

Multiple Water Conservation & Energy Savings Projects

CLIENT: CONFIDENTIAL
MARKET: Food & Beverage
LOCATION: Mountain Top, PA
TAI SERVICES:

- Project Management
- Structural Engineering
- Process Mechanical Engineering
- Electrical Engineering
- Construction Management and Bid Solicitation Services
- Automation, Instrumentation and Process Controls
- Engineering, Design and Procurement

COMPLETED: 2021
VALUE CLASS: \$2,700,000

ABOUT: A leading food and beverage company serving more than 200 countries and territories around the world.

CHALLENGE

The client required engineering, design, procurement and construction management services of multiple water conservation and energy savings projects to improve the Marley and EVAPCO cooling water tower operations and reduce plant water consumption by an estimated 5,000,000 gallons per year. Water and sewer savings were estimated to be \$400,000 per year.

This project involved a plant retrofit project that required extensive field work to complete the design. Continual communication between the plant's operations was required such that construction activities would not interfere with production. Strict health and safety protocols were followed as the major of construction was completed during the COVID-19 pandemic.

SOLUTION

TAI's multidisciplinary services were used on the following projects:

1. Water Reclaim/Collection System
2. Cooling Tower Variable Flow
3. Cooling Tower Sweep System

Process / Mechanical Engineering

- Basis of Design
- Piping and Instrumentation Diagrams (P&IDs)
- Process Flow Diagrams
- General Arrangement Drawings
- Process Equipment Lists
- Piping Plan & Elevation Drawing/Specifications



Electrical Engineering

- Electrical Single Line Diagram
- Electrical Plans and Load Locations
- Panel and MCC Schedule Modifications
- Electrical Motor Load List

Process Controls, Instrumentation & Automation

- System Architecture Drawings – PLC & HMI Systems
- Instrumentation List
- Conduit Block Diagram
- Electrical Wiring Terminations

Structural Engineering

- HUB Drain
- Concrete Maintenance Pad for Water Reclaim Tank(s)
- Concrete Maintenance Pad for Cooling Tower Sweep System
- Structural Concrete Plans and Elevations

Bid Solicitation

- Equipment Specifications
- Equipment Bid Packages
- Equipment Vendor and Contractor Bid Tab Development

RESULTS

TAI met the goals of the clients' multiple water conservation and energy savings projects by improving cooling water tower efficiency and by meeting company water reduction initiative.

This project contributed to reducing the overall Corporation water reduction goal by achieving a total fresh water make-up savings of five percent.