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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Emission Standard of Air Pollutants for Onshore Oil and Gas
Extraction Industry**

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1 Scope of application

This standard specifies the air pollutant emission control requirements, monitoring and supervision and management requirements for the onshore oil and gas mining industry.

This standard applies to the management of air pollutant emissions of existing onshore oil and gas mining industrial enterprises or production facilities, as well as the management of onshore oil and gas Environmental impact assessment, environmental protection facility design, completed environmental protection acceptance, emission permit issuance and Air pollutant emission management after it is put into operation.

2 Normative references

This standard refers to the following documents or clauses thereof. For dated references, only the dated version applies to this standard.

For undated references, the latest edition (including all amendments) applies to this standard.

GB 9053 Stabilized Light Hydrocarbons

GB 37822 Volatile organic compound fugitive emission control standard

GB/T 8017 Determination of vapor pressure of petroleum products Reid method

GB/T 11059 Determination of crude oil vapor pressure expansion method

GB/T 16157 Determination of particulate matter in exhaust gas from stationary pollution sources and sampling methods for gaseous pollutants

GB/T 16758 Classification and technical conditions of exhaust hoods HJ 38 Determination

of total hydrocarbons, methane and non-methane total hydrocarbons in waste gas from stationary pollution sources by gas chromatography HJ/T 55 Technical guidelines for monitoring fugitive emissions of air pollutants HJ/T 56 Determination of sulfur dioxide in exhaust gas from stationary pollution sources by iodometric method HJ 57 Determination of Sulfur Dioxide in Waste Gas from Stationary Pollution Source Constant Potential Electrolysis HJ 75 Technical Specification for Continuous Monitoring of Flue Gas (SO₂, NO_x, Particulate Matter) Emissions from Stationary Pollution Sources HJ/T 397 Technical Specification for Stationary Source Waste Gas Monitoring HJ 604 Determination of Total Hydrocarbons, Methane and Non-Methane Total Hydrocarbons in Ambient Air Direct Injection-Gas Chromatography HJ 629 Determination of Sulfur Dioxide in Exhaust Gas from Stationary Pollution Source Non-dispersive Infrared Absorption Method HJ 732 Sampling air bag method for volatile organic compounds in waste gas from stationary pollution sources HJ 733 Technical Guidelines for the Detection of Volatile Organic Compounds in Leaks and Open Liquid Surface Emissions HJ 819 General Principles of Technical Guidelines for Self-Monitoring of Pollutants HJ 1131 Portable UV Absorption Method for Determination of Sulfur Dioxide in Waste Gas from Stationary Pollution Sources WS/T 757-2016 Technical Specification for Wind Speed Detection and Evaluation of Local Exhaust Facilities "Administrative Measures for Automatic Monitoring of Pollution Sources" (Order No. 28 of the State Environmental Protection Administration)

Measures for the Administration of Environmental Monitoring (Order No. 39 of the State Environmental Protection Administration)

"Technical Guidelines for Continuous Monitoring of Non-methane Total Hydrocarbon Emissions in Waste Gas from Stationary Pollution Sources (Trial)" (Environmental Office Monitoring Letter [2020] No. 90)

3 Terms and Definitions

The following terms and definitions apply to this standard.

3.1 onshore oil and gas exploitation and production Oil and gas extraction activities in onshore oil and gas fields, onshore and offshore oil and gas fields and onshore terminals of offshore oil and gas fields, including oil and gas exploration Exploration, drilling, completion, logging, logging, downhole operations, oil and gas testing, oil and gas production, oil and gas gathering and transportation, and oil and gas processing operations or processes It does not include oil sands, oil shale, shale gas, coalbed methane, natural gas hydrate and other unconventional oil and gas exploration activities.

3.2 Shallow water coastal oilfield and gasfield Beach-sea oil and gas fields that are close to the shore, are connected to the shore by embankments, and adopt the development method of land oil and gas fields. Produced from the beach platform (artificial island)

The oil, gas, water or their mixtures are transported onshore for processing.

3.3 onshore terminal of offshore oil and gas field A station constructed onshore to receive and process oil, gas, water or mixtures thereof from offshore oil and gas fields.

3.4 oil and natural gas centralized processing plant A station for centralized treatment of crude oil, natural gas, produced water, waste water, etc., is also called a joint station.

3.5 natural gas processing plant Desulfurization (carbon), dehydration, hydrocarbon water dew point control, product fractionation, condensate recovery, condensate stabilization, and production yard for the treatment of acid gas and waste water.

3.6 natural gas purification plant A station for desulfurization (carbon), dehydration of natural gas, and treatment of produced sour gas and wastewater.

3.7 oil storage bulk petroleum terminal A station for storing and exporting (transporting) crude oil, stabilized light hydrocarbons and other liquid petroleum and natural gas products.

3.8 natural gas liquid (NGL)

The general term for unstabilized liquid hydrocarbon mixtures recovered from natural gas, also known as mixed light hydrocarbons, generally including ethane, liquefied petroleum Oil and gas and stable light hydrocarbon components.

3.9 liquefied petroleum gas (LPG)

A hydrocarbon mixture with C3 and C4 as the main components, which is gaseous at normal temperature and pressure, and is liquid after compression or cooling.

3.10 Stabilize light hydrocarbon natural gasoline A liquid petroleum product with pentane and heavier hydrocarbons as the main components extracted from natural gas condensate or crude oil, also known as natural gasoline.

Its final boiling point is not higher than 190 degrees C, and it is allowed to contain a small amount of butane under the specified vapor pressure. According to GB 9053, it is divided into two grades. No. 1 and No. 2.

3.11 oilfield and gasfield produced water The process of oil and gas production in oil and gas fields produces separated water from the formation along with oil and gas.

3.12 Crude stabilization The process of separating light components from crude oil and reducing the evaporation loss of crude oil.

3.13 recovery hydrocarbon vapor from tank The process in which gaseous hydrocarbons formed by the evaporation of oil products in the recovery tank enter the product system.

3.14 liquid-mounted seal The sealing form of the edge seal of the floating plate of the storage tank is immersed in the liquid surface of the stored material, also known as the liquid inlaid seal.

3.15 mechanical shoe seal A sealing form in which the metal sheet is vertically pressed

against the wall of the storage tank by a spring or a counterweight lever.

3.16 double seals A two-layer seal is provided between the edge of the floating plate of the storage tank and the inner wall of the storage tank, also known as double-sealed seal. The lower seal is called a primary seal, The upper seal is called secondary seal.

3.17 vapor balancing system A gas communication and balance system provided between the loading facility and the storage tank or between the storage tank and the storage tank.

3.18 volatile organic compounds (VOCs)

Organic compounds participating in atmospheric photochemical reactions, or organic compounds determined according to relevant regulations. This standard uses non-methane total hydrocarbons (NMHC) as a VOCs emission control project.

3.19 non-methane hydrocarbons (NMHC)

Sum of gaseous organic compounds other than methane for which the hydrogen flame ionization detector responds, measured as carbon, using the specified monitoring method.

3.20 VOCs material VOCs-containing materials Raw and auxiliary materials, products and wastes (slag, liquid) with a mass proportion of VOCs greater than or equal to 10%.

3.21 volatile organic liquid Any organic liquid capable of releasing VOCs into the atmosphere that meets one of the following conditions.

(1) A single-component organic liquid with a true vapor pressure greater than or equal to 0.3 kPa;

(2) In the mixture, the total mass of the components with a true vapor pressure of 0.3 kPa or more accounts for more than or equal to 20% of the organic liquid.

3.22 true vapor pressure The saturated vapor pressure (absolute pressure) at the working (storage) temperature of an organic liquid, or the vaporization rate of an organic mixture liquid at zero Air pressure, also known as bubble point vapor pressure, can be converted according to GB/T 11059, GB/T 8017 and other corresponding measurement methods.

Note. For organic liquids working (storing) at room temperature, the working (storing) temperature is calculated based on the maximum monthly average temperature throughout the year.

3.23 leak detection value Using the specified monitoring method, the VOCs concentration detected by the detection instrument at the leakage point of the equipment and pipeline components is deducted from the environmental background value.

Net value, expressed as mole fraction of carbon.

3.24 standard state The state when the temperature is 273.15 K and the pressure is 101.325 kPa. The air pollutant emission concentration limits stipulated in this standard are