

FINAL SECTION 7(a) EVALUATION AND DETERMINATION
Vermilion Power Station Bank Stabilization Project – Location 2
Middle Fork Vermilion National Scenic River
Vermilion County, Illinois
Prepared by the National Park Service
June 2016

INTRODUCTION:

The Middle Fork Vermilion National Scenic River (River) is a State-administered component of the National Wild and Scenic Rivers System (System) as designated under Section 2(a)(ii) of the Wild and Scenic Rivers Act (Act) (Public Law 90-542) on May 11, 1989. The River is to be administered and managed to protect and enhance the river's free-flowing condition, water quality, and outstanding remarkable values (ORV). The River's ORV include scenic, geologic, fish and wildlife, ecologic, recreational, and historic resources.

Section 10(a) of the Act is considered the anti-degradation policy of the Act and states:

Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values.

As a State-administered river with no adjacent Federal ownership, the State of Illinois is charged with the day-to-day management of the River. The National Park Service (NPS), on behalf of the Secretary is responsible for making evaluations and determinations of effect in accordance with Section 7(a) of the Act. A Section 7(a) evaluation and determination is prepared to assess whether a proposed water resource project within a designated river segment or a tributary located within the established boundary of a river would have a direct and adverse effect on the values for which a river was designated.

Section 7(a) of the Act states the following:

... no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration.

Water resources projects include, but are not limited to, dams; water diversion projects; fisheries habitat and watershed restoration/enhancement projects; bridge construction or demolition; bank stabilization projects; boat ramps; and other activities that require a Section 404 or Section 10 Permit from the U.S. Army Corps of Engineers (USACE). The Act prohibits Federal assistance to water resource projects the NPS has determined will have a direct and adverse effect on the values for which the River was established, and, the NPS cannot consent to projects with impacts to River values that cannot be avoided or eliminated in order to ensure the River's condition at the time of designation will remain improved or not degraded.

The River is classified as “Scenic” at the project location. Section 2(b) of the Act defines Scenic River Areas as follows:

Those rivers or sections of river that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines undeveloped, but accessible by roads.

Classification establishes a baseline condition and reflects the level of development existing at the time of designation. Classification does not imply that additional development that degrades the original condition of the River is permitted in the future (Federal Register, 1982) nor does it imply management intent. All rivers must be managed to protect and enhance the values that caused them to be eligible for inclusion in the System, regardless of their classification. All rivers are afforded equal protection under the Act.

Federally-assisted water resources projects that are determined to have a direct and adverse effect on the values for which rivers were added to the System are prohibited, unless these impacts can be avoided or eliminated. The maintenance of structures associated with preexisting instream conditions (i.e., water intakes, outfalls, and bank treatments) is allowed when necessary and appropriate, for the purposes of protecting existing public infrastructure or protecting the river from existing threats to river values. Every effort must be made by project proponents to conform to practices that will minimize impacts to the river and enhance river values to the greatest extent possible.

Seventeen and one tenth miles (17.1) of the River were designated as a Federal Wild and Scenic River under Section 2(a) (ii) of the Wild and Scenic Rivers Act (WSRA) in 1989. Of those 17.1 miles, approximately 3.5 miles along the right descending bank are privately owned as part of the Vermilion Power Plant Complex. Dynegy Operating Company owns the plant and operated the facility until it was decommissioned in 2011.

As part of the power plant operations, three coal ash storage ponds were constructed within the active floodplain of the River. Collectively, the ponds hold over 3 million cubic yards of coal ash and related by-products of coal combustion. The newest “East Pond” is the reason for this determination as it is impeding the lateral migration of the River and has the potential of mass discharge to the River without intervention. The NPS has expressed concern about the current location of the fly ash disposal ponds, within the active meander pattern of the River, as well as the potential detrimental effects of pond discharges to the water quality value of the River. The location of the fly ash disposal ponds is not consistent with the purpose of the River and the removal of the ash ponds as well as associated embankments, streamside pump house, and non-operational infrastructure that remains within the river corridor would protect and enhance the River and its values.

The NPS is also concerned that the River has migrated beyond a recommended safety threshold, less than 30 linear feet at its narrowest point, from the base of the embankment of the existing East Fly Ash Disposal Pond (primary pond), exposing the River to the potential for embankment failure and the discharge of the contents of the ponds into the River. In the absence of the immediate removal of the fly ash ponds, the re-establishment of the bank and associated armoring is necessary as a temporary practice for the protection of the River and its values, until such time the ponds are removed.

LOCATION:

The project is located on the right descending bank of the River at "Location #2" in the vicinity of the eastern embankment of the primary pond), on the property of the Vermilion Power Station, 10188 E. 2150N, Oakwood, Illinois 61858, near Latitude 40°10'44.36" N and Longitude 87°44'09.05" W.

TIMING/DURATION:

October 2016 to November 2016

PURPOSE:

The purpose of the project is to re-establish a severely eroded bank and prevent the migration of the River into the embankment of the east ash primary disposal pond that currently exists within the floodplain of the River.

NEED:

The proposed project is necessary, in the absence of pond/ash removal and reclamation of the area, to protect the River and its values and to reduce the potential of embankment failure and possible discharge of the contents of the primary pond into the River.

PROJECT DESCRIPTION:

The Project as proposed will re-establish approximately 485 linear feet of eroded streambank along the right descending bank of the River. A combination of rock channel protection, back-filled soil, dormant willow stakes, and other native vegetation will be used to re-construct a fortified bank with a substantial vegetated component.

The proposed design will use sandbar willow incorporated into the stone toe beginning 2 feet below the ordinary high water mark. The native plant material will be planted throughout the bank fill in order to provide additional bank stability, a lowered rock profile, and ecological benefits. Some rock channel protection (RCP) or riprap will be visible

SECTION 7(a) EVALUATION:

The project includes construction activities within the waterway of the River and meets the criteria of a water resources project. The project is subject to a determination under the "Direct and Adverse Effect" evaluation standard of Section 7(a) of the Act.

This section analyzes the effects the proposed action would have on the River's water quality, free-flowing condition, and ORVs. Information to make this final determination is derived from the "Revised Permit Application Form and Project Report," dated May 12, 2016. The Louisville District of the USACE has provided the application packet containing this information and a request for a final determination.

In a previous Section 7(a) Determination dated August 2010, the NPS determined that a similar proposed project would have a direct and adverse effect on the free-flowing condition and scenic values for which the River was designated. The NPS also recommended to the following actions:

1. Establish a Safety Threshold: According to the geomorphological study (Study), the ash pond is in no immediate danger from the River, but may be subject to fluvial processes in the future. An appropriate safety threshold should be established in order to assess when corrective action may be necessary to protect the River. Future corrective alternatives may include pond relocation.”
2. Establish a Streambank Monitoring Protocol: The existence of the ash pond within the meander pattern of the River is a considerable threat to the River. The NPS concurs with Recommendation 1 of the Study that suggests the project proponents actively monitor the movement of the River in order to assess the ongoing status of the streambank, its proximity to set safety thresholds, and the threat of the pond to the River.
3. Seek Alternative Ash Disposal Locations: At its current location, the primary fly ash disposal pond presents a water quality hazard and a constraint to natural river processes. The NPS recommends that the proponents consider the mutual benefits of pond relocation for facility management and the River’s values.

This determination assumes the existing fly ash ponds will remain in place for the foreseeable future. As evident from field visits on October 10, 2014 and March 3, 2016, the River continues to erode the right descending bank and has reached a minimum distance that requires bank stabilization, in the absence of fly ash/pond removal and the restoration of the floodplain, to prevent the potential for the discharge of fly ash to the River. This determination does not preclude any action to remove the existing ponds from the floodplain and re-establish the natural function of the River.

Free-flowing Condition:

Section 16(b) of the Act defines the term “free-flowing” as “existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway,” and further stipulates that the existence of structures at the time of designation, “...shall not be construed to authorize, intend or encourage future construction of such structures with components of the national wild and scenic river system.”

The River currently drains approximately 426 square miles of watershed to the site as it flows through a rural landscape. It is described as clean, winding with some pools and shoals as evaluated in the Study. The streambed is incised into shale with little potential for channel degradation. The River has a highly sinuous pattern within the project area and is currently within 30 feet of the base of the ash pond embankment at its most narrow distance from riverbank. The right descending streambank is undercut and experiencing severe erosion consistent with natural stream processes, accelerated by high flow events and bedrock/shale substrates that have effectively facilitated rapid lateral movement and bank loss. The River continues to erode the right descending bank and has reached a threshold that requires bank stabilization in the absence of fly ash/pond removal and the restoration of the floodplain.

According to the Study in 2009, a 50-foot margin between the toe of the pond’s embankment and the riverbank existed at the time, with the potential for the River to capture a secondary “high flow” channel before the safety threshold would be reached. Upon further observation, approximately 20 feet of the bank line has been lost to erosion since the 2009 study and visual inspection of the high flow channel in 2016 found the channel to be virtually unchanged since 2009 with no evidence of increased flow or active erosion. It does not appear the River is currently claiming the high flow channel or abandoning the main channel near the East Ash Pond.

As proposed, the project would maintain the geometry of the River, prior to the accelerated scour, and incorporate significant vegetative components within the RCP. The project would result in the hardening of the streambank effectively halting the lateral migration in a highly sinuous reach of the River. And maintain the condition prior to designation – the existence of fly ash disposal ponds within the adjacent floodplain and prevent possible mass discharges of fly ash to the River.

The NPS has determined the project as proposed will not have direct and adverse effect on the free-flowing condition for which the River was established.

Water Quality:

The protection of the water quality in designated rivers is explicitly directed as part of the Congressional declaration of policy under Section 1(b) of the Act. Additional management policies under Section 12(c) of the Act reinforce the primary role of the Environmental Protection Agency (EPA) and appropriate State water pollution control agencies in enforcing the Clean Water Act and related water quality standards on the River. Wild and Scenic River-administering agencies work in cooperation with the EPA and State agencies to address water quality issues that affect the River as directed by the Act.

According to the *Middle Fork of the Vermilion Corridor Management Plan (CMP)*, the Illinois Environmental Protection Agency has found the River to have “no known impairment” attributable to non-point pollution. The water quality of the River is generally good to excellent, dissolved oxygen levels are at acceptable levels, and the River supports a diverse assemblage of pollution-intolerant macroinvertebrates, unionid mussels, and six species of darters. Notwithstanding the generally good water quality within the River, storm water runoff contributes occasional phosphorus loads. The River also receives organic waste pollution attributable to animal feed lots and domestic septic systems, and the ash ponds along the River present an active threat of leaching to the River’s water quality.

The location of the ponds is especially threatening to the water quality of this active River system. The East ash pond is designed to contain fly ash, bottom ash, and boiler slag among other materials that are potentially hazardous to water quality. The current materials identified in the Vermilion Power Station’s National Pollutant Discharge Elimination System permit include: fly ash and bottom ash transport water, ash hopper overflow, demineralizer regenerant wastes, water treatment clarifier sludge, water filter backwash waste, coal pile runoff, area runoff, non-chemical cleaning wastes, boiler room and dust collector area floor drains, and pyrites from coal crushing.

Project activities would include the removal of riparian vegetation and disturbance of the banks in order to install the project. The area would be restored and vegetation replaced to a condition consistent with existing riparian vegetation. Some sediment loading associated with the project is expected during construction. Any turbidity associated with project construction would be temporary.

The NPS has determined the project will not have a direct and adverse effect on the water quality of the River.

Scenic Values:

The River derives its scenic quality from its inconspicuous roads, forested conditions, bluff lines, and largely undeveloped shorelines. The landscape is mostly old agricultural fields, mixed hardwood forests, and wetlands. Few buildings are visible from the river, except for the power plant smoke stack and the pump house further downstream from the project site. Gabion baskets, some of which are in disrepair and undermined by the River, line the right descending bank, upstream of the project site, and vegetated pond

embankment can be seen from the River. These structures and constructed landscape features occur and are experienced in relative succession as one paddles the River along the power plant property.

The project site has a limited forested corridor, less than 30 feet at its narrowest point and the current bank, though eroding, exhibits the natural tendencies of a migrating stream. Though many of the structures, the gabions upstream from the project site, the pump house downstream from the project site, and the ash ponds/embankment existed and have been visible since the time the River was established, the existing wooded corridor has contributed to the scenic quality of the area. The relatively vegetated condition of the pond embankment, along with the heavily wooded opposite bank, minimize the visual contrast, but the embankment remains a dominant landscape feature.

In order to install the practice, the existing undercut bank would be replaced with a stone toe interplanted with willow poles and other native vegetation. The upper bank and denuded corridor would be re-planted with native vegetation, consistent with the existing river corridor. Although in time the bioengineered design would likely establish sufficient vegetated growth to reduce the profile of the rock, it is unlikely the RCP would be completely covered.

Considering the prevailing character of the area and limitations imposed by the pre-existing ash pond, the project is necessary until such time the fly ash storage ponds are removed. A predetermined minimum safety margin has been met and the pond presents a significant threat to the River and its scenic value.

Provided the conditions of this determination are fully implemented, the NPS has determined the project will not have a direct and adverse effect on the scenic values of the river.

Recreational Values:

The River offers many quality river-related recreational opportunities. These include canoeing and fishing among other corridor-based activities like hiking and wildlife viewing. In the vicinity of the project at Kickapoo State Park, fishing activity on the River is heavy. According to the CMP, this use is attributable to the excellent smallmouth bass fishing in the area and the relatively high interest in angling within the east-central region of the State of Illinois. Canoeing in the region is also high. The typical canoeing season on the River is between March 15 and November 30 with an average of 230 canoeable days. The State of Illinois's 2009 Statewide Comprehensive Outdoor Recreation Plan identifies canoeing as one of the state's top ten growing activities and water resources as a priority to conserve for quality water-based recreational experiences.

The project as proposed will affect the aesthetic quality of the area during construction and will result in an extended period of disturbance and recovery. Noise and visual intrusions in the form of a disturbed landscape, machinery, and other construction activities do affect the recreational enjoyment of the River by people in the vicinity of the project site. The project will not occur within the primary canoeing season and will not impede passage.

Considering the recreational impacts of the project will be relatively minor and of a temporary, the NPS has determined on behalf of the Secretary the project will not have a direct and adverse effect on the recreational values of the River.

Geologic Values:

As with many Midwestern streams, the River has been shaped by glaciers, wind, and fluvial processes. The Higginsville Geologic Area has been designated an area of geological significance and a state natural

area. The large bluff exposure is representative of local geologic characteristics and remnants from the Illinoisan and Wisconsinan formations.

Considering the project area does not exhibit any notable geologic phenomenon and is not proximate to the Higgins Geologic Area, the NPS has determined the project will not have a direct and adverse effect on the geological values of the River.

Fish and Wildlife Values:

The River's unique mussel resources (including listed and non-listed species) are specifically mentioned in the CMP for the River and are protected by the Act. The CMP describes several aquatic organisms that are listed as threatened, endangered, or otherwise dependent on the River. These species include the bluebreast darter (*Etheostoma camurum*) (unique to the River and on the State endangered list), dusky darter (*Percina sciera*), brindled madtom (*Noturus miuris*), river redhorse (*Moxostoma carinatum*), wavy-rayed lampmussel (*Lampsilis fasciola*), round hickory nut (*Obovaria subrotunda*), purple lilliput (*Toxolasma lividus*), rainbow (*Villosa iris*), little spectacle case (*Villosa lienosa*), fluted shell (*Lasmigona costata*), and purple pimpleback (*Quadrula refulgens*). Additionally, the CMP states that game birds, raptors, and songbirds are common; game mammals, small mammals, and furbearers are numerous; and reptile and amphibian populations are diverse in the vicinity of the River. Aquatic life is also thriving with uncommon fish and aquatic insect assemblages. The River corridor is known for its species diversity where suitable habitat exists.

At the project site, the Illinois Department of Natural Resources conducted a mussel survey to determine the extent of the mussel population within 100-feet upstream of the site and 400-feet downstream of the site as requested by the NPS. The actual survey extended 200-feet upstream of the site and 700-feet downstream. Strong current and high turbidity were noted at the time of survey. No mussels, live or dead, were collected in the construction area. The substrate in the survey reach consisted of scoured bedrock representing unsuitable habitat for mussels. The only live mussel collected, a wavy-rayed lampmussel (*Lampsilis fasciola*) in sandy habitat, upstream of the construction site on the left (opposite) bank of the River.

The project will likely introduce temporary turbid conditions into the water, and create extensive noise and disturbance within the project area. The removal of vegetation and disturbance associated with the bank work would temporarily displace terrestrial wildlife, but would be unlikely to permanently disturb sensitive aquatic organisms. Considering the current character and condition of the area, the NPS concurs with the Illinois Department of Natural Resources assessment that adverse effects to protected resources including those listed above are unlikely.

The NPS has determined the project will not have a direct and adverse effect on the fish and wildlife values of the River.

Terrestrial Ecology Values:

The River valley is a forested intrusion into the prairie grasslands of central Illinois. Located between the Grand Prairie and Wabash Border divisions in Illinois, the area exhibits a diversity of terrestrial habitats. The River's corridor exhibits dry to mesic upland forest, floodplain forests, dry to mesic upland prairie, mesic floodplain prairie, seep springs, and stream habitats. The dominant terrestrial habitat at the project site is mixed riparian forest, fragmented by the existing service road, and influenced by the pond embankment, the ash pond, and its contents. Extensive forest habitat exists on the opposite bank as part of the Kickapoo State Park corridor.

In order to install the practice, existing forest on the project site will need to be removed, in addition to many trees that have been lost as the bank has rapidly eroded. This action would have a temporary adverse effect on the forest habitat that currently exists on the site, but with time the site would recover some of the forest habitat as the site revegetates. Although the removal of the trees would displace wildlife, the size of the impact relative to the availability of adjacent habitat in the area would be minor.

The NPS has determined the project will not have a direct and adverse effect on the terrestrial ecology values of the River.

Historic Resources:

According to the CMP, the corridor of the River is rich in archeological sites. The Collins Archeological Complex is included in the National Register of Historic Places. The site is described as a late woodland ceremonial center dated 900-1100 A.D. It is an important cultural resource with significant prehistoric value.

The project will occur in a previously disturbed area currently subject to fluvial processes. Impacts to cultural resources are not expected during the project, but may be possible. The project will not have a direct and adverse effect on the historic values of the River, however, should cultural resources be encountered during construction, the Illinois State Historic Preservation Office must be contacted.

FINAL SECTION 7(a) DETERMINATION:

Pursuant to Section 7(a) of the Act, the NPS has determined on behalf of the Secretary this project will not have a direct and adverse effect on the River's free-flowing condition and the values for which the River was designated, provided that the following conditions are met.

1. All conditions are required.
2. Safety Threshold: The River is currently located within 30 feet of the base of the existing East ash disposal pond at the corridor's most narrow point and is expected to continue to migrate towards the pond. A minimum distance to prevent embankment failure and provide adequate construction access for best management practice (bank stabilization) installation has been reached.
3. All appropriate measures must be in place to minimize sedimentation and streambed impacts prior to initiating in-stream/streambank work.
4. All in-stream/streambank work must be conducted between September 1 and November 30 unless otherwise approved upon request. Instream work shall not occur during high flow events.
5. The installation of dormant vegetated stock (willows and similar native shrubs and trees) may occur as necessary to facilitate a successful establishment of a wooded corridor.
6. Rock weirs, stream barbs, jetties, gabion walls, gabion mattresses, or other similar diversion structures shall not be constructed; Constructed bank elements shall not extend beyond the established bank line, except in the case of possible rootwad revetments, where the rootwad itself may protrude slightly.

7. If mussels are encountered during construction, work must stop and the Illinois Department of Natural Resources (IDNR) staff shall be immediately contacted and arrangements made to properly relocate all affected mussels to suitable habitat sites within the River.
8. Litter and construction debris shall be contained daily. All construction debris, including the old road base, and litter must be completely removed offsite and disposed of properly upon project completion.
9. A sediment erosion control plan must be kept on site. Spoil piles must be covered or otherwise managed to reduce sedimentation in accordance with the plan.
10. No wastewater, fuels, or other harmful fluids shall be discharged into the River.
11. Disturbed/exposed streambanks and staging and project access areas must be properly stabilized (seeded, mulched, or otherwise) with native vegetation immediately after grading to prevent erosion and establishment of invasive plant species.
12. Plant selection must reflect the natural mixture/diversity of the adjacent corridor and must result in an assemblage of trees and understory with a naturalized appearance and multiple age classes.
13. A certified forester or arborist must oversee planting and transplant selection in order to optimize survivability.
14. Annual monitoring and stewardship shall occur and replanted stock showing signs of mortality within the first 5 years must be promptly replaced by like species on a continuing basis in order to maintain a maximum riparian buffer. Mowing in this zone is prohibited unless temporarily necessary for practice establishment.
15. No structures including but not limited to bird blinds, benches, signs, dedicated trails shall be erected or otherwise placed within the riparian forest buffer.
16. If previously unknown archeological materials are discovered during land clearing activities, work must stop immediately. Consultation and coordination with the State Historic Preservation Officer must occur before work resumes.
17. The NPS and IDNR State staff must be notified upon project initiation and completion. A preconstruction meeting with equipment operators shall be held to discuss the above recommendations.
18. The NPS will be promptly notified of accidents and/or failures of project features intended to protect the free-flowing condition, water quality, or ORVs during construction activities.
19. A completion report must be provided to the NPS within 3 months of project completion, and a follow-up report 1 year after the project is completed. Both reports should include photos of the riparian corridor and practice condition throughout all stages of construction. Continued communication is requested during the 5 year monitoring period.
20. Any changes to any elements of the project or the scheduling of in-stream work, as described in the package submitted for evaluation and/or above, will require consultation with the NPS and may require additional Section 7(a) review/approvals.

Section 10(a) Consistency Statement:

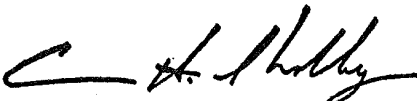
The Wild and Scenic Rivers Act, seeks to preserve and protect the free-flowing condition, and preserve the immediate environs of select rivers for the benefit and enjoyment of present and future generations. Section 10(a) of the Act directs river administering agencies to "protect and enhance" the values for which these rivers are designated. The "protect and enhance" language in Section 10 (a) is interpreted by the Secretary's Guidelines as "a non-degradation and enhancement policy for all designated river areas, regardless of classification." The project does not protect or enhance the River or its values to the greatest extent possible and is not fully consistent with Section 10 (a) of the Act.

NPS recommends the following ameliorating measures consistent with the intent of Section 10(a) of the Wild and Scenic Rivers Act:

1. Seek Alternative Ash Disposal Locations: At its current location, the primary fly ash disposal pond is in direct conflict with the River and is encroaching upon the River. The pond presents a water quality hazard and a constraint to the River's free flowing condition and natural river processes. The NPS recommends that the proponents consider the mutual benefits of pond relocation for facility management and the River's values.
2. Rock Channel Protection Removal: In the event the ash disposal site is restored to a natural condition, remove rock channel protection at location #2 and re-establish a more natural bank condition.
3. Removal of the Pump House at Location #3: The pump house is no longer functional and the scenic ORV, among others would be enhanced by its removal. As part, the excess rock channel protection that exists at this location should be removed and the bank should be vegetated or naturalized. Location #3 may be a source of rock channel protection for the location #2 project to minimize the cumulative effects of the bank projects.
4. Removal of the Plant Stack: The scenic ORV of the River would be enhanced by the removal of the plant's smoke stack.
5. Comprehensive Planning: The NPS encourages continued coordination between stakeholders and agencies regarding the long-term restoration potential at the Dynegy site and the need for a comprehensive approach to riverbank management.

Should you have any questions or concerns about this determination, please contact Regional Rivers Coordinator Hector Santiago at (402) 661-1848 or hector_santiago@nps.gov.

APPROVED BY:



Regional Director, Midwest Region
National Park Service

7-6-16

Date