

Company: Omimex Petroleum Inc

Well: Sagehorn 14-34-6-45

Field: Ballyneal

County: Phillips State: Colorado

Platform Express
Array Induction
with Linear Correlation

County: Phillips
Field: Ballyneal
Location: SESW Sec.34, T6N, R45W
Well: Sagehorn 14-34-6-45
Company: Omimex Petroleum Inc

Location:		Elev.:	K.B.	3871.00 ft
SESW Sec.34, T6N, R45W				
SHL: 733' FSL & 1899' FWL			G.L.	3865.00 ft
Lat/Long: 40.441640/-102.371340			D.F.	3870.00 ft
Permanent Datum:	Ground Level	Elev.:	3865.00 f	
Log Measured From:	Kelly Bushing	6.00 ft	above Perm.Datum	
Drilling Measured From:	Kelly Bushing			
API Serial No.	Section:	Township:	Range:	
05-095-0	34	6N	45W	

Logging Date	09-Dec-2014			
Run Number	ONE			
Depth Driller	2698.00 ft			
Schlumberger Depth	2698.00 ft			
Bottom Log Interval	2698.00 ft			
Top Log Interval	498.25 ft			
Casing Driller Size @ Depth	7 in @ 495.00 ft			
Casing Schlumberger	495 ft			
Bit Size	6.25 in			
Type Fluid In Hole	WBM			
Density	Viscosity	28 s		
Fluid Loss	PH	4 cm3	8	
Source of Sample	Active Tank			
RM @ Meas Temp	0.23 ohm.m	@	71.57 degF	
RMF @ Meas Temp	0.16 ohm.m	@	75 degF	
RMC @ Meas Temp	0.33 ohm.m	@	75 degF	
Source RMF	RMC	Calculated	Calculated	
RM @ BHT	RMF @ BHT	0.15 @ 110	0.11 @ 110	
Max Recorded Temperatures	110 degF			
Circulation Stopped	09-Dec-2014 08:30:00			
Logger on Bottom	09-Dec-2014 13:50:00			
Unit Number	Location:	9108	Fort Morgan	
Recorded By	Nolan Welsh			
Witnessed By	Paul Dekaye			

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.

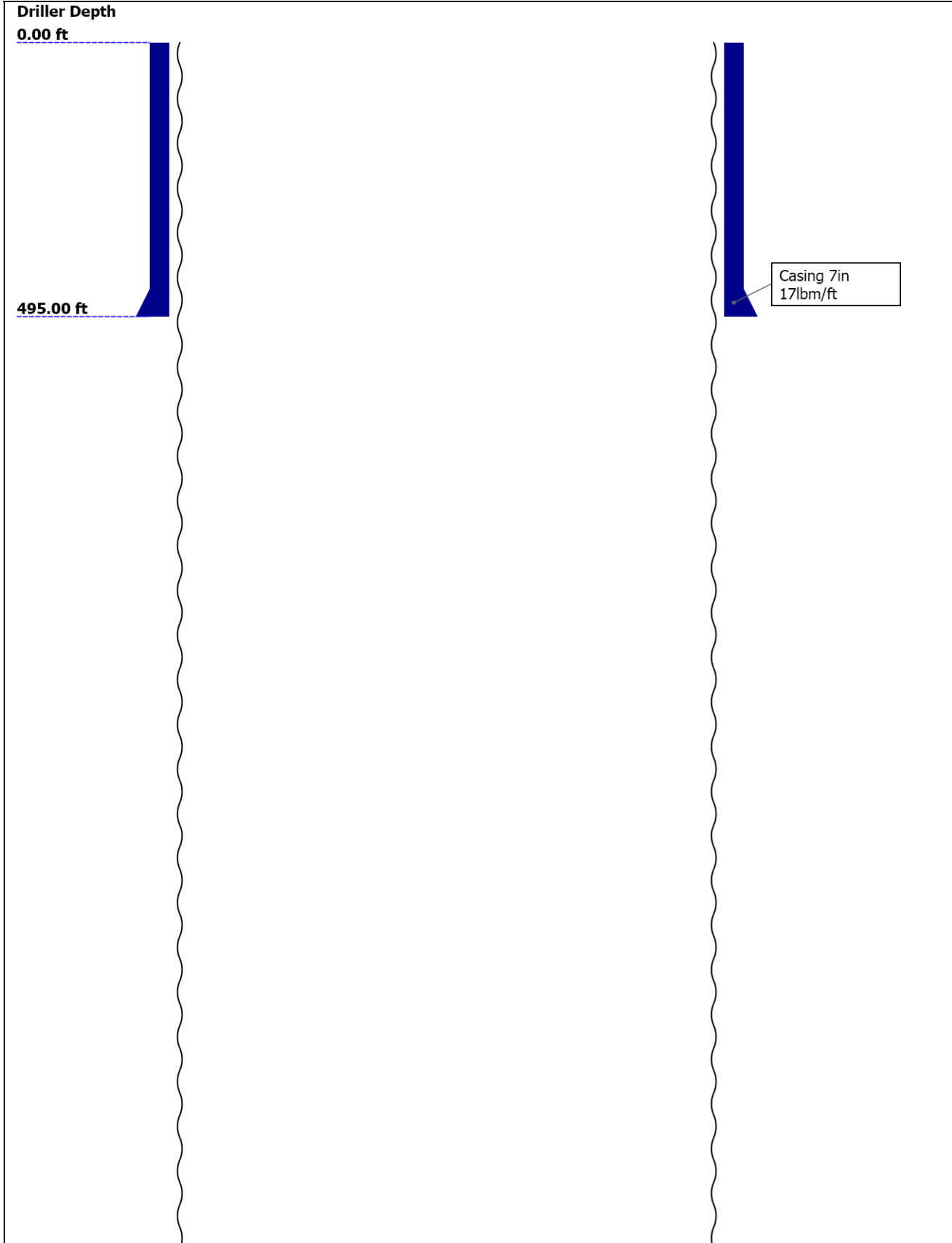
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Well Sketch



2698.00 ft

Open Hole 6.25in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	6.25					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	2698					
Bottom Logger (ft)	2698					
Casing						
Size (in)	7					
Weight (lbm/ft)	17					
Inner Diameter (in)	6.538					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	495					
Bottom Logger (ft)	495					

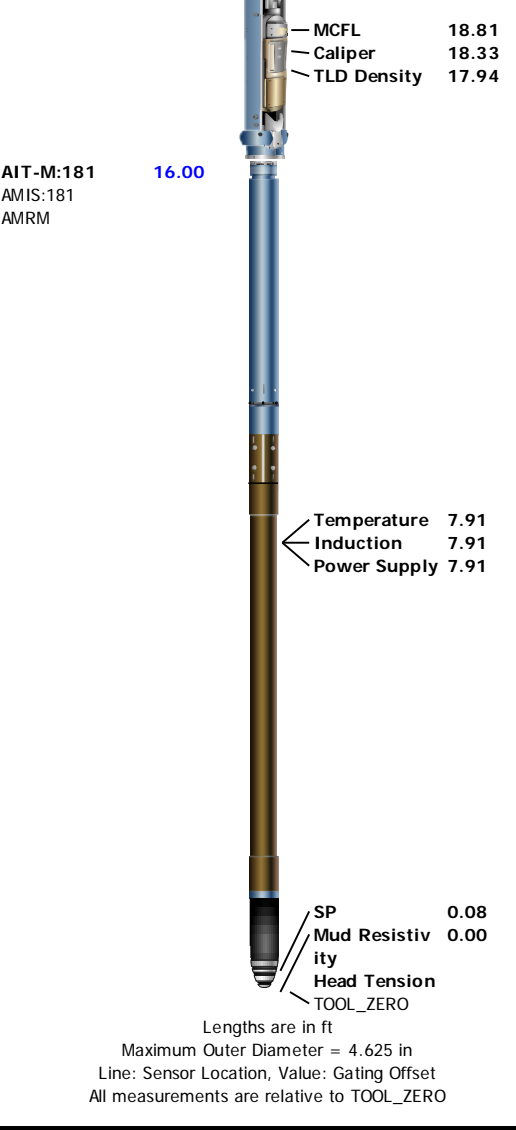
Borehole Fluids

Parameter(unit)	ONE					
Fluid Type	Water					
Fluid Name	WBM					
Max Recorded Temperatures (degF)	110					
Source of Sample	Active Tank					
Salinity (ppm)	11600					
Density (lbm/gal)	8.5					
Funnel Viscosity (s)	28					
Fluid Loss (cm3)	4					
PH	8					
Date/Time Circulation Stopped	09-Dec-2014 08:30:00					
Date Logger on Bottom	09-Dec-2014					
Time Logger on Bottom	13:50:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.23 @ 71.57					
RMF @ Meas Temp (ohm.m@degF)	0.16 @ 75					

RMC @ Meas Temp (ohm.m@degF)	0.33 @ 75					
RM @ BHT (ohm.m@degF)	0.15 @ 110					
RMF @ BHT (ohm.m@degF)	0.11 @ 110					
RMC @ BHT (ohm.m@degF)	0.23 @ 110					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

ONE: Toolstring					ONE: Remarks
Equip name	Length	MP name	Offset		Toolstring run as per tool sketch.
LEH-QT	55.57				Matrix: Limestone MDEN: 2.71 g/cm3
LEH-QT					Rig: Excell #2
					Crew: Troy Ocanus, Jeffery Schossow
DTCH-H	52.65	CTEM	51.75		
ECH-KC		HV	0.00		
DTCH-H					
		ToolStatus	49.65		
		TelStatus	49.65		
Weight[2]	49.65				
GPIT-F	45.65				
GPIH-B		GPIT-F Inclination	44.23		
GPIC-F		ometer			
DHRU-F					
		GPIT	0.00		
Weight[1]	41.65				
HGNS-H	37.65	Temperature	37.62		
HGNH					
NPV-N		GR	36.91		
NSR-F:5068					
HGNS-H					
HACCZ-H:3616					
HMCA-H					
		CNL Porosity	30.57		
		HMCA	28.24		
		HGNS	28.24		
		Accelerometer	0.00		
		r			
HDRS-H	28.24				
ECH-MEB					
HRCC-H					
HRMS-H					
HRGD-H:5788					
Backscatter:2696					
1					
Short Spacing		HRCC	24.24		
Long Spacing					
GSR-J:5416					
GPV-Q					



Depth Summary

	ONE		
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Depth Measuring Device

Type	IDW-JA		
Serial Number	5896		
Calibration Date	13-Aug-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46-AXS		
Wheel Correction 1	-3		
Wheel Correction 2	-2		

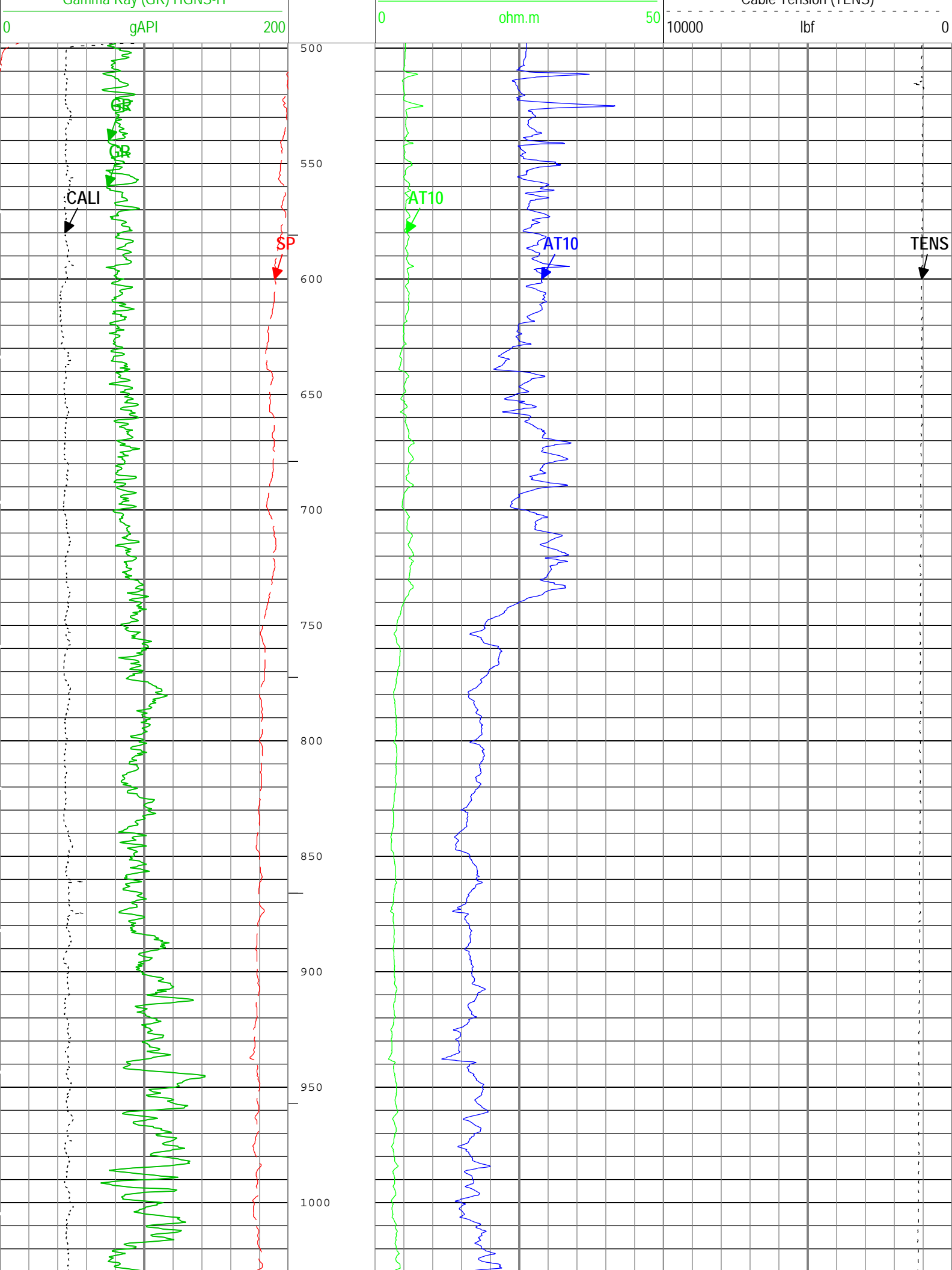
Tension Device

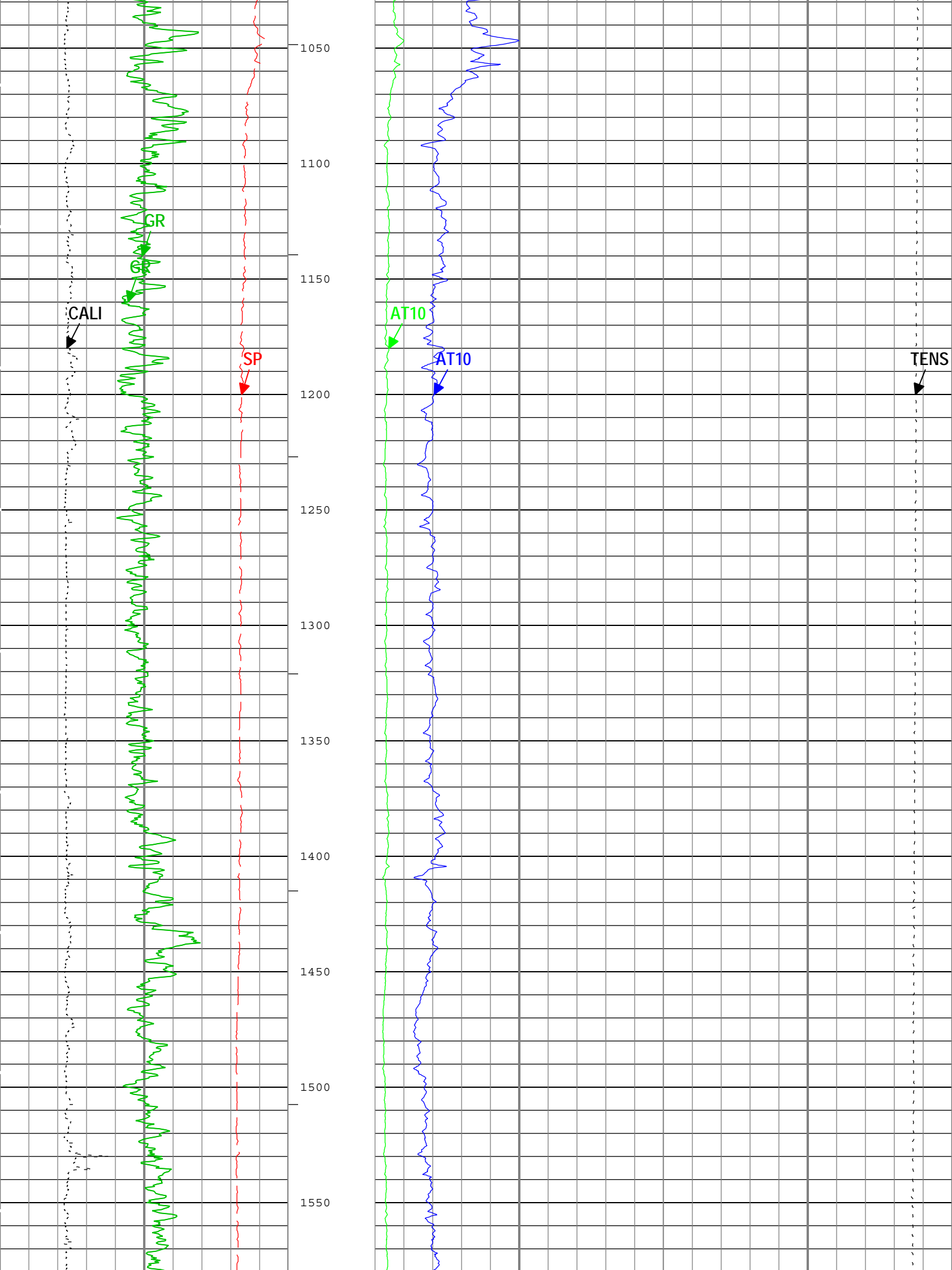
Type	CMTD-B/A		
Serial Number	1109		
Calibration Date	18-Nov-2014		
Calibrator Serial Number	441345A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	36		
Calibration Peak Error	69		

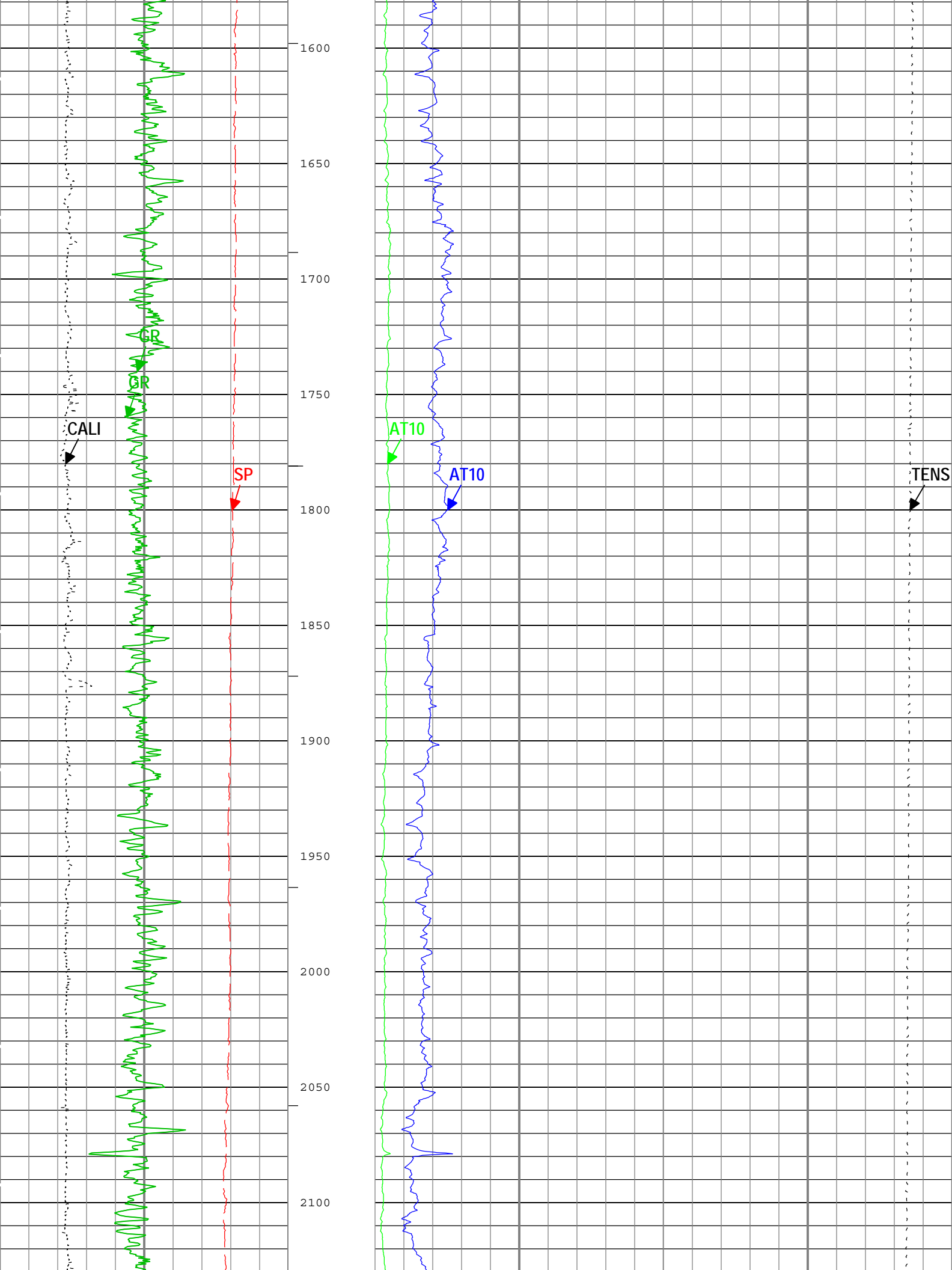
Logging Cable

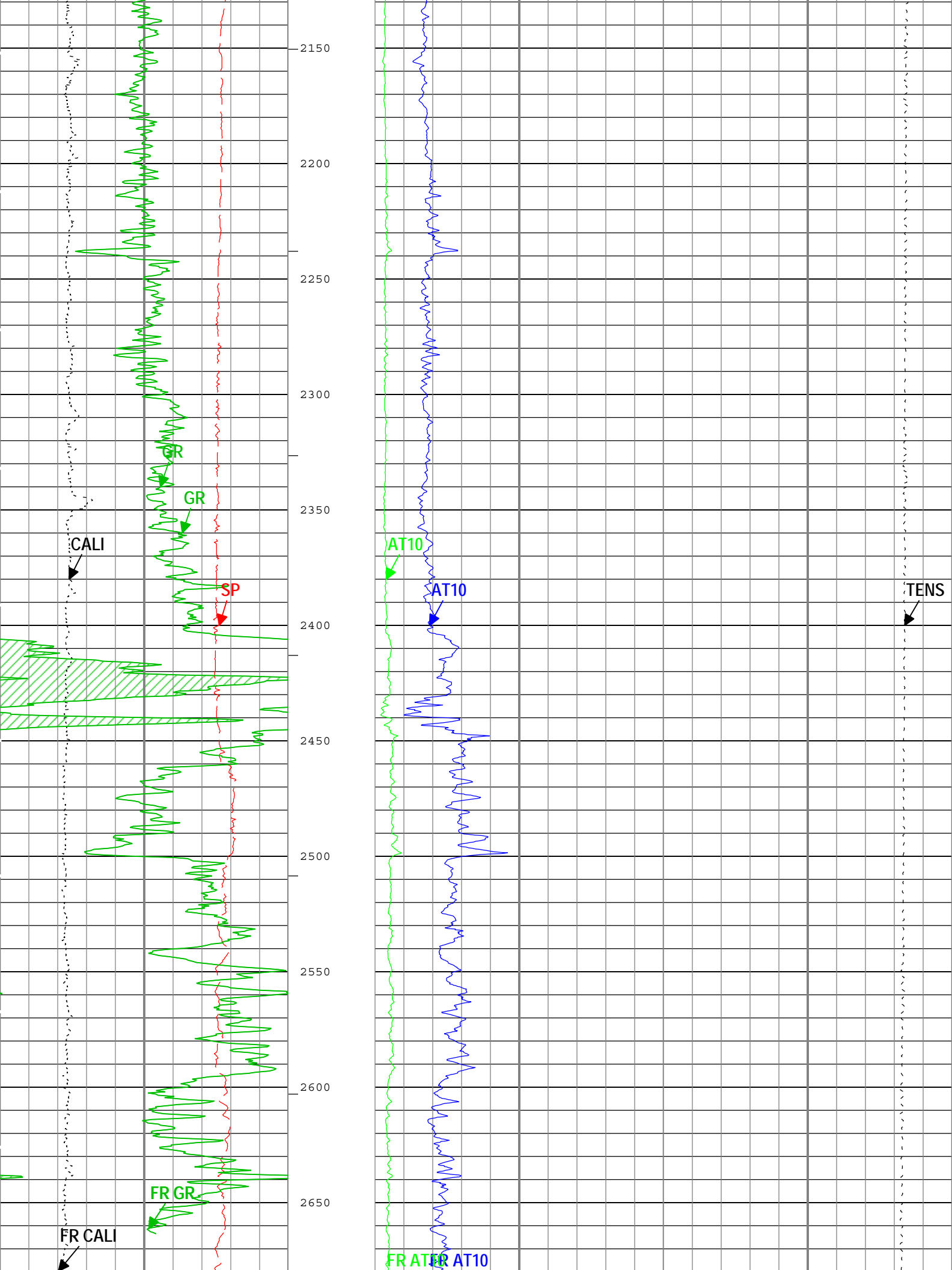
Type	7-46A-XS		
Serial Number	U711136		
Length	18000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

ONE:Depth Control Parameters	Depth Control Remarks
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FR SP

TD

2700

Gamma Ray Backup

Spontaneous Potential (SP) AIT-M

-160 mV 40

Caliper (CALI) HDRS-H

4 in 14

Gamma Ray (GR) HGNS-H

0 gAPI 200

Array Induction Two Foot Resistivity A10 (AT10) AIT-M

0 ohm.m 10

Array Induction Two Foot Resistivity A10 (AT10) AIT-M

0 ohm.m 50

Cable Tension (TENS)

10000 lbf 0

ICV - Integrated Cement Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

Description: AIT Basic Log Two Format: Log (Import of Kerr McGee 2in Induction) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured
Depth Creation Date: 09-Dec-2014 15:40:07

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	6.25	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.075	in
CBLO	Casing Bottom (Logger)	WLSESSION	495	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.5	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	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

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

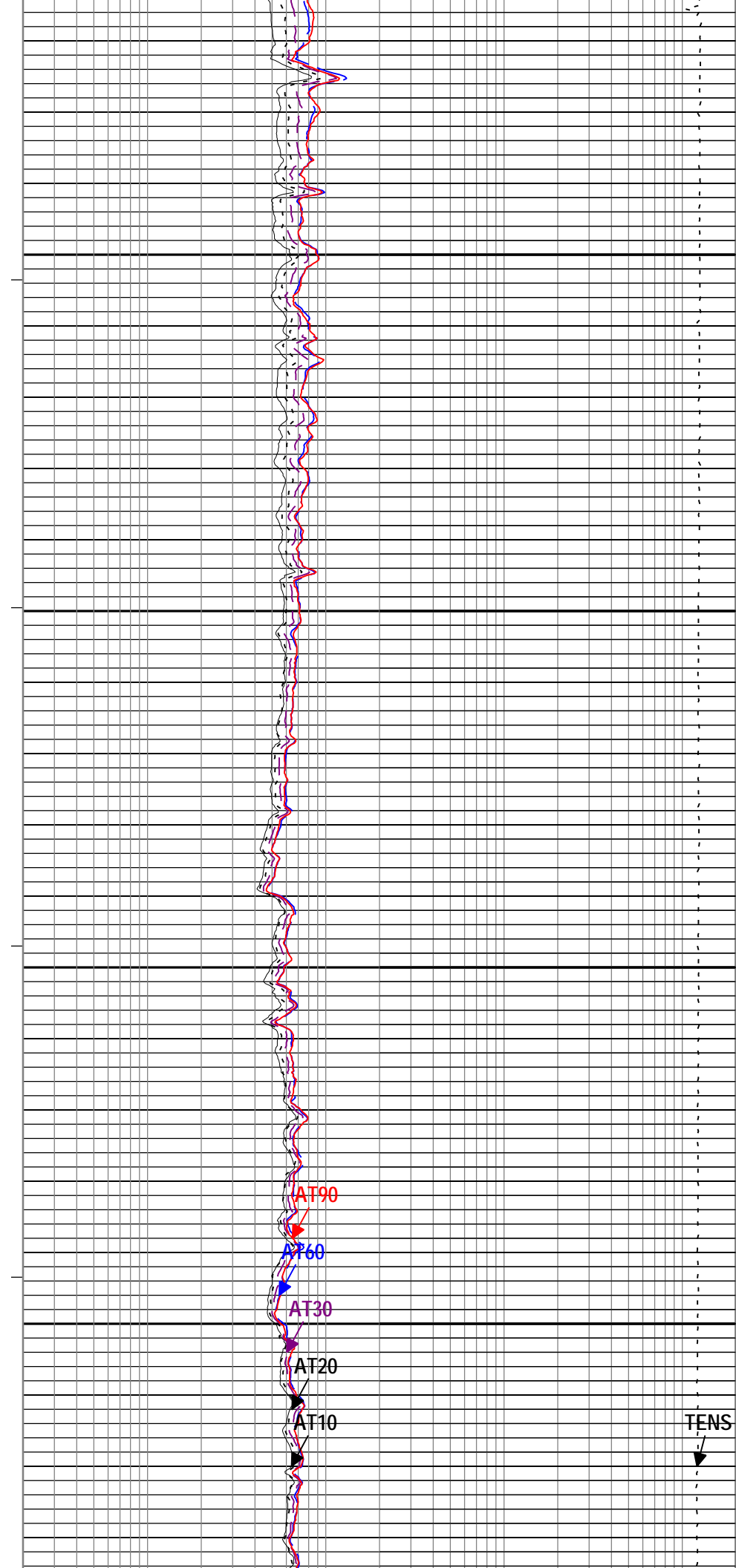
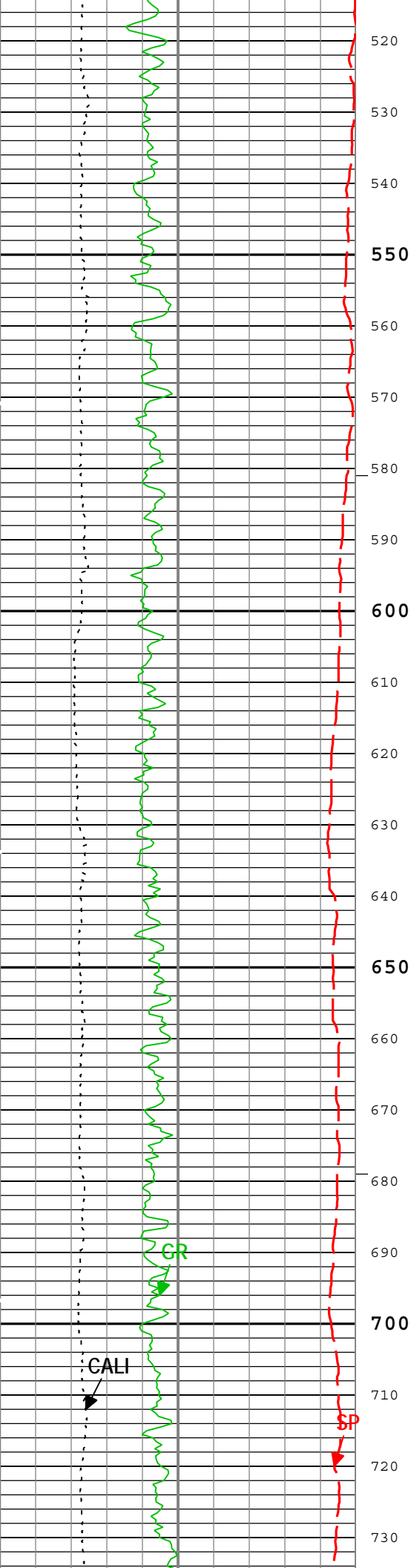
ONE

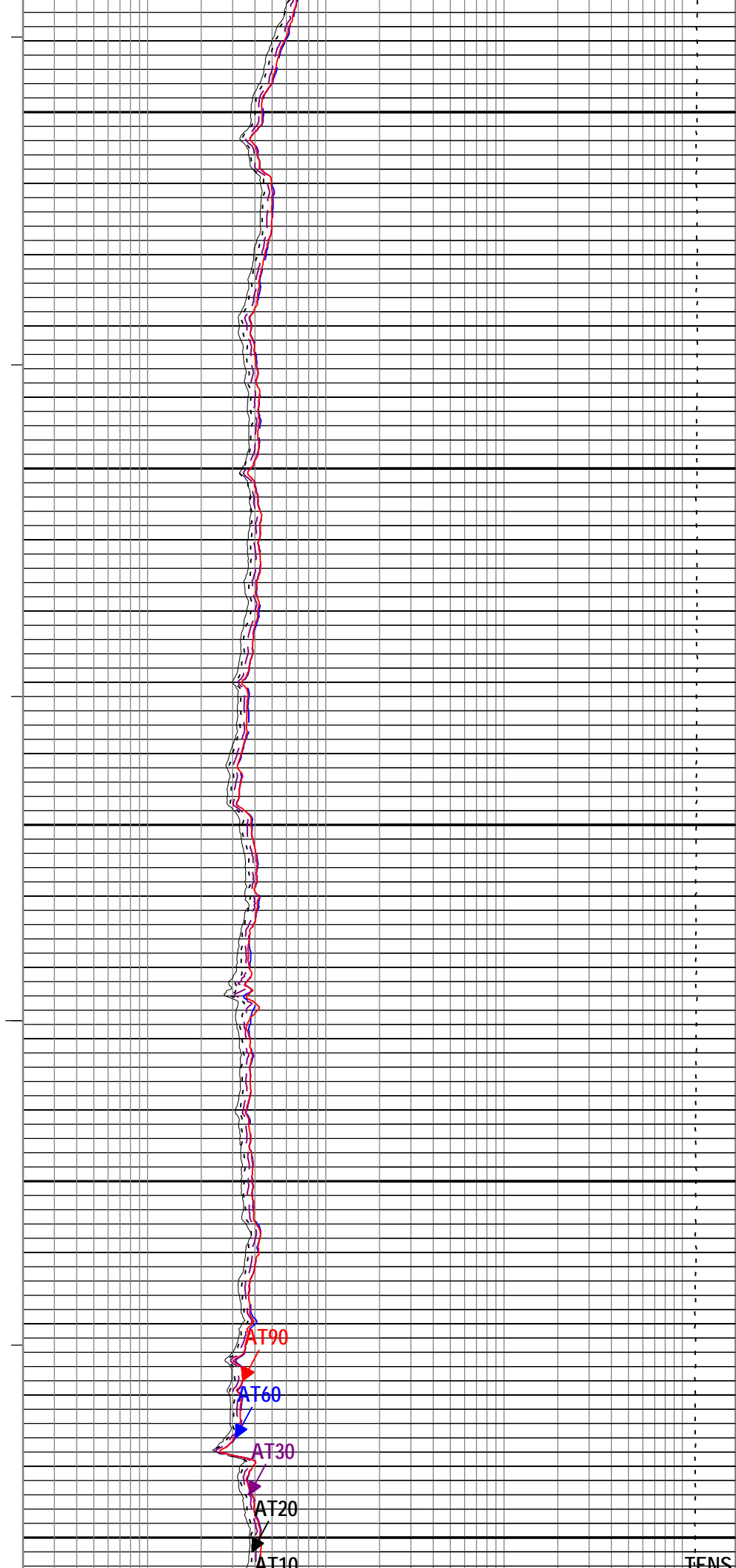
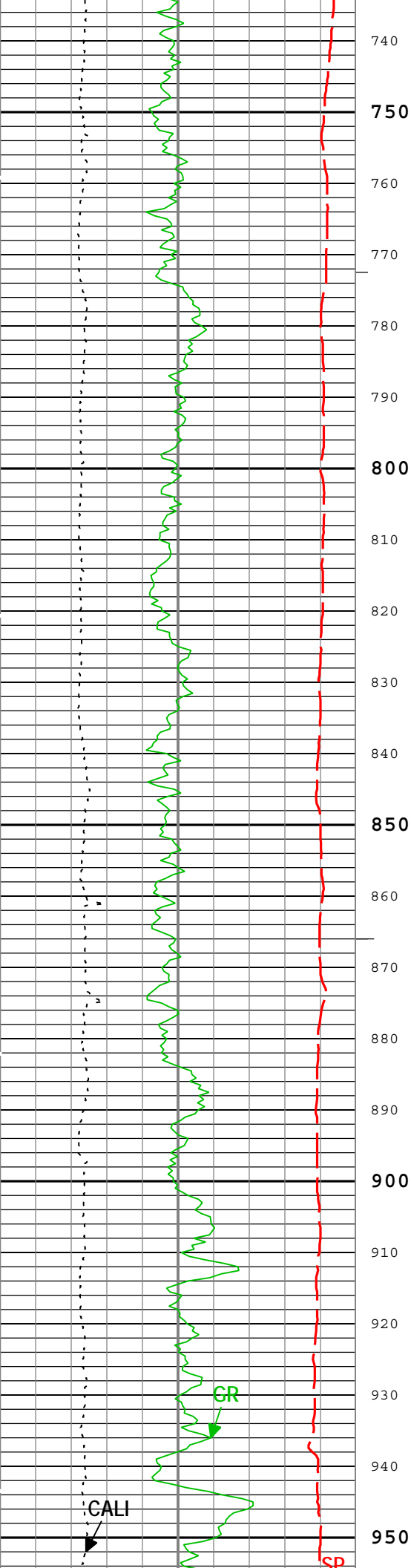
Induction Repeat Analysis

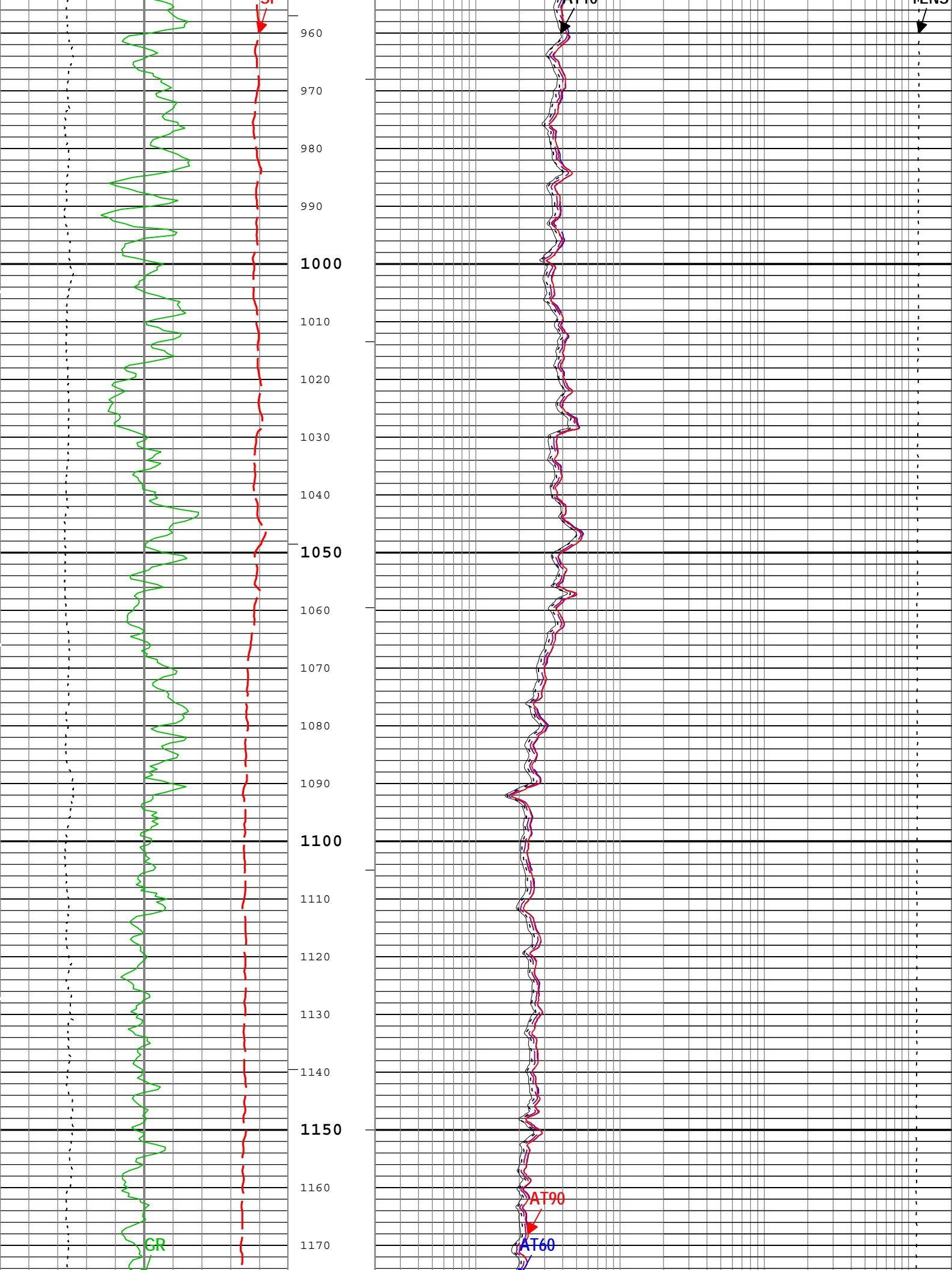
Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	239.03	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	482.18	ft3

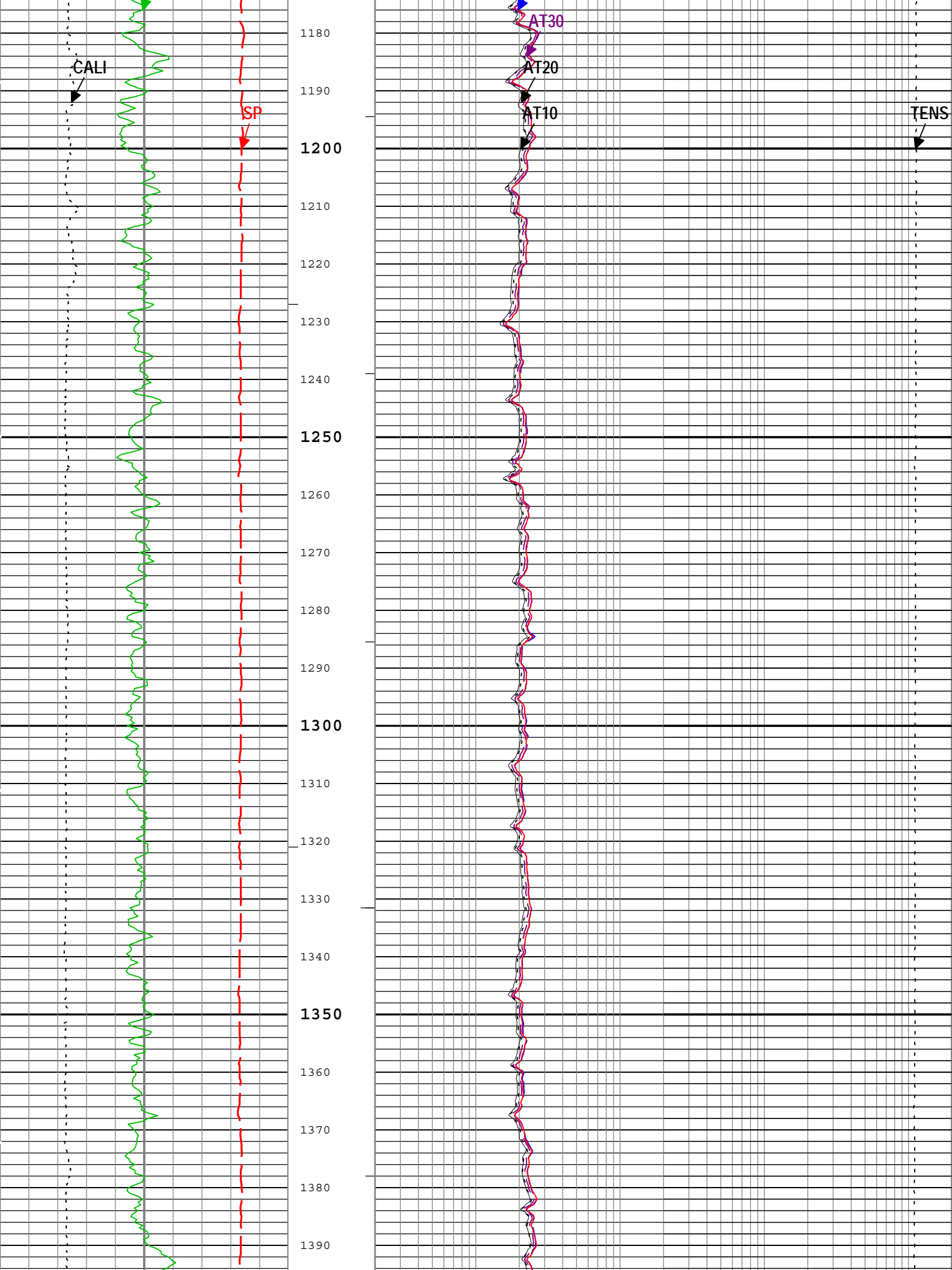
Software Version	
Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_26570-4.0.9163.3001

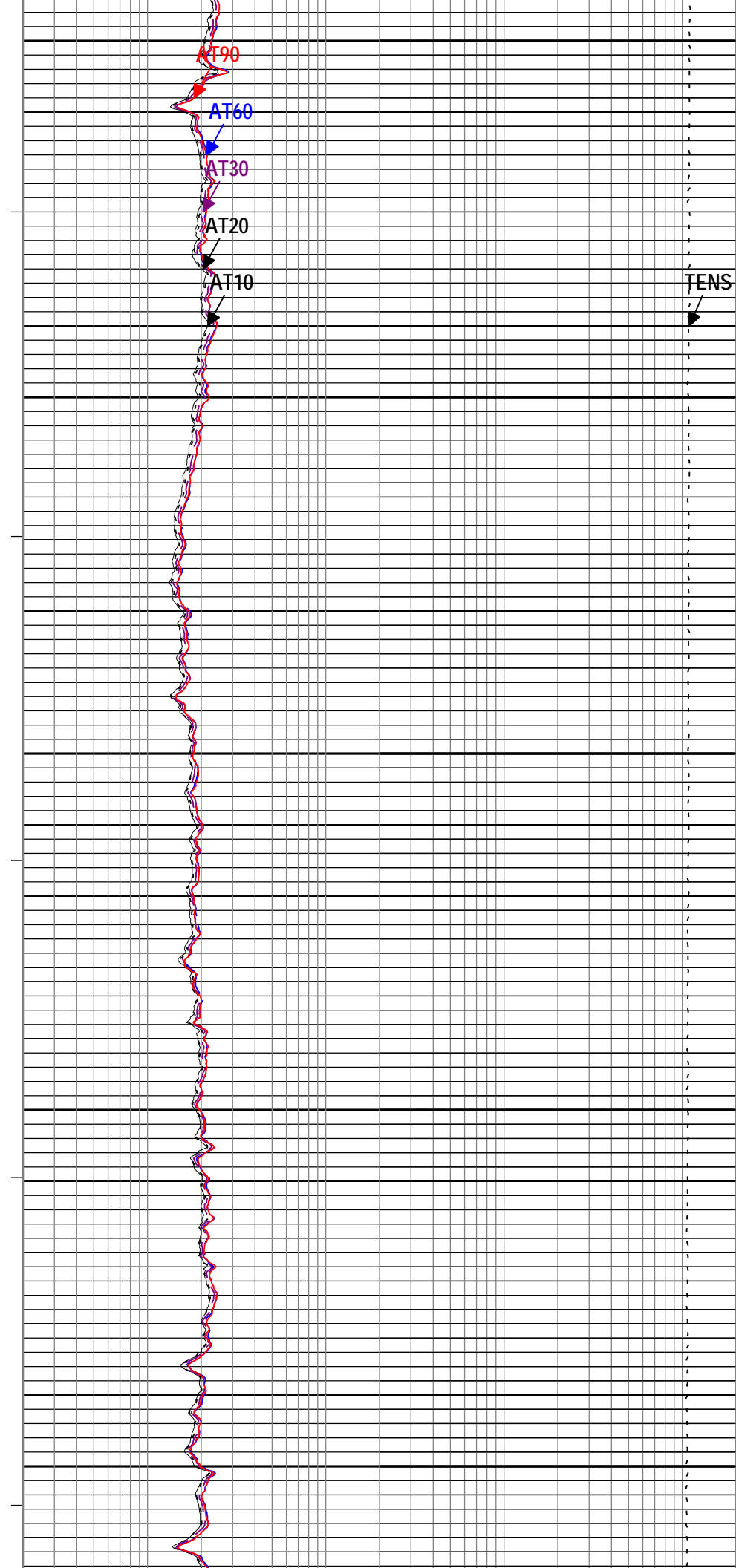
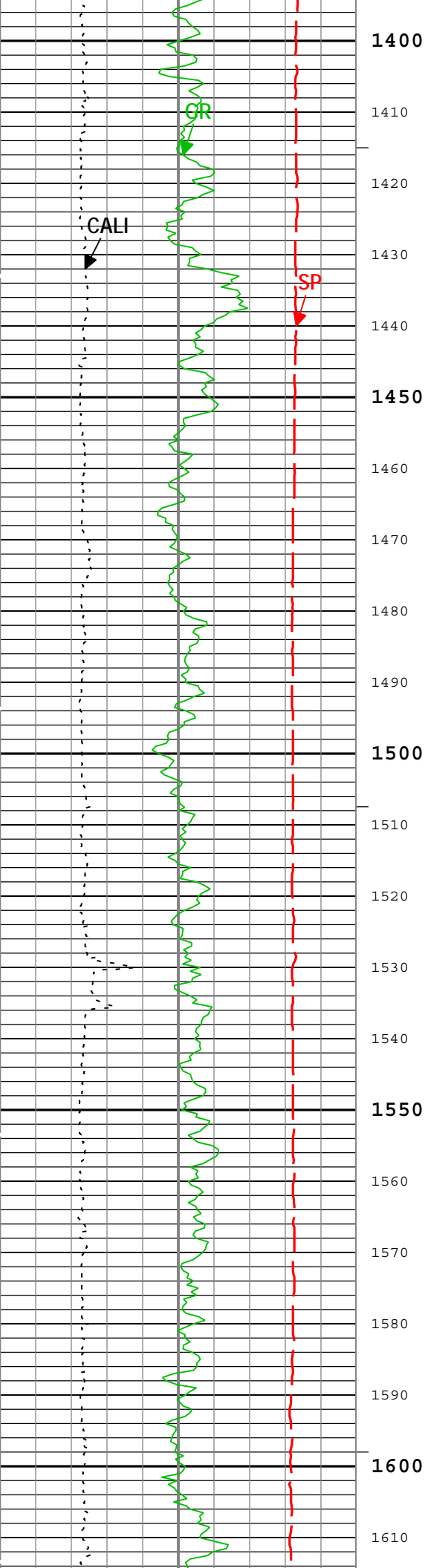
Computation	Description	Version
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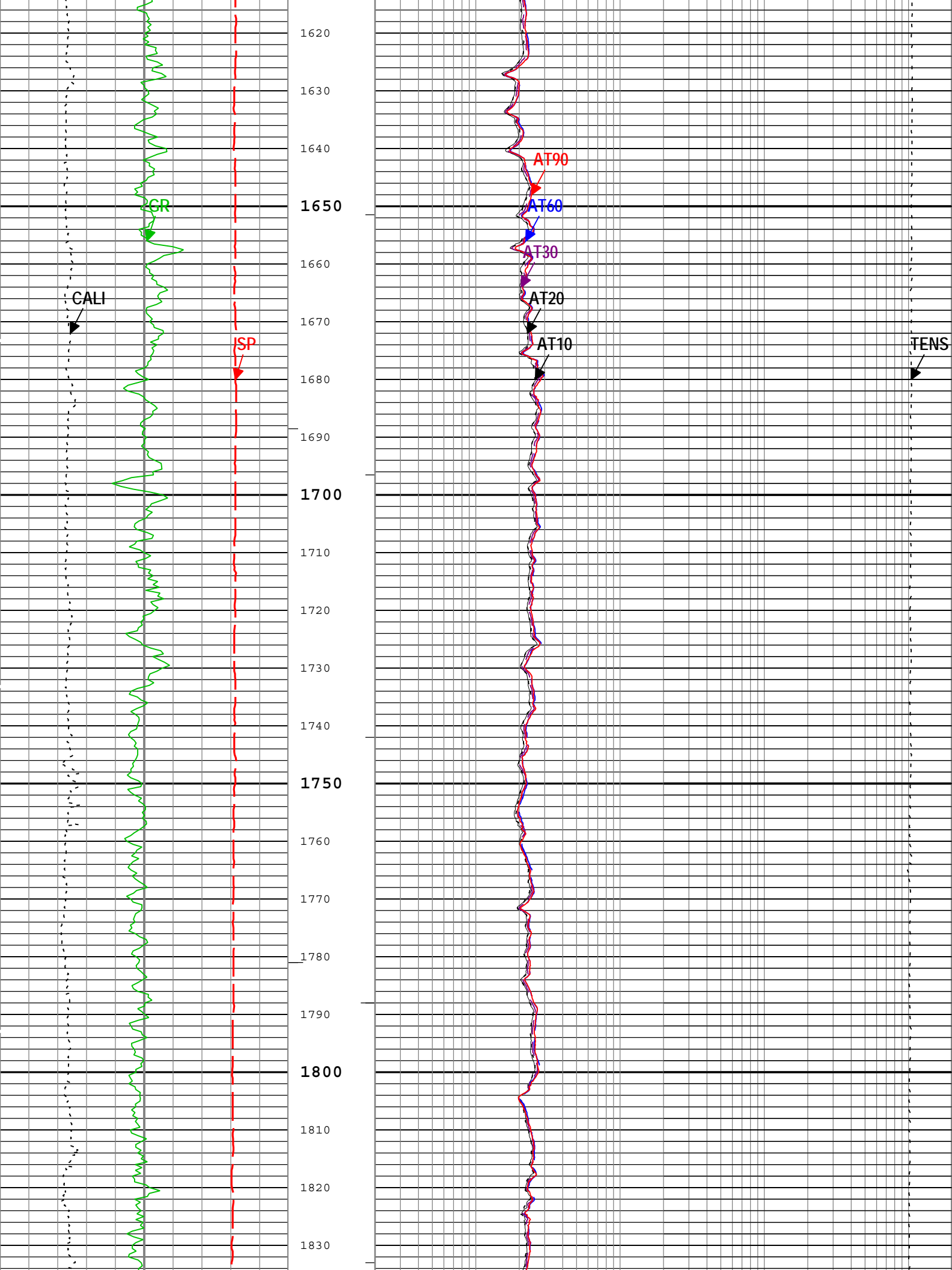


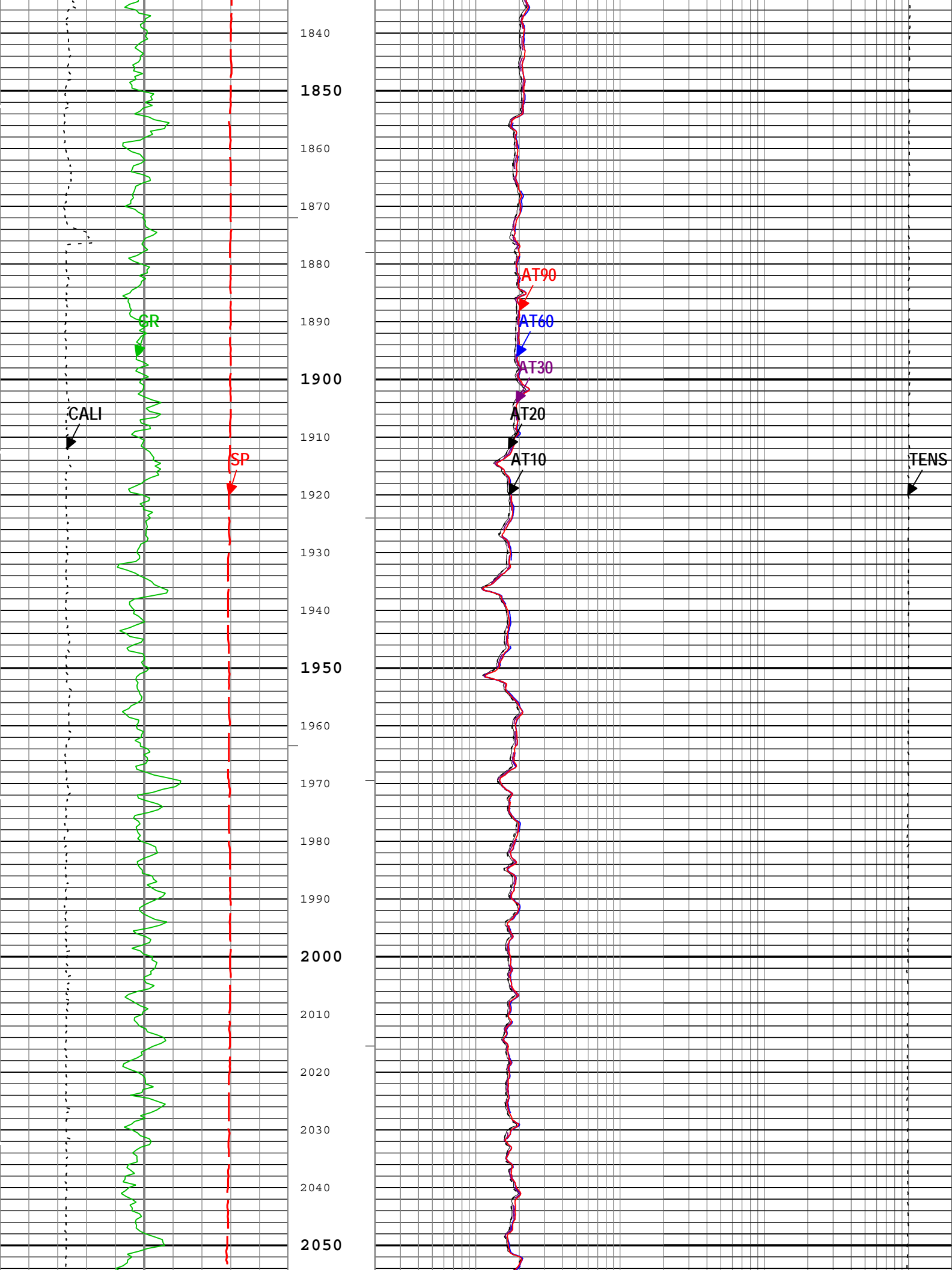


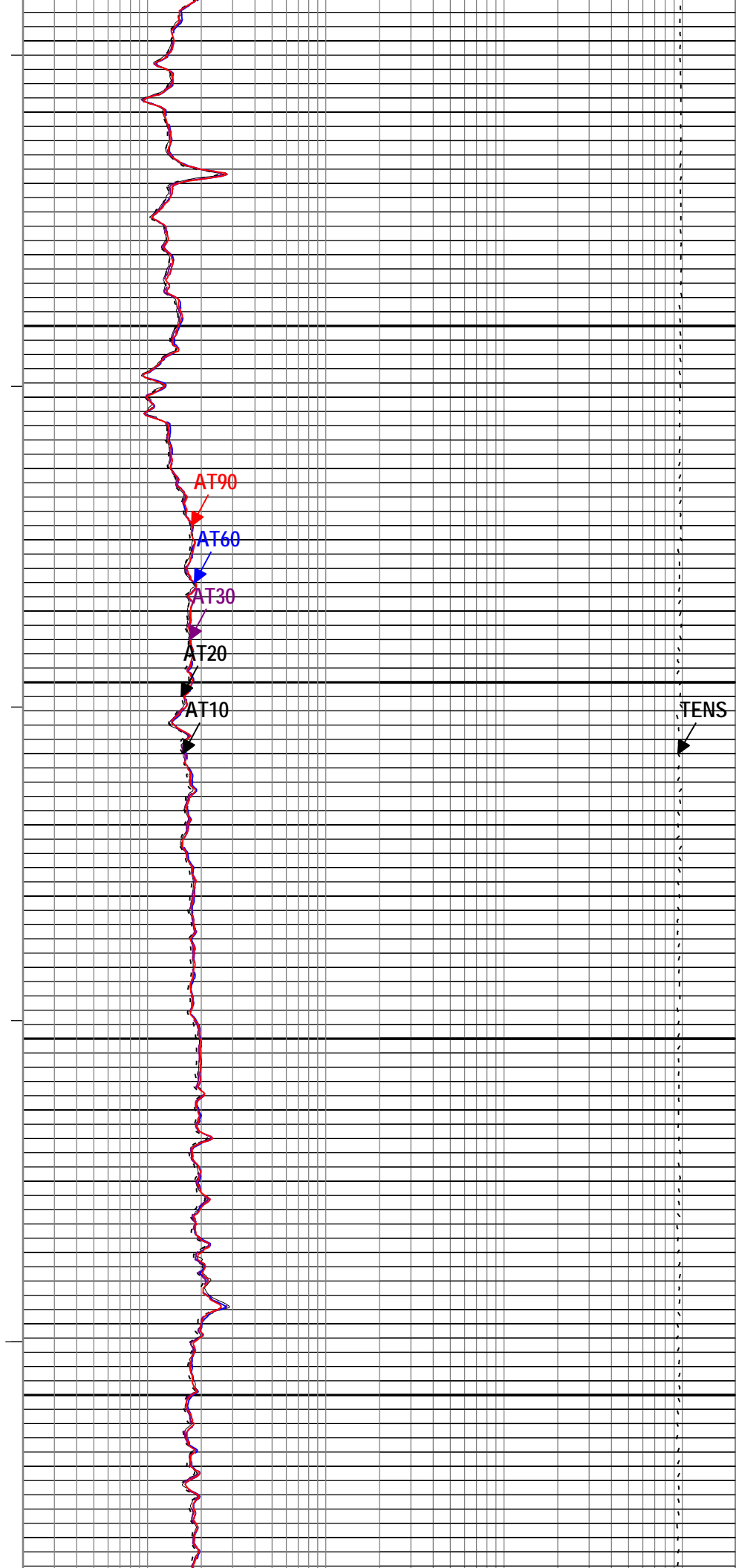
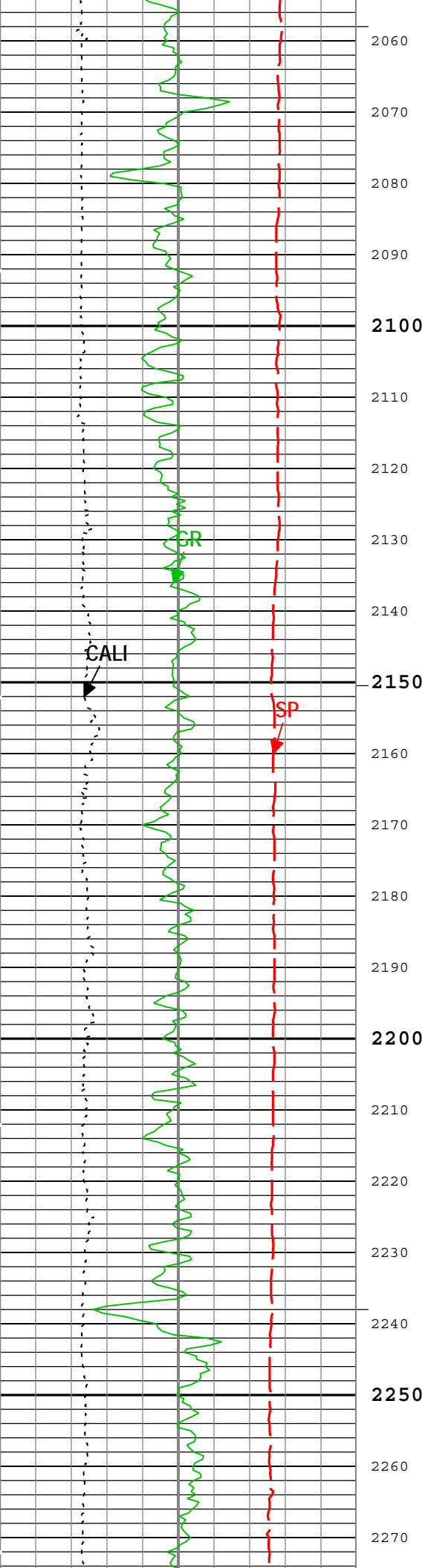


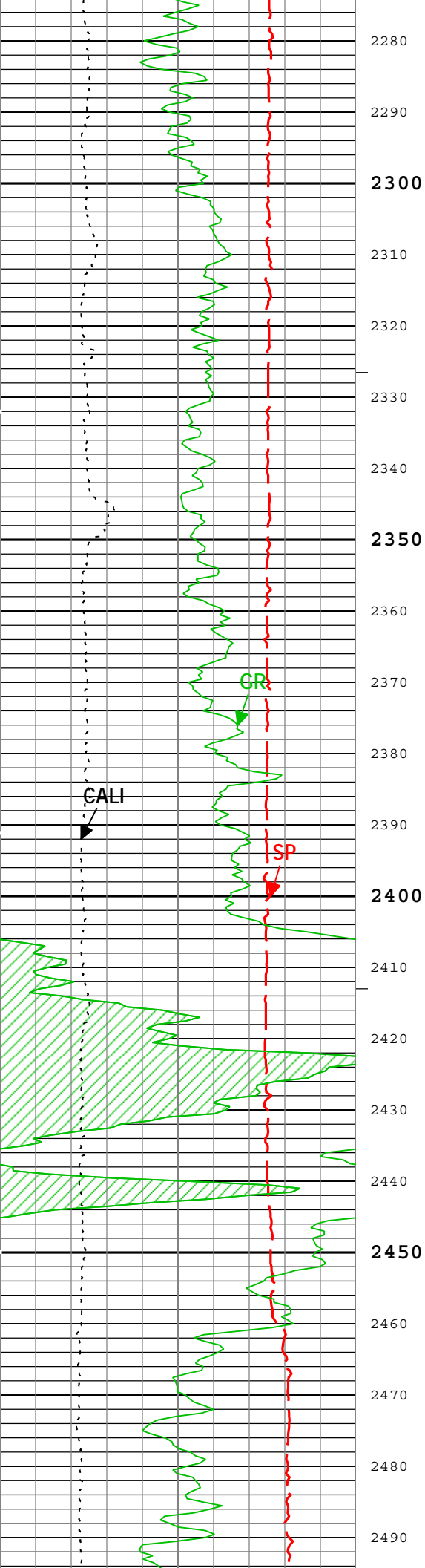


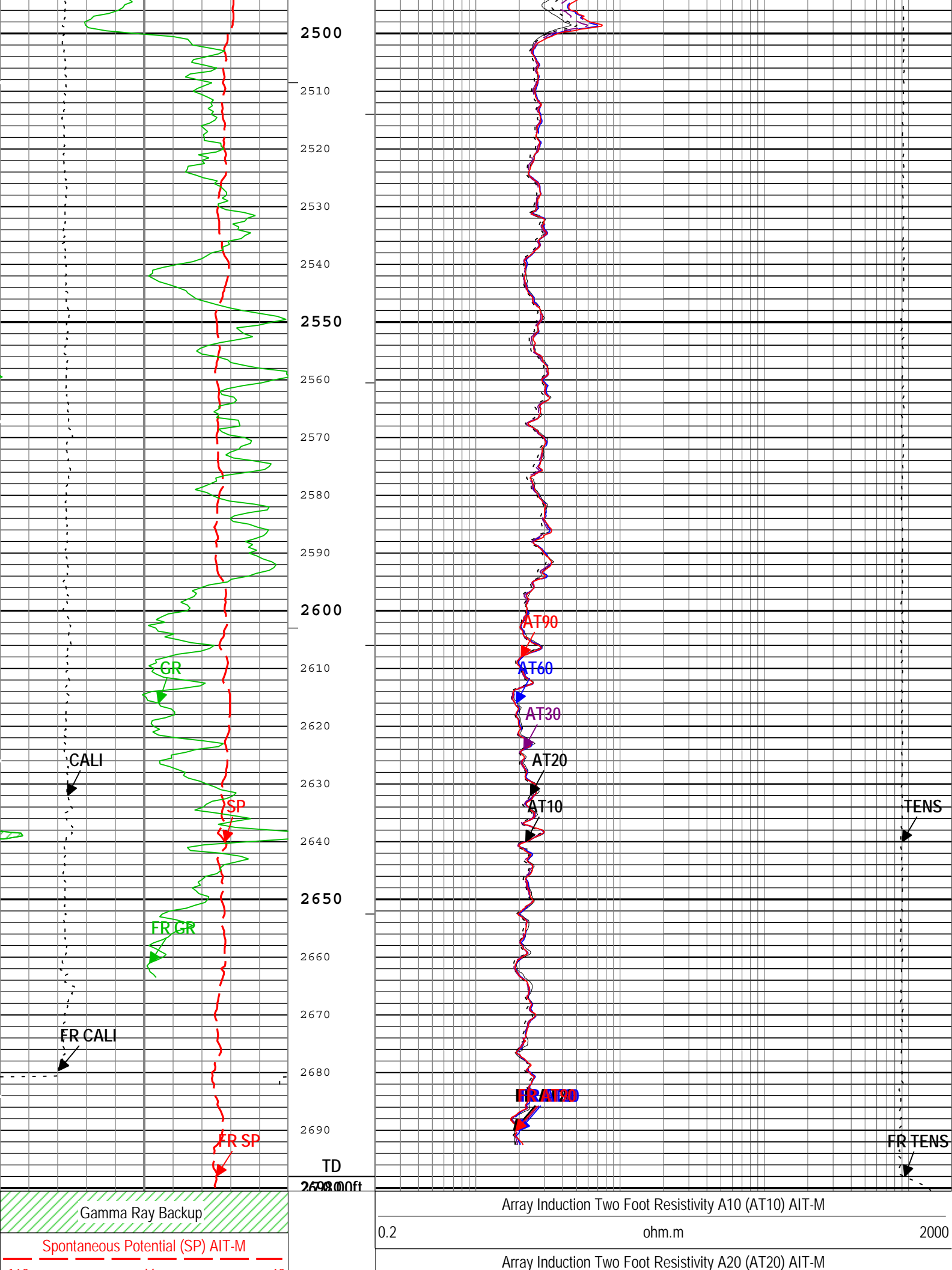












160	mV	40
Caliper (CALI) HDRS-H		
4	in	14
Gamma Ray (GR) HGNS-H		
0	gAPI	200

0.2	ohm.m	2000
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000
Cable Tension (TENS)		
10000	lbf	0

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 100.00 (ft3)

└─ IHV - Integrated Hole Volume every 10.00 (ft3)

Description: AIT Basic Log Two Format: Log (EMD 5in Induction) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Dec-2014 15:40:08

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	6.25	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.075	in
CBLO	Casing Bottom (Logger)	WLSESSION	495	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.5	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	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

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

ONE									
5" Induction									

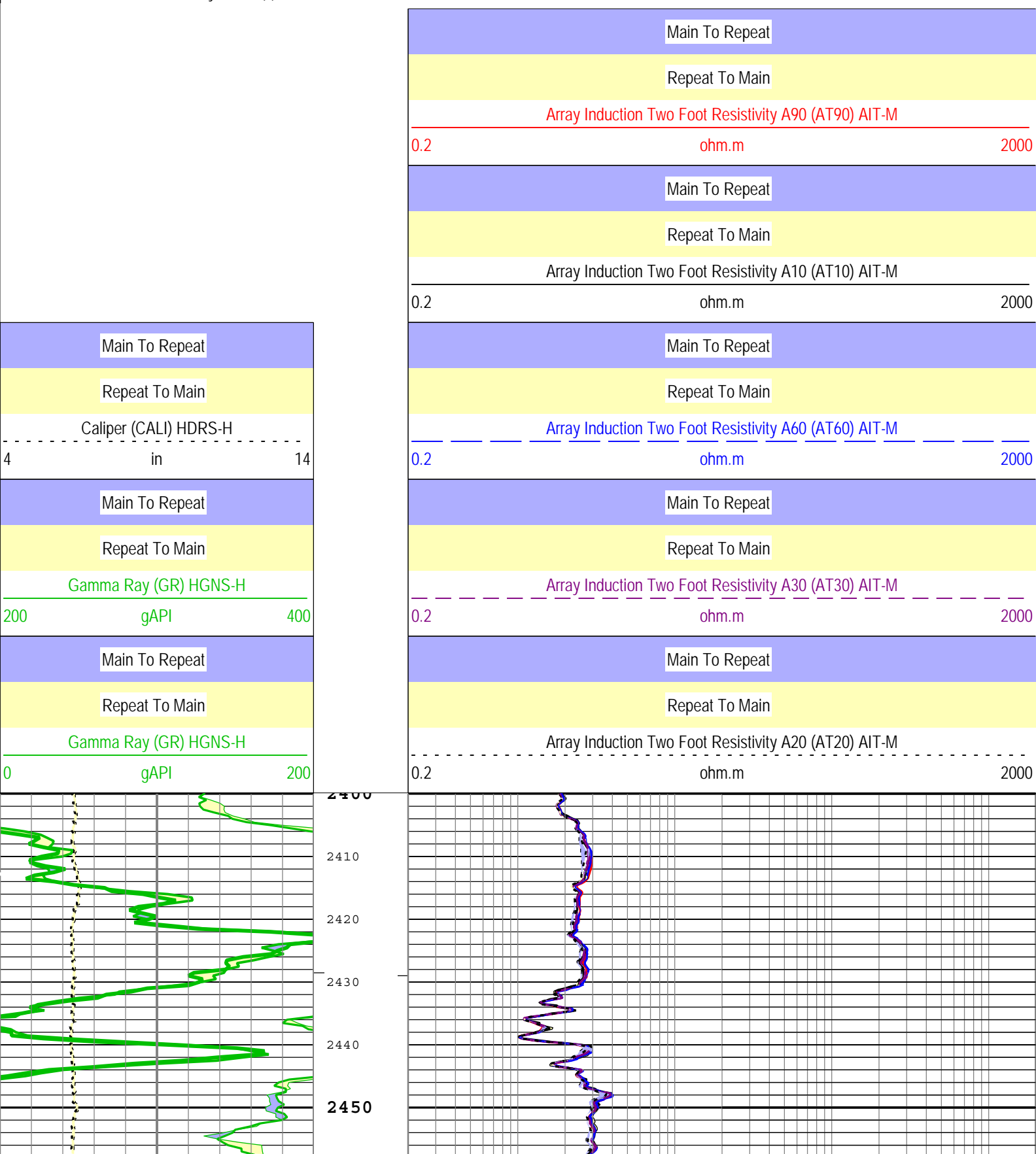
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Repeat[2]:Up	Up	2379.08 ft	2701.44 ft	09-Dec-2014 1:55:29 PM	09-Dec-2014 2:02:34 PM	ON	0.00 ft	Yes
ONE	Main[3]:Up	Up	54.64 ft	2700.43 ft	09-Dec-2014 2:09:10 PM	09-Dec-2014 2:54:47 PM	ON	0.00 ft	Yes

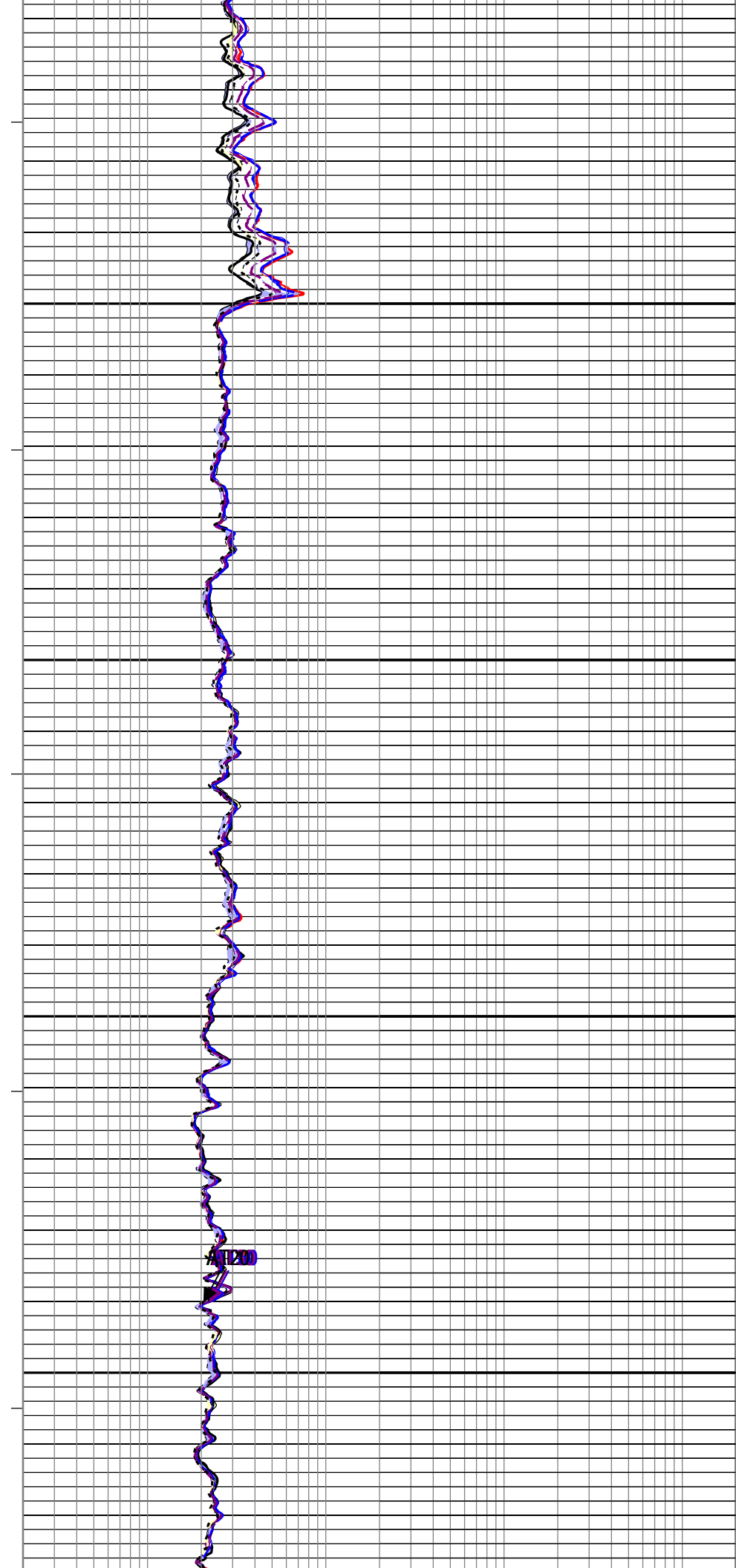
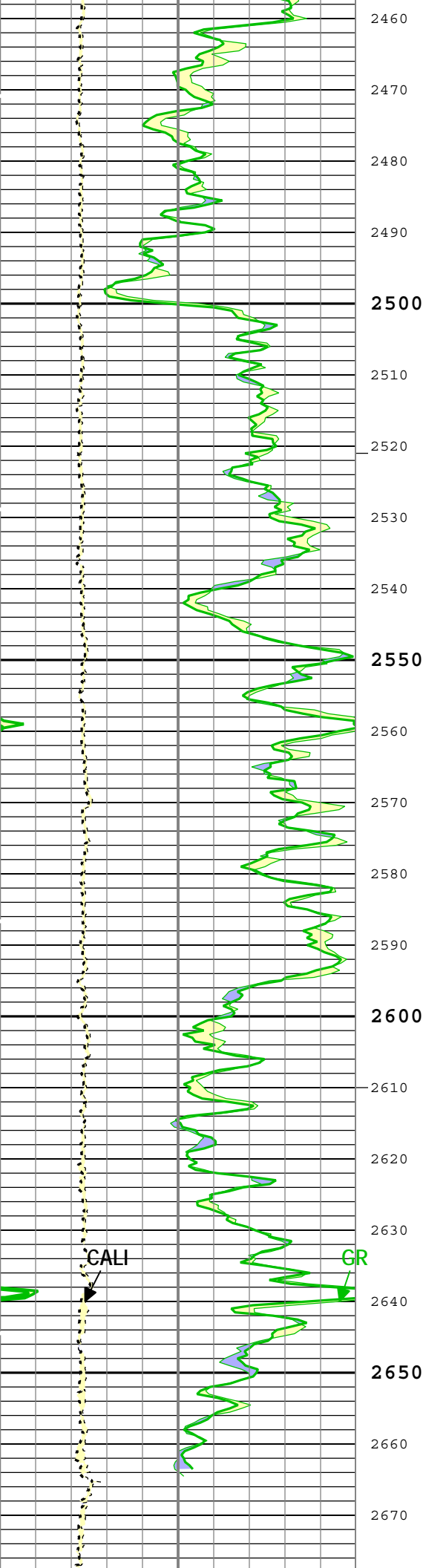
All depths are referenced to toolstring zero

Description: AIT Basic Log Two Format: EMD 5in Induction RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Dec-2014 15:40:10

- IHV - Integrated Hole Volume every 10.00 (ft3)
- IHV - Integrated Hole Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)







Test Loop Gain - 0		Master	1.000	0.950	1.041	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 0	deg	Master	0	-3.000	1.805	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 1		Master	1.000	0.950	1.017	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 1	deg	Master	0	-3.000	0.902	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 2		Master	1.000	0.950	1.017	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 2	deg	Master	0	-3.000	0.392	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 3		Master	1.000	0.950	1.016	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 3	deg	Master	0	-3.000	0.089	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 4		Master	1.000	0.950	1.009	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 4	deg	Master	0	-3.000	0.141	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 5		Master	1.000	0.950	0.991	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 5	deg	Master	0	-3.000	-0.110	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 6	deg	Master	0	-3.000	0.235	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 7		Master	1.000	0.950	1.010	1.050	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 7	deg	Master	0	-3.000	-0.080	3.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM):		23:01:59 22-Sep-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-113.093	119.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 0		Master	-----	-2250.000	114.931	2250.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	157.599	204.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 1		Master	-----	-625.000	-170.942	625.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	115.105	156.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 2		Master	-----	-350.000	-99.364	350.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	49.447	89.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 3		Master	-----	-250.000	2.279	250.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	26.217	35.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 4		Master	-----	-63.000	-3.708	63.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	10.870	24.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 5		Master	-----	-50.000	21.802	50.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.914	15.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 6		Master	-----	-30.000	2.857	30.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.286	5.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7		Master	-----	-30.000	1.530	30.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM):		23:01:59 22-Sep-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Coarse Gain		Master	1.000	0.800	0.914	1.200	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	0.910	1.200	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

AIT Electronics Check - Thru Calibration Check

Master (EEPROM):		23:01:59 22-Sep-2014		Before (Measured):		14:31:11 07-Dec-2014 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 0	V	Master	-----	0.366	0.575	0.854	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.366	0.575	0.854	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 0	deg	Master	-----	137.000	-168.869	-103.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	137.000	-166.517	-103.000	
		Before-Master	-----	-----	2.352	-----	
Thru Cal Mag - 1	V	Master	-----	0.762	1.178	1.778	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.762	1.178	1.778	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 1	deg	Master	-----	136.000	-169.968	-104.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	136.000	-167.617	-104.000	
		Before-Master	-----	-----	2.351	-----	
Thru Cal Mag - 2	V	Master	-----	0.372	0.585	0.868	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.372	0.585	0.868	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 2	deg	Master	-----	132.000	-173.610	-108.000	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	132.000	-171.264	-108.000	
		Before-Master	-----	-----	2.346	-----	
Thru Cal Mag - 3	V	Master	-----	0.420	0.660	0.980	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.420	0.660	0.980	
		Before-Master	-----	-----	0.000	-----	

[illegible]

Company:	Omimex Petroleum Inc	Schlumberger
Well:	Sagehorn 14-34-6-45	
Field:	Ballyneal	
County:	Phillips	
State:	Colorado	
Platform Express		
Array Induction		
with Linear Correlation		