

Water Clarifier Slewing Bearing Replacement & Structural Engineering Support

Description

Industry: Energy & Power | **Service:** Structural & Mechanical Engineering

The Challenge

A power plant's water clarification tank is essential to solids removal within the facility's carbon capture system and required immediate maintenance. The slewing bearing at the center of the clarifier had failed due to water intrusion caused by rain exposure. Replacing it required access to the center of the tank, but no prior access system existed. Conventional access would have required complete removal of a walkway/support bridge, scraping ring, process piping, and electrical controls and conduit an expensive, time-consuming approach.

DSE was tasked with engineering a solution that minimized cost, equipment removal, and downtime, while also addressing the root cause of the bearing failure to prevent recurrence.

The Solution

DSE designed a custom rolled angle ring to provide temporary support for the existing center column during the bearing replacement. Twelve adjustable ratchet turnbuckles were secured to the support ring and positioned appropriately beneath the bridge walkway, the slewing drive base, and the rotating scraper cone allowing these components to remain in place and be supported independently while the bearing was removed.

To address the root cause, DSE designed a protective shield to cover the new slewing bearing, preventing rain water from collecting at the bearing and causing another premature failure.

Result

The special support ring enabled bearing removal without the extensive disassembly originally anticipated. The entire project was completed within the required timeframe, the unit was returned to operation, and the protective cover has eliminated the exposure condition responsible for the original failure.

Contact DSE to discuss structural engineering support for industrial maintenance projects.

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Date Created

April 20, 2026

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