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ICS 75.200
CCS E98

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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GB/T 28055-2023

Technical specification for hot tapping and plugging on steel pipeline

钢质管道带压封堵技术规范

Issued on: May 23, 2023 **Implemented on: May 23, 2023**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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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 28055-2011 "Technical Specifications for Hot Plugging of Steel Pipelines": Compared with GB/T 28055-2011, except In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) The scope of application adds "hydraulic active sealing, double-stage sealing sealing, intelligent sealing operations" (see Chapter 1);

b) The terms and definitions of "hydraulic active sealing", "two-stage sealing sealing" and "intelligent sealing" have been added (see 3:18, 3:19, 3:20);

c) Added the specific requirements for the manufacturer of plugging pipe fittings and welding under pressure (see 4:1, 4:4);

d) Added welding process form of hot-pressed pipelines (see 9:6:1);

e) Added the specified requirements for the opening reinforcement of the half-way tee (half-way four-way) (see Chapter 10);

f) Deleted "Figure

5 Schematic Diagram of surfacing welding form of circumferential fillet weld" (see Figure 5 of the:2011 edition);

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g) Added installation requirements for double-stage sealing plugging heads and hydraulic active plugging heads (see 10:3:2:5, 10:3:2:6);

h) The detailed requirements for the pressure test after the bypass pipe is welded are added (see 10:3:5);

i) The requirements for gas protection during pipe breaking operations have been added (see 10:8);

j) Added the requirements for cold protection and heat preservation measures for equipment during construction in extremely cold weather (see 11:3:3:1): Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed and managed by the National Standardization Technical Committee of Boilers and Pressure Vessels (SAC/TC262): This document is drafted by: China Petroleum Pipeline Bureau Engineering Co:, Ltd: Repair Branch, China Petroleum Pipeline Bureau Engineering Co:, Ltd:, China Special Equipment Inspection and Research Institute, CNPC Pipeline Inspection Technology Co:, Ltd:, National Pipeline Network Group Beijing Pipeline Co:, Ltd: The main drafters of this document: Cao Chongzhen, Liu Gefei, Jia Zhifang, Li Wendong, Xu Li, Xiu Changzheng, Hao Xinwei, Wang Xin, Shi Chuncheng, Song Jin, Li Yuzhong, Xu Haibo, Ji Feng, Tao Weili, Zhang Yixin, Na Jing, Xia Guofa, Jiang Xiucai, Chen Juan, Cheng Zhijie, Wang Guochao, Zhao Ming, Huang Kai, Hong Xianfeng, Jia Huiying, Jiang Xiaohong, Yin Peng, Chen Boyuan: This document was first published in:2011, and this is the first revision: Technical specifications for hot-pressurized plugging of steel pipelines

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1 Scope

GB/T 28055-2023 covers cutting into a live pipeline and stopping the flow without shutting it down. Hot tapping and plugging is how a section of an oil or gas transmission line is repaired or modified while the rest keeps operating: a fitting is welded onto the pressurised pipe, a valve is mounted, a cutter drills through the wall, and a plugging head is inserted to isolate the section. Every step is performed on a line that is full and under pressure. The welding is done on a wall being cooled from the inside by flowing product, which changes how the weld cools and risks burn-through if the remaining wall is misjudged; and the isolation must hold while people work downstream of it. It is done because the alternative - shutting down a transmission line - has consequences of its own. This document specifies the technical requirements for hot tapping and plugging operations on pressurised steel pipelines, and applies to oil and gas transmission pipelines. Under ICS 75.200 and CCS E98, it is written for pipeline operators, for the specialist contractors who perform this work, and for the safety authorities who permit it.

This document specifies the technical requirements for drilling and plugging operations of steel pipelines under pressure: This document is applicable to steel oil and gas transmission pipeline drilling operation under pressure and plug type, folding type, cartridge

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type, bladder type, hydraulic active, double-stage Smart plugging operations, pipelines of other media, after fully evaluating the risks brought by the temperature or toxicity of the media, can refer to this document for implementation Drilling and plugging operations:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document:

GB/T 19326 forged branch pipe seat

GB 30871 Safety Code for Special Operations in Hazardous Chemical Enterprises

GB/T 31032 Welding and acceptance of steel pipes

GB 50194 Safety Code for Power Supply and Utilization of Construction Sites

GB 50251 Code for Design of Gas Transmission Pipeline Engineering

GB 50253 Code for Design of Oil Pipeline Engineering SY/T 6554-2019 Safety regulations for drilling under pressure in the petroleum industry

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3 Terms and Definitions

The following terms and definitions apply to this document: 3:1 hot-tapping In the closed state of the pipeline, a round hole is machined on the pipeline by mechanical cutting: 3:

2 Tapping machine In the closed state of the pipeline, it is a kind of equipment for machining circular holes on the pipeline by mechanical cutting: 3:3 plugging head A device consisting of a mechanical support part and a sealing part, used to prevent the flow of medium in the pipeline: 3:4 plugging machine In a closed state, the plugging head can be sent into the pipeline from the opening: 3:5 plugging It is an operation to feed the plugging head into the pipeline from the opening and seal the pipeline, thereby preventing the flow of the medium in the pipeline:

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