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PEOPLE'S REPUBLIC OF CHINA**

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**Technical specification for oilfield industry wastewater
treatment**

(English Translation)

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Table of Contents

Foreword

- 1 Scope of application
- 2 Normative references
- 3 Terms and definitions
 - 3.1 Oilfield produced water
 - 3.2 Produced water treatment system produced water treatment system
 - 3.3 Oil production wastewater oilfield discharge wastewater
 - 3.4 Biochemical treatment
- 4 Contaminants and pollution loads
 - 4.1 Source of oil production wastewater
 - 4.2 Wastewater volume
 - 4.3 Wastewater quality
 - 4.4 Design water quantity and design water quality
- 5 General requirements
 - 5.1 General provisions
 - 5.2 Construction scale
 - 5.3 Engineering composition
 - 5.4 Project site selection and general layout
- 6 Process design
 - 6.1 Process selection principle
 - 6.2 Process
 - 6.3 Main processing unit

Foreword

To implement the "Environmental Protection Law of the People's Republic of China" and the "Water Pollution Prevention and Control Law of the People's Republic of China" this standard is formulated for the construction and operation management of wastewater treatment projects, prevention of environmental pollution, protection of the environment and human health.

This standard specifies the technical requirements for the design, construction, acceptance and operation management of oil recovery wastewater treatment engineering.

This standard is a guidance document.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. China Environmental Protection Industry Association, Sinopec Group Company Shengli Oilfield Branch Oil Technology Research Institute, China University of Petroleum (East China).

This standard was approved by the Ministry of Environmental Protection on June 10, 2014.

This standard has been implemented since September 1, 2014.

This standard is explained by the Ministry of Environmental Protection.

Technical specification for oil recovery wastewater treatment engineering

1 Scope of application

This standard specifies the technical requirements for the design, construction, acceptance and operation management of oil recovery wastewater treatment engineering.

This standard is applicable to the whole process of construction and operation of oilfield wastewater treatment engineering, and can be used as environmental impact assessment of oil recovery wastewater treatment project.

The technical basis for the design and construction of price, environmental protection facilities, environmental protection acceptance of completed construction projects and operation and management after completion.

2 Normative references

The contents of this standard refer to the terms in the following documents. For undated references, the valid version applies to this standard.

GB 12348 Environmental noise emission standards for industrial enterprises General rules for safety and health requirements of GB 12801 production process GB 50009 Building Structure Load Specification GB 50014 Outdoor Drainage Design Code GB 50016 Building Design Fire Code GB 50019 Heating, Ventilation and Air Conditioning Design Code GB 50052 design specification for power distribution system GB 50058 Specification for design of electrical installations for explosion and fire hazard environments GB 50093 automation instrument engineering construction and acceptance specification GB 50183 Oil and gas engineering design fire protection specification GB 50191 seismic design code for structures GB 50204 Concrete Structure Engineering Construction Quality Acceptance Specification General specification for construction and acceptance of GB 50231

mechanical equipment installation engineering GB 50236 Field equipment, industrial pipeline welding engineering construction and acceptance specifications GB 50268 Water supply and drainage pipeline engineering construction and acceptance specifications GB 50275 Compressor, fan, pump installation engineering construction and acceptance specifications GB 50303 Building electrical engineering construction quality acceptance specification GB 50428 Oilfield Produced Water Treatment Design Specification GB J 87 Industrial Enterprise Noise Control Design Specification HJ/T 9 Surface Water and Wastewater Monitoring Technical Specifications HJ/T 92 Water Pollutant Total Monitoring Technical Specification HJ/T 242 environmental protection product technical requirements belt press filter for sludge dewatering HJ/T 245 Environmental Protection Products Technical Requirements Hanging Packing HJ/T 246 Environmental Protection Products Technical Requirements Suspended Packing HJ/T 252 environmental protection product technical requirements, microporous aerator HJ/T 260 Environmental Protection Product Technical Requirements Blasting Submersible Aerator HJ/T 263 Environmental Protection Product Technical Requirements Jet Aerator HJ/T 283 environmental protection product technical requirements chamber filter press and plate and frame filter press HJ/T 335 environmental protection product technical requirements sludge concentration belt dewatering machine HJ/T 336 Environmental Protection Product Technical Requirements Submersible Sewage Pump HJ/T 337 Environmental Protection Products Technical Requirements Biological Contact Oxidation Complete Set HJ/T 369 Environmental Protection Product Technical Requirements Dosing Device for Water Treatment HJ/T 493 Technical Regulations for Preservation and Management of Water Samples HJ 576 Anaerobic-anoxic-aerobic activated sludge process wastewater treatment engineering technical specification HJ 577 Sequencing Batch Activated Sludge Wastewater Treatment Engineering Technical Specification HJ .2006 Technical Specifications for Sewage Coagulation and Flocculation Treatment Engineering HJ .2007 air floatation engineering technical specification HJ .2008 sewage filtration treatment engineering technical specification HJ .2009 Biological Contact Oxidation Wastewater Treatment Engineering Technical Specification HJ .2010 Membrane Biological Wastewater Treatment Engineering Technical Specification SY/J 4039 Basic terminology for petroleum engineering construction SY/T 0048 Oil and Gas Engineering General Drawing Design Specification SY/T 0049 Oilfield Ground Construction Planning Specification Design SY/T 5329 recommended index and analysis method for water injection quality in clastic reservoir SY/T 6276 Oil, Gas and Industrial Industry Health, Safety and Environmental Management System Design code for CECS 111 sewage activated sludge treatment in cold regions Measures for Completion and Acceptance of Construction Projects (Engineering) (National Planning Commission Construction [1990] No. 1215) Measures for the Administration of Environmental Protection Acceptance for Completion of Construction Projects (State Environmental Protection Administration Order.2001 No. 13) Measures for the Automatic Monitoring and Control of Pollution Sources (State Environmental Protection Administration Order No. 28, 2005)

3 Terms and definitions

The following terms and definitions established by GB 50428 and SY/J 4039 apply to this standard.

3.1 Oilfield produced water

The water containing crude oil produced during the oilfield exploitation process can be re-injected into the oil layer as an oil displacing agent after being purified, which is a water source for water injection.

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3.2 Produced water treatment system produced water treatment system

Produce water from oil fields through a series of water treatment facilities (including a small amount of well washing, downhole working wastewater, and backwashing line of produced water treatment equipment) Water, etc.) is purified to meet the water quality requirements for production refilling, process remixing or other uses.

3.3 Oil production wastewater oilfield discharge wastewater

In the process of oilfield oil recovery, in addition to production water such as reinjection, process remixing or other uses, wastewater discharged from the bank is required.

3.4 Biochemical treatment

After biochemical treatment, the process of removing contaminants is further removed.

4.1 Source of oil production wastewater

The source of oil production wastewater is shown in Figure 1.

Figure 1 Source of oil production wastewater

4.2 Wastewater volume

4.2.1

The amount of oil production wastewater is related to the degree of oilfield development, process, scale, activity of edge and bottom water, and ratio of injection to production.

4.2.2

The amount of wastewater should be based on the measured data; if there is no measured data, it can be compared with the existing development level, production scale and same type of oil production.