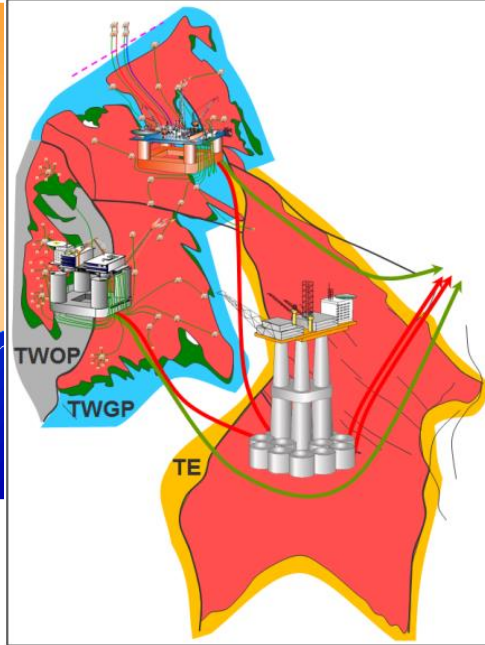
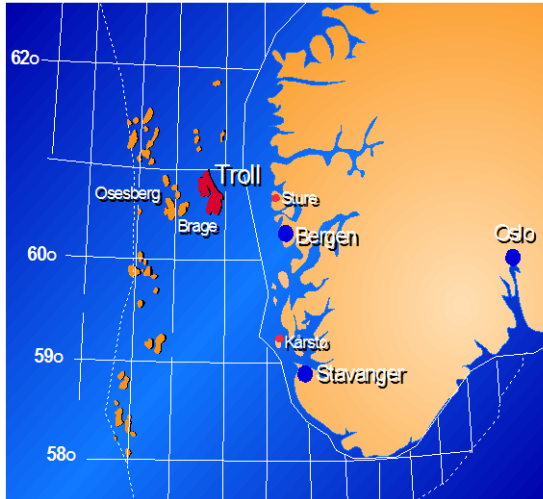


Enhanced Oil Recovery On Troll Field By Implementing Autonomous Inflow Control Device

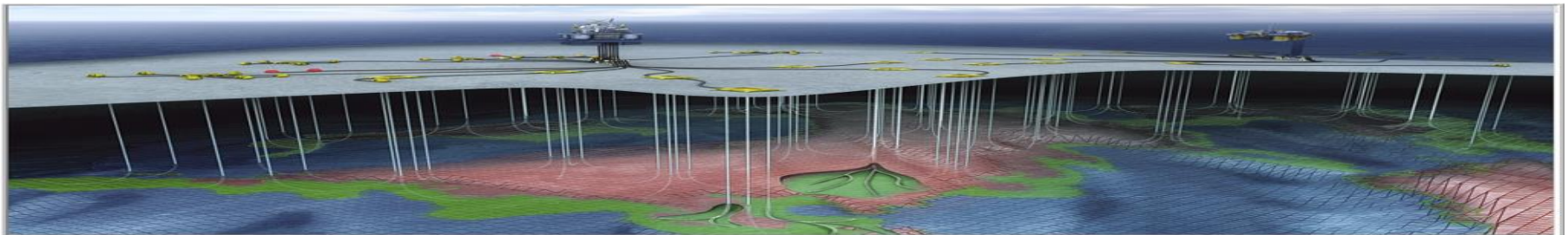
Based on SPE 180037. Martin Halvorsen et al. Bergen 2016

Introduction

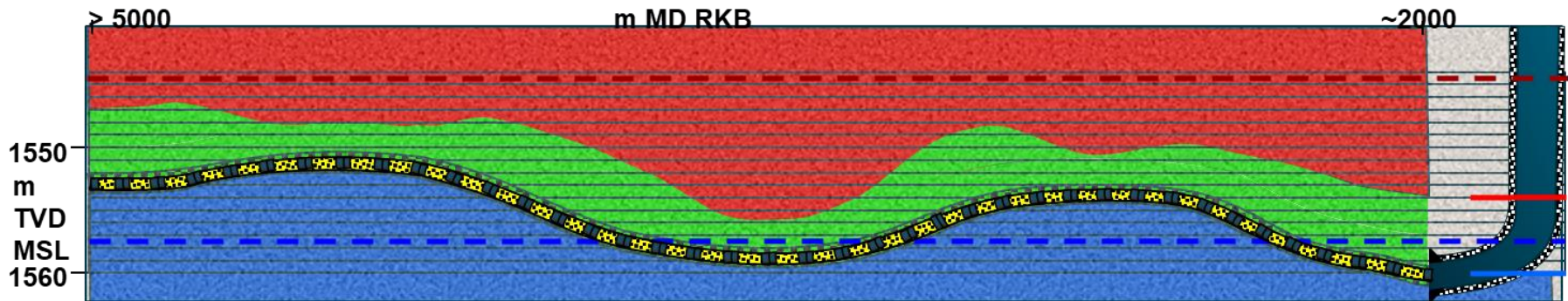
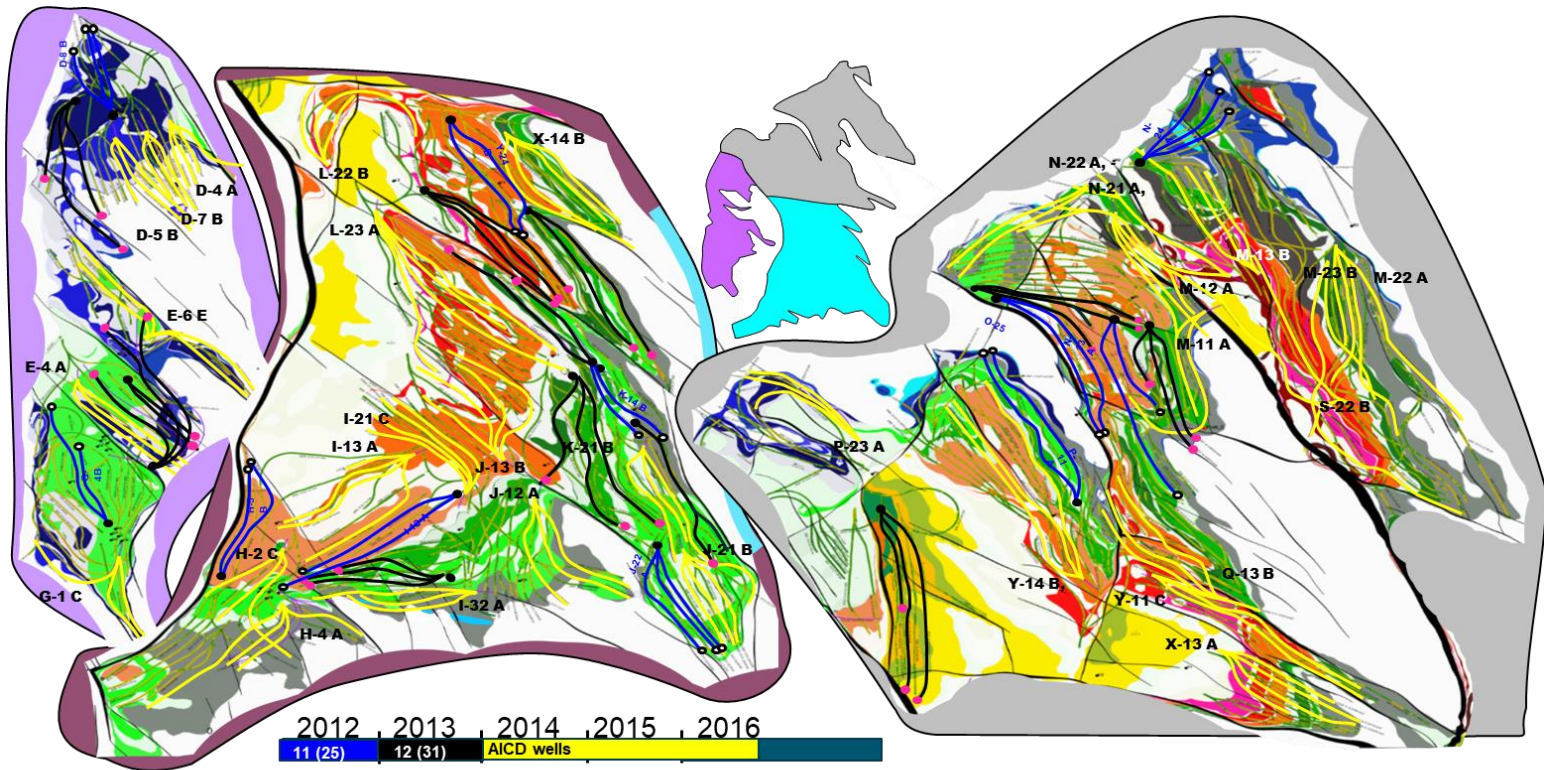


Troll oil field –

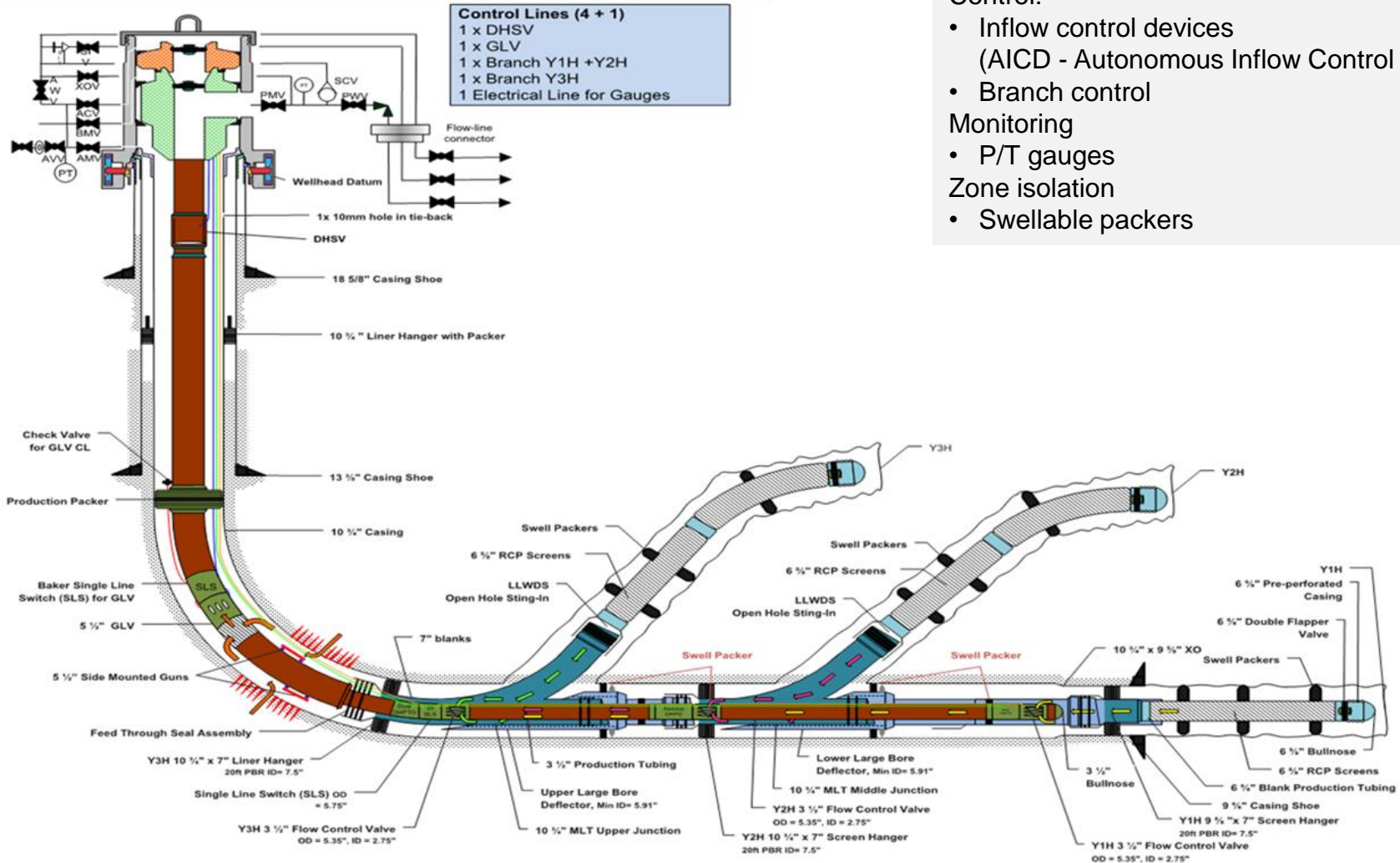
- Thin oil column
- Huge gas cap
- Subsea wells
- Long horizontal wells
- Multilateral wells
- Inflow control devices
- Downhole monitoring and control
- Gas coning/contact movement



Well placement



Completion design



Control:

- Inflow control devices (AICD - Autonomous Inflow Control Device)

- Branch control

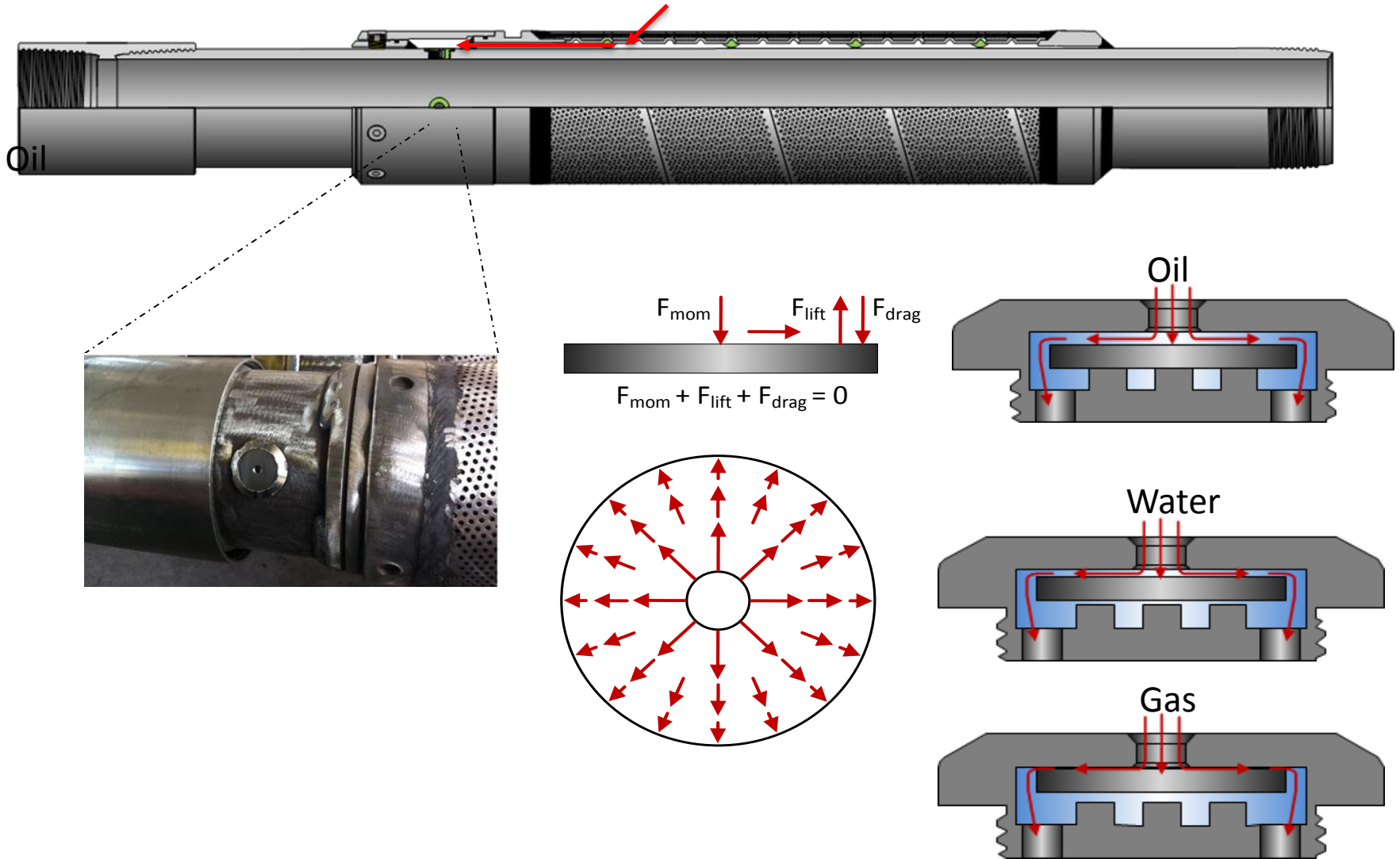
Monitoring

- P/T gauges

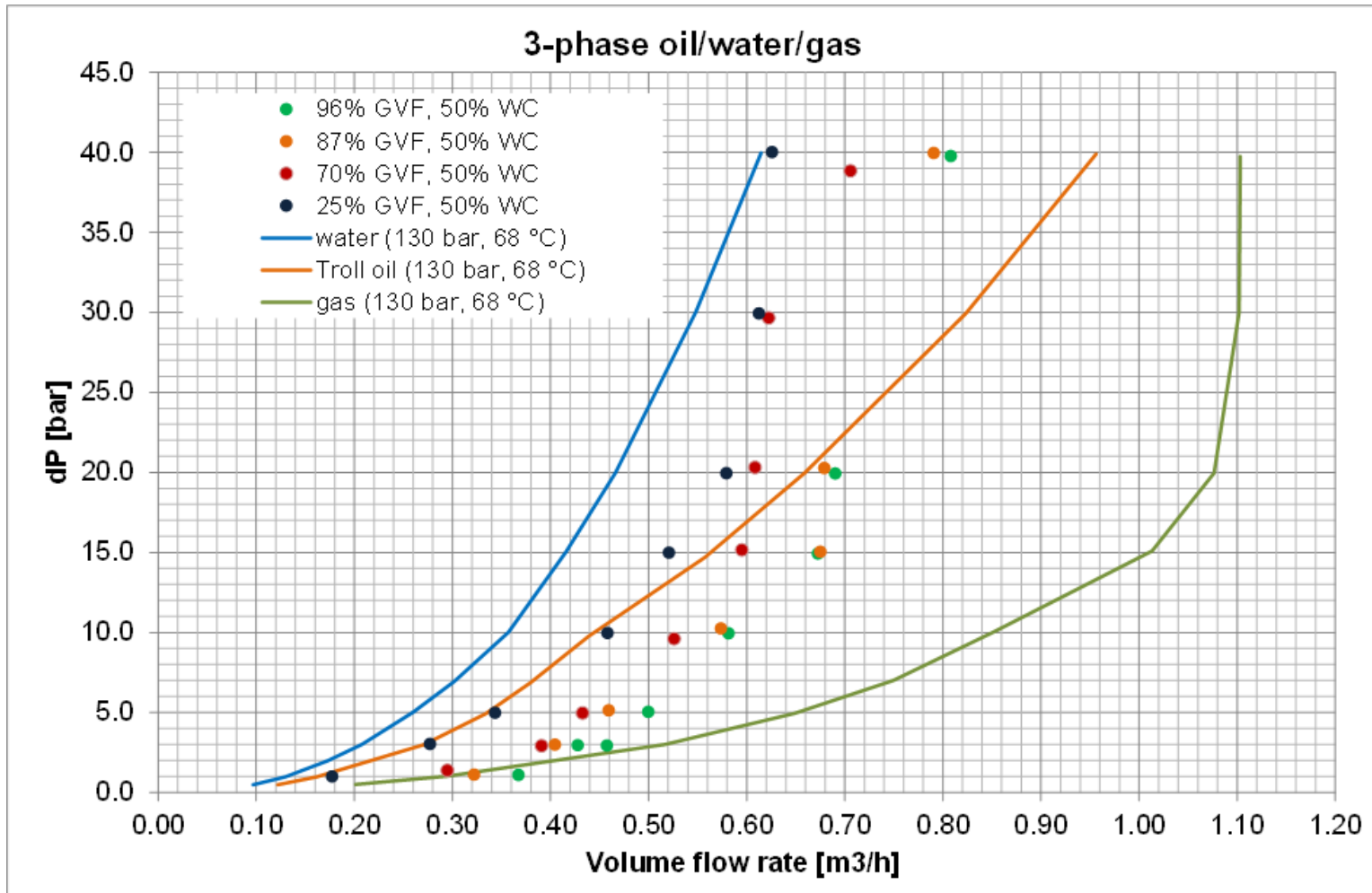
Zone isolation

- Swellable packers

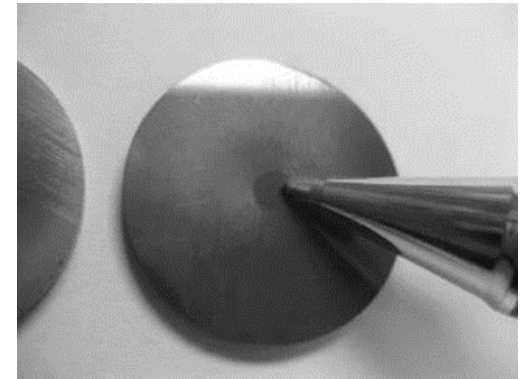
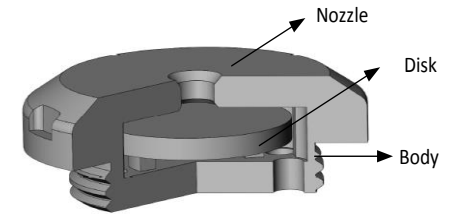
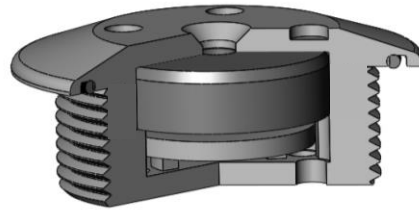
The 'levitating disc' AICD



AICD function from experimental tests

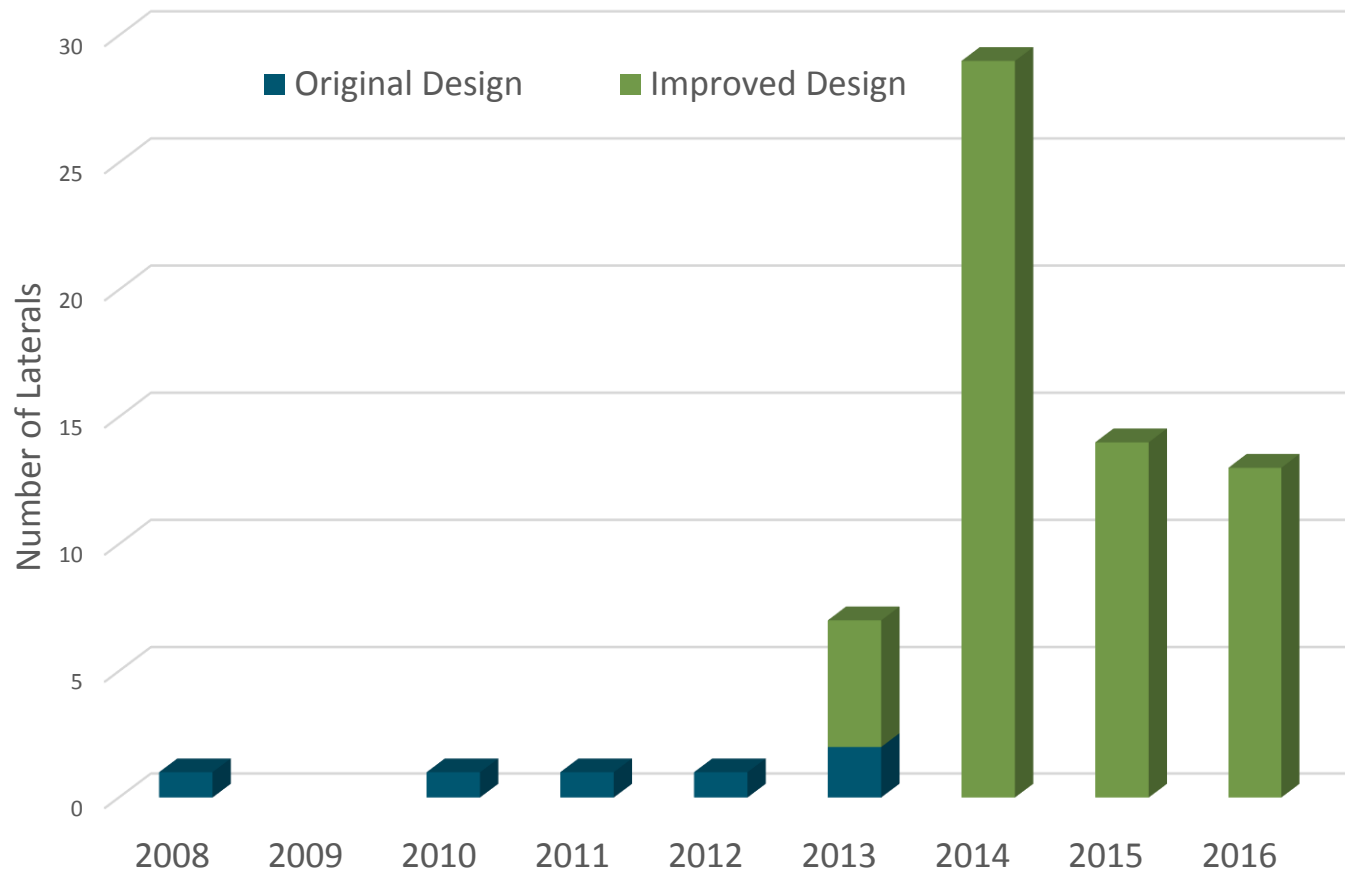


Technology advancements

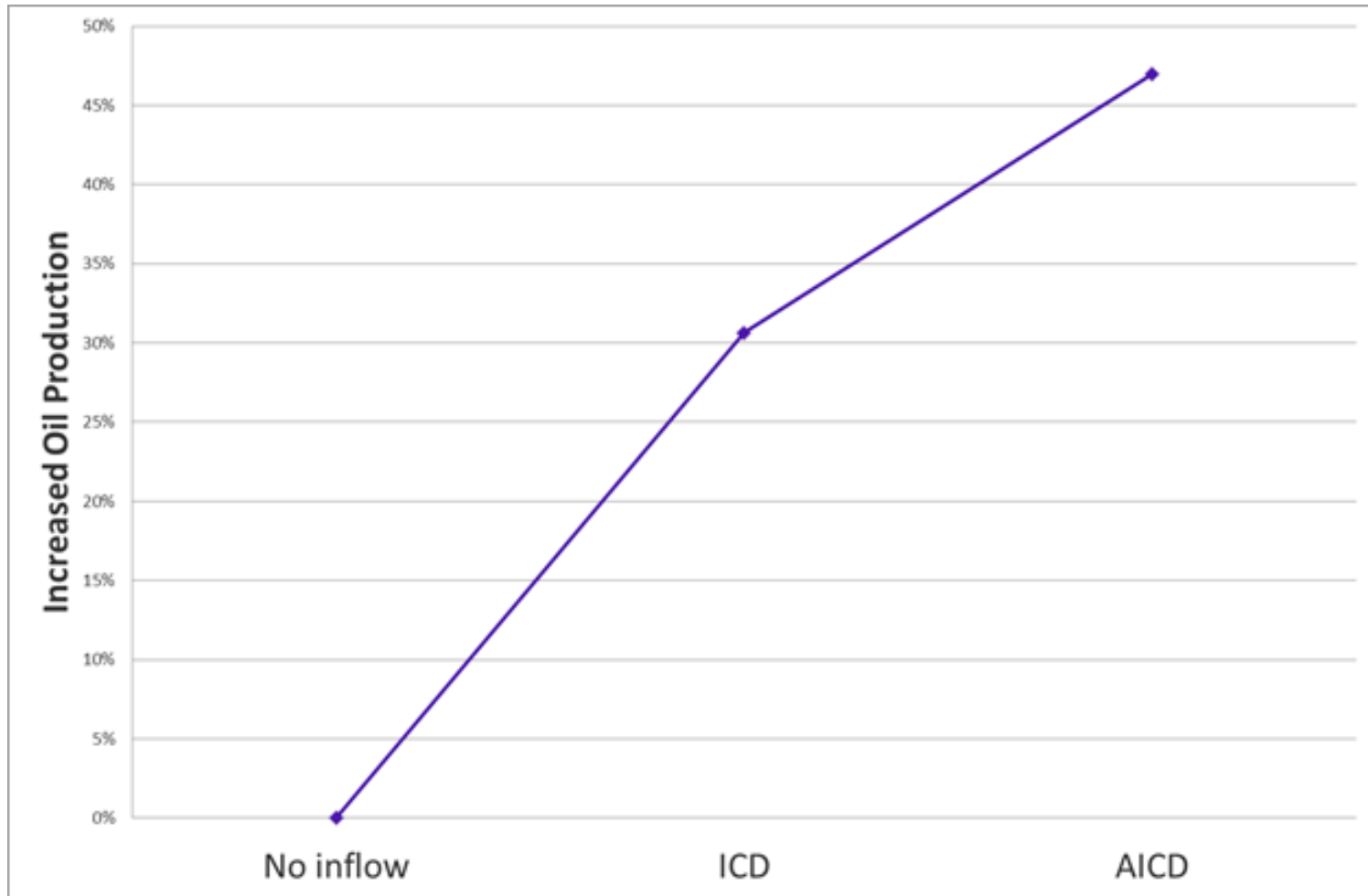


AICD Implementation on Troll

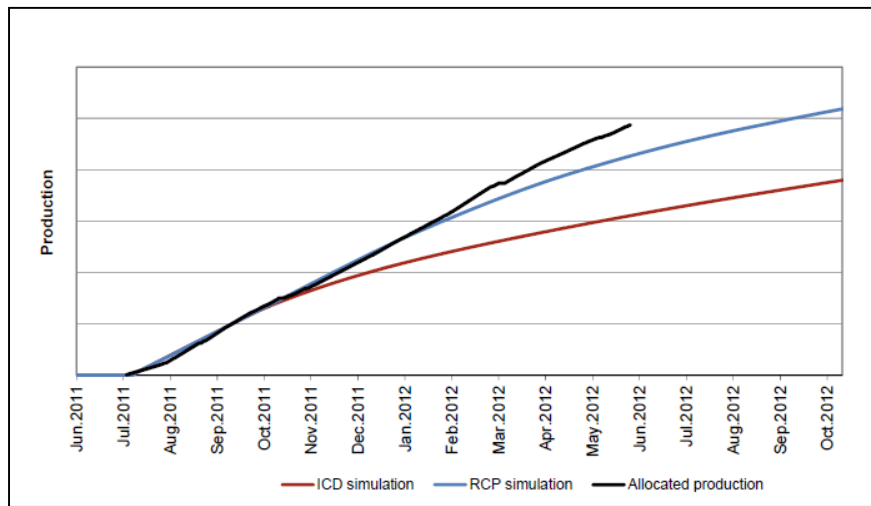
AICD Implementation at Troll



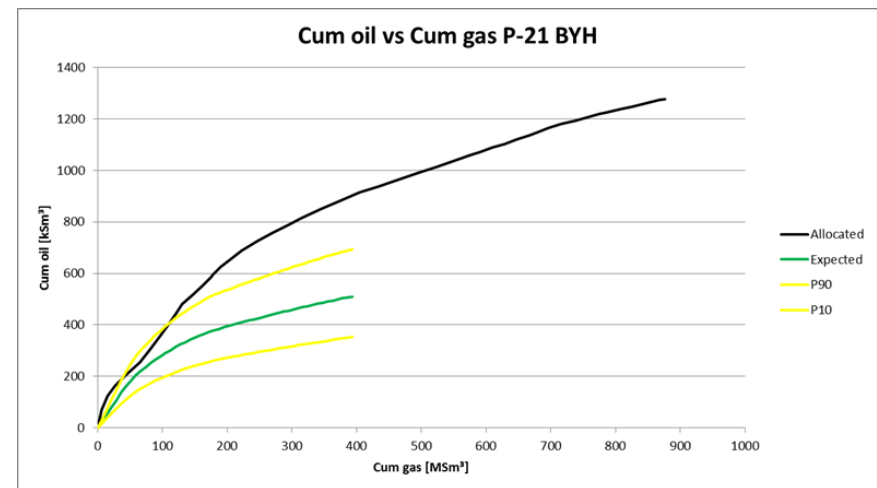
Reservoir simulations



Strong results



10 mths (SPE159634)



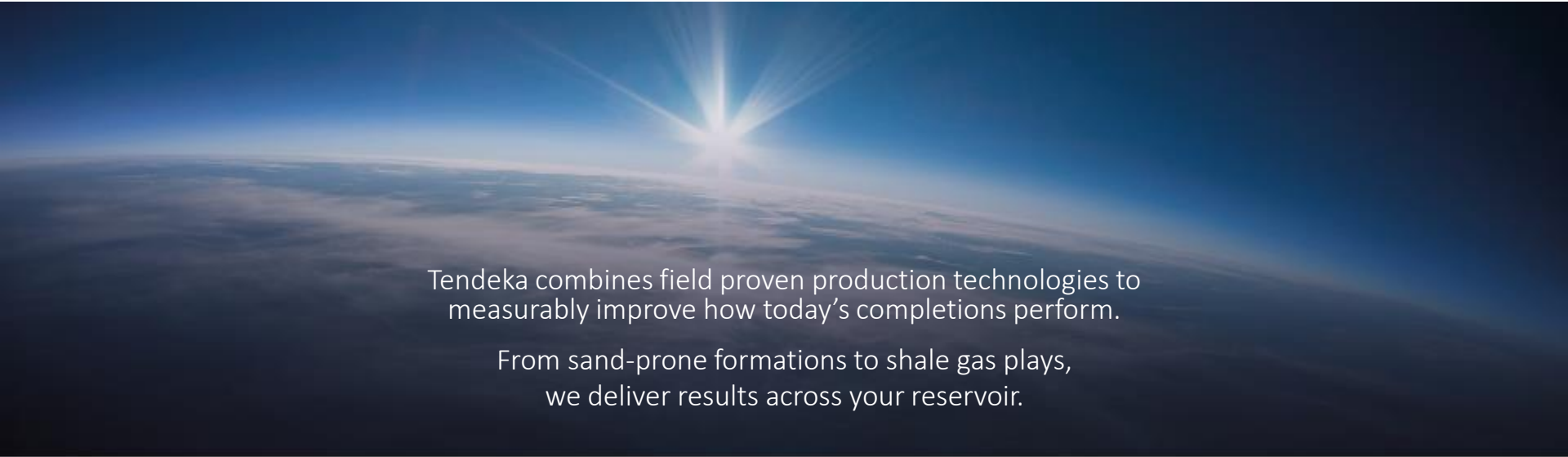
2 years

Conclusion

- The AICD technology has been implemented successfully at the Troll Oil Field (75 laterals)

Success Criteria

- no associated problems during completion, startup or production,
 - no negative effect on production
 - a favourable GOR development and cumulative oil production.
- The AICD wells are producing better than expected and have contributed to an increased oil production at Troll.



Tendeka combines field proven production technologies to measurably improve how today's completions perform.

From sand-prone formations to shale gas plays,
we deliver results across your reservoir.

Any Questions?