HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY HERMAN L. LOEB, LLC.
WELL RANDEL 3-20
FIELD/BLOCK EINSEL NORTH
COUNTY KIOWA
STATE KANSAS

COMPANY **HERMAN L. LOEB, LLC.**

WELL **RANDEL 3-20**

FIELD/BLOCK **EINSEL NORTH**

COUNTY **KIOWA** STATE **KANSAS**

API No. 15-097-21807-00-00

Location (SHL) 2360' FSL & 1930' FEL
NW-NE-NW-SE

Sect. 20 Twp. 27S Rge. 18W

Other Services:
DSN / SDL
MICROLOG
ACRT
MRIL

Permanent Datum	GL		Elev. 2188.0 ft	Elev.: K.B.	2201.0 ft
Log measured from	KB		, 13.0 ft above perm. Datum	D.F.	2200.0 ft
Drilling measured from	KB			G.L.	2188.0 ft

Date		10-Sep-14					
Run No.		ONE					
Depth - Driller		4827.00 ft					
Depth - Logger		4826.0 ft					
Bottom - Logged Interval		4816					
Top - Logged Interval		647					
Casing - Driller		8.625 in	@ 647.0 ft	@		@	
Casing - Logger		647.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.1 ppg	54.00 s/qt				
PH	Fluid Loss	10.50 pH	9.6 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.560 ohmm	@ 90.00 degF	@		@	
Rmf @ Meas. Temperature		0.48 ohmm	@ 90.00 degF	@		@	
Rmc @ Meas. Temperature		0.644 ohmm	@ 90.00 degF	@		@	
Source Rmf	Rmc	CALCULATED	CALCULATED				
Rm @ BHT		0.41 ohmm	@ 127.0 degF	@		@	
Time Since Circulation		6.5000 hr					
Time on Bottom		10-Sep-14 20:53					
Max. Rec. Temperature		127.0 degF	@ 4826.0 ft	@		@	
Equipment	Location	11230668	LIBERAL				
Recorded By		SHELDON INGERSOLL					
Witnessed By		J. CHRISTENSEN					

Fold here

Service Ticket No.: 901655684 API Serial No.: 15-097-21807-00-00 PGM Version: WL INSITE R4.2.0 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.				Type Log	Depth	Scale Up Hole	Scale Down Hole
Date								
Depth-Driller								
Type Fluid in Hole								
Density	Viscosity							
Ph	Fluid Loss							
Source of Sample								
Rm @ Meas. Temp		@		@				
Rmf @ Meas. Temp.		@		@				
Rmc @ Meas. Temp.		@		@				
Source Rmf	Rmc							
Rm @ BHT		@		@				
Rmf @ BHT		@		@				
Rmc @ BHT		@		@				

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
				1.5" S.O.	
	ONE	ACRT	N/A		
		10800784			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.		Run No.	
Serial No.	10748374	Serial No.		Serial No.		Serial No.	
Model No.	T-102	Model No.		Model No.		Model No.	
Diameter	3.625"	No. of Cent.		Diameter		Diameter	
Detector Model No.	T-102	Spacing		Log Type		Log Type	
Type	SCINT			Source Type		Source Type	
Length	8"	LSA [Y/N]		Serial No.		Serial No.	
Distance to Source	N/A	FWDA [Y/N]		Strength		Strength	

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	CSG	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks:

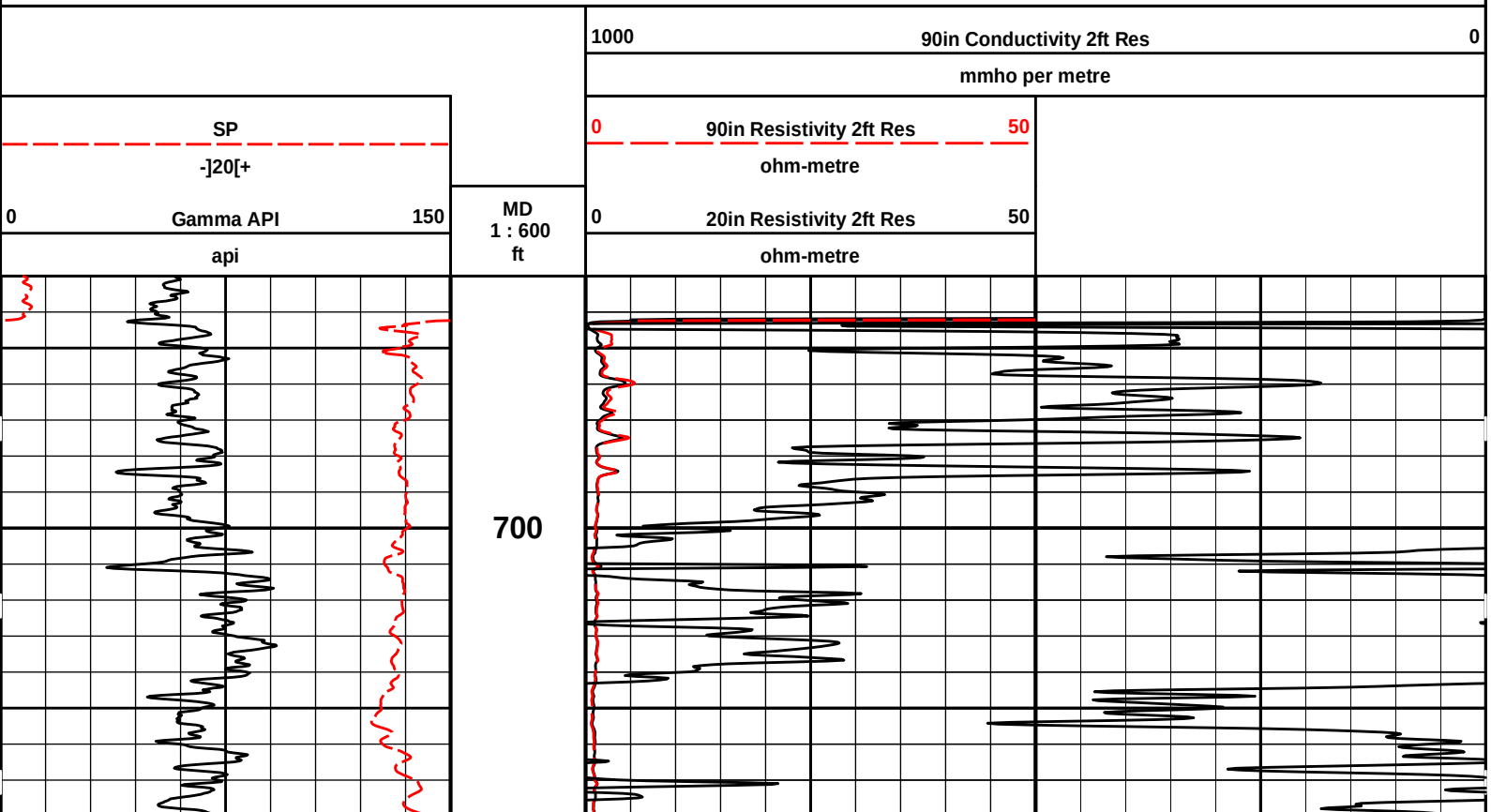
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

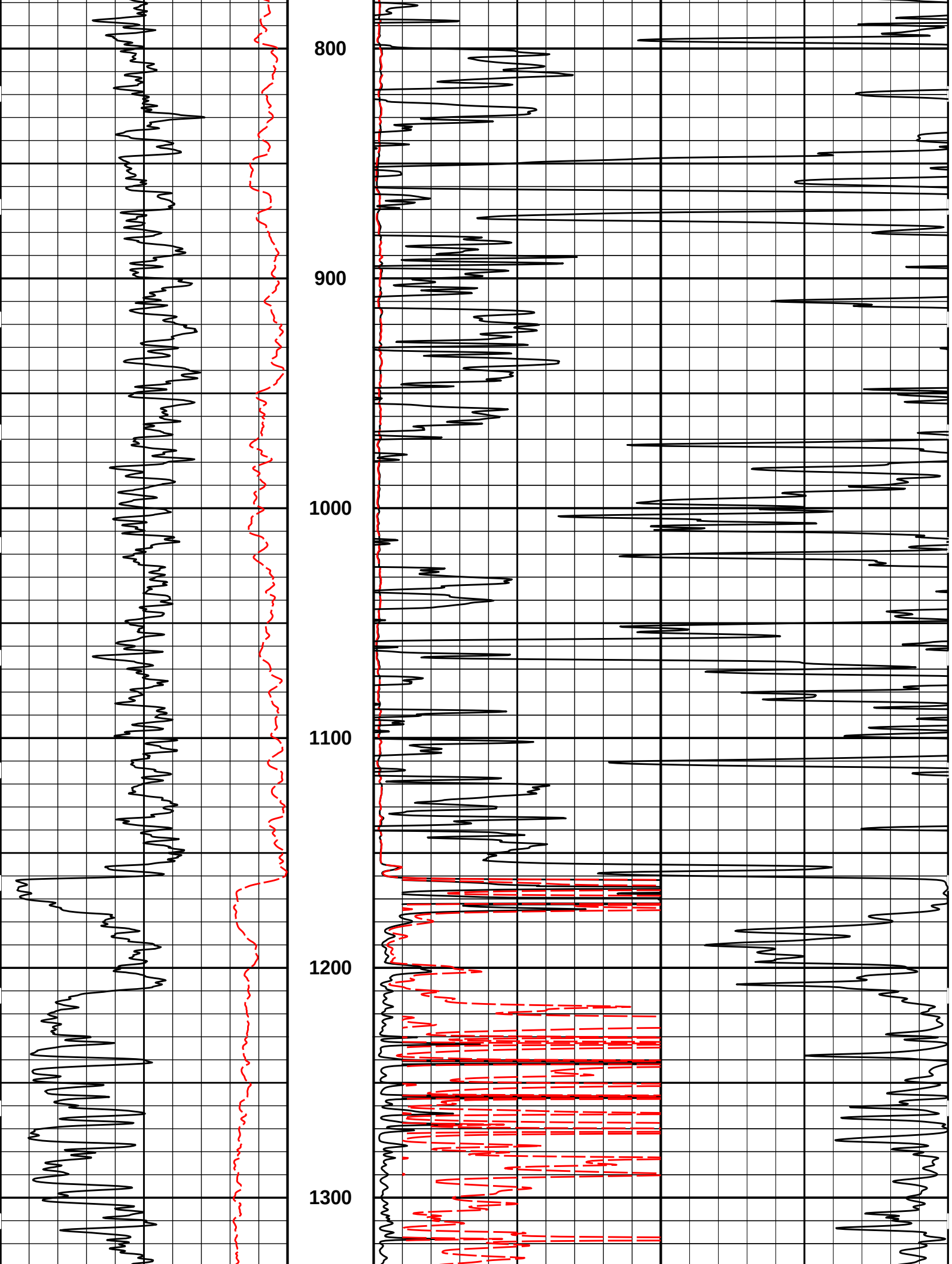
HALLIBURTON

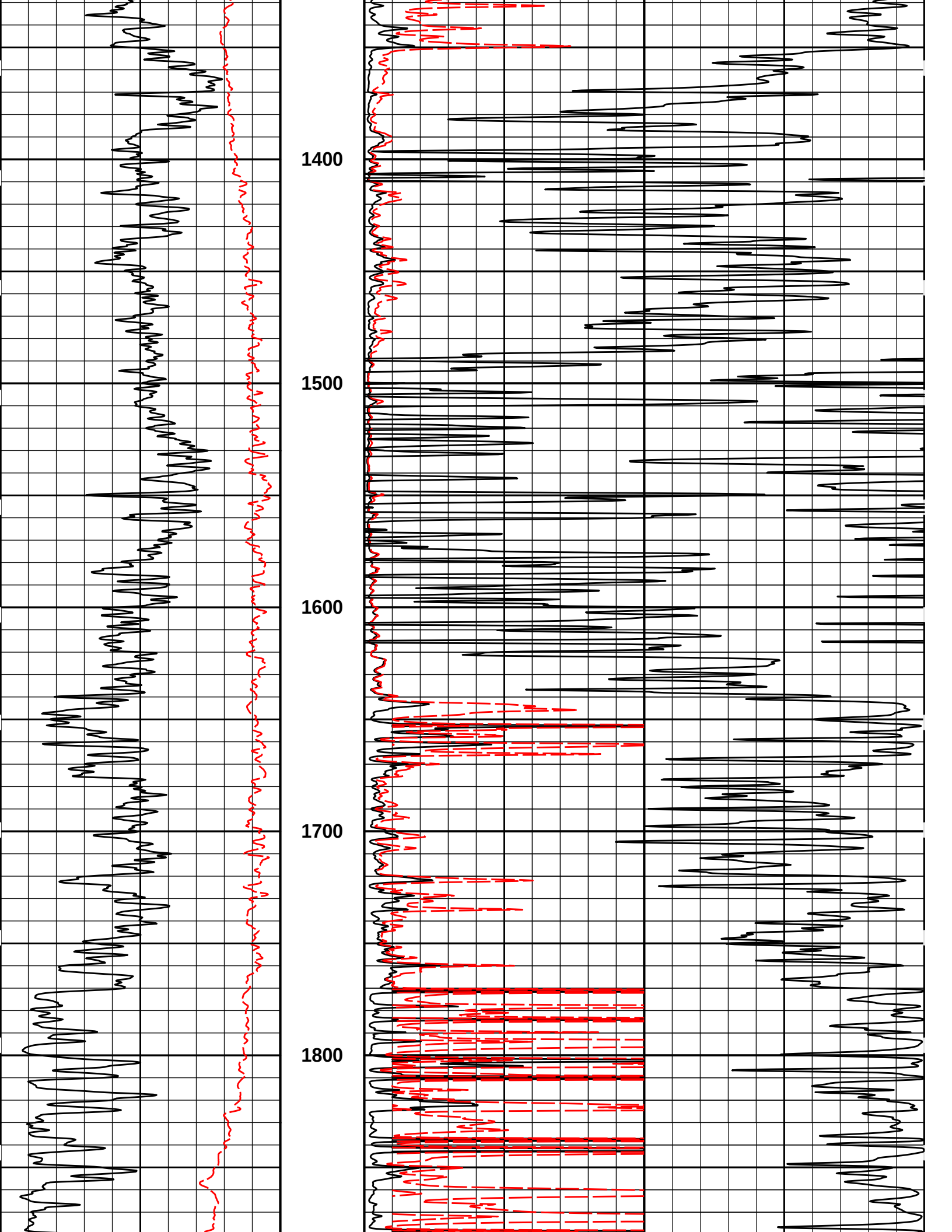
HALLIBURTON

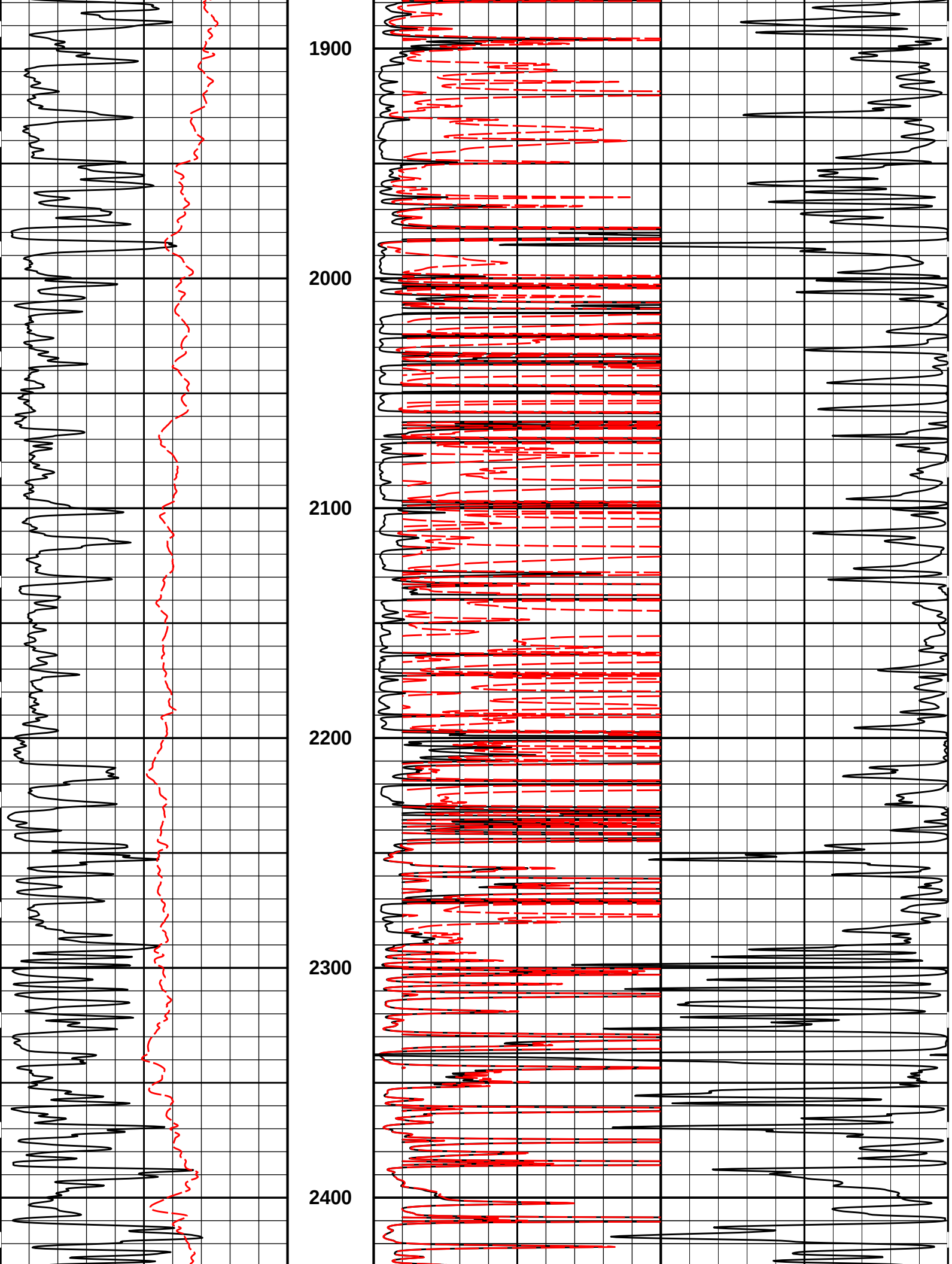
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Plot Range: 630 ft to 4828 ft
Data: RANDEL_3-20\Well Based\R1 ACRT CASING
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_2_lib

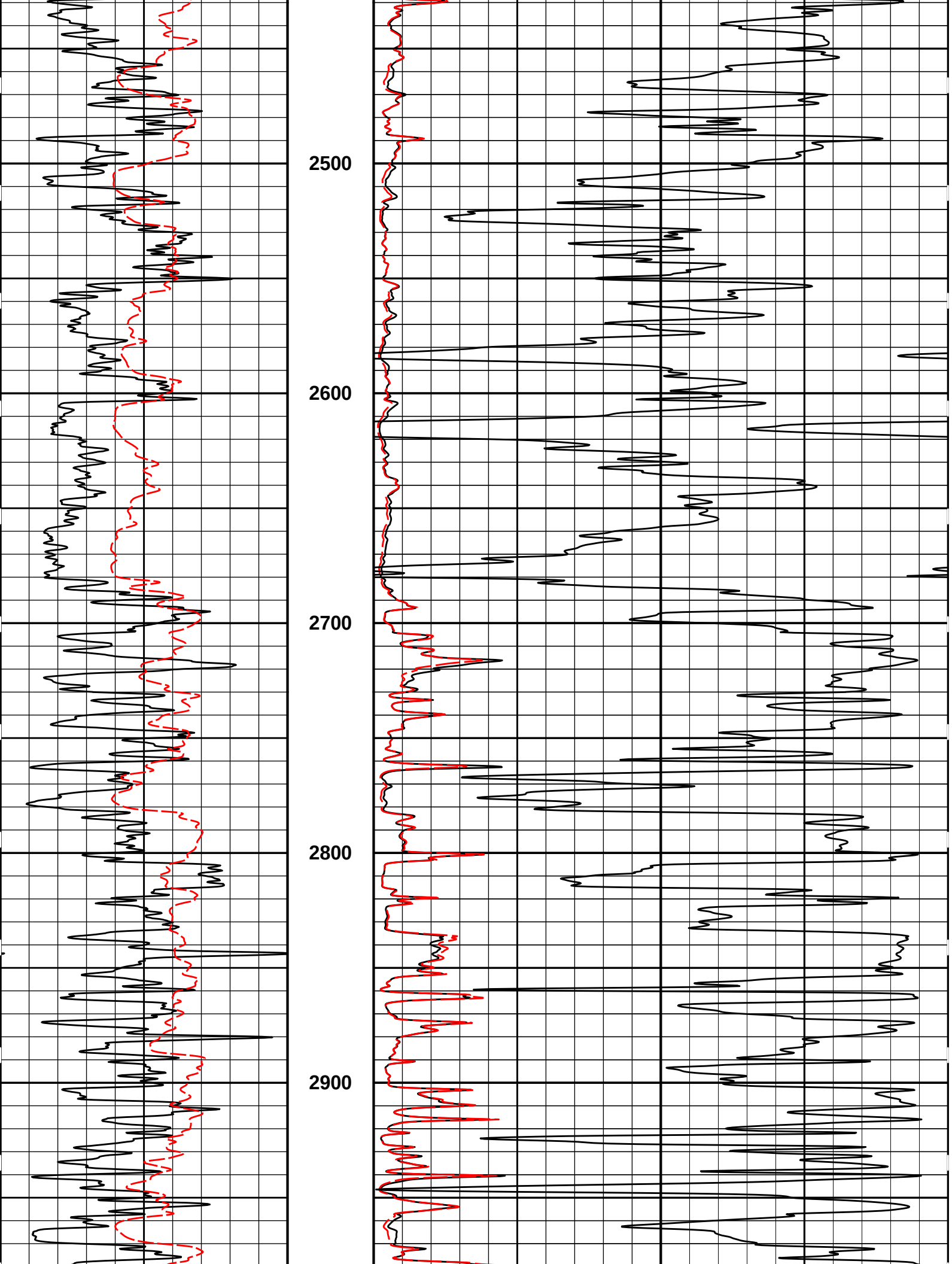
2 INCH MAIN LOG

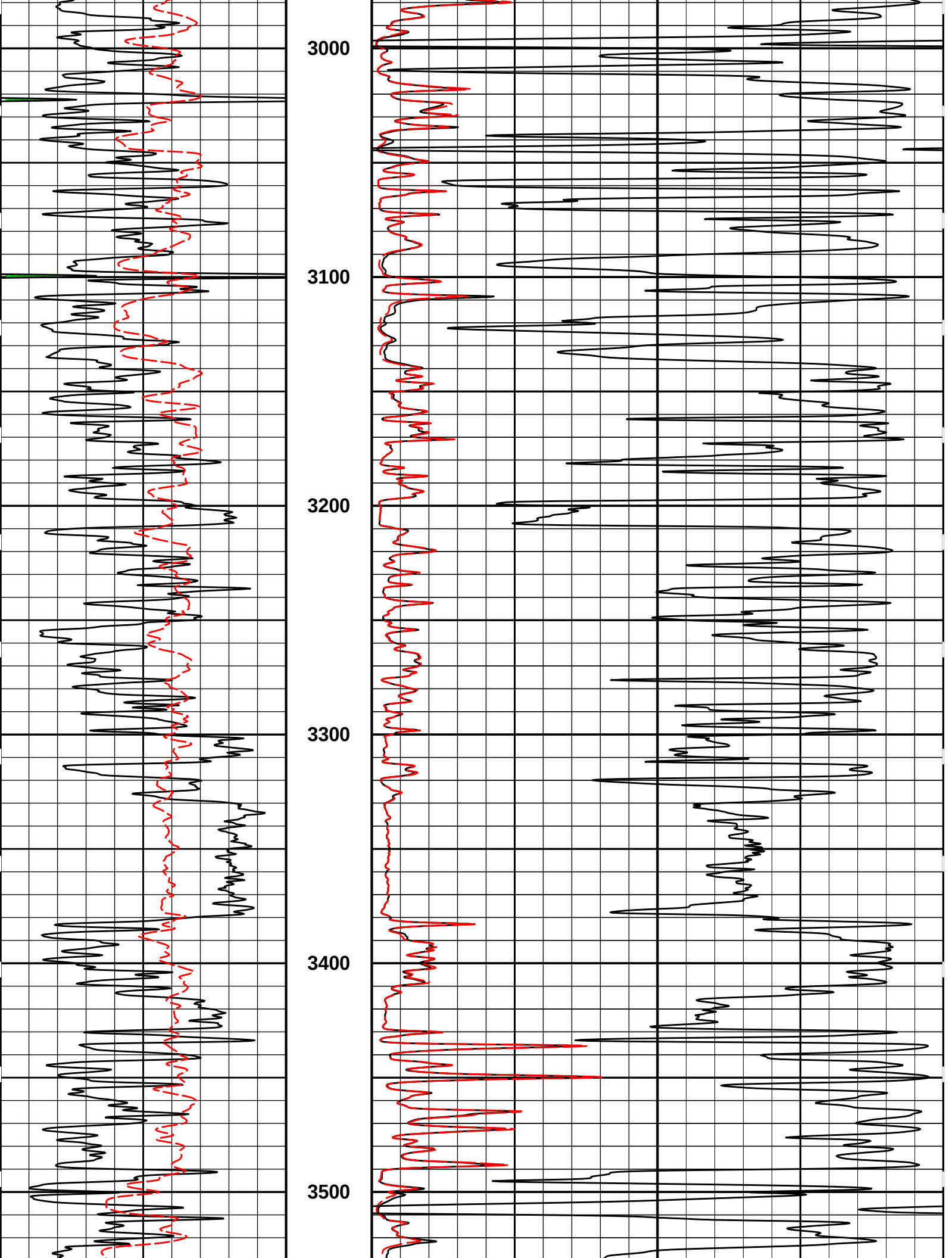


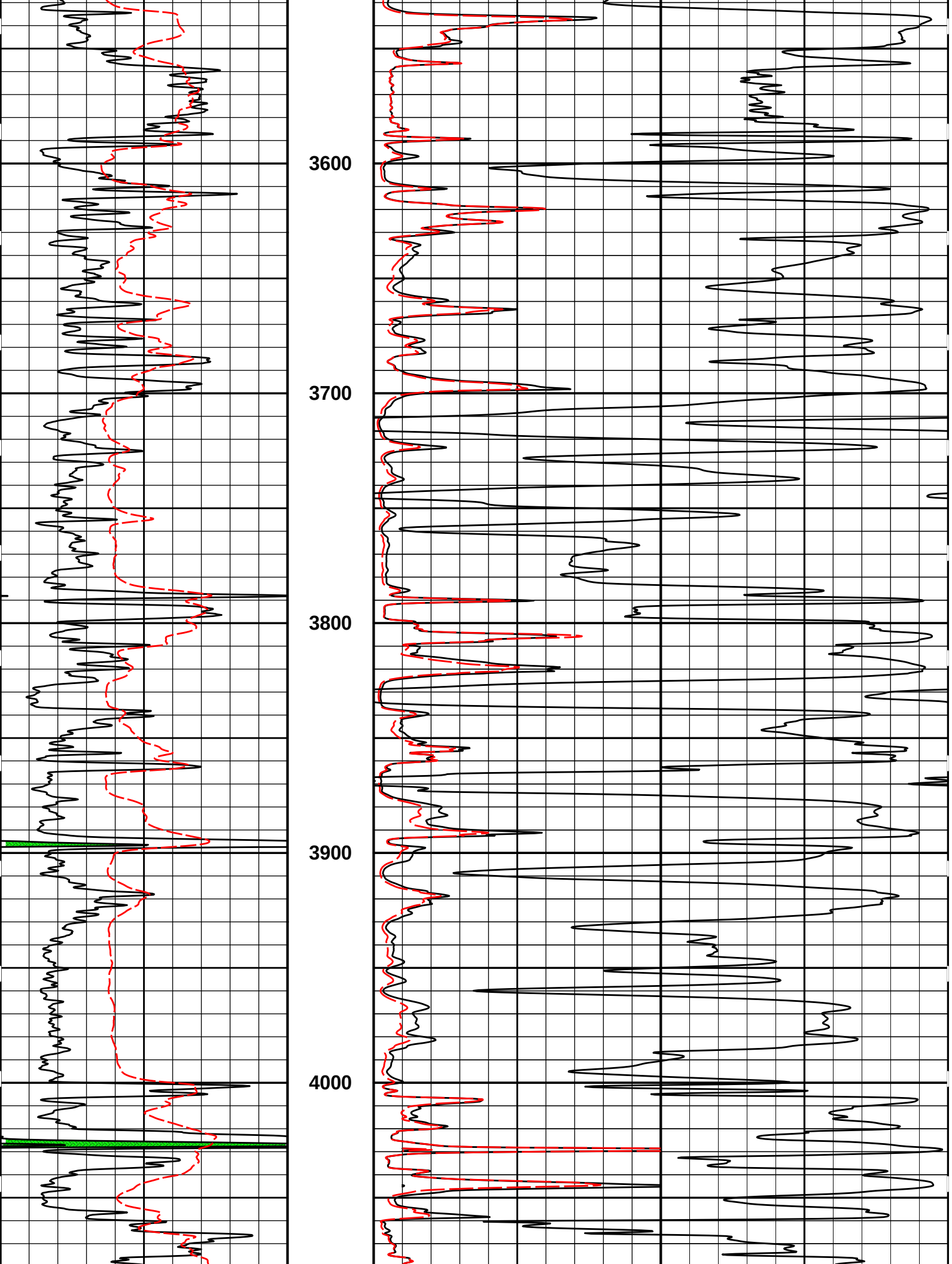

800
900
1000
1100
1200
1300

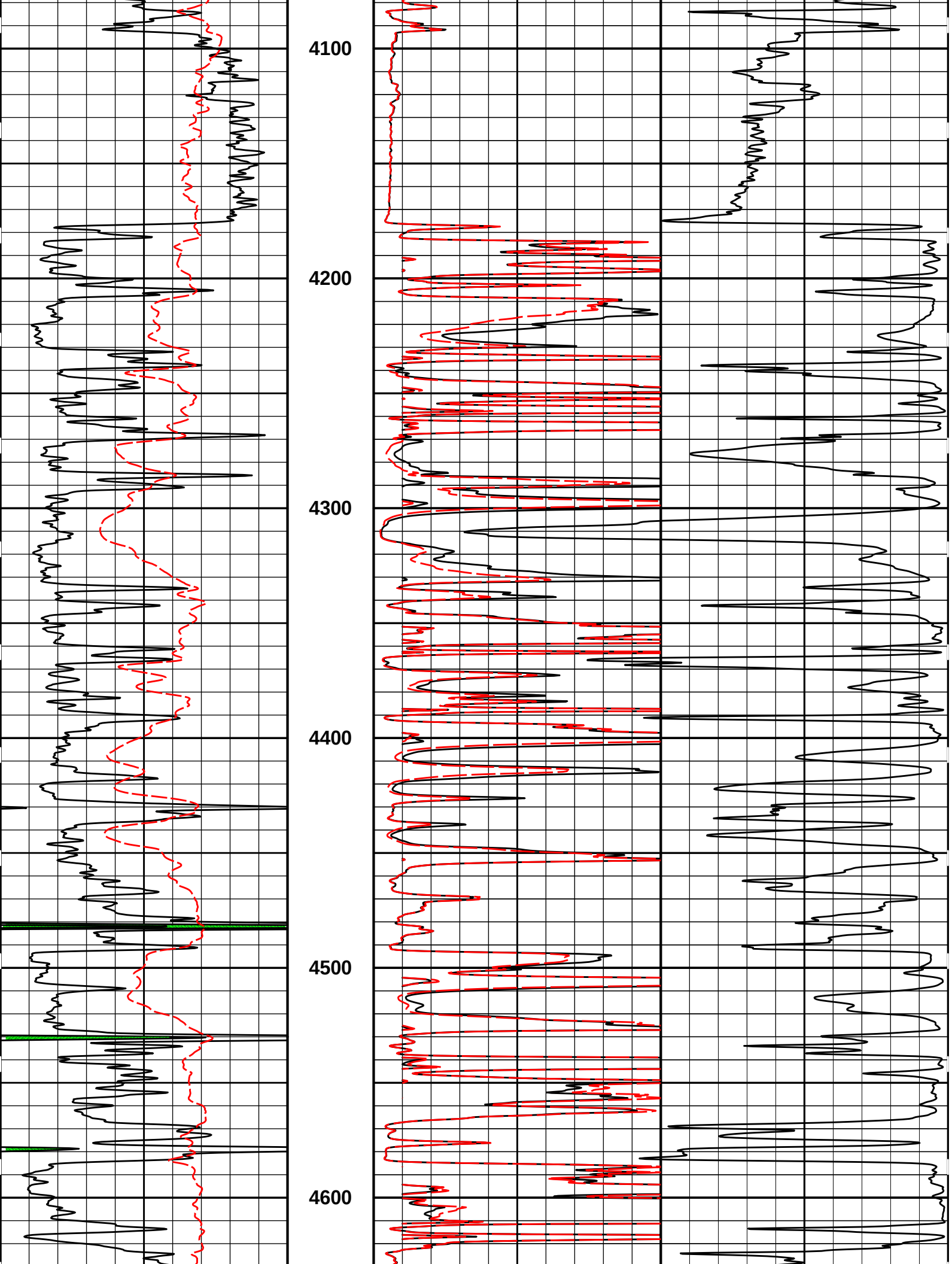

1400
1500
1600
1700
1800

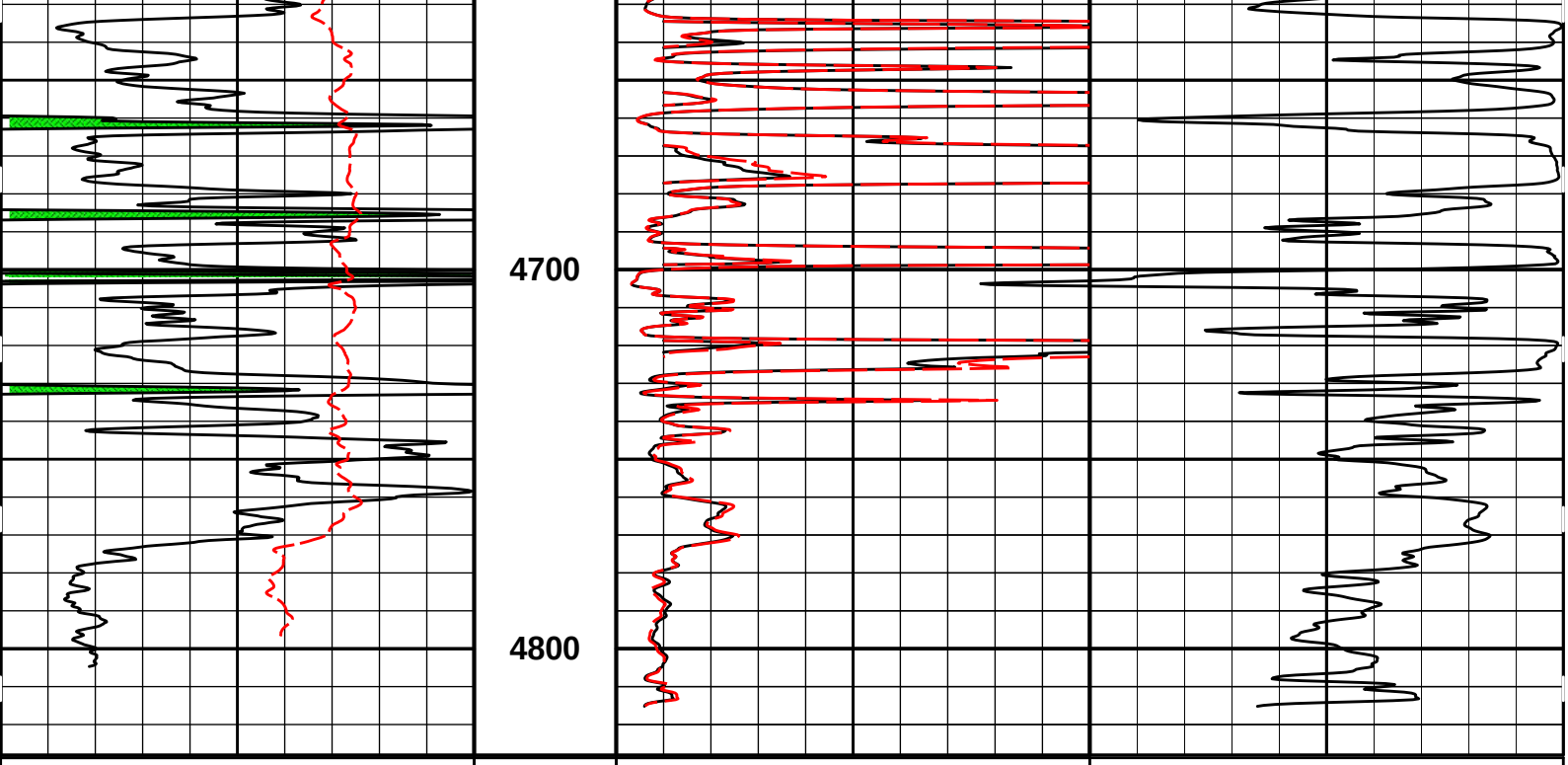

1900
2000
2100
2200
2300
2400


2500
2600
2700
2800
2900


3000
3100
3200
3300
3400
3500


3600
3700
3800
3900
4000


4100
4200
4300
4400
4500
4600



0 Gamma API 150	MD 1 : 600 ft	0 20in Resistivity 2ft Res 50
api		ohm-metre
SP		0 90in Resistivity 2ft Res 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

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Plot Time: 10-Sep-14 22:34:23
Plot Range: 630 ft to 4828 ft
Data: RANDEL_3-20\Well Based\R1 ACRT CASING\
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_2_lib

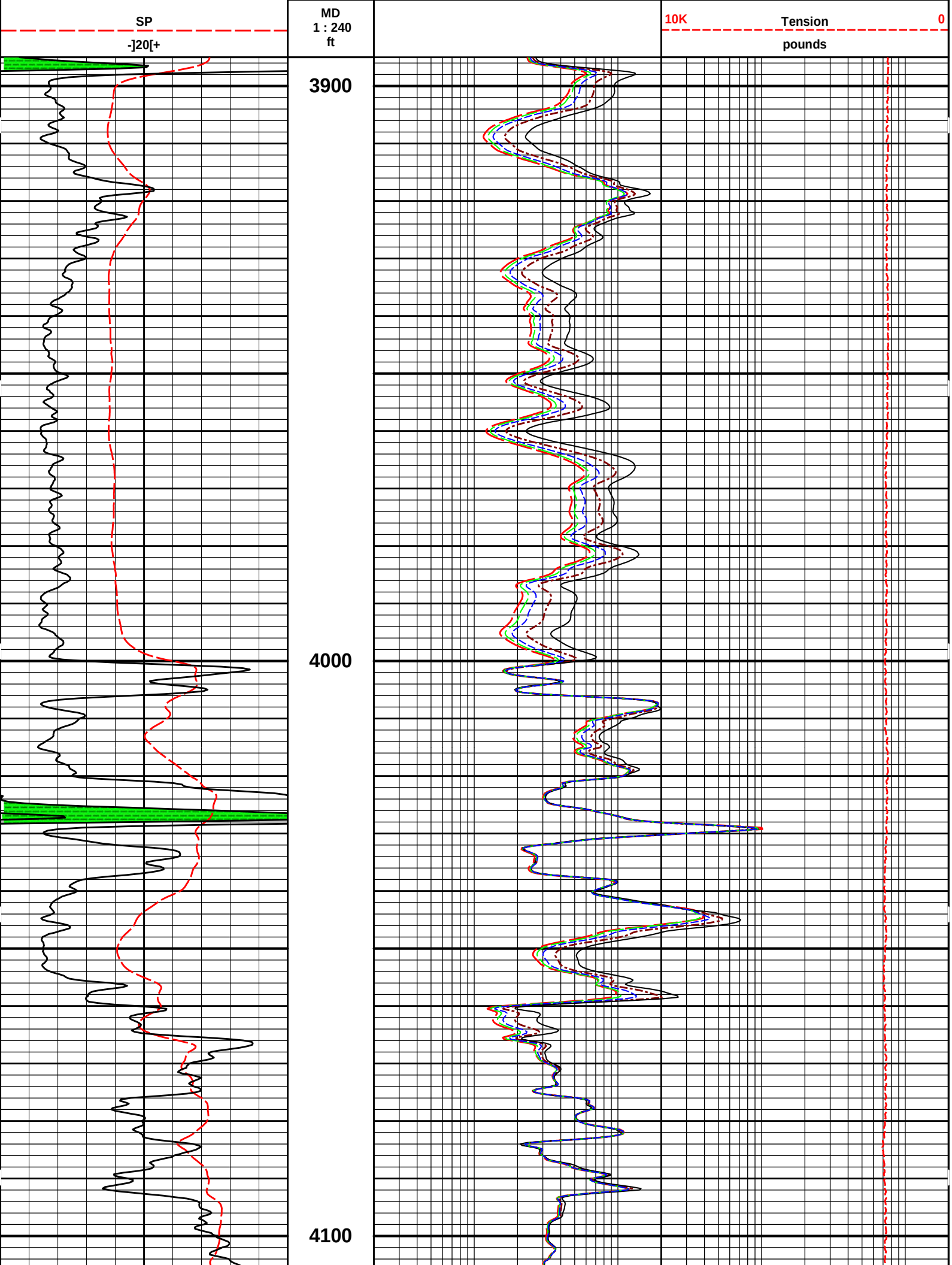
2 INCH MAIN LOG

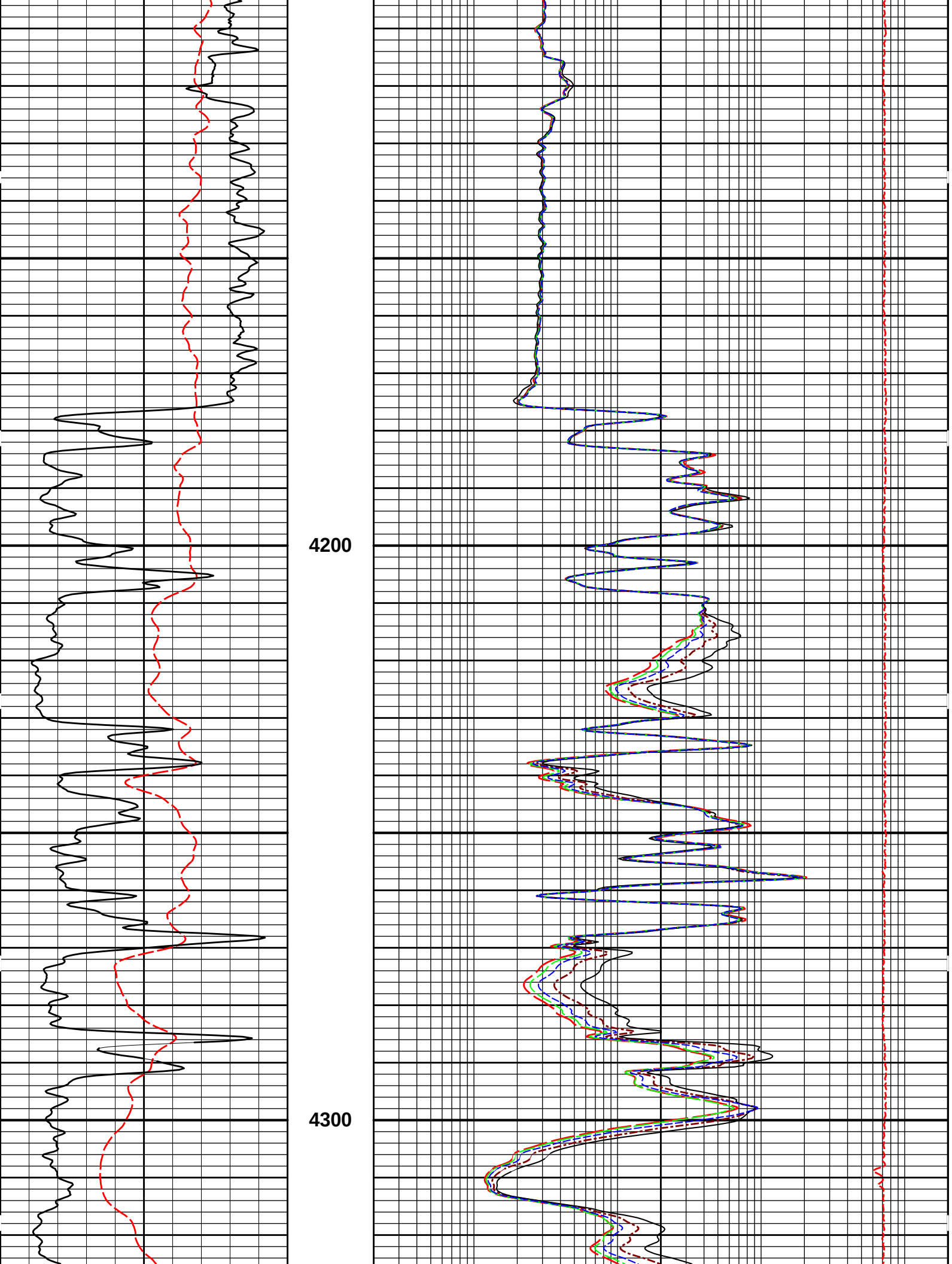
HALLIBURTON

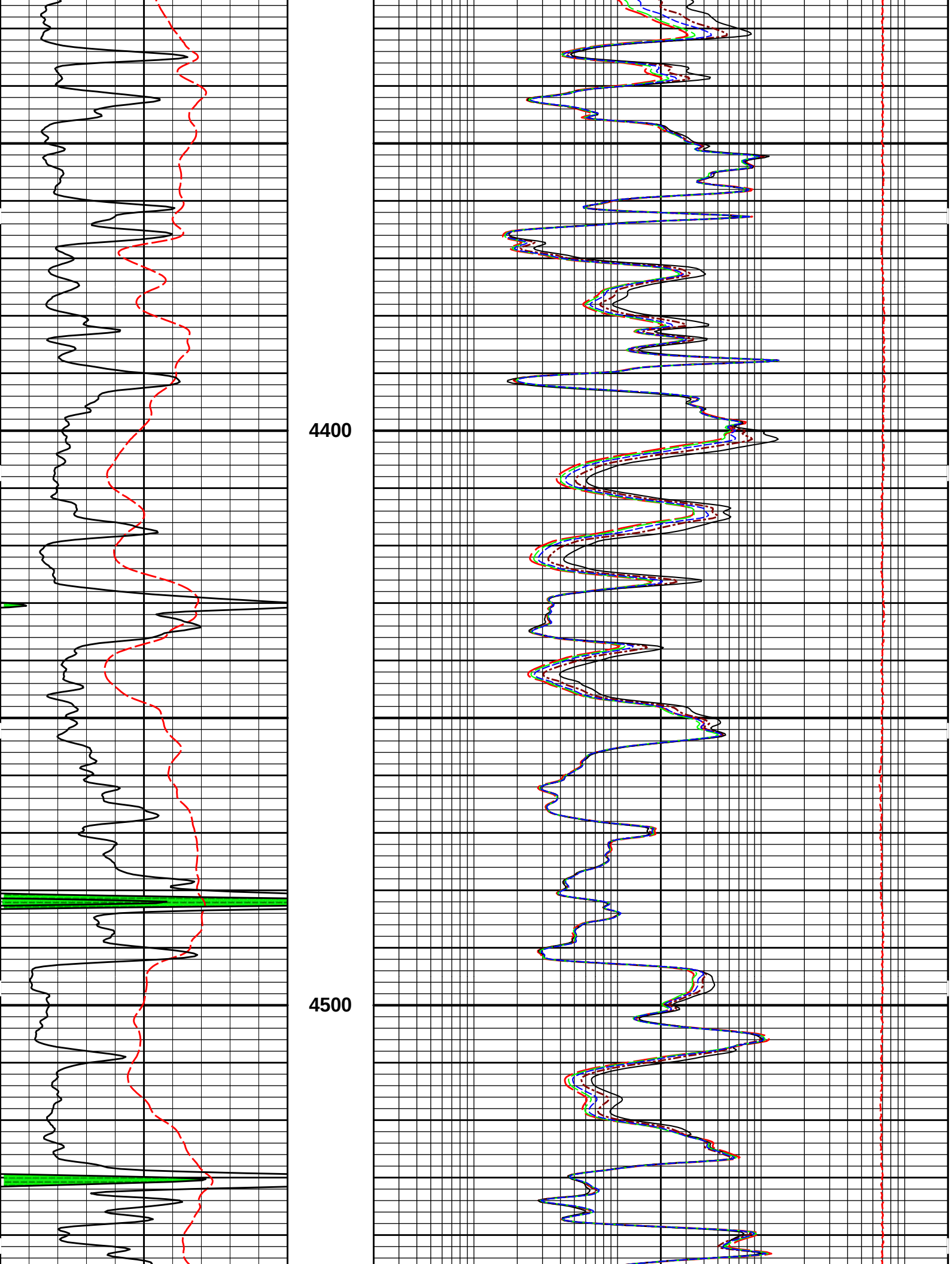
Plot Time: 10-Sep-14 22:34:23
Plot Range: 3895 ft to 4828 ft
Data: RANDEL_3-20\Well Based\R1 ACRT DETAIL\
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_5_main_lib

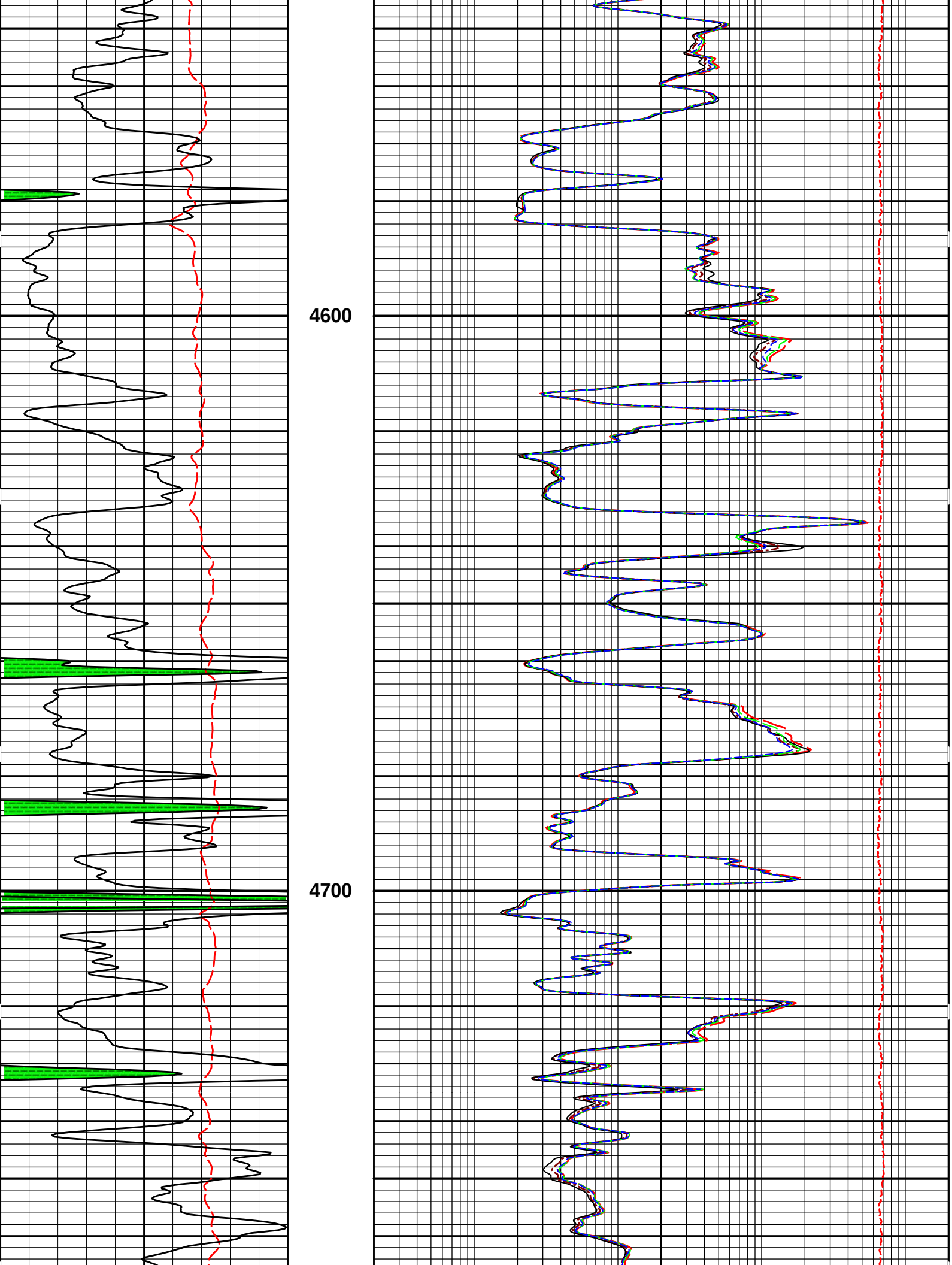
5 INCH MAIN LOG

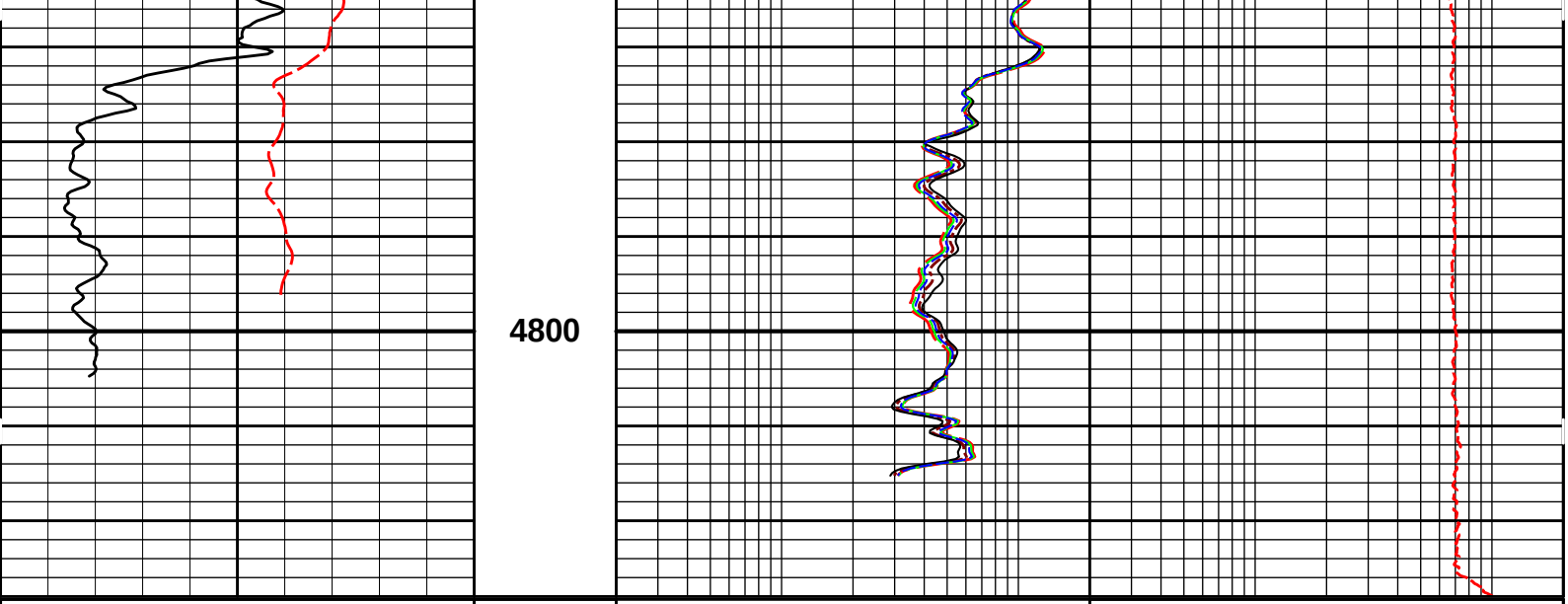
	0.2 90in Resistivity 2ft Res 2000
	ohmm
	0.2 60in Resistivity 2ft Res 2000
	ohmm
	0.2 30in Resistivity 2ft Res 2000
	ohm-metre
	0.2 20in Resistivity 2ft Res 2000
	ohmm
SHALE	0.2 10in Resistivity 2ft Res 2000
0 Gamma API 150	ohmm
api	


SP
-]20[+
MD
1 : 240
ft
10K
Tension
0
pounds
3900
4000
4100


4200
4300


4400
4500


4600
4700



SP

-]20[+

0 Gamma API 150

api

SHALE

MD
1 : 240
ft

10K Tension 0

pounds

0.2 10in Resistivity 2ft Res 2000

ohmm

0.2 20in Resistivity 2ft Res 2000

ohmm

0.2 30in Resistivity 2ft Res 2000

ohm-metre

0.2 60in Resistivity 2ft Res 2000

ohmm

0.2 90in Resistivity 2ft Res 2000

ohmm

HALLIBURTON

Plot Time: 10-Sep-14 22:34:25
Plot Range: 3895 ft to 4828 ft
Data: RANDEL_3-20\Well Based\R1 ACRT DETAIL\
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG

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Plot Time: 10-Sep-14 22:34:25
Plot Range: 4545 ft to 4828.25 ft
Data: RANDEL_3-20\Well Based\R1 ACRT REPEAT\
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_5_repeat_lib

REPEAT SECTION

0.2 90in Resistivity 2ft Res 2000

ohmm

0.2 60in Resistivity 2ft Res 2000

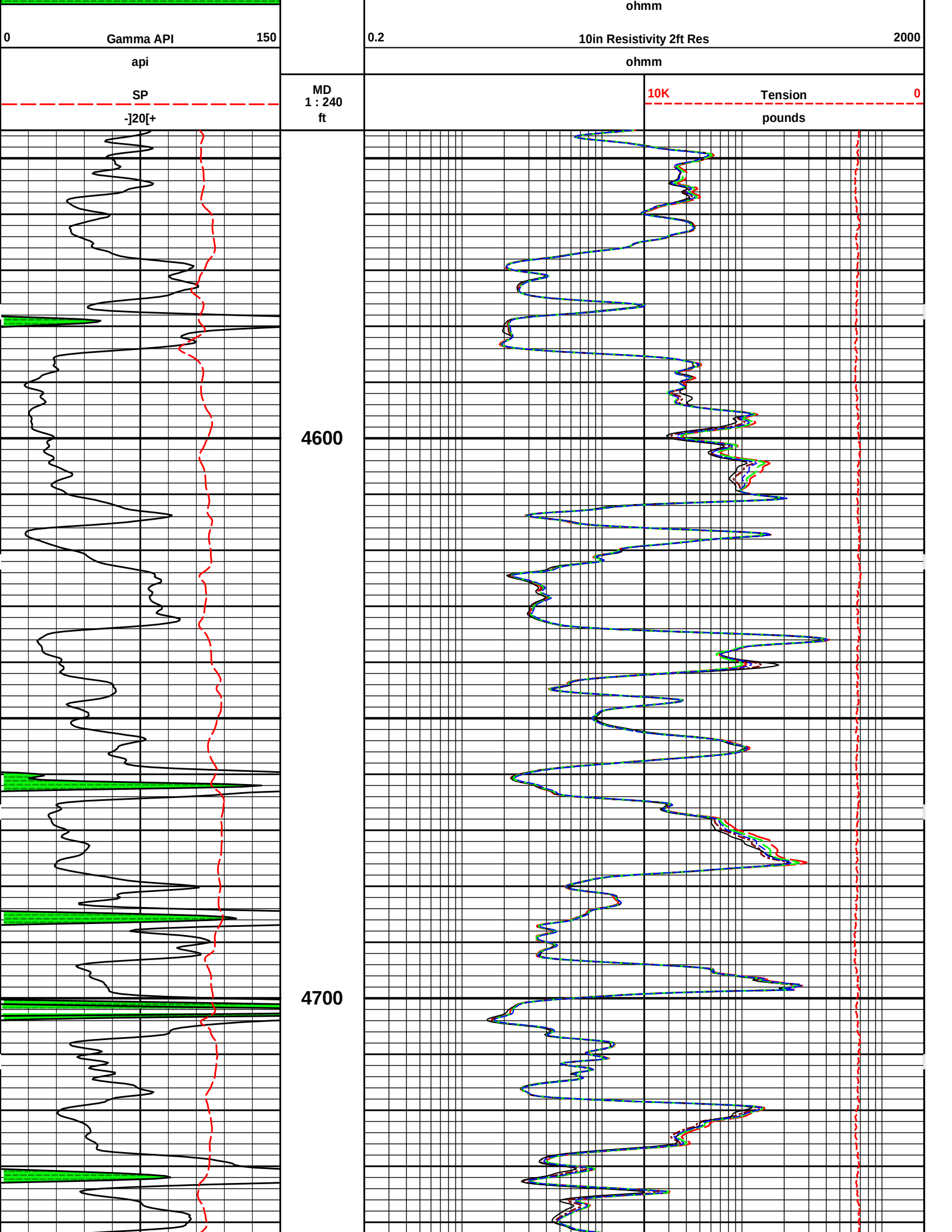
ohmm

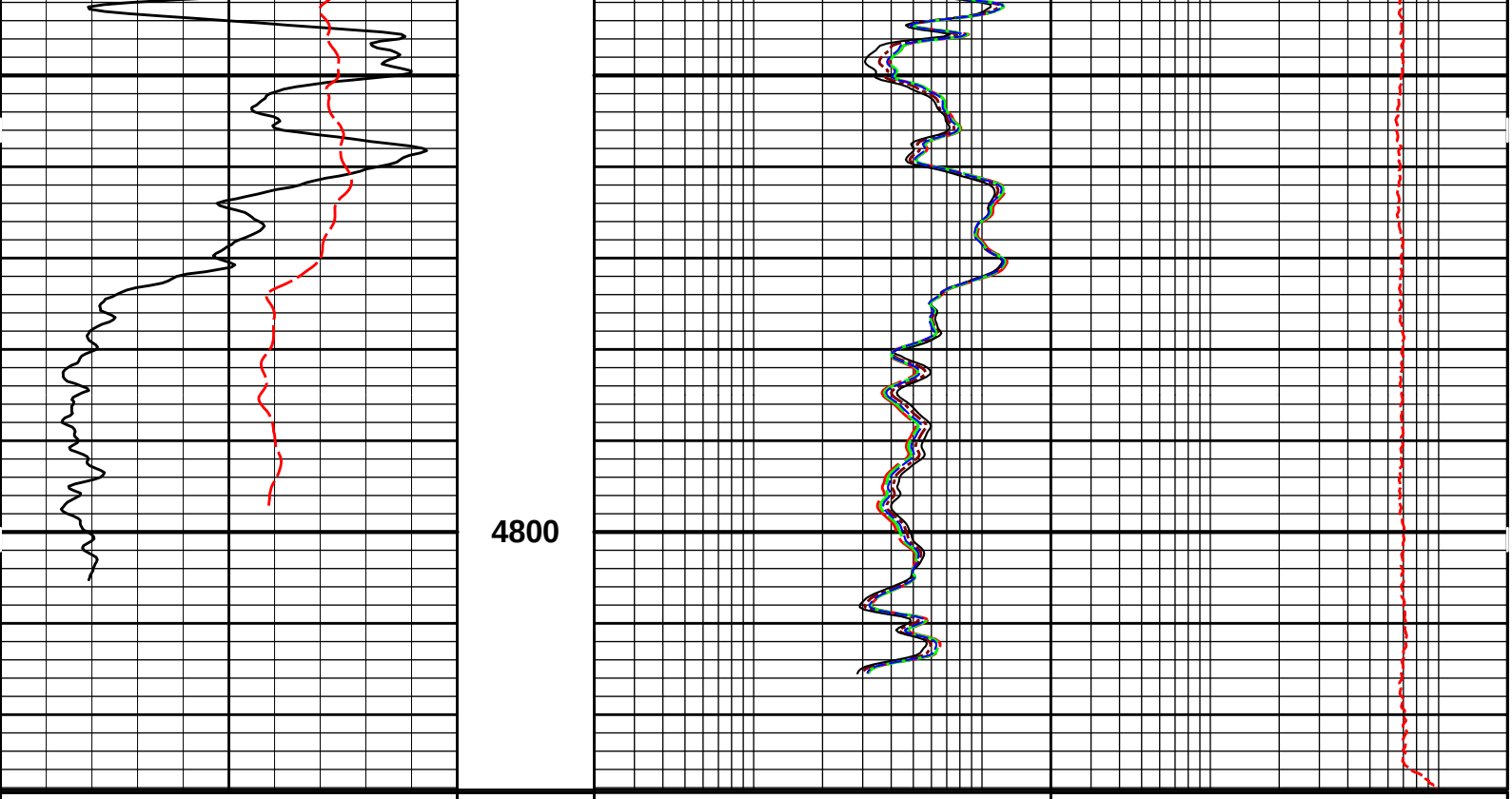
0.2 30in Resistivity 2ft Res 2000

ohm-metre

0.2 20in Resistivity 2ft Res 2000

SHALE


0
Gamma API
150
api
SP
-]20[+
MD
1 : 240
ft
4600
4700
ohmm
0.2
10in Resistivity 2ft Res
2000
ohmm
10K
Tension
0
pounds



SP

-]20[+

0 Gamma API 150

api

SHALE

MD
1 : 240
ft

10K Tension 0

pounds

0.2 10in Resistivity 2ft Res 2000

ohmm

0.2 20in Resistivity 2ft Res 2000

ohmm

0.2 30in Resistivity 2ft Res 2000

ohm-metre

0.2 60in Resistivity 2ft Res 2000

ohmm

0.2 90in Resistivity 2ft Res 2000

ohmm

HALLIBURTON

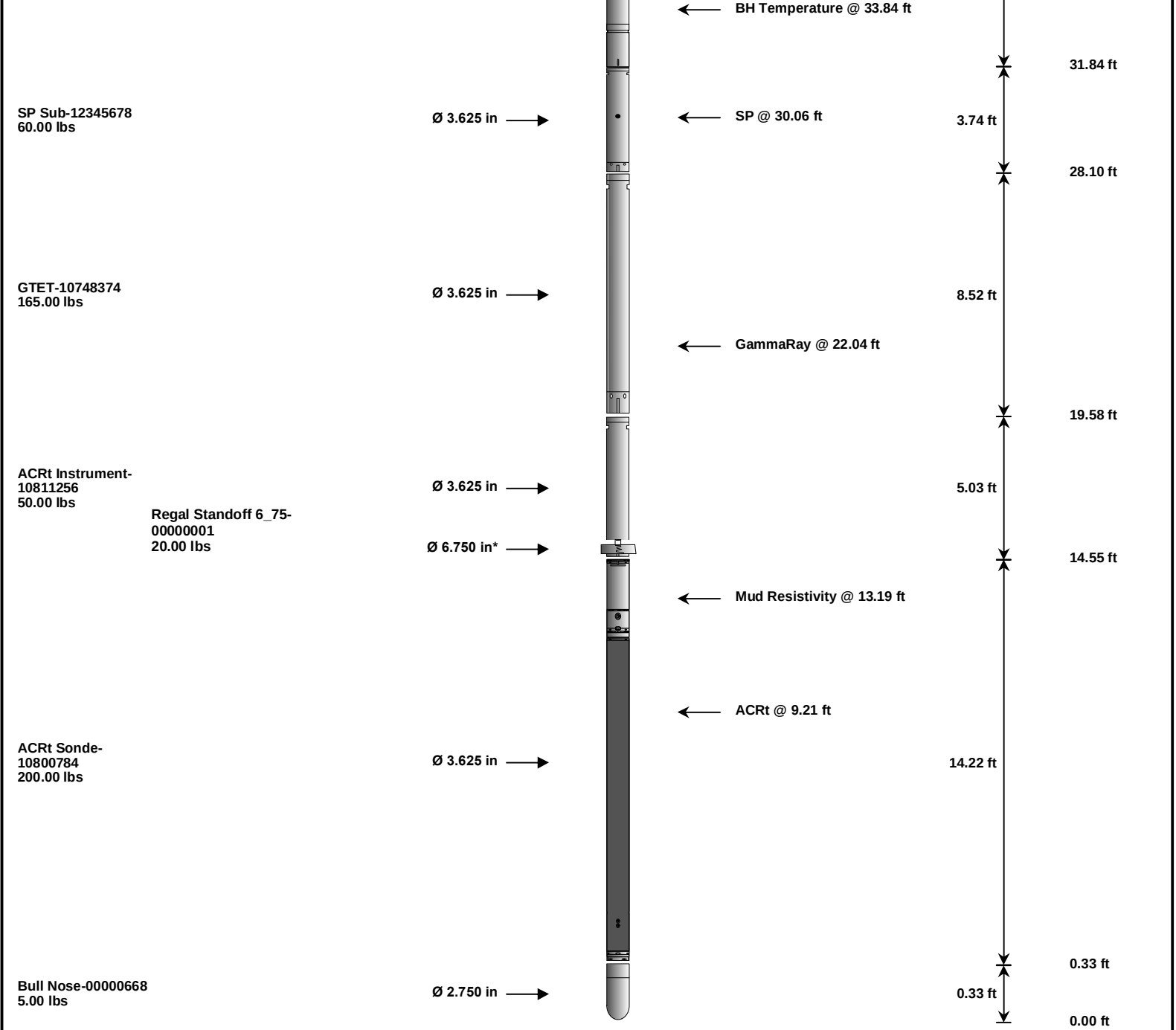
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Plot Range: 4545 ft to 4828.25 ft
Data: RANDEL_3-20\Well Based\R1 ACRT REPEAT\
Plot File: \\-LOCAL-\RANDEL_3-20\Well Based\ACRT\ACRT_5_repeat_lib

REPEAT SECTION

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TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-12156658 135.00 lbs		Ø 3.625 in	Load Cell @ 34.41 ft 6.25 ft		38.09 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12156658	135.00	6.25		31.84	300.00
SP	SP Sub	12345678	60.00	3.74		28.10	300.00
GTET	Gamma Telemetry Tool	10748374	165.00	8.52		19.58	60.00
ACRt	Array Compensated True Resistivity Instrument Section	10811256	50.00	5.03		14.55	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	14.68	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22		0.33	120.00
BLNS	Bull Nose	00000668	5.00	0.33		0.00	300.00
Total			**635.00**	**38.09**			

* Not included in Total Length and Length Accumulation.

Data: RANDEL_3-20\0002 SP-GTET-ACRT\IDLE **Date: 10-Sep-14 19:54:35**

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units

(ft)					
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.100	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.560	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4827.00	ft
	SHARED	BHT	Bottom Hole Temperature	127.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	Depth Panel	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	Depth Panel	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
	ACRt Sonde	BHSM	Borehole Size Source Tool	Depth Panel	
BOTTOM					

Data: RANDEL_3-20\0002 SP-GTET-ACRT\006 10-Sep-14 20:52 Up @4828.0f **Date: 10-Sep-14 22:25:54**

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 10748374**	**Reference Calibration Date:**	**02-Jul-14 13:05:19**
Engineer:	**SUHAIL BISHTI**	**Calibration Date:**	**19-Aug-14 17:33:09**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	45.2	45.3	api
Background + Calibrator	276.7	277.3	api
Calibrator	231.5	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 10748374**	**Reference Calibration Date:**	**19-Aug-14 17:33:09**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**04-Sep-14 18:28:51**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	45.3	44.0	api
Background + Calibrator	277.3	276.5	api
Calibrator	232.0	232.4	api

Shop	Field	Difference	Tolerance
232.0	232.4	-0.4	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 10800784**	**Reference Calibration Date:**	**05-May-14 10:36:04**
Engineer:	**SHELDON INGERSOLL**	**Calibration Date:**	**22-Aug-14 10:25:04**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**
Host Tool Name:	**ACRt Instrument - 10811256**		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0143	1.05	0.95	1.0083	1.05	0.95	0.9944	1.05
A2 (50")	0.95	1.0200	1.05	0.95	1.0168	1.05	0.95	1.0060	1.05
A3 (29")	0.95	1.0167	1.05	0.95	1.0136	1.05	0.95	1.0026	1.05
A4 (17")	0.95	1.0141	1.05	0.95	1.0096	1.05	0.95	1.0023	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0037	1.05	0.95	0.9958	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9874	1.05	0.95	0.9796	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	0.140	-3.696	-4.814
A2 (50")	-1.633	-3.741	-4.342
A3 (29")	-16.162	-4.620	-3.462

A4 (17")	-98.624	-32.995	-26.875
A5 (10")	N/A	-98.184	-49.266
A6 (6")	N/A	293.685	155.844

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.88	1.3
36K	1.0	1.20	2.0
72K	1.0	1.53	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10748374						
Gamma Ray Calibrator	232.0	232.4	----------	-0.4	+/- 9.00	api
ACRt Sonde-10800784						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: RANDEL_3-20\0002 SP-GTET-ACRT\006 10-Sep-14 20:52 Up @4828.0f **Date: 10-Sep-14 22:27:24**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	38.09	NO	
BS	Bit Size	38.09	NO	
HDIA	Measured Hole Diameter	0.00	NO	
RWCH				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	30.06	NO	
SP	Spontaneous Potential	30.06	BLK	1.250
SPR	Raw Spontaneous Potential	30.06	NO	
SPO	Spontaneous Potential Offset	30.06	NO	
GTET				
TPUL	Tension Pull	22.04	NO	
GR	Natural Gamma Ray API	22.04	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	22.04	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	22.04	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083

ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	

ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	

HDIA	Measured Hole Diameter	0.00	NO

Data: RANDEL_3-20\0002 SP-GTET-ACRT\IDLE **Date: 10-Sep-14 22:29:56**

COMPANY	**HERMAN L. LOEB, LLC.**		
WELL	**RANDEL 3-20**		
FIELD	**EINSEL NORTH**		
COUNTY	**KIOWA**	STATE	**KANSAS**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG