



Noise Exposure, MODU's

Challenges on existing units and possible technical solutions

Jan Slettehaug, Dolphin Drilling





Myself...

- Jan Slettehaug
- 23 years offshore on drilling units
- Since 2010 working with development of newbuilds, operational preparations and operation support.
- Reduced hearing on both ears!





Dolphin Drilling:

- Subsidiary of Fred. Olsen Energy
- In shipping since 1848, operating drilling units since 1965
- Operates 11 mobile offshore units, semisubmersibles and drillships worldwide.
- Currently 2 semisubmersible's operating in Norway and 4 semisubmersibles and drillship in UK





Some known problem areas on existing units:

- Engine rooms
- Mud pump room
- HPU room
- Compressor room
- Temporary equipment: compressors, gen sets, HPU's, etc.
- Drawworks, including brakes and motors
- Top drive
- Drill pipe threads
- Drill pipe "slammer" in derrick
- Shakers
- Ventilation
- Landing lifts





Engine Room

Main challenge: access for maintenance and overhauls

- Preferably unmanned under operation: Remote control and monitoring
- Maintenance tasks should preferably be executed in “cold” engine rooms
- **Engine rooms to be split in several compartments, and total available power capacity sufficient to stop engines in affected room.**

Useful “tools”:

- DYNPOS-ER class notation: power management system enabling redundant machinery on DP units to be “ready”, not idling.
- Hybrid solutions: To cover temporary top loads, thus reduced need for available power online.





Mud Pump Room

Main challenge: access for maintenance and overhauls

- Preferably unmanned under operation: Camera monitoring, remote controlled valves, segregated from mud treatment area etc.
- Maintenance tasks should preferably be executed in “cold” rooms
- **Rooms to be split in several compartments, and total available power sufficient to stop equipment in affected room.**

Useful “tools”:

- Segregation
- Surveillance
- Surplus capacity





Compressor and HPU rooms

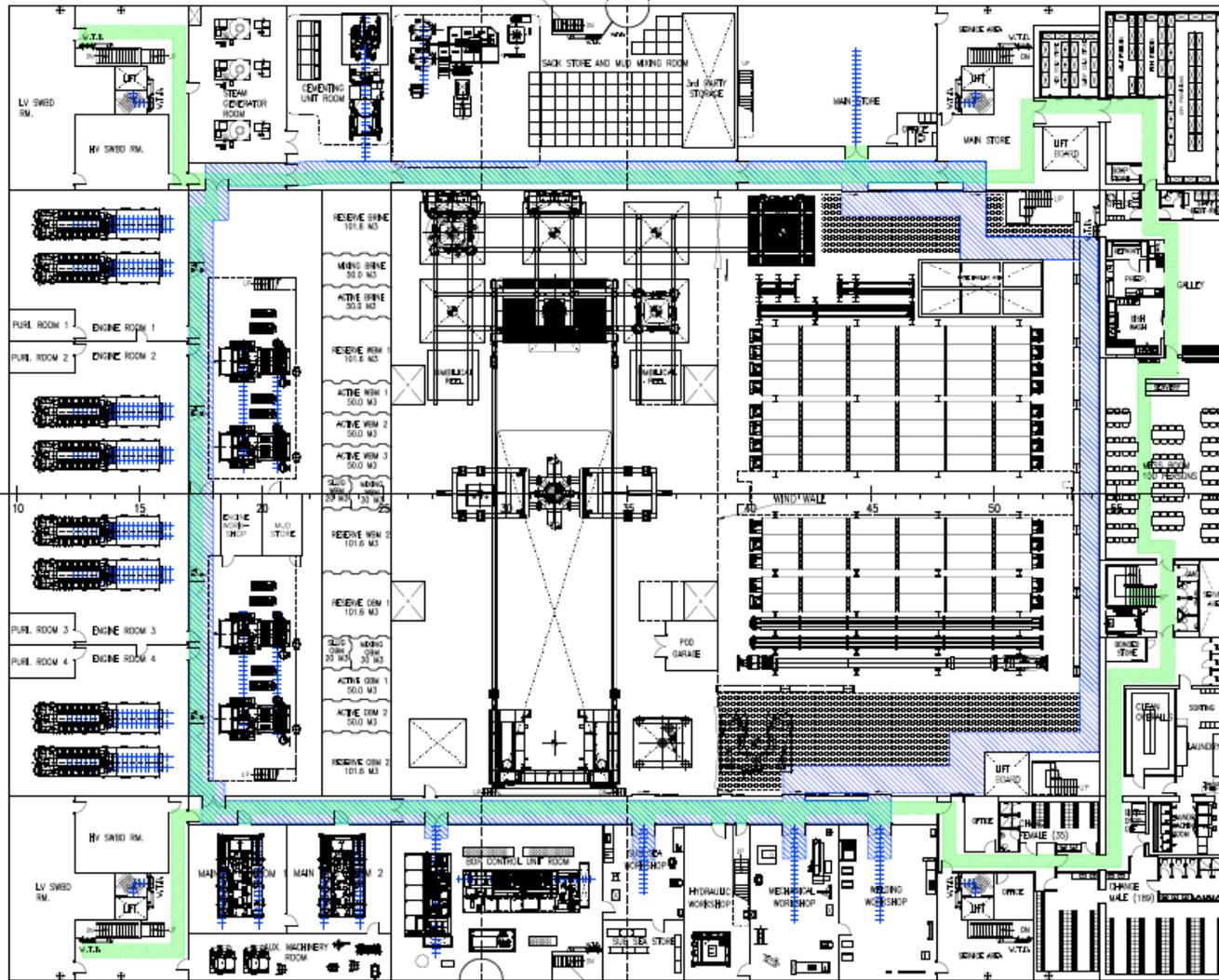
Main challenge: access for maintenance and overhauls. Usually one of each room, running 24/7

- Unmanned under operation
- Maintenance tasks should preferably be executed in “cold” rooms
- **Need to split rooms in several compartments, and total available power capacity sufficient to stop engines in affected room for maintenance**

Additional challenges:

- Rig air/HPU/electric capacity usually just sufficient to operate own equipment. 3rd party equipment often creates even bigger challenges





- Noisy systems located away from Accommodation
- Sufficient capacity and segregation



Rig Floor

Main Challenge:

- Manned under some operations
- Several noise sources: drawworks, top drive, spinning out drill pipe, drill pipe “slammer” in derrick, ventilation, etc.

Remove personnel and reduce noise:

- Standard operations should be automated
- Remote controlled from operator cabins
- Drawworks: AC drive, elevated and built in, water-cooled vs air-cooled
- Top drive: sufficient capacity, water vs air cooling
- Spinning out drill pipe: type of connection and thread compound, spinning time.
- Racking to avoid wind/pitch and roll slammer





Deck Area and Accommodation

Main Challenges:

- Several noise sources, cranes (travel), landing lifts, temporary equipment
 - Lifting operations involves manual work
 - Deck noises can be disturbing in accommodation
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- **Reduce internal lifting:** minimum number of levels, lifts and forklift transport
 - **Layout:** noisy activities removed from accommodation
 - **Accommodation design:** independent module, avoid gantry cranes etc.





Low cost solution



**Proven technology -
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