

Company:		Nighthawk Production LLC				Schlumberger									
Well:		Silverton 16-10													
Field:		Jolly Ranch													
County:		Lincoln				State:		Colorado							
Platform Express Caliper Cement Volume						Location:		Lat/Long : 39.539/-103.42 SHL : 1183' FSL X 922' FEL SESE		Elev. K.B. 5242.00 ft G.L. 5227.00 ft D.F. 5241.00 ft					
						Permanent Datum:		Ground Level		Elev.:		5227.00 f			
						Log Measured From:		Kelly Bushing		15.00 ft		above Perm.Datum			
						Drilling Measured From:		Kelly Bushing							
						API Serial No.		Section:		Township:		Range:			
						05-073-06528-00		10		6S		54W			
						Logging Date		12-Jun-2013							
						Run Number		Run 1							
						Depth Driller		8450.00 ft							
						Schlumberger Depth		8460.00 ft							
Bottom Log Interval		8460.00 ft													
Top Log Interval		345.00 ft													
Casing Driller Size @ Depth		8.625 in @ 334.00 ft													
Casing Schlumberger		345 ft													
Bit Size		7.875 in													
Type Fluid In Hole		Chemical Gel													
Density		Viscosity		68 s											
Fluid Loss		PH		7.3											
Source of Sample		Flowline													
RM @ Meas Temp		0.58 ohm.m		@ 80 degF											
RMF @ Meas Temp		0.44 ohm.m		@ 80 degF											
RMC @ Meas Temp		0.72 ohm.m		@ 80 degF											
Source RMF		RMC		Calculated											
RM @ BHT		RMF @ BHT		0.25 @ 196		0.19 @ 196									
Max Recorded Temperatures		196 degF		196		196									
Circulation Stopped		Time		12-Jun-2013		13:30:00									
Logger on Bottom		Time		13-Jun-2013		21:40:23									
Unit Number		Location:		2135		Fort Morgan									
Recorded By		Arvin Shi													
Witnessed By		Anders Elgend / Jim Wier													

Disclaimer	
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 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.	

Contents	
1. Header 2. Disclaimer 3. Contents 4. Well Sketch 5. Borehole Size/Casing/Tubing Record 6. Operational Run Summary 7. Remarks and Equipment Summary 8. Depth Summary 9. Run 1 <div> 9.1 Integration Summary 9.2 Software Version 9.3 Composite Summary 9.4 Log (Noble East Caliper) 9.5 Parameter Listing </div> 10. Tail	

Well Sketch

Driller Depth
0.00 ft

334.00 ft

Casing 8.625in
24lbm/ft



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	334					
Top Logger (ft)	345					
Bottom Driller (ft)	8450					
Bottom Logger (ft)	8460					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.099					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	334					
Bottom Logger (ft)	345					

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	12-Jun-2013					
Time Log Started	22:42:13					
Date Log Finished	14-Jun-2013					
Time Log Finished	00:03:34					
Top Log Interval (ft)	345.00					
Bottom Log Interval (ft)	8460.00					
Total Depth (ft)	8460.00					
Max Hole Deviation (deg)	NaN					
Azimuth of Max Deviation (deg)	NaN					
Bit Size (in)	7.875					
Logging Unit Number	2135					
Logging Unit Location	Fort Morgan					
Recorded By	Arvin Shi					
Witnessed By	Anders Elgerd / Jim Wier					
Service Order Number	C6VJ-00060					

Remarks and Equipment Summary				
Run 1: Toolstring				Run 1: Remarks
Equip name	Length	MP name	Offset	All Schlumberger depth measurement policies followed
LEH-QT	97.73			
LEH-QT				
AH-369	94.82			IDW used as primary depth measurement and Z-Chart as secondary depth measurement
EDTC-B:8593	93.39			
EDTH-B:8625				
EDTG-B:77756				
EDTC-B:8593				
		CTEM	89.89	
		ACCZ	0.00	
		HV	0.00	
		Gamma Ray	88.02	
		TelStatus	86.89	
		Temperature	86.87	
HGNS-H:4865	86.89			
HGNH:4817				
NPV-N		GR	86.15	
NSR-F:2554				
HMCA-H				
HACCZ-H:6991				
HGNS-H:4865				
		CNL Porosity	79.82	
		HGNS	77.48	
		HMCA	77.48	
		Accelerometer	0.00	
HDRS-H:3863	77.48			
ECH-MEB:2898				
HRCC-H:3828				
HRMS-H:3863				
Backscatter				
Short Spacing				
GPV-Q				
GSR-J:5471		HRCC	73.48	
Long Spacing:28620				
HRGD-H:3870				
		MCFL	68.05	
		Caliper	67.57	
		TLD Density	67.18	
HRLT-B	65.24			
HRUH-B				
HRUC-B				
HRLS-B				
HRLH-B				
HRLC-B				
AH-270				

Resistivity 53.47

AH-184[2]:28 41.04
29

MAST-B:8506 39.04
ECH-SF:8081
MAPC-BA:8081
MAMS-CA:8506

MAMS 23.6

AH-184[1]:75 18.00
7

AIT-H:398 16.00
AHIS:398
AHRM



Lengths are in ft
Maximum Outer Diameter = 9.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters		Run 1		
Conveyance Type		Wireline		
Rig Type		Land		
Depth Measuring Device		Run 1		
Type		IDW-B		
Wheel Correction 1		-7		
Wheel Correction 2		-5		
Tension Device		Run 1		
Type		CMTD-B/A		
Calibration Date		17-May-2013		
Calibrator Serial Number		78135		
Calibration Points		10		
Calibration RMS		13		
Calibration Peak Error		24		
Logging Cable		Run 1		
Type		7-46NT-XS		
Logging Cable Length (ft)		24000.00		

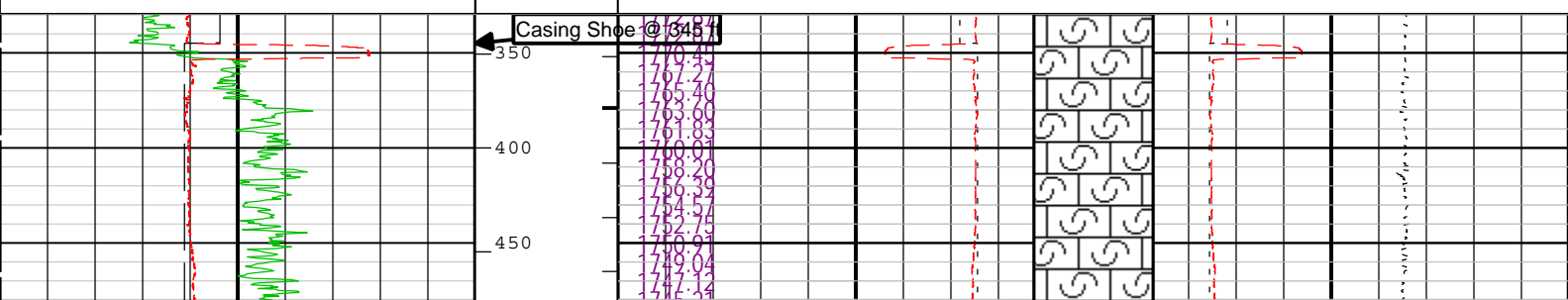
Run 1

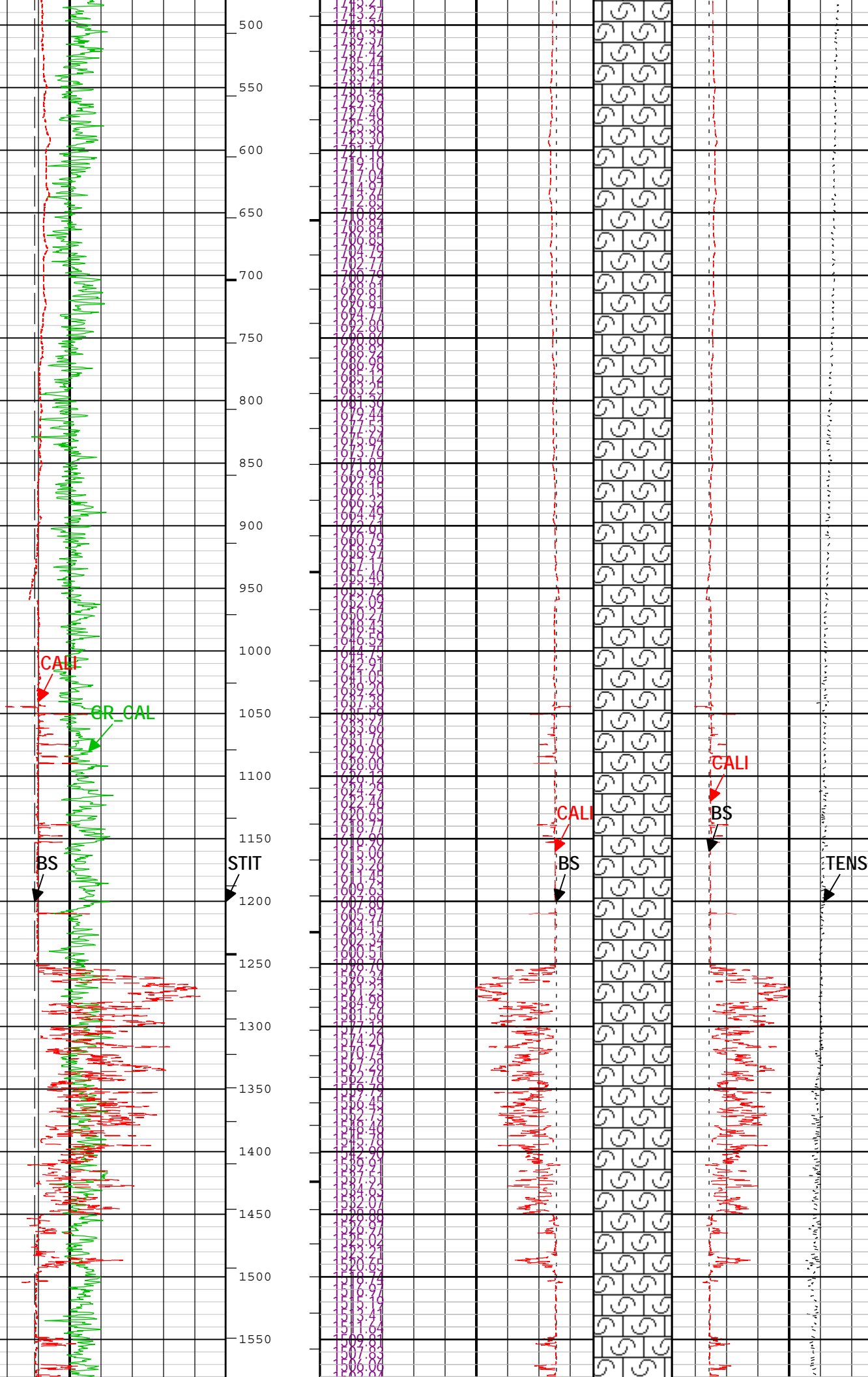
Integration Summary

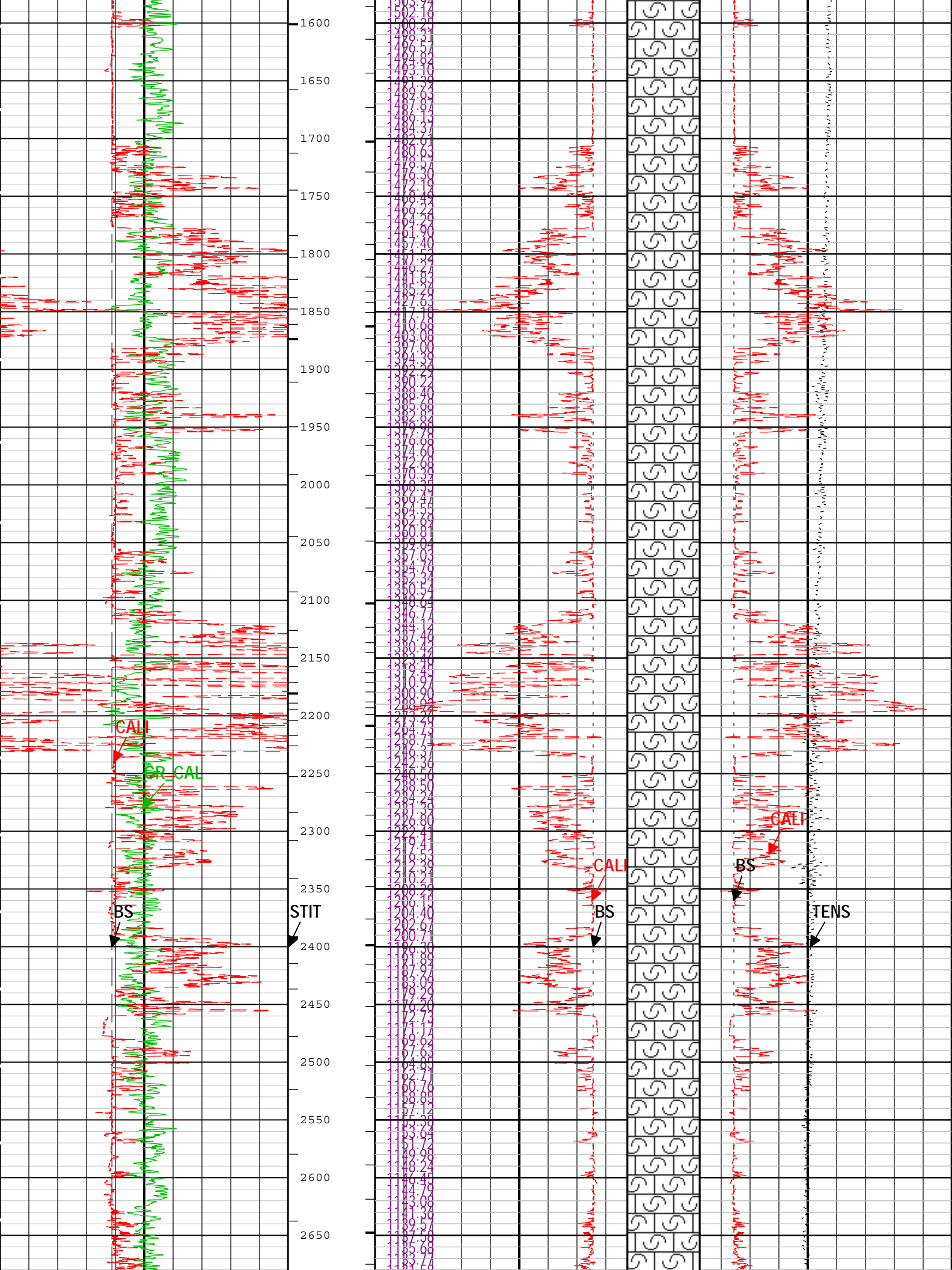
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1772.78	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	3114.58	ft3

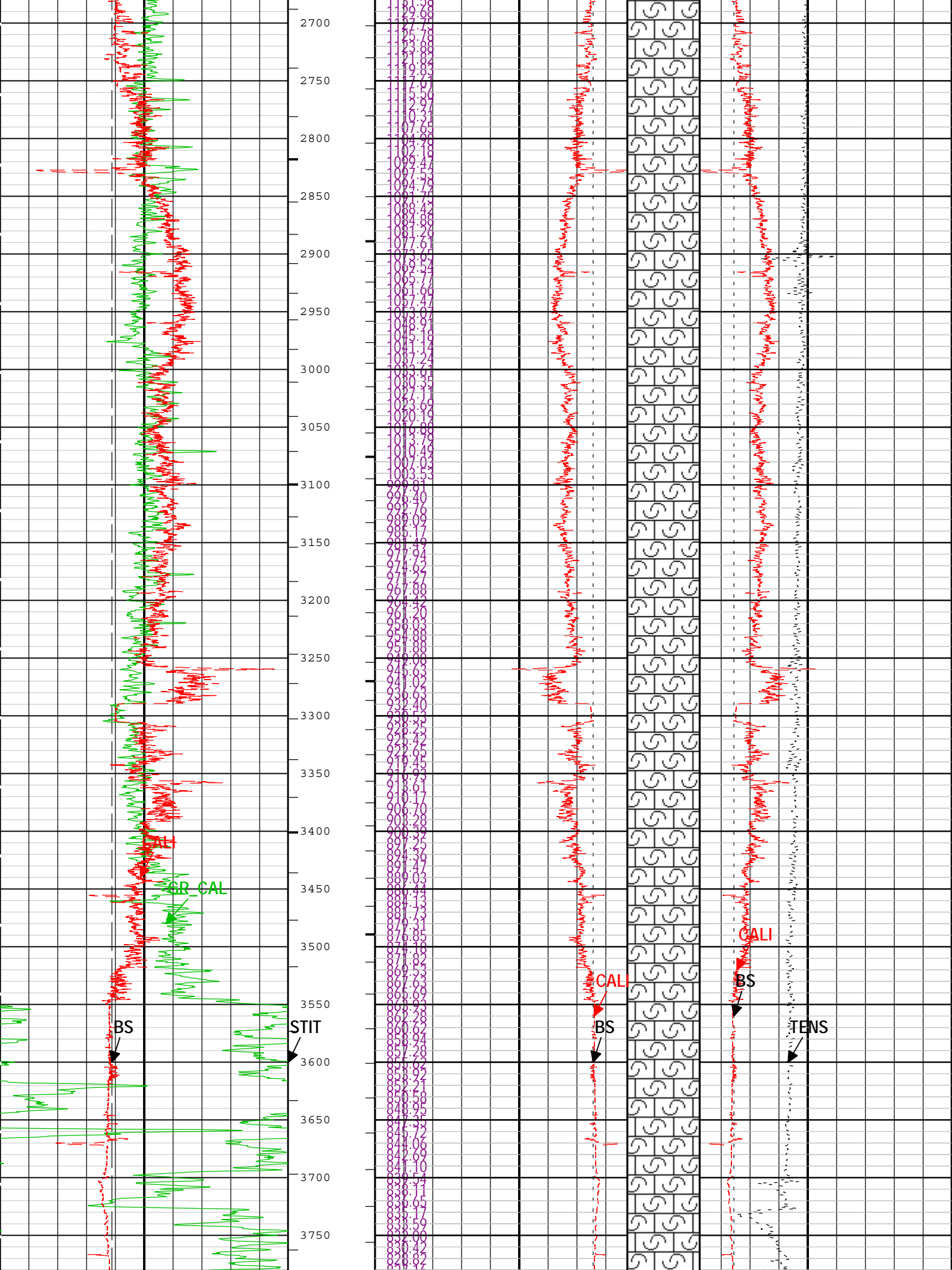
Software Version

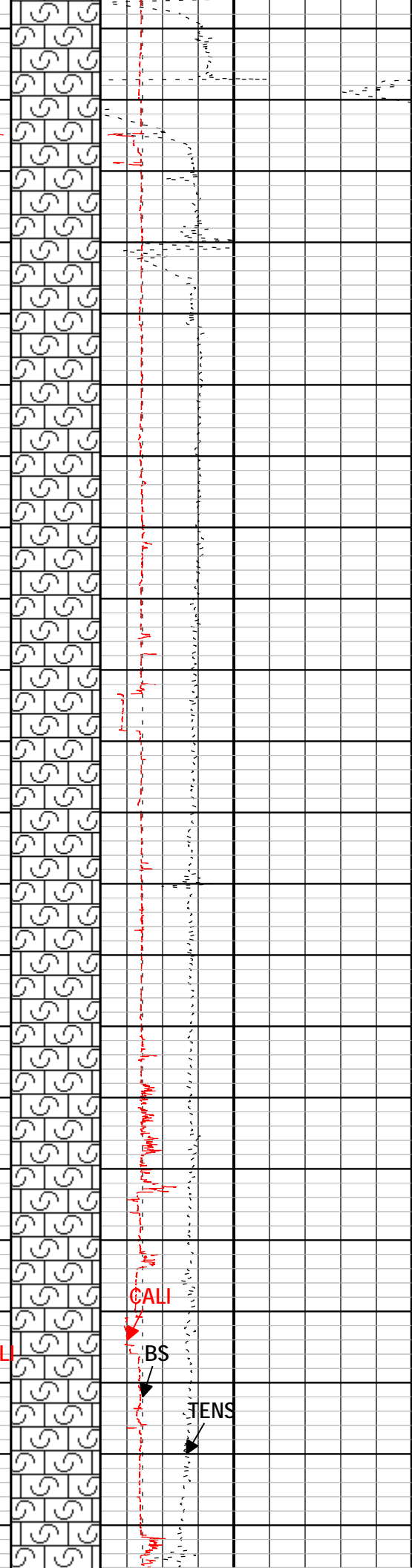
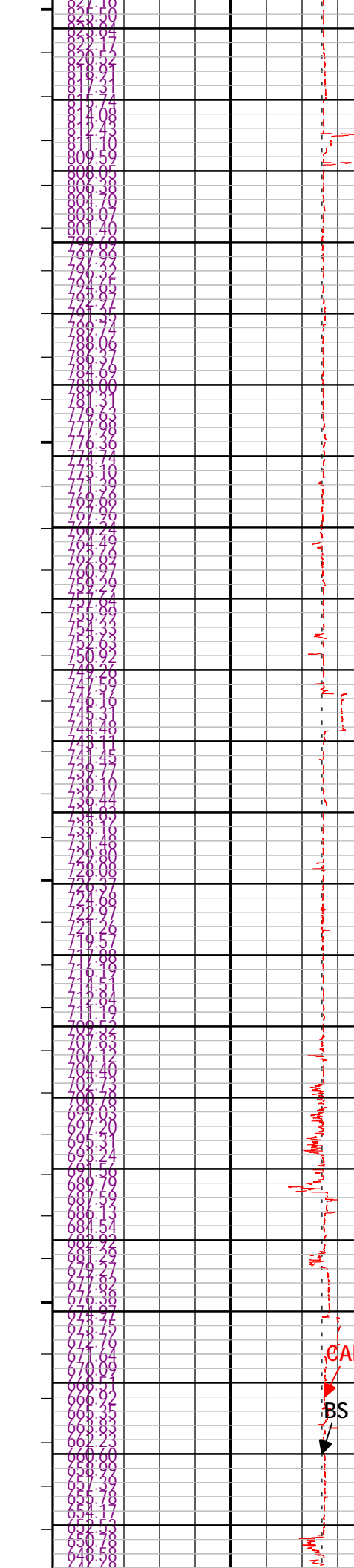
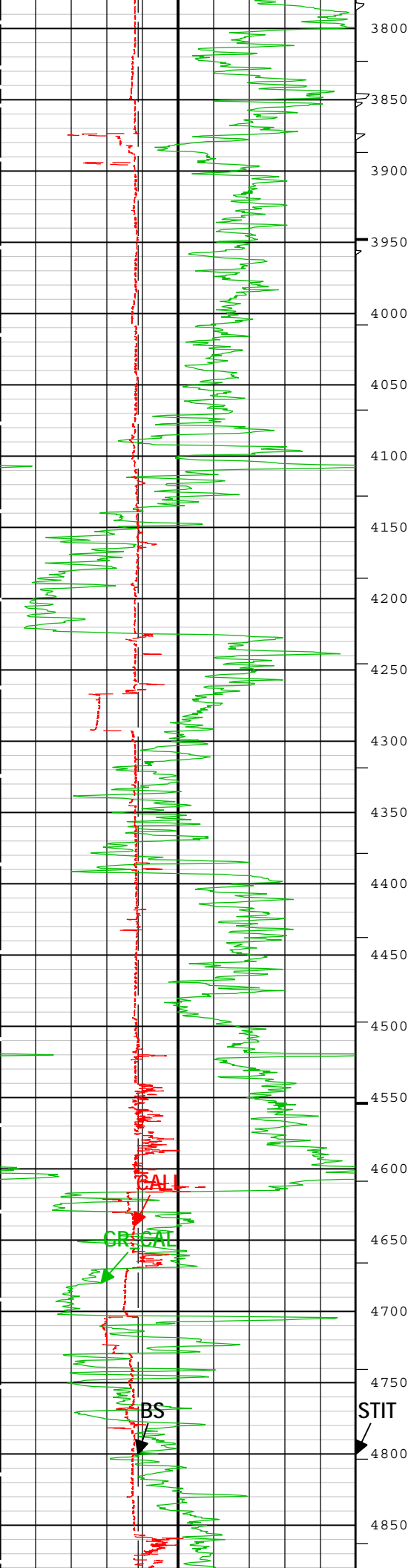
Acquisition System		Version
MaxWell		3.1.9755.0
Application Patch		SP-20130325-3.1.9755.1799
Computation	Description	Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels	3.1.9755.1799

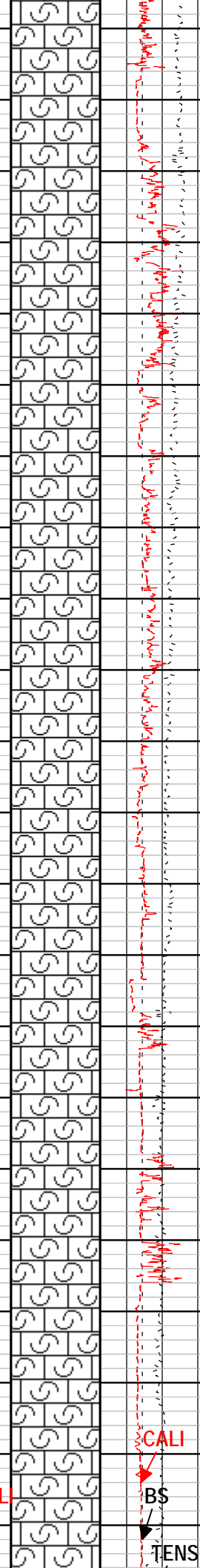
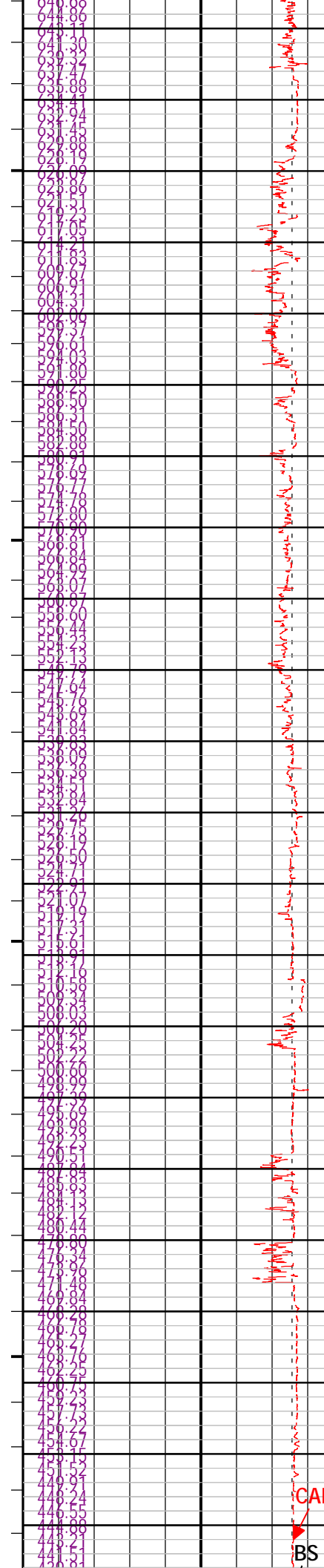
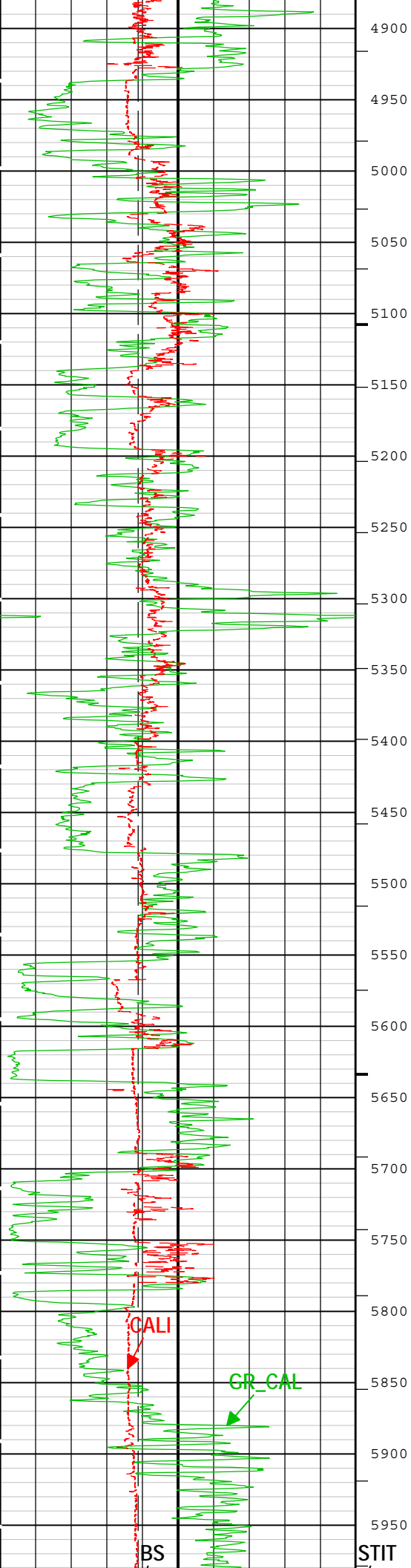


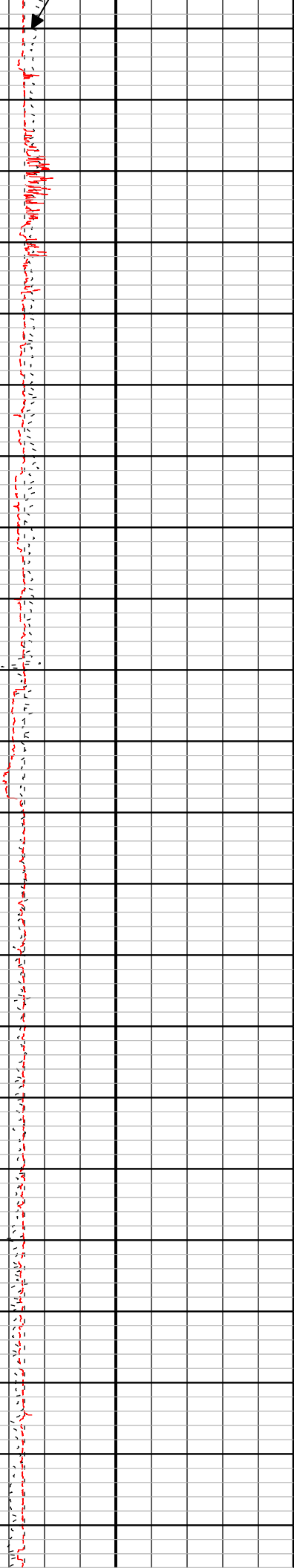
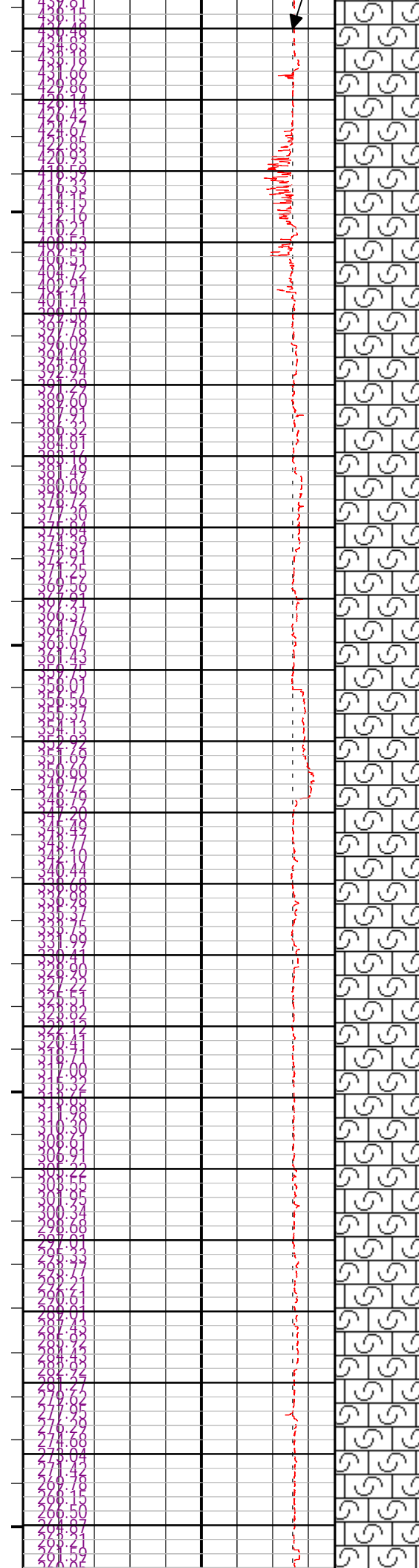
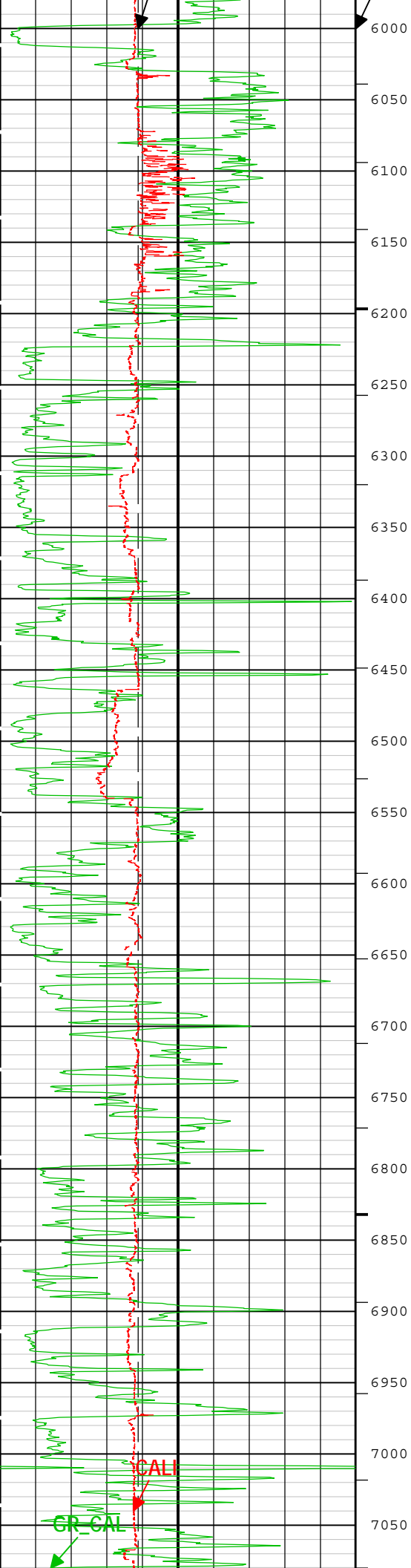


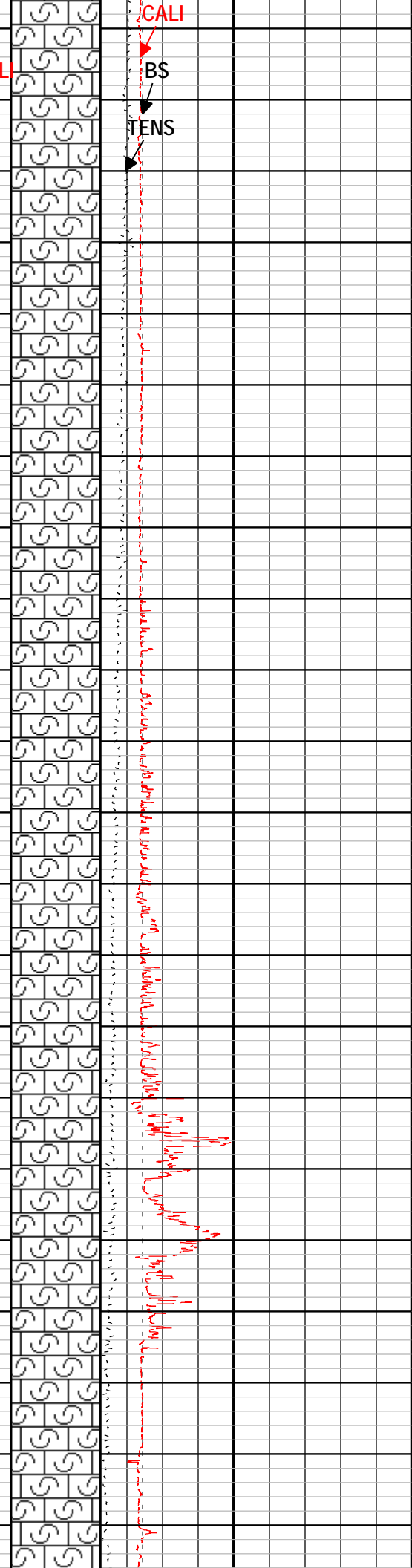
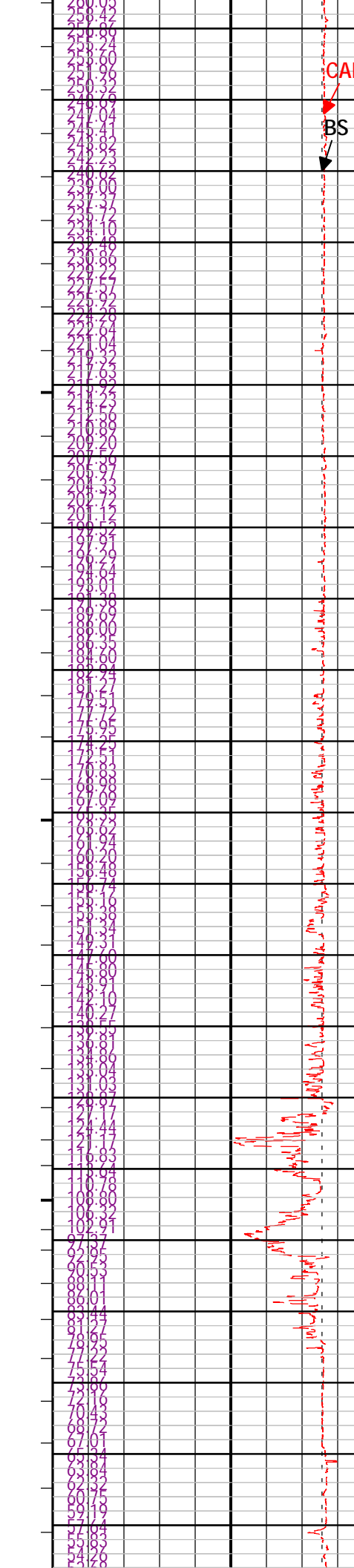
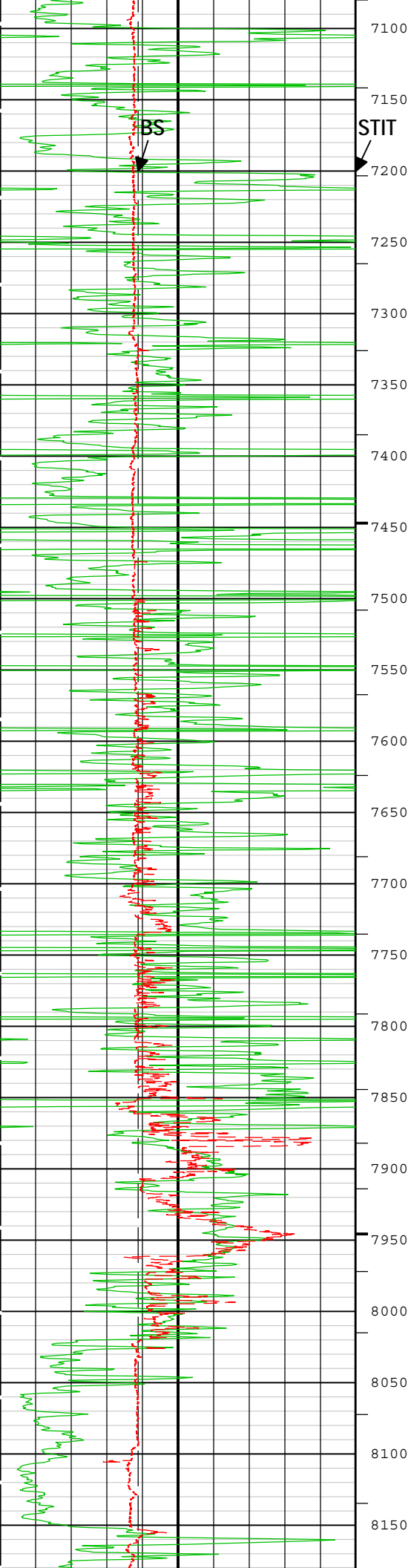


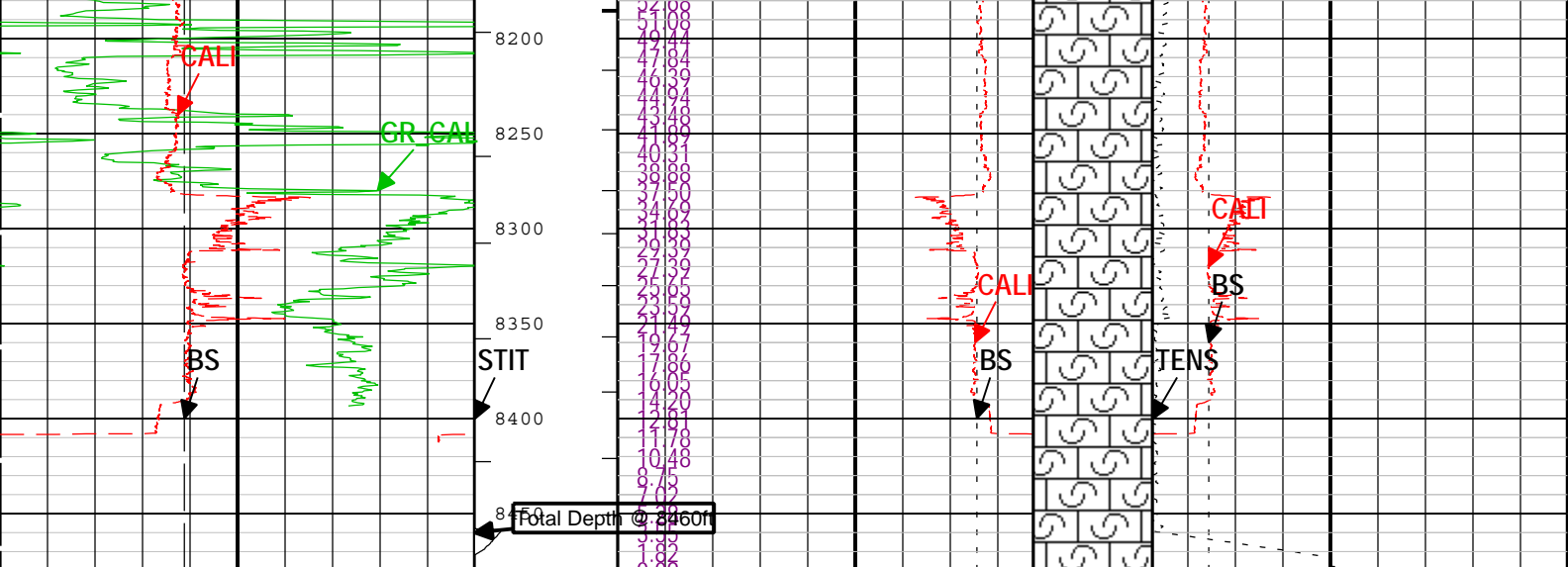












Bit Size (BS)		Stuck Tool Indicator, Total (STIT)	
4	in	0	ft
Calibrated Gamma Ray (GR_CAL) HGNS-H		Future Casing (Outer) Diameter (FCD)	
0	gAPI	200	in
Caliper (CALI) HDRS-H		Future Casing (Outer) Diameter (FCD)	
4	in	14	in
Bit Size (BS)		Cable Tension (TENS)	
23	in	3	5000 lbf
Caliper (CALI) HDRS-H		Bit Size (BS)	
23	in	3	3 in
Integrated Cement Volume (ICV) ft3		Caliper (CALI) HDRS-H	
3		23 in	

— ICV - Integrated Cement Volume every 10.00 (ft3)

— IHV - Integrated Hole Volume every 10.00 (ft3)

— ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

— IHV - Integrated Hole Volume every 100.00 (ft3)

Description: Format: Log (Noble East Caliper) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Jun-2013 01:49:15

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.07	in
CBLO	Casing Bottom (Logger)	WLSESSION	345	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	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	
TD	Total Measured Depth	Borehole	8460	ft

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	0	330	345

BS	7.875	345	8480	
All depth are actual.				
Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
Company:	Nighthawk Production LLC		Schlumberger	
Well:	Silverton 16-10			
Field:	Jolly Ranch			
County:	Lincoln			
State:	Colorado			
Platform Express				
Caliper				
Cement Volume				