In mature fields, liquid loading of gas wells is a common problem. In the short term this can lead to decreased production, and if not managed correctly, can ultimately reduce overall reservoir recovery. One option for managing the problem is the use of surfactants as foaming agents to artificially unload the well. The preferred method would allow automatic and continuous delivery of these surfactants.

Halliburton’s Capillary Deliquification Safety System facilitates delivery of surfactants or other chemicals and liquids to a specified point within the completion while maintaining the purpose and functionality of a downhole safety device. The Deliquification Safety System can be installed in an existing completion with the appropriate safety valve landing nipple profile – either a dedicated safety valve landing nipple or within a tubing-retrievable safety valve (TRSV) where the communication of the control system is activated to operate an installed wireline-retrievable safety valve (WLRSV).

The Deliquification Safety System’s injection feature operates via the control system for the WLRSV. When the control line pressure reaches a predetermined pressure, a regulator installed below the WLRSV opens allowing chemical injection to take place. Use of the existing control line provides a cost-effective method of installing a semi-permanent injection system without the need to modify the wellhead.

The WLRSV is designed to shut in the well at a point below the surface and is opened with hydraulic control pressure. In this application, the applied chemical injection pressure maintains the safety valve in the open position during injection, and the safety valve closes when injection is stopped.

**Applications**
- Chemical injection for gas well deliquification or scale treatment purposes
- Available for landing nipples/tubing-retrievable safety valves with 2.75-in. and larger seal bores

**Features**
- Field-proven wireline-retrievable safety valve
- Equalizing or non-equalizing type flapper closure

**Benefits**
- Unique design allows system installation with no requirement for wellhead modification
- Used with safety valve landing nipples or tubing-retrievable safety valve
- Installed using standard intervention techniques
Simple Installation

1. Existing safety system - WLRSV assembly installed in safety valve landing nipple (SVLN)
2. Pull WLRSV assembly from SVLN
3. Run capillary injection line after space-out
4. Close rams on capillary injection line after space-out
5. Attach capillary injection line to injection WLRSV
6. Run and set injection WLRSV and capillary injection line in existing SVLN

For more information on Capillary Deliquification Safety Systems, please call your local Halliburton representative or email us at completions@halliburton.com.

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