



Weatherford

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY			SHAKESPEARE OIL CO., INC		
WELL			JANZEN 6-36		
FIELD			PENCE EAST		
PROVINCE/COUNTY			SCOTT		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			950' FNL & 450' FWL NE SW NW NW		
SEC 36	TWP 16S	RGE 34W	Other Services		
Latitude			MPD/MDN	MML	
Longitude			MAI/MFE		
API Number	15-171-21043		MSS		
Permanent Datum GL, Elevation 3104 feet					
Log Measured From KB					
Drilling Measured From KB @ 12 FEET			Elevations: KB 3116.00 DF 3114.00 GL 3104.00		
Date	08-APR-2014				
Run Number	ONE				
Service Order	5872-84189232				
Depth Driller	4850.00		feet		
Depth Logger	4849.00		feet		
First Reading	4846.00		feet		
Last Reading	267.00		feet		
Casing Driller	264.00		feet		
Casing Logger	267.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEM				
Density / Viscosity	9.30 lb/USg		45.00 CP		
PH / Fluid Loss	10.00		8.80 ml/30Min		
Sample Source	PIT				
Rm @ Measured Temp	0.40 @ 86.0		ohm-m		
Rmf @ Measured Temp	0.32 @ 86.0		ohm-m		
Rmc @ Measured Temp	0.48 @ 86.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.31 @109.0		ohm-m		
Time Since Circulation	4 HRS				
Max Recorded Temp	109.00		deg F		
Equipment / Base	13057		LIB		
Recorded By	D. COLE				
Witnessed By	M. HERNDON				
JOB #	LB 14-108				

BOREHOLE RECORD

Last Edited: 08-APR-2014 22:54

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4850.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	264.00	24.00

REMARKS

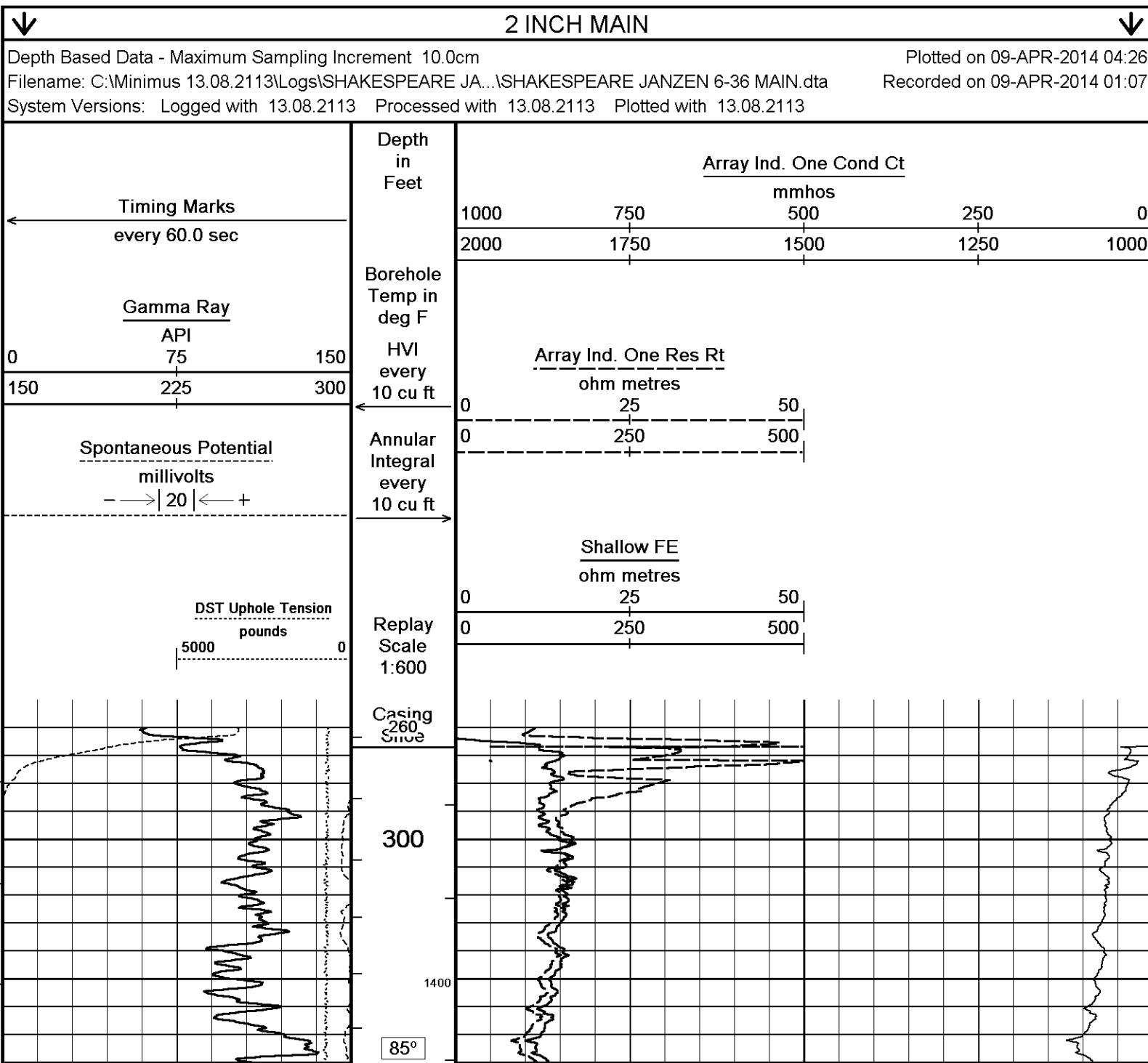
- SOFTWARE ISSUE: WLS 13.08.211.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE 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 3850 FEET: 340 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3850 FEET: 180 CU.FT.

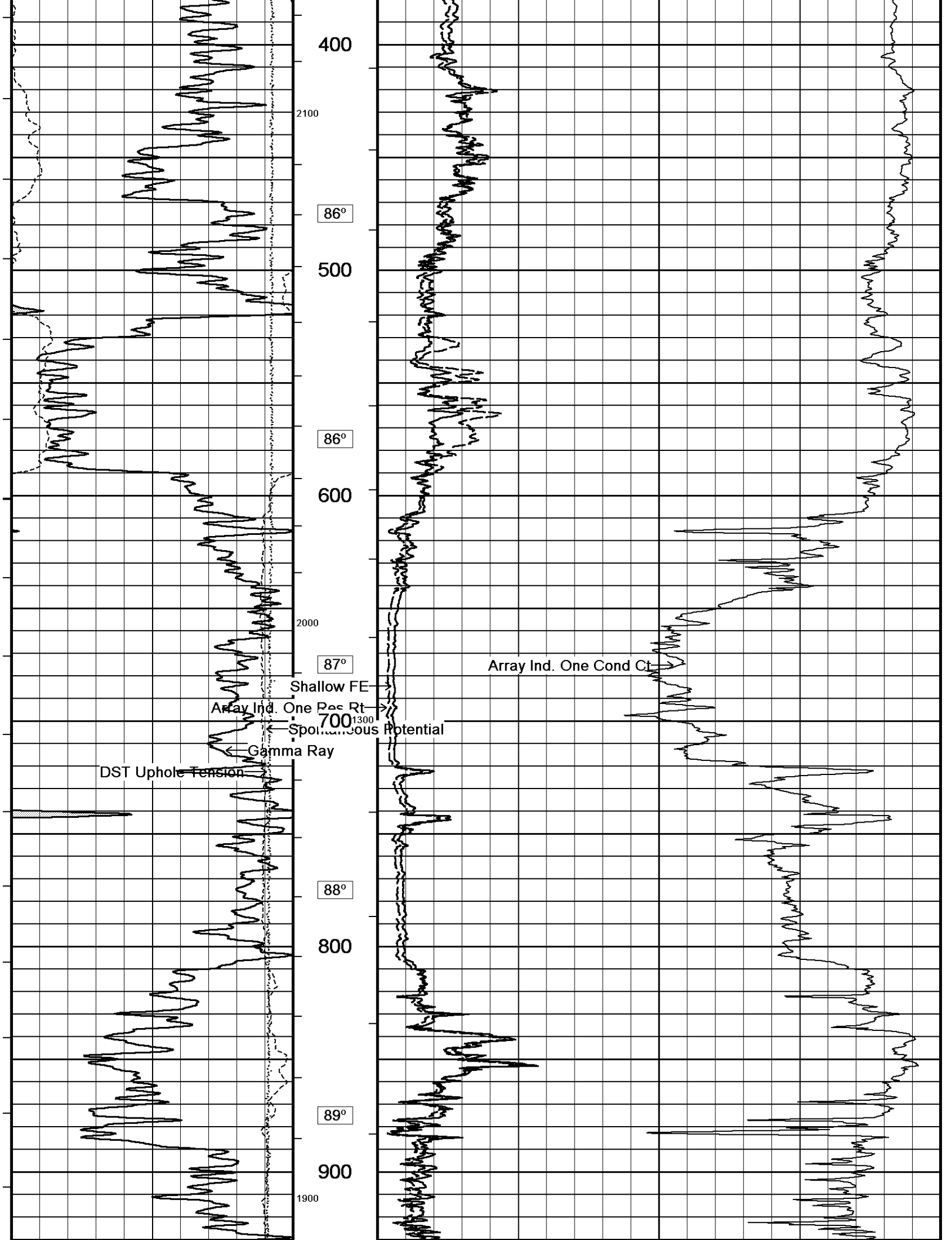
- RIG: SOUTHWIND 70

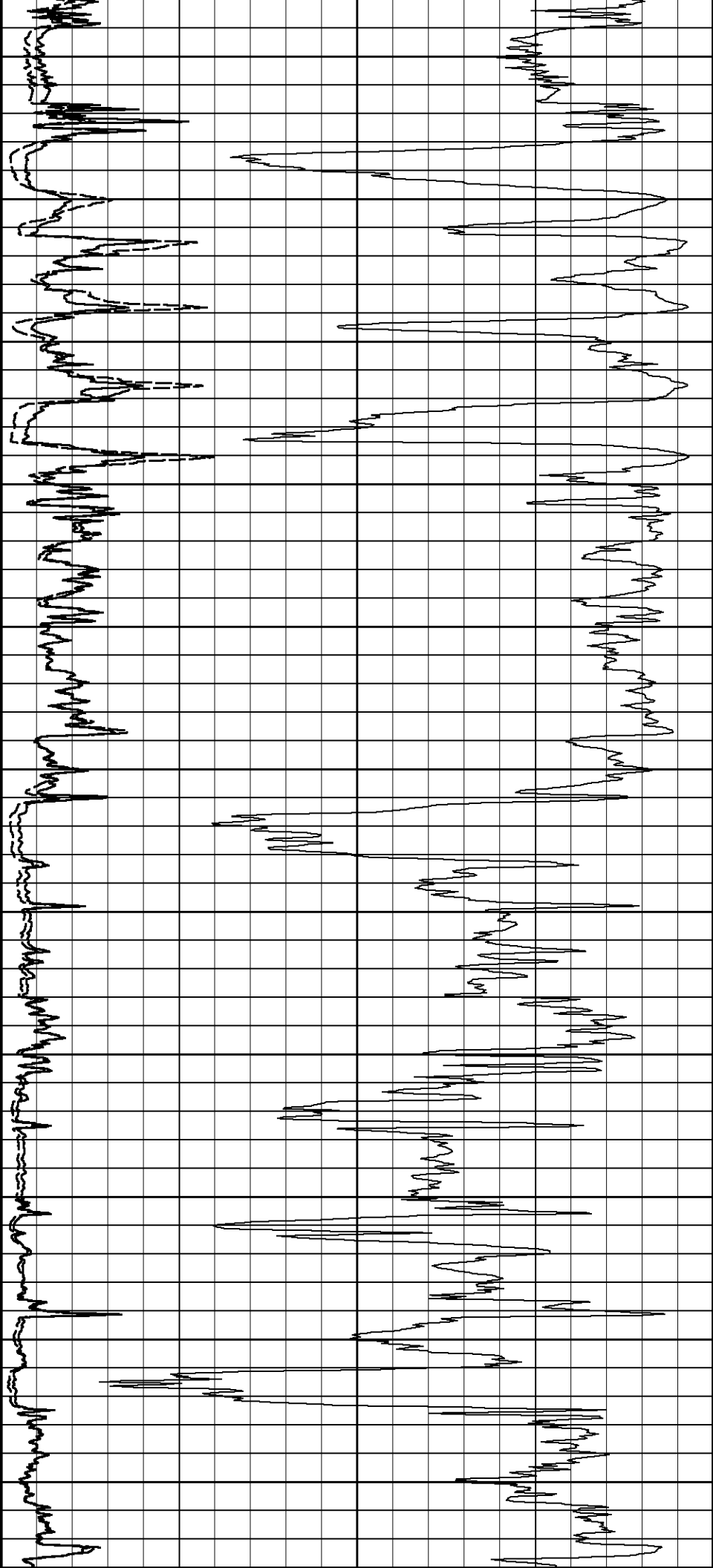
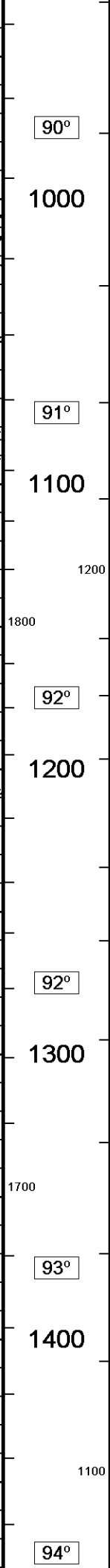
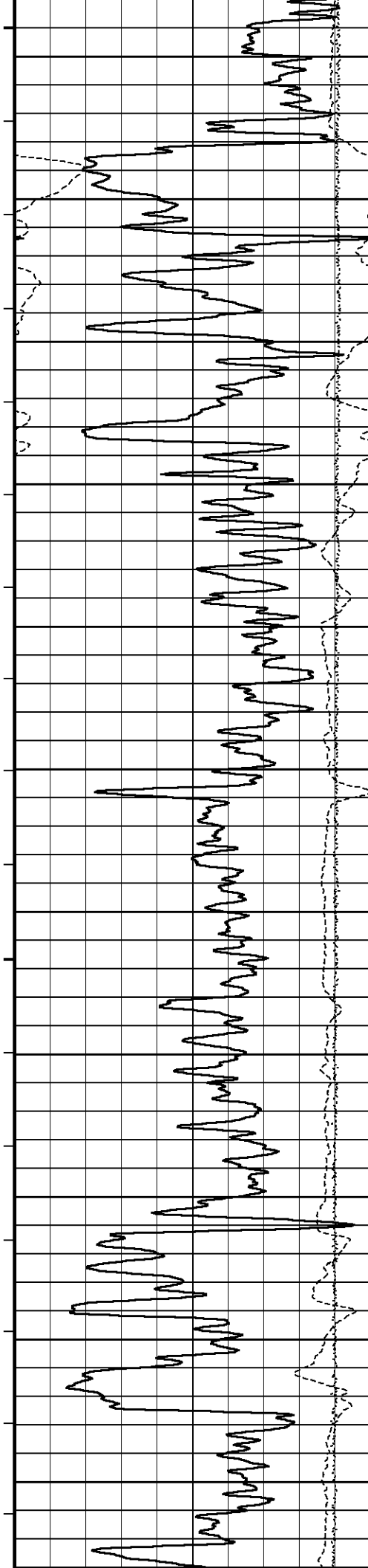
- ENGINEER: D. COLE.

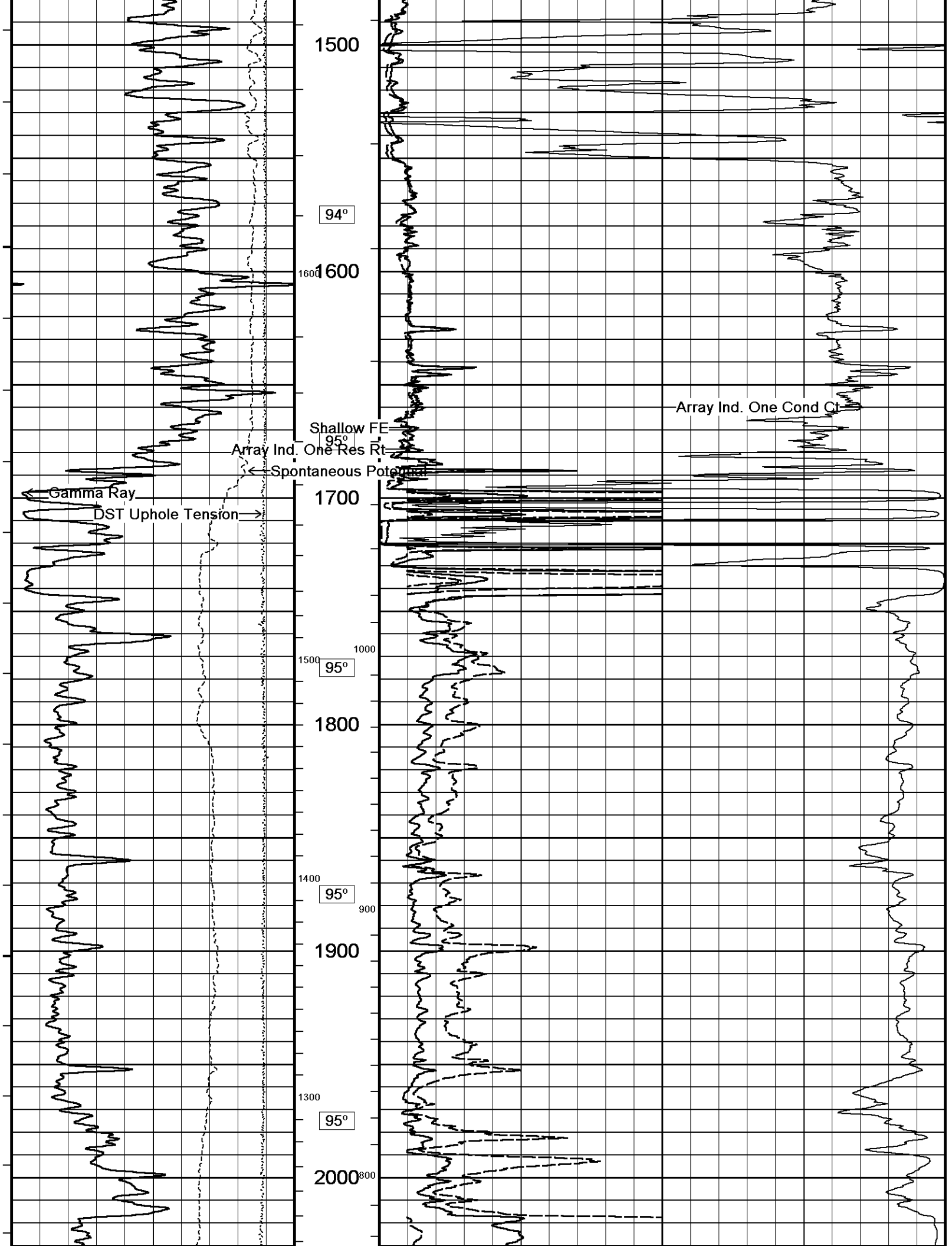
- OPERATOR: J. DUNLAP

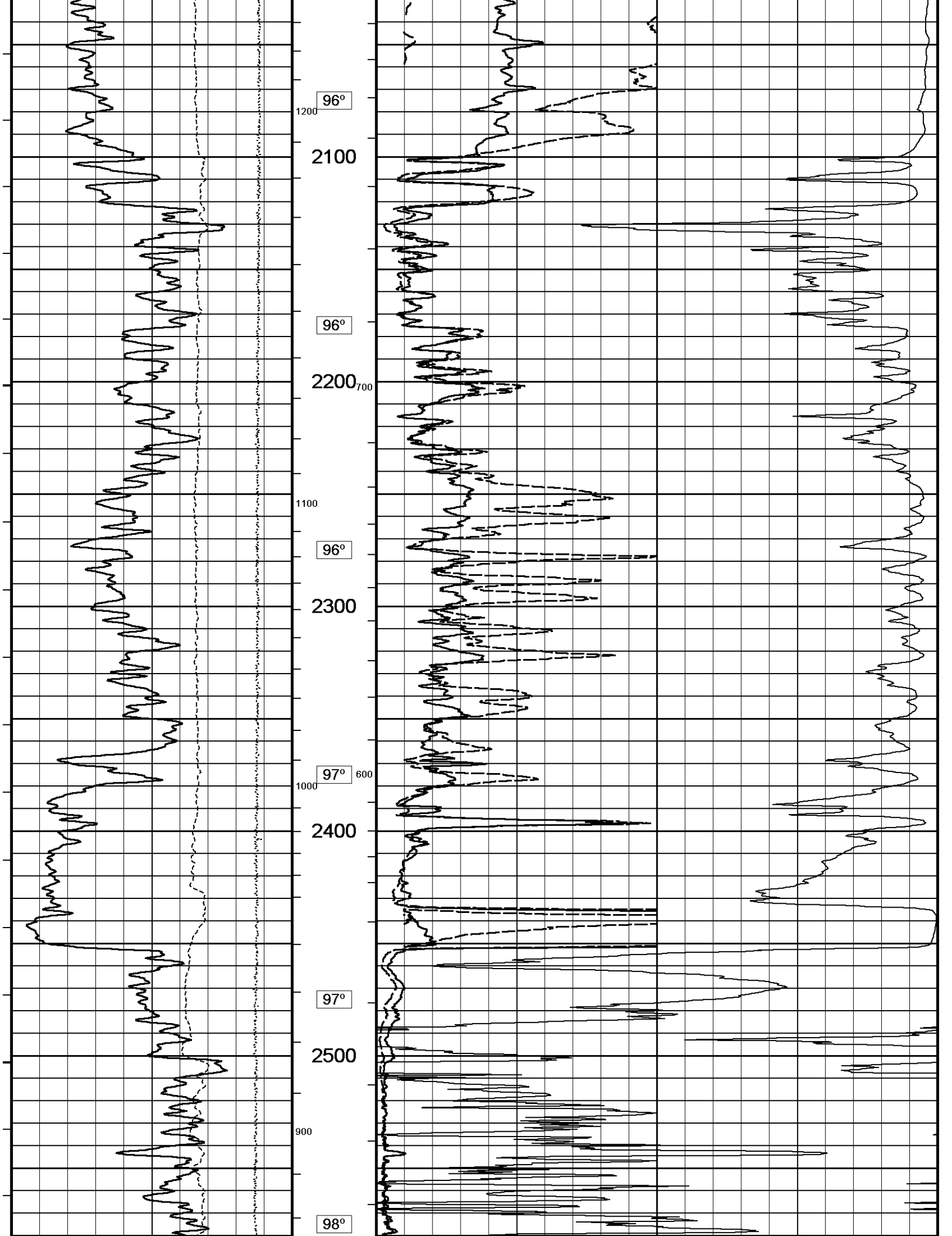
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

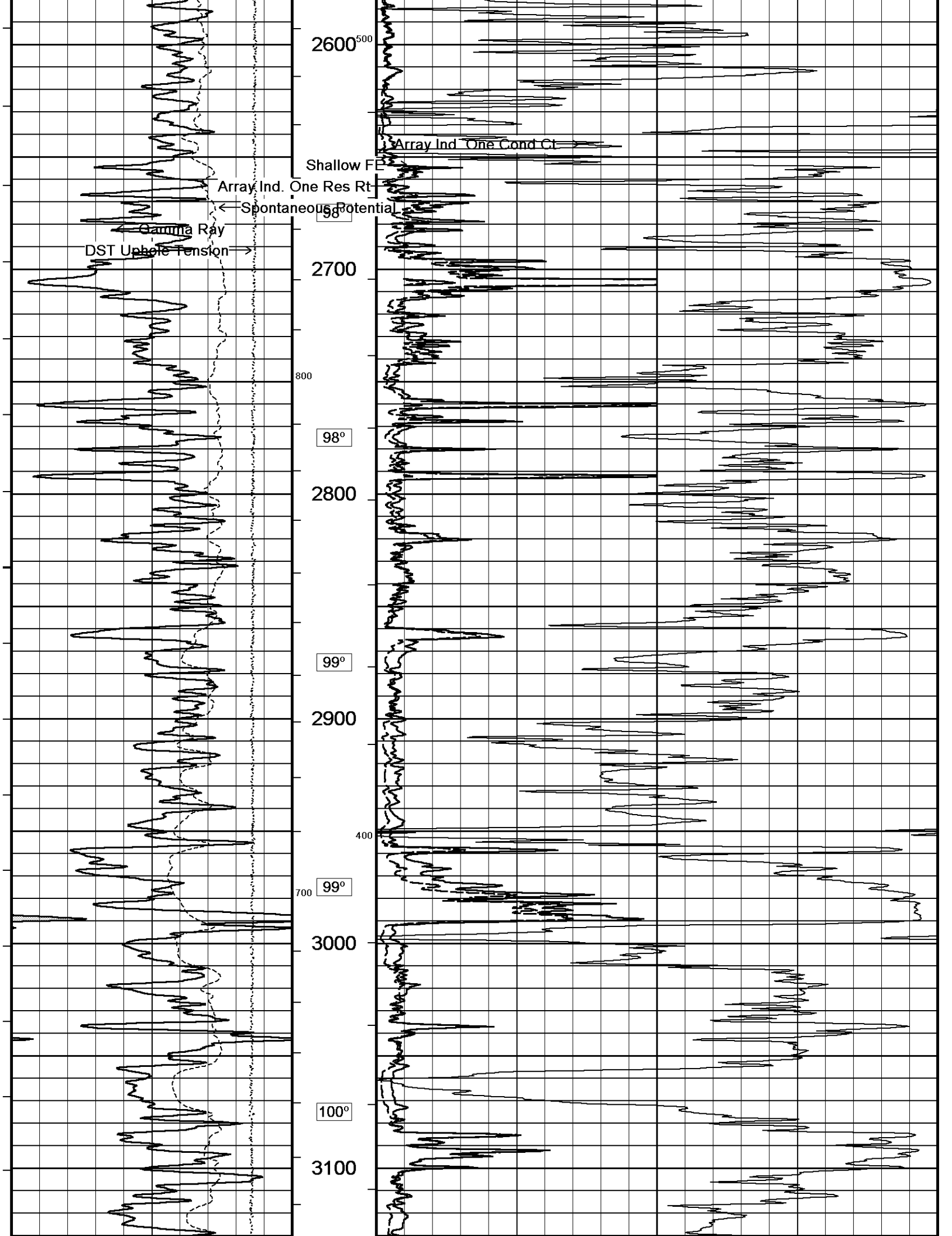


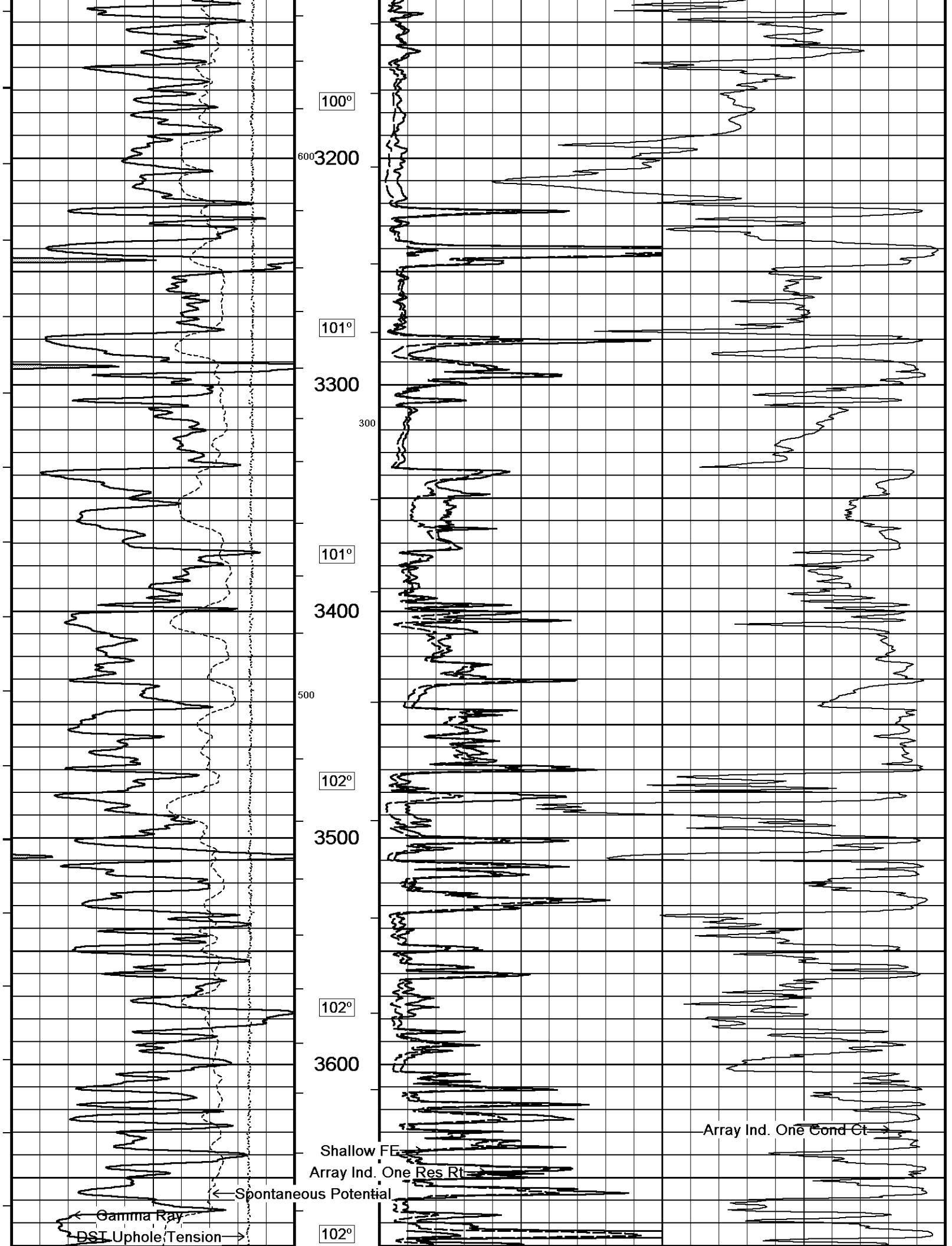


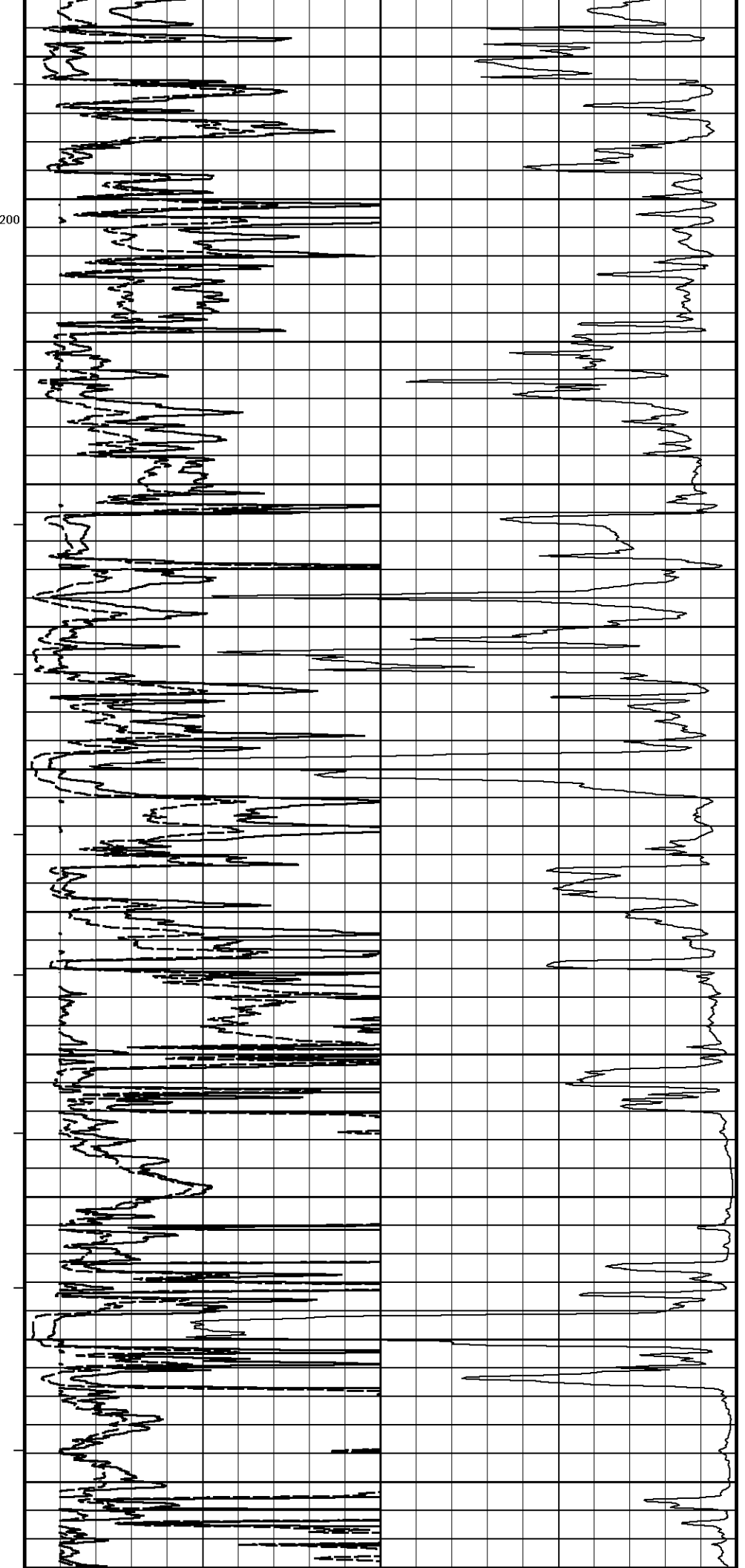
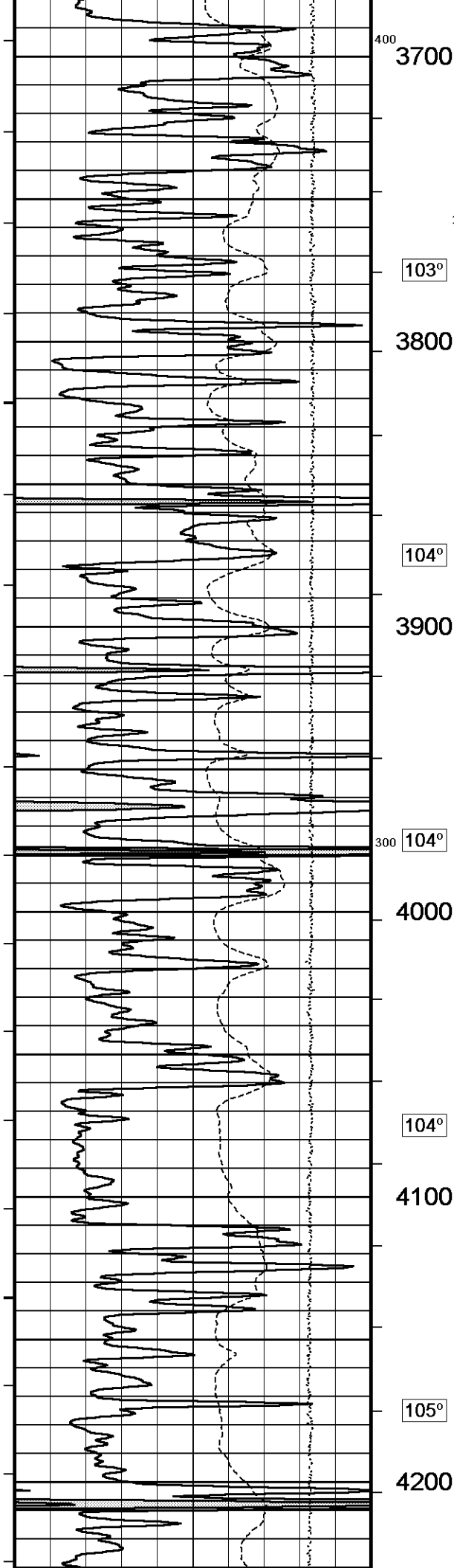


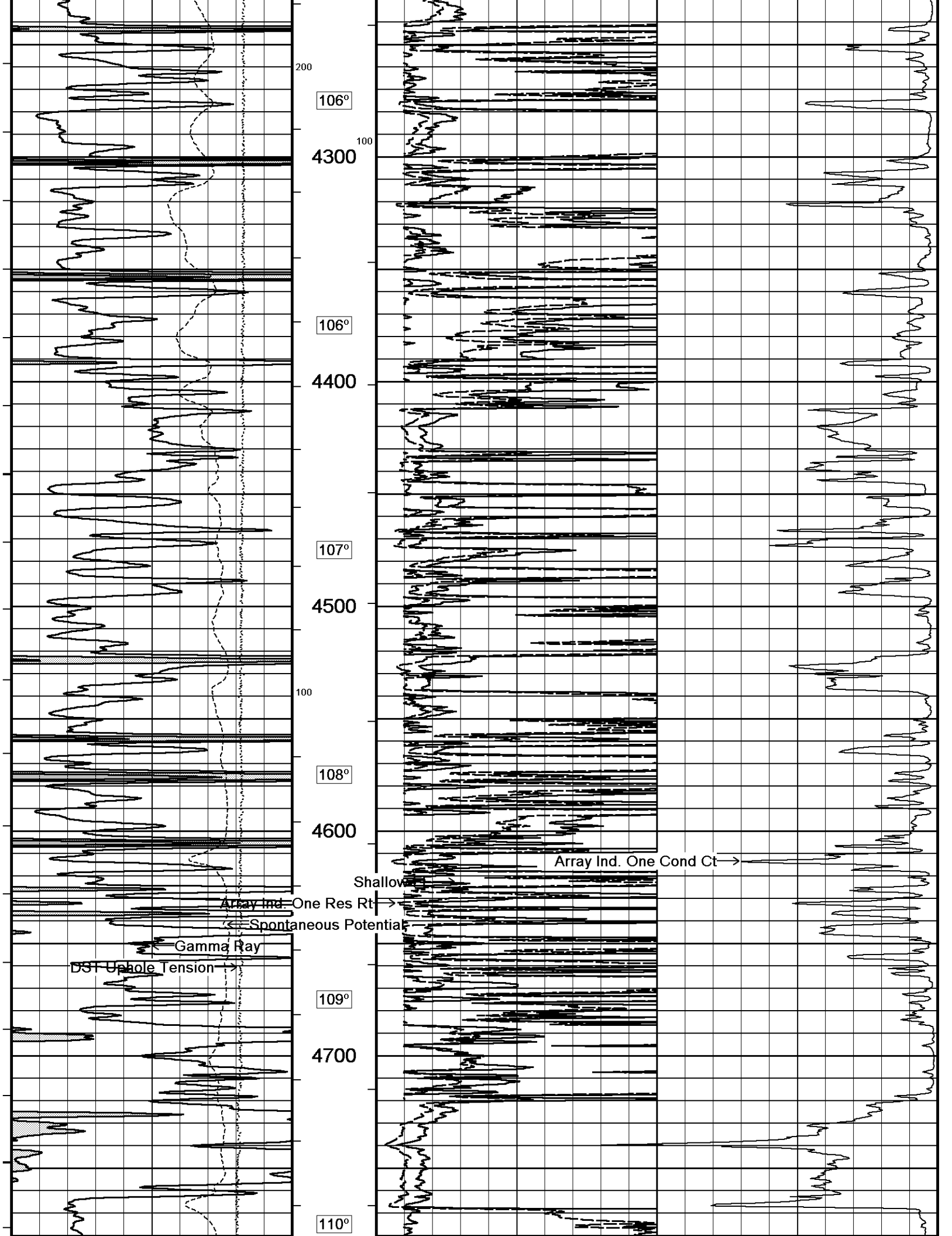


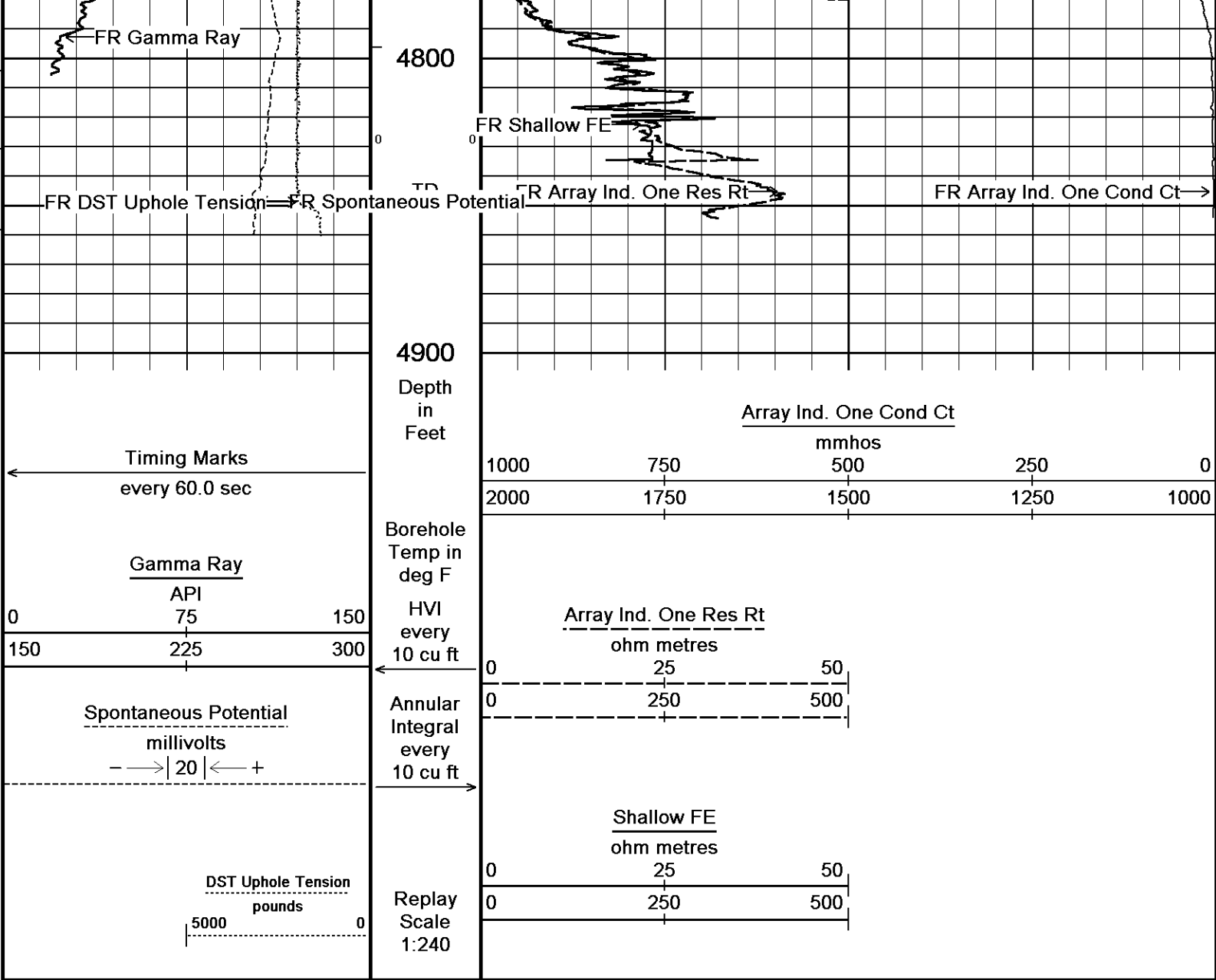










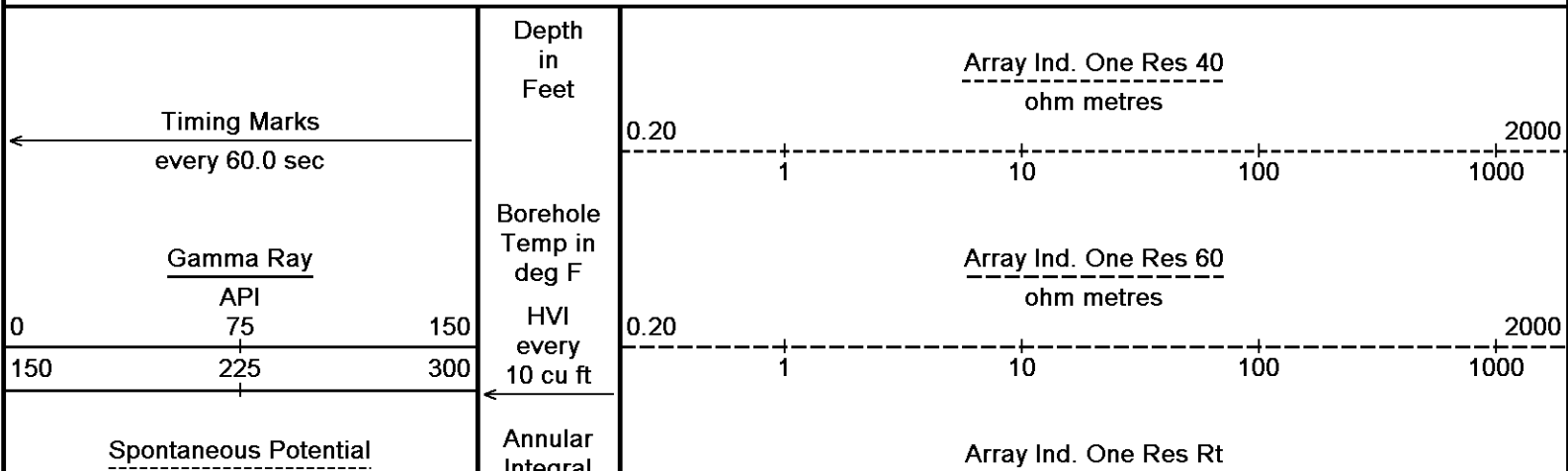


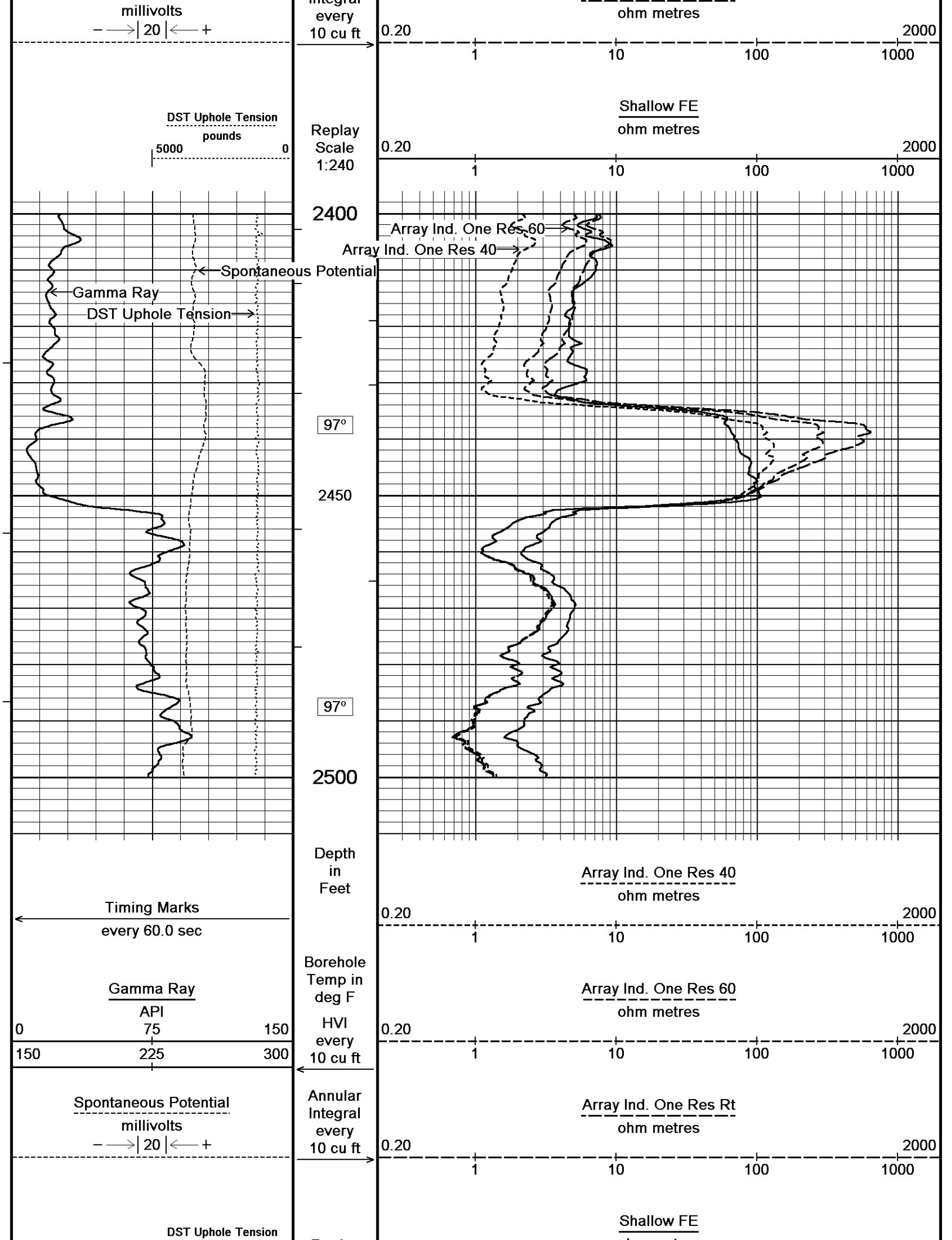
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System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

2 INCH MAIN

5 INCH MAIN

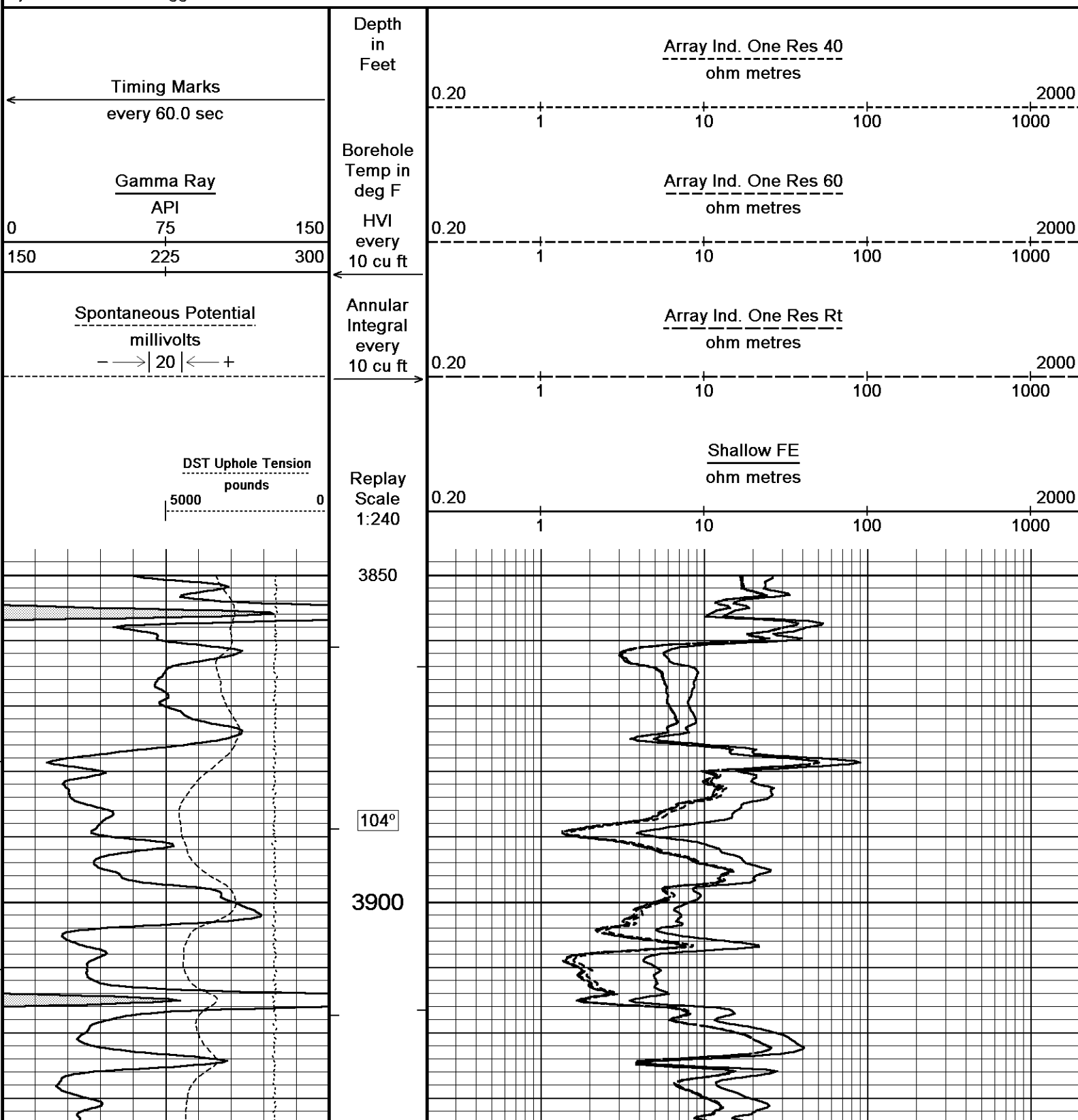
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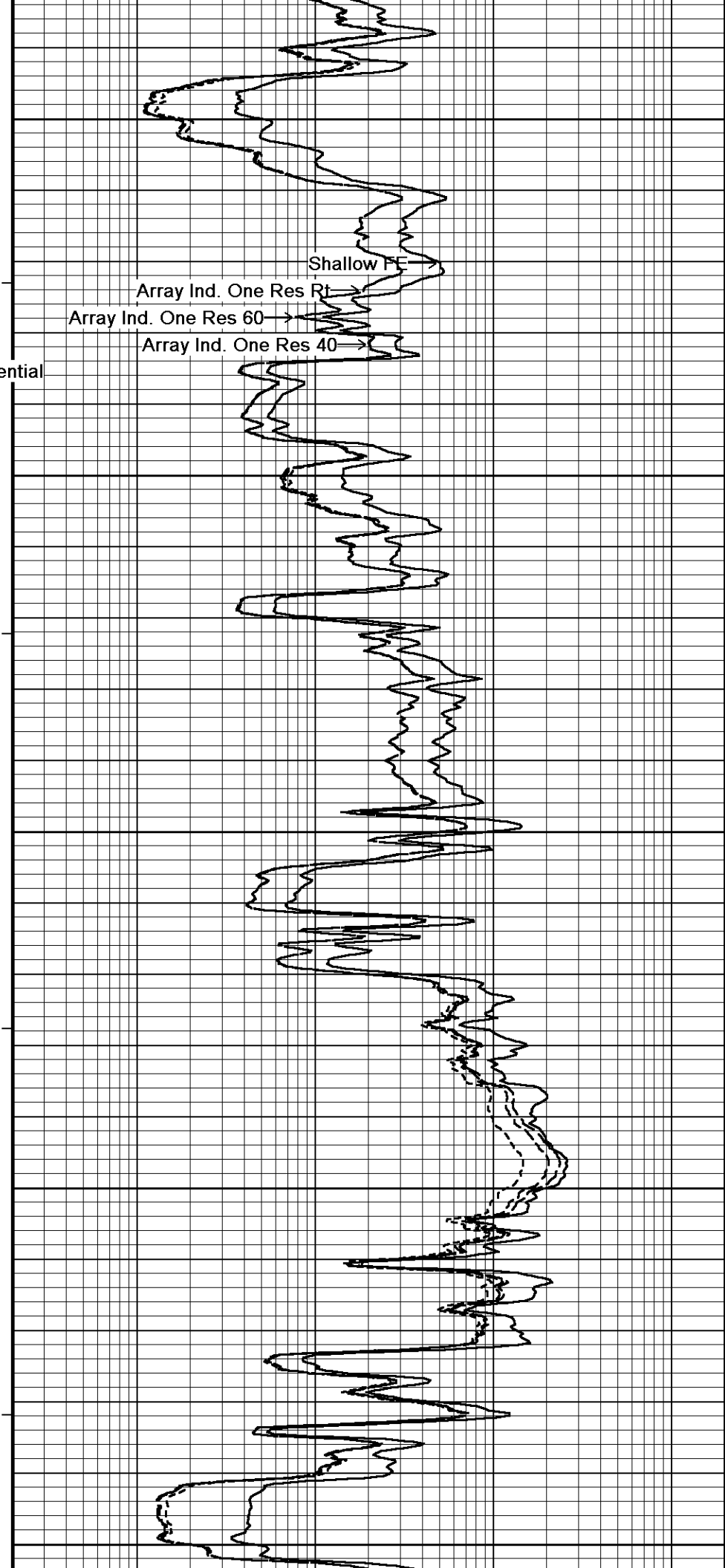
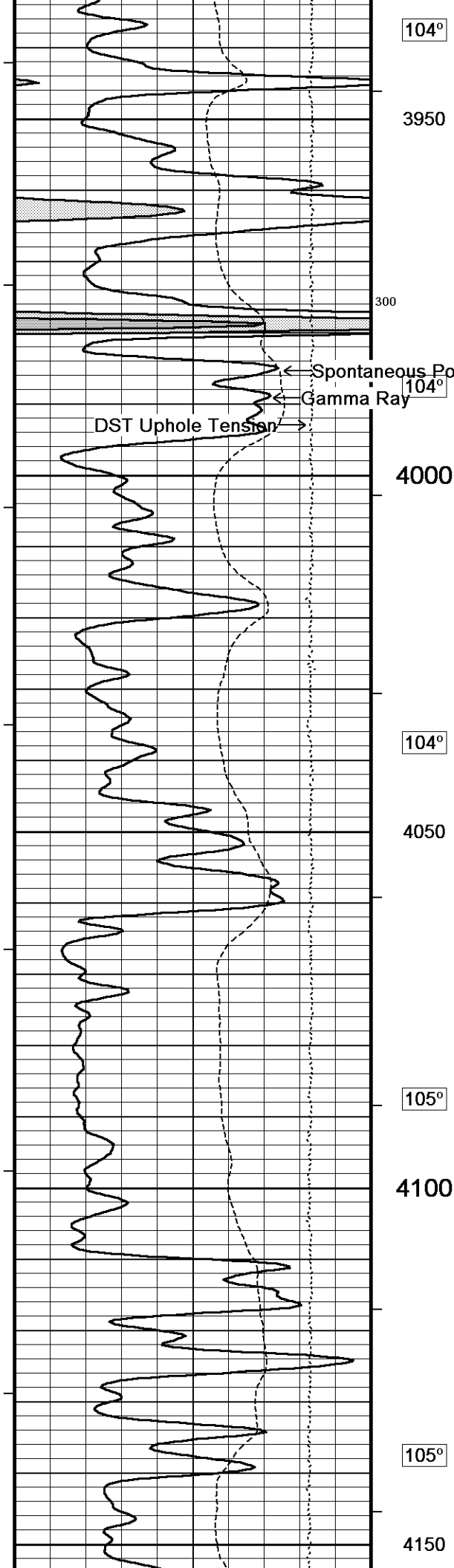


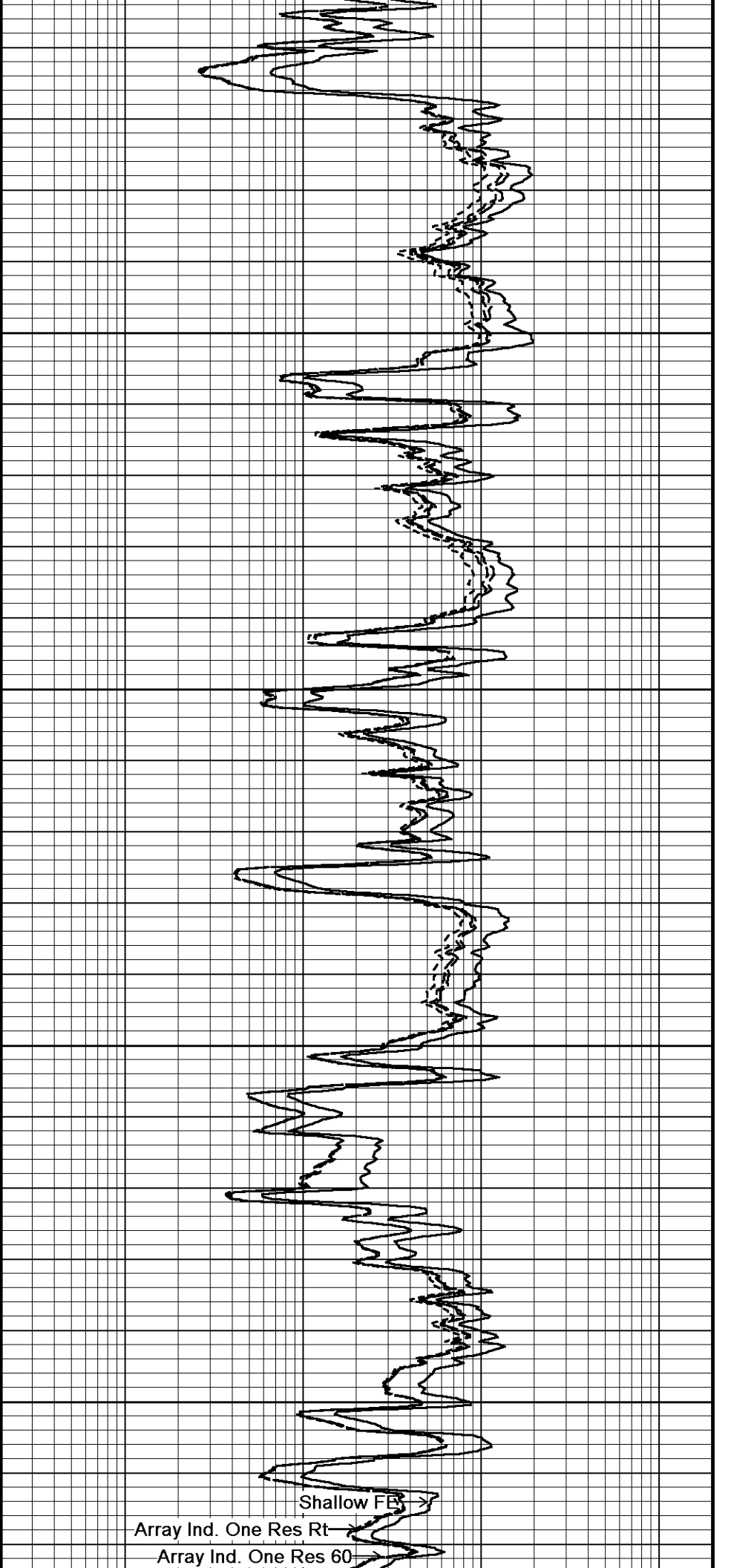
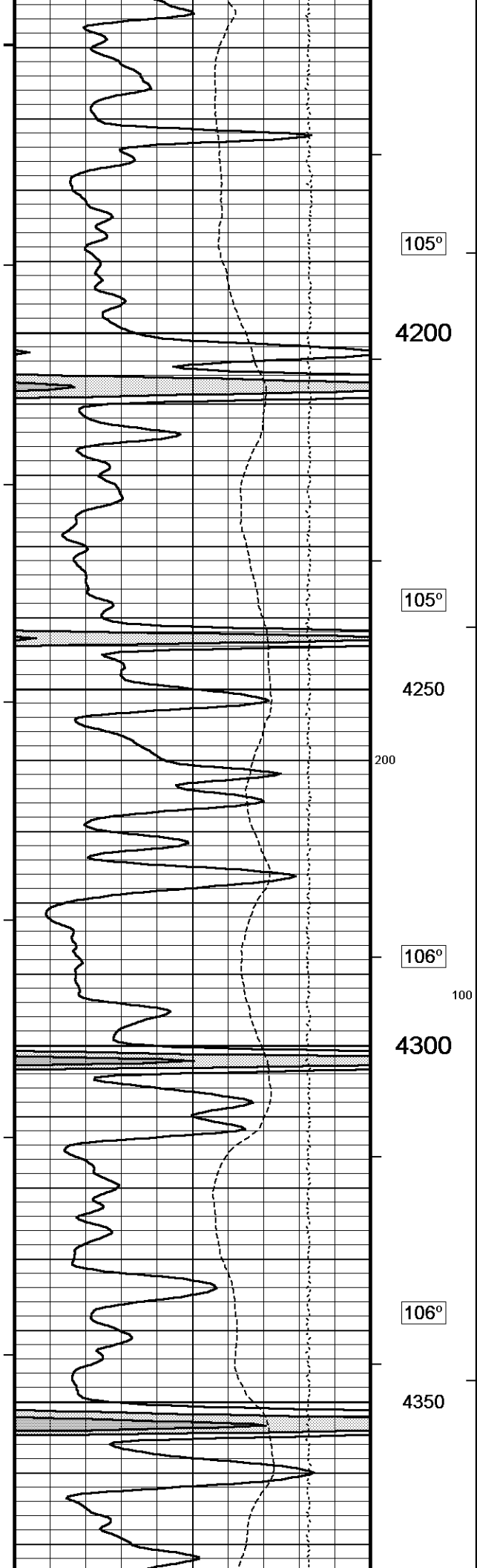


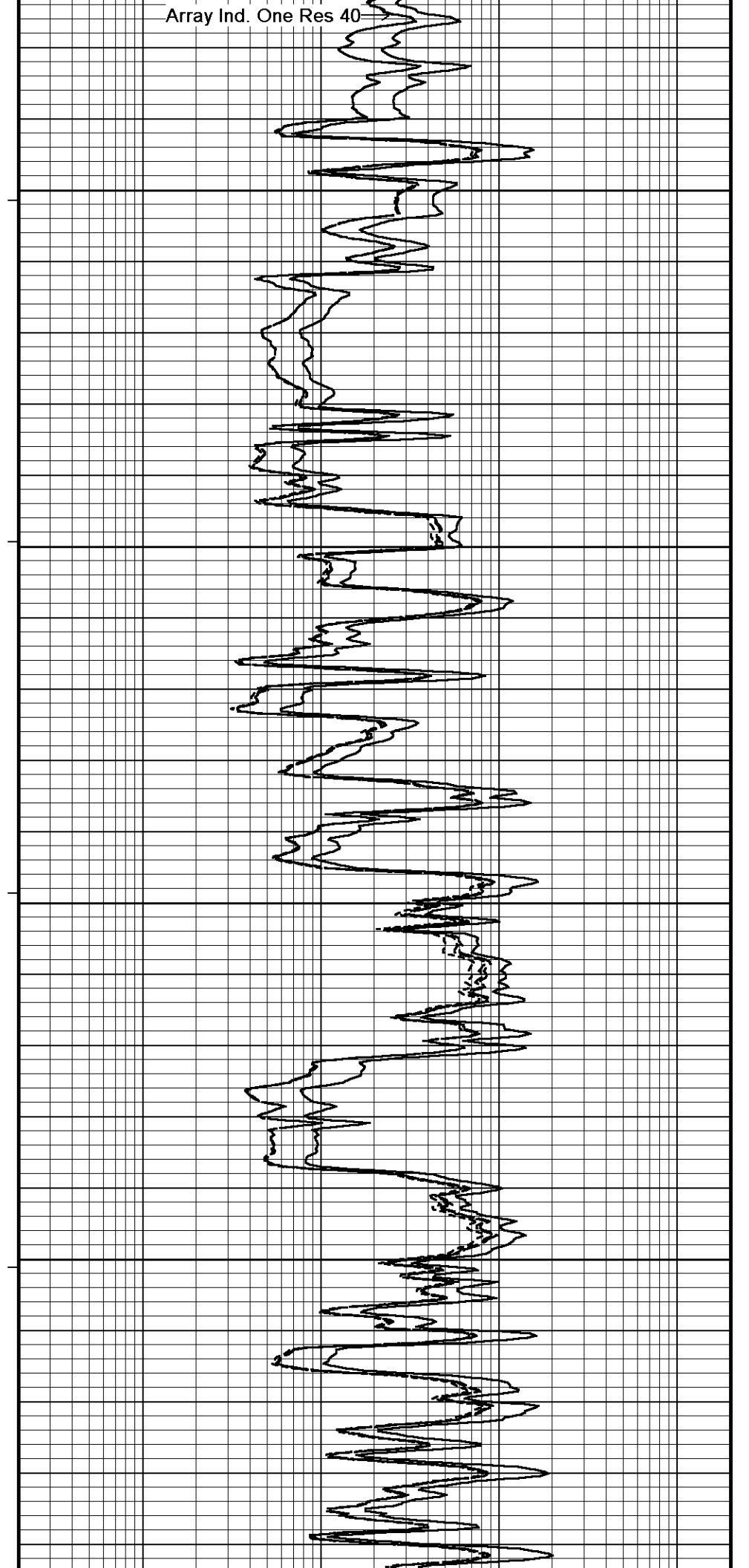
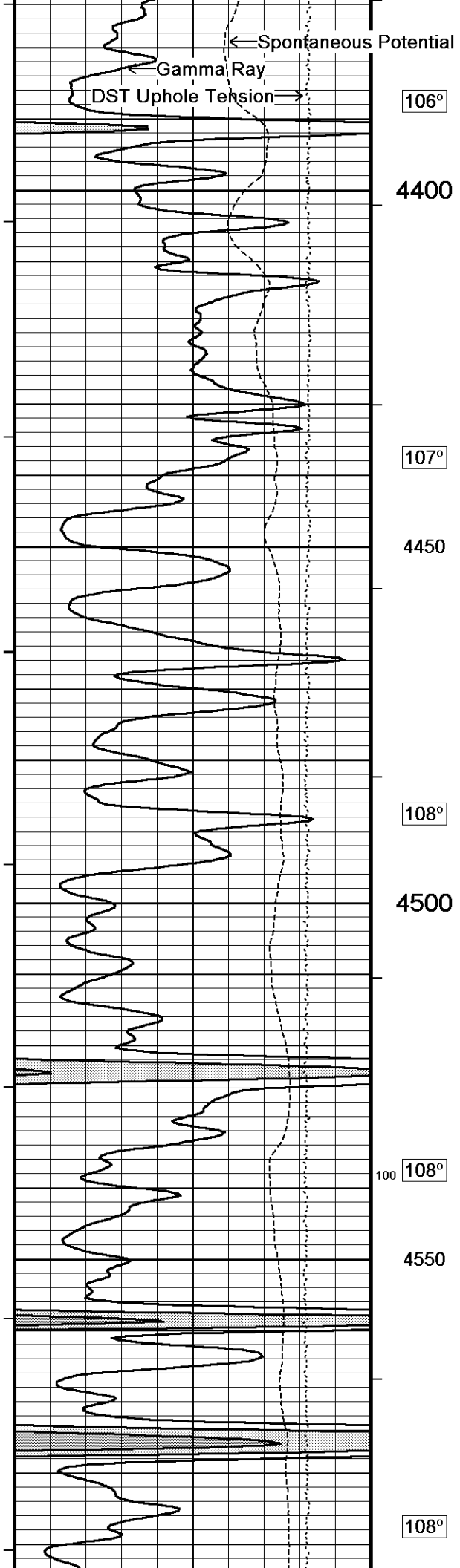


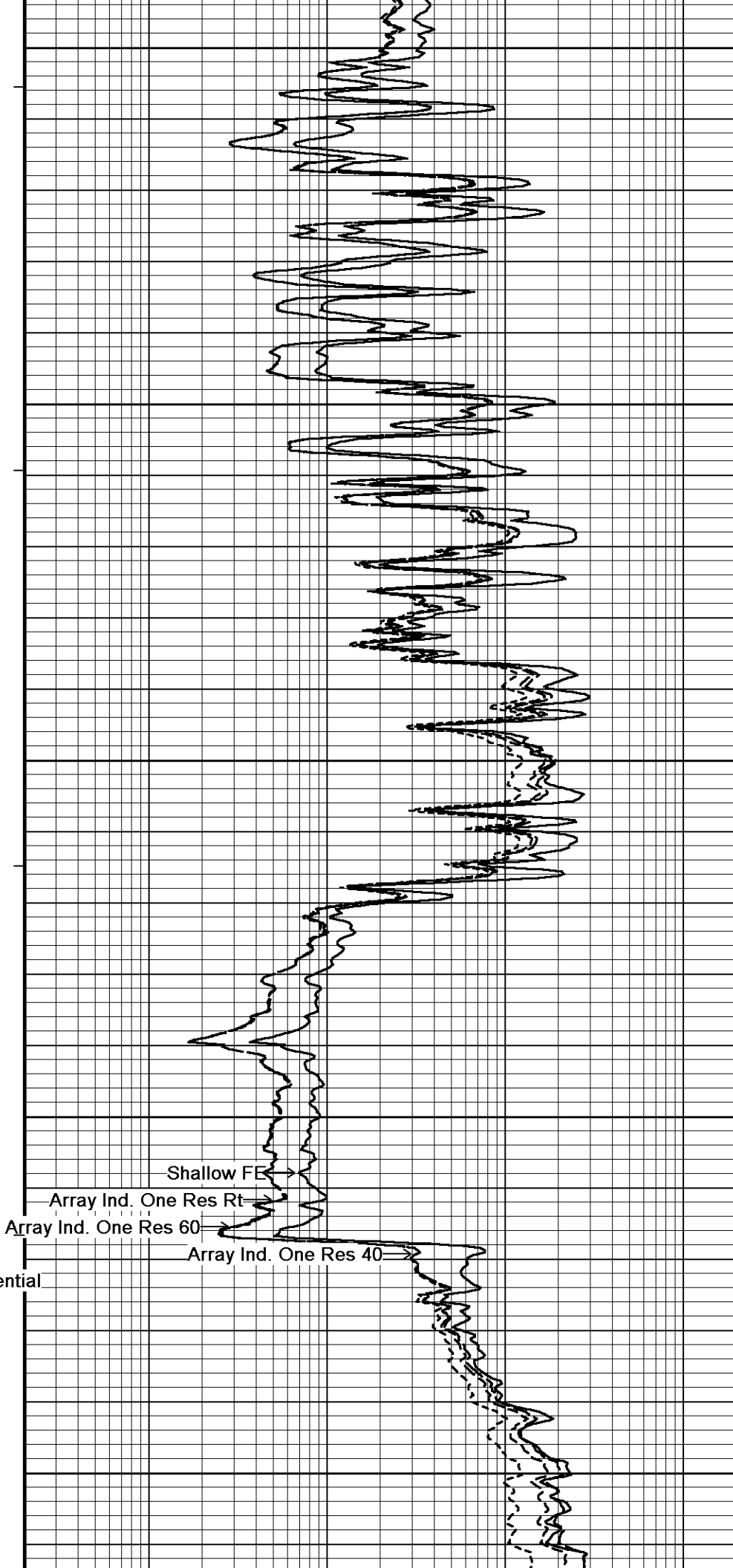
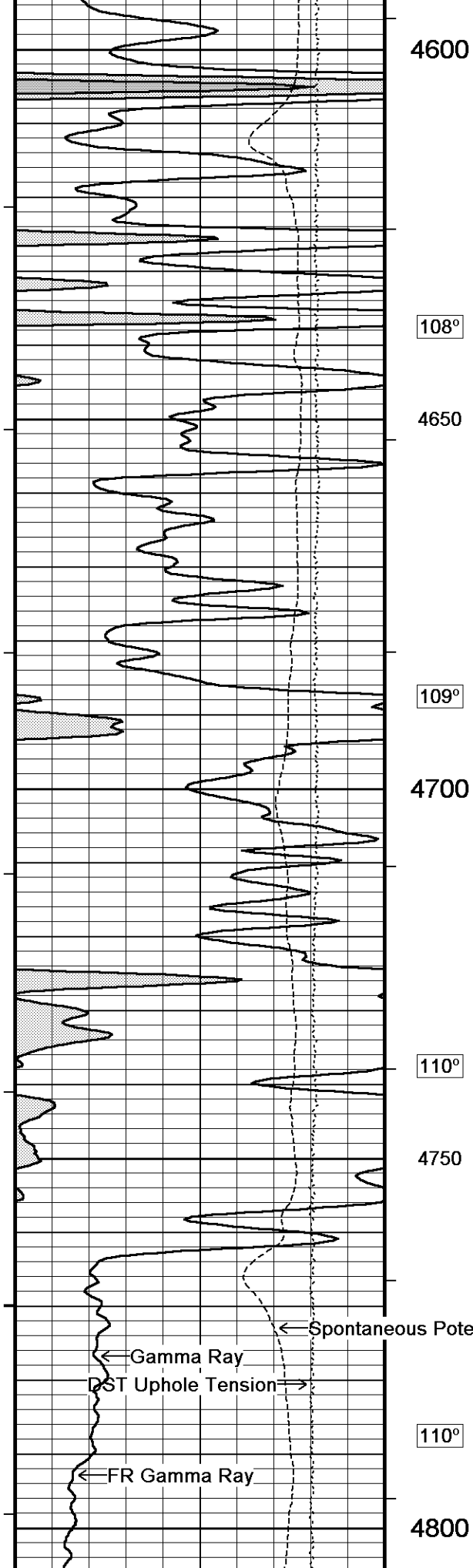
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

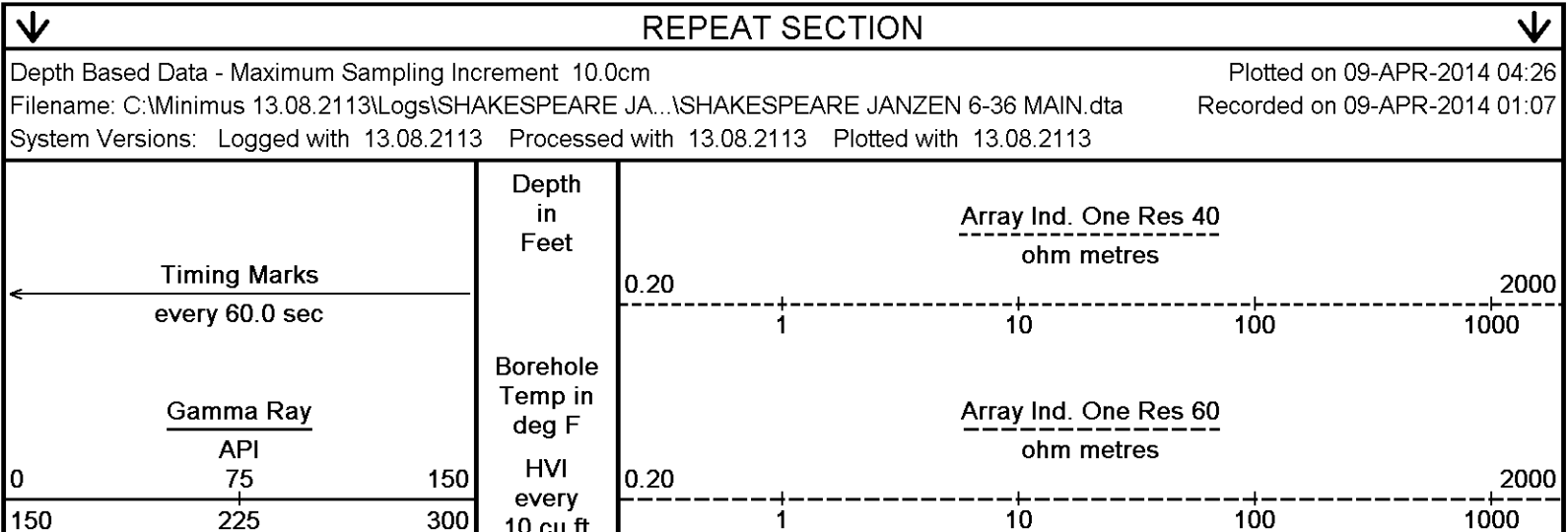
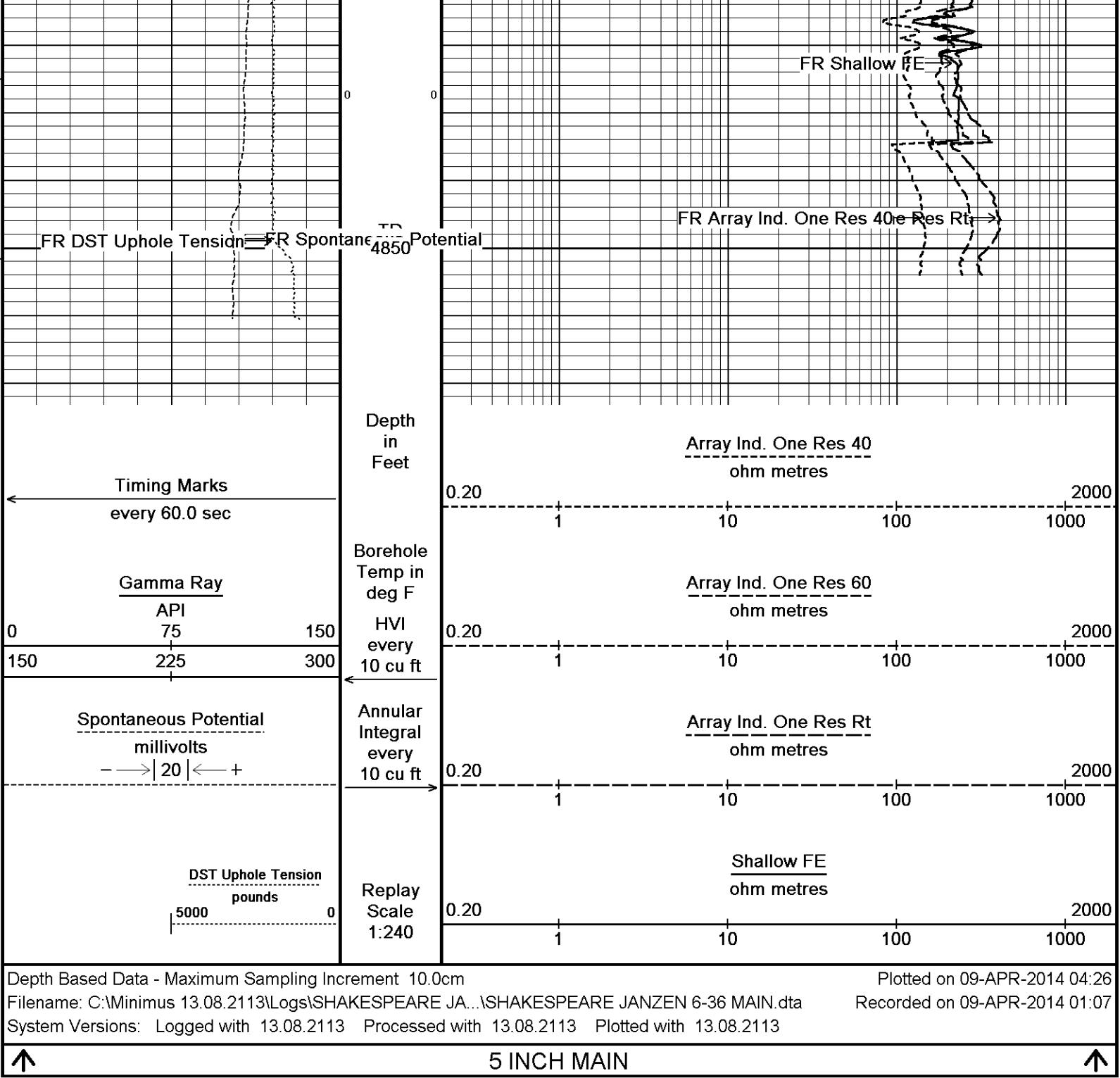


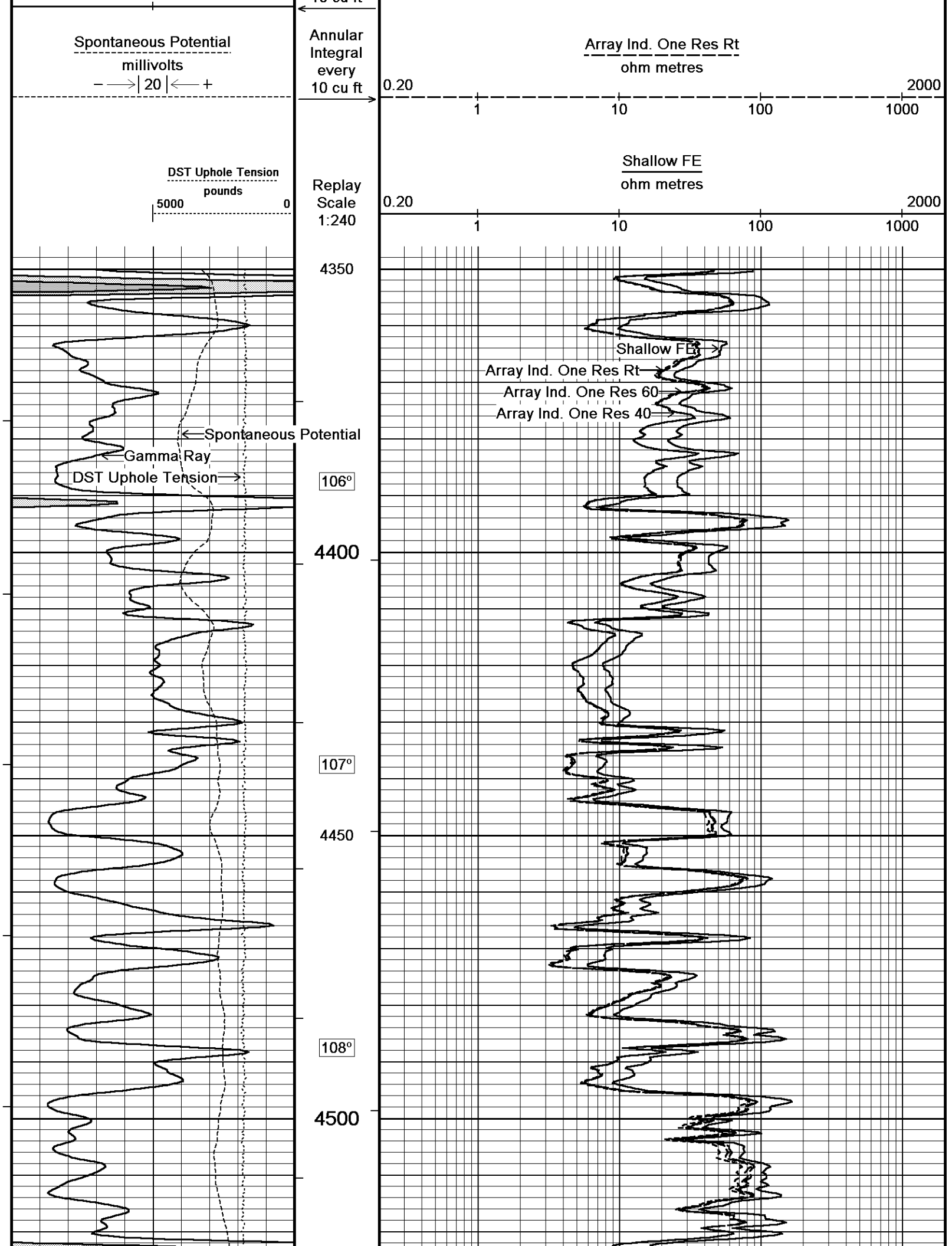


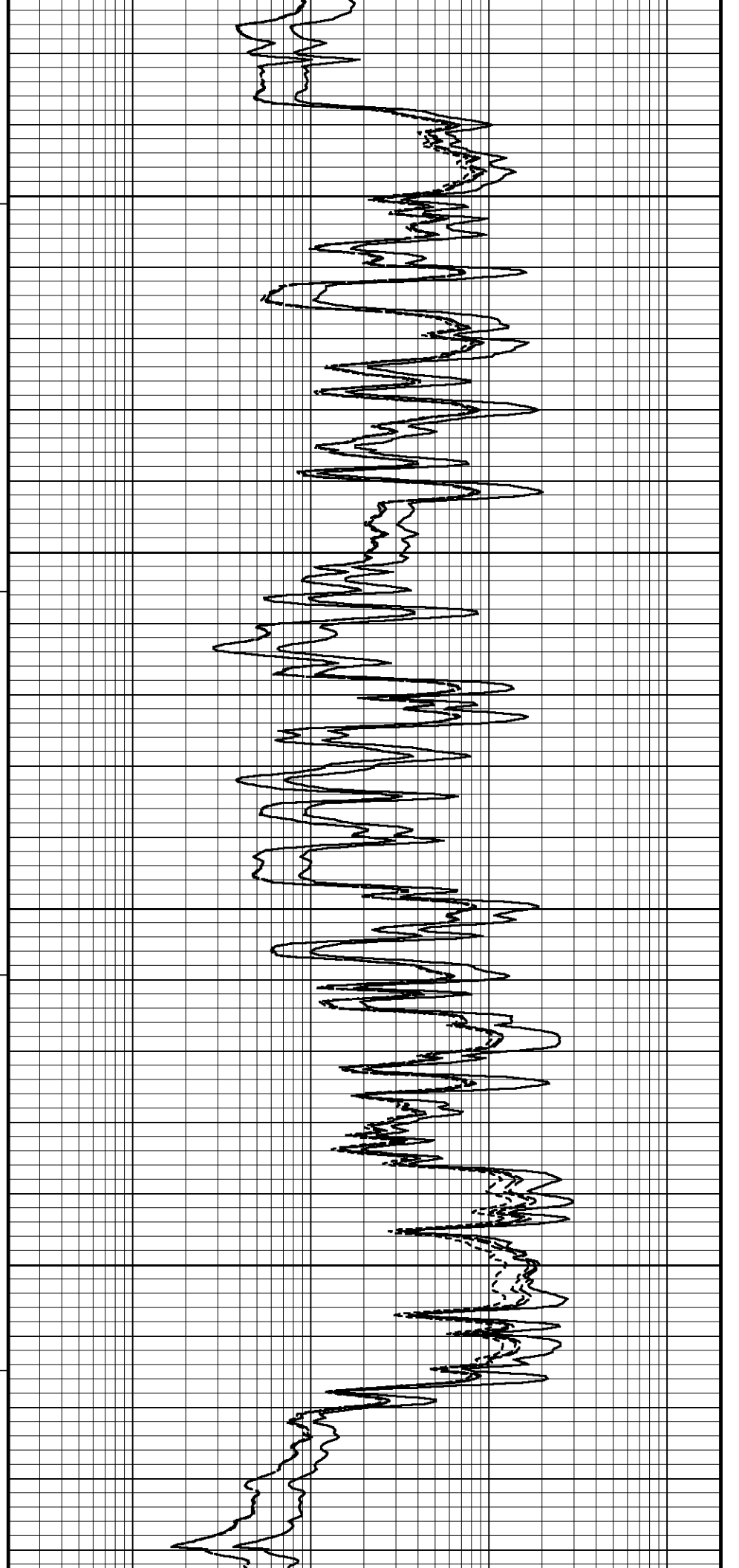
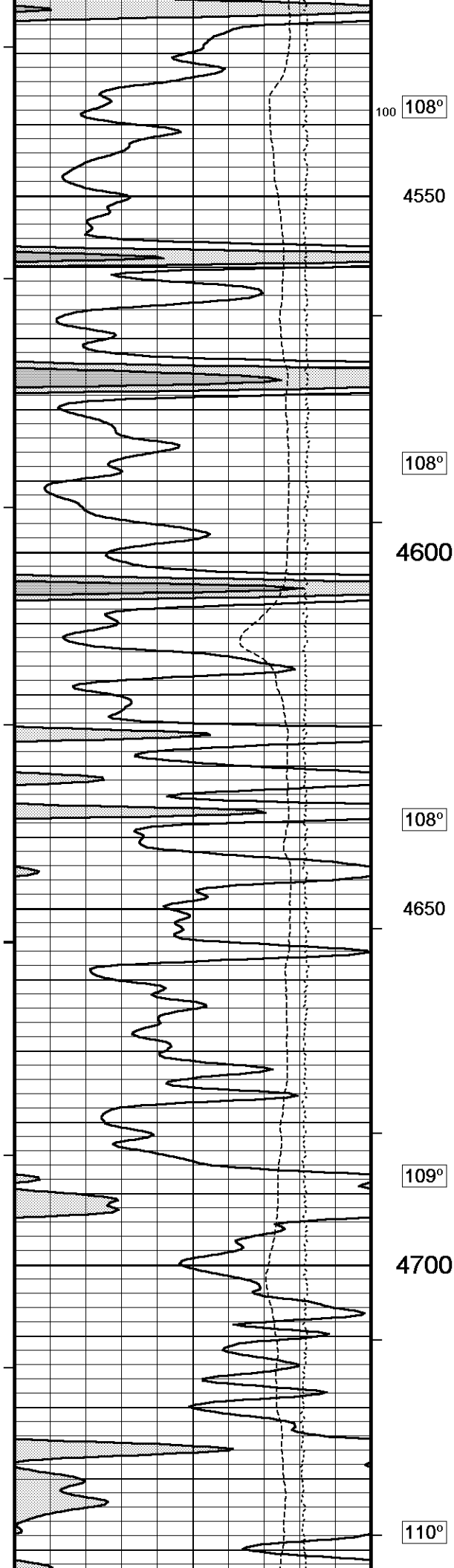


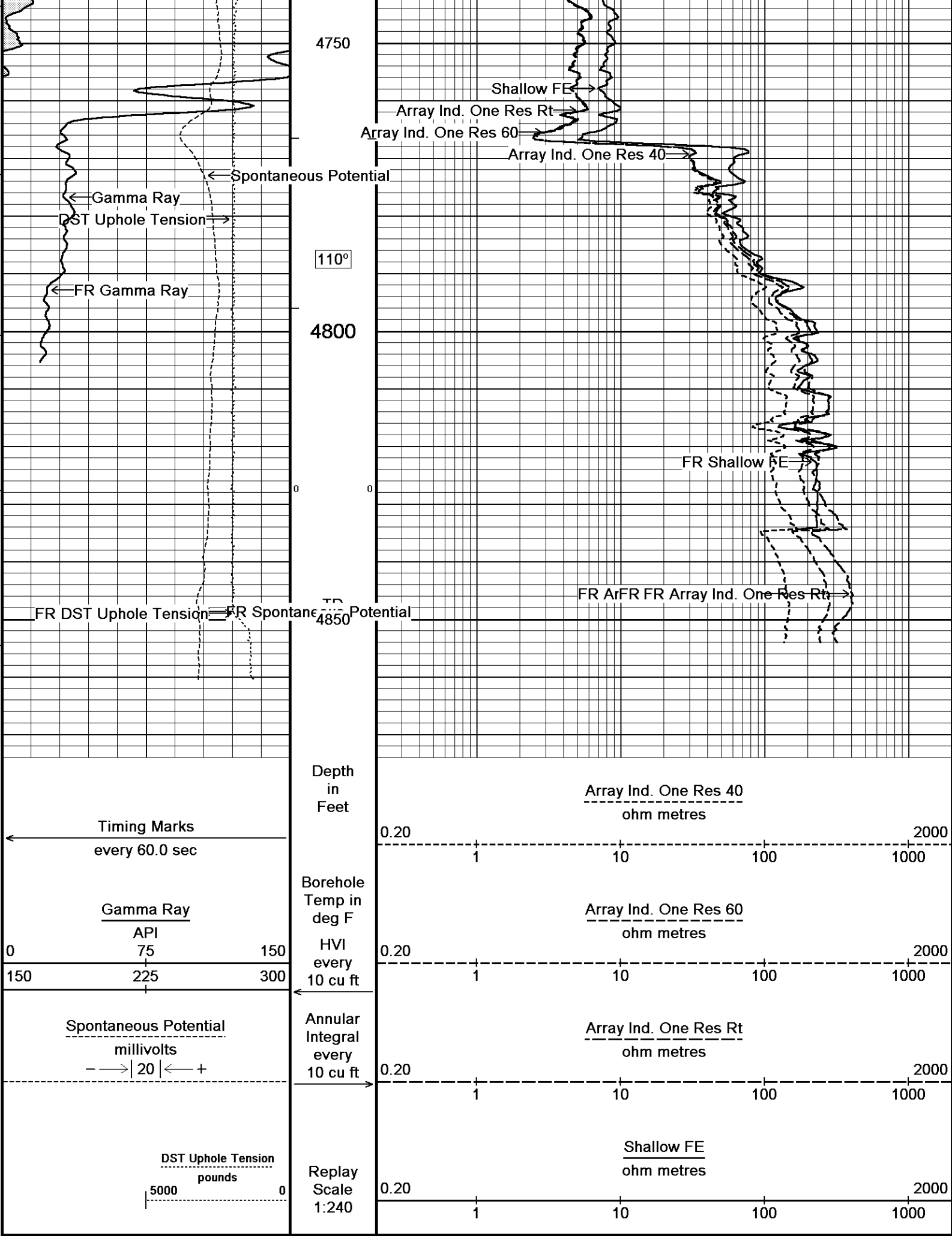












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REPEAT SECTION

↑

BEFORE SURVEY CALIBRATION

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General Constants All 000			Last Edited on 09-APR-2014,00:05		
General Parameters					
Mud Resistivity	0.400		ohm-metres		
Mud Resistivity Temperature	86.000		degrees F		
Water Level	0.000		feet		
Borehole Fluid Processing	Water Level Switch				
Hole/Annular Volume and Differential Caliper Parameters					
HVOL Method	Single Caliper				
HVOL Caliper 1	Density Caliper				
HVOL Caliper 2	N/A				
Annular Volume Diameter	5.500		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-APR-2014 15:02		
	Measured		Calibrated (API)		
Background	73		49		
Calibrator (Gross)	1158		774		
Calibrator (Net)	1085		725		

Gamma Constants MCG-D.K 443			Last Edited on 09-APR-2014,00:06		
Gamma Calibrator Number	GRC38				
Mud Density	1.11		gm/cc		
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
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				

FE Calibration MFE-B.J 352			Base Calibration on 02-APR-2014 09:18 Field Check on 05-APR-2014 14:27		
Base Calibration					
	Measured		Calibrated (ohm-m)		
Reference 1	0.0		0.0		
Reference 2	963.7		126.8		
Base Check			281.5		
Field Check			281.2		

FE Constants MFE-B.J 352			Last Edited on 09-APR-2014,00:06		
Running Mode	No Sleeve				
MFE K Factor	0.1268				
Caliper Source for FE	Density Caliper				

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 158 Base Calibration on 03-APR-2014,15:01
Field Check on 05-APR-2014 14:22

Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.2	475.3	9.3	966.2	
2	6.1	381.2	7.6	821.4	
3	3.8	265.2	5.2	566.0	
4	2.7	132.2	2.6	279.2	
Array Temperature		22.3	Deg F		
Channel		Base Check (mmho/m)		Field Check (mmho/m)	
		Low	High	Low	High
1		11.4	3814.4	12.3	3814.7
2		29.9	3531.1	30.2	3530.8
3		27.1	2981.8	27.3	2981.5
4		18.1	2097.7	18.2	2097.6
Deep		14.9	1943.8	15.0	1943.7
Medium		41.0	3888.2	41.2	3887.5
Shallow		47.1	5237.4	47.5	5236.7
Array Temperature		46.6		59.2	Deg F

Induction Constants MAI-A.A 158 Last Edited on 09-APR-2014,00:06

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.		Borehole Temp. Unfilt.	
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	

Caliper Calibration MPD-B 31 Base Calibration on 02-APR-2014 10:39
Field Calibration on 05-APR-2014 14:29

Base Calibration

Reading No

Measured

Calibrator Size (in)

1	18192	3.99
2	27035	5.98
3	35696	7.97
4	44016	9.86
5	53216	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)

Actual Caliper (in)

7.94	7.97
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DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\SHAKESPEARE JANZEN 6-36\SHAKESPEARE JANZEN 6-36 MAIN.dta

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity

MMR-B.A 98 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric

MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

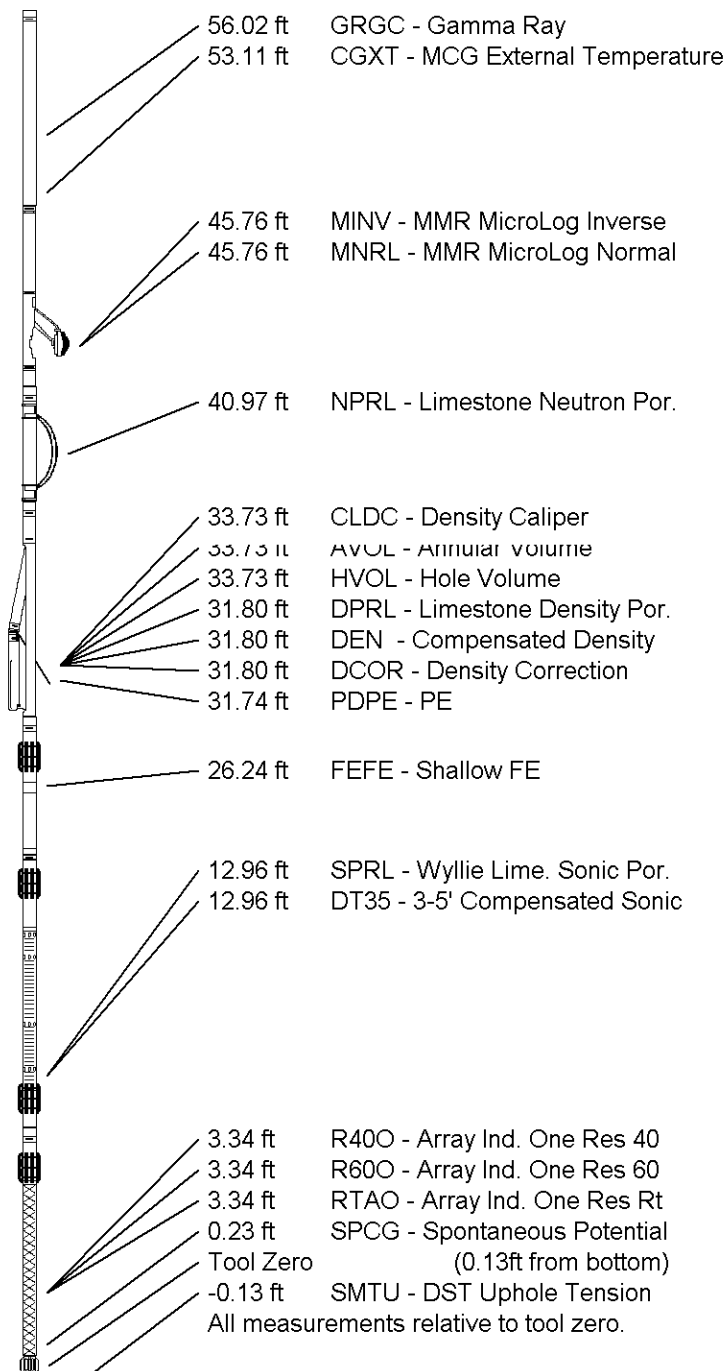
Compact Sonic

MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction

MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 61.30 ft Weight: 456.4 lb



COMPANY
WELL

SHAKESPEARE OIL CO., INC
JANZEN 6-36

FIELD PENCE EAST
PROVINCE/COUNTY SCOTT
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	3116.00	feet	First Reading	4846.00	feet
Elevation Drill Floor	3114.00	feet	Depth Driller	4850.00	feet
Elevation Ground Level	3104.00	feet	Depth Logger	4849.00	feet



ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

Weatherford®

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ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY
WELL
FIELD
PROVINCE/COUNTY
COUNTRY/STATE
LOCATION

SHAKESPEARE OIL CO., INC
JANZEN 6-36
PENCE EAST
SCOTT
U.S.A. / KANSAS
950' ENL & 450' FWL NE SW NW NW

SEC 36
TWP 18S
R3E 34W
Latitude
Longitude
Log Number
Permanent Datum Q.L. Elevation
Log Measured From
Drilling Measured From

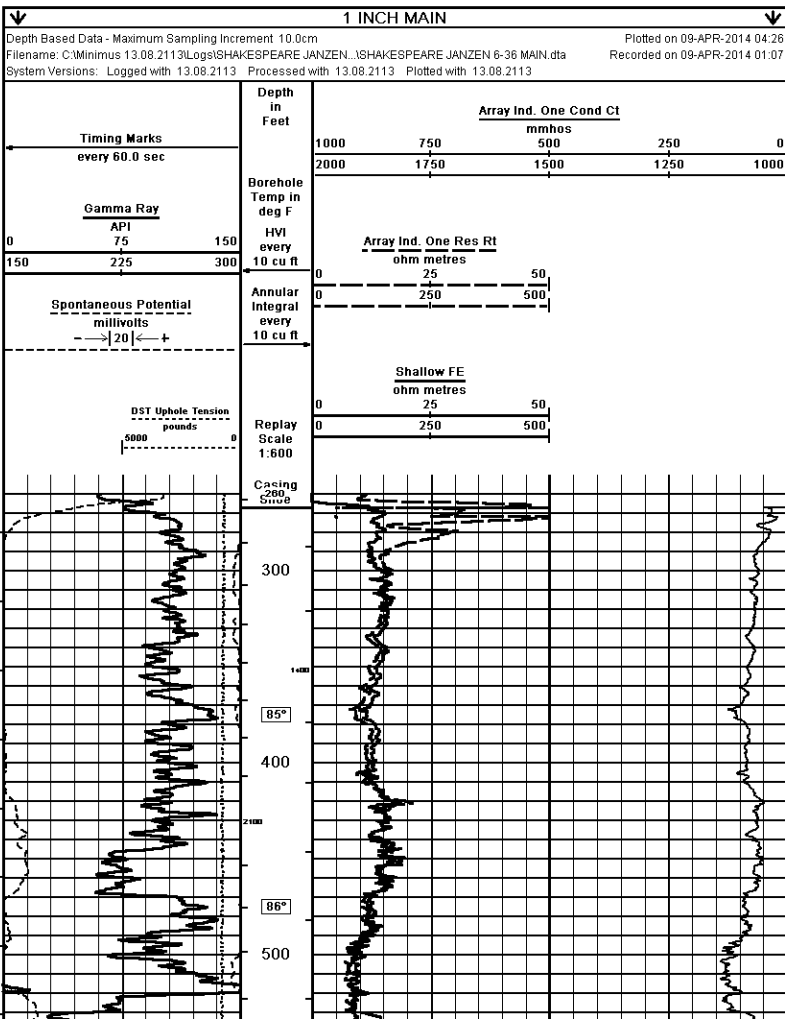
36
18S
R3E
34W
Other Services
MDMN
INSE
15-171-21093
3104 feet
@ 12 FEET
@ 12 FEET

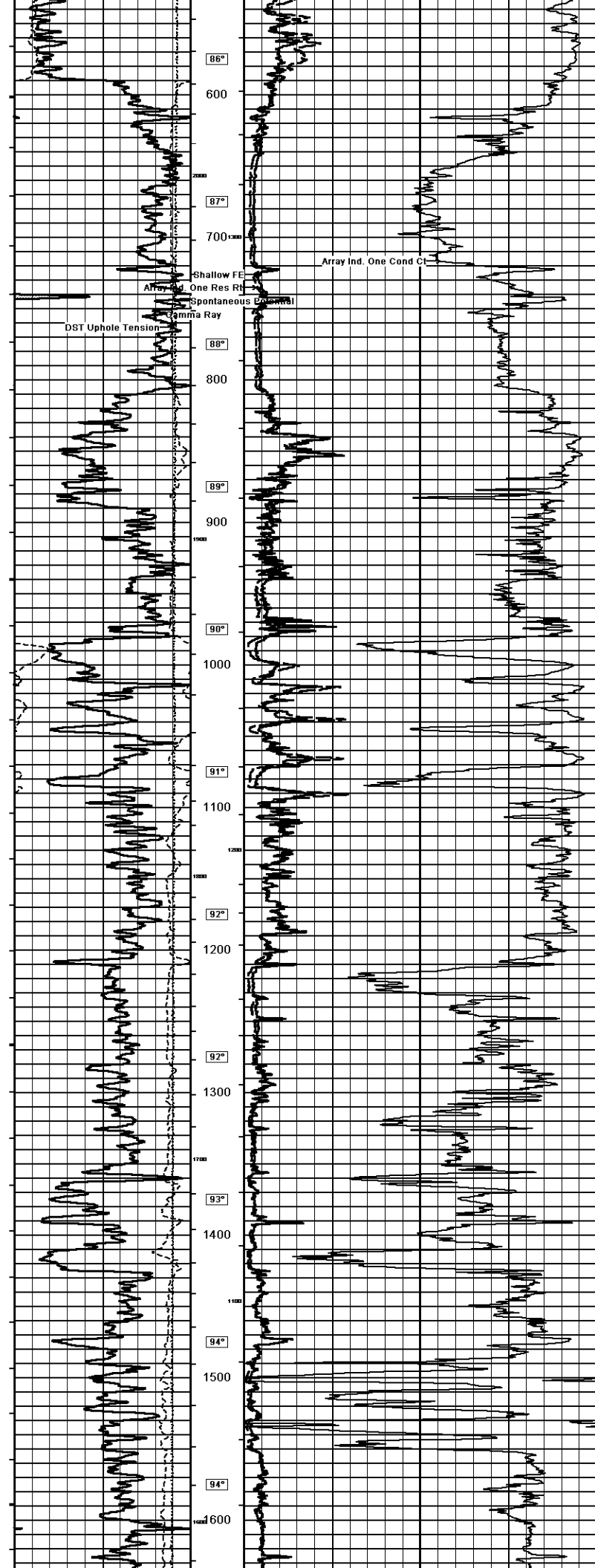
MML

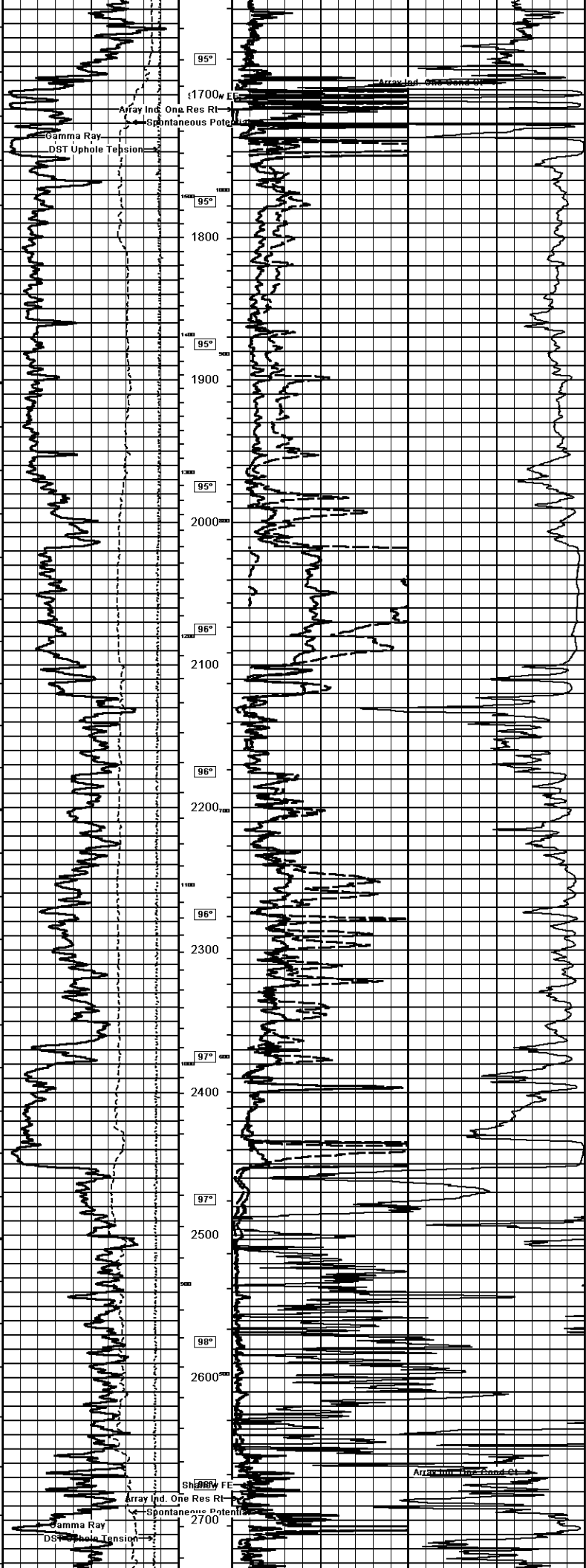
Date
Run Number
Service Order
Depth Driller
Depth Logger
First Reading
Last Reading
Casing Driller
Casing Logger
Bit Size
Hole Fluid Type
Density/Viscosity
PH/Fluid Loss
Sample Source
Gm @ Measured Temp
Gm @ Measured Temp
Gm @ Measured Temp
Source Rmt/Rinc
Gm @ BHT
Time Since Circulation
Max Recorded Temp
Equipment/Case
Recorded By
Witnessed By
DOB#

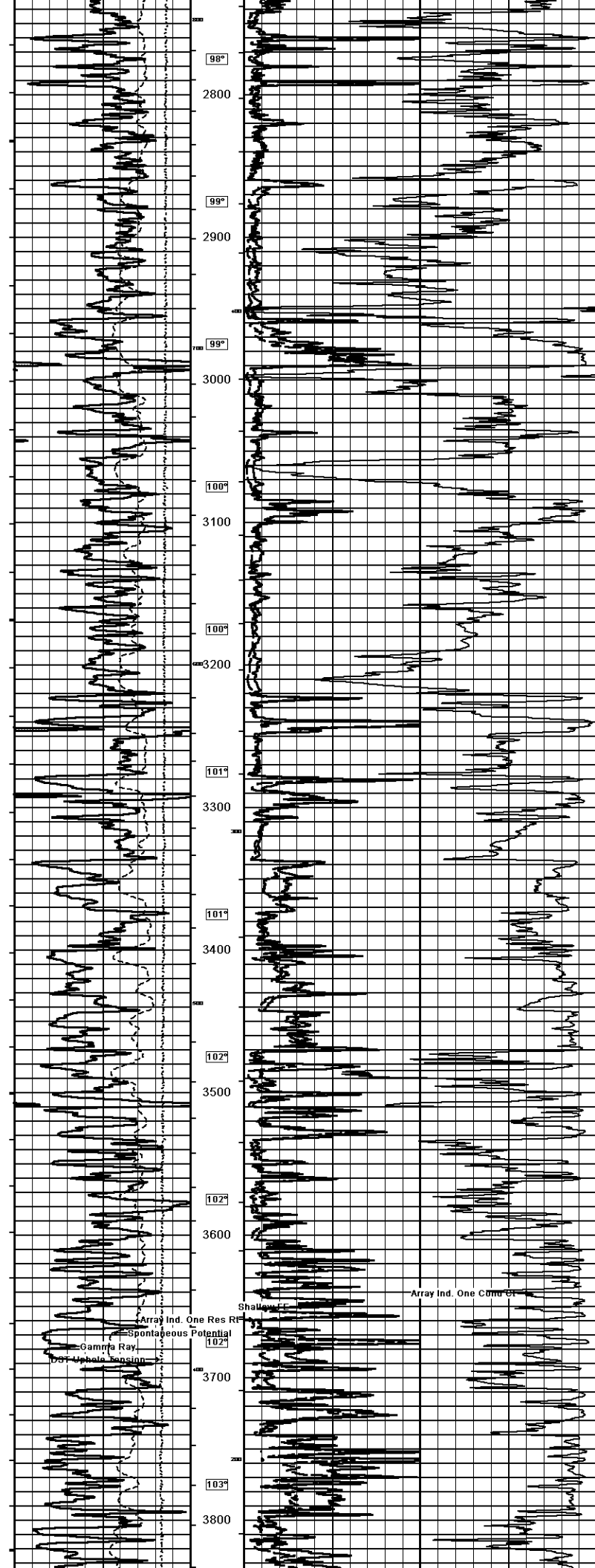
08-APR-2014
ONE
5872-94109232
4850.00
4849.00
4846.00
267.00
264.00
267.00
7.875
CHEM
9.30
10.00
PIT
0.40 @ 86.0
0.32 @ 86.0
0.48 @ 86.0
CALC
0.31 @ 109.0
4 HRS
109.00
13067
D COLE
M HERNON
LB1747108

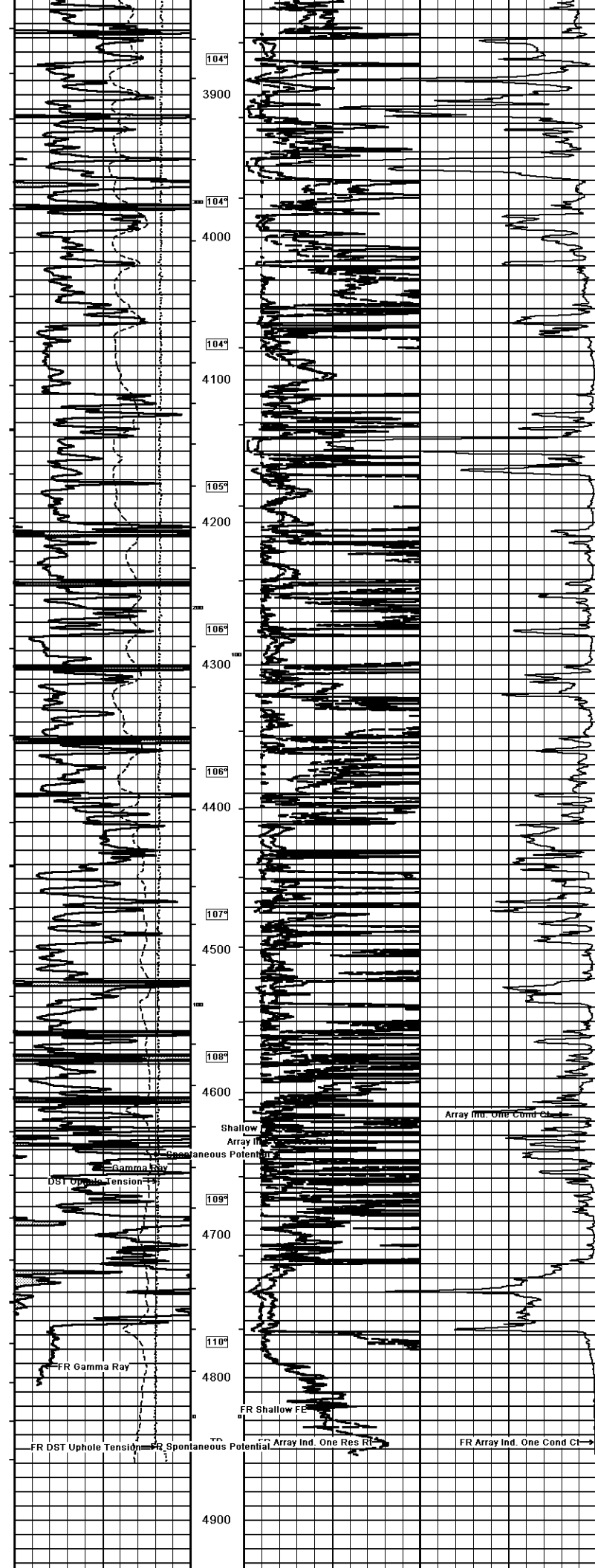
feet
feet
feet
feet
feet
feet
feet
inches
CP
m3/min
ohm-m
ohm-m
ohm-m
ohm-m
ohm-m
deg F
LB
deg F
LB
deg F
LB
deg F
LB

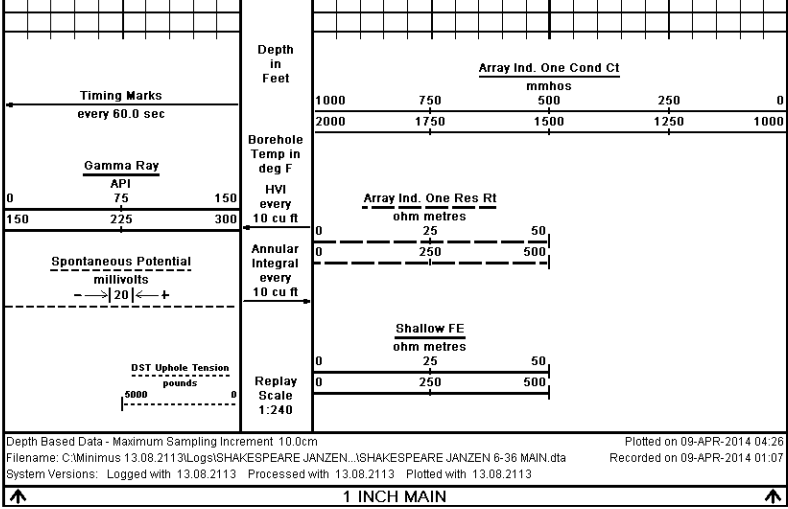












COMPANY		SHAKESPEARE OIL CO., INC			
WELL		JANZEN 6-36			
FIELD		PENCE EAST			
PROVINCE/COUNTY		SCOTT			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	3116.00	feet	First Reading	4846.00	feet
Elevation Drill Floor	3114.00	feet	Depth Driller	4850.00	feet
Elevation Ground Level	3104.00	feet	Depth Logger	4849.00	feet
		ARRAY INDUCTION			
Weatherford		SHALLOW FOCUSED			
		ELECTRIC LOG			