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PEOPLE'S REPUBLIC OF CHINA**

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Replacing GB/T 31033-2014

**Technical requirements for well control technology of oil and
gas drilling**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 31033-2014 "Technical Specification for Well Control in Petroleum and Natural Gas Drilling".

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2014 edition);
- b) The definitions of "sulfur oil and gas wells" and "high-sulfur oil and gas wells" have been changed (see 3.1 and 3.2 of the 2014 edition);
- c) The supplementary conditions for the safety distance requirements for well locations provided in the geological design have been changed [see 4.1a), 4.1b), 2014 edition 4.1a), 4.1b)], deleted the distance requirement between the shaft and underground mining tunnels

and mine passages [see the 2014 edition 4.1c)];

d) Changes to the additional safety value or additional density of drilling fluids for oil and gas layers containing toxic and hazardous gases such as hydrogen sulfide and carbon dioxide.

Requirements on the upper limit of pressure (see 4.6, 4.6 of the 2014 edition);

e) The well control requirements for wellbore structure design have been changed [see 4.7a), 4.7b), 4.7d), 4.7e), 4.7a), 4.7b), 4.7e of the 2014 edition 4.7d), 4.7e)];

f) Changed the requirements for the storage of weighted drilling fluid, weighted materials and desulfurizer before drilling into oil and gas formations (see 4.9, 4.9 of the 2014 edition);

g) Changes to the blowout preventer guide, blowout preventer, spool, casing head, gate valve, choke manifold, kill manifold, blowout preventer line and blowout line Connection requirements (see 4.10, 5.1 of the 2014 edition);

h) Changed the relevant requirements for well control equipment (see 4.11a), 4.11c), 4.11d), 4.11f), 4.11i), 2014 edition 4.10a), 4.10c), 4.10d), 4.10f), 4.10i)];

i) Deleted the provisions on the technical requirements for well control devices (see 5.1 of the 2014 edition);

j) Changed the requirements for the locking device of the gate blowout preventer [see 5.1b), 5.2b) of the 2014 edition];

k) Changed the installation and use requirements of the remote control console for BOP (see 5.2a), 5.2b), 5.2c), 5.2d), 5.2e), 5.2g), 5.2h), 5.3a), 5.3b), 5.3c), 5.3d), 5.3e), 5.3g), 5.3h) of the 2014 edition];

l) Changed the installation requirements for the driller's console [see 5.3, 5.4 of the 2014 edition];

m) The operating procedures for using shear gate blowout preventers to shear off drilling tools in the well have been changed, and the ultra-high pressure shear well shut-in procedure has been added [see 5.5, 5.6 of the 2014 edition];

n) Changed the installation and use requirements of casing heads [see 5.6a), 5.6b), 5.7a), 5.7b) of the 2014 edition];

o) The installation and use requirements of blowout preventer pipelines have been changed [see 5.8b), 5.9b) of the 2014 edition];

p) Deleted the installation and use requirements of the pressure gauge on the blowout preventer line [see 5.11 of the 2014 edition];

q) The installation and use requirements of the blowdown line have been changed [see 5.11e), 5.11f), 5.11g), 5.12e), 5.12f) of the 2014 edition 5.12g)];

- r) Changed the installation and use requirements of internal blowout prevention tools [see 5.12a), 5.12b), 5.12c), 5.13a), 5.13b), 2014 edition 5.13c)];
- s) Changed the installation and use requirements of liquid-gas separators [see 5.13c), 5.14c of the 2014 edition)];
- t) Changed the installation requirements for the exhaust pipeline of the vacuum degasser (see 5.14, 5.15 of the 2014 edition);
- u) Changed the pressure test requirements for well control equipment [see 5.15a), 5.15b), 5.15d), 5.15e), 5.16a), 5.16b), 2014 edition 5.16d), 5.16e)];
- v) Changed the time requirements for blowout prevention drills for work teams (see 6.4, 6.4 of the 2014 edition);
- w) Added the requirement that the construction unit should appoint supervisors to stay at the well or inspect the well during the drilling of oil and gas formations (see 7.1);
- x) Changed the requirements for monitoring formation pressure at the bottom of exploration wells, pilot wells and data wells (see 7.3, 7.2 of the 2014 edition);
- y) Changed the requirements for testing the circulating pressure of each new drill bit before starting drilling (see 7.5, 7.4 of the 2014 edition);
- z) The technical measures to prevent overflow and blowout during drilling and drilling have been modified (see 7.8, 7.7 of the 2014 edition);
- aa) The measures for lost circulation during drilling have been modified (see 7.12, 7.11 of the 2014 edition);
- bb) Changed the well control requirements for logging and cementing [see 7.13, 7.15, 7.12, 7.14 of the 2014 edition];
- cc) The parameters to be verified after well shut-in have been changed (see 7.18, 7.17 of the 2014 edition);
- dd) Deleted the description of the well killing method after the empty well overflows and shuts in (see 7.19 of the 2014 edition);
- ee) Modified some contents of measures for preventing hydrogen sulfide in sour oil and gas wells (see 8.2.2, 8.2.3, 8.2.7, 8.2.10, 8.2.2, 8.2.3, 8.2.7, 8.2.10 of the 2014 edition) 8.2.3, 8.2.7, 8.2.10);
- ff) Modified some contents in the treatment of uncontrolled blowout (see 9.2, 9.7, 9.2, 9.7 of the 2014 edition);
- gg) Deleted well control and hydrogen sulfide protection training (see Chapter 10 of the 2014 edition);
- hh) Added well control technology management (see Chapter 10);

- i) Added 140MPa BOP combination (see A.2.3 in Appendix A)
- j) Added 140MPa throttle manifold combination (see C.1.3 in Appendix C);
- kk) The numbering of the internal control gate valve in the well control manifold layout of the double drilling four-way wellhead has been changed (see C.3.2, C.3.2 of the 2014 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

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This document was first published in 2014 and this is the first revision.

Technical requirements for well control in oil and gas drilling

1 Scope

This document specifies the technical requirements for well control in oil and gas drilling operations.

This document is applicable to oil and gas well pressure control in oil and gas exploration and development drilling operations on land, offshore and artificial islands.

Gas well control technology management shall be implemented by reference.

2 Normative references

GB/T 20174

GB/T 20972