



Client: ARCO / Pioneer Technical

Project Background

The cleanup of Silver Bow Creek is an ongoing Superfund remedial effort coordinated by the Montana Department of Environmental Quality (DEQ) in collaboration with the U.S. Environmental Protection Agency (EPA). Pioneer Technical is currently responsible for the treatment site operations.

The Superfund site, located in and around Butte, Montana, spans 26 miles of stream and streamside habitat downstream from the city.

Since the late 1800s, mining waste has been disposed of in the area, affecting nearby streams and wetlands. Smelters and mills also contributed to contamination through aerial emissions containing arsenic and heavy metals, leading to widespread contamination of soil, groundwater, and surface water with toxic metals.

Design

The final stage of the reclamation and groundwater treatment process involved channeling the water through a series of five treatment lagoons. Each lagoon was equipped with a bottom-sealing filter barrier, enabling suspended sediments to

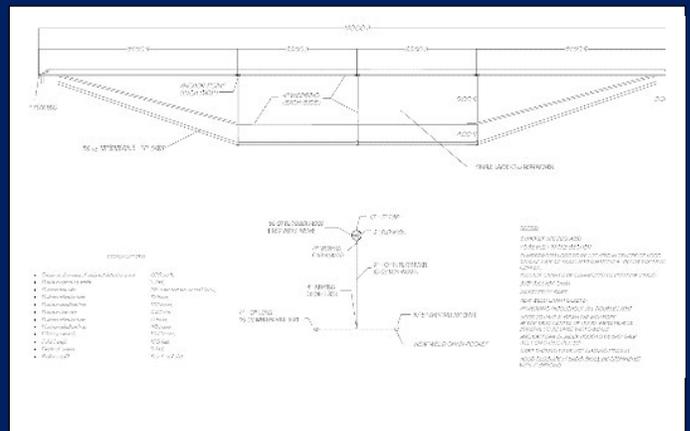


Figure 1. Cross section of barrier. This drawing was for the McLaren Mine also in MT. The barrier for this project had similar dimensions, just twice as long.



Figure 2. Aerial view of barriers within the lagoon system

settle out before the water advanced to the next lagoon. By the time the water exited the lagoon system, it had been thoroughly purified and was ready to safely enter Silver Bow Creek in pristine condition.

Installation and Performance

Originally installed in 2010, the five bottom-sealing filter barriers of varying lengths operated year-round, including through icy conditions, without any loss in performance. As part of routine maintenance, three of the barriers were replaced in 2024, while the remaining two continued to function effectively. Mackworth Subsea completed the installation without the need to dewater the lagoons. The dive crew successfully assembled and deployed the new barriers in just three days, saving the client both time and costs by avoiding the dewatering process.



Figure 3. Pump barge and equipment



Figure 4. Assembling barrier panels on site

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