

Reclamation of the McLaren Tailings: The Rest of the Story¹

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Abstract: In late 1960, Soda Butte Creek was considered the most polluted stream entering Yellowstone National Park. Significant portions of this pollution were coming from the McLaren Tailings impoundment, constructed in the historic channel and floodplain of Soda Butte Creek from 1934 to 1953. The site is located in the New World Mining District near Cooke City, Montana, in an isolated alpine area characterized by short growing seasons, large winter snow accumulations, rapid spring runoff, and dynamic groundwater fluctuations. The Montana DEQ contracted Pioneer Technical Services, Inc. to complete an Engineering Evaluation/Cost Analysis (EE/CA) for the site in 2000, and additional investigations were completed in 2007/2008. Based on the groundwater/surface water modeling, soil stability analysis, and sediment transport modeling results, Pioneer developed a remedial design to stabilize/remove 191,140 cubic meters of mine tailings, mine wastes, and impacted soils; construct an on-site repository, a site-wide dewatering system and water treatment system, and 1,219 linear meters of storm water conveyance channels/infiltration systems; reconstruct 610 linear meters of Soda Butte Creek and Miller Creek; and revegetate 10 hectares. The project turned a previously unusable area back to its historical landscape while cleaning up the contaminated Soda Butte Creek and preserving important fishery and natural resources of Yellowstone National Park. The project was awarded in April 2010, construction began in June, and the project was completed in fall 2015. Given the flexibility built into Pioneer's design, DEQ's receptiveness to value engineering, and the consistent diligence of the contractor (Knife River-Yellowstone Division) the McLaren project was completed 1 year ahead of schedule and \$2.5M under budget. After 4 years, the site is functioning as a stable landform. Water quality in Soda Butte Creek has improved to the point where in 2018 DEQ delisted the creek from Montana's list of impaired waters 303d list.³

Additional Key Words: Yellowstone National Park, Cooke City Montana, New World Mining District, Mine Tailings, Stream Channel Construction, Dewatering System, Water Treatment.

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3. Work reported here was conducted near 40°06'07" N, 88°14' 59" W.