

Project Title: Drainage and Unwatering Pump Replacement

Dam and Reservoir Project: Little Goose

Estimated Total Cost: \$3-\$7 million

Estimated Schedule for Completion of the Project:

Phase 1a: None for this Project

Phase 1: FY2015-2016

Phase 2: FY2017-2019

Expected Physical Completion: FY2019

Current Status as of 6/8/2017:

Phase 2 (contract bid solicitation)

Summary

Little Goose Dam and Reservoir Project was built with two drainage and unwatering pumps. The two unwatering pumps at Little Goose are required to unwater a hydropower generating unit and associated water passages to allow Corps staff to safely inspect and maintain the hydropower generating turbines and to prevent powerhouse flooding from any leakage and drainage water by pumping the water into the tailrace.

The existing drainage and unwatering system is in poor condition, which has resulted in more frequent failures. In the current configuration, the pumps are only capable of discharging 83 percent of the inflow. This results in exposing the maintenance personnel to unsafe working conditions. The crew may need to work in standing water or divert water around electrical cabinets to prevent damage. This project will provide an efficient and reliable pumping system capable of draining both the drainage and the unwatering sumps as required by Engineering Manual (EM) 1110-2-4205 Hydroelectric Power Plants (Chapter 11 Unwatering and Drainage Systems). Per the EM, each drainage pump should be capable of collecting and discharging 150 percent of the maximum station drainage.

The drainage and unwatering system needs to be resized to address its unreliability and inability to handle the increased leakage. Reliability of these systems is important to the safe operation of the project. Failure of the drainage systems could lead to flooding of the powerhouse, and failure of the unwatering systems can prevent accessing critical drivetrain components in the water passage or inspection and maintenance. Repairs are expensive and time-consuming due to the unavailability of replacement components, resulting in lengthy outages that leave Corps staff exposed to flooding danger. The unwatering pump motors have failed in the past and significant repairs have been necessary to maintain operability. A similar outage during winter could have resulted in a condition that would have flooded the powerhouse and electrical cabinets.