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LOW COST, LOW MAINTENANCE CONTROLS ENHANCE NGL RECOVERY

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ABSTRACT

El Paso Field Services is the current operator of the Thompsonville 300 MMSCFD Turbo expander gas plant built by Valero Hydrocarbons near Hebbronville, Texas in 1992. El Paso has continued to make low cost investments in plant improvements by implementing advanced control strategies. These advanced control strategies have been employed to optimize plant performance for the past 9 years with little or no maintenance required.

The strategies include **Automatic Rate Control** (Coordinates Tower Pressure/Compressor Capacity) – balanced manipulation of Tower pressure and compressor capacity regulates processed volumes for tighter rate control under residue delivery nominations. Automatic adjustment of rate on a 24/7 basis reduces Operator intervention and delivery imbalances. **Multi-sensing C1/C2 Control** – delivers on-spec C1/C2 product quality including shortly after expander /compressor trips or restarts. Instead of relying entirely on bottoms temperature or the analyzer, the strategy employs several inputs such as tower pressure to reduce methane “giveaway” in NGL product, as well as reduce ethane losses due to over stripping. **Tower Flooding Protection** – on-line estimation of liquid rates and automatic exchanger balancing to limit liquid production and provide protection from flooding due to excessive liquid feed to the Tower. **Rapid Response Logic for Expander and Compressor Trips** - reduces Operator intervention and minimizes the impact of equipment trips, preventing tower over-pressure or recompressor shutdowns due to low suction.

Design features of note are that the strategies are executed in the DCS and do not require an extra computer; installed costs are normally restricted to engineering; and maintenance requirements have been minimal. These strategies are detailed here as Shared Practices for the gas processing industry, as they can be used to improve performance at most cryogenic gas processing plants.

(for further reading on this topic – contact Barry D. Payne & Associates, Inc. at www.bdpayne.com)

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