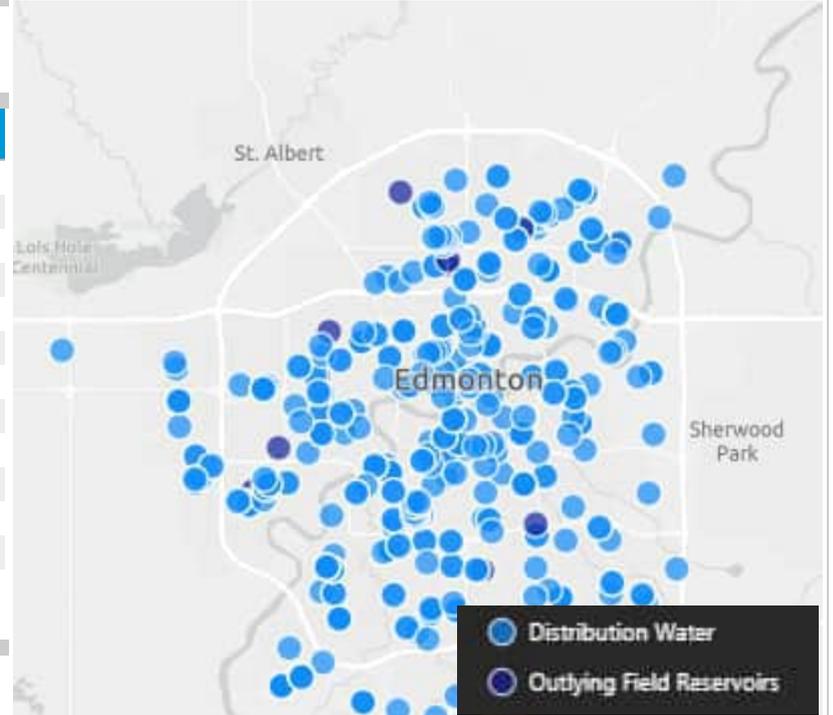
8.4 BACTERIOLOGICAL DATA

Distribution System



Bacteriological Sample Counts

Collected	# Samples	Detectable Results
January	198	
February	207	1
March	210	
April	229	
May	250	
June	229	1
July	261	
August	244	2
September	225	1
October	235	
November	214	
December	219	



Monthly Target January - March 2025: 195 Samples / Month
 Monthly Target April - December 2025: 210 Samples / Month

Esri Canada, Esri, TomTom, Garmin, SafeGraph, FAO, METI/... Powered by Esri

2721

Count of Bacteriological Tests

48%

Analyzed by Epcor

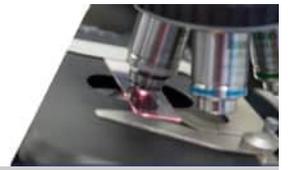
52%

Analyzed by AHS

Parameter (Units)	# Samples	Average	Range
Chlorine total (mg/L)			
January	198	1.94	1.40 - 2.34
February	207	1.90	0.22 - 2.16
March	210	1.90	1.07 - 2.15
April	229	1.89	0.19 - 2.14
May	250	1.76	0.30 - 2.13
June	229	1.70	0.73 - 2.19
July	262	1.60	0.70 - 2.24
August	244	1.56	0.97 - 2.20
September	224	1.67	0.96 - 2.20
October	236	1.74	0.88 - 2.14
November	214	1.83	1.02 - 2.14
December	219	1.87	1.22 - 2.15
Turbidity (NTU)			
January	198	0.14	<0.04 - 1.37
February	207	0.16	0.06 - 1.93
March	210	0.15	0.04 - 2.20
April	229	0.20	<0.04 - 3.65
May	250	0.28	0.06 - 6.84
June	229	0.28	0.05 - 3.26
July	262	0.23	<0.04 - 3.16
August	244	0.28	<0.04 - 3.51
September	224	0.27	0.04 - 2.72
October	236	0.37	0.05 - 14.00
November	214	0.15	<0.04 - 2.42
December	219	0.13	<0.04 - 1.03

8.5 SUMMARY OF GIARDIA AND CRYPTOSPORIDIUM

Water Treatment Plants



Location Date	EL Smith Combined Filter Effluent		EL Smith Reservoir		Rossdale Reservoir		Rossdale Treated	
	Cryptosporidium	Giardia	Cryptosporidium	Giardia	Cryptosporidium	Giardia	Cryptosporidium	Giardia
Jan 13					<0.1	<0.1		
Jan 14			<0.09	<0.09				
Feb 10			<0.1	<0.1	<0.1	<0.1		
Mar 11			<0.1	<0.1	<0.09	<0.09		
Apr 16			<0.1	<0.1	<0.1	<0.1		
May 05			<0.1	<0.1	<0.1	<0.1		
Jun 11			<0.1	<0.1	<0.1	<0.1		
Jul 14					<0.1	<0.1		
Jul 15			<0.1	<0.1				
Aug 25					<0.1	<0.1		
Aug 26			<0.1	<0.1				
Sep 16			<0.1	<0.1	<0.1	<0.1		
Sep 23					<0.1	<0.1		
Oct 01					<0.1	<0.1		
Oct 06			<0.1	<0.1				
Oct 07					<0.1	<0.1		
Oct 14					<0.1	<0.1		
Oct 27					<0.1	<0.1		
Nov 10					<0.1	<0.1		
Nov 12			<0.1	<0.1				
Nov 24					0.1	<0.1		
Nov 28					0.1	<0.1		
Dec 01					<0.1	<0.1	<0.1	<0.1
Dec 03	<0.1	<0.1	<0.1	<0.1				
Dec 16					<0.1	<0.1		

Note all values for Cryptosporidium are oocysts/100L and for Giardia are cysts/100L

8.6 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

Rossdale Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Microbiologicals					
Coliforms total (PA/100mL)	365	-VE	-VE	0.0	
Cryptosporidium (oocysts/100L)	20	0.1	<0.09 - 0.1		
E. coli (PA/100mL)	365	-VE	-VE	0.0	
Giardia (cysts/100L)	20	<0.1	<0.09 - <0.1		
Physical					
Colour (TCU)	365	1.0	<0.5 - 2.7	(15.0)	10.0
Conductivity (µS/cm)	52	390.0	339.0 - 443.0		
pH	365	8	8		7 - 8
Total Dissolved Solids (mg/L)	12	234.17	196.00 - 307.00	(500.00)	
Turbidity (NTU)	365	0.05	<0.04 - 0.10	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	12	0.0005	<0.0005	0.0060	
Arsenic (mg/L)	12	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	12	0.061	0.053 - 0.067	2.000	
Boron (mg/L)	12	0.011	0.008 - 0.019	5.000	
Bromate Dissolved (mg/L)	53	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	12	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	53	0.29	0.1 - 0.49	1.00	
Chlorine total (mg/L)	365	2.13	1.93 - 2.32		
Chlorite Dissolved (mg/L)	53	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	12	0.0002	<0.0002	0.0500	
Cyanide (mg/L)	4	<0.002	<0.002	0.2000	
Fluoride (mg/L)	365	0.71	0.63 - 0.80	1.50	0.60 - 0.80
Lead (mg/L)	12	0.0002	<0.0002	0.0050	
Manganese (mg/L)	12	0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	7	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	10	0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	52	0.05	<0.01 - 0.18	10.00	
Nitrite (as N) dissolved (mg/L)	52	0.01	<0.01 - 0.02	1.00	
Selenium (mg/L)	12	0.0003	<0.0002 - 0.0003	0.0500	
Uranium (mg/L)	12	0.0005	<0.0005 - 0.0006	0.0200	

8.6 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

Rossdale Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Primary Organics					
2,4-D (µg/L)	4	0.059	<0.050 - 0.059	100.000	
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L)	4	<0.250	<0.050 - <0.250	350.000	
Atrazine + metabolites (µg/L)	4	<0.10	<0.10	5.0	
Benzene (µg/L)	364	0.5	<0.5 - 1.0	5.0	
Benzo(a)pyrene (µg/L)	4	<0.005	<0.005	0.0400	
Bromoxynil (µg/L)	4	<0.250	<0.050 - <0.250	30.000	
Carbon Tetrachloride (µg/L)	364	0.5	<0.5 - 1.0	2.0	
Chlorpyrifos (µg/L)	4	<0.10	<0.10	90.00	
Cyanazine (µg/L)	4	<0.100	<0.100		
Dicamba (µg/L)	4	<0.50	<0.10 - <0.50	110.00	
Dichlorobenzene (1,4) (µg/L)	364	0.5	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	41	<0.50	<0.50	5.00	
Dichlorophenol (2,4) (µg/L)	4	<0.20	<0.20		
Dimethoate (µg/L)	4	<0.050	<0.050	20.000	
Diquat (µg/L)	4	<1.0	<1.0	50.0	
Ethylbenzene (µg/L)	364	0.5	<0.5 - 1.0	140.0 (1.6)	
Glyphosate (µg/L)	4	<1.00	<0.20 - <1.00	280.00	
Haloacetic acids total (HAA5) (µg/L)	11	19.9	11.1 - 31.6	80.0	40.0
Malathion (µg/L)	4	<0.0250	<0.0250	290.000	
Methylene Chloride (Dichloromethane) (µg/L)	364	<1.00	<0.5 - <1.00	50.0	
Metribuzin (µg/L)	4	<0.100	<0.100	80.00	
Microcystin total (µg/L)	4	0.15	<0.15 - 0.16	1.50	
Nitritotriacetic acid (NTA) (mg/L)	4	<0.4	<0.4	0.40	
Nitrosodimethylamine, N- [NDMA] (µg/L)	11	0.00142	<0.0009 - 0.00142	0.04000	0.01000
Omethoate (µg/L)	4	<0.050	<0.050		
Omethoate (as dimethoate) (µg/L)	4	<0.16	<0.16		
Pentachlorophenol (µg/L)	4	<0.50	<0.50	60.00 (30.00)	
Perfluorooctanesulfonic acid (PFOS) (ng/L)	4	<2.0	<2.0		
Perfluorooctanoic Acid (PFOA) (ng/L)	4	<2.0	<2.0		
Tetrachloroethylene (µg/L)	364	0.5	<0.5 - 1.0	10.0	
Toluene (µg/L)	364	0.5	<0.5 - 1.0	60.0 (24.0)	
Total PFAS (ng/L)	4	<12.0	<12.0		
Trichloroethylene (µg/L)	364	0.5	<0.5 - 1.0	5.0	
Trichlorophenol (2,4,6) (µg/L)	4	<0.20	<0.20	5.00 (2.00)	
Trihalomethanes (µg/L)	364	22.1	4.3 - 84.7	100.0	50.0
Vinyl Chloride (µg/L)	364	1.00	<0.50 - 2.00	2.00	

8.6 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

Rossdale Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	365	115.0	81.0 - 139.0		
Aluminum (mg/L)	12	0.073	0.021 - 0.127	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	194	0.11	0.01 - 0.18		
Beryllium (mg/L)	12	0.0002	<0.0002		
Bromide Dissolved (mg/L)	53	<0.05	<0.03 - <0.05		
Calcium (mg/L)	12	47.4	43.8 - 54.0		
Calcium Hardness (mg/L CaCO ₃)	365	114.7	80.0 - 136.0		
Chloride Dissolved (mg/L)	53	6.32	4.51 - 14.20	(250.00)	
Chlorine free (mg/L)	11	0.07	<0.07		
Cobalt (mg/L)	12	0.0002	<0.0002		
Copper (mg/L)	12	0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	12	<0.005	<0.005	(0.100)	
Lithium (mg/L)	12	0.0036	0.0030 - 0.0041		
Magnesium (mg/L)	12	14.4	12.6 - 17.2		
Molybdenum (mg/L)	12	0.0007	0.0005 - 0.0010		
Nickel (mg/L)	12	0.0005	<0.0005 - 0.0007		
Phosphate Ortho (as P) (mg/L as P)	11	0.02	<0.02 - 0.03		
Phosphorus (mg/L)	12	<0.02	<0.02		
Potassium (mg/L)	12	0.9	0.6 - 1.9		
Silicon (mg/L)	12	2.07	1.56 - 2.57		
Silver (mg/L)	12	<0.00002	<0.00002		
Sodium (mg/L)	12	10.7	6.4 - 19.6	(200.0)	
Strontium (mg/L)	12	0.439	0.367 - 0.518	7.000	
Sulphate Dissolved (mg/L)	53	70.3	57.9 - 105.0	(500.0)	
Sulphide (mg/L)	4	<0.0015	<0.0015	(0.0500)	
Thallium (mg/L)	12	0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	365	173.9	131.0 - 209.0		
Vanadium (mg/L)	12	0.0005	<0.0005		
Zinc (mg/L)	12	<0.005	<0.005	(5.000)	

8.6 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

Rossdale Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Xylenes total (µg/L)	364	<1.0	<0.50 - <1.0	90.00 (20.00)	
Xylene (1,4) (µg/L)	364	0.52	<0.40 - 1.00		
Xylene (1,2) (µg/L)	364	0.51	<0.30 - 1.00		
Trichloroethane (1,1,1) (µg/L)	364	0.5	<0.5 - 1.0		
Trichlorobenzene (1,2,4) (µg/L)	364	0.5	<0.5 - 1.0		
Trichloroacetic acid (µg/L)	11	10.28	5.56 - 17.00		
Total Volatile Organics (Non THM) (µg/L)	323	1.3	<1.0 - 3.8		
Total Organic Carbon (mg/L)	52	1.6	0.8 - 3.4		
Tetrachloroethane (1,1,2,2) (µg/L)	364	0.5	<0.5 - 1.0		
Styrene (µg/L)	364	0.5	<0.5 - 1.0		
Monochloroacetic acid (µg/L)	11	1.01	<1.00 - 1.11		
Monobromoacetic acid (µg/L)	11	<1.00	<1.00		
Methyl t-Butyl Ether (MTBE) (µg/L)	364	0.5	<0.5 - 1.0	100.0 (15.0)	50.0
Methyl Isobutyl Ketone (MIBK) (µg/L)	364	<20	<1.0 - <20		
Dichloropropane (1,2) (µg/L)	364	0.5	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	364	0.5	<0.5 - 1.0		
Dichloroethylene cis (1,2) (µg/L)	364	0.5	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	364	0.5	<0.5 - 1.0	14.0	
Dichloroethane (1,2) (µg/L)	323	0.5	<0.5 - 1.0	5.0	
Dichlorobenzene (1,3) (µg/L)	364	0.5	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	364	0.5	<0.5 - 1.0	200.0 (3.0)	
Dichloroacetic acid (µg/L)	11	9.51	4.94 - 15.10		
Dibromochloromethane (µg/L)	364	0.5	<0.5 - 1.0		
Dibromoacetic acid (µg/L)	11	<1.00	<1.00		
Chloroform (µg/L)	364	20.8	3.6 - 82.8	(40.0)	
Chlorobenzene (µg/L)	364	0.5	<0.5 - 1.0		
Bromoform (µg/L)	364	0.5	<0.5 - 1.0		
Bromodichloromethane (µg/L)	364	1.2	<0.5 - 2.6		
Bromochloroacetic acid (µg/L)	11	<1.00	<1.00		
Radionuclides					
Tritium (Bq/L)	2	<40	<40	7000.00	
Strontium-90 (Bq/L)	2	<0.05	<0.05	5.00	
Radium-226 (Bq/L)	2	0.006	<0.005 - 0.007	0.500	
Lead-210 (Bq/L)	2	<0.02	<0.02	0.20	
Iodine-131 (Bq/L)	2	<0.6	<0.5 - <0.6	6.0	
Gross Beta (Bq/L)	2	0.12	<0.07 - 0.17		
Gross Alpha (Bq/L)	2	<0.13	<0.12 - <0.13		
Cesium-137 (Bq/L)	2	<0.09	<0.07 - <0.09	10.00	

8.7 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

E.L Smith Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Microbiologicals					
Coliforms total (PA/100mL)	365	-VE	-VE	0.0	
Cryptosporidium (oocysts/100L)	12	<0.1	<0.09 - <0.1		
E. coli (PA/100mL)	365	-VE	-VE	0.0	
Giardia (cysts/100L)	12	<0.1	<0.09 - <0.1		
Physical					
Colour (TCU)	365	0.9	<0.5 - 1.9	(15.0)	10.0
Conductivity (µS/cm)	53	394.5	350.0 - 476.0		
pH	365	8	8		7 - 8
Total Dissolved Solids (mg/L)	12	220.42	52.00 - 301.00	(500.00)	
Turbidity (NTU)	365	0.05	<0.04 - 0.52	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	12	0.0005	<0.0005	0.0060	
Arsenic (mg/L)	12	0.0002	<0.0002	0.0100	
Barium (mg/L)	12	0.060	0.053 - 0.066	2.000	
Boron (mg/L)	12	0.011	0.008 - 0.016	5.000	
Bromate Dissolved (mg/L)	53	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	12	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	53	0.11	<0.1 - 0.16	1.00	
Chlorine total (mg/L)	365	2.07	1.88 - 2.29		
Chlorite Dissolved (mg/L)	53	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	12	0.0002	<0.0002	0.0500	
Cyanide (mg/L)	4	<0.002	<0.002	0.2000	
Fluoride (mg/L)	365	0.67	0.52 - 0.79	1.50	0.60 - 0.80
Lead (mg/L)	12	0.0002	<0.0002	0.0050	
Manganese (mg/L)	12	0.002	<0.002 - 0.005	0.120 (0.020)	
Mercury (µg/L)	7	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	10	0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	52	0.05	<0.01 - 0.16	10.00	
Nitrite (as N) dissolved (mg/L)	52	0.01	<0.01 - 0.02	1.00	
Selenium (mg/L)	12	0.0003	0.0002 - 0.0004	0.0500	
Uranium (mg/L)	12	0.0005	<0.0005 - 0.0006	0.0200	

8.7 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

E.L. Smith Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Primary Organics					
2,4-D (µg/L)	4	<0.250	<0.050 - <0.250	100.000	
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L)	4	<0.250	<0.050 - <0.250	350.000	
Atrazine + metabolites (µg/L)	4	<0.10	<0.10	5.0	
Benzene (µg/L)	365	0.5	<0.5 - 1.0	5.0	
Benzo(a)pyrene (µg/L)	4	<0.005	<0.005	0.0400	
Bromoxynil (µg/L)	4	<0.250	<0.050 - <0.250	30.000	
Carbon Tetrachloride (µg/L)	365	0.5	<0.5 - 1.0	2.0	
Chlorpyrifos (µg/L)	4	<0.10	<0.10	90.00	
Cyanazine (µg/L)	4	<0.100	<0.100		
Dicamba (µg/L)	4	<0.50	<0.10 - <0.50	110.00	
Dichlorobenzene (1,4) (µg/L)	365	0.5	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	42	<0.50	<0.50	5.00	
Dichlorophenol (2,4) (µg/L)	4	<0.20	<0.20		
Dimethoate (µg/L)	4	<0.050	<0.050	20.000	
Diquat (µg/L)	4	<1.0	<1.0	50.0	
Ethylbenzene (µg/L)	365	0.5	<0.5 - 1.0	140.0 (1.6)	
Glyphosate (µg/L)	4	<1.00	<0.20 - <1.00	280.00	
Haloacetic acids total (HAA5) (µg/L)	12	19.1	7.8 - 30.1	80.0	40.0
Malathion (µg/L)	4	<0.0250	<0.0250	290.000	
Methylene Chloride (Dichloromethane) (µg/L)	365	<1.00	<0.5 - <1.00	50.0	
Metribuzin (µg/L)	4	<0.100	<0.100	80.00	
Microcystin total (µg/L)	4	<0.15	<0.15	1.50	
Nitritotriacetic acid (NTA) (mg/L)	4	<0.4	<0.4	0.40	
Nitrosodimethylamine, N- [NDMA] (µg/L)	12	<0.0018	<0.0009 - <0.0018	0.04000	0.01000
Omethoate (µg/L)	4	<0.050	<0.050		
Omethoate (as dimethoate) (µg/L)	4	<0.16	<0.16		
Pentachlorophenol (µg/L)	4	<0.50	<0.50	60.00 (30.00)	
Perfluorooctanesulfonic acid (PFOS) (ng/L)	4	<2.0	<2.0		
Perfluorooctanoic Acid (PFOA) (ng/L)	4	<2.0	<2.0		
Tetrachloroethylene (µg/L)	365	0.5	<0.5 - 1.0	10.0	
Toluene (µg/L)	365	0.5	<0.5 - 1.0	60.0 (24.0)	
Total PFAS (ng/L)	4	<12.0	<12.0		
Trichloroethylene (µg/L)	365	0.5	<0.5 - 1.0	5.0	
Trichlorophenol (2,4,6) (µg/L)	4	<0.20	<0.20	5.00 (2.00)	
Trihalomethanes (µg/L)	365	19.7	4.3 - 64.5	100.0	50.0
Vinyl Chloride (µg/L)	365	1.00	<0.50 - 2.00	2.00	

8.7 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

E.L. Smith Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	365	116.9	90.0 - 140.0		
Aluminum (mg/L)	12	0.068	0.021 - 0.122	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	194	0.09	0.01 - 0.18		
Beryllium (mg/L)	12	0.0002	<0.0002		
Bromide Dissolved (mg/L)	53	<0.05	<0.03 - <0.05		
Calcium (mg/L)	12	47.4	44.1 - 54.9		
Calcium Hardness (mg/L CaCO ₃)	365	114.7	86.0 - 137.0		
Chloride Dissolved (mg/L)	53	6.40	3.09 - 8.96	(250.00)	
Chlorine free (mg/L)	12	0.07	<0.07		
Cobalt (mg/L)	12	0.0002	<0.0002		
Copper (mg/L)	12	0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	12	<0.005	<0.005	(0.100)	
Lithium (mg/L)	12	0.0032	0.0027 - 0.0038		
Magnesium (mg/L)	12	14.4	12.9 - 17.1		
Molybdenum (mg/L)	12	0.0007	0.0005 - 0.0009		
Nickel (mg/L)	12	0.0005	<0.0005 - 0.0007		
Phosphate Ortho (as P) (mg/L as P)	11	0.02	<0.02 - 0.02		
Phosphorus (mg/L)	12	<0.02	<0.02		
Potassium (mg/L)	12	0.8	0.6 - 1.8		
Silicon (mg/L)	12	2.05	1.49 - 2.62		
Silver (mg/L)	12	<0.00002	<0.00002		
Sodium (mg/L)	12	12.2	6.3 - 27.2	(200.0)	
Strontium (mg/L)	12	0.437	0.369 - 0.510	7.000	
Sulphate Dissolved (mg/L)	53	72.3	57.8 - 116.0	(500.0)	
Sulphide (mg/L)	4	<0.0015	<0.0015	(0.0500)	
Thallium (mg/L)	12	0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	365	173.9	136.0 - 212.0		
Vanadium (mg/L)	12	0.0005	<0.0005		
Zinc (mg/L)	12	<0.005	<0.005	(5.000)	

8.7 TREATED WATER ENTERING THE DISTRIBUTION SYSTEM

E.L. Smith Water Treatment Plant



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Xylenes total (µg/L)	365	<1.0	<0.50 - <1.0	90.00 (20.00)	
Xylene (1,4) (µg/L)	365	0.52	<0.40 - 1.00		
Xylene (1,2) (µg/L)	365	0.51	<0.30 - 1.00		
Trichloroethane (1,1,1) (µg/L)	365	0.5	<0.5 - 1.0		
Trichlorobenzene (1,2,4) (µg/L)	365	0.5	<0.5 - 1.0		
Trichloroacetic acid (µg/L)	12	9.45	3.92 - 15.20		
Total Volatile Organics (Non THM) (µg/L)	323	1.3	<1.0 - 3.8		
Total Organic Carbon (mg/L)	52	1.5	0.8 - 3.1		
Tetrachloroethane (1,1,2,2) (µg/L)	365	0.5	<0.5 - 1.0		
Styrene (µg/L)	365	0.5	<0.5 - 1.0		
Monochloroacetic acid (µg/L)	12	1.03	<1.00 - 1.25		
Monobromoacetic acid (µg/L)	12	<1.00	<1.00		
Methyl t-Butyl Ether (MTBE) (µg/L)	365	0.5	<0.5 - 1.0	100.0 (15.0)	50.0
Methyl Isobutyl Ketone (MIBK) (µg/L)	365	<20	<1.0 - <20		
Dichloropropane (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloroethylene cis (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	365	0.5	<0.5 - 1.0	14.0	
Dichloroethane (1,2) (µg/L)	323	0.5	<0.5 - 1.0	5.0	
Dichlorobenzene (1,3) (µg/L)	365	0.5	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	365	0.5	<0.5 - 1.0	200.0 (3.0)	
Dichloroacetic acid (µg/L)	12	9.43	3.91 - 14.90		
Dibromochloromethane (µg/L)	365	0.5	<0.5 - 1.0		
Dibromoacetic acid (µg/L)	12	<1.00	<1.00		
Chloroform (µg/L)	365	18.6	3.5 - 62.8	(40.0)	
Chlorobenzene (µg/L)	365	0.5	<0.5 - 1.0		
Bromoform (µg/L)	365	0.5	<0.5 - 1.0		
Bromodichloromethane (µg/L)	365	1.0	<0.5 - 2.0		
Bromochloroacetic acid (µg/L)	12	1.03	<1.00 - 1.16		
Radionuclides					
Tritium (Bq/L)	2	<40	<40	7000.00	
Strontium-90 (Bq/L)	2	<0.05	<0.05	5.00	
Radium-226 (Bq/L)	2	0.006	<0.005 - 0.006	0.500	
Lead-210 (Bq/L)	2	<0.02	<0.02	0.20	
Iodine-131 (Bq/L)	2	<0.5	<0.4 - <0.5	6.0	
Gross Beta (Bq/L)	2	0.09	<0.06 - 0.09		
Gross Alpha (Bq/L)	2	<0.14	<0.12 - <0.14		
Cesium-137 (Bq/L)	2	<0.2	<0.2	10.0	

8.8 TREATED WATER ENTERING THE PLANT RESERVOIR

E.L. Smith and Rossdale Reservoirs



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
EL Smith Combined Filter Effluent					
UV 254 % Transmittance (%T/cm)	364	97.6	90.2 - 97.6		
UV Absorbance (UV Abs/cm)	364	0.025	0.011 - 0.045		
EL Smith Treated					
Turbidity (NTU)	365	0.05	<0.04 - 1.44	(3.00)	0.10
Rossdale Filter Effluent					
UV 254 % Transmittance (%T/cm)	365	97.2	89.2 - 97.2		
UV Absorbance (UV Abs/cm)	365	0.026	0.013 - 0.050		
Rossdale Treated					
Turbidity (NTU)	366	0.05	<0.04 - 0.21	(3.00)	0.10
Primary Organics					
EL Smith Treated					
Benzene (µg/L)	365	<0.50	<0.5 - <0.50	5.0	
Carbon Tetrachloride (µg/L)	365	<0.50	<0.5 - <0.50	2.0	
Dichlorobenzene (1,4) (µg/L)	365	<0.50	<0.5 - <0.50	5.0 (1.0)	
Ethylbenzene (µg/L)	365	<0.50	<0.5 - <0.50	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	365	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	365	<0.50	<0.5 - <0.50	10.0	
Toluene (µg/L)	365	<0.50	<0.5 - <0.50	60.0 (24.0)	
Trichloroethylene (µg/L)	365	<0.50	<0.5 - <0.50	5.0	
Trihalomethanes (µg/L)	365	16.0	3.3 - 70.0	100.0	50.0
Vinyl Chloride (µg/L)	365	<1.0	<0.50 - <1.0	2.00	
Rossdale Treated					
Benzene (µg/L)	365	0.5	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	365	0.5	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	365	0.5	<0.5 - 1.0	5.0 (1.0)	
Ethylbenzene (µg/L)	365	0.5	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	365	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	365	0.5	<0.5 - 1.0	10.0	
Toluene (µg/L)	365	0.5	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	365	0.5	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	365	18.6	4.9 - 82.4	100.0	50.0
Vinyl Chloride (µg/L)	365	<2.0	<0.50 - 2.00	2.00	

8.8 TREATED WATER ENTERING THE PLANT RESERVOIR

E.L. Smith and Rossdale Reservoirs



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Primary Inorganics					
EL Smith Treated					
Bromate Dissolved (mg/L)	52	<0.005	<0.003 - <0.005	0.010	
Chlorate Dissolved (mg/L)	52	0.11	<0.1 - 0.16	1.00	
Chlorite Dissolved (mg/L)	52	<0.2	<0.005 - <0.2	1.000	
Nitrate (as N) dissolved (mg/L)	51	0.05	<0.01 - 0.16	10.00	
Nitrite (as N) dissolved (mg/L)	51	0.01	<0.01 - 0.02	1.00	
Rossdale Treated					
Bromate Dissolved (mg/L)	52	<0.005	<0.003 - <0.005	0.010	
Chlorate Dissolved (mg/L)	52	0.29	0.1 - 0.41	1.00	
Chlorite Dissolved (mg/L)	52	<0.2	<0.005 - <0.2	1.000	
Nitrate (as N) dissolved (mg/L)	51	0.05	<0.01 - 0.18	10.00	
Nitrite (as N) dissolved (mg/L)	51	0.01	<0.01 - 0.02	1.00	
Secondary Inorganics					
EL Smith Treated					
Ammonia as NH3 (mg/L)	194	0.09	<0.05 - 0.18		
Bromide Dissolved (mg/L)	52	<0.05	<0.03 - <0.05		
Chloride Dissolved (mg/L)	52	6.33	3.04 - 8.93	(250.00)	
Sulphate Dissolved (mg/L)	52	72.9	57.4 - 114.0	(500.0)	
Rossdale Treated					
Ammonia as NH3 (mg/L)	194	0.11	<0.05 - 1.00		
Bromide Dissolved (mg/L)	52	<0.05	<0.03 - <0.05		
Chloride Dissolved (mg/L)	52	6.67	4.55 - 16.30	(250.00)	
Sulphate Dissolved (mg/L)	52	70.4	58.2 - 104.0	(500.0)	

8.8 TREATED WATER ENTERING THE PLANT RESERVOIR

E.L. Smith and Rossdale Reservoirs



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
EL Smith Treated					
Bromodichloromethane (µg/L)	365	0.9	<0.5 - 1.8		
Bromoform (µg/L)	365	<0.50	<0.5 - <0.50		
Chlorobenzene (µg/L)	365	<0.50	<0.5 - <0.50		
Chloroform (µg/L)	365	15.0	2.5 - 68.5	(40.0)	
Dibromochloromethane (µg/L)	365	<0.50	<0.5 - <0.50		
Dichlorobenzene (1,2) (µg/L)	365	<0.50	<0.5 - <0.50	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	365	<0.50	<0.5 - <0.50		
Dichloroethylene (1,1) (µg/L)	365	<0.50	<0.5 - <0.50	14.0	
Dichloroethylene cis (1,2) (µg/L)	365	<0.50	<0.5 - <0.50		
Dichloroethylene trans (1,2) (µg/L)	365	<0.50	<0.5 - <0.50		
Dichloropropane (1,2) (µg/L)	365	<0.50	<0.5 - <0.50		
Methyl Isobutyl Ketone (MIBK) (µg/L)	365	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	365	<0.50	<0.5 - <0.50	100.0 (15.0)	50.0
Styrene (µg/L)	365	<0.50	<0.5 - <0.50		
Tetrachloroethane (1,1,2,2) (µg/L)	365	<0.50	<0.5 - <0.50		
Total Volatile Organics (Non THM) (µg/L)	323	1.2	<1.0 - 3.9		
Trichlorobenzene (1,2,4) (µg/L)	365	<0.50	<0.5 - <0.50		
Xylene (1,2) (µg/L)	365	<0.5	<0.30 - <0.5		
Xylene (1,4) (µg/L)	365	<0.5	<0.40 - <0.5		
Xylenes total (µg/L)	365	<1.0	<0.50 - <1.0	90.00 (20.00)	
Rossdale Treated					
Bromodichloromethane (µg/L)	365	1.1	<0.5 - 2.3		
Bromoform (µg/L)	365	0.5	<0.5 - 1.0		
Chlorobenzene (µg/L)	365	0.5	<0.5 - 1.0		
Chloroform (µg/L)	365	17.4	3.5 - 80.6	(40.0)	
Dibromochloromethane (µg/L)	365	0.5	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	365	0.5	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	365	0.5	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	365	0.5	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	365	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	365	0.5	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	365	0.5	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	365	0.5	<0.5 - 1.0		
Total Volatile Organics (Non THM) (µg/L)	323	1.2	<1.0 - 3.5		
Trichlorobenzene (1,2,4) (µg/L)	365	0.5	<0.5 - 1.0		
Xylene (1,2) (µg/L)	365	<1.0	<0.30 - 1.00		
Xylene (1,4) (µg/L)	365	<1.0	<0.40 - 1.00		
Xylenes total (µg/L)	365	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.9 Routine Distribution System (Excluding Field Reservoirs)



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Microbiologicals					
Coliforms total (MPN/100 mL)	33	Not Detected	Not Detected	0.0	
Coliforms total (PA/100mL)	2017	-VE	+VE - -VE	0.0	
E. coli (MPN/100 mL)	33	Not Detected	Not Detected	0.0	
E. coli (PA/100mL)	2017	-VE	-VE	0.0	
Physical					
Colour (TCU)	4	0.6	<0.5 - 0.8	(15.0)	10.0
pH	448	8	7 - 8		7 - 8
Total Dissolved Solids (mg/L)	3	224.33	209.00 - 238.00	(500.00)	
Turbidity (NTU)	2048	0.25	<0.04 - 6.84	(3.00)	1.00
UV Absorbance (UV Abs/cm)	3	0.031	0.022 - 0.043		
Primary Inorganics					
Antimony (mg/L)	5	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	5	<0.0002	<0.0002	0.0100	
Barium (mg/L)	5	0.058	0.050 - 0.069	2.000	
Boron (mg/L)	5	0.009	0.007 - 0.011	5.000	
Bromate Dissolved (mg/L)	18	0.005	<0.005	0.010	
Cadmium (mg/L)	5	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	18	0.18	0.09 - 0.31	1.00	
Chlorine total (mg/L)	2049	1.78	0.19 - 2.34		1.00 - 2.40
Chlorite Dissolved (mg/L)	18	0.005	<0.005	1.000	
Chromium (mg/L)	5	<0.0002	<0.0002	0.0500	
Cyanide (mg/L)	3	<0.002	<0.002	0.2000	
Fluoride (mg/L)	3	0.71	0.65 - 0.76	1.50	0.60 - 0.80
Lead (mg/L)	5	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	5	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	3	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	3	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	447	0.03	<0.01 - 0.12	10.00	
Nitrite (as N) dissolved (mg/L)	447	0.01	<0.01 - 0.05	1.00	
Omethoate (µg/L)	3	0.050	<0.050		
Selenium (mg/L)	5	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	5	0.0005	<0.0005 - 0.0006	0.0200	

8.9 Routine Distribution System (Excluding Field Reservoirs)



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Primary Organics					
2,4-D (µg/L)	3	<0.250	<0.050 - <0.250	100.000	
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L)	3	<0.250	<0.050 - <0.250	350.000	
Atrazine + metabolites (µg/L)	3	0.1	<0.10	5.0	
Benzene (µg/L)	69	0.5	<0.5 - 1.0	5.0	
Benzo(a)pyrene (µg/L)	3	<0.005	<0.005	0.0400	
Bromoxynil (µg/L)	3	<0.250	<0.050 - <0.250	30.000	
Carbon Tetrachloride (µg/L)	69	0.5	<0.5 - 1.0	2.0	
Chlorpyrifos (µg/L)	3	0.10	<0.10	90.00	
Cyanazine (µg/L)	3	0.10	<0.100		
Dicamba (µg/L)	3	<0.50	<0.10 - <0.50	110.00	
Dichlorobenzene (1,4) (µg/L)	69	0.5	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	69	0.5	<0.5 - 1.0	5.0	
Dichlorophenol (2,4) (µg/L)	3	0.20	<0.20		
Dimethoate (µg/L)	3	0.050	<0.050	20.000	
Diquat (µg/L)	3	<1.0	<1.0	50.0	
Ethylbenzene (µg/L)	69	0.5	<0.5 - 1.0	140.0 (1.6)	
Glyphosate (µg/L)	3	<1.00	<0.20 - <1.00	280.00	
Haloacetic acids total (HAA5) (µg/L)	68	21.2	7.7 - 36.0	80.0	40.0
Malathion (µg/L)	3	0.025	<0.0250	290.000	
Methylene Chloride (Dichloromethane) (µg/L)	69	<1.00	<0.5 - <1.00	50.0	
Metribuzin (µg/L)	3	0.10	<0.100	80.00	
Microcystin total (µg/L)	5	<0.15	<0.15	1.50	
Nitritotriacetic acid (NTA) (mg/L)	3	0.40	<0.4	0.40	
Nitrosodimethylamine, N- [NDMA] (µg/L)	34	0.00465	<0.0009 - 0.00465	0.04000	0.01000
Omethoate (as dimethoate) (µg/L)	3	<0.16	<0.16		
Pentachlorophenol (µg/L)	3	<0.50	<0.50	60.00 (30.00)	
Perfluorooctanesulfonic acid (PFOS) (ng/L)	3	<2.0	<2.0		
Perfluorooctanoic Acid (PFOA) (ng/L)	3	<2.0	<2.0		
Tetrachloroethylene (µg/L)	69	0.5	<0.5 - 1.0	10.0	
Toluene (µg/L)	69	0.5	<0.5 - 1.0	60.0 (24.0)	
Total PFAS (ng/L)	1	<12.0	<12.0		
Trichloroethylene (µg/L)	69	0.5	<0.5 - 1.0	5.0	
Trichlorophenol (2,4,6) (µg/L)	3	0.20	<0.20	5.00 (2.00)	
Trihalomethanes (µg/L)	69	23.7	5.1 - 50.8	100.0	50.0
Vinyl Chloride (µg/L)	69	1.04	<0.50 - 2.00	2.00	

8.9 Routine Distribution System (Excluding Field Reservoirs)



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	3	116.0	109.0 - 124.0		
Aluminum (mg/L)	5	0.085	0.012 - 0.267	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	431	0.19	0.08 - 0.32		
Beryllium (mg/L)	5	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	18	0.03	<0.03		
Calcium (mg/L)	5	49.6	46.7 - 54.7		
Chloride Dissolved (mg/L)	18	6.6	5.2 - 11.1	(250.0)	
Chlorine free (mg/L)	3	<0.07	<0.07		
Cobalt (mg/L)	5	<0.0002	<0.0002		
Copper (mg/L)	5	0.004	<0.002 - 0.007	2.000 (1.000)	
Iron (mg/L)	5	0.031	<0.005 - 0.110	(0.100)	
Lithium (mg/L)	5	0.0036	0.0029 - 0.0048		
Magnesium (mg/L)	5	14.7	13.6 - 16.0		
Molybdenum (mg/L)	5	0.0006	0.0005 - 0.0007		
Nickel (mg/L)	5	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	434	0.89	0.46 - 1.20		
Phosphorus (mg/L)	5	1.01	0.92 - 1.18		
Potassium (mg/L)	5	0.9	0.7 - 1.1		
Silicon (mg/L)	5	2.16	1.79 - 2.47		
Silver (mg/L)	5	<0.00002	<0.00002		
Sodium (mg/L)	5	12.1	6.3 - 20.8	(200.0)	
Strontium (mg/L)	5	0.458	0.424 - 0.484	7.000	
Sulphate Dissolved (mg/L)	18	70.5	59.6 - 81.6	(500.0)	
Sulphide (mg/L)	3	0.0015	<0.0015	(0.0500)	
Thallium (mg/L)	5	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	4	175.0	173.0 - 179.0		
Vanadium (mg/L)	5	<0.0005	<0.0005		
Zinc (mg/L)	5	<0.005	<0.005	(5.000)	

8.9 Routine Distribution System (Excluding Field Reservoirs)



Parameter (units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromochloroacetic acid (µg/L)	68	1.01	<1.00 - 1.26		
Bromodichloromethane (µg/L)	69	1.2	0.6 - 2.2		
Bromoform (µg/L)	69	0.5	<0.5 - 1.0		
Chlorobenzene (µg/L)	69	0.5	<0.5 - 1.0		
Chloroform (µg/L)	69	22.4	4.4 - 49.0	(40.0)	
Dibromoacetic acid (µg/L)	68	<1.00	<1.00		
Dibromochloromethane (µg/L)	69	0.5	<0.5 - 1.0		
Dichloroacetic acid (µg/L)	68	10.64	3.92 - 17.60		
Dichlorobenzene (1,2) (µg/L)	69	0.5	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	69	0.5	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	69	0.5	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	69	0.5	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	69	0.5	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	69	0.5	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	69	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	69	0.5	<0.5 - 1.0	100.0 (15.0)	50.0
Monobromoacetic acid (µg/L)	68	<1.00	<1.00		
Monochloroacetic acid (µg/L)	68	1.05	<1.00 - 1.72		
Styrene (µg/L)	69	0.5	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	69	0.5	<0.5 - 1.0		
Total Organic Carbon (mg/L)	430	1.7	0.7 - 2.6		
Total Volatile Organics (Non THM) (µg/L)	63	1.3	<1.0 - 3.2		
Trichloroacetic acid (µg/L)	68	10.28	3.81 - 18.40		
Trichlorobenzene (1,2,4) (µg/L)	69	0.5	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	69	0.5	<0.5 - 1.0		
Xylene (1,2) (µg/L)	69	0.53	<0.30 - 1.00		
Xylene (1,4) (µg/L)	69	0.53	<0.40 - 1.00		
Xylenes total (µg/L)	69	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.10 Additional Distribution System Samples Collected from Water Quality Complaint Investigations



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	136	0.9	<0.5 - 3.0	(15.0)	10.0
pH	136	8	8		7 - 8
Turbidity (NTU)	136	0.44	<0.04 - 2.90	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	136	0.0005	<0.0005	0.0060	
Arsenic (mg/L)	136	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	136	0.062	<0.002 - 0.105	2.000	
Boron (mg/L)	136	0.012	0.007 - 0.042	5.000	
Cadmium (mg/L)	136	0.00002	<0.00002 - 0.00004	0.00700	
Chlorine total (mg/L)	136	1.75	1.16 - 2.14		1.00 - 2.40
Chromium (mg/L)	136	<0.0002	<0.0002	0.0500	
Lead (mg/L)	136	0.0002	<0.0002 - 0.0018	0.0050	
Manganese (mg/L)	136	0.003	<0.002 - 0.012	0.120 (0.020)	
Selenium (mg/L)	136	0.0002	<0.0002 - 0.0004	0.0500	
Uranium (mg/L)	136	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	136	0.5	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	136	0.5	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	136	0.5	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	136	0.5	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	136	0.5	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	136	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	136	0.5	<0.5 - 1.0	10.0	
Toluene (µg/L)	136	0.5	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	136	0.5	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	136	23.9	5.4 - 50.5	100.0	50.0
Vinyl Chloride (µg/L)	136	1.01	<0.50 - 2.00	2.00	

8.10 Additional Distribution System Samples Collected from Water Quality Complaint Investigations



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	136	1.3	<0.5 - 2.4		
Bromoform (µg/L)	136	0.5	<0.5 - 1.0		
Chlorobenzene (µg/L)	136	0.5	<0.5 - 1.0		
Chloroform (µg/L)	136	22.5	4.7 - 49.2	(40.0)	
Dibromochloromethane (µg/L)	136	0.5	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	136	0.5	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	136	0.5	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	136	0.5	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	136	0.5	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	136	0.5	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	136	0.5	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	136	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	136	0.5	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	136	0.5	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	136	0.5	<0.5 - 1.0		
Total Volatile Organics (Non THM) (µg/L)	113	1.3	<1.0 - 3.1		
Trichlorobenzene (1,2,4) (µg/L)	136	0.5	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	136	0.5	<0.5 - 1.0		
Xylene (1,2) (µg/L)	136	0.51	<0.30 - 1.00		
Xylene (1,4) (µg/L)	136	0.53	<0.40 - 1.00		
Xylenes total (µg/L)	136	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.10 Additional Distribution System Samples Collected from Water Quality Complaint Investigations



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Aluminum (mg/L)	136	0.111	0.006 - 1.390	2.900 (0.100)	
Beryllium (mg/L)	136	<0.0002	<0.0002		
Calcium (mg/L)	136	47.9	0.3 - 56.7		
Calcium Hardness (mg/L CaCO ₃)	1	126.0	126.0		
Chlorine free (mg/L)	1	<0.07	<0.07		
Cobalt (mg/L)	136	0.0002	<0.0002 - 0.0016		
Copper (mg/L)	136	0.003	<0.002 - 0.013	2.000 (1.000)	
Iron (mg/L)	136	0.064	<0.005 - 0.894	(0.100)	
Lithium (mg/L)	136	0.0035	0.0003 - 0.0052		
Magnesium (mg/L)	136	14.2	<0.1 - 17.2		
Molybdenum (mg/L)	136	0.0007	0.0005 - 0.0010		
Nickel (mg/L)	136	0.0006	<0.0005 - 0.0030		
Phosphorus (mg/L)	136	1.01	0.70 - 1.92		
Potassium (mg/L)	136	0.9	0.3 - 2.6		
Silicon (mg/L)	136	2.09	1.37 - 2.84		
Silver (mg/L)	136	0.00002	<0.00002		
Sodium (mg/L)	136	13.0	6.0 - 93.0	(200.0)	
Strontium (mg/L)	136	0.433	<0.002 - 0.514	7.000	
Thallium (mg/L)	136	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	135	177.8	<2 - 211.0		
Vanadium (mg/L)	136	0.0005	<0.0005		
Zinc (mg/L)	136	0.005	<0.005 - 0.014	(5.000)	

8.11 Castledowns Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	0.9	<0.5 - 1.8	(15.0)	10.0
Conductivity (µS/cm)	6	399.3	362.0 - 437.0		
pH	23	8	8		7 - 8
Turbidity (NTU)	52	0.10	<0.04 - 0.18	(3.00)	1.00
Primary Organics					
Benzene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	7	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	7	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	7	0.6	<0.5 - 1.0	140.0 (1.6)	
Haloacetic acids total (HAA5) (µg/L)	1	14.70	14.70	80.00	40.00
Methylene Chloride (Dichloromethane) (µg/L)	7	<1.00	<0.5 - <1.00	50.0	
Nitrosodimethylamine, N- [NDMA] (µg/L)	1	<0.0009	<0.0009	0.04000	0.01000
Tetrachloroethylene (µg/L)	7	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	7	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	7	26.1	7.6 - 58.6	100.0	50.0
Vinyl Chloride (µg/L)	7	1.07	<0.50 - 2.00	2.00	
Primary Inorganics					
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	6	0.063	0.055 - 0.069	2.000	
Boron (mg/L)	6	0.011	0.008 - 0.017	5.000	
Bromate Dissolved (mg/L)	7	<0.005	<0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	7	0.11	0.08 - 0.17	1.00	
Chlorine total (mg/L)	52	1.78	1.40 - 2.10		1.00 - 2.40
Chlorite Dissolved (mg/L)	7	<0.005	<0.005	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	6	0.69	0.64 - 0.79	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	0.0101	<0.0050 - 0.0151	1.0000	
Nitrate (as N) dissolved (mg/L)	23	0.04	0.01 - 0.13	10.00	
Nitrite (as N) dissolved (mg/L)	23	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0006	0.0200	

8.11 Castledowns Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	117.2	109.0 - 128.0		
Aluminum (mg/L)	6	0.078	0.016 - 0.183	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	43	0.14	0.09 - 0.19		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	7	<0.03	<0.03		
Calcium (mg/L)	6	48.5	46.7 - 54.0		
Calcium Hardness (mg/L CaCO ₃)	6	121.3	117.0 - 135.0		
Chloride Dissolved (mg/L)	7	6.7	5.8 - 7.3	(250.0)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0033	0.0028 - 0.0037		
Magnesium (mg/L)	6	14.5	13.6 - 16.7		
Molybdenum (mg/L)	6	0.0008	0.0006 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	52	0.90	0.76 - 0.96		
Phosphorus (mg/L)	6	0.98	0.95 - 1.01		
Potassium (mg/L)	6	0.9	0.7 - 1.5		
Silicon (mg/L)	6	2.14	1.79 - 2.46		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	12.9	7.2 - 23.3	(200.0)	
Strontium (mg/L)	6	0.437	0.384 - 0.472	7.000	
Sulphate Dissolved (mg/L)	7	73.0	60.2 - 92.2	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	181.2	174.0 - 204.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.11 Castledowns Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromochloroacetic acid (µg/L)	1	<1.00	<1.00		
Bromodichloromethane (µg/L)	7	1.1	0.8 - 1.5		
Bromoform (µg/L)	7	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	7	0.6	<0.5 - 1.0		
Chloroform (µg/L)	7	24.8	6.8 - 57.1	(40.0)	
Dibromoacetic acid (µg/L)	1	<1.00	<1.00		
Dibromochloromethane (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroacetic acid (µg/L)	1	7.36	7.36		
Dichlorobenzene (1,2) (µg/L)	7	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	7	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	7	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	7	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Monobromoacetic acid (µg/L)	1	<1.00	<1.00		
Monochloroacetic acid (µg/L)	1	<1.00	<1.00		
Styrene (µg/L)	7	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	7	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.0 - 2.8		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 2.2		
Trichloroacetic acid (µg/L)	1	7.36	7.36		
Trichlorobenzene (1,2,4) (µg/L)	7	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	7	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	7	0.54	<0.30 - 1.00		
Xylene (1,4) (µg/L)	7	0.56	<0.40 - 1.00		
Xylenes total (µg/L)	7	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.12 Clareview Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.2	0.8 - 1.6	(15.0)	10.0
Conductivity (µS/cm)	6	377.2	343.0 - 419.0		
pH	22	8	8		7 - 8
Turbidity (NTU)	52	0.15	0.08 - 0.97	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.054 - 0.067	2.000	
Boron (mg/L)	6	0.012	0.008 - 0.023	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.24	0.1 - 0.32	1.00	
Chlorine total (mg/L)	52	1.70	1.26 - 2.05		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	7	0.69	0.65 - 0.73	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.02 - 0.17	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	<0.5	<0.5	5.0	
Carbon Tetrachloride (µg/L)	6	<0.5	<0.5	2.0	
Dichlorobenzene (1,4) (µg/L)	6	<0.5	<0.5	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	<0.5	<0.5	5.0	
Ethylbenzene (µg/L)	6	<0.5	<0.5	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	<0.5	<0.5	50.0	
Tetrachloroethylene (µg/L)	6	<0.5	<0.5	10.0	
Toluene (µg/L)	6	<0.5	<0.5	60.0 (24.0)	
Trichloroethylene (µg/L)	6	<0.5	<0.5	5.0	
Trihalomethanes (µg/L)	6	26.2	11.3 - 40.1	100.0	50.0
Vinyl Chloride (µg/L)	6	<1.0	<1.0	2.0	

8.12 Clareview Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	113.8	109.0 - 123.0		
Aluminum (mg/L)	6	0.059	0.032 - 0.086	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.17	0.10 - 0.29		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.1	46.2 - 48.7		
Calcium Hardness (mg/L CaCO ₃)	6	117.7	115.0 - 122.0		
Chloride Dissolved (mg/L)	6	7.06	5.14 - 12.00	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	0.013	0.010 - 0.016	(0.100)	
Lithium (mg/L)	6	0.0035	0.0030 - 0.0040		
Magnesium (mg/L)	6	14.3	13.6 - 14.8		
Molybdenum (mg/L)	6	0.0008	0.0006 - 0.0011		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	52	0.90	0.84 - 1.02		
Phosphorus (mg/L)	6	0.96	0.93 - 1.03		
Potassium (mg/L)	6	1.1	0.7 - 2.2		
Silicon (mg/L)	6	2.10	1.86 - 2.42		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	11.4	6.5 - 18.4	(200.0)	
Strontium (mg/L)	6	0.431	0.391 - 0.479	7.000	
Sulphate Dissolved (mg/L)	6	70.6	59.7 - 83.0	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	176.2	174.0 - 181.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.12 Clareview Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.3	0.9 - 1.6		
Bromoform (µg/L)	6	<0.5	<0.5		
Chlorobenzene (µg/L)	6	<0.5	<0.5		
Chloroform (µg/L)	6	24.8	9.6 - 38.6		
Dibromochloromethane (µg/L)	6	<0.5	<0.5		
Dichlorobenzene (1,2) (µg/L)	6	<0.5	<0.5		
Dichlorobenzene (1,3) (µg/L)	6	<0.5	<0.5		
Dichloroethylene (1,1) (µg/L)	6	<0.5	<0.5	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	<0.5	<0.5		
Dichloroethylene trans (1,2) (µg/L)	6	<0.5	<0.5		
Dichloropropane (1,2) (µg/L)	6	<0.5	<0.5		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	<1.0	<1.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	<0.5	<0.5	(15.0)	
Styrene (µg/L)	6	<0.5	<0.5		
Tetrachloroethane (1,1,2,2) (µg/L)	6	<0.5	<0.5		
Total Organic Carbon (mg/L)	21	1.7	1.0 - 2.4		
Total Volatile Organics (Non THM) (µg/L)	6	1.4	<1.0 - 2.5		
Trichlorobenzene (1,2,4) (µg/L)	6	<0.5	<0.5		
Trichloroethane (1,1,1) (µg/L)	6	<0.5	<0.5		
Xylene (1,2) (µg/L)	6	<0.5	<0.5		
Xylene (1,4) (µg/L)	6	<0.5	<0.5		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.13 Discovery Park Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	0.8	0.5 - 1.1	(15.0)	10.0
Conductivity (µS/cm)	6	387.8	363.0 - 419.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.18	0.07 - 0.65	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.055 - 0.067	2.000	
Boron (mg/L)	6	0.010	0.008 - 0.012	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.12	<0.1 - 0.14	1.00	
Chlorine total (mg/L)	52	1.38	1.00 - 1.87		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Cyanide (mg/L)	1	<0.002	<0.002	0.2000	
Fluoride (mg/L)	7	0.67	0.62 - 0.69	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	3	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.02 - 0.11	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Benzo(a)pyrene (µg/L)	1	<0.005	<0.005	0.0400	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Haloacetic acids total (HAA5) (µg/L)	2	18.2	16.0 - 20.4	80.0	40.0
Methylene Chloride (Dichloromethane) (µg/L)	6	0.6	<0.5 - 1.0	50.0	
Microcystin total (µg/L)	1	<0.15	<0.15	1.50	
Nitilotriacetic acid (NTA) (mg/L)	1	<0.4	<0.4	0.40	
Nitrosodimethylamine, N- [NDMA] (µg/L)	2	0.00304	0.00216 - 0.00392	0.04000	0.01000
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	22.7	12.6 - 36.2	100.0	50.0
Vinyl Chloride (µg/L)	6	1.2	<1.0 - 2.0	2.0	

8.13 Discovery Park Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Primary Organics					
2,4-D (µg/L)	1	<0.050	<0.050	100.000	
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L)	1	<0.050	<0.050	350.000	
Atrazine + metabolites (µg/L)	1	<0.10	<0.10	5.0	
Bromoxynil (µg/L)	1	<0.050	<0.050	30.000	
Chlorpyrifos (µg/L)	1	<0.10	<0.10	90.00	
Cyanazine (µg/L)	1	<0.100	<0.100		
Dicamba (µg/L)	1	<0.10	<0.10	110.00	
Dichlorophenol (2,4) (µg/L)	1	<0.20	<0.20		
Dimethoate (µg/L)	1	<0.050	<0.050	20.000	
Diquat (µg/L)	1	<1.0	<1.0	50.0	
Glyphosate (µg/L)	1	<1.00	<1.00	280.0	
Malathion (µg/L)	1	<0.0250	<0.0250	290.000	
Metribuzin (µg/L)	1	<0.100	<0.100	80.00	
Omethoate (as dimethoate) (µg/L)	1	<0.16	<0.16		
Pentachlorophenol (µg/L)	1	<0.50	<0.50	60.00 (30.00)	
Perfluorooctanesulfonic acid (PFOS) (ng/L)	1	<2.0	<2.0		
Perfluorooctanoic Acid (PFOA) (ng/L)	1	<2.0	<2.0		
Total PFAS (ng/L)	1	<12.0	<12.0		
Trichlorophenol (2,4,6) (µg/L)	1	<0.20	<0.20	5.00 (2.00)	

8.13 Discovery Park Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.5	110.0 - 118.0		
Aluminum (mg/L)	6	0.099	0.066 - 0.168	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.18	0.12 - 0.25		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.3	46.2 - 48.6		
Calcium Hardness (mg/L CaCO ₃)	6	117.8	115.0 - 121.0		
Chloride Dissolved (mg/L)	6	6.60	5.70 - 7.59	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	0.006	<0.005 - 0.008	(0.100)	
Lithium (mg/L)	6	0.0033	0.0030 - 0.0038		
Magnesium (mg/L)	6	14.5	13.9 - 15.0		
Molybdenum (mg/L)	6	0.0007	0.0005 - 0.0008		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0005		
Phosphate Ortho (as P) (mg/L as P)	52	0.90	0.47 - 0.98		
Phosphorus (mg/L)	6	1.00	0.95 - 1.08		
Potassium (mg/L)	6	0.9	0.7 - 1.0		
Silicon (mg/L)	6	2.03	1.78 - 2.41		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	11.1	6.7 - 17.1	(200.0)	
Strontium (mg/L)	6	0.440	0.392 - 0.480	7.000	
Sulphate Dissolved (mg/L)	6	69.7	57.7 - 83.3	(500.0)	
Sulphide (mg/L)	1	<0.0015	<0.0015	(0.0500)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	177.8	174.0 - 181.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.13 Discovery Park Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromochloroacetic acid (µg/L)	2	<1.00	<1.00		
Bromodichloromethane (µg/L)	6	1.1	0.8 - 1.3		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	21.5	11.4 - 34.8		
Dibromoacetic acid (µg/L)	2	<1.00	<1.00		
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroacetic acid (µg/L)	2	9.63	8.75 - 10.50		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	1.2	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	(15.0)	
Monobromoacetic acid (µg/L)	2	<1.00	<1.00		
Monochloroacetic acid (µg/L)	2	<1.00	<1.00		
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.6	0.9 - 2.3		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 2.9		
Trichloroacetic acid (µg/L)	2	8.61	7.28 - 9.94		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	6	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.14 Kaskitayo Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.1	<0.5 - 1.6	(15.0)	10.0
Conductivity (µS/cm)	6	387.3	353.0 - 416.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.12	0.04 - 0.37	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.054 - 0.068	2.000	
Boron (mg/L)	6	0.012	0.007 - 0.026	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.11	<0.1 - 0.13	1.00	
Chlorine total (mg/L)	52	1.92	1.62 - 2.10		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	7	0.67	0.65 - 0.70	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.03	0.01 - 0.14	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	0.6	<0.5 - 1.0	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	22.0	7.7 - 45.7	100.0	50.0
Vinyl Chloride (µg/L)	6	1.2	<1.0 - 2.0	2.0	

8.14 Kaskitayo Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.2	108.0 - 118.0		
Aluminum (mg/L)	6	0.069	0.028 - 0.129	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.13	0.07 - 0.20		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.1	45.9 - 48.0		
Calcium Hardness (mg/L CaCO ₃)	6	117.5	115.0 - 120.0		
Chloride Dissolved (mg/L)	6	7.23	5.43 - 9.06	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0033	0.0031 - 0.0035		
Magnesium (mg/L)	6	14.3	13.9 - 14.9		
Molybdenum (mg/L)	6	0.0007	0.0005 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	53	0.91	0.47 - 0.98		
Phosphorus (mg/L)	6	0.99	0.94 - 1.04		
Potassium (mg/L)	6	1.0	0.7 - 1.8		
Silicon (mg/L)	6	2.02	1.85 - 2.21		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	12.2	6.6 - 16.5	(200.0)	
Strontium (mg/L)	6	0.436	0.389 - 0.483	7.000	
Sulphate Dissolved (mg/L)	6	70.2	57.8 - 79.2	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	176.5	172.0 - 181.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.14 Kaskitayo Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.1	0.8 - 1.5		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	20.8	6.7 - 43.9		
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	1.2	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	(15.0)	
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	0.9 - 2.3		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 2.8		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	6	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.15 Londonderry Reservoir

Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.1	<0.5 - 2.5	(15.0)	10.0
Conductivity (µS/cm)	6	392.0	369.0 - 412.0		
pH	22	8	8		7 - 8
Turbidity (NTU)	52	0.13	0.05 - 1.08	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	6	0.062	0.052 - 0.070	2.000	
Boron (mg/L)	6	0.010	0.008 - 0.012	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.24	0.18 - 0.31	1.00	
Chlorine total (mg/L)	52	1.84	1.45 - 2.04		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.005	<0.005	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	6	0.73	0.68 - 0.80	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.01 - 0.12	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	26.2	10.1 - 52.8	100.0	50.0
Vinyl Chloride (µg/L)	6	1.08	<0.50 - 2.00	2.00	

8.15 Londonderry Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.0	107.0 - 130.0		
Aluminum (mg/L)	6	0.068	0.017 - 0.112	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.15	0.10 - 0.21		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.03	<0.03		
Calcium (mg/L)	6	48.5	45.9 - 53.3		
Calcium Hardness (mg/L CaCO ₃)	6	121.0	115.0 - 133.0		
Chloride Dissolved (mg/L)	6	6.5	4.9 - 8.7	(250.0)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	0.010	<0.005 - 0.030	(0.100)	
Lithium (mg/L)	6	0.0036	0.0033 - 0.0039		
Magnesium (mg/L)	6	14.7	14.0 - 16.7		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0008		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0007		
Phosphate Ortho (as P) (mg/L as P)	52	0.92	0.86 - 1.04		
Phosphorus (mg/L)	6	0.98	0.96 - 1.00		
Potassium (mg/L)	6	0.9	0.7 - 1.4		
Silicon (mg/L)	6	2.16	1.76 - 2.49		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	11.3	7.0 - 19.0	(200.0)	
Strontium (mg/L)	6	0.434	0.382 - 0.477	7.000	
Sulphate Dissolved (mg/L)	6	73.4	61.5 - 86.6	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	181.3	172.0 - 202.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.15 Londonderry Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.3	0.8 - 1.7		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	24.8	9.2 - 51.2	(40.0)	
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.1 - 2.9		
Total Volatile Organics (Non THM) (µg/L)	5	1.4	<1.0 - 2.2		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.55	<0.30 - 1.00		
Xylene (1,4) (µg/L)	6	0.57	<0.40 - 1.00		
Xylenes total (µg/L)	6	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.16 Millwoods Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.0	<0.5 - 1.6	(15.0)	10.0
Conductivity (µS/cm)	6	398.2	370.0 - 433.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.11	0.05 - 0.46	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	6	0.062	0.051 - 0.070	2.000	
Boron (mg/L)	6	0.010	0.008 - 0.012	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.16	0.11 - 0.23	1.00	
Chlorine total (mg/L)	52	1.93	1.68 - 2.10		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.005	<0.005	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	6	0.66	0.62 - 0.70	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.03	0.01 - 0.11	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	7	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	7	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	7	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	7	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	7	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	7	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	7	24.2	<1.0 - 63.7	100.0	50.0
Vinyl Chloride (µg/L)	7	1.07	<0.50 - 2.00	2.00	

8.16 Millwoods Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	117.0	107.0 - 130.0		
Aluminum (mg/L)	6	0.072	0.020 - 0.156	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	41	0.13	0.08 - 0.18		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.03	<0.03		
Calcium (mg/L)	6	48.8	46.9 - 53.5		
Calcium Hardness (mg/L CaCO ₃)	6	122.0	117.0 - 134.0		
Chloride Dissolved (mg/L)	6	6.5	5.5 - 6.9	(250.0)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0034	0.0029 - 0.0039		
Magnesium (mg/L)	6	14.7	14.2 - 16.6		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0008		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	51	0.90	0.47 - 0.98		
Phosphorus (mg/L)	6	0.98	0.96 - 1.00		
Potassium (mg/L)	6	0.9	0.7 - 1.2		
Silicon (mg/L)	6	2.13	1.79 - 2.46		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	11.9	7.5 - 20.6	(200.0)	
Strontium (mg/L)	6	0.442	0.381 - 0.481	7.000	
Sulphate Dissolved (mg/L)	6	73.3	60.1 - 89.3	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	182.7	176.0 - 202.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.16 Millwoods Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	7	1.2	<0.5 - 1.9		
Bromoform (µg/L)	7	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	7	0.6	<0.5 - 1.0		
Chloroform (µg/L)	7	22.9	<0.5 - 61.8	(40.0)	
Dibromochloromethane (µg/L)	7	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	7	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	7	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	7	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	7	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	7	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	7	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.0 - 2.8		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 2.3		
Trichlorobenzene (1,2,4) (µg/L)	7	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	7	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	7	0.54	<0.30 - 1.00		
Xylene (1,4) (µg/L)	7	0.56	<0.40 - 1.00		
Xylenes total (µg/L)	7	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.17 North Jasper Place Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.0	0.5 - 1.5	(15.0)	10.0
Conductivity (µS/cm)	6	390.8	363.0 - 419.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	51	0.11	0.06 - 0.23	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.055 - 0.067	2.000	
Boron (mg/L)	6	0.012	0.008 - 0.023	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.11	<0.1 - 0.12	1.00	
Chlorine total (mg/L)	51	1.58	1.17 - 2.18		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	7	0.66	0.62 - 0.69	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	21	0.05	0.02 - 0.13	10.00	
Nitrite (as N) dissolved (mg/L)	21	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	0.6	<0.5 - 1.0	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	24.7	11.0 - 44.9	100.0	50.0
Vinyl Chloride (µg/L)	6	1.2	<1.0 - 2.0	2.0	

8.17 North Jasper Place Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.7	107.0 - 120.0		
Aluminum (mg/L)	6	0.068	0.025 - 0.161	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	41	0.17	0.10 - 0.29		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.5	45.9 - 49.0		
Calcium Hardness (mg/L CaCO ₃)	6	118.5	115.0 - 122.0		
Chloride Dissolved (mg/L)	6	7.04	5.65 - 8.43	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	0.006	<0.005 - 0.007	(0.100)	
Lithium (mg/L)	6	0.0033	0.0029 - 0.0037		
Magnesium (mg/L)	6	14.3	13.5 - 15.2		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0005		
Phosphate Ortho (as P) (mg/L as P)	51	0.91	0.80 - 0.98		
Phosphorus (mg/L)	6	0.98	0.94 - 1.08		
Potassium (mg/L)	6	0.9	0.7 - 1.5		
Silicon (mg/L)	6	2.07	1.73 - 2.42		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	12.5	6.6 - 18.9	(200.0)	
Strontium (mg/L)	6	0.431	0.398 - 0.467	7.000	
Sulphate Dissolved (mg/L)	6	72.7	58.2 - 87.7	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	177.2	172.0 - 185.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.17 North Jasper Place Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.2	0.8 - 1.6		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	23.3	10.1 - 43.1		
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	1.2	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	(15.0)	
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	20	1.6	1.0 - 2.4		
Total Volatile Organics (Non THM) (µg/L)	6	1.6	<1.0 - 3.3		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	6	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.18 Ormsby Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.0	<0.5 - 1.3	(15.0)	10.0
Conductivity (µS/cm)	6	404.7	376.0 - 442.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.09	<0.04 - 0.19	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	6	0.062	0.053 - 0.070	2.000	
Boron (mg/L)	6	0.011	0.008 - 0.015	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.12	0.08 - 0.16	1.00	
Chlorine total (mg/L)	52	1.86	1.49 - 2.11		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.005	<0.005	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	6	0.66	0.64 - 0.68	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.01 - 0.12	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	26.7	7.2 - 54.5	100.0	50.0
Vinyl Chloride (µg/L)	6	1.08	<0.50 - 2.00	2.00	

8.18 Ormsby Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	117.2	106.0 - 130.0		
Aluminum (mg/L)	6	0.078	0.020 - 0.180	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.14	0.08 - 0.19		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.03	<0.03		
Calcium (mg/L)	6	48.5	46.4 - 52.6		
Calcium Hardness (mg/L CaCO ₃)	6	121.0	116.0 - 131.0		
Chloride Dissolved (mg/L)	6	6.8	5.7 - 7.3	(250.0)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0033	0.0028 - 0.0039		
Magnesium (mg/L)	6	14.7	13.9 - 16.6		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	52	0.90	0.47 - 0.98		
Phosphorus (mg/L)	6	0.98	0.96 - 1.03		
Potassium (mg/L)	6	0.9	0.7 - 1.4		
Silicon (mg/L)	6	2.13	1.83 - 2.43		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	12.9	7.4 - 22.7	(200.0)	
Strontium (mg/L)	6	0.440	0.381 - 0.483	7.000	
Sulphate Dissolved (mg/L)	6	74.7	60.9 - 92.6	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	181.7	174.0 - 200.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.18 Ormsby Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.2	0.6 - 2.0		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	25.4	6.5 - 53.0	(40.0)	
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.0 - 2.7		
Total Volatile Organics (Non THM) (µg/L)	5	1.4	<1.0 - 2.0		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.55	<0.30 - 1.00		
Xylene (1,4) (µg/L)	6	0.57	<0.40 - 1.00		
Xylenes total (µg/L)	6	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.19 Papaschase Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	0.9	<0.5 - 1.1	(15.0)	10.0
Conductivity (µS/cm)	6	397.8	372.0 - 412.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.15	0.05 - 0.36	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	6	0.062	0.055 - 0.069	2.000	
Boron (mg/L)	6	0.011	0.009 - 0.016	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.25	0.19 - 0.31	1.00	
Chlorine total (mg/L)	52	1.69	1.28 - 2.03		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.005	<0.005	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	6	0.70	0.67 - 0.75	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.02 - 0.14	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	7	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	7	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	7	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	7	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	7	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	7	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	7	23.6	<1.0 - 53.8	100.0	50.0
Vinyl Chloride (µg/L)	7	1.07	<0.50 - 2.00	2.00	

8.19 Papaschase Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.0	105.0 - 130.0		
Aluminum (mg/L)	6	0.065	0.018 - 0.105	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	41	0.18	0.12 - 0.24		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.03	<0.03		
Calcium (mg/L)	6	48.4	45.7 - 52.8		
Calcium Hardness (mg/L CaCO ₃)	6	120.8	114.0 - 132.0		
Chloride Dissolved (mg/L)	6	7.0	5.1 - 9.9	(250.0)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	0.015	0.010 - 0.025	(0.100)	
Lithium (mg/L)	6	0.0037	0.0033 - 0.0041		
Magnesium (mg/L)	6	14.5	13.6 - 16.3		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	51	0.89	0.45 - 0.98		
Phosphorus (mg/L)	6	0.96	0.94 - 0.99		
Potassium (mg/L)	6	1.0	0.7 - 1.7		
Silicon (mg/L)	6	2.19	1.87 - 2.54		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	11.6	7.3 - 18.1	(200.0)	
Strontium (mg/L)	6	0.442	0.382 - 0.495	7.000	
Sulphate Dissolved (mg/L)	6	73.6	62.8 - 86.5	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	180.7	170.0 - 199.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.19 Papaschase Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	7	1.2	<0.5 - 1.8		
Bromoform (µg/L)	7	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	7	0.6	<0.5 - 1.0		
Chloroform (µg/L)	7	22.3	<0.5 - 52.4	(40.0)	
Dibromochloromethane (µg/L)	7	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	7	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	7	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	7	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	7	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	7	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	7	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.1 - 2.7		
Total Volatile Organics (Non THM) (µg/L)	6	1.3	<1.0 - 1.9		
Trichlorobenzene (1,2,4) (µg/L)	7	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	7	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	7	0.54	<0.30 - 1.00		
Xylene (1,4) (µg/L)	7	0.56	<0.40 - 1.00		
Xylenes total (µg/L)	7	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.20 Papaschase Reservoir 2



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	0.9	<0.5 - 1.4	(15.0)	10.0
Conductivity (µS/cm)	6	383.0	348.0 - 424.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	53	0.38	0.06 - 14.00	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.054 - 0.067	2.000	
Boron (mg/L)	6	0.012	0.008 - 0.023	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.26	0.1 - 0.33	1.00	
Chlorine total (mg/L)	52	1.88	1.54 - 2.05		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	7	0.70	0.66 - 0.72	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.02 - 0.15	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	0.6	<0.5 - 1.0	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	25.3	10.1 - 45.5	100.0	50.0
Vinyl Chloride (µg/L)	6	1.2	<1.0 - 2.0	2.0	

8.20 Papaschase Reservoir 2



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	113.2	107.0 - 118.0		
Aluminum (mg/L)	6	0.073	0.031 - 0.112	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.15	0.10 - 0.24		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.0	46.3 - 47.8		
Calcium Hardness (mg/L CaCO ₃)	6	117.5	116.0 - 119.0		
Chloride Dissolved (mg/L)	6	6.76	4.96 - 10.90	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0035	0.0030 - 0.0040		
Magnesium (mg/L)	6	14.3	13.9 - 14.9		
Molybdenum (mg/L)	6	0.0007	0.0005 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	52	0.92	0.45 - 2.25		
Phosphorus (mg/L)	6	0.96	0.93 - 1.04		
Potassium (mg/L)	6	1.0	0.7 - 1.9		
Silicon (mg/L)	6	2.07	1.85 - 2.37		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	10.8	6.3 - 16.9	(200.0)	
Strontium (mg/L)	6	0.434	0.389 - 0.483	7.000	
Sulphate Dissolved (mg/L)	6	69.2	58.3 - 82.1	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	176.3	173.0 - 180.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.20 Papaschase Reservoir 2



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.3	0.9 - 1.8		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	23.9	9.0 - 43.5		
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	1.2	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	(15.0)	
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	0.9 - 2.4		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 3.0		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	6	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.21 Rosslyn Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	5	1.0	<0.5 - 1.4	(15.0)	10.0
Conductivity (µS/cm)	5	394.2	371.0 - 426.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	50	0.13	<0.04 - 0.38	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	5	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	5	0.0002	<0.0002 - 0.0002	0.0100	
Barium (mg/L)	5	0.062	0.052 - 0.070	2.000	
Boron (mg/L)	5	0.011	0.008 - 0.012	5.000	
Bromate Dissolved (mg/L)	5	<0.005	<0.005	0.010	
Cadmium (mg/L)	5	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	5	0.22	0.15 - 0.29	1.00	
Chlorine total (mg/L)	50	1.74	1.29 - 2.02		1.00 - 2.40
Chlorite Dissolved (mg/L)	5	<0.005	<0.005	1.000	
Chromium (mg/L)	5	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	5	0.71	0.63 - 0.77	1.50	0.60 - 0.80
Lead (mg/L)	5	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	5	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	0.0223	<0.0050 - 0.0396	1.0000	
Mercury (mg/L)	3	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	21	0.04	0.01 - 0.12	10.00	
Nitrite (as N) dissolved (mg/L)	21	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	5	0.0002	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	5	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	5	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	5	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	5	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	5	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	5	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	5	<1.00	<0.5 - <1.00	50.0	
Tetrachloroethylene (µg/L)	5	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	5	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	5	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	5	29.8	9.5 - 58.8	100.0	50.0
Vinyl Chloride (µg/L)	5	1.10	<0.50 - 2.00	2.00	

8.21 Rosslyn Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	5	110.8	106.0 - 121.0		
Aluminum (mg/L)	5	0.056	0.017 - 0.097	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	40	0.16	0.10 - 0.21		
Beryllium (mg/L)	5	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	5	<0.03	<0.03		
Calcium (mg/L)	5	47.3	45.5 - 48.9		
Calcium Hardness (mg/L CaCO ₃)	5	118.2	114.0 - 122.0		
Chloride Dissolved (mg/L)	5	7.0	5.0 - 8.4	(250.0)	
Cobalt (mg/L)	5	<0.0002	<0.0002		
Copper (mg/L)	5	0.002	<0.002 - 0.002	2.000 (1.000)	
Iron (mg/L)	5	0.008	<0.005 - 0.016	(0.100)	
Lithium (mg/L)	5	0.0034	0.0030 - 0.0040		
Magnesium (mg/L)	5	14.3	13.7 - 14.8		
Molybdenum (mg/L)	5	0.0007	0.0006 - 0.0009		
Nickel (mg/L)	5	0.0005	<0.0005 - 0.0007		
Phosphate Ortho (as P) (mg/L as P)	50	0.91	0.74 - 0.96		
Phosphorus (mg/L)	5	0.97	0.94 - 0.99		
Potassium (mg/L)	5	0.9	0.7 - 1.4		
Silicon (mg/L)	5	2.10	1.83 - 2.51		
Silver (mg/L)	5	<0.00002	<0.00002		
Sodium (mg/L)	5	13.2	7.1 - 22.1	(200.0)	
Strontium (mg/L)	5	0.428	0.383 - 0.482	7.000	
Sulphate Dissolved (mg/L)	5	75.3	61.4 - 91.7	(500.0)	
Thallium (mg/L)	5	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	5	176.6	171.0 - 183.0		
Vanadium (mg/L)	5	<0.0005	<0.0005		
Zinc (mg/L)	5	<0.005	<0.005	(5.000)	

8.21 Rosslyn Reservoir 1



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	5	1.4	1.1 - 1.8		
Bromoform (µg/L)	5	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	5	0.6	<0.5 - 1.0		
Chloroform (µg/L)	5	28.3	8.4 - 57.0	(40.0)	
Dibromochloromethane (µg/L)	5	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	5	0.6	<0.5 - 1.0	200.0 (3.0)	
Dichlorobenzene (1,3) (µg/L)	5	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	5	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	5	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	5	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	5	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	5	<20	<1.0 - <20		
Methyl t-Butyl Ether (MTBE) (µg/L)	5	0.6	<0.5 - 1.0	100.0 (15.0)	50.0
Styrene (µg/L)	5	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	5	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	20	1.8	1.1 - 3.2		
Total Volatile Organics (Non THM) (µg/L)	4	1.7	<1.0 - 2.5		
Trichlorobenzene (1,2,4) (µg/L)	5	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	5	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	5	0.56	<0.30 - 1.00		
Xylene (1,4) (µg/L)	5	0.58	<0.40 - 1.00		
Xylenes total (µg/L)	5	<1.0	<0.50 - <1.0	90.00 (20.00)	

8.22 Rosslyn Reservoir 2



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	7	1.0	0.7 - 1.3	(15.0)	10.0
Conductivity (µS/cm)	7	390.3	348.0 - 423.0		
pH	23	8	8		7 - 8
Turbidity (NTU)	52	0.11	0.07 - 0.30	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	7	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	7	0.0002	<0.0002	0.0100	
Barium (mg/L)	7	0.062	0.054 - 0.067	2.000	
Boron (mg/L)	7	0.011	0.008 - 0.020	5.000	
Bromate Dissolved (mg/L)	7	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	7	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	7	0.21	0.1 - 0.27	1.00	
Chlorine total (mg/L)	52	1.60	1.22 - 1.94		1.00 - 2.40
Chlorite Dissolved (mg/L)	7	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	7	0.0002	<0.0002	0.0500	
Fluoride (mg/L)	8	0.68	0.64 - 0.72	1.50	0.60 - 0.80
Lead (mg/L)	7	0.0002	<0.0002	0.0050	
Manganese (mg/L)	7	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	5	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	23	0.04	0.02 - 0.13	10.00	
Nitrite (as N) dissolved (mg/L)	23	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	7	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	7	0.0005	<0.0005 - 0.0006	0.0200	
Primary Organics					
Benzene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	7	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	7	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	7	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	7	0.6	<0.5 - 1.0	50.0	
Tetrachloroethylene (µg/L)	7	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	7	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	7	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	7	22.4	10.4 - 41.1	100.0	50.0
Vinyl Chloride (µg/L)	7	1.1	<1.0 - 2.0	2.0	

8.22 Rosslyn Reservoir 2



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	7	116.6	110.0 - 128.0		
Aluminum (mg/L)	7	0.068	0.034 - 0.108	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.18	0.11 - 0.25		
Beryllium (mg/L)	7	0.0002	<0.0002		
Bromide Dissolved (mg/L)	7	<0.05	<0.03 - <0.05		
Calcium (mg/L)	7	48.2	46.3 - 51.7		
Calcium Hardness (mg/L CaCO ₃)	7	120.6	116.0 - 129.0		
Chloride Dissolved (mg/L)	7	6.88	5.40 - 11.00	(250.00)	
Cobalt (mg/L)	7	0.0002	<0.0002		
Copper (mg/L)	7	0.002	<0.002 - 0.002	2.000 (1.000)	
Iron (mg/L)	7	0.006	<0.005 - 0.007	(0.100)	
Lithium (mg/L)	7	0.0035	0.0031 - 0.0041		
Magnesium (mg/L)	7	14.7	13.8 - 16.3		
Molybdenum (mg/L)	7	0.0007	0.0006 - 0.0008		
Nickel (mg/L)	7	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	52	0.90	0.78 - 0.96		
Phosphorus (mg/L)	7	0.97	0.95 - 1.08		
Potassium (mg/L)	7	0.9	0.7 - 1.6		
Silicon (mg/L)	7	2.09	1.76 - 2.46		
Silver (mg/L)	7	<0.00002	<0.00002		
Sodium (mg/L)	7	11.0	6.7 - 16.7	(200.0)	
Strontium (mg/L)	7	0.442	0.394 - 0.478	7.000	
Sulphate Dissolved (mg/L)	7	71.5	58.9 - 87.5	(500.0)	
Thallium (mg/L)	7	0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	7	181.0	174.0 - 196.0		
Vanadium (mg/L)	7	<0.0005	<0.0005		
Zinc (mg/L)	7	<0.005	<0.005	(5.000)	

8.22 Rosslyn Reservoir 2



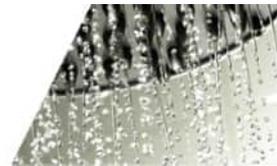
Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	7	1.2	<0.5 - 1.7		
Bromoform (µg/L)	7	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	7	0.6	<0.5 - 1.0		
Chloroform (µg/L)	7	21.1	9.5 - 39.2		
Dibromochloromethane (µg/L)	7	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	7	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	7	1.1	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	7	0.6	<0.5 - 1.0	(15.0)	
Styrene (µg/L)	7	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	7	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	22	1.7	1.0 - 2.4		
Total Volatile Organics (Non THM) (µg/L)	7	1.5	<1.0 - 2.9		
Trichlorobenzene (1,2,4) (µg/L)	7	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	7	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	7	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	7	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	7	<1.0	<1.0	90.0 (20.0)	

8.23 Thorncliff Reservoir



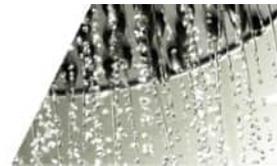
Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Physical					
Colour (TCU)	6	1.0	0.6 - 1.3	(15.0)	10.0
Conductivity (µS/cm)	6	392.8	364.0 - 423.0		
pH	21	8	8		7 - 8
Turbidity (NTU)	52	0.22	0.04 - 1.74	(3.00)	1.00
Primary Inorganics					
Antimony (mg/L)	6	<0.0005	<0.0005	0.0060	
Arsenic (mg/L)	6	<0.0002	<0.0002	0.0100	
Barium (mg/L)	6	0.061	0.055 - 0.068	2.000	
Boron (mg/L)	6	0.012	0.008 - 0.023	5.000	
Bromate Dissolved (mg/L)	6	<0.005	<0.003 - <0.005	0.010	
Cadmium (mg/L)	6	<0.00002	<0.00002	0.00700	
Chlorate Dissolved (mg/L)	6	0.11	<0.1 - 0.11	1.00	
Chlorine total (mg/L)	52	1.67	1.21 - 1.94		1.00 - 2.40
Chlorite Dissolved (mg/L)	6	<0.2	<0.005 - <0.2	1.000	
Chromium (mg/L)	6	<0.0002	<0.0002	0.0500	
Fluoride (mg/L)	7	0.65	0.63 - 0.69	1.50	0.60 - 0.80
Lead (mg/L)	6	<0.0002	<0.0002	0.0050	
Manganese (mg/L)	6	<0.002	<0.002	0.120 (0.020)	
Mercury (µg/L)	2	<0.0050	<0.0050	1.0000	
Mercury (mg/L)	4	<0.0002	<0.0002	0.0010	
Nitrate (as N) dissolved (mg/L)	22	0.04	0.02 - 0.13	10.00	
Nitrite (as N) dissolved (mg/L)	22	0.01	<0.01 - 0.01	1.00	
Selenium (mg/L)	6	0.0003	0.0002 - 0.0003	0.0500	
Uranium (mg/L)	6	0.0005	<0.0005 - 0.0005	0.0200	
Primary Organics					
Benzene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Carbon Tetrachloride (µg/L)	6	0.6	<0.5 - 1.0	2.0	
Dichlorobenzene (1,4) (µg/L)	6	0.6	<0.5 - 1.0	5.0 (1.0)	
Dichloroethane (1,2) (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Ethylbenzene (µg/L)	6	0.6	<0.5 - 1.0	140.0 (1.6)	
Methylene Chloride (Dichloromethane) (µg/L)	6	0.6	<0.5 - 1.0	50.0	
Tetrachloroethylene (µg/L)	6	0.6	<0.5 - 1.0	10.0	
Toluene (µg/L)	6	0.6	<0.5 - 1.0	60.0 (24.0)	
Trichloroethylene (µg/L)	6	0.6	<0.5 - 1.0	5.0	
Trihalomethanes (µg/L)	6	22.8	9.6 - 41.1	100.0	50.0
Vinyl Chloride (µg/L)	6	1.2	<1.0 - 2.0	2.0	

8.23 Thorncliff Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Inorganics					
Alkalinity total (mg CaCO ₃ /L)	6	114.5	109.0 - 118.0		
Aluminum (mg/L)	6	0.070	0.031 - 0.154	2.900 (0.100)	
Ammonia as NH ₃ (mg/L)	42	0.16	0.09 - 0.24		
Beryllium (mg/L)	6	<0.0002	<0.0002		
Bromide Dissolved (mg/L)	6	<0.05	<0.03 - <0.05		
Calcium (mg/L)	6	47.2	45.1 - 48.9		
Calcium Hardness (mg/L CaCO ₃)	6	117.8	113.0 - 122.0		
Chloride Dissolved (mg/L)	6	7.00	5.65 - 8.21	(250.00)	
Cobalt (mg/L)	6	<0.0002	<0.0002		
Copper (mg/L)	6	<0.002	<0.002	2.000 (1.000)	
Iron (mg/L)	6	<0.005	<0.005	(0.100)	
Lithium (mg/L)	6	0.0033	0.0029 - 0.0038		
Magnesium (mg/L)	6	14.4	13.8 - 15.2		
Molybdenum (mg/L)	6	0.0007	0.0006 - 0.0009		
Nickel (mg/L)	6	0.0005	<0.0005 - 0.0006		
Phosphate Ortho (as P) (mg/L as P)	53	0.93	0.47 - 1.14		
Phosphorus (mg/L)	6	0.98	0.94 - 1.07		
Potassium (mg/L)	6	1.0	0.7 - 1.6		
Silicon (mg/L)	6	2.05	1.80 - 2.47		
Silver (mg/L)	6	<0.00002	<0.00002		
Sodium (mg/L)	6	12.6	6.6 - 18.5	(200.0)	
Strontium (mg/L)	6	0.434	0.394 - 0.475	7.000	
Sulphate Dissolved (mg/L)	6	72.6	58.1 - 86.8	(500.0)	
Thallium (mg/L)	6	<0.0002	<0.0002		
Total Hardness (mg/L CaCO ₃)	6	177.2	169.0 - 185.0		
Vanadium (mg/L)	6	<0.0005	<0.0005		
Zinc (mg/L)	6	<0.005	<0.005	(5.000)	

8.23 Thorncliff Reservoir



Parameter (Units)	#	Mean	Range	MAC (AO or OG)	EPCOR Target
Secondary Organics					
Bromodichloromethane (µg/L)	6	1.1	0.7 - 1.5		
Bromoform (µg/L)	6	0.6	<0.5 - 1.0		
Chlorobenzene (µg/L)	6	0.6	<0.5 - 1.0		
Chloroform (µg/L)	6	21.6	8.7 - 39.4		
Dibromochloromethane (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichlorobenzene (1,3) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene (1,1) (µg/L)	6	0.6	<0.5 - 1.0	14.0	
Dichloroethylene cis (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloroethylene trans (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Dichloropropane (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Methyl Isobutyl Ketone (MIBK) (µg/L)	6	1.2	<1.0 - 2.0		
Methyl t-Butyl Ether (MTBE) (µg/L)	6	0.6	<0.5 - 1.0	(15.0)	
Styrene (µg/L)	6	0.6	<0.5 - 1.0		
Tetrachloroethane (1,1,2,2) (µg/L)	6	0.6	<0.5 - 1.0		
Total Organic Carbon (mg/L)	21	1.7	1.0 - 2.4		
Total Volatile Organics (Non THM) (µg/L)	6	1.5	<1.0 - 2.7		
Trichlorobenzene (1,2,4) (µg/L)	6	0.6	<0.5 - 1.0		
Trichloroethane (1,1,1) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,2) (µg/L)	6	0.6	<0.5 - 1.0		
Xylene (1,4) (µg/L)	6	0.6	<0.5 - 1.0		
Xylenes total (µg/L)	6	<1.0	<1.0	90.0 (20.0)	

8.24 Raw River Water

Physical, Inorganics, Organic and Pesticide Parameters



Parameter (Units)	#	Mean	Range
Microbiologicals			
Coliforms total (MPN/100 mL)	421	593.6	21.3 - 13734.0
Cryptosporidium (oocysts/100L)	30	7.6	<1 - 7.6
E. coli (MPN/100 mL)	421	38.6	1.0 - 3328.0
Giardia (cysts/100L)	30	110.3	<1.64 - 660.0
Physical			
Colour (TCU)	730	10.0	2.4 - 52.4
Conductivity (µS/cm)	104	354.2	313.0 - 412.0
pH	22	8	8 - 9
Total Dissolved Solids (mg/L)	24	211.79	178 - 331.00
Total Suspended Solids (mg/L)	24	16.5	<1.0 - 168.0
Turbidity (NTU)	730	11.55	0.94 - 275.00
Primary Inorganics			
Antimony (mg/L)	24	0.0005	<0.0005
Antimony dissolved (mg/L)	24	0.0005	<0.0005
Arsenic (mg/L)	24	0.0005	<0.0002 - 0.0016
Arsenic dissolved (mg/L)	24	0.0002	<0.0002 - 0.0004
Barium (mg/L)	24	0.069	0.055 - 0.113
Barium dissolved (mg/L)	24	0.063	0.055 - 0.071
Boron (mg/L)	24	0.011	0.008 - 0.015
Boron dissolved (mg/L)	24	0.010	0.008 - 0.013
Bromate Dissolved (mg/L)	104	0.005	<0.003 - 0.005
Cadmium (mg/L)	24	0.00002	<0.00002 - 0.00008
Cadmium Dissolved (mg/L)	24	<0.00002	<0.00002
Chlorate Dissolved (mg/L)	104	<0.1	<0.01 - <0.1
Chlorine total (mg/L)	22	0.03	<0.03
Chlorite Dissolved (mg/L)	104	<0.2	<0.005 - <0.2
Chromium (mg/L)	24	0.0009	<0.0002 - 0.0065
Chromium dissolved (mg/L)	24	<0.0002	<0.0002
Cyanide (mg/L)	8	<0.002	<0.002
Fluoride (mg/L)	104	0.12	0.09 - 0.14
Lead (mg/L)	24	0.0004	<0.0002 - 0.0027
Lead dissolved (mg/L)	24	<0.0002	<0.0002
Manganese (mg/L)	24	0.018	<0.002 - 0.179
Manganese dissolved (mg/L)	12	0.003	<0.002 - 0.005
Mercury (µg/L)	14	0.0052	<0.0050 - 0.0079
Mercury (mg/L)	20	0.0002	<0.0002
Mercury dissolved (µg/L)	6	<0.0050	<0.0050
Mercury dissolved (mg/L)	20	0.0002	<0.0002
Nitrate (as N) dissolved (mg/L)	102	0.05	<0.01 - 0.19
Nitrite (as N) dissolved (mg/L)	102	0.01	<0.01
Selenium (mg/L)	24	0.0003	0.0002 - 0.0004
Selenium dissolved (mg/L)	24	0.0002	0.0002 - 0.0003
Uranium (mg/L)	24	0.0005	<0.0005 - 0.0007
Uranium dissolved (mg/L)	24	0.0005	<0.0005 - 0.0006

8.24 Raw River Water

Physical, Inorganics, Organic and Pesticide Parameters



Parameter (Units)	#	Mean	Range
Primary Organics			
2,4-D (µg/L)	8	<0.250	<0.050 - <0.250
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L)	8	<0.250	<0.050 - <0.250
Atrazine + metabolites (µg/L)	8	<0.10	<0.10
Benzene (µg/L)	730	<0.50	<0.5 - <0.50
Benzo(a)pyrene (µg/L)	8	<0.005	<0.005
Bromoxynil (µg/L)	8	<0.250	<0.050 - <0.250
Carbon Tetrachloride (µg/L)	730	<0.50	<0.5 - <0.50
Chlorpyrifos (µg/L)	8	<0.10	<0.10
Cyanazine (µg/L)	8	<0.100	<0.100
Dicamba (µg/L)	8	<0.50	<0.10 - <0.50
Dichlorobenzene (1,4) (µg/L)	730	<0.50	<0.5 - <0.50
Dichloroethane (1,2) (µg/L)	730	<0.50	<0.5 - <0.50
Dichlorophenol (2,4) (µg/L)	8	<0.20	<0.20
Dimethoate (µg/L)	8	<0.050	<0.050
Diquat (µg/L)	8	<1.0	<1.0
Ethylbenzene (µg/L)	730	<0.50	<0.5 - <0.50
Glyphosate (µg/L)	8	<1.00	<0.20 - <1.00
Malathion (µg/L)	8	<0.0250	<0.0250
Manganese dissolved (mg/L)	12	0.003	<0.002 - 0.013
Methylene Chloride (Dichloromethane) (µg/L)	730	<1.00	<0.5 - <1.00
Metribuzin (µg/L)	8	<0.100	<0.100
Microcystin total (µg/L)	8	<0.15	<0.15
Nitrilotriacetic acid (NTA) (mg/L)	8	<0.4	<0.4
Omethoate (µg/L)	8	<0.050	<0.050
Omethoate (as dimethoate) (µg/L)	8	<0.16	<0.16
Pentachlorophenol (µg/L)	8	<0.50	<0.50
Tetrachloroethylene (µg/L)	730	<0.50	<0.5 - <0.50
Toluene (µg/L)	730	<0.50	<0.5 - <0.50
Trichloroethylene (µg/L)	730	<0.50	<0.5 - <0.50
Trichlorophenol (2,4,6) (µg/L)	8	<0.20	<0.20
Trihalomethanes (µg/L)	730	<1.0	<1.0
Vinyl Chloride (µg/L)	730	<1.0	<0.50 - <1.0

8.24 Raw River Water

Physical, Inorganics, Organic and Pesticide Parameters



Parameter (Units)	#	Mean	Range
Radionuclides			
Cesium-137 (Bq/L)	4	<0.2	<0.1 - <0.2
Gross Alpha (Bq/L)	4	<0.47	<0.12 - <0.47
Gross Beta (Bq/L)	4	0.23	<0.08 - 0.70
Iodine-131 (Bq/L)	4	<0.4	<0.4
Lead-210 (Bq/L)	4	<0.04	<0.02 - <0.04
Radium-226 (Bq/L)	4	0.012	<0.005 - 0.030
Strontium-90 (Bq/L)	4	<0.1	<0.05 - <0.1
Tritium (Bq/L)	4	<40	<40
Secondary Organics			
Bromodichloromethane (µg/L)	730	<0.50	<0.5 - <0.50
Bromoform (µg/L)	730	<0.50	<0.5 - <0.50
Chlorobenzene (µg/L)	730	<0.50	<0.5 - <0.50
Chloroform (µg/L)	730	0.5	<0.5 - 0.5
Dibromochloromethane (µg/L)	730	<0.50	<0.5 - <0.50
Dichlorobenzene (1,2) (µg/L)	730	<0.50	<0.5 - <0.50
Dichlorobenzene (1,3) (µg/L)	730	<0.50	<0.5 - <0.50
Dichloroethylene (1,1) (µg/L)	730	<0.50	<0.5 - <0.50
Dichloroethylene cis (1,2) (µg/L)	730	<0.50	<0.5 - <0.50
Dichloroethylene trans (1,2) (µg/L)	730	<0.50	<0.5 - <0.50
Dichloropropane (1,2) (µg/L)	730	<0.50	<0.5 - <0.50
Methyl Isobutyl Ketone (MIBK) (µg/L)	730	<20	<1.0 - <20
Methyl t-Butyl Ether (MTBE) (µg/L)	730	<0.50	<0.5 - <0.50
Styrene (µg/L)	730	<0.50	<0.5 - <0.50
Tetrachloroethane (1,1,2,2) (µg/L)	730	<0.50	<0.5 - <0.50
Total Organic Carbon (mg/L)	105	2.6	0.9 - 9.2
Total Volatile Organics (Non THM) (µg/L)	646	1.2	<1.0 - 3.8
Trichlorobenzene (1,2,4) (µg/L)	730	<0.50	<0.5 - <0.50
Trichloroethane (1,1,1) (µg/L)	730	<0.50	<0.5 - <0.50
Xylene (1,2) (µg/L)	730	<0.5	<0.30 - <0.5
Xylene (1,4) (µg/L)	730	<0.5	<0.40 - <0.5
Xylenes total (µg/L)	730	<1.0	<0.50 - <1.0

8.24 Raw River Water

Physical, Inorganics, Organic and Pesticide Parameters



Parameter (Units)	#	Mean	Range
Secondary Inorganics			
Alkalinity phenolphthalein (mg CaCO ₃ /L)	22	<3	<3
Alkalinity total (mg CaCO ₃ /L)	104	126.2	109.0 - 174.0
Aluminum (mg/L)	24	0.576	0.069 - 4.750
Ammonia as NH ₃ (mg/L)	388	0.05	<0.01 - 0.12
Beryllium (mg/L)	24	<0.0002	<0.0002
Bromide Dissolved (mg/L)	104	<0.05	<0.03 - <0.05
Calcium (mg/L)	24	47.6	42.8 - 54.6
Calcium Hardness (mg/L CaCO ₃)	104	114.8	98.0 - 136.0
Chloride Dissolved (mg/L)	104	1.30	0.40 - 6.74
Cobalt (mg/L)	24	0.0003	<0.0002 - 0.0021
Copper (mg/L)	24	0.003	<0.002 - 0.010
Iron (mg/L)	24	0.539	0.041 - 4.600
Lithium (mg/L)	24	0.0041	0.0030 - 0.0071
Magnesium (mg/L)	24	14.8	13.5 - 17.3
Molybdenum (mg/L)	24	0.0007	0.0005 - 0.0010
Nickel (mg/L)	24	0.0012	<0.0005 - 0.0062
Nitrogen Total Kjeldahl (TKN) (mg/L N)	115	0.2	<0.1 - 4.3
Nitrogen Total Kjeldahl (TKN) (mg/L)	4	0.11	<0.07 - 0.15
Phosphate Ortho (as P) (mg/L as P)	22	0.02	<0.02 - 0.04
Phosphorus (mg/L)	24	0.04	<0.02 - 0.15
Potassium (mg/L)	24	1.0	0.6 - 1.9
Silicon (mg/L)	24	2.98	1.60 - 10.90
Silver (mg/L)	24	0.00002	<0.00002 - 0.00003
Sodium (mg/L)	24	4.4	2.7 - 8.7
Strontium (mg/L)	24	0.446	0.375 - 0.516
Sulphate Dissolved (mg/L)	104	55.0	40.0 - 70.3
Sulphide (mg/L)	8	<0.0015	<0.0015
Thallium (mg/L)	24	<0.0002	<0.0002
Total Hardness (mg/L CaCO ₃)	104	173.2	146.0 - 202.0
Vanadium (mg/L)	24	0.0015	<0.0005 - 0.0101
Zinc (mg/L)	24	0.006	<0.005 - 0.021

8.24 Raw River Water

Physical, Inorganics, Organic and Pesticide Parameters



Parameter (Units)	#	Mean	Range
Secondary Inorganics			
Aluminum dissolved (mg/L)	24	0.032	<0.005 - 0.275
Beryllium dissolved (mg/L)	24	<0.0002	<0.0002
Calcium dissolved (mg/L)	24	47.3	42.8 - 55.6
Cobalt dissolved (mg/L)	24	<0.0002	<0.0002
Copper dissolved (mg/L)	24	0.002	<0.002 - 0.005
Iron dissolved (mg/L)	24	0.008	<0.005 - 0.022
Lithium dissolved (mg/L)	24	0.0037	0.0028 - 0.0045
Magnesium dissolved (mg/L)	24	14.5	13.1 - 17.2
Molybdenum dissolved (mg/L)	24	0.0007	0.0005 - 0.0010
Nickel dissolved (mg/L)	24	0.0006	<0.0005 - 0.0021
Phosphorus dissolved (mg/L)	24	0.02	<0.02
Potassium dissolved (mg/L)	24	0.9	0.6 - 1.9
Silicon dissolved (mg/L)	24	1.99	1.42 - 2.66
Silver dissolved (mg/L)	24	<0.00002	<0.00002
Sodium dissolved (mg/L)	24	4.4	2.6 - 8.7
Strontium dissolved (mg/L)	24	0.441	0.378 - 0.514
Thallium dissolved (mg/L)	24	<0.0002	<0.0002
Titanium dissolved (mg/L)	24	0.0005	<0.0005
Vanadium Dissolved (mg/L)	24	0.0005	<0.0005
Zinc dissolved (mg/L)	24	0.005	<0.005 - 0.005

8.25 EPCOR Lead Management Program

EPCOR's proactive Lead Management Program has been in place since 2008 and aligns with Health Canada's Risk Management Strategy for Lead in drinking water, which seeks to reduce lead exposure to the greatest extent possible. There are approximately 4,000 homes with an active lead service line in Edmonton—on either the EPCOR side or the homeowner side, or both. These are homes located in older neighborhoods that were typically built before 1950.

Exposure to lead from drinking water sources is a key risk identified within our Drinking Water Safety Plan. EPCOR mitigates the risks associated with lead exposure through several activities, including:

- Annual Notices
 - We send annual letters to notify customers that our records show the EPCOR portion of their service line is lead.
- Free water sampling
 - We offer complimentary water sampling, for those with lead service lines, by appointment between May and October. Alternatively, we can provide customers with a home sampling kit that provides step-by-step instructions on how to sample lead at the tap.
- Free water filters
 - We provide free water filters that will remove lead from tap water, if used properly.
- Advice on maintaining water quality
 - We provide recommendations on how to maintain good water quality with a lead service line.
- Use of orthophosphate in drinking water to inhibit lead corrosion
 - Orthophosphate creates a protective coating inside lead pipes and plumbing fixtures that prevent lead from leaching into drinking water. EPCOR started full scale dosing of orthophosphate in March 2023

Through 2025, EPCOR's Lead Management Program continued its mission to monitor, manage, and reduce lead exposure in Edmonton's water system. Since the introduction of Orthophosphate (March 2023), the Lead Management Program has continued to monitor lead concentrations, at the tap, of approximately one dozen 'Sentinel' homes monthly. The average lead concentration in these Sentinel homes, which have lead service lines, has continued to trend downwards.

Through the program's sampling activities, we have also seen a decrease in the number of lead service line homes testing above Health Canada's Maximum Acceptable Concentration of 5 ppb, with only 6.4% of homes sampled testing above this level in 2025, as compared to 22% in 2022 and 8.1% in 2024. These reductions reflect the effectiveness of the combined strategies employed by the program over the last number of years—primarily the introduction of orthophosphate as well as proactive infrastructure replacements of lead service lines.

In 2025 the Lead Management Program continued our strategy to focus sampling and engagement efforts on specific neighbourhoods with larger concentrations of lead service lines. This approach was again extraordinarily successful with a 2025 focus in the communities of McCauley, Pleasantview and Calder. The Lead Management Program distributed over 1300 water sampling kits to residents, achieving a return rate of approximately 50%. This targeted engagement not only resulted in better response rates but also facilitated deeper conversations with EPCOR customers about their water safety and lead concerns, fostering trust and awareness. The continued focus on specific communities also helped us to identify more than 600 homes with lead service lines that EPCOR was previously unaware of. EPCOR's Lead Management program continues to position itself as a leader in public health and drinking water safety in Canada.

Appendix A – Residuals Management Program

Residuals Management Program

Edmonton Waterworks System

Annual Progress Report

**Prepared for Alberta Environment and Protected
Areas (AEPA)**

EPEA Approval 638-04

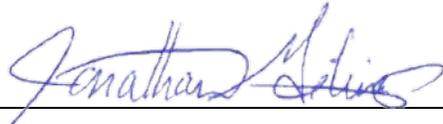


PROVIDING MORE

EPCOR WATER SERVICES INC.

February 2026

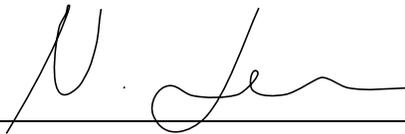
Approval



Sr Manager, Edmonton WTPs Operations
Jonathan Gelinas, P.Eng.

February 10, 2026

Date



Sr Manager, Stormwater & Adaptation Strategies
Nicola Lewin, P.Eng.

February 10, 2026

Date

Executive Summary

EPCOR has committed to reduce the impact of Water Treatment Plant (WTP) residuals released to the North Saskatchewan River (NSR), a commitment now formalized in the system's Approval issued under the Environmental Protection and Enhancement Act (Approval 638-04, as amended). This report summarizes activities and progress made against those commitments and challenges faced in 2025. The Residuals Working Group (WG) under the Process Development and Optimization Committee (PDOC), includes a cross-section of water treatment subject matter experts who meet regularly, with the focus of promoting environmental excellence and stewardship by minimizing environmental impacts through the management of residuals.

EPCOR has essentially eliminated release of chlorinated water from all parts of the system (WTPs, storage, water distribution and transmission) where feasible and practical. Our focus now is monitoring and continuous improvements. The sodium bisulfite (SBS) dechlorination systems at the Edmonton WTPs continue to operate as intended.

In 2025, there were zero instances exceeding 15 minutes of chlorinated waste released at the outfall structures at the WTPs.

Significant releases of chlorinated water directly to watercourses due to main breaks or other events within the distribution system are reported to the AEPA emergency hotline and included in the monthly reports.

As stated in the Approval, EPCOR's main strategy for reducing solids discharges is to operate in Direct Filtration (DF) during the winter months. WTPs convert to DF during the fall and winter months to further reduce chemical addition and subsequent solids discharges to the NSR. In 2025, the WTPs were able to achieve an average of 139 days in DF (135 days at Rosedale and 142 days at E.L. Smith), meeting the internal 120 day target for DF operation. In 2025, in DF, the total solids reduction during the winter months (January, February, November, and December) was 36.7%. The solid reductions during extended DF operation (WTPs operating in DF outside of November to February) were 45.9%. Overall, in 2025, total solids discharged to the NSR were reduced by 4.9%, as compared to baseline conventional operation. The frequency of monitoring Giardia and Cryptosporidium in raw and treated water increased while transitions to DF operation took place. Full analytical details are provided in the EPCOR Edmonton Waterworks 2025 Annual Report.

As part of the alum dosing optimization strategy, the ratio of actual alum dosage to the in-house model's suggested dosage was assessed, showing annual average decreases at Rosedale Plant 1 (-1.5%), Rosedale Plant 2 (-1.46%), and E.L. Smith Plant (-0.85%) from 2018 to 2025. EPCOR will continue to enhance the alum dosing strategy, applying insights from E.L. Smith WTP to Rosedale WTP.

EPCOR has initiated the development of the Residuals Management Strategy with a vision to achieve sustainable residuals management that minimizes environmental impact, supports compliance, and enables continuous improvement through innovation and collaboration. Over time, this strategy will guide investments in advanced treatment technologies, optimized processes, and partnerships that protect watershed health. In 2025, EPCOR continued to collect water quality samples as part of the Wastestream Monitoring Program, which was approved by AEPA in December 2022. The goal of the program is to improve wastestream load quantification to better determine if acute and/or chronic guidelines and regional water quality triggers and limits are being met. A report summarizing the 2023 to 2025 results is included as an appendix to the Edmonton Waterworks Annual Report to AEPA.

Table of Contents

Approval	2
Executive Summary	3
1 Introduction	7
2 Residuals Management Improvements	7
2.1 Dechlorination Update	7
2.2 Direct Filtration Operations Update	8
2.3 Residuals Reduction	9
3 Impact of Residuals Management on Water Quality	11
3.1 Effects of Direct Filtration on Treated Water Quality	11
3.2 Risk Analysis of Cryptosporidium/Giardia during DF	12
4 Environmental Impacts of Residuals Discharges	12
4.1 Residuals Characterization and Effluent Toxicity Summary	12
4.2 Wastestream Monitoring Program and Assessment of Impacts of Wastes	14
5 Process Development Initiatives	14
6 Strategy for Moving Forward	14

List of Tables

Table 1: Chemical Dose Comparison in Conventional and DF during Fall/Winter Operation	8
Table 2: Annual Average Alum Dosage Ratio (Actual to Model) from 2018 to 2025 during Conventional Treatment with No Carbon	9
Table 3: Total Suspended Solids Discharged to the NSR in 2024	10
Table 4: Total Suspended Solids Discharged to the NSR in 2025	11
Table 5: Treated Water Quality Comparison: Former Winter Conventional vs. 2025 DF Operation	12
Table 6: Residuals Characterization and Effluent Toxicity Summary	13

List of Figures

Figure 1: Annual Average Alum Dosage Ratio (Actual to Model) Trend..... 10

Figure 2: Strategic Vision for Residual Management 15

1 Introduction

In 2005, EPCOR initiated the Residuals Management Program (RMP) to address Alberta Environment and Protected Areas (AEPA) proposed limits for discharges to the North Saskatchewan River (NSR). This included discharges from the Water Treatment Plants (WTPs) and distribution system. In 2021, EPCOR's commitments in this area were formalized in the system's Approval issued under the *Environmental Protection and Enhancement Act* (Approval no. 638-04, as amended), here after referred to as Approval.

Section 4.5 of the Approval states EPCOR "...shall strive to reduce the impact of water treatment plant residual streams released to the North Saskatchewan River through a long-term residuals management program of continuous improvement.

EPCOR's Residual Working Group (WG) under the Process Development and Optimization Committee (PDOC), includes a cross-section of water treatment subject matter experts who meet regularly with the focus of promoting environmental excellence and stewardship by minimizing environmental impacts through the management of residuals.

This document outlines the progress and status of the work done by EPCOR in managing residuals discharges for 2025.

2 Residuals Management Improvements

2.1 Dechlorination Update

Edmonton Water Treatment Plants:

Sodium bisulfite (SBS) based dechlorination systems have been in operation at E.L. Smith WTP and Rosssdale WTP since 2009 and 2012, respectively.

In 2025, there were zero instances exceeding 15 minutes of chlorinated waste released at the outfall structures at the WTPs. Procedures are in place for dechlorinating all planned releases of chlorinated water from the field reservoirs (i.e. during draining) and the distribution system (i.e. during flushing). Procedures are also in place for dechlorinating water released during unplanned events (i.e. main breaks), although the priority is to investigate and stop the source of leaking water as soon as possible.

Significant releases of chlorinated water directly to watercourses due to main breaks or other events within the distribution system are reported to the AEPA emergency hotline and in monthly reports.

2.2 Direct Filtration Operations Update

Provided that the river water quality allows the conversion from conventional treatment, Rosedale and E.L. Smith WTPs operate in the direct filtration (DF) mode during the late fall and winter months. This operation mode aims to reduce solids (including aluminium) discharged to the NSR.

Table 1 summarizes the differences in chemical dosage between conventional and DF operation during low raw water Colour and Turbidity conditions (<8 TCU, <10 NTU). DF treatment uses less overall chemical compared to conventional treatment. DF operation has successfully reduced alum usage by approximately 75% compared to conventional mode. Thus, the total mass of solid treatment residuals discharged to the NSR is reduced by approximately 50% during the DF operation period.

Table 1: Chemical Dose Comparison in Conventional and DF during Fall/Winter Operation

Chemical	Conventional	Direct Filtration
Alum	25 – 30 mg/L	< 10 mg/L
Primary Polymer	0.2 – 0.3 mg/L	0 – 0.1 mg/L
Filter Polymer	0.2 – 0.5 mg/L	0.4 to 0.7 mg/L
Caustic Soda	0 – 2.8 mg/L	0

EPCOR has continuously made improvements to DF operation that would enable DF operation for longer periods during the year. Ongoing trials and investigations to reduce residuals are highlighted in Section 5 of this report.

As per the Approval, EPCOR’s main strategy for reducing solids to the river is to operate in Direct Filtration between November and February. When the WTPs are operated in DF outside the months of November/December/January/February, this period is considered as Extended DF. Over the past several years, the year-to-year results have been variable and have depended highly on raw water conditions and other variables. EPCOR has now set a Key Performance Indicator (KPI) target to operate in DF for a period of at least 120 days in a year. In 2025, the WTPs were able to achieve an average of 139 days in DF (135 days at Rosedale and 142 days at E.L. Smith).

Conversion dates for 2025:

The Rosedale WTP was in DF operation on January 1st, 2025 and converted back to conventional treatment on February 27th, 2025, due to high raw water color in the NSR. Later in the year, Rosedale was converted to DF on October 15th, 2025; and remained in DF for the rest of 2025.

The E.L. Smith WTP was in DF operation on January 1st, 2025 and converted back to conventional treatment on February 27th, 2025, due to high raw water color in the NSR. Later in the year, E.L. Smith was converted to DF on October 8th, 2025; and remained in DF for the rest of 2025.

2.3 Residuals Reduction

Optimization of alum dosing strategy has been a primary focus over the past few years at EPCOR since reduction in alum dosage results in a reduction of chemical residuals produced and discharged to the NSR.

Optimal alum dosages are applied in conventional treatment operation based on a dosing model that was developed in-house. The use of this model has resulted in lower alum dosages than historically used to treat raw water of similar quality. This model was optimized in 2017 to include a temperature correction factor. While the model provides a suggested alum dosage, actual dosages may vary. Table 2 and Figure 1 illustrate the annual average alum dosage ratio, comparing the actual dosage to the model's suggested dosage from 2018 to 2025 at Rossdale Plant 1 and Plant 2, and at E.L. Smith. From 2018 to 2025, Rossdale Plant 1 experienced an average annual decrease of 1.5%, Rossdale Plant 2 saw a decrease of 3.7%, and E.L. Smith Plant had a decrease of 0.5%. This data indicates a general decline in values across both WTPs over the specified period.

Table 2: Annual Average Alum Dosage Ratio (Actual to Model) from 2018 to 2025 during Conventional Treatment with No Carbon

Year	Rossdale Plant 1 Ratio	Year to Year Ratio Change (%)	Rossdale Plant 2 Ratio	Year to Year Ratio Change (%)	E.L. Smith Ratio	Year to Year Ratio Change (%)
2018	1.26	-	1.24	-	1.10	-
2019	1.23	-2.6%	1.14	-7.8%	1.25	13.3%
2020	1.20	-2.3%	1.15	0.3%	1.07	-14.7%
2021	1.16	-3.0%	1.12	-2.7%	0.95	-10.4%
2022	1.23	5.8%	1.20	7.8%	1.10	14.8%
2023	1.06	-13.7%	1.03	-14.8%	0.94	-14.1%
2024	1.12	5.9%	1.04	1.3%	0.87	-7.5%
2025	1.11	-0.89%	1.10	5.7%	0.98	14.9%
Average		-1.5%		-1.46%		-0.85%

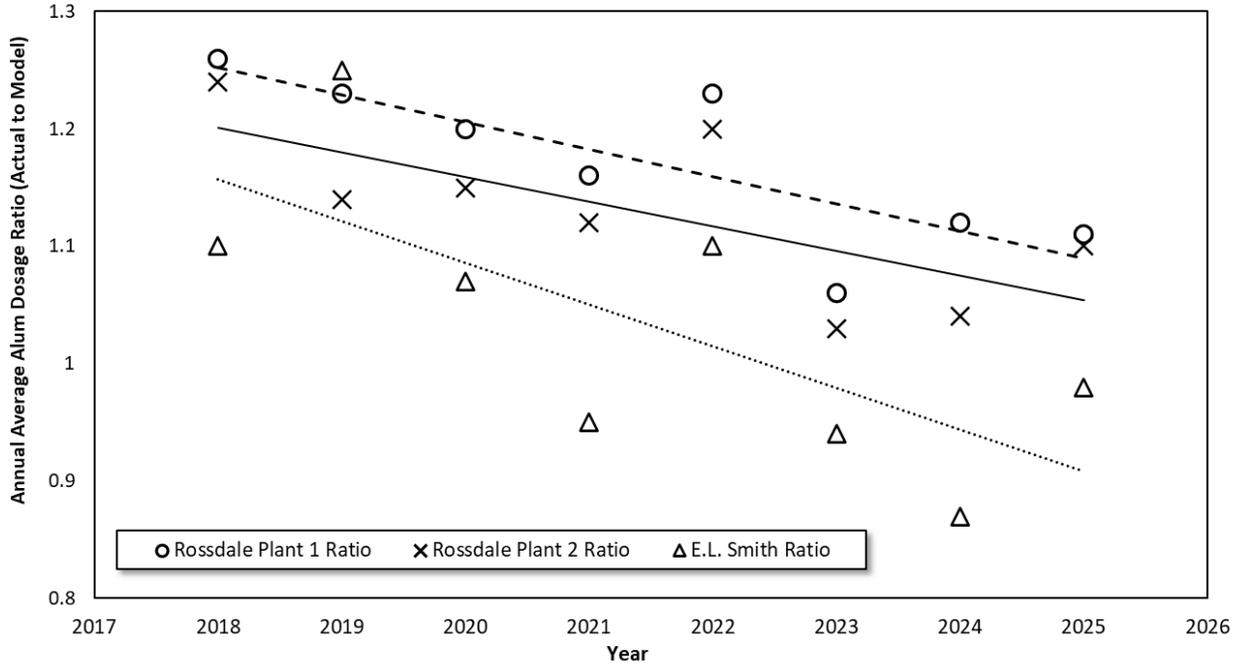


Figure 1: Annual Average Alum Dosage Ratio (Actual to Model) Trend

Alum dose is reduced through DF and extended DF operation as explained in Section 2.2. In 2025, DF operation resulted in a reduction of total solids discharged to the NSR by 36.7% during the months of January, February, November, and December compared to baseline conventional operation. In 2025, both WTPs plants operated several days in DF in February and October. During this Extended DF period, the total solids reduction was 45.9% compared to baseline conventional operation.

Tables 3 and 4 below summarize total suspended solids loading to the river in 2024 and 2025, respectively.

Table 3: Total Suspended Solids Discharged to the NSR in 2024

Mode of Operation	Months	Actual Total Solids Loading (tonne)	Chemical Loading (tonne)	Baseline Total Solids Loading [Conventional Model]* (tonne)	Total Solids Loading Reduction (tonne)	Total Solids Loading Reduction (%)
Direct Filtration (DF)	Jan, Nov-Dec	432	136	757	324	42.9%
Extended DF	Oct	61	30	86	25	28.7%
Chemical Optimization	Jan-Oct	5997	2564	6046	50	0.8%
Total		6490	2730		6889	5.8%

Table 4: Total Suspended Solids Discharged to the NSR in 2025

Mode of Operation	Months	Actual Total Solids Loading (tonne)	Chemical Loading (tonne)	Baseline Total Solids Loading [Conventional Model]* (tonne)	Total Solids Loading Reduction (tonne)	Total Solids Loading Reduction (%)
Direct Filtration (DF)	Jan-Feb, Nov-Dec	384	113	607	223	36.7%
Extended DF	Feb, Oct	226	72	417	192	45.9%
Chemical Optimization	Feb-Oct	8299	3240	8347	48	0.6%
Total		8909	3425	9371	462	4.9%

Note for Table 3 and 4: Total suspended solids discharges are calculated based on a predictive model that accounts for raw water turbidity and colour and chemical dosing. Both are continuously monitored. Reductions in loading are calculated compared to the historical conventional operating strategy and 2005-2010 baseline data*. For extended DF, only the days when the WTPs were in DF were used.

3 Impact of Residuals Management on Water Quality

3.1 Effects of Direct Filtration on Treated Water Quality

Treated water quality during DF operation in 2025 was compared with baseline quality observed during a ten-year period of conventional winter operation (2001 – 2010). Raw water quality conditions during 2025 allowed DF operation to proceed until February 27 for both WTPs. DF operation was resumed on October 8 (EL Smith) and October 15 (Rosssdale), resulting in an average number of 139 DF days at the Edmonton WTPs. This value was higher than 2024 primarily due to DF-suitable raw water colour throughout the winter and fall months.

Filter effluent quality comparisons between historic conventional operation and 2025 DF operation are shown in Table 5. Average daily values and standard deviations are shown for seven parameters: turbidity, particle counts (PC>2 µm), total aluminum (Total Al), UV₂₅₄ transmittance (UV%T), total organic carbon (TOC), and two groups of disinfection by-products (TTHM and HAA5). Turbidity, particle counts, and UV%T values were measured with on-line filter effluent analyzers, whereas Total Al, TOC, TTHM, and HAA5 values were lab-measured values for treated reservoir samples. Slight decreases in UV%T and small increases in Total Al, TTHM, and HAA5 were observed. These differences are expected as a result of reduced coagulant use and parameters remained well within established target ranges.

Table 5: Treated Water Quality Comparison: Former Winter Conventional vs. 2025 DF Operation

Parameter	EPCOR Target	E.L.S Conv. 2001-2010		E.L.S DF 2025		Rossdale Conv. 2001-2010		Rossdale DF 2025	
		Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
Turbidity*	< 0.10NTU	0.027	0.005	0.029	0.006	0.024	0.007	0.054	0.007
PC >2 µm*	< 20/mL	6.0	3.3	5.09	1.8	3.6	3.4	4.35	2.5
Total Al	< 0.20 mg/L	0.041	0.013	0.096	0.021	0.036	0.015	0.096	0.015
UV254T %*	> 90%	96.2	1.2	94.5	2.13	95.9	1.0	95.3	2.78
TOC (mg/L)	No target	1.19	0.33	1.21	0.29	1.23	0.34	1.28	0.32
TTHM	< 40 µg/L	6.30	2.56	7.56	6.30	8.35	3.04	8.42	6.86
HAA5	< 35 µg/L	11.1	5.3	10.7	6.26	13.5	5.7	12.9	5.81

*Parameters measured in filter effluent rather than the treated water reservoir

3.2 Risk Analysis of Cryptosporidium/Giardia during DF

Biweekly assays for *Giardia* and *Cryptosporidium* were performed on samples of raw and treated water from both WTPs during periods of DF conversion in the Fall. The monitoring frequency was increased to weekly in late September while considering a suitable time to start DF.

The maximum reported *Giardia* concentration in raw water was 660 cysts/100 L, whereas the maximum for *Cryptosporidium* was 33 oocysts/100 L. After DF was implemented in mid-October at both WTPs, the counts of *Giardia* in raw water samples increased to their peak value in late October and fell thereafter. A similar trend was observed for *Cryptosporidium* concentrations in raw water samples, with a modest increase in levels after the implementation of DF in mid-October, peaking in late November and declining by December. *Giardia* and *Cryptosporidium* were not measured above the detection limit for the entirety of 2025 in treated water samples. Full analytical details are provided in the EPCOR Edmonton Waterworks 2025 Annual Report.

4 Environmental Impacts of Residuals Discharges

4.1 Residuals Characterization and Effluent Toxicity Summary

Clarifier and filter waste streams were sampled quarterly from locations as close as practical to NSR discharge points. Samples were characterized by the Process

Development and Support (PDS) team, and 96-hour trout assays were conducted by Bureau Veritas to evaluate acute toxicity. Initial DO concentrations were measured and checks were made to ensure that no residual chlorine was present. Results are shown in Table 6. Some samples experienced fish mortality and were re-sampled shortly thereafter. Going forward, the voluntary Toxicity Sampling program will be discontinued due to concerns around test representativeness (i.e. the test does not seem to be representative of real-world conditions encountered by aquatic life in the NSR).

Table 6: Residuals Characterization and Effluent Toxicity Summary

Date	Operating Mode	Sample Description	TSS (mg/L)	pH	TOC (mg/L)	LC50 (%)
Feb 26 2025	Direct Filtration	ELS MH 67.1	75	8.12	1.48	>100
Feb 26 2025	Direct Filtration	ELS Filter Waste	138	7.94	2.05	>100
Feb 27 2025	Direct Filtration	Rossdale WS 3	59	8.03	2.28	>100
Feb 27 2025	Direct Filtration	Rossdale WS 5	13.25	8.26	1.44	>100
Feb 27 2025**	Direct Filtration	Rossdale WS 6	N/A	N/A	N/A	N/A
Feb 27 2025	Direct Filtration	Rossdale WS 7	65	8.41	1.42	>100
28-May-25***	Conventional	ELS MH 47.10	51052	7.31	16.00	70.7
28-May-25	Conventional	ELS Filter Waste	29	7.82	3.70	>100
27-May-25	Conventional	Rossdale WS 3	127.57	7.82	3.90	>100
27-May-25	Conventional	Rossdale WS 5	2208	7.58	6.01	>100
27-May-25	Conventional	Rossdale WS 6	2658	7.18	5.96	>100
27-May-25	Conventional	Rossdale WS 7	<5	7.00	3.53	>100
24-Jun-25*	Conventional	Resampling ELS MH 67.1	56907	8.80	230.00	>100
19-Aug-25	Conventional	ELS MH 67.1	50544	7.77	2200.00	91.6
19-Aug-25	Conventional	ELS Filter Waste	57	7.75	3.06	>100
21-Aug-25	Conventional	Rossdale WS 3	134	7.36	2.99	>100
21-Aug-25	Conventional	Rossdale WS 5	774	7.85	3.11	>100
21-Aug-25	Conventional	Rossdale WS 6	1108	8.04	4.01	>100
21-Aug-25	Conventional	Rossdale WS 7	<5	7.76	2.75	>100
8-Sep-25*	Conventional	Resampling ELS MH 67.1	43139	7.7	9.40	100
3-Nov-25***	Direct Filtration	ELS MH 47.10	514	7.29	2.28	>100
3-Nov-25	Direct Filtration	ELS Filter Waste	19	7.57	1.55	>100
4-Nov-25	Direct Filtration	Rossdale WS 3	310	7.46	2.07	>100
4-Nov-25	Direct Filtration	Rossdale WS 5	13	7.56	1.59	>100
4-Nov-25	Direct Filtration	Rossdale WS 6	18	7.33	1.56	>100
4-Nov-25	Direct Filtration	Rossdale WS 7	12	7.34	1.60	>100

- * Resampling due to fish mortality event
- ** Plant was offline
- *** ELS MH 67.1 not available due to bypass

4.2 Wastestream Monitoring Program and Assessment of Impacts of Wastes

Since 2013, EPCOR has conducted a variety of monitoring programs to assess the environmental impacts of WTP residual wastestreams to the NSR. Previous work has included monitoring water quality, sediment quality, benthic invertebrate communities and conducting chronic toxicity tests on residual discharges. Since 2023, EPCOR has been collecting water quality samples as part of the Wastestream Monitoring Program, which was approved by AEPA in December 2022. The goal of the program is to improve wastestream load quantification to better determine if acute and/or chronic guidelines and regional water quality triggers and limits are being met. A report summarizing the 2023 to 2025 results is included as an appendix to the Edmonton Waterworks Annual Report to AEPA.

5 Process Development Initiatives

The PDS team repeated the jar experiments to further reinforce the supporting evidence of the superior organics and amino acid removal properties of an alternative PAC product (i.e., Aqua Nuchar®). In collaboration with University of Alberta, bench-scale investigations were repeated to explore alternative powdered activated carbon (PAC) product that is not only more efficient in removing taste and odour causing nitrogenous precursors (i.e., amino acids) in raw water during spring runoff, but would also help to keep WTPs in operation during extreme summer colour events. Preliminary results from previous experiments demonstrated that alum consumption could potentially be reduced by up to 40% with the alternative PAC product (i.e., Aqua Nuchar®), while achieving superior organic removals. This reduction in alum use would directly reduce volume of clarifier waste discharged to the NSR during spring and summer periods when PAC dosing is required. Another round of jar testing is planned for the 2026 runoff event to further refine the potential for PAC dose reduction with Aqua Nuchar®, as compared to the currently used PAC product. Additionally, work is underway to review the Pilot Plant PAC dosing system to make it operational for a pilot-scale trial with Aqua Nuchar®.

6 Strategy for Moving Forward

EPCOR has initiated the development of the Residuals Management Strategy with a vision to achieve sustainable residuals management that minimizes environmental impact, supports compliance, and enables continuous improvement through innovation and collaboration. Figure 2 illustrates the strategic vision that guides the Residual Management Strategy built on four pillars.



Figure 2: Strategic Vision for Residual Management

Over time, this strategy will guide investments in advanced treatment technologies, optimized processes, and partnerships that protect watershed health. The Residuals Management Strategy focuses on residuals generated at Edmonton’s water treatment plants and discharge to the North Saskatchewan River.

The Approval requirements commits EPCOR to pursue continuous improvement of the residuals management to the NSR and to explore opportunities to further reduce solids loading outside of the November to February winter period. EPCOR’s strategy moving forward will continue to emphasize operation of the WTPs in DF mode during the fall and winter months when it is practically feasible .

Water quality samples were collected from each of the wastestreams in 2025 as part of the wastestream monitoring program, and engineering designs are underway to install flow monitors and autosamplers in clarifier wastestreams. The goal of the wastestream monitoring program is to improve wastestream load quantification to better determine if acute and/or chronic guidelines and regional water quality triggers and limits are being met. This work allows for the development of a science-based strategy for residuals management that will reduce EPCOR’s environmental impact on the NSR and will inform if further actions to manage residuals are required.

EPCOR will continue to explore opportunities to enhance the alum dosing strategy, leveraging insights from E.L. Smith WTP, as illustrated in Table 2 and Figure 1, to apply improvements at Rossdale WTP.

EPCOR continues to consider conversion to deep bed filters to further reduce residuals discharged to the river by extending DF operation at the E.L. Smith WTP. Structural rehabilitation of the filters are underway which is necessary for deep bed filter implementation.

Appendix B – Waste Stream Monitoring Program

EPCOR's Wastestream Monitoring Program

Approval 638-04

2023 - 2025 Monitoring Results

Prepared for Alberta Environment and
Protected Areas (AEPA)

EPCOR Water Services Inc.
February 2026

1. Introduction

EPCOR's two Water Treatment Plants (WTPs), Rossdale and E.L. Smith, have wastestreams that discharge residuals back to the North Saskatchewan River (NSR). These wastestreams contain concentrated solids and metals originally from the NSR, as well as alum (which contains aluminum), polymer, and at times powdered activated carbon. Some wastestreams contain chlorinated water, which is dechlorinated before it reaches the NSR. Wastestream discharges result in elevated concentrations of solids and metals at the edge of the mixing zone below the WTPs and may contribute to exceedances of dissolved aluminum guidelines downstream of Edmonton at Pakan. While EPCOR has conducted a number of studies characterizing residuals and monitoring environmental impacts, there has previously been insufficient data available to calculate the episodic, daily and annual discharges to the NSR from all wastestreams.

As requested by EPCOR, the *EPEA* Approval for the WTPs states:

The approval holder shall develop a wastestream monitoring program and assessment of impacts of wastes to the North Saskatchewan River in consultation with Alberta Environment and Parks and submit to the Director by December 31, 2021. (Section 4.5.2)

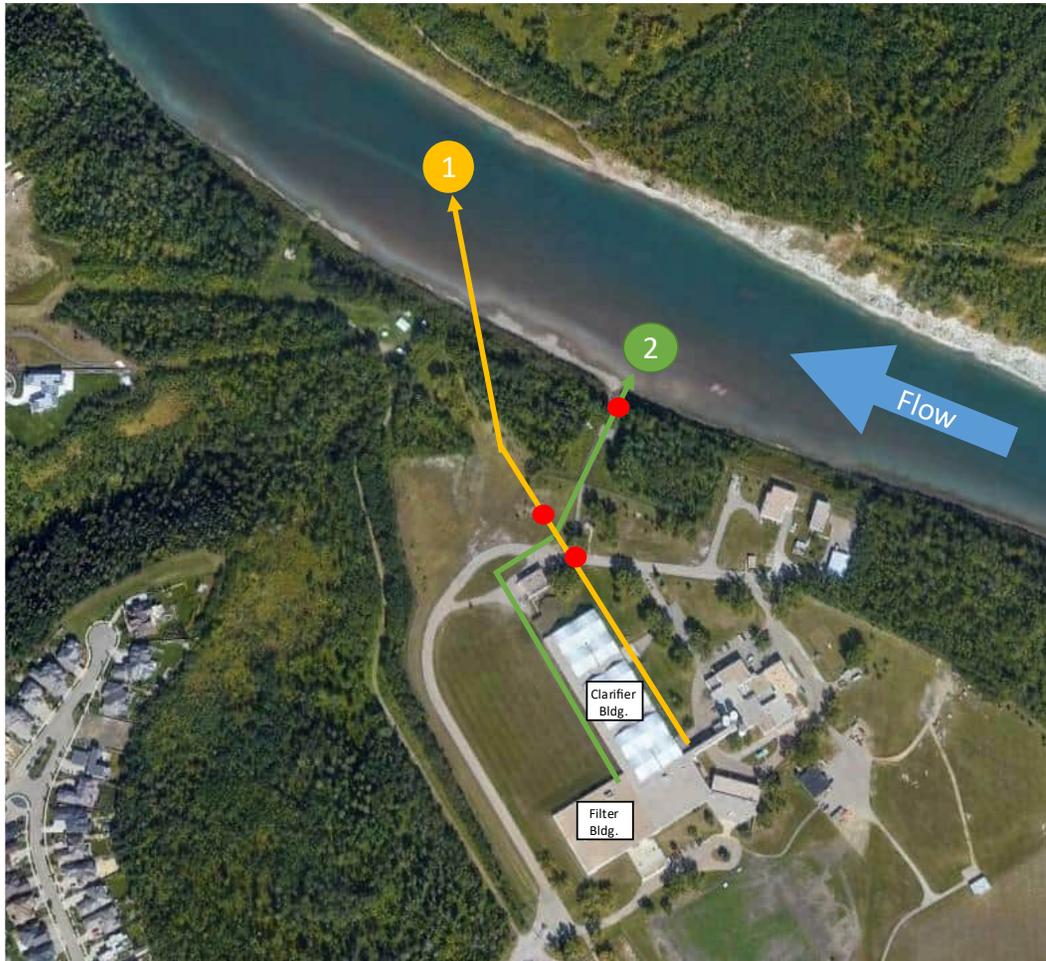
The approval holder shall implement the wastestream monitoring program and assessment of impacts of wastes to the North Saskatchewan River as authorized in writing by the Director.

EPCOR submitted a proposed wastestream monitoring program to AEPA at the end of December 2021, and the monitoring program was approved by AEPA in December 2022. The wastestream monitoring program began in January 2023, and this report summarizes the results collected from 2023 to 2025.

2. Overview of WTP Wastestreams

At the E.L. Smith WTP, discharges from all three clarifiers are sent through wastestream 1 to a diffuser located mid-channel in the NSR (Figure 1). Filter wastes (filter backwash and filter-to-waste) and plant bypasses enter the NSR through an outfall located along the bank. Water from backwash waste tank # 2, which typically flows to wastestream 2 can also be pumped through wastestream 1 but is dechlorinated. Smaller wastestreams, such as water used to cool the high lift pumphouse and pumps from the low lift pumphouse are also discharged through wastestream 2.

At the Rossdale WTP, all wastestreams enter the NSR along the bank through four separate outfalls (Figure 2). Clarifier discharges (main drains, floc drains and sludge pumps) from Plants 1 and 2 are discharged into wastestreams 5 and 6, respectively. Filter wastes (filter backwash and filter-to-waste) are discharged through wastestream 3. Plant bypass, reservoir and stilling basin discharge flow through wastestream 7. There are a number of small, infrequent or unrelated WTP processes (i.e., stormwater) that enter the various wastestreams at Rossdale.



1 Wastestream 1 - Clarifiers

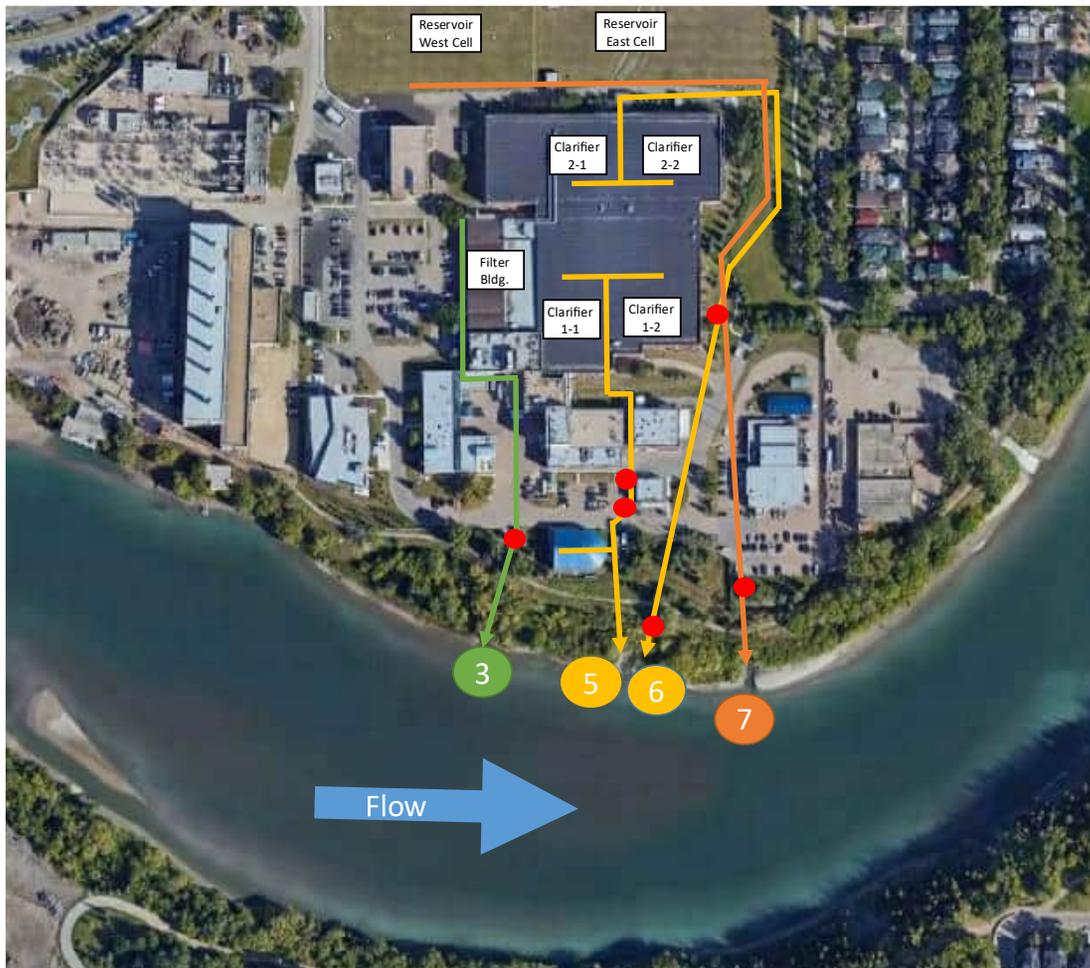
- Receives clarifiers drains
- Flows from backwash waste tank 2 can be diverted here
- Drains to mid-channel diffuser
- Samples collected from manhole 67.1, but collected farther upstream at MH 47.11 when primary location was not available during flood berm construction

2 Wastestream 2 – Filter Waste

- Receives filter backwash and filter-to-waste
- Also receives low lift pumphouse waste, highlift cooling waste and bypasses
- Drains to outfall located on bank
- Samples collected directly from outfall

Figure 1. Wastestream locations at E.L. Smith.

Note: Red dots indicate sampling locations. Diagrams of wastestream locations are for illustrative purposes only and are not intended to be fully accurate.



- 3 Wastestream 3 – Filter Waste**
 - Receives filter backwash and filter-to-waste
 - Drains to outfall located on bank
 - Samples collected WS3 final sampling building
- 5 Wastestream 5 – Plant 1 Clarifier**
 - Receives main drains, floc drains and sludge pumps from Plant 1
 - Also receives trash pump back wash from low lift pump house
 - Drains to outfall located on bank
 - Samples primarily collected from manhole DC33, but occasionally collected farther upstream at DC32
- 6 Wastestream 6 – Plant 2 Clarifier**
 - Receives main drains, floc drains and sludge pumps from Plant 2
 - Drains to outfall located on bank
 - Samples primarily collected from outfall, but also at RC5 farther upstream during high NSR levels
- 7 Wastestream 7 – Stilling Basins and Plant Bypass**
 - Receives flow from stilling basins and plant bypasses
 - Drains to outfall located on bank
 - Samples primarily collected at WS7 final sampling building, but also at DC13 farther upstream

Figure 2. Wastestream locations at Rosedale.

Note: Red dots indicate sampling locations. Diagrams of wastestream locations are for illustrative purposes only and are not intended to be fully accurate.

3. Water Quality Sampling

3.1. Water Quality Sampling Plan

The goal of the wastestream monitoring program is to generate estimates of loads to the NSR by collecting a sufficient number of samples under various plant operations and river conditions to determine concentrations and flows that typically occur under these conditions. As residual production can change significantly with river water quality (which is directly related to river flow) and WTP operation, it is important to characterize water quality being discharged through the wastestreams under various river flow categories. The monitoring program approved by AEPA is outlined in Table 1. These river flow categories align with river flow categories outlined by Alberta Environment and Sustainable Resource Development (AESRD) (2013), except the 'spring runoff' category which is a unique period of time in terms of river water quality in the NSR and WTP operation due to elevated colour and turbidity in the river, and is typically when powdered activated carbon is used to treat drinking water. The categories of Storm 1 and Storm 2 also split out the 'high flow' category used by AESRD (2013) as the water treatment plants were expected to respond differently to different flows based on large solid concentrations in the river as flows exceed 600 m³/s

Table 1. Flow categories and WTP operational modes to be assessed.

Flow Category / Condition	NSR Flow (m³/s)	Treatment Mode	Estimated Number of Water Quality Samples per Year
Dry and low flow	< 150	Direct Filtration	10
Spring Runoff	-	Conventional	10 or less
Midrange	< 180	Conventional	10
Moist	180 - 300	Conventional	10
Storm 1	> 300	Conventional	10
Storm 2	> 600	Conventional	10 or less

During the late fall and winter months, the WTPs operate in direct filtration (DF) with the aim of reducing solids and aluminum discharged to the NSR. The WTPs will typically enter DF in the late fall when turbidity and colour in the NSR are low and remain in DF until spring runoff. When the WTPs are in DF, typically NSR flows are < 150 m³/s; however, the WTPs can remain in DF with higher NSR flows if turbidity and colour remain low. Therefore, it is relevant to sample WTP residual wastestreams during direct filtration regardless of the flow values in the NSR.

Throughout the sampling program NSR flows were assessed using the Water Survey of Canada (WSC) gauge station in Edmonton, located at the Low Level Bridge, and samples were collected and assigned to a specific flow category/condition based on the daily average flow and operation of the WTPs. An overview of the samples collected between 2023 and 2025 are outlined in Tables 2 and 3, and Figure 3.

Table 2. Wastestream samples collected at E.L. Smith, 2023 – 2025.

Flow Category / Condition	E.L. Smith			
	Raw	WS1	WS2	
		Clarifier	BW	FTW
Direct Filtration	17	34	15	14
Spring Runoff	3	9	7	6
Midrange	10	21	10	10
Moist	16	30	16	16
Storm 1	7	20	10	10
Storm 2	3	8	4	4

Note: WS = wastestream, BW = backwash, FTW = filter-to-waste

Table 3. Wastestream samples collected at Rossdale, 2023 – 2025.

Flow Category / Condition	Rossdale									
	Raw	WS3		WS5			WS6			WS7
		BW	FTW	Main	Floc	Sludge	Main	Floc	Sludge	
Direct Filtration	17	16	13	7	6	7	10	9	9	17
Spring Runoff	3	4	4	2	4	2	4	3	3	3
Midrange	11	11	10	9	9	9	9	9	5	11
Moist	15	16	13	14	14	12	14	12	9	15
Storm 1	7	7	7	9	8	7	8	8	4	7
Storm 2	2	2	2	2	3	2	2	3	0	2

Note: WS = wastestream, BW = backwash, FTW = filter-to-waste, Main = main drain, Floc = floc drain, sludge = sludge pumps

Validated NSR flow data is currently available for 2023 and 2024; however, the 2024 flow data was not validated at the time of submitting last year’s report and only recently became available. Similarly, at the time of writing this report, validated flow data for 2025 was not available. The 2024 preliminary and validated data were identical for a 97% of days. Of the 10 days where the validated flow differed from the preliminary data, seven of the days changed the daily average flow value by less than 3%, and the other three days resulted in changes of 8-10 %. While validated flow data should be used, recalculating the 2024 results would require a significant level of effort and would have a minimal effect on the results and certainly would not alter the conclusions. Therefore, for this report, the analyses are based on the validated flow data for 2023 and preliminary flow data for 2024 and 2025.

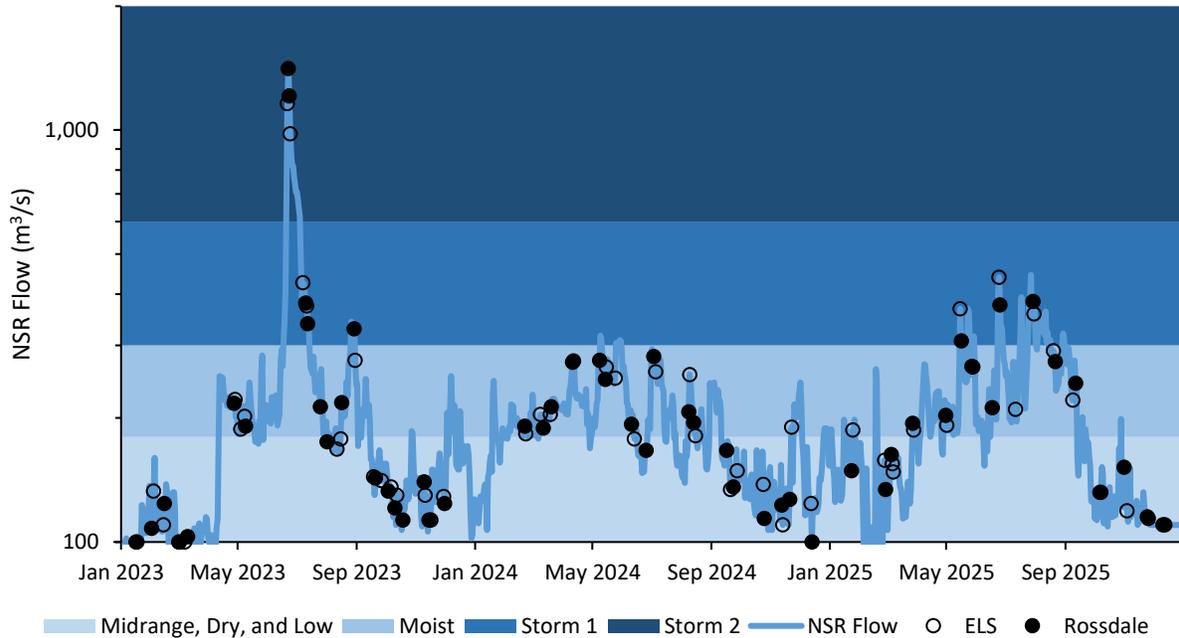


Figure 3. Daily average NSR flows at Edmonton, flow categories, and residual sampling dates, 2023 – 2025.

Note: 2023 and 2024 flow is finalized data, and 2025 is preliminary. On some winter days, flows ranged from 80 – 100 m³/s and are not shown to provide better clarity for the rest of the year. The sampling points on the days when flow was < 100 m³/s were manually made to appear on the graph.

As described above, the WTPs typically operate in DF from the late fall and through the winter months until spring runoff while colour and turbidity are low in the NSR. The dates that the plants were in DF are in Table 4. In January 2024, the WTPs were unable to operate in DF due to elevated colour in the NSR, as a result, the WTPs were in DF for much fewer days in 2024 compared to other years.

Table 4. Dates WTPs were in Direct Filtration (DF), 2023 – 2025.

WTP	2023	2024	2025
E.L. Smith	Jan 1 – Mar 23 Oct 16 – Dec 31	Jan 1 – 15 Oct 15 – Dec 31	Jan 1 – Feb 27 Oct 8 – Dec 31
Rosssdale	Jan 1 – Mar 23 Nov 6 – Dec 31	Jan 1 – 15 Oct 17 – Dec 31	Jan 1 – Feb 27 Oct 14 – Dec 31

The WTPs are in DF approximately one-third of the year, and for most of the remaining days, the NSR flows are in the midrange and moist categories, with only a small number of days being in spring runoff, Storm 1 and Storm 2 conditions (Table 5).

Table 5. NSR flow categories and plant operation at each WTP, 2023 - 2025

Flow Category	Treatment Mode	E.L. Smith		Rossdale	
		Days	% of Year	Days	% of Year
Dry and low flow	Direct Filtration	393	35.9	365	33.3
Spring Runoff	Conventional	40	3.6	41	3.7
Midrange	Conventional	258	23.5	285	26.0
Moist	Conventional	324	29.6	324	29.6
Storm 1	Conventional	66	6.0	66	6.0
Storm 2	Conventional	15	1.4	15	1.4

While a large number of samples were collected between 2023 and 2025, several circumstances led to fewer samples being collected under some flow categories and at some locations. Few spring runoff samples have been collected due to the absence of spring runoff conditions in 2023, and sampling during spring runoff in 2024 and 2025 was complicated by returns of winter weather. Fewer samples have been collected during Storm 1 conditions as there were relatively few days of high flow conditions in 2023 and even fewer days in 2024. Storm 2 conditions only existed for a period of 15 days in 2023. Fewer samples were collected from the raw water and WS7 as these sources do not change as radically and as rapidly as clarifier and filter waste wastestreams, and it was determined that a reduced sampling effort from these locations was justified. Lastly, the Rossdale WTP typically takes one of the two plants offline during the winter, which results in fewer samples being collected during direct filtration.

3.2. Water Quality Sampling Methods

At both wastestreams at E.L. Smith and wastestreams 5 and 6 at Rossdale, composite water quality samples were collected by lowering a plastic pail into the wastestream and placing the collected water into a 4 L plastic composite container. At Rossdale wastestreams 3 and 7, composite water samples were collected from wastestream water that is pumped to auto-analyzer instrumentation, and the sample is collected from a location before the water reaches the auto-analyzers. Photos of the sampling locations are in Appendix A. Raw water samples were collected from raw water sampling locations at the WTP operator laboratory located at each WTP.

For wastestream discharges with short durations (i.e., < 5 min.), composite samples were collected by sampling the wastestream through the entire duration of the discharge event. For wastestream discharges with longer durations (i.e., > 10 min.), composite samples were collected over a period of at least 10 min, but not necessarily for the entire duration of the event. Raw water quality samples from the WTP intakes were also collected on each sampling day in order to compare influent and effluent water quality and to calculate what the resulting water quality would be below the WTPs at the edge of the mixing zone. Sampling bottles provided by a 3rd party commercial laboratory were filled from the composite container and delivered to the commercial laboratory at the end of the day.

Samples were analyzed for TSS, turbidity, total and dissolved metals, hardness and pH. Temperature, pH and conductivity were also measured using a field probe. Dissolved organic carbon was also added to the program starting in April 2023 to compare total aluminum concentrations to newer guidelines from U.S. EPA, Environment and Climate Change Canada and B.C. Ministry of Water, Land, and Resource Stewardship.

Water quality samples were collected from locations that were as close to the river as possible; however, as indicated in Figures 1 and 2, the sampling locations occasionally had to be relocated to locations farther upstream. Samples from Wastestream 1 at E.L. Smith were collected from manhole 67.1, but due to the installation of a backflow valve, some samples have been collected at manhole 47.11, which is located approximately 60 meters upstream (a difference in water quality between these two locations was not anticipated). Samples at wastestream 5 at Rossdale were collected in early 2023 from DC32 instead of DC33, located approximately 18 m downstream, could not be readily located under snow and ice. Once the ice melted, samples were collected from DC33 for then on (a difference in water quality between these two locations was not anticipated). During high river flows in June 2023, samples from wastestream 6 could not be collected at the outfall and instead were collected at RC5 which was located approximately 200 m upstream (a difference in water quality between these two locations was not anticipated). Pump outages at the wastestream 7 final sampling building in late 2025 required samples to be collected at DC13 farther upstream (a difference in water quality between these two locations was not anticipated).

As some of the outfalls also carry rainwater from parking lots and rooftops, samples were intentionally not collected on days where notable runoff from rain or snow melt was occurring. In future years, it may be challenging to collect samples during spring runoff or high flows on the NSR without some interference from stormwater runoff as these events typically only occur for a few days each year.

4. Residual Flow Estimation

4.1. Flow Estimation Methods

EPCOR does not currently monitor the flow at the end-of-pipe at any of the residual wastestreams. EPCOR is working to install flow meters on the three clarifier wastestreams at the two WTPs. The installation of flow meters has always been closely tied to the on-going flood protection/gates project at both WTPs. Challenges encountered on the flood gates project have impacted the schedule for installation of the flow meters. A flow meter will be installed in wastestream 5 at Rossdale in February 2026, and another is scheduled to be installed in wastestream 1 at E.L. Smith in April 2026. Work on the flood gates required that the flow meters in wastestream 6 at Rossdale be relocated, and design work to install at the new location has just begun. The flow meter in wastestream 6 is expected to be installed in late 2026. Although we are confident with the schedule as proposed, there is some risk of schedule slippage depending on potential operational

constraints. Installation of auto-samplers in the clarifier wastestreams will coincide with the installation of flow monitors.

While direct flow data for each of the wastestreams is not available, the WTPs have a large amount of data that can be used to calculate flow volume, duration, frequency and intervals for all of the WTP wastestreams and processes. The status of valves, pumps and drains are monitored throughout both WTPs and are recorded and available through the plant's SCADA system. This data was extracted for the entirety of 2023 to 2025 using a one-minute time-step. Further detail on the specific methods used to generate flow estimates for each wastestream process can be provided if needed. This approach generated a dataset that contains the minute flow totals from each wastestream process for each WTP for the entirety of 2023 to 2025.

While this estimated flow data provides essential information needed to calculate loads and the concentrations of parameters at the edge of the mixing zone in the NSR, there are limitations to using this approach to estimate flows. Firstly, this method does not account for leaks, infiltration, plugged or partially plugged drains. Therefore, these flow values should be considered as estimates, and not absolute values. Second, this method does not account for some of the smaller or unmonitored flows or drains in these wastestreams. Thirdly, many of the flows are estimated using the status of valves (open or closed); however, the valve status alone does not necessarily indicate that flow is occurring through the valve, such as during maintenance activities or when the valve becomes stuck. Lastly, the approach does not consider travel time within wastestreams, or that flows are likely delayed or extended while travelling through pipes.

The purpose of generating this flow dataset, along with the water quality sampling program, is to evaluate how the regular routine operation of WTPs and the discharge of residuals impact water quality in the NSR. However, throughout the year, the WTPs will occasionally take a clarifier offline for maintenance and drain the entire volume of the clarifier. While draining an entire clarifier results in a large volume of flow discharged to the NSR, the majority of solids and alum sludge will be discharged in the first few minutes. While sampling routine clarifier drains throughout the year it was regularly observed that the 'first-flush' was quite turbid, but towards the tail end of a short two-minute drain, the sample would frequently become quite clear. Therefore, large drains of clarifiers were not considered as part of this monitoring program and were removed from the resulting dataset. It is not that these drains are unimportant or do not contribute to the overall load to the NSR; however, these large drains only occur a few times per year, and that highly concentrated residuals are only discharged during the initial drain of the clarifier, and that the resulting water is low in solids and total metals. As a result, the flow values used in this report are different than those reported in the main body of the Annual Report. The goal of adding flow monitors to clarifier wastestreams will improve flow estimations.

One challenge that occurred while calculating wastestream flows is that the valve status for the C2-1 main drain at Rosedale was offline for prolonged period of time. January 1 to September 28, 2023. During this period, the valve was manually opened and closed,

and the times that this occurred are not known. Operations staff confirmed that the main drain was opened with approximately the same frequency, duration and intervals as the C2-2 main drain. A similar situation occurred in 2024 and 2025 where the status of the C2-1 main drain value was not being recorded in SCADA. To fill the missing C2-1 main drain data, values from C2-2 main drain data was applied to C2-1 but was offset by one hour to avoid having the two main drains being open simultaneously, which would not have occurred. This approach provides an estimate of the daily flow total, discharge frequency, etc.; however, it is acknowledged that there are differences between the actual and estimated volumes, frequency, etc. for the C2-1 main drain.

4.2. Flow Estimation Results – E.L. Smith

For each of the E.L. Smith wastestreams, graphs showing the total daily volume, duration (number of hours discharged per day), frequency (number of discharges per day), average interval (the average amount of time that occurs between discharges) as well as the average duration per discharge event are provided in Appendix B. These graphs provide a lot of information on how each wastestream operates. The following text provides high-level summaries of the various discharges and the figures in Appendix B.

Clarifiers (Wastestream 1)

The E.L. Smith WTP has three clarifiers (C1, C2 and C3) that discharge to the NSR. The clarifiers discharge less frequently during direct filtration and typically discharge the highest volumes during periods of high flow in the NSR. During direct filtration, each of the clarifiers typically only discharge once or twice a day, for a few minutes each day, and occasionally do not discharge at all. However, during periods of higher NSR flow or transitions between seasons, each clarifier can discharge multiple times per day for up to one or two hours in total. Individual clarifier discharge events only occur for brief periods, typically less than 8 minutes per discharge.

Filter wastes (Wastestream 2)

Filter backwashes and filter-to-waste contribute large volumes of flow to wastestream 2. The daily volume of filter backwashes and filter-to-wastes is relatively constant over time and doesn't change dramatically over the year. Water from backwash waste tank 2 (BWWT2) is normally discharged through wastestream 2 as filter backwashes; however, the water in this tank can also be pumped into wastestream 1 to help prevent any residual material from settling in the pipe. Water from BWWT2 is dechlorinated regardless of which wastestream it is discharged to. Pumping water from BWWT2 into wastestream one is only done periodically, and annual volumes are small compared to backwashes and filter-to-waste.

A single filter backwash typically lasts approximately 20 min, but multiple backwashes occur each day and generally discharging for two to ten hours per day. Similarly, each filter-to-waste typically lasts 20 to 40 min, and occur multiple times per day, generally discharging for two to ten hours per day, but can discharge nearly continuously during some periods.

Other wastes (Wastestream 2)

The low lift silt pumps pump water and settled solids from the inlet and pumpwells and discharge it to wastestream 2. Likewise, water used for cooling the highlift pumps are also diverted to wastestream 2. The silt pumps are run fairly consistently throughout the year except during periods of increased turbidity in the NSR when they are run nearly continuously. High lift cooling water is discharged nearly continuously to the NSR and is only stopped for plant shutdowns.

Filter bypasses and UV / post-filter bypasses are relatively infrequent events but do discharge relatively large volumes when they occur.

4.3. Flow Estimation Results – Rossdale

For each of the Rossdale wastestreams, graphs are provided in Appendix C showing the total daily volume, duration (number of hours discharged per day), frequency (number of discharges per day), average interval (the average amount of time that occurs between discharges) as well as the average duration per discharge event. These graphs provide a lot of information on how each wastestream operates. The following text provides high-level summaries of the various discharges and the figures in Appendix C.

The Rossdale WTP is divided into two plants, Plant 1 and Plant 2, and each plant contains two clarifiers (i.e., four clarifiers in total). Each clarifier has a separate main drain, floc drains, and set of sludge pumps. The Plant 1 clarifiers (C1-1 and C1-2) discharge to wastestream 5 and the Plant 2 clarifiers (C2-1 and C2-2) discharge to wastestream 6.

Plant 1 (Wastestream 5)

Discharge volumes from the main drains, floc drains and sludge pumps all show a similar seasonal pattern with increased volumes during periods of higher flow in the NSR. Plant 1 was often shut down for multiple months during the winter. Plant 1 main drains and floc drains will only discharge for a few minutes a day during direct filtration, but to over an hour during periods of high NSR flow. The sludge pumps discharge more frequently and would regularly run for more than 5 hours a day but run nearly continuously when flows and turbidity in the NSR were elevated.

The low lift pumphouse spray wash pumps take raw water from the NSR and use it to backwash the traveling screens that are used to remove larger debris from entering the treatment process, and this water is discharged into wastestream 5. Essentially this water is raw water from the NSR with some additional debris in it and it does not receive any treatment or chemical additions. This water enters wastestream 5 below the water quality sampling location, and a short distance upstream of the NSR. There is no safe or feasible monitoring location downstream of the low lift pumphouse; therefore, samples from wastestream 5 must be collected above this discharge. The low lift spray wash pumps run continuously when the WTP is operational and provides a significant dilution to the water in wastestream 5 as the annual volumes from the low lift trash pumps are approximately 5 times greater than the flows from the clarifier flows. This plays a significant role in determining the edge-of-mixing zone concentrations below the WTP. In

late 2023, due to construction associated with flood barriers, water from the low lift pumphouse was diverted from wastestream 5 to a separate pipe that drains directly into the NSR a short distance upstream and a few meters away from the shore. While these flows technically do not enter wastestream 5, they still have a similar effect of diluting flows in the mixing zone and are still treated the same in the calculations. In 2025 flows from the low lift trash pumps were returned to wastestream 5. Because the pumps from the low lift pumphouse run continuously, the duration, frequency and interval graphs are not presented in Appendix C.

Plant 2 (Wastestream 6)

Main drains, floc drains and sludge pumps from Plant 2 do not go directly to the NSR, but first flow into drain chamber 10 (DC10). When DC10 fills, water and residuals are pumped out of DC10, which then flow to the NSR. There is also an overflow on DC10 that prevents the DC10 from overflowing. Because this overflow is not monitored, it is not possible to estimate the flows from DC10. The flow data presented in Appendix C ignores the presence of DC10 and assumes that the volumes drain directly to the NSR. Due to the large volumes from main drains and floc drains, these drains can fill DC10 in less than a minute, so effectively, DC10 does not hold back main drains, or floc drains for any significant period of time. However, the smaller flows from the sludge pumps can take an extended period of time to fill up DC10, so there can be an extended period of time between when a sludge pump runs and that volume of water enters the NSR. Additionally, the sludge pumps do not cause the pumps in DC10 to activate, rather, the additional water will leave DC 10 through the overflow. This creates a number of challenges and assumptions: Firstly, when a main drain or floc drain occurs, the water already within DC10 is also pumped out and that water may have been from a main drain, a floc drain or a sludge pump, making it difficult to characterize the water quality associated with that discharge event. Secondly, because sludge pumps do not cause DC10 to be pumped out, it can be difficult to discern at the sampling location when sludge pump water is present or not due to the presence of leaks and other flows in the wastestream. As a result, sludge pumps from wastestream 6 have not been sampled as often.

Similar to the trends in Plant 1, the volumes from the main drains, floc drains and sludge pumps in Plant 2 all show a similar seasonal pattern with increased discharges during periods of higher flow and turbidity in the NSR; however, Plant 2 has much larger floc drain volumes compared to Plant 1 as a result of the larger number of floc drains in this plant. Plant 2 main drains will only discharge for a few minutes a day during direct filtration, up to half an hour during periods of high NSR flow. Due to the large number of floc drains, they can discharge up to 3.5 hours per day. The sludge pumps regularly run for more than 5 hours a day but run nearly continuously when flows and turbidity in the NSR were elevated.

Filter wastes (Wastestream 3)

The daily volume of filter backwashes and filter-to-waste is relatively constant throughout the year; however, the volume does tend to increase with the onset of direct filtration. A

single filter backwash or filter-to-waste typically lasts approximately half-an-hour, and each process typically occurs for a total of two to ten hours per day.

Other wastes (Wastestream 7)

Wastestream 7 contains flow that is largely leakage from the stilling basins, which allow for contact time with chlorine before it enters the filtration process. Post-filter bypass is used to send filtered water to waste instead of the reservoirs. There is also a flow estimate for reservoir drains and ground water that are drained into wastestream 7; however, the total annual flow of this source was < 0.01 ML and is not considered further. Stilling basin volumes discharge continuously through the day and show little variation in the volume discharged through the year. Post-filter bypasses produce a large amount of volume in a short period of time but are otherwise not discharging.

5. Water Quality Results

Water quality results from 2023 - 2025 are graphed for each of the sampled wastestream processes for total suspended solids (TSS), total and dissolved aluminum and for every other metal that has an Alberta surface water quality guideline for the protection of aquatic life (i.e., arsenic, boron, cadmium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, uranium, zinc and dissolved iron). Due to the large number of samples, wastestream processes and parameters, there is a large amount of data to display, and for clarity, this data is spread across a large number of graphs in Appendix D. While graphs could be made for all measured parameters, those with applicable water quality guidelines were deemed to be the most relevant.

Water quality guidelines for cadmium, cobalt, copper, lead and nickel are based on hardness values. To calculate the appropriate guideline, hardness values from the raw water samples were used, and values were extended to the next sampling date. Hardness concentrations were elevated in clarifier wastestreams and would be elevated at the edge of the mixing zone compared to the raw water of the NSR. This would effectively increase the guidelines during clarifier discharges but would be unlikely to alter any of the overall trends and conclusions. For simplicity, these guidelines were based on raw water hardness concentrations, which is a conservative assumption.

Some reported values were measured below the detection limit, but the detection limit was elevated and exceeded water quality guideline values. This generally corresponded with samples with elevated solids. Samples with concentrations below the detection limit were left as the detection limit in figures and calculation. Notes in Appendix D flag the number of samples that exceed guideline values but were reported as below the detection limit.

This report does not go into a detailed analysis of the water quality results; however, several trends and patterns were evident:

- Concentrations of TSS and total metals were highest in clarifier wastestreams, followed by filter backwashes, and lowest in filter-to-waste and Rossdale's wastestream 7.
- Concentrations of TSS and total metals were notably higher in E.L. Smith clarifier wastestreams compared to Rossdale clarifier wastestreams.
- Concentrations of TSS and total metals in raw water and all wastestreams were typically higher during conventional operation than in direct filtration and were typically highest during the Storm 2 event that occurred in June 2023.
- Clarifier samples from E.L. Smith regularly exceeded chronic and acute guidelines of arsenic, boron, cadmium, cobalt, copper, lead, nickel, selenium, silver, thallium, uranium, and zinc, particularly during conventional operation, and occasionally during direct filtration.
- Clarifier samples from Rossdale regularly exceeded chronic and acute guidelines of arsenic, cadmium, cobalt copper, lead, nickel, selenium, silver, thallium, uranium, and zinc during conventional operation, and rarely during direct filtration. The magnitude and frequency of exceedances was lower at Rossdale compared to E.L. Smith.
- Filter backwash samples at E.L. Smith occasionally exceeded guidelines of arsenic, cadmium, cobalt, copper, lead and selenium, and typically only did so during Storm 1 and 2 events when concentrations in the raw NSR water also exceeded guidelines.
- Filter backwash samples at Rossdale occasionally exceeded chronic guidelines of arsenic, cobalt, copper, lead and zinc, and concentrations were typically higher than those observed at E.L. Smith.
- Very few filter-to-waste samples exceeded guidelines at either Rossdale or E.L. Smith and typically only did so when concentrations in the raw NSR water were even higher than filter-to-waste samples.
- Dissolved aluminum concentrations in clarifier samples from both WTPs regularly exceeded chronic and acute guidelines.
- Dissolved aluminum concentrations were not as high in filter backwash, filter-to-waste and wastestream 7 samples, but still regularly exceeded chronic guidelines and frequently exceeded acute guidelines.
- Concentrations of total aluminum from nearly every clarifier and backwash sample exceeded ECCC's Federal Water Quality Guideline (FWQG) for total aluminum, as well as a number of raw and filter-to-waste samples.

While the concentration of metals regularly exceeded chronic and acute guidelines, the WTPs are not sources of these metals (with the exception of aluminum). These metals originate from the NSR and the WTPs discharge them back to the NSR. The concentrations of metals are elevated compared to raw water conditions due to WTP processes of settling out and concentrating particulate materials.

For all parameters in all wastestreams, the concentrations were quite variable, even among samples collected during similar river conditions and WTP operations. Sometimes even samples collected on the same day, from the same location, from the same WTP process displayed a significant amount of variability. This high level of variability could be the result of the inherent variability among wastestream processes or introduced variability from the sampling process. It was observed that the turbidity of many wastestream processes changed significantly in very short periods of time. For example, when a floc drain or a main drain would start, the sampling would begin immediately, but it would take several seconds to lower and retrieve the sampling device. Frequently there would be a notable difference in the turbidity of the collected water between the first and second grab samples, which would only be collected a few seconds apart. This suggests that the precise time that the grab samples are collected can have a significant effect on the water quality in the composite sample. Significant variability has also been observed between two different clarifier drains collected only few minutes apart. Therefore, there is likely a high degree of variability in these samples which cannot easily be controlled for. One other potential reason for the high level of variability is that it was not always possible to isolate individual wastestream discharges. For example, sludge pumps would sometimes be running or not running while main drains and floc drains were being collected, and there were typically insufficient opportunities to collect a main drain without a sludge pump also running at the same time. While it would be ideal to sample every combination of wastestream discharge, the number of samples and sampling effort would quickly become unfeasible.

6. Edge of Mixing Zone Concentrations

To evaluate the potential impacts of residuals to the NSR, the concentration at the edge of the mixing zone was calculated for each parameter using the formula outlined in AEPA's Water Quality Based Effluents Limits Procedures Manual (1995).

$$C = (Q_e C_e + ff(Q_s) C_s) / (Q_e + ff(Q_s))$$

Where:

- Q_e = volume of effluent discharge
- Q_s = volume of receiving stream available for mixing
- C_e = concentration of a substance in the effluent
- C_s = upstream concentration of substance
- ff = fraction of flow
- C = resulting instream concentration of substance after mixing

The volume of effluent discharge was generated as described in Section 4. The volume of receiving stream is the daily average flow of the NSR as described in Section 3. The concentration of substance in the effluent and upstream are described in Section 5. The fraction of flow was set to 0.1 for chronic guidelines and 0.05 for acute guidelines as described by the Water Quality Based Effluent Limits Procedures Manual (AEP 1995). For parameters with both chronic and acute guidelines, edge-of-mixing-zone calculations were run twice. For total aluminum, ECCC's Federal Water Quality Guideline (FWQG) a

chronic mixing zone was assumed. For the E.L. Smith WTP, the two wastestreams were assumed to discharge into a single mixing zone as requested by AEPA; however, one wastestream discharges from the bank and the other discharges mid-channel. Even if these two wastestreams do begin to merge at the edge of the mixing zone, the resulting fraction of flow should be much larger than 10%. However, for the purposes of this report, the edge of the mixing zone for E.L. Smith is assumed to only be 10% of the NSR.

While flows were available for the entire year, water quality concentrations were only available for a relatively small subset of days. In order to generate daily edge-of-mixing-zone values, the water quality data needed to be extrapolated to days that were not monitored. Water quality data was organized by NSR flow category and plant operation as outlined in Table 1. The median value of that water quality data was taken and applied to all days of the same NSR flow category. For example, 34 samples were collected from the E.L. Smith clarifiers during direct filtration. The median value for each parameter was used as the effluent concentration for all dates that the WTP was in direct filtration, and separate median concentrations were calculated and applied for the 'spring runoff', 'midrange', 'moist', 'Storm 1' and 'Storm 2' conditions. As discussed in Section 5 there is a high level of variability within and among samples, by using median data, the challenge of a single extremely high or extremely low value having an oversized effect was avoided.

As wastestream flows were calculated on a minutely time-step, the resulting concentration in the NSR at the edge of the mixing zone was also calculated on a minutely time-step. While this approach may initially seem excessive, it was necessary for capturing the fact that many wastestream processes, such as clarifier discharges, only occur for a few minutes, and then will not discharge again for multiple hours (see Section 4). Calculating the concentration at the edge of the mixing zone using minutely data not only provides a more accurate understanding of the actual range of instream concentrations but also provides an estimate of how long concentrations may exceed water quality guidelines. In their review of the proposal, AEPA requested that the edge-of-mixing-zone calculations be completed using "both daily (24-hour) average and episodic average concentrations". The daily average concentrations at the edge of the mixing zone were simply calculated by taking the average of the minute time-step values. However, it was less clear how to effectively present 'episodic average' concentrations given the large number of different WTP processes occurring at a wide variety of frequencies and durations. While the minutely data is available, the large volume of data makes the visual presentation of this data in a graph impractical. To capture the intent of AEPA's request, the maximum daily value from the minutely edge of mixing zone was also plotted. Therefore, each graph displays the daily average and daily maximum concentrations at the edge of the mixing zone. To provide further context to the range of concentrations observed at the edge of the mixing zone, a graph for each parameter was made showing how many hours (minutes) per day that the concentrations exceeded the applicable water quality guidelines. For many parameters, the daily average concentrations were well below guidelines, while the maximum concentration was above

the guidelines, therefore the second graph provides information on how frequently (i.e., how many minutes) guidelines were exceeded. The figures are presented in Appendix E.

While NSR flow values are available on 5-minute intervals, for the purposes of these calculations, only daily average NSR flows were used. This kept the edge of mixing zone calculations much simpler and avoided the situation where a single day would belong to more than one flow category. Similarly, it was assumed that the WTPs converted to/from direct filtration and that this condition applied for the entire day, whereas in reality, the plant would technically be in conventional operation and direct filtration for part of the day. These assumptions made the calculations and interpretation much simpler and would not have a significant impact on the overall results.

In the figures presented in Appendix E, the x-axis displays the percent of the days (i.e. 0 to 100), instead of the number of days in 2023 – 2025 (i.e., 1 – 1,096). The graphs contain the data for all 1,096 days, but displaying the x-axis as 0 to 100 seemed more intuitive. Additionally, the days on the x-axis organized according to NSR flow category and then are secondarily organized chronologically. For example, the left side of the graph shows the category of 'direct filtration', and within that category are all the days that the plant was in DF, in chronological order. Graphing the data in this fashion allows data from the same flow category to be compared more easily as opposed to simply plotting the data chronologically. These graphs also make it easier to determine what NSR flow conditions and WTP operations generate impacts on downstream water quality compared to a graph that only plotted the data chronologically.

There were also a few WTP wastestream processes where insufficient number of water quality samples were collected to generate direct estimations of median water quality concentrations. Concentrations from the Rossdale low lift pumphouse that were not measured were assumed to be equal to raw water, and the Rossdale post-filter bypass were conservatively assumed to be equal to the concentrations measured in filter backwashes. At E.L. Smith, concentrations from the low lift silt pumps and the high lift cooling water were not known. Using raw water quality likely underestimates the load from these sources, but using any process wastestream data likely overestimates the amount of total and dissolved aluminum, which are not added to this wastestream. To estimate the concentrations from these wastestreams, concentrations from filter backwashes were used, which likely over-estimates the concentrations; however, since the flows from these processes are relatively small, their overall impact on the load is small. Likewise, the bypass flows at E.L. Smith were estimated using filter-to-waste concentrations, which again, likely over-estimates the concentrations of some parameters, but the difference is likely to be small.

The 2023 results were recalculated using the validated 2023 NSR flow values and using the combined 2023 – 2024 water quality dataset. Likewise, the 2024 results were calculated using preliminary NSR flow values and using the combined 2023 – 2024 dataset. Lastly, the 2025 results were calculation using preliminary NSR flow values and using the combined 2023 – 2025 dataset. Due to the high level of effort to calculate

minutely loads, EPCOR has not gone back to recalculate the loads from previous years using the full analytical dataset.

In 2023, edge-of-mixing-zone calculations were completed for all parameters, but as indicated in the 2023 report, this task was very time consuming, and for 2024 and 2025 the calculations were only completed on TSS, total aluminum and dissolved aluminum. If required, EPCOR can complete edge-of-mixing-zone calculations for additional parameters.

Total suspended solids – Concentrations of TSS at the edge of the mixing zone were elevated compared to raw water conditions, most notably at E.L. Smith. Concentrations seldom exceeded TSS guidelines during direct filtration, but during conventional operation guidelines were exceeded daily, but only for short periods of time (typically < 2 hours). The TSS guidelines used in this report are for maximum increases of 25 mg/L from background for any short-term exposure (e.g. 24-hour period) and an increase of 10% when background concentrations are > 250 mg/L. When clarifiers discharge the increases in TSS downstream are relatively large, but for the majority of the day, the increases of TSS below the WTPs are small.

Total aluminum – Concentrations of total aluminum at the edge of the mixing zone were elevated compared to raw water conditions, most notably at E.L. Smith. Concentrations exceeded guidelines least frequently during low NSR flows, and typically less than 5 hours per day. During ‘moist’, ‘Storm 1’ and ‘Storm 2’ conditions, raw NSR conditions frequently exceeded guidelines. The FWQG guideline is currently used by the U.S. EPA, Environment and Climate Change Canada and B.C. Ministry of Water, Land, and Resource Stewardship, but is currently not used by AEPA. Further consideration should be given to the appropriateness of this guideline for the NSR as raw water samples frequently exceed this guideline, even at E.L. Smith.

Dissolved aluminum - Concentrations of dissolved aluminum below E.L. Smith never exceeded chronic or acute guidelines at the edge of the mixing zone. Below Rossdale, daily maximum concentrations often exceeded acute and chronic guidelines at the edge of the mixing zone, most notably during ‘midrange’ flow conditions. It is uncertain why raw water and the edge of mixing zone concentrations were highest during ‘midrange’ conditions, particularly because alum dosing from the WTPs would have been relatively low during these conditions. This result could be the result of pH, hardness or dissolved organic carbon of the NSR and the samples, which could push more aluminum into the dissolved fraction. This result will continue to be explored. Despite the high dissolved aluminum concentrations below Rossdale during ‘midrange’ conditions, concentrations only exceeded chronic guidelines for < 2 hours per day, and acute guidelines were never exceeded for more than 35 min per day. During ‘spring runoff’ and ‘Storm 2’ conditions (i.e., flows > 600 m³/s) at Rossdale dissolved aluminum exceeded chronic guidelines in raw water and at the edge of the mixing zone. Caution should be applied, as only small numbers of raw water samples have been collected during spring runoff and Storm 2 conditions.

The edge of mixing zone calculations for dissolved aluminum should be interpreted with caution, as parameters such as pH, hardness and dissolved organic carbon can affect if aluminum remains in a dissolved phase, or if it becomes particulate aluminum. Once the wastestream starts mixing with the NSR, the resulting dissolved aluminum concentration could increase or decrease. For these calculations, no modifications of instream changes to dissolved aluminum were applied. One potential solution would be to use newer guidelines from U.S. EPA, Environment and Climate Change Canada and B.C. Ministry of Water, Land, and Resource Stewardship that are based on total aluminum, but consider the pH, hardness and dissolved organic carbon on the samples as described above,

Total metals – As described above, the mixing zone calculations were not calculated for 2024 or 2025, but based on the results from the 2023 report, the concentration of many total metals regularly exceeded guidelines at the edge of the mixing zone below E.L. Smith. These exceedances typically occurred during periods of higher flow in the NSR, but guidelines were never exceeded during direct filtration and seldom during ‘midrange’ flows. Even when guidelines were exceeded, they typically exceeded guidelines for less than 2 hours per day, similar to the trends observed for TSS. During the ‘Storm 2’ flow category, many metals were above guidelines in the raw water and below the WTP. Concentrations downstream of Rossdale was typically much lower compared to E.L. Smith.

7. Load Estimates

Daily load estimates for TSS, total and dissolved aluminum were calculated using the minute time-step flow data and median effluent concentrations for each flow category, similar to the edge of mixing zone concentrations described in Section 6. The graphs present both the gross and raw loads for each parameter from each WTP. The gross loads represent the total amount of material discharged by the WTPs without considering the load taken up by the WTPs from the NSR, which is the raw load. EPCOR considered presenting the net loads of the WTP (i.e., gross load minus raw load); however, this generated some negative load values, typically during ‘Storm 2’ flow conditions. While negative load values are counter-intuitive, there are some circumstances where they could occur. For example, during the start of a high flow event in the NSR, the load of solids in the river could be greater than the load of solids discharged by the WTPs. Also, the loads of dissolved aluminum could also be higher in the river compared to the load discharged by the WTPs given differences in temperature and pH.

While episodic (i.e., minutely) loads were calculated, only daily loads are presented in the figures below. Graphs of episodic loads can be provided if AEPA requires; however, EPCOR determined that the edge-of-mixing-zone graphs and the daily loads are likely more informative than episodic loads presented in terms of kg per minute.

There are a number of limitations in the ability to generate accurate estimates of wastestream loads, and the graphs below should be interpreted with caution. As

described in Section 4, a number of assumptions were used to calculate wastestream flows. Secondly, as described in Section 5, there is a significant amount of variability among wastestream samples collected from the same location during similar conditions of river flow and plant operation. This variability makes it very challenging to be able to generate an accurate load estimate from a single wastestream discharge event that was sampled, and it makes it even more challenging to extrapolate the results to events and days that were not sampled. To manage the high level of variability of the water quality results, median values of effluent and raw water quality were used, as described in Section 6; however, median values have inherent limitations for calculating daily load estimates, as it does not adequately capture the range of variability of both wastestream and NSR water quality. An example of this limitation is evident in the loads of TSS during 'Storm 2' flow conditions, where raw loads at E.L. Smith were often greater than the gross loads from the WTP. While this situation can technically occur, as described above it is likely that the collection of a relatively small number of raw water samples, and utilizing the median value of these samples was insufficient to characterize the loads during this period of high NSR flows when loads were likely changing rapidly. By being unable to adequately characterize the load of the NSR during the high flow event, it is logical that the raw load could be calculated to be greater than the gross load from the WTP. EPCOR will give more thought to how loads from the WTPs can be better calculated and presented; however, mass-balance approaches (i.e. knowing how much alum is added as part of WTP processes) may yield more accurate estimates of loads than the approach outlined here. While the mass-balance approach may yield better estimates of daily and annual load, it is inadequate to generate estimates of the concentrations at the edge of the mixing zone, because the mass balance approach does not account for the fact that the WTPs 'pulse' their discharges, and that the various wastestream discharges have very different volumes and concentrations.

Caution should also be applied to interpreting the loads of dissolved aluminum to downstream concentrations at Pakan as parameters such as pH, hardness and dissolved organic carbon can affect if aluminum remains in a dissolved phase, or if it becomes particulate aluminum. For the figures below, it is assumed that no changes occur to dissolved aluminum upon mixing with the NSR. The newer total aluminum guideline from U.S. EPA, Environment and Climate Change Canada and B.C. Ministry of Water, Land, and Resource Stewardship which considers the pH, hardness and dissolved organic carbon of the sample may prove to be a more useful guideline than the current AEPA dissolved aluminum guideline, but more thought and consideration will be needed before fully embracing this guideline.

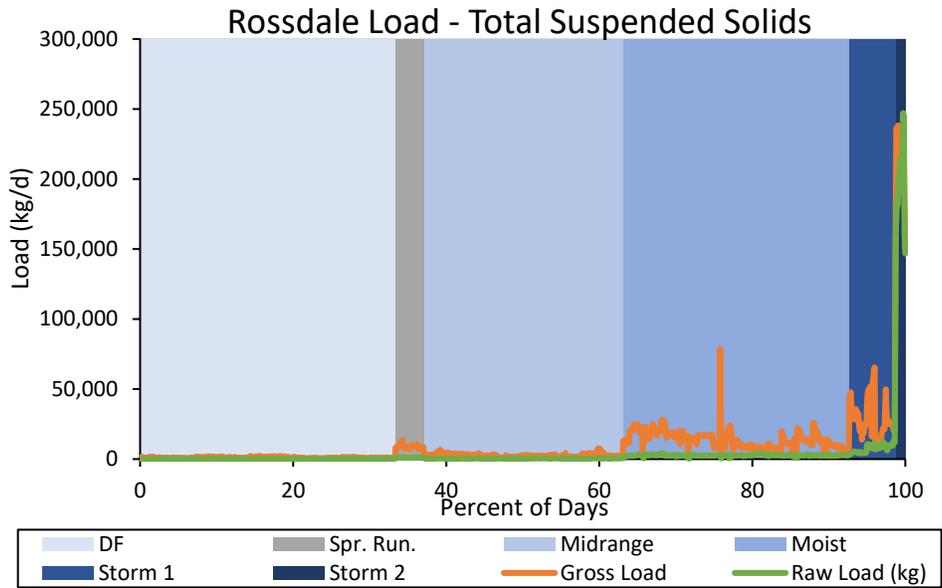
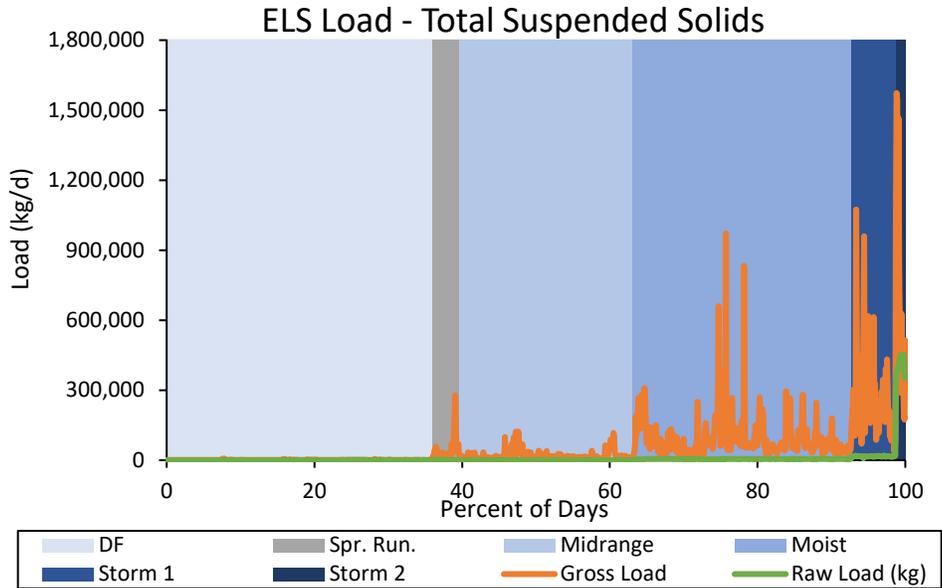


Figure 4. Daily loads of total suspended solids at E.L. Smith and Rossdale, 2023 - 2025.

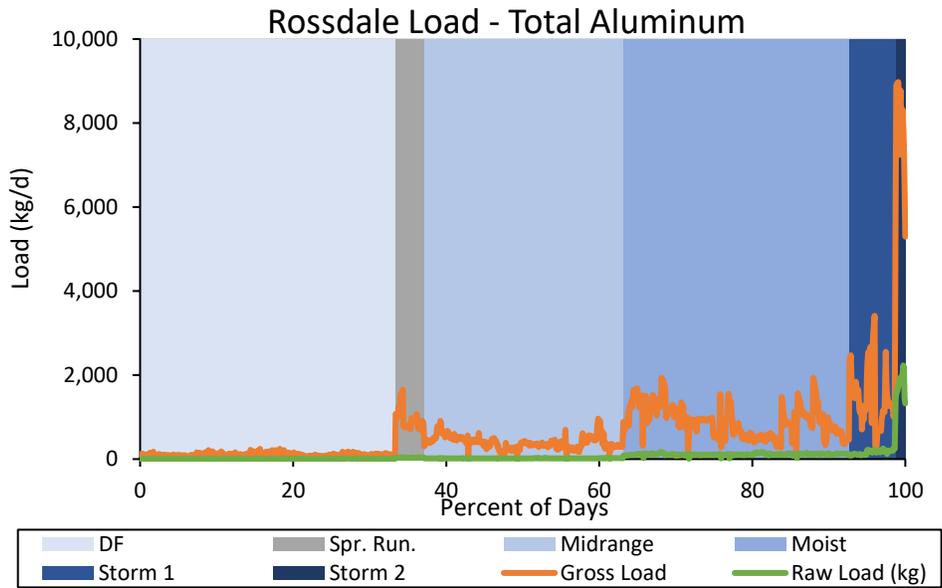
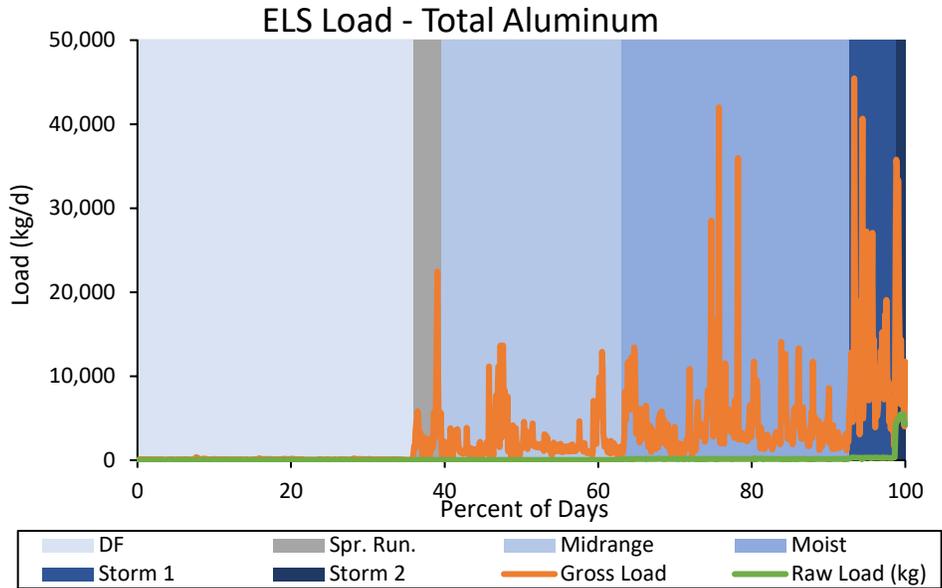


Figure 5. Daily loads of total aluminum at E.L. Smith and Rossdale, 2023 - 2025.

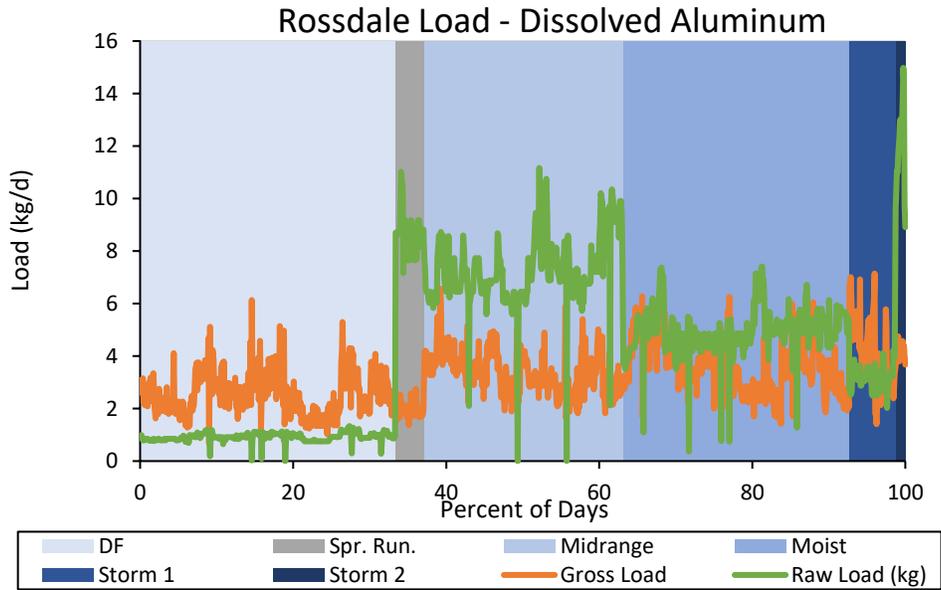
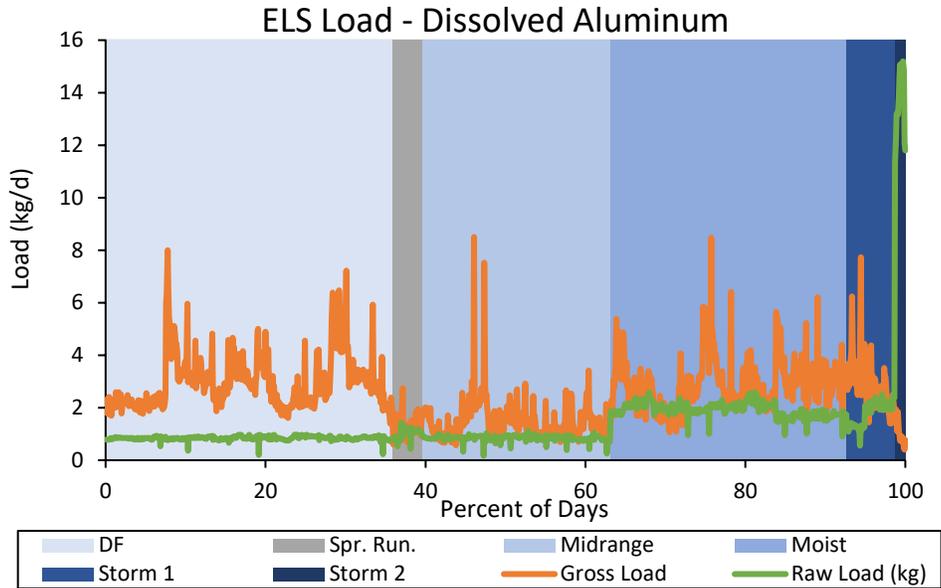


Figure 6. Daily loads of dissolved aluminum at E.L. Smith and Rossdale, 2023 - 2025.

Appendix A – Site Photographs

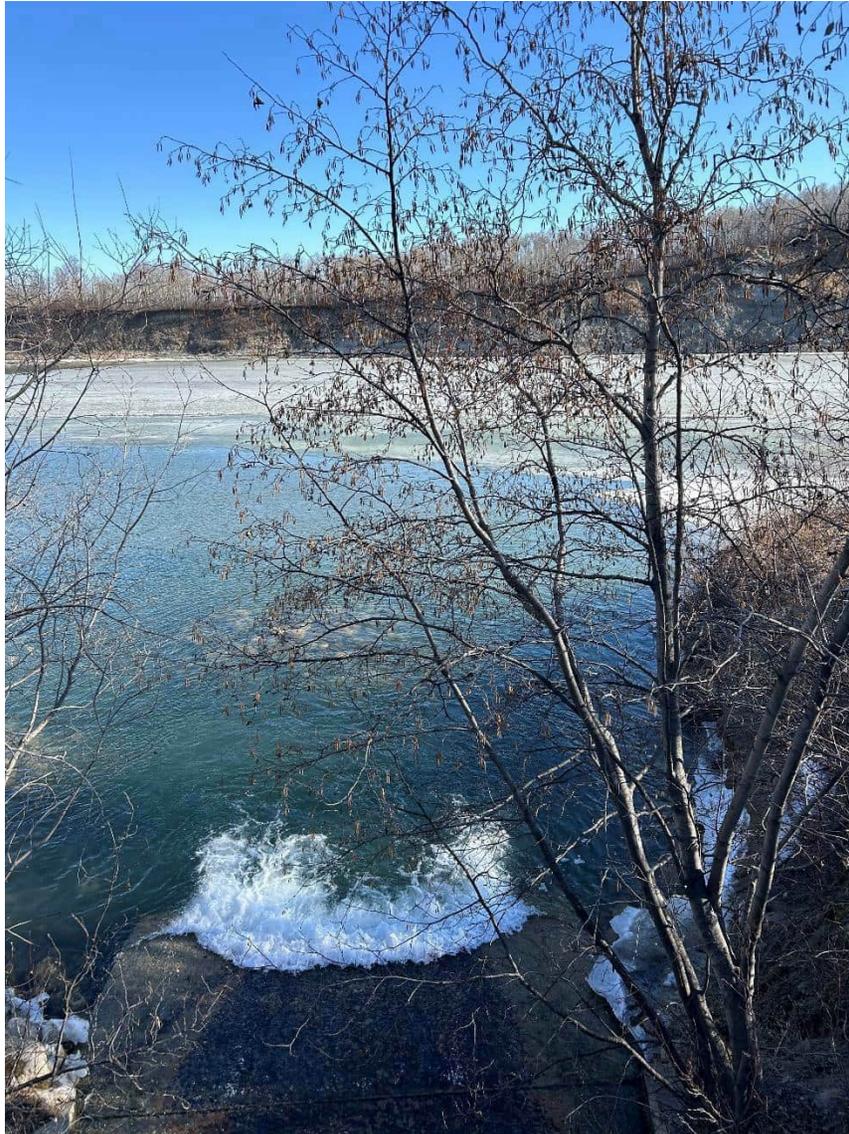


Photo A.1. E.L. Smith Wastestream 2 outfall and sampling location



Photo A.2. E.L. Smith Wastestream 1 sampling location, MH 67.1



Photo A.3. Rossdale Wastestream 3 sampling location



Photo A.4. Rossdale Wastestream 6 outfall and sampling location

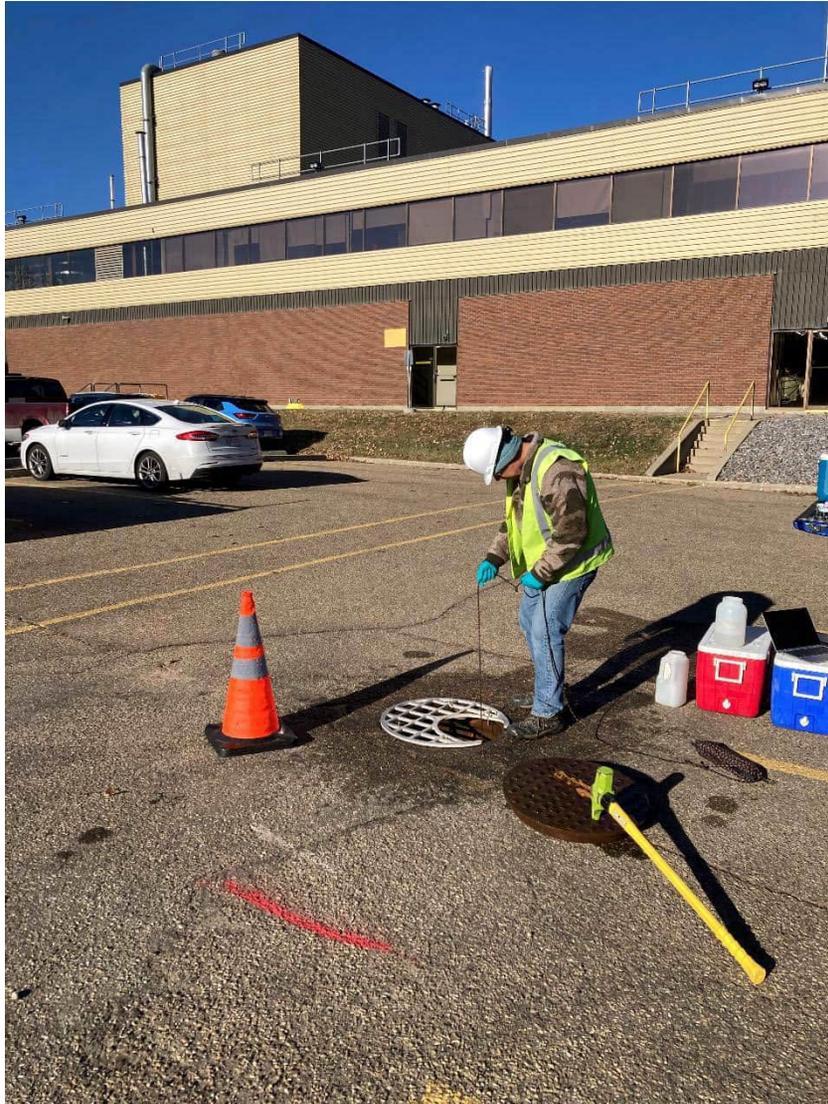


Photo A.5. Rossdale Wastestream 5 sampling location (left), and outfall (right)

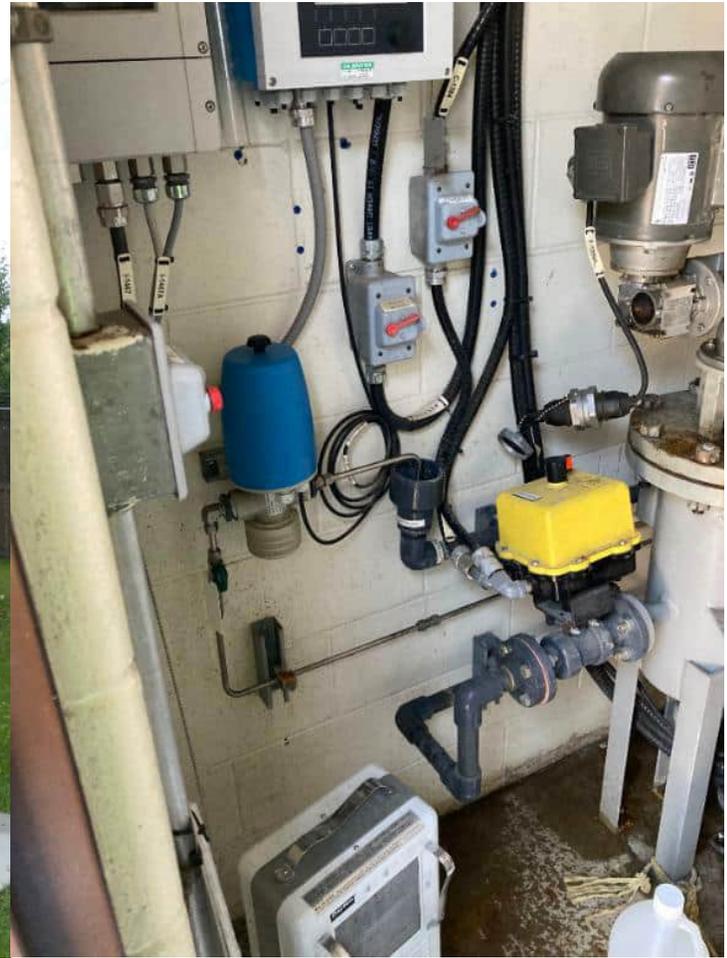


Photo A.6. Rossdale Wastestream 7 sampling location

Appendix B – Flow Estimation Results – E.L. Smith

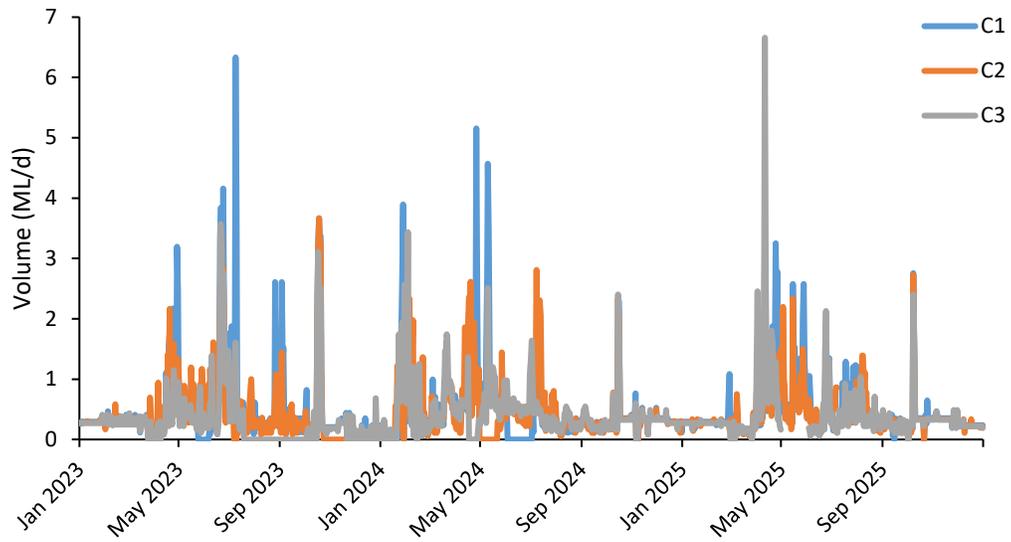


Figure B.1. Total daily volume released from each E.L. Smith clarifier, 2023 - 2025.

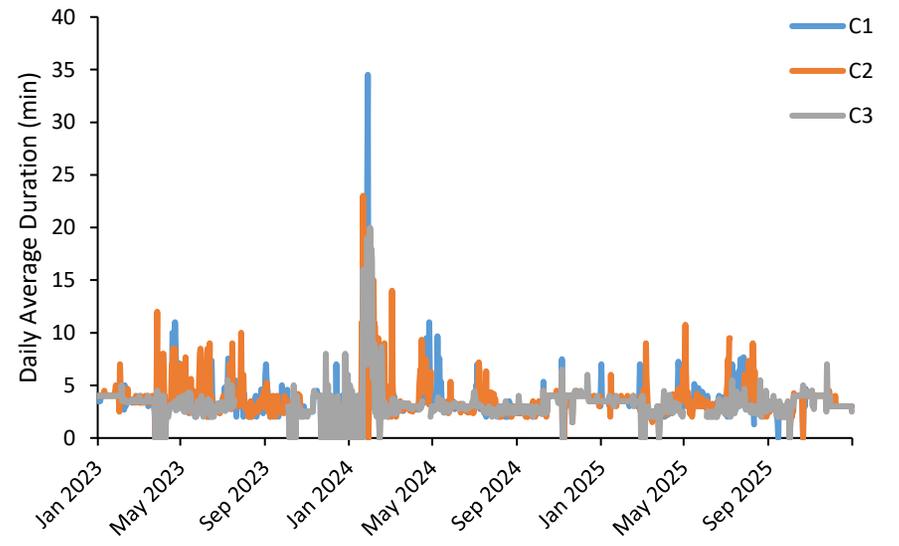
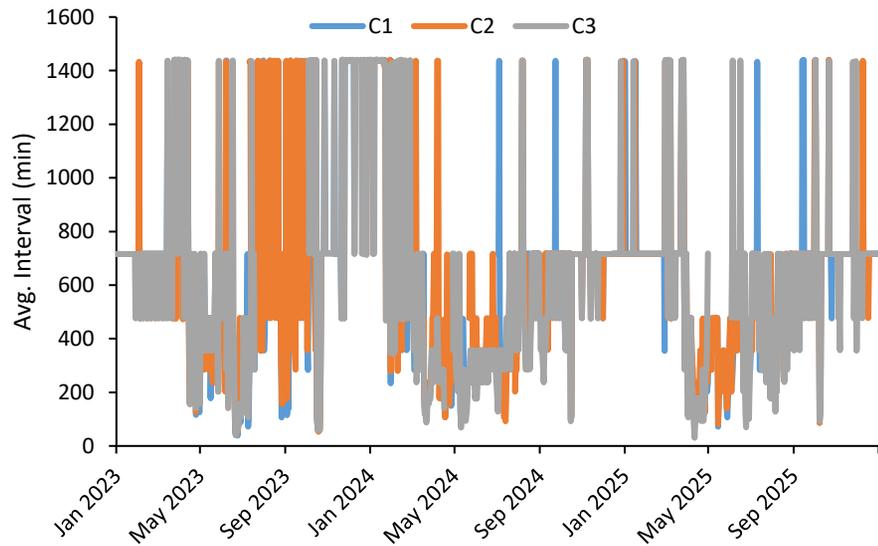
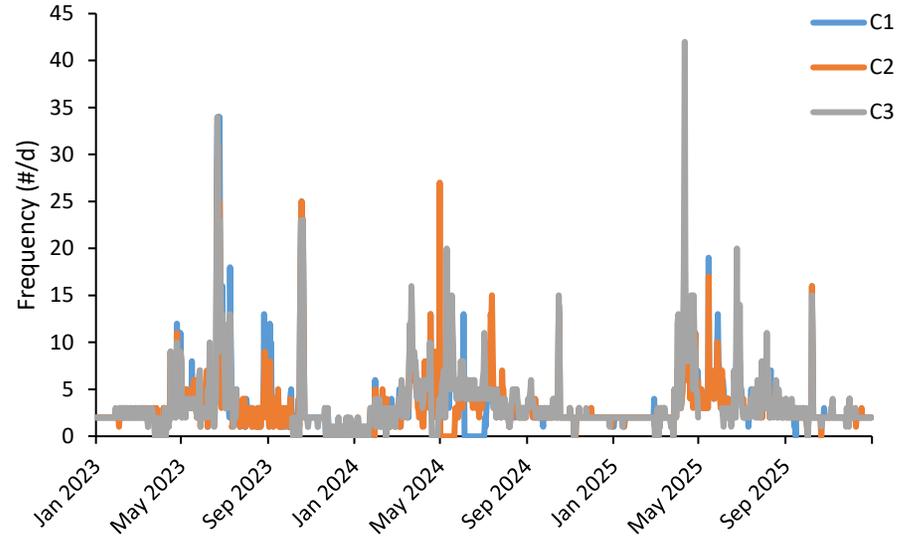
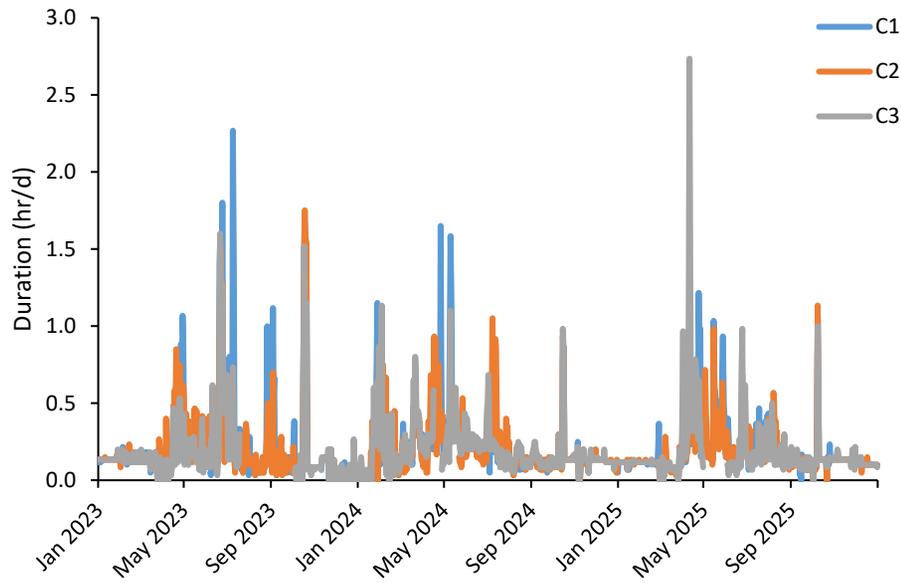


Figure B.2. Duration, frequency, interval and average event duration of E.L. Smith clarifier drains, 2023 - 2025.

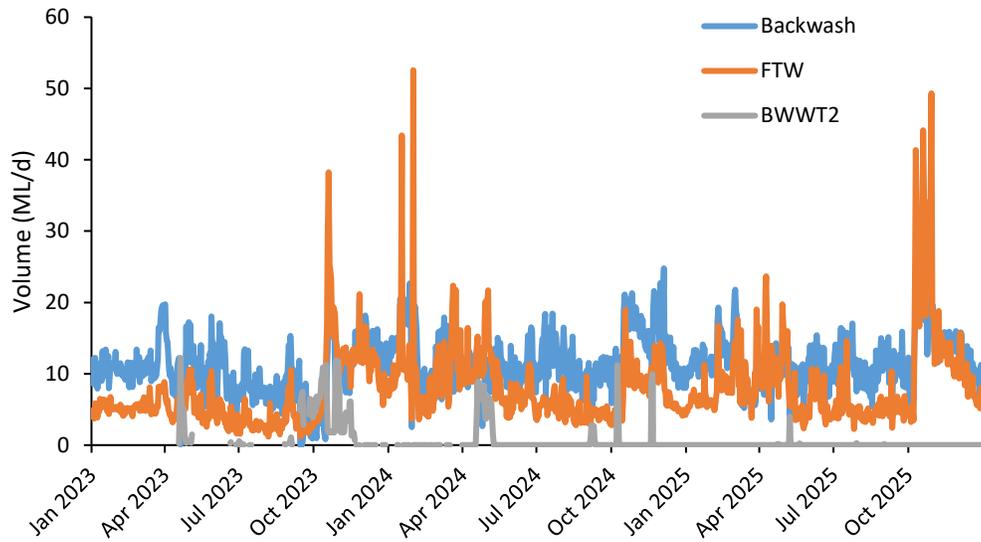


Figure B.3. Total daily volume released from filter backwashes, filter-to-wastes and from backwash waste tank 2 at E.L. Smith, 2023 - 2025.

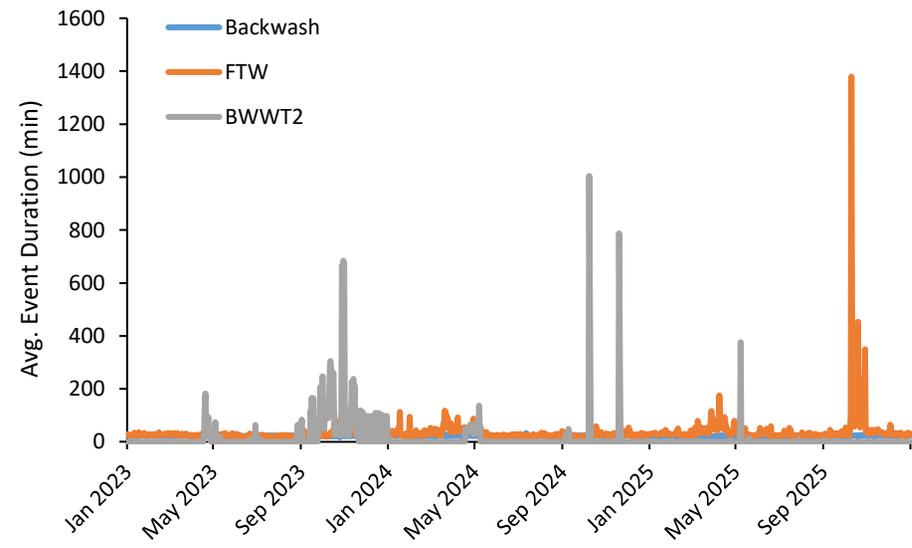
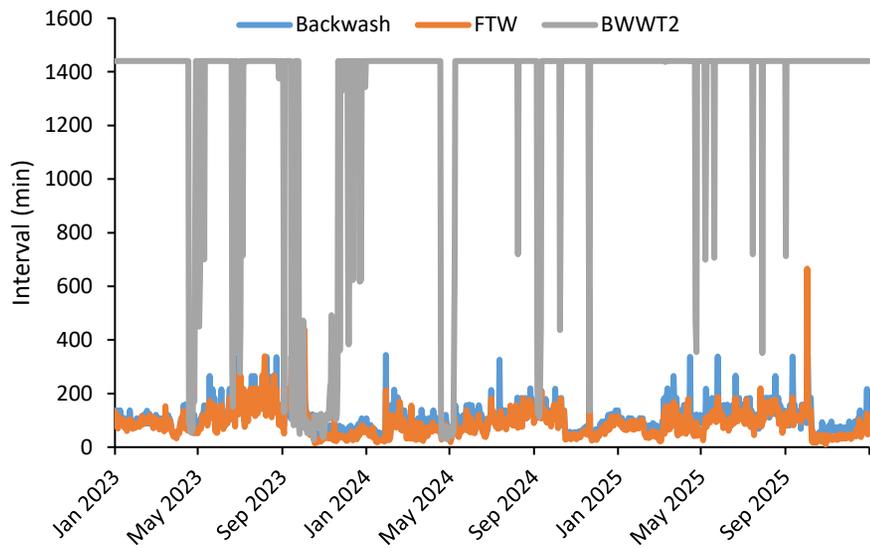
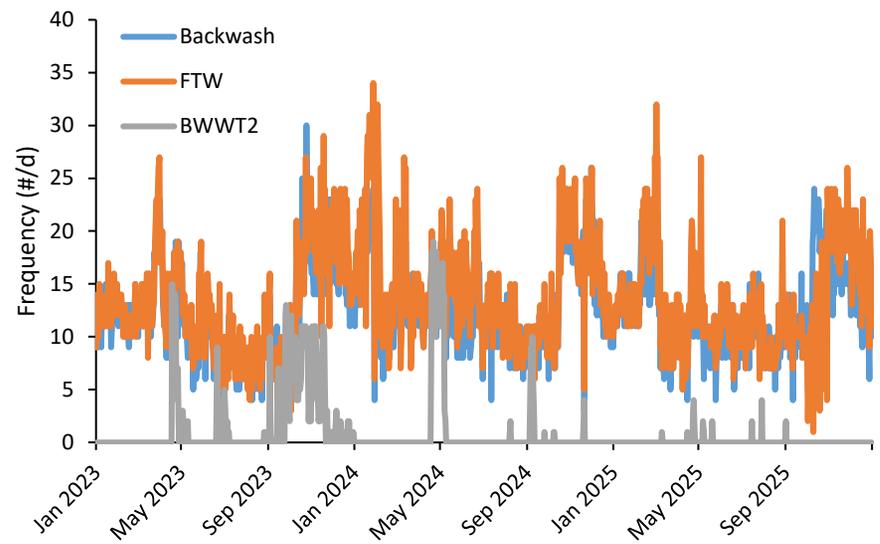
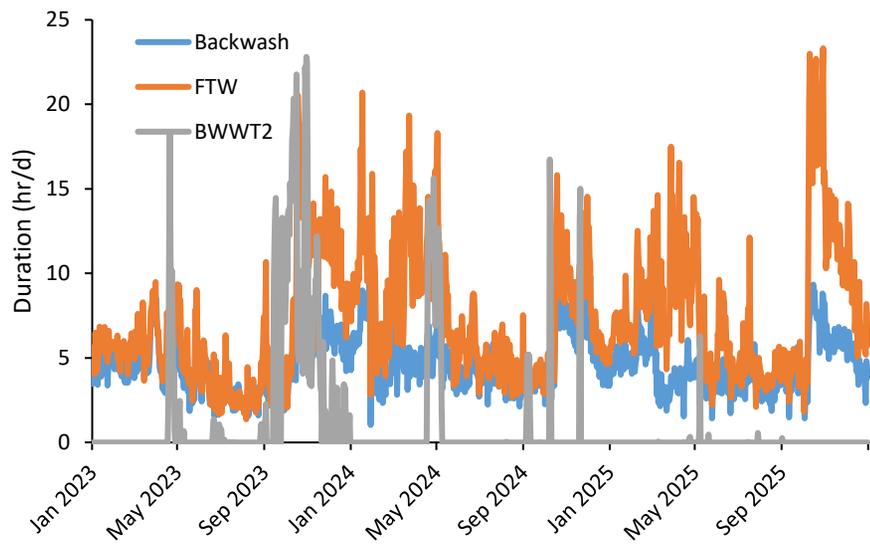


Figure B.4. Duration, frequency, interval and average event duration of filter backwashes, filter-to-wastes and back wash waste tank 2 at E.L. Smith, 2023 - 2025.



Figure B.5. Total daily volume released from the low lift pump house and high lift cooling at E.L. Smith, 2023 - 2025.

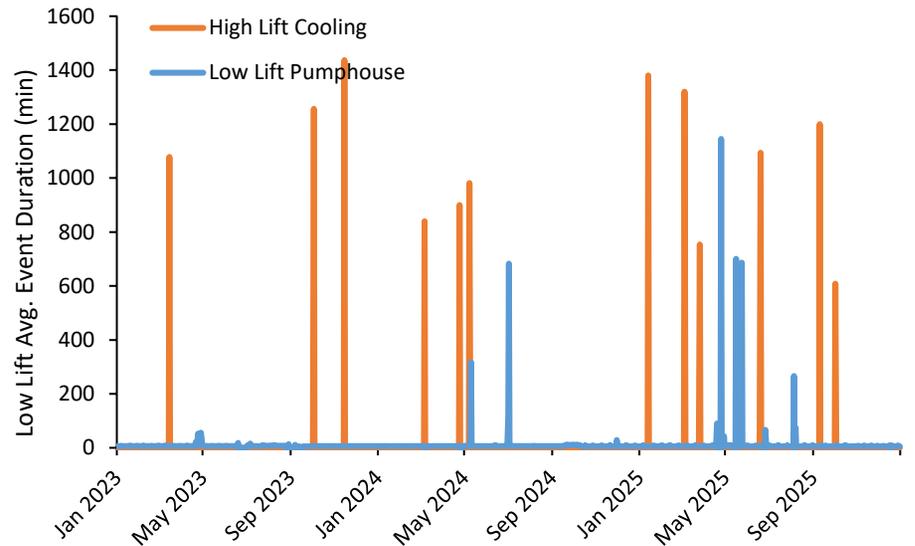
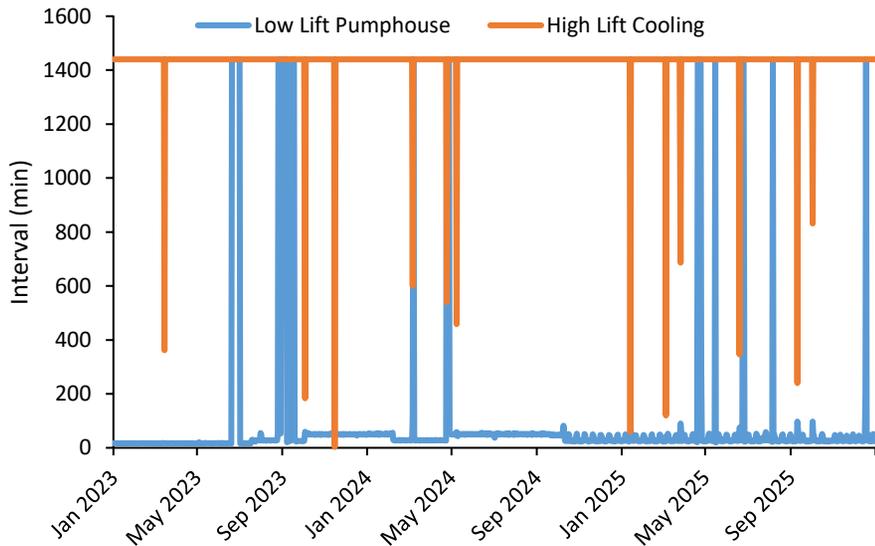
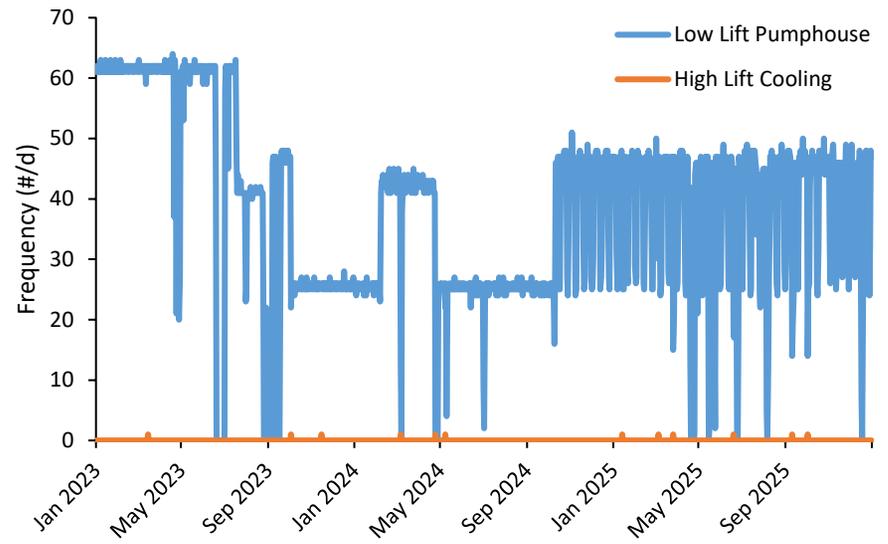
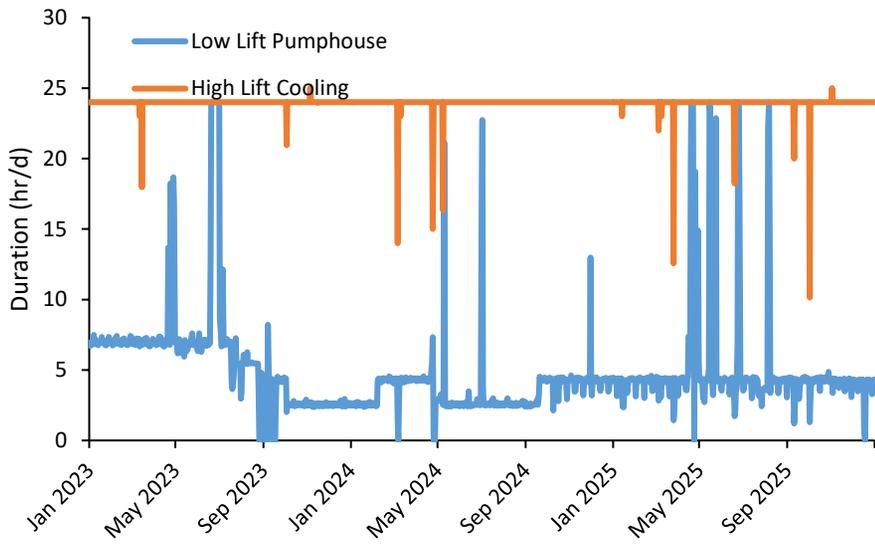


Figure B.6. Duration, frequency, interval and average event duration from the low lift pump house and high lift cooling at E.L. Smith, 2023 - 2025.

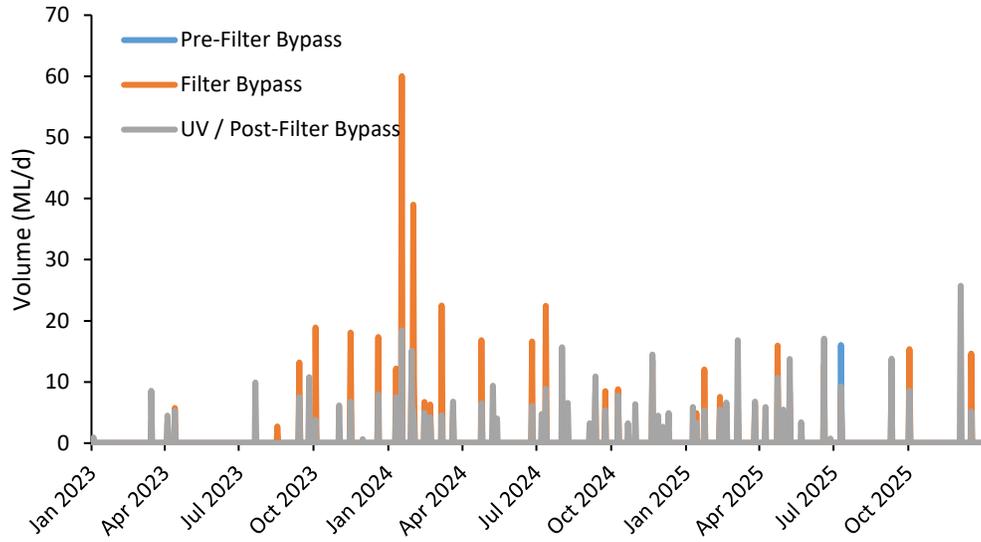


Figure B.7. Total daily volume released from bypasses at E.L. Smith, 2023 - 2025.

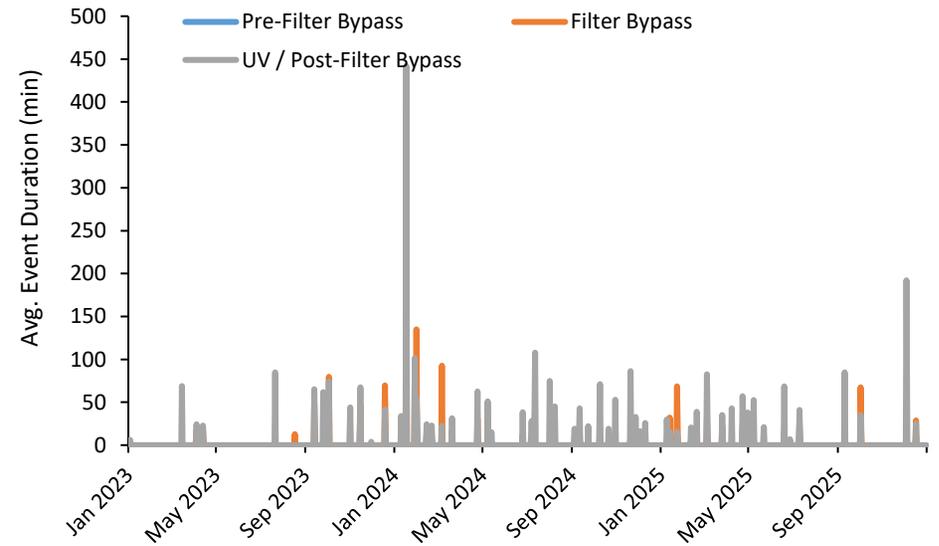
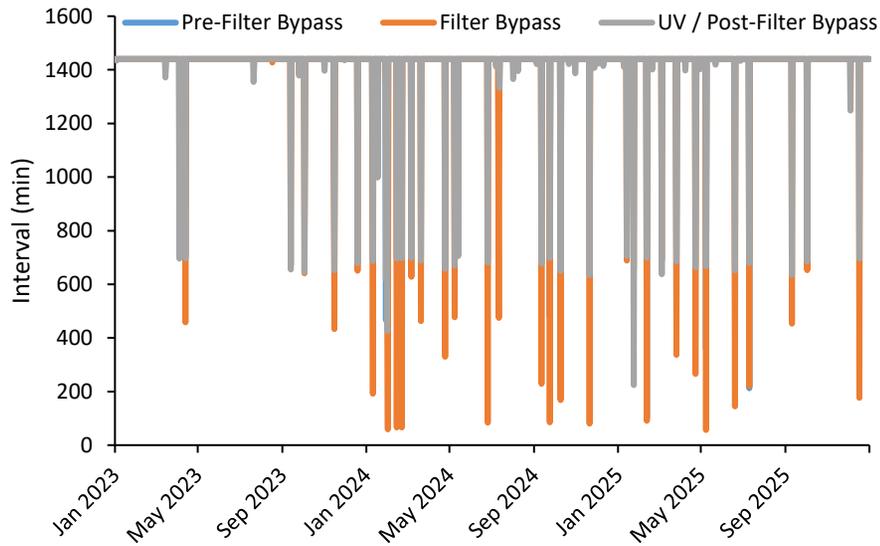
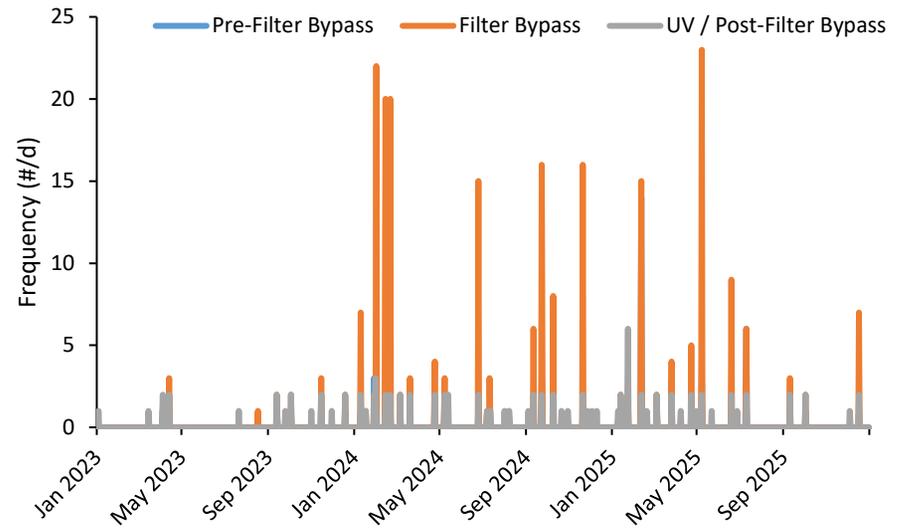
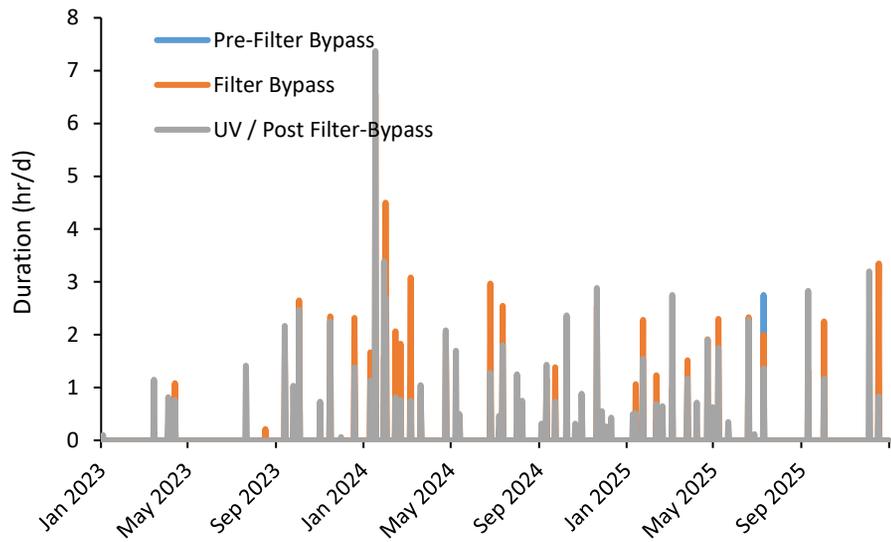


Figure B.8. Duration, frequency, interval and average event duration from bypasses at E.L. Smith, 2023 - 2025.

Appendix C – Flow Estimation Results – Rosedale

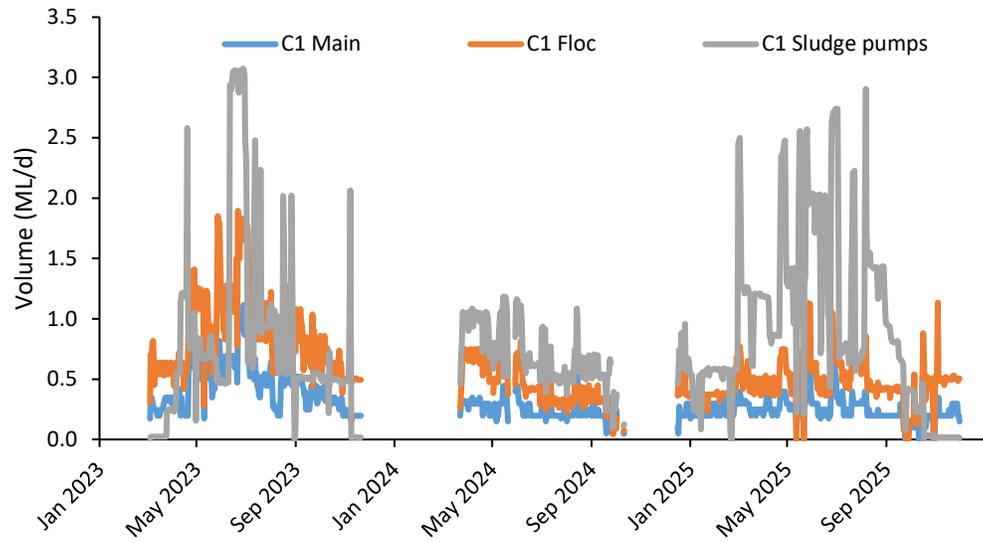


Figure C.1. Total daily volume released from Plant 1 discharges to wastestream 5 at Rosssdale, 2023 - 2025.

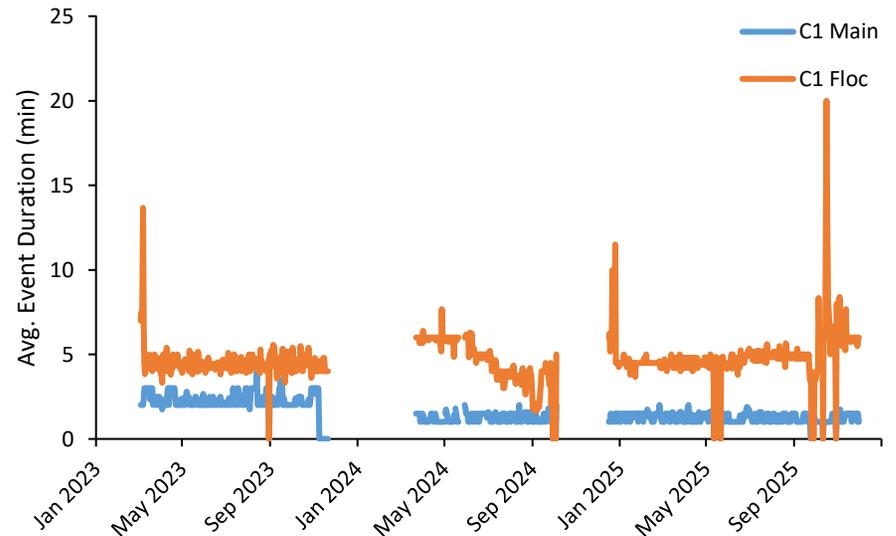
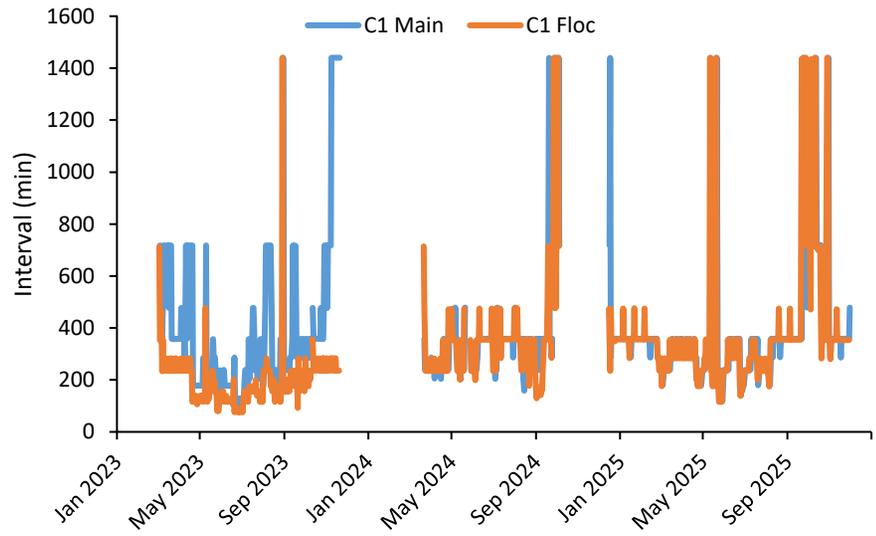
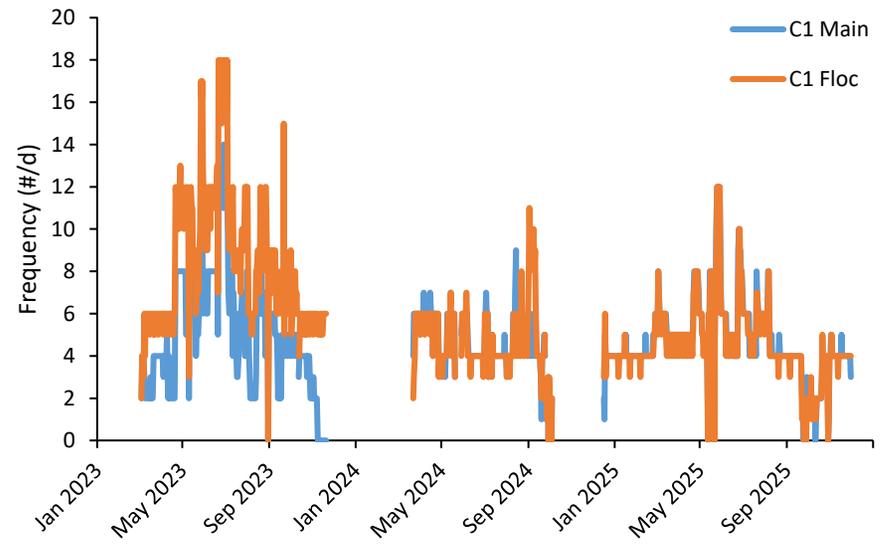
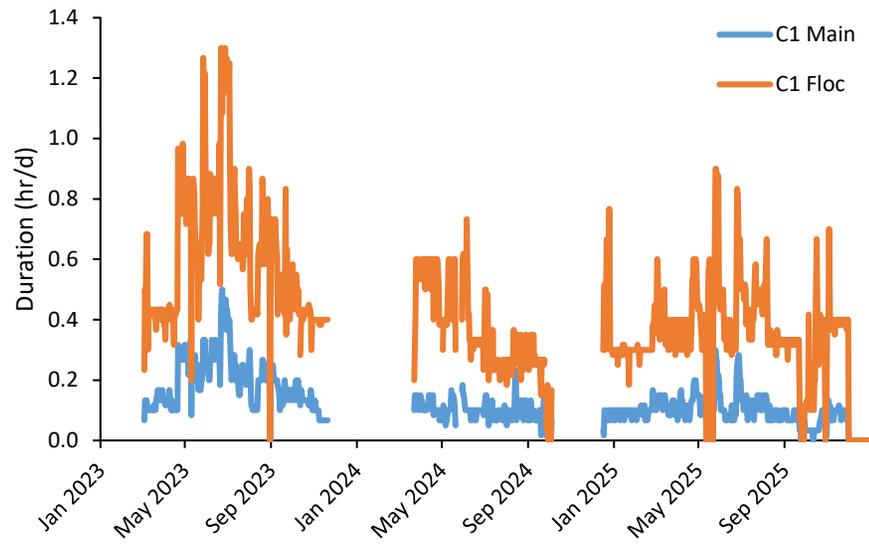


Figure C.2. Duration, frequency, interval and average event duration from Plant 1 main drains and floc drains to wastestream 5 at Rossdale, 2023 - 2025.

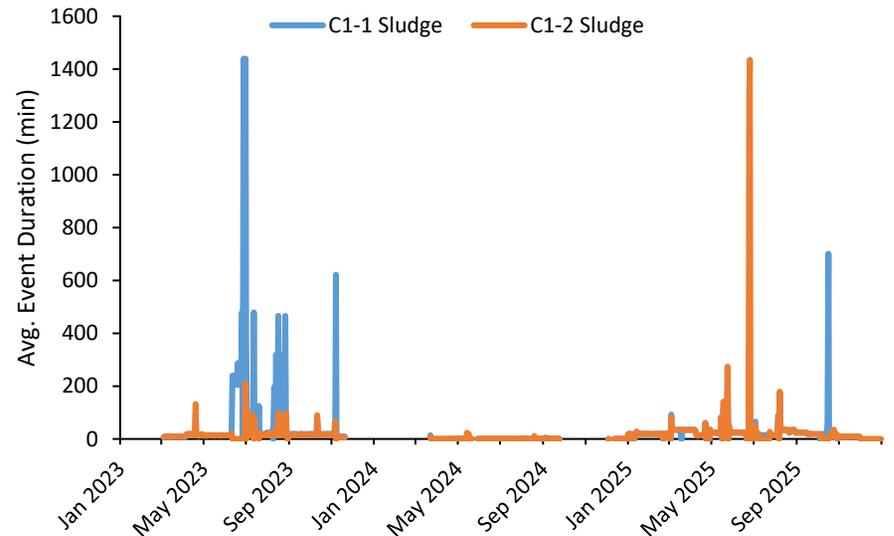
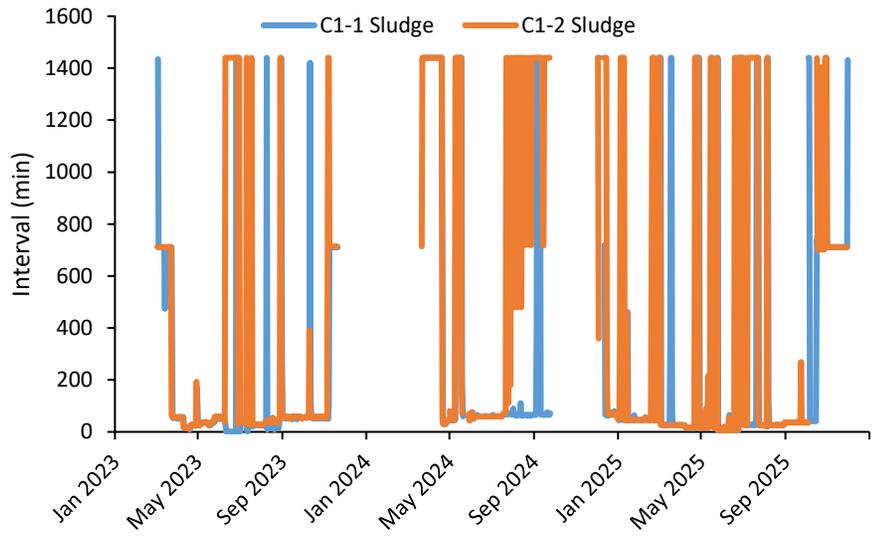
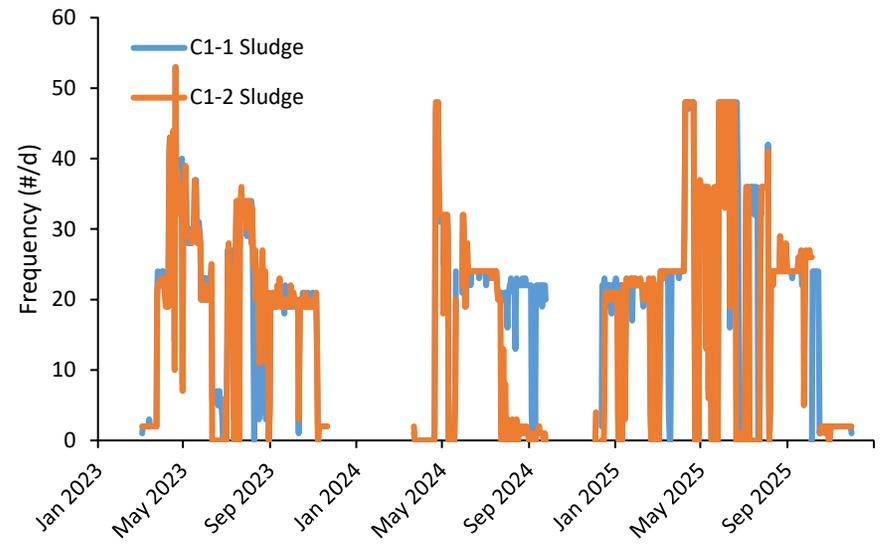
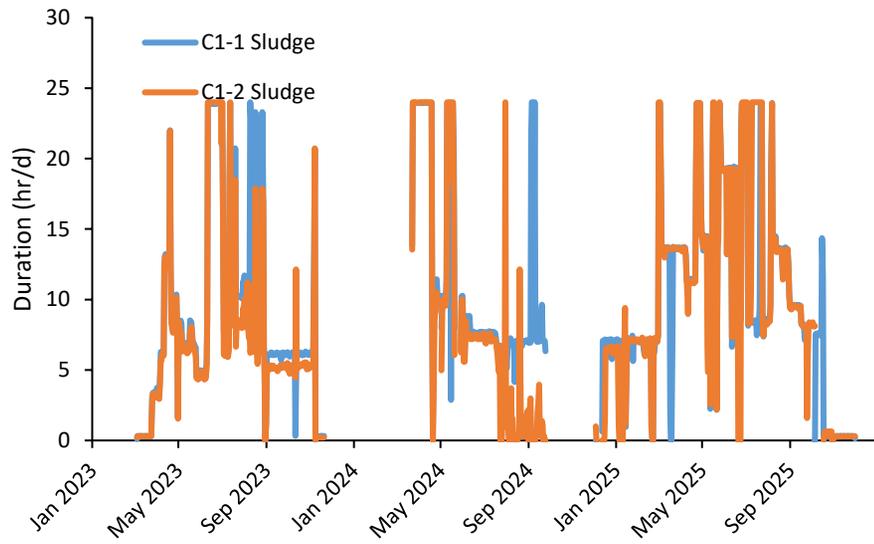


Figure C.3. Duration, frequency, interval and average event duration from Plant 1 sludge pumps to wastestream 5 at Rossdale, 2023 - 2025.

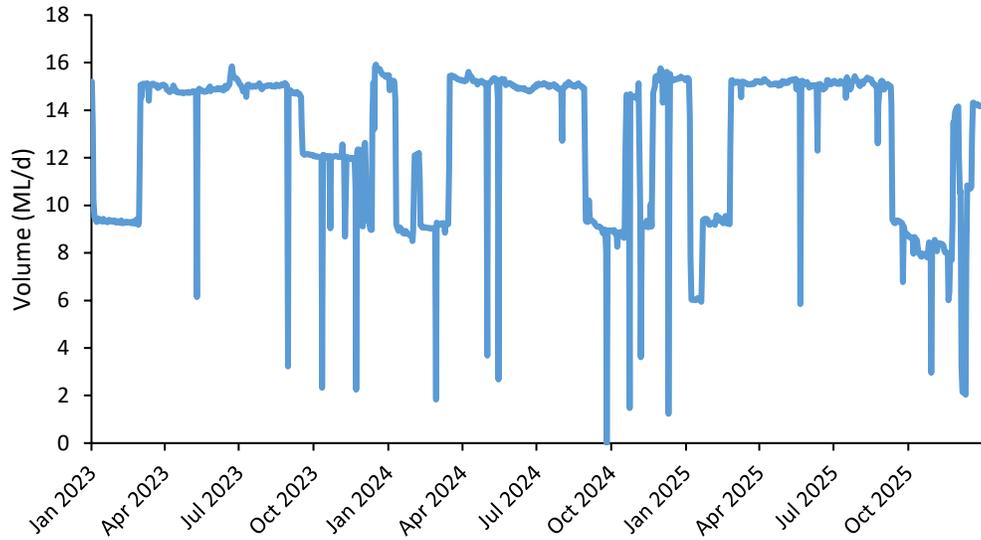


Figure C.4. Total daily volume released from the low lift pumphouse to wastestream 5 at Rossdale, 2023 - 2025.

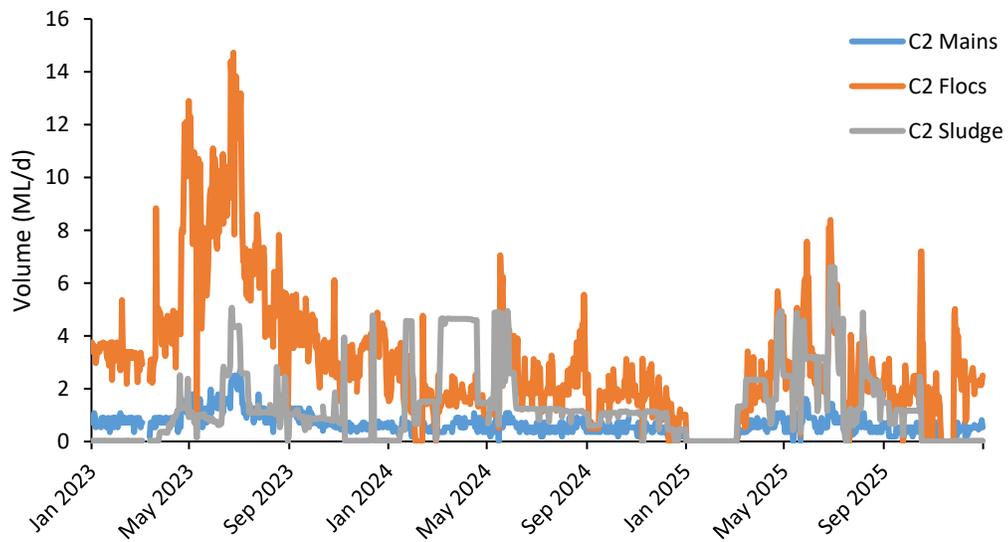


Figure C.5. Total daily volume released from Plant 2 discharges to wastestream 6 at Rossdale, 2023 - 2025.

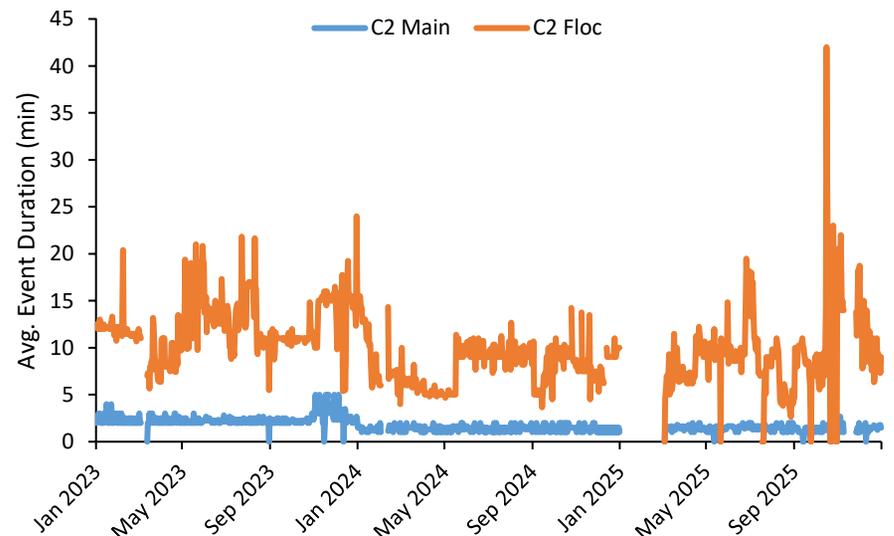
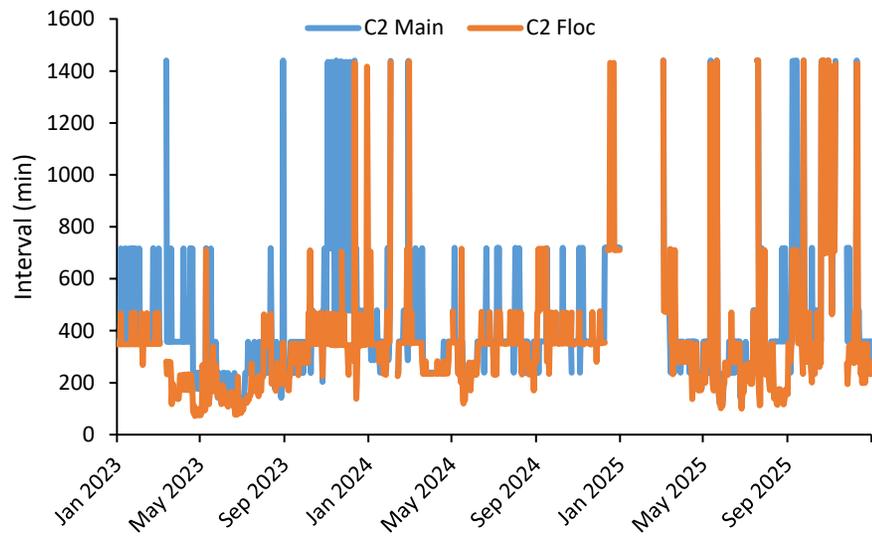
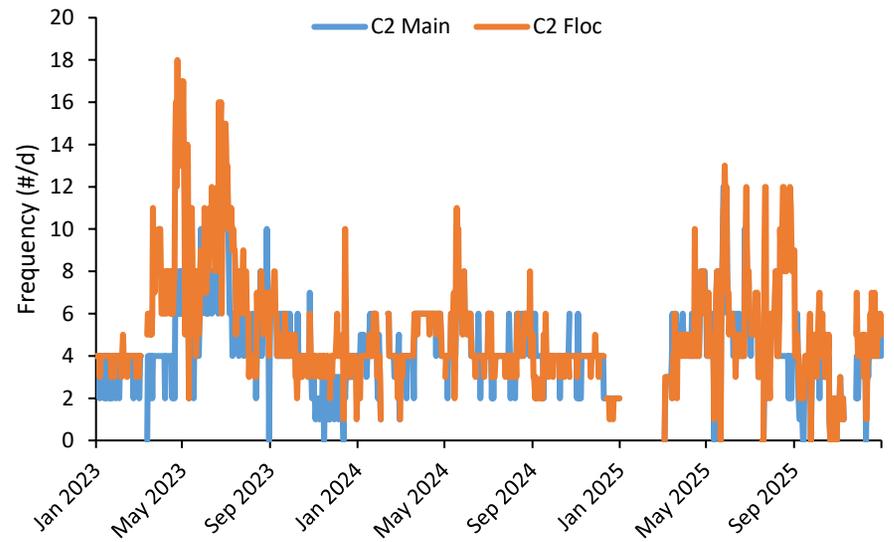
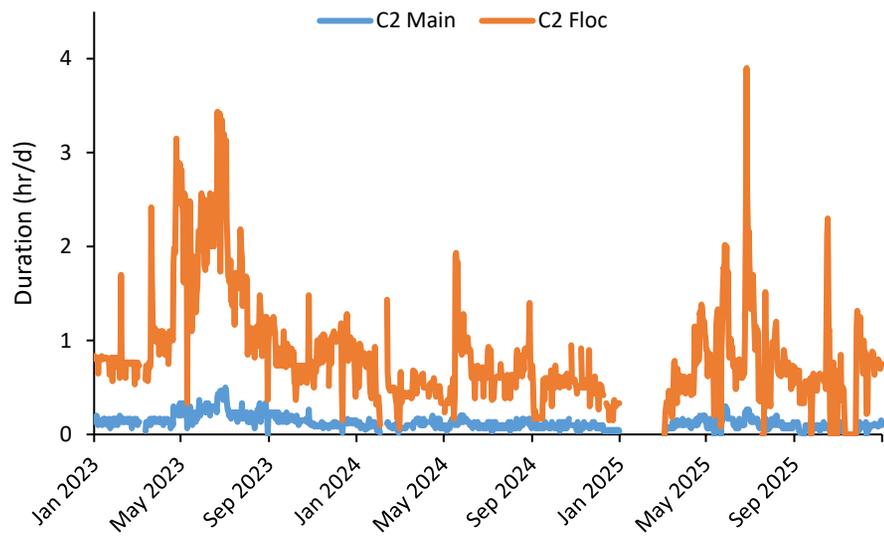


Figure C.6. Duration, frequency, interval and average event duration from Plant 2 main drains and floc drains to wastestream 6 at Rossdale, 2023 - 2025.

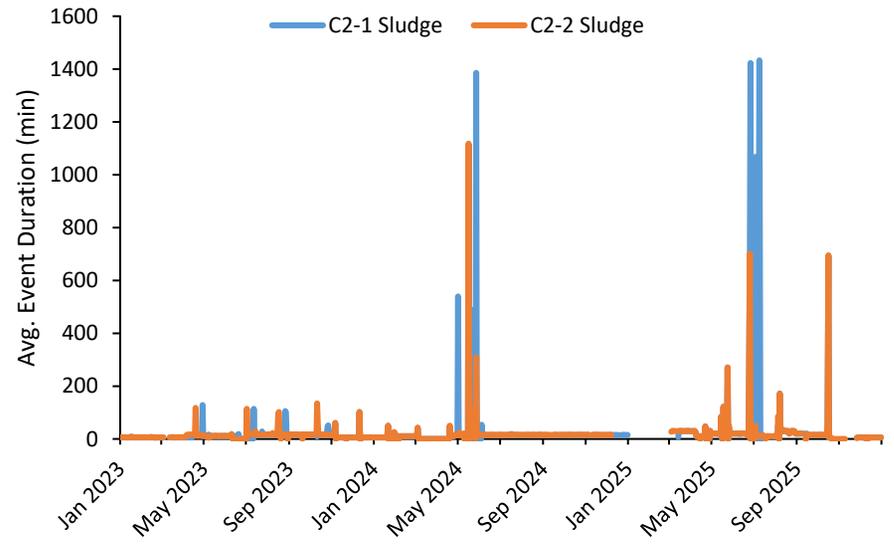
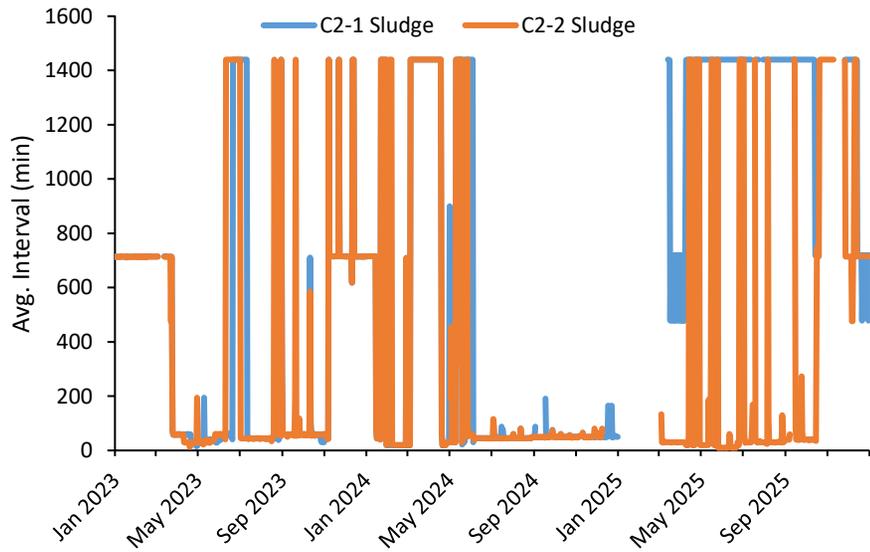
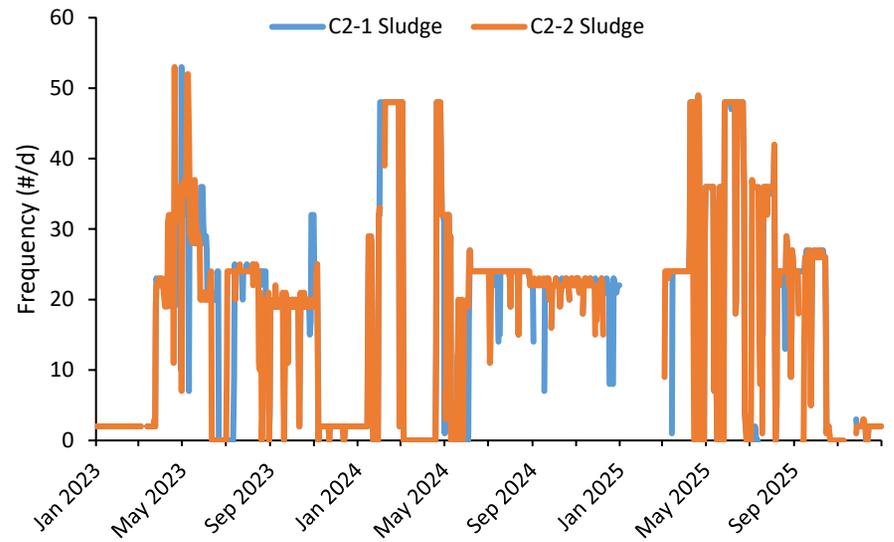
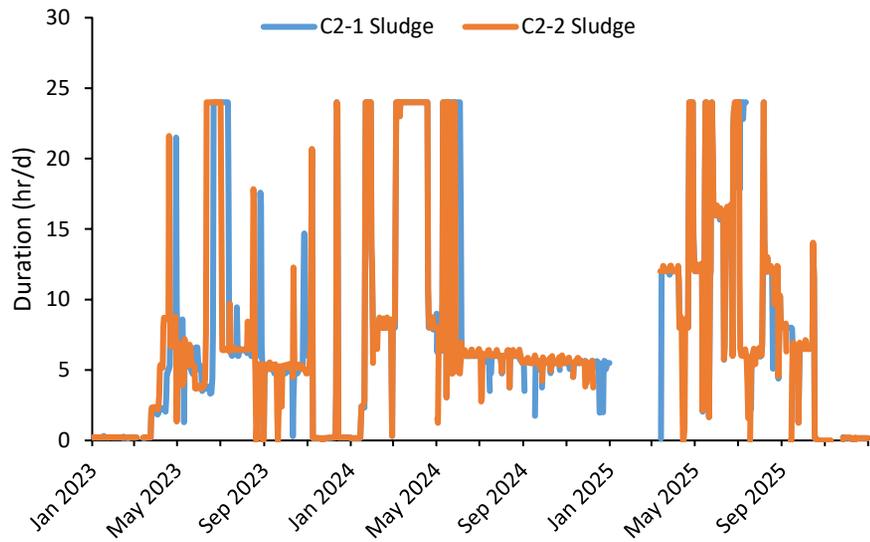


Figure C.7. Duration, frequency, interval and average event duration from Plant 2 sludge pumps to wastestream 6 at Rosssdale, 2023 - 2025.

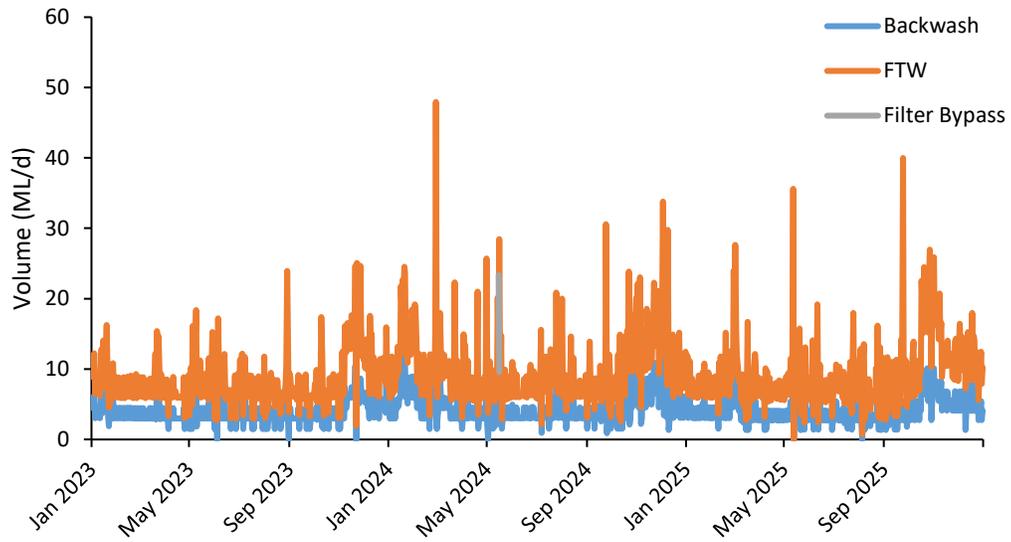


Figure C.8. Total daily volume released from filter backwashes and filter-to-waste to wastestream 3 at Rosedale, 2023 - 2025.

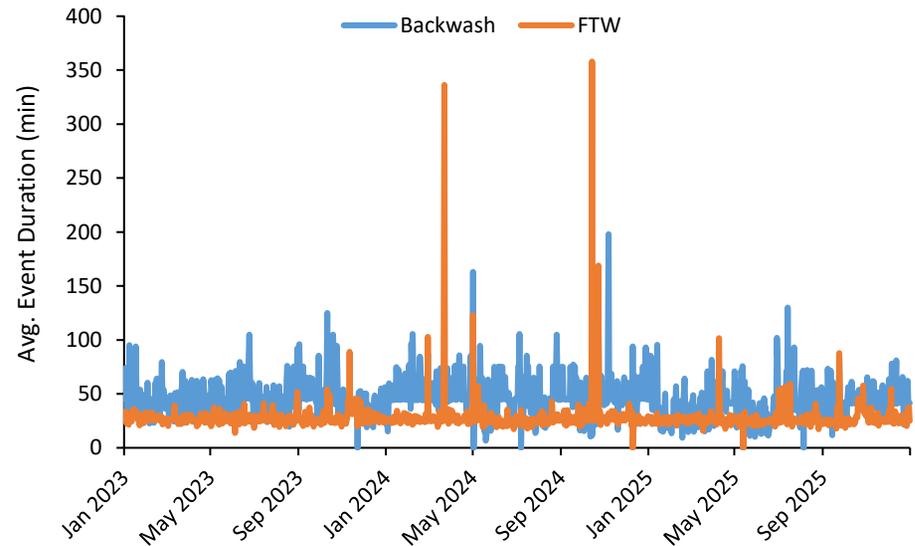
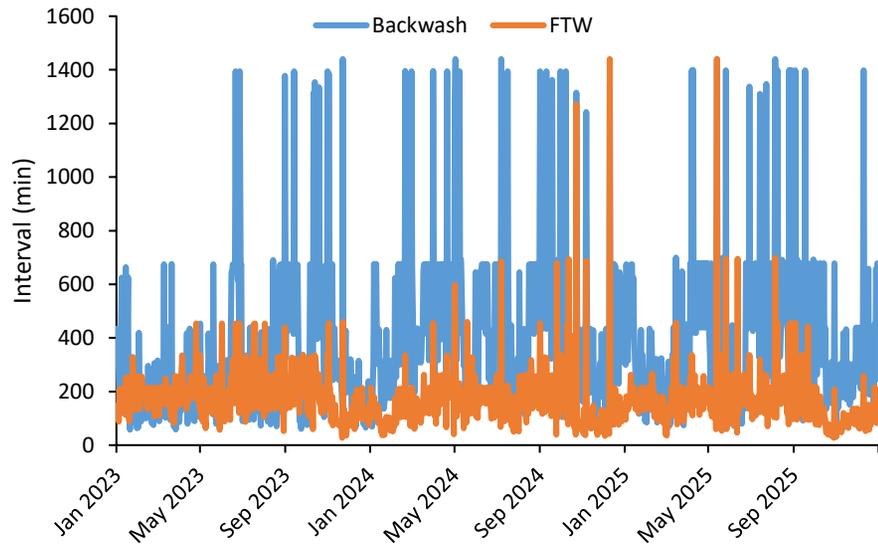
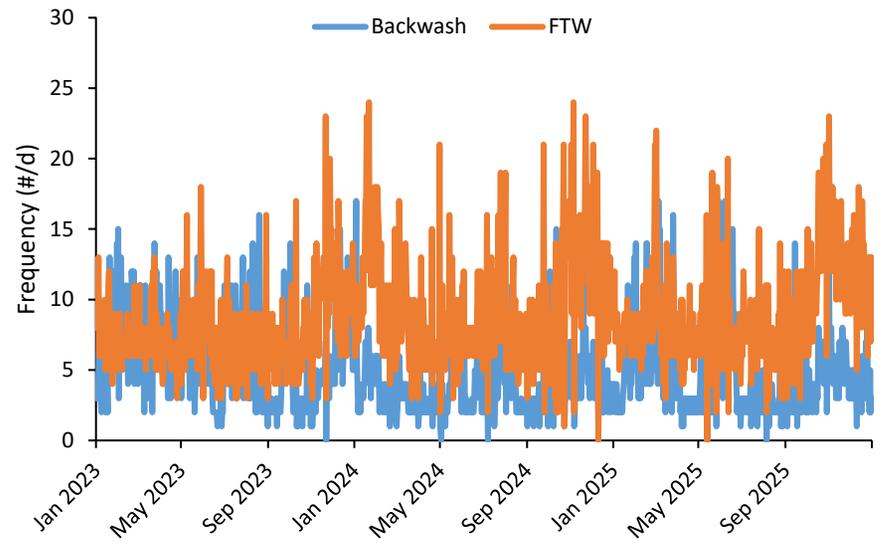
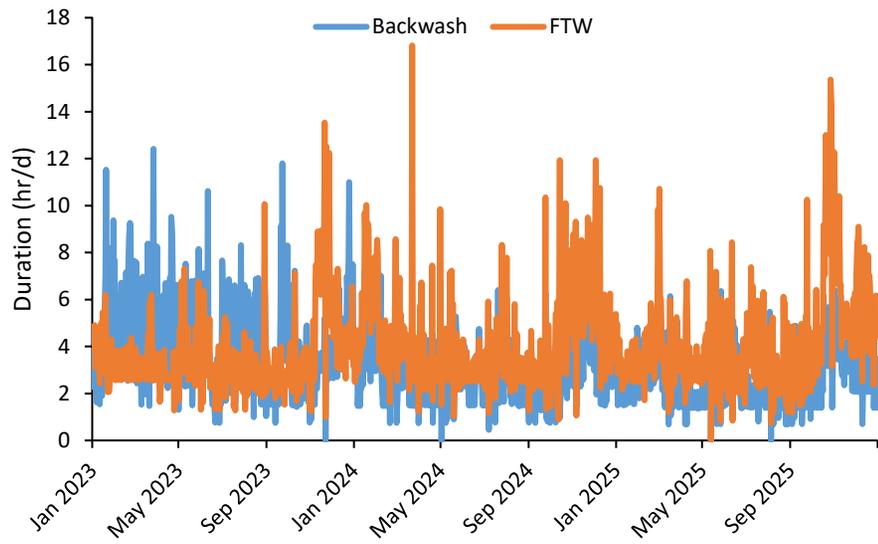


Figure C.9. Duration, frequency, interval and average event duration from filter backwashes and filter-to-waste to wastestream 3 at Rosedale, 2023 - 2025.

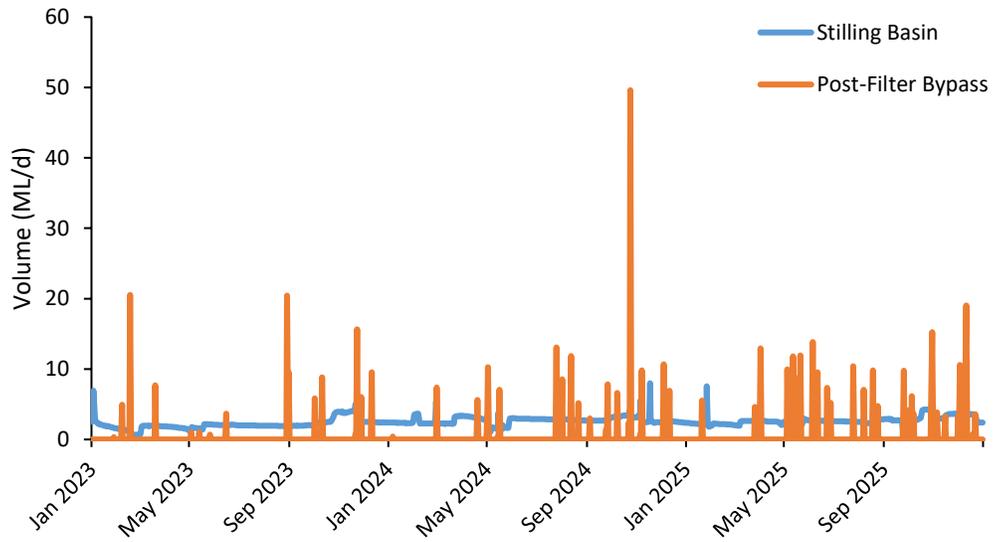


Figure C.10. Total daily volumes from stilling basins and bypasses released to wastestream 7 at Rosedale, 2023 - 2025.

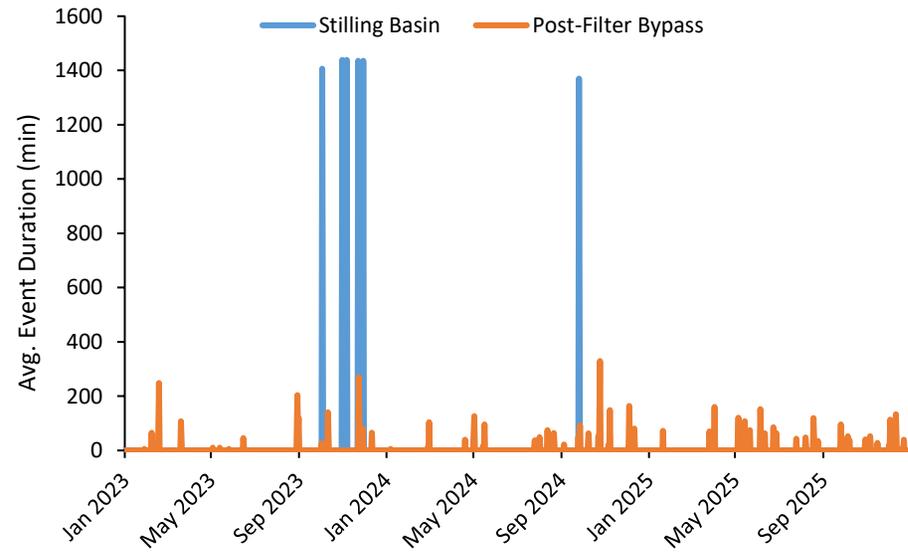
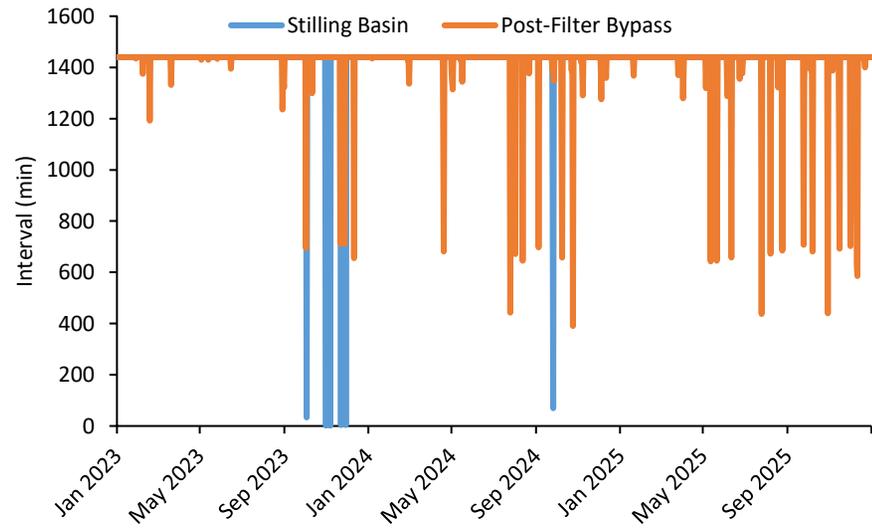
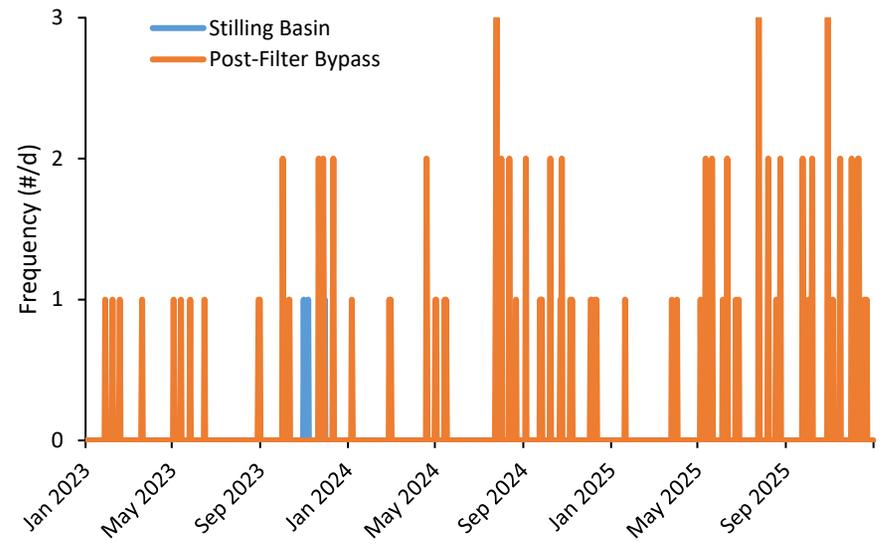
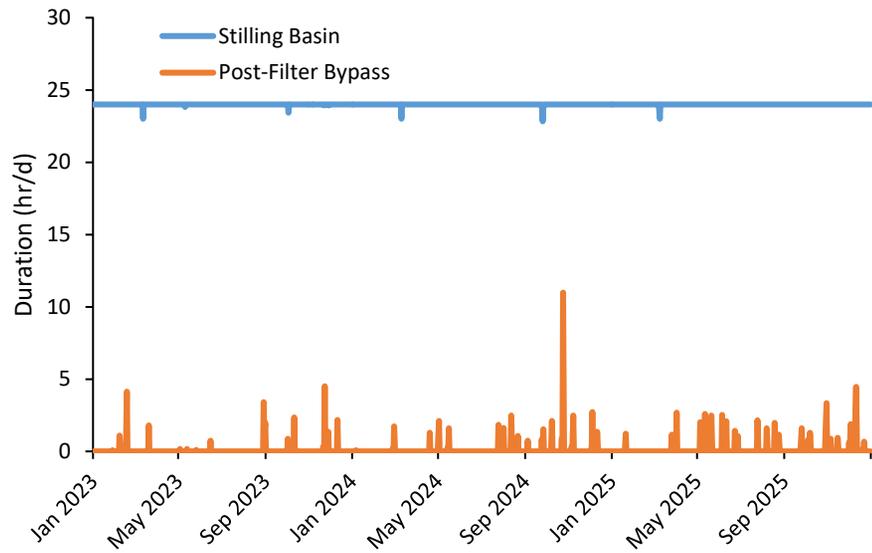


Figure C.11. Duration, frequency, interval and average event duration from stilling basins and bypasses released to wastestream 7 at Rossdale, 2023 - 2025.

Appendix D – Water Quality Graphs

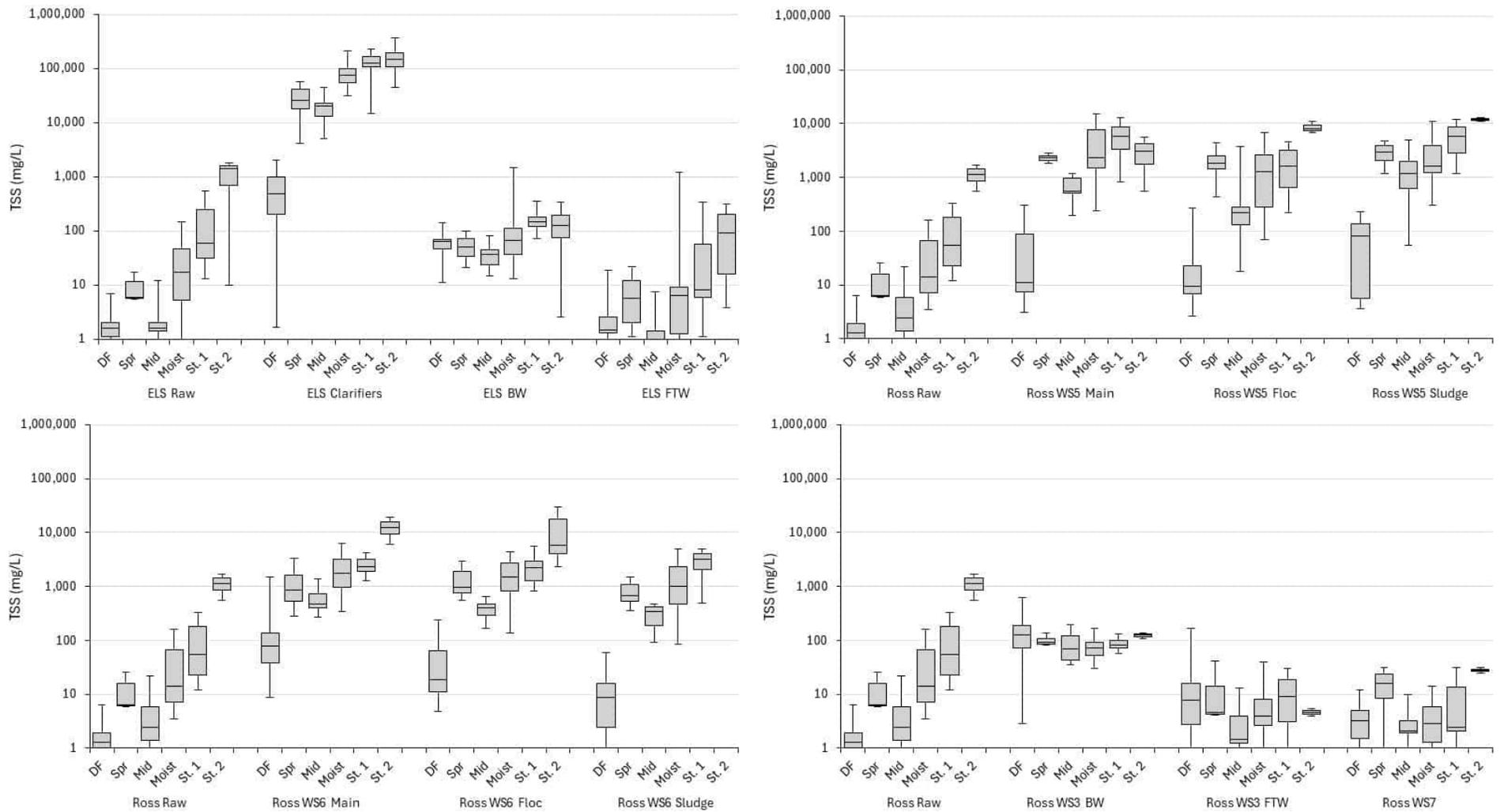


Figure D.1. Concentrations of total suspended solids from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

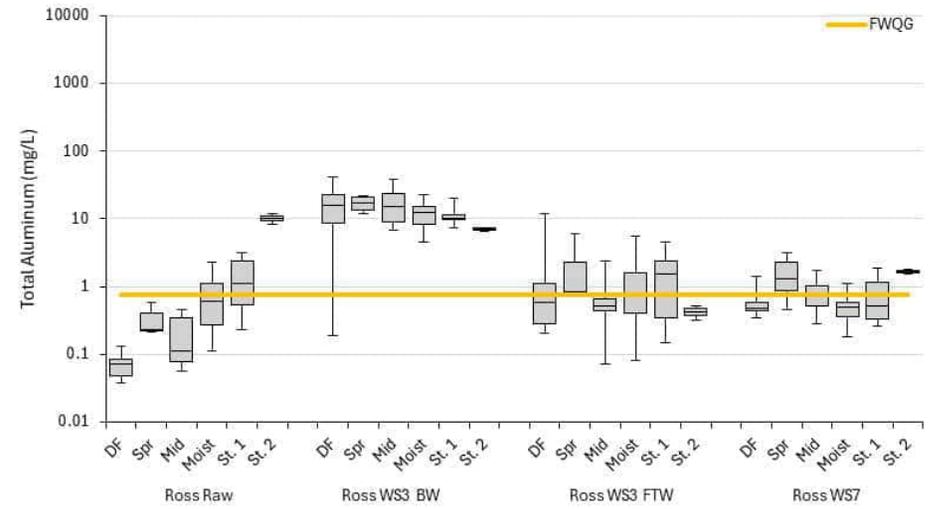
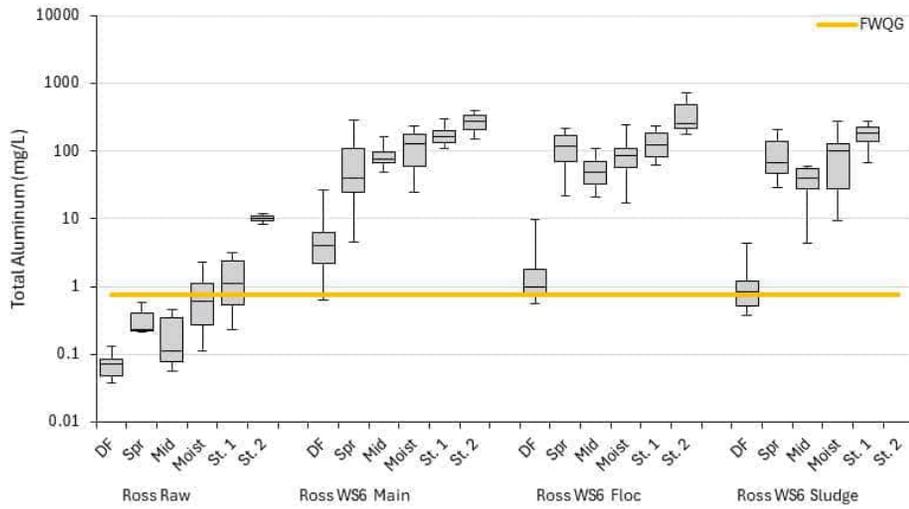
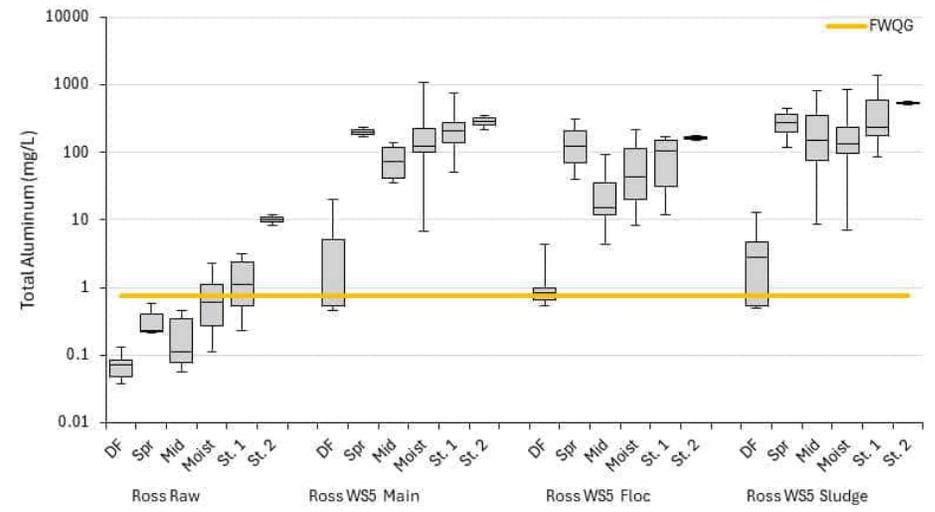
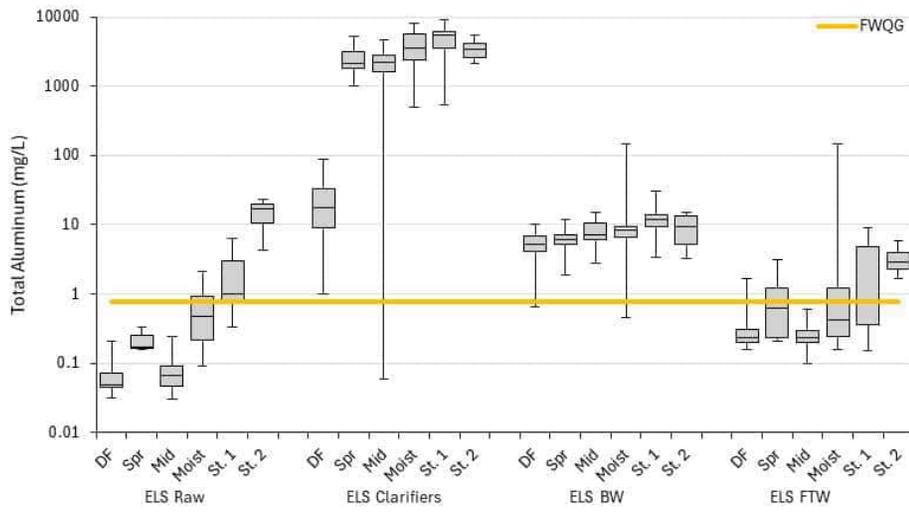


Figure D.2. Concentrations of total aluminum from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

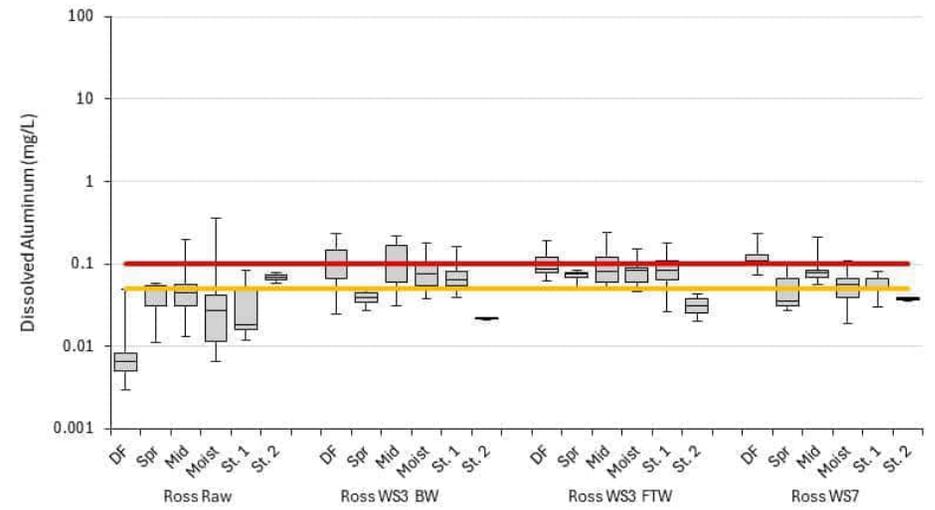
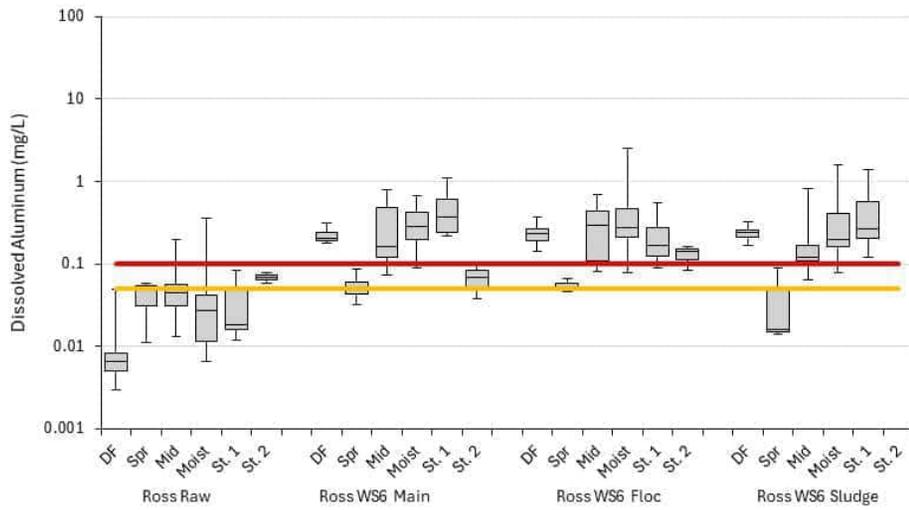
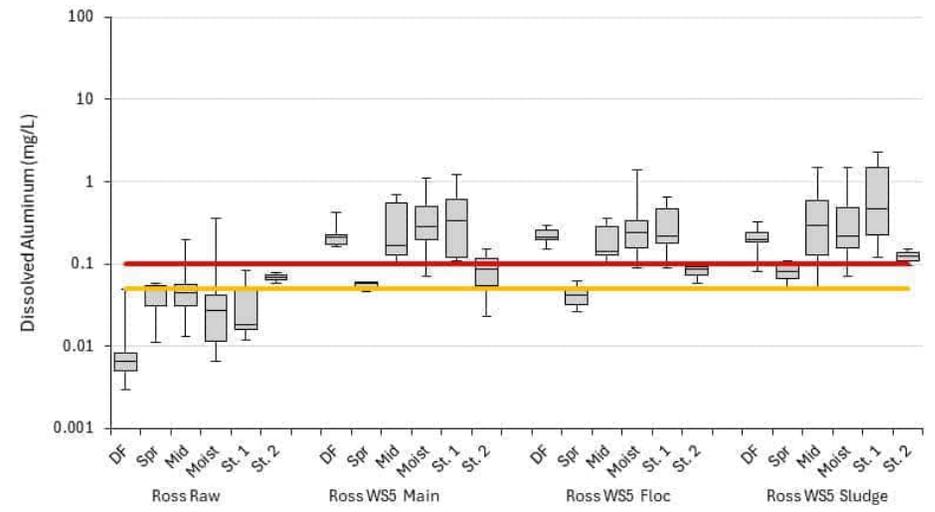
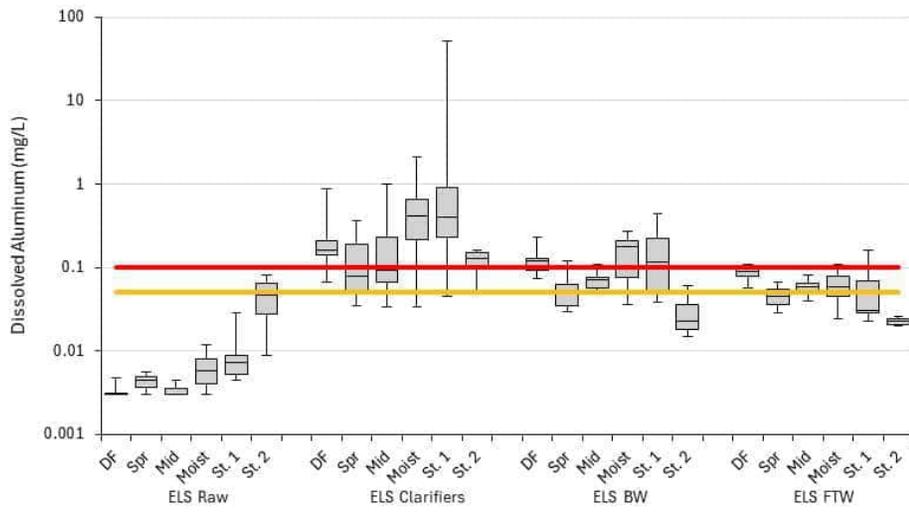


Figure D.3. Concentrations of dissolved aluminum from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

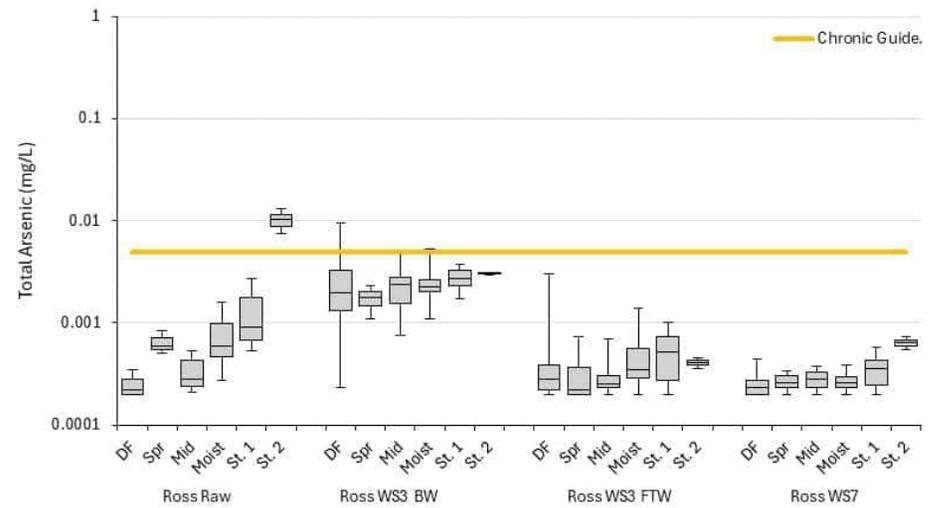
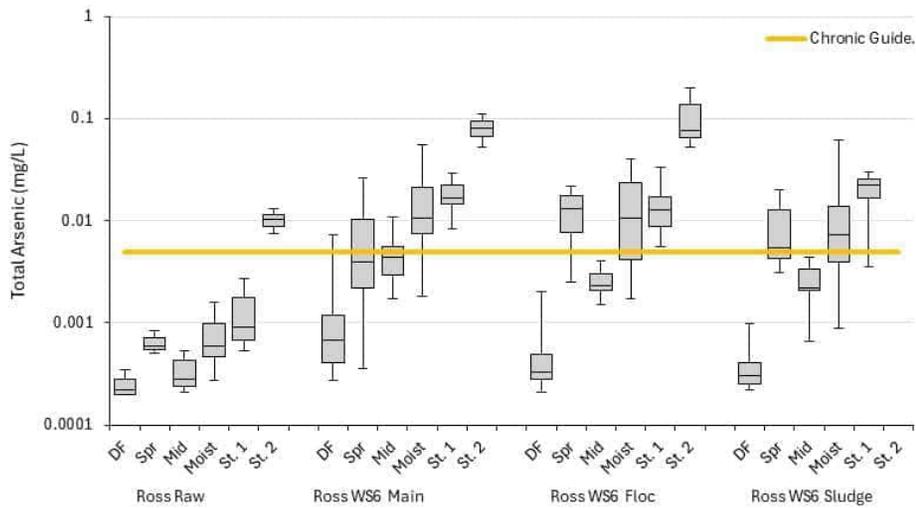
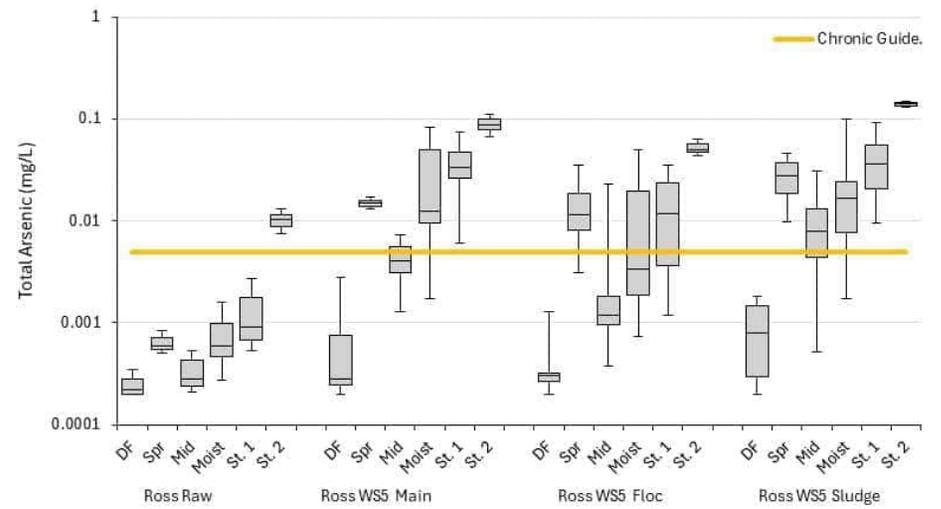
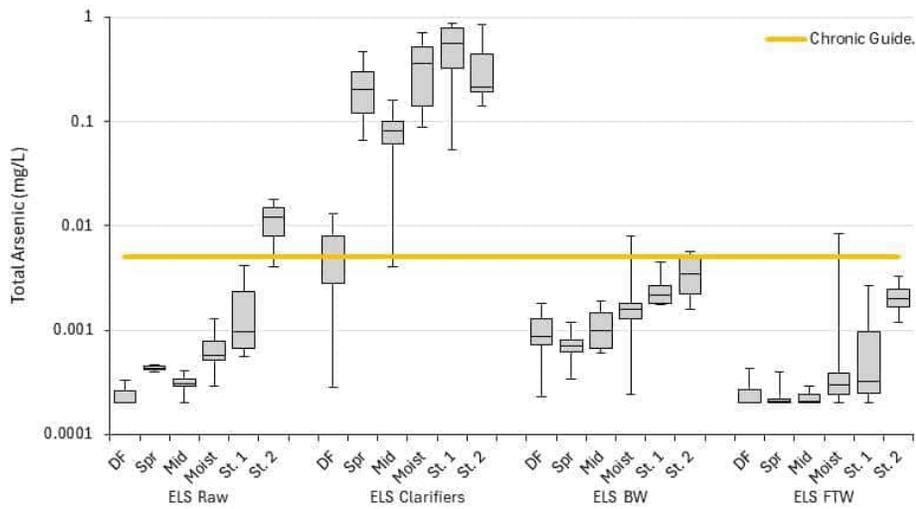


Figure D.4. Concentrations of total arsenic from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

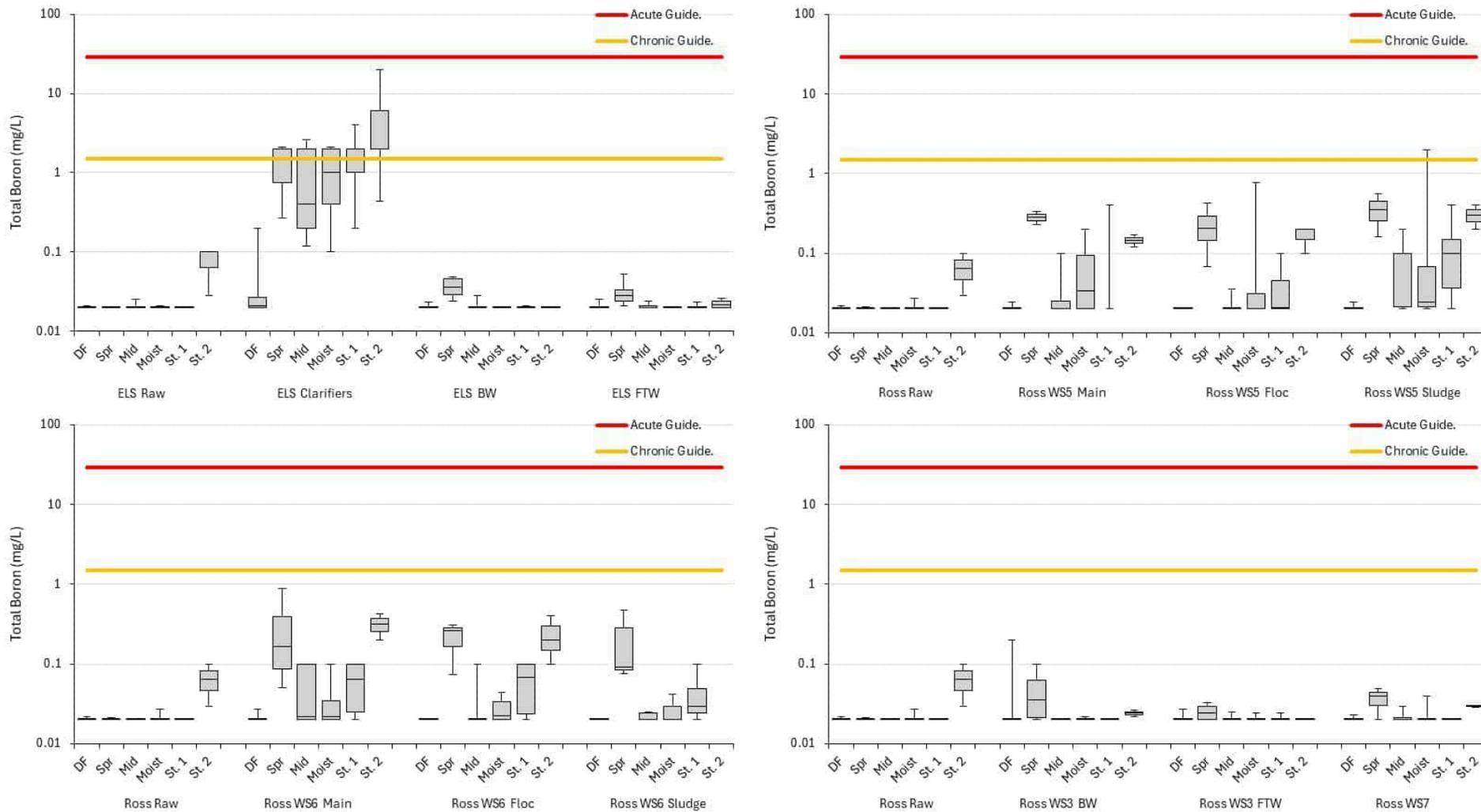


Figure D.5. Concentrations of total boron from raw water and wastestream samples, 2023 - 2025.

Note, Of the 42 samples with concentrations above the guideline, 37 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

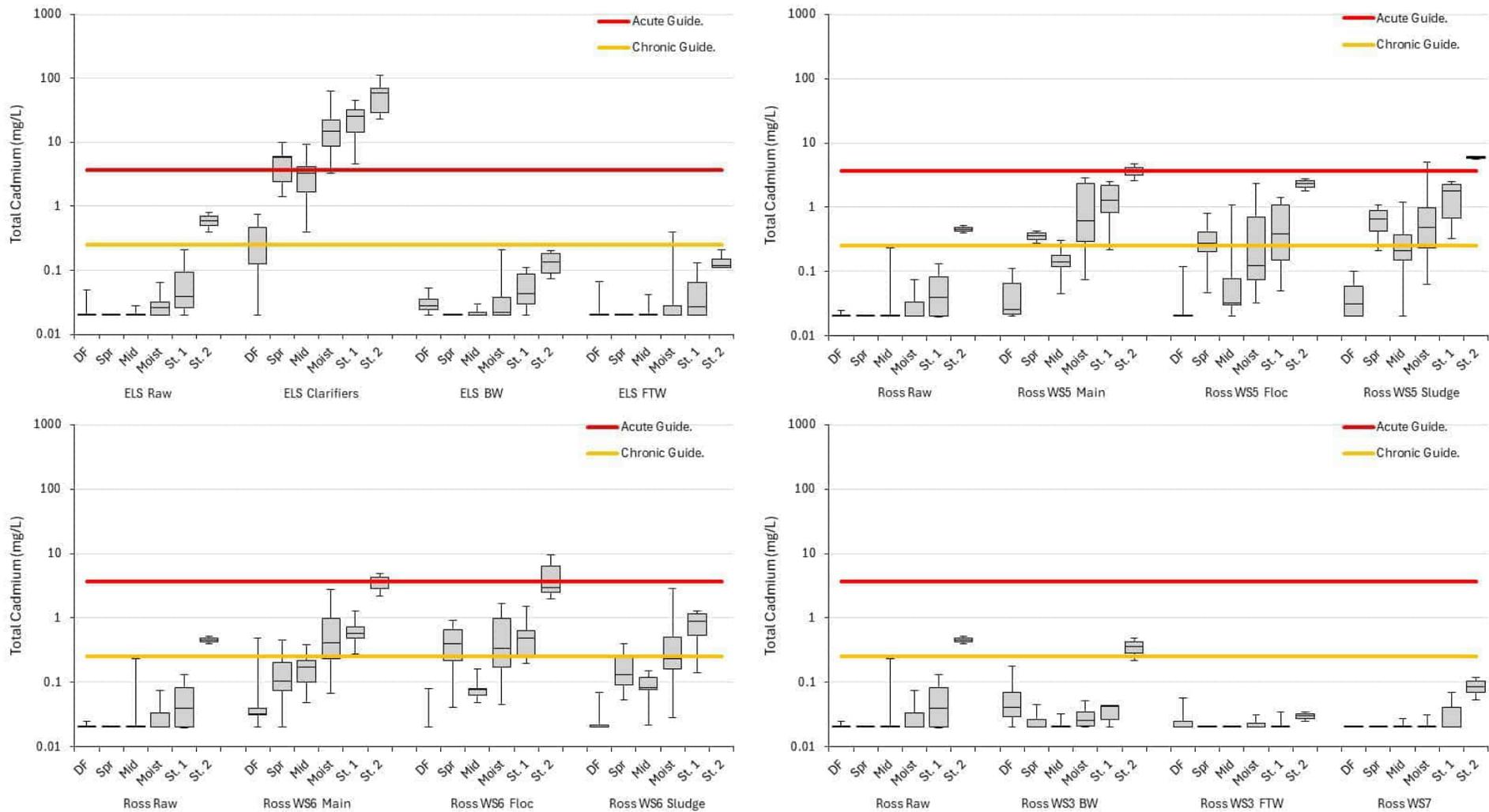


Figure D.6. Concentrations of total cadmium from raw water and wastestream samples, 2023 - 2025.

Note, Of the 222 samples with concentrations above the guideline, 4 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

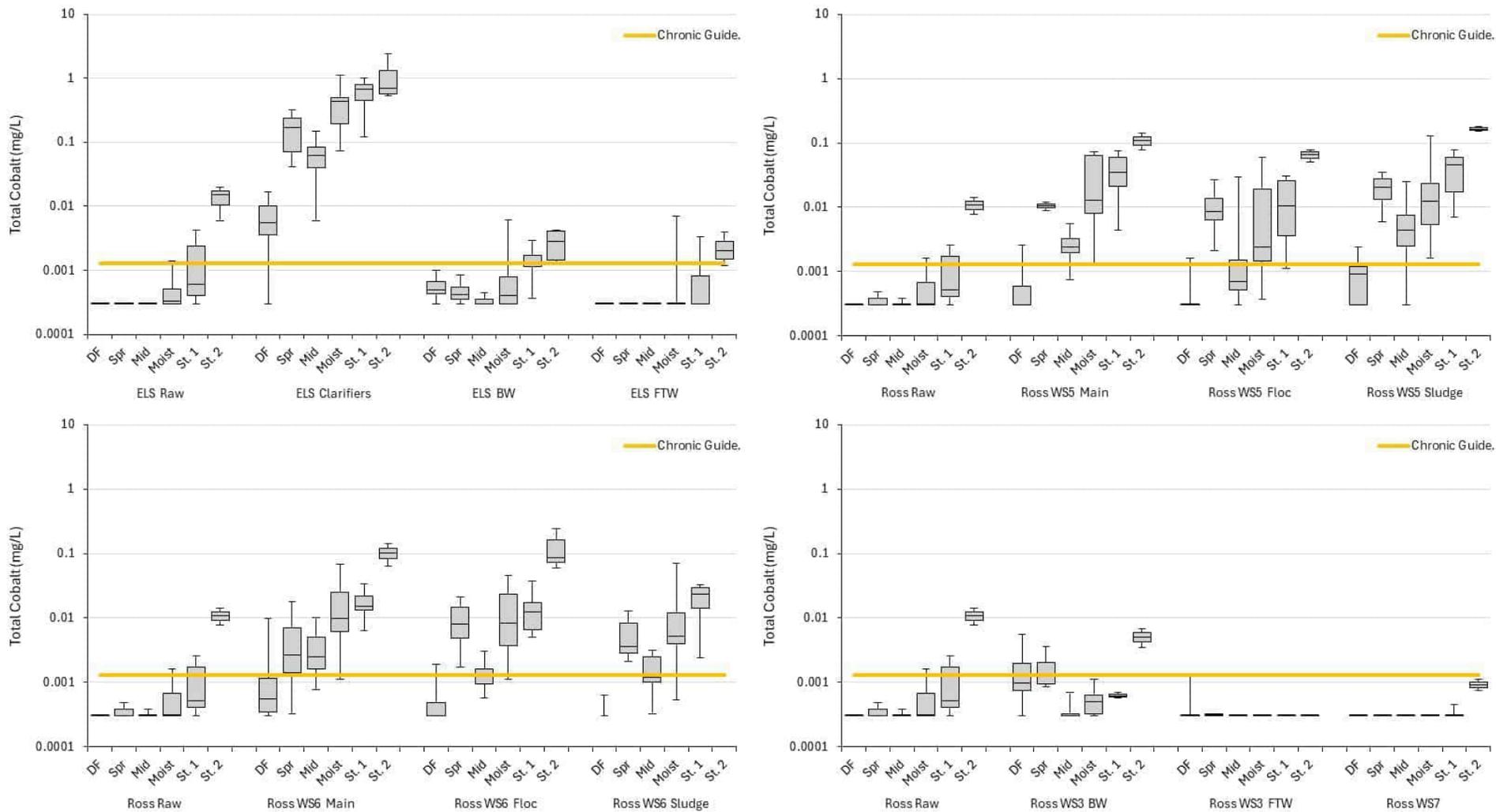


Figure D.7. Concentrations of total cobalt from raw water and wastestream samples, 2023 - 2025.

Note, Of the 330 samples with concentrations above the guideline, 2 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

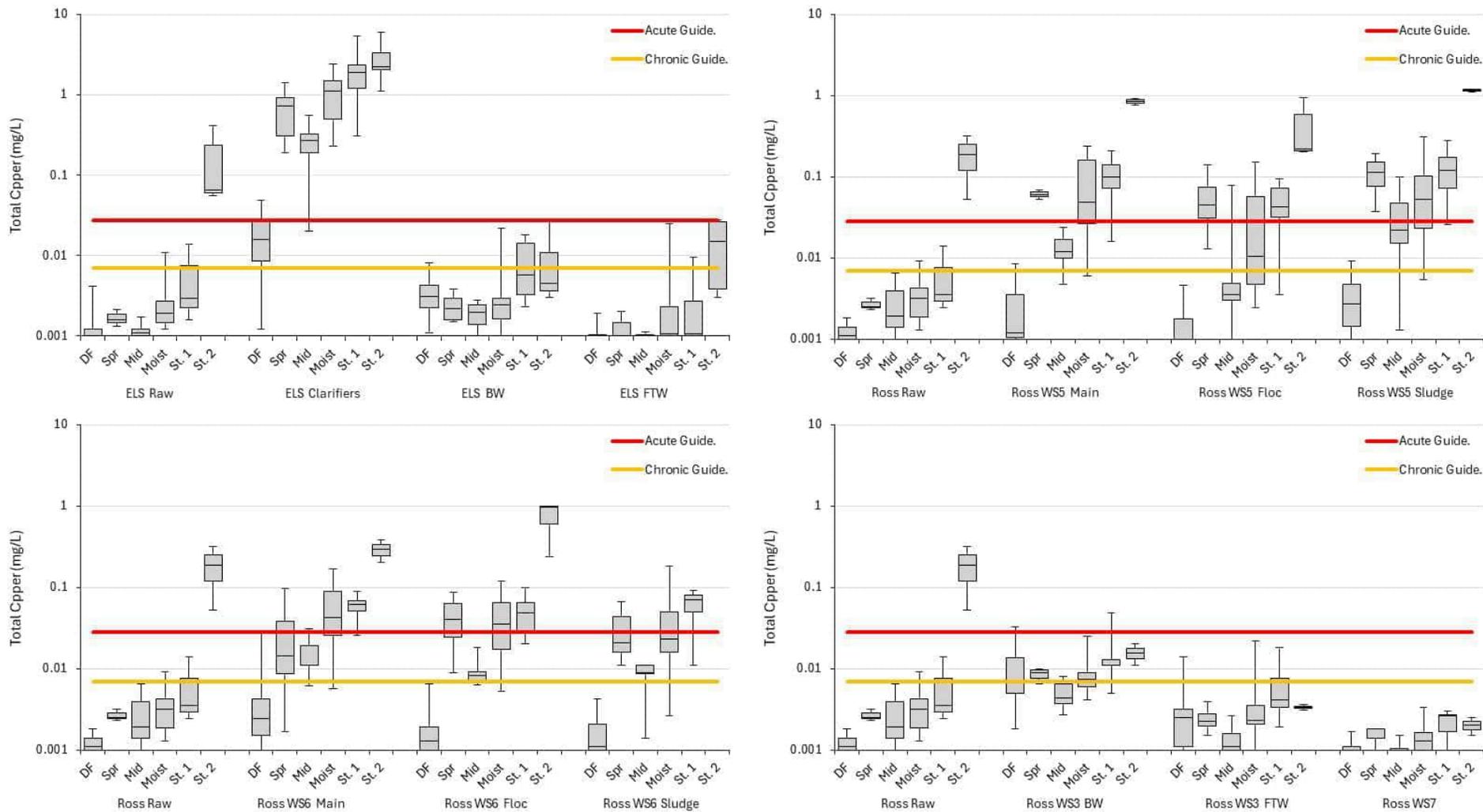


Figure D.8. Concentrations of total copper from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

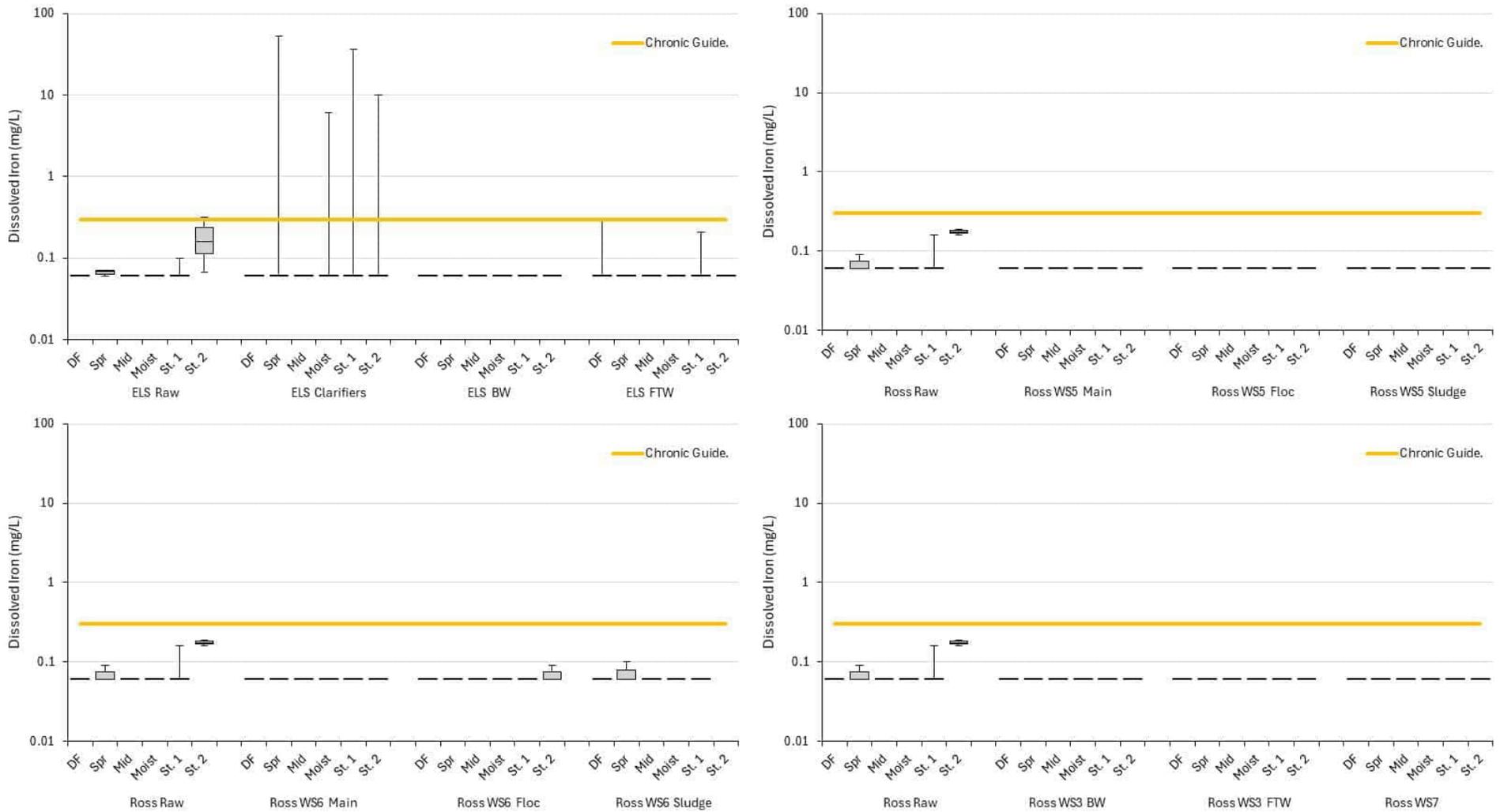


Figure D.9. Concentrations of dissolved iron from raw water and wastestream samples, 2023 - 2025.

Note, Of the 5 samples with concentrations above the guideline, 1 sample were reported as being below the detection limit.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

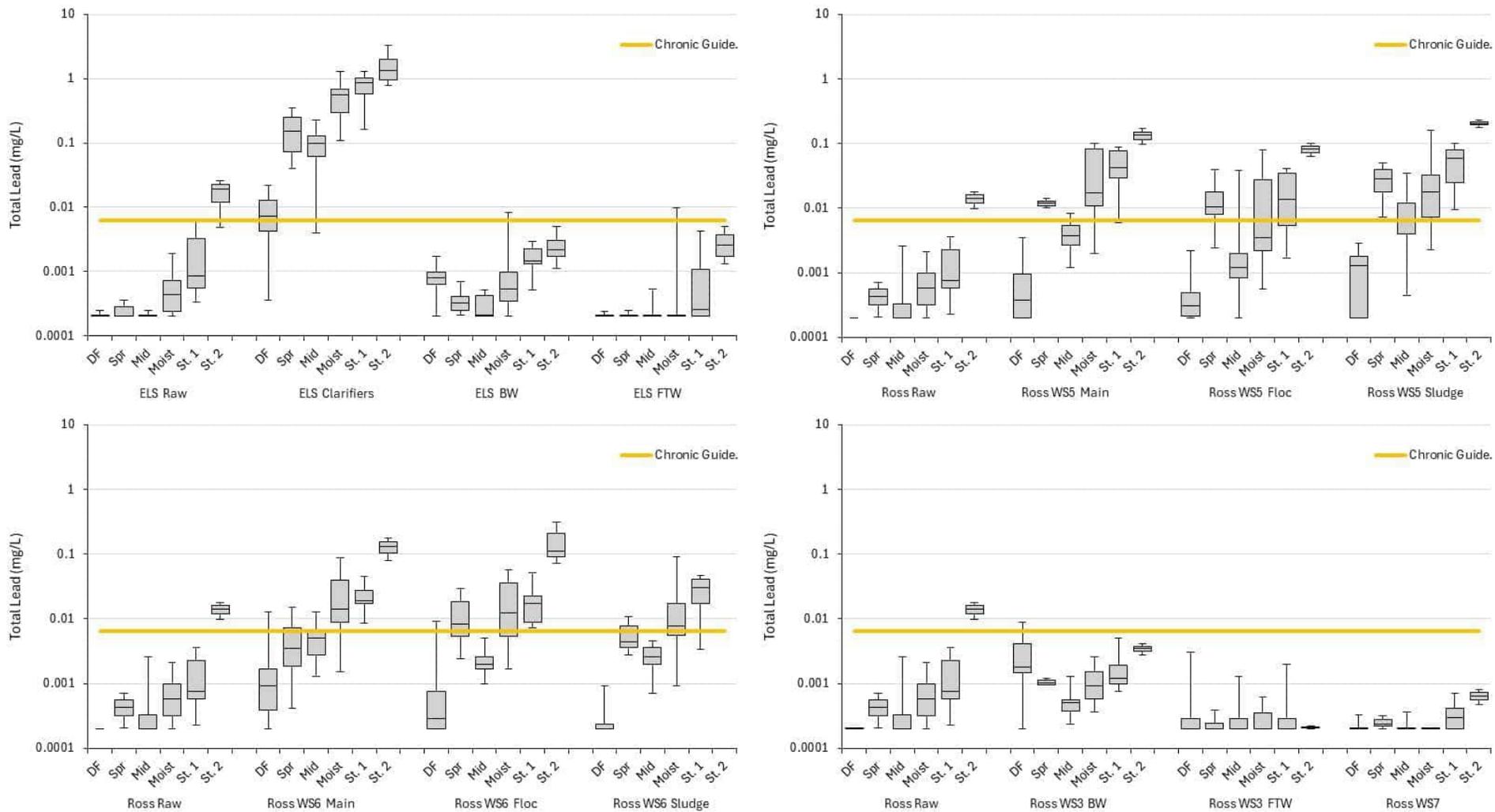


Figure D.10. Concentrations of total lead from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

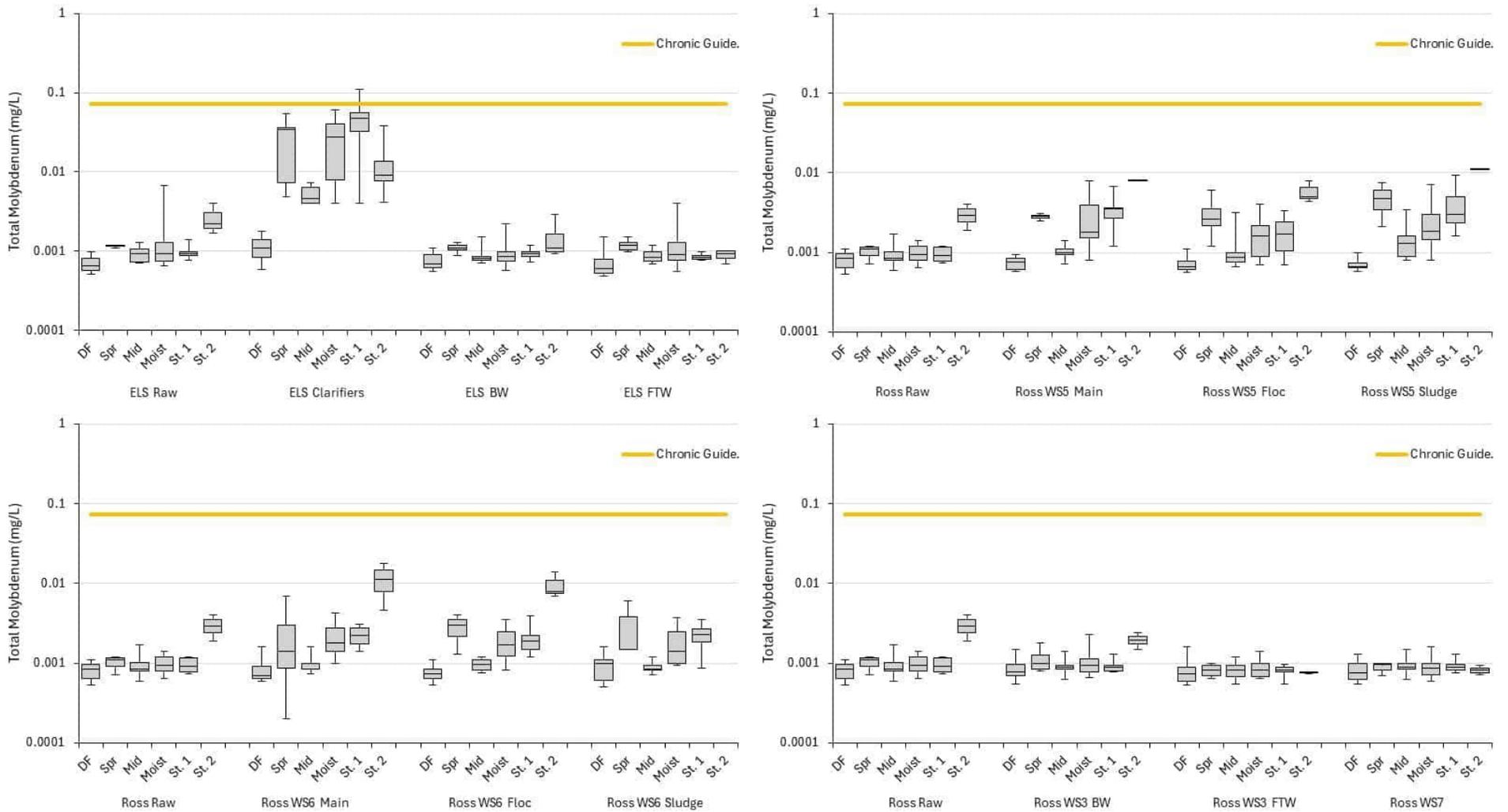


Figure D.11. Concentrations of total molybdenum from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

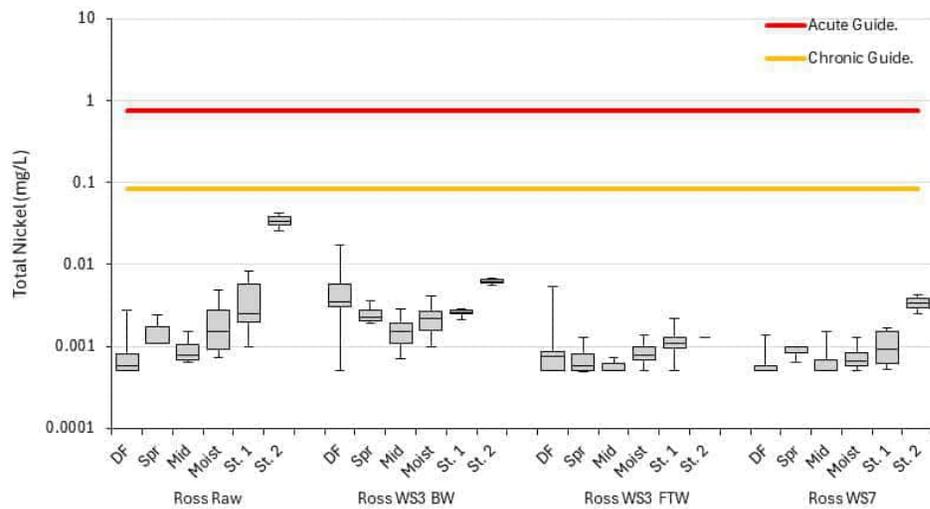
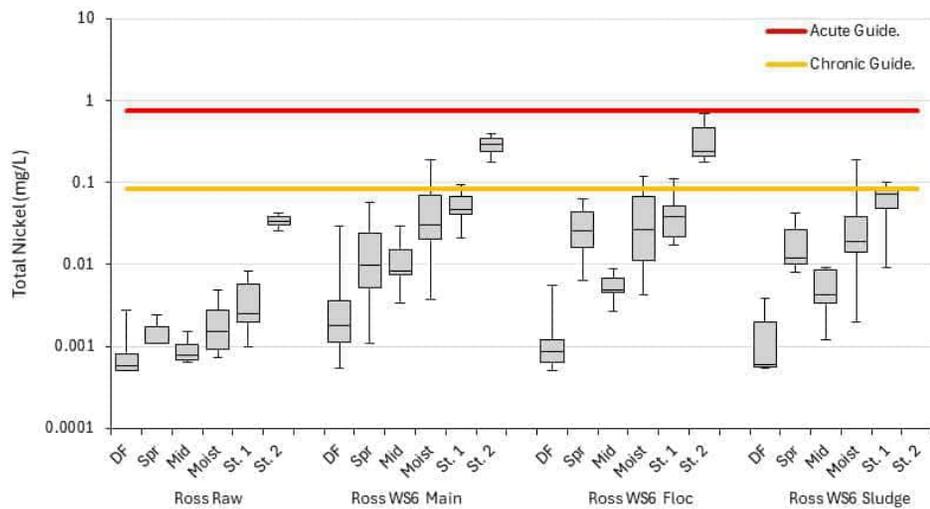
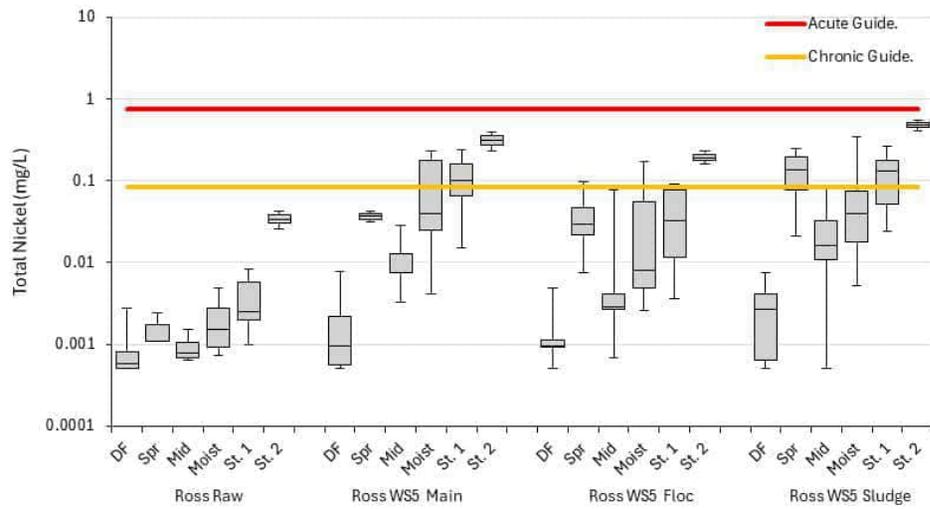
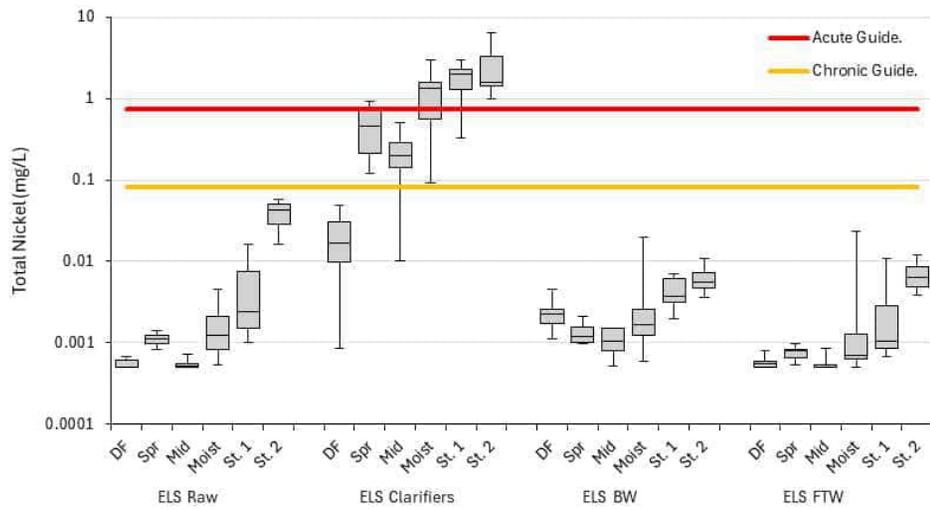


Figure D.12. Concentrations of total nickel from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

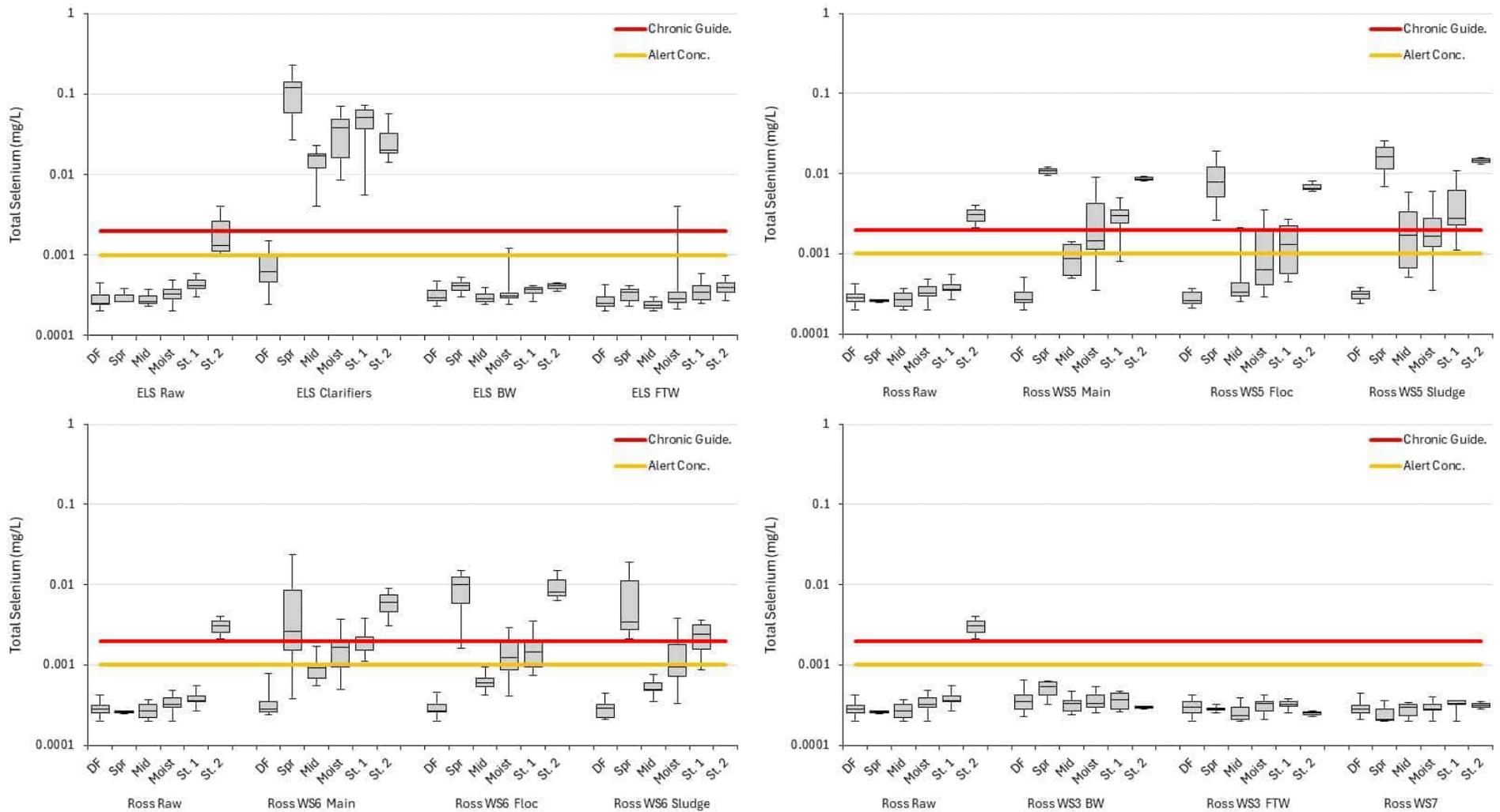


Figure D.13. Concentrations of total selenium from raw water and wastestream samples, 2023 - 2025.

Note, Of the 226 samples with concentrations above the guideline, 7 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

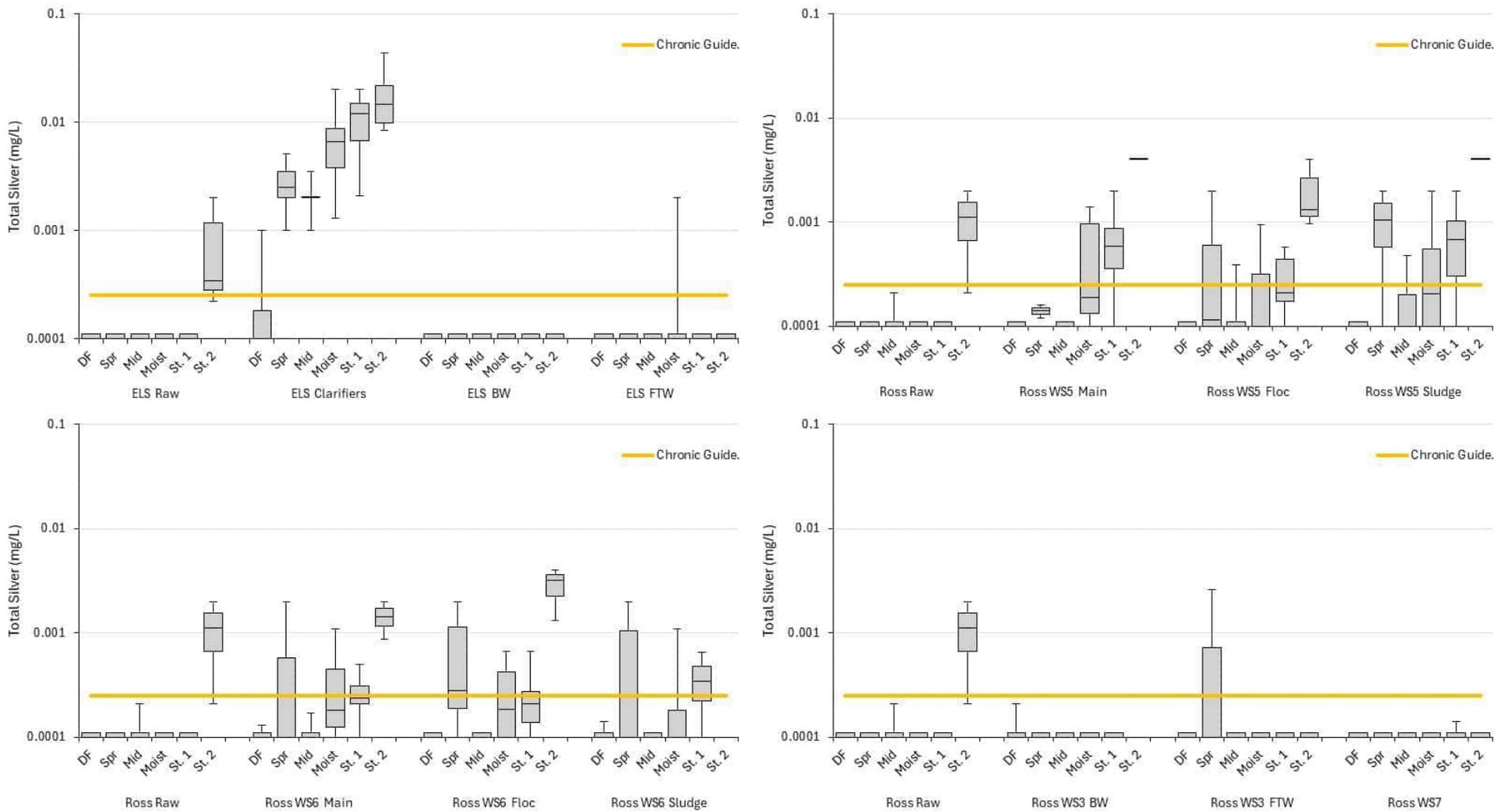


Figure D.14. Concentrations of total silver from raw water and wastestream samples, 2023 - 2025.

Note, Of the 167 samples with concentrations above the guideline, 44 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

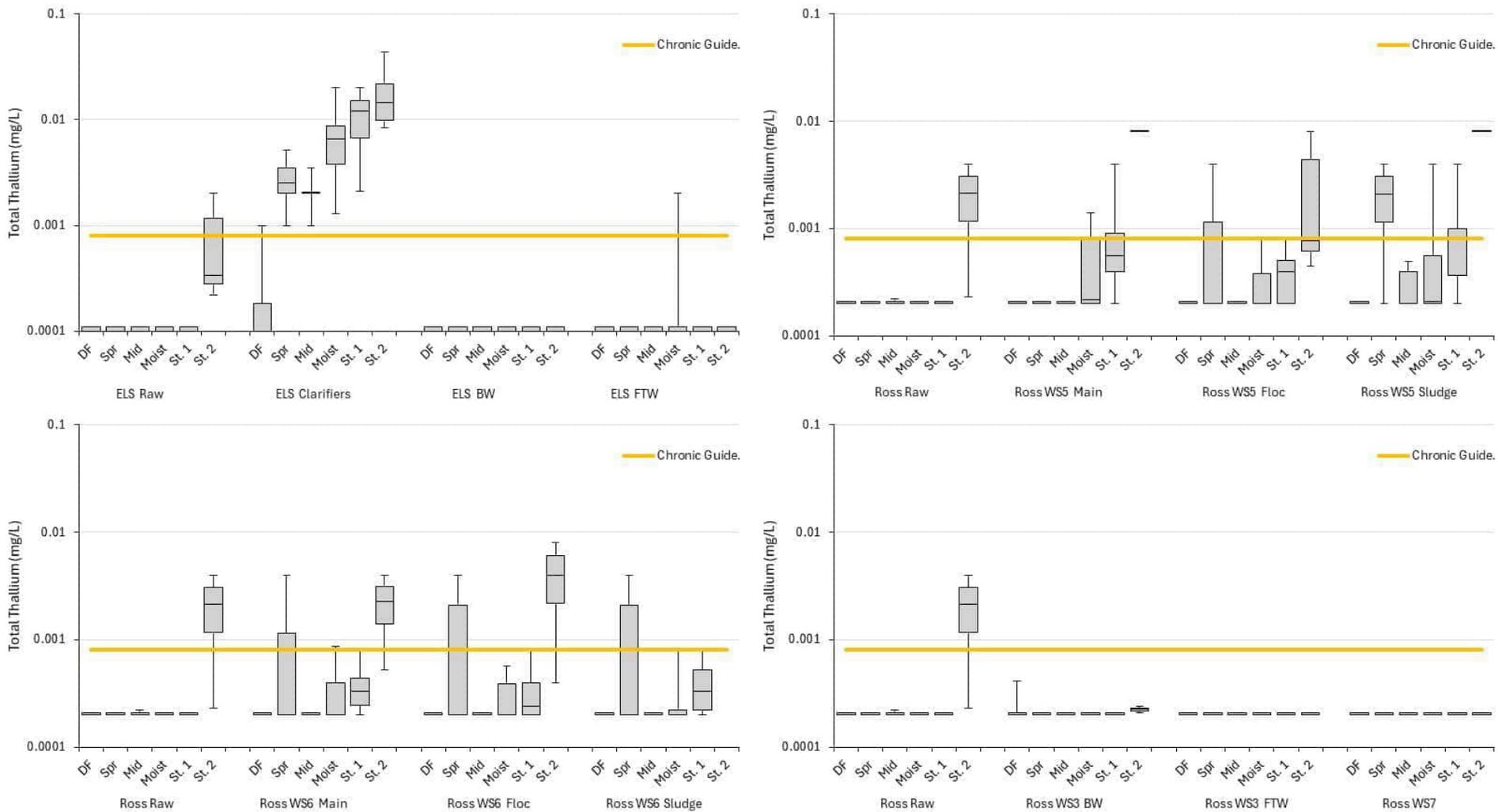


Figure D.15. Concentrations of total thallium from raw water and wastestream samples, 2023 - 2025.

Note, Of the 119 samples with concentrations above the guideline, 43 samples were reported as being below the detection limit. DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

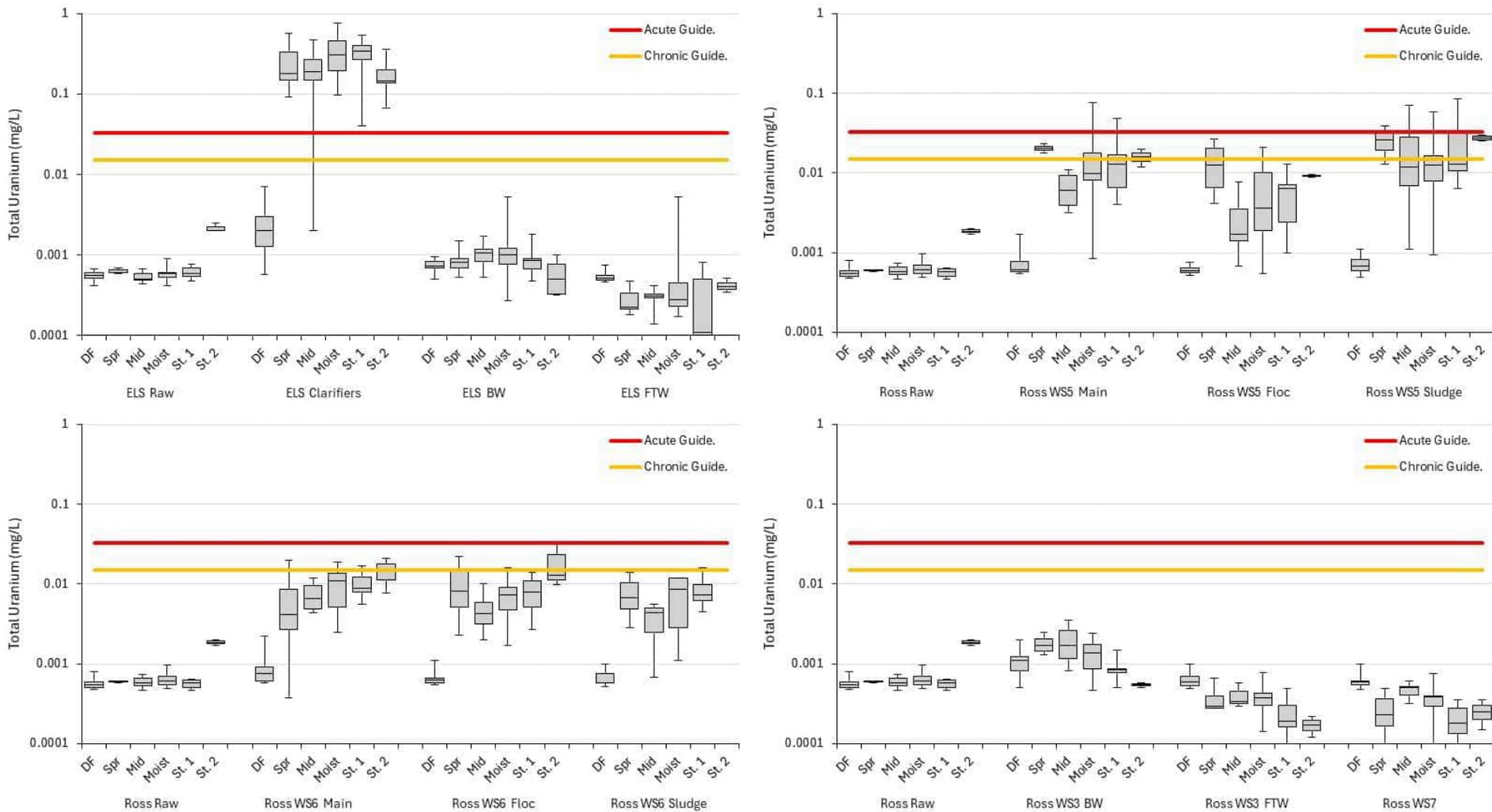


Figure D.16. Concentrations of total uranium from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

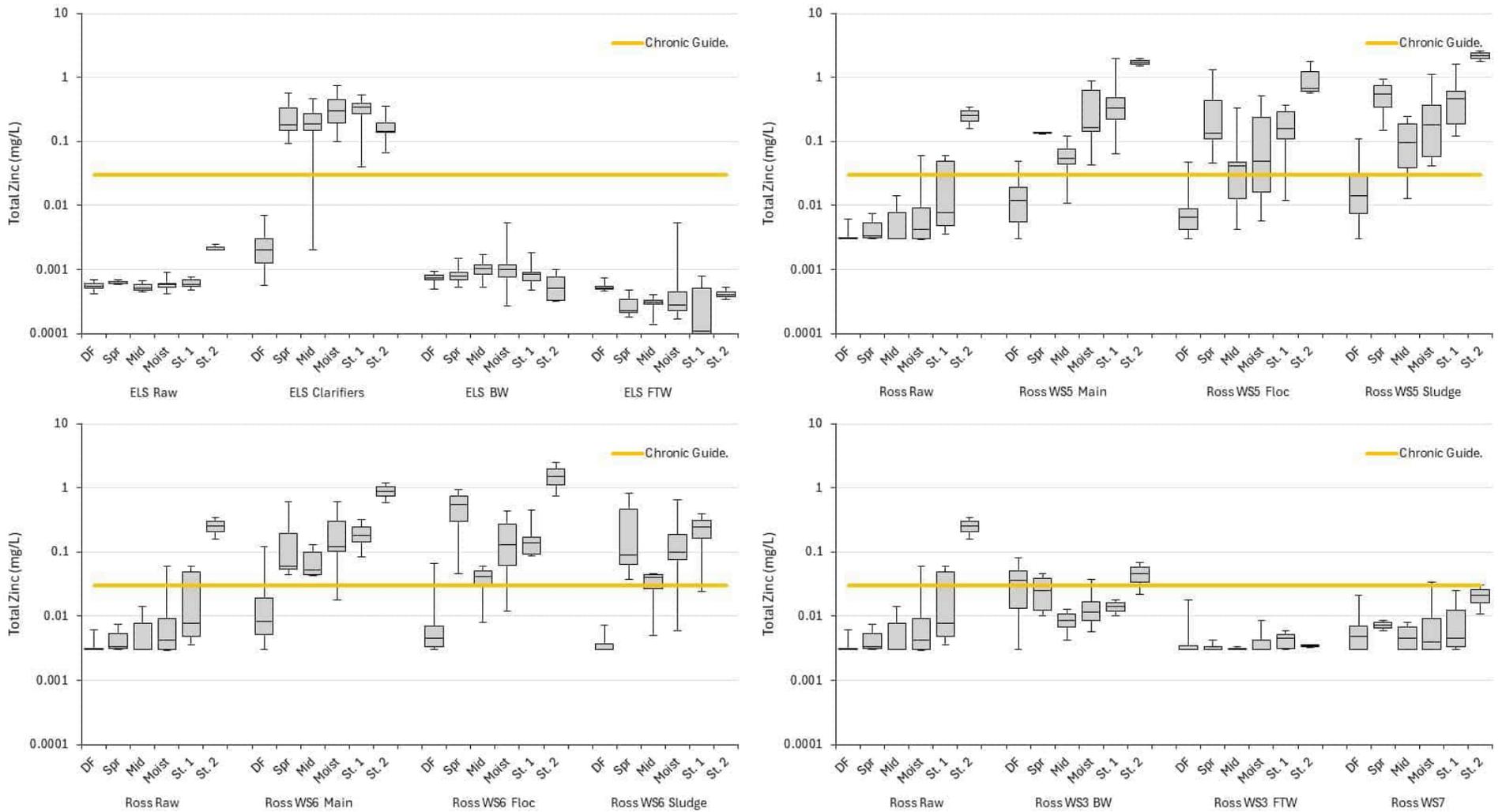


Figure D.17. Concentrations of total zinc from raw water and wastestream samples, 2023 - 2025.

DF = Direct filtration, Spr = Spring runoff, Mid = Midrange, St. 1 = Storm 1, St. 2 = Storm 2.

Appendix E – Edge of Mixing Zone and Time of Guideline Exceedance Graphs

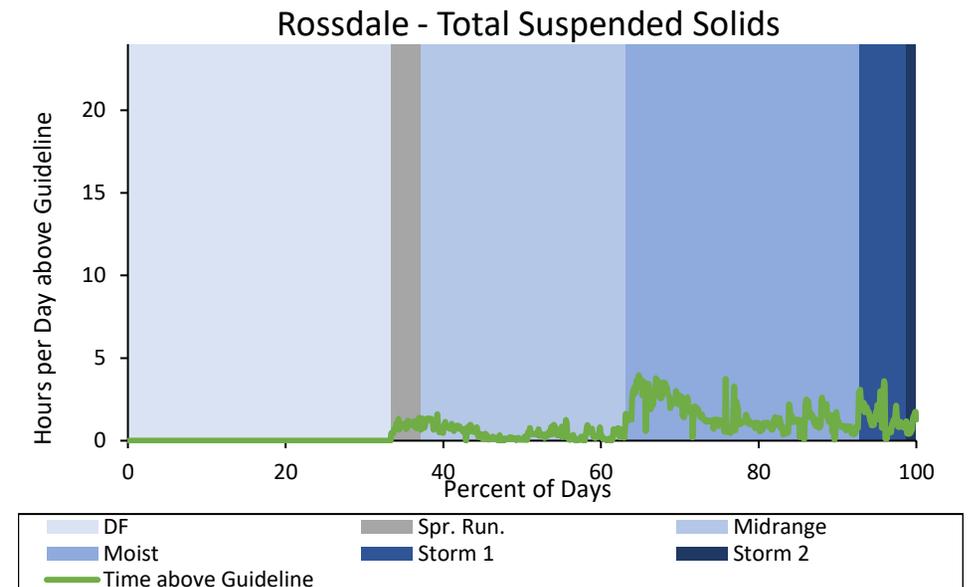
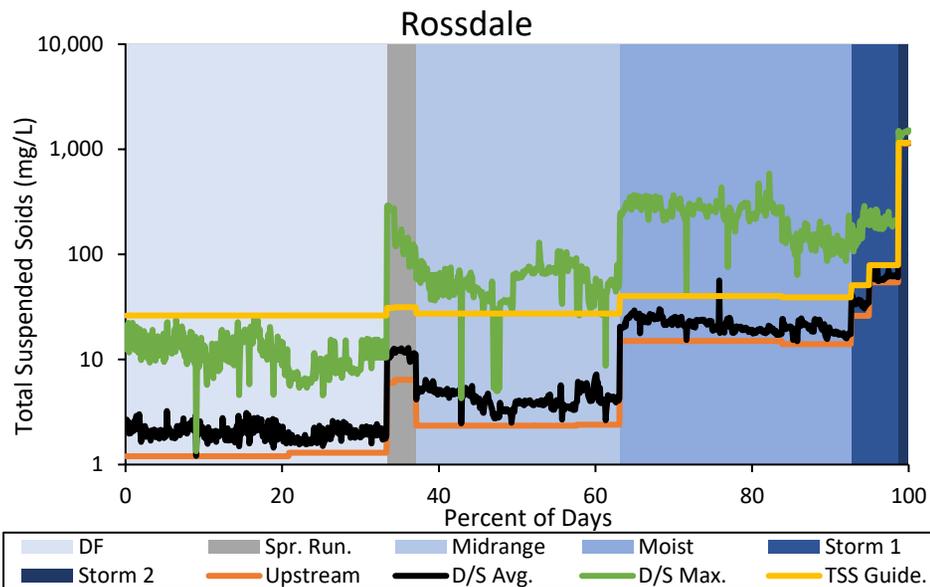
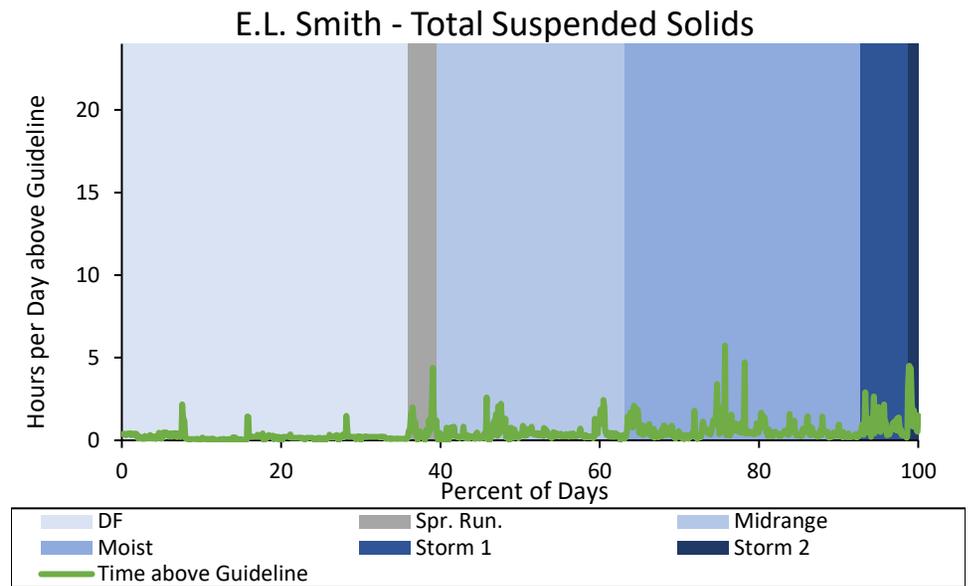
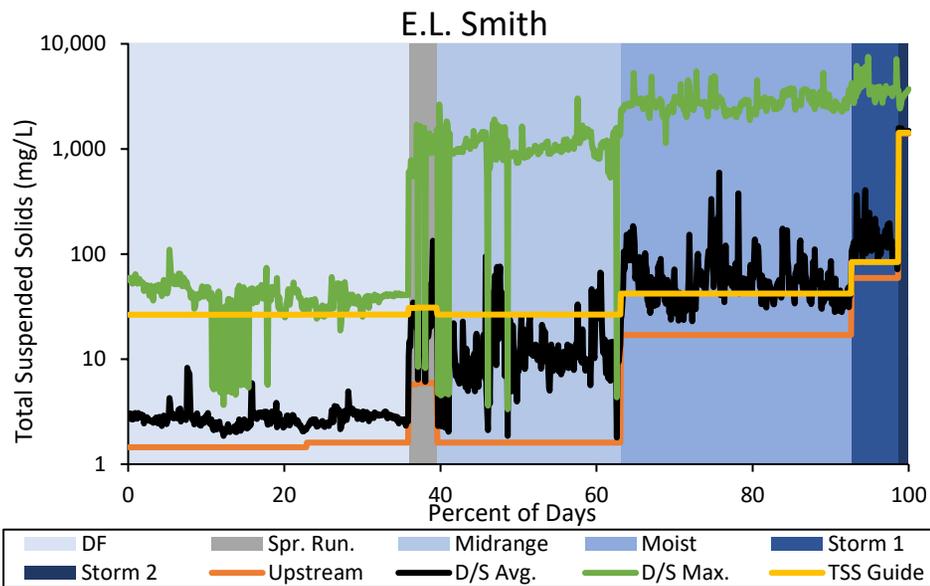


Figure E.1. Concentrations of total suspended solids at the edge of the chronic mixing zone (left) and time exceeding guidelines (right) at both WTPs, 2023 – 2025.

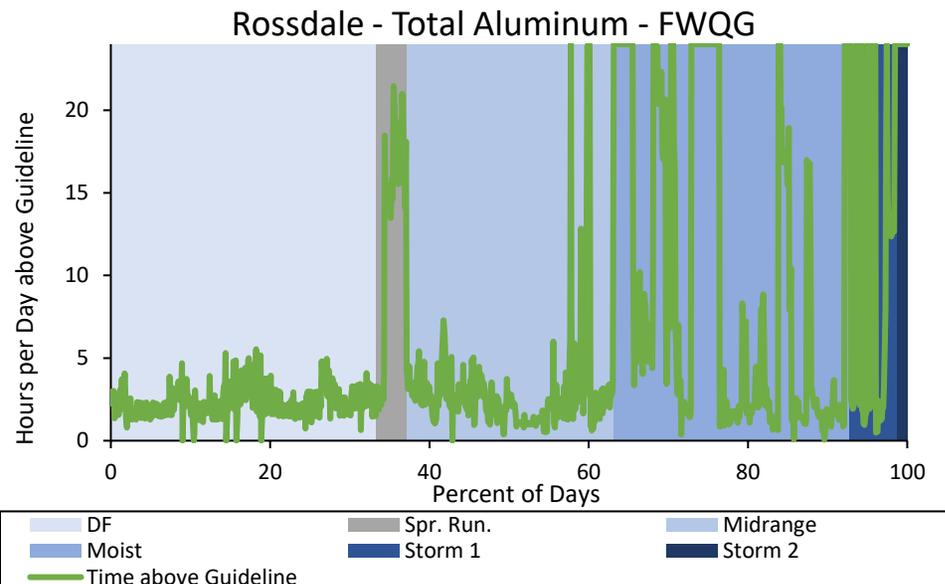
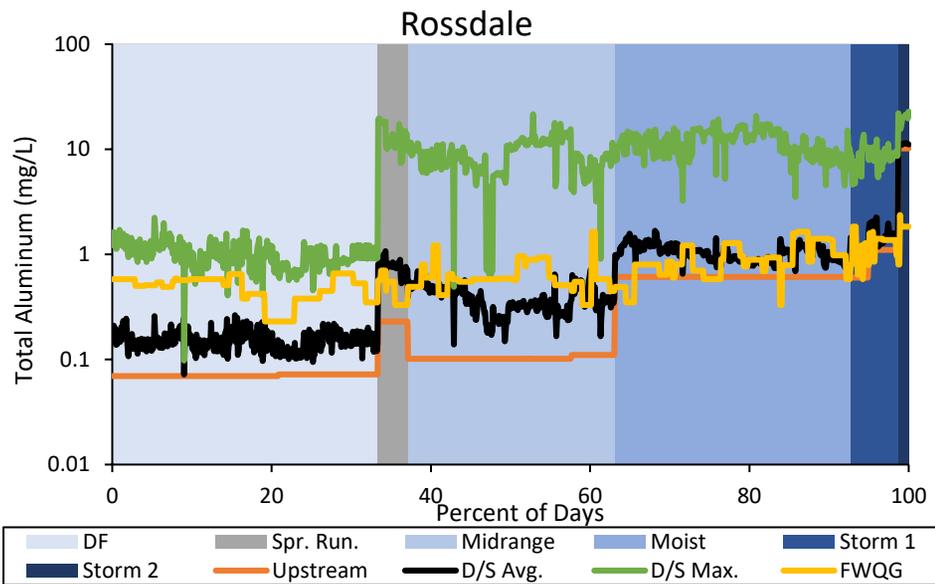
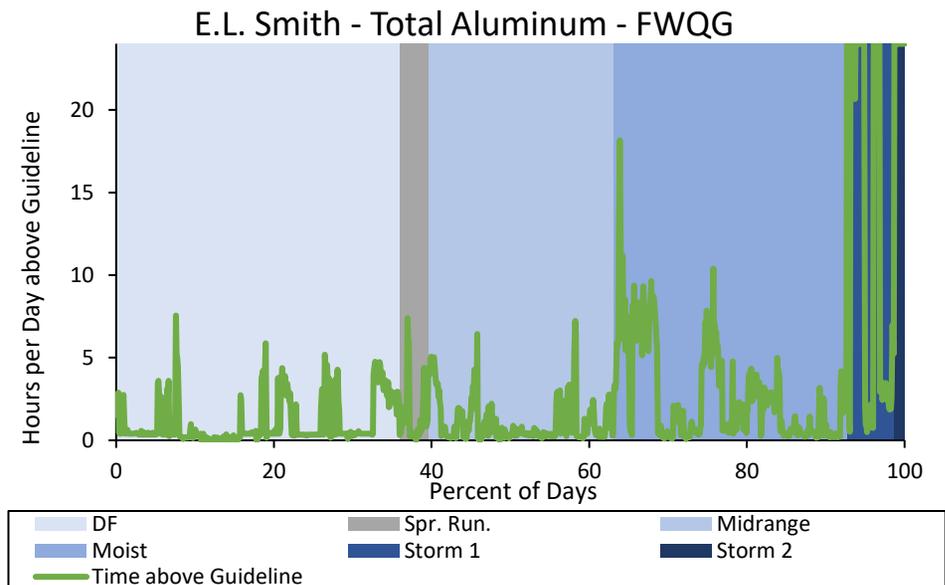
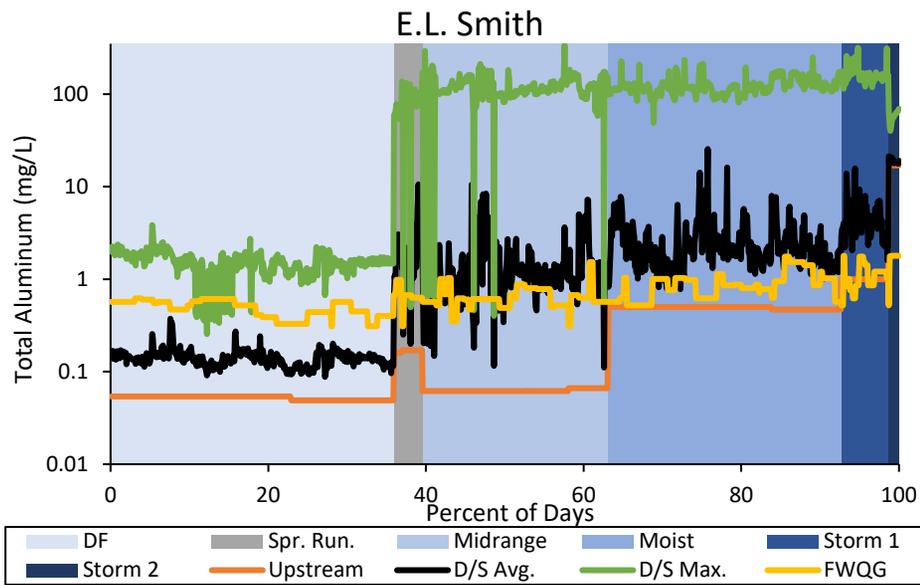


Figure E.2. Concentrations of total aluminum at the edge of the chronic mixing zone at both WTPs, 2023 – 2025.

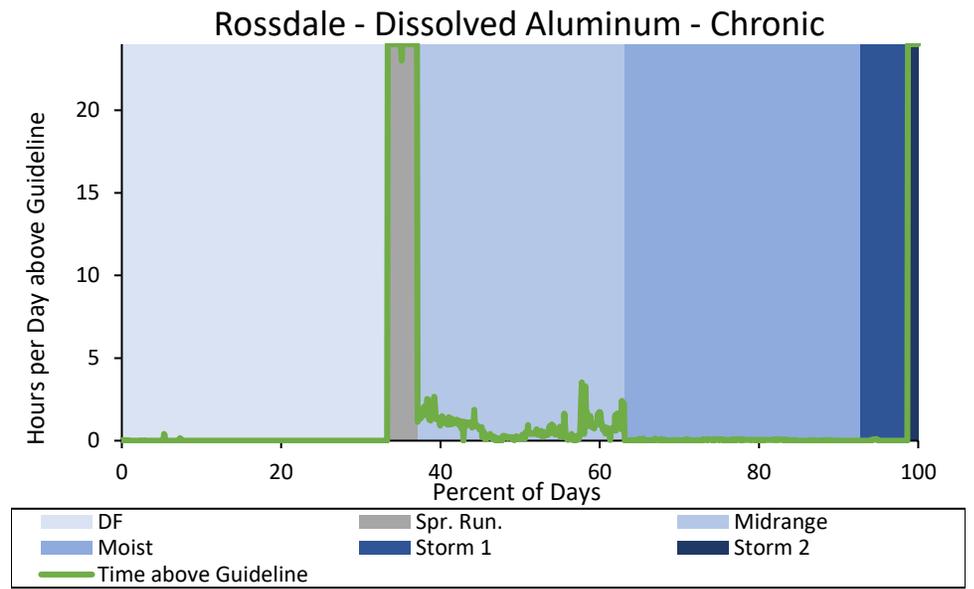
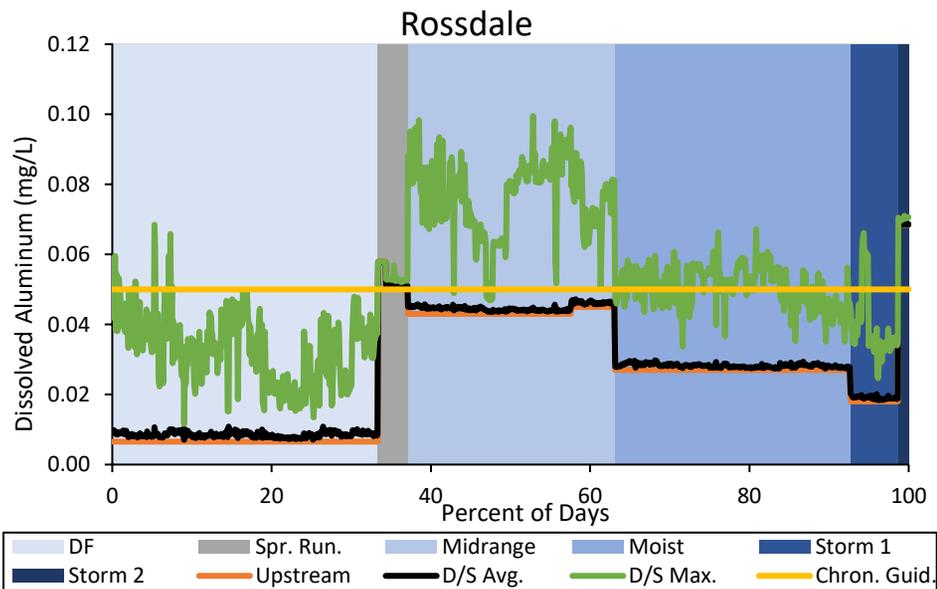
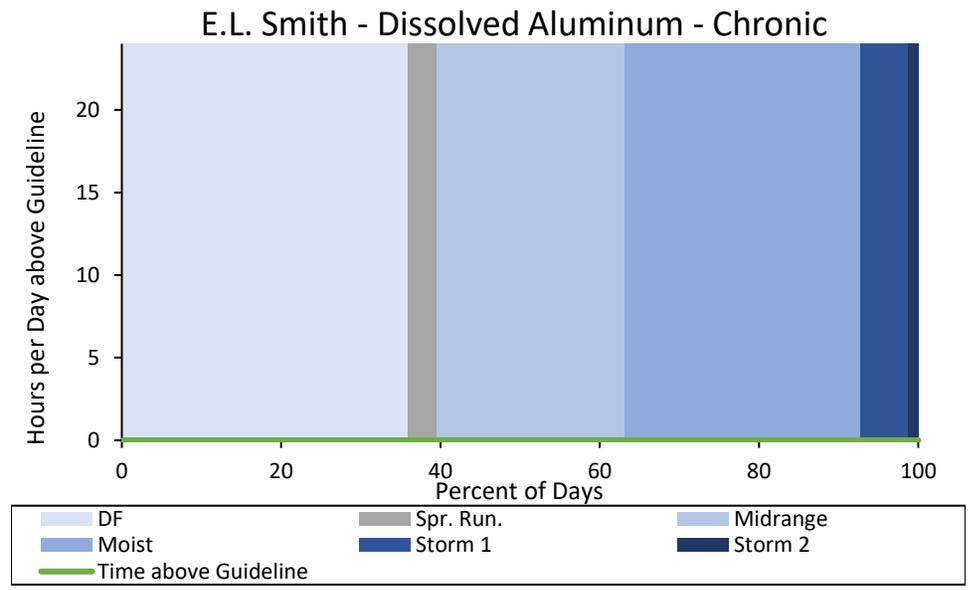
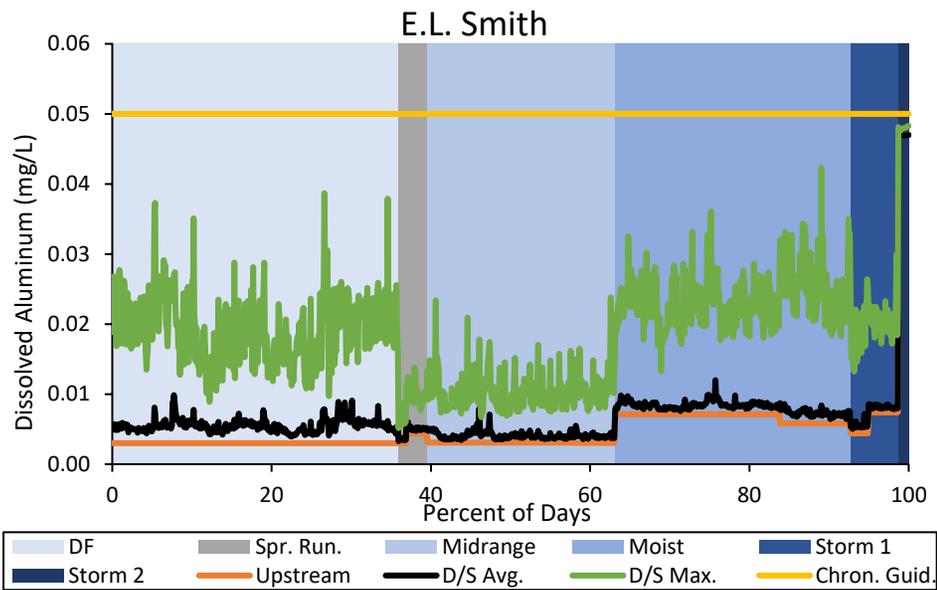


Figure E.3. Concentrations of dissolved aluminum at the edge of the chronic mixing zone (left) and time exceeding guidelines (right) at both WTPs, 2023 – 2025.

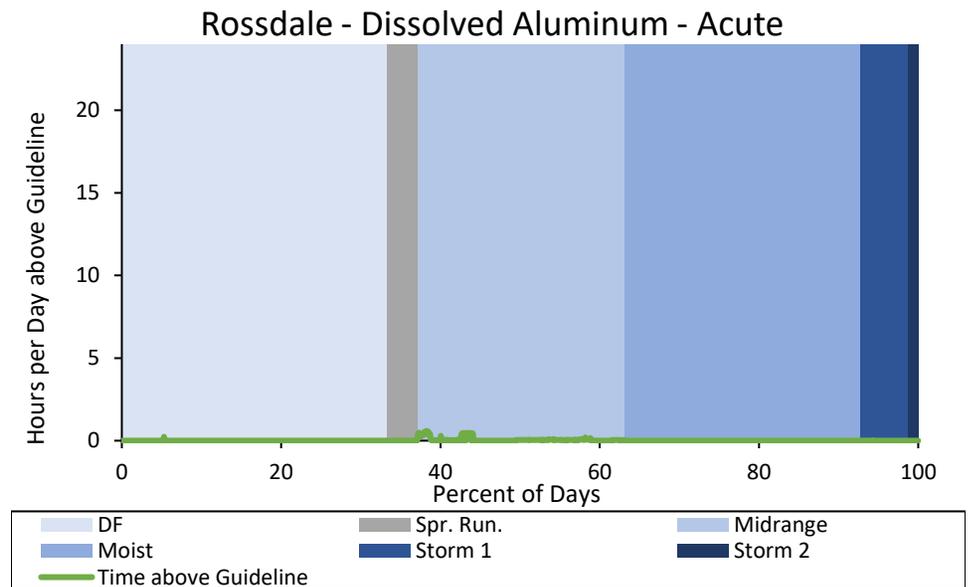
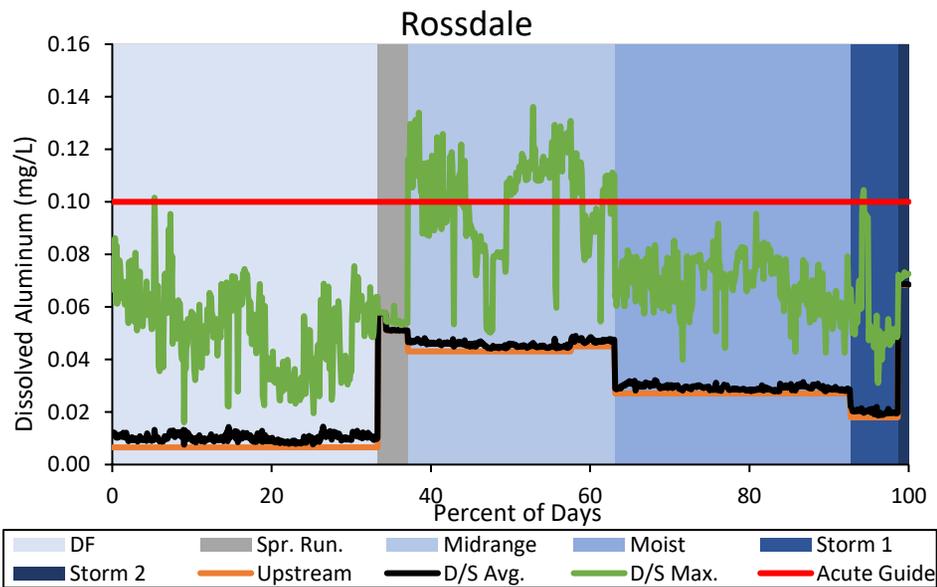
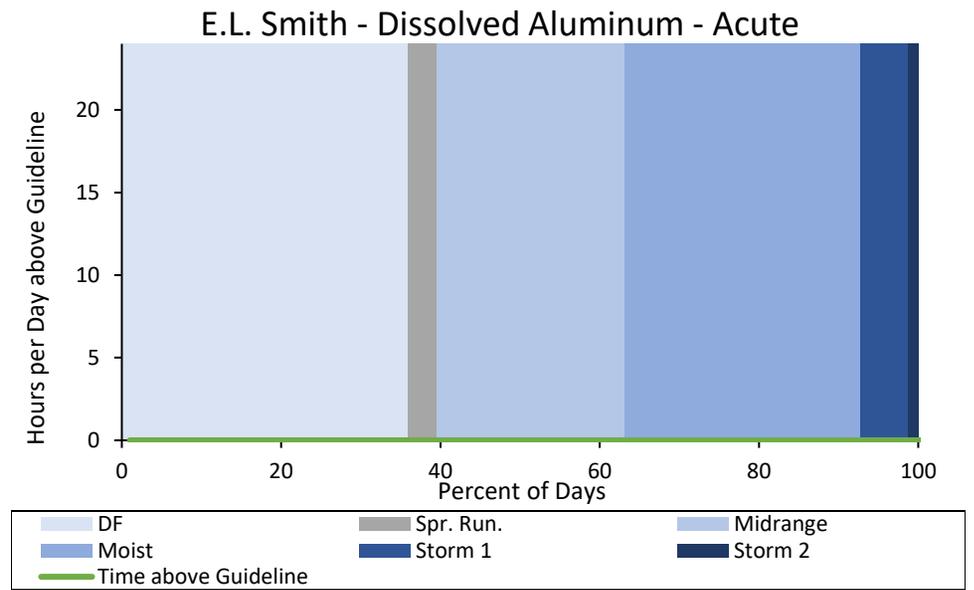
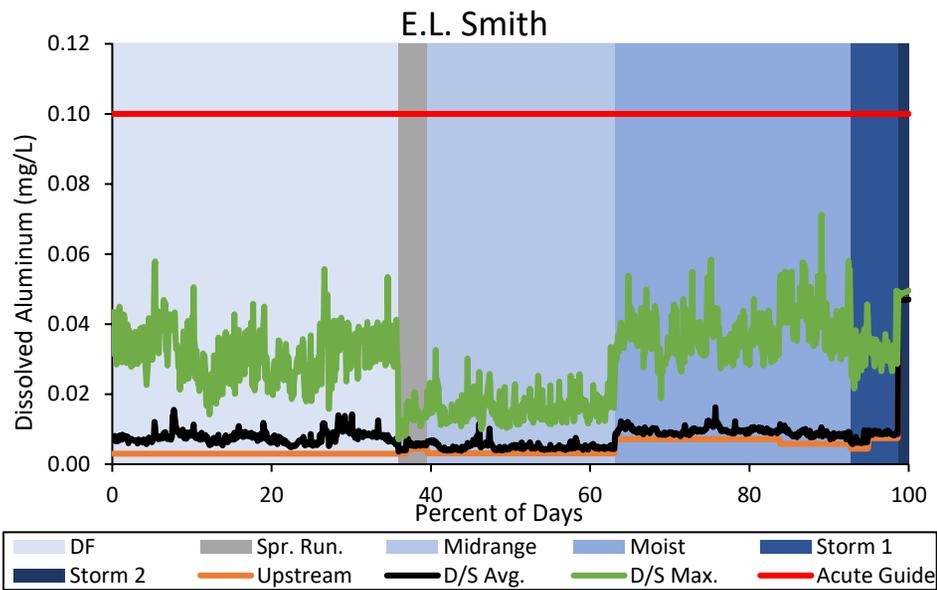


Figure E.4. Concentrations of dissolved aluminum at the edge of the acute mixing zone (left) and time exceeding guidelines (right) at both WTPs, 2023 – 2025.

Appendix C – Distribution Main Extensions



10065 Jasper Avenue, Edmonton, Alberta
T5J 3B1 Canada
epcor.ca

Alberta Environment and Protected Areas
Red Deer-North Saskatchewan Region
Main Floor, Twin Atria Building
4999-98 Ave
Edmonton, Alberta
T6B 2X3

February 9, 2026

Attention: Mohammad Rahman, P.Eng
EPEA Team Lead

Subject: 2026 Notification of Distribution Main Extensions – Edmonton Waterworks
638-04-02

Dear Sir,

EPCOR Water Services (EWS) is formally notifying Alberta Environment and Protected Areas of the potable water distribution system extensions in 2025. This letter indicates our commitment to ensure the projects for 2026 will be constructed to meet the design standards in the Alberta Standards & Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (revised March 2021).

Private Development Consultants and Contractors will undertake the design and construction of new potable water distribution main extensions in 2026; with the supervision and approval of EWS. The project listing and neighbourhood locations can be referenced in the enclosed figures. Some of these projects may carry over construction into 2027. Additional projects may be added during the 2026 construction season and will be represented as either completed or planned construction as appropriate in the February 2027 Distribution Main Extension Notification.

Also enclosed is the Environmental Protection and Enhancement Act (EPEA) Sign-off Sheet as requested (EPEA Application).

If there are any questions, please contact me at 780-722-4383 or stran@epcor.com.

Sincerely,

Tran,

Steven

Digitally signed
By: Tran, Steven
Date: 09-Feb-26

Steven Tran, P.Eng
Manager, Private Development Engineering

Enclosures (4)

1. EPEA Application Sign-off Sheet
2. 2025 Completed - 2026 Anticipated Development Areas
3. Neighbourhood Map
4. Neighbourhood Listing

cc: Jon Gelinas, Marta Bury, Jeff Hunter, David Slubik, Josh Foster

EPEA APPLICATION

WATERWORKS, WASTEWATER, OR STORM DRAINAGE SYSTEM

Project Name/Type Private Development

Location Various throughout the City

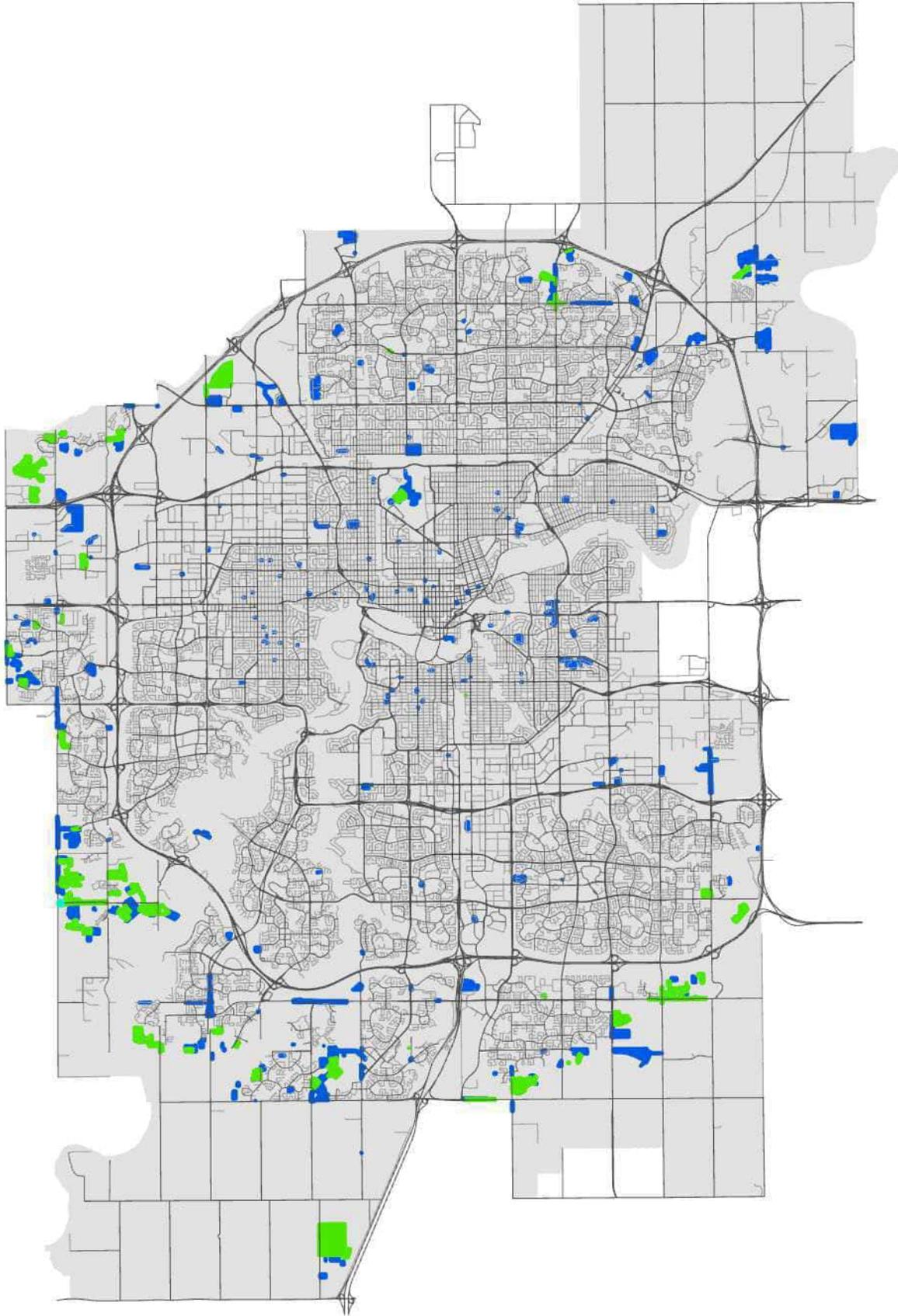
Municipality Edmonton, Alberta

I acknowledge that I have reviewed the *Standards and Guidelines for Municipal Waterworks, Wastewater, and Storm Drainage Systems*, April 2012, and certify that the designs of the above noted projects comply with all of the requirements specified for the construction of the water distribution, wastewater collection and storm water collection systems.

 <p>Steven Tran, P.Eng. Manager, Private Development Engineering</p>	<p>EWS PERMIT TO PRACTICE</p> <table border="1"><tr><td>PERMIT TO PRACTICE EPCOR WATER SERVICES INC.</td></tr><tr><td>RM SIGNATURE: <u>[Signature]</u></td></tr><tr><td>RM APEGA ID #: <u>88601</u></td></tr><tr><td>DATE: <u>Feb. 9, 2026</u></td></tr><tr><td>PERMIT NUMBER: P006368 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)</td></tr></table> <p>Marta Buryl, P.Eng. Director, Linear Asset Services</p>	PERMIT TO PRACTICE EPCOR WATER SERVICES INC.	RM SIGNATURE: <u>[Signature]</u>	RM APEGA ID #: <u>88601</u>	DATE: <u>Feb. 9, 2026</u>	PERMIT NUMBER: P006368 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)
PERMIT TO PRACTICE EPCOR WATER SERVICES INC.						
RM SIGNATURE: <u>[Signature]</u>						
RM APEGA ID #: <u>88601</u>						
DATE: <u>Feb. 9, 2026</u>						
PERMIT NUMBER: P006368 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)						

Submissions that are found to not be in accordance with the Standards and Guidelines may result in enforcement action and/or referral to APEGA.

For projects that do not comply with all of the Standards and Guidelines please submit a detailed explanation of the deficiency and why it is necessary.



PROVIDING MORE



- Arterial Road
- Collector Residential Road
- Local Residential Road
- Project Completed 2025
- Project Anticipated 2026
- Edmonton Boundary



EDMONTON PRIVATE DEVELOPMENT PROJECTS

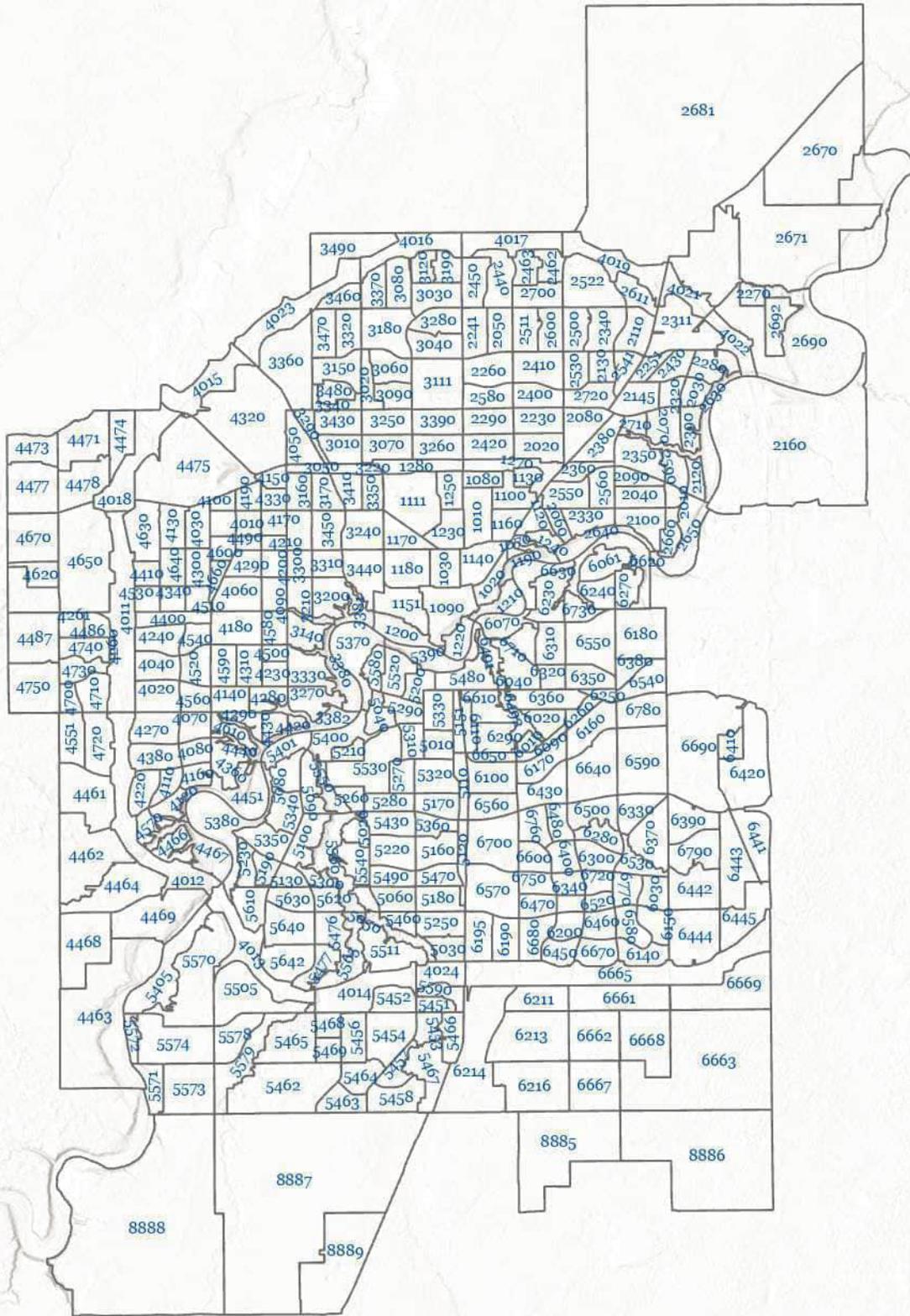
PREPARED BY:

SH

PUBLISH DATE:

20 JANUARY 2026

NEIGHBOURHOOD



P:\Network Services\GIS\2024_PD_Annual_Report\2024_NEIGHBOURHOOD_NUMBERS.aprx

PROVIDING MORE



Legend

□ NEIGHBORHOODS (107 Total)

CITY OF EDMONTON

PREPARED BY:

DI TEAM

PUBLISH DATE:

16 JANUARY 2026

City of Edmonton - Neighbourhood Listing

NEIGHBORHOOD NAME	NEIGHBORHOOD NUMBER	STATUS
Winterburn Industrial Area East	4650	On going & Complete
Secord	4487	On going & Complete
Chappelle	5462	On going & Complete
Cavanagh	5467	On going & Complete
Trumpeter Area	4471	On going & Complete
The Orchards At Ellerslie	6216	On going & Complete
Marquis	2671	On going & Complete
Starling	4474	On going & Complete
Blatchford Area	1111	On going & Complete
The Uplands	4464	On going & Complete
Glenriding Heights	5578	On going & Complete
Mattson	6667	On going & Complete
Keswick	5574	On going & Complete
Granville	4551	On going & Complete
Meltwater	6668	On going & Complete
Edgemont	4462	On going & Complete
Rosenthal	4750	On going & Complete
Stillwater	4468	On going & Complete
Alces	6669	On going & Complete
Ellerslie Industrial	6214	On going & Complete
River's Edge	4469	On going & Complete
Lewis Farms Business Employment	4261	On going & Complete
Glenriding Ravine	5579	On going & Complete
Kinglet Gardens	4477	On going & Complete
Ellerslie	6211	Complete
Hawks Ridge	4473	Complete
McConachie	2522	Complete
Aster	6445	Complete
Crystallina Nera East	2462	Complete
Ritchie	6610	Complete
Kenilworth	6350	Anticipated
Central McDougall	1030	Anticipated
Wìhkwèntòwin	1151	Anticipated
Crossroads	8889	Anticipated
Garneau	5200	Anticipated
Queen Alexandra	5330	Anticipated
Paisley	5469	Anticipated
Montrose	2550	Anticipated
West Sheffield Industrial	4600	Anticipated
Mistatim Industrial	4320	Anticipated
Clover Bar Area	2160	Anticipated
Downtown	1090	Anticipated
Inglewood	3240	Anticipated
Lauderdale	3260	Anticipated
Strathcona	5480	Anticipated
Tipaskan	6750	Anticipated
McKernan	5290	Anticipated
Baranow	3020	Anticipated
Westmount	3440	Anticipated
Windsor Park	5580	Anticipated
Maple	6441	Anticipated
Pylypow Industrial	6590	Anticipated

Calgary Trail North	5110	Anticipated
Windermere	5570	Anticipated
Ermineskin	5180	Anticipated
Griesbach	3111	Anticipated
Quarry Ridge	2692	Anticipated
Belvedere	2080	Anticipated
Beacon Heights	2040	Anticipated
River Valley Cameron	4467	Anticipated
Tamarack	6443	Anticipated
Cy Becker	2611	Anticipated
Ottewell	6550	Anticipated
Eastwood	1100	Anticipated
High Park	4200	Anticipated
West Jasper Place	4580	Anticipated
Schonsee	2700	Anticipated
Boyle Street	1020	Anticipated
Sherwood	4500	Anticipated
Athlone	3010	Anticipated
Ebbers	2251	Anticipated
King Edward Park	6360	Anticipated
Glastonbury	4720	Anticipated
Strathearn	6710	Anticipated
Prince Charles	3350	Anticipated
Malmo Plains	5280	Anticipated
Eaux Claires	2241	Anticipated
Goodridge Corners	3490	Anticipated
Heritage Valley Town Centre	5464	Anticipated
Oxford	3320	Anticipated
Poundmaker Industrial	4410	Anticipated
Pintail Landing	4478	Anticipated
Glenora	3200	Anticipated
Anthony Henday South	4014	Anticipated
Jasper Park	4230	Anticipated
Potter Greens	4710	Anticipated
Elmwood	4140	Anticipated
Anthony Henday Big Lake	4018	Anticipated
Parkdale	1160	Anticipated
Cloverdale	6070	Anticipated
Prince Rupert	1170	Anticipated
Brintnell	2110	Anticipated
McQueen	3300	Anticipated
Dominion Industrial	3160	Anticipated
Woodcroft	3450	Anticipated
Winterburn Industrial Area West	4670	Anticipated
Desrochers Area	5463	Anticipated
Rossdale	1220	Anticipated
Hays Ridge Area	5465	Anticipated
Canora	4090	Anticipated
Edmonton South Central East	8885	Anticipated
Rundle Heights	2660	Anticipated
Hudson	3480	Anticipated
Gorman	2311	Anticipated
Charlesworth	6661	Anticipated
Edmonton South Central	8887	Anticipated
Kameyosek	6340	Anticipated

Glenwood	4180	Anticipated
Strathcona Industrial Park	6700	Anticipated
Norwester Industrial	4350	Anticipated
Britannia Youngstown	4060	Anticipated
Beverly Heights	2100	Anticipated
Caernarvon	3060	Anticipated
South Edmonton Common	6195	Anticipated
Clareview Town Centre	2145	Anticipated
Southeast Industrial	6690	Anticipated
Kinokamau Plains Area	4475	Anticipated
Roper Industrial	6640	Anticipated
Bonnie Doon	6040	Anticipated
Ogilvie Ridge	5300	Anticipated

LEGEND

Status	Description
On going & Complete	Area with completed projects in 2025, and ongoing carryover projects into 2026+
Complete	Area with completed projects in 2025, no carryover
Anticipated	Area with anticipated projects in 2026+