

**Pensacola Hydroelectric Project
FERC Project No. 1494**

**Exhibit C
Construction History**

Final License Application

Prepared for



Prepared by



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LIST OF ABBREVIATIONS

FERC	Federal Energy Regulatory Commission
GRDA	Grand River Dam Authority
HP	Horsepower
kV	Kilovolt
kVA	Kilovolt-Amp
Pensacola Project	Pensacola Hydroelectric Project
Project	Pensacola Hydroelectric Project
PWA	Public Works Administration
USACE	U.S. Army Corps of Engineers

1. Introduction

The Pensacola Hydroelectric Project (Pensacola Project or Project) (FERC No. 1494) is located on the Grand Neosho River (Grand River) in Craig, Delaware, Mayes, and Ottawa Counties, Oklahoma. It creates Grand Lake O’ the Cherokees, also known as Grand Lake. The Project is owned and operated by Grand River Dam Authority (GRDA), which is a non-appropriated agency of the State of Oklahoma, created by the Oklahoma legislature in 1935 to be a “conservation and reclamation district for the waters of the Grand River.” As licensed by the Federal Energy Regulatory Commission (FERC), the Project serves multiple purposes, including hydropower generation, water supply, public recreation, and wildlife enhancement. Since the Project’s original development, Congress has mandated that the U.S. Army Corps of Engineers (USACE), and not the Commission, regulates the Project for flood control purposes. As directed by Congress under section 7 of the Flood Control Act of 1944 and section 7612 of the National Defense Authorization Act for Fiscal Year 2020, GRDA controls the operation of the Project until the reservoir elevation is expected to exceed 745 feet PD, at which time USACE has exclusive jurisdiction over Project operations for flood control purposes.

The enabling legislation that created GRDA did not provide it with any funding to accomplish its stated mission to develop the resources of the Grand River. It was not until GRDA applied for and received funding from the U.S. Public Works Administration (PWA) that formal planning for construction of the Pensacola Dam began. The PWA provided all the funding for the construction of the Pensacola Dam with 45 percent in the form of grants and the remaining 55 percent as loans.

This exhibit is required under 18 CFR § 4.51(d) and 5.18(a)(5)(iii). The information in this Exhibit C serves the purpose of providing the construction history of the Project.

2. Construction Activity History

Under 18 CFR § 4.51(d)(1) a tabulated chronology of construction is not required because this Application is not for an initial license. For general overview purposes, the design of the Pensacola Dam began in late 1937 and was completed in April 1938. The Federal Power Commission, predecessor to the FERC, granted GRDA a license to construct and operate the Project on January 27, 1938, with an effective date of January 1, 1939. Construction of the dam began in the fall of 1938 and was completed with the closure of the final river diversion gates on March 21, 1940. A listing of the starting year for the construction and major post-construction additions and repair work for the Project are listed in Table 1-1.

Table 1-1 Pensacola Project Construction Chronology

Title	Start Year
Excavation for East Spillway	1938
Core Drilling	1938
Construction Railroad, Highway, and Bridge	1938
Electric Transmission Line	1938

Title	Start Year
Hydraulic Turbines, Governors, and Valves	1938
Electric Generators	1938
Dam and Powerhouse	1938
Grove Highway Bridge	1938
Frisco Railroad-Track Elevation	1938
K.O. & G. Railroad Relocation	1938
Clearing Lake Area	1938
Clearing Lake Area	1939
Powerhouse Auxiliaries and Switchyard	1939
Pensacola-Fort Gibson Transmission Line	1939
Ajax Pipeline Relocation	1939
Shell Pipeline Relocation	1939
Removal of Graves	1939
Vinita and Grove Water Supplies	1939
Pensacola-Claremore Transmission Line	1940
69-kV Substations	1940
Riverbank Extension of 110-kV System	1940
Observation House, Miscellaneous Structures, and Other Work	1940
110 kV Markham Ferry-Tulsa Transmission Line Carrier, Equipment and Switchgear, Pensacola Power Plant Telephone System	1941
Power Transformers and Oil Circuit Breakers	1941
Tulsa Substation and Other Work	1941
20,000-HP Hydraulic Turbine, Fifth Unit	1941
16,000-kVA Electric Generator, Fifth Unit	1941

Title	Start Year
Pensacola-Miami Transmission Line	1941
Pensacola Wagoner Transformer	1942
Second 110-kV Tulsa Transmission Line and Wagoner Transformer	1942
Extension of Substations at Tulsa, Markham Ferry, Pensacola Dam, and Riverbank	1942
Completion of Spillway and Tailrace Channels	1942
Spillway Aprons and other Protective Work	1943
Pryor Warehouse	1943
Installation of Telemetry and Load Control Equipment	1943
Completion of Miami Transmission Line	1943
Installation of Fifth Generating Unit, Auxiliaries, and Electrical Control and Main Spillway Improvements	1944
Rock Dike-Main Spillway	1945
Commerce Substation and Extension of 69-kV Transmission Line	1945
Okay 69-kV Distribution System	1946
Miami Connection and Other Work	1946
69-kV Switching and Substations	1946
Purchase and Installation of Sixth Generating Unit	1950
Bridge Deck Resurfacing	1980
Radial Gate Repair	1981
Bridge Support Repair	1982
Installation of SCADA System	1987
Exploration and Piezometer Installation	1988
Bridge Support Repair	1989
Main Spillway Apron Repair	1989

Title	Start Year
Penstock Exterior Coating Repair	1990
Exploration Test Holes, Sampling, Water Testing and Piezometer Installation	1994
Bridge Deck Resurfacing	1995
Bridge Rated and Posted	1995
Powerhouse Intake and Draft Tube Control Modifications	1966
Turbine-Generator Upgrade (one unit per year 1997-2003)	1996
Main Spillway Drainage Channel Excavation	1997
Buttress No. 1 Excavation (Talus Removal and Valve Room Inspection)	2001
Main Spillway Right Training Wall Toe Repair	2002
East Spillway Stoplog Repairs	2002
Middle Spillway (East Spillway No. 1) Rock Outcrop Removal	2002
Bridge Sidewalk Surface Repairs	2003
Construction of Ecosystem & Education Center	2009
Powerhouse Roof Replacement	2012
West Abutment Stabilization Project	2013
Spillway Gate Rehabilitation	2018
Microwave Addition	2018
Station Service Switchgear Retrofit	2019
Access Road Paving	2019
Spillway Toe Barrier Upgrades – Anchored Walls	2019
Penstock Resurfacing – All Units	2019
Bridge Structure Improvement	2020
Replaced Transformers and Lighting for Bridge Deck	2020

Title	Start Year
Fire System Installations and Upgrades	2020
Trash Rack Inspection and Repairs	2021
Renovation of Offices and Work Areas	2021
Gantry Crane Electrical/Mechanical Refurbishment	2021
Excitation Upgrades to Digital Control – All Units	2021
PLC Control System Upgrades – All Units	2021
Generator Protection Relay Upgrades – All Units	2021
Installation of Control Systems Process Historian	2022

Source: (Grand River Dam Authority, 1985) (Grand River Dam Authority, 2021)

3. Construction Schedule

GRDA does not propose any new development for the Project as part of this application. Therefore, no schedule for post-relicensing construction is required under 18 CFR § 4.51(d)(2).

4. Works Cited

Grand River Dam Authority. (1985). *Pensacola Dam Hydropower Project, FERC Project No. 1494-002, Federal Energy Regulatory Commission, New License Application-Existing Project*. December 23, 1985.

Grand River Dam Authority. (2021). *Supporting Technical Information Document for the Pensacola Project No. 1494*. January, 2021.