

Customer

Ethylene plant, Saudi Arabia

Equipment:

Non-Elliott multi-stage steam turbine(s)

Problem

Customer was experiencing erosion problems in the diaphragms of four non-Elliott multi-stage steam turbines.

Solution

Pre-turnaround planning enables Elliott to complete a twelve day overhaul of the rotors, diaphragms and seals of four non-Elliott multi-stage turbines in only eight days.

Careful planning shortens petrochemical turnaround

A major ethylene producer in the Middle East was experiencing serious erosion in the diaphragms of four non-Elliott multi-stage steam turbines. The turbines drove the critical compression trains in the ethylene plant. The diaphragm erosion could eventually cause weld failure, resulting in an unplanned shutdown of vital processes and a significant loss of production and revenue.

After experiencing a similar issue in another plant, the customer knew that replacing the diaphragms with an improved material specification would solve the erosion problem. The challenge was to replace the diaphragms, gland carriers and rotors in all four critical turbines during a brief, twelve day plant shutdown.

Based on their satisfaction with Elliott's field work on similar turbines during a previous overhaul at another plant, the customer again chose Elliott for this project. Both Elliott and the customer understood the challenges associated with overhauling the four turbines within the twelve day window, and recognized that preparing a comprehensive overhaul plan was critical to success.

A key element to the success of the project was to begin the planning process as early as possible. Elliott assigned a dedicated project manager to help the customer develop the plan. The Elliott project manager began the initial series of work scope reviews with the customer twelve months prior to the planned shutdown date. The Elliott project manager spent two months on site, working with the customer to plan every detail and to identify any potential obstacle that might prevent on-time completion and start-up. The topics covered included the logistics of transporting and staging the components, the design of a rigging plan, and identifying the tooling and manpower required to remove and reinstall the equipment as efficiently as possible. A master schedule detailed where each task fit into the overall project, allowing the project manager to verify that the project was moving forward as planned.



When the plant shutdown began, an Elliott field service team of machinery specialists, technical service engineers and project managers worked alongside the turbine manufacturer's technical advisors to execute the plan. The Elliott project manager gave the customer daily project updates, using the master schedule to ensure they would complete the project on time.

After months of careful preparation, the Elliott field service team completed the overhaul of all four turbines in only eight days. By finishing this critical project four days early, the Elliott team enabled the customer to push other service contractors to complete their maintenance activities ahead of schedule. In the end, the customer was able to restart the plant two days ahead of schedule. The customer's investment in Elliott project management and planning was immediately recovered through this additional production and revenue.





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