

CASE STUDY

HYDRO TECH

THE CHALLENGE

Original equipment horizontal turbine resin-composite bearings were overheating and showing signs of extensive premature wear, often destroyed within 2-3 days of installation and only six stop-start cycles.

HydroTech partnered with Lignum Vitae N.A. to address an ongoing problem: repeated premature failure of resin-composite style seals in its horizontal water S turbine due to overheating and extensive wear.

THE PROJECT

- Engineer durable, axial, pressure activated turbine bearing design:
 - Rated speed: 112.5 RPM
 - Net head of 90-100 ft with 32 MW output
 - Unfiltered river water-lubricated
 - Cooling water: 1.25 USGPM minimum @ 19 psi
 - 304 stainless steel guidewear surface

THE RESULTS

- Modified/improved design of eight (8) lignum vitae segment brass-backed replacement bearings and 350 BHN polished thrust ring that fit within bearing existing housing
- Lignum vitae material outperformed OEM composite seals under same load conditions
- Withstood trials with more than 20 stop-starts and 1,400 hours of uninterrupted operation
- Less than .08" break-in wear
- Slight modifications improved water flow and flow direction

TYPE

Lignum Vitae Seals

EQUIPMENT

Horizontal Turbine



Lignum Vitae

Water Lubricated Bearings