

CEMENT VOLUME CALCULATED USING HCAI. CALIPER CHECKED IN CASING AT 8.92 IN

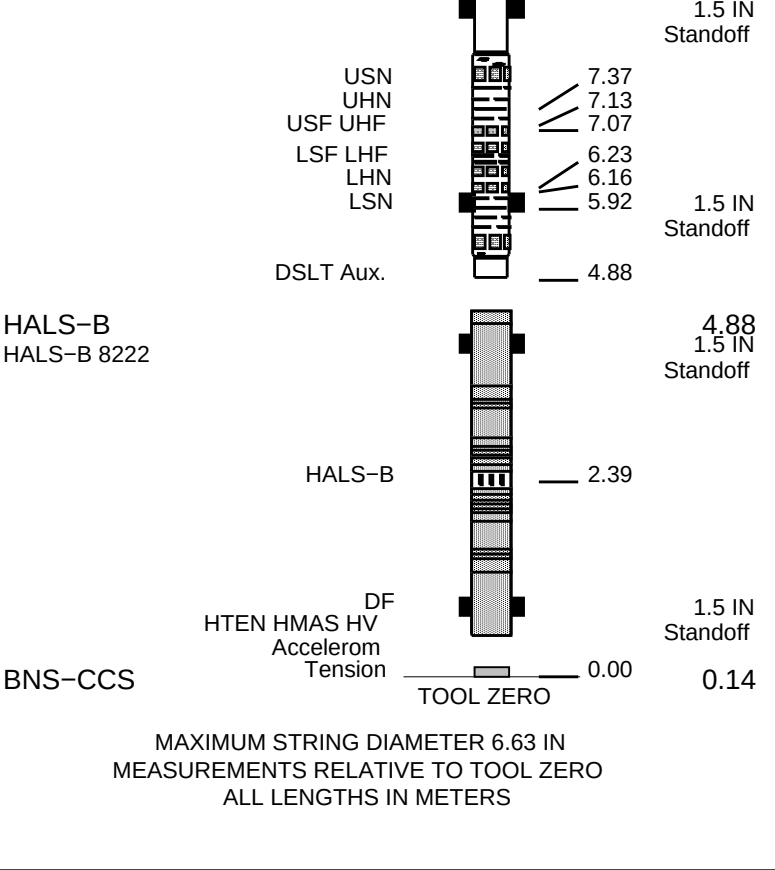
CEMENT VOLUME CALCULATED USING HOLESIZE CORRECTION CHECKED BY SURVEYOR		CUTtings AT SURFACE
MAXIMUM RECORDED TEMPERATURE FROM HEAD THERMOMETERS AND HGNS		
NEUTRON-POROSITY CORRECTED FOR HOLESIZE, BOREHOLE SALINITY		
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NO HIRES REQUESTED AT WELLSITE		
TWO ZONES ON REPEAT PASS DID NOT REPEAT BECAUSE TOOL ROTATED AT 1228-34M AND 1267-74M		
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RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT	
LCM-AA 2726	NCS-VB
GSR-U 2001	WITM (DTS)-A 60162
NCT-B	
CNB-AB	

DOWNHOLE EQUIPMENT	
BSP BRT-S	43.96
SP SPARC	25.87
LEH-QT LEH-QT 1188	19.57
DTC-H ECH-KC 10265 DTCH0-A 9190	18.68
HILTB-FTB HGNSD-B 856 HMCA HGNH 3915 NLS-KL NSR-F 5050 HACCZ 379 HCNT HGR HRCC-B 868 HRMS-B 788 HRGD-B 1806 GLS-J 5374 MCFL Device HILT Nucl. LS 28356 HILT Nucl. SS 14120 HILT Nucl. BS 26468 BOW-SPR NPV-N	17.77
CTEM HGNS HTEM HMCA TelStatus ToolStatu	18.40
HGNS Gamm	17.54
HGNS Neut HGNS Neut	15.76
HGNS sens	15.61
HRCC cart	14.90
MCFL HILT cali HRDD-LS HRDD-SS HRDD-BS	13.68
	12.03
	11.88
	11.76
DSLT-H DSLH-H 8222 ECH-KH 8272 SLS-W 1093	11.17
	1.5 IN Standoff

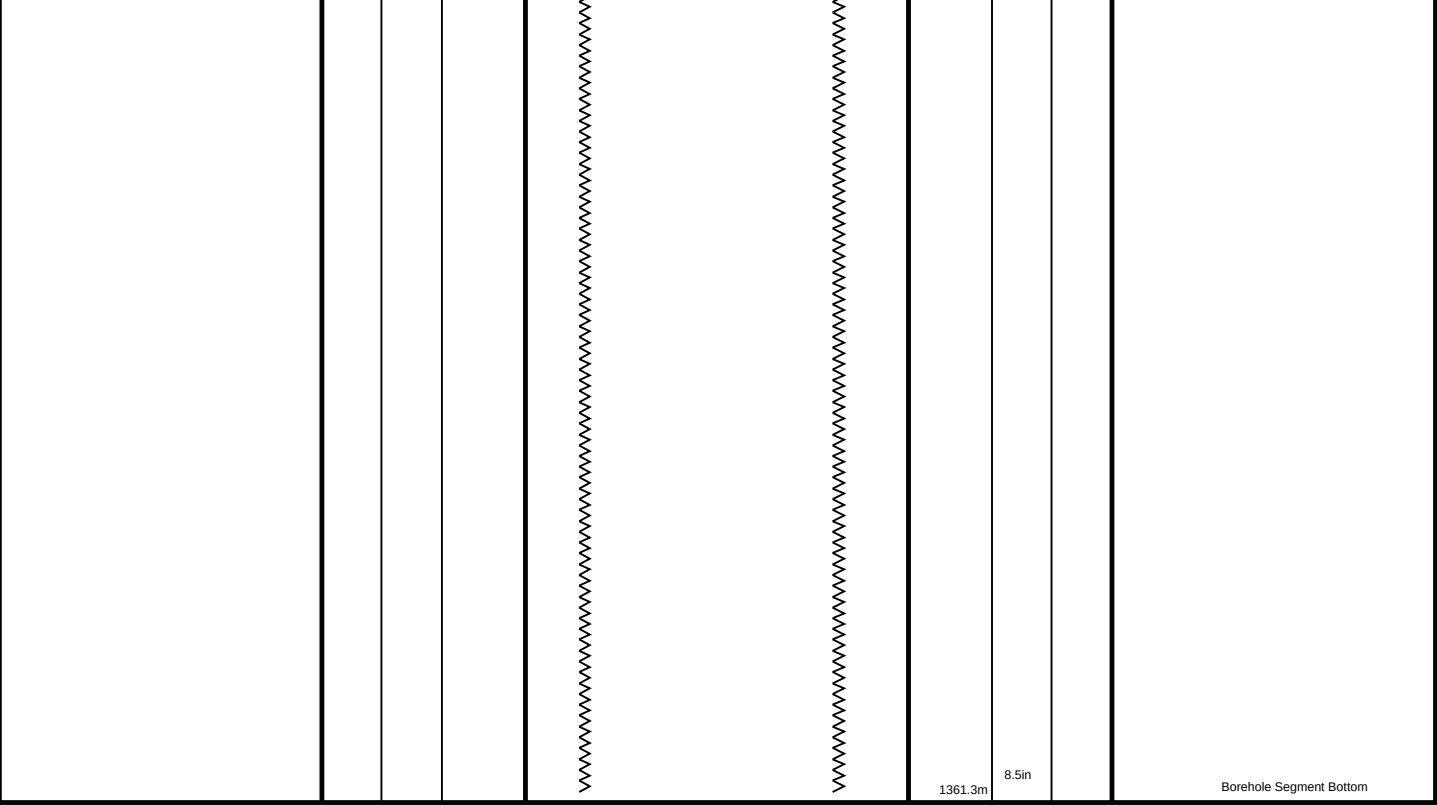


Client: Lakes Oil
Well: Wombat-4
Field: Wombat
State: Victoria
Country: Australia

Rig Name: Hunt #2
Reference Datum: Kelly Bushing
Elevation: 26.6 m

Drawing Date: 10/28/2009
API #:

Production String	(in)		(m)	Well Schematic	(m)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	9.625		Casing String
					299.0	9.625		Casing Shoe
					299.0	8.500		Borehole Segment



Company: Lakes Oil N.L.

Well: Wombat-4

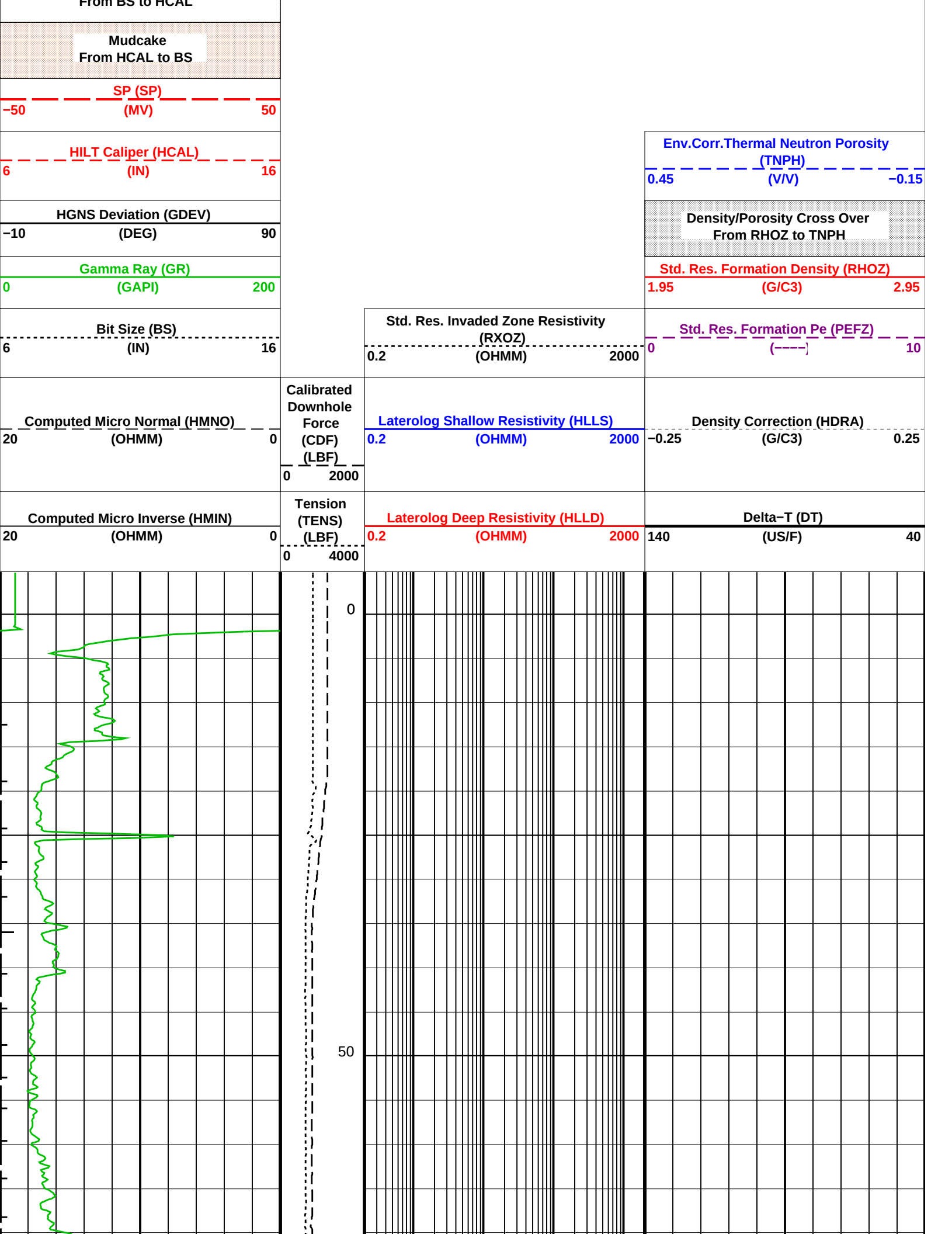
Output DLIS Files							
DEFAULT	HALS_SONIC_TLD_MCFL_012LUP	FN:18	PRODUCER	28-Oct-2009 07:30	1362.8 M	-4.9 M	
REALTIME	HALS_SONIC_TLD_MCFL_012LUP	FN:19	PRODUCER	28-Oct-2009 06:30	1362.8 M	-4.9 M	

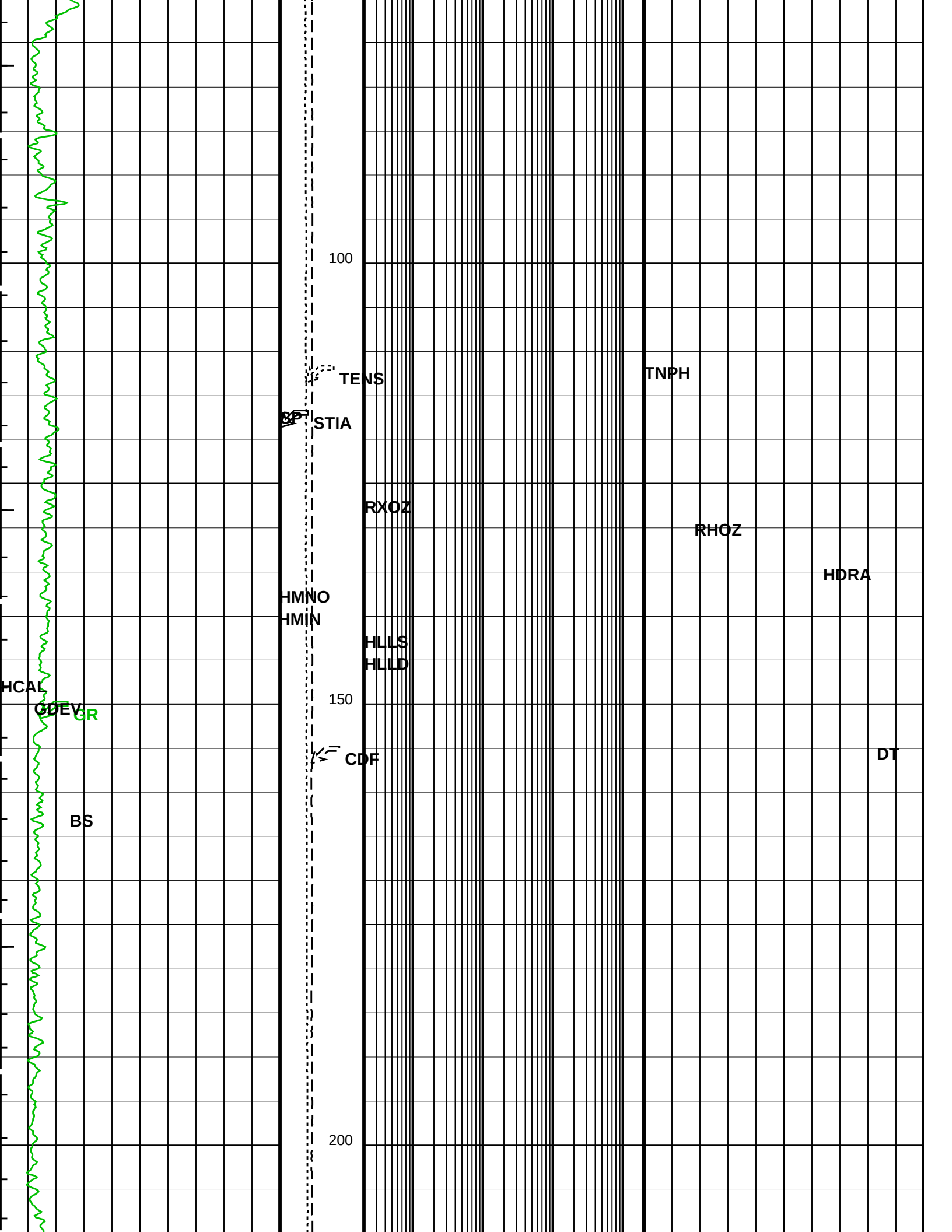
Integrated Hole/Cement Volume Summary							
Hole Volume = 41.25 M3							
Cement Volume = 14.87 M3 (assuming 7.00 IN casing O.D.)							
Computed from 1361.2 M to 299.0 M using data channel(s) HCAL							

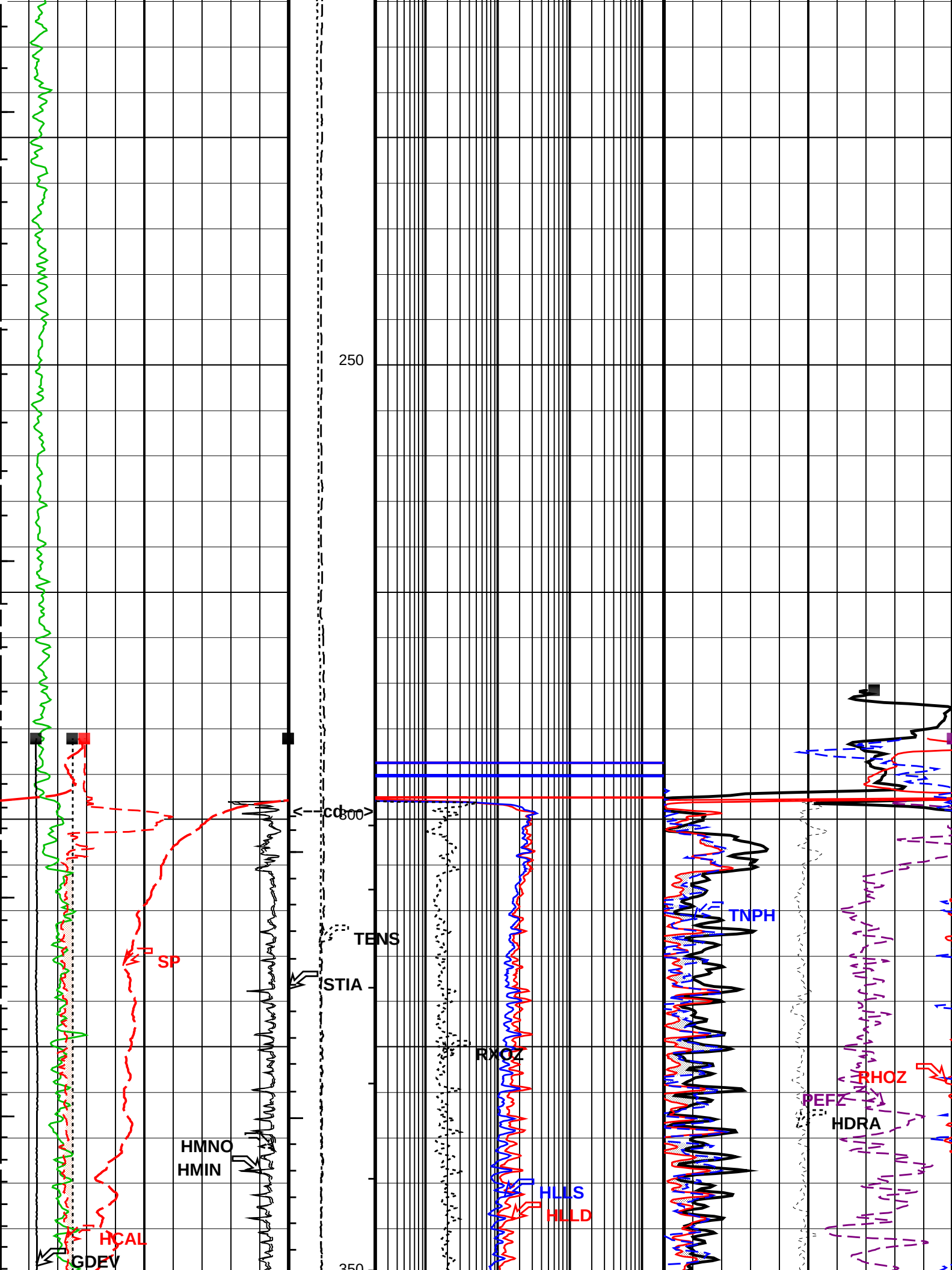
OP System Version: 17C0-154							
HALS-B	SRPC-3821-Q2_2009_OP17		DSLT-H	17C0-154			
HILTB-FTB	SRPC-3821-Q2_2009_OP17		DTC-H	17C0-154			
BSP	17C0-154						

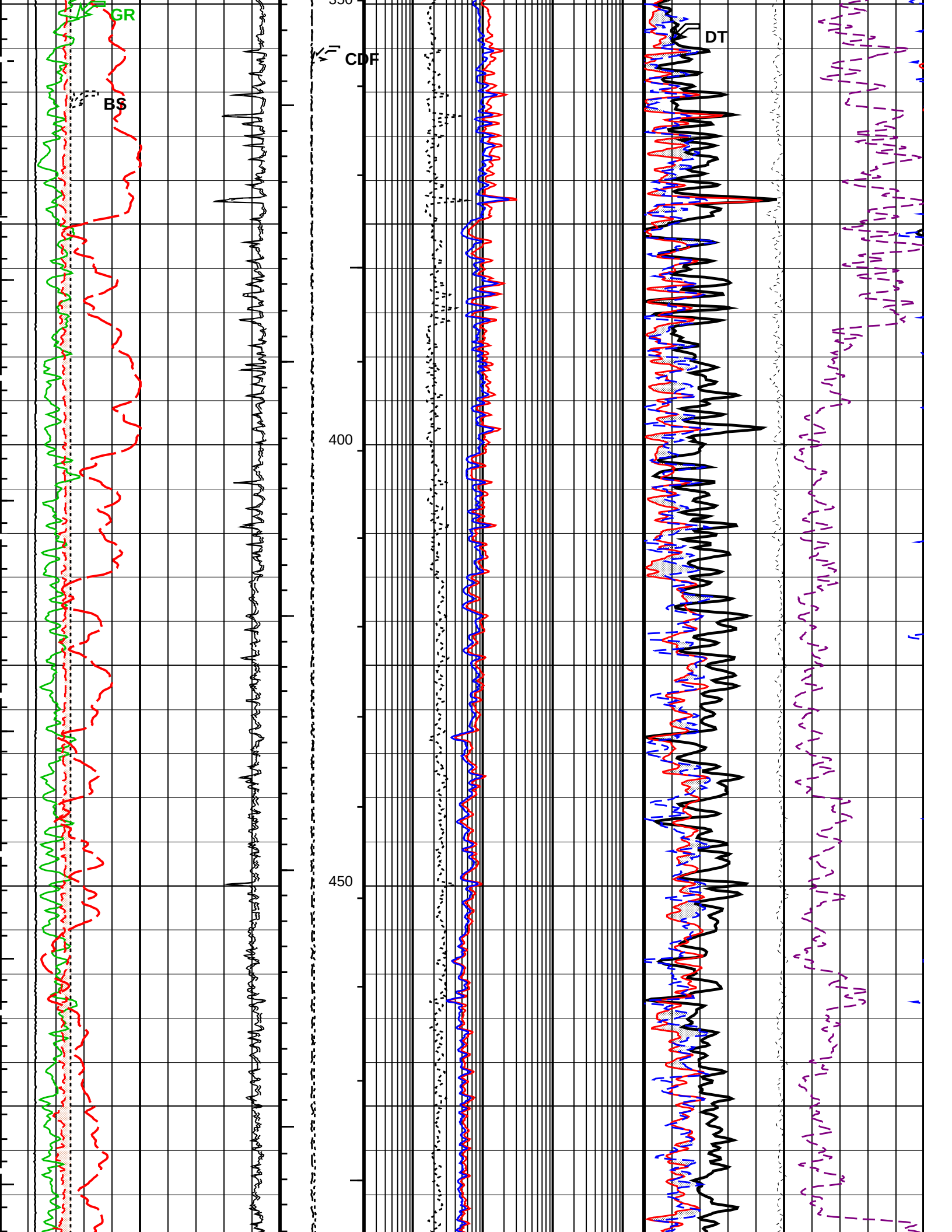
PIP SUMMARY							
└ Integrated Hole Volume Minor Pip Every 0.1 M3							
└ Integrated Hole Volume Major Pip Every 1 M3							
└ Integrated Cement Volume Minor Pip Every 0.1 M3							
└ Integrated Cement Volume Major Pip Every 1 M3							
└ Integrated Transit Time Minor Pip Every 1 MS							
└ Integrated Transit Time Major Pip Every 10 MS							
■ Time Mark Every 60 S							

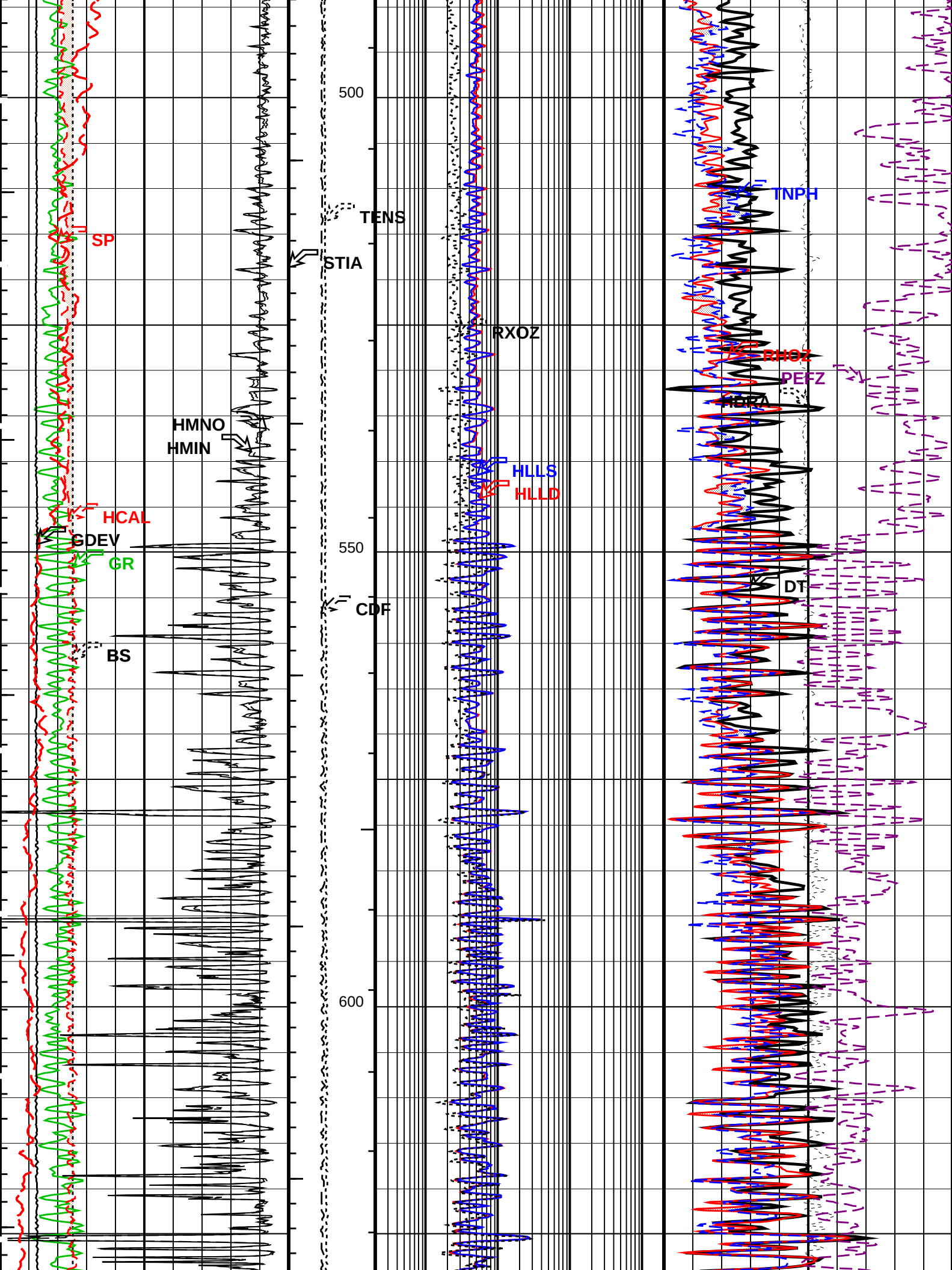
Washout From BS to HCAI	
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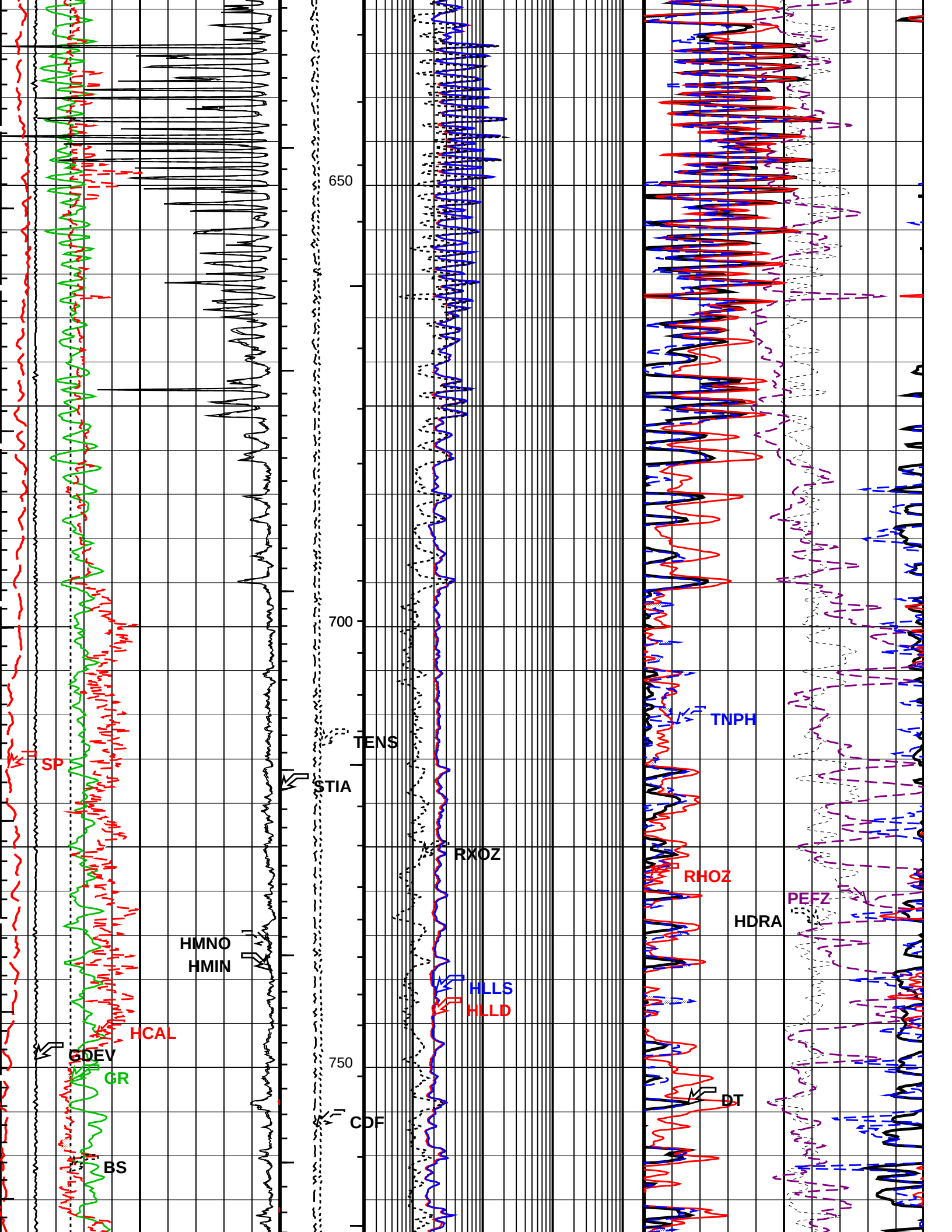


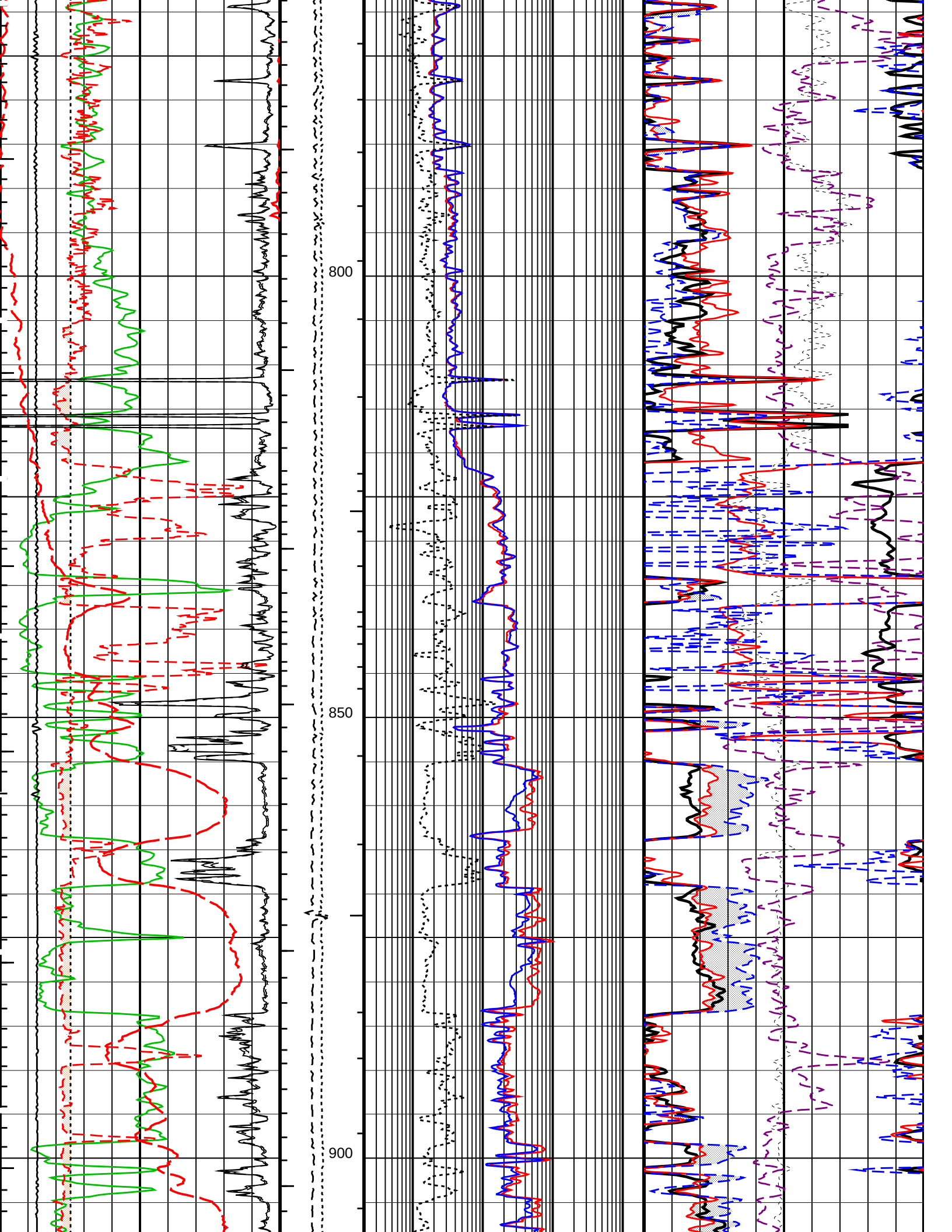


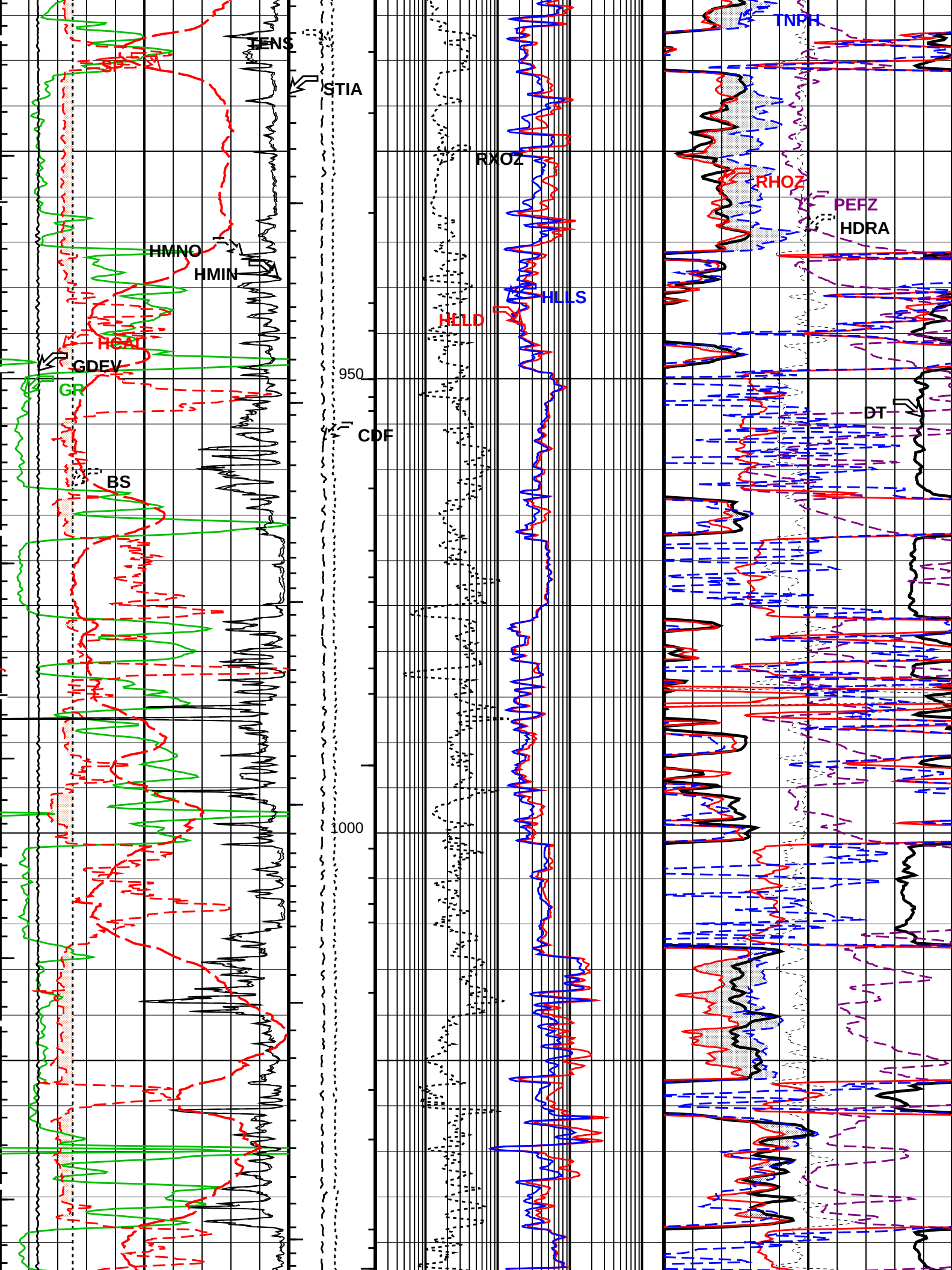


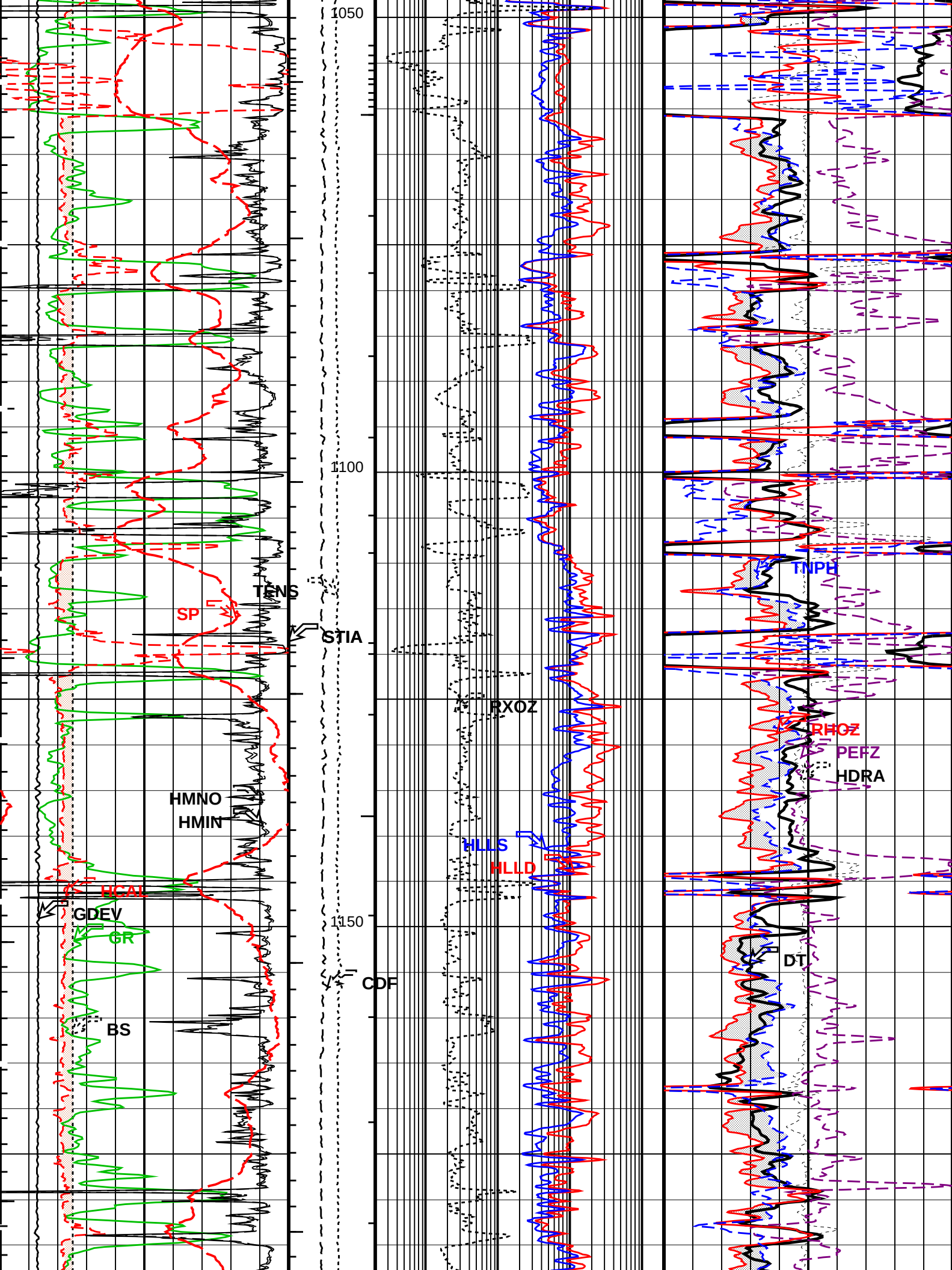


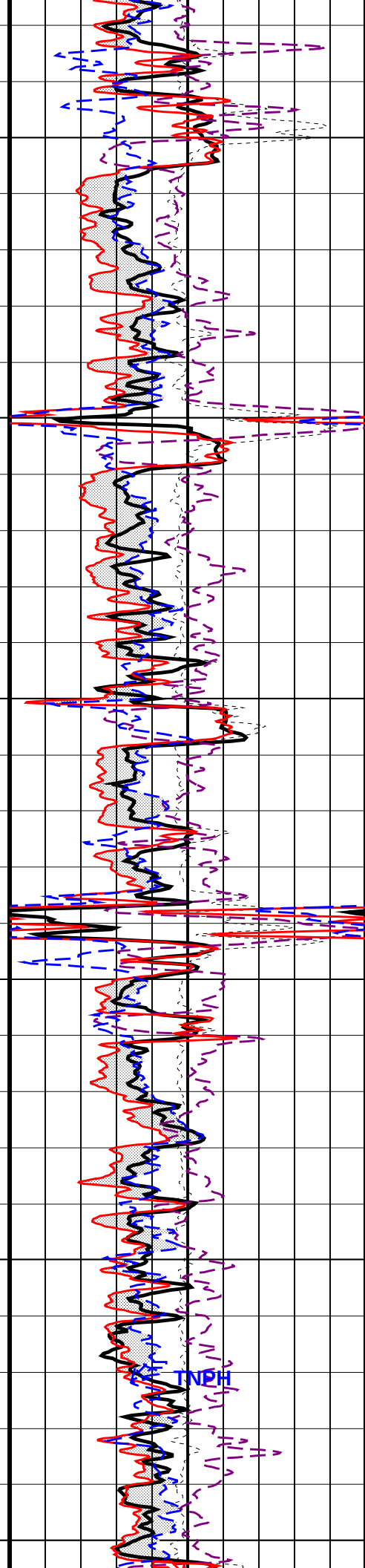
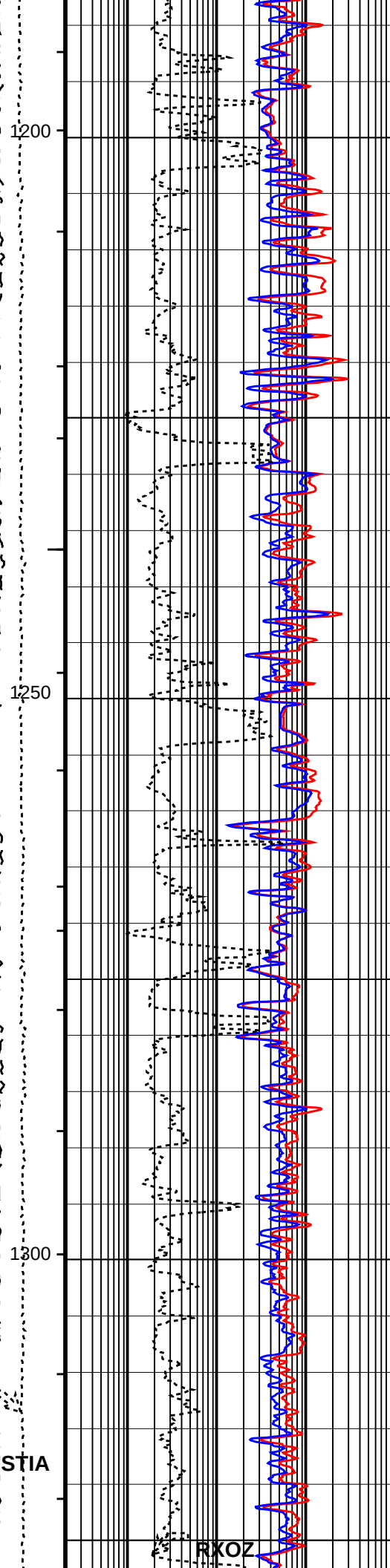
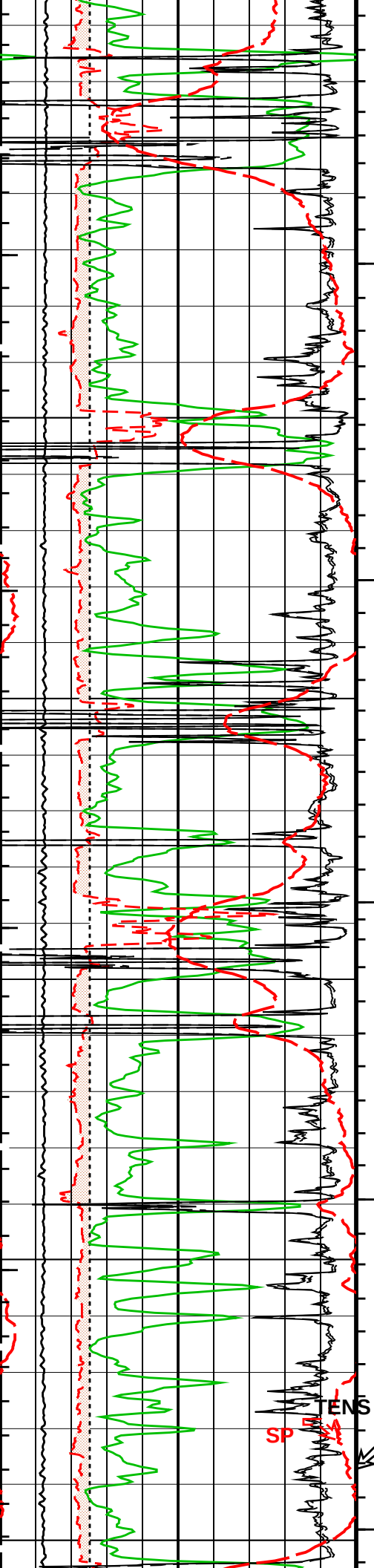


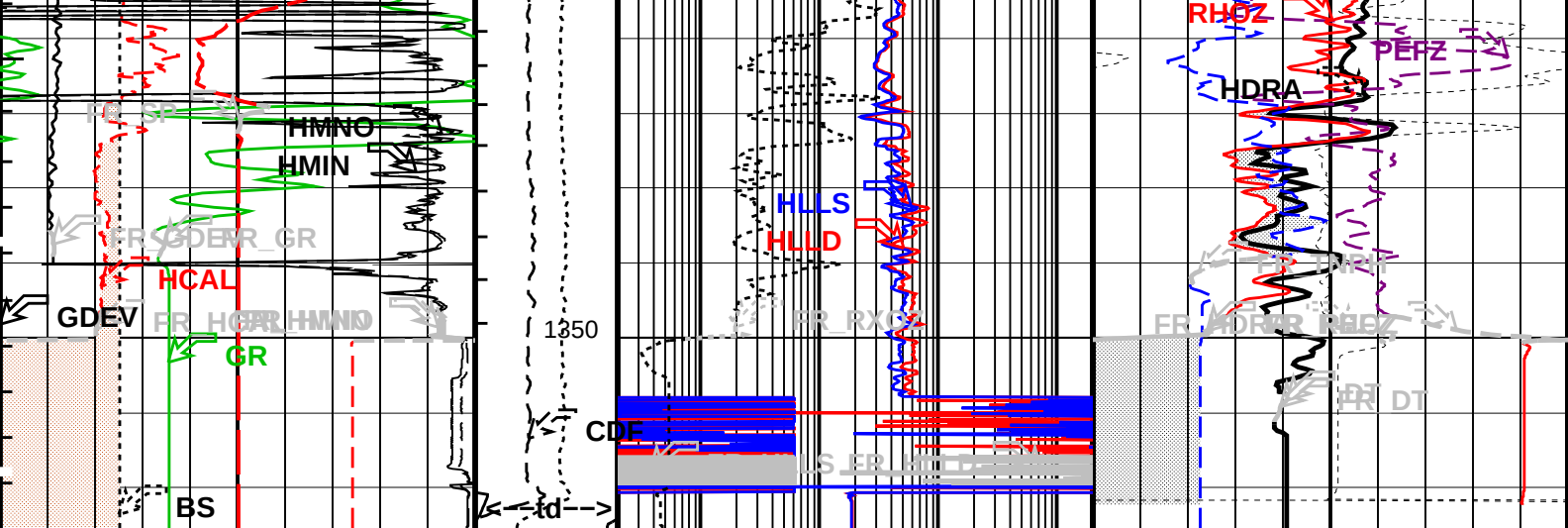












Computed Micro Inverse (HMIN) (OHMM)	0	Tension (TENS) (LBF)	Laterolog Deep Resistivity (HLLD) (OHMM)	140	Delta-T (DT) (US/F)
20	4000	0	0.2 2000		40
Computed Micro Normal (HMNO) (OHMM)	0	Calibrated Downhole Force (CDF) (LBF)	Laterolog Shallow Resistivity (HLLS) (OHMM)		Density Correction (HDRA) (G/C3)
20	2000	0	0.2 2000	-0.25	0.25
Bit Size (BS) (IN)	16		Std. Res. Invaded Zone Resistivity (RXOZ) (OHMM)		Std. Res. Formation Pe (PEFZ) (----
6			0.2 2000	0	10
Gamma Ray (GR) (GAPI)	200				Std. Res. Formation Density (RHOZ) (G/C3)
0				1.95	2.95
HGNS Deviation (GDEV) (DEG)	90				Density/Porosity Cross Over From RHOZ to TNPH
-10					Env.Corr.Thermal Neutron Porosity (TNPH) (V/V)
HILT Caliper (HCAL) (IN)	16			0.45	-0.15
6					
SP (SP) (MV)	50				
-50					
Mudcake From HCAL to BS					
Washout From BS to HCAL					

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
- └ Integrated Transit Time Minor Pip Every 1 MS
- └ Integrated Transit Time Major Pip Every 10 MS
- └ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
HALS-B: HILT Azimuthal Laterolog Sonde B		
A2EX	HALS Type of Image	Conductivities
AGOS	HALS-B A2 Extended (Groningen effect)	OFF
ARIP_LTS	HALS-GPIT OFFSET	-94 IN
ARIP_SHOULDER	HALS Long Tool String Correction	OFF
	HALS Shoulder Correction	OFF

BHCC	HALS Borehole Correction	ON	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	53.8	DEGC
DHOP	Diameter & Eccentering used in HALS Borehole Corrections	Caliper_Eccentered	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRCC	HALS Groningen Correction	OFF	
GRSE	Generalized Mud Resistivity Selection	HALS_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HLAC	HALS-B Loop A Coefficient	LOW	
HLMO	HALS Logging Mode	STAN	
HMSO	HALS Mechanical Standoff	1.5	IN
HRUN	HALS-B Record Uncalibrated Channels	NO	
IMOS	HALS Image Orientation	OFF	
ISSBAR	Barite Mud Switch	NOBARITE	
LIMP	HALS Left Image Processing	DeepRaw	
LOP1	HALS-B Mode 1 Loop Mode	OFF	
LOP2	HALS-B Mode 2 Loop Mode	OFF	
LOP3	HALS-B Mode 3 Loop Mode	OFF	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
RIMP	HALS Right Image Processing	ShallowRaw	
RTCOMP	HALS Rt Computation	Hals_LowRes	
RTRE	HALS Resistivity Threshold	100000	OHMM
SHT	Surface Hole Temperature	15	DEGC
SPCO	HALS-B Special Power Connection	ON	
TCOR	HALS TLC Correction	OFF	
UNSPK	HALS Despiking Filter Option	OFF	
UNSPK_THOLD	HALS Despiking Filter Threshold (in %)	20	%
UNSPK_WINDOW	HALS Despiking Filter Window (inches)	6	IN
DSLT-H: Digitizing Sonic Logging Tool			
	DSLT Firing Mode	BHC	
	Telemetry Mode	DSLC_FTB	
AGC	Automatic Gain Control Status	ON	
AMSG	Auxiliary Minimum Sliding Gate	140	US
CBAF	CBL Adjustment Factor	1	
CBLG	CBL Gate Width	45	US
CDTS	C-Delta-T Shale	100	US/F
DDEL	Digitizing Delay	90	US
DETE	Delta-T Detection	E2	
DFAD	Digital First Arrival Detection Switch	DSP	
DIVL	DSLT Depth Sampling Interval	20	
DRCS	DSLT DLIS Recording Size	100	
DSIN	Digitizing Sample Interval	10	
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	189	US/F
DTFS	DSLC Telemetry Frame Size	236	
DTM	Delta-T Matrix	56	US/F
DWCO	Digitizing Word Count	100	
GAI	Manual Gain	40	
HRSP	High Resolution Spacing	5.118	IN
ITTS	Integrated Transit Time Source	DT	
LTUT	Lower to Upper Transmitter Spacing Ratio	1	
MAHTR	Manual High Threshold Reference	120	
MGAI	Maximum Gain	60	
MIGA	Minimum Gain	1	
MNHTR	Minimum High Threshold Reference	100	
MODE	Sonic Firing Mode	BHC	
NMSG	Near Minimum Sliding Gate	150	US
NMXG	Near Maximum Sliding Gate	750	US
NUMP	Number of Detection Passes	2	
RATE	Firing Rate	R15	
RDFA	Reset DFAD	OFF	
SDTH	Switch Down Threshold	20000	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate Status	ON	
SGAI	Selectable Acquisition Gain	AUTO	
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGCW	Sliding Gate Closing Width	25	US
SGDT	Sliding Gate Delta-T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SUTH	Switch Up Threshold	1000	
VDLG	VDL Manual Gain	40	
WAGC	Waveform AGC Allow/Disallow	OFF	
WGAI	Waveform Manual Gain	20	
WGDT	Waveform Gain Delta-T	240	US/F
WGIN	Waveform Gain Interval	2540	US
WMOD	Waveform Firing Mode	FULL	
HILTB-FTB: High resolution Integrated Logging Tool-DTS			
BHFL	Borehole Fluid Type	WATER	
BHEL_TLD	HIL T Nuclear Mud Base	WATER	

BHS	HILT Nuclear Mud Base	WATER	
BHT	Borehole Status	OPEN	
BSCO	Bottom Hole Temperature (used in calculations)	53.8	DEGC
CCCO	Borehole Salinity Correction Option	YES	
DHC	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Hole Correction	BS	
EXSICL	Density Porosity Processing Mode	HIRS	
EXSISH	External Shale Indicator Clean Value	20	
FD	External Shale Indicator Shale Value	150	
FEXP	Fluid Density	1	G/C3
FNUM	Form Factor Exponent	2	
FPHI	Form Factor Numerator	1	
FSAL	Form Factor Porosity Source	DPHZ	
FSCO	Formation Salinity	-50000	PPM
GCLF	Formation Salinity Correction Option	NO	
GCSE	Germany Coal-like Formation Option	NO	
GDEV	Generalized Caliper Selection	HCAL	
GGRD	Average Angular Deviation of Borehole from Normal	0	DEG
GRSE	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Mud Resistivity Selection	HALS_RESIST	
HACPP	Generalized Temperature Selection	LINEAR_ESTIMATE	
HART	Accelerometer PROM Presence	PRESENT_DOWNHOLE	
HDCOD	Accelerometer Reference Temperature	20	DEGC
HDSAD	HILT Density Coal detection	2	G/C3
HILT_GAS_DENSITY	HILT Density Salt detection	2.1	G/C3
HILT_GAS_OPTION	HILT Gas Downhole Density	0	G/C3
HNCOD	HILT Gas Computation Option	OFF	
HNSAD	HILT Neutron Coal detection	45	PU
HPHIECUT	HILT Neutron Salt detection	5	PU
HSCO	HILT effective Porosity Cutoff	5	PU
HSIS	Hole Size Correction Option	YES	
HSSO	HILT Shale Indicator Selection	GR	
HSWCUT	HRDD Nuclear Source Strength Option	NORMAL	
ISSBAR	HILT Water Saturation from AITH cutoff	50	%
MATR	Barite Mud Switch	NOBARITE	
MCCO	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCOR	Mud Cake Correction Option	NO	
MDEN	Mud Correction	NATU	
MHC0	Matrix Density	2.71	G/C3
MHC1	MCFL B0 Contrast Correction Coefficient	2.2e-005	OHMS
MHCC	MCFL B1 Contrast Correction Coefficient	3.2e-005	OHMS
MPOF	MCFL High Contrast Correction Switch	NO	
MWCO	MCFL Processing Operation Mode	ON	
NAAC	Mud Weight Correction Option	NO	
NMT	HRDD APS Activation Correction	OFF	
NPRM	HILT Nuclear Mud Type	NOBARITE	
NSAR	HRDD Processing Mode	HiRes	
PEA_FILTER	HRDD Depth Sampling Rate	1	IN
PEFC_FILTER	PEA Filter	NO_FILTER	
PHIMAX	PEFC Filter	NO_FILTER	
PTCO	HILT max porosity	35	PU
SDAT	Pressure/Temperature Correction Option	NO	
SEXP_HILT	Standoff Data Source	SOCN	
SHT	HILT Saturation Exponent	2	
SOCN	Surface Hole Temperature	15	DEGC
SOCO	Standoff Distance	0.125	IN
	Standoff Correction Option	YES	
BSP: Bridle SP			
SPNV	SP Next Value	0	MV
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	53.8	DEGC
FCD	Future Casing (Outer) Diameter	7	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	HALS_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	15	DEGC
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth - Driller	1366.00	M
TDL	Total Depth - Logger	1361.30	M
System and Miscellaneous			
ALTDPCNAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	18000.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	36.00	LB/F
DFD	Drilling Fluid Density	1.26	G/C3
DORL	Depth Offset for Repeat Analysis	0.0	M

FLEV	Fluid Level	0.00	M
MST	Mud Sample Temperature	16.80	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	0.2400	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1361.3	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: StdRes_HALS_PEX_SONIC_500 Vertical Scale: 1:500 Graphics File Created: 28-Oct-2009 07:30

OP System Version: 17C0-154

HALS-B	SRPC-3821-Q2_2009_OP17	DSLT-H	17C0-154
HILTB-FTB	SRPC-3821-Q2_2009_OP17	DTC-H	17C0-154
BSP	17C0-154		

Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_012LUP	FN:18	PRODUCER	28-Oct-2009 07:30
REALTIME	HALS_SONIC_TLD_MCFL_012LUP	FN:19	PRODUCER	28-Oct-2009 06:30

Schlumberger

Main Log 1:500 Scale Standard Resolution

MAXIS Field Log

Schlumberger

Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Total current mode 1							
Before: 28-Oct-2009 6:08							
Itot 1 Gain	1.000	N/A	0.996	N/A	N/A	0.026	MA
Itot 1 Phase	0.000	N/A	0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux current mode 1							
Before: 28-Oct-2009 6:08							
Iaux 1 Gain	1.000	N/A	0.991	N/A	N/A	0.035	MA
Iaux 1 Phase	0.000	N/A	0.138	N/A	N/A	1.900	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux current mode 2							
Before: 28-Oct-2009 6:08							
Iaux 2 Gain	1.000	N/A	0.980	N/A	N/A	0.048	MA
Iaux 2 Phase	0.000	N/A	-0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0 current mode 3A							
Before: 28-Oct-2009 6:08							
I0 3A Gain	1.000	N/A	0.984	N/A	N/A	0.036	UA
I0 3A Phase	0.000	N/A	-0.000	N/A	N/A	0.100	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0 current mode 3B							
Before: 28–Oct–2009 6:08							
I0 3B Gain	1.000	N/A	0.975	N/A	N/A	0.036	UA
I0 3B Phase	0.000	N/A	–0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Torpedo Voltage gains							
Before: 28–Oct–2009 6:08							
Zvt 1 Gain	1.000	N/A	0.991	N/A	N/A	0.025	MV
Zvt 2 Gain	1.000	N/A	0.990	N/A	N/A	0.045	MV
Zvt 3 Gain	1.000	N/A	0.992	N/A	N/A	0.045	MV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Torpedo Voltage Phases							
Before: 28–Oct–2009 6:08							
Zvt 1 Phase	0.000	N/A	0.127	N/A	N/A	2.300	DEG
Zvt 2 Phase	0.000	N/A	–0.172	N/A	N/A	0.800	DEG
Zvt 3 Phase	0.000	N/A	–0.113	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Upper Bridle Voltage mode 1							
Before: 28–Oct–2009 6:08							
Zvb 1 Gain	1.000	N/A	0.991	N/A	N/A	0.025	MV
Zvb 1 Phase	0.000	N/A	0.141	N/A	N/A	2.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–M2 Voltage gains							
Before: 28–Oct–2009 6:08							
ZVM 1 Gain	1.000	N/A	0.995	N/A	N/A	0.039	UV
ZVM 2 Gain	1.000	N/A	0.991	N/A	N/A	0.019	UV
ZVM 3 Gain	1.000	N/A	0.990	N/A	N/A	0.019	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–M2 Voltage Phases							
Before: 28–Oct–2009 6:08							
ZVM 1 Phase	0.000	N/A	0.325	N/A	N/A	3.800	DEG
ZVM 2 Phase	0.000	N/A	1.376	N/A	N/A	1.300	DEG
ZVM 3 Phase	0.000	N/A	0.799	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–A0* Voltage gains							
Before: 28–Oct–2009 6:08							
ZVH 1 Gain	1.000	N/A	0.999	N/A	N/A	0.013	UV
ZVH 2 Gain	1.000	N/A	0.998	N/A	N/A	0.046	UV
ZVH 3 Gain	1.000	N/A	0.995	N/A	N/A	0.046	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–A0* Voltage Phases							
Before: 28–Oct–2009 6:08							
ZVH 1 Phase	0.000	N/A	0.432	N/A	N/A	3.800	DEG
ZVH 2 Phase	0.000	N/A	1.975	N/A	N/A	1.300	DEG
ZVH 3 Phase	0.000	N/A	1.199	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage gains							
Before: 28–Oct–2009 6:08							
ZVA 1 Gain	1.000	N/A	1.075	N/A	N/A	0.032	MV
ZVA 2 Gain	1.000	N/A	1.066	N/A	N/A	0.045	MV
ZVA 3 Gain	1.000	N/A	1.003	N/A	N/A	0.045	MV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage Phases							
Before: 28–Oct–2009 6:08							
ZVA 1 Phase	0.000	N/A	1.084	N/A	N/A	2.300	DEG
ZVA 2 Phase	0.000	N/A	–0.330	N/A	N/A	0.800	DEG
ZVA 3 Phase	0.000	N/A	0.308	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0*’ Diff. Voltage mode 1							
Before: 28–Oct–2009 6:08							
ZVD 1 Gain	1.000	N/A	0.992	N/A	N/A	0.047	UV
ZVD 1 Phase	0.000	N/A	0.243	N/A	N/A	3.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0*’ Diff. Voltage mode 2							
Before: 28–Oct–2009 6:08							
ZVD 2 Gain	1.000	N/A	0.982	N/A	N/A	0.056	UV
ZVD 2 Phase	0.000	N/A	1.114	N/A	N/A	1.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0*’ Diff. Voltage mode 3A							
Before: 28–Oct–2009 6:08							
ZVD 3A Gain	1.000	N/A	0.984	N/A	N/A	0.056	UV
ZVD 3A Phase	0.000	N/A	0.544	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0*’ Diff. Voltage mode 3B							
Before: 28–Oct–2009 6:08							
ZVD 3B Gain	1.000	N/A	1.000	N/A	N/A	0.054	UV
ZVD 3B Phase	0.000	N/A	–0.105	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 1							
Before: 28–Oct–2009 6:08							
ZVV 1 Gain	1.000	N/A	0.995	N/A	N/A	0.022	UV
ZVV 1 Phase	0.000	N/A	0.975	N/A	N/A	3.800	DEG

ZVV 1 Phase	0.000	N/A	0.374	N/A	N/A	2.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 2							
Before: 28-Oct-2009 6:08							
ZVV 2 Gain	1.000	N/A	0.987	N/A	N/A	0.036	UV
ZVV 2 Phase	0.000	N/A	2.397	N/A	N/A	1.300	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 1							
Before: 28-Oct-2009 6:08							
Az 1 Gain – 0	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 1	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 2	1.000	N/A	0.992	N/A	N/A	0.047	UV
Az 1 Gain – 3	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 4	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 5	1.000	N/A	0.994	N/A	N/A	0.047	UV
Az 1 Gain – 6	1.000	N/A	0.993	N/A	N/A	0.047	UV
Az 1 Gain – 7	1.000	N/A	0.990	N/A	N/A	0.047	UV
Az 1 Gain – 8	1.000	N/A	0.994	N/A	N/A	0.047	UV
Az 1 Gain – 9	1.000	N/A	0.994	N/A	N/A	0.047	UV
Az 1 Gain – 10	1.000	N/A	0.992	N/A	N/A	0.047	UV
Az 1 Gain – 11	1.000	N/A	0.998	N/A	N/A	0.047	UV
AZ 1 Phase – 0	0.000	N/A	0.001	N/A	N/A	3.800	DEG
AZ 1 Phase – 1	0.000	N/A	0.079	N/A	N/A	3.800	DEG
AZ 1 Phase – 2	0.000	N/A	0.222	N/A	N/A	3.800	DEG
AZ 1 Phase – 3	0.000	N/A	0.126	N/A	N/A	3.800	DEG
AZ 1 Phase – 4	0.000	N/A	0.049	N/A	N/A	3.800	DEG
AZ 1 Phase – 5	0.000	N/A	0.193	N/A	N/A	3.800	DEG
AZ 1 Phase – 6	0.000	N/A	0.216	N/A	N/A	3.800	DEG
AZ 1 Phase – 7	0.000	N/A	0.011	N/A	N/A	3.800	DEG
AZ 1 Phase – 8	0.000	N/A	0.212	N/A	N/A	3.800	DEG
AZ 1 Phase – 9	0.000	N/A	0.128	N/A	N/A	3.800	DEG
AZ 1 Phase – 10	0.000	N/A	0.153	N/A	N/A	3.800	DEG
AZ 1 Phase – 11	0.000	N/A	0.085	N/A	N/A	3.800	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 2							
Before: 28-Oct-2009 6:08							
Az 2 Gain – 0	1.000	N/A	0.985	N/A	N/A	0.056	UV
Az 2 Gain – 1	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 2 Gain – 2	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 3	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 2 Gain – 4	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 2 Gain – 5	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 6	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain – 7	1.000	N/A	0.979	N/A	N/A	0.056	UV
Az 2 Gain – 8	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 9	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 10	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 11	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 2 Phase – 0	0.000	N/A	1.013	N/A	N/A	1.300	DEG
Az 2 Phase – 1	0.000	N/A	1.141	N/A	N/A	1.300	DEG
Az 2 Phase – 2	0.000	N/A	1.107	N/A	N/A	1.300	DEG
Az 2 Phase – 3	0.000	N/A	1.120	N/A	N/A	1.300	DEG
Az 2 Phase – 4	0.000	N/A	1.141	N/A	N/A	1.300	DEG
Az 2 Phase – 5	0.000	N/A	1.088	N/A	N/A	1.300	DEG
Az 2 Phase – 6	0.000	N/A	1.134	N/A	N/A	1.300	DEG
Az 2 Phase – 7	0.000	N/A	1.053	N/A	N/A	1.300	DEG
Az 2 Phase – 8	0.000	N/A	1.131	N/A	N/A	1.300	DEG
Az 2 Phase – 9	0.000	N/A	1.078	N/A	N/A	1.300	DEG
Az 2 Phase – 10	0.000	N/A	1.106	N/A	N/A	1.300	DEG
Az 2 Phase – 11	0.000	N/A	1.071	N/A	N/A	1.300	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3A							
Before: 28-Oct-2009 6:08							
Az 3A Gain – 0	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 1	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 2	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 3A Gain – 3	1.000	N/A	0.991	N/A	N/A	0.056	UV
Az 3A Gain – 4	1.000	N/A	0.991	N/A	N/A	0.056	UV
Az 3A Gain – 5	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 3A Gain – 6	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 3A Gain – 7	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 3A Gain – 8	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 3A Gain – 9	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain – 10	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 3A Gain – 11	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Phase – 0	0.000	N/A	0.456	N/A	N/A	1.000	DEG
Az 3A Phase – 1	0.000	N/A	0.512	N/A	N/A	1.000	DEG
Az 3A Phase – 2	0.000	N/A	0.517	N/A	N/A	1.000	DEG
Az 3A Phase – 3	0.000	N/A	0.522	N/A	N/A	1.000	DEG
Az 3A Phase – 4	0.000	N/A	0.527	N/A	N/A	1.000	DEG
Az 3A Phase – 5	0.000	N/A	0.519	N/A	N/A	1.000	DEG
Az 3A Phase – 6	0.000	N/A	0.557	N/A	N/A	1.000	DEG

Az 3A Phase – 7	0.000	N/A	0.485	N/A	N/A	1.000	DEG
Az 3A Phase – 8	0.000	N/A	0.568	N/A	N/A	1.000	DEG
Az 3A Phase – 9	0.000	N/A	0.519	N/A	N/A	1.000	DEG
Az 3A Phase – 10	0.000	N/A	0.541	N/A	N/A	1.000	DEG
Az 3A Phase – 11	0.000	N/A	0.500	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3B							
Before: 28-Oct-2009 6:08							
Az 3B Gain – 0	1.000	N/A	0.999	N/A	N/A	0.054	UV
Az 3B Gain – 1	1.000	N/A	1.006	N/A	N/A	0.054	UV
Az 3B Gain – 2	1.000	N/A	1.002	N/A	N/A	0.054	UV
Az 3B Gain – 3	1.000	N/A	1.011	N/A	N/A	0.054	UV
Az 3B Gain – 4	1.000	N/A	1.009	N/A	N/A	0.054	UV
Az 3B Gain – 5	1.000	N/A	0.999	N/A	N/A	0.054	UV
Az 3B Gain – 6	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Gain – 7	1.000	N/A	0.996	N/A	N/A	0.054	UV
Az 3B Gain – 8	1.000	N/A	1.004	N/A	N/A	0.054	UV
Az 3B Gain – 9	1.000	N/A	1.002	N/A	N/A	0.054	UV
Az 3B Gain – 10	1.000	N/A	1.000	N/A	N/A	0.054	UV
Az 3B Gain – 11	1.000	N/A	1.004	N/A	N/A	0.054	UV
Az 3B Phase – 0	0.000	N/A	–0.356	N/A	N/A	1.000	DEG
Az 3B Phase – 1	0.000	N/A	0.190	N/A	N/A	1.000	DEG
Az 3B Phase – 2	0.000	N/A	0.137	N/A	N/A	1.000	DEG
Az 3B Phase – 3	0.000	N/A	–0.106	N/A	N/A	1.000	DEG
Az 3B Phase – 4	0.000	N/A	–0.061	N/A	N/A	1.000	DEG
Az 3B Phase – 5	0.000	N/A	–0.232	N/A	N/A	1.000	DEG
Az 3B Phase – 6	0.000	N/A	0.007	N/A	N/A	1.000	DEG
Az 3B Phase – 7	0.000	N/A	–0.229	N/A	N/A	1.000	DEG
Az 3B Phase – 8	0.000	N/A	–0.074	N/A	N/A	1.000	DEG
Az 3B Phase – 9	0.000	N/A	–0.300	N/A	N/A	1.000	DEG
Az 3B Phase – 10	0.000	N/A	–0.101	N/A	N/A	1.000	DEG
Az 3B Phase – 11	0.000	N/A	–0.238	N/A	N/A	1.000	DEG
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary							
Before: 23-Oct-2009 10:10							
BS Window Ratio	0.7617	N/A	0.7616	N/A	N/A	N/A	
BS Window Sum	10210	N/A	10560	N/A	N/A	N/A	CPS
SS Window Ratio	0.4866	N/A	0.4883	N/A	N/A	N/A	
SS Window Sum	9971	N/A	9969	N/A	N/A	N/A	CPS
LS Window Ratio	0.2985	N/A	0.2970	N/A	N/A	N/A	
LS Window Sum	1112	N/A	1115	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 23-Oct-2009 10:10							
BS PM High Voltage (Command)	1277	N/A	1281	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1936	N/A	1935	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1403	N/A	1411	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 23-Oct-2009 10:10							
BS Crystal Resolution	9.831	N/A	9.895	N/A	N/A	N/A	%
SS Crystal Resolution	10.59	N/A	10.54	N/A	N/A	N/A	%
LS Crystal Resolution	9.541	N/A	9.511	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration							
Before: 23-Oct-2009 10:12							
Raw B0 Resistivity	3875	N/A	3877	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3834	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3836	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration							
Before: 23-Oct-2009 10:09							
HILT Caliper Zero Measurement	8.000	N/A	8.206	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.42	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 23-Oct-2009 10:07							
Gamma Ray Background	30.00	N/A	22.00	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	175.6	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 23-Oct-2009 18:00 Before: 23-Oct-2009 10:08							
CNTC Background	29.65	29.65	27.64	N/A	N/A	4.448	CPS
CFTC Background	29.60	29.60	29.60	N/A	N/A	4.440	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 23-Oct-2009 18:00							
Thermal Near Corr. (Tank)	5800	4877	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2026	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.407	N/A	N/A	N/A	N/A	

Before: 28-Oct-2009 6:08

Z-Axis Acceleration

9.810

N/A

9.798

N/A

N/A

N/A

M/S2

High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results

Master: 23-Oct-2009 16:55

Rho Aluminum	2.596	2.601	--	--	--	--	G/C3
Rho Magnesium	1.686	1.688	--	--	--	--	G/C3
Pe Aluminum	2.570	2.574	--	--	--	--	
Pe Magnesium	2.650	2.619	--	--	--	--	

High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary

Master: 23-Oct-2009 16:55

BS Average Deviation	0	0.5258	--	--	--	--	%
BS Max Deviation	0	1.011	--	--	--	--	%
SS Average Deviation	0	0.2976	--	--	--	--	%
SS Max Deviation	0	0.9804	--	--	--	--	%
LS Average Deviation	0	0.7594	--	--	--	--	%
LS Max Deviation	0	1.860	--	--	--	--	%

Density Master Calibration is obsolete !

The GLS-VJ source activity is acceptable.

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

NCT-B Water Temperature 22.8 DEGC.
Thermal Housing Size 3.372 IN.
NSR-F serial number 5050

HILT Azimuthal Laterolog Sonde B / Equipment Identification

Primary Equipment:

Auxiliary Equipment:

Laterolog Control Module

LCM - AA

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Total current mode 1					
Itot 1 Gain MA	Value	Itot 1 Phase DEG	Value		
	0.996		0.000		
0.926 1.000 1.081 (Minimum) (Nominal) (Maximum)		-0.100 0.000 0.100 (Minimum) (Nominal) (Maximum)			

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 1					
Iaux 1 Gain MA	Value	Iaux 1 Phase DEG	Value		
	0.991		0.138		
0.854 1.000 1.180 (Minimum) (Nominal) (Maximum)		-4.600 0.000 4.600 (Minimum) (Nominal) (Maximum)			

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 2					
Iaux 2 Gain MA	Value	Iaux 2 Phase DEG	Value		
	0.980		-0.000		
0.816 1.000 1.232 (Minimum) (Nominal) (Maximum)		-1.000 0.000 0.100 (Minimum) (Nominal) (Maximum)			

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3A					
I0 3A Gain UA	Value	I0 3A Phase DEG	Value		
	0.984		-0.000		
0.893 1.000 1.114 (Minimum) (Nominal) (Maximum)		-1.000 0.000 0.100 (Minimum) (Nominal) (Maximum)			

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3B					
I0 3B Gain UA	Value	I0 3B Phase DEG	Value		
	0.975		-0.000		
0.893 1.000 1.114 (Minimum) (Nominal) (Maximum)		-1.000 0.000 0.100 (Minimum) (Nominal) (Maximum)			

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage gains					
Zvt 1 Gain MV	Value	Zvt 2 Gain MV	Value	Zvt 3 Gain MV	Value
	0.991		0.990		0.992
0.925 1.000 1.078 (Minimum) (Nominal) (Maximum)		0.865 1.000 1.153 (Minimum) (Nominal) (Maximum)		0.865 1.000 1.153 (Minimum) (Nominal) (Maximum)	

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage Phases					
Zvt 1 Phase DEG	Value	Zvt 2 Phase DEG	Value	Zvt 3 Phase DEG	Value
	0.127		-0.172		-0.113
-4.400 0.000 4.400 (Minimum) (Nominal) (Maximum)		-2.800 0.000 2.800 (Minimum) (Nominal) (Maximum)		-1.400 0.000 1.400 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB Upper Bridle Voltage mode 1			
Zvb 1 Gain MV	Value	Zvb 1 Phase DEG	Value
	0.991		0.141
0.925 1.000 1.078 (Minimum) (Nominal) (Maximum)		-4.400 0.000 4.400 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage gains					
ZVM 1 Gain UV	Value	ZVM 2 Gain UV	Value	ZVM 3 Gain UV	Value
	0.995		0.991		0.990
0.895 1.000 1.117 (Minimum) (Nominal) (Maximum)		0.943 1.000 1.056 (Minimum) (Nominal) (Maximum)		0.943 1.000 1.056 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage Phases					
ZVM 1 Phase DEG	Value	ZVM 2 Phase DEG	Value	ZVM 3 Phase DEG	Value
	0.325		1.376		0.799
-6.500 0.000 6.500 (Minimum) (Nominal) (Maximum)		-3.300 0.000 3.300 (Minimum) (Nominal) (Maximum)		-2.000 0.000 2.000 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage gains					
ZVH 1 Gain UV	Value	ZVH 2 Gain UV	Value	ZVH 3 Gain UV	Value
	0.999		0.998		0.995
0.962 1.000 1.039 (Minimum) (Nominal) (Maximum)		0.864 1.000 1.154 (Minimum) (Nominal) (Maximum)		0.864 1.000 1.154 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage Phases					
ZVH 1 Phase DEG	Value	ZVH 2 Phase DEG	Value	ZVH 3 Phase DEG	Value
	0.432		1.975		1.199
-6.500 0.000 6.500 (Minimum) (Nominal) (Maximum)		-3.300 0.000 3.300 (Minimum) (Nominal) (Maximum)		-2.000 0.000 2.000 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage gains					
ZVA 1 Gain MV	Value	ZVA 2 Gain MV	Value	ZVA 3 Gain MV	Value
	1.075		1.066		1.003
0.905 1.000 1.103 (Minimum) (Nominal) (Maximum)		0.866 1.000 1.151 (Minimum) (Nominal) (Maximum)		0.866 1.000 1.151 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage Phases					
ZVA 1 Phase DEG	Value	ZVA 2 Phase DEG	Value	ZVA 3 Phase DEG	Value
	1.084		-0.330		0.308
-4.100 0.000 4.100 (Minimum) (Nominal) (Maximum)		-2.300 0.000 2.300 (Minimum) (Nominal) (Maximum)		-1.000 0.000 1.000 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0* Diff. Voltage mode 1			
ZVD 1 Gain UV	Value	ZVD 1 Phase DEG	Value
	0.992		0.243
0.874 1.000 1.147 (Minimum) (Nominal) (Maximum)		-6.300 0.000 6.300 (Minimum) (Nominal) (Maximum)	
Before: 28-Oct-2009 6:08			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0* Diff. Voltage mode 2			
ZVD 2 Gain UV	Value	ZVD 2 Phase DEG	Value
	0.982		1.114
0.842 1.000 1.187 (Minimum) (Nominal) (Maximum)		-3.300 0.000 3.300 (Minimum) (Nominal) (Maximum)	

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0*-A0* Diff. Voltage mode 3A					
ZVD 3A Gain UV		Value	ZVD 3A Phase DEG		Value
		0.984			0.544
0.842	1.000	1.187	-2.000	0.000	2.000
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB vertical Voltage mode 1					
ZVV 1 Gain UV		Value	ZVV 1 Phase DEG		Value
		0.995			0.374
0.936	1.000	1.065	-4.600	0.000	4.600
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 1					
Idx	Az 1 Gain UV	Value	Idx	Az 1 Phase DEG	Value
0		0.997	0		0.001
1		0.997	1		0.079
2		0.992	2		0.222
3		0.999	3		0.126
4		0.999	4		0.049
5		0.994	5		0.193
6		0.993	6		0.216
7		0.990	7		0.011
8		0.994	8		0.212
9		0.994	9		0.128
10		0.992	10		0.153
11		0.998	11		0.085
0.874	1.000	1.147	-6.300	0.000	6.300
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 3A					
Idx	Az 3A Gain UV	Value	Idx	Az 3A Phase DEG	Value
0		0.989	0		0.456
1		0.989	1		0.512
2		0.984	2		0.517
3		0.991	3		0.522
4		0.991	4		0.527
5		0.986	5		0.519
6		0.986	6		0.557
7		0.982	7		0.485
8		0.986	8		0.568
9		0.987	9		0.519
10		0.984	10		0.541
11		0.989	11		0.500
0.842	1.000	1.187	-2.000	0.000	2.000
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0*-A0* Diff. Voltage mode 3B					
ZVD 3B Gain UV		Value	ZVD 3B Phase DEG		Value
		1.000			-0.105
0.845	1.000	1.183	-2.000	0.000	2.000
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB vertical Voltage mode 2					
ZVV 2 Gain UV		Value	ZVV 2 Phase DEG		Value
		0.987			2.397
0.895	1.000	1.112	-2.800	0.000	2.800
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 2					
Idx	Az 2 Gain UV	Value	Idx	Az 2 Phase DEG	Value
0		0.985	0		1.013
1		0.986	1		1.141
2		0.982	2		1.107
3		0.988	3		1.120
4		0.989	4		1.141
5		0.984	5		1.088
6		0.983	6		1.134
7		0.979	7		1.053
8		0.984	8		1.131
9		0.984	9		1.078
10		0.982	10		1.106
11		0.987	11		1.071
0.842	1.000	1.187	-3.300	0.000	3.300
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 3B					
Idx	Az 3B Gain UV	Value	Idx	Az 3B Phase DEG	Value
0		0.999	0		-0.356
1		1.006	1		0.190
2		1.002	2		0.137
3		1.011	3		-0.106
4		1.009	4		-0.061
5		0.999	5		-0.232
6		1.003	6		0.007
7		0.996	7		-0.229
8		1.004	8		-0.074
9		1.002	9		-0.300
10		1.000	10		-0.101
11		1.004	11		-0.238
0.845	1.000	1.183	-2.000	0.000	2.000
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 28-Oct-2009 6:08

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde
HILT Rxo Gamma-ray Device
HILT Micro Cylindrically Focused Log Dev
GR Logging Source
HILT High Res. Control Cartridge
HILT Gamma-Ray Neutron Sonde-DTS
HGNS Gamma-Ray Device
HGNS Neutron Detector with Alpha Source

HRMS – B 788
HRGD – B 1806
MCFL –
GLS – VJ 5374
HRCC – B 868
HGNS – B
HGR –
HCNT –

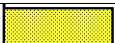
Auxiliary Equipment:

Neutron Calibration Tank
Gamma Source Radioactive
HGNS Housing

NCT – B
GSR – U/Y
HGNH –

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			0.7616	Before			0.4883	Before			0.2970
	0.7236 (Minimum)	0.7617 (Nominal)	0.7997 (Maximum)		0.4622 (Minimum)	0.4866 (Nominal)	0.5109 (Maximum)		0.2835 (Minimum)	0.2985 (Nominal)	0.3134 (Maximum)
Phase	BS Window Sum CPS		Value	Phase	SS Window Sum CPS		Value	Phase	LS Window Sum CPS		Value
Before			10560	Before			9969	Before			1115
	9699 (Minimum)	10210 (Nominal)	10720 (Maximum)		9473 (Minimum)	9971 (Nominal)	10470 (Maximum)		1057 (Minimum)	1112 (Nominal)	1168 (Maximum)

Before: 23-Oct-2009 10:10

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			1281	Before			1935	Before			1411
	1177 (Minimum)	1277 (Nominal)	1377 (Maximum)		1836 (Minimum)	1936 (Nominal)	2036 (Maximum)		1303 (Minimum)	1403 (Nominal)	1503 (Maximum)

Before: 23-Oct-2009 10:10

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			9.895	Before			10.54	Before			9.511
	8.831 (Minimum)	9.831 (Nominal)	10.83 (Maximum)		9.592 (Minimum)	10.59 (Nominal)	11.59 (Maximum)		8.541 (Minimum)	9.541 (Nominal)	10.54 (Maximum)

Before: 23-Oct-2009 10:10

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				3877	Before				3834	Before				3836
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	

Before: 23-Oct-2009 10:12

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN			Value	Phase	HILT Caliper Plus Measurement IN			Value
Before				8.206	Before				12.42
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)			9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)	

Before: 23-Oct-2009 10:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkgd) GAPI	Value
Before		22.00	Before		175.6

	30.00 (Minimum)	120.0 (Nominal)	120.0 (Maximum)	157.1 (Minimum)	165.0 (Nominal)	206.3 (Maximum)
Before: 23-Oct-2009 10:07						

High resolution Integrated Logging Tool-DTS Wellsite Calibration								
Zero Measurement								
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value	
Master			29.65	Master			29.60	
Before			27.64	Before			29.60	
5.000 (Minimum)			29.65 (Nominal)	5.000 (Minimum)			29.60 (Nominal)	40.00 (Maximum)
Master: 23-Oct-2009 18:00				Before: 23-Oct-2009 10:08				

High resolution Integrated Logging Tool-DTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				4877	Master				2026	Master				2.407
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 23-Oct-2009 18:00														

High resolution Integrated Logging Tool-DTS			
Wellsite Calibration			
Accelerometer Calibration			
Phase	Z-Axis Acceleration M/S2	Value	
Before		9.798	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 28-Oct-2009 6:08			

High resolution Integrated Logging Tool-DTS Master Calibration							
Inversion results							
Phase	Rho Aluminum G/C3		Value	Phase	Rho Magnesium G/C3		Value
Master			2.601	Master			1.688
	2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)		1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)
Phase	Pe Aluminum		Value	Phase	Pe Magnesium		Value
Master			2.574	Master			2.619
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)		2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)
Master: 23-Oct-2009 16:55							

High resolution Integrated Logging Tool-DTS Master Calibration														
Deviation Summary														
Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value
Master				0.5258	Master				0.2976	Master				0.7594
	-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	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value
Master				1.011	Master				0.9804	Master				1.860
	-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: 23-Oct-2009 16:55														

High resolution Integrated Logging Tool-DTS Master Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				29.65	Master				29.60
	5.000 (Minimum)	29.65 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	29.60 (Nominal)	40.00 (Maximum)	
Master: 23-Oct-2009 18:00									

High resolution Integrated Logging Tool-DTS Master Calibration											
Tank Measurement											
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
											

Master			4877	Master		2026	Master		2.407
4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 23-Oct-2009 18:00									

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Company: **Lakes Oil N.L.**

Schlumberger

Well: **Wombat-4**

Field: **Wombat**

Rig: **Hunt #2**

Country: **Australia**

HALS-BHC-PEX

Field Print

1:500 Scale