

HALLBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG

COMPANY		HERMAN L. LOEB, LLC.	
WELL		HEFT #4-5	
FIELD/BLOCK		EINSEL	
COUNTY		KIOWA	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		06-Apr-14	
Run No.		ONE	
Depth - Driller		4875.00 ft	
Depth - Logger		4872.0 ft	
Bottom - Logged Interval		4868	
Top - Logged Interval		3900	
Casing - Driller		8.625 in @ 622.0 ft	
Casing - Logger		622.0 ft	
Bit Size		7.875 in @	
Type Fluid in Hole		Water Based Mud	
Density		9.4 ppg 63.00 s/qt	
PH		11.00 pH 8.8 cp/m	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		0.515 ohmm @ 72.00 degF	
Rmf @ Meas. Temperature		0.44 ohmm @ 72.00 degF	
Rmc @ Meas. Temperature		0.590 ohmm @ 72.00 degF	
Source Rmf		CALCULATED	
Rm @ BHT		0.34 ohmm @ 111.0 degF	
Time Since Circulation		5.0000 hr	
Time on Bottom		06-Apr-14 19:34	
Max. Rec. Temperature		111.0 degF @ 4872.0 ft	
Equipment		11230668 LIBERAL	
Recorded By		SHELDON INGERSOLL	
Witnessed By		J. CHRISTENSEN	

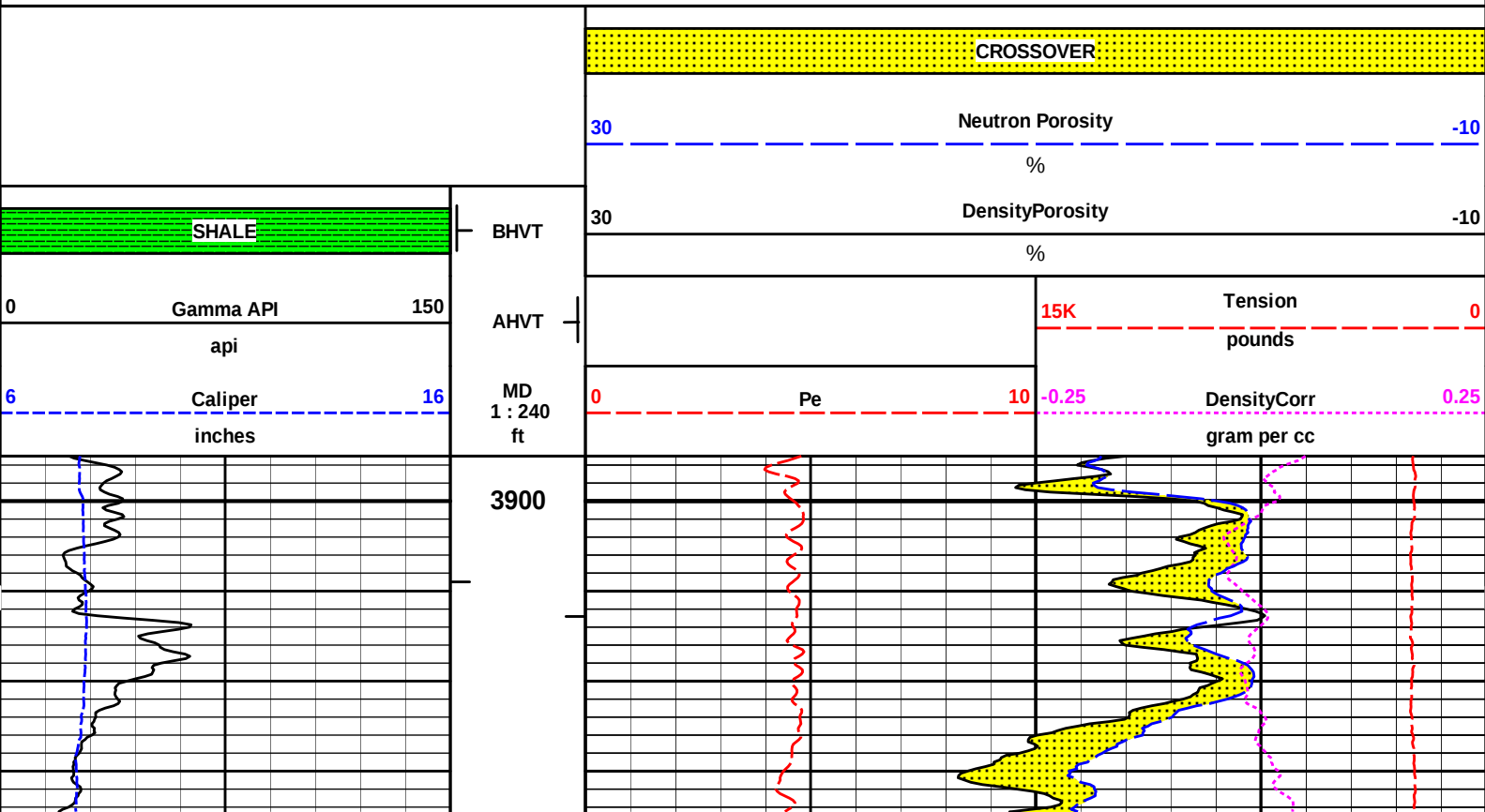
COMPANY	HERMAN L. LOEB, LLC.
WELL	HEFT #4-5
FIELD/BLOCK	EINSEL
COUNTY	KIOWA
STATE	KANSAS

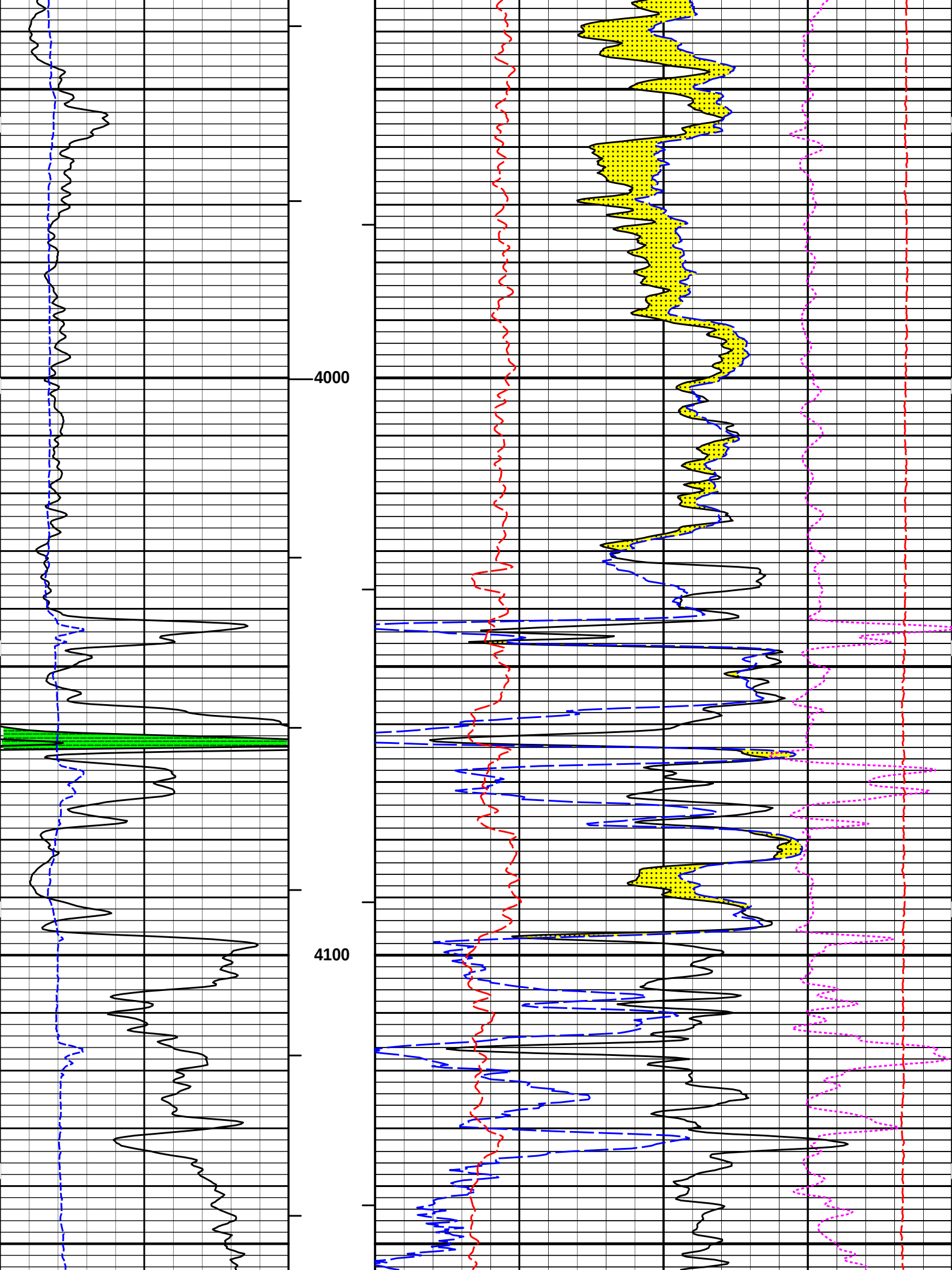
API No.	15-097-21790-00-00
Location	(SHL) 660' FNL & 1925' FEL W2-E2-NW-NE
Sect.	5
Twp.	28S
Rge.	18W
Elev.	2219.0 ft
D.F.	2231.0 ft
G.L.	2219.0 ft

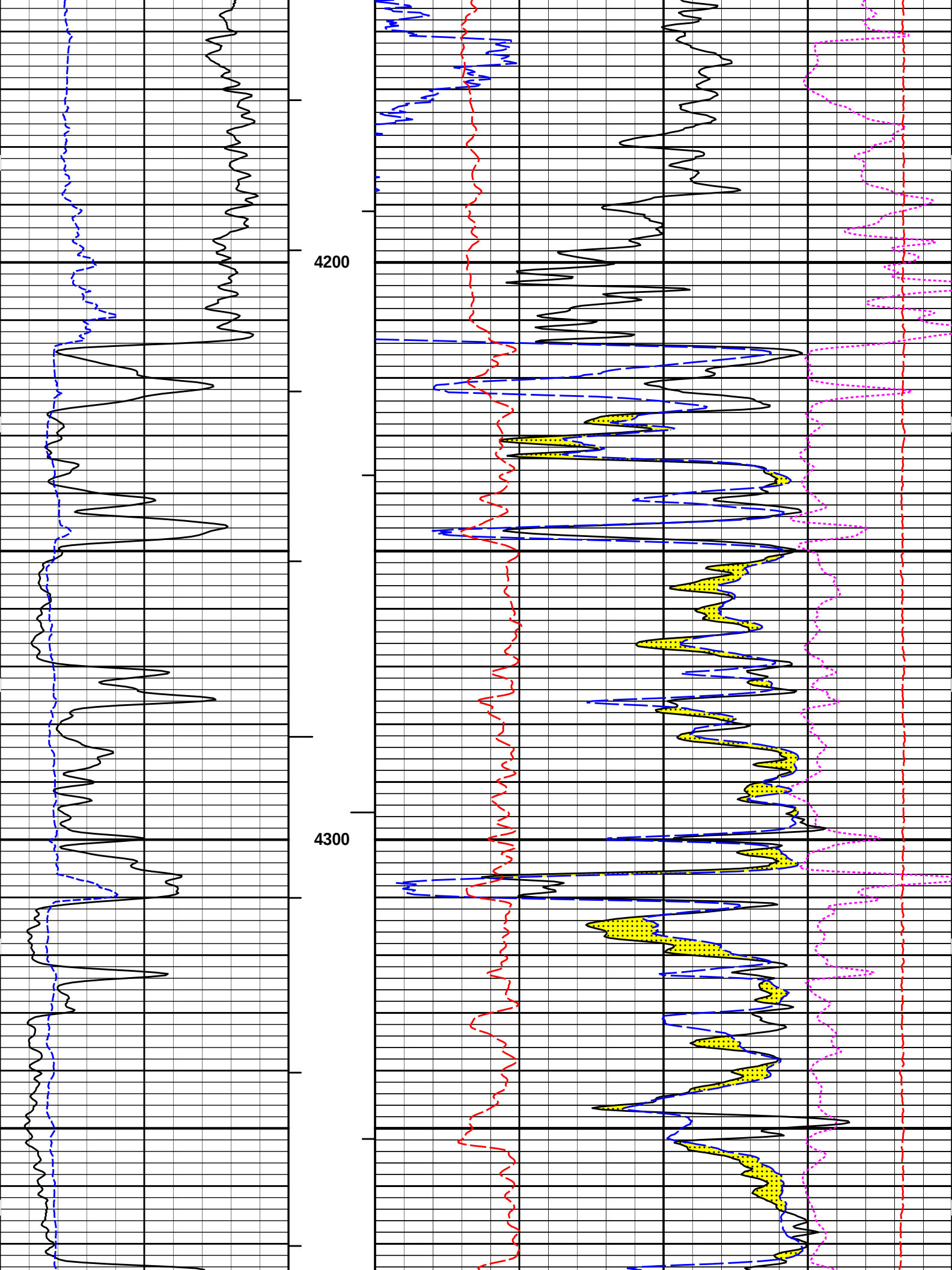
Other Services:
DSN / SDL
MICROLOG
ACRT
MRIL

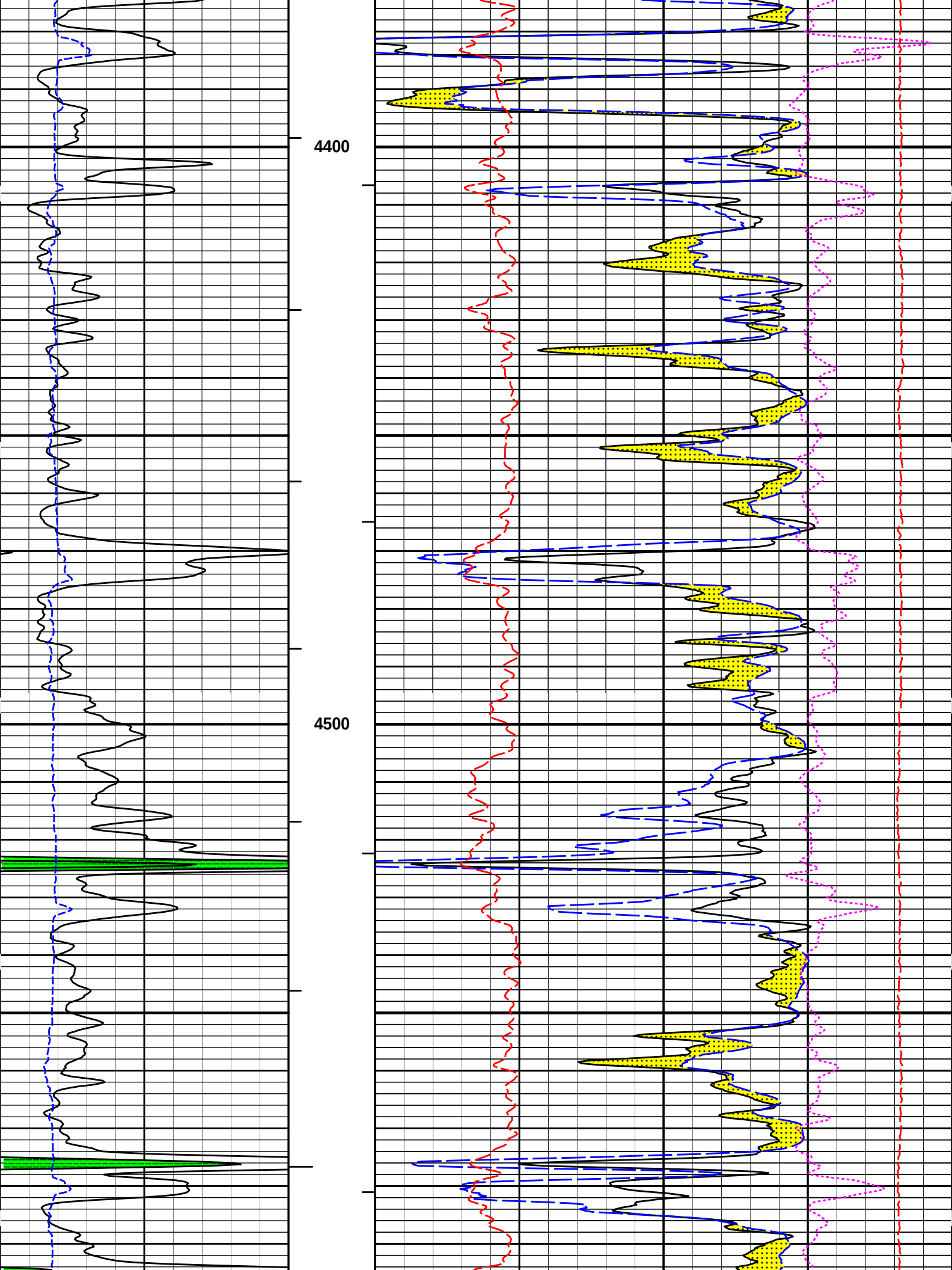
Fold here

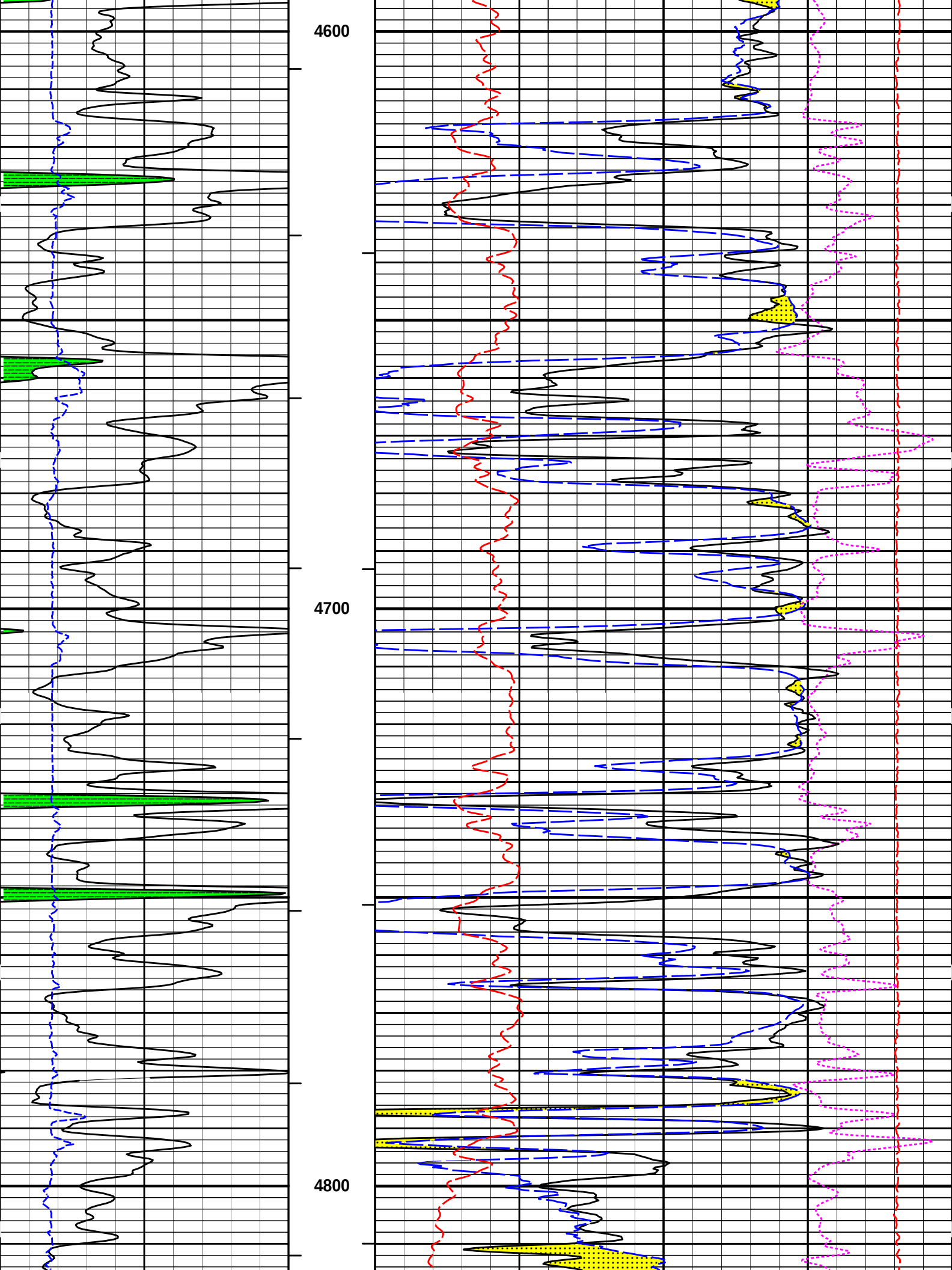
Service Ticket No.: 901250639				API Serial No.: 15-097-21790-00-00				PGM Version: WL INSITE R4.2.0 (Build 2)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid in Hole															
Density		Viscosity													
Ph		Fluid Loss													
Source of Sample						RESISTIVITY EQUIPMENT DATA									
Rm @ Meas. Temp		@		@		Run No.		Tool Type & No.		Pad Type		Tool Pos.		Other	
Rmf @ Meas. Temp.		@		@											
Rmc @ Meas. Temp.		@		@											
Source Rmf		Rmc													
Rm @ BHT		@		@											
Rmf @ BHT		@		@											
Rmc @ BHT		@		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.				Run No.		ONE		Run No.		ONE	
Serial No.		11039640		Serial No.				Serial No.		10673790		Serial No.		10735145	
Model No.		GTET		Model No.				Model No.		SDLT		Model No.		DSNT	
Diameter		3.625'		No. of Cent.				Diameter		5.3"		Diameter		3.625"	
Detector Model No.		T-102		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															

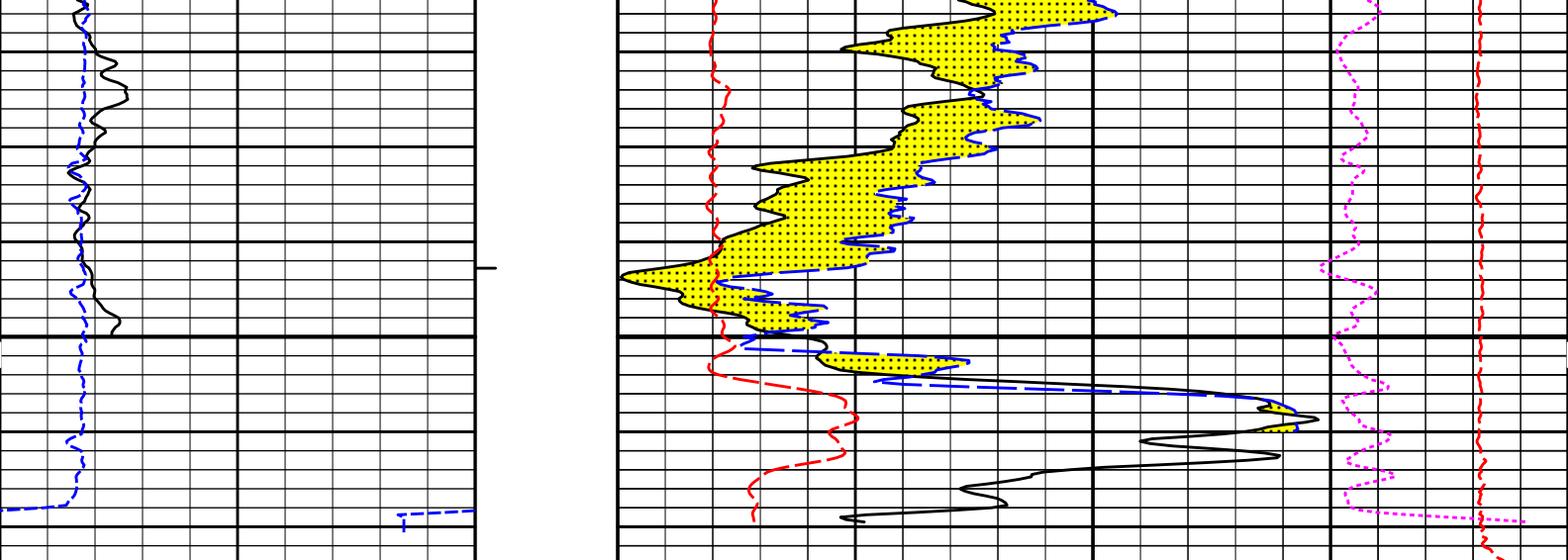
[illegible]











6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	
0	Gamma API	150	AHVT			15K		Tension	0
	api							pounds	
			BHVT	30				DensityPorosity	-10
								%	
				30				Neutron Porosity	-10
								%	
								CROSSOVER	

HALLIBURTON

Plot Time: 06-Apr-14 21:21:55
Plot Range: 3895 ft to 4874.25 ft
Data: HEFT_#4-5\Well Based\IR1 POROSITY\
Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

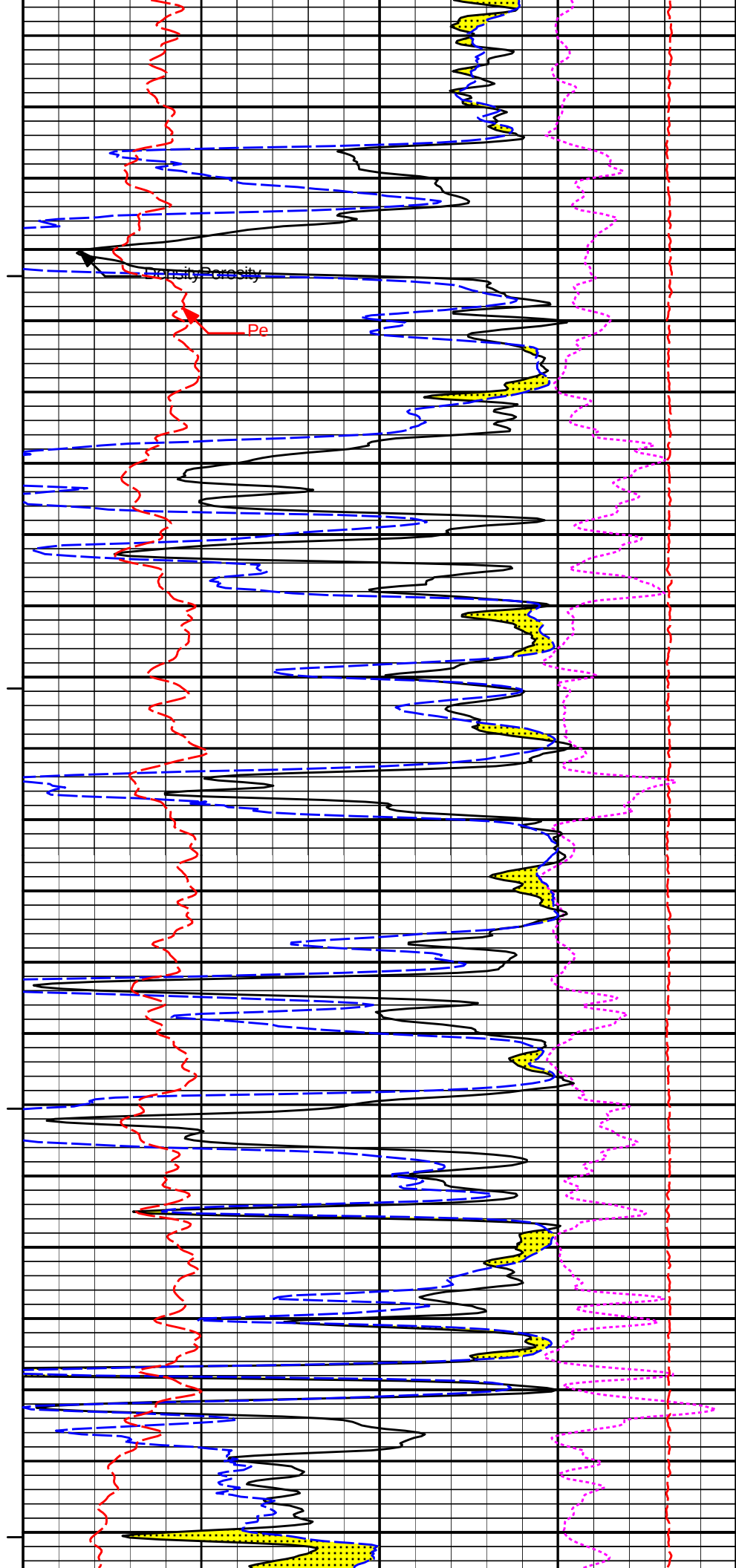
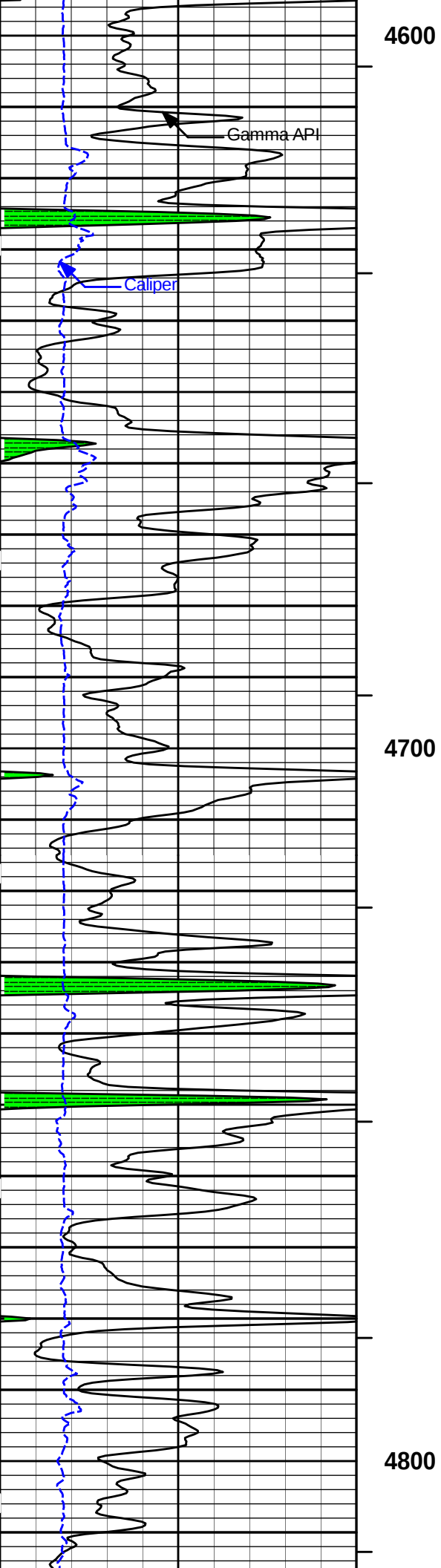
5 INCH MAIN LOG

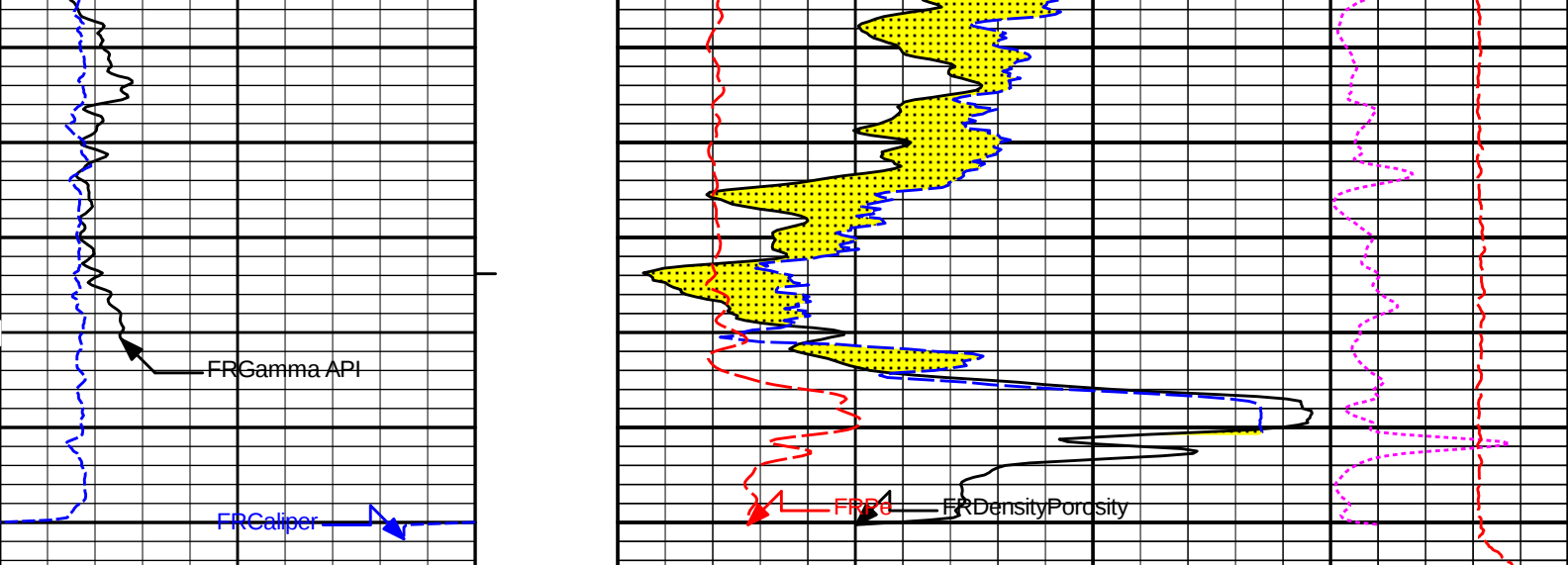
HALLIBURTON

Plot Time: 06-Apr-14 21:21:56
Plot Range: 4595 ft to 4875.08 ft
Data: HEFT_#4-5\Well Based\IR1 REPEAT\
Plot File: \\POROSITY\Porosity_IQ_5_REP_LIB

REPEAT SECTION

								CROSSOVER	
				30				Neutron Porosity	-10
								%	
			BHVT	30				DensityPorosity	-10
								%	
0	Gamma API	150	AHVT			15K		Tension	0
	api							pounds	
6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	





6	Caliper	16	MD	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft						gram per cc	
0	Gamma API	150	AHVT					15K	Tension	0
	api								pounds	
	SHALE		BHVT		30	DensityPorosity				-10
						%				
					30	Neutron Porosity				-10
						%				
						CROSSOVER				

HALLIBURTON

Plot Time: 06-Apr-14 21:21:57
Plot Range: 4595 ft to 4875.08 ft
Data: HEFT_#4-5\Well Based\IR1 REPEAT\
Plot File: \\POROSITY\Porosity_Q5_REP_LIB

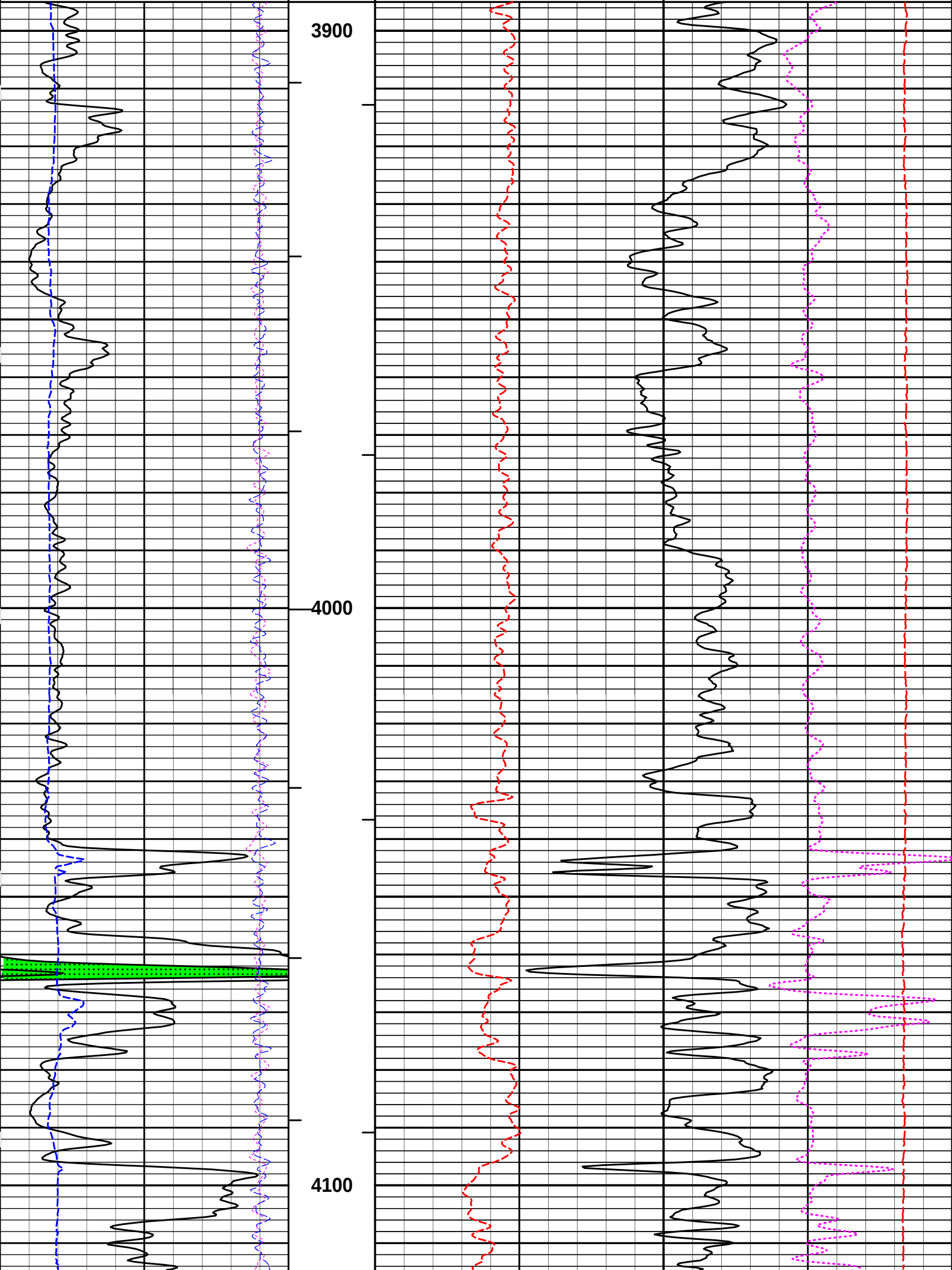
REPEAT SECTION

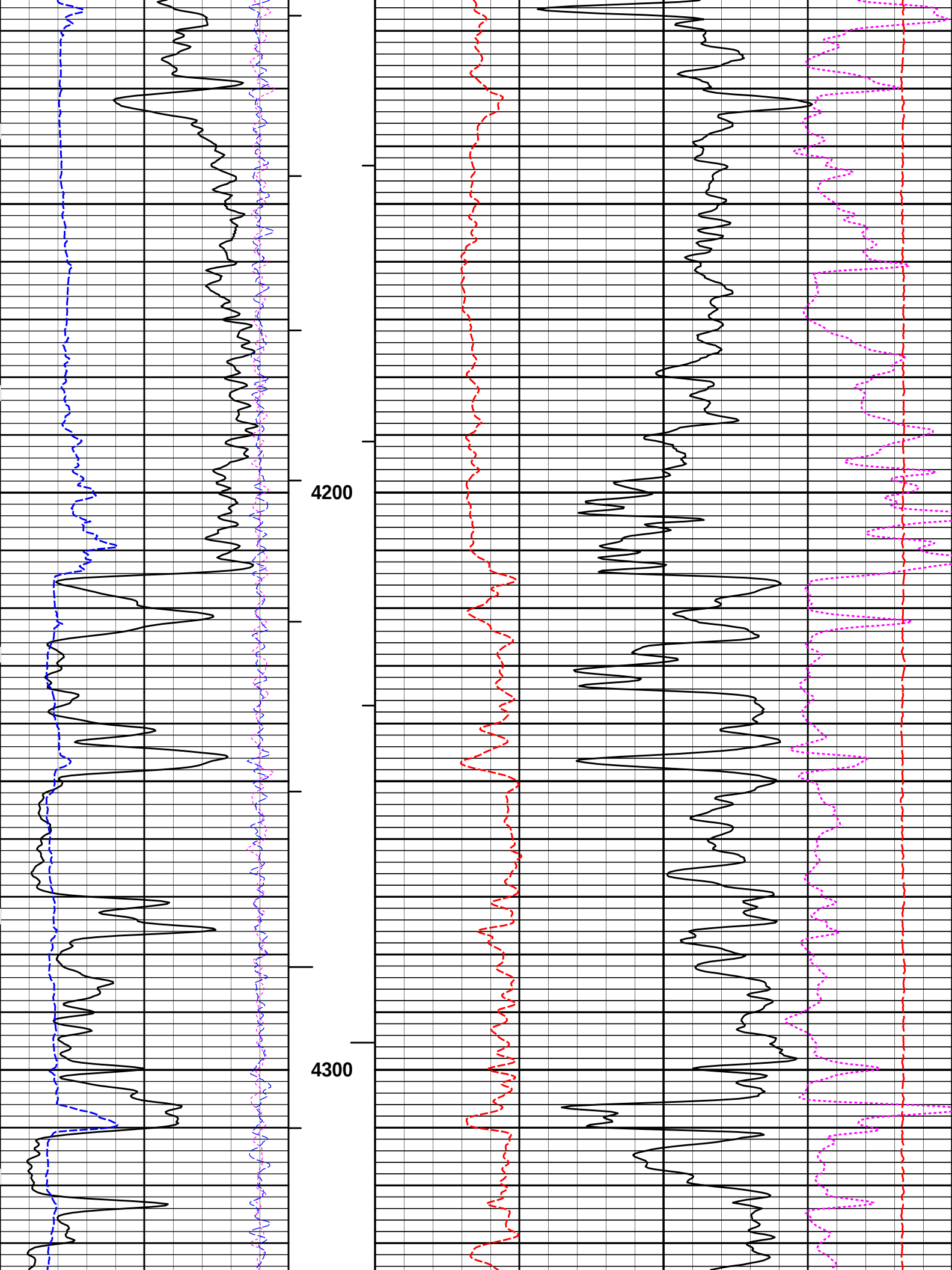
HALLIBURTON

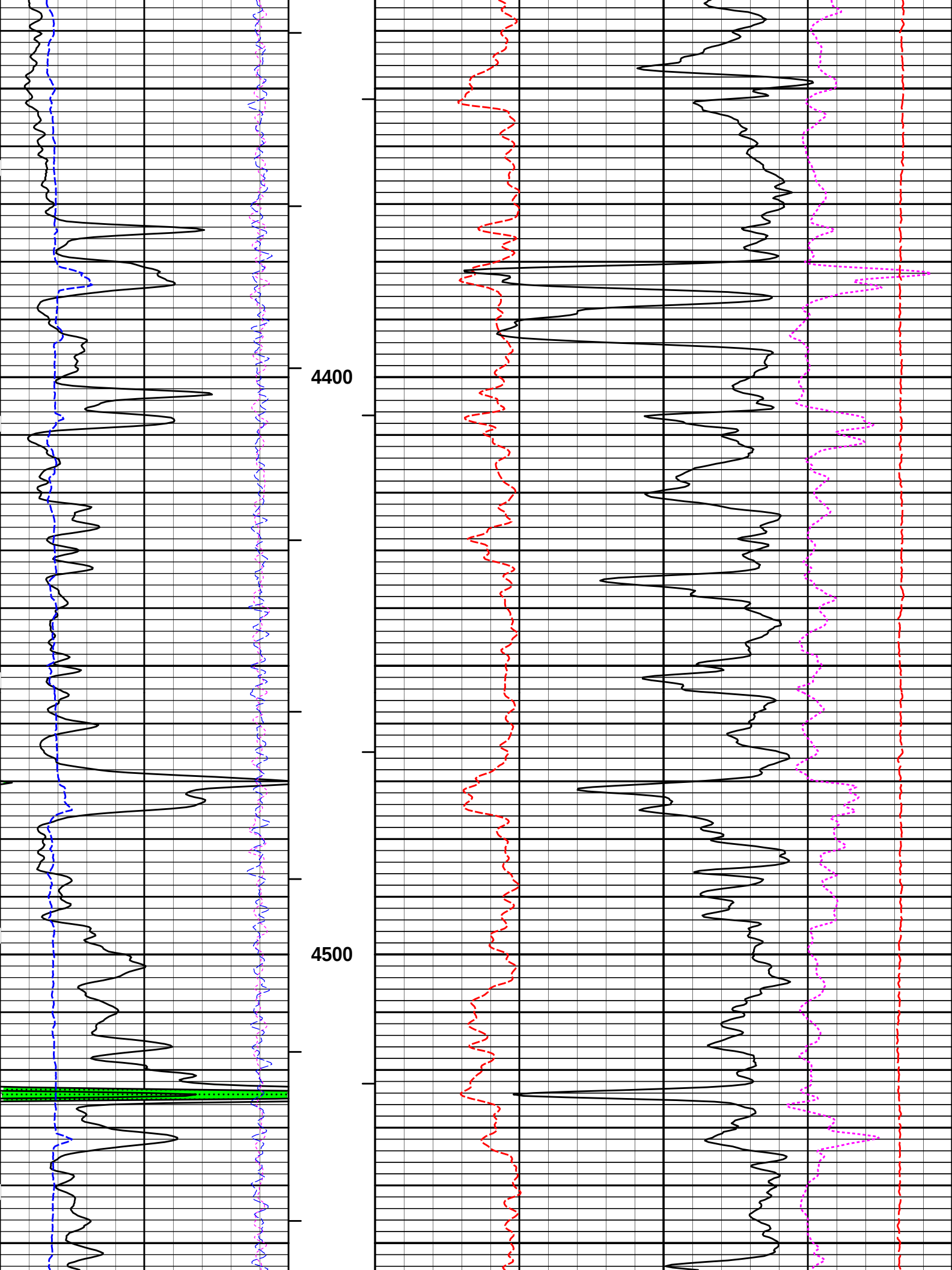
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Plot Range: 3895 ft to 4874.25 ft
Data: HEFT_#4-5\Well Based\IR1 POROSITY\
Plot File: \\LOCAL-HEFT_#4-5\Well Based\POROSITY\BULKD_5_MAIN_LIB

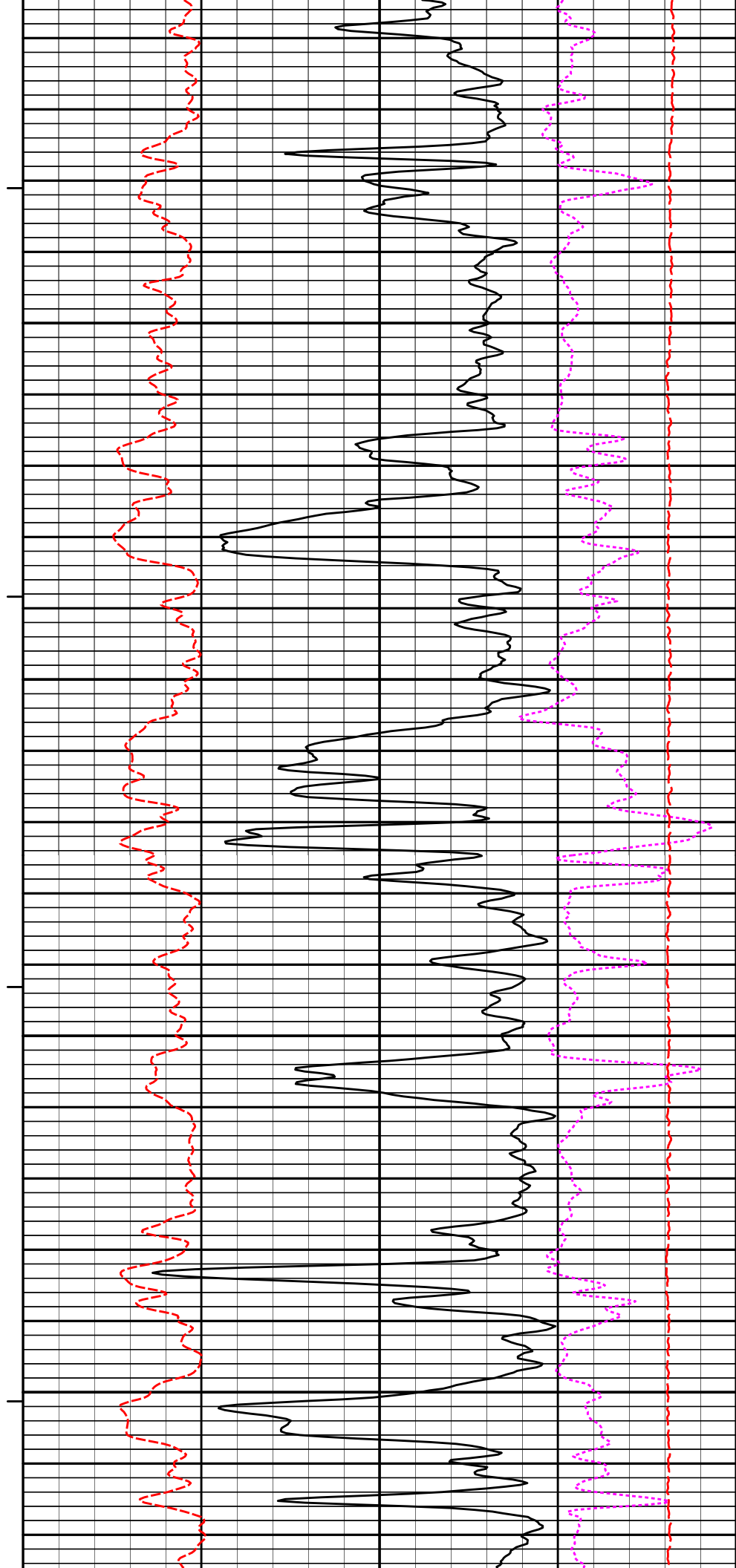
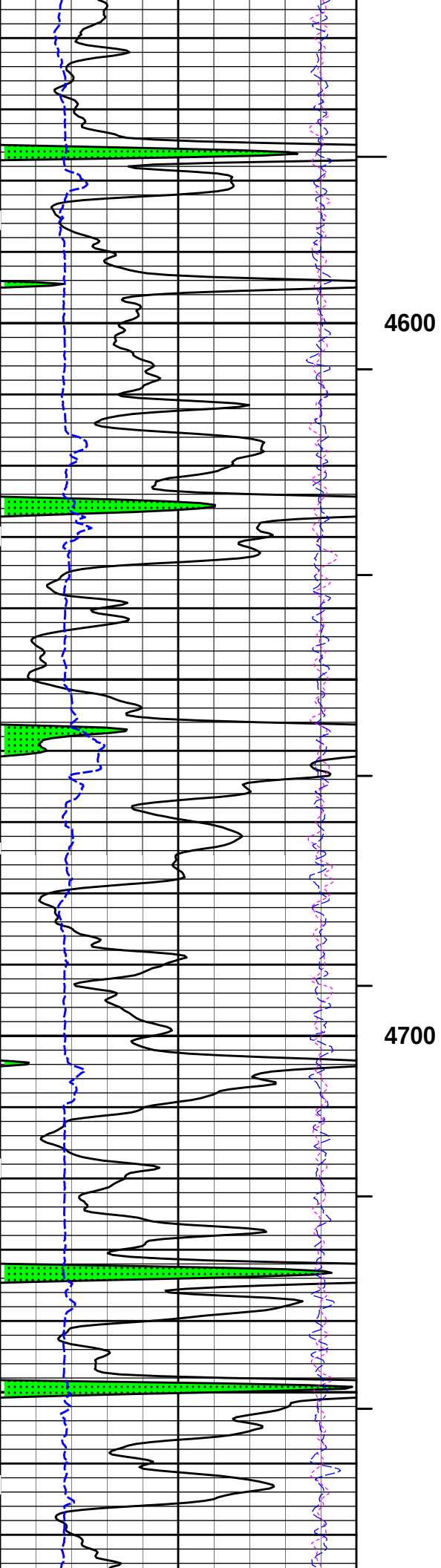
5 INCH MAIN LOG

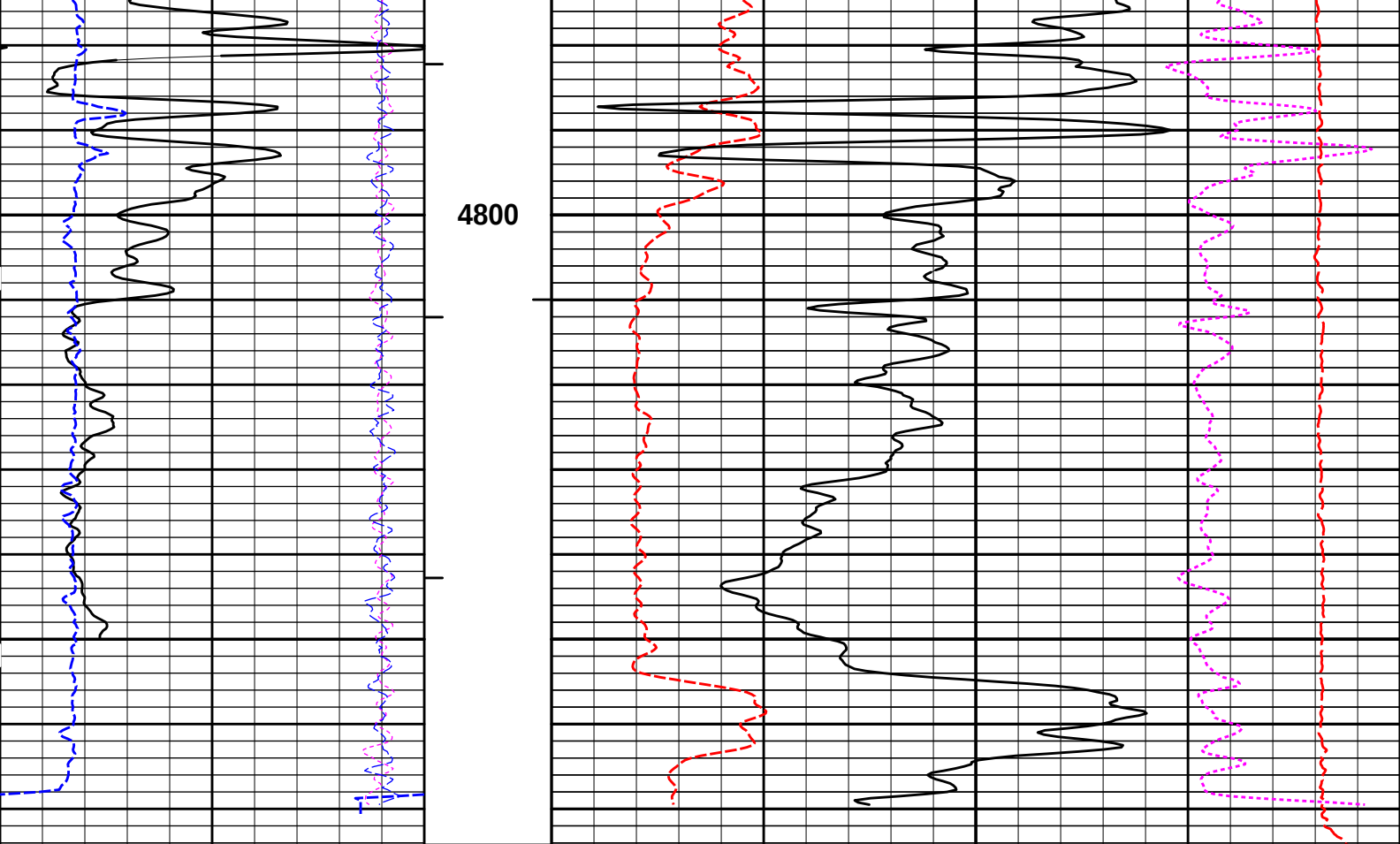
	SHALE									
0	Gamma Ray	150								
	api									
18	FarQuality	-2	BHV	2	Bulk Density	3				
			ft3		g/cc					
-18	NearQuality	2	AHV			15K	Tension		0	
			ft3				pounds			
6	Caliper	16	MD	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft						g/cc	











6	Caliper	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25								
										AHV ft3	15K	Tension	0				
														BHV ft3	2	Bulk Density	3
0	Gamma Ray	150															
			SHALE														

HALLIBURTON

Plot Time: 06-Apr-14 21:21:58
Plot Range: 3895 ft to 4874.25 ft
Data: HEFT_#4-5\Well Based\IR1 POROSITY\
Plot File: \\-LOCAL-\\HEFT_#4-5\Well Based\POROSITY\BULKD_5_MAIN_LIB

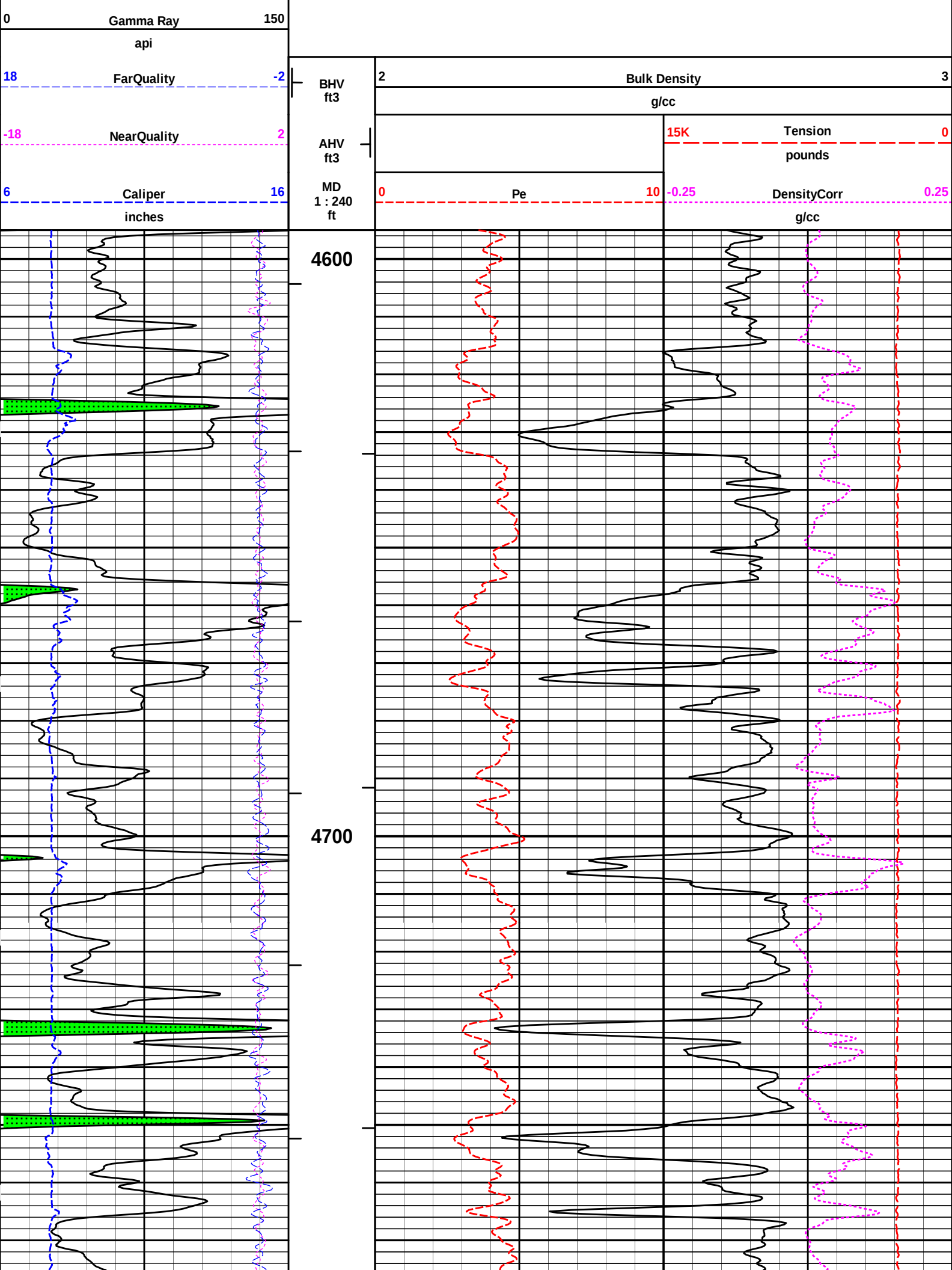
5 INCH MAIN LOG

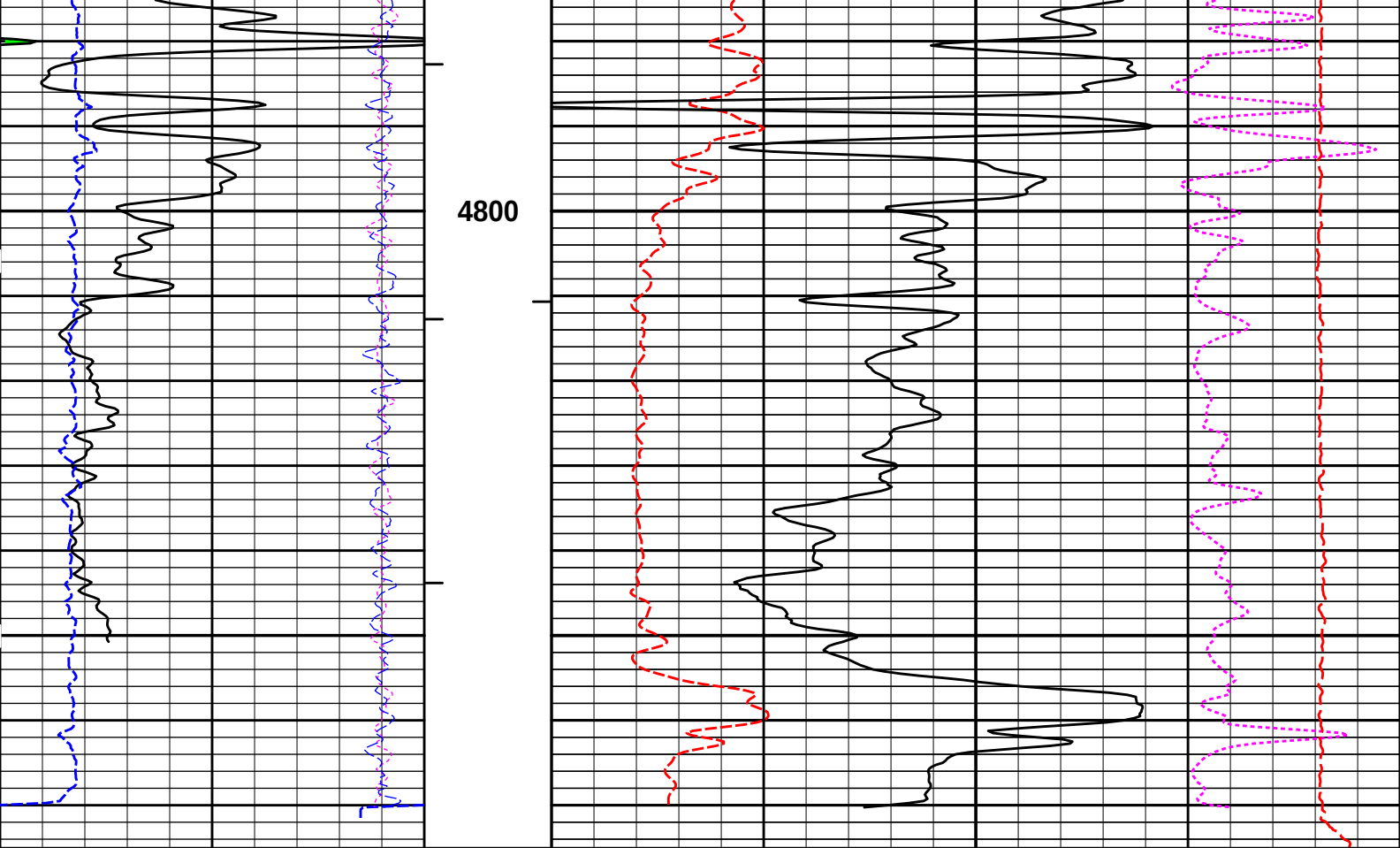
HALLIBURTON

Plot Time: 06-Apr-14 21:21:58
Plot Range: 4595 ft to 4875.08 ft
Data: HEFT_#4-5\Well Based\IR1 REPEAT\
Plot File: \\-LOCAL-\\HEFT_#4-5\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

SHALE			
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6Caliper16		MD 1 : 240 ft	0Pe10	-0.25DensityCorr0.25	
inches				g/cc	
-18NearQuality2				15KTension0	
			pounds		
18FarQuality-2		AHV ft3			
0Gamma Ray150		BHV ft3	2Bulk Density3		
api			g/cc		
SHALE					

HALLIBURTON

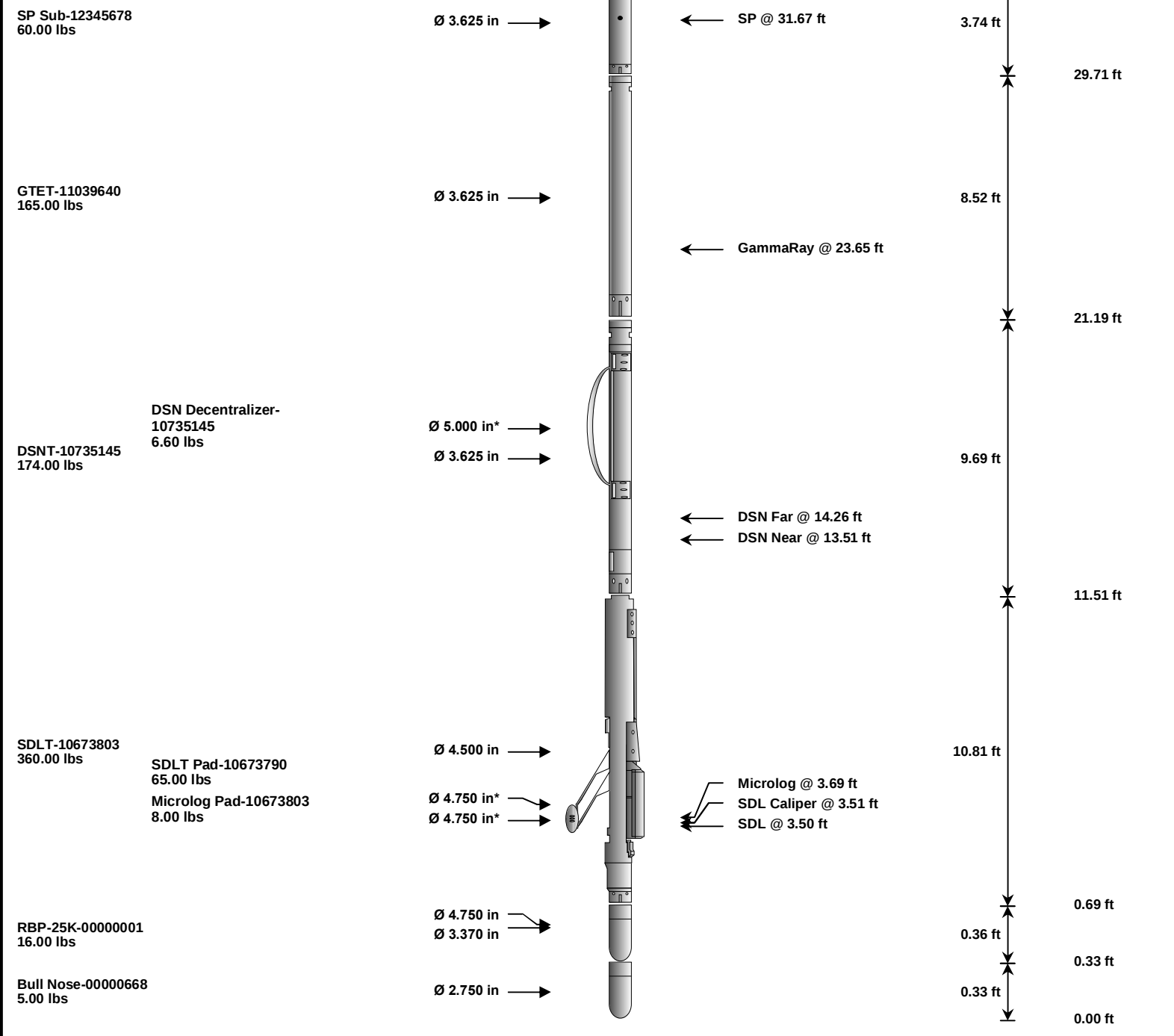
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Plot Range: 4595 ft to 4875.08 ft
Data: HEFT_#4-5\Well Based\IR1 REPEAT\
Plot File: \\-LOCAL-HEFT_#4-5\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head- 12345678 30.00 lbs		Ø 3.625 in →			1.92 ft	35.37 ft
						33.45 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head		12345678	30.00	1.92	33.45	300.00
SP	SP Sub		12345678	60.00	3.74	29.71	300.00
GTET	Gamma Telemetry Tool		11039640	165.00	8.52	21.19	60.00
DSNT	Dual Spaced Neutron		10735145	174.00	9.69	11.51	60.00
DCNT	DSN Decentralizer		10735145	6.60	5.13	*	14.84
SDLT	Spectral Density Tool		10673803	360.00	10.81	0.69	60.00
SDLP	Density Insite Pad		10673790	65.00	2.55	*	2.90
MICP	Microlog Pad		10673803	8.00	1.00	*	3.19
BLNS	Bull Plug		00000001	16.00	0.36	0.33	300.00
BLNS	Bull Nose		00000668	5.00	0.33	0.00	300.00
Total				889.60	35.37		
* Not included in Total Length and Length Accumulation.							
Data: HEFT_#4-5\0001 GTET-DSN-SDL-BP\IDLE						Date: 06-Apr-14 19:29:58	

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	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	9.400	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	1.000	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	4875.00	ft
	SHARED	BHT	Bottom Hole Temperature	130.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	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	
	GTET	BHSM	Borehole Size Source Tool	SDLT	
	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	
	DSNT	BHSM	Borehole Size Source Tool	SDLT	
	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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
BOTTOM				
Data: HEFT_#4-5\0001 GTET-DSN-SDL-BPI005 06-Apr-14 20:52 Up @4875.3f			Date: 06-Apr-14 21:08:16	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 11039640		Reference Calibration Date:	02-Apr-14 11:18:23
Engineer:	SHELDON INGERSOLL		Calibration Date:	02-Apr-14 11:22:33
Software Version:	WL INSITE R4.2.0 (Build 2)		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	47.4	47.6	api
	Background + Calibrator	278.1	279.6	api
	Calibrator	230.7	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 11039640		Reference Calibration Date:	02-Apr-14 11:22:33
Engineer:	SHELDON INGERSOLL		Calibration Date:	06-Apr-14 16:41:36
Software Version:	WL INSITE R4.2.0 (Build 2)		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	47.6	43.8	api
	Background + Calibrator	279.6	276.8	api
	Calibrator	232.0	233.0	api
	Shop	Field	Difference	Tolerance
	232.0	233.0	-1.0	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION				
Tool Name:	DSNT - 10735145		Reference Calibration Date:	19-Feb-14 12:37:26
Engineer:	THOMAS K HYDE		Calibration Date:	18-Mar-14 11:38:05
Software Version:	WL INSITE R4.2.0 (Build 2)		Calibration Version:	1
Logging Source S/N: DSN-436				
Tank Serial Number: LIBERAL				
Reference value assigned to Tank: 51.680				
Snow Block S/N: 668				
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:

0.946

0.942

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):	0.2117	0.2107	0.0010	+/- 0.0020
Calibrated Ratio:	9.75	9.72	0.035	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp):

0.0610

0.02000 - 0.09000

PASS/FAIL SUMMARY	
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Background Check:

Passed

Gain-Range Check:

Passed

Snow-Block Check:

Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:

DSNT - 10735145

Reference Calibration Date:

18-Mar-14 11:38:05

Engineer:

SHELDON INGERSOLL

Calibration Date:

06-Apr-14 16:46:59

Software Version:

WL INSITE R4.2.0 (Build 2)

Calibration Version:

1

Logging Source S/N: DSN-436

Snow Block S/N: 668

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change

Snow-Block Porosity (decp):

0.0610

0.0634

0.0024

+/- 0.0150

PASS/FAIL SUMMARY	
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Block Change Check:

Passed

Snow Block Stat Check:

Passed

Temperature Check:

Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:

SDLT - 10673803

Reference Calibration Date:

19-Feb-14 11:36:45

Engineer:

thomas hyde

Calibration Date:

18-Mar-14 10:01:07

Software Version:

WL INSITE R4.2.0 (Build 2)

Calibration Version:

1

Host Tool Name:

DSNT - 10735145

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value

Pad Offset

-4075.69

-4085.93

-7000.00 - -1000.00

Pad Gain

0.0003810

0.0003931

0.000200 - 0.000600

Arm Offset

-4794.44

-4798.17

-5000.00 - 3000.00

Arm Gain

0.0005107

0.0004777

0.000300 - 0.000700

Arm Power

-0.000005244

-0.000002983

-0.000010000 - 0.000010000

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

Tool Diameter: 4.50 in

CALIBRATION RINGS	
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Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.94	2.00	0.06	+/- 0.20
Medium Ring (in)	3.64	3.75	0.11	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.63	6.50	-0.13	+/- 0.20
Medium Ring (in)	8.45	8.25	-0.20	+/- 0.20
Large Ring (in)	15.08	15.00	-0.08	+/- 0.20
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	
Ring-Measurement Check:			Passed	
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	

SDLT CALIPER FIELD CALIBRATION				
Tool Name:	SDLT - 10673803	Reference Calibration Date:	18-Mar-14 10:01:07	
Engineer:	SHELDON INGERSOLL	Calibration Date:	06-Apr-14 16:42:35	
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1	

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.76	0.01	+/- 0.10
Ring Diameter	8.25	8.29	0.04	+/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	

SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 10673790	Reference Calibration Date:	19-Feb-14 11:23:10	
Engineer:	THOMAS K HYDE	Calibration Date:	18-Mar-14 10:48:55	
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1	

Logging Source S/N: 5073 GW

Aluminum Block S/N: LIBERAL

Magnesium Block S/N: LIBERAL

Density: 2.598g/cc

Density: 1.684g/cc

Pe: 3.170

Pe: 2.598

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0082	0.9850	0.90 - 1.10
Near Dens Gain	0.9895	0.9736	0.90 - 1.10
Near Peak Gain	0.9720	0.9414	0.90 - 1.10
Near Lith Gain	0.9540	0.9240	0.90 - 1.10
Far Bar Gain	1.0086	1.0073	0.90 - 1.10
Far Dens Gain	0.9960	0.9962	0.90 - 1.10
Far Peak Gain	0.9909	0.9892	0.90 - 1.10
Far Lith Gain	0.9599	0.9580	0.90 - 1.10
Near Bar Offset	0.1793	0.3884	NONE
Near Dens Offset	0.3417	0.4803	NONE
Near Peak Offset	0.4836	0.7358	NONE
Near Lith Offset	0.6209	0.8683	NONE

Near Lith Offset	0.0239	0.0000	NONE
Far Bar Offset	0.1011	0.1128	NONE
Far Dens Offset	0.1824	0.1787	NONE
Far Peak Offset	0.1763	0.1867	NONE
Far Lith Offset	0.3379	0.3463	NONE
Near Bar Background	850.08	846.71	700 - 1450
Near Dens Background	278.54	278.15	230 - 480
Near Peak Background	123.16	122.26	100 - 210
Near Lith Background	151.16	150.35	125 - 260
Far Bar Background	568.95	566.98	450 - 900
Far Dens Background	222.59	222.54	175 - 345
Far Peak Background	88.29	87.78	70 - 140
Far Lith Background	92.30	92.97	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.684	-0.002	+/- 0.015
Pe	2.548	2.554	0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.594	2.598	0.004	+/- 0.01500
Pe	3.136	3.122	-0.014	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0014	+/- 0.0110	0.0000	+/- 0.0140
Magnesium Block	-0.0009	+/- 0.0110	-0.0008	+/- 0.0140
Aluminum Block	0.0018	+/- 0.0110	0.0009	+/- 0.0140
Resolution	8.61	6.00 - 11.50	8.99	6.00 - 11.50
Internal Verifier(B+D+P+L)	1397	1200 - 2700	970	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 - 10673790

Reference Calibration Date: 18-Mar-14 10:48:55

Engineer: SHELDON INGERSOLL

Calibration Date: 06-Apr-14 16:42:55

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Pad Temperature: 63.0 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shon	Field	Change	Control Limit +/-

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1397.473	1396.801	-0.672	15.098
Far (B+D+P+L) cps	970.273	975.000	4.727	16.747
Near Resolution	8.61	8.61	0.000	0.50
Far Resolution	8.99	9.07	0.080	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	232.0	233.0	-----	-1.0	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0610	0.0634	-----	-0.0024	+/- 0.0150	decp
SDLT-10673803						
Pad Extension	3.75	3.76	-----	-0.01	+/-0.10	in
Ring Diameter	8.25	8.29	-----	-0.04	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1397.473	1396.801	-----	0.672	+/-15.098	cps
Far(B+D+P+L)	970.273	975.000	-----	-4.727	+/-16.747	cps

Data: HFET #4-510001 GTET-DSN-SDL-BPI005 06-Apr-14 20:52 Up @4875.3f

Date: 06-Apr-14 21:08:38

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	35.37	NO	
BS	Bit Size	35.37	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SP Sub				
PLTC	Plot Control Mask	31.67	NO	
SP	Spontaneous Potential	31.67	BLK	1.250
SPR	Raw Spontaneous Potential	31.67	NO	
SPO	Spontaneous Potential Offset	31.67	NO	
GTET				
TPUL	Tension Pull	23.65	NO	
GR	Natural Gamma Ray API	23.65	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	23.65	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	23.65	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	13.41	NO	

RNDS	Near Detector Telemetry Counts	13.51	BLK	1.417
RFDS	Far Detector Telemetry Counts	14.26	TRI	0.583
DNTT	DSN Tool Temperature	13.51	NO	
DSNS	DSN Tool Status	13.41	NO	
ERND	Near Detector Telemetry Counts EVR	13.51	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	14.26	BLK	0.000
ENTM	DSN Tool Temperature EVR	13.51	NO	
HDIA	Measured Hole Diameter	0.00	NO	

SDLT				
TPUL	Tension Pull	3.51	NO	
PCAL	Pad Caliper	3.51	TRI	0.250
ACAL	Arm Caliper	3.51	TRI	0.250

SDLT Pad				
TPUL	Tension Pull	3.50	NO	
NAB	Near Above	3.32	BLK	0.920
NHI	Near Cesium High	3.32	BLK	0.920
NLO	Near Cesium Low	3.32	BLK	0.920
NVA	Near Valley	3.32	BLK	0.920
NBA	Near Barite	3.32	BLK	0.920
NDE	Near Density	3.32	BLK	0.920
NPK	Near Peak	3.32	BLK	0.920
NLI	Near Lithology	3.32	BLK	0.920
NBAU	Near Barite Unfiltered	3.32	BLK	0.250
NLIU	Near Lithology Unfiltered	3.32	BLK	0.250
FAB	Far Above	3.67	BLK	0.250
FHI	Far Cesium High	3.67	BLK	0.250
FLO	Far Cesium Low	3.67	BLK	0.250
FVA	Far Valley	3.67	BLK	0.250
FBA	Far Barite	3.67	BLK	0.250
FDE	Far Density	3.67	BLK	0.250
FPK	Far Peak	3.67	BLK	0.250
FLI	Far Lithology	3.67	BLK	0.250
PTMP	Pad Temperature	3.51	BLK	0.920
NHV	Near Detector High Voltage	2.90	NO	
FHV	Far Detector High Voltage	2.90	NO	
ITMP	Instrument Temperature	2.90	NO	
DDHV	Detector High Voltage	2.90	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad				
TPUL	Tension Pull	3.69	NO	
MINV	Microlog Lateral	3.69	BLK	0.750
MNOR	Microlog Normal	3.69	BLK	0.750

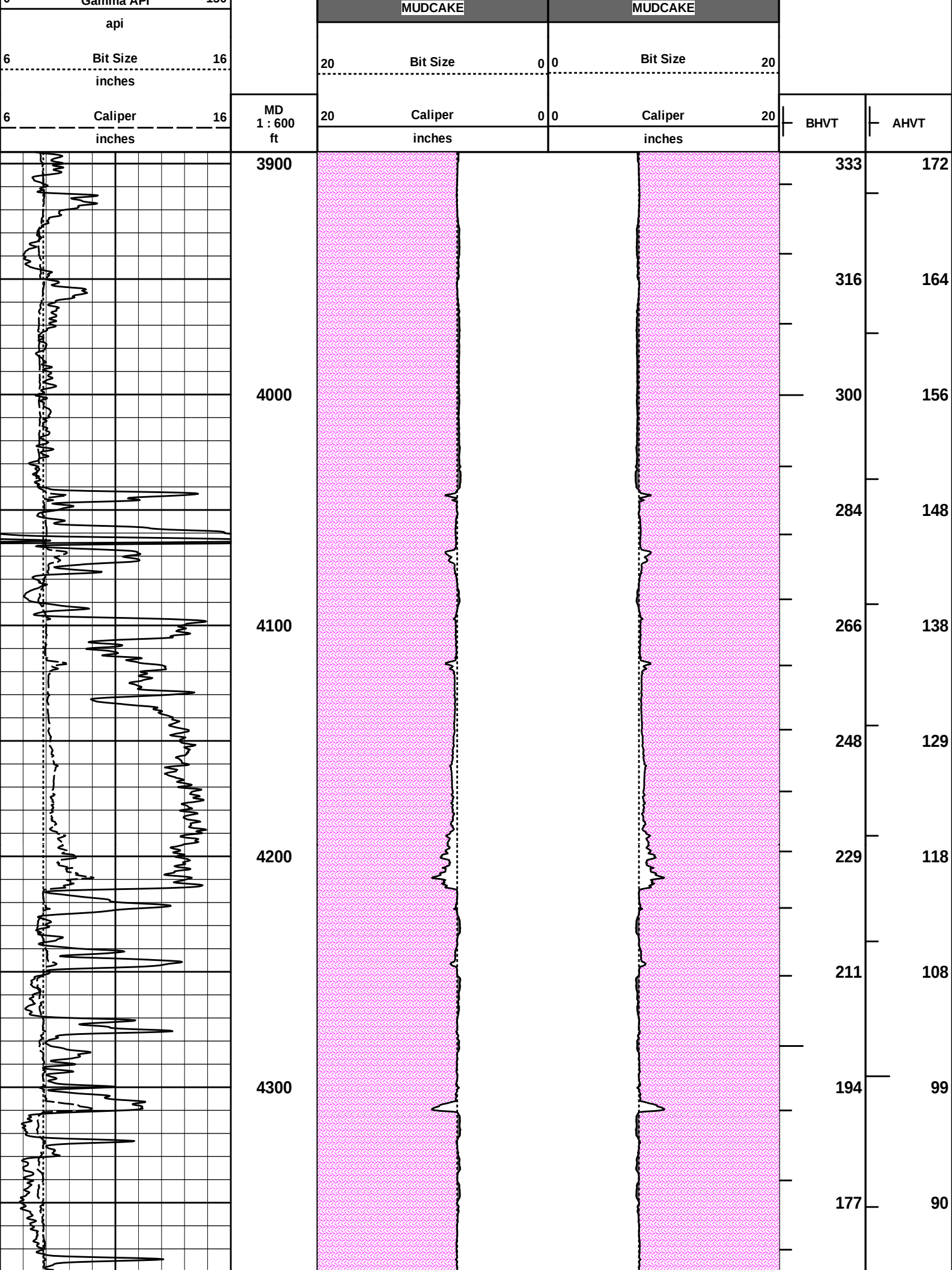
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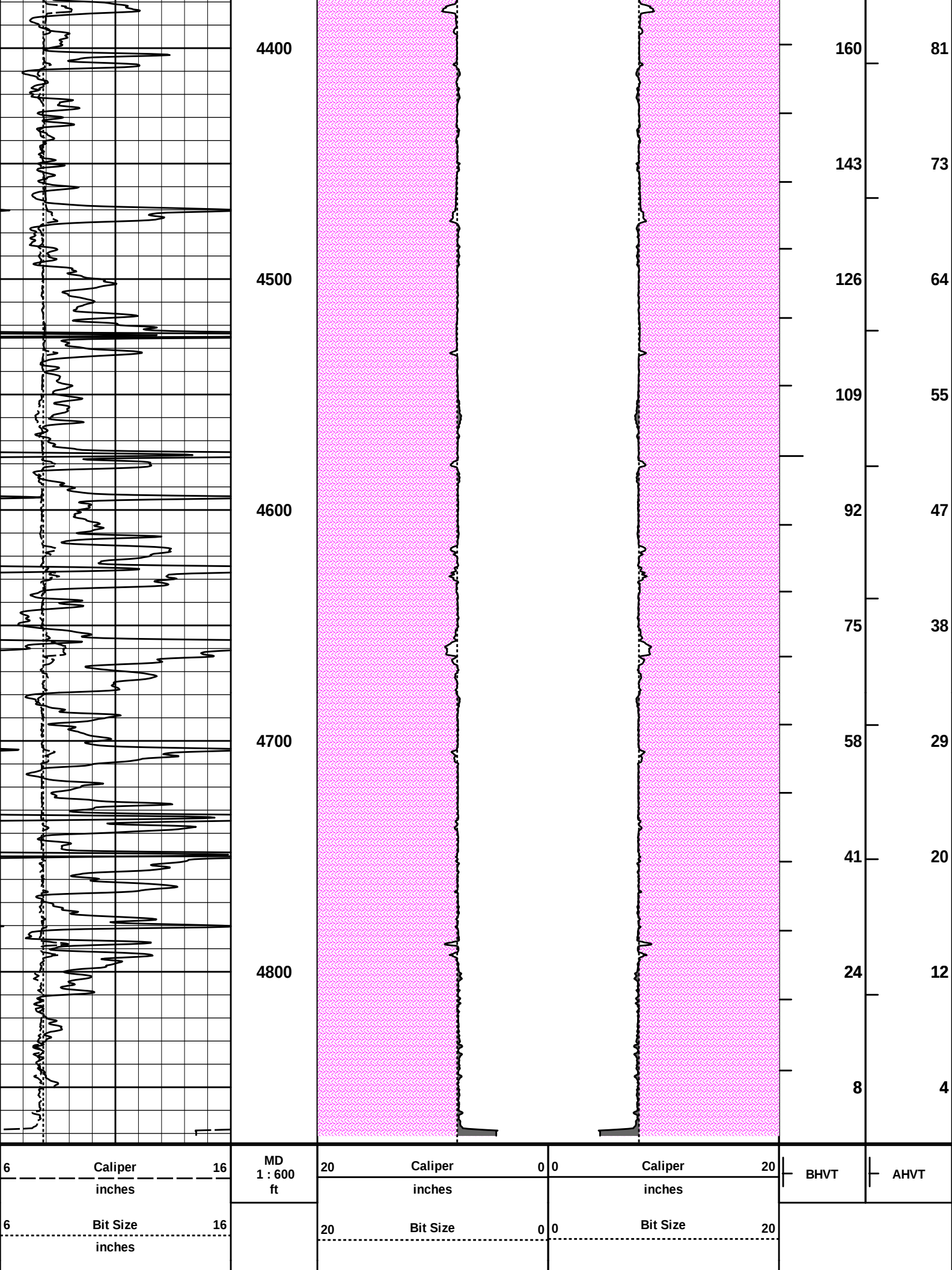


Plot Time: 06-Apr-14 21:22:00
Plot Range: 3895 ft to 4874.25 ft
Data: HEFT_#4-5\Well Based\IR1 POROSITY\
Plot File: \\-LOCAL-\HEFT_#4-5\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

0	Gamma API	150		
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0	Gamma API	150		MUDCAKE	MUDCAKE	
	api					
HALLIBURTON Plot Time: 06-Apr-14 21:22:01 Plot Range: 3895 ft to 4874.25 ft Data: HEFT_#4-5\Well Based\IR1 POROSITY\ Plot File: \\-LOCAL-\\HEFT_#4-5\Well Based\POROSITY\AHV_2_IQ_LIB						
ANNULAR HOLE VOLUME PLOT						
COMPANY HERMAN L. LOEB, LLC. WELL HEFT #4-5 FIELD EINSEL COUNTY KIOWA STATE KANSAS						
HALLIBURTON			DUAL SPACED NEUTRON SPECTRAL DENSITY LOG			