

### 论文

#### 海上平台生产管道的服役寿命分析

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#### 摘要:

根据我国南海某油田平台生产管线的历年穿孔记录, 分析了影响管线服役寿命的因素. 结果表明, 管输流体流速对管线服役寿命起决定作用. 从统计曲线上估算了临界流速的大小, 当流速超过上述临界值时, 管线服役寿命不会超过2年; 临界流速从2004年时的4.5 m/s下降到2004年后(2005、2006到2007年至今)的2.0 m/s, 是造成该油田近年来穿孔频率加大的根本原因.

关键词: 海上油田 平台生产管线 服役寿命 临界流速 磨损腐蚀

#### ANALYSIS ON SERVICE LIFE OF FLOW LINES ON OFFSHORE PLATFORM

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#### Abstract:

Based on the perforation records in the past years for the flow lines on the platform at offshore oilfield in the South China Sea, the effects of various factors on the service life of flow lines were investigated. The results show that the flow rate in the line was a dominative factor. The critical flow rate,  $V_T$  could be estimated from the statistic curves. The service life of the flow lines could not last more than 2 years if the flow rates in the lines were above the critical value. The value of  $V_T$  decreases from 4.5 m/s (in 2004) to 2.0 m/s (after 2004), which may cause rapid increase of perforation events in recent years. The real causes of  $V_T$  decreases need further investigation; however that may connect with factors such, as the increase of sand content in fluid etc.

Keywords: offshore oilfield flow lines on the platform service life critical flow rate erosion corrosion

收稿日期 2006-10-31 修回日期 2007-06-10 网络版发布日期 2009-06-12

DOI:

基金项目:

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