
Research and Failure Analysis of Materials and Corrosion Technology for Oil and Gas Field Development in Deep-water of South China Sea Subsea Production System

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Abstract For the development of deep-water oil and gas fields, the harsh conditions of the deep-water environment put forward higher requirements for corrosion protection design. Through typical cases of deep-water corrosion failure of South China Sea subsea production system, this article analyzes the shortcomings of the current anti-corrosion standard for deep-water environment anti-corrosion design, and introduces the exploration and practice of the research on the materials and corrosion technology of oil and gas field development in deep-water environment. The core technology and experience obtained in deep water cathodic protection system, deep water underwater coating system, deep water material selection and risk assessment (especially HISC) are fully demonstrated, providing technical guidance for domestic deep water anti-corrosion design.

Keywords Deep-water environment; Cathodic protection; Ca-Mg deposits; Deep-water coating system; Material selection; Risk assessment

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