

# DEVELOPMENT OF A RIPARIAN EVALUATION SYSTEM (RIPES) FOR THE CLARK FORK RIVER SUPERFUND SITE<sup>1</sup>

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**Abstract.** Montana's Clark Fork River is an EPA Superfund site due to human and environmental risks resulting from the fluvial deposition of acid metalliferous mining wastes along 120 miles of River's corridor. Cleanup strategies include removal of some wastes, in-place treatment of other wastes, and stream-bank stabilization. A Riparian Evaluation System (RipES) has been developed as a data predicated decision tool designed to identify and categorize polygons based on landscape stability and plant community dysfunction within the Clark Fork River Operable Unit. The system contains the following elements: definitions for three types of stream-bank polygons, and descriptions of other polygons with varying levels of contamination caused vegetation community dysfunction; a numerical components with associated threshold scores that segregate stream-bank polygons into different categories, and threshold scores that distinguish the severity of dysfunction of the vegetation community; a process for identification of data gaps and information required to complete remedial designs for each polygon; and identification of modifying factors that may affect the selection of remedial action(s) for specific lands. The numerical portion of the system is based upon the Land Reclamation Evaluation System (LRES) developed for the Anaconda Smelter NPL Site (EPA 1998, CDM and RRU 1999, and ARCO 2000), and the Riparian and Wetland Health Assessment protocols (Hansen and others 2000), which are used extensively in the western United States and Canada. In the future, the system may be used to establish performance standards, evaluate land reclamation designs, post-action effectiveness evaluations, and monitoring and maintenance programs in reclaimed areas. The RipES tool is currently being evaluated for applicability to other sites in western USA.

**Additional Key Words:** Superfund reclamation, mine wastes, risk reduction

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