DSI ENGINEERING –POWER PLANT

ENGINEERING SUPPORT WATER CLARIFIER [W10211-006]

CHALLENGE: Engineer a support system to allow the expedient replacement of a slewing bearing located within the center of a power plant's water clarifier.

SOLUTION: The project focused on providing structural inspections, studies, renovation plans and drawings for existing coal handling equipment and support systems. The least intrusive access creation for repair/replacement was engineered.

A water clarification tank, essential to solids removal within the facility's carbon capture system, required immediate maintenance. DSI was tasked with engineering a solution design that allowed for the replacement of the slewing bearing, located at the center of the water clarifier. DSI's solution minimized: (1) cost, (2) equipment removal, and (3) down time. This was accomplished while incorporating the following constraints:

- *no prior access system available for replacement*
- *no known cause of bearing failure*
- *no system to prevent future premature bearing failure*

Customer was faced with a complete removal of a walkway/support bridge, scraping ring, process piping, and electrical controls and conduit in order access replacement area. It was further discovered that the bearing failed due to water intrusion resulting from exposure to rain.

A custom designed ring was designed to provide support for the existing center column. This unique support was formed into a rolled angle ring which was welded to the column. Twelve adjustable ratchet turnbuckles were then secured to the support ring. These turnbuckles were positioned aptly under the bridge walkway, the slewing drive base, and the rotating scraper cone.

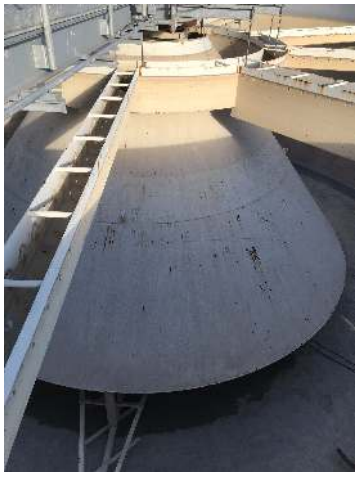

Figure 1: Scraping Ring

A protective shield was constructed to cover the new slewing bearing to prevent another premature bearing failure.

The special support ring design allowed the equipment to be supported, making possible the removal of the slewing bearing. The custom cover was successfully installed and prevents rain water from collecting at the bearing. The entire project was completed in the time frame required, allowing for return to operation.

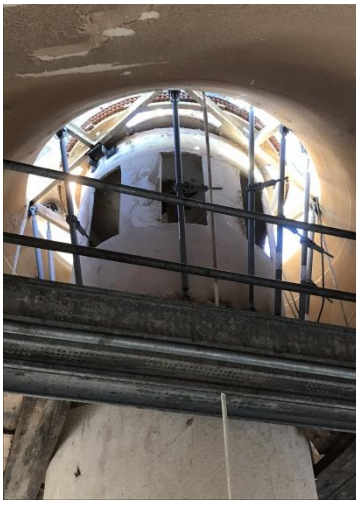

Figure 2: Center column with turnbuckle rings

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