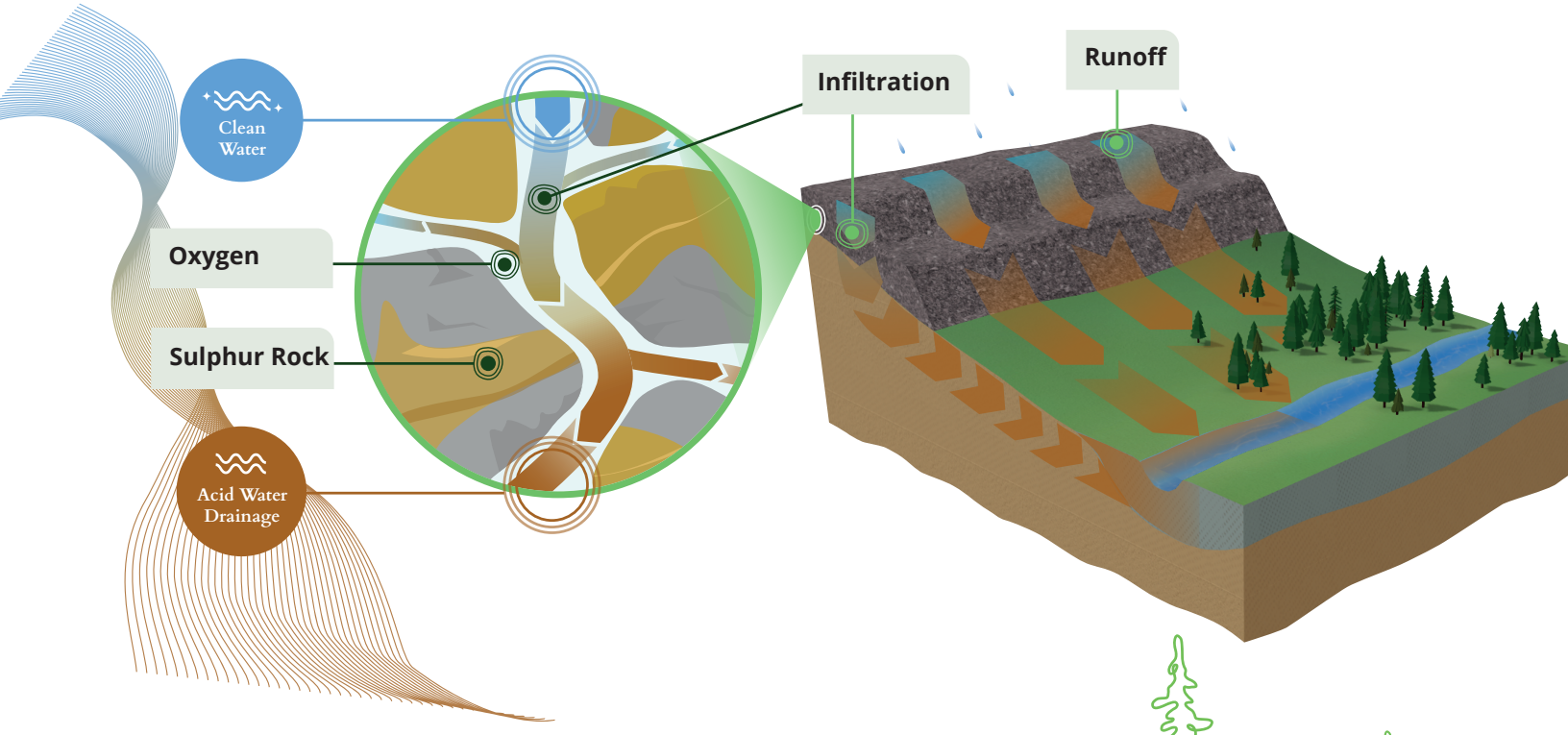
Faro Mine
REMEDIATION PROJECT

Water Treatment

Background

Nearly 30 years of lead and zinc mining at the Faro Mine site left behind waste rock and finely crushed rock particles called tailings. Water that flows over and through waste rock and tailings can become acidic and pickup metals, making it harmful to people, plants, fish, and wildlife.

Acid rock drainage is a complex chemical reaction that occurs when sulphur containing waste rock is exposed to water and oxygen, which in turn produces acid and releases metals from the broken rock. Over decades, the released acid pulls more acid and metals out of the broken-up rock.



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Improving the quality of the water that leaves the Faro Mine site is at the centre of the remediation plan. This is done in two ways:

01 Managing Clean Water

- **Clean Water:** Natural water that has not had contact with areas of the site that can cause contamination.
- Preserving clean water reduces the amount of water that requires treatment. This involves keeping natural watercourses, rainfall, and runoff away from sources of contamination.

02 Managing Contaminated Water

- **Contaminated Water:** Water that has contacted the site (including waste rock and tailings), potentially becoming contaminated and unsafe.
- Contaminated water is collected through various systems and transported via pumps, pipes, and ditches for storage on site until it can be treated. Once treated, the water is safe to be released into the environment.

Treating contaminated water before it leaves the Faro Mine site is key to how the Faro Mine Remediation Project operates. Even after the remediation is complete, water treatment will be required indefinitely at the Faro Mine site.

Current Water Treatment Systems

- Contaminated water across the site is collected and pumped to pits and ponds, and then to on-site water treatment systems to remove metals and make the water less acidic.
- Lime is used to neutralize the acidity of water and to remove dissolved metals.
- There are 3 water treatment plants currently operate on site:

Water treatment typically occurs from spring to late fall. Contaminated water continues to be collected and stored in the mine pits throughout the winter until water treatment operations resume.

Interim Water Treatment Plant
32,706 m^3/day

Cross Valley Pond Treatment Plant
10,902 m^3/day

Vangorda Treatment Plant
10,902 m^3/day

Faro Water Treatment Plant

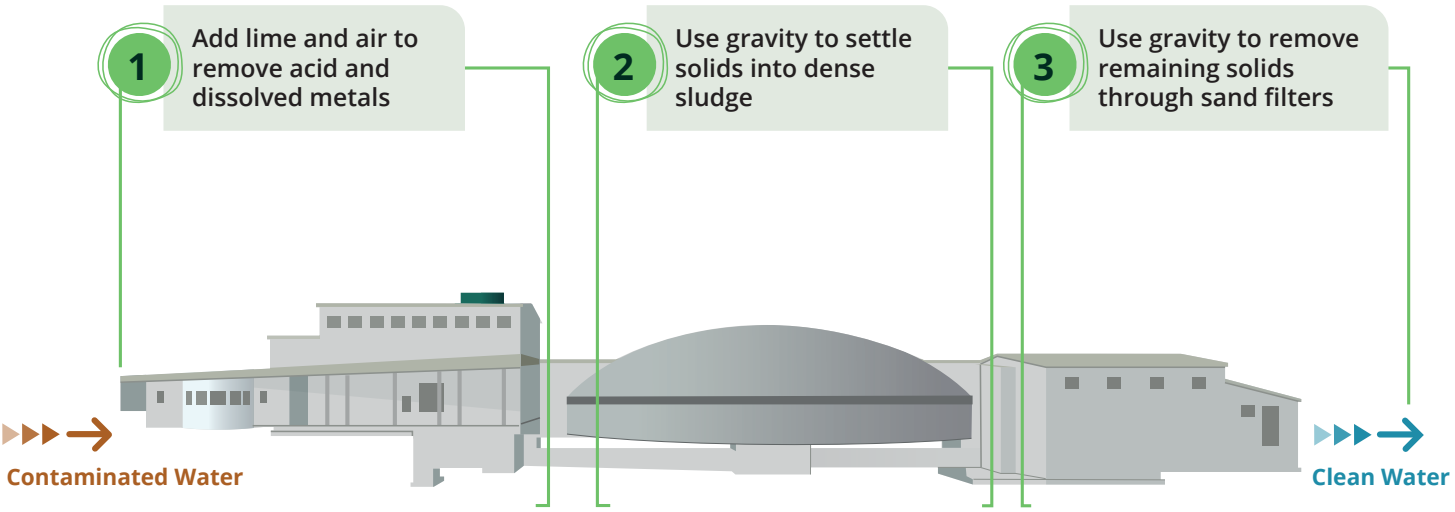
- A new Faro Water Treatment Plant is required to replace the existing Interim Water Treatment System. Treatment of the mine water will be required for the foreseeable future, so the Faro Water Treatment Plant was designed with longevity in mind for structure, equipment, material selection, operations, maintenance.

- The new plant has been designed by a team of engineers with input from scientists, consultants, contractors, First Nations partners, and project stakeholders including northerners.

- The Faro Water Treatment Plant will use a lime high-density sludge process to treat acid rock drainage by removing dissolved metals and neutralizing acidity. The process generates denser sludge and lower sludge volumes than conventional lime neutralization. Waste sludge will be pumped to the Faro Pit. As a final step in the treatment process, a filtration system has been designed to polish the water by removing any remaining suspended solids with the use of sand filters.

Images: Future Faro Water Treatment Plant
61,000 m^3/day treatment capacity

Diagram: 3 Step Water Treatment Process



- The high-density sludge process offers many benefits over conventional lime treatment systems. It improves metal removal, produces less sludge which requires less storage space and demands less maintenance.

- The sludge will be deposited at the bottom of the Faro Pit.

Post-Treatment

An important remediation goal is the restoration of the natural environment through the creation of habitat for wildlife and local plants. Some approaches being incorporated into the remediation process include:

- The treated water leaving the Faro Water Treatment Plant will meet water chemistry standards that protect the environment. These standards are calculated to be safe for downstream ecosystems including people, plants, fish, and wildlife. The standards will be outlined in a Water Licence.
- As with current water management practices, treated water will be sampled and tested frequently to ensure that water quality standards are being met. Results from the testing will be regularly shared with regulators, First Nations and the public. If the treated water quality standards are not met, water will be sent back for further treatment.
- Treated water leaving the plant will be slowed before entering Rose Creek to avoid erosion and maintain a healthy fish habitat. Fish will remain in Rose Creek and not be able to enter any parts of the treatment system.
- Treated water from the Faro Mine site is of good quality, however, as with all natural streams, Rose Creek can contain bacteria, viruses and other non-mining substances that might not be good for people to drink.

For More Infomation

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