
Lean Project Execution in a 'New' Subsea Market

Phil Ashley
Baker Hughes a GE Company



HSE Safety Moment - Near Miss – Converter Plugs

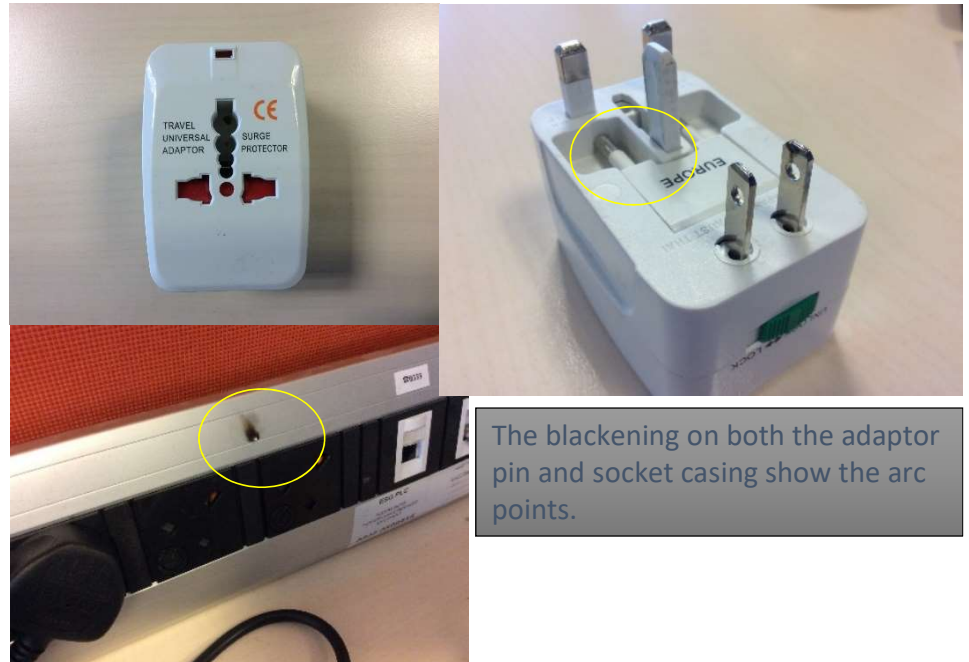
Date / Time of Event:	11/04/2017
Event Category:	H&S
Property Damage:	Yes (very minor)
Dept / Area:	AZTEC West, Offices
Contractor Involved:	Yes
Date of Investigation:	11/04/2017
Investigation Team:	Brian Balfe

Near Miss Description

- An individual plugged in his multi-plug international adaptor using the 3 pin option, but had not lock away the 2 pins for another socket. As he plugged in the adaptor the exposed 2 pins became live and arced across to the metal case of the socket casing. The fuses in the wall socket blew cutting the electrical supply immediately.

Why did this happen?

- The design of the adaptor allows for live terminals to be exposed while plugged in.



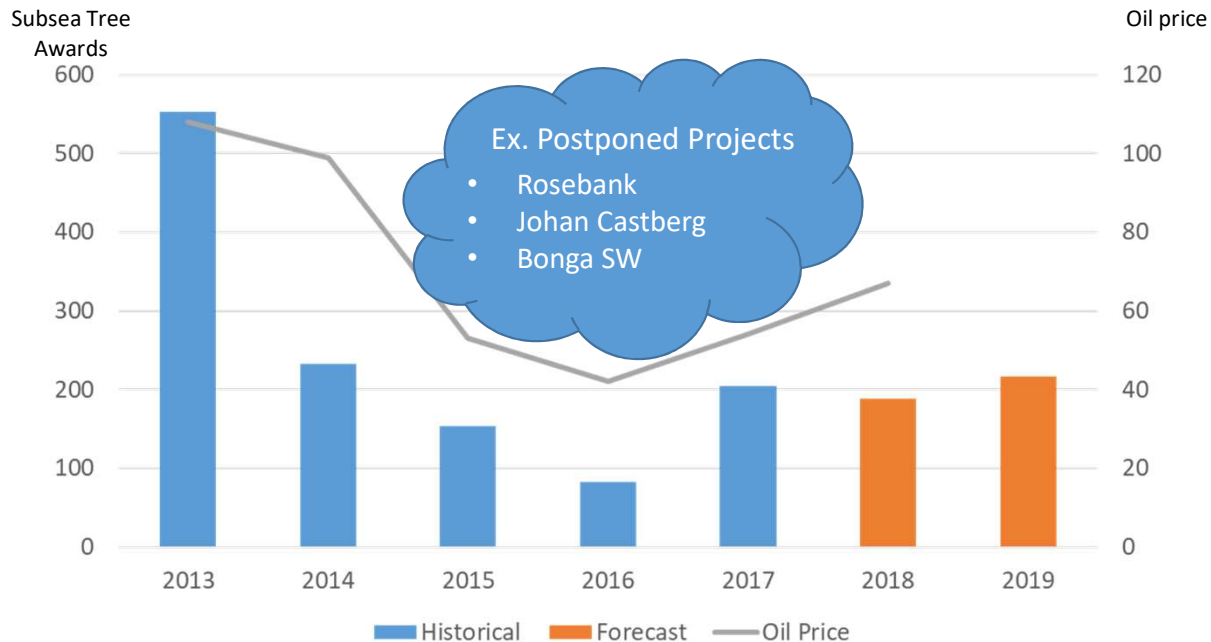
The blackening on both the adaptor pin and socket casing show the arc points.

What can we learn from this Near Miss?

- Care is needed when buying and trusting electrical products even when marked with a trusted mark, in this case CE.
- All locations allowing people to use their own adaptors should ensure all those using them are well informed of the site rules relating to their use.

Project Management in new era of Subsea Developments

Subsea Market through the cycle



Keys to achieving FID through cycle

- Early engagement ... rescope project
- Contracting strategy ... Integrated scopes
- Operational efficiency ... Digital tools
- Minimum CapEx to 1st Oil ... Life of Field

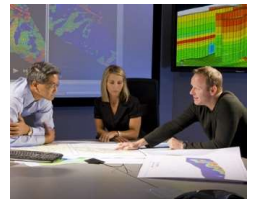
Keys to achieving FID through cycle

- Rapid growth/overspent projects.
- Dramatic decline.
- Changing dynamics increased risk profiles

Times have changed.....

New Market dynamics

- The Subsea Market has changed forever. Long upcycle and steep downcycle drives the need for change.
- All companies need to adapt how they approach project execution.
- The principles of lean, teach us to;
 - eliminate waste in our processes,
 - use resources more efficiently and
 - ultimately complete tasks faster and cheaper.
- We can explore some real examples of how this can be achieved in the future and some areas where focus may be applied.



Key issues. 4P's

PRE WORK	PEOPLE
<ul style="list-style-type: none"> • Focus on early engagement. • Invest more focus pre-award • Heavy investment in forecasting S&OP. 	<ul style="list-style-type: none"> • Co-located teams – high skills center. • Invest heavily in training and competence <ul style="list-style-type: none"> • Focus on permanent employees
PARTNERS	PRIMEVERA / PREDIX (digital)
<ul style="list-style-type: none"> • Collaborations – early selections. • Strong supply base, develop. • Trust in partners 	<ul style="list-style-type: none"> • Digital tools - Plan/Quality/Docs/PLM/ERP <ul style="list-style-type: none"> • RealTrack digital integration. • Constant investment in integration.

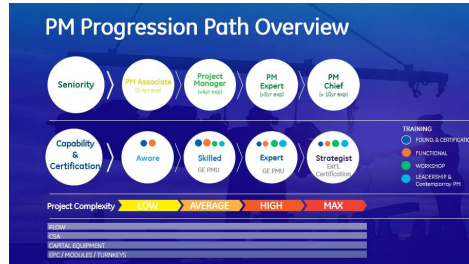
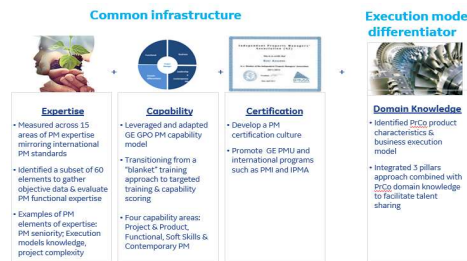
People – Training and Development

Aim to reduce reliance on long term Contract staff.

In vest in development of existing talent. Strong Subsea core.

Grow PM's through development to provide Immediate & lasting positive organizational impact.

Provide Talent development, learning opportunities, certification programs to broader career perspective.



- **Competency Model**
 - Expertise
 - Capabilities
 - Domain Knowledge
- **Progression Path**
- **Learning Path**
- **Certification** guidelines

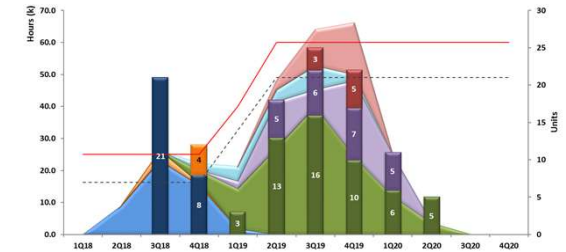
- **Seniority Mapping**
 - Project Complexity
 - Competency Assessment
 - PM Experience
- **PM Survey**
 - Self assessment
 - Manager touchpoint
 - Personal Learning Plan

- **Learning Offering:**
 - Classroom / Virtual Training
 - On the Job / Experiential
 - Formal / Informal Learning
- **Certification Program**
 - Supporting Network

Pre Work – S&OP Process

- Executive cross-functional decision making process
- Balances Supply and Demand (volume + mix)
- Deals with volume in units and \$\$
- Ties operational plans to financial plans
- Monthly process reviewed by management
- Reviews assumptions, risks, opportunities, constraints and resources

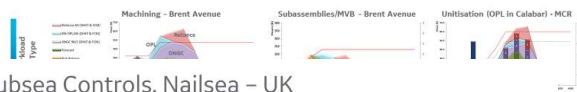
Forecasting is a key investment.



By Using complex forecasting models we can be prepared for eventualities

- Integrated business plan
- Cross-functional accountability of individual plans
- Consensus on plans and managing gaps
- Resource capacity determined
- Assigning and following up on actions to meet demand case
- Scenario planning based on probability based cases
- Regular rhythms in place to assess capacity.
- Plan for as many future outcomes as possible.
- Run scenario's be ready for any eventuality.

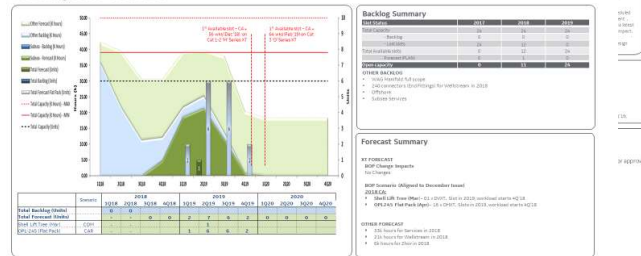
UK Forecast Workload



Subsea Controls, Nailsea – UK
Scenario (SPS Planning Case 25.01.18)

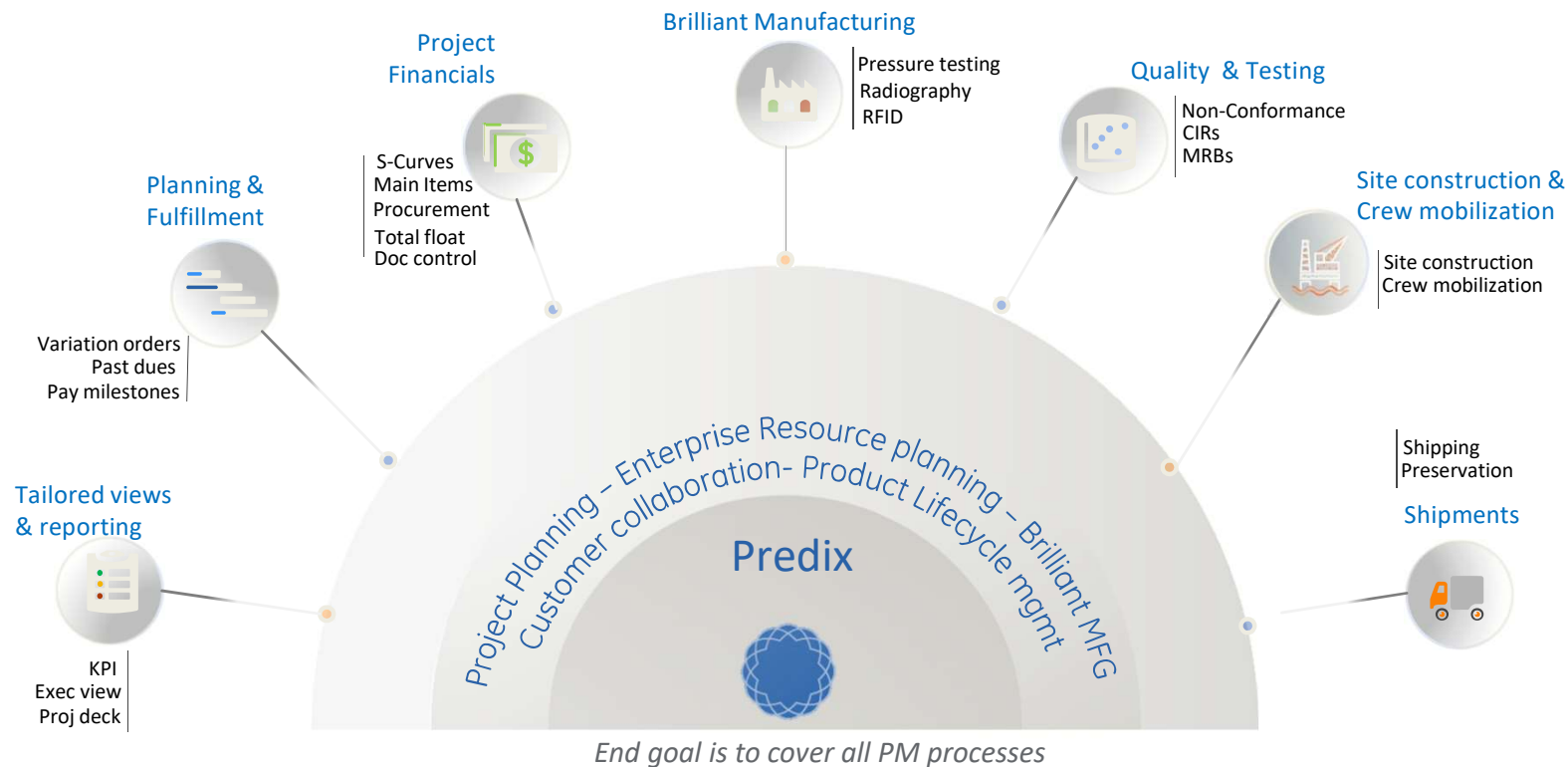


Jandira – LAM
Planning Case Scenario



Digital Tool's - Collaboration and transparency in Execution

Today's business complexity requires to evolve the way we share projects information in the Oil&Gas industry from a reporting culture to true transparency and collaboration.



- Constantly developing digital tool's exist.
- Planning.
- ERP/MRP
- Doc Control.
- Linking the tools across the Value chain. 'One Source of the Truth' will be key to driving greater efficiency.

Partnering for Success

Breaking down traditional barriers and working as one team with shared commitment and values

"Culture of Care"

Placing highest value in safety: promoting a safe working environment for all

"Best for Project"

Project objectives take precedence over individual company objectives

"Fairness for All"

Fair, transparent and equitable (not equal) allocations of risks and rewards



Project Collaboration Values

"Trust in Each Other"

Culture of support rather than blame and open dialogue

"Value for Money & Money for Value"

Baseline positions are sustainable for all, with performance determining profitability

Partnerships - key to leaner projects.



Selecting Project Partnerships

- Assessing scope & capability.
- Common cultures.
- Willingness to partner.



SURF & Installation.

- Design of flowlines, PLETs, risers and umbilicals;
- Installation of SPS and SURF equipment;
- Pre-commissioning and Commissioning Support.

Umbilical's and Distribution

- ROV Tooling and equipment.
- Multi Quick Connect Stabplates and Steel Tube Flying Leads
- Umbilical Termination Assemblies and Design capability

Major Fabrication

- Potential sources of local Value add.
- Manifold/SDU/PLET/Chemical Distribution.
- Welding.
- Site receipt testing
- SIT's

- *The right partnering and approach to collaboration is key to leaner and more efficient execution.*

Closing thoughts...

Subjects Covered

- The Subsea market has changed - forever. M&A and market driven.
- Four key topics covered; ... Partnerships, Pework, Predix and People.
- Not an exhaustive list of cost drivers; Documentation, Development, Location, Technology - can all drive cost and schedule.
- Great opportunity exists to make projects more efficient.
- The prize is significant!

Conclusions.

- To eliminate waste;
 - We need to investing in the right people, in the right place.
 - Working up front can be key to success.
 - Embracing the technology and digital tools will be a massive advantage to all projects.
 - Partnerships are key to collaboration, avoid risk and development and enables quicker delivery.

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