OPERATOR:	STATOILHYDRO
WELL:	15/9-F-14
WELLBORE:	15/9-F-14
FIELD:	VOLVE
RIG:	MAERSK INSPIRER
COUNTRY:	NORWAY
DRILL PERMIT#:	2726-P

Report

WLC_PETROPHYSICAL_COMPOSITE_1.LIS

Prepared by: **LOGTEK AS**
Date: **24-JUL-2008**

The WLC_PETROPHYSICAL_COMPOSITE_1.LIS 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.
Curves renamed:

On field print	in composite
GR_ARC	GRA
GR_ARC_F	GRAF
ROP5_RM	ROP5
TAB_ARC_RES	TABA

Depth units are meters.

Quality comments:
MWD ARC-Sonic, run 3:
20 in casing shoe at 1077.0m (depth from log heading).
Resistivity data above 1084.4m affected by casing.
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 collar thickness but not for Potassium content.
Resistivity measurements are borehole compensated and environmentally corrected for bit size, mud resistivity and temperature.
17 1/2 in. section TD at 2281 m.

MWD Sonic Best DT, run 3:
Remarks:
Delta-T Compressional (DTCO) derived from receiver and transmitter arrays.
Delta-T Compressional processed using a 7.5-9.5 KHz filter.
Median Residual 4000 Noise reduction applied.

MWD ARC-Sonic, run 4:
14 in casing shoe at 2275.4m (depth from log heading).
Data above 2282.0m affected by large/washed out borehole.
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.
Run 4 TD at 2788 m.

MWD Sonic Best DT, run 4:
Remarks:
Delta-T Compressional (DTCO) derived from receiver and transmitter arrays.
Delta-T Compressional processed using a 7.5-9.5 KHz filter above 2465.0m and 10-15 KHz below.
Median Residual 4000 Noise reduction applied.

MWD EcoScope-Sonic, run 5:
9 5/8 in casing shoe at 2783.5m (depth from log heading).
Neutron and density data affected by casing and large/washed out borehole above 2789.0m.
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.
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, and mud salinity.

MWD Sonic Best DT, run 5:
Remarks:
Delta-T Compressional (DTCO) derived from receiver and transmitter arrays.
Delta-T Compressional processed using a 10-16 KHz filter.
Median Residual 400 Noise cut filter applied.
Delta-T Shear (DTSM) derived from receiver and transmitter arrays.
Delta-T Shear processed using a 8-10 KHz filter.

Editing on WLC_PETROPHYSICAL_COMPOSITE_1.LIS:
MWD ARC-Sonic, run 4:
Resistivity data above 2282.0m affected by casing and have been replaced by empty values.

MWD EcoScope-Sonic, run 5:
Resistivity data affected by 9 5/8 in casing above 2783.5m and have been removed in this zone.

Depth shifts:
No depth shifting performed.

CURVE SUMMARY, file WLC_PETROPHYSICAL_COMPOSITE_1.LIS:
File #2, increment 0.1524:

Main Services	Curve	Run no.	Date (start)	Interval (meters)	Merge Depth (meters)	Dept shifted	Edited
MWD ARC	A16H*	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	A16H*	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	A16H*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	A22H*	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	A22H*	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	A22H*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	A28H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	A28H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	A28H*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	A34H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	A34H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	A34H*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	A40H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	A40H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	A40H	5	10-JUN-08	2783.5-3737.1		No	No
MWD EcoScope	BPHI*	5	10-JUN-08	2777.9-3736.3		No	No
MWD EcoScope	CRPM	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	DRHB	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	DRHL*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	DRHO*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	DRHR*	5	10-JUN-08	2777.9-3738.6		No	No

MWD EcoScope	DRHU	5	10-JUN-08	2777.9-3738.6		No	No
MWD Sonic Best DT	DTCO	3	11-MAY-08	1078.8-2254.6		No	No
MWD Sonic Best DT	DTCO	4	21-MAY-08	2274.4-2745.0		No	No
MWD Sonic Best DT	DTCO	5	10-JUN-08	2780.5-3713.9		No	No
MWD Sonic Best DT	DTRP	3	11-MAY-08	1078.8-2251.5		No	No
MWD Sonic Best DT	DTRP	4	21-MAY-08	2274.4-2741.9		No	No
MWD Sonic Best DT	DTRP	5	10-JUN-08	2780.5-3710.9		No	No
MWD Sonic Best DT	DTRS	5	10-JUN-08	2782.3-3710.4		No	No
MWD Sonic Best DT	DTSM	5	10-JUN-08	2782.3-3710.9		No	No
MWD Sonic Best DT	DTTP	3	11-MAY-08	1083.2-2254.6		No	No
MWD Sonic Best DT	DTTP	4	21-MAY-08	2279.1-2745.0		No	No
MWD Sonic Best DT	DTTP	5	10-JUN-08	2784.0-3713.9		No	No
MWD Sonic Best DT	DTTS	5	10-JUN-08	2785.7-3710.9		No	No
MWD ARC	GRAF	3	11-MAY-08	1076.7-2268.4		No	No
MWD ARC	GRA	4	21-MAY-08	2269.8-2759.3		No	No
MWD EcoScope	GRMA	5	10-JUN-08	2777.9-3740.0		No	No
MWD ARC	P16H*	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P16H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P16H*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P16L	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P16L	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P16L*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P22H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P22H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P22H	5	10-JUNN-08	2783.5-3737.1		No	No
MWD ARC	P22L	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P22L	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P22L*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P28H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P28H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P28H	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P28L	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P28L	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P28L*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P34H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P34H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P34H	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P34L	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P34L	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P34L*	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P40H	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P40H	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P40H	5	10-JUN-08	2783.5-3737.1		No	No
MWD ARC	P40L	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	P40L	4	21-MAY-08	2282.0-2759.5		No	No
MWD EcoScope	P40L*	5	10-JUN-08	2783.5-3737.1		No	No
MWD EcoScope	PEB	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	PEF*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	PEL*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	PER*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	PEU*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	RHOB*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	ROBB	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	ROBL*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	ROBR*	5	10-JUN-08	2777.9-3738.6		No	No
MWD EcoScope	ROBU	5	10-JUN-08	2777.9-3738.6		No	No
MWD ARC	ROP5	3	11-MAY-08	1083.5-2280.8	2280.9	No	No
MWD ARC	ROP5	4	21-MAY-08	2280.9-2787.8	2788.0	No	No
MWD EcoScope	ROP5	5	10-JUN-08	2788.0-3749.9		No	No
MWD ARC	TABA	3	11-MAY-08	1076.7-2268.7		No	No
MWD ARC	TABA	4	21-MAY-08	2269.8-2759.5		No	No
MWD EcoScope	TABA	5	10-JUN-08	2777.9-3737.1		No	No
MWD EcoScope	TNPH	5	10-JUN-08	2777.9-3736.3		No	No
MWD EcoScope	UCAV*	5	10-JUN-08	2777.9-3738.5		No	No
MWD EcoScope	UCHO*	5	10-JUN-08	2777.9-3738.5		No	No
MWD EcoScope	UCVE*	5	10-JUN-08	2777.9-3738.5		No	No
MWD Sonic Best DT	VPVS#	5	10-JUN-08	2782.3-3710.9		No	No

* Not presented on plots
# VPVS calculated as DTSM/DTCO

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.LIS completed:	**24-JUL-2008**
WLC_PETROPHYSICAL_COMPOSITE_1_INF_1.PDF completed:	**24-JUL-2008**