LOW IMPACT HYDROPOWER INSTITUTE CERTIFICATION APPLICATION

BELLEVILLE LOCK AND DAM PROJECT

(FERC Project No. 6939)

Prepared by:

American Municipal Power, Inc.

Columbus, Ohio

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1. FACILITY DESCRIPTION

On September 27, 1989, the Federal Energy Regulatory Commission (FERC) issued a new license for a period of 50 years to the City of Jackson, OH to construct and operate the Belleville Project (FERC # P-6939 or Project). On May 24, 1993, FERC approved the partial transfer of the project license to Jackson, OH and a group of 41 other Ohio municipalities, collectively known as Ohio Municipal Electric Generation Agency, Join Venture 5 (OMEGA JV5). OMEGA JV5 retains American Municipal Power, Inc. (AMP) as a designated representative to provide liaison with FERC to ensure effective administration and management of the Belleville Project license.

The Belleville Hydroelectric Facility began construction in late 1995 and reached full commercial operations in 1999. As of the end of 2021, annual generation at the plant has averaged 259,017 MWh per calendar year. AMP maintains an ownership stake in four other hydroelectric projects along the Ohio River including: Willow Island (FERC Project No. 6902), Meldahl (FERC Project No. 12667), Cannelton (FERC Project No. 10228), and Smithland (FERC Project No. 6641). Each project can be located in Figure 1 below.

Figure 1 – Ohio River Mainstem Navigation System

(Source)

Figure 2 – Ohio River Basin Map with Location of Belleville Dam

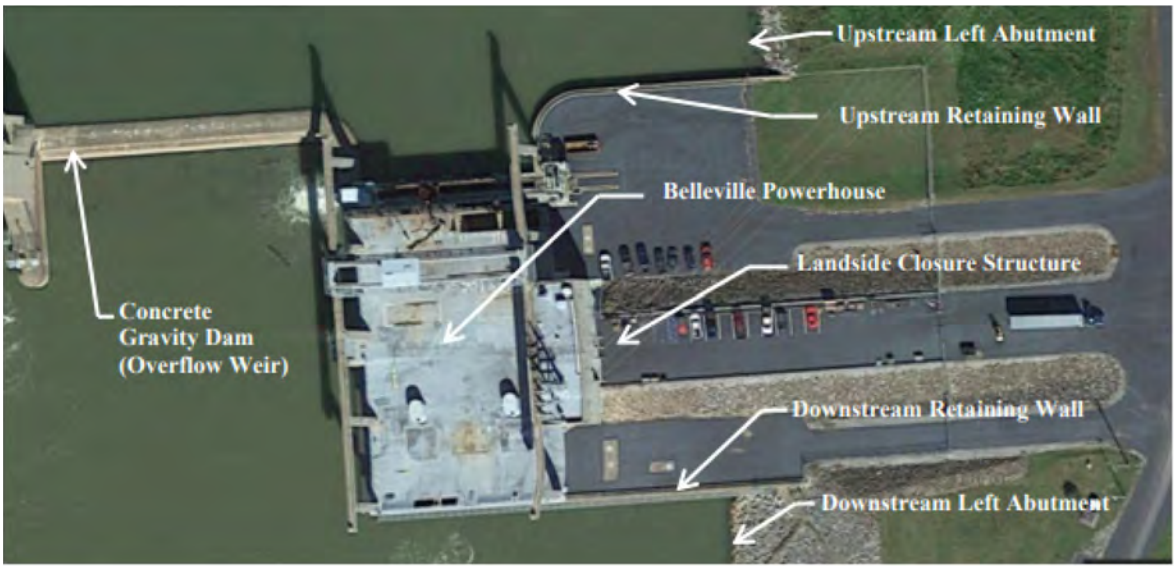
(Source)

Facility Details

The Belleville Hydroelectric Project is located adjacent to the United States Army Corps of Engineers (USACE or the Corps) Belleville Lock and Dam on the Ohio River at river mile (RM) 204 (as measured from its source in Pittsburg, PA) near Belleville, West Virginia. The structure is a submersed reinforced concrete powerhouse and gravity dam designed to abut the existing concrete dam on the Ohio River. The Belleville Locks and Dam consist of a non-navigable, high-lift, gated dam, top length 1,206 ft., including a 189 ft. fixer weir with an open crest. There are two parallel locks, the main lock 110 ft. by 1,200 ft. and the auxiliary lock 110 ft. by 600 ft. The hydropower plant includes:

- A concrete powerhouse structure approximately 245 feet long and 140 feet wide, containing two horizontal shaft bulb-type Kaplan turbines with a total installed capacity of 42 MW;
- An approach channel approximately 500 feet long with a wall on the river side;
- An approximately 150-foot-long by 66-foot-wide tailrace channel that will conduct the downstream discharge of the turbines back to the river at a point approximately 307 feet below the Belleville Dam;
- A single-circuit 138 kilovolt transmission line;
- A landside closure structure;
- Recreation facilities and other appurtenant facilities

- **Figure 3 – Overview of Belleville Lock and Dam**



- **Figure 4 – Close-up Aerial View of Belleville Hydroelectric Project**

Project Operation

AMP and the Huntington District of USACE entered into a Memorandum of Operating Agreement (MOA) on May 23, 2003. As Directed by USACE and Article 401 of the Project License, the Project is operated by AMP in run-of-river mode.

AMP operates the Project according to its FERC License and MOA with USACE. The Huntington District of USACE maintains the upper Belleville pool at an elevation level between 582 ft. and 583 ft. Ohio River Datum (ORD). During low flows, when the river is being regulated for protection of navigation and other Federal interests, all discharges for the Project are controlled by the USACE lockmaster. Under normal operations, flows from approximately 2,000 cubic feet per second (cfs) to 40,000 cfs will be passed through the turbines. Flows between 36,500 cfs up to approximately 205,000 cfs will be passed through both the Dam and the Hydropower Project. If the river flow is less than the minimum turbine discharge of approximately 2,000 cfs, the hydro plant is shut down and all flow is passed through the Dam. The Huntington District of USACE maintains the upper pool when discharging any flow through the Dam.

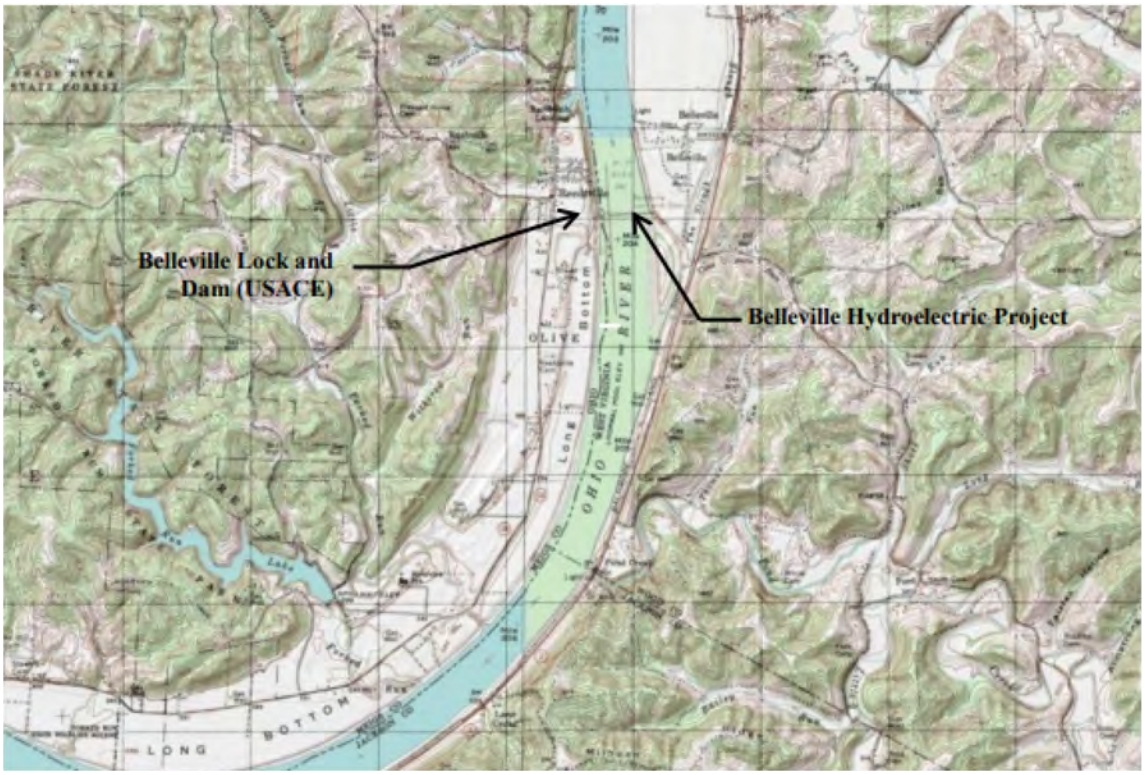


Figure 5 – Topographic Map of Belleville Hydroelectric Project and Surrounding Area.

(Source)

Table 1. Facility Information

Item	***Information Requested***	***Response (include references to further details)***
Name of the Facility	Facility name (use FERC project name or other legal name)	Belleville Hydroelectric Project, FERC Project No. 6939
Reason for applying for LIHI Certification	1. To participate in state RPS program 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer's purchasing requirement 4. To satisfy the facility's own corporate sustainability goals 5. For the facility's corporate marketing purposes 6. Other (describe)	(select and describe only applicable reasons) 1. ☒ State Program: Pennsylvania 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	Amount of MWh participating: 259,017 % of total MWh generated: 100%
Location	River name (USGS proper name)	Ohio River
	Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html	Upper Ohio River Basin-Shade River; HUC – 05030202 HUC – 05030202 Upper Ohio River Basin-Shade River (usgs.gov)
	Nearest town(s), county(ies), and state(s) to dam	Belleville, Parkersburg, and Vienna in Wood County, West Virginia Hockingport in Washington County, Ohio; Long Bottom and Reedsport in Meigs County, Ohio
	River mile of dam above mouth	The project is located at river mile 204 below Pittsburgh, PA

Item	*Information Requested*	*Response (include references to further details)*
	Geographic latitude and longitude of dam	Lat: 39.118851 º Long: -81.740084 º
Facility Owner	Application contact names	Owner: Ohio Municipal Electric Generation Agency Joint Venture 5 (OMEGA JV5) Operator: American Municipal Power, Inc. (AMP)
	Facility owner company and authorized owner representative name.	Owner company same as above. Owner representative name is Adam Ward, Senior Vice President of Member Services & External Affairs
	FERC licensee company name (if different from owner)	Same as owner
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC Project No. 6939
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”)	Major
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	Water Quality Certification issued on April 9, 1987, by the West Virginia Department of Natural Resources. No Water Quality Certificate Identifier was provided.
	Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories[1]	Included separately, refer to Appendix B

[1] For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

Item	*Information Requested*	*Response (include references to further details)*
Powerhouse	Date of initial operation (past or future for pre-operational applications)	Full commercial operations were achieved at the project in 1999
	Total installed capacity (MW) For recertifications: Indicate if installed capacity has changed since last certification	Total installed capacity at the project is 42 MW
	Average annual generation (MWh) and period of record used For recertifications: Indicate if average annual generation has changed since last certification	Average annual generation is 259,017 MWh as calculated for the period from 2000-2021
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) For recertifications: Indicate if mode of operation has changed since last certification	Run-of-River
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	Number: 2 Type: Horizontal-axis Bulb Type Max Hydraulic Capacity: 40,000 cfs Min Hydraulic Capacity: 2,000 cfs Max Output: 21 MW, 42 MW total
	Trashrack clear spacing (inches) for each trashrack	6 inches
	Approach water velocity (ft/s) at each intake if known	4.0 ft/s at the face of the intake
	Dates and types of major equipment upgrades	There have been no notable equipment upgrades or operation changes since the plant was commissioned in 1999.
	Dates, purpose, and type of any recent operational changes	N/A
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	N/A

Item	*Information Requested*	*Response (include references to further details)*
Dam or Diversion	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	The USACE owns and operates the Belleville Locks and Dam. Overall construction began in May of 1962. Construction of the locks was started in June of 1963, and they began operating in October of 1965. The dam construction was initiated in 1964. The pool was raised to full height in November of 1968. (Source)
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	The dam is a non-navigable, high-lift, gated dam. It has a top length of 1,206 ft, including a 189-ft fixer weir with a 130-ft open crest. There are eight Tainter gates, a clear span of 110 feet between 15-ft intermediate piers and 16-ft end piers. There is a damming height of 32 feet above the sills, and the clearance above the maximum high water when fully raised is approximately 5 feet.
	Spillway maximum hydraulic capacity	Unknown
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	N/A
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Navigation
Impoundment and Watershed	Authorized maximum and minimum impoundment water surface elevations	Normal upper pool elevation is 582.0 feet m.s.l.
	Normal operating elevations and normal fluctuation range	Normal upper pool elevation is 582.0 feet m.s.l., normal lower pool elevation is 560.0 feet m.s.l.

Item	*Information Requested*	*Response (include references to further details)*
	Gross storage volume and surface area at full pool	Normal upper pool surface area is 8900 acres Storage Volume: 229,200 Acre-Ft USACE National Inventory of Dams
	Usable storage volume and surface area	0 (Run-of-River Facility)
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	N/A

Item	*Information Requested*	*Response (include references to further details)*
	Upstream dams by name, ownership (including if owned by an affiliate of the applicant's company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Emsworth Lock and Dam, Owned by USACE, river mile 6.2. FERC Project No. 13757 and No. 13761 Dashields Lock and Dam, Owned by USACE, river mile 13.3 Montgomery Lock and Dam, Owned by USACE, river mile 31.7. FERC Project No. 13768 New Cumberland Lock and Dam, Owned by USACE, river mile 54.4 Pike Island Lock and Dam, Owned by USACE, river mile 84.2 Hannibal Locks and Dam, Owned by USACE, river mile 126.4. FERC Project No. 3206 Willow Island Locks and Dam, Owned by USACE, river mile 161.7 (AMP owns hydroelectric Project, FERC Project No. 6902) All upstream dams have downstream fish passage

	Downstream dams by name, ownership (including if owned by an affiliate of the applicant's company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Racine Locks and Dam, Owned by USACE, river mile 237.5. FERC Project No. 2570 Robert C. Byrd Locks and Dam, Owned by USACE, river mile 279.2. FERC Project No. 15094 Greenup Locks and Dam, Owned by USACE, river mile 341. City of Hamilton own Greenup Hydro Project, FERC Project No. 2614 Meldahl Hydro Power Station, Owned by AMP, river mile 436.2. AMP operates Meldahl Hydroelectric Project, FERC Project No. 12667 Markland Locks and Dam, Owned by USACE, river mile 531.5. FERC Project No. 2211 McAlpine Locks and Dam, Owned by USACE, river mile 606.8 Cannelton Locks and Dam, Owned by USACE, river mile 720.7. AMP owns Cannelton Hydropower Project, FERC Project No. 10228. Newburgh Locks and Dam, Owned by USACE, river mile 776.1. FERC Project No. 12962

Item	***Information Requested***	***Response (include references to further details)***
		John T. Myers Locks and Dam, Owned by USACE, river mile 846 Smithland Locks and Dam, Owned by USACE, river mile 918.5. AMP owns Smithland Hydropower Project. Olmstead Locks and Dam, Owned by USACE, river mile 964.4 All downstream dams have upstream fish passage
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	All upstream and downstream facilities are operated by USACE for navigational purposes.
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	Area of Land: 39 acres Area of Water: Unknown
Hydrologic Setting	Average annual flow at the dam, and period of record used	Average Annual Flow: 56,674 cfs Period: 2020-2021 (Source)

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Average monthly flows and period of record used</td><td>
<table>
<tr><th>Month</th><th>Average Flow (cfs)</th></tr>
<tr><td>January</td><td>62,157</td></tr>
<tr><td>February</td><td>50,507</td></tr>
<tr><td>March</td><td>89,552</td></tr>
<tr><td>April</td><td>43,070</td></tr>
<tr><td>May</td><td>75,419</td></tr>
<tr><td>June</td><td>38,538</td></tr>
<tr><td>July</td><td>43,833</td></tr>
<tr><td>August</td><td>28,613</td></tr>
<tr><td>September</td><td>36,570</td></tr>
<tr><td>October</td><td>28,781</td></tr>
<tr><td>November</td><td>40,687</td></tr>
<tr><td>December</td><td>60,247</td></tr>
</table>
Period: 2021

Measured from Parkersburg at Ohio River Mile (ORM) 185

(Source)</td></tr>
<tr><td></td><td>Location and name of closest stream gaging stations above and below the facility</td><td>Upstream Gage: 03114306 - Ohio River above Sardis, OH

Downstream Gage: 03216070 - Ohio River at Ironton, OH</td></tr>
<tr><td></td><td>Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.</td><td>The drainage area for the locks and dam is 39,350 square miles. Taken from USACE national inventory of dams.

(Source)</td></tr>
<tr><td></td><td>Other facility specific hydrologic information (e.g., average hydrograph)</td><td>N/A</td></tr>
<tr><td>Designated Zones of Effect</td><td>Numbers and names of each zone of effect (e.g., “Zone 1: Impoundment”)</td><td>Zone 1: Impoundment

Zone 2: Downstream</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
	River mile of upstream and downstream limits of each zone of effect (e.g., "Zone 1 Impoundment: RM 6.3 - 5.1")	Zone 1 Impoundment: Hocking River at Hockingville, ORM 199.4-204 Zone 2 Downstream: Shade River below Long Bottom, ORM 204-210.75

2. STANDARDS MATRIX

Table 2 - Standards Matrix for Two Zones of Effect

Facility Name: Belleville Lock and Dam Project

Zone of Effect: There are two Zones of Effect (ZOE) for the Project. The first being the impoundment, stretching approximately 4.6 river miles to the confluence of the Hocking River and the Ohio River near Hockingport, OH. The second being downstream, extending about 6.75 river miles upstream to the confluence with Shade River right below Long Bottom, OH. Below the Standards Matrix is an image (Figure 6) that outlines both Zones of Effect.

Zone:		1: Impoundment Reach	2: Downstream Reach
River Mile at upper and lower extent of Zone:		119.4-204	204-210.75
Criterion		**Standard Selected**	
A	Ecological Flows	1	1
B	Water Quality	3	3
C	Upstream Fish Passage	1	1
D	Downstream Fish Passage	1	1
E	Shoreline and Watershed Protection	2	2
F	Threatened and Endangered Species	2	2
G	Cultural and Historic Resources	2	2
H	Recreational Resources	2	2

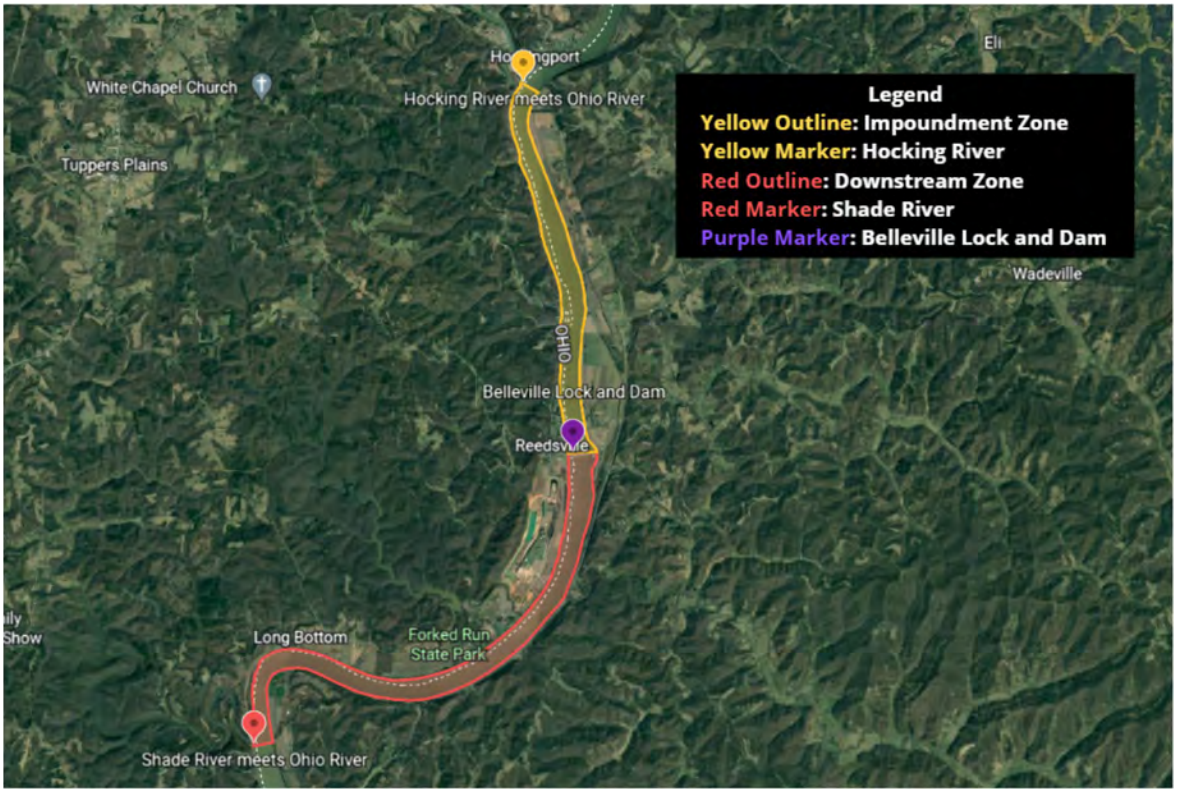


Figure 6 – Outline of Zones of Effect for the Project

3. SUPPORTING INFORMATION

Ecological Flow Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: A	**Standard**	**1**	**1**
Instructions	Not Applicable/De Minimis Effect: • Confirm the location of the powerhouse relative to any dam/diversion structures and demonstrate that there are no bypassed reaches in the designated Zone of Effect. • For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones, explain water management (e.g., fluctuations, ramping, refill rates, restrictions) and how those requirements support fish and wildlife habitat within the ZoE.		

The Project powerhouse is located directly adjacent (Figure 3) to the Belleville Dam and does not have a bypassed reach.

License Article 401 requires the Project to operate as directed by the Corps in an instantaneous run-of-river mode for the protection of navigation, water quality, and aquatic resources in the Ohio River. Article 401 requires:

- The Project is operated in run-of-river mode per its FERC license requirement. Because the Corps maintains the pool elevation to maintain a depth suitable for navigation, AMP does not have any ability or authority to operate in anything but run-of-river mode. The Corps determines the total discharge flow from the dam and AMP uses a portion of that flow for generation. There is no storage capacity in the pools.
- Instantaneous run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement among the licensee, the Corps, the West Virginia Department of Natural Resources (DNR), and the Ohio DNR.
- In the event of a water quality emergency, the licensee, upon commission approval, will spill water at the project dam as necessary for the protection of water quality in the Ohio River as may be recommended by the Corps, the West Virginia DNR, the Ohio Environmental Protection Agency (EPA), and the Ohio River Valley Water Sanitation Commission (ORSANCO).

License Article 408 requires AMP to provide a minimum flow of 2,000 cfs within the tailrace during periods of Project shutdown as necessary to maintain recreational fish activities and protection of aquatic habitat in the Project's tailrace. This license requires the licensee to develop a project shutdown bypass flow release plan. The minimum flow release plan includes (1) a description of the specific measures and facilities proposed for providing the minimum flow release; (2) functional design drawings

of the facilities proposed in item (1); and (3) documentation of consultation with, and written comments and recommendations from, the agencies on the proposed plan:

- During periods of low flow, i.e., less than 5,000 cfs, the Corps has the right to dictate the amount of flow available for generation after satisfying the flows required for navigation.
- During higher flows, the Corps has the right dictate flows through the project during emergencies.
- During periods of flow over 205,000 cfs, the licensee is not able to sluice water through the powerhouse. The tailwater elevation precludes both sluicing and generation.
- The project shutdown Bypass Flow Release Plan was filed with on January 19, 1994. The order approving the minimum flow release plan was filed on April 20, 1994.

License Article 410 requires the licensee, after consulting with the U.S. Geological Survey (USGS), to install stream flow gages in the Belleville Lock and Dam reservoir and Ohio River to monitor compliance run-of-river operation and minimum flow requirements, as outlined Articles 401 and 408, respectively.

During normal operation, the Project will generate with one or two of the units 24 hours a day when differential head levels are between 5 feet (lower pool elevation 577) and 22 feet (lower pool elevation 560). Flows from approximately 2,000 cfs to 40,000 cfs (hydro plant discharge capacity) normally will be passed through the turbines.

The Project is operated according to its FERC License and MOA with the Corps dictates the following specific operational details (beginning on pg. 3 of the MOA):

- The USACE maintains the upper Belleville pool between elevation 582 feet ORD and elevation 583 feet ORD.
- AMP must operate the Project as a run-of-river plant. During low flow periods when the river is being regulated for protection of navigation, or other Federal Interests, all discharges for the Project are controlled by the Lockmaster, who issues specific discharge instructions.
- When the Project is discharging, the operators of the Project regulate flows according to the direction of the Belleville Locks and Dam Lockmaster such that the upper gauge readings stay between the limits of 12.0 or 13.2, depending on the total Ohio River flow.
- For flows approximately 36,500 cfs up to approximately 205,000 cfs (open river conditions when all tainter gates raised clear of water), discharges will be made through both the Dam and Hydropower Project.
- If the flow is less than the minimum turbine discharge of approximately 2,000 cfs, the hydro plant will be shut down and all flow passed through the Dam.
- The MOA between the Corps and the licensee specifies the operating restrictions needed to protect navigation, recreation, water quality, and flood control.
- If the Licensee cannot meet its obligations imposed upon it by terms of its license, the Huntington District agrees to operate the gates of the Dam to assist the licensee to meet such obligation, provided such Dam gate operations can be made in accordance with the navigation purpose of the project.

In March of 2007, FERC completed an operation inspection of the Project. On page 8 of this report, it is stated that the project was in compliance with all license requirements. In 2021, another Dam

Safety/Operation Inspection was completed. As stated in an August 8, 2021 letter, the Project was found to be in satisfactory condition and had no follow-up requests.

Water Quality Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: B	**Standard**	**3**	**3**
Instructions:	Site Specific Studies: - Define all waterbodies and reaches where water quality is directly affected by the facility, including those affected areas outside the facility boundary. - The facility is in compliance with all water quality conditions contained in a recent Water Quality Certificate or science-based resource agency recommendation. - If facility is located on a Water Quality Limited River reach, provide an agency letter stating that the facility is not a cause of such limitation. - Provide a copy of the most recent Water Quality Certificate, including the date of issuance. - Identify any other agency recommendations related to water quality and explain their scientific or technical basis. - Describe all compliance activities related to the water quality related agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.		

Ohio

Link to most recent final 2020 CWA Section 303(d) impaired waters list: Link

Section 305(b) integrated water quality report: Same as above

Listed impairments in the Ohio portion of the Project area are for recreation due to e coli (see assessment unit OH050902011106 – Bear Creek, Ohio River, Link).

West Virginia

Link to most recent final 2018/2020/2022 CWA Section 303(d) impaired waters list: Link

Section 305(b) integrated water quality report: Same as above

Designated uses for the Ohio River include aquatic life, contact recreation, public water supply, and fish consumption. The most recent (2022) Integrated Water Quality Monitoring and Assessment Report indicates that the entire 981 miles of the Ohio River is designated as impaired for fish consumption use, caused by PCBs and dioxin. Since listed impairments are geographically extensive, they cannot be caused or exacerbated by the Project.

The West Virginia Division of Environmental Protection (WVDEP) in cooperation with the West Virginia DNR issued the most recent Water Quality Certificate (WQC) on May 24, 1994. No WQC identifier was provided. State 401 Water Quality Certification, as required by the Clean Water Act, was originally granted on April 9, 1987. The 1994 WQC stated that the original 401 certification and conditions were still valid and in effect. Both Water Quality Certifications are included in this application in Appendix D.

In the Final Environmental Impact Statement (FEIS), conducted by FERC in 1995, it was concluded that the gated dam at the Belleville Hydroelectric Project was a poor aerator and had little effect on the dissolved oxygen concentration. The FEIS stated that the Belleville Locks and Dam does not provide significantly more aeration than can be expected from operation of the hydropower project. Therefore, no spill flow was recommended to meet the state standard for DO protection. License Article 401 specifies that in the event of water quality emergencies, the Project, with approval from FERC, will spill water as necessary for the protection of water quality in the Ohio River as directed by USACE and state resource agencies.

As stated in Article 402, the Project is required to operate and maintain DO monitors and develop a plan for water quality monitoring that includes the DO measurements from the downstream Racine pool to provide annual data analysis reports to ORSANCO and the resource agencies and to indicate measures needed to make sure the minimum DO concentration of 5.0 mg/L is met. AMP developed the Belleville Water Quality Monitoring Plan in consultation with ORSANCO, the U.S. Fish and Wildlife Service (USFWS), the Ohio EPA, the Ohio DNR, the West Virginia DNR, and USACE. The plan was amended by a FERC Order on December 3, 1993. On January 21, 2022, American Municipal Power, Inc. submitted the annual DO monitoring report to provide verification of compliance with reporting obligations regarding the Dissolved Oxygen Monitoring Requirements outlined in the FERC License Article 402 and 403. The 2021 Belleville Dissolved Oxygen (DO) Report collected data between January 1, 2021, and December 31, 2021. During this period DO sensor readings stayed above or met operating guidelines. Daily averages exceeded minimum DO thresholds at all times during the 2021 DO monitoring period. In a 2019 Environmental Inspection Report, FERC evaluated compliance with license article requirements and the licensee was found to be in overall compliance with all license requirements for the Belleville Project, including license Articles 402 and 403 concerning water quality.

On January 25, 1993, the Upper Ohio River Basin Hydro Association (UORBHA) filed on behalf of nine licensees representing 11 projects, a Water Quality Management Group (WQMG) Plan, pursuant to Article 403 or 404 of the respective licenses. Articles 403 required the licensee to participate in the WQMG, along with several other licensed hydroelectric projects in the Upper Ohio River Basin, in the exchange of information including, but not limited to, dissolved oxygen and temperature measurements, river flows, and operational records associated with its project. On March 25, 1993, the licensee outlined their participation in the WQMG. On June 18, 1993, an order was filed approving this plan. Over the course of time, all other participants in the WQMG had their licenses terminated or surrendered with the exception of another AMP owned Project, Willow Island (FERC Project No. 6902).

A 1995 Environmental Assessment of the Project's revised transmission line route concluded that the proposed transmission line was not anticipated to have any effect on the water quality of the surface waters that would be crossed (Page 5-4).

Upstream Fish Passage Standard

Zone		1: Impoundment Reach	2: Downstream Reach
Criterion: C	**Standard**	**1**	**1**
Instructions:	Not Applicable / De Minimis Effect: - List all migratory fish species that are present or historically occurred at the facility. - Demonstrate that upstream passage provisions are sufficient to support healthy populations of migratory species. - Explain why the facility does not impose a barrier to upstream fish passage in the Zone of Effect. - Document available fish distribution data and the lack of migratory fish species in the vicinity. - If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.		

Section 18 of the Federal Power Act (FPA) provides that FERC shall require the construction, maintenance, and operation by a licensees of such fishways as may be prescribed by the Secretary of the Interior of Commerce, as appropriate. This language was included in FERC license article 406. No fishway prescriptions or reservations of authority were filed under License Article 406.

The Racine Pool, which is downstream of the Project, is 33.6 miles long, extending from Belleville Locks and Dam (ORM 203.9) to Racine Locks and Dam (ORM 237.5). It receives water from several small tributaries: Shade River (OH), Shady Creek (WV), and Mill Creek (WV).

In the 2015 ORSANCO Pool Assessment, the Racine Pool was evaluated:

- On average, fish in the Racine Pool were in good condition and the macroinvertebrates were in fair condition. ORSANCO concluded that overall, results indicated that the Racine Pool harbored healthy aquatic communities.

Since the Locks and Dam were already in place, the addition of the Belleville Project posed no further impediment to upstream fish passage.

A list of all fish collected on the main stem of the Ohio River in the upstream and downstream pools of the Project from 2003-2021 can be found in Appendix C. This data is sourced from the Ohio River Valley Water Sanitation Commission's (ORSANCO) database.

As stated in the 2019 Environmental Inspection Report, the Project appears to be in compliance with its requirements regarding fish and wildlife resources.

Downstream Fish Passage and Protection Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: D	**Standard**	**1**	**1**
Instructions:	Not Applicable / De Minimis Effect: - List all fish species that occur now or have occurred historically in the area affected by the facility - The facility is in compliance with a science-based resource agency recommendation for downstream fish passage and/or fish protection. - Identify the proceeding, and source, date, and specifics of the agency recommendation applied. - Explain the scientific or technical basis for the agency recommendation including methos and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. - Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.		

The Belleville pool, which is upstream of the Project, is 42.2 miles long, extending from Willow Island Locks and Dam to Belleville Locks and Dam. The pool has a gradient drop of 0.5 feet per mile and averages 1,327 feet wide and 24 feet deep. Any fish passing through the dam from this pool will be swimming downstream.

The 2014 Belleville Pool Assessment conducted by ORSACO, concluded the following:

- The overall biological condition rating of the Belleville Pool is fair and the pool meets its aquatic life-use designation.

Article 408 of the FERC license requires that the licensee prepare a plan for releasing a continuous minimum flow of 2,000 cubic feet per second to the Project tailrace during periods of project shutdown as necessary for maintenance of recreational fishing activities and protection of aquatic habitats in the project tailrace.

The existing weir connected to the power plant allows fish to pass over the weir structure in high flow periods, and the two lock chambers allow fish to move both upstream and downstream. While fish could become entrained, the very large diameter Kaplan turbines with low rotational speed, three large-diameter blades, wide gaps between the blades, and relatively broad and smooth leading edges of blades all minimize blade strike and low mortality to entrained fish.

An amendment to the license for the Belleville Project was issued on October 27, 2003, deleting the license terms related to the performance of a fish mortality study and compensatory mitigation (Article 404).

A list of all fish collected on the main stem of the Ohio River in the upstream and downstream pools of the Project from 2003-2021 can be found in Appendix C. The data is sourced from the ORSANCO database.

As stated in the 2019 Environmental Inspection Report, the Project appears to be in compliance with its requirements regarding fish and wildlife resources.

Watershed and Shoreline Protection Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: E	**Standard**	**2**	**2**
Instructions:	Agency Recommendation: - The facility is in compliance with all government agency recommendations in a license, exemption, water quality certificate, or other authorization, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the facility. - Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility.		

On page 7 of the Project's FERC license, it states that "The FEIS concluded that construction and operation of the project would cause no significant impact to wetlands. The construction of an access road through a slough, located adjacent to the project and used as a feeding and resting place by migratory waterfowl, could cause a potentially adverse impact. The FEIS recommended that the licensee consult with appropriate resources agencies during the design phase to minimize adverse impacts to this habitat. This requirement is in Article 412 of the license." On October 14, 1994, OMEGA JV5 submitted an access road location plan to satisfy Article 412 as well as Article 415 of the FERC license. FERC issued an Order approving the access road plan on March 8, 1995.

Article 414 of the Project license requires the Licensee to file a plan to avoid or minimize disturbances to the quality of the existing visual resources of the project area resulting from construction and operation of the Project. A visual resources plan was submitted by the licensee on January 19, 1994 and supplemented on March 2, 1994. FERC issued an Order approving and modifying the visual resources plan on July 19, 1994. On April 23, 2001 the licensee filed compliance reports documenting that all the requirements of the plans required under license articles 408, 414, 417, and 418 had been completed. FERC subsequently issued a letter Order on June 28, 2004 accepting the compliance reports.

Article 417 of the FERC license required the licensee to prepare and file a plan to control erosion, dust, and slope disposal areas, and to minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project. An erosion and sediment control plan was filed with FERC on January 14, 1994 and supplemented on March 2, 1994 and July 12, 1994. FERC issued an order approving the revised erosion control plan on January 18, 1996.

Article 418 of the Project License required a plan to revegetate all disturbed areas with plant species beneficial to wildlife and native to the project area. A revegetation plan was submitted January 21, 1994 and supplemented on March 3, 1994. FERC issued an Order approving and modifying the revegetation plan on May 3, 1994.

On April 3, 1995 an Environmental Assessment was issued for a proposed license amendment that would revise the Project's transmission line route to extend approximately 26.3 miles from the Belleville Project to the Rutland Substation in Meigs County, Ohio.

Following the 1995 license amendment, Article 422 was added to the Project's license which required a revised revegetation plan be filed due to the re-routing of the Project's transmission line. An order

approving this plan was filed on December 22, 1995, after the plan had been amended November 20, 1995.

In the 2019 Environmental Inspection Report, it is stated that there were no areas of erosion and the vegetation around the project safety signs and at the recreational facilities was well maintained.

Threatened and Endangered Species Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: F	**Standard**	**2**	**2**
Instructions:	Finding of No Negative Effect - There are, or may be listed species in the facility area, but the facility has been found by an appropriate resource management agency to have no negative effect on them; or habitat for the species does not exist within the facility's affected area or is not impacted by facility operations - Identify all listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies - Provide documentation of a finding of no negative effect of the facility on any listed species in the area from an appropriate natural resource management agency.		

As required under license Article 413, the licensee implemented a Mussel Monitoring Plan for the Pink Mucket Pearly (Lampsilis abrupta) mussel that was approved and modified by a FERC Order on March 24, 1993. The plan required mussel sampling, substrate and habitat assessment and characterization, and water quality assessment to be performed at the Project prior to, during, and post-construction. The results of annual mussel surveys were to be summarized in a report following ten years of annual monitoring. The results of the 10 Year Summary Unionid Study Report were accepted in a FERC letter Order dated May 8, 2006. The federally endangered pink mucket pearly mussel was never collected live in either bed, indicating that the Belleville Project has no likely impact on the habitat or occurrence of the pink mucket pearly mussel. This report fulfilled the final reporting requirement pursuant to the 1993 FERC Order Approving and Modifying the Project's Mussel Monitoring Plan. A 2019 Environmental Inspection Report by FERC reiterated that the project had no impact on the listed mussel species or their habitat.

The 1988 FEIS listed species that were then listed as endangered in each state that may be found within the Project area. Links to Part 1 and Part 2 of the FEIS can be located below:

- Final Environmental Impact Statement – Part 1
- Final Environmental Impact Statement – Part 2

In the 1995 Environmental assessment for the revised transmission line route, an ODNR Natural Heritage database search showed that there were no existing or proposed nature preserves or scenic rivers in the route area, nor were there any unique ecological sites within townships crossed by the proposed route. The ODNR database did indicate seven threatened or endangered plant species were present within a one-mile wide corridor of the proposed transmission line route. These species are indicated below along with an additional species that was identified in the vicinity of the proposed route:

- Large Cranberry (Vaccinium macrocarpon)
- Tennessee Bladder Fern (Cystopteris tennesseensis)
- One-sided Rush (Juncus secundus)
- Carolina Ruellia (Ruellia caroliniensis)
- Green Milkweed (Asclepias viridiflora)

- Thyme-leaf Pinweed (Lechea minor)
- Wild Kidney Bean (Phaseolus polystachios)
- Netted Chain Fern (Woodwardia aureolata)

All plant species were determined to be sufficiently removed from the proposed transmission line alignment to avoid being directly or indirectly impacted. The WVDNR Natural Heritage Program Database and USFWS found no threatened or endangered plant species along the proposed route.

The IPaC report generated on June 23, 2022 includes these additional federally listed species not noted above:

- Indiana Bat
- Northern Long-eared bat
- Clubshell mussel
- Fanshell mussel
- Purple Cat's Paw mussel
- Snuffbox mussel
- Northern Riffleshell mussel
- Sheepnose mussel

The list also includes ten species of migratory birds protected under the federal Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. A copy of this report can be found in Appendix D.

West Virginia does not maintain a state list for any species and relies on the federal listings.

Ohio endangered animal species in Meigs County include Eastern Spadefoot, Plains Clubtail, Black Bear, Northern Long-eared Bat, Cobblestone Tiger Beetle, ten fish species, and thirteen species of mussels some of which are also federally listed. The list of state listed animal species in Meigs County, OH can be found here: Link

Ohio threatened and endangered plants in Meigs County, OH include nineteen species. The list of state listed plant species in Meigs County, OH can be found here: Link

Cultural and Historic Resources Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: G	**Standard**	**2**	**2**
Instructions:	Approved Plan: - Facility is in compliance with approved state, federal, and recognized tribal plans for protection, enhancement, or mitigation of impacts to cultural or historic resources affected by the facility. - Provide documentation of all state, provincial, federal, and recognized tribal plans for protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. - Document that the facility is in compliance with all such plans.		

License Article 415 of the Belleville Project required consultation with the West Virginia State Historic Preservation Officer (SHPO) and the USACE prior to any land clearing or land disturbing activities within the project boundaries, other than those specifically authorized in the license. Additionally, if the licensee discovers previously unidentified archeological or historical properties while constructing or developing project works or other facilities at the project, the licensee shall stop all land-clearing and land-distributing activities in the vicinity of the properties and consult with the SHPO and USACE. If such archaeological or historical properties are discovered, the licensee was required, after consulting with the SHPO and the Corps, to file for Commission approval a cultural resource management plan prepared by a qualified cultural resource specialist.

As referenced in a March 8, 1995 FERC Order, the West Virginia Division of Culture and History (SHPO) recommended (in a February 2, 1994 letter) that a phase I archeological survey be conducted for a revised access road route under License Article 412. On October 11, 1994, OMEGA JV5 filed a Cultural Resource Management Plan (CRMP) for the Belleville Hydroelectric Project that included the results of a Phase I and Phase II Cultural Resource Investigation. In a letter dated October 17, 1994, SHPO stated it had no objections to construction of the access road based on the results of the cultural resource investigations. On December 12, 1994, FERC issued an order approving the Cultural Resources Management Plan.

License Article 426 was added to the license in a 1995 amendment and required the licensee to conduct Phase I and Phase II surveys for a new transmission line route in West Virginia and Ohio and to file a Cultural Resource Management Plan (CRMP). The cultural resource management plan was filed with FERC on January 25, 1996 and approved in a FERC Order dated April 24, 1996. The licensee subsequently filed Phase I & Phase II Cultural Resource Investigation reports on June 27, 1996 that included correspondence with the Ohio and West Virginia SHPO. On July 29, 1996 FERC issued an Order approving the Phase II cultural resource surveys and amending the Cultural Resource Management Plan.

Recreational Resources Standard

Zone:		1: Impoundment Reach	2: Downstream Reach
Criterion: H	**Standard**	**2**	**2**
Instructions:	Agency Recommendation: - Demonstrate that flow-related recreational impacts are mitigated to a reasonable extent in all Zones of Effect where there is flow-related recreation. - The facility shall provide the public with relevant up-to-date information on reservoir levels and river flows. - Recreation activities must be consistent with the assurance of reasonable safety of employees and the public, and with Critical Energy Infrastructure protections dictated by state or federal authorities. - Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. - Document that the facility is in compliance with all such recommendations and plans.		

Article 407 of the FERC license required development of a recreation area and recreation plan at the project. On November 16, 1992 (and supplemented August 17, 1994), the licensee submitted a final Recreational Plan including temporary and permanent recreation facilities. A FERC order approving the recreation plan was filed on October 12, 1994.

In addition to the Recreation Plan filed under License Article 407, the Project was required to submit a Recreation Monitoring Report to fulfill the requirements of Article 409. FERC issued an order approving the initial Belleville Recreation Monitoring Report on September 19, 1997. The most recent recreation monitoring report was filed with FERC on December 23, 2021.

The Belleville Project's Recreation Area includes three fishing piers (one being handicap accessible), a paved path to each pier, a fish cleaning station, a picnic area with shelters, restrooms, and several parking areas. The licensee also maintains fences, gates, lights, sirens, railings, warning signs, safety life rings, and other measures to protect the public from potential hazards associated with project operations.

Below (Figure 7) is an image showing where each of the recreational facilities are located at the Project.

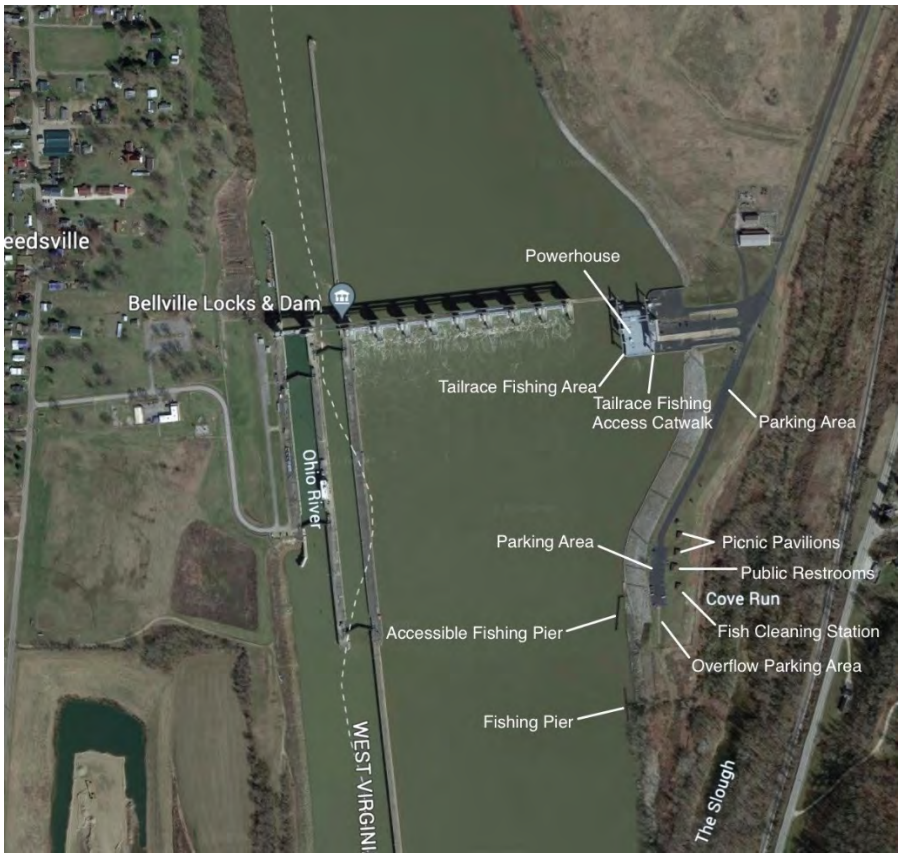


Figure 7 – Recreational Facilities Layout at the Project

In a 2019 Environmental Inspection Report, an inspector from FERC indicated compliance with all recreation related items with a minor follow item to perform repairs to a damaged fish cleaning station. Additional photos of the Project and Project recreation area can be found in the 2019 inspection report linked above.

4. ATTESTATION AND WAIVER FORM

ATTESTATION

As an Authorized Representative of American Municipal Power, Inc., the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: American Municipal Power, Inc.

Authorized Representative:

Name: Adam Ward

Title: Senior Vice President of Member Services & External Affairs

Authorized Signature:

Date: August 9, 2022

5. CONTACT FORMS

Table 3. Applicant-related contacts

Facility Owner:	
Name and Title	Adam Ward, Senior Vice President Member Services and External Affairs
Company	Ohio Municipal Electric Generating Agency Joint Venture 5
Phone	614-540-1100
Email Address	award@amppartners.org
Mailing Address	1111 Schrock Rd, Suite 100 Columbus OH 43229
Facility Operator:	
Name and Title	N/A
Company	N/A
Phone	N/A
Email Address	N/A
Mailing Address	N/A
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Adam Ward, Senior Vice President Member Services & External Affairs
Company	American Municipal Power, Inc.
Phone	614-540-1100
Email Address	award@amppartners.org
Mailing Address	1111 Schrock Rd, Suite 100 Columbus OH 43229
Party responsible for accounts payable:	
Name and Title	Adam Ward, Senior Vice President Member Services & External Affairs
Company	American Municipal Power, Inc.
Phone	614-540-1100
Email Address	award@amppartners.org
Mailing Address	1111 Schrock Rd, Suite 100 Columbus OH 43229

Table 4. Current relevant state, federal, and tribal resource agency contacts.

Agency Contact		***Area of Responsibility***
Agency Name	Ohio River Valley Water Sanitation Commission (ORSANCO)	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Jason Heath Technical Programs Director	
Phone	(513) 231-7719 (ext. 112)	
Email address	jheath@orsanco.org	
Mailing Address	5735 Kellog Avenue Cincinnati, OH 45230	

Agency Contact		***Area of Responsibility***
Agency Name	West Virginia Department of Environmental Protection (WVDEP)	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Brian Bridgewater, 401 WQC Program Manager	
Phone	304-205-2508 (Cell) 304-926-0499 ext. 43891 (Office)	
Email address	Brian.l.bridgewater@wv.gov	
Mailing Address	601 57th St SE Charleston, WV 25304	

Agency Contact		***Area of Responsibility***
Agency Name	The U.S. Fish and Wildlife Service (FWS)	___ Flows ___ Water Quality _x_ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Richard McCorkle, Fish and Wildlife Biologist	
Phone	814-206-7470 (Office)	
Email address	Richard_mccorkle@fws.gov	
Mailing Address	110 Radnor Road, Ste. 101 State College, PA 16801	

Agency Contact		***Area of Responsibility***
Agency Name	The U.S. Fish and Wildlife Service (FWS)	___ Flows ___ Water Quality _x_ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	WV Field Office	
Phone	304-866-3858)	
Email address	FW5_WVFO@fws.gov	
Mailing Address	6263 Appalachian Highway Davis, WV 26260	

Agency Contact		***Area of Responsibility***
Agency Name	The Ohio Environmental Protection Agency (OEPA)	___ Flows ____Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Rose McLean, Environmental Planner Water Resource Restoration Sponsor Program	
Phone	614-644-3664	
Email address	Rose.McLean@epa.state.oh.us	
Mailing Address	P.O. Box 1049 Columbus, Ohio 43216-1049	

Agency Contact		***Area of Responsibility***
Agency Name	The Ohio Department of Natural Resources (ODNR)	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	John Kessler, P.E. Chief of the Division of Real Estate and Land Management	
Phone	614-265-6621	
Email address	john.kessler@dnr.state.oh.us	
Mailing Address	Office of Real Estate & Land Management 2045 Morse Rd., Bldg. E-2 Columbus, OH 43229	

Agency Contact		***Area of Responsibility***
Agency Name	The West Virginia Department of Natural Resources (WVDNR)	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Mr. Danny Bennett Coordination Biologist WVDNR-Wildlife Resource Section	
Phone	304-825-6787, Ext. 416 Fax: 304-825-6270	
Email address	Danny.A.Bennett@wv.gov	
Mailing Address	P.O. Box 67 Elkins, WV 26241	

Agency Contact		***Area of Responsibility***
Agency Name	The West Virginia Department of Natural Resources (WVDNR)	___ Flows ___ Water Quality _x_ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Mr. Kevin Eliason State Malacologist WVDNR-Wildlife Diversity Unit	
Phone	Office: 304-637-0245, Ext. 2031 Cell: (304) 389-8526	
Email address	Kevin.M.Eliason@wv.gov	
Mailing Address	P.O. Box 67 738 Ward Road Elkins, WV 26241	

Agency Contact		***Area of Responsibility***
Agency Name	The West Virginia Department of Natural Resources (WVDNR)	___ Flows ___ Water Quality _x_ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Jacob Harrell	
Phone	Office: (304) 989-0208	
Email address	Jacob.d.harrell@wv.gov	
Mailing Address	WVDNR – District 1 Office 1110 Railroad Street Farmington, WV 26571	

Agency Contact		***Area of Responsibility***
Agency Name	West Virginia Department of Arts, Culture, and History	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species _x_ Cultural/Historic ___ Recreation
Name and Title	Susan Pierce Deputy State Historic Preservation Officer	
Phone	(304) 558-0240, ext. 158	
Email address	Susan.m.pierce@wv.gov	
Mailing Address	1900 Kanawha Boulevard, East Charleston, West Virginia 25305-0300	

Agency Contact		***Area of Responsibility***
Agency Name	U.S. Army Corps of Engineers, Huntington District	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Belinda M. Weikle, M.S.C.E, P.E. Hydraulic Engineer	
Phone	304-399-5808 Fax: 304-399-5085	
Email address	Belinda.M.Weikle@usace.army.mil	
Mailing Address	Water Resources Engineering Section 502 Eighth Street Huntington, WV 25701	

Agency Contact		***Area of Responsibility***
Agency Name	U.S. Army Corps of Engineers, Huntington District	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Andrew Johnson Water Quality Team Lead	
Phone	304-399-5189	
Email address	Andrew.N.Johnson@usace.army.mil	
Mailing Address	Water Management Section 502 Eighth Street Huntington, WV 25701	

Agency Contact		***Area of Responsibility***
Agency Name	U.S. Army Corps of Engineers, Huntington District	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Major Patrick Kelley Program Manager	
Phone	304-399-5808 Fax: 304-399-5085	
Email address	Patrick.J.Kelley@usace.army.mil	
Mailing Address	502 Eighth Street Huntington, WV 25701	

Appendix A

Project Photographs and Drawings

Image 1 – Aerial Photograph of the Belleville Locks & Dam

(Source)

Image 2 – Overview of Belleville Hydroelectric Project & Recreation Area

Image 3 – Close Up of Impoundment Zone of Effect

(Source)

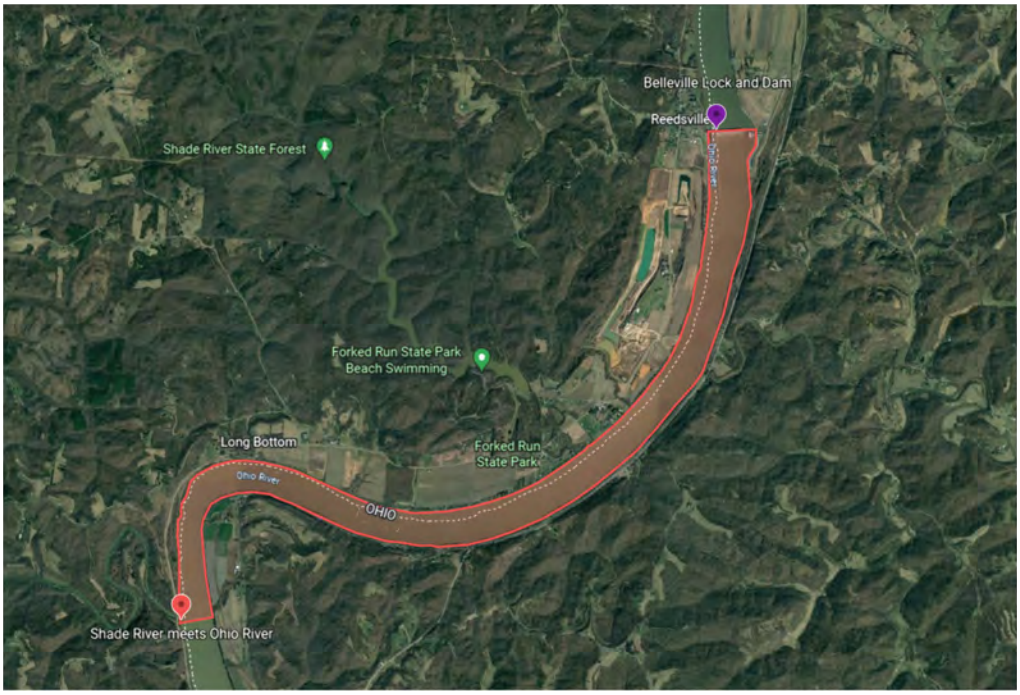


Image 4 – Close Up of Downstream Zone of Effect

(Source)

Image 5 – Project Fishing Pier

(Source)

Image 6 – Tailrace Water Quality Monitoring Probe

Image 7 – Tailrace Fishing Catwalk that leads to Tailrace Fishing Pier

(Source)

Image 8 – Fish Cleaning Station

Image 9 – View from downstream of Project looking upstream

(Source)

Image 10 – Handicap Accessible Signage and Path

(Source)

Image 11 – Picnic Area, Restrooms, and Parking Lot

Image 12 – Path leading from Parking Lot to Fishing Piers

Please refer to this link for the file containing Exhibit G of the Project. This includes Project area drawings and other specifications.

Appendix B

List of Key Electronic Records

- **FERC License and amendments (link)**
    - Order Approving FERC License **(link)**
    - Order Approving Transfer of License **(link)**
    - 1995 License amendment (link)
    - 2003 Amendment to License Removing Article 404 **(link)**
- **Memorandum of Agreement (MOA) between USACE and OMEGA JV5 (link)**
- **Final Environmental Impact Statement Part 1 (link) & Part 2 (link)**
- **2019 FERC Environmental Inspection Report (link)**

Appendix C

Fish species in Upper Belleville Pool and Lower Racine Pool

ORSANCO Fish Data for Upstream (Belleville) & Downstream (Racine) Pools (2003-2021)

Latin Name	Common Name	Highly Mobile	Belleville L&D (RM 203.9)	
			DS POOL (RM 237.5) Racine	Belleville Pool
Alosa chrysochloris	skipjack herring	X	X	X
Ambloplites rupestris	rock bass		X	X
Ameiurus natalis	yellow bullhead		X	
Ammocrypta pellucida	eastern sand darter			X
Anguilla rostrata	American eel	X		
Aplodinotus grunniens	freshwater drum		X	X
Campostoma anomalum	central stoneroller		X	
Carassius auratus	goldfish			X
Carpiodes carpio	river carpsucker		X	X
Carpiodes cyprinus	quillback		X	X
Carpiodes sp	Carpiodes sp		X	X
Carpiodes velifer	highfin carpsucker		X	X
Ctenopharyngodon idella	grass carp			X
Cyprinella spiloptera	spotfin shiner		X	X
Cyprinella whipplei	steelcolor shiner		X	
Cyprinus carpio	common carp		X	X
Dorosoma cepedianum	gizzard shad		X	X
Esox masquinongy	muskellunge			X
Etheostoma blennioides	greenside darter			X
Etheostoma caeruleum	rainbow darter		X	X
Etheostoma camurum	bluebreast darter		X	
Etheostoma nigrum	johnny darter		X	
Etheostoma tippecanoe	Tippecanoe darter			X
Etheostoma zonale	banded darter			X
Fundulus diaphanus	banded killifish		X	X
Gambusia affinis	western mosquitofish		X	
Hiodon tergisus	mooneye		X	X
Hypentelium nigricans	northern hog sucker		X	X
Ichthyomyzon bdellium	Ohio lamprey	X		X
Ichthyomyzon unicuspis	silver lamprey	X	X	
Ictalurus furcatus	blue catfish			X
Ictalurus punctatus	channel catfish		X	X
Ictiobus bubalus	smallmouth buffalo		X	X
Ictiobus cyprinellus	bigmouth buffalo		X	
Ictiobus niger	black buffalo		X	X
Labidesthes sicculus	brook silverside		X	
Lepisosteus oculatus	spotted gar			X
Lepisosteus osseus	longnose gar		X	X
Lepomis cyanellus	green sunfish		X	X
Lepomis gibbosus	pumpkinseed		X	X
Lepomis humilis	orangespotted sunfish		X	X

Appendix C - ORSANCO Fish Data for Upstream (Belleville) & Downstream (Racine) Pools (2003-2021)

Latin Name	Common Name	Highly Mobile	Belleville L&D (RM 203.9)	
			DS POOL (RM 237.5) Racine	Belleville Pool
Lepomis hybrid	Lepomis hybrid		X	X
Lepomis macrochirus	bluegill		X	X
Lepomis macrochirus x L. cyanellus	bluegill x green sunfish			X
Lepomis megalotis	longear sunfish		X	X
Lepomis megalotis x L. cyanellus	longear x green sunfish		X	
Lepomis microlophus	redear sunfish		X	X
Lepomis sp	Lepomis sp		X	
Luxilus chrysocephalus	striped shiner		X	
Macrhybopsis storeriana	silver chub		X	X
Micropterus dolomieu	smallmouth bass		X	X
Micropterus punctulatus	spotted bass		X	X
Micropterus salmoides	largemouth bass		X	X
Micropterus sp	Micropterus sp		X	
Minytrema melanops	spotted sucker		X	X
Morone americana	white perch		X	X
Morone chrysops	white bass		X	X
Morone saxatilis	striped bass	X	X	X
Morone saxatilis x M. chrysops	hybrid striper	X	X	X
Morone sp	Morone sp		X	X
Moxostoma anisurum	silver redhorse		X	X
Moxostoma breviceps	smallmouth redhorse		X	X
Moxostoma carinatum	river redhorse		X	X
Moxostoma duquesnei	black redhorse		X	X
Moxostoma erythrurum	golden redhorse	X	X	X
Moxostoma sp	Moxostoma sp			X
Notemigonus crysoleucas	golden shiner		X	
Notropis atherinoides	emerald shiner		X	X
Notropis blennius	river shiner		X	X
Notropis buccatus	silverjaw minnow			X
Notropis hudsonius	spottail shiner		X	X
Notropis photogenis	silver shiner		X	
Notropis sp	Notropis sp		X	
Notropis stramineus	sand shiner		X	X
Notropis wickliffi	channel shiner		X	X
Perca flavescens	yellow perch		X	X
Percina caprodes	logperch		X	X
Percina copelandi	channel darter		X	X
Percina phoxocephala	slenderhead darter		X	X
Percina sciera	dusky darter		X	

Appendix C - ORSANCO Fish Data for Upstream (Belleville) & Downstream (Racine) Pools (2003-2021)

Latin Name	Common Name	Highly Mobile	Belleville L&D (RM 203.9)	
			DS POOL (RM 237.5) Racine	Belleville Pool
Percina shumardi	river darter		X	X
Percopsis omiscomaycus	trout-perch		X	X
Pimephales notatus	bluntnose minnow		X	X
Pimephales promelas	fathead minnow		X	
Pimephales vigilax	bullhead minnow		X	X
Pomoxis annularis	white crappie		X	X
Pomoxis nigromaculatus	black crappie		X	X
Pylodictis olivaris	flathead catfish		X	X
Sander canadensis	Sauger	X	X	X
Sander canadensis x S. vitreus	saugeye	X	X	X
Sander vitreus	walleye	X	X	X

Appendix D

Additional Documentation

401 file also

Belleville
6439

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

ARCH A. MOORE, JR.
Governor

RONALD R. POTE...
Director

ROBERT K. PARSON
Deputy Director

April 9, 1987

RECEIVED
APR 13 1987
Wildlife Resources

Mr. James S. Sigg
W.M. Lewis & Associates, Inc.
Post Office Box 1383
Portsmouth, Ohio 45662

RE: Belleville Locks and Dam
Hydroelectric Project,
FERC Project No. 6939

Dear Mr. Sigg:

The West Virginia Department of Natural Reources (WVDNR) has reviewed the application for license submitted to the Federal Energy Regulatory Commission (FERC) on behalf of the City of Jackson, Ohio, for the above-referenced project. Pursuant to Section 3.1 of the Department's Regulations for Certification of Activities Requiring Federal Licenses and Permits, Chapter 20, Article 2, Series XIX (1985), careful consideration was given to the impact of this project on water resources, fish and wildlife, recreation, critical habitats, wetlands, other natural resources and other appropriate requirements of State law in evaluating the application for State Certification.

Our evaluation of the project allows us to grant State Certification pursuant to Section 401 of the Federal Water Pollution Control Act of 1977, as amended, subject to the following conditions. This certification is contingent upon the inclusion of these conditions into the Federal license, if granted.

PROJECT DEVELOPMENT PHASE

A1. Licensee shall monitor the dissolved oxygen and water temperatures of the Ohio River for a minimum of one (1) year at the site prior to construction, measured both upstream and downstream

of the dam, so that a record is established indicating the nature of the existing conditions, prior to construction. The monitoring process shall be approved by the West Virginia Department of Natural Resources and data collected will be supplied to the West Virginia Department of Natural Resources.

A2. The licensee shall, prior to operation, develop an operating plan defining procedures to ensure that project operation will not degrade dissolved oxygen in the Ohio River. This plan should take into consideration that notification of need for corrective action to maintain dissolved oxygen will emanate primarily from Ohio River Valley Water Sanitation Commission (ORSANCO). This plan shall be approved by the U.S. Army Corps of Engineers, ORSANCO and the West Virginia Department of Natural Resources.

PROJECT DESIGN PHASE, OFFSTREAM

B1. Licensee shall design a construction access road that will circumvent the Town of Belleville. After completion, this road will remain to serve as access to the tailwater fisherman access facility for the general public. The general layout depicting the exact size and location of all features (including culverts and railroad crossings) shall be approved by the West Virginia Department of Natural Resources.

B2. Licensee shall design a construction period work yard such that the existing slough area is not disturbed and that fishermen and public users can drive to the area of and use three temporary rock dikes at the Belleville tailwaters during the construction period. The general layout depicting the exact size and location of the dikes and other temporary physical features shall be subject to approval by the West Virginia Department of Natural Resources.

B3. Licensee shall design paved (50 vehicle capacity) and unpaved (100 vehicle capacity) permanent lighted public parking areas and access roadway for public users and such designs and locations shall be approved by the West Virginia Department of Natural Resources.

B4. Licensee shall design no less than ten (10) low slope, hard access paths extending from the top of the bank down to the interface of the bank and the water for fisherman access to the shoreline below Belleville Dam. Fifteen hundred feet of grouted pathway parallel to the river to facilitate fisherman access along the bank will be constructed at a location and elevation determined during physical modeling. Designs shall be subject to the approval of the West Virginia Department of Natural Resources and the U.S. Army Corps of Engineers.

B5. Licensee shall design picnic shelters, lighting, fish cleaning stations, landscaping, restrooms, picnic tables and other public offstream facilities and shall provide drinking water. Such designs and locations shall be subject to the approval of the West Virginia Department of Natural Resources.

B6. Licensee shall design the necessary signs (temporary during construction and permanent after completion) which properly instruct public facility users of use and the safe use of the facilities and direct them to parking, fishing piers, restrooms and other ancillary developments. Sign content and location will be subject to approval by the West Virginia Department of Natural Resources and will be designed in accordance to the standards of the U.S. Army Corps of Engineers.

PROJECT DESIGN PHASE, INSTREAM

C1. Licensee shall design a fishing area for public use between the power plant and the end dam area (includes riverward side of the powerhouse and/or deck and at least two coffer cells on the

riverward side of the powerhouse). The Licensee shall design an access walkway to the area and such designs and location shall be subject to the approval of the West Virginia Department of Natural Resources.

C2. Licensee shall design, with the assistance of the West Virginia Department of Natural Resources, a hydraulic flow system along the downstream left bank to create current patterns that are believed to be attractive to fish and accessible to fishermen. Such system's design shall involve experimentation, by means of modeling of, inter alia, powerhouse placement, dikes, fishing piers, submerged dikes, riverward and landward coffer cells used for fishing and bypass pipes or sluices (for water bypass through the powerhouse when the plant is inoperative). The final design selected shall be subject to approval of the West Virginia Department of Natural Resources and the U.S. Army Corps of Engineeers.

C3. Licensee shall design a blank piping system connecting to ports within the hydraulic conduits of the power plant so that a future air injection system could be installed if desired by the Licensee or required by the West Virginia Department of Natural Resources.

PROJECT FINANCE PHASE

D1. Licensee shall obtain sufficient funds in order to complete the studies, plans and designs and fully construct the following items: A1, A2, B1, B2, B3, B4, B5, C1, C2 and C3.

D2. Licensee shall obtain sufficient funds in order to purchase and install continuous permanent automated dissolved oxygen and temperature monitoring equipment at a maximum of two (2) locations. Locations of monitoring equipment shall be subject to approval of the West Virginia Department of Natural Resources and ORSANCO.

D3. Licensee shall obtain sufficient funds in order to reimburse the West Virginia Department of Natural Resources for their expenses incurred during the actual review and approval process as a result of their investigations performed on the physical model (referred to in C2) up to a maximum of 120 manhours plus out-of-pocket expenses.

PROJECT CONSTRUCTION PHASE

E1. Licensee shall fully construct, operate and maintain the following items in accordance with the approved designs: B1, B2, B3, B4, B5, C1, C2 and C3.

E2. Licensee shall construct three temporary rock dikes for fishermen along the downstream left bank for public use during the construction period and Licensee shall plan construction activities to always assure public access to these three dikes, subject to safety considerations. The Licensee shall also provide sufficient public parking and temporary toilet facilities. The size, configuration and location of the dikes and other temporary developments shall be subject to the approval of the West Virginia Department of Natural Resources.

E3. Licensee shall plan the construction area and shall always maintain an access roadway permitting the public to drive around the construction yard to the public parking area and dikes in item E2 above, subject to safety considerations.

E4. Licensee shall prevent construction machinery from entering and spoil being placed in the abandoned Belleville island flanking channel currently called the "slough area."

E5. Licensee shall dispose of all disposable spoil material in accordance with all applicable federal and state regulations. Habitat based mitigation for impacts to terrestrial and aquatic habitats shall be provided by the Licensee if deemed necessary by the West Virginia Department of Natural Resources.

E6. Licensee shall construct the transmission line in accordance with appropriate federal and state regulations.

E7. Licensee shall maintain and control surface runoff from the construction area in accordance with appropriate federal and state regulations.

E8. Licensee shall consult with the West Virginia Department of Natural Resources prior to cofferdam removal to review impingement/entrainment issues and studies completed to date on similar projects. Such consultations shall lead to a decision concerning the necessity of additional mitigation. These consultations shall commence one year before the scheduled date of the cofferdam removal. The Licensee shall install devices or provide other mitigative measures deemed necessary by the West Virginia Department of Natural Resources.

E9. Licensee shall install continuous automated dissolved oxygen and temperature monitoring equipment compatible with the ORSANCO monitoring network. The dissolved oxygen and temperature monitoring equipment shall be connected to the ORSANCO monitoring network and shall supply the data in a timely and reliable manner. Monitoring probes shall be located both upstream and downstream of the lock and dam structure. The upstream probe shall be placed in a location which will provide dissolved oxygen and temperature data of project intake waters. The downstream probe shall be located to provide dissoolved oxygen and temperature data representative of the river, not project discharge. Monitoring probe locations shall be subject to approval by the West Virginia Department of Natural Resources.

OPERATIONS PHASE

F1. Licensee shall sound warning sirens five (5) minutes and forty-five (45) seconds prior to any change in the power plant discharge rate in order to warn the public of any such changes.

F2. Data from the dissolved oxygen and temperature monitoring shall be compatible with ORSANCO dissolved oxygen and temperature monitoring data raquirements and be capable of being electronically accessed by ORSANCO to comply with a schedule supplied by ORSANCO.

F3. Licensee shall either shutdown the plant, inject air, or effectuate any means necessary to prevent degradation of dissolved oxygen concentrations below levels experienced by normal dam pasage.

F4. Licensee shall operate the plant on a run-of-the-river basis.

F5. Licensee shall participate and consult with the West Virginia Department of Natural Resources after operations commence to assure that a quality outdoor facility can be maintained for the public. ✓

F6. Public use facilities shall be open 24 hours per day, each day of the year. ✓

GENERAL OBLIGATIONS

G. Licensee shall develop the site in accordance with the above conditions, as a minimum, and will incorporate the terms and conditions set forth in this document. ✓

017 G145

DEPARTMENT OF COMMERCE, LABOR & ENVIRONMENTAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
1201 Greenbrier Street
Charleston, WV 25311-1088

Gaston Caperton
Governor

John M. Ranson
Cabinet Secretary

David C. Callaghan
Director

Ann A. Spaner
Deputy Director

May 24, 1994

Gary L. Watson, Chief
Operations & Readiness Division
U.S. Army Corps of Engineers
Huntington District - CEORH-OR-F
502 Eighth Street
Huntington, West Virginia 25701-2070

RE: Public Notice CEORH-OR-F 94-14,
Ohio Municipal Electric Generation
Agency Joint Venture 5 (OMEGA JV5).

Dear Mr. Watson:

The West Virginia Division of Environmental Protection (WVDEP), in cooperation with the West Virginia Division of Natural Resources (WVDNR), has completed its review of the above-referenced permit application and offers the following comments and conditions relative to State 401 Certification.

A valid State 401 Certification for the Federal Energy Regulatory Commission (FERC) license was issued on April 9, 1987 and remains in effect for the operation of the Belleville hydroelectric facility. Operational considerations, however, are not a concern at this time even though construction plans have chaned considerably since issuance of State 401 Certification for the project's FERC license.

Currently, Ohio Municipal Electric Generation Agency Joint Venture 5 (OMEGA JV5) has applied to the Huntington District of the U.S. Army Corps of Engineers for a Clean Water Act Section 404 permit for the purpose of placing fill at various locations associated with construction of the Belleville hydroelectric facility located on the left descending bank of the Ohio River, milepoint 203.9, Belleville, Wood County, West Virginia.

Most construction activities for the powerhouse have been, or will be, considered in various plans (e.g., soil erosion, revegetation) required by the project's FERC license. The placement of fill to construct the rock dike deflector (ca. 25,000 cubic yards) and the sediment dike (ca., 4,000 cubic yards) were not addressed in the license or the earlier State 401 Certification. The original plans did not indicate the dikes would be necessary. Recent findings relative to the foundation for the powerhouse (presence of indurated clay in the bedrock) necessitated moving the powerhouse site landward. The landward re-location of the powerhouse resulted in major alterations in expected tailwater current patterns during hydrogeneration. The placement of both dikes is a condition imposed by the U.S. Army Corps of Engineers (COE) as a result of project modifications and navigation considerations. The COE will not permit the project to be built without these dikes in place. These dikes pose three (3) problems: (1) it is not known if endangered or sensitive species exist at the construction location; (2) they will serve to concentrate fish at a location that cannot be reached by shore anglers; and (3) they may alter currents and sediment loading at an existing mussel bed (below the project area) that contains at least one (1) federally endangered species. The West Virginia Field Office of the U.S. Fish and Wildlife Service reinstituted Section 7 (Endangered Species Act) consultation regarding this matter in a letter dated March 8, 1994.

The WVDNR filed comments regarding tailwater recreational developments with the project developers on February 22, 1994. These comments are critical of the proposed recreational plan submitted by OMEGA JV5 in February, 1994 because of major modifications that have occurred, the reluctance of the licensee to include certain features requested by WVDNR and other resource agencies, and the distant location of the in-river dikes from the shoreline.

Special conditions of State 401 Certification, as it relates to the work described in the subject public notice, are as follows:

1. COE investigations and Section 7 consultation concerning impacts to existing endangered species populations must be resolved to the satisfaction of the WVDNR, Ohio Division of Wildlife and the U.S. Fish and Wildlife Service.

2. The operation of this facility following construction, and the inclusion and construction of certain other developments, was certified by the State of West Virginia under Section 401 on April 9, 1987. Conditions contained in that Certification will remain in force and unchanged.

3. The applicant proposed certain recreational facilities in a recreational plan submitted to the WVDNR in February, 1994. The following should be added to facilities proposed by that plan:

A. Permanent Facility

i. Two (2) fishing piers and associated fish attractant structures should be constructed. Each pier should be ca. 200 feet long and be constructed at locations specified by the WVDNR.

ii. Safe fisherman access should be provided to the riverward side of the powerhouse. This structure should be included as part of powerhouse design.

iii. All out-of-river structures (i.e., restrooms, parking lot, access paths, fish cleaning shelters, public information signs, provisions for physically challenged individuals, solid waste disposal, lighting to permit night fishing, drinking water, appropriate safety features) should be included as required by Article 407 of the project's FERC license.

B. Temporary Facility

i. The temporary angler access should include the area immediately downstream of the coffer cells. Safe angler access should be provided with regard to the roadway used by construction traffic.

ii. The temporary angler access facility should include a pier and fish attractant structures as required by Article 407 of the FERC license.

iii. The temporary angler access facility should include grouted walkways (perpendicular to the shoreline) to facilitate angler access.

iv. A minimum of two (2) temporary toilets for use by anglers shall be placed and maintained at the temporary facility.

State 401 Certification, as required by the Clean Water Act, is hereby granted subject to the above special conditions and the attached conditions. Certification shall be effective fifteen (15) days after receipt unless appealed under Title 47, Series 5A, Section 8 of the Code of State Regulations, State Certification of Activities Requiring Federal Licenses and Permits. The appeal must be in writing and set forth action complained of and the grounds upon which the appeal is based. It should be directed to: Chief, Office of Water Resources, WV Division of Environmental Protection, 1201 Greenbrier Street, Charleston, West Virginia 25311-1088; Attention: Regulatory Review Program.

Sincerely,

OFFICE OF WATER RESOURCES

Mark A. Scott, Chief

MAS/sas

cc: Phillip E. Meier, Project Engineer
Ohio Municipal Electric Generation Agency
Joint Venture 5 (OMEGA V)
601 Dempsey Road, Post Office Box 549
Westerville, Ohio 43981
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
WVDEP-Office of Water Resources, Beckley
WVDNR-Wildlife Resources Section - Elkins (2)
WVDEP-Environmental Enforcement, District VI
WVDEP-Regulatory Review Program

WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION

CONDITIONS REQUIRED FOR SECTION 404/10 PERMITS

ISSUANCE AND STATE CERTIFICATION AS REQUIRED BY SECTION 401

Applicant:	**Ohio Municipal Electric Generation Agency**
Public Notice No.:	**H94-14**
Dated:	**March 10, 1994**

1. **Instream equipment operation is to be minimized.**

2. **Work should be accomplished during low flow periods.**

3. **Permittee will investigate for water supply intakes or other activities immediately downstream which may be affected by suspended solids and turbidity increases caused by work in the watercourse. He will give notice to operators of any such water supply intakes before beginning work in the watercourse in sufficient time to allow preparation for any change in water quality.**

4. **Permittee will employ measures to prevent or control spills from fuels, lubricants or any other materials from entering the watercourse. In addition, the permittee will not locate refueling, fuel storage, chemical storage or equipment maintenance areas within 100 feet of any body of water. The areas, where located, will include containment measures (i.e., liners, dikes, etc.,) to ensure that any spillage of materials will not contact surface or ground waters. All spills will be reported to the State Center for Pollution, Toxic Chemical and Oil Spills hotline at 1-800-642-3074.**

5. **Upon completion of earthwork operations, all fills in the watercourse or onshore and other areas onshore disturbed during construction will be seeded, riprapped or given some other type of protection from subsequent soil erosion. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created due to its placement. Fill is to be of such composition that it will not adversely affect the biological, chemical or physical properties of the receiving waters.**

6. **Best Management Practices for Sediment and Erosion Control, as described in the U.S. Soil Conservation Service manual, Erosion and Sediment Control Handbook for West Virginia. Copies of the plan are**

available from the SCS, 75 High Street, Room 301, Morgantown, West Virginia 26505, or the West Virginia Soil and Water Conservation District Supervisors Association, Capitol Complex, Charleston, West Virginia 25305.

7. Removal of mature riparian vegetation not directly associated with project construction is prohibited. General disturbance and removal of vegetation is to be minimized.

8. Temporary sanitary facilities, for use during construction only, will be of a type approved by the County Health Department in which the activity is taking place.

9. All permit modifications must be recertified.

10. The permittee will provide written notice of the proposed start-up date to the WVDEP-Environmental Enforcement (EE) Office fifteen days in advance of initiation of any activity authorized by the certification. The address for EE is 1356 Hansford Street, Charleston, West Virginia 25301-1401.

11. Cofferdams, temporary causeways and/or stream crossings, stream channel retaining structures and all necessary dikes shall be constructed of or faced with coarse, non-erodible materials. If faced with non-erodible material, filter cloth will be placed between the granular fill and the riprap.

12. Deposition of dredged or excavated materials onshore and all earthwork operations will be carried out in such a way that sediment runoff and soil erosion to the watercourse are controlled and minimized. Spoil materials from the watercourse or onshore operations, including sludge deposits, will not be dumped into the watercourse or deposited in wetlands. Areas for deposit of dredged materials will be provided with temporary dikes or bulkheads for separation and retention of settleable solids.

13. Bilge, ballast or wash water pumped from barges will not be discharged to the watercourse without acceptable removal of solids, oils or toxic compounds.

14. Runoff from any storage areas or spills will not be allowed to enter storm sewers without acceptable removal of solids, oils and toxic compounds.

15. Equipment for handling and conveying materials at this facility will be designed and operated to prevent dumping or spilling materials into the watercourse. Necessary steps will be taken to prevent materials spilled or stored onshore from washing into the watercourse as a result of clean-up activities, natural runoff or flooding. Excessive dust will also be controlled and kept out of the watercourse.

16. Green concrete will not be permitted to enter the watercourse. Concrete handling equipment will not discharge waste washwater into a watercourse or wetland without adequate wastewater treatment.

17. Applicant must contact the WVDNR-Office of Real Estate Management, telephone (304) 558-2224, to determine if a Public Lands Corporation permit will be required.

18. Should potentially hazardous waste materials be located, the permittee will advise the WVDEP-Office of Waste Management (Hazardous Waste Section), telephone (304) 558-5393.

19. The permittee shall provide a copy of the State 401 Certification to the construction contractor. A copy of the State 401 Certification shall be available at the project site until such time as the project is complete.

20. Prior to earth disturbance for construction, the applicant must comply with the requirements of the WVDEP-Office of Water Resources (OWR), Construction Storm Water/Nonpoint Source Program. If the project will require disturbance of an area three (3) acres or greater in size, a National Pollutant Discharge Elimination System (NPDES) Permit for Construction Storm Water discharges will be required. Information regarding the application for the NPDES Construction Storm Water Permits and information concerning sedimentation and erosion control requirements may be obtained by calling OWR (304/558-2108). There should be no earth disturbances until a permit is issued or an appropriate sediment and erosion plan is approved by OWR.

21. The permittee will not cause the violation of any water quality standards as contained in Title 46, Series 1, Legislative Rules Governing Water Quality Standards. Should it become necessary as a result of ongoing water quality violations at the permitted location, the Office of Water Resources reserves the authority to implement sampling of water quality parameters to ensure compliance with the state standard at the expense of the permittee.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Ohio and West Virginia

Local offices

West Virginia Ecological Services Field Office

(304) 866-3858

(304) 866-3852

6263 Appalachian Highway
Davis, WV 26260-9475

https://www.fws.gov/office/west-virginia-ecological-services

Ohio Ecological Services Field Office

(614) 416-8993
(614) 416-8994

4625 Morse Road, Suite 104
Columbus, OH 43230-8355

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat Myotis sodalis Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found This species only needs to be considered if any of the following conditions apply: • Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html • No known hibernacula or maternity roost trees occur within the action area. Any 'take' that may occur incidental to this project is not prohibited under the final 4(d) rule. Please submit a Streamlined 4(d) Rule Consultation form to the WVFO. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

NOT FOR CONSULTATION

Clams

NAME	STATUS

Clubshell Pleurobema clava — Endangered

This species only needs to be considered if any of the following conditions apply:

- This project occurs within a watershed known to support this species. Review the project design guidelines for more information about next steps and contacting the WVFO.
- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3789

Fanshell Cyprogenia stegaria — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4822

Northern Riffleshell Epioblasma rangiana — Endangered

Wherever found

This species only needs to be considered if the following condition applies:

- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/527

Pink Mucket (pearlymussel) Lampsilis abrupta — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7829

Purple Cat's Paw (=purple Cat's Paw Pearlymussel) Epioblasma obliquata obliquata — Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5602

NOT FOR CONSULTATION

Sheepnose Mussel Plethobasus cyphyus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6903

Snuffbox Mussel Epioblasma triquetra — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4135

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

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NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 27 to Jul 20
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

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Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Bald Eagle
Non-BCC Vulnerable
(This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

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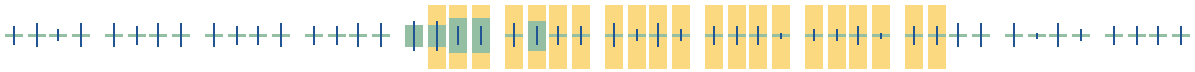
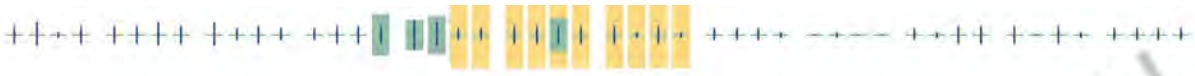
Black-billed Cuckoo BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Bobolink BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Cerulean Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Kentucky Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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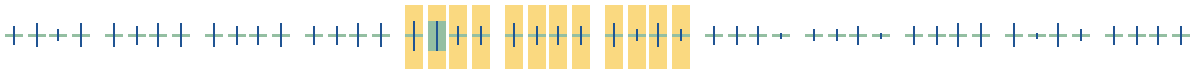
Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Prothonotary Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Rusty Blackbird BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

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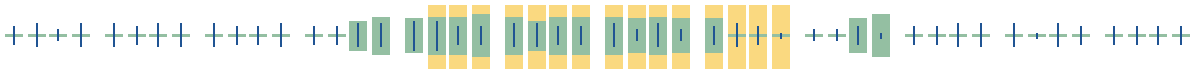
Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these

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graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid

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violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

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Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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