Managed Pressure Drilling Operations with Surface Back-pressure

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Introduction

These guidelines (recommended practices) prepared by the IADC Underbalanced Operations and Managed Pressure Drilling (UBO/MPD) Committee, consisting of representatives from various IADC member companies; represent a composite of the practices employed by various operating companies, service companies and drilling contractors in managed pressure drilling operations. In some cases, a reconciled composite of the various practices employed by these companies was utilized. This publication is under the jurisdiction of the American Petroleum Institute, Drilling and Production Operations Subcommittee.

Managed pressure drilling operations are being conducted with full regard for personnel safety, public safety, and preservation of the environment in such diverse conditions as urban sites, wilderness areas, ocean platforms, deep water sites, very hot barren deserts, cold weather areas including the arctic environment and wildlife refuges. As tools and equipment continually improve and develop, the technology has been applied in many geologic formations, including oil and gas reservoirs and on sour wells, thus driving the need for globally accepted standards and safe operating best practices.

Managed Pressure Drilling Operations with Surface Back-pressure

1 Scope

This document provides information for planning, installation, testing and operation of wells drilled with surface back-pressure managed pressure drilling (MPD). This document applies only to drilling rigs with surface blowout preventers (BOPs).

This document considers situations where the total drilling operation is performed balanced or overbalanced, including both hydrostatically overbalanced (no supplemental surface pressure needed to control inflow) and hydrostatically underbalanced (supplemental surface pressure needed to control inflow) systems. See Annex A for guidance on planning and executing influx management using MPD techniques. For underbalanced operations, refer to API 92U.

This document does not cover MPD operations with subsea BOP stacks (see API 92S).

2 Terms, Definitions, and Abbreviations

2.1 Terms and Definitions

For the purposes of this recommended practice the following definitions apply.

2.1.1
common well barrier element
A barrier element that is shared between the primary and secondary barrier envelopes.

2.1.2
drilling window
Pressure difference between the higher of pore/collapse pressure and fracture/fluid losses pressure.

2.1.3
hazard identification
HAZID
The process of identifying hazards in order to plan for, avoid, or mitigate their impacts.

2.1.4
hazard and operability
HAZOP
A structured and systematic examination of processes (existing or planned) in order to identify and evaluate problems that may represent risks to personnel, environment or equipment, or prevent efficient operations.

2.1.5
kick
An unplanned, unexpected influx of liquid or gas from the formation into the wellbore.

2.1.6
kick tolerance
Maximum influx volume at a specific intensity that can be safely circulated out of the well without compromising the weakest point (formation, casing, surface equipment, etc.).