OPERATOR:	**STATOIL PETROLEUM AS**
WELL:	**15/9-F-11**
WELLBORE:	**15/9-F-11 B**
FIELD:	**VOLVE**
RIG:	**MÆRSK INSPIRER**
COUNTRY:	**NORWAY**
DRILL PERMIT#:	**3564-P**

Report

WLC_PETROPHYSICAL_COMPOSITE_1.DLIS

Prepared by:	**LOGTEK AS**
Date:	**05-JUL-2013**

WLC_PETROPHYSICAL_COMPOSITE_1_INF_1

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.

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MWD data plotted and verified to prints.
MWD OTK, run 9:
Gap in TCDM not seen on plot.

MWD AZTK-CCN-ORD, run 11:
Gap in ROPAVG not seen on plot.

Depth units are meter.

Quality comments:
Wellbore 15/9-F-11 B is a sidetrack of wellbore 15/9-F-11 T2 kicked off at 2585 m (from MWD heading).
Wellbore 15/9-F-11 T2 is a sidetrack of wellbore 15/9-F-11 kicked off at 257 m (from MWD heading).

MWD OTK, run 9:
Data above 2570.7 m logged in casing (depth from log heading).
Log Comments:
Depth reference is driller's depth. All depths are measured depths (MD).
Gamma Ray is not corrected for borehole size and mud density in the 26" hole section.
Well 15/9-F-11 B was kicked off from a cement plug from well 15/9-F-11 T2 at 2585m (MD) in LWD Run#9.
Logger's TD in well 15/9-F-11 B at 2917.7m (MD).

MWD OTK, run 10:
Log Comments:
Depth reference is driller's depth. All depths are measured depths (MD).
Due to sensor proximity to steel, a successful function test of the resistivity tool was not performed in the post-run verification in LWD Run#10. QC logs and log response in general indicated that there were no problems with the tools.
Logger's TD in LWD Run#10 at 3197.0m (MD).

MWD AZTK-CCN-ORD, run 11:
Data above 3192.5 m logged in casing (depth from log heading).
Log Comments:
Depth reference is driller's depth. All depths are measured depths (MD).
The 9 5/8" casing shoe was reported at 3192.5 m (MD) and logged at 3193.5 m (MD) in LWD Run#11.
Relog#1 interval 3451 m – 3508 m (MD) was logged while backreaming 91-105 hrs after being drilled.
Logger's TD for LWD Run#11 at 4770.6 (MD).

Editing on WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:
MWD OTK, run 9:
Gap in TCDM interpolated in order to match plot.

MWD AZTK-CCN-ORD, run 11:
Resistivity data is affected by casing and washout/large borehole above 3194.4 m and has been removed.
Gap in ROPAVG interpolated in order to match plot.

Depth shifts:
MWD OTK, run 9:

WLC_PETROPHYSICAL_COMPOSITE_1_INF_1

All data has been depth shifted in order to match data from MWD AZTK-CCN-ORD-MTK-SDTK, run 7 (wellbore 15/9-F-11 T2):

Reference curve: GRCFM (MWD AZTK-CCN-ORD-MTK-SDTK, run 7)
Offset curve: GRCFM (MWD OTK, run 9)
Curves shifted: All curves

Shift pairs used:

Observed:	Actual:
2589.800	2590.600
2591.500	2592.000
2593.700	2595.000
2598.600	2598.600

CURVE SUMMARY, file WLC_PETROPHYSICAL_COMPOSITE_1.DLIS:

File #1. Increment: 0.1m

Main Services	Input Curve	Run no.	Date (start)	Interval (meter)	Merge depth (meter)	Depth shifted	Edited
MWD AZTK-CCN-ORD	ABDC01M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC02M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC03M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC04M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC05M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC06M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC07M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC08M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC09M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC10M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC11M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC12M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC13M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC14M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC15M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDC16M	11	07-JUN-13	3227.8-4747.5		No	No
MWD AZTK-CCN-ORD	ABDCQF01	11	07-JUN-13	3227.9-4747.4		No	No
MWD AZTK-CCN-ORD	ABDCQF02	11	07-JUN-13	3227.9-4747.4		No	No
MWD AZTK-CCN-ORD	ABDCQF03	11	07-JUN-13	3227.9-4747.4		No	No
MWD AZTK-CCN-ORD	ABDCQF04	11	07-JUN-13	3227.9-4747.4		No	No
MWD AZTK-CCN-ORD	AZRIT1T2	11	07-JUN-13	3187.5-4761.5		No	No
MWD AZTK-CCN-ORD	AZRTBM	11	07-JUN-13	3241.9-4761.5		No	No
MWD AZTK-CCN-ORD	BDCFM	11	07-JUN-13	3148.7-4747.4		No	No
MWD AZTK-CCN-ORD	CALCM	11	07-JUN-13	3148.8-4746.8		No	No
MWD AZTK-CCN-ORD	DPEFM*	11	07-JUN-13	3148.7-4747.4		No	No
MWD AZTK-CCN-ORD	DRHFM	11	07-JUN-13	3148.7-4747.4		No	No
MWD AZTK-CCN-ORD	GRCDFM	11	07-JUN-13	3239.9-4759.4		No	No
MWD OTK	GRCFM	9	27-MAY-13	2539.0-2895.8	2895.9	Yes	No
MWD OTK	GRCFM	10	30-MAY-13	2895.9-3175.1	3175.2	No	No
MWD AZTK-CCN-ORD	GRCFM	11	07-JUN-13	3175.2-4759.4		No	No
MWD AZTK-CCN-ORD	GRCLFM	11	07-JUN-13	3239.9-4759.4		No	No
MWD AZTK-CCN-ORD	GRCS01M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS02M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS03M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS04M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS05M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS06M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS07M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCS08M	11	07-JUN-13	3239.9-4759.5		No	No
MWD AZTK-CCN-ORD	GRCRFM	11	07-JUN-13	3239.9-4759.4		No	No
MWD AZTK-CCN-ORD	GRCUFM	11	07-JUN-13	3239.9-4759.4		No	No
MWD OTK	GRSIM	9	27-MAY-13	2539.2-2895.9	2896.0	Yes	No
MWD OTK	GRSIM	10	30-MAY-13	2896.0-3175.1	3175.2	No	No
MWD AZTK-CCN-ORD	GRSIM	11	07-JUN-13	3175.2-4759.5		No	No

MWD AZTK-CCN-ORD	NPCKLFM	11	07-JUN-13	3146.1-4744.8		No	No
MWD AZTK-CCN-ORD	NPCLFM*	11	07-JUN-13	3146.1-4744.8		No	No
MWD AZTK-CCN-ORD	NPLFM*	11	07-JUN-13	3146.1-4744.8		No	No
MWD OTK	RACEHM	9	27-MAY-13	2566.8-2898.1	2898.2	Yes	No
MWD OTK	RACEHM	10	30-MAY-13	2898.2-3177.3		No	No
MWD AZTK-CCN-ORD	RACEHM	11	07-JUN-13	3194.4-4761.5		No	No
MWD OTK	RACELM	9	27-MAY-13	2566.8-2898.1	2898.2	Yes	No
MWD OTK	RACELM	10	30-MAY-13	2898.2-3177.3		No	No
MWD AZTK-CCN-ORD	RACELM	11	07-JUN-13	3194.4-4761.5		No	No
MWD OTK	ROPAVG	9	27-MAY-13	2585.9-2917.5	2917.6	Yes	No
MWD OTK	ROPAVG	10	30-MAY-13	2917.6-3196.8	Interpolated	No	No
MWD AZTK-CCN-ORD	ROPAVG	11	07-JUN-13	3197.1-4770.3		No	Yes
MWD OTK	RPCEHM	9	27-MAY-13	2566.8-2898.1	2898.2	Yes	No
MWD OTK	RPCEHM	10	30-MAY-13	2898.2-3177.3		No	No
MWD AZTK-CCN-ORD	RPCEHM	11	07-JUN-13	3194.4-4761.5		No	No
MWD OTK	RPCELM	9	27-MAY-13	2566.8-2898.1	2898.2	Yes	No
MWD OTK	RPCELM	10	30-MAY-13	2898.2-3177.3		No	No
MWD AZTK-CCN-ORD	RPCELM	11	07-JUN-13	3194.4-4761.5		No	No
MWD OTK	RPCESHM*	9	27-MAY-13	2566.8-2898.1	2898.2	Yes	No
MWD OTK	RPCESHM*	10	30-MAY-13	2898.2-3177.3		No	No
MWD AZTK-CCN-ORD	RPCESHM*	11	07-JUN-13	3194.4-4761.5		No	No
MWD OTK	RPTHM	9	27-MAY-13	2585.8-2898.1		Yes	No
MWD OTK	RPTHM	10	30-MAY-13	2917.7-3177.3		No	No
MWD AZTK-CCN-ORD	RPTHM	11	07-JUN-13	3197.0-4761.5		No	No
MWD OTK	TCDM	9	27-MAY-13	2553.9-2917.6	2917.7	Yes	Yes
MWD OTK	TCDM	10	30-MAY-13	2917.7-3196.9	3197.0	No	No
MWD AZTK-CCN-ORD	TCDM	11	07-JUN-13	3197.0-4770.6		No	No
MWD OTK	WOBAVG	9	27-MAY-13	2585.9-2917.5	2917.6	Yes	No
MWD OTK	WOBAVG	10	30-MAY-13	2917.6-3196.9		No	No
MWD AZTK-CCN-ORD	WOBAVG	11	07-JUN-13	3197.1-4770.3		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: 05-JUL-2013
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