OPERATOR:	**STATOILHYDRO ASA**
WELL:	**15/9-F-15**
WELLBORE:	**15/9-F-15 C**
FIELD:	**VOLVE**
RIG:	**MAERSK INSPIRER**
COUNTRY:	**NORWAY**
DRILL PERMIT#:	**3016-P**

Report

WLC_PETROPHYSICAL_COMPOSITE_1.DLIS

Prepared by: **LOGTEK AS**
Date: **27-JUN-2014**

WLC_PETROPHYSICAL_COMPOSITE_1_INF_2

The WLC_PETROPHYSICAL_COMPOSITE_1.DLIS has been created in accordance with the NPD "**Guidelines to the Petroleum Regulations/REPORTING REQUIREMENTS FOR DIGITAL WELL DATA (Drilling Regulations, Section 12)**".
http://www.npd.no/Global/Norsk/5%20-%20Regelverk/Tematiske%20veiledninger/B_og_b_digital_rapportering_e.pdf

Purpose

To preserve 'specialist' composited data curves that may be created for a well but which do not fall into the 'standard' Composite (Section 3.1) or the 'Interpreted Data Input' data sets (described in Section 4.1). These data may have additional work done such as environmental or bed thickness corrections. This data set would normally be used by Petrophysicists. Operators are strongly recommended to report this data set in order to preserve value-added work.

Quality

Similar quality guidelines apply to the compositing work as described in Section 3.1.3 above. All work that is carried out must also be documented in an Information File.

Operationally, it is expected that both the 'standard' Composite Log and this 'specialized' Composite Log would normally be created in the same process but split into 2 data sets for reporting purposes. This ensures that the same depth shifting is applied to both data sets – an important quality requirement.

Content

Data that are not part of the 'Composited' or 'Interpretation Input' data sets. This may include:

- additional composited resistivity, NMR or other specialized curve data.
- composited data at high sampling rates for thin-bed analysis.
- a good guide is to include all 'presentation curves' from log prints (apart from those already included in the 'standard' composite). If quality curves such as Tension or Cable Speed are included (not a requirement), information must be included in the Information Files to show which data curves they refer to.

OPERATOR: **STATOILHYDRO ASA**
WELL: **15/9-F-15**
WELLBORE: **15/9-F-15 C**
FIELD: **VOLVE**
RIG: **MAERSK INSPIRER**
COUNTRY: **NORWAY**
DRILL PERMIT#: **3016-P**

MWD data plotted and verified to prints.

Depth units are meters.

Quality comments:
Wellbore 15/9-F-15 C was sidetracked from 15/9-F-15 A at 2575.0m (MD).
Wellbore 15/9-F-15 A was sidetracked from 15/9-F-15 at 1380.0m (MD).

MWD ARC, run 12-13:
13 ⅜" casing shoe at 2561.8m (from log header).
Log Remarks:
All depths are referenced to driller's depth and checked at least every stand.
All data from tool memory.
All data acquired while drilling.
Gamma Ray measurement is environmentally corrected for mud weight, bit size and collar thickness.
Resistivity measurements are borehole compensated and require no environmental correction for borehole effect.
This well is an open hole sidetrack of 15/9-F-15 A.
Run 12 POOH at 2665m due to loss of directional control.
Run 13 and 12 ¼ in. section TD at 2920m.

MWD ECOSCOPE/SonicVISION BestDT, run 14:
9 ⅝" casing shoe at 2915.0m (from log header).
Log Remarks:
All depths are referenced to driller's depth and checked at least every stand.
All data from tool memory.
All data acquired while drilling.
Gamma Ray measurement is environmentally corrected for mud weight, bit size and collar thickness.
Resistivity measurements are borehole compensated and require no environmental correction for borehole effect.
Bulk Density is compensated for tool standoff/mud cake.
Neutron Porosity measurement is calculated with limestone matrix, and is environmentally corrected for bit size, mud weight, temperature, pressure, and mud salinity.
8 ½ in. section TD at 3232.0m.
SonicVISION BestDT Remarks:
Delta-T Compressional (DTCO) derived from receiver and transmitter arrays.
Delta-T Compressional (DTCO) processed using a 10-14 kHz filter.
Moving Average 5 noise cut applied.
Low coherency interval at 3100-3113m, unreliable DT labelling.

Editing on WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:
MWD ECOSCOPE, run 14:
Constant values in bottom of RHGE and SIGE have been removed.
Resistivities are affected by casing/large borehole and have been removed above 2913.3m.

Depth shifts:
No depth shifts performed.

CURVE SUMMARY, file WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:

File #1. Incr.: 0.1524

Main Services	Input Curve	Run no.	Date (start)	Interval (meters)	Merge depth (meters)	Depth shifted	Edited
MWD ARC	A28H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	A28H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	A34H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	A34H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	A40H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	A40H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	ATMP*	12-13	18-JAN-09	2560.0-2900.9		No	No
MWD ECOSCOPE	CRPM	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DCAV*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DCHO*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DCVE*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DRHB	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DRHL	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DRHO*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DRHR	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	DRHU	14	12-FEB-09	2910.1-3221.0		No	No
MWD SonicVISION BestDT	DTCO	14	12-FEB-09	2845.2-3206.2		No	No
MWD SonicVISION BestDT	DTRP	14	12-FEB-09	2845.2-3203.3		No	No
MWD SonicVISION BestDT	DTTP	14	12-FEB-09	2845.2-3206.2		No	No
MWD ECOSCOPE Spectrolith	DWAL_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWCA_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWFE_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWGD_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWSI_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWSU_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DWTI_WALK2	14	12-FEB-09	2907.0-3231.8		No	No
MWD ECOSCOPE Spectrolith	DXFE_WALK2*	14	12-FEB-09	2907.0-3231.8		No	No
MWD ARC	GR_ARC	12-13	18-JAN-09	2560.0-2900.0		No	No
MWD ECOSCOPE	GRMA	14	12-FEB-09	2910.1-3222.2		No	No
MWD ARC	P16H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P16H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P16L	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P16L	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P22H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P22H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P22L	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P22L	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P28H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P28H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P28L	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P28L	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P34H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P34H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P34L	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P34L	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P40H	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P40H	14	12-FEB-09	2913.3-3219.5		No	No
MWD ARC	P40L	12-13	18-JAN-09	2560.0-2900.3		No	No
MWD ECOSCOPE	P40L	14	12-FEB-09	2913.3-3219.5		No	No
MWD ECOSCOPE	PEB	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	PEF*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	PEL*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	PER*	14	12-FEB-09	2910.1-3221.0		No	No
MWD ECOSCOPE	PEU*	14	12-FEB-09	2910.1-3221.0		No	No

MWD ECOSCOPE Spectrolith	RHGE	14	12-FEB-09	2907.0-3227.4	No	No
MWD ECOSCOPE	RHOB*	14	12-FEB-09	2910.1-3221.0	No	No
MWD ECOSCOPE	ROBB	14	12-FEB-09	2910.1-3221.0	No	No
MWD ECOSCOPE	ROBL	14	12-FEB-09	2910.1-3221.0	No	No
MWD ECOSCOPE	ROBR	14	12-FEB-09	2910.1-3221.0	No	No
MWD ECOSCOPE	ROBU	14	12-FEB-09	2910.1-3221.0	No	No
MWD ARC	ROP5_RM	12-13	18-JAN-09	2560.0-2920.0	No	No
MWD ECOSCOPE	ROP5_RM	14	12-FEB-09	2920.4-3231.6	No	No
MWD ECOSCOPE Spectrolith	SIGE	14	12-FEB-09	2907.0-3227.8	No	No
MWD ARC	TAB_ARC_RES	12-13	18-JAN-09	2560.0-2900.5	No	No
MWD ECOSCOPE	TAB_ARC_RES	14	12-FEB-09	2910.1-3219.5	No	No
MWD ECOSCOPE	TNPH	14	12-FEB-09	2910.1-3218.5	No	No
MWD ECOSCOPE	UCAV*	14	12-FEB-09	2910.1-3220.8	No	No
MWD ECOSCOPE	UCHO*	14	12-FEB-09	2910.1-3220.8	No	No
MWD ECOSCOPE	UCVE*	14	12-FEB-09	2910.1-3220.8	No	No
MWD ECOSCOPE Spectrolith	WCAR	14	12-FEB-09	2907.0-3231.8	No	No
MWD ECOSCOPE Spectrolith	WCLA	14	12-FEB-09	2907.0-3227.8	No	No
MWD ECOSCOPE Spectrolith	WPYR	14	12-FEB-09	2907.0-3227.5	No	No
MWD ECOSCOPE Spectrolith	WQFM	14	12-FEB-09	2907.0-3227.8	No	No
MWD ECOSCOPE Spectrolith	WSID*	14	12-FEB-09	2907.0-3231.8	No	No

* Not presented on plot.

Definitions:

Dynamic depth shift *– variable depth shifting (stretch and pull) as opposed to linear depth shifting.*
Linear depth shift *– Constant depth shift through a certain depth interval.*
Reference curve *– Curve that will be used as the depth* ***Reference*** *for a set of logging curves.*
Offset Curve *– Curve that will be compared to the* ***Reference*** *curve in order to find required depth pairs.*
Curves shifted *– Curves that will be shifted with depth pairs found by comparing* ***Reference*** *to* ***Offset*** *curve.*
Observed *–* ***Observed*** *depth is the depth of a point before depth shifting*
Actual *–* ***Actual*** *depth is the depth of the point after depth shifting.*

WLC_PETROPHYSICAL_COMPOSITE_1.DLIS completed: 09-JUL-2009
WLC_PETROPHYSICAL_COMPOSITE_1_INF_2.PDF completed: 27-JUN-2014