

Converting a Former Mine to a Winter Wonderland¹

Dale Kolstad* and Megan Houdeshel*²

Abstract: The Mayflower Mine in Wasatch County, Utah, once produced more gold than the rest of the Park City District mines combined. The mine also produced an abundance of silver, zinc, and copper. After nearly 50 years of dormancy, the mine site is being reclaimed and converted to a ski resort with luxury hotels and residences. The site is enrolled in the Utah Department of Environmental Quality (UDEQ) Voluntary Cleanup Program (VCP) to streamline cleanup efforts and provide assurance to investors. A successful cleanup depended upon a comprehensive permitting and regulatory engagement effort that included integration of requirements of the Utah Department of Environmental Response and Remediation (DERR), Utah Pollutant Discharge Elimination System (UPDES), and United States Army Corp of Engineers (USACE) Nationwide Permit programs. An extensive site characterization was completed to determine the nature and extent of impacts. The investigation revealed an unstable waste rock pile at the mouth of the portal, widespread lead and arsenic in topsoil, portal drainage containing dissolved metals above receiving water standards, and metals-impacted sediments within drainages and wetlands. The remedial design included diverting the portal drainage from the wetlands, removing the sediment, and placing the excavated topsoil and sediment with waste rock in an onsite sealed repository. The repository was purposefully designed to accommodate a range in material quantities and qualities while maintaining a consolidated footprint. The portal drainage is collected and treated with green sand filtration to use for snowmaking operations in winter and routed through constructed wetlands for additional passive treatment in summer. Remedial actions were strategically incorporated into the overall mixed land use redevelopment plan, providing protection of human health and the environment without affecting the building plans or future site aesthetics. The design used cost-effective onsite materials unsuitable for development construction but useful for the repository and compensatory wetlands.

-
1. Oral paper presented at the National Meeting of the American Society of Reclamation Sciences, Duluth, MN. June 12-16, 2022. Published by ASRS; 1305 Weathervane Dr., Champaign, IL 61821.
 2. Dale Kolstad, P.E. (*co-presenter). Senior Environmental Engineer and Vice President. Barr Engineering Company. Minneapolis, MN; Megan Houdeshel (*co-presenter). Partner and Co-Chair Energy & Natural Resources Industry Group. Dorsey & Whitney LLP. Salt Lake City, UT.