Seawater Pump Impeller

Power-Nuclear — Cooling & Service Water
ARC 858 and 855 Coatings
Case Study 012

Challenge

Issue

Impaired pump efficiency diminished steam condenser cooling capacity, reducing power output.

Goal

To restore the pump capacity back to original point, allowing increased power production.

Root Cause

Pumping seawater with entrained sand at a high flow rate caused corrosion erosion damage to impeller, impeller vanes and leading edges.

Solution

Preparation

- Pressure wash and decontaminate surfaces to eliminate soluble salts
- Machine leading edges back by 1,5 mm (0.060")
- Grit blast to Sa 2.5 with 3 mils (75 µm) profile

Application

1. Rebuild leading edges flush with ARC 858
2. Apply 2 coats of ARC 855 ~DFT: 60 mils (1.5 mm) alternating colors to monitor wear rates

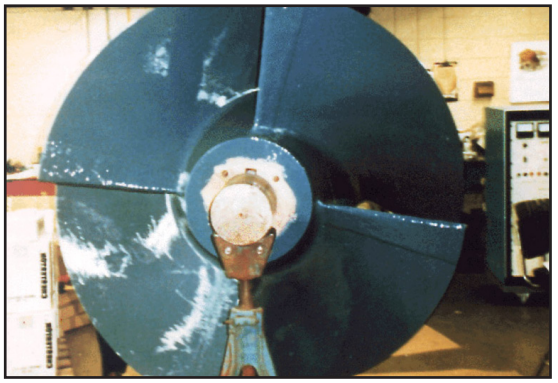
Results

Inspection Results

- Goals of improving operating efficiency and increasing power production were achieved
- Impeller has remained in perfect condition
- NOTE: After 9 years of pumping salt water and sand, the “brush marks” are still evident and pump is performing required duty point

Worn leading edge of impellor

Leading edge rebuilt with ARC 858



Follow up inspection after nine years shows no wear

A.W. Chesterton Company
860 Salem Street, Groveland, MA 01834 USA

EN23593.11
09/14

CHESTERTON
Global Solutions, Local Service.