

# HEATEC BULLETIN

Product news from Heatec Inc., an Astec Company 5200 Wilson Road, Chattanooga, TN 37410 Phones 423-821-5200 800-235-5200



A new Heatec heater (in the foreground) is being installed at the Chattanooga Gas Company. The building that presently houses their first Heatec heater will be extended to enclose both heaters. The heaters convert liquefied natural gas, stored in the large white tank (in the background) to natural gas.

Heater controls are placed for easy access and viewing.



## Gas Company Uses Heatec Heaters in LNG Vaporization Process

Heatec recently delivered a new helical coil heater to Marlboro Enterprises, Inc. for installation at the Atlanta Gas Light Company's LNG facility in Chattanooga, Tennessee. It is the second Heatec unit at this location. The units heat a mixture of glycol and water to a temperature of 190 degrees F. The heated mixture circulates through vaporizers that convert LNG (liquefied natural gas) to pipeline quality natural gas.

Each summer the Chattanooga Gas facility liquefies and stores natural gas from their pipeline. The LNG is held at a temperature of minus 260 degrees F. During the winter when demands for natural gas exceed the amount available from the pipeline, the LNG is pumped from storage through the vaporizers and back into the pipeline.

Each of the two heaters can bring the circulating glycol-water mixture to temperature in ten minutes and can vaporize 66 million standard cubic feet per day. Each has an insulated cylinder 12 feet in diameter by 32 feet long. The cylinder houses piping formed into a helical coil. A 60 million Btu/hour low NO<sub>x</sub> burner mounts on one end of the cylinder. It fires through the center of the coil to heat the glycol-water mixture as it's pumped through the hot coil. The units have heat recovery economizers for higher efficiency and reduced flue gas temperatures.

Both heaters were purchased for the Chattanooga Gas Company by Marlboro Enterprises, Inc. (MEI) of Signal Mountain, Tennessee. MEI operates this plant for the gas company. Roger Stebbing, President of MEI, designed their LNG vaporization process and engaged Heatec to build its heaters. MEI got the plant's first heater about two years ago. MEI also uses the same type of Heatec unit in a LNG facility they designed and built for the Columbia Gas Transmission Corporation in Chesapeake, Virginia.

MEI reports that the Heatec units in operation at Chesapeake and Chattanooga have exceeded performance expectations and design

capacity. The units have provided the reliability and quick response essential to maintaining gas supply to the pipeline during winter demands. The first unit at the Chattanooga plant was the mainstay of the vaporization system during the winter of 1995. The Heatec units replace BS&B vaporizers installed in 1972.

MEI explains their decision to use Heatec helical coil heaters instead of fire-tube boilers as follows:

- The helical coil heater is less likely to leak its glycol-water mixture than a fire-tube boiler. This is because the mixture is in the heater coil instead of the shell. Boilers have hand hole gaskets and tube sheets that are more apt to leak.
- The design pressure for the helical coil heater is significantly higher than for an equivalent fire tube boiler.
- The volume of glycol-water in the helical coil heater is less than half that required for an equivalent fire-tube unit.
- Velocities of the glycol-water are much higher in the helical coil unit than in a fire-tube boiler. Thus, the helical coil unit has a higher heat transfer rate and has reduced glycol degradation due to lower film temperature.
- The lower volume of glycol-water and the higher heat transfer rate provide a faster response—essential to the demands of the vaporization process.

Heatec builds heating and storage equipment for a wide variety of industries. Its products are used at asphalt storage terminals, hot mix asphalt plants, oil refineries, chemical plants, food processing plants and others. The company also builds heating equipment and containers for ships. Heatec, located in Chattanooga, Tennessee, is a division of Astec Industries, a major producer of equipment for road construction.

