

Rigless P&A Methodology gap in Norway

The main gap to cheaper P&A, Slot Recovery & Workovers in Norway

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Martin Straume

Discipline Lead - P&A



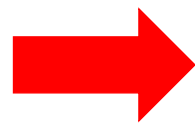
CONTENT

- NORWEGIAN P&A HISTORY - EARLIER PLANS FOR RIGLESS P&A IN NORWAY
- CURRENT P&A STATUS IN NORWAY
- FUTURE EXPECTATIONS FOR P&A COSTS
- WHAT IS TODAY'S SHOWSTOPPER FOR P&A COST REDUCTIONS IN NORWAY ?
- HOW CAN WE MOVE FORWARD ?

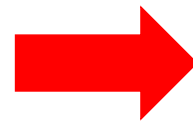
Roadmap for New P&A Technologies



Phase 1 P&A Well Intervention



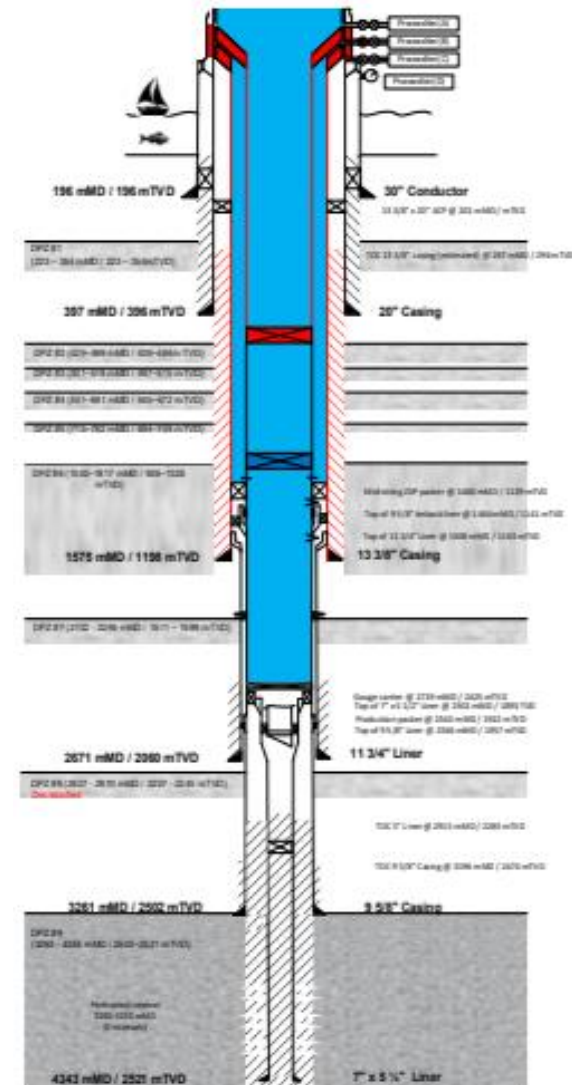
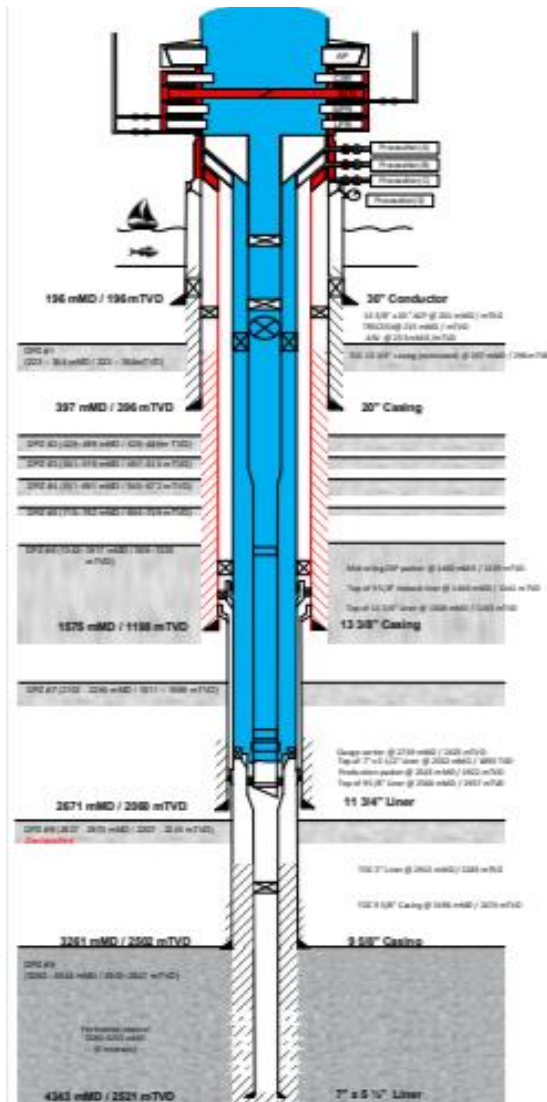
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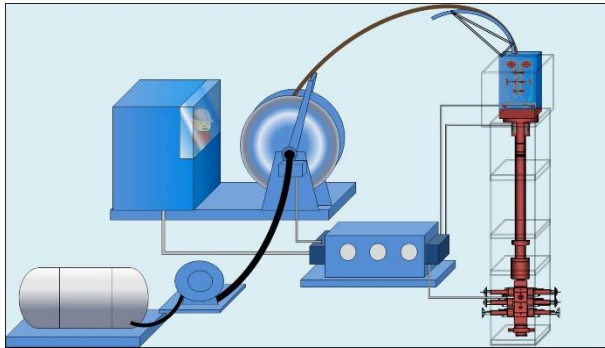
Phase 2 P&A Rig Scope



Today's Gap
Pull Tubing



Phase 1 P&A



Phase 2 P&A

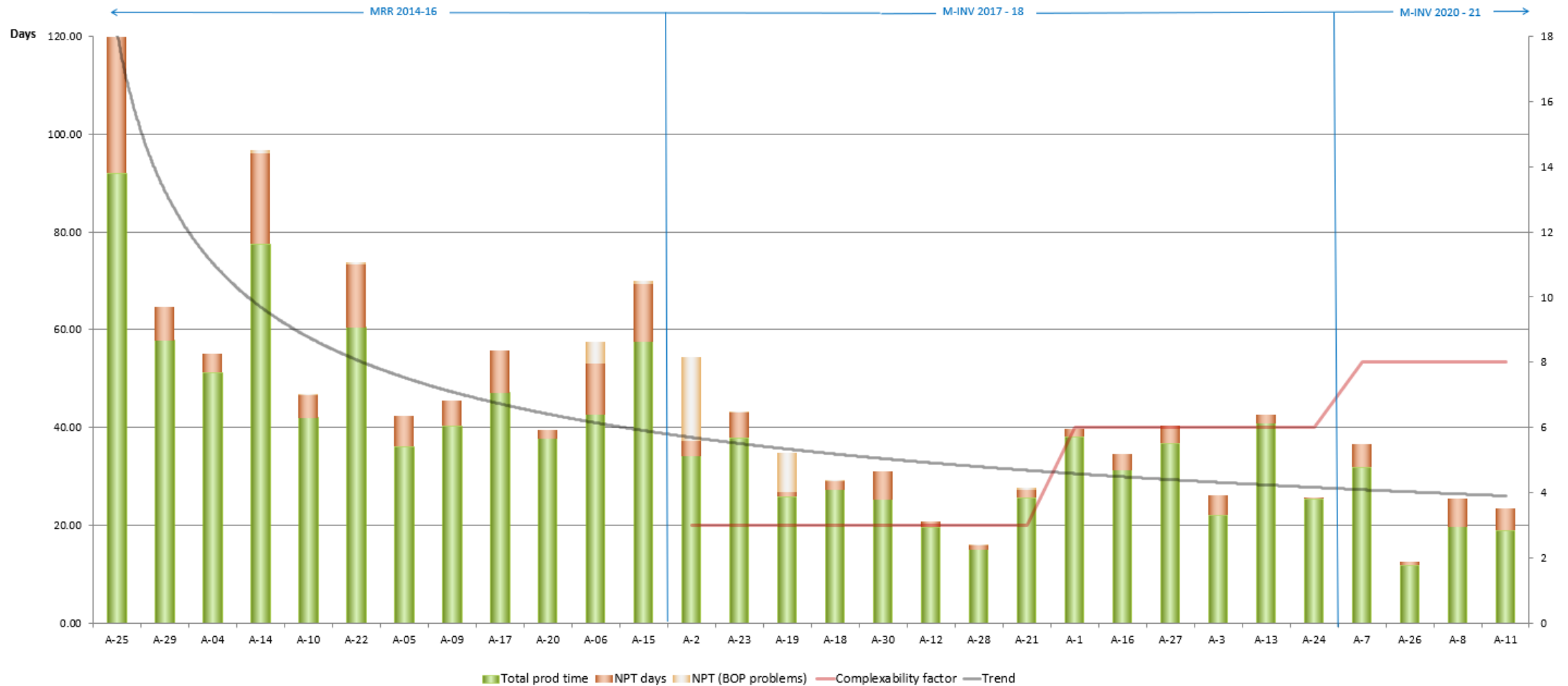


TODAY'S ROUGH COSTS FOR P&A, SLOT RECOVERY & WORKOVERS

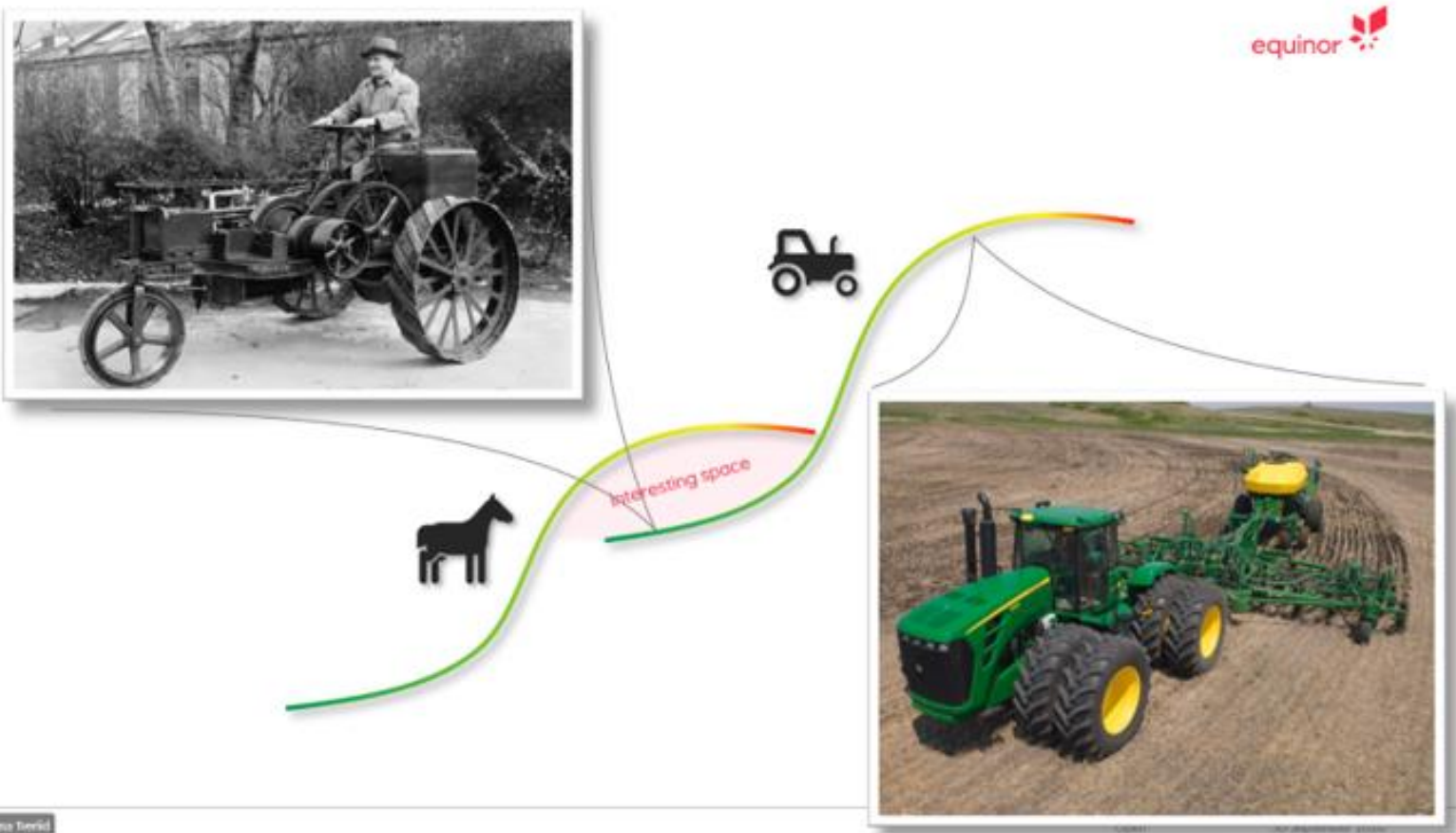
- TODAY, WE START PHASE 2 WITH A RIG
- COSTS
 - 50% rig rate
 - 50% rig service and operator's overhead
 - ½ - to the service company
 - ½ - operator's overhead
- **Goal for Norway is reduced P&A Costs – Industry & authority (78%)**
 - Is 30 – 50% cost reduction realistic ?

Performance over 3 campaigns with a Jackup

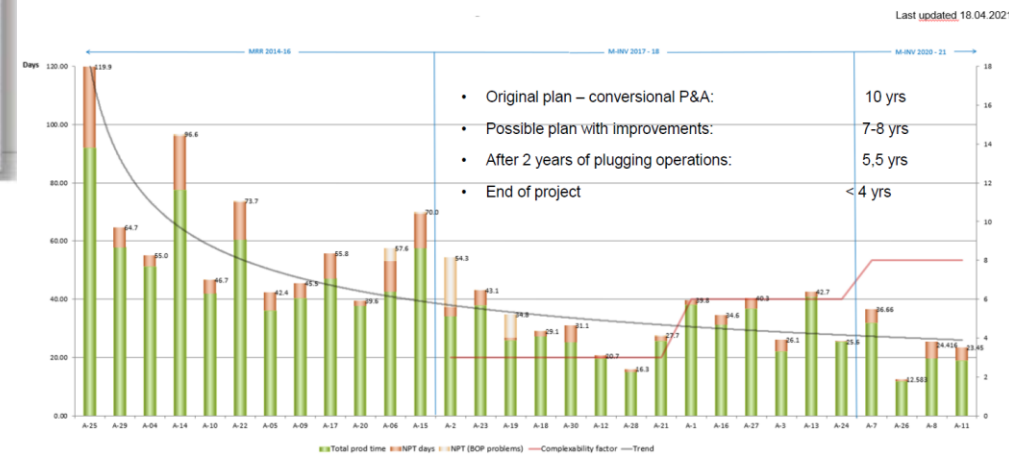
Updated: 18.04.2021

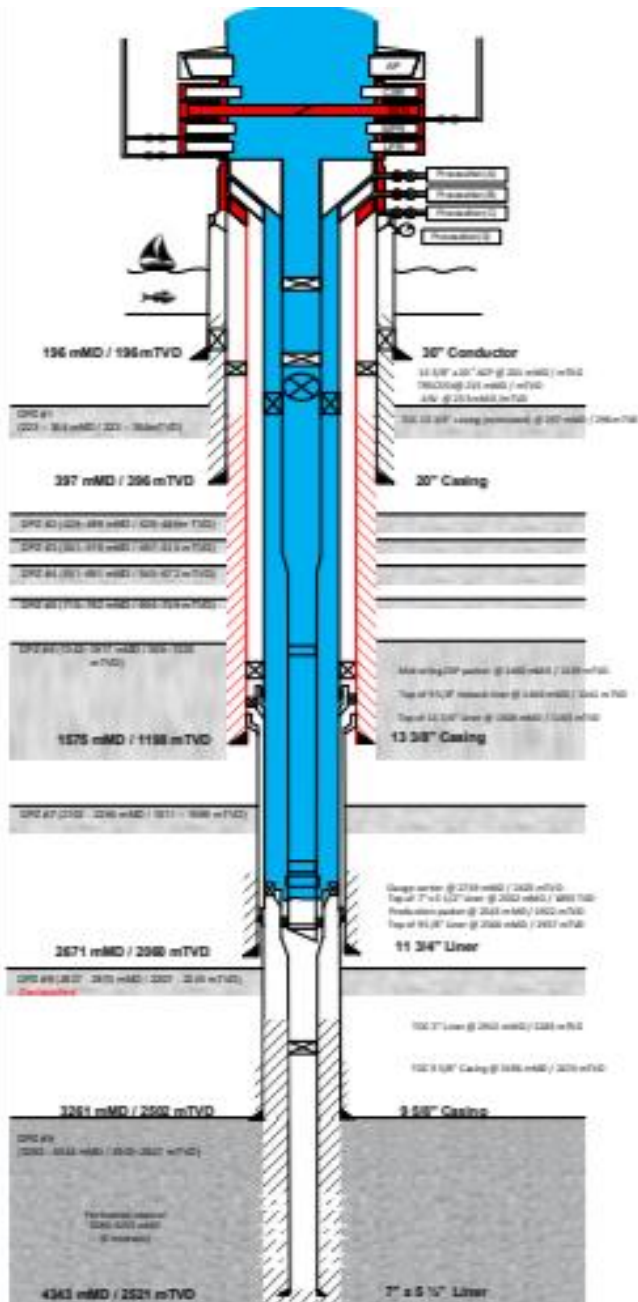


TECHNOLOGY DEVELOPMENT



Performance over 3 campaigns





What is the next main objective – after phase 1 P&A?

- Find out if we have barriers outside the casing

How can we do that ?

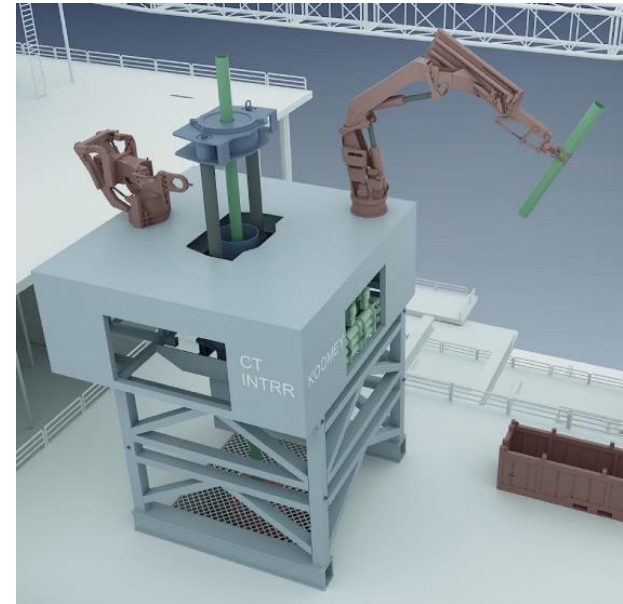
1. Remove the tubing and log the casing
2. Log through tubing (4 ½" - 5 ½")



Why isn't HWO in Norway ?

■ 2 Authority Regulations (HSE)

- Remove people from red zone
- Remote pipe handling



Roadmap for New P&A Technologies



- A RIG IS CONVENIENT AND COMPLETES THE JOB.
- REALISTIC TO EXPECT LARGE COST REDUCTIONS IN P&A, SLOT RECOVERY & RE-COMPLETION ?
- DO WE REALLY WANT RIGLESS P&A ?
- ALREADY WAITED 20 YRS – HOW MUCH LONGER BEFORE WE TRY SOMETHING ELSE ?



Carbon Footprint:

Jackup daily use: 20 ton diesel

Coil Tubing daily use: 2 tons diesel

Tubing Pulling Unit: 2 tons diesel

Reduction in CO₂ footprint by 90%





**Nothing can resist the strength of an
idea which comes when the time is right**

**Victor Hugo
1802 - 1885**