

Covanta Energy Cooling Tower Rehabilitation

Miami, FL

Submitted by MAPEI Corporation



Built in 1976, this 255 x 68 in. (77.7 x 20.7 m) cooling tower is divided into six different chambers. The “overflow channel” is 8 ft (2.4 m) wide x 255 ft (77.7 m) long. This is where most of the concrete repairs took place. The scope of the work included designing the repair and strengthening system of the walkway. This area is similar to a bridge piling. With advanced corrosion and concrete deterioration, operation of the facility came dangerously close to forcing a shutdown.

Large volumes of overhead repair proved to be too costly to perform a trowel application of a repair mortar. The total length of each flume was approximately 40 ft (12.2 m) long and 8 ft (2.4 m) wide. There was only 4 ft (1.2 m) of clearance from the bottom of the slab to the top of the water. The clearance problem was overcome by fabricating a floating platform. The platform moved continuously as the water level rose and fell throughout the day. The platform had two floats approximately 2 ft (0.6 m) wide on each side, enabling the water to run between the “pontoons” and not impede the flow of the water in the flume area. After all of the concrete repairs to the underside were completed and properly cured, a layer of triaxial carbon fiber was installed over the entire underside of the slab.

Despite the difficult work conditions, all work was completed while the cooling tower was 100% operational. By using state-of-the-art technology and good, old-fashioned value engineering, the owner incurred no downtime and the project was completed safely, on time, and within budget.

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OWNER

Covanta Energy
Miami, FL

PROJECT ENGINEER/DESIGNER

V2 Composites
Auburn, AL

REPAIR CONTRACTOR

Premier Corrosion Protection Services, Inc.
Tampa, FL

MATERIAL SUPPLIERS/MANUFACTURERS

MAPEI Corporation
Deerfield Beach, FL

Dynamis, Inc.
Venice, FL

2011 Award of Merit