

Challenge

Issue

Performance had degraded to extent that flow was not sufficient for proper turbine efficiency. Spare parts lead time was >6 months.

Goal

- Eliminate downtime waiting for spare parts
- Increase performance to meet flow demand

Root Cause

Erosion from river water had worn suction vanes and volute of pump resulting in cavitation. In addition, extensive pitting corrosion had occurred.



Pump and end bell housing transported of site to shop

Solution

Preparation

- Decontaminate surfaces
- Grit blast to Sa 2.5 with 3 mils (75 μ m) angular profile

Application

1. Suction vanes and volute casing were rebuilt and fare smooth with **ARC 858**
2. Apply 3 alternating color coats of **ARC 855** @ total DFT of 45-60 mils (1-1.5 mm)
3. Following application, balanced impellor
4. Replace mechanical packing with 442J split seal

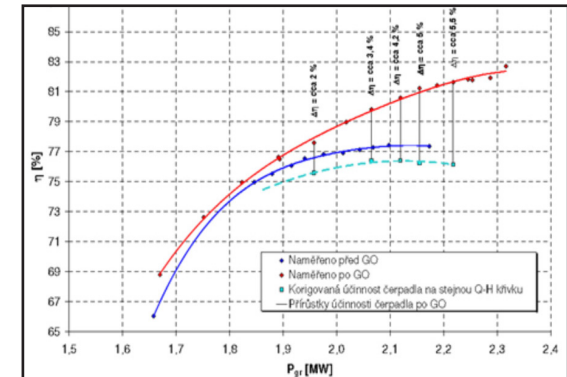


Before and after of elements

Results

Client Report

- Performance improved by 6.25% from 6.3 M3/sec to 6.7 M3/sec. Overall pump efficiency was increased by 4.2%, resulting in an energy savings of 425 MWh/year
- In addition, pump continues to perform at same level after 3+ years in service with no discernible loss of performance or efficiency



Green(before) / Blue (OEM curve) / Red (after)