

## ***Upgrade of Casing Wellheads and Implementations***

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### **Abstract**

This paper has been prepared for those who are involved with the underground storage operations and interested in the long term reliability of surface wellhead assembly on the salt dome, bedded salt, and rock mined cavern facilities.

The most critical integrity of the storage caverns relies upon the surface wellhead assembly. Specifically, the storage integrity depends on the condition of the casing bradenhead flange and its casing pipes. This paper describes the experiences of LDH Energy Mont Belvieu for the last twenty five years as well as a case study of leaking wellhead flange on their Ethylene storage well.

To upgrade of the casing pipe flange in an old wellhead assembly, a thorough understanding of the surface casing pipes is required by the operator before they can plan to replace or upgrade them. A specific case study is included on the Ethylene well that was originally drilled in 1977 by Conoco Oils and was later acquired by Enterprise Products( Formerly Teppco) in 2004 and LDH Energy in 2007.

At the last twenty five years, LDH Energy has replaced seven (7) casing bradenhead flanges and repaired three (3) bradenhead flanges out of twenty two (22) liquid storage wells in service. Some of these wellhead replacements were based on increasing the throughput of the LPG product delivery rate as well as repairing the damaged bradenhead flanges. Other wellhead flanges were repaired due to surface corrosion condition of the bradenhead flange and milling the ring groove of the bradenhead flange.

All in all, we will have a new challenge of replacing or upgrading the existing wellheads for the aging storage wells and face numerous opportunities of upgrading the wellheads for the enhancement of well integrity in the forthcoming years.