C-Kore
Reducing costs while gaining complete picture of entire field on fault finding operations

Subsea Expo 2017

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What is C-Kore?

- Conductor Resistance Meter
- Capacitance Meter
- High Capacity Data Logger
- Insulation Resistance Meter
- Shock & Vibration Sensor
- Thermometer
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Installation Operations

- Risk mitigation – know conditions of asset at all times
- Continuous measurements - never install blind again
- Accurate data — not dependent on human element or weather conditions

Quick Results – Decrease Testing Time / Vessel Time
Monitoring: Factory floor to Sea floor

- Data logging from factory floor to ocean floor
- Eliminates blind spots between traditional monitoring operations
- Time stamped data to identify anomalies

Reduce risk with 100% certainty on asset’s condition
Fault Finding Operations

- Compact, easy-to-use equipment
- Low voltage safe for (diver) operations: Max 3.3VDC; 10.3mA
- Accurate data – human element eliminated, not dependent on weather conditions

Quick Results – Decrease Testing Time / Vessel Time
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Subsea Engineer, Shell UK Ltd
Low IR – Identifying the Problem

An Operators Perspective

- Low IR faults are a relatively common occurrence through life of field
  - Can impact production availability -> asset profitability

- Traditional fault identification methods often laborious
  - Further cost as a result of DSV/ROV/SSV time and service equipment
  - Potential deferment costs

- Challenge: reduce the cost to rectify IR faults on Subsea assets
  - Deployment of technology?
An Opportunity to Evolve

- In late 2015 Corrib Experienced IR issues
  - Metocean conditions postponed offshore campaign until April 2016
- Drive to reduce the cost of the campaign
  - Optimisation of fault finding approach
  - Synergies with topside shutdowns
  - Minimisation of offshore staff, equipment and material
  - Application of technology

Illustration of Corrib Subsea Development
C-Kore – Revolutionising Innovation

- C-Kore had visited Shell in recent years prior to offshore campaign
  - Perception: Tool for umbilical condition monitoring during installation/tie in
  - Potential: Quick Subsea diagnostics tool

- Importance of a problem
  - Diagnosing the EDU at Corrib is particularly labour intensive – biggest impact on vessel time
  - Mandate to apply new technology

- Changing the status quo
In order to realise the potential 3 key phases:

- **Pre-campaign:** Gaining technical acceptance of the technology
  - C-Kore was already at TRL 7
- **During the campaign:** Verifying, utilising and maximising the benefit of the technology
- **Post-campaign:** Sharing the lessons learned and identifying future opportunities

**C-Kore in use**
Realising The Potential

- Potential delivered:
  - Improved vessel efficiency
    - Vessel Days Saved
  - Improved diagnostic capability
    - Identified faults that previously would have been masked by other faults
  - Reduction in future failures?
    - Early identification