

## LUBE ESTERS CAPACITY IMPROVEMENT

**CLIENT:** CONFIDENTIAL  
**MARKET:** Chemical  
**LOCATION:** New Castle, DE  
**TAI SERVICES:** • Mechanical/Process Engineering  
• Structural Engineering  
• Electrical Engineering  
• Instrumentation, Automation & Controls

**COMPLETED:** 2015  
**VALUE CLASS:** \$2M

**ABOUT:** *The Client manufactures specialty chemical ingredients that enhance everyday consumer and industrial products.*



**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 announced plans to make a significant investment at its Atlas Point manufacturing site in Delaware. This state of the art facility includes production of lubricant esters. With the increased consumer demands for improvements in fuel economy and sustainability, the Client made the decision to re-invest in its site to better supply its value-added technologies to the North American market by increasing ester capacity and improving efficiency.

### SOLUTION

Work included mechanical/process engineering, structural engineering, electrical engineering, and instrumentation, automation, and controls. Specific responsibilities included modifying the existing solids mixing/press Feed Tank to allow stripping in this vessel instead of in Reactor #2, and adding a new recirculation heat exchanger (hot oil) for the solid mixing/press Feed Tank, a new hot oil heat exchanger to supply hot oil for the new recirculation heat exchanger, a new overhead condenser and a new vacuum system.

### Key Project Responsibilities

- PFD Modifications
- Piping & Instrumentation Diagram
- General Arrangement Drawing
- Electrical One Line Diagram
- Major Equipment Specifications
- Instrumentation Specifications
- Structural Modifications Plan
- Engineering Scope Narrative
- HAZOP Participation
- Project Cost Estimate

### RESULTS

TAI provided the Client with 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.

TAI performed these services under the Master Services Agreement with the Client. TAI provided project management and quality assurance throughout the project and to support the procurement aspect of this project. TAI also provided engineering and design services and supported the development of construction documents for the process improvement expansion. During this project, no fire protection system modifications were required nor were obtaining building permits to perform these tasks.

### RELATED PROJECTS

- Wastewater Tanks & Pumps Upgrade
- New Quality Control Laboratory Building
- Dowtherm Vaporizer Rehabilitation
- Electrical Load Study
- Relief Systems Design Documentation