PROJECT PROFILE

Madinat Yanbu Al-Sinaiyah

Concrete Corrosion Investigation | Yanbu, Saudi Arabia

CLIENT

Parsons Brinckerhoff Douglas Quade, Inc. on behalf of Royal Commission for Jubail and Yanbu

BACKGROUND

The following sites were studied as part of this project: seawater intake structure at Power and Desalination Plant; Haii Al-Fairuz stairway support columns (Delta Housing); Haii Radwa R-3 grade beams for residential area (DITCO); Haii Radwa R7 and R8 columns in residential area; Haii Al-Marjan columns for dome-shaped shade structures; and City Center apartment complex grade beams.

WJE was retained to perform an investigation of the corrosion of embedded steel reinforcing bars in various concrete structures at Madinat Yanbu Al-Sinaiyah.

SOLUTION

WJE engineers performed a visual inspection for signs of corrosion or sulfate attack deterioration. The engineers drilled concrete powder samples for subsequent acid-soluble chloride content profiles at various locations above and below grade. Copper-copper sulfate half-cell potential of reinforced concrete members was measured at various locations above and below grade.

WJE obtained sand samples for acid-soluble chloride content tests at various depths below grade and also at various randomly selected locations at near-grade locations within the RC area. Water samples were also obtained at various locations, including from various non-potable water trucks that were irrigating trees, to test for chloride ion content.

WJE | ENGINEERS ARCHITECTS MATERIALS SCIENTISTS