

Company: SAVIA PERU S.A.

Well: LOG-27D

Field: LOBITOS

Rig Name: PEPESA-40 Country: PERU

RESISTIVITY LOGARITHMIC LOG			
SP-PPC-HRLT-TLD-HGNS-GR			
SCALE 2":100'			
Location:		LOBITOS	
Permanent Datum:		N: 9508655.23	Elev. K.B. 50.00 ft
Log Measured From:		E: 459043.07	G.L. -335.00 ft
Drilling Measured From:		D.F. 50.00 ft	
State:	Max. Hole Deviation	Drill Floor	Elev.: 50.00 ft
PIURA	49.2 deg	Drill Floor	above Perm. Datum
Longitude:		Latitude:	
81° 22' 9.012" W		4° 26' 42.606" S	

Logging Date	10-Feb-2013	
Run Number	1	
Depth Driller	8114.00 ft	
Schlumberger Depth	8008.00 ft	
Bottom Log Interval	8008.00 ft	
Top Log Interval	3614.00 ft	
Casing Driller Size @ Depth	9.625 in @ 3614.00 ft	
Casing Schlumberger	3614 ft	
Bit Size	8.5 in	
Type Fluid In Hole	Water	
Density	11.2 lbm/gal	46 s
Fluid Loss	PH 4 cm3	9.5
Source of Sample	Mud Pit	
RM @ Meas Temp	2.6 ohm.m @ 88.3 degF	
RMF @ Meas Temp	2.48 ohm.m @ 91 degF	
RMC @ Meas Temp	6.04 ohm.m @ 83.8 degF	
Source RMF	RMC Pressed	
RM @ BHT	1.13 @ 212 1.11 @ 212	
Max Recorded Temperatures	114 degF	
Circulation Stopped	10-Feb-2013 18:59:00	
Logger on Bottom	10-Feb-2013 14:17:00	
Unit Number	Location: 826	PETA
Recorded By	S. Roman / G. Tejada	
Witnessed By	Jose Coronado	

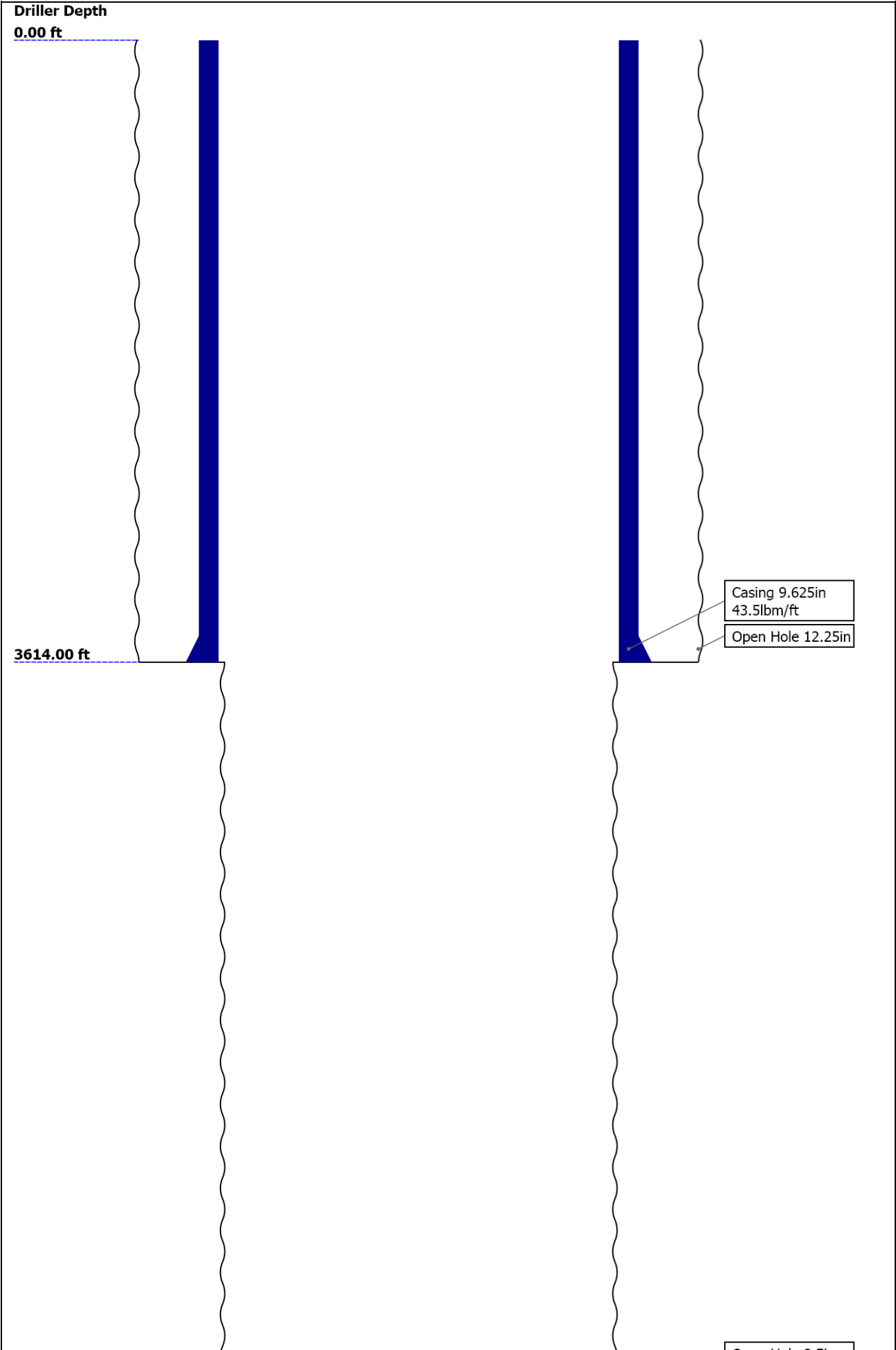
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Well Sketch



8114.00 ft

Open Hole 8.5in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	8.5				
Top Driller (ft)	0	3614				
Top Logger (ft)	0	3614				
Bottom Driller (ft)	3614	8114				
Bottom Logger (ft)	3614	8008				
Casing						
Size (in)	9.625					
Weight (lbm/ft)	43.5					
Inner Diameter (in)	8.758					
Grade	N80					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	3614					
Bottom Logger (ft)	3614					

Operational Run Summary

Parameter (unit)	1					
Date Log Started	10-Feb-2013					
Time Log Started	09:42:30					
Date Log Finished	10-Feb-2013					
Time Log Finished	17:43:49					
Top Log Interval (ft)	3614.00					
Bottom Log Interval (ft)	8008.00					
Total Depth (ft)	8008.00					
Max Hole Deviation (deg)	49.20					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	8.500					
Logging Unit Number	826					
Logging Unit Location	PETA					
Recorded By	S. Roman / G. Tejada					
Witnessed By	Jose Coronado					
Service Order Number	BYWR-34					

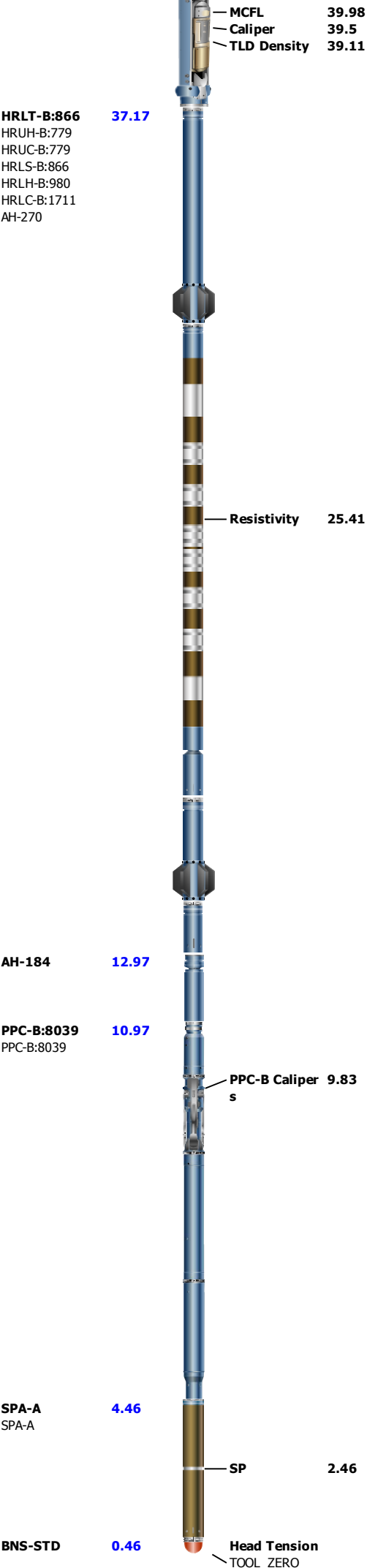
Borehole Fluids

Parameter(unit)	1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	114					
Source of Sample	Mud Pit					
Salinity (ppm)	663					
Density (lbm/gal)	11.2					

Funnel Viscosity (s)	46					
Fluid Loss (cm3)	4					
PH	9.5					
Date/Time Circulation Stopped	10-Feb-2013 18:59:00					
Date Logger on Bottom	10-Feb-2013					
Time Logger on Bottom	14:17:00					
Source RMF	Pressed					
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	2.6 @ 88.3					
RMF @ Meas Temp (ohm.m@degF)	2.48 @ 91					
RMC @ Meas Temp (ohm.m@degF)	6.04 @ 83.8					
RM @ BHT (ohm.m@degF)	1.13 @ 212					
RMF @ BHT (ohm.m@degF)	1.11 @ 212					
RMC @ BHT (ohm.m@degF)	2.5 @ 212					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

1: Toolstring				1: Remarks
Equip name LEH-QT LEH-QT	Length 69.04	MP name	Offset	1. Log objective: Nuclear, resistivity and sonic evaluation of 8.5" OH section.
				2. Tool ran as per tool sketch.
				3. Bowspring used to eccentralize HGNS.
AH-369:719 AH-369:719	66.12			4. Four 1.5"standoffs used to eccentralize HRLA.
DTC-H:8280 ECH-KC DTC-H:8280	64.7	CTEM HV	63.8 0.00	5. Matrix = Limestone, Densty = 2.71 gr/cc as per client request.
		TelStatus ToolStatus	61.7 61.7	6. Neutron corrections: Hole size, mud cake, mud weight, borehole salinity and pressure & temperature.
SAH-E:918 SAH-E:918	61.7			7. Maximum depth reached: 8008 ft.
				8. Maximum temperature recorded: 114 degF taken from termometers from the logging hea
HGNS-H:4750 HGNH:3842 NPV-N NSR-F:5167 HMCA-H HGNS-H:4750 HACCZ-H:5287	58.83	Temperature GR	58.8 58.08	9. Repeat Section from: 3850-3650 ft
		CNL Porosity HGNS HMCA Acceleromete r	51.75 49.42 49.42 0.00	10. Barite Corrections were applied.
HDRS-H:3990 ECH-MEB:2935 HRCC-H:3964 HRMS-H:3990 Long Spacing:287 83 HRGD-H:3976 Backscatter:4115 1 GSR-J:2933 Short Spacing:278 61 GPV-Q	49.42	HRCC	45.42	



Lengths are in ft
Maximum Outer Diameter = 5.000 in
Line: Sensor Location, Value: Gating Offset

Depth Summary

Depth Control Parameters	1		
Conveyance Type	Wireline		
Log Sequence	First Run in Hole		
Rig Up Length at Surface (ft)	198.30		
Rig Up Length at Bottom (ft)	198.10		
Rig Up Length Correction (ft)	0.20		
Depth Remark Parameters	1		
Depth Remark 1	All Schlumberger depth control procedures followed.		
Depth Remark 2	IDW used as primary depth control; Z-Chart used as secondary.		
Depth Measuring Device	1		
Type	IDW-JA		
Serial Number	4889		
Calibration Date	04-FEB-2013		
Calibrator Serial Number	10		
Calibration Cable Type	7-46ZVXS		
Wheel Correction 1	3.8		
Wheel Correction 2	-3.14		
Tension Device	1		
Type	CMTD-B/A		
Serial Number	2087		
Calibration Date	09-feb-2013		
Calibrator Serial Number	1002		
Calibration Points	10		
Calibration RMS	43		
Calibration Peak Error	82		
Logging Cable	1		
Type	7-46ZV-XS		
Serial Number	U712148		
Logging Cable Length (ft)	24000.00		

1

MAIN PASS

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1066.49	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	2241.2	ft3

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
1	Log[2]:Up	Up	3497.48 ft	8028.33 ft	10-Feb-2013 2:17:27 PM	10-Feb-2013 3:47:58 PM	16.41 ft	false

All depths are referenced to toolstring zero

Log

1: Log[2]:Up

Description: Format: Log (Resistivity logarithmic) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 03-Apr-2013 16:18:04

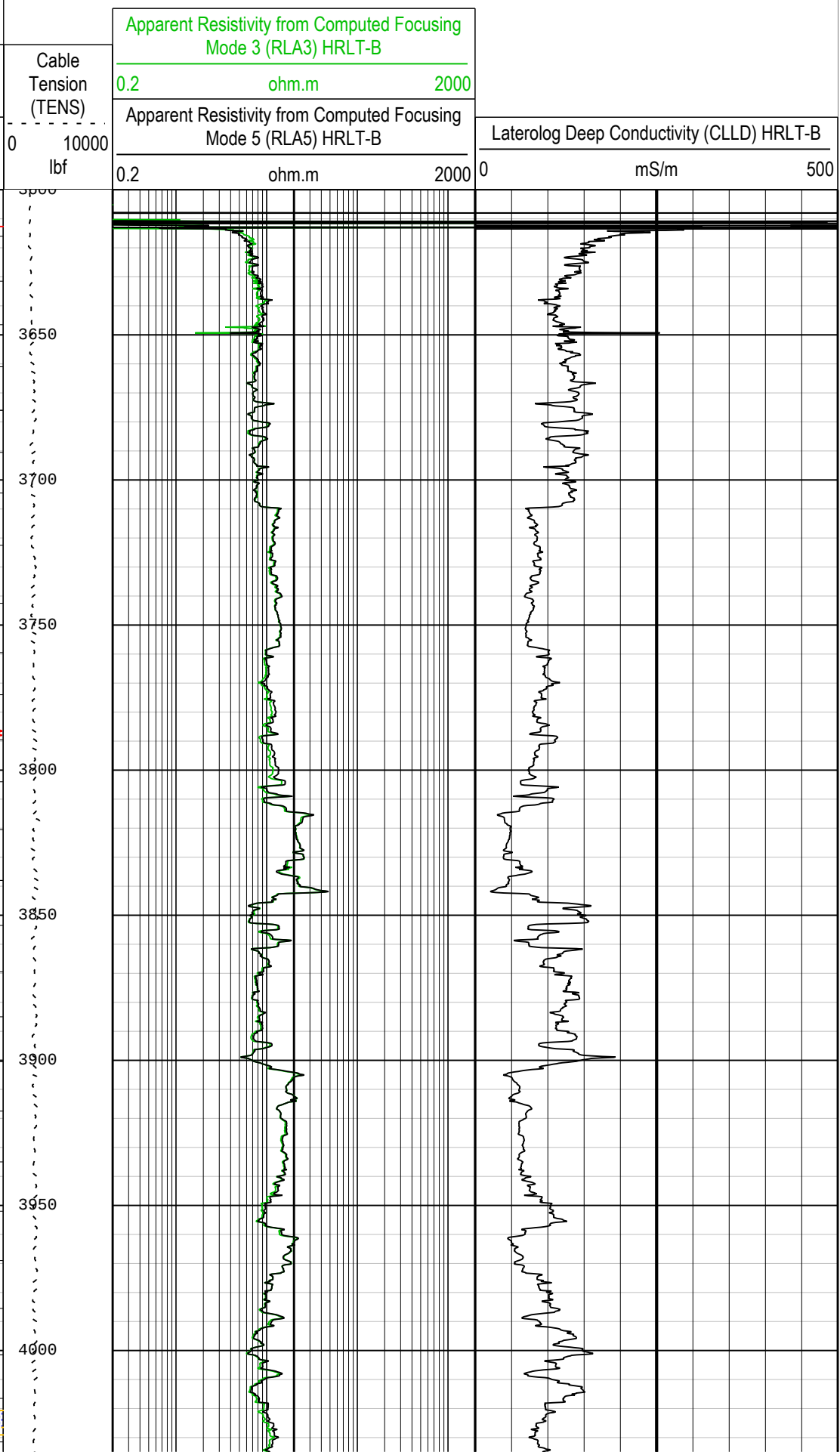
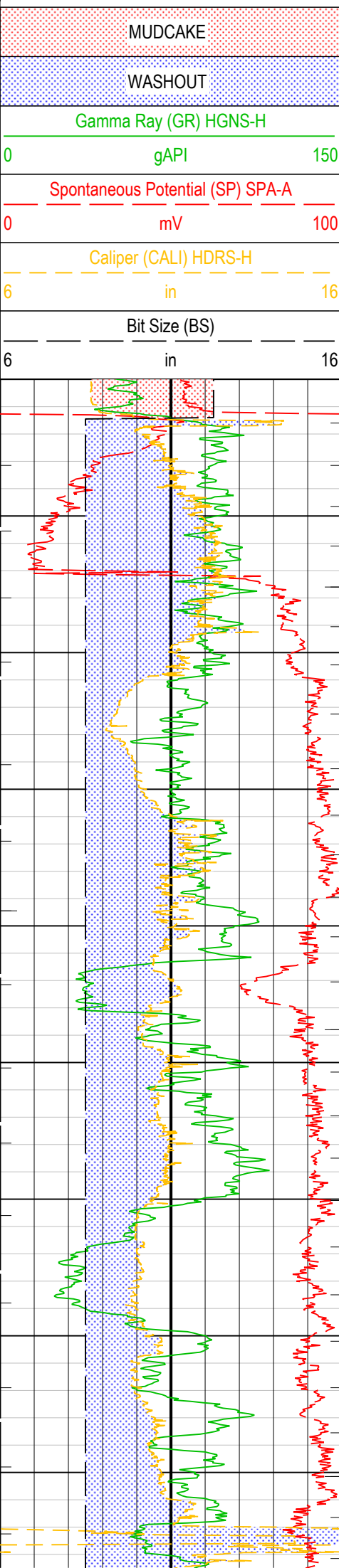
—|IHV - Integrated Hole Volume every 100.00 (ft3)

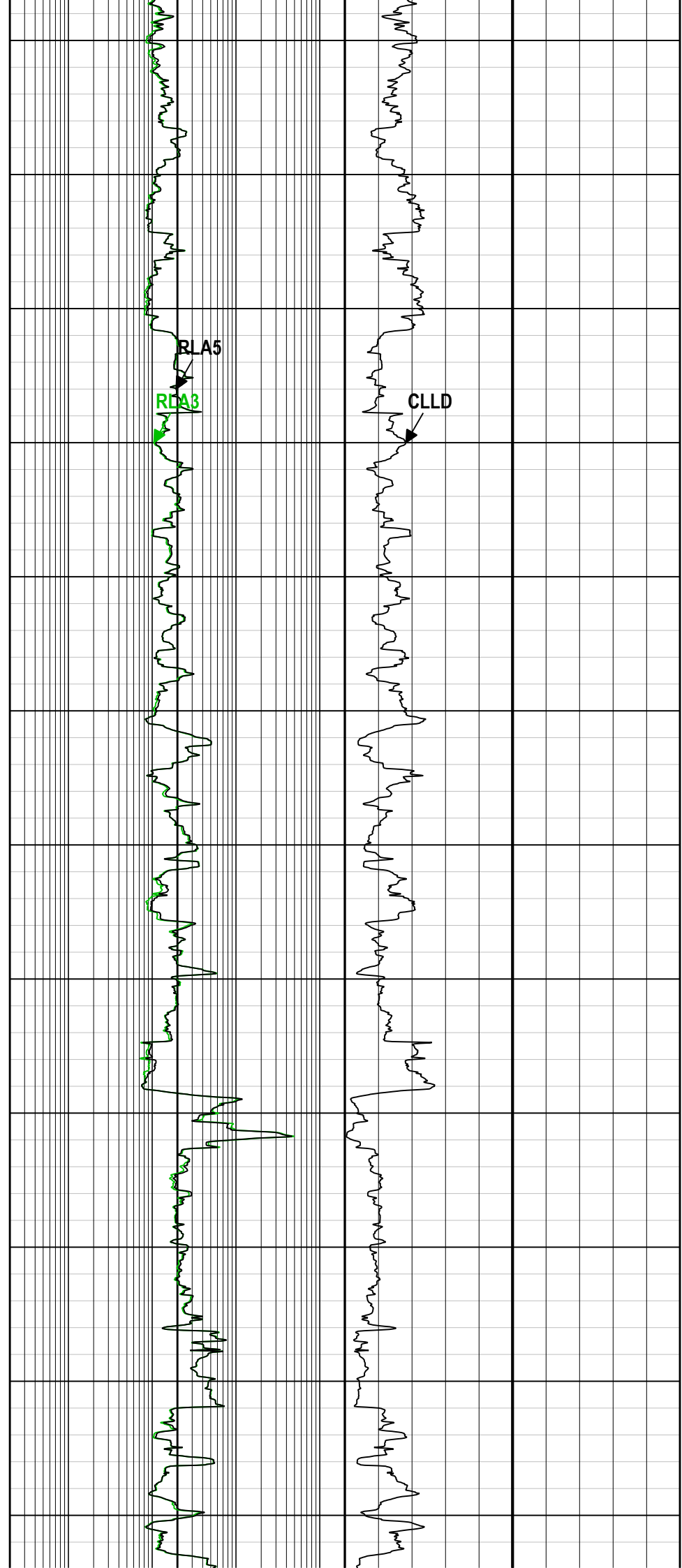
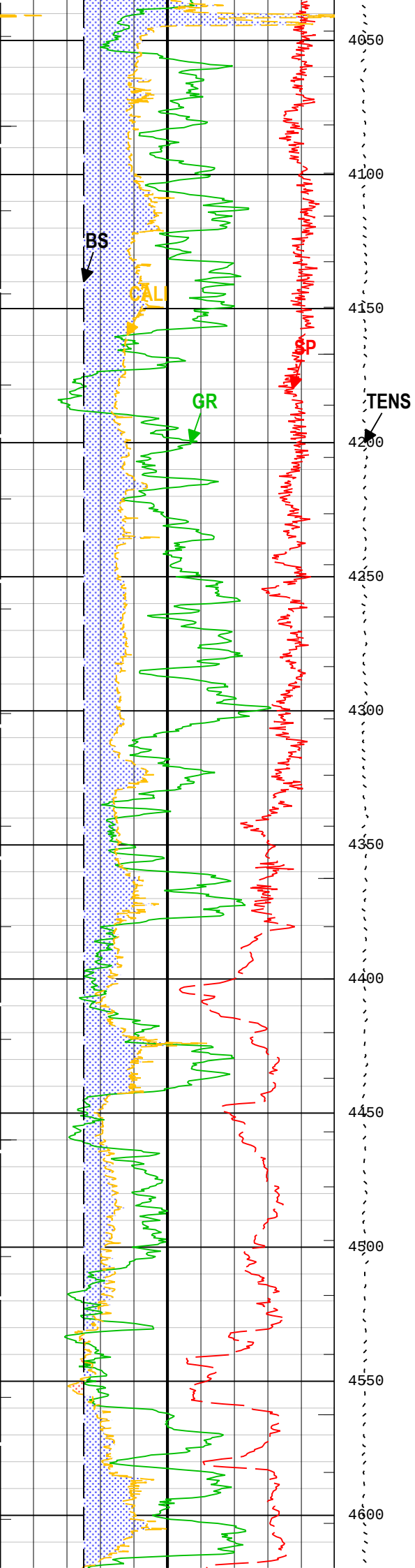
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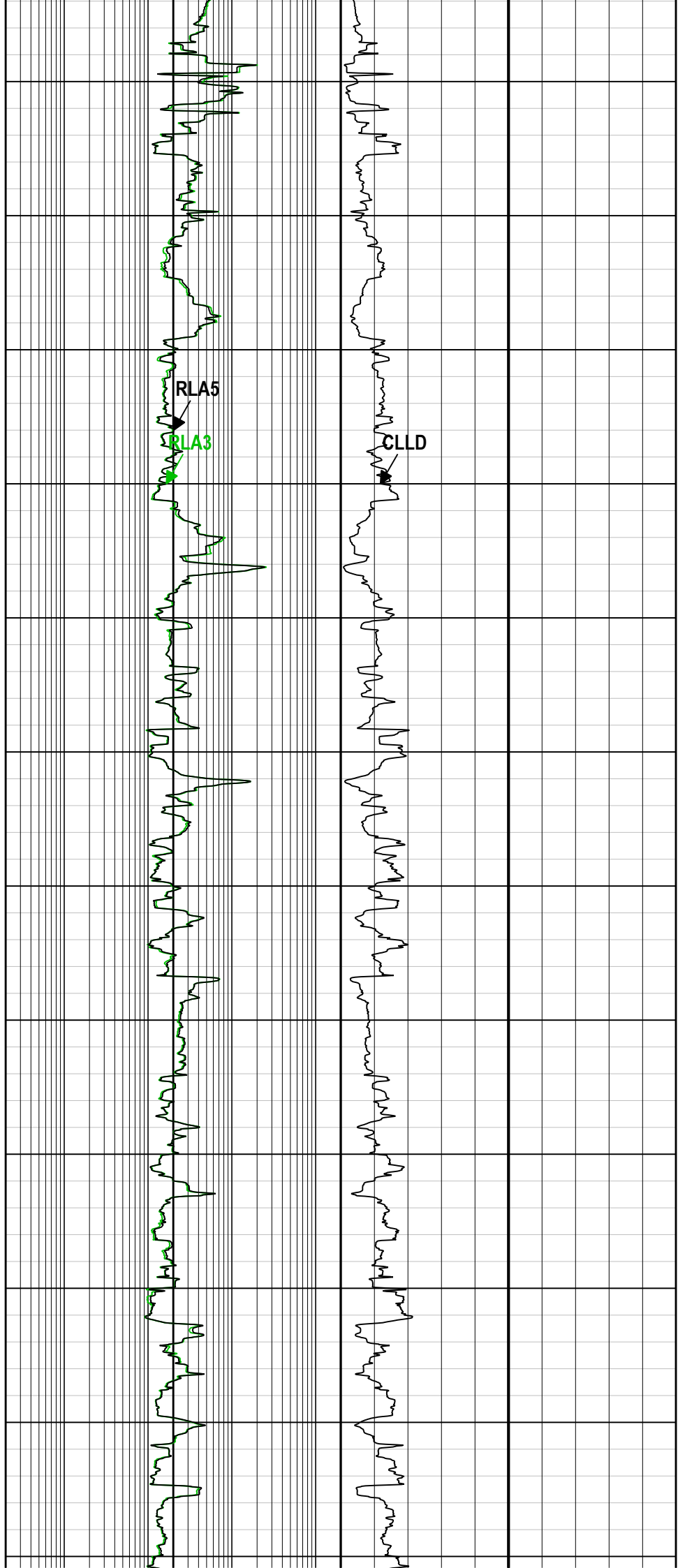
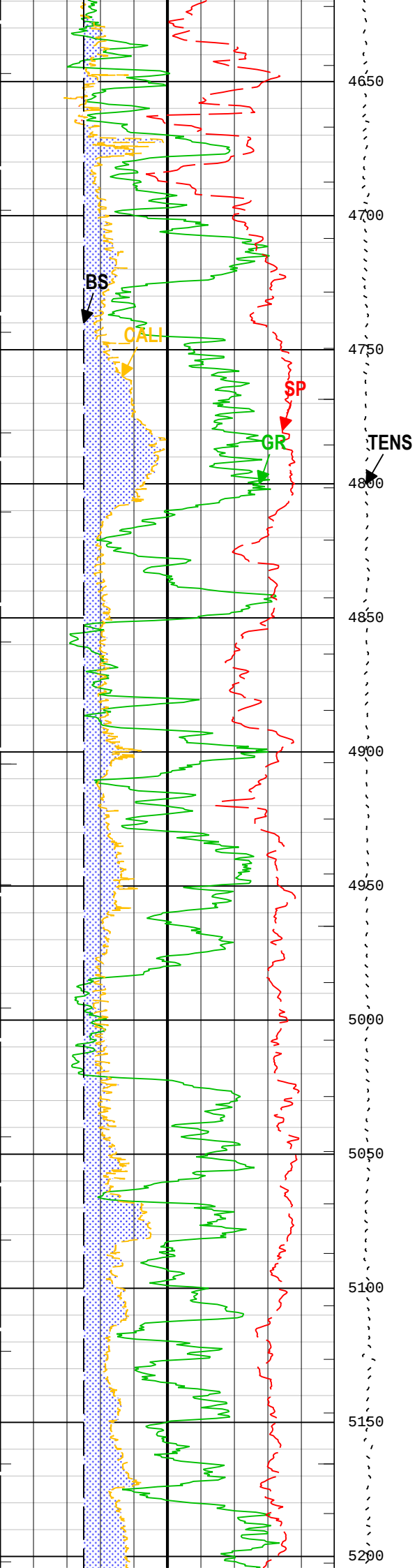
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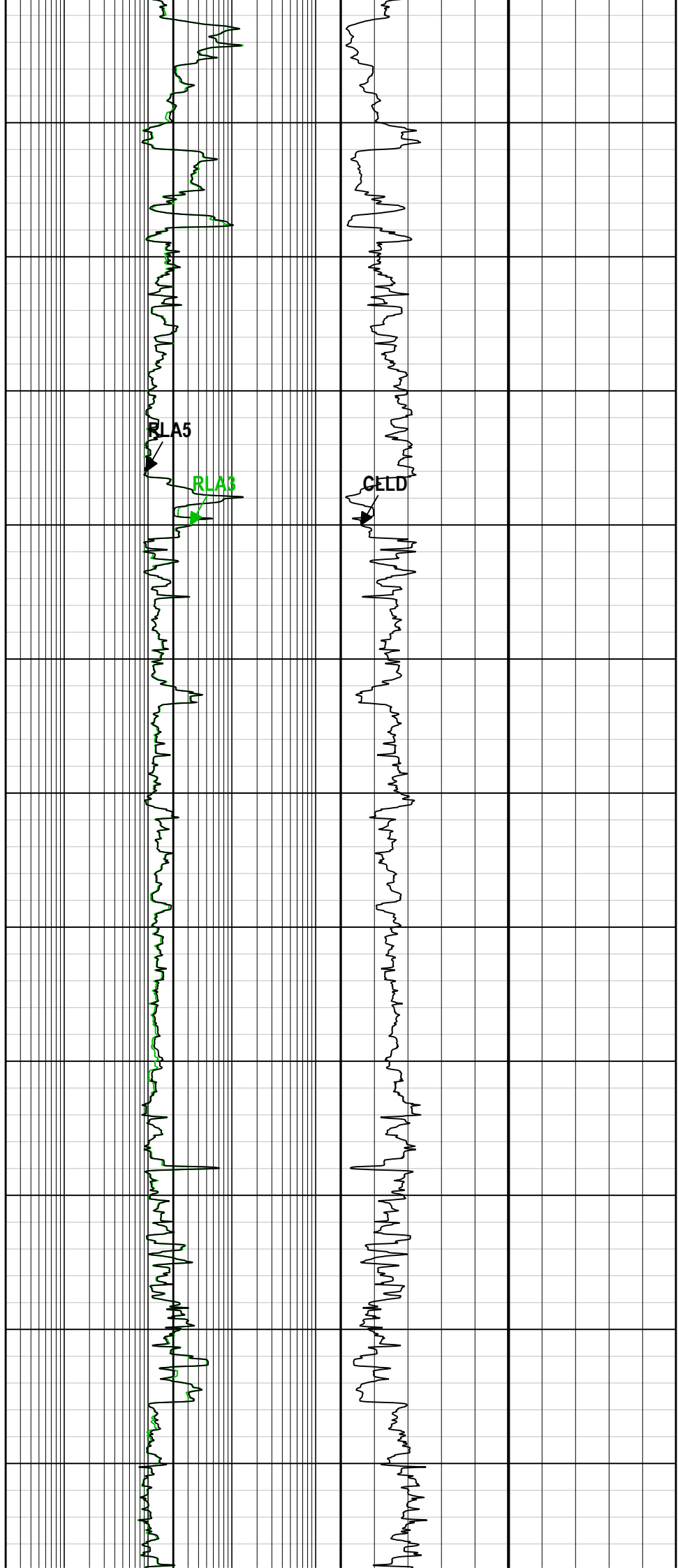
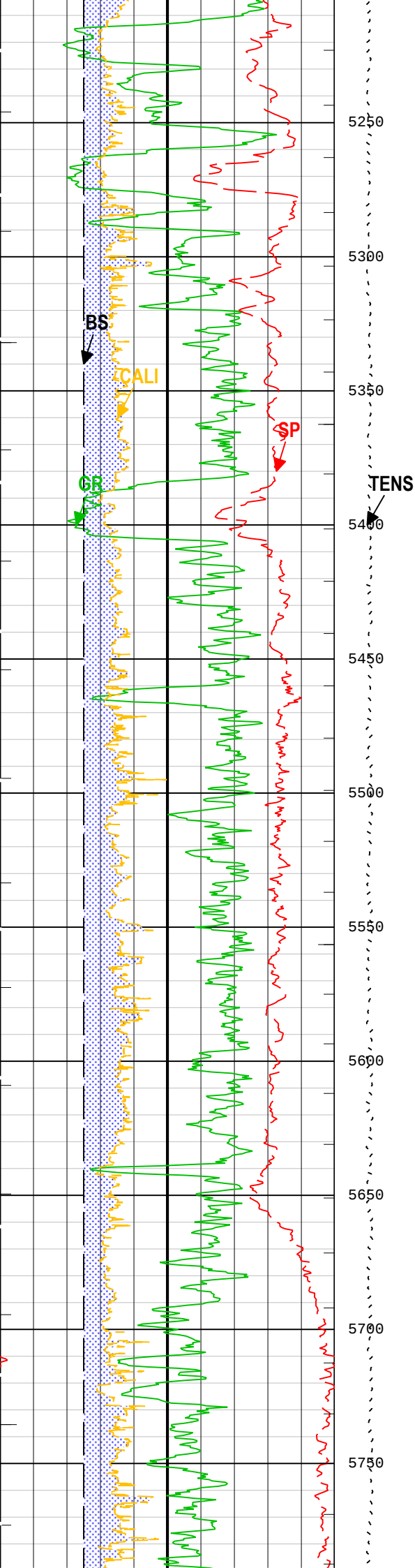
—|ICV - Integrated Cement Volume every 100.00 (ft3)

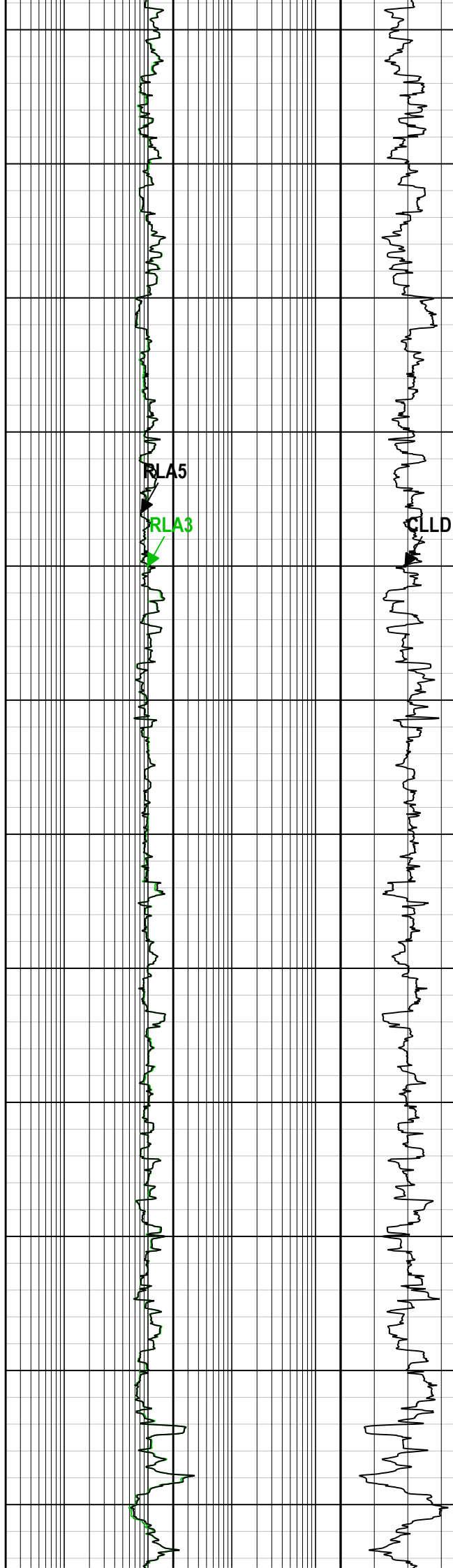
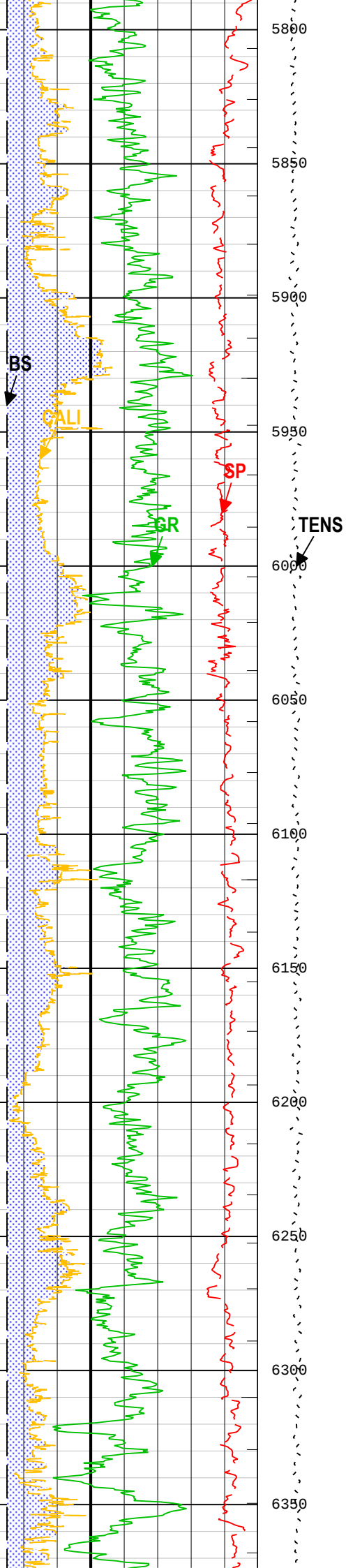
TIME_1900 - Time Marked every 60.00 (s)

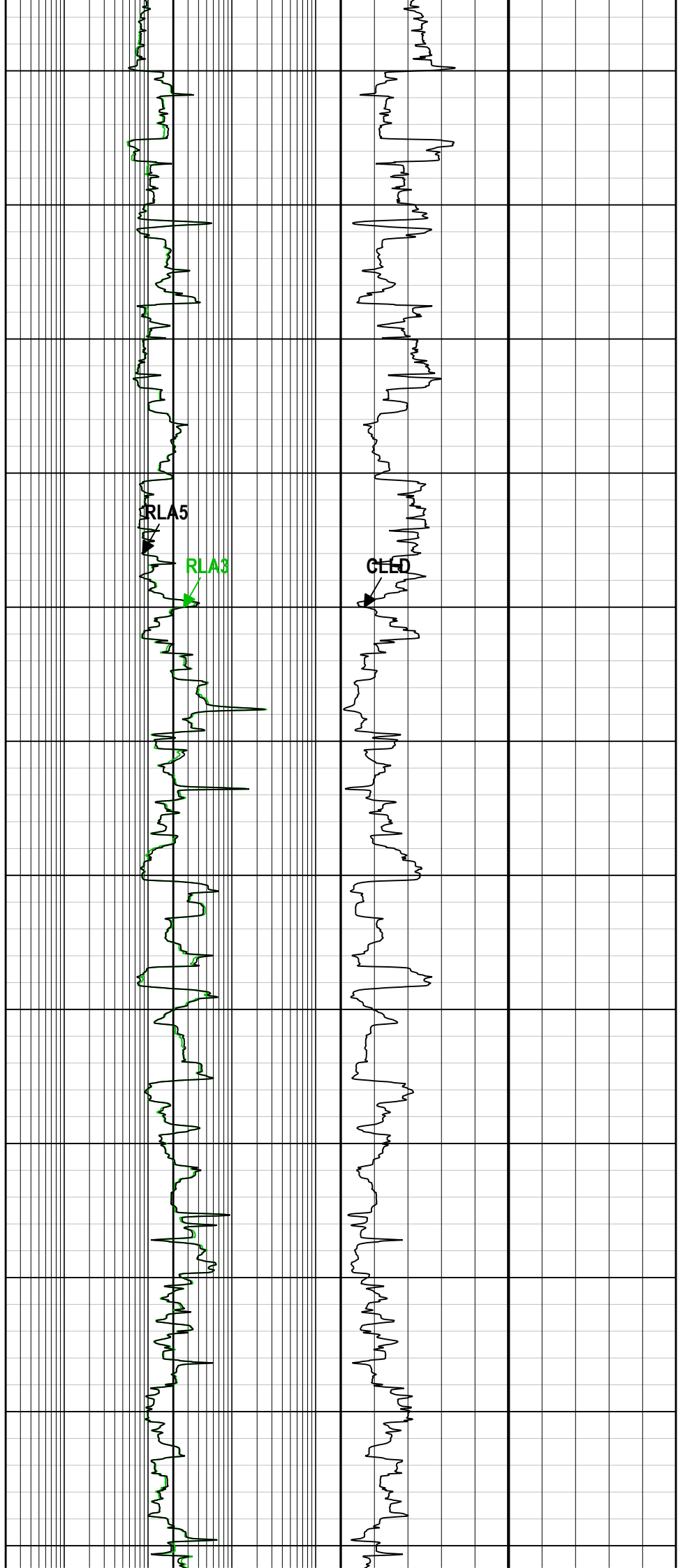
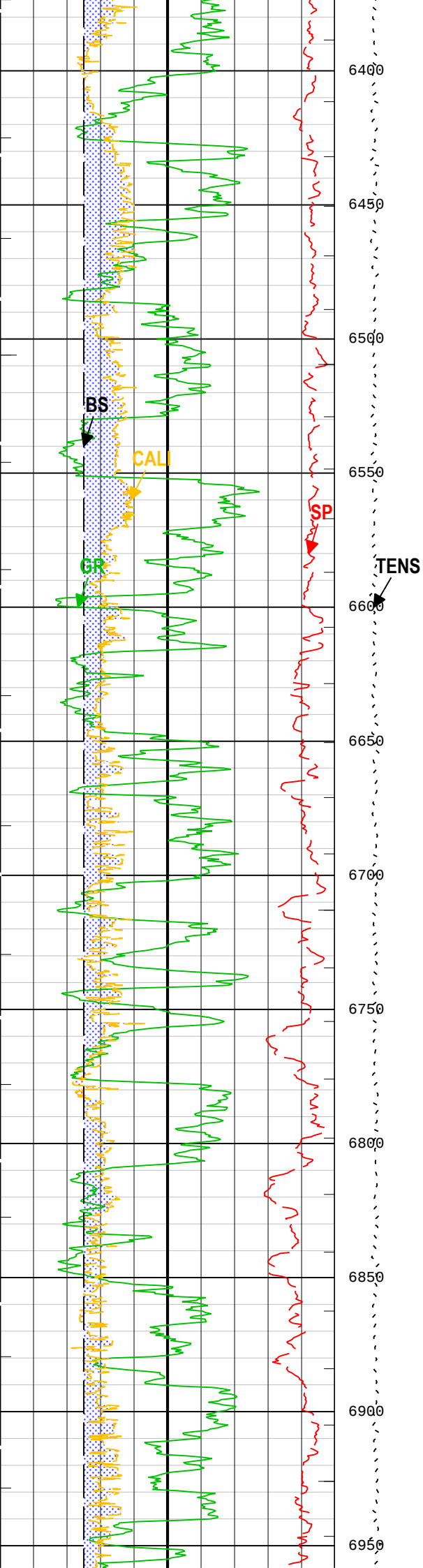


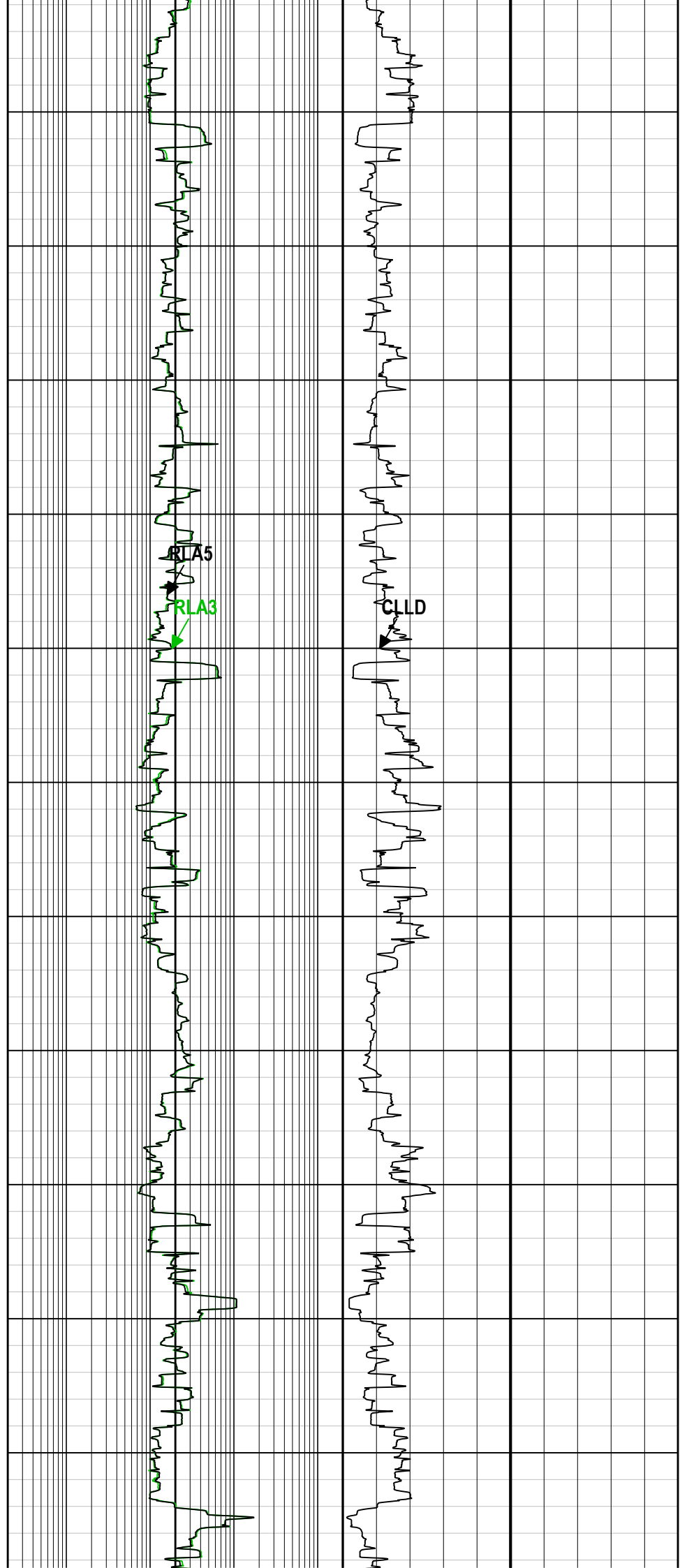
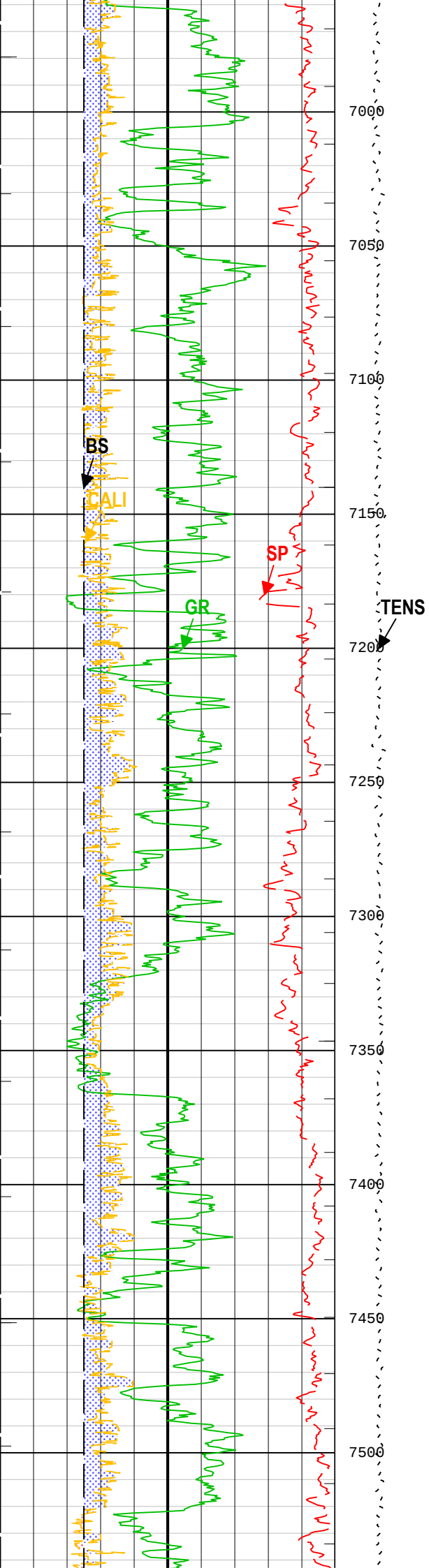


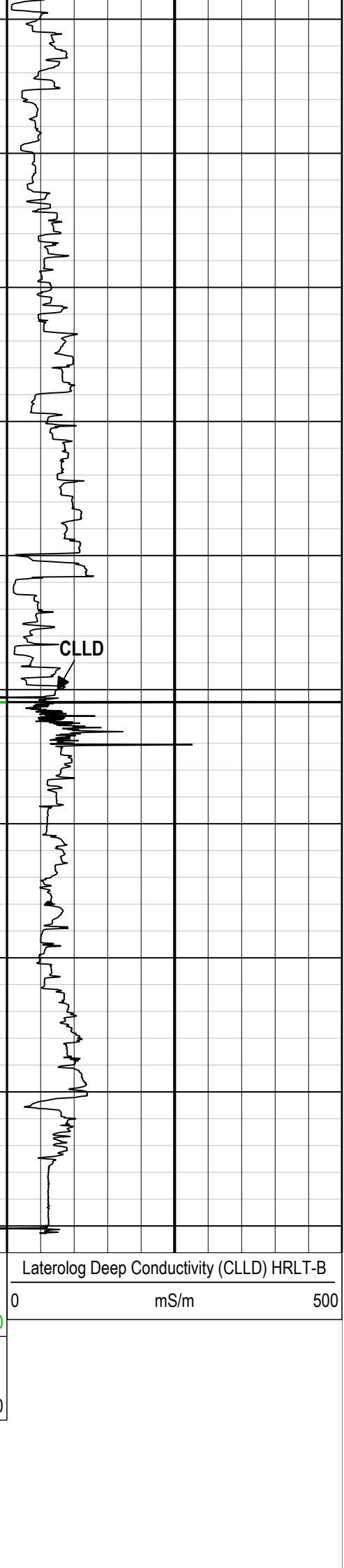
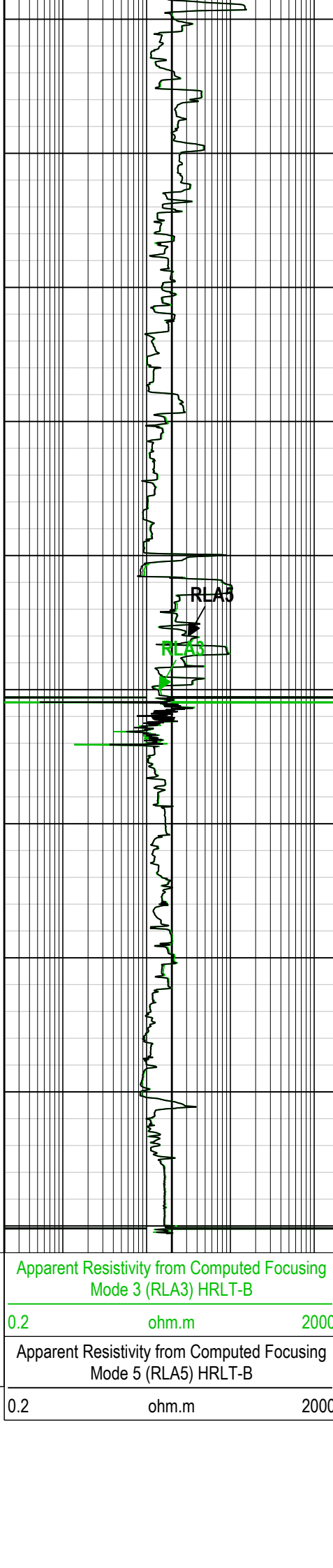
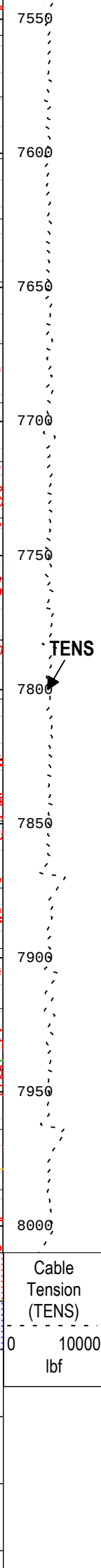
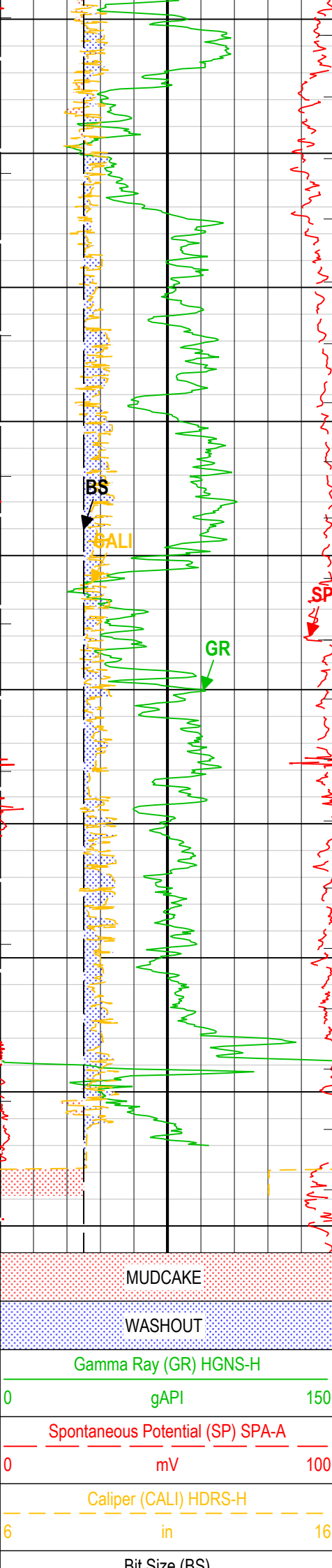












6	in	16
TIME_1900 - Time Marked every 60.00 (s)		
ICV - Integrated Cement Volume every 100.00 (ft3)		
ICV - Integrated Cement Volume every 10.00 (ft3)		
IHV - Integrated Hole Volume every 10.00 (ft3)		
IHV - Integrated Hole Volume every 100.00 (ft3)		
Description: Format: Log (Resistivity logarithmic) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 03-Apr-2013 16:18:04		

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	3614	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	11.2	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	HD1	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	MRES	
HRLT_PROCRM	Mud Resistivity Select	HRLT-B	HRLT Compute	
KFAC_HRLT	HRLT Geometrical Factor Option	HRLT-B	Sonde	
PROCMSO	Mechanical Standoff Size	HRLT-B	1.5	in
PROCSP0	Sonde Position	HRLT-B	Eccentered	
SOCN	Standoff Distance	HGNS-H	0	in
SPDR	SP Drift Per Foot	SPA-A	0	mV/ft

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	12.25	3600	3614
BS	8.5	3614	8010
All depth are actual.			

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

1

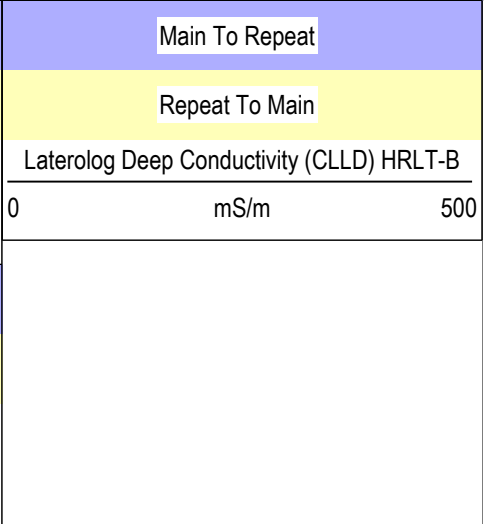
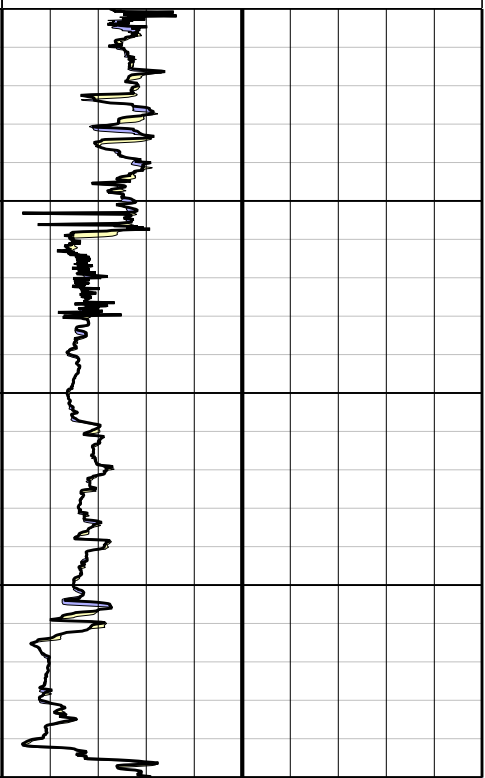
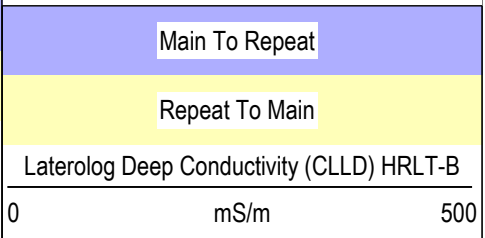
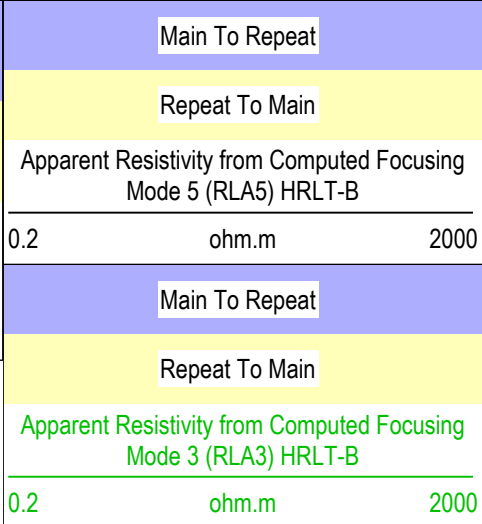
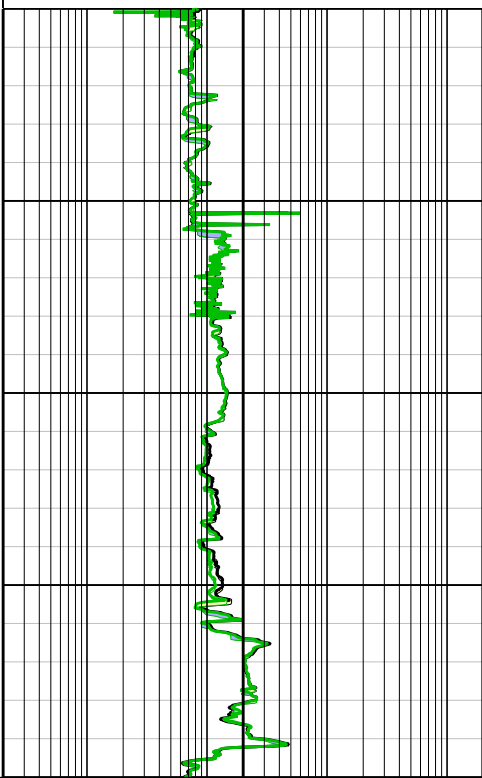
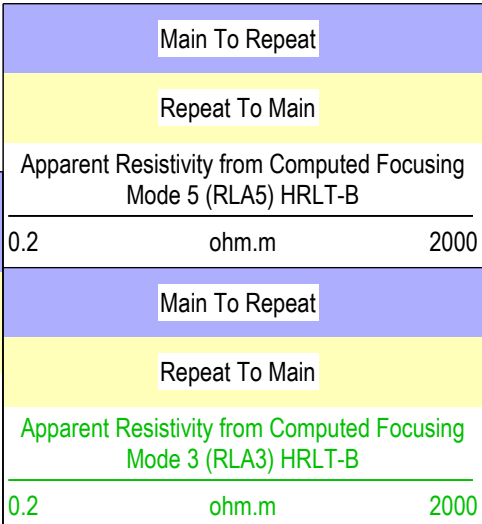
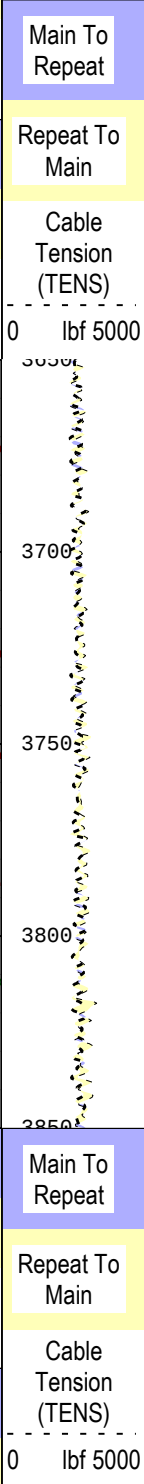
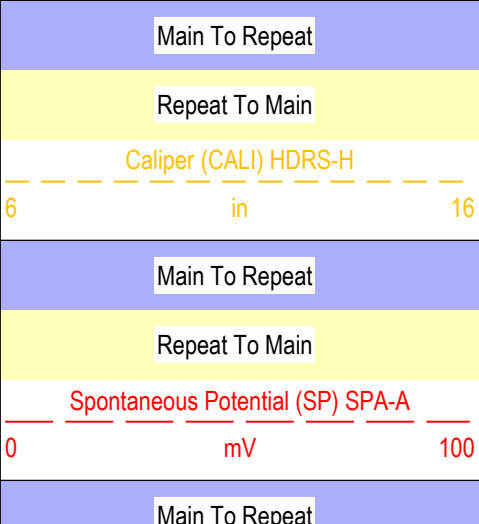
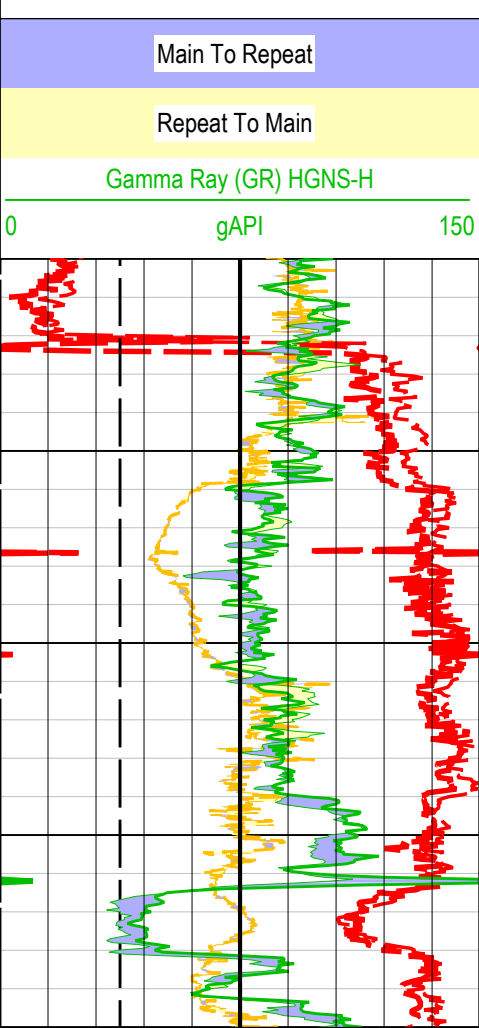
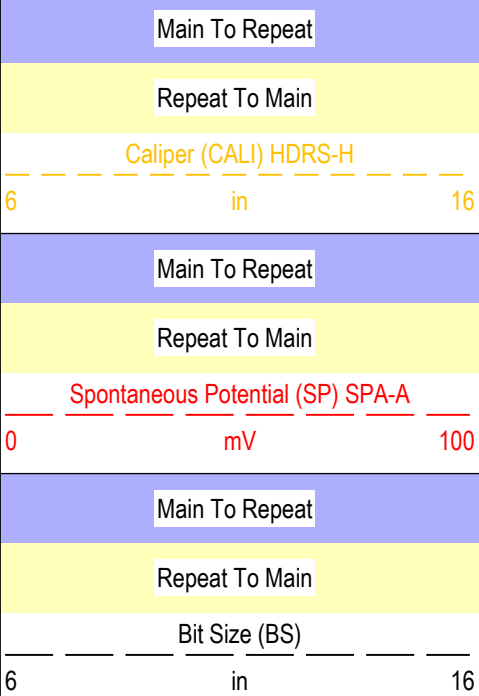
REPEAT ANALYSIS

Pass Summary								
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
1	Log[2]:Up	Up	3497.48 ft	8028.33 ft	10-Feb-2013 2:17:27 PM	10-Feb-2013 3:47:58 PM	16.41 ft	false
1	Log[3]:Up	Up	3555.23 ft	3925.97 ft	10-Feb-2013 3:54:33 PM	10-Feb-2013 4:02:35 PM	16.41 ft	false
All depths are referenced to toolstring zero								

Log	1: Log[2]:Up
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Description: Format: Log (Resistivity logarithmic RA) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 03-Apr-2013 16:18:10

TIME_1900 - Time Marked every 60.00 (s)



The diagram illustrates the bit size and directionality of the Gamma Ray (GR) HGNS-H. It features a horizontal axis labeled "Bit Size (BS)" with tick marks at 6, in, and 16. Above the axis, a yellow bar is labeled "Repeat To Main" and a purple bar is labeled "Main To Repeat". Below the axis, a purple bar is labeled "Main To Repeat" and a yellow bar is labeled "Repeat To Main". The text "Gamma Ray (GR) HGNS-H" is written in green below the axis, and "gAPI" is written in green below the axis.

TIME 1900 - Time Marked every 60.00 (s)

Description: Format: Log (Resistivity logarithmic RA) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 03-Apr-2013 16:18:10

Calibration Report

PPC-B (Powered Positioning device and Caliper.) Calibration - Run 1

Primary Equipment :

PPC-B Element is used for usual logging at wellsite and check/diagnostics

PDC B

9039

Calibration Parameter :

ZERO REF (Small Size Ring)

3 500

PLUS BEE (Large Size Ring)

8 000

Equipment Properties :

Caliper Arm Equipment Type for PPC

PPC CAI STD

PPC Check - Downhole Electronics Test

Before (Measured):	09:55:29 10-Feb-2013
--------------------	----------------------

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Positive Analog Voltage	V	Before		7	8.67832	9	
Minus Analog Voltage	V	Before		-9	-8.68711	-7	
Digital Voltage	V	Before		3.15	3.37619	3.45	
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.0209	5.5	
Status Word of Analog Digital Converter Offset		Before		-8	0 888889	8	

PPC Check - Cartridge Temperature Test

Before (Measured):	09:55:29 10-Feb-2013
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Cartridge Temperature	degF	Before		-58	88.3281	482		

PPC Check - Power Control / VDT Test

Before (Measured):	09:55:29 10-Feb-2013
--------------------	----------------------

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
LVDT5 Caliper Open Position	in	Before			-1.30066			
LVDT5 Full Power Position	in	Before			1.31287			

PPC Diagnostics - Arm Close Position Test

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Caliper-arm 1, radius raw - 0	in	Master	----	----	----	----		
Caliper-arm 2, radius raw - 0	in	Master	----	----	----	----		
Caliper-arm 3, radius raw - 0	in	Master	----	----	----	----		
Caliper-arm 4, radius raw - 0	in	Master	----	----	----	----		
Power Control LVDT - 0	in	Master	----	----	----	----		
LVDT excitation - 0	V	Master	----	----	----	----		

PPC Diagnostics - Downhole Electronics Test

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Positive Analog Voltage - 0	V	Master	----	----	----	----		
Minus Analog Voltage - 0	V	Master	----	----	----	----		
Digital Voltage - 0	V	Master	----	----	----	----		
Digital Voltage for Analog Digital Converter - 0	V	Master	----	----	----	----		

Status Word of Analog Digital Converter Offs	
--	--

0

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Relative Bearing - 0	deg	Master	-----	-----	-----	-----		
Potentiometer Excitation - 0	V	Master	-----	-----	-----	-----		

PPC Diagnostics - Cartridge Temperature Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Cartridge Temperature - 0	degF	Master	-----	-----	-----	-----		

PPC Diagnostics - Power Control LVDT Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
LVDT5 Caliper Open Position - 0	in	Master	-----	-----	-----	-----		
LVDT5 Full Power Position - 0	in	Master	-----	-----	-----	-----		

PPC LVDT5 Master Calibration - PPC CaliCoefficients								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
CCS	in	Master	-1.51		NOT DONE			
COP	in	Master	-1.31		NOT DONE			
CPW	in	Master	1.41		NOT DONE			

PPC Caliper Calibration - PPC CaliCoefficients								
Before (Measured):			After (Measured):			17:30:34 10-Feb-2013		
10:06:35 10-Feb-2013								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RD1_GAIN		Before	1	0.85	1.08525	1.15		
		After	1	0.85	1.09037	1.15		
		After-Before	-----	-----	0.00512	-----		
RD2_GAIN		Before	1	0.85	1.03371	1.15		
		After	1	0.85	1.03529	1.15		
		After-Before	-----	-----	0.00158	-----		
RD3_GAIN		Before	1	0.85	1.01131	1.15		
		After	1	0.85	1.02337	1.15		
		After-Before	-----	-----	0.01206	-----		
RD4_GAIN		Before	1	0.85	1.07386	1.15		
		After	1	0.85	1.0694	1.15		
		After-Before	-----	-----	-0.00446	-----		
RD1_OFFSET	in	Before	0	-2.2	-1.73363	2.6		
		After	0	-2.2	-1.7913	2.6		
		After-Before	-----	----	-0.05767	-----		
RD2_OFFSET	in	Before	0	-2.2	-0.126655	2.6		
		After	0	-2.2	-0.100008	2.6		
		After-Before	-----	----	0.026647	-----		
RD3_OFFSET	in	Before	0	-2.2	-1.68287	2.6		
		After	0	-2.2	-1.81344	2.6		
		After-Before	-----	----	-0.13057	-----		
RD4_OFFSET	in	Before	0	-2.2	-1.30451	2.6		
		After	0	-2.2	-1.29722	2.6		
		After-Before	-----	----	0.00729	-----		

PPC Caliper Calibration - PPC Accumulations								
Before (Measured):			After (Measured):			17:30:34 10-Feb-2013		
10:06:35 10-Feb-2013								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Caliper 1 Zero Radius	in	Before	3.5	1.2	4.82249	5.6		
		After	3.5	1.2	4.85274	5.6		
		After-Before	-----	-12.7	0.03025	12.7		
Caliper 2 Zero Radius	in	Before	3.5	1.2	3.50839	5.6		
		After	3.5	1.2	3.47731	5.6		
		After-Before	-----	-12.7	-0.03108	12.7		
Caliper 3 Zero Radius	in	Before	3.5	1.2	5.12493	5.6		
		After	3.5	1.2	5.19208	5.6		
		After-Before	-----	-12.7	0.06715	12.7		
Caliper 4 Zero Radius	in	Before	3.5	1.2	4.47405	5.6		
		After	3.5	1.2	4.48588	5.6		
		After-Before	-----	-12.7	0.01183	12.7		
Caliper 1 Plus Radius	in	Before	8	6.1	8.96899	9.7		
		After	8	6.1	8.97976	9.7		
		After-Before	-----	-12.7	0.01077	12.7		
Caliper 2 Plus Radius	in	Before	8	6.1	7.86165	9.7		
		After	8	6.1	7.82393	9.7		
		After-Before	-----	-12.7	-0.03772	12.7		
Caliper 3 Plus Radius	in	Before	8	6.1	9.57463	9.7		
		After	8	6.1	9.5803	9.7		
		After-Before	-----	-----	0.00567	-----		

		After-Before	-----	-12.7	0.01467	12.7	
Caliper 4 Plus Radius	in	Before	8	6.1	8.66454	9.7	
		After	8	6.1	8.69383	9.7	
		After-Before	-----	-12.7	0.02929	12.7	

HRLT-B (High Resolution Laterolog Array) Calibration - Run 1

Primary Equipment :		HRLT-B Sonde		HRLS-B		866	
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HRLT-B Calibration - HRLT M0-M1 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M01 - 0	uV	Before	-322.7	-379.6	-315.1	-280.6	
		After	-322.7	-379.6	-315.1	-280.6	
		After-Before	-----	-----	0.0	-----	
HRLT M01 - 1	uV	Before	-322.7	-379.6	-306.0	-280.6	
		After	-322.7	-379.6	-306.0	-280.6	
		After-Before	-----	-----	0.0	-----	
HRLT M01 - 2	uV	Before	-322.7	-379.6	-302.9	-280.6	
		After	-322.7	-379.6	-303.2	-280.6	
		After-Before	-----	-----	-0.3	-----	
HRLT M01 - 3	uV	Before	-322.7	-379.6	-309.3	-280.6	
		After	-322.7	-379.6	-309.9	-280.6	
		After-Before	-----	-----	-0.6	-----	
HRLT M01 - 4	uV	Before	-322.7	-379.6	-308.7	-280.6	
		After	-322.7	-379.6	-308.8	-280.6	
		After-Before	-----	-----	-0.1	-----	
HRLT M01 - 5	uV	Before	-322.7	-379.6	-315.7	-280.6	
		After	-322.7	-379.6	-315.8	-280.6	
		After-Before	-----	-----	-0.1	-----	
HRLT M01 - 6	uV	Before	322.7	280.6	291.3	379.6	
		After	322.7	280.6	291.7	379.6	
		After-Before	-----	-----	0.4	-----	

HRLT-B Calibration - HRLT M1-M2 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M12 - 0	uV	Before	1781.0	1548.7	1732.7	2095.3	
		After	1781.0	1548.7	1732.7	2095.3	
		After-Before	-----	-----	0.0	-----	
HRLT M12 - 1	uV	Before	1781.0	1548.7	1684.8	2095.3	
		After	1781.0	1548.7	1685.8	2095.3	
		After-Before	-----	-----	1.0	-----	
HRLT M12 - 2	uV	Before	1781.0	1548.7	1663.5	2095.3	
		After	1781.0	1548.7	1664.8	2095.3	
		After-Before	-----	-----	1.3	-----	
HRLT M12 - 3	uV	Before	1781.0	1548.7	1698.9	2095.3	
		After	1781.0	1548.7	1701.8	2095.3	
		After-Before	-----	-----	2.9	-----	
HRLT M12 - 4	uV	Before	1781.0	1548.7	1695.9	2095.3	
		After	1781.0	1548.7	1696.3	2095.3	
		After-Before	-----	-----	0.4	-----	
HRLT M12 - 5	uV	Before	1781.0	1548.7	1735.5	2095.3	
		After	1781.0	1548.7	1736.1	2095.3	
		After-Before	-----	-----	0.6	-----	
HRLT M12 - 6	uV	Before	-1781.0	-2095.3	-1611.7	-1548.7	
		After	-1781.0	-2095.3	-1613.9	-1548.7	
		After-Before	-----	-----	-2.2	-----	

HRLT-B Calibration - HRLT M2-M3 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M23 - 0	uV	Before	1781.0	1548.7	1720.5	2095.3	
		After	1781.0	1548.7	1720.5	2095.3	
		After-Before	-----	-----	0.0	-----	
HRLT M23 - 1	uV	Before	1781.0	1548.7	1685.4	2095.3	
		After	1781.0	1548.7	1686.1	2095.3	
		After-Before	-----	-----	0.7	-----	
HRLT M23 - 2	uV	Before	1781.0	1548.7	1664.6	2095.3	
		After	1781.0	1548.7	1665.8	2095.3	
		After-Before	-----	-----	1.2	-----	

HRLT M23 - 3	uV	After-Before	-----	-----	1.2	-----		
		Before	1781.0	1548.7	1703.2	2095.3		
		After	1781.0	1548.7	1705.7	2095.3		
HRLT M23 - 4	uV	After-Before	-----	-----	2.5	-----		
		Before	1781.0	1548.7	1693.8	2095.3		
		After	1781.0	1548.7	1694.2	2095.3		
HRLT M23 - 5	uV	After-Before	-----	-----	0.4	-----		
		Before	1781.0	1548.7	1734.6	2095.3		
		After	1781.0	1548.7	1735.1	2095.3		
HRLT M23 - 6	uV	After-Before	-----	-----	0.5	-----		
		Before	-1781.0	-2095.3	-1601.4	-1548.7		
		After	-1781.0	-2095.3	-1603.6	-1548.7		
		After-Before	-----	-----	-2.2	-----		

HRLT-B Calibration - HRLT A3-A4 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V34 - 0	uV	Before	70000.0	60869.6	67638.9	82352.9	
		After	70000.0	60869.6	67627.8	82352.9	
		After-Before	-----	-----	-11.1	-----	
HRLT V34 - 1	uV	Before	70000.0	60869.6	66039.8	82352.9	
		After	70000.0	60869.6	66080.0	82352.9	
		After-Before	-----	-----	40.2	-----	
HRLT V34 - 2	uV	Before	70000.0	60869.6	65514.8	82352.9	
		After	70000.0	60869.6	65598.3	82352.9	
		After-Before	-----	-----	83.5	-----	
HRLT V34 - 3	uV	Before	70000.0	60869.6	67301.8	82352.9	
		After	70000.0	60869.6	67403.7	82352.9	
		After-Before	-----	-----	101.9	-----	
HRLT V34 - 4	uV	Before	70000.0	60869.6	66902.6	82352.9	
		After	70000.0	60869.6	66930.3	82352.9	
		After-Before	-----	-----	27.7	-----	
HRLT V34 - 5	uV	Before	70000.0	60869.6	68537.7	82352.9	
		After	70000.0	60869.6	68561.3	82352.9	
		After-Before	-----	-----	23.6	-----	
HRLT V34 - 6	uV	Before	-70000.0	-82352.9	-61805.3	-60869.6	
		After	-70000.0	-82352.9	-61893.8	-60869.6	
		After-Before	-----	-----	-88.5	-----	

HRLT-B Calibration - HRLT A4-A5 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V45 - 0	uV	Before	70000.0	60869.6	67721.9	82352.9	
		After	70000.0	60869.6	67708.9	82352.9	
		After-Before	-----	-----	-13.0	-----	
HRLT V45 - 1	uV	Before	70000.0	60869.6	66559.1	82352.9	
		After	70000.0	60869.6	66599.3	82352.9	
		After-Before	-----	-----	40.2	-----	
HRLT V45 - 2	uV	Before	70000.0	60869.6	65930.7	82352.9	
		After	70000.0	60869.6	65981.0	82352.9	
		After-Before	-----	-----	50.3	-----	
HRLT V45 - 3	uV	Before	70000.0	60869.6	67602.9	82352.9	
		After	70000.0	60869.6	67716.0	82352.9	
		After-Before	-----	-----	113.1	-----	
HRLT V45 - 4	uV	Before	70000.0	60869.6	67035.8	82352.9	
		After	70000.0	60869.6	67075.4	82352.9	
		After-Before	-----	-----	39.6	-----	
HRLT V45 - 5	uV	Before	70000.0	60869.6	68626.5	82352.9	
		After	70000.0	60869.6	68641.8	82352.9	
		After-Before	-----	-----	15.3	-----	
HRLT V45 - 6	uV	Before	-70000.0	-82352.9	-62329.2	-60869.6	
		After	-70000.0	-82352.9	-62420.7	-60869.6	
		After-Before	-----	-----	-91.5	-----	

HRLT-B Calibration - HRLT A5-A6 Voltage Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V56 - 0	uV	Before	70000.0	60869.6	67655.7	82352.9	
		After	70000.0	60869.6	67655.7	82352.9	
		After-Before	-----	-----	0.0	-----	
HRLT V56 - 1	uV	Before	70000.0	60869.6	66424.2	82352.9	
		After	70000.0	60869.6	66462.1	82352.9	
		After-Before	-----	-----	37.9	-----	

HRLT V56 - 2	uV	Before	70000.0	60869.6	65807.5	82352.9	
		After	70000.0	60869.6	65883.7	82352.9	
		After-Before	-----	-----	76.2	-----	
HRLT V56 - 3	uV	Before	70000.0	60869.6	67517.5	82352.9	
		After	70000.0	60869.6	67628.4	82352.9	
		After-Before	-----	-----	110.9	-----	
HRLT V56 - 4	uV	Before	70000.0	60869.6	66983.7	82352.9	
		After	70000.0	60869.6	67020.0	82352.9	
		After-Before	-----	-----	36.3	-----	
HRLT V56 - 5	uV	Before	70000.0	60869.6	68588.1	82352.9	
		After	70000.0	60869.6	68604.1	82352.9	
		After-Before	-----	-----	16.0	-----	
HRLT V56 - 6	uV	Before	-70000.0	-82352.9	-62197.5	-60869.6	
		After	-70000.0	-82352.9	-62282.1	-60869.6	
		After-Before	-----	-----	-84.6	-----	

HRLT-B Calibration - HRLT Torpedo-M0 Voltage

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VTP - 0	uV	Before	-70000.0	-82352.9	-67367.2	-60869.6	
		After	-70000.0	-82352.9	-67354.8	-60869.6	
		After-Before	----	----	12.4	----	
HRLT VTP - 1	uV	Before	-70000.0	-82352.9	-66262.1	-60869.6	
		After	-70000.0	-82352.9	-66298.5	-60869.6	
		After-Before	----	----	-36.4	----	
HRLT VTP - 2	uV	Before	-70000.0	-82352.9	-65694.3	-60869.6	
		After	-70000.0	-82352.9	-65775.3	-60869.6	
		After-Before	----	----	-81.0	----	
HRLT VTP - 3	uV	Before	-70000.0	-82352.9	-67487.3	-60869.6	
		After	-70000.0	-82352.9	-67594.3	-60869.6	
		After-Before	----	----	-107.0	----	
HRLT VTP - 4	uV	Before	-70000.0	-82352.9	-67057.4	-60869.6	
		After	-70000.0	-82352.9	-67072.5	-60869.6	
		After-Before	----	----	-15.1	----	
HRLT VTP - 5	uV	Before	-70000.0	-82352.9	-68664.1	-60869.6	
		After	-70000.0	-82352.9	-68687.9	-60869.6	
		After-Before	----	----	-23.8	----	
HRLT VTP - 6	uV	Before	70000.0	60869.6	61988.7	82352.9	
		After	70000.0	60869.6	62081.5	82352.9	
		After-Before	----	----	92.8	----	

HRLT-B Calibration - HRLT Bridle#9-M0 Voltage

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VBD - 0	uV	Before	-70000.0	-82352.9	-67366.6	-60869.6	
		After	-70000.0	-82352.9	-67352.5	-60869.6	
		After-Before	-----	-----	14.1	-----	
HRLT VBD - 1	uV	Before	-70000.0	-82352.9	-66295.5	-60869.6	
		After	-70000.0	-82352.9	-66332.4	-60869.6	
		After-Before	-----	-----	-36.9	-----	
HRLT VBD - 2	uV	Before	-70000.0	-82352.9	-65745.2	-60869.6	
		After	-70000.0	-82352.9	-65799.3	-60869.6	
		After-Before	-----	-----	-54.1	-----	
HRLT VBD - 3	uV	Before	-70000.0	-82352.9	-67505.8	-60869.6	
		After	-70000.0	-82352.9	-67613.6	-60869.6	
		After-Before	-----	-----	-107.8	-----	
HRLT VBD - 4	uV	Before	-70000.0	-82352.9	-67065.6	-60869.6	
		After	-70000.0	-82352.9	-67081.3	-60869.6	
		After-Before	-----	-----	-15.7	-----	
HRLT VBD - 5	uV	Before	-70000.0	-82352.9	-68666.0	-60869.6	
		After	-70000.0	-82352.9	-68689.8	-60869.6	
		After-Before	-----	-----	-23.8	-----	
HRLT VBD - 6	uV	Before	70000.0	60869.6	62025.7	82352.9	
		After	70000.0	60869.6	62117.7	82352.9	
		After-Before	-----	-----	92.0	-----	

HRLT-B Calibration - HRLT Source Current Plus

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT ISO - 0	uA	Before	284.0	247.0	281.5	334.1	
		After	284.0	247.0	281.6	334.1	
		After-Before	----	----	0.1	----	
HRLT ISO - 1	uA	Before	281.1	244.4	281.1	320.7	
		After	281.1	244.4	281.1	320.7	
		After-Before	----	----	0.0	----	

HRLT ISO - 1	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	
HRLT ISO - 2	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	
HRLT ISO - 3	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	
HRLT ISO - 4	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	
HRLT ISO - 5	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	
HRLT ISO - 6	uA	Before After After-Before	281.1 281.1 -----	244.4 244.4 -----	281.1 281.1 0.0	330.7 330.7 -----	

HRLT-B Calibration - HRLT Vertical Voltage PI

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT MV - 0	uV	Before	-322.7	-379.6	-317.6	-280.6	
		After	-322.7	-379.6	-317.7	-280.6	
		After-Before	-----	-----	-0.1	-----	
HRLT MV - 1	uV	Before	-322.7	-379.6	-302.4	-280.6	
		After	-322.7	-379.6	-302.6	-280.6	
		After-Before	-----	-----	-0.2	-----	
HRLT MV - 2	uV	Before	-322.7	-379.6	-298.4	-280.6	
		After	-322.7	-379.6	-298.5	-280.6	
		After-Before	-----	-----	-0.1	-----	
HRLT MV - 3	uV	Before	-322.7	-379.6	-302.7	-280.6	
		After	-322.7	-379.6	-303.3	-280.6	
		After-Before	-----	-----	-0.6	-----	
HRLT MV - 4	uV	Before	-322.7	-379.6	-299.2	-280.6	
		After	-322.7	-379.6	-299.3	-280.6	
		After-Before	-----	-----	-0.1	-----	
HRLT MV - 5	uV	Before	-322.7	-379.6	-320.6	-280.6	
		After	-322.7	-379.6	-320.6	-280.6	
		After-Before	-----	-----	0.0	-----	
HRLT MV - 6	uV	Before	322.7	280.6	300.2	379.6	
		After	322.7	280.6	300.7	379.6	
		After-Before	-----	-----	0.5	-----	

HRLT-B Calibration - HRLT Calibration Temperature

Before (Measured):		09:54:29 10-Feb-2013		After (Measured):		17:20:58 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CTEM_HRLT	degF	Before			91.7		
		After			95.2		
		After-Before	-----	-----	3.5	-----	

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1

Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3964
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3976
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	41151
HRDD Long Spacing Detector	Long Spacing	28783
HRDD Short Spacing Detector	Short Spacing	27861
Cesium 137 Gamma-Ray Logging Source	GSR-J	2933
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3964
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	3990
Calibration Parameter :		
Small Ring Size (Caliper Calibration Small Ring)	8.00	
Large Ring Size (Caliper Calibration Large Ring)	12.00	

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		09:48:01 10-Feb-2013	
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	7.20	10.00	
Large Ring	in	Before	12.00	9.00	11.69	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 10:22:24 23-Jan-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.600	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.689	1.696	
Pe Aluminum		Master	2.570	2.470	2.535	2.670	
Pe Magnesium		Master	2.650	2.550	2.607	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 10:22:24 23-Jan-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2315	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.8792	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3454	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.5908	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.6396	1.5000	
LS Max Deviation	%	Master	0	-3.5000	2.2645	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 10:22:24 23-Jan-2013 Before (Measured): 09:58:54 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7408		
		Before	0.7408	0.7037	0.7410	0.7778	
		Before-Master	----	----	0.0002	----	
BS Window Sum	1/s	Master	1		27216		
		Before	27216	25855	27188	28577	
		Before-Master	----	----	-28	----	
SS Window Ratio		Master	1.0000		0.4814		
		Before	0.4814	0.4573	0.4796	0.5055	
		Before-Master	----	----	-0.0018	----	
SS Window Sum	1/s	Master	1		10945		
		Before	10945	10398	10927	11493	
		Before-Master	----	----	-18	----	
LS Window Ratio		Master	1.0000		0.3061		
		Before	0.3061	0.2908	0.3009	0.3214	
		Before-Master	----	----	-0.0052	----	
LS Window Sum	1/s	Master	1		1258		
		Before	1258	1195	1248	1320	
		Before-Master	----	----	-10	----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 10:22:24 23-Jan-2013 Before (Measured): 09:58:54 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1403	2400	
		Before		1000	1403	2400	
		Before-Master	----	-100	0	100	
SS PM High Voltage	V	Master		1000	1620	2400	
		Before		1000	1633	2400	
		Before-Master	----	-100	13	100	
LS PM High Voltage	V	Master		1000	1294	2400	
		Before		1000	1297	2400	
		Before-Master	----	-100	3	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 10:22:24 23-Jan-2013 Before (Measured): 09:58:54 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.45	25.00	
		Before		5.00	11.45	25.00	
		Before-Master	----	-1.00	0.00	1.00	
SS Crystal Resolution	%	Master		5.00	9.66	20.00	
		Before		5.00	9.73	20.00	
		Before-Master	----	-1.00	0.07	1.00	
LS Crystal Resolution	%	Master		5.00	8.02	20.00	
		Before		5.00	7.91	20.00	
		Before-Master	----	-1.00	-0.11	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 09:55:14 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3889	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3836	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3842	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC HGNS-H 4750

Auxiliary Equipment :

HGNS Accelerometer, 150 degC HACCZ-H 5287

AmBe Neutron Logging Source NSR-F 5167

Calibration Parameter :

Water Temperature

Housing Size

JIG-BKG (Jig minus background reference) 165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 09:54:53 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.0	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 19:00:00 14-Aug-2006

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	-1434.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	-44.490	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.028	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.761	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.300	-----	
Accelerometer Coefficients - 9		Master	-----	-----	0.996	-----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 16:21:08 08-Feb-2013 Before (Measured): 10:10:14 10-Feb-2013 After (Measured): 17:29:51 10-Feb-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.3	40.0	
		Before	0	5.0	26.7	40.0	
		After	0	5.0	27.6	40.0	
		Before-Master	-----	-4.1	-0.6	4.1	
		After-Before	-----	-4.0	0.9	4.0	
Far Zero Measurement	1/s	Master	0	5.0	26.8	40.0	
		Before	0	5.0	27.2	40.0	
		After	0	5.0	28.4	40.0	
		Before-Master	-----	-4.0	0.4	4.0	
		After-Before	-----	-4.1	1.2	4.1	
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	5343.0	6900.0	
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2260.0	2900.0	
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	5239.0	6900.0	
		Before	-----	-----	-----	-----	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2182.0	2900.0	
		Before	-----	-----	-----	-----	

		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations							
Before (Measured):		10:14:59 10-Feb-2013		After (Measured):		17:41:16 10-Feb-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	4.3	120.0	
		After	30.0	0	7.2	120.0	
		After-Before	----	----	2.9	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	170.0	206.3	
		After	179.8	152.4	166.5	200.0	
		After-Before	----	----	-3.5	----	
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

Company:	SAVIA PERU S.A.	Schlumberger
Well:	LO6-27D	
Field:	LOBITOS	
Rig Name:	PEPESA-40	
Country:	PERU	
RESISTIVITY LOGARITHMIC LOG		
SP-PPC-HRLT-TLD-HGNS-GR		
SCALE 2":100'		