



PIONEER

Pioneer Energy Services

MICRORESISTIVITY LOG

Company **COBALT ENERGY, LLC**
Well **CHERYL NO.1-17**
Field **ALLODIUM NORTHEAST**
County **GRAHAM** State **KANSAS**

Location: API #: 15-065-24180-00-00

Other Services

1845' FSL & 2065' FWL
SEC 17 TWP 6S RGE 25W

CNL/CDL
DIL

Permanent Datum **GROUND LEVEL** Elevation **2541'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 2546'
D.F. N/A
G.L. 2541'

Date 2/13/2020

Run Number ONE

Depth Driller 3880'

Depth Logger 3884'

Bottom Logged Interval 3882'

Top Log Interval 3400'

Casing Driller 8.625" @ 220'

Casing Logger 220'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 900

Density / Viscosity 9.0 59

pH / Fluid Loss 11.0 6.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 1.0 @ 60

Rmf @ Meas. Temp 0.75 @ 60

Rmc @ Meas. Temp 1.35 @ 60

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.52 @ 115

Operating Rig Time 2 HOURS

Max Rec. Temp. F 115 DEG. F.

Equipment Number P-108

Location HAYS

Recorded By M. HISS

Witnessed By COREY BAKER

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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.

STUDLEY KANSAS,
NORTH 13 MILES ON RD 100 TO RD CC,
1 1/2 EAST, SOUTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: M. HISS
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: COREY BAKER
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 115	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV 213	degF 50	Off	ft 3884

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	44.50			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	41.40			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	40.65						
LSD	32.35			CDL-M&W (934-229)	8.50	4.00	250.00
DCAL	32.33			ML-PSI UDM ML (UDM-01)	11.50	4.00	215.00
SSD	31.85			Stackable Microlog Tools			
MCAL	20.87						
MI	20.87						
MN	20.87						
RLL3	15.80						
RLL3F	15.79						
CILD	8.00			DIL-M&W (55-222)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: cobalt_cheryl_#1_17.db: field/well/stackmel/pass4.1
Total length: 47.00 ft
Total weight: 835.00 lb
O.D.: 4.00 in

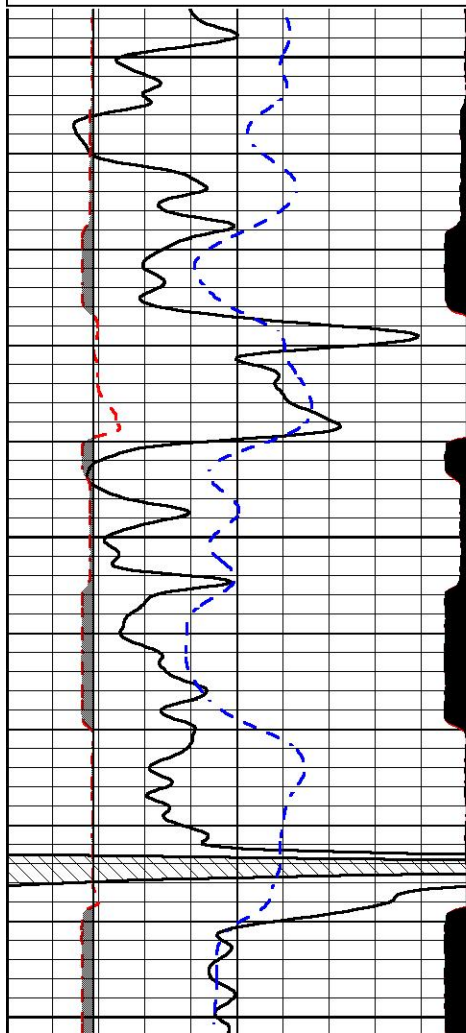


MAIN PASS

Database File cobalt_cheryl_#1_17.db
Dataset Pathname stackmel/pass4.1
Presentation Format micro
Dataset Creation Thu Feb 13 03:20:08 2020
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

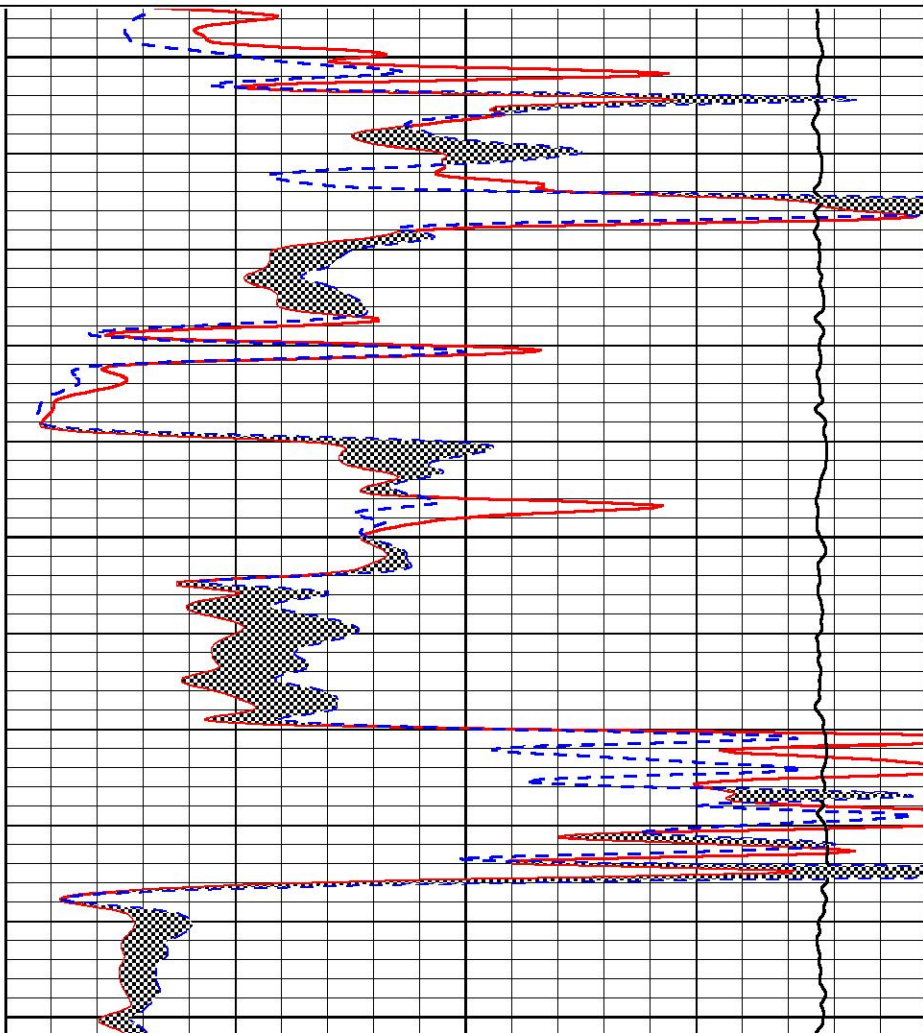
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

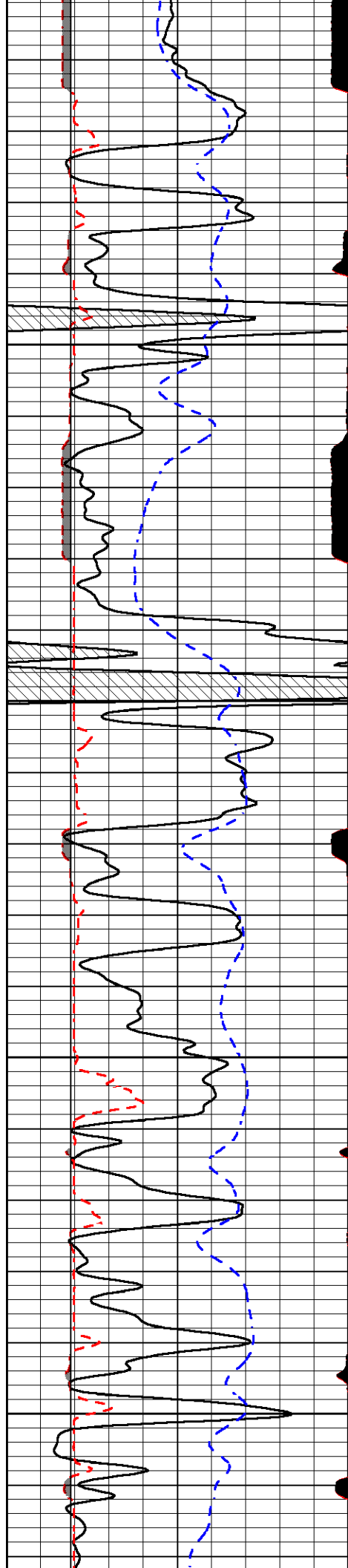


3400

3450

3500



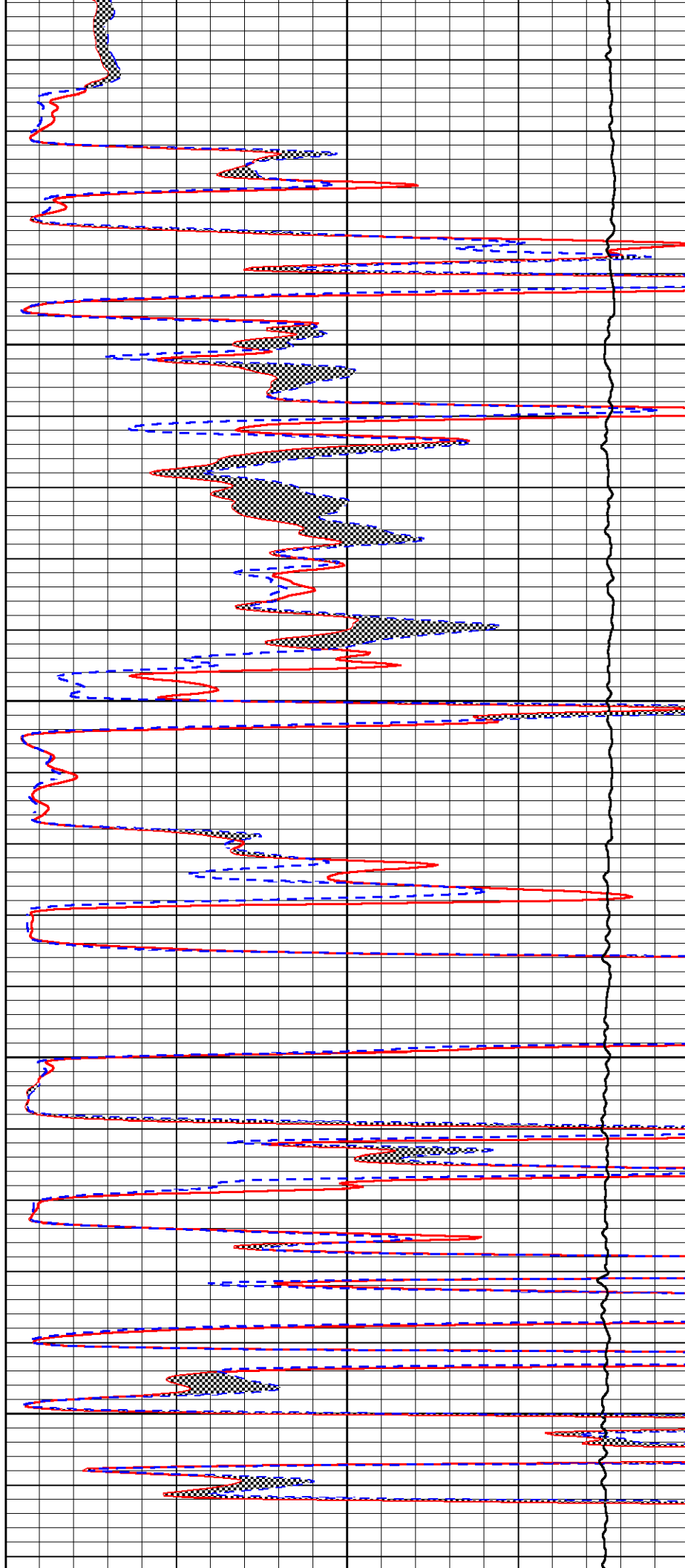


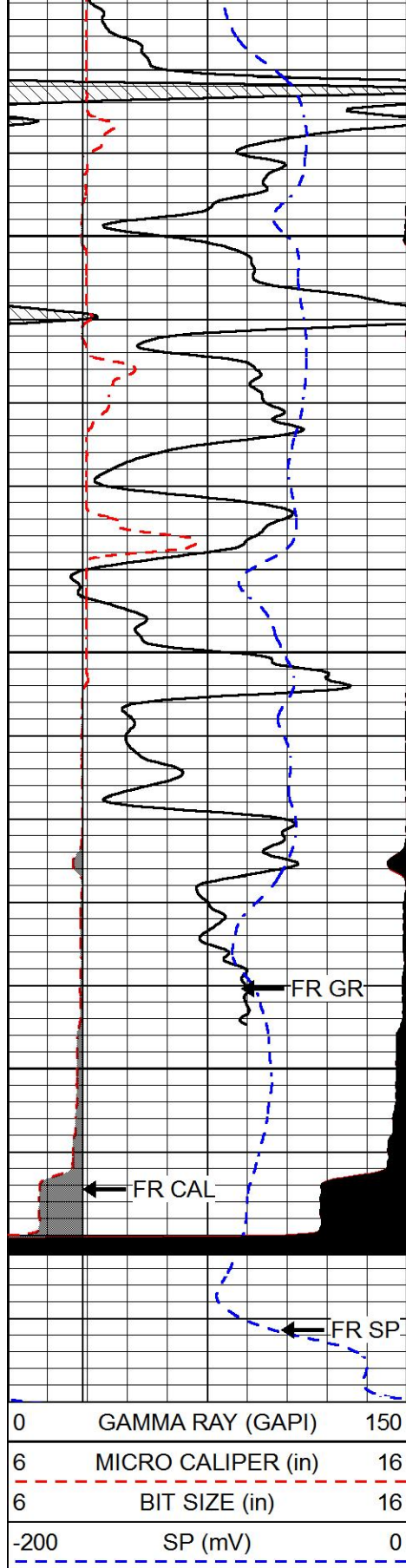
3550

3600

3650

3700





3750

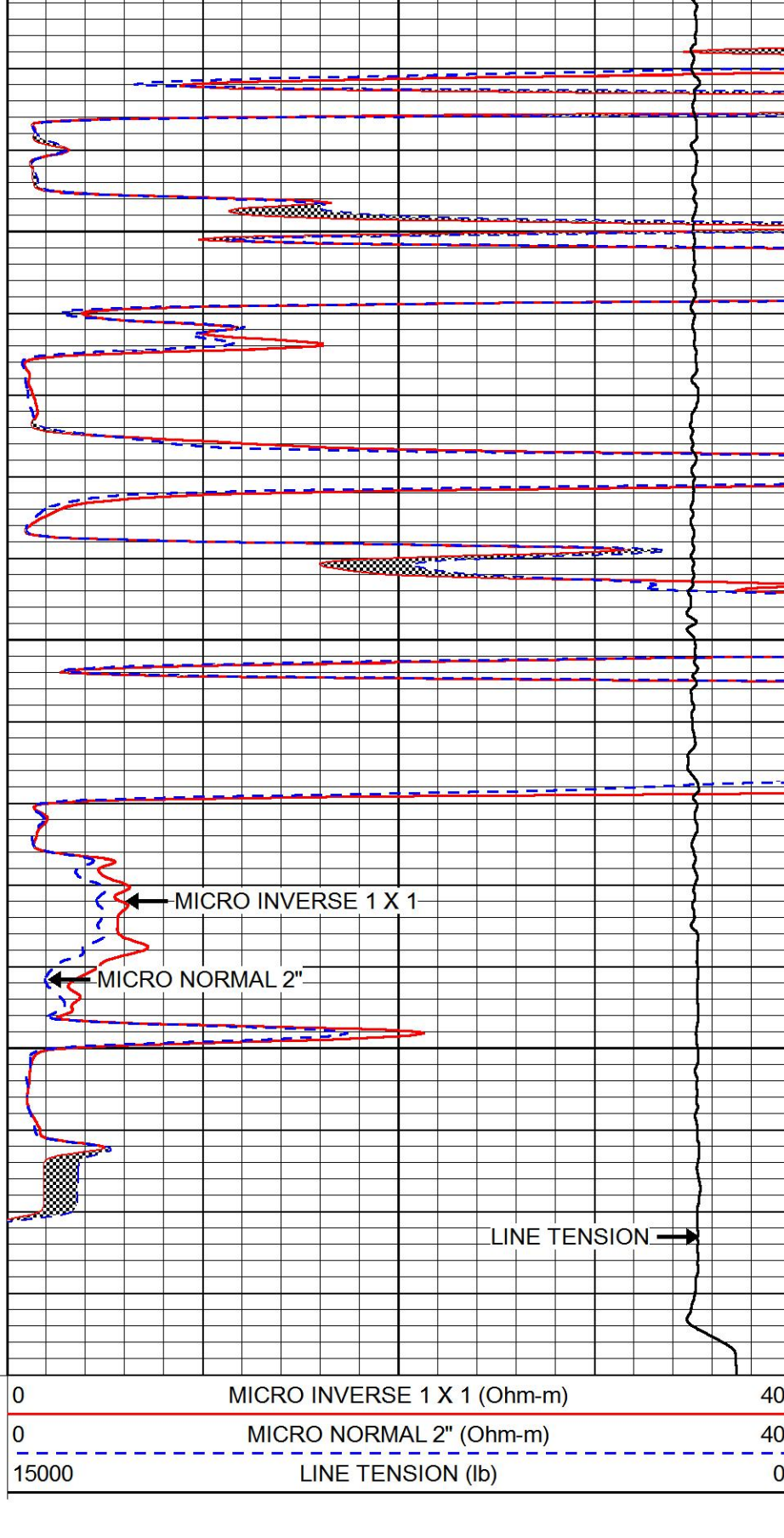
3800

3850

FR GR

FR CAL

FR SP



MICRO INVERSE 1 X 1

MICRO NORMAL 2"

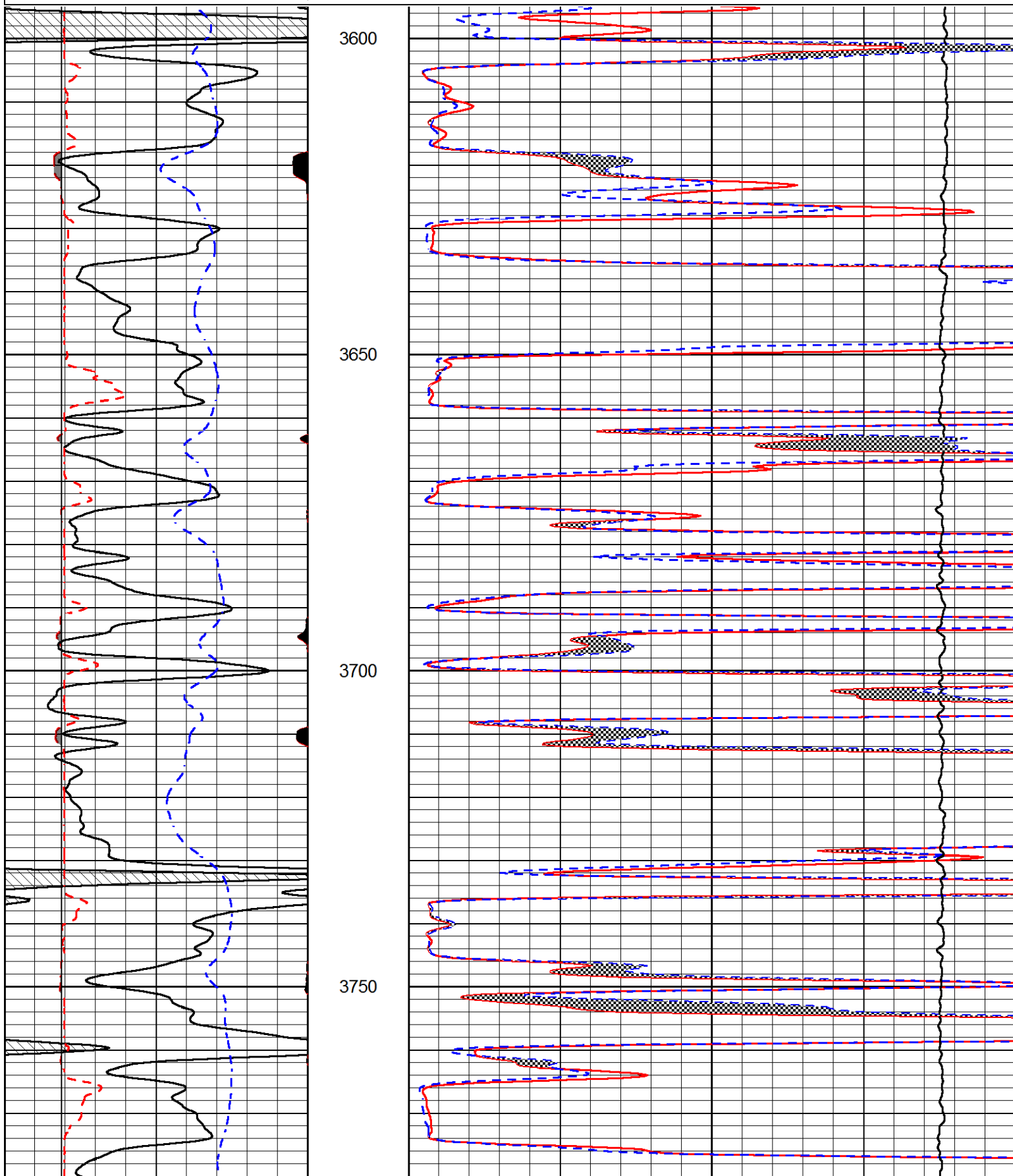
LINE TENSION

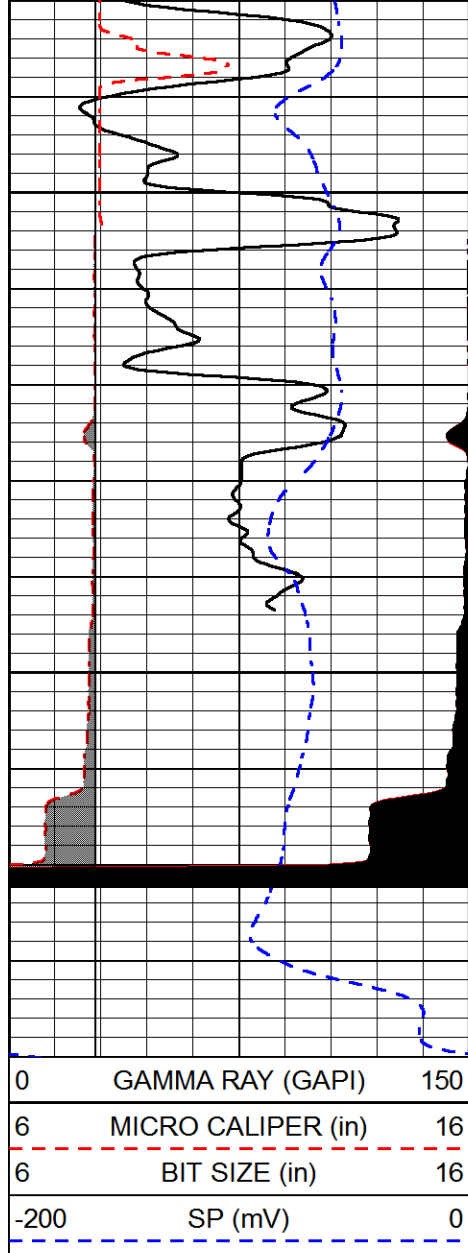


REPEAT SECTION

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

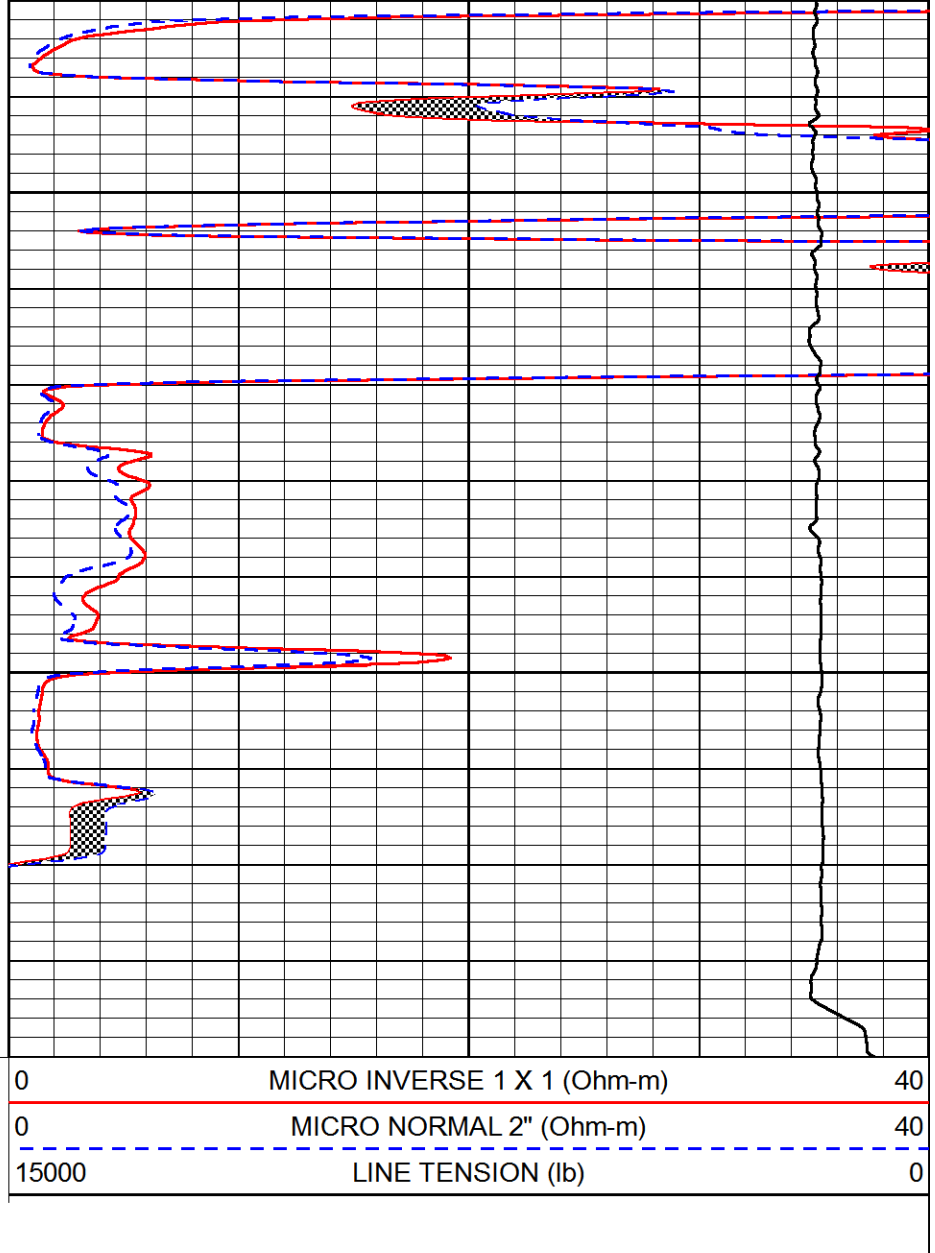
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0





3800

3850



Calibration Report

Database File cobalt_cheryl_#1_17.db
 Dataset Pathname stackmel/pass4.11
 Dataset Creation Thu Feb 13 02:45:23 2020

Dual Induction Calibration Report

Serial-Model: 55-222-M&W
 Calibration Performed: Tue Dec 10 05:11:10 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.500	-41.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.370	-15.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
 Performed: Fri May 31 06:10:42 2019

Readings

References

Results

	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	17000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	17000.0000	-1.0000
Caliper	1.0019	1.2642	8.0000	22.0000	in	53.3774	-47.5000

Compensated Density Calibration Report

Serial-Model: 934-229-M&W
 Source / Verifier: 21170B /
 Master Calibration Performed: Thu Dec 19 15:46:53 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3391.68	2392.26	cps
Aluminum	2.670	g/cc	645.86	1568.99	cps
Spine Angle = 75.73			Density/Spine Ratio = 0.535		
	Size		Reading		
Small Ring	4.00	in	1.39		
Large Ring	14.00	in	1.04		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

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-M&W
 Tool Model: M&W
 Calibration Performed: Tue Dec 10 05:11:34 2019

 Calibrator Value: 1000.0 GAPI

 Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

 Sensitivity: 0.5200 GAPI/cps



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 Well CHERYL NO.1-17
 Field ALLODIUM NORTHEAST
 County GRAHAM
 State KANSAS