Managed Pressure Drilling Operations—Controlled Mud Level with a Subsea Blowout Preventer

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Introduction

These guidelines (recommended practices), which have been 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 used. 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 diverse conditions, such as urban sites, wilderness areas, ocean platforms, deepwater 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 geological formations, including oil and gas reservoirs and on sour wells, thus driving the need for globally accepted standards and safe operating best practices.

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1 Scope

1.1 General

This document provides information for planning, installation, testing, and operation of wells drilled, cased, cemented, completed, or abandoned with controlled mud level (CML) managed pressure drilling (MPD). This document applies only to drilling rigs with a marine drilling riser and subsea blowout preventers (BOPs).

This document considers situations where the total drilling operation is performed balanced or overbalanced, including both hydrostatically overbalanced and when mud level is reduced during circulation to a level where supplemental annular friction pressure may be required to stay overbalanced.

1.2 Installation and Use of Blowout Preventers

Installation, testing, and use of the subsea BOP and associated well control equipment is the same as for conventional drilling operations and is not included in this publication. Refer to API Standard 53 for information regarding installation and testing of BOPs in a conventional drilling operation.

2 Normative References

This document contains no normative references. For a list of documents associated with API 92C, see the Bibliography.

3 Terms, Definitions, and Abbreviations

3.1 Terms and Definitions

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

3.1.1
anchor point
The depth in the wellbore at which a constant annulus pressure is intended to be kept.

3.1.2
controlled mud level
CML
A form of managed pressure drilling that regulates fluid column height in the marine drilling riser to manage the annular pressure profile in the well.

3.1.3
drilling window
The pressure range between the pore/collapse pressure and fracture/fluid losses pressure.

3.1.4
equivalent circulating density
ECD
The effective density of the circulating fluid in the wellbore resulting from the sum of the pressure imposed by the static fluid column and annular friction pressure.