



# MICRORESISTIVITY LOG

**Company** VAL ENERGY, INC.  
**Well** FRAHM UNIT # 1-16  
**Field** WILDCAT  
**County** THOMAS **State** KANSAS

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**Location:** API #: 15-193-21023-00-00  
 872' FNL & 94' FWL  
 SEC 16 TWP 8S RGE 35W  
 Permanent Datum: GROUND LEVEL Elevation 3328'  
 Log Measured From: KELLY BUSHING  
 Drilling Measured From: KELLY BUSHING  
 Other Services: CNL/CDL DIL  
 Elevation: K.B. 3333', D.F. N/A, G.L. 3328'

Date	7/28/2018
Run Number	ONE
Depth Driller	4890'
Depth Logger	4890'
Bottom Logged Interval	4889'
Top Log Interval	3900'
Casing Driller	8.625" @ 261'
Casing Logger	260'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	7000
Density / Viscosity	9.2 59
pH / Fluid Loss	10.5 9.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.30 @ 92
Rmt @ Meas. Temp	0.23 @ 92
Rmc @ Meas. Temp	0.41 @ 92
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.22 @ 125
Operating Rig Time	3 HOURS
Max Rec. Temp. F	125
Equipment Number	91
Location	HAYS
Recorded By	IAN MABB
Witnessed By	TIM PRIEST

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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.  
 LEVANT, KS.  
 2 MILES WEST , SOUTH UNDER I-70 1/4 MILE - EAST INTO

Log Measured From: KELLY BUSHING Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com) 785-625-3858

<b>Your Pioneer Energy Services Crew</b> Engineer: IAN MABB Operator: Operator: Operator:	<b>This Log Record Was Witnessed By</b> Primary Witness: TIM PRIEST Secondary Witness: Secondary Witness: Secondary Witness:
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Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-40	3
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
4	92	0	5.5	0	4890	125	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (817-947)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

CILD 8.00

CILM 4.70

SP 0.20

DIL-PSI HIGH TEMP (933 (HT))

18.50

3.50

220.00

Dataset: val\_energy\_frahm\_unit\_1\_16.db: field/well/stackmel/pass3.1  
 Total length: 43.08 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in



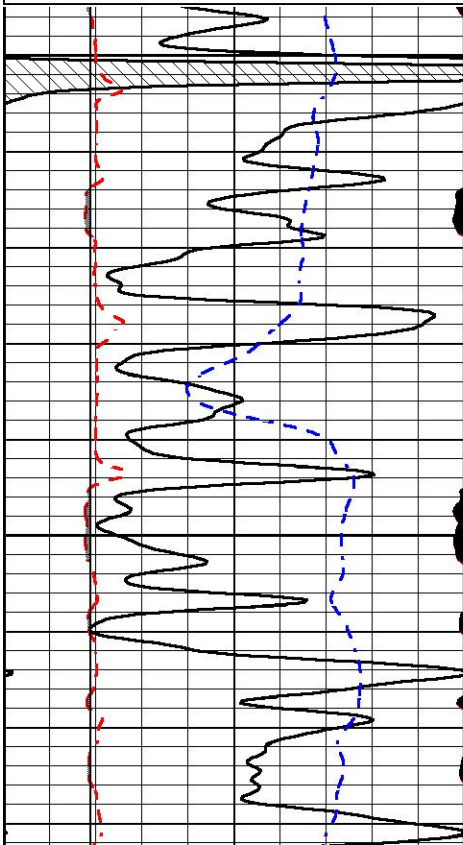
**PIONEER**  
 Pioneer Energy Services

# MAIN PASS

Database File val\_energy\_frahm\_unit\_1\_16.db  
 Dataset Pathname stackmel/pass3.1  
 Presentation Format micro  
 Dataset Creation Sat Jul 28 18:51:20 2018  
 Charted by Depth in Feet scaled 1:240

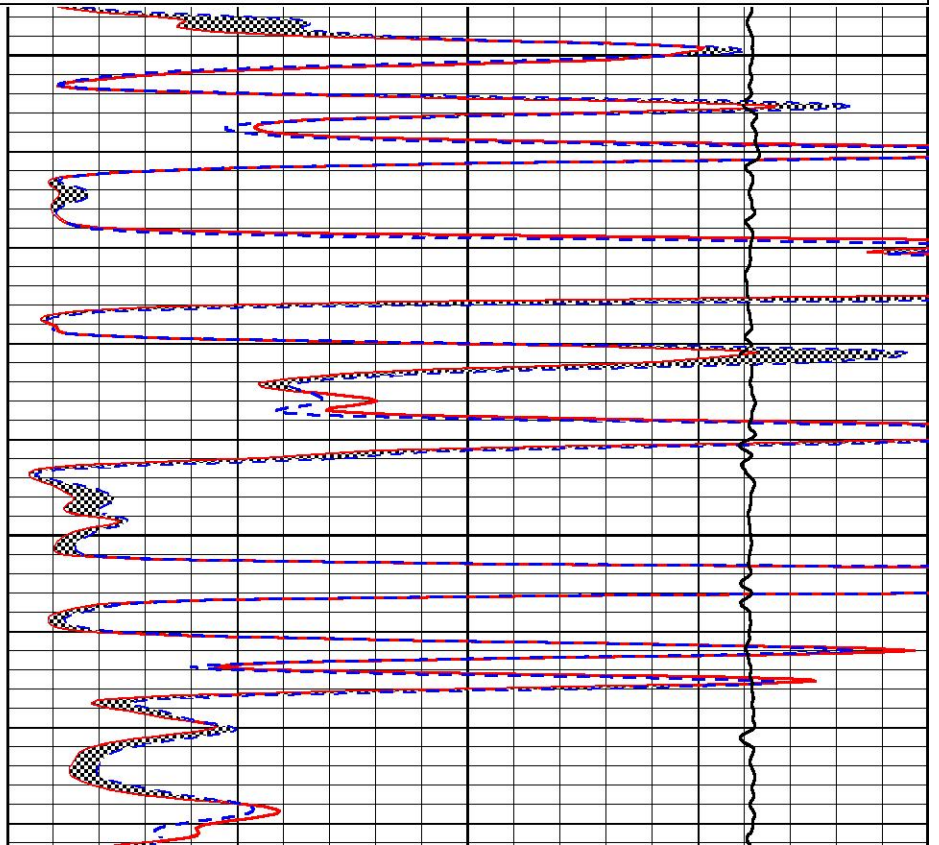
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcAl (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

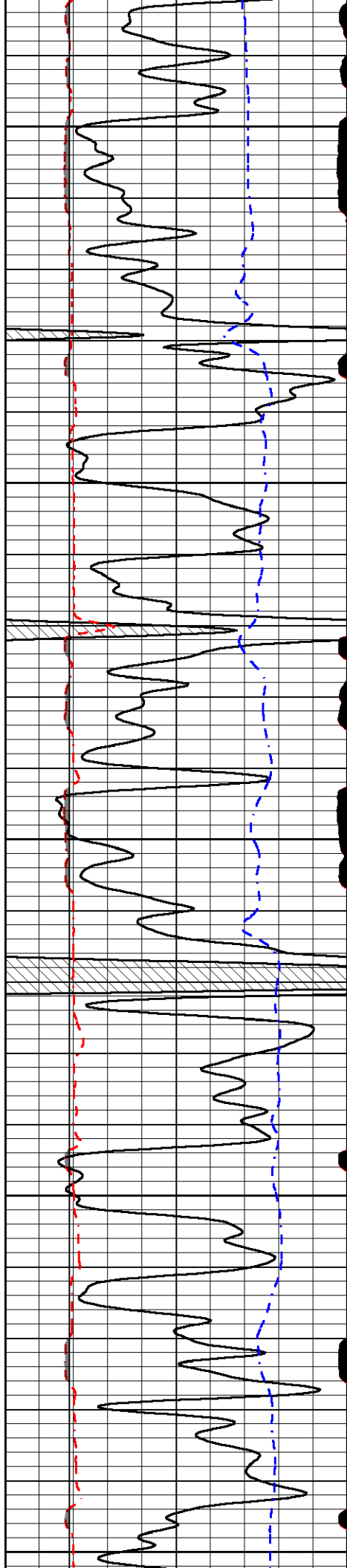
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0



3900

3950





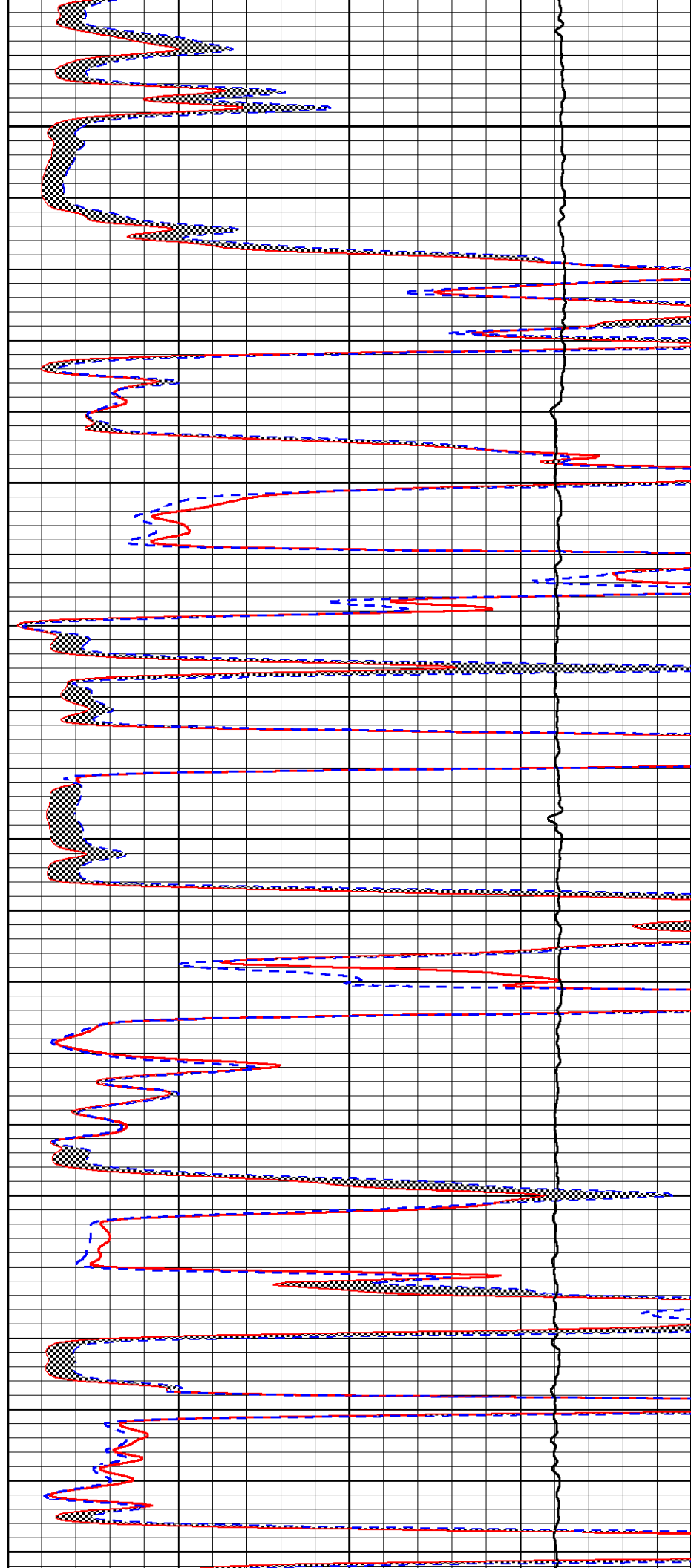
4000

4050

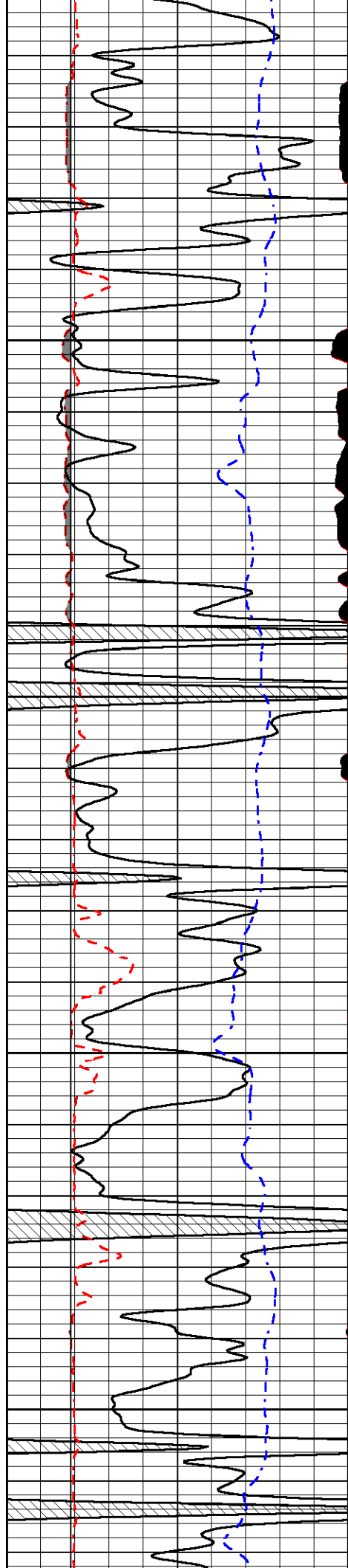
4100

4150

4200





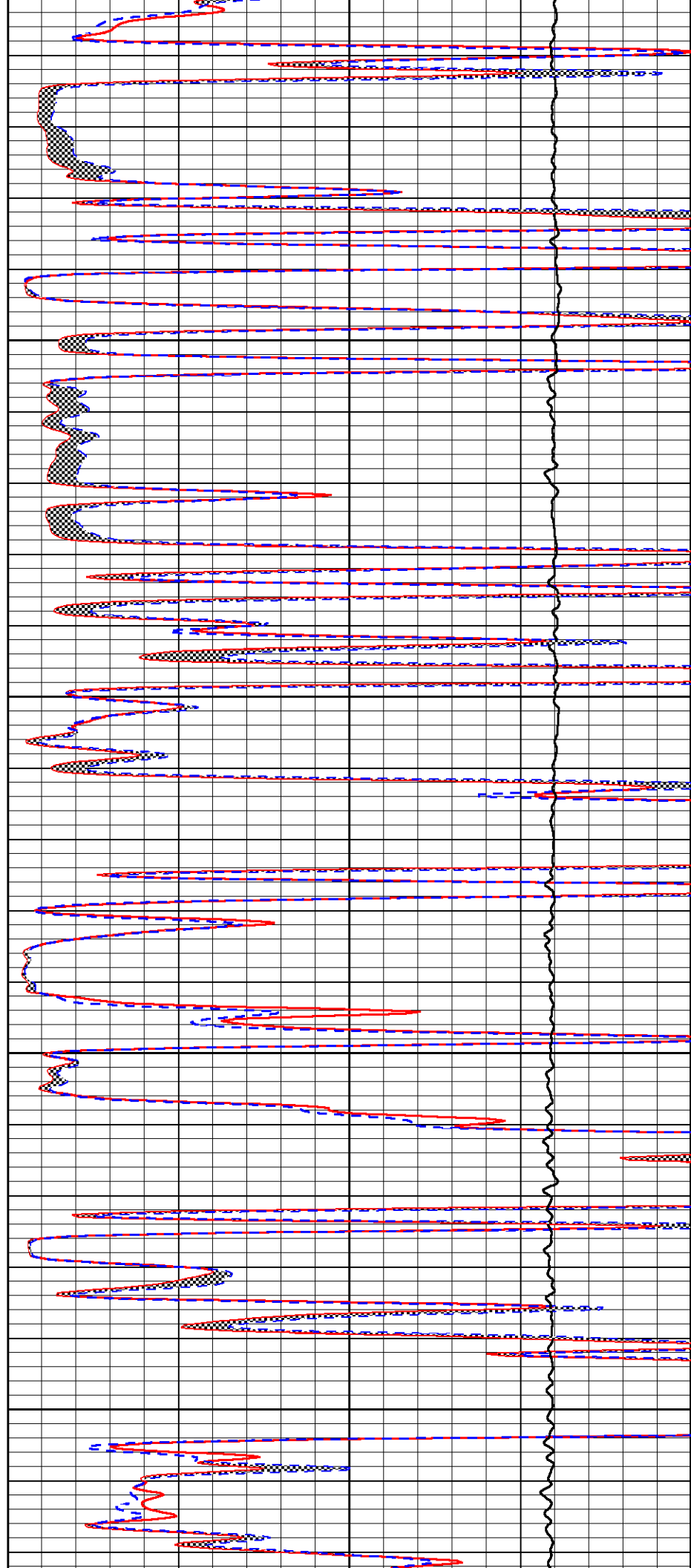


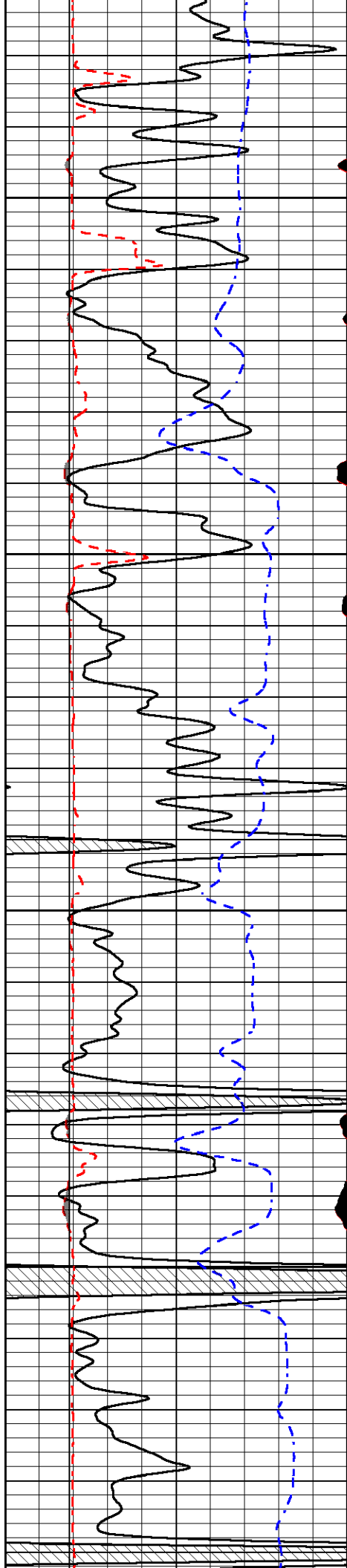
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4300

4350

4400



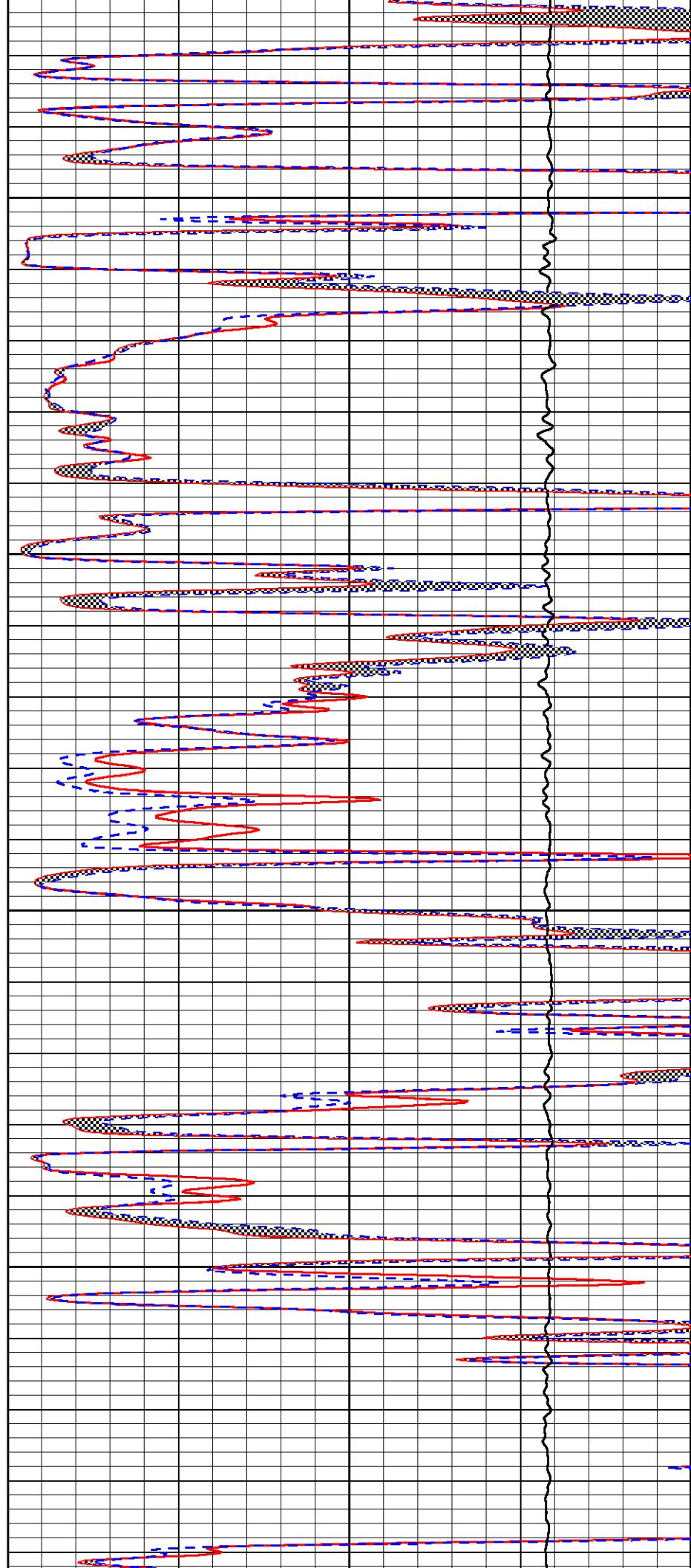


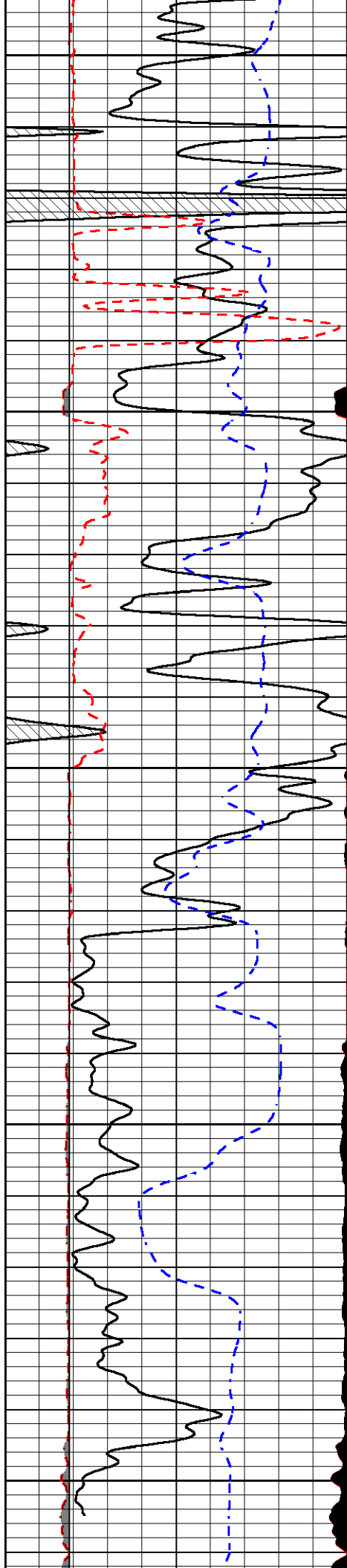
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4500

4550

4600





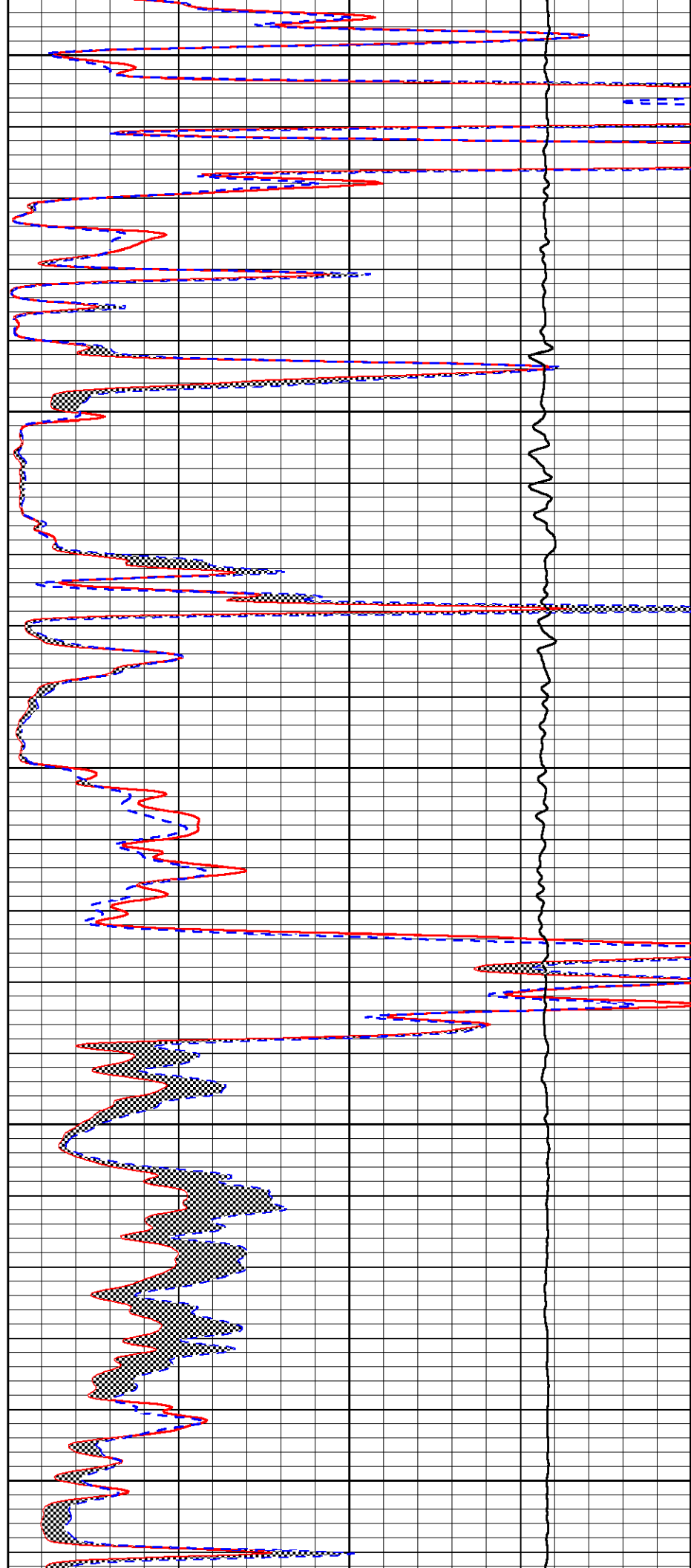
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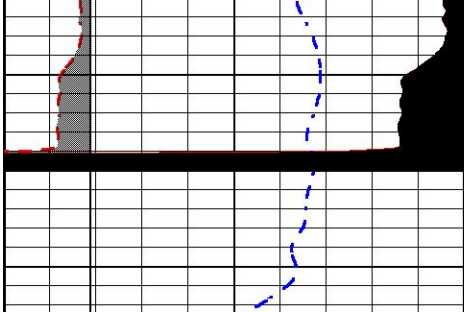
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4750

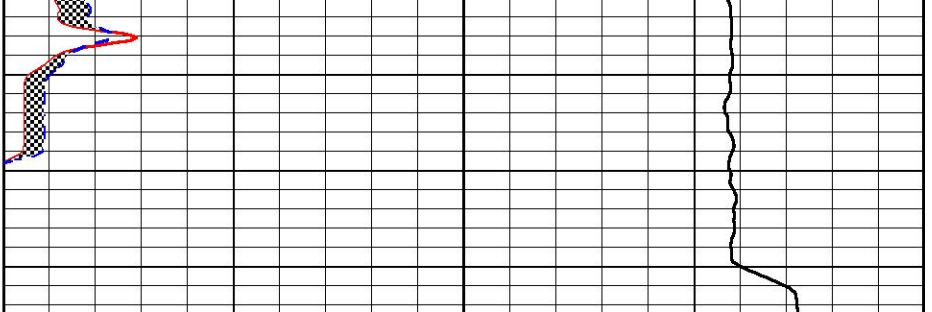
4800

4850





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0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0

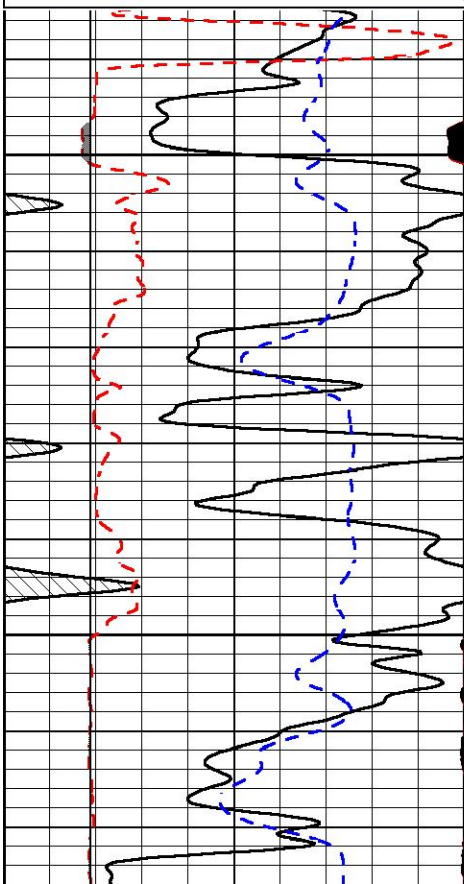


# REPEAT SECTION

Database File val\_energy\_frahm\_unit\_1\_16.db  
 Dataset Pathname stackmel/pass2.1  
 Presentation Format micro  
 Dataset Creation Sat Jul 28 18:47:02 2018  
 Charted by Depth in Feet scaled 1:240

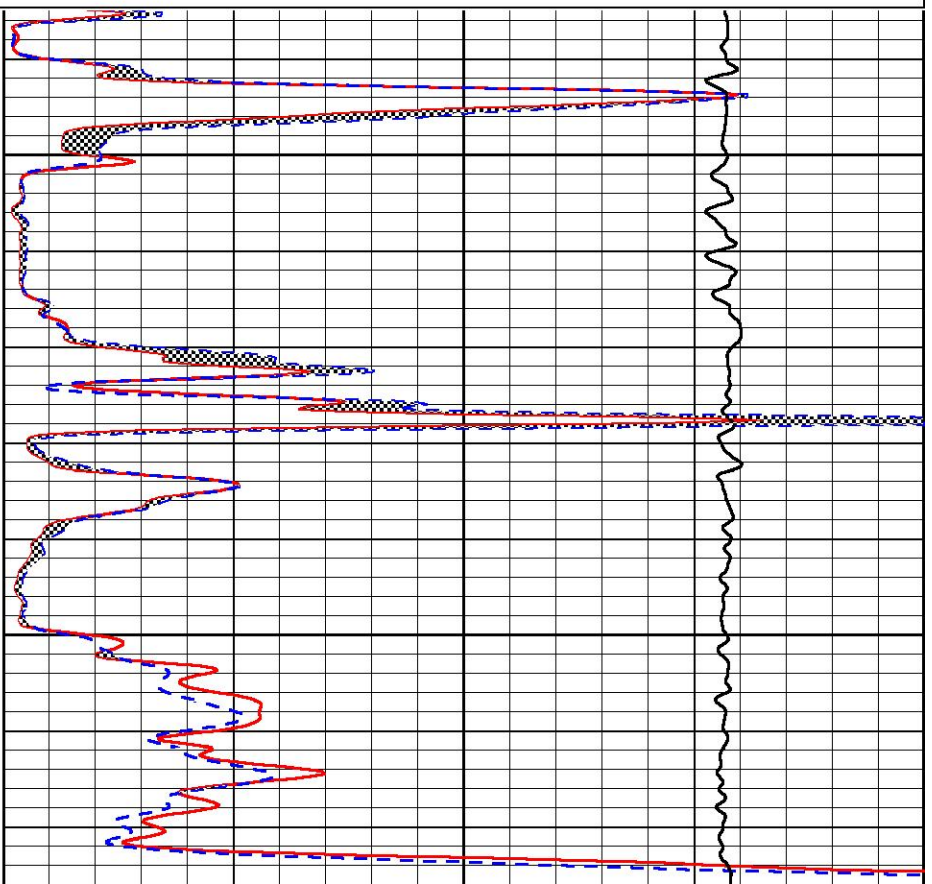
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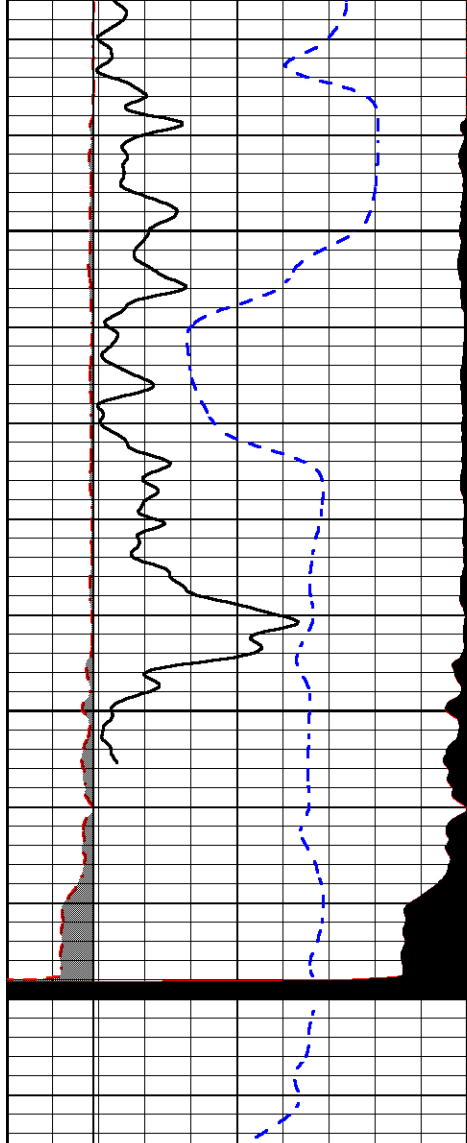


4700

4750



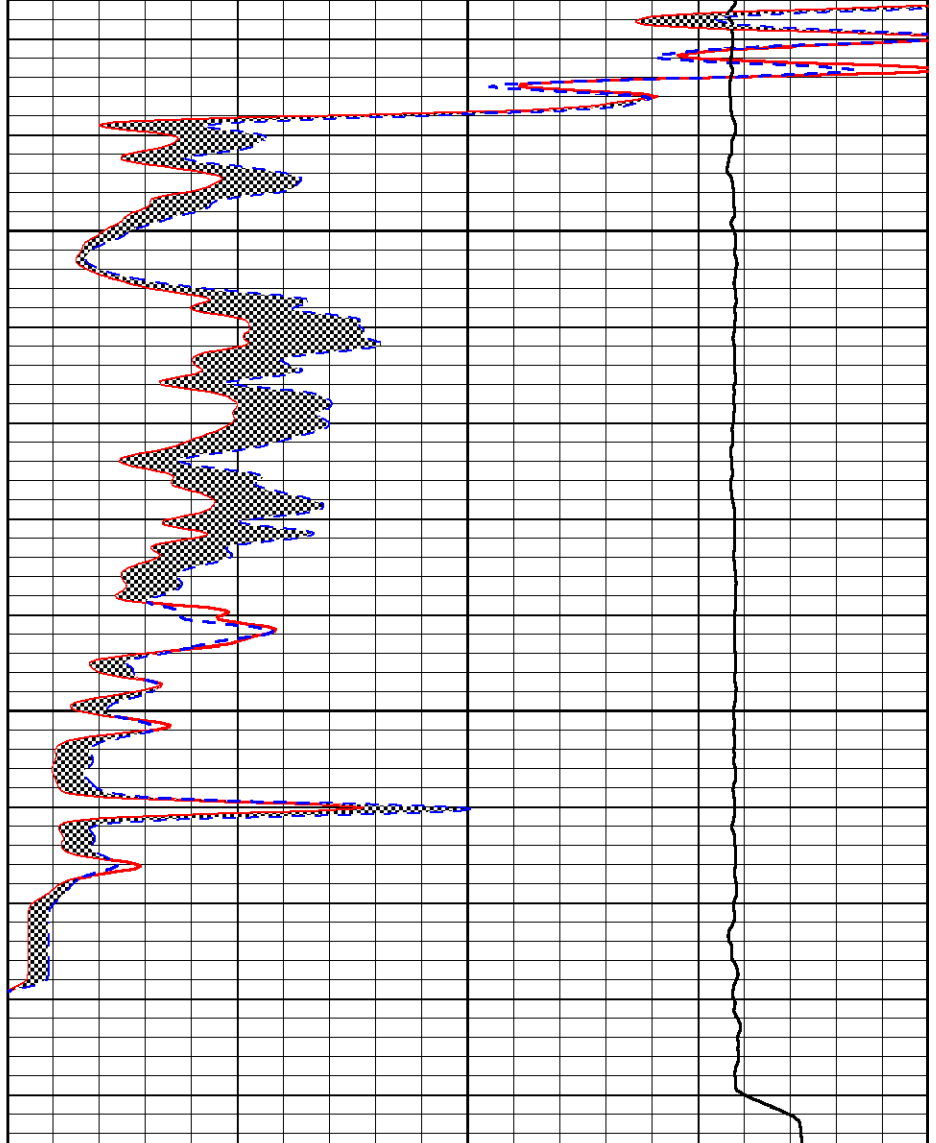




4800

4850

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6	MCAL (in)	16
2.875	mcals (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0



0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0

Calibration Report

Database File val\_energy\_frahm\_unit\_1\_16.db  
 Dataset Pathname stackmel/pass3.1  
 Dataset Creation Sat Jul 28 18:51:20 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP  
 Calibration Performed: Sun Jul 15 05:36:29 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop	mmho/m	Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-17.000
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500

Microlog Calibration Report

Serial-Model:  
Performed:

PSI-01-PSIML  
Sun Jul 15 07:40:28 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	27000.0000	-0.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model: 817-947-M&W  
 Source / Verifier: 16955B / 2ci  
 Master Calibration Performed: Sun Jul 15 05:36:52 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.670	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	15.00	in	1.15		

Compensated Neutron Calibration Report

Serial Number: 207-MW  
 Tool Model: M&W  
 Calibration Performed: SUN JUL 15 10:30:30 2018

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number: 89  
 Tool Model: M&W  
 Calibration Performed: Sun Jul 15 05:37:08 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



Company VAL ENERGY, INC.  
 Well FRAHM UNIT # 1-16  
 Field WILDCAT  
 County THOMAS

Pioneer Energy Services

State

KANSAS