



Manic-3 and Péribonka Dams Deep Foundation Cut-off Walls

Geographical locations

Manic-3 Dam, north of Baie Comeau, Québec

Peribonka Dam, north of Lac St-Jean, Québec

When they began or were completed

Manic-3 Dam was constructed 1971-1975

Peribonka Dam was constructed 2005-2007

Why a Canadian geotechnical achievement?

Manic-3 and Péribonka dams both have deep cut-off walls; both significant geotechnical achievements when constructed.

Manic-3 Dam is a 107 m high, 390 m long dam founded on 126 m of highly compressible alluvial deposits. A precast concrete gallery was imbedded in the core and connected to a positive double concrete cut-off wall, consisting of cast-in-place interlocking piles and panels. A zone of pure bentonite with water content greater than the plastic limit lowers stresses above the gallery. The double cut-off wall controls foundation seepage and minimizes piping.

Péribonka Dam is a 80 m high, 564 m long dam sitting on a river bed filled with permeable alluvial sand and gravel. Foundation preparation included: 10 m thick densified work platforms composed of well-graded material; vibrodensification to a depth of 50 m; high energy compaction; and deep grouting of alluvial deposits. The main cut-off wall is, at its maximum, 116 m deep, 235 m long and between 1.2 and 1.5 m thick. A second cut-off wall is located in a secondary valley and is, at its maximum, 43 m deep, 95 m long and 0.8 m thick.

Both dams are owned and operated by Hydro-Québec

Submitted by

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Key References

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Photograph (Archives d'Hydro-Québec)



Péribonka main dam and spillway.