

COMPREHENSIVE PLANNING AND RESTORATION OF NATIVE PLANT COMMUNITIES AT BLOCK P MILL TAILINGS SITE, MONARCH, MT¹

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Abstract. In 1998, Bitterroot Restoration, Inc, (BRI) began an eight-year exercise of site assessment, research and development, and planning that has led to initial efforts in 2005-2006 for the restoration of native plant communities at the Block P Mill Tailings site near Monarch, MT. This site lies within the Barker-Hughesville National Priority List (NPL) site, but restoration is managed by the Doe Run Companies of St. Joseph, Missouri under an Action Memorandum signed in 2002 by the U.S. Forest Service and the Environmental Protection Agency.

This site contained several hundred-thousand cubic yards of tailings with elevated levels of arsenic, cadmium, iron, lead and zinc, and with zones of significant acidity (average pH of soils of 5.8 standard units, minimum pH of 2.5 standard units). On behalf of the Doe Run Companies, BRI conducted vegetation community assessment and conceptual restoration planning in support of the Engineer's Estimate/Cost Assessment (EE/CA), which was finalized in 2001. This work included greenhouse trials to evaluate the efficacy of various soil amendments and the success of plant growth in tailings and/or contaminated soils.

Based in part upon this work, the decision was made to consolidate the contaminated materials, cap and cover the repository, instead of amending in place. BRI then developed a revegetation plan specifying approaches to: soil neutralization; organic amendments; fertilization; seeding; planting; maintenance; and, monitoring on both the removal areas and tailings cap. Specifications were prepared for nine different restoration zones comprising 8.8 acres of riparian areas and wetlands, and 7.4 acres of uplands. Seeds and cuttings from native plants were collected for propagation from the vicinity of the Block P site in fall 2004 and spring 2005. Implementation commenced in fall 2005 and will be completed in spring 2006. This work will demonstrate how comprehensive site assessment, research and development, and planning can result in site-specific restoration of native plant communities on severely disturbed mine sites.

Additional Key Words: mine reclamation, tailings, metal toxicity, acidity

¹ Paper was presented at the 2006 Billings Land Reclamation Symposium, June 4-8, 2006, Billings MT and jointly published by BLRS and ASMR, R.I. Barnhisel (ed.) 3134 Montavesta Rd., Lexington, KY 40502.

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