

Schlumberger

Company: Essential Petroleum Resources Limited

Well: Killarney EPRL 1

Field: PEP 152

Rig: Hunt Rig #2

Country: Australia

Hunt Rig #2

Field: PEP 152

Location: Datum GDA94 MGA94 Zone54

Well: Killarney EPRL 1

Company: Essential Petroleum Resources Limited

HALS-BHC-PEX-HNG
Resistivity Print
Scale 1:500

Datum GDA94 MGA94 Zone54
Easting 609803.3
Northing 5753917.2

Elev.: K.B. 5.49 m
G.L. 1.6 m
D.F. 5.49 m

Permanent Datum: AHD
Log Measured From: ROTARY TABLE
Drilling Measured From: 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

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

Fluid Loss

Source Of Sample

RM @ Measured Temperature

RMF @ Measured Temperature

RMG @ Measured Temperature

Source RMF

RM @ MRT

Maximum Recorded Temperatures

Circulation Stopped

Logger On Bottom

Unit Number

Recorded By

Witnessed By

Run 1

Run 2

Run 3

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

Fluid Loss

Source Of Sample

RM @ Measured Temperature

RMF @ Measured Temperature

RMG @ Measured Temperature

Source RMF

RM @ MRT

Maximum Recorded Temperatures

Circulation Stopped

Logger On Bottom

Unit Number

Recorded By

Witnessed By

@

@

@

@

Курс 4

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

Logging Cable

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.

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

Resistivity corrected for standoff and hole size.

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

Sonic check in casing reads 57 us/ft

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

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

EQUIPMENT DESCRIPTION

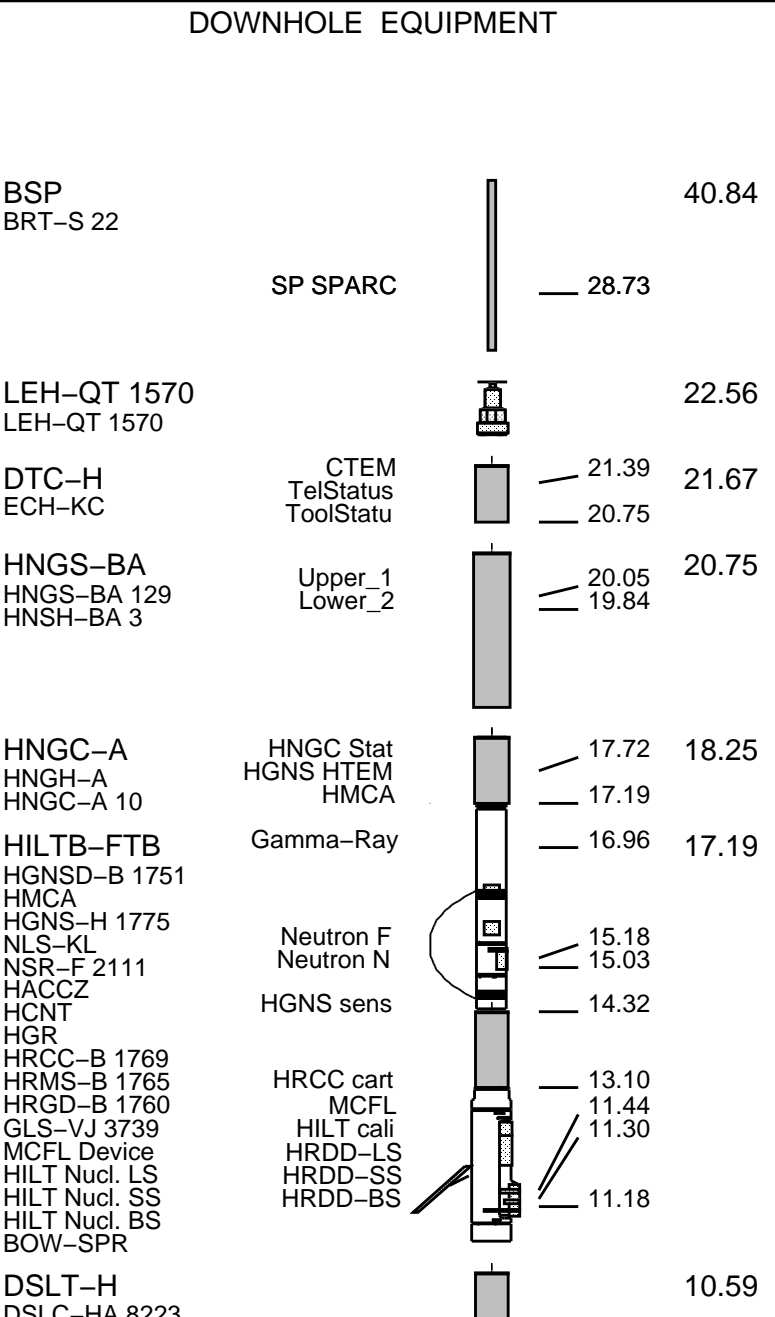
RUN 1

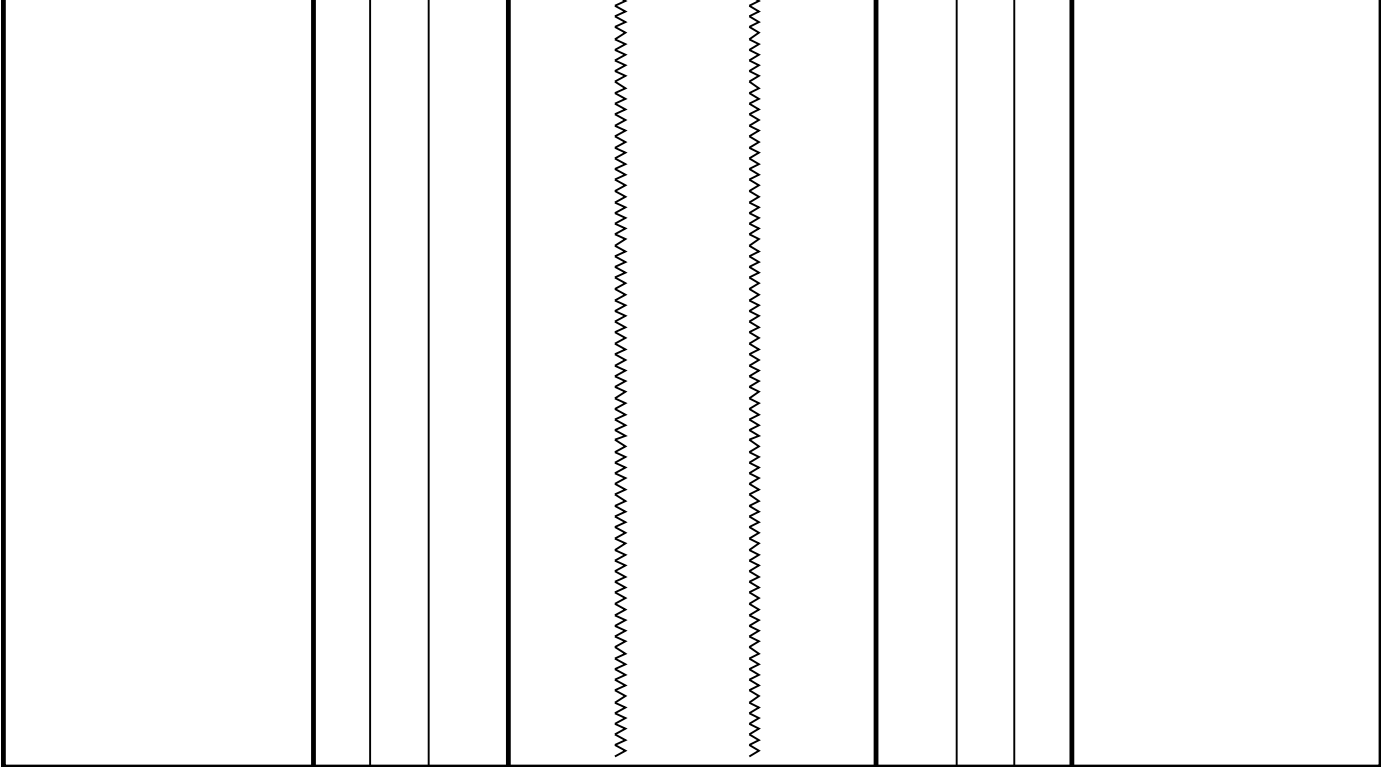
RUN 2

SURFACE EQUIPMENT

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

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





**Resistivity-Sonic
1:500 Scale**

MAXIS Field Log

Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	21-Jun-2004 14:42	1636.8 M	20.8 M
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Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_101PUP	FN:100	PRODUCER	22-Jun-2004 10:45	1636.8 M	210.2 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		

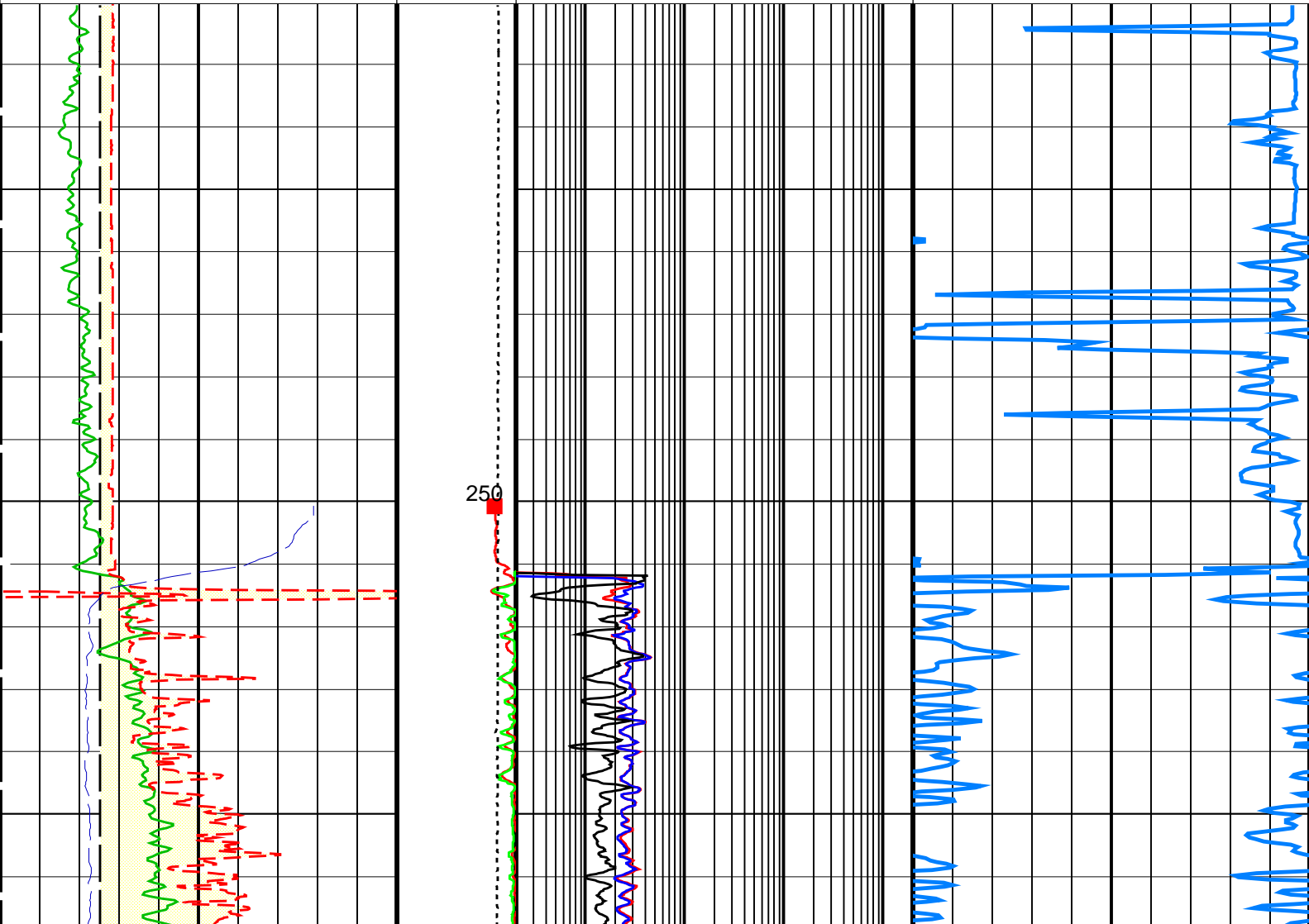
Changed Parameter Summary

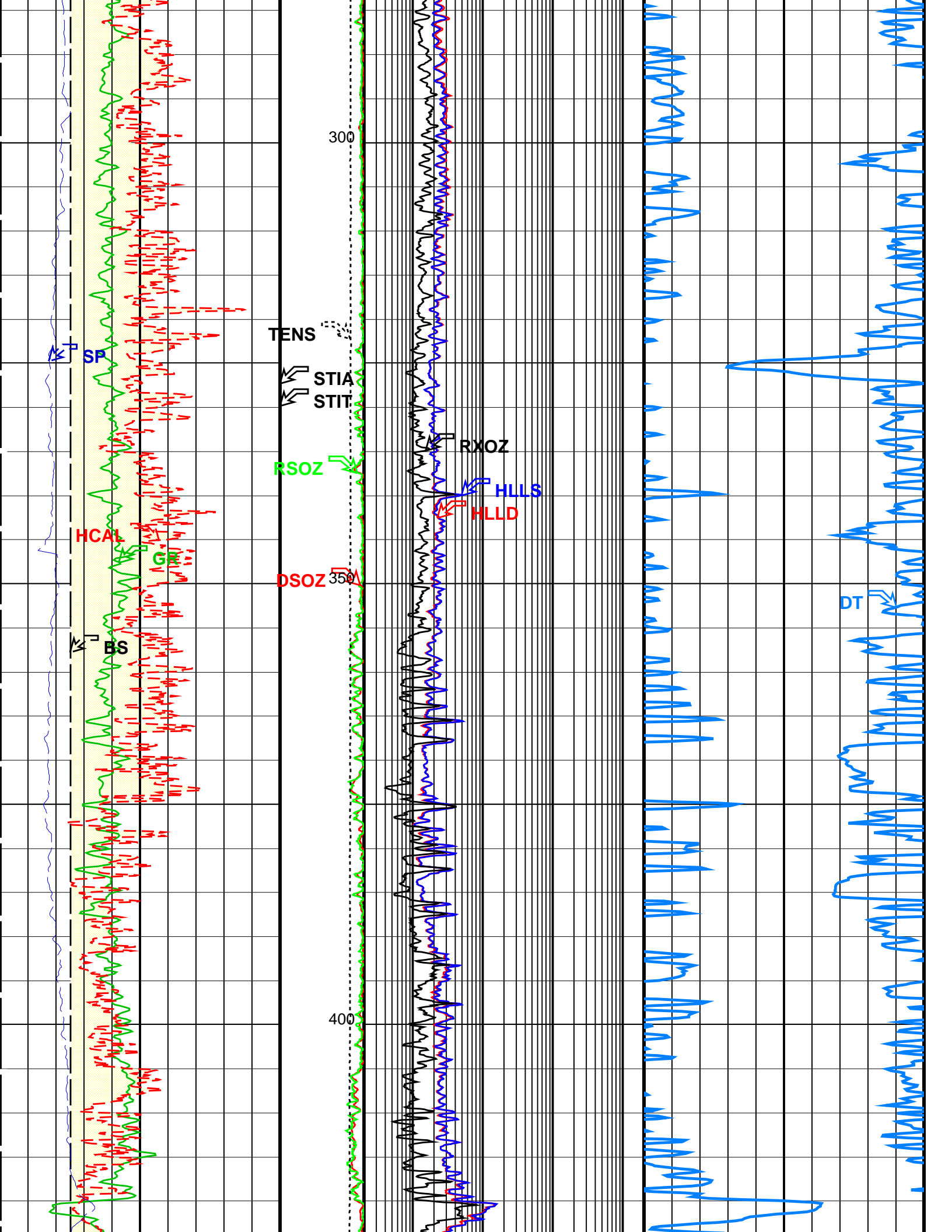
DLISN	New Value	Default Value	Default File
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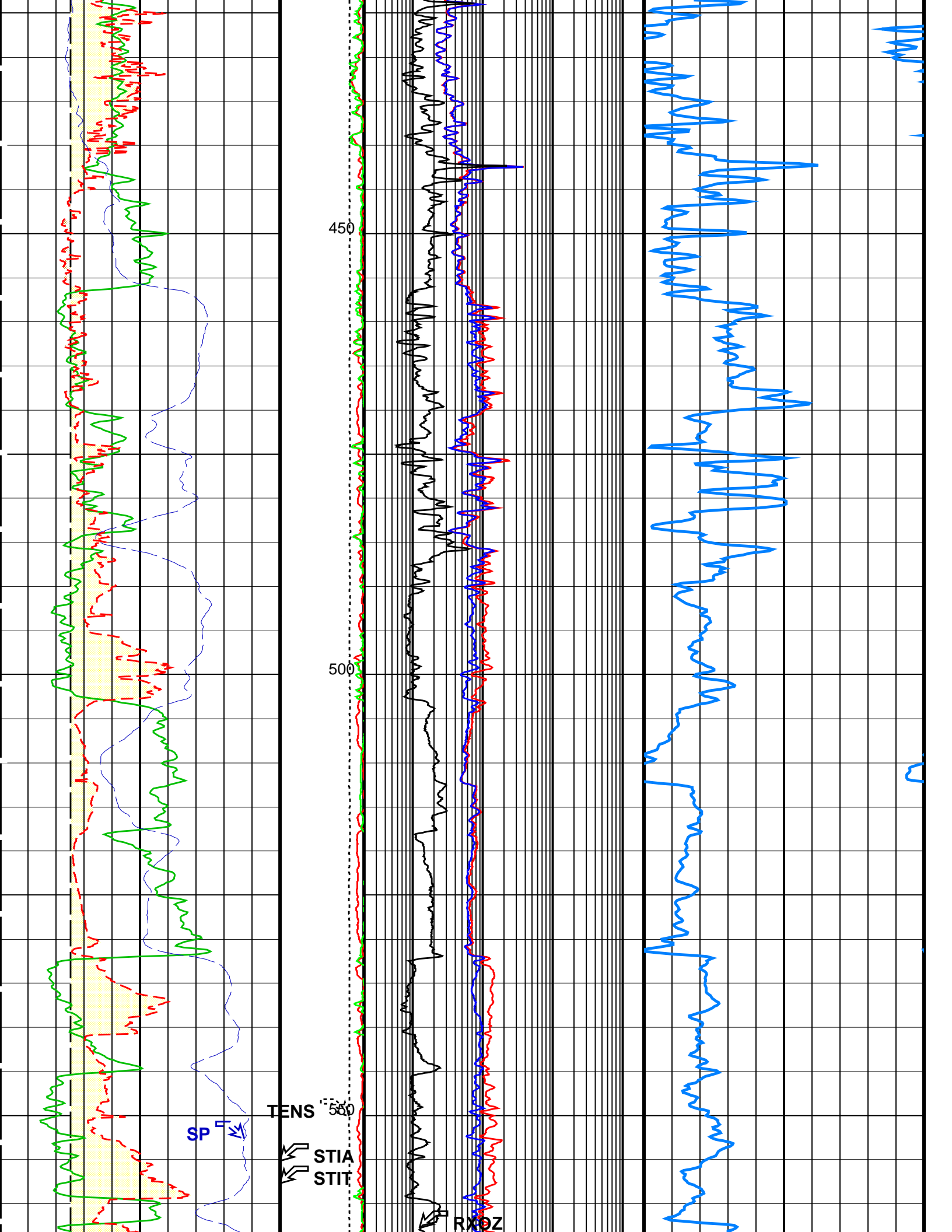
DLIS Name	New Value		Previous Value		Depth & Time	
MAHTR	120		150		1636.8	10:46:19
MNHTR	100		140		1636.8	10:46:19
SGCL	100	US/F	135	US/F	1636.8	10:46:19
SLEV	2003		3000		1636.8	10:46:18

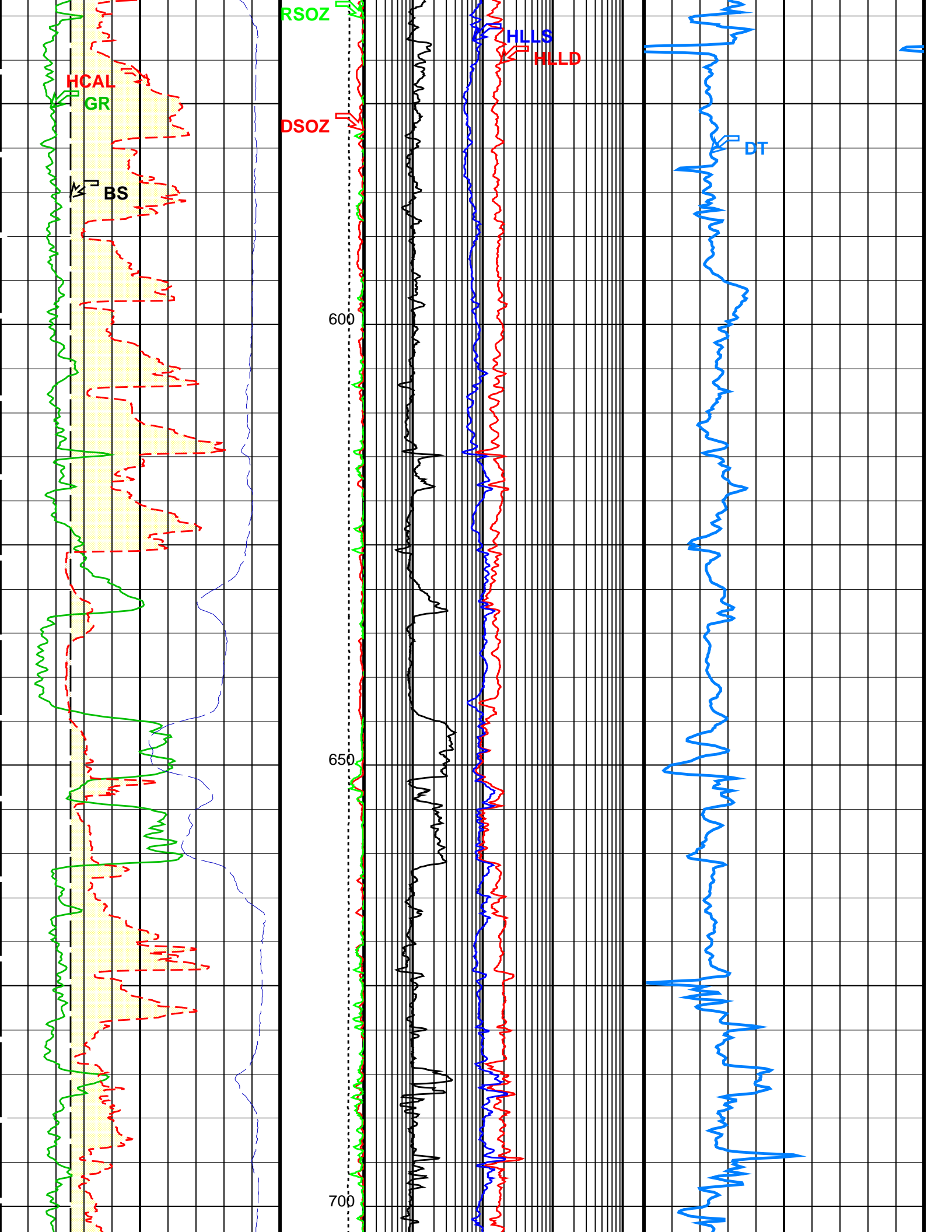
PIP SUMMARY						
Time Mark Every 60 S						

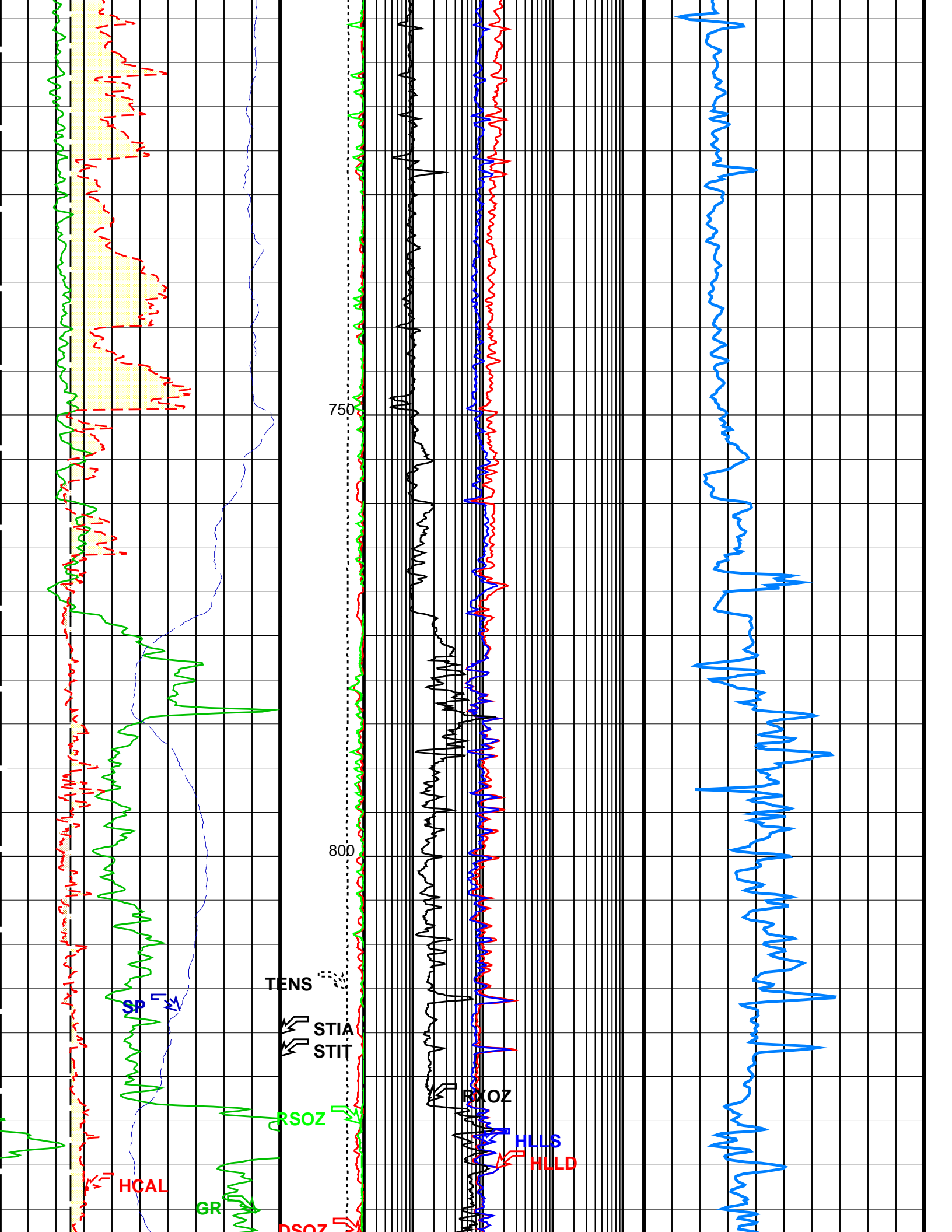
Washout From BS to HCAL						
Mudcake From HCAL to BS						
HILT Caliper (HCAL) (IN)						
6	16					
Gamma Ray (GR) (GAPI)		Std. Res. Resistivity Standoff (RSOZ)	Std. Res. Invaded Zone Resistivity (RXOZ)			
0	150	65 (MM)	0	0.2	2000	
Bit Size (BS) (IN)		Std. Res. Density Standoff (DSOZ)	Laterolog Shallow Resistivity (HLLS)			
6	16	65 (MM)	0	0.2	2000	
SP (SP) (MV)		Tension (TENS) (LBF)	Laterolog Deep Resistivity (HLLD)		Delta-T (DT)	
-80	20	10000	0	0.2	2000	150
						50

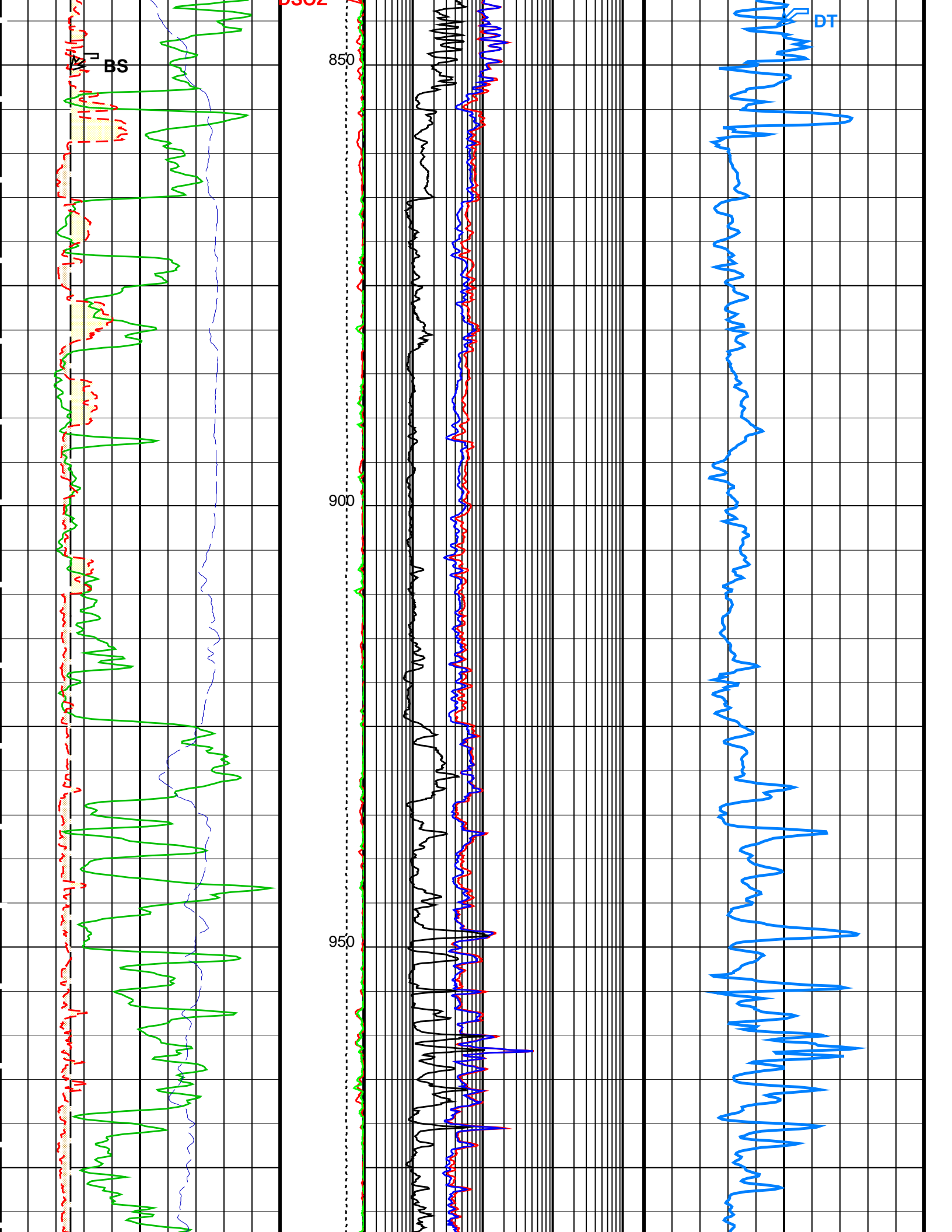


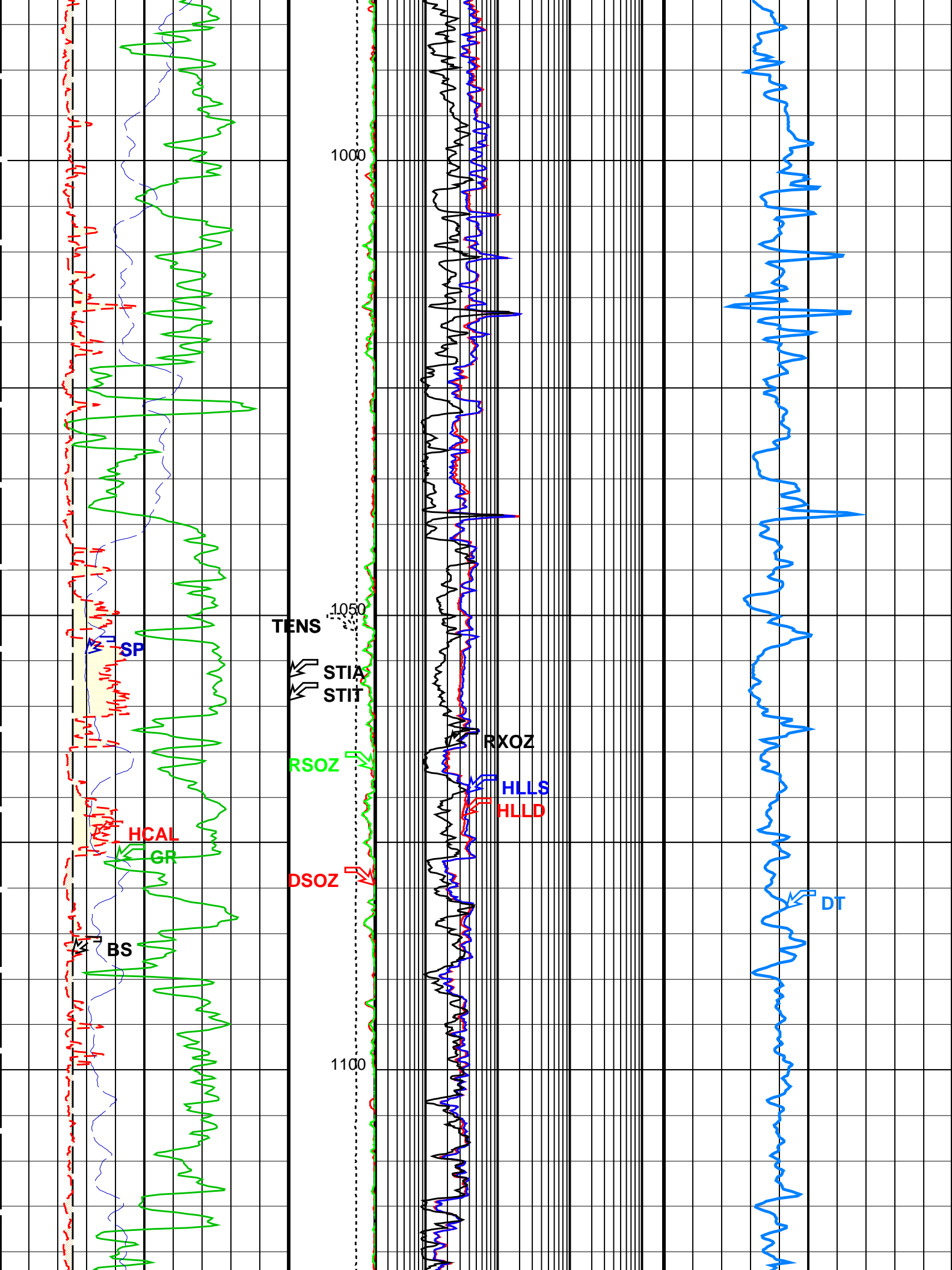


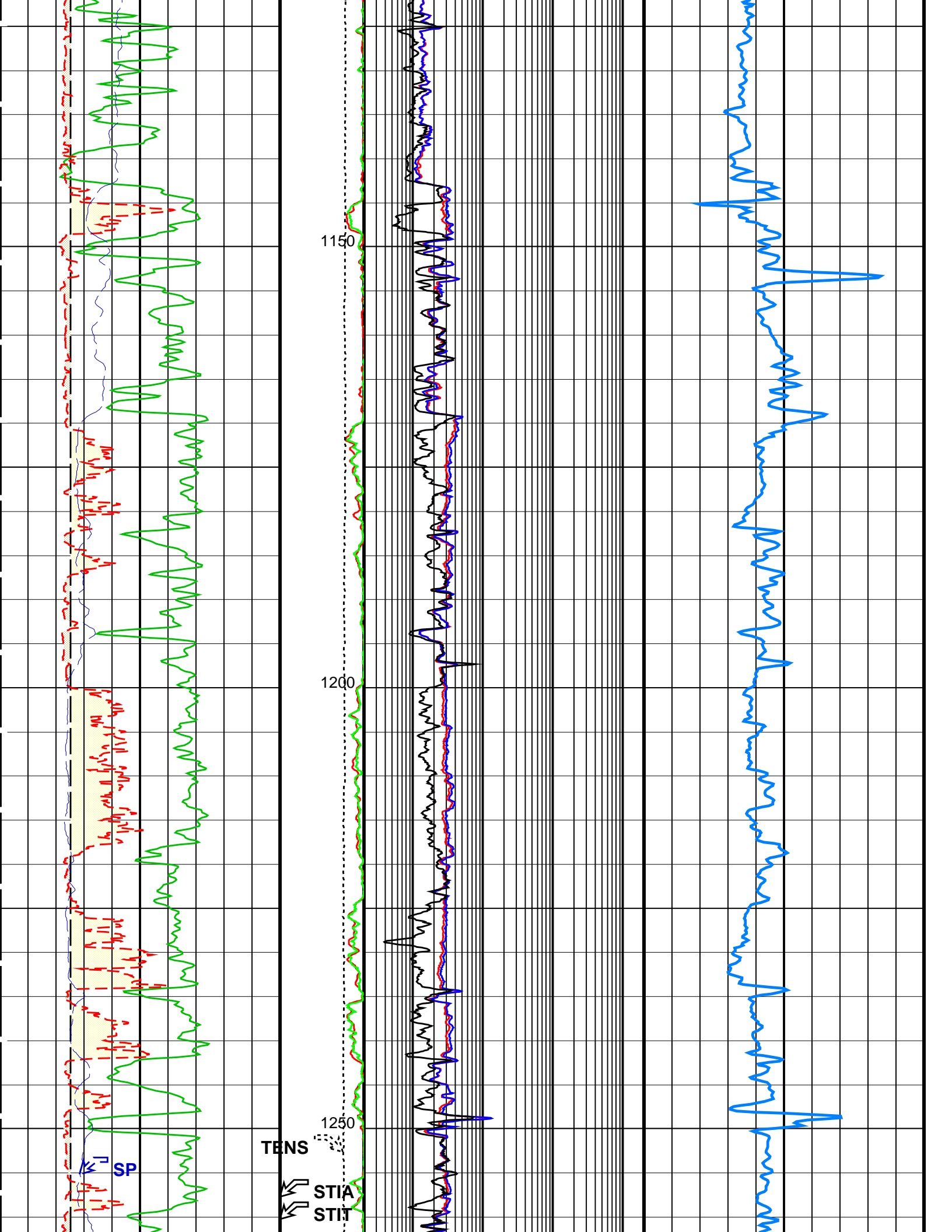


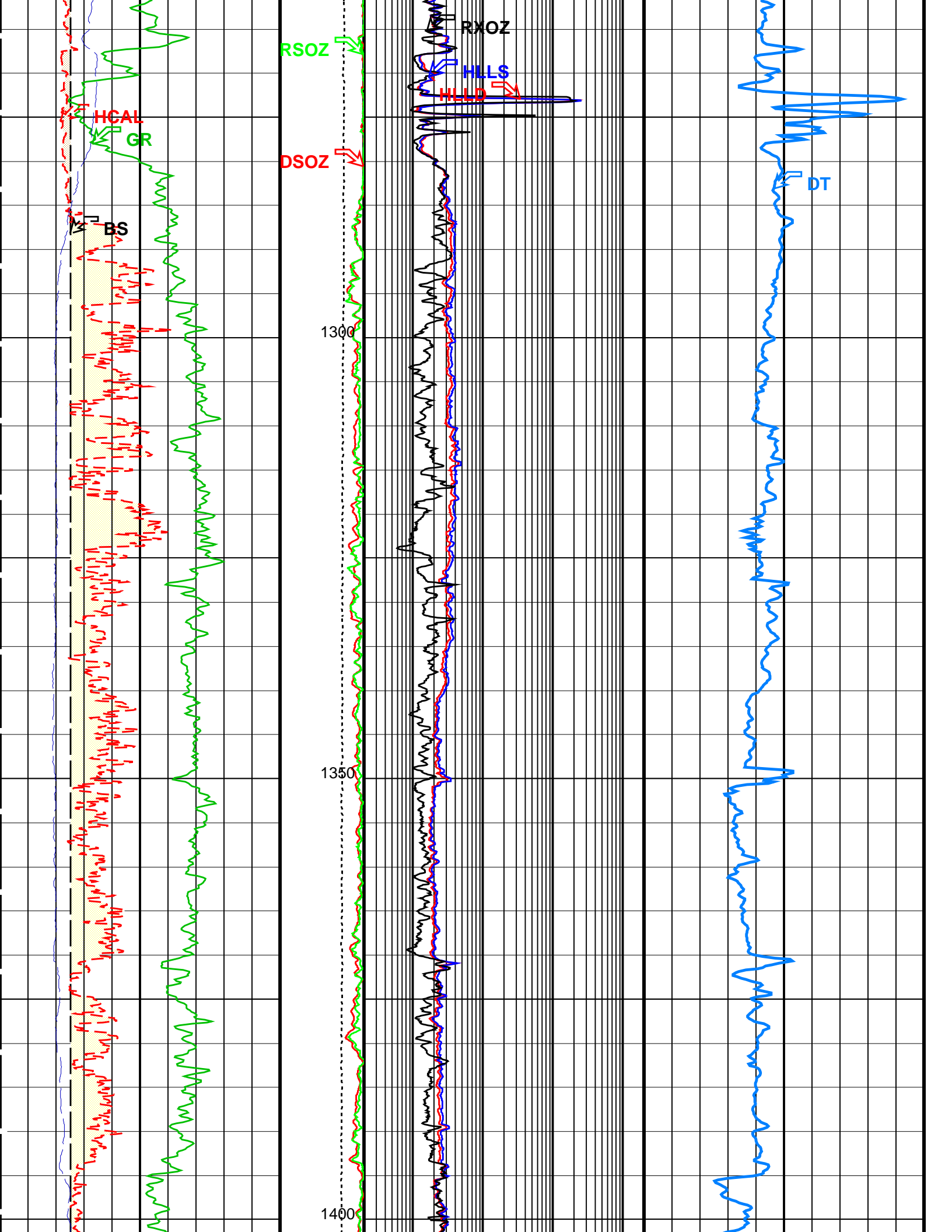


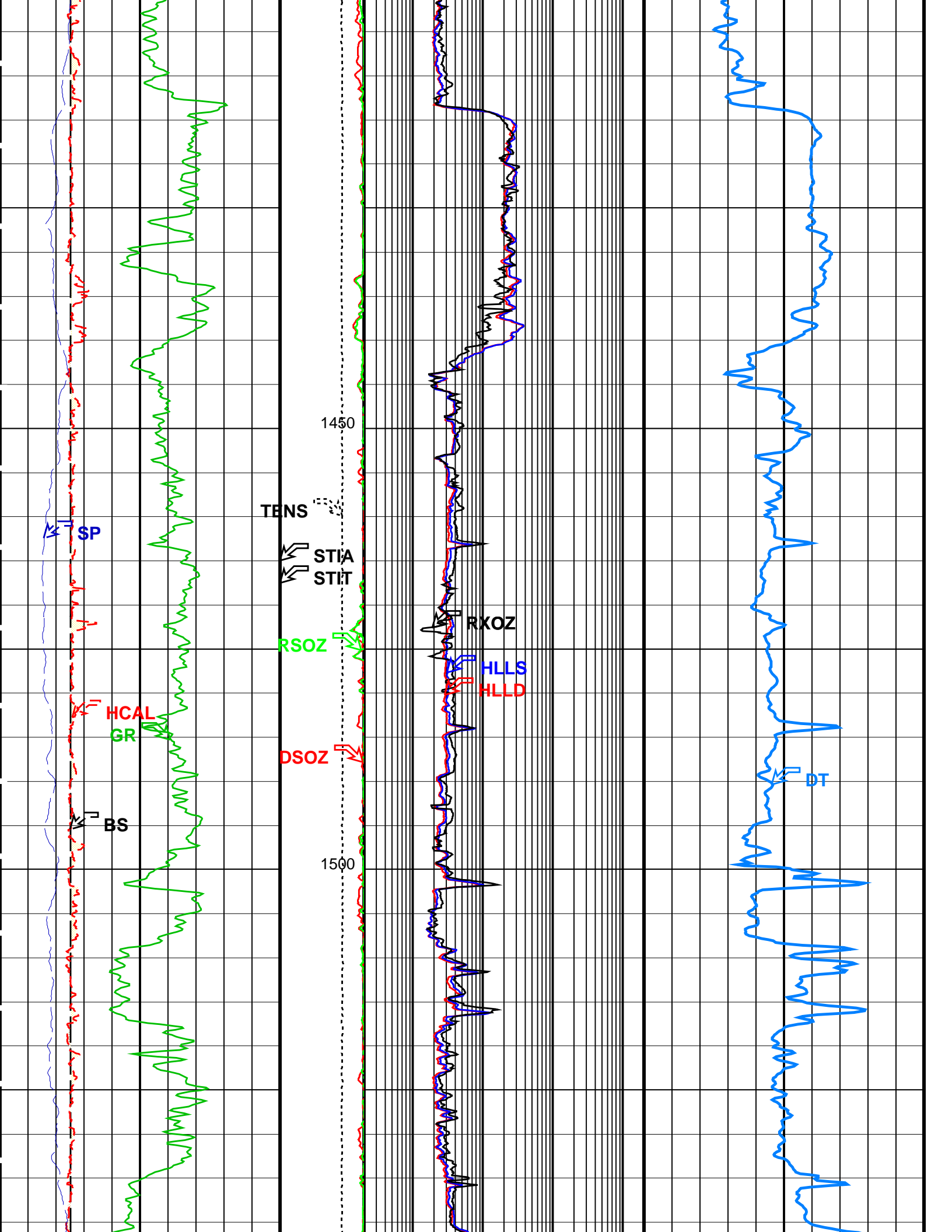


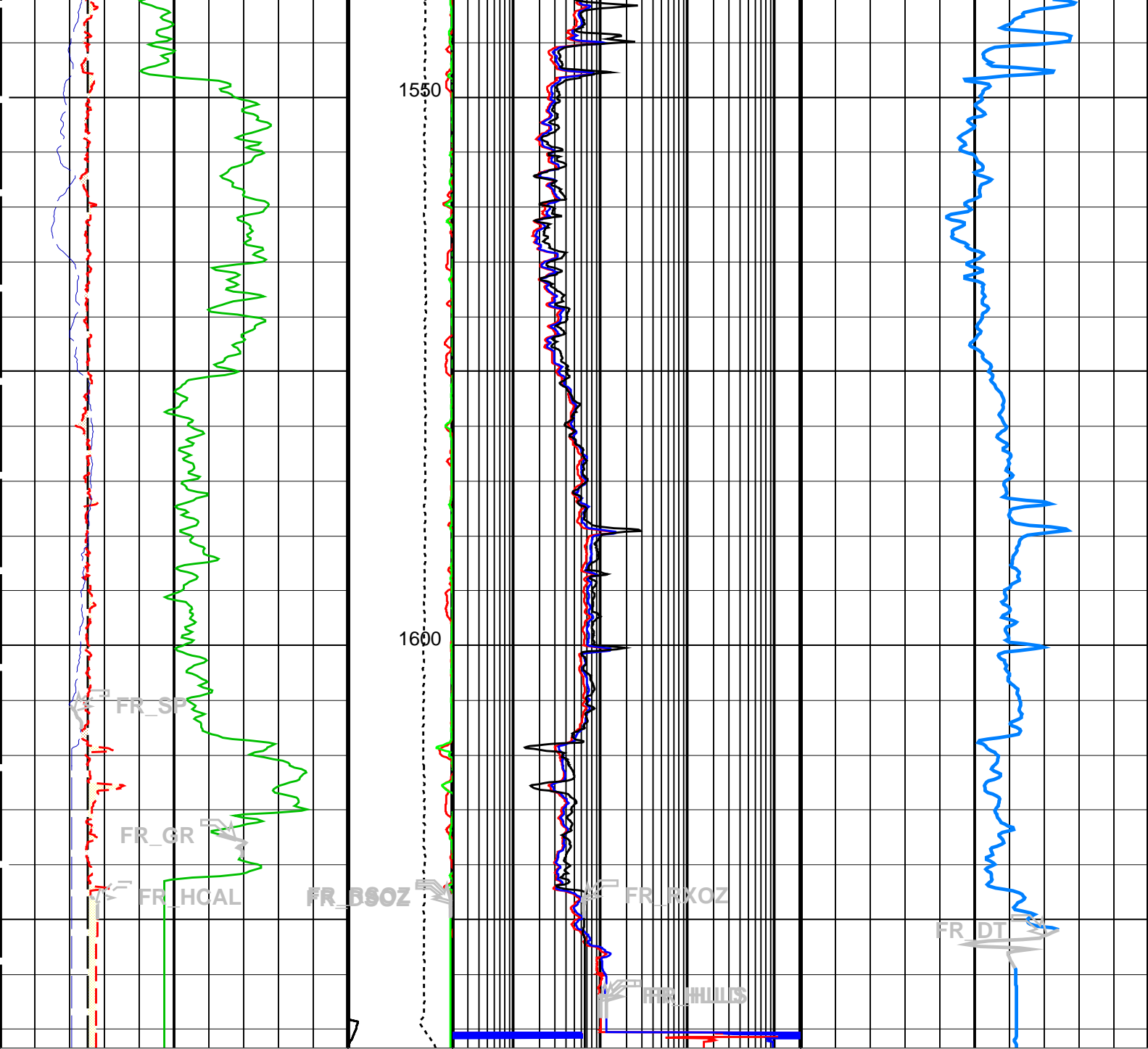












<div>SP (SP)</div> <div>(MV)</div> <div>-80</div> <div>20</div>	<div>Tension (TENS)</div> <div>(LBF)</div> <div>10000</div> <div>0</div>	<div>Laterolog Deep Resistivity (HLLD)</div> <div>(OHMM)</div> <div>0.2</div> <div>2000</div>	<div>Delta-T (DT)</div> <div>(US/F)</div> <div>150</div> <div>50</div>
<div>Bit Size (BS)</div> <div>(IN)</div> <div>6</div> <div>16</div>	<div>Std. Res. Density Standoff (DSOZ)</div> <div>(MM)</div> <div>65</div> <div>0</div>	<div>Laterolog Shallow Resistivity (HLLS)</div> <div>(OHMM)</div> <div>0.2</div> <div>2000</div>	
<div>Gamma Ray (GR)</div> <div>(GAPI)</div> <div>0</div> <div>150</div>	<div>Std. Res. Resistivity Standoff (RSOZ)</div> <div>(MM)</div> <div>65</div> <div>0</div>	<div>Std. Res. Invaded Zone Resistivity (RXOZ)</div> <div>(OHMM)</div> <div>0.2</div> <div>2000</div>	
<div>HILT Caliper (HCAL)</div> <div>(IN)</div> <div>6</div> <div>16</div>			
<div>Mudcake</div> <div>From HCAL to BS</div>			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HALS-B: HILT Azimuthal Laterolog Sonde B			
	HALS Type of Image	Conductivities	
ARIP_LTS	HALS Long Tool String Correction	OFF	
ARIP_SHOULDER	HALS Shoulder Correction	OFF	
BHCC	HALS Borehole Correction	ON	
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
DHOP	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			
	DSLTL Firing Mode	SDDDB	
	Telemetry Mode	DSLCL_FTB	
DDEL	Digitizing Delay	0	US
DFAD_TYPE	DFAD type	DFAD2	
DIVL	DSLTL Depth Sampling Interval	20	
DRCS	DSLTL DLIS Recording Size	140	
DSIN	Digitizing Sample Interval	10	
DTFS	DSLCL Telemetry Frame Size	316	
DWCO	Digitizing Word Count	140	
GAI	Manual Gain	40	
MAHTR	Manual High Threshold Reference	150	
MGAI	Maximum Gain	60	
MNHTR	Minimum High Threshold Reference	140	
NMSG	Near Minimum Sliding Gate	140	US
NMXG	Near Maximum Sliding Gate	850	US
RATE	Firing Rate	R15	
SFAF	Sonic Formation Attenuation Factor	7	DB/M
SGCL	Sliding Gate Closing Delta-T	135	US/F
SGDT	Sliding Gate Delta-T	60	US/F
SGW	Sliding Gate Width	100	US
SLEV	Signal Level for AGC	3000	
WMOD	Waveform Firing Mode	FULL	
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	StdRes	
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_500

Vertical Scale: 1:500

Graphics File Created: 22-Jun-2004 10:46

OP System Version: 10C0-306

MCM

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

BSP10C0-306

Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	21-Jun-2004 14:42	1636.8 M	20.8 M
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Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_101PUP	FN:100	PRODUCER	22-Jun-2004 10:45		
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Schlumberger

Repeat Analysis

MAXIS Field Log

Input DLIS Files						
DEFAULT	HALS_SONIC_TLD_MCFL_016LUP	FN:15	PRODUCER	21-Jun-2004 14:41	1636.8 M	1500.8 M
DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	21-Jun-2004 14:42	1636.8 M	20.8 M
Output DLIS Files						
DEFAULT	HALS_SONIC_TLD_MCFL_106PUP	FN:105	PRODUCER	22-Jun-2004 11:55	1637.5 M	1506.6 M
OP System Version: 10C0-306						
MCM						
HALS-B	OP10-KP1	DSL	OP10-KP1			
HILTB-FTB	OP10-KP1	HNGC-A	OP10-KP1			
HNGS-BA	OP10-KP1	DTC-H	10C0-306			
BSP	10C0-306					

Changed Parameter Summary			
DLIS Name	New Value	Previous Value	Depth & Time
MAHTR	120	150	1637.5 11:56:04
MNHTR	100	140	1637.5 11:56:04
SGCL	100 US/F	135 US/F	1637.5 11:56:04
SLEV	2003	3000	1637.5 11:56:04

PIP SUMMARY

Time Mark Every 60 S

Washout
From BS to HCAL

Mudcake
From HCAL to BS

SP_REP Curve (SP_REP)
(MV)

HCAL_REP Curve (HCAL_REP)
(IN)

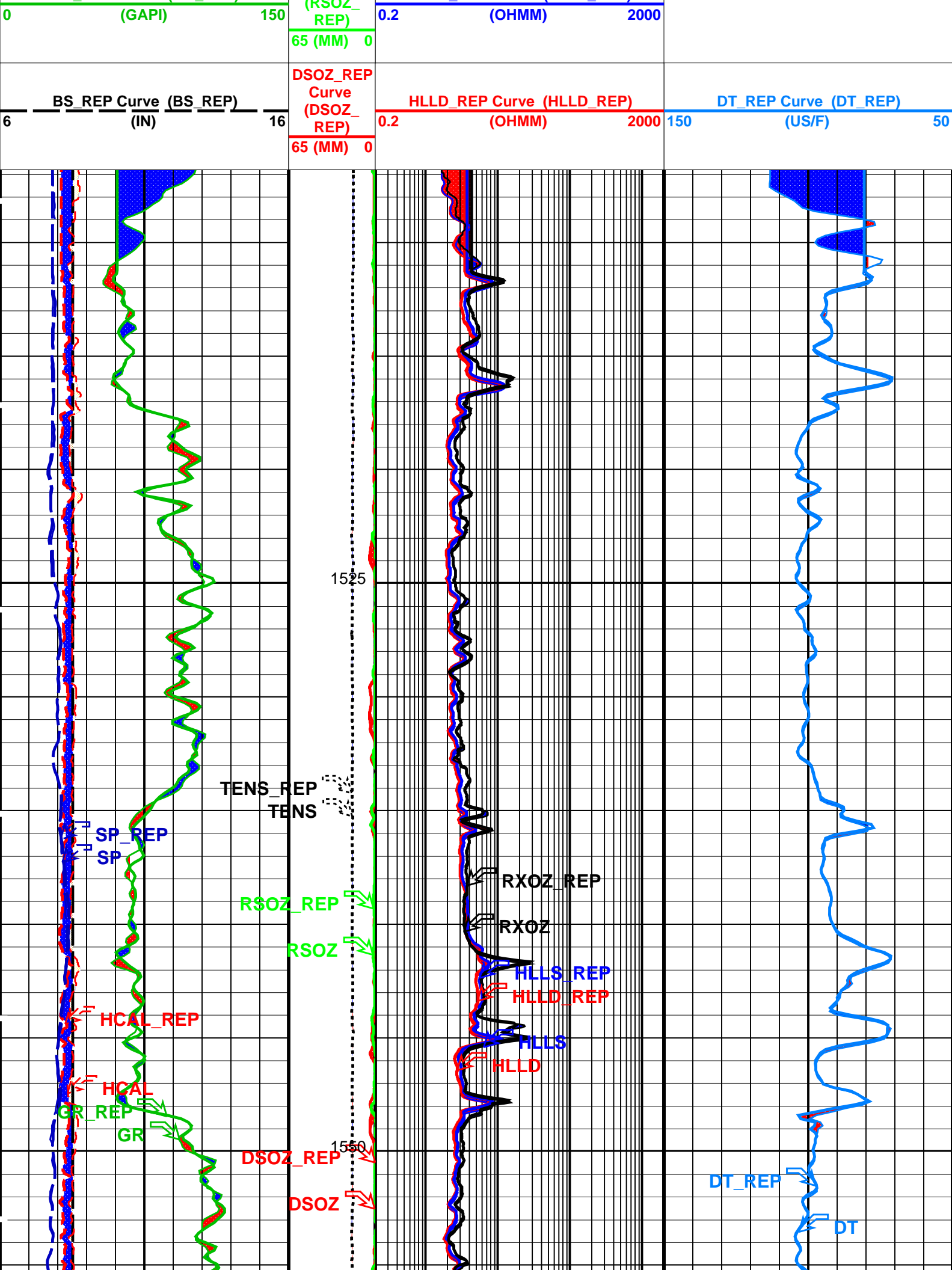
GR_REP Curve (GR_REP)

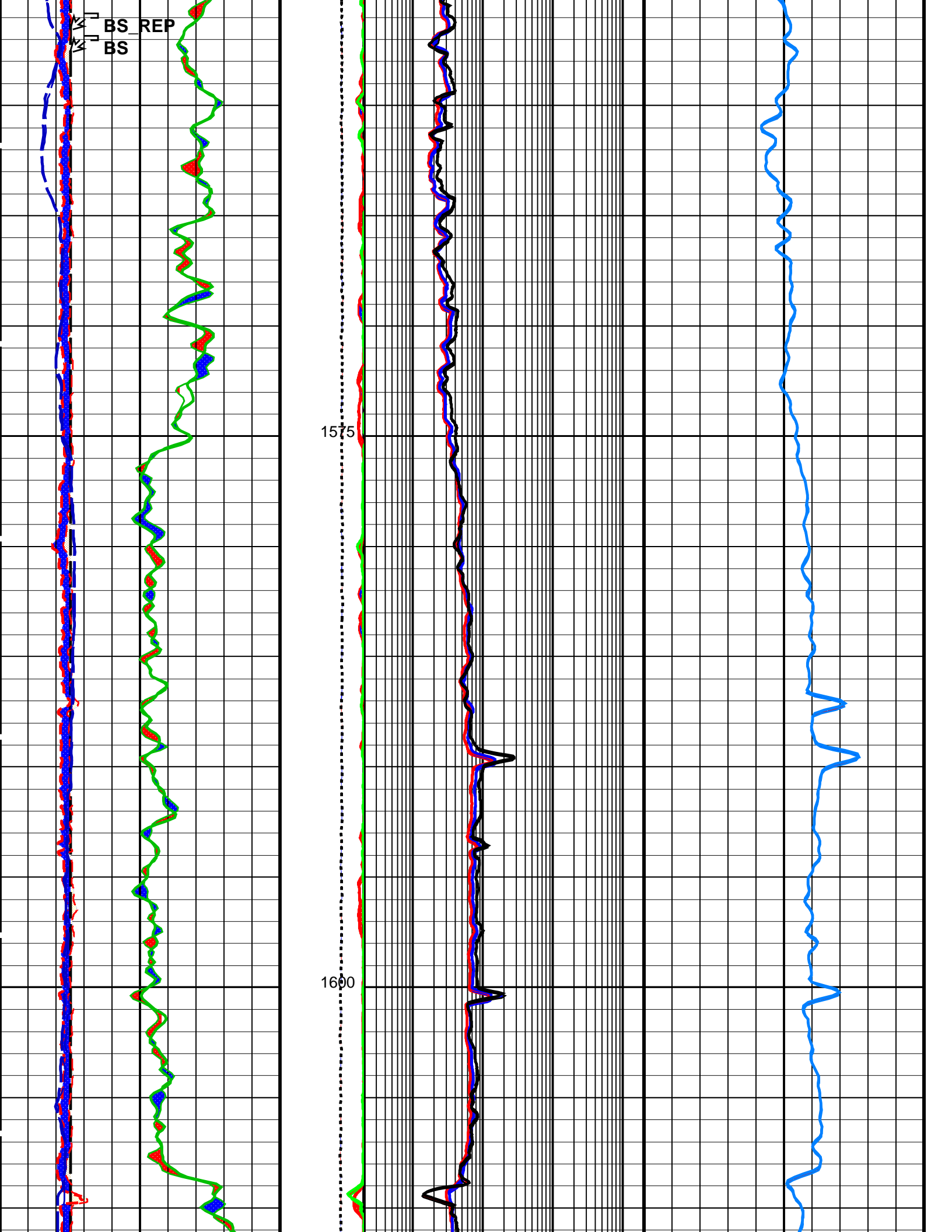
TENS_REP Curve (TENS_REP)
(LBF)

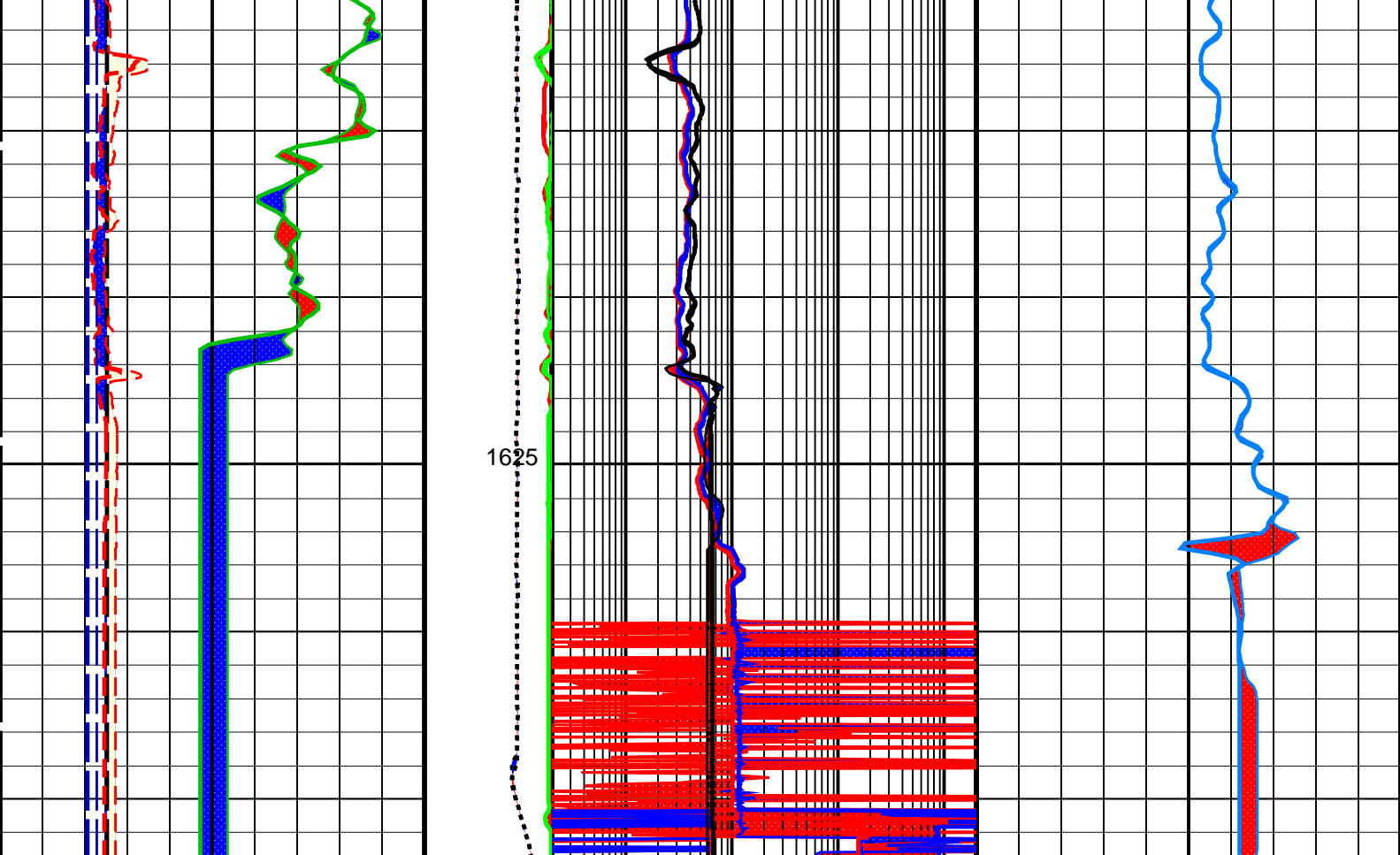
RSOZ_REP Curve (RSOZ_REP)

RXOZ_REP Curve (RXOZ_REP)
(OHMM)

HLLS_REP Curve (HLLS_REP)







BS_REP Curve (BS_REP) (IN)		6	16
GR_REP Curve (GR_REP) (GAPI)		0	150
HCAL_REP Curve (HCAL_REP) (IN)		6	16
SP_REP Curve (SP_REP) (MV)		-80	20
Mudcake From HCAL to BS			
Washout From BS to HCAL			
DSOZ_REP Curve (DSOZ_REP)	65 (MM)	0	
RSOZ_REP Curve (RSOZ_REP)	65 (MM)	0	
TENS_REP Curve (TENS_REP) (LBF)	10000	0	
HLLD_REP Curve (HLLD_REP) (OHMM)	0.2	2000	150
HLLS_REP Curve (HLLS_REP) (OHMM)	0.2	2000	50
RXOZ_REP Curve (RXOZ_REP) (OHMM)	0.2	2000	
DT_REP Curve (DT_REP) (US/F)			

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
	HALS Shoulder Correction	OFF

ARIP_SHOULDER	HALS Shoulder Correction	OFF	
BHCC	HALS Borehole Correction	ON	
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
DHOP	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
DSLT-H: Digitizing Sonic Logging Tool			
	DSLT Firing Mode	SDDB	
	Telemetry Mode	DSLC_FTB	
DDEL	Digitizing Delay	0	US
DFAD_TYPE	DFAD type	DFAD2	
DIVL	DSLT Depth Sampling Interval	20	
DRCS	DSLT DLIS Recording Size	140	
DSIN	Digitizing Sample Interval	10	
DTFS	DSLC Telemetry Frame Size	316	
DWCO	Digitizing Word Count	140	
GAI	Manual Gain	40	
MAHTR	Manual High Threshold Reference	150	
MGAI	Maximum Gain	60	
MNHTR	Minimum High Threshold Reference	140	
NMSG	Near Minimum Sliding Gate	140	US
NMXG	Near Maximum Sliding Gate	850	US
RATE	Firing Rate	R15	
SFAF	Sonic Formation Attenuation Factor	7	DB/M
SGCL	Sliding Gate Closing Delta-T	135	US/F
SGDT	Sliding Gate Delta-T	60	US/F
SGW	Sliding Gate Width	100	US
SLEV	Signal Level for AGC	3000	
WMOD	Waveform Firing Mode	FULL	
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
System and Miscellaneous			
BS	Bit Size	8.500	IN
DFD	Drilling Fluid Density	1.13	G/C3
DO	Depth Offset for Playback	0.8	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	12.50	DEGC
PP	Playback Processing	RECOMPUTE	

Format: Res_Sonic_200_REP Vertical Scale: 1:200 Graphics File Created: 22-Jun-2004 11:55

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_016LUP FN:15	PRODUCER	21-Jun-2004 14:41	1636.8 M	1500.8 M
DEFAULT	HALS_SONIC_TLD_MCFL_017LUP FN:16	PRODUCER	21-Jun-2004 14:42	1636.8 M	20.8 M

Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_106PUP FN:105	PRODUCER	22-Jun-2004 11:55
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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 – 0	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 1	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
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









HALSB Torpedo Voltage Phases					
Zvt 1 Phase DEG	Value	Zvt 2 Phase DEG	Value	Zvt 3 Phase DEG	Value
	-0.098		-0.000		-0.128
-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)
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	ZVM 3 Gain UV	Value
	0.996		0.992		0.991
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	ZVM 3 Phase DEG	Value
	0.229		1.869		1.017
-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	ZVH 3 Gain UV	Value
	0.997		0.990		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	ZVH 3 Phase DEG	Value
	0.111		2.000		1.019
-6.500 (Minimum)	0.000 (Nominal)	6.500 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)
Before: 18-Jun-2004 13:50					


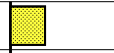
HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage gains					
ZVA 1 Gain MV	Value	ZVA 2 Gain MV	Value	ZVA 3 Gain MV	Value
	1.086		1.063		1.015
0.905 (Minimum)	1.000 (Nominal)	1.103 (Maximum)	0.866 (Minimum)	1.000 (Nominal)	1.151 (Maximum)
Before: 18-Jun-2004 13:50					


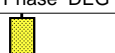
HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage Phases					
ZVA 1 Phase DEG	Value	ZVA 2 Phase DEG	Value	ZVA 3 Phase DEG	Value
	0.572		0.026		0.128
-4.100 (Minimum)	0.000 (Nominal)	4.100 (Maximum)	-2.300 (Minimum)	0.000 (Nominal)	2.300 (Maximum)
Before: 18-Jun-2004 13:50					



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 (Minimum)	1.000 (Nominal)	1.147 (Maximum)	-6.300 (Minimum)
Before: 18-Jun-2004 13:50			

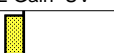

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 2			
ZVD 2 Gain UV	Value	ZVD 2 Phase DEG	Value
	0.983		1.294
0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-3.300 (Minimum)
Before: 18-Jun-2004 13:50			

























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 (Minimum)	1.000 (Nominal)		-2.000 (Minimum)	0.000 (Nominal)	2.000 (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 (Minimum)	1.000 (Nominal)		-2.000 (Minimum)	0.000 (Nominal)	2.000 (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 (Minimum)	1.000 (Nominal)	1.065 (Maximum)	-4.600 (Minimum)	0.000 (Nominal)	4.600 (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 (Minimum)	1.000 (Nominal)	1.112 (Maximum)	-2.800 (Minimum)	0.000 (Nominal)	2.800 (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 (Minimum)	1.000 (Nominal)	1.147 (Maximum)	-6.300 (Minimum)	0.000 (Nominal)	6.300 (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 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)
Before: 18-Jun-2004 13:50					

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		0.617
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)	1.187 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)
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 (Minimum)	1.000 (Nominal)	1.183 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (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
HILT –
HILT –
HILT –
MCFL –
GLS – VJ 3739
HRCC – B 1769

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			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

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			12.16	Before			11.68	Before			9.321
	11.17 (Minimum)	12.17 (Nominal)	13.17 (Maximum)		10.48 (Minimum)	11.48 (Nominal)	12.48 (Maximum)		8.283 (Minimum)	9.283 (Nominal)	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)	




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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	<div><div></div></div>		0.4141	Master	<div><div></div></div>		0.2442	Master	<div><div></div></div>		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	<div><div></div></div>		0.9721	Master	<div><div></div></div>		1.285	Master	<div><div></div></div>		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)
Master: 15–Jun–2004 11:26											

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:

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde

HNGS – BA

129

Auxiliary Equipment:

HNGS Sonde Housing

HNSH – BA

3

Gamma Source Radioactive

GSR – U

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		39.68	Master		14.94	Master		1080
Before		39.55	Before		15.66	Before		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	Value						
Master		41.97						
Before		42.79						
	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) 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				140.0	Master				0.9901					
20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)					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 EPRL 1**

Field: **PEP 152**

Rig: **Hunt Rig #2**

Country: **Australia**

HALS-BHC-PEX-HNG

Resistivity Print

Scale 1:500