

Response to Public Comments on the

**DRAFT PHASE I DAMAGE ASSESSMENT
PLAN FOR SOUTHEAST MISSOURI LEAD
MINING DISTRICT: BIG RIVER MINE
TAILINGS SUPERFUND SITE, ST. FRANCOIS
COUNTY AND VIBURNUM TREND SITES,
REYNOLDS AND IRON COUNTIES**

August 2008

State of Missouri
Missouri Department of Natural Resources

U.S. Fish and Wildlife Service
U.S. Department of the Interior

January, 2009

Introduction

Under the Comprehensive Environmental Response, Compensation, and Liability Act, and implementing regulations, the Director of the Department of Natural Resources (MDNR) and the U.S. Department of the Interior (DOI) are Trustees (Trustees) for natural resources. Pursuant to the Department of the Interior's Natural Resource Damage Assessment Regulations, (DOI NRD regulations) 43 C.F.R. Part 11, the Trustees determined that natural resource damage assessment activities were warranted at certain areas within the Southeast Missouri Lead Mining District (SEMOLMD). The Trustees developed a *Draft Phase I Damage Assessment Plan for Southeast Missouri Lead Mining District: Big River Mine Tailings Superfund Site, St. Francois County and Viburnum Trend Sites, Reynolds and Iron Counties* (Phase I Assessment Plan) and released the Phase I Assessment Plan for public comment on August 22, 2008. The purpose of the Phase I Assessment Plan "is to ensure that the [natural resource damage] assessment is performed in a planned and systematic manner and that methodologies selected...can be conducted at reasonable cost..." 43 C.F.R. § 11.30(b). The Phase I Assessment Plan was limited in scope to address only two sub-phases of the natural resource damage (NRD) assessment process: Injury Determination and Injury Quantification. (*See* Assessment Plan at 8). In accordance with the DOI NRD regulations, the Trustees are developing a Restoration Compensation and Determination Plan to fulfill the third sub-phase of the NRD assessment process, Damages Determination. The Trustees will release a draft of the Restoration Compensation and Determination Plan for public review and comment once it is prepared.

The Trustees received three comments on the August, 2008 Draft Phase I Damage Assessment Plan for Southeast Missouri Lead Mining District: Big River Mine Tailings Superfund Site, St. Francois County and Viburnum Trend Sites, Reynolds and Iron Counties. The Trustees appreciate the time and effort expended by the commentors. The Trustees' response to comments does not address any comments outside of the scope of the Phase I Assessment Plan and the planned activities identified therein, for example, information or discussions concerning the liability of potentially responsible parties.

The NRD Assessment Areas for the Phase I Assessment Plan for SEMOLMD include the Big River Mine Tailings Superfund Site in St. Francois County, Missouri, the Big River to the confluence of the Meramec River and 35 miles of the Meramec River. The Phase I SEMOLMD Assessment Areas also include certain sites within the Viburnum Trend: West Fork Mine and Mill Complex, the Sweetwater Mine and Mill Complex, the Glover Lead Smelter and Refinery and surrounding areas in and around Iron and Reynolds Counties, Missouri.

Comment 1: The Draft Phase I Assessment Plan does not identify a lead individual or agency for the natural resource damage assessment activities.

The natural resource damage Trustees are conducting a joint NRD assessment in the Southeast Missouri Lead Mining District. The Missouri Department of Natural Resources is the lead agency for the state trustee while the U.S. Fish and Wildlife Service is the lead agency for the federal trustee. At this time, the Lead Administrative Trustee is the Missouri Department of Natural Resources, represented by Frances Klahr, NRD Coordinator. David Mosby is the Case Manager for the U.S. Fish and Wildlife Service. The Trustee for the State of Missouri is the Director of the Missouri Department of Natural Resources. The Authorized Official for the U.S. Fish and Wildlife Service is the Director of Region 3, Fish and Wildlife Service.

Comment 2: The Draft Phase I Assessment Plan does not identify or reference local land use planning documents or consultation with community and regional planners.

The Draft Phase I Assessment Plan is focused solely on the first two sub-phases of the NRD assessment process: Injury Determination and Injury Quantification. To that end, the Draft Phase I Assessment Plan identified and described injury studies in the Big River, the Meramec River, and their tributaries, as well as other studies, such as the Floristic Quality Assessment, to determine and quantify terrestrial injuries. The next sub-phase in the NRD assessment process is Damages Determination, which includes identifying alternatives for restoration. (See 43 C.F.R. §§ 11.80-84). The Trustees plan to consult with the local city and county governments and Southeast Missouri Regional Planning Commission.

Comment 3: The MacDonald, et al. Probable Effects Concentration (PEC) is not relevant to determining injury to sediments in Southeast Missouri Lead Mining District because the contamination is limited to the mining related metals lead, zinc, and cadmium, not other contaminants such as oil and PCBs. Instead, the injury studies should use spiked samples for determining the impact of the metals expected to be present on the organisms.

The Trustees assumed that the commenter was referring to the Probable Effects Concentrations initially developed by D. MacDonald, C. Ingersoll and T. Berger. See "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" 39 Arch. Environ. Contam. Toxicol. 20-31 (2000).

The Probable Effects Concentrations (PECs) developed by MacDonald et al., used samples that in some cases had mixed metals and organics contamination. As a result, a potential concern with applying the PECs in a metals-contaminated environment without organic contamination is that a metals-only contaminated sediment may have a different toxicological response, diminishing the predictive ability of the PECs. For example, a higher metals concentration may be needed to cause toxicity in the absence of organics.

Since the initial publication of the MacDonald PECs, additional studies have been conducted on metals-only contaminated sediments. A review of the results of these studies indicated that the

MacDonald PECs worked well at predicting toxicity as a result of metals-only contamination. In the SEMOLMD, the Trustees elected to conduct a site-specific study to verify and calibrate the applicability of the MacDonald PECs in the metals-only contaminated environment in Southeast Missouri. See USGS study plan “Toxicity of metal-contaminated sediments from the southeast Missouri lead mining district to freshwater mussels and amphipods.” (Attachment A). The study also collected simultaneously-extracted metals, acid volatile sulfide, and the fraction of organic carbon in sediment (Σ SEM-AVS/foc) data to further support the applicability of the MacDonald PECs in the metals-contaminated Big River. This data is needed to support the applicability of the PECs because high levels of sulfides and organic carbon act as inhibitors to the uptake of the metals, making the metals less available to aquatic organisms and therefore less toxic. The results of this USGS study are pending. In general, McDonald’s et al. PECs for metals are more predictive of toxicity in environments where organic carbon and sulfide is low. Streams in much of the Ozarks, including SEMOLMD, are typically environments with low organic carbon and free sulfide.

For a variety of reasons, the Trustees determined that spike sampling was not necessary at this time in the NRD assessment process. While studies using spiked sediment samples may be helpful, there are uncertainties in this methodology. For example, it is challenging to find uncontaminated sediment with characteristics, such as consistent iron and manganese content, which match those of the site sediments. The detailed methodology of how to add material (i.e., metals) to the sample sediments to represent what was in the environment and exposed to the elements for 50 -100 years is also difficult. Chemical transformations of heavy metals result in complex mixtures of metal species. The speciation of metals has a profound effect on their bioavailability and toxicity. It is very difficult to replicate these complex metal species in a spiked sample study. Besides scientific concerns with spiked samples methodology, the return on effort of this type of study is low in comparison to a site specific field study. The Trustees determined that a site specific field study to verify the ability of the MacDonald PECs to predict toxicity in the metals-only contaminated environment of SEMOLMD was a less expensive alternative to the spike sample study which would provide the injury assessment information needed.

Comment 4: The Draft Phase I Assessment Plan does not evidence an intent to coordinate with the public beyond public meetings.

The Trustees believe that public participation in the natural resource damage and restoration (NRDAR) process is vital to ensuring that the injured natural resources are fully restored to compensate the public. The public meeting held on September 4, 2008, was designed to gain public input on the damage assessment plan and was the first formal step in the public participation process. The Trustees have also met with a variety of local watershed groups and schools in an effort to inform the public of assessment activities. The state and federal Trustees, along with other program representatives within the Missouri Department of Natural Resources who are required to obtain public input, recently met to better coordinate public outreach efforts in Southeast Missouri. One option that is being investigated is identifying a single, centralized contact person located within Southeast Missouri to serve as a liaison among the Trustees,

MDNR, and the public. The Trustees believe that this approach will maximize the limited resources of the Trustees and MDNR; increase public input in a number of areas; and minimize confusion for the public. Additional information on this public outreach approach will be provided as the NRD assessment process moves forward.

Comment 5: The Trustees should consider designing the stream and river injury studies so that the beneficial impacts of the removal action activities on streams nearby sites within the Big River Mine Tailings Site are a factor in assessing the damages and restoration. The injury studies should be designed to reflect the condition of the waterbodies post removal action activities.

Removal actions under the U.S. Environmental Protection Agency's Superfund Program are ongoing at mine tailings piles within the Big River Mine Tailings Superfund Site. Stabilization of a portion of the six (6) tailings piles at the Site is substantially complete. In addition, at the Federal Pile, construction of the dam and other erosion control measures is considered completed. Natural resource damages are residual to response actions. Restoration actions are not currently underway at any site within SEMOLMD.

The DOI NRD regulations instruct Trustees to take into account “any mitigation of those [natural resource] injuries by response actions taken or anticipated” in determining natural resource damages. There are a variety of ways the Trustees could fulfill this requirement. For example, the recovery time of an injured resource is generally faster as a result of a response action. The Trustees may capture this faster recovery period by calculating the return to baseline level of services of an injured resource for a shorter period of time. 43 C.F.R. § 11.15(a)(1).

The DOI NRD regulations also instruct the Trustees to take into account the results of response actions, including removal action activities, in the Trustees’ consideration of restoration alternatives. 43 C.F.R. § 11.82. By definition, restoration actions “are in addition to response actions completed or anticipated” but only “when such [restoration] actions exceed the level of response actions determined appropriate to the site pursuant to the NCP.” 43 C.F.R. § 11.14. The assessment activities described in the Draft Phase I Assessment Plan include estimating the total volume of contaminated sediment already in the Big River watershed system and evaluating the storage and transport rates of the existing contaminated sediment.

There are a variety of ways that the Trustees could incorporate the results of response actions into the restoration alternatives, depending on the details of the applicable response action(s). The Trustees will follow the DOI NRD regulations and will take into account the results of the removal actions in both quantifying the injury to natural resources within SEMOLMD as well as identifying restoration alternatives. The Trustees will include a more elaborate discussion of how the response actions at the Big River Mine Tailings Superfund Site Assessment Area were accounted for in the Damages Determination in the Restoration Compensation and Determination Plan. As discussed before, a draft Restoration Compensation and Determination Plan will be made available to the public for review and comment once it is prepared.

Comment 6: The Draft Phase I Assessment Plan does not propose to conduct economic analysis as part of the NRD assessment process.

The Draft Phase I Assessment Plan is focused solely on the first two sub-phases of the NRD assessment process: Injury Determination and Injury Quantification. Pursuant to the NRD regulations, the Trustees will consider the relationship between costs and benefits and the cost-effectiveness of restoration alternatives identified and analyzed in the Damages Determination sub-phase of the NRD assessment process for SEMOLMD. 43 C.F.R. §11. 82

Comment 7: There is reduced objectivity for the NRD assessment process because the same individuals assigned to perform the assessment are also planning the assessment.

The Trustees disagree with this statement. The Trustees are following the NRD assessment process described in the DOI NRD regulations which intend for the designated natural resource trustees to plan and implement the assessment as well as determine appropriate restoration projects. The DOI NRD regulations also intend that the Trustees will implement or directly oversee the implementation of the selected restoration projects. All assessments are held to high standards of scientific rigor and objectivity.

**NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION
RESPONSE TO PUBLIC COMMENTS
SEMOLMD PHASE I ASSESSMENT PLAN**

MISSOURI DEPARTMENT OF NATURAL RESOURCES



Joseph P. Bindbeutel, Acting Director
Missouri Department of Natural Resources

2/10/09

Date

U.S. DEPARTMENT OF THE INTERIOR

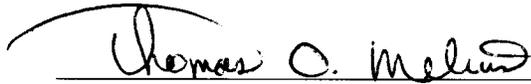
Tom Melius, Director
Region 3
U.S. Fish and Wildlife Service
U.S. Department of the Interior

Date

**Natural Resource Damage Assessment and Restoration
Response to Public Comments
SEMOLMD Phase I Assessment Plan**

CONCURRENCE

For the U.S. Department of Interior:



Tom Melius, Director
Region 3, U.S. Fish and Wildlife Service
Authorized Official for the Department of Interior

Jan. 23, 2009
Date

For the Missouri Department of Natural Resources:

Joseph P. Bindbeutel, Acting Director

Date