Arkansas Electric Cooperative Corporation

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Submitted Electronically to mfischer@lowimpacthydro.org on January 10, 2020

Maryalice Fischer
Certification Program Director
Low Impact Hydropower Institute

RE: LIHI Recertification of Arkansas River Dam No. 2 Hydropower Project (FERC 3033)

Dear Ms. Fischer:

Please find attached the following items that compiles Arkansas Electric Cooperative Corporation's application to recertify the referenced facility.

- Table B-1.1
- Standards matrices for each Zone of Effect (Table B-1.2)
- Discussion of each Criterion and how the facility meets the selected standard in each Zone of Effect
- Signed Sworn Statement and Waiver Form
- Facility and Stakeholder Contact Form

If you require additional information, please contact me at 501.570.2642 or curtis.warner@aecc.com.

Sincerely,

Curtis Q. Warner
Director – Compliance & Support

Table B-1.1. 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)	Arkansas River Dam No. 2 Hydropower Project (FERC 3033)
Location	River name (USGS proper name)	Arkansas 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)	Lower Arkansas 11110207
	Nearest town(s), county(ies), and state(s) to dam	Dumas, Arkansas Desha County State of Arkansas
	River mile of dam	River mile 25 (Navigation mile 19)
	Geographic latitude of dam	33° 59’ 11” N
	Geographic longitude of dam	91° 18’ 56” W
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Curtis Q. Warner Stephen Cain
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Arkansas Electric Cooperative Corporation (Owner & Operator) No change since last certification.
	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 License No. P-3033, issued August 10, 1983, effective through July 31, 2033 (50-year license)
	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 certifications issued under CWA Section 401. Issued in 1981 and 1994 by Arkansas Division of Environmental Quality. See Attachments A and B.

Item	*Information Requested*	*Response (include references to further details)*
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories[1]	FERC License P-3033: See Attachment C (hyperlink unavailable)
Powerhouse	Date of initial operation (past or future for pre-operational applications)	1999
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	108,000 kW at unity power factor (102,600 kW at 95% power factor) No change since last certification.
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	351 GWh – Calculation based on 35-year history of flows prior to the Corps dam being in place. No change since last certification.
	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 No change since last certification.
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	3 units, each with 7.0-meter runner diameter, horizontal-shaft, axial-flow, bulb-type turbines. Each turbine has a 4-blade, propeller-type runner, of Kaplan design (adjustable wicket gates and adjustable blades to maintain high efficiency across the wide range of heads and flows of the AR River). Each unit has a design hydraulic capacity of 4,000 to 17,800 cubic feet per second (cfs) but the normal operating range is 4,100 to 16,400 cfs.
	Trashrack clear spacing (inches), for each trashrack	Horizontal spacing: 5 inches. Vertical spacing: 24 inches.
	Dates and types of major equipment upgrades	No changes since installation.
	Dates, purpose, and type of any recent operational changes	No changes since installation.
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	No changes in license conditions or facility equipment anticipated.

[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)*
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1968 – construction of Corps dam 16 conventional tainter gates. Spillway is 5,180 ft in length. Earthen embankment is 3,780 ft in length. No change since original construction except addition of hydropower by AECC in 1999.
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	Dam and spillway are owned by Corps. 54 ft in height
	Spillway elevation and hydraulic capacity	Spillway elevation is 54 feet. Capacity is approx. 200,000 cfs before the dam goes "open river". Highest flows of record are over 540,000 cfs.
	Tailwater elevation (provide normal range if available)	Tailwater elevation is highly variable. Normal design tailwater is considered 124.0' (which, with a normal headwater, is a head of 38'). Minimum is 113.8'. Maximum design is 163.8'. There are no dams between the powerhouse tailwater and the Mississippi River so the plant's tailwater elevation is a function of the flows and elevation of the Mississippi River.
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	N/A. Intake is an open channel. No structures in channel.
	Dates and types of major infrastructure changes	No changes since installation.
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Flood control and navigation were primary purposes of the Arkansas River McClellan Kerr Navigation System. The Corps installed hydropower at three of the original dams (Dams 10, 12, and 16).
	Source water	Arkansas River Pool 2
	Receiving water and location of discharge	Arkansas River Pool 1
Conduit	Date of conduit construction and primary purpose of conduit	N/A
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	No change since last certification.

Item	*Information Requested*	*Response (include references to further details)*
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	Normal elevations considered as 162.0 ft upstream and 124.0 ft downstream. "Normal" upstream elevation is typically held from 160.5 and 162.3 ft per Corps which are defined as the bottom and top (respectively) of the navigation pool. Upstream elevation could be as high as 165 ft under flood events. Downstream elevations typically fluctuate from 116 ft (113.8 ft min.) to 150 ft (163.8 ft max). No designated power pool. No change since last certification.
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	No storage or designated power pool. No change since last certification.
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	Dam No. 2 creates a reservoir with a normal surface area of 10,560 acres at 162 feet msl. At an estimated average depth of 12 feet, the volume would be 127,000 acre-feet. No storage or designated power pool. No change since last certification.
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	Since this is a run-of-river project, upstream elevation limits and daily/hourly flow rates are set by Corps of Engineers. Refill rates do not apply since project is not allowed to deplete upstream navigation pool for power production. Per the Operations Agreement with the Corps (which is attached as Attachment D) the maximum ramp rate for the plant is 5,000 cfs per minute or 15,000 cfs per hour unless directed otherwise by the Corps Lockmaster. Typical rates are much less than those numbers (1,000 to 2,000 cfs per minute).

Item	*Information Requested*	*Response (include references to further details)*
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	All Arkansas River lock and dams owned by US Army Corps of Engineers. Hardin Lock & Dam 3, River Mile (RM) 50.2L Sanders Lock & Dam 4, RM 66.0R Maynard Lock & Dam 5, RM 86.3L Terry Lock & Dam 6, RM 108.1L Murray Lock & Dam 7*, RM 125.4R Toad Suck Ferry Lock & Dam 8, RM 155.9L Ormand Lock & Dam 9**, RM 176.9R Dardanelle Lock & Dam 10, RM205.5L Ozark Lock & Dam 12, RM 256.8L Trimble Lock & Dam 13**, RM 292.8R WD Mayo Lock & Dam 14 (in OK), RM 319.6R Kerr Lock & Dam 15 (in OK), RM 336.2L Webbers Falls Lock & Dam 16 (in OK), RM 366.6L Chouteau Lock and Dam 17 (in OK), RM 401.4L Newt Graham Lock and Dam 18 (in OK), RM 421.6L * Murray Lock & Dam 7 is licensed as FERC project 3449, owned and operated by the City of North Little Rock ** AECC has FERC project 3044, the Whillock Hydroelectric Generating Plant at Ormand Lock & Dam 9, rated at 32.4 MW. *** AECC has FERC project 3043, the Ellis Hydroelectric Generating Plant at Trimble Lock & Dam 13, rated at 32.4 MW. The US Army Corps of Engineers has hydroelectric generation facilities at dams 10, 12, 15, and 16. No dams on the Arkansas River have downstream (or upstream) fish passage (except during “open river” high flows).
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	No dams downstream. Approximately 40 miles to the confluence of the Mississippi River.

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td></td><td>Operating agreements with upstream or downstream facilities that affect water availability and facility operation</td><td>N/A. Operational flow rates and other guidelines are set by the US Army Corps of Engineers per the Operations Agreement, see Attachment D.</td></tr>
<tr><td></td><td>Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.</td><td>Approximately 147 acres</td></tr>
<tr><td>Hydrologic Setting</td><td>Average annual flow at the dam, and period of record used</td><td>Avg. Annual Flow: 10,728,250 million gallons
Period of Record: 2009-2018
Source: http://www.swl-wc.usace.army.mil/pages/mcharts.htm</td></tr>
<tr><td></td><td>Average monthly flows and period of record used</td><td><table><tr><th>Month</th><th>Monthly Avg (million gal)</th></tr><tr><td>January</td><td>864,096</td></tr><tr><td>February</td><td>674,414</td></tr><tr><td>March</td><td>1,145,790</td></tr><tr><td>April</td><td>1,217,817</td></tr><tr><td>May</td><td>2,047,048</td></tr><tr><td>June</td><td>1,255,889</td></tr><tr><td>July</td><td>700,701</td></tr><tr><td>August</td><td>495,216</td></tr><tr><td>September</td><td>412,899</td></tr><tr><td>October</td><td>611,285</td></tr><tr><td>November</td><td>520,908</td></tr><tr><td>December</td><td>782,188</td></tr></table>
Period of Record: 2009-2018
Source: http://www.swl-wc.usace.army.mil/pages/mcharts.htm</td></tr>
<tr><td></td><td>Location and name of closest stream gauging stations above and below the facility</td><td>Upstream: 07265280 AR River at Pendleton, AR
Downstream: None</td></tr>
<tr><td></td><td>Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.</td><td>Approx. 170,000 square miles</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
Designated Zones of Effect	Number of zones of effect	2, the upstream intake channel and the downstream tailrace channel
	Upstream and downstream locations by river miles	River mile 25
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Impoundment/river upstream. River downstream.
	Delimiting structures or features	none
	Designated uses by state water quality agency	Zone 1 • Primary Contact: Recreation • Secondary Contact: Recreation • Domestic, Industrial, and Agricultural Water Supply • Aquatic Life • Other – Hydroelectric Power Generation Zone 2 • Extraordinary Resource Waters • Primary Contact: Recreation • Secondary Contact: Recreation • Domestic, Industrial, and Agricultural Water Supply • Aquatic Life • Other – Hydroelectric Power Generation
Pre-Operational Facilities		
Expected operational date	Date generation is expected to begin	N/A
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

Table B-1.2. Matrix of Alternative Standards Template.

Facility Name: Arkansas River Dam No. 2 Hydropower Project (FERC 3033)

Zone of Effect: 1

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes	X				
B	Water Quality		X			
C	Upstream Fish Passage	X				
D	Downstream Fish Passage		X			
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X			
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources		X			

Table B-1.2. Matrix of Alternative Standards Template.

Facility Name: Arkansas River Dam No. 2 Hydropower Project (FERC 3033)

Zone of Effect: 2

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes	X				
B	Water Quality		X			
C	Upstream Fish Passage		X			
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X			
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources		X			

Responses to Standards Matrices

In consultation with LIHI, AECC has defined two zones of effect for the project: the first, Zone 1, being the upstream/intake channel and the second, Zone 2, the downstream/discharge channel.

Criterion A – Ecological Flow Standards

AECC believes that the Facility meets Criterion A Standard 1 – not applicable – for both Zone 1 and Zone 2.

The location of the powerhouse relative to the Corps dam is shown in the photos below. (Water flow is from right to left in the first photo.) There are no bypassed reaches at the Facility.

There are no minimum flow requirements for the Facility.

Due to the project's operation as a run-of-river plant, once outside these zones, total flows on the river would be the same as if the project was not present and all releases were through the Corps dam.

Run of River Operation.

This Facility is a run-of-river hydropower plant. A run-of-river hydropower plant harvests energy from a flowing river without changing the rate or timing of flows that would otherwise occur without the hydro facility being in place. There is no storage or ponding of water to improve the timing or rate of power generation. The Facility uses the flow rate of the Arkansas River as regulated by the US Army Corps of Engineers (Corps) to generate power and energy.

Being run-of-river, the Facility does not affect reservoir levels or downstream river flows any differently than the Corps dam would if the Facility were not in place.

When river flow is less than the minimum required plant flow of approximately 4,000 cfs, the units are shut down and all flows may be released through the spillway gates in accordance with the Corps' normal operating procedures. The Corps may also permit the Facility to pass enough water to run one unit for a few hours each day rather than opening a few of the Corps gates. (This is done because it is easier for the Facility to pass small quantities of water for a few hours than for the Corps to have to make numerous small incremental gate changes during the day. This also has the benefit of not "spilling water" that could produce usable energy.) During certain periods of extreme low flows, no water will be released by either the Corps dam or the Facility. (The only exception is the leakage around the gate seals which is discussed later under Criterion D.) During periods when river flow is within the operating range of the Facility, all flows are diverted through the powerhouse. When river flow is greater than the capacity of the Facility, excess flow is spilled through the gates of the Corps dam.

There is more information regarding run-of-river operation of the Facility in the Supplemental Information section at the end of this document.

No-flow periods.

Although the Arkansas River is massive, one of the nation's largest rivers, there are still periods when there is essentially zero flow going downstream. This is because the river is extensively controlled in Oklahoma and Arkansas by not only the dams on the river itself but several storage reservoirs in Oklahoma which have been built for flood control. When required, the Corps reduces flows at each dam in order to maintain the navigation pools, and sometimes this even requires the Corps to shut down flows through their gates.

A few pools on the river, namely the ones upstream of the Corps dams at Dardanelle (Dam 10) and Ozark (Dam 12) have designated power pools to allow a few feet of storage to improve power production at those facilities during low flow periods. There is no power pool above Dam 2 or the Facility since Dam 2 was originally constructed under the assumption that hydropower facilities would never be installed at the site. Thus, there is no ponding of water at the site.

Leakage through the Corps Gates.

Although there are periods of "no flow" on the river, there is always some amount of leakage around the Corps gate seals so technically the flow is never zero, although it is reported as zero on Corps flow records.

The Corps dam has 16 conventional tainter gates. All have seals along the sides and bottom to reduce leakage. However, due mostly to budget constraints, maintenance of the seals is considered a low priority item by the Corps. It is also only a factor when the Corps closes the gates completely during periods of low river flows. AECC estimates the total leakage to be from 50-200 cfs which, from the Corps' perspective, is considered almost insignificant for a river the size of the Arkansas. In other areas of the country on smaller streams this amount would often be considered typical of minimum flow requirements.

Until and unless the leakage becomes so great that the Corps cannot maintain the normal navigation pool upstream of Dam 2 (and the Facility) AECC does expect the Corps to try to reduce the amount of leakage around the gate seals.

Criterion B – Water Quality Standards

AECC believes that the Facility meets Criterion B Standard 2 for both Zone 1 (the headrace of the Facility) and Zone 2 (the downstream tailrace).

The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ)[1] maintains the list of impaired waters in Arkansas pursuant to the Clean Water Act Section 303(d). The upstream reach is not listed but the downstream reach is listed for dissolved oxygen in the final 2016 303(d) List and currently listed in the draft 2018 303(d) List for Arkansas.

The final 2016 303(d) List and the draft 2018 303(d) List can be found at: https://www.adeq.state.ar.us/water/planning/integrated/303d/list.aspx. The downstream reach is listed at the top of page 2 in the final 2016 303(d) List and at the top of page 3 in the draft 2018 303(d) List.

According to Mr. Jim Wise (Ecologist Coordinator) of the DEQ, "At this time, the [DEQ] does not consider the hydropower plant at the Wilbur D. Mills L&D to be the cause of the low dissolved oxygen levels in the Arkansas River." Mr. Wise's email dated November 12, 2019 is included in Appendix A.

There are no agency recommendations related to the listing and no compliance activities are required.

[1] In 2019, DEQ underwent a name change during a reorganization of Arkansas government. DEQ was previously its own state department – the Arkansas Department of Environmental Quality (or ADEQ). ADEQ was combined with other state departments to form the Arkansas Department of Energy and Environment, and DEQ is a division of that new department.

Criterion C – Upstream Fish Passage Standards

Although the Facility has no provisions for fish passage, AECC believes that the Facility meets Criterion C Standard 1 – not applicable – for Zone 1, and Criterion C Standard 2 for Zone 2.

The Facility currently does not have any fish passage requirements; however, the FERC license for the Facility has a reservation for agencies to prescribe such requirements in the future.

Although it has not been documented to occur, in theory the American Eel and other migratory species can use the lock in the Arkansas Post Canal to safety pass upstream of the Facility on the Arkansas River on the route from the ocean to the Arkansas River upstream of the Facility. It would also be possible for the American Eel to pass though the Corps' dam during periods of "open river" which can occur during seasonal flooding. Very limited studies of the American Eel's presence in the Arkansas River have been done by the Arkansas Game and Fish Commission.

Passage of migratory fish on the Arkansas River is further discussed in a letter received from the USFWS dated January 6, 2020 which is included in Appendix B.

Criterion D – Downstream Fish Passage and Protection Standards

Although the Facility has no provisions for fish passage, AECC believes that the Facility meets Criterion D Standard 2 for Zone 1 and Criterion D Standard 1 – not applicable – for Zone 2.

The Facility currently does not have any fish passage requirements; however, the FERC license has a reservation for an agency to prescribe such requirements in the future.

American Eel and other migratory species can travel downstream to the Mississippi River through both the Corps dam during normal flow periods and the lock in the Arkansas Post Canal. The Arkansas Post Canal is discussed later under Supplemental Information which follows the section on Criterion H.

Smaller fish, mostly shad, have been observed to slip around the gate seals going downstream as evidenced by their presence on the spillway aprons below the gates. It is doubtful they could swim through going upstream due to the velocity of water leaking around the seals.

Criterion E – Shoreline and Watershed Protection Standards

AECC believes that the Facility meets Criterion E Standard 1 – not applicable – for both Zone 1 and Zone 2 for the reasons listed below:

- There are no Shoreline Management Plans or similar protection requirements for the Facility;
- The Facility has a limited boundary;
- The Corps controls and is responsible for maintaining the shoreline;
- The shoreline near the Facility is primarily composed of slopes covered with riprap; and
- There are no lands with significant ecological value associated with the Facility.

The FERC license drawing showing the project boundary in detail (FERC Drawing G2) is included in Appendix C.

Land use in the FERC project boundary is primarily related to the Facility and access to the Corps dam. Some use is recreational, mostly fishing and camping. Hunting is common in areas just outside the project area. Most of the FERC project boundary is shown in the photograph below.

Criterion F – Threatened and Endangered Species Standards

AECC believes that the Facility meets Criterion F Standard 2 for boh Zone 1 and Zone 2.

The U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) report for the Facility lists three threatened and endangered species – they are all birds:

- Eastern Black Rail (proposed threatened);
- Least Tern (endangered); and
- Whooping Crane (endangered).

The USFWS noted that the Pallid Sturgeon should also be on the list. See the USFWS letter in Appendix B. (This is apparently a known error in IPaC that USFWS is trying to address.)

There are no critical habitats listed in the report.

There are six migratory birds listed in the report:

- Bald Eagle;
- Kentucky Warbler;
- Prothonotary Warbler;
- Red-headed Woodpecker;
- Rusty Blackbird; and
- Wood Thrush.

A copy of the IPaC report is in Appendix D.

No threatened or endanger fish species have been identified as occurring in the Facility area by either the USFWS or the Arkansas Game and Fish Commission (AGFC). There are no additional species listed by the AGFC that may potentially be in the Facility area.

Due to the small footprint of the plant and the run-of-river operation, AECC believes that the Facility has no negative effects on the listed species.

It is not unusual to see an American Alligator in the area of the Facility – especially in the oxbow lake south of the plant. The American Alligator was once listed as endangered, but it has completely recovered due to a combined effort by the USFWS and state wildlife agencies.

AECC received a letter from the USFWS dated January 6, 2020 regarding any known impacts of the Facility on any fish and wildlife. A copy of the letter is attached in Appendix B. The letter discusses flow, water quality, anadromous and catadromous species, resident non-listed fish species, and threatened and endangered species. The letter essentially states that based on the data available, the Facility has no known impacts on the fish and wildlife resources discussed.

Criterion G – Cultural and Historic Resource Standards

AECC believes that the Facility meets Criterion G Standard 1 for both Zone 1 and Zone 2.

AECC hired Panamerican Consultants, Inc. to perform a review of records containing known cultural and historical resources located on the Facility lands. The review determined that one previously recorded archaeological site is located within the Disposal Site B area. This site "was partly damaged and possibly partly buried under dredge spoil as a result of the excavation of the Arkansas Post Canal." The Arkansas Post Canal was excavated by the Corps decades before the Facility was constructed.

The Panamerican review report is in Appendix E.

Criterion H – Recreational Resources Standards

AECC believes that the Facility meets Criterion H Standard 2.

As part of the FERC license for the Facility, the Department of Interior recommended "that the Applicants conduct an analysis to determine if there is a need for additional recreational facilities and be responsible not only for the cost of relocation of part of Pendleton Bend Park, but for developing additional recreation facilities if a demonstrated need exists."

AECC did cover the cost of relocating a portion of Pendleton Bend Park. This involved construction of twenty public campsites (with water, other facilities, and landscaping). The campsite is downstream of and outside the permanent FERC project boundary. In addition, AECC added a boat ramp to the Arkansas River downstream of the Facility, a basketball court, and two public restrooms. AECC also constructed handicap-accessible fishing sidewalks along the downstream side of the powerhouse and also along the riverbank side of the powerhouse (along the Corps revetment area below the Corps dam). This area was originally designed for public vehicular access across the powerhouse lower roof; however, after the events of 9/11 it was determined that the area on the riverside of the powerhouse should be restricted to pedestrian access only.

A copy of the most recent FERC Environmental Report is in Appendix F. The inspection occurred on July 12, 2017, and the report is dated August 4, 2017. An excerpt from the summary of findings in the report:

> "Based on file reviews, discussions, and field observations made during the inspection, the project was in overall compliance with the license articles related to fish and wildlife, recreation, public safety, and cultural resources. However, two follow-up items needing action were noted during the inspection and in the follow-up letter issued by the Federal Energy Regulatory Commission (Commission) on August 7, 2017. These items are summarized as follows:
>
> 1. Some public safety signs were missing during the inspection; however, the licensee stated that they had new signs but had not yet been installed in addition to spare signs to address any other missing signs. The licensee provided documentation that the signs were all in place within two

days of the inspection. Therefore, we consider this matter to be closed and no further action is necessary.

2. The vehicular access road across the powerhouse to the east fishing access area parking lot was closed at the direction of the U.S. Army Corps of Engineers (Corps) after the 9/11 attacks. To comply with this direction, the licensee installed a barrier gate across the opening. This modification was not reflected in the most recent Public Safety Plan (PSP) filed with the Commission on October 17, 2008."

Regarding Item 2, Section C.(2) of the inspection report states:

"…the pedestrian access opening adjacent to the gate on the road leading to the east angling ramp and walkway does not permit wheelchair access. The licensee committed to modifying the opening to accommodate wheelchair access."

As stated in Item 1, the signs were addressed within two days of the inspection. A response from AECC dated October 6, 2017 addresses Item 2. A copy of this letter is in Appendix F. This letter states:

> "The barrier gate on the access road to the fishing area on the east side of the powerhouse was modified to allow ADA/handicap access. The Project Public Safety Plan (PSP) was revised to include the barrier gate. The revised PSP plan sheet is attached and a photograph showing the barrier gate ADA bypass included on page two of this letter."

Supplemental Information

Excerpt from Facility Operating Agreement regarding operation as a run-of-river hydropower plant:

"Section B. Specific Operational Details

Under this Agreement, the Hydropower Project shall be operated as a run-of-river project (no dedicated storage for hydropower operations at Wilber D. Mills Dam (Dam 2). Releases from the Hydropower Project will be in conformance with instructions and criteria established on a real-time basis by the Corps acting though its lockmaster or its chain of command for water management.

During normal operation, the Hydropower Project will generate with one, two, or three units up to 24 hours per day when available river flows exist. All of the following flows are approximate. The flow range during which generation is possible is from 4,000 cfs (minimum turbine discharge) to 200,000 cfs (flow at which units are shut down due to insufficient operating head). River flows from 4,000 cfs to 53,400 cfs (Hydropower Project maximum discharge capacity) normally will be passed through the powerhouse but may be passed through either, neither, or both the powerhouse and Wilbur D. Mills Dam in a coordinated effort, as the Corps deems appropriate. It shall be the responsibility of the Licensee to assure release rates are made as set by the Corps. The Licensee shall schedule all hydropower releases in compliance with the Lockmaster's needs and instructions. For river flows between 53,400 cfs and 200,000 cfs, discharges will be made through both the powerhouse and Wilbur D. Mills Dam. At flows greater than 200,000 cfs, discharges will be made through Wilbur D. Mills Dam only."

Trash Racks Description

The Facility has stationary trash racks on the upstream side of the powerhouse to prevent large debris from entering the Facility and damaging the hydropower units. The trash racks are composed of steel bars with a horizontal spacing of five inches and a vertical spacing of 24 inches. Large debris that collects in front of the trash racks is routinely removed with a crane equipped with a clamshell bucket. This preventative maintenance prevents clogging of the Facility's intake.

Construction of Dam 2

And the how a section of the original river channel was convered into a 7-mile long oxbow lake.

The next two aerial photos show the relation of the Facility at Dam 2 to the original channel of the Arkansas River in this area. The channel prior to construction of Dam 2 is shown as the green line. By design, the channel as it is today effectively cuts off a seven-mile section of the previous channel.

Excavation for Dam 2 was done "in the dry" to the east of the original channel. When Dam 2 was essentially complete, large earthmoving equipment was used to dig a new "pilot channel" which started on the downstream side of the new dam and then continued to the southeast back to the main channel a distance of approximately two miles. This bypassed seven river miles of the original channel. The original channel west of the dam was filled in (or "plugged") by an earthen embankment. Once the embankment was in place, water could pass only through Dam 2. All the river water then coursed through the pilot channel, eroding it deeper and deeper as it returned the flow back to the main channel to a point several miles downstream. The new, redirected flow basically cut itself a new channel.

Bypassing the section of the original channel created a new seven-mile long oxbow lake, a lake that extended from the embankment plug to the point where the new channel returned to the original course. There, a "low-water dam" was constructed to maintain water in the oxbow.

This oxbow lake was formed to the south of the Corps dam. The oxbow has become a desirable fishing area since it has almost no current. The still waters also allow sediment to settle out creating water much clearer than in the main river channel.

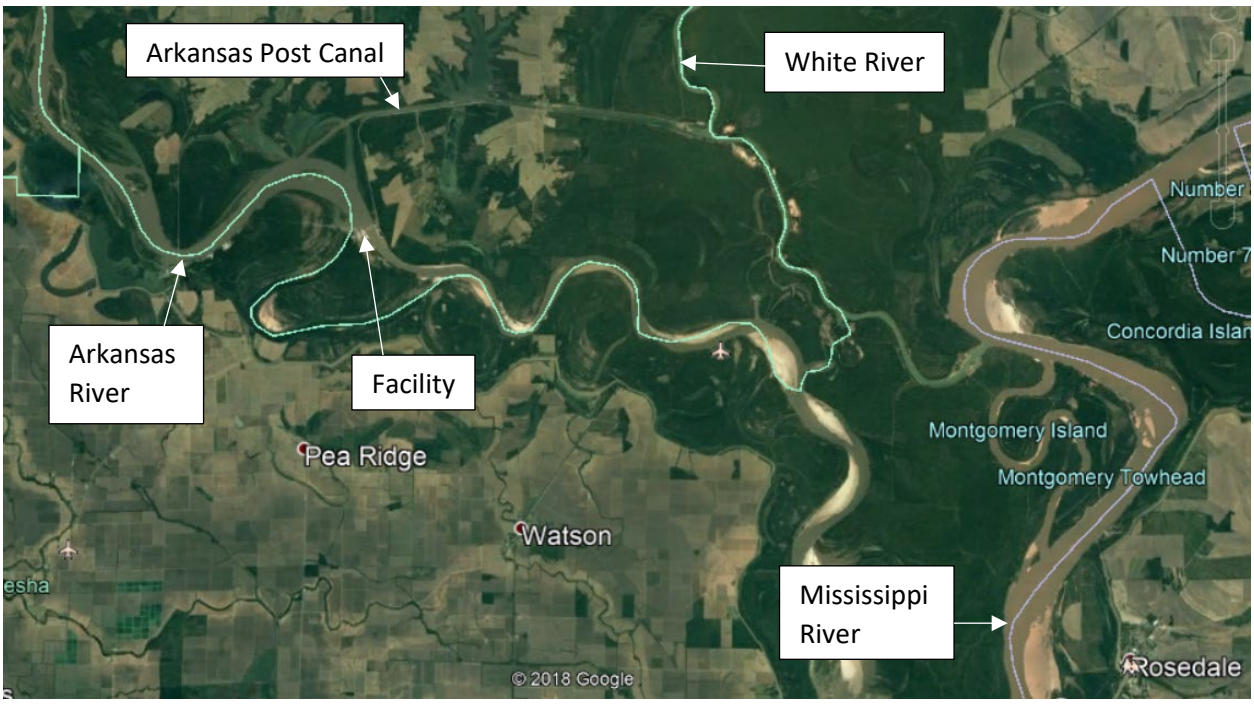
Fish can enter the oxbow during periods when backwaters of the lower Arkansas River overflow the low-water dam constructed at the downstream end of the oxbow lake. There is also a small conduit in the earthen embankment plug to maintain a small flow of water in the oxbow to prevent the water from becoming stagnant in the summer. Flow through the conduit is controlled by the AGFC.

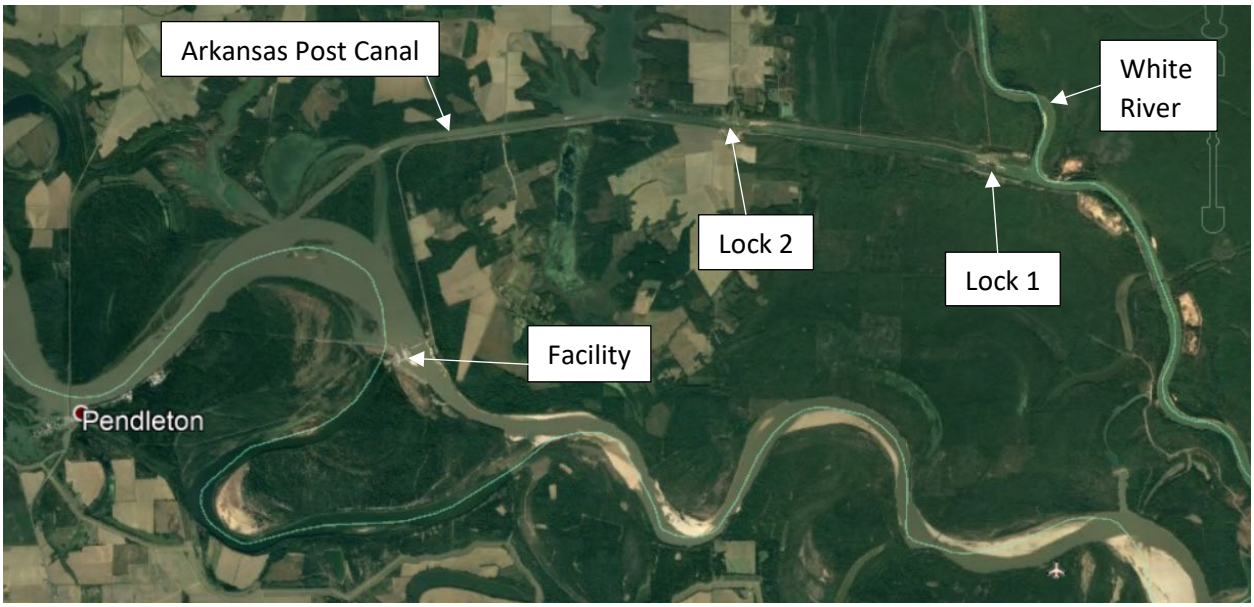
Since the oxbow area became a popular fishing spot, the AGFC decided to add a boat ramp adjacent to AECC's switchyard to improve access to the new lake. AECC worked with the AGFC to add the boat ramp and associated parking lot.

Arkansas Post Canal

The reach of the Arkansas River downstream of Dam 2 to the Mississippi River, a distance of 27 miles, is very shallow. It would have been very expensive to constantly dredge out this section to maintain a usable navigation channel. (Note the extensive reaches of sandbars between the Facility/Dam 2 and the Mississippi River in the photo below.) Instead of trying to use the lower Arkansas, the Corps took advantage of the proximity of the lower White River and its connection to the Mississippi River. To get from the Arkansas to the White, the Corps created a navigation canal to bypass the lower Arkansas River and its shallow, unmaintainable pools. Instead, barge traffic would be routed from the Arkansas River just upstream of Dam 2 into a new canal then to the Mississippi River.

This was accomplished by, first, the construction of a controllable narrow canal. It is now called the Arkansas Post Canal. It has two locks that allow barges to make the vertical transition from the Arkansas River to the White River. Then, once in the White River channel, barges could easily travel to the Mississippi River, a distance of just twenty river miles. This lower reach of the White River, from the canal to the Mississippi River, has a much narrower channel than the Arkansas. The narrower channel makes it much easier for the Corps to maintain and keep clear the nine-foot deep navigation channel required for barge traffic.





2015 Tailrace Remediation Project

As part of the FERC required dam safety program, AECC makes annual inspections of the Facility. This includes taking soundings of the intake and tailrace to determine if any underwater erosion has occurred. In the 2014 inspection period, AECC discovered that just downstream of the powerhouse apron (the lip of the powerhouse that extends beyond the turbine discharge tubes) that a scour hole had formed.

Over time, turbulence from the turbines had begun to wash away the sand below the large riprap in the area. The rip rap then began to fall lower and lower as the supporting sand beneath it was washed away, creating a sizable void area. The area was inspected by divers who were able to determine that the scour hole extended partially underneath the apron. A plan was presented to and approved by the FERC to pump in underwater concrete to fill the void area, especially that which extended under the apron. And also, to reinforce the area by extending the concrete well beyond the apron. Extremely large riprap stones were used to extend the protected area. Once far enough downstream of the turbine discharge, the reduced velocities and turbulence would then be controllable.

The remediation has been successful. AECC continues to closely monitor the area using high precision sonar and surveying instruments to map the contours regularly to see if any significant erosion begins to occur.

B.3 Sworn Statement and Waiver Form

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Arkansas Electric Cooperative Corporation, 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 marketing the electricity product as LIHI Certified®.

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.

PLEASE INSERT FOR PRE-OPERATIONAL CERTIFICATIONS (see Section 4.5.3)**:**

The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.

Company Name: Arkansas Electric Cooperative Corporation

Authorized Representative:

Name: Steve Metcalf

Title: Vice President, Power Production and Delivery

Authorized Signature: 

Date: January 10, 2020

B.4 Contacts Forms

All applications for LIHI Certification must include complete contact information.

A. Applicant-related contacts

Facility Owner:	
Name and Title	Buddy Hasten, CEO
Company	Arkansas Electric Cooperative Corporation
Phone	501-570-2200
Email Address	buddy.hasten@aecc.com
Mailing Address	P.O. Box 194208, Little Rock, AR 72219
Facility Operator (if different from Owner):	
Name and Title	Rob Smith, Director – Power Production
Company	Arkansas Electric Cooperative Corporation
Phone	501-570-2603
Email Address	rob.smith@aecc.com
Mailing Address	P.O. Box 194208, Little Rock, AR 72219
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	n/a
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Curtis Q. Warner, Director – Compliance & Support
Company	Arkansas Electric Cooperative Corporation
Phone	501-570-2462
Email Address	curtis.warner@aecc.com
Mailing Address	P.O. Box 194208, Little Rock, AR 72219
Party responsible for accounts payable:	
Name and Title	Emily Gonzalez, Accountant I
Company	Arkansas Electric Cooperative Corporation
Phone	501-570-2227
Email Address	emily.gonzalez@aecc.com
Mailing Address	P.O. Box 194208, Little Rock, AR 72219

B. Current and relevant state, federal, and tribal resource agency contacts with knowledge of the facility (copy and repeat the following table as needed).

Agency Contact (Check areas of responsibility: Flows__, Water Quality _X_, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Arkansas Department of Energy and Environment, Division of Environmental Quality
Name and Title	Jim Wise, Ecologist Coordinator
Phone	501-682-0663
Email address	wise@adeq.state.ar.us
Mailing Address	5301 Northshore Drive, North Little Rock, AR 72118
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. Fish & Wildlife Service
Name and Title	Thomas Inebnit, Fish and Wildlife Biologist
Phone	501-513-4483
Email address	thomas_inebnit@fws.gov
Mailing Address	110 South Amity Road, Suite 300, Conway, AR 72032
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	
Name and Title	
Phone	
Email address	
Mailing Address	
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	
Name and Title	
Phone	
Email address	
Mailing Address	
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	
Name and Title	
Phone	
Email address	
Mailing Address	

C. Current stakeholder contacts that are actively engaged with the facility (copy and repeat the following table as needed).

Stakeholder Contact (Check areas of interest: Flows__, Water Quality _X_, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	Arkansas Department of Energy and Environment, Division of Environmental Quality
Name and Title	Jim Wise, Ecologist Coordinator
Phone	501-682-0663
Email address	wise@adeq.state.ar.us
Mailing Address	5301 Northshore Drive, North Little Rock, AR 72118
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	U.S. Fish & Wildlife Service, Arkansas Field Office
Name and Title	Thomas Inebnit, Fish and Wildlife Biologist
Phone	501-513-4483
Email address	thomas_inebnit@fws.gov
Mailing Address	110 South Amity Road, Suite 300, Conway, AR 72032
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	
Name and Title	
Phone	
Email address	
Mailing Address	
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	
Name and Title	
Phone	
Email address	
Mailing Address	

Appendix A

DEQ Response Regarding Water Quality Standards

From: Wise, Jim
To: Stephen Cain
Subject: ** External ** RE: ADEQ Confirmation Request
Date: Tuesday, November 12, 2019 9:58:21 AM

*** THIS IS AN EXTERNAL E-MAIL. Please be cautious when opening attachments or clicking links. ***

Mr. Cain,

At this time, the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) does not consider the hydropower plant at the Wilbur D. Mill L&D to be the cause of the low dissolved oxygen levels in the Arkansas River. There are several factors considered when making this determination; the sample is collected upstream of the dam varying between a boat ramp or within the lock itself for safety concerns; at times the sample may be influenced by the small backwater upstream on the south side of the dam; and at times the water quality in the lock may not be representative of the main water body mass or river channel.

Dissolved oxygen concentrations can be influenced by low flow conditions, but not like what occurs in the Arkansas River. It is generally associated with flow of less than 1 cfs in waterbodies which are reduced to pools during the summer months.

We are aware that the data being collected is probably not representative of the actual conditions of the river and are investigating other possible locations to collect samples. We would appreciate any suggestions for alternative sample locations in the area.

Jim

Jim Wise|Ecologist Coordinator
Arkansas Department of Energy and Environment
Division of Environmental Quality|Office of Water Quality
5301 Northshore Drive, North Little Rock, AR 72118
t: 501.682.0663| e. wise@adeq.state.ar.us

From: Stephen Cain [mailto:Stephen.Cain@aecc.com]
Sent: Friday, November 8, 2019 2:58 PM
To: Barnett, Mary
Cc: Curtis Warner; Casey Shepard
Subject: RE: ADEQ Confirmation Request

Mary,

It looks like Arkansas River HUC 8020401 Reach 001 is now listed on the final 2016 303d list and the

draft 2018 303d list for dissolved oxygen. This reach is downstream of the dam and hydropower plant referenced in my email below.

Do you have any idea what caused this? Can low DO levels be caused by low water levels and low flow during most of the year?

Thank you,

Stephen Cain
Manager – Environmental Compliance
501-570-2420
Arkansas Electric Cooperative Corporation

From: Stephen Cain
Sent: Monday, November 4, 2019 8:25 AM
To: Barnett, Mary (BARNETT@adeq.state.ar.us) <BARNETT@adeq.state.ar.us>
Cc: Curtis Warner <curtis.warner@aecc.com>; Casey Shepard <casey.shepard@aecc.com>
Subject: FW: ADEQ Confirmation Request

Mary,

We are in the process of renewing our Low Impact Hydropower Institute (LIHI) certification for our hydropower plant located near Dumas, AR at the Wilbur D. Mills Dam on the Arkansas River.

We request that you please respond to the two questions in my email dated May 30, 2014 (highlighted below). Please let me know if you require additional information.

Thank you,

Stephen Cain
Manager – Environmental Compliance
501-570-2420
Arkansas Electric Cooperative Corporation

From: Barnett, Mary [mailto:BARNETT@adeq.state.ar.us]
Sent: Monday, June 02, 2014 9:23 AM
To: Stephen Cain

Cc: Clem, Sarah
Subject: RE: ADEQ Confirmation Request

Stephen,

1.The Department has no data to suggest that the project's (hydropower plant located at Wilbur D. Mills Dam (Dam 2)) operations to present are inconsistent with the state's water quality criteria in general.
2. Arkansas River HUC 8020401 Reach 901 is the portion of the river upstream of the dam. Reach 901 is not on the EPA approved 2008 303(d) list, nor is it on the draft 2010, draft 2012, or draft 2014 lists. Arkansas River HUC 8020401 Reach 001 is the portion of the river downstream of the dam. Reach 901 is not on the EPA approved 2008 303(d) list, nor is it on the draft 2010, draft 2012, or draft 2014 lists.

Mary Barnett
Ecologist Coordinator
501-682-0666

From: Stephen Cain [mailto:Stephen.Cain@aecc.com]
Sent: Friday, May 30, 2014 9:53 AM
To: Clem, Sarah
Cc: Shafii, Mo; Curtis Warner; Chris Hall
Subject: ADEQ Confirmation Request

Ms. Clem:

Every five years or so Arkansas Electric Cooperative Corporation (AECC) must re-apply for Low Impact Hydropower Institute (LIHI) certification that our hydropower plant located at Wilbur D. Mills Dam (Dam 2) on the Arkansas River (near Dumas, AR) has avoided environmental impacts pursuant to LIHI's criteria. AECC would appreciate ADEQ's confirmation of items 1 and 2 below. ADEQ previously granted this confirmation in April 2008, and the operation of the hydropower plant at Dam 2 has not changed since that confirmation.

1. The project's operations to the present remain consistent with the state's water quality criteria in general; and
2. If any waters in the vicinity of the project appear on the state's Clean Water Act Section 303(d) list of impaired waters that the project does not contribute to that impairment.

For convenience, attached are: (1) the AECC letter submitted to ADEQ in April 2008 for the previous confirmation of items 1 and 2 above; and (2) ADEQ's response to that letter via email from Mr. Bob Singleton stating that the project remains consistent with the state's water quality criteria and the Arkansas River in that area of the state is not on the 303(d) list.

Please contact me if you require additional information.

Sincerely,

Stephen Cain
Manager – Environmental Compliance
Arkansas Electric Cooperative Corporation
501.570.2420

Appendix B

USFWS Letter Dated January 6, 2020

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 S. Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

IN REPLY REFER TO:

January 6, 2020

Mr. Stephen Cain
Environmental Compliance
Arkansas Electric Cooperative Corporation
1 Cooperative Way
P.O. Box 194208
Little Rock, AR 72219-4208

Dear Mr. Cain,

This letter conveys the U.S. Fish and Wildlife Service's (Service) understanding of potential hydroelectric generation effects associated with Arkansas Electric Cooperative Corporation's (AECC) operation of Dam No. 2, also known as Wilbur D. Mills Dam, on the Arkansas River. Our comments are limited to the effects of the hydroelectric facility on fish and wildlife resources, including threatened and endangered species, based on project information provided to us by AECC prior to 2009, as no new information is available. Our comments exclude potential effects of the U.S. Army Corps of Engineers (Corps) operation and maintenance of the McClellan-Kerr Arkansas River Navigation System.

Flow

The Service understands the Corps determines the flow schedule pursuant solely to its navigation, flood control, and water allocation requirements. The facility's operating agreement with the Corps includes limits to the amount and rate of flow releases. Based on information provided by AECC, you comply with the Corps' agreement. We reviewed historical records provided by AECC and Corps comparing flows before and after facility construction and conclude AECC is not responsible for any existing or potentially adverse flow-related effects to fish and wildlife resources. This assessment pertains to flow volume and ramping rates attributable solely to the Corps' and their operation of the Arkansas River Navigation System, Oklahoma flood control projects, water allocations, and the operations of Wilbur D. Mills Dam, which all pre-date construction and operation of AECC's facility.

Water Quality

The lower Arkansas River (pool below Wilbur D. Mills Dam) was listed on the 303(d) list of impaired waters in 2016 and currently remains listed on the draft 2018 list. The reason for listing is due to the dissolved oxygen water quality standard not being met. However, the Arkansas Department of Environmental Quality (ADEQ) has not provided the source/cause of the low levels of dissolved oxygen. Therefore, similar to above listed comments, the Service understands that the Corps determines the flow schedule, not AECC. There is currently not adequate data to suggest the cause of the low dissolved oxygen or what impact it may have on federally listed species that may occur in the area.

Anadromous and Catadromous Species
The Service did not issue a mandatory fish passage prescription for American eel (*Anguilla rostrata*) at the time of licensing because it was not a species of concern, and it is not a federally listed species. Limited passage is available upstream of the project via the Arkansas Post Canal, which connects the White River (a tributary to the Mississippi River) to the Arkansas River immediately upstream of the facility. Limited passage is also available at the facility site during overflow and pass through flood conditions. If we identify additional fish passage issues for this or other species in the future, we will address them at that time.

Resident Non-Listed Fish Species
The Service currently has no concerns about resident fish passage or adverse effects to resident fish resources from the facility. There is no information available to suggest negative effects associated with this project apart from pre-existing conditions or effects attributable to the Corps' navigation and flood control operations.

Threatened and Endangered Species
The Interior Least Tern and Pallid Sturgeon inhabit areas downstream of the facility. In addition, Fat Pocketbook mussel occurs in the lower White and Mississippi rivers, and while not documented from the lower Arkansas River, it may be present downstream of the facility due to its close proximity to other extant populations.

The Service consulted with the Corps in 2016 (revision to the 2013 programmatic biological opinion (PBO)) regarding their operation and maintenance of the McClellan-Kerr Arkansas River Navigation System (including hydropower operations) and provided a Biological Opinion regarding effects to Interior Least Tern. Any current effects to Interior Least Tern are pre-existing (existed prior to construction and operation of the hydroelectric facility) and are therefore attributable to the Corps' operations and cannot be attributed to AECC or the operation of their facility.

We have insufficient information to support/refute potential effects associated with operation of the hydroelectric facility to the Pallid Sturgeon and Fat pocketbook. The 2016 PBO does not assess potential adverse effects to Pallid Sturgeon or Fat Pocketbook. In a 2005 Biological Opinion, the Service supported a "not likely to adversely affect" determination for Pallid Sturgeon based on limited information and the unlikelihood of habitat alteration.

Comprehensive mussel surveys would inform presence/absence of Fat Pocketbook, but until such surveys occur the best available science does not support presence in the lower Arkansas River. While we now know Pallid Sturgeon occurs in the immediate vicinity of the hydroelectric facility, there is a paucity of information to ascertain any effects, beneficial or adverse, associated with operation of the hydropower facility to Pallid Sturgeon. In addition, it may be difficult to differentiate effects attributable to the navigation system from those specific to the hydroelectric facility. Should information become available in the future, consultation with the Service would be necessary.

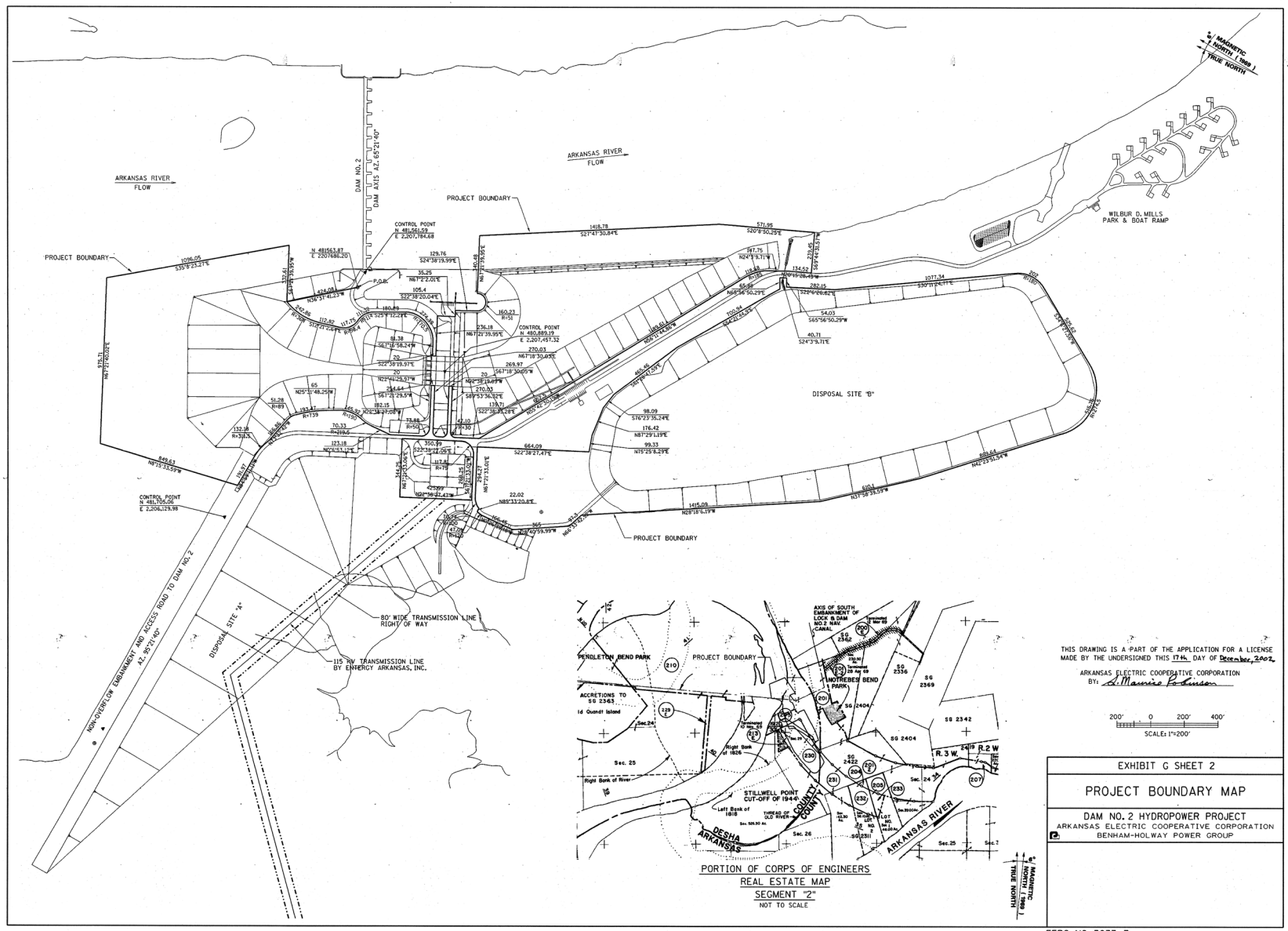
The Service has no additional comments or concerns regarding the AECC facility, from the standpoint of fish and wildlife resources, at this time. If you have any questions or require additional information, please contact Tommy Inebnit at (501) 513-4483.

Sincerely,

Melvin Tobin
Field Supervisor

Appendix C

Drawing Showing FERC Project Boundary



PORTION OF CORPS OF ENGINEERS
REAL ESTATE MAP
SEGMENT "2"
NOT TO SCALE

THIS DRAWING IS A PART OF THE APPLICATION FOR A LICENSE MADE BY THE UNDERSIGNED THIS 17th DAY OF December, 2002.

ARKANSAS ELECTRIC COOPERATIVE CORPORATION
BY: L. Mannie Robinson

200' 0 200' 400'
SCALE: 1"=200'

EXHIBIT G SHEET 2

PROJECT BOUNDARY MAP

DAM NO. 2 HYDROPOWER PROJECT
ARKANSAS ELECTRIC COOPERATIVE CORPORATION
BENHAM-HOLWAY POWER GROUP

FERC NO. 3033-7

$$DATE$$
$$PROF$$
$$DOC$$

Appendix D

IPaC Species Report

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.

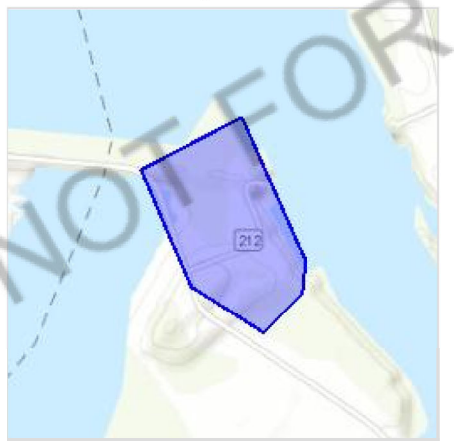
Project information

NAME

LIHI Recertification

LOCATION

Arkansas County, Arkansas



DESCRIPTION

Apply
for Low Impact Hydropower Institute (LIHI) recertification for existing hydropower plant. The plant was commissioned in 1999. There is no construction associated with this project.

Local office

Arkansas Ecological Services Field Office

(501) 513-4470
(501) 513-4480

110 South Amity Suite 300
Conway, AR 72032-8975

http://www.fws.gov/arkansas-es

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. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. 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.
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:

Birds

NAME	STATUS
Eastern Black Rail Laterallus jamaicensis ssp. jamaicensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Proposed Threatened
Least Tern Sterna antillarum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Whooping Crane Grus americana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	EXPN

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.

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 http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds

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.

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 Jul 31
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
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) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

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 and/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 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 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.

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.

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R2UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

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.

Appendix E

Cultural and Historic Resource Desktop Review

Panamerican Consultants, Inc.

Cultural Resources Management
Archaeology
Architectural History
Geophysical Survey

8 November 2019

Stephen Cain
Manager-Environmental Compliance
Arkansas Electric Cooperative Corporation
501-570-2420

Cultural Resources Desktop Review

Project Name: ..... Wilber Mills Dam
Project Type: ..... Unknown
County: ..... Arkansas, Desha
Legal description: ..... Section 25 of T8S R3W, Sections 19, 20, 29 and 30 of T8S R2W
7.5-min. quad: ..... Watson

Arkansas Archeological Survey (AAS) file check

There is one previously recorded archaeological site within the Disposal Site B area (3AR5). There are no previously recovered sites elsewhere within the project area; nor along the transmission line for approximately 2-mi. to the west.

Site 3AR5 was partly damaged and possibly partly buried under dredge spoil as a result of the excavation of the Arkansas Post Canal. Bussey and Briscoe (1994a:31-32) describe 3AR5 as follows:

> … known as 3AR5, 3AR32, possibly 3AR95, 17-K-2, the Almond Site, Thiele Bend Site and Morgan's Point Site. At the northwest end of the site was a slight rise that might have been a mound. To the southwest was a possible village. Surface material was said to be hard ot find, but there was considerable daub on the site. Pottery was shell tempered. According to the site sketch map, the possible mound may still exist on the north bank of the river, buried under dredge spoils from the channel construction. At the time of the pedestrian survey, it was believed that part of the site might still exist on the south bank of the river within the proposed impact area [i.e., now Disposal Site B]. However, the portion of the site that still exists on the south bank was found during the backhoe testing phase of the project [i.e., during 1994]. The remains of the site are southeast of the proposed park relocation area, safely outside the impact zone.
>
> The site was first reported by Phillips, Ford and Griffin (1951:54, as cited in Davis and Baker 1974), whose description is summarized above. At that time, the site was on the north bank of the Arkansas River at Morgan bend. Later, the Corps acted to straighten the river in that area by butting a canal across Notrebes Reach to Morgan Bend. In 1965, James Rawlinson of the University of Arkansas Museum conducted an intensive archeological survey of the construction area (Davis and Baker 1974). A damaged archeological site was found that may have been 3AR5, but local landmarks had been so drastically changed by construction that Rawlinson could not be sure. He sketch and recorded the site as 3AR32, made a surface collection, and accepted some additional specimens from the Corps and a collector. The ceramic assemblage was consistent with a late prehistoric/protohistoric date, and was also consistent with a Quapaw identification. Because this identification and the propinquity of this site to the Mernard Site, which has been identified as a Quapaw settlement visited by French settlers, an emergency week-end test was conducted in October, 1965. The results of the test verified the earlier conclusions, but also demonstrated that no initial occupation zones remained on the south side of the new channel (Davis and Baker 1974). When RSA team found the remnant of the site south of the proposed project area, the only artifacts found were one piece of fire-cracked rock and one piece of daub. These were no collected.

AMASDA project records reveal that most of the primary project area has been previously surveyed for cultural resources by Bussey and Briscoe (1994a, 1994b) at the request of the AECC.

This reach of the Arkansas River was also investigated during Archeological Assessments, Inc.'s reconnaissance-level cultural resources and geomorphological investigation of the McClellan-Kerr Arkansas River Navigation System for the U.S. Army Corps of Engineers (USACE), Little Rock District (Bennett et al. 1989). The purpose of this work was to provide a description of the landscape concerning archaeological sites to aid in the planning and testing of future cultural resources management actions in the area.

Most recently, Panamerican surveyed a narrow corridor across the primary project area during the 2013 Dam 2 to Gillettt 115kV Transmission Line upgrade survey, and reported negative findings in this area (Saatkamp and Buchner 2013).

The transmission line corridor to west of the primary study area has not been previous surveyed for cultural resources.

Arkansas Historic Preservation Program (AHPP) file check

There are no historic structures and/or properties recorded within the study tract.

The nearest previously recorded AHPP property is ARØØ26, the Arkansas Post Earthworks II, which is 2.97 km north of the access road on the levee.

NRHP Listed properties

There is no NRHP listed property in the study tract. The nearest NRHP listed property is the Arkansas Post National Memorial (AHPP Property ARØØØ2), which is 4.43 km northwest.

General Land Office (GLO) plat map

The 1843 GLO plat for T8S R2W shows the northern portion of the primary project area as in the Arkansas River. In contrast the southern section, including Disposal Area B, is located within portions of two land grants: Nos. 2311 and 2422.

Respectfully submitted,

C Andrew Buchner

C. Andrew Buchner, RPA

References Cited

Bennett, W.J., Jr., Phyllis L. Breland, and Lawson M. Smith

1989 *Cultural Resources and Geomorphological Reconnaissance of the McClellan-Kerr Arkansas River Navigation System Pools 1 through 9*. Archaeological Assessments Report No. 79. Submitted to the U.S. Army Corps of Engineers, Little Rock District. On file at the Arkansas Archeological Survey as AMASDA Report No. 1313.

Bussey, Stanley D., Ph.D., and James Briscoe

1994a *An Archaeological Survey of the Construction Impact Area of the Proposed AECC Dam No. 2 Hydropower Project, Arkansas River, Desha and Arkansas Counties, Arkansas*. Roberts/Schornick & Associates Inc. A Benham Company and the Benham-Holway Power Group. Submitted to the Arkansas Electric Cooperative Corporation. On-file at the Arkansas Archeological Survey as AMASDA Report 1701.

Bussey, Stanley D., Ph.D., and James Briscoe

1994b *An Archaeological Survey of the Construction Impact Area of a Relocated Park and Boat Ramp at the Proposed Dam No. 2 Hydropower Project, Arkansas River, Desha and Arkansas Counties, Arkansas*. Roberts/Schornick & Associates Inc. A Benham Company and the Benham-Holway Power Group. Submitted to the Arkansas Electric Cooperative Corporation. On-file at the Arkansas Archeological Survey as AMASDA Report 2817.

Saatkamp, Andrew, and C. Andrew Buchner

2013 *Cultural Resources Investigations of the Dam 2 to Gillett 115kV Transmission Line Upgrades, Arkansas and Desha Counties, Arkansas*. Panamerican Consultants, Inc. Report No. 33063. Submitted to the GBMc & Associates. On-file at the Arkansas Archeological Survey as AMASDA Report 6452.

Appendix F

FERC Environmental Report dated August 4, 2017

AECC Response Letter dated October 6, 2017

ENVIRONMENTAL INSPECTION REPORT
(ELECTRONICALLY SUBMITTED)
FEDERAL ENERGY REGULATORY COMMISSION

ATLANTA REGIONAL OFFICE

	Date of Inspection	July 12, 2017	
Name	Dam No. 2 Project	**Project No.**	3033
Licensee	Arkansas Electric Cooperative Corp.	**License Type**	Major
License issued	August 10, 1983	**License Expires**	July 31, 2033
Location	Arkansas River **Waterway**		N/A **Reservation**
	Desha and Arkansas **County**		Arkansas **State**
Inspector	Kenneth Hodge and Stephen Byrne		

Licensee Representatives	Steve Metcalf, John Morgan
Other Participants	Representatives of the federal and state agencies were invited, but did not attend.

SUMMARY OF FINDINGS

This report covers conditions observed on the day of the inspection and the availability of recreational facilities, public safety signage and devices, and compliance with the environmental license requirements for the Dam No. 2 Hydroelectric Project.

- Flow information:
  - Inflow—31,400 cubic feet per second (cfs)
  - Outflow (at powerhouse with units full)—31,000 cfs

- Elevation information:
  - Pool 2 (impoundment)—162.39 feet mean sea level (msl)
  - Tailrace—133.07 feet msl
- Generation—61.1 megawatts (MW) total (Unit Nos. 1 and 3 only) (Rated 34.2 MW each, three units)

Based on file reviews, discussions, and field observations made during the inspection, the project was in overall compliance with the license articles related to fish and wildlife, recreation, public safety, and cultural resources. However, two follow-up items needing action were noted during the inspection and in the follow-up letter issued by the Federal Energy Regulatory Commission (Commission) on August 7, 2017. These items are summarized as follows:

1. Some public safety signs were missing during the inspection; however, the licensee stated that they had new signs but had not yet been installed in addition to spare signs to address any other missing signs. The licensee provided documentation that the signs were all in place within 2 days of the inspection. Therefore, we consider this matter to be closed and no further action is necessary.

2. The vehicular access road across the powerhouse to the east fishing access area parking lot was closed at the direction of the U.S. Army Corps of Engineers (Corps) after the 9/11 attacks. To comply with this direction, the licensee installed a barrier gate across the opening (see Photo 4 of this report). This modification was not reflected in the most recent Public Safety Plan (PSP) filed with the Commission on October 17, 2008.

Submitted August 4, 2017

Kenneth Hodge, PE
Sr. Civil Engineer
Louis Berger

A. PROJECT PROFILE

The Dam No. 2 Hydroelectric Project is located on the navigation Arkansas River upstream of its confluence with the Mississippi River. The project is located approximately 40 miles east of Pine Bluff, Arkansas. Two counties border the project area—Arkansas County lies north of the river, and Desha County lies south of the river. All phases of the project are confined to the south side of the river, next to the Corps gated spillway.

The Corps' Dam No. 2 is a project in the multiple-purpose plan for development of the lower Arkansas River basin in Arkansas, which was authorized by the River and Harbor Act of July 24, 1946. The approved plan provides for navigation, hydroelectric power, flood control and allied benefits.

Arkansas State Highway 1 borders the south side of the river from U.S. Route 165 to the dam and project powerhouse. The licensee and the Corps provide access from Arkansas State Highway 1 to the project works and public recreation areas.

Because the existing dam is owned by the Corps, it is not included in this license. The project works consist of: (1) a reinforced concrete powerhouse, 180 feet wide and 200 feet long, located 500 feet downstream from the centerline of the dam and containing three horizontal bulb-type turbines each rated at 36 MW at a net head of 42.5 feet and connected to three 34.2-MW synchronous generators; (2) headrace and tailrace channels; (3) 6.9-kilovolt (kV) generator leads; (4) three main step-up transformers; (5) a 11.5-mile-long, 115-kV transmission line; and (6) appurtenant mechanical and electric facilities and equipment.

The licensee operates the project as a run-of-river facility. Consequently, the project does not affect reservoir levels or river flows downstream of the project. When river flow is less than the minimum required plant flow, the units are shut down and all flows are used for either navigation or released through the spillway gates in accordance with the Corps' normal operating procedures. During periods when river flow is within the operating range of the power plant, all flows, excluding flows required for navigation, are diverted through the powerhouse. When river flow is greater than capacity of the power plant, excess flow is spilled.

The most recent project inspection was the dam safety inspection conducted on May 6, 2015 and the most recent environmental inspection was conducted on March 23, 2000.

B. INSPECTION FINDINGS

Requirements*	Date of Requirement	Follow-up Needed	Photo Nos.
FISH AND WILDLIFE RESOURCES			
Standard Article 8* Install and maintain gages and stream gages for measuring flow.	**O:** 8/10/83	No	--
Standard Article 15* Construct and maintain facilities for the conservation and development of fish and wildlife.	**O:** 8/10/83	No	--
Standard Article 16* Construction of fish and wildlife facilities by the United States on project lands.	**O:** 8/10/83	No	--
RECREATION RESOURCES			
Recreation signing and posting (Part 8 CFR)	**O:** 8/10/83	No	1, 2, 4, 5, 6, 7,
Standard Article 17* Construct, operate, and maintain recreational facilities.	**O:** 8/10/83	No	3, 4, 5, 6, 7, 8
Standard Article 18* Allow free public access to project waters and adjacent lands.	**O:** 8/10/83	No	3, 4, 5, 6, 7, 8
Article 51 Control of non-project use of project lands and waters.	**O:** 8/10/83	No	--
CULTURAL RESOURCES			
Article 50 Consultation with the State Historic Preservation Office (SHPO) prior to future construction and when new sites discovered.	**O:** 8/10/83	No	--
PUBLIC SAFETY			
Facilities and measures to ensure public safety (18 CFR, Part 12). PSP filed 10/17/2008.	**O:** 8/10/83	Yes	3, 4, 5, 6, 7, 8
Standard Article 12* Operations to protect life, health, property; to conserve and use waters for public benefit.	**O:** 8/10/83	No	3, 4, 5, 6, 7, 8
Standard Article 14* Structures and devices to reduce liability of contact between transmission lines and other wires or roads to assure safety.	**O:** 8/10/83	No	--
OTHER ENVIRONMENTAL RESOURCES			
Standard Article 19* Reasonable measures to prevent pollution, erosion, and sedimentation.	**O:** 8/10/83	No	--
Article 52 Maintain project clear of unused brush and refuge.	**O:** 8/10/83	No	--
Standard Article 21* Dredging and filling in to the satisfaction of the Corps.	**O:** 8/10/83	No	--

O: Order, 18 CFR: Title 18 Code of Federal Regulations; AP: Approved; AM: Amended; F: Filed

18 CFR Part 8: Title 18, Chapter I, Part 8, Section 8.2(a) of the Code of Federal Regulations (4/1/2004)

* Form L-6 Standard Articles for Unconstructed Major Projects Affecting Navigable Waters of the United States (Revised October, 1975).

C. COMMENTS AND FOLLOW-UP ACTION

Based on file reviews, discussions, and field observations made during the inspection, no items of noncompliance were found with the exception of the two follow-up items discussed above. The licensee was informed of these follow-up items on the day of inspection and in a follow-up letter issued on August 7, 2017.

(1) Fish and Wildlife Resources: The powerhouse is operated as a run-of-river unit and the licensee works with the Corps regarding the operation of the spillway gates. No threatened or endangered fish species have been identified as occurring in the project area by either the U.S. Fish and Wildlife Service or the Arkansas Game and Fish Commission. The license contains no special requirements for fish and wildlife resources. No follow-up action is required.

(2) Recreational Resources: Bank fishing occurs downstream of the powerhouse along the west tailrace shoreline and along the east embankment downstream of the west end of the dam. No specific requirements for public recreation, beyond the development of the fishing access, have been placed on the licensee.

The licensee's last FERC Form 80 filing for this project was in 2015 for the year 2014. No discrepancies were found with the information provided.

The project is subject to all sections of Part 8 of the Commission's regulations. A Part 8.2 sign is posted at the project on the road to the powerhouse.

Two fishing boats were observed—one downstream of the tailrace safety barrier and one downstream of the dam. No one was observed fishing from the fishing walkways at the time.

Public access and recreation needs appear to be met with the recreation facilities at and around the project. However, as discussed in the follow-up letter, it was noted that because vehicular access is no longer allowed to the east angler fishing area parking lot, the pedestrian access opening adjacent to the gate on the road leading to the east angling ramp and walkway does not permit wheelchair access. The licensee committed to modifying the opening to accommodate wheelchair access.

(3) Cultural Resources: No sites listed on the National Register of Historic Places are located within the vicinity of the project area or would be affected by operation of the powerhouse as reported in the licensee's application.

The Arkansas State Archeologist has identified four historical sites located in the vicinity of the project, none of which are eligible for National Register of Historic Places. No archeological sites are located in the vicinity of the project area.

Article 50 safeguards cultural resources at the project by requiring the licensee, prior to the commencement of any construction or authorization for development at the project, to cooperate with the Arkansas SHPO to design and carry out a study to identify, describe, and assess the significance of archeological resources within the project boundary. The licensee is aware of its consultation requirements under this article.

(4) Public Safety: The public safety devices include warning signs, chain-link fencing, handrails, a siren, a log/boat boom across the headrace channel, a floating cable line and buoys in the tailrace, and accessible fishing ramps and walkways on the west embankment of the tailrace and on the east shore downstream of the dam. The public safety measures in place at the site are adequate and appropriate under the conditions observed during the inspection. The licensee was requested to file a revised PSP within 60 days from the date of the August 7, 2017 follow-up letter.

(5) Other Environmental Resources: No areas of erosion were noted during the inspection. The project appeared to be well maintained and in good condition. No adverse impacts on the environment were reported during the reporting period and none were observed during the inspection.

A large mat of water hyacinth was observed floating in the headrace channel upstream of the powerhouse intake structure. The licensee noted that small mats of water hyacinth break loose from upstream coves during high-flow events and float down into the intake channel. The licensee periodically removes the mats from the intake area and disposes of them.

D. EXHIBITS AND PHOTOGRAPHS

The following location map and 10 photographs document the conditions observed during the inspection.

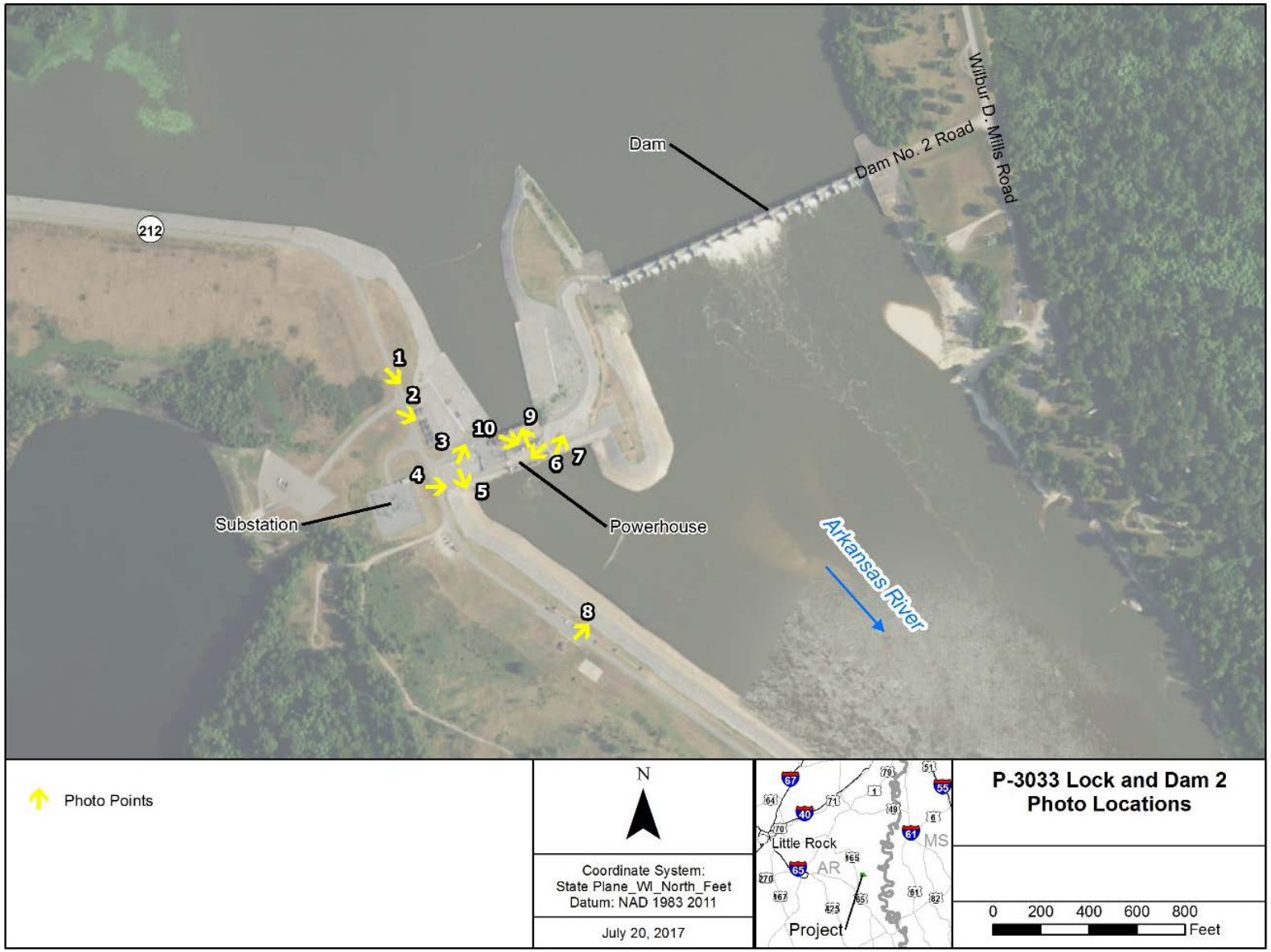


Figure 1. Project and photo location map for the Dam No. 2 Project, FERC No. 3033.

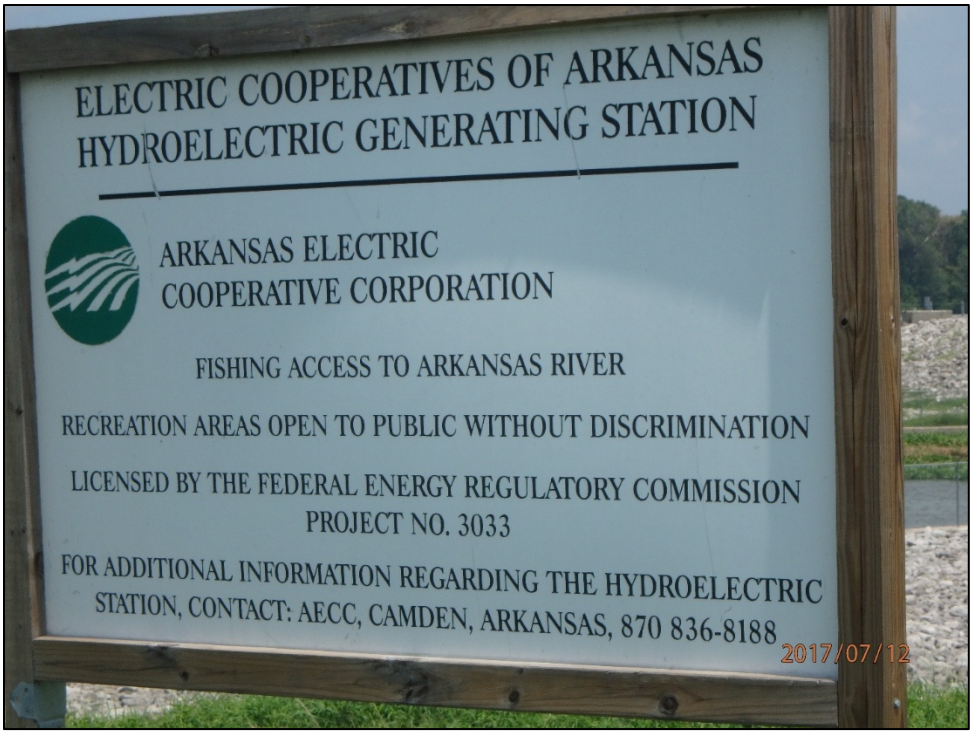


Photo 1. Part 8.2 sign at entrance to the Dam No. 2 Project.

Photo 2. View across headrace channel immediately upstream of the powerhouse showing a thick mat of floating water hyacinth in the headrace channel.

Photo 3. View across headrace channel toward the dam and spillway at far right. Boat barrier (background) at inlet to the headrace channel. Vegetation in headrace (far right) is water hyacinth that floated downstream from coves upstream of the dam.

Photo 4. View across dam that passes over the powerhouse. A pedestrian opening is adjacent to the right end of the vehicular gate that cannot accommodate wheelchair access to the barrier-free east angler access area on the other side of the powerhouse. The licensee committed to constructing a wheelchair access in that location.

Photo 5. View looking downstream from the powerhouse access road at the tailrace fishing access ramp and walkway. The project boundary follows the top of the riprapped area.

Photo 6. Typical high voltage warning signs near electrical equipment on powerhouse.

Photo 7. View looking along powerhouse access road to east angler access parking (left), ramp and walkway (center) with the Corps dam (background far left).

Photo 8. View from the stairs to tailrace fishing access walkway and across tailrace toward the Corps dam with the tailrace boat barrier (left). Accessible ramp is out of view (to left). Note fishing boat downstream of tailrace.

Photo 9. View inside of diesel generator fuel tank enclosure on top of powerhouse.

Photo 10. View inside of powerhouse showing Unit No. 2 undergoing rehabilitation.

Arkansas Electric Cooperative Corporation

Reliable • Affordable • Responsible

1 Cooperative Way
P.O. Box 194208
Little Rock, Arkansas 72219-4208
(501) 570-2200

September 6, 2017

Mr. Wayne B. King
Regional Engineer, Atlanta Regional Office
Federal Energy Regulatory Commission
3700 Crestwood Parkway, Suite 950
Duluth, Georgia 30096

Re: Ellis Hydroelectric Generating Station
Whillock Hydroelectric Generating Station
Dam No. 2 Hydroelectric Generating Station
FERC Project Numbers 3043, 3044 and 3033 - AR
Recommendation Responses from 2017 Environmental Inspections

Dear Mr. King:

The purpose of this letter is to address recommendations made in the letter of August 7, 2017 concerning the July 2017 Environmental Inspections of the Ellis, Whillock, and Dam 2 Hydroelectric Projects.

There were three (3) recommendations for follow-up actions made concerning the inspection of the Ellis (Lock and Dam 13) Project. The recommendations and a discussion of each are as follows:

1. The Sign #6 on the south tailrace fence that had incorrect wording has been replaced. A photograph of the new sign is attached to this letter.

2. The Sign #9 on the middle of the headrace log boom has been replaced. A photograph of the new sign is attached to this letter.

3. The Project Public Safety Plan (PSP) is being revised to include the chain barrier and warning sign on the esplanade slab. The revised PSP will be submitted as requested on or before October 6, 2017.

There were four (4) recommendations for follow-up actions made concerning the inspection of the Whillock (Lock and Dam 9) Project. The recommendations and a discussion of each are as follows:

4. The Sign #9 on the middle of the headrace log boom has been replaced. A photograph of the new sign is attached to this letter.

5. The Sign #17 at the middle of the south side of the south fishing access area parking lot has been replaced. A photograph of the new sign is attached to this letter.

6. The Sign #11 at the entrance of the project site has been replaced and now indicates a speed limit of 30. A photograph of the new sign is attached to this letter.

7. The opening against the powerhouse on the fence that extends upstream from the northwest corner of the powerhouse structure has been closed with an expanded metal barrier. A photograph of the new barrier is attached to this letter.

There were two (2) recommendations for follow-up actions made concerning the inspection of the Dam 2 Project. The recommendations and a discussion of each are as follows:

8. As stated, the signs missing during the inspections were installed immediately after the inspection and photos were provided to the inspector within 2 days of the inspection.

9. We are in process of modifying the barrier gate on the access road to the fishing area on the east side of the powerhouse to allow handicap access. The Project Public Safety Plan (PSP) will be revised to include the barrier gate. The revised PSP and a photograph showing the modified barrier gate will be submitted as requested on or before October 6, 2017.

If you have questions concerning these recommendations, please contact Rob Smith at 501 570-2603.

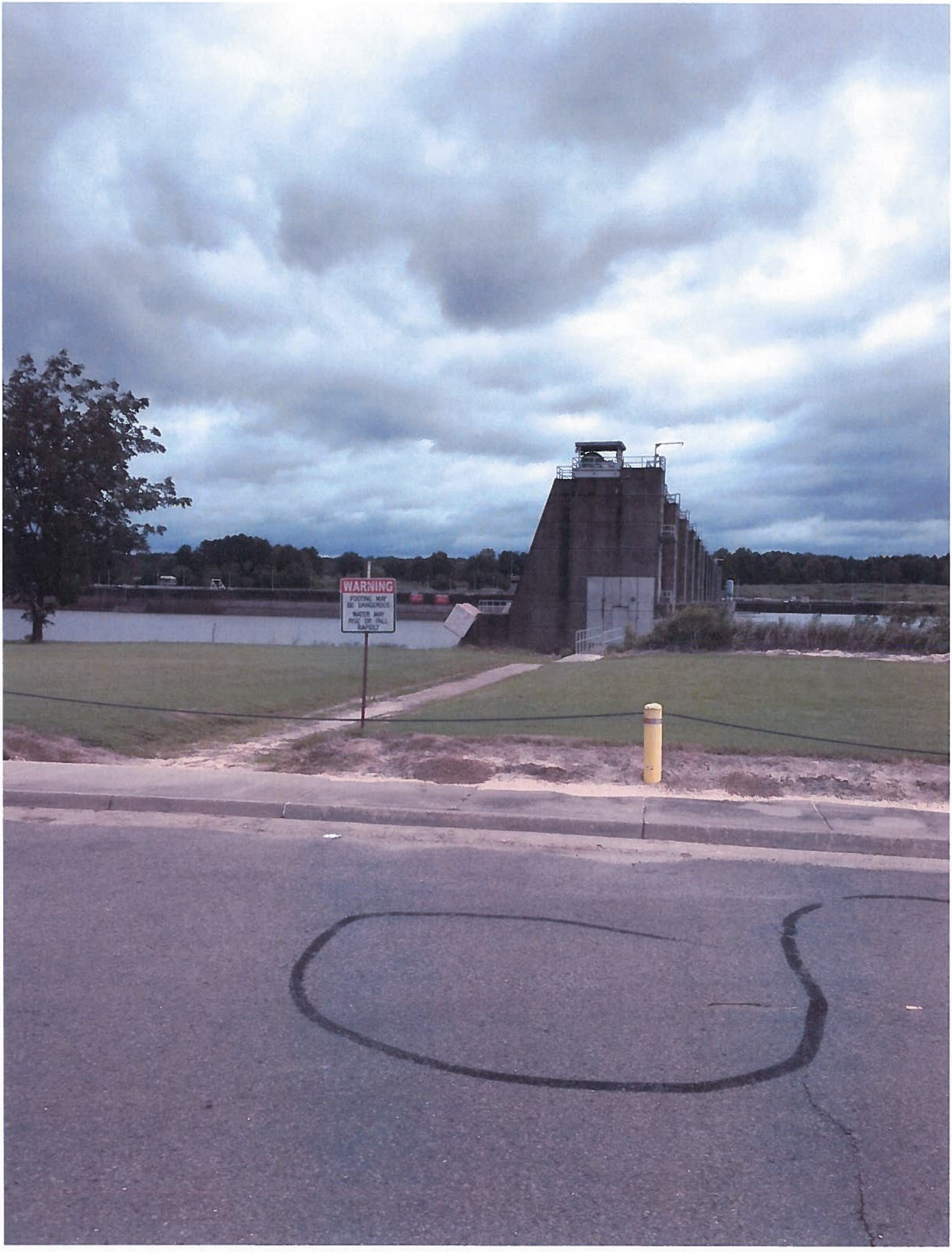
Sincerely,

Steve Metcalf, Vice President
Power Production and Delivery

xc: Lori Burrows
Rob Smith
Jimmy Fletcher
Dour Stracener
Rusty Collyer


WARNING
NO SWIMMING
NO SITTING OR
CLIMBING ON FENCE
NO BOATING THIS AREA
WATER MAY RISE
OR FALL RAPIDLY
FOOTING MAY BE
DANGEROUS


WARNING
DO NOT TIE BOAT TO LOG BOOM
NO BOATING DOWNSTREAM OF LOG BOOM
NO SWIMMING
HS 9 8/29


WARNING


SPEED
LIMIT
30

ATTACHMENT A

1981 WATER QUALITY CERTIFICATION

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE
LITTLE ROCK, ARKANSAS 72209

PHONE: (501) 562-7444

CERTIFICATE OF APPROVAL
No. 77

Date: November 4, 1981

Project Description: Seven lowhead hydropower plants on the Arkansas River at Lock and Dam Nos. 2,3,4,5,6,9, and 13.

Applicant: Mr. A. D. Wright
Arkansas Electric Cooperative Corporation
Post Office Box 9469
Little Rock, Arkansas 72219

The plans and information submitted for the above project have been reviewed and are approved by this office.

It is hereby certified that if any wastewaters are to be generated by this project, the same will receive adequate treatment prior to discharge into a surface waterway in accordance with applicable water quality standards of the state.

This certification is issued in reliance upon the statements, representations and information submitted to this Department. If required, this agency will inspect any wastewater treatment facilities involved in this project at least annually for the first three (3) years after completion of construction and periodically thereafter.

This certification is subject to all of the following conditions:

(1) Best management practices are followed to prevent erosion from the spoils disposal areas and the transmission line corridors.

Sincerely,

Mac Faulkner
Engineer
Permits Branch

MF/mlw

cc/ Arkansas Department of Health
Arkansas Department of Local Services
State Clearinghouse
Gary W. Hunt, Benham-Holway Power Group
5300 South Yale Avenue
Tulsa, Oklahoma 74135

RECEIVED
NOV 9 1981

ATTACHMENT B

1994 WATER QUALITY CERTIFICATION

Elaine

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 8913
LITTLE ROCK, ARKANSAS 72219-8913
PHONE: (501) 562-7444
FAX: (501) 562-4632

June 1, 1994

Colonel David R. Ruf
District Engineer
Little Rock District Corps of Engineers
P. O. Box 867
Little Rock, Arkansas 72203-0867

RE: **Public Notice No. 11573**

Dear Colonel Ruf:

The Arkansas Department of Pollution Control and Ecology has completed its review of the above referenced permit for **Arkansas Electric Cooperative Corporation** to fill 23.6 acres of wetlands at Wilbur D. Mills Dam on the Arkansas River in Arkansas and Desha Counties for the construction of a hydroelectric project.

The Department has determined there is a reasonable assurance this activity will be conducted in a manner which, according to the Department's Regulation No. 2, will not physically alter a significant segment of a waterbody and will not violate the water quality criteria.

Pursuant to §401(a)(1) of the Clean Water Act, the Arkansas Department of Pollution Control and Ecology hereby issues water quality certification for this project unless a Commission review has been properly requested under Section 4, Part III, of Regulation No. 8, Administrative Procedures, within thirty (30) days after service of this decision.

All persons submitting written comments during this 30 day period, and all other persons entitled to do so, may request an adjudicatory hearing and Commission review on whether the decision of the Director should be reversed or modified. Such a request shall be in the form and manner required by Section 4, Part III, of Regulation No. 8.

Sincerely,

for Randall Mathis
Director

cc: Norm Thomas
J. Randy Young
Dave Criner
Arkansas Electric Cooperative Corporation

ATTACHMENT C

FERC LICENSE P-3033

Environmental Impacts

Construction of recreational facilities at the project would result in increased sedimentation, noise and air pollution, and vegetation damage. These impacts will be short-term and minor, and be limited to the construction period. Increased recreational use may result in impacts on vegetation, soils and wildlife. However, management plans will be implemented to minimize such impacts.

For the above reasons, it is concluded that approval of the application will not constitute a major Federal action significantly affecting the quality of the human environment.

It is ordered that:

(A) The Report on Recreational Resources consisting of pages 25 through 46 inclusive, filed on September 1, 1982, and the following drawings are approved and made a part of the license for Project No. 400:

Drawing	*FERC No. 400-*	*Showing*
Recreation Plan (1 of 2)	97	Proposed Recreational Facilities-Tacoma
Recreation Plan (2 of 2)	98	Proposed Recreational Facilities-Tacoma
Recreation Plan	99	Proposed Recreational Facilities-Ames

(B) The following articles are added to the license for FERC Project No. 400:

Article 41. Licensee shall commence construction of the recreational facilities within 1 year from the date of issuance of this order. Also, Licensee shall, in consultation with the Forest Service of the U.S. Department of Agriculture, the Colorado Division of Wildlife, the Electra Sporting Club, and any other appropriate agency, establish a test period for implementation of the recreational use management plan at the Tacoma Development. The test period may extend over three full recreation seasons, but not beyond 4 years from the date of issuance of this order. During this period Licensee, upon agreement by the consulted agencies, may, for testing purposes, depart from the approved recreational use management plan contained within the Report on Recreational Resources in such ways as may be necessary to ensure that the most appropriate means to achieve the goals and objectives with respect to public access and resource protection are instituted. At the end of the test period, Licensee shall file with the Commission a report on the results of the testing, to include the comments of the consulted agencies, and for Commission approval, any revisions of the Report on Recreational Resources that may be indicated.

Article 42. Licensee shall, in cooperation with the Fish and Wildlife Service of the U.S. Department of the Interior and the Colorado Division of Wildlife, develop a management plan for the protection of raptors from adverse impacts that may be caused by increased recreational use at the project. Licensee shall, within 1 year from the date of issuance of this order, file a copy of the plan with the Commission along with the comments of the cooperating agencies.

(C) The Licensee's failure to file a petition appealing this order to the Commission shall constitute acceptance of this order. In acknowledgment of acceptance of this order and its terms and conditions, it shall be signed by the Licensee and returned to the Commission within 60 days from the date this order is issued.

— Footnote —

[1] Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under § 375.308 of the Commission's regulations, 18 C.F.R. § 375.308 (1982). This order may be appealed to the Commission within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. § 385.1902, 47 Fed. Reg. 19014 (1982). Filing an appeal and final Commission action on that appeal are prerequisites for filing an application for rehearing as provided in Section 313 (a) of the Act. Filing an appeal does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically directed by the Commission.

[¶ 62,160]

Arkansas Electric Cooperative Corporation, Riceland Electric Cooperative, Inc. and C&L Electric Cooperative, Inc., Project No. 3033-001

Order Issuing License (Major)

(Issued August 10, 1983)

Lawrence R. Anderson, Director, Office of Electric Power Regulation.

On April 19, 1982, Arkansas Electric Cooperative Corporation, Riceland Electric Cooperative, Inc., and C&L Electric Cooperative, Inc. (Applicants) filed an application for a license, under Part I of the Federal Power Act (Act), for Dam No. 2 Hydropower Project No. 3033-001. The project would utilize the water power potential of an existing U.S. Army Corps of Engineers (Corps) dam. [1] The project would be located on the Arkansas River at Dam No. 2 about 15 miles southwest of Dumas, in Desha and Arkansas Counties, Arkansas. The Arkansas River was declared to be a navigable waterway of the United States in 1923 when the Carpenter-Remmel Project No. 271 was first licensed.

The Corps' Dam No. 2 consists of overflow and non-overflow embankment sections and a gated spillway 1,130 feet in length with a maximum height of 54 feet. The spillway is controlled by sixteen 30-foot-high by 60-foot-wide conventional Taintor gates. The non-overflow embankment is 3,150 feet in length with a crest elevation at 180 feet mean sea level (m.s.l.). Dam No. 2 creates a reservoir with a normal surface area of 10,560 acres at 162 feet m.s.l.

The new project facilities would consist of a powerhouse, a headrace channel, a tailrace channel, three turbines each with a rated capacity of 40 MW, and a 230-kV transmission line approximately 11.5 miles long. The project would be operated as run-of-river. The project is more fully described in Ordering Paragraph (B).

Public Notice

Notice of the application has been published and comments have been received from interested Federal, State and local agencies. No protest has been received and no agency has objected to issuance of the license. The Arkansas Public Service Commission was granted intervention. It wanted to be informed regarding the proceeding. Significant comments are also discussed below.

Compliance with Federal Statutes

The U.S. Fish and Wildlife Service (FWS) and the Arkansas Game and Fish Commission (AGFC) informed the Applicants that the proposed project would have no significant impact on federally listed threatened or endangered species.

Four historical sites are known to be located in the project area; none are eligible for the *National Register of Historic Places*. These sites include a twentieth century tenant house site with no structure remaining, located within the 100-foot-wide transmission line corridor. No archeological sites are known to exist in the project impact areas. The Applicants received a water quality certificate on November 4, 1981, from the Arkansas Department of Pollution Control and Ecology.

Historical and Archeological Resources

The U.S. Department of the Interior (Interior) recommended that the application be supplemented to: (1) describe the results of an archeological survey; (2) include the comments of the SHPO on the survey; and (3) describe any necessary mitigation measures. The Applicants, in consultation with the National Park Service, the Arkansas State Archeologist, and the Arkansas State Historic Preservation Officer, have agreed to conduct, prior to any construction, an archeological survey of all areas that would be affected by the proposed project, and subsurface tests in impact areas in which soils and topography suggest the possibility of buried sites.

It is concluded that measures should be undertaken to inventory and protect archeological sites within the project impact areas. Undiscovered historic sites may also be present in these areas, and requirements to inventory and protect these sites are also being included. Special Article 50 will safeguard any cultural resources at the project.

Recreational Development

Interior recommended that the Applicants conduct an analysis to determine if there is a need for additional recreational facilities and be responsible not only for the cost of relocation of part of Pendleton Bend Park, but for developing additional recreation facilities if a demonstrated need exists. The Applicants have proposed in their recreational report to replace in kind the park facilities that would be disrupted by the Applicants' project.

The Report on Recreational Resources provides for the existing recreational needs for the project and is approved herein. License Article 17 provides for future additional recreation development, if there is a demonstrated need.

Land Management and Aesthetics

The transmission line would be routed the shortest distance feasible through bottomland hardwoods and avoid, wherever feasible, the small stands of trees scattered throughout the agricultural fields. The Corps recommended that in order to minimize any adverse impacts, the transmission corridor route selection, clearing design, and maintenance plan should be prepared by a team which includes a wildlife biologist and a landscape architect.

Article 33 requires, among other things, that transmission corridors be designed, constructed, and maintained in accordance with the Commission's guidelines and other recognized guidelines which would, in turn, provide for wildlife and visual protection as recommended by the Corps.

Environmental Impacts

Approval of this application would not result in any significant adverse long-term environmental impacts. Construction activities would produce some temporary adverse impacts, such as dust and noise from vehicles and machinery, a small amount of turbidity and sedimentation in the Arkansas River at the powerhouse site, and the disturbance of some vegetation in the transmission line corridor. Applicants' proposed mitigative measures should ensure that these impacts are relatively minor in scope and temporary in duration.

On the basis of the record and the Staff's independent analysis, it is concluded that issuance of a license for the project, as conditioned, would not constitute a major Federal action significantly affecting the quality of the human environment.

Safety, Comprehensive Development, Economic Feasibility and Annual Charges

The proposed project will include a headrace channel, powerhouse and tailrace channel. Operation of the project would not alter the river flow regime or the Corps' current operating procedures.

In response to comments submitted by the Corps, Article 43 is included requiring the Licensees to evaluate the adequacy of the powerhouse location prior to preparation of plans and specifications. Other recommended articles require that final design and construction be reviewed and approved by the Corps (Articles 40 and 44), an independent board of consultants (Article 49) and the Commission staff (Article 39). It is concluded that the project will be safe and adequate upon compliance with the license articles.

The project would have an installed capacity of 120,000 kW and generate an estimated average 340,000,000 kWh of energy annually. [2] Power generated by the project would be utilized by the Applicants. The project is economically feasible based on the estimated cost of producing an equivalent amount of energy from a coal-fired steam electric plant.

Section 10(e) of the Act [3] requires the Commission to fix a reasonable annual charge to be paid to the United States for the use of a government dam. The Commission issued on March 31, 1983, a proposed rulemaking, RM83-13-000 [*FERC Statutes and Regulations* ¶ 32,310], reassessing comprehensively the subject of suitable annual charges for use of government dams and other facilities, for the purpose of making recommendations to the Commission for any appropriate changes in its policies and regulations. Consequently, a final determination on the annual charges for the use of these Federal facilities will be reserved. Article 42 provides for a future determination of the annual charge.

The project will make good use of the flow and fall of the Arkansas River, and is not in conflict with any planned or authorized development. It will be best adapted to the comprehensive development of the Arkansas River for beneficial public uses under present conditions, upon compliance with the terms and conditions of the license.

It is ordered that:

(A) This license is issued to the Arkansas Electric Cooperative Corporation, the Riceland Electric Cooperative, Inc., and the C&L Electric Cooperative, Inc. (Licensees), under Part I of the Federal Power Act (Act), for a period of 50 years, effective the first day of the month in which this order is issued, for construction, operation and maintenance of the Dam No. 2 Hydropower Project No. 3033, located on the Arkansas River, a navigable waterway of the United States, in Desha and Arkansas Counties, Arkansas. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The Dam No. 2 Hydropower Project No. 3033 consists of:

(1) all lands, to the extent of the Licensees' interests in those lands, constituting the project area and enclosed by the project boundary. The project area and boundary are shown and described by certain exhibits that form part of the application for license and that are designated and described as:

Exhibit	*FERC No. 3033-*	*Showing*
G, Sheet 1	6	Location Map
G, Sheet 2	7	Project Boundary Map
G, Sheet 3	8	Transmission Corridor

(2) project works consisting of: (1) a reinforced concrete powerhouse, 190 feet wide by 250 feet long, located 500 feet downstream from the centerline of the dam and containing three horizontal shaft 40.0-MW turbine/generator units operating under a maximum power head of 44.5 feet; (2)

headrace and tailrace channels; (3) the 6.9-kV generator leads; (4) the three main step-up transformers; (5) a 230-kV transmission line 11.5 miles long; and (6) appurtenant mechanical and electrical facilities and equipment.

The location, nature, and character of these project works are generally shown and described by the exhibits cited above and more specifically shown and described by certain other exhibits that also form a part of the application for license and that are designated as:

Exhibit A, Section	*Title*
Sheet 3	Turbine Generation
Sheet 4	Transmission Line
Sheet 5	Additional Mechanical and Electric Equipment

Exbitit E—Pages E-33 through E-36, Titled *Report on Recreational Resources,* filed April 19, 1982.

Exhibit A, Section	*FERC No. 3033-*	*Title*
Sheet 1	1	Site Plan
Sheet 2	2	Powerhouse Section
Sheet 3	3	Powerhouse Plan
Sheet 4	4	Powerhouse Plan
Sheet 5	5	Channel Profile & Section

(3) all of the structures, fixtures, equipment, or facilities used or useful in the operation or maintenance of the project and located within the project boundary, all portable property that may be employed in connection with the project, located within or outside the project boundary, as approved by the Commission, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, E, F and G, designated in Ordering Paragraph (B) above, are approved and made a part of the license.

(D) This license is also subject to Article 1 through 37, except Article 20, set forth in Form L-6 (revised October 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Navigable Waters and Lands of the United States", attached to (reported at 54 FPC 1842) and made a part of this license. The license is also subject to the following additional articles:

Article 38. The Licensees shall commence construction of the proposed project within 2 years of the date of issuance of the license and, in good faith and with due diligence, shall complete construction within 5 years from the date of issuance of the license.

Article 39. The Licensees shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, and the Corps of Engineers one copy each of the final contract drawings, specifications and final design report for pertinent features of the project, such as intake structure, at least 60 days prior to start of construction. The Director, Office of Electric Power Regulation, may require changes in the plans and specifications to assure a safe and adequate project.

Article 40. The Licensees shall review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of cofferdams and deep excavations are consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the Licensee shall file with the Commission's Regional Engineer, Director, Office of Electric Power Regulation, and the Corps of Engineers one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 41. The Licensees shall have no claim under this license against the United States arising from the effect of any changes made in the operation or reservoir levels at Dam No. 2.

Article 42. The Licensees shall pay the United States for the following annual charges effective the first day of the month in which this license is issued:

(a) For the purpose of reimbursing the United States for the cost of Administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for such purposes is 160,000 horsepower.

(b) For the purpose of recompensing the United States for utilization of surplus water or water power from the Government dam, an amount to be hereafter determined by the Commission.

Article 43. The Licensees shall consult with the Corps of Engineers concerning the type and extent of geological investigations, material tests and model tests needed to determine the best location for the powerhouse. Based on the results of these investigations, the Licensees shall prepare a report evaluating the feasibility of constructing the powerhouse either at the proposed location or an alternative location. Copies of the report shall be submitted to the Little Rock District of the Corps of Engineers Fort Worth Regional Office, and Director, Office of Electric Power Regulation. Contract drawings and specifications shall not be prepared until the powerhouse location has been accepted by the

Corps and approved by the Director, Office of Electric Power Regulation.

Article 44. The design and construction of those facilities that would be an integral part of, or that could affect the structural integrity or operation of Dam No. 2 shall be done in consultation with and subject to the review and approval of the Corps' District Engineer, Little Rock, Arkansas.

Article 45. The Licensees shall enter into an agreement to coordinate their plans with the U.S. Army Corps of Engineers (Corps) for access to and site activities on lands and property administered by Corps so that the authorized purposes, including operation of the Federal facilities, are protected. In general, the agreement shall not be redundant with the Commission's requirements contained in this license and shall identify the facility, and the study and construction activities, as applicable, and terms and conditions under which studies and construction will be conducted. The agreement shall be mainly composed of the following items: (1) Reasonable arrangements for access to the Corps site to conduct studies and construction activities, such access rights to be conditioned by the Corps as may be necessary to protect the federally authorized project purposes and operations; (2) charges to be paid by the Licensees to the Corps (a) for technical studies by the Corps that relate solely to the structural integrity or operation of the Corps dam, and (c) for construction cost that may be incurred by the Corps for the specific and sole purpose of accommodating the installation of power facilities at the existing Corps dam; and (3) charges to be paid by Licensees to the Corps for copies of reports, drawings and similar data based on printing and mailing costs, provided that charges shall not be assessed for information, services, or relationships that would normally be provided to the public. Should the Licensees and the Corps fail to reach an agreement, the Licensees shall refer the matter to the Commission for resolution.

Article 46. The Licensees shall within 90 days of completion of construction file in accordance with the Commission's rules and regulations revised Exhibits A and F to describe and show the project as-built.

Article 47. The construction, operation and maintenance of the project works that, in the judgment of the U.S. Corps of Engineers, Little Rock District, may affect the structural integrity or operation of the Corps' project shall be subject to periodic or continuous inspections by the Corps. Any construction, operation or maintenance deficiencies or difficulties detected by the Corps inspection will be immediately reported to the Regional Engineer. Upon review, the Regional Engineer will refer the matter to the Licensees for appropriate action. The Corps inspector will report to the Regional Engineer the need to stop construction, operation or maintenance while awaiting resolution of construction, operation or maintenance deficiencies or difficulties if such deficiency or difficulty would affect the structural integrity of the Corps project. In cases when construction, operation or maintenance practice or deficiency may result in an emergency situation causing imminent danger to the structural integrity and safety of the Corps project, the Corps inspector has the authority to stop construction, operation or maintenance while awaiting the resolution of the problem.

Article 48. The Licensees shall, prior to commencement of operation, enter into a memorandum of agreement with U.S. Corps of Engineers, Little Rock District, describing the mode of hydropower operation acceptable to the Corps. The Regional Engineer shall be invited to attend meetings regarding the agreement. The memorandum of agreement shall be subject to revision of mutual consent of the Corps and the Licensees as experience is gained by actual project operation. Should the Corps fail to reach an agreement with the Licensees, the matter will be referred to the Director, Office of Electric Power Regulation, for resolution. Copies of the signed memorandum between the Corps and the Licensees and any revision thereof shall be furnished to the Director, Office of Electric Power Regulation, and the Regional Engineer.

Article 49. The Licensees shall retain a Board of three or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Office of Electric Power Regulation (OEPR), for approval, with a copy to the Commission's Regional Engineer. Among other things, the Board shall assess the geology of the project site and surroundings; the design, specifications, and construction of the powerhouse, power channel, embankment, pile foundation and electrical and mechanical equipment, and emergency power supply; instrumentation; and construction procedures and progress. The Licensees shall furnish to the Board, with a copy to the Regional Engineer and two copies to the Director, OEPR, prior to each meeting, allowing sufficient time for review, documentation showing details and analyses of design and construction features to be discussed, significant events in design and construction that have occurred since the last Board of Consultants meeting, drawings,

questions to be asked, a list of items for discussion, an agenda, and a statement indicating the specific level of review to be performed by the Board. Within 30 days after each Board of Consultants meeting, the Licensees shall submit to the Commission copies of the Board's report and a statement of intent to comply with the Board's recommendations, or a statement identifying a plan to resolve the issue(s). In the event of noncompliance, the Licensees shall provide detailed reasons for not doing so. The Board's review comments for each portion of the project shall be submitted prior to or simultaneously with the submission of the corresponding Exhibit F final design drawings and design memoranda. The Licensees shall also submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's opinion with respect to the construction, safety, and adequacy of the project structure(s).

Article 50. The Licensees shall, prior to the commencement of any construction or development at the project, consult with the Arkansas State Historic Preservation Officer (SHPO) and the Arkansas State Archeologist (ASA) to design and carry out a survey to identify, describe, and assess the significance of archeological and historical resources within the project impact areas. The survey shall be conducted in a manner satisfactory to the SHPO and the ASA, and each site or property identified during the survey shall be conducted in a manner satisfactory to the SHPO and the ASA, and each site or property identified during the survey shall be evaluated according to the *National Register of Historic Places'* eligibility criteria. Following the completion of the survey, the Licensees shall file a report with the Commission, the SHPO, and the ASA describing the nature and extent of the work performed, summarizing the findings and eligibility evaluations related to archeological and historical resources, and recommending measures for the protection of any significant sites or properties. If the survey identifies significant archeological or historical resources that will be adversely affected by project construction or operation, the Licensees shall cooperate with the SHPO and the ASA to develop an appropriate mitigation plan. Prior to the execution of any mitigation work, the Licensees shall file for Commission approval a plan detailing the extent of the mitigation work to be accomplished, and the amount of funding the Licensees propose to make available for such work. If any previously unrecorded archeological or historical sites are discovered during the course of construction or development of any project works or other facilities at the project, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensees shall consult with the SHPO and the ASA to develop and execute a mitigation plan for the protection of significant sites and shall inform the Commission of these activities.

The Licensees shall provide funds in a reasonable amount for any archeological and historical work as required. If the Licensees and the SHPO and the ASA cannot agree on the amount of money to be expended on archeological or historical work related to the project, the Commission reserves the right to require the Licensees to conduct, at their own expense, any such work found necessary.

Article 51. (a) In accordance with the provisions of this article, the Licensees shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without prior Commission approval. The Licensees may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensees shall also have continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to monitor the use of, and to ensure compliance with the covenants of the instrument of conveyance for any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensees for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the Licensees may grant permission without prior Commission approval are: (1) landscape plantings; (2) noncommercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time where said facility is intended to serve single-family type dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control

to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensees shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensees shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable State and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensees shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensees may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensees' costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensees may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary State and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the Licensees shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensees may convey fee titles to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary State and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters for which all necessary Federal and State water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary for which all necessary Federal and State approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the Licensees must file a letter to the Director, Office of Electric Power Regulation, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or State agency official consulted, and any Federal or State approvals required for the proposed use. Unless the Director, within 45 days from the filing date, require the Licensees to file an application for prior approval, the Licensees may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

(1) Before conveying the interest, the Licensees shall consult with Federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the Licensees shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the Licensees to take reasonable remedial action to correct any violation of the terms and conditions of this article for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

Article 52. The Licensees shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which result from maintenance, operation, or alteration of the project works. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 53. Pursuant to Section 10(d) of the Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the Licensees' long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

(E) The Licensees' failure to file a petition appealing this order to the Commission shall constitute acceptance of this license. In acknowledgment of acceptance of this order and its terms and conditions, it shall be signed by the Licensees and returned to the Commission within 60 days from the date this order is issued.

— Footnotes —

[1] Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under § 375.308 of the Commission's regulations, 18 C.F.R. § 375.308 (1982), *FERC Statutes and Regulations* ¶ 30,238. This order may be appealed to the Commission by any party within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. § 385.1902, *FERC Statutes and Regulations* ¶ 29,052, 47 Fed. Reg. 19014 (1982). Filing an appeal and final Commission action on that appeal are prerequisites

for filing an application for rehearing as provided in Section 313(a) of the Act. Filing an appeal does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically directed by the Commission.

[2] Equivalent energy production using fossil fuels would consume 558,000 barrels of oil or 157,400 tons of coal.

[3] 16 U.S.C. § 803(e).

[¶ 62,161]

Arkansas Electric Cooperative Corporation, Riceland Electric Cooperative, Inc. and C&L Electric Cooperative, Inc., Project No. 3034-001

Order Issuing License (Major)

(Issued August 10, 1983)

Lawrence R. Anderson, Director, Office of Electric Power Regulation.

Arkansas Electric Cooperative Corporation, Riceland Electric Cooperative, Inc., and C&L Electric Cooperative, Inc. (Applicants) filed on May 18, 1982, an application for a license under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Lock and Dam No. 3 Hydropower Project No. 3034-001. The project would utilize the water power potential of an existing U.S. Army Corps of Engineers (Corps) dam. [1] The project would be located on the Arkansas River at Dam No. 3 about 29 miles east of Pine Bluff, in Jefferson and Lincoln Counties, Arkansas. The Arkansas River was first declared to be a navigable waterway of the United States in 1923 when the Carpenter-Remmel Project No. 271 was first licensed.

Lock and Dam No. 3 is owned by the United States, and operated and maintained by the Corps as part of the McClellan-Kerr Navigation System. Existing features at Lock and Dam No. 3 include: (1) a 1,260-foot-long gated spillway flanked by 960-foot-long and 4,300-foot-long overflow embankments; (2) a 3,670-acre reservoir with no storage capacity above the normal navigation level; (3) a navigation lock; and (4) Huff's Island Park, a 71-acre recreation area developed and operated by the Corps.

The proposed project would consist of: (1) new headrace and tailrace channels; (2) a new powerhouse; and (3) new generator leads and transformers. The project would operate as a 48-megawatt capacity, run-of-the-river, hydroelectric facility using water not required for navigation that currently flows through the spillway gates. Because the proposed project would be built at the site of existing recreational facilities, the Applicants propose to construct new recreation facilities to replace those displaced by the project. No other new construction is proposed. The project would occupy approximately 49 acres of government land.

Public Notice

Notice of the application has been published and comments have been received from interested Federal, State and local agencies. No protest has been received and no agency has objected to issuance of the license. The Arkansas Public Service Commission was granted intervention. It wanted to be informed regarding the proceeding. The concerns raised by the Arkansas Public Service Commission in its motion to intervene are addressed below. Significant comments are also discussed below.

Compliance with Federal Statutes

A water quality certificate was issued by the Arkansas Department of Pollution Control and Ecology on November 4, 1981. The U.S. Fish and Wildlife Service (USFWS) and the Arkansas Game and Fish Commission (GFC) informed the Applicants that the proposed project would not affect any federally listed threatened or endangered species. There are no historic, architectural, or archeological structures or sites within the project impact areas that have been listed or determined eligible for listing in the *National Register of Historic Places.* There are no areas in or near the proposed project boundary that are included in, or have been designated for study for inclusion in, the National Wild and Scenic Rivers System, or that have been designated as wilderness study areas under the Wilderness Act.

Recreational Resources

The Corps commented that the Applicants' proposal for recreational development at Huff's Island Park is incomplete and should include specific measures for mitigating the loss of future facilities that may be precluded by project construction as well as existing facilities that would be adversely affected. The Corps also stated that consideration should be given to

ATTACHMENT D

OPERATIONS AGREEMENT

P-3033

DEPARTMENT OF THE ARMY
SOUTHWESTERN DIVISION, CORPS OF ENGINEERS
1114 COMMERCE STREET
DALLAS, TEXAS 75242-0216

REPLY TO ATTENTION OF:

February 25, 1999

ORIGINAL

Directorate of Engineering
and Technical Services

SUBJECT: Memorandum of Agreement Establishing Procedures for Hydropower Operation at Wilbur D. Mills Dam

Mr. Gary C. Voigt
President/CEO
Arkansas Electric Cooperative Corporation
8000 Scott Hamilton Drive
P.O. Box 194208
Little Rock, Arkansas 72219

Dear Mr. Voigt:

We are pleased to provide two signed originals of the subject operating agreement. We expect that our partnership will continue to provide many mutual benefits.

Please refer any questions to Mr. Patrick Evermon, (214) 767-2370.

Sincerely

Edwin J. Arnold, Jr. 25Feb99
Brigadier General, U.S. Army
Commanding General

Enclosures

Copies Furnished:

Federal Energy Regulatory Commission
CESWL-OP-R

9903220217-3

UNITED STATES

DEPARTMENT OF THE ARMY

LITTLE ROCK DISTRICT, SOUTHWESTERN DIVISION, CORPS OF ENGINEERS

WILBUR D. MILLS DAM, ARKANSAS RIVER, ARKANSAS

MEMORANDUM OF AGREEMENT
ESTABLISHING PROCEDURES FOR HYDROPOWER OPERATION
BY ARKANSAS ELECTRIC COOPERATIVE CORPORATION AT
WILBUR D. MILLS DAM, ARKANSAS RIVER, ARKANSAS
PURSUANT TO FEDERAL ENERGY REGULATORY COMMISSION
MAJOR LICENSE EXISTING DAM
FERC PROJECT NO. 3033

THIS MEMORANDUM OF AGREEMENT, hereinafter referred to as the "Agreement," entered into and effective this 25 day of February 1999, between the UNITED STATES OF AMERICA, hereinafter referred to as the "Government", acting through the Department of the Army, Corps of Engineers, hereinafter referred to as the "Corps," and the Arkansas Electric Cooperative Corporation, acting by and through its Board of Directors, hereinafter referred to as the "Licensee."

WHEREAS, the Licensee filed a license application on April 19, 1982, and was issued a license, hereinafter referred to as the "License", on August 10, 1983, by the Federal Energy Regulatory Commission, hereinafter referred to as "FERC," to construct, operate, and maintain Project No. 3033, hereinafter referred as the "Hydropower Project", at Wilbur D. Mills Dam, located on the Arkansas River near Dumas, Arkansas, approximately 2.2 miles downstream of the mouth of the Arkansas Post Canal at Navigation Mile 19.0; and,

WHEREAS the Corps, acting through its Little Rock District (the District) or other elements, is responsible for operation of the Arkansas River navigation system, including operation of the Wilbur D. Mills Dam and its impoundment, Pool No. 2, as well as preservation of the dam's integrity; and,

WHEREAS the Hydropower Project, described in the License, includes three 36,000 KW horizontal-shaft, bulb-type hydroelectric generating units, and outdoor-type substation located on the powerhouse roof to step-up the generated voltage to 115 KV before the electricity enters the switching station west of the powerhouse; and

WHEREAS, on April 26, 1994, the Corps and the Licensee entered into a Memorandum of Agreement for establishing Procedures for Access and Site Activities (Site Access Agreement) defining permanent easements and maintenance procedures for the Hydropower Project; and

WHEREAS, Article 48 of the License requires the Licensee to enter into a memorandum of agreement with the Corps, prior to commencement of operation of the Hydropower Project, describing the mode of hydropower operation acceptable to the Corps;

NOW, THEREFORE, the parties agree to the following:

ARTICLE 1

OPERATIONAL REQUIREMENTS

Section A. General

1. The Corps is, and shall remain, responsible for development and revision of the Water Control Plan and Water Control Manual for Wilbur D. Mills Dam and Pool No. 2. The Corps is responsible for providing the Licensee copies of the current Water Control Plan and Water Control Manual, and revisions as they are adopted. The Licensee shall operate the Hydropower Project in accordance with the License, the terms of this Agreement, and the Water Control Plan for Wilbur D. Mills Dam.

2. The Licensee shall operate the Hydropower Project at all times in such manner as deemed necessary by the Corps to ensure that navigation and all other federal purposes, interests, and responsibilities will be protected. The Licensee recognizes that navigation is the primary purpose of Wilbur D. Mills Dam. If the Corps determines that a situation exists which threatens navigation or other federal purposes, interests, or responsibilities, the Licensee agrees to immediately follow the Corps' directives and/or instructions received through the Corps' Lockmaster or its chain of command for water management pertaining to the operation of the Hydropower Project.

3. The Licensee agrees to integrate the operation of the Hydropower Project into the Corps' emergency action plan.

Section B. Specific Operational Details

1. Under this Agreement, the Hydropower Project shall be operated as a run-of-river project (no dedicated storage for hydropower operations at Wilbur D. Mills Dam), and in coordination with Wilbur D. Mills Dam. Releases from the Hydropower Project will be in conformance with instructions and criteria established on a real-time basis by the Corps acting through its Lockmaster or its chain of command for water management.

2. During normal operation, the Hydropower Project will generate with one, two, or three units up to 24 hours per day when available river flows exist. All of the following flows are approximate. The flow range during which generation is possible is from 4,000 cfs (minimum turbine discharge) to 200,000 cfs (flow at which units are shut down due to insufficient operating head). River flows from 4,000 cfs to 53,400 cfs (Hydropower Project maximum discharge capacity) normally will be passed through the powerhouse but may be passed through either, neither, or both the powerhouse and Wilbur D. Mills Dam in a coordinated effort, as the Corps deems appropriate. It shall be the responsibility of the Licensee to assure release rates are made as set by the Corps. The Licensee shall schedule all hydropower releases in compliance with the Lockmaster's needs and instructions. For river flows between 53,400 cfs and 200,000 cfs, discharges will be made through both the powerhouse and Wilbur D. Mills Dam. At flows greater than 200,000 cfs, discharges will be made through Wilbur D. Mills Dam only. The Licensee agrees to fully cooperate with the Corps in the establishment of release schedules and in case of disagreement the Corps' decision will be final.

3. The Licensee agrees to notify the Lockmaster or other Corps' designee in advance of the starting or stopping of any generating units as described in Article

3 of this Agreement, and as soon as possible whenever a generating unit is subject to a forced outage. The Licensee agrees to keep the Lockmaster or other Corps' designee advised of any change in Hydropower Project operations that will affect the flow of water through the Hydropower Project or cause fluctuations in Pool No. 2 that are outside the criteria or needs of the Corps. During normal operations, the rate of increase or decrease in Hydropower Project releases will not exceed 5,000 cfs per minute or 15,000 cfs per hour unless directed otherwise by the Lockmaster.

4. The Corps will give the Licensee advance notice of any scheduled river maintenance, scheduled changes in discharge (such as, but not limited to, those caused by ice or trash passage), and runaway or grounded barges known to the Corps. The Corps will promptly notify the Licensee after any unscheduled changes in the discharge or discharge capacity affecting the Hydropower Project.

5. The Licensee recognizes that deviations in operations of the Hydropower Project may be required when any conditions which impact upon navigation or other federal purposes, interests, or responsibilities develop on the Arkansas River. Examples of such operations include, but are not limited to, hinged pool operations and manipulation of pool elevations for extended periods for maintenance dredging, lock and dam repairs, and other purposes.

6. The Licensee agrees to at all times permit the Corps to take whatever emergency action is appropriate to prevent or reduce hazards to life, significant property damage (including property of the United States), and significant adverse fluctuation of Pool No. 2. Licensee agrees that under such emergency conditions it will operate its generating units as directed by the Corps.

7. In the event that a barge breaks away from a tow or mooring upstream from the Hydropower Project, the Licensee will, upon being notified of the emergency condition, discontinue operation of its generating units in an effort to prevent damage to the Hydropower Project and Wilbur D. Mills Dam unless the Corps directs the Licensee to do otherwise, in which case the Licensee shall follow the Corps' instructions.

8. The Licensee agrees to pay the Corps for any reasonable additional operating and maintenance costs for Wilbur D. Mills Dam or Pool No. 2 resulting from operation of the Hydropower Project, and to make any structural changes to the Hydropower Project deemed by the Corps to be necessary to solve unforeseen operational problems.

ARTICLE 2
INSPECTION

The Licensee shall permit the Corps to inspect the Hydropower Project as a part of the Corps' Periodic Inspection and Continuing Evaluation of Completed Civil Works Structure Program. Any Hydropower Project operation deficiencies or difficulties detected by the Corps will be immediately reported to the Licensee and FERC. If such operation practices or deficiencies threaten imminent danger to life, significant property damage (including property of the United States), or interference with the operation of Wilbur D. Mills Dam, navigation, or other federal purposes, interests, or responsibilities, the Corps has the authority to direct the Licensee to modify or stop Hydropower Project operation and to otherwise take timely appropriate action to resolve the situation, and the Licensee agrees to abide by such direction, to cooperate with the Corps, and in case of disagreement to accept the Corps' decision as final. The Licensee shall provide to the F&A Office of the District the required funds for all Corps expenses associated

with inspection of the Hydropower Project within 7 calendar days of being notified in writing by the Corps of the funds required.

ARTICLE 3

COMMUNICATION NETWORK, INFORMATION EXCHANGE, AND REPORTING

1. The Licensee agrees to maintain communications between the Lockmaster at Lock No. 2 and either the data room of the Hydropower Project or the remote dispatcher of the Licensee, by means of a direct circuit or other direct means of real-time communications, as directed by the Corps, to coordinate the operation of the Hydropower Project.

2. The Licensee will set hourly release volumes through the turbines at the Hydropower Project as specified by the Lockmaster as needed for the Corps' operational purposes. The release requirements and release schedule are subject to change throughout the day in response to unforeseen river flow changes.

3. The Lockmaster will provide the Licensee release rate data for all gate operations at Wilbur D. Mills Dam as soon as possible after such gates have been operated. The data will include current release rates and release rates prior to gate changes. This report will be made by telephone or other direct means of communications, as directed by the Corps.

4. The Lockmaster or other Corps' designee will provide the Licensee a continuous readout of the headwater elevation data obtained at Wilbur D. Mills Dam.

5. The Licensee will provide the Lockmaster or other Corps' designee a continuous readout of the station flow and generator output data obtained at the Hydropower Project.

6. Each working day prior to 12:00 noon, the Corps' Reservoir Control Branch will provide the Licensee and the Lockmaster an updated 4-day forecast of expected mean daily inflow volumes and any projected changes in headwater elevation limits for Wilbur D. Mills Dam. The forecast will be furnished by telephone or other direct means of communications, as directed by the Corps.

7. Each working day prior to 2:00 p.m., the Licensee will furnish the Lockmaster and the District hourly turbine release schedules expected for the remainder of the current day and the following day. Expected schedules for weekends and holidays will be furnished on the last working day prior to the weekend or holiday and will include the schedule for the next working day. The schedules will be furnished by telephone or other direct means of communications, as directed by the Corps.

8. Any time the actual total turbine release rate deviates from the scheduled rate by more than 10 percent, or some other amount specified by the Lockmaster, the Licensee will report such change and expected additional changes to the Lockmaster with as much advance notice as possible but in any event as soon as the deviation occurs. Report will be by telephone or other direct means of communications, as directed by the Corps.

9. The Licensee will provide the Corps a weekly summary, by day, of actual hourly generation and release rates for each turbine and for the total Hydropower Project. This summary will be mailed to the District by the second working day of the following week or provided in some other manner agreeable to the Corps.

10. By no later than start-up of the Hydropower Project, the Licensee and the Corps shall have furnished, installed, and be prepared to operate and maintain their respective equipment and communication links that are compatible with the District's Water Control Data System (WCDS) and that meet the Lockmaster's need for operational data. Prior to installing this equipment, the Licensee shall contact the Chief of the Reservoir Control Branch at the District office, for the current WCDS needs. The equipment shall include, but is not limited to, direct data and voice circuits, telephones, recorders, sensors, encoders, data collection and transmitting platforms for satellite telemetry (DCP), and support software and hardware. The direct data equipment will be used to collect and transmit real-time and historical data on headwater and tailwater elevations and turbine release rates. Operational data needed in the District office shall be transmitted by DCP. The current operational data required is instantaneous headwater and tailwater elevations, hourly average total station discharge in cfs, and total electric generation in megawatts at one hour intervals. The DCP transmissions are required at four-hour intervals and each transmission should include the most recent eight hours of data. Real-time data for use by the Lockmaster will be furnished to the Corps' remote operations receiver station located at the east end of Wilbur D. Mills Dam. The communication links equipment and its installation and maintenance will be the responsibility of the Licensee, and the Licensee will replace and update the equipment when needed to keep it compatible to future Corps' needs. The Licensee shall neither remove or disable, nor cause or allow to be removed or disabled, any equipment for which it is responsible, if so doing could affect the operations of the Corps or its equipment or systems, unless and until the Licensee has obtained advance written approval from the Corps' Chief of Operations Division.

ARTICLE 4

MODIFICATIONS TO THE EXISTING DAM SPILLWAY GATES

Section A. General

1. The operation of the Hydropower Project requires the Corps to respond to changes in the Hydropower Project discharge by adjusting the Wilbur D. Mills Dam spillway gates. In order to do this promptly, additional equipment is required so that the gates can be remotely operated from Lock No. 2. This installation will include power transfer switching equipment, electronic control and data exchange equipment, video monitoring equipment, and public address equipment sufficient to safely perform and monitor the routine or emergency operation of the Wilbur D. Mills Dam spillway gates.

2. The Corps will be responsible for the installation of said equipment, except that the Licensee will be responsible for the installation of computer software and electronic support equipment in the Hydropower Project and the installation of the communication link between the Wilbur D. Mills Dam facility and the Corps' Lock No. 2 transmitting and receiving facility. The Licensee may install additional equipment if given advance written authorization by the Corps to do so. The Licensee will bear all costs of equipment installation whether performed by the Licensee or the Corps.

   A. Power transfer equipment shall include adding remote startup capability to the existing emergency diesel generator at Wilbur D. Mills Dam along with the capability to transfer the generator to the spillway feeders as a backup power supply.

B. Electronic control and data exchange equipment shall include necessary programming, software, and hardware additions to the existing data acquisition equipment at both the Wilbur D. Mills Dam and at Lock No. 2 for the Corps to monitor the operation of the Hydropower Project as described in Article 3 of this Agreement.

C. Video monitoring equipment shall include a closed circuit television system at Wilbur D. Mills Dam with remote video monitoring at Lock No. 2 to allow the Corps' operators to view the individual gate sills and to inspect the upstream and downstream pools for boating activity to assure public safety.

D. Communications from the Hydropower Project, Wilbur D. Mills Dam, and Lock No. 2 shall be via multiple path fiber optic cabling to carry signals for data acquisition equipment, status and control, closed circuit video and control, public address, and provisions for additional future uses. The route for the buried fiber optic cable shall be shown on Sheet 3 Exhibit 3 of the Site Access Agreement.

E. Additional equipment may be required if, in the judgement of the Corps, it is necessary to protect public safety, navigation, or other Federal interests.

F. In the event the Corps replaces or modifies any equipment or software which interfaces with the Licensee's equipment or software, the License shall be responsible for making any modifications to its equipment or software necessary to continue or reestablish operation.

G. The Licensee shall neither remove or disable, nor cause or allow to be removed or disabled, any equipment for which it is responsible, if so doing could affect the operations of the Corps or its equipment or systems, unless and until the Licensee has obtained advance approval from the Corps' Chief of Operations Division.

Section B. Operation and Maintenance

1. After construction of the above modifications is complete and has been accepted by the Corps, operation will become the responsibility of the Corps.

2. Responsibility for the maintenance, repair, and/or replacement of the specific equipment will be as follows:

A. The Corps will be responsible for the cost and performance of maintenance, repair, and/or replacement of the equipment associated with the remote startup and automatic transfer of the backup power supply only to the extent needed to maintain local startup and manual transfer capability, except as provided below.

B. The Licensee will be responsible for the cost and performance of maintenance, repair, and/or replacement of all other software and equipment installed for the purpose of remotely operating from Lock No. 2, including but not limited to:

1) Computer software and electronic support equipment associated with the remote startup and automatic transfer of the backup power supply.

2) Computer software and electronic support equipment installed in or adjacent to the Wilbur D. Mills Dam, Lock No. 2, and the Hydropower Project.

3) Video monitoring equipment, including any supplemental lighting required, installed near the Wilbur D. Mills Dam spillway gates or on the banks adjacent to Wilbur D. Mills Dam.

4) Public address equipment installed as part of the requirement for remote operation of the Wilbur D. Mills Dam spillway gates.

5) The communication link between Wilbur D. Mills Dam and the Corps's Lock No. 2 transmitting and receiving facility.

3. In the event that maintenance, repair, or replacement of any equipment is required as described above, the initiation or continuation of operation of the Hydropower Project shall be authorized on a case-by-case basis of safety as determined by the Lockmaster. Prior to authorizing operation of the Hydropower Project under these conditions, the Corps may require a physical inspection of the Wilbur D. Mills Dam facilities, including the upstream and downstream areas. If the Lockmaster determines that the Hydropower Project can be safely operated prior to completing said maintenance, repair, or equipment replacement, the Licensee may, upon receipt of authorization from the Lockmaster, proceed with operation of the Hydropower Project. All associated Corps costs for such inspections shall be borne by the Licensee.

4. In the event that maintenance, repair, or replacement of any equipment is required as described above, the Licensee will be granted access to Federal

Property associated with either the Wilbur D. Mills Dam or the Lock No. 2 facility in accordance with the Site Access Agreement.

5. In the event that maintenance, repair, or equipment replacement which is normally the Corps' responsibility is required for initiation or continuation of Hydropower Project operation, the Licensee may, with the Corps' advance approval, elect to perform said maintenance to expedite Hydropower Project operation. Costs for such maintenance shall remain the responsibility of the Corps, except that solely the Licensee and not the Corps shall bear any such costs to the extent such costs exceed in amount what the Corps would have incurred if the work had been performed by the Corps. Further, if the Licensee performs such work, the Corps will be required only to request funding through normal Corps channels for its share of the expenses, and the Government shall not be liable for such costs if the administration fails to include them in its budget or if Congress fails to appropriate funds. In no event shall the Corps be liable for any lost benefits of Hydropower Project operation due to the required maintenance of Corps equipment.

ARTICLE 5
COOPERATION

The Licensee agrees to operate the Hydropower Project and to meet the Corps' operating requirements. The Hydropower Project will be operated to protect the purposes of Wilbur D. Mills Dam as well as other Federal interests and responsibilities, including navigation as well as, but not limited to, limiting flow and stage fluctuations of Pool No. 2. The Corps agrees to cooperate in the operation of the Hydropower Project, provided such operation is consistent with the purposes of Wilbur D. Mills Dam and

other Federal interests and with the Corps' responsibilities. The Licensee shall coordinate Hydropower Project generation schedules with the Corps.

ARTICLE 6
OTHER PROVISIONS

Nothing in this Agreement shall be deemed as a waiver of any requirement or obligation set forth in the Order Issuing License issued August 10, 1983, by the FERC, or in any amendments to the License.

ARTICLE 7
RIGHT TO REVIEW AND REVISE

The Corps and Licensee recognize that this Agreement is subject to revision from time to time upon request of either party as operating experience is gained and conditions warrant.

ARTICLE 8
DISPUTE RESOLUTION

As a condition precedent to either party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution mediated by a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the

services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE 9
INDEMNIFICATION

The Licensee shall hold harmless and save the Government free from all damages, including damages to government property and Government-supplied materials and equipment made available for the Licensee's use, beyond normal wear and tear, arising from services the Licensee performs or provides for construction, operation, maintenance, repair, or replacement. The Licensee agrees that the Government shall not be liable for any damages caused by the acts or omissions of third parties.

ARTICLE 10
RELATIONSHIP OF PARTIES

In the exercise of their respective rights and obligations under this Agreement, the Government and the Licensee each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other. In the exercise of its rights and obligations under this Agreement, neither party shall provide, without the written consent of the other party, any contractor with a release that waives or purports to waive any rights such other party has or may have to seek relief or redress against such contractor pursuant to any cause of action that such other party has or may have, or for any violation of any law.

ARTICLE 11
ASSIGNABILITY

No voluntary transfer of this Agreement or of any rights or obligations of the Licensee hereunder shall be made without the advance written approval of the Corps. Any successor to or assignee of the Licensee's rights, interests or obligations under this Agreement, whether by voluntary transfer, judicial sale, foreclosure sale, or otherwise, shall be subject to all the provisions and conditions of this Agreement to the same extent as though such successor or assignee were the original signatory hereunder.

ARTICLE 12
SEVERABILITY

If any part, term, or provision of this Agreement should be held illegal, unenforceable, or in conflict with any federal, state or local law having competent jurisdiction over this Agreement, the validity of the remaining portions or provisions shall not be affected thereby, and the remainder of this Agreement shall be interpreted, to the extent possible, in a manner calculated to accomplish the objectives of the parties.

ARTICLE 13
ENTIRE AGREEMENT

This Agreement constitutes the entire understanding and agreement between the parties regarding all matters herein and supersedes any and all previous agreements or understandings; there are no other agreements or understandings, conditions or representations, oral or written, express or implied, regarding the subject matter of this Agreement.

UNITED STATES
DEPARTMENT OF THE ARMY

Edwin J. Arnold Jr.
Brigadier General, USA
Division Engineer

ARKANSAS ELECTRIC
COOPERATIVE CORPORATION

Gary C. Voigt
President/CEO

ATTEST:

Lisa Sigler
Assistant Secretary