



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **HARTMAN OIL CO.**
Well **GARDEN CITY B-6**
Field **DAMME**
County **FINNEY**
State **KANSAS**

Company **HARTMAN OIL CO.**
Well **GARDEN CITY B-6**
Field **DAMME**
County **FINNEY** State **KANSAS**

Location: API #: 15-055-22507-00-00

Permanent Datum

2305' FWL & 1100' FSL
SEC 8 TWP 22S RGE 33W

Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation

K.B. 2903'
D.F. N/A
G.L. 2892'

Other Services
CNL/CDL
DIL

Date 11/21/2018

Run Number ONE

Depth Driller 4767

Depth Logger 4754'

Bottom Logged Interval 4753'

Top Log Interval 3500'

Casing Driller 8.625" @ 351'

Casing Logger 332'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 3000

Density / Viscosity 9.4 47

pH / Fluid Loss 9.0 7.6

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.75 @ 71

Rmf @ Meas. Temp 0.56 @ 71

Rmc @ Meas. Temp 1.01 @ 71

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.43 @ 124

Operating Rig Time 4 HOURS

Max Rec. Temp. F 124

Equipment Number 91

Location HAYS

Recorded By IAN MABB

Witnessed By CHRIS PETERS

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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.

GARDEN CITY, KS.
NORTH TO TENNIS RD, WEST 4 1/2 MILES,
SOUTH INTO

Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

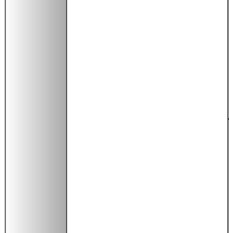
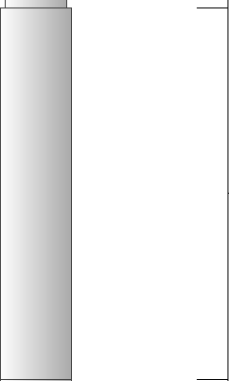
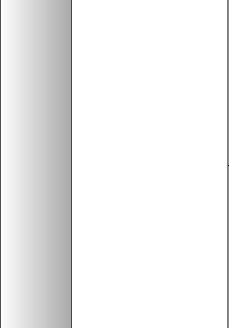
Engineer: IAN MABB
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: CHRIS PETERS
Secondary Witness:
Secondary Witness:
Secondary Witness:

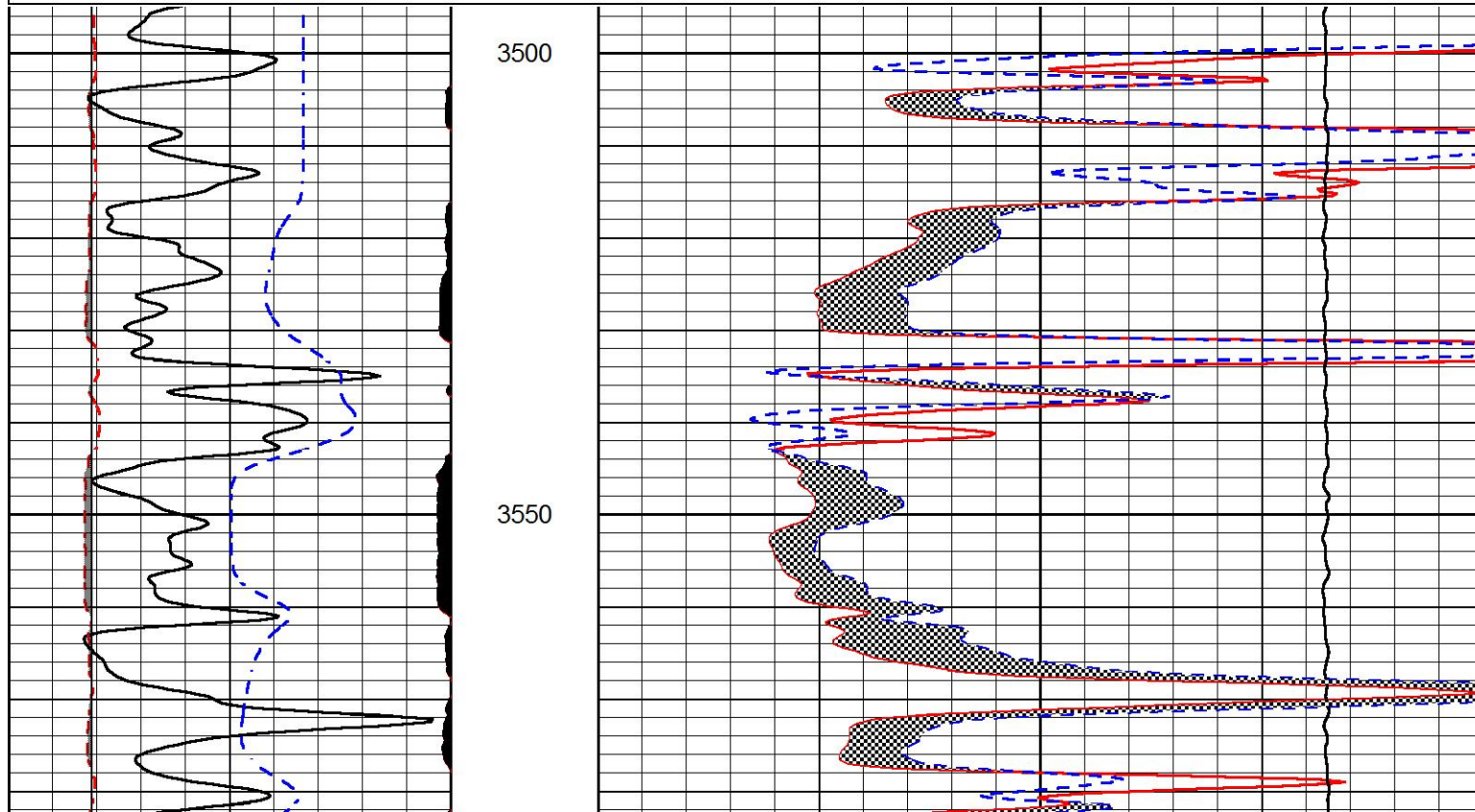
Top - Bottom

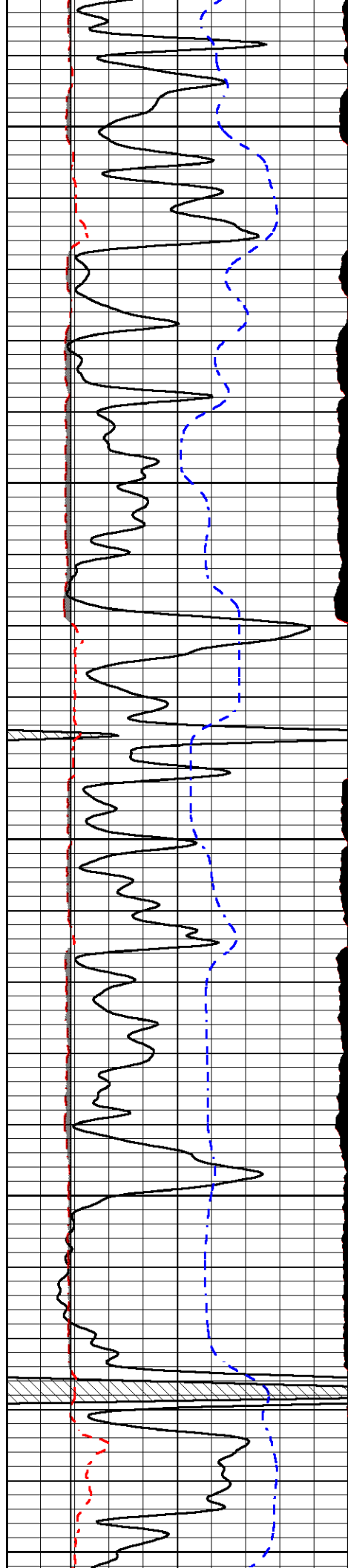
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	60	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	0	0	5.5	0	4754	124	7.875

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 (797-152)	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					

		DIL-PSI HIGH TEMP (967 (HT))		18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: hartman_garden_city_b_6.db: field/well/stackmel/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

		MAIN PASS	
Database File	hartman_garden_city_b_6.db		
Dataset Pathname	stackmel/pass3.1		
Presentation Format	micro		
Dataset Creation	Wed Nov 21 08:33:23 2018		
Charted by	Depth in Feet scaled 1:240		
0	GAMMA RAY (GAPI)	150	
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	





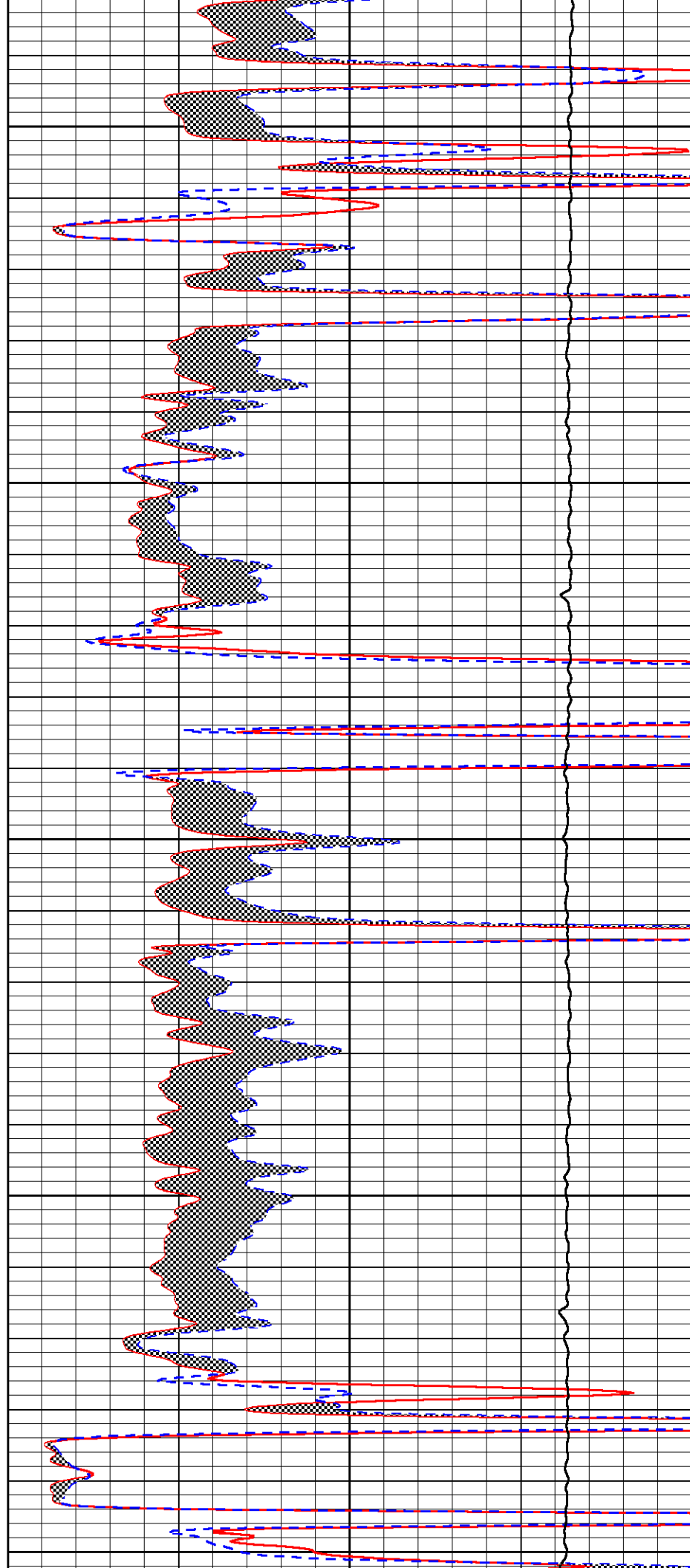
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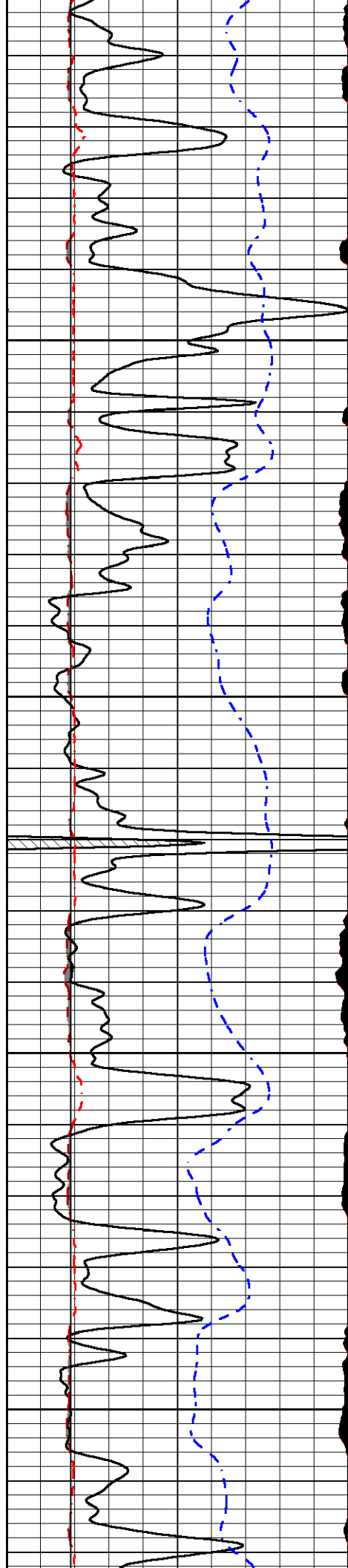
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3700

3750

3800



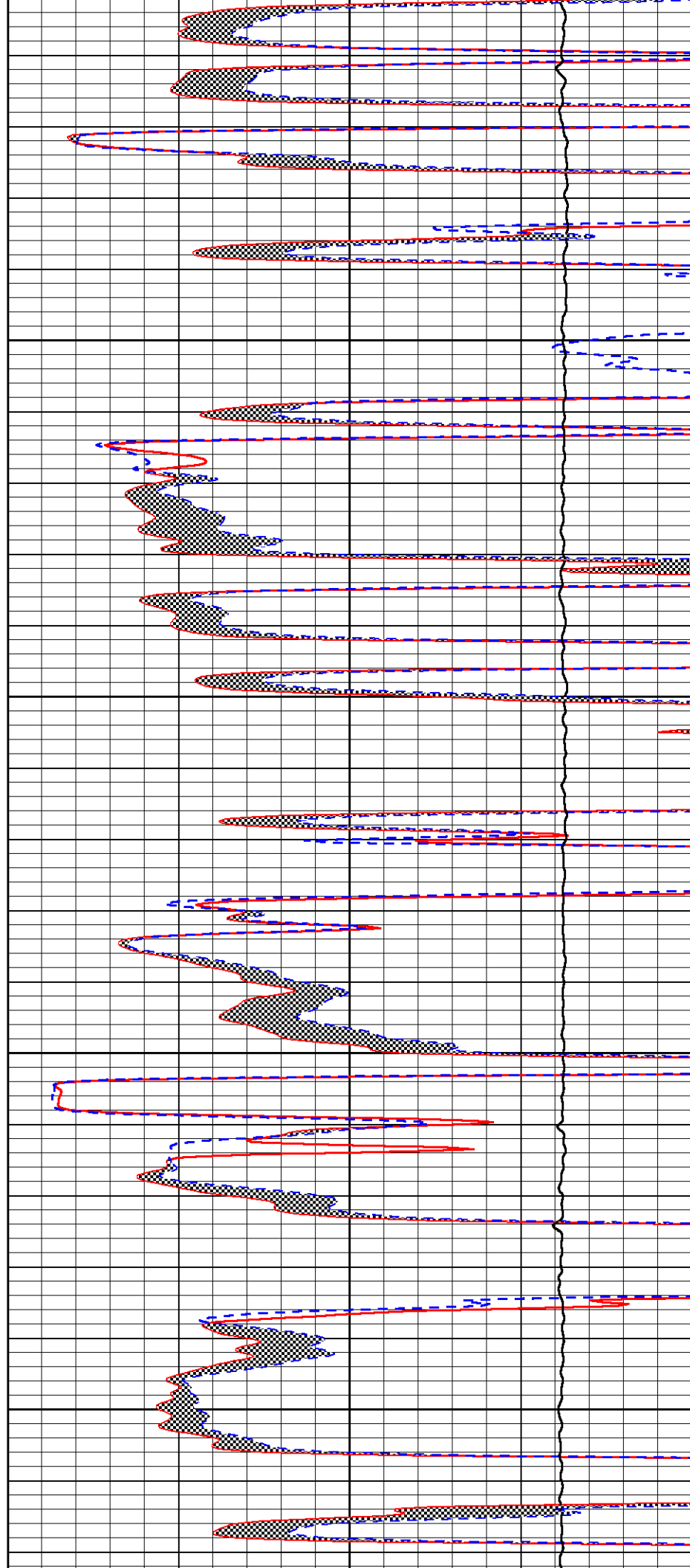


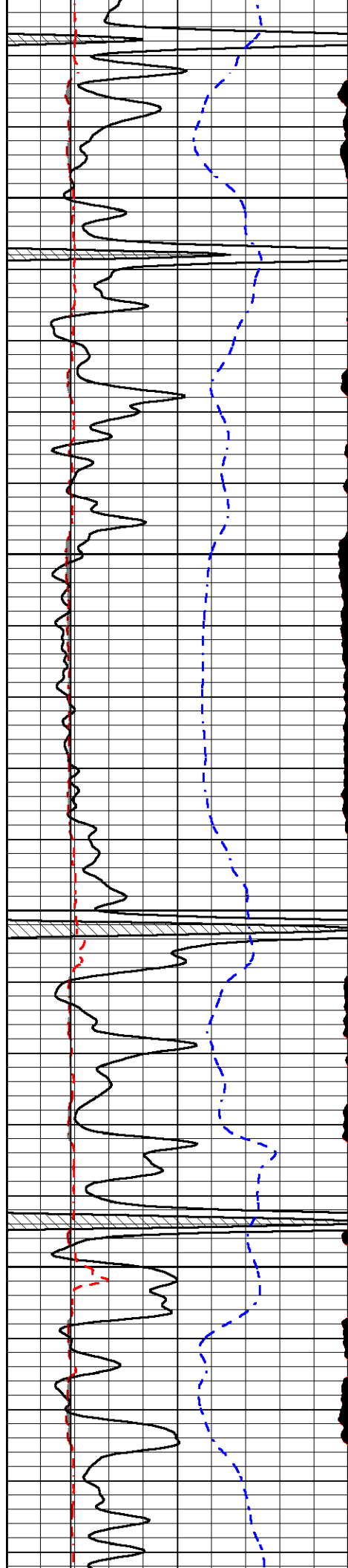
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3900

3950

4000



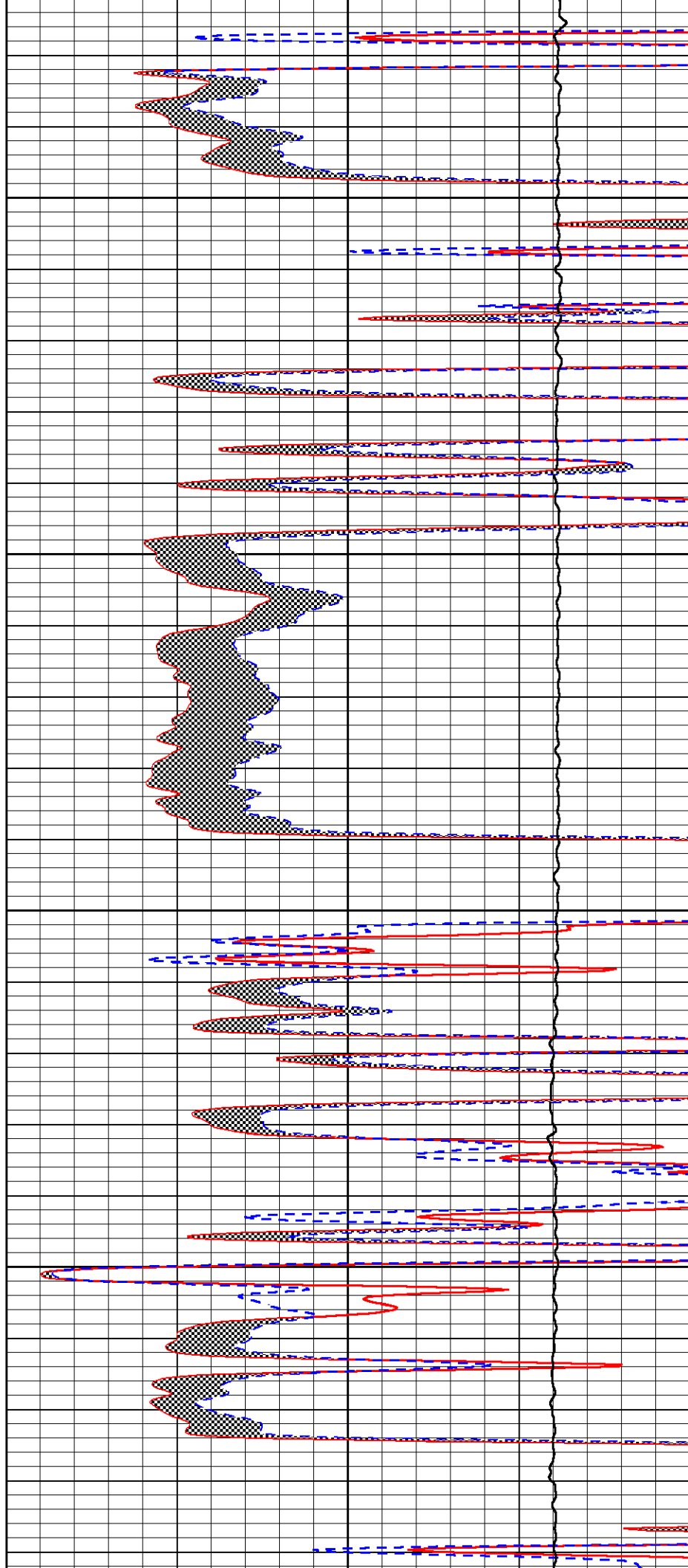


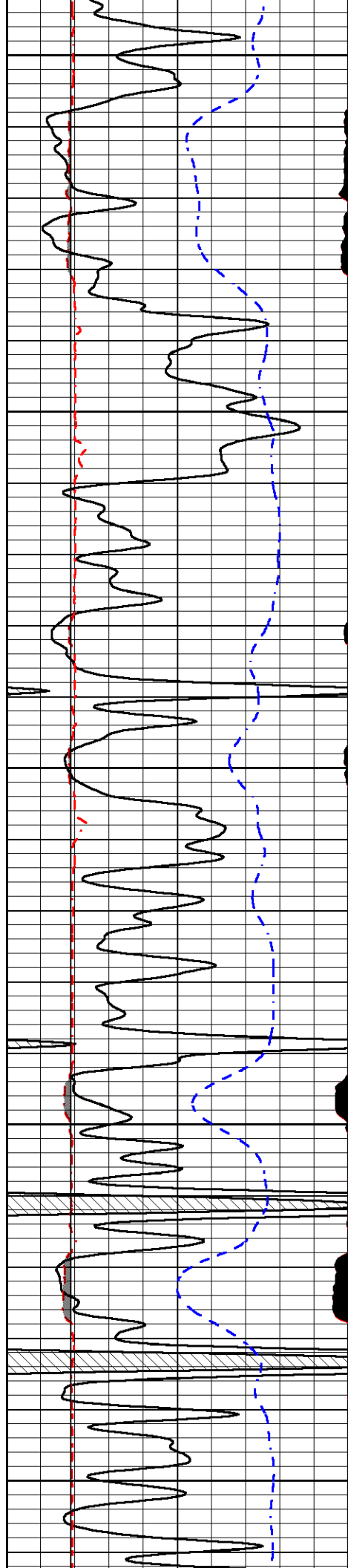
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4100

4150

4200





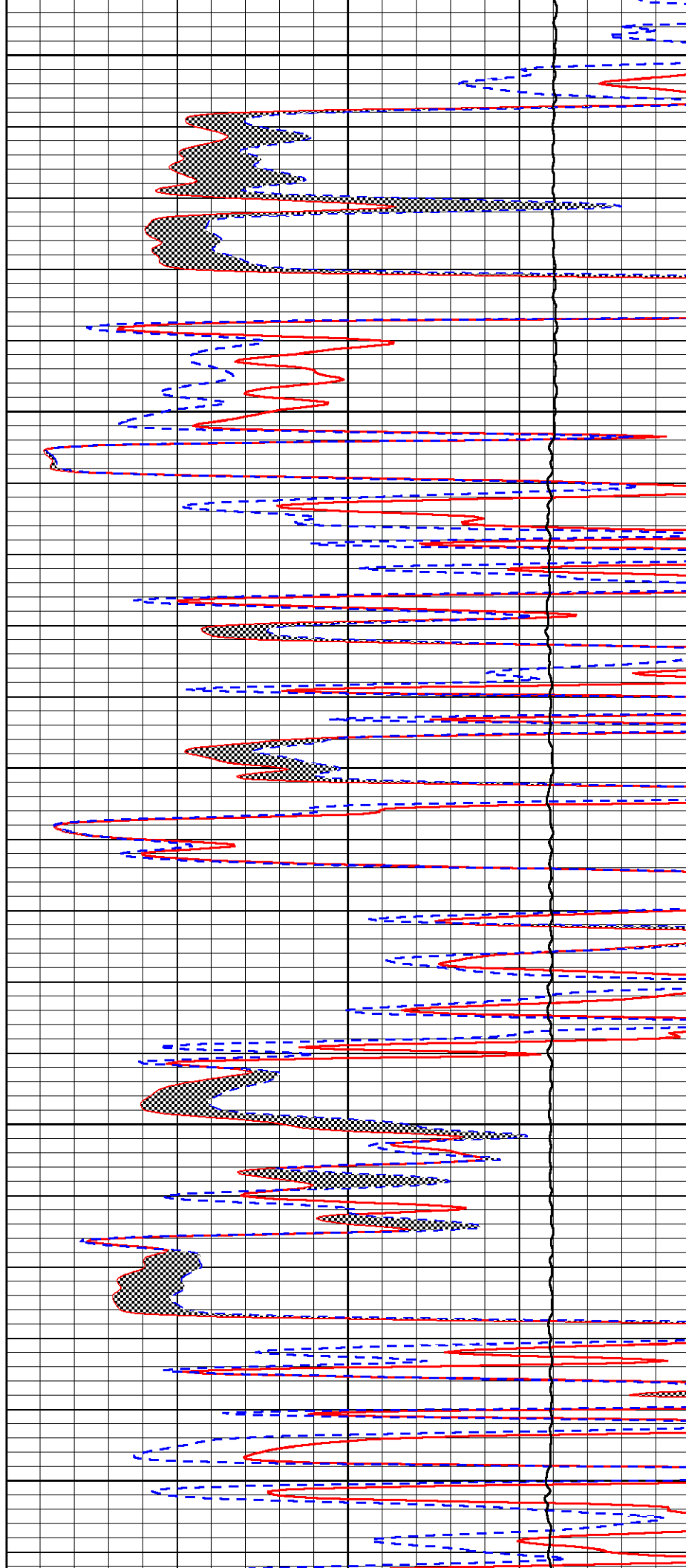
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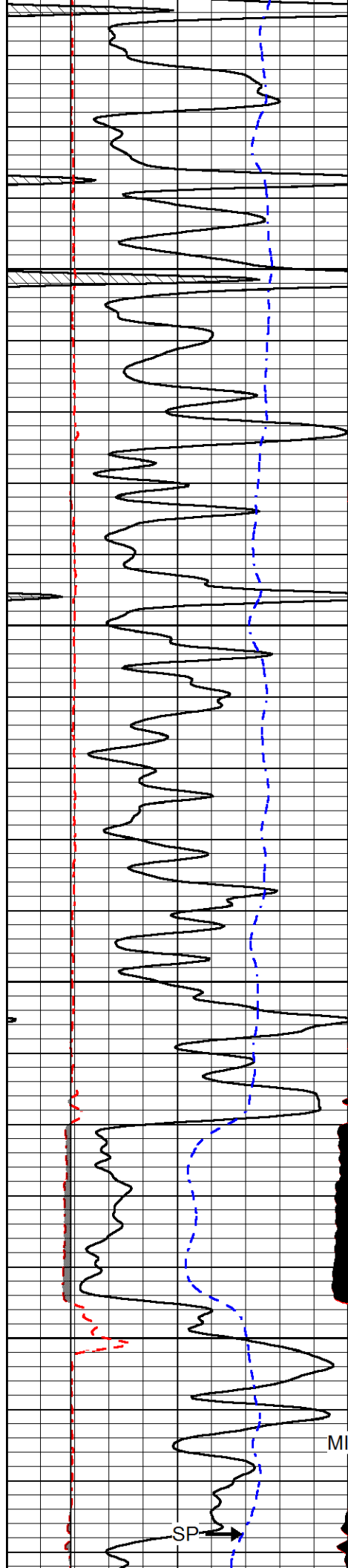
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4350

4400

4450





4500

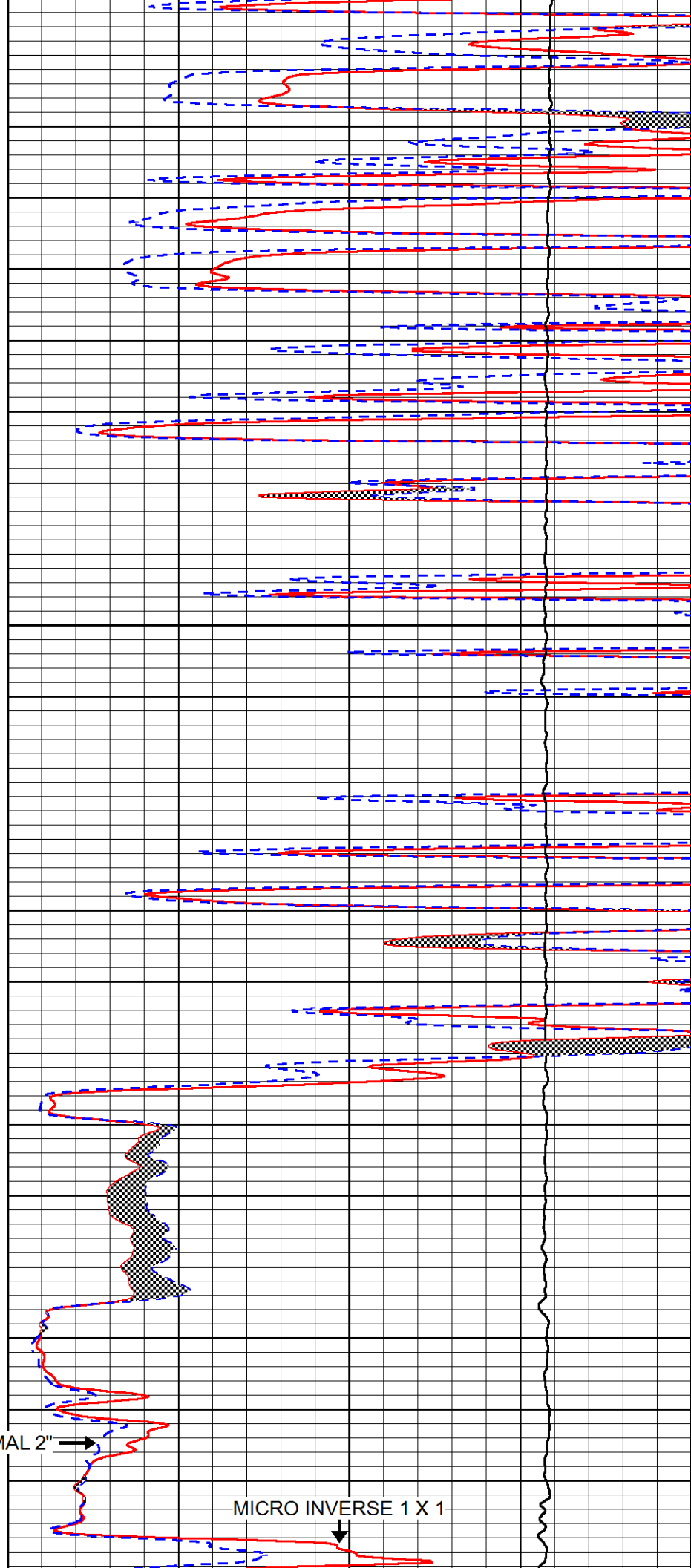
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4600

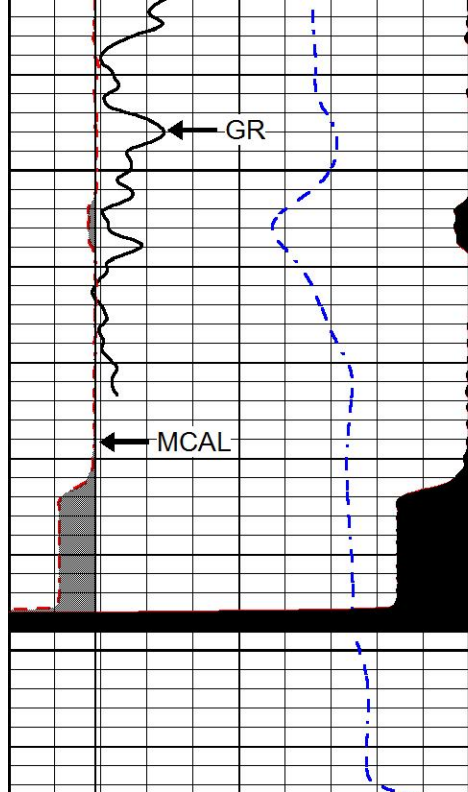
4650

MICRO NORMAL 2" →

SP →



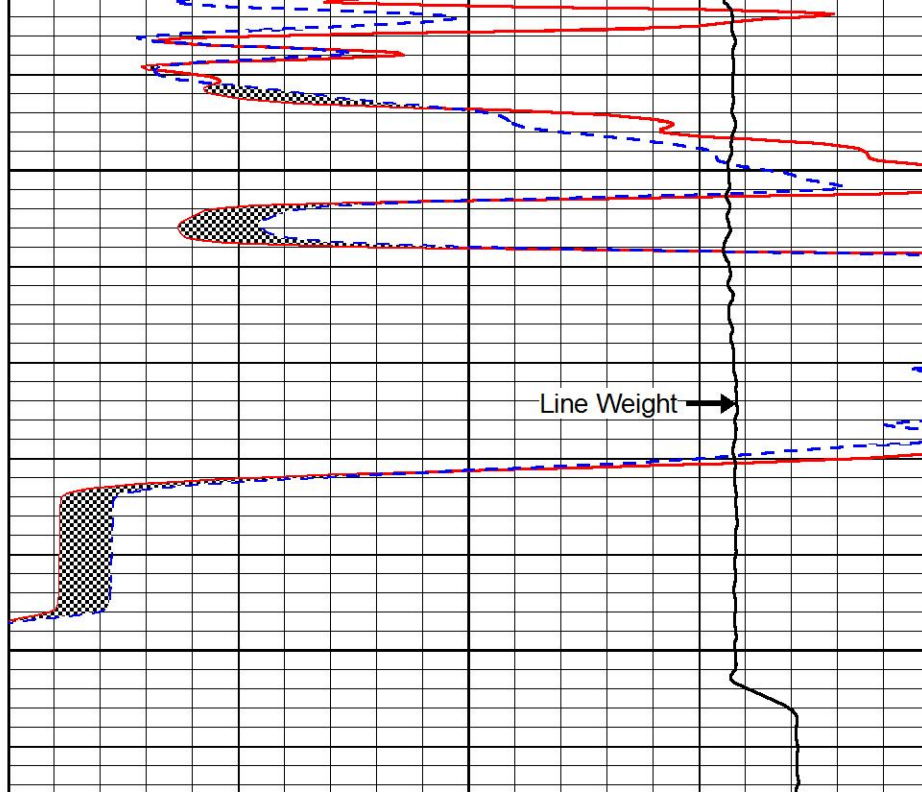
↓ MICRO INVERSE 1 X 1



4700

4750

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



Line Weight

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

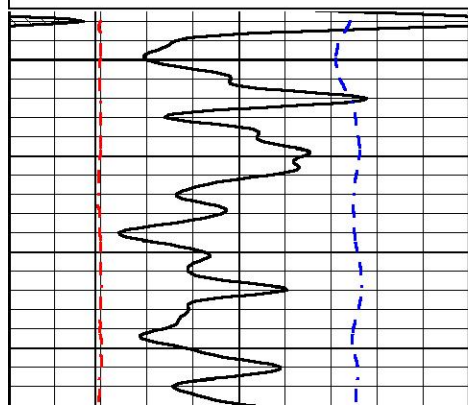


REPEAT SECTION

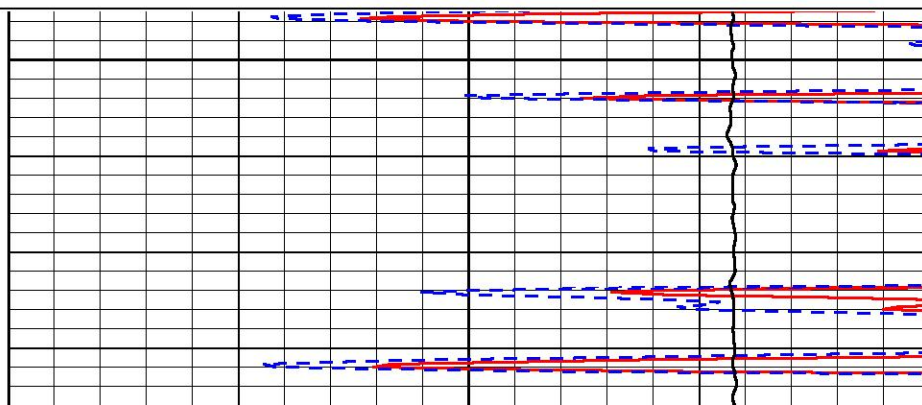
Database File hartman_garden_city_b_6.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format micro
 Dataset Creation Wed Nov 21 08:08:25 2018
 Charted by Depth in Feet scaled 1:240

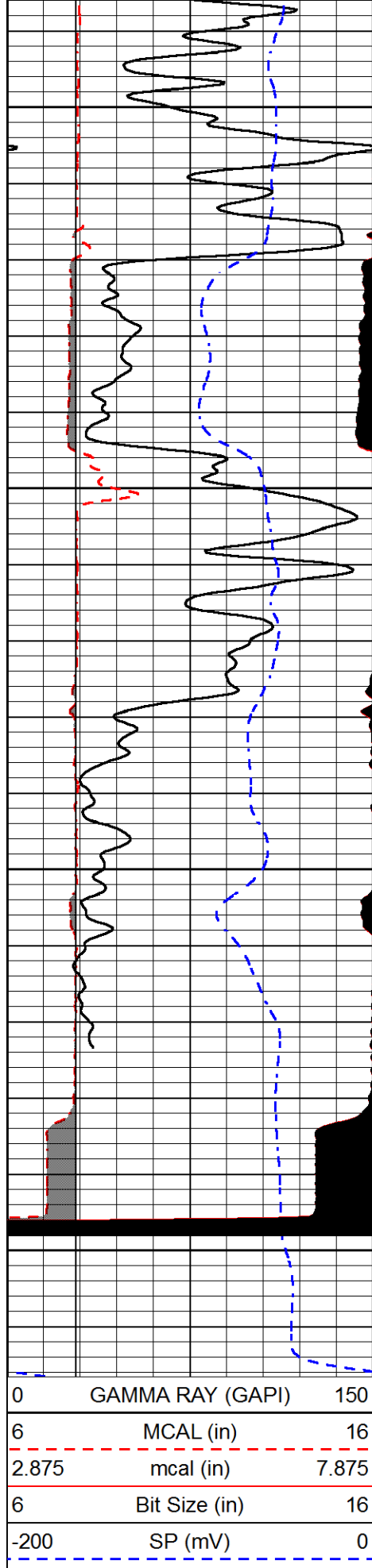
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

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

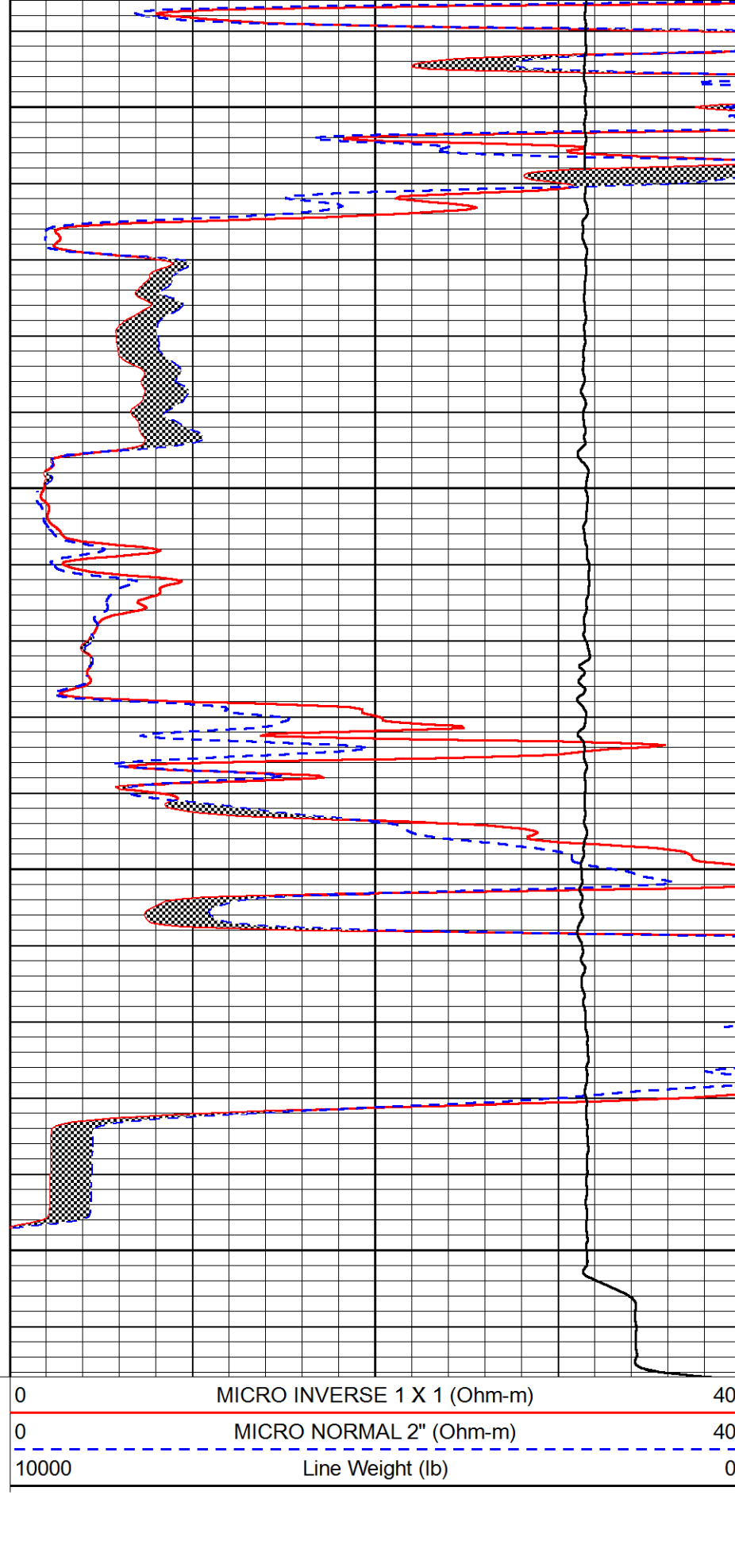


4550





4600
4650
4700
4750



Calibration Report

Database File hartman_garden_city_b_6.db

Dual Induction Calibration Report

Serial-Model: 967 (HT)-PSI HIGH TEMP
Calibration Performed: Sun Oct 07 19:24:22 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
Performed: Sat Sep 08 05:17:35 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	33000.0000	-0.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	40000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.6000

Compensated Density Calibration Report

Serial-Model: 797-152-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Tue May 01 13:38:28 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4933.40	5500.86	cps
Aluminum	2.650	g/cc	928.80	3521.29	cps
Spine Angle = 75.04			Density/Spine Ratio = 0.518		
	Size		Reading		
Small Ring	5.00	in	1.09		
Large Ring	15.00	in	1.03		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: FRI AUG 24 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:	Fri Aug 24 11:16:10 2018

Calibrator Value:	1.0	GAPI
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Background Reading:	0.0	cps
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Calibrator Reading:	1.0	cps
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Sensitivity:	0.6000	GAPI/cps
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Company	HARTMAN OIL CO.
Well	GARDEN CITY B-6
Field	DAMME
County	FINNEY
State	KANSAS