Kemano T2 Project:

Meet tl'ughus the TBM

What is a Tunnel Boring Machine (TBM)?

A TBM is heavy piece of machinery used to excavate tunnels. Armed with a rotating cutter head with disc cutters, the machine is capable of cutting through almost anything, from hard rock to sand. tl'ughus the TBM will slowly bore through the earth, digging a tunnel that will eventually carry water from the Tahtsa Lake intake to the Kemano Powerhouse.

How does it work?

As tl'ughus bores through rock and other materials inside the mountains with its cutter head, excavated material – also known as muck – will pass through openings in the cutter head. The muck will travel through the interior of the machine to the rear, where it will be removed from the newly excavated tunnel by trains pulled by diesel locomotives.

Why are you digging a new tunnel?

Rio Tinto's BC Works smelter in Kitimat is powered by the Kemano Powerhouse, which receives water from the Nechako Reservoir via a single tunnel that is almost 65 years old. A new second tunnel will ensure the long-term reliability of the power supply from the Kemano Powerhouse.

Where did the TBM come from?

tl'ughus was manufactured in Germany and was shipped as breakbulk cargo from Antwerp through the Panama Canal to Vancouver. In Vancouver, the TBM was transferred to ocean-going barges and delivered to Kemano Beach. It then travelled up Horetzky Road to a landing where it will be assembled and prepared for launch.

How long does it take to drill a tunnel?

tl'ughus' first day on its 24/7 job is planned for later this year (2018), when it will enter the mountain at the Horetzky Landing and make its way on a 7.6 kilometre journey. It will take approximately 20 months to complete the journey.

What does tl'ughus mean?

The mountains and landscape around the Nechako Reservoir used to be home to a legendary giant monster snake. The snake, known as "tl'ughus", travelled from lake to lake by boring through the mountains, including Mount Dubose. The openings created by the snake allowed fish to pass from lakes on one side of the mountain to lakes on the other side. The legend shares many parallels with the T2 Project and the name was chosen by the Cheslatta Nation.

What is the design on the TBM?

Students from the Haisla Community School were invited to take part in a contest to design the cutter head (front) of the TBM. Twenty-one submissions were received and the winning artwork, depicting several important figures in Haisla tradition, including the raven, oolichan and the northern lights, was designed by grade 6 student, Ali-Anna.

More Fun Facts

How long is tl'ughus?
190 metres

How big is tl'ughus?
6.5 metres in diameter

How far did tl'ughus travel to get to Kemano?
18,000 kms

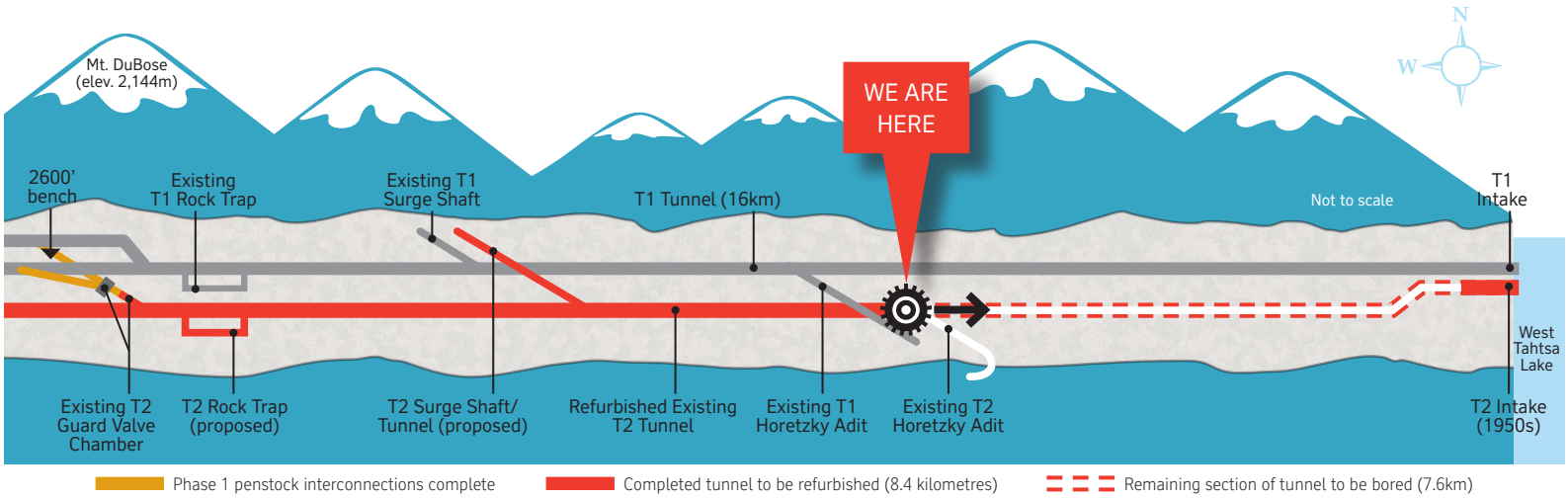
How much material will be excavated?
Approximately 250,000 m³ of tunnel rock will be excavated

Where was tl'ughus built?
Germany

How much does tl'ughus weigh?
1300 tonnes

A legendary journey

Over the next two years or so, tl'ughus will slowly make its way east from the Horetzky Landing to Tahtsa Lake, carving with precision, a new tunnel parallel to the original nearly 65-year old tunnel. The new tunnel will operate in concert with the original tunnel, bringing water from the Nechako Reservoir to the Kemano Powerhouse.



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About the project

Completion of a second tunnel will ensure the long-term reliability of the power supply that energizes Rio Tinto's BC Works smelter in Kitimat.

Rio Tinto will continue to operate the existing tunnel and monitor its condition until the T2 Project is complete, and on an ongoing basis. Project completion is expected by the end of 2020.

Rio Tinto has engaged Frontier-Kemper Aecon as the main contractor for the project and Hatch as the Engineering, Procurement, Constructing management (EPCM) service provider. Rio Tinto is also working with the main contractor to maximize the involvement of local businesses and First Nations in the project.

Project proponent: Rio Tinto

EPCM: HATCH

Main Contractor: FRONTIER-KEMPER | AECON A JOINT VENTURE

In participation with: Cheslatta Carrier Nation; Haisla Nation