OPERATOR:	STATOILHYDRO
WELL:	15/9-F-5
WELLBORE:	15/9-F-5
FIELD:	VOLVE
RIG:	MAERSK INSPIRER
COUNTRY:	NORWAY
DRILL PERMIT#:	2925-P

Report

WLC_PETROPHYSICAL_COMPOSITE_1.DLIS

Prepared by: **LOGTEK AS**
Date: **23-OCT-2008**

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/regelverk/R2002/B_OG_B_DIGITAL_RAPPORTERING_E.HTM#Additional_Composited_Data

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.

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MWD data plotted and verified to prints.
MWD PowerPulse-GR, run 2:
Gaps in curves interpolated on plots.

Depth units are meters.

Quality comments:
MWD PowerPulse-GR, run 2:
30 in. casing shoe at 220.8m (depth from log heading).
Log Remarks:
All depths are referenced to driller's depth and are checked at least every stand.
All data is Real Time.
All data acquired while drilling.
Gamma ray measurement is environmentally corrected for mud weight, bit size and collar thickness.
Missing Gamma Ray data from 246.1 to 252.2m due to intermittent failure of GR sensor.
17 ½ in. section TD at 1415m.

MWD ARC, run 3:
13 ⅜ in. casing shoe at 1404.7m (depth from log heading).
Logger's remarks:
All depths are referenced to driller's depth and are 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.
12 ¼ in. section TD at 2927m.

MWD EcoScope-Sonic, run 4-5:
9 ⅝ in. casing shoe at 2921m (depth from log heading).
Logger's remarks:
All depths are referenced to driller's depth and are checked at least every stand.
All data from tool memory.
Gamma ray measurement is environmentally corrected for mud weight, bit size and collar thickness and neutron activation.
Resistivity measurements are borehole compensated but not environmentally corrected.
Bulk density is compensated for tool standoff/mudcake.
Neutron Porosity measurement is calculated with limestone matrix, and is environmentally corrected for bit size, mud weight, temperature, pressure, formation density and mud salinity.
Run 4: All data acquired while drilling.
POOH due to Xceed failure.
Run 5: Reamed from 3274 to 3298m due to change in BHA length. All other data acquired while drilling.
8 ½ in section TD at 3792m.
Best DT remarks:
Delta-T Compressional (DTCO) derived from receiver and transmitter arrays.
Delta-T Compressional (DTCO) processed using a 11-14 KHz filter.

Moving Average 5 noise cut filter applied.

Editing on WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:
MWD PowerPulse-GR, run 2:
Gaps in curves interpolated in order to match plots.

MWD EcoScope-Sonic, run 4:
Resistivity data affected by casing and have been removed above 2921.6m.

Depth shifts:
No depth shifting performed.

CURVE SUMMARY, file WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:
File #1, increment 0.1524:

Main Services	Curve	Run no.	Date (start)	Interval (meters)	Merge Depth (meters)	Depth shifted	Edited
MWD ARC	A16H*	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	A16H*	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	A22H*	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	A22H*	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	A28H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	A28H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	A34H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	A34H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	A40H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	A40H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	ATMP*	3	15-JUL-08	1399.9-2908.2		No	No
MWD PowerPulse-GR	ATMP_MWD*	2	17-DEC-07	193.0-1390.0		No	Yes
MWD EcoScope-Sonic	BPHI*	4-5	25-JUL-08	2917.8-3778.1		No	No
MWD EcoScope-Sonic	CRPM	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	DRHB	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	DRHL	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	DRHO*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	DRHR	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	DRHU	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD Sonic Best DT	DTCO	4-5	25-JUL-08	2918.1-3766.1		No	No
MWD Sonic Best DT	DTRP	4-5	25-JUL-08	2918.1-3763.3		No	No
MWD Sonic Best DT	DTTP	4-5	25-JUL-08	2921.5-3766.1		No	No
MWD ARC	GR_ARC	3	15-JUL-08	1399.9-2907.3		No	No
MWD PowerPulse-GR	GRM1	2	17-DEC-07	190.5-1387.4		No	Yes
MWD EcoScope-Sonic	GRMA	4-5	25-JUL-08	2917.8-3782.2		No	No
MWD ARC	P16H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P16H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P16L	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P16L	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P22H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P22H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P22L	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P22L	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P28H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P28H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P28L	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P28L	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P34H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P34H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P34L	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P34L	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P40H	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P40H	4-5	25-JUL-08	2921.6-3779.3		No	No
MWD ARC	P40L	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	P40L	4-5	25-JUL-08	2921.6-3779.3		No	No

MWD EcoScope-Sonic	PEB	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	PEF*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	PEL*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	PER*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	PEU*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	RHOB*	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	ROBB	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	ROBL	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	ROBR	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD EcoScope-Sonic	ROBU	4-5	25-JUL-08	2917.8-3780.9		No	No
MWD PowerPulse-GR	ROP5	2	17-DEC-07	200.4-1414.6		No	Yes
MWD ARC	ROP5_RM	3	15-JUL-08	1399.9-2927.4	2927.6	No	No
MWD EcoScope-Sonic	ROP5_RM	4-5	25-JUL-08	2927.6-3792.0		No	No
MWD ARC	TAB_ARC_RES	3	15-JUL-08	1399.9-2907.6		No	No
MWD EcoScope-Sonic	TAB_ARC_RES	4-5	25-JUL-08	2917.8-3779.3		No	No
MWD EcoScope-Sonic	TNPH	4-5	25-JUL-08	2917.8-3778.1		No	No
MWD EcoScope-Sonic	UCAV*	4-5	25-JUL-08	2917.8-3780.7		No	No
MWD EcoScope-Sonic	UCHO	4-5	25-JUL-08	2917.8-3780.7		No	No
MWD EcoScope-Sonic	UCVE	4-5	25-JUL-08	2917.8-3780.7		No	No

* Not presented on plots

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: 23-OCT-2008
WLC_PETROPHYSICAL_COMPOSITE_1_INF_1.PDF completed: 23-OCT-2008