



Kemano Hydroelectric Development Kenney Dam; Kemano Tunnel and Powerhouse

Geographical location

South of Kitimat, British Columbia

When it began or was completed

Began in 1951; completed in 1954

Why a Canadian geotechnical achievement?

When initiated in 1951, this project was the largest hydroelectric power development ever financed with private capital. Its completion in 1954 coincided with the completion of the aluminum smelter in Kitimat. The short construction period is just one of many feats of this project that was built in the remote coastal mountains of BC with no road access. When completed, the associated Kenney Dam (97 m high and 457 m wide along the top) across the Nechako River was the 3rd highest rock fill dam in the world. The 16 km long Kemano tunnel provided almost 800 m of head to the underground powerhouse. The tunnel and underground powerhouse required excavation of 13.3 million m³ of rock. Tunneling advance-rate records were set and the underground powerhouse was the largest underground development in the world, at that time. This massive engineering project had unprecedented logistical challenges and costs, which required a very large workforce and the construction of two new towns.

Many notable Canadian geotechnical engineers in dam construction and tunneling were involved in this project; for example, Victor Dolmage. Crippen-Wright consulting engineers were in charge of the challenging repairs to the tunnel in 1961. The tunnel and powerhouse are still critical to provide hydroelectric power for the Kitimat aluminum smelter and there are now plans to complete a second parallel tunnel – there are stories behind this second tunnel too!

The development is owned by Rio Tinto Alcan Inc.

Submitted by

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Key References

Lawton FL. 1953. **The Kemano-Kitimat Hydro-Electric Power Development.** Journal of the Royal Society of Arts, Vol 101, pp 887-909.

Reports for Aluminum Company of Canada Ltd:

Dolmage V. 1951. **Geology of the Kemano-Tahtsa Tunnel.**

Dolmage V and Campbell DD. 1961.

Kemano Tunnel Inspection and Repair 1961 – Geology.

See also:

<http://www.kitimatmuseum.ca/node/3>

Photographs (permission pending)



Kenney Dam construction, October 1952. Kitimat Museum photo #00016.



West Tahtsa main bore, part of the Kemano tunnel, March 1953. Kitimat Museum photo #00035.