

Company: St. Croix Operating, Inc.

Well: Pronghorn #1

Field: Wildcat

County: Washington State: Colorado

Platform Express

Triple Combo

County:	Washington			
Field:	Wildcat			
Location:	SW SW			
Well:	Pronghorn #1			
Company:	St. Croix Operating, Inc.			
	SW SW	Elev.:	K.B.	4666.60 ft
	600FSL 300FWL		G.L.	4648.00 ft
	LAT: 39.787700 , LONG: -103.084680		D.F.	4666.60 ft
	Permanent Datum:	Ground Level	Elev.:	4648.00 f
	Log Measured From:	Kelly Bushing	18.60 ft	above Perm.Datum
	Drilling Measured From:	Kelly Bushing		
	API Serial No.	Section:	Township:	Range:
	05-121-11082-00	15	3S	51 W

Logging Date	02-Jan-2019		
Run Number	ONE		
Depth Driller	4200.00 ft		
Schlumberger Depth	4198.00 ft		
Bottom Log Interval	4198.00 ft		
Top Log Interval	3100.00 ft		
Casing Driller Size @ Depth	8.625 in @ 503.00 ft		
Casing Schlumberger	502 ft		
Bit Size	7.875 in		
Type Fluid In Hole	GEL POLYMER		
Density	9.2 lbm/gal	35 s	
Fluid Loss	PH	9.5	
MUD	Source of Sample	Active Tank	
RM @ Meas Temp	0.2 ohm.m @ 68 degF		
RMF @ Meas Temp	0.15 ohm.m @ 68 degF		
RMC @ Meas Temp			
Source RMF	RMC	Pressed	
RM @ BHT	RMF @ BHT	0.07 @ 212 0.05 @ 212	
Max Recorded Temperatures	110 degF		
Circulation Stopped	Time	23:00:05	
Logger on Bottom	Time	16:00:00	
Unit Number	Location:	9102	Fort Morgan
Recorded By		Ali AlRamadhan / Evan Grzecki	
Witnessed By		Tom Thomas	

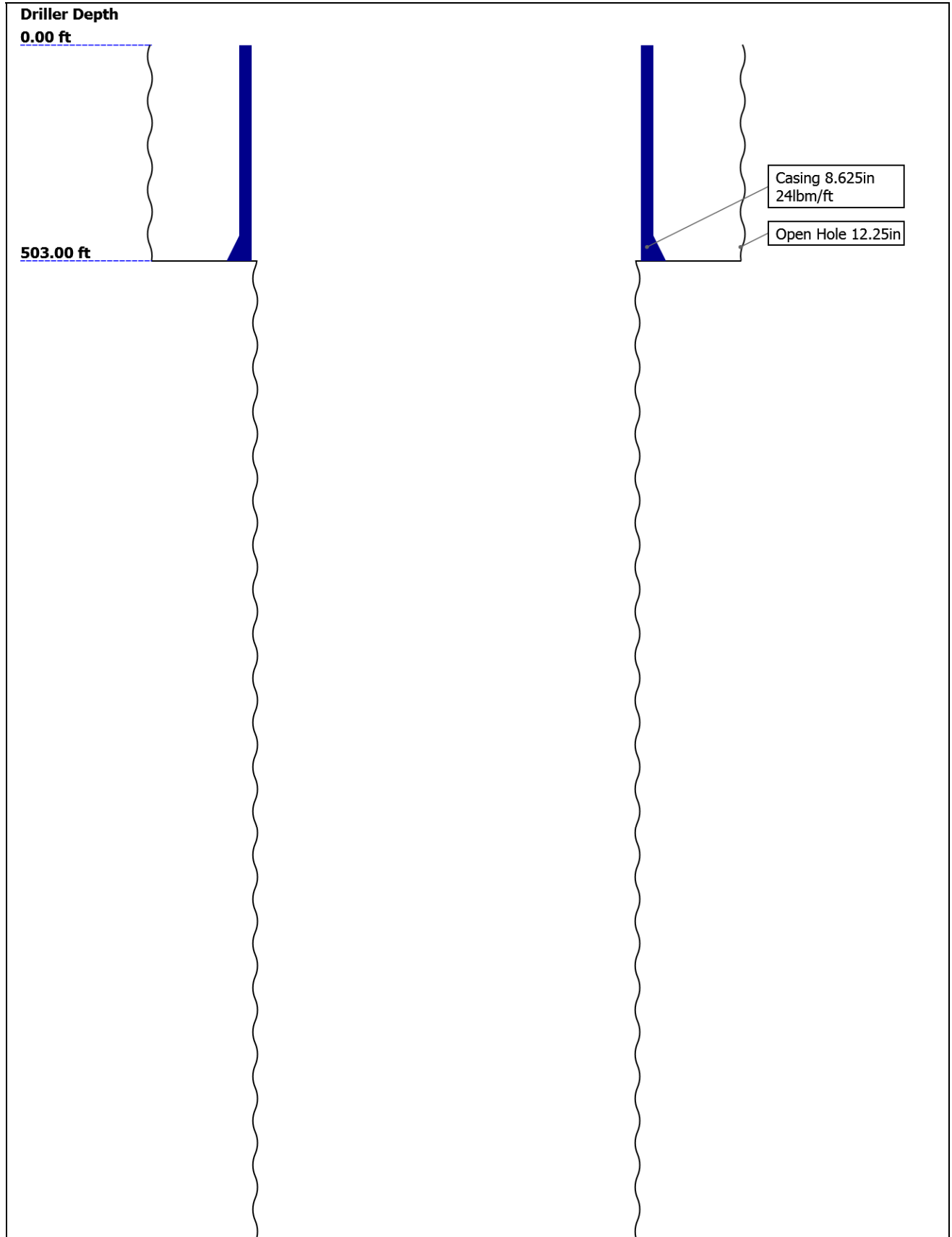
Disclaimer

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## Well Sketch




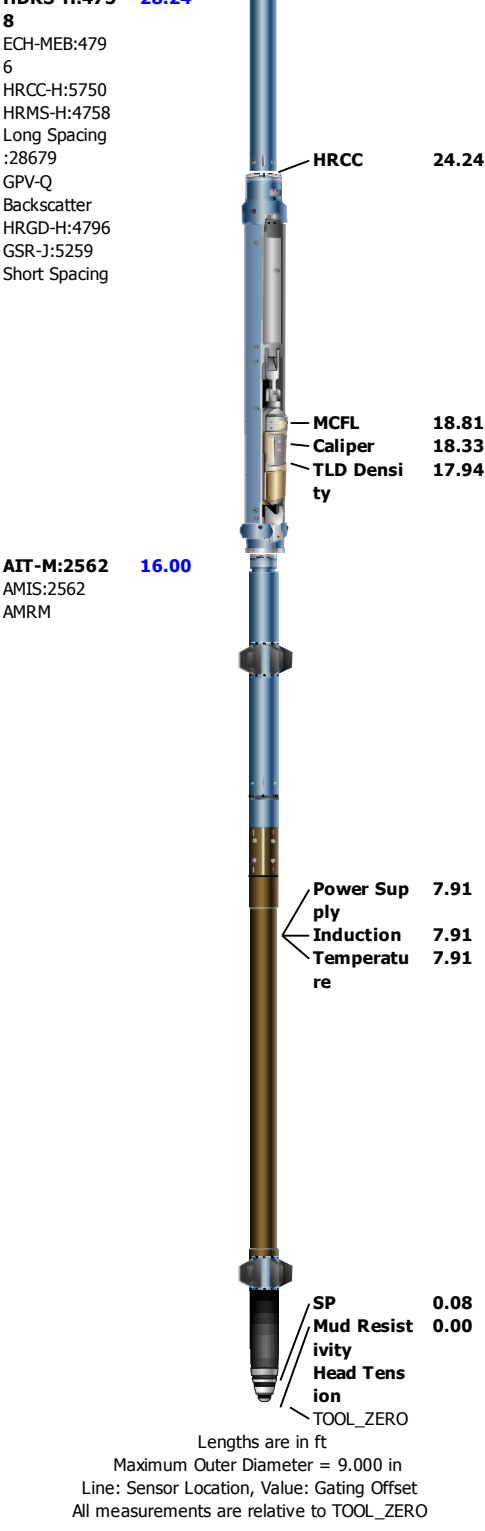


Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	12.25	7.875				
Top Driller ( ft )	0	503				
Top Logger ( ft )	0	503				
Bottom Driller ( ft )	503	4200				
Bottom Logger ( ft )	503	4200				
Casing						
Size ( in )	8.625					
Weight ( lbm/ft )	24					
Inner Diameter ( in )	8.097					
Grade	J55					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	503					
Bottom Logger ( ft )	502					

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks	
<b>Equip name</b> <b>LEH-QT:235</b> 3 LEH-QT:2353	<b>Length</b> <b>44.14</b>	<b>MP name</b>	<b>Offset</b>	THANK YOU FOR CHOOSING SCHLUMBERGER!	
				TOOLSTRING RUN AS PER TOOLSKETCH AND CLIENT LOGGING PROGRAM.	
				REQUESTED TO RUN THE TOOL SLICK WITH NO BOWSPRING OR STANDOFFS.	
				MATRIX: SANDSTONE: 2.65 FROM TD TO 4000 & LIMESTONE:2.71 2.65 FROM 4000 TO SC.	
				TD: 4168 FT.	
				BHT: 101.7 DEG F.	
<b>DTC-H:9486</b> ECH-KC:1058 5 DTC-H:9486	<b>40.65</b>	<b>CTEM HV</b>	<b>39.75</b> <b>0.00</b>		
<b>HGNS-H:373</b> 0 HGNH:2742 NSR-F:5068 NPV-N HMCA-H HGNS-H:3730 HACCZ-H:153 7	<b>37.65</b>	<b>TelStatus</b> <b>ToolStatus</b> <b>Temperature</b> <b>GR</b>	<b>37.65</b> <b>37.65</b> <b>37.62</b> <b>36.91</b>		
<b>HDPS-H:475</b>	<b>28.24</b>	<b>CNL Porosity</b> <b>HGNS</b> <b>HMCA</b> <b>Accelerometer</b>	<b>30.57</b> <b>28.24</b> <b>28.24</b> <b>0.00</b>		

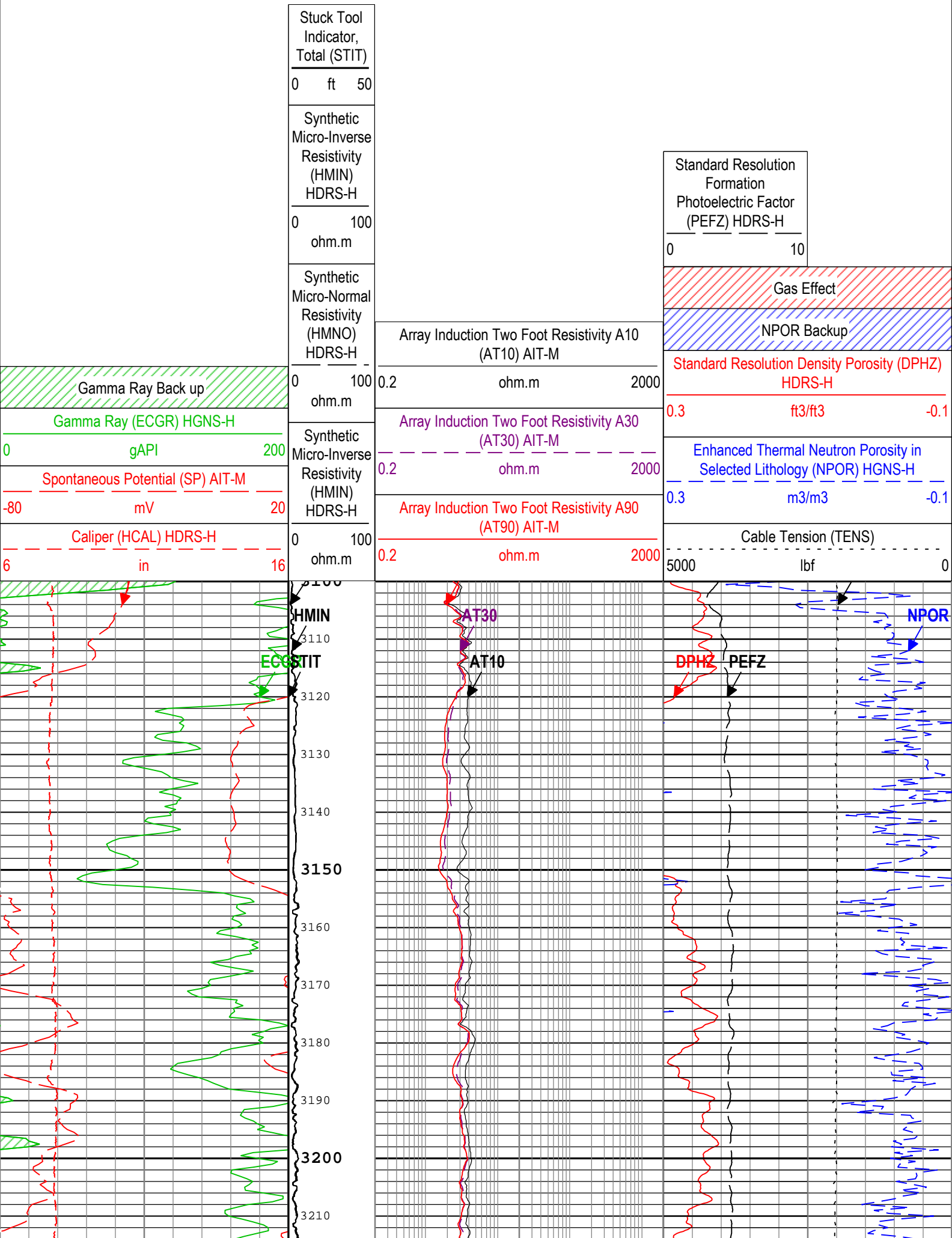


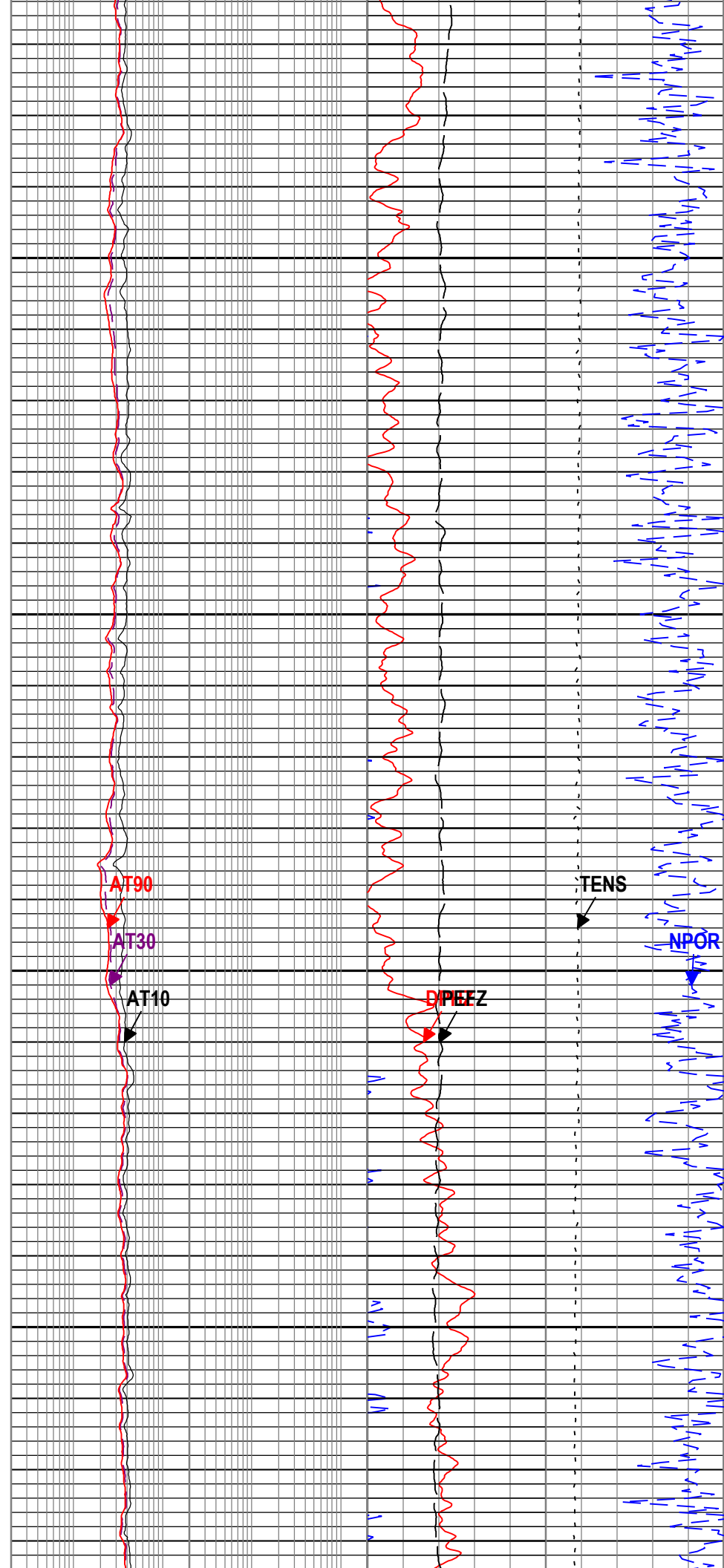
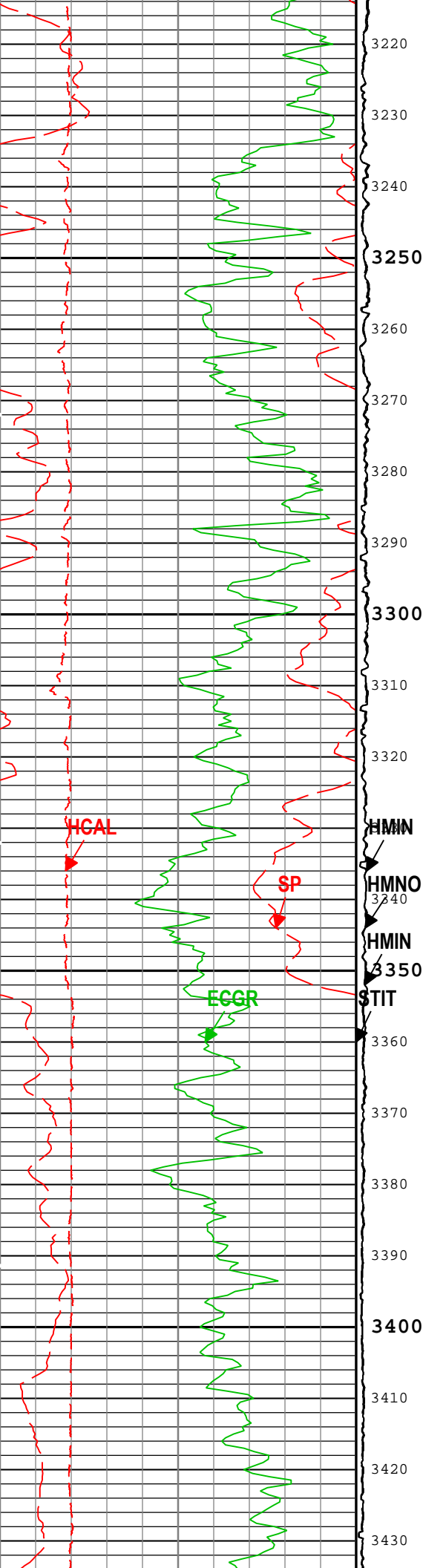
## Depth Summary

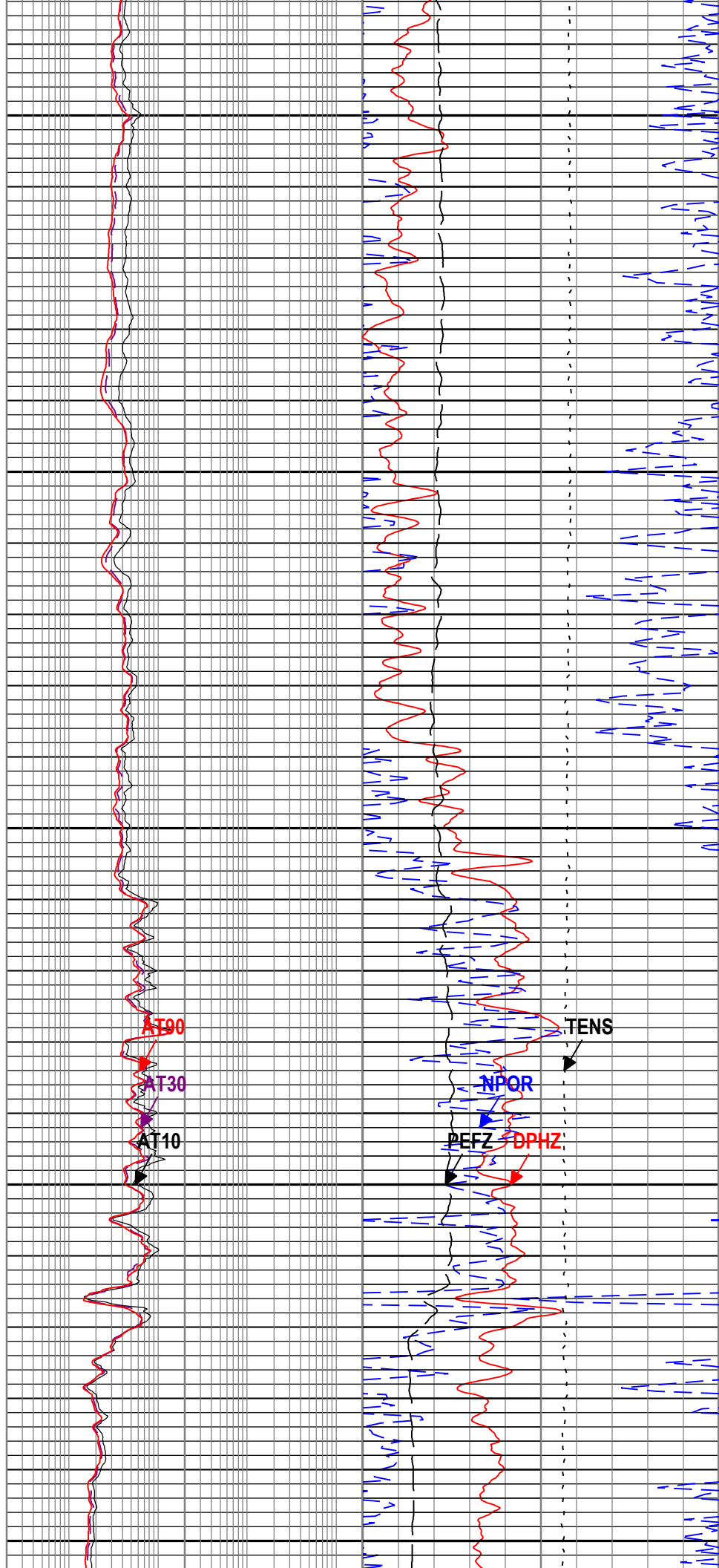
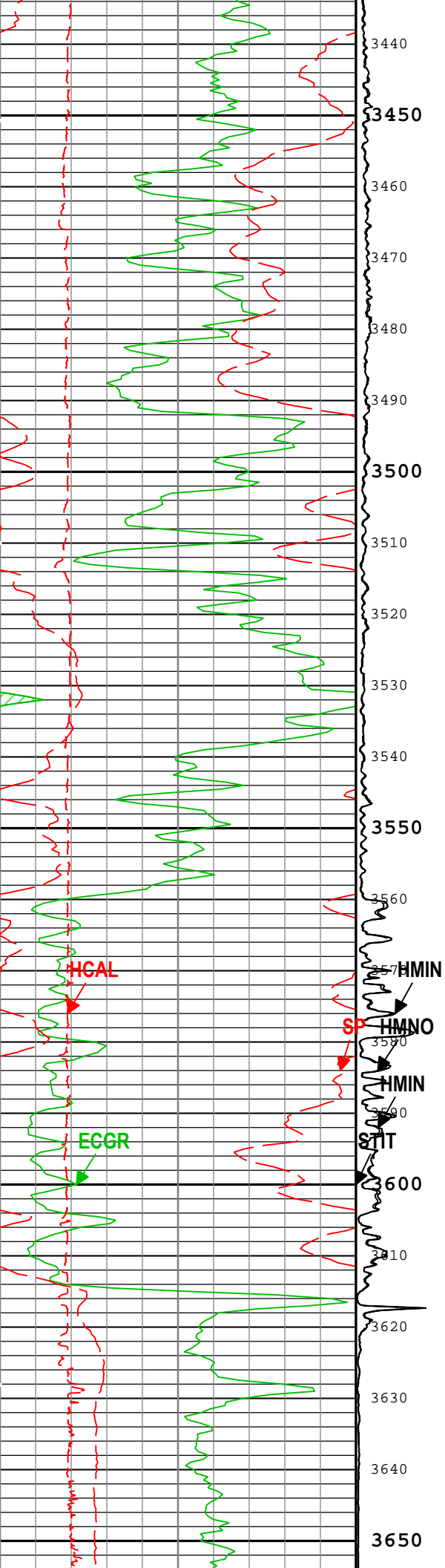
ONE			
Depth Measuring Device			
Type	IDW-B		
Serial Number	5822		
Calibration Date	14-aug-2018		
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	-2		
Wheel Correction 2	-2		
Tension Device			
Type	CMTD-B/A		

Serial Number									
Calibration Date									
Calibrator Serial Number									
Number of Calibration Points	0								
Logging Cable									
Type	7-46NT-XS								
Serial Number									
Length	24000.00 ft								
Conveyance Type	Wireline								
Rig Type	LAND								
ONE:Depth Control Parameters		Depth Control Remarks							
Log Sequence	First Log In the Well	ALL SCHLUMBERGER DEPTH PROCRDURES FOLLOWED.							
Rig Up Length At Surface		IDW IS USED AS PRIMARY DEPTH CONTROL.							
Rig Up Length At Bottom		Z-CHART USED AS SECONDARY DEPTH CONTROL							
Rig Up Length Correction									
Stretch Correction	1.40 ft								
Tool Zero Check At Surface									
ONE									
5" Triple Combo									
Software Version									
Acquisition System		Version							
Maxwell 2018 SP1		8.1.99839.3100							
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[8]:Up	Up	13.12 ft	4210.87 ft	04-Jan-2019 4:32:05 AM	04-Jan-2019 6:03:08 AM	ON	1.44 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:St. Croix Operating, Inc. Well:Pronghorn #1 ONE: Log[8]:Up:S012								
Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo )    Index Scale: 5 in per 100 ft    Index Unit: ft Index Type: Measured Depth    Creation Date: 04-Jan-2019 20:21:57									
Channel	Source	Sampling							
AT10	AIT-M:AMIS:AMIS	3in							
AT30	AIT-M:AMIS:AMIS	3in							
AT90	AIT-M:AMIS:AMIS	3in							
CALI	HDRS-H:HRCC-H:HRCC-H	1in							
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in							
GR	HGNS-H:HGNS-H:HGNS-H	6in							
NPOR	HGNS-H:HGNS-H:HGNS-H	6in							
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in							
SMIN	HDRS-H:HRMS-H:HRGD-H	2in							
SMNO	HDRS-H:HRMS-H:HRGD-H	2in							
SP	AIT-M:AMIS:AMIS	6in							
STIT	DepthCorrection	6in							
TENS	WLWorkflow	6in							
TIME_1900	WLWorkflow	0.1in							

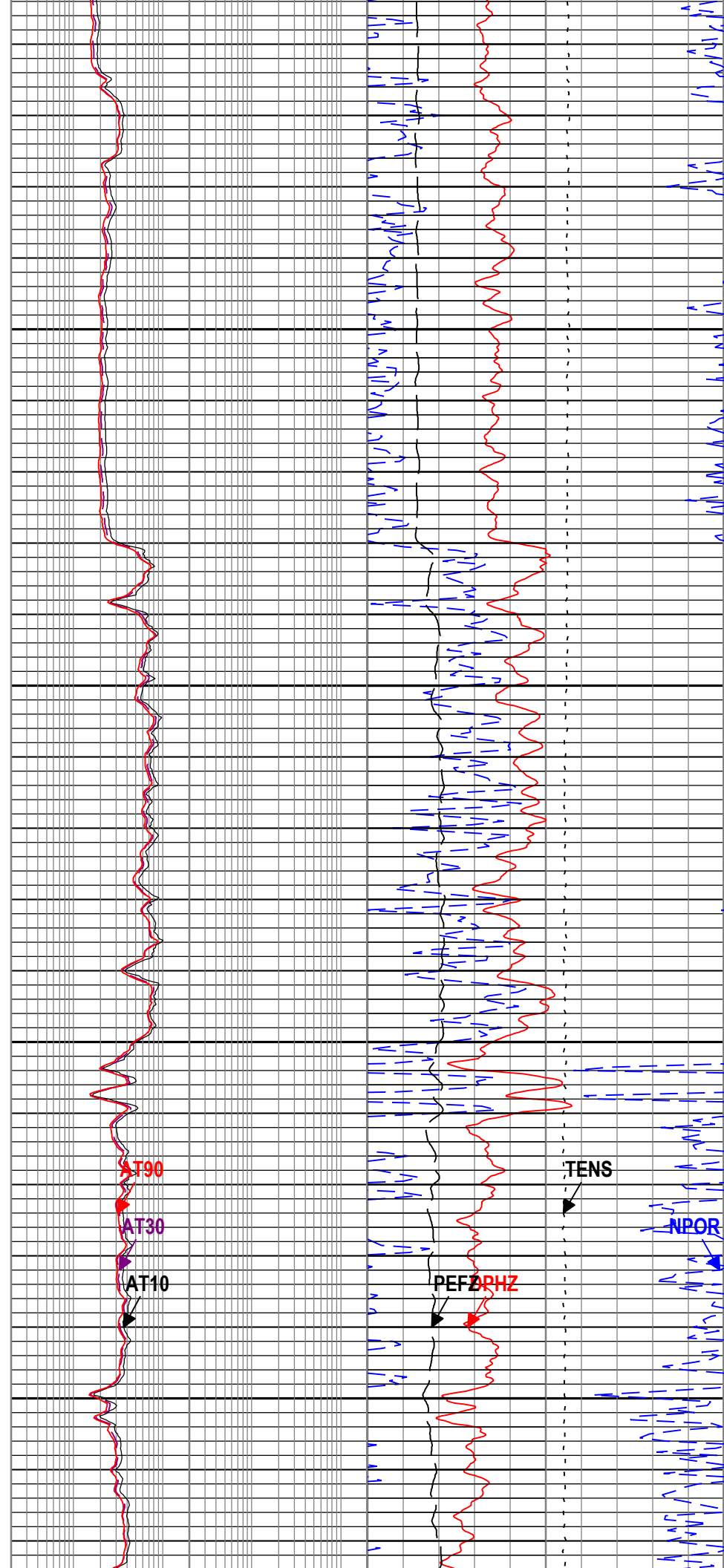
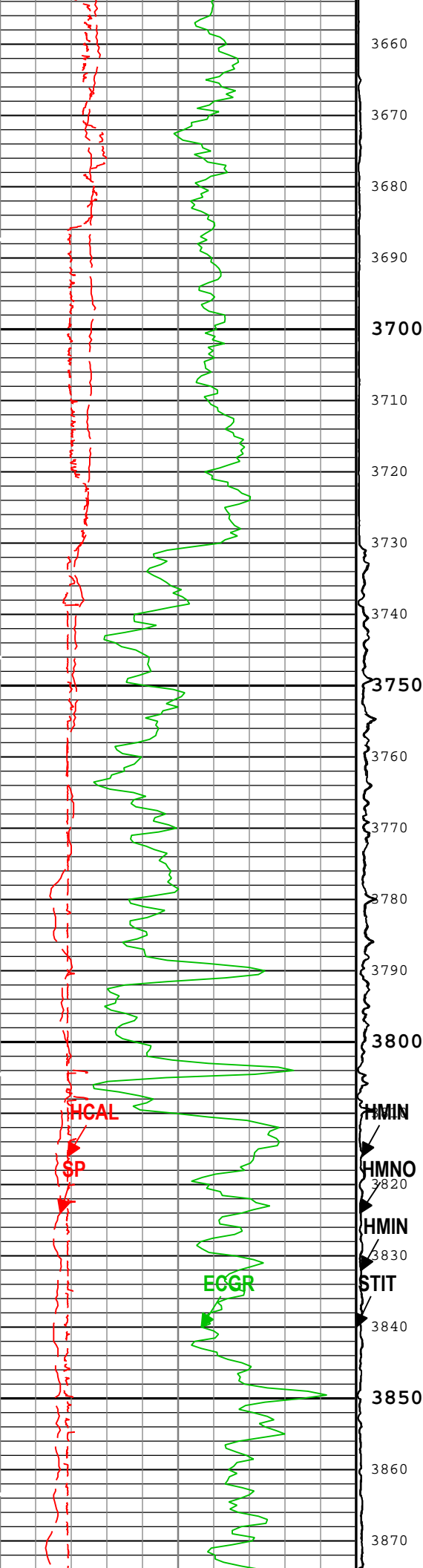
TIME\_1900 - Time Marked every 60.00 (s)

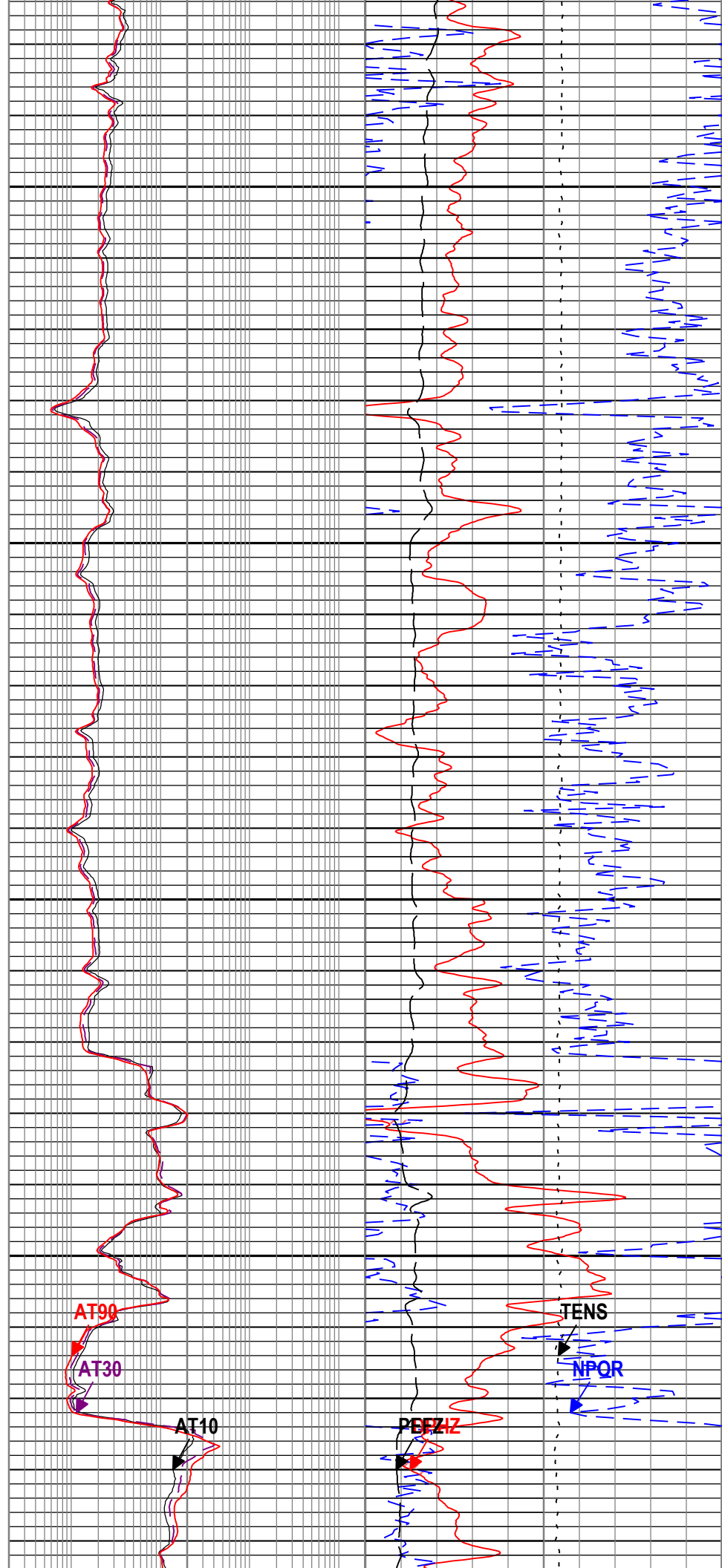
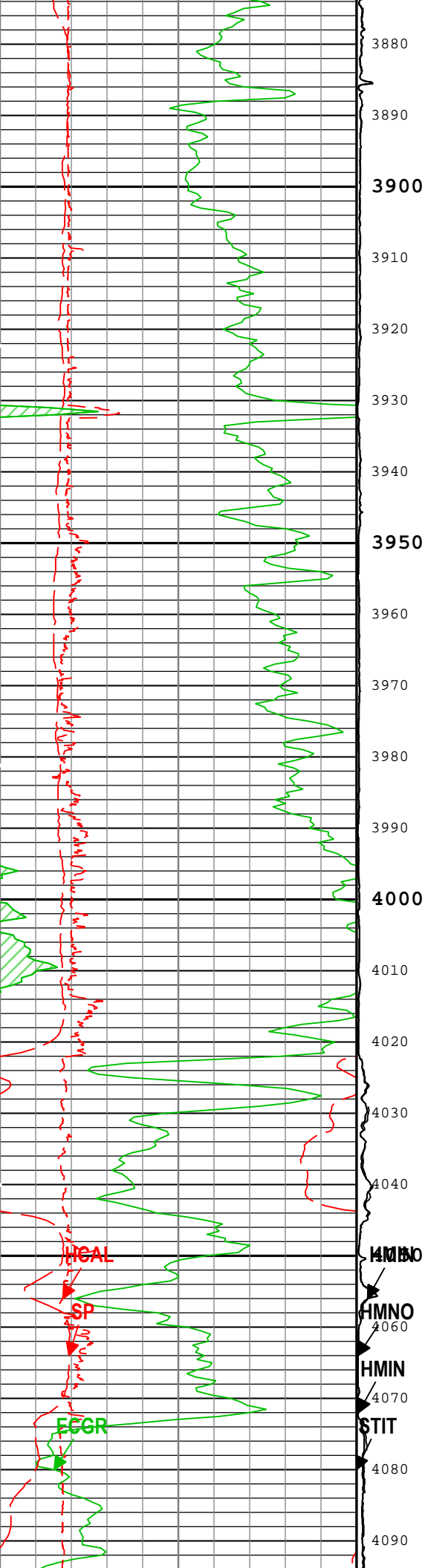


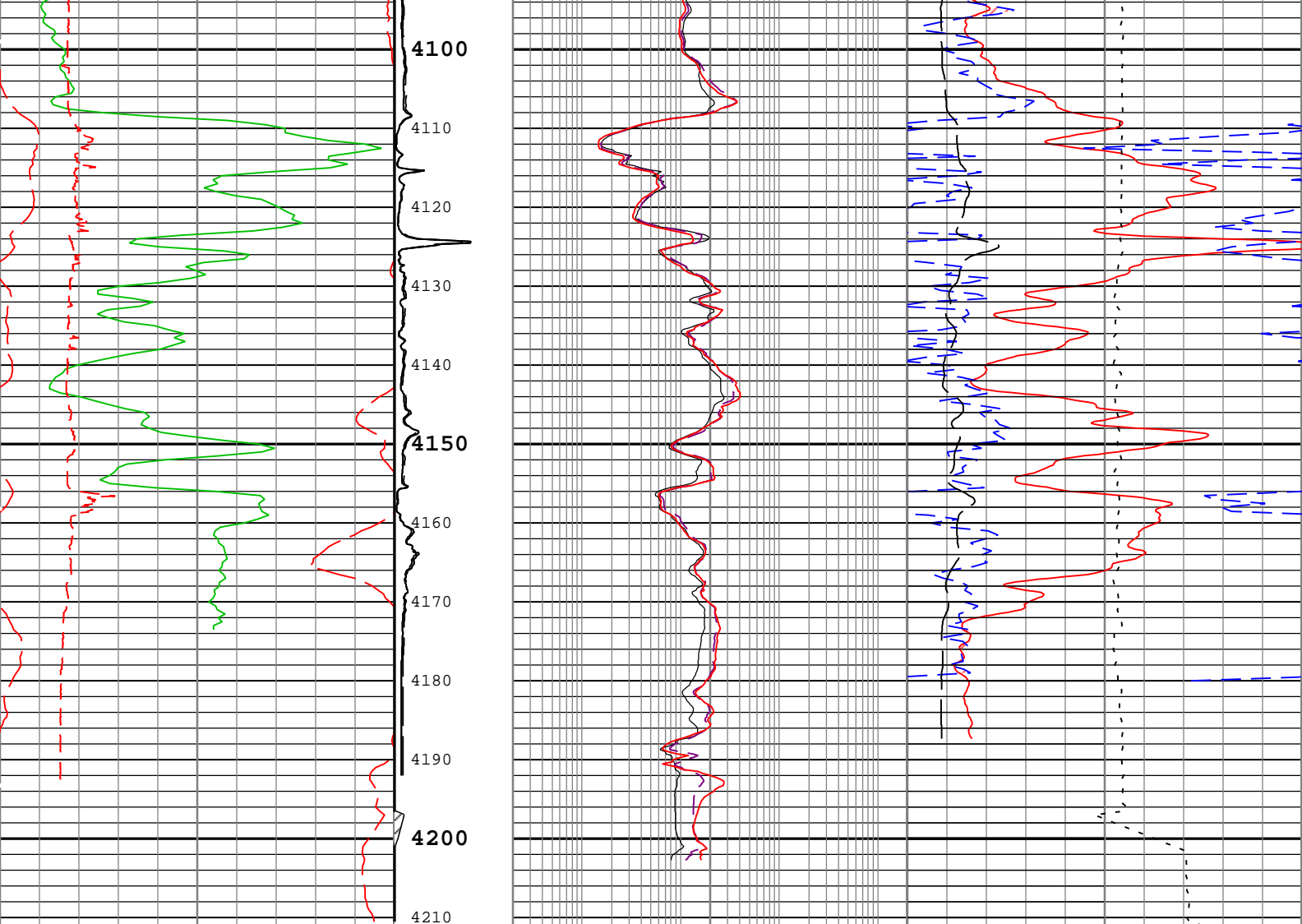












Gamma Ray Back up			Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A10 (AT10) AIT-M		Gas Effect	
Gamma Ray (ECGR) HGNS-H				0.2 ohm.m 2000		NPOR Backup	
0	gAPI	200	0 ft 50	Array Induction Two Foot Resistivity A30 (AT30) AIT-M		Standard Resolution Density Porosity (DPHZ) HDRS-H	
Spontaneous Potential (SP) AIT-M			Synthetic Micro-Inverse Resistivity (HMIN) HDRS-H	0.2 ohm.m 2000		0.3 ft3/ft3 -0.1	
-80	mV	20		Array Induction Two Foot Resistivity A90 (AT90) AIT-M		Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H	
Caliper (HCAL) HDRS-H			0 100 ohm.m	0.2 ohm.m 2000		0.3 m3/m3 -0.1	
6	in	16				Cable Tension (TENS)	
			Synthetic Micro-Normal Resistivity (HMNO) HDRS-H			5000 lbf 0	
						Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H	
			Synthetic Micro-Inverse Resistivity (HMIN) HDRS-H	0 100 ohm.m		0 10	

## Channel Processing Parameters

### ONE: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Mud Resistivity	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	212	degF
BS	Bit Size	WLSESSION	7.875	in
BSAL	Borehole Salinity	Borehole	500	ppm
BSCO	Borehole Salinity Correction Option	HGNS-H	Yes	
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	-0.152	in
CBLO	Casing Bottom (Logger)	WLSESSION	502	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	GEL POLYMER	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
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	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	Depth Zoned	
MDEN	Matrix Density for Density Porosity	Borehole	Depth Zoned	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MPOF	MCFL Processing Operation Mode	HDRS-H	On	
NPRM	HRDD Nuclear Processing Mode	HDRS-H	Standard Resolution	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
TD	Total Measured Depth	Borehole	4198	ft

### Depth Zone Parameters

Parameter	Value	Start ( ft )	Stop ( ft )
MATR	LIMESTONE	3100	4000
MATR	SANDSTONE	4000	4211
MDEN	2.71	3100	4000
MDEN	2.65	4000	4211

All depth are actual.

## Tool Control Parameters

### ONE: Parameters

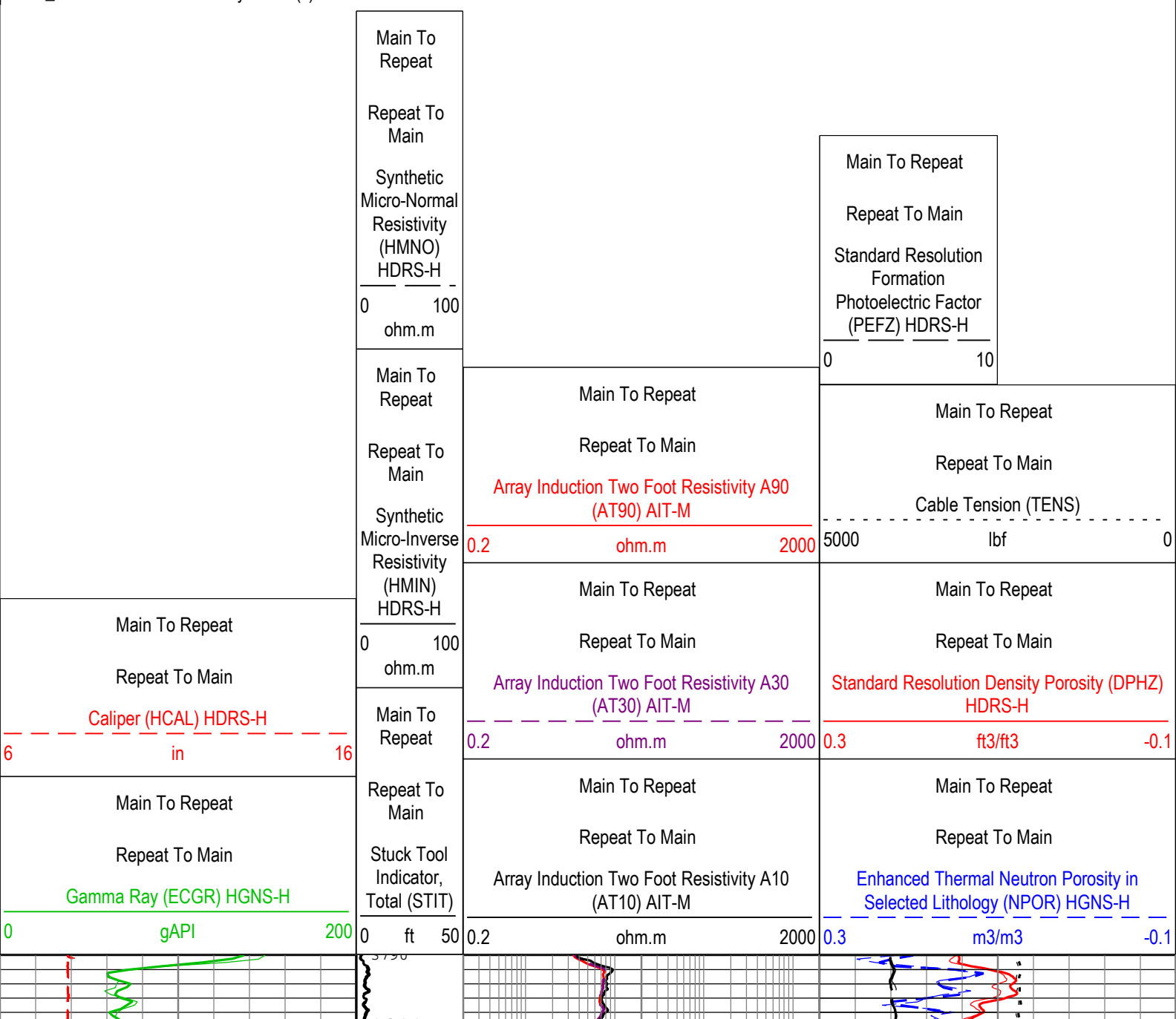
Parameter	Description	Tool	Value	Unit
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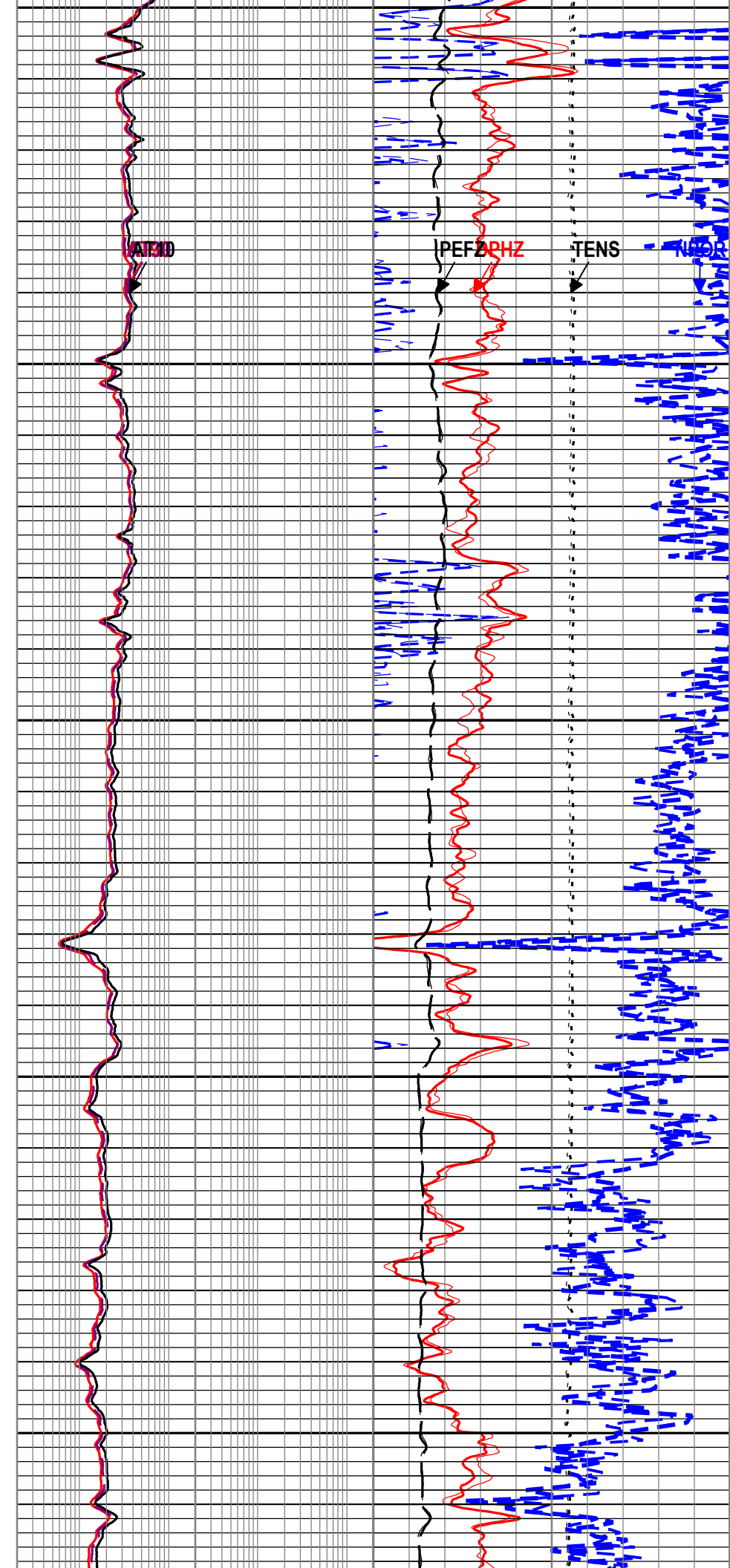
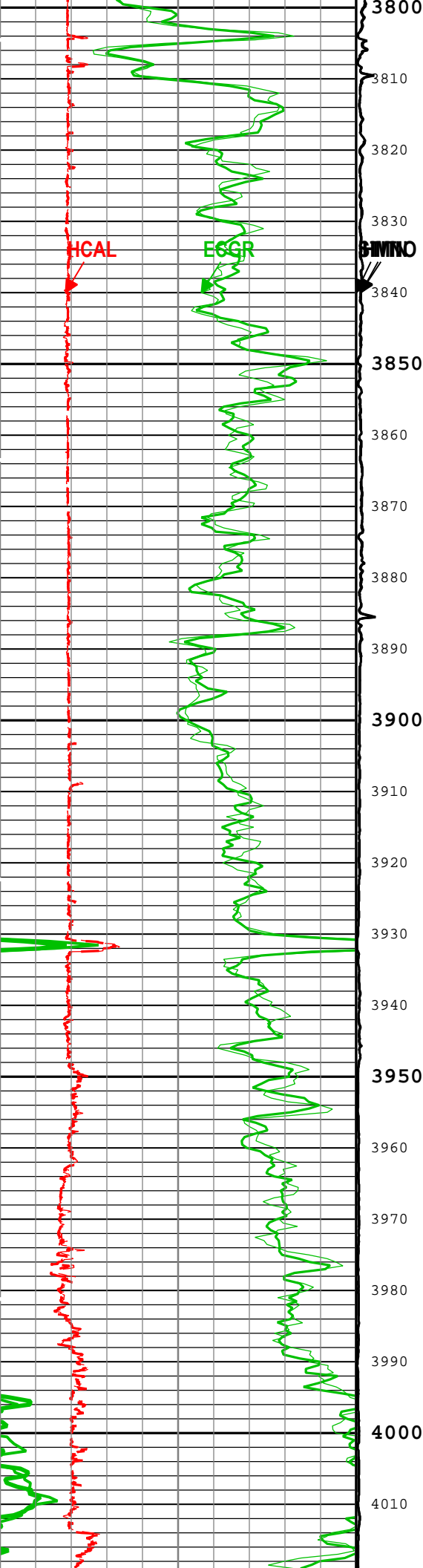
ONE
5" Triple Combo

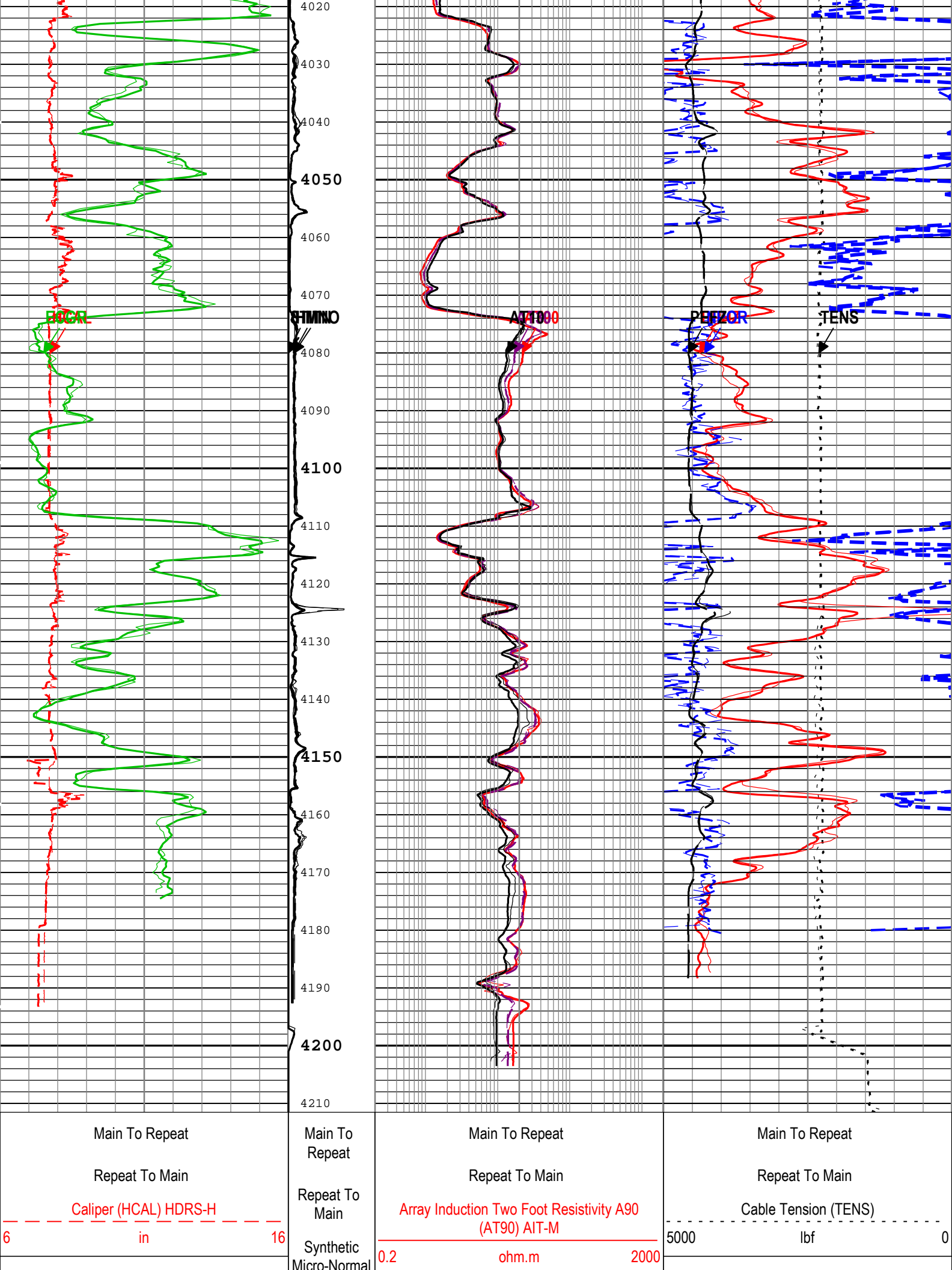
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[7]:Up	Up	3775.68 ft	4211.63 ft	04-Jan-2019 4:14:09 AM	04-Jan-2019 4:25:24 AM	ON	1.30 ft	Yes
ONE	Log[8]:Up	Up	13.12 ft	4210.87 ft	04-Jan-2019 4:32:05 AM	04-Jan-2019 6:03:08 AM	ON	1.44 ft	Yes

Log	Company:St. Croix Operating, Inc.	Well:Pronghorn #1
		ONE: Log[8]:Up:S012

TIME 1900 - Time Marked every 60.00 (s)







Main To Repeat	Resistivity (HMNO) HDRS-H	Main To Repeat	Main To Repeat
Repeat To Main	0 100 ohm.m	Repeat To Main	Repeat To Main
Gamma Ray (ECGR) HGNS-H		Array Induction Two Foot Resistivity A30 (AT30) AIT-M	Standard Resolution Density Porosity (DPHZ) HDRS-H
0 gAPI 200	0.2 ohm.m 2000	0.3 ft3/ft3 -0.1	
	Main To Repeat	Main To Repeat	Main To Repeat
	Repeat To Main	Repeat To Main	Repeat To Main
	Synthetic Micro-Inverse Resistivity (HMIN) HDRS-H	Array Induction Two Foot Resistivity A10 (AT10) AIT-M	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
	0 100 ohm.m	0.2 ohm.m 2000	0.3 m3/m3 -0.1
	Main To Repeat		Main To Repeat
	Repeat To Main		Repeat To Main
	Stuck Tool Indicator, Total (STIT)		Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H
	0 ft 50		0 10

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo RA )    Index Scale: 5 in per 100 ft    Index Unit: ft  
Index Type: Measured Depth    Creation Date: 04-Jan-2019 20:22:01

Company:	St. Croix Operating, Inc.	Schlumberger
Well:	Pronghorn #1	
Field:	Wildcat	
County:	Washington	
State:	Colorado	
Platform Express		
Triple Combo		