

# Værkriterier for operasjoner på flyttbare boreinnretninger

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PTIL Webinar 28.01.21 – 09:00-12:00

Seadrill Harsh Environment

*Accountable – Inspirational – Loyal – Proactive - Safety conscious.*



# Agenda

- Introduksjon
- Værkriterier
- OTG
- Prosesser
- DNV GL
- Q&A



Introduksjon



Flåtestatus



# Vær-kriterier

Condition	Green	Yellow	Red
Position offset	< 7m	>7	>10m
Thruster load	No Warning	Consequence Warning	Consequence Alarm
Power consumption (Red: E&S)	No Consequence Warning/Alarm	Consequence Warning	Consequence Alarm
Maximal Tension (Stat. Parameter 240t/30t)	No Warning	Warning	Alarm
Mooring line status	Intact	Any (mechanical deficiency loading anchor stop)	Line break or line break effect load position excursion
Position reference systems (PRS) available	3 for Main DP	Any failure or loss of performance in any PRS	Only 1 for Main DP
DPN control system (DP OS & DP controllers)	3 PD and 2 CG for Main DP	Any failure or loss of performance	Only 1 PD or 1 CG for Main DP
Wind sensors	3 for Main DP	Any failure or loss of performance	Only 1 for Main DP
Motion sensors (MRU)	3 for Main DP	Any failure or loss of performance	Only 1 for Main DP
Heading sensors (Hrs)	3 for Main DP	Any failure or loss of performance in any Heading Sensor	Only 1 for Main DP
DPN relevant UPS	Generate UPS 1 and 2 No Alarm	Any failure or loss of performance in any system Alarm on UPS	Failure of Generators UPS 1/2
Network	2	Any failure or loss of performance	Only 1 connected to main system
Communication system	Dual systems (DP / Driter)	1 system	If all communications with all floor loss
I&S System (H-CHEM)	All field stations operational	Any failure or loss of performance	
Riser Limit-Load Plan Joint angle	< 1.5°	> 1.5°	> 4°
Risk of collision (TOPA)	> 90 min.	< 90 min.	< 20 min.
Fire & Gas	Normal status	Unconfirmed alarm	Confirmed Alarm
Max roll (single amplitude)	< 4°	4 - 6°	> 6°
Max pitch (single amplitude)	< 4°	4 - 6°	> 6°
Max heave (double amplitude)	< 4.0m	4.0m	> 4.0m
Wind Speed (m/s)	< 20 m/s	> 20 m/s	> 28 m/s
Significant Wave Height	< 6.75 m	> 6.75 m	> 8 m
Wave Period Tz	< 6.5 s	> 6.5 s	> 8.5 s
Notify	Normal status	Active DIVERTEL, TELALTEL, Diver, Sub-Equipped/Dispatch, Client	Active DIVERTEL, TELALTEL, Diver, Sub-Equipped/Dispatch, Client
Action	None required	Diagnose situation with all parties as soon as possible and prepare for decommissioning of operation	Issue alarm and follow procedure

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Environment Procedure v...  
Version: 3.02 Document owner: West Phoen...

	Max Wind Speed	Max Heave Double Amplitude	Max Roll Single Amplitude	Max Pitch Single Amplitude
Open Water Operations				
String	<20 m/s	4m	3°	3°
	15m/s	3.5m	3°	3°
	15 m/s	2m	3°	3°
	20 m/s	3.6m	3°	3°
	15 m/s	2m	3°	3°
Well Operations				
	<20 m/s	4 m	3°	3°
	<20 m/s	4 m	3°	3°
	<20 m/s	2.5m	3°	3°
	<20 m/s	2.5m	3°	3°
		2.0m	3°	

West Bollsta - Mooring at Segment D

4416-MM-JR-435-001

Mooring Analysis - D-Segment

Client: Seadrill Norway Operation Ltd

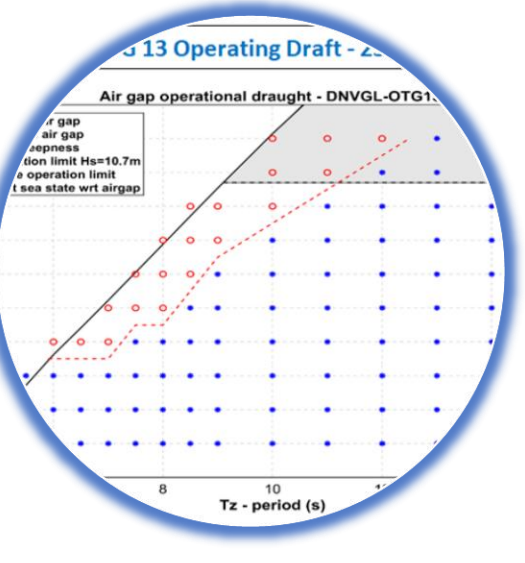
West Bollsta

Prepared for: Seadrill

Prepared by: Matthew J Stahl, D  
Yun Han, PhD, PE

Reviewed by: Kenneth Bhalla, P

Taking on your toughest techn...

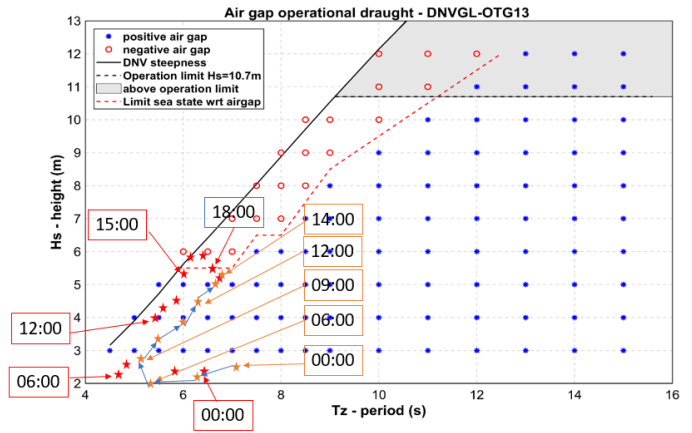


## Utstyr og design

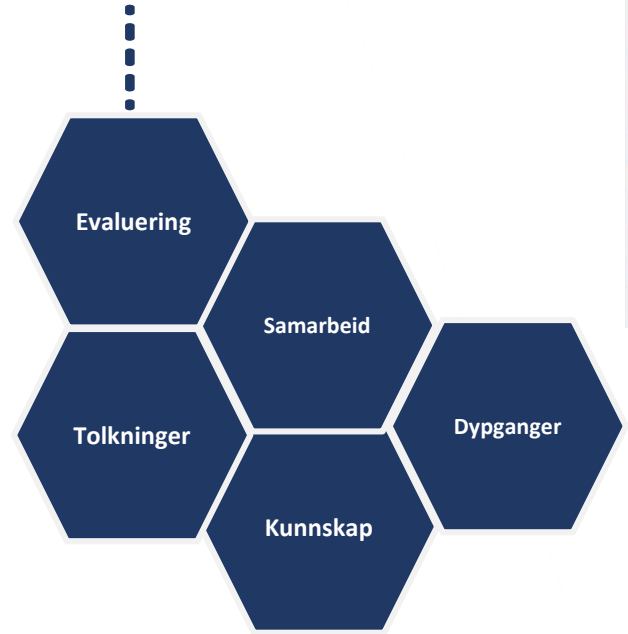
## Forankringsanalyser

## Riseranalyser

## OTG

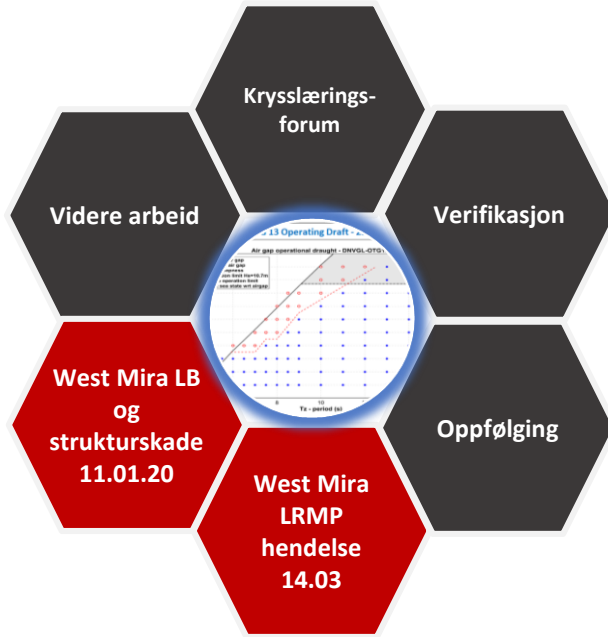


Actual versus forecasted weather



24/09 19	25	36	53	45	63	48	65	4.9	8.6	8.8	5.9	4.7	7.7	28	
24/09 20	18	36	53	44	63	47	64	5.0	8.8	9.0	6.1	4.9	7.8	23	
24/09 21	12	35	53	43	63	47	64	5.0	8.8	9.1	6.2	5.0	8.0	17	
24/09 22	08	37	55	45	65	49	66	5.2	9.1	9.3	6.3	5.2	8.1	11	
24/09 23	05	38	56	47	66	51	68	5.4	9.5	9.5	6.4	5.4	8.3	5	
FRI	Conf	Dir	Ws10m	Wg10m	Ws50m	Wg50m	Ws100m	Wg100m	Hs	Hmax	Tp	Tz	H	T	Dir
25/09 00	01	40	58	50	68	54	70	5.7	10.0	9.8	6.4	5.7	8.4	2	
25/09 01	00	40	59	49	70	53	71	6.0	10.5	10.0	6.6	6.0	8.6	0	
25/09 02	358	40	60	49	71	53	72	6.2	10.8	10.1	6.7	6.2	8.7	359	
25/09 03	357	40	61	49	72	53	74	6.3	11.0	10.3	6.8	6.3	8.9	358	
25/09 04	352	38	60	47	71	51	72	6.3	11.0	10.4	6.9	6.3	9.0	357	
25/09 05	348	36	59	45	69	48	71	6.1	10.6	10.6	6.9	6.1	9.0	357	
25/09 06	344	35	57	43	68	46	69	6.0	10.5	10.7	7.0	5.9	9.1	356	
25/09 07	342	32	55	39	65	43	66	5.7	10.0	10.7	7.0	5.7	9.1	351	
25/09 08	341	29	52	36	61	39	63	5.3	9.3	10.6	7.0	4.8	9.0	348	
25/09 09	339	27	49	33	58	35	59	4.9	8.6	10.5	7.0	4.2	8.8	346	
25/09 10	339	24	44	30	52	32	53	4.7	8.2	10.3	6.9	3.8	8.6	341	
25/09 11	339	22	40	27	47	29	48	4.4	7.7	10.3	6.8	3.1	8.1	340	
25/09 12	338	19	35	24	41	26	42	4.2	7.4	10.2	6.8	2.4	6.9	341	
25/09 15	338	15	26	19	31	20	31	3.7	6.5	10.1	6.7	1.3	5.0	339	
25/09 18	349	13	21	16	25	17	25	3.2	5.6	9.9	6.6	0.9	4.1	352	
25/09 21	04	13	18	16	21	17	21	2.8	4.9	9.7	6.4	0.7	4.1	7	
SAT	Conf	Dir	Ws10m	Wg10m	Ws50m	Wg50m	Ws100m	Wg100m	Hs	Hmax	Tp	Tz	H	T	Dir
26/09 00	13	12	18	15	21	16	21	2.6	4.6	9.7	6.3	0.7	3.8	19	
26/09 03	17	15	20	18	23	19	24	2.4	4.2	10.0	6.1	1.0	4.7	20	
26/09 06	26	17	23	21	27	23	28	2.4	4.2	10.2	5.8	1.3	5.3	25	
26/09 09	35	18	24	23	29	25	30	2.3	4.1	10.2	5.5	1.3	5.1	32	

# Prosesser



Hendelser og erfaringsoverføring

# Prosesser



Prosess	Test	Utført
Have the O&A, O&A, Topdown, O&A's, Client, O&A and O&A been reviewed at regular intervals?	DPO	
Have department heads confirmed that their areas are safe before?	DPO	
Ensure that all loading, tension optimization and position changes are made well in advance of any severe weather?	DPO	
Ensure that there are enough thrusters and engines ready and available well in advance of the severe weather?	DPO	
Control all access routes to work and make all personnel working on weather decks of approaching inclement weather?	DPO	
All areas should be checked for small loose debris, and removed to prevent injury from flying objects.	MSU / Deck crew	
Are all water tight doors and hatches closed?	DPO	
Accommodation weather tight doors shall remain closed	Deck crew	
FRAC stands and outlets shall be monitored and if not in use shall be closed and secured	DPO / ERG	
Make rig wide PA announcement prior to arrival of severe weather, warning personnel to avoid weather deck areas and safe routes to shelter	DPO	
All lower deck hatches are secured and that the lashings are tight	MSU / Deck crew	
Are weather reports being continuously monitored?	DPO	
Rig health report (Rigzone Level) as per 1111.131	MSU / O&A	
Have operations with cranes been suspended and all cranes secured in their area?	MSU	
Have callouts still been made aware and galley operations made safe with respect to movement?	DPO/Crew	
Ensure MCB load / Unload lashings are proper secured and tight	MSU / Deck crew	
Crane shall have its designated and permanent parking place where permanent safety equipment is installed preventing the truck from moving. The truck must also be secured against lifting.	Deck crew	
Maintenance brackets secured	TIP	
All wrenches on rig floor and in the moonpool shall be tightened with correct torque	TIP	
During bad weather conditions all lashing shall be checked regularly and tightened as necessary. If lashing comes off deck or small deck rim shall be reported	Deck crew	



