HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY **HERMAN L LOEB**

WELL **CHARLES EINSEL 3-21**

FIELD **FRALICK WEST**

COUNTY **KIOWA** STATE **KANSAS**

COMPANY HERMAN L LOEB
WELL CHARLES EINSEL 3-21
FIELD FRALICK WEST
COUNTY KIOWA
STATE KANSAS

API No. 15-097-21716
Location 660' FSL 1980' FEL

Sect. 21 Twp. 27S Rge. 20W

Other Services:
DSN/SDL
MICRO
MRIL

Permanent Datum	GL	Elev. 2295.0 ft	Elev.: K.B. 2306.0 ft
Log measured from	KB	, 11.0 ft above perm. Datum	D.F. 2305.0 ft
Drilling measured from	KB		G.L. 2295.0 ft

Date		16-Feb-12					
Run No.		ONE					
Depth - Driller		5000.00 ft					
Depth - Logger		4996.0 ft					
Bottom - Logged Interval		4986.0 ft					
Top - Logged Interval		595.0 ft					
Casing - Driller		8.625 in	@ 595.0 ft	@		@	
Casing - Logger		595.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.3 ppg	49.00 s/qt				
PH	Fluid Loss	10.00 pH	8.0 cptm				
Source of Sample		FLOW LINE					
Rm @ Meas. Temperature		0.400 ohmm	@ 70.00 degF	@		@	
Rmf @ Meas. Temperature		0.34 ohmm	@ 70.00 degF	@		@	
Rmc @ Meas. Temperature		0.464 ohmm	@ 70.00 degF	@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.26 ohmm	@ 110.0 degF	@		@	
Time Since Circulation		4.5 hr					
Time on Bottom		16-Feb-12 18:56					
Max. Rec. Temperature		110.0 degF	@ 5000.0 ft	@		@	
Equipment	Location	10546696	LIBERAL				
Recorded By		C.PARKER					
Witnessed By		T. PRONOLD					

Fold here

Service Ticket No.: 9291693 API Serial No.: 15-097-21716 PGM Version: WL INSITE R3.4.2 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

		Type Log	Depth	Scale Up Hole	Scale Down Hole
Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@	@		
Rmf @ Meas. Temp.		@	@		
Rmc @ Meas. Temp.		@	@		
Source Rmf	Rmc		@		
Rm @ BHT		@			
Rmf @ BHT		@	@		
Rmc @ BHT		@	@		

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rm @ Meas. Temp	@				
Rmf @ Meas. Temp.	@	ONE	ACRT S909	N/A	1.5" S.O.
Rmc @ Meas. Temp.	@				N/A
Source Rmf	Rmc				
Rm @ BHT	@				
Rmf @ BHT	@				
Rmc @ BHT	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.		Run No.	
Serial No.	11039640	Serial No.		Serial No.		Serial No.	
Model No.	GTET	Model No.		Model No.		Model No.	
Diameter	3.625"	No. of Cent.		Diameter		Diameter	
Detector Model No.	T-102	Spacing		Log Type		Log Type	
Type	SCINT			Source Type		Source Type	
Length	8"	LSA [Y/N]		Serial No.		Serial No.	
Distance to Source	10'	FWDA [Y/N]		Strength		Strength	

LOGGING DATA

GENERAL GAMMA ACOUSTIC RESISTIVITY NEUTRON

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	CSG	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: AHV CALCULATED FOR 5.5 INCH CASING

CHLORIDES 5900 MG/L

LCM 2 #/BBL

POST VERIFICATION NOT PERFORMED PER CUSTOMER REQUEST

SPLICE MADE AT 4738

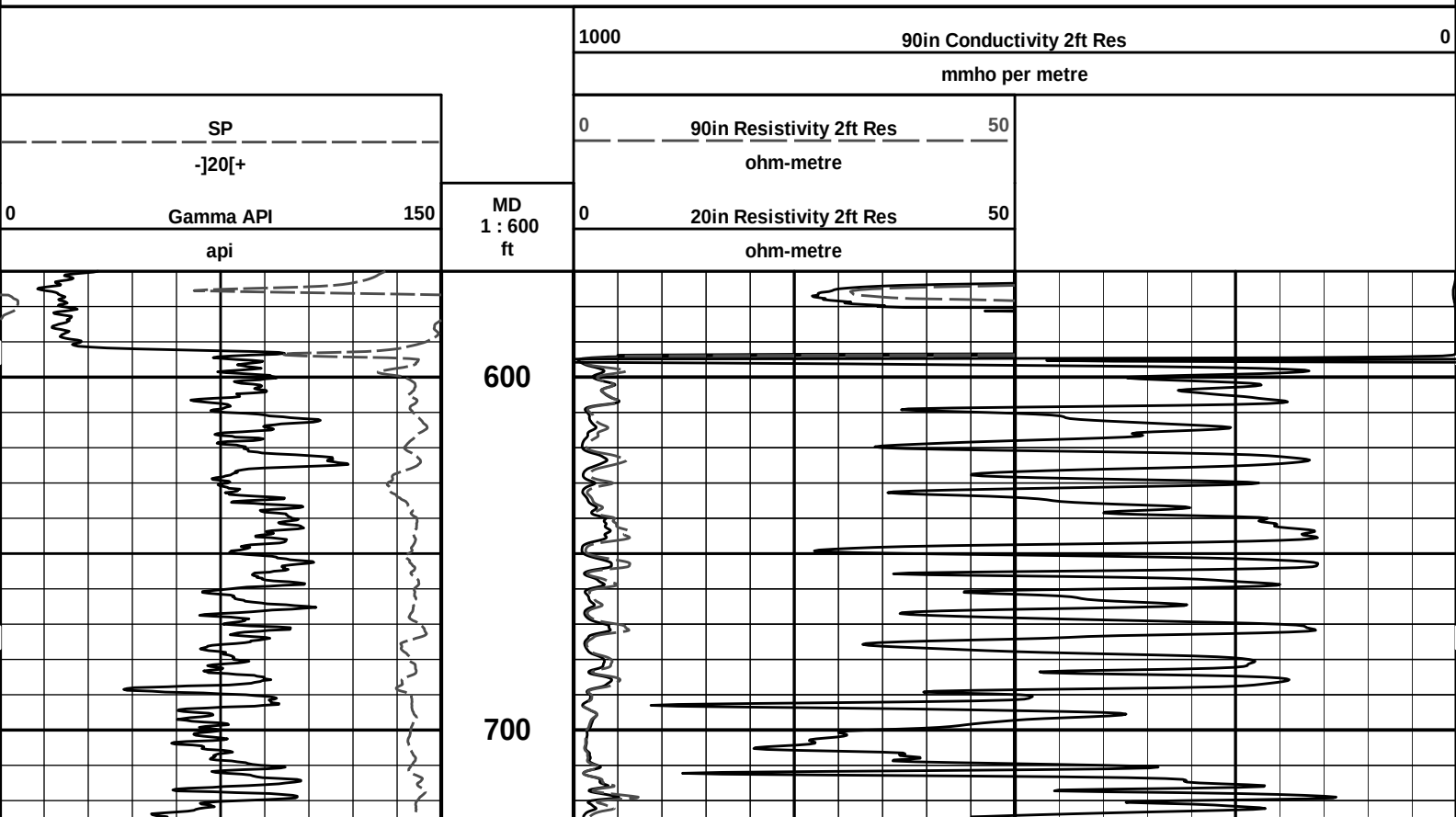
TODAYS CREW K. KING V. JAMIE

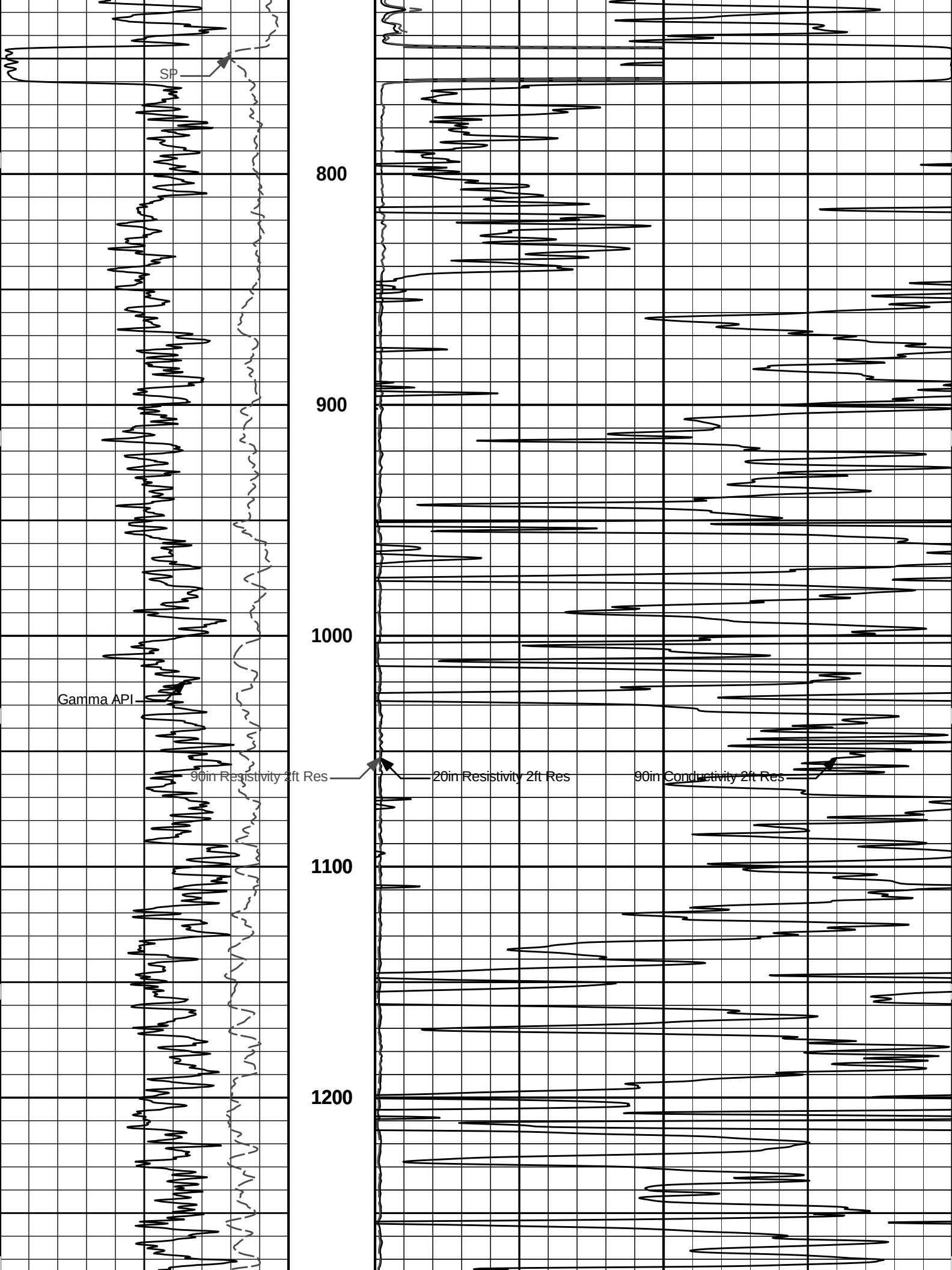
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

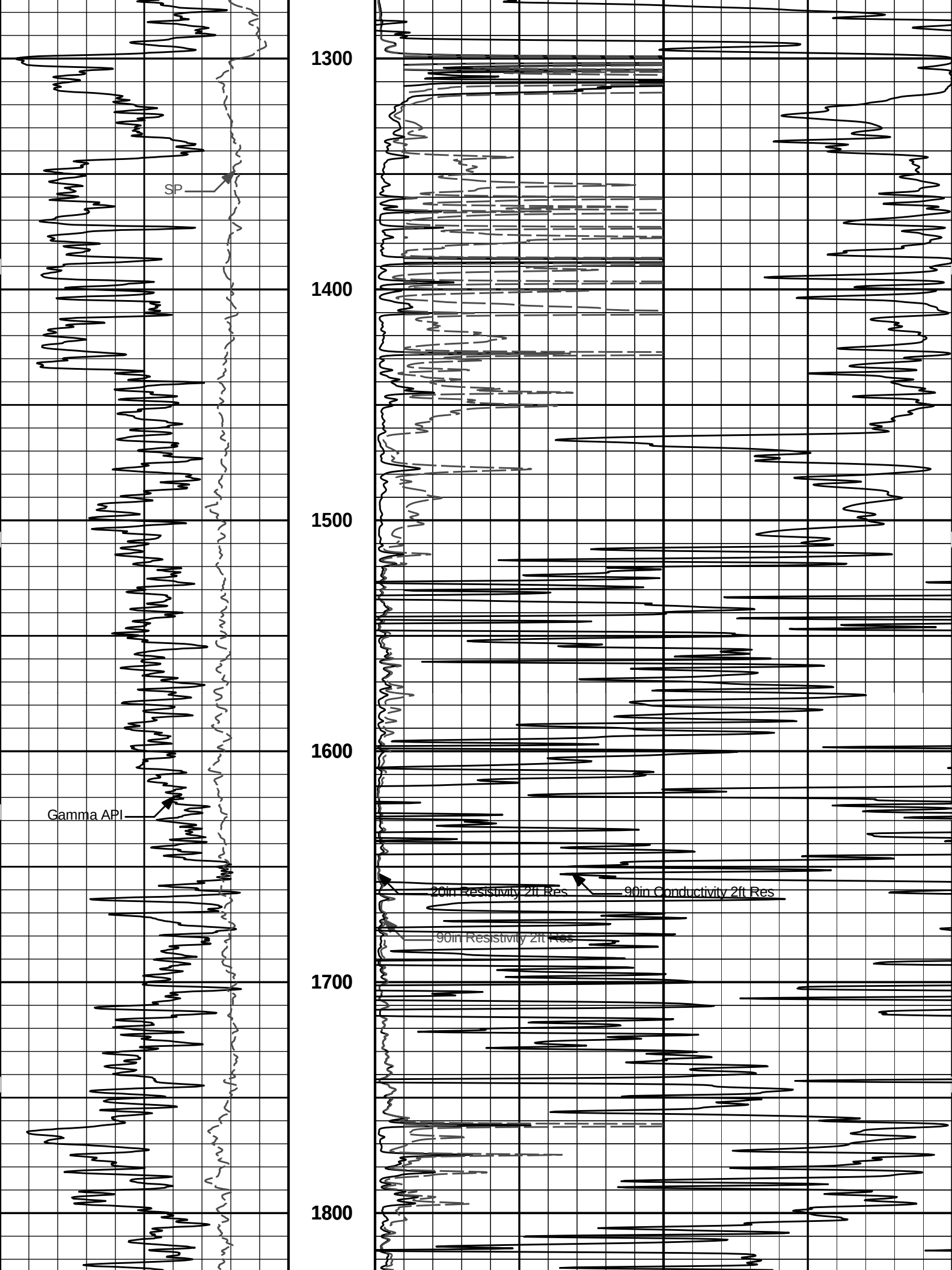
HALLIBURTON

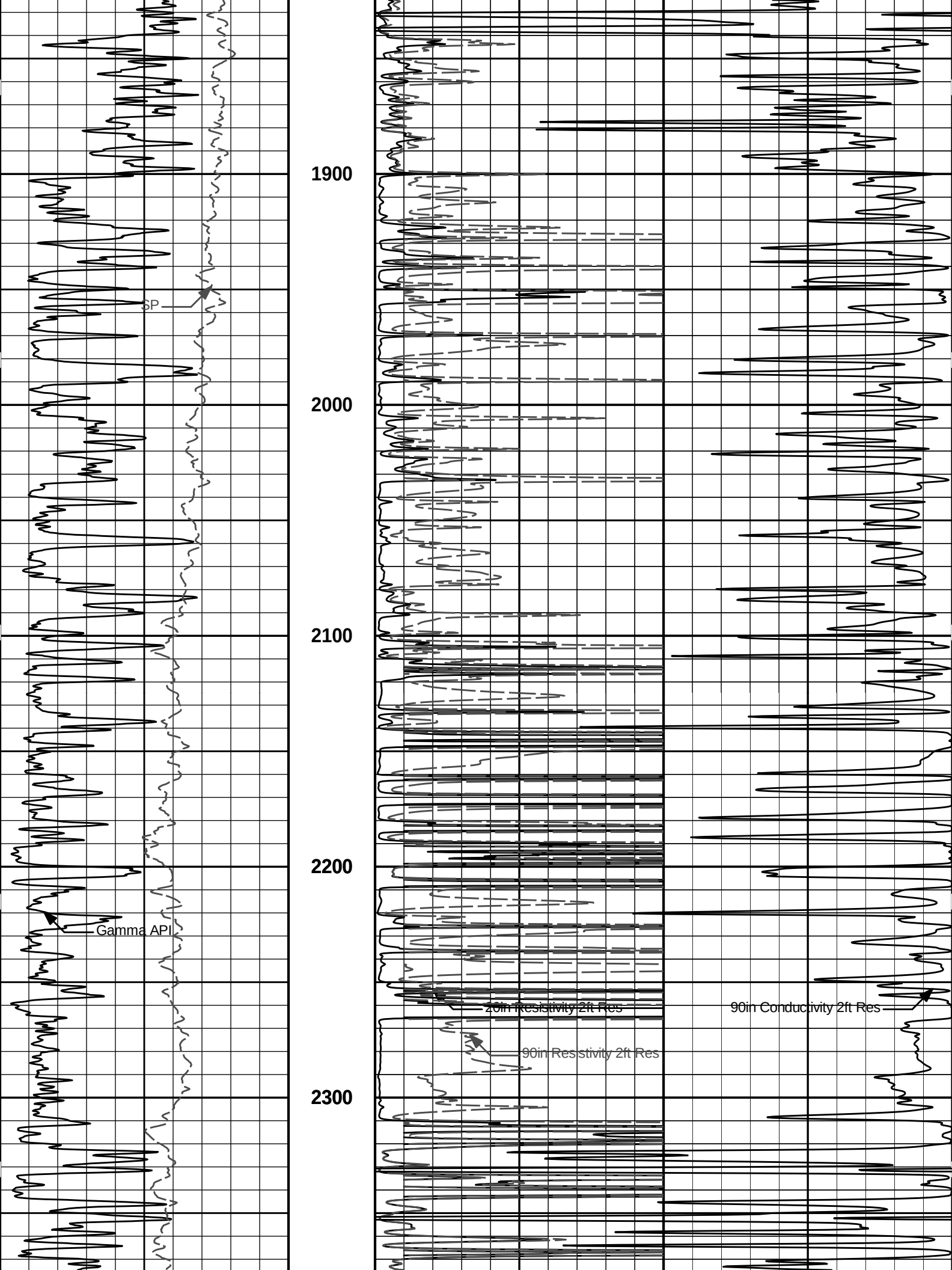
Plot Time: 17-Feb-12 11:52:04
Plot Range: 570 ft to 5010 ft
Data: CHARLES_EINSEL\Well Based\MAIN
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_2_lib

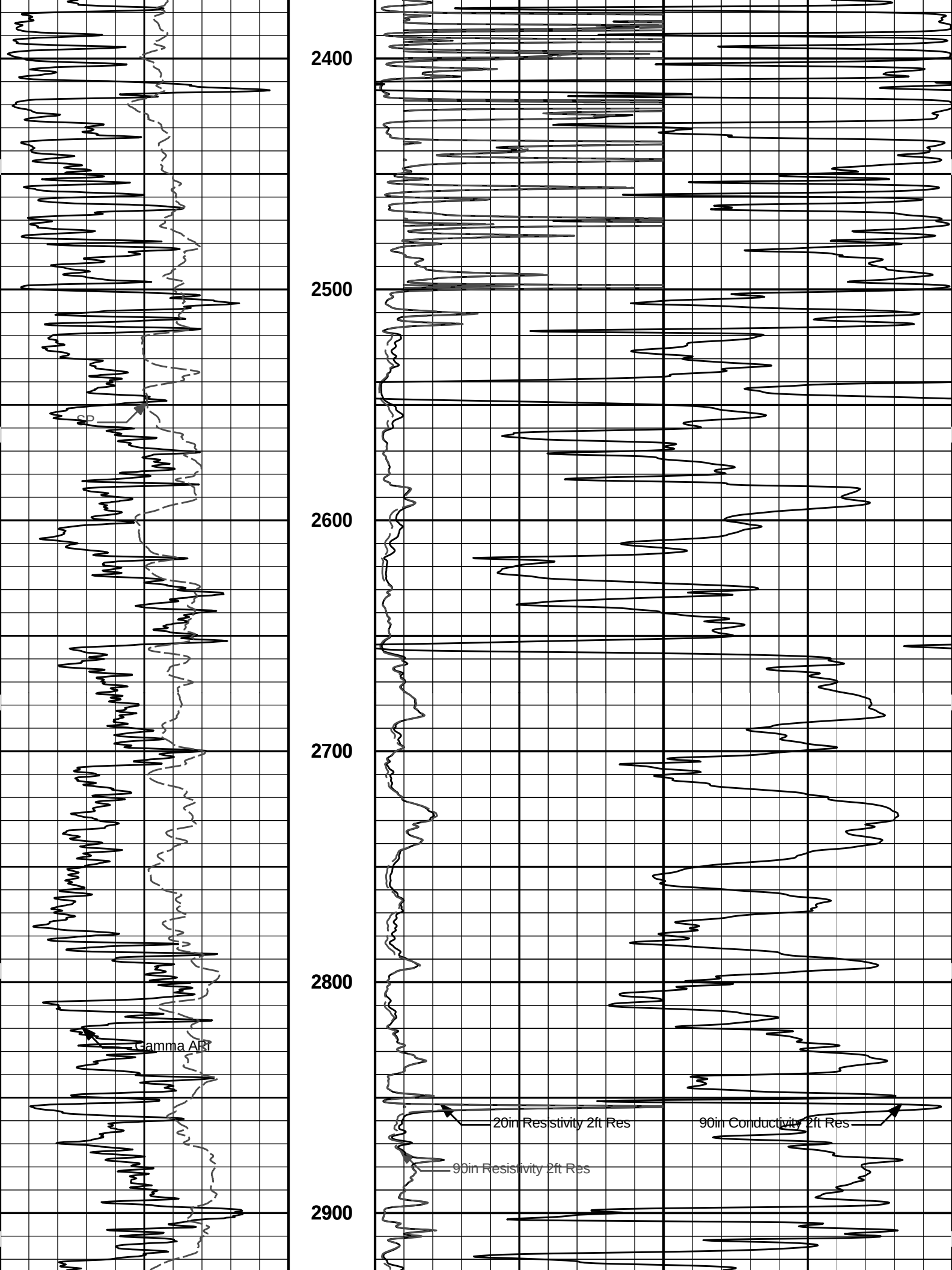
2 INCH MAIN LOG

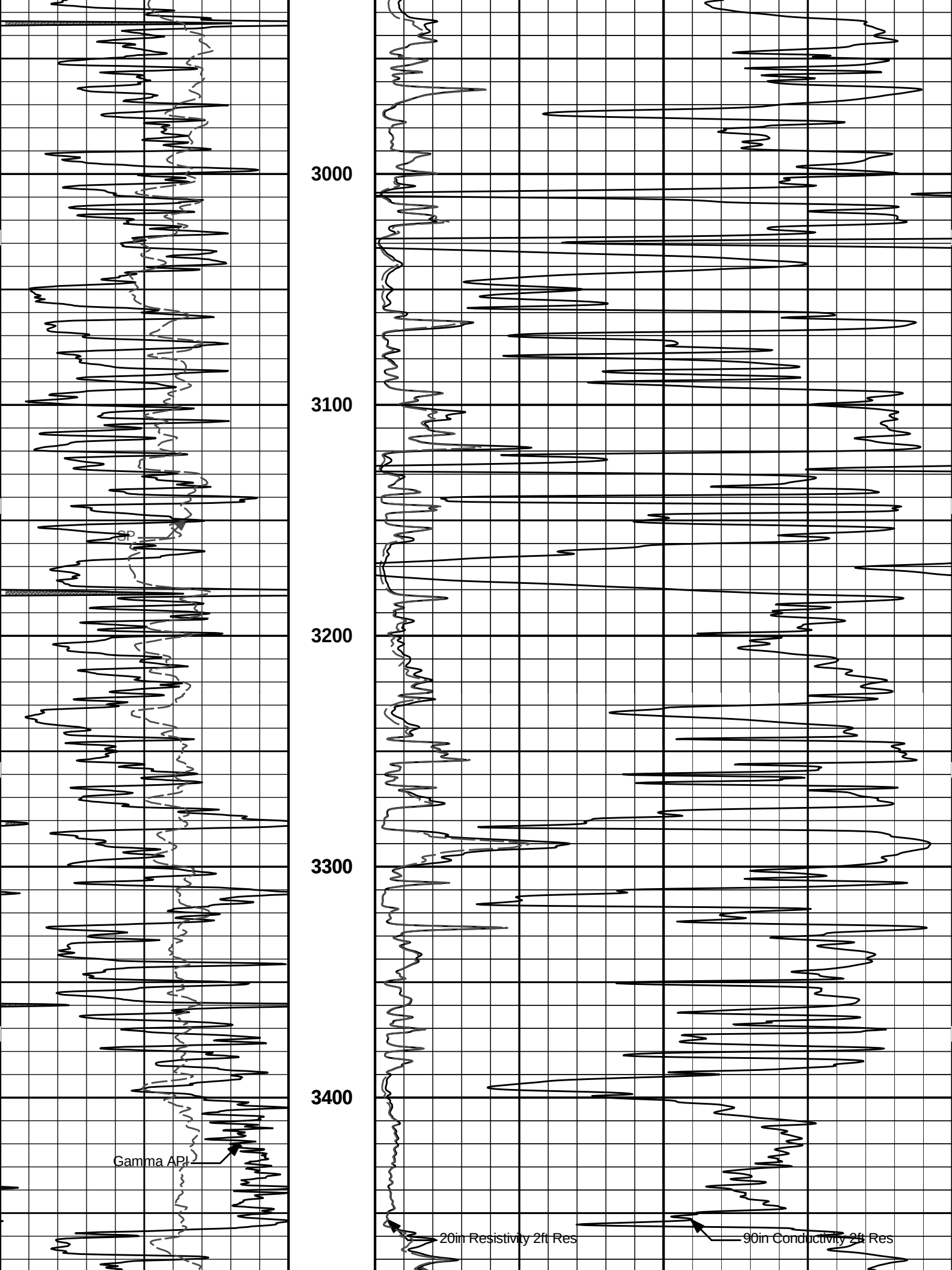


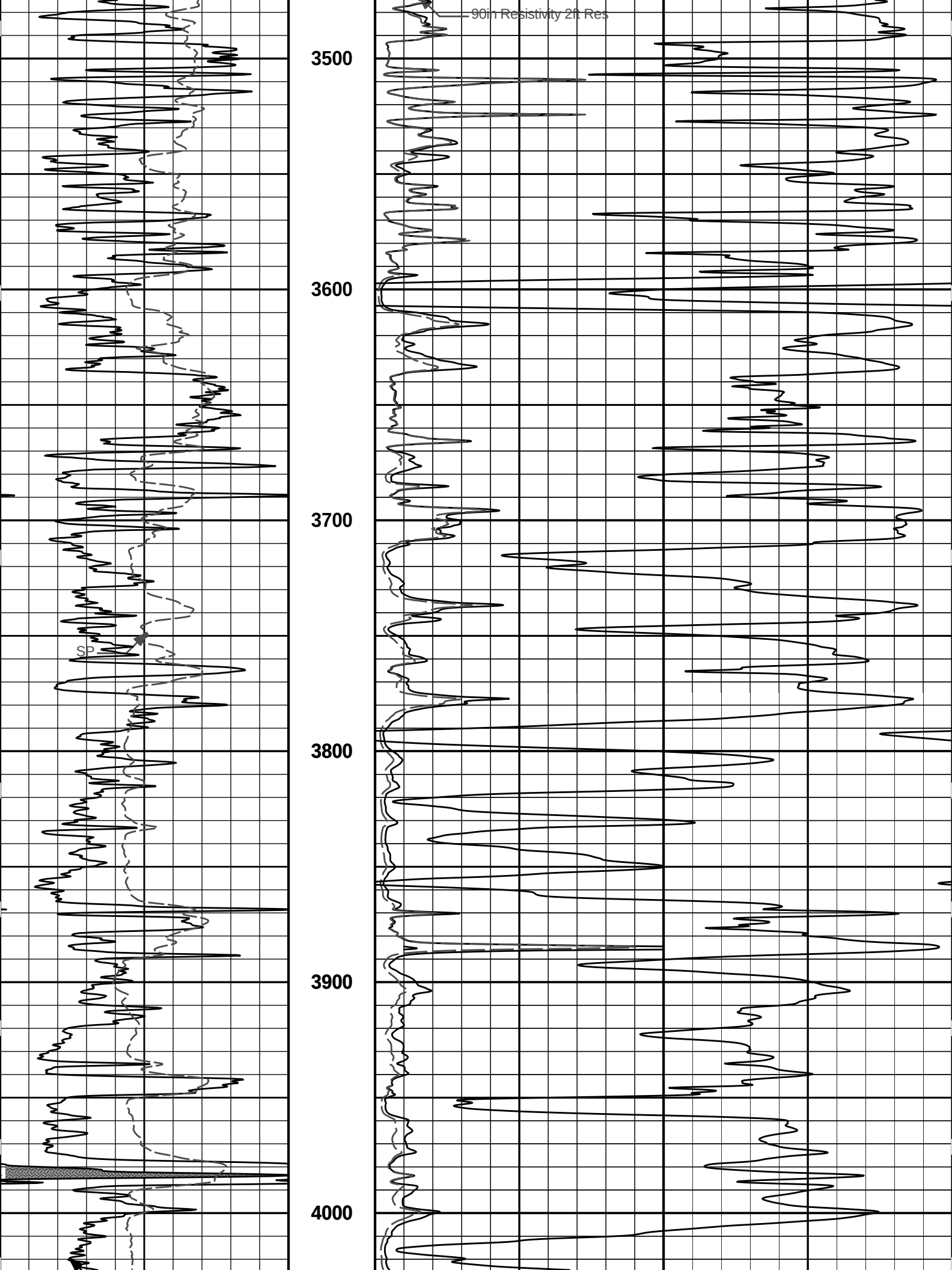

SP
800
900
1000
Gamma API
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res
1100
1200

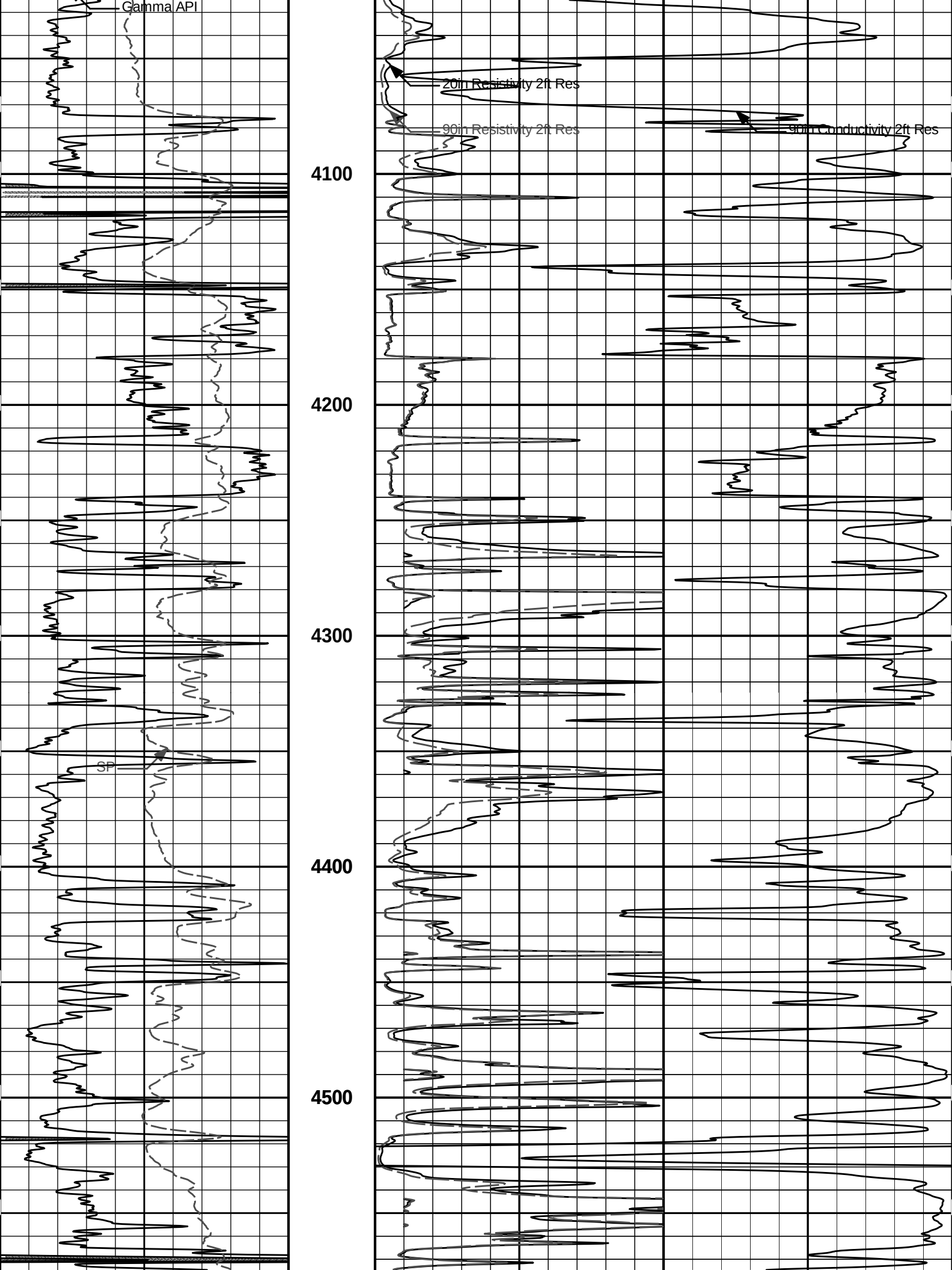

1300
1400
1500
1600
1700
1800
SP
Gamma API
20in Resistivity 2ft Res
90in Conductivity 2ft Res
90in Resistivity 2ft Res

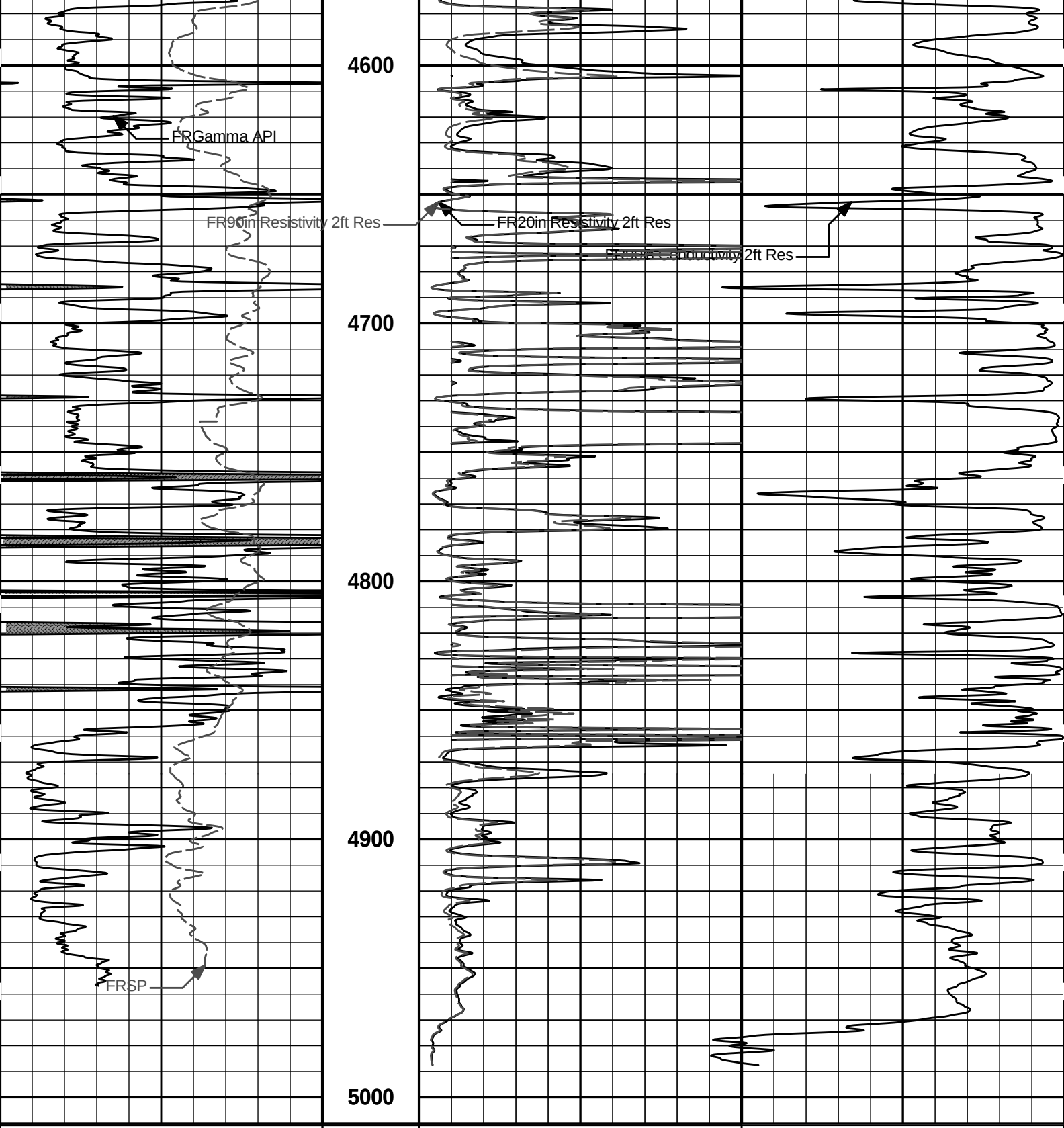

1900
2000
2100
2200
2300
SP
Gamma API
20in Resistivity 2ft Res
90in Resistivity 2ft Res
90in Conductivity 2ft Res


2400
2500
2600
2700
2800
2900
SP
Gamma API
20in Resistivity 2ft Res
90in Resistivity 2ft Res
90in Conductivity 2ft Res


3000
3100
3200
3300
3400
SP
Gamma API
20in Resistivity 2ft Res
90in Conductivity 2ft Res


90in Resistivity 2ft Res
SP
3500
3600
3700
3800
3900
4000


Gamma API
20in Resistivity 2ft Res
90in Resistivity 2ft Res
90in Conductivity 2ft Res
SP
4100
4200
4300
4400
4500



0 Gamma API 150	MD 1 : 600 ft	0 20in Resistivity 2ft Res 50
api		ohm-metre
SP		0 90in Resistivity 2ft Res 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

HALLIBURTON

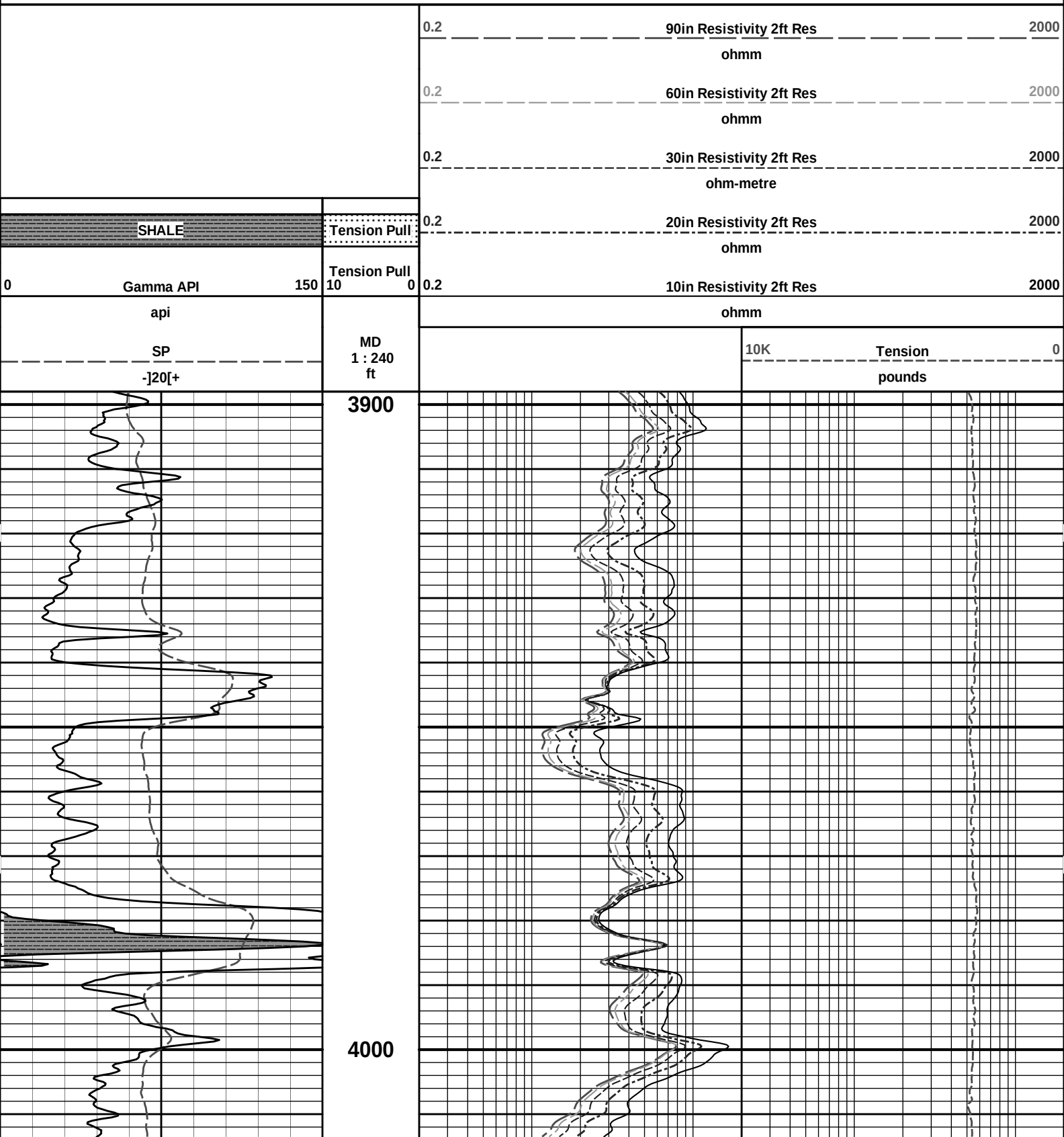
Plot Time: 17-Feb-12 11:52:23
Plot Range: 570 ft to 5010 ft
Data: CHARLES_EINSEL\Well Based\MAIN\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_2_lib

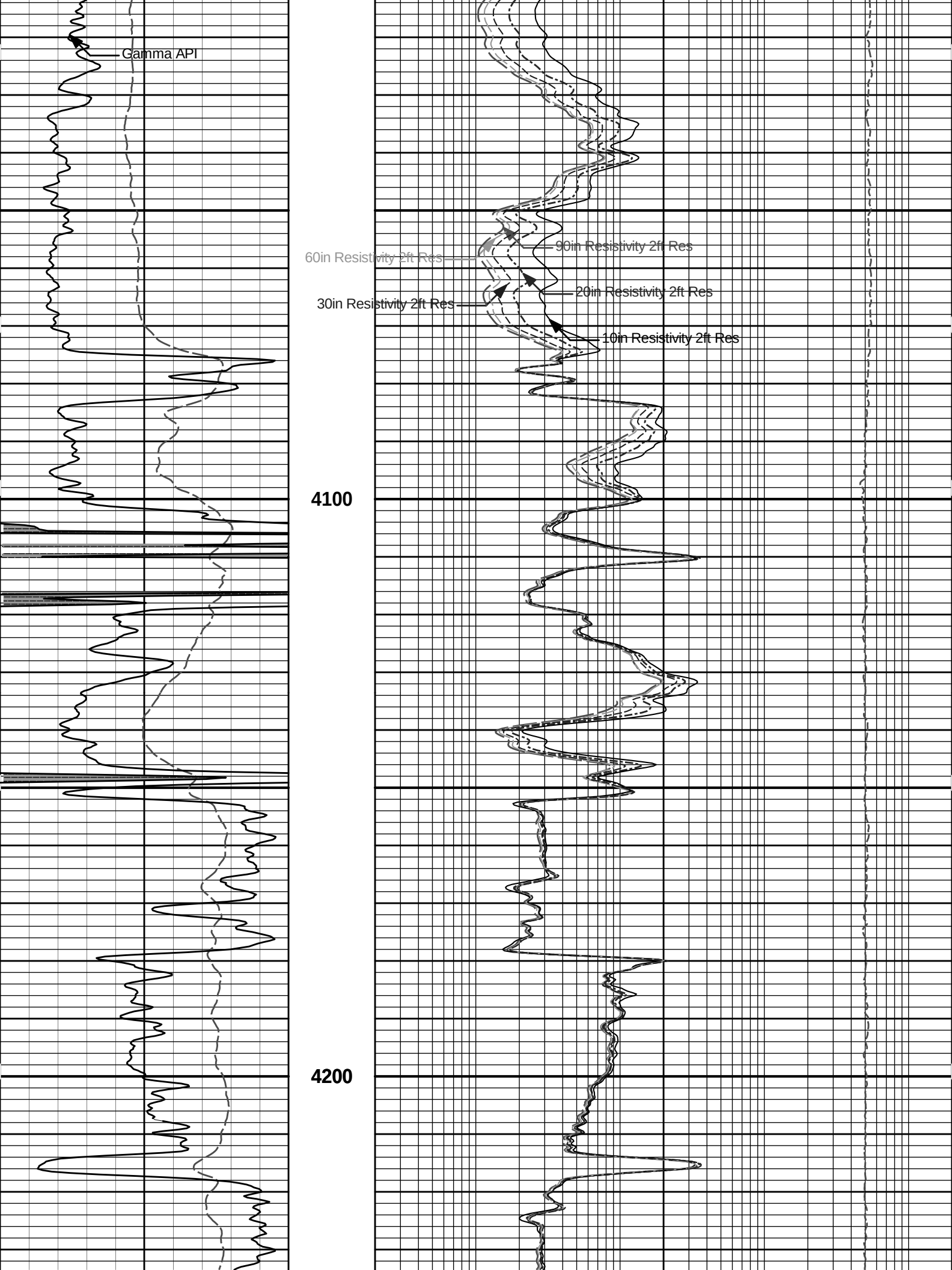
2 INCH MAIN LOG

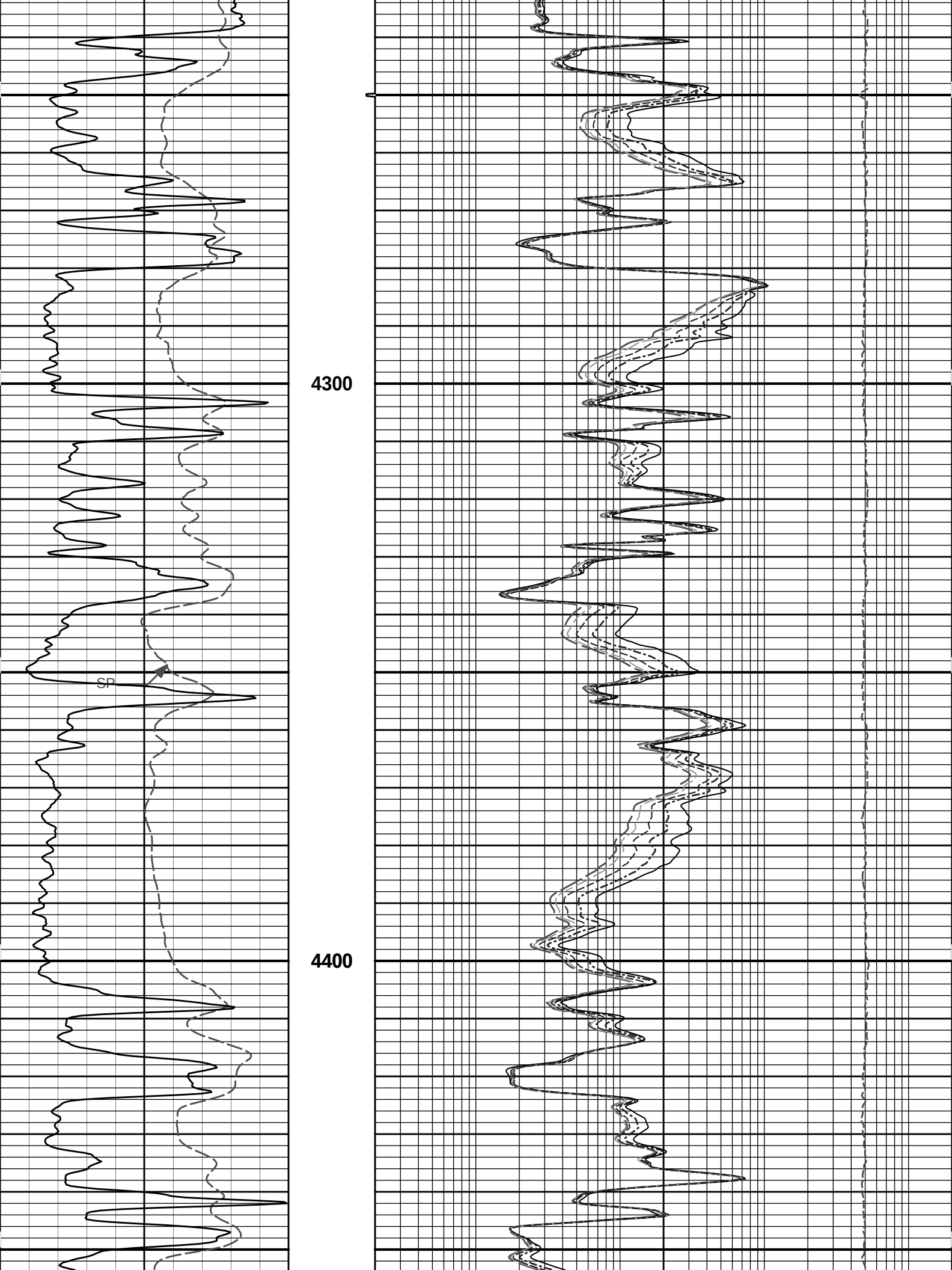
HALLIBURTON

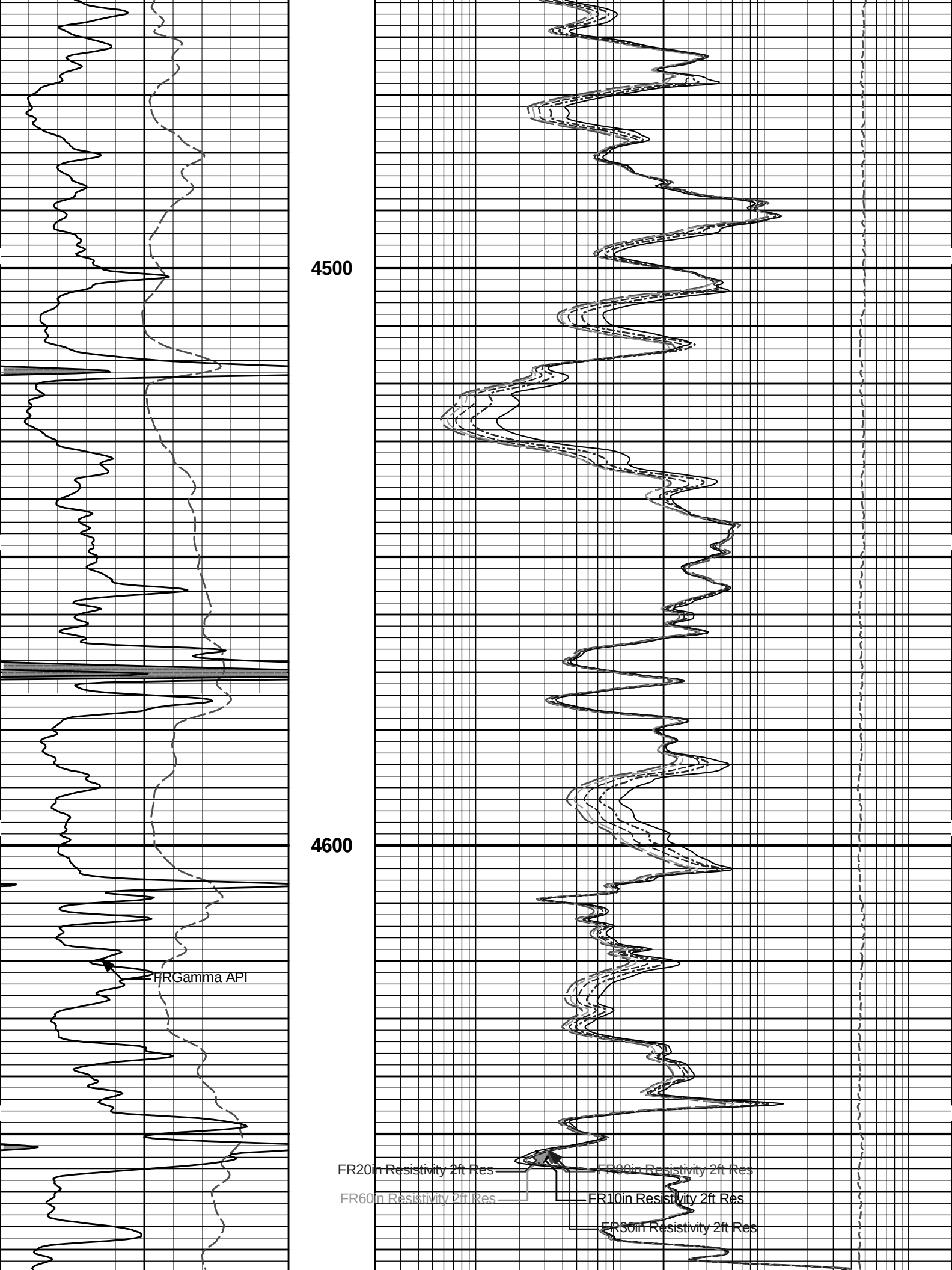
Plot Time: 17-Feb-12 11:52:23
Plot Range: 3898 ft to 5050 ft
Data: CHARLES_EINSEL\Well Based\MAIN\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

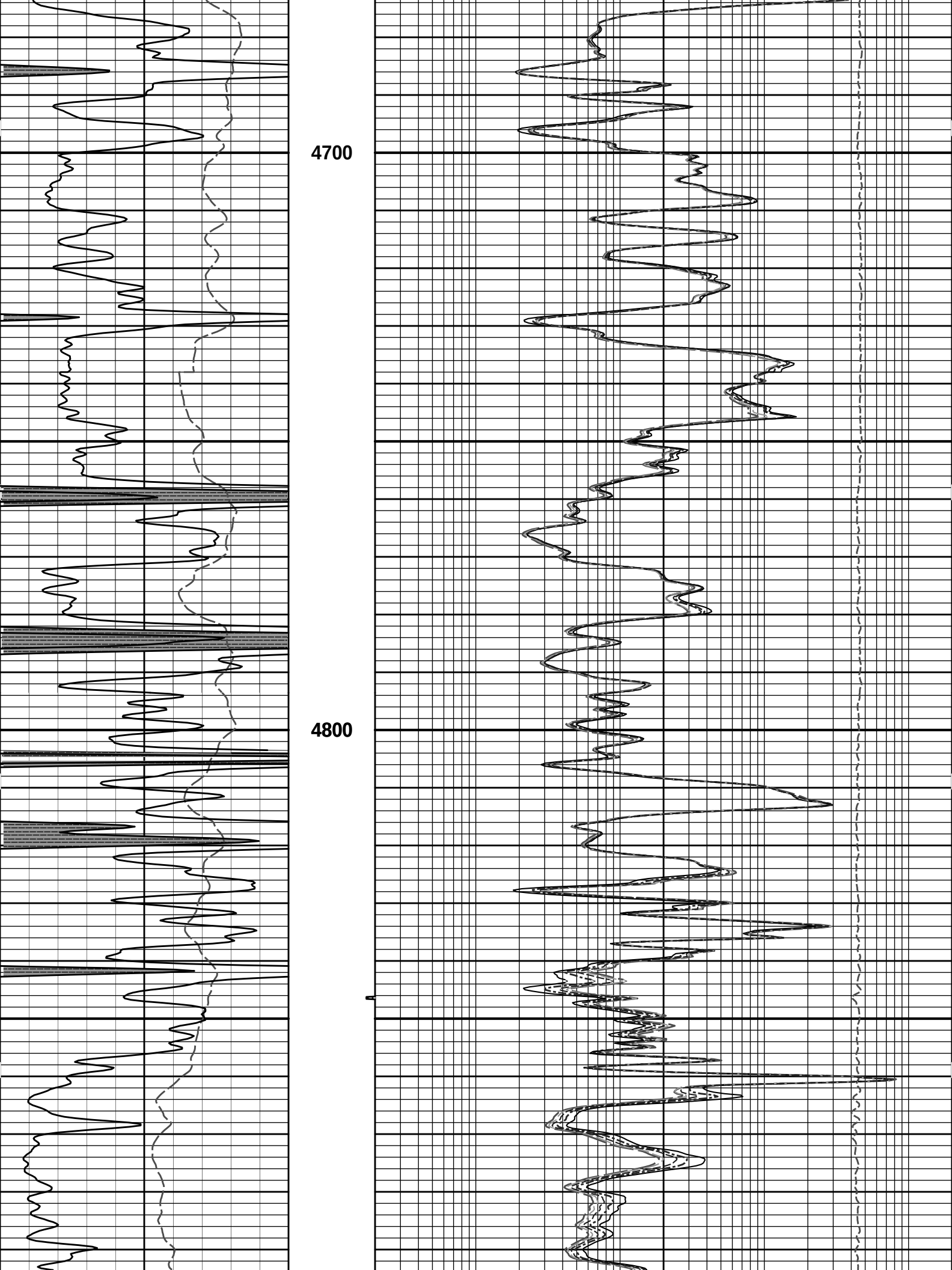
5 INCH MAIN LOG

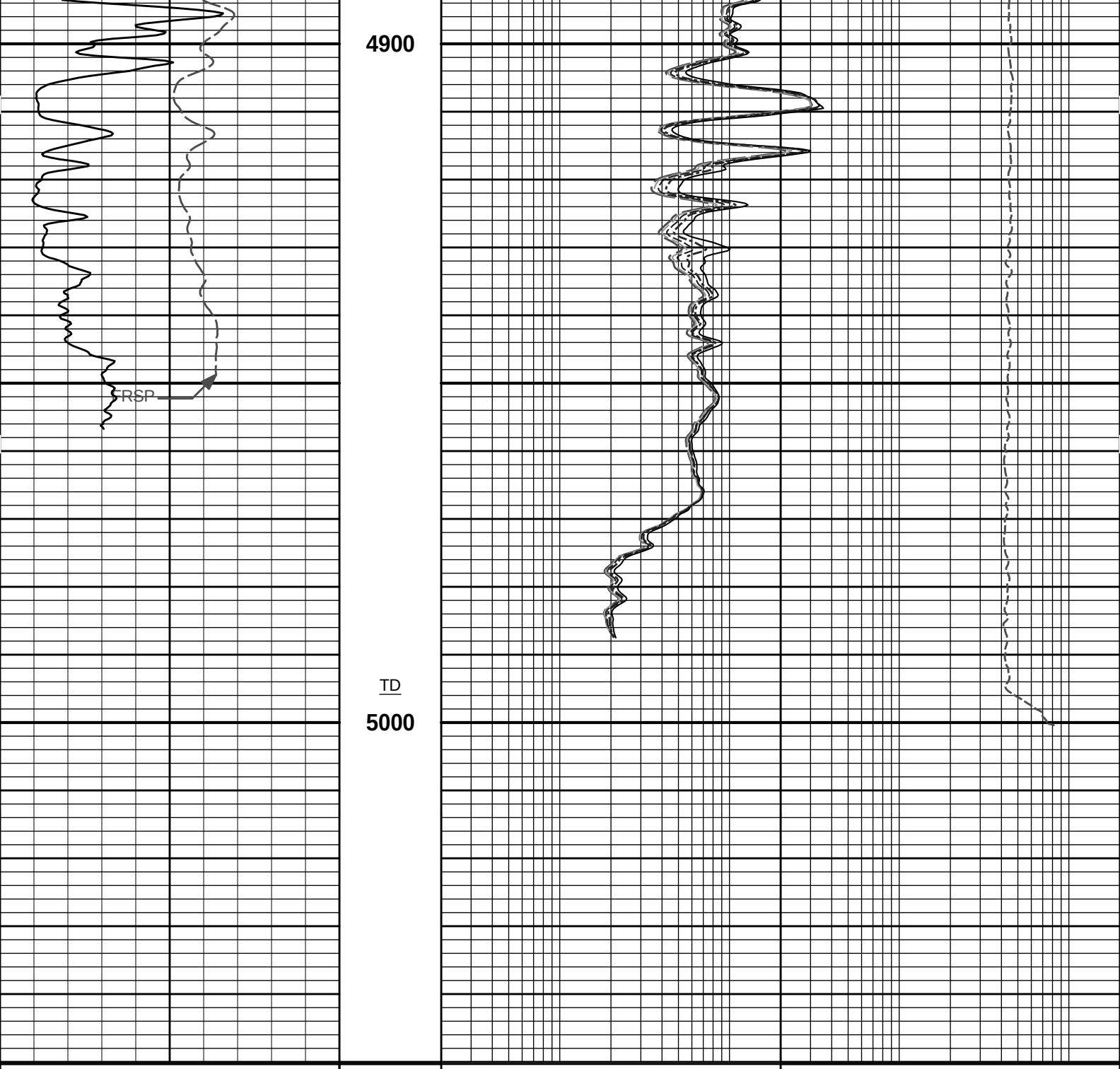



Gamma API
90in Resistivity 2ft Res
60in Resistivity 2ft Res
20in Resistivity 2ft Res
30in Resistivity 2ft Res
10in Resistivity 2ft Res
4100
4200


4300
SP
4400


4500
4600
HRGamma API
FR20in Resistivity 2ft Res
FR60in Resistivity 2ft Res
FR30in Resistivity 2ft Res
FR10in Resistivity 2ft Res
FR90in Resistivity 2ft Res


4700
4800



SP	MD 1 : 240 ft		10K Tension 0
-]20[+			pounds
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
SHALE	Tension Pull	0.2 20in Resistivity 2ft Res 2000	
		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	
		0.2 90in Resistivity 2ft Res 2000	
		ohmm	

HALLIBURTON

Plot Time: 17-Feb-12 11:52:25

HALLIBURTON

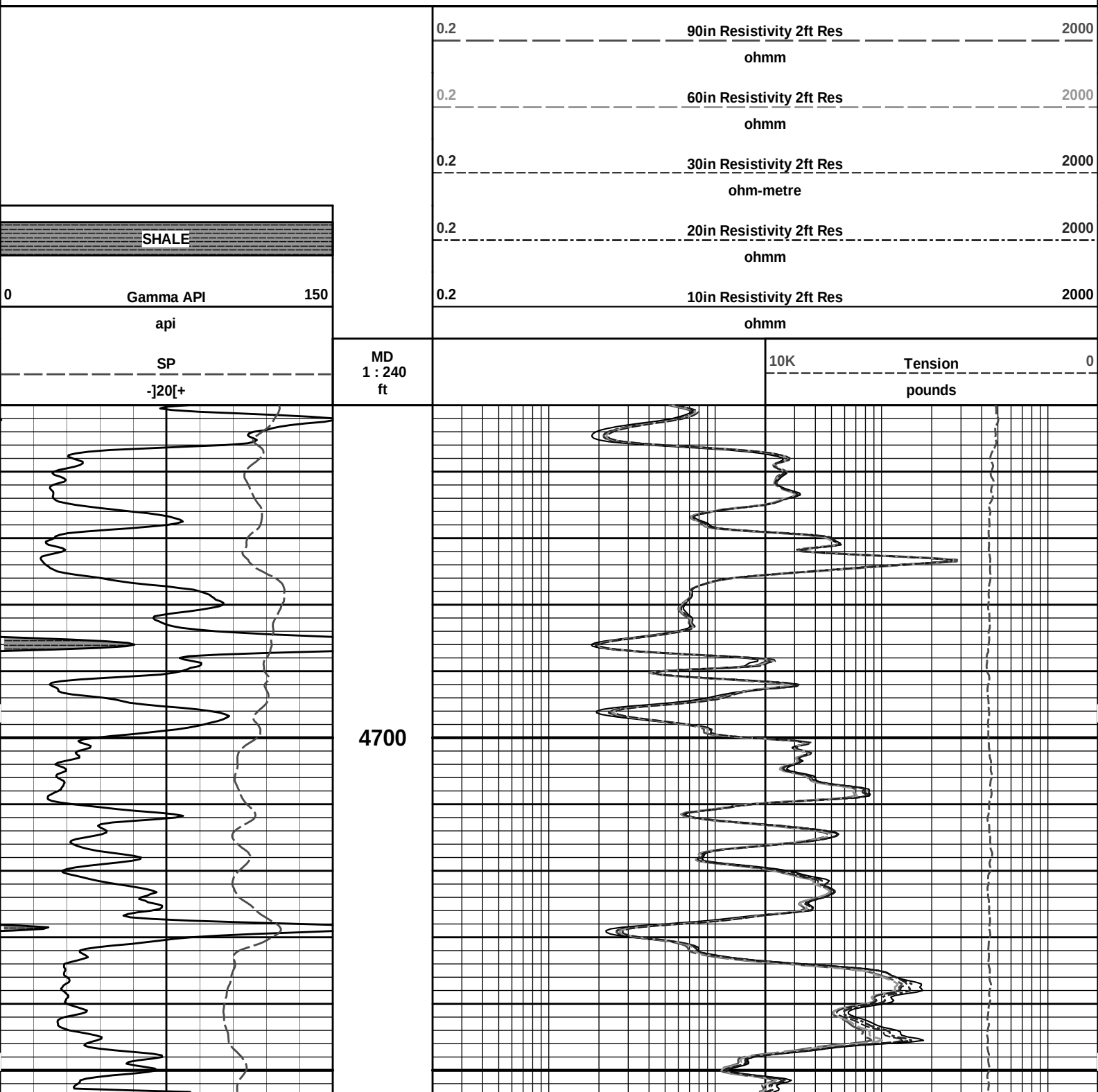
Plot Time: 17-Feb-12 11:52:25
Plot Range: 3898 ft to 5050 ft
Data: CHARLES_EINSEL\Well Based\MAIN\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

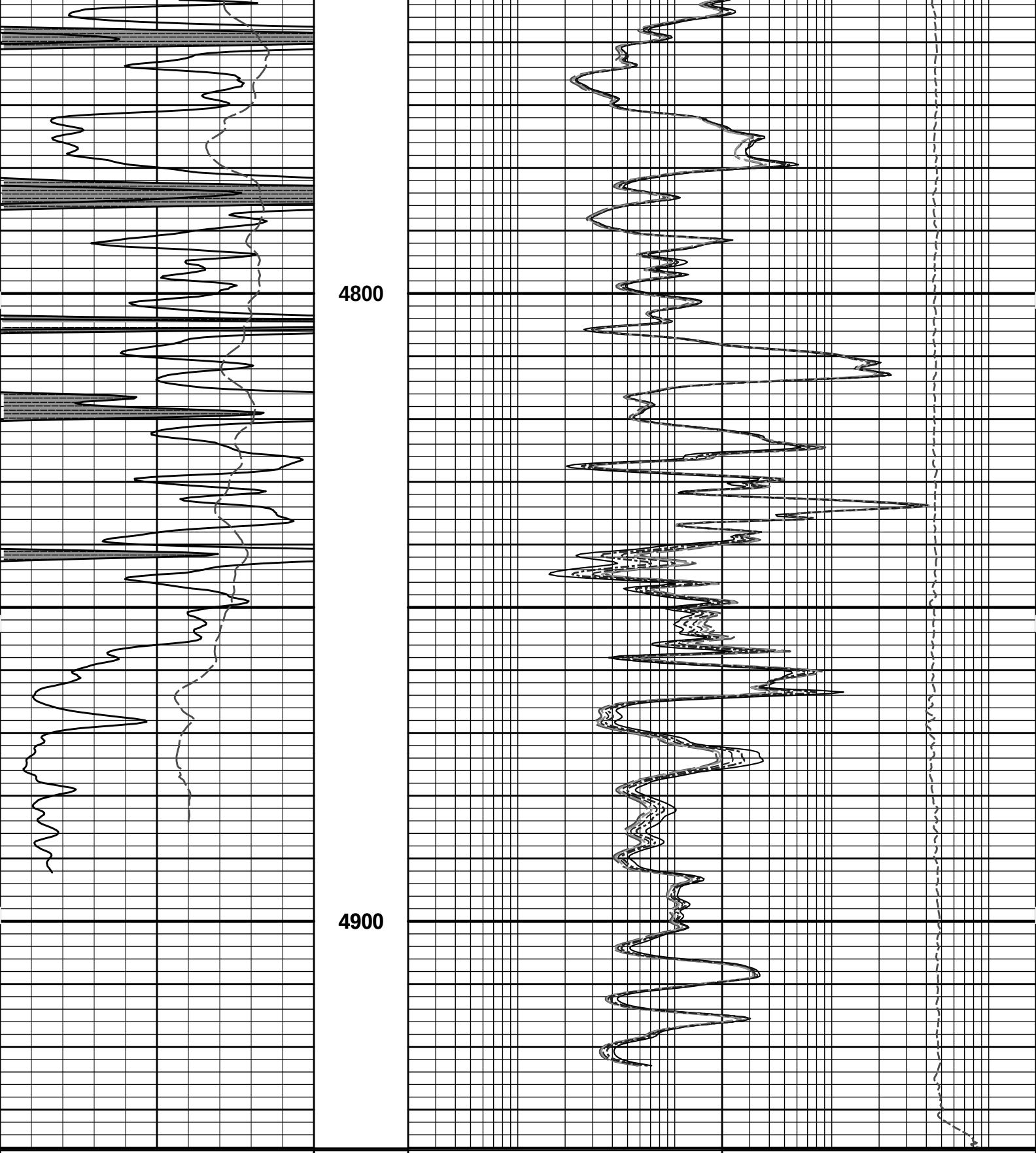
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 17-Feb-12 11:52:25
Plot Range: 4650 ft to 4936.17 ft
Data: CHARLES_EINSEL\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

REPEAT SECTION





SP

-]20[+

0 Gamma API 150

api

SHALE

MD
1 : 240
ft

10K Tension 0

pounds

0.2 10in Resistivity 2ft Res 2000

ohmm

0.2 20in Resistivity 2ft Res 2000

ohmm

0.2 30in Resistivity 2ft Res 2000

ohm-metre

0.2 — 60in Resistivity 2ft Res — 2000

ohmm

0.2 — 90in Resistivity 2ft Res — 2000

ohmm

HALLIBURTON

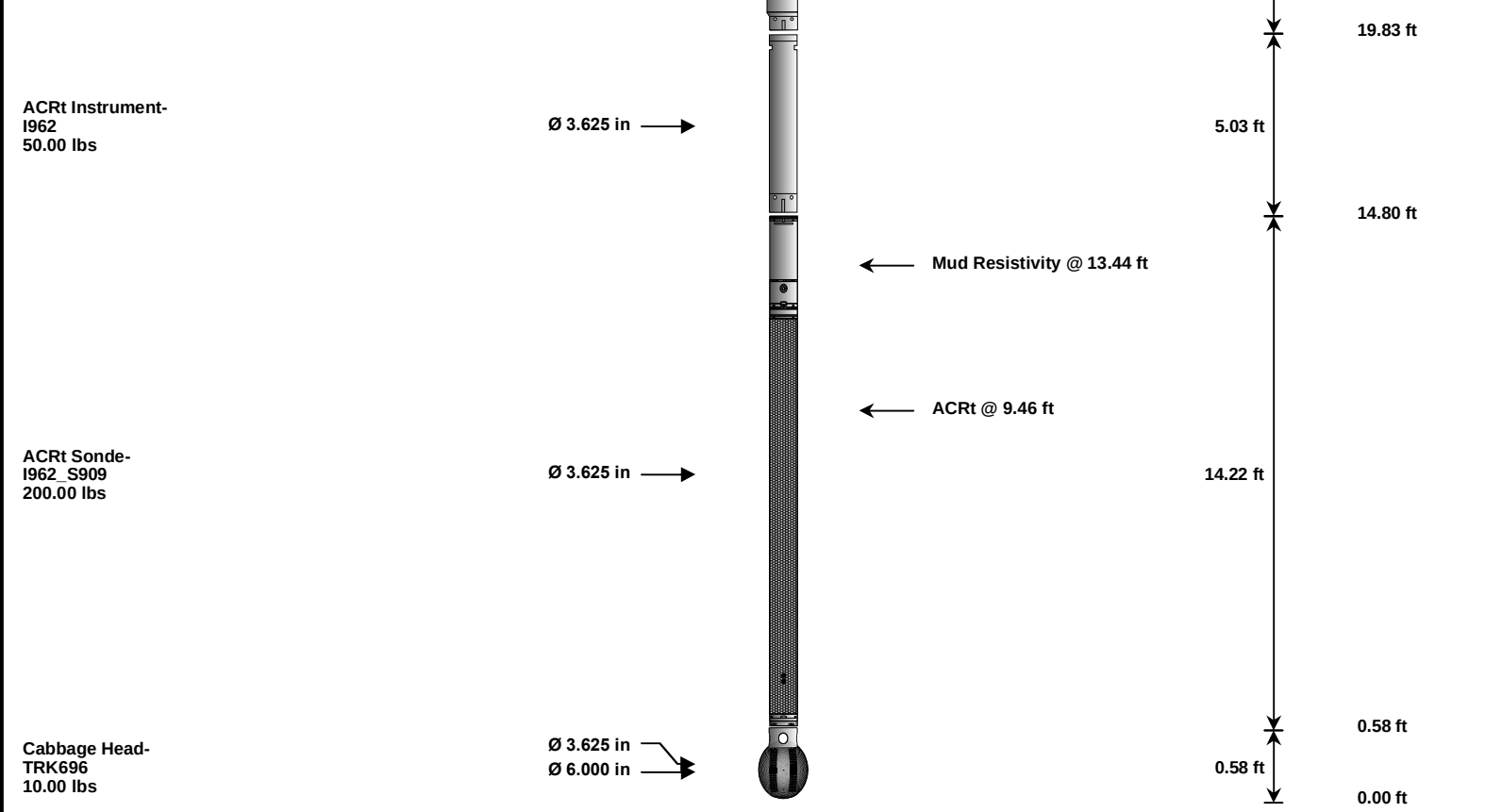
Plot Time: 17-Feb-12 11:52:28
Plot Range: 4650 ft to 4936.17 ft
Data: CHARLES_EINSEL\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						55.62 ft
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in		Temperature @ 54.59 ft	3.03 ft	
						52.59 ft
SP Sub-001 60.00 lbs		Ø 3.625 in		SP @ 50.81 ft	3.74 ft	
						48.85 ft
GTET-11039640 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 42.79 ft		
						40.33 ft
	DSN Decentralizer-11005605 6.60 lbs	Ø 5.000 in*				
DSNT-11019643 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 33.39 ft DSN Near @ 32.64 ft		
						30.64 ft
SDLT-I43_M469 360.00 lbs		Ø 4.500 in			10.81 ft	
	SDLT Pad-P81 65.00 lbs			Microlog @ 22.83 ft		
	Microlog Pad-M469 8.00 lbs	Ø 4.750 in* Ø 4.750 in*		SDL Caliper @ 22.65 ft SDL @ 22.64 ft		



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH HOS	Hostile Cable Head with Load Cell	CH 696	37.50	3.03		52.59	300.00
SP	SP Sub	001	60.00	3.74		48.85	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		40.33	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	I43_M469	360.00	10.81		19.83	60.00
MICP	Microlog Pad	M469	8.00	1.00	*	22.33	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	22.04	60.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03		14.80	300.00
ACRt	Array Compensated True Resistivity	I962_S909	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**1,136.10**	**55.62**			

* Not included in Total Length and Length Accumulation.

Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 16-Feb-12 18:23:02**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**14-Dec-11 07:20:08**
Engineer:	**C. HAVERKAMP**	**Calibration Date:**	**27-Jan-12 07:52:04**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	24.3	24.2	api
Background + Calibrator	295.6	293.8	api

Calibrator	271.3	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**27-Jan-12 07:52:04**
Engineer:	**C.PARKER**	**Calibration Date:**	**04-Feb-12 19:32:49**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	24.2	48.4	api
Background + Calibrator	293.8	317.2	api
Calibrator	269.6	268.8	api

Shop	Field	Difference	Tolerance
269.6	268.8	0.8	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - I962_S909**	**Reference Calibration Date:**	**03-Dec-11 11:34:40**
Engineer:	**C.PARKER**	**Calibration Date:**	**24-Jan-12 09:31:40**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0188	1.05	0.95	1.0247	1.05	0.95	1.0220	1.05
A2 (50")	0.95	1.0254	1.05	0.95	1.0310	1.05	0.95	1.0294	1.05
A3 (29")	0.95	1.0008	1.05	0.95	1.0055	1.05	0.95	1.0021	1.05
A4 (17")	0.95	0.9999	1.05	0.95	1.0024	1.05	0.95	1.0018	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9950	1.05	0.95	0.9924	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9855	1.05	0.95	0.9830	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.843	2	-6	-3.858	-2	-8	-4.820	-2
A2 (50")	-7	-1.836	-1	-6	-3.506	-2	-7	-4.305	-2
A3 (29")	-27	-14.494	-9	-9	-4.418	-3	-7	-2.622	-1
A4 (17")	-180	-100.807	-60	-45	-30.358	-15	-39	-25.776	-13
A5 (10")	N/A	N/A	N/A	-150	-98.393	-50	-80	-44.552	-10
A6 (6")	N/A	N/A	N/A	175	282.112	525	90	148.294	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8697	1.3
36K	1.0	1.3346	2.0
72K	1.0	1.5607	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.002	1.05

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						

Gamma Ray Calibrator	269.6	268.8	----------	0.8	+/- 9.00	api
ACRt Sonde-I962_S909						
Mud Cell	1.002	----------	----------	0.000	----------	ohm-m

Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 16-Feb-12 19:09:31**

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	DNOK	Process DSN?	No	
	SDLT	CLOK	Process Caliper Outputs?	No	
	SDLT Pad	DNOK	Process Density?	No	
	Microlog Pad	MLOK	Process MicroLog Outputs?	No	
3840.00					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.350	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4932.00	ft
	SHARED	BHT	Bottom Hole Temperature	110.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	

	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT Pad	DNOK	Process Density?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	No	
	SDLT Pad	CB	Logging Calibration Blocks?	No	
	SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT Pad	DTWN	Disable temperature warning	No	
	SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
	SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
	Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
BOTTOM					

Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 16-Feb-12 19:10:42**

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	50.81	NO	
SP	Spontaneous Potential	50.81	BLK	1.250
SPR	Raw Spontaneous Potential	50.81	NO	
SPO	Spontaneous Potential Offset	50.81	NO	
	GTET			
TPUL	Tension Pull	42.79	NO	
GR	Natural Gamma Ray API	42.79	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	42.79	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.79	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	32.54	NO	

RNDS	Near Detector Telemetry Counts	32.64	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.39	TRI	0.583
DNTT	DSN Tool Temperature	32.64	NO	
DSNS	DSN Tool Status	32.54	NO	
ERND	Near Detector Telemetry Counts EVR	32.64	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.39	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.64	NO	
	SDLT			
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
	ACRt Sonde			
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000

F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	

SDLT Pad

TPUL	Tension Pull	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250
FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	22.04	NO	
FHV	Far Detector High Voltage	22.04	NO	
ITMP	Instrument Temperature	22.04	NO	
DDHV	Detector High Voltage	22.04	NO	

Microlog Pad

TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750

Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\003 16-Feb-12 18:56 Up @4936.3f **Date: 16-Feb-12 19:12:53**

COMPANY	**HERMAN L LOEB**		
WELL	**CHARLES EINSEL 3-21**		
FIELD	**FRALICK WEST**		
COUNTY	**KIOWA**	STATE	**KANSAS**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

HALLIBURTON

Plot Time: 17-Feb-12 11:52:28
Plot Range: 570 ft to 5010 ft
Data: CHARLES_EINSEL\Well Based\MAIN\
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\...\ACRT_1_lib

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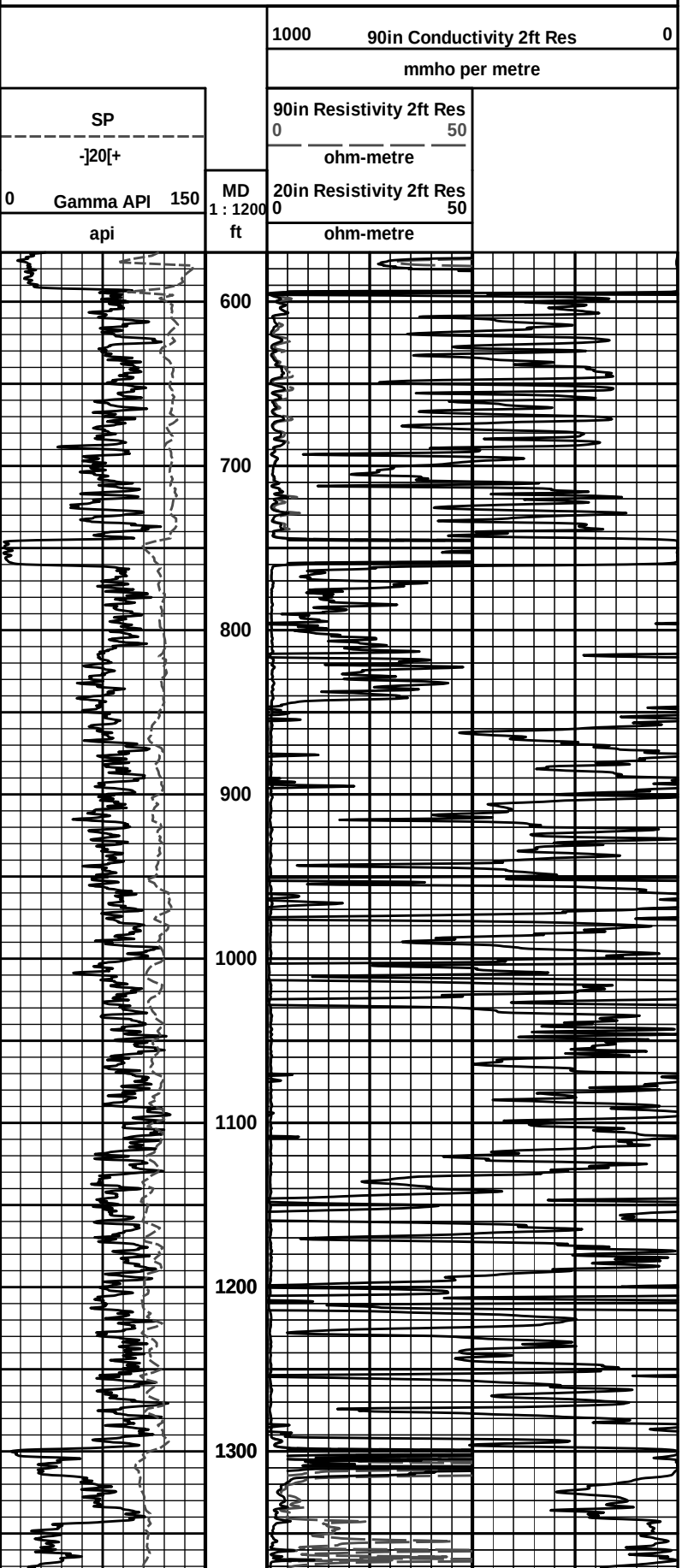

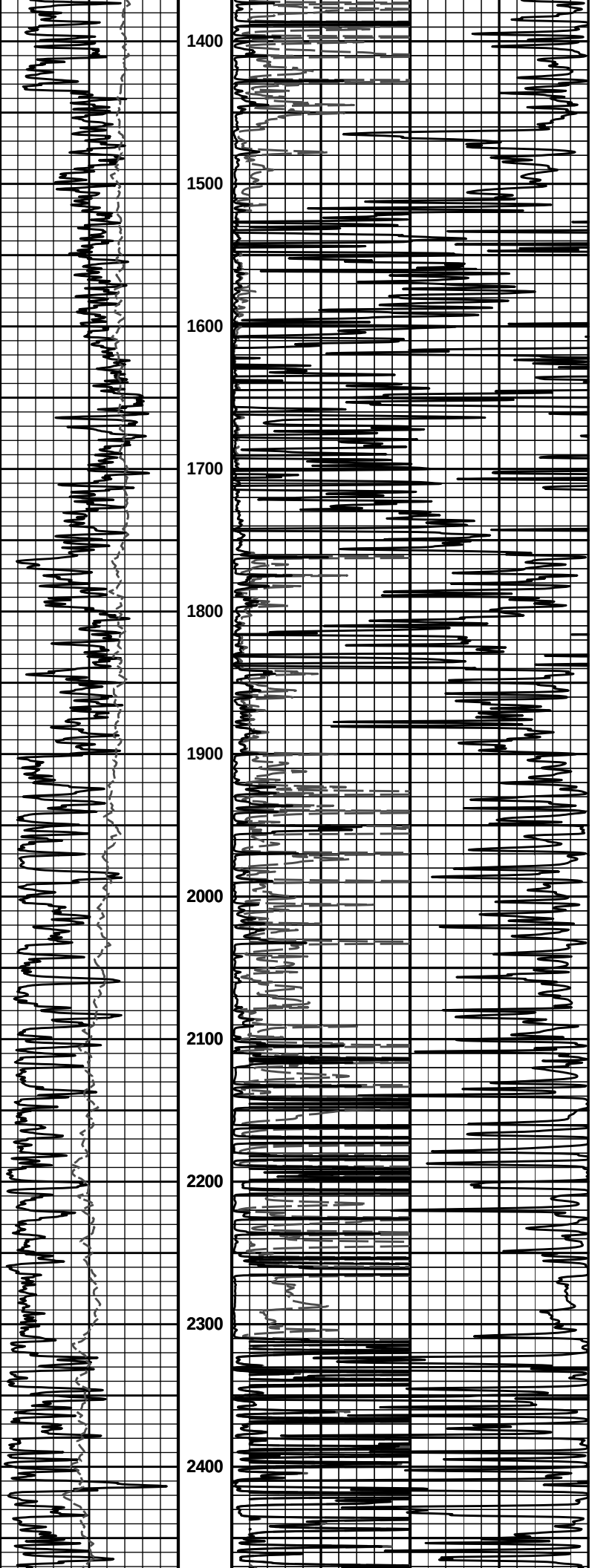
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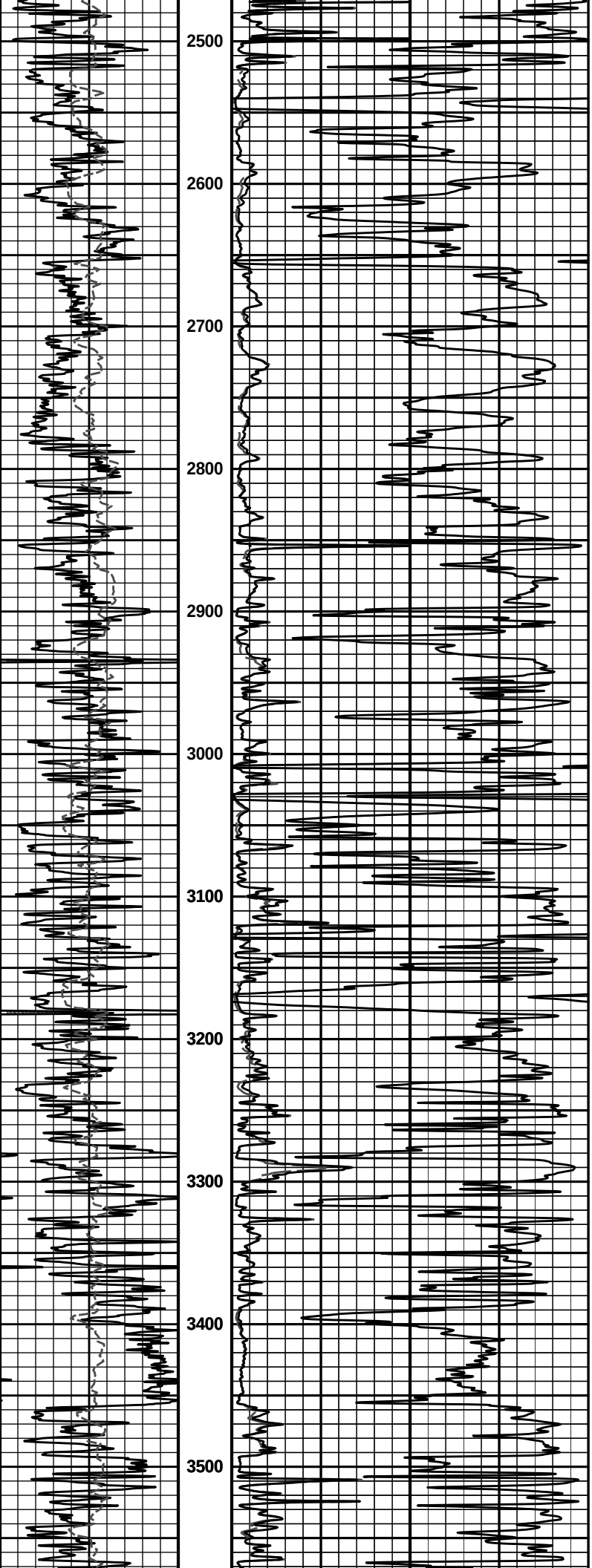
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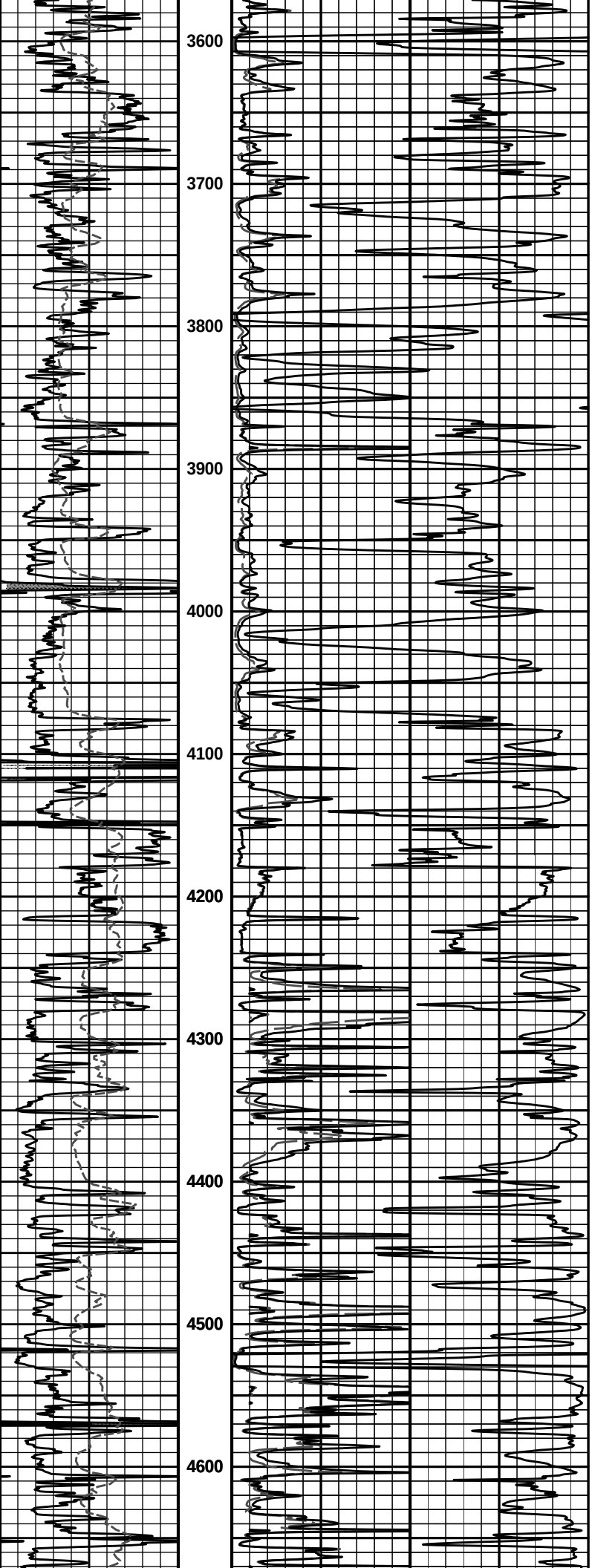
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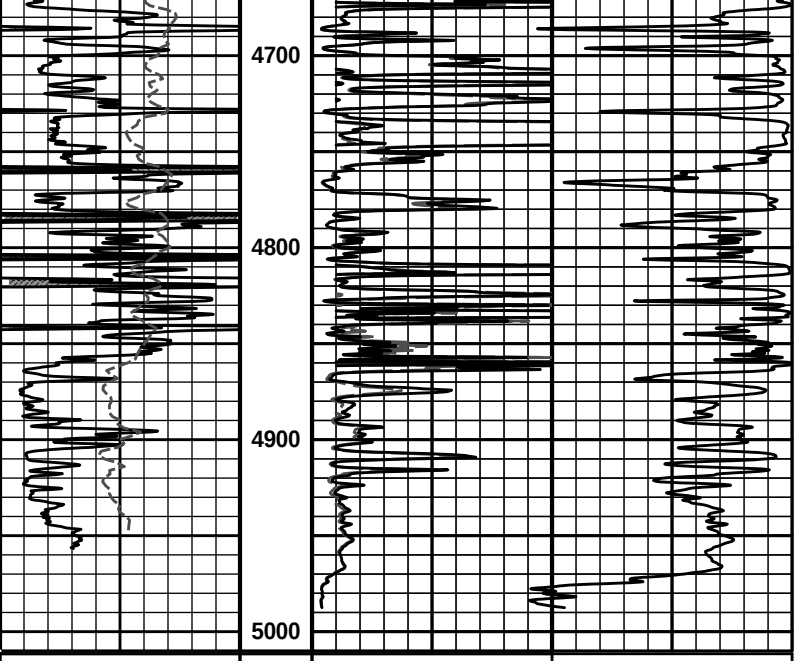

0 Gamma API 150	MD 1 : 1200 ft	20in Resistivity 2ft Res 0 50
api		ohm-metre
SP		90in Resistivity 2ft Res 0 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

HALLIBURTON

Plot Time: 17-Feb-12 11:52:29
Plot Range: 570 ft to 5010 ft
Data: CHARLES_EINSEL\Well Based\MAIN
Plot File: \\-LOCAL-\CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\...\ACRT_1_lib

1 INCH MAIN LOG