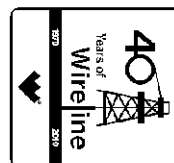




Weatherford[®]

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY CHOLLA PRODUCTION LLC
WELL BONTRAGER #29-1 OWWO
FIELD WILDCAT
PROVINCE/COUNTY SCOTT
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 2305' FNL & 2142' FEL
NE SW SW NE



SEC	TWP	RGE	Other Services	MML	Elevations:
29	19S	33W	MPD/MDN		KB 2993.00 DF 2992.00 GL 2988.00
API Number 15-171-20742					
Permit Number					
Permanent Datum G.L., Elevation 2988 feet					
Log Measured From KB					
Drilling Measured From K.B.					
Date	16-JUN-2012				
Run Number	ONE				
Depth Driller	5296.00				feet
Depth Logger	5303.00				feet
First Reading	5300.00				feet
Last Reading	4250.00				feet
Casing Driller	538.00				feet
Casing Logger	539.00				feet
Bit Size	7.875				inches
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.10 lb/USg				47.00 CP
PH / Fluid Loss	11.00				8.80 ml/30Min
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.73 @ 91.0				ohm-m
Rmf @ Measured Temp	0.58 @ 91.0				ohm-m
Rmc @ Measured Temp	0.88 @ 91.0				ohm-m
Source Rmf / Rmc	CALC				CALC
Rm @ BHT	0.52 @ 128.0				ohm-m
Time Since Circulation	4 HOURS				
Max Recorded Temp	128.00				deg F
Equipment Name	COMPACT				
Equipment / Base	13057				LIB
Recorded By	L. SCOTT				
Witnessed By	BILL GOFF				
S O # / JOB#	3534589				LB12-150

BOREHOLE RECORD

Last Edited: 16-JUN-2012 16:47

Bit Size inches	Depth From feet	Depth To feet
7.875	539.00	5303.00

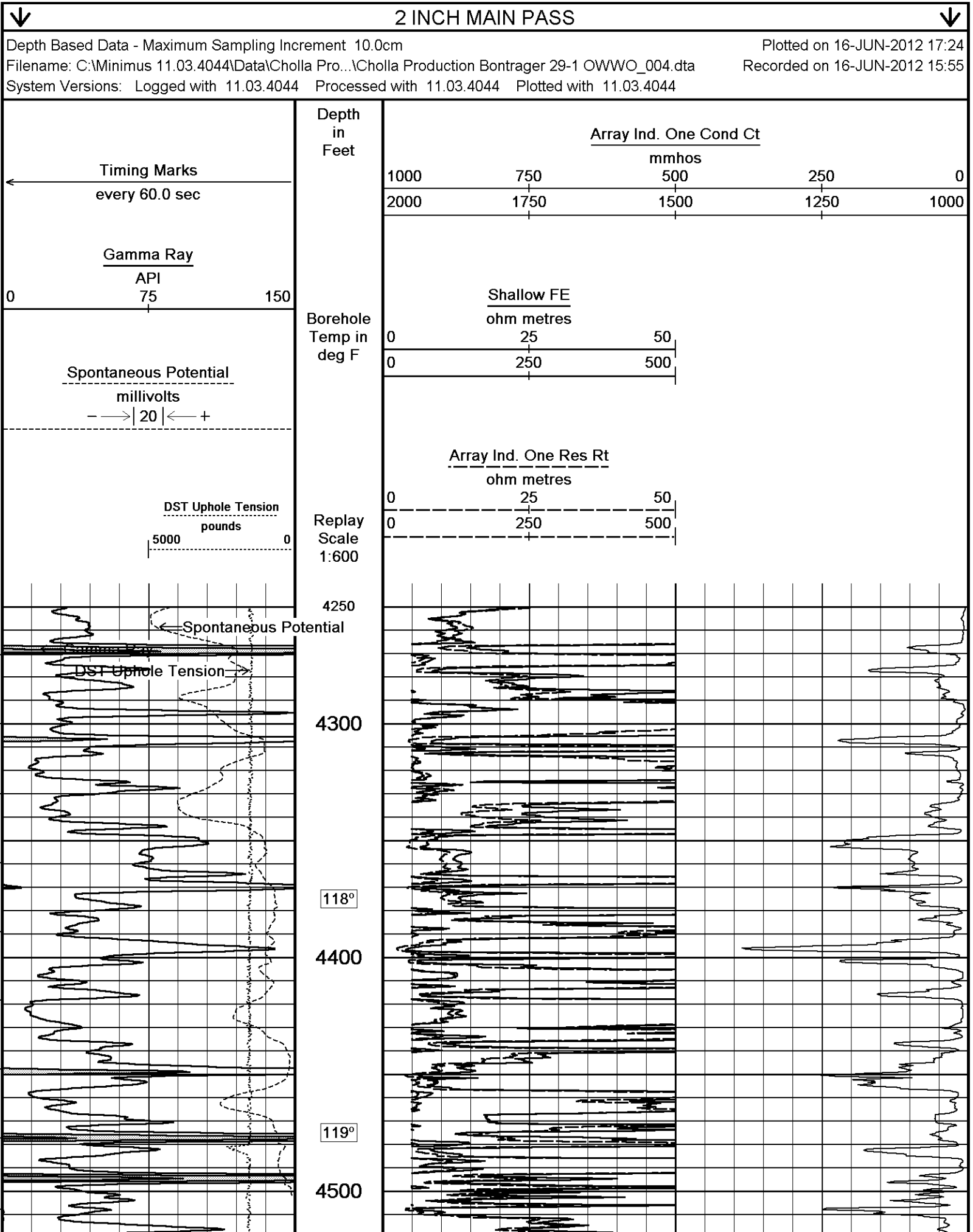
CASING RECORD

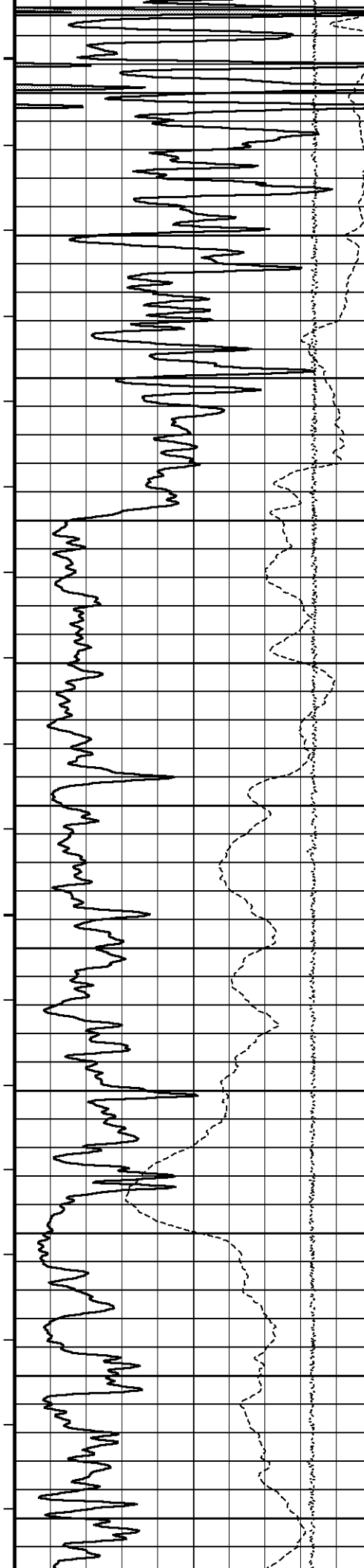
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	539.00	24.00

REMARKS

Tools Ran: MCG, MML, MDN, MPD, MFE, MAI.
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used.
MFE: 0.5 inch Standoff = 1
MAI: 0.5 inch Standoff = 1
2.71 g/cc Limestone Density Matrix used to calculate porosity.
Tight pulls, borehole rugosity, and wash outs will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing= 237 cu. ft.
Total hole volume from TD to surface casing= 408 cu. ft.
Service order: #3534589
Rig: WW #8
Engineer: L. Scott
Operator(s): K. Rinehart

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, 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





120°

4600

121°

4700

122°

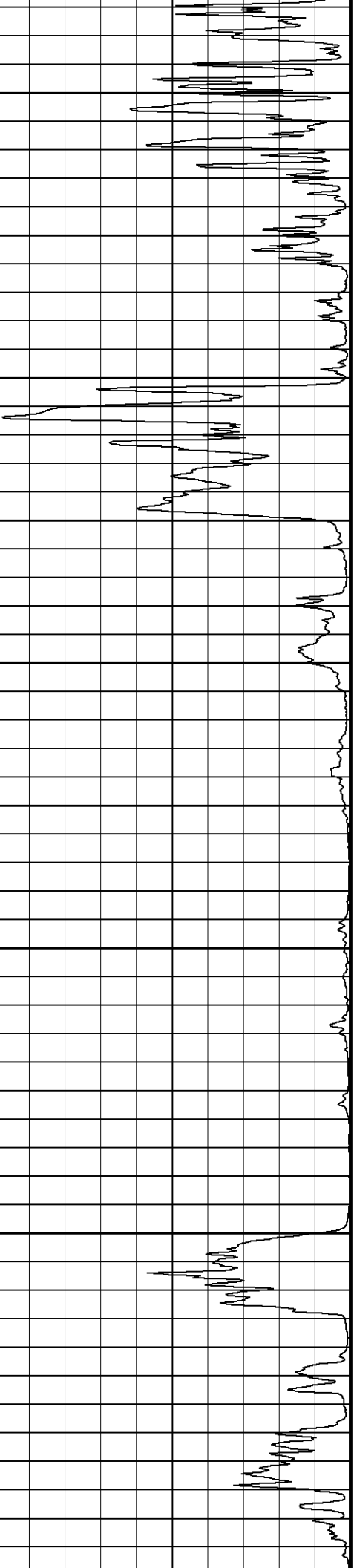
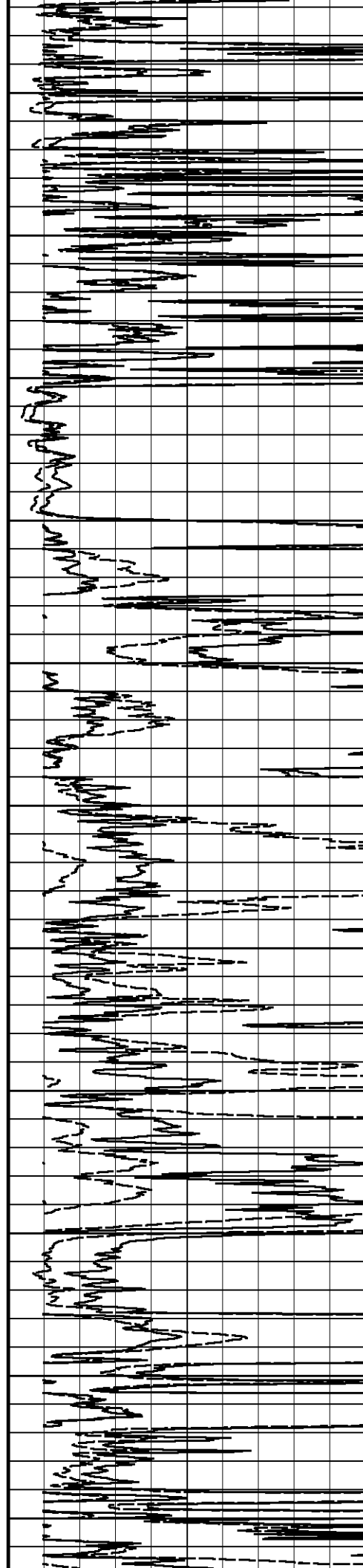
4800

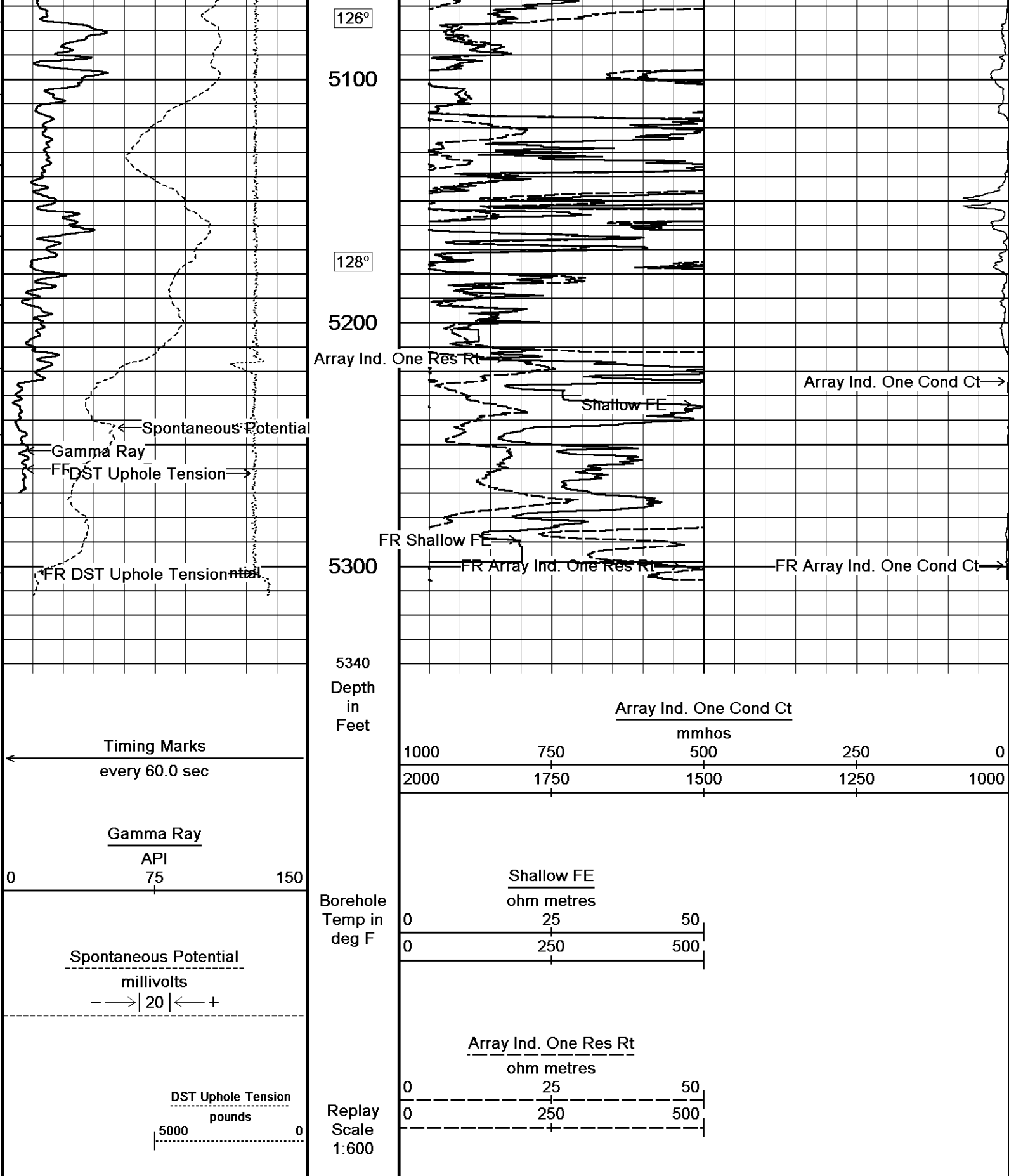
123°

4900

124°

5000





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 16-JUN-2012 17:24

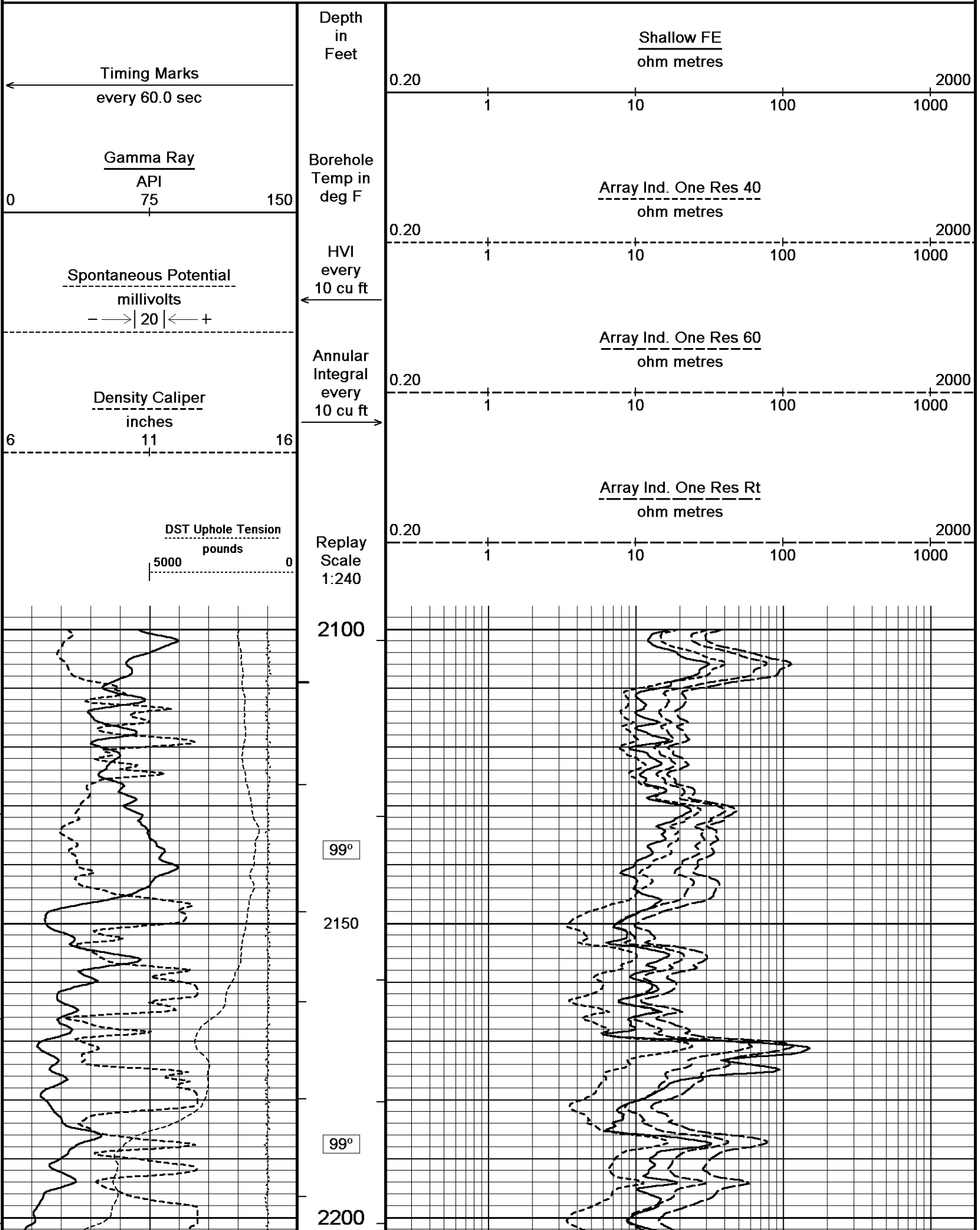
Filename: C:\Minimus 11.03.4044\Data\Cholla Pro...\Cholla Production Bontrager 29-1 OWWO_004.dta

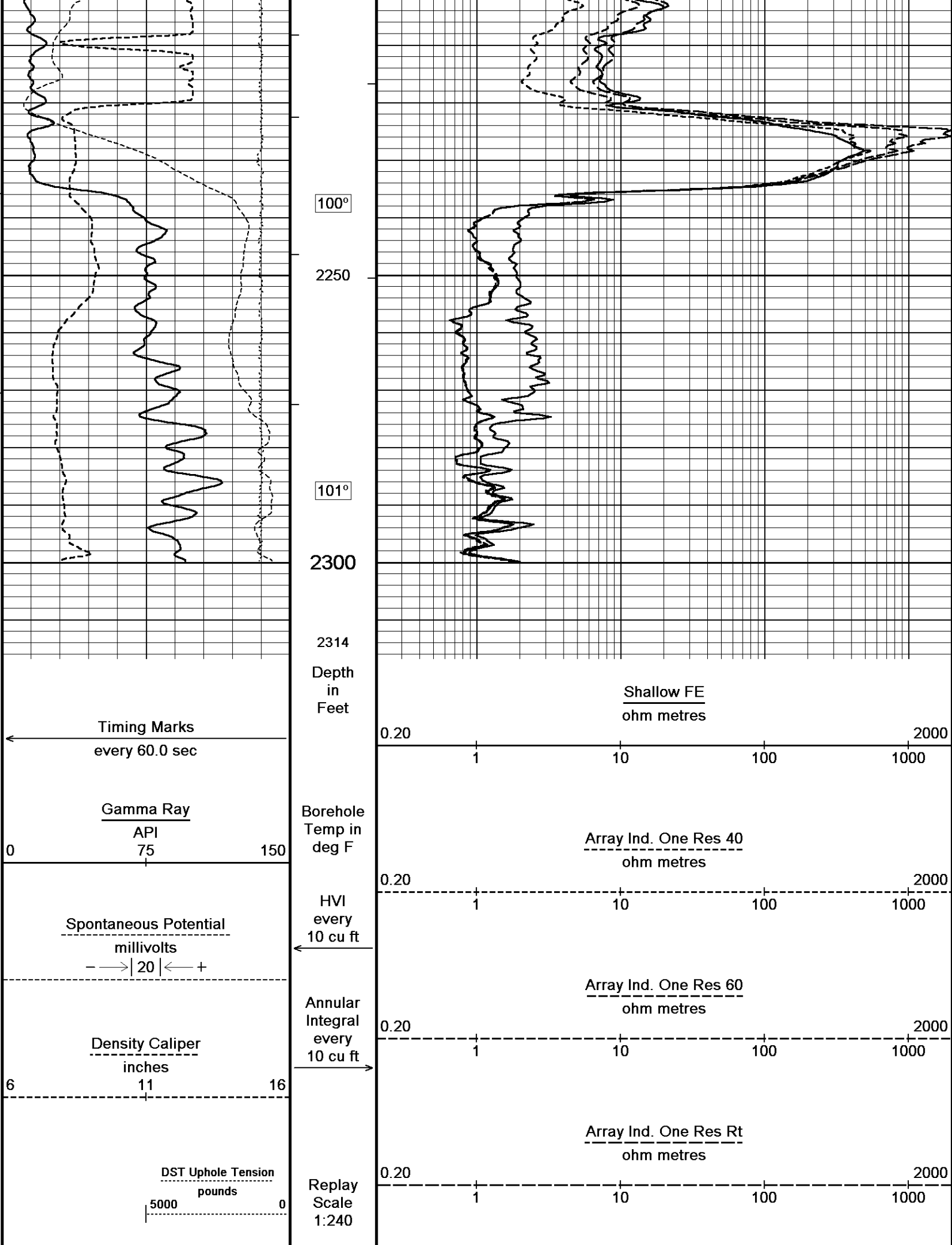
Recorded on 16-JUN-2012 15:55

System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

↑ 2 INCH MAIN PASS ↑

↓ 5 INCH MAIN 2100-2300 ↓





↑

5 INCH MAIN 2100-2300

↑

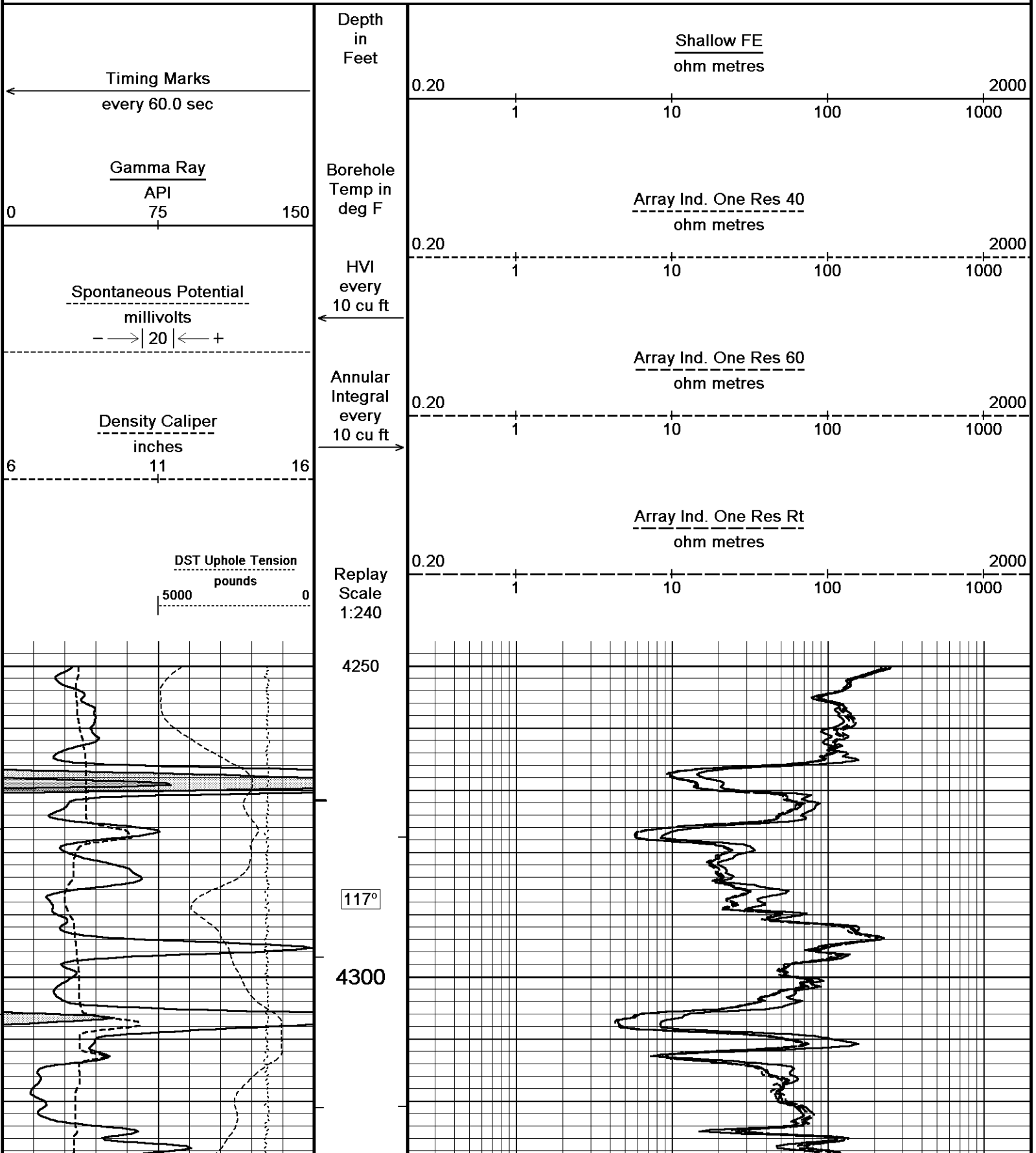
↓

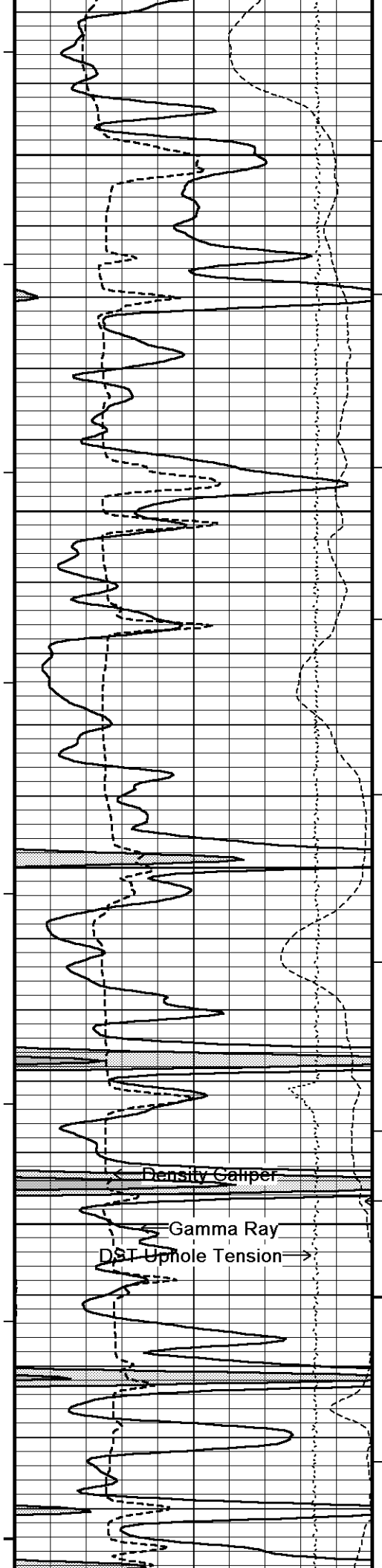
5 INCH MAIN PASS

↓

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 11.03.4044\Data\Cholla Pro...\Cholla Production Bontrager 29-1 OWWO_004.dta
System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Plotted on 16-JUN-2012 17:24
Recorded on 16-JUN-2012 15:55





117°

4350

118°

4400

118°

4450

119°

Spontaneous Potential
4500

119°

Density Caliper

Gamma Ray

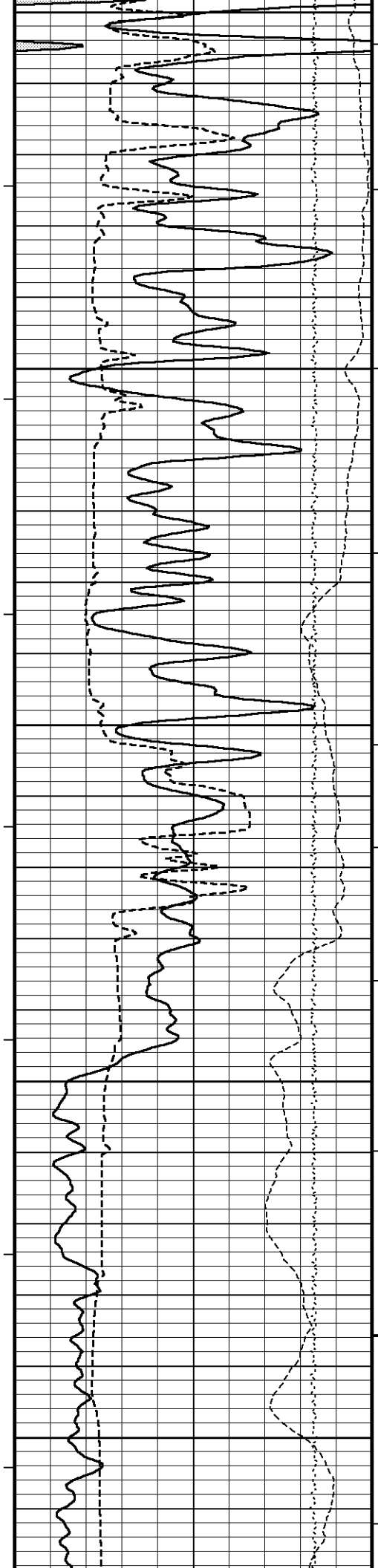
DST Uphole Tension

Array Ind. One Res Rt

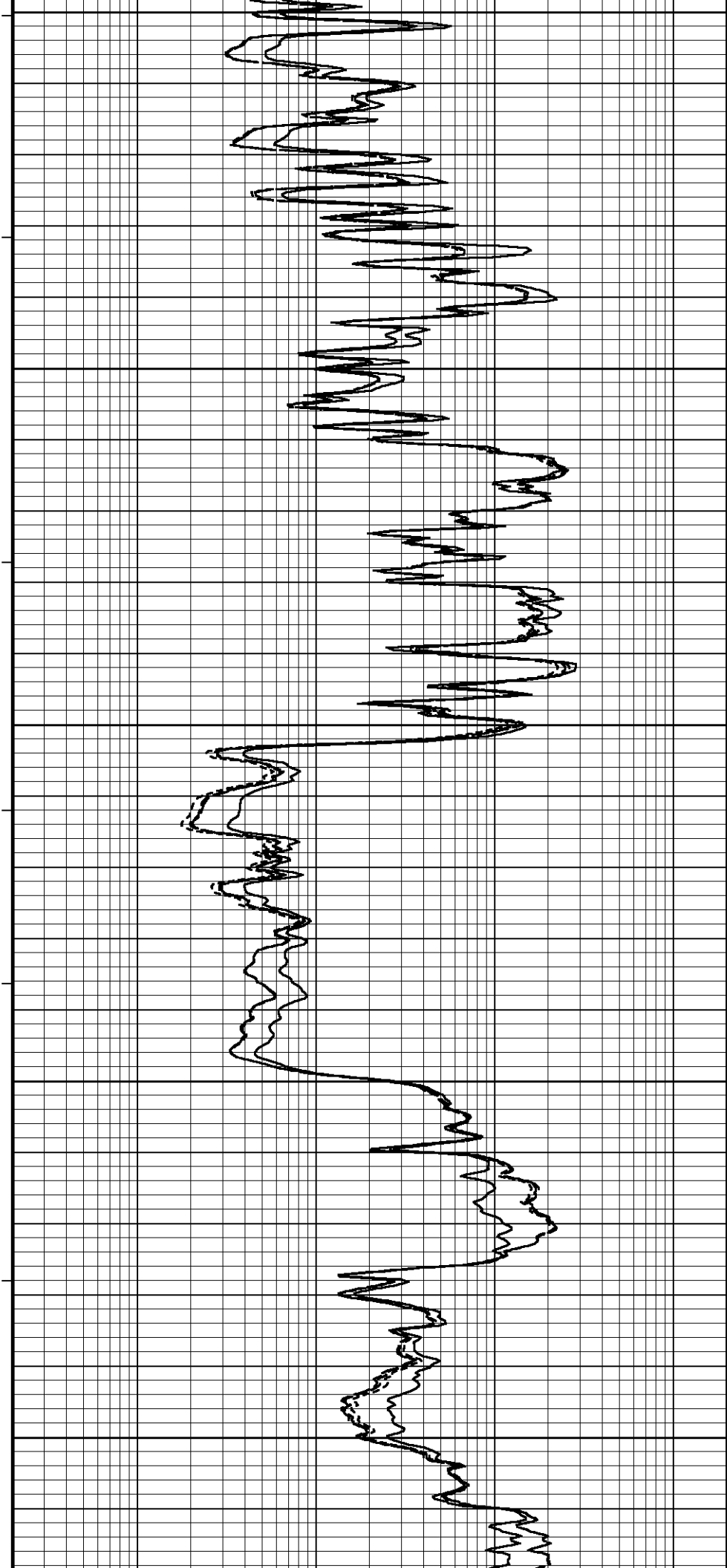
Array Ind. One Res 60

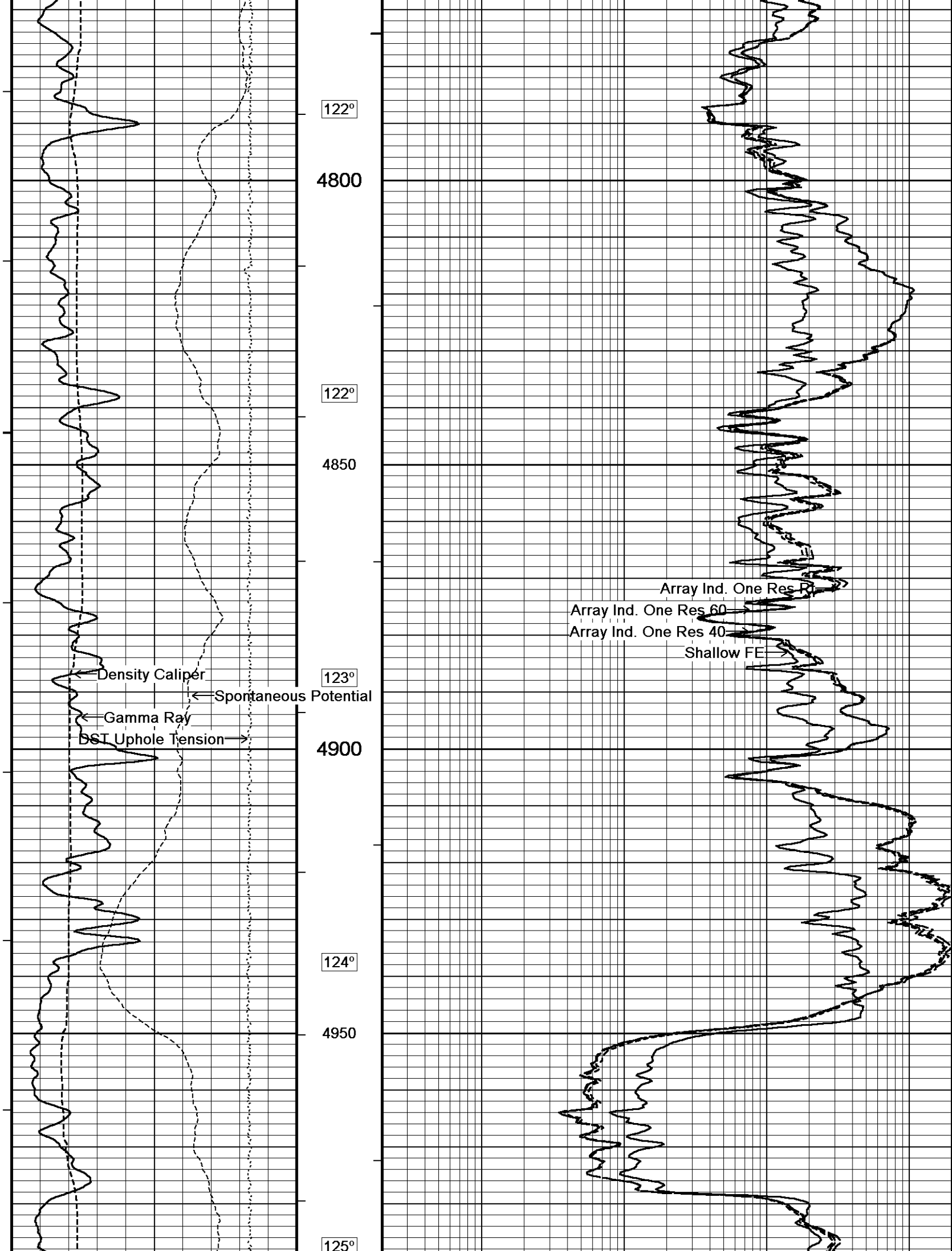
Array Ind. One Res 40

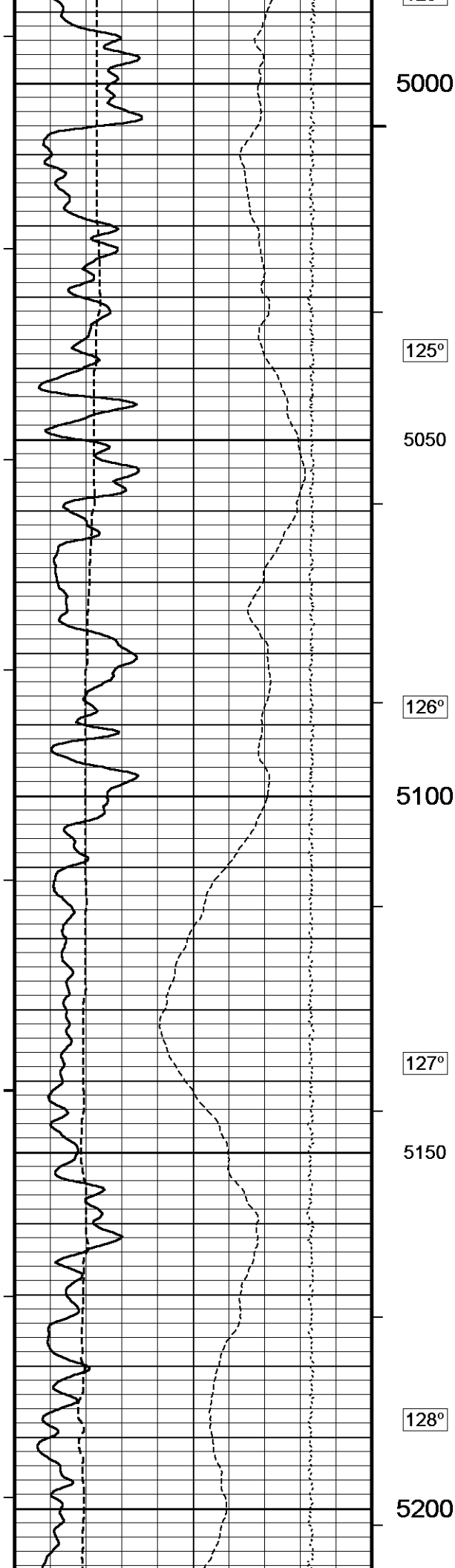
Shallow FE



4550
120°
4600
120°
4650
121°
4700
122°
4750







5000

125°

5050

126°

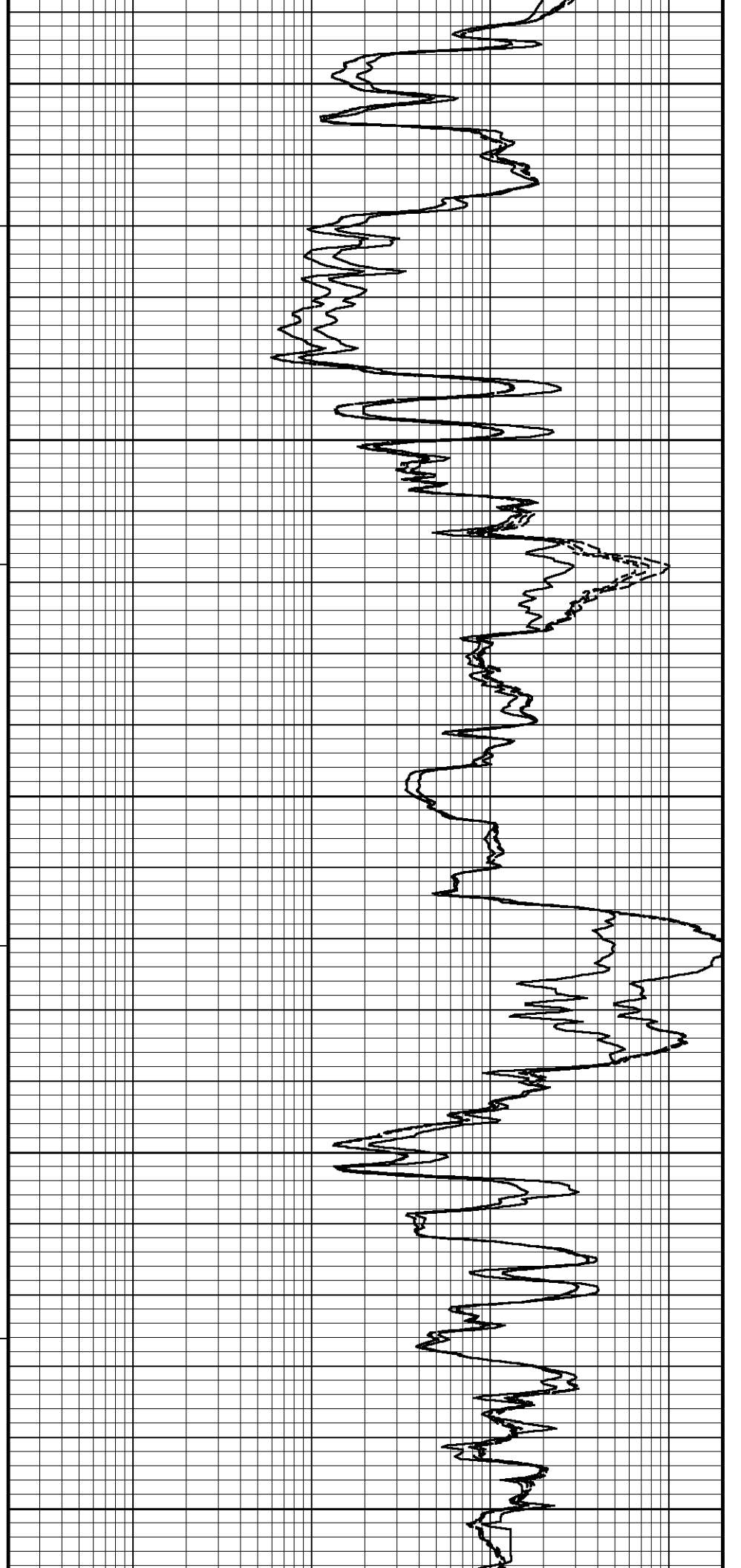
5100

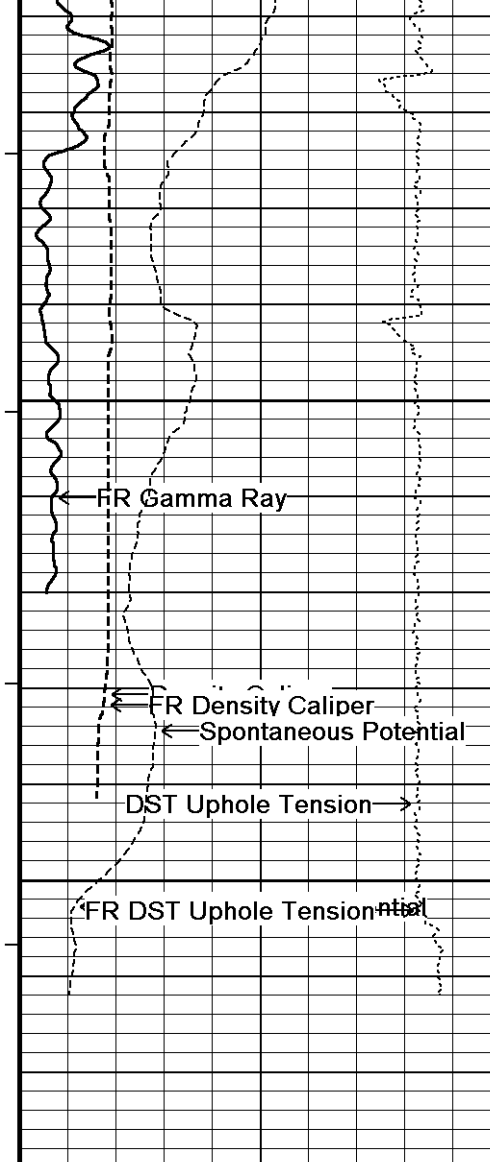
127°

5150

128°

5200





128°

5250

5300

5328

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
75

Spontaneous Potential
millivolts
- - -> | 20 | < - +

Density Caliper
inches
6 11 16

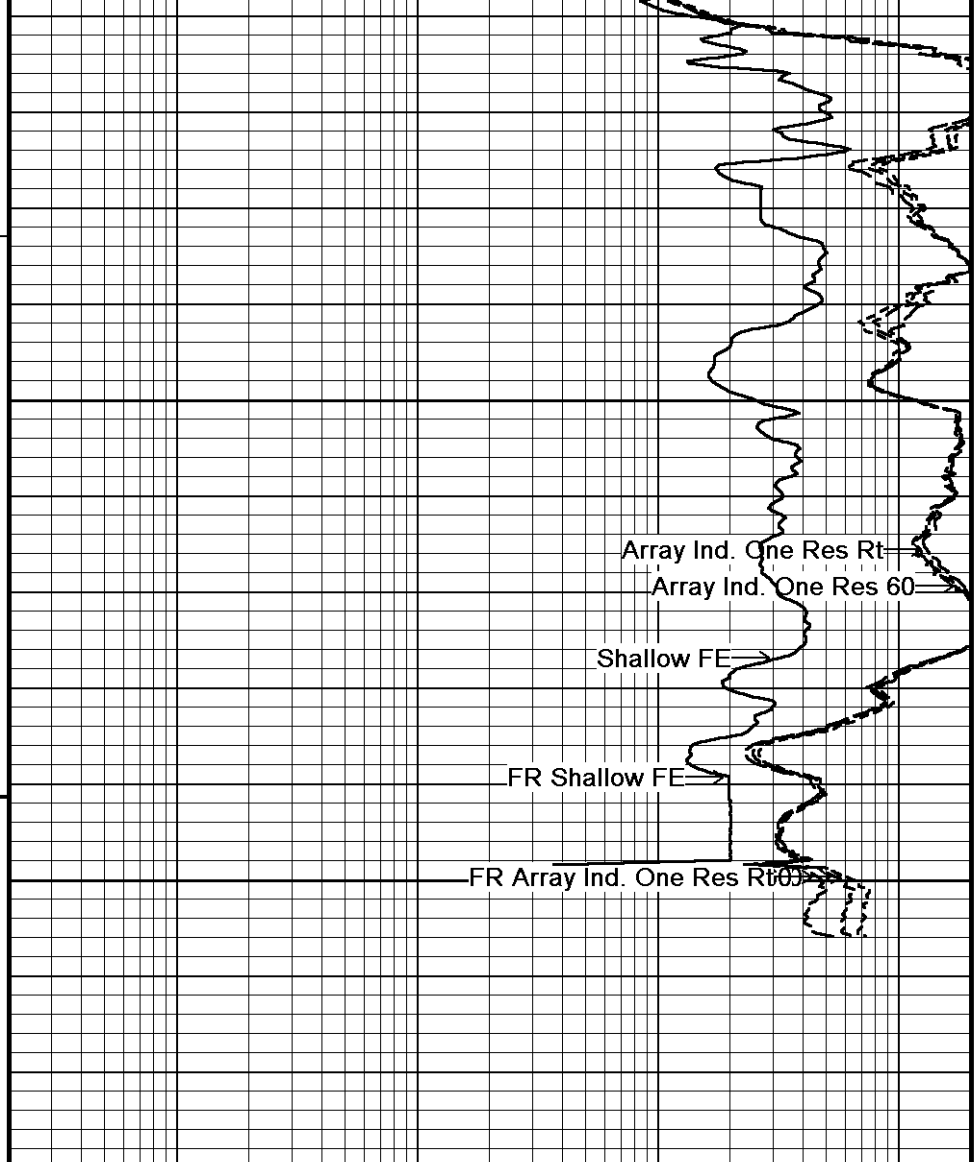
DST Uphole Tension
pounds
5000 0

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240



Shallow FE
ohm metres

0.20 1 10 100 1000 2000

Array Ind. One Res 40
ohm metres

0.20 1 10 100 1000 2000

Array Ind. One Res 60
ohm metres

0.20 1 10 100 1000 2000

Array Ind. One Res Rt
ohm metres

0.20 1 10 100 1000 2000

↑

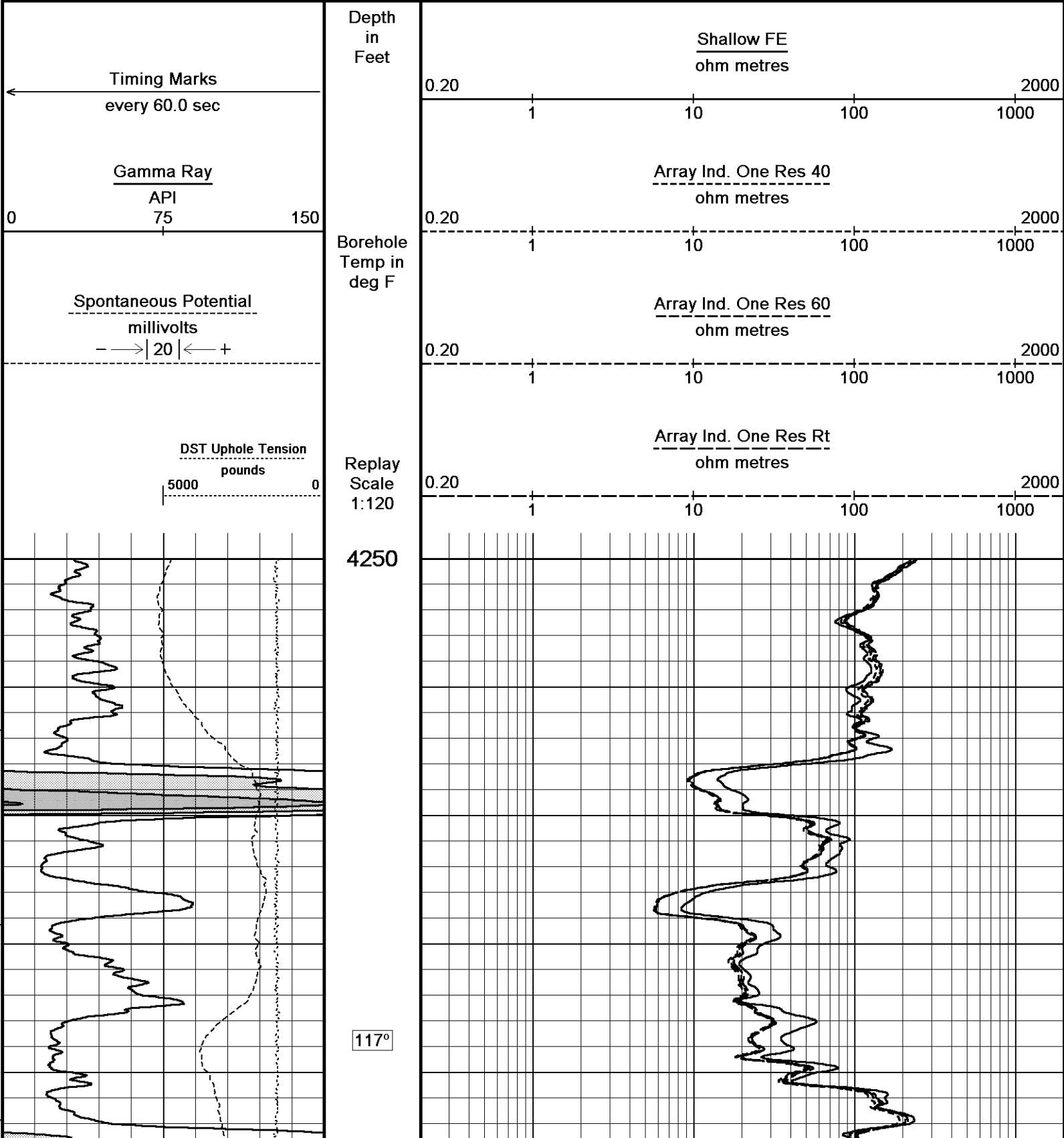
5 INCH MAIN PASS

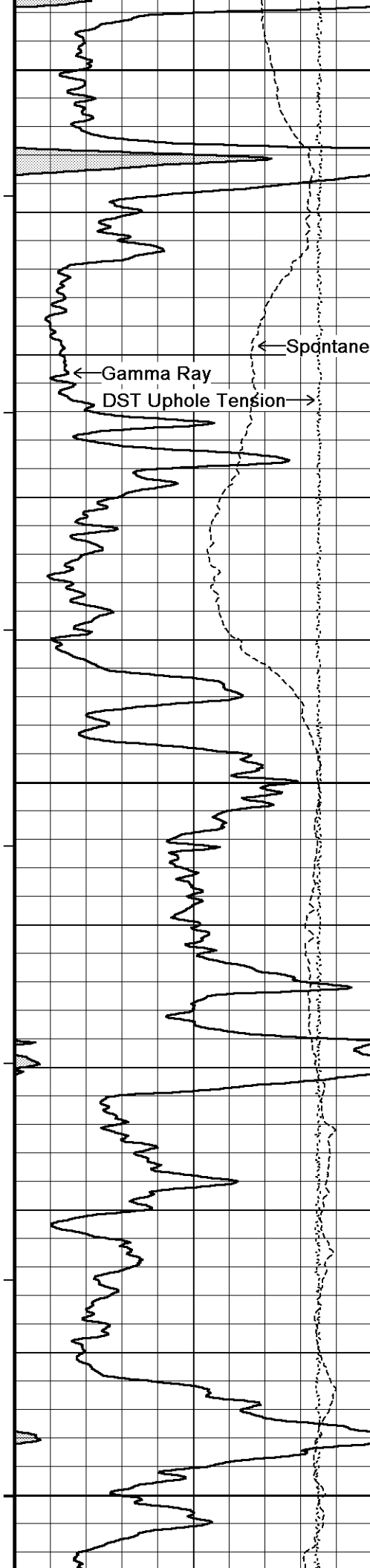
↑

↓

10 INCH HI-RES

↓





4300

← Spontaneous Potential

← Gamma Ray
DST Uphole Tension →

117°

4350

117°

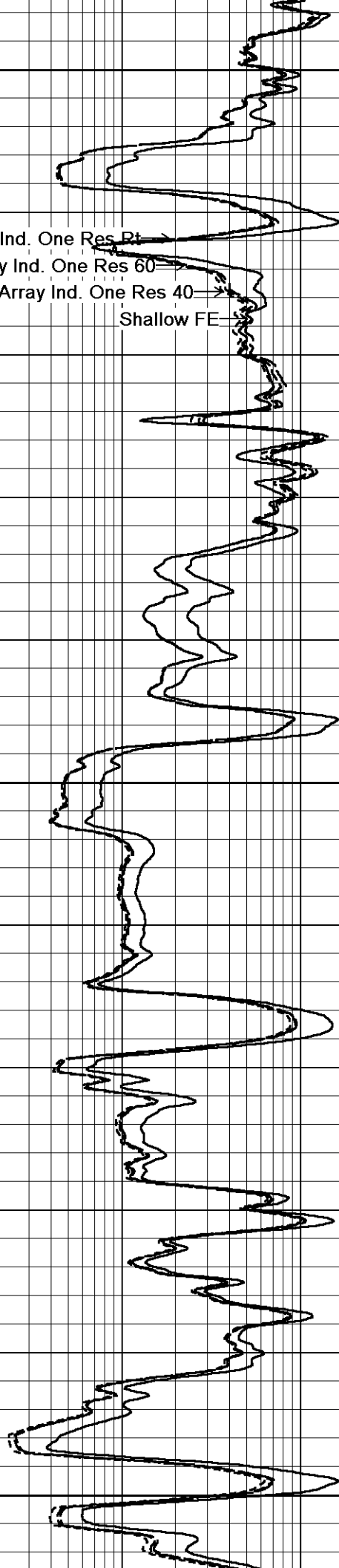
4400

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE





118°

4450

118°

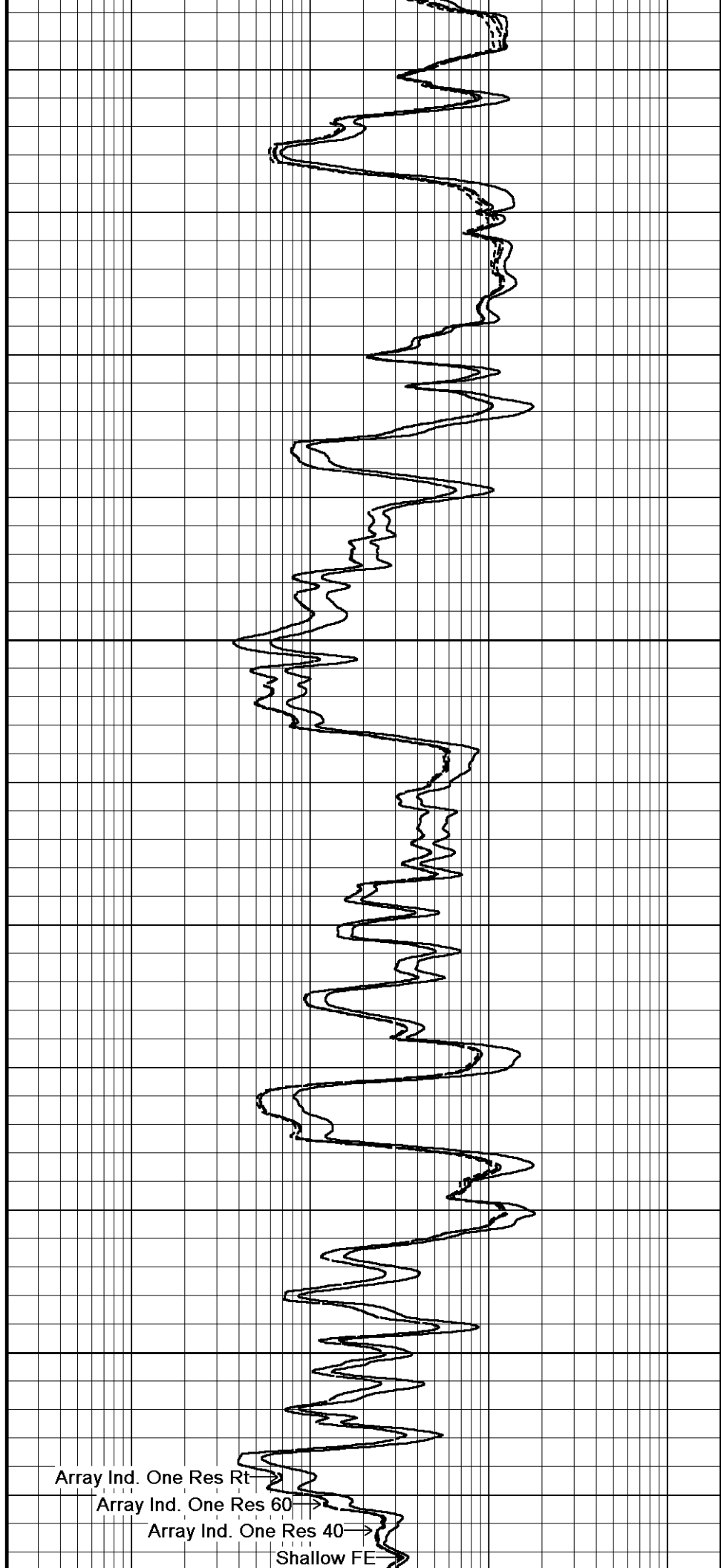
4500

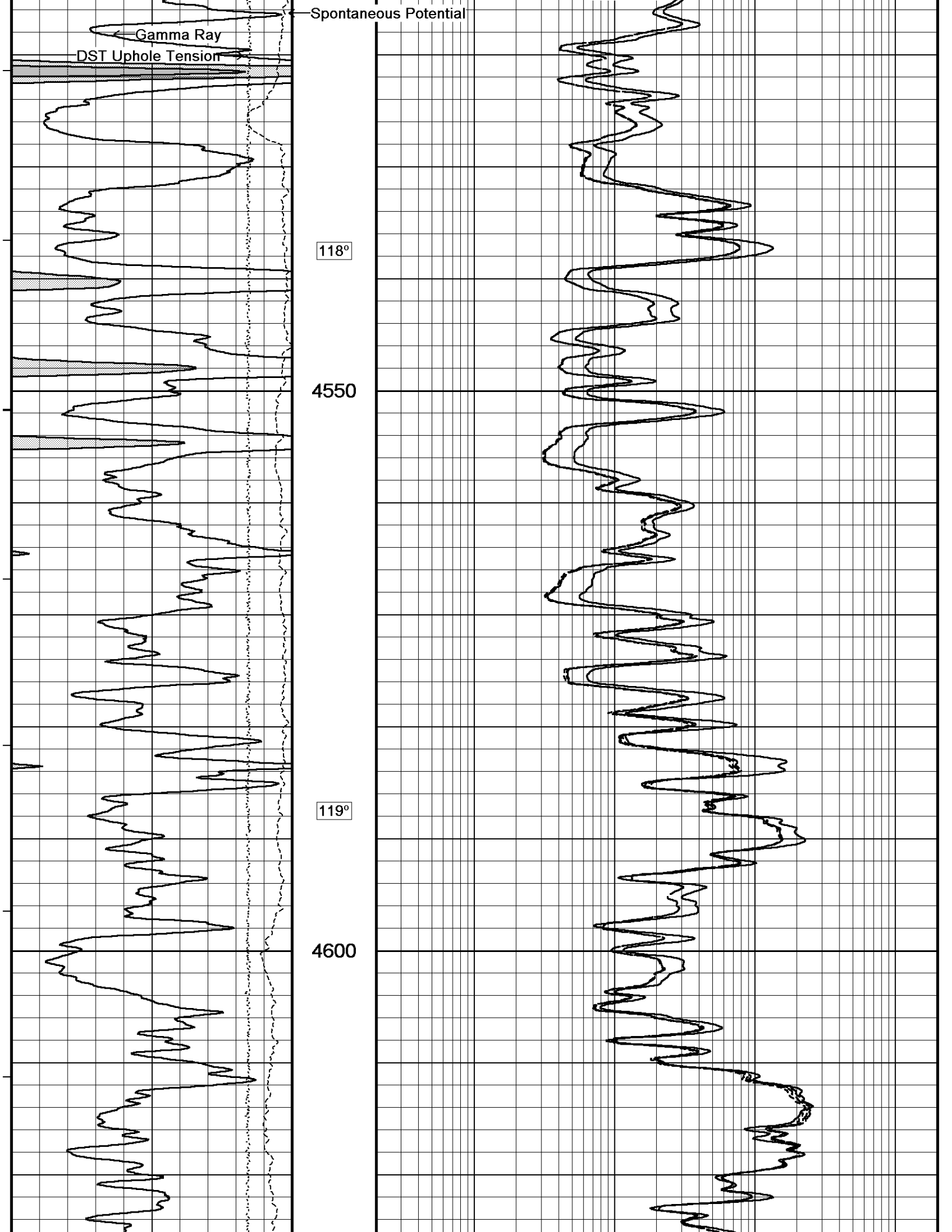
Array Ind. One Res Rt →

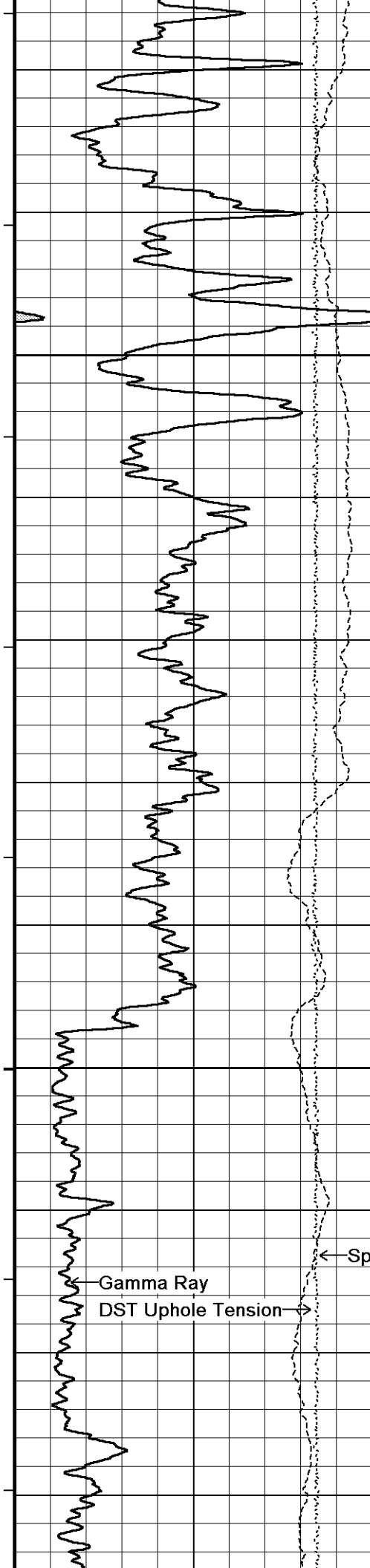
Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow FE







119°

4650

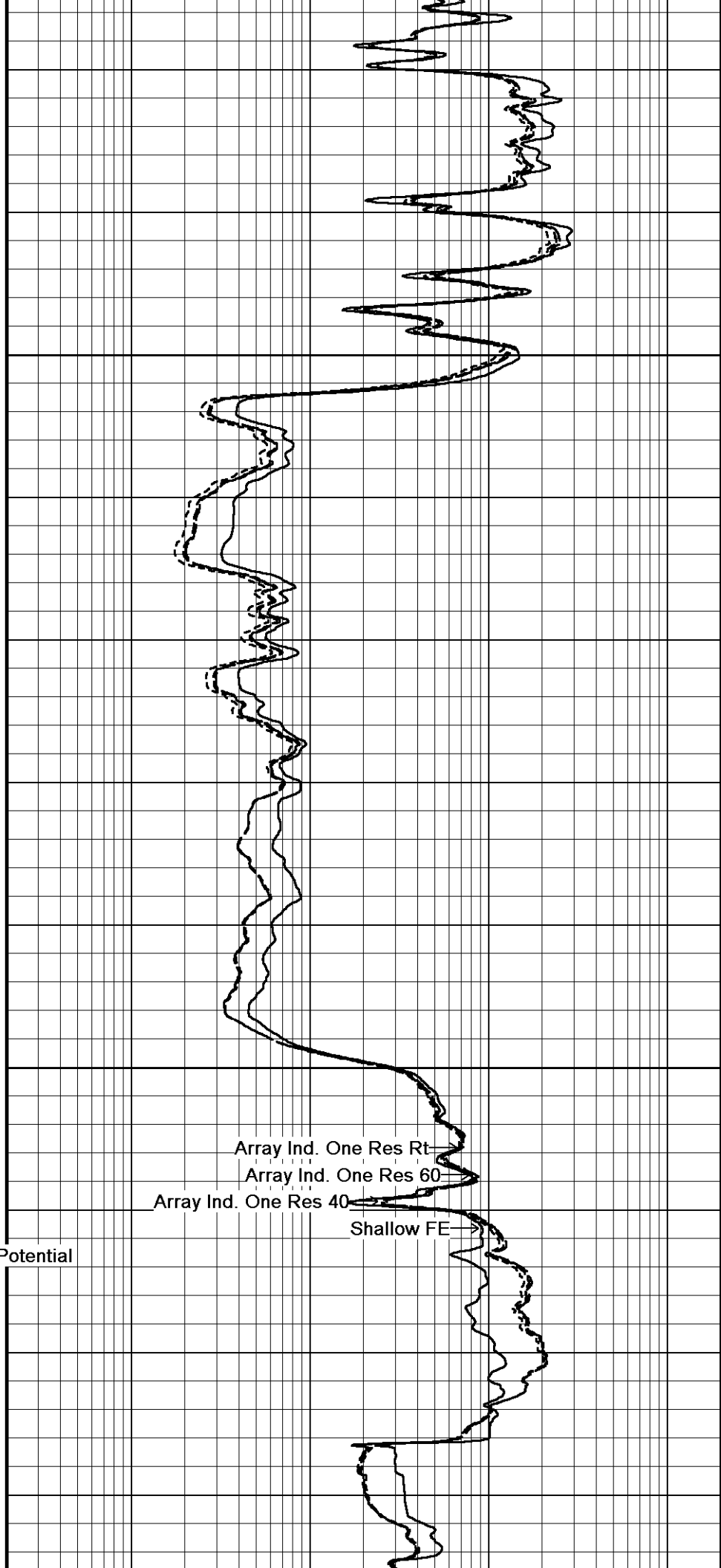
121°

4700

Gamma Ray

DST Uphole Tension

← Spontaneous Potential

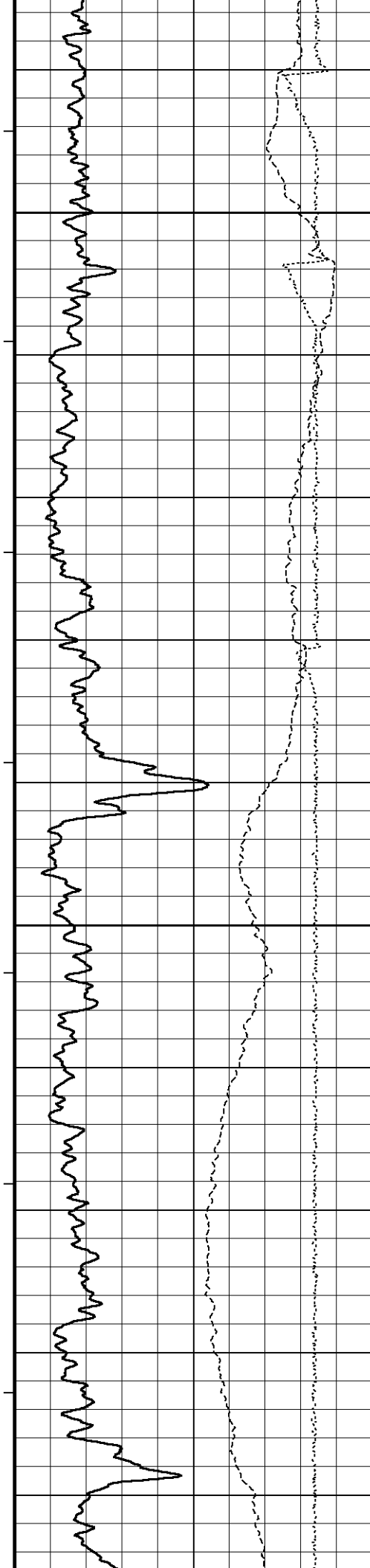


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE



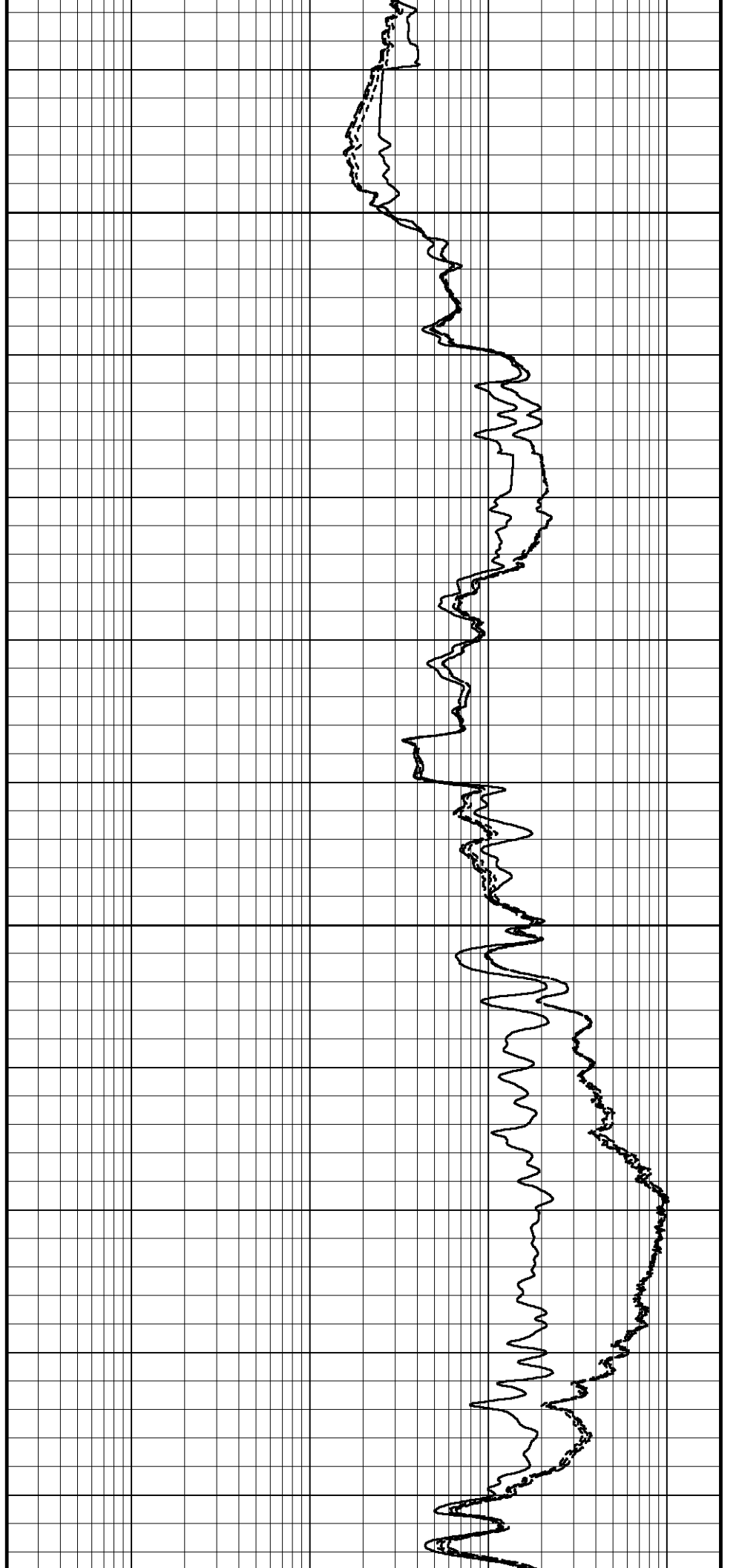
121°

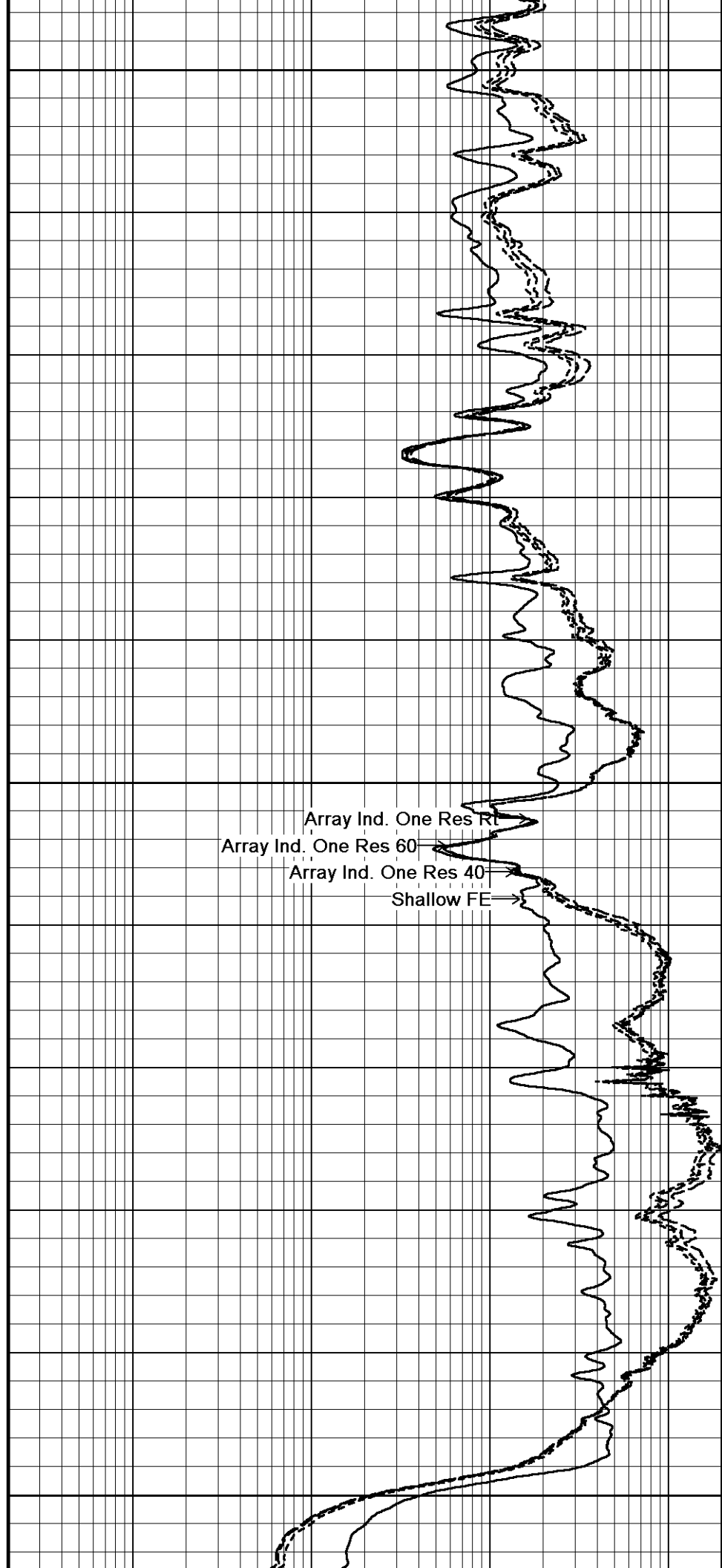
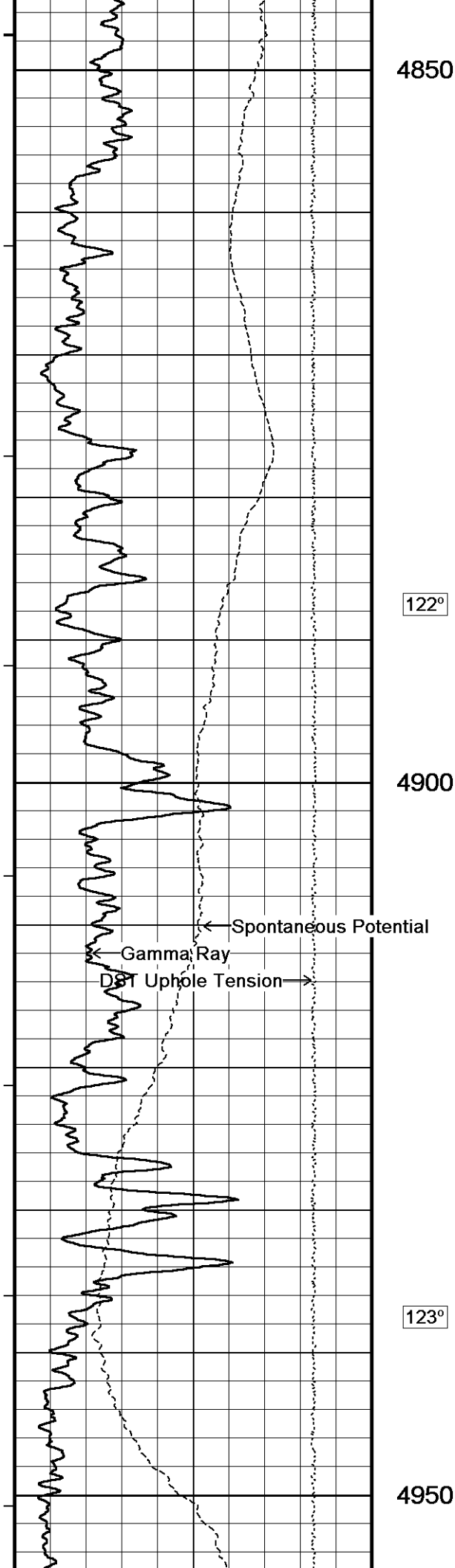
4750

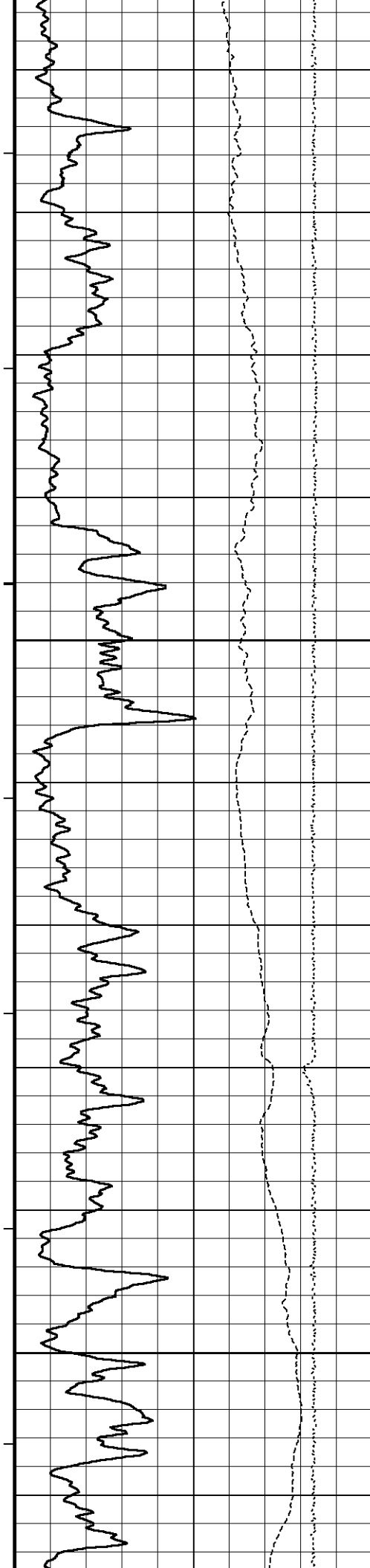
121°

4800

121°





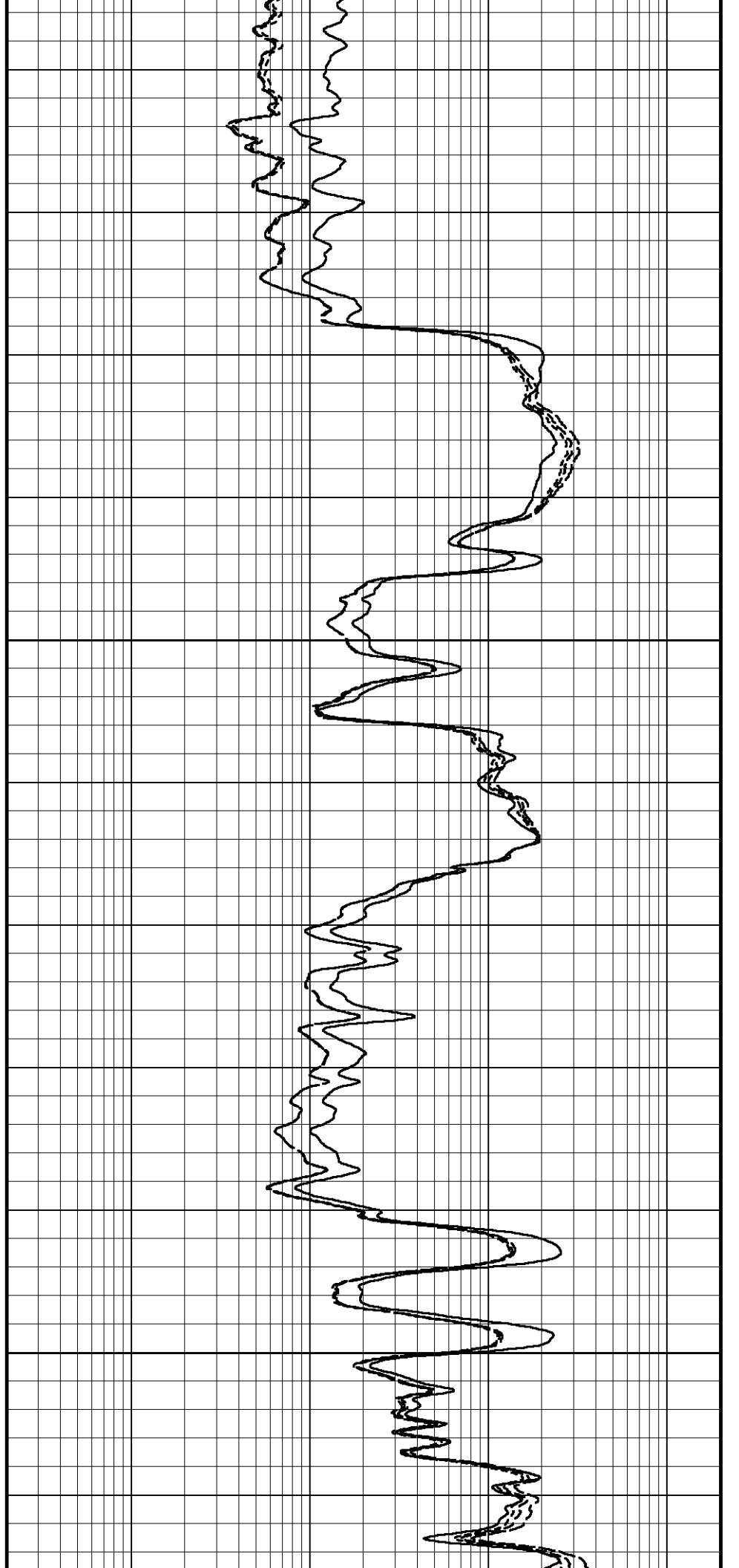


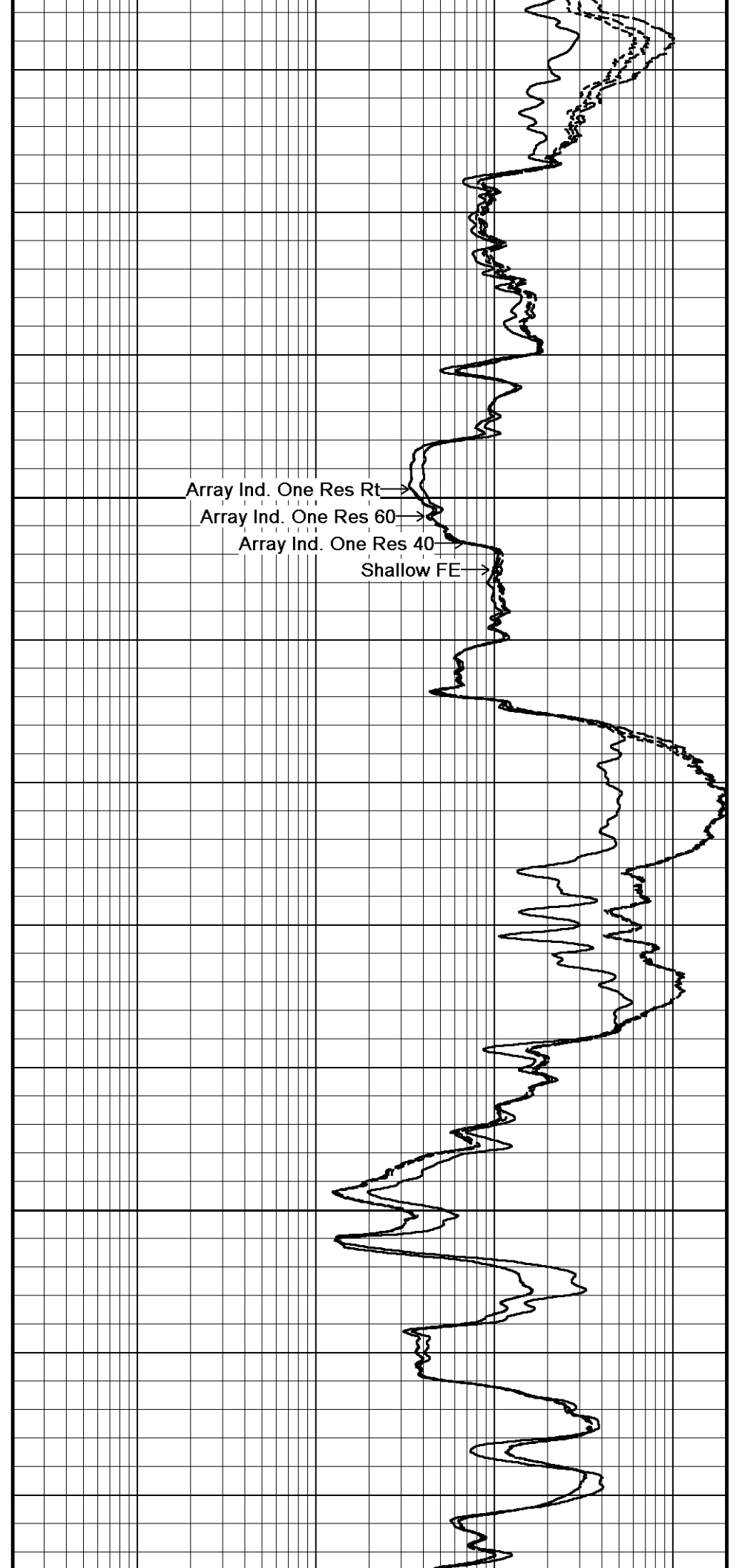
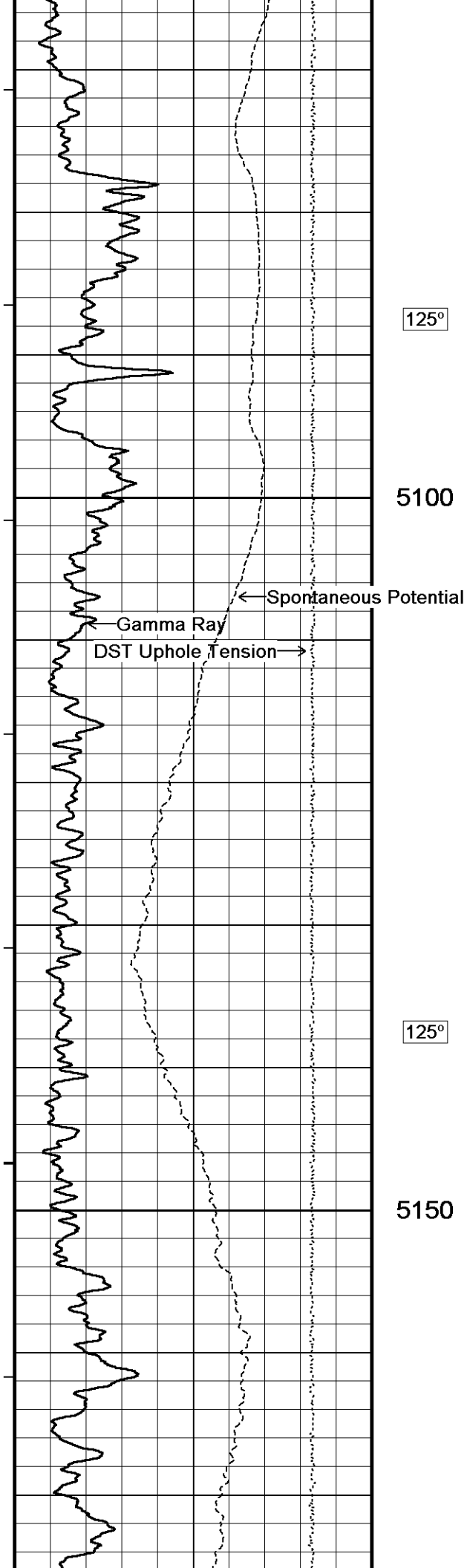
123°

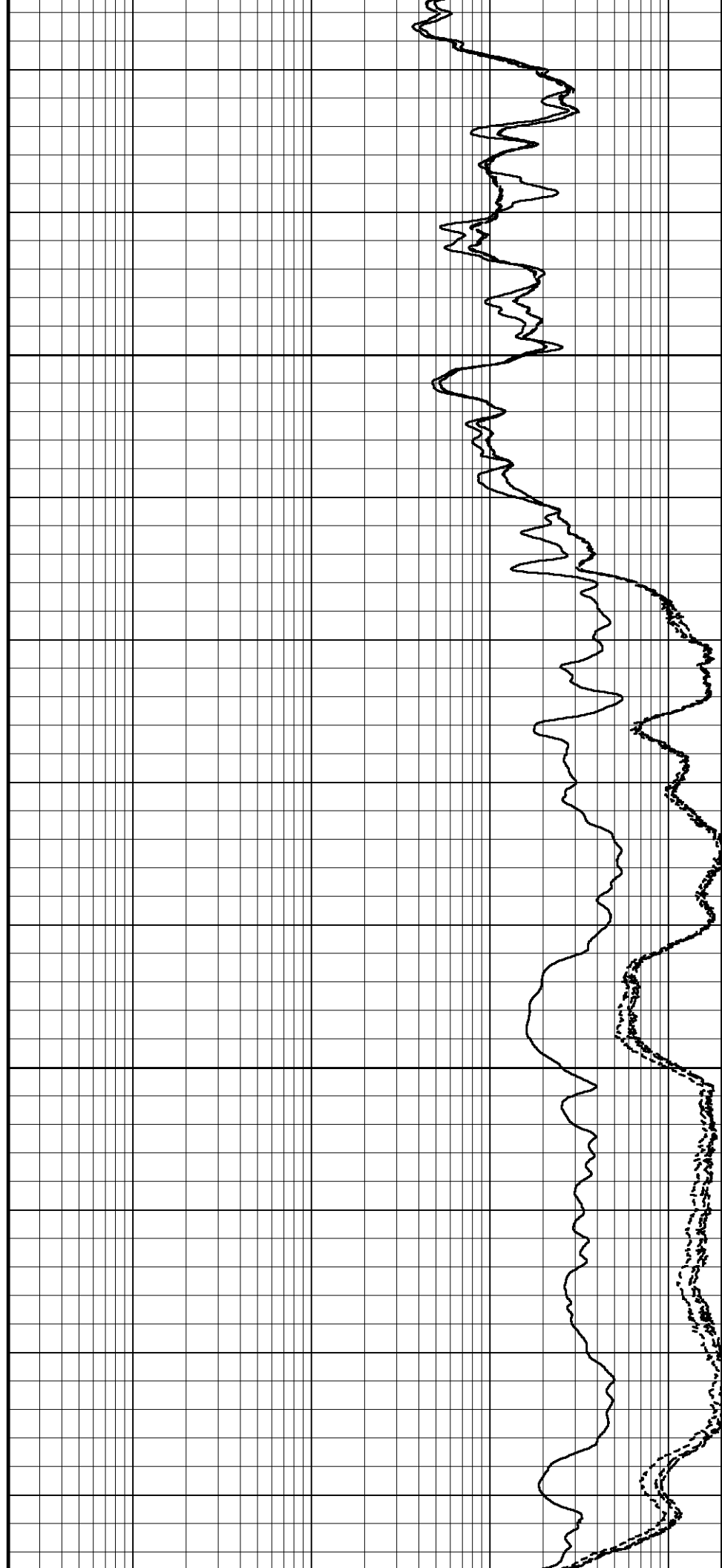
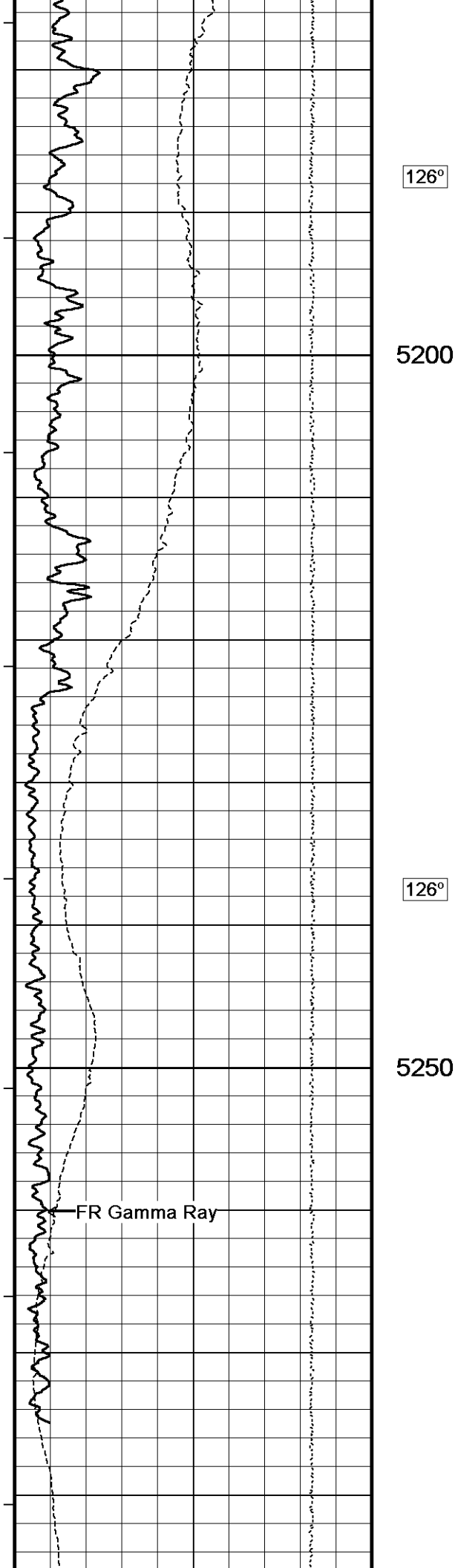
5000

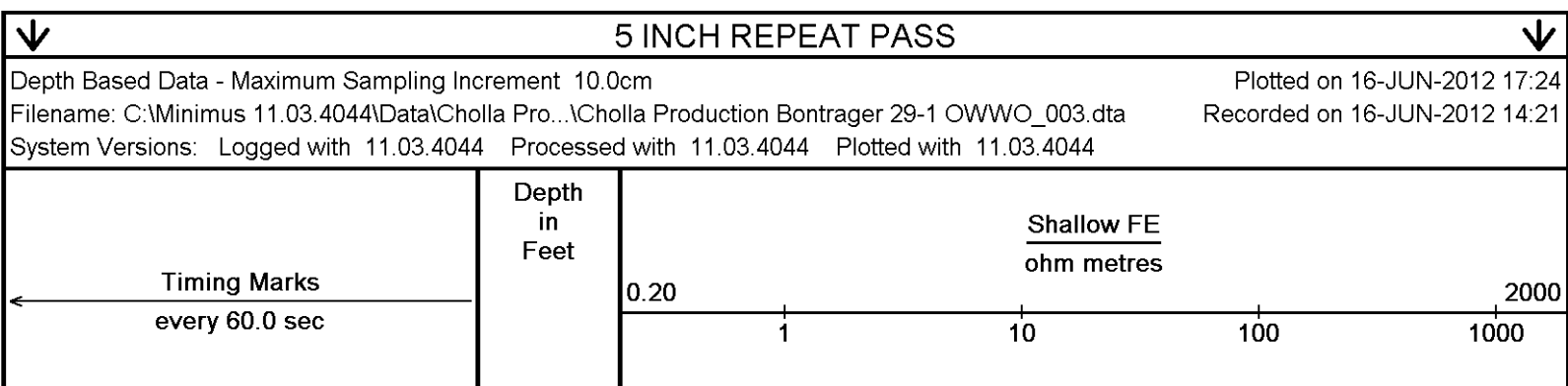
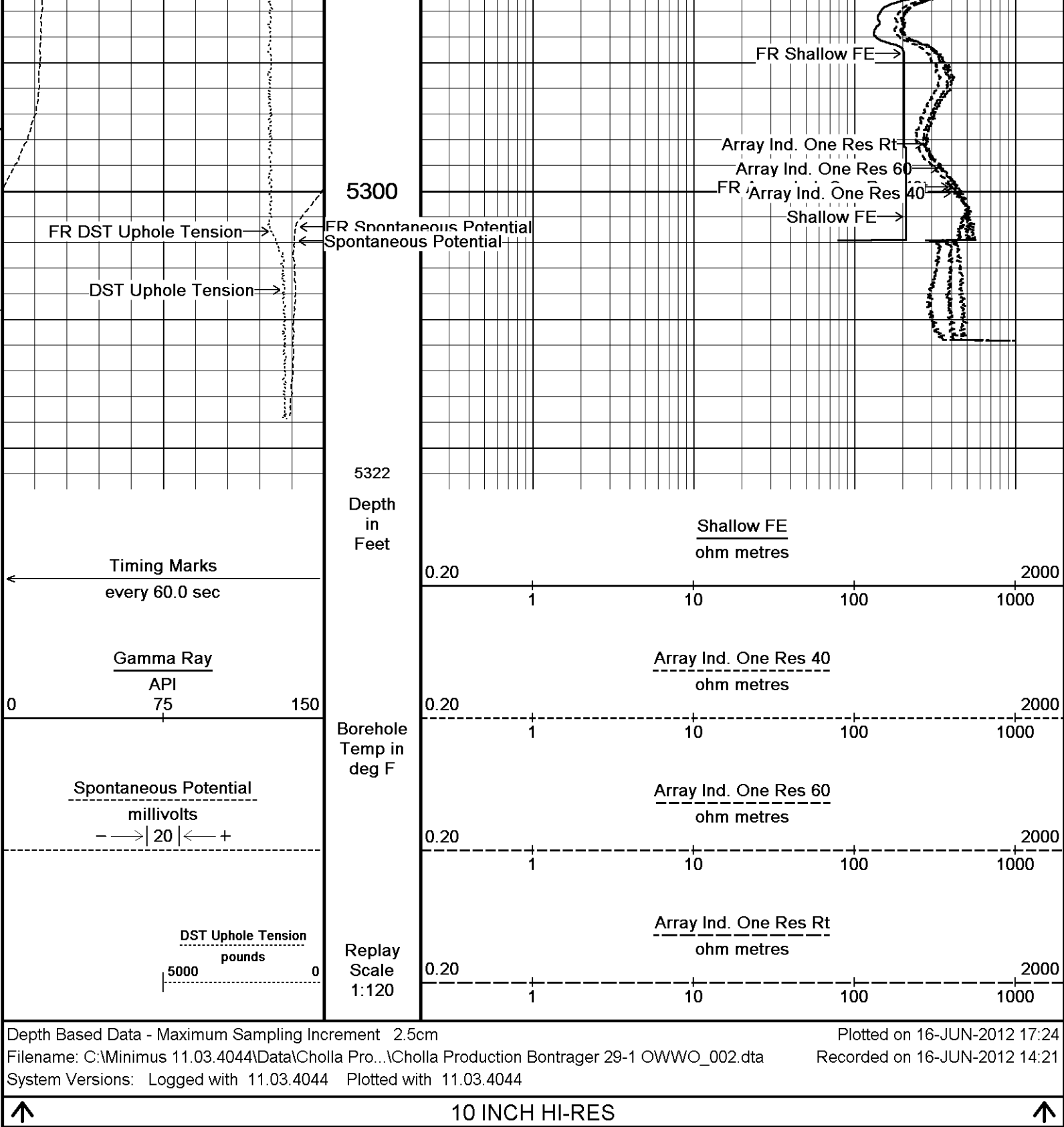
124°

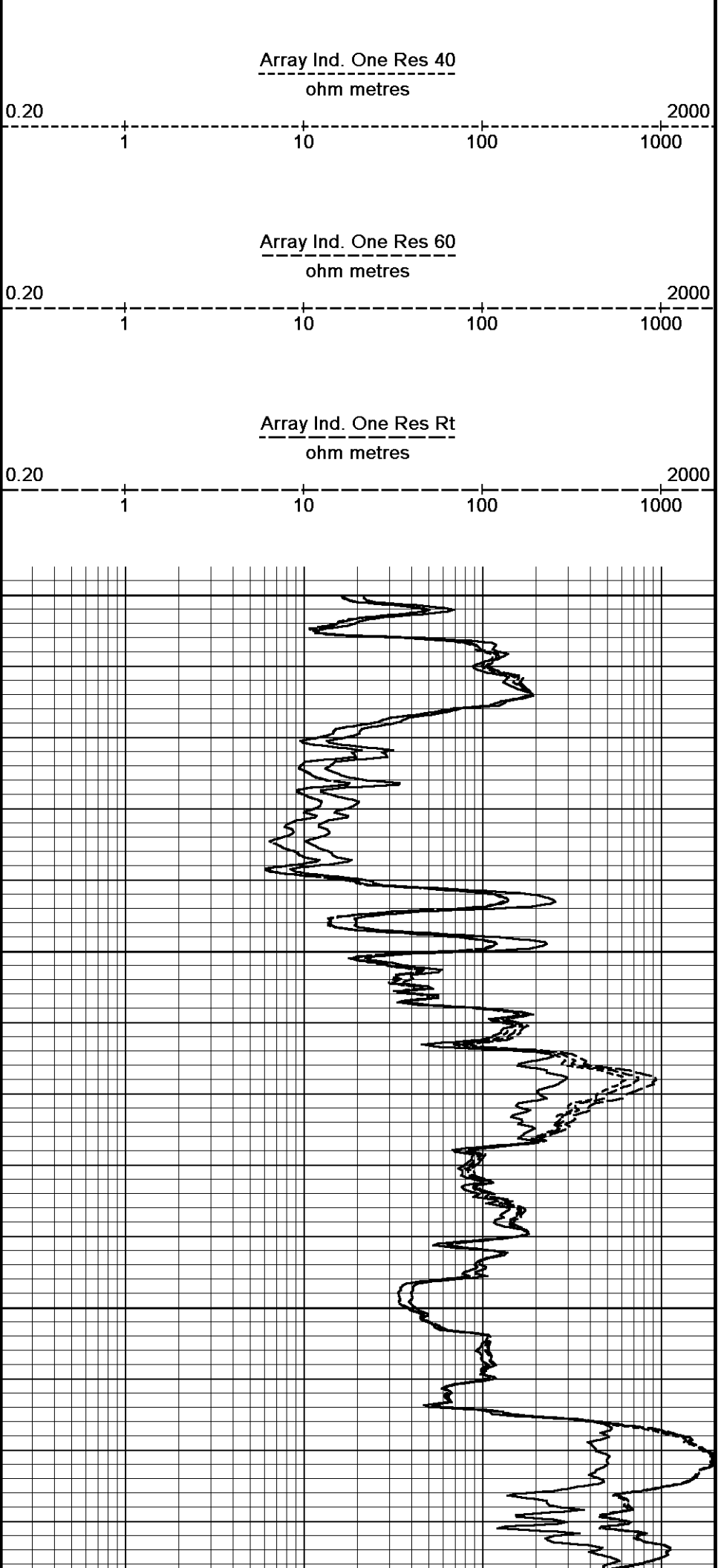
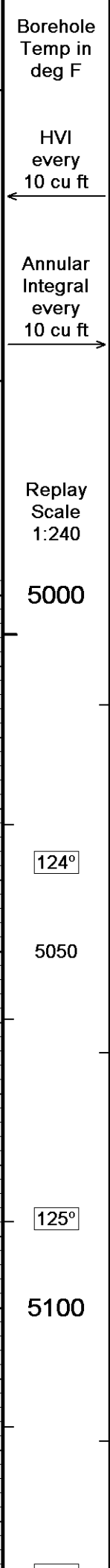
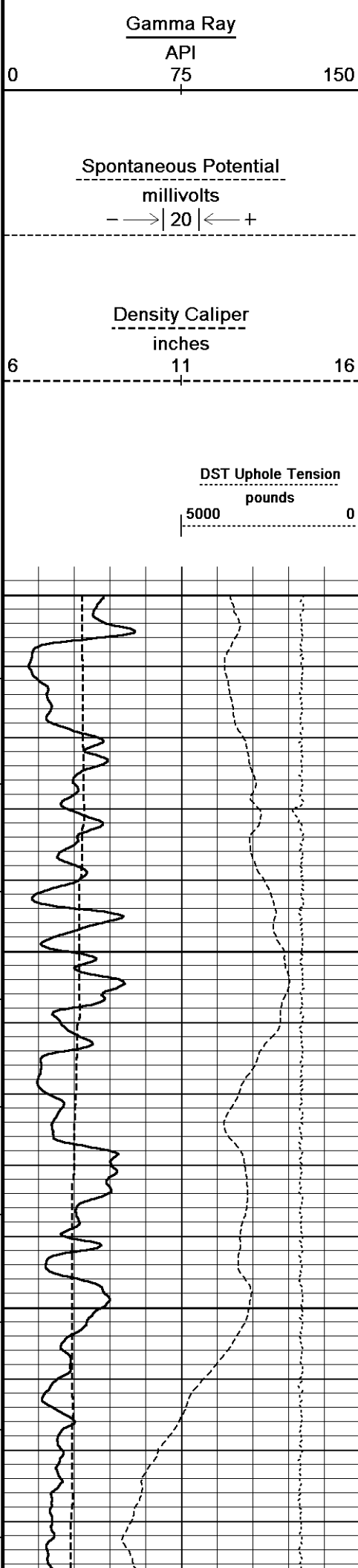
5050

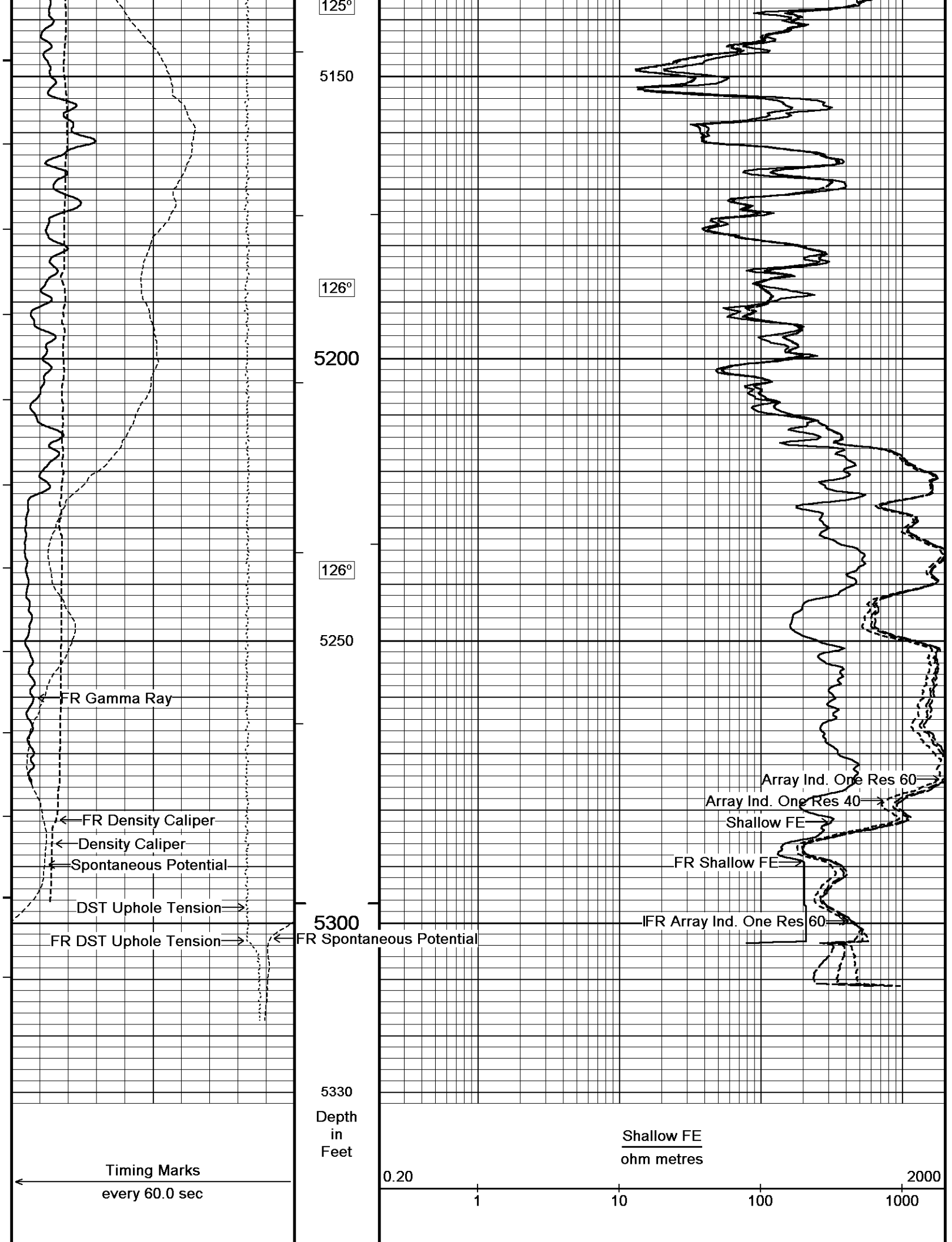


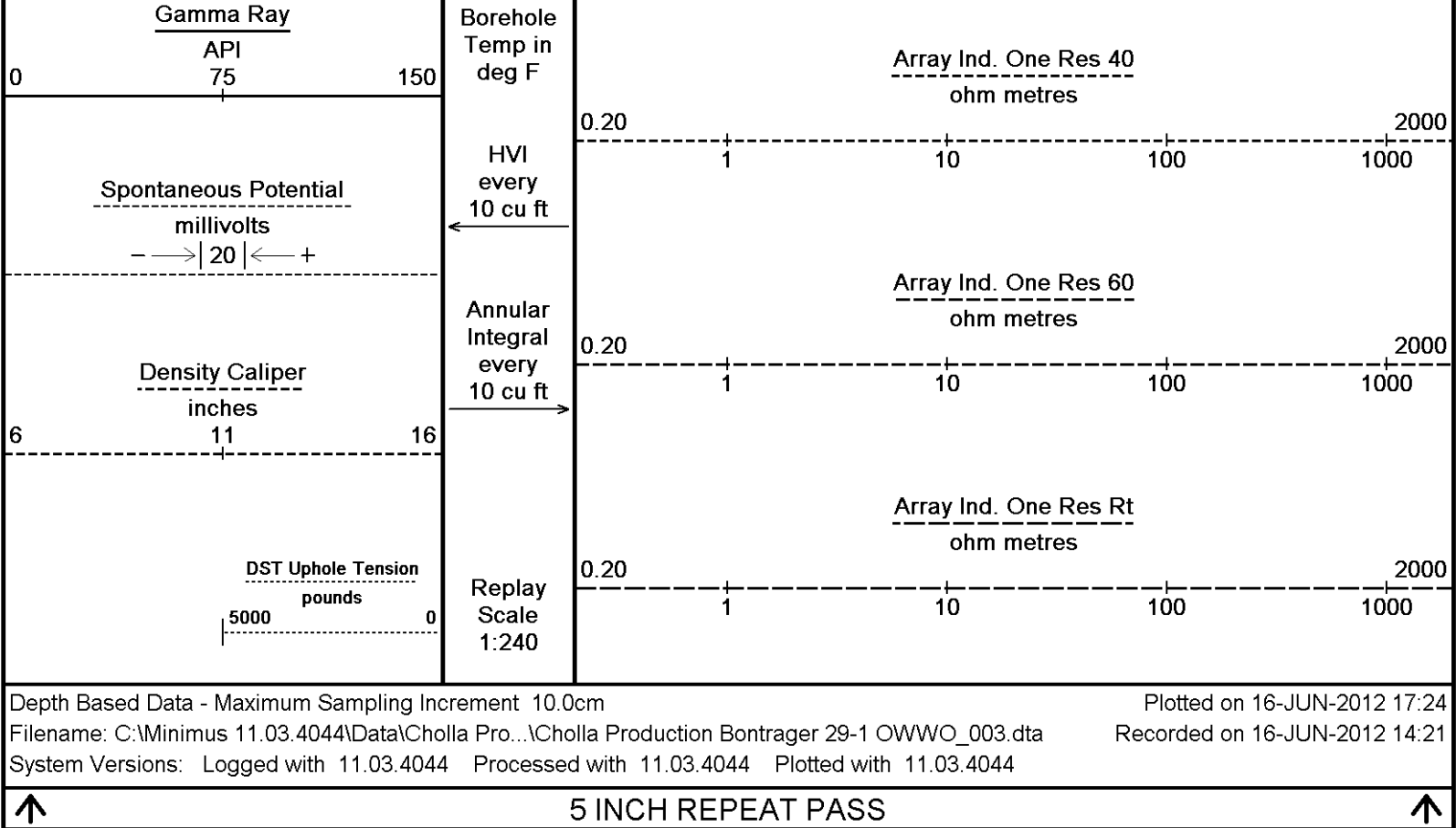












BEFORE SURVEY CALIBRATION			
C:\Minimus 11.03.4044\Data\Cholla Production Bontrager 29-1 OWWO\Cholla Production Bontrager 29-1 OWWO_001.dta			
General Constants All 000		Last Edited on 16-JUN-2012,07:58	
General Parameters			
Mud Resistivity	0.730	ohm-metres	
Mud Resistivity Temperature	91.000	degrees F	
Water Level	0.000	feet	
Density/Neutron 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	5.500	inches	
Caliper for Differential Caliper	Density Caliper		
Rwa Parameters			
Porosity used	Base Density Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		
Down-hole Tension Calibration SMS 0		Field Calibration on 12-JUN-2012 09:35	
Reading No	Measured	Calibrated (lbs)	
1	13926.45	0.00	
2	13949.48	240.30	
Gamma Calibration MCG-C 84		Field Calibration on 15-JUN-2012 09:03	
	Measured	Calibrated (API)	
Background	69	46	
Calibrator (Gross)	1149	771	
Calibrator (Net)	1080	725	
Gamma Constants MCG-C 84		Last Edited on 16-JUN-2012,07:56	

Gamma Calibrator Number	GR38		
Mud Density	1.09	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
SP Calibration MCG-C 84			
	Measured	Calibrated (mV)	Field Calibration on 28-MAY-2012,07:31
Reference 1	103.5	100.0	
Reference 2	-96.9	-100.0	
High Resolution Temperature Calibration MCG-C 84			
	Measured	Calibrated(Deg F)	Field Calibration on 28-MAY-2012,07:32
Lower	50.00	50.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG-C 84			Last Edited on
Pre-filter Length	11		
Caliper Calibration MML-A 16			
			Base Calibration on 23-MAY-2012 11:59
			Field Calibration on 15-JUN-2012 08:53
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14501	5.98	
2	17771	7.97	
3	21107	9.86	
4	24905	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.98	5.98	
Micro Normal and Micro Inverse Calibration MML-A 16			
			Base Calibration on 23-MAY-2012 12:04
			Field Check on 15-JUN-2012 08:55
Base Calibration			
	Measured	Calibrated (ohm-m)	
Channel	Resistor 1 Resistor 2	Resistor 1 Resistor 2	
Micro Normal	12.2 60.2	5.0 25.0	
Micro Inverse	15.6 78.3	5.0 25.0	
Channel	Base Check (ohm-m)	Field Check (ohm-m)	
Micro Normal	62.9	62.9	
Micro Inverse	48.2	48.2	
Micro Normal and Micro Inverse Constants MML-A 16			
			Last Edited on 13-JUN-2012,14:27
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	N/A	inches	
Neutron Calibration MDN-A.B 65			
			Base Calibration on 23-MAY-2012 14:31
			Field Check on 15-JUN-2012 09:11
Base Calibration			
	Measured	Calibrated (cps)	
	Near Far	Near Far	
	3164 98	3714 110	
Ratio	32.187	33.764	
Field Calibrator at Base		Calibrated (cps)	
		1615 2315	
Ratio		0.697	
Field Check		Calibrated (cps)	
		1619 2335	
Ratio		0.693	
Neutron Constants MDN-A.B 65			Last Edited on 15-JUN-2012,09:05

Neutron Source Id	PN-521	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
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
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 55

Base Calibration on 23-MAY-2012 09:37

Field Check on 15-JUN-2012 08:42

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	951.5	126.8
Base Check		281.5
Field Check		281.5

FE Constants MFE-A.A 55

Last Edited on 16-JUN-2012,07:56

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	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 45

Base Calibration on 12-JAN-2012,13:34

Field Check on 15-JUN-2012 08:39

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	79.4	Deg F
-------------------	------	-------

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	18.4	3852.2
2	0.0	0.0	31.7	3630.1
3	0.0	0.0	28.6	3049.8
4	0.0	0.0	18.3	2079.3
Deep	0.0	0.0	16.0	1911.1
Medium	0.0	0.0	42.5	4061.3
Shallow	0.0	0.0	49.6	5484.6

Array Temperature	0.0	72.3	Deg F
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Induction Constants MAI-A.A 45

Last Edited on 16-JUN-2012,07:56

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	

High Resolution Temperature Calibration MAI-A.A 45			Field Calibration on 12-JAN-2012,13:36
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI-A.A 45		Last Edited on 12-JAN-2012,11:13
Pre-filter Length	11	

Caliper Calibration MPD-B 59			Base Calibration on 13-JUN-2012 09:13
			Field Calibration on 15-JUN-2012 08:44
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	17499	3.99	
2	27390	5.98	
3	37376	7.97	
4	47038	9.86	
5	58183	11.92	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.98	5.98	

Photo Density Calibration MPD-B 59				Base Calibration on 16-MAY-2012 14:49	
				Field Check on 15-JUN-2012 08:51	
Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
	Near	Far	Near	Far	
Reference 1	49293	24802	59556	30836	
Reference 2	20819	2436	24941	2541	
Field Check at Base					
	1213.5	1290.5			
Field Check					
	1226.1	1295.9			
PE Calibration					
Base Calibration		Measured		Calibrated	

	WS	WH	Ratio	Ratio
Background	220	1092		
Reference 1	18022	49118	0.371	0.371
Reference 2	5449	20689	0.267	0.272

Field Check at Base
220.3 1091.9

Field Check
213.7 1106.6

Density Constants MPD-B 59

Last Edited on 16-JUN-2012,07:56

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 1.09 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 (ft)
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

DOWNHOLE EQUIPMENT

C:\Minimus 11.03.4044\Data\Cholla Production Bontrager 29-1 OWWO\Cholla Production Bontrager 29-1 OWWO_001.dta

Compact Comms Gamma
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Comms Gamma
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

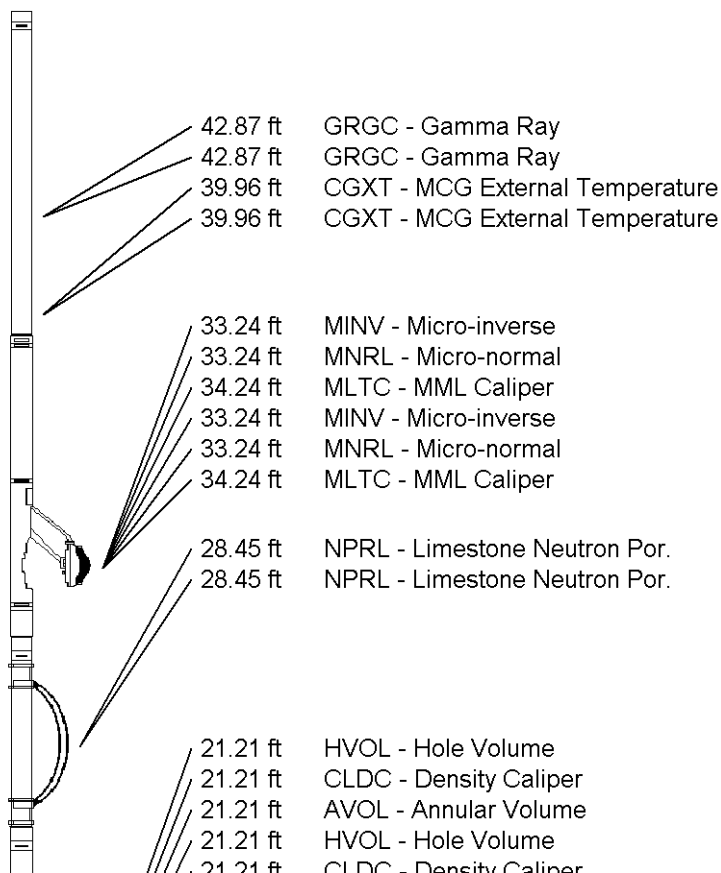
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 59 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Density/Caliper
MPD-B 59 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-A 155 LG: 9.25 ft WT: 119.5 lb OD: 2.24 in



MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Focused Electric

MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

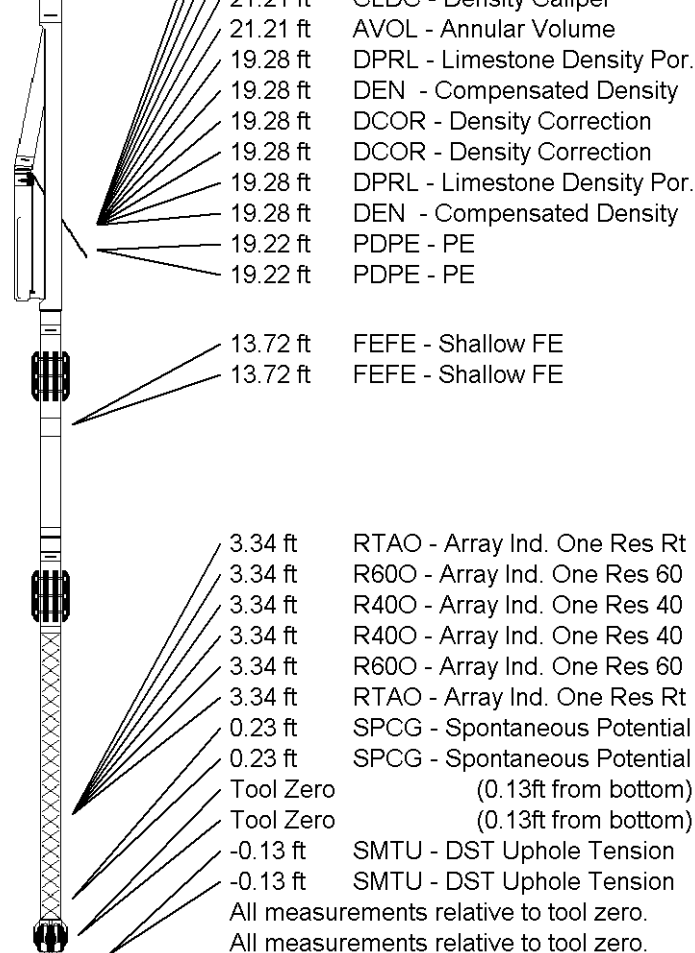
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 48.16 ft Weight: 383.6 lb

Total Length: 48.16 ft Weight: 383.6 lb



COMPANY CHOLLA PRODUCTION LLC

WELL BONTRAGER #29-1 OWWO

FIELD WILDCAT

PROVINCE/COUNTY SCOTT

COUNTRY/STATE U.S.A. / KANSAS

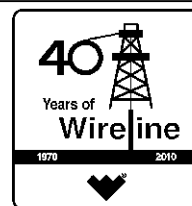
Elevation Kelly Bushing	2993.00	feet	First Reading	5300.00	feet
Elevation Drill Floor	2992.00	feet	Depth Driller	5296.00	feet
Elevation Ground Level	2988.00	feet	Depth Logger	5303.00	feet



ARRAY INDUCTION

SHALLOW FOCUSED

ELECTRIC LOG



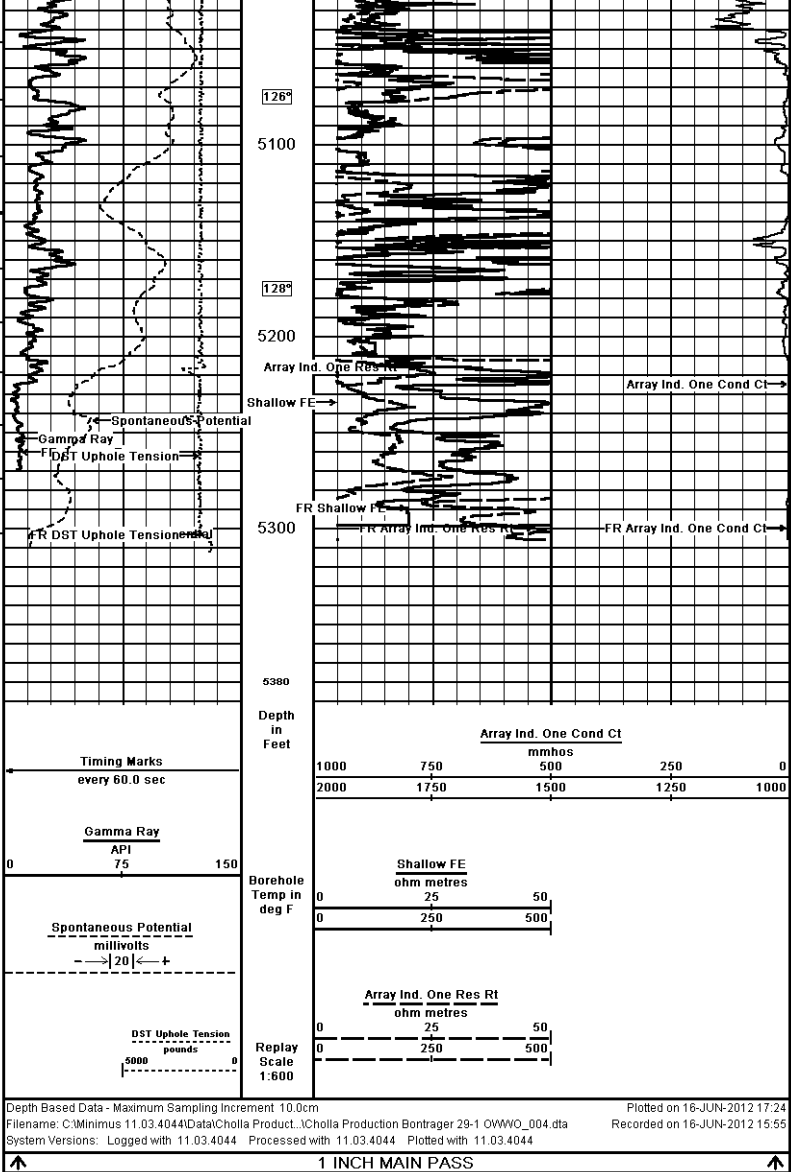
Weatherford		ARRAY INDUCTION SHALLOW FOCUS ELECTRIC LOG	
COMPANY	CHOLLA PRODUCTION LLC	WELL	BONTRAGER #29-1 OWWO
FIELD	WILDCAT	PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KANSAS	LOCATION	2305' FNL & 2142' FEL NE SW SW NE
SEC	19S	TWP	33N
RANGE	15-171-20742	Other Services	MMML
Log Number	15-171-20742	Permanent Datum O.L. Elevation	2988 feet
Log Measured From	K-B	Drilling Measured From	K-B
Date	16-JUN-2012	Run Number	ONE
Depth Driller	5296.00	feet	
Depth Logger	5303.00	feet	
First Reading	5300.00	feet	
Last Reading	4260.00	feet	
Casing Driller	538.00	feet	
Casing Logger	538.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density/Viscosity	9.10 lb/USG	47.00 CP	
PH/Fluid Loss	11.00	8.80 ml/30min	
Sample Source	FLOWLINE		
Run @ Measured Temp	0.73 @ 91.0	oim-m	
Run @ Measured Temp	0.58 @ 91.0	oim-m	
Run @ Measured Temp	0.88 @ 91.0	oim-m	
Source Rmt/ Rmc	CALC		
Run @ BHT	0.52 @ 28.0	oim-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	128.00	deg F	
Equipment Name	COMPACT		
Equipment Base	13057	LIB	
Recorded By	L. SCOTT		
Witnessed By	BILL GOLF		
SOI# / JOB#	3334589		
			1817-150

1 INCH MAIN PASS

Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 11.03.4044\Data\Cholla Product...Cholla Production Bontrager 29-1 OWWO_004.dta
 System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 11.03.4044

Plotted on 16-JUN-2012 17:24
 Recorded on 16-JUN-2012 15:55

Timing Marks every 60.0 sec	Depth in Feet	Array Ind. One Cond Ct
		mmhos
		1000 750 500 250 0
		2000 1750 1500 1250 1000
Gamma Ray API 0 75 150		
Spontaneous Potential millivolts - -> 20 <- +		
DST Uphole Tension pounds 5000 0		
		Shallow FE ohm metres 0 25 50
		0 250 500
		Array Ind. One Res Rt ohm metres 0 25 50
		0 250 500
		Replay Scale 1:600
	4250 4300 4400 4500 4600 4700 4800 4900 5000	Shallow FE Spontaneous Potential Gamma Ray DST Uphole Tension Array Ind. One Cond Ct



COMPANY		CHOLLA PRODUCTION LLC			
WELL		BONTRAGER #29-1 OWWO			
FIELD		WILDCAT			
PROVINCE/COUNTY		SCOTT			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	2993.00	feet	First Reading	5300.00	feet
Elevation Drill Floor	2992.00	feet	Depth Driller	5296.00	feet
Elevation Ground Level	2988.00	feet	Depth Logger	5303.00	feet
 Weatherford		ARRAY INDUCTION			
		SHALLOW FOCUSED			
		ELECTRIC LOG			
					