



Water Program Update

Committee of the Whole Meeting

June 9, 2026



01

Project Background and Drivers

WHY WE ARE HERE TODAY

Starting with the problem we are trying to solve

Changes in historical water treatment approach, aging well conditions, population growth, and reliability events

The Town initiated a comprehensive review of its water supply and treatment needs to better understand long term risks, constraints, and options.

Objective: Determine a long-term water strategy that addresses:

- » Water quality
- » Capacity
- » Reliability
- » Future growth

Manganese + Chlorine = Brown Water

Dark brown water coming out faucets as Osoyoos expands boil water advisory

The advisory impacts several hundred homes

'Care for a bath?': Sinks fill with water in Osoyoos

Town of Osoyoos alerts neighbours to run water for 15 minutes minimum



Monique Tamminga
Sep 15, 2022 12:50 PM

Since 2017, Well #3's manganese levels have gone up 490 per cent, while Well #1 has gone up 1,340 per cent. Now all of the wells can cross over the aesthetic limit for manganese, the point where it can leave stains, while some cross the maximum allowed health limit.

The manganese causes a variety of issues, most obviously with the discoloration from it reacting to chlorine and a sludge mixed with iron on the inside of Well #3's pump.

"It's coming out at 650 gallons per minute right there," said Kelly McDonald, the town's utility superintendent. "So if you tried to flush and scour the lines, we couldn't reach the velocity to remove that sludge."

Who wants a bath? This was the bath water at a home on Gravenstein in Osoyoos on Sept. 8. Osoyoos residents continue to deal with brown water running from their faucets. (Facebook)



A customer supplied by the Town of Osoyoos water system experienced a slug of manganese deposits in their drinking water after a nearby hydrant was disturbed. Physical disturbances to a distribution system can cause the release of manganese deposits from pipes. In June 2023, the Town of Osoyoos was granted \$9 million to assist with water infrastructure projects to improve drinking water quality. Photo credit: Jessica Kriese, Osoyoos, BC.

'ANOMALY' LATEST WATER WOE Latest water disruption an 'anomaly' in Osoyoos, as town battles ongoing water woes

Caroly Richardson - Feb 15, 2024 / 4:00 am



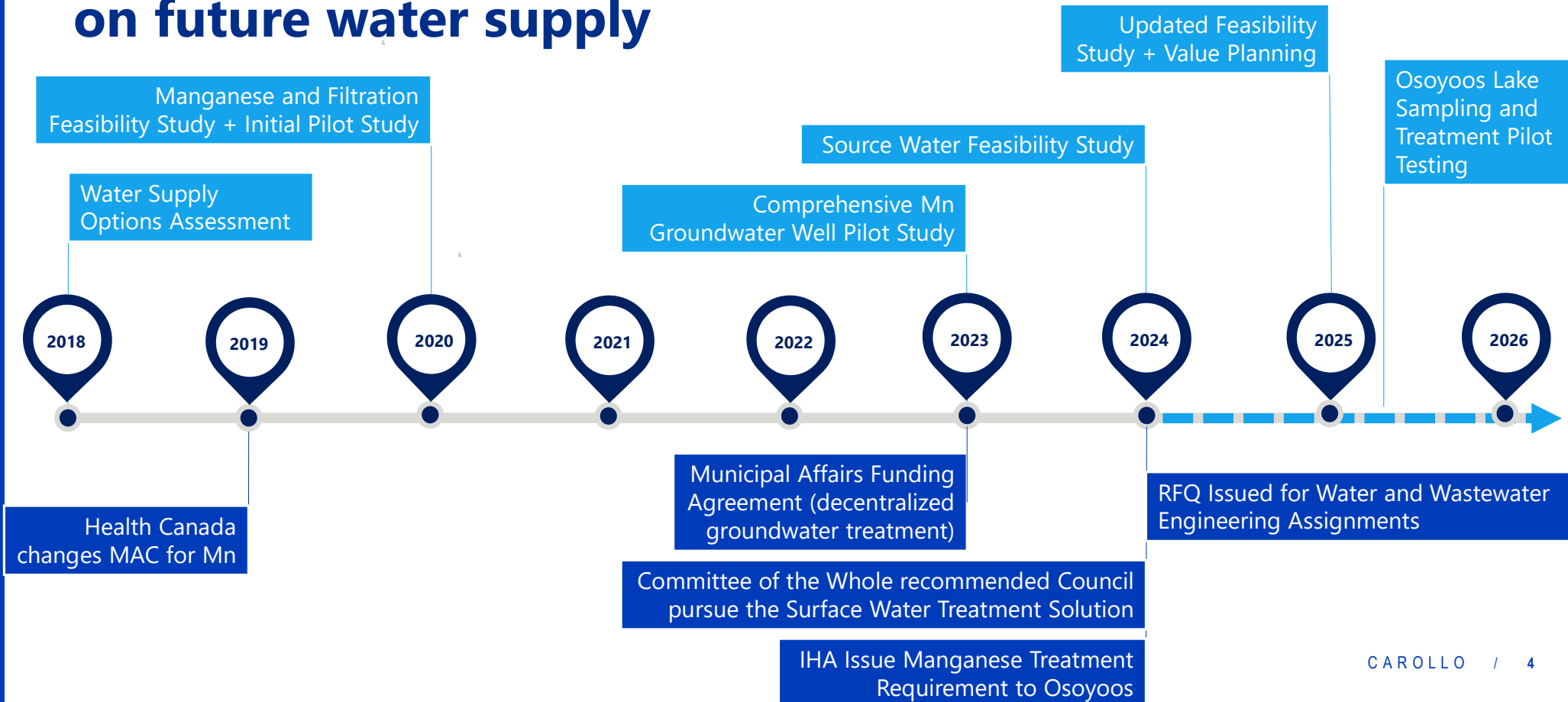
BROWN WATER TO CONTINUE Brown water ongoing in Osoyoos

Sebastian Kanaly - May 4, 2023 / 1:32 pm



PROJECT JOURNEY TO DATE

Steps taken by the Town to make informed decision on future water supply

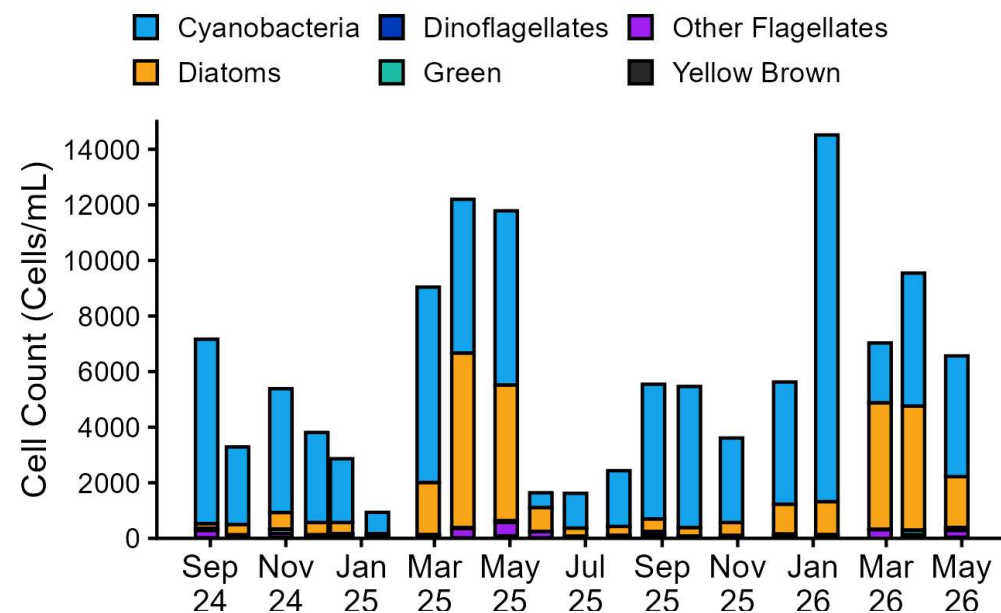


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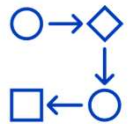
Pilot Testing Results and Conclusions

Understanding the lake as a treatment source

- Osoyoos Lake is generally a stable high quality source water with low turbidity.
- Surface water sources are subject to rapid seasonal water quality changes.
- Primary treatability drivers include:
 - » Dissolved organic carbon and colour
 - » Seasonal algae
 - » Taste and odour risk
 - » Cold water coagulation performance
 - » Disinfection byproduct potential



Understanding the lake as a treatment source



Osoyoos Lake quality supports the need for a robust treatment process.



Pilot testing results confirm how the treatment process performs under actual lake water conditions.



Source water sampling and pilot testing inform basis of design and reduce conservatism in design

The pilot was designed to reduce treatment uncertainty

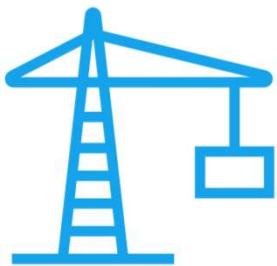
Pilot purpose

- Establish baseline raw water quality conditions.
- Confirm treatability of Osoyoos Lake water.
- Test DAF pretreatment chemistry.
- Evaluate filter performance following DAF.
- Understand seasonal operating sensitivity.
- Generate data to support design basis.
- Identify remaining risks before preliminary design.



PILOT TEST PLAN

Each test phase answered a specific design question



Phase 1 - Startup

- Confirm equipment operation.
- Establish baseline performance.
- Identify initial operating constraints.



Phase 2 - DAF Testing

- Compare coagulants.
- Test polymer need and dose.
- Evaluate DAF loading rate and treated turbidity.



Phase 3 - Filter Testing

- Test DAF + filtration as an integrated treatment train.
- Evaluate filter stability and run performance.
- Assess incremental DOC removal from GAC or alternate media, if applicable.

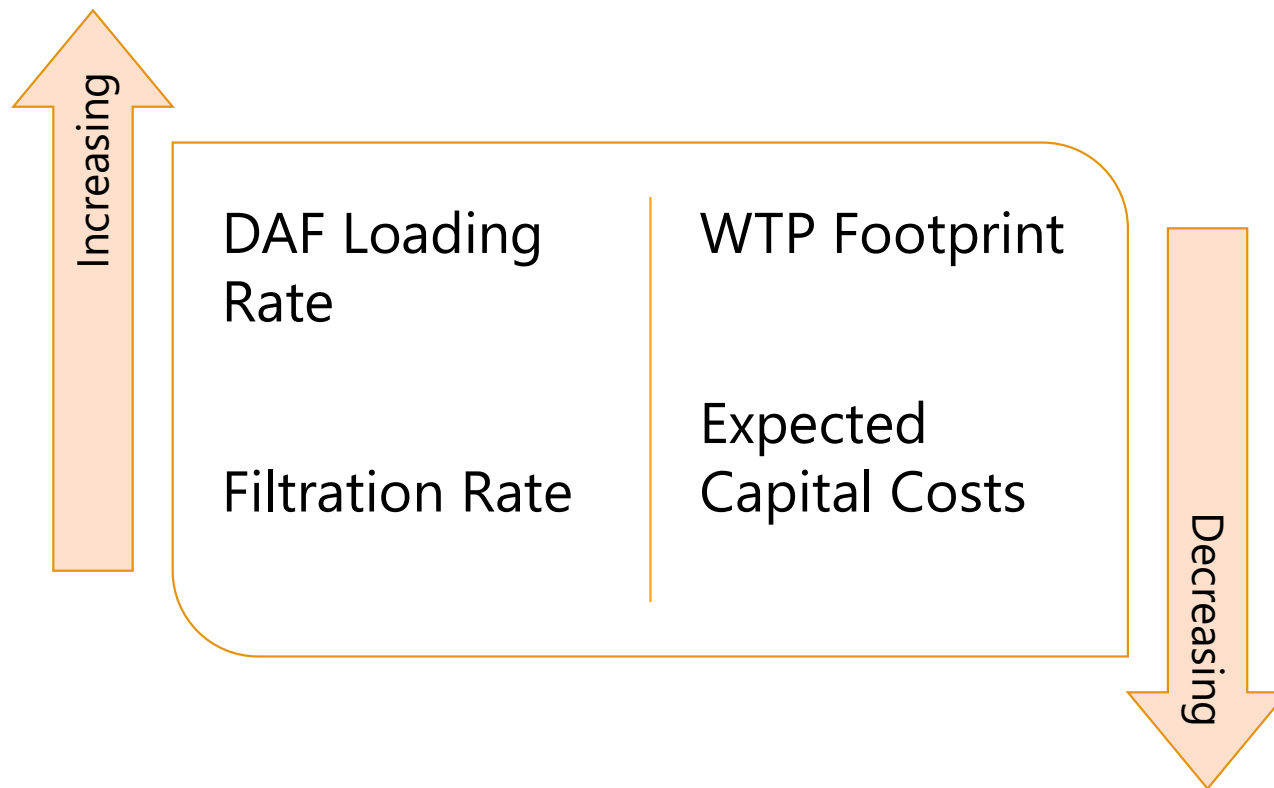


Phase 4 - Optimization

- Test DAF + filtration as an integrated treatment train.
- Evaluate filter stability and run performance.
- Assess incremental DOC removal from GAC or alternate media, if applicable.

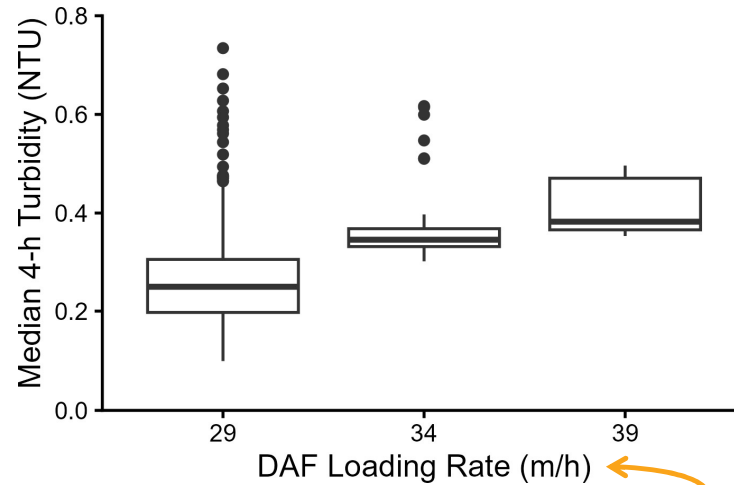
Design parameter selection will drive capital costs

❖ Drinking Water Officer Guide stipulates limits without pilot data



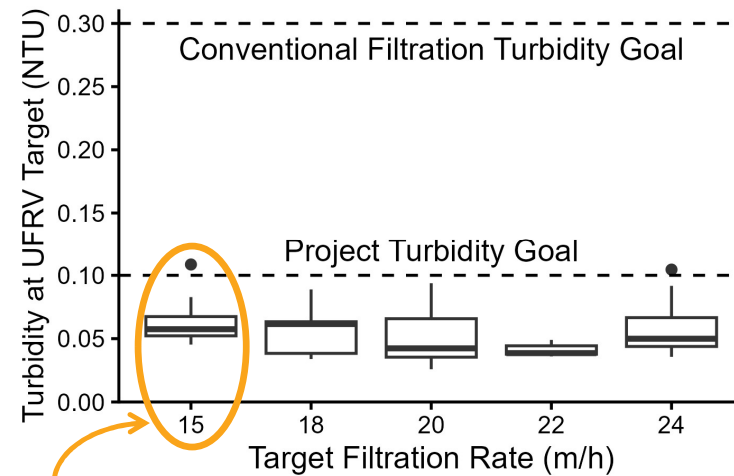
Key Pilot Lesson Learned

Design Parameters



DAF had best particle removal at 29 m/h loading rate

Piloting required above 12 m/h



Turbidity goals were met with very high filtration rates

Maximum allowed without piloting

What the pilot has confirmed, and what still needs to be carried forward

Findings to date



Established chemical requirements to enable effective treatment



A provisional operating point has been identified for continued testing / design refinement.



Cold-water conditions affected pretreatment stability and should be reflected in design and operations planning.

Remaining opportunities



Translate pilot testing results into design criteria.



Develop preliminary WTP footprint and layout based on DAF design parameters.



Finalize filter media selection/design.



Confirm residuals handling approach.

The foundation for scope, cost, and future decisions

Capacity, redundancy, treatment targets, operating philosophy, expansion approach



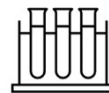
Source

Osoyoos Lake surface water as the basis for the new water supply



Capacity

Start at 25 MLD, expand to 32 MLD, buildout to 37.5 MLD



Treatment

Turbidity, organics, algae, disinfection, stability



Resilience

N+1 redundancy for major electrical and process systems



Location

Centralized treatment, location sighted

03

Project Implementation and Next Steps

Advancing critical path items while protecting future design flexibility



Expanded water licence application is already underway

- » Positive and important step in setting up the future project



Securing the licence helps the Town get ahead of highest risk regulatory timelines and will be needed regardless of the final treatment approach.

- » Establishes early design rails

Raw water pump station planning is also appropriate to advance early



- » Importance to the future intake, conveyance, and treatment system.



Keeping delivery options open while advancing the project

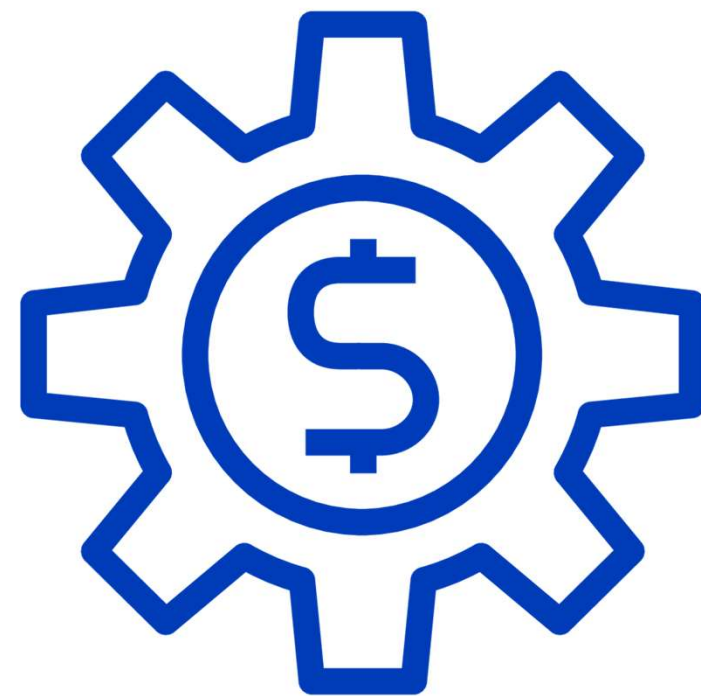
- Translate pilot results into engineering criteria:
 - » Treatment process basis
 - » Chemical assumptions
 - » Hydraulic requirements
 - » Residuals handling
 - » Operability considerations
- Use the updated design basis to develop a preliminary design and increase budget confidence to Class C cost estimate



Convert the Town's investment in source water review, technology screening, and pilot testing together into a viable design solution

Turning pilot results into a design-ready project

- Support the Town's broader financial planning:
 - » Budgets
 - » Rate studies
 - » Borrowing capacity
 - » Funding schedules
 - » Financial models
 - » Establish project readiness and credibility with funding partners.
 - » Enable engagement of design and construction partners



Thank you.