



MIDWEST WIRELINE

MICRORESISTIVITY LOG

Company: Darrah Oil Company, LLC
 Well: Sangster-UP Unit #1-13
 Field: SHS
 County: Logan
 State: Kansas

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 Field: SHS
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Location: 112 FSL & 157 FWL
 SEC 13 TWP 14S RGE 34W
 Permanent Datum: Ground Level Elevation 3008
 Log Measured From: Kelly Bushing
 Drilling Measured From: Kelly Bushing
 Other Services: CNL/CDL DIL/BHCS
 Elevation: 3013
 K.B. D.F. G.L. 3008

Date	11/11/2025
Run Number	One
Depth Driller	4680
Depth Logger	4678
Bottom Logged Interval	4677
Top Log Interval	3600
Casing Driller	8.625 @ 218
Casing Logger	217
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	Full
Density / Viscosity	9.3 52
pH / Fluid Loss	11.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.60 @ 50
Rmt @ Meas. Temp	0.45 @ 50
Rmc @ Meas. Temp	0.81 @ 50
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.24 @ 123
Operating Rig Time	5 Hours
Max Rec. Temp. F	123
Equipment Number	110
Location	HAYS
Recorded By	D. Schmidt
Witnessed By	Saman Sharifaie

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Monument,
 South on 350 to Indian Rd,
 2 West, 1 North to location

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
 785-625-3858

Your Midwest Wireline Crew

Engineer: D. Schmidt
 Operator:
 Operator:
 Operator:

This Log Record Was Witnessed By

Primary Witness: Saman Sharifaie
 Secondary Witness:
 Secondary Witness:
 Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\darrah_sangster-up unit 1-13.db
 Dataset field/well/stkml/pass3.5/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	No	0	0	517	40	Off	4678



MIDWEST WIRELINE

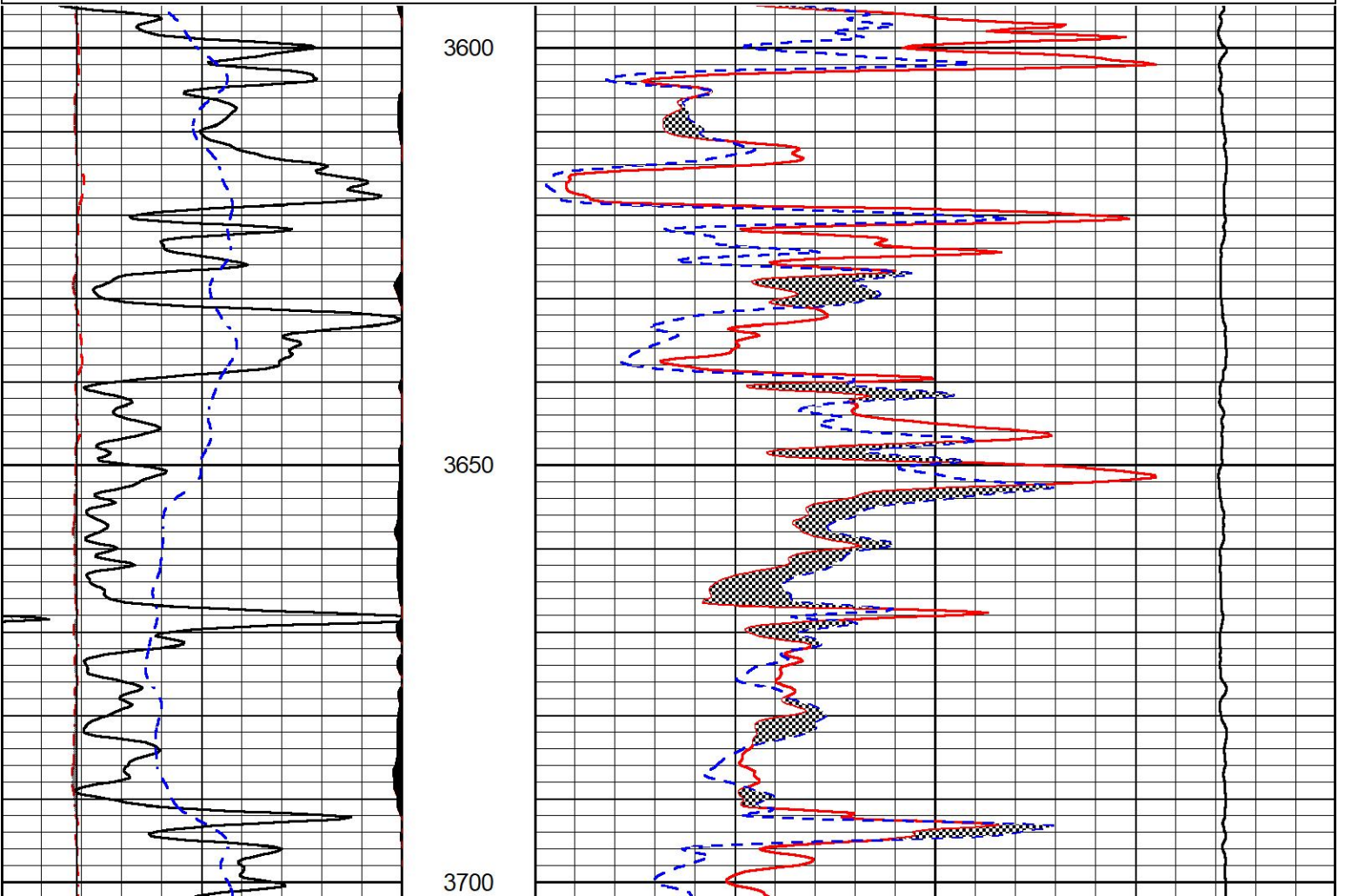
DETAIL SECTION

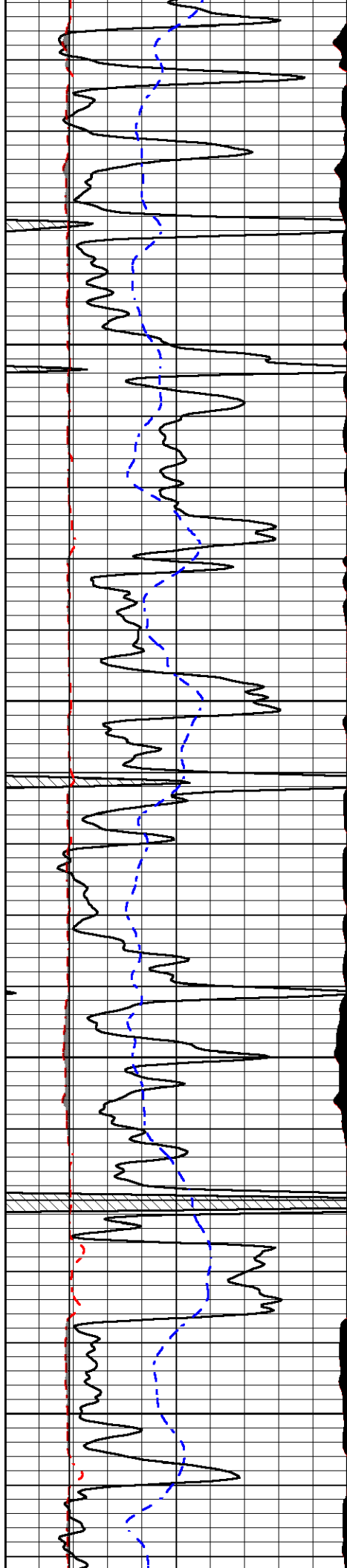
MAIN PASS

Database File darrah_sangster-up unit 1-13.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _micro
 Dataset Creation Tue Nov 11 02:53:13 2025
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	Micro Caliper (in)	16
2.875	mcal (in)	7.875
-200	SP (mV)	0

0	Micro Inverse 1 X 1 (Ohm-m)	20
0	Micro Normal 2" (Ohm-m)	20
10000	Line Weight (lb)	0



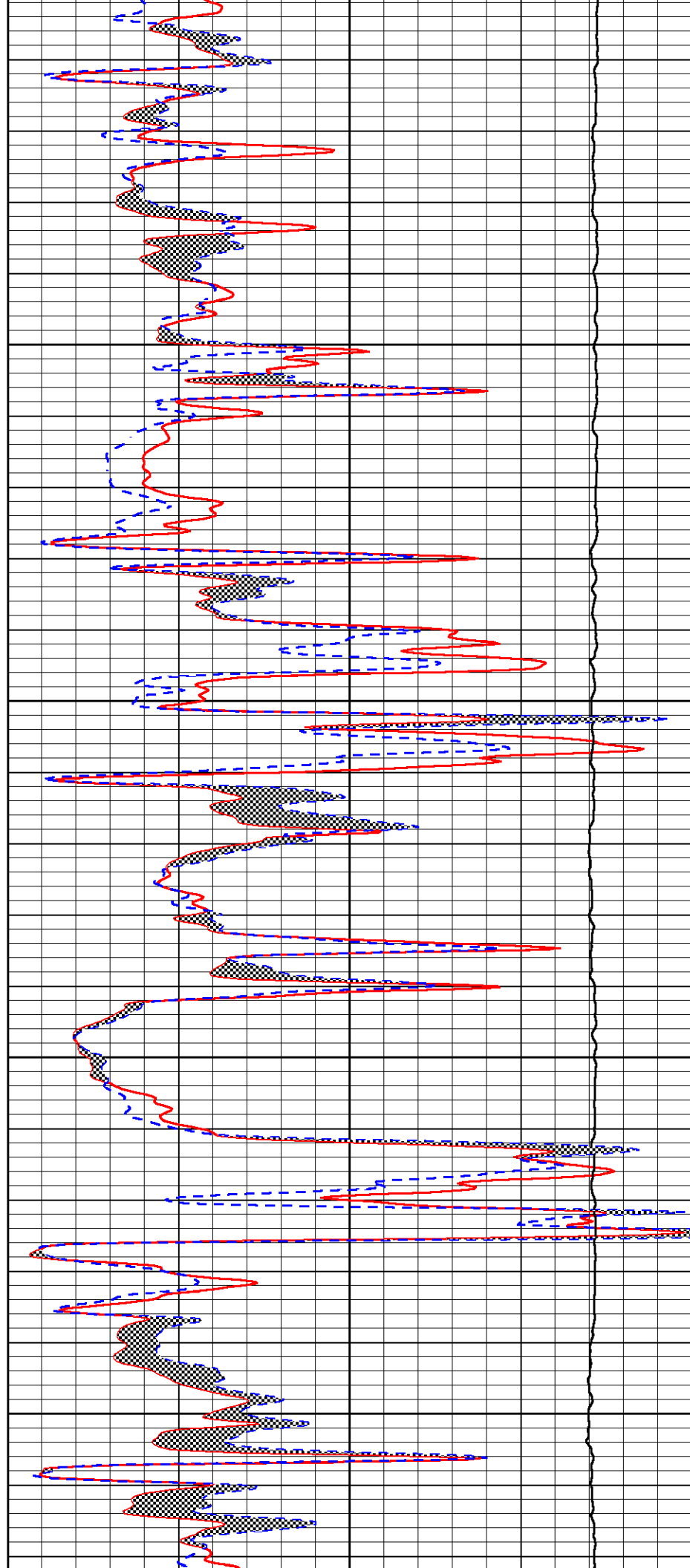


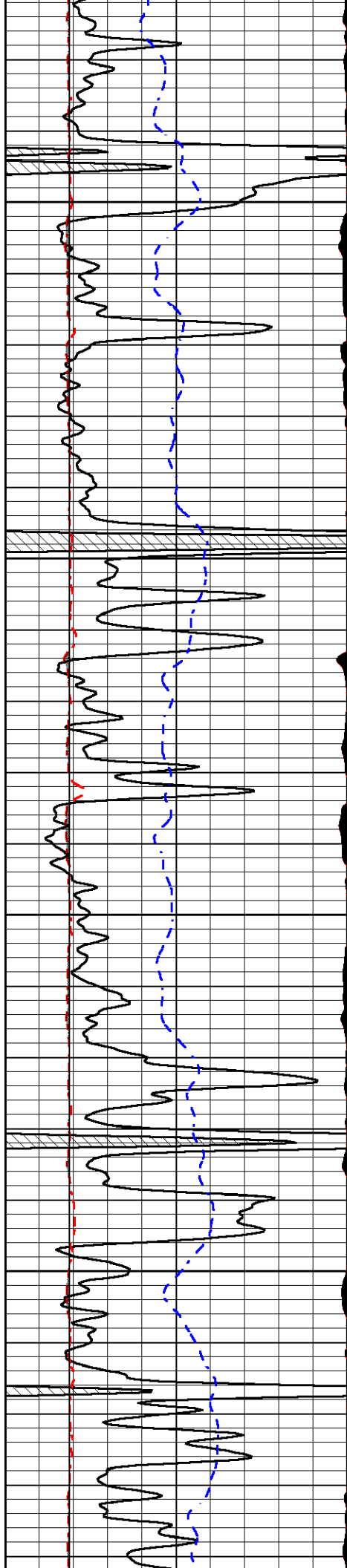
3750

3800

3850

3900



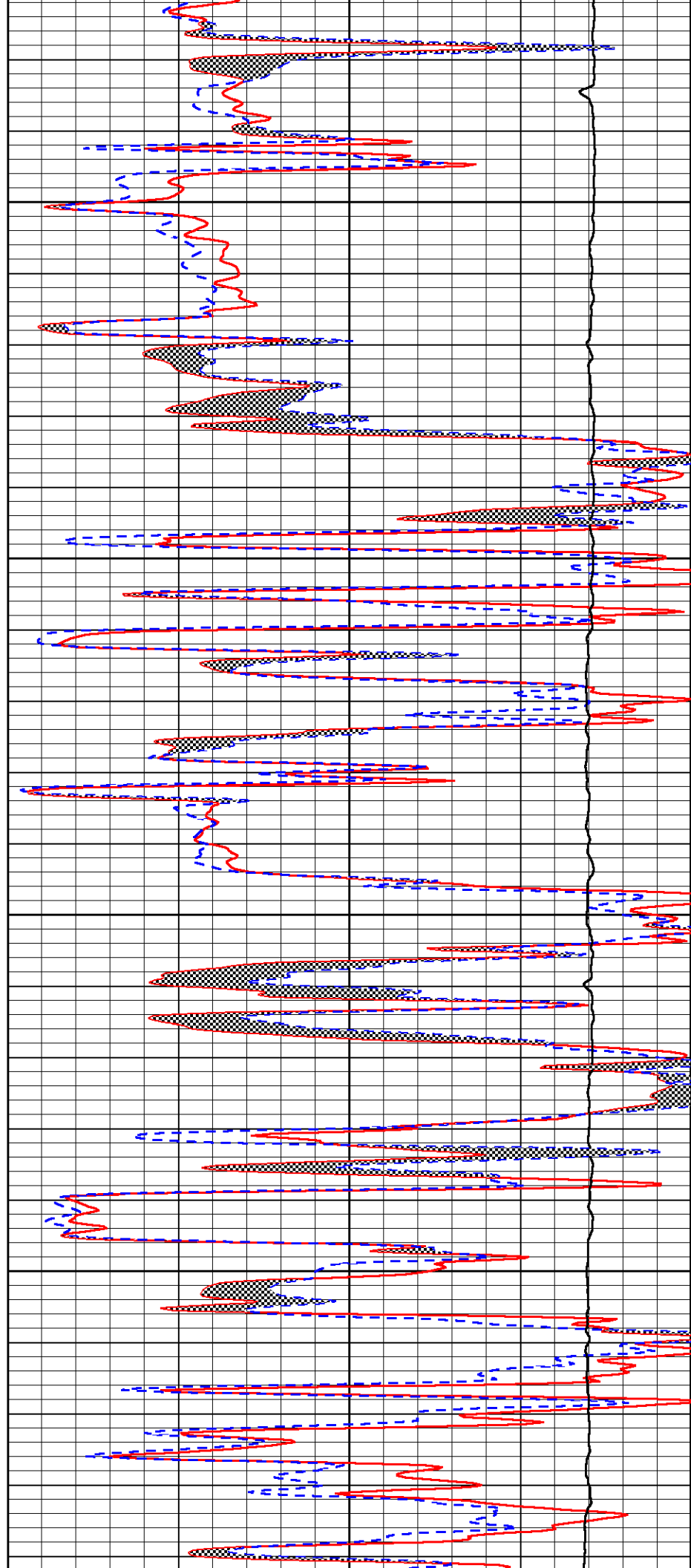


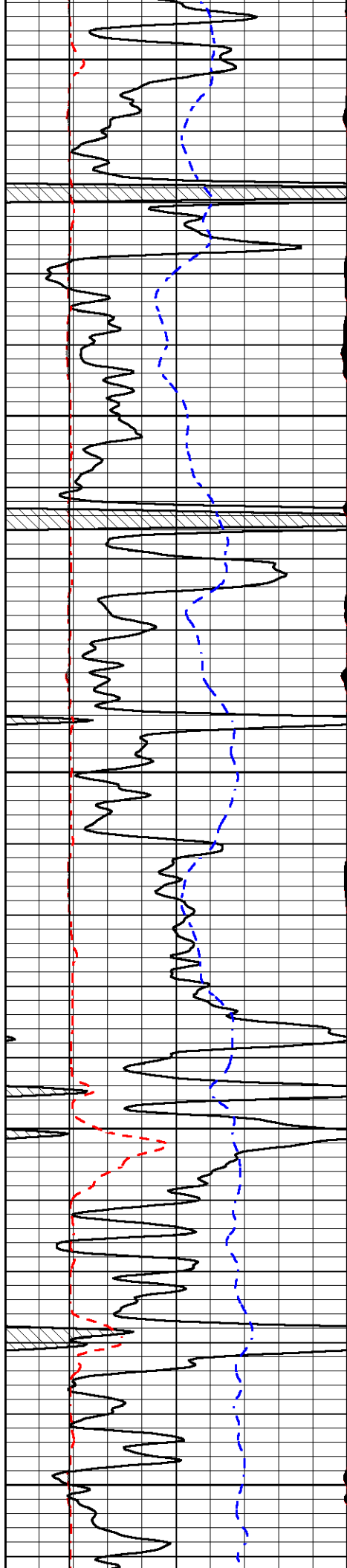
3950

4000

4050

4100





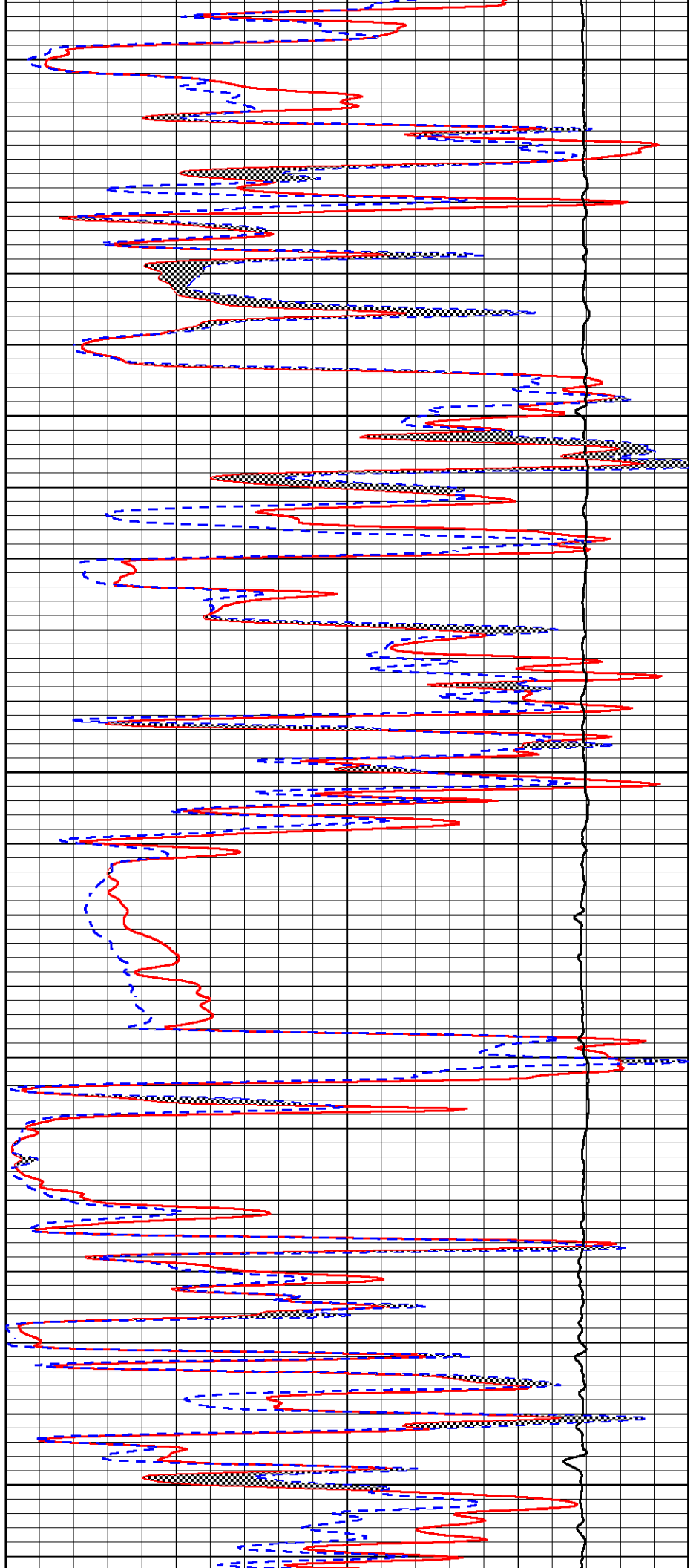
4150

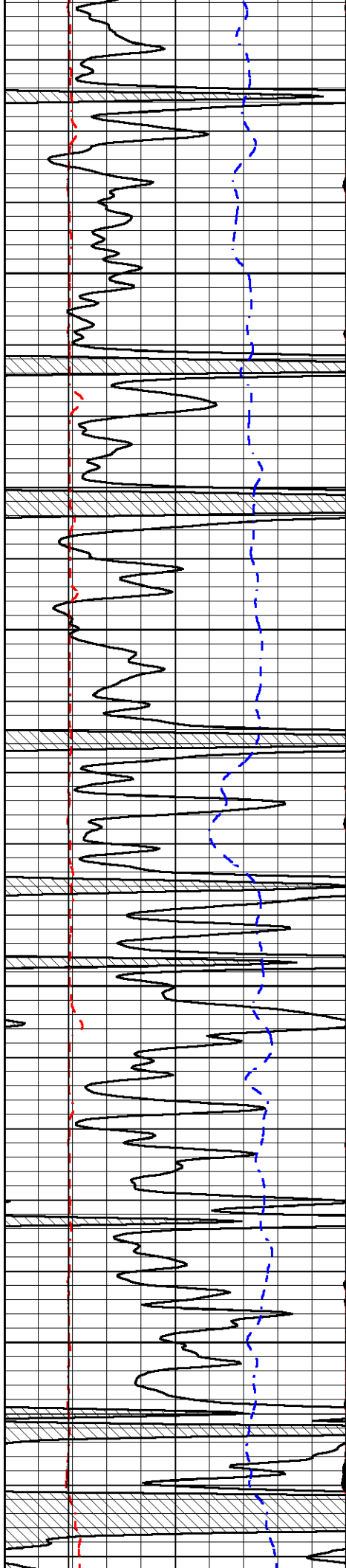
4200

4250

4300

4350



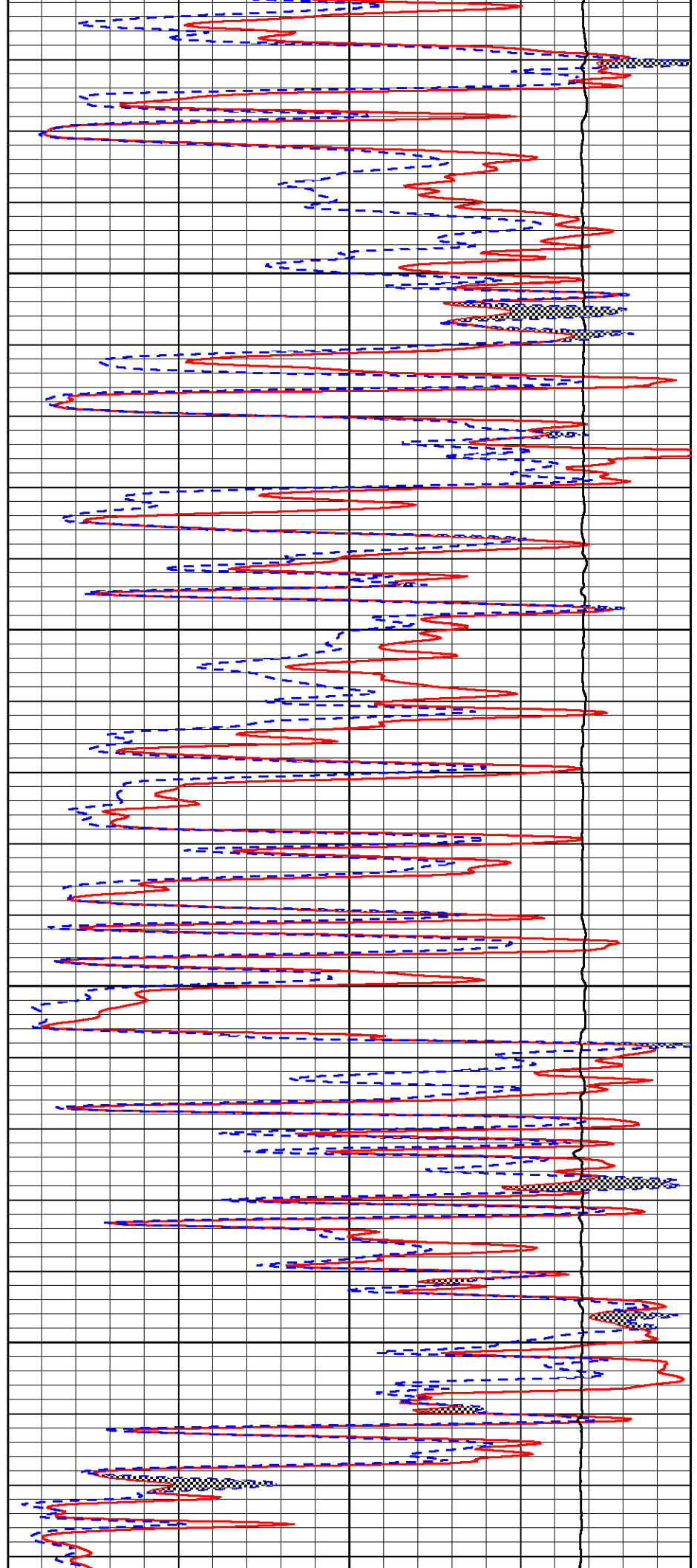


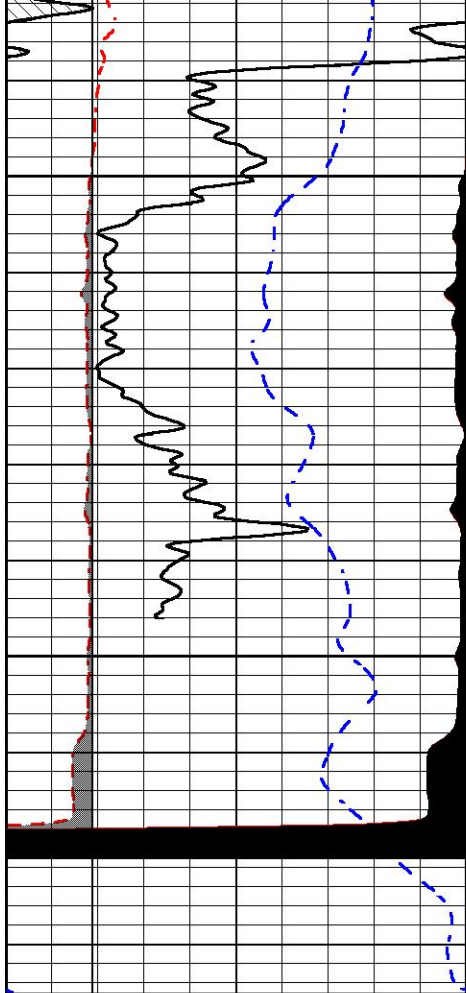
4400

4450

4500

4550

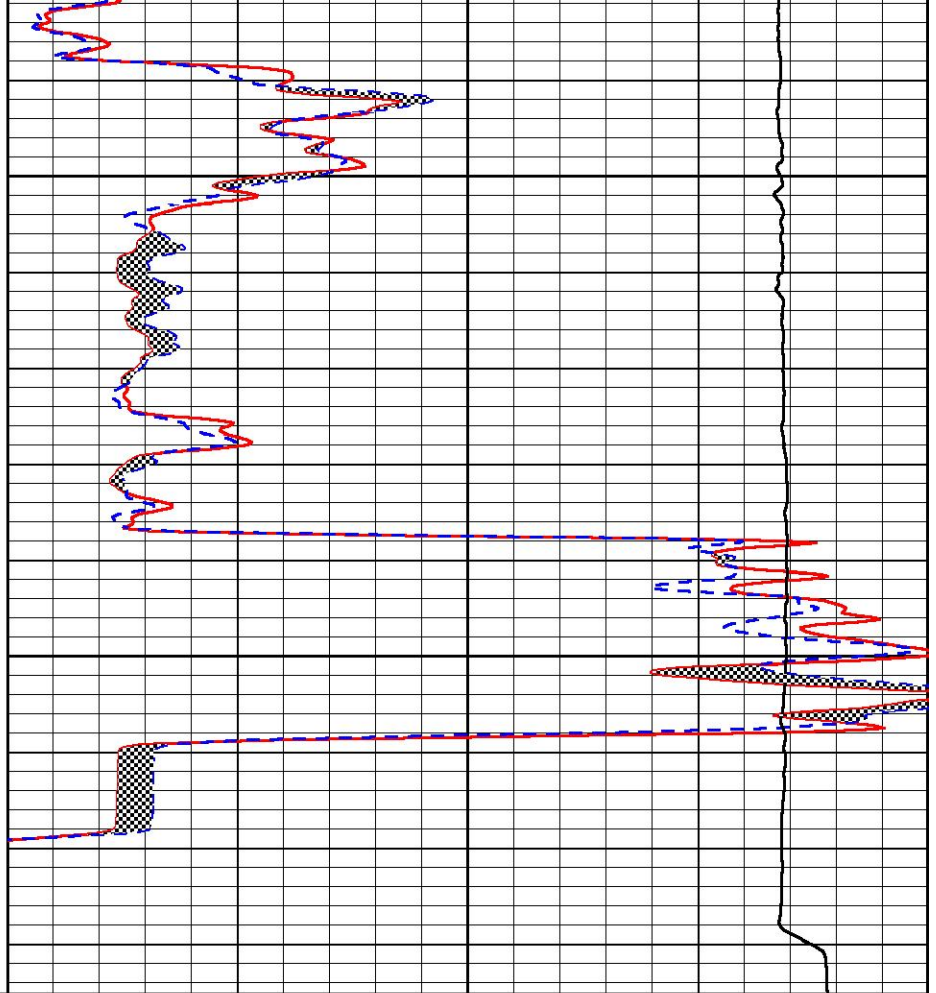




0	Gamma Ray (GAPI)	150
6	Micro Caliper (in)	16
2.875	mcal (in)	7.875
-200	SP (mV)	0

4600

4650



0	Micro Inverse 1 X 1 (Ohm-m)	20
0	Micro Normal 2" (Ohm-m)	20
10000	Line Weight (lb)	0



MIDWEST WIRELINE

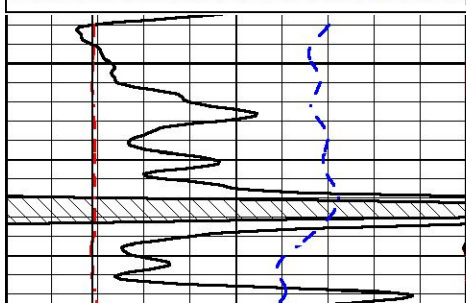
REPEAT SECTION

REPEAT PASS

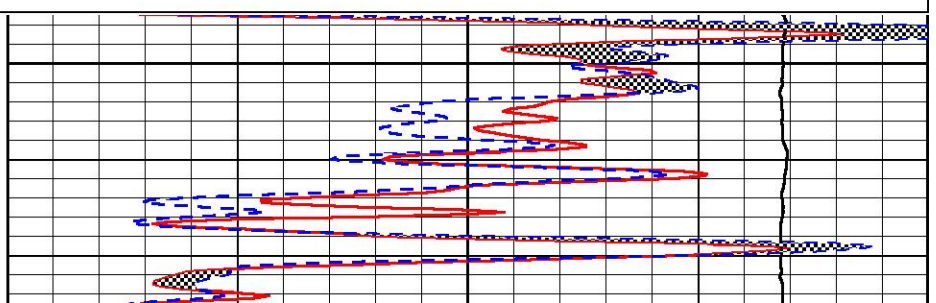
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 Dataset Pathname stkml/pass2.1
 Presentation Format _micro
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 Charted by Depth in Feet scaled 1:240

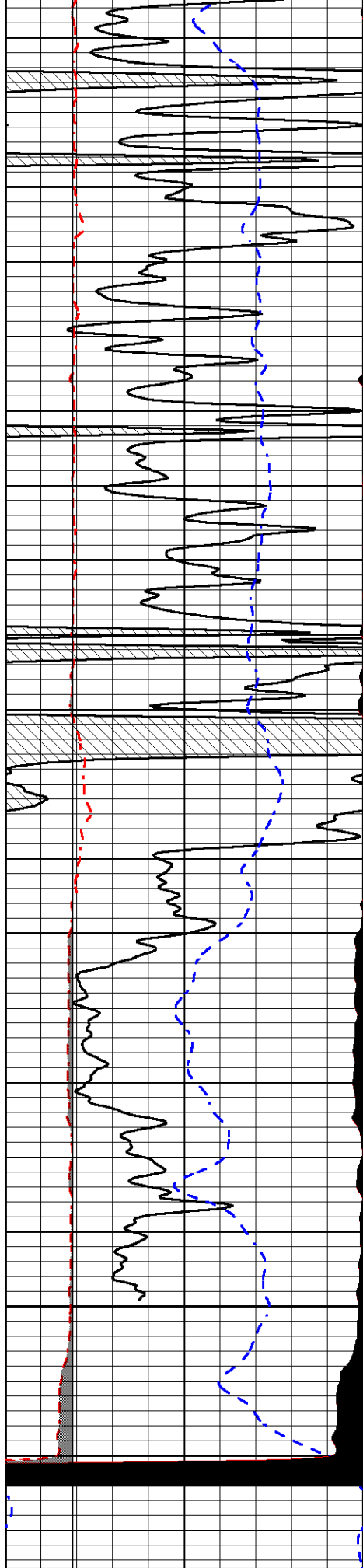
0	Gamma Ray (GAPI)	150
6	Micro Caliper (in)	16
2.875	mcal (in)	7.875
-200	SP (mV)	0

0	Micro Inverse 1 X 1 (Ohm-m)	20
0	Micro Normal 2" (Ohm-m)	20
10000	Line Weight (lb)	0



4450





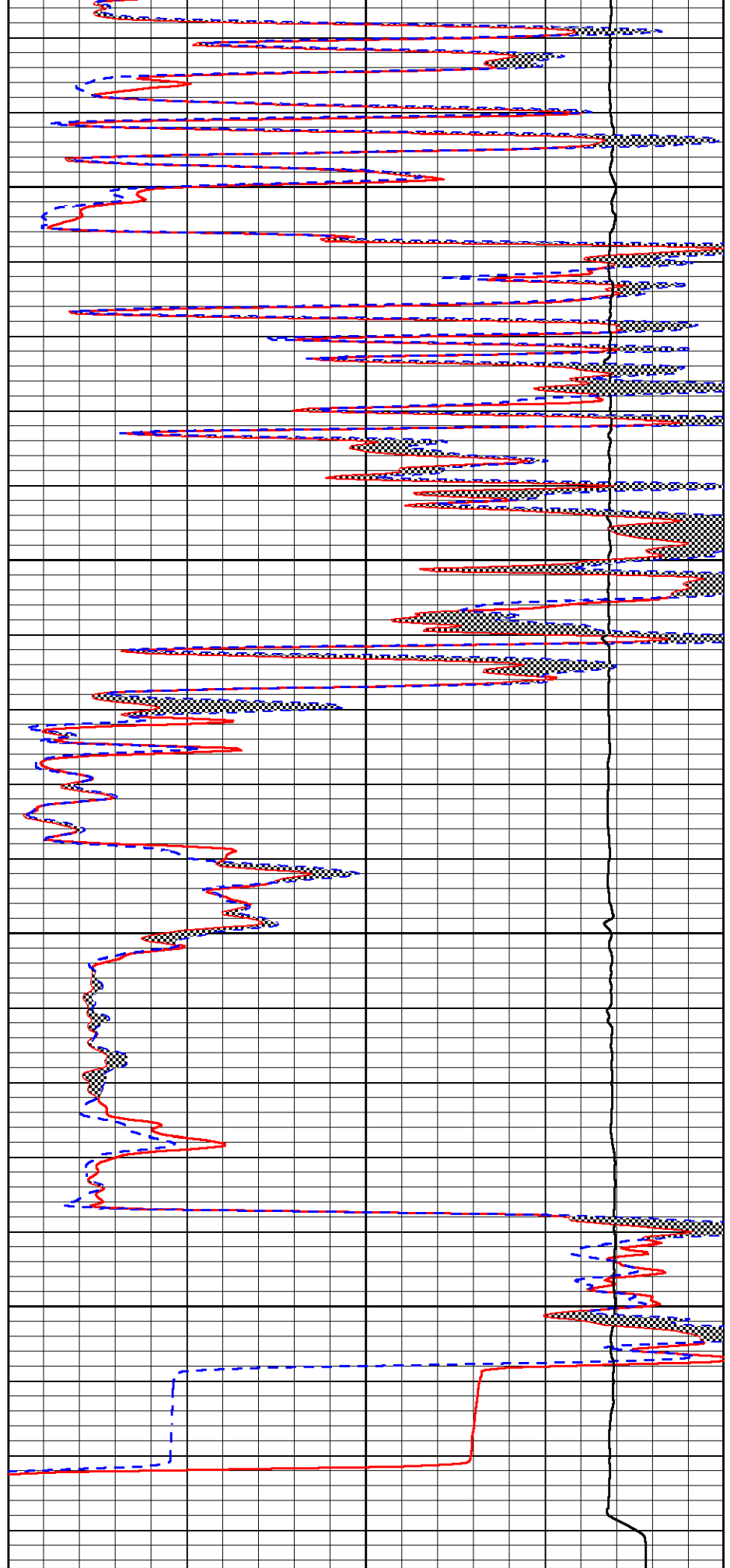
0 Gamma Ray (GAPI) 150
6 Micro Caliper (in) 16

4500

4550

4600

4650



0 Micro Inverse 1 X 1 (Ohm-m) 20
0 Micro Normal 2" (Ohm-m) 20

2.875	mcal (in)	7.875	10000	Line Weight (lb)	0
-200	SP (mV)	0			

Calibration Report

Database File darrah_sangster-up unit 1-13.db
 Dataset Pathname stkml/pass3.5
 Dataset Creation Tue Nov 11 02:20:41 2025

Dual Induction Calibration Report

Serial-Model: 504 HT-M&W
 Surface Cal Performed: Tue Nov 11 01:14:53 2025

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	178.615	710.235	0.000	255.800	mmho/m	1.350	-8.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.900	-40.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Sat Nov 1 16:03:24 2025

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	18500.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	21500.0000	-0.5000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.5650

LITHODENSITY Calibration Report

Serial Number: 701-03
 Tool Model: STEP LITHO Short
 Performed: Tue Sep 23 11:08:22 2025

Source:

	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
Background:									
SS:	56	59	219	268	24	71	46	1	cps
LS:	78	88	333	431	50	131	87	4	cps

Aluminum:	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
SS:	1019	1215	2861	2617	50	77	49	3	cps
LS:	1263	2145	3830	1712	72	136	59	4	cps

Magnesium:	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
SS:	1699	1990	4685	3819	56	78	46	4	cps
LS:	4984	8437	15068	6103	123	112	86	24	cps

Aluminum+Iron:	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
SS:	655	863	2400	2274	45	78	49	3	cps
LS:	711	1512	3267	1588	59	132	86	6	cps

	Density	PE			
	Actual	Calibrated	Actual	Calibrated	Quality
Background:					
SS:					0.213
LS:					0.202
Aluminum:					

SS:	2.6000	2.6000	g/cc			0.219
LS:	2.6000	2.6000	g/cc			0.395
Magnesium:						
SS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.255
LS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.131
Aluminum+Iron:						
SS:					6.1800	0.229
LS:					6.1800	0.212

Caliper:	Reference:	Reading:
Small Ring:	6.0 in	0.2
Large Ring:	17.5 in	0.8
Gain:	18.284	
Offset:	0.100	

Compensated Neutron Calibration Report

Serial Number:	210
Tool Model:	M&W

CALIBRATION

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:	105
Tool Model:	M&W
Performed:	Tue Aug 26 12:59:12 2025
Calibrator Value:	500.0 GAPI
Background Reading:	24.0 cps
Calibrator Reading:	637.0 cps
Sensitivity:	0.6000 GAPI/cps



Company	Darrah Oil Company, LLC
Well	Sangster-UP Unit #1-13
Field	SHS
County	Logan
State	Kansas