



WELL EXPERTISE

Tight rig verification Borgland Dolphin

DNO Norge AS, Wellesley Petroleum AS,
and INEOS E&P Norge AS

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1 Executive summary

On behalf of DNO Norge AS (DNO), Wellesley Petroleum AS (Wellesley) and INEOS E&P Norge AS (INEOS), and as part of rig intake, Well Expertise AS (WE) carried out an environmental tight rig verification on the drilling rig Borgland Dolphin (BGL) from 8th - 10th March 2021. This to ensure that the rig was ready for operation start 20th March. BGL has been warm stacked at Green Yard in Fedafjord since September 2020.

The verification was performed according to pre-defined scope of work given in Notification letter sent 25th February and highlighted focus areas. The objective was to verify current status on BGL related to overboard potential discharge points, and to highlight potential deviations from requirements, standards, contracts, maintenance procedures, documentation and general good practices. The method consisted of interviews with relevant personnel, document review and field survey of drain systems, overboard lines and other related equipment preventing spillage to sea, on-board the rig.

A verification check list was developed and used during this verification. The verification team identified 15 Findings (0 Non-conformities, 4 improvement suggestions and 11 Observations) – all described in this report. The identified areas for potential improvement were discussed in the closure meeting of the verification. The findings shall be followed up by Dolphin Drilling (DDAS) in Synergi.

It is the DDAS's obligation to adopt the Findings raised in this report into Synergi, to evaluate the extent of the revealed Findings, and to establish relevant actions. DDAS is requested to **respond within 2 weeks** of receiving this report on how they intend to handle the improvement suggestions and observations.

2 Introduction

2.1 Scope and Objectives

Verifications of systems were done to assure that BGL is suitable for the planned 2021 operations by ensuring compliance with selected parts of the NCS legislation and relevant technical standards related to tight rig and Environmental issues. The objective of the verification was to assess, verify and report BGL's ability to meet system requirements as spelled out by relevant laws, rules, and regulations - and by own procedures.

The verification activity focused on how DDAS and Borgland Dolphin organizations ensures that drilling operations are thoroughly planned and addressed, and that relevant barriers are established, risk assessed and implemented within the organization.

Focus areas were (not limited to):

- Management focus and involvement
- Zero discharge
 - Philosophy and procedures, incl. MCR logbook
 - Experience transfer
 - Risk assessment and implementation of mitigation actions – verify that all potential discharge points are identified
 - Drainage Systems – hazardous and non-hazardous areas, incl. helideck
 - Open and closed drains «Tight rig»
 - Bilge system
 - pumps, ball valves
 - Electric bilge pumps in the propulsion rooms and the routes to sea
 - ppm measuring and alarm system
 - Oil record book
 - Single/double barriers
 - Verification of bunding in general for tanks, chemical storage, hydraulic oils etc.
 - Suitability of temporary storage areas (day tanks, drip trays etc)
 - Slop handling
 - Mud circulation systems, tank wash, CCTV
 - Solids / cuttings handling control
 - Diesel tanks, measurement, piping
- Maintenance
 - Hose management status
 - Hose stations (Bunkering)
 - Moonpool - hydraulic hoses potential over sea
 - Couplings, environmental critical valves, dumping valves, stop cranes
 - Slip joint and packer
 - Tubes, pipes, and connections
 - Certificates
 - Maintenance tanks, Oil separator
 - Diesel: Loading, storage tank, measurement, piping
- Emergency preparedness
 - Spill recovery system
 - Emergency oil-spill kit/SOPEP
- Environmental Impacts and Aspects
- ROV
- Chemicals incl. riser tension chemical

This verification was conducted by performing document review, interviews, spot-checks of selected systems, areas, and equipment.

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2.2 Verification team

Role	Name	Position	Company
Lead Auditor	Anniken B. Meisler	QHSE Manager	Well Expertise
Auditee	Christina S. Rødne	Environmental Advisor	Well Expertise

Jarl Hovinbøle (Tool planner at DDAS) were the verification team's dedicated guide and rig expert throughout the verification.

2.3 Audit Process

The tight rig verification has been planned several times. First as part of Wellesley's planning of the Schweinsteiger well, and then to be included as part of SoW for the Environmental Coach on Schweinsteiger. Due to Covid-19 restrictions and a short operation, the verification was postponed. It was then decided to perform the verification as part of the joint rig intake of BGL for DNO, Wellesley and INEOS. The process has then been as follows:

- Notification was sent 25th February 2021 (see [Appendix A](#))
- Preparations through reading received documentation ([Appendix B](#))
- Kick off meeting held 8th May onboard BGL (participants given in [Appendix C](#))
- Relevant personnel were interviewed
- Closure Meeting held 10th May onboard BGL (participants given in [Appendix C](#))
- The verification report has been prepared (a bit delayed due to operational preparations for Oselvar PP&A) 11th March – 5th April
- The observations/improvement suggestions will be followed up as part of Oselvar PP&A operations and through DDAS' Synergi

2.4 Abbreviations

AFFF	Aqueous Film Forming Foam
BGL	Borgland Dolphin
CCTV	Closed-circuit television
CRO	Control Room Operator
DDAS	Dolphin Drilling AS
DDMS	Dolphin Drilling Management System
DNO	DNO Norge AS
HSE	Health, Safety, and Environment
ICM	Integrated control and monitoring system
IMP	Improvement Suggestion
INEOS	INEOS E&P Norge AS
ISDS	Integrated software dependent systems
MCR	Machine Control Room
MOU	Mobile Offshore Unit
NC	Non-conformance
NCS	Norwegian Continental Shelf
O	Observation
PP&A	Permanently Plug and Abandon
ppm	Parts per million
SDS	Safety Data Sheet

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SOPEP	Shipboard Oil Pollution Emergency Plan
SoW	Scope of Work
STOP	STandard Operating Procedure
UHG	Under House Guide
WE	Well Expertise AS
Wellesley	Wellesley Petroleum AS

2.5 Definitions

Barrier	Technical, operational and organizational elements that individually or together to reduce the possibility that specific error, hazard and accident occurs, or restrict or prevent damage/inconvenience.
Environmental aspect	Any activity, service or product that can influence the environment
Environmental critical valve	Valve that leads to sea. Properly marked with ID, always closed, and secured with lock. The key must be retrieved through work permit and tag system.
Environmental impact	Any changes to environment, whether adverse or beneficial, wholly or partially, resulting from the identified environmental aspects
Finding	A statement of fact made during a verification /review, which might be substantiated by objective facts
Improvement suggestion	Non-fulfilment of a requirement related to an intended or specified use (opportunities for improvement)
Non-Conformance	Non-fulfilment of a requirement
Observation	Observations of deficiencies where there is not enough available information to prove a breach of the regulations
Synergi	Electronic system for incident reporting and capturing of lessons learned
Sypol	DDAS'/BGL's chemical management system
Verification	Systematic, independent and documented process for obtaining Verification evidence and evaluating it objectively to determine the extent to which Verification criteria are fulfilled

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3 General rig information

Name of rig:	Borgland Dolphin
Rig type:	Drilling
Rig sub-type	Semi-submersible
Year built:	1977 (flotel), major upgrade and converted a MODU in 1998/99
Class Society:	DNV 1A1 Column Stabilised Drilling Unit CRANE DRILL HELDK (S, H) ISDS (icm2)
Flag State:	Bermuda (21.08.2020)
AoC Status:	Received from PSA 30 th September 2004

4 Findings

4.1 Categories of findings

Findings are categorised as:

- Non-conformance (NC)
- Improvement Suggestion (IMP)
- Observation (O)

The reported non-conformances, improvement suggestions and observations shall be followed up as soon as possible. All relevant actions and/or mitigating measures shall be identified (including action owner and due date) **within 14 days** after receipt of this report.

4.2 Non-conformities

No non-conformities were observed or registered by the verification team.

4.3 Improvement suggestions

Four (4) improvement suggestions were identified during the verification and are described in the following sub-chapters. Identified improvement suggestions are summarised in Table 4-1.

Table 4-1 Improvement Suggestions

IMP No.	Description	Ref.	Responsible
IMP-1	Relevant DDAS procedures do not reflect review routines for STOPs, and the DDMS treat STOPs as procedures	DDMS and MA-0028, ref. /1/	SVP HSEQ
IMP-2	The Environmental valves register is not updated to reflect the actual status onboard	RD-450-0007, ref. /2/	Toolpusher
IMP-3	The Environmental Aspects and Impacts register for 2021 operations is not in place	PR-900-0087, ref. /3/	OIM in cooperation with DDAS HSEQ Advisor
IMP-4	Inconsistent content of risk matrices	PR-900-0087, ref. /3/ and BGL register, ref. /4/	DDAS HSEQ Advisor

4.3.1 IMP-1 Review of STOPs

STOP is an abbreviation for Standard Operating *Procedure*. DDAS procedures shall be updated every third year (ref. /1/), but the STOPs are *guidelines* and dynamic documents that are updated as needed or by identified changes in the operation. This may lead to confusion and the requirements regarding STOPs should be emphasized in relevant DDAS procedures.

It is the verification team's understanding that DDMS send out automatic review notifications on the STOPs every third year (ref. discussions in closure meeting). Due to the above mentioned routines, it is suggested that this should then cease or DDAS to implement "Review with no changes" when update is required in DDMS.

STOP ST-0201 «Loading – Backloading WBM from boat to mudpits» was revised in connection with an incident on Wellesley's operation on 6204/11-3 Schweinsteiger. A new version was not published in DDMS at the time of verification. DDAS to verify that this is in place.

4.3.2 IMP-2 Environmental valves register not updated

The environmental valves register (ref. /2/) gives an overview over all environmental critical valves on BGL and location maps. In this register valve #40 and #41 (in the tripping area) have status as “OPEN”. This is misleading, as these valves are not Environmental critical valves as they do not lead to sea. It is recommended to remove the valves from the register.

Due to the assembly of the swarf unit, some new environmental critical valves will be/are installed. They must be listed in the register and plotted on the relevant map(s).

4.3.3 IMP-3 The Environmental Aspects and Impacts register for 2021 operations is not in place

DDAS’ procedure for identification and evaluation of environmental aspects and impacts (ref. /3/) states that the MOU environmental aspects and impacts register shall be reviewed when i.a. the MOU changes geographical location. This means that such a register should be in place before start-up of the Oselvar PP&A operations.

Such a register was not in place at the time of verification. The verification team therefore recommended the OIM, in cooperation with DDAS HSE Advisor, to perform a risk assessment involving relevant BGL and onshore personnel to ensure all relevant environmental aspects, as PP&A operations are more comprehensive than an exploration drilling (as Schweinsteiger). Detailed mitigating actions to reduce risks should be a part of the register (what will be done, which procedures are in place to reduce the risks, etc.). This is now missing.

Post verification comment: This was not set as a non-conformance as the Oselvar PP&A operation had not started at the time of verification. But the register is not received before submittal of this report, and the verification team would therefore stress the finalization of the Oselvar PP&A specific environmental aspects and impacts register. The verification team also recommends that DDAS secure similar registers for the upcoming operations on BGL in due time before start-up.

4.3.4 IMP-4 Inconsistent content of risk matrices

Before the verification, the Borgland Environmental Aspects and Impacts register used for Schweinsteiger (ref. /4/) was received. This register may be used as template for the Oselvar PP&A operations and the other planned operations. The risk matrix given in this register deviates somewhat from the matrix given in procedure PR-900-0087, ref. /3/. Both matrices are given in [Appendix D](#).

Comparing “Borgland potential severity of outcome” (ref. /4/) with the “Consequence/Loss potential” given in the procedure (ref. /3/), there are several differences. BGL (on Schweinsteiger) divides severity into personal injury, material/equipment damage and environmental impact (oil/gas, chemical and outcome), while the procedure is more detailed and divides the consequence into personal injury, loss of containment, environmental incident/waste segregation, fire/explosion, gas leakage, material damage and production loss/drilling stop.

The verification team recommends that the matrix including consequence potential in the DDAS procedure (ref. /3/) is used for the coming operations. But it may be vice to look at BGL’s risk register (ref. /4/) to secure that the one in the procedure is up to date and reflects DDAS actual consequence potential.

4.4 Observations

11 observations were identified during the verification and are described in the following sub-chapters. Identified observations are summarised in Table 4-2.

Table 4-2 Observations

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O No.	Description	Ref.	Responsible
O-1	Routines for control of drains and dump valves should be clearly communicated	ST-0104, ref. /5/	OIM
O-2	Houghto-Safe NL-1 is a chemical categorized as red, but since this is a glycol, the crew's impression is that this is an environmentally friendly chemical	-	OIM
O-3	Jet-Lube Alco EP 73 Plus still is being used on riser joints	Oseltvar PP&A discharge permit application, ref. /6/	OIM
O-4	Wrong labelling of environmental critical valves at the hose stations	Several DDAS procedures, i.a. MA-450-0170, ref. /7/	OIM
O-5	Misleading labelling of fuel oil environmental critical valves	Several DDAS procedures, i.a. MA-450-0170, ref. /7/	OIM
O-6	Drain #174 was open and not informed to CRO	ST-0104 (ref. /4/) and Closed drain philosophy	OIM
O-7	Missing labelling/markings at the hose stations	Several DDAS procedures, i.a. MA-450-0170, ref. /7/	OIM
O-8	Missing correct labelling/tags on pipes in pump room	Several DDAS procedures, i.a. MA-450-0170, ref. /7/	OIM
O-9	Bundling insufficient by anchor winch #3	Several DDAS procedures, i.a. MA-450-0170, ref. /7/	OIM
O-10	SOPEP equipment boxes missing sealing and inventory lists	DDAS routines	OIM
O-11	Inventory list in foam station not updated	Substitution duty (Produktkontrolløven §3a)	OIM

4.4.1 O-1 Routines for control of drains and dump valves

ST-0401 "Control of drains and dump valves" (ref. /5/) states in Ch. 4.0 Work process ID 1: *All drains at all times to be kept closed, with the following exceptions: Drain can in certain cases be opened and remained open for a shorter period if needed e.g. if: Rain/snow or washing down etc. Person opening drain must stay by drain until it is closed again. In this case it is not necessary to contact Control room.*

When talking to different persons onboard BGL, the verification team experienced that there was different perception of how the drain routines should be handled. The verification team suggest that the above routines is communicated, as some may open the drains and leave them open without supervision (see [O-6](#)), especially as many of the DDAS personnel is new to the rig. It is better that opening drains is notified to CRO, than left open without supervision.

4.4.2 O-2 Use of Houghto-Safe NL-1 in UHG and riser tensioner

The general impression among the rig crew was that the chemical used in the Under House Guide (UHG) and riser tensioner – Houghto-Safe NL-1 - is an environmentally friendly glycol. This is a chemical categorized as red.

The verification team recommend to inform relevant crew on this misunderstanding, and BGL to also look for possibilities for substituting this chemical. Any leakages from the UHG (see Figure 4-1) or riser tensioner will go directly to sea, so using a more environmentally friendly alternative would be beneficial. But the most important is the security of rig and equipment, so it is recommended to start the process with securing that this chemical

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is included in BGL's substitution plan and then include any information on assessments conducted. Then BGL can document the process and availability of any substitute(s).

The verification team was informed that BGL had changed out a hydraulic oil former used in these systems with Houghto-Safe NL-1. Some documentation of this substitution is appreciated.

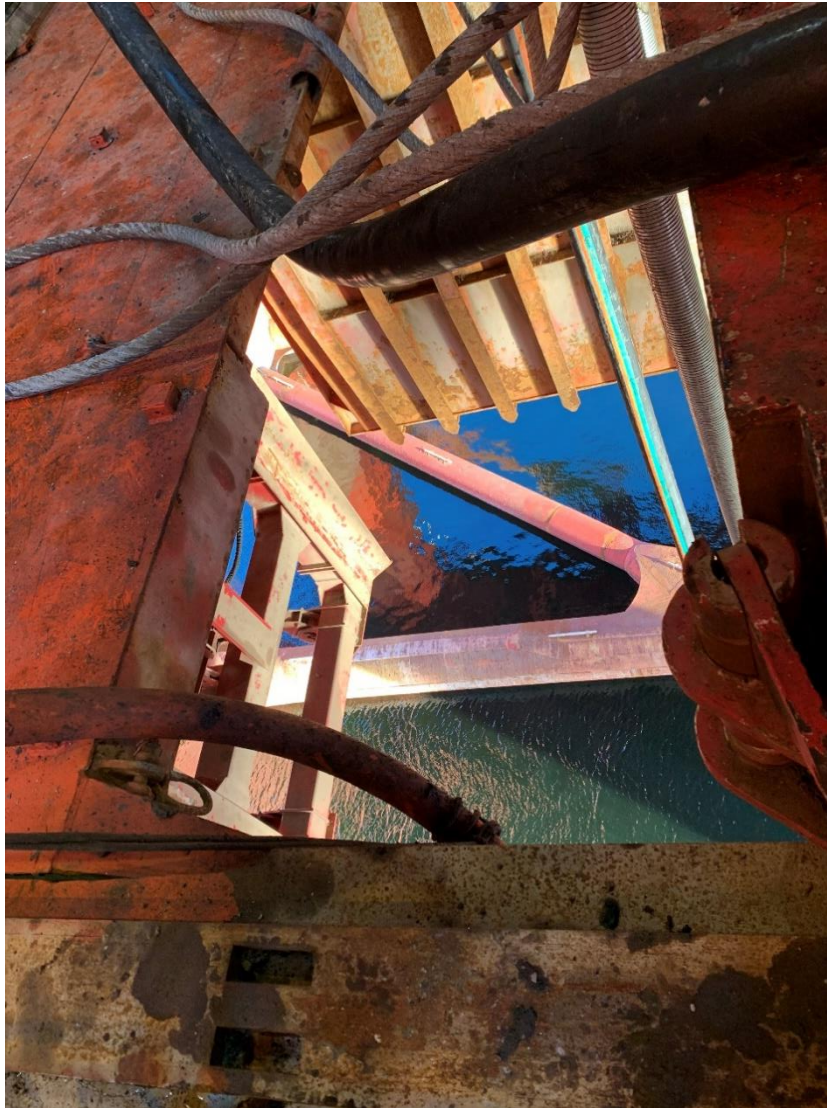


Figure 4-1: UHG seen from above, looking at sea

4.4.3 O-3 Jet-Lube Alco EP 73 Plus still is being used on riser joints



Figure 4-2: Jet-Lube Alco EP 73 Plus

DNO has agreed with Dolphin not to use Jet-Lube Alco EP 73 Plus on the riser, only on BOP, ref. /6/, /8/ and /9/. Going the around on the rig and talking with personnel, it seems like the Jet-Lube Alco EP 73 Plus still is being used on riser. Please ensure that Jet-Lube Alco EP ECF will be used on the riser for the coming operations. And include Jet-Lube Alco EP ECF and Jet-Lube Alco 73 Plus in the monthly reports to operator.

For information Jet-Lube Alco EP 73 Plus is categorized as a red chemical, while Jet-Lube Alco EP ECF is a much more environmentally friendly chemical categorized as yellow (100).

Post verification comment: The environmental poster is finalized and hung up at relevant places onboard BGL.



Figure 4-3: Green labels on pipes closed with environmental critical valves. These valves are also marked with red tags (yellow circle)

4.4.4 O-4 Wrong labelling of environmental critical valves at the hose stations

Environmental Critical Valves (valves going to sea) at both hose stations are marked with green labels in addition to red tags, as shown in

Figure 4-3.

All environmental critical valves shall be marked with red tags. The green labels are confusing and may also lead to the misunderstanding that these are “environmentally friendly”, going to closed systems.

BGL decided that markings should be removed when the verification team was onboard. OIM to please verify that this is done.

4.4.5 O-5 Misleading labelling of fuel oil environmental critical valves

Environmental Critical Valves for Fuel oil both on port and starboard side are marked green labels and are missing red tags. Ref. Figure 4-4.

Related to the finding in Ch. 4.4.4, the green labels should be removed, and red tag must be put up.



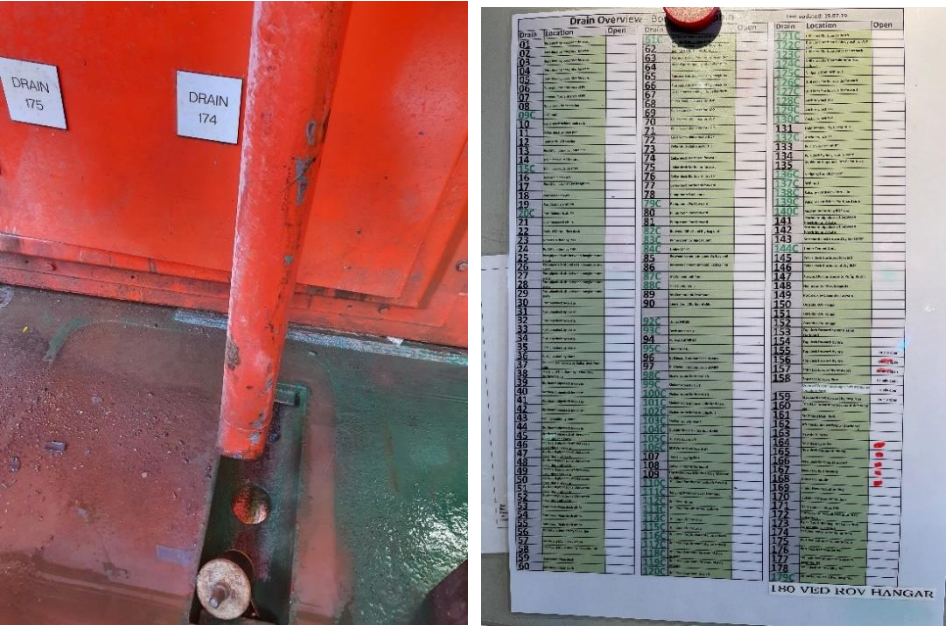
Figure 4-4: Environmental Critical Valves for Fuel oil with green labels, starboard side to the left and port side to the right

4.4.6 O-6 Open drain #174

Drain #174 outside pump room was open due to washing, see Figure 4-5. CRO was not informed. This is a deviation from given requirements, ref. /5/. Requirements states that drains can be opened for a short period without informing CRO if person stay by the drain until closed.

Cleaning was ongoing, but no one was seen close to the drain. The verification team contacted the CRO and the drain was not marked as open on the drain overview in Control room (Figure 4-5). The team passed the drain several times during a 4-hour period, and the drain was still open.

If open drains are found without supervision, or not registered as open by the CRO, tends to be a problem, the verification teams suggests that the guideline ST-0104 is changed and no drains can be opened without informing CRO.



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Figure 4-5: Left- open drain #174. Right – Drain overview in Control room. Red dots indicate open drains.

4.4.7 O-7 Missing labelling/markings at the hose stations

Some labelling/markings were missing at the hose stations (Figure 4-6). At starboard hose station label were missing by the fuel oil hose, while on port hose station labelling was missing for both WBM and Brine.

It was not particularly easy to follow the hoses further inwards in the rig to see what type of fluid the hoses should load/unload. It is therefore recommended to mark the hose reels so that no misunderstanding or errors can occur.

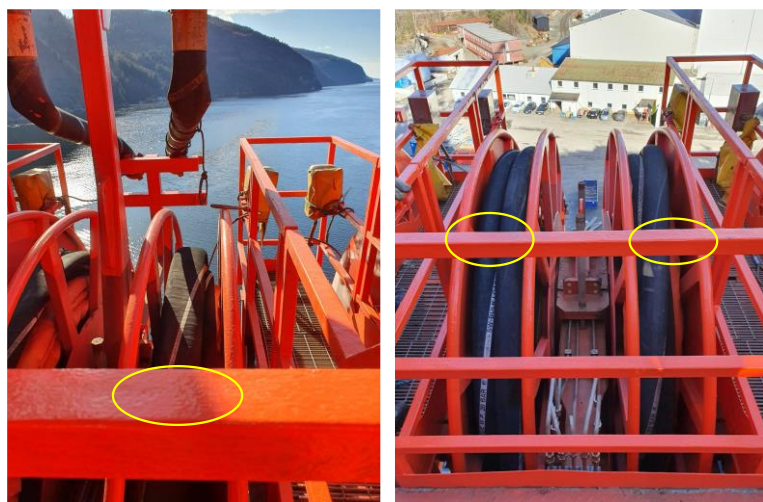


Figure 4-6: Left – Missing label for Fuel oil at starboard hose station. Right - Missing labels for WBM and Brine at port hose station

4.4.8 O-8 Missing correct labelling/tags on pipes in pump room

The pipes going from mud pit #8 to the Soiltech slop treatment unit was not properly marked (Figure 4-7). Home-made tags were put up on the systems. The piping did not look new, so this may have been like this for a long time. The verification team recommend BGL to get the pipes properly marked.



Figure 4-7: Insufficient labelling of pipes in pump room

4.4.9 O-9 Bundling insufficient by anchor winch #3



The bundling is insufficient on left side of anchor winch #3. A potential leakage from the above hydraulic engine for the anchor winch (as shown in Figure 4-8) will not be collected by the underneath bundling. Any leakage from the valve can potentially go to sea.

A solution here may be to extend the bundling, even though the probability for leakage is low.

Figure 4-8: Bundling insufficient at anchor winch #3

4.4.10 O-10 SOPEP equipment boxes missing sealing

An inspection of SOPEP equipment revealed that two of the SOPEP boxes on starboard side missed sealing and one was half full. Inventory lists were also missing in the boxes. See Figure 4-9.

The verification team recommends BGL to go through the open boxes, fill them up with needed equipment, put up Inventory list, and then seal them off. Since there is uncertainty regarding inventory lists in the other four boxes, these should also be checked. This to secure that all expected equipment is available in these boxes.



Figure 4-9: Missing sealing (to the left) and inventory list and lacking equipment (right)

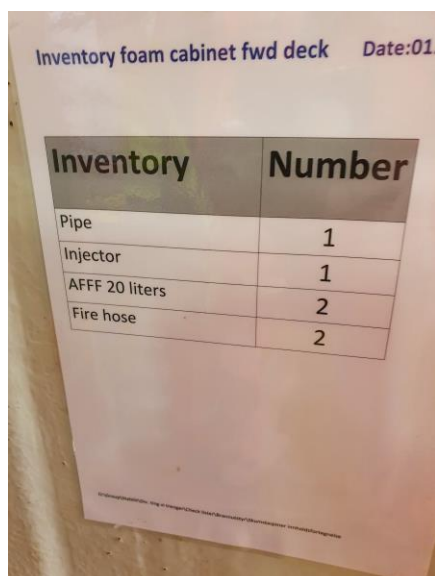
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4.4.11 O-11 Inventory list in foam station not updated

The inventory list in the foam cabinet on forward deck - outside the BOP control room - have AFFF foam listed as part of inventory (Figure 4-10). The list should be updated as AFFF foam is not allowed to use on NCS. The AFFF foam was onboard when the rig was operating in UKCS and is no longer onboard.

BGL should also go through all foam cabinets onboard to secure that all lists are up to date.



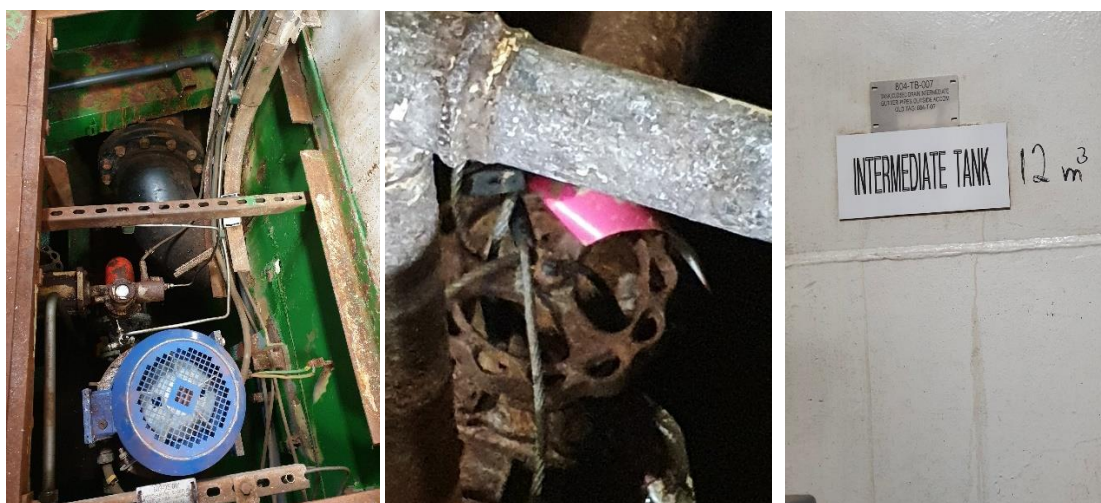
Inventory foam cabinet fwd deck Date:01.

Inventory	Number
Pipe	1
Injector	1
AFFF 20 liters	2
Fire hose	2

Figure 4-10: Inventory list in foam cabinet on forward deck

4.5 Positive observations

The verification team was guided through the whole bilge system by the MRO, from the bottom of column 4 to overview of the system on CCTV and screens – as shown in the photos series below. The system is rather comprehensive, but very functional and clearly marked. The ppm measuring of bilge water seems robust. Photos from left to right and down shows the electric pump (emergency bilge), environmental critical valve related to bilge, bilge tank, bilge system, ppm measuring instrument, and screen showing bilge tank setup.



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Four new shakers have been installed on BGL (Figure 4-11) with 6 pcs of screens in each that are replaced depending on the operation, and 24 pcs top screens which is mostly dressed with 10 mesh. The new shakers have totally a higher capacity than the five shakers that were previously onboard. Installation of the new shakers also makes room for a screen washer in the shaker room. The verification team hope that DDAS find an efficient washer suitable for the rig as this will effectuate the screen washing and improve the working environment.



Figure 4-11: One of the new shakers and the whole system

The verification team supports the idea of cosh summary (one-pagers) for chemicals. This makes it easy to find important information and it requires low maintenance.

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5 Conclusion

The verification team's overall impression was that Borgland Dolphin was ready for operations. A lot of good work had been done and a robust plan were in place for finalizing outstanding work. The improvement suggestions and observations made are considered non-critical for further operations, but an increased focus on barrier management is encouraged.

The verification appreciated the willingness to cooperate, the good atmosphere onboard, and facilitation for the team so that we got a good overview of the rig and relevant systems related to the verification scope.

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6 References

Ref. no.	Document
/1/	DDAS, 2019. MA-0028. HSE & QA Manual. Rev. 07.
/2/	DDAS, 2020. RD-450-0007 Environmental valves register and location map
/3/	DDAS, 2020. PR-900-0087 Identification and Evaluation of Environmental Aspects and Impacts
/4/	DDAS, 2020. Borgland Aspects and Impacts register 2020 Schweinsteiger
/5/	DDAS, 2021. ST-0104 Control of drains and dump valves
/6/	DNO, 2020. OSE-DNO-S-RA-0007 Søknad om tillatelse til plugging av brønner på Oselvarfeltet
/7/	DDAS, 2019. MA-450-0170. Borgland Dolphin Operations Manual. Rev. 1.2.
/8/	DNO, 2021. P968-DNO-S-TA-0006 Søknad om tillatelse til virksomhet etter forurensningsloven for Gomez PL006C.
/9/	INEOS, 2021. PL937-INEO-S-GA-0003 Søknad om tillatelse til virksomhet etter forurensningsloven for Ietebrønn 6306/3-1 Fat Canyon i PL937.

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Appendices

[Appendix A](#) – Verification Notification

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[Appendix C](#) – Meeting participants

[Appendix D](#) – Comparison of risk matrices

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Appendix A Verification Notification

Verification notification



INEOS



DATE and TIME : 08.-10.03.2021
 WHERE : Borgland Dolphin/Fedafjorden
 TO : Dolphin Drilling AS
 ATT. : Morten Haugland
 E-MAIL : morten.haugland@dolphindrilling.com & Captain.Borgland@dolphindrilling.com
 OUR REF. : Tight rig verification
 COPY TO : Toolpusher, Technical Chief, Hermod Kvalvik, Frode Røyland, Birger Lødner, Jarl Hovinbøle, Einar Framnes, Åse Pettersen, Stig Seland, Morten Laget, Arild Lund, Iselin Håland, Helge Hamre, Callum Smyth, Christina S. Rødne, Sigve K. Næsheim, Grete Landsvik, Magnus Florvaag
 FROM : Anniken B. Meisler
 E-MAIL : anniken@wellexpertise.com
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 PAGES : 2 (including this)

UPDATE - NOTIFICATION OF TIGHT RIG VERIFICATION ON BORGLAND DOLPHIN

Dear Morten,

Reference is made to verification notification sent 2nd September 2020 regarding the planned tight rig verification. It was originally planned to conduct the verification during Wellesley's operation on Schweinsteiger, but due to COVID-19 and capacity onboard, it was decided to postpone it to a more suitable time, and it is now done on behalf of Wellesley, DNO and INEOS.

Scope

The verification activity will focus on how the Dolphin Drilling and Borgland Dolphin organizations ensures that drilling operations in the North Sea are thoroughly planned and addressed, and that relevant barriers are established, risk assessed and implemented within the organization.

Focus areas summarized (detailed described in original verification notification letter):

- Management focus and involvement
- Zero discharge
- Maintenance
- Emergency preparedness
- Environmental Aspects

Timing

The verification is scheduled 8-10th March 2021. As the rig is not in operation it is assumed that no critical activities are ongoing and personnel are available, but the verification team is flexible and will adjust according to ongoing activities. The team would like to interview the following:

- OIM
- Toolpusher

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DNO Norge AS, Wellesley Petroleum AS, and INEOS E&P Norge AS

Verification notification



INEOS



- Technical Chief
- Subsea Engineer
- Roustabout
- Stability Section Leader

Request for information

The verification team have already received requested documentation from Dolphin and do not see any need for additional information.

The verification team

Anniken B. Meisler	HSEQ Coordinator (DNO/Wellesley/INEOS/WE)	Verification Team Lead
Christina S. Rødne	Environmental Coordinator (DNO/Wellesley/INEOS/WE)	Environmental Auditor

In addition to the verification team, DNO/Wellesley/INEOS have requested Dolphin's onshore tool planner (Jarl Hovinbøle) to assist during the visit on the rig.

Reporting

The verification team will present a summary with non-conformances and/or improvement points in a closing meeting at the end of the verification. The formal report will be issued within three (3) weeks after the verification.

Final words

The date has been agreed with Dolphin, but should any extraordinary circumstances appear, please inform by e-mail (anniken@wellexpertise.com). For information, the Verification Team will attend DNO's Emergency Preparedness Exercise 9th March.

If need for clarifications related to this notification or the verification activity, please contact the undersigned. We look forward to work with the rig and the personnel onboard again and hope that this verification will be to our mutual benefit.

Kind Regards

Anniken B. Meisler

Verification Team Lead

DNO Norge AS/Wellesley Petroleum AS/INEOS E&P Norge AS/Well Expertise AS

anniken@wellexpertise.com

476 67 507



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Appendix B - Received documents/procedures

Original Request	Dolphin Drilling - Relevant Document/Comments	Doc. No.	Source
SOPEP Manual	Borgland Dolphin Shipboard Oil Pollution Emergency Plan	DD.50-MA-024	DDMS
Action Plan for preventing spills	Borgland Dolphin Shipboard Oil Pollution Emergency Plan	DD.50-MA-024	DDMS
Loading and unloading procedures	Loading- Backloading brine from boats to mudpit Loading- Backloading WBM from boat to mudpits Loading- Backloading fuel oil from boat to pontoon tanks Backloading equipment Loading and responsibilities Loading placing of loads on deck Operation of bulk loading stations Loading-backloading OBM Base oil from boat to mudpits Loading- Backloading OBM from boat to column Loading- Backloading Brine from boat to column Mud pits backloading slop from mudpits /H2S evaluation Operation of bulk loading stations – Borgland Dolphin Loading cargo from transport wessel	ST-0197 ST-0201 ST-0296 ST-0052 ST-0295 ST-1321 ST-0301 ST-0199 ST-0198 ST-0200 ST-1270 ST-0196 ST-0209 ST-0301 ST-0309	DDMS
Oil Spill Check List	Borgland Dolphin Shipboard Oil Pollution Emergency Plan	DD.50-MA-024	DDMS
Control of overboard dumping valves	Dump valves and shaker dump Control of drains and dump valves	SO-GL-30027 ST-0104	DDMS
Diesel System Procedure	Fylling av diesel fra fyllestasjon på dekk	ST-0106	DDMS
Maintenance (rioting related to critical equipment)	Maintenance program procedure Maintenance execution procedure Maintenance program development	PR-0009 PR-900-0052 PR-900-0056	DDMS
P&ID non-hazard drain closed drain	P&ID Closed drain system P&ID Closed drain system P&ID Closed drain system P&ID Helideck drains P&ID Open drain system P&ID Drain system new column pontoon & new column port P&ID Drain system new column sponson & new column STBD	05-GG-G-820-1.pdf 05-GG-G-820-2-Z5.2.pdf 05-GG-G-820-2.pdf 05-GG-G-820-4.pdf 05-GG-G-820-5.pdf 05-GG-G-821.pdf 05-GG-G-822.pdf	Proarc
P&ID hazard drain closed drain	P&ID Closed drain system P&ID Closed drain system P&ID Closed drain system	05-GG-G-820-1.pdf 05-GG-G-820-2-Z5.2.pdf 05-GG-G-820-2.pdf	Proarc

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	P&ID Helideck drains P&ID Open drain system P&ID Drain system new column pontoon & new column port P&ID Drain system new column sponson & new column STBD	05-GG-G-820-4.pdf 05-GG-G-820-5.pdf 05-GG-G-821.pdf 05-GG-G-822.pdf	
P&ID - mud module - roof drains	P&ID Closed drain system P&ID Closed drain system P&ID Closed drain system P&ID Helideck drains P&ID Open drain system P&ID Drain system new column pontoon & new column port P&ID Drain system new column sponson & new column STBD	05-GG-G-820-1.pdf 05-GG-G-820-2-Z5.2.pdf 05-GG-G-820-2.pdf 05-GG-G-820-4.pdf 05-GG-G-820-5.pdf 05-GG-G-821.pdf 05-GG-G-822.pdf	Proarc
Operation of contaminated drain system	Flush/Stake opp closed drain under riggen	ST-450-0036	DDMS
P&ID - mud module - centrifuge system	N/A (No centrifuge system on Borgland)	NA	NA
P&ID bilge and drain water system in pontoons	P&ID piping and instrument diagram Bilge system stbd Pontoon & Column, P&ID Bilge system port pontoon and column P4 P&ID Bilge system Starboard columns P&ID Bilge system Port Columns P&ID Generator room and boxgirders on main deck	05-GG-G-810_X3_2.PDF 05-GG_G_811_X3_2.pdf 05-GG-G-812_X6_2.pdf 05_GG-G-813_X3_2.pdf 05-GG-G-814_X4_2.pdf	Proarc
System functional description - bilge in pontoon and hazardous area	Bilge philosophy	450-30558	Proarc
Other	Environmental valves register and location MAPS Environmental monitoring and measuring Identification & Evaluation of Environmental aspects and impacts	RD-450-0007 PR-900-0104 PR-900-0087	DDMS

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DNO Norge AS, Wellesley Petroleum AS, and INEOS E&P Norge AS

Appendix C - Meeting participants

Participants in the opening meeting 8th March

Name	Company	Role
Rune Eikeland	Dolphin Drilling	OIM
Allan Corrigan	Dolphin Drilling	Toolpusher
Rune Hovland	Dolphin Drilling	Technical Chief
Tor Olav Aabø	Dolphin Drilling	Subsea Engineer
Jarl Hovinbøle	Dolphin Drilling	Tool planner and Rig Guide
André Arctander	DNO	DSV
Christina S. Rødne	Well Expertise	Environmental Advisor
Anniken B. Meisler	Well Expertise	Verification Team Lead

Participants in the closure meeting 10th March

Name	Company	Role
Rune Eikeland	Dolphin Drilling	OIM
Kim Jensen	Dolphin Drilling	Toolpusher
Knut Gyth Dehli	Dolphin Drilling	Technical Chief
Morten Haugland	Dolphin Drilling	Rig Manager
Jarl Hovinbøle	Dolphin Drilling	Tool planner and Rig Guide
Christina S. Rødne	Well Expertise	Environmental Advisor
Anniken B. Meisler	Well Expertise	Verification Team Lead

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Appendix D Comparison of risk matrices

The Risk matrix given in Borgland register (ref. /4/).

POTENTIAL SEVERITY OF OUTCOME												
PERSONAL INJURY	PERSONAL INJURY SERIOUS PERSONAL INJURY WITH POSSIBILITY OF DISABILITY. SERIOUS PERSONAL INJURY MEDICAL TREATMENT: GIVEN BY MEDIC OR DOCTOR. FIRST AID TREATMENT: TREATMENT GIVEN ONCE BY QUALIFIED FIRST AID PERSONNEL	MATERIAL/EQUIPMENT DAMAGE EXPLOSION/FIRE MAJOR DAMAGE ➤£800,000 EXPLOSION/FIRE LIMITED DAMAGE ➤£150,000 FIRE AS A RESULT OF GAS RELEASE ➤£20,000 SMOKE/FIRE EQUIPMENT DAMAGE ➤£4,000 MINOR DAMAGE ➤£4,000	ENVIRONMENTAL IMPACT ACCIDENTAL SPILL OR DIFFUSE LEAK OF OIL GAS OR CHEMICAL TO SEA OR ATMOSPHERE.	OIL/GAS	CHEMICAL	OUTCOME		5	4	3	2	1
				>100 M3	VERY LARGE LEAK/SPILL	PROSECUTION CERTAIN	A					
				10-100 M3	LARGE LEAK/SPILL	PROSECUTION LIKELY	B					
				1-10 M3	MEDIUM LEAK/SPILL	MANDATORY DECC INVESTIGATION, PROSECUTION POSSIBLE	C					
				0.159-1 M3	SMALL LEAK/SPILL	DECC MAY REQUIRE TO SEE INVESTIGATION REPORTS	D					
				< 1 BARREL	NEGIGIBLE	NO ACTION	E					
POTENTIAL NUMBER OF PEOPLE AFFECTED								0	1 - 2	3 - 10	11 - 100	101+
FREQUENCY OF RE-OCCURANCE								> 5 YRS	1 - 5 YRS	6 MTHS - 1 YR	14 DAYS - 6MTHS	< 14 DAYS

The Risk matrix given in procedure PR-900-0087 (ref. /3/ - continues next page).

Grade ↓	Frequency of re-occurrence				
	5	4	3	2	1
	More than 5 years	1 year and 5 years	6 months to 1 year	14 days to 6 months	Less than 14 days
A					
B					
C					
D					
E					

High	
Medium	
Low	

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GRADE	CONSEQUENCE/LOSS POTENTIAL							
	PERSONAL INJURY	LOSS OF CONTAINMENT	ENVIRONMENT INCIDENT	WASTE SEGREGATION	FIRE / EXPLOSION	GAS LEAKAGE	MATERIAL DAMAGE	PRODUCTION LOSS / DRILLING STOP
A	Fatal	Oil; > 2500m3 Chemical/ Gas Very large spill	Regionalised extensive damage, national/ international impacts, clean up required, negative impact to the environment.		Over 10 mill NOK Over 800 000 GBP	> 60% LEL* in several module/ areas non ignited gas leak or blowout. Initiates total unit shutdown	Over 10 mill NOK Over 800 000 GBP	Over 10 mill NOK Over 800 000 GBP
B	Serious w/possible disabling	Oil; > 500m3 Chemical/ Gas Large spill	National impact, likely proactive / clean up and or restoration required. Impact lasting around 1 year		Over 2 mill NOK Over 160 000 GBP	> 60% LEL* in one module/ area and 20-59% LEL* in one or several modules/ areas Large potential in leaking area	Over 2 mill NOK Over 160 000 GBP	Over 2 mill NOK Over 160 000 GBP
C	Serious personal injury	Oil; > 100m3 Chemical/ Gas Medium spill	Localised environmental impact, potential proactive / clean up and or restoration		Over 250 000 NOK Over 20 000 GBP	Same as B, but small potential in leaking area	Over 250 000 NOK Over 20 000 GBP	Over 250 000 NOK Over 20 000 GBP
D	Medical Treatment	Oil; > 1m3 Chemical/ Gas Small spill	Localised (immediate area), no proactive clean up required		Over 50 000 NOK Over 4000 GBP	20-59% in one or several modules/ areas Small potential in leaking area	Over 50 000 NOK Over 4000 GBP	Over 50 000 NOK Over 4000 GBP
E	First Aid Case	Oil; < 1m3 Chemical/ Gas Negligible spill	Inconsequential / no impact		Less than 50 000 NOK Less than 4000 GBP	< 20% LEL*	Less than 50 000 NOK Less than 4000 GBP	Less than 50 000 NOK Less than 4000 GBP