

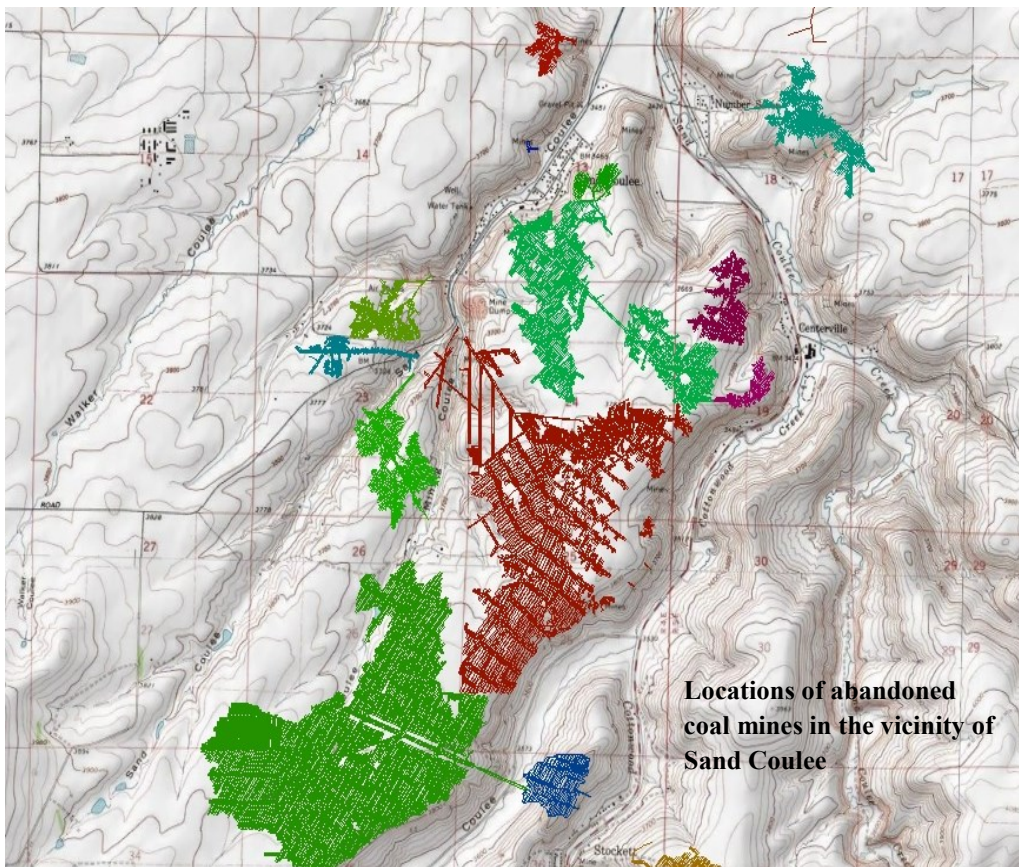
Sand Coulee Acid Mine Drainage Source Control Project, Cascade County

Abandoned Mine Lands

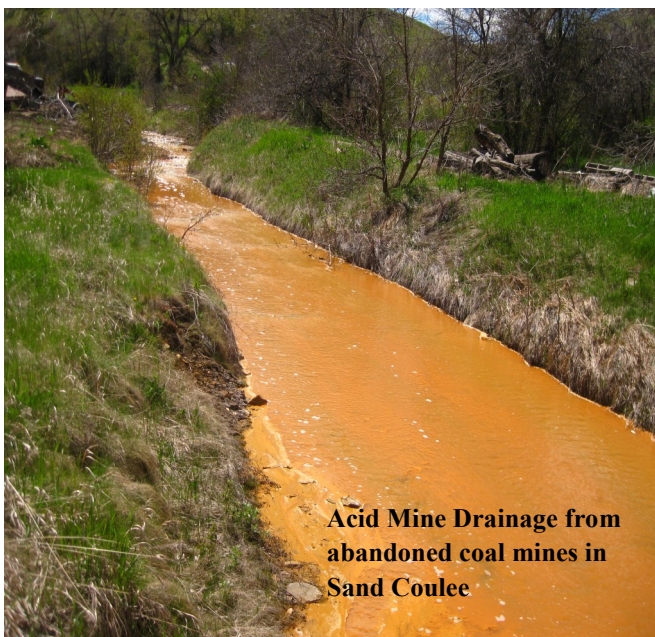
August 2016

Background

From the 1880s to the early 1900s, the Great Falls Coal Field was the leading coal producing area in Montana. Extensive underground coal mines were developed in the hillsides surrounding the community of Sand Coulee by the Cottonwood Coal Company, an affiliate of the Great Northern Railway Company. During its most active period, 1889-1898, the Sand Coulee Mine was responsible for over 50 percent of the 7 million tons of coal mined in Cascade County, which produced over 55 percent of Montana's coal output. Smaller mining operations, including the Nelson, Gerber, and Brown Coal Mines operated intermittently from the 1900s through 1940s. No coal mining occurred in the area following the 1940s.



The Problem



The coal mines were developed so that coal was mined up dip, which made the mines self-draining. Operational records indicate that highly corrosive mine water was encountered during mining operations. By 1902, acid water drainage from the Sand Coulee mine was reportedly polluted to the point that it was not suitable for industrial boiler use.

The abandoned mine workings in and around Sand Coulee act as groundwater drains which dewater the overlying Kootenai sandstone and discharge contaminated water to tributaries of Sand Coulee Creek. The **AMD is extremely acidic and contains numerous metals, including arsenic, cadmium, chromium, iron, manganese, nickel, thallium, and zinc** at concentrations exceeding Montana Department of Environmental Quality (DEQ) standards. The specific goals of the project are to reduce the loading of metals, improve the surface water and groundwater quality in Sand Coulee, and mitigate the ongoing loading of AMD to the Madison Limestone aquifer.

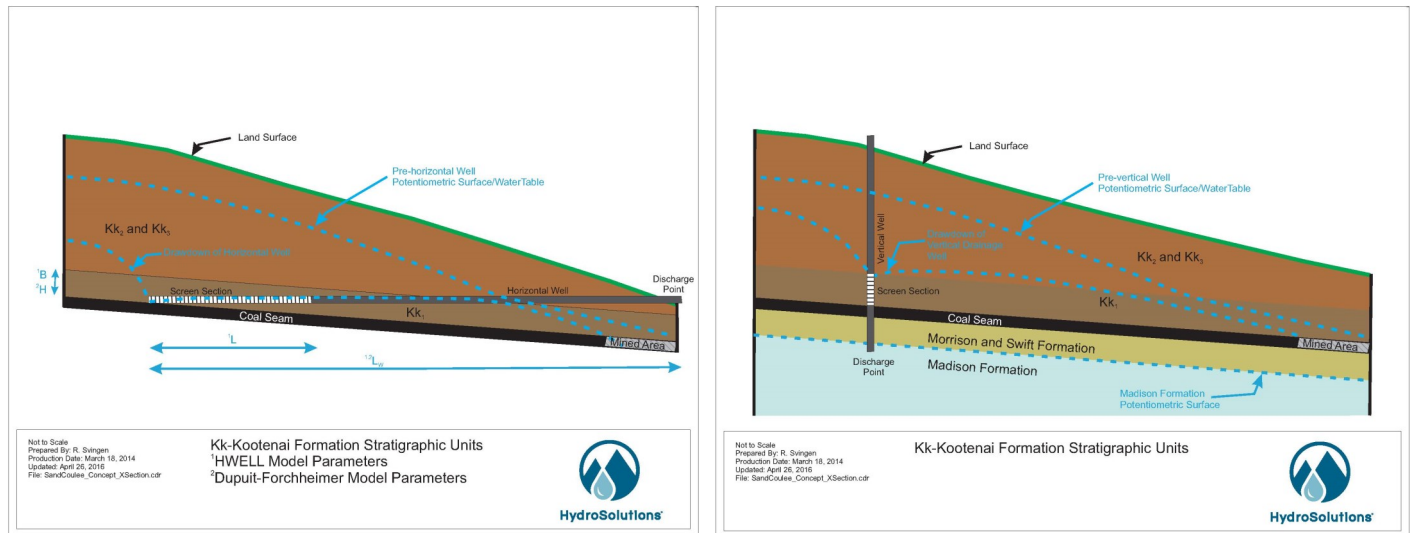
Cleanup Options

The specific goals of the project are to reduce the loading of metals, improve the surface water and ground-water quality in Sand Coulee, and mitigate the ongoing loading of AMD to the Madison Limestone aquifer.

The Environmental Assessment (EA) evaluated two alternatives to meet the objective. These options include:

- Alternative 1: No Action
- Alternative 2: AMD Source Control (Proposed Action)

Under the proposed action, source control would be implemented by intercepting the groundwater in the Kootenai sandstone before it enters the mine workings. Two methods will be attempted to reduce flow into the abandoned coal mines, one to drill horizontally to dewater the Kootenai upstream of the mine workings and discharge clean water to surface water bodies. The second would be to drill into the Kootenai aquifer and drain clean water into the lower Madison aquifer reducing the drainage into the abandoned coal mines. The proposed action would include pre-implementation and post implementation monitoring at 4 locations throughout Sand Coulee. Discharge and water quality will be monitored throughout the course of the project. Under the No Action alternative, no drilling would occur and AMD would continue to contaminate surface and groundwater throughout Sand Coulee.



Public Comment Period

DEQ is seeking public comment on the Sand Coulee Environmental Assessment (EA). Written comments may be submitted to Tom Henderson, project manager, via email at THenderson@mt.gov or at P.O. Box 200901, Helena, MT 59620-0901. Comments will be received through September 3, 2016. The complete draft EA is available online at <http://deq.mt.gov/Land/AbandonedMines/CurrentProjects>

Schedule

DEQ will begin monitoring acid mine drainage during the summer of 2016 and begin drilling during the summer of 2017.

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