

Company: PETRO-CANADA Well: PETRO-CANADA BLACKWATER KWIJIKA M-59 Field: KWIJIKA Province: NORTHWEST TERRITORIES			
Platform Express COMPENSATED NEUTRON DUAL LITHOLOGY DENSITY LOG			
Province: NORTHWEST TERRITORIES Field: KWIJIKA Location: LSD: M-59 Well: PETRO-CANADA BLACKWATER KWIJIKA M-59 Company: PETRO-CANADA		LOCATION LSD: M-59 UWD: 300M596440122300 Permanent Datum: _____ Log Measured From: _____ Drilling Measured From: _____ API Serial No. 1165	
Logging Date: 4-Mar-2008 Run Number: TWO Depth Driller: 1640 m Schlumberger Depth: 1641 m Bottom Log Interval: 1640.3 m Top Log Interval: 1198 m Casing Driller Size @ Depth: 177.800 mm @ 1198 m Casing Schlumberger: 1198 m Bit Size: 156.000 mm Type Fluid In Hole: KCL POLYMER Density: 1315 kg/m ³ Viscosity: 58 s Fluid Loss: 6.5 cm ³ PH: 11.5 Source Of Sample: FLOWLINE RM @ Measured Temperature: 0.048 ohm.m @ 15 degC RMF @ Measured Temperature: 0.044 ohm.m @ 15 degC RMC @ Measured Temperature: 0.103 ohm.m @ 17 degC Source RMF: PRESSED RM @ MFT: 0.032 @ 34 0.029 @ 34 Maximum Recorded Temperatures: 34 degC Circulation Stopped: 4-Mar-2008 12:15 Logger On Bottom: 4-Mar-2008 21:52 Unit Number: 4301 NORMAN WELLS Recorded By: J.ROLLINGS / R. JACOBS Witnessed By: G. TIMMONS / G. DEON		Elev.: K.B. 252.1 m G.L. 245.9 m D.F. 251.8 m Elev.: 245.9 m 6.2 m above Perm. Datum	
		Run 1	Run 2
		Run 3	Run 4

DEPTH SUMMARY LISTING			
Date Created: 5-MAR-2008 1:25:55			

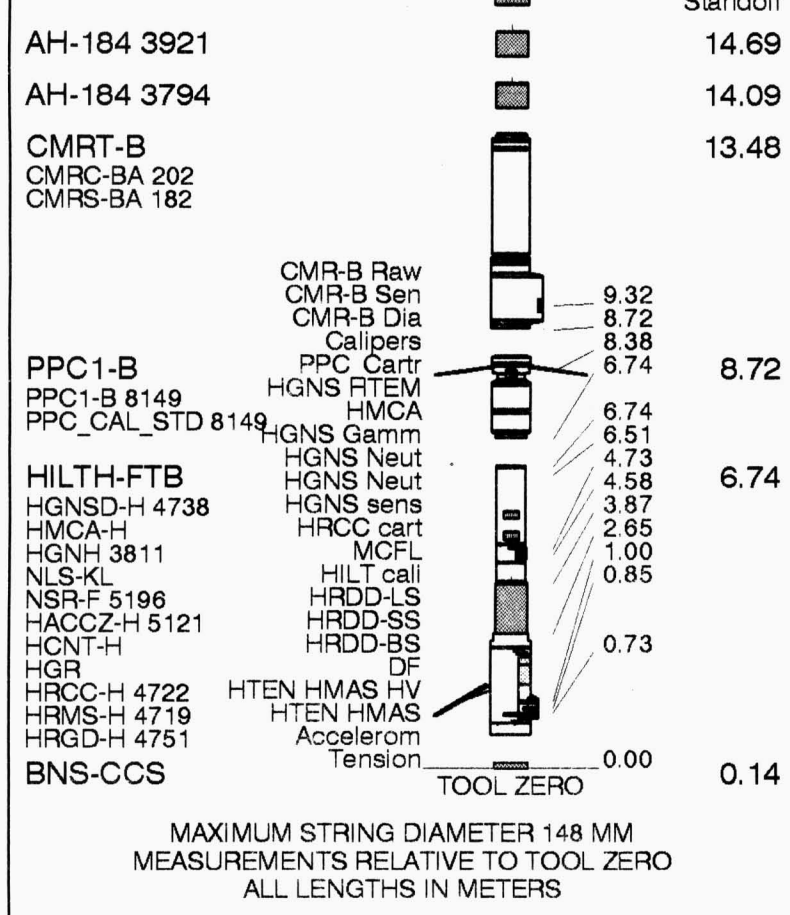
Depth System Equipment		
Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6423 Calibration Date: 15-FEB-2008 Calibrator Serial Number: 4 Calibration Cable Type: 7-46P Wheel Correction 1: -4 Wheel Correction 2: -5	Type: CMTD-B/A Serial Number: 2565 Calibration Date: 15-FEB-2008 Calibrator Serial Number: -999 Calibration Gain: 0.88 Calibration Offset: 336.00	Type: 7-46A XXS Serial Number: 6199 Length: 7800.14 M Conveyance Method: Wireline Rig Type: LAND

Depth Control Parameters	
Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	PLATFORM EXPRESS COMPENSATED NEUTRON DUAL LITHOLOGY DENSITY LOG
Reference Log Run Number:	ONE
Reference Log Date:	23-FEB-2008
Subsequent Trip Down Log Correction:	1.00 M

Depth Control Remarks	
1. IDW IS PRIMARY DEPTH MEASUREMENT 2. Z-CHART USED AS A SECONDARY DEPTH MEASUREMENTS 3. MAIN PASS TIED INTO PREVIOUS RUN AS PER SLB DEPTH CONTROL PROCEDURES 4. PPC CLOSED BEFORE CS AT 1207M CAUSED TENSION TO REDUCE AND THEREFORE DEPTH SHIFT IN CASING 5. DOWNLOG WAS TIED INTO MAIN PASS OF RUN 1 AND MAIN PASS OF RUN 2 WAS TIED INTO DOWNLOG RUN2 TO VERIFY D 6.	

DISCLAIMER THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.					
OTHER SERVICES1 OS1: PEX-HRLA-TLD2-CMR-ML OS2: MSCT OS3: FMI-DSI-HNGS-EMS OS4: MDT OS5: VSP			OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:		
REMARKS: RUN NUMBER 1			REMARKS: RUN NUMBER 2		
ALL PRESENTATIONS AS PER LOGGING PROGRAM DATED FEB 6, 2008					
INTERVALS CONFIRMED ON LOCATION BY WELLSITE GEOLOGIST					
MAXIMUM TEMPERATURE TAKEN FROM HEAD THERMOMETER					
RM1= 0.0484, RM2=0.047 & RM3=0.048 OHMS, RMF1=0.044 & RMF2=0.0436 OHMS, RMC=0.103 OHMS					
SP READING ERRATIC, CHECKED GROUND & REDUCED ALL NOISE AROUND					
SP OP CHECKED BEFORE RUNNING IN HOLE - SP GROUND IN THE SUMP 5 FT BELOW					
PPC RAN ECCENTERED TO ECCENTRALIZE THE CMR, POWER APPLIED TO ARM 3 ONLY					
HIRES SANDSTONE: TD-ICS					
TLD2 RAN 90 DEG OFFSET TO BOTTOM TLD					
NEUTRON RAN ECCENTERED WITH TWO 120 DEG OFFSET BOWSPRINGS					
CMR INTERVAL: TD - 1445M					
CMR LOGGED WITH DEFAULT MASTER CAL VALUES ON REPEAT PASS					
CMR LOGGED TUNED @ 1500M AND ALF UPDATED FOR MAIN PASS					
REPEAT PASS REQUESTED FROM 1570-1485M					
PPC CLOSED BEFORE CASING CAUSED TENSION TO CHANGE AT 1207M					
RIG: AKITA 51					
CREW: BILLY LIAM, LARRY DUDUS					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT GSR-U/Y 11 NCT-B CNB-AB NCS-VB					
DOWNHOLE EQUIPMENT					
LEH-QT 2657		33.82			
AH-169 185		32.93			
SPA-A 9936	SP SPARC	31.91			
SPA-A 9936		32.52			
DTC-H	CTEM	31.02			
ECH-KC 10485	TelStatus	31.30			
MLT-B	ToolStatus	30.39			
MLT-B 109	BMNO	30.39			
	MCAL	29.35			
	MLT Statu	28.08			
HILTH2-FTB	HMCA2	27.47			
HTBCD2-H2 3733	HRCC2 car	26.25			
HMCA-H 3733	MCFL	24.59			
HRCC-H2 3990	HILT cali	24.44			
HRMS-H2 3983	HRDD2-LS				
HRGD-H2 4709	HRDD2-SS	24.32			
GLS-VJ2 1984					
MCFL2 Device-H2					
AH-90 DEG OFFSET		23.73			
AH-184 2713		23.29			
AH-184 3800		22.68			
HRLT-B		22.07			
HRLH-B 1716		13 MM			
HRUC-B 1714		Standoff			
HRLS-B 1704					
HRLH-B 763					
HRLC-B 951					
AH-270 759	High Res.	18.48			
		13 MM			



Input DLIS Files						
DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP	FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M	1041.1 M
Output DLIS Files						
DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP	FN:20	PRODUCER	05-Mar-2008 01:01	1644.7 M	1124.1 M
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP	FN:21	PRODUCER	05-Mar-2008 01:02	1644.7 M	1124.1 M

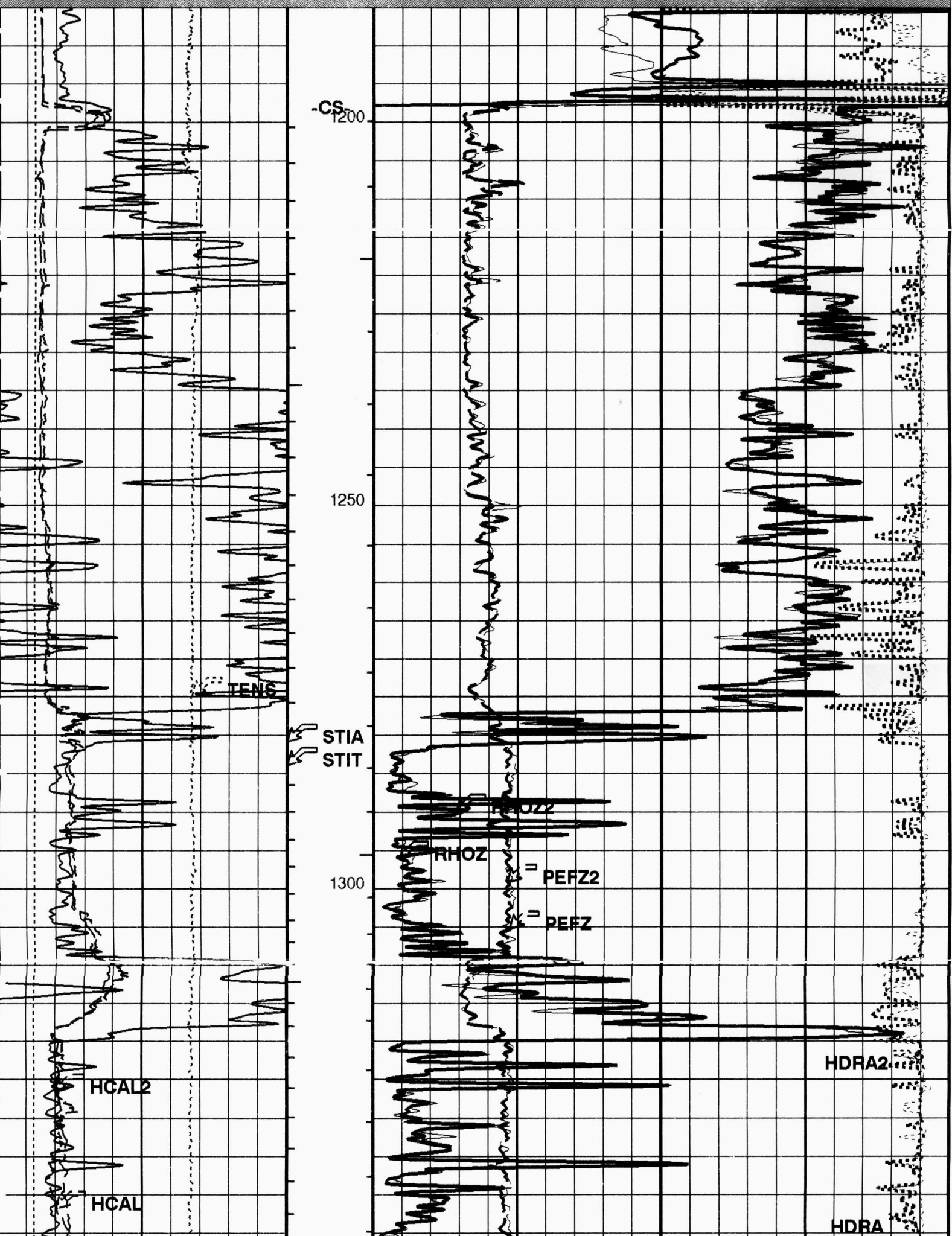
Integrated Hole/Cement Volume Summary	
Hole Volume =	9.79 M3
Cement Volume =	5.25 M3 (assuming 114.30 MM casing O.D.)
Computed from	1640.9 M to 1198.0 M using data channel(s) HCAL

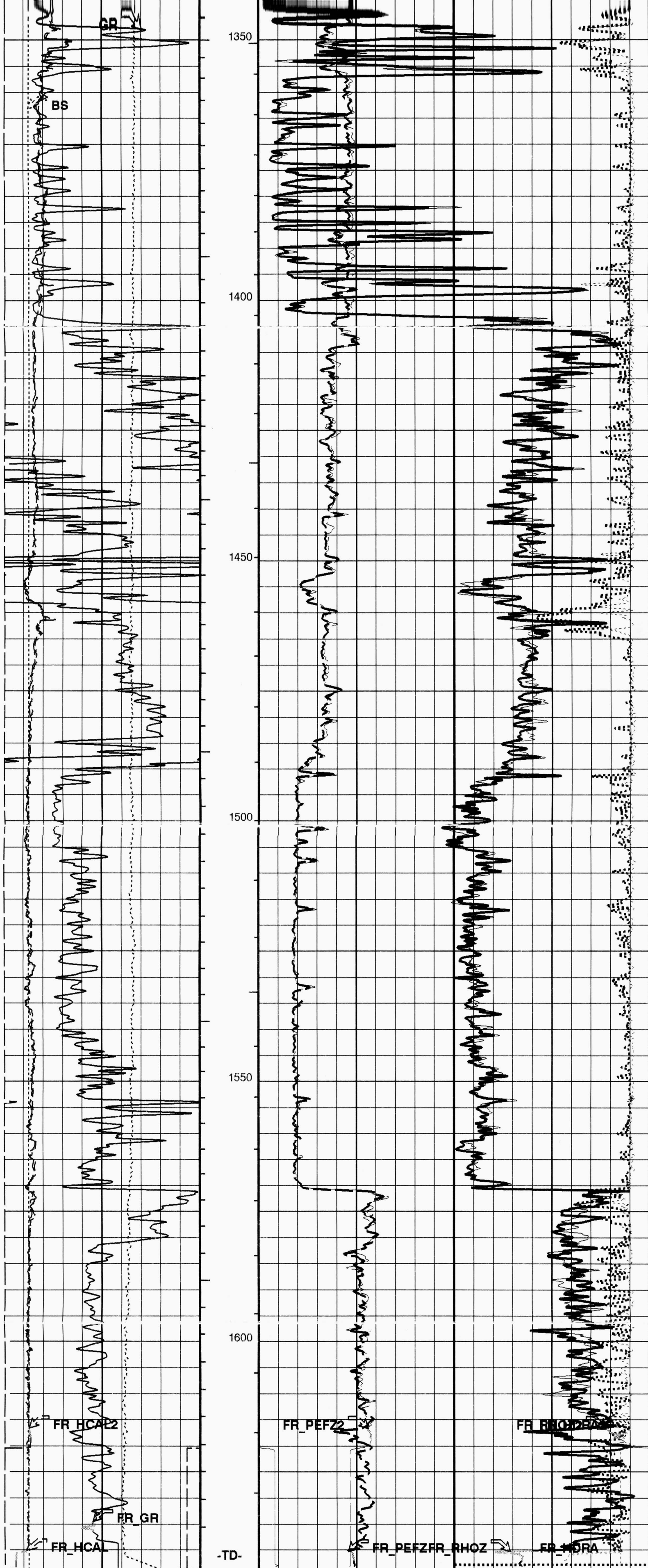
OP System Version: 15C0-309			
MCM			
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936

PIP SUMMARY	
Integrated Hole Volume Minor Pip Every	0.1 M3
Integrated Hole Volume Major Pip Every	1 M3
Integrated Cement Volume Minor Pip Every	0.1 M3
Integrated Cement Volume Major Pip Every	1 M3

Time Mark Every 60 S	
Tension (TENS)	25000 (N)
HILTH Caliper (HCAL2)	(MM)
Caliper (HCAL)	(MM)
Gamma Ray (GR)	(GAPI)
Bit Size (BS)	(MM)
Std. Res. Formation Density (RHOZ2)	(K/M3)
Std. Res. Formation Density (RHOZ)	(K/M3)
Std. Res. Formation Pe (PEFZ2)	(K/M3)
Density Correction (HDRA2)	(K/M3)
Std. Res. Formation Pe (PEFZ)	(K/M3)
Density Correction (HDRA)	(K/M3)

MAIN PASS: *** DUAL DENSITY - SANDSTONE 2650 KG/M3***





MAIN PASS: *** DUAL DENSITY - SANDSTONE 2650 KG/M3***			
Bit Size (BS)		Std. Res. Formation Pe (PEFZ)	
125	(MM)	0	(----
Gamma Ray (GR)		Density Correction (HDRA)	
0	(GAPI)	10	450
Caliper (HCAL)		Density Correction (HDRA2)	
125	(MM)	0	(----
HILT Caliper (HCAL2)		Std. Res. Formation Density (RHOZ)	
125	(MM)	2000	(K/M3)
Tension (TENS)		Std. Res. Formation Density (RHOZ2)	
25000	(N)	2000	(K/M3)

PIP SUMMARY			
Integrated Hole Volume Minor Pip Every 0.1 M3			
Integrated Hole Volume Major Pip Every 1 M3			
Integrated Cement Volume Minor Pip Every 0.1 M3			
Integrated Cement Volume Major Pip Every 1 M3			

Time Mark Every 60 S

Parameters			
DLIS Name	Description	Value	
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHFL_TLD	HILT Nuclear Mud Base	WATER	
DHC	Density Hole Correction	BS	
GCLF	Germany Coal-like Formation Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
HILTH2-FTB: High resolution Integrated Logging Tool-DTS2			
BHFL_TLD	HILT Nuclear Mud Base	WATER	
DHC	Density Hole Correction	BS	
GCLF2	Germany Coal-like Formation Option	NO	
NAAC2	HRDD2 APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM2	HRDD2 Processing Mode	HiRes	
NSAR2	HRDD2 Depth Sampling Rate	25.4	MM
DIR: Directional Survey Computation			
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	1198	M
TIVD	TVD of Tie-in Point	1198	M
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	114.3	MM
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	1640.00	M
TDL	Total Depth - Logger	1641.00	M
System and Miscellaneous			
BS	Bit Size	156.000	MM
DFD	Drilling Fluid Density	1315.00	K/M3
DO	Depth Offset for Playback	0.2	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1641	M

Format: DENS Vertical Scale: 1:600 Graphics File Created: 05-Mar-2008 01:02

OP System Version: 15C0-309			
MCM			
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936

Input DLIS Files					
DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP	FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M 1041.1 M
Output DLIS Files					
DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP	FN:20	PRODUCER	05-Mar-2008 01:01	
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP	FN:21	PRODUCER	05-Mar-2008 01:02	

Input DLIS Files					
DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP	FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M 1041.1 M

Output DLIS Files					
DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP FN:20	PRODUCER	05-Mar-2008 01:01	1644.7 M	1124.1 M
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP FN:21	PRODUCER	05-Mar-2008 01:02	1644.7 M	1124.1 M

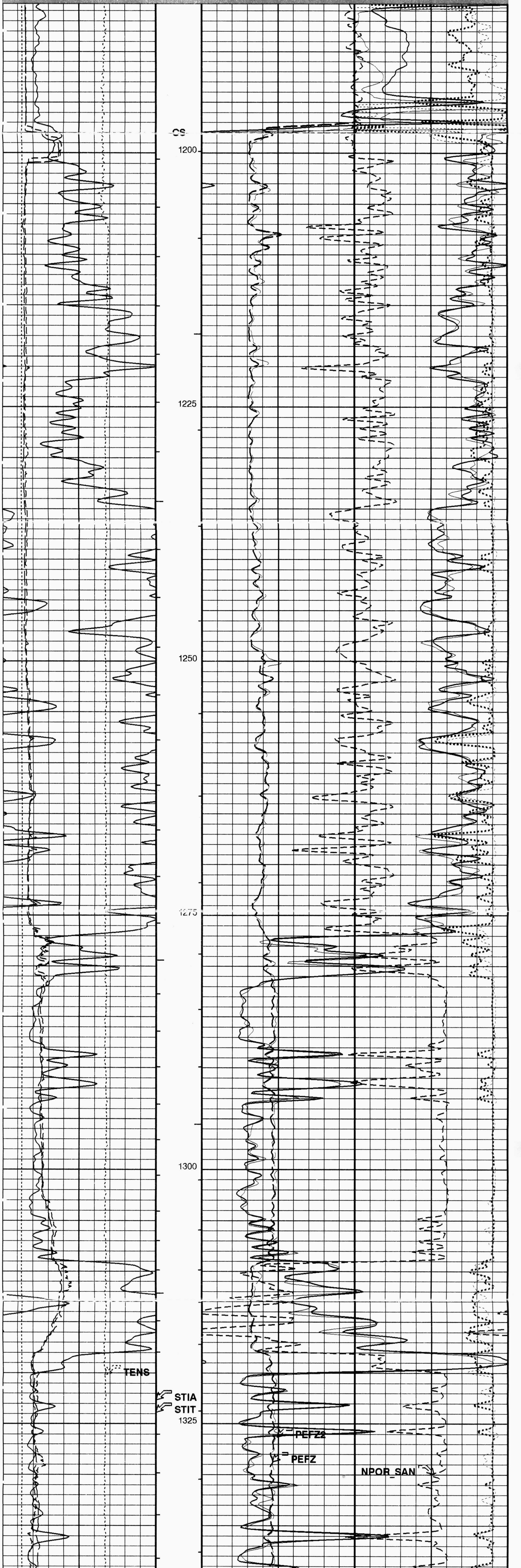
Integrated Hole/Cement Volume Summary					
Hole Volume = 9.79 M3					
Cement Volume = 5.25 M3 (assuming 114.30 MM casing O.D.)					
Computed from 1640.9 M to 1198.0 M using data channel(s) HCAL					

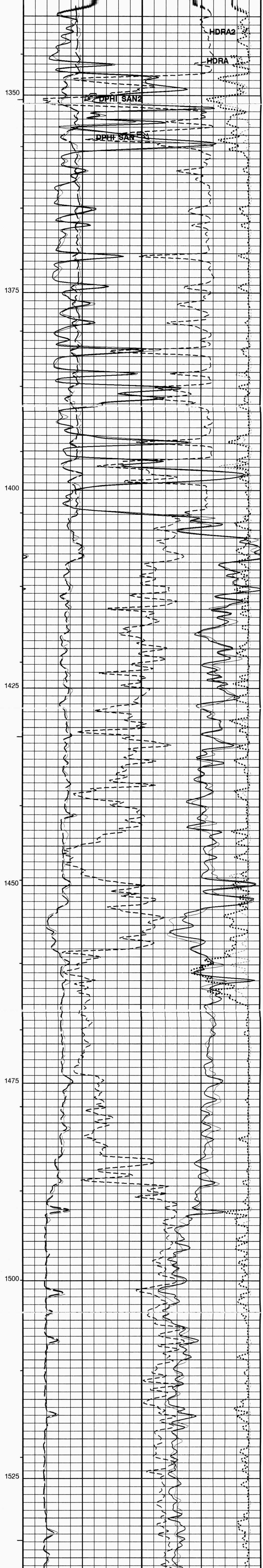
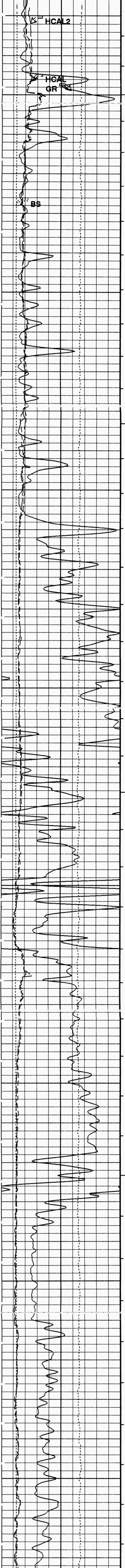
OP System Version: 15C0-309					
MCM					
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309		
CMRT-B	15C0-309	HRLT-B	15C0-309		
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309		
DTC-H	15C0-309	SPA-A	9936		

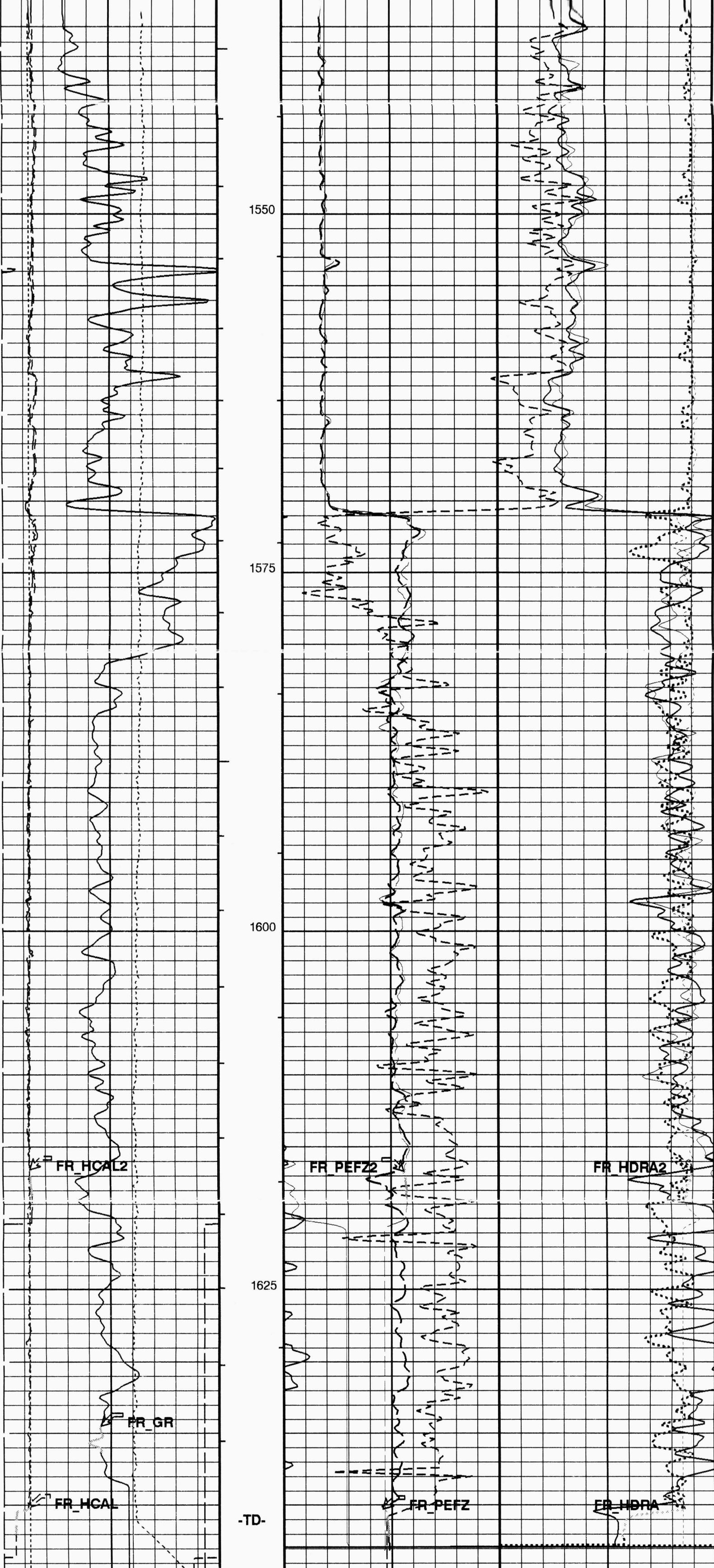
PIP SUMMARY					
└ Integrated Cement Volume Major Pip Every 1 M3					
└ Integrated Cement Volume Minor Pip Every 0.1 M3					
└ Integrated Hole Volume Major Pip Every 1 M3					
└ Integrated Hole Volume Minor Pip Every 0.1 M3					
Time Mark Every 60 S					

Tension (TENS)		Std. Res. Formation Pe (PEFZ2)		Density Correction (HDRA2)	
25000 (N)		0 (----)		10 450 (K/M3)	
0		0		-50	
HILT Caliper (HCAL2)		Std. Res. Formation Pe (PEFZ)		Density Correction (HDRA)	
(MM)		0 (----)		10 450 (K/M3)	
125		0		-50	
Caliper (HCAL)		NPOR for SAND (NPOR_SAN)			
(MM)		0.45 (V/V)		-0.15	
125		0.45		-0.15	
Gamma Ray (GR)		DPHI2 for SAND (DPHI_SAN2)			
(GAPI)		0.45 (V/V)		-0.15	
0		0.45		-0.15	
Bit Size (BS)		DPHI for SAND (DPHI_SAN)			
(MM)		0.45 (V/V)		-0.15	
125		0.45		-0.15	

MAIN PASS: *** PEX - DUAL DENSITY POROSITY - SANDSTONE 2850 KG/M3 ***







MAIN PASS: *** PEX - DUAL DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

Bit Size (BS) (MM)		125	375	DPHI for SAND (DPHI_SAN) (V/V)		0.45	-0.15
Gamma Ray (GR) (GAPI)		0	150	DPHI2 for SAND (DPHI_SAN2) (V/V)		0.45	-0.15
Caliper (HCAL) (MM)		125	375	NPOR for SAND (NPOR_SAN) (V/V)		0.45	-0.15
HILT Caliper (HCAL2) (MM)		125	375	Std. Res. Formation Pe (PEFZ) (---)		0	10 450
Tension (TENS) 25000 (N)		0	0	Density Correction (HDRA) (K/M3)		10 450	-50
				Std. Res. Formation Pe (PEFZ2) (---)		0	10 450
				Density Correction (HDRA2) (K/M3)		10 450	-50

PIP SUMMARY

- └ Integrated Cement Volume Major Pip Every 1 M3
└ Integrated Cement Volume Minor Pip Every 0.1 M3
└ Integrated Hole Volume Major Pip Every 1 M3
└ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

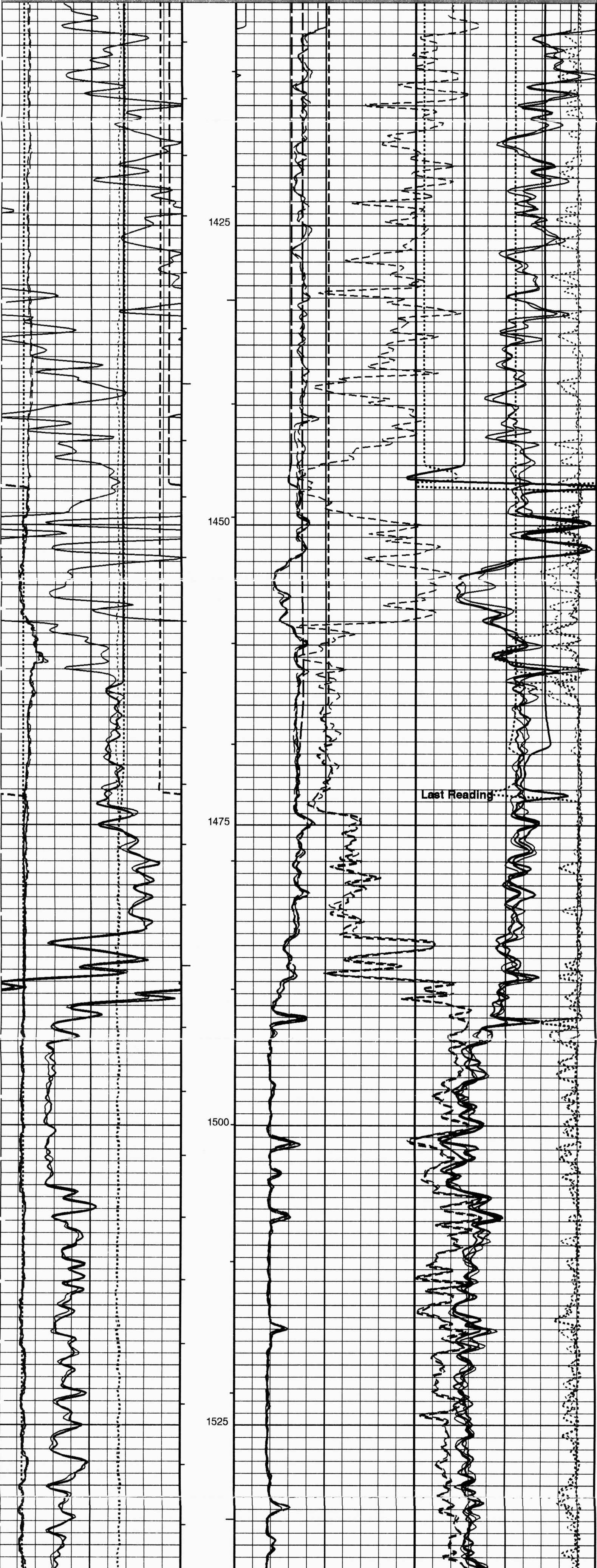
DLIS Name	Description	Value
HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000 K/M3
FSAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GCLF	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC	HRDD APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM	HRDD Processing Mode	HiRes
NSAR	HRDD Depth Sampling Rate	25.4 MM
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	YES
CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HRLT-B: High Resolution Laterolog Array - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HILTH2-FTB: High resolution Integrated Logging Tool-DTS2		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000 K/M3
FSCO	Formation Salinity Correction Option	NO
GCLF2	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC2	HRDD2 APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM2	HRDD2 Processing Mode	HiRes
NSAR2	HRDD2 Depth Sampling Rate	25.4 MM
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	YES
DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0 M
TIMD	Along-hole depth of Tie-in Point	1198 M
TIVD	TVD of Tie-in Point	1198 M
HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN
FCD	Future Casing (Outer) Diameter	114.3 MM
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HVCS	Integrated Hole Volume Caliper Selection	HCAL
STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL
STKT	STI Stuck Threshold	1.524 M
TDD	Total Depth - Driller	1640.00 M
TDL	Total Depth - Logger	1641.00 M
System and Miscellaneous		
BS	Bit Size	156.000 MM
BSAL	Borehole Salinity	-50000.00 PPM
CSIZ	Current Casing Size	177.800 MM
CWEI	Casing Weight	34.20 KG/M
DFD	Drilling Fluid Density	1315.00 K/M3

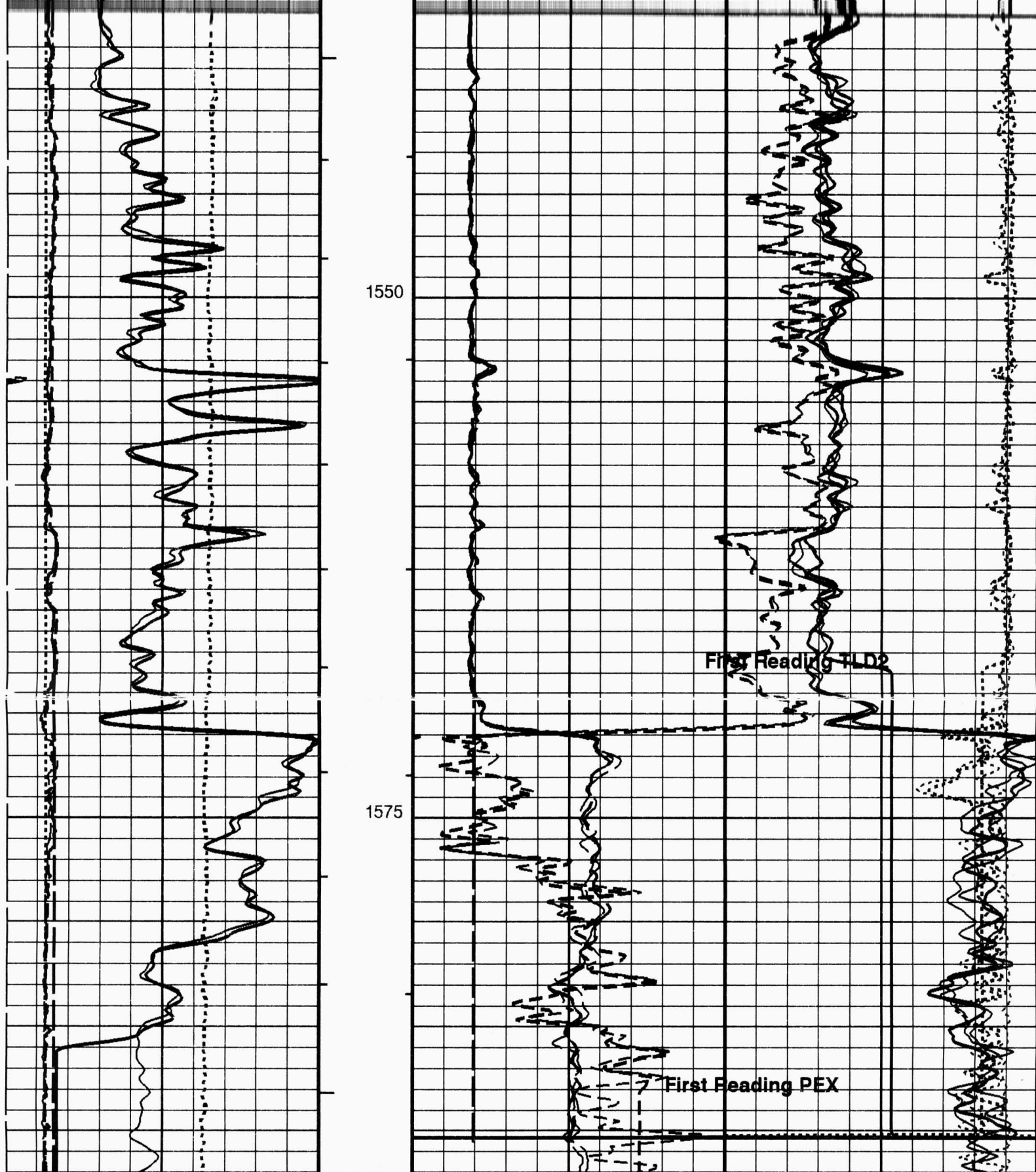
DO	Depth Offset for Playback	0.2	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	15.40	DEGC
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.0440	OHMM
TD	Total Depth	1641	M
Format: PORO_SAND Vertical Scale: 1:240		Graphics File Created: 05-Mar-2008 01:02	
OP System Version: 15C0-309			
MCM			
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936
Input DLIS Files			
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Output DLIS Files			
DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP FN:20	PRODUCER	05-Mar-2008 01:01
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP FN:21	PRODUCER	05-Mar-2008 01:02

Input DLIS Files			
DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP FN:16	PRODUCER	04-Mar-2008 22:57 1644.6 M 1041.1 M
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Output DLIS Files			
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BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP FN:21	PRODUCER	05-Mar-2008 01:02
OP System Version: 15C0-309			
MCM			
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936

PIP SUMMARY			
└ Integrated Cement Volume Major Pip Every 1 M3			
└ Integrated Cement Volume Minor Pip Every 0.1 M3			
└ Integrated Hole Volume Major Pip Every 1 M3			
└ Integrated Hole Volume Minor Pip Every 0.1 M3			
Time Mark Every 60 S			
TENS REP Curve (TENS REP)		PEFZ2 REP Curve (PEFZ2 REP)	
25000 (N) 0		0 10 450 (K/M3) -50	
HCAL2 REP Curve (HCAL2 REP)		PEFZ REP Curve (PEFZ REP)	
125 (MM) 375		0 10 450 (K/M3) -50	
HCAL REP Curve (HCAL REP)		NPOR SAN REP Curve (NPOR SAN REP)	
125 (MM) 375		0.45 (V/V) -0.15	
GR REP Curve (GR REP)		DPHI SAN2 REP Curve (DPHI SAN2 REP)	
0 (GAPI) 150		0.45 (V/V) -0.15	
BS REP Curve (BS REP)		DPHI SAN REP Curve (DPHI SAN REP)	
125 (MM) 375		0.45 (V/V) -0.15	

REPEAT ANALYSIS: *** PEX - DUAL DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***





REPEAT ANALYSIS: *** PEX - DUAL DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

BS REP Curve (BS REP) 125 (MM) 375		DPHI SAN REP Curve (DPHI SAN REP) 0.45 (V/V) -0.15	
GR REP Curve (GR REP) 0 (GAPI) 150		DPHI SAN2 REP Curve (DPHI SAN2 REP) 0.45 (V/V) -0.15	
HCAL REP Curve (HCAL REP) 125 (MM) 375		NPOR SAN REP Curve (NPOR SAN REP) 0.45 (V/V) -0.15	
HCAL2 REP Curve (HCAL2 REP) 125 (MM) 375		PEFZ REP Curve (PEFZ REP) 0 (----) 10	HDRA REP Curve (HDRA REP) 450 (K/M3) -50
TENS REP Curve (TENS REP) 25000 (N) 0		PEFZ2 REP Curve (PEFZ2 REP) 0 (----) 10	HDRA2 REP Curve (HDRA2 REP) 450 (K/M3) -50

PIP SUMMARY

- Integrated Cement Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000 K/M3
FSAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GCLF	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC	HRDD APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM	HRDD Processing Mode	HiRes
NSAR	HRDD Depth Sampling Rate	25.4 MM
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	YES
CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HRLT-B: High Resolution Laterolog Array - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HILTH2-FTB: High resolution Integrated Logging Tool-DTS2		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000 K/M3
FSCO	Formation Salinity Correction Option	NO
GCLF2	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC2	HRDD2 APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM2	HRDD2 Processing Mode	HiRes
NSAR2	HRDD2 Depth Sampling Rate	25.4 MM
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	YES
DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0 M
TIMD	Along-hole depth of Tie-in Point	1198 M
TIVD	TVD of Tie-in Point	1198 M
HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN
FCD	Future Casing (Outer) Diameter	114.3 MM
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HVCS	Integrated Hole Volume Caliper Selection	HCAL
STI: Stuck Tool Indicator		
TDL	Total Depth - Logger	1641.00 M
System and Miscellaneous		
BS	Bit Size	156.000 MM
BSAL	Borehole Salinity	-50000.00 PPM
CSIZ	Current Casing Size	177.800 MM
CWEI	Casing Weight	34.20 KG/M
DFD	Drilling Fluid Density	1315.00 K/M3
DO	Depth Offset for Playback	0.2 M
DORL	Depth Offset for Repeat Analysis	0.0 M
MST	Mud Sample Temperature	15.40 DEGC
PP	Playback Processing	RECOMPUTE
RMFS	Resistivity of Mud Filtrate Sample	0.0440 OHMM
TD	Total Depth	1641 m

Format: PORO_SAND_REP

Vertical Scale: 1:240

Graphics File Created: 05-Mar-2008 01:02

OP System Version: 15C0-309

MCM

HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936

Input DLIS Files

DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M	1041.1 M
DEFAULT	TLD_MCFL_CNL_CAL_ML_010PUP FN:14	PRODUCER	04-Mar-2008 22:39	1592.1 M	1406.3 M

Output DLIS Files

DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP FN:20	PRODUCER	05-Mar-2008 01:01
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP FN:21	PRODUCER	05-Mar-2008 01:02

Input DLIS Files

DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M	1041.1 M
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Output DLIS Files

DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP FN:20	PRODUCER	05-Mar-2008 01:01	1644.7 M	1124.1 M
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP FN:21	PRODUCER	05-Mar-2008 01:02	1644.7 M	1124.1 M

Integrated Hole/Cement Volume Summary

Hole Volume = 9.79 M3

Cement Volume = 5.25 M3 (assuming 114.30 MM casing O.D.)

Computed from 1640.9 M to 1198.0 M using data channel(s) HCAL

OP System Version: 15C0-309

MCM

HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936

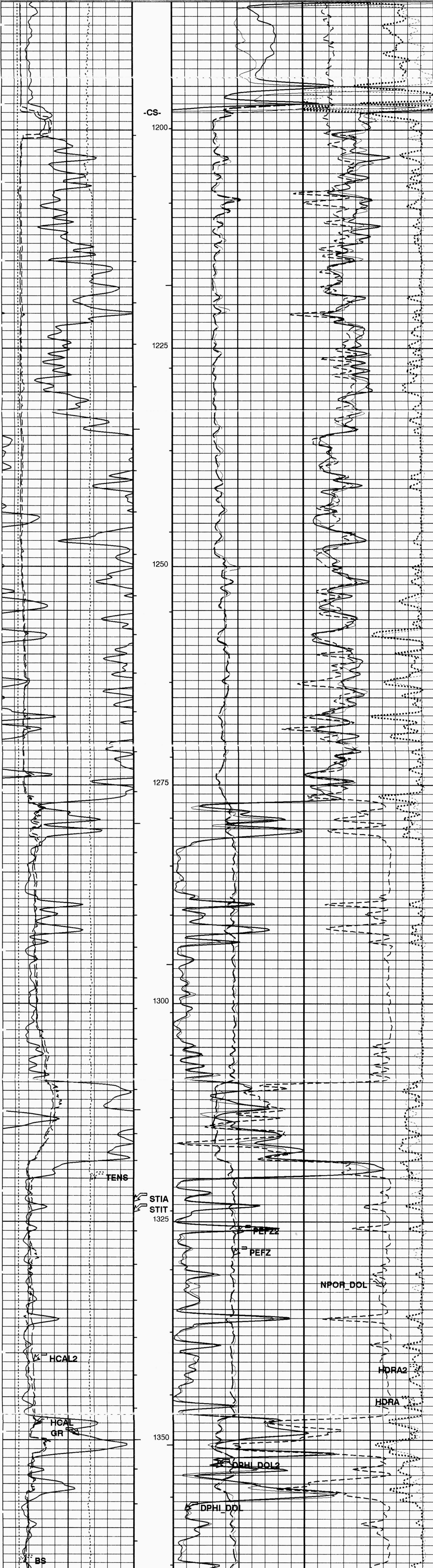
PIP SUMMARY

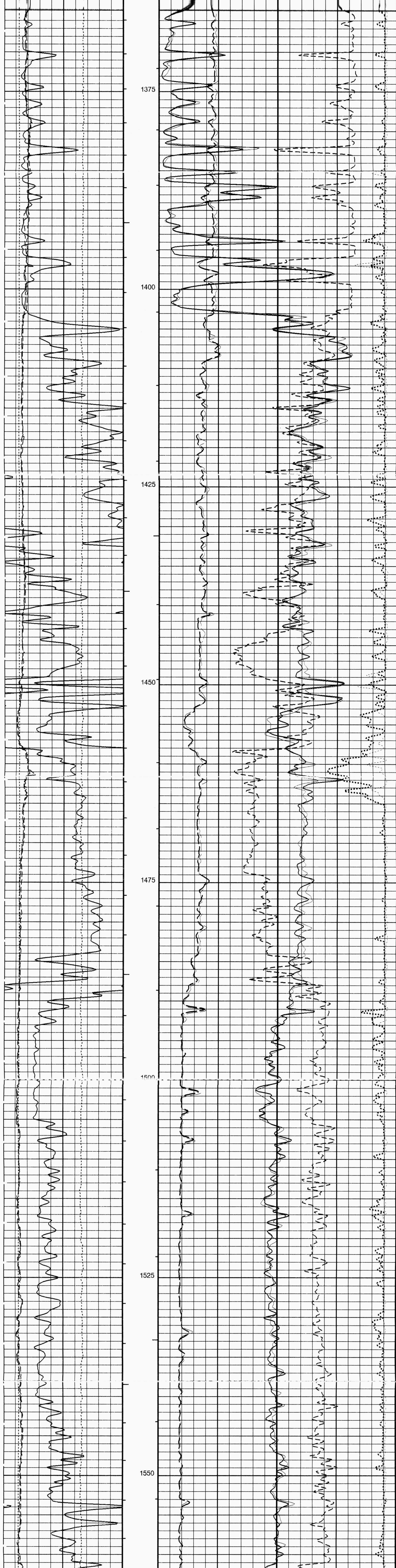
- Integrated Cement Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Hole Volume Minor Pip Every 0.1 M3

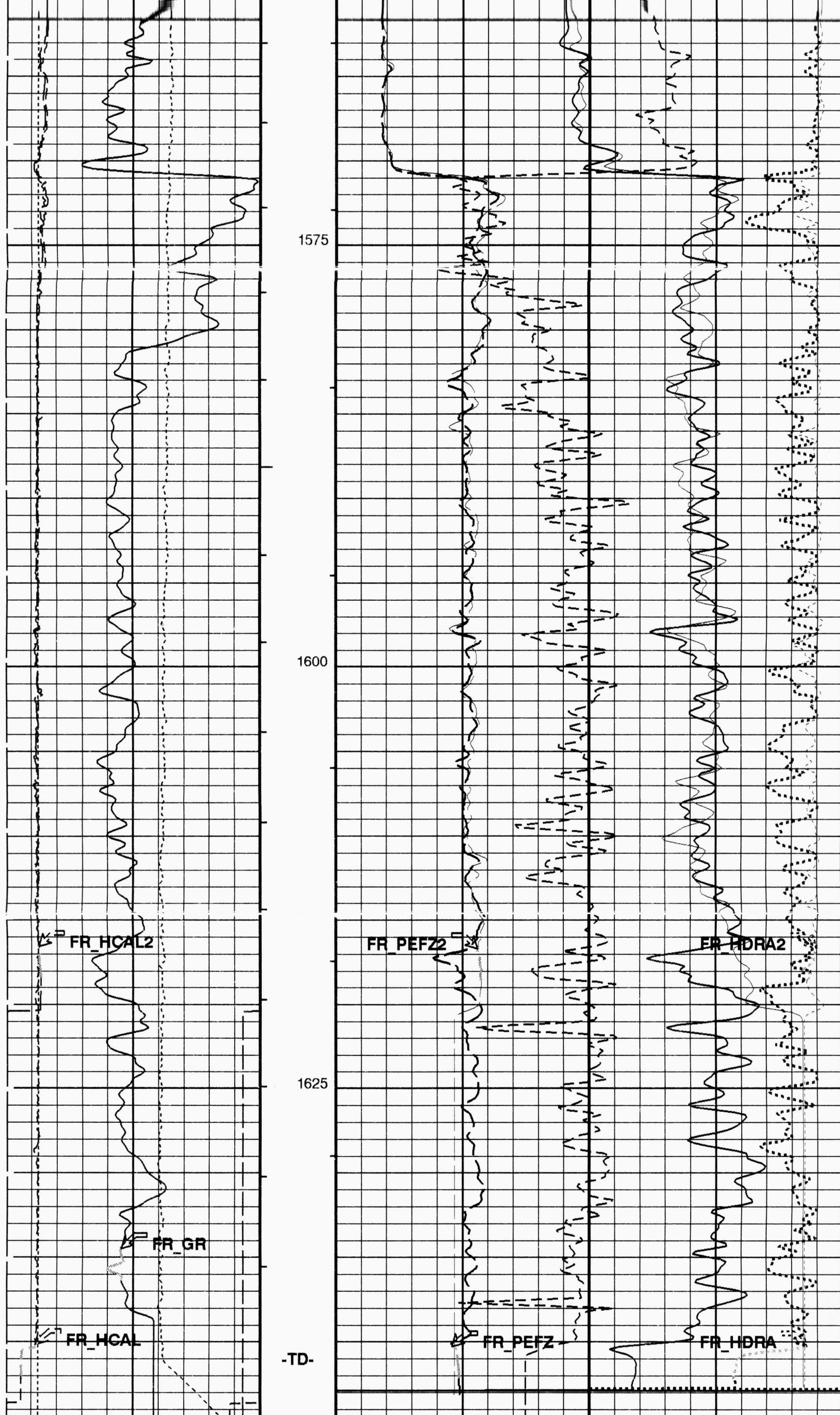
Time Mark Every 60 S		
Tension (TENS)		
25000 (N)		0
HILT Caliper (HCAL2)		
125	(MM)	375
Caliper (HCAL)		
125	(MM)	375
Gamma Ray (GR)		
0	(GAPI)	150
Bit Size (BS)		
125	(MM)	375

Std. Res. Formation Pe (PEFZ2)		Density Correction (HDRA2)	
0	(----	10 450	(K/M3) -50
Std. Res. Formation Pe (PEFZ)		Density Correction (HDRA)	
0	(----	10 450	(K/M3) -50
NPOR for DOLO (NPOR_DOL)			
0.45	(V/V)		-0.15
DPHI2 for DOLO (DPHI_DOL2)			
0.45	(V/V)		-0.15
DPHI for DOLO (DPHI_DOL)			
0.45	(V/V)		-0.15

MAIN PASS: *** PEX - DUAL DENSITY POROSITY - DOLOMITE 2850 KG/M3 ***







MAIN PASS: *** PEX - DUAL DENSITY POROSITY - DOLOMITE 2850 KG/M3 ***

Bit Size (BS)		DPHI for DOLO (DPHI_DOL)	
125	(MM)	0.45	(V/V)
Gamma Ray (GR)		DPHI2 for DOLO (DPHI_DOL2)	
0	(GAPI)	0.45	(V/V)
Caliper (HCAL)		NPOR for DOLO (NPOR_DOL)	
125	(MM)	0.45	(V/V)
HILT Caliper (HCAL2)		Std. Res. Formation Pe (PEFZ)	
125	(MM)	0	(----
Tension (TENS)		Density Correction (HDRA)	
25000	(N)	10	450
		Density Correction (HDRA2)	
		0	(----

PIP SUMMARY

- Integrated Cement Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000
FSAL	Formation Salinity	-50000
FSCO	Formation Salinity Correction Option	NO
GCLF	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	0.018227
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC	HRDD APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM	HRDD Processing Mode	HiRes
NSAR	HRDD Depth Sampling Rate	25.4
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175
SCCO	Standoff Correction Option	YES
CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	0.018227
HRLT-B: High Resolution Laterolog Array - B		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	0.018227
HILTH2-FTB: High resolution Integrated Logging Tool-DTS2		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000
FSCO	Formation Salinity Correction Option	NO
GCLF2	Germany Coal-like Formation Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	0.018227
HSCO	Hole Size Correction Option	YES
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MWCO	Mud Weight Correction Option	NO
NAAC2	HRDD2 APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPRM2	HRDD2 Processing Mode	HiRes
NSAR2	HRDD2 Depth Sampling Rate	25.4
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	3.175
SOCO	Standoff Correction Option	YES
DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0
TIMD	Along-hole depth of Tie-in Point	1198
TIVD	TVD of Tie-in Point	1198
HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN
FCD	Future Casing (Outer) Diameter	114.3
GDEV	Average Angular Deviation of Borehole from Normal	0
GGRD	Geothermal Gradient	0.018227
HVCS	Integrated Hole Volume Caliper Selection	HCAL
STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL
STKT	STI Stuck Threshold	1.524
TDD	Total Depth - Driller	1640.00
TDL	Total Depth - Logger	1641.00
System and Miscellaneous		
BS	Bit Size	156.000
BSAL	Borehole Salinity	-5000.00
CSIZ	Current Casing Size	177.800
CWEI	Casing Weight	34.20
DFD	Drilling Fluid Density	1315.00
DO	Depth Offset for Playback	0.2
DORL	Depth Offset for Repeat Analysis	0.0
MST	Mud Sample Temperature	15.40
PP	Playback Processing	RECOMPUTE
RMFS	Resistivity of Mud Filtrate Sample	0.0440
TD	Total Depth	1641

Format: PORO_DOL Vertical Scale: 1:240

Graphics File Created: 05-Mar-2008 01:01

OP System Version: 15C0-309

MCM

HILTH-FTB SRPC-3402-Q3_2007
CMRT-B 15C0-309
HILTH2-FTB SRPC-3402-Q3_2007
DTC-H 15C0-309

PPC1-B 15C0-309
HRLT-B 15C0-309
MLT-B 15C0-309
SPA-A 9936

Input DLIS Files

DEFAULT TLD_MCFL_CNL_CAL_ML_011LUP FN:16 PRODUCER 04-Mar-2008 22:57 1644.6 M 1041.1 M

Output DLIS Files

DEFAULT TLD_MCFL_CNL_CAL_ML_013PUP FN:20 PRODUCER 05-Mar-2008 01:01
BACKUP TLD_MCFL_CNL_CAL_ML_013PUP FN:21 PRODUCER 05-Mar-2008 01:02

DEFAULT	TLD MCFL CNL CAL ML 011LUP FN:16	PRODUCER	04-Mar-2008 22:57	1644.6 M	1041.1 M
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CONCLUSIONS

DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP	FN:20	PRODUCER	05-Mar-2008 01:01	1644.7 M	1124.1 M
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BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP	FN:21	PRODUCER	05-Mar-2008 01:02	1644.7 M	1124.1 M
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Hole Volume = 9.79 M3
Cement Volume = 5.25 M3 (assuming 114.30 MM casing O.D.)
Computed from 1640.9 M to 1198.0 M using data channel(s) HCAL

		MCM	
WORTH	2550-3400	550-5	150-300
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
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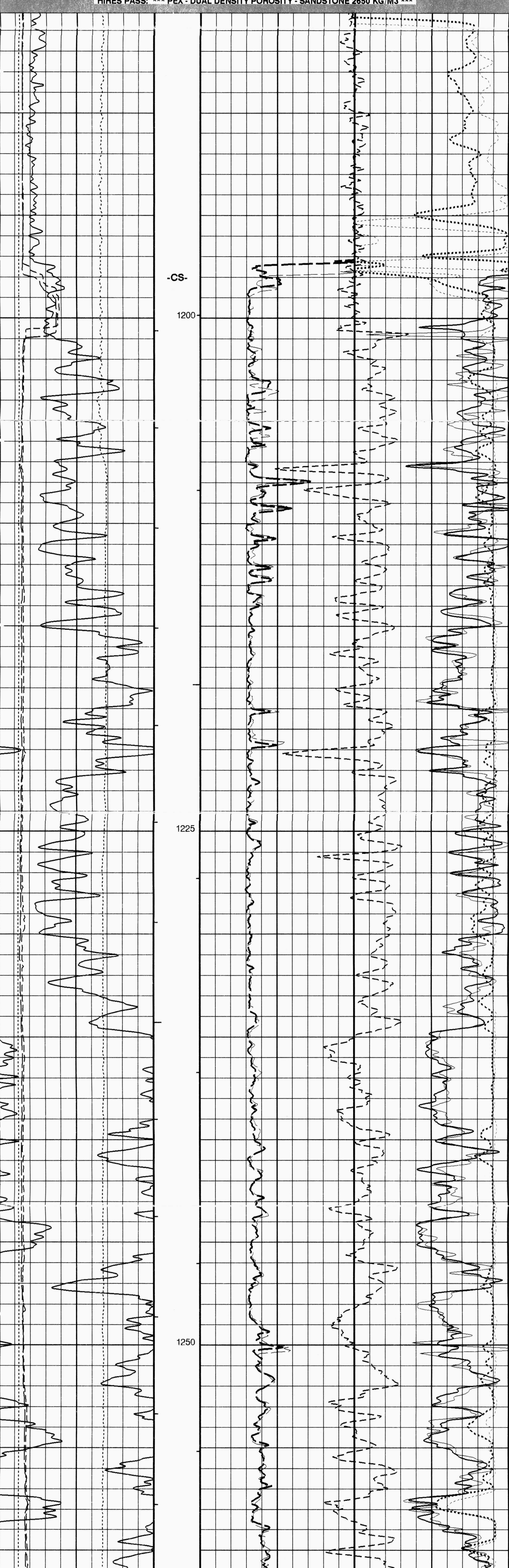
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CMRT-B	15C0-309	HRLT-B	15C0-309

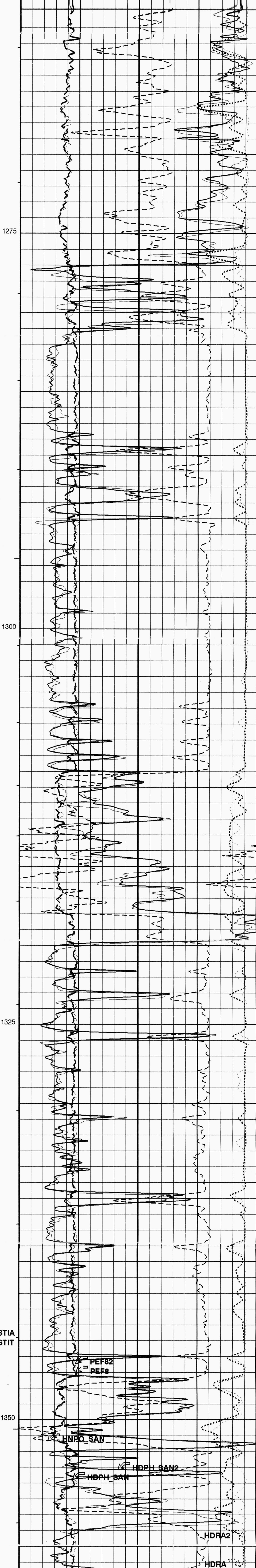
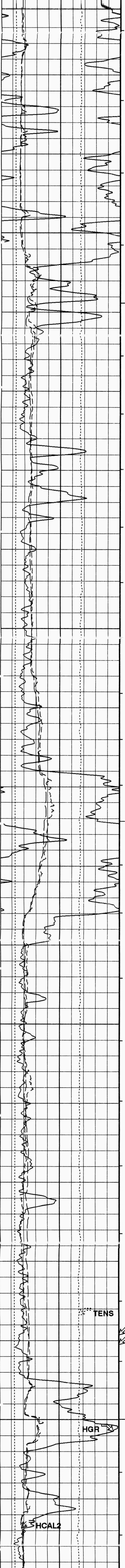
— Integrated Cement Volume Major Pip Every 1 M3

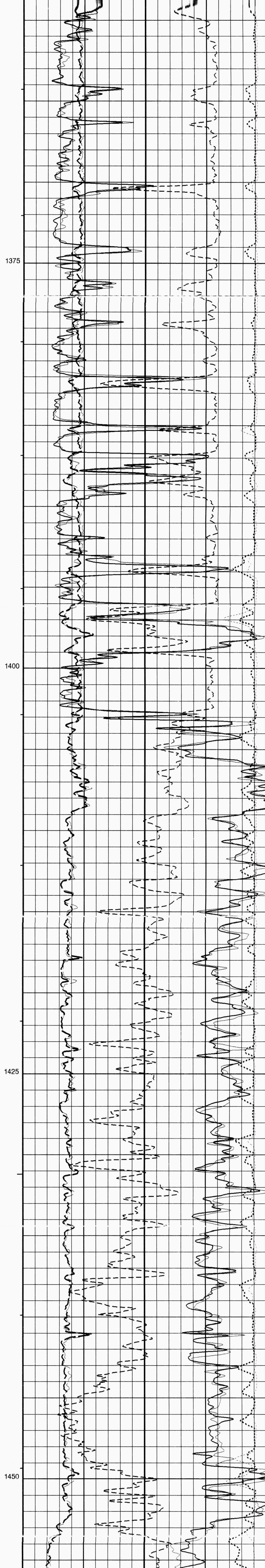
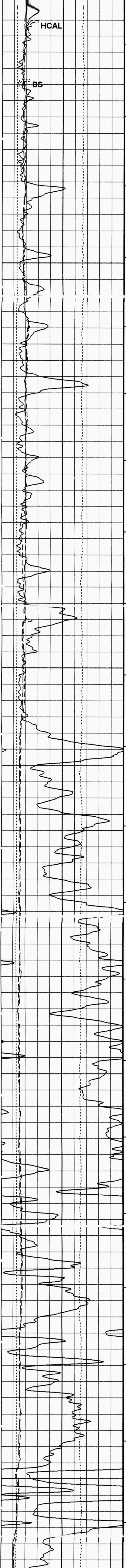
└ Integrated Cement Volume Minor Pip Every 0.1 M3
└ Integrated Hole Volume Major Pip Every 1 M3

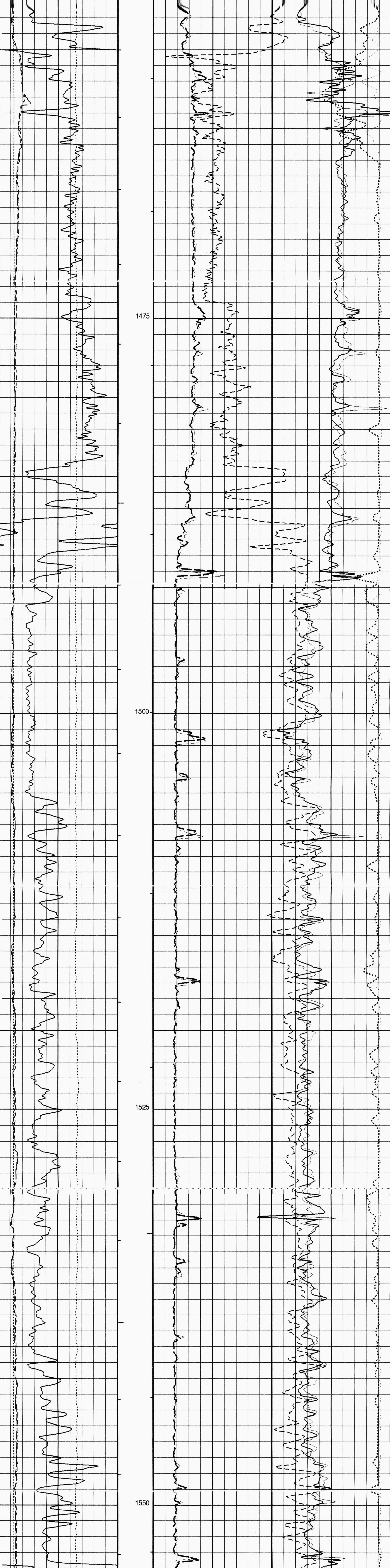
Time Mark Every 60 S **Integrated Hole Volume Minor Pip Every 0.1 M3**

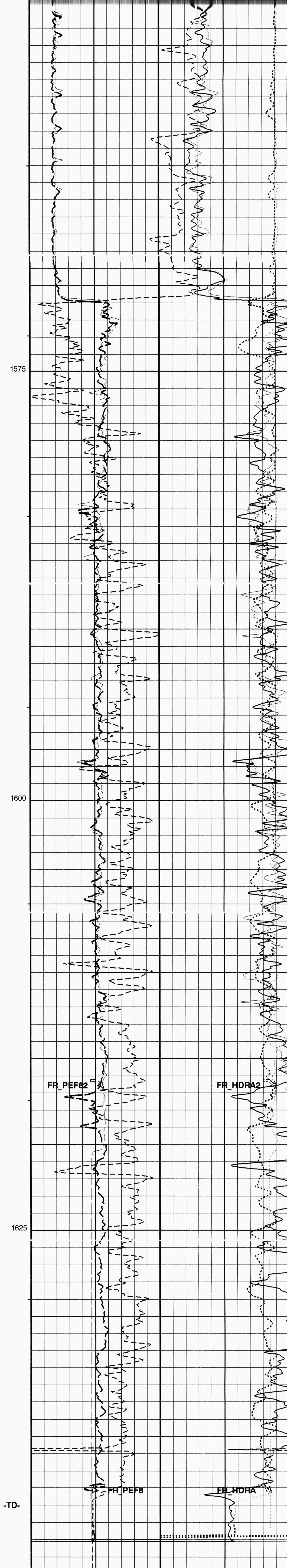
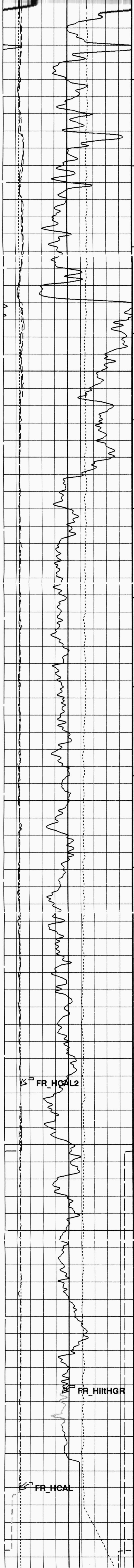
HIPES PASS: *** REY. DUAL DENSITY POROSITY SANDSTONE 2850 KG/M3 ***











HIRES PASS: *** PEX - DUAL DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

Bit Size (BS)	
125 (MM)	375
Caliper (HCAL)	
125 (MM)	375
HILT Caliper (HCAL2)	
125 (MM)	375
Gamma Ray (HGR)	
0 (GAPI)	150
Tension (TENS)	
25000 (N)	0

HDPH for SAND (HDPH_SAN)	
0.45 (V/V)	-0.15
HDPH2 for SAND (HDPH_SAN2)	
0.45 (V/V)	-0.15
HNPO for SAND (HNPO_SAN)	
0.45 (V/V)	-0.15
H. Res. Formation Pe (PEF8)	
0 (----)	10 450 (K/M3)
Density Correction (HDRA)	
0 (----)	-50
H. Res. Formation Pe (PEF82)	
0 (----)	10 450 (K/M3)
Density Correction (HDRA2)	
0 (----)	-50

PIP SUMMARY			
└ Integrated Cement Volume Major Pip Every 1 M3			
└ Integrated Cement Volume Minor Pip Every 0.1 M3			
└ Integrated Hole Volume Major Pip Every 1 M3			
└ Integrated Hole Volume Minor Pip Every 0.1 M3			
Time Mark Every 60 S			
Parameters			
DLIS Name	Description	Value	
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal-like Formation Option	NO	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	YES	
CMRT-B: Combinable Magnetic Resonance Tool - B			
BHS	Borehole Status	OPEN	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HILTH2-FTB: High resolution Integrated Logging Tool-DTS2			
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1000	K/M3
FSCO	Formation Salinity Correction Option	NO	
GCLF2	Germany Coal-like Formation Option	NO	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
NAAC2	HRDD2 APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM2	HRDD2 Processing Mode	HiRes	
NSAR2	HRDD2 Depth Sampling Rate	25.4	MM
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	YES	
DIR: Directional Survey Computation			
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	1198	M
TIVD	TVD of Tie-in Point	1198	M
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	114.3	MM
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	1640.00	M
TDL	Total Depth - Logger	1641.00	M
System and Miscellaneous			
BS	Bit Size	156.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	177.800	MM
CWEI	Casing Weight	34.20	KG/M
DFD	Drilling Fluid Density	1315.00	K/M3
DO	Depth Offset for Playback	0.2	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	15.40	DEGC
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.0440	OHMM
TD	Total Depth	1641	M
Format: HIRES_SAND		Vertical Scale: 1:120	
		Graphics File Created: 05-Mar-2008 01:02	
OP System Version: 15C0-309			
MCM			
HILTH-FTB	SRPC-3402-Q3_2007	PPC1-B	15C0-309
CMRT-B	15C0-309	HRLT-B	15C0-309
HILTH2-FTB	SRPC-3402-Q3_2007	MLT-B	15C0-309
DTC-H	15C0-309	SPA-A	9936
Input DLIS Files			
DEFAULT	TLD_MCFL_CNL_CAL_ML_011LUP	FN:16	PRODUCER 04-Mar-2008 22:57 1644.6 M 1041.1 M
Output DLIS Files			
DEFAULT	TLD_MCFL_CNL_CAL_ML_013PUP	FN:20	PRODUCER 05-Mar-2008 01:01
BACKUP	TLD_MCFL_CNL_CAL_ML_013PUP	FN:21	PRODUCER 05-Mar-2008 01:02

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary							
Before: 3-Mar-2008 14:18							
BS Window Ratio	0.7418	N/A	0.7463	N/A	N/A	N/A	CPS
BS Window Sum	28600	N/A	28620	N/A	N/A	N/A	
SS Window Ratio	0.4827	N/A	0.4782	N/A	N/A	N/A	
SS Window Sum	12770	N/A	12740	N/A	N/A	N/A	CPS
LS Window Ratio	0.3018	N/A	0.3019	N/A	N/A	N/A	CPS
LS Window Sum	1503	N/A	1500	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations							
Before: 3-Mar-2008 14:18							
BS PM High Voltage (Command)	1369	N/A	1350	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1426	N/A	1439	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1322	N/A	1335	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration							
Before: 3-Mar-2008 14:18							
BS Crystal Resolution	10.83	N/A	10.70	N/A	N/A	N/A	%
SS Crystal Resolution	8.828	N/A	9.424	N/A	N/A	N/A	%
LS Crystal Resolution	8.889	N/A	8.971	N/A	N/A	N/A	%
High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration							
Before: 3-Mar-2008 14:19							
Raw B0 Resistivity	3875	N/A	3864	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3823	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3823	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration							
Before: 3-Mar-2008 14:12							
HILT Caliper Zero Measurement	203.2	N/A	193.8	N/A	N/A	N/A	MM
HILT Caliper Plus Measurement	304.8	N/A	303.5	N/A	N/A	N/A	MM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration							
Before: 3-Mar-2008 14:39							
Gamma Ray Background	30.00	N/A	21.54	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	180.5	N/A	180.5	N/A	N/A	16.41	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement							
Master: 15-Jan-2008 15:00 Before: 3-Mar-2008 14:34							
CNFC Background	26.64	26.64	27.19	N/A	N/A	3.996	CPS
CFTC Background	26.42	26.42	27.76	N/A	N/A	3.963	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Ratio Measurement							
Master: 15-Jan-2008 15:00							
Thermal Near Corr. (Tank)	5800	6123	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2592	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.362	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration							
Before: 23-Feb-2008 14:50							
Z-Axis Acceleration	9.810	N/A	9.810	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results							
Master: 15-Feb-2008 16:22							
Rho Aluminum	2596	2597	--	--	--	--	K/M3
Rho Magnesium	1686	1688	--	--	--	--	K/M3
Pe Aluminum	2.570	2.564	--	--	--	--	
Pe Magnesium	2.650	2.613	--	--	--	--	
High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary							
Master: 15-Feb-2008 16:22							
BS Average Deviation	0	0.2990	--	--	--	--	%
BS Max Deviation	0	1.040	--	--	--	--	%
SS Average Deviation	0	0.4137	--	--	--	--	%
SS Max Deviation	0	0.9796	--	--	--	--	%
LS Average Deviation	0	0.5746	--	--	--	--	%
LS Max Deviation	0	1.170	--	--	--	--	%
Combinable Magnetic Resonance Tool - B Master Calibration - Date of Master Calibration: 16-Jan-2008							
Master: 4-Mar-2008 20:45							
Tool Temperature MCAL	27.00	17.02	--	--	--	--	DEGC
LOOP Measurement MCAL	2300	1863	--	--	--	--	
Hall Probe B0 MCAL	52.00	52.77	--	--	--	--	MTES
Cal. Fixture Amplitude MCAL	37.50	27.91	--	--	--	--	%
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M01							
Before: 4-Mar-2008 21:13							
HRLT M0-M1 Voltage Plus - 0	0	N/A	-321.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 1	0	N/A	-369.6	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 2	0	N/A	-339.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 3	0	N/A	-337.9	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 4	0	N/A	-324.2	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 5	0	N/A	-328.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 6	0	N/A	360.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 7	0	N/A	-322.7	N/A	N/A	9.681	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M12							
Before: 4-Mar-2008 21:13							
HRLT M1-M2 Voltage Plus - 0	0	N/A	1766	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 1	0	N/A	2023	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 2	0	N/A	1853	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 3	0	N/A	1849	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 4	0	N/A	1778	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 5	0	N/A	1801	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 6	0	N/A	-1979	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 7	0	N/A	1781	N/A	N/A	53.42	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M23							
Before: 4-Mar-2008 21:13							
HRLT M2-M3 Voltage Plus - 0	0	N/A	1750	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 1	0	N/A	2023	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1853	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1851	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 4	0	N/A	1773	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1795	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1966	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 7	0	N/A	1781	N/A	N/A	53.42	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT V34							
Before: 4-Mar-2008 21:13							
HRLT A3-A4 Voltage Plus - 0	0	N/A	68940	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 1	0	N/A	79390	N/A	N/A	2100	UV

HRLT A3-A4 Voltage Plus - 2	0	N/A	73020	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 3	0	N/A	73280	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 4	0	N/A	70190	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 5	0	N/A	71100	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 6	0	N/A	-76000	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT V45							
Before: 4-Mar-2008 21:13							
HRLT A4-A5 Voltage Plus - 0	0	N/A	68810	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 1	0	N/A	79180	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 2	0	N/A	72840	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 3	0	N/A	73110	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 4	0	N/A	70030	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 5	0	N/A	70950	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 6	0	N/A	-75800	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT V56							
Before: 4-Mar-2008 21:13							
HRLT A5-A6 Voltage Plus - 0	0	N/A	69210	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 1	0	N/A	79760	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 2	0	N/A	73350	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 3	0	N/A	73600	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 4	0	N/A	70450	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 5	0	N/A	71380	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 6	0	N/A	-76370	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT VTP							
Before: 4-Mar-2008 21:13							
HRLT Torpedo-M0 Voltage - 0	0	N/A	-68580	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-79420	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-73070	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-73360	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-70270	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-71210	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	75970	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT VBD							
Before: 4-Mar-2008 21:13							
HRLT Bridge#9-M0 Voltage - 0	0	N/A	-68590	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 1	0	N/A	-79400	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 2	0	N/A	-73040	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 3	0	N/A	-73340	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 4	0	N/A	-70260	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 5	0	N/A	-71190	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 6	0	N/A	75950	N/A	N/A	2100	UV
HRLT Bridge#9-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT ISO							
Before: 4-Mar-2008 21:13							
HRLT Source Current Plus - 0	0	N/A	286.2	N/A	N/A	8.520	UA
HRLT Source Current Plus - 1	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	N/A	N/A	8.520	UA
High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV							
Before: 4-Mar-2008 21:13							
HRLT Vertical Voltage PI - 0	0	N/A	-323.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-362.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-331.7	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-328.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-313.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-332.1	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	367.3	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 7	0	N/A	-322.7	N/A	N/A	9.681	UV
High resolution Integrated Logging Tool-DTS2 Wellsite Calibration - Stab Measurement Summary							
Before: 3-Mar-2008 13:15							
BS2 Window Ratio	0.7383	N/A	0.7405	N/A	N/A	N/A	
BS2 Window Sum	26790	N/A	26910	N/A	N/A	N/A	CPS
SS2 Window Ratio	0.4880	N/A	0.4824	N/A	N/A	N/A	
SS2 Window Sum	12320	N/A	12240	N/A	N/A	N/A	CPS
LS2 Window Ratio	0.2973	N/A	0.3019	N/A	N/A	N/A	
LS2 Window Sum	1478	N/A	1468	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool-DTS2 Wellsite Calibration - Photo-multiplier High Voltages Calibrations							
Before: 3-Mar-2008 13:15							
BS2 PM High Voltage (Command)	1403	N/A	1356	N/A	N/A	N/A	V
SS2 PM High Voltage (Command)	1315	N/A	1307	N/A	N/A	N/A	V
LS2 PM High Voltage (Command)	1334	N/A	1341	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS2 Wellsite Calibration - Crystal Quality Resolutions Calibration							
Before: 3-Mar-2008 13:15							
BS2 Crystal Resolution	11.04	N/A	10.82	N/A	N/A	N/A	%
SS2 Crystal Resolution	9.084	N/A	9.536	N/A	N/A	N/A	%
LS2 Crystal Resolution	8.323	N/A	8.362	N/A	N/A	N/A	%
High resolution Integrated Logging Tool-DTS2 Wellsite Calibration - MCFL2 Calibration							
Before: 3-Mar-2008 13:06							
Raw B0 Resistivity	3875	N/A	3837	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3813	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3820	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool-DTS2 Wellsite Calibration - HILT2 Caliper Calibration							
Before: 3-Mar-2008 13:05							
HILT2 Caliper Zero Measurement	203.2	N/A	178.7	N/A	N/A	N/A	MM
HILT2 Caliper Plus Measurement	304.8	N/A	283.9	N/A	N/A	N/A	MM
High resolution Integrated Logging Tool-DTS2 Master Calibration - Inversion results							
Master: 22-Feb-2008 12:27							
Rho Aluminum	2595	2801	--	--	--	--	K/M3
Rho Magnesium	1686	1686	--	--	--	--	K/M3
Pe Aluminum	2.570	2.561	--	--	--	--	
Pe Magnesium	2.650	2.617	--	--	--	--	
High resolution Integrated Logging Tool-DTS2 Master Calibration - Deviation Summary							
Master: 22-Feb-2008 12:27							
BS2 Average Deviation	0	0.2741	--	--	--	--	%
BS2 Max Deviation	0	1.036	--	--	--	--	%
SS2 Average Deviation	0	0.3569	--	--	--	--	%
SS2 Max Deviation	0	1.416	--	--	--	--	%
LS2 Average Deviation	0	0.5074	--	--	--	--	%
LS2 Max Deviation	0	1.283	--	--	--	--	%
MicroLog - B Wellsite Calibration - MLT Caliper Calibration							
Before: 3-Mar-2008 13:47							
MLT Caliper Small Ring	203.2	N/A	162.1	N/A	N/A	N/A	MM
MLT Caliper Large Ring	304.8	N/A	265.8	N/A	N/A	N/A	MM
MicroLog - B Wellsite Calibration - MLT Micro Inverse Calibration							
Before: 3-Mar-2008 13:45							
Micro Inverse Zero	0	N/A	0.0006272	N/A	N/A	0.2000	OHMM
Micro Inverse Plus	5.000	N/A	4.872	N/A	N/A	0.2000	OHMM
MicroLog - B Wellsite Calibration - MLT Micro Normal Calibration							
Before: 3-Mar-2008 13:45							
Micro Normal Zero	0	N/A	0.002347	N/A	N/A	0.2000	OHMM
Micro Normal Plus	6.720	N/A	6.560	N/A	N/A	0.2000	OHMM

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 19.4 DEGC.
Thermal Housing Size 85.750 MM.
NSR-F serial number 5196

The GLS-VJ2 source activity is acceptable.

High resolution Integrated Logging Tool-DTS / Equipment Identification			
Primary Equipment:			
HILT high-Resolution Mechanical Sonde	HRMS - H	4719	
HILT Rxo Gamma-ray Device	HRGD - H	4751	
HILT Micro Cylindrically Focused Log Dev	MCFL - H		
GR Logging Source	GLS - VJ	5041	
HILT High Res. Control Cartridge	HRCC - H	4722	
HILT Gamma-Ray Neutron Sonde-DTS	HGNS - H	4738	
HGNS Gamma-Ray Device	HGR -		
HGNS Neutron Detector with Alpha Source	HCNT - H		
Auxiliary Equipment:			
Neutron Calibration Tank	NCT - B		
Gamma Source Radioactive	GSR - U/Y	11	
HGNS Housing	HGNH -	3811	

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Stab Measurement Summary											
Phase	BS Window Ratio		Value	Phase	SS Window Ratio		Value	Phase	LS Window Ratio		Value
Before			0.7463	Before			0.4782	Before			0.3019
	0.7047 (Minimum)	0.7418 (Nominal)	0.7788 (Maximum)		0.4586 (Minimum)	0.4827 (Nominal)	0.5069 (Maximum)		0.2867 (Minimum)	0.3018 (Nominal)	0.3169 (Maximum)
Phase	BS Window Sum CPS		Value	Phase	SS Window Sum CPS		Value	Phase	LS Window Sum CPS		Value
Before			26620	Before			12740	Before			1500
	27170 (Minimum)	28600 (Nominal)	30030 (Maximum)		12130 (Minimum)	12770 (Nominal)	13410 (Maximum)		1428 (Minimum)	1503 (Nominal)	1578 (Maximum)
Before: 3-Mar-2008 14:18											

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Photo-multiplier High Voltages Calibrations											
Phase	BS PM High Voltage (Command) V		Value	Phase	SS PM High Voltage (Command) V		Value	Phase	LS PM High Voltage (Command) V		Value
Before			1350	Before			1439	Before			1335
	1269 (Minimum)	1369 (Nominal)	1469 (Maximum)		1326 (Minimum)	1426 (Nominal)	1526 (Maximum)		1222 (Minimum)	1322 (Nominal)	1422 (Maximum)
Before: 3-Mar-2008 14:18											

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			10.70	Before			9.424	Before			8.971
	9.831 (Minimum)	10.63 (Nominal)	11.63 (Maximum)		7.926 (Minimum)	8.626 (Nominal)	9.626 (Maximum)		7.889 (Minimum)	8.689 (Nominal)	9.689 (Maximum)
Before: 3-Mar-2008 14:18											

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
MCFL Calibration											
Phase	Raw B0 Resistivity OHMM		Value	Phase	Raw B1 Resistivity OHMM		Value	Phase	Raw B2 Resistivity OHMM		Value
Before			3864	Before			3823	Before			3823
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)
Before: 3-Mar-2008 14:19											

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
HILT Caliper Calibration											
Phase	HILT Caliper Zero Measurement MM		Value	Phase	HILT Caliper Plus Measurement MM		Value				
Before			193.8	Before			303.5				
	152.4 (Minimum)	203.2 (Nominal)	254.0 (Maximum)		228.6 (Minimum)	304.8 (Nominal)	381.0 (Maximum)				
Before: 3-Mar-2008 14:12											

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Detector Calibration											
Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray (Jig - Bkg) GAPI		Value	Phase	Gamma Ray (Calibrated) GAPI		Value
Before			21.54	Before			180.5	Before			162.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		164.1 (Minimum)	180.5 (Nominal)	196.9 (Maximum)		147.0 (Minimum)	162.0 (Nominal)	177.0 (Maximum)
Before: 3-Mar-2008 14:39											

High Resolution Laterolog Array - B Wellsite Calibration

HRLT V56						
Idx	Phase	HRLT A5-A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		69210	70000	82360	60900
1	Before		70000	70000	82360	60900
2	Before		73350	70000	82360	60900
3	Before		73600	70000	82360	60900
4	Before		70450	70000	82360	60900
5	Before		71360	70000	82360	60900
6	Before		-76370	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
(Minimum) (Nominal) (Maximum)						
Before: 4-Mar-2008 21:13						

High Resolution Laterolog Array - B Wellsite Calibration						
HRLT VTP						
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-68580	-70000	-60900	-82360
1	Before		-79420	-70000	-60900	-82360
2	Before		-73070	-70000	-60900	-82360
3	Before		-73360	-70000	-60900	-82360
4	Before		-70270	-70000	-60900	-82360
5	Before		-71210	-70000	-60900	-82360
6	Before		75970	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
(Minimum) (Nominal) (Maximum)						
Before: 4-Mar-2008 21:13						

High Resolution Laterolog Array - B Wellsite Calibration						
HRLT VBD						
Idx	Phase	HRLT Bridge#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-68590	-70000	-60900	-82360
1	Before		-79400	-70000	-60900	-82360
2	Before		-73040	-70000	-60900	-82360
3	Before		-73340	-70000	-60900	-82360
4	Before		-70260	-70000	-60900	-82360
5	Before		-71190	-70000	-60900	-82360
6	Before		75950	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
(Minimum) (Nominal) (Maximum)						
Before: 4-Mar-2008 21:13						

High Resolution Laterolog Array - B Wellsite Calibration						
HRLT ISO						
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		286.2	284.0	334.1	247.0
1	Before		281.1	281.1	330.7	244.4
2	Before		281.1	281.1	330.7	244.4
3	Before		281.1	281.1	330.7	244.4
4	Before		281.1	281.1	330.7	244.4
5	Before		281.1	281.1	330.7	244.4
6	Before		281.1	281.1	330.7	244.4
7	Before		281.1	281.1	330.7	244.4
(Minimum) (Nominal) (Maximum)						
Before: 4-Mar-2008 21:13						

High Resolution Laterolog Array - B Wellsite Calibration						
HRLT MV						
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-323.0	-322.7	-280.7	-379.7
1	Before		-362.2	-322.7	-280.7	-379.7
2	Before		-331.7	-322.7	-280.7	-379.7
3	Before		-328.9	-322.7	-280.7	-379.7
4	Before		-313.0	-322.7	-280.7	-379.7
5	Before		-332.1	-322.7	-280.7	-379.7
6	Before		367.3	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
(Minimum) (Nominal) (Maximum)						
Before: 4-Mar-2008 21:13						

High resolution Integrated Logging Tool-DTS2 / Equipment Identification

Primary Equipment:

HILT2 high-Resolution Mechanical Sonde
HILT2 Rxo Gamma-ray Device
HILT2 Micro Cylindrically Focused Log De
GR Logging Source
HILT2 High Res. Control Cartridge
HILT2 HTBC DTS mode
HTBC2 Communication Assembly DTS Mode

HRMS - H2 3983
HRGD - H2 4709
MCFL - H2
GLS - VJ2 1984
HRCC - H2 3990
HTBC - H2 3733
HMCA - H 3733

Auxiliary Equipment:

High resolution Integrated Logging Tool-DTS2 Wellsite Calibration

Stab Measurement Summary														
Phase	BS2 Window Ratio			Value	Phase	SS2 Window Ratio			Value	Phase	LS2 Window Ratio			Value
Before				0.7405	Before				0.4824	Before				0.3019
	0.7014 (Minimum)	0.7363 (Nominal)	0.7753 (Maximum)		0.4636 (Minimum)	0.4880 (Nominal)	0.5124 (Maximum)		0.2824 (Minimum)	0.2973 (Nominal)	0.3122 (Maximum)			
Phase	BS2 Window Sum CPS			Value	Phase	SS2 Window Sum CPS			Value	Phase	LS2 Window Sum CPS			Value
Before				26910	Before				12240	Before				1468
	25450 (Minimum)	26790 (Nominal)	28130 (Maximum)		11710 (Minimum)	12320 (Nominal)	12940 (Maximum)		1405 (Minimum)	1476 (Nominal)	1552 (Maximum)			
Before: 3-Mar-2008 13:15														

High resolution Integrated Logging Tool-DTS2 Wellsite Calibration

Photo-multiplier High Voltages Calibrations											
Phase	BS2 PM High Voltage (Command) V		Value	Phase	SS2 PM High Voltage (Command) V		Value	Phase	LS2 PM High Voltage (Command) V		Value
Before			1356	Before			1307	Before			1341
	1303 (Minimum)	1403 (Nominal)	1503 (Maximum)		1215 (Minimum)	1315 (Nominal)	1415 (Maximum)		1234 (Minimum)	1334 (Nominal)	1434 (Maximum)
Before: 3-Mar-2008 13:15											

High resolution Integrated Logging Tool-DTS2 Wellsite Calibration

Crystal Quality Resolutions Calibration											
Phase	BS2 Crystal Resolution %		Value	Phase	SS2 Crystal Resolution %		Value	Phase	LS2 Crystal Resolution %		Value
Before			10.82	Before			9.536	Before			8.362
	10.04 (Minimum)	11.04 (Nominal)	12.04 (Maximum)		8.084 (Minimum)	9.084 (Nominal)	10.08 (Maximum)		7.323 (Minimum)	8.323 (Nominal)	9.323 (Maximum)
Before: 3-Mar-2008 13:15											

High resolution Integrated Logging Tool-DTS2 Wellsite Calibration

MCFL2 Calibration											
Phase	Raw B0 Resistivity OHMM		Value	Phase	Raw B1 Resistivity OHMM		Value	Phase	Raw B2 Resistivity OHMM		Value
Before			3837	Before			3813	Before			3820
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)
Before: 3-Mar-2008 13:06											

High resolution Integrated Logging Tool-DTS2 Wellsite Calibration

HILT2 Caliper Calibration							
PhaseHILT2 Caliper Zero Measurement MM				PhaseHILT2 Caliper Plus Measurement MM			
		Value				Value	
Before		178.7		Before		283.9	
152.4 (Minimum)	203.2 (Nominal)	254.0 (Maximum)		228.6 (Minimum)	304.8 (Nominal)	381.0 (Maximum)	
Before: 3-Mar-2008 13:05							

High resolution Integrated Logging Tool-DTS2 Master Calibration

Inversion results							
Phase	Rho Aluminum K/M3		Value	Phase	Rho Magnesium K/M3		Value
Master			2601	Master			1686
	2566 (Minimum)	2596 (Nominal)	2606 (Maximum)		1676 (Minimum)	1686 (Nominal)	1696 (Maximum)
Phase	Pe Aluminum		Value	Phase	Pe Magnesium		Value
Master			2.561	Master			2.617
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)		2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)
Master: 22-Feb-2008 12:27							

High resolution Integrated Logging Tool-DTS2 Master Calibration

Deviation Summary											
Phase	BS2 Average Deviation %		Value	Phase	SS2 Average Deviation %		Value	Phase	LS2 Average Deviation %		Value
Master			0.2741	Master			0.3569	Master			0.5074
	-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)		-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)
Phase	BS2 Max Deviation %		Value	Phase	SS2 Max Deviation %		Value	Phase	LS2 Max Deviation %		Value
Master			1.036	Master			1.416	Master			1.283
	-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)		-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)		-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)
Master: 22-Feb-2008 12:27											

MicroLog - B / Equipment Identification

Primary Equipment:

MicroLog - B (sonde)

MLT - B 109

Auxiliary Equipment:

MicroLog - B Wellsite Calibration

MicroLog - B Wellsite Calibration							
MLT Micro Inverse Calibration							
Phase	Micro Inverse Zero OHMM		Value	Phase	Micro Inverse Plus OHMM		Value
Before			0.0006272	Before			4.872
	-2,000 (Minimum)	0 (Nominal)	2,000 (Maximum)		1,000 (Minimum)	5,000 (Nominal)	9,000 (Maximum)
Before Calibration 10-1-15							

Before		0.002347	Before		6.560
-2.000 (Minimum)	0 (Nominal)	2.000 (Maximum)	2.720 (Minimum)	6.720 (Nominal)	10.72 (Maximum)
Before: 3-Mar-2008 13:45					

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A 9397
DTCH - A 9397

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC 10485

Company: **PETRO-CANADA**

Schlumberger

Well: **PETRO-CANADA BLACKWATER KWIJKA M-59**

Field: **KWIJKA**

Province: **NORTHWEST TERRITORIES**

MD

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