DNV.GL

Technical Assurance in Decommissioning Technology

Whose barrier is it anyway

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19 November 2015

Innovation and Technology – Solutions in a changing world



Assurance and Barriers

- Barriers mitigate risk if you understand your risk well, you can optimise your barriers. It costs more not understanding them, because you can't reach Goldilocks' 'Just Right' position.
- Who are we considering? Ultimately, all stakeholders; earlier they are considered, the more benefit from optimising.
- What is the main hazard [to success] we come across?
 - Clarity in what the innovation is for; the value proposition.
 - Clarifying and Validating requirements saves time, money, lost opportunities.
- We audited 150 Technology Qualification projects...











Treating threats in Novel or Standard Technology

- Codes and standards tell you how to treat threats identified by the Committee. You follow the rules expecting to be OK.
- If you stretch a standard to cover something the Committee never considered, you are not treating all the risks, but you still want industry to trust you are doing the right thing.
- Once upon a time there were no standards those were messy times... pre-Whitworth
- So, what do we do?

Simple Technology Triage



Back to the Audit: A Qualification Process (DNV-RP-A203)



Observations from 150 TQ projects (5=Good)

Main Steps	Key Findings	1 Score 5
Qualification Basis	Non-existing, too wide specifications (wish-list), Room for vendor to challenge operator not utilised	
Technology Assessment	Erroneous arguments to simplify qualification - Absence of disaster is not proof of safety	
Threat Assessment	Lots of good work, Need better understanding of component interaction, FMxx not thorough	
Qualification Plan	Unrealistic expectations on predictability, Poor QB, FMxx results not used to prepare the plan	
Execution of Plan	Tick box vs learning, test candidate OK?, FAT vs. Qualification Testing (close to failure?)	
Performance Review Ungraded	Good result: Strong QB, iteration and team-work, production QA/QC not replaced by Qualification	

Some threats [to implementation] that innovators face

- Solution too new, too different, no clear standards, uncertainty in application
- Technology company not known in market, no evidence of prior success, not invented here
- Buyer knowledge / Seller knowledge disconnect
- Lifecycle complexity and duration, cashflow, competency, continuity
- Lack of trial opportunities, perceived risk
- Lack of confidence working with regulators
- Technology Strategy not linked to Business Strategy
- Note, the whole Value Chain can innovate

Bow Ties – Hazards, Events, Threats, Consequences



Bow Ties – Identify Barriers



Implementing an Innovation can be Risky



The roles in Qualification



Assure – Some Observations

- If you find a gap in your technology [expectations vs. realisation] it's cheaper to do so in the friendly environment of your yard, than at customer site.
- Does evidence that an innovation will function as `intended' mean it will be adopted faster, and is evidence better than experience?
- Optimisation means `Good Enough'...
 - Eliminate unnecessary requirements, optimise Testing, Utility, Integrity and Safety (ALARP),
 - Optimise what we can but *demonstrate we are managing the risks*.
 Decommissioning is a dynamic 'Changing State' of the object.

(but do it better) ssurance σ More S S Jot

SAFER, SMARTER, GREENER



OIL & GAS

CALL TO COLLABORATE: GUIDANCE ON LATE LIFE HAZARD MANAGEMENT

Partners are being sought to develop industry guidance for the effective and cost-efficient management of major accident hazards and Safety Case compliance during an offshore installation's late life phases. The guidance will be developed within a joint industry project.

The effective management of major accident hazard (MAH) risks is a continuous process that starts during an offshore installation's design phase and finishes when it ceases to exist.

Within the late life phases of an installation, which stretch from before cessation of production to dismantlement and removal, the MAH risk profile will change significantly and this must be reflected in how the MAH risks are managed.

Safety and environmental critical elements (SECEs), their performance standards, and the breadth and depth of SECE assurance and 3rd party verification processes, will need to be reviewed and updated at strategic times as the installation ceases operation, systems are cleaned and decommissioned, wells are plugged and abandoned, and the structures removed.

There is a legal requirement to maintain compliance with the offshore Safety Case regulations (OSCR). This includes the need to maintain the accuracy of the Safety Case and to submit it to the competent authority for acceptance, at times stipulated by the regulations.

Reflecting the importance of maintaining effective MAH risk management and legal compliance, whilst minimising the cost and effort required to deliver this, DNV GL with support of Decom North Sea, is seeking the collaboration of industry partners in a joint industry project (JIP) to develop guidance to help industry during the late life phases of an installation.

The proposed JIP will bring together key industry stakeholders including installation operators, supply chain organisations and regulators to develop a common understanding of the issues and develop good practice guidance for effective and cost efficient MAH risk management and OSCR compliance.



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Summary - Make the Right Start

Define your technology very tightly, and do so early.



- Validate requirements and understand the value of qualifying or not; looking for a rubber stamp or a better product; what hazard are you addressing,
- Do you need gaps filled in your understanding of the limits of your innovation or the greater system, to convince stakeholders,
- You created something great; can you articulate the risks professional pessimists would see now, before your potential customers do,
- Use a TQ process internally, especially if you don't pay an independent body,
- Qualification is a good barrier and it often pays for itself, directly and indirectly

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Participants of the JIP will be able to share experiences, learn from others, and help shape fit-for-purpose late life approaches to MAH risk management and Safety Case compliance.

The JIP will offer the opportunity, outside a specific project, supply chain, or organisation-to-organisation reporting line, to discuss with other parties (e.g. operators and regulators), issues, concerns, opportunities, ideas, hypothetical situations, etc.

It is proposed that the guidance will:

- Provide an overview of the OSCR (2005 and 2015 revisions) and effective Safety Case management through the late life phases
- Capture the current best/agreed practices, and lessons learned, provide a roadmap through definition, development and execution of installation decommissioning and dismantlement
- Provide guidance on various aspects, issues, requirements, challenges and solutions that are relevant for offshore installation operators during the late life phases within the field of MAH risk management and Safety Case compliance.

This JIP should be of interest to:

- Oil and gas installation operators/dutyholders
- Decommissioning/dismantlement turnkey contractors

- Heavy lift vessel operators
- HSE, DECC, MCA and other relevant regulators and authorities.

DNV GL is an international organisation that delivers innovative solutions for the late life phases in an asset's lifecycle. DNV GL provides risk management services including: technology qualification and readiness assessments, due diligence, environmental and technical safety consultancy, assurance & verification, and marine warranty. DNV GL develops international standards and guidelines through collaboration with industry partners, mainly through DNV GL led JIPs.

Decom North Sea was established in 2010 in response to the needs of industry. The organisation is working to enhance knowledge transfer and facilitate collaborative activities to deliver "game changing solutions" that minimise decommissioning costs, ensure best value for tax payers and maximise business potential for its European member companies.

FOR FURTHER INFORMATION CONTACT

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