

Betaine Storage Tank and Nanofiltration Skid

CLIENT: **CONFIDENTIAL**

MARKET: Chemical Process

LOCATION: Baltimore, MD

SERVICES:

- 3D Laser Scanning
- Process/Mechanical Engineering
- Construction Documentation
- Project Management
- Structural Engineering

COMPLETED: 2020

VALUE CLASS: \$65,000

ABOUT: *The Client is an advanced materials and specialty chemicals company, committed to developing chemistry that address key societal challenges.*



CHALLENGE

TAI provided mechanical and structural engineering services, concrete design, and construction documents for the demolition of an existing tank (D-010), related structural steel, a flaker unit and a concrete block wall enclosure along with other miscellaneous items.

SOLUTION

TAI managed the installation of a new tank foundation, revised containment, larger capacity tank D-010, circulation and unloading pumps, a nanofiltration skid and the rework with elevation change of an access platform, approximately 35' - 45' access ladder, egress stairway to the adjacent building roof and betaine piping modifications.

TAI's provided a digital scan of the areas that included both interior and exterior scans of the Raw Materials Warehouse, Drumming Area and the roof area and related structural installation. TAI used the physical size reference information provided by Solvay for the tank size, pump sizes and the nanofiltration skid dimensions along with the structural platform installation needed to develop 3D images for use in preparing a mechanical equipment arrangement drawing. General arrangement

drawing(s) will be completed and reviewed with the Client to confirm equipment placement and the placement is per the Client's expectations.

TAI used the digital scan to register point cloud data to create a photographic image to develop demolition documentation for the related structural steel, existing betaine tank, pumps, and flaker unit. Modeling work indicated areas for new equipment installation, new structural steel platform, steel support modifications and equipment housekeeping and support pads. TAI's structural engineering used this data to coordinate location of process equipment (tank and agitator installation and applicable steel), develop drawings for stair modifications, catwalks, and mezzanine modifications steel support. Also included was design for structural pipe supports and line from the nanofiltration skid to process sewer connection.

Further, TAI provided process/mechanical design services associated with developing the General Arrangement (GA) drawing. The 3D scan data information provided model placement of the tank, pumps, nanofiltration equipment, structural platform outline, access ladder and stairway into the GA drawing. TAI's project management services included engineering design, schedules- including meetings, payments- and scope and construction changes.

RESULTS

TAI's multidiscipline engineering services provided the client with project management, technical and engineering services to complete this project on time and under budget.