






Well Expertise Verification Report

Schlumberger Service Delivery Process – Well Management

AUDITEE					
SCHLUMBERGER					
AUDIT NO.					
EA-2020-2					
APPROVAL					
Rev.no	Date:	Auditor:	QA by:	Auditee:	Comments:
1.0	26.05.2020	L. Bjørnstad  A. B. Meisler 	M. Laget  S. Seland  L. Lilledal 	B. A. Nilssen	

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1 Introduction

1.1 Scope and Objectives

The objective of the audit was to ensure high level of quality and to deliver a safe and efficient operation for the upcoming Schweinsteiger well for Wellesley Petroleum, and as stakeholder review for Well Expertise (WE). The verification was conducted 14th May 2020 via Teams due to the current Covid-19 situation.

The audit was based on the following documents received from Schlumberger:

- SLB relevant HSE Standards
- D&M Relevant Quality procedures
- MI Drilling Fluids Relevant Quality Procedures
- WL Relevant Quality Procedures
- External 3rd Party Audits 2018-2020
- Environmental Aspects & Risk Register MI Mongstad
- Environmental Aspects & Risk Register Wireline
- SCA – 2020 HSE KPOs and Objectives
- SLB SCA Organization Charts
- SLB-QHSE-S005 Summary HSE Training Std
- SLB QHSE Training and Certification Catalogue
- SLB-HSE-S026 COVID-19 Management Standard

1.2 Deviations

The verification was performed according to plan.

1.3 Warrant

The verification is warranted in

WE's Audit, Review and Verification Plan for 2020, and the Schweinsteiger ARV Plan.

1.4 Verification Process

A notification letter ([Appendix 1](#)) was sent to Schlumberger's point of contact, Bengt Arne Nilssen, 24th April 2020. The verification date was accepted, and relevant documentation sent to Well Expertise before the verification meeting.

The meeting was held on Teams, and relevant personnel from Schlumberger Management, Drilling Fluids, DD/MWD/LWD, Wellesley and WE were present (see [Chapter 1.5](#) and "Signatures" in [Appendix 2](#)).

At the end of the meeting, an action list was presented to Schlumberger with the findings from the verification. Any findings relevant for follow-up is presented in this report and will be followed up through WE and Wellesley's ARV Registers.

1.5 Participants

Role	Name	Position	Company
Lead Auditor	Linn Bjørnstad	Sr. Drilling Engineer	Well Expertise
Auditor	Lars Lilledal	Sr. Drilling Advisor	Wellesley
Auditor	Morten Diesen	Operations Geologist	Wellesley
Auditor	Anniken B. Meisler	QHSE Coordinator	Well Expertise
Auditor	Trond Gravem	Sr. Operations and HSEQ Advisor	Wellesley
Auditor	Christina S. Rødne	Environmental Coordinator	Well Expertise
Observer	Carsten Jepsen	Drilling Supervisor	Well Expertise
Observer	Johan Kjos-Hanssen	Logistics Advisor	Well Expertise
Auditee	Bengt Arne Nilssen	Account Manager	Schlumberger
Auditee	Erik Haaland	Sr. Sales Engineer Bits	Schlumberger
Auditee	Trond Kristensen Daatland	Drilling Fluids	Schlumberger
Auditee	Mikkel Nielsen	Drilling Fluids Coordinator	Schlumberger
Auditee	Cerina Augdal	Product and service delivery Mngr	Schlumberger
Auditee	Linggesh Vahnalingam	Wireline Coordinator	Schlumberger
Auditee	Jeffrey Samuelsen		Schlumberger
Auditee	Øyvind Karlbom	Environmental Advisor	Schlumberger
Auditee	Katharina Beyer	Account Manager / Sales Engineer	Schlumberger
Auditee	Lars Myrholt	HSE Manager	Schlumberger
Auditee	Zhang Hong Liang	Senior Well Engineer	Schlumberger
Auditee	Mohamed Saher Dahroug	D&M Coordinator	Schlumberger

1.6 Abbreviations

ARV	Audit, Review, and Verification
D&M	Drilling and Measurement
DD	Directional Driller
DDX	Directional Driller Crosstrained (x-trained)
DROPS	Dropped objects
EDC	Equivalent Circulating Density
HSEQ	Health, Safety, Environment and Quality
IMP	Improvement Point
KPO	Key Performance Objectives
LWD	Logging While Drilling
MWD	Measurement While Drilling
N/A	Not applicable
NC	Non-Conformance
O	Observation
QHSE	Quality, Health, Safety and Environment
SLB	Schlumberger
WE	Well Expertise
WL	Wireline
XO	Crossover

1.7 Definitions

Improvement point	Non-fulfilment of a requirement related to an intended or specified use (opportunities for improvement)
Non-Conformance	Non-fulfilment of a requirement
Verification	Systematic, independent and documented process for obtaining Verification evidence and evaluating it objectively to determine the extent to which Verification criteria are fulfilled

2 Findings

2.1 Categories of findings

Findings are categorised as:

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

Non-conformances are classified as:

- Major (MA)
- Significant (S)
- Minor (M)

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.

2.2 Non-conformances

There were no non-conformances found during the verification.

2.3 Improvement suggestions

Identified improvement suggestions are presented in Table 2-1.

Table 2-1 Improvement suggestions

IMP No.	Description	Responsible
1	Annual HSEQ Plan: Major Accident, Health and DROPS Campaign: Please forward report on experiences etc.	SLB
2	SLB to forward one-pagers for non-conformances	SLB
3	Wellesley would like to receive procedures/information on familiarization on new rig (SLB not been on Borgland Dolphin since 2008)	SLB
4	SLB to share COVID-19 procedure/guideline – to be sent to Johan Kjos-Hanssen (johan@wellexpertise.com)	SLB
5	Please send us substitution plan (drilling fluids)	SLB
6	SLB to forward Environmental Aspects and Risk Register for Drilling Fluids Offshore	SLB
7	ECD Simulations to be performed and verified by 3 rd party with focus on low temperatures – lab testing to be included	SLB
8	SLB to secure flash point test kit for testing of slops	SLB
9	Please plan for having an MWD engineer offshore from start of the well, then we evaluate to use remote operation centre and 2 x DDX only at later stage	SLB
10	Check with Dolphin regarding XO from 6 5/8" REG to XT57 is available and who supplies it	SLB/Wellesley

2.4 Observations

Identified observations are presented in Table 2-2.

Table 2-2 Observations

O No.	Description	Responsible
1	Wellesley will send info regarding bulk capacity, circulating system, pits etc.	Wellesley
2	Wellesley to provide contact person within Soiltech	Wellesley

3 References

None.

4 Appendices

Appendix No.	Description
1	Notification Letter including Scope of Work
2	Signature list

Appendix 1 – Notification letter

Verification notification



DATE and TIME : 14.05 2020, at 09:00-14:15
WHERE : TBD (either Schlumberger premises or online on Teams)
TO : Schlumberger MWD/LWD/DD, Wireline and Drilling fluids
ATT. : Bengt Nilssen
E-MAIL : BNilssen@slb.com
OUR REF. : Well delivery verification
COPY TO : Morten Diesen, Lars Lilledal, Trond Gravem, Callum Smyth, Morten Laget, Sigve K.Næsheim, Anniken B. Meisler, Christina S. Rødne.
FROM : Linn Bjørnstad
E-MAIL : linn@wellexpertise.com
MOBILE : +47 924 14 817

NOTIFICATION OF WELL DELIVERY VERIFICATION SCHLUMBERGER MWD/LWD/DD, WIRELINE AND DRILLING FLUIDS

Dear Bengt,

With reference to the Audit, Review and Verification Plan for the Schweinsteiger operation and information given in supplier Kick-off meeting 3rd April 2020, Wellesley Petroleum AS is planning to perform a verification of Schlumberger related to QHSE management system, resources, readiness and reporting for MWD/LWD/DD, Wireline and Drilling fluids services.

We plan to perform the verification 14th May 2020 according to scope and timing given below.

Scope

Wellesley plan to do an online verification via Teams according to scope given in [Attachment 1](#).

Timing

14th May at Schlumberger's premises or Teams. Indicative time plan:

09:00 – 09:15	Presentation of attendees, Wellesley introduction to the Schweinsteiger project
09:15 – 10:45	Presentation of Schlumberger Management System
10:45 – 11:00	Break
11:00 – 12:00	Schlumberger Drilling Fluids Services
12:00 – 12:30	Lunch
12:30 – 13:15	Schlumberger DD/MWD/LWD Services
13:15 – 13:45	Schlumberger Bit Services
13:45 – 14:00	AoB
14:00 – 14:15	Summary of findings

Please invite dedicated coordinators that will follow the Schweinsteiger well and other relevant Schlumberger personnel.

Verification notification



Request for information

Prior to the verification, and within 7th May, the verification team would like to receive the following documentation:

- Relevant HSEQ procedures (related to scope)
- Verification reports
 - External audits done by 3rd party (last 3 years)
- Overview of significant environmental aspects
- Objectives /HSE plan for 2020
- Environmental risk assessment for the external environment
- Organogram
- Competence and training documentation
- Corona/Covid-19 risk assessment(s)

The verification team

Linn Bjørnstad	Lead Drilling Engineer (WE)	Verification Team Lead
Lars Lilledal	Sr. Drilling Advisor (Wellesley)	Assistant/Auditor
Morten Diesen	Sr. Operations Geologist (Wellesley)	Geology Auditor
Anniken B. Meisler	QHSE Coordinator (WE)	QHSE Auditor
Christina S. Rødne	Environmental Coordinator (WE)	Environmental Auditor

Reporting

The verification team will present a summary with observations and/or improvement items in a closing meeting at the end of the verification. The formal report will be issued within two (2) weeks after the verification.

Please confirm by e-mail (linn@wellexpertise.com) that date and timing for this verification is OK for required Schlumberger personnel.

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

Kind Regards



Linn Bjørnstad
Verification Team Leader
Well Expertise AS
linn@wellexpertise.com
924 14 817

Verification notification



Appendix 1 – Scope of Work

Schlumberger is asked to present information to cover the topics listed below. The verification team will ask questions and may require checks of records and documentation during or after the presentation.

Schlumberger verification 14 th May 2020			
Id.	Reference	Scope	
1.0	Presentation of persons present, the Schweinsteiger well and organization. Current Status. 09:00-09:15		
1.1	Intro	Linn Bjørnstad	
2.0	Wellesley/WE verification of Schlumberger Management System 09:15-10:45		
2.1	Support	<ol style="list-style-type: none"> 1. Safety statistics 2. Non-conformance reporting and follow up 3. Incident / accident follow up system (Notification/Emergency Response) 4. Environmental procedures & monitoring 5. HSE goals for 2020 6. Audit plan 2020 and system for following up findings 7. Roles and responsibilities 8. Covid-19 measures and follow-up (procedures and personnel) 	
2.2	Personnel	<p>Schlumberger to do a quick summary of:</p> <ul style="list-style-type: none"> • Selection of onshore personnel for all services to support Wellesley for the Schweinsteiger well. Please list who of the offshore personnel have been on Borgland Dolphin before, if possible, as experience from Borgland is preferred. Wellesley request that the crew is not changed out for the duration of the well. Please verify. • Schlumberger to provide Wellesley with CV's for crew. • Relevant competence and training. • Assurance that the Coordinators are following the Schweinsteiger project through. 	
3.0	Wellesley/WE verification of Schlumberger Drilling Fluid services 11:00-12:00		
3.1	Chemical Management	<p>REACH: Explain process for ensuring that chemicals and cement on rig meets specification of laboratory tests.</p> <p>It is expected that all Schlumberger chemicals on Borgland Dolphin have updated SDS. How do you secure that all chemicals taken onboard are registered in the rig's system?</p> <p>How to ensure that no non-approved chemicals enter the rig?</p> <p>Routines for ensuring compliance with Afd.</p> <p>Please provide your procedures for these two cases.</p>	
3.2	BAT practice and development of new chemicals	Please summarize ongoing work on development of new chemicals used in Schlumberger and replacement strategy of Yellow (Y2) chemicals.	

Verification notification



3.3	Working Environment	How do Schlumberger ensure familiarity with rig and continuity of personnel? Have or will Schlumberger perform a working environment /WEAC mapping of the unit? A Plan?	
3.4	Environmental	How to avoid spill to sea. Please provide with internal procedure or proposed procedure for operation on Borgland Dolphin	
3.5	Mud operations onboard Borgland Dolphin	Present main issues on Borgland Dolphin for mud operations such as chemical storage, working environment, logistics, fumes in shaker room, etc based on previous experience on the rig Please present list of mud laboratory equipment planned to be installed on Borgland.	
3.6	Schweinsteiger Specific Mud Program	Please present one-page mud program – 5 min How is the drilling fluid mixed in Flore /Stavanger controlled prior to be loaded onto PSV to ensure that it meets required drilling fluid specifications? Will it be new mud with no HC contamination from other reservoirs? Please present preliminary loadout and bulk plan.	
3.7	QA/QC	Verify how mud programs and ECD calculations are QC'ed internally, especially for high rheology and cold temperatures. How can volume of slop generation be minimized in cooperation with Soiltech?	
3.8	Personnel competency	Please list who of the offshore personnel have been on Bprgland Dolphin before, if possible, experience from Borgland is preferred. Wellesley request that the crew is not changed out for the duration of the well. Please verify. Schlumberger to provide Wellesley with CV's for crew.	
3.9	Test equipment	Schlumberger to provide with checklist for standard laboratory equipment covered by contract and available on Borgland Dolphin. Slop needs to be tested for Flash point. Please verify if this is supplied by Schlumberger.	
3.10	AOB	Please present any other concerns or questions you might have to ensure a safe and efficient operation.	
4.0	Wellesley/WE verification of Schlumberger DD/MWD/LWD services. 12:30-13:15		
4.1	DD MWD/LWD operations onboard Island Innovator	Are there any issues regarding M/U, racking of BHAs etc. experienced on Borgland Dolphin? Are there any issues with compatibility with HLB mudlogging unit/system? Please present equipment planned to be installed on Borgland and required footprint in Halliburton Mudlogging unit Is the plan to use 2 x DDX coordinators (cross-trained DD and MWD) and onshore support centre? If so, what is required broadband assigned to SLB There has been a general concern in 2018/2019 due to lack of tool availability. Please present upcoming activities Q3 in the NCS.	

Verification notification



4.2	BHA design and DD	<p>Please go through BHA designs and sensor offset, incl. 6" contingency BHA – 5 min</p> <p>Please present well trajectories – 5 min</p> <p>All BHA's shall be made up in modules to optimize time spent building BHA's and minimize manual handling on drill floor. The pre-made modules should include lifting subs. The subs and lifting sub in the modules shall be M/U with torque according to tool specifications and sign off forms shall be available on rig site.</p> <p>Make up / and break down procedures of all BHA's shall be handed to the drill crew by the directional driller well in advance of the operation included fish drawings of all items in the BHA's supplied by Schlumberger.</p>	
4.3	Optimizing connection time.	<p>Connection procedures including surveys shall be available at the rig site and part of the DOP.</p> <p>The procedures should include what to do when surveys are not accepted by the QC (drill ahead / contact DSV).</p>	
4.4	Radioactive sources.	What procedures/regulations are Schlumberger working by when handling radioactive sources on the rig? Track record, training of personnel, emergency response team.	
4.5	Data quality	How to ensure that the correct data type and data rate is transmitted to the surface based on Wellesley geological requests.	
4.6	QA/QC	<p>How do Schlumberger ensure that the MWD tool flow rates are within Wellesley's request combined with recommended TFA, hole cleaning, available SPP etc.?</p> <p>How do Schlumberger ensure that the sensor offset (gamma ray / resistivity) is within Wellesley request (drilling program)?</p> <p>How do Schlumberger ensure that the procedures are followed / confirmed OK from when tools are ordered, made up in modules and sent to supply base for shipping out to rig?</p> <p>How is QA/QC of formation evaluation data and directional data performed?</p>	
4.7	Personnel competency	What QA / QC system is present to ensure competency of personnel?	
4.8	AOB	Please present any other concerns or questions you might have to ensure a safe and efficient operation.	
5.0	Wellesley/WE verification of Schlumberger Bit services. 13:15-13:45		
5.1	Planning vs operational requirements.	<p>How do Schlumberger ensure that the most suitable bits for the different sections on Schweinsteiger are used? Please present one-page recommendation.</p> <p>How do Schlumberger ensure that the correct bits (including correct nozzles, tool kit and backup) are delivered in due time?</p>	
5.2	AOB	Please present any other concerns or questions you might have to ensure a safe and efficient operation.	
6.0	AOB general 13:45-14:00		
	Any other concerns or questions?		
7.0	Wellesley/WE verification summary 14:00-14:15		

Appendix 2 – “Signature List” (due to Covid-19)

Introduction and Schlumberger Management System



Anniken Meisler



Bengt Arne Nilssen
Outside your organization



Cerina Augdal
Outside your organization



Erik Haaland
Outside your organization



Jeffrey Samuelsen
Outside your organization



Katharina Beyer
Outside your organization



Lars Lilledal
Outside your organization



Lars Myrholt
Outside your organization



Linggesh Vahnalingam
Outside your organization



Mikkel Nielsen
Outside your organization



Mohamed Saher Dahroug
Outside your organization



Morten Diesen
Outside your organization



Oyvind Karlbom
Outside your organization



Trond Kristensen-Daatland
Outside your organization



Trond Gravem
Outside your organization



Video Conference 1 Well Ex..

Present on WE Video: Linn Bjørnstad,
Carsten Jepsen, Johan Kjos-Hanssen and
Christina S. Rødne

Schlumberger Drilling Fluids



Anniken Meisler



Bengt Arne Nilssen
Outside your organization



Cerina Augdal
Outside your organization



Erik Haaland
Outside your organization



Katharina Beyer
Outside your organization



Lars Lilledal
Outside your organization



Lars Myrholt
Outside your organization



Linggesh Vahnalingam
Outside your organization



Mikkel Nielsen
Outside your organization



Mohamed Saher Dahroug
Outside your organization



Morten Diesen
Outside your organization



Oyvind Karlbom
Outside your organization



Trond Kristensen-Daatland
Outside your organization



Trond Gravem
Outside your organization



Video Conference 1 Well Ex..

Present on WE Video: Linn Bjørnstad,
Carsten Jepsen, and Christina S. Rødne

Schlumberger Drilling Fluids DD/MWD/LWD Services



Anniken Meisler



Bengt Arne Nilssen
Outside your organization



Cerina Augdal
Outside your organization



Erik Haaland
Outside your organization



Lars Lilledal
Outside your organization



Lars Myrholt
Outside your organization



Linggesh Vahnalingam
Outside your organization



Mikkel Nielsen
Outside your organization



Mohamed Saher Dahroug
Outside your organization



Morten Diesen
Outside your organization



Trond Gravem
Outside your organization



Video Conference 1 Well Ex...



Zhang Hong Liang (SCA D&...)
Outside your organization

Present on WE Video: Linn Bjørnstad
and Carsten Jepsen