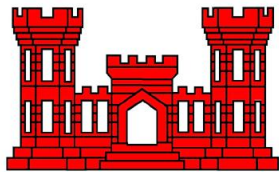


**DRAFT**

**ENVIRONMENTAL ASSESSMENT**

**Ensley Levee Seepage Berm Repair**  
**Shelby County, Tennessee**



**U.S. Army Corps of Engineers**  
**Mississippi Valley Division**  
**Regional Planning and Environmental Division South**

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# **DRAFT ENVIRONMENTAL ASSESSMENT**

## **Ensley Levee Seepage Berm Repair**

### **Shelby County, Tennessee**

**1.0 INTRODUCTION.** The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, Regional Planning and Environmental Division South, Memphis District (MVM), has prepared this environmental assessment (EA) to evaluate the potential impacts associated with the repair of the Ensley Levee seepage berm, located in the southern extent of the Frank C. Pidgeon Industrial Area in southwestern Shelby County, Tennessee (Figure 1). This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation ER 200-2-2. This EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the MVM District Commander to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

**1.1 Proposed Action.** The proposed project action consists of installing about 95 relief wells along the toe of the Ensley Levee seepage berm and repairing those portions of seepage berm that were damaged during the record level flooding of the Mississippi River in May 2011. No ditch work would occur and seepage waters from the relief wells would flow along the natural topography of the land. The limit of work for the proposed project is within a 4-mile section of the seepage berm located at the southern extent of the industrial area (Figure 2). About 6,300 cubic yards of earthen material would be needed to repair the damaged sections of the berm. The earthen material would be obtained from a stockpiled source located north of the Nucor Steel Plant (Figure 2). Equipment such as a backhoe would load the material into haul trucks, which would then transport the material to the repair sites along the seepage berm. Access to the stockpile site would be coordinated with and approved by the Memphis and Shelby County Port Commission. Access to the berm repair sites would be via the existing dirt/gravel road on the crown of the Ensley Levee and existing ramps leading off the levee onto the seepage berm.

A silt fence or approved equivalent would be installed along the northern boundary of the area to be cleared to contain sediments within the proposed project area. Bulldozers may be used to remove the vegetation from the top of the berm toe for a maximum width of 50 feet, which extends approximately 20 feet into existing wetlands. Vegetation removed may be hauled off or would be pushed away from the toe of the berm and stockpiled on site or burned. Approximately 23 acres would be impacted by the proposed project, including 13.3 acres of non-wet pastureland within the berm and berm toe and 9.7 acres of wetland habitat within the 20-foot wide section of existing wetlands to be cleared. Excavation equipment such as backhoes would excavate the soil to a depth of approximately 3 feet to expose the voids created by seepage under the levee. Once a void has been located, it would be repaired with the excavated material plus any additional material required from the stockpile site. After completion of the berm repairs, the silt fence would be removed and the areas disturbed by the proposed project action would be reseeded with grass. The 50-foot wide cleared area would be maintained (mowed) to prevent re-establishment of trees.



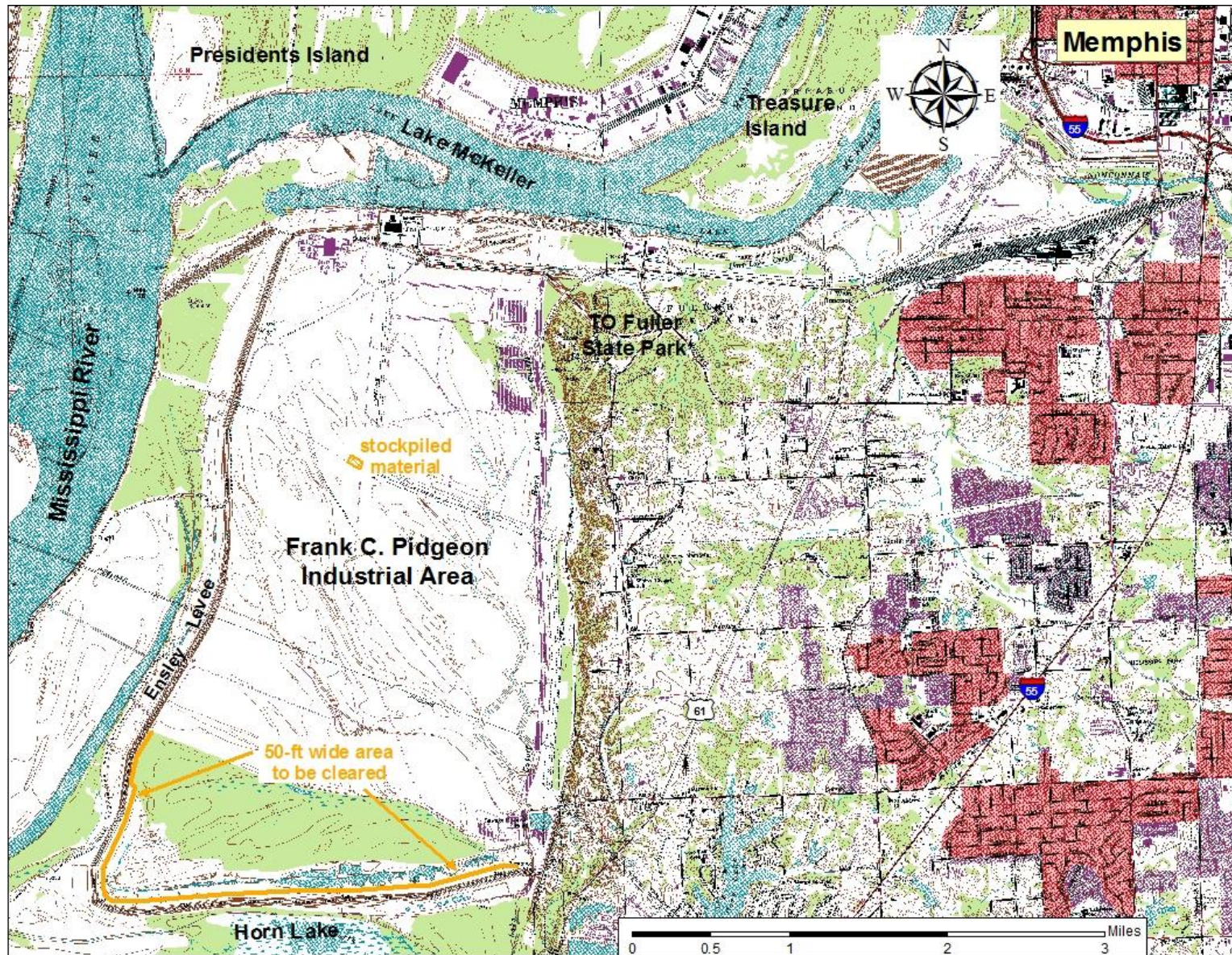


Figure 1. Project Location, Ensley Levee Seepage Berm Repair, Shelby County, Tennessee.





Figure 2. Project Details, Ensley Levee Seepage Berm Repair, Shelby County, Tennessee.

1.2 Purpose And Need For The Proposed Action. As result of the high water levels in the Mississippi River during the May 2011 flood event, numerous sand boils formed near the toe of the Ensley Levee seepage berm. Continued seepage could eventually lead to a levee failure, which would result in property damage within the Frank C. Pidgeon Industrial Park and potential human injuries and/or loss of life. It is necessary to repair the seepage berm to bring the levee and berm up to its full 100-year flood control/protection capability, thus maximizing protection to the resources located behind it. The total project cost is estimated to be \$7,370,000 that would result in a 5:1 benefit-to-cost ratio (refer to Table 1 below).

Table 1. Costs Associated with the Proposed Ensley Berm Project

Annual damages without project	\$3,282,000
Annual damages with project	1,161,000
Total annual damages prevented (benefits)	\$2,121,000
Urban Damage Reduction (Industrial, Commercial, Public)	(2,121,000)
Total Project Costs	\$7,370,000
Annualized at 4%, 50-year period	\$428,000
Benefit-to-cost ratio	5.0:1

1.3 Authority. The USACE has authority under Public Law 84-99 (PL 84-99), Flood Control and Coastal Emergencies (33 U.S.C. 701n) (69 Stat. 186) for emergency management activities. Under PL 84-99, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities to rehabilitate flood control works threatened or destroyed by flood. The proposed action is authorized under PL 84-99.

1.4 Prior Reports. The Ensley Levee was constructed in the late 1950s and early 1960s before NEPA was implemented. In the early 1990s, a seepage berm approximately 7 miles in length was constructed to reduce seepage in the area immediately landside of the levee. The berm construction impacted approximately 116 acres, including 16 acres non-wet pastureland adjacent to the levee, 66 acres of natural wetlands, and 33 acres of farmed wetlands. The proposed berm repair project falls within the footprint of the original 1990 seepage berm project. A Mitigation Plan was completed on July 13, 1990 addressing the impacts of the berm project. The Mitigation Plan included the planting of 134 acres in bottomland hardwood seedlings within the vicinity of the project. However, to compensate for expected seedling mortality, a total of approximately 145 acres was planted within a site located northwest of the Ensley Pump Station (Figure 2).

The proposed repairs to the seepage berm are within the footprints of the original 1990 construction, thus no additional mitigation is required. Activities at completed Corps projects which carry out the authorized project purposes including maintenance activities, repair, rehabilitation, and replacement of existing structures such as levees have been considered by the Corps as a categorical exclusion from NEPA in ER 200-2-2. However, since this action requires clearing wetlands that have re-established on the site and a search within MVM records was

unable to locate NEPA documentation directly pertaining to the seepage berm, the proposed project action and associated impacts are addressed in this draft EA.

1.5 Public Concerns. Public concerns exist regarding the ability of the Mississippi River Levee and connecting levee systems to contain floodwaters during a flood event. The record level flooding of the Mississippi River in May 2011 has heightened public concerns. Seepage could undermine the Ensley Levee causing it to breach if unabated, which would flood the surrounding lands including the industrial park.

## **2.0 ALTERNATIVES TO THE PROPOSED ACTION**

Two alternatives were considered for the proposed action: 1) no-action; 2) install relief wells and repair the existing Ensley Levee seepage berm.

2.1 Alternative 1 – Future without Project Condition. In the future without project condition (no-action alternative), the proposed project would not be constructed. The no-action alternative would result in continued seepage during flood conditions. Sands and silts would be carried under the levee from seepage resulting in sand boils. This could lead to a levee failure during a major flood event, resulting in property damage and potential human injuries and/or loss of life. The MVM has determined that this alternative is unacceptable because of the risks to the adjacent industrial park and the human environment.

2.2 Alternative 2 – Install Relief Wells and Repair the Existing Ensley Levee Seepage Berm. This alternative would involve installing approximately 95 relief wells at an interval of approximately one every 200 feet along the toe of the Ensley Levee seepage berm and repairs to a 4-mile section of the seepage berm located at the southern extent of the Frank C. Pidgeon Industrial Area. No ditch work would occur and seepage waters from the relief wells would flow along the natural topography of the land to an existing ditch that carries drainage water to the Ensley pump station. Approximately 6,300 cubic yards of earthen material to be utilized for the proposed repair work would be obtained from a stockpiled site located just north of the Nucor Steel Plant. A silt fence or approved equivalent would first be installed along the northern boundary of the seepage berm to contain any potential runoff into adjacent wetlands.

As site preparation, the vegetation would be removed from the top of the berm toe out to a maximum distance of 50 feet, which extends approximately 20 feet into an area that has reverted to wetlands. Vegetation removed may be hauled off or pushed away from the toe of the berm. The cleared area would be excavated to a depth of approximately 3 feet to expose the voids created by seepage under the levee. Once a void has been located, it would be repaired utilizing the excavated material plus any additional material required from the stockpiled site. After completion of the seepage berm repairs, the silt fence would be removed and the areas reseeded with grass species either the same or similar to that found growing along the seepage berm. The 50-foot wide cleared area would be maintained (mowed) to prevent the re-establishment of trees on and adjacent to the berm.

Approximately 23 acres would be impacted by the proposed project, including 9.7 acres of wetlands. As the acres of impact are within the project boundaries of the 1990 seepage berm construction, mitigation requirements for the seepage berm repairs have been fulfilled per the mitigation plan developed for project construction, and no additional mitigation is required. No significant adverse environmental impacts are associated with Alternative 2. All factors considered, Alternative 2 is the most practical solution for seepage control and is the preferred alternative for the proposed project assessed in this draft EA.

### **3.0 AFFECTED ENVIRONMENT**

**3.0.1 Environmental Setting.** MVM biologists conducted a site visit to the proposed project work area on September 19, 2012. The southern extent of the industrial area is dominated by an approximately 1,550-acre tract of wetlands, primarily forested wetlands. The proposed 50-foot wide area to be cleared is located along the southern and western edge of the 1,550-acre wetlands tract. Habitat within the 50-foot wide area to be cleared includes approximately 13.3 acres of non-wet pastureland within the berm and berm toe, and 9.7 acres of wetland habitat comprised of 8 acres of forested wetlands and 1.7 acres of scrub-shrub habitat and treeless areas covered in grass and weeds. Dominant tree species include cottonwood, sycamore, and willow. Other tree species found include maple, boxelder, hackberry, dogwood, bitter pecan, ash, and locust. Understory species included immature trees, poison ivy, peppervine, trumpet creeper, and wild grape growing within the tree branches. Ground elevations within the wetlands are 3-5 feet below the top of the berm toe. Drainage within the area would be to the northeast and east towards drainage ditches that lead to the Ensley Pump Station.

The 1,550-acre wetlands tract and existing ditches are normally dry throughout most of the year and contain water during periods of heavy rain or when high water levels in the Mississippi River cause seepage under the levee. An estimated total of approximately 9.7 acres of wetlands within the previously delineated project footprint would be impacted by the proposed project action. A site assessment of the 145-acre mitigation site on November 2, 2012 by MVM biologists found a well-established bottomland hardwood forest, with an estimated survival rate of 80% to 90% based on the original tree planting design. Numerous trees, mostly cottonwood, hackberry, oak, boxelder, and elm, were 20 to 40 feet tall and 8 to 12 inches in diameter at breast height. Mitigation requirements for the 1990 seepage berm construction have been fulfilled.

**3.0.2 Climate.** Shelby County, Tennessee, has a humid, warm-temperate climate characterized by moderately cold winters, warm or hot summers, and generally abundant rainfall. The average annual temperature for Shelby County is about 63 degrees Fahrenheit, with maximum daily temperature averages of 92 degrees Fahrenheit in July and 40 degrees Fahrenheit in January. Yearly precipitation averages 55 inches, including normal annual snowfall of about 4.5 inches.

**3.0.3 Geology.** The soils comprising the seepage berm are from borrow sites excavated to provide the earthen material to create the berm. Soils adjacent to the seepage berm include Bowdre silty clay and Tunica silty clay and are typically found within broad, flat tracts along Mississippi River bottomland areas. Bowdre silty clay soils are moderately drained, and Tunica silty clay soils are poorly drained. Both soil types become sticky when wet, and are hard and



cloddy when dry. Both soil types are fertile and are well suited for crops that tolerate wetness in winter and spring and wetland vegetation such as bottomland hardwoods.

### 3.1 RELEVANT RESOURCES

This section contains a description of those resources that could be impacted by the proposed project. The important resources described in this section and Table 2 are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. The following resources have been considered and found not to be affected by the alternative under consideration: freshwater marshes, freshwater lakes, state-designated scenic streams, prime and unique farmlands, aquatic resources/fisheries, threatened and endangered species, cultural resources, municipal facilities, municipal utilities, roadways, recreation, aesthetics, socio-economic, environmental justice, and water quality.

<b>Table 2: Relevant Resources</b>			
<b>Resource</b>	<b>Institutionally Important</b>	<b>Technically Important</b>	<b>Publicly Important</b>
<b>Wetlands</b>	Section 906 of the Water resources Development Act of 1986 and the Fish and Wildlife Coordination Act of 1958, as amended.	Provides necessary habitat for a variety of plant, fish, and wildlife species; it often provides a variety of wetland functions and values; it is an important source of lumber and other commercial forest products; and it provides various consumptive and non-consumptive recreational opportunities.	The high priority that the public places on its esthetic, recreational, and commercial value.
<b>Wildlife</b>	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
<b>Hydrology</b>	Clean Water Act of 1977, Fish and Wildlife Coordination Act	State and federal agencies recognize value of fisheries and good water quality. The National and state standards are established to assess water quality	Environmental organizations and the public support the preservation of water quality and the desire for clean drinking water.
<b>Air Quality</b>	Clean Air Act of 1963	State and Federal agencies recognize the status of ambient air quality in relation to the National Ambient Air Quality Standards.	Virtually all citizens express a desire for clean air.

### **3.1.1 Wetlands**

Existing Conditions: The southern end of the Frank C. Pidgeon Industrial Area is dominated by approximately 1,550 acres of wetland habitat, comprised primarily of forested wetlands. An estimated total of approximately 9.7 acres of wetland habitat is found within the 50-foot wide strip to be cleared, including 8 acres of forested wetlands that have re-established the area after the 1990 construction and 1.7 acres of wetlands comprised of scrub-shrub habitat and treeless areas covered in grass and weeds. Dominant tree species within the area to be cleared include cottonwood, sycamore, and willow. Other tree species found include maple, boxelder, hackberry, dogwood, bitter pecan, ash, and locust. Understory species included immature trees, poison ivy, peppervine, trumpet creeper, and wild grape growing within the tree branches.

### **3.1.2 Wildlife**

Existing Conditions: Wildlife species that could potentially be found within the project area include coyotes, deer, raccoons, opossums, rabbits, squirrels, mice, rats, songbirds, neo-tropical migratory birds, raptors, turtles, snakes, and amphibians.

### **3.1.3 Hydrology**

Existing Conditions: The Ensley Levee separates the project area from adjacent water bodies. Hydrology within the 1,550-acre wetland tract is dependent upon rainfall and seepage via sand boils under the levee. Rainwater and seepage would inundate the soil layers or flow towards drainage ditches that lead to the Ensley Pump Station. The existing drainage ditches are normally dry and would only have flowing water during periods of heavy rain.

### **3.1.4 Air Quality**

Existing Conditions: On April 30, 2012, the Environmental Protection Agency (EPA) designated all of Shelby County as in non-attainment for all air quality standards. A petition was submitted on July 17, 2012 for reconsideration; on December 14, 2012, the EPA denied the petition (Document #0718 in docket listed in the index at <http://www.regulations.gov>).

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Wetlands**

Future Conditions with No Action: Without implementation of the proposed action, wetland habitats within the project area are expected to remain as noted in Existing Conditions provided that the adjacent levee remains stable. However, continued seepage would likely lead to a levee failure during a major flood event. Floodwaters would negatively impact existing wetlands by scouring topsoil and vegetation, including the immature trees and ground cover that could be washed away by the floodwaters. Deposition of sand and gravel could raise ground elevations and possibly alter the hydrological regime by filling in low-lying areas.

Future Conditions with the Proposed Action: With the proposed project action, approximately 9.7 acres of wetland habitat would be removed. The 1,500 acres of wetlands within the southern extent of the industrial area would remain a jurisdictional wetland.

## **4.2 Wildlife**

Future Conditions with No Action: Without implementation of the proposed action, the wildlife resources within the project area are expected to remain as noted in Existing Conditions provided that the adjacent levee remains stable. However, continued seepage could lead to a levee failure during a major flood event, causing loss of potential wildlife habitat within the flood zone.

Future Conditions with the Proposed Action: With implementation of the proposed action, impacts to wildlife resources would include the loss of approximately 9.7 acres of wetlands and the associated wildlife habitat provided. Disturbance and noise from project-related activities would temporarily displace most wildlife species from the project work areas. Project impacts are not expected to adversely impact the general population of wildlife species within the region, due to the extensive forested wetlands and comparable habitat readily available within the 1,550 acres of wetlands adjacent to the project area. Other wetland habitats, including forested wetlands, are found along the banks of the nearby Mississippi River and around Horn Lake.

## **4.3 Hydrology**

Future Conditions with No Action: Without implementation of the proposed action, continued seepage could undermine the levee causing it to breach. A levee breach would temporarily flood the surrounding lands with a high flow of turbid water that would be heavily laden with sediments from the levee.

Future Conditions with the Proposed Action: With implementation of the proposed action, repairs to the seepage berm would reduce the seepage flow, and hydrology within the project area and the 1,550-acre wetland tract would be dependent upon rainfall and seepage flow via the relief wells. No ditch work would occur and seepage waters from the relief wells would flow along the natural topography of the land to existing drainage ditches and the pump station.

## **4.4 Air Quality**

Future Conditions with No Action: Without implementation of the proposed action, no change in air quality would occur.

Future Conditions with the Proposed Action: With implementation of the proposed action, the project-related equipment would produce small amounts of engine exhaust during construction activities. The temporary, minor impacts to air quality would be localized to the project area, and would not affect area residents. The equipment to be used is a mobile source, thus the project is exempt from air quality permitting requirements. Although air emissions would not require a permit, best management practices shall be used throughout the construction to minimize air pollution.

#### **4.5 Hazardous, Toxic, and Radioactive Waste (HTRW)**

The USACE is obligated under Engineer Regulation 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all HTRW contamination within the vicinity of the proposed action. A record search has been conducted of the Environmental Protection Agency's (EPA) EnviroMapper Web Page (<http://maps.epa.gov>). The web site was checked for any superfund sites, toxic releases, or hazardous waste sites within the vicinity of the proposed project area. Site inspection of the proposed project was conducted by MVM personnel on September 19, 2012. The environmental records search and site survey conducted did not identify the presence of any hazardous or suspected hazardous wastes in the proposed project area. As a result of these assessments, it was concluded that the probability of encountering HTRW is low. If any hazardous waste/substance is encountered during construction activities, the proper handling and disposal of these materials would be coordinated with the Tennessee Department of Environment and Conservation.

#### **4.6 Cumulative Impacts**

The Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7)."

Impacts of the proposed project were evaluated during the preparation of this draft EA on the natural and human environment. Based upon site visit surveys for existing conditions and analysis of future conditions with the project action, the impacts associated with the proposed project activities would be minor in magnitude and duration, and should not have any significant adverse cumulative effects on the environment. Further, the proposed project activities would be within the footprint of the 1990 project construction that were fully mitigated for with the planting of bottomland seedlings within the 145-acre mitigation site noted in Figure 2. Repairs to the seepage berm would bring the levee and berm up to its full flood control/protection capability, thus maximizing protection to the environmental resources within the 1,500-acre wetlands habitat and to businesses within the industrial complex that support the current and future economic development within Shelby County.

#### **5.0 COORDINATION**

Preparation of this draft EA and draft Finding of No Significant Impact (FONSI) have been coordinated with the project interagency environmental team. The team is comprised of representatives from USACE, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Environmental Protection Agency, and the Tennessee Wildlife Resource Agency. In addition, this draft environmental assessment is being coordinated with the following agencies and stakeholders: Tennessee State Historic Preservation Officer, Tennessee Historic Preservation Program, federally recognized tribes, and other interested parties. Coordination



with these agencies will continue as required throughout the planning and construction phases of the proposed project.

## **6.0 MITIGATION**

A Mitigation Plan for the original 1990 seepage berm project accounted for impacts to 116 acres, including 100 acres of wetlands and was signed by the MVM and the Memphis and Shelby County Port Commissions on July 13, 1990. The Mitigation Plan included the planting of 134 acres in bottomland hardwood seedlings in the vicinity of the project. To compensate for expected seedling mortality, a total of approximately 145 acres was planted within a site located northwest of the Ensley Pump Station (Figure 2). A site assessment on November 2, 2012 found a well-established bottomland hardwood forest, with an estimated survival rate of 80% to 90%. Numerous trees, mostly oak, hackberry, cottonwood, boxelder, and elm, were 20 to 40 feet tall and 8 to 12 inches in diameter at breast height. Mitigation requirements for the 1990 seepage berm construction have been fulfilled. The proposed repairs to the seepage berm are within the footprints of the original 1990 construction, thus no additional mitigation is required.

## **7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS**

Environmental compliance for the proposed action would be achieved upon coordination of this draft EA and draft Finding of No Significant Impact (FONSI) with appropriate agencies, organizations, and individuals for their review and comments; review of the Section 404 Public Notice; and receipt and acceptance or resolution of all Tennessee Department of Environment and Conservation comments on the air quality impact analysis documented in this draft EA. The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations.

### **7.1 Threatened and Endangered Species**

On September 19, 2012, MVM biologists and a U.S. Fish and Wildlife Service (USFWS) biologist conducted a site assessment of the proposed project area, including a survey for potential roosting habitat for the endangered Indiana bat (*Myotis sodalis*). No potential roost trees or snags having loose bark were found within the project area. Based upon the survey, the determination was made that the habitat within the proposed project area does not represent suitable habitat for the Indiana bat. No evidence of any threatened or endangered species or other federally listed species was found during the site assessment. Thus, the proposed project is not expected to adversely impact any threatened or endangered species or their critical habitat. The USFWS concurred with this determination by letter dated September 28, 2012 (see Appendix for copy of the letter).

### **7.2 Cultural Resources**

A cultural resources survey was conducted in 1994 of the Frank C. Pidgeon Industrial Park by private contractor Garrow and Associates, documented in their report *A Cultural Resources Survey of the Frank C. Pidgeon Industrial Park, Shelby County, Tennessee*. Four previously

recorded archeological sites and 19 additional sites were found during the 1994 survey. MVM archeologists reviewed the 1994 report and determined that no archeological sites were found within or adjacent to the proposed work area, thus the proposed project would have no effect on significant cultural resources. The Tennessee State Historic Preservation Officer concurred with this determination by letter dated September 13, 2012 and has no objection to the proposed project (see Appendix for copy of the letter). The draft EA will be distributed to culturally affiliated federally recognized tribes for comment.

### **7.3 State Water Quality Certification**

An application for aquatic resources alteration permit for state water quality certification was submitted to the Tennessee Department of Environment and Conservation, Division of Water Pollution Control on November 27, 2012. To comply with state requirements for the permits, a public notice sign briefly describing the proposed project action was posted on February 7, 2013, where it is visible and can be read from a public road near the proposed activity. A public notice was published in the Memphis Business Journal on February 8, 2013. The Division of Water Pollution Control issued Permit #NRS12.251 on March 19, 2013. A Section 404(b)(1) Evaluation has been prepared for the proposed project action and is attached in the appendix.

## **8.0 CONCLUSION**

The proposed project action consists of repairing those portions of the Ensley Levee seepage berm that were damaged during the record level flooding of the Mississippi River in May 2011. The limit of work for the proposed project is within a 4-mile section of the seepage berm located at the southern extent of the Frank C. Pidgeon Industrial Area. This office has assessed the environmental impacts of the proposed action and has determined that the proposed work is expected to have only minor impacts on wetlands, wildlife, hydrology, and air quality. All impacts to wildlife and air quality aside from the removal of 9.7 acres of wetland habitat would be temporary and would be expected to return to existing conditions after completion of the project action. The 9.7 acres of wetland habitat is within the footprint of the original construction that was mitigated in the early 1990s. The proposed project would have no impacts upon freshwater marshes, freshwater lakes, state-designated scenic streams, prime and unique farmlands, aquatic resources/fisheries, threatened and endangered species, cultural resources, municipal facilities, municipal utilities, roadways, recreation, aesthetics, socio-economic, environmental justice, or water quality, and no adverse or beneficial impacts on vegetation, wildlife, cultural resources, or the human environment. Therefore, an environmental impact statement is not required.

## **9.0 PREPARED BY**

This EA and associated FONSI was prepared by Mr. Alan Bennett, biologist, with cultural resources information provided by Mr. Jimmy McNeil, archeologist. For additional information, contact Mr. Bennett at (901) 544-4313, by email at [alan.w.bennett@usace.army.mil](mailto:alan.w.bennett@usace.army.mil), or by mail at USACE Memphis District, Attn: Alan Bennett, 167 North Main St., B202, Memphis, TN 38103-1894.

## APPENDIX



### United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street  
Cookeville, TN 38501

September 28, 2012

Mr. Edward P. Lambert  
Chief, Environmental Compliance Branch  
U.S. Army Corps of Engineers  
167 North Main Street, Room B-202  
Memphis, Tennessee 38103-1894

Attention: Mr. Alan Bennett, Planning and Environmental Division

Re: FWS #2012-CPA-0864. Ensley Seepage Berm Repair Project, Shelby County, Tennessee

Dear Mr. Lambert:

Thank you for your recent correspondence regarding proposed repairs to the Ensley Levee seepage berm that was damaged during the historic Mississippi River flood event of May 2011. The limit of work for the proposed project is within a 4-mile section of the seepage berm located in the southern extent of the Frank C. Pidgeon Industrial Area in southwestern Shelby County, Tennessee. Approximately 6,300 cubic yards of earthen material would be needed to repair the damaged sections of the berm. The earthen material would be obtained from a stockpiled site located just north of the Nucor Steel Plant. Project equipment such as a bulldozer or a backhoe would load the material into haul trucks, which would then transport the material to the repair sites along the seepage berm. Access to the stockpile site would be coordinated with and approved by the Memphis and Shelby County Port Commission. Access to the berm repair sites would be via the existing dirt/gravel road along the crown of the Ensley Levee and existing ramps leading off the levee onto the seepage berm. A total of approximately 23 acres would be cleared along the proposed 4-mile long by 50-foot wide impact area. Your office has requested comments regarding the project's potential impact on federally listed threatened or endangered species or critical habitats. U.S. Fish and Wildlife Service personnel have reviewed the information submitted and we offer the following comments.


Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the area of the proposed project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality.

As indicated in your correspondence, suitable summer roost habitat of the federally endangered Indiana bat (*Myotis sodalis*) was a possibility at the site. A site assessment was conducted by Robbie Sykes of my staff and Alan Bennett and Leonard Pitcher of your staff on September 19, 2012. Based on the site assessment, it was determined that no suitable summer roost habitat for the Indiana bat existed within the proposed impact area of the project and there would be no adverse impacts to Indiana bats. Therefore, you have determined that the project is not likely to adversely affect federally listed threatened or endangered species or their critical habitats, with which we concur.

Based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

Thank you for your request. Please contact Robbie Sykes of my staff at 931/525-4979 if you have questions about these comments.

Sincerely,

  
for Mary E. Jennings  
Field Supervisor





**TENNESSEE HISTORICAL COMMISSION**  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
2941 LEBANON ROAD  
NASHVILLE, TN 37243-0442  
(615) 532-1550

September 13, 2012

Mr. Edward Lambert  
United States Army Corps of Engineers  
Memphis District  
167 North Main Street, B-202  
Memphis, Tennessee 38103-1894

RE: COE-M, ENSLEY BERM REPAIR/MISS RM 722L, MEMPHIS, SHELBY COUNTY

Dear Mr. Lambert:

The Tennessee State Historic Preservation Office has reviewed the above-referenced undertaking received on Monday, August 27, 2012 for compliance by the participating federal agency or applicant for federal assistance with Section 106 of the National Historic Preservation Act. The Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, we concur with your agency that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. This determination is made either because of the location, scope and/or nature of the undertaking, and/or because of the size of the area of potential effect; or because no listed or eligible properties exist in the area of potential effect; or because the undertaking will not alter any characteristics of an identified eligible or listed property that qualify the property for listing in the National Register or alter such property's location, setting or use. Therefore, this office has no objections to your proceeding with the project.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. You may direct questions or comments to Jennifer M. Barnett (615) 741-1588, ext. 105. This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.  
Executive Director and  
State Historic Preservation Officer

EPM/jmb

## SECTION 404(b)(1) EVALUATION

### Ensley Levee Seepage Berm Repair Shelby County, Tennessee

#### I. PROJECT DESCRIPTION

a. Location. The Ensley Levee seepage berm is located in the southern extent of the Frank C. Pidgeon Industrial Area in southwestern Shelby County, Tennessee (draft EA, Figure 1).

b. General Description. The proposed project action consists of installing approximately 95 relief wells at an interval of approximately one every 200 feet along the toe of the Ensley Levee seepage berm and repairs to a 4-mile section of the seepage berm located at the southern extent of the Frank C. Pidgeon Industrial Area. No ditch work would occur and seepage waters from the relief wells would flow along the natural topography of the land. The limit of work for the proposed project is within a 4-mile section of the seepage berm located at the southern extent of the industrial area (draft EA, Figure 2). Approximately 6,300 cubic yards of earthen material would be needed to repair the damaged sections of the berm. The earthen material would be obtained from a stockpiled source located north of the Nucor Steel Plant (draft EA, Figure 2). Equipment such as a backhoe would load the material into haul trucks, which would then transport the material to the repair sites along the seepage berm. Access to the stockpile site would be coordinated with and approved by the Memphis and Shelby County Port Commission. Access to the berm repair sites would be via the existing dirt/gravel road on the crown of the Ensley Levee and existing ramps leading off the levee onto the seepage berm.

A silt fence or approved equivalent would be installed along the northern boundary of the area to be cleared to contain sediments within the proposed project area. Bulldozers may be used to remove the vegetation from the top of the berm toe for a maximum width of 50 feet, which extends approximately 20 feet into existing wetlands. Vegetation removed may be hauled off or would be pushed away from the toe of the berm and stockpiled on site or burned. Approximately 23 acres would be impacted by the proposed project, including 13.3 acres of non-wet pastureland within the berm and berm toe, and 9.7 acres of wetland habitat consisting of 8 acres of forested wetlands and 1.7 acres of scrub/shrub habitat within the 20-foot wide section of existing wetlands to be cleared. Excavation equipment such as backhoes would excavate the soil to a depth of approximately 3 feet to expose the voids created by seepage under the levee. Once a void has been located, it would be repaired with the excavated material plus any additional material required from the stockpile site. After completion of the berm repairs, the silt fence would be removed and the areas disturbed by the proposed project action would be reseeded with grass. The 50-foot wide cleared area would be maintained (mowed) to prevent the re-establishment of trees.

A Mitigation Plan addressing the original 1990 seepage berm project impacts was signed by the U.S. Army Corps of Engineers, Memphis District (CEMVM) and the Memphis and Shelby County Port Commissions on July 13, 1990. The Mitigation Plan included the planting of 134 acres in bottomland hardwood seedlings within two sites located in the vicinity of the project. However, to compensate for expected seedling mortality, a total of approximately 145 acres was planted within a site located northwest of the Ensley Pump Station (draft EA, Figure 2). The proposed repairs to the

seepage berm are within the footprints of the original 1990 construction, thus no additional mitigation is required.

c. Authority and Purpose. The proposed action is authorized under Public Law (PL) 84-99. As result of the high water levels in the Mississippi River during the May 2011 flood event, numerous sand boils formed near the toe of the Ensley Levee seepage berm. Continued seepage could eventually lead to a levee failure, which would result in property damage within the Industrial Park and potential human injuries and/or loss of life. It is necessary to repair the seepage berm to bring the levee and berm up to its full flood control/protection capability, thus maximizing protection to the resources located behind it.

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

(1) General Characteristics of Fill Material. The fill material would be obtained from a stockpile site located just north of the Nucor Steel Plant (draft EA, Figure 2). The fill material is composed of silty clay that was obtained from a borrow site adjacent to the seepage berm that was excavated to provide the earthen material to create the seepage berm. Soils adjacent to the seepage berm include Bowdre silty clay and Tunica silty clay and are typically found within broad, flat tracts along Mississippi River bottomland areas. Bowdre silty clay soils are moderately drained, and Tunica silty clay soils are poorly drained. Both soil types become sticky when wet, and are hard and cloddy when dry.

(2) Quantity of Material. A total of approximately 6,300 cubic yards of earthen material would be needed to repair the damaged sections of the berm. In addition, approximately 95 relief wells, composed of 8-inch stainless steel pipes up to 100 feet in length, would be installed at an interval of approximately one every 200 feet along the toe of the Ensley Levee seepage berm. Approximately 2 cubic yards of gravel filter material would encase each relief well, and approximately 1 cubic foot of cement would encase the upper 20 feet of the pipe.

(3) Source of Material. The fill material would be obtained from a stockpile site located just north of the Nucor Steel Plant (draft EA, Figure 2). Materials required for installing the relief wells would be obtained from a government approved source.

e. Description of Proposed Discharge Site.

(1) Location. The limit of work for the proposed project is within a 4-mile section of the Ensley Levee seepage berm located at the southern extent of the Frank C. Pidgeon Industrial Area (draft EA, Figures 1 and 2).

(2) Size. Vegetation would be removed from the top of the berm toe for a maximum width of 50 feet within the 4-mile section of the seepage berm, totaling approximately 23 acres.

(3) Type of Habitat. The 23 acres impacted include approximately 13.3 acres of non-wet pastureland within the berm and berm toe and 9.7 acres of wetland habitat, including 8 acres of forested wetlands that have re-established the area after the 1990 construction and 1.7 acres of wetlands comprised of scrub-shrub habitat and treeless areas covered in grass and weeds. Dominant tree species within the area to be cleared include cottonwood, sycamore, and willow. Other tree

species found include maple, boxelder, hackberry, dogwood, bitter pecan, ash, and locust. Understory species included immature trees, poison ivy, peppervine, trumpet creeper, and wild grape growing within the tree branches.

(4) Timing and Duration of Discharge. Project activities would be conducted during dry or low water periods.

f. Description of Disposal Method. Project equipment such as a backhoe would load the material into haul trucks, which would then transport the material to the repair sites along the seepage berm. Bulldozers may be used to remove all vegetation, which may be hauled off or would be pushed away from the toe of the berm and stockpiled on site or burned. Excavation equipment such as backhoes would excavate the soil to expose the voids created by seepage under the levee and also used to place the fill material into the exposed voids.

## **II. FACTUAL DETERMINATION**

### **a. Physical Substrate Determinations.**

(1) Substrate Elevation and Slope. The project site is located in the flat, ancient floodplain of the Mississippi River. Elevation within the proposed cleared area adjacent to the toe of the seepage berm is approximately 210 feet above mean sea level.

(2) Sediment Type. The excavated material would be comprised of silts, clays and sands historically laid down in deposits from the Mississippi River.

(3) Dredged and Fill Material Movement. There would be no foreseeable movement of fill or excavated material. Approximately 2 cubic yards of gravel filter material and 1 cubic foot of cement would encase the 8-inch stainless steel pipe of each relief well. After completion of the berm repairs, the areas disturbed by the proposed project action would be reseeded with grass.

(4) Physical Effects on Benthos. N/A

(5) Other Effects. N/A

(6) Action Taken to Minimize Impacts. Construction will take place during periods of low rainfall and low water stages. In addition, a silt fence or approved equivalent would be installed along the northern boundary of the area to be cleared to contain sediments within the project area.

### **b. Water Circulation, Fluctuation, and Salinity Determination.**

(1) Water. No change in water quality is expected due to this action, as project activities would be conducted during dry or low water periods.

(a) Salinity. N/A

(b) Water Chemistry. N/A



(c) Clarity. N/A

(d) Color. N/A

(e) Odor. N/A

(f) Taste. N/A

(g) Dissolved Gas Levels. N/A

(h) Nutrients. N/A

(i) Eutrophication. N/A

(j) Others as Appropriate. N/A

(2) Current Patterns and Circulation.

(a) Current Patterns and Circulation. N/A

(b) Velocity. N/A

(c) Stratification. N/A

(d) Hydrologic Regime. The proposed project area is normally dry throughout most of the year and contains water only during periods of heavy rain or when high water levels in the Mississippi River cause seepage under the Ensley Levee. With the proposed project action, the hydrologic regime within and adjacent to the proposed project area would remain dependent upon rainfall, but seepage would be via the relief wells installed.

(3) Normal Water Level Fluctuations. The existing water levels within the project work area are determined by area rainfall and seepage via the existing sand boils.

(4) Salinity Gradients. N/A

(5) Action Taken to Minimize Impacts. Best management practices (BMPs) would be exercised throughout construction to minimize silt and runoff impacts. In addition, project activities would be conducted during dry or low water periods. Storm Water Pollution Prevention Plans (SWPPPs) would be prepared in accordance with good engineering practices emphasizing storm water BMPs and complying with Best Available Technology, Economically Achievable and Best Conventional Pollutant Control Technology. The SWPPP shall identify potential sources of pollution, which may reasonably be expected to affect storm water discharges associated with the construction activity. In addition, the SWPPP shall describe and ensure the implementation of practices which are to be used to reduce pollutants in storm water discharges associated with the construction activity and to assure compliance with the terms and conditions of this permit.

c. Suspended Particulate/Turbidity Determination.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Sites. No changes are expected, as project activities would be conducted during dry or low water periods as much as practicable.

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

(a) Light Penetration. No changes expected.

(b) Dissolved Oxygen (D.O.). No change to ambient D.O. levels is anticipated.

(c) Toxic Metals and Organics. None found within the proposed project area.

(d) Pathogens. N/A

(e) Aesthetics. The proposed project area is located within the southern extent of the Frank C. Pidgeon Industrial Area and is not open to public access. Therefore, no effects on aesthetics are expected.

(f) Others as Appropriate. None noted.

(3) Effects on Biota.

(a) Primary Production. After completion of the proposed project, the 50-foot wide cleared area would be maintained (mowed) to prevent the re-establishment of trees. However, as mitigation for the 1990 construction of the seepage berm, a total of approximately 145 acres was planted in bottomland hardwood seedlings within a site located northwest of the Ensley Pump Station (draft EA, Figure 2). A site assessment on November 2, 2012 found a well-established bottomland hardwood forest, with an estimated survival rate of 80% to 90% based on the original tree planting design. Numerous trees, mostly oak, hackberry, cottonwood, boxelder, and elm, were 20 to 40 feet tall and 8 to 12 inches in diameter at breast height.

(b) Suspension/Filter Feeders. N/A

(c) Sight Feeders. N/A

(4) Actions Taken to Minimize Impacts. Best management practices would be exercised throughout construction to minimize silt and runoff impacts. The project would be conducted during dry or low water periods as much as practicable.

d. Contaminant Determinations. It is not expected that any contaminants would be introduced or translocated due to construction.

e. Aquatic Ecosystems and Organism Determination.

(1) Effects on Plankton. N/A

(2) Effects of Benthos. N/A

(3) Effects on Nekton. N/A

(4) Effects on Aquatic Food Web. N/A

(5) Effects on Special Aquatic Sites. N/A

(a) Sanctuaries and Aquatic Sites. N/A

(b) Wetlands. The proposed project action would remove approximately 9.7 acres of wetlands, including 8 acres of forested wetlands and 1.7 acres of wetlands comprised of scrub-shrub habitat and treeless areas covered in grass and weeds.

(c) Mud Flats. N/A

(d) Vegetated Shallows. N/A

(e) Riffle and Pool Complexes. N/A

(6) Threatened and Endangered Species. On September 19, 2012, CEMVM biologists and a U.S. Fish and Wildlife Service (USFWS) biologist conducted a site assessment of the proposed project area. The site assessment included a survey for potential roosting habitat for the endangered Indiana bat (*Myotis sodalis*). No potential roost trees or snags having loose bark were found within the project area. Based upon the survey, the determination was made that the habitat within the proposed project area does not represent suitable habitat for the Indiana bat. No evidence of any threatened or endangered species or other federally listed species was found during the site assessment. Therefore, the proposed project is not expected to adversely impact any threatened or endangered species or their critical habitat. The USFWS concurred with this determination by letter dated September 28, 2012.

(7) Other Wildlife. Impacts of the proposed project action to area wildlife would be the loss of any potential habitat within areas cleared for site preparation, and the temporary displacement of wildlife species from the area caused by project construction.

(8) Actions Taken to Minimize Impacts. The proposed project activities would be conducted during dry or low water periods as much as practicable, thus impact areas will be limited to the extent necessary for construction.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. N/A

(2) Determination of Compliance with Applicable Water Quality Standards. An application for aquatic resources alteration permit for state water quality certification was submitted to the Tennessee Department of Environment and Conservation, Division of Water Pollution Control on November 27, 2012. The Division of Water Pollution Control issued Permit #NRS12.251 on March 18, 2013.

(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. The proposed project area is located within the southern extent of the industrial area and is not open to public access. Therefore, no effects on aesthetics are expected.

(e) Parks, National Historical Monuments, National Seashore, Wilderness Areas, Research Sites and Similar Preserves. N/A

***(g) Determination of Cumulative Effects on the Aquatic Ecosystem. Habitat within and adjacent to the area is dry throughout most of the year. Hydrology is dependent upon rainfall and seepage from the adjacent water bodies via sand boils under the levee, which is insufficient to support an aquatic ecosystem. No existing aquatic ecosystem exists within the proposed project area. Thus, the proposed project should not have any cumulative effects on aquatic ecosystems.***

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

### **III. FINDING OF COMPLIANCE**

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

b. Without repairs to the seepage berm, the integrity of the Ensley Levee would be compromised. Seepage could undermine the levee and cause it to breach during a flood event.

c. CEMVM submitted an application for aquatic resources alteration permit for state water quality certification to the State of Tennessee, Department of Environment and Conservation, Division of Water Resources on November 27, 2012. The Division of Water Pollution Control issued Permit #NRS12.251 on March 19, 2013.

d. The proposed project is not expected to adversely impact any threatened or endangered species or their critical habitat. The USFWS concurred with this determination by letter dated September 28, 2012.

e. The proposed project action is not expected to have any impacts on human health and welfare, the municipal water supply, commercial or sport fishing, plankton communities, fish breeding, spawning, or nursery habitats, or other aquatic organisms. No aquatic sites are located in the proposed work area.

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

- g. The proposed work would not cause significant adverse impacts on ecosystem diversity, productivity, or stability.
- h. No adverse impacts on recreational, aesthetic, or economic values are anticipated.
- i. In order to minimize potential environmental impacts, construction activities would be conducted during dry or low water periods.

Prepared by Alan Bennett  
Biologist, CEMVN-PDC-UDC  
March 26, 2013