

Company: Raz Oil and Gas, LLC

Well: YO State 15 SWD 1

Field: Osudo South Morrow

County: Lea State: Texas

PEX	
Compensated Neutron Log	
Laterolog Resistivity	
600' FNL x 840' FWL Section 15, Township T21S, Range 35E	Elev.: K.B. 3603.00 ft G.L. 3587.00 ft D.F.
Location:	Permanent Datum: Ground Level Elev.: 3587.00 f Log Measured From: Kelly Bushing 16.00 ft above Perm.Datum Drilling Measured From: Kelly Bushing
API Serial No. 30-025-38162	Section: 15 Township: T21S Range: 35E
Logging Date 13-Apr-2017	

Run Number	4A
Depth Driller	13963.00 ft
Schlumberger Depth	9854.00 ft
Bottom Log Interval	9854.00 ft
Top Log Interval	2648.00 ft
Casing Driller Size @ Depth	7 in @ 12506.00 ft
Casing Schlumberger	12508 ft
Bit Size	6:125 in
Type Fluid In Hole	Brine
Density	9.5 lbm/gal
Fluid Loss	PH
MUD	Active Tank
RM @ Meas Temp	0.08 ohm.m @ 68 degF
RMF @ Meas Temp	0.08 ohm.m @ 68 degF
RMC @ Meas Temp	
Source RMF	RMC
RM @ BHT	0.03 @ 182 0.03 @ 182
Max Recorded Temperatures	182 degF
Circulation Stopped	Time
Logger on Bottom	13-Apr-2017 18:00:00
Unit Number	2140 Midland
Recorded By	Richard Dowdell
Witnessed By	Ben Thompson

Disclaimer

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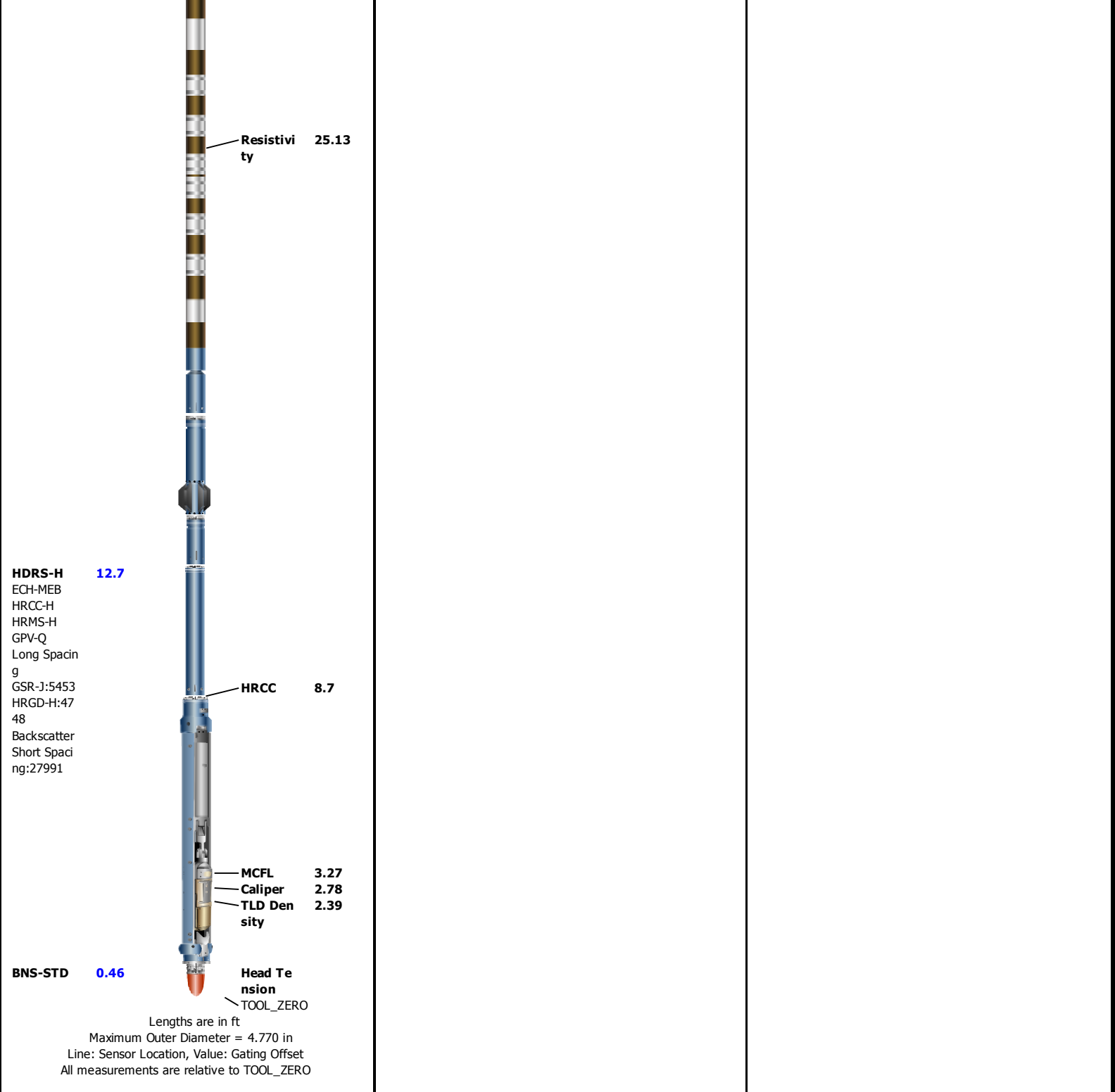
Remarks and Equipment Summary

4A: Toolstring

4A: Remarks

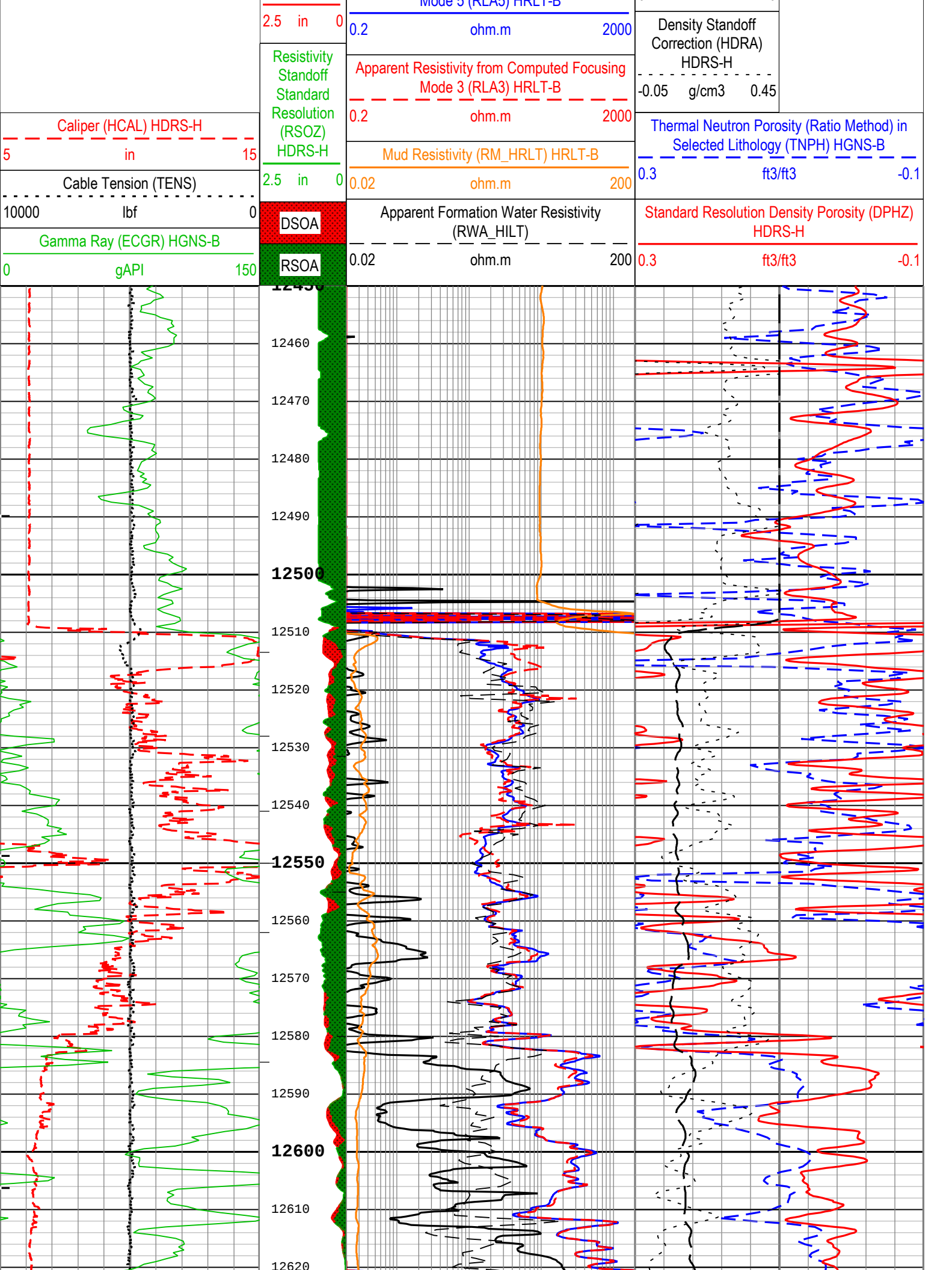
Equip name	Length	MP name	Offset
LEH-QT LEH-QT	65.65		
AH-369	62.73		
DTC-H ECH-KC DTC-H	61.31	CTEM HV TelStatu s ToolStat us	60.41 0.00 58.31 58.31
ILE-F	58.31		
HGNS-B HGNH NPV-N NSR-F:5027 HACCZ-B:2 32 HMCA-B HGNS-B	50.31	Tempera ture GR	50.28 49.57
		CNL Poro sity HMCA HGNS Accelero meter	43.23 40.9 40.9 0.00
AH-107[2]	40.9		
AH-107[1]	38.9		
HRLT-B HRUH-B HRUC-B HRLS-B HRLH-B HRLC-B AH-270	36.9		

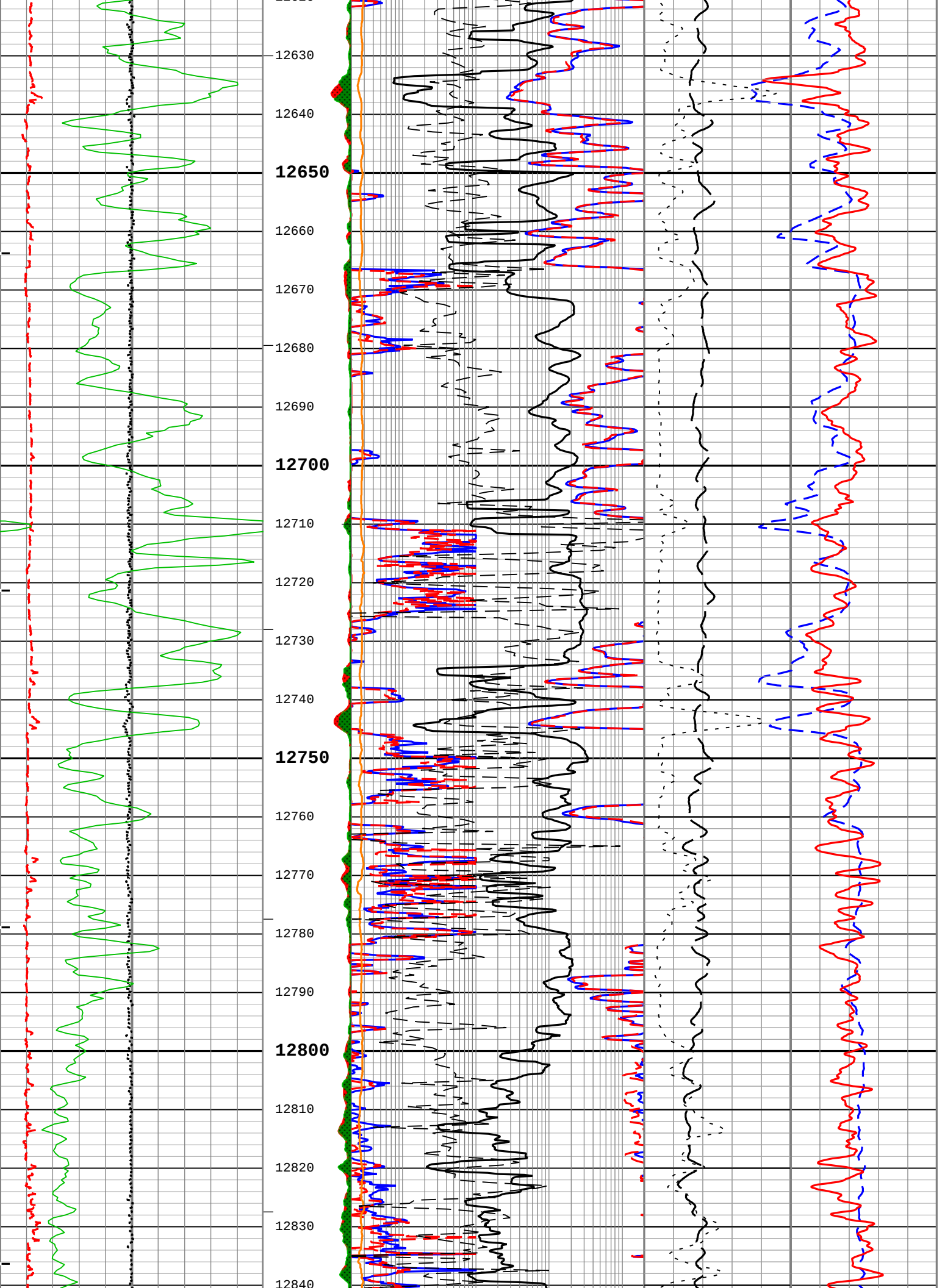
- Thank you for choosing Schlumberger Wireline: Midland TX
- Today's Crew:Barakat, Sean, AJ
- Logging interval from TD to casing shoe
- HGNS ran slick due to hole size
- Neutron porosity corrected for hole size and standoff
- 5" Future casing used for cement volume
- Limestone matrix chosen

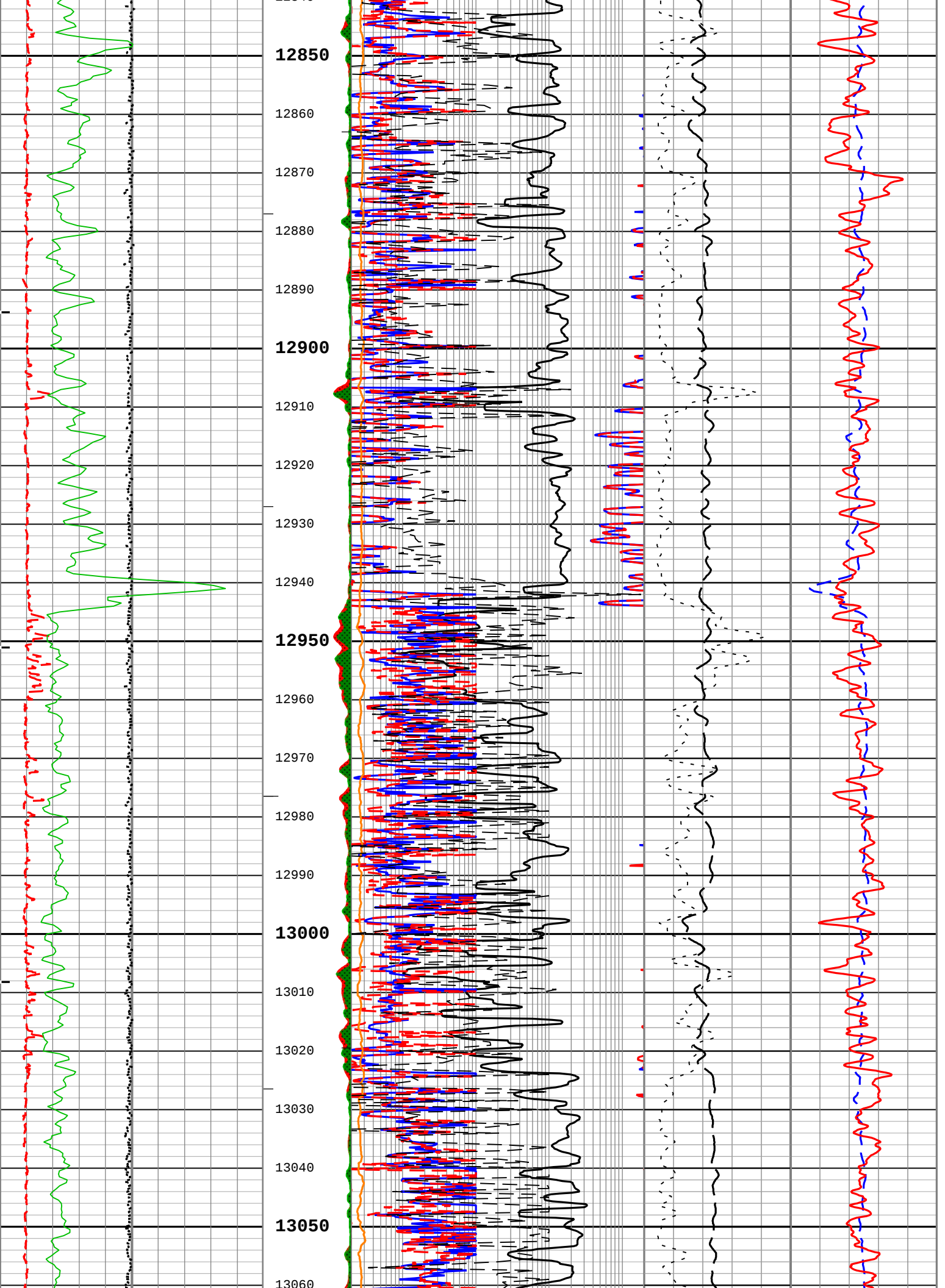


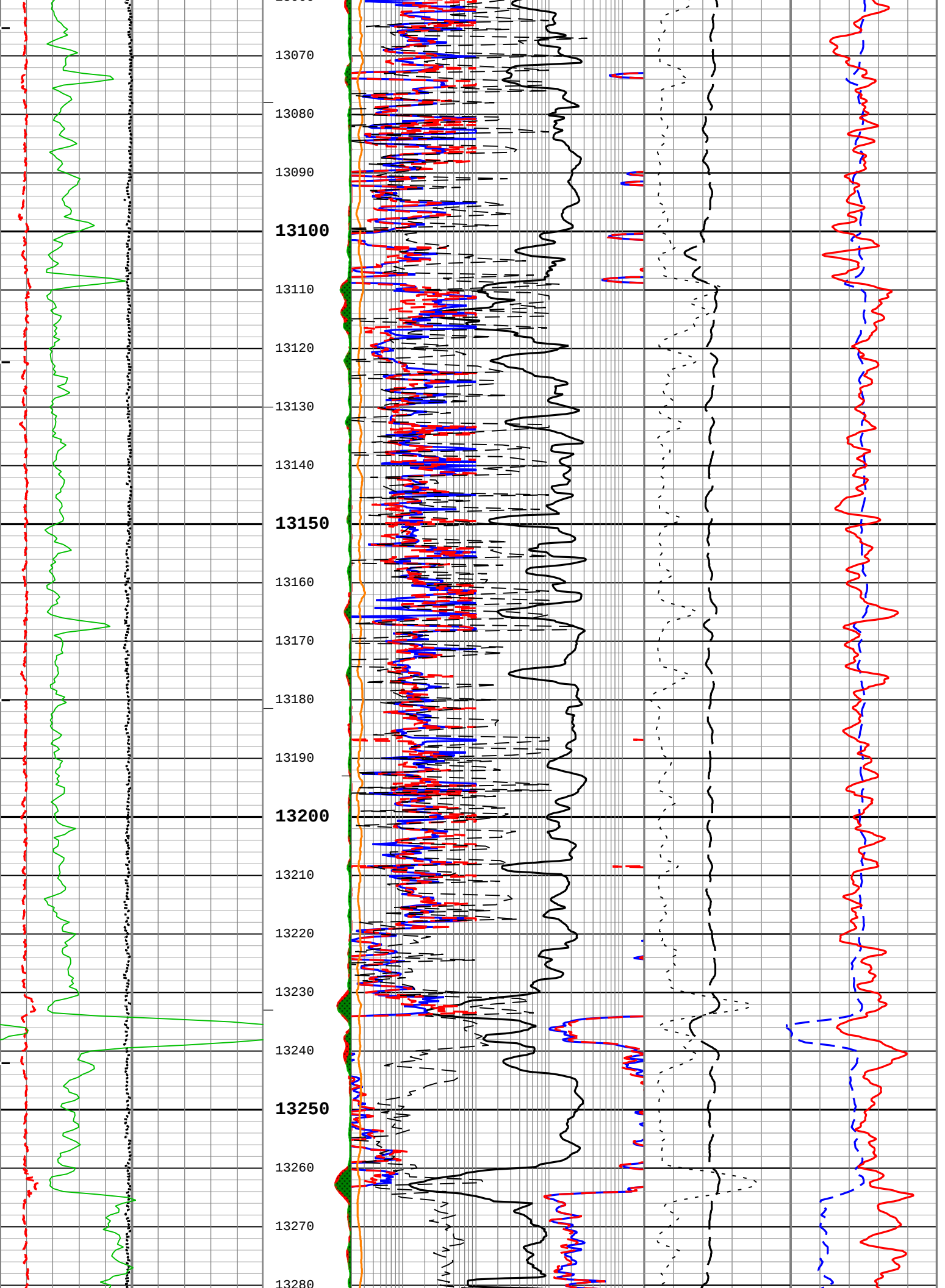
Depth Summary			
		4A	
Depth Measuring Device			
Type	IDW-JA		
Serial Number	6483		
Calibration Date	15-Mar-2017		
Calibrator Serial Number			
Calibration Cable Type	7-46P XS		
Wheel Correction 1	-1		
Wheel Correction 2	0		
Tension Device			
Type	CMTD B/A		

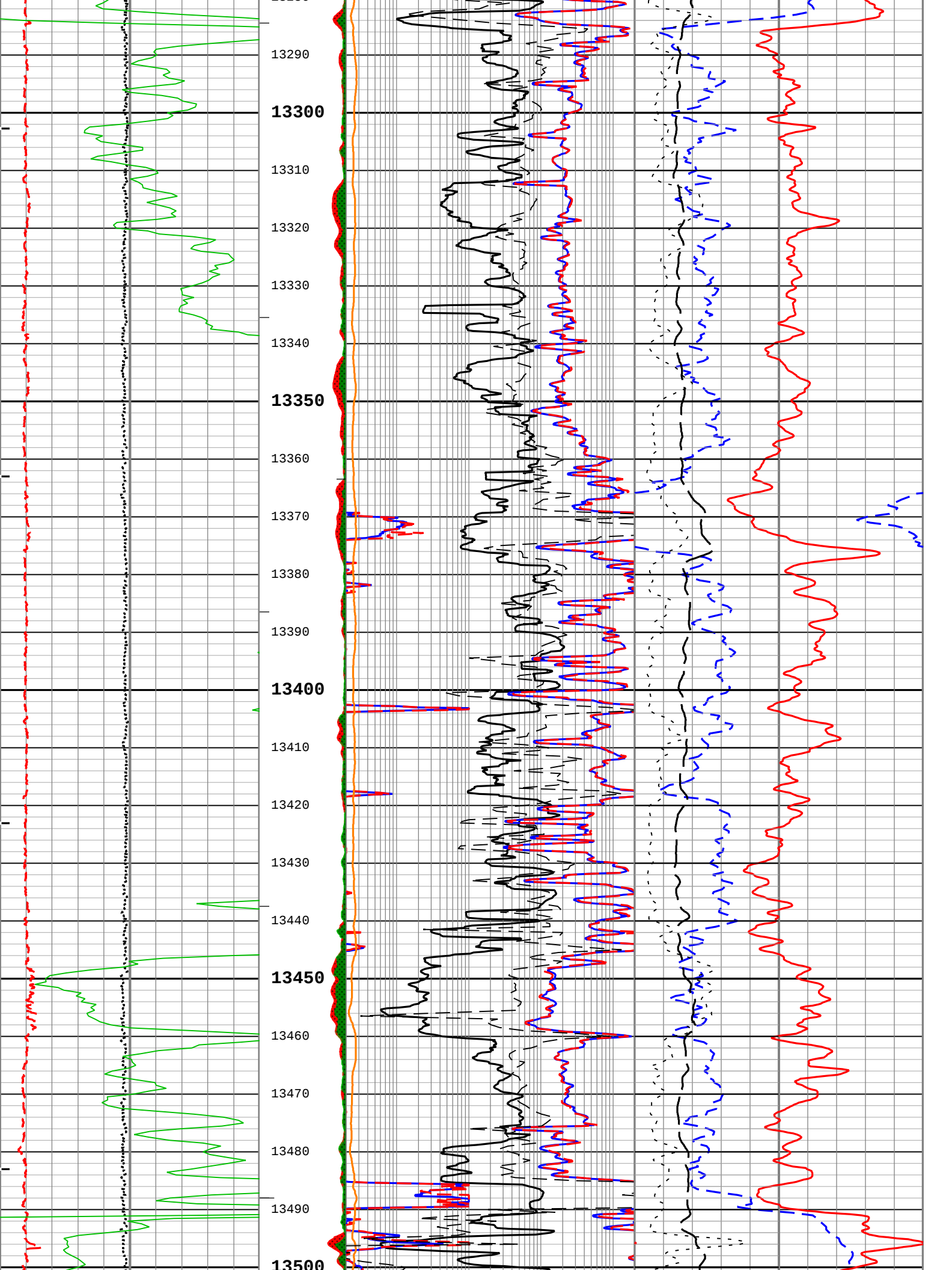
Type	CMTD-D/A								
Serial Number	1500								
Calibration Date	14-Mar-2017								
Calibrator Serial Number	13								
Number of Calibration Points	10								
Calibration Root Mean Square Error	14								
Calibration Peak Error	32								
Logging Cable									
Type	7-46P-XS								
Serial Number									
Length	19800.00 ft								
Conveyance Type	Wireline								
Rig Type	Crane								
4A:Depth Control Parameters		Depth Control Remarks							
Log Sequence	Subsequent Trip To the Well								
Reference Log Name	Schlumberger Porosity Print								
Reference Log Run Number	3A								
Reference Log Date	22-Mar-2016								
Subsequent Trip Down Log Correction	-6.00 ft								
4A									
Main Pass 5"=100'									
Integration Summary									
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit					
IHV	Integrated Hole Volume	GCSE_UP_PASS	334.4	ft3					
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	133.24	ft3					
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
4A	Main[3]:Up	Up	12275.69 ft	13984.38 ft	13-Apr-2017 5:59:24 PM	13-Apr-2017 6:30:53 PM	ON	1.00 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:Raz Oil and Gas, LLC Well:YO State 15 SWD 1 4A: Main[3]:Up:S018								
Description: Triple Combo standard resolution template for Platform Express Format: Log (Jim Woods) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Apr-2017 19:22:52									
TIME_1900 - Time Marked every 60.00 (s)									
└─ICV - Integrated Cement Volume every 10.00 (ft3)									
└─ICV - Integrated Cement Volume every 100.00 (ft3)									
└─IHV - Integrated Hole Volume every 10.00 (ft3)									
└─IHV - Integrated Hole Volume every 100.00 (ft3)									
TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)									
Standard Resolution Density Standoff (DSOZ) HDRS-H		Invaded Formation Resistivity filtered at 18 inches (RXOZ) HDRS-H				Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H			
		0.2							

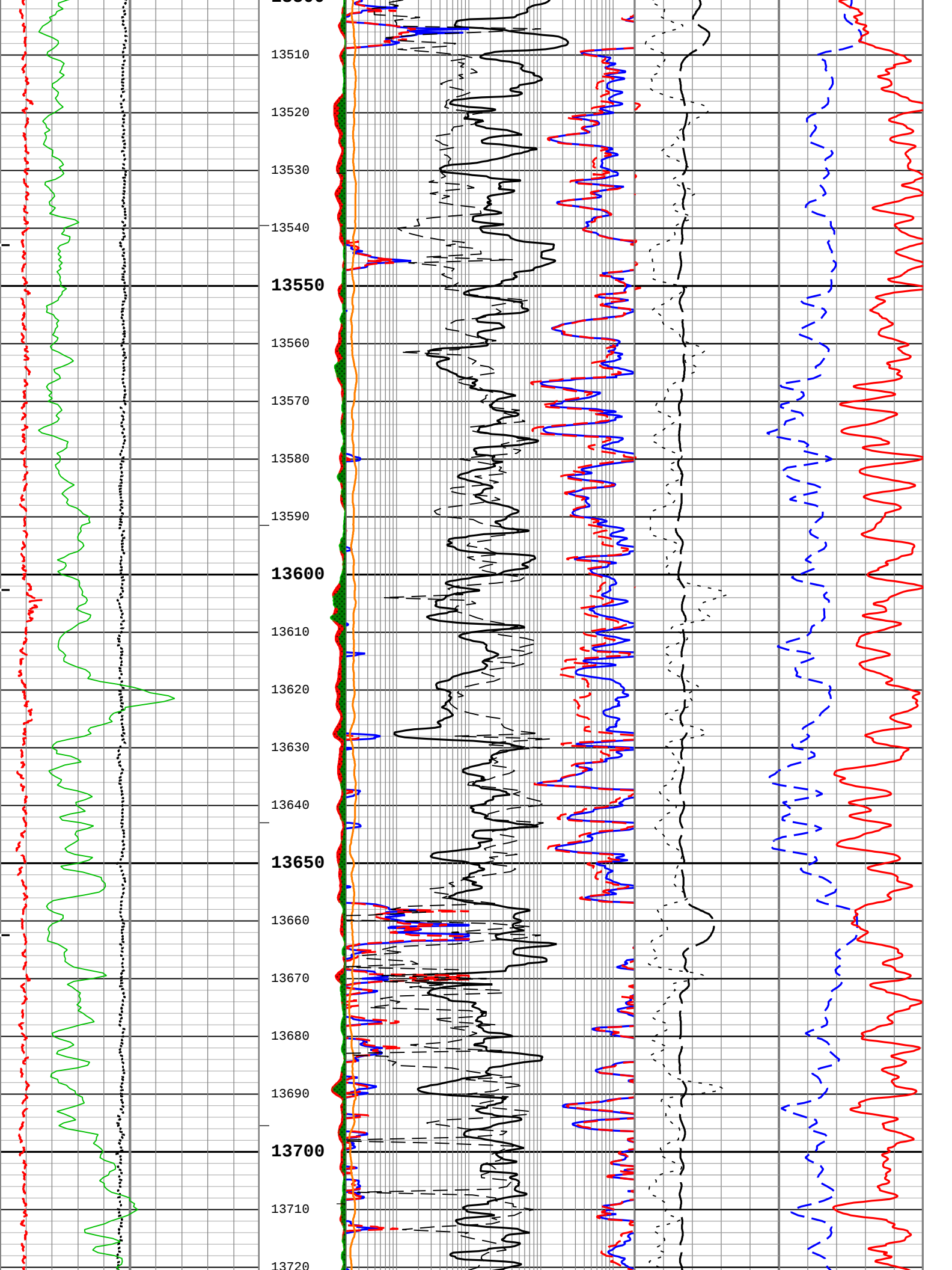


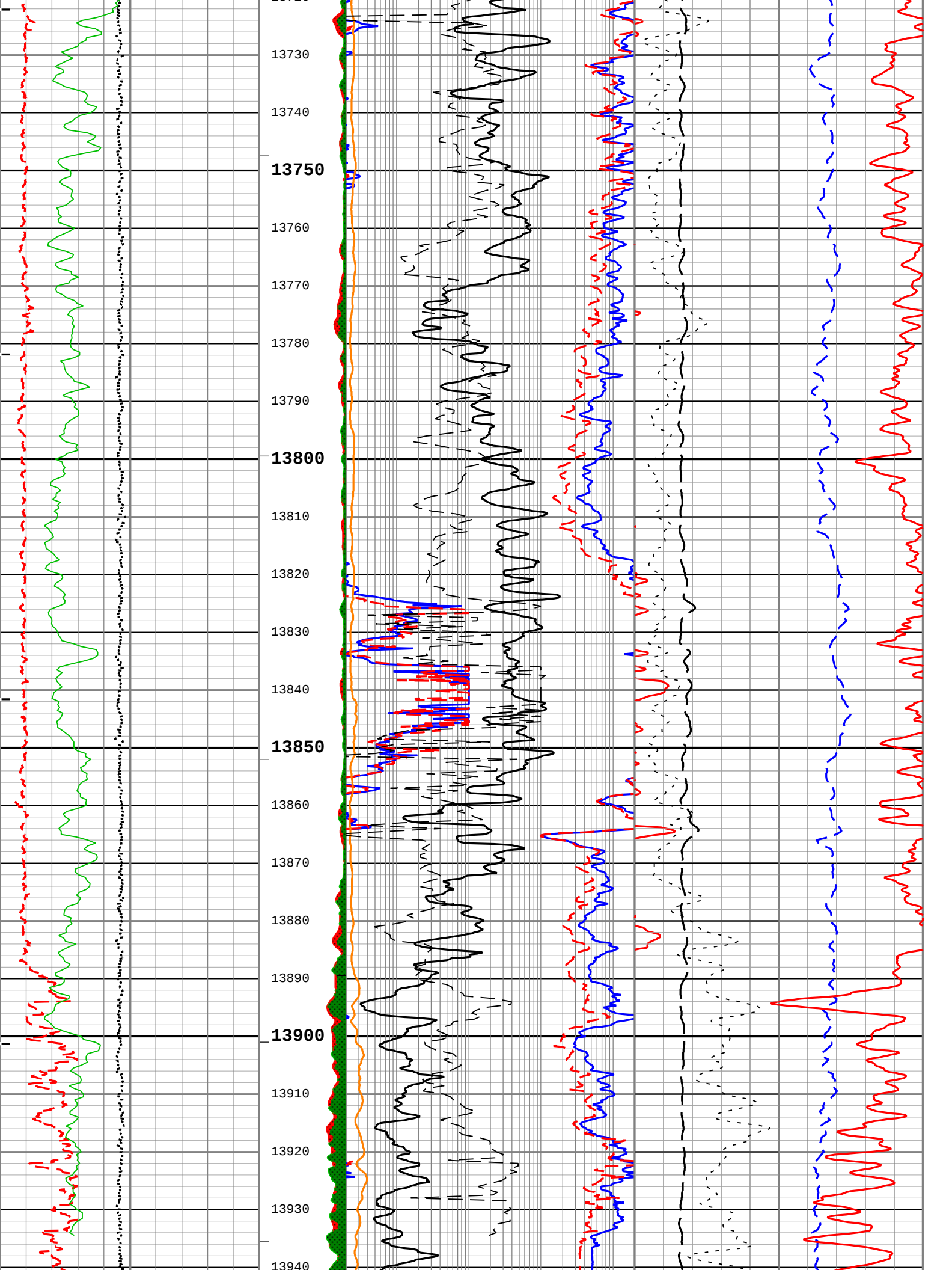


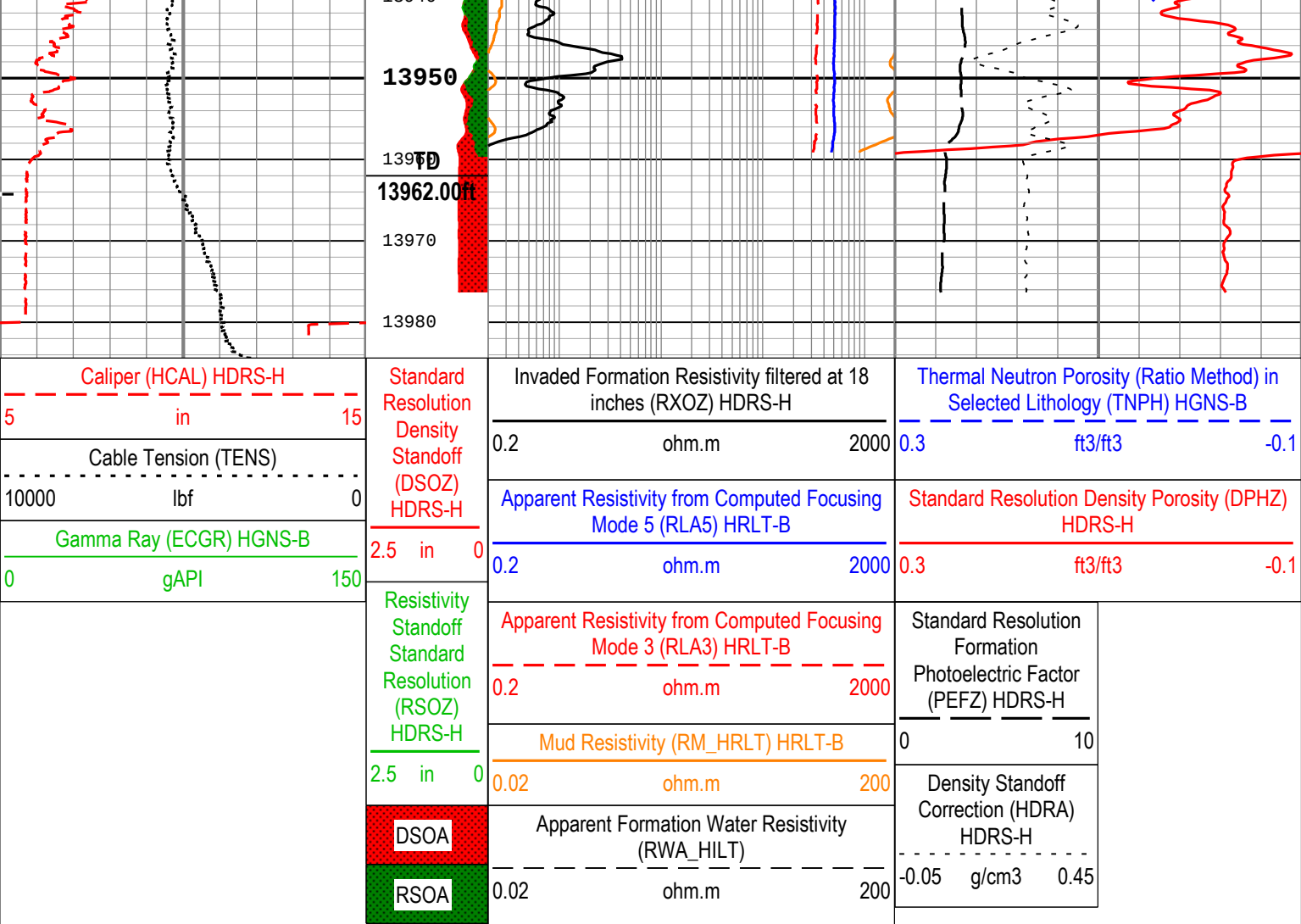












TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)

— IHV - Integrated Hole Volume every 100.00 (ft3)

— IHV - Integrated Hole Volume every 10.00 (ft3)

— 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: Triple Combo standard resolution template for Platform Express Format: Log (Jim Woods) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 13-Apr-2017 19:22:52

Channel Processing Parameters

4A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	182	degF
BS	Bit Size	WLSESSION	6.125	in
BSAL	Borehole Salinity	Borehole	2000	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	12508	ft
CDEN	Cement Density	HGNS-B	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	9.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	

DFT_WATER	Drilling Fluid Water Type	Borehole	Brine	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	5	in
FD	Fluid Density	Borehole	1.1	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	MRES	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
PROCRM	Mud Resistivity Select	HRLT-B	HRLT Compute	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
KFAC_HRLT	HRLT Geometrical Factor Option	HRLT-B	Sonde	
M	Exponent M of the Archie Formation Factor - Porosity Equation	Borehole	2	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
N	N Exponent in SW Formula	Borehole	2	
NPRM	HRDD Nuclear Processing Mode	HDRS-H	High Resolution	
PROCMSO	Mechanical Standoff Size	HRLT-B	1.5	in
PROCSP0	Sonde Position	HRLT-B	Eccentered	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.08	ohm.m
RW	Connate Water Resistivity	Borehole	1	ohm.m
SOCO	Standoff Correction Option	HGNS-B	Yes	
TWS	Connate Water Temperature	Borehole	68	degF

Tool Control Parameters				
4A: Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BOARD_TYPE	HMCA Board Type	HGNS-B	0	
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Company:	Raz Oil and Gas, LLC	Schlumberger
Well:	YO State 15 SWD 1	
Field:	Osudo South Morrow	
County:	Lea	
State:	Texas	
PEX		
Compensated Neutron Log		
Laterolog Resistivity		