

عنوان مقاله:

Approaches for Developing Solutions for Specific NDT Problems

محل انتشار:

دومین کنفرانس بین المللی بازرسی فنی و آزمون غیرمخرب (سال: 1387)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

As oilfields are being explored in deeper and deeper water, the inspection of welds in deepwater Steel Catenary Risers (SCR's) is a growing issue in the oil and gas industry. These structures are subject to fatigue, and because of this the requirements for the welds are very demanding. In construction of the risers, basic inspection is a quality assurance process. Apart from concerns about welding quality, inspection is increasingly tailored to find flaws that might become a crack initiation later on. During the lifetime of the installation the concern then shifts to monitoring the welds for the presence and growth of potential cracks. Two approaches for developing NDT solutions are presented in this paper. The first one is starting from the problem analysis, the other is starting from the practical toolbox of the NDT technician. This paper will argue that both are in essence right in their own way, but that both perspectives are needed to develop breakthrough NDT technology. We will look at the problem of weld inspection in two distinct situations: new construction of the weld and inspection during the use of the equipment. These situations give rise to distinct failure modes, and associated flaws. We will then look at the ultrasonic toolbox, from a fundamental point of view and try to match fundamental characteristics of ultrasonic techniques to the flaws present in both situations. The research presented in this paper has been conducted by Applus RTD and Delft University of Technology and aims to better understand the innovation process in NDT and other areas where new technology and safety interact. The input of Delft University is in the innovation system model presented. The research is motivated by Applus RTD trying to improve facility in employing new technologies. The intent is to understand how to maximize the value created for customers while retaining high quality and consistently providing customer confidence.

کلمات کلیدی:

Deepwater risers, ultrasonic crack monitoring, problem solving approach

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<https://civilica.com/doc/57326>

