

Project Title: Direct Current (DC) System, Governor Oil Pump System, and Low Voltage Switchgear Upgrades

Dam and Reservoir Project: Lower Monumental

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

Estimated Schedule for Completion of the Project: Phase 1a: None for this Project
Phase 1: FY2016-2019
Phase 2: FY2019-2021
Expected Physical Completion: FY2021

Current Status as of 6/8/2017: Phase 1 (design)

Summary

This project will upgrade the Direct Current (DC) System, Governor Oil Pump System, and Low Voltage Switchgear at Lower Monumental Dam and Reservoir Project. The DC system is comprised of batteries and inverters that supply the 125 voltage direct current system power for multiple pieces of equipment. The Governor Oil Pump System is comprised of pumps, motors, and piping to deliver oil to the turbine. The Low Voltage Switchgear is a lineup of breakers, which allow distribution of the power to desired loads. These systems are used to control the hydropower generating units in the powerhouse. A failure of the current systems would impact power generation and emergency systems at Lower Monumental. These impacts would vary depending on which equipment failed. The upgrade will improve reliability and reduce the likelihood of a failure within the electrical systems. The station service provides power to multiple critical loads including: spillway control, fish passage systems, drainage systems, unwatering pumps, and other critical control systems. If a failure occurred on the DC System, the previously mentioned systems would be inoperable, which would not allow the dam and reservoir project to complete its missions.

The batteries, breakers, and cabling of the DC System are near the end of their design life and are in need of replacement to avoid future unnecessary forced outages. In addition, the battery chargers and inverters need to be replaced. Upgrades to the Governor Oil Pump System include motors, starters, cabling, and the addition of a transformer. This equipment does not reliably meet the current DC system load requirement at the dam and reservoir project, and therefore justifies replacement. Equipment will be replaced in kind to return functionality. This project will also replace the 480-Volt Low Voltage Station Service Switchgear Breakers for SQO and SQ1, and SH, CQ, and SU Switchgear. These breakers and switchgear provide reliable redundant power to the electrical distribution systems. The switchgear and breakers that are to be installed as part of this project will provide adequate Arc Flash/blast (a type of electrical explosion) protection to operators and maintenance personnel in accordance with National Fire Protection Association 70E (Standard for Electrical Safety in the Workplace) to avoid electrocution hazard, allow equipment testing in accordance with Institute of Electrical and Electronics Engineers (IEEE), and meet current North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability and safety requirements.