



INFORMATION ONLY COUNCIL REPORT

To: Mayor and Council

Date: May 20, 2025

From: Ron Bowles, Chief Administrative Officer

File No: 5600-12

Subject: **Rose Valley Reservoir – Source Water Improvements Quarterly Update**

Report Prepared by: Rob Hillis, Acting Director of Engineering & Operations

Report Reviewed by: Brent Magnan, Director of Community Development

RECOMMENDATION:

THAT Council receive the report titled "Rose Valley Reservoir – Source Water Improvements Quarterly Update" from the Acting Director of Engineering & Operations, dated May 20, 2025, for information.

STRATEGIC AREA(S) OF FOCUS

Invest in Infrastructure – We will invest in building, improving and maintaining infrastructure to meet the needs of, and to provide a high quality of life for, current and future generations.

BACKGROUND

Project Update

On November 26, 2024, Council approved \$2,500,000 for source water improvements for the Rose Valley Reservoir. The reservoir has had increasingly challenging source water conditions since West Kelowna was transferred the water system in 2011. The improvements will help mitigate manganese, algae and various source water concerns that have been affecting the reservoir.

The project consists of the installation of a potassium permanganate treatment system, intake improvements, and aeration improvements. The highest priority item of the project is installing the potassium permanganate treatment prior to the summer when dissolved manganese levels in the source water are expected to rise. This will oxidize the dissolved manganese and ensure that the Rose Valley Water Treatment Plant will be able to remove it from the source water.

Potassium Permanganate Dosing System Update

The City is in the process of evaluating submissions for the Request for Quotations for firms that supply potassium permanganate systems and chemical pump skids. The two

systems will control the concentration of chemicals, provide a consistent flow rate, and feed the potassium permanganate into the intake pipe that transfers water to the treatment plant. This equipment is expected to arrive in June when it will be installed and commissioned with the treatment plant's communications systems. The equipment will be installed by City staff and Centrix, the electrical contractor. The manganese analyzer has been installed and is providing data to our operations staff. If dissolved manganese levels rise prior to the completion of the dosing system, staff will dose chlorine at the plant to oxidize the manganese and allow the treatment processes at the plant to remove the manganese.

Aeration update

City staff, AECOM and Larratt Aquatic are continuing the design for aeration improvements to the reservoir. Aeration improvements will help reduce algae and dissolved manganese levels in the reservoir. These improvements will also improve taste and odors in the drinking water. Taste and odor concerns are still expected to fluctuate in the long term. These improvements are planned to be designed in 2025 and installed in spring 2026.

The existing aeration system has been improved, and the air flow has increased in the reservoir as an interim measure until the new aeration system is installed. The initial monitoring of the existing aerator with increased air flow shows an improved zone of influence and dissolved oxygen. This will continue to be monitored through the summer months. Power availability has been confirmed by BC Hydro and the system is being designed for the available power. In the future the system will be able to be expanded with additional three-phase power that could be brought to the reservoir.

Project Risk Assessment

Project risks are monitored through an ongoing Risk Log prepared in collaboration with the City and the project team. The following provides a summary of identified risks for the project.

Risk	Description	Assessment – May 2025
Dissolved Manganese Levels During Ice Melt	Larratt Consulting Ltd. has indicated that dissolved manganese levels could rise when the lake surface thaws in early spring.	Staff monitored manganese levels as the ice melted and levels did not exceed the aesthetic limit, so pre-dosing with chlorine was not required.
Lead times for Equipment and Chemicals	There are long lead times for the manganese analyzer and chemicals used for the potassium permanganate treatment system.	The Manganese analyzer has been installed and is providing data to the plant operators. The chemicals have been ordered and will be available prior to completion of the works. An RFQ for the dosing equipment has been

		completed and is expected to arrive in June.
Dissolved Manganese Levels During the Summer	Historically dissolved manganese rises during the summer months in the reservoir.	Installing the potassium permanganate system prior to summer would allow the plant to remove manganese. If the system is not functional when levels rise, staff will pre-dose with chlorine prior to treatment.
Communication infrastructure	There is no fiber connection from the plant to the reservoir. Adding fiber to the existing poles may take time for BC Hydro to design, approve and install.	An upgraded connection to the radio network is underway to connect to the infrastructure at the dam.
Power Supply to the Reservoir	There is only single-phase power available at the reservoir, which limits the amount of aeration that can be installed.	The aeration system will be designed in phases that can use single-phase power for this project. As part of a future project, the system can be expanded with three-phase power.
Algae growth in the Reservoir	City staff receive more taste and odor concerns during times when algae blooms are occurring in the reservoir.	Treating the water with Potassium permanganate will improve taste and odor. Further improvements will be made with the new aeration system and the regeneration of the forest that was burnt during the McDougall Creek Wildfire.

FINANCIAL IMPLICATIONS

Funding for the project is \$2,500,000 from the Rose Valley Water Reserve and was approved at the November 26, 2024, Council Meeting. The project is expected to be completed within the allocated funding.

COUNCIL REPORT / RESOLUTION HISTORY

Date	Report Topic / Resolution	Resolution No.
November 26, 2024	THAT Council direct staff to amend the 2024 Budget to include an \$2,500,000 (two million five hundred thousand dollars) for Rose Valley Reservoir - Source Water Improvements funded from Rose Valley Water Reserves.	C289/24

PowerPoint: Yes ☒ No ☐