

Ice Harbor/Lower Monumental Upstream Gate Repairs

Ice Harbor and Lower Monumental Dams, Washington

Owner: USACE, Walla Walla District

Description: Due to the cyclic operation of watering and unwatering of the upstream gate at Ice Harbor Dam and Lower Monumental Dam, the gates experienced metal fatigue in the form of cracks developing in areas (across the upper and/or lower flanges). These gates needed fixes in place the spring of 2002 that were reliable for five years to allow time for a reliability analysis to be performed and, if needed, plans and specifications to be compiled for construction.

INCA Engineers, Inc., A Tetra Tech Company (INCA) prepared a concept design report examining, from an engineering and cost perspective, various alternatives for refurbishing the upstream gate repairs at Ice Harbor Dam and Lower Monumental Dam. INCA compared the alternatives to the option of doing no refurbishing. The concept design report identified and examined, to a feasibility level, each option.

INCA provided a concept design report that included drawings, design analysis, computer model of gate to determine stresses, fatigue analysis of various joints, logistics, assumptions, and develop feasibility level cost estimates for option selection. The report contains a feasibility level study of the various gate repair options and included information to provide a conceptual description of the designs, layout, and costs for various gate repair options for the given two project locations. The report addressed construction sequence and duration for each gate rehabilitation option. INCA identified special construction difficulties and developed cost estimates for each gate rehabilitation option.

