



Romaine-2 Hydroelectric Development Asphalt Core Rockfill Design

Geographical location

North of Havre-Saint Pierre in the Côte-Nord Region of Québec

When it began or was completed

Constructed between 2011 and 2013; impoundment began in 2014.

Why a Canadian geotechnical achievement?

Romaine-2 hydroelectric development includes a main dam and five dikes, with heights between 28 m and 131 m, and a cumulative crest length of 2.4 km. The total fill volume is 7.5 million m³.

Typically, Hydro-Québec uses glacial till as impermeable core material for its dams and dikes, however, it was not economical to use the till for the Romaine-2 project. Therefore, the use of an asphalt core rockfill design (ACRD) was considered. In the first decade of the 2000s, Hydro-Québec designed and constructed the 15 m high Nemiscau-1 Dam associated with the Rupert River Diversion Project to test the use of the ACRD, and performance was as expected.

Since impoundment in 2014, the retaining structures have functioned very well and, as predicted, the total percolation flows measured have been less than 2 l/s.

With its ACRD dam and 5 ACRD dikes, the Romaine-2 development is the largest hydroelectric development in the world with this type of design. The 131 m high main dam and the 84 m F2 dike are the tallest asphalt core structures in North, Central or South America).

The dam is owned and operated by Hydro-Québec.

Submitted by

Hydro-Québec

Key References

Alicescu, V, Tournier, J-P, Kara, R, and Rosculet, D. 2015. **Construction of La Romaine Complex, in northern Québec: six years of great accomplishment; Behaviour of asphalt core dams.**

Canadian Dam Association Annual Conference, Mississauga, ON.

Longtin, H, Péloquin, É, Verret, D, Benoit, M, Beauséjour, N, Hammamji, Y. and Rattue, A. 2012. **Romaine-2**

Hydroelectric Project: Design of the First Large Asphalt Core Rockfill Dam and Dikes in North America. Canadian Dam Association Annual Conference, Saskatoon, SK.

Photographs (Archives d'Hydro-Québec)



The main Romaine-2 Dam during construction.



The main Romaine-2 Dam in operation.