GENESIS OPTS FOR OPTIONS

When one of your hydro turbines had been installed back in the 1930s, and it was time to refit, you want technologies that offer the maximum amount of options, since there really is no way of telling what you are going to find . . . like Thordon's highly engineered crystalline thermoplastic - ThorPlas.

Genesis Energy completed a refurbishment project of Generators 1, 2 and 7 at their Tuai Power Station in New Zealand during March of 2009. This station is a part of Genesis' Waikaremoana hydro generation scheme on the country's North Island.

ThorPlas was chosen as the best option for upgrading their Francis turbines.

ThorPlas wicket gate bearings

The ThorPlas bearings were prepared for the wicket gates (top, bottom and middle positions) by measuring each individual housing, then machining twenty-four tailored fits. Genesis also designed a simple retaining lip (shown in picture) that added another level of axial retention.

Link and servo motor bushes were replaced with ThorPlas bearings as well.

We asked Ian Meredith, the Genesis Hydro Engineering Team Leader why he chose ThorPlas? Ian

ThorPlas bearing installed in retaining lip

explained to us: "First of all, I researched the material and called up some peers in the New Zealand hydro industry who had already used ThorPlas. I received favorable reports about it."

"I found that ThorPlas enabled close fitting clearances. It didn't have to be thin-walled. Neither did it need an outer shell, or liner. We could order it in tube form and have our installation contractor machine it to our specifications exactly as we needed it – a definite plus when refurbishing existing machines.

Our contractor MB Century found it easy to machine, with no toxic dust. To install the bearing they simply followed Pacific Driveline's advice to freeze the bearing using dry ice. Then they either, pushed it in lightly, or tapped into the wicket gate housing . . . making it so easy to complete the job.

These weren't the only pluses. When everything was installed; we found that less force was required to move the wicket gates, so the friction component was reduced.

During the project we found we needed more ThorPlas than was originally planned for; and we wanted link bearings and servomotor link bearings done as well.

Pacific Driveline was terrific to work with. They had the extra material sent from Canada and out to us within the time frame we required; so the machines weren't left out of service when they could have been generating for us."

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ThorPlas bearings installed in Francis Turbine at Tuai Power Station, New Zealand