



Decom North Sea 27th May 2015

Oceaneering Rigchase & Bundled Decom Services – The Benefits Of Collaboration

Paul Yeats – General Manager, Eastern Hemisphere



- **Asset Integrity** Group provides Topside Decom services – Rope Access, NDT Topside Inspection (NUI status) & Subsea Inspection
- **DTS** Group provides Subsea Decom services – Tooling, Cutters, Recovery Eqpt, Dredging Eqpt, Engineering & Wellhead Severance
- **ROV** Group Provide Workclass & Obs class ROV's
- **Oilfield Projects** Group provide vessel support & Project Management (when required)

- Clients: Det norske /GDF Suez, Statoil, Total, Talisman
- Scope: 6 Wellheads



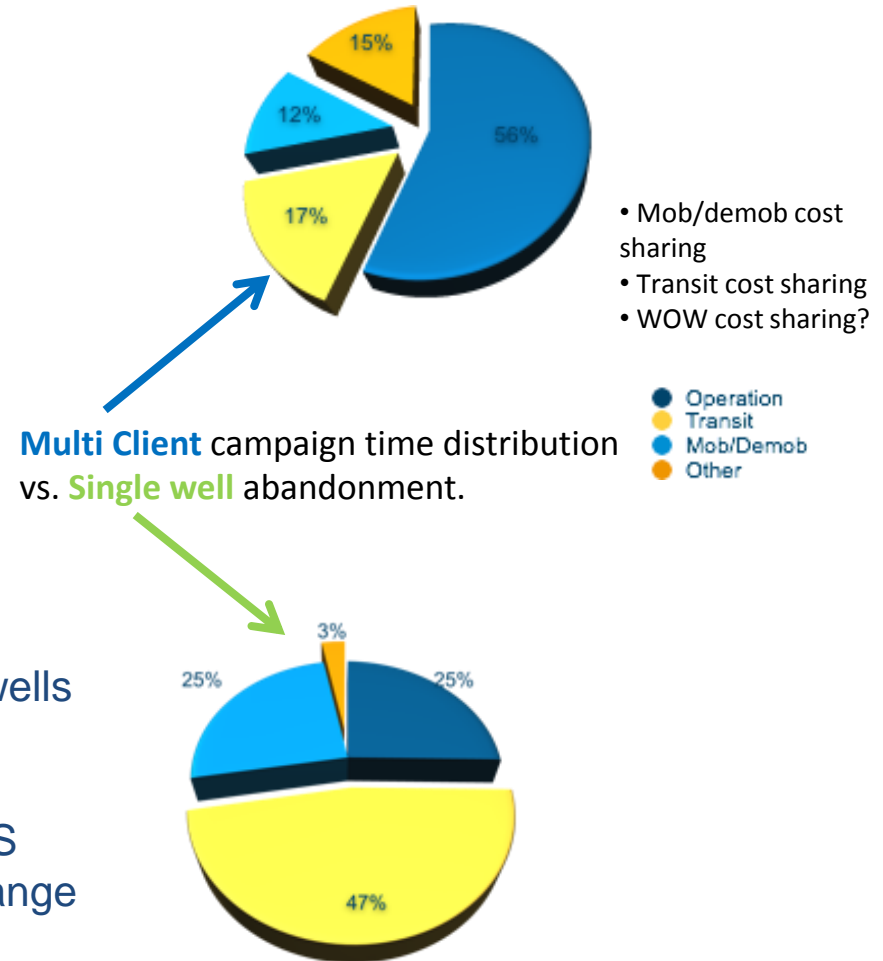
NCS Multi Client Campaigns - Permanent Abandonment of Subsea Wells

- 2009 – One Operator
- 2010 – Three Operators
- 2011 – Three Operators
- 2012 – Five Operators
- 2014 – Four Operators

- Mostly Exploration Wells abandoned due to
- Wellhead left for vessel on purpose
- Mechanical misscuts

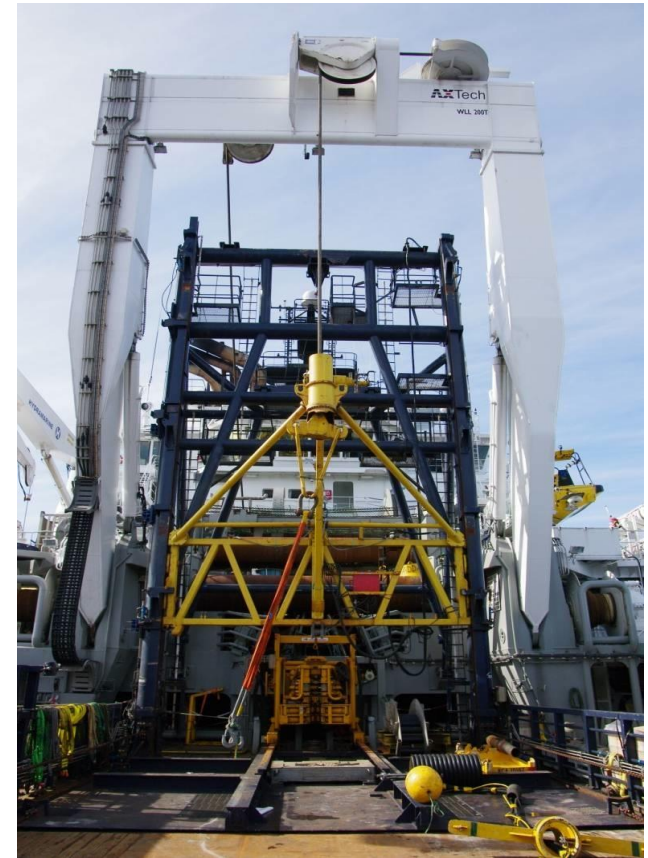
Lesser degree of abandonment of legislation wells in NCS.

Cost savings for Multi Client campaigns in NCS compared to single well campaign are in the range of 30%-70%.



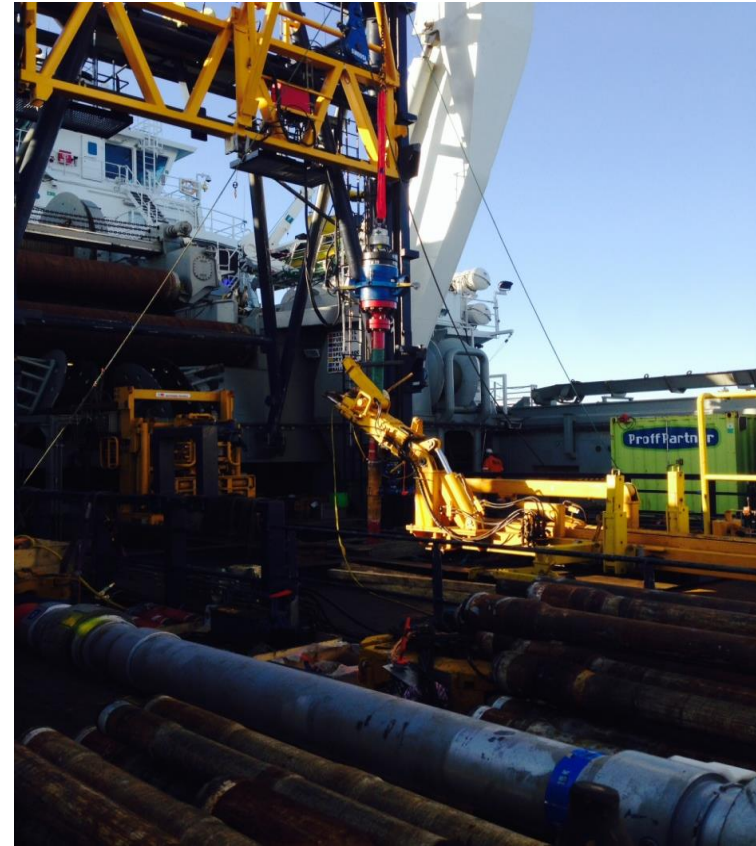
Mærsk Oil and Gas P&A of Suspended Subsea Wells

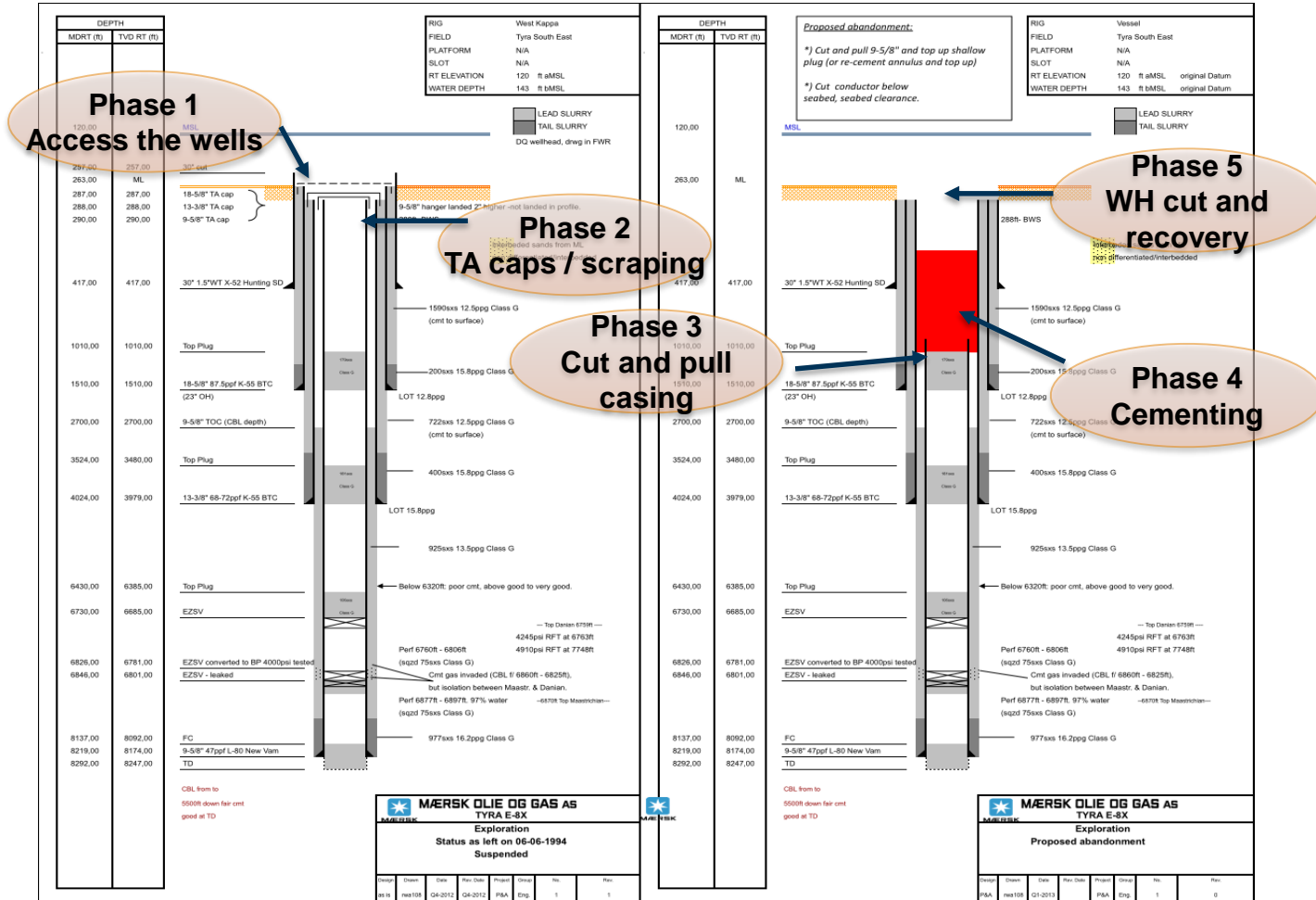
- Offshore campaign divided in 4 Phases
- Phase 1 – Access to wells
- Phase 2 – Remove TA caps and top up cement
- Phase 3 – Cut wells below seabed,
- Phase 4 - Clear seabed and final survey
- 9 Wells decommissioned in 2013



Mærsk Oil and Gas P&A of Suspended Subsea Wells

- Offshore campaign divided in 5 Phases
- Phase 1 – Access to wells
- Phase 2 – Remove TA caps / Wireline operations / scraping
- Phase 3 – Cut and recover casing
- Phase 4 - Cementing
- Phase 5 - Cut and recover wells and clear seabed (2015)
- 14 Wells

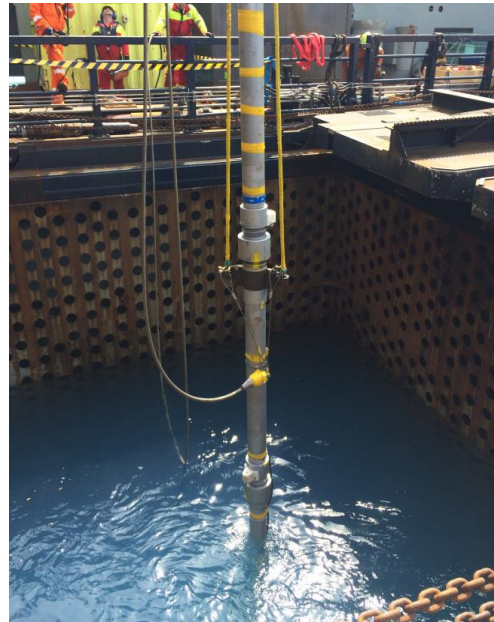




- **5 Overtrawlable structures recovered**
- Flushing 500m³ /min@8 bars - vessel ballast pumps
- Jetting 5-8m³/min@300-500 bars - cement pumps
- Jetting 1m³/min@1000 bars HP pumps
- Downhole video cameras
- Various type of flushing heads and jetting nozzles



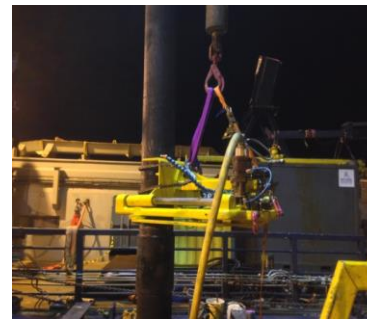
- 25 TA Caps recovered
- TA cap venting and recovery
- Standard TA cap R/R tools
- Oceaneering designed TA cap R/R tooling
- Jointed pipe operation
- Rig tongs to apply torque
- Wireline operations
- Wireline to set bridge plugs
- Slickline jar (prong recovery)
- CBL and CCL logging
- Well scraping on wire





Casing Scraping, Cutting and Recovery

- **41 Sections of casing recovered, totalling 1484ft**
- **Maximum cut depth 666ft BML**
- **Longest Section recovered 639ft**
- Field proven technology used
- Use of mud motor and mechanical cutters
- Spear for recovery to vessel deck
- Oceaneering sectioning equipment to cut and lay out on deck
- Single and multiple casings recovery

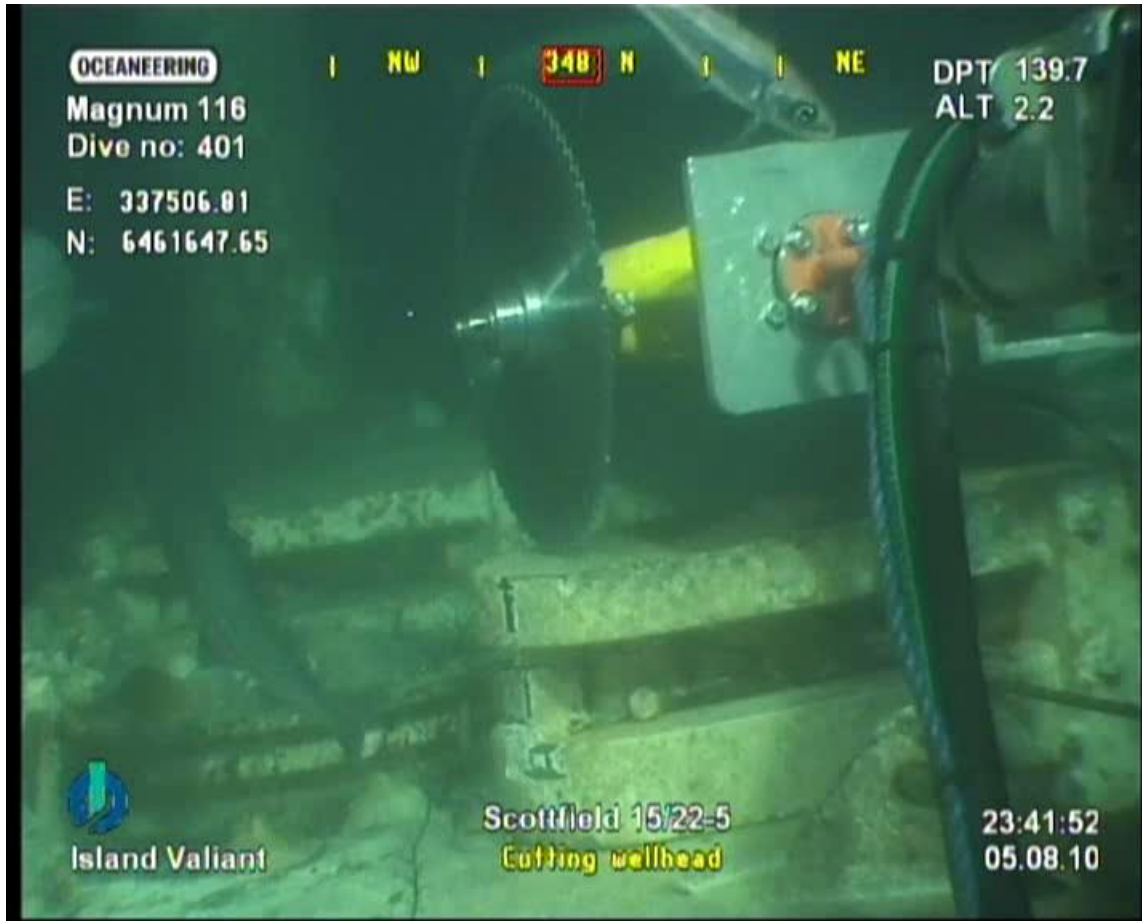


OCEANEERING[®] 2014 – Phase 4 - Cementing the Wells

- 13 Wells cemented
- Pump and pull - hose and cement stinger
- Flush back to 35 ft BML
- Weight test / Batchwork



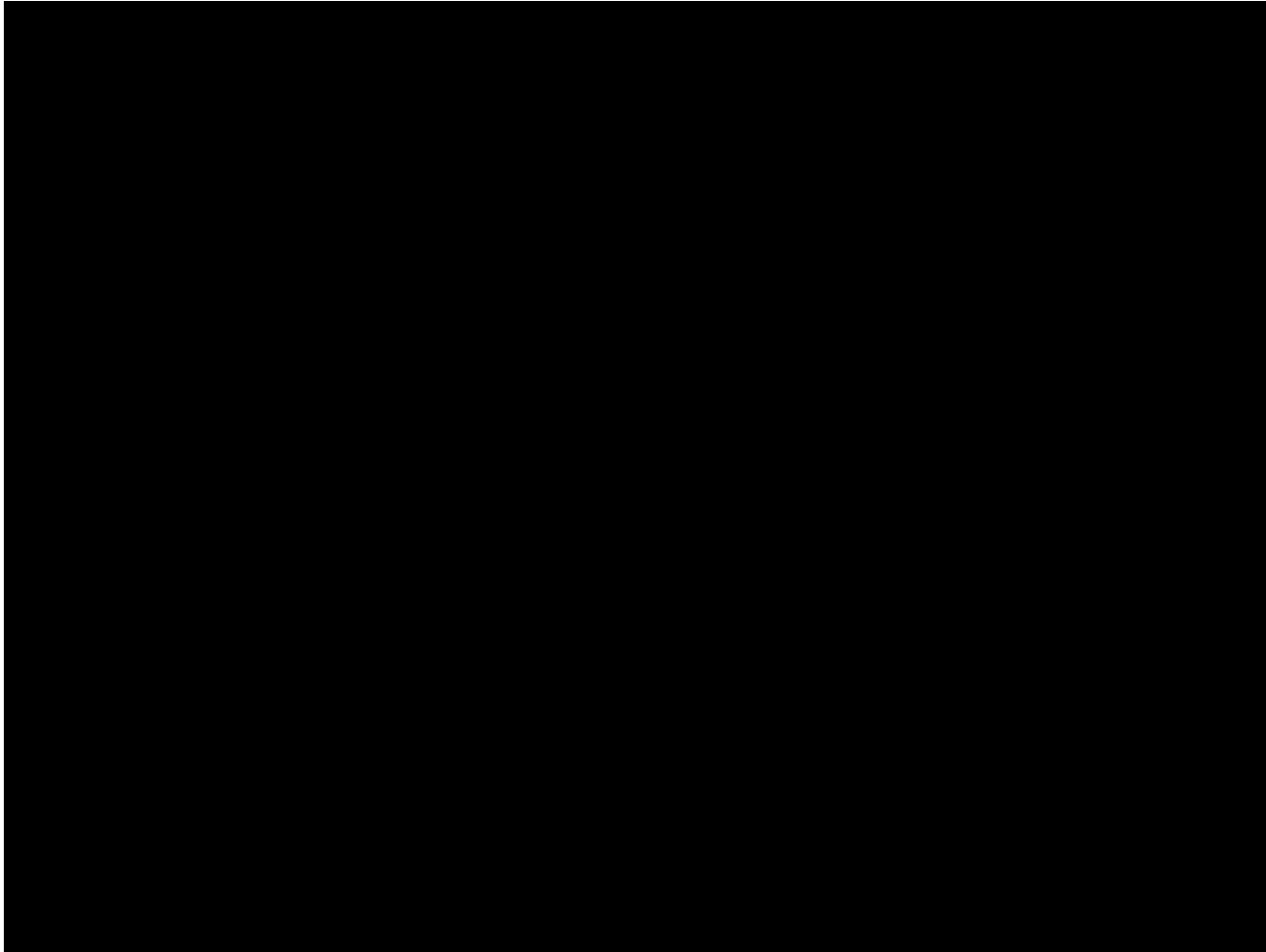
- Phase 5 – Severance







Oceaneering Rig Chase Overview



Oceaneering contracted to recover circa 600 m of dropped 20" casing, in 600 mwd West of Shetland.

Oceaneering were lead contractor, engaging with service providers to deliver an engineered solution to operate in W.O.S harsh environment

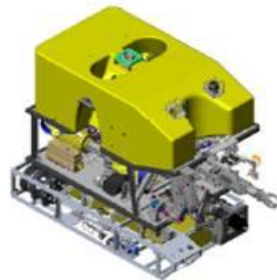
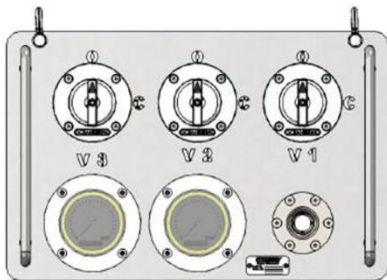
ROV powered fluid Skid was purpose built to deliver the required hydraulic supply to operate large shears and grapples

Casing was cut into 12 m sections using hydraulic shears, powered through Oceaneering designed hot stab control panel / skid

Cut casing sections were lifted into subsea baskets utilising hydraulic grapple for safe recovery to deck



- Tools to Interface to the ROV.
 - Tooling deployed directly from ROV
 - Under slung Skid form
 - Deploy separately with ROV friendly hydraulic and electrical connections
 - Solutions can be engineered to enable tooling with High Flow requirements to be powered by ROVs.
 - Underslung DWP Skid can be fitted to ROV and tooling can be powered by Hot stab interface



Thank You



Your ^{perfect} team player[®]
OCEANEERING