Quest inspar
Pipeline Life Extension Specialists

CASE: RECOVERY OF BOILER BLOW DOWN LINE

SUBJECT

Rehabilitation/Recovery of Boiler Blow Down Line (BBDL)
Power Generation: Cooling System Pipeline
Liner: PipeArmor 100S

Hazard

A boiler blow down line (BBDL) critical to the cooling process at a 650 MW generation station was badly compromised with both microbial and electrolytic-caused corrosion and perforations. The requirement to sustain the abrasion of high pressure and high temperature soluble salt solids left few options for repair in place, with the only alternative being replacement, which had a burden of substantial expense and loss of operating revenue from a shutdown to support a new installation.

Process Environment

Effluent	Water and solids of soluble salts
Process Temperature	375^{o}F
Operating Pressure	160 psi

Serviced Pipeline

- 570 linear feet (LF) of 8” carbon steel pipe with bends.

Challenges

- The carbon steel pipe was compromised with significant corrosion and multiple perforations.
- The solid abrasives at high pressure and high operating temperature restricted materials that could be used.

Solution and Process

- The pipeline was cleaned using a water jet blast, abrasive pigging and foam swabbing to dry the pipe
- The pipe was robotically lined with PipeArmor 100S (equivalent) at the circumferential application of 160 mil (0.160”) to meet or exceed design loads and to arrest further pipe wall deterioration.

Findings / Results

- The liner sealed all perforations and arrested further wall loss; restoring the pipe to engineered requirement for use.
- Quest Inspar’s robotic process saved 2/3 cost of replacement; before factoring revenue loss from construction shutdown.
- Restoral of the pipeline in place mitigated then-present safety and operating risk to a critical power generation plant.

Process Step: The pipe walls were thoroughly cleaned of corrosion and profiled to receive the liner. Note perforations at bottom of pipe radius.

Post Lining: The buried pipe (under major improvements) is shown with its blue liner which protects against erosion from abrasion and corrosion.