



drilling

IADC/SPE DRILLING CONFERENCE AND EXHIBITION

1–3 March 2016

FORT WORTH, TEXAS
Fort Worth Convention Center

IADC/SPE-SPE-178845-MS-MS

Industry Initiative – Testing, Certification & Training of Drilling Supervisors to Improve Safety and Performance

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Why is competency a big issue?

- Increased regulations and stakeholder scrutiny
- Big Crew Change
 - > 50% leaving in next five years
 - Worsened by oil price collapse (40% in one year)
 - New personnel:
 - Speed of training / development required is greater than ever previously achieved
 - No time left to gain 10 years experience
 - Inaction is to accept increased cost and incidents

Challenges

- Variable workload / transient workforce
- Existing recruitment processes / competency evaluation are flawed
- Need for cost reduction / NPT
- Increased safety challenges / Crew Resource Management
- Looming shortages of skilled personnel

The Future is Not Bright

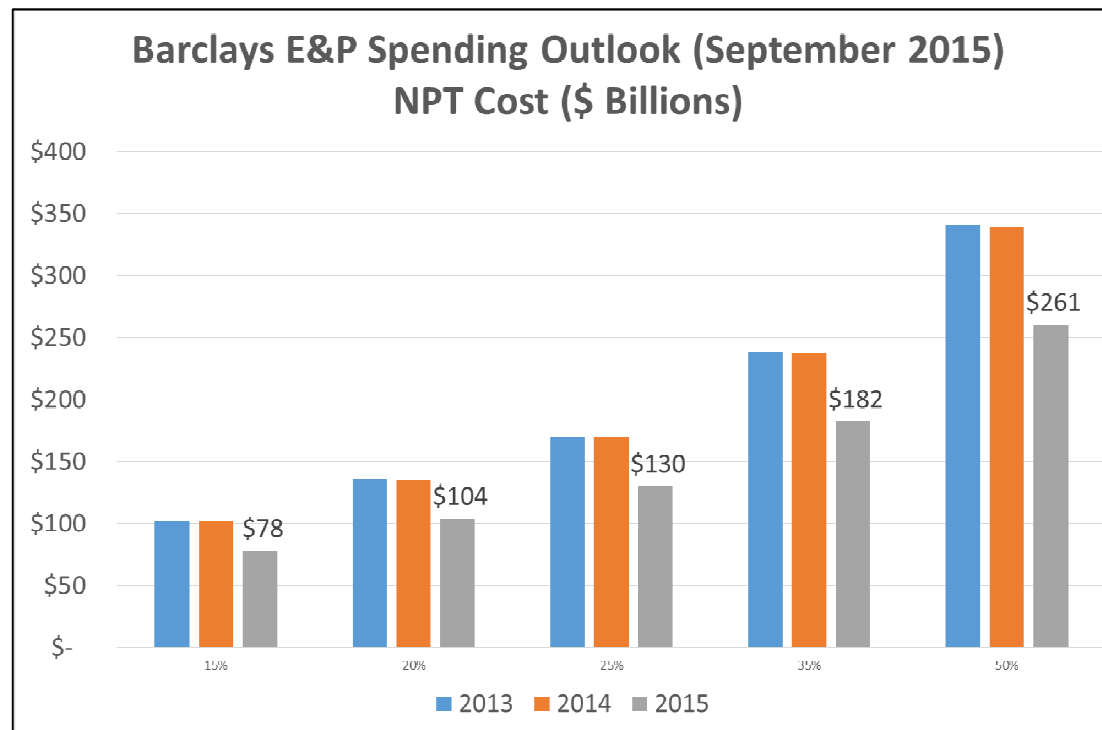
- Progression to higher technology wells requires:
 - Greater analytical skill
 - Deeper understanding of Well Engineering
- Majority of supervisors coming from service / drilling contractors with weaker training / less holistic knowledge
- No centralised system in place to check competency
- No inter-company monitoring / certification / training system

Less Than 5 Years Experience

- If 20% of people <5 years experience = 20% reduction in efficiency (Ford Brett)
- 50% reduction in efficiency in the near term?
- What is that in \$?
- The 20% = \$104 billion in 2015

Well Type	Prize \$Bn	No. Wells
HPHT / Deepwater	104	533
Offshore	104	2600
Land	104	13867

The Prize Available

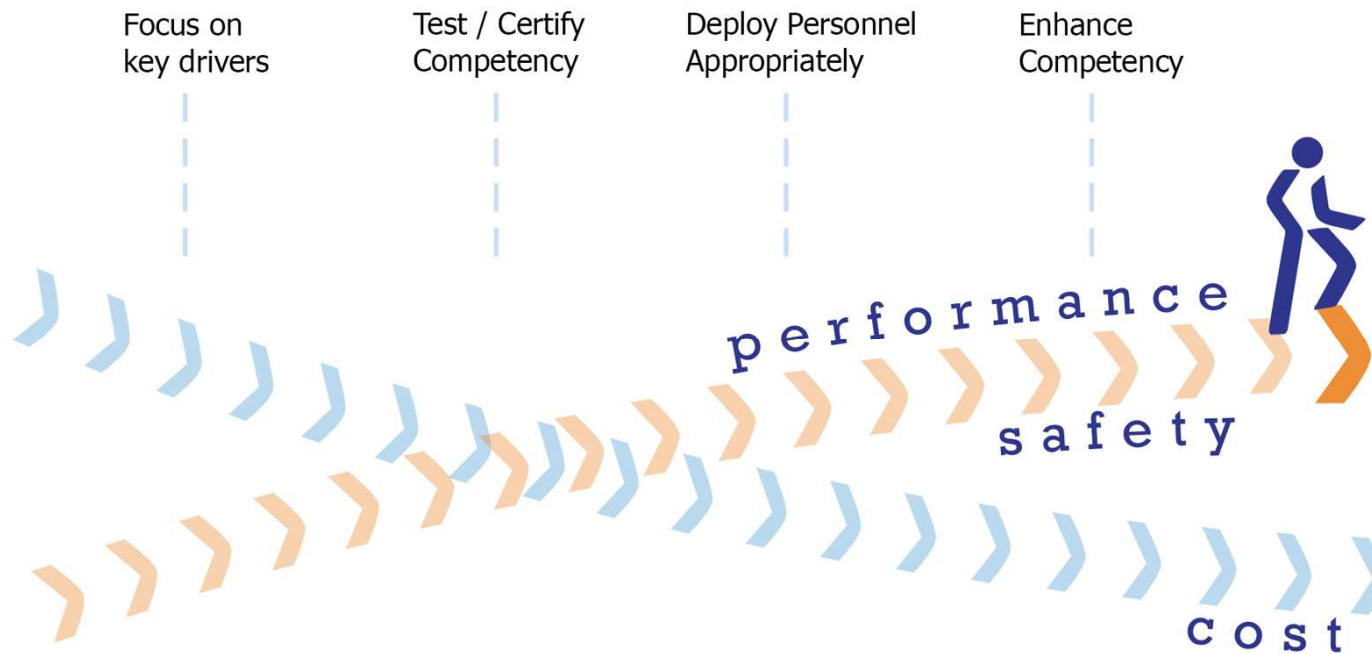


Downturn = Opportunity

Take advantage of the downturn to set a new standard

- An online system to improve competency of Well-Site Supervisors
- Providing:
 - Simulation / Testing / Certification / eLearning / Sharing
- Non well control but follows IWCF / IADC model
- Systematic, reliable and repeatable approach

Making Competency Pay



Vision

- To become the global hallmark for quality Wellsite Supervisors + Operations Personnel + Driller + Toolpusher
- Biennial certification
- Reduce NPT and improve Safety performance
- Simulated tests of actual NPT / Safety events including CRM / Human Factors
- Shared personnel grades achieved
- Online training to reduce loss / improve performance
- Endorsed by recognised industry body (e.g. IADC)

Operator Group Agreement

- Cover drilling / completions / interventions / workovers
- Not a pass / fail system but a graded one
- A core of critical modules agreed & prioritized
- Operator data only visible to that Operator
- Data held securely (ISO27001 enterprise system)
- Expert created question bank and scenarios
- A long term commitment to the system development
- 2015 Drilling / 2016 Completions / 2017 High Tech Wells



Avoid Hindsight Engineering



- Testing delivered through media rich Scenarios
 - Real time evaluation of candidate reaction
 - Test / train before deployment to reduce loss
 - Scenarios based on prioritised issues
 - Gamification / Enjoyable / Challenging
 - Bespoke modules for individual Operators
 - Embrace mistakes and undertake appropriate eLearning...

Learn From The Air Industry

- Black box approach (Matthew Syed 2015)
 - “The path of failure leads to the palace of success”
 - 10 Day immunity for accident data
 - Accident rates per million take-offs historic low in 2014 of 0.23
 - Recertification if not flown for >2 weeks
- Drive performance improvement in Wells
 - Learn and improve – no blame = share scenarios
 - Test before deployment on expected challenges
 - Certify regularly
 - *Share Failures, Simulate, Test, Certify, Train*



A black computer monitor with a thin bezel and a circular base. The screen is white and displays the text 'SCENARIOS: ASSESSING HUMAN FACTORS' in a dark blue, sans-serif font. The text is centered on the screen. The monitor has a few small, circular buttons or indicators along the bottom bezel.

SCENARIOS:
ASSESSING HUMAN FACTORS

TEAM OPTIMIZATION

ASSESS PERFORMANCE

MANAGE TEAM STRENGTHS & WEAKNESSES

OPTIMIZE TEAM COMPOSITION

DRIVE PERFORMANCE IMPROVEMENT

Default User Overview

View Standard ▾

Display by Small Grid ▾



Fergus
Drilling Superintendent
Location: Africa, Ghana



Frank
Drilling Supervisor
Location: Europe, Norway



Bradford
Senior Drilling Engineer
Location: Europe, United Kingdom



Anna
Night Drilling Supervisor
Location: Europe, United Kingdom



Kate
Completions Engineer
Location: Africa, Ghana



Graham
Well Intervention Supervisor
Location: Europe, United Kingdom



Alex
Driller
Location: Africa, Ghana



Presley
Toolpusher
Location: Europe, United Kingdom

IADC/SPE
AND EXHIBIT

Supervisors to

Full User Certificate



Drilling Supervisor

Certificate

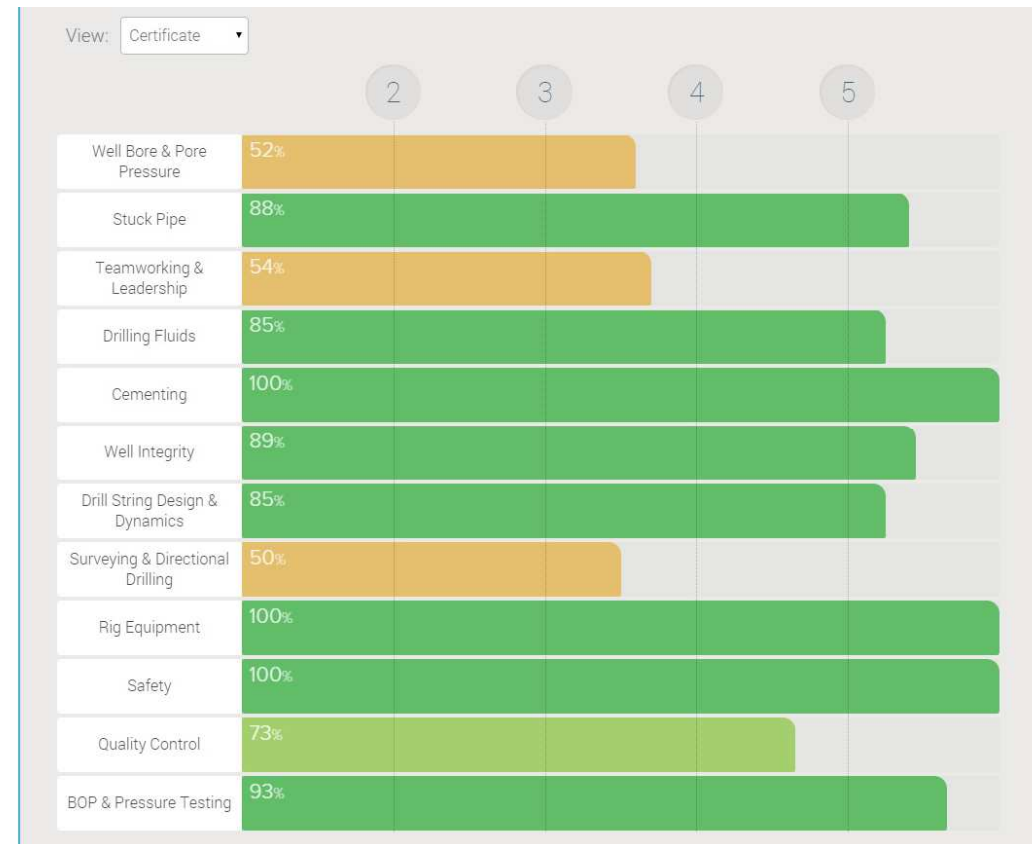
Grade: 4

Score: 76%

Date Taken: 23 Jul 2015

 Message User

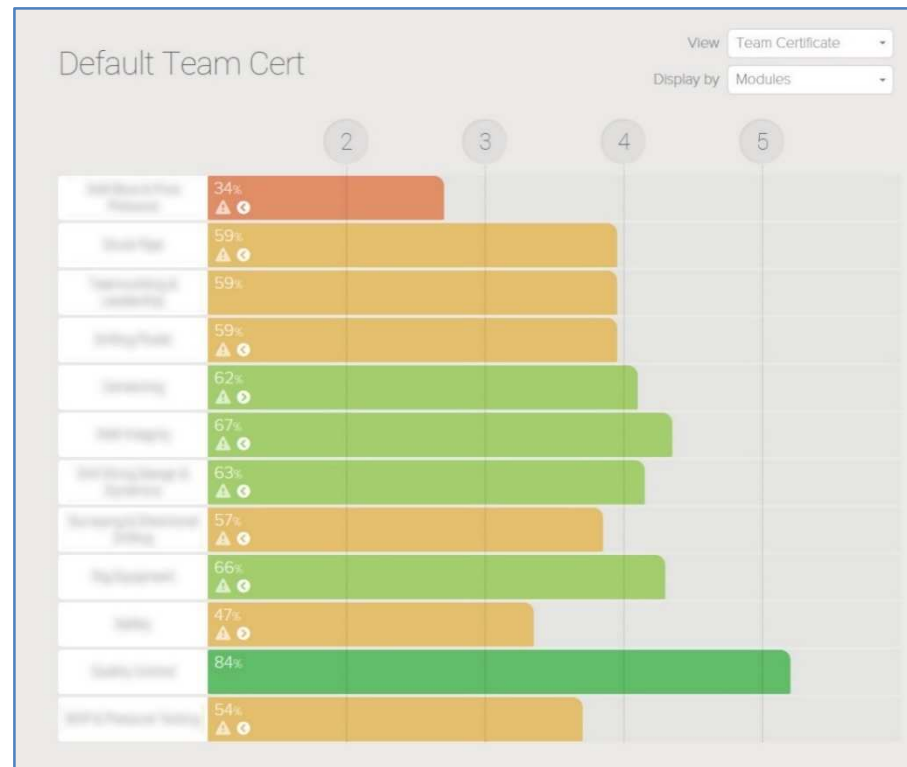
 Print Certificate



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Team Certificate by Module



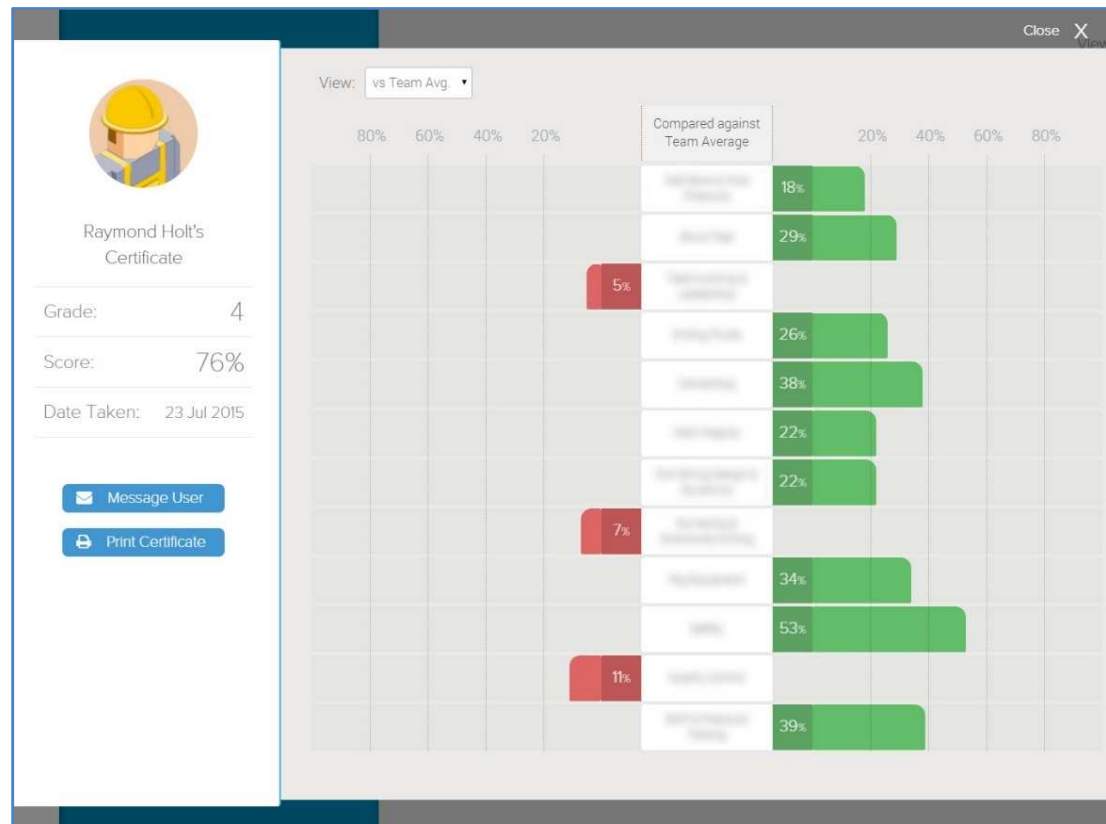
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Team Certificate by Users



User vs Team Average



Swiss Cheese View of Organisation

Organization: Swiss Cheese

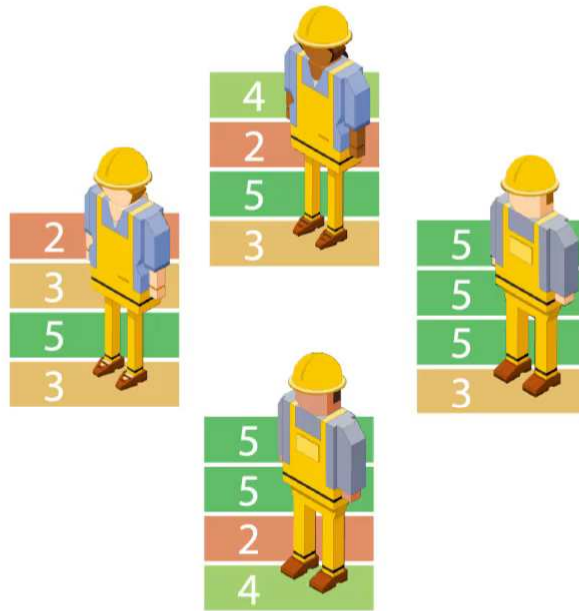
View: Swiss Cheese

Display by: N/A

Position:	Drilling Superintendent	Drilling Supervisor	Senior Drilling Engineer	Night Drilling Supervisor	Completions Engineer	Well Intervention Supervisor	Driller	Toolpusher
Click on a user's name for test breakdown	Fergus	Ayden	Bradford	Anna	Kate	Graham	Alex	Presley
Well Bore & Pipe Protection	5	3	2	3	3	1	2	2
Block Flow	2	2	1	1	2	1	1	2
Teamworking & Leadership	4	3	3	3	1	3	2	2
Drilling Fluids	5	3	1	1	5	2	1	3
Connectivity	5	1	1	5	2	3	1	2
Well Integrity	5	3	4	1	5	3	1	1
Well Bore Design & Operation	5	2	4	1	2	1	1	1
Training & Operational Safety	5	2	2	1	1	1	1	1
Rig Movement	5	2	1	1	1	2	5	1
Safety	5	3	1	3	5	1	5	1
Quality Control	3	3	3	1	1	2	1	2
Well & Personnel Training	5	1	3	5	1	2	1	2

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SHARED POOL OF
CERTIFIED PERSONNEL

Initial Results

- Rig site vs office (Bandwidth / time)
- One excellent performer can mask a poor team
- Important to differentiate academic vs practical talent
 - Good personnel not necessarily strong at exams
 - Inexperienced personnel can be very good exam takers
- Scenarios include complex interactions
 - Require academic understanding and practical experience

Conclusions

- Increase use of scenarios
 - differentiates experience / academic prowess
- Long term effort required:
 - Improve and widen databank of questions / certificates
- Embrace mistakes / share to improve
- Increase use of Human Factors / CRM
- Hone skills to meet key challenges before deployment
- Extend to Operations team / Driller / Toolpusher
- Right person in the team saves \$millions

Benefits for the Candidate

- The candidate can:
 - Gain recognised certification in an array of skills
 - Improve themselves through online eLearning in key areas
 - Show their availability during downtime between assignments
 - Progressively improve their standing in the industry

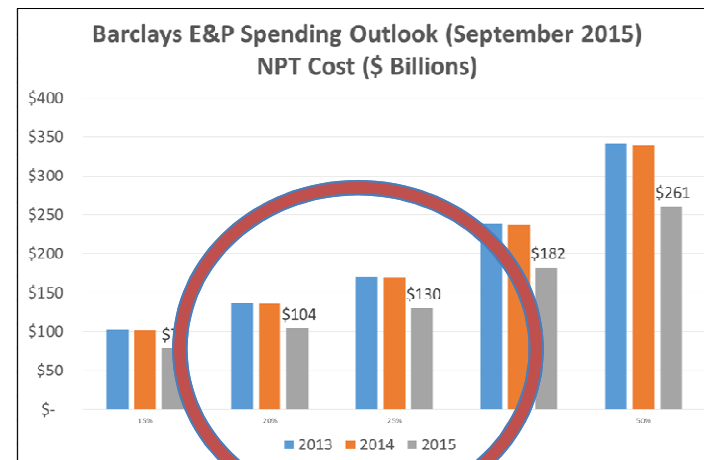
Benefits for the Operator

- Constant drive to reduce cost and loss
- Stuck pipe focus alone could save \$billions with a stuck pipe certificate renewed every two years?
 - > 4,000% ROI
- Manage the Great Crew Change more securely

Join Us

- The more members the better
- Steer the initiative to meet your needs
- Provide scenario data
- Drive out cost
- ***Win The Prize!!***

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Acknowledgements / Questions?

Ref 1. John Thorogood 2013. Is There a Place for High-Reliability Organizations in Drilling? SPE 10.2118/151338-PA

Ref 2. J.Ford Brett 2007. Lessons from History The value of Competent People. Talent & Technology SPE-0101-08-TT

Ref 3. API Energy Works February 2015

Ref 4. Barclays E&P Spending Outlook (September 2015) Barclays Research and Company Reports as reported by oilandgasinvestor.com on the 10th September 2015

Ref 5. "Black Box Thinking" by Matthew Syed published by Hodder & Stoughton (September 2015).



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