Automatic Drilling Control
Experience and future plans

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Automated Drilling Control

Why Automated Drilling Control (ADC)

• Simplification & standardisation
• The “perfect well” approach
• Further potential for efficiency improvements
  • NPT between 15–20% overall
  • Large spread in performance
• ADC can contribute with further 15–20% efficiency improvements in a 2020 perspective.

![Efficient production wells at lower cost graph]

- Metres per day: 69%
- Days per well: 42%
- Cost per well: 35%

Cost per metre over the years, showing improvements.

Source: Statoil
Automated Drilling Control

Why Automated Drilling Control (ADC)

Competitive at all times!

Holberggrafene
Automated Drilling Control

Next generation well delivery

As is

- e-mails
- Radio
- Documents
- Telephones
- Yellow notes

Transformation

ADC

Digital apps / Smart modules

Automation layer

Digital Well

Drilling control system

- Pump pressure
- Torque
- WOB
- RPM

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Automated Drilling Control

Functionality

Digital Well Planning
- Improves operator understanding of downhole conditions through real-time visualizations

Digital advisory
- Instruct operator

Automatic operational limits
- Limit operator
- Implements boundaries determined by real-time downhole conditions

Automatic Well guards
- Correct operator
- Actively operates drilling equipment in order to prevent drilling incidents detected by sensors and software

Drilling automation

Downhole measurements

Topside measurements

Automatic Sequences
- Replace operator
- Automate operational sequences like “Drill-a-stand”, trip in/out, friction test, pressure tests etc
Avoid downhole problems through automation
- Situational awareness
- Digital configuration
- Pressure control
- Pressure tests
- Pack-off control
- Surge/Swab control
- Kick/Loss Detection
- Vibration mitigation
- Hot spot monitoring
- Holecleaning
- Fluid condition

Optimize Sequences through automation
- Drill-a-stand
- Tripping
- Survey
- Casing running
- Digital DOP

Improve downhole understanding
✓ Advanced monitoring
  • Drillscene™
  • wellAhead™
✓ Automated drilling fluid measurements
  • RheoSense
  • RheoProfiler
  • Baralogix
✓ Automated drilling
  • Deal™ with Smartmodules
  • Novos™
Any Questions?
There’s never been a better time for good ideas