

SECTION 404(b)(1) EVALUATION MRL Seepage Control Measures

I. PROJECT DESCRIPTION

a. Location. The proposed seepage control measures are located in six states within the Memphis District (Arkansas, Illinois, Kentucky, Mississippi, Missouri and Tennessee). The proposed work will be on the landside of the mainline Mississippi River levee.

b. General Description. Since publication of the SEIS dated July 1998, it has been determined that other seepage control measures need to be installed along the Mississippi River mainline levee in the Memphis District to prevent seepage problems. Seepage control will be achieved primarily through installation of relief wells and associated drainage work. In the event that future project designs favor construction of berms or installation of slurry trenches, these berms or trenches would be placed only in prior converted cropland. Borrow areas would also be located within prior converted croplands. If slurry trenches or berms are recommended, additional NEPA analysis will be required.

c. Authority and Purpose. This project is authorized under the Flood Control Act of 1928.

d. General Description of Dredged and /or Fill Material.

(1) General Characteristics of Fill Material. The excavated material from ditches consists of sediment from surrounding agricultural fields. This material consists of alluvial deposits laid down by an ancient Mississippi River channel. If berms are constructed, the material used would be taken from surrounding agricultural fields. If slurry trenches are constructed, bentonite powder will be mixed with excavated earth to form a clay mineral.

(2) Quantity of Material. Quantities of excavated material will vary between project locations.

(3) Source of Material. The earthen material will be excavated from the project site. Bentonite powder is a clay mineral mined from Midwestern states.

e. Description of Proposed Discharge Sites.

(1) Location. The excavated material will be deposited immediately adjacent to the ditch or the slurry material placed back into the excavated trench.

(2) Size. The items of work vary in length from 1 to 13 miles and consist of 1 to 130 wells.

(3) Type of Habitat. The majority of the proposed work will be in agricultural lands. Approximately 15.6 acres of woody vegetation may be cleared to excavate material from existing ditches or construction of new ditches. This woody vegetation may consist of cottonwood, American elm, hackberry, red maple, pecan, sycamore, cypress and sweet gum. Understory vegetation may be comprised of catbrier, poison ivy, honeysuckle, sumac, Johnson grass, blackberry, and ragweed.

(4) Timing and Duration of Discharge. The work will take place during drier periods and low flow conditions.

f. Description of Disposal Method. Conventional dragline and earth moving equipment will be used during construction and maintenance activities.

II. FACTUAL DETERMINATION

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The project site is located in flat, ancient Mississippi River floodplain. Elevations range from 200 to 350 feet above mean sea level.

(2) Sediment Type. The excavated material would be comprised of silts, clays and sands.

(3) Dredged and Fill Material Movement. Material will be excavated from the existing ditches or agricultural fields and deposited adjacent to the ditches for associated drainage work. If berms are constructed, borrow material as well as placement of same would be within surrounding agricultural fields.

(4) Physical Effects on Benthos. Excavation of sedimentation will have a minimal impact on benthos. Benthic communities will return to pre-construction conditions shortly after project completion.

(5) Other Effects. NA

(6) Action Taken to Minimize Impacts. Construction will take place during periods of low rainfall and low water stages.

b. Water Circulation, Fluctuation, and Salinity Determination.

(1) Water. No change in water quality is expected due to this project.

(a) Salinity. N/A

(b) Water Chemistry. The water chemistry of the project-affected area should not change as a result of the excavation of material or placement of earthen fill for berm construction or bentonite deposition.

(c) Clarity. If drainage work is performed, there will be a temporary increase in turbidity in the existing ditch during excavation. Turbidity levels should return to pre-construction levels shortly after project completion.

(d) Color. No expected change.

(e) Odor. No expected change.

(f) Taste. No expected change.

(g) Dissolved Gas Levels. No expected change.

(h) Nutrients. No expected change.

(i) Eutrophication. No expected change.

(j) Others as Appropriate. N/A

(2) Current Patterns and Circulation.

(a) Current Patterns and Circulation. No changes are anticipated.

(b) Velocity. Construction will not affect water velocity in the ditches. Average and low-flow conditions will not be affected.

(c) Stratification. No expected change.

(d) Hydrologic Regime. This work will not affect the hydrologic regime of the overall project area.

(3) Normal Water Level Fluctuations. The existing water level in the ditches is determined by rainfall and channel capacity. By enlarging the existing ditches, the storage capacity within the ditch would increase, but water level fluctuation should be minimal.

(4) Salinity Gradients. N/A

(5) Action Taken to Minimize Impacts. Construction will take place during low rainfall and low water level periods. Wooded areas will be avoided to the maximum extent practicable. In addition, work will be accomplished from one side when feasible.

(c) Suspended Particulate/Turbidity Determination.

(1) Expected Changes in suspended Particulates and Turbidity Levels in Vicinity of Disposal Sites. Excavation activities are not expected to significantly increase the level of suspended particulates or increase turbidity for an extended period of time. Ambient conditions will return shortly after construction is complete.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light Penetration. Excavation and fill will slightly increase turbidity with a corresponding decrease in light penetration. Ambient conditions will return shortly after construction.

(b) Dissolved Oxygen. No change is expected due to the shallow water depth and currents.

(c) Toxic Metals and Organics. No change is expected.

(d) Pathogens. N/A

(e) Aesthetics. Any woody vegetation along existing ditch banks would be cleared. However, work will be limited to one-side when feasible. Also, natural revegetation would not be discouraged in the area.

(f) Others as Appropriate. None noted.

(3) Effects on Biota.

(a) Primary Production. Aquatic vegetation is limited within the existing ditches. The proposed work should have little effect on primary production after the banks become vegetated.

(b) Suspension/Filter Feeders. Increased turbidity will be of short duration, and any organisms that are impacted should repopulate the area after project completion.

(c) Sight Feeders. Resident fish are adapted to turbidity increases that occur after every rainstorm. Project-related turbidity increases will be minor compared to these natural events. Since fish and other sight feeders are highly mobile, project impacts to sight-feeding organisms will be insignificant and short term.

(4) Actions Taken to Minimize Impacts. Construction will be done during low water periods, and vegetation will be cleared only to the extent necessary to permit adequate construction mobility.

d. Contaminant Determinations. It is not expected that any contaminants will be

introduced or translocated due to construction.

e. Aquatic Ecosystems and Organism Determination.

(1) Effects on Plankton. Effects, if any, on plankton communities are expected to be insignificant and of short duration.

(2) Effects of Benthos. Benthic organisms may be disturbed with the turbidity increase, but no more than what would naturally occur during high flow events.

(3) Effects on Nekton. Nekton will be temporarily displaced during construction, but will return shortly after project completion.

(4) Effects on Aquatic Food Web. Temporary reductions in benthic and suspension/filter communities in such a small area should not significantly impact the aquatic food web during construction. These organisms will quickly colonize the area after construction.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Aquatic Sites. N/A

(b) Wetlands. Approximately 15.6 acres of wooded wetlands would be impacted by this work.

(c) Mud Flats. NA

(d) Vegetated Shallows. N/A

(e) Riffle and Pool Complexes. None exist within the project area.

(6) Threatened and Endangered Species. Coordination has been initiated with the United States Fish and Wildlife Service regarding the existence of any Federally listed threatened or endangered species or suitable habitat at any of the project locations.

(7) Other Wildlife. Terrestrial wildlife will be minimally impacted with the clearing of woody vegetation.

(8) Actions Taken to Minimize Impacts. The items will be constructed during low-flow periods. Impact areas will be limited to the extent necessary for construction.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. N/A

(2) Compliance with Applicable Water Quality Standards. Water quality certification has been requested from the appropriate state for each item of work.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supply. N/A

(b) Recreational and Commercial Fishing. N/A

(c) Water Related Recreation. N/A

(d) Aesthetics. Any clearing of woody vegetation would have minimal impacts to the aesthetics of the area. Vegetation will regenerate following construction.

(e) Parks, National Historical Monuments, National Seashore, Wilderness Areas, Research Sites and Similar Preserves. Even though parks or monuments may be located in close proximity to the levee, the proposed work would not adversely impact any such areas.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. The proposed work would only impact 0.012 wetland acre/well (including drainage work), resulting in 15.6 acres being impacted. Overall this proposed work should have no significant cumulative effects on the environment in addition to those reported in the 1998 MRL SEIS.

h. Determination of Secondary Effects on the Aquatic Ecosystem. N/A

III. FINDING OF COMPLIANCE FOR MRL SEEPAGE CONTROL MEASURES

a. No significant adaptations of the Section 404(b)(1) guidelines were made relative to this evaluation.

b. Without installation of seepage control measures, the integrity of the levee would be compromised. Seepage could undermine the levee and cause it to breach during a flood event.

c. Water quality certification has been requested from the Arkansas Department of Environmental Quality, Water Pollution Control Program, Illinois Environmental Protection Agency, Kentucky Department for Environmental Protection, Mississippi Department of Environmental Quality, Missouri Department of Natural Resources and Tennessee Department of Environment and Conservation.

d. The U.S. Fish and Wildlife Service has been contacted regarding Federally listed, or proposed, threatened or endangered species. During site investigations, several bald eagles were observed; however, known nesting areas are not within the proposed work areas. Therefore, it is not anticipated that endangered or threatened species will be adversely impacted by the proposed work.

e. The proposed work will not significantly affect human health and welfare, the municipal water supply, or commercial or sport fishing. No long-term impacts on plankton communities; breeding, spawning, or nursery habitats; or shellfish areas are expected. No special aquatic sites are located in the proposed work areas.

f. No significant adverse impacts to aquatic life or terrestrial wildlife, dependent on aquatic ecosystems, are expected.

g. The proposed work should not cause significant adverse impacts on ecosystem diversity, productivity, or stability.

h. No adverse impacts on recreational, aesthetic, or economic values are anticipated. The proposed work would prevent agricultural, economic and infrastructure damages.

i. In order to minimize potential environmental impacts, construction will be conducted during periods of low stream flow and low rainfall. Additionally, vegetative clearing will be limited to the extent necessary for construction of project features. Excavated material will be deposited in non-wetland areas.

j. Pursuant to 36 CFR 800, all 38 seepage control items will be intensively surveyed for cultural resources prior to construction. Should cultural resources be encountered during surveys and these sites are considered potentially significant, the site(s) will be avoided if possible. If avoidance is not possible, appropriate testing and mitigation procedures will be developed with the SHPO, Advisory Council on Historic Preservation, and Federally recognized tribes.

k. Additional NEPA analysis will be prepared if slurry trenches or berms are considered.

l. Approximately 15.6 acres of stream bank vegetation/wooded wetlands on the landside of the levee will be impacted by construction of the proposed seepage control measures (over 225 miles of levee). Forty-seven acres of cleared agricultural land will be restored to bottomland hardwoods to mitigate this loss. This acreage figure will be in addition to the acreage mitigated in the 1998 MRL SEIS. The required mitigation may be included with the SEIS mitigation tracts in each state.

Mitigation for Arkansas is 16.09 acres (5.36 acres impacted).
Mitigation for Mississippi is 13.3 acres (4.4 acres impacted).
Mitigation for Tennessee is 0.288 acres (0.096 acres impacted).
Mitigation for Missouri is 11.88 acres (3.96 acres impacted).
Mitigation for Kentucky is 4.356 acres (1.45 acres impacted).
Mitigation for Illinois is 1.15 acres (0.384 acres impacted).