

MODERNIZATION & EXPANSION OF FACILITY LIQUIDS MIXING AREA

CLIENT: CONFIDENTIAL
MARKET: Chemical
LOCATION: Garland, TX
TAI SERVICES: • Project Scoping
• Process Engineering • Electrical
• Mechanical • Detailed Design
• I & C • Structural • Preliminary Engineering • Project Cost Estimate
• Procurement • Construction Management • PLC Programming
• Start-up Services • Client Operator & Maintenance Personnel Training

COMPLETED: 2015
VALUE CLASS: \$7MM

ABOUT: *The Client is a global leader in water, hygiene and energy technologies and services that provide clean water, safe food, abundant energy and healthy environments.*

VALUE PROPOSITION: TAI staged all work and provided the client a “no downtime” transition during each phase of the project. The existing mixing department was kept operational while TAI added new, integrated capacity for the site with a limited footprint.

CHALLENGE

The Client's Garland, Texas plant manufactures detergent blocks for specialty cleaning, polishing and sanitation, as well as industrial cleaners. The Client wanted to expand their operational efficiency, improve safety, increase first-time batch acceptance levels, positively impact sustainability (reduce material loss, reduce utility consumption, etc.), and improve material flow.

The site had several capacity constraints, manual operations and fugitive material. Due to production demands, the existing mixing plant could not be taken offline during the modernization process. The project scope included the design, procurement and installation of four jacketed tanks, liquid and solid material delivery systems, instrumentation, IO cabinets, mezzanines and catwalks.



SOLUTION

TAI provided project scoping, preliminary engineering and a project cost estimate for the Client to submit for capital appropriation. TAI then worked on the detailed design which included a 3D laser scan and subsequent model of the new processing and packaging area for review. The scan provided a point cloud of the legacy mixing area and was converted to a Plant 3D format model used to:

- Eliminate interferences between new and existing equipment;
- Identify tie-ins; and
- Plan construction sequencing.

This project included 20 new mixing and holding tanks for a fully automated batching system, an ingredients production area, all new reconfigured packaging lines, and the related infrastructure to support an expanded production area (utilities upgrade, new pipe racks, catwalks, offices, MCC and integrated control system). Integration with legacy piping, structural, power and controls systems were key to the successful completion of the project.

RESULTS

Because of the preliminary engineering and 3D scanning, TAI was able to stage all work and provide the client a “no downtime” transition during each phase. The existing mixing department was kept operational while TAI added new, integrated capacity for the site with a limited footprint.

Part of TAI's responsibility included a review of the Client's process batching system for viable options that would positively impact the overall production from a sustainability position. TAI was responsible for all equipment specification developed as well as the creation of all bid and construction packages. TAI provided a complete detailed design engineering package and several services to fast track the schedule and create a single point of responsibility.

This project was one year in the making at \$3.3M in total project costs.