Case Study
WTP #3

Liquid Oxygen Supply For Ozone Generation

Highlights:

Location — San Diego, California

Scope of Project:

- Engineering & project management to support design, manufacture, testing, installation, start-up and commission for LOX supply ozone generation
- (2) 15,000 gal LOX storage tanks
- Flow spec: 21,100 SCFH, 24 hour duty cycle x 365 days/year
- Project Completion: 2008

Application:

A water treatment plant located in California was the largest submerged membrane water treatment plant in the world. It was the first treatment plant to be built by the San Diego County Water Authority and located next to the Water Authority's aqueduct in a semirural area north of the city of San Marcos.

Project Background:

Chart was requested to develop the LOX storage system, truck unloading system, and vaporizer package to support the new build water treatment plant.

The high-capacity treatment plant produces up to 100 million gallons of treated water per day – enough to supply up to 22,000 typical four-person households each year.

Significant Accomplishments:

Met the tank equipment supply specifications for capacity, orientation, thermal performance, flow requirements, and structural integrity to comply with California seismic requirements. Low profile required to stay under adjacent building heights.

Designed basis specific to site included 24-7 operations with ambient air vaporizers switching every 12 hours to allow for vaporizer thaw.

System Configuration:

Chart's (2) Horizontal 15000 gal vessels (30,000 gal total on-site LOX capacity) with stainless steel plumbing. Tanks mounted with pressure and level transmitters. Preformed cold shock testing at factory prior to shipment. The Pre-engineered, factory tested modules included remote fill, skid, (2) Ambient Air Vaporizers (Thermax SG270) rated for 24/ 7 operation for 24,000 SCFH flow.

The fully automated system included Internet data monitoring of liquid level and pressure. Chart commissioned the system and trained site personnel.