# Design, Operation, and Troubleshooting of Dual Gas-lift Wells

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# Design, Operation, and Troubleshooting of Dual Gas-lift Wells

## 1 Scope

This document provides recommended practices (RPs) for the selection, design, operation, surveillance, optimization, automation, and troubleshooting of dual gas-lift wells.

The purpose of this document is to present RPs, guidelines, and tools to help obtain optimum production from dual gas-lift wells. This document also contains practices that should be avoided to minimize problems and inefficiencies that can be associated with ineffective dual gas-lift operations. Compared to single completions, dual completions typically have more operating problems, are more difficult to work over, and can produce less efficiently.

It is not the purpose of this document to recommend the practice of dual gas-lift. In some cases, dual gas-lift is problematic and often ineffective. Often it is difficult or even impossible to effectively produce both completions in a dual well using gas-lift over the long term. Where there are other feasible alternatives to produce dual wells, they should be considered. However, many dually completed oil wells should be artificially lifted initially or after reservoir pressures have declined and/or water cuts have increased. In many cases, the only practical method of artificial lift for these wells is gas-lift. Therefore, every effort should be made to design and operate dual gas-lift systems as effectively as possible.

Annexes to this RP include:

a) an overview of dual gas-lift systems,

b) dual gas-lift mandrel spacing designs,

c) dual gas-lift unloading valve design for production pressure operated (PPO) valves, and

d) dual gas-lift practices not recommended.

## 2 Terms, Definitions, Acronyms, and Abbreviations

### 2.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

**2.1.1**
**automation**
A system for monitoring, control, diagnosis, and optimization of gas-lift operations that includes measuring important gas-lift parameters, controlling gas-lift injection rate, detecting and diagnosing problems, and optimizing gas-lift operations.

**2.1.2**
**bottomhole pressure**
**BHP**
Normally measured at the midpoint of the perforated interval.

**2.1.3**
**commingling (commingle)**
A process where fluids from different productive formations are combined and produced through a single conduit.

**2.1.4**
**cross-flow**
The flow of reservoir fluids from one productive formation into another.