HALLIBURTON

TRIPLE COMBO LOG

COMPANY **SHELL E & P**

WELL **KOBLITZ 3409 28-1**

FIELD **WILDCAT**

COUNTY **HARPER**

STATE **KANSAS**

COMPANY **SHELL E & P**

WELL **KOBLITZ 3409 28-1**

FIELD **WILDCAT**

COUNTY **HARPER** STATE **KANSAS**

API No. 15-077-21854

Location LATITUDE: 37.064317 LONGITUDE: -98.297525

Sect. 28 Twp. 34S Rge. 9W

Other Services:
CSNG
DSN/SDL
IDT
ACRT

Permanent Datum	GL	Elev. 1269.0 ft		
Log measured from	KB	21.0 ft above perm. Datum	Elev.: K.B.	1290.0 ft
Drilling measured from	KB		D.F.	1290.0 ft
			G.L.	1269.0 ft
Date	02-Dec-12			
Run No.	ONE			
Depth - Driller	5454.00 ft	@		
Depth - Logger	5422.0 ft			
Bottom - Logged Interval	5412			
Top - Logged Interval	490			
Casing - Driller	9.625 in	@ 491.0 ft	@	
Casing - Logger	490.0 ft			
Bit Size	8.750 in	@	@	
Type Fluid in Hole	WATER BASED MUD			
Density / Viscosity	9.2 ppg	54.00 s/qt		
PH / Fluid Loss	10.00 pH	6.0 cptm		
Source of Sample	FLOWLINE			
Rm @ Meas. Temperature	0.400 ohmm @ 85.00 degF	@	@	
Rmf @ Meas. Temperature	0.26 ohmm @ 70.00 degF	@	@	
Rmc @ Meas. Temperature	0.495 ohmm @ 70.00 degF	@	@	
Source Rmf / Rmc	MEASURED / MEASURED			
Rm @ BHT	0.24 ohmm @ 145.0 degF	@	@	
Time Since Circulation	12.0 hr			
Time on Bottom	02-Dec-12 20:07			
Max. Rec. Temperature	145.0 degF @ 5422.0 ft	@	@	
Equipment / Location	10782954 / LIBERAL			
Recorded By	S. INGERSOLL			
Witnessed By	T. HARGETT			

Fold here

Service Ticket No.: 900045935 API Serial No.: 15-077-21854 PGM Version: WL INSITE R3.6.0 (Build 3)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

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 SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRT	N/A	1.5" S.O.	
	10800784			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	10811258	Serial No.		Serial No.	10685803	Serial No.	10755066
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]		Serial No.	5073GW	Serial No.	DSN-436
Distance to Source	N/A	FWDA [Y/N]		Strength	1.5 CI	Strength	15 CI

LOGGING DATA

GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Logging Unit No.	10782954	Logging Unit No.	10782954	Logging Unit No.	10782954	Logging Unit No.	10782954	Logging Unit No.	10782954
Logging Engineer	S. INGERSOLL	Logging Engineer	S. INGERSOLL	Logging Engineer	S. INGERSOLL	Logging Engineer	S. INGERSOLL	Logging Engineer	S. INGERSOLL
Location	LIBERAL	Location	LIBERAL	Location	LIBERAL	Location	LIBERAL	Location	LIBERAL
Time Logger on Bottom	02-Dec-12 20:07	Time Logger on Bottom	02-Dec-12 20:07	Time Logger on Bottom	02-Dec-12 20:07	Time Logger on Bottom	02-Dec-12 20:07	Time Logger on Bottom	02-Dec-12 20:07
Unit Number	3409	Unit Number	3409	Unit Number	3409	Unit Number	3409	Unit Number	3409
Truck Number	3409-01	Truck Number	3409-01	Truck Number	3409-01	Truck Number	3409-01	Truck Number	3409-01
Base	LIBERAL	Base	LIBERAL	Base	LIBERAL	Base	LIBERAL	Base	LIBERAL
Job Type	TRIPLE COMBO	Job Type	TRIPLE COMBO	Job Type	TRIPLE COMBO	Job Type	TRIPLE COMBO	Job Type	TRIPLE COMBO
Customer Rep.	T. HARGETT	Customer Rep.	T. HARGETT	Customer Rep.	T. HARGETT	Customer Rep.	T. HARGETT	Customer Rep.	T. HARGETT
Rig Name	MURFIN 24	Rig Name	MURFIN 24	Rig Name	MURFIN 24	Rig Name	MURFIN 24	Rig Name	MURFIN 24
Rig Type	LAND	Rig Type	LAND	Rig Type	LAND	Rig Type	LAND	Rig Type	LAND
Rig Phone		Rig Phone		Rig Phone		Rig Phone		Rig Phone	
Rig Fax		Rig Fax		Rig Fax		Rig Fax		Rig Fax	
Rig Email		Rig Email		Rig Email		Rig Email		Rig Email	
Logger's Depth	5422.0 ft	Logger's Depth	5422.0 ft	Logger's Depth	5422.0 ft	Logger's Depth	5422.0 ft	Logger's Depth	5422.0 ft
Driller's Depth	5454.00 ft	Driller's Depth	5454.00 ft	Driller's Depth	5454.00 ft	Driller's Depth	5454.00 ft	Driller's Depth	5454.00 ft
Casing Driller	9.625 in @ 491.0 ft	Casing Driller	9.625 in @ 491.0 ft	Casing Driller	9.625 in @ 491.0 ft	Casing Driller	9.625 in @ 491.0 ft	Casing Driller	9.625 in @ 491.0 ft
Casing Logger	490.0 ft	Casing Logger	490.0 ft	Casing Logger	490.0 ft	Casing Logger	490.0 ft	Casing Logger	490.0 ft
Bit Size	8.750 in	Bit Size	8.750 in	Bit Size	8.750 in	Bit Size	8.750 in	Bit Size	8.750 in
Type Fluid	WATER BASED MUD	Type Fluid	WATER BASED MUD	Type Fluid	WATER BASED MUD	Type Fluid	WATER BASED MUD	Type Fluid	WATER BASED MUD
Density	9.2 ppg	Density	9.2 ppg	Density	9.2 ppg	Density	9.2 ppg	Density	9.2 ppg
Viscosity	54.00 s/qt	Viscosity	54.00 s/qt	Viscosity	54.00 s/qt	Viscosity	54.00 s/qt	Viscosity	54.00 s/qt
PH	10.00 pH	PH	10.00 pH	PH	10.00 pH	PH	10.00 pH	PH	10.00 pH
Fluid Loss	6.0 cptm	Fluid Loss	6.0 cptm	Fluid Loss	6.0 cptm	Fluid Loss	6.0 cptm	Fluid Loss	6.0 cptm
Source of Sample	FLOWLINE	Source of Sample	FLOWLINE	Source of Sample	FLOWLINE	Source of Sample	FLOWLINE	Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.400 ohmm @ 85.00 degF	Rm @ Meas. Temp	0.400 ohmm @ 85.00 degF	Rm @ Meas. Temp	0.400 ohmm @ 85.00 degF	Rm @ Meas. Temp	0.400 ohmm @ 85.00 degF	Rm @ Meas. Temp	0.400 ohmm @ 85.00 degF
Rmf @ Meas. Temp	0.26 ohmm @ 70.00 degF	Rmf @ Meas. Temp	0.26 ohmm @ 70.00 degF	Rmf @ Meas. Temp	0.26 ohmm @ 70.00 degF	Rmf @ Meas. Temp	0.26 ohmm @ 70.00 degF	Rmf @ Meas. Temp	0.26 ohmm @ 70.00 degF
Rmc @ Meas. Temp	0.495 ohmm @ 70.00 degF	Rmc @ Meas. Temp	0.495 ohmm @ 70.00 degF	Rmc @ Meas. Temp	0.495 ohmm @ 70.00 degF	Rmc @ Meas. Temp	0.495 ohmm @ 70.00 degF	Rmc @ Meas. Temp	0.495 ohmm @ 70.00 degF
Source Rmf	MEASURED	Source Rmf	MEASURED	Source Rmf	MEASURED	Source Rmf	MEASURED	Source Rmf	MEASURED
Rmc	MEASURED	Rmc	MEASURED	Rmc	MEASURED	Rmc	MEASURED	Rmc	MEASURED
Rm @ BHT	0.24 ohmm @ 145.0 degF	Rm @ BHT	0.24 ohmm @ 145.0 degF	Rm @ BHT	0.24 ohmm @ 145.0 degF	Rm @ BHT	0.24 ohmm @ 145.0 degF	Rm @ BHT	0.24 ohmm @ 145.0 degF
Rmf @ BHT		Rmf @ BHT		Rmf @ BHT		Rmf @ BHT		Rmf @ BHT	
Rmc @ BHT		Rmc @ BHT		Rmc @ BHT		Rmc @ BHT		Rmc @ BHT	
Max Recorded Temp.	145.0 degF	Max Recorded Temp.	145.0 degF	Max Recorded Temp.	145.0 degF	Max Recorded Temp.	145.0 degF	Max Recorded Temp.	145.0 degF
Equipment No.	10782954	Equipment No.	10782954	Equipment No.	10782954	Equipment No.	10782954	Equipment No.	10782954
Location	LIBERAL	Location	LIBERAL	Location	LIBERAL	Location	LIBERAL	Location	LIBERAL
Recorded By	S. INGERSOLL	Recorded By	S. INGERSOLL	Recorded By	S. INGERSOLL	Recorded By	S. INGERSOLL	Recorded By	S. INGERSOLL
Witnessed By	T. HARGETT	Witnessed By	T. HARGETT	Witnessed By	T. HARGETT	Witnessed By	T. HARGETT	Witnessed By	T. HARGETT

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	5422	490	REC	0	150				1.95	2.95	2.71 gm/cc	45	-15	LIME

DIRECTIONAL INFORMATION

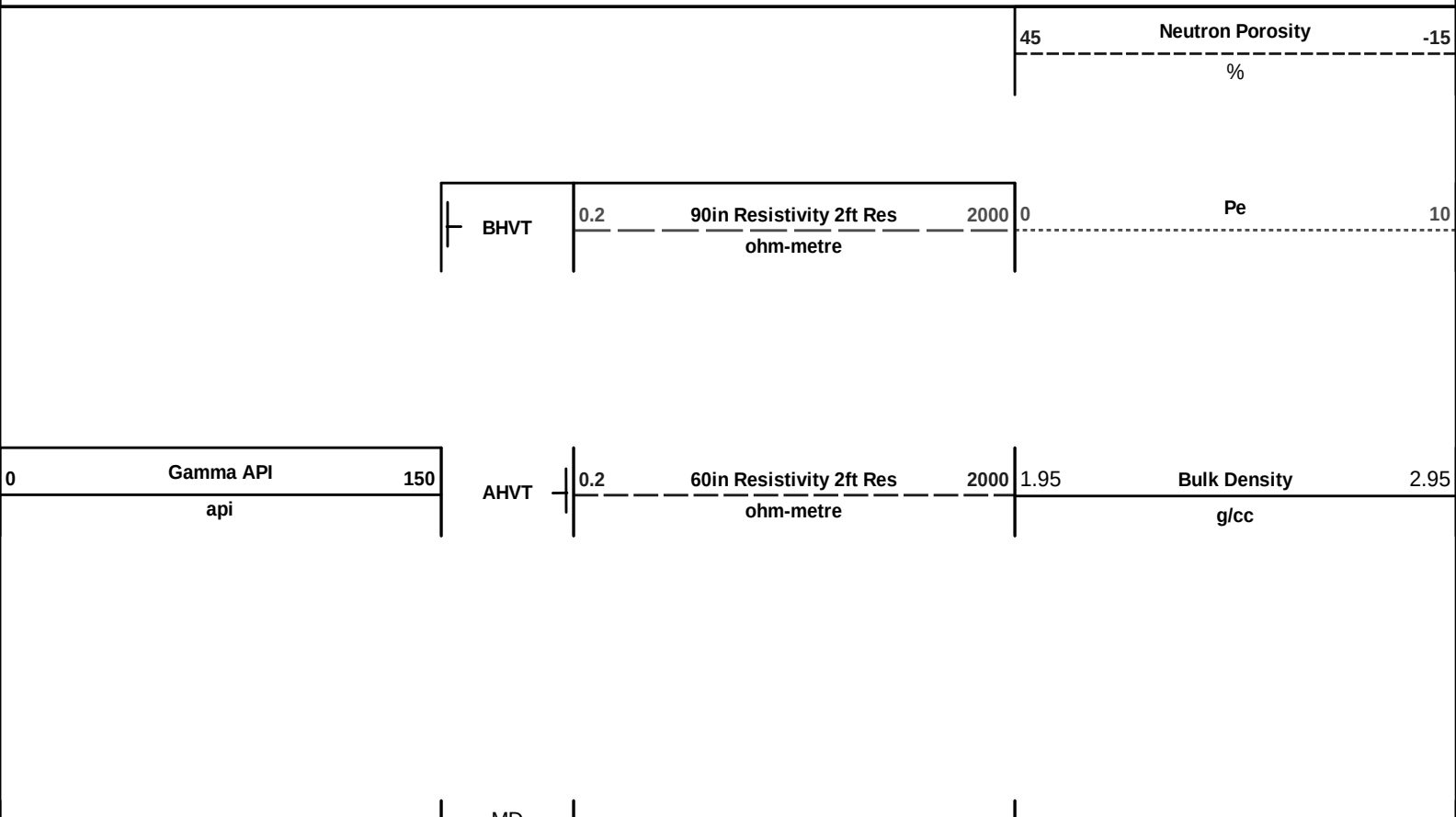
Maximum Deviation	@	KOP	@

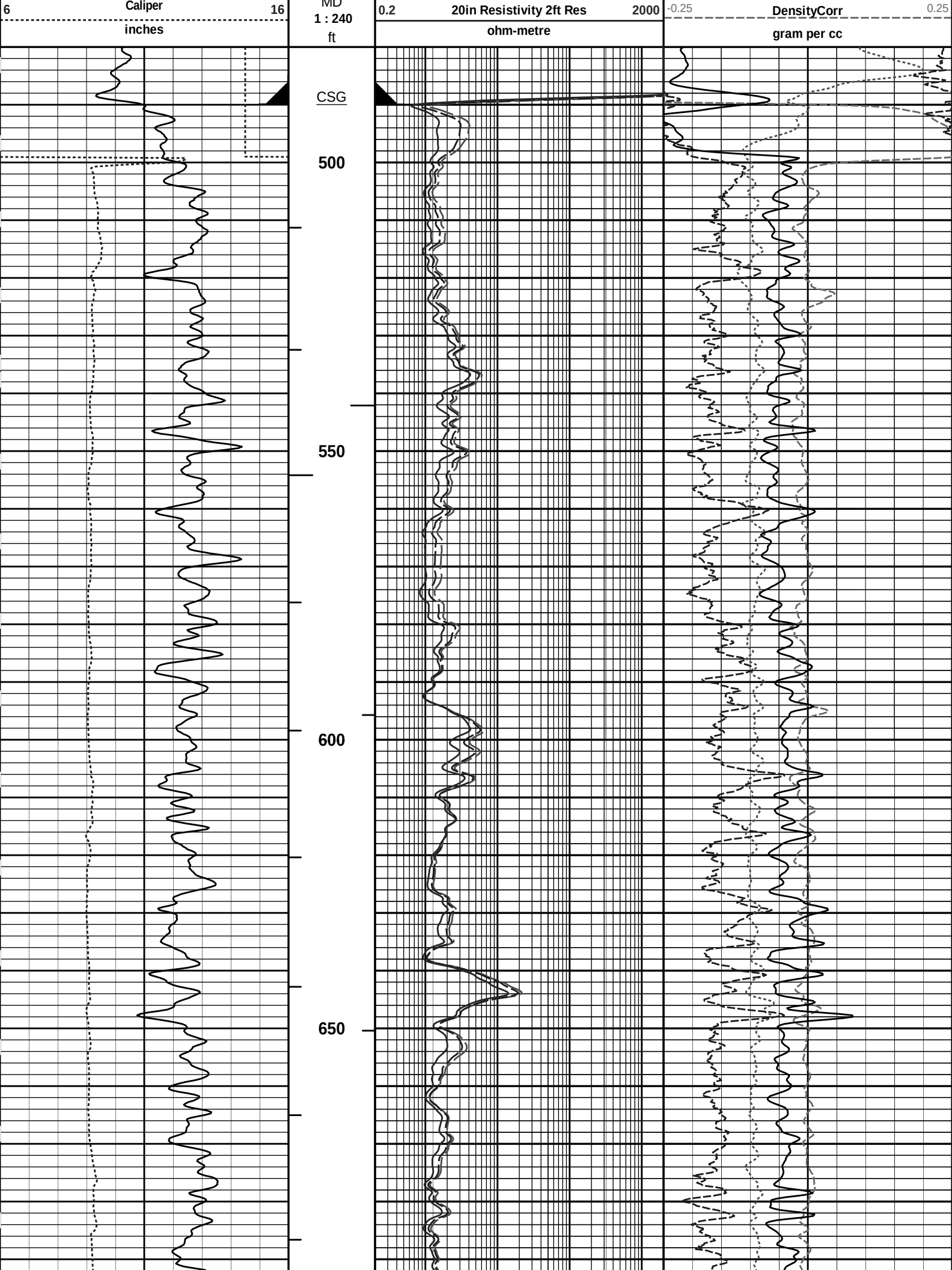
Remarks: TOOL RUN AS PER TOOL SKETCH. GAMMA, SPECTRAL GAMMA, NEUTRON, DENSITY ECCENTERED WITH BOWSPRING AND DENSITY CALIPER.
DIRECTIONAL AND INDUCTION CENTRALIZED WITH OVERBODY CENTRALIZERS. INDUCTION ALSO USED A 1.5 INCH STANDOFF.
INDUCTION LOG USES THE COMPUTE STANDOFF MODEL. THE 2 FT. RESOLUTION DATA FROM THE INDUCTION IS PRESENTED.
CASING CALIPER CHECK : EXP VALUE 9.00 IN, CALIPER VALUE 8.3 IN, CORRECTION OF .7 IN APPLIED TO CALIPER.
CL 12,000 mg/L NaCl EQ 16,481 ppm NO MINERAL OIL USED IN MUD SYSTEM.
FIRST RUN IN THE HOLE. ALL HALLIBURTON DEPTH CONTROL PROCEDURES APPLIED.
ALL LOGS ZEROED AT DRILL FLOOR KB.
RIG HAS TOP DRIVE, AND THEREFORE NO KELLY BUSHING. DRILLING AND LOGS MEASURED FROM DRILL FLOOR.

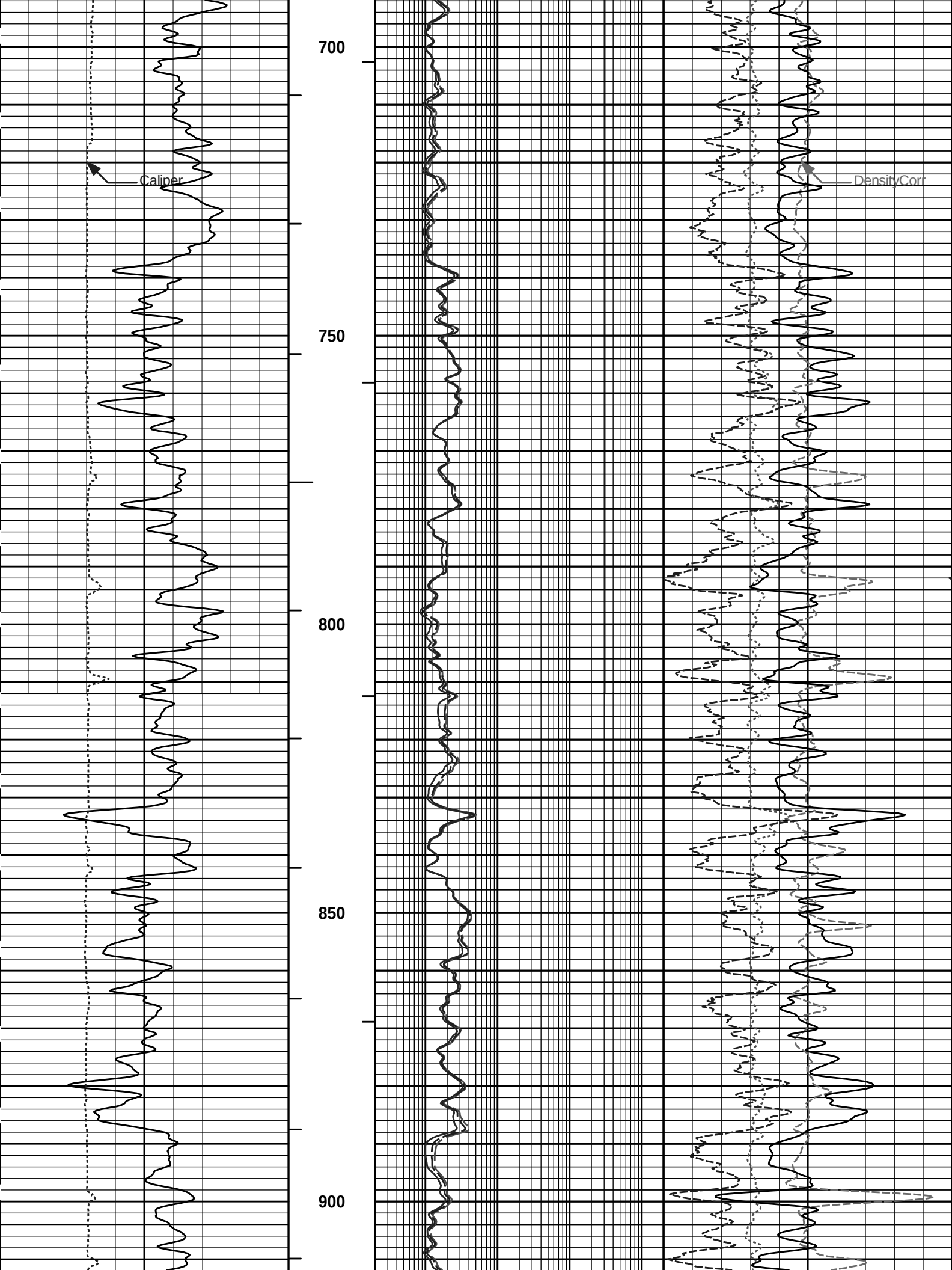
HALLIBURTON

Plot Time: 03-Dec-12 09:39:33
Plot Range: 480 ft to 5426 ft
Data: KOBLITZ3409_28\Well Based\MAIN PASS*
Plot File: \\TRIPLE_5_INCH\TC_SHELL_MAIN

5 INCH MAIN LOG




6
Caliper
16
inches
MD
1 : 240
ft
0.2
20in Resistivity 2ft Res
2000
ohm-metre
-0.25
DensityCorr
0.25
gram per cc
CSG
500
550
600
650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DensityCorr
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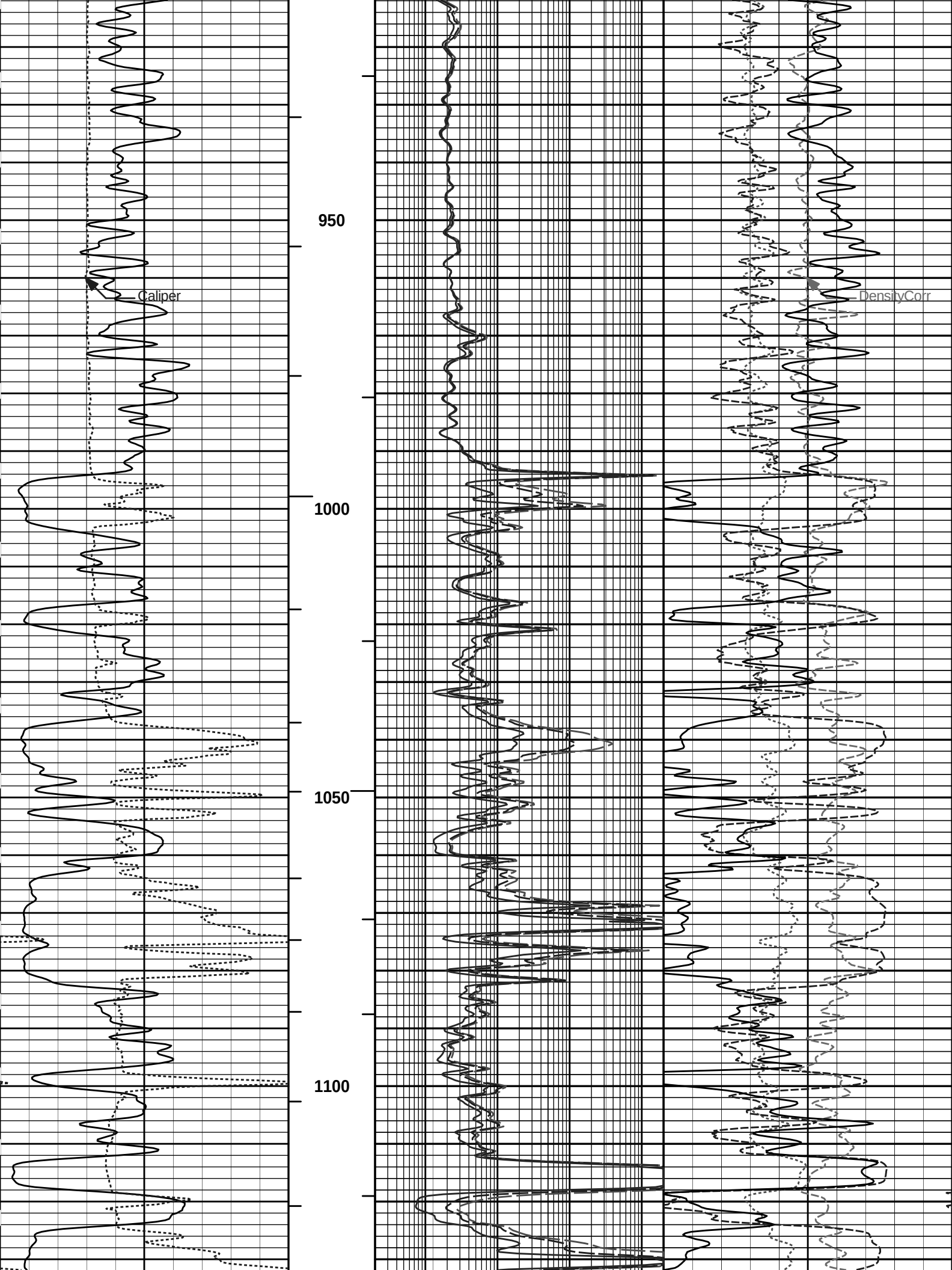
750
800
850
900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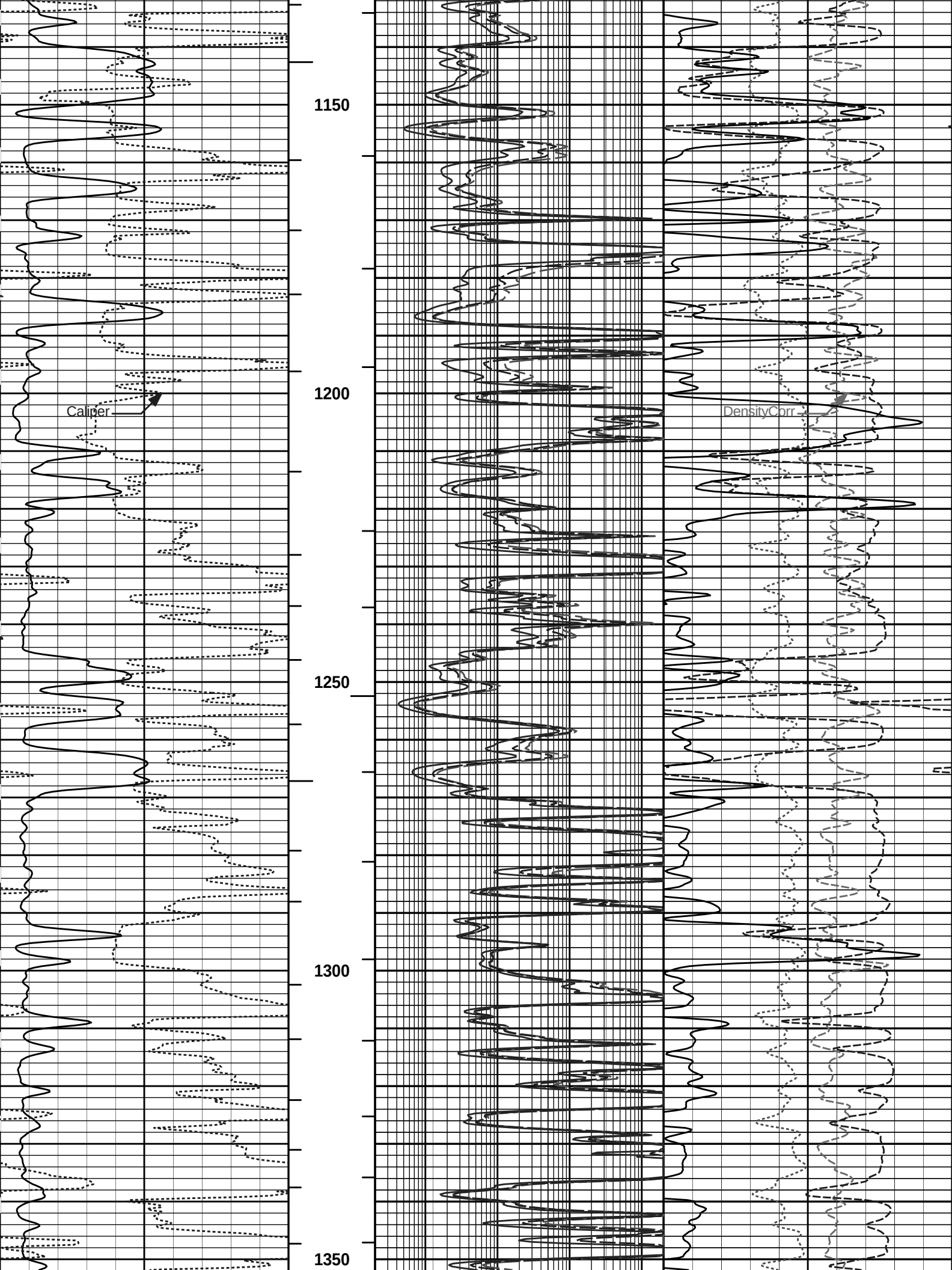
1000
1050
1100
Caliper
DensityCorr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1250
1300
1350
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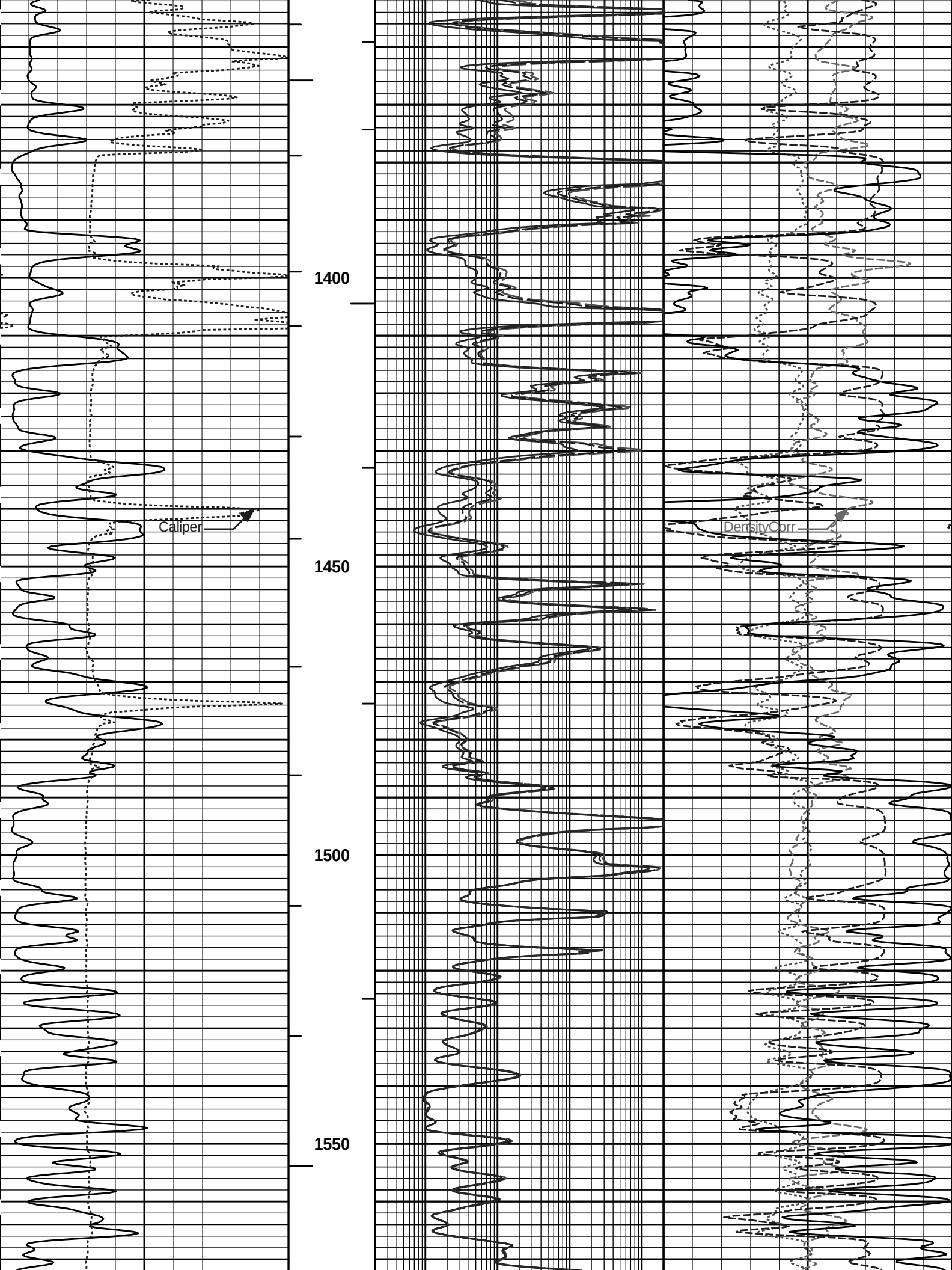
DensityCorr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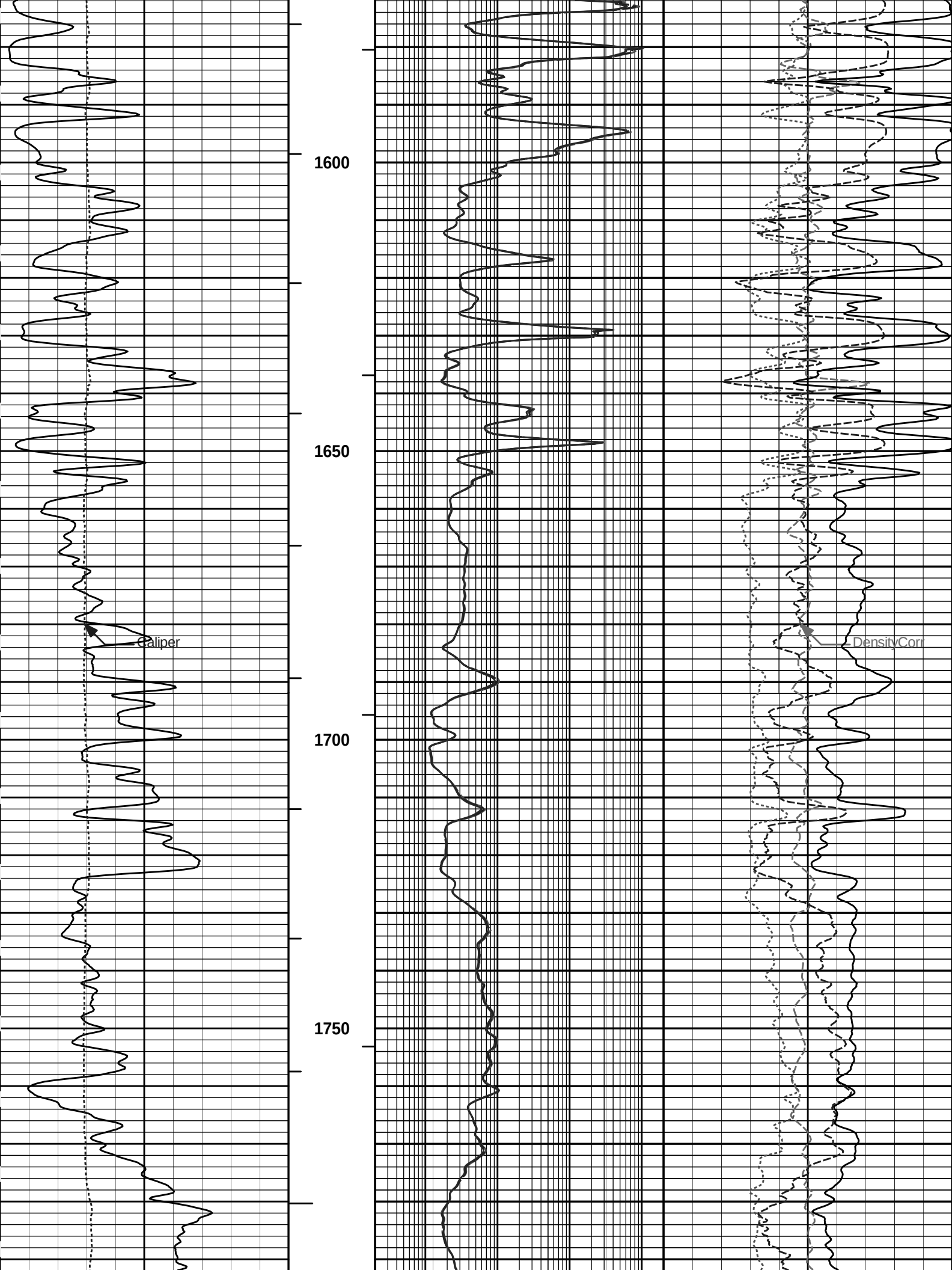
DensityCorr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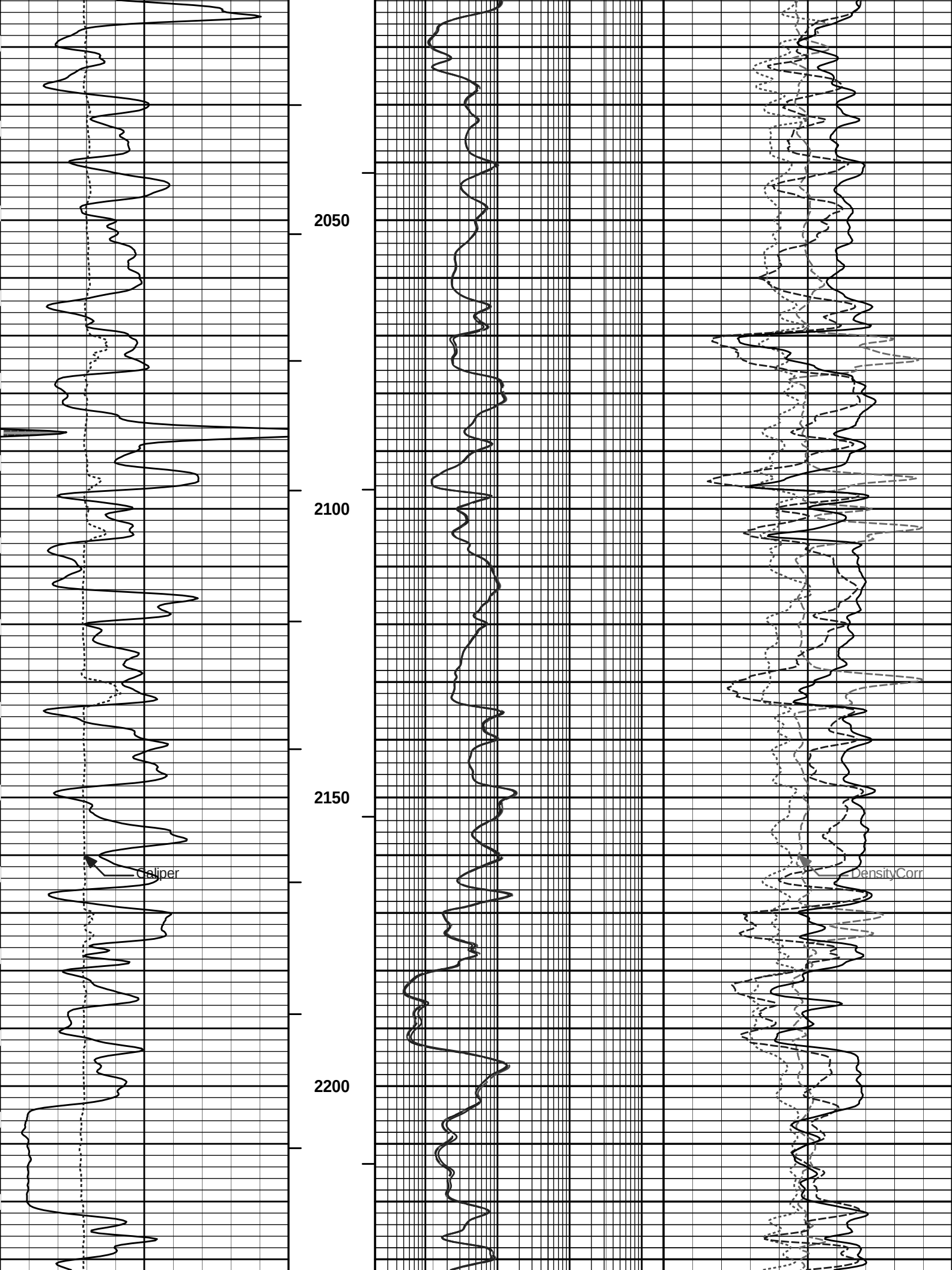
1650
1700
1750
Caliper
DensityCorr


1800
1850
1900
1950
2000
Caliper
DensityCorr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2100
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2200
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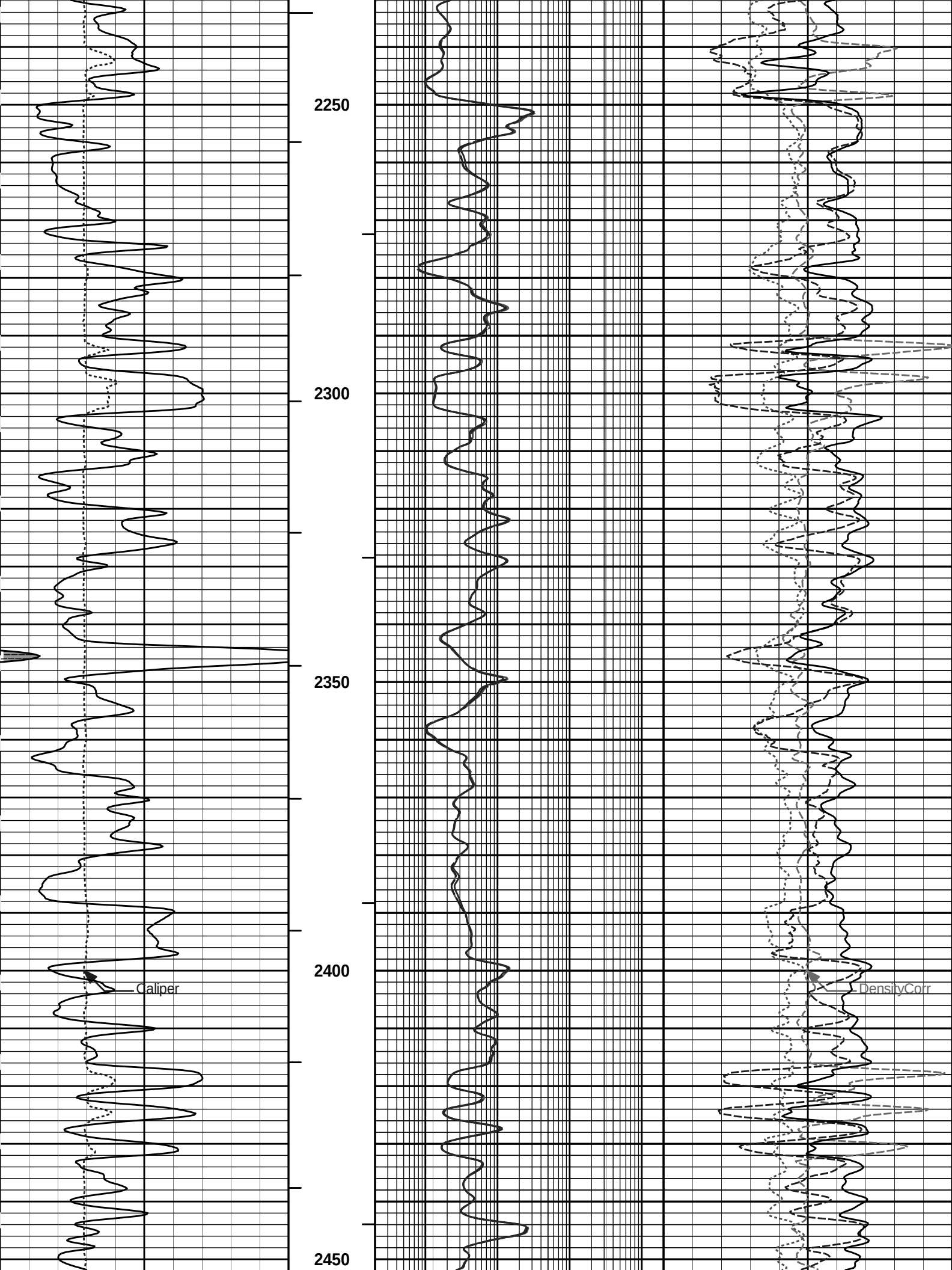
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2350
2400
2450
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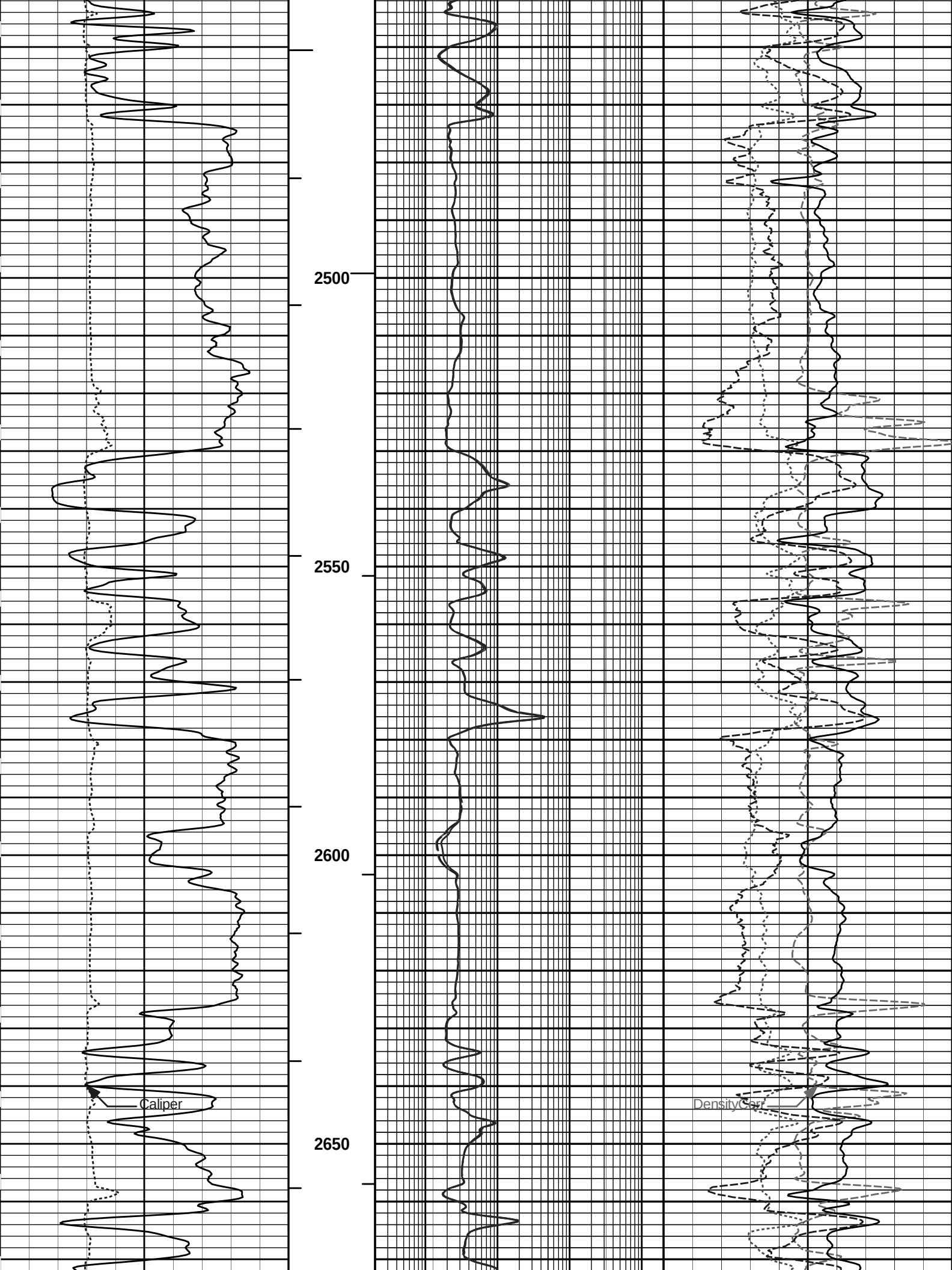
DensityCorr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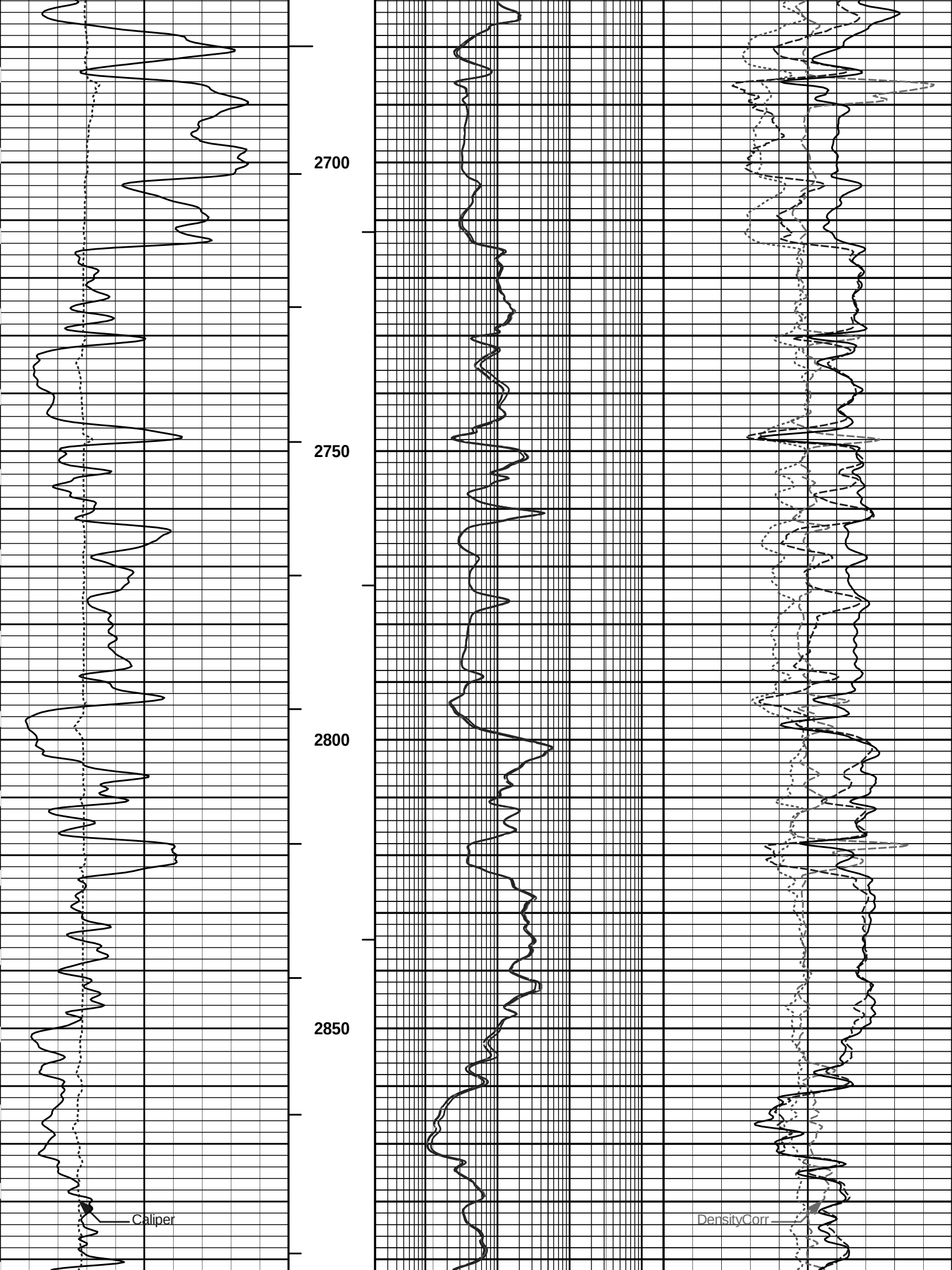
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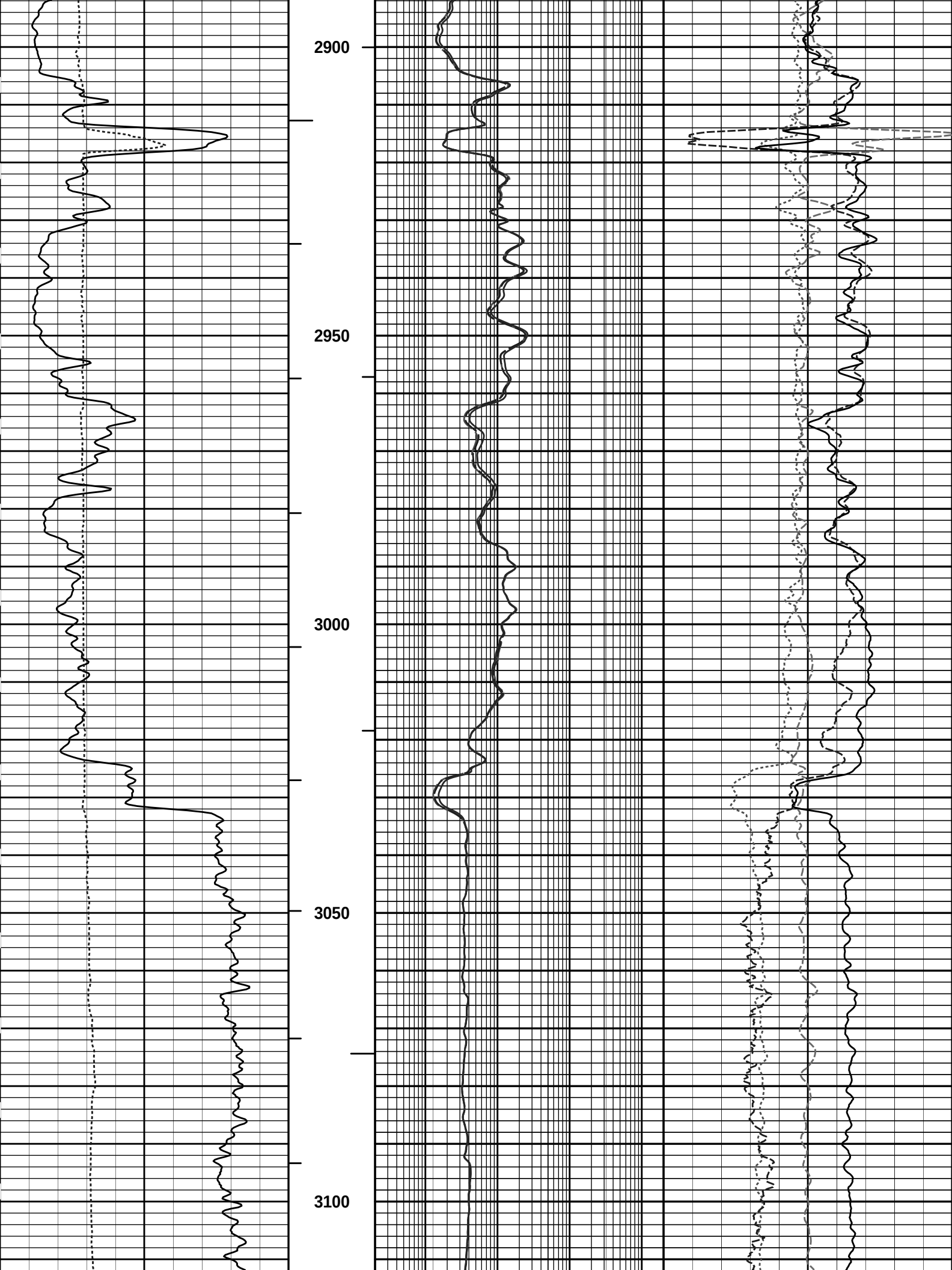
DensityCorr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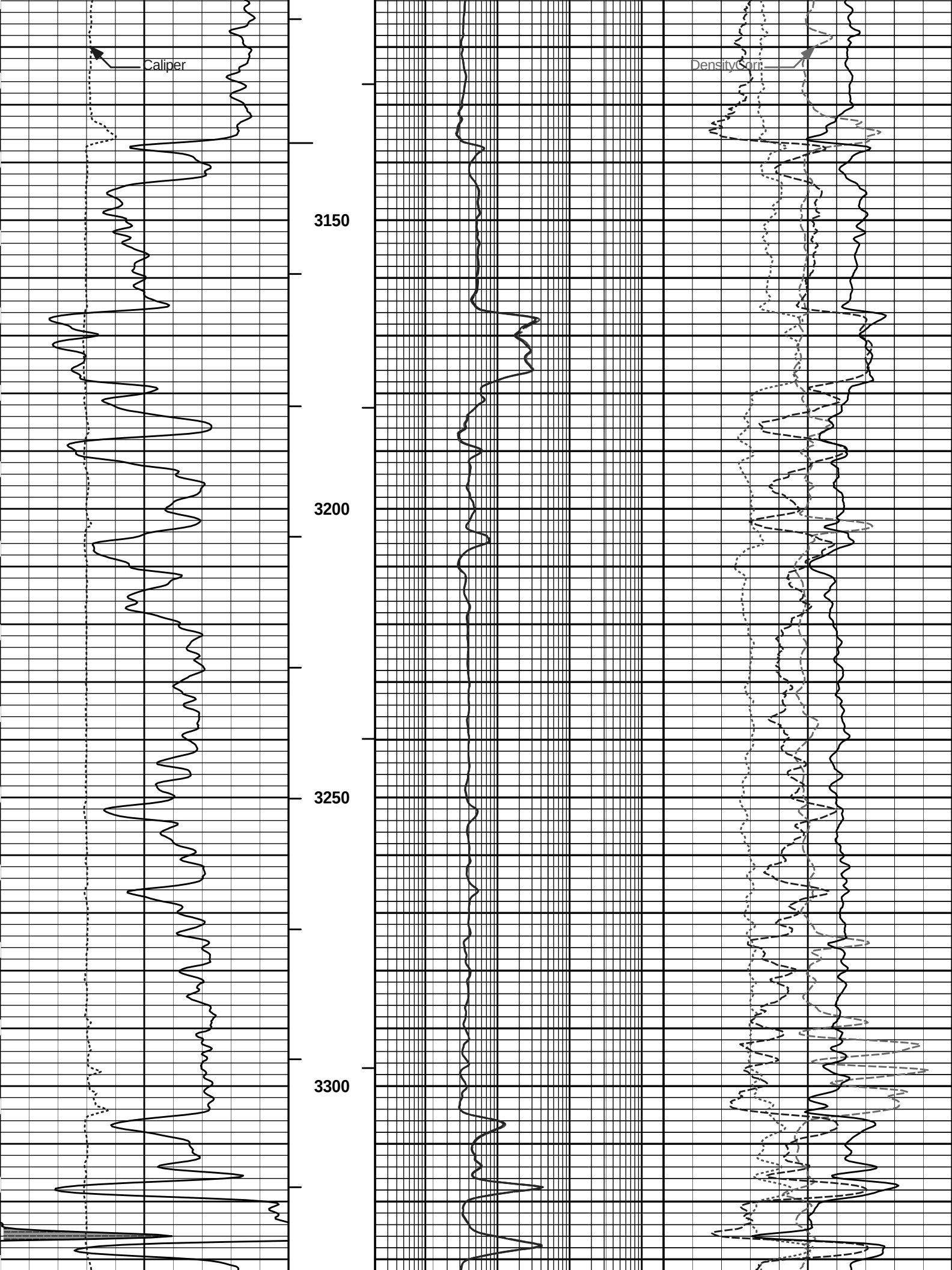
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DensityCorr
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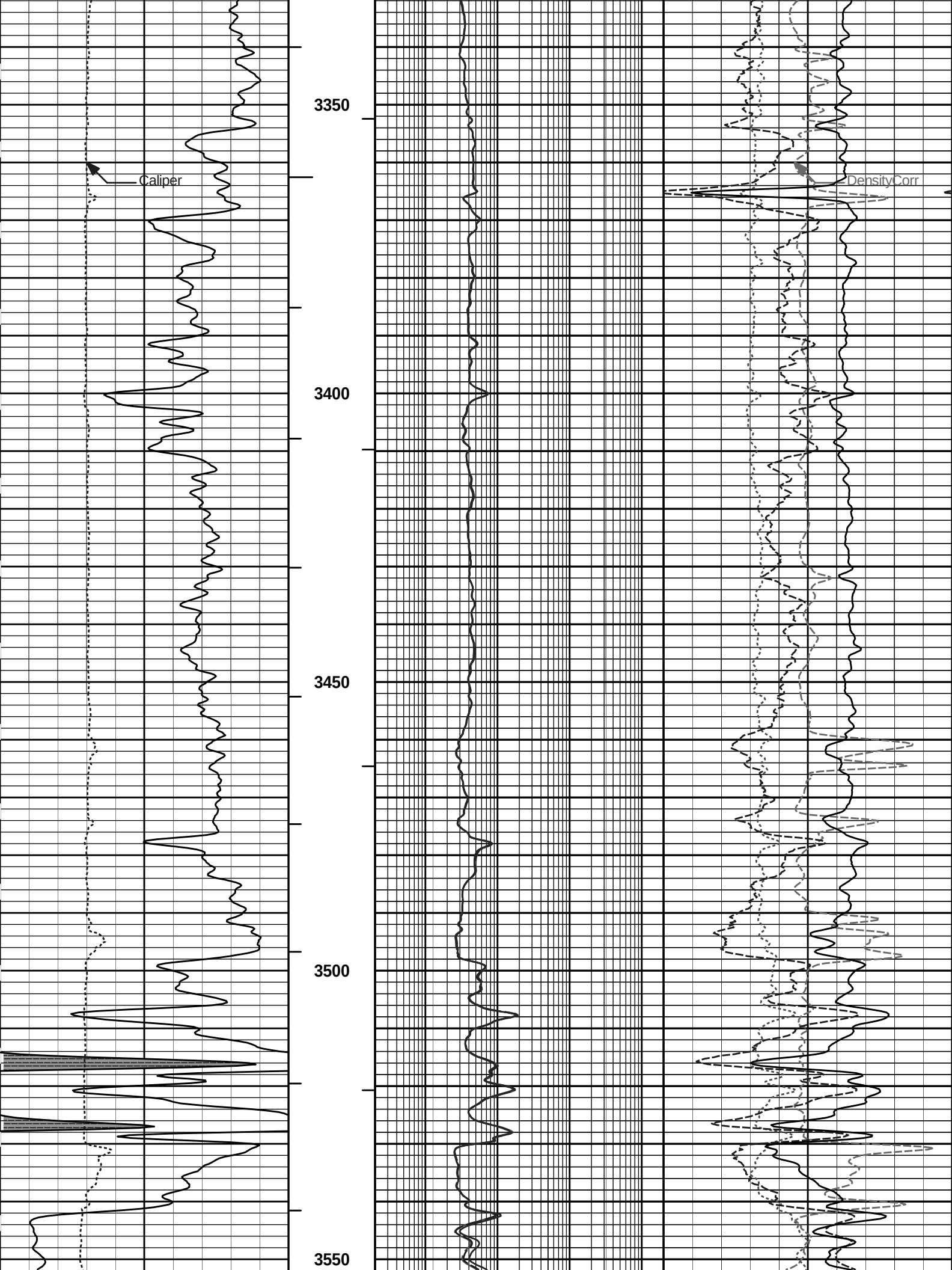
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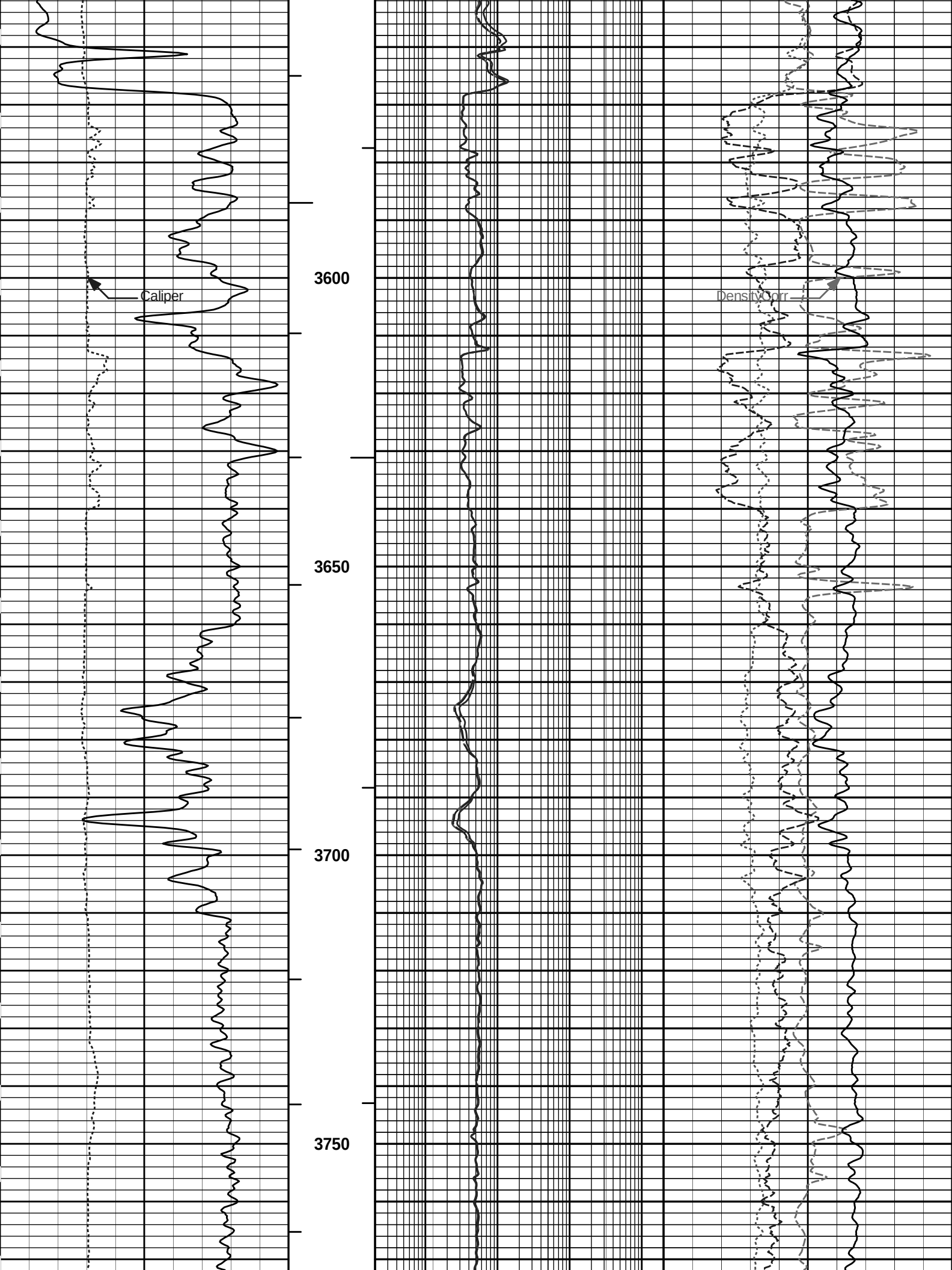
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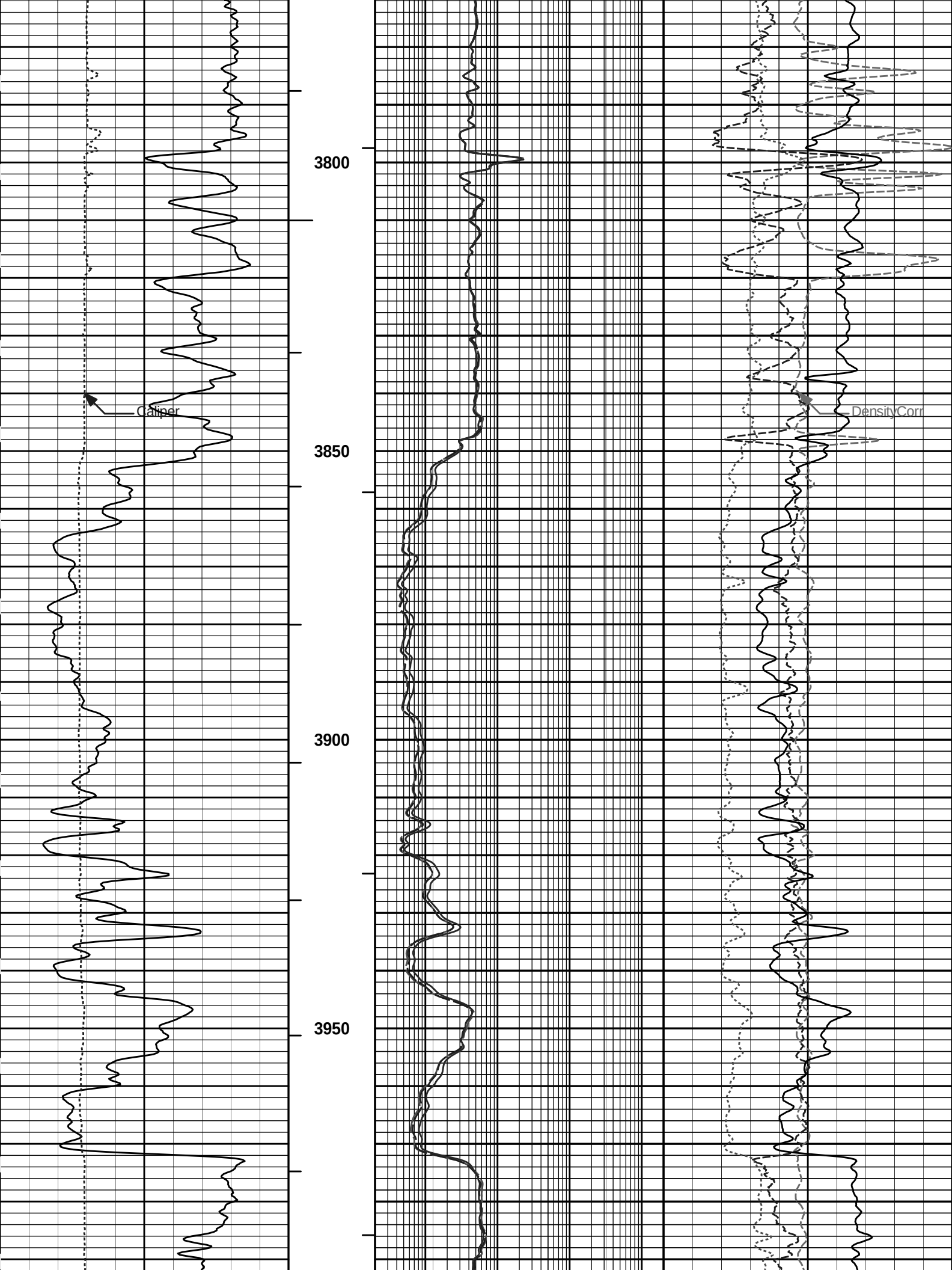
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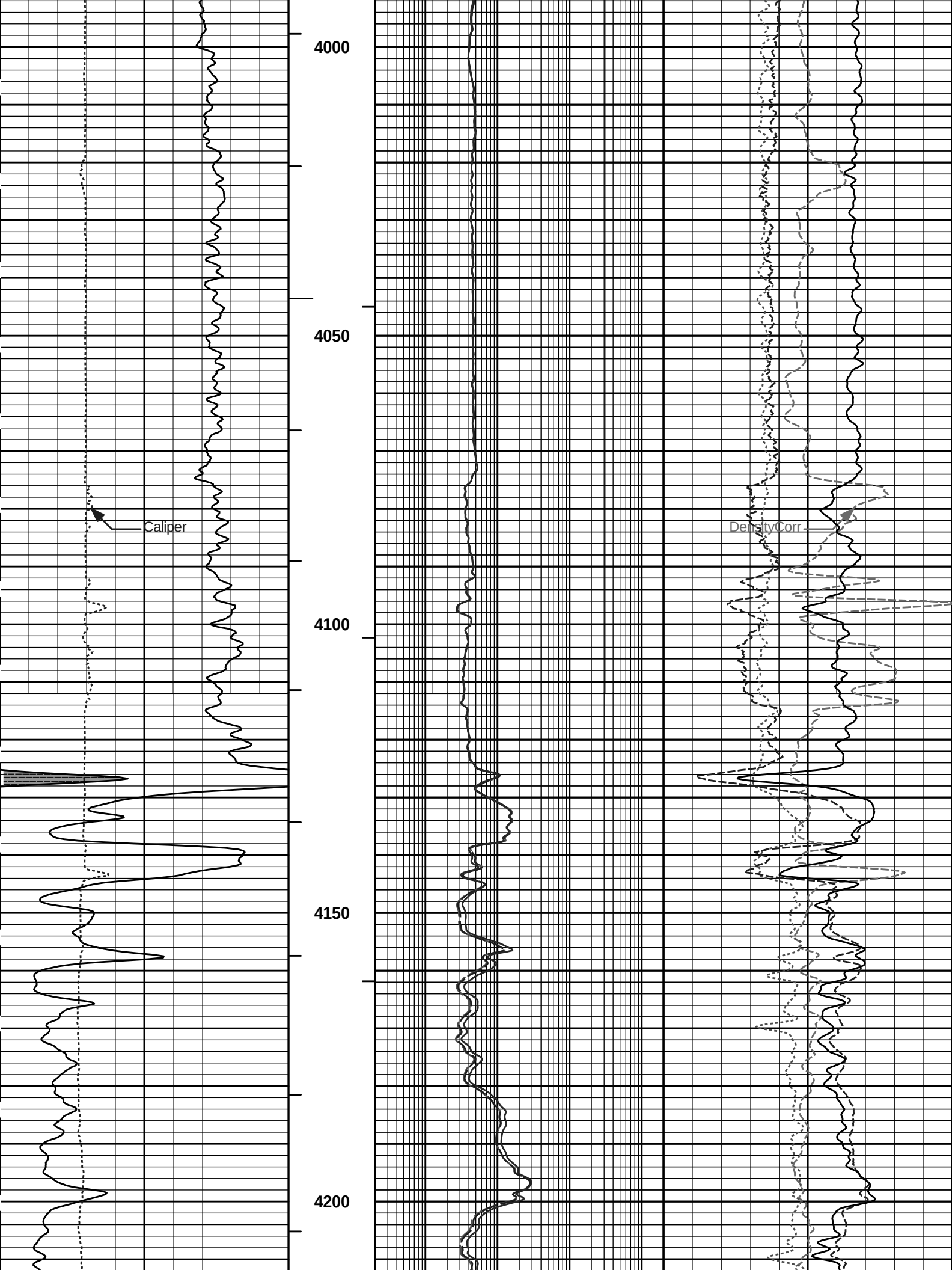
Caliper
DensityCorr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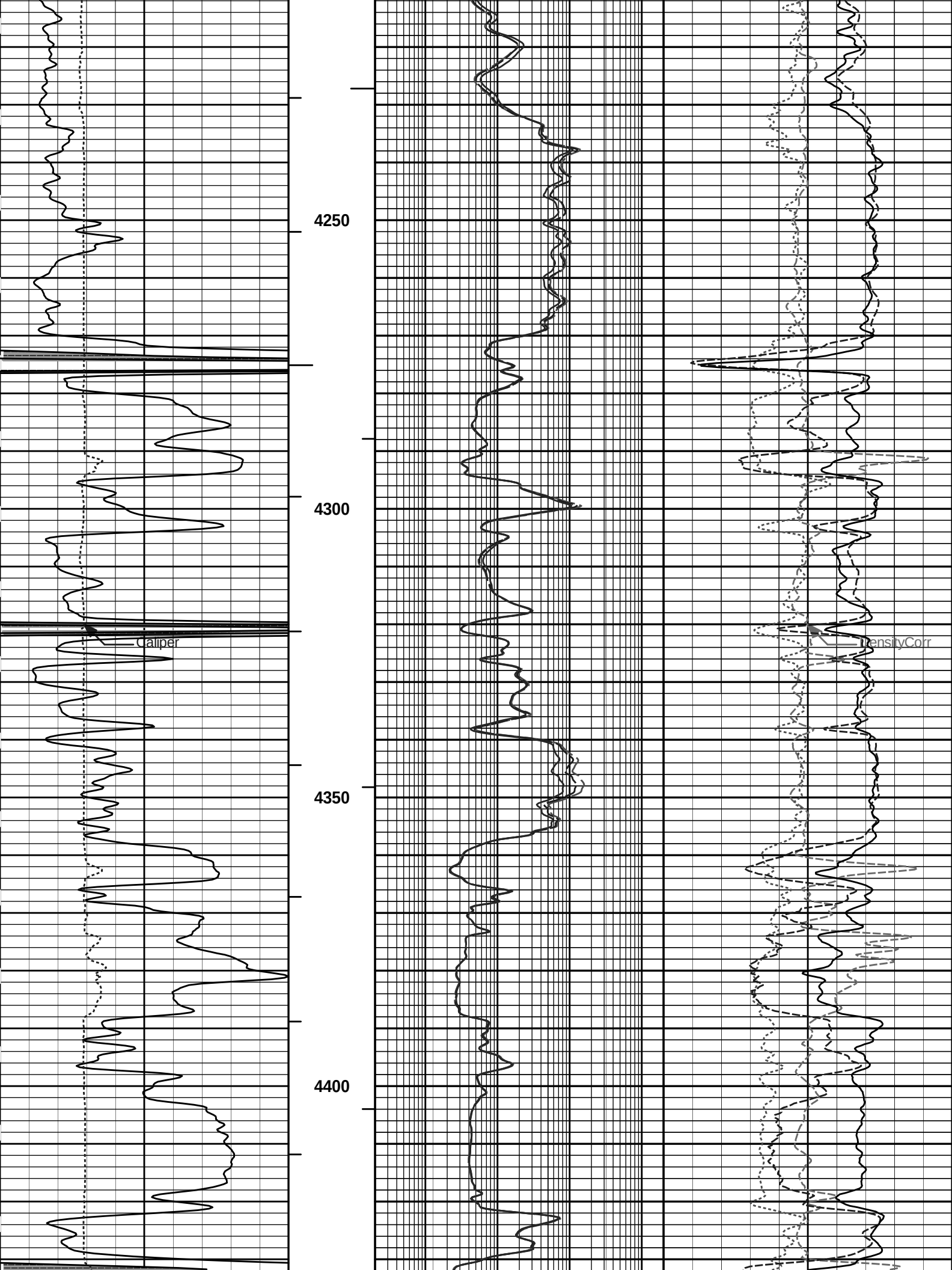
4150
4200
Caliper
DensityCorr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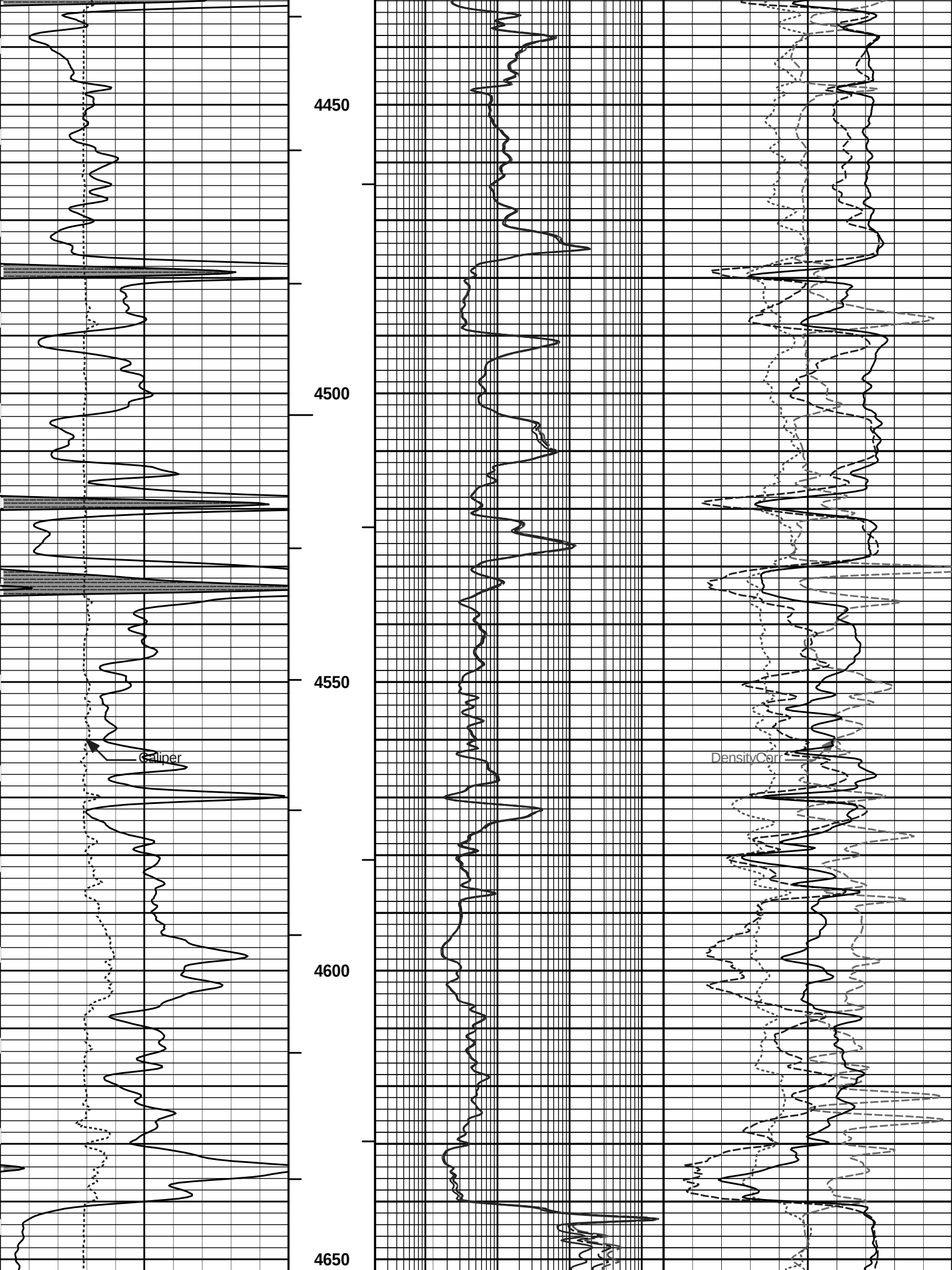
DensityCorr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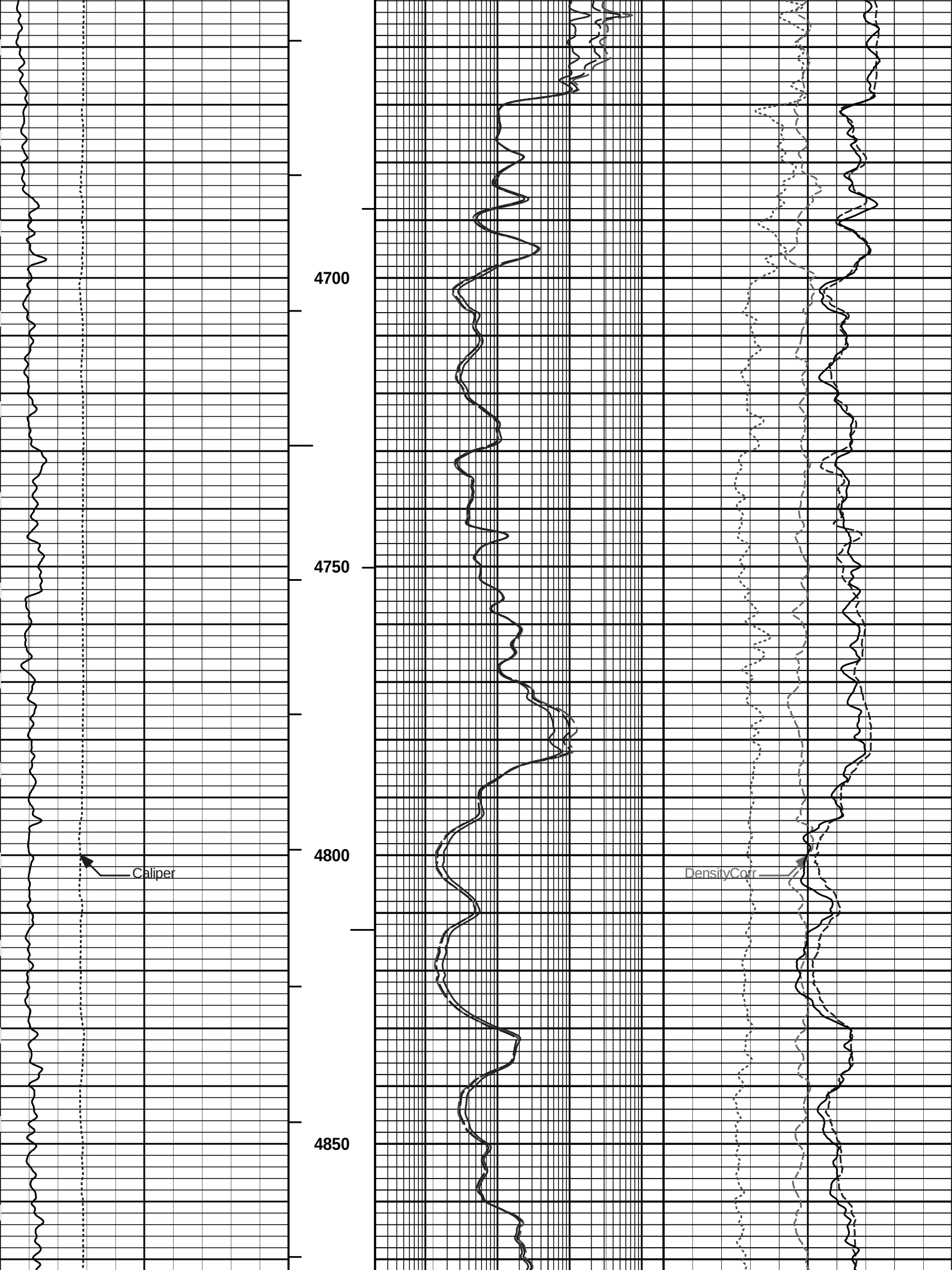
Caliper
DensityCorr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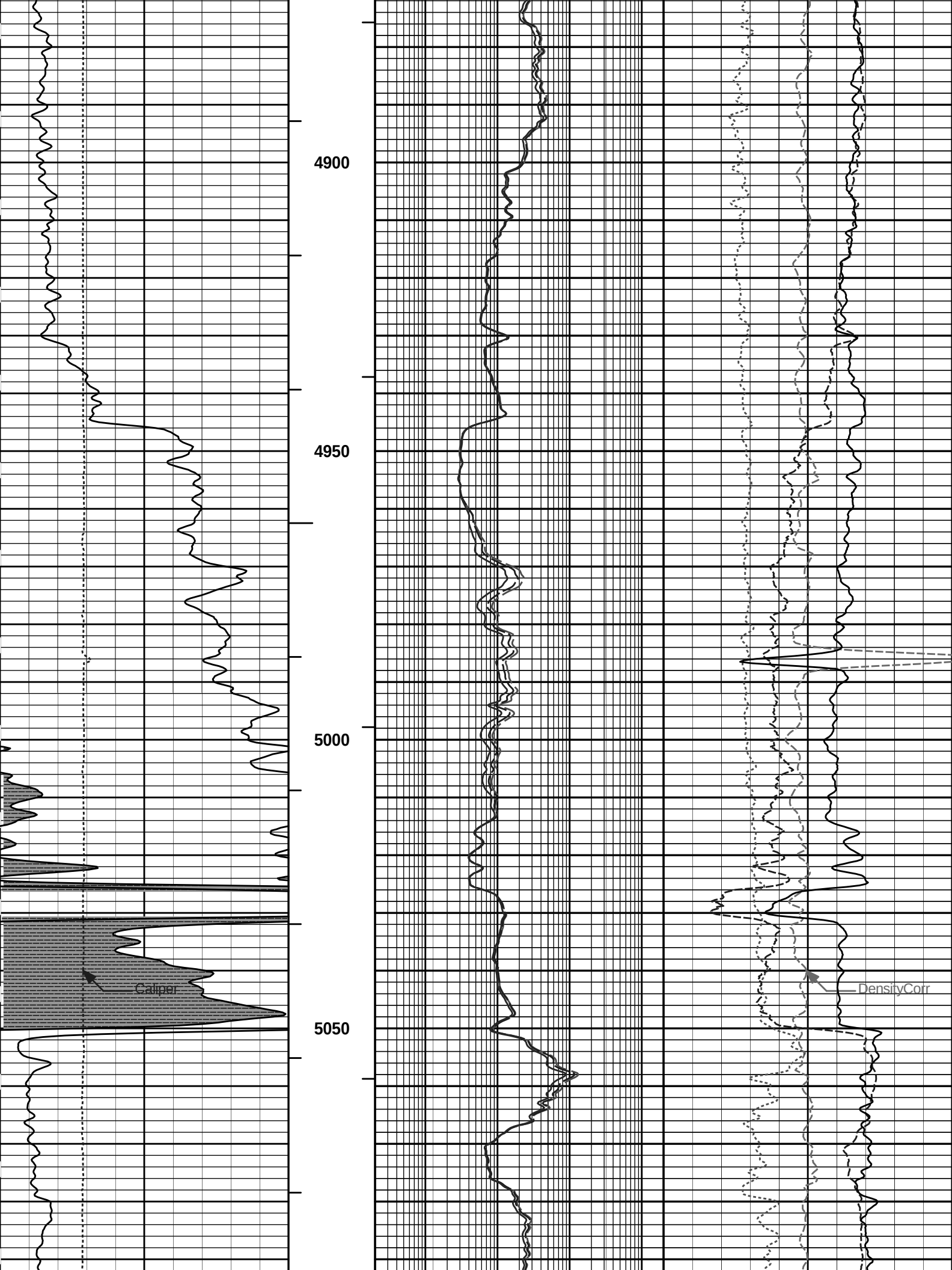
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Caliper
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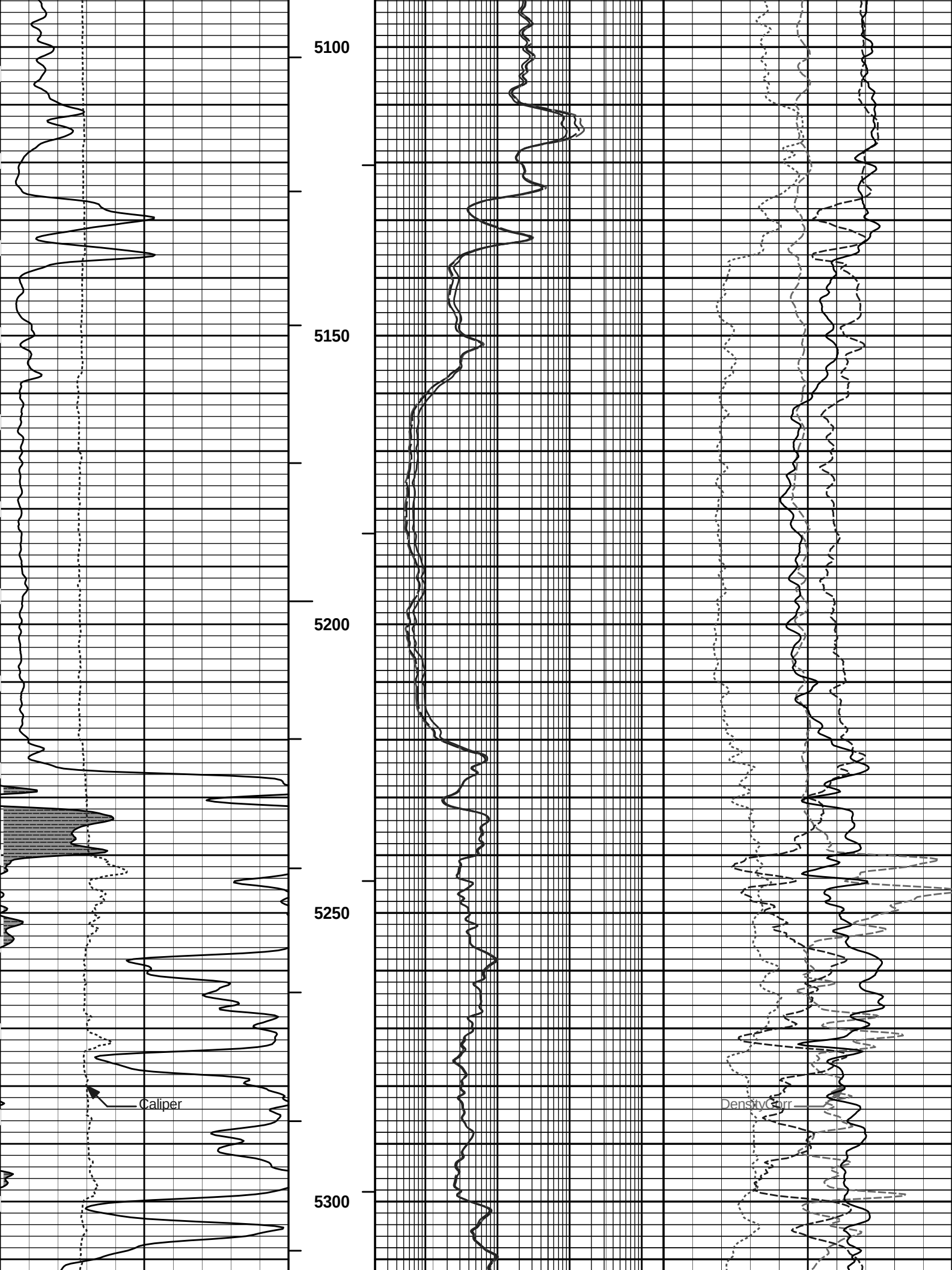
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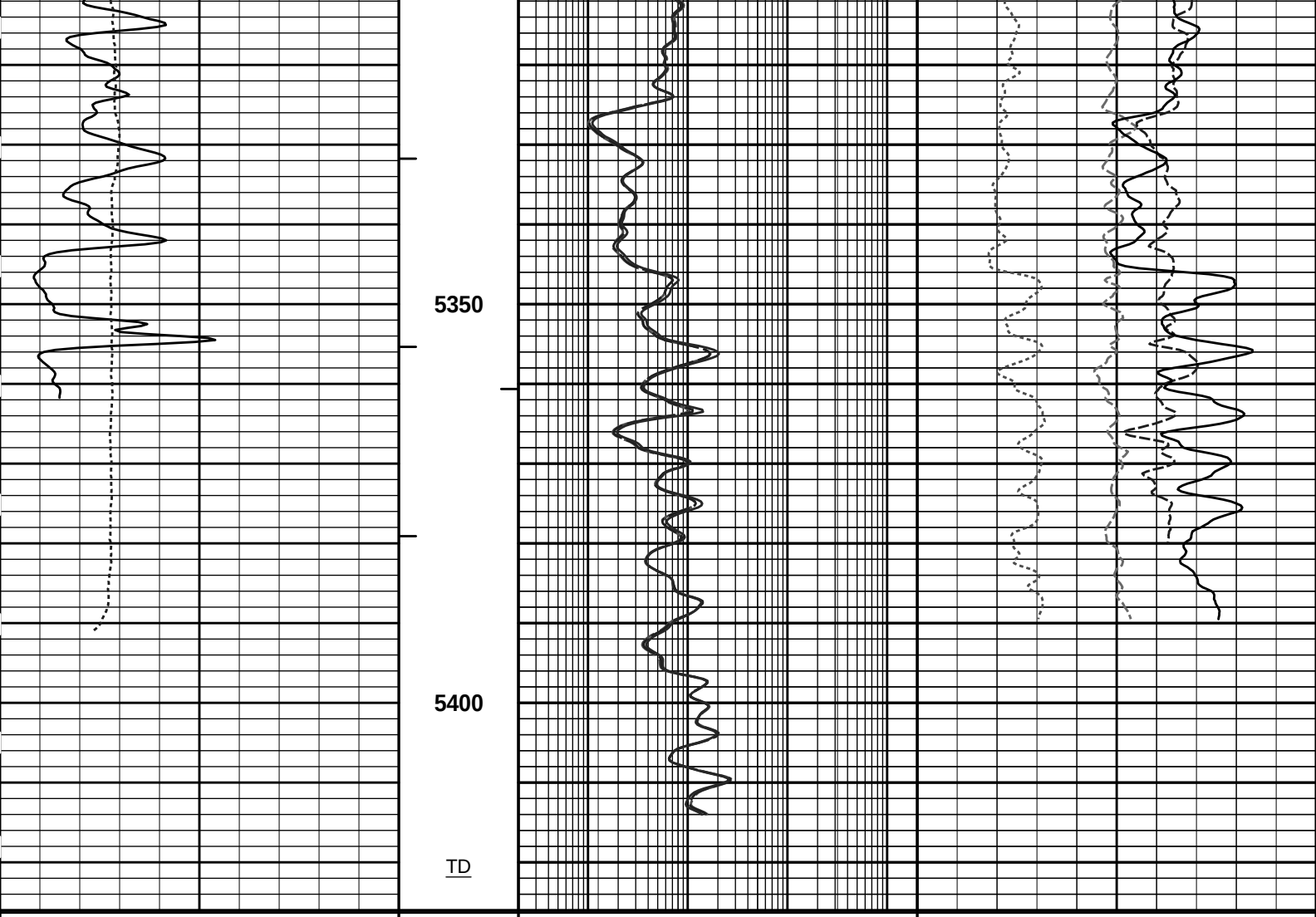
5250
5300
Caliper
DensityCorr



6 Caliper 16 inches	MD 1 : 240 ft	0.2 20in Resistivity 2ft Res 2000 ohm-metre
0 Gamma API 150 api	AHVT	0.2 60in Resistivity 2ft Res 2000 ohm-metre
	BHVT	0.2 90in Resistivity 2ft Res 2000 ohm-metre

-0.25 DensityCorr 0.25 gram per cc	
1.95 Bulk Density 2.95 g/cc	
0 Pe 10	
45 Neutron Porosity -15 %	

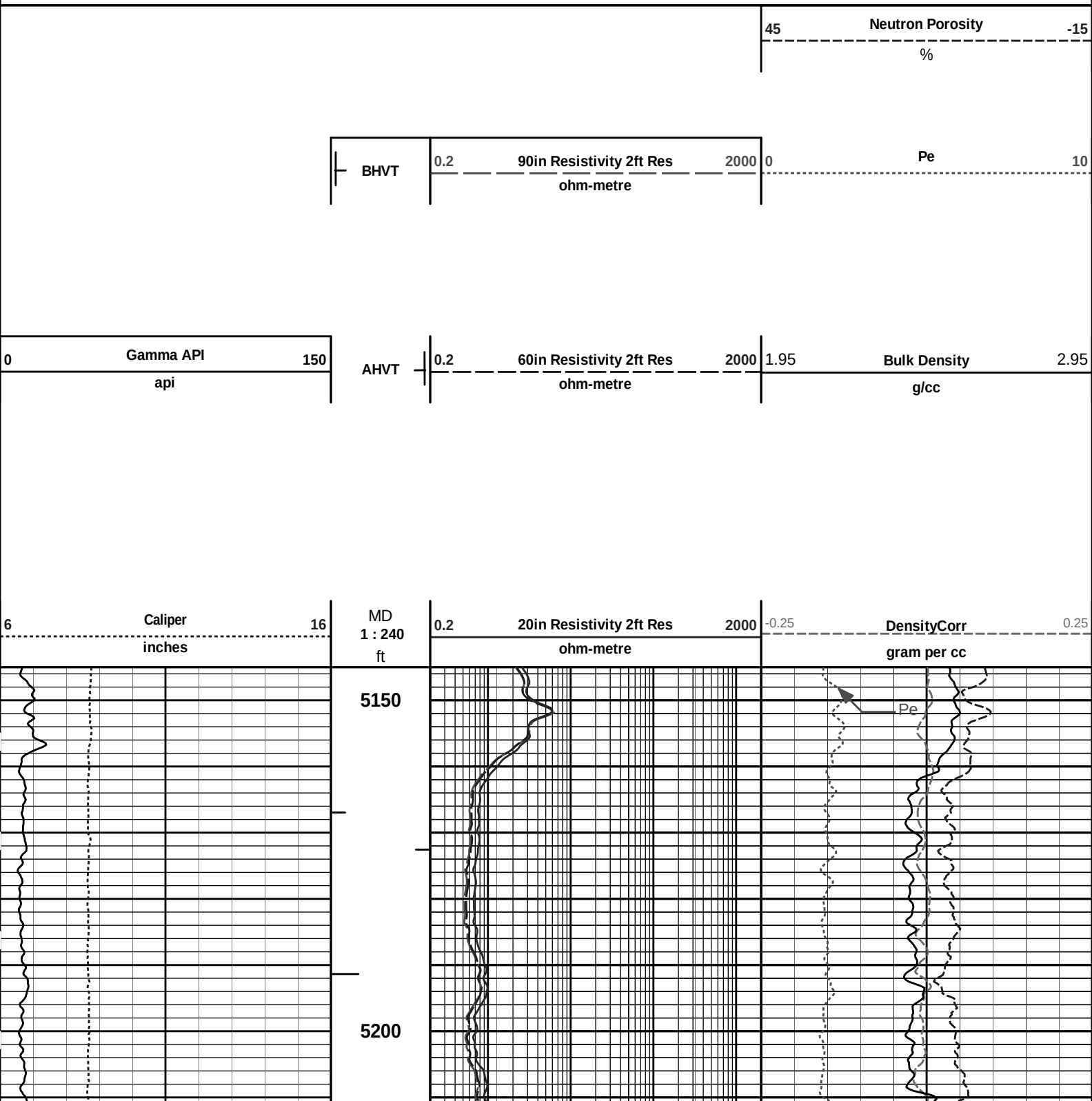
Plot Range: 480 ft to 5426 ft
Data: KOBLITZ3409_28\Well Based\MAIN PASS*
Plot File: \\TRIPLE_5_INCH\TC_SHELL_MAIN

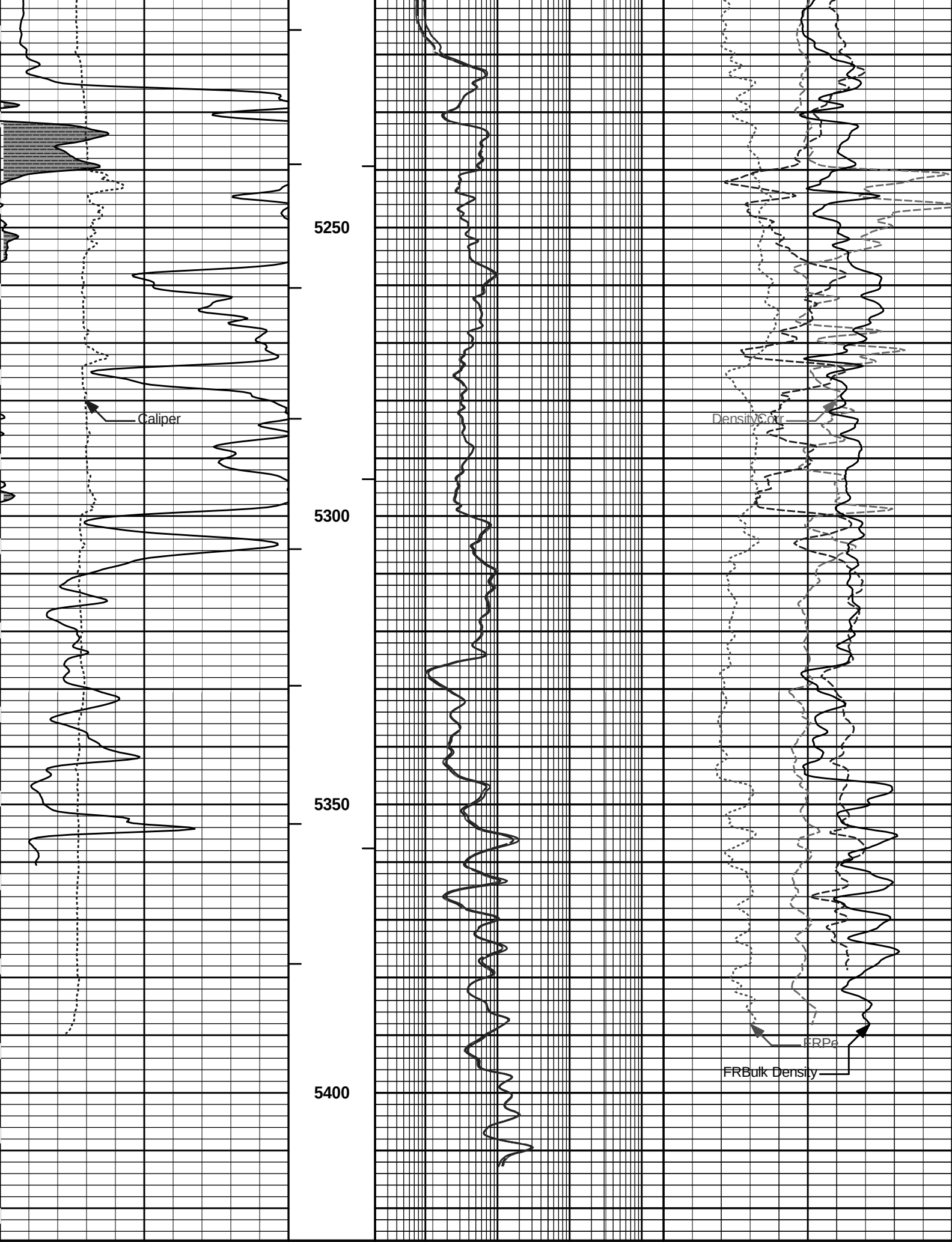
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 03-Dec-12 09:40:55
Plot Range: 5145 ft to 5425.58 ft
Data: KOBLITZ3409_28\Well Based\REPEAT*
Plot File: \\TRIPLE_5_INCH\TC_SHELL_REPEAT

5 INCH REPEAT SECTION





6	Caliper	16	MD 1 : 240	0.2	20in Resistivity 2ft Res	2000	-0.25	DensityCorr	0.25

inches

1 : 240
ft

ohm-metre

gram per cc

0 Gamma API 150
api

AHVT

0.2 60in Resistivity 2ft Res 2000
ohm-metre

1.95 Bulk Density 2.95
g/cc

BHVT

0.2 90in Resistivity 2ft Res 2000
ohm-metre

0 Pe 10

45 Neutron Porosity -15
%

HALLIBURTON

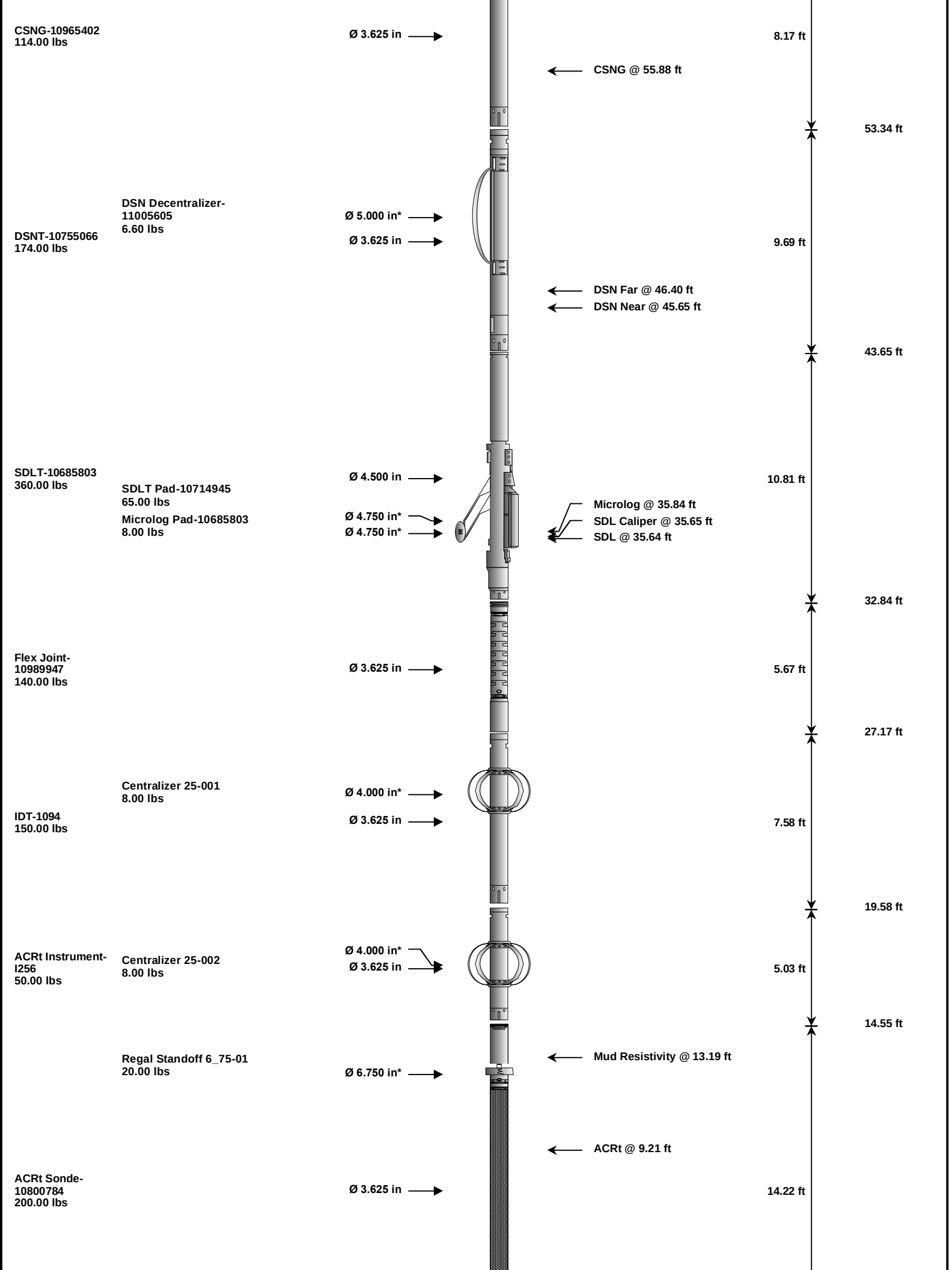
Plot Time: 03-Dec-12 09:41:04
Plot Range: 5145 ft to 5425.58 ft
Data: KOBLITZ3409_28\Well Based\REPEAT*
Plot File: \\TRIPLE_5_INCH\TC_SHELL_REPEAT

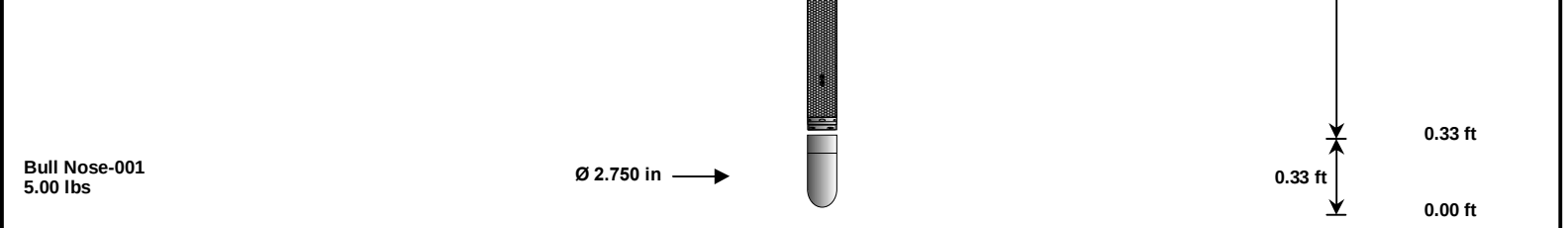
5 INCH REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head-PROT01 30.00 lbs		Ø 3.625 in			1.92 ft	75.68 ft 73.76 ft
SP Sub-TRK954 60.00 lbs		Ø 3.625 in		SP @ 71.98 ft	3.74 ft	70.02 ft
GTET-10811258 165.00 lbs		Ø 3.625 in		GammaRay @ 63.96 ft	8.52 ft	61.50 ft


CSNG-10965402
114.00 lbs
Ø 3.625 in
8.17 ft
CSNG @ 55.88 ft
53.34 ft
DSN Decentralizer-11005605
6.60 lbs
Ø 5.000 in*
DSNT-10755066
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 46.40 ft
DSN Near @ 45.65 ft
43.65 ft
SDLT-10685803
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-10714945
65.00 lbs
Microlog Pad-10685803
8.00 lbs
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 35.84 ft
SDL Caliper @ 35.65 ft
SDL @ 35.64 ft
32.84 ft
Flex Joint-10989947
140.00 lbs
Ø 3.625 in
5.67 ft
27.17 ft
Centralizer 25-001
8.00 lbs
Ø 4.000 in*
IDT-1094
150.00 lbs
Ø 3.625 in
7.58 ft
19.58 ft
Ø 4.000 in*
ACRt Instrument-I256
50.00 lbs
Centralizer 25-002
8.00 lbs
Ø 3.625 in
5.03 ft
14.55 ft
Regal Standoff 6_75-01
20.00 lbs
Ø 6.750 in*
Mud Resistivity @ 13.19 ft
ACRt @ 9.21 ft
ACRt Sonde-10800784
200.00 lbs
Ø 3.625 in
14.22 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	PROT01	30.00	1.92		73.76	300.00
SP	SP Sub	TRK954	60.00	3.74		70.02	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		61.50	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17		53.34	15.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		43.65	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	46.98	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81		32.84	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	*	35.05	60.00
MICP	Microlog Pad	10685803	8.00	1.00	*	35.34	60.00
FLEX	Flex Joint	10989947	140.00	5.67		27.17	300.00
IDT	Insite Directional Tool	1094	150.00	7.58		19.58	30.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	23.51	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I256	50.00	5.03		14.55	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.03	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22		0.33	300.00
RSOF	Regal Standoff 6.75in	01	20.00	0.52	*	12.22	300.00
BLNS	Bull Nose	001	5.00	0.33		0.00	300.00
Total			**1,563.60**	**75.68**			

* Not included in Total Length and Length Accumulation.

Data: KOBLITZ3409_28\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ACRT-BN\004 02-Dec-12 20:07 Up @5427.0f **Date: 03-Dec-12 00:59:18**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 30-Sep-12 14:49:28

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 15:51:34

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	34.5	34.4	api
Background + Calibrator	267.1	266.4	api
Calibrator	232.6	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 01-Dec-12 15:51:34

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 15:54:53

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	34.4	33.8	api

Background + Calibrator	266.4	264.2	api
Calibrator	232.0	230.4	api

Shop	Field	Difference	Tolerance
232.0	230.4	1.6	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 01-Dec-12 15:54:53

Engineer: S. INGERSOLL **Calibration Date:** 03-Dec-12 03:09:51

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Calibrator API Reference:232.0 api

Post Verification	Field	Post	Units
Background	33.8	31.6	api
Background + Calibrator	264.2	264.2	api
Calibrator	230.4	232.6	api

Shop	Field	Post	Difference	Tolerance
232.0	230.4	232.6	-2.2	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 10965402 **Reference Calibration Date:** 06-Sep-12 14:31:21

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 16:18:59

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Source SN: TB-185

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.7	22.9	Channel #
583 KEV Peak Channel #	50.9	51.5	Channel #
2614 KEV Peak Channel #	209.4	211.9	Channel #
Calibrate Temperature	131.3	85.8	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 228.00 API

Calibrator Value: 258.9 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1478.7	CPS	297.3	287.5	API
Background	147.1	CPS	38.4	28.6	API

Gamma Ray Gain: 0.98

Expected Gain Range: 0.85 - 1.15

Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name: CSNG - 10965402 **Reference Calibration Date:** 01-Dec-12 16:18:59

Engineer:	**S. INGERSOLL**	**Calibration Date:**	**01-Dec-12 16:33:15**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.9	22.9	Channel #
583 KEV Peak Channel #	51.5	51.5	Channel #
2614 KEV Peak Channel #	211.9	211.9	Channel #
Calibrate Temperature	85.8	89.9	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 228.00 API
Calibrator Value: 258.9 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1476.1	CPS	287.5	287.6	API
Background	147.1	CPS	28.6	28.7	API

Gamma Ray Gain: 0.98
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS POST CALIBRATION

Tool Name:	**CSNG - 10965402**	**Reference Calibration Date:**	**01-Dec-12 16:33:15**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**03-Dec-12 03:22:33**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Source SN:			

TITANIUM CASE	Field Survey	Post Survey	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.9	22.9	Channel #
583 KEV Peak Channel #	51.5	51.1	Channel #
2614 KEV Peak Channel #	211.9	209.8	Channel #
Calibrate Temperature	89.9	140.1	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 228.00 API
Calibrator Value: 258.9 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1508.3	cps	287.6	292.1	API
Background	171.3	cps	28.7	33.2	API

Gamma Ray Gain: 0.97
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**23-Oct-12 20:41:52**
Engineer:	**T. HYDE**	**Calibration Date:**	**21-Nov-12 10:09:07**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Tank Serial Number: 105060
Reference value assigned to Tank: 51.680
Snow Block S/N: TRK_954
Calibration Tank Water Temperature: 68 degF
Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.952	0.950	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2115	0.2107	0.0009	+/- 0.0020
Calibrated Ratio:	9.75	9.72	0.029	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0658	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**21-Nov-12 10:09:07**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**01-Dec-12 16:37:18**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Snow Block S/N: TRK_954

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0658	0.0681	0.0023	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**01-Dec-12 16:37:18**

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**01-Dec-12 16:37:18**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**03-Dec-12 03:25:32**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: TRK_954

NEUTRON POST-CHECK SUMMARY

	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0681	0.0627	-0.0054	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10685803**	**Reference Calibration Date:**	**25-Nov-12 19:27:57**
Engineer:	**T. HYDE**	**Calibration Date:**	**25-Nov-12 20:17:31**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 10755066**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-6787.18	-6826.93	-7000.00 - -1000.00
Pad Gain	0.0003706	0.0003732	0.000200 - 0.000600
Arm Offset	-4472.35	-4951.20	-5000.00 - 3000.00
Arm Gain	0.0003530	0.0003898	0.000300 - 0.000700
Arm Power	0.000009449	0.000005698	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.56	6.50	-0.06	+/- 0.20
Medium Ring (in)	8.23	8.25	0.02	+/- 0.20
Large Ring (in)	15.01	15.00	-0.01	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10714945**	**Reference Calibration Date:**	**25-Nov-12 17:02:04**
Engineer:	**T. HYDE**	**Calibration Date:**	**25-Nov-12 17:20:05**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 5073GW

Aluminum Block S/N: LIBERAL Density: 2.598g/cc Pe: 3.170

Aluminum Block S/N: LIBERAL | Density: 2.598g/cc | Pe: 3.170

Magnesium Block S/N: LIBERAL | Density: 1.684g/cc | Pe: 2.598

DENSITY CALIBRATION SUMMARY			
Measurement	**Previous Value**	**New Value**	**Control Limit**
Near Bar Gain	1.0480	1.0471	0.90 - 1.10
Near Dens Gain	1.0133	1.0210	0.90 - 1.10
Near Peak Gain	1.0145	1.0080	0.90 - 1.10
Near Lith Gain	0.9939	0.9799	0.90 - 1.10
Far Bar Gain	1.0103	1.0107	0.90 - 1.10
Far Dens Gain	1.0018	1.0023	0.90 - 1.10
Far Peak Gain	0.9953	0.9966	0.90 - 1.10
Far Lith Gain	0.9772	0.9736	0.90 - 1.10
Near Bar Offset	-0.1421	-0.1342	NONE
Near Dens Offset	0.1568	0.0896	NONE
Near Peak Offset	0.1464	0.1977	NONE
Near Lith Offset	0.2868	0.4013	NONE
Far Bar Offset	0.0982	0.0937	NONE
Far Dens Offset	0.1581	0.1536	NONE
Far Peak Offset	0.2167	0.2052	NONE
Far Lith Offset	0.3363	0.3656	NONE
Near Bar Background	983.60	981.07	700 - 1450
Near Dens Background	325.66	326.98	230 - 480
Near Peak Background	143.32	142.65	100 - 210
Near Lith Background	173.26	174.30	125 - 260
Far Bar Background	502.18	500.97	450 - 900
Far Dens Background	195.43	194.51	175 - 345
Far Peak Background	76.23	76.27	70 - 140
Far Lith Background	80.95	81.30	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	**Current Reading (Previous Coef)**	**Calibrated (New Coef)**	**Change**	**Control Limit On Change**
MAGNESIUM				
Density (g/cc)	1.685	1.684	-0.001	+/- 0.015
Pe	2.539	2.557	0.018	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.598	0.000	+/- 0.01500
Pe	3.129	3.126	-0.003	+/- 0.150

TOOL SUMMARY				
Measurement	**Near Detector**		**Far Detector**	
	Value	**Control Limits**	**Value**	**Control Limits**
QUALITY				
Background	0.0022	+/- 0.0110	0.0012	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0009	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0004	+/- 0.0140
Resolution	9.86	6.00 - 11.50	9.20	6.00 - 11.50
Internal Verifier(B+D+P+L)	1625	1200 - 2700	853	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed

Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT Pad - 10714945 **Reference Calibration Date:** 25-Nov-12 17:20:05

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 16:41:48

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1625.000	1622.254	-2.746	16.202
Far (B+D+P+L) cps	853.050	866.088	13.038	16.015
Near Resolution	9.86	10.02	0.160	0.50
Far Resolution	9.20	9.58	0.380	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SPECTRAL DENSITY POST CHECK

Tool Name: SDLT Pad - 10714945 **Reference Calibration Date:** 01-Dec-12 16:41:48

Engineer: S. INGERSOLL **Calibration Date:** 03-Dec-12 03:40:13

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Pad Temperature: 71.7 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1622.254	1622.359	0.105	16.202
Far (B+D+P+L) cps	866.088	859.939	-6.149	16.015
Near Resolution	10.02	10.06	0.040	0.50
Far Resolution	9.58	9.79	0.210	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - 10685803 **Reference Calibration Date:** 25-Nov-12 17:40:34

Engineer: T. HYDE **Calibration Date:** 25-Nov-12 17:49:27

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Host Tool Name: DSNT - 10755066

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units

Tool Zero	-0.08	-0.08	0.00	-0.00	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.04	20.00	19.97	20.00	ohmm
Internal Reference	20.06	20.03	20.06	20.09	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-2.13	0.89	V
Calibration Point #1	19.02	1.97	V
Calibration Point #2	5279.09	6848.48	V
Internal Reference	5286.38	6880.84	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 10685803 **Reference Calibration Date:** 25-Nov-12 17:49:27

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 16:38:14

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.08	-0.07	-0.00	-0.00	ohmm
Internal Reference	20.03	20.01	20.09	20.08	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	20.03	20.01	0.02	+/- 0.80
Microlog Lateral	20.09	20.08	0.01	+/- 0.80

MICRO LOG POST CHECK

Tool Name: Microlog Pad - 10685803 **Reference Calibration Date:** 01-Dec-12 16:38:14

Engineer: S. INGERSOLL **Calibration Date:** 03-Dec-12 03:26:31

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Field	Post	Field	Post	Units
Tool Zero	-0.07	-0.05	-0.00	-0.02	ohmm
Internal Reference	20.01	20.01	20.08	20.08	ohmm

Summary

Signal	Field	Post	Difference	Tolerence
Microlog Normal	20.01	20.01	0.00	+/- 0.80
Microlog Lateral	20.08	20.08	0.00	+/- 0.80

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10685803 **Reference Calibration Date:** 25-Nov-12 20:17:31

Engineer: S. INGERSOLL **Calibration Date:** 01-Dec-12 16:56:04

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.82	0.07	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed

Diameter Check:	Passed

SDLT CALIPER POST CALIBRATION

Tool Name:	**SDLT - 10685803**	**Reference Calibration Date:**	**01-Dec-12 16:56:04**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**03-Dec-12 03:36:18**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.82	3.81	-0.01	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 10800784**	**Reference Calibration Date:**	**28-Oct-12 14:03:00**
Engineer:	**T. HYDE**	**Calibration Date:**	**21-Nov-12 11:02:52**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**ACRt Instrument - I256**		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	0.99	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.98	1.05	0.95	0.98	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	-0.41	2	-6	-3.78	-2	-8	-4.93	-2
A2 (50")	-7	-1.90	0	-7	-3.66	0	-7	-4.39	0
A3 (29")	-27	-16.19	-9	-9	-4.60	-3	-7	-3.41	-1
A4 (17")	-180	-96.90	-60	-45	-32.38	-15	-39	-26.79	-13
A5 (10")	N/A	N/A	N/A	-150	-96.37	-50	-80	-48.43	-10
A6 (6")	N/A	N/A	N/A	175	294.09	525	90	155.96	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.86	1.3
36K	1.0	1.19	2.0
72K	1.0	1.52	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS

Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	230.4	232.6	-2.2	+/- 9.00	api
CSNG-10965402						
60 KEV Peak Channel #	48.0	48.0	48.0	0.0	----------	Channel #
239 KEV Peak Channel #	22.9	22.9	22.9	0.0	----------	Channel #
583 KEV Peak Channel #	51.5	51.5	51.1	0.4	----------	Channel #
2614 KEV Peak Channel #	211.9	211.9	209.8	2.1	----------	Channel #
DSNT-10755066						
Snow-Block Porosity	0.0658	0.0681	0.0627	0.0054	+/- 0.0150	decp
SDLT-10685803						
Pad Extension	3.75	3.82	3.81	0.01	+/-0.10	in
Ring Diameter	8.25	8.25	8.24	0.01	+/-0.15	in
SDLT Pad-10714945						
Near(B+D+P+L)	1625.000	1622.254	1622.359	-0.105	+/-16.202	cps
Far(B+D+P+L)	853.050	866.088	859.939	6.149	+/-16.015	cps
Microlog Pad-10685803						
MicroLog Normal	20.03	20.01	20.01	0.00	+/-0.80	ohmm
MicroLog Lateral	20.09	20.08	20.08	0.00	+/-0.80	ohmm
ACRt Sonde-10800784						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: KOBLITZ3409_28\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ACRT-BN\IDLE **Date: 03-Dec-12 03:41:54**

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PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	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	0.400	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5454.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	

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	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
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	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
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	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	SP Sub			
PLTC	Plot Control Mask	71.98	NO	
SP	Spontaneous Potential	71.98	BLK	1.250
SPR	Raw Spontaneous Potential	71.98	NO	
SPO	Spontaneous Potential Offset	71.98	NO	
	GTET			
TPUL	Tension Pull	63.96	NO	
GR	Natural Gamma Ray API	63.96	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.96	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.96	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	55.88	NO	
STAT	Status	55.88	NO	
FRMC	Tool Frame Count	55.88	BLK	0.250
TFRM	Total Frames	55.88	NO	
LSPD	Line Speed	55.88	BLK	0.250
CTIM	Accumulation time for sample	55.88	BLK	0.250
NOIS	Spectral Noise	55.88	BLK	0.250
STAB	Stabilizer Voltage in mv	55.88	BLK	0.250
STBP	Stabilizer 60 KEV Peak	55.88	BLK	0.250
AMER	Americium	55.88	BLK	0.250
FTMP	Flask PCB Temperature	55.88	BLK	0.250
SPEL	Low Energy Spectrum	55.88	BLK	0.250
SPEH	High Energy Spectrum	55.88	BLK	0.250
SSP	Stabilization Energy Spectrum	55.88	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	55.88	NO	
	DSNT			
TPUL	Tension Pull	45.55	NO	
RNDS	Near Detector Telemetry Counts	45.65	BLK	1.417
RFDS	Far Detector Telemetry Counts	46.40	TRI	0.583
DNTT	DSN Tool Temperature	45.65	NO	
DSNS	DSN Tool Status	45.55	NO	
ERND	Near Detector Telemetry Counts EVR	45.65	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	46.40	BLK	0.000
ENTM	DSN Tool Temperature EVR	45.65	NO	
	SDLT			
TPUL	Tension Pull	35.65	NO	
PCAL	Pad Caliper	35.65	TRI	0.250
ACAL	Arm Caliper	35.65	TRI	0.250

ACAL	Arm Caliper	35.65	TRI	0.250
	IDT			
TPUL	Tension Pull	20.58	NO	
ACCX	Accelerometer X	20.58	NO	
ACCY	Accelerometer Y	20.58	NO	
ACCZ	Accelerometer Z	20.58	NO	
MAGX	magnetometer x with unit	20.58	NO	
MAGY	Magnetometer Y with unit	20.58	NO	
MAGZ	magnetometer z with unit	20.58	NO	
IAMP	Accelerometer Temperature	20.58	NO	
MTMP	Magnetometer Temperature	20.58	NO	
	ACRt Sonde			
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000

F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	

SDLT Pad

TPUL	Tension Pull	35.64	NO	
NAB	Near Above	35.47	BLK	0.920
NHI	Near Cesium High	35.47	BLK	0.920
NLO	Near Cesium Low	35.47	BLK	0.920
NVA	Near Valley	35.47	BLK	0.920
NBA	Near Barite	35.47	BLK	0.920
NDE	Near Density	35.47	BLK	0.920
NPK	Near Peak	35.47	BLK	0.920
NLI	Near Lithology	35.47	BLK	0.920
NBAU	Near Barite Unfiltered	35.47	BLK	0.250
NLIU	Near Lithology Unfiltered	35.47	BLK	0.250
FAB	Far Above	35.82	BLK	0.250
FHI	Far Cesium High	35.82	BLK	0.250
FLO	Far Cesium Low	35.82	BLK	0.250
FVA	Far Valley	35.82	BLK	0.250
FBA	Far Barite	35.82	BLK	0.250
FDE	Far Density	35.82	BLK	0.250
FPK	Far Peak	35.82	BLK	0.250
FLI	Far Lithology	35.82	BLK	0.250
PTMP	Pad Temperature	35.65	BLK	0.920
NHV	Near Detector High Voltage	35.05	NO	
FHV	Far Detector High Voltage	35.05	NO	
ITMP	Instrument Temperature	35.05	NO	
DDHV	Detector High Voltage	35.05	NO	

Microlog Pad

TPUL	Tension Pull	35.84	NO	
MINV	Microlog Lateral	35.84	BLK	0.750
MNOR	Microlog Normal	35.84	BLK	0.750

Data: KOBLITZ3409_28\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ACRT-BN\004 02-Dec-12 20:07 Up @5427.0f **Date: 03-Dec-12 00:53:55**

COMPANY	**SHELL E & P**		
WELL	**KOBLITZ 3409 28-1**		
FIELD	**WILDCAT**		
COUNTY	**HARPER**	STATE	**KANSAS**

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TRIPLE COMBO LOG