
Digital Delivery of Corrosion Control Design for Oil and Gas Field Construction Projects

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Abstract

With the development of oil and gas field construction in the directions of digitalization and intelligence, the corrosion control in oil and gas field construction projects has gradually achieved digital and intelligent development through digital design, digital delivery, and intelligent monitoring. The corrosion control technology, is integrated the model information introduced by a 3D design and the material coding with the 3D model, constitutes a digital life entity of corrosion control. In the procurement stage, the precise information carried by the digital object is transferred to the procurement process, laying a foundation for precise and efficient procurement. In the construction stage, the digital object with detailed information facilitates organizations, controls, installations, and more information collection. In the operation and maintenance stage, after the plant is completed and put into production, the digital object carrying the design, procurement, construction, and other information is aggregated into the digital twins of the plant during the operation and maintenance period. The digital life entity is further endowed with mathematical models and intelligent applications. The corrosion monitoring parameters are regularly detected and uploaded in real time, providing guidance for corrosion control operation and maintenance. The refined digital delivery of corrosion control provides basic information for procurement, construction, operation and maintenance, and full life cycle management. It offers strong support for the realization of the digital and intelligent development of corrosion control in oil and gas fields.