Value of information-based inspection planning for offshore structures - DTU Orbit (09/11/2017)

Value of information-based inspection planning for offshore structures

Asset integrity and management is an important part of the oil and gas industry especially for existing offshore structures. With declining oil price, the production rate is an important factor to be maintained that makes integrity of the structures one of the main concerns. Reliability based and risk- based inspection (RRBI) constitutes an efficient method to optimize inspection planning. Basing the inspection planning on pre-posterior Bayesian decision analysis and especially a Value of Information analysis allows to explicitly quantify the expected benefits, costs and risks associated with each inspection strategy. A simplified and generic risk-based inspection planning utilizing pre-

posterior Bayesian decision analysis had been proposed by Faber et al. [1] and Straub [2]. This paper provides considerations on the theoretical background and a Value of Information analysis-based inspection planning. The paper will start out with a review of the state-of-art RBI planning procedure based on Bayesian decision theory and its application in offshore structure integrity management. An example of the Value of Information approach is illustrated and it is pointed to further research challenges.

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