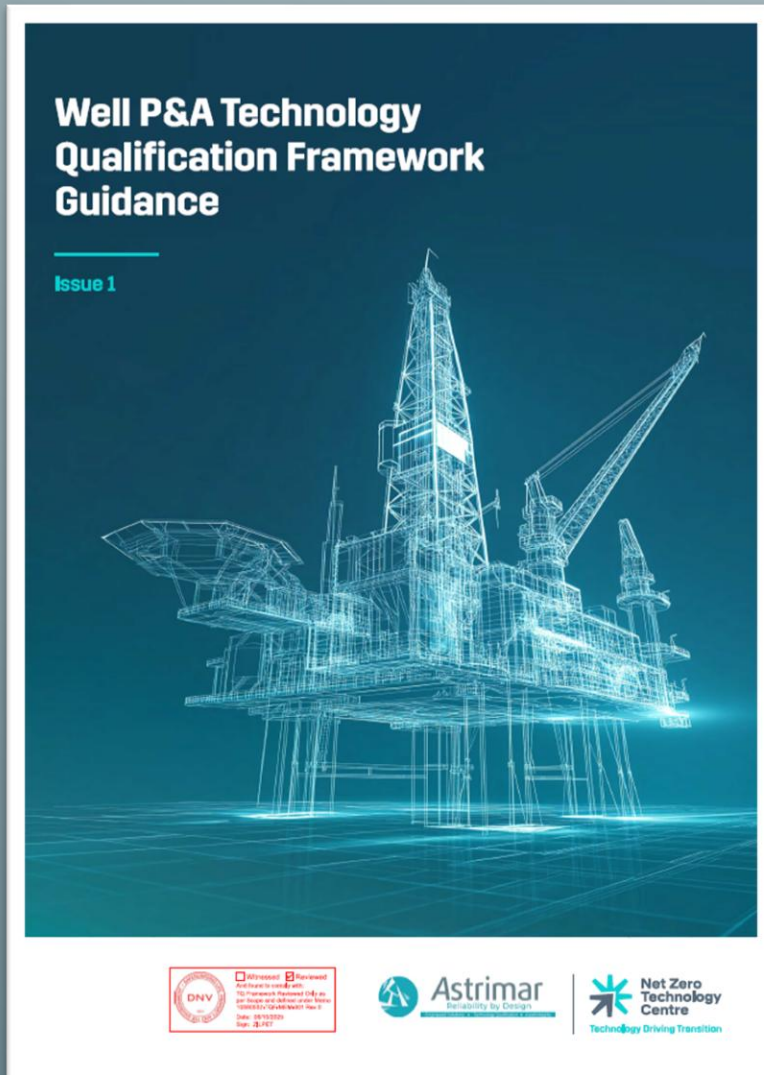


A Pathway to Qualified Well Barrier Technologies

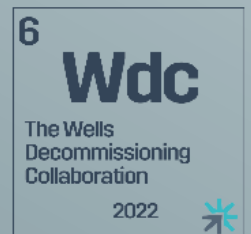
NZTC Qualification Framework for Well P&A Technologies
1-year on ...

SPE Well Decommissioning
3 June 2026

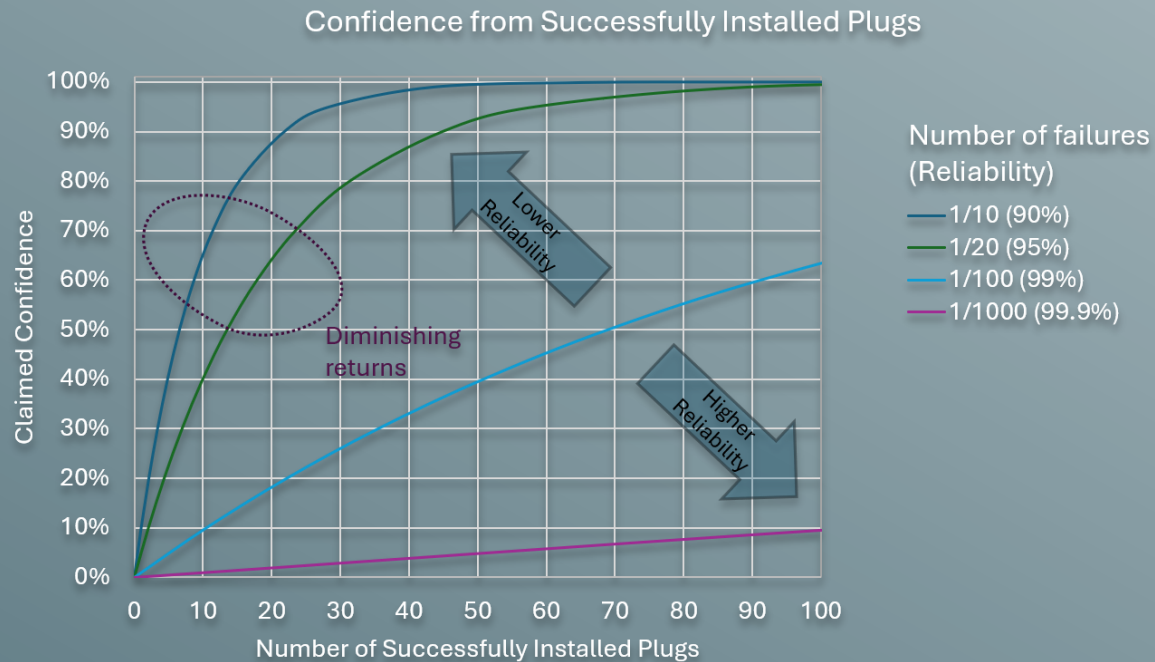
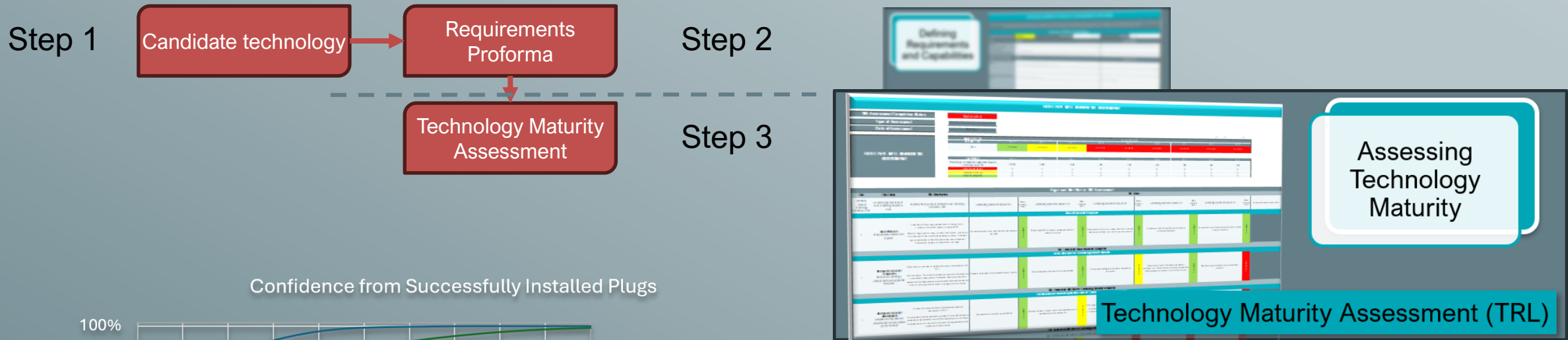
Technology Qualification Framework for Well P&A Technologies



- Developed in collaboration with operators, technology developers and regulators
- Intended to streamline the acceptance process
- Supports adoption of alternative materials for use in permanent P&A of oil and gas wells
- Technology Qualification Framework Roadmap
 - Based on industry accepted TQ Processes
 - Addresses requirements from regulations and standards
- Third Party Peer-Review by DNV for alignment with DNV-RP-A203

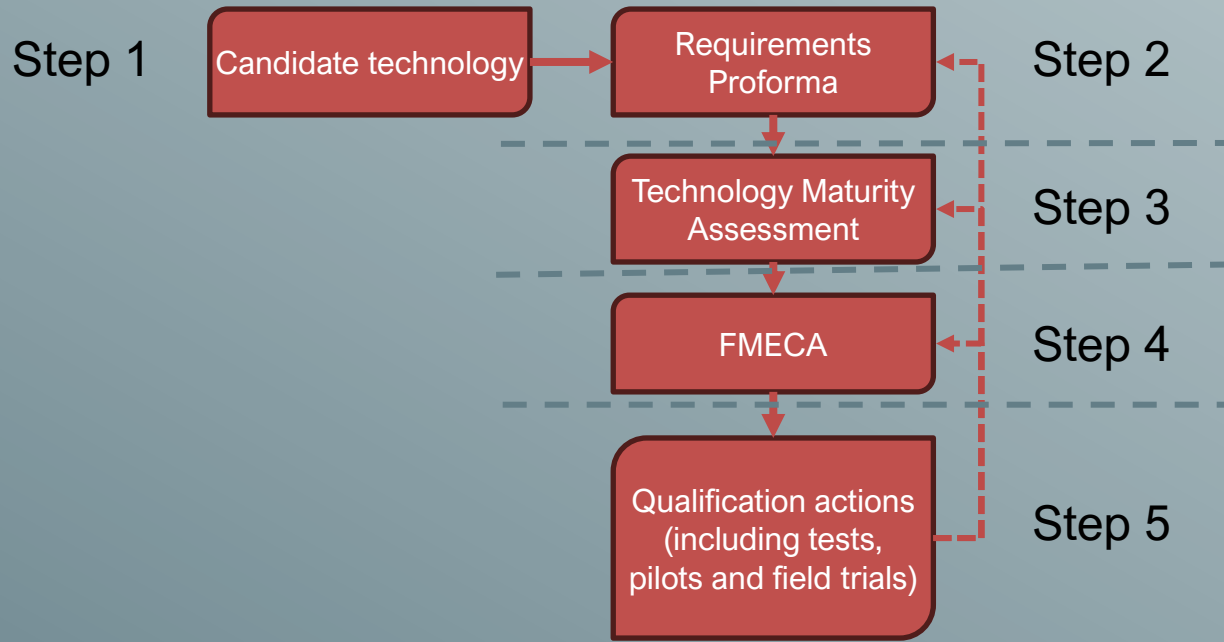


Framework Process – Streamlined Activities



Guidance towards claiming TRL 9

Framework Process – Streamlined Activities



TECHNICAL RISK MATRIX

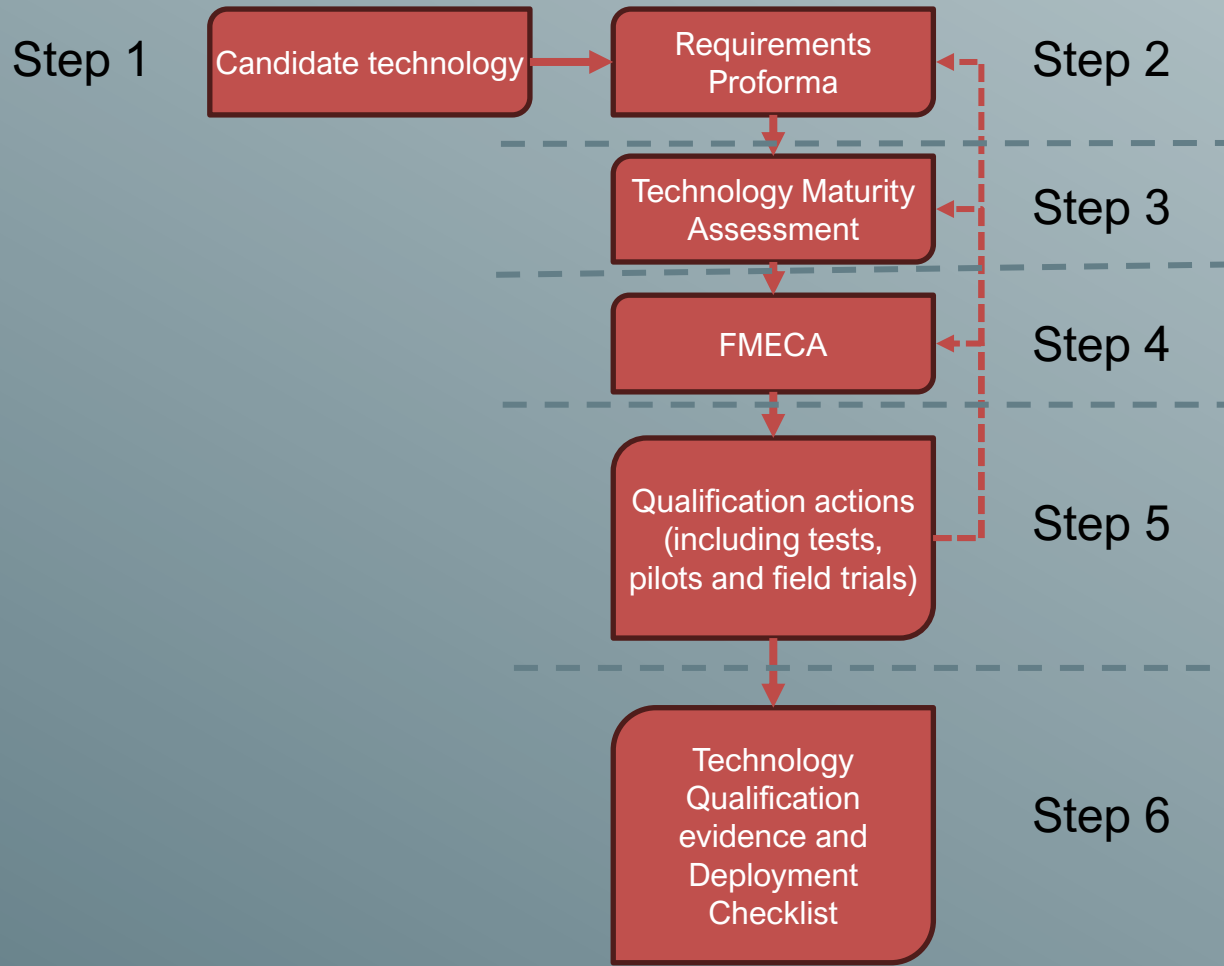
NOTE: This default risk matrix includes example risk categories. The developer should check against relevant technology, process and sector codes and standards for definitions more relevant to the technology and its application. Please see the help sheet for further guidance, particularly in relation to changes to the risk matrix definitions.

Likelihood	Default risk category descriptions		Consequence severity				
	Frequency	Environment	Person	Environment	Minor	Major	Critical
Occurs several times per year per facility	$10^{-1} < \beta_1$	Frequent	Minor	Minor	Major	Critical	Critical
Occurs several times per year per operator	$10^{-2} < \beta_1 < 10^{-1}$	Frequent	Minor	Minor	Major	Critical	Critical
Has been experienced by most operators	$10^{-3} < \beta_1 < 10^{-2}$	Occasional	Minor	Minor	Major	Critical	Critical
An incident has occurred in industry or related industry	$10^{-4} < \beta_1 < 10^{-3}$	Rare	Minor	Minor	Major	Critical	Critical
Failure is not expected	$\beta_1 < 10^{-4}$	Very unlikely	Minor	Minor	Major	Critical	Critical

Completion of risks and activities

FMECA Template

Framework Process – Streamlined Activities

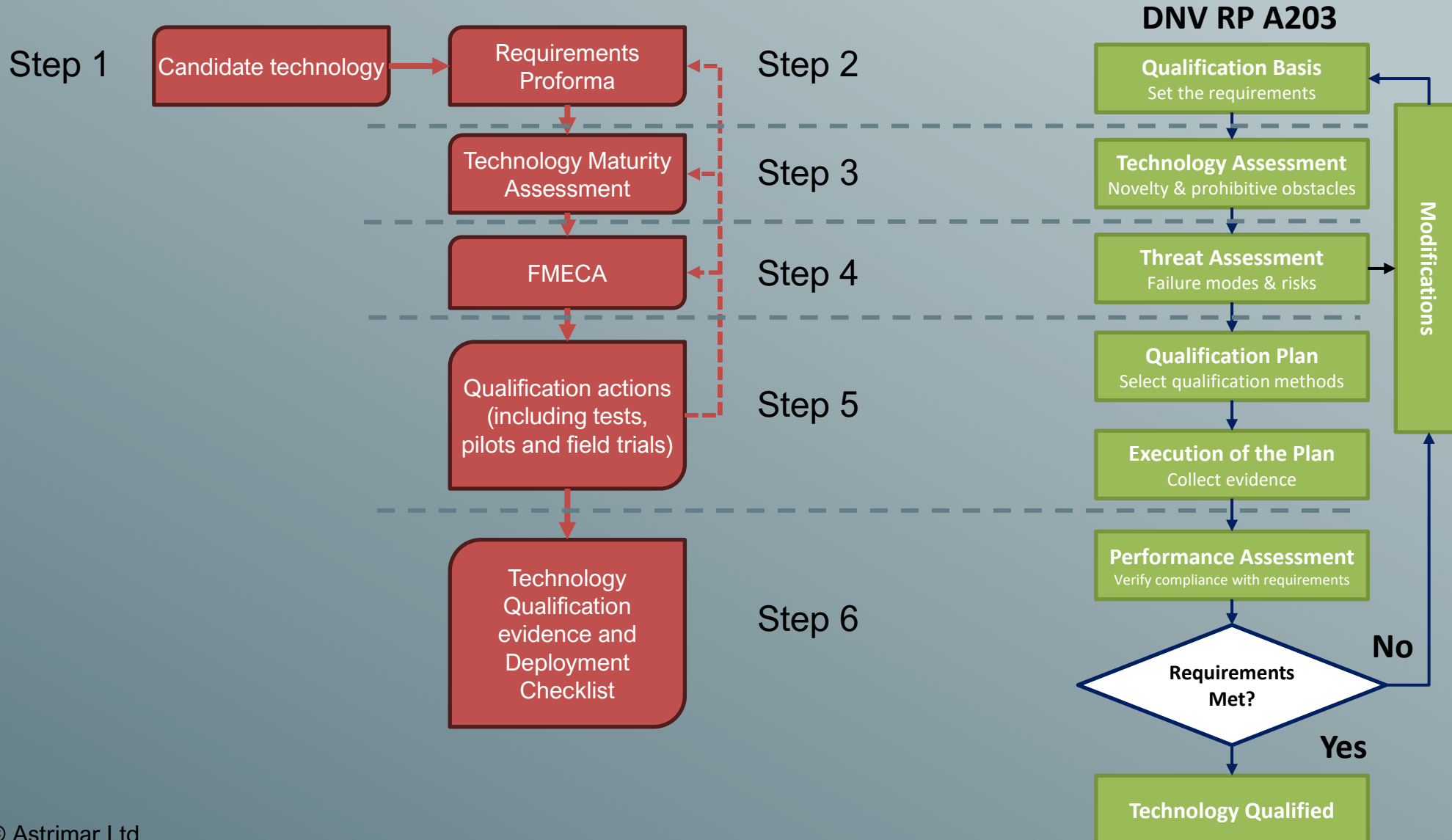


Closeout of evidence and remaining actions

Deployment Checklist

DEPLOYMENT CHECKLIST TEMPLATE						
Item	Task	Status	Notes	Responsible person/department	Start date	End date
Item 1: Risk Assessment	Comprehensive review of activities, conditions and objectives achieved in order to plan and control challenges, risks, opportunities, and compliance status, service needs	<input type="checkbox"/>				
	Review of technology to determine risks, service needs, and compliance status	<input type="checkbox"/>				
	Target technology analysis and update for all relevant systems	<input type="checkbox"/>				
	Target system analysis and update for all relevant systems	<input type="checkbox"/>				
Item 2: Risk Assessment	Identification of control challenges, risks, opportunities, and compliance status	<input type="checkbox"/>				
	Control analysis, risk assessment, and control plan development, conditions, and compliance status	<input type="checkbox"/>				

Framework Process - Alignment with DNV RP A203



Witnessed Reviewed
 And found to comply with:
 TQ Framework Reviewed Only as
 per Scope and defined under Memo
 10580532-TQF-MEM-001 Rev 0
 Date: 06/10/2025
 Sign: ZILPET



Lessons Learnt from Use Cases



- Pilot trials with NZTC Framework
 - Wellstrom T1000
 - Resolute Assure ® EPG
 - Isol8 Fusion Alloy
 - BiSN AB1 Tubing Seal
 - Local casing expander tool (Peer-review of DNV-RP-A203 document qualifying from Shell)
 - Proposed PWC
- Additional experience with DNV-RP-A203
 - Wellstrom T1000
 - Maturity assessment of bismuth plugging solutions
 - Barite as an annular barrier

Well Barrier Envelope

- ✓ Agree lengths of adjacent elements
- ✓ Assess all barrier elements

Requirements not well defined

- ✓ Well, environment and installation
- ✓ Communicate maturity

Detail of risk assessments

- ✓ Degradation mechanisms
- ✓ Installation risks
- ✓ Identify tests & activities

Challenging to apply in hindsight

- ✓ Initiate early e.g. TRL 2
- ✓ Document all evidence

Latest status



- NZTC TQ Framework is available at no cost via the NZTC website
- Support Developers and Operators to use Framework
- Ongoing collaboration with NZTC to support wider adoption
- Support to GRaPA for use in Norway
- Incorporation of feedback and continuous improvement
- Potential extension of framework for enabling technologies

Download Framework
Document Pack



Thank you



Download Framework
Document Pack

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