

Location:

Alabaster, AL

Date of Application:

October 2007

Market:

Power

Substrate:

Steel

Surface Prep:

SSPC-SP 6 (Commercial Blast)

Exposure:

Severe Chemical Exposure -
immersion or near immersion
conditions of moderate to strong acids
caustics or solvents

Scrubber Stack Lining & Exterior Finish

Area Coated: Exterior Coating

- First Coat: PLASITE 4550 S
- Second Coat: Carbozinc 859
- Third Coat: Carboguard 890
- Fourth Coat: Carbothane 133 HB

Project Description:

The company built a coal fired plant on site as a dedicated power source. Operation began mid 2007. The scrubber stack, fan and duct were built from 316 SS. After 3 months of operation random welds and plate areas were leaking liquid to the exterior. Liquid analysis revealed a wet, 150°F, low pH acid, high chloride environment. A 12 hour outage was scheduled to evaluate the stack condition. Plate thickness readings revealed a large portion of the stack was below structurally acceptable levels and rapidly deteriorating. Decision was made to replace the stack. While the new stack was being built it was felt the existing stack deterioration had to be stopped. The concern was it would structurally fail and possibly collapse.

Coating Selection Explanation:

The decision was made to shop build a new carbon steel stack and line it with a system provided by a local supplier used on an earlier project at a sister plant. With Tech Service review, we recommended Plasite 4550S at 40 mils for a fast turnaround in the existing stack. In addition we proposed 859/890/133HB as the exterior system for the new stack. On shutdown the stack was dismantled and placed on the ground. The sections were pressure washed, blown down and dry blasted. Aprofiles averaged 3 mils. The 4550S was applied the same day. After another 24 hours in 60°F temps the seconds were erected. The system was brought up shortly thereafter.

Additional Information:

The stack operated for four months. There were no signs of chemical or physical attack. The film was discolored but hard and continuous. Destructive investigation of the substrate revealed no permeation. The exterior system was shop applied and field touched up. Review of the system in operations shows no signs of attack from the ongoing wet fallout. The successful performance of both systems will produce future business. The associated duct and fan will be coated with 4550S later this year. Carboline products are being considered for plant maintenance in this plants nearby sister facilities. In addition, the engineering firm is active with industry related companies. Dialogue is in progress for new construction and maintenance projects with their clients.

Project Team: Chem Lime Plant and Maintenance Engineering

Pegasus Engineering-Birmingham, AL

Pro Assurance-Birmingham, AL

G&R Mineral Services-Irondale, AL

American Plant Services-Sylacauga, AL

