

## Challenge

### Issue

Water service cooling pipes lined with glass flake epoxies were delaminating within two years. This led to concerns about emergency core cooling components becoming plugged with loose delaminated coatings.

### Goals

Extended life to over 10 years.

### Root Cause

Glass flake epoxy high cure shrinkage rate accelerated blistering of coating.



Nuclear plants have unique coating requirements.

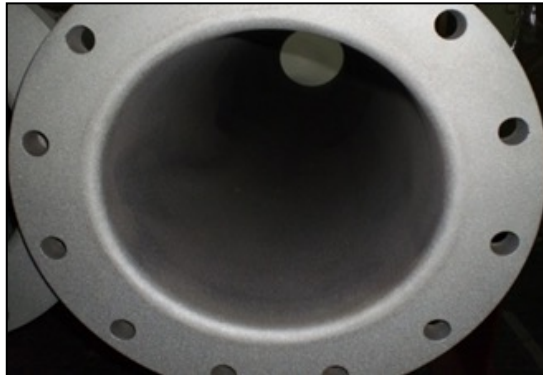
## Solution

### Preparation

Pipe weld quality inspected, then pipes were abrasive grit blasted to Sa 2.5 cleanliness with 75+  $\mu\text{m}$  (3 mils) angular profile.

### Application

1. First coat: **ARC S2** green applied at 0.25 – 0.325 mm (10 – 13 mils).
2. Second coat: **ARC S2** applied within overcoat window to total dry film thickness of 0.5 – 0.65 mm (20 – 25 mils).



Prepped pipes after blasting.

## Results

### Client Reported

Pipes coated with **ARC S2** have been in service for eight years with zero failure points! This safe solution was a success and saved money.

### Cost Comparison

Over 10 year expected life:

|                   |                 |
|-------------------|-----------------|
| Glass Flake Epoxy | \$71,665        |
| <b>ARC S2</b>     | <b>\$45,000</b> |
| <b>Savings</b>    | <b>\$26,665</b> |

Return on investment is 3.8 years



Finished pipes ready for service coating with **ARC S2**.

\$ = USD