



Pioneer Energy Services

## Dual Compensated Porosity Log

15-035-24,494-00-00

API No.

Company **Range Oil Company, Inc.**  
 Well **Hale # 13**  
 Field **Black Creek**  
 County **Cowley** State **Kansas**

Location **1650' FNL & 1320' FWL**

Sec: **27** Twp: **34S** Rge: **3E**

Other Services  
DIL

Elevation  
K.B. 1156  
D.F. 1146  
G.L. 1146

Permanent Datum Ground Level Elevation 1146  
 Log Measured From Kelly Bushing 10 Ft. Above Perm. Datum  
 Drilling Measured From Kelly Bushing

Date	3/10/2013	
Run Number	Two	
Type Log	CNL / CDL	
Depth Driller	3452	
Depth Logger	3452	
Bottom Logged Interval	3401	
Top Logged Interval	2600	
Type Fluid In Hole	Chemical	
Salinity, PPM CL	1800	
Density Level	9.7	
Level	Full	
Max. Rec. Temp. F	111	
Operating Rig Time	4 Hours	
Equipment -- Location	15 Days	
Recorded By	D Kerr	
Witnessed By	Ken Wallace	John Washburn

**Borehole Record**

Run No.	Bit	From	To	Size	Wgt.	From	To
1	12.25	00	320	8.625	24#	00	320
2	7.875	320	3452				

**Casing Record**

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

**Comments**

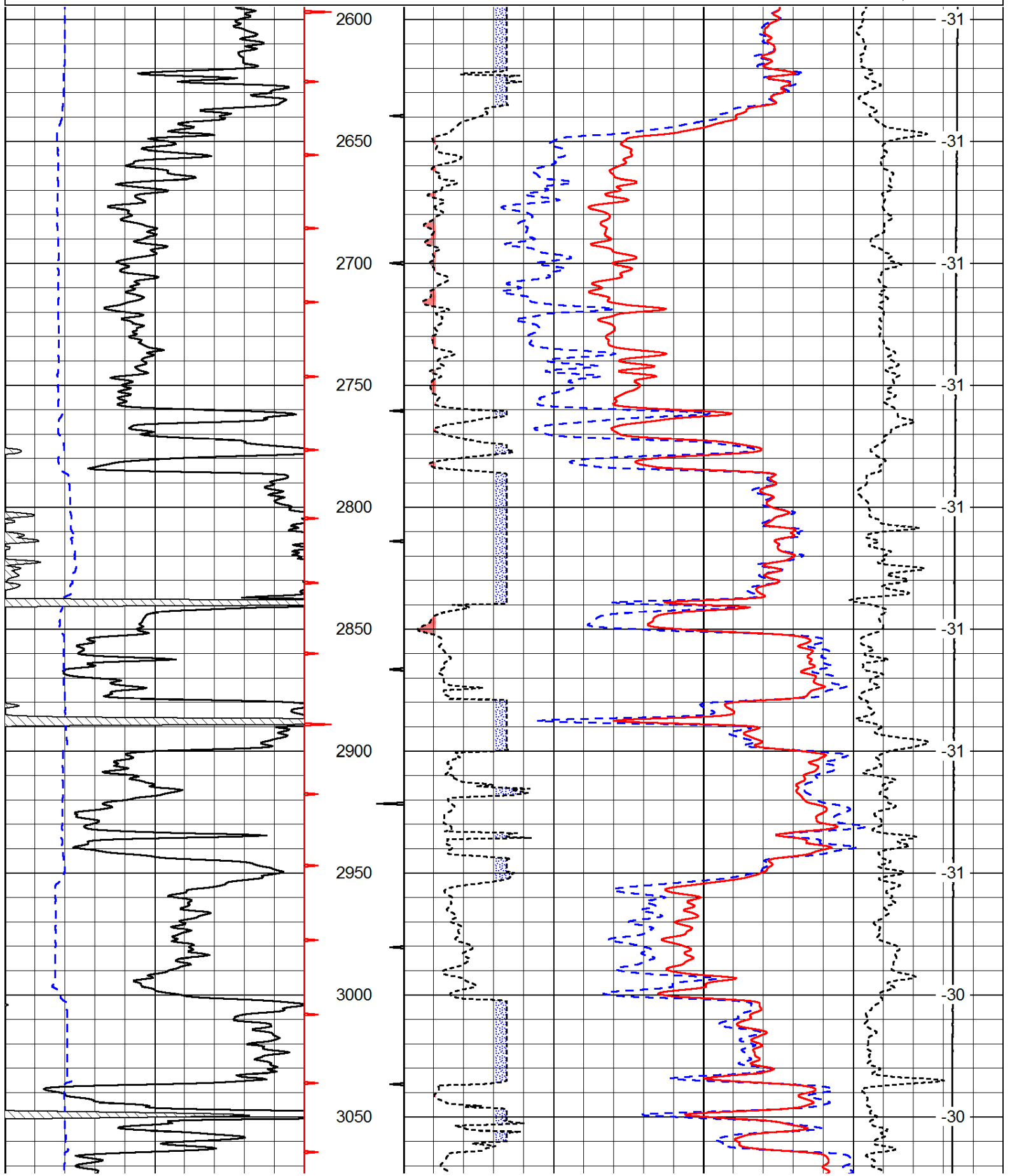
Thank you for using Pioneer Energy Services  
[www.pioneerenergy.com](http://www.pioneerenergy.com)  
 785 625 3858

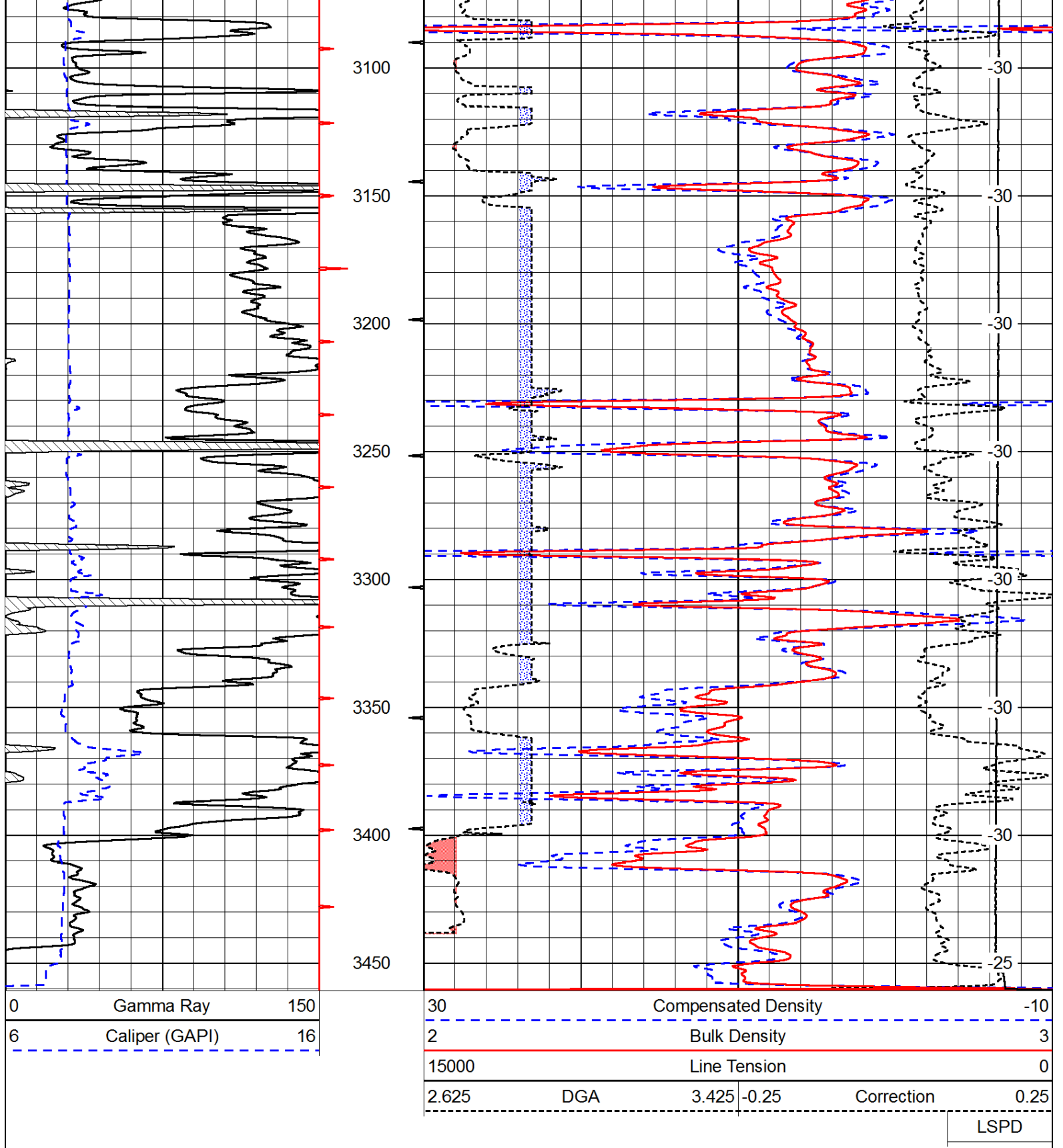
Ark City KS, 2 West to 131 RD,  
 1 North, 1/8 East, North Into

Database File: c:\warrior\data\range\_hale # 13\range\_hale\_13hd.db  
 Dataset Pathname: DIL/rangstk  
 Presentation Format: cdl  
 Dataset Creation: Sun Mar 10 06:31:50 2013  
 Charted by: Depth in Feet scaled 1:600

0	Gamma Ray	150
6	Caliper (GAPI)	16

30	Compensated Density		-10
2	Bulk Density		3
15000	Line Tension		0
2.625	DGA	3.425	-0.25
			Correction
			0.25
LSPD			

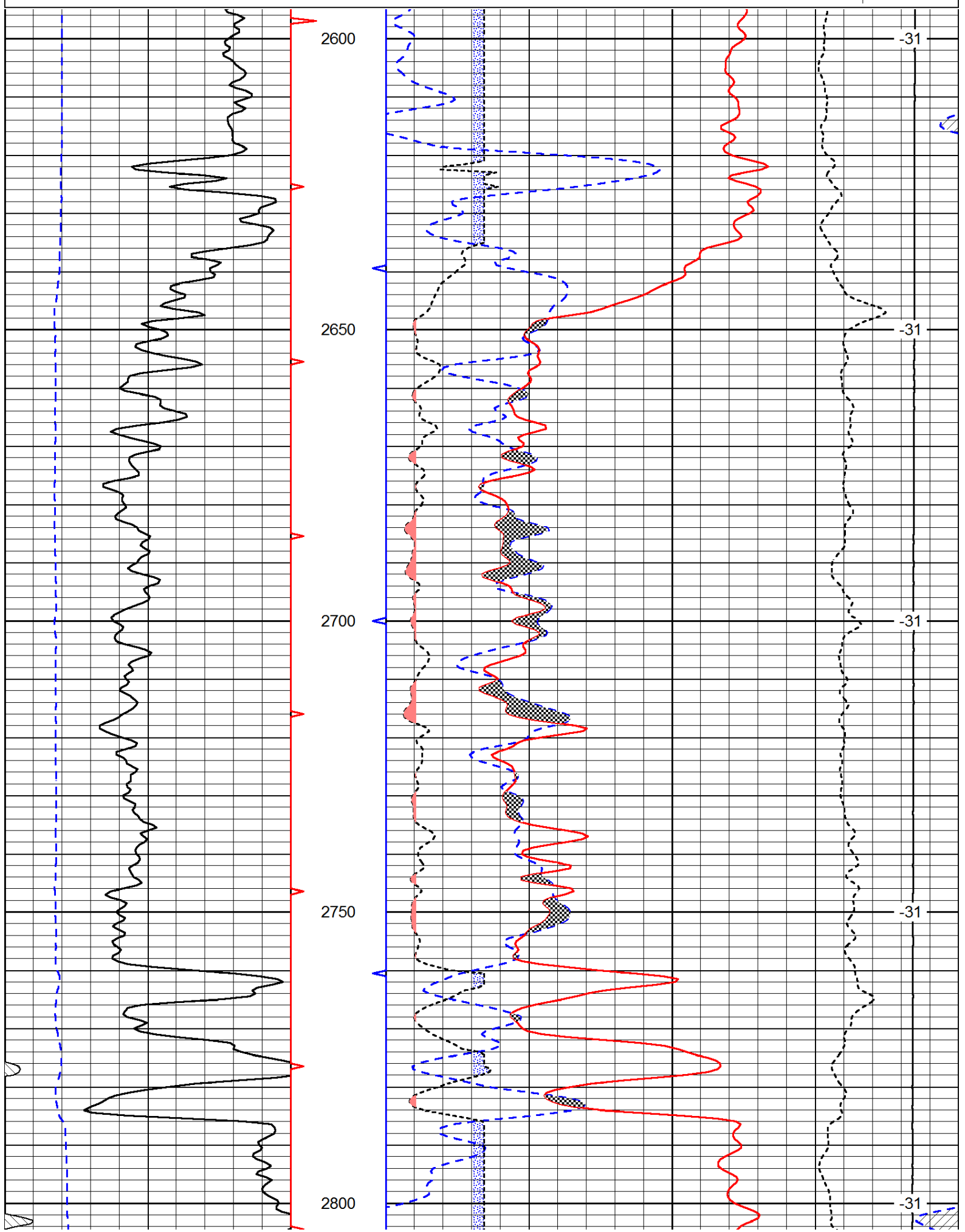


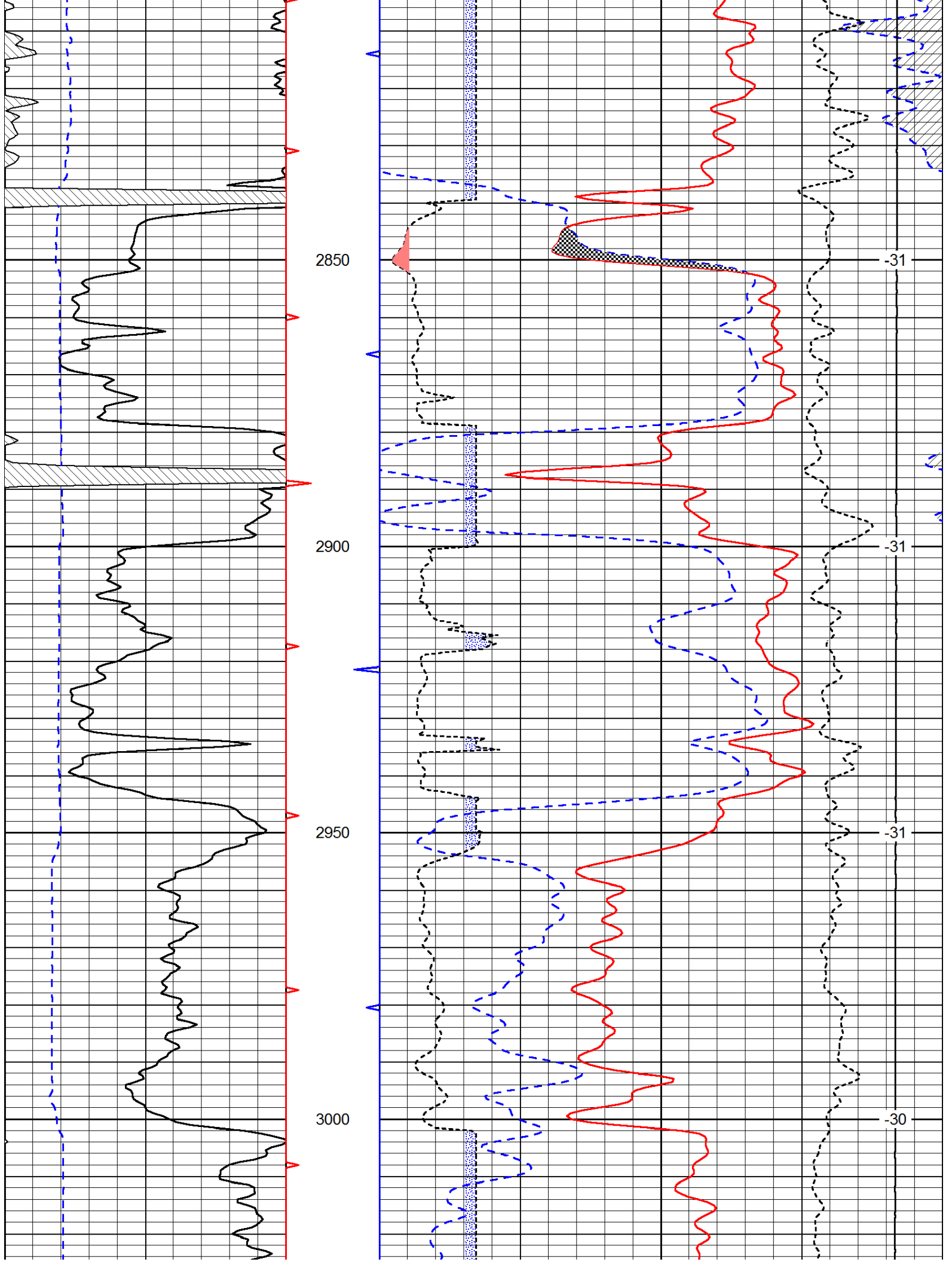


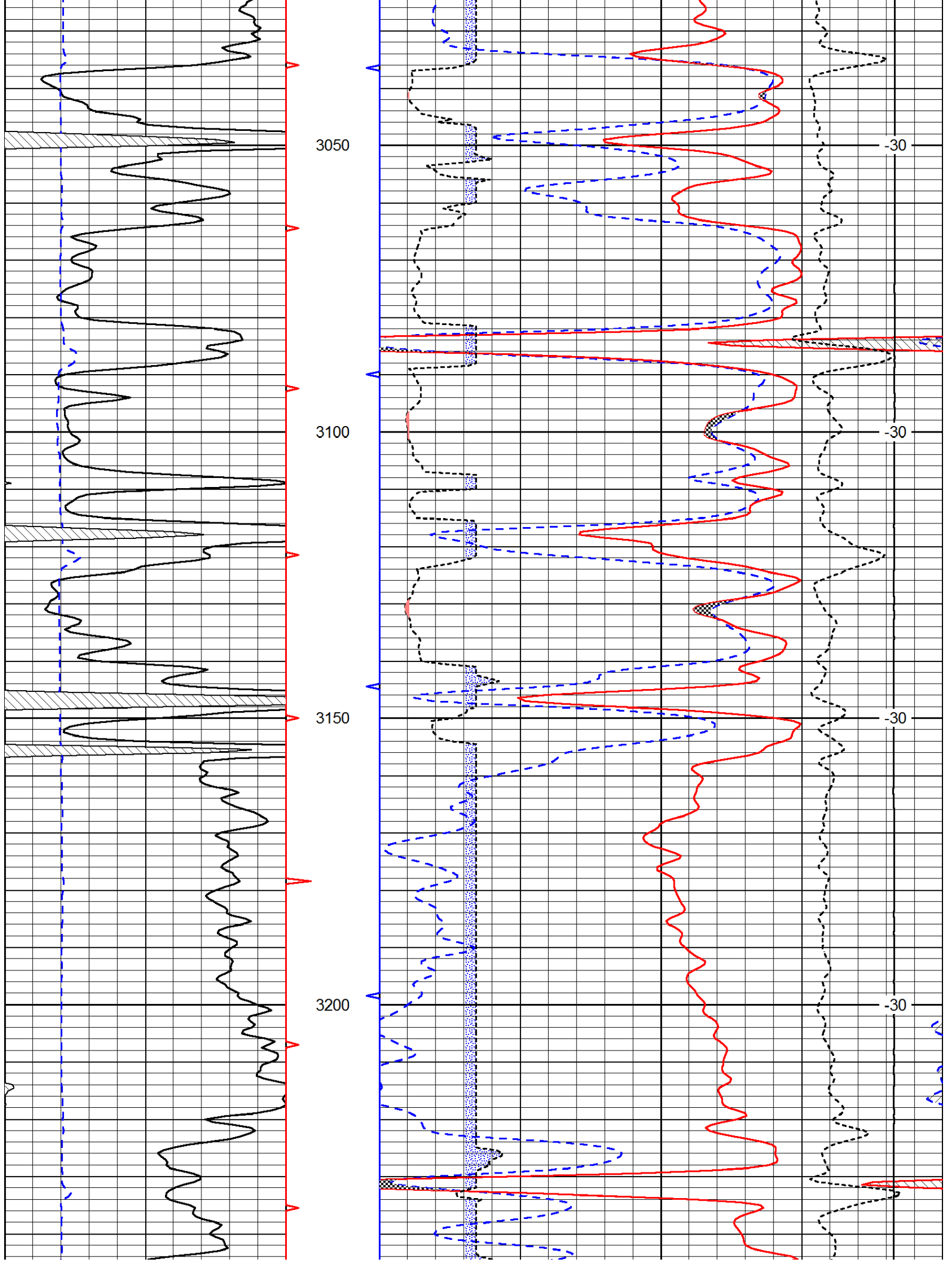
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 Charted by: Depth in Feet scaled 1:240

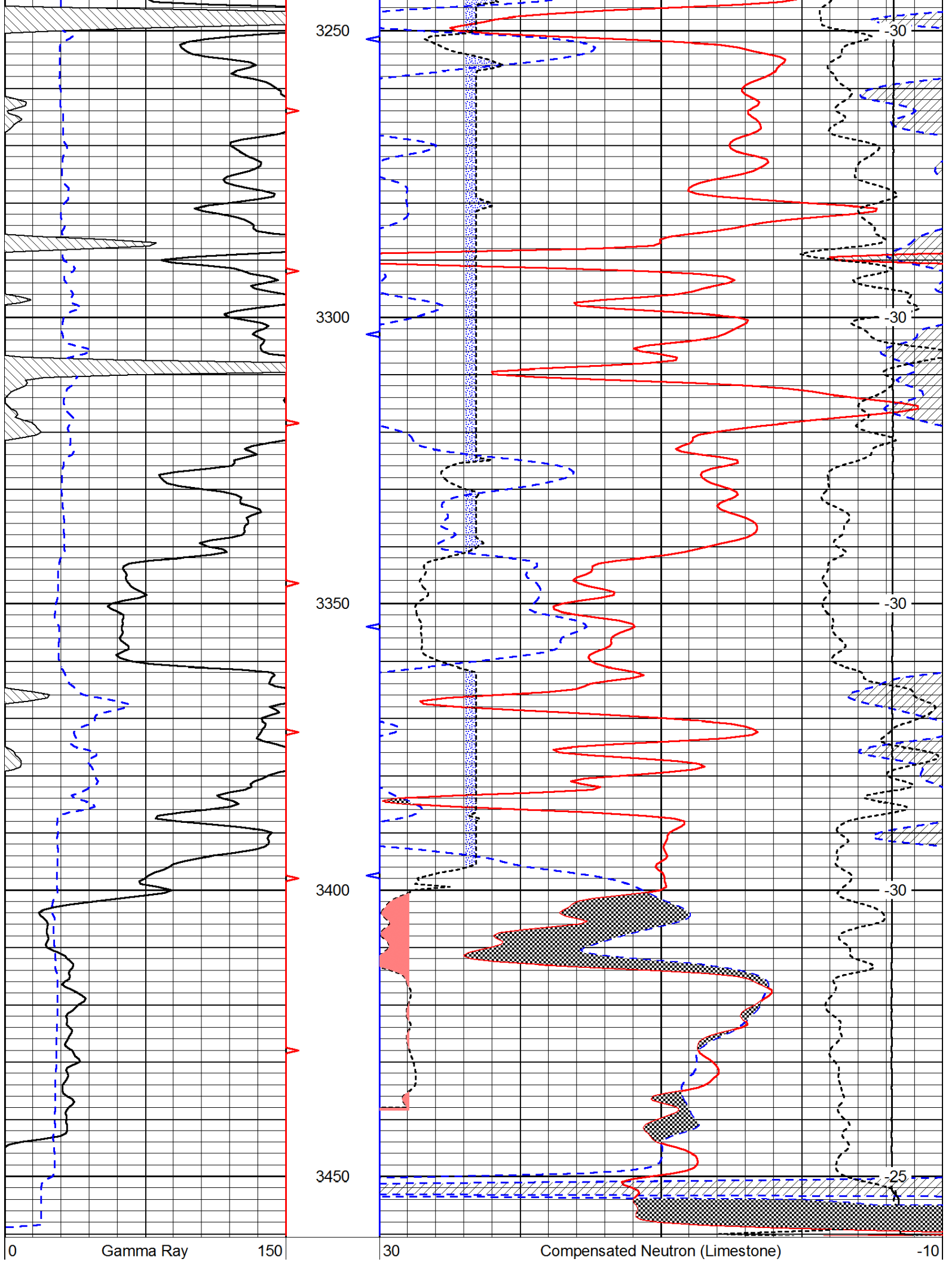
0	Gamma Ray	150	30	Compensated Neutron (Limestone)	-10	
6	Caliper (GAPI)	16	30	Compensated Density (Limestone)	-10	
	2.625	DGA	3.425	-0.25	Correction	0.25

LSPD









6	Caliper (GAPI)	16
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30	Compensated Density (Limestone)				-10
2.625	DGA	3.425	-0.25	Correction	0.25
15000	Line Tension				0
					LSPD