

MAINTENANCE AT INCO GENERATING PLANT NO



Frazzle ice is created when long periods of extremely cold weather, typically in the -35°C range, turn river water into a giant Slushie®. This isn't uncommon on The Spanish River in Northern Ontario, Canada, home of three Inco Hydropower Generating Stations. Frazzle ice is a regular occurrence almost every spring, pounding into the intakes and causing pumps that provide water to the turbines to ice up and shut down.

"When this occurs," says Claude Mailloux, Planner/Supervisor for Inco, "there is a risk that the turbine may run dry." As a result, the main guide bearings may overheat and need to be removed, inspected and reinstalled again.

Easier said than done. Until, that is, Inco began to use Thordon SXL.

Powering A Century Of Growth

The Spanish Riverways has an important dual role in Northern Ontario. It is one of the most breathtaking recreational waterways in the Province, attracting tourists worldwide. It is also the source of hydroelectric power that fuels the region's vast pulp and paper and nickel mining industries. Inco taps this tributary with generating plants located in Big Eddy, High Falls and Nairn Falls.

For most of the operational history of these plants, wood called *lignum vitae*

was used as the main guide bearing. But as the rare source of this hard and oily timber - the guayacum tree - became even rarer, Inco was forced to look for alternatives.

"They originally switched over to phenolic bearings," said Lorne Thornton, President of Pioneer Power Industries, a long-time Thordon Bearings distributor, "But these came with maintenance headaches and other concerns."

The problem was, the river water contains a high level of particulates, making it abrasive. As a result, the phenolic bearings would wear rapidly and need to be changed approximately every two to three years. This was not a quick process. In fact, because of the hands-on lead chinking that was involved, the turnaround time to remove and install the bearings was up to four months.

"To make matters worse," says Thornton, "the phenolic bearings would constantly need adjusting to maintain performance, which only added to the workload and expense."

Thordon XL Bearings Show Little Wear... (cont'd. from page 2)

But the real benefit to the Canadian Coast Guard, in addition to fuel savings and lower maintenance costs, is the enhanced ability to ensure trouble-free performance of the icebreaker during critical operations in demanding environments.

Great Performance

The predicted wear life of the Thordon XL bearings for *Terry Fox* was 15 years. After 11 years the bearing wear data recorded in September 2004 show a much longer wear life than the predicted

life. "We trust Thordon and have always

been impressed with the performance of this exceptional product," says Hornik.



Thordon's reputation with the Canadian Coast Guard dates back to the early 1980s, and it is estimated that more than 80% of the fleet has Thordon products installed. *Terry Fox* is just one more Thordon success story that justifies why shipyards and fleet operators around the globe rely on the proven performance and reliability of Thordon bearings. 

LONGER FRAZZLED BY DOWNTIME CONCERNS

Clearly, Inco needed a better solution. And they found it, in Thordon SXL.

A Track Record That Speaks For Itself

Proven in demanding hydroelectric applications around the globe, Thordon SXL has become the industry standard. An elastomeric polymer, the bearing features grease-free operation, remarkably low wear and exceptional performance in dirty water conditions. It's the bearing of choice for water lubricated main shafts and pumps in both rehabilitation and new turbine projects.

"Inco not only wanted to lower maintenance costs, but they also wanted to eliminate lead chinking. Thordon SXL was the answer to both of these issues," says Thornton.

To reduce downtime in the future, Thornton and the engineers at Thordon Bearings recommended a stave configuration. This helped reduce the time it would take to remove, service and reinstall the bearings from the current standard of three to four months to just a few days!

The new bearings were installed in Unit #3 (one of three turbines in total) at the Nairn Falls plant in 1999. After excellent performance over the next 24 months, SXL was installed in the other two units.

"So far, Thordon has lasted twice as long as the previous phenolic bearing," says Mailloux. "And the longer lifespan has kept labour and materials costs down while expanding uptime." Bearing performance is monitored continuously and has been running within acceptable parameters for more than five years. "This is remarkable considering the rough operating conditions and the fact that the turbines are nearly one hundred years old!"

stopped five times, each time running dry. The fear was that the bearing would be burnt and require immediate changeout, something that would be expected from a phenolic material. It wasn't. In fact, after inspection, Thordon SXL was only mildly scuffed.

"And the good news is," says Thornton, "Inco's maintenance staff was able to clean the exfoliated material from the water grooves and



Split SXL Stave Main Guide Bearing

reinstall the bearing in the same day."

This allowed Inco to keep this unit on line for the upcoming spring run-off period and have a planned outage in the summer for the changeout of the bearing during the low water flow period. **Nw**

Getting Frazzled Once Again

Then mother nature struck. In January 2004, frazzle ice once again formed on The Spanish River. During this inclement period, Unit #2 started and

Princess Cruises... (cont'd. from cover story)

pollution or subsequent environmental violations that could result from stern tube oil leakage, however small. There are currently over 380 Commercial and Naval vessels that are equipped with Thordon COMPAC water lubricated propeller shaft bearings plus many more on order. **Nw**

Star Princess Equipped With COMPAC Water Lubricated Propeller Shaft Bearings Since 2002

