

Pipeline Integrity Management of Buried Oil and Gas Transmission Pipelines in Libya Through Corrosion Management

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Abstract : Buried pipeline is an underground structure that is buried in certain depth of soil and surrounded by soil medium. It has become the main mode of transportation of oil and gas from production facilities to refineries and export terminals due to its low cost, fast construction speed and large transportation capacity. Poor integrity is one of the major causes of leaks and accidents in oil and gas transmission pipelines. To ensure safe operation and to keep pipeline in a fit-for-service condition, it is imperative to have an efficient and effective pipeline integrity management (PIM) system. The remaining life of the pipeline can also be extended in the most reliable, safe and cost-effective manner by implementing effective pipeline integrity management. The importance of effective pipeline integrity management increases as the pipeline infrastructure continues to age. The pipelines in Libya, which are typically made of steel are susceptible to corrosion. The corrosion can cause failure of pipeline and significant safety and environmental hazards. To address corrosion in oil and gas pipeline, several corrosion management strategies can be employed. It covers corrosion mitigation, monitoring, inspection, and risk evaluation. Libya is a North African country and its economy is based on petroleum industry. It has large network of pipelines. This paper describes the pipeline integrity management system used in the Libyan oilfields to protect pipeline facilities based on standard practices of corrosion mitigation and inspection. An effective integrity management program anticipates and mitigates or eliminates integrity issues before they lead to incidents or failures. Understanding the pipeline's integrity and threats in the context of the surrounding environment is key to making informed integrity management decisions. The following elements are developed for the operational phase to ensure that adequate management practices are in place to assess failures, and manage and respond to emergencies: (a) Failure assessment plan; (b) Emergency response plan; and (c) Remaining life assessment plan.

Keywords : pipeline integrity management, buried pipeline integrity management, corrosion management in oil and gas pipelines, corrosion mitigation and inspection

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