

Handling of temporary and permanently abandoned wells

Johnny Gundersen
Petroleum Safety Authority
Sola 14.6.2012



PSA Focus Areas for Temporary and Permanent P&A

- *Assure necessary focus and attention on integrity and P&A of wells within the companies and the licensees*
- *Assure that all wells are adequately secured before they are abandoned with the necessary barriers in place and operational for the longest period of time the wells are expected to be abandoned*
- *Assure that necessary activities are carried out to restore the barriers if they are degraded or failed (or permanently P&A the well)*
- *Assure that temporarily abandoned wells are monitored, assessed, and permanently plugged in due time*



Result of P&A Survey

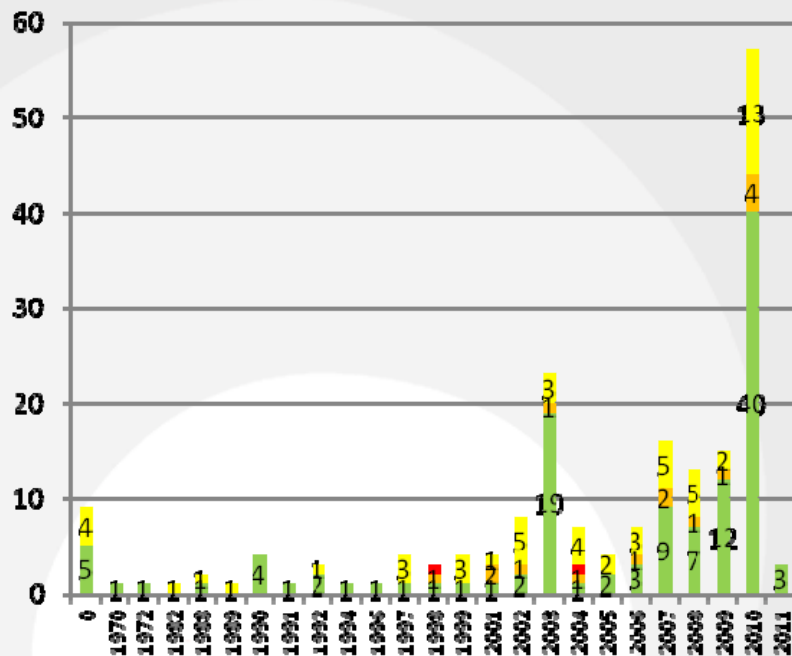
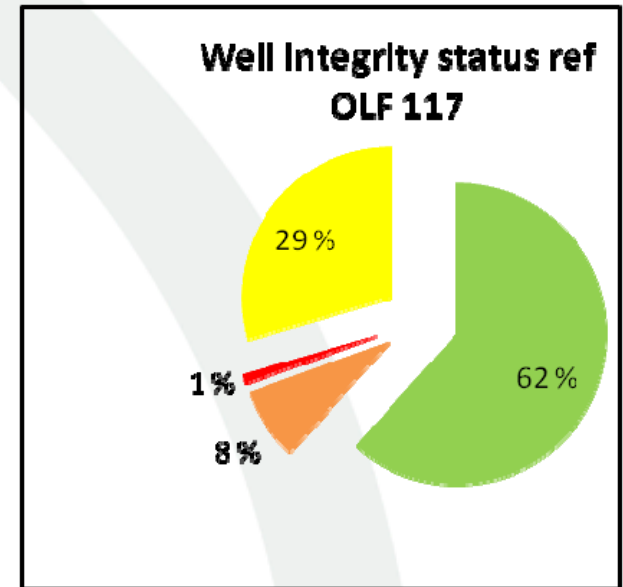
Well Integrity Status

Category	Principle
Red	One barrier failure and the other is degraded/not verified, or leak to surface
Orange	One barrier failure and the other is intact, or a single failure may lead to leak to surface
Yellow	One barrier degraded, the other is intact
Green	Healthy well - no or minor issue

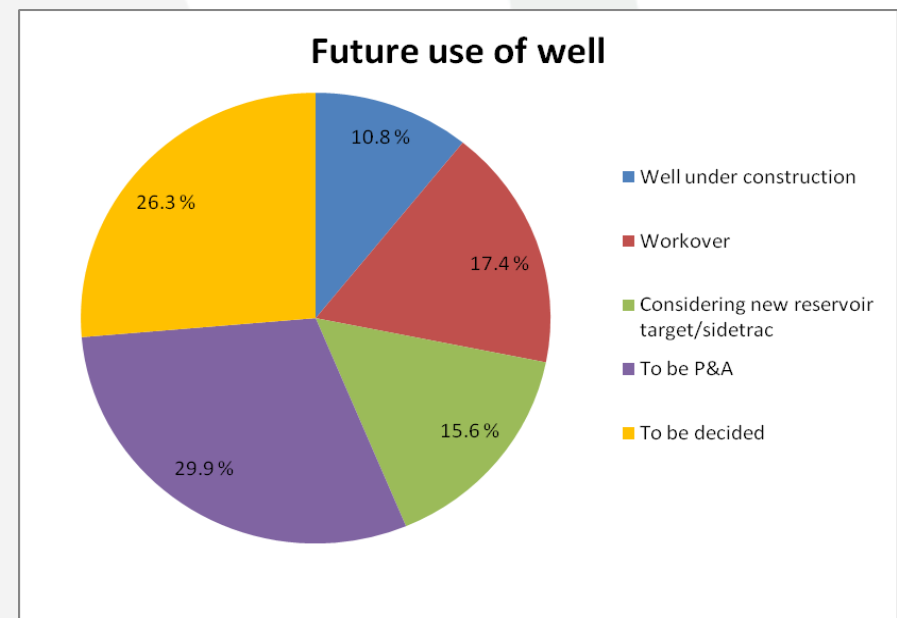
Number of wells:

- Red: 2 wells
- Orange: 15 wells
- Yellow: 57 wells
- Green: 119 wells

38% (74/193) temporary abandoned wells have some degree of well integrity problems



- Yellow
- Red
- Orange
- Green



Conclusions 2011

- The operators needs to define what is meant by temporary abandonment
 - Mechanical barriers are not suited for long term abandonment
- PSA will further focus on reducing the number of temporary abandoned wells
 - Activity Regulations § 85 “If a barrier fails, activities shall not be carried out in the well other than those intended to restore the barrier”
 - Hence the operator wells in category red and orange should be taken care of.
- The operators should follow the minimum requirements for well barrier schematics in OLF 117.
 - PSA will prepare a summary report together with our consultant
- The further work related to temporary abandoned wells will be included in the risk level project (RNNP)



Work performed after the reports were sent out

- Reports from the P&A survey were sent to the involved operators for their comments and response
- The response was not sufficient detailed with regard to:
 - What the operator planned to do with the weaknesses identified especially with Well Integrity and planned date for P&A
- Based on the responses it was decided to address these issues in separate meetings with the operators involved:
 - To get a more detailed overview of the challenges with each well categorized as red, orange and yellow
 - To get a better understanding of each operators general challenges with regard to all kind of P&A, both today as well as future challenges



Status

- Main purpose from PSA point of view was to assure that the issue of temporarily abandoned wells is a “hot topic” on the agenda both with the operators and in the Licensees
 - Focus now to come up with good solutions in due time
 - Temporarily abandoned wells could be a possible hazard, especially if the well integrity is impaired
 - Possible increased costs if delayed
 - Possible increased challenges with time with regard to technical feasibility
- Meetings held with ConocoPhillips, Statoil and BP
- Wells in category red and orange are permanently plugged or will be within reasonable time
- Wells in category yellow and green have been assessed and decision taken with regard to future use:
 - Some wells are going to be permanently P&A within short time
 - Some wells are going to be worked over
 - Some wells will be plugged within the next 5 years
 - Some wells will be plugged at the end of the fields lifetime



PSAs recommendations for P&A (1)

- Well design of new wells should address P&A to assure safe and proper P&A
- New wells not planned for future use should be permanently plugged and abandoned as soon as finished (logged and evaluated)
- Temporary P&A is meant to be temporary and the industry should focus more on permanently P&A of existing temporary abandoned wells
- Operator and Licensees should go through each and every temporary abandoned well on a regular schedule and seriously evaluate the well integrity status and the plans and need for future use



PSAs recommendations for P&A (2)

- Wells with degraded or failed barriers (WIF category red or orange) could be a safety hazard and should be repaired or permanently abandoned within short time
- Wells should not be temporarily abandoned for a longer period than 3 years (proposed regulatory requirement from 2013)
- All wells in use should be monitored throughout the lifetime to assure that changes in the underground do not jeopardize the possibility for safe and proper P&A of the wells (e.g. collapsing of casing, shearing of casing etc)



Thank You!

Questions?

