

SULLIVAN LAKE DAM REHABILITATION PROJECT



Before Construction



After Construction

Sullivan Lake Dam is owned and operated by the Public Utility District No. 1 of Pend Oreille County. The dam was constructed in the early 1920's as part of the Sullivan Creek Hydroelectric Project (FERC No. 2225). The dam is a 34-foot high concrete gravity structure consisting of an ogee spillway section flanked by earth-supported concrete wing walls. The total length of the structure is 210 feet. The dam controls the storage of water in the 1,300-acre Sullivan Lake. Runoff is stored to provide flood control in the Spring and recreation in Summer. The center spillway section of the dam is 58 feet long and features six spillway gates and three low level outlet gates.

In 1992, FERC re-classified Sullivan Lake Dam to "high hazard" and required that structural measures be designed to increase factors of safety for stability. In addition, FERC was concerned that flooding would overtop the dam and erode the earthen embankments behind the wing walls.

EES Consulting staff managed the design of remedial measures for Sullivan Lake Dam and acquired approval of the dam rehabilitation design from FERC to proceed with construction. The work involved preparing construction plans, specifications and contract documents, permitting, bid evaluation, review of contractor submittals, and assistance with construction inspection and management. EESC staff also prepared erosion and sedimentation control plans, construction QA/QC plans and plans for diversion and care of dewatering water. EESC staff were responsible for the overall design of the dam. The design featured a new spillway, apron, training walls, cutoff wall, subgrade drainage, and gabion mattresses for erosion protection of the earthen embankments. Complete dam stability calculations were made and submitted to FERC for approval.

Construction of the remedial measures was completed in 6 months. The construction work included selective demolition of the spillway, apron, and training walls, excavation of fill on each side of the wing walls, construction and installation of subgrade drainage, construction of a concrete shear key, placement of mass concrete on the spillway, construction of concrete training walls and spillway apron, backfilling behind the walls, and placing gabions and reno mattresses on the downstream fills.