

Challenge

Issue

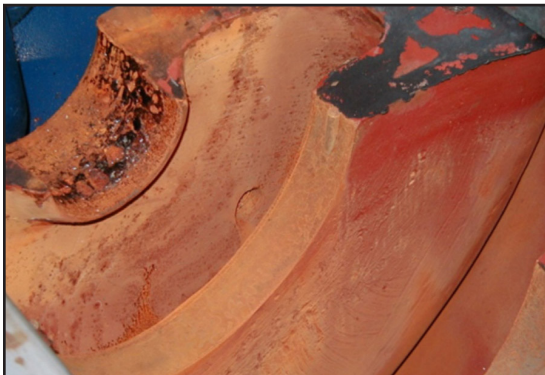
After 20 years in service, corroded pump internals reduced flow and efficiency. Client sought options to high capital replacement cost with long lead time.

Goals

- Restore 4 pumps to optimal efficiency
- Reduce 30-week lead time and \$40K/pump projected spare parts replacement cost

Root Cause

Corrosion and erosion from entrained solids degraded internal tolerances and increased frictional drag through hydraulic passages.



Eroded and corroded pump volute

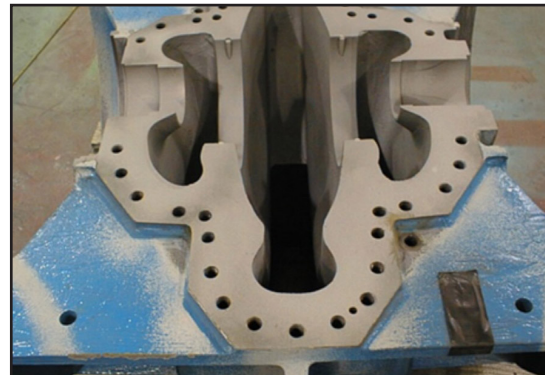
Solution

Preparation

- Decontaminate surfaces
- Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

Application

1. Apply **ARC 858** to fare smooth and fill pitted surfaces rebuilding tolerances
2. Apply 2 coats of **ARC S2** @ 15 mils (375 µm) DFT per coat



Surface after proper surface preparation

Results

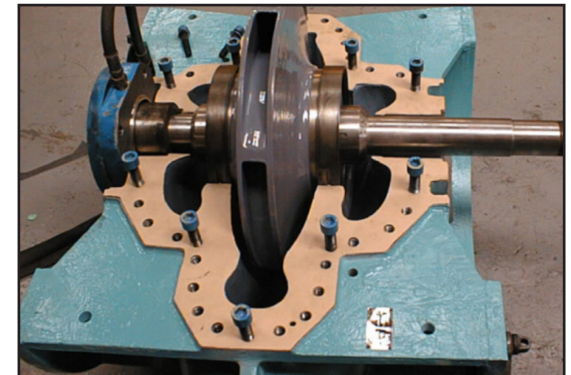
Client Reported

- Rebuilt pumps returned to 100% of BEP
- Lead time reduced from 30 weeks to 3 weeks
- ARC upgrade was <40% of replacement parts
- Used ARC to upgrade for 15 more pumps

Client Reported Savings (4 pumps)

Spare parts replacement:	\$160K
ARC repair costs:	\$ 64K
Savings vs. replacement:	\$ 96K
Estimated annual energy savings:	\$ 30K

\$=USD



ARC-coated surfaces - casing and impeller