

## Challenge

### Issue

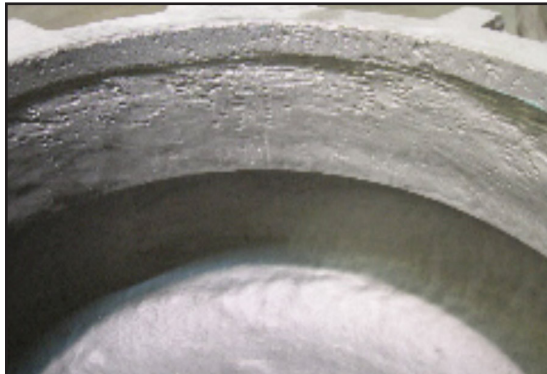
Loss of efficiency and reduction of pumping capacity after 1 year in service.

### Goal

- Increase MTBF of vortex pump beyond 1 year. Options included upgrading to hardened alloys at a cost of \$8.5K or protective coating

### Root Cause

Erosion from wastewater grit and corrosion was degrading metallurgy.



Screen in operation prior to coating

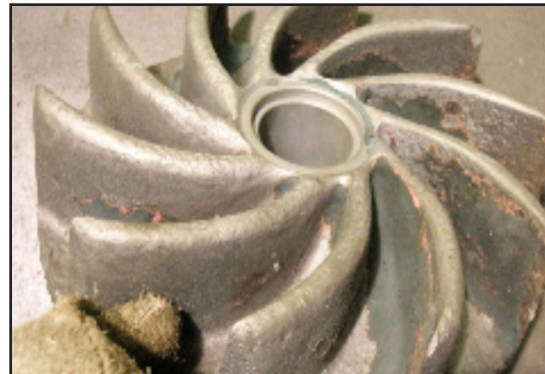
## Solution

### Preparation

- Pressure wash and decontaminate surfaces
- Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

### Application

1. Apply 2 coats of **ARC 855** to new impeller
2. Dynamically balance impeller after coating
3. Rebuild all other components with **ARC 858**
4. Top coat rebuilt parts with 2 coats of **ARC S2**



Screen frame surface after coating

## Results

### Inspection Results

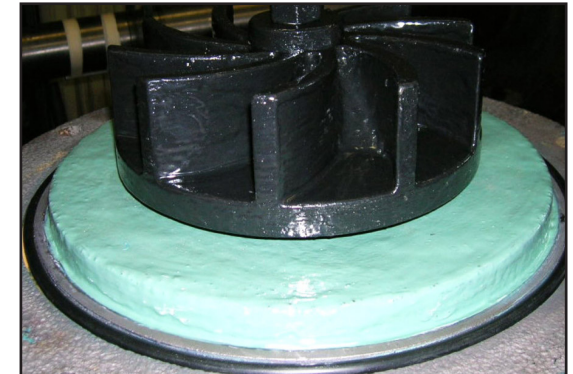
- Goal of 1 year or more was met
- Pump in service for 36 months with no unscheduled down time

**Cost avoidance (hardened alloy parts): \$8.5K**  
**ARC materials and application costs: -\$5.0K**

**First-Year Savings: \$3.5K**

Client continues to use ARC coatings for erosion and corrosion prevention.

\$=USD



ARC-coated surfaces