

Company: Expedition Water Solution LLC

Well: EWS 1

Field: Wildcat

County: Weld State: Colorado

Platform Express
Array Induction
with Linear CorrelationCounty: Weld
Field: Wildcat
Location: NWNW Sec. 26, T8N, R60W
Well: EWS 1
Company: Expedition Water Solution LLC

Location:		Elev.:	K.B.	4926.50 ft
NWNW Sec. 26, T8N, R60W			G.L.	4913.00 ft
SHL: 325' FNL X 372' FWL			D.F.	4925.50 ft
Permanent Datum:	Ground Level	Elev.:	4913.00 f	
Log Measured From:	Kelly Bushing	13.50 ft	above Perm.Datum	
Drilling Measured From:	Kelly Bushing			
API Serial No.	Section:	Township:	Range:	
05-123-39770-0000	26	8N	60W	

Logging Date	25-Aug-2014		
Run Number	Run1: PEX-AIT		
Depth Driller	9900.00 ft		
Schlumberger Depth	9894.00 ft		
Bottom Log Interval	9894.00 ft		
Top Log Interval	7600.00 ft		
Casing Driller Size @ Depth	7 in @ 8078.00 ft		
Casing Schlumberger	8084 ft		
Bit Size	6.125 in		
Type Fluid In Hole	Polymer		
Density	Viscosity	40 s	
Fluid Loss	PH		
Source of Sample	Active Tank		
RM @ Meas Temp	0.8 ohm.m @ 100 degF		
RMF @ Meas Temp	0.64 ohm.m @ 100 degF		
RMC @ Meas Temp	0.96 ohm.m @ 100 degF		
Source RMF	RMC	Pressed	
RM @ BHT	RMF @ BHT	0.31 @ 265 @ 0.25 @ 265	
Max Recorded Temperatures	265 degF		
Circulation Stopped	Time		
Logger on Bottom	Time		
Unit Number	Location:	3022	Ft. Morgan, CO
Recorded By	Tim Hoffman		
Witnessed By	Erasmo Parras		

Disclaimer

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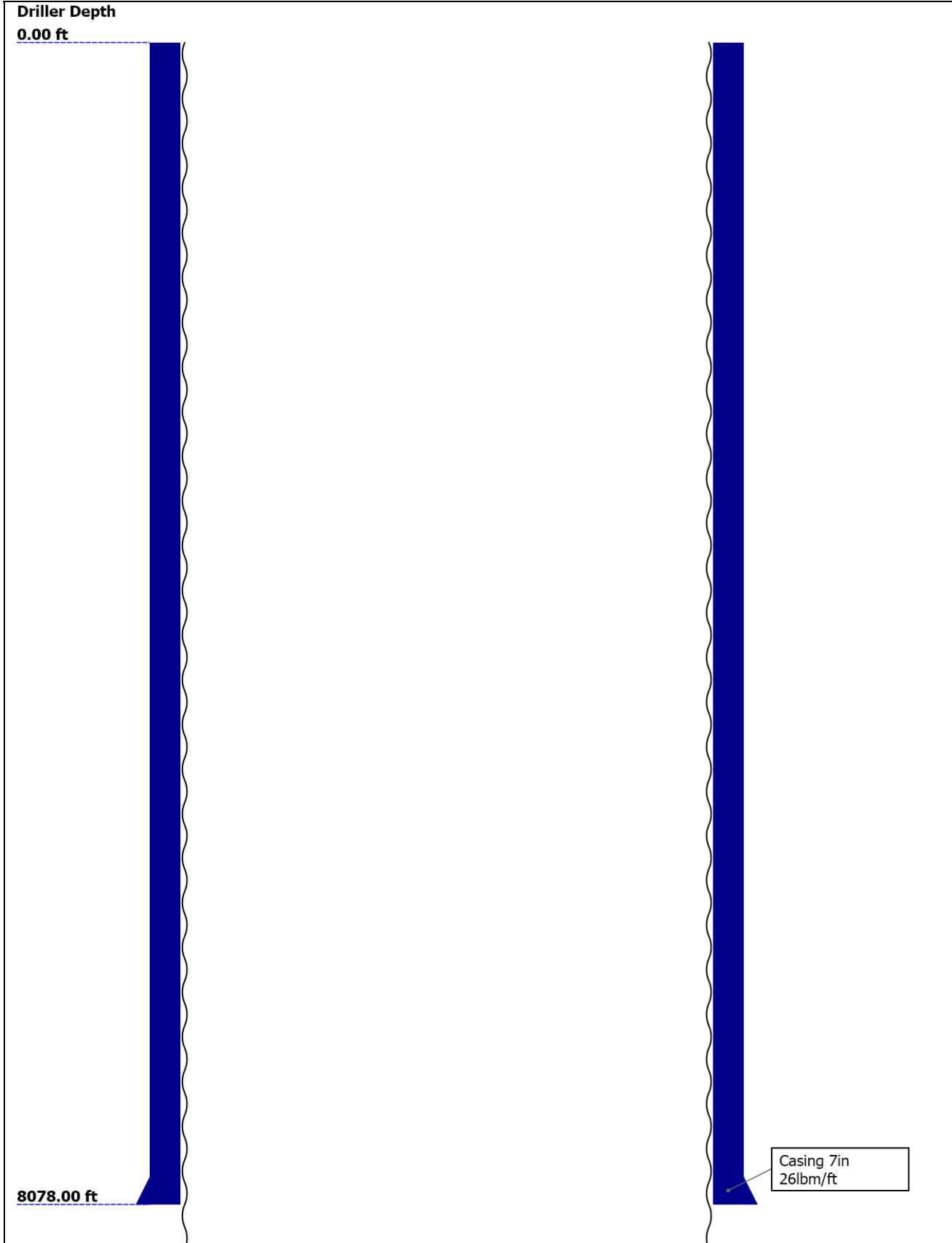
Contents

- Header
- Disclaimer
- Contents
- Well Sketch
- Borehole Size/Casing/Tubing Record
- Operational Run Summary
- Remarks and Equipment Summary
- Depth Summary
- Run1: PEX-AIT 2" Induction
 - Integration Summary
 - Software Version
 - Composite Summary
 - Log (Import of Kerr McGee 2in Induction)
 - Parameter Listing
- Run1: PEX-AIT 5" Induction
 - Integration Summary
 - Software Version

13. Tail

- 10.3 Composite Summary
- 10.4 Log (KM 5in Induction)
- 10.5 Parameter Listing
- 11. Run1: PEX-AIT 5" Induction Repeat
 - 11.1 Composite Summary
 - 11.2 Log (KM 5in Induction RA)
- 12. Calibration Report

Well Sketch





Borehole Size/Casing/Tubing Record						
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Bit						
Bit Size (in)	6.125					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	9900					
Bottom Logger (ft)	9894					
Casing						
Size (in)	7					
Weight (lbm/ft)	26					
Inner Diameter (in)	6.276					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	8078					
Bottom Logger (ft)	8084					

Operational Run Summary						
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Parameter (unit)	Run1: PEX-AIT					
Date Log Started	25-Aug-2014					
Time Log Started	18:26:08					
Date Log Finished	25-Aug-2014					
Time Log Finished	20:05:00					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)	9894.00					
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	6.125					
Logging Unit Number	3022					
Logging Unit Location	Ft. Morgan, CO					
Recorded By	Tim Hoffman					
Witnessed By	Erasmo Parras					

Service Order Number	CXQ3-00097				
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Remarks and Equipment Summary

Run1: PEX-AIT: Toolstring				Run1: PEX-AIT: Remarks	
<div> <div>Equip name</div> <div>LEH-QT</div> <div>LEH-QT</div> </div>	<div> <div>Length</div> <div>43.57</div> </div>		<div> <div>MP name</div> <div></div> </div>	<div> <div>Offset</div> <div></div> </div>	This is the first run in hole
					Toolstring run as per tool sketch
					Matrix changes are noted in the parameters section
<div> <div>DTC-H</div> <div>ECH-KC:9469</div> <div>DTC-H</div> </div>	<div> <div>40.65</div> </div>		<div> <div>CTEM</div> <div>HV</div> </div>	<div> <div>39.75</div> <div>0.00</div> </div>	Crew: Jay Musgrave, Ian Derry
<div> <div>HGNS-H:3985</div> <div>HGNH:3785</div> <div>NPV-N</div> <div>NSR-F:5068</div> <div>HMCA-H</div> <div>HACCZ-H:4269</div> <div>HGNS-H:3985</div> </div>	<div> <div>37.65</div> </div>		<div> <div>ToolStatus</div> <div>TelStatus</div> <div>Temperature</div> </div>	<div> <div>37.65</div> <div>37.65</div> <div>37.62</div> </div>	
<div> <div>GR</div> </div>	<div> <div>36.91</div> </div>				
<div> <div>CNL Porosity</div> <div>HGNS</div> <div>HMCA</div> <div>Accelerometer</div> </div>	<div> <div>30.57</div> <div>28.24</div> <div>28.24</div> <div>0.00</div> </div>				
<div> <div>HRDS-H:4826</div> <div>ECH-MEB:4711</div> <div>HRCC-H:5705</div> <div>HRMS-H:4826</div> <div>Short Spacing</div> <div>GPV-Q</div> <div>Backscatter</div> <div>Long Spacing:28910</div> <div>GSR-J:5240</div> <div>HRGD-H:4791</div> </div>	<div> <div>28.24</div> </div>		<div> <div>HRCC</div> </div>	<div> <div>24.24</div> </div>	
<div> <div>MCFL</div> <div>Caliper</div> <div>TLD Density</div> </div>	<div> <div>18.81</div> <div>18.33</div> <div>17.94</div> </div>				
<div> <div>AIT-M:208</div> <div>AMIS:208</div> <div>AMRM</div> </div>	<div> <div>16.00</div> </div>				
<div> <div>Temperature</div> <div>Induction</div> <div>Power Supply</div> </div>	<div> <div>7.91</div> <div>7.91</div> <div>7.91</div> </div>				

 <div> <div>SP</div> <div>Mud Resistivity</div> <div>Head Tension</div> <div>TOOL_ZERO</div> </div> <div> <div>0.08</div> <div>0.00</div> </div> <div> <div>Lengths are in ft</div> <div>Maximum Outer Diameter = 4.625 in</div> <div>Line: Sensor Location, Value: Gating Offset</div> <div>All measurements are relative to TOOL_ZERO</div> </div>			
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Depth Summary			
	Run1: PEX-AIT		
Depth Measuring Device			
Type	IDW-B		
Serial Number	5896		
Calibration Date	13-Aug-2014		
Calibrator Serial Number			
Calibration Cable Type	7-39P LXS		
Wheel Correction 1	-3		
Wheel Correction 2	-2		
Tension Device			
Type	CMTD-B/A		
Serial Number	1109		
Calibration Date	08-Aug-2014		
Calibrator Serial Number	78135		
Number of Calibration Points	10		
Calibration Root Mean Square Error	8		
Calibration Peak Error	15		
Logging Cable			
Type	7-39P-LXS		
Serial Number			
Length	11800.00 ft		
Conveyance Type	Wireline		
Rig Type			
Run1: PEX-AIT:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control policies followed	
Rig Up Length At Surface		IDW used as primary depth reference. Z-chart used as secondary	
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			
Run1: PEX-AIT			
2" Induction			

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	0	ft3
Software Version				
Acquisition System		Version		
MaxWell		4.0.9163.3000		
Application Patch		Patch-SP-10767_13393-4.0.9163.3001		
Computation	Description			Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels			4.0.9213.3000

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-AIT	Log[3]:Up	Up	7491.74 ft	9914.31 ft	25-Aug-2014 7:27:20 PM	25-Aug-2014 8:04:48 PM	ON	4.30 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Expedition Water Solution LLC	Well:EWS 1
	Run1: PEX-AIT; Log[3]:Up:S003	

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: 25-Aug-2014 20:30:47

Channel	Source	Sampling
AT10	AIT-M:AMIS:AMIS	3in
AT60	AIT-M:AMIS:AMIS	3in
ATCO60	AIT-M:AMIS:AMIS	3in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in
SP	AIT-M:AMIS:AMIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

└ ICV - Integrated Cement Volume every 10.00 (ft3)

— ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

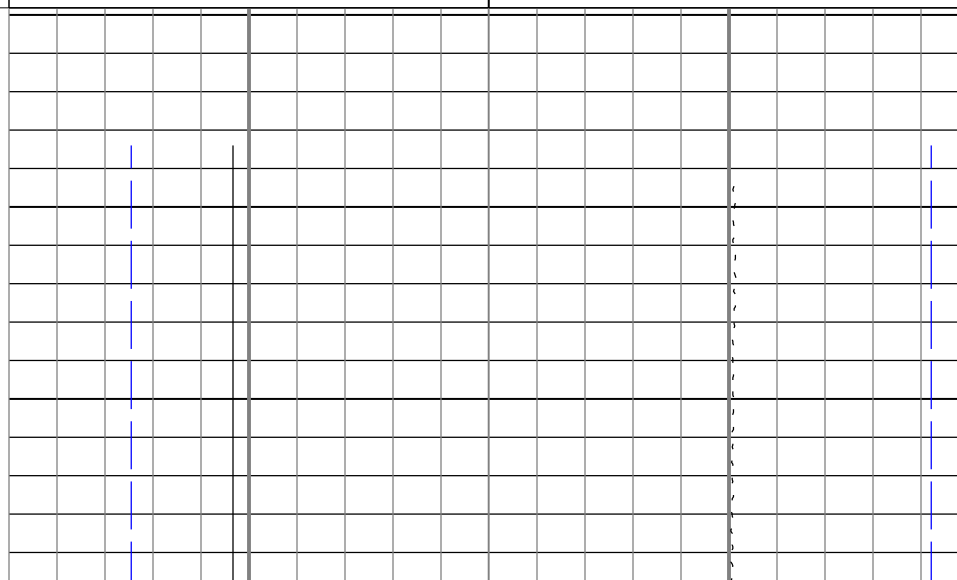
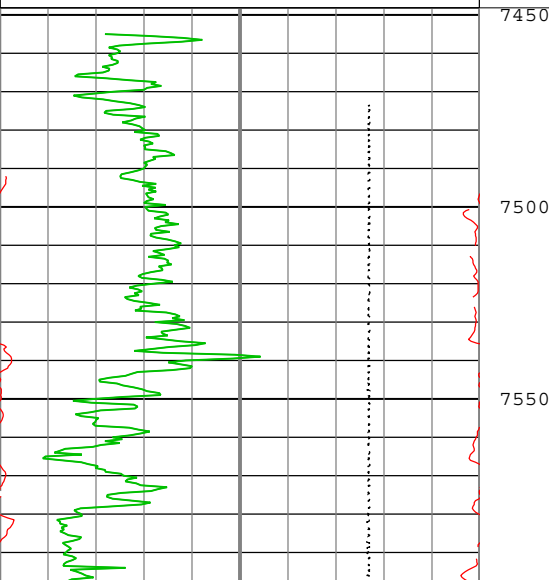
Diagram illustrating the wellbore structure and depth scale:

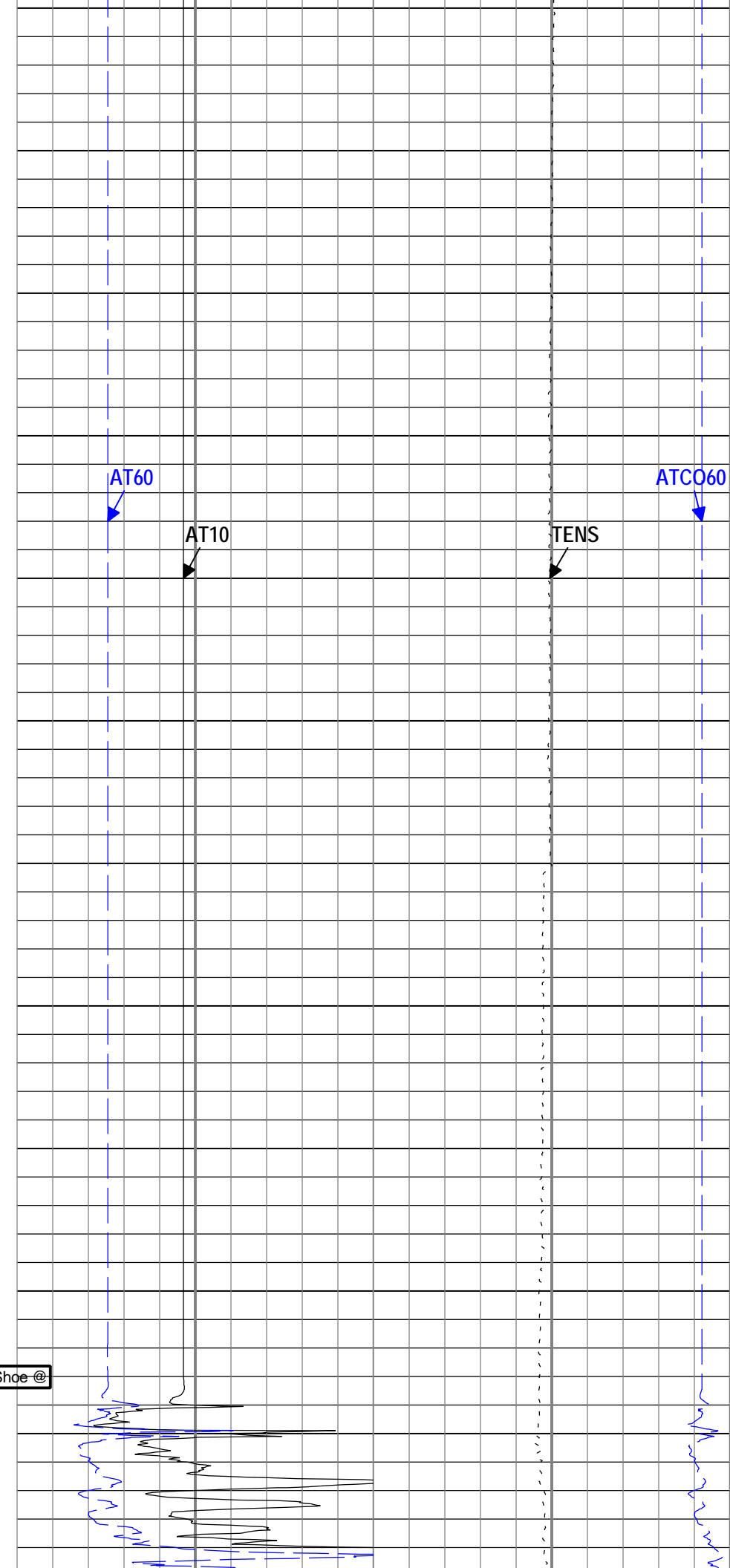
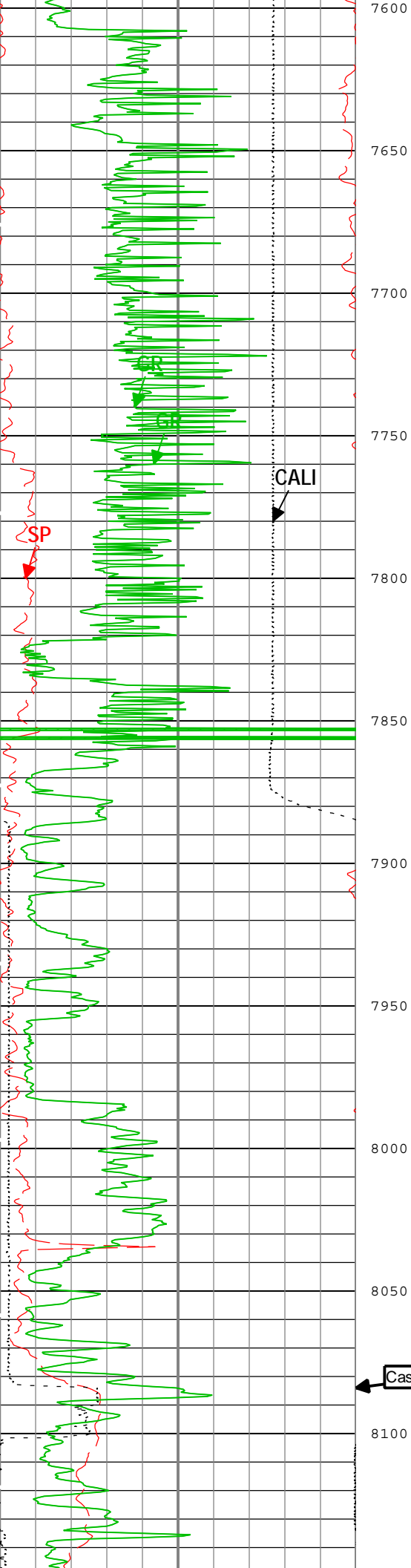
- Gamma Ray Backup** (0 to 160 ft)
- Spontaneous Potential (SP) AIT-M** (160 to 40 ft)
- Caliper (CALI) HDRS-H** (40 to 16 ft)
- Gamma Ray (GR) HGNS-H** (16 to 0 ft)

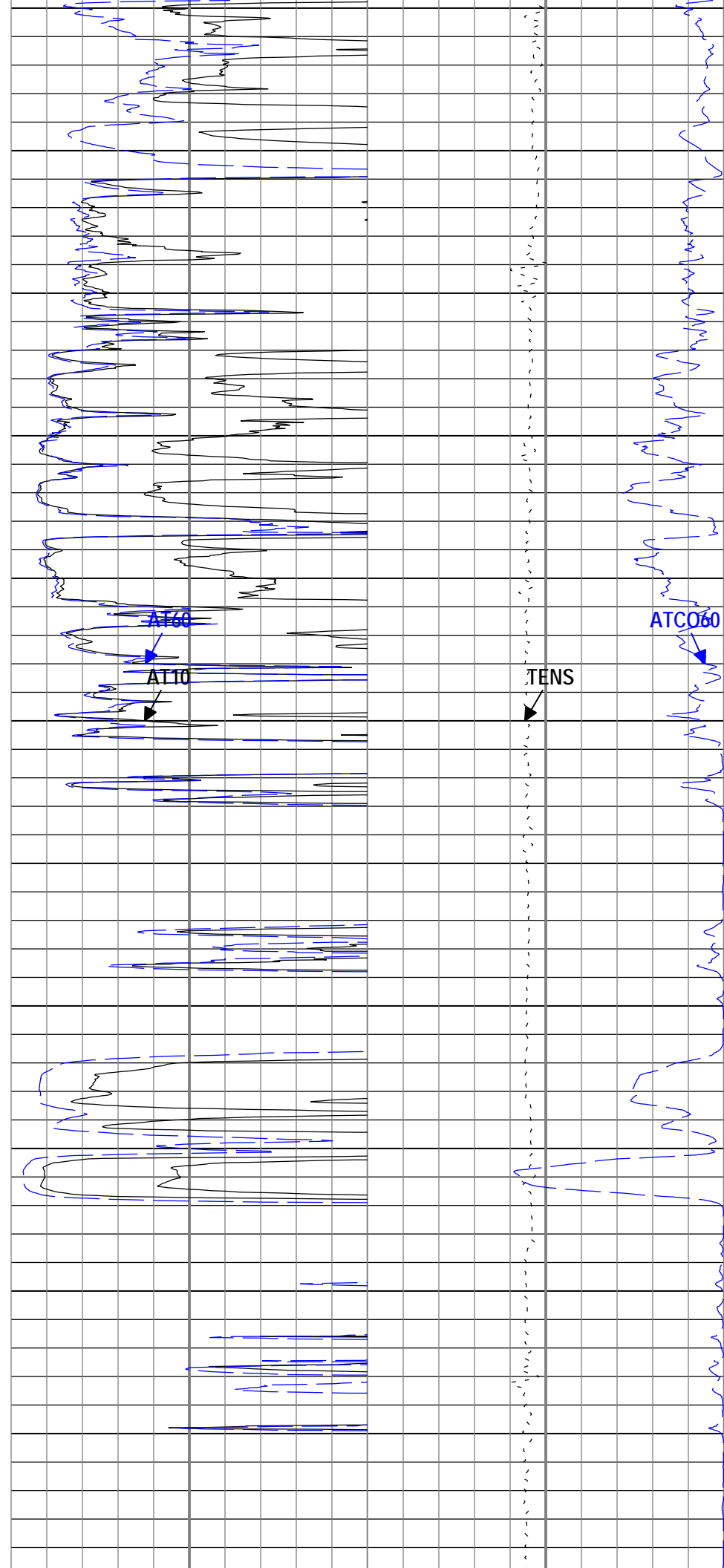
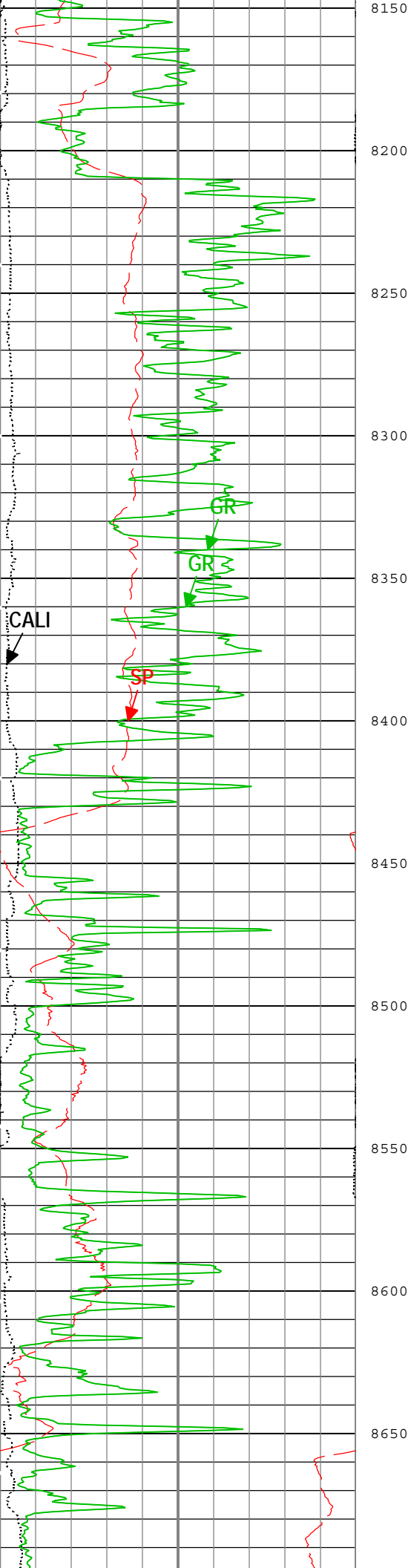
Depth scale: 0, 16, 40, 160 ft. Unit: in.

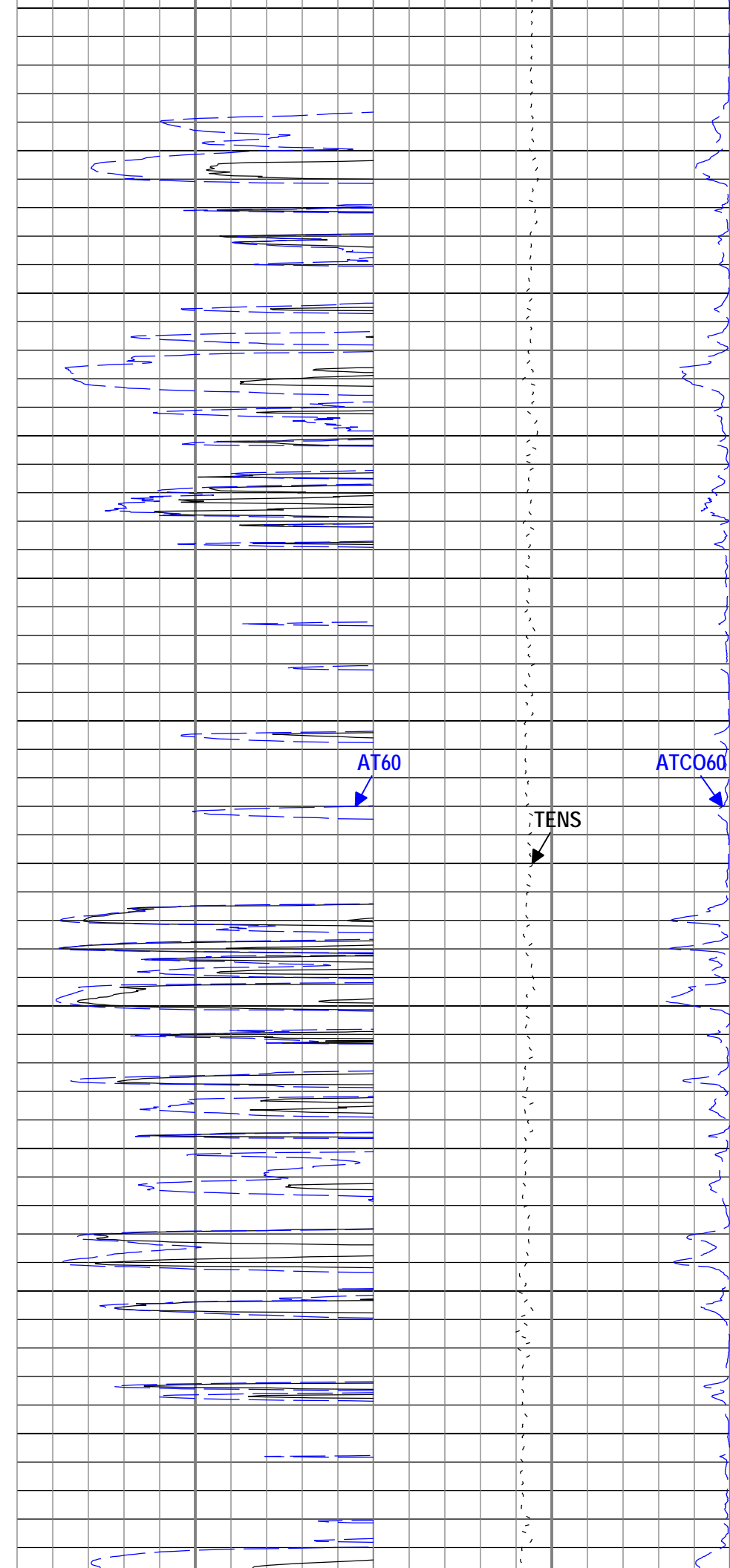
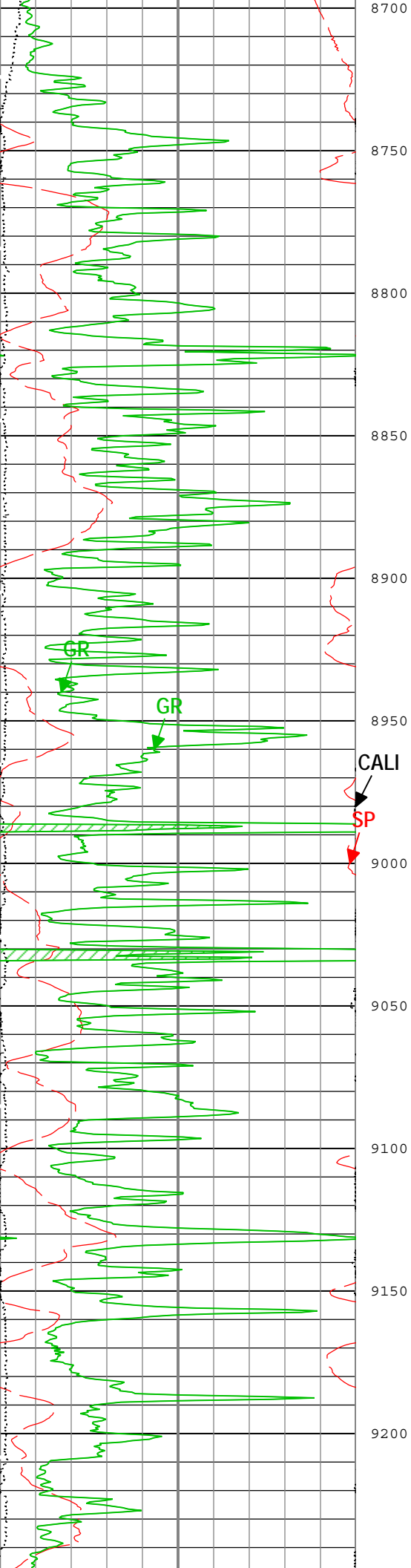
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	50
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0	ohm.m	50
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	10

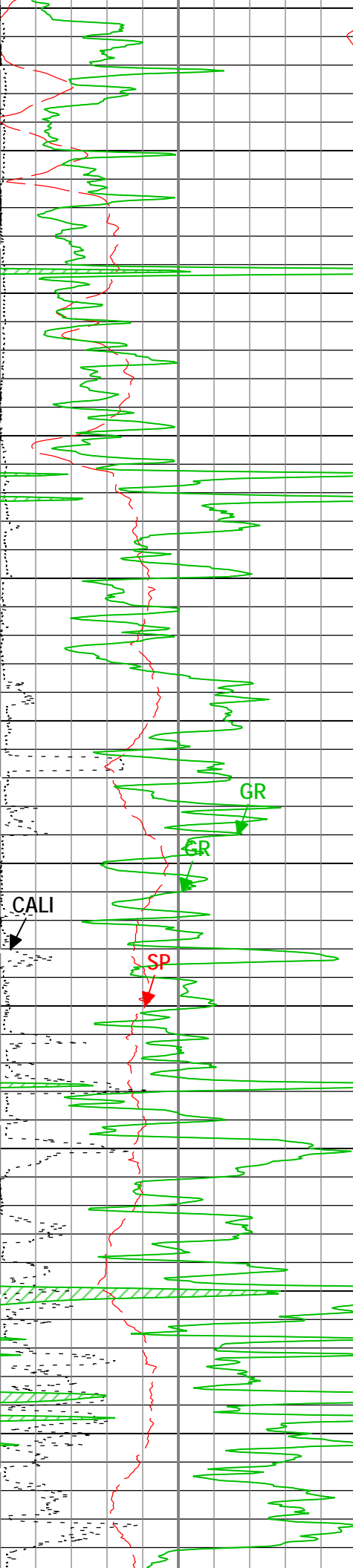
	Cable Tension (TENS)	
5000	lbf	(
Array Induction Two Foot Conductivity A60 (ATCO60) AIT-M		
1000	mS/m	(



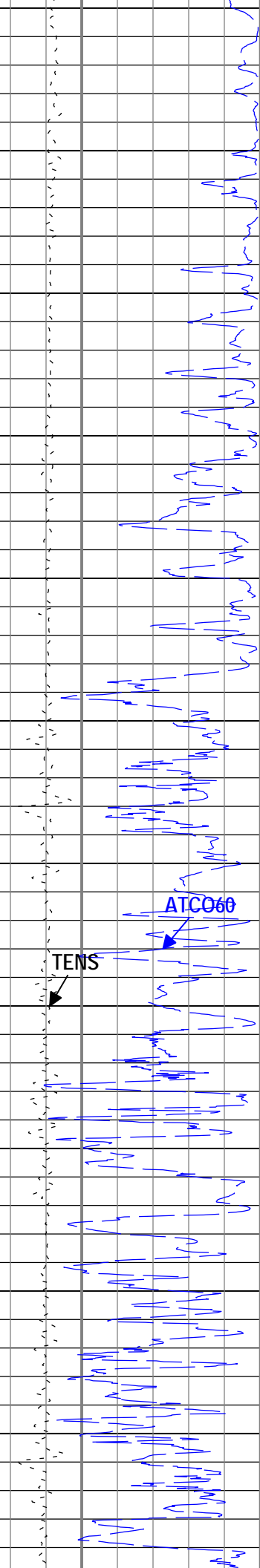
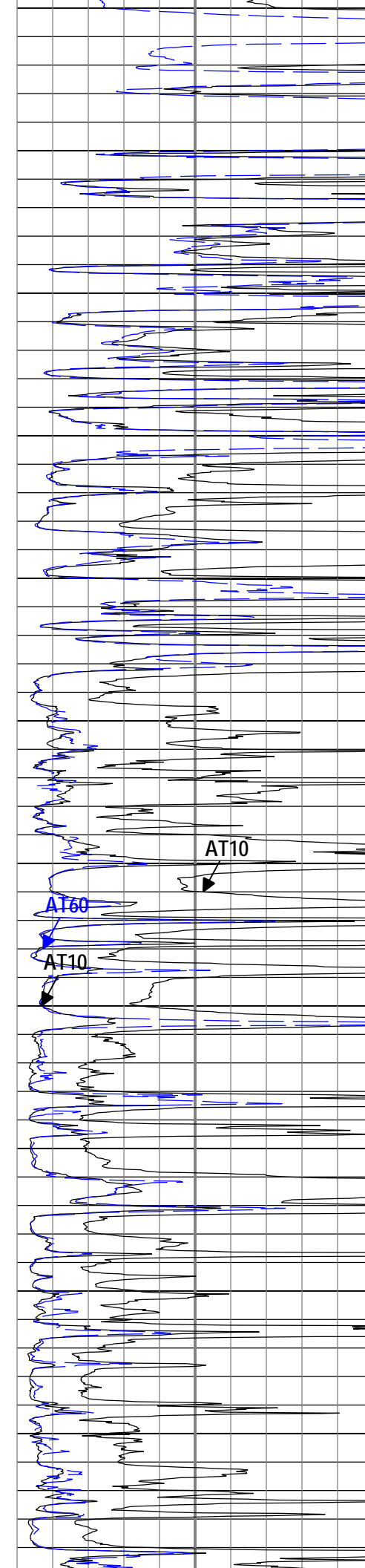


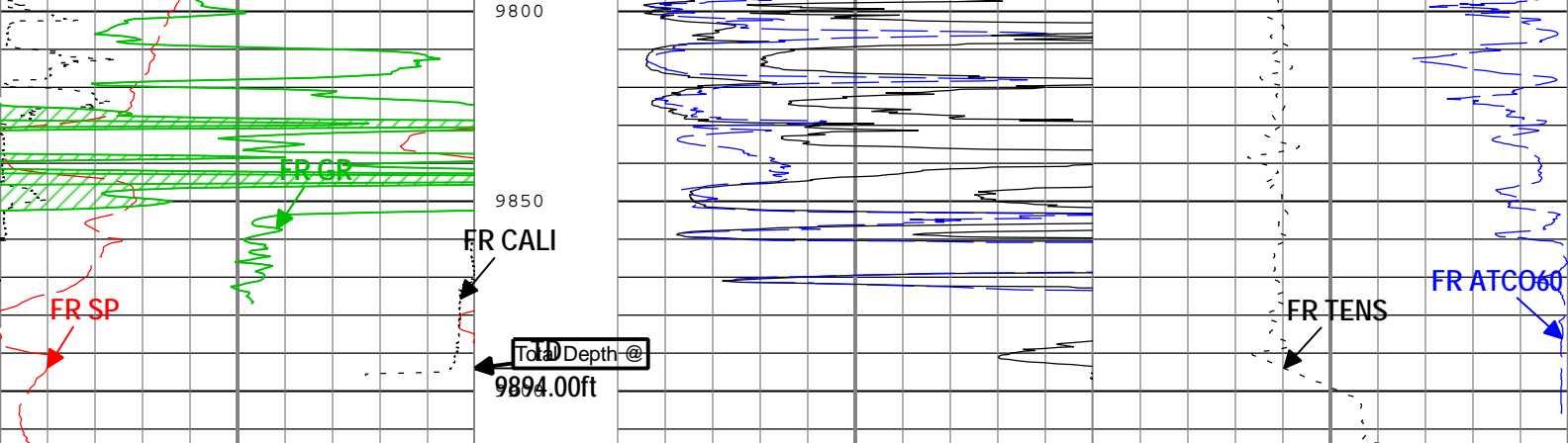






9250
9300
9350
9400
9450
9500
9550
9600
9650
9700
9750





Gamma Ray Backup		
Spontaneous Potential (SP) AIT-M		
-160	mV	40
Caliper (CALI) HDRS-H		
6	in	16
Gamma Ray (GR) HGNS-H		
0	gAPI	200

Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	50
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0	ohm.m	50
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	10

Cable Tension (TENS)		
5000	lbf	0
Array Induction Two Foot Conductivity A60 (ATCO60) AIT-M		
1000	mS/m	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)

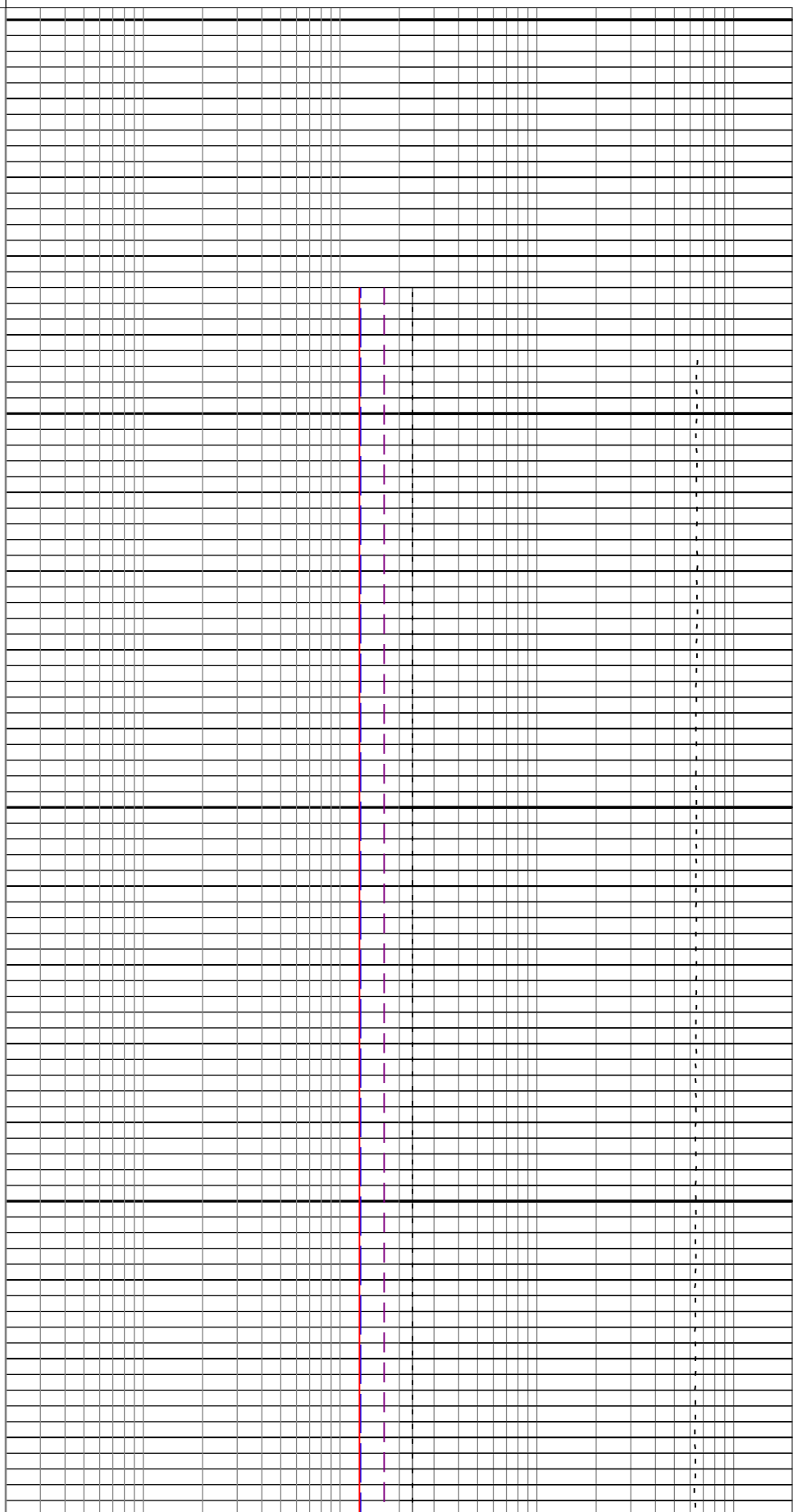
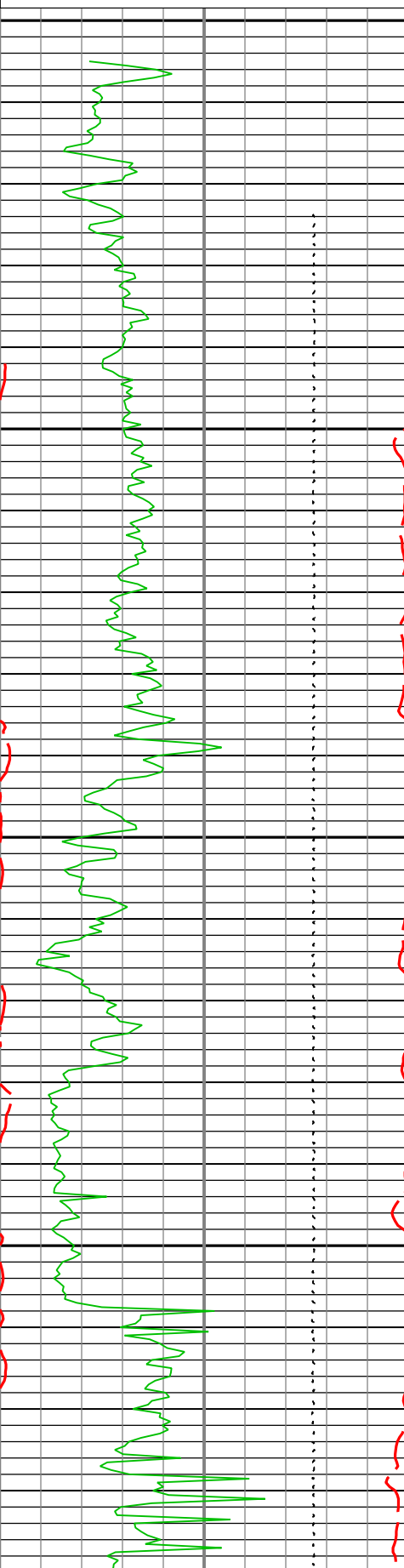
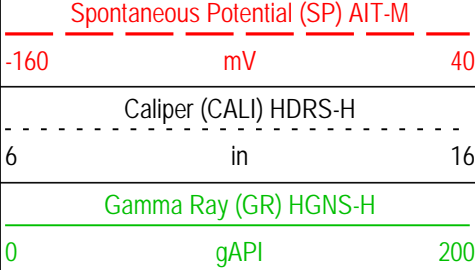
Description: AIT Basic Log Two Format: Log (Import of Kerr McGee 2in Induction) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured
Depth Creation Date: 25-Aug-2014 20:30:47

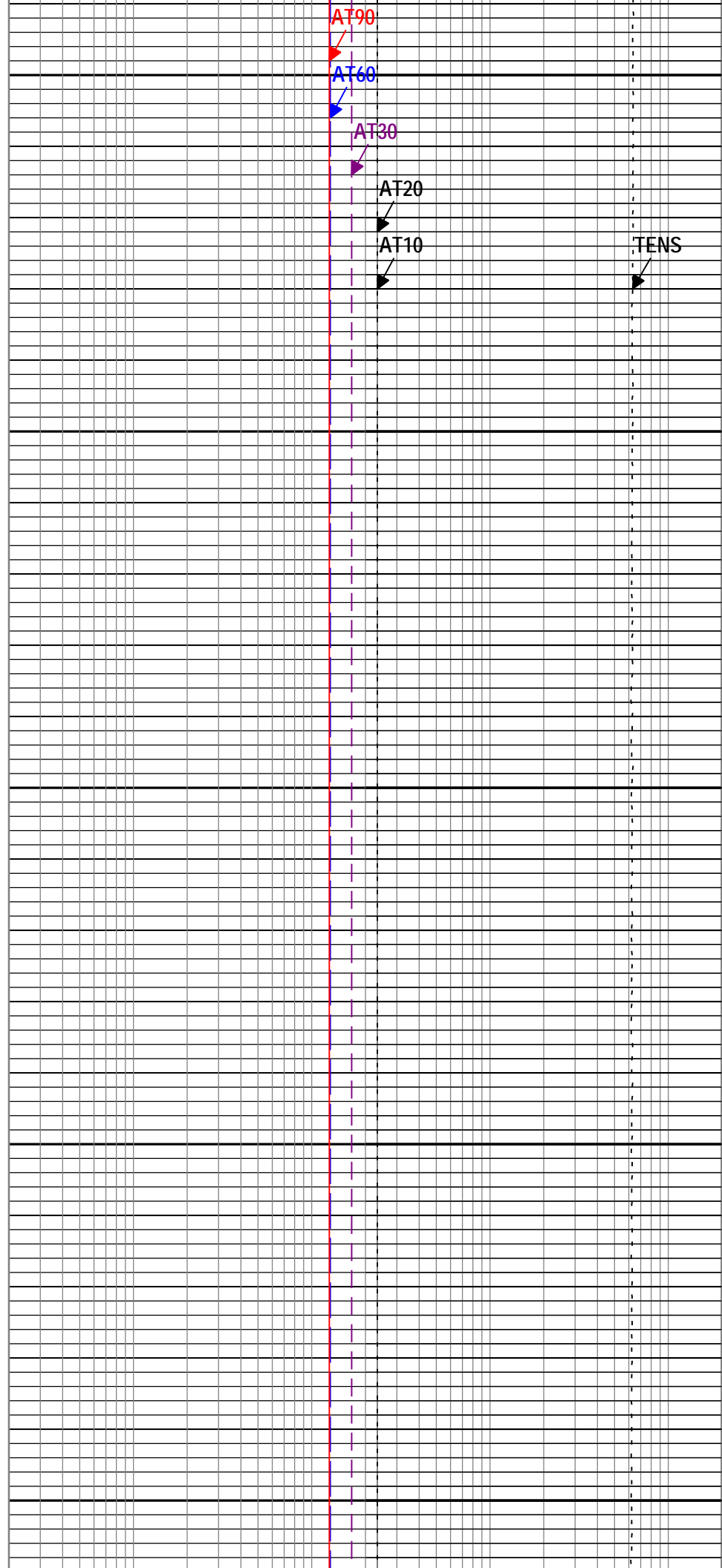
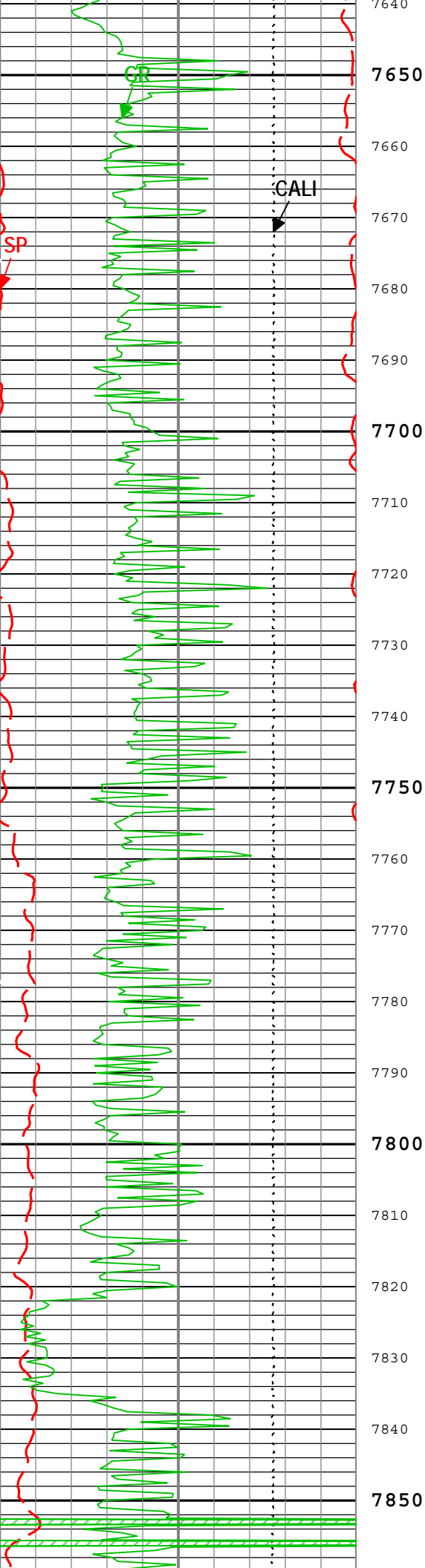
Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	0.6	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	6.125	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.3	in
CBLO	Casing Bottom (Logger)	WLSESSION	8084	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
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	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

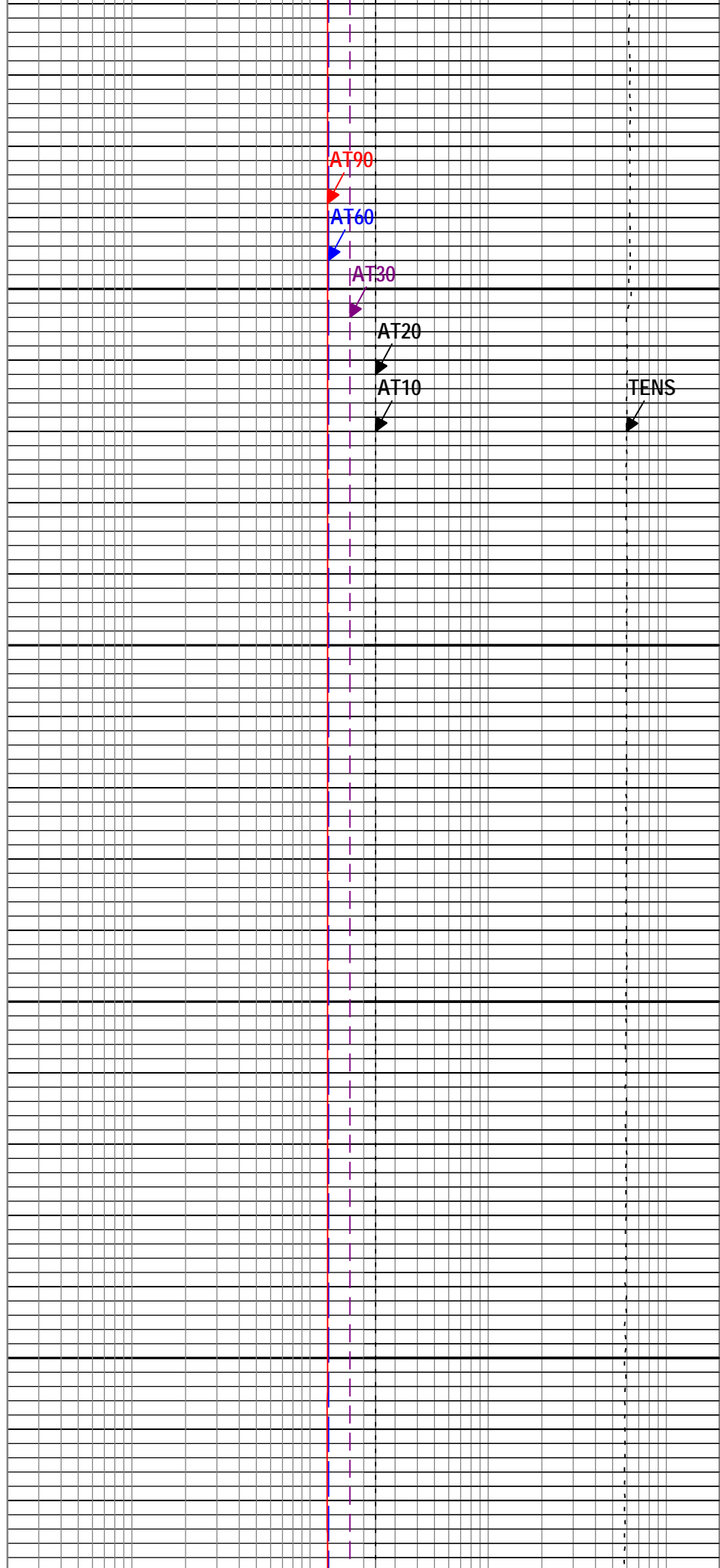
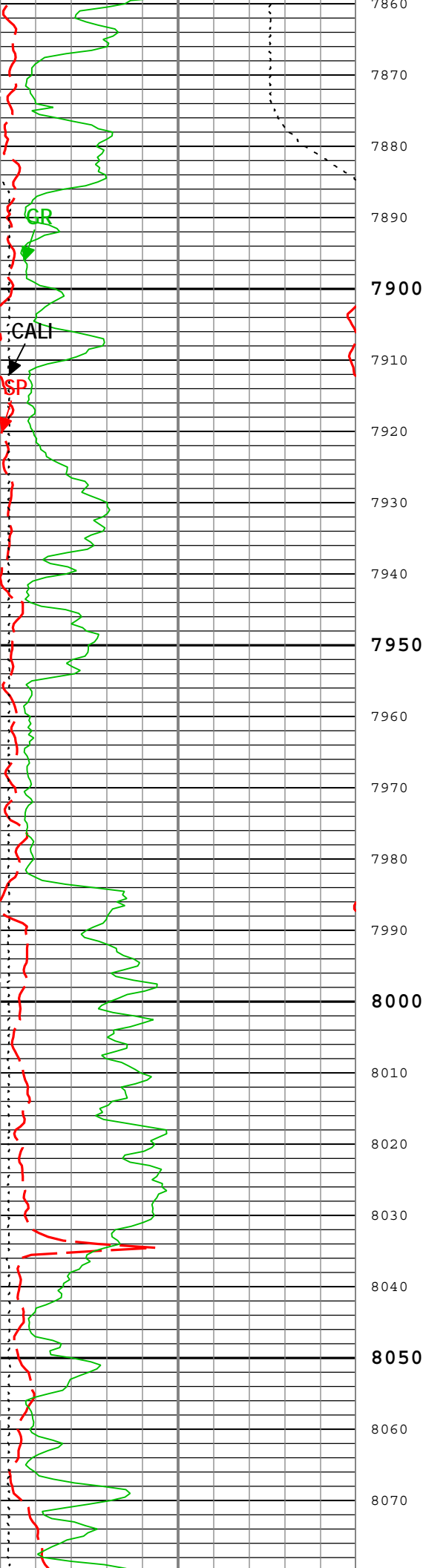
Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

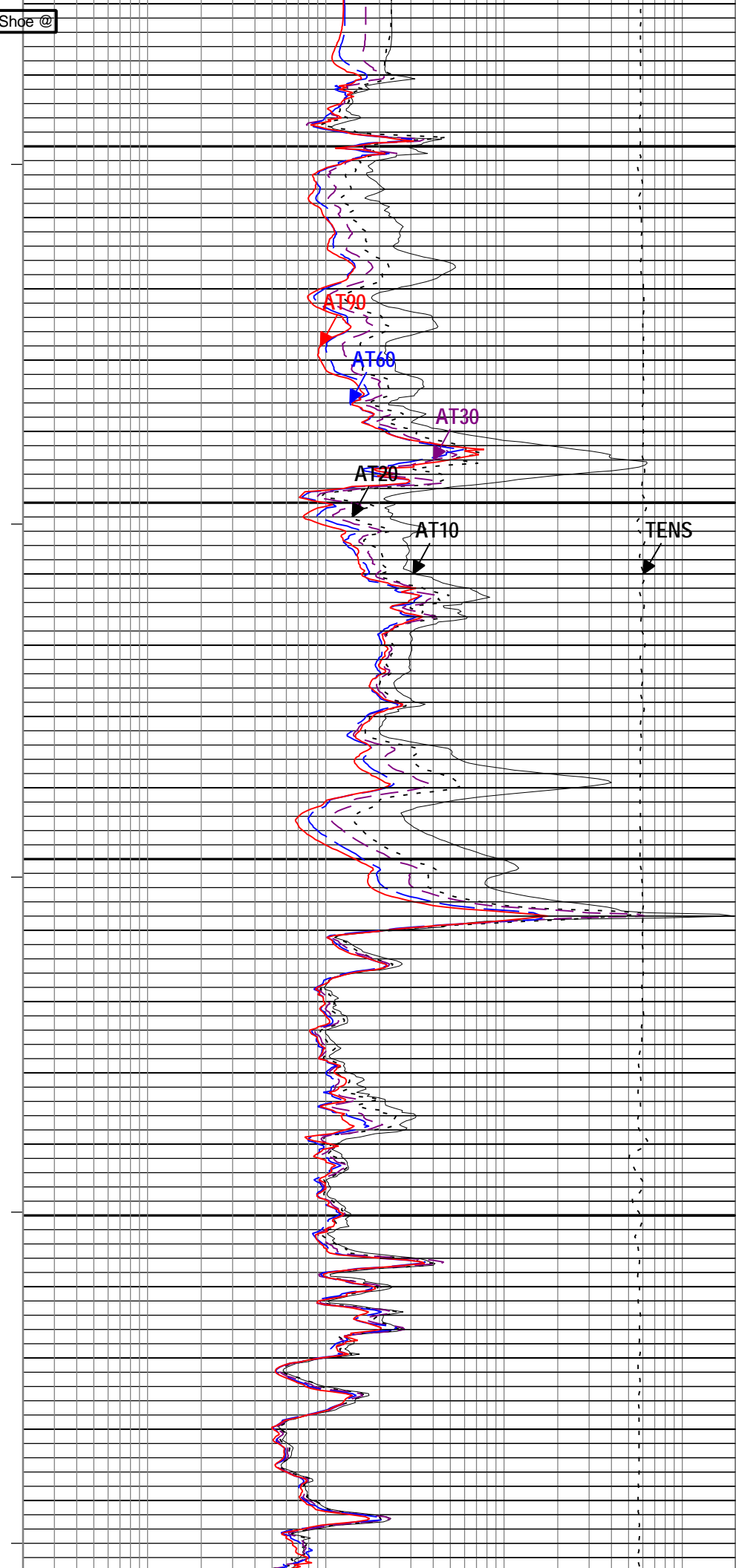
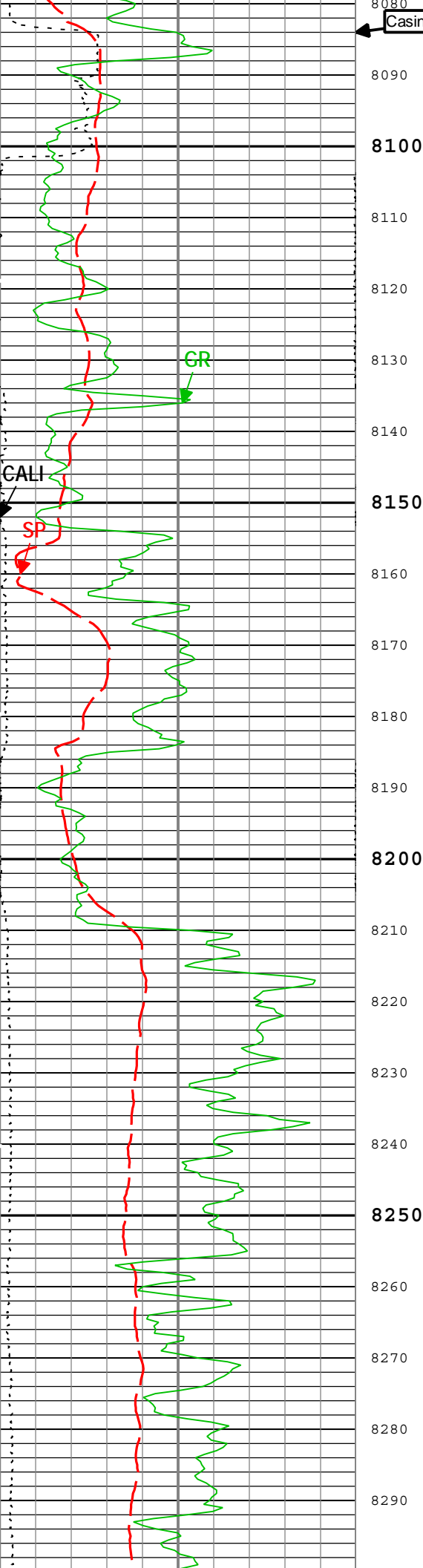
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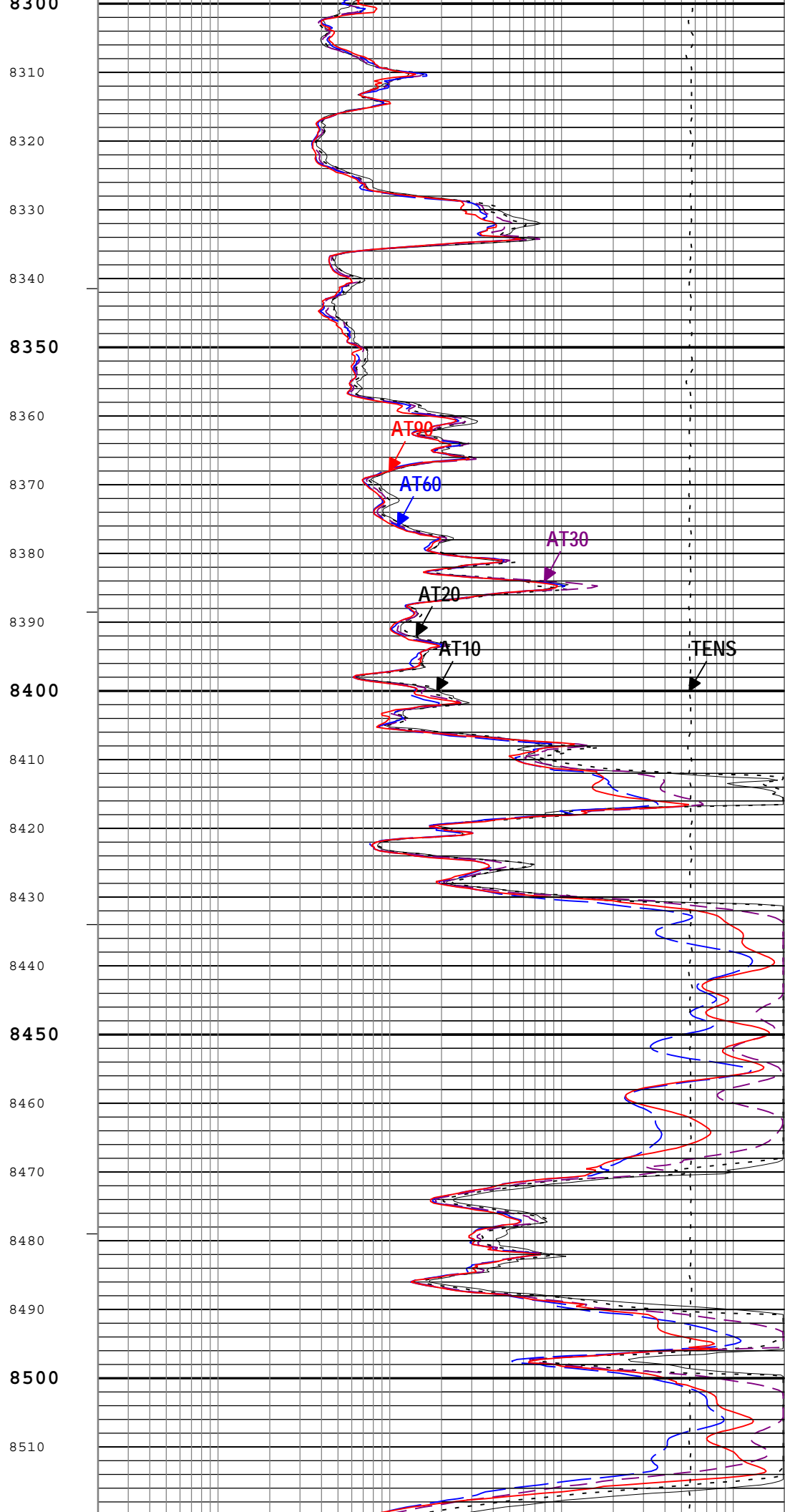
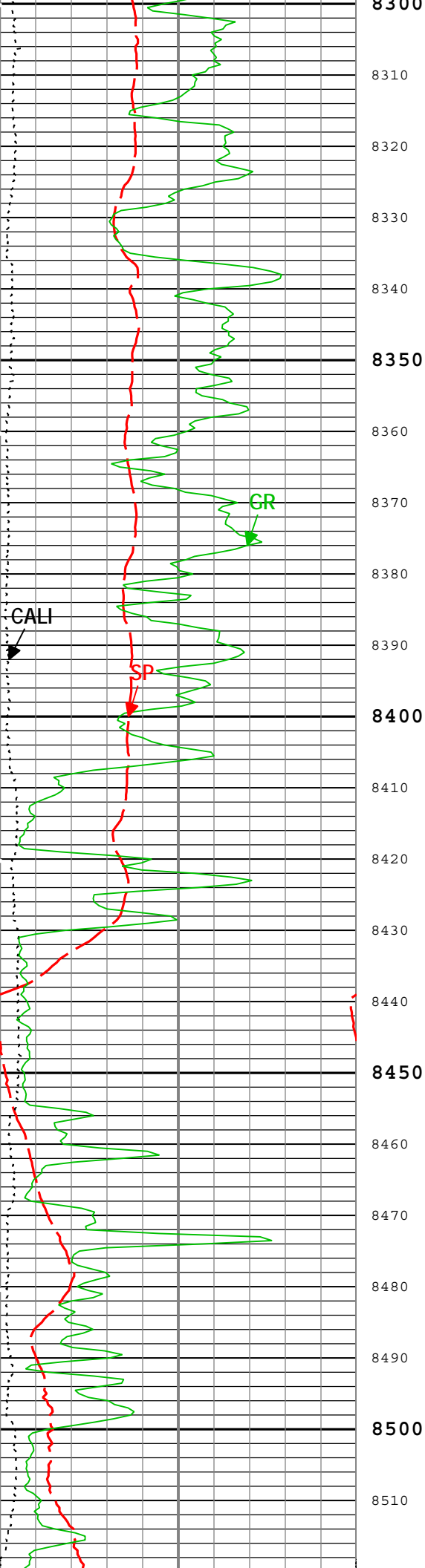
5" Induction

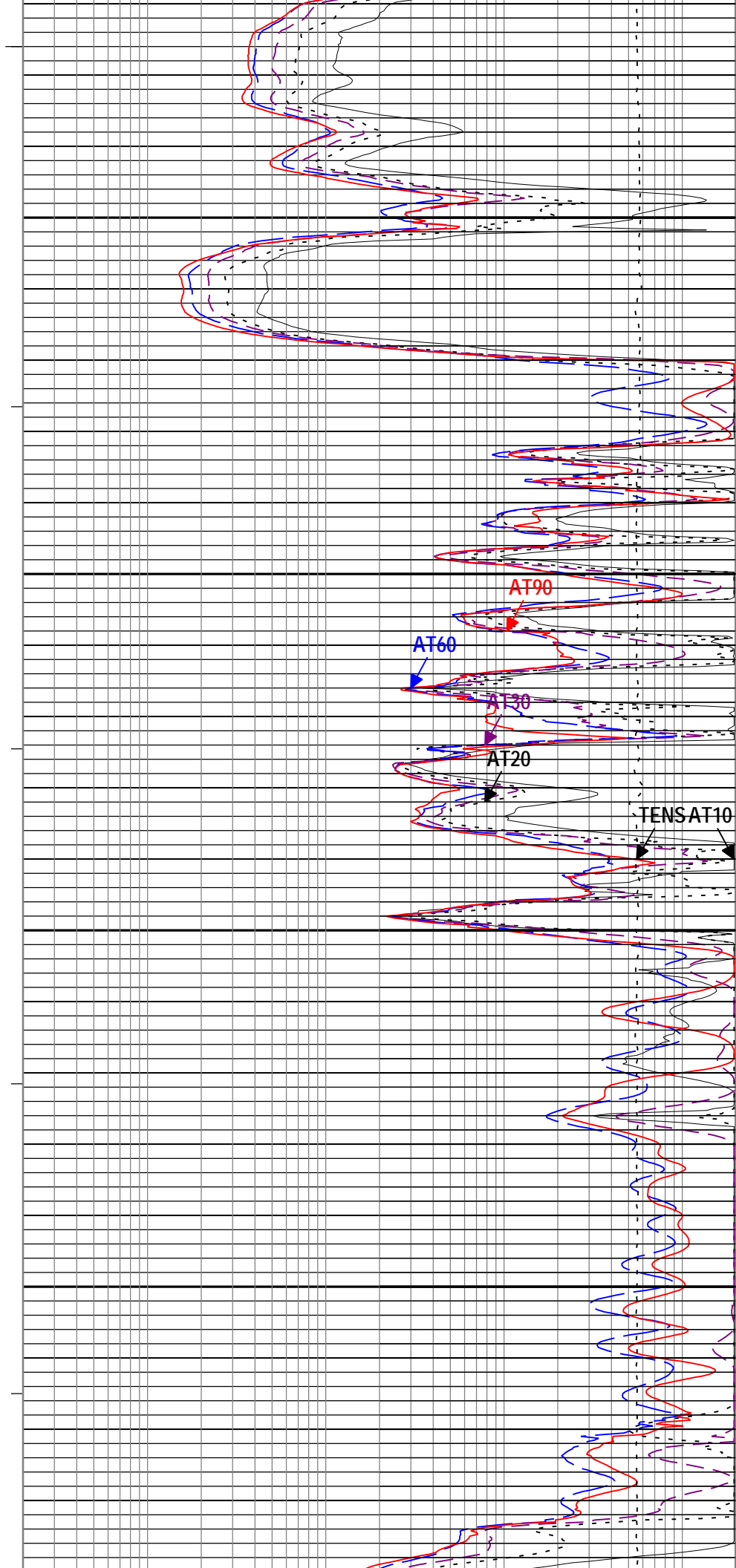
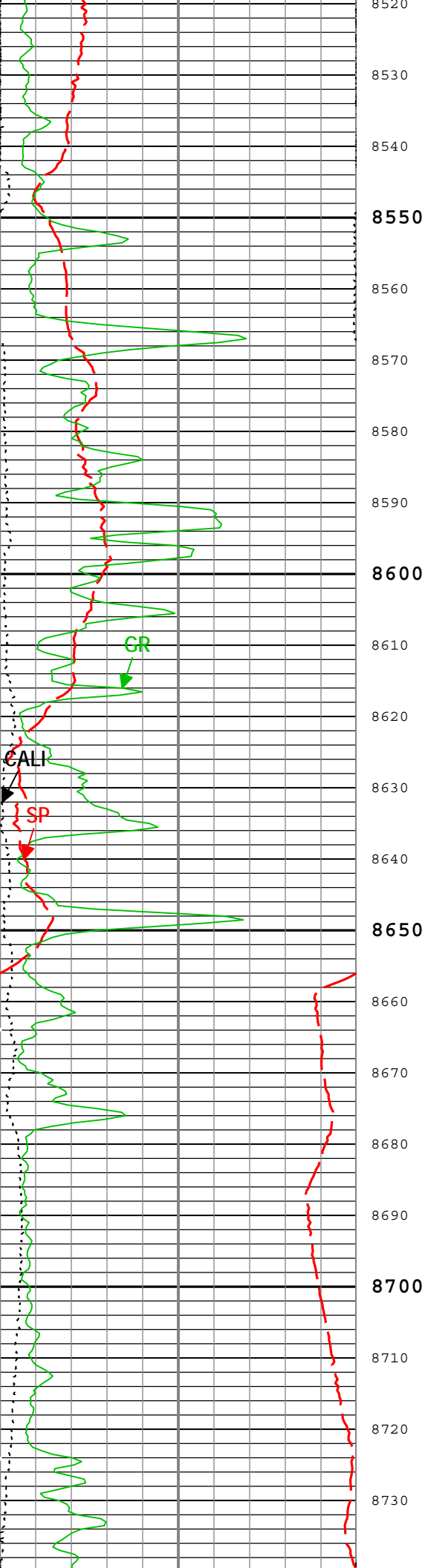


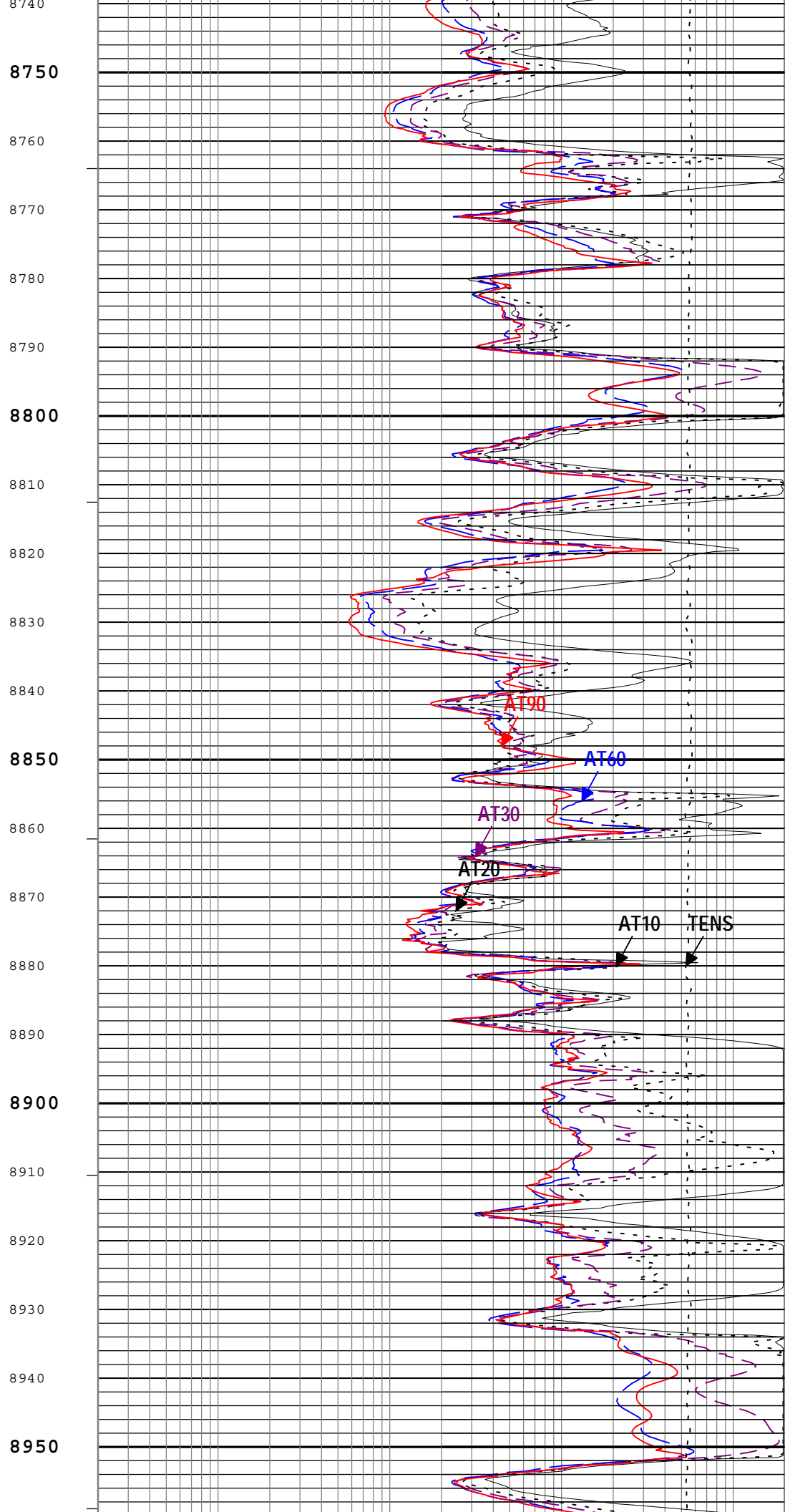
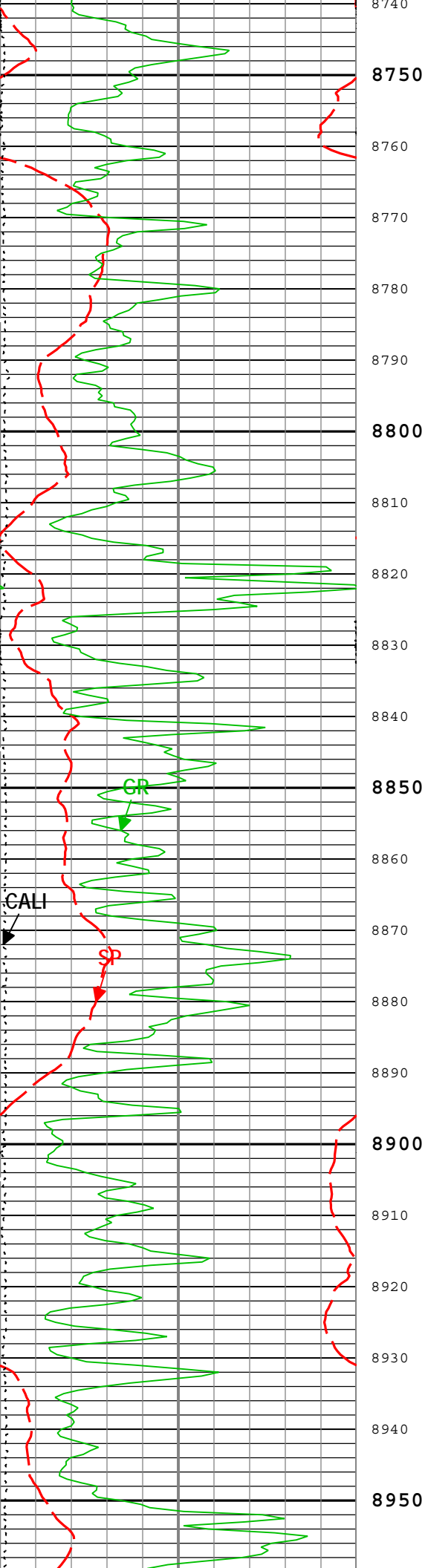


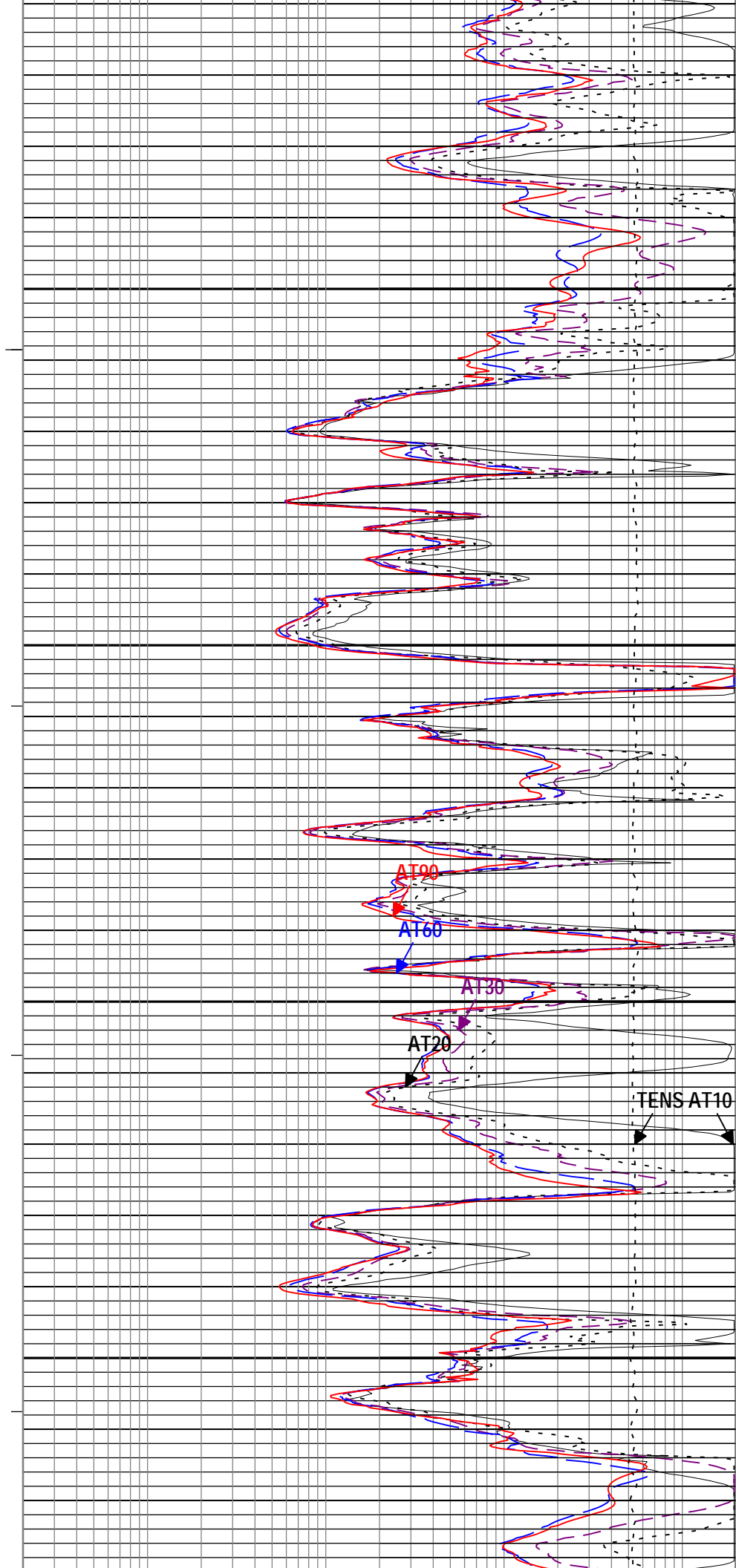
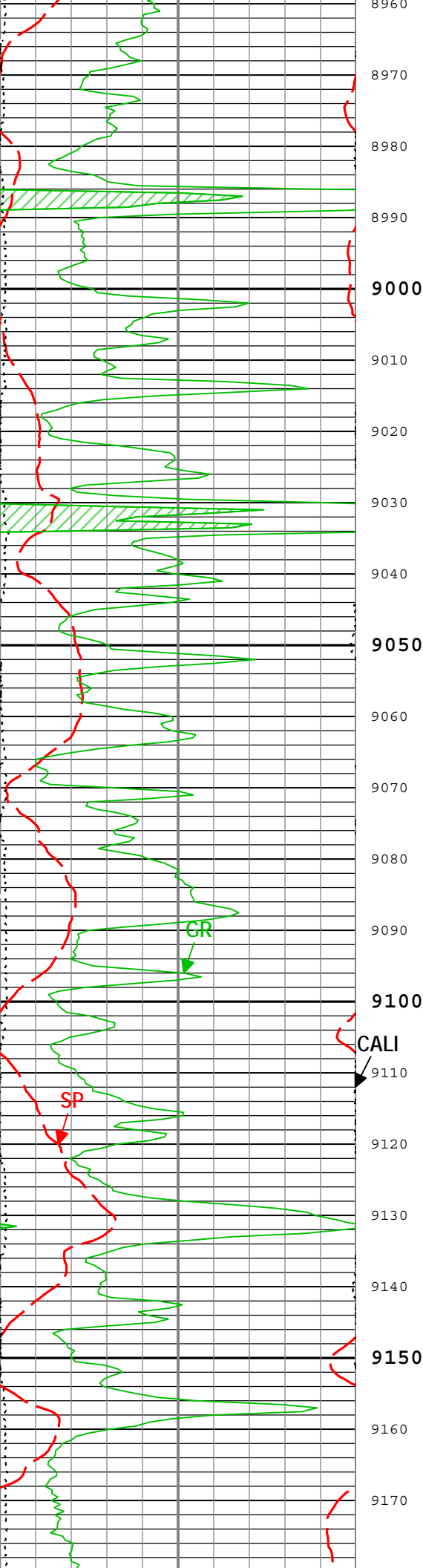


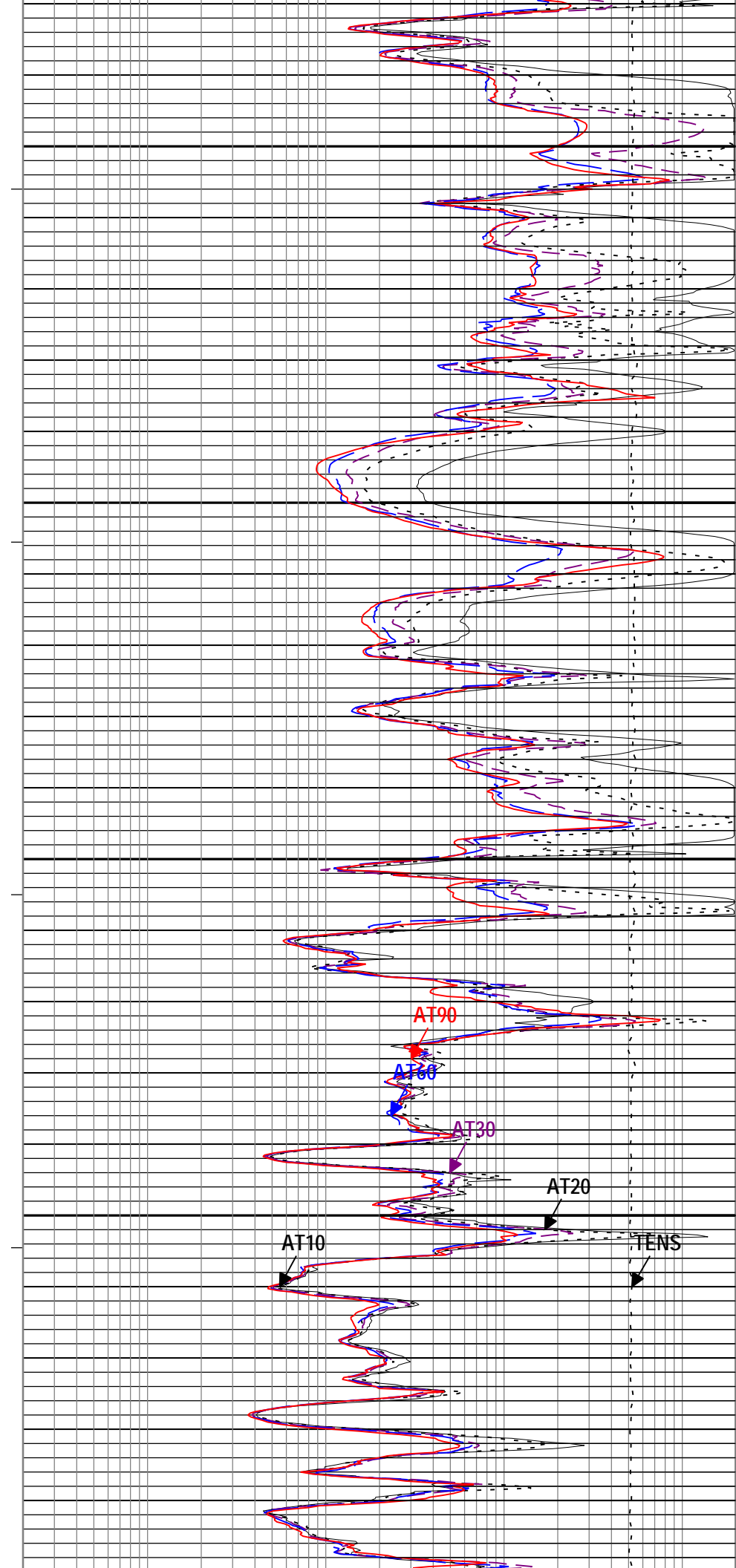
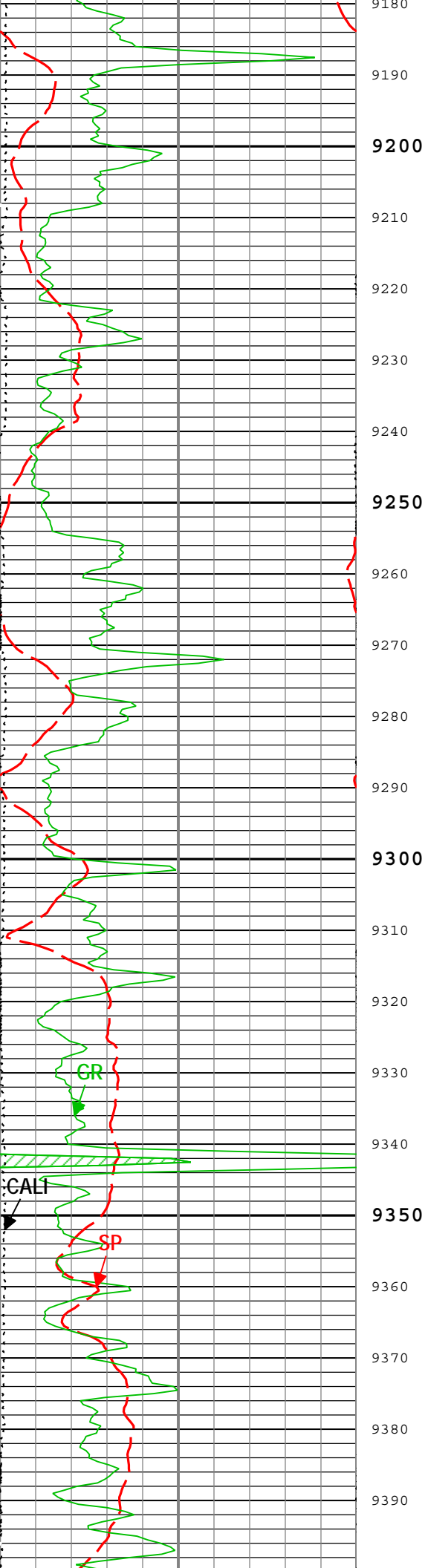


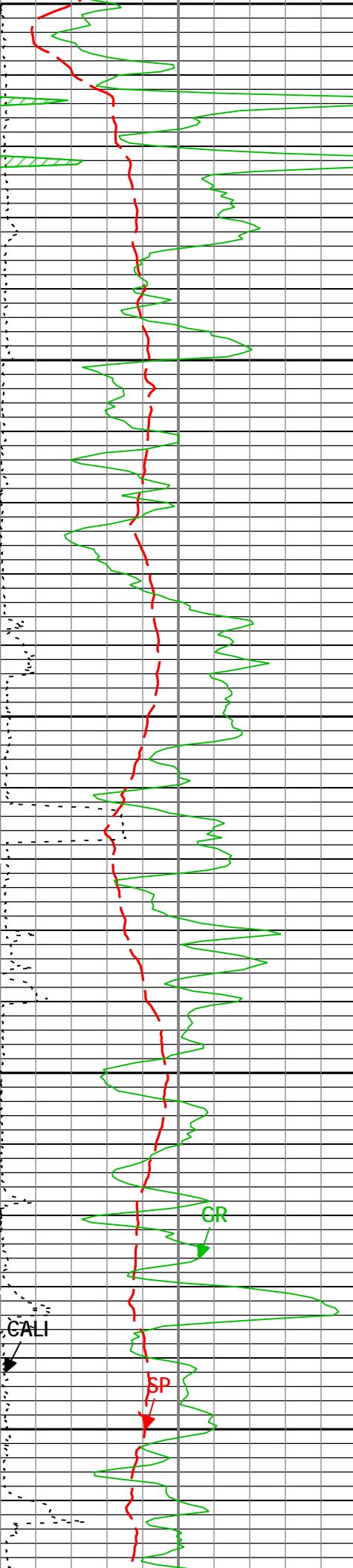












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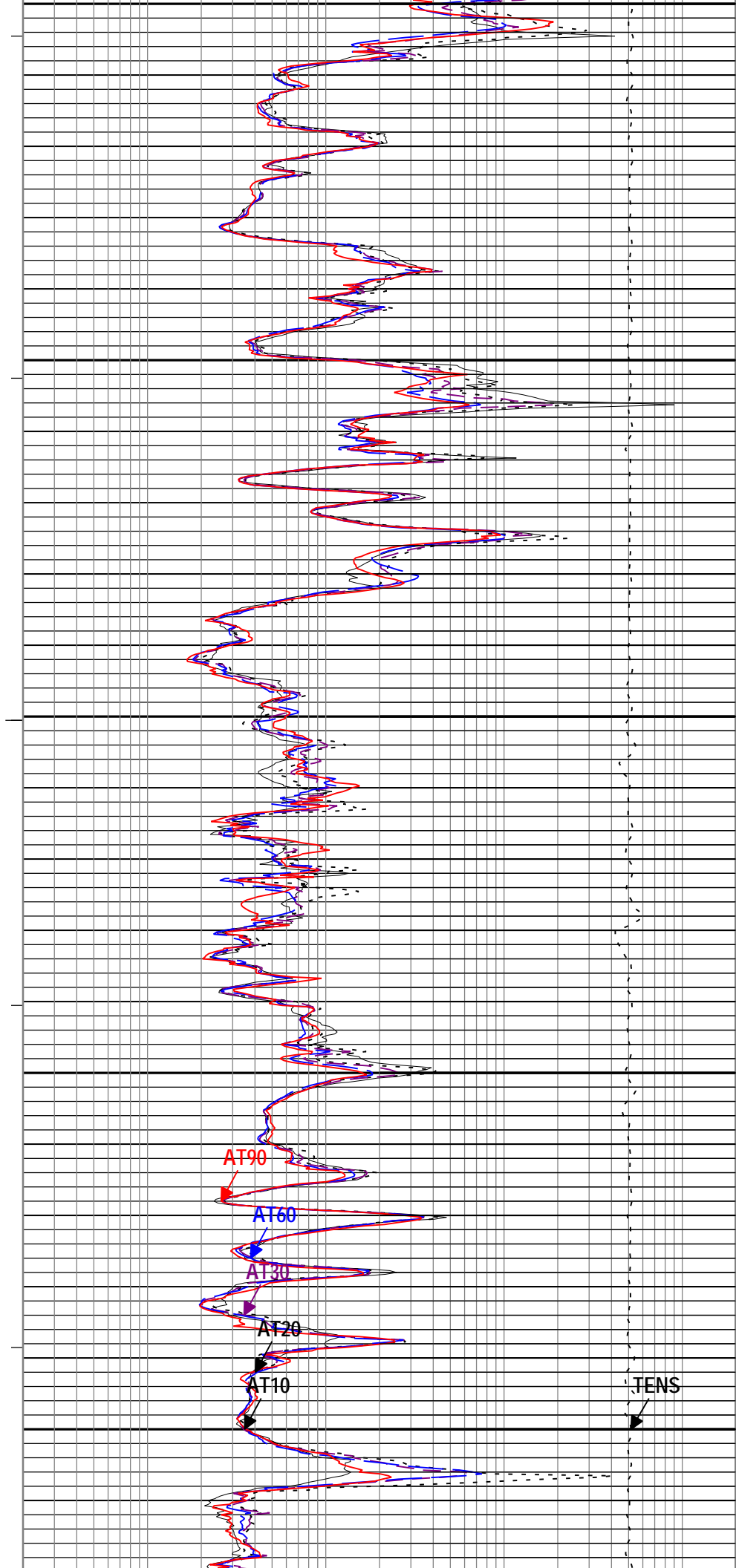
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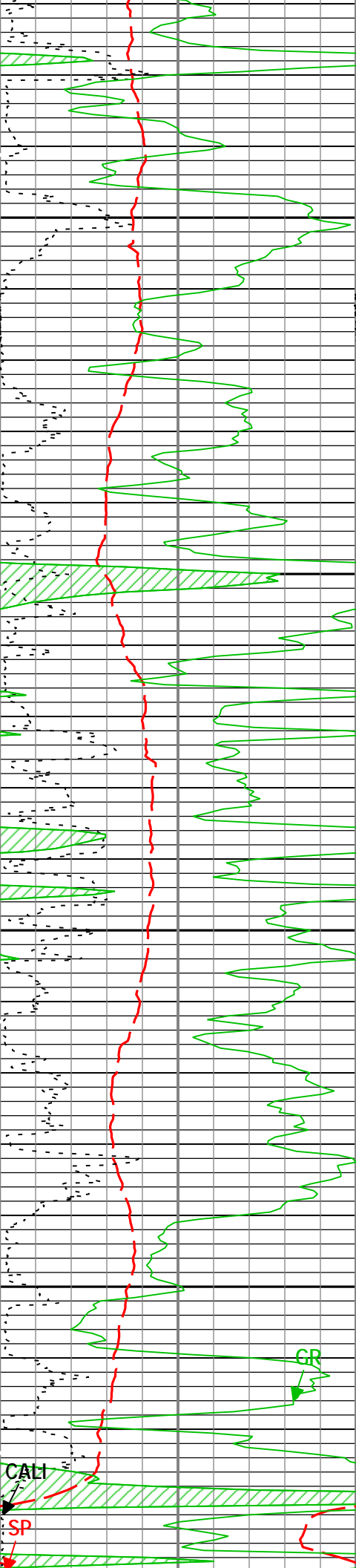
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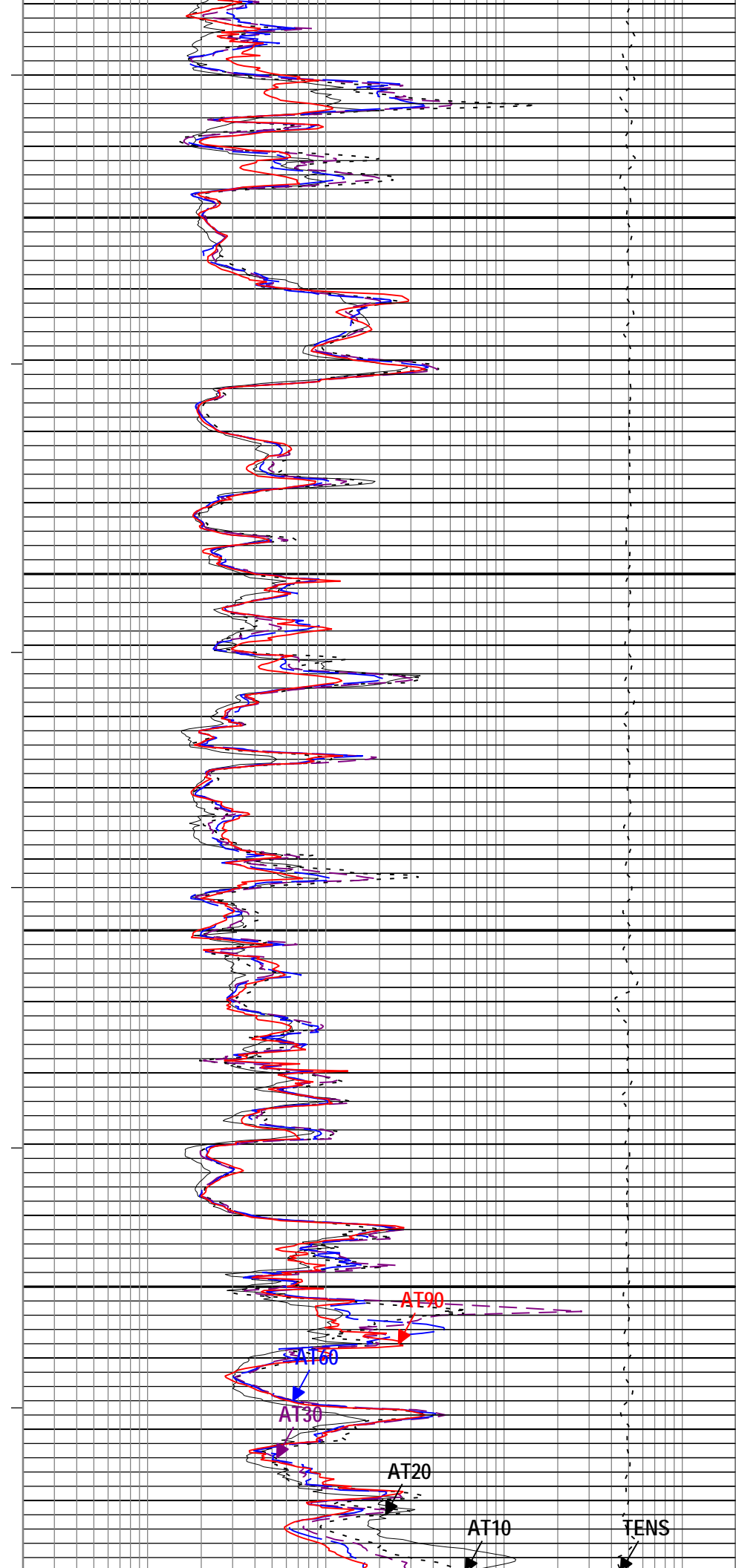
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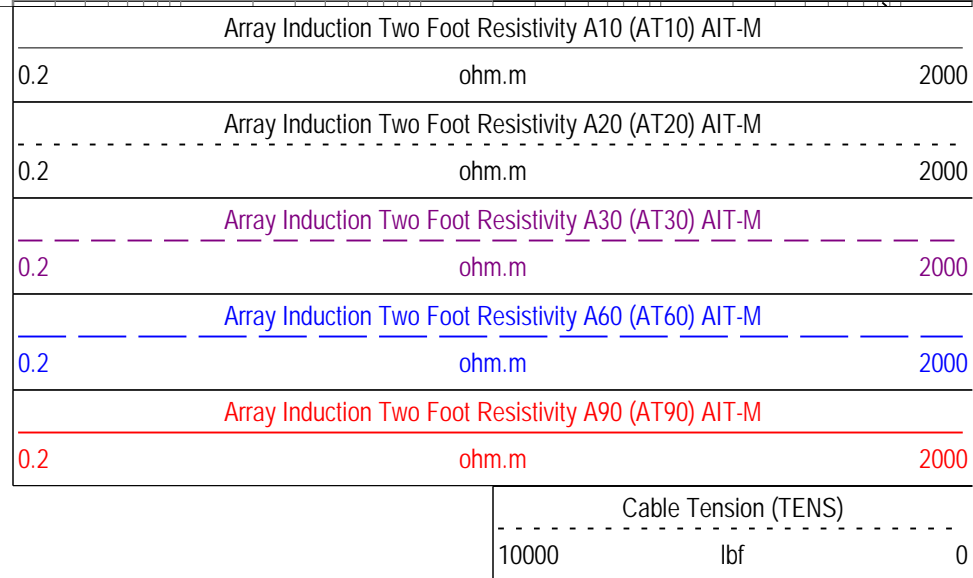
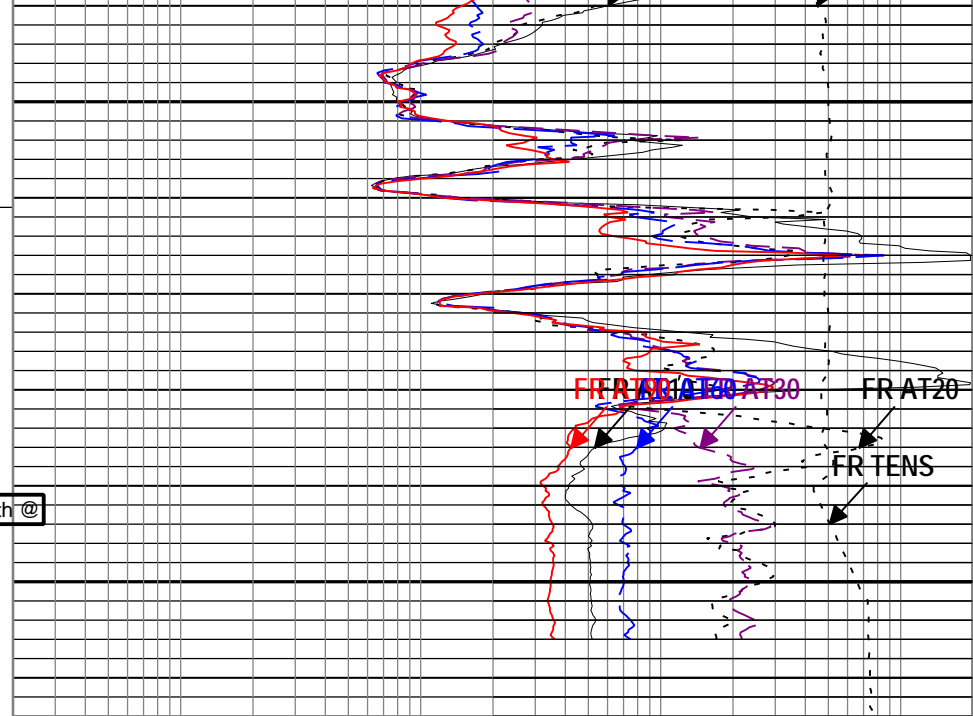
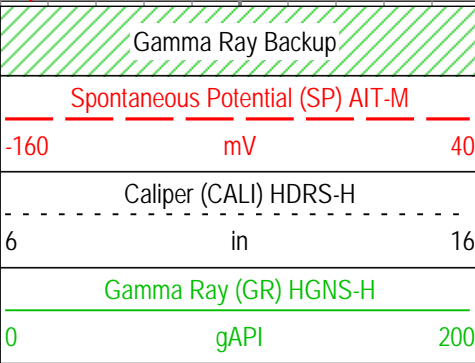
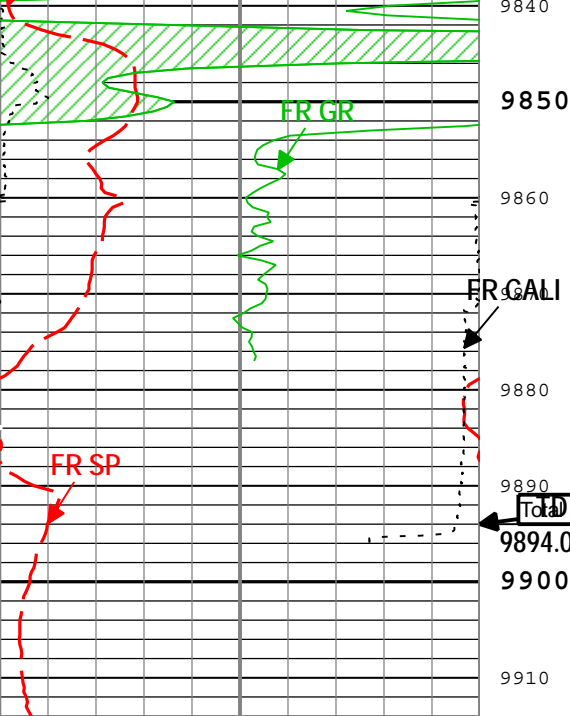
9610





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9690
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9780
9790
9800
9810
9820
9830





—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)

TIME_1900 - Time Marked every 60.00 (s)

Description: AIT Basic Log Two Format: Log (KM 5in Induction) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 25-Aug-2014 20:30:48

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	0.6	in
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	0.3	in
CBLO	Casing Bottom (Logger)	WLSESSION	8084	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in

DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
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	
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

Run1: PEX-AIT

5" Induction Repeat

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-AIT	Log[2]:Up	Up	9584.94 ft	9919.91 ft	25-Aug-2014 7:17:46 PM	25-Aug-2014 7:24:23 PM	ON	4.04 ft	Yes
Run1: PEX-AIT	Log[3]:Up	Up	7491.74 ft	9914.31 ft	25-Aug-2014 7:27:20 PM	25-Aug-2014 8:04:48 PM	ON	4.30 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Expedition Water Solution LLC Well:EWS 1 Run1: PEX-AIT: Log[3]:Up:S003
-----	--

Description: AIT Basic Log Two Format: Log (KM 5in Induction RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 25-Aug-2014 20:30:49

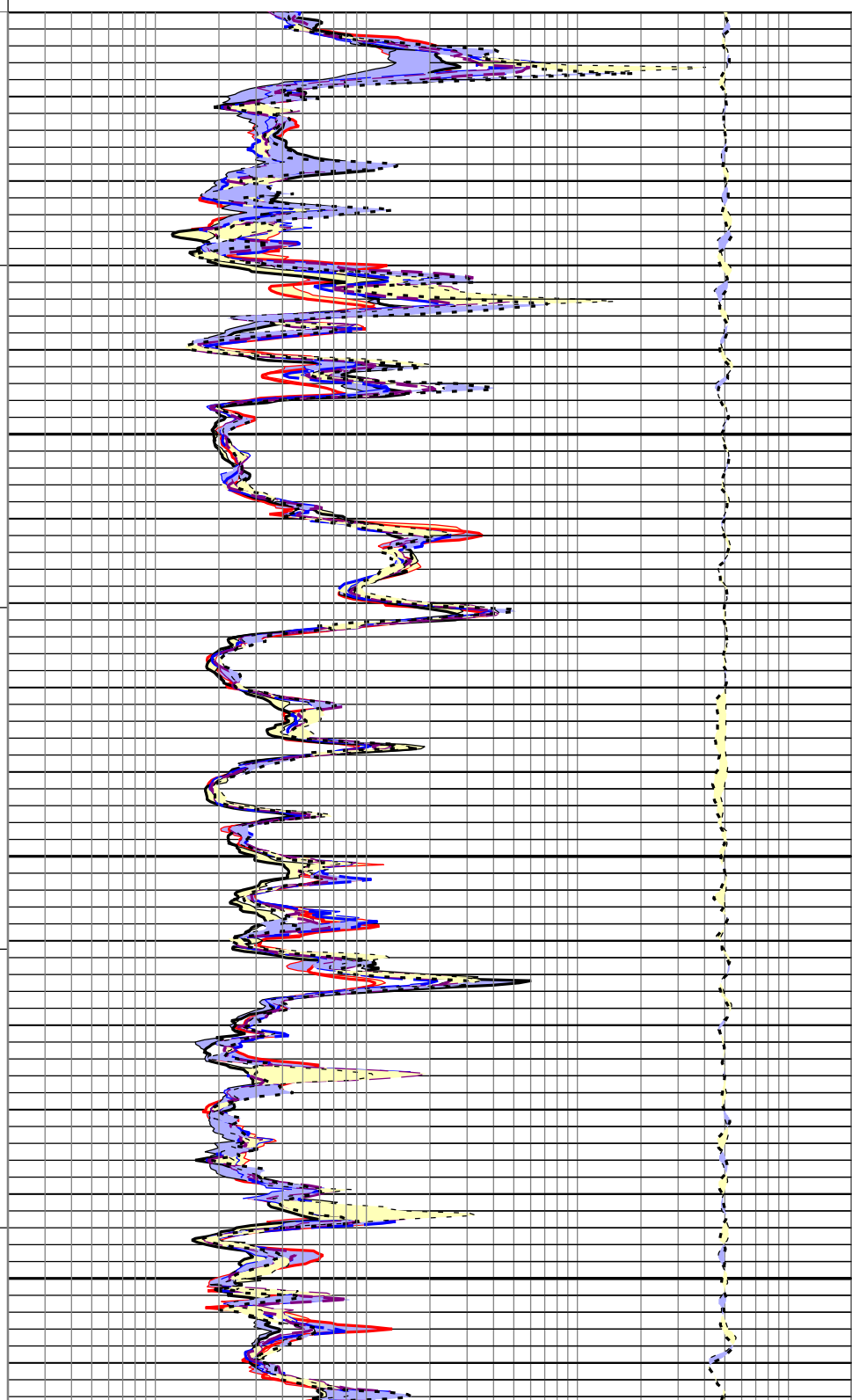
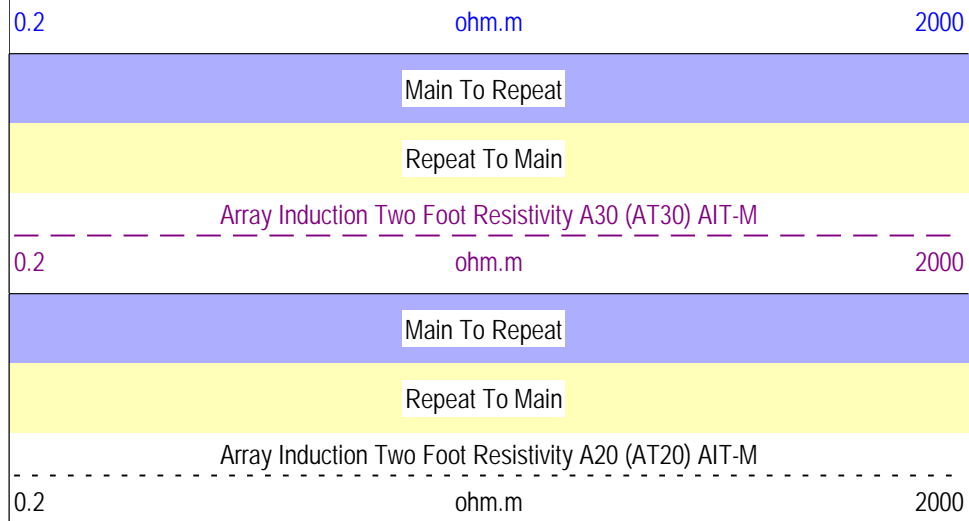
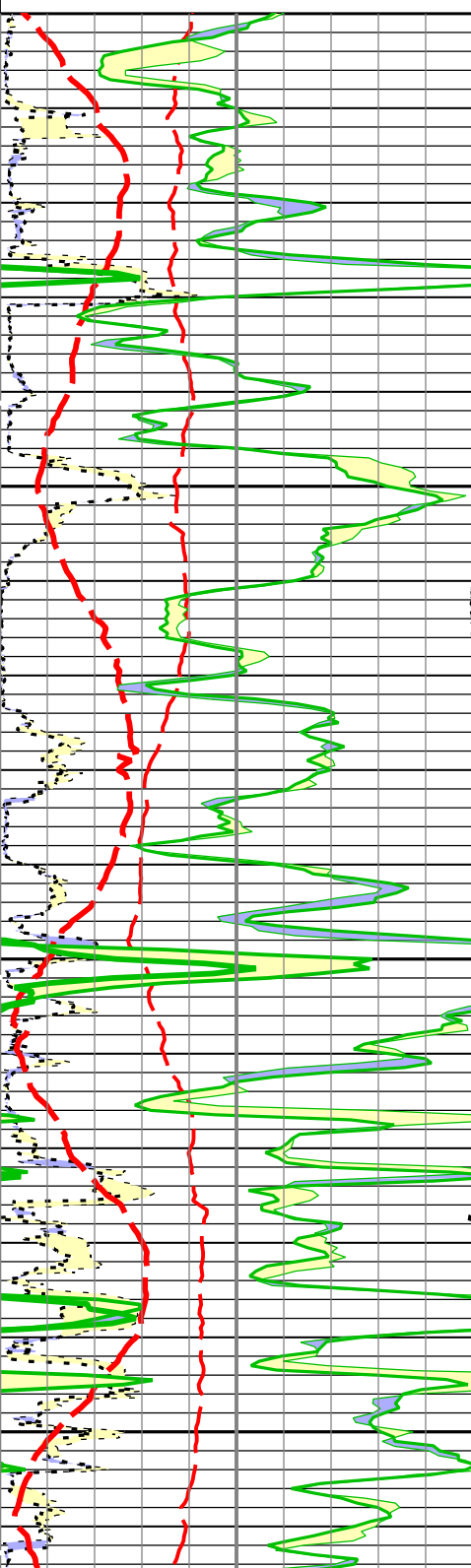
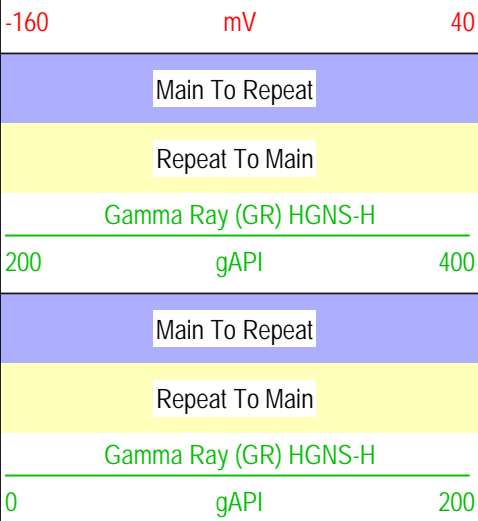
—IHV - Integrated Hole Volume every 10.00 (ft3)
—IHV - Integrated Hole Volume every 100.00 (ft3)
—ICV - Integrated Cement Volume every 10.00 (ft3)
—ICV - Integrated Cement Volume every 100.00 (ft3)
TIME_1900 - Time Marked every 60.00 (s)

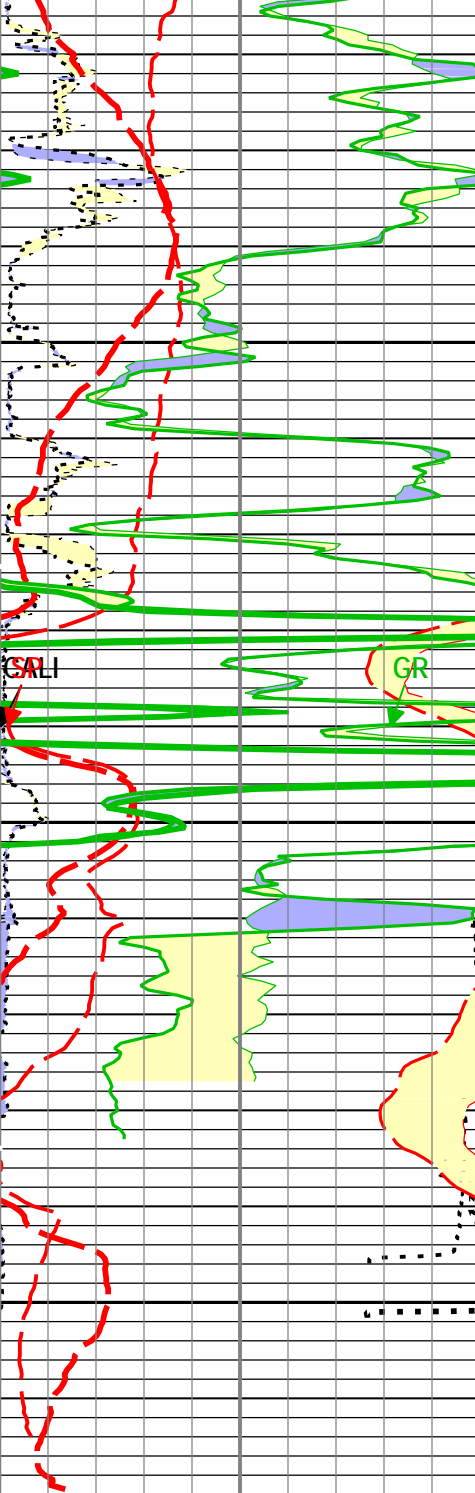
Main To Repeat		
Repeat To Main		
Cable Tension (TENS)		
10000	lbf	0

Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000

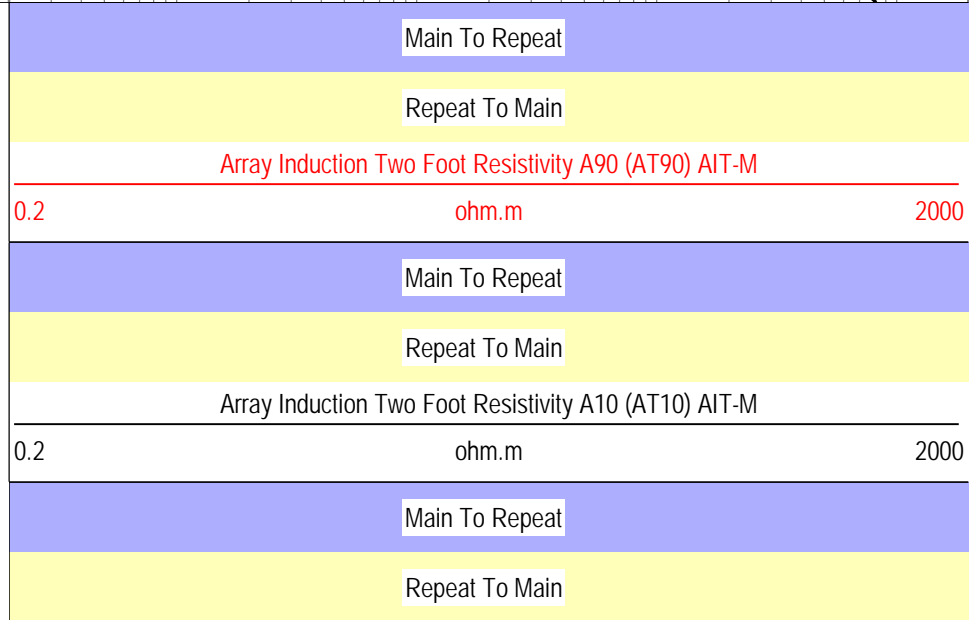
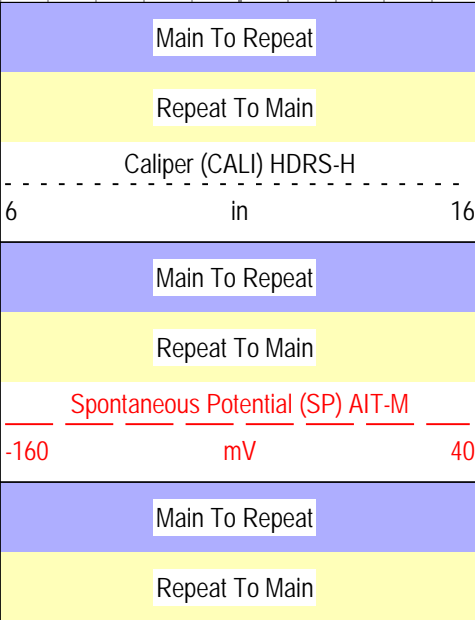
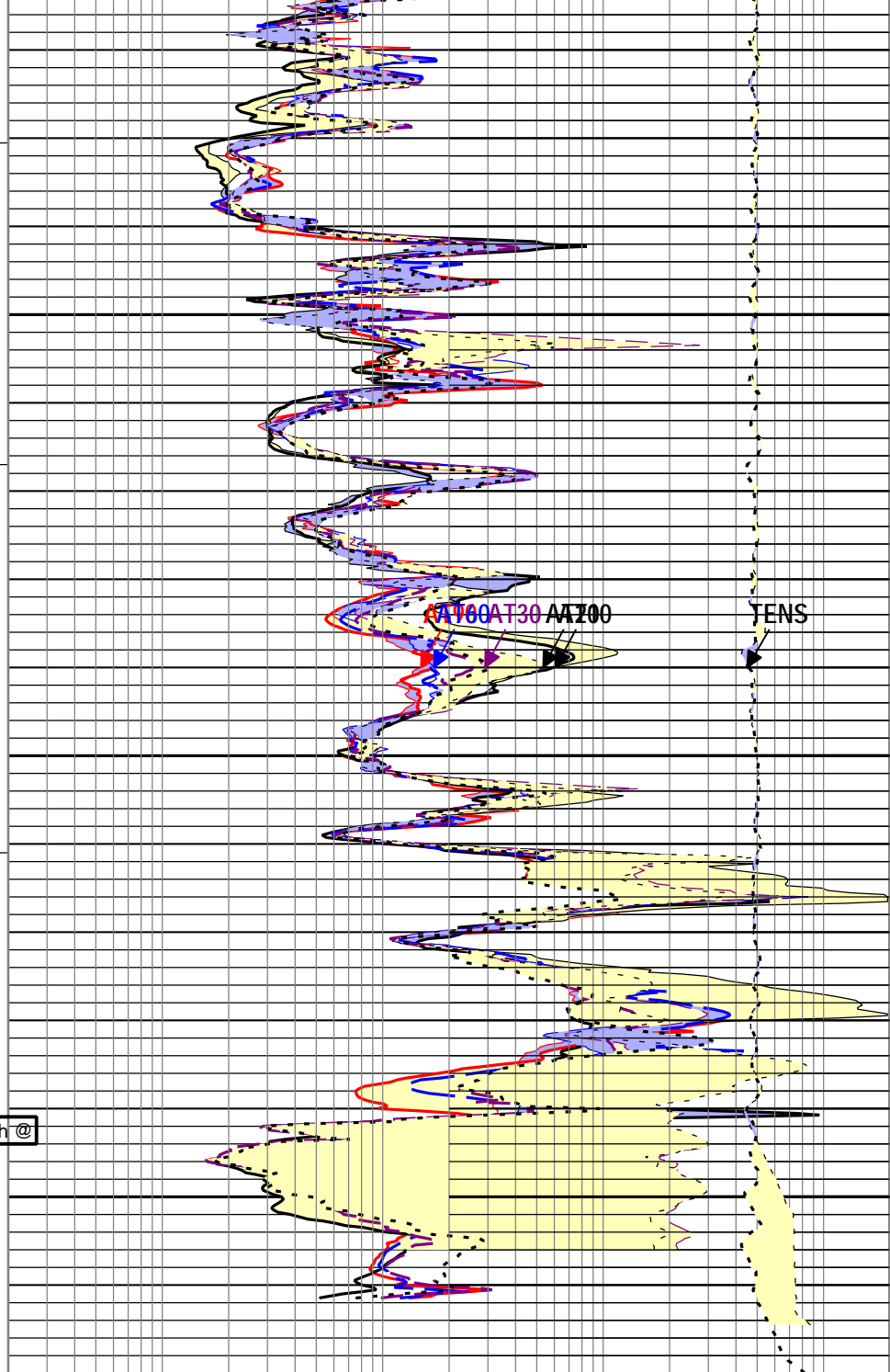
Main To Repeat		
Repeat To Main		
Caliper (CALI) HDRS-H		
6	in	16

Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Spontaneous Potential (SP) AIT-M		
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		





9770
9780
9790
9800
9810
9820
9830
9840
9850
9860
9870
9880
9890
9894.00ft
9900
9910



Gamma Ray (GR) HGNS-H		
200	gAPI	400
Main To Repeat		
Repeat To Main		
Gamma Ray (GR) HGNS-H		
0	gAPI	200

Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A20 (AT20) AIT-M		
0.2	ohm.m	2000

Main To Repeat		
Repeat To Main		
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 (KM 5in Induction RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 25-Aug-2014 20:30:49

Calibration Report							
AIT-M (Array Induction Tool - M) Calibration - Run Run1: PEX-AIT							
Primary Equipment :							
File code for AIT-MA Sonde Tool Element			AMIS		208		
Auxiliary Equipment :							
File code for AIT Bottom Nose Tool Element			AMRM				
AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		11:17:21 06-Jun-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	0.552	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.016	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.570	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	0.112	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.018	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.147	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.997	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.104	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.990	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.192	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.996	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.106	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.006	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.176	3.000	
AIT Sonde Calibration - Sonde Error Correction							
Master (EEPROM):		11:17:21 06-Jun-2014					

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-60.321	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-152.099	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	157.631	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	-188.161	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	120.726	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	-120.538	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	53.704	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	-29.010	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	27.120	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	-3.589	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	12.843	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	-11.841	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	10.355	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	7.536	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-2.018	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	1.586	30.000	

AIT Mud Calibration - Mud Calibration Gain



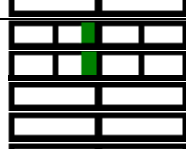
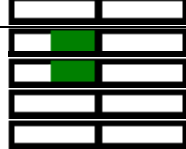
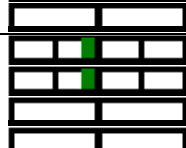

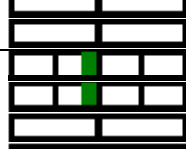

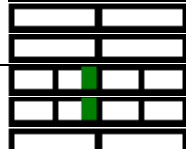
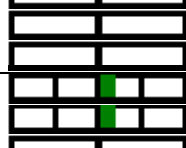
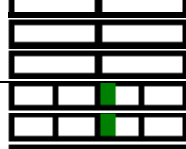

Master (EEPROM): 11:17:21 06-Jun-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.801	1.200	
Fine Gain		Master	1.000	0.800	0.802	1.200	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 11:17:21 06-Jun-2014 Before (Measured): 12:52:14 25-Aug-2014 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	-----	0.366	0.564	0.854	
		Before	-----	0.366	0.564	0.854	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.000	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 0	deg	Master	-----	137.000	-177.633	-103.000	
		Before	-----	137.000	-177.728	-103.000	
		After	-----	----	----	-----	
		Before-Master	-----	----	-0.095	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 1	V	Master	-----	0.762	1.156	1.778	
		Before	-----	0.762	1.156	1.778	
		After	-----	----	----	-----	
		Before-Master	-----	----	0.000	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 1	deg	Master	-----	136.000	-176.509	-104.000	
		Before	-----	136.000	-176.625	-104.000	
		After	-----	----	----	-----	
		Before-Master	-----	----	-0.116	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 2	V	Master	-----	0.372	0.613	0.868	
		Before	-----	0.372	0.613	0.868	
		After	-----	----	----	-----	
		Before-Master	-----	----	0.000	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 2	deg	Master	-----	132.000	-170.937	-108.000	
		Before	-----	132.000	-171.109	-108.000	
		After	-----	----	----	-----	
		Before-Master	-----	----	-0.172	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 3	V	Master	-----	0.420	0.693	0.980	
		Before	-----	0.420	0.693	0.980	
		After	-----	----	----	-----	
		Before-Master	-----	----	0.000	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 3	deg	Master	-----	131.000	-170.959	-109.000	
		Before	-----	131.000	-171.130	-109.000	
		After	-----	----	----	-----	
		Before-Master	-----	----	-0.171	-----	
		After-Before	-----	-----	-----	-----	

Thru Cal Mag - 4	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.804 0.804 ----- ----- -----	1.318 1.317 ----- -0.001 -----	1.876 1.876 ----- ----- -----	
Thru Cal Phase - 4	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	125.000 125.000 ----- ----- -----	-171.311 -171.481 ----- -0.170 -----	-115.000 -115.000 ----- ----- -----	
Thru Cal Mag - 5	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.176 1.176 ----- ----- -----	1.931 1.929 ----- -0.002 -----	2.744 2.744 ----- ----- -----	
Thru Cal Phase - 5	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	122.000 122.000 ----- ----- -----	-171.794 -171.964 ----- -0.170 -----	-118.000 -118.000 ----- ----- -----	
Thru Cal Mag - 6	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.176 1.176 ----- ----- -----	1.933 1.932 ----- -0.001 -----	2.744 2.744 ----- ----- -----	
Thru Cal Phase - 6	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	121.000 121.000 ----- ----- -----	-171.786 -171.956 ----- -0.170 -----	-119.000 -119.000 ----- ----- -----	
Thru Cal Mag - 7	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.846 0.846 ----- ----- -----	1.379 1.379 ----- 0.000 -----	1.974 1.974 ----- ----- -----	
Thru Cal Phase - 7	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	115.000 115.000 ----- ----- -----	-173.888 -174.054 ----- -0.166 -----	-125.000 -125.000 ----- ----- -----	
SPA Zero	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-50.000 -50.000 ----- ----- -----	-0.044 -0.040 ----- 0.004 -----	50.000 50.000 ----- ----- -----	
SPA Plus	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	941.000 941.000 ----- ----- -----	992.523 992.407 ----- -0.116 -----	1040.000 1040.000 ----- ----- -----	
Temperature Zero	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-0.050 -0.050 ----- ----- -----	0.000 0.000 ----- 0.000 -----	0.050 0.050 ----- ----- -----	
Temperature Plus	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.870 0.870 ----- ----- -----	0.919 0.919 ----- 0.000 -----	0.960 0.960 ----- ----- -----	

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run Run1: PEX-AIT

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): 12:55:28 25-Aug-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.39	10.00	
Large Ring	in	Before	12.00	9.00	12.57	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 12:01:56 24-Jul-2014 Expired by 2 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.598	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.687	1.696	
Pe Aluminum		Master	2.570	2.470	2.570	2.670	
Pe Magnesium		Master	2.650	2.550	2.613	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 12:01:56 24-Jul-2014 Expired by 2 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2750	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.7477	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3271	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.0154	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.4808	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.0402	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 12:01:56 24-Jul-2014 Expired by 2 days Before (Measured): 12:54:38 25-Aug-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7390		
		Before	0.7390	0.7021	0.7385	0.7760	
		Before-Master	-----	-----	-0.0005	-----	
BS Window Sum	1/s	Master	1		25477		
		Before	25477	24204	25351	26751	
		Before-Master	-----	-----	-126	-----	
SS Window Ratio		Master	1.0000		0.4847		
		Before	0.4847	0.4604	0.4848	0.5089	
		Before-Master	-----	-----	0.0001	-----	
SS Window Sum	1/s	Master	1		11277		
		Before	11277	10713	11252	11841	
		Before-Master	-----	-----	-25	-----	
LS Window Ratio		Master	1.0000		0.2978		
		Before	0.2978	0.2829	0.3036	0.3127	
		Before-Master	-----	-----	0.0058	-----	
LS Window Sum	1/s	Master	1		1316		
		Before	1316	1250	1315	1382	
		Before-Master	-----	----	-1	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 12:01:56 24-Jul-2014 Expired by 2 days Before (Measured): 12:54:38 25-Aug-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1341	2400	
		Before		1000	1342	2400	
		Before-Master	-----	-100	1	100	
SS PM High Voltage	V	Master		1000	2016	2400	
		Before		1000	2036	2400	
		Before-Master	-----	-100	20	100	

LS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1306 1317 11	2400 2400 100	
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HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		12:01:56 24-Jul-2014 Expired by 2 days		Before (Measured):		12:54:38 25-Aug-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	12.05	25.00	
		Before		5.00	12.09	25.00	
		Before-Master	-----	-1.00	0.04	1.00	
SS Crystal Resolution	%	Master		5.00	10.58	20.00	
		Before		5.00	10.70	20.00	
		Before-Master	-----	-1.00	0.12	1.00	
LS Crystal Resolution	%	Master		5.00	8.57	20.00	
		Before		5.00	8.54	20.00	
		Before-Master	-----	-1.00	-0.03	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		12:55:05 25-Aug-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3853	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3791	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3809	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run Run1: PEX-AIT

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC		HGNS-H	3985
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC		HACCZ-H	4269
AmBe Neutron Logging Source		NSR-F	5068
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)		165	

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):		18:30:28 25-Aug-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):		00:00:00 15-Aug-2005					
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	-----	-----	336.900	-----	
Accelerometer Coefficients - 1		Master	-----	-----	37.580	-----	
Accelerometer Coefficients - 2		Master	-----	-----	-0.019	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.730	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	299.000	-----	
Accelerometer Coefficients - 9		Master	-----	-----	1.007	-----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		12:34:00 25-Aug-2014	Before (Measured):		12:51:32 25-Aug-2014	After:	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.0	40.0	
		Before	0	5.0	27.2	40.0	
		After	-----	-----	-----	-----	
		Before-Master	-----	-3.9	1.2	3.9	

		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	26.2	40.0	
		Before	0	5.0	26.5	40.0	
		After	----	----	----	----	
		Before-Master	----	-3.9	0.3	3.9	
		After-Before	----	----	----	----	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5167.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2206.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5098.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2150.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		12:56:06 25-Aug-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	89.4	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	178.1	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.93	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run Run1: PEX-AIT

Primary Equipment :		Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor		LEH-QT			
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HTEN Master Calibration - HTEN Master Calibration

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500	
HTEN Shop Offset	lbf	Master	0	-1000.000	NOT DONE	1000.000	

HTEN Before Calibration - HTEN Before Calibration

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement - 0	lbf	Before	----	----	----	----	
RHTE Plus Measurement - 0	lbf	Before	----	----	----	----	
HTEN Gain - 0		Before	----	----	----	----	
HTEN Offset - 0	lbf	Before	----	----	----	----	

Company:	Expedition Water Solution LLC	Schlumberger
Well:	EWS 1	
Field:	Wildcat	
County:	Weld	
State:	Colorado	

Platform Express

Array Induction with Linear Correlation