



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company JOHN O. FARMER, INC.
Well LANG #3
Field POLIFKA
County ELLIS
State KANSAS

Company JOHN O. FARMER, INC.
Well LANG #3
Field POLIFKA
County ELLIS State KANSAS

Location: API #: 15-051-26888-00-00

Other Services

1880' FNL & 330' FEL
SEC 6 TWP 13S RGE 17W

CNL/CDL
DIL

Permanent Datum GROUND LEVEL Elevation 2062'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2070'
D.F. N/A
G.L. 2062'

Date 9/6/2017

Run Number ONE

Depth Driller 3690'

Depth Logger 3689'

Bottom Logged Interval 3688'

Top Log Interval 3000'

Casing Driller 8.625" @ 220'

Casing Logger 216'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 11000

Density / Viscosity 9.1 51

pH / Fluid Loss 8.5 10.2

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.42 @ 72

Rmf @ Meas. Temp 0.32 @ 72

Rmc @ Meas. Temp 0.57 @ 72

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.27 @ 113

Operating Rig Time 3 HOURS

Max Rec. Temp. F 113

Equipment Number 91

Location HAYS

Recorded By D. SCHMIDT

Witnessed By AUSTIN KLAUS

<<< Fold Here >>>

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.

HAYS, (I-70 & TOULON)
NORTH TO FEEDLOT RD, 1/2 NORTH,
WEST INTO

Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

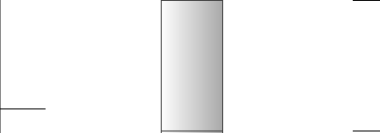
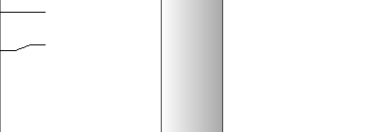
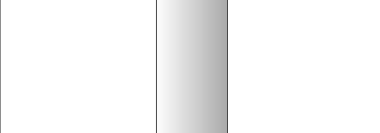
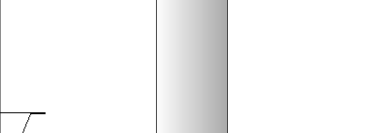
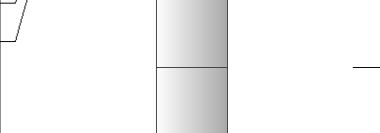
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: AUSTIN KLAUS
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	30	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	80	0	5.5	0	3689	113	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 (90-1031)	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					

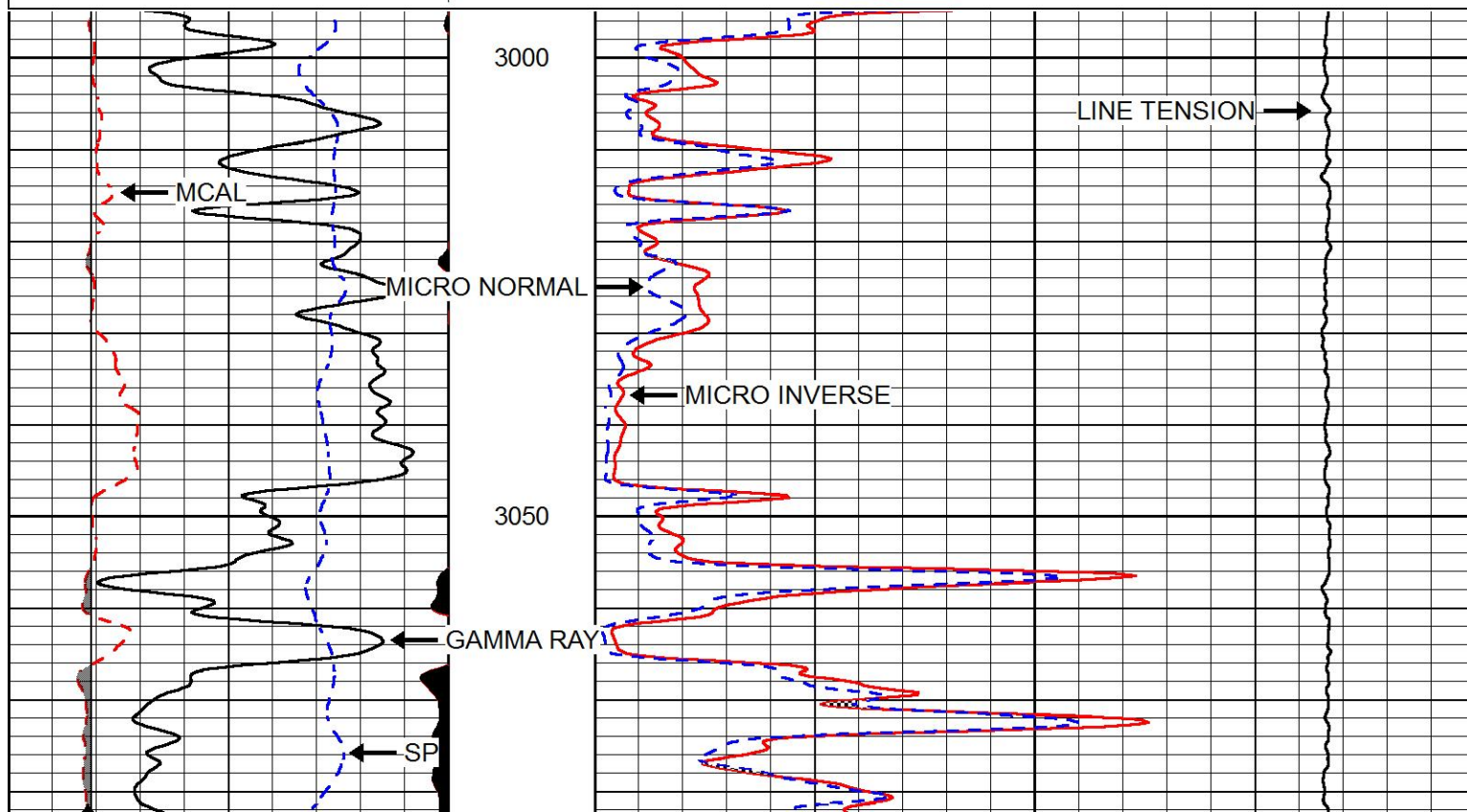
			DIL-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: john o farmer_lang 3.db: field/well/STKML/pass3.4 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

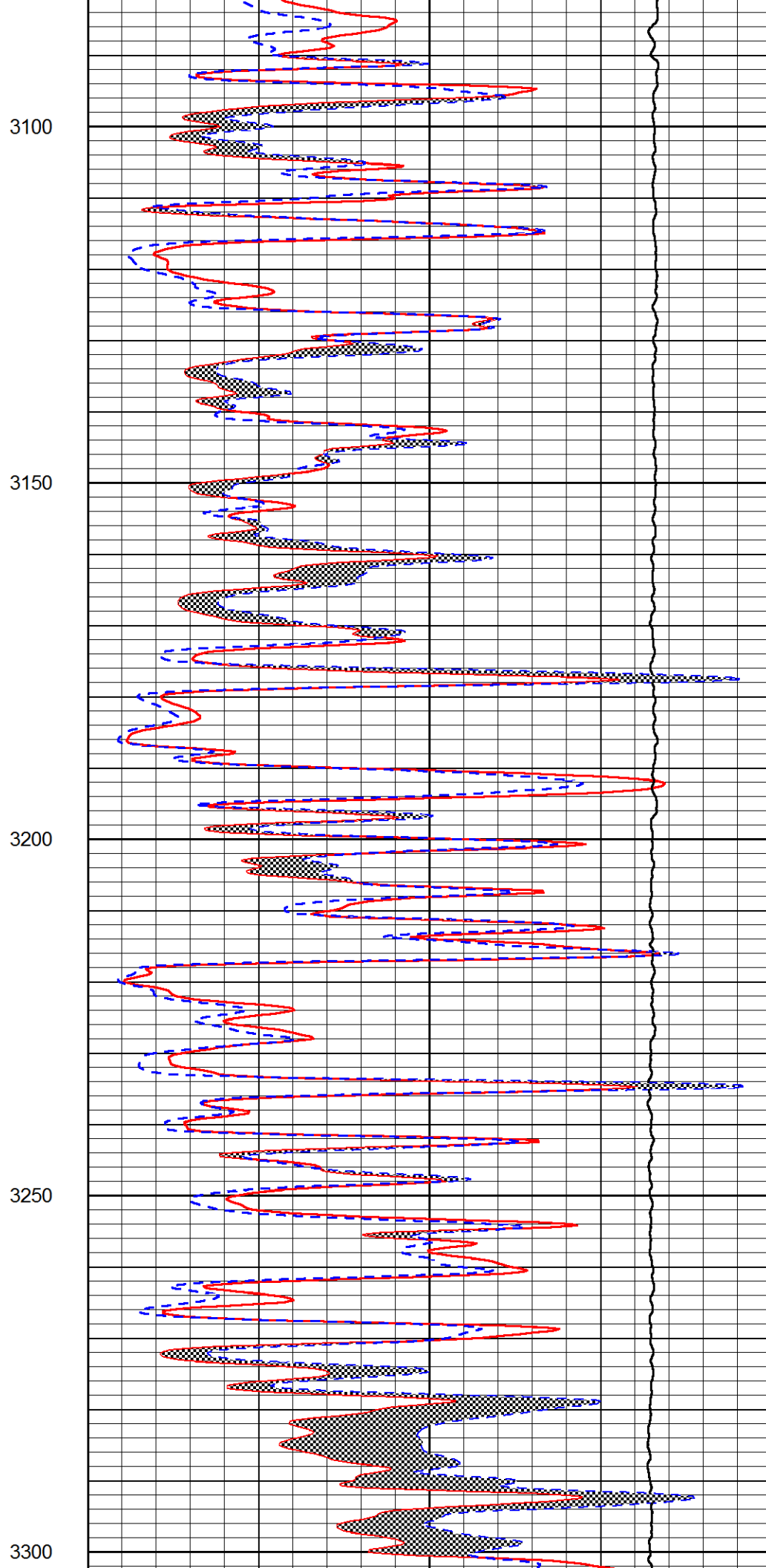
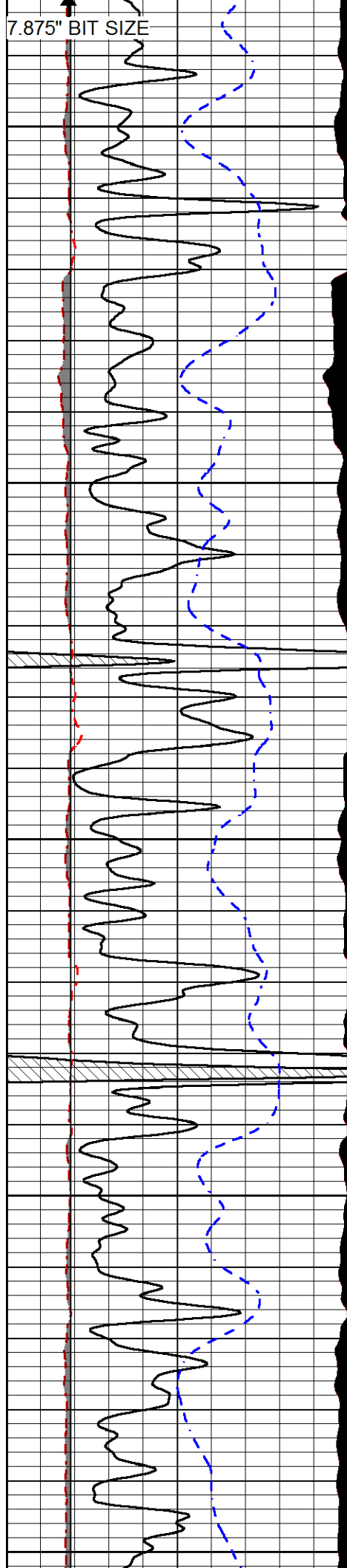


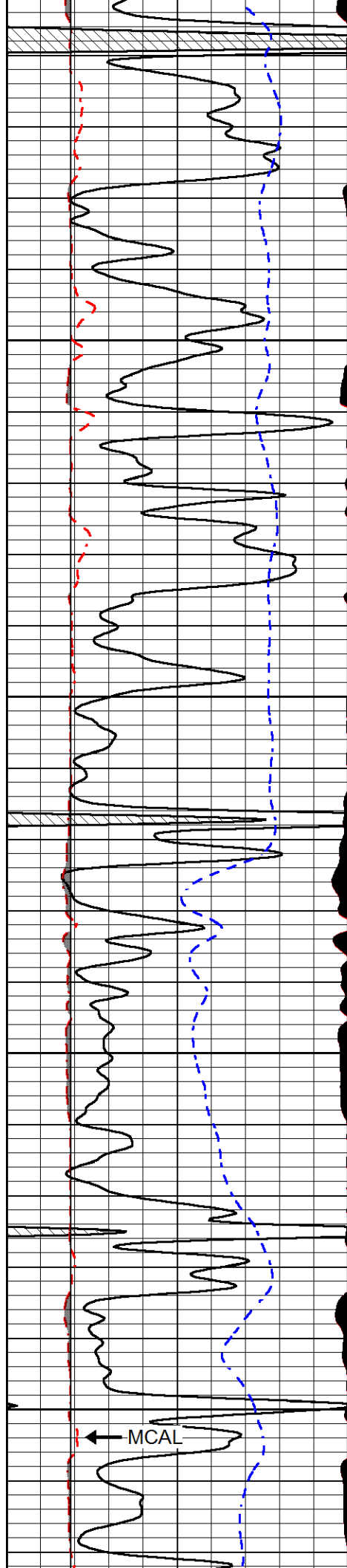
MAIN PASS

Database File	john o farmer_lang 3.db
Dataset Pathname	STKML/pass3.4
Presentation Format	micro
Dataset Creation	Wed Sep 06 20:30:41 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0	Micro Inverse 1 X 1 (Ohm-m)	40
6	MCAL (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mcals (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			





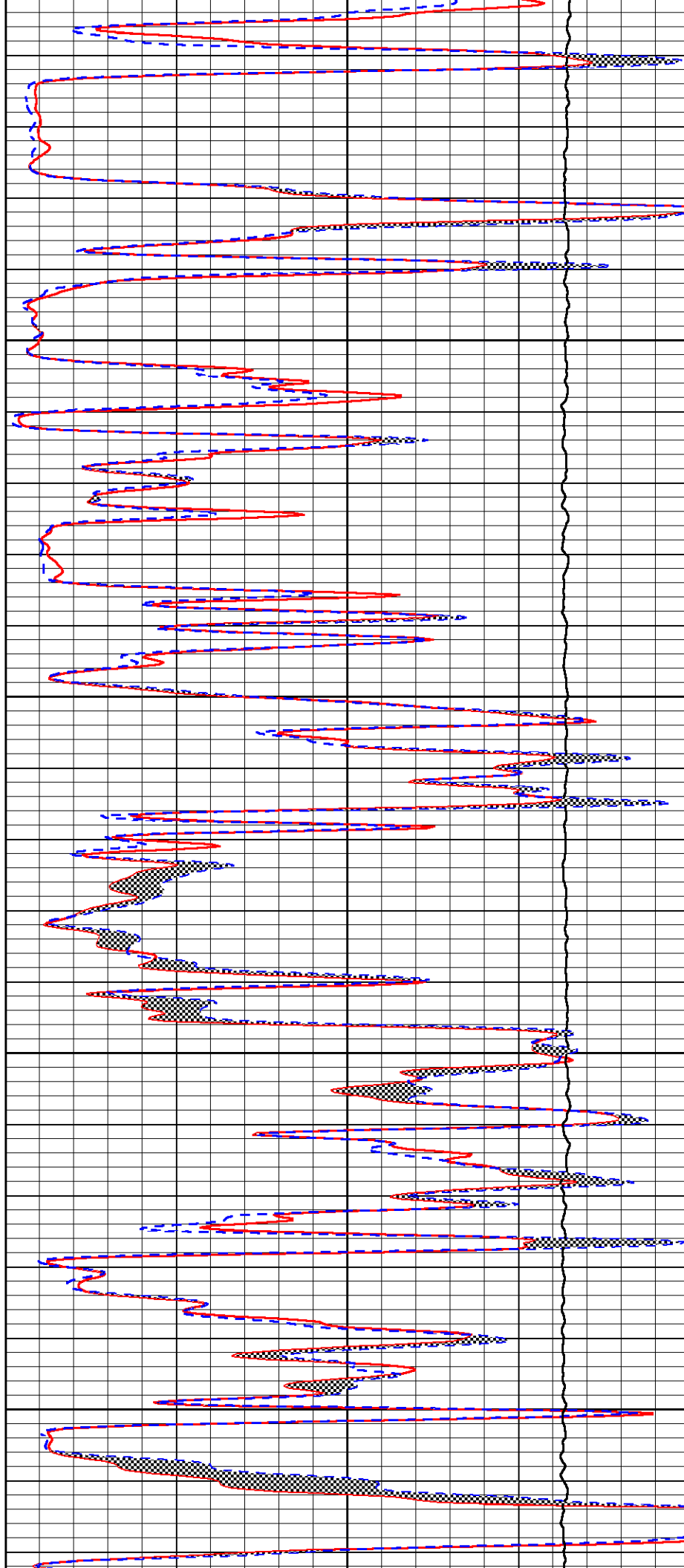


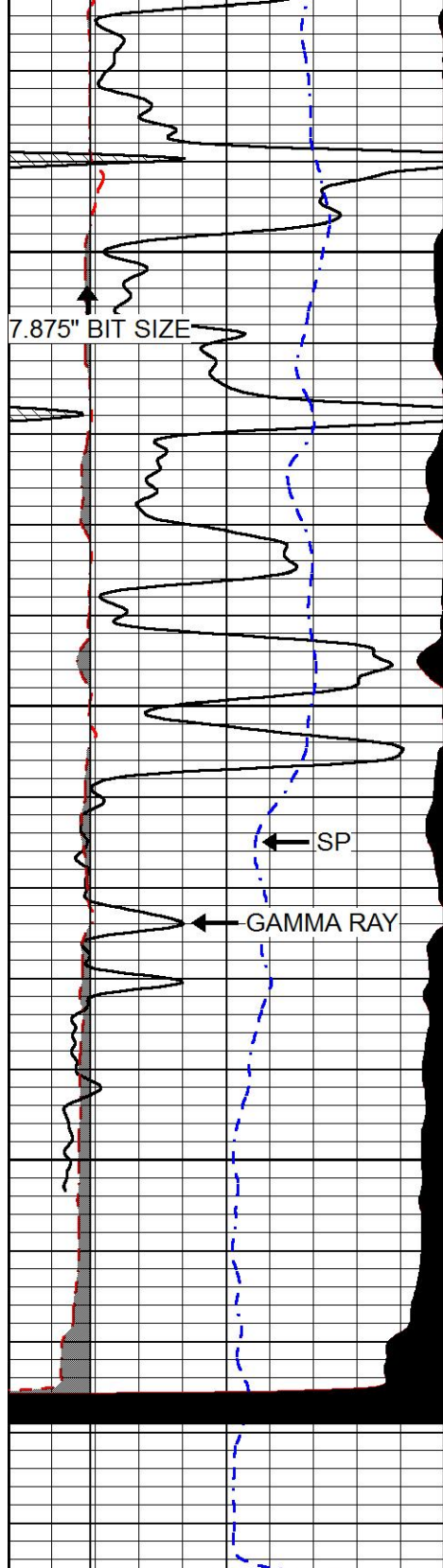
3350

3400

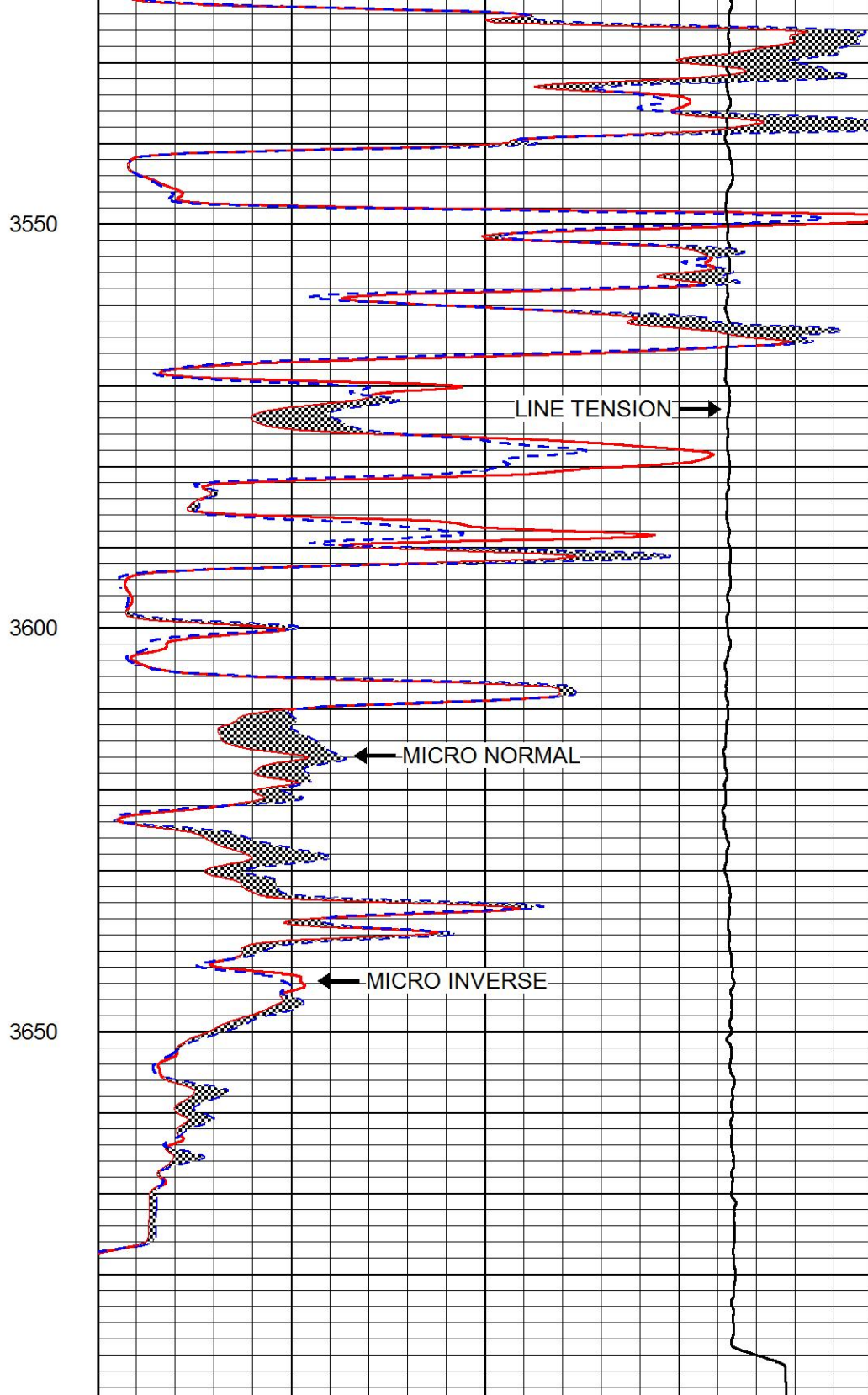
3450

3500





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

Database File

john o farmer_lang 3.db

Dataset Pathname

STKML/pass2.1

Presentation Format

micro

Dataset Creation

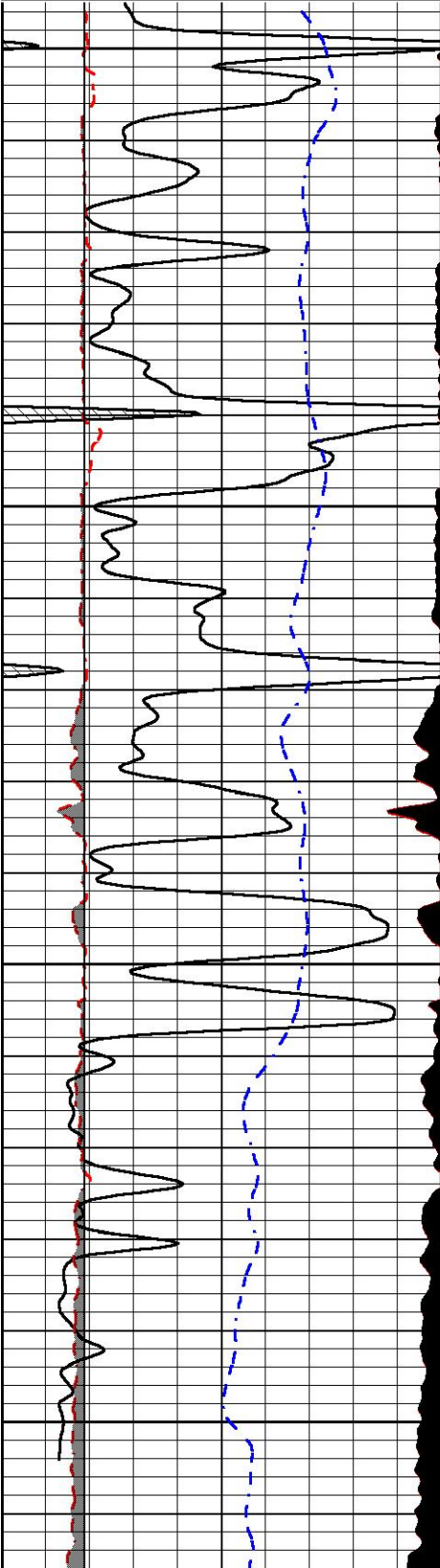
Wed Sep 06 20:37:01 2017

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

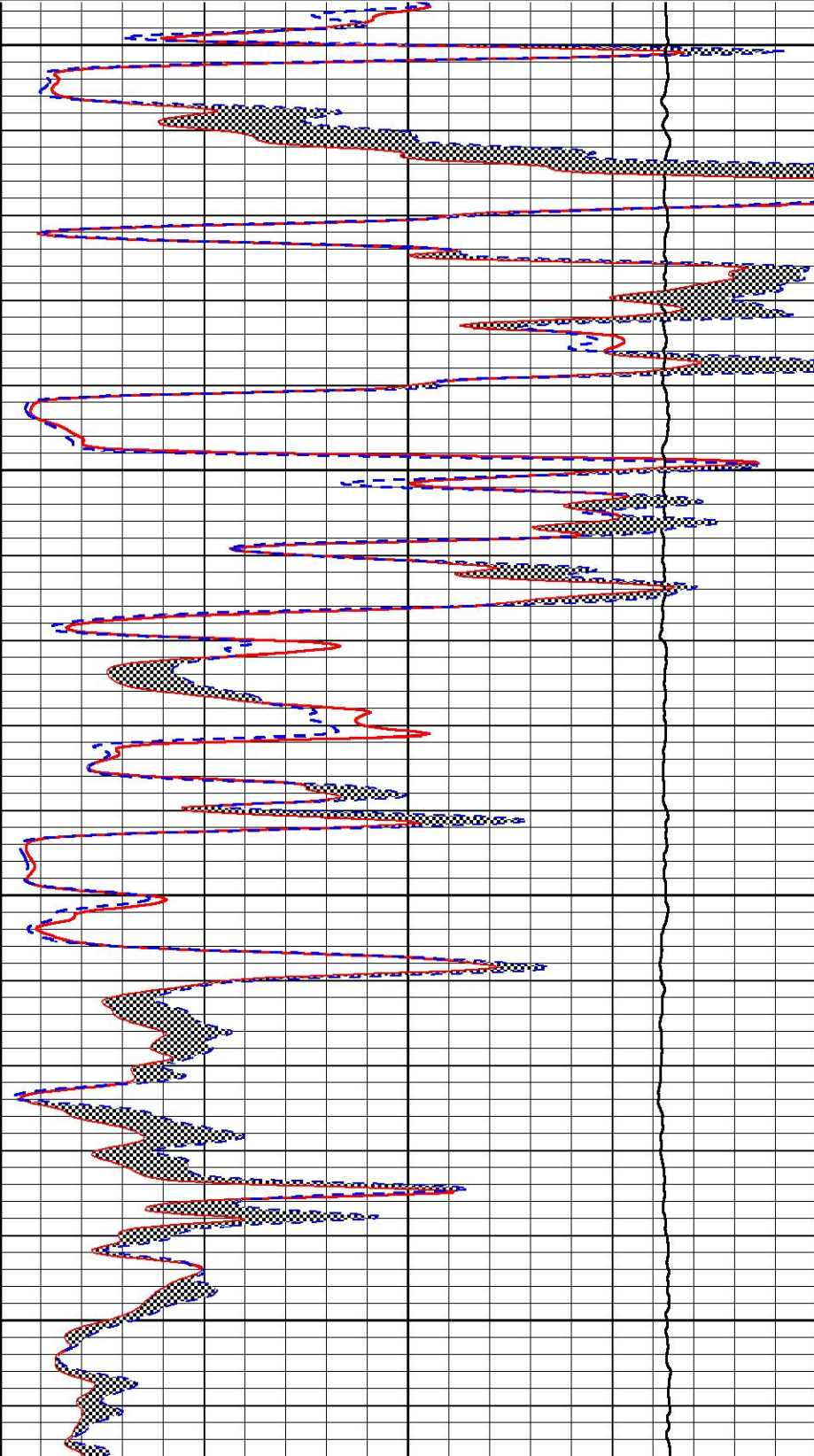


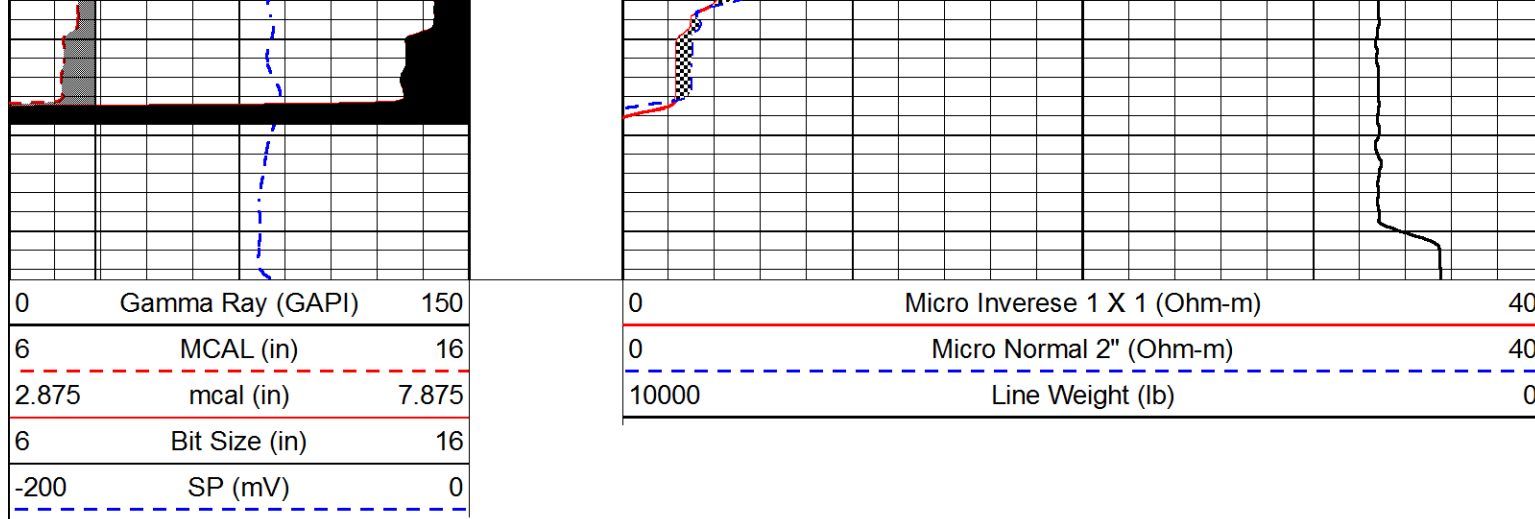
3500

3550

3600

3650





Calibration Report							
Database File	john o farmer_lang 3.db						
Dataset Pathname	STKML/pass3.4						
Dataset Creation	Wed Sep 06 20:30:41 2017						
Dual Induction Calibration Report							
Serial-Model:				PSI 91-M&W			
Calibration Performed:				Wed Sep 06 19:50:36 2017			
Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-32.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-30.000
Microlog Calibration Report							
Serial-Model:				PSI-01-PSIML			
Performed:				Wed Sep 06 19:50:56 2017			
	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	20000.0000	-0.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	23000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.2500
Compensated Density Calibration Report							
Serial-Model:				90-1031-M&W			
Source / Verifier:				16955B / 2ci			
Master Calibration Performed:				Wed Sep 06 19:51:03 2017			

Master Calibration						
	Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc		4903.44	6153.79	cps
Aluminum	2.685	g/cc		934.50	4021.31	cps
Spine Angle = 75.61			Density/Spine Ratio = 0.543			

	Size		Reading
Small Ring	8.00	in	1.84
Large Ring	22.00	in	1.46

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	WED SEP 6 10:30:30 2017

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:	Wed Sep 06 19:51:14 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

	Company	JOHN O. FARMER, INC.
	Well	LANG #3
	Field	POLIFKA
	County	ELLIS
	State	KANSAS