

PROJECT PROFILE

DULLES, VA

INTERNET SERVICE PROVIDER (ISP)

0.7 MG THERMAL ENERGY STORAGE TANK

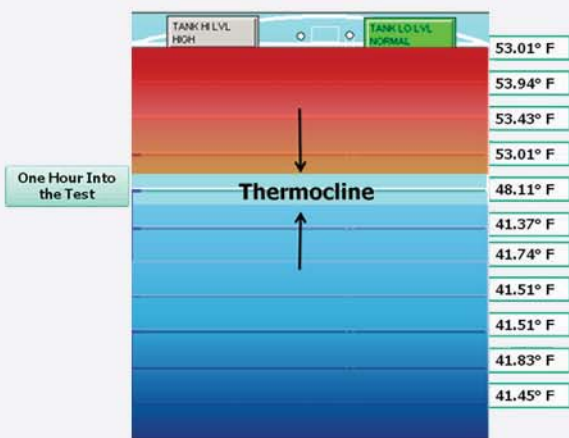
In 2006, a large Internet Service Provider (ISP) located in Dulles, VA selected Natgun to build a mission critical Thermal Energy Storage (TES) tank to service their data center. The data center which operates 24 hours each day could not afford the consequences that would result if their chilled water cooling system were to experience downtime. This TES tank, now the third Natgun-built TES tank for this same ISP, was designed to provide back-up cooling for the central plant in the event that the chillers experience unexpected downtime.



The engineer for the project, Dunlap & Partners, designed the revisions to the chilled water system which included the addition of a new TES tank. The tank was specified to be capable of storing enough chilled water equal to the peak cooling load for the facility for a period of two hours. In addition, the chilled water pressure drop through the tank was specified to stay below 3 psi even in the event that the pumps were to require a delivery flow rate of 5,184 gpm which is the maximum flow rate to the building.

Poole & Kent, the mechanical contractor, provided the new chilled water piping, pumps, and valves in addition to overseeing the installation of this TES tank. Natgun together with Poole & Kent worked closely with the owner and engineers in ensuring that the TES system was constructed within the agreed upon schedule, and commissioned expeditiously so that the data center would be protected with this reservoir of chilled water.

Figure 1 Temperature Readings



In August of 2007, representatives of the owner, the mechanical contractor, the engineer, and Natgun commissioned the TES system. The commissioning process included shutting down all chillers during the middle of a weekday of the data center operation. Immediately upon shutting down the chillers, the new TES system was energized and chilled water from the TES tank became the sole source of cooling for the facility. The system remained in this mode for 1 hour and 40 minutes, while the TES tank operated flawlessly.

As the tank was being discharged, the Thermocline (or boundary layer between the warm water at the top of the tank, and the cold water at the bottom of the tank) was observed to be less than 2 feet deep (See Figure 1).

Like all Natgun tanks, this TES tank is built watertight and maintenance-free, ensuring the ISP decades of continuous service.

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