

Winter Preparedness Workshop

15 September 2022

Meeting Etiquette

OEUK will track attendance of all attendees Please can you type your name and company into the chat

Please mute your microphone when you are not talking This reduces interference

We will take questions at the end Submit questions using chat or raise hand function

We will share whatever slides we can after the Workshop



Agenda

1. Safety, Minutes etc.	Lead
a. Safety	MW
b. Competition Law	MW
c. Introductions & AOB	MW
2. Context Setting	
 a. Introduction to winter preparedness, including security of supply 	RW
b. Context setting	TW
3. Lessons Learned Session	
a. Lessons Learned and Good Practice	
i. Offshore Operations (Shell)	DL
ii. Norway Operations (Offshorenorge)	AN
iii. Terminal Operations (PX Limited)	RG
iv. Dropped object prevention (Vysus Group)	SH
4. Round Table Discussion	
a. Contributions and experiences from other attendees	All
b. Consolidation: capturing and sharing knowledge	All
5. AOB & Next Steps	
a. AOB	MW
b. Next steps discussion	RW



Competition Law

All discussions are subject to OEUK's Competition Law Compliance Policy

- copy available on our website –
- <u>https://oeuk.org.uk/legal-team-and-logic/</u>

All sessions will be minuted.

Unless the information is legitimately in the public domain, we will not discuss specific prices, costs, production quantities, sales, suppliers, customers, business plans, commercial strategies or other confidential information except upon specific legal advice.





Introduction to winter preparedness, including security of supply

Tom Wheeler Director of Regulation North Sea Transition Authority (NSTA)



Lessons Learned and Good Practice

Offshore Operations Doug Loaiza Wells Engineering Manager Performance and Planning : Shell Global Solutions



Adverse Weather Workshop – Oct 2020

FINAL OUTPUT SUMMARY

Opportunity 1: BOP Trip Saver

Overview

- How can we make use of the trip saver to hang off BOP whilst running trees & well testing.
- Investigate opportunity to rig move with BOP suspended on trip saver to subsequent wellhead (project specific with in-place top holes).
- Save time pulling & running BOP across campaign. **Note:** BOP recovery still required at agreed intervals for maintenance.
- BOP remains wet, desirable for Drilling Contractor in terms of maintenance.
- Quite unique to current project as we have relatively short interfiled rig moves with top holes already in place [20km from North to South of field with ~5km rig moves in between drill centres]
- Some blockers may be around Project / HSE team comfort with having the BOP suspended over live infrastructure for some time during rig moves and anchoring.
- Potentially a significant opportunity even in summer to reduce overall planned well times and therefore cost.



Close Out Summary

- Drilling Contractor confirmed no history of this being done across the global fleet
- Not a common operation in shallow water
- 2H group contracted to carry out feasibility study for sim ops opportunities with BOP suspended.
- Sim Ops study report shared and Drilling Contractor recommendation to regret due to clashes identified at 6m sig wave height

Status: Regretted

Opportunity 2: Optimised BOP EOW Maintenance

Overview

- Certain specific operations mean short turnaround times between wells as there are
 no top holes to be drilled
- Opportunity to try and optimise End of Well (EOW) BOP maintenance plans to avoid the risk of missing a weather window due to lack of BOP readiness
- Define safety critical BOP maintenance activities vs best practices for operational uptime.
- Be willing to discuss taking a risked approach to regret some of the non-safety critical scope items without unintended consequence of missing safety critical elements
- Make use of new BOP real time monitoring system to make EOW workscope risk/condition based
- Look at options to extend change out frequency of certain components i.e. can we use annulars for longer? Consider implementing OEM guidance rather than more conservative Drilling Contractor guidelines

Final Output

Drilling contractor driven spreadsheet created to minimise EOW maintenance scope over campaign.

Spreadsheet will be continuously reviewed by Drilling Contractor to identify further opportunities to minimise downtime due to BOP maintenance



Opportunity 3: Reduced Reliance on Deck Cranes

Overview

- Currently reliant on deck cranes to transfer key equipment to the rig floor for running BOP and completion operations
- Alternative solution already proposed for transferring riser spider using new beam for gantry crane
- Progress being made to also qualify use of beam to potentially transfer diverter and slip joint

Note: Initial opportunity closed out and now any further opportunities are managed by Drilling Contractor cadence sessions

Final Output

- Opportunity ties into performance workstream / rig action tracker
- Other projects that will improve resilience to adverse weather include: Optimised XT handling equipment, LRP/EDP bumper bar extensions, Tree cap skid, Handrails for BOP/XT carrier, Well test line bracket and kingpost for tree setback area See Rig Action tracker for latest info



Opportunity 4: Reduced Reliance on Over-side Cover

Overview

- Overside cover is currently an essential part of all moonpool heavy operations i.e. Running and recovery of BOP & Xmas Trees
- Challenge the need for overside cover with HSE in the first instance, requires industry challenge potentially via OGUK Wells Forum
- Feasibility study of moonpool cherry picker or safety nets to remove the need for overside cover from some operations.
- Installation of handrails around tree carrier to remove need for overside cover during tree prep being progressed by Drilling Contractor team already.
- Absolute clarity on overside cover required first before moonpool modifications are considered so an effective cost benefit analysis can even be carried out

Final Output

- A lot of push back for a number of reasons: April 2020 fatality whilst conducting overside cover on tug moored near Stavanger. Drive to eliminate such work after this event, duty holders asked to ensure sufficient controls in place.
- Alternative solution to look at moonpool cheery picker deemed appropriate as it was reviewed and signed off by HSEx previously.
- No appetite to install moonpool cheery picker as standby cover requirements will remain the same as per Drilling Contractor rig manager guidance. See Rig Action tracker for latest info on opportunities aimed to reduce reliance on overside cover rather than eliminate it



Opportunity 5: Fluids Handling Optimisation

Overview

- Once the rig completes top hole operations in current project, all remaining drilling activities will be oil based
- Optimised mud loadout plans to better utilise capacity (i.e. column tanks, pits, cutting storage tanks) will reduce reliance on hose work through winter months and therefore reduce exposure to adverse weather
- Consider options for offshore mud shearing device to provide mud building capability if necessary through bad weather, ultimately reducing reliance on vessel load outs
- Consider opportunity during fluids design phase for upcoming wells to try and standardise across sections as much as possible

Final Output

- Ops team confirmed column tanks can be cleaned out by tank cleaning system
- Water based column tank was cleaned out post operations and now available as ~2600bbl storage for 12.5ppg OBM across the next campaign

Status: Complete

Opportunity 6: NNS Alternative Logistics Base

Overview

- Supporting NNS operations from Aberdeen involves significant sail times with high exposure to weather resulting in delayed supply vessels
- Alternative logistics bases to support NNS operations to some capacity may be beneficial i.e. Lerwick / Bergen
- Needs to include feasibility study for bulks
- Consider hidden costs involved in operating a remote
 logistics base

Final Output

- Engagement held with design team, logistics and tubular logistics provider on the use of Lerwick for casing and tubing storage and load outs
- A number of blockers exist where this could be more complicated and less beneficial to the project: Reliance on ferry services, lack of inspection after sitting for a period of time in Lerwick, double handling mass amounts of tubulars and risk of damage, additional hidden costs.

Lerwick only therefore considered an option for storage of contingency skips, especially for C-wells were 2 of 3 wells have long 17-1/2" sections requiring large amount of contingency skips in the event of offshore cuttings processing failure

Status: Regretted

Opportunity 7: Optimised Weather Forecasting

Overview

- Various suggestions were proposed to better understand the upcoming weather forecast to allow the operations team to make more informed decisions on when to commence waiting on weather. These include:
 - 1. Utilise FPSO In-field weather buoy for more accurate forecasting
 - Daily connect with weather forecaster to provide more info on the confidence levels for weather peaks and troughs i.e. 5 mins allocated to morning call
 - 3. Further use of on board rig motion monitoring system including predictive functionality

Final Output

- Weather buoy installed by AHVs during anchor pre-lay operations
- Rig motion predictive heave system up and running with positive feedback throughout Arran operations Compatibility between system and weather buoy confirmed in principle by MET Ocean engineer, final details being worked with Fugro regarding data transfer format

Status: Complete

Opportunity 8: Granular Operating Limits for Key Operations

Overview

- Opportunity to standardise a set of granular operating limits for key operations
- Issues have been encountered in the past with 3 different adverse weather limits for the same operation in the Drilling or Completion programmes i.e. Shell, Drilling Contractor and Service Contractor guidelines with no consistency
- Investigate implementation of a 'one-pager' signed off by all parties for key operations i.e. Running BOP, Running trees, Running specialist completion equipment etc.
- One pager to break down operational steps with appropriate weather limits to provide more flexibility to the operations

Final Output

Summary of work:

- Drilling Contractor have now created new SSP for adverse weather guidelines and distributed to rig
- Examples demonstrate some instances where we have WOW for conditions < SSP, however trend has to be considered
- Drilling Contractor propose that every WOW event through 2020/2021 operations is properly analysed and sorted into discrete buckets as operations continue

Status: Complete





Lessons Learned and Good Practice

Norwegian Operations Aud Nistov HSE Manager : Offshorenorge



Lessons Learned and Good Practice

Terminal Operations Robbie Green PX Limited



OEUK – Winter Preparedness Workshop Sept 2022





Winter Preparedness

- Winterisation Checklist
- Contract with the met office
- Post Storm Walkdown Checklist



Winterisation Checklist

1.	Has MET office contract been renewed to run from November to March?
2.	Has a service, and any repairs, been carried out on Gritting Equipment?
3.	Have we checked the stock of salt / grit?
4.	Have mechanical PMs on fire Hydrants all been completed?
5.	Have mechanical PMs on fire pumps all been completed?
6.	Has the Glycol Concentration been confirmed as correct by the Laboratory?
7.	Are all furnaces available for use and being kept warm?
8.	Have weekly checks on emergency showers been carried out and any repairs effected?
9.	Is heat tracing functioning correctly on all critical systems?
10.	Are drain pumps all functioning in open drains / pits?
11.	Are weekly checks on all scaffolds and habitats being carried out?
12.	If required, have nets for falling ice protection been inspected and repaired as required?
13.	Have all Planned Maintenance routines been carried out to date on critical valves?
14.	Have all necessary repairs been carried out to lagging on critical vessels / pipes?
15.	Is lighting planned maintenance up to date?
16.	Has a lighting coverage survey been carried out and any defects rectified?
17.	Have all pot-hole repairs been carried out on roads?
18.	Is HVAC planned maintenance up to date and have any priority defects been rectified?
19.	Have all PFP planned maintenance routines been completed?
20.	Have all high traffic areas been supplied with a local salt / grit station?
21.	Has temperature indicator at security gatehouse been tested for correct operation?
22.	Has frost indicator lamp at control building been tested for correct operation?
23.	Has road signage survey PM been completed?
24.	Has Operations reviewed the insulation that has been removed site wide and confirmed that there will be no adverse impact on plant operations during colder months? - Where an issue is identified, a plan must be put in place and the replacement works

- Winterisation checklist "PM" first generated in 2018.
- PM generated annually in October

- Winterisation discussion facilitated by the Maintenance Management team.
- Review checklist and generate actions as a result of the discussion.

prioritised.

Contract with the met office



A: Storm Barra brings a band of rain with spells of hill snow across the area this afternoon, this will become slow moving through the evening before finally clearing north in the middle of the night (around midnight). 2-5 cm snow is expected to accumulate quite widely above 200 m, greater accumulations are only expected above 300m.

B: The same band of rain with spells of hill snow described above will across the area this afternoon but is expected to have cleared east by 1800. Accumulations of 2-5 cm should be expected above 200 m, although Lancashire, North Yorkshire and West Yorkshire are more likely to see more modest accumulations of 1-2cm.

- In Q3 annually we make contact with the Met-office and organise the contract for the following year.
- The Met Office will provide a tailored weather report for the local area on a daily basis.
- Ensures a consistent reputable weather report.
- Allows us to Pro-actively manage workforce. By coordinating travel during daylight hours / review planned activities / prioritise appropriate works.

Post Storm Walkdown Checklist

Area	Owner	Checks completed	Comments
Site wide walkdown	Operations / Safety		
Tertiary Structures Inlet	Mechanical		
Tertiary Structures Phase 1/2	Mechanical		
Tertiary Structures Phase 3	Mechanical		
Tertiary Structures Phase 3 Flare	Mechanical		
Site inner Fence	Chap		
Erected Scaffolds	Scaffolding		
Scaffolding yard	Scaffolding		
Cladding/ insulation/ PFP Inlet	Insulators		

- Our "Post Storm Walkdown" checklist. Ensures key competencies carry out a site inspection following a storm.
- This ensures a structured approach to verifying site condition prior to returning to work.
- Work orders are generated and appropriately prioritised.
- This approach continues to promote buy-in and a collaborative approach to plant ownership



Lessons Learned and Good Practice

Dropped Objects Steven Harris Group Head of HSSE : Vysus Group Steven Harris Group Head of HSSE Vysus Group

OEUK Winter Workshop: Dropped Object Prevention

Winter Considerations: the risk profile & hazard burden.



Storms (beyond the shrapnel)

The increased pitch, roll and yaw combined with the direct vibration effects from increased wind velocity adds to the four failure mechanisms involved with mechanical equipment: corrosion (galvanic), erosion, fatigue and overload due to enhanced cyclic and fatigue stresses.



Temperature (beyond the cold hands)

All materials have an expansion coefficient, with the thermal gain and/ or loss often happening at different rates meaning a loss of integrity within the securing methodology. For example, torque is the application of force that creates tension in bolted connections, often referred to as the clamping force required to achieve a desired 'preload' (determined by engineering design).



Loss of light (beyond inspection)

The loss of natural light negatively affects the production of melatonin, a sleep hormone, and serotonin, a hormone affecting your sleep, mood and appetite. These natural functions disrupt cognitive ability and the processes that are essential to ensure concentration.

Winter Considerations: ALARP

ALARP ('as low as reasonably practicable), is a goal-setting aspiration where risk is weighed against the sacrifice necessary to suitably control it.

Applying ALARP in the modern workplace means we accept there is risk when performing activity (hence 'eliminate' is the top of the hierarchy of controls). When there is no best practice, we monetarize all factors and perform a cost-benefit analysis to show us the point at which 'trouble' becomes disproportionate to the benefit of further risk reduction (law of diminishing returns).

ALARP dictates that a risk change requires commensurate control adjustments in order to keep 'balance'. Winter presents us with a huge change.



The motivators behind it all...

Moral

There is a solid argument based on the morality (good and bad) and ethics (right and wrong) of preventing dropped objects.

This goes beyond a person's subjective understanding of 'what good looks like', to land at the door of ESG and your organization's social license to operate.

Failure to adhere to these standards compromises the viability of a business from all stakeholder interface from investors and shareholder to employee culture and engagement.

Legal

- Duty of Care (HSWA '74) and Corporate Manslaughter and Corporate Homicide Act 2007.
- Coast Protection Act 1949; Continental Shelf Act 1964; Marine Scotland Act 2010 and Marine and Coastal Access Act 2009 (MCAA).
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013.
- The Workplace (Health, Safety and Welfare) Regulations 1992.

Economic

Direct costs of a dropped object.



Indirect costs of a dropped object.



The Informed Conversation.



NORTH SEA

Dropped objects could have 'seriously injured or killed' workers on Claymore platform

29/06/2022 By Andrew Dykes

The Health and Safety Executive (HSE) has warned Repsol Sinopec Resources UK (RSRUK) after hundreds of kilos of equipment fell dangerously close to offshore workers during a lifting operation on the Claymore platform.



NORTH SEA

'Risk of serious injury': Valaris hit with HSE warning after two-tonne object dropped 30feet on oil rig

04/11/2021 By Andrew Dykes

Valaris has been reprimanded by the Health and Safety Executive (HSE) following an incident on one of its jack-up rigs that posed a risk of "serious injury".



NORTH SEA

'Potential for a major accident': HSE slams Shell as three-tonne object dropped 50-feet on North Sea platform

13/10/2021 By Allister Thomas

Shell has been slammed by the safety regulator after a three-tonne object was dropped more than 50-feet on board a North Sea platform.



Vysus Group

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Her Majesty Queen Elizabeth II 21 April 1926 - 8 September 2022



Roundtable Discussion



AOB & Next Steps



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