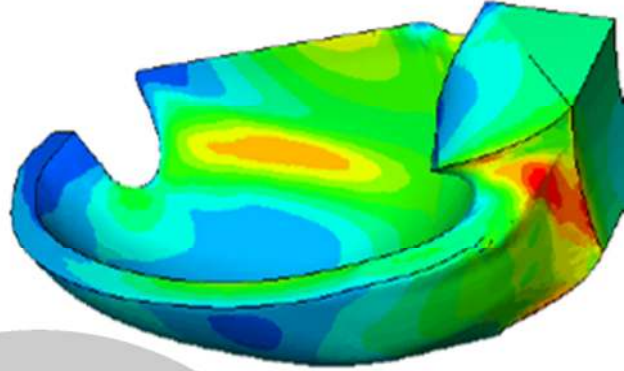


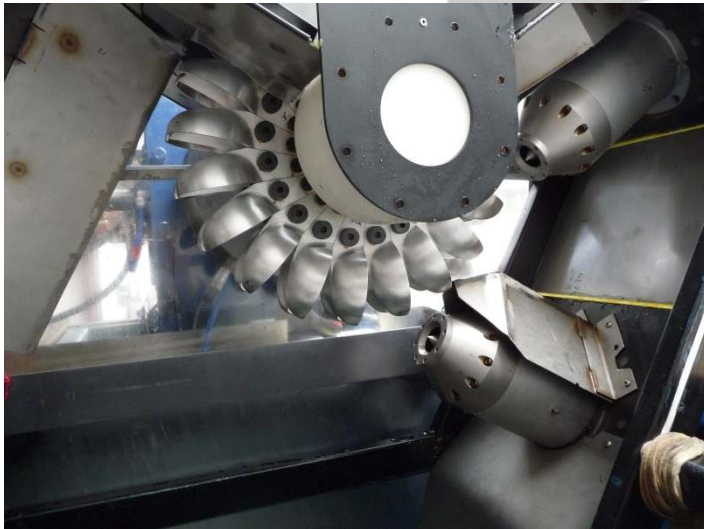
THERMODYNAMIC TESTING

HydroWorks was commissioned to provide a complete upgrade of two 12MW Pelton turbines. As part of the turbine refurbishment HydroWorks undertook thermodynamic efficiency testing of the existing runner to compare existing turbine efficiencies to efficiencies of the refurbished turbine. To comply with IEC 60041, a tailrace extension duct was installed.

A full mechanical analysis of the runner was completed using finite element analysis and linear elastic fracture mechanics. This ensured the runner had a 10^{10} cycle life providing casting defects were controlled at the manufacturing stage.



PELTON MODEL TESTING



A scale model of the prototype runner, with HydroWorks designed buckets, and proposed housing was developed and tested in the HydroWorks hydraulic test facility.

This test facility achieves efficiency measurements with 0.08% repeatability and complies with IEC 60193 requirements.

INSTALLATION AND COMMISSIONING

Installation and commissioning of G5 was completed Q4 2010.

Installation of G6 was completed in Q4 2011. G6 has been site tested and met its efficiency guarantees.

