



OBJECTIVE

Support environmental compliance for the Coeur Wharf Mine expansion through the treatment of selenium in tailings seepage using proven, fast-acting technology.

TECHNOLOGY

Selen-IX™

PLANT CAPACITY

820–2,200 m³/day (150–400 gpm)

LOCATION

Northern Black Hills, South Dakota, USA

BQE WATER SCOPE

On-site pilot demonstration, process design, detailed engineering, equipment supply, and commissioning support for full-scale water treatment plant

PROJECT HIGHLIGHTS

- Rapid, on-spec effluent production from start-up
- Reliable performance under cold temperatures and highly variable flows
- Full-scale design informed by successful on-site pilot
- Fifth Selen-IX™ plant to be commissioned globally

Project Overview

The Coeur Wharf Selenium Water Treatment Plant (WTP) has been built to support environmental compliance related to the expansion of the Coeur Wharf Mine, an open-pit, heap-leach gold operation located in the northern Black Hills of South Dakota, USA. As a long-standing producer in the region, Coeur Wharf plays a significant role in the local economy and is committed to operating responsibly and in accordance with evolving environmental regulations.

To help meet new permit conditions associated with the mine expansion, the facility is designed to treat between 150–400 gallons per minute (gpm) of tailings seepage containing selenium, using BQE Water's patented Selen-IX™ process. This non-biological, electrochemically driven technology was selected as the Best Available Technology (BAT) for the site due to its ability to deliver immediate on-spec water at design flow, perform reliably in cold conditions, handle large fluctuations in flow, and reduce residue management costs. Prior to detailed engineering, BQE completed a successful on-site pilot demonstration using its mobile Selen-IX™ unit. The pilot campaign involved rapid deployment, commissioning, and continuous operation, with extensive sampling under varying feed conditions.

The results exceeded performance targets and provided valuable data for the full-scale design, reducing implementation risks. BQE was contracted to complete the detailed engineering design of the treatment plant, including process and equipment design, system integration, and site layout. The WTP is currently being commissioning by BQE Water with a target of being fully operational by the middle of August 2025. Once operational, it will mark the fifth full-scale Selen-IX™ plant in service globally, helping Coeur achieve its compliance goals while maintaining a strong environmental and community record.

Process Flowsheet

