



*Presentation to the GPA Annual Convention in March 2005*

**Unattended Remote Operation Facilitated  
By Plant Controls Upgrade with Advanced Regulatory Controls**

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**Abstract**

Western Gas Resources operates a 45 MMSCFD Turboexpander gas plant at the Benedum field south of Midland, Texas. The Western Benedum gas plant has recently upgraded its control system to support enhanced monitoring and operation from its Midkiff Gas Plant about 25 miles away. Included in the control upgrade are several Advanced Regulatory Control strategies to provide improved performance with reduced operator intervention.

This paper highlights selected advanced control strategies which make automatic adjustments to compressor capacity, tower pressure, and tower reboiler duty to maintain efficient plant operation without operator intervention.

**Automatic Processing Rate Control** strategy provides balanced manipulation of tower pressure and compressor capacity delivers automatic adjustment of plant rate on a 24/7 basis, thereby reducing operator intervention.

**An Advanced C1/C2 Control** strategy delivers on-spec C1/C2 product quality, and has demonstrated consistent ability to return to on-spec control following plant restarts after expander or compressor trips. The strategy employs several process inputs including tower pressure to reduce methane “giveaway” and ethane losses caused by over-stripping of the NGL product.

Other controls include enhanced **Chiller Load Management** and **Rapid Response Logic** for Expander and recompressor trip management.

All of the advanced control strategies implemented at Benedum were configured in the new plant control system, and did not require any extra computer hardware. This eliminated the need for specialized training and maintenance services that would be required to support an external advanced control platform.

*(for further reading on this topic – contact Barry D. Payne & Associates, Inc. at [www.bdpayne.com](http://www.bdpayne.com))*

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