

# PROJECT PROFILE

## EDINBURG, TX

UNIVERSITY OF TEXAS - PAN AM

2.3 MG THERMAL ENERGY STORAGE TANK

In 2002, the University of Texas – Pan American contracted Natgun Corporation to construct a 2.3 MG thermal energy storage tank (TES) for the purpose of saving energy costs, and to provide back-up cooling in the event of unplanned downtime of their chillers. The TES system was designed to shift the electric load of the chillers from on-peak periods (daytime) to off-peak periods (night time).



Shah Smith and Associates provided the TES system design that included integrating this Natgun tank into the existing chilled water central utility plant that provides cooling for over 2.4 million square feet of the campus buildings. After completion in 2003, the tank was leak tested and certified at zero measurable loss, then performance tested during the summer peak cooling season. During the commissioning phase Shah Smith confirmed that the tank exceeded the design requirements by providing more than the required useable storage capacity of 10,000 ton-hrs.

Figure 1 Temperature Readings During Discharge Cycle

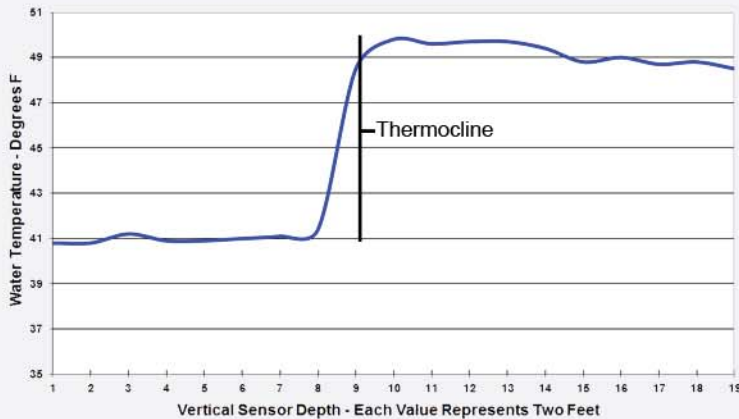


Figure 1 shows the actual water temperature readings at varying depths in the TES tank during one interval of the discharge cycle. It is evident from the data that the tank was performing well because the thermocline was narrow, less than 2 feet deep. The thermocline is the boundary layer of water that separates the cold water at the bottom of the tank from the warmer water at the top of the tank.

Annual energy cost savings were projected to exceed \$50,000. Cost savings include both peak demand and energy savings. Chillers will operate more efficiently at night time because the outdoor ambient temperature is generally 15 - 20 degrees cooler than during the peak periods in the middle of the afternoon.

This TES tank is utilized daily throughout the cooling season providing many value-added benefits for the University of Texas – Pan American. Natgun TES tanks are built watertight and maintenance-free ensuring owners decades of continuous service.

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