

Company: Triton Energy Services LLC

Well: Triton 1

Field: Wattenberg

County: Weld State: Colorado

County: Weld
Field: Wattenberg
Location: SWNW Sec. 23, T4N, R66W
Well: Triton 1
Company: Triton Energy Services LLC

Platform Express
Caliper
Cement Volume

Location:		SWNW Sec. 23, T4N, R66W SHL: 2418' FNL x 1164' FWL Lat/Long: 40.29801, -104.74980	Elev.: K.B. 4746.00 ft G.L. 4729.00 ft D.F. 4745.00 ft
Permanent Datum:	Ground Level	Kelly Bushing	Elev.: 17.00 ft above Perm.Datum
Log Measured From:	Kelly Bushing		
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section: 23	Township: 4N	Range: 66W
05-123-37120-00			

Logging Date	24-Apr-2014		
Run Number	Run 1		
Depth Driller	10705.00 ft		
Schlumberger Depth	10688.00 ft		
Bottom Log Interval	10688.00 ft		
Top Log Interval	8920.00 ft		
Casing Driller Size @ Depth	7 in @ 8930.00 ft		
Casing Schlumberger	8920 ft		
Bit Size	6.125 in		
Type Fluid In Hole	Chemical Gel		
Density	Viscosity	37 s	
Fluid Loss	PH	10	
MUD			
Source of Sample			
RM @ Meas Temp	Flowline		
RM @ Meas Temp	0.25 ohm.m	@ 101.7 degF	
RMF @ Meas Temp	0.19 ohm.m	@ 101.7 degF	
RMC @ Meas Temp	0.31 ohm.m	@ 101.7 degF	
Source RMF	RMC	Calculated	
RM @ BHT	RMF @ BHT	0.09 @ 284 0.07 @ 284	
Max Recorded Temperatures			
Circulation Stopped		Time	11:00:00
Logger on Bottom		Time	24-Apr-2014 20:10:00
Unit Number	Location:	2135	Ft. Morgan, CO
Recorded By	Alekssei Bekhterev		
Witnessed By	Larry Howard		

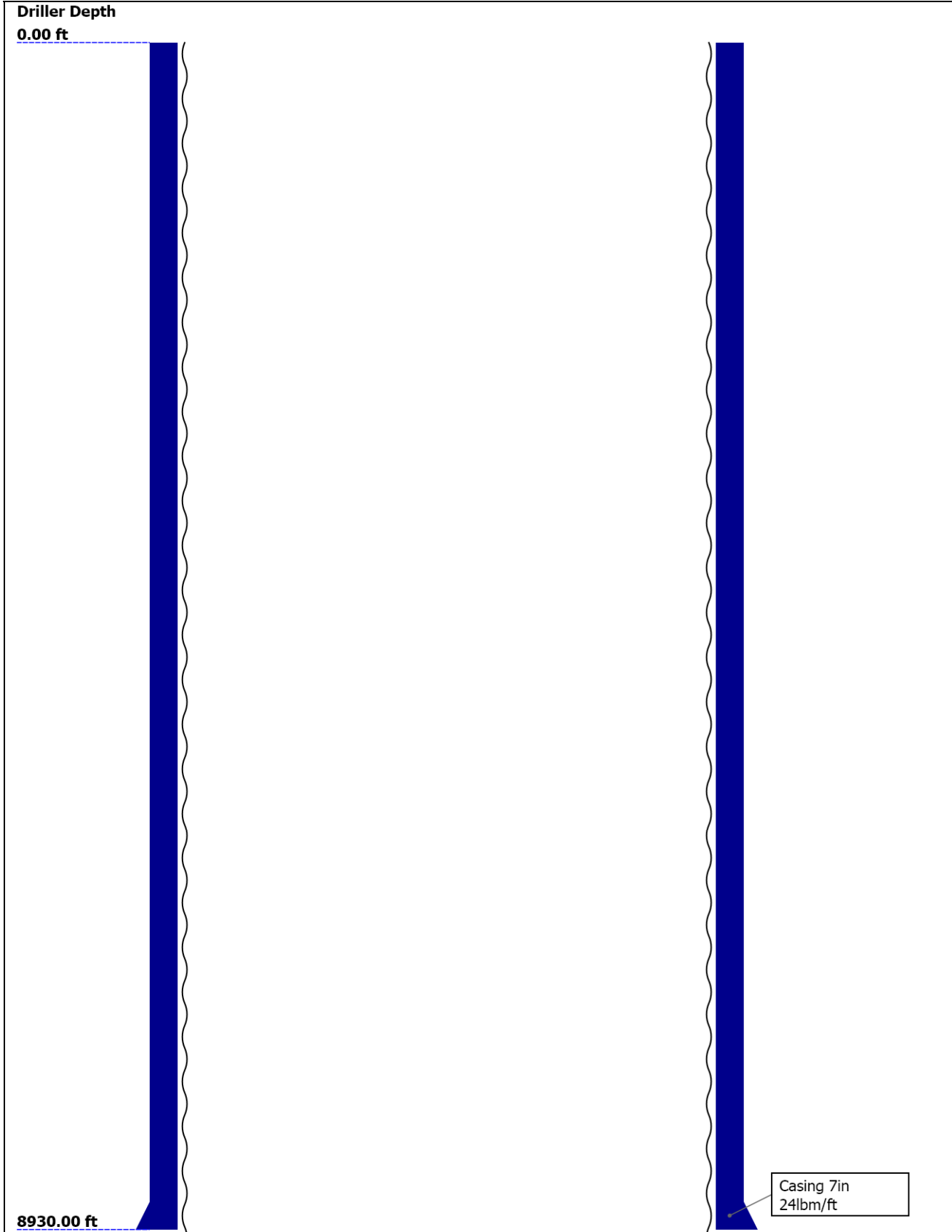
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Well Sketch



10705.00 ft

Open Hole 6.125in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	6.125					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	10705					
Bottom Logger (ft)	10688					
Casing						
Size (in)	7					
Weight (lbm/ft)	24					
Inner Diameter (in)	6.341					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	8930					
Bottom Logger (ft)	8920					

Borehole Fluids

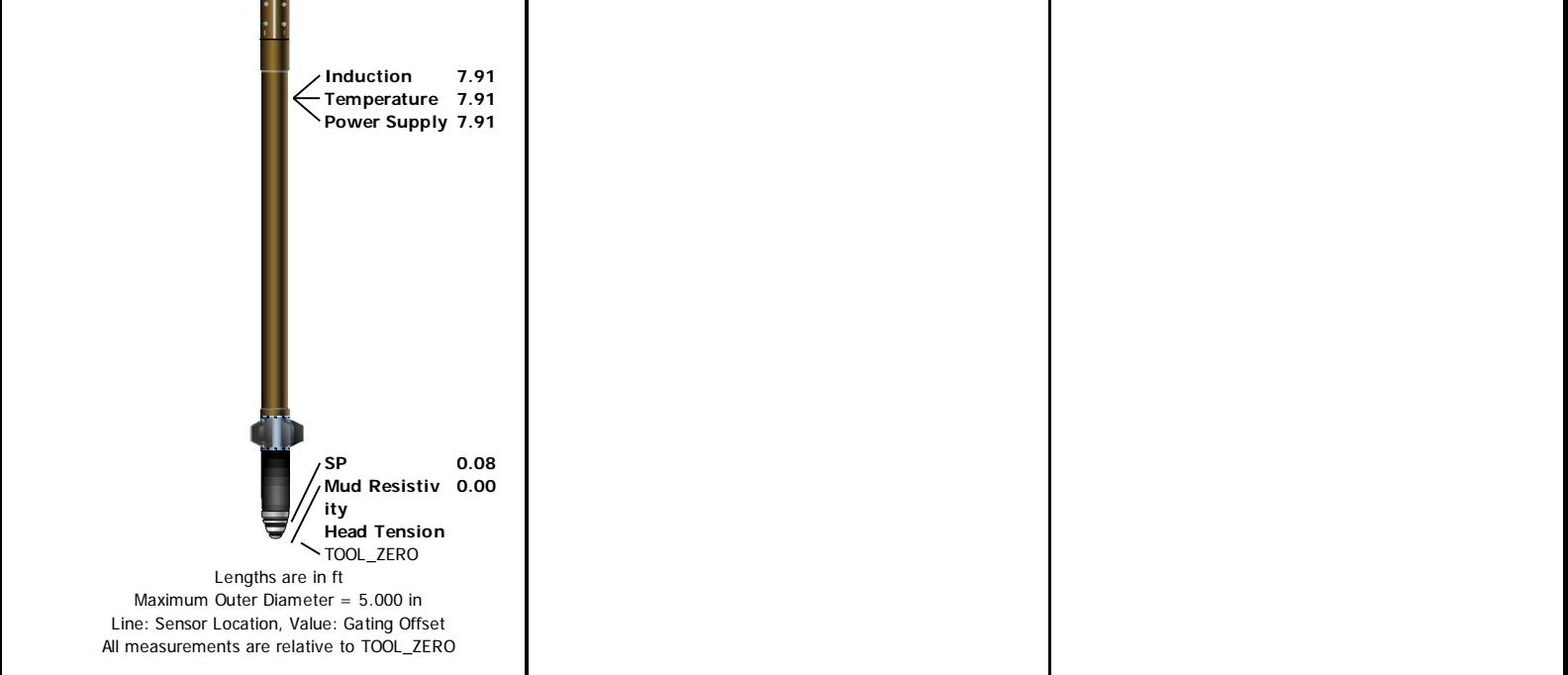
Parameter(unit)	Run 1					
Fluid Type	Water					
Fluid Name	Chemical Gel					
Max Recorded Temperatures (degF)	284					
Source of Sample	Flowline					
Salinity (ppm)	0					
Density (lbm/gal)	8.8					
Funnel Viscosity (s)	37					
Fluid Loss (cm3)						
PH	10					
Date/Time Circulation Stopped	24-Apr-2014 11:00:00					
Date Logger on Bottom	24-Apr-2014					
Time Logger on Bottom	20:10:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.25 @ 101.7					
RMF @ Meas Temp (ohm.m@degF)	0.19 @ 101.7					

Remarks and Equipment Summary

Run 1: Toolstring

Run 1: Remarks

Equip name	Length	MP name	Offset
LEH-QT	47.07		
LEH-QT			
EDTC-B:8315	44.15		
EDTH-B:8336			
EDTG-A:77213			
EDTC-B:8315			
		CTEM	40.65
		ACCZ	0.00
		HV	0.00
		Gamma Ray	38.78
HGNS-H:4810	37.65	TelStatus	37.65
HGNH:3912		Temperature	37.62
NSR-F:5215			
NPV-N		GR	36.91
HGNS-H:4810			
HACCZ-H:5955			
HMCA-H			
		CNL Porosity	30.57
		HMCA	28.24
		HGNS	28.24
		Accelerometer	0.00
HDRS-H:4826	28.24		
ECH-MEB:4711			
HRCC-H:5705			
HRMS-H:4826			
Backscatter			
GSR-J:5240			
HRGD-H:4791			
GPV-Q		HRCC	24.24
Short Spacing			
Long Spacing:289			
10			
		MCFL	18.81
		Caliper	18.33
		TLD Density	17.94
AIT-M:208	16.00		
AMIS:208			
AMRM:208			



Depth Summary				
		Run 1		
Depth Measuring Device				
Type	IDW-JA			
Serial Number	5916			
Calibration Date	24-Mar-2014			
Calibrator Serial Number				
Calibration Cable Type	7-46P-XS			
Wheel Correction 1	-6			
Wheel Correction 2	-3			
Tension Device				
Type	CMTD-B/A			
Serial Number	1919			
Calibration Date	11-Apr-2014			
Calibrator Serial Number	100513A			
Number of Calibration Points	10			
Calibration Root Mean Square Error	29			
Calibration Peak Error	49			
Logging Cable				
Type	7-46P-XS			
Serial Number	4713066			
Length	22500.00 ft			
Conveyance Type	Wireline			
Rig Type	Land			
Run 1:Depth Control Parameters			Depth Control Remarks	
Log Sequence	Subsequent Trip To the Well		All Schlumberger policies are followed	
Reference Log Name			IDW used as primary depth reference	
Reference Log Run Number			Z-chart used as secondary depth reference	
Reference Log Date				
Subsequent Trip Down Log Correction				
Run 1				
Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit

ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	220.97	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	418.06	ft3

Software Version	
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Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_18214-4.0.9163.3001

Computation	Description	Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels	4.0.9433.3000
DepthCorrection	DepthCorrection	4.0.9433.3000

Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9385.3000	
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9385.3000	

Pass Summary	
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Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Main[4]:Up	Up	6261.22 ft	10705.90 ft	24-Apr-2014 8:16:22 PM	24-Apr-2014 9:01:58 PM	ON	-13.00 ft	No

All depths are referenced to toolstring zero

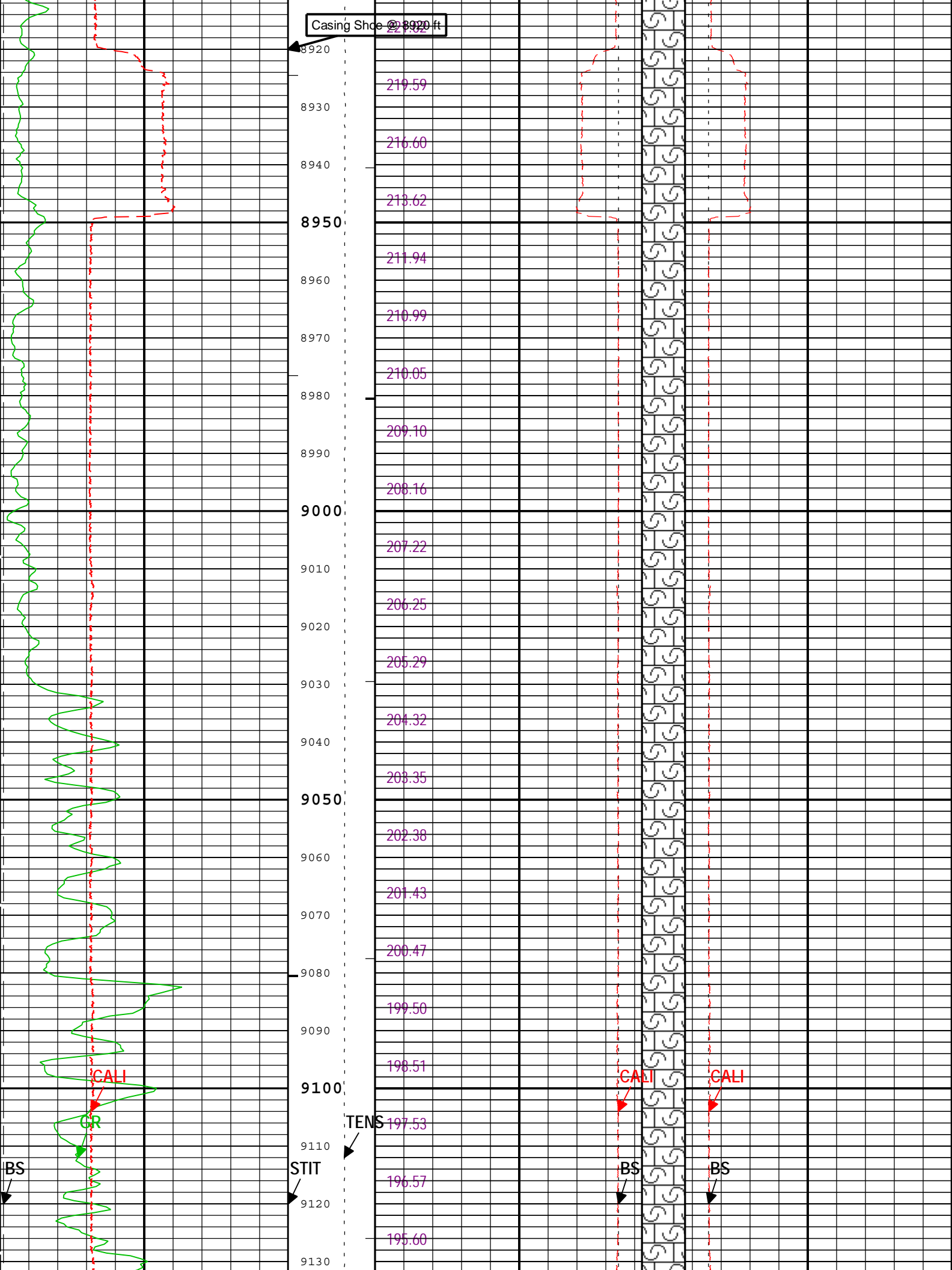
Log	Company:Triton Energy Services LLC Well:Triton 1 Run 1: Main[4]:Up:S018
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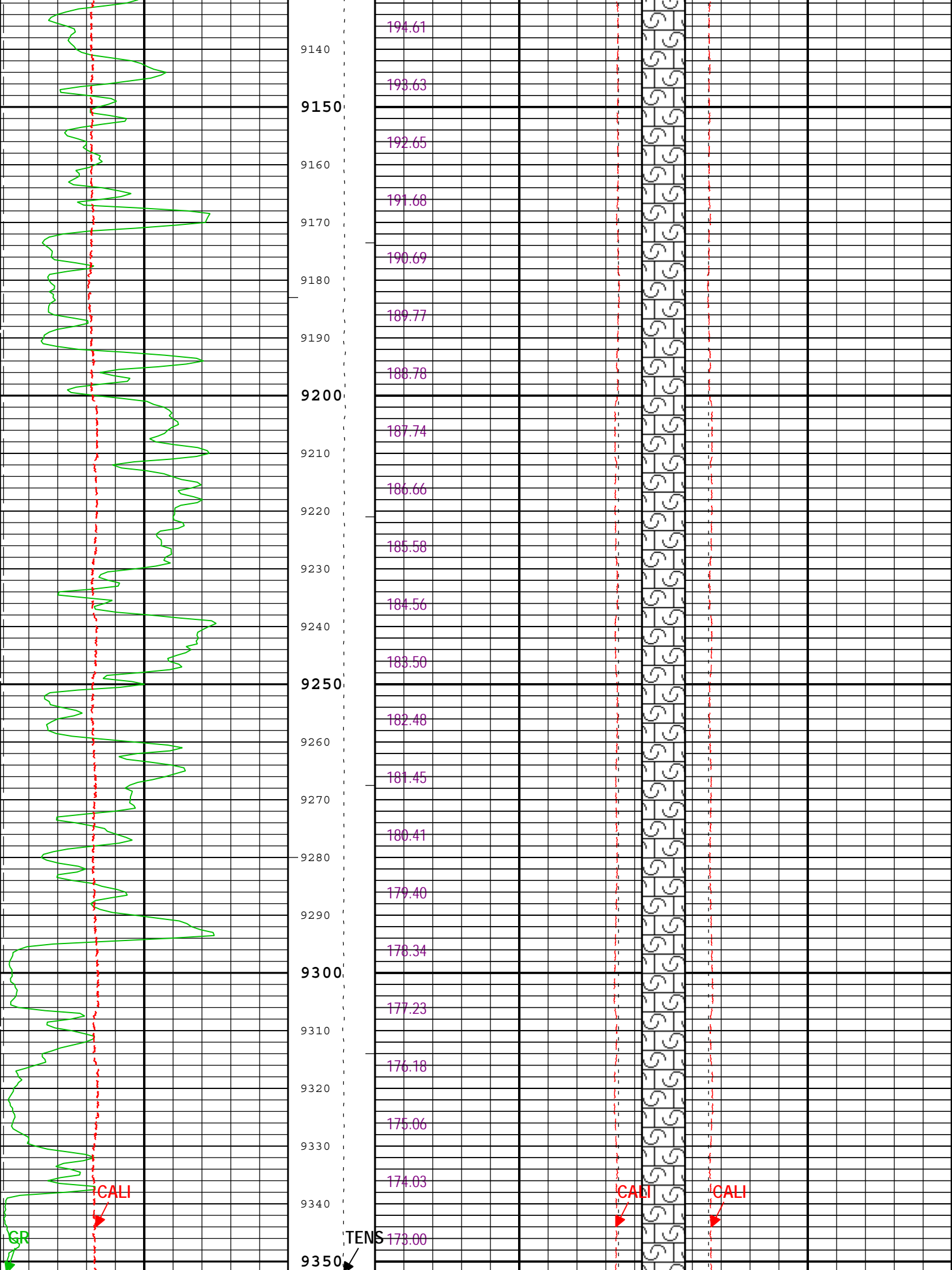
Description: Format: Log (Noble East Caliper) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-May-2014 17:18:29

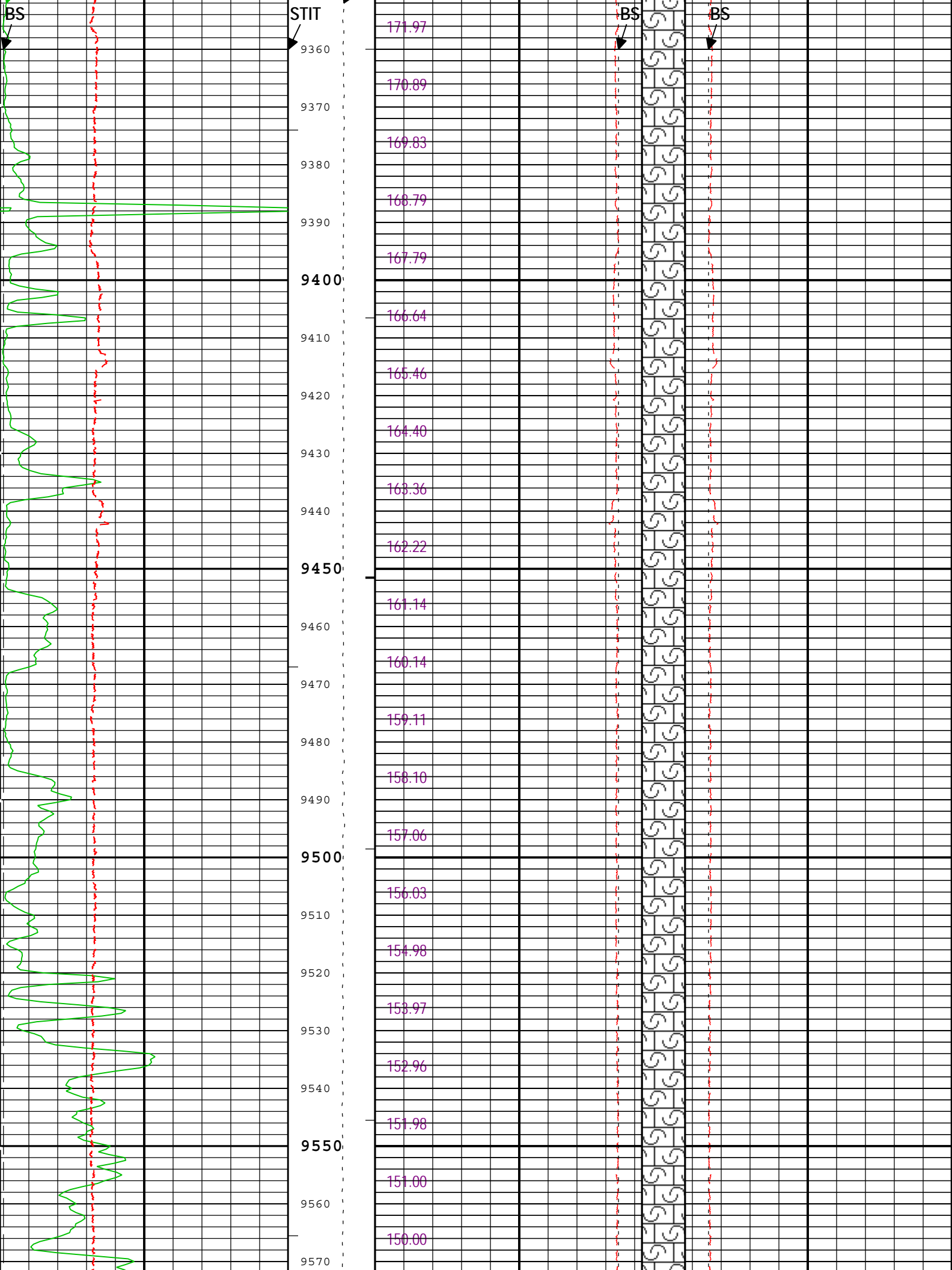
Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in
IHV	Borehole	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

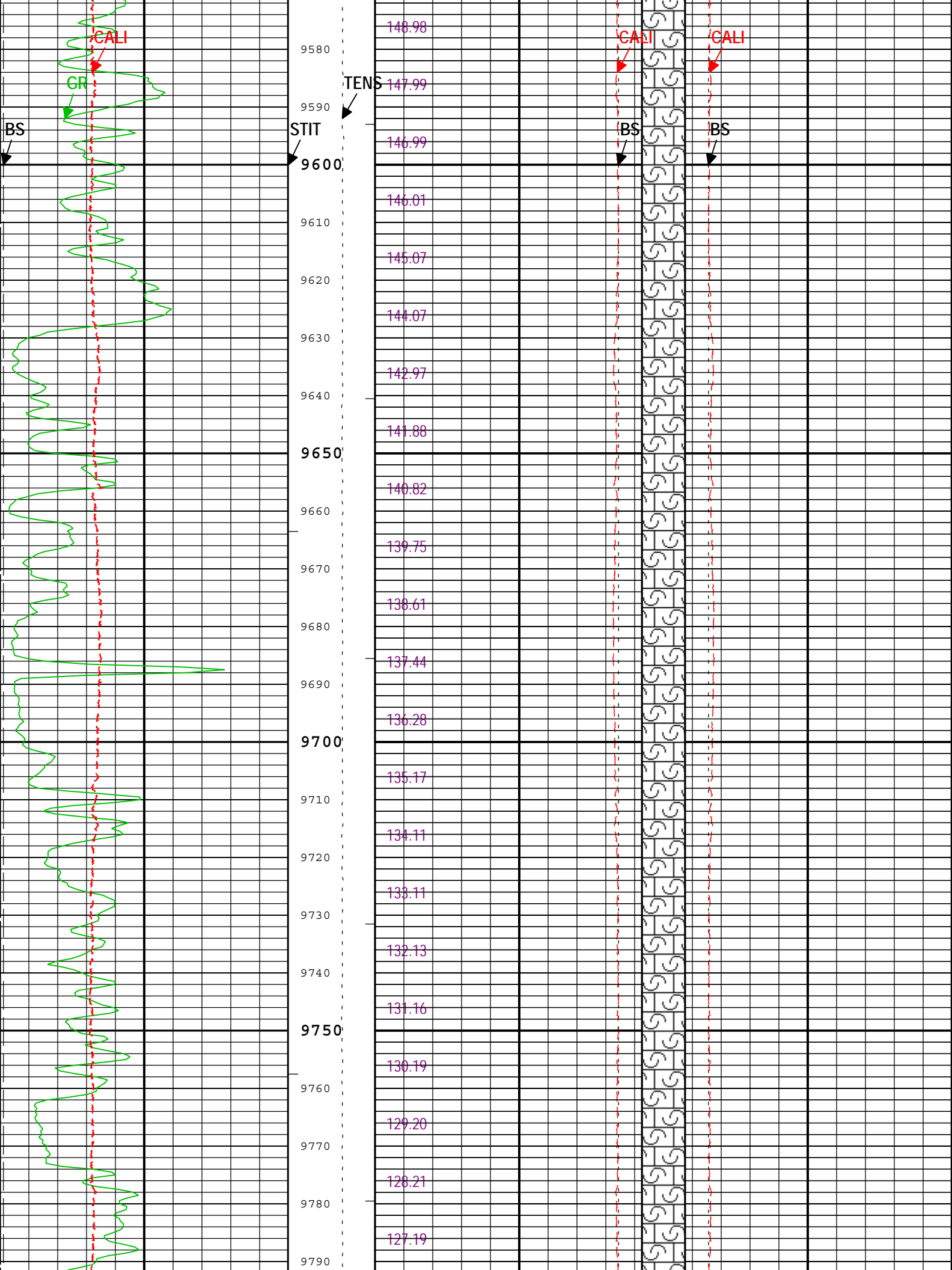
└─ IHV - Integrated Hole Volume every 100.00 (ft3)
└─ ICV - Integrated Cement Volume every 100.00 (ft3)
└─ IHV - Integrated Hole Volume every 10.00 (ft3)
└─ ICV - Integrated Cement Volume every 10.00 (ft3)
TIME_1900 - Time Marked every 60.00 (s)

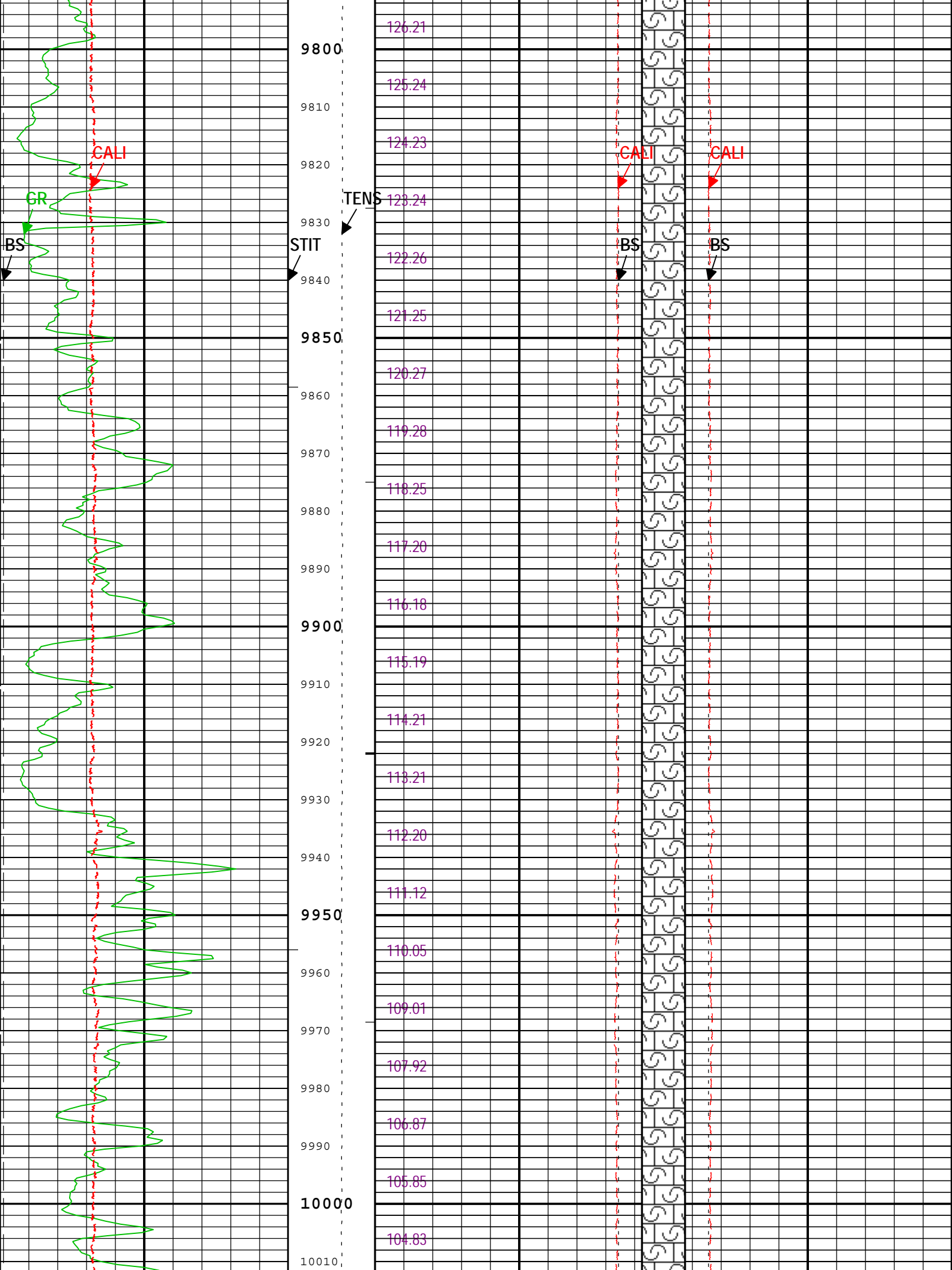
		Integrated Cement Volume (ICV) ft3	
		Bit Size (BS)	
		23 in 3 3	in 23
		Caliper (CALI) HDRS-H	
		23 in 3 3	in 23
Bit Size (BS)		FCD2-FCD3	
6 in 16	0 ft 50		
Gamma Ray (GR) HGNS-H		Future Casing (Outer) Diameter (FCD)	
0 gAPI 300		-17 in 23	
Caliper (CALI) HDRS-H		Future Casing (Outer) Diameter (FCD)	
3 in 13		23 in -17	

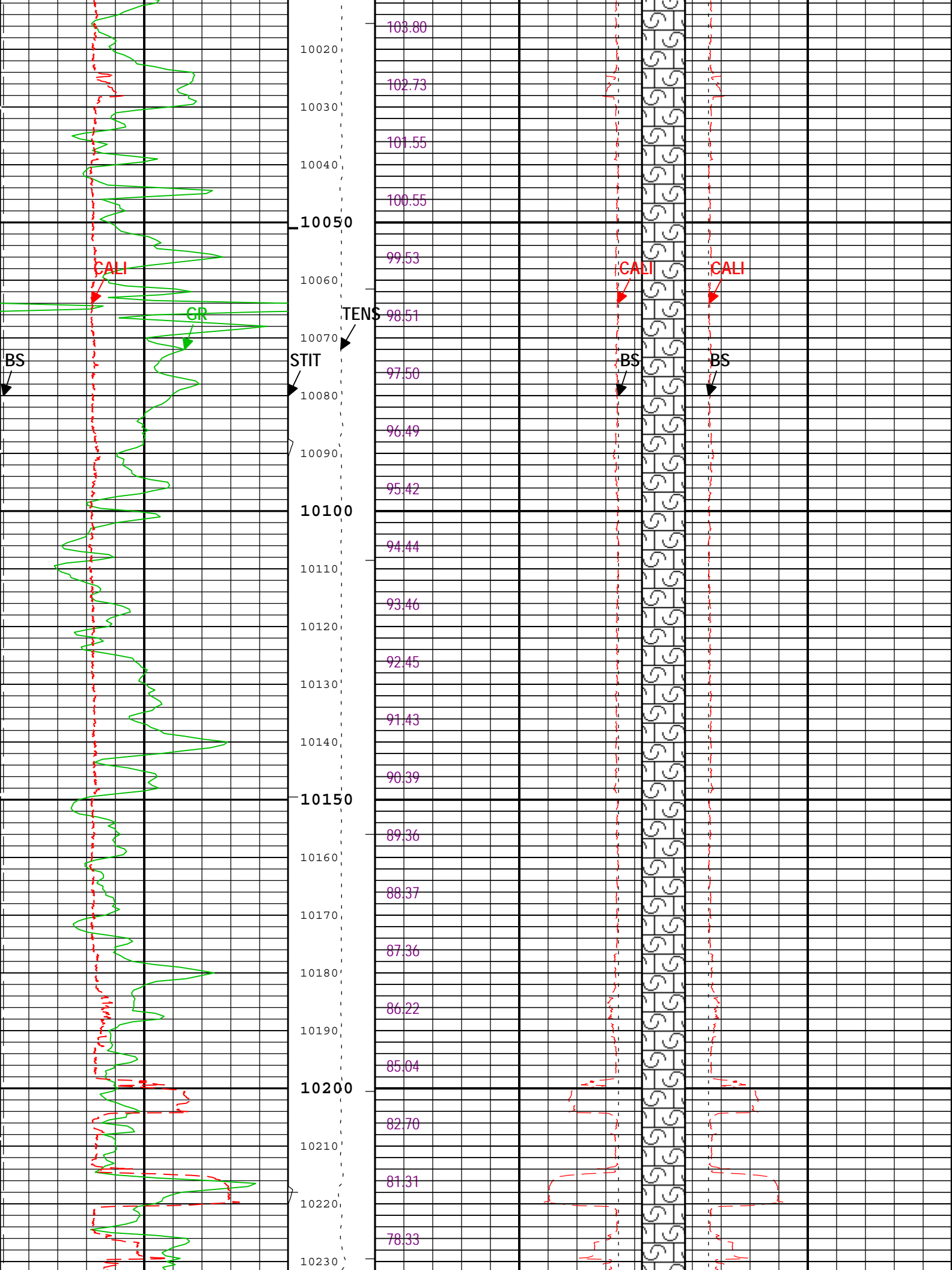


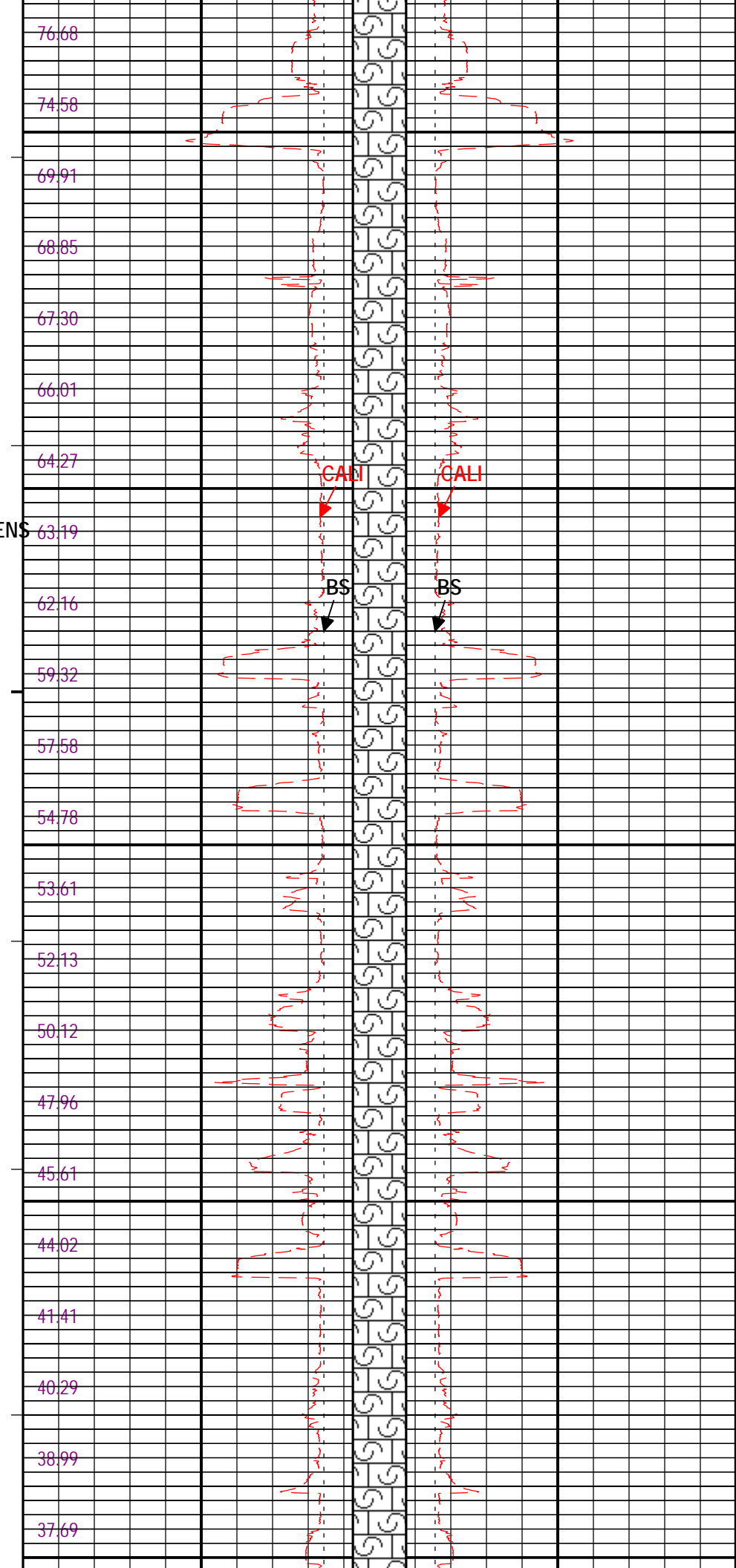
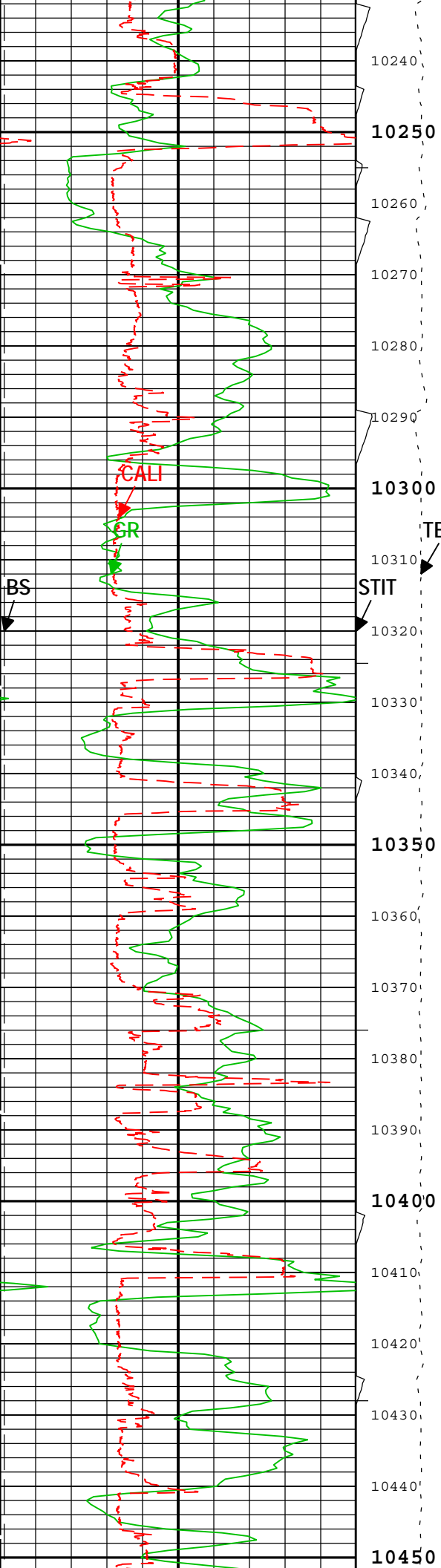


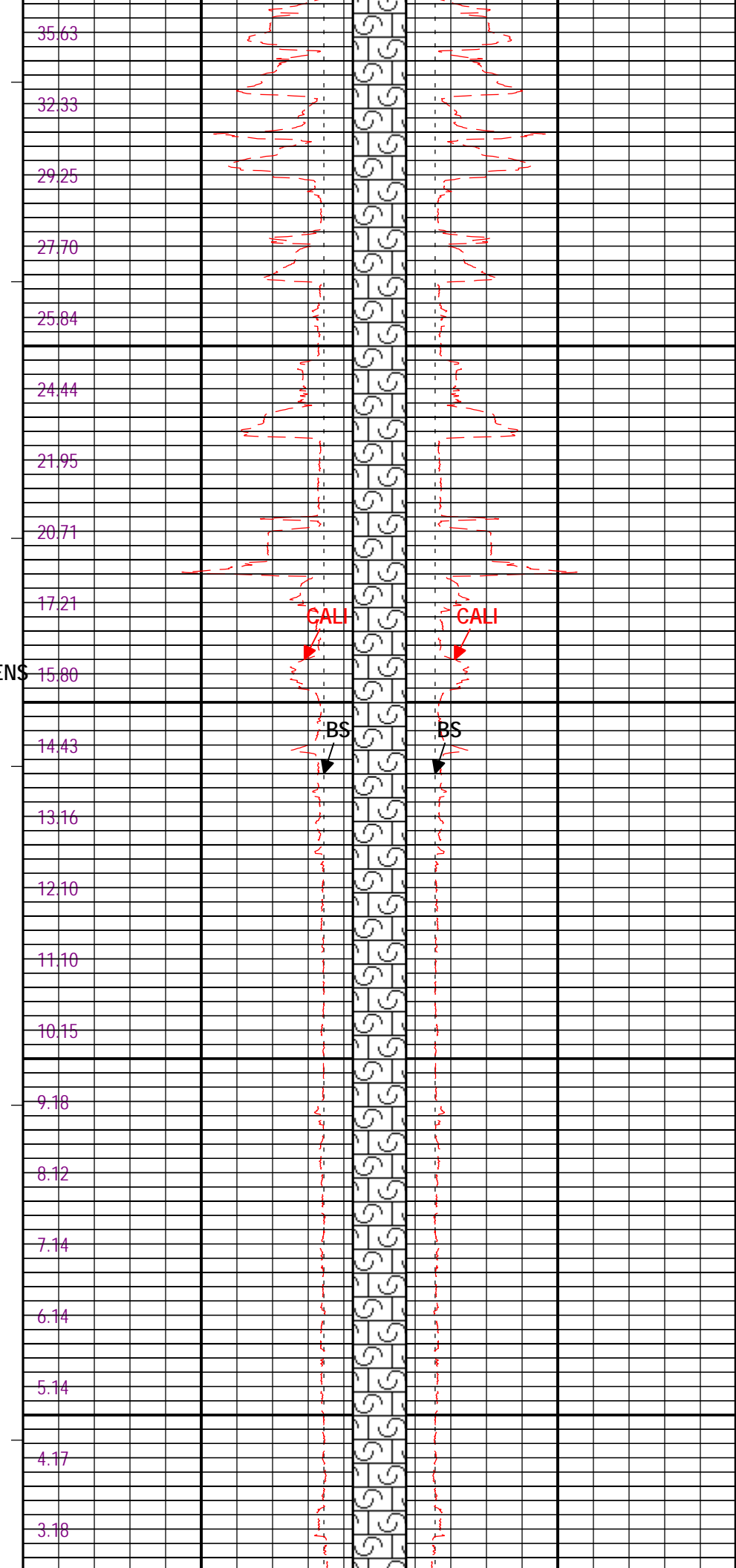
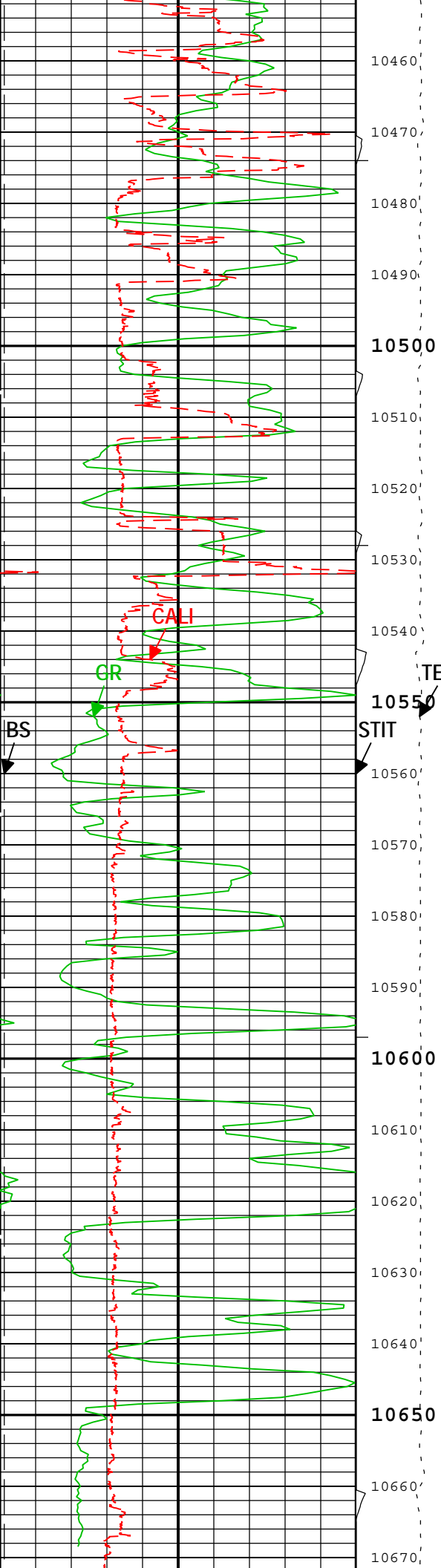


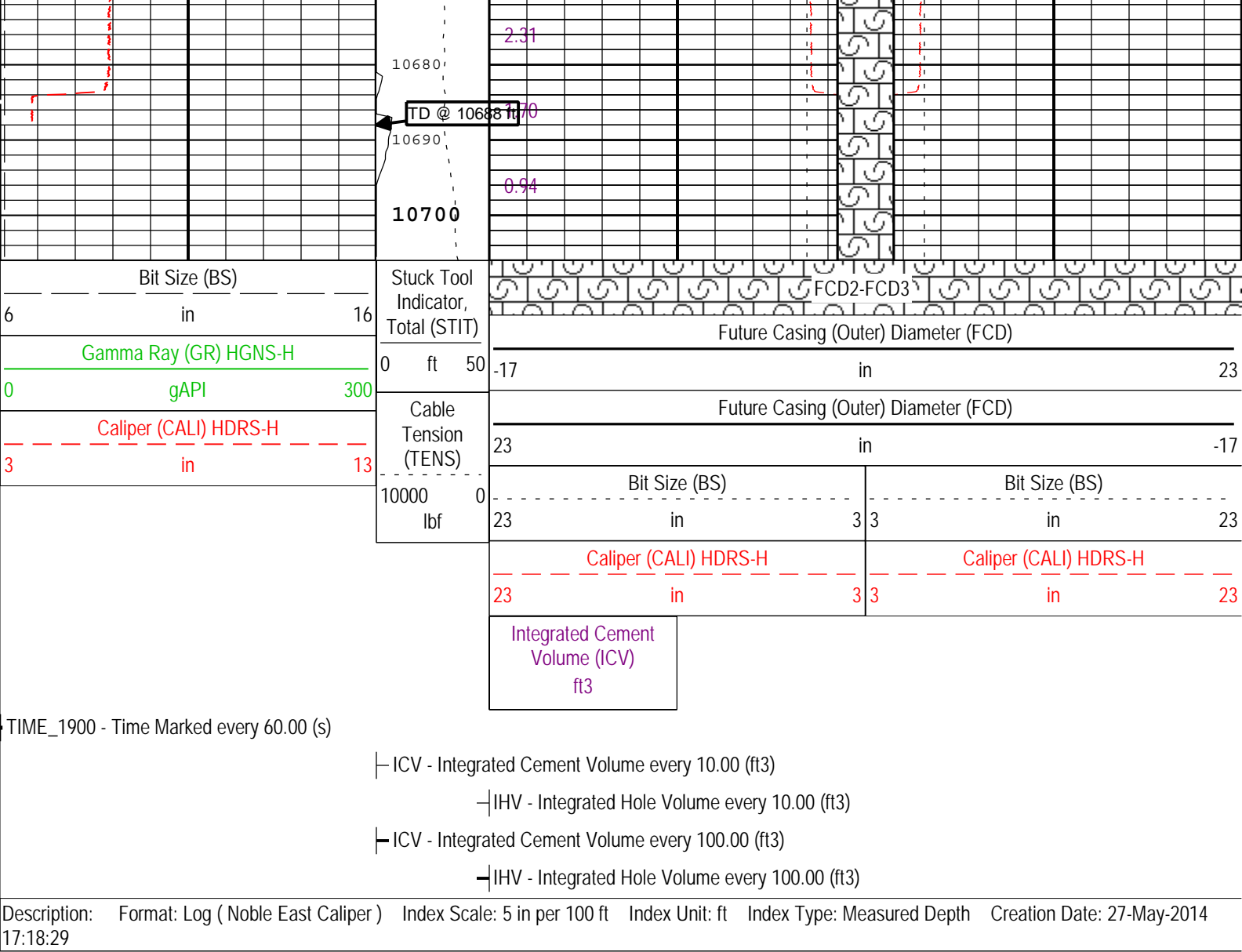












Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	6.125	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.275	in
CBLO	Casing Bottom (Logger)	WLSESSION	8920	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	4.5	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	CALI	
SOCO	Standoff Correction Option	HGNS-H	Yes	
TD	Total Measured Depth	Borehole	10688	ft

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

Calibration Report

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

Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	5705
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4791

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	28910
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5240
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	5705
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	4826

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): 12:25:41 23-Apr-2014 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.31	10.00	
Large Ring	in	Before	12.00	9.00	12.52	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 17:48:40 11-Apr-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.594	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.689	1.696	
Pe Aluminum		Master	2.570	2.470	2.545	2.670	
Pe Magnesium		Master	2.650	2.550	2.624	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 17:48:40 11-Apr-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2167	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.5668	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.5195	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.9305	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.8551	1.5000	
LS Max Deviation	%	Master	0	-3.5000	2.1540	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 17:48:40 11-Apr-2014 Before (Measured): 12:21:33 23-Apr-2014 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7398		
		Before	0.7398	0.7029	0.7389	0.7768	
		Before-Master	-----	-----	-0.0009	-----	
BS Window Sum	1/s	Master	1		25369		
		Before	25369	24101	25443	26637	
		Before-Master	-----	-----	74	-----	
SS Window Ratio		Master	1.0000		0.4831		
		Before	0.4831	0.4589	0.4854	0.5072	
		Before-Master	-----	-----	0.0023	-----	
SS Window Sum	1/s	Master	1		11321		
		Before	11321	10755	11292	11887	
		Before-Master	-----	-----	-29	-----	
LS Window Ratio		Master	1.0000		0.2989		
		Before	0.2989	0.2840	0.2992	0.3139	
		Before-Master	-----	-----	0.0003	-----	
LS Window Sum	1/s	Master	1		1326		
		Before	1326	1260	1319	1393	
		Before-Master	-----	-----	-7	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 17:48:40 11-Apr-2014 Before (Measured): 12:21:33 23-Apr-2014 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1340	2400	
		Before		1000	1332	2400	
		Before-Master	-----	-100	-8	100	
SS PM High Voltage	V	Master		1000	1991	2400	
		Before		1000	1994	2400	
		Before-Master	-----	-100	3	100	
LS PM High Voltage	V	Master		1000	1305	2400	
		Before		1000	1311	2400	
		Before-Master	-----	-100	6	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		17:48:40 11-Apr-2014		Before (Measured):		12:21:33 23-Apr-2014 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.79	25.00	
		Before		5.00	12.08	25.00	
		Before-Master	-----	-1.00	0.29	1.00	
SS Crystal Resolution	%	Master		5.00	10.61	20.00	
		Before		5.00	10.68	20.00	
		Before-Master	-----	-1.00	0.07	1.00	
LS Crystal Resolution	%	Master		5.00	8.42	20.00	
		Before		5.00	8.48	20.00	
		Before-Master	-----	-1.00	0.06	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		12:18:01 23-Apr-2014 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3852	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3791	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3812	4136	

Company: Triton Energy Services LLC

Schlumberger

Well: Triton 1

Field: Wattenberg

County: Weld

State: Colorado

Platform Express

Caliper

