Split Case Wastewater Influent Pump

Challenge

**Issue**
Insufficient influent flow results in purchasing new pumps to meet demand.

**Goal**
To increase pump performance and reduce energy consumption while meeting influent flow requirements.

**Root Cause**
Raw sewerage with entrained solids degraded pump internals, with erosion and corrosion, leading to increased frictional resistance and energy consumption.

Solution

**Preparation**
- Pressure wash and decontaminate for chlorides
- Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

**Application**
1. Rebuild pitted surfaces and smooth to tolerance with ARC 858
2. Apply two-coat application of ARC 855 for enhanced smoothness and corrosion/erosion resistance

Results

**Annualized First Year Savings**

**Cost Comparison**

- New pump upgrade: $120K
- ARC pump overhaul: -$70K
- Year 1 cost avoidance: $50K

**Energy costs**
- Annualized energy costs (old pump): $303K
- Energy costs for ARC pump: -$243K
- Total first year savings: $59K

- Overall pump efficiency increase: 65% to 88%

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Eroded and corroded pump with old mechanical packing

ARC coated surface after dynamically balancing of impeller

Reinstalled pump undergoing efficiency measurements