

## Challenge

### Issue

Cavitation and erosion damage on the wicket gates was causing premature failure of gate and lowered operational performance. Required replacement or repair of gates.

### Goals

Repair the edge of the wicket gates and provide protective coatings 14" back from the edge.

### Root Cause

High erosive flow rates with some entrained solids caused severe corrosion/erosion. Some cavitation occurred as damage to gates progressed.



Before: Worn leading edge of wicket gate.

## Solution

### Preparation

Areas requiring repair were grit blasted to Sa 2.5 cleanliness with 3+ mil angular profile.

### Application

ARC 858 used to rebuild zones of damage and metal loss. Nominal thickness applied were 125 mils overall. Some areas received a coat of ARC 858 at >250 mils.

Following the rebuild, all surfaces were top-coated with two coats of ARC SD4i in alternating color coats of 12 – 15 mils/coat.



In process: Application of ARC 858 rebuild coat.

## Results

### Client Reported

Client satisfied with application and unit has been in service since fall of 2019. Work was completed in the powerhouse in turbine area, avoiding removal of gates to outside shop with associated costs.

### Return on Investment

Wicket Gate Replacement:	\$ 150,000
ARC Repair Method:	\$ 28,895
<b>Savings:</b>	<b>\$ 121,105</b>



After: Final topcoat of ARC SD4i.