



DUAL INDUCTION LOG

Pioneer Energy Services

Company		BLACKSTONE OIL & GAS (KS), LLC	
Well	CROTINGER NO. 2-4		
Field	OTIS-ALBERT		
County	RUSH	State	KANSAS
Location:		API # : 15-165-22,122-00-00	Other Services
467' FSL & 2,173' FWL		CNL/CDL MEL	
Permanent Datum	GROUND LEVEL	Elevation	1970'
Log Measured From	KELLY BUSHING	K.B.	1976'
Drilling Measured From	KELLY BUSHING	D.F.	N/A
		G.L.	1970'

Date	2/27/2016
Run Number	ONE
Depth Driller	2450'
Depth Logger	2452'
Bottom Logged Interval	2451'
Top Log Interval	1000'
Casing Driller	8.625" @ 1048'
Casing Logger	1046'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	9500
Density / Viscosity	9.0 55
pH / Fluid Loss	10.5 11.4
Source of Sample	Flowline
Rm @ Meas. Temp	.16 @ 58
Rmt @ Meas. Temp	.12 @ 58
Rmc @ Meas. Temp	.22 @ 58
Source of Rmt / Rmc	Charts
Rm @ BHT	.09 @ 101
Operating Rig Time	2 HOURS
Max Rec. Temp. F	101 DEG F
Equipment Number	108
Location	Hays
Recorded By	J. LONG
Witnessed By	ROD ANDERSEN

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
OTIS, 1 WEST, 1 1/2 SOUTH TO N ROAD, 2 WEST, NORTH INTO

Log Measured From: KELLY BUSHING 6 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew

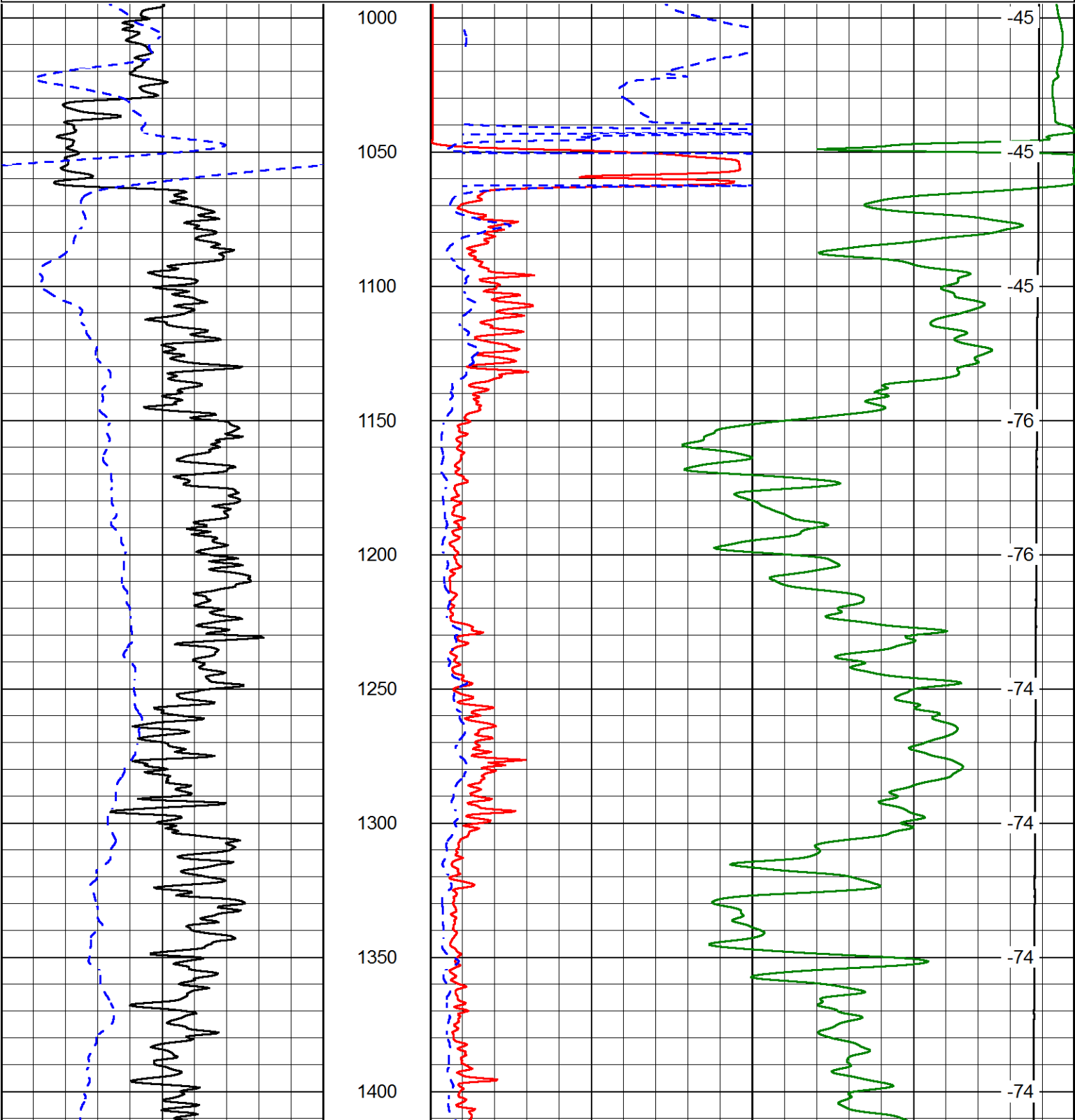
Engineer: J. LONG
Operator:
Operator:
Operator:

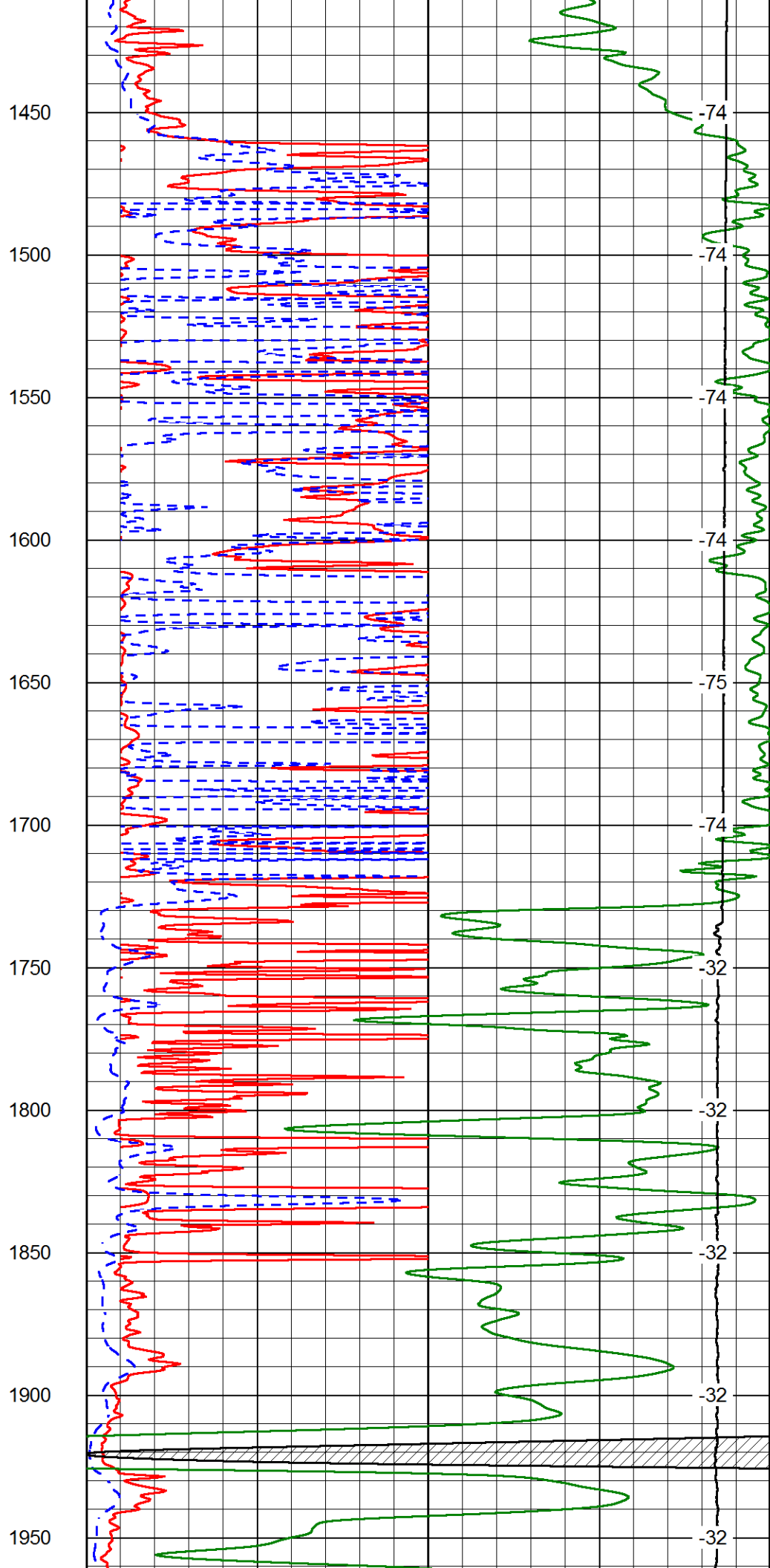
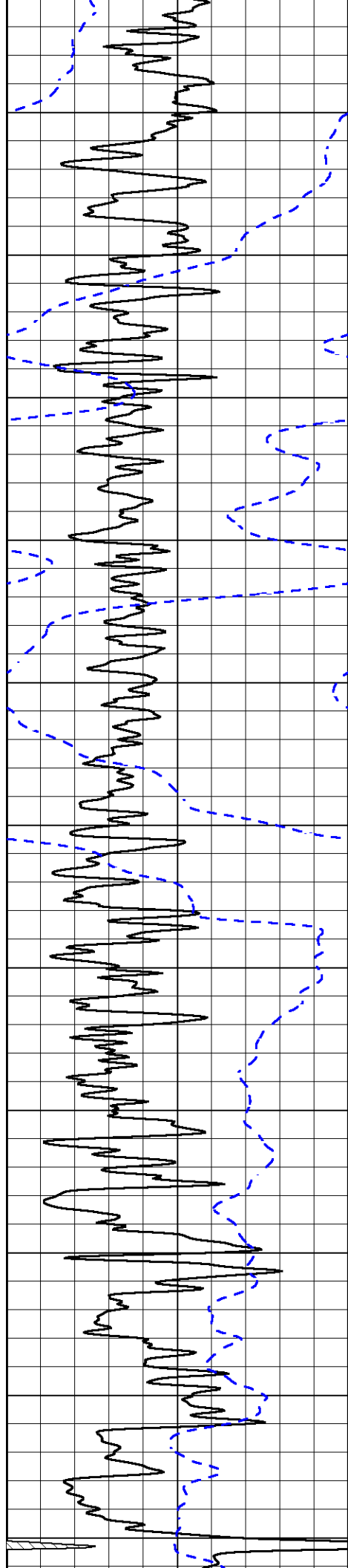
This Log Record Was Witnessed By

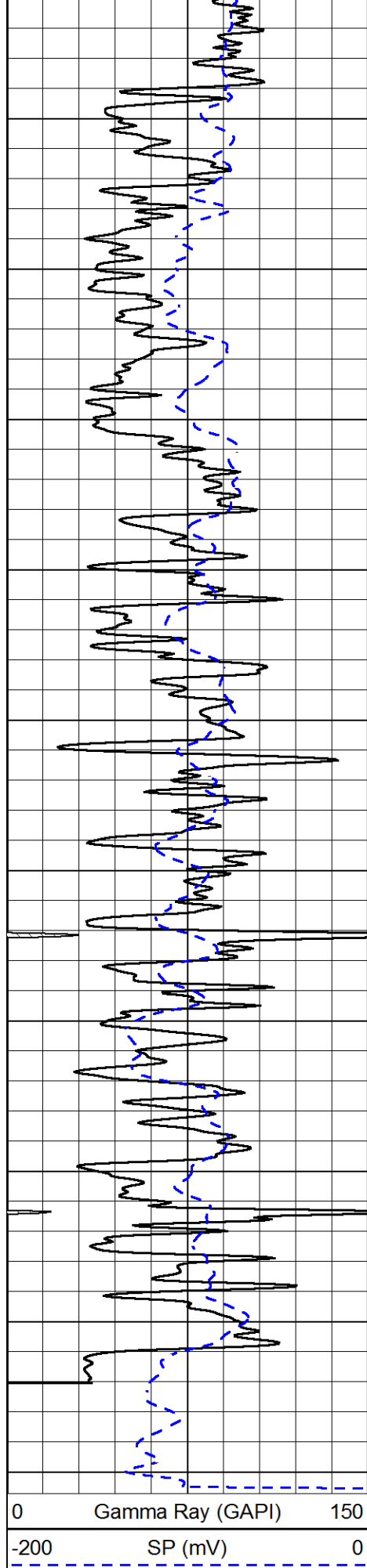
Primary Witness: ROD ANDERSEN
Secondary Witness:
Secondary Witness:
Secondary Witness:

Database File	blackstone_crotinger_1-4hd.db
Dataset Pathname	DIL/blackstck
Presentation Format	dil2in
Dataset Creation	Sat Feb 27 05:39:12 2016
Charted by	Depth in Feet scaled 1:600

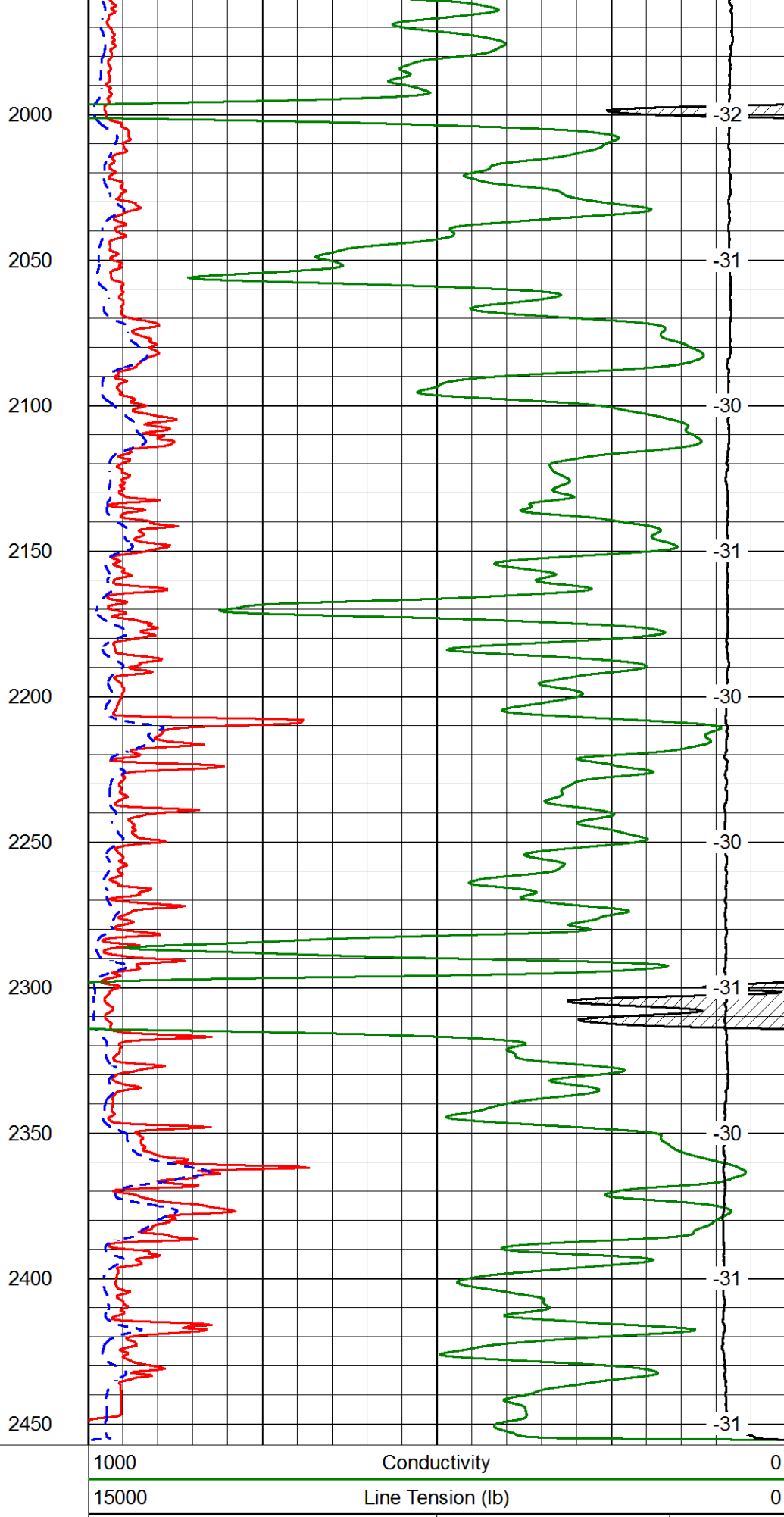
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-200	SP (mV)	0	15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			Shallow Resistivity		LSPD
			(Ohm-m)		(ft/min)
			50	500	
			50	Deep Resistivity (Ohm-m)	500







0 Gamma Ray (GAPI) 150
-200 SP (mV) 0



2000
2050
2100
2150
2200
2250
2300
2350
2400
2450

1000 Conductivity 0
15000 Line Tension (lb) 0

0 Shallow Resistivity (Ohm-m) 50

0 Deep Resistivity (Ohm-m) 50

LSPD
(ft/min)

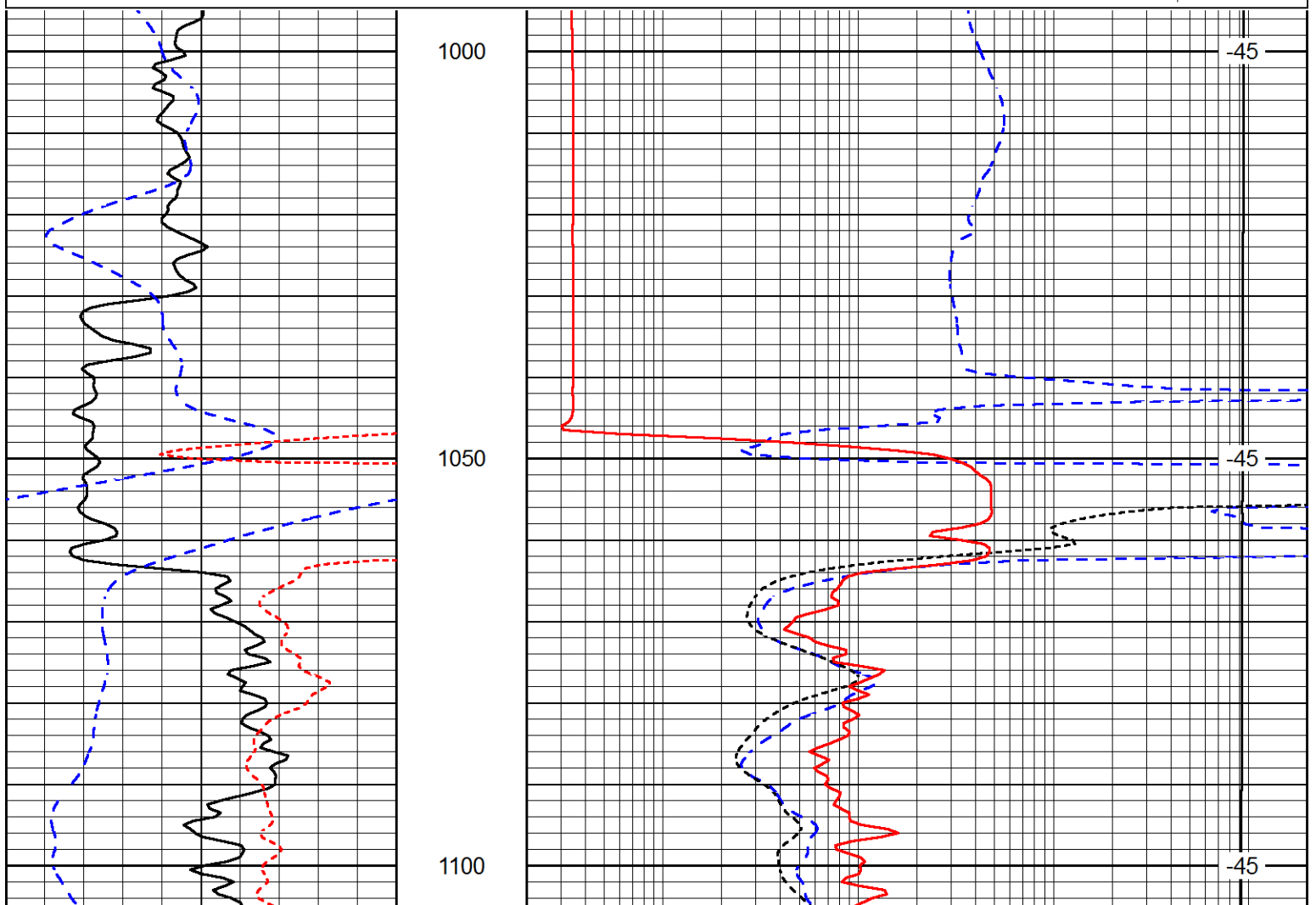
Shallow Resistivity		
50	(Ohm-m)	500
50	Deep Resistivity (Ohm-m)	500

Database File blackstone_crotinger_1-4hd.db
 Dataset Pathname DIL/blckstck
 Presentation Format dil
 Dataset Creation Sat Feb 27 05:39:12 2016
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RxoRt	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

LSPD
(ft/min)

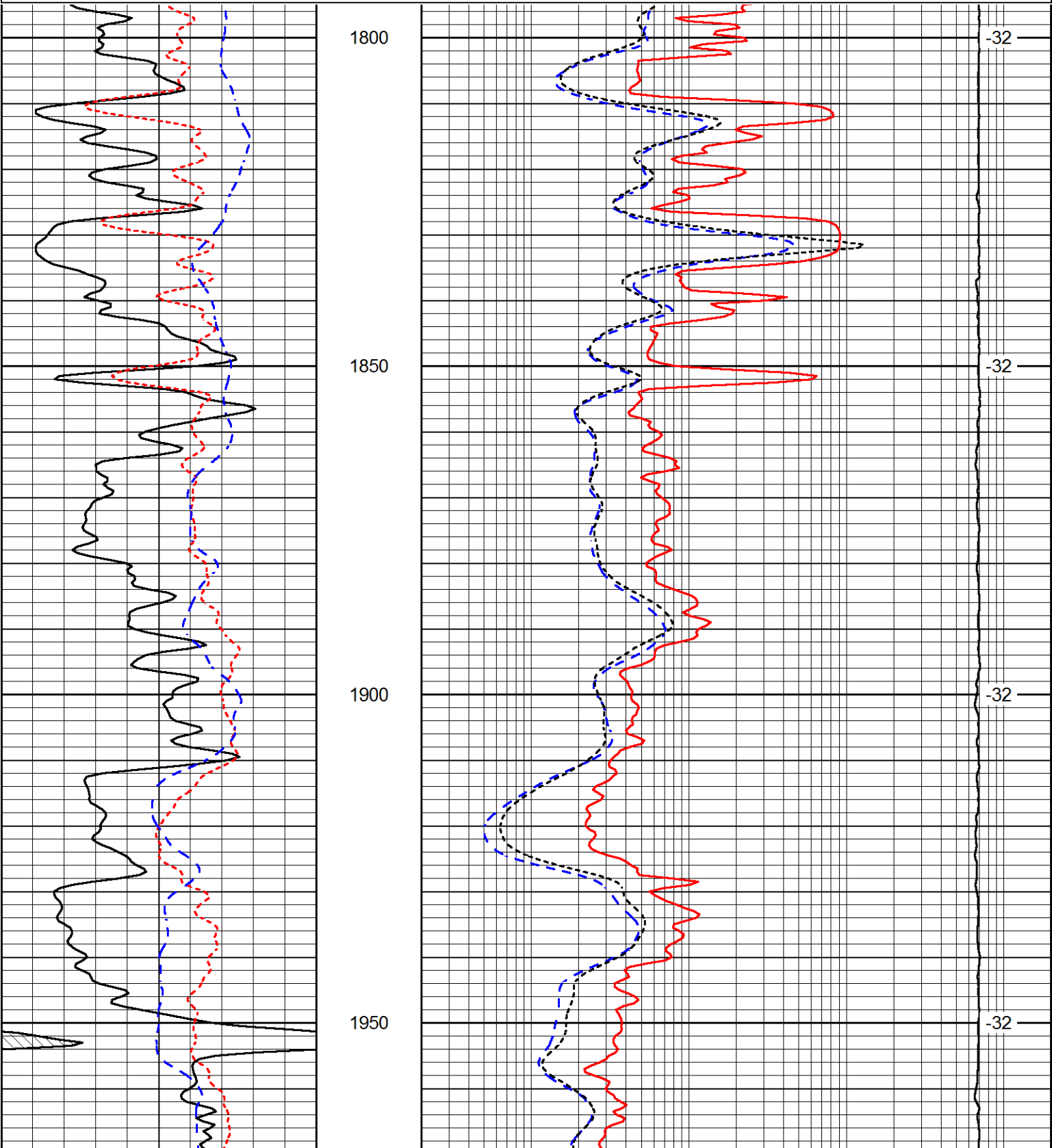


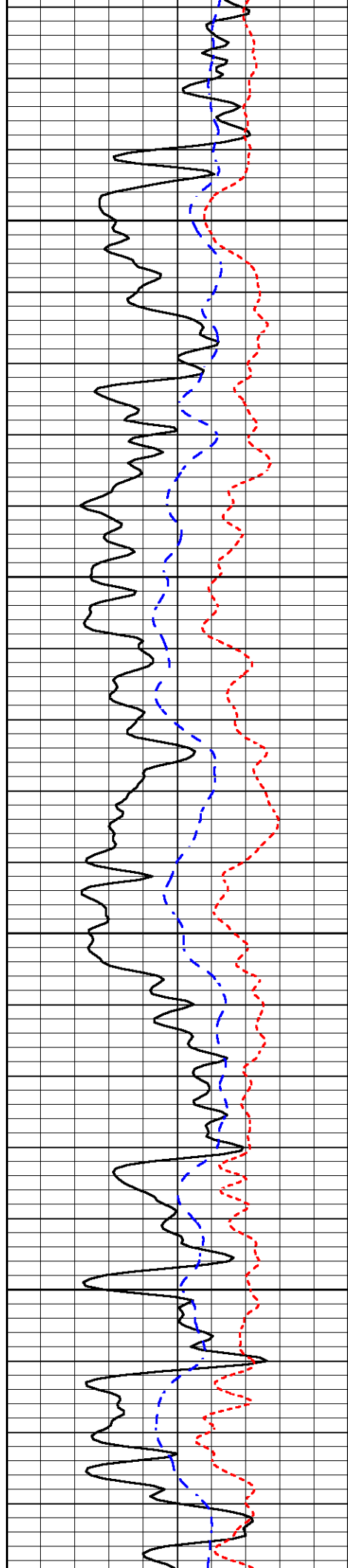
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-160	RxoRt	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

LSPD
(ft/min)

0	Gamma Ray (GAPI)	150	0.2	Deep Resistivity (Ohm-m)	2000
-160	RxoRt	40	0.2	Medium Resistivity (Ohm-m)	2000
-200	SP (mV)	0	0.2	Shallow Resistivity (Ohm-m)	2000
			10000	Line Tension (lb)	0
					LSPD (ft/min)



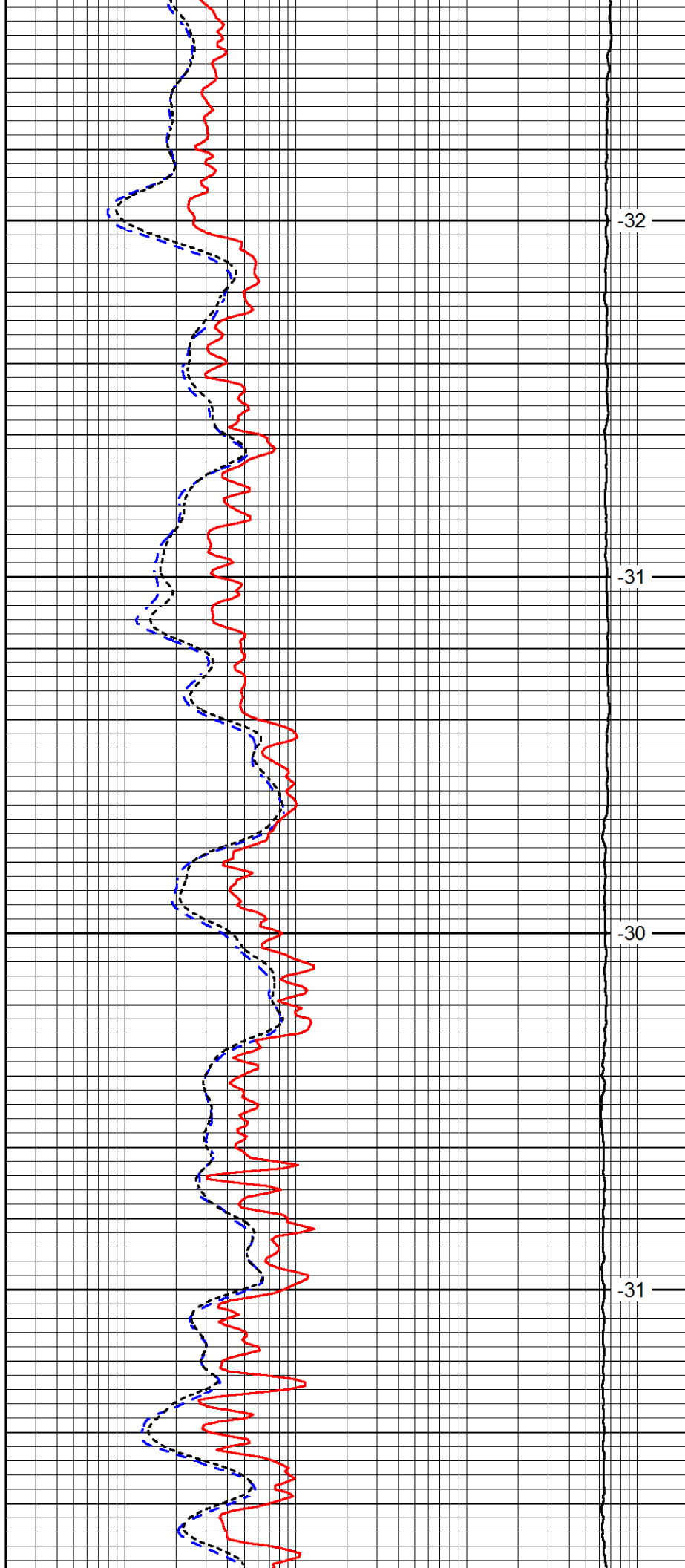


2000

2050

2100

2150

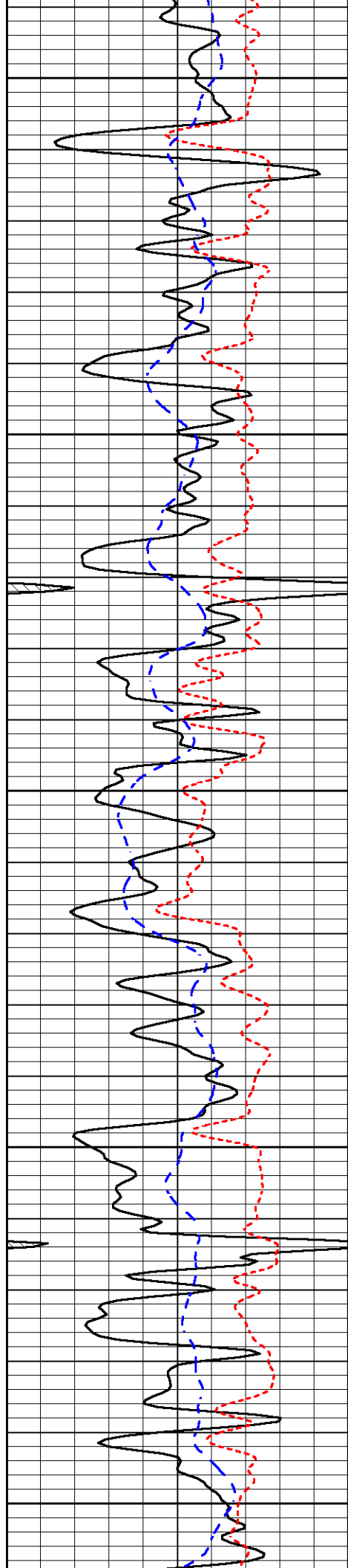


-32

-31

-30

-31



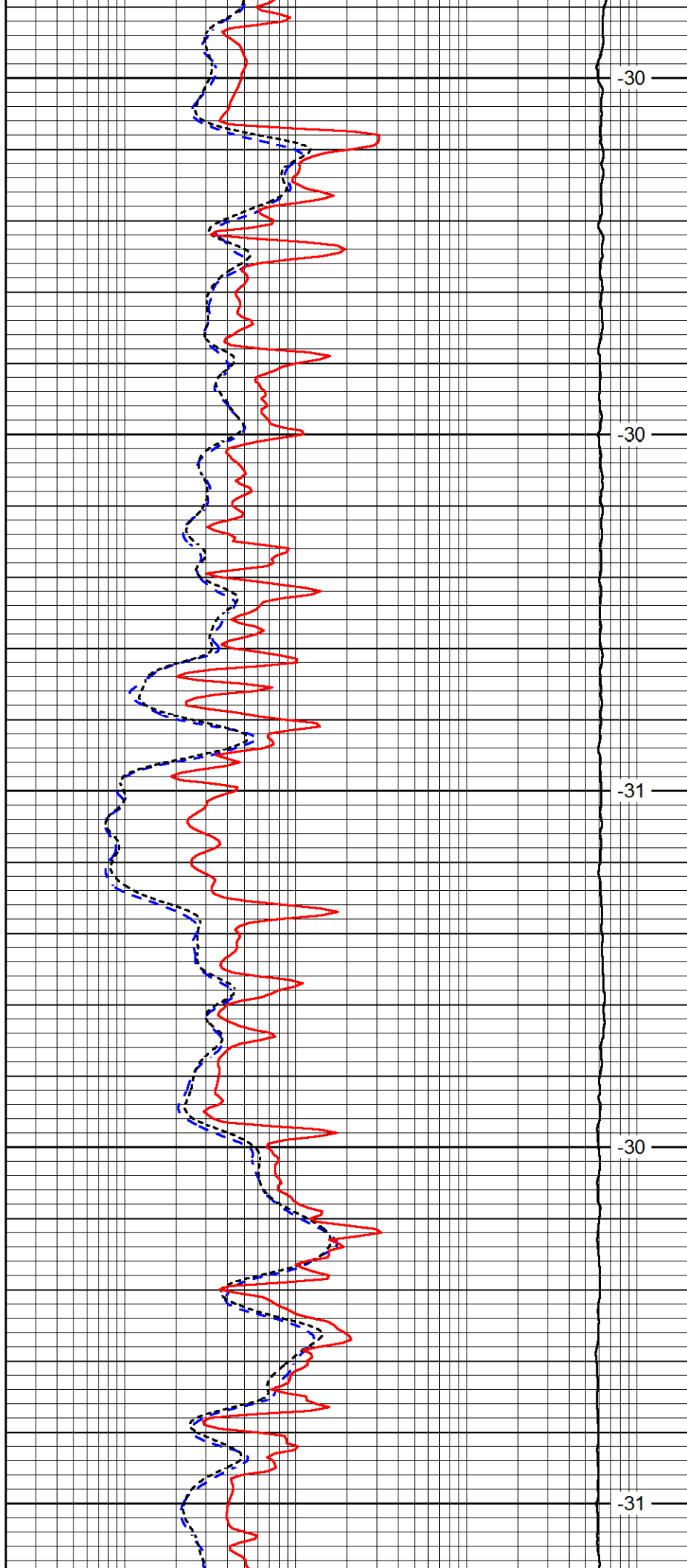
2200

2250

2300

2350

2400



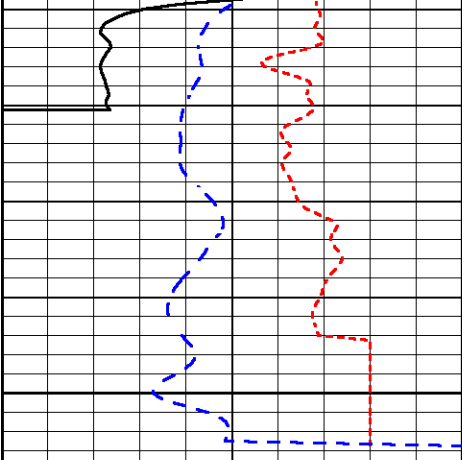
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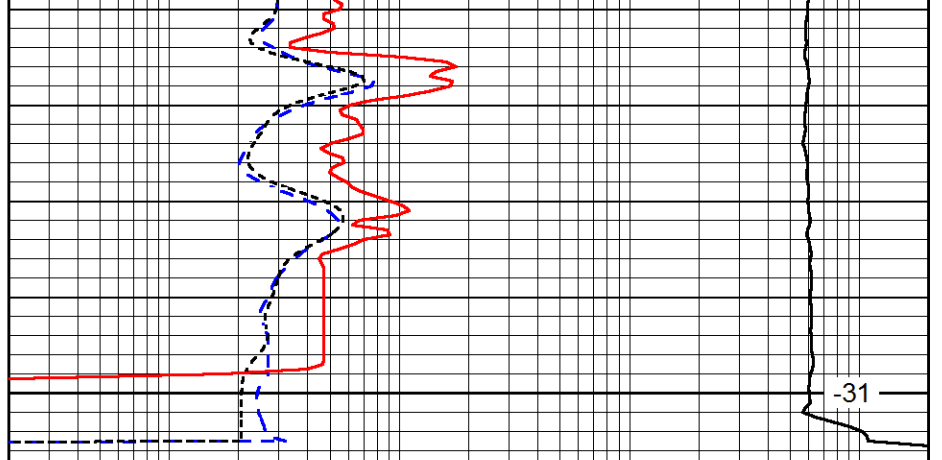
-30

-31



0	Gamma Ray (GAPI)	150
-160	RxoRt	40
-200	SP (mV)	0

2450



0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

LSPD
(ft/min)