# Inspection of aging wells

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## **Well Integrity focus**

The focus of the well integrity team for the next 12 months:

- Inspection of aging well stock
- Assessment & inspection of close well bore monitoring while drilling

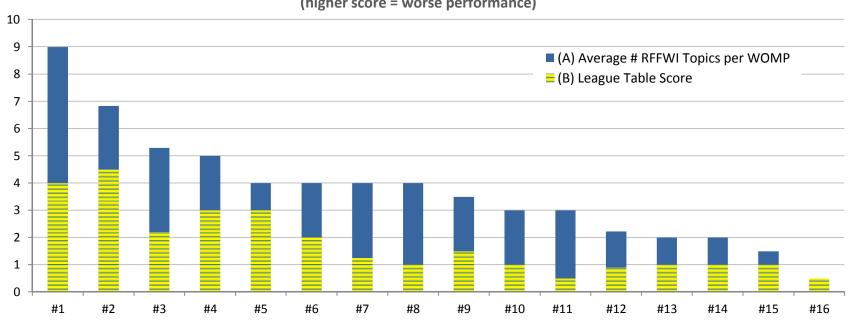


#### Titleholder risk register

#### **Combined Titleholder WOMP Performance:**

Ranking method (A) + (B)

(higher score = worse performance)





### **Background / Justification**

- Worldwide there is a lack of data-sharing on WI failures
- Knowledge of WI failures is essential to drive improvement
- WFM (well failure model) improves productivity and integrity



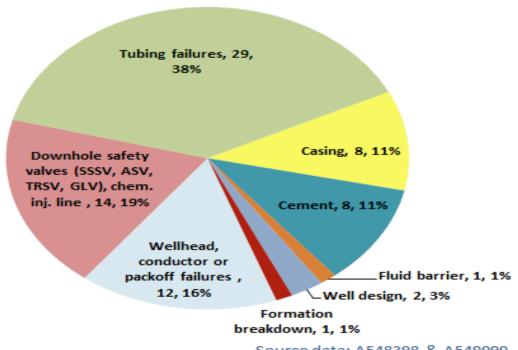
### **Summary of PSA Survey**

- In 2008, PSA in Norway performed a survey of 7 operators, 12 facilities and 406 wells (21% of total) to analyse well integrity problems.
- The survey found that 18% of wells had integrity issues, and 7% were shut in as a result.



#### Findings from PSA survey

#### Causes of 75 Norway well barrier failures Vignes 2010



Source data: A548398 & A549099



## Findings from PSA survey

The study found that "the industry needs to increase focus on barrier philosophy".

The understanding of barrier regulations, standards and implementation was found to be inadequate.

#### Other recommendations:

- Improving barrier verification and surveillance,
- Better and more consistent barrier diagrams,
- Improving well handovers,
- Improving crew competency.



## Findings from PSA survey

Prevalence of WI improvement areas (Vignes, 2010) - from a survey of 7 companies (12 assets, 406 wells)		
Inadequate understanding of barrier requirements or actions to take in event of failure	7	
Inadequate barrier acceptance criteria or barrier monitoring		
Insufficient handover documentation		
Well information not easily accessible	6	
Lack of consistency with international guidance/standards	5	
Insufficient application of lessons learnt from WI failures	4	
Insufficient sharing of well failures with stakeholders		
Other challenges	3	
	2	
Good tracking of KPIs for well integrity	1	
Consistent WI practices/procedures		
Correct use of MOC	0	



#### Inspection - Methodology



#### Steps:

- 1. Perform inspection and populate template
- 2. Correlate the data
- 3. Review titleholder risk table
- 4. Prepare workshop and feedback results to industry
- 5. Promote WFM for risk-based deviation system



#### References



- ISO 16530 Well Integrity Part 1: Life Cycle Governance
- ISO 16530 Well Integrity Part 2: Well Integrity for the **Operational Phase**
- NORSOK Standard D-010 Well Integrity in Drilling and Well **Operations**
- Oil & Gas UK Well Integrity Life Cycle Guidelines
- SPE paper 175473-MS Advanced Well Failure Modelling Improves Well Integrity, Safety and Reliability
- SPE paper 112535 Well-Integrity Issues Offshore Norway

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# Questions?

