

Santos

Netherby 1

Gas / Oil Exploration

Ocean Patriot **Country: Australia**

HRLT-PEX-HNGS-MSI Sonic Scanner Scale 1:500			
Rig: Ocean Patriot Field: Gas / Oil Exploration Location: 01CAS3D Well: Netherby 1 Company: Santos			
LOCATION			
01CAS3D INL-6790 XLN-3484 Otway Basin Vic/P44		Elev.: D.F. 20.8 m G.L. -66.1 m	
Permanent Datum: _____ Log Measured From: _____ Drilling Measured From: _____		Elev.: 0 m _____ 20.8 m above Perm. Datum	
State: Victoria	Max. Well Deviation 35 deg	Longitude 142° 38' 25.745" E	Latitude 38° 40' 48.578" S

[illegible]

Logging Date	27-Jul-2008			
Run Number	1			
Depth Driller	1870 m			
Schlumberger Depth	TD not tagged			
Bottom Log Interval	1785 m			
Top Log Interval	633.4 m			
Casing Driller Size @ Depth	13.375 in @ 642.2 m			@
Casing Schlumberger	643.5 m			
Bit Size	12.250 in			
Type Fluid In Hole	KCL			
Density	Viscosity	1.33 g/cm3		59 s
Fluid Loss	PH	3.9 cm3		8.7
Source Of Sample	Mud Pit			
RM @ Measured Temperature	0.112 ohm.m		@	20 degC
RMF @ Measured Temperature	0.089 ohm.m		@	20 degC
RMC @ Measured Temperature	0.134 ohm.m		@	22 degC
Source RMF	RMC	Pressed	Pressed	
RM @ MRT	RMF @ MRT	0.053 @ 66	0.042 @ 66	@
Maximum Recorded Temperatures	66 degC		66	66
Circulation Stopped	Time	27-Jul-2008		11:00
Logger On Bottom	Time	27-Jul-2008		21:00
Unit Number	Location	1909	AUSL	
Recorded By	Y.Zhuang / A.Ives			
Witnessed By	J. Pitman / D. Adderley			

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth		@	
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density	Viscosity		
Fluid Loss	PH		
Source Of Sample			
RM @ Measured Temperature		@	
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF	RMC		
RM @ MRT	RMF @ MRT	@	@
Maximum Recorded Temperatures			
Circulation Stopped	Time		
Logger On Bottom	Time		
Unit Number	Location		
Recorded By			
Witnessed By			






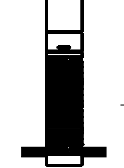
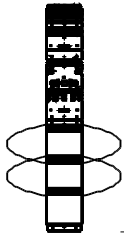




OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool string run with 2.5 in standoffs on HRLT, MSIP.	
HGNS eccentered using bowspring.	
Platform express run in standard reslution mode.	
Neutron porosity correction applied: Holesize correction using caliper, mud weight, pressure temperature	
formation salinity and borehole salinity correction.	

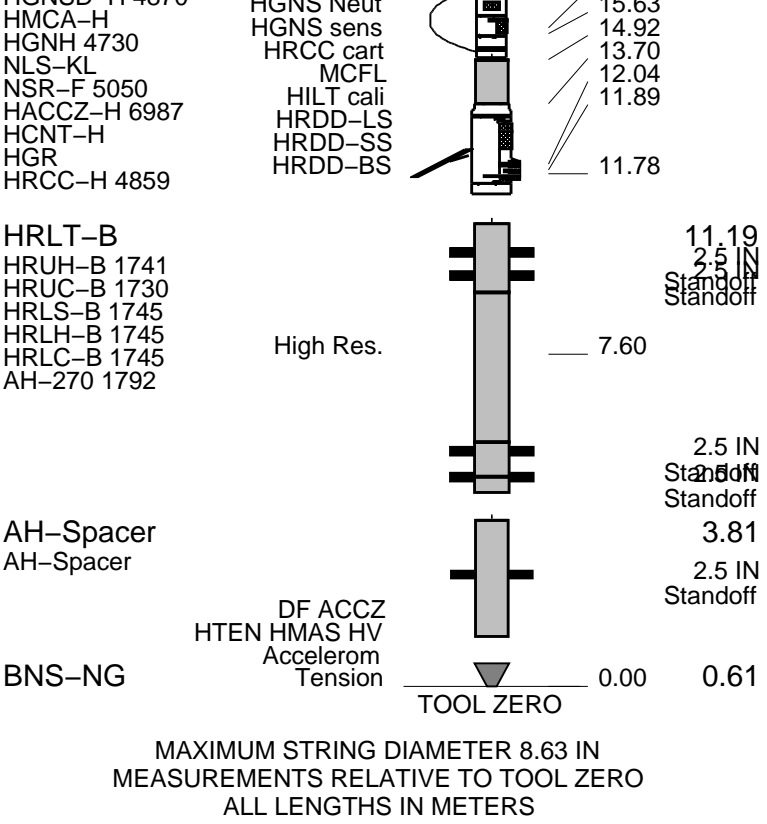
Repeat section not carried as per client request.
MSIP record monopole and dipole from TD to casing shoe.
Barite is added in mud. Barite correction applied.
Tool hold up at 1792.8m, TD could not tagged.
TLC run was carried, hold up at same depth.
Additional mud properites: KCL 8.3%
Glycol content 3.2 % by Vol, Calcium content 800 mg/L

RUN 1			RUN 2		
SERVICE ORDER #:		AUSL 08369043	SERVICE ORDER #:		
PROGRAM VERSION:		15C0-309	PROGRAM VERSION:		
FLUID LEVEL:		0 m	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT	
GSR-U 6003	GSR-U 6003
NCT-B	WITM (EDTS)-A 60
CNB-AB	
NCS-VB 5050	

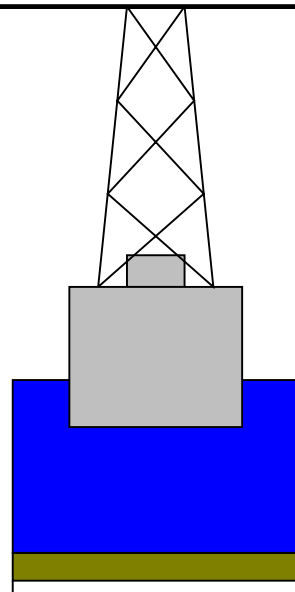
DOWNHOLE EQUIPMENT			
LEH-QT 2809		38.89	
SPA-A 753	SP SPARC 	37.57	38.00
AH-369 796	Mud Tempe 	37.13	37.57
EDTC-B	CTEM 	36.07	37.13
EDTH-B 8434	Gamma Ray	35.50	2.5 IN
EDTC-B 8390	TelStatus	35.15	Standoff
MAPC-B	EDTCB Ele 	35.15	
MAPC-BA 8198			
ECH-SF 8198			
MAMS-BA 8201			
MAMS-PS		30.45	
MAXS-B			2.5 IN
MASS-BA 8157			Standoff
MAXS-BA 8157			28.74
MAXS-PS		22.57	
AH-107 2840		22.57	
HNGS-BA	Upper_1 	21.26	21.96
HNGS-BA 19	Lower_2	21.05	
HNSH-BA 47			
HNGC-B	HNGC Stat 	18.93	19.46
HNGH-A 47	HGNS HTEM		
AH-107 1817	HMCA 	17.79	18.39
HILTH-FTB	HGNS Gamm	17.56	17.79
HGNSD-H 4870	HGNS Neut	15.78	
	HGNS N	15.03	

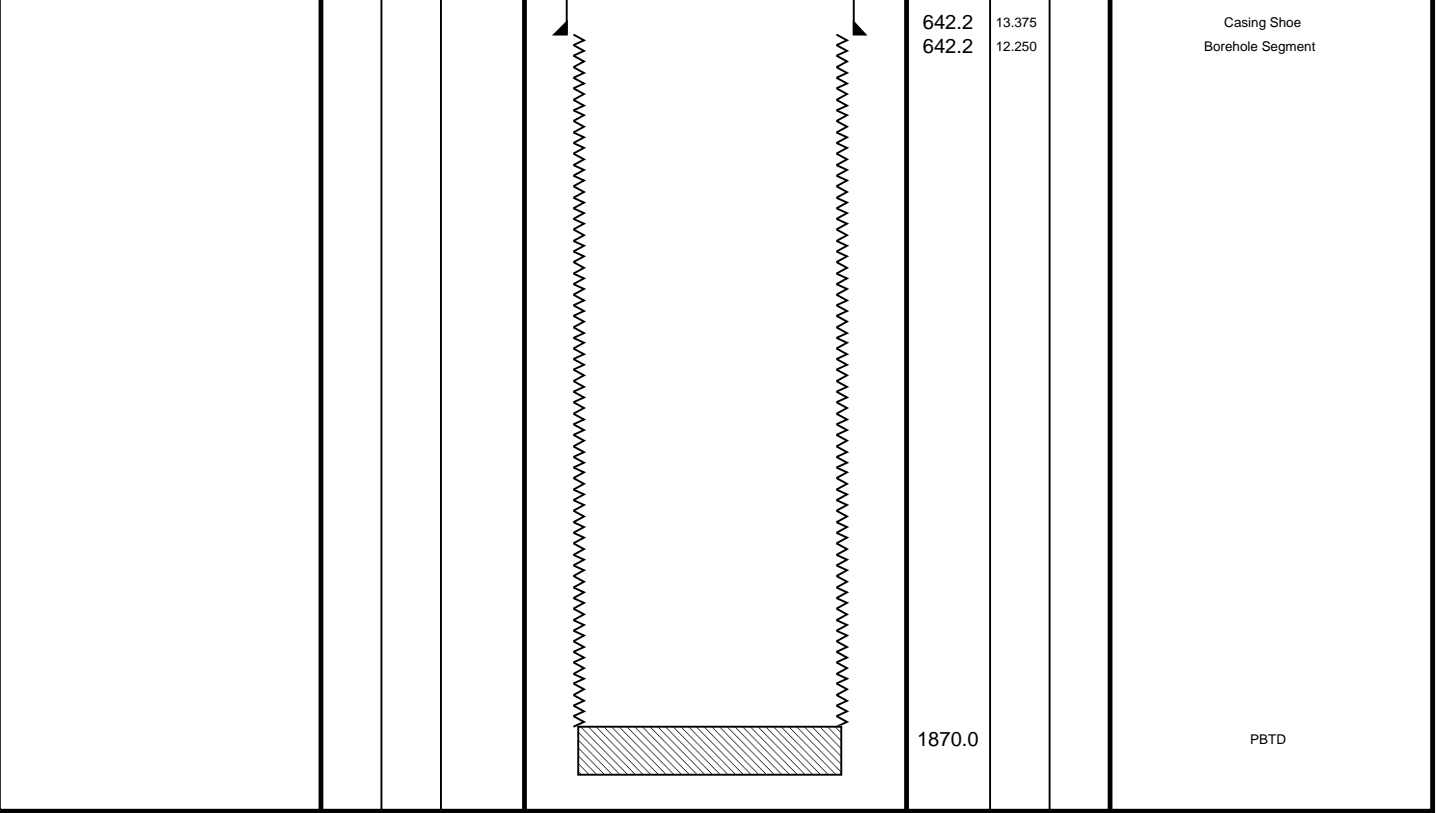


Client: Santos
Well: Netherby 1
Field: Gas/Oil Exploration
State: Victoria
Country: Australia

Rig Name: Ocean Patriot
Reference Datum: Mean Sea Level
Elevation: 0.0 m

Drawing Date: 7/30/2008

Production String	(in)			Well Schematic	(m)			Casing String
	OD	ID	MD		MD	OD	ID	
Kelly Bushing Elevation Derrick Floor Elevation Mean Sea Level			0.0					Casing String
			0.0					
			20.8					
					13.375			



Main Pass
1:500

MAXIS Field Log

Company: Santos Well: Netherby 1

Input DLIS Files					
URLA_TLD_MCFL_CNL_068PUP	FN:120	04-Aug-2008 15:49	1796.9 M	633.4 M	

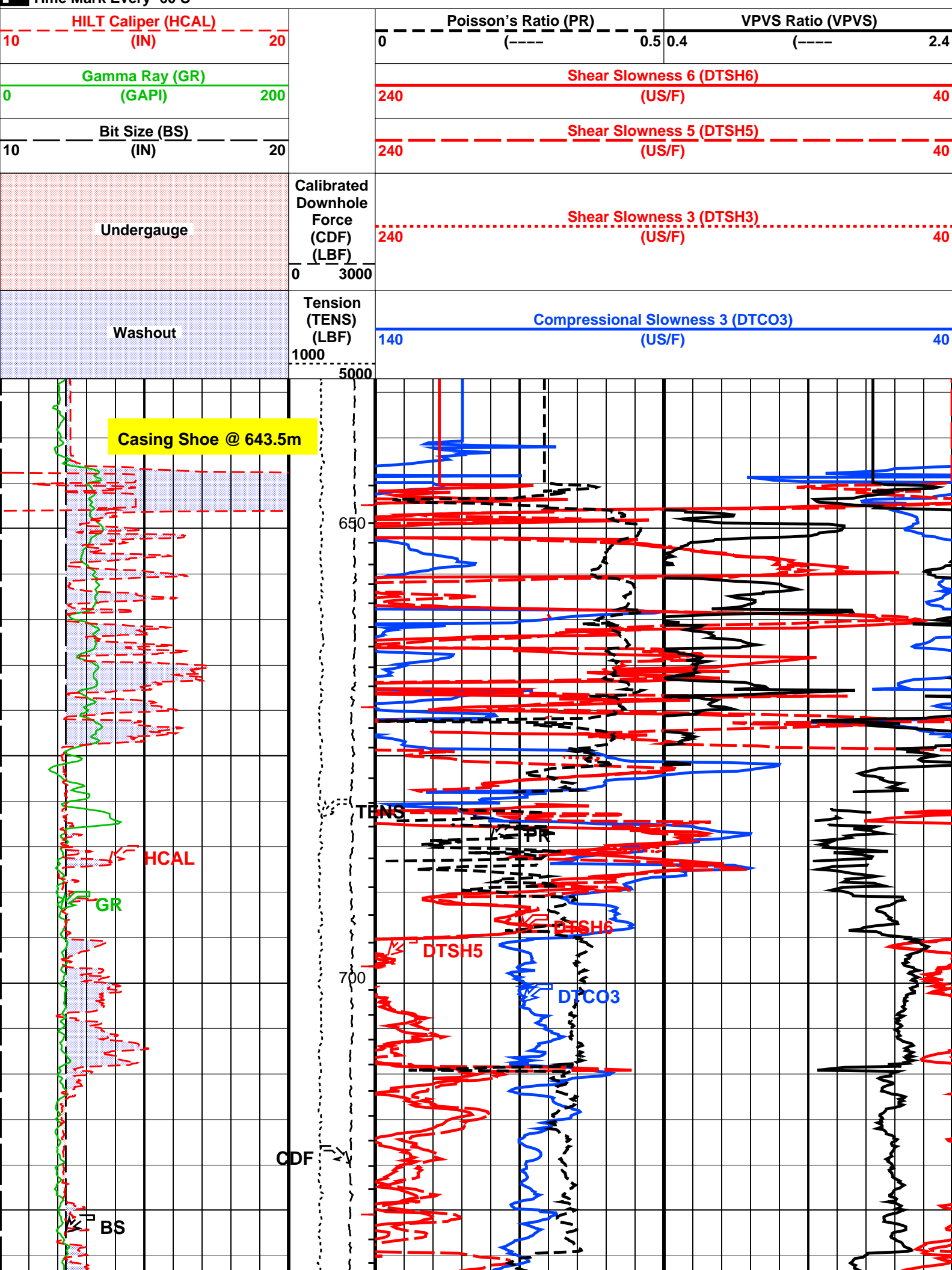
OP System Version: 15C0-309			
MCM			
HRLT	15C0-309	HILTHD	SRPC-3582-Q1_2008_OP15
HNGC-B	15C0-309	HNGS-BA	15C0-309
MAXS	SKK-3562-MAST	MAPC	SKK-3562-MAST
EDTCB	SKK-3493-EDTCB	SPAA	15C0-309

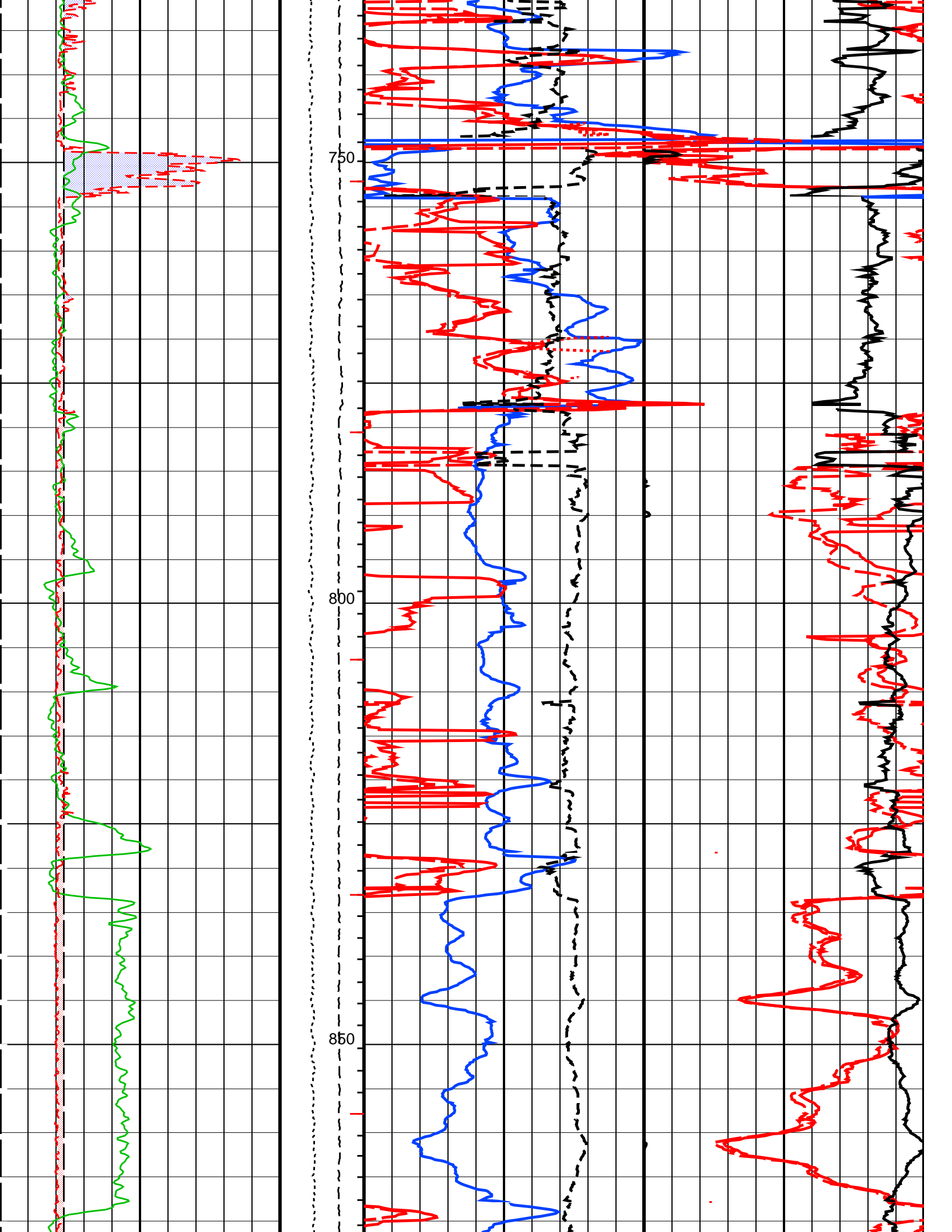
PIP SUMMARY

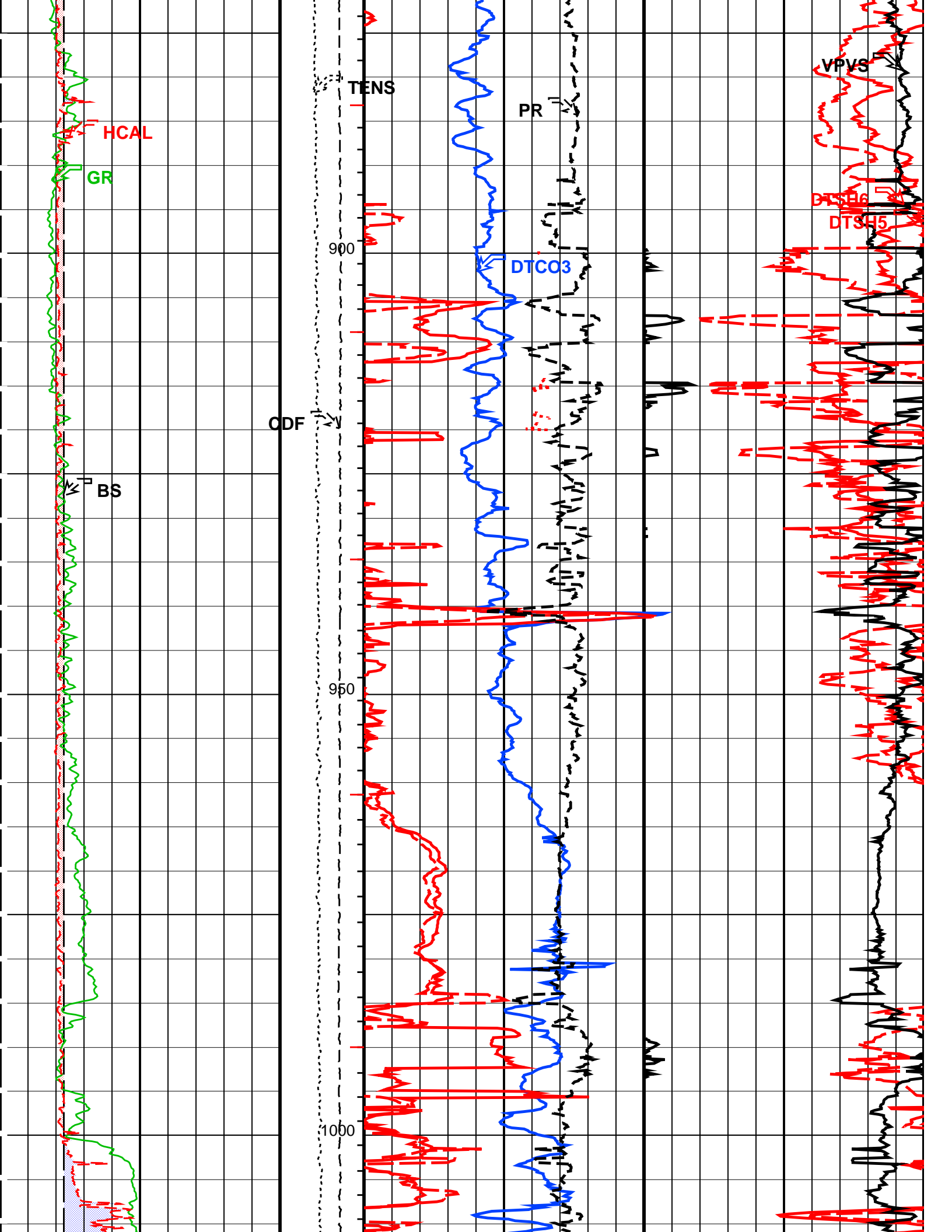
⊖ Integrated Transit Time Minor Pip Every 1 MS

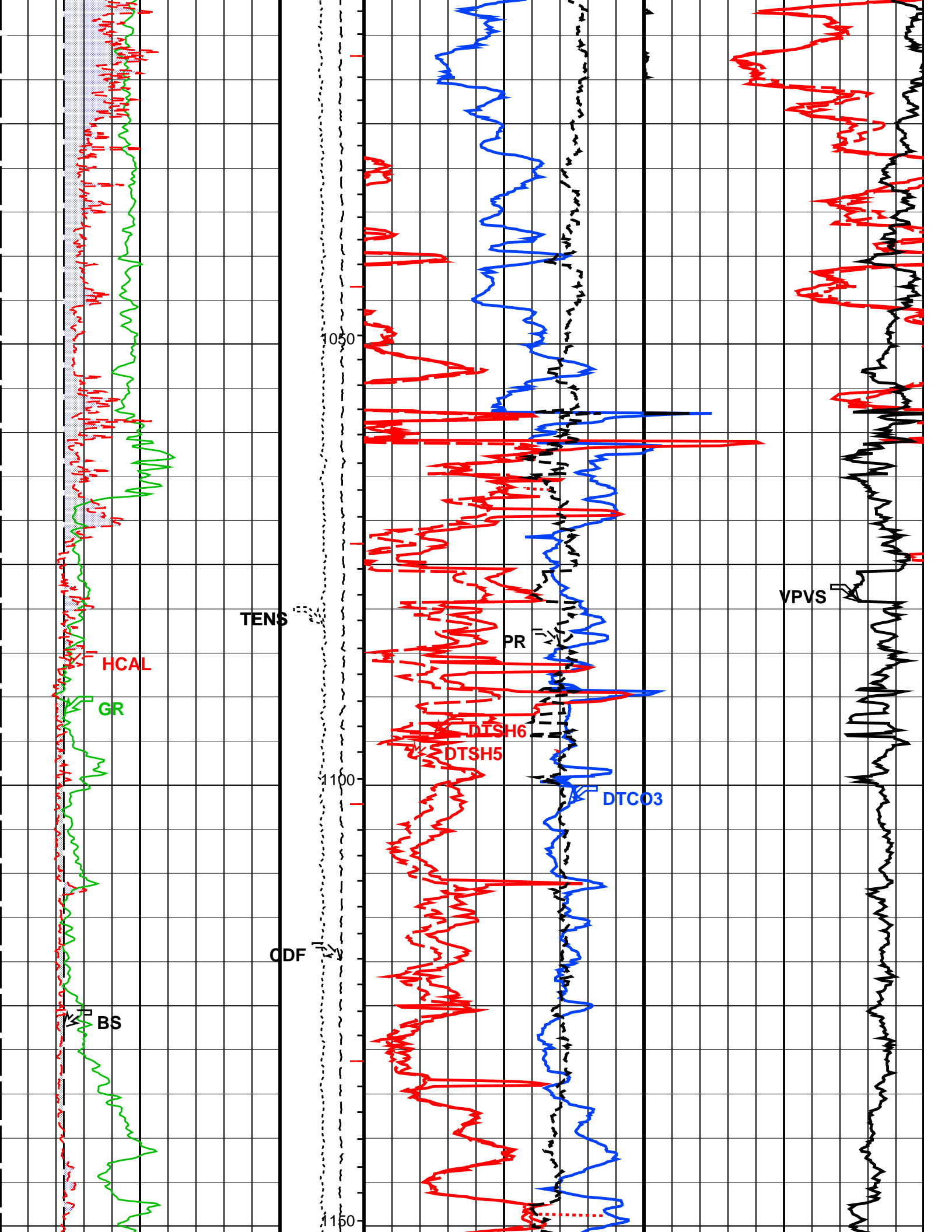
⊖ Integrated Transit Time Major Pip Every 10 MS

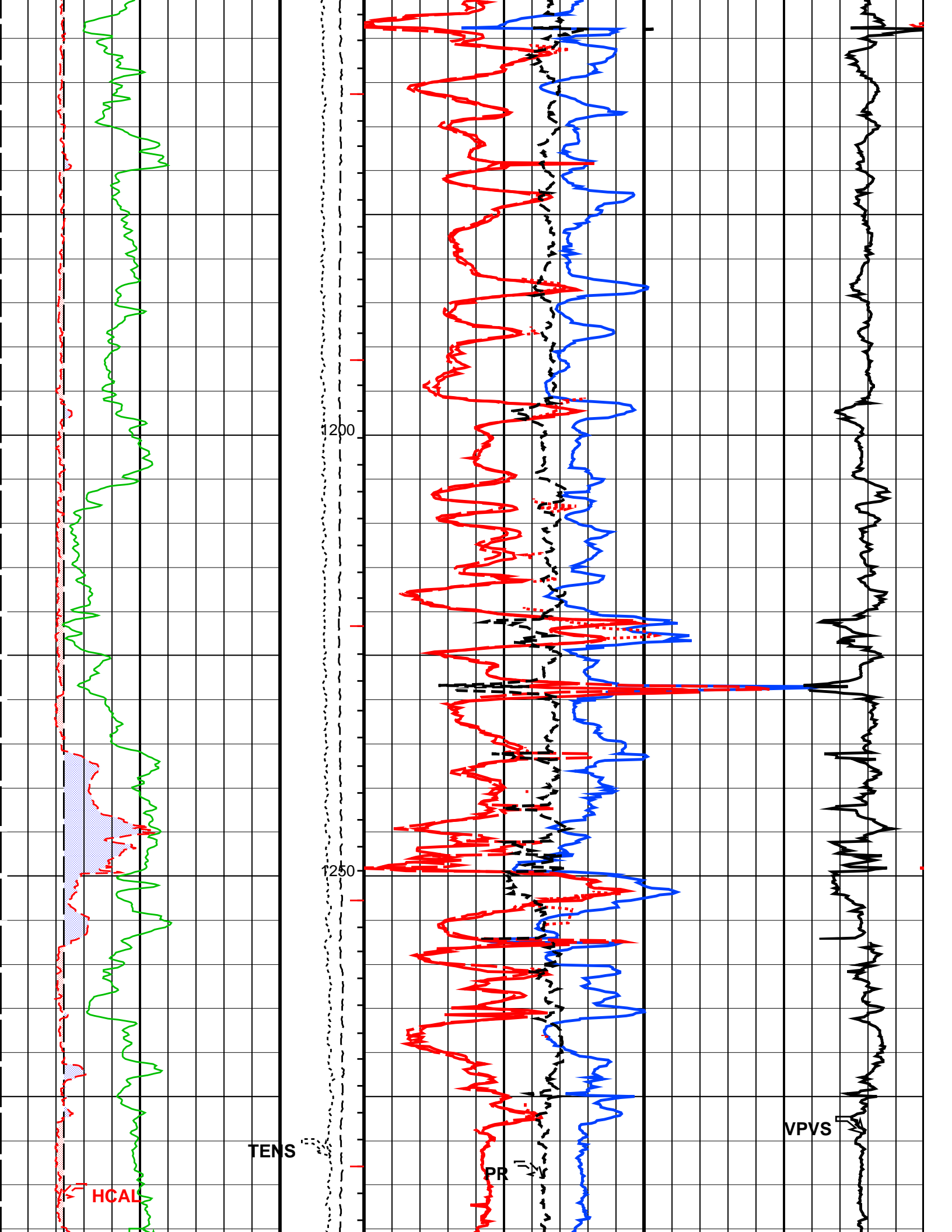
Time Mark Every 60 S

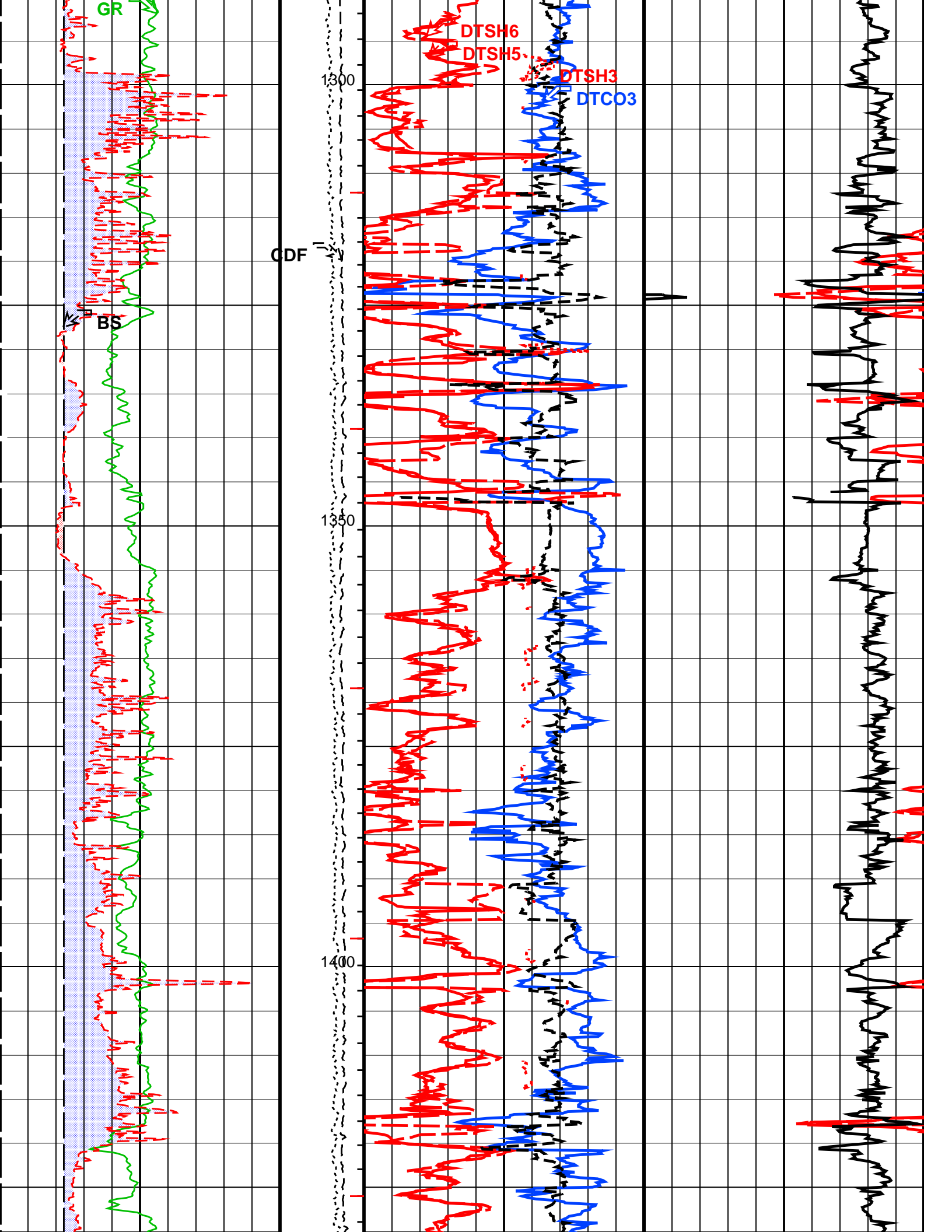


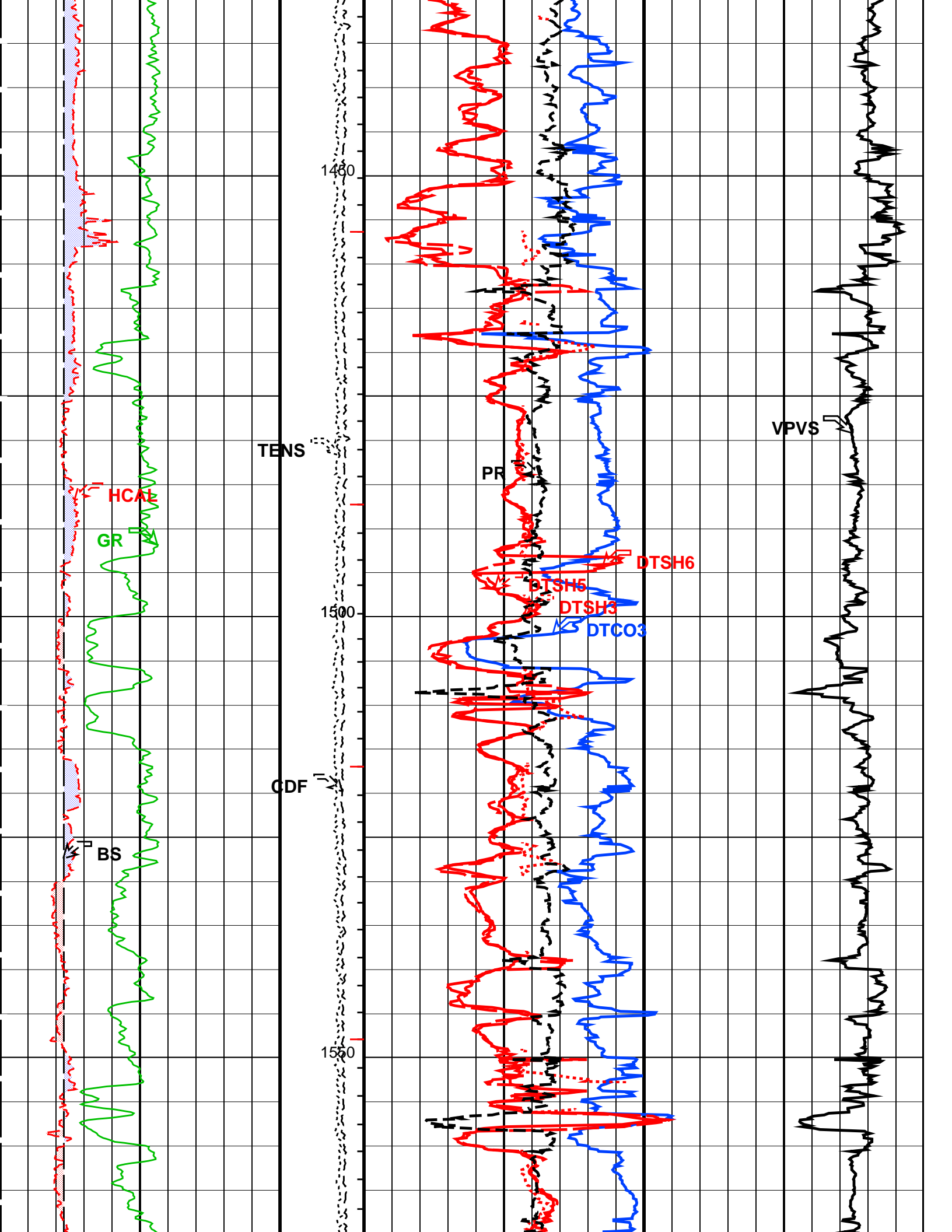


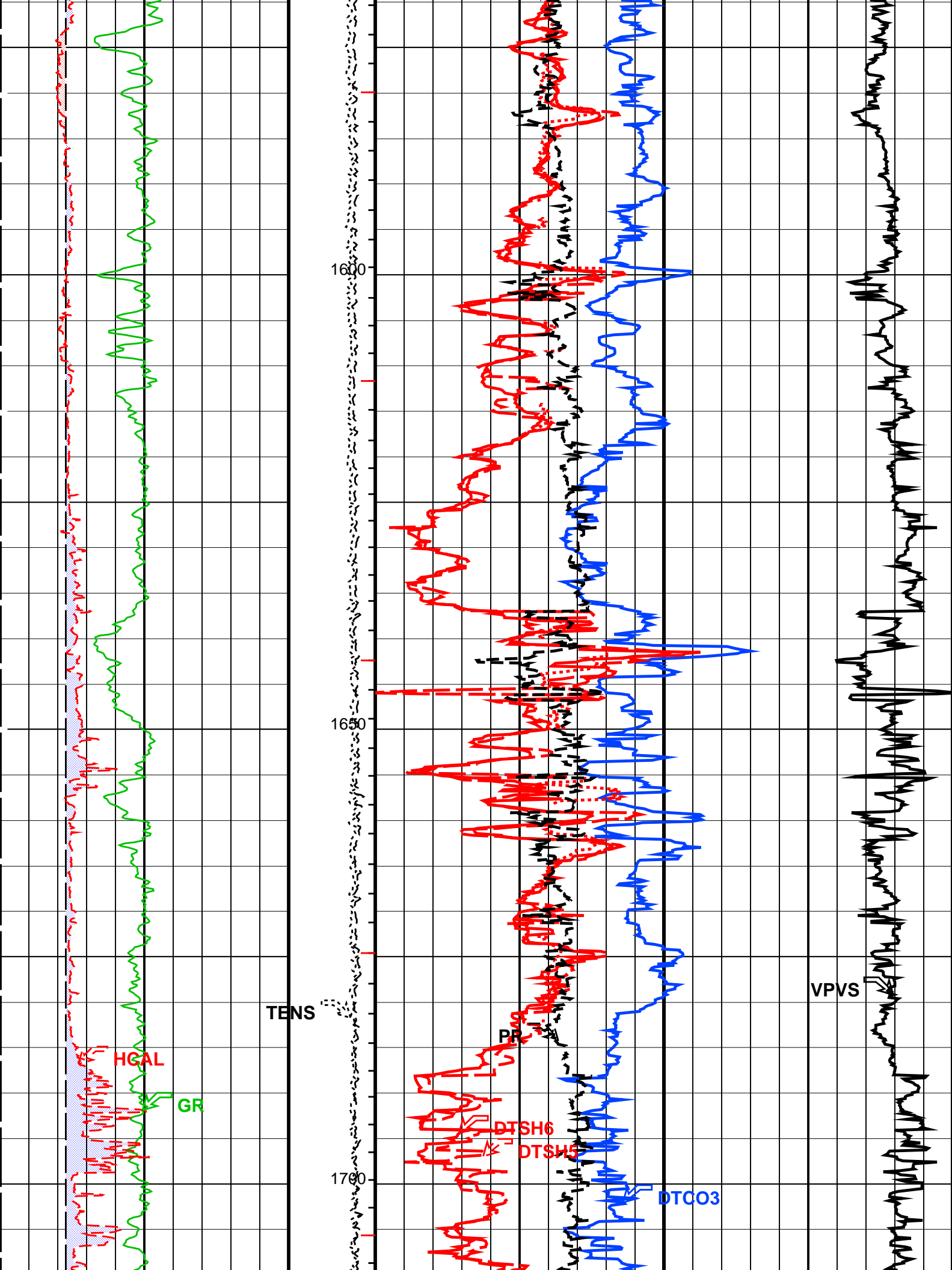


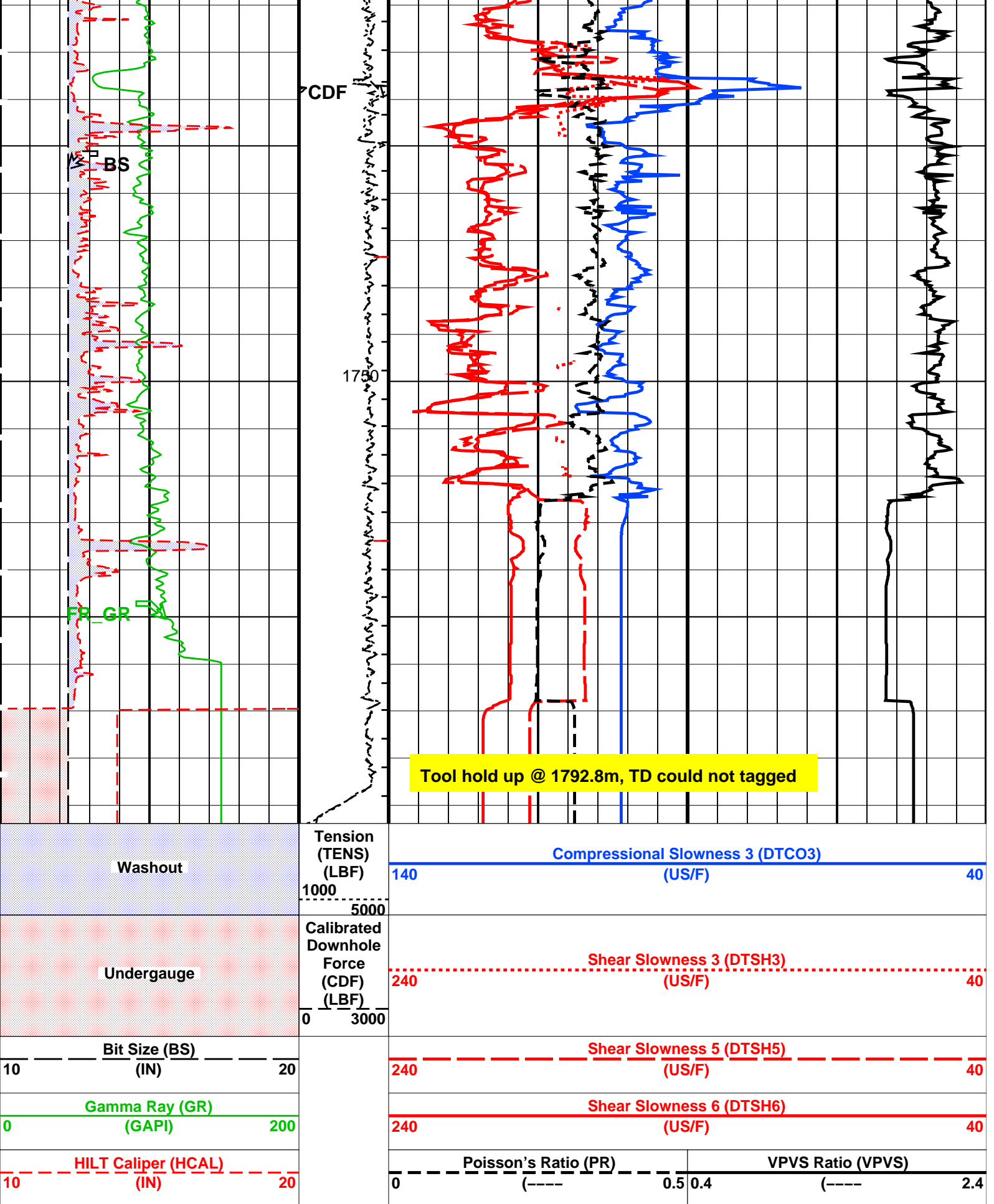












PIP SUMMARY

- ┆ 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	
BHS	HRLT-B: High Resolution Laterolog Array – E Borehole Status		OPEN	
BHS	HILTH-FTB: High resolution Integrated Logging Tool-DTS Borehole Status		OPEN	
BHS	HNGS-BA: Hostile Natural Gamma Ray Sonde Borehole Status		OPEN	
BHS	MAPC-B: Multimode Array Sonic Power Cartridge Borehole Status		OPEN	
BS	Bit Size		12.250	in
DLHS	Hole Diameter Source for SOBS Channel		AUTO	
DTCO_SELECT	Delta-T Compressional Selection for DSTC		MF	
DTF	Delta-T Fluid		204.5	us/ft
DTSH_SELECT	Delta-T Shear Selection for DSTC		XD	
ROTWINDOW_CTRL	Alford Rotation Window Control		ON	
ROT_AI	Dipole Waveform Rotation Averaging Depth Interval		1.524	m
ROT_FIL LENG	Alford Rotation Filter Length		101	
ROT_TWD	Alford Rotation Window Time Width		1000	us
ROT_TWO	Alford Rotation Window Time Offset		1080	
ROT_XFH	Alford Rotation Filter High Cutoff		2500.0	Hz
ROT_XFL	Alford Rotation Filter Low Cutoff		1000.0	
BHS	EDTC-B: Enhanced DTS Cartridge Borehole Status		OPEN	
BHS	HOLEV: Integrated Hole/Cement Volume Borehole Status		OPEN	
System and Miscellaneous				
CSIZ	Current Casing Size		13.375	in
CWEI	Casing Weight		68.000	lbm/ft
Format: MAST_500		Vertical Scale: 1:500	Graphics File Created: 07-Aug-2008 13:06	
OP System Version: 15C0-309				
MCM				
HRLT	15C0-309	HILTHD	SRPC-3582-Q1_2008_OP15	
HNGC-B	15C0-309	HNGS-BA	15C0-309	
MAXS	SKK-3562-MAST	MAPC	SKK-3562-MAST	
EDTCB	SKK-3493-EDTCB	SPAA	15C0-309	
Input DLIS Files				
HRLA_TLD_MCFL_CNL_068PUP		FN:120	04-Aug-2008 15:49	1796.9 M
				633.4 M
Schlumberger				
Calibration				
MAXIS Field Log				

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01							
Before: 27-Jul-2008 20:28							
HRLT M0-M1 Voltage Plus – 0	0	N/A	–318.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	–349.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	–355.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	–342.5	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	–323.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	–330.2	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	310.3	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: 27–Jul–2008 20:28

HRLT M1–M2 Voltage Plus – 0	0	N/A	1749	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 1	0	N/A	1917	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 2	0	N/A	1944	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 3	0	N/A	1875	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 4	0	N/A	1770	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 5	0	N/A	1811	N/A	N/A	53.42	UV
HRLT M1–M2 Voltage Plus – 6	0	N/A	–1711	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: 27–Jul–2008 20:28

HRLT M2–M3 Voltage Plus – 0	0	N/A	1731	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 1	0	N/A	1902	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 2	0	N/A	1931	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 3	0	N/A	1869	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 4	0	N/A	1760	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 5	0	N/A	1803	N/A	N/A	53.42	UV
HRLT M2–M3 Voltage Plus – 6	0	N/A	–1686	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: 27–Jul–2008 20:28

HRLT A3–A4 Voltage Plus – 0	0	N/A	68550	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 1	0	N/A	75660	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 2	0	N/A	77030	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 3	0	N/A	74690	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 4	0	N/A	70140	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 5	0	N/A	71770	N/A	N/A	2100	UV
HRLT A3–A4 Voltage Plus – 6	0	N/A	–66110	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: 27–Jul–2008 20:28

HRLT A4–A5 Voltage Plus – 0	0	N/A	68390	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 1	0	N/A	75520	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 2	0	N/A	76890	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 3	0	N/A	74520	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 4	0	N/A	69980	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 5	0	N/A	71600	N/A	N/A	2100	UV
HRLT A4–A5 Voltage Plus – 6	0	N/A	–65990	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: 27–Jul–2008 20:28

HRLT A5–A6 Voltage Plus – 0	0	N/A	68540	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 1	0	N/A	75840	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 2	0	N/A	77150	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 3	0	N/A	74750	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 4	0	N/A	70130	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 5	0	N/A	71730	N/A	N/A	2100	UV
HRLT A5–A6 Voltage Plus – 6	0	N/A	–66280	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: 27–Jul–2008 20:28

HRLT Torpedo–M0 Voltage – 0	0	N/A	–68100	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 1	0	N/A	–75530	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 2	0	N/A	–76940	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 3	0	N/A	–74640	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 4	0	N/A	–70130	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 5	0	N/A	–71750	N/A	N/A	2100	UV
HRLT Torpedo–M0 Voltage – 6	0	N/A	65960	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: 27–Jul–2008 20:28

HRLT Bridle#9–M0 Voltage – 0	0	N/A	–68030	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 1	0	N/A	–75300	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 2	0	N/A	–76720	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 3	0	N/A	–74460	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 4	0	N/A	–70020	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 5	0	N/A	–71680	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 6	0	N/A	65750	N/A	N/A	2100	UV
HRLT Bridle#9–M0 Voltage – 7	0	N/A	–70000	N/A	N/A	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT ISO
Before: 27–Jul–2008 20:28

HRLT Source Current Plus – 0	0	N/A	283.8	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 – 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: 27-Jul-2008 20:28

HRLT Vertical Voltage PI – 0	0	N/A	-320.1	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 1	0	N/A	-344.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 2	0	N/A	-348.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 3	0	N/A	-334.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 4	0	N/A	-311.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 5	0	N/A	-334.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 6	0	N/A	318.4	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–DTS Wellsite Calibration – Stab Measurement Summary

Before: 21-Jul-2008 22:31

BS Window Ratio	0.7367	N/A	0.7376	N/A	N/A	N/A	
BS Window Sum	29900	N/A	29850	N/A	N/A	N/A	CPS
SS Window Ratio	0.4671	N/A	0.4670	N/A	N/A	N/A	
SS Window Sum	13140	N/A	13130	N/A	N/A	N/A	CPS
LS Window Ratio	0.2938	N/A	0.2912	N/A	N/A	N/A	
LS Window Sum	1447	N/A	1440	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo-multiplier High Voltages Calibrations

Before: 21-Jul-2008 22:31

BS PM High Voltage (Command)	1340	N/A	1337	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1757	N/A	1768	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1358	N/A	1356	N/A	N/A	N/A	V

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration

Before: 21-Jul-2008 22:31

BS Crystal Resolution	10.42	N/A	10.44	N/A	N/A	N/A	%
SS Crystal Resolution	10.00	N/A	10.03	N/A	N/A	N/A	%
LS Crystal Resolution	9.175	N/A	9.248	N/A	N/A	N/A	%

High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration

Before: 21-Jul-2008 22:36

Raw B0 Resistivity	3875	N/A	3894	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3839	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3840	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration

Before: 21-Jul-2008 22:32

HILT Caliper Zero Measurement	8.000	N/A	7.864	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.25	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration

Before: 21-Jul-2008 22:25

Gamma Ray Background	30.00	N/A	4.556	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	169.3	N/A	169.3	N/A	N/A	15.39	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement

Master: 3-Jul-2008 14:20 Before: 21-Jul-2008 22:27

CNTC Background	26.09	26.09	25.52	N/A	N/A	3.914	CPS
CFTC Background	25.45	25.45	25.41	N/A	N/A	3.818	CPS

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement

Master: 3-Jul-2008 14:20

Thermal Near Corr. (Tank)	5800	5058	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2075	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.438	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration

Before: 25-Jul-2008 17:35

Z–Axis Acceleration	9.810	N/A	9.807	N/A	N/A	N/A	M/S2
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High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results

Master: 3-Jul-2008 17:01

Rho Aluminum	2.596	2.601	--	--	--	--	G/C3
Rho Magnesium	1.686	1.683	--	--	--	--	G/C3
Pe Aluminum	2.570	2.581	--	--	--	--	
Pe Magnesium	2.650	2.632	--	--	--	--	

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

Master: 3-Jul-2008 17:01

BS Average Deviation	0	0.1075	--	--	--	--	%
BS Max Deviation	0	0.3697	--	--	--	--	%

SS Average Deviation	0	0.2752	--	--	--	--	%
SS Max Deviation	0	0.7185	--	--	--	--	%
LS Average Deviation	0	0.8851	--	--	--	--	%
LS Max Deviation	0	1.937	--	--	--	--	%

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52

Na 511 Peak Loc	40.00	38.59	38.57	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.88	14.86	N/A	N/A	2.000	%
High Voltage	1150	1127	1129	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	139.0	139.4	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.384	7.962	N/A	N/A	2.000	%
Temperature	15.50	11.79	14.39	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	37.90	37.39	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52

Na 511 Peak Loc	40.00	40.63	40.71	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.06	14.91	N/A	N/A	2.000	%
High Voltage	1150	1378	1381	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	146.6	146.5	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.733	8.625	N/A	N/A	2.000	%
Temperature	15.50	12.04	14.41	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	38.28	37.87	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2

Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52

Coincidence Count Rate Ratio	1.000	0.9810	0.9832	N/A	N/A	0.05000	
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Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 15-Jul-2008 13:34

Na 511 Peak Set Point	40.00	40.00	--	--	--	--	
Th Peak Loc	209.6	208.6	--	--	--	--	
Th Peak Res	7.000	6.600	--	--	--	--	%
Background Count Rate	142.5	130.3	--	--	--	--	CPS
Gain Ratio	1.000	1.028	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 15-Jul-2008 13:34

Na 511 Peak Set Point	40.00	42.00	--	--	--	--	
Th Peak Loc	209.6	211.4	--	--	--	--	
Th Peak Res	7.000	7.252	--	--	--	--	%
Background Count Rate	142.5	133.1	--	--	--	--	CPS
Gain Ratio	1.000	0.9896	--	--	--	--	

Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration

Before: 25-Jul-2008 17:35

EDTC Z-Axis Acceleration	9.810	N/A	9.857	N/A	N/A	N/A	M/S2
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Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration

Before: 21-Jul-2008 22:25

Gamma Ray (Jig – Bkg)	150.9	N/A	150.9	N/A	N/A	13.72	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI



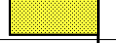





The GLS-VJ source activity is acceptable.









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









NCT-B Water Temperature 12.0 DEGC.
Thermal Housing Size 3.378 IN.
NSR-F serial number 5050






High Resolution Laterolog Array – B / Equipment Identification

Primary Equipment:		
HRLT Sonde	HRLS – B	1745
Auxiliary Equipment:		
HRLT lower Housing	HRLH – B	1745
HRLT Lower Cartridge	HRLC – B	1745
HRLT upper Housing	HRUH – B	1741
HRLT Upper Cartridge	HRUC – B	1730

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M01						
Idx	Phase	HRLT M0–M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		–318.3	–322.7	–280.7	–379.7
1	Before		–349.3	–322.7	–280.7	–379.7
2	Before		–355.0	–322.7	–280.7	–379.7
3	Before		–342.5	–322.7	–280.7	–379.7
4	Before		–323.0	–322.7	–280.7	–379.7
5	Before		–330.2	–322.7	–280.7	–379.7
6	Before		310.3	322.7	379.7	280.7
7	Before		–322.7	–322.7	–280.7	–379.7
(Minimum) (Nominal) (Maximum)						
Before: 27–Jul–2008 20:28						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M12						
Idx	Phase	HRLT M1–M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1749	1781	2095	1549
1	Before		1917	1781	2095	1549
2	Before		1944	1781	2095	1549
3	Before		1875	1781	2095	1549
4	Before		1770	1781	2095	1549
5	Before		1811	1781	2095	1549
6	Before		–1711	–1781	–1549	–2095
7	Before		1781	1781	2095	1549
(Minimum) (Nominal) (Maximum)						
Before: 27–Jul–2008 20:28						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M23						
Idx	Phase	HRLT M2–M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1731	1781	2095	1549
1	Before		1902	1781	2095	1549
2	Before		1931	1781	2095	1549
3	Before		1869	1781	2095	1549
4	Before		1760	1781	2095	1549
5	Before		1803	1781	2095	1549
6	Before		–1686	–1781	–1549	–2095
7	Before		1781	1781	2095	1549
(Minimum) (Nominal) (Maximum)						
Before: 27–Jul–2008 20:28						


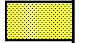






High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3–A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68550	70000	82360	60900
1	Before		75660	70000	82360	60900
2	Before		77030	70000	82360	60900
3	Before		74690	70000	82360	60900
4	Before		70140	70000	82360	60900









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

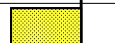





Before: 27-Jul-2008 20:28

Before: 27-Jul-2008 20:28

LDR1 T VDD

HRLT VBD							
Idx	Phase	HRLT Bridge#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68030	-70000	-60900	-82360	
1	Before		-75300	-70000	-60900	-82360	
2	Before		-76720	-70000	-60900	-82360	
3	Before		-74460	-70000	-60900	-82360	
4	Before		-70020	-70000	-60900	-82360	
5	Before		-71680	-70000	-60900	-82360	
6	Before		65750	70000	82360	60900	
7	Before		-70000	-70000	-60900	-82360	
(Minimum) (Nominal) (Maximum)							
Before: 27-Jul-2008 20:28							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT ISO							
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum	
0	Before		283.8	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: 27-Jul-2008 20:28							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT MV							
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-320.1	-322.7	-280.7	-379.7	
1	Before		-344.0	-322.7	-280.7	-379.7	
2	Before		-348.2	-322.7	-280.7	-379.7	
3	Before		-334.2	-322.7	-280.7	-379.7	
4	Before		-311.9	-322.7	-280.7	-379.7	
5	Before		-334.2	-322.7	-280.7	-379.7	
6	Before		318.4	322.7	379.7	280.7	
7	Before		-322.7	-322.7	-280.7	-379.7	
(Minimum) (Nominal) (Maximum)							
Before: 27-Jul-2008 20:28							







High resolution Integrated Logging Tool–DTS / Equipment Identification

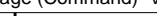
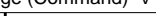

Primary Equipment:




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 – H 4877
 HRGD – H 4969
 MCFL – H
 GLS – J 5374
 GRCC – H 4859
 HGNS – H 4870
 HGR –
 HCNT – H



Auxiliary Equipment:




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				0.7376	Before				0.4670	Before				0.2912
	0.6999 (Minimum)	0.7367 (Nominal)	0.7735 (Maximum)		0.4438 (Minimum)	0.4671 (Nominal)	0.4905 (Maximum)			0.2791 (Minimum)	0.2938 (Nominal)	0.3085 (Maximum)		
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value
Before				29850	Before				13130	Before				1440
	28400 (Minimum)	29900 (Nominal)	31390 (Maximum)		12480 (Minimum)	13140 (Nominal)	13800 (Maximum)			1375 (Minimum)	1447 (Nominal)	1519 (Maximum)		
Before: 21–Jul–2008 22:31														





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				1337	Before				1768	Before				1356
	1240 (Minimum)	1340 (Nominal)	1440 (Maximum)		1657 (Minimum)	1757 (Nominal)	1857 (Maximum)			1258 (Minimum)	1358 (Nominal)	1458 (Maximum)		
Before: 21–Jul–2008 22:31														




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				10.44	Before				10.03	Before				9.248
	9.423 (Minimum)	10.42 (Nominal)	11.42 (Maximum)		9.003 (Minimum)	10.00 (Nominal)	11.00 (Maximum)		8.175 (Minimum)	9.175 (Nominal)	10.18 (Maximum)			
Before: 21–Jul–2008 22:31														


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				3894	Before				3839	Before				3840
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 21–Jul–2008 22:36														





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			7.864	Before			12.25
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 21–Jul–2008 22:32							

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			4.556	Before			169.3	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		153.9 (Minimum)	169.3 (Nominal)	184.7 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)
Before: 21–Jul–2008 22:25											



High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.09	Master				25.45
Before				25.52	Before				25.41
5.000 (Minimum) 26.09 (Nominal) 40.00 (Maximum)				5.000 (Minimum) 25.45 (Nominal) 40.00 (Maximum)					
Master: 3–Jul–2008 14:20					Before: 21–Jul–2008 22:27				




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				5058	Master				2075	Master				2.438
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)			
Master: 3–Jul–2008 14:20														

High resolution Integrated Logging Tool–DTS Wellsite Calibration			
Accelerometer Calibration			
Phase	Z–Axis Acceleration M/S2	Value	
Before		9.807	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 25–Jul–2008 17:35			

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			1.683
	2.586 (Minimum)	2.596 (Nominal)			2.606 (Maximum)	1.676 (Minimum)	
Phase	Pe Aluminum		Value	Phase	Pe Magnesium		Value
Master			2.581	Master			2.632
	2.470 (Minimum)	2.570 (Nominal)			2.670 (Maximum)	2.550 (Minimum)	
Master: 3–Jul–2008 17:01							

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	<div><div></div></div>			0.1075	Master	<div><div></div></div>			0.2752	Master	<div><div></div></div>			0.8851			
–0.6000 (Minimum)				0 (Nominal)	0.6000 (Maximum)				–1.000 (Minimum)				0 (Nominal)	1.500 (Maximum)			
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value			
Master	<div><div></div></div>			0.3697	Master	<div><div></div></div>			0.7185	Master	<div><div></div></div>			1.937			
–1.600 (Minimum)				0 (Nominal)	1.600 (Maximum)				–2.500 (Minimum)				0 (Nominal)	2.500 (Maximum)			
–3.500 (Minimum)				0 (Nominal)	3.500 (Maximum)				–3.500 (Minimum)				0 (Nominal)	3.500 (Maximum)			
Master: 3–Jul–2008 17:01																	

High resolution Integrated Logging Tool–DTS Master Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.09	Master				25.45
	5.000 (Minimum)	26.09 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	25.45 (Nominal)	40.00 (Maximum)	
Master: 3–Jul–2008 14:20									

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				5058	Master				2075	Master				2.438
4700 (Minimum)5800 (Nominal)6900 (Maximum)					1900 (Minimum)2400 (Nominal)2900 (Maximum)					2.120 (Minimum)2.159 (Nominal)2.540 (Maximum)				
Master: 3–Jul–2008 14:20														

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification		
Primary Equipment:		
HNGC Cartridge	HNGC – B	221
Auxiliary Equipment:		
HNGC Housing	HNGH – A	47

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde

HNGS – BA

19

19

Auxiliary Equipment:

HNGS Sonde Housing

HNSH – BA

47

Gamma Source Radioactive

GSR – U

6003

Hostile Natural Gamma Ray Sonde Wellsite Calibration



Detector 1 Check

Na 511 Peak Loc			Value	Na 511 Peak Res %			Value	High Voltage V			Value
Master	<div><div></div></div>		38.59	Master	<div><div></div></div>		14.88	Master	<div><div></div></div>		1127
Before	<div><div></div></div>		38.57	Before	<div><div></div></div>		14.86	Before	<div><div></div></div>		1129
37.50 (Minimum)40.00 (Nominal)43.50 (Maximum)				12.00 (Minimum)15.50 (Nominal)19.00 (Maximum)				900.0 (Minimum)1150 (Nominal)1600 (Maximum)			
Na 1785 Peak Loc			Value	Na 1785 Peak Res %			Value	Temperature DEGC			Value
Master	<div><div></div></div>		139.0	Master	<div><div></div></div>		8.384	Master	<div><div></div></div>		11.79
Before	<div><div></div></div>		139.4	Before	<div><div></div></div>		7.962	Before	<div><div></div></div>		14.39
135.0 (Minimum)142.6 (Nominal)150.3 (Maximum)				7.000 (Minimum)8.500 (Nominal)11.00 (Maximum)				-28.89 (Minimum)15.50 (Nominal)60.00 (Maximum)			
Na Count Rate CPS			Value								
Master	<div><div></div></div>		37.90								
Before	<div><div></div></div>		37.39								
10.00 (Minimum)45.00 (Nominal)100.0 (Maximum)											
Master: 15-Jul-2008 13:39				Before: 1-Jul-2008 21:52							

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Na 511 Peak Loc			Value	Na 511 Peak Res %			Value	High Voltage V			Value		
Master	<div><div></div></div>		40.63	Master	<div><div></div></div>		16.06	Master	<div><div></div></div>		1378		
Before	<div><div></div></div>		40.71	Before	<div><div></div></div>		14.91	Before	<div><div></div></div>		1381		
37.50 (Minimum)			40.00 (Nominal)	43.50 (Maximum)			12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)		900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)
Na 1785 Peak Loc			Value	Na 1785 Peak Res %			Value	Temperature DEGC			Value		
Master	<div><div></div></div>		146.6	Master	<div><div></div></div>		8.733	Master	<div><div></div></div>		12.04		
Before	<div><div></div></div>		146.5	Before	<div><div></div></div>		8.625	Before	<div><div></div></div>		14.41		
135.0 (Minimum)			142.6 (Nominal)	150.3 (Maximum)			7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)		-28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)
Na Count Rate CPS			Value										
Master	<div><div></div></div>		38.28										
Before	<div><div></div></div>		37.87										
10.00 (Minimum)			45.00 (Nominal)										100.0 (Maximum)
Master: 15-Jul-2008 13:39				Before: 1-Jul-2008 21:52									

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		0.9810	
Before		0.9832	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 15-Jul-2008 13:39			
Before: 1-Jul-2008 21:52			

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
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Master: 15-Jul-2008 13:34

Master: 15-Jul-2008 13:34

Electronics Cartridge Housing	ECH - SF	8198
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EDTC Housing	EDTH - B	8434
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Before: 25-Jul-2008 17:35

Before: 21-Jul-2008 22:25

Company: **Santos**

Schlumberger

Well: **Netherby 1**

Field: **Gas / Oil Exploration**

Rig: **Ocean Patriot**

Country: **Australia**

HRLT-PEX-HNGS-MSI

Sonic Scanner

Scale 1:500