

BOX CANYON PROJECT STUDIES

Public Utility District No. 1 of Pend Oreille County, in Washington state, selected EES Consulting as the lead consultant for relicensing studies for the Box Canyon Hydroelectric Project. The relicensing involved numerous engineering and resource studies. EES Consulting staff members performed studies and managed and coordinated activities of consultants and subconsultants who conducted engineering and environmental studies for project license amendment and relicensing.



- Developed a GIS database for the project.
- Managed consultants that performed studies of wildlife, recreation, cultural resources, botanical and other resources, including ESA listed species.
- Completed an energy analysis, which demonstrated that upgrading the turbines was worthwhile economically in addition to environmental benefits – reduced spill, and TDG.
- Conducted water quality studies. Employed a forebay monitoring station and grid monitoring downstream of the dam to collect data over a range of flows from less than 26,000 cfs (turbine capacity with no spill) up to 90,000 cfs. Study documented that complete mixing of the turbine water (non-elevated for TDG) and spillway flow (high TDG) did not completely occur for approximately 6 miles downstream. Statistical analysis of TDG data identified configurations for spill gates that produced lower TDG levels relative to other gate settings.
- Completed an alternatives analysis for TDG abatement. The analysis identified a combination of preferred abatement measures that include upgrading the turbines, constructing an alternate bypass and operational measures emphasizing selective spill gate configurations. The studies resulted in a successfully obtaining an acceptable 401 certification for Box Canyon Dam. Prepared a TDG abatement plan and EES Consulting has a lead role in implementation.
- Other related water quality work included application of CE-QUAL-W2 (2-dimensional hydrodynamic model), which demonstrated the project did not contribute to high water temperatures that exceed the State standard.