Natural Resource Damage Assessment and Restoration Planning Proposal for the Southeast Missouri Lead Mining District

Meramec River Ecosystem Restoration Feasibility Study

Submitted by the Missouri Department of Natural Resources – August 2016

Introduction and Background

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorizes the recovery of damages at sites where injuries to the public's natural resources have occurred as a result of the release of hazardous substances. CERCLA authorizes federal and state "Trustees" to act on behalf of the public by assessing natural resource injuries, developing restoration plans to compensate for those injuries, and acquiring funding to make that restoration possible.

The Southeast Missouri Lead Mining District (SEMOLMD) has a long and extensive history of mining of lead, zinc, and other metals. One of the legacies of heavy-metal mining in the SEMOLMD is large-scale ecological injury to thousands of acres of terrestrial habitat and hundreds of miles of streams. In 2009, the Missouri Department of Natural Resources (MDNR), acting as the state natural resource Trustee, and the U.S. Fish and Wildlife Service (FWS), acting as the lead federal natural resource Trustee on behalf of the U.S. Department of the Interior, successfully resolved a claim for natural resource damages against the American Smelting and Refining Company (ASARCO). This settlement resulted in the recovery of over $40 million to restore, rehabilitate, replace, and/or acquire the equivalent of the natural resources that have been damaged in the SEMOLMD.

Pursuant to CERCLA and its implementing regulations, the natural resource Trustees in southeast Missouri developed the Southeast Missouri Ozarks Regional Restoration Plan (SEMORRP), which guides the restoration process in the SEMOLMD. The first step in the implementation of primary restoration projects under the SEMORRP is the generation of a primary restoration project proposal by one or more of the Trustees. In order to aid in the identification and development of future restoration project proposals, the MDNR has drafted this restoration planning proposal.

Restoration Planning Proposal Overview

The MDNR proposes to utilize $100,000 in ASARCO restoration funds to partially fund a U.S. Army Corps of Engineers (USACE) Feasibility Study in the Meramec River Basin. The MDNR is currently working with the USACE as a non-federal sponsoring agency on this project and FWS is also involved as a cooperating agency under the National Environmental Policy Act (NEPA). The MDNR would use the requested restoration planning funding as state matching funds for the Feasibility Study. The Feasibility Study is designed to identify ecosystem restoration opportunities in the Meramec River Basin, including the Big River watershed, which will help the Trustees to plan and design future restoration projects.

The specific interest of the MDNR in conjunction with the FWS is to plan and design restoration projects that compensate for injuries to resources in the Big River from releases from the Big River Mine Tailings site. As a result, the top priority of the Trustees is for this Feasibility Study to identify restoration projects in the Big River itself.

USACE Meramec River Ecosystem Restoration Feasibility Study Background and Overview

The USACE Meramec River Ecosystem Restoration Feasibility Study (Feasibility Study) is an extension of the USACE St. Louis Riverfront Study. In a June 21, 2000 Resolution, the Committee on Transportation and Infrastructure of the United States House of Representatives authorized the USACE Chief of Engineers to conduct an ecosystem restoration Feasibility Study along the Mississippi River and its tributaries in St. Louis City, St. Louis County, and Jefferson County, Missouri, and Madison County, St. Clair County, and Monroe County, Illinois. This study allowed the USACE to facilitate, advise, and work collaboratively with other Federal and state programs in developing solutions that integrated programs, policies, and projects across various agencies. The initial St. Louis Riverfront Project was completed in August 2004. As part of the findings of that study, it was determined that there was potential for ecosystem restoration in the Meramec River Basin, including the Big River watershed, but that further study would be needed.

In 2009, the USACE and the MDNR entered into discussions regarding a potential partnership involving a portion of the Meramec River watershed. Because the MDNR is interested in restoration opportunities within the Big River and the lower Meramec River in its role as a Trustee in the SEMOLMD, the two agencies agreed to an addendum to the USACE St. Louis Riverfront Study, extending the study area to only those portions of the Meramec River watershed, including the Big River, located within St. Louis and Jefferson Counties, Missouri. However, in order to evaluate restoration feasibility in the Big River, conditions and restoration potential in upstream counties (St. Francois and Washington) will likely also need to be considered.

Other governmental agencies involved in this project besides the MDNR include the U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Department of Agriculture - Natural Resources Conservation Service, Missouri Department of Conservation, and the Missouri Department of Health and Senior Services. Additionally, the FWS has been identified as a cooperating agency under NEPA.

Feasibility Study Goals

One of the main goals of the Feasibility Study is to identify cost-effective projects to protect, enhance, and restore the aquatic and riparian habitat along the Big River and Lower Meramec River within St. Louis and Jefferson Counties, Missouri. The current primary focus of the study is on restoration projects in the Big River in Jefferson County. The Feasibility Study will utilize the USACE's integrated water resource management effort that incorporates interagency

planning and complements other Federal and state agency efforts. The study is intended to provide an in-depth analysis of restoration projects by examining models for issues such as bed load movement and bank stability to identify specific restoration projects and provide recommendations for the agencies. The USACE can partner with its state cooperators by lending its technical expertise to the ecosystem restoration component of the Big and Meramec River watershed recovery and restoration efforts.

The final study report will yield the design build for recommended projects to conduct stream channel, stream bank, and riparian corridor restoration projects. In addition to these efforts, the USACE will complete its own NEPA analysis for projects identified in the final Feasibility Study. The Feasibility Study is also a necessary part of the USACE process for securing construction funding. Restoration projects identified in the completed Feasibility Study may qualify for additional federal funding from USACE for implementation.

The Feasibility Study will examine multiple ecological issues in the Meramec River watershed, including:

Altered Hydrology
Alteration of the hydrology of the river basins has resulted in various changes to stream hydraulic, geomorphological, physiochemical, and biological function and thus influences most other problems identified below.

Altered Connectivity
The alteration to transport of water within the stream channel, floodplain, and through sediments, results in the reduction of hydrologic and biological connection to floodplains. Low-water dams and road crossings can create aquatic organism passage barriers that reduce aquatic diversity.

Altered Floodplain, Wetlands, and Riparian Corridors
Land use, such as conversion of floodplain forests to livestock pasture and draining of floodplain wetlands for commercial development, has altered areas naturally prone to flooding, as well as naturally occurring physical and biological connections.

Excessive Suspended and Bedded Sediments
Suspended sediments occur naturally and are essential to ecological function of the Big and Meramec Rivers. However, excessive suspended sediments and bed load are considered the leading cause of impairment to rivers and streams not only in these rivers, but nationwide.

Contaminated Sediments and Floodplain Soils
In 1998, the Big River in Jefferson, Washington, and St. Francois Counties was designated an impaired water under Section 303(d) of the Clean Water Act due to lead contamination. In 2008, the Meramec River below the confluence with the Big River was also designated as an impaired water under Section 303(d) due to lead contamination. Designation as an impaired water indicates that the waterway does not meet the water quality standards established by the state for protection of aquatic life. Studies by contractors for the FWS documented contaminated floodplains from the lead mining district in St. Francois County to the confluence of the

Meramec in Jefferson County. Measures to address contaminated sediment will need to take into account floodplain soils as contributing metal sources to the Big and Meramec Rivers.

Feasibility Study Objectives

The USACE has identified two main objectives for the Feasibility Study:

Objective 1: Protect and re-establish riparian and wetland plant communities in the Meramec River Basin

The diversity and extent of native plant communities throughout the study area have been diminished through past and current land use practices including deforestation and development, toxicity from heavy metals, and by competition from invasive plant species. Restored native plant communities will benefit wildlife by providing greater diversity of forage, cover, and breeding habitat; support a more diverse and stable environment; and benefit aquatic organisms by reducing soil erosion of lead- contaminated soils. The Feasibility Study will identify unstable banks and other erosion prone areas that would present opportunities for future riparian or floodplain restoration.

Objective 2: Improve watershed health through sediment control in the Meramec River Basin

The study area is heavily impacted by sediment contaminated with metals, including lead and zinc being transported. Reducing the amount of contaminated sediment through future restoration activities will protect an assortment of aquatic resources, such as endangered mussels, as well as support habitat for wildlife, including surface water and river beds. Identifying priority areas for sediment removal and geomorphically sustainable and cost-effective techniques will be a major focus area for this Feasibility Study.

Restoration Planning Funding

In its role as a NRDAR Trustee, the MDNR proposes to use $100,000 of the ASARCO Big River restoration funds to partially fund the Feasibility Study. These funds may be considered a portion of the non-federal match required from the sponsor of the project under the Memorandum of Agreement between the MDNR and the USACE for the St. Louis Riverfront project. Additional matching contributions may be in-kind work such as staff time for the project or cash to fund the project. The MDNR's non-federal matching funds required for this project is currently $930,000.

As described above, this study will investigate, identify and develop potential restoration opportunities in the Meramec River watershed, including in the Big River. Evidence indicates that Big River and its natural resources have been injured by the release of heavy metals. The MDNR believes the objectives of the study complement and overlap with the natural resource Trustees' authority under CERCLA to restore, rehabilitate, replace, and/or acquire the equivalent of natural resources and their services injured by the releases of hazardous substances.

In addition to the identification of projects, there may be additional overlap of project benefits to the Trustees from the USACE process. For example, following the completion of the study, the USACE will request construction authorization to conduct restoration projects within the study boundaries. If construction authorization is awarded, the USACE would be able to provide cost share funds up to 65% for project construction. Furthermore, depending on the adequacy of the NEPA analysis that the USACE conducts in the Feasibility Study, the FWS may be able to adopt this NEPA analysis as its own, enabling the Trustees to implement identified restoration projects more quickly.

Additional Information, Questions, or Comments

The public is invited to submit comments on this Restoration Planning Proposal. The Trustees will accept comments for a thirty day time period, from August 16, 2016, through September 16, 2016. Please submit comments (preferably electronically) to:

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For additional information concerning this restoration planning proposal, please contact Tim Rielly, MDNR at tim.rielly@dnr.mo.gov or (573) 522-3356.