



Weatherford

COMBINATION LOG

COMPANY			O'BRIEN RESOURCES, LLC		
WELL			JECHA 4-1		
FIELD			WILDCAT		
PROVINCE/COUNTY			RUSH		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			2400' FNL & 1850' FWL OF THE SE SW SE NW		
SEC 4	TWP 19S	RGE 17W	Other Services		
Latitude			MPD/MDN	MML	
Longitude			MAI/MFE		
API Number	15-165-22058		MSS		
Permanent Datum GL, Elevation 2053 feet					
Log Measured From KB					
Drilling Measured From KB @ 5 FEET					
Date	05-MAR-2014		Elevations: KB 2058.00 DF 2056.00 GL 2053.00		
Run Number	ONE				
Service Order	5872-81241285				
Depth Driller	3851.00		feet		
Depth Logger	3851.00		feet		
First Reading	3848.00		feet		
Last Reading	259.00		feet		
Casing Driller	259.00		feet		
Casing Logger	259.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEM				
Density / Viscosity	9.40 lb/USg		50.00 CP		
PH / Fluid Loss	9.50		6.80 ml/30Min		
Sample Source	PIT				
Rm @ Measured Temp	1.0 @ 48.0		ohm-m		
Rmf @ Measured Temp	0.80 @ 48.0		ohm-m		
Rmc @ Measured Temp	1.20 @ 48.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.48 @ 99.0		ohm-m		
Time Since Circulation	4 HRS				
Max Recorded Temp	99.00		deg F		
Equipment / Base	13057		LIB		
Recorded By	D. COLE				
Witnessed By	K. TALBOTT		A. BRITTAN		
JOB #	LB 14-064				

BOREHOLE RECORD

Last Edited: 05-MAR-2014 20:13

Bit Size inches	Depth From feet	Depth To feet
7.875	259.00	3851.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	259.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.08.211.
- RUN ONE: MCG ANS MSS RAN IN COMBINATION.
 - HARDWARE: TWO 0.5 INCH STANDOFFS USED ON MSS.
- RUN TWO: MCG, MML, MDN, MPD, MFE AND MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO 2800: 415 CU.FT.

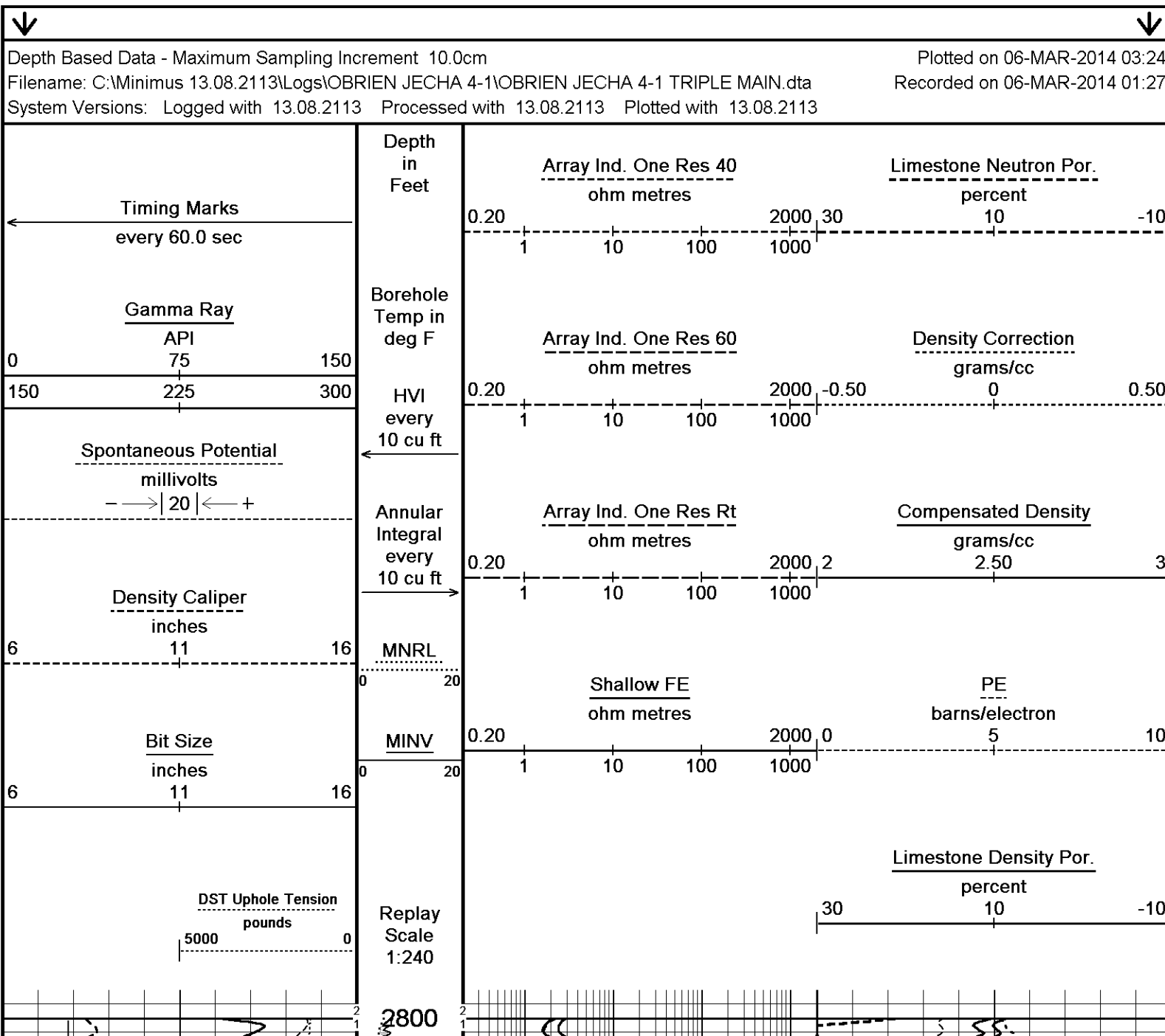
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 2800: 300 CU.FT.

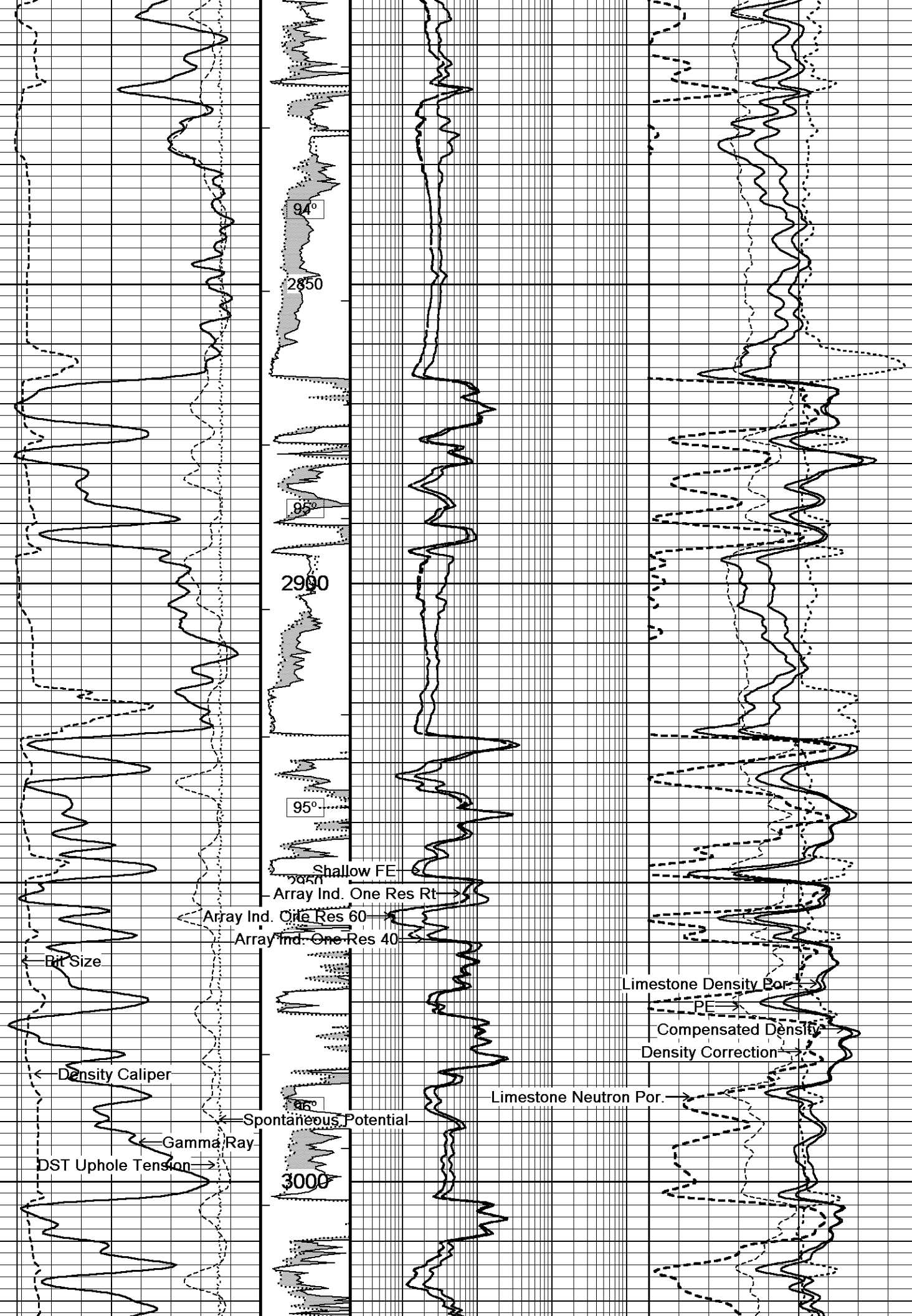
- RIG: MURFIN 16

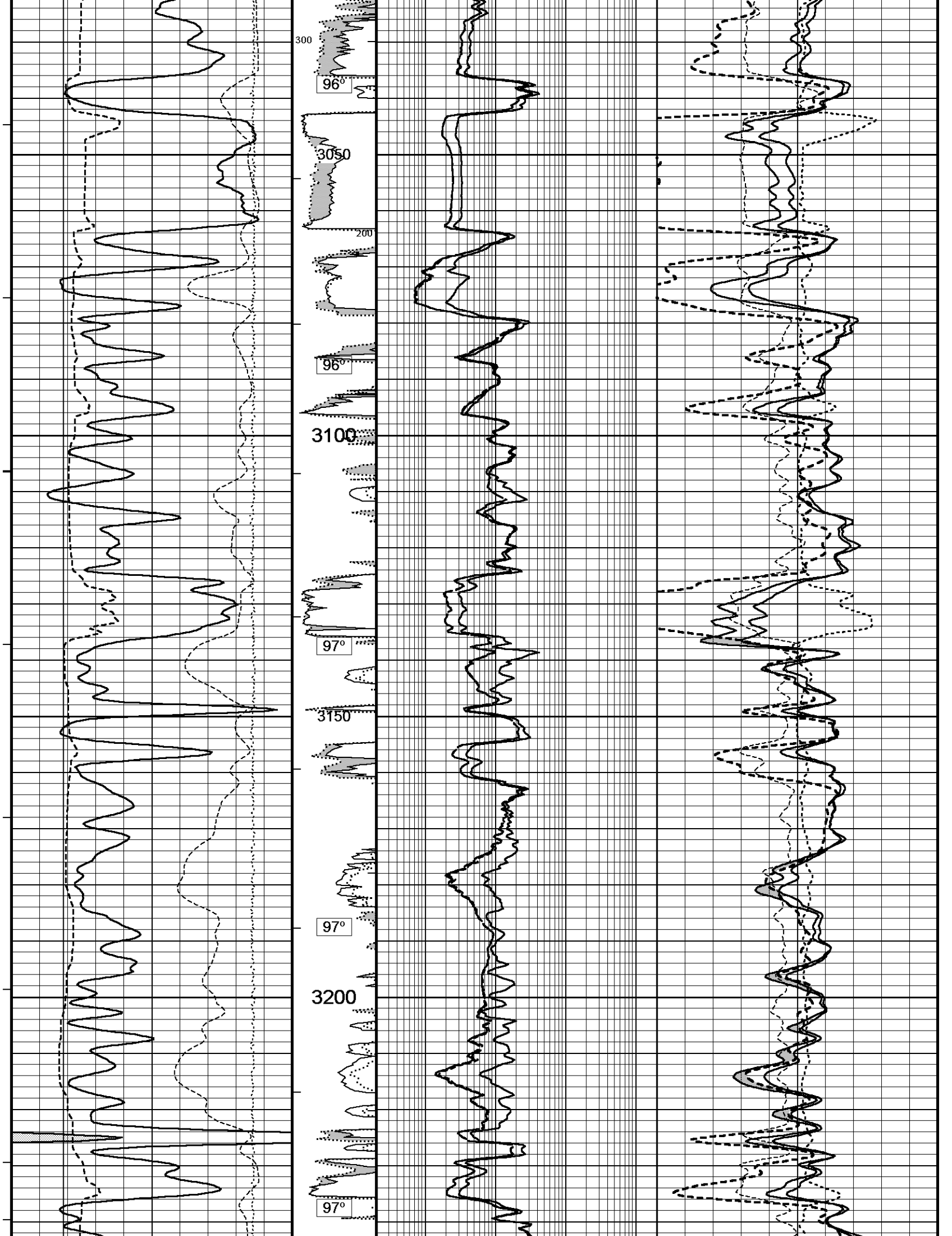
- ENGINEER: D. COLE.

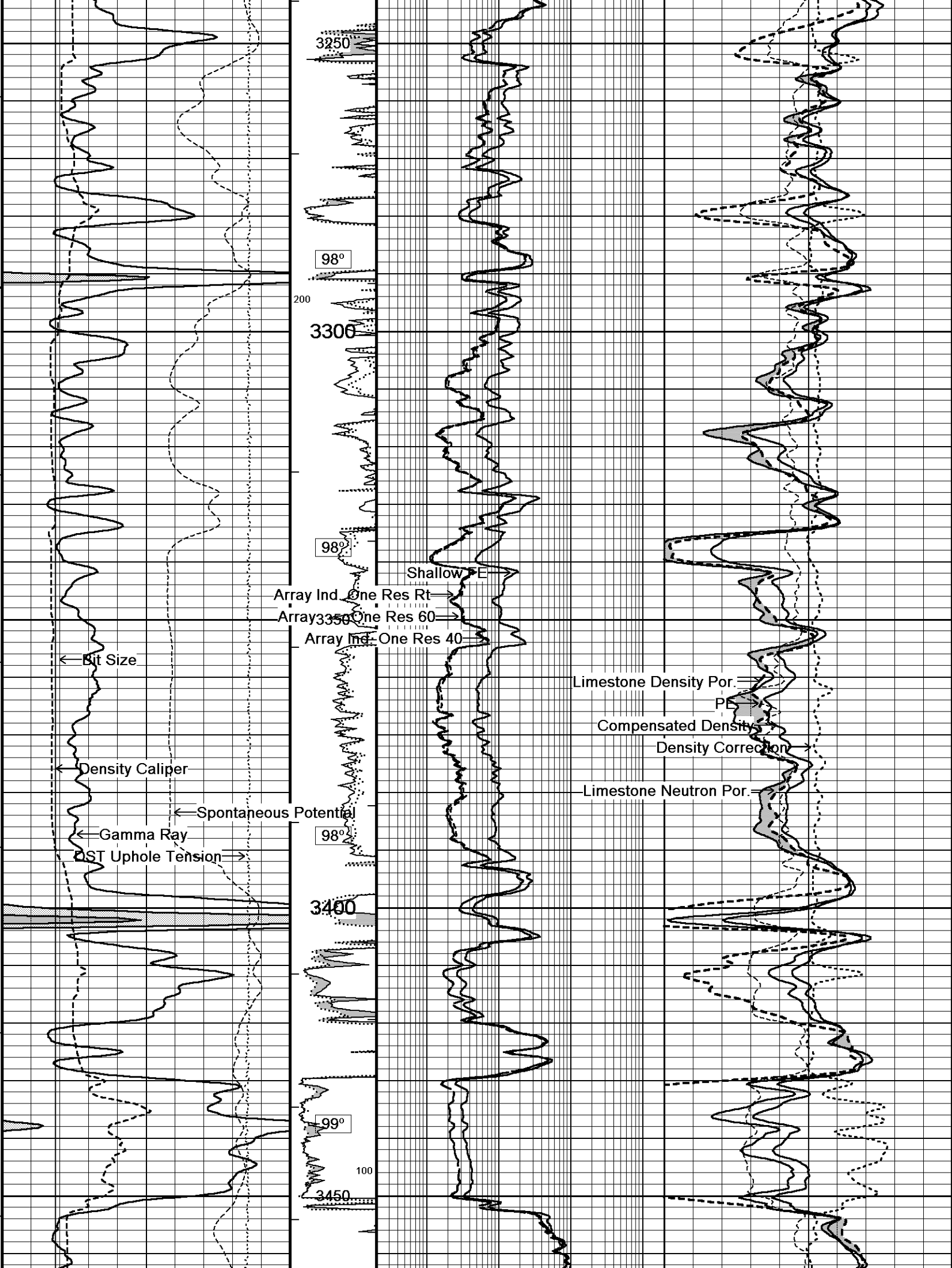
- OPERATOR: C. RAMIREZ.

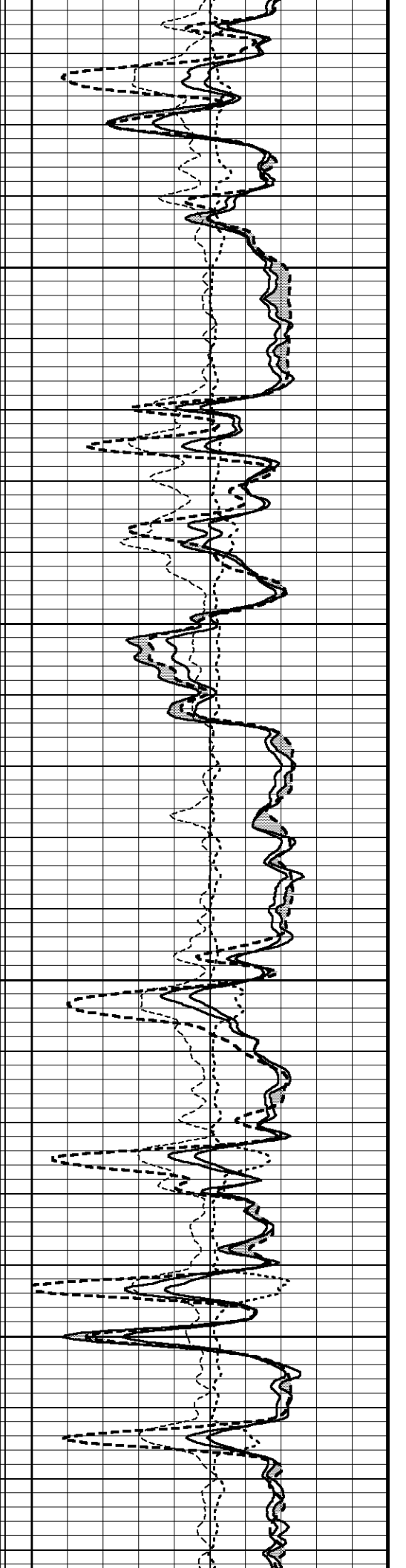
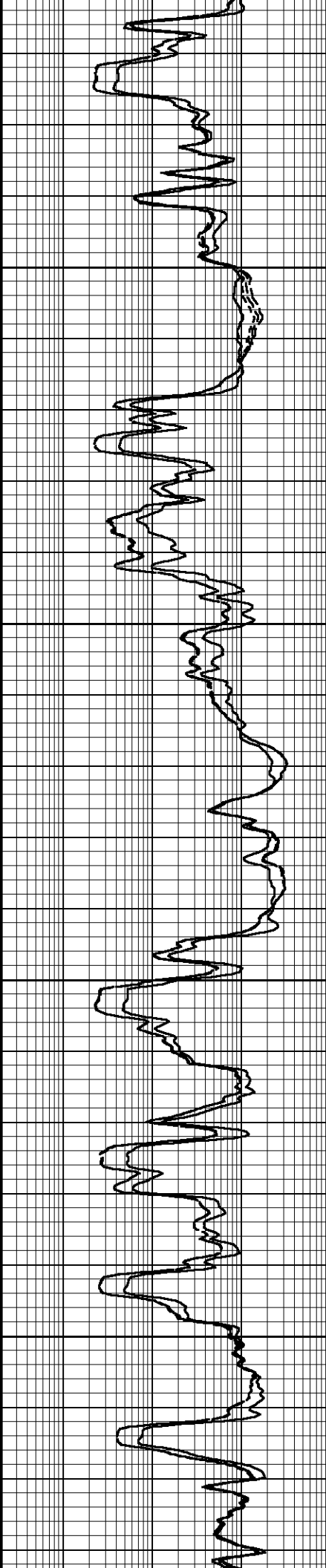
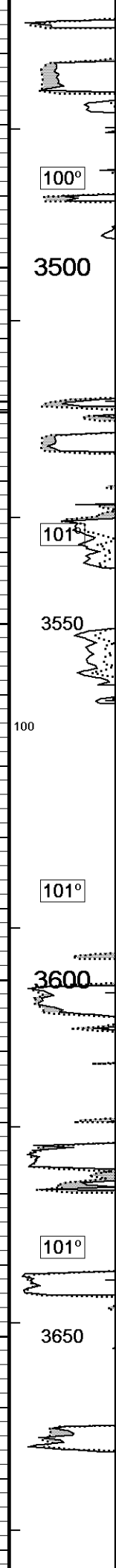
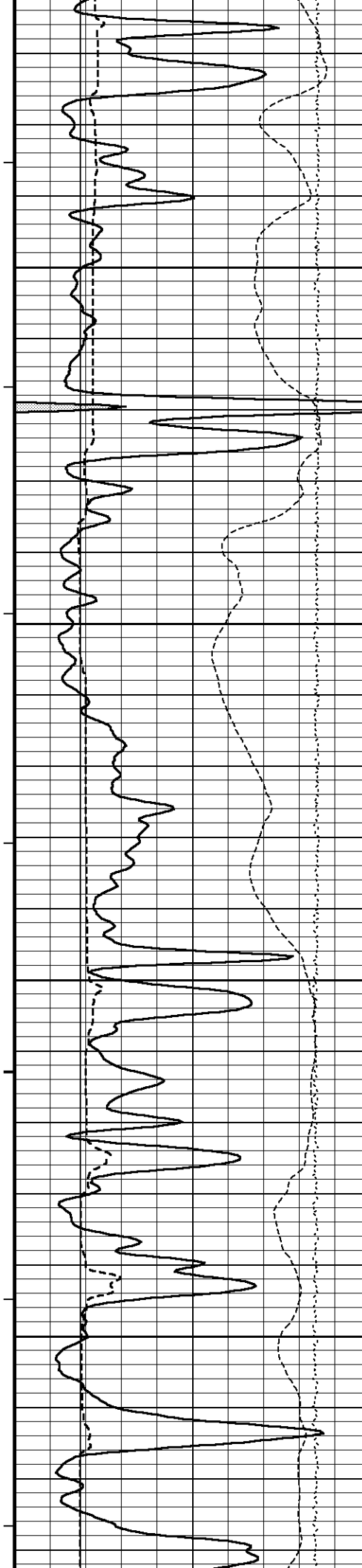
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

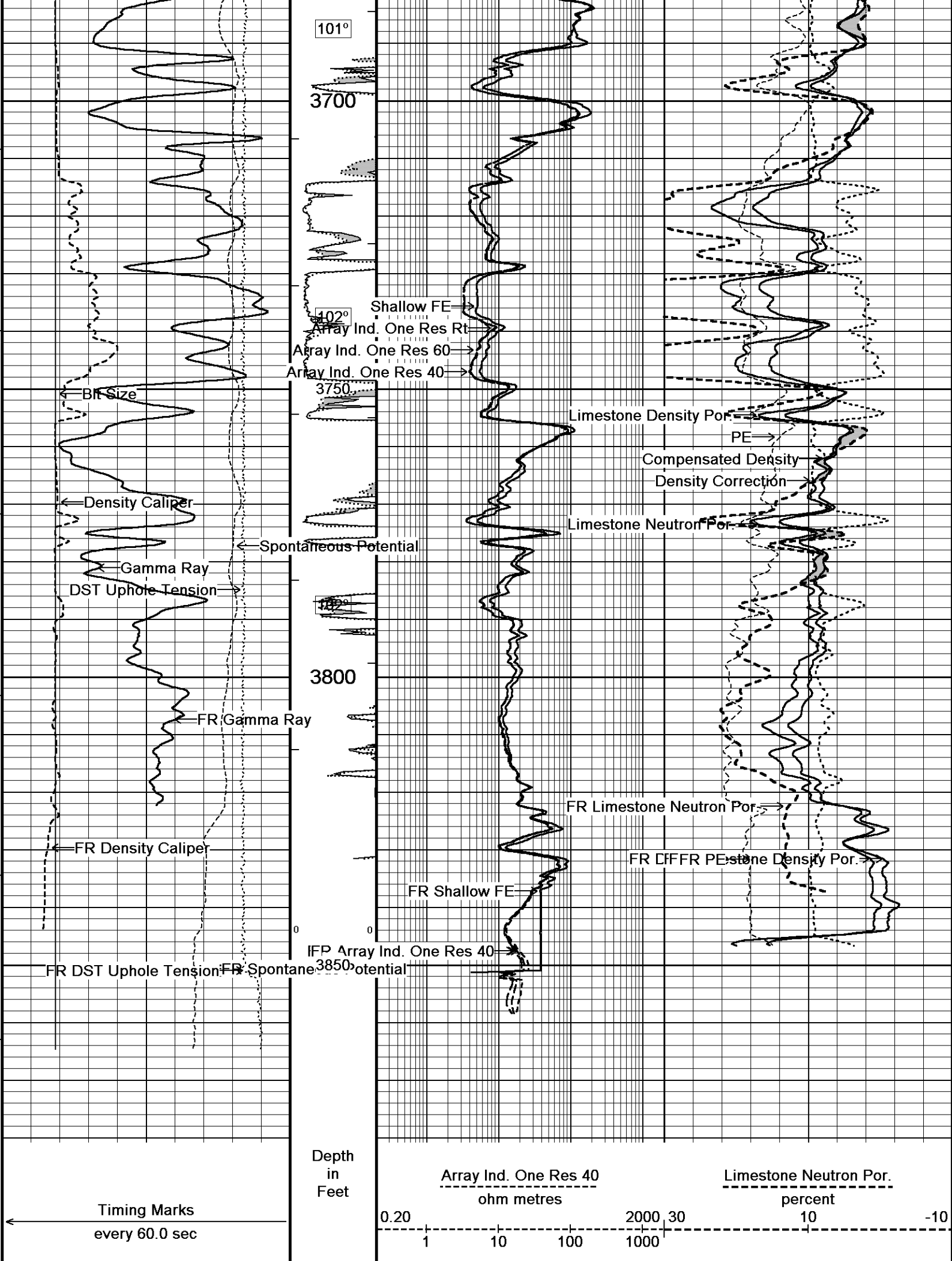


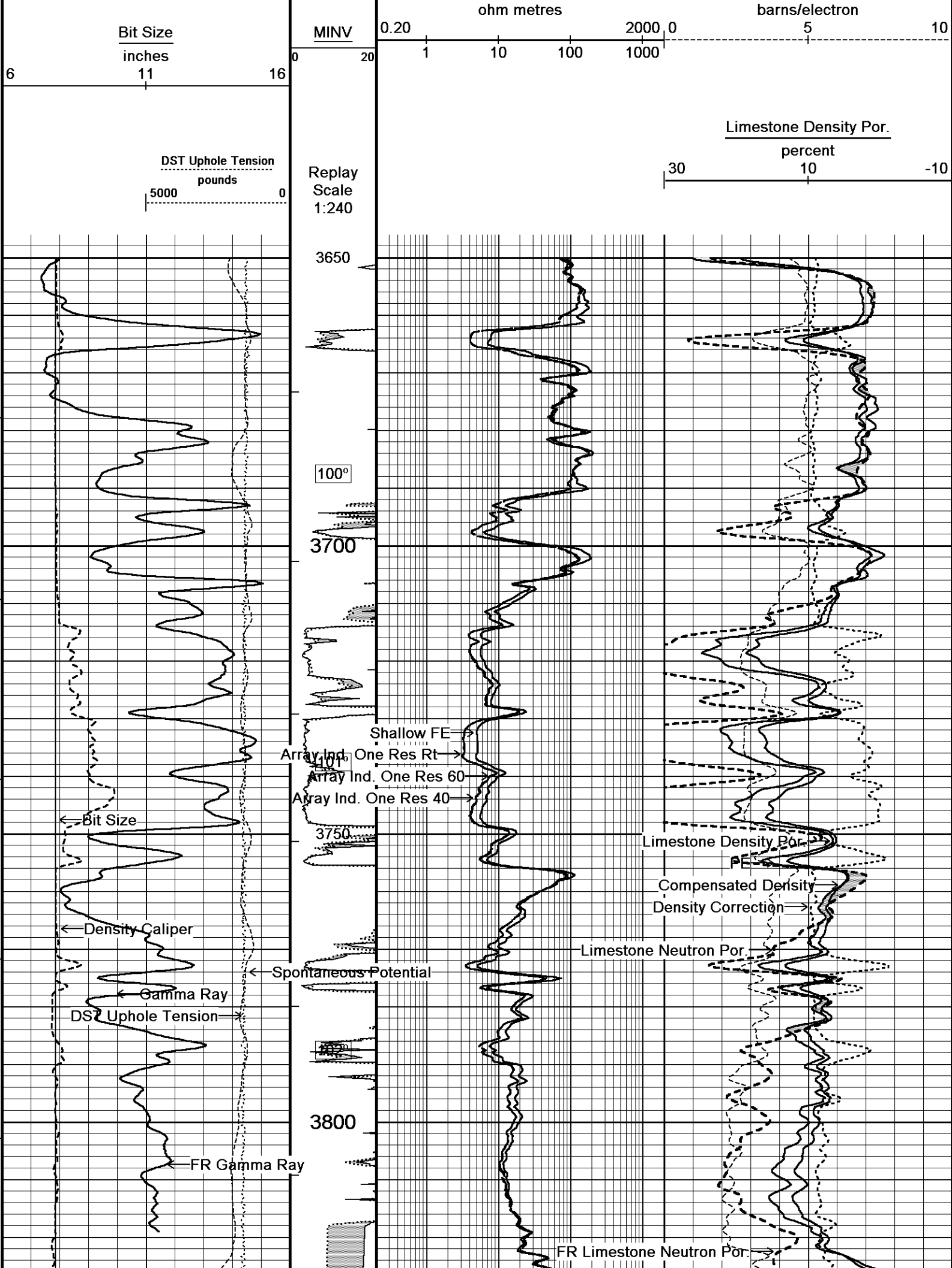


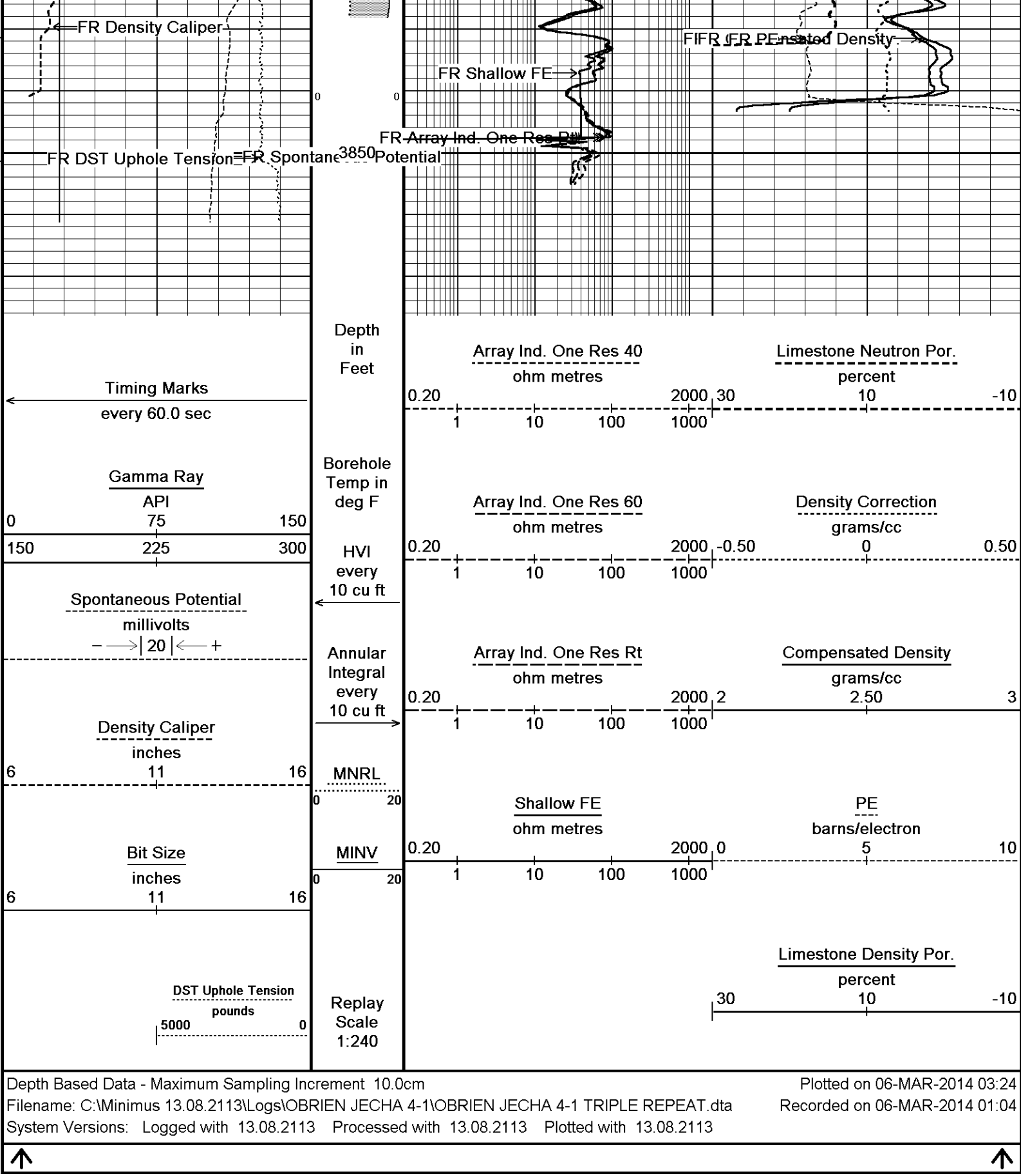












BEFORE SURVEY CALIBRATION		
C:\Minimus 13.08.2113\Logs\OBRIEN JECHA 4-1\OBRIEN JECHA 4-1 TRIPLE REPEAT.dta		
General Constants All 000		Last Edited on 06-MAR-2014,00:28
General Parameters		
Mud Resistivity	1.000	ohm-metres
Mud Resistivity Temperature	48.000	degrees F

Mud Resistivity Temperature	40.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	MMR Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Gamma Calibration MCG-D.K 443			Field Calibration on 05-MAR-2014,20:49
	Measured	Calibrated (API)	
Background	75	48	
Calibrator (Gross)	1215	773	
Calibrator (Net)	1140	725	

Gamma Constants MCG-D.K 443			Last Edited on 06-MAR-2014,00:28
Gamma Calibrator Number	GRC38		
Mud Density	1.12	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Centred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 05-MAR-2014,20:50
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-D.K 443			Last Edited on 05-MAR-2014,20:50
Pre-filter Length	11		

Micro Normal and Micro Inverse Calibration MMR-A 11					Base Calibration on 05-MAR-2014 09:06
					Field Check on 05-MAR-2014 09:09
Base Calibration					
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Resistor 2	
Micro Normal	10.3	49.8	10.0	50.0	
Micro Inverse	10.0	49.5	10.0	50.0	
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	183.7		183.7		
Micro Inverse	184.2		184.2		

Micro Normal and Micro Inverse Constants MMR-A 11					Last Edited on 05-MAR-2014,08:50
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159				
Micro Normal K Factor	1.0000				
Micro Inverse K Factor	1.0000				
Standoff Offset	0.0000				inches

Neutron Calibration MDN-A.B 65					Base Calibration on 05-MAR-2014 11:54
					Field Check on 05-MAR-2014,12:05
Base Calibration					
	Measured		Calibrated (cps)		
	Near	Far	Near	Far	
	2944	91	3714	110	
Ratio	32.460		33.764		
Field Calibrator at Base	Calibrated (cps)				
	1756 2522				

Ratio	0.696
Field Check	Calibrated (cps)
	1756 2522
Ratio	0.696

Neutron Constants MDN-A.B 65			Last Edited on 06-MAR-2014,00:29		
Neutron Source Id	PN-521				
Neutron Jig Number	5824NE				
Epithermal Neutron					
Caliper Source for Processing	Density Caliper				
Stand-off	0.00	inches			
Mud Density	1.00	gm/cc			
Limestone Sigma	7.10	cu			
Sandstone Sigma	4.26	cu			
Dolomite Sigma	4.70	cu			
Formation Pressure Source	Constant Value				
Formation Pressure	0.00	kpsi			
Temperature Source	Constant Value				
Temperature	68.00	degrees F			
Mud Salinity	0.00	kppm			
Salinity Correction	Not Applied				
Formation Fluid Salinity Source	Constant Value				
Formation Fluid Salinity	0.00	kppm			
Barite Mud Correction	Not Applied				

FE Calibration MFE-B.J 352			Base Calibration on 05-MAR-2014 09:29		
			Field Check on 05-MAR-2014 09:34		
Base Calibration					
	Measured	Calibrated (ohm-m)			
Reference 1	0.0	0.0			
Reference 2	963.3	126.8			
Base Check		281.7			
Field Check		281.7			

FE Constants MFE-B.J 352			Last Edited on 06-MAR-2014,00:29		
Running Mode	No Sleeve				
MFE K Factor	0.1268				
Caliper Source for FE correction	Density Caliper				
Caliper Value for FE correction	N/A	inches			
Rm Source for FE correction	Constant Value				
Temp. for Rm Corr.	N/A				
Stand-off	Centred	inches			

Induction Calibration MAI-A.A 45			Base Calibration on 21-MAY-2013,16:47		
			Field Check on 04-MAR-2014 03:38		
Base Calibration					
Test Loop Calibration		Measured	Calibrated (mmho/m)		
Channel	Low	High	Low	High	
1	14.4	472.6	9.3	966.2	
2	5.7	374.0	7.6	821.4	
3	3.4	261.2	5.2	566.0	
4	2.5	133.9	2.6	279.2	
Array Temperature	0.0		Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			18.9	3850.9	
2			31.9	3628.7	
3			28.8	3049.1	
4			18.4	2079.0	
Deep			16.2	1911.2	
Medium			42.7	4060.0	
Shallow			49.9	5481.8	
Array Temperature			64.7		Deg F

Induction Constants MAI-A.A 45			Last Edited on 06-MAR-2014,00:29		
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Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper		
Hole Size for Borehole Correction	N/A	inches	
Tool Centred	No		
Stand-off Type	Fins		
Stand-off	0.50	inches	
Number of Fins on Stand-off	8.0000		
Stand-off Fin Angle	45.00	degrees	
Stand-off Fin Width	0.5000	inches	
Borehole Corr. Rm Source	Temperature Corr		
Temp. for Rm Corr.	MCG External Temperature		
Squasher Start	0.0020	mhos/metre	
Squasher Offset	N/A	mhos/metre	

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Photo Density Calibration MPD-B 31

Base Calibration on 05-MAR-2014 10:34

Field Check on 05-MAR-2014 10:38

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	659	817		
Reference 1	44468	22312	59556	30836
Reference 2	18182	1869	24941	2541

Field Check at Base

658.5 816.6

Field Check

665.6 821.1

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	124	586		
Reference 1	18196	44354	0.413	0.371
Reference 2	5335	18101	0.298	0.272

Field Check at Base

124.4 586.4

Field Check

123.7 587.6

Density Constants MPD-B 31

Last Edited on 06-MAR-2014,00:29

Density Source Id 254

Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix density (gm/cc)	Depth (m)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-B 31

Base Calibration on 05-MAR-2014 10:47
Field Calibration on 06-MAR-2014,03:11

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	18528	3.99
2	26688	5.98
3	34842	7.97
4	43098	9.86
5	52480	11.92
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.94	7.71

COMPANY	O'BRIEN RESOURCES, LLC
WELL	JECHA 4-1
FIELD	WILDCAT
PROVINCE/COUNTY	RUSH
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2058.00	feet	First Reading	3848.00	feet
Elevation Drill Floor	2056.00	feet	Depth Driller	3851.00	feet
Elevation Ground Level	2053.00	feet	Depth Logger	3851.00	feet



Weatherford®

COMBINATION LOG