

## Executive summary

Morrison Dam is located on the East Poplar River approximately 12km southeast of Coronach, Saskatchewan and less than 4km north of the US border. The dam is owned and operated by SaskPower and was constructed between 1975 and 1977 to provide a source of cooling water for the nearby coal fired 572 MW Poplar River Power Station. The primary facilities associated with the Morrison Dam include the main dam, service spillway, auxiliary spillway, and riparian low level outlet. The dam has experienced significant seepage throughout its history resulting in deterioration of the concrete spillway. In addition, the combined capacity of the flow control structures was determined to be inadequate based on Canadian Dam Association (CDA) guidelines. To address these issues, SaskPower undertook a rehabilitation program to construct a seepage barrier consisting of a soil-cement-bentonite and jet grout cutoff wall through the dam embankment impervious core and underlying foundation, and to demolish and replace portions of the spillway structure as well as the underdrainage and seepage collection system. Klohn Crippen Berger completed a structural review of the spillway gates and designed new gate trunnions and supports. In addition, the auxiliary spillway and riparian outlet structures were modified to improve their performance and increase flow capacity. These improvements included enlarging the spillway channel, replacing the fuse plugs and providing erosion protection for the auxiliary spillway and raising the gatewell structure and installing new gates, a HDPE conduit liner and a raised intake structure for the riparian outlet. Installation of the conduit liner and raised intake structure were completed underwater by a subcontractor dive company. The Morrison Dam now provides the ability to handle large floods in a manner that meets the CDA's requirements.

