

## Schlumberger

Company: **Essential Petroleum Resources Limited**

Well: Killarney EPRL 1

Field: PEP 152

## Rig: Hunt Rig #2

Country: **Australia**

<b>HALS-BHC-PEX-HNG</b> <b>Hi-Resolution Print</b> <b>Scale 1:200</b>			
<b>LOCATION</b>			
Datum GDA94 MGA94 Zone 54 Easting 609803.3 Northing 5763917.2	Elev.: K.B. 5.49 m G.L. 1.6 m D.F. 5.49 m		
Permanent Datum: Log Measured From: Drilling Measured From:	AHD ROTARY TABLE ROTARY TABLE	Elev.: 0 m 5.5 m above Perm. Datum	
State: Victoria	Max. Well Deviation 2 deg	Longitude 142°15' 24.22" E	Latitude 38°21' 22.24" S

[illegible]

Logging Date	18-Jun-2004				
Run Number	1				
Depth Driller	1640 m				
Schlumberger Depth	1634.8 m				
Bottom Log Interval	1632.4 m				
Top Log Interval	255.5 m				
Casing Driller Size @ Depth	9.625 in @ 255.8 m				
Casing Schlumberger	255.5 m				
Bit Size	8.500 in				
Type Fluid In Hole	4% KCl-PPHA				
Density	1.128 g/cm3	43 s			
Fluid Loss	6 cm3	8.5			
Source Of Sample	PIT				
RM @ Measured Temperature	0.231 ohm.m	@	13 degC	@	
RMF @ Measured Temperature	0.201 ohm.m	@	12 degC	@	
RMC @ Measured Temperature	0.243 ohm.m	@	13 degC	@	
Source RMF	PRESS	PRESS			
RM @ MRT	0.093 @ 63	0.080 @ 63	@	@	
Maximum Recorded Temperatures	63 degC				
Circulation Stopped	18-Jun-2004		0:00		
Logger On Bottom	18-Jun-2004		16:30		
Unit Number	3170	QEA			
Recorded By	G. Jonsson				
Witnessed By	G. Wakelin-King				

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			

2	2	2	2						2
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Date Created: 22-JUN-2004 12:26:46

## Depth Measuring Device

Type:	IDW-B
Serial Number:	-999
Calibration Date:	dd-Mmm-yyyy
Calibrator Serial Number:	-999
Calibration Cable Type:	7-42V
Wheel Correction 1:	-2
Wheel Correction 2:	-2

Type:	CMTD-B/A
Serial Number:	2268
Calibration Date:	13-Feb-2004
Calibrator Serial Number:	1050
Calibration Gain:	0.89
Calibration Offset:	56.00

Type:	7-42V
Serial Number:	78197
Length:	3699.97 M
Conveyance Method:	Wireline
Rig Type:	LAND

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 M
Rig Up Length At Bottom:	0.00 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	0.80 M
Tool Zero Check At Surface:	0.35 M

1. Depth correlated to downlog.
2. Cable stretch and rig up changes accounted for.
3. IDW wheel corrections set to  $-2$
- 4.
- 5.
- 6.

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OS1: CSAT-GR  
OS2: MDT  
OS3:  
OS4:  
OS5:

OS1:  
OS2:  
OS3:  
OS4:  
OS5:

## REMARKS: RUN NUMBER 2

This is the first run in hole. Full SLB depth control used.

Tool run with 1.5 inch standoffs as per tool sketch. HGNS eccentralised using bowspring

CNL, TLD, HALS and MCFL logged to casing shoe.

GR logged to surface

HNGS and Hi-resolution data logged to 1250m.

Neutron corrected for Borehole Salinity, Hole Size, Mud Weight and Mud Cake.

Density corrected for bit size and mud weight.

Resistivity corrected for hole size and standoff

Maximum recorded temperature of 63degC from thermometers in LEH-QT

Caliper Check in casing reads 8.5364 inch. 8.834 expected. Corrected for in final (this) log.

Sonic Check in casing reads 57us/ft

Additional Mud information:

Chloride: 21500 mg/L, Calcium: 320 mg/L, Sulphite: 80mg/L, KCl: 4.1%

Barite Present in mud

Elevation Rotary Table= 3.89m above Ground Level (GL=1.6m AHD)

RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: 10C0-306 FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

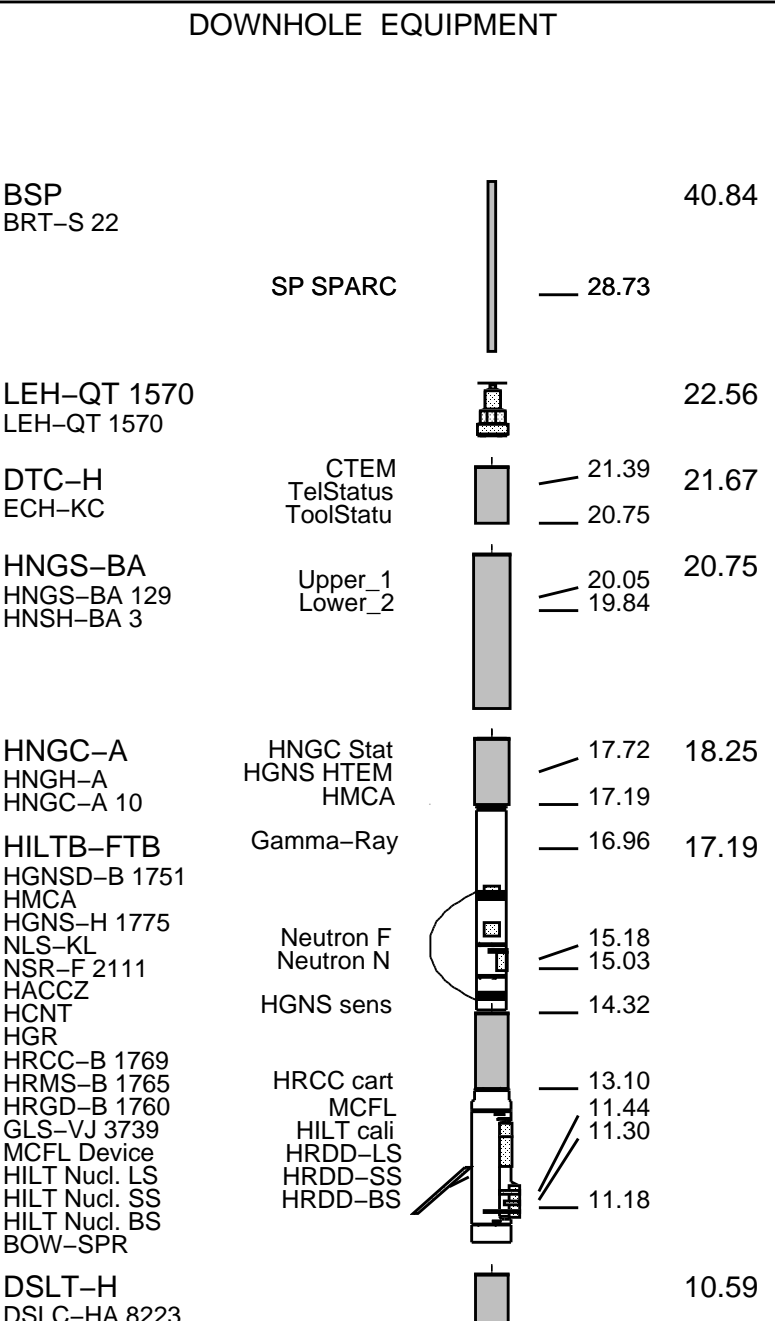
RUN 1

RUN 2

SURFACE EQUIPMENT

LCM-AA 2747  
GSR-U/Y  
NCT-B  
CNB-AB

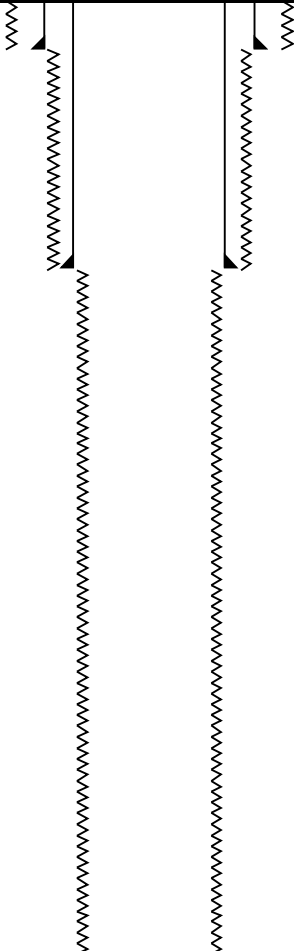
NCS-VB  
GSR-U  
WITM (DTS)-A

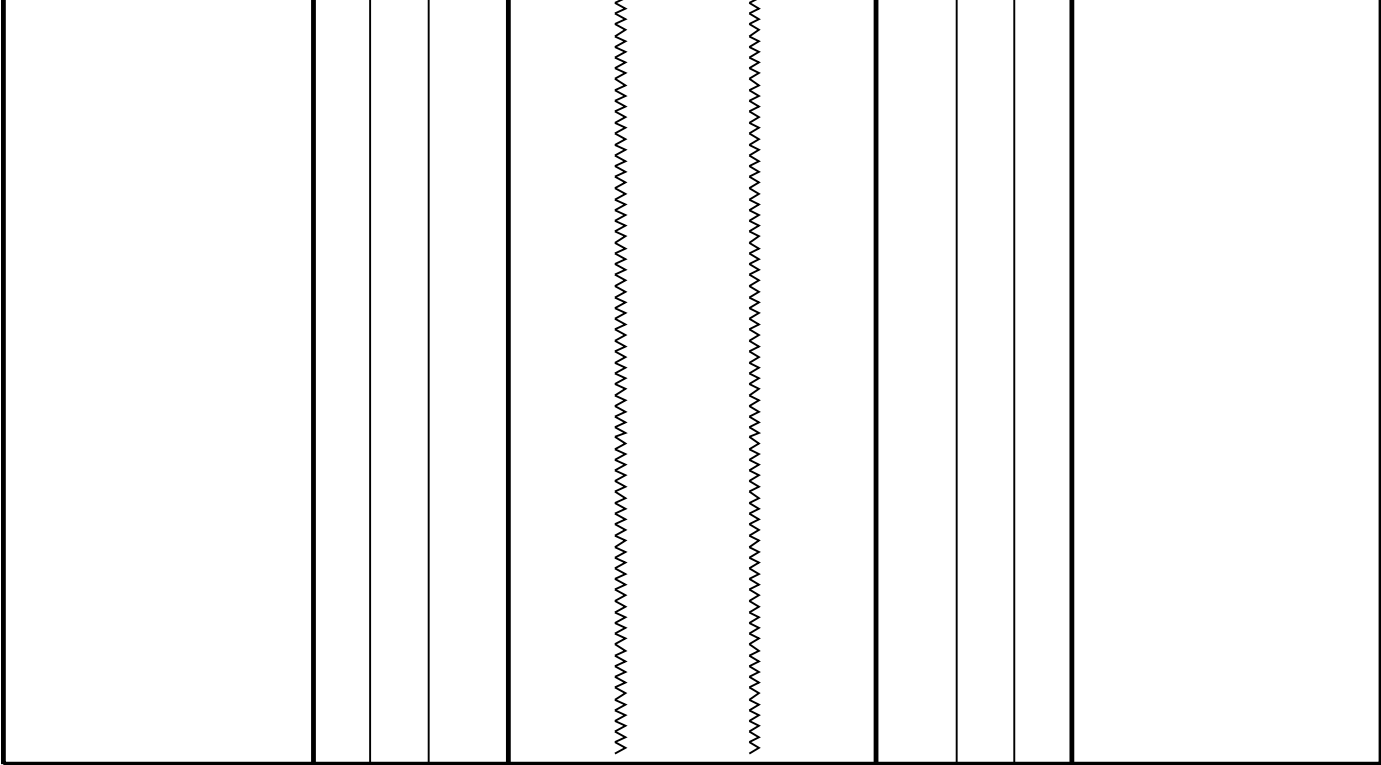


MAXIMUM STRING DIAMETER 6.63 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN METERS

1.5 IN  
Standoff

Rig Name: Hunt Rig 2  
Reference Datum: KB  
Elevation: 6.9

Production String	(in)		(m)	Well Schematic	(m)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0 0.0 45.6 45.9 0.0	17.500 13.375 13.375 12.250 9.625	Borehole Segment Casing String Casing Shoe Borehole Segment Casing String	
					255.8 258.0	9.625 8.500	Casing Shoe Borehole Segment	



High Resolution Resistivity–Sonic  
1:200 Scale

MAXIS Field Log

Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	24–Jun–2004 16:48	1636.8 M	20.8 M
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Output DLIS Files

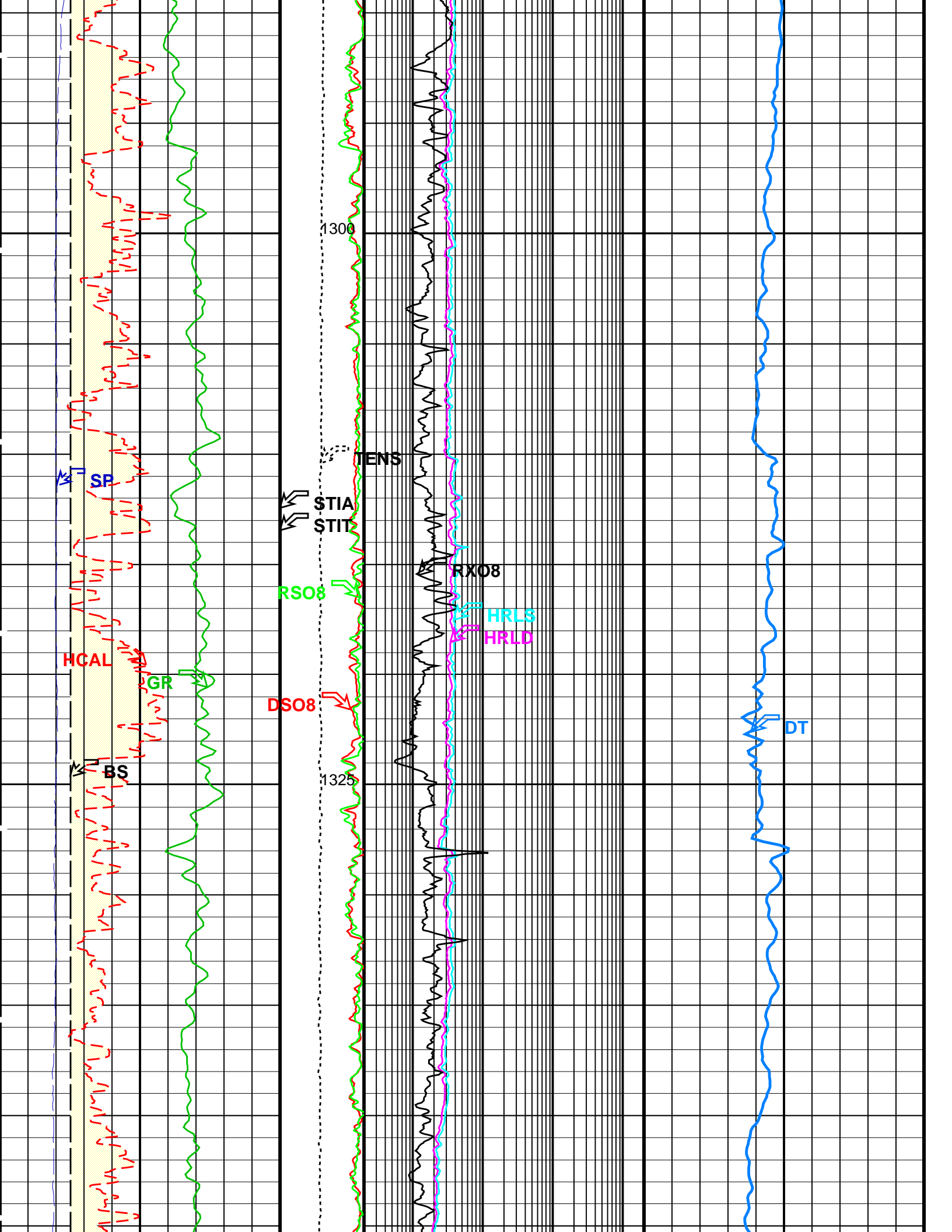
DEFAULT	HALS_SONIC_TLD_MCFL_019PUP	FN:81	PRODUCER	28–Jun–2004 11:56	1636.8 M	1253.3 M
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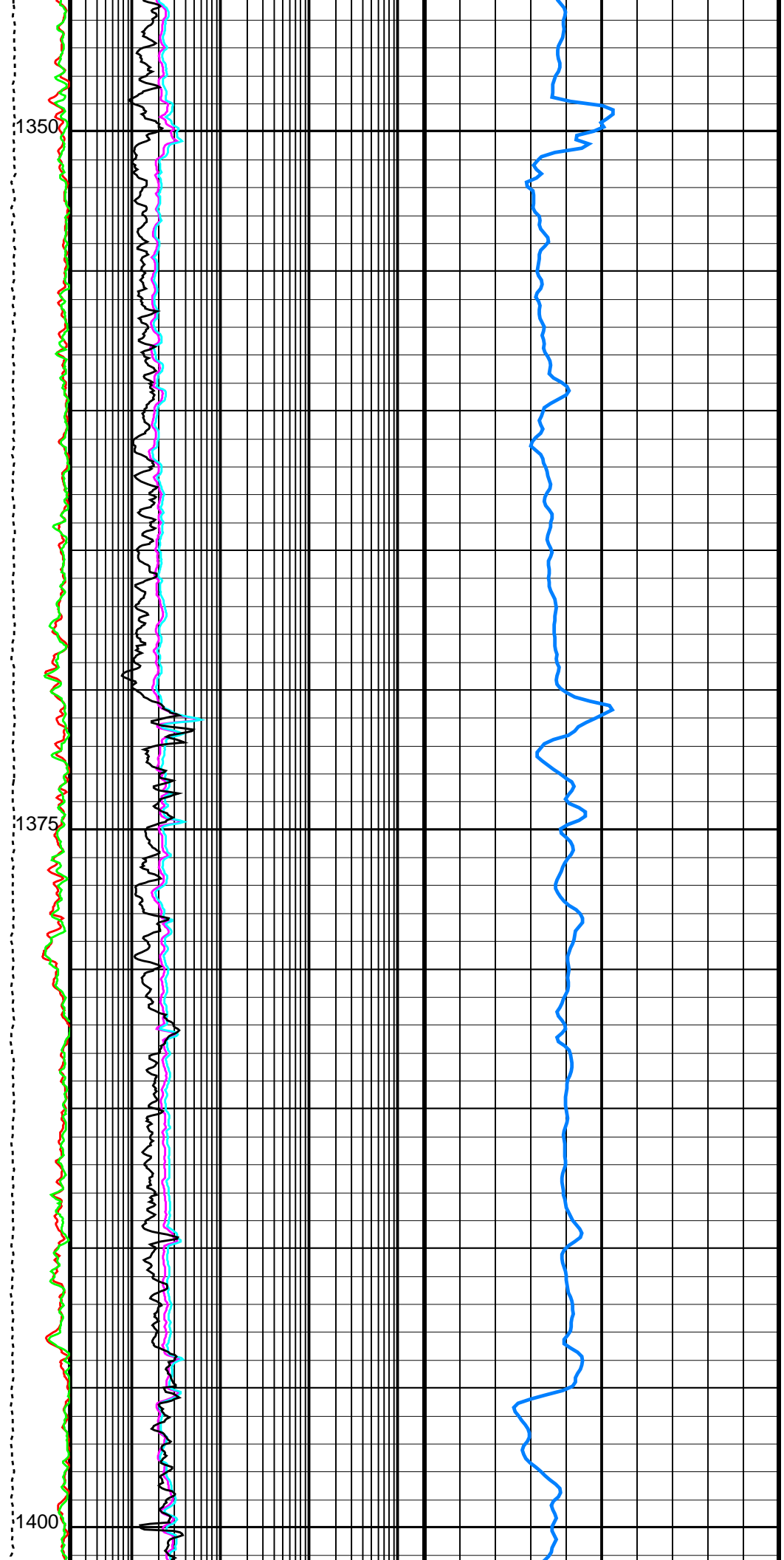
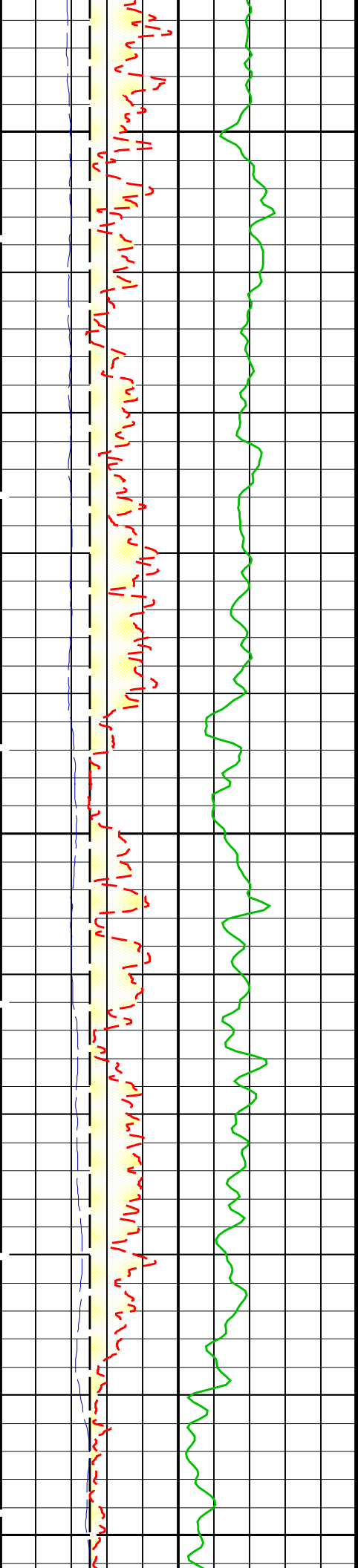
OP System Version: 10C0–306  
MCM

HALS–B	OP10–KP1	DSLT–H	OP10–KP1
HILTB–FTB	OP10–KP1	HNGC–A	OP10–KP1
HNGS–BA	OP10–KP1	DTC–H	10C0–306
BSP	10C0–306		

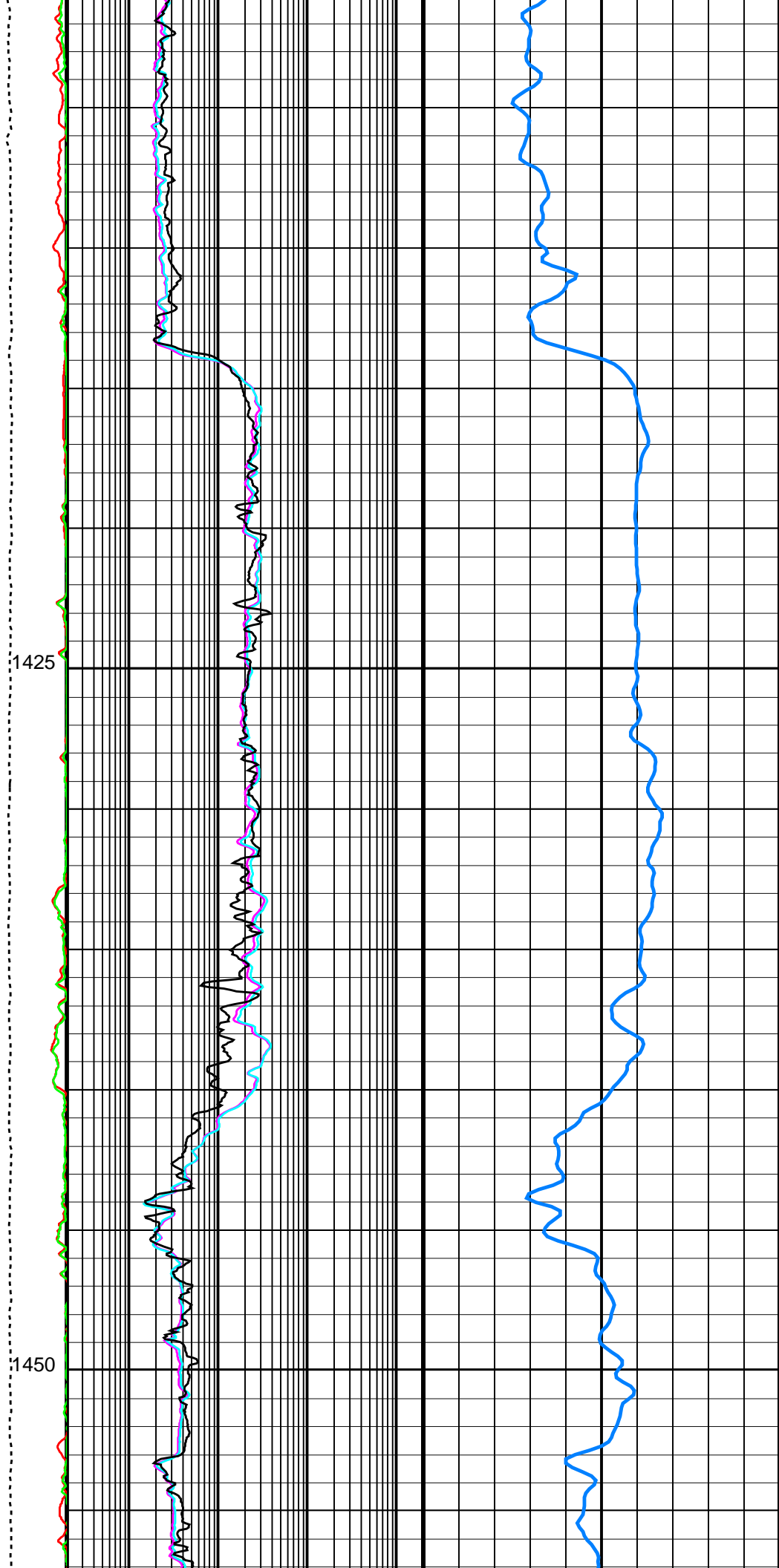
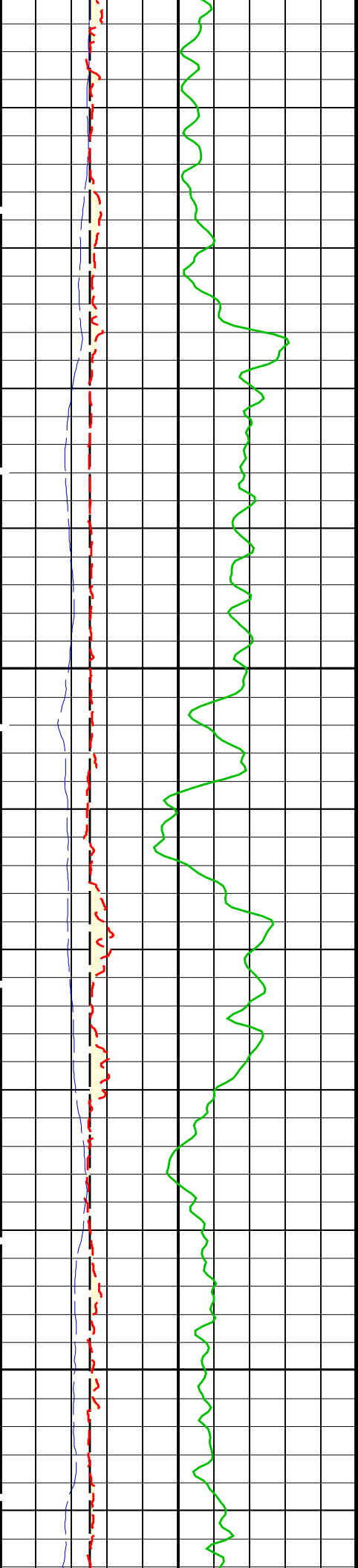
PIP SUMMARY

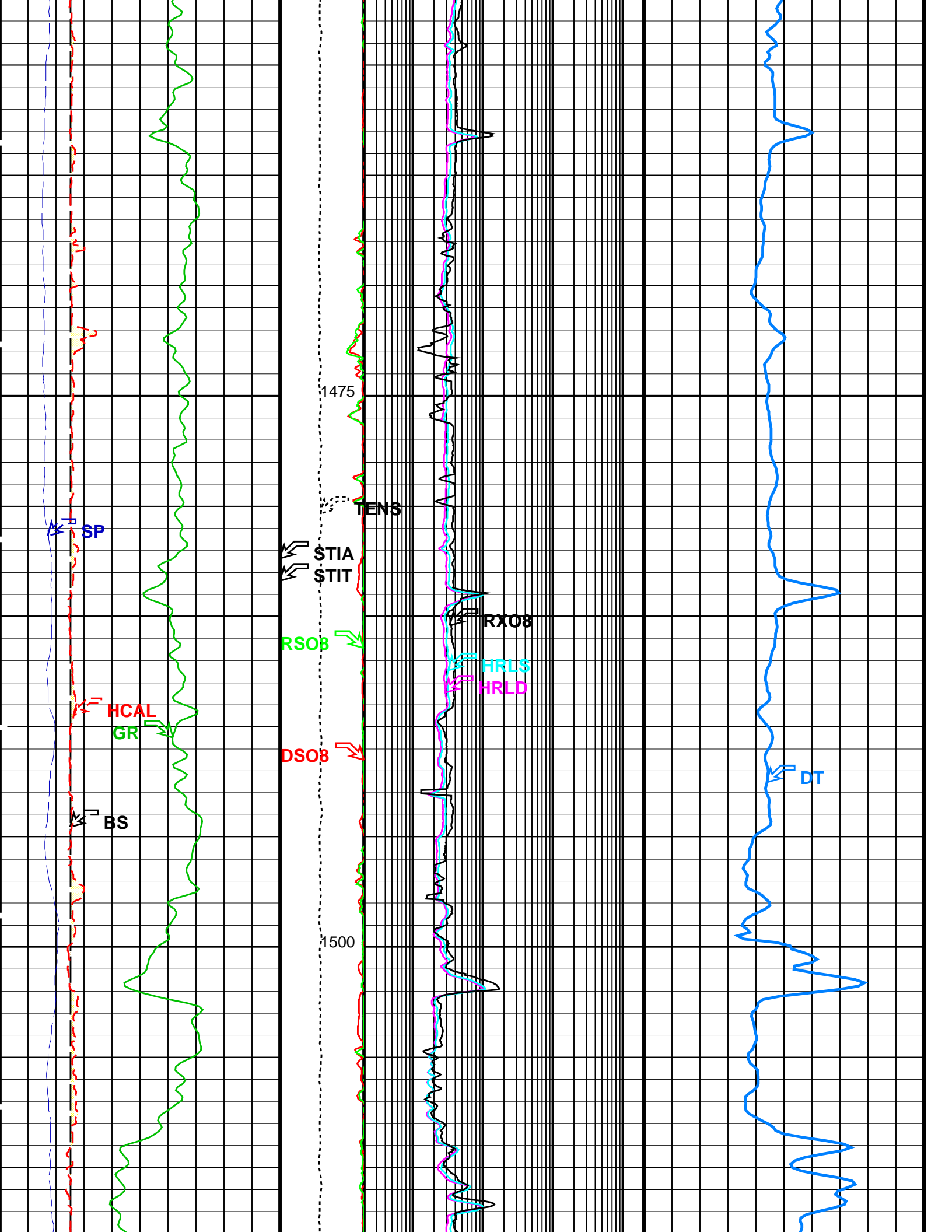


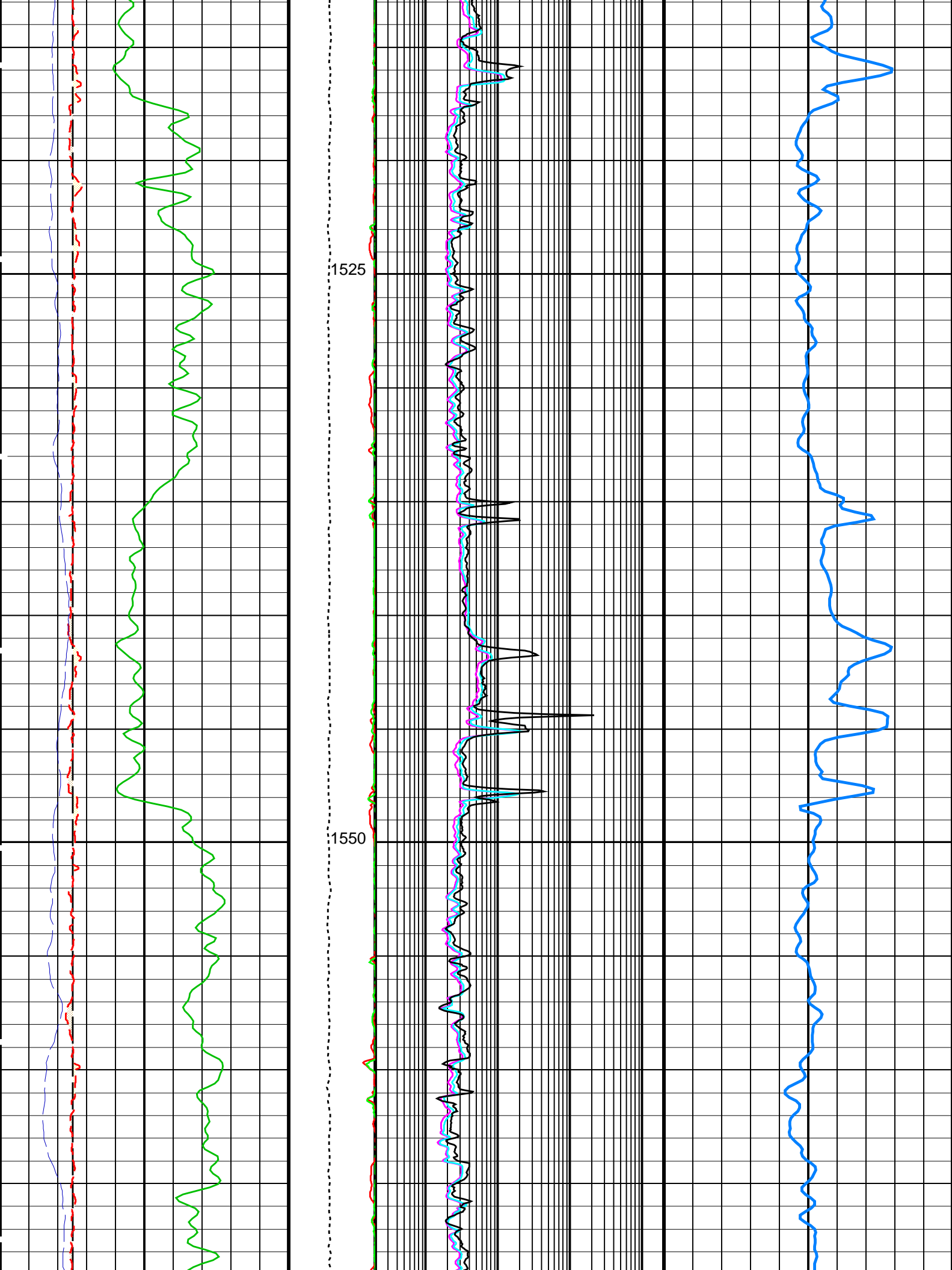


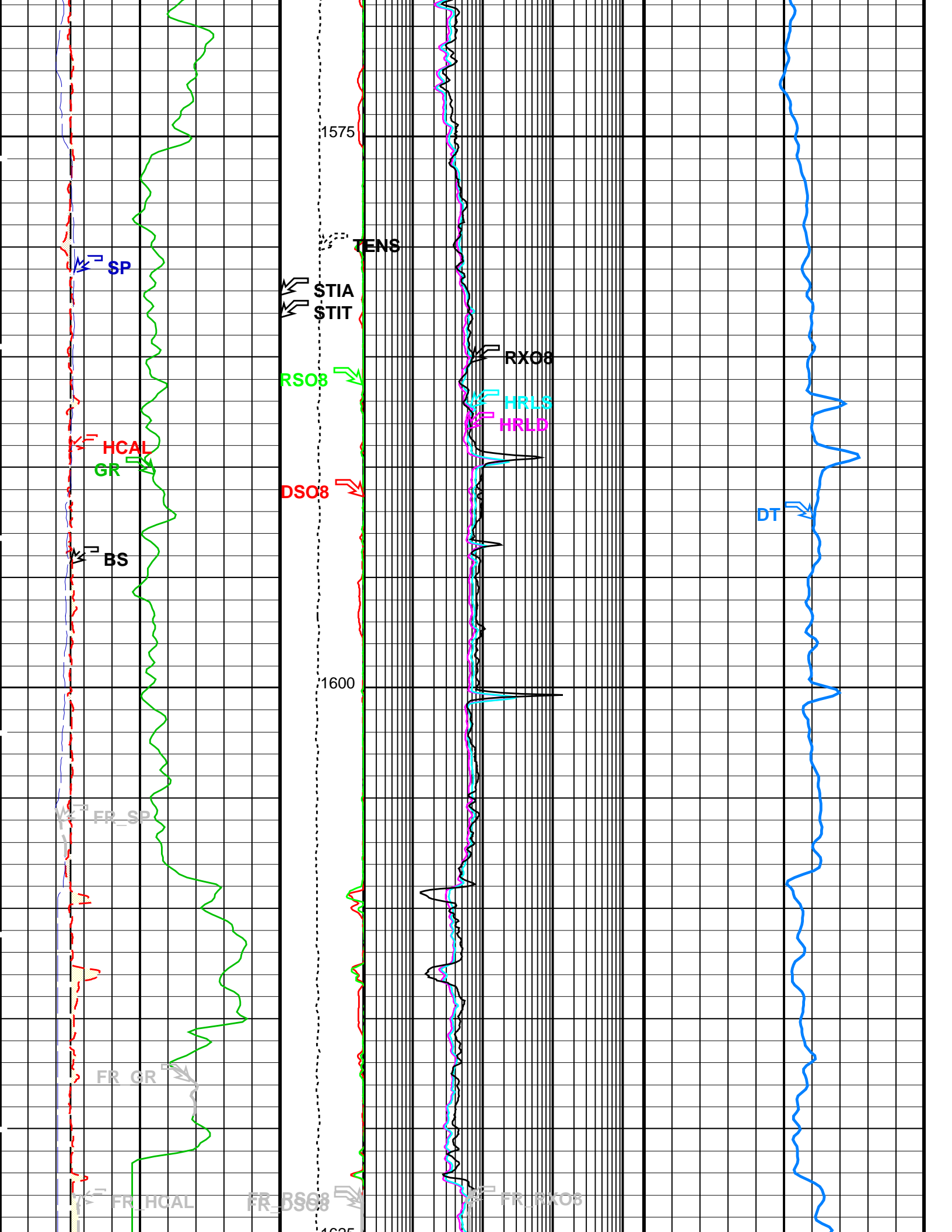


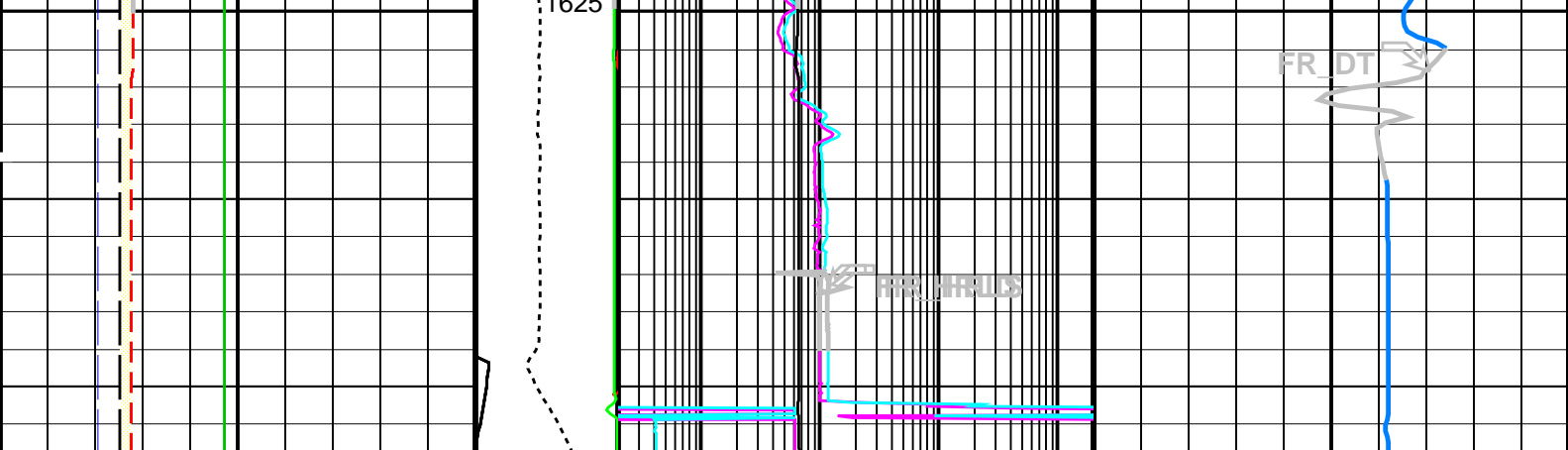












<div>SP (SP) (MV)</div> <div>-8020</div>	<div>Tension (TENS) (LBF)</div> <div>50000</div>	<div>High Resolution Deep Resistivity (HRLD) (OHMM)</div> <div>0.22000</div>	<div>Delta-T (DT) (US/F)</div> <div>15050</div>
<div>Bit Size (BS) (IN)</div> <div>616</div>	<div>H. Res. Density Standoff (DSO8)</div> <div>65 (MM) 0</div>	<div>High Resolution Shallow Resistivity (HRLS) (OHMM)</div> <div>0.22000</div>	
<div>Gamma Ray (GR) (GAPI)</div> <div>0150</div>	<div>H. Res. Resistivity Standoff (RSO8)</div> <div>65 (MM) 0</div>	<div>H. Res. Invaded Zone Resistivity (RXO8) (OHMM)</div> <div>0.22000</div>	
<div>HILT Caliper (HCAL) (IN)</div> <div>616</div>			
<div>Mudcake From HCAL to BS</div>			
<div>Washout From BS to HCAL</div>			

### PIP SUMMARY

Time Mark Every 60 S

## Parameters

DLIS Name	Description	Value
HALS-B: HILT Azimuthal Laterolog Sonde B		
ARIP_LTS	HALS Type of Image	Conductivities
ARIP_SHOULDER	HALS Long Tool String Correction	OFF
BHCC	HALS Shoulder Correction	OFF
BHT	HALS Borehole Correction	ON
DHOP	Bottom Hole Temperature (used in calculations)	63.3334 DEGC
	Diameter & Eccentering used in HALS Borehole Corrections	Caliper_Eccentered
GRCC	HALS Groningen Correction	OFF
HMSO	HALS Mechanical Standoff	1.5 IN
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
DSLTL-H: Digitizing Sonic Logging Tool		
DDEL	Telemetry Mode	DSLCL_FTB
DFAD_TYPE	DSLTL Firing Mode	SDDB
DIVL	Digitizing Delay	0
DRCS	DFAD type	DFAD2
DSIN	DSLTL Depth Sampling Interval	20
DTFS	DSLTL DLIS Recording Size	140
DWCO	Digitizing Sample Interval	10
GAI	DSLTL Telemetry Frame Size	316
MAHTR	Digitizing Word Count	140
MGA	Manual Gain	40
	Manual High Threshold Reference	120
	Maximum Gain	60

MOAR	Maximum Gain	100	
MNHTR	Minimum High Threshold Reference	140	US
NMSG	Near Minimum Sliding Gate	850	US
NMXG	Near Maximum Sliding Gate	R15	
RATE	Firing Rate	7	DB/M
SFAF	Sonic Formation Attenuation Factor	100	US/F
SGCL	Sliding Gate Closing Delta-T	60	US/F
SGDT	Sliding Gate Delta-T	100	US
SGW	Sliding Gate Width	2003	
SLEV	Signal Level for AGC	FULL	
WMOD	Waveform Firing Mode		
HILTB-FTB: High resolution Integrated Logging Tool-DTS			
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
DHC	Density Hole Correction	BS	
MPOF	MCFL Processing Operation Mode	ON	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	BARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	1	IN
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
BSP: Bridle SP			
SPNV	SP Next Value	0	MV
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth - Driller	1640.00	M
TDL	Total Depth - Logger	1634.80	M
System and Miscellaneous			
BS	Bit Size	8.500	IN
DFD	Drilling Fluid Density	1.13	G/C3
DO	Depth Offset for Playback	0.0	M
MST	Mud Sample Temperature	12.50	DEGC
PP	Playback Processing	RECOMPUTE	

Format: Res\_Sonic\_HR      Vertical Scale: 1:200      Graphics File Created: 28-Jun-2004 11:56

## OP System Version: 10C0-306

MCM

HALS-B	OP10-KP1	DSLT-H	OP10-KP1
HILTB-FTB	OP10-KP1	HNGC-A	OP10-KP1
HNGS-BA	OP10-KP1	DTC-H	10C0-306
BSP	10C0-306		

## Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	24-Jun-2004 16:48	1636.8 M	20.8 M
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## Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_019PUP	FN:81	PRODUCER	28-Jun-2004 11:56		
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**Schlumberger**

**High Resolution Nuclear  
1:200 Scale**

MAXIS Field Log

## Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	24-Jun-2004 16:48	1636.8 M	20.8 M
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## Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_019PUP	FN:81	PRODUCER	28-Jun-2004 11:56	1636.8 M	1253.3 M
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## MCM

OP10-KP1  
OP10-KP1  
10C0-306

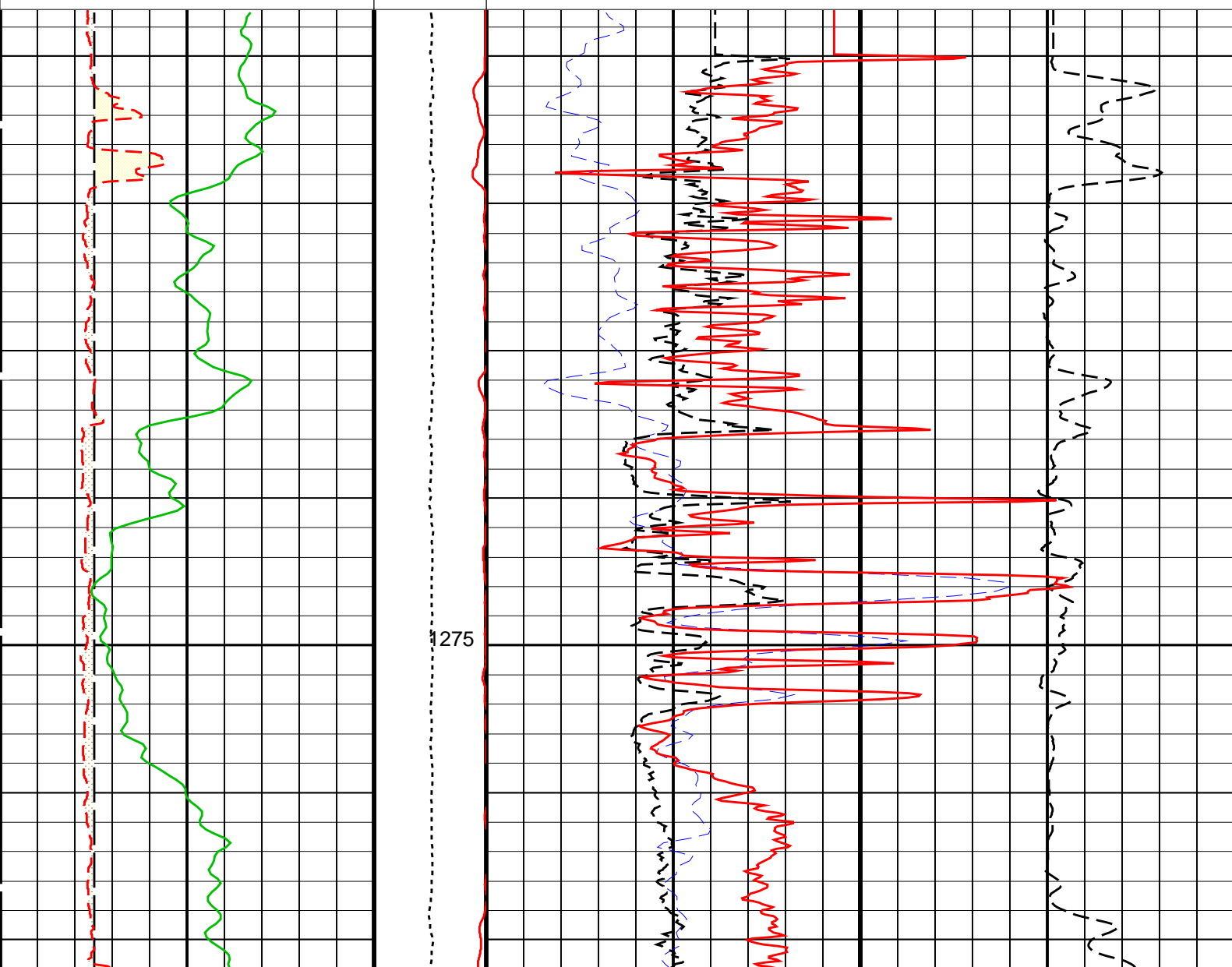
**Time Mark Every 60 S**

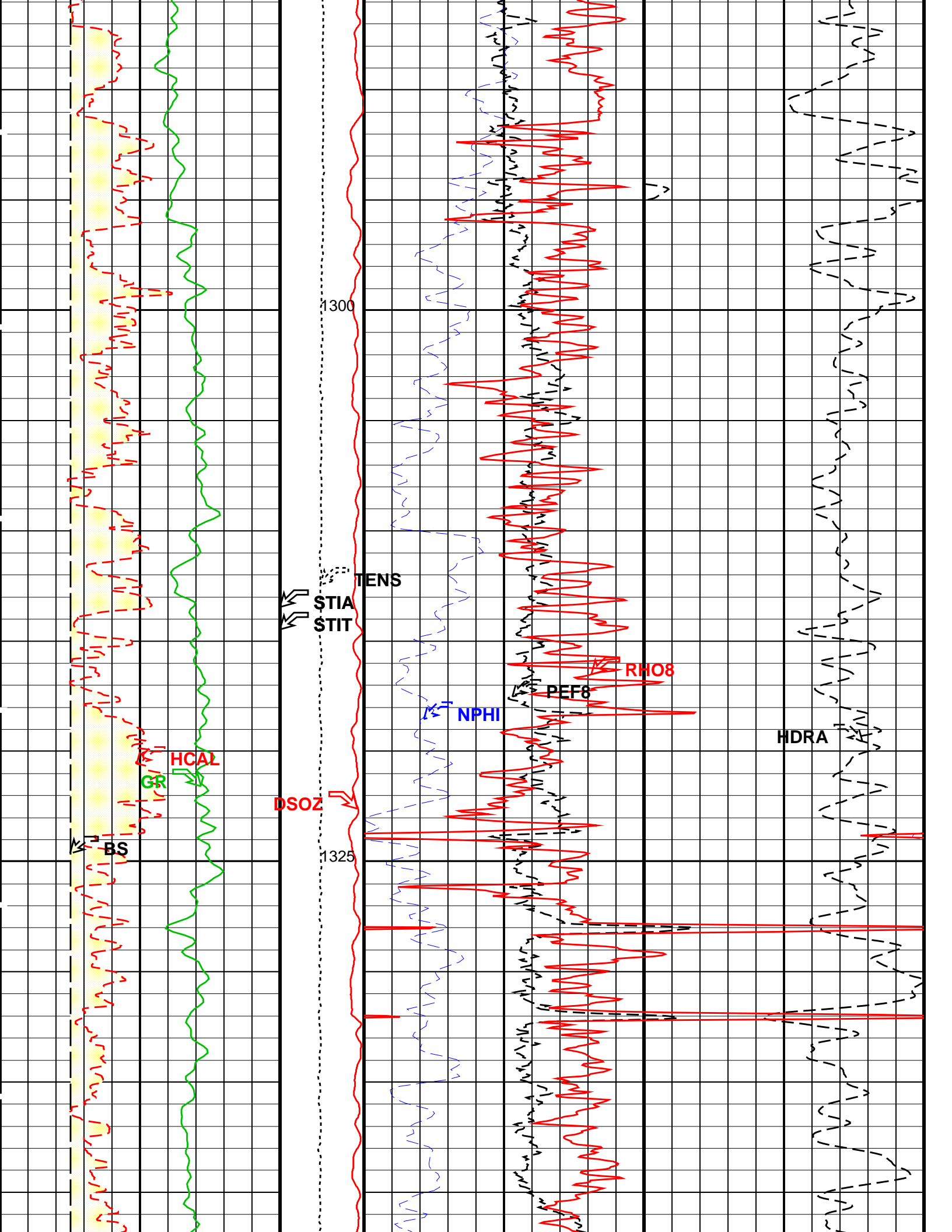
**Density Correction (HDRA)**  
-0.25 (G/C3) 0.25

6 (IN) 16

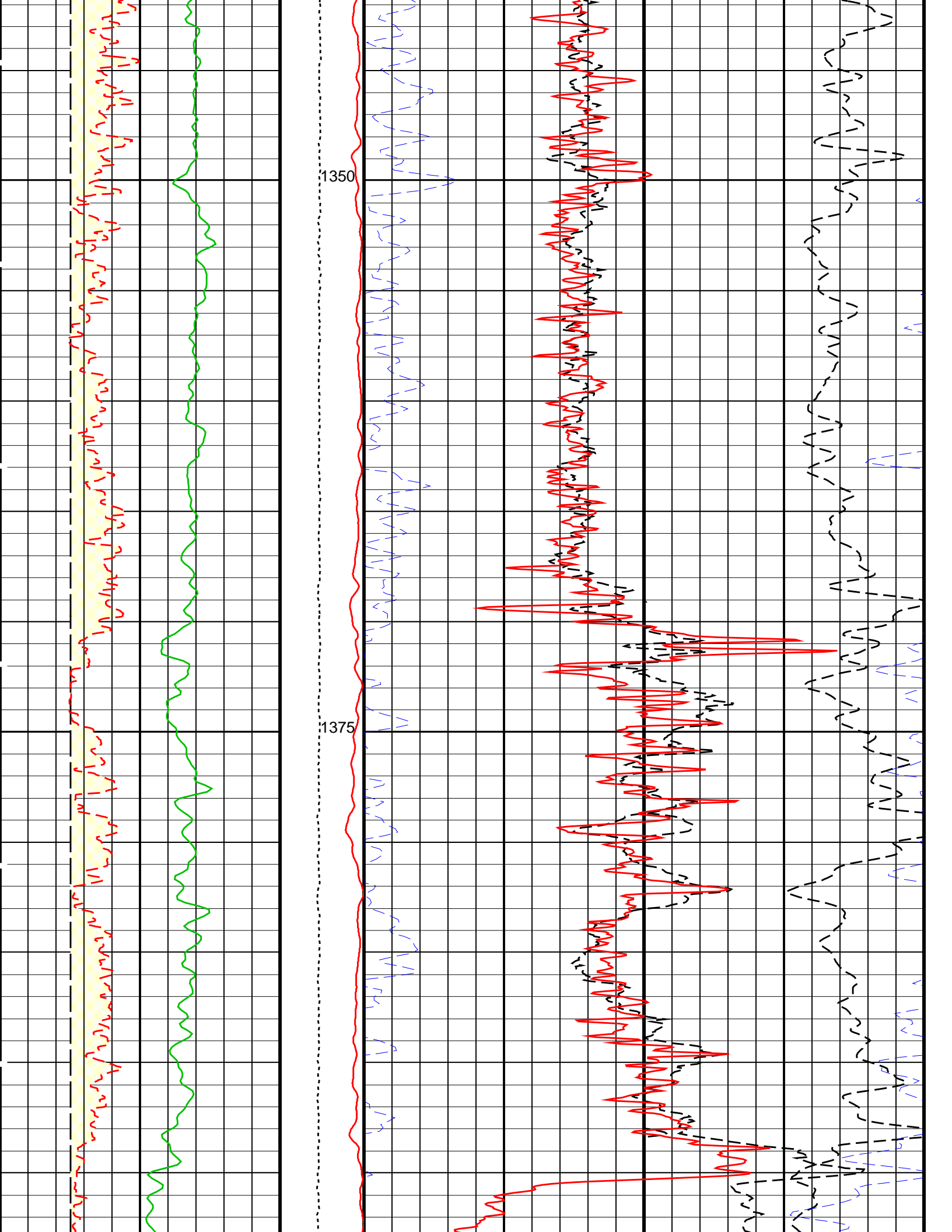
0 (GAPI) 150

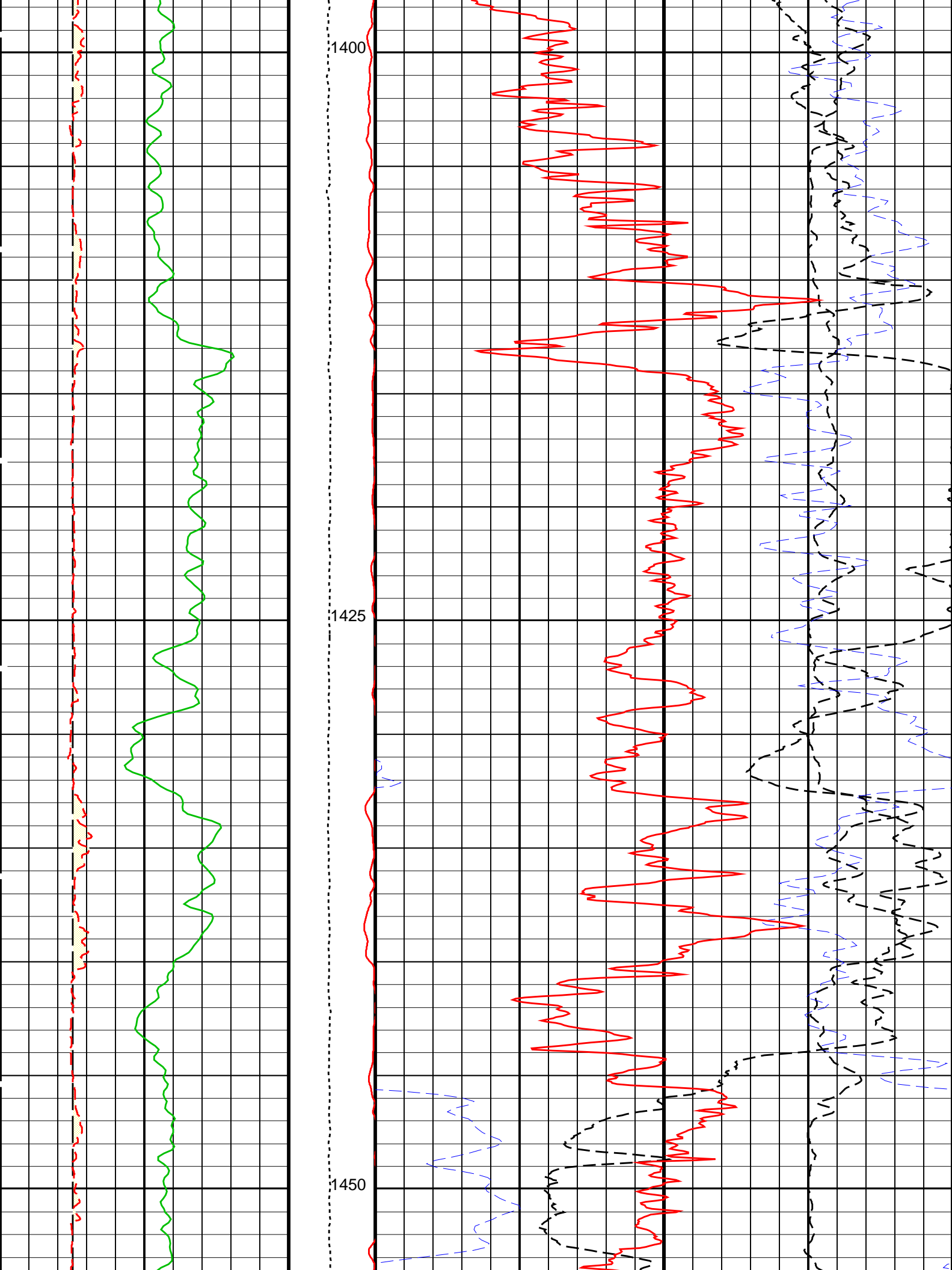
6 (IN) 16

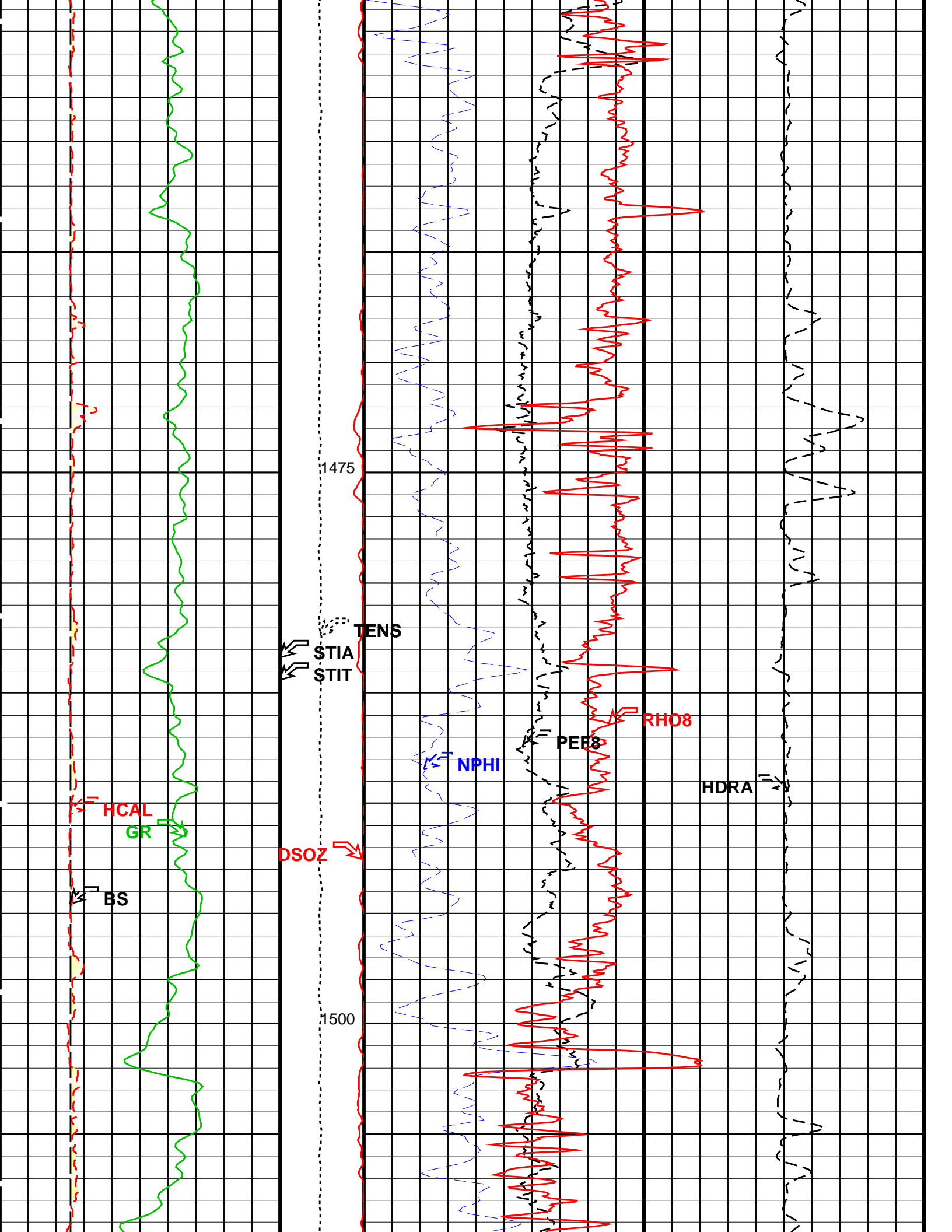


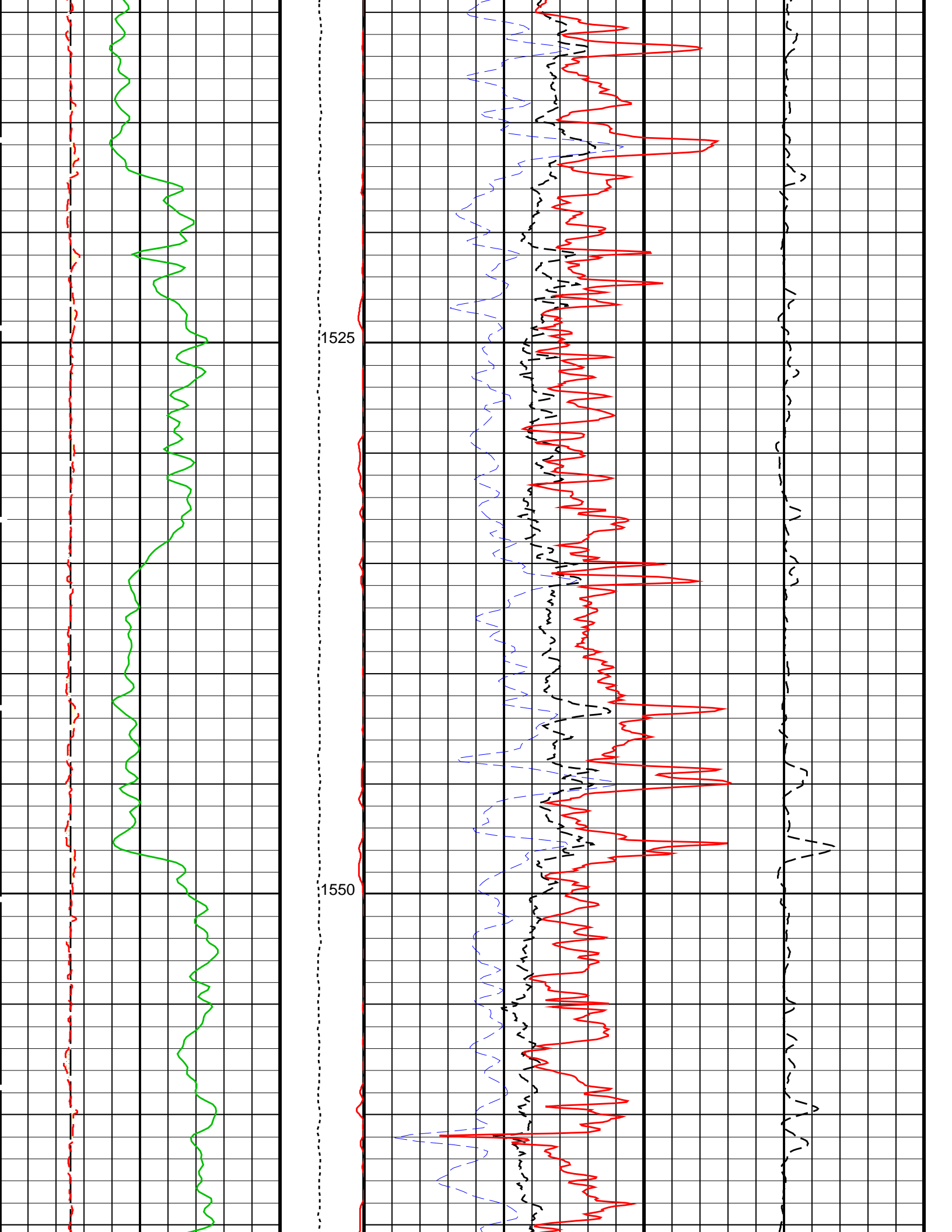


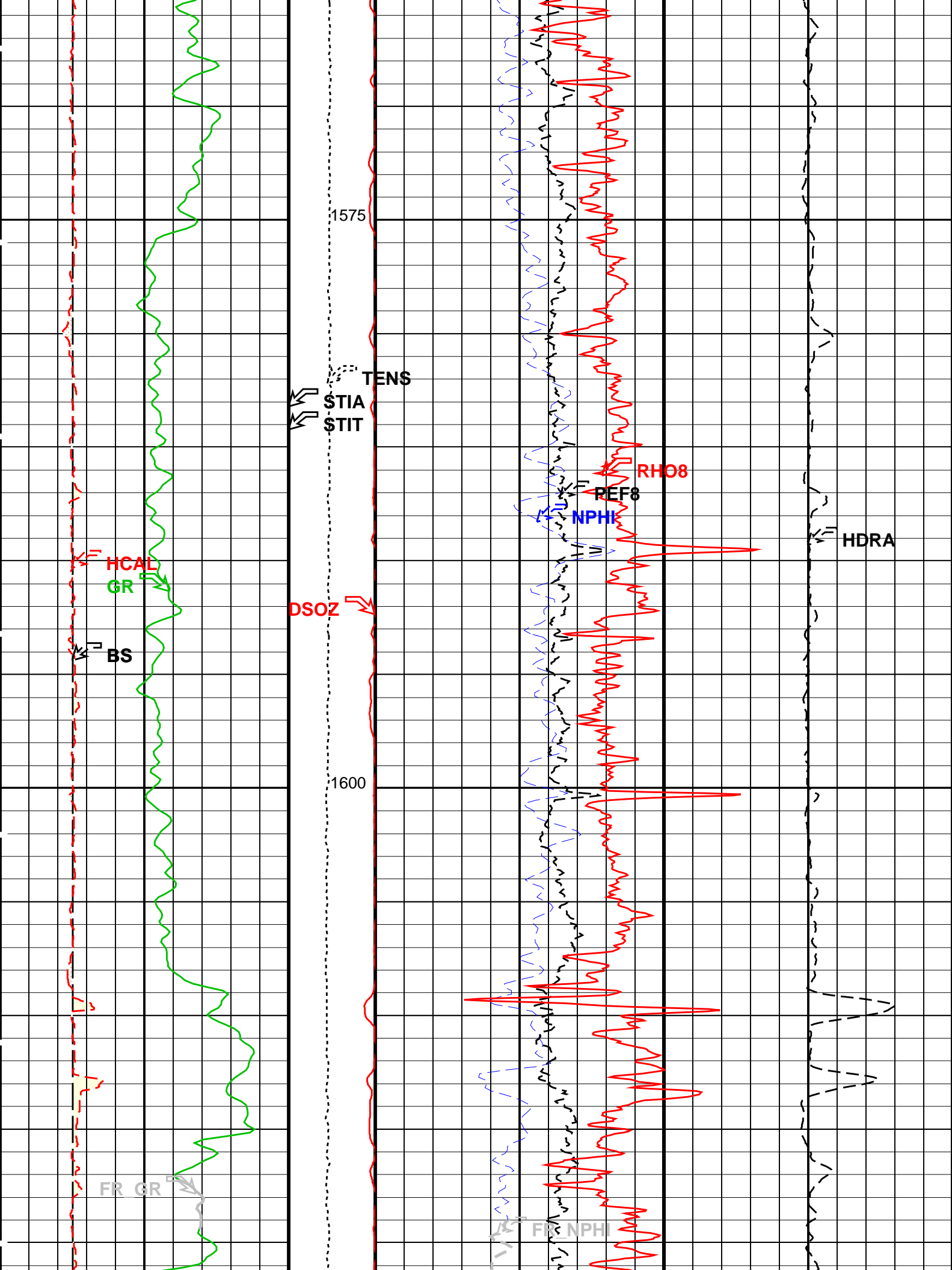


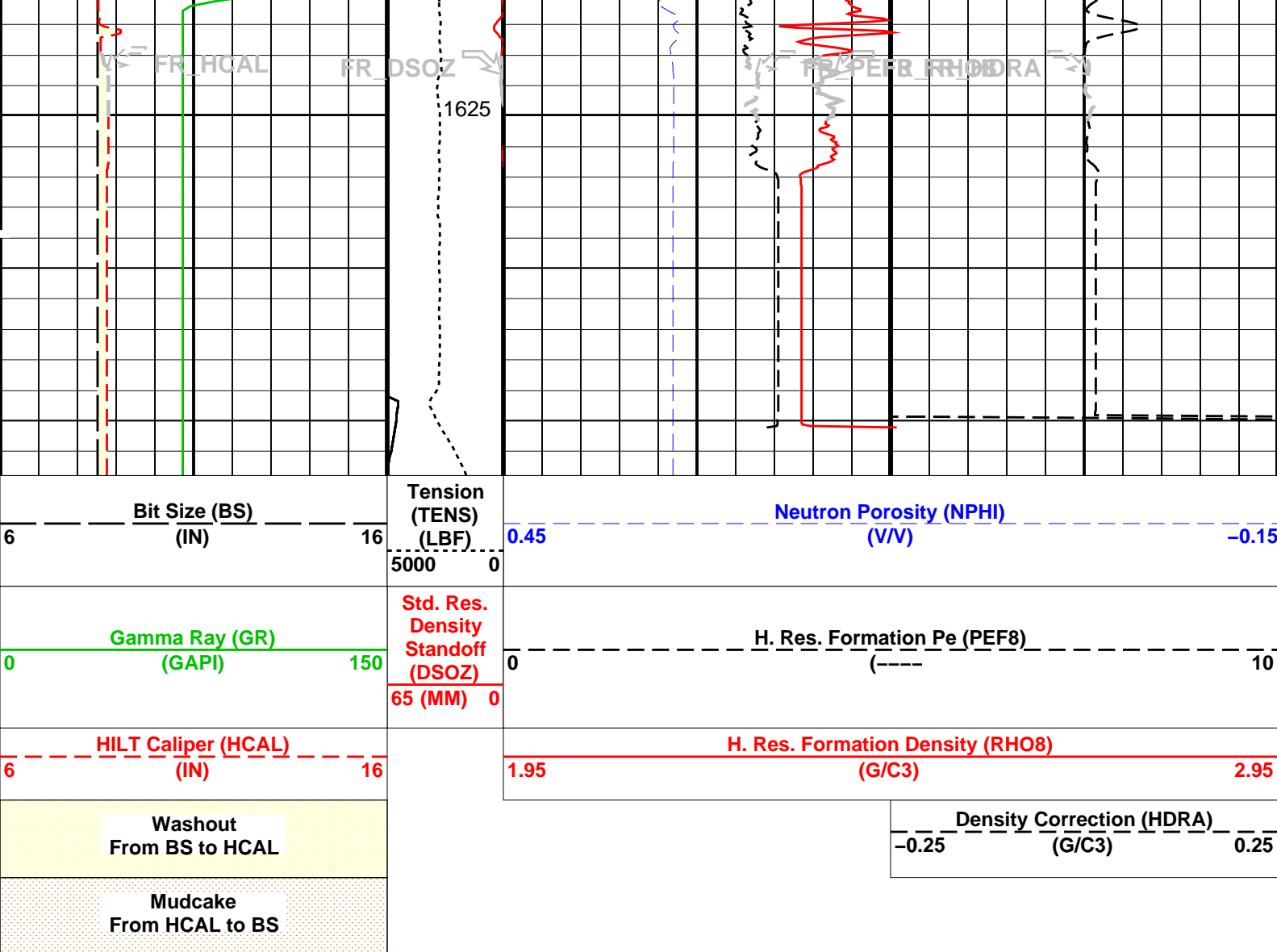












#### PIP SUMMARY

Time Mark Every 60 S

### Parameters

DLIS Name	Description	Value
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HALS-B: HILT Azimuthal Laterolog Sonde B

BHS	Borehole Status	OPEN
GCSE	Generalized Caliper Selection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE

HILTB-FTB: High resolution Integrated Logging Tool-DTS

BHS	Borehole Status	OPEN
DHC	Density Hole Correction	BS
GCSE	Generalized Caliper Selection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
NAAC	HRDD APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	BARITE
NPRM	HRDD Processing Mode	HiRes
NSAR	HRDD Depth Sampling Rate	1 IN

HNGBS-BA: Hostile Natural Gamma Ray Sonde

BHS	Borehole Status	OPEN
GCSE	Generalized Caliper Selection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE

HOLEV: Integrated Hole/Cement Volume

BHS	Borehole Status	OPEN
GCSE	Generalized Caliper Selection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE

STI: Stuck Tool Indicator

LBFR	Trigger for MAXIS First Reading Label	TDL
STKT	STI Stuck Threshold	0.762 M
TDD	Total Depth - Driller	1640.00 M
TDL	Total Depth - Logger	1634.80 M

System and Miscellaneous

BS	Bit Size	8.500 IN
PEF	Drilling Fluid Density	1.13 G/C3

DFD DO PP	Drilling Fluid Density Depth Offset for Playback Playback Processing	1.13 0.0 M	G/C3 RECOMPUTE
Format: Nuclear_HR	Vertical Scale: 1:200	Graphics File Created: 28-Jun-2004 11:56	
OP System Version: 10C0-306			
MCM			
HALS-B HILTB-FTB HNGS-BA BSP	OP10-KP1 OP10-KP1 OP10-KP1 10C0-306	DSL-T-H HNGC-A DTC-H	OP10-KP1 OP10-KP1 10C0-306
Input DLIS Files			
DEFAULT	HALS_SONIC_TLD_MCFL_017LUP FN:16	PRODUCER	24-Jun-2004 16:48 1636.8 M 20.8 M
Output DLIS Files			
DEFAULT	HALS_SONIC_TLD_MCFL_019PUP FN:81	PRODUCER	28-Jun-2004 11:56

**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: 18-Jun-2004 13:50							
Itot 1 Gain	1.000	N/A	0.998	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: 18-Jun-2004 13:50							
Iaux 1 Gain	1.000	N/A	0.994	N/A	N/A	0.035	MA
Iaux 1 Phase	0.000	N/A	-0.144	N/A	N/A	1.900	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux current mode 2							
Before: 18-Jun-2004 13:50							
Iaux 2 Gain	1.000	N/A	0.975	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: 18-Jun-2004 13:50							
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: 18-Jun-2004 13:50							
I0 3B Gain	1.000	N/A	0.979	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: 18-Jun-2004 13:50							
Zvt 1 Gain	1.000	N/A	0.994	N/A	N/A	0.025	MV
Zvt 2 Gain	1.000	N/A	0.997	N/A	N/A	0.045	MV
Zvt 3 Gain	1.000	N/A	1.004	N/A	N/A	0.045	MV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Torpedo Voltage Phases							
Before: 18-Jun-2004 13:50							
Zvt 1 Phase	0.000	N/A	-0.098	N/A	N/A	2.300	DEG

Zvt 2 Phase	0.000	N/A	-0.000	N/A	N/A	0.800	DEG
Zvt 3 Phase	0.000	N/A	-0.128	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Upper Bridle Voltage mode 1							
Before: 18-Jun-2004 13:50							
Zvb 1 Gain	1.000	N/A	0.994	N/A	N/A	0.025	MV
Zvb 1 Phase	0.000	N/A	-0.125	N/A	N/A	2.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1-M2 Voltage gains							
Before: 18-Jun-2004 13:50							
ZVM 1 Gain	1.000	N/A	0.996	N/A	N/A	0.039	UV
ZVM 2 Gain	1.000	N/A	0.992	N/A	N/A	0.019	UV
ZVM 3 Gain	1.000	N/A	0.991	N/A	N/A	0.019	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1-M2 Voltage Phases							
Before: 18-Jun-2004 13:50							
ZVM 1 Phase	0.000	N/A	0.229	N/A	N/A	3.800	DEG
ZVM 2 Phase	0.000	N/A	1.869	N/A	N/A	1.300	DEG
ZVM 3 Phase	0.000	N/A	1.017	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1-A0* Voltage gains							
Before: 18-Jun-2004 13:50							
ZVH 1 Gain	1.000	N/A	0.997	N/A	N/A	0.013	UV
ZVH 2 Gain	1.000	N/A	0.990	N/A	N/A	0.046	UV
ZVH 3 Gain	1.000	N/A	0.990	N/A	N/A	0.046	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1-A0* Voltage Phases							
Before: 18-Jun-2004 13:50							
ZVH 1 Phase	0.000	N/A	0.111	N/A	N/A	3.800	DEG
ZVH 2 Phase	0.000	N/A	2.000	N/A	N/A	1.300	DEG
ZVH 3 Phase	0.000	N/A	1.019	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage gains							
Before: 18-Jun-2004 13:50							
ZVA 1 Gain	1.000	N/A	1.086	N/A	N/A	0.032	MV
ZVA 2 Gain	1.000	N/A	1.063	N/A	N/A	0.045	MV
ZVA 3 Gain	1.000	N/A	1.015	N/A	N/A	0.045	MV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage Phases							
Before: 18-Jun-2004 13:50							
ZVA 1 Phase	0.000	N/A	0.572	N/A	N/A	2.300	DEG
ZVA 2 Phase	0.000	N/A	0.026	N/A	N/A	0.800	DEG
ZVA 3 Phase	0.000	N/A	0.128	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*-A0** Diff. Voltage mode 1							
Before: 18-Jun-2004 13:50							
ZVD 1 Gain	1.000	N/A	0.997	N/A	N/A	0.047	UV
ZVD 1 Phase	0.000	N/A	0.093	N/A	N/A	3.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*-A0** Diff. Voltage mode 2							
Before: 18-Jun-2004 13:50							
ZVD 2 Gain	1.000	N/A	0.983	N/A	N/A	0.056	UV
ZVD 2 Phase	0.000	N/A	1.294	N/A	N/A	1.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*-A0** Diff. Voltage mode 3A							
Before: 18-Jun-2004 13:50							
ZVD 3A Gain	1.000	N/A	0.987	N/A	N/A	0.056	UV
ZVD 3A Phase	0.000	N/A	0.601	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*-A0** Diff. Voltage mode 3B							
Before: 18-Jun-2004 13:50							
ZVD 3B Gain	1.000	N/A	1.000	N/A	N/A	0.054	UV
ZVD 3B Phase	0.000	N/A	-0.028	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 1							
Before: 18-Jun-2004 13:50							
ZVV 1 Gain	1.000	N/A	0.997	N/A	N/A	0.022	UV
ZVV 1 Phase	0.000	N/A	0.164	N/A	N/A	2.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 2							
Before: 18-Jun-2004 13:50							
ZVV 2 Gain	1.000	N/A	0.983	N/A	N/A	0.036	UV
ZVV 2 Phase	0.000	N/A	2.642	N/A	N/A	1.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 1							
Before: 18-Jun-2004 13:50							
Az 1 Gain – 0	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 1	1.000	N/A	0.998	N/A	N/A	0.047	UV
Az 1 Gain – 2	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 3	1.000	N/A	0.994	N/A	N/A	0.047	UV
Az 1 Gain – 4	1.000	N/A	1.000	N/A	N/A	0.047	UV
Az 1 Gain – 5	1.000	N/A	0.999	N/A	N/A	0.047	UV



Az 1 Gain – 6	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 7	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 8	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 9	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 10	1.000	N/A	1.001	N/A	N/A	0.047	UV
Az 1 Gain – 11	1.000	N/A	0.997	N/A	N/A	0.047	UV
AZ 1 Phase – 0	0.000	N/A	-0.004	N/A	N/A	3.800	DEG
AZ 1 Phase – 1	0.000	N/A	0.129	N/A	N/A	3.800	DEG
AZ 1 Phase – 2	0.000	N/A	0.100	N/A	N/A	3.800	DEG
AZ 1 Phase – 3	0.000	N/A	0.103	N/A	N/A	3.800	DEG
AZ 1 Phase – 4	0.000	N/A	0.205	N/A	N/A	3.800	DEG
AZ 1 Phase – 5	0.000	N/A	0.089	N/A	N/A	3.800	DEG
AZ 1 Phase – 6	0.000	N/A	0.067	N/A	N/A	3.800	DEG
AZ 1 Phase – 7	0.000	N/A	0.008	N/A	N/A	3.800	DEG
AZ 1 Phase – 8	0.000	N/A	0.122	N/A	N/A	3.800	DEG
AZ 1 Phase – 9	0.000	N/A	0.012	N/A	N/A	3.800	DEG
AZ 1 Phase – 10	0.000	N/A	0.123	N/A	N/A	3.800	DEG
AZ 1 Phase – 11	0.000	N/A	0.102	N/A	N/A	3.800	DEG

#### HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 2

Before: 18-Jun-2004 13:50

Az 2 Gain – 0	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 1	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain – 2	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 3	1.000	N/A	0.979	N/A	N/A	0.056	UV
Az 2 Gain – 4	1.000	N/A	0.985	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	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 7	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 8	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain – 9	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 10	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 2 Gain – 11	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Phase – 0	0.000	N/A	1.369	N/A	N/A	1.300	DEG
Az 2 Phase – 1	0.000	N/A	1.320	N/A	N/A	1.300	DEG
Az 2 Phase – 2	0.000	N/A	1.339	N/A	N/A	1.300	DEG
Az 2 Phase – 3	0.000	N/A	1.323	N/A	N/A	1.300	DEG
Az 2 Phase – 4	0.000	N/A	1.353	N/A	N/A	1.300	DEG
Az 2 Phase – 5	0.000	N/A	1.370	N/A	N/A	1.300	DEG
Az 2 Phase – 6	0.000	N/A	1.385	N/A	N/A	1.300	DEG
Az 2 Phase – 7	0.000	N/A	1.386	N/A	N/A	1.300	DEG
Az 2 Phase – 8	0.000	N/A	1.402	N/A	N/A	1.300	DEG
Az 2 Phase – 9	0.000	N/A	1.364	N/A	N/A	1.300	DEG
Az 2 Phase – 10	0.000	N/A	1.409	N/A	N/A	1.300	DEG
Az 2 Phase – 11	0.000	N/A	1.285	N/A	N/A	1.300	DEG

#### HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3A

Before: 18-Jun-2004 13:50

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	0.988	N/A	N/A	0.056	UV
Az 3A Gain – 2	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 3	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 3A Gain – 4	1.000	N/A	0.990	N/A	N/A	0.056	UV
Az 3A Gain – 5	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 6	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain – 7	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 3A Gain – 8	1.000	N/A	0.987	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	0.991	N/A	N/A	0.056	UV
Az 3A Gain – 11	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Phase – 0	0.000	N/A	0.617	N/A	N/A	1.000	DEG
Az 3A Phase – 1	0.000	N/A	0.607	N/A	N/A	1.000	DEG
Az 3A Phase – 2	0.000	N/A	0.611	N/A	N/A	1.000	DEG
Az 3A Phase – 3	0.000	N/A	0.607	N/A	N/A	1.000	DEG
Az 3A Phase – 4	0.000	N/A	0.640	N/A	N/A	1.000	DEG
Az 3A Phase – 5	0.000	N/A	0.631	N/A	N/A	1.000	DEG
Az 3A Phase – 6	0.000	N/A	0.631	N/A	N/A	1.000	DEG
Az 3A Phase – 7	0.000	N/A	0.623	N/A	N/A	1.000	DEG
Az 3A Phase – 8	0.000	N/A	0.639	N/A	N/A	1.000	DEG
Az 3A Phase – 9	0.000	N/A	0.597	N/A	N/A	1.000	DEG
Az 3A Phase – 10	0.000	N/A	0.650	N/A	N/A	1.000	DEG
Az 3A Phase – 11	0.000	N/A	0.588	N/A	N/A	1.000	DEG

#### HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3B

Before: 18-Jun-2004 13:50

Az 3B Gain – 0	1.000	N/A	1.008	N/A	N/A	0.054	UV
Az 3B Gain – 1	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Gain – 2	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 3	1.000	N/A	0.998	N/A	N/A	0.054	UV
Az 3B Gain – 4	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 5	1.000	N/A	1.006	N/A	N/A	0.054	UV

Az 3B Gain – 6	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 7	1.000	N/A	1.007	N/A	N/A	0.054	UV
Az 3B Gain – 8	1.000	N/A	1.006	N/A	N/A	0.054	UV
Az 3B Gain – 9	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Gain – 10	1.000	N/A	1.010	N/A	N/A	0.054	UV
Az 3B Gain – 11	1.000	N/A	0.997	N/A	N/A	0.054	UV
Az 3B Phase – 0	0.000	N/A	0.204	N/A	N/A	1.000	DEG
Az 3B Phase – 1	0.000	N/A	0.090	N/A	N/A	1.000	DEG
Az 3B Phase – 2	0.000	N/A	0.036	N/A	N/A	1.000	DEG
Az 3B Phase – 3	0.000	N/A	0.098	N/A	N/A	1.000	DEG
Az 3B Phase – 4	0.000	N/A	0.050	N/A	N/A	1.000	DEG
Az 3B Phase – 5	0.000	N/A	0.185	N/A	N/A	1.000	DEG
Az 3B Phase – 6	0.000	N/A	0.127	N/A	N/A	1.000	DEG
Az 3B Phase – 7	0.000	N/A	0.255	N/A	N/A	1.000	DEG
Az 3B Phase – 8	0.000	N/A	0.175	N/A	N/A	1.000	DEG
Az 3B Phase – 9	0.000	N/A	0.198	N/A	N/A	1.000	DEG
Az 3B Phase – 10	0.000	N/A	0.193	N/A	N/A	1.000	DEG
Az 3B Phase – 11	0.000	N/A	-0.017	N/A	N/A	1.000	DEG

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary

Before: 17–Jun–2004 22:47

BS Window Ratio	1.011	N/A	1.012	N/A	N/A	N/A	
BS Window Sum	16100	N/A	16100	N/A	N/A	N/A	CPS
SS Window Ratio	0.4808	N/A	0.4798	N/A	N/A	N/A	
SS Window Sum	10970	N/A	10980	N/A	N/A	N/A	CPS
LS Window Ratio	0.2955	N/A	0.2968	N/A	N/A	N/A	
LS Window Sum	1160	N/A	1161	N/A	N/A	N/A	CPS

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

Before: 17–Jun–2004 22:47

BS PM High Voltage (Command)	1495	N/A	1502	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1944	N/A	1945	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1839	N/A	1850	N/A	N/A	N/A	V

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

Before: 17–Jun–2004 22:47

BS Crystal Resolution	12.17	N/A	12.16	N/A	N/A	N/A	%
SS Crystal Resolution	11.48	N/A	11.68	N/A	N/A	N/A	%
LS Crystal Resolution	9.283	N/A	9.321	N/A	N/A	N/A	%

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

Before: 17–Jun–2004 22:27

Raw B0 Resistivity	3875	N/A	3800	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3774	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3790	N/A	N/A	N/A	OHMM

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

Before: 17–Jun–2004 22:30

HILT Caliper Zero Measurement	8.000	N/A	8.227	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.35	N/A	N/A	N/A	IN

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

Before: 17–Jun–2004 22:26

Gamma Ray Background	30.00	N/A	37.15	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	177.4	N/A	177.4	N/A	N/A	16.12	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: 15–Jun–2004 17:21 Before: 17–Jun–2004 22:26

CNTC Background	32.30	32.30	31.19	N/A	N/A	4.845	CPS
CFTC Background	29.13	29.13	28.55	N/A	N/A	4.370	CPS

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

Before: 18–Jun–2004 13:50

Z–Axis Acceleration	9.810	N/A	9.803	N/A	N/A	N/A	M/S2
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#### High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results

Master: 15–Jun–2004 11:26

Rho Aluminum	2.596	2.599	---	---	---	---	G/C3
Rho Magnesium	1.686	1.688	---	---	---	---	G/C3
Pe Aluminum	2.570	2.561	---	---	---	---	
Pe Magnesium	2.650	2.615	---	---	---	---	

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

Master: 15–Jun–2004 11:26

BS Average Deviation	0	0.4141	---	---	---	---	%
BS Max Deviation	0	0.9721	---	---	---	---	%
SS Average Deviation	0	0.2442	---	---	---	---	%
SS Max Deviation	0	1.285	---	---	---	---	%
LS Average Deviation	0	0.4543	---	---	---	---	%
LS Max Deviation	0	0.9733	---	---	---	---	%

High resolution Integrated Logging Tool–DTS Master Calibration – Tank Measurement

Master: 15–Jun–2004 17:21							
Thermal Near Corr. (Tank)	6031	5825	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2452	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.376	--	--	--	--	

High resolution Integrated Logging Tool–DTS Master Calibration – Tank Measurement

Master: 15–Jun–2004 17:21							
Thermal Near Corr. (Tank)	6031	5825	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2452	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.376	--	--	--	--	

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 17–Jun–2004 21:58 Before: 18–Jun–2004 13:56							
Na 511 Peak Loc	40.00	40.64	39.66	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.25	15.12	N/A	N/A	2.000	%
High Voltage	1150	1159	1153	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	145.9	141.9	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.737	8.471	N/A	N/A	2.000	%
Temperature	15.50	13.72	13.30	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	42.07	43.20	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 17–Jun–2004 21:58 Before: 18–Jun–2004 13:56							
Na 511 Peak Loc	40.00	39.68	39.55	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.94	15.66	N/A	N/A	2.000	%
High Voltage	1150	1080	1081	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	143.0	142.3	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.683	7.777	N/A	N/A	2.000	%
Temperature	15.50	14.40	13.68	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	41.97	42.79	N/A	N/A	8.000	CPS

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

Master: 17–Jun–2004 21:58 Before: 18–Jun–2004 13:56							
Coincidence Count Rate Ratio	1.000	1.006	1.012	N/A	N/A	0.05000	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 17–Jun–2004 21:53							
Na 511 Peak Set Point	40.00	42.00	--	--	--	--	
Th Peak Loc	209.6	211.5	--	--	--	--	
Th Peak Res	7.000	7.826	--	--	--	--	%
Background Count Rate	142.5	140.0	--	--	--	--	CPS
Gain Ratio	1.000	0.9901	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 17–Jun–2004 21:53							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	207.7	--	--	--	--	
Th Peak Res	7.000	7.127	--	--	--	--	%
Background Count Rate	142.5	133.6	--	--	--	--	CPS
Gain Ratio	1.000	0.9954	--	--	--	--	

The GLS–VJ source activity is acceptable.

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



NCT–B Water Temperature 11.1 DEGC.  
Thermal Housing Size 3.369 IN.

HILT Azimuthal Laterolog Sonde B / Equipment Identification

Primary Equipment:

Auxiliary Equipment:

Laterolog Control Module LCM – AA 2747

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB Total current mode 1			
Itot 1 Gain MA	Value	Itot 1 Phase DEG	Value
	0.998		0.000
0.926 1.000 1.081 (Minimum) (Nominal) (Maximum)		-0.100 0.000 0.100 (Minimum) (Nominal) (Maximum)	
Before: 18–Jun–2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 1					
Iaux 1 Gain MA		Value	Iaux 1 Phase DEG		Value
		0.994			-0.144
0.854 (Minimum)	1.000 (Nominal)	1.180 (Maximum)	-4.600 (Minimum)	0.000 (Nominal)	4.600 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 2					
Iaux 2 Gain MA		Value	Iaux 2 Phase DEG		Value
		0.975			0.000
0.816 (Minimum)	1.000 (Nominal)	1.232 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3A					
IO 3A Gain UA		Value	IO 3A Phase DEG		Value
		0.984			0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3B					
IO 3B Gain UA		Value	IO 3B Phase DEG		Value
		0.979			-0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage gains					
Zvt 1 Gain MV		Value	Zvt 2 Gain MV		Value
		0.994			0.997
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	0.865 (Minimum)	1.000 (Nominal)	1.153 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage Phases					
Zvt 1 Phase DEG		Value	Zvt 2 Phase DEG		Value
		-0.098			-0.000
-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)	-2.800 (Minimum)	0.000 (Nominal)	2.800 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Upper Bridle Voltage mode 1					
Zvb 1 Gain MV		Value	Zvb 1 Phase DEG		Value
		0.994			-0.125
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)
Before: 18-Jun-2004 13:50					




HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage gains					
ZVM 1 Gain UV		Value	ZVM 2 Gain UV		Value
		0.996			0.992
0.895 (Minimum)	1.000 (Nominal)	1.117 (Maximum)	0.943 (Minimum)	1.000 (Nominal)	1.056 (Maximum)
Before: 18-Jun-2004 13:50					




HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage Phases					
ZVM 1 Phase DEG		Value	ZVM 2 Phase DEG		Value
		0.229			1.869
-6.500 (Minimum)	0.000 (Nominal)	6.500 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)
Before: 18-Jun-2004 13:50					



HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage gains					
ZVH 1 Gain UV		Value	ZVH 2 Gain UV		Value
		0.997			0.990
0.962 (Minimum)	1.000 (Nominal)	1.039 (Maximum)	0.864 (Minimum)	1.000 (Nominal)	1.154 (Maximum)
Before: 18-Jun-2004 13:50					



HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage Phases					
ZVH 1 Phase DEG		Value	ZVH 2 Phase DEG		Value
		0.111			2.000
-6.500 (Minimum)	0.000 (Nominal)	6.500 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)



0.999 (Minimum) (Nominal) (Maximum)	0.999 (Minimum) (Nominal) (Maximum)	0.999 (Minimum) (Nominal) (Maximum)	0.999 (Minimum) (Nominal) (Maximum)	0.999 (Minimum) (Nominal) (Maximum)	0.999 (Minimum) (Nominal) (Maximum)
Before: 18-Jun-2004 13:50					



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
	1.086		1.063		1.015
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: 18-Jun-2004 13:50					



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
	0.572		0.026		0.128
-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: 18-Jun-2004 13:50					



HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 1			
ZVD 1 Gain UV	Value	ZVD 1 Phase DEG	Value
	0.997		0.093
0.874 1.000 1.147 (Minimum) (Nominal) (Maximum)		-6.300 0.000 6.300 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			























HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 2			
ZVD 2 Gain UV	Value	ZVD 2 Phase DEG	Value
	0.983		1.294
0.842 1.000 1.187 (Minimum) (Nominal) (Maximum)		-3.300 0.000 3.300 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			

























HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 3A			
ZVD 3A Gain UV	Value	ZVD 3A Phase DEG	Value
	0.987		0.601
0.842 1.000 1.187 (Minimum) (Nominal) (Maximum)		-2.000 0.000 2.000 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			

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		-0.028
0.845 1.000 1.183 (Minimum) (Nominal) (Maximum)		-2.000 0.000 2.000 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB vertical Voltage mode 1			
ZVV 1 Gain UV	Value	ZVV 1 Phase DEG	Value
	0.997		0.164
0.936 1.000 1.065 (Minimum) (Nominal) (Maximum)		-4.600 0.000 4.600 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB vertical Voltage mode 2			
ZVV 2 Gain UV	Value	ZVV 2 Phase DEG	Value
	0.983		2.642
0.895 1.000 1.112 (Minimum) (Nominal) (Maximum)		-2.800 0.000 2.800 (Minimum) (Nominal) (Maximum)	
Before: 18-Jun-2004 13:50			

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		0.999	0		-0.004
1		0.998	1		0.129
2		0.999	2		0.100
3		0.994	3		0.103
4		1.000	4		0.205
5		0.999	5		0.089
6		0.997	6		0.067
7		0.999	7		0.008
8		0.997	8		0.122
9		0.997	9		0.012
10		1.001	10		0.123
11		0.997	11		0.102
0.874 1.000 1.147 (Minimum) (Nominal) (Maximum)			-6.300 0.000 6.300 (Minimum) (Nominal) (Maximum)		
Before: 18-Jun-2004 13:50					

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		0.984	0		1.369
1		0.983	1		1.320
2		0.984	2		1.339
3		0.979	3		1.323
4		0.985	4		1.353
5		0.984	5		1.370
6		0.982	6		1.385
7		0.984	7		1.386
8		0.983	8		1.402
9		0.982	9		1.364
10		0.987	10		1.409
11		0.982	11		1.285
0.842 1.000 1.187 (Minimum) (Nominal) (Maximum)			-3.300 0.000 3.300 (Minimum) (Nominal) (Maximum)		
Before: 18-Jun-2004 13:50					

























## FILE: 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			0.617
1			0.988	1			0.607
2			0.989	2			0.611
3			0.984	3			0.607
4			0.990	4			0.640
5			0.989	5			0.631
6			0.987	6			0.631
7			0.988	7			0.623
8			0.987	8			0.639
9			0.987	9			0.597
10			0.991	10			0.650
11			0.987	11			0.588
0.842 (Minimum)			1.000 (Nominal)	-2.000 (Minimum)			0.000 (Nominal)
							2.000 (Maximum)

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Before: 18-Jun-2004 13:50

## 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		1.008	0		0.204
1		1.003	1		0.090
2		1.005	2		0.036
3		0.998	3		0.098
4		1.005	4		0.050
5		1.006	5		0.185
6		1.005	6		0.127
7		1.007	7		0.255
8		1.006	8		0.175
9		1.003	9		0.198
10		1.010	10		0.193
11		0.997	11		-0.017
0.845      1.000      1.183 (Minimum)      (Nominal)      (Maximum)			-2.000      0.000      2.000 (Minimum)      (Nominal)      (Maximum)		

Before: 18-Jun-2004 13:50

## High resolution Integrated Logging Tool–DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde

HILT Rxo Gamma-ray Device

HILT Nuclear Back-Scatter Detector

HILT Nuclear Short-Spacing Detector

HILT Nuclear Long–Spacing Detector

### Micro Cylindrically Focused Log Device

GR Logging Source

HILT High Res. Control Cartridge

HRMS – B 1765

HRGD - B	1760
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HILT -

HILT -

HILT -







MCFL –

GLS – VJ 3739

HRCC – B 1769

## High resolution Integrated Logging Tool–DTS Wellsite Calibration




### Stab Measurement Summary

State Measurement Summary											
Phase	BS Window Ratio		Value	Phase	SS Window Ratio		Value	Phase	LS Window Ratio		Value
Before			1.012	Before			0.4798	Before			0.2968
	0.9600 (Minimum)	1.011 (Nominal)	1.061 (Maximum)		0.4567 (Minimum)	0.4808 (Nominal)	0.5048 (Maximum)		0.2808 (Minimum)	0.2955 (Nominal)	0.3103 (Maximum)
Phase	BS Window Sum CPS		Value	Phase	SS Window Sum CPS		Value	Phase	LS Window Sum CPS		Value
Before			16100	Before			10980	Before			1161
	15290 (Minimum)	16100 (Nominal)	16900 (Maximum)		10420 (Minimum)	10970 (Nominal)	11520 (Maximum)		1102 (Minimum)	1160 (Nominal)	1218 (Maximum)

Before: 17-Jun-2004 22:47

## 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		1502	Before		1945	Before		1850			
1395 (Minimum)	1495 (Nominal)	1595 (Maximum)	1844 (Minimum)	1944 (Nominal)	2044 (Maximum)	1739 (Minimum)	1839 (Nominal)	1939 (Maximum)			

Before: 17-Jun-2004 22:47




Before: 17-Jun-2004 22:47



## High resolution Integrated Logging Tool–DTS Wellsite Calibration




## Crystal Quality Resolutions Calibration





BS Crystal Resolution %			SS Crystal Resolution %			LS Crystal Resolution %		
Phase		Value	Phase		Value	Phase		Value
Before		12.16	Before		11.68	Before		9.321
	11.17 (Minimum)	12.17 (Nominal)		10.48 (Minimum)	11.48 (Nominal)		8.283 (Minimum)	9.283 (Nominal)
		13.17 (Maximum)			12.48 (Maximum)			10.28 (Maximum)


Before: 17-Jun-2004 22:47





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				3800	Before				3774	Before				3790
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 17–Jun–2004 22:27														







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			8.227	Before			12.35	
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)	
Before: 17–Jun–2004 22:30								




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			37.15	Before			177.4	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		161.2 (Minimum)	177.4 (Nominal)	193.5 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)
Before: 17–Jun–2004 22:26											




High resolution Integrated Logging Tool–DTS Wellsite Calibration								
Zero Measurement								
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value	
Master			32.30	Master			29.13	
Before			31.19	Before			28.55	
	5.000 (Minimum)	32.30 (Nominal)	40.00 (Maximum)		5.000 (Minimum)	29.13 (Nominal)	40.00 (Maximum)	
Master: 15–Jun–2004 17:21 Before: 17–Jun–2004 22:26								

High resolution Integrated Logging Tool–DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z–Axis Acceleration M/S2	Value
Before		9.803
	9.610 (Minimum)	9.810 (Nominal)
		10.01 (Maximum)
Before: 18–Jun–2004 13:50		

High resolution Integrated Logging Tool–DTS Master Calibration								
Inversion results								
Phase	Rho Aluminum G/C3		Value	Phase	Rho Magnesium G/C3		Value	
Master			2.599	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			2.561	Master			2.615	
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)		2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)	
Master: 15–Jun–2004 11:26								















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				0.4141	Master				0.2442	Master				0.4543
	–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				0.9721	Master				1.285	Master				0.9733
	–1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)			–2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)			–3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)	

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				5825	Master				2452	Master				2.376
	5000 (Minimum)	6031 (Nominal)	7200 (Maximum)		2075 (Minimum)	2793 (Nominal)	3125 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)			
Master: 15–Jun–2004 17:21														

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				5825	Master				2452	Master				2.376
	5000 (Minimum)	6031 (Nominal)	7200 (Maximum)		2075 (Minimum)	2793 (Nominal)	3125 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 15-Jun-2004 17:21														

Hostile Natural Gamma Ray Cartridge – A / Equipment Identification		
Primary Equipment: HNGC Cartridge	HNGC – A	10
Auxiliary Equipment: HNGC Housing	HNGH – A	

Hostile Natural Gamma Ray Sonde / Equipment Identification		
Primary Equipment: HNGS Sonde	HNGS – BA	129
Auxiliary Equipment: HNGS Sonde Housing Gamma Source Radioactive	HNSH – BA GSR – U	3






Hostile Natural Gamma Ray Sonde Wellsite Calibration														
Detector 1 Check														
Phase	Na 511 Peak Loc			Value	Phase	Na 511 Peak Res %			Value	Phase	High Voltage V			Value
Master				40.64	Master				16.25	Master				1159
Before				39.66	Before				15.12	Before				1153
37.50 (Minimum)40.00 (Nominal)42.50 (Maximum)					12.00 (Minimum)15.50 (Nominal)19.00 (Maximum)					900.0 (Minimum)1150 (Nominal)1600 (Maximum)				
Phase	Na 1785 Peak Loc			Value	Phase	Na 1785 Peak Res %			Value	Phase	Temperature DEGC			Value
Master				145.9	Master				8.737	Master				13.72
Before				141.9	Before				8.471	Before				13.30
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)				
Phase	Na Count Rate CPS			Value										
Master				42.07										
Before				43.20										
10.00 (Minimum)45.00 (Nominal)100.0 (Maximum)														
Master: 17-Jun-2004 21:58					Before: 18-Jun-2004 13:56									






Hostile Natural Gamma Ray Sonde Wellsite Calibration											
Detector 2 Check											
Phase	Na 511 Peak Loc		Value	Phase	Na 511 Peak Res %		Value	Phase	High Voltage V		Value
Master	<div><div></div></div>		39.68	Master	<div><div></div></div>		14.94	Master	<div><div></div></div>		1080
Before	<div><div></div></div>		39.55	Before	<div><div></div></div>		15.66	Before	<div><div></div></div>		1081
37.50 (Minimum)40.00 (Nominal)42.50 (Maximum)				12.00 (Minimum)15.50 (Nominal)19.00 (Maximum)				900.0 (Minimum)1150 (Nominal)1600 (Maximum)			
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value



Master		143.0	Master		8.683	Master		14.40
Before		142.3	Before		7.777	Before		13.68
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)		
Phase	Na Count Rate CPS							
Master								
Before								
10.00 (Minimum)      45.00 (Nominal)      100.0 (Maximum)								
Master: 17-Jun-2004 21:58			Before: 18-Jun-2004 13:56					

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.006
Before		1.012
0.9500 (Minimum)      1.000 (Nominal)      1.050 (Maximum)		
Master: 17-Jun-2004 21:58		
Before: 18-Jun-2004 13:56		

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	
Master			42.00	Master			211.5	Master			7.826	
38.00 (Minimum)			40.00 (Nominal)	201.0 (Minimum)			209.6 (Nominal)	5.000 (Minimum)			7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value					
Master			140.0	Master			0.9901					
20.00 (Minimum)			142.5 (Nominal)	0.9400 (Minimum)			1.000 (Nominal)					1.060 (Maximum)
Master: 17-Jun-2004 21:53												

Hostile Natural Gamma Ray Sonde Master Calibration											
Detector 2 Calibration											
Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			207.7	Master			7.127
38.00 (Minimum)      40.00 (Nominal)      42.00 (Maximum)				201.0 (Minimum)      209.6 (Nominal)      218.3 (Maximum)				5.000 (Minimum)      7.000 (Nominal)      9.000 (Maximum)			
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master			133.6	Master			0.9954				
20.00 (Minimum)      142.5 (Nominal)      265.0 (Maximum)				0.9400 (Minimum)      1.000 (Nominal)      1.060 (Maximum)							
Master: 17-Jun-2004 21:53											

Company: **Essential Petroleum Resources Limited**

**Schlumberger**

Well: **Killarney EPRL1**

Field: **PEP 152**

Rig: **Hunt Rig #2**

Country: **Australia**

HA1 S-BHC-PEX-HNG:

Hi-Resolution Print  
Scale 1:200