THE MOVE TO WATER PAYS FOR NORWAY’S RAANAASFOSS HYDRO PLANT OPERATOR

The water-lubricated SXL turbine guide bearings Thordon installed as part of the re-powering of Norway’s Raanaasfoss 1 Hydro Plant have experienced almost zero wear after 23,887 hours of continuous operation on the first installed unit.

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During routine inspections of the 13.5 MW turbines, commissioned by Voith Hydro in 2013, the guide bearings – the operator’s first experience with water-lubricated bearings – showed “almost no wear at all”, with a measured diametric bearing clearance less than 0.30mm (0.012”) on the longest running Unit 1. All remaining turbines (Units 2 to 6) had very low measured diametric clearances of between 0.30 and 0.50mm (0.012” and 0.020”).

When Akershus Energy embarked on a project to update the 1922-built plant, the first to provide electricity to the city of Oslo, water-lubricated bearings were not initially considered.

“The Thordon technology was presented by Voith and we thought this was a good solution, not least for environmental reasons. We are pleased they recommended the system to us,” said Petersen.

While turbine performance was a key driver in the decision to re-turbine, environmental consideration was also high on the agenda.

“The operator wanted the most environmentally-safe turbines possible,” said Tommy Holmgren, Sales Director – Duwel Group, Thordon Bearings’ Norwegian distributor. “The selection of a water-lubricated solution for the lower guide bearing instead of the more traditional oil-lubricated design allowed the bearing to be cooled and lubricated with the same river water that is powering the Voith turbine.”

The water-lubricated bearings completely eliminate the risk of oil leakage contaminating the turbine’s discharge or tail water, as can happen with older design oil/Babbit bearing assemblies. Not only does a water-lubricated bearing help protect the environment, it also delivers operational and maintenance advantages over the original oil-lubricated bearing system.