

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY

KINDER MORGAN CO2 Co. L.P.
COW CANYON CS #1
MCELMO DOME
MONTEZUMA
CO

COMPANY: **KINDER MORGAN CO2 Co. L.P.**
 WELL: **COW CANYON CS #1**
 FIELD/BLOCK: **MCELMO DOME**
 COUNTY: **MONTEZUMA**
 STATE: **CO**

API No. 05-083-06709-0000
 Location SURFACE HOLE LOCATION:
 1360' FNL & 210' FWL
 LATITUDE: 37.52617
 LONGITUDE: -108.93944
 Sect. 27 Twp. 38N Rge. 19W
 Other Services:
 RWCH
 CSNG
 XRMII
 W/STT
 DLLT
 ACRT

Permanent Datum Log measured from KB
 Drilling measured from KB
 Elev. 6459.0 ft
 D.F. 6482.0 ft
 G.L. 6459.0 ft
 23.0 ft above perm. Datum

Date	06-Mar-14	ONE	
Run No.			
Depth - Driller	8660.00 ft		
Depth - Logger	8659.0 ft		
Bottom - Logged Interval	8657.0 ft		
Top - Logged Interval	8303.0 ft		
Casing - Driller	7.000 in @ 8305.0 ft		
Casing - Logger	8303.0 ft		
Bit Size	6.000 in		
Type Fluid in Hole	WATER-BASED MUD		
Density	8.6 ppg	29.00	sg/qt
PH	8.70		
Source of Sample	MUD TANK		
Rm @ Meas. Temperature	0.163 ohmm @ 62.50 degF		
Rmf @ Meas. Temperature	0.17 ohmm @ 65.20 degF		
Rmc @ Meas. Temperature	N/A @ N/A		
Source Rmf	MEASURED	MEASURED	
Rm @ BHT	0.08 ohmm @ 140.0 degF		
Time Since Circulation	8.4 hr		
Time on Bottom	06-Mar-14 12:53		
Max. Rec. Temperature	140.0 degF @ 8660.0 ft		
Equipment Location	11871076	GJ, CO	
Recorded By	P. DIMPFL		
Witnessed By	C. SLAUGH		

Fold here

Service Ticket No.: 901171182 API Serial No.: 05-083-06709-0000 PGM Version: WL INSITE R3.8.4 (Build 5)

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.		@	@	ONE	ACRt	N/A	ECCENT	N/A
Rmc @ Meas. Temp.		@	@		I - 11585787			
Source Rmf	Rmc				S - 11585797			
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.	11005602	Serial No.		Serial No.	10951300	Serial No.	10993888
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAMMA-GAMMA	Log Type	NEU-THERM
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5153GW	Serial No.	DSN-388
Distance to Source	18'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix			
No.	From	To	ft/min	L	R	L	R		L	R				
ONE	8659	8303	REC	0 API	150 API				0.3	-0.1	2.71 g/cc	0.3	-0.1	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: RUN ONE: RWCH-GTET-CSNG--DSNT-SDLT--ACRT-BN RAN IN COMBINATION

RUN TWO: RWCH-GTET-WSTT-XRMI-BN RAN IN COMBINATION

RUN:THREE: RWCH-BRIDGE-CR-SP-BRIDGE-BS-GTET-CSNG-DLLT-MSFL-BN RAN IN COMBINATION

ANNULAR HOLE VOLUME CALCULATED USING 4.5 INCH CASING

BORHOLE RUGOSITY, TENSION PULLS, AND WASHOUTS MAY EFFECT LOG QUALITY AND REPEATABILITY

DSN DENCENTRALIZER NOT RUN DUE TO BIT SIZE

MUD PRESS WAS PERFORMED, HOWEVER, THE MUDCAKE RETRIEVED WAS NOT PLENTIFUL ENOUGH TO MEASURE ACCURATELY DUE TO LIGHTWEIGHT MUD

YOU CREW TODAY: T. RAFF B. CALDWELL

RIG: NABORS M13

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO (970) 523-3600

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

HALLIBURTON



PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	6.000	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.600	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	25000.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.163	ohmm
	SHARED	TRM	Temperature of Mud	62.5	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	65.0	degF
	SHARED	TD	Total Well Depth	8660.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	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 /	AEAC	Archie A factor	0.6200	

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	0.250	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
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	Eccentered	
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

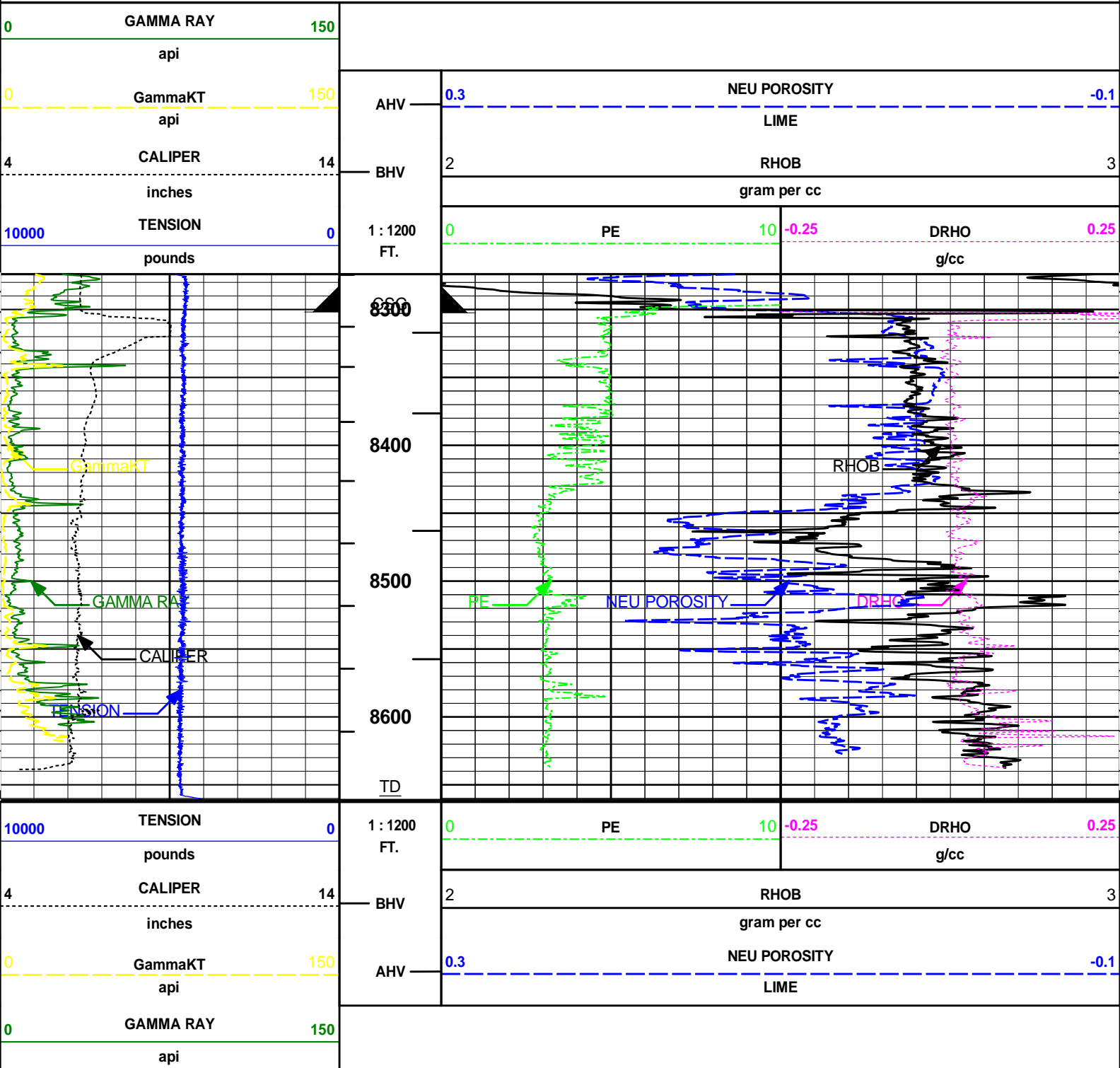
Data: KIND_MOR_CS_1\0001 TRIPLE_CSNG\007 06-Mar-14 13:25 Up @8662.5f

Date: 06-Mar-14 14:18:37

HALLIBURTON

Plot Time: 06-Mar-14 18:27:05
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\PORO\POR5IN_DENSITY_1"

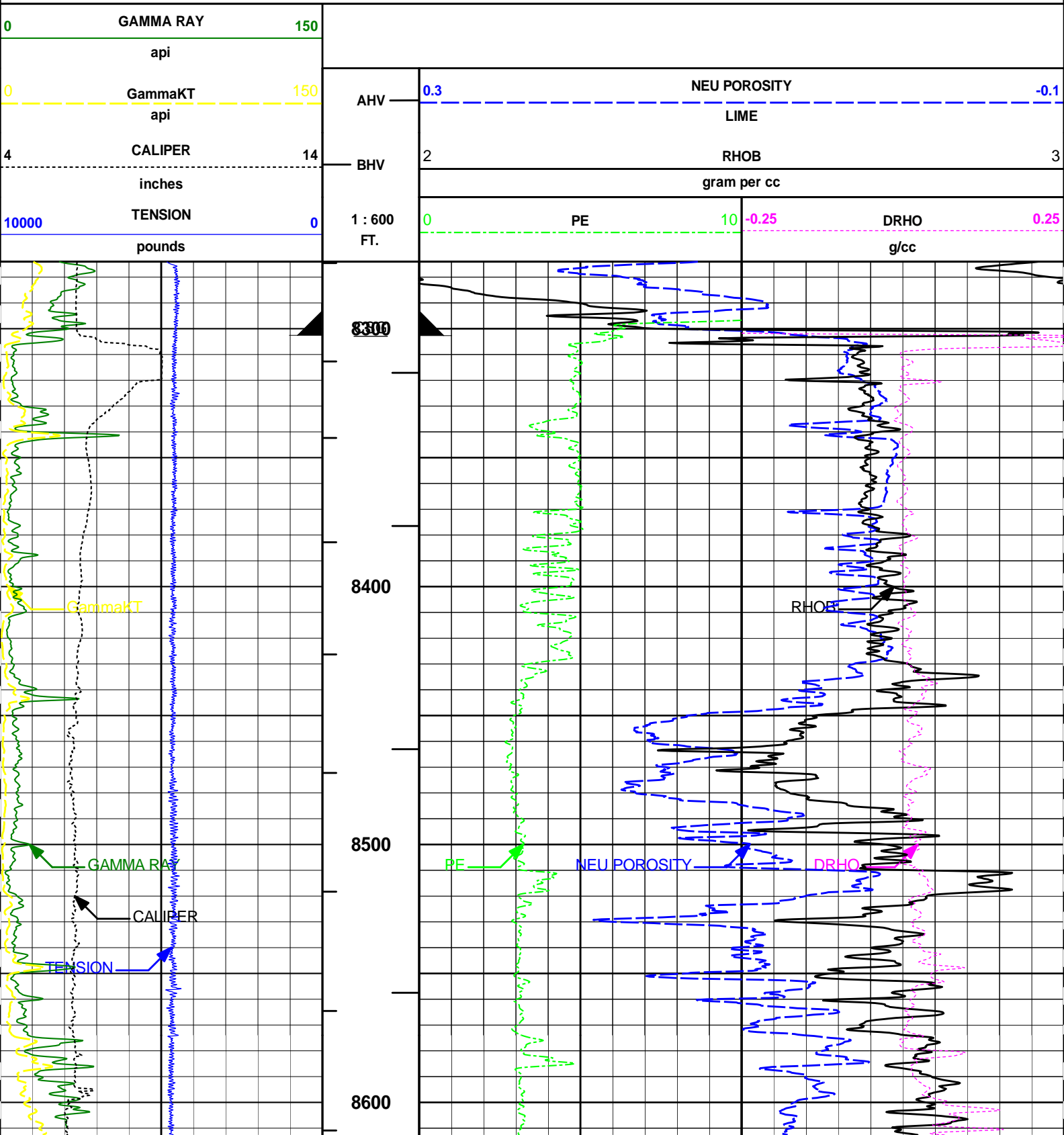
MAIN PASS. 1" = 100'. DENSITY PRESENTATION

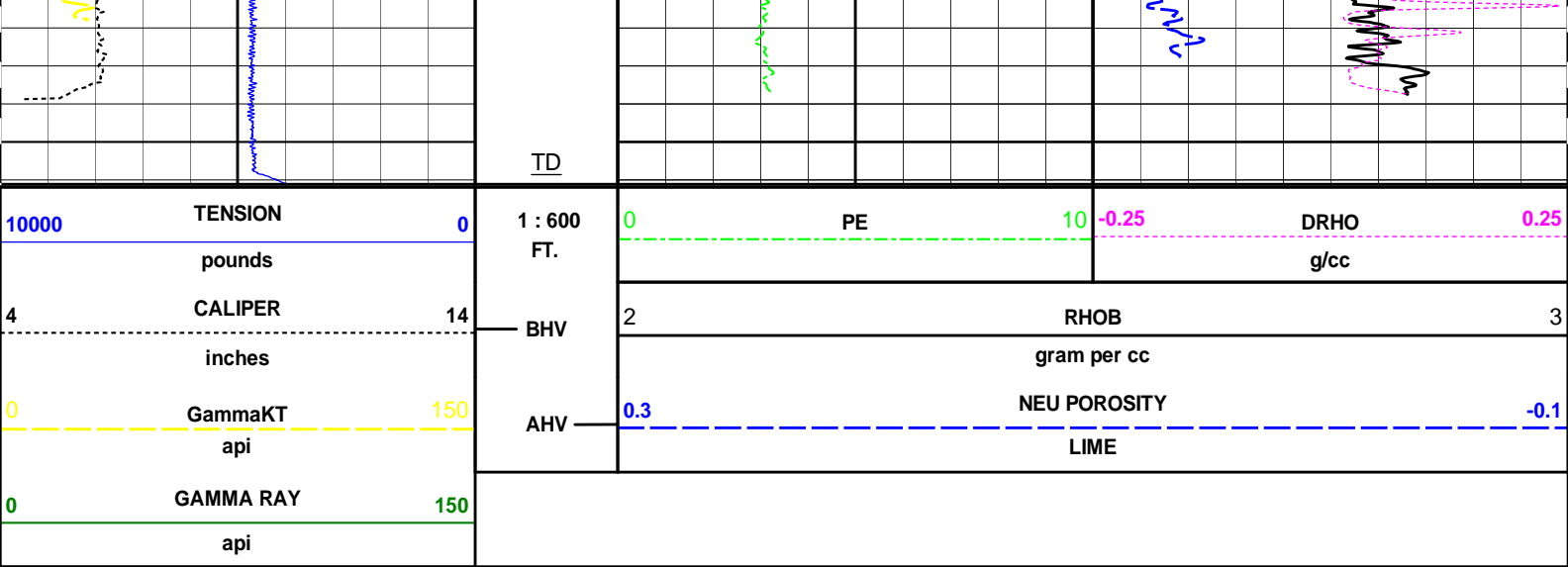


Plot Time: 06-Mar-14 18:27:07
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\PORO\POR5IN_DENSITY_1"

MAIN PASS, 1" = 100', DENSITY PRESENTATION

MAIN PASS 2" = 100', DENSITY PRESENTATION





HALLIBURTON

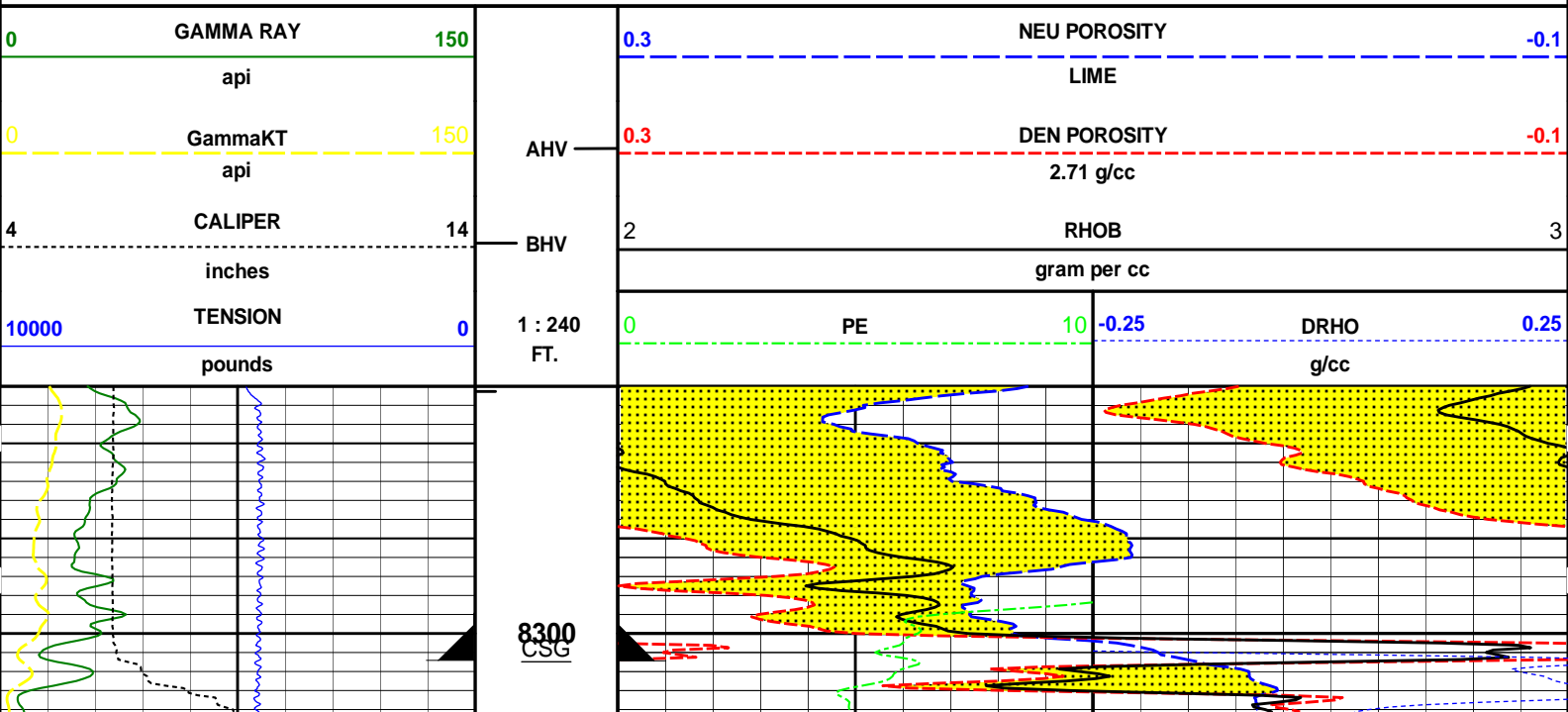
Plot Time: 06-Mar-14 18:27:08
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\PORO\POR5IN_DENSITY_2"

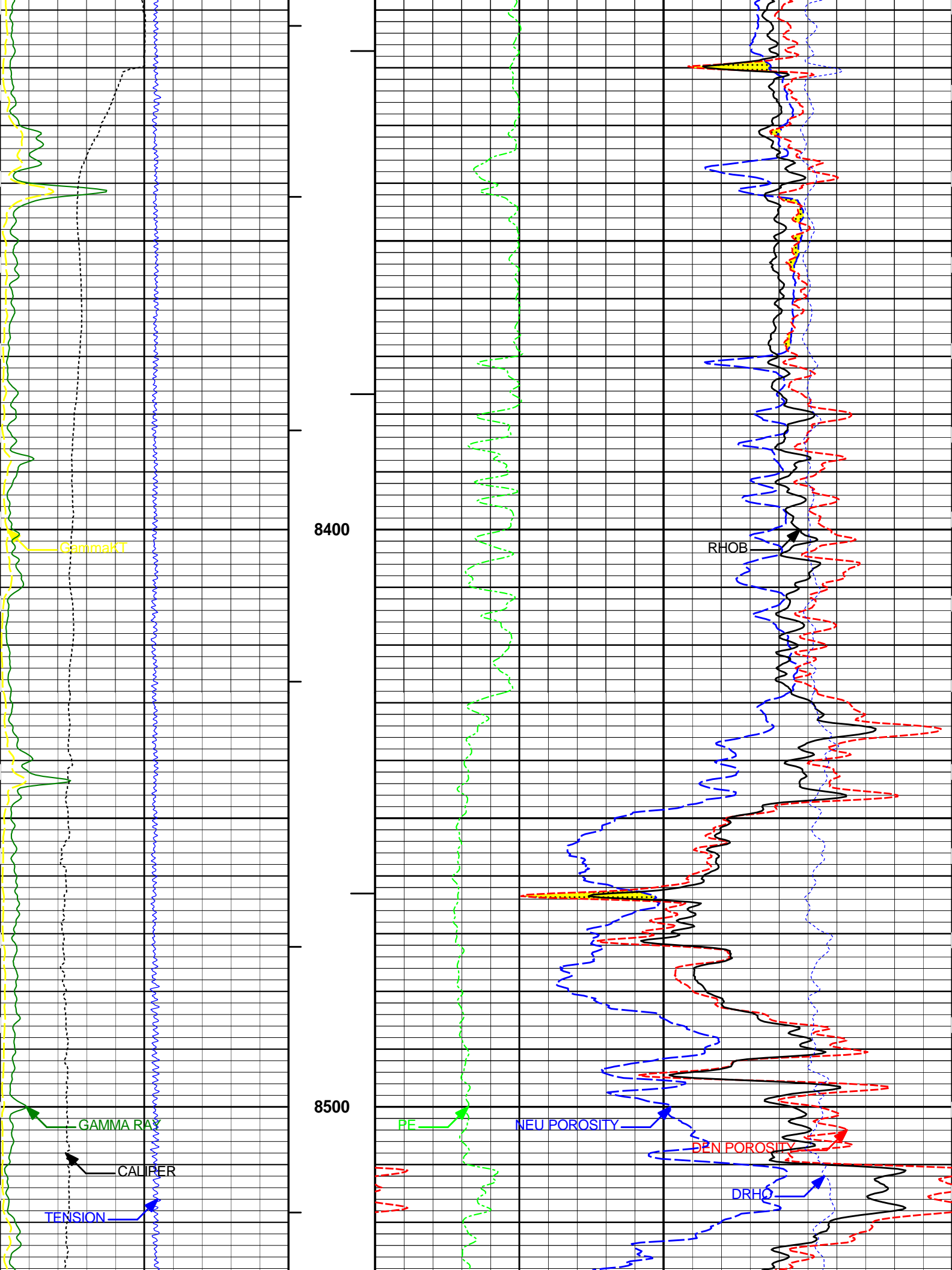
MAIN PASS 2" = 100', DENSITY PRESENTATION

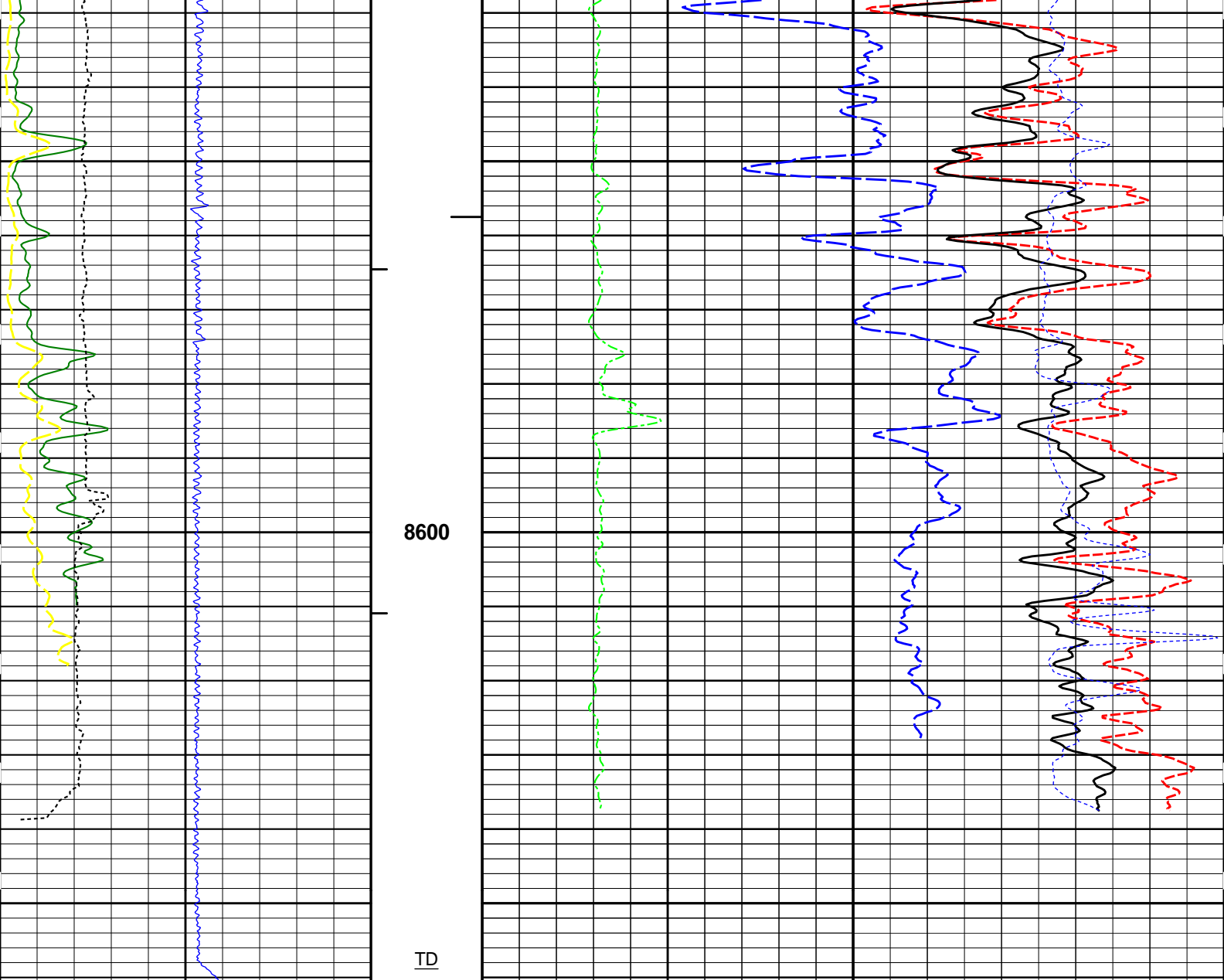
HALLIBURTON

Plot Time: 06-Mar-14 18:27:09
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\PORO\POR5IN_DENSITY

MAIN PASS 5" = 100', DENSITY PRESENTATION







10000	TENSION	0	1 : 240	0	10	-0.25	DRHO	0.25
	pounds		FT.				g/cc	
4	CALIPER	14	BHV	2			RHOB	3
	inches						gram per cc	
0	GammaKT	150	AHV	0.3			DEN POROSITY	-0.1
	api						2.71 g/cc	
0	GAMMA RAY	150		0.3			NEU POROSITY	-0.1
	api						LIME	

HALLIBURTON

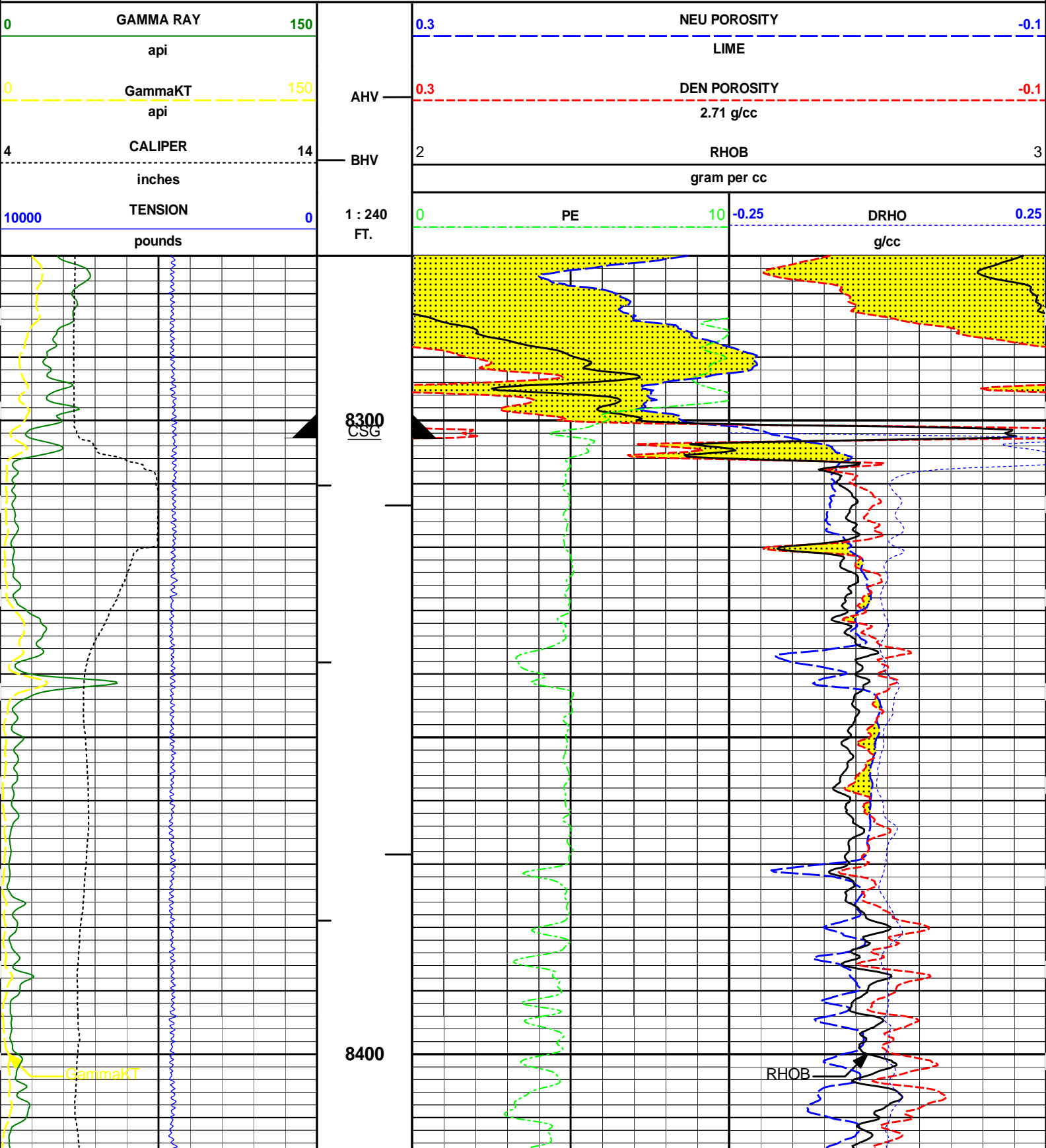
Plot Time: 06-Mar-14 18:27:10
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\POROV_POR5IN_DENSITY

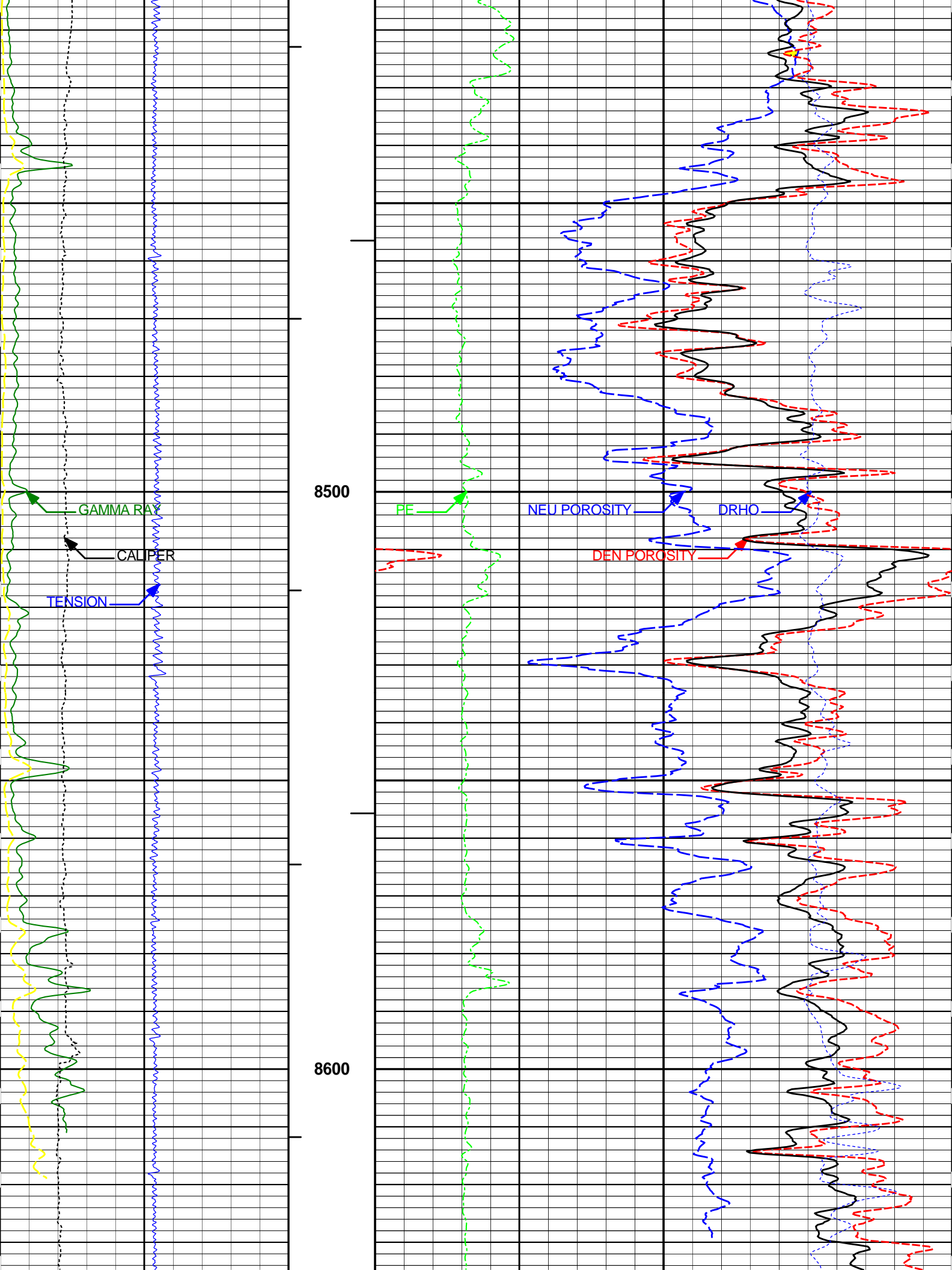
MAIN PASS 5" = 100', DENSITY PRESENTATION

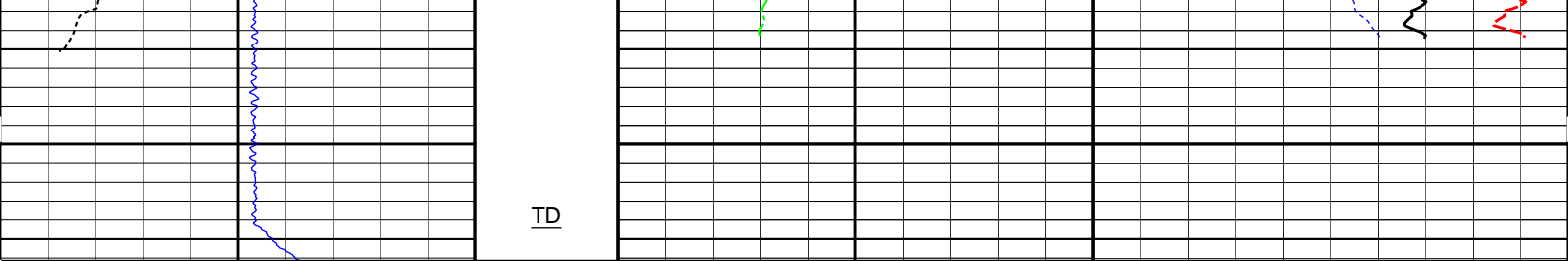
HALLIBURTON

Plot Time: 06-Mar-14 18:27:11

REPEAT PASS 5" = 100', DENSITY PRESENTATION







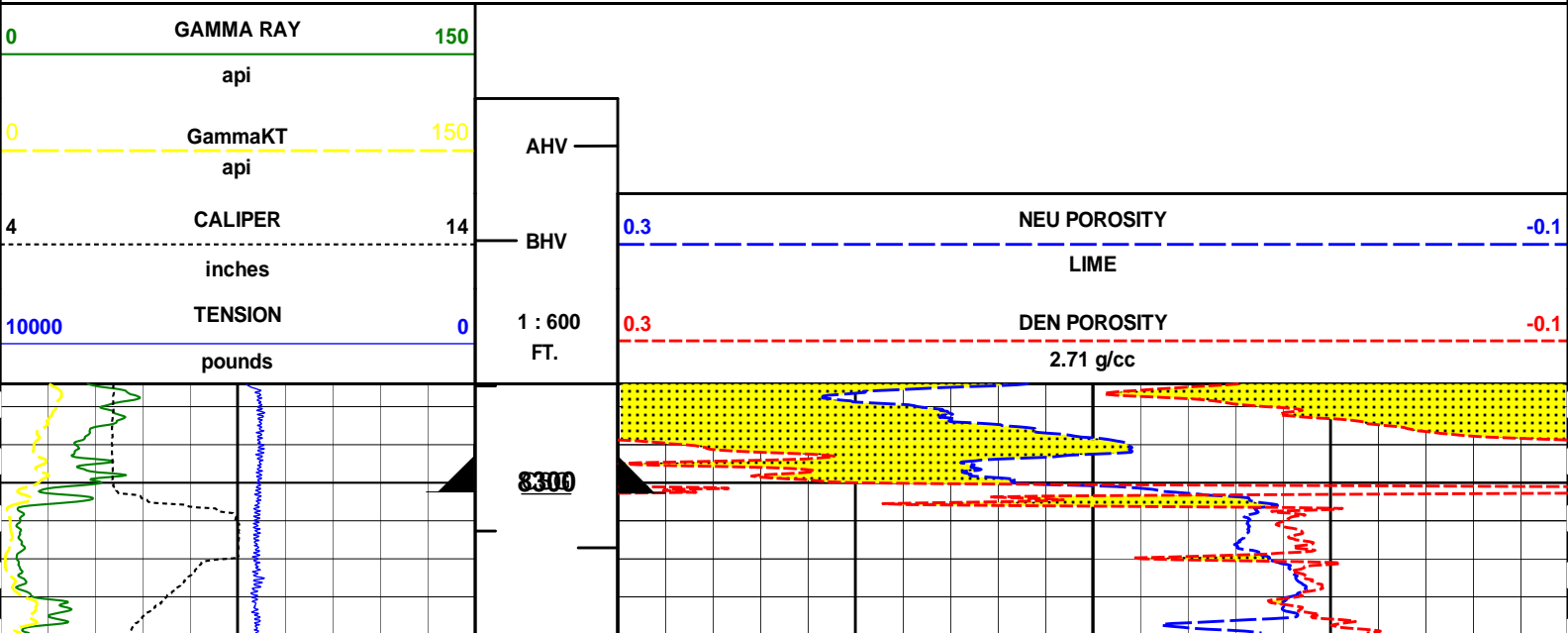
10000	TENSION	0	1 : 240	0	PE	10	-0.25	DRHO	0.25
	pounds		FT.					g/cc	
4	CALIPER	14	BHV	2				RHOB	3
	inches							gram per cc	
0	GammaKT	150	AHV	0.3				DEN POROSITY	-0.1
	api							2.71 g/cc	
0	GAMMA RAY	150		0.3				NEU POROSITY	-0.1
	api							LIME	

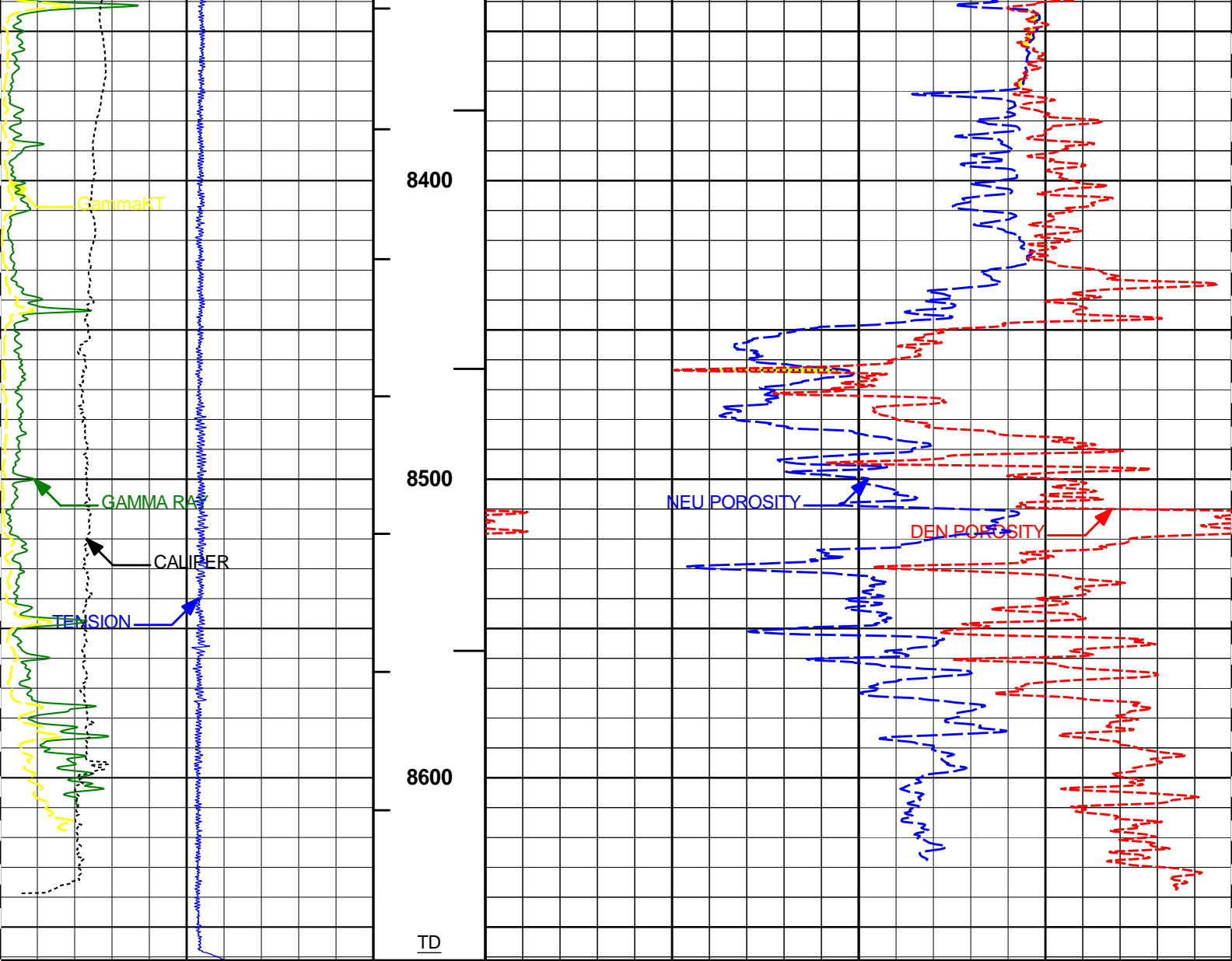
HALLIBURTON Plot Time: 06-Mar-14 18:27:12
 Plot Range: 8274 ft to 8662.33 ft
 Data: KIND_MOR_CS_1\Well Based\REPEAT\
 Plot File: \\PORO\POR5IN_DENSITY_R

REPEAT PASS 5" = 100', DENSITY PRESENTATION

HALLIBURTON Plot Time: 06-Mar-14 18:27:13
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN\
 Plot File: \\PORO\POR5IN_M_2"

MAIN PASS, 2" = 100', NEUTRON/DENSITY





10000	TENSION	0	1 : 600 FT.	0.3	DEN POROSITY	-0.1	
	pounds					2.71 g/cc	
4	CALIPER	14		BHV	0.3	NEU POROSITY	-0.1
	inches					LIME	
0	GammaKT	150	AHV				
	api						
0	GAMMA RAY	150					
	api						

HALLIBURTON

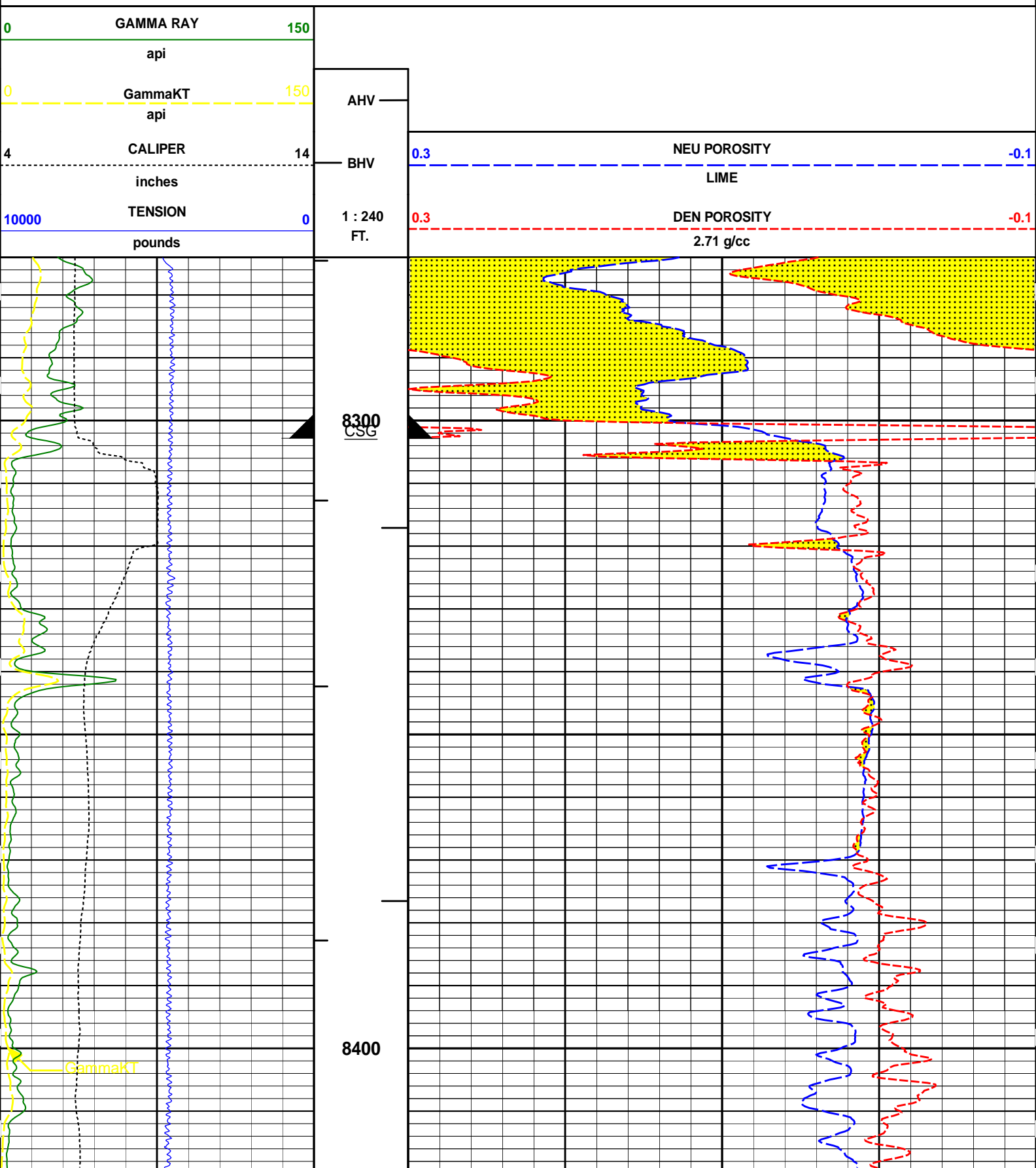
Plot Time: 06-Mar-14 18:27:14
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\POROV_POR5IN_M_2"

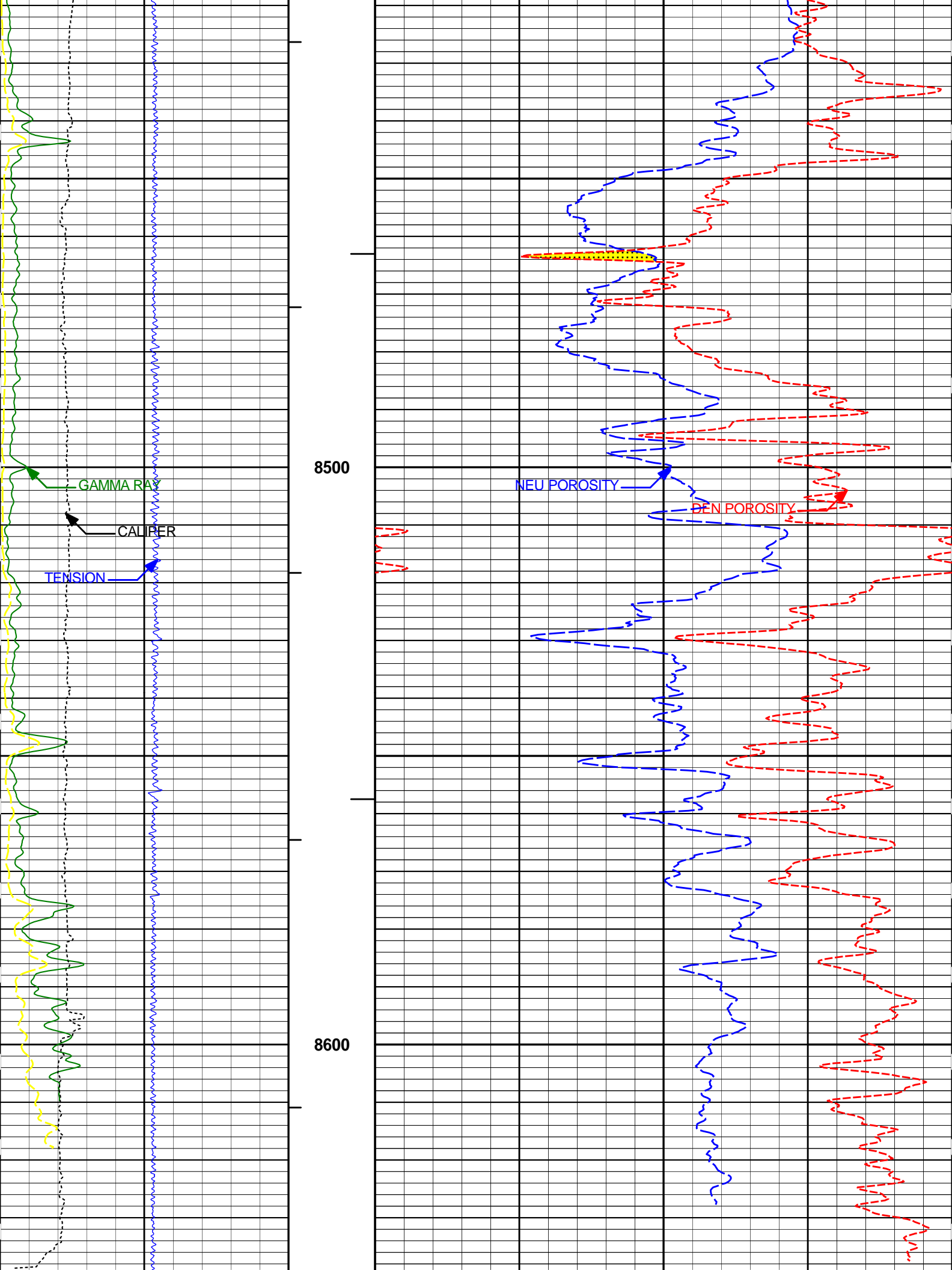
MAIN PASS, 2" = 100', NEUTRON/DENSITY

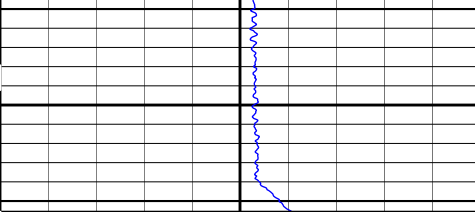
HALLIBURTON

Plot Time: 06-Mar-14 18:27:14
 Plot Range: 8274 ft to 8661.17 ft

MAIN PASS, 5" = 100', NEUTRON/DENSITY







TD

10000	TENSION	0
	pounds	
4	CALIPER	14
	inches	
0	GammaKT	150
	api	
0	GAMMA RAY	150
	api	

1 : 240
FT.

0.3

DEN POROSITY

-0.1

2.71 g/cc

0.3

NEU POROSITY

-0.1

LIME

BHV

AHV

HALLIBURTON

Plot Time: 06-Mar-14 18:27:16
 Plot Range: 8274 ft to 8661.17 ft
 Data: KIND_MOR_CS_1\Well Based\MAIN
 Plot File: \\PORO\POR5IN_M

MAIN PASS, 5" = 100', NEUTRON/DENSITY

HALLIBURTON

Plot Time: 06-Mar-14 18:27:16
 Plot Range: 8274 ft to 8662.33 ft
 Data: KIND_MOR_CS_1\Well Based\REPEAT
 Plot File: \\PORO\POR5IN_R

REPEAT PASS, 5" = 100', NEUTRON/DENSITY

0	GAMMA RAY	150
	api	
0	GammaKT	150
	api	
4	CALIPER	14
	inches	
10000	TENSION	0
	pounds	

AHV

0.3

NEU POROSITY

-0.1

LIME

0.3

DEN POROSITY

-0.1

2.71 g/cc

BHV

2

RHOB

3

gram per cc

1 : 240
FT.

0

PE

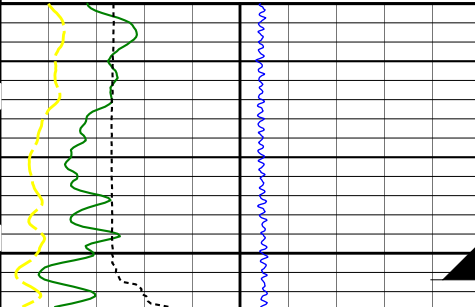
10

-0.25

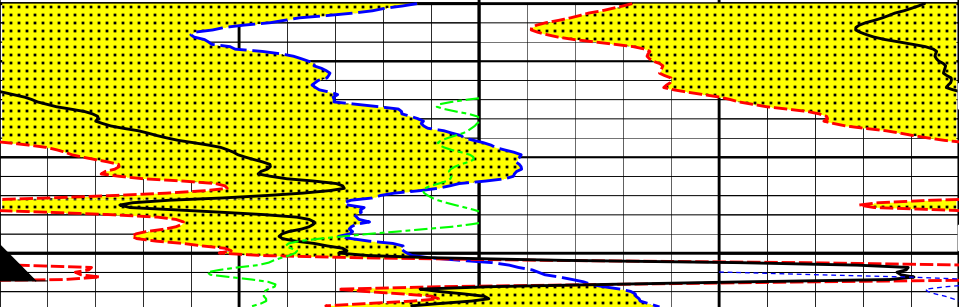
DRHO

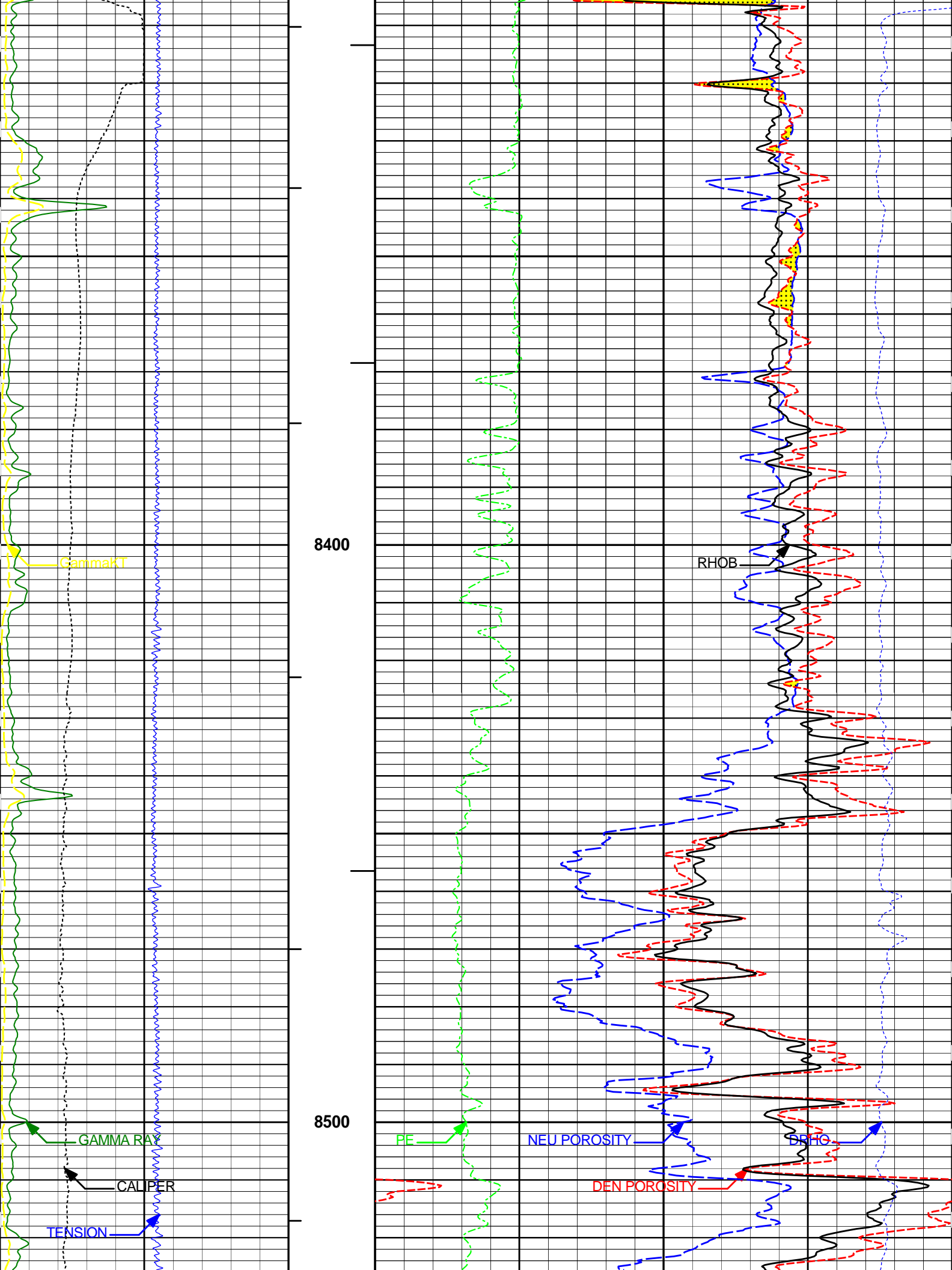
0.25

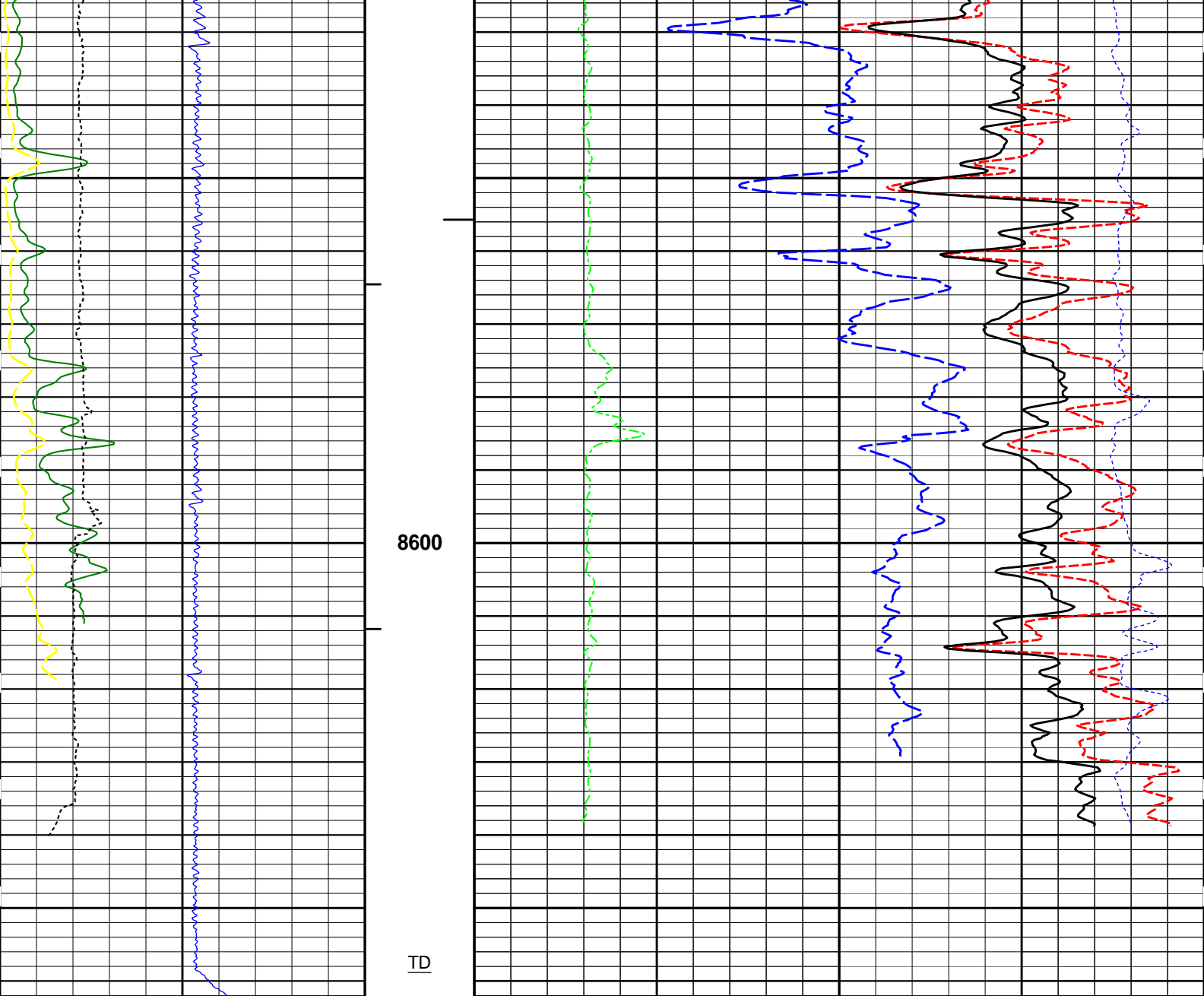
g/cc



8300
CSG







10000	TENSION	0	1 : 240	0	PE	10	-0.25	DRHO	0.25
	pounds		FT.					g/cc	
4	CALIPER	14	BHV	2				RHOB	3
	inches							gram per cc	
0	GammaKT	150	AHV	0.3				DEN POROSITY	-0.1
	api							2.71 g/cc	
0	GAMMA RAY	150		0.3				NEU POROSITY	-0.1
	api							LIME	

HALLIBURTON

Plot Time: 06-Mar-14 18:27:18
 Plot Range: 8274 ft to 8662.33 ft
 Data: KIND_MOR_CS_1\Well Based\REPEAT\
 Plot File: \\POROV\POR5IN_R

REPEAT PASS, 5" = 100', NEUTRON/DENSITY

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11005602

Reference Calibration Date: 06-Mar-14 09:59:43

Engineer: P. DIMPFL

Calibration Date: 06-Mar-14 10:04:33

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Calibrator Source S/N: MP051807-04

Calibrator API Reference:239.00 api

Equivalent Calibrator API Reference:243.2 api

Measurement	Measured	Calibrated	Units
Background	21.3	21.2	api
Background + Calibrator	265.1	264.4	api
Calibrator	243.8	243.2	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11005602

Reference Calibration Date: 06-Mar-14 10:04:33

Engineer: P. DIMPFL

Calibration Date: 06-Mar-14 10:16:22

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Calibrator Source S/N: MP051807-04

Calibrator API Reference:239.00 api

Equivalent Calibrator API Reference:243.2 api

Field Verification	Shop	Field	Units
Background	21.2	22.3	api
Background + Calibrator	264.4	261.4	api
Calibrator	243.2	239.1	api

Shop	Field	Difference	Tolerance
243.2	239.1	4.1	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 11568970

Reference Calibration Date: 29-Jan-14 19:16:22

Engineer: P. DIMPFL

Calibration Date: 01-Mar-14 11:28:14

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Source SN: MP051807-04

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.3	23.5	Channel #
583 KEV Peak Channel #	52.3	52.3	Channel #
2614 KEV Peak Channel #	216.7	216.9	Channel #
Calibrate Temperature	55.5	53.2	degF

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

Blanket Reference Value: 239.00 API

Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	2190.1	CPS	319.4	412.1	API
Background	747.4	CPS	48.0	140.6	API

Gamma Ray Gain: 0.95
 Expected Gain Range: 0.85 - 1.15
 Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name: CSNG - 11568970 **Reference Calibration Date:** 01-Mar-14 11:28:14
Engineer: P. DIMPFL **Calibration Date:** 06-Mar-14 10:14:32
Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1
Source SN:

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.5	23.2	Channel #
583 KEV Peak Channel #	52.3	52.1	Channel #
2614 KEV Peak Channel #	216.9	215.7	Channel #
Calibrate Temperature	53.2	65.4	degF

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

Blanket Reference Value: 239.00 API
 Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1349.0	CPS	412.1	289.2	API
Background	83.1	CPS	140.6	17.8	API

Gamma Ray Gain: 1.08
 Expected Gain Range: 0.85 - 1.15
 Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10993888 **Reference Calibration Date:** 22-Jan-14 09:45:09
Engineer: B. RIDDEL **Calibration Date:** 24-Feb-14 09:25:16
Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: DSN-388
 Tank Serial Number: GJ WATER TANK
 Reference value assigned to Tank: 52.750
 Snow Block S/N: GJ
 Calibration Tank Water Temperature: 62 degF
 Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.002	0.998	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):	0.2181	0.2169	0.0012	+/- 0.0020
Calibrated Ratio:	9.97	9.93	0.041	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0725	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 - 10993888	Reference Calibration Date: 24-Feb-14 09:25:16
Engineer: P. DIMPFL	Calibration Date: 06-Mar-14 10:32:54
Software Version: WL INSITE R3.8.4 (Build 5)	Calibration Version: 1

Logging Source S/N: DSN-388

Snow Block S/N: GJ

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0725	0.0721	-0.0004	+/- 0.0150

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10951300	Reference Calibration Date: 31-Jan-14 12:48:44
Engineer: P. DIMPFL	Calibration Date: 26-Feb-14 13:54:45
Software Version: WL INSITE R3.8.4 (Build 5)	Calibration Version: 1
Host Tool Name: DSNT - 10993888	

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1687.82	-1465.93	-7000.00 - -1000.00
Pad Gain	0.0003601	0.0003676	0.000200 - 0.000600
Arm Offset	-3832.47	-3800.64	-5000.00 - 3000.00
Arm Gain	0.0005431	0.0005413	0.000300 - 0.000700
Arm Power	-0.000003815	-0.000003947	-0.000010000 - 0.000010000

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

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)	1.88	2.00	0.12	+/- 0.20

Medium Ring (in) 3.59 3.75 0.16 +/- 0.20

RING DIAMETER:

Small Ring (in) 6.40 6.50 0.10 +/- 0.20

Medium Ring (in) 8.16 8.25 0.09 +/- 0.20

Large Ring (in) 14.96 15.00 0.04 +/- 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 - 10951300

Reference Calibration Date: 26-Feb-14 13:54:45

Engineer: P. DIMPFL

Calibration Date: 06-Mar-14 10:29:23

Software Version: WL INSITE R3.8.4 (Build 5)

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	8.24	-0.01	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check: Passed

Diameter Check: Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10865876

Reference Calibration Date: 22-Jan-14 12:09:55

Engineer: B. RIDDEL

Calibration Date: 26-Feb-14 10:13:53

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Logging Source S/N: 5153GW

Aluminum Block S/N: 63094

Density: 2.608g/cc

Pe: 3.230

Magnesium Block S/N: 63387

Density: 1.681g/cc

Pe: 2.600

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0679	1.0249	0.90 - 1.10
Near Dens Gain	1.0263	1.0139	0.90 - 1.10
Near Peak Gain	1.0085	1.0002	0.90 - 1.10
Near Lith Gain	0.9820	0.9746	0.90 - 1.10
Far Bar Gain	1.0156	1.0136	0.90 - 1.10
Far Dens Gain	1.0039	1.0020	0.90 - 1.10
Far Peak Gain	0.9957	0.9986	0.90 - 1.10
Far Lith Gain	0.9807	0.9808	0.90 - 1.10

Near Bar Offset	-0.4414	-0.0430	NONE
Near Dens Offset	-0.0603	0.0534	NONE
Near Peak Offset	0.0841	0.1574	NONE
Near Lith Offset	0.2867	0.3592	NONE
Far Bar Offset	-0.0183	0.0047	NONE
Far Dens Offset	0.0684	0.0906	NONE
Far Peak Offset	0.1276	0.1097	NONE
Far Lith Offset	0.2196	0.2355	NONE

Near Bar Background	877.31	876.04	700 - 1450
Near Dens Background	293.39	292.70	230 - 480
Near Peak Background	130.58	129.46	100 - 210
Near Lith Background	158.21	157.87	125 - 260
Far Bar Background	539.77	537.81	450 - 900
Far Dens Background	212.82	211.21	175 - 345
Far Peak Background	84.04	82.35	70 - 140
Far Lith Background	86.52	87.03	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.681	-0.003	+/- 0.015
Pe	2.619	2.552	-0.067	+/- 0.150
ALUMINUM				
Density (g/cc)	2.604	2.608	0.004	+/- 0.01500
Pe	3.187	3.172	-0.015	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0005	+/- 0.0110	-0.0000	+/- 0.0140
Magnesium Block	-0.0013	+/- 0.0110	-0.0019	+/- 0.0140
Aluminum Block	-0.0015	+/- 0.0110	-0.0014	+/- 0.0140
Resolution	9.03	6.00 - 11.50	9.39	6.00 - 11.50
Internal Verifier(B+D+P+L)	1456	1200 - 2700	918	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 - 10865876

Reference Calibration Date: 26-Feb-14 10:13:53

Engineer: P. DIMPFL

Calibration Date: 06-Mar-14 10:30:58

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Pad Temperature: 54.2 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1456.067	1452.665	-3.402	15.390
Far (B+D+P+L) cps	918.414	918.693	0.279	16.429
Near Resolution	9.03	9.02	-0.010	0.50
Far Resolution	9.39	9.60	0.210	1.00

PASS/FAIL SUMMARY

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

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 11585797 Reference Calibration Date: 27-Jan-14 10:27:38
 Engineer: P. DIMPFL Calibration Date: 28-Feb-14 10:57:00
 Software Version: WL INSITE R3.8.4 (Build 5) Calibration Version: 1
 Host Tool Name: ACRt Instrument - 11585787

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	1.01	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	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	1.01	1.05	0.95	1.01	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	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	-2.41	2	-6	-4.17	-2	-8	-5.42	-2
A2 (50")	-7	-1.92	0	-7	-3.44	0	-7	-4.78	0
A3 (29")	-27	-15.76	-9	-9	-4.34	-3	-7	-3.32	-1
A4 (17")	-180	-117.88	-60	-45	-34.98	-15	-39	-26.87	-13
A5 (10")	N/A	N/A	N/A	-150	-95.61	-50	-80	-49.16	-10
A6 (6")	N/A	N/A	N/A	175	310.19	525	90	157.45	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.85	1.3
36K	1.0	1.83	2.0
72K	1.0	1.10	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.01	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-11005602						
Gamma Ray Calibrator	243.2	239.1	-----	4.1	+/- 9.00	api
CSNG-11568970						

60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.5	23.2	-----	0.3	-----	Channel #
583 KEV Peak Channel #	52.3	52.1	-----	0.2	-----	Channel #
2614 KEV Peak Channel #	216.9	215.7	-----	1.2	-----	Channel #
DSNT-10993888						
Snow-Block Porosity	0.0725	0.0721	-----	0.0004	+/- 0.0150	decp
SDLT-10951300						
Pad Extension	3.75	3.82	-----	-0.07	+/-0.10	in
Ring Diameter	8.25	8.24	-----	0.01	+/-0.15	in
SDLT Pad-10865876						
Near(B+D+P+L)	1456.067	1452.665	-----	3.402	+/-15.390	cps
Far(B+D+P+L)	918.414	918.693	-----	-0.279	+/-16.429	cps
ACRt Sonde-11585797						
Mud Cell	1.01	-----	-----	0.00	-----	ohm-m
Data: KIND_MOR_CS_1\0001 TRIPLE_CSNG\007 06-Mar-14 13:25 Up @8662.5f					Date: 06-Mar-14 14:19:07	



HALLIBURTON

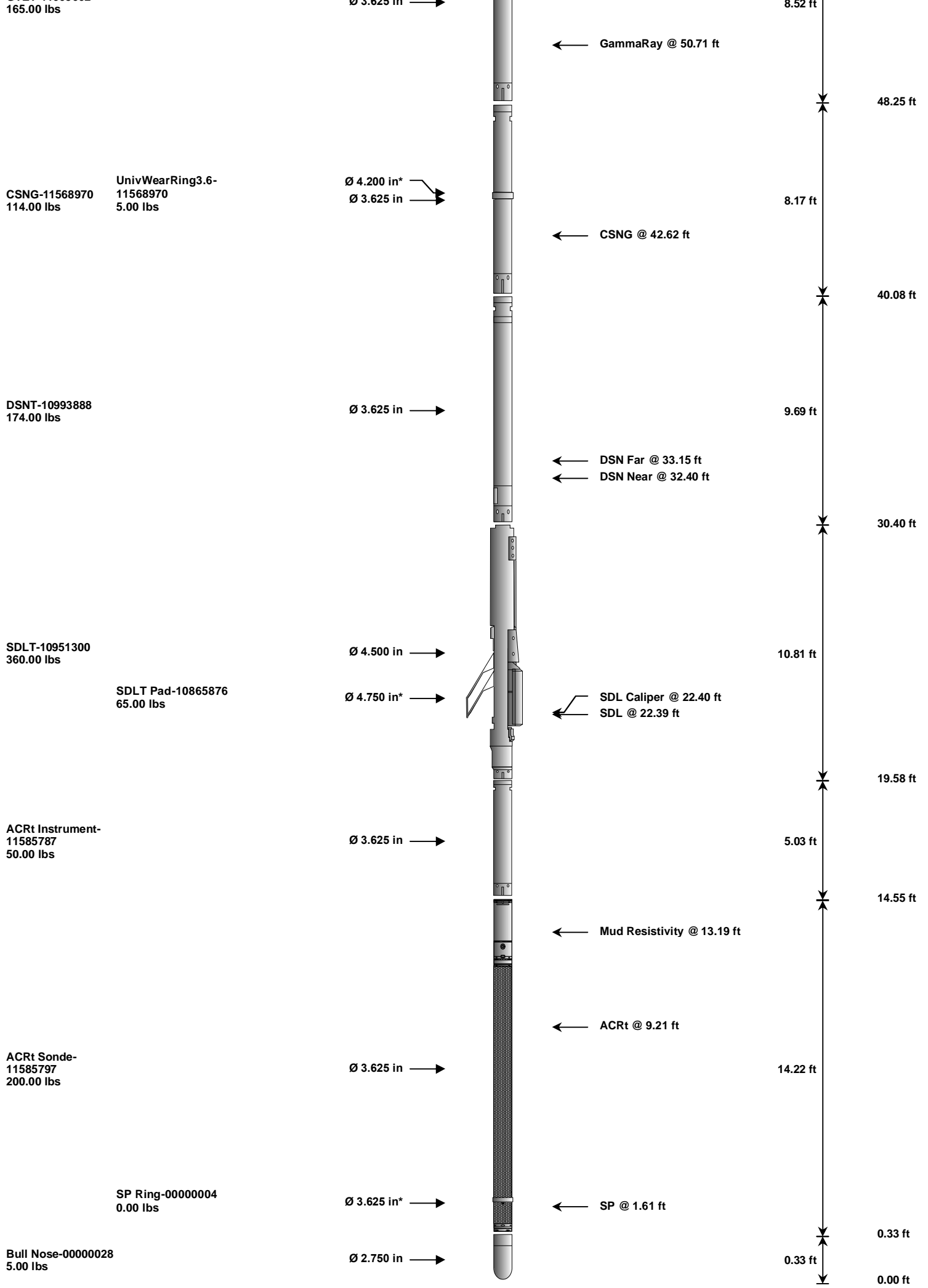
CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	06-Mar-14 12:10:55	1963.50	Logging 001 06-Mar-14 12:10 Dn @1963.5f
	06-Mar-14 12:18:56	3795.18	Halting 001 06-Mar-14 12:10 Dn @1963.5f
	06-Mar-14 12:19:25	3834.50	Logging 002 06-Mar-14 12:19 Dn @3834.5f
	06-Mar-14 12:40:00	8200.54	Halting 002 06-Mar-14 12:19 Dn @3834.5f
	06-Mar-14 12:40:13	8200.75	Logging 003 06-Mar-14 12:40 Up @8200.8f
	06-Mar-14 12:40:36	8198.22	Halting 003 06-Mar-14 12:40 Up @8200.8f
	06-Mar-14 12:40:56	8195.75	Logging 004 06-Mar-14 12:40 Up @8195.8f
	06-Mar-14 12:46:08	7968.00	Halting 004 06-Mar-14 12:40 Up @8195.8f
	06-Mar-14 12:47:42	7994.00	Logging 005 06-Mar-14 12:47 Dn @7994.0f
	06-Mar-14 12:53:28	8646.56	Halting 005 06-Mar-14 12:47 Dn @7994.0f
	06-Mar-14 12:53:49	8664.00	Logging 006 06-Mar-14 12:53 Up @8664.0f
	06-Mar-14 13:21:24	8261.47	Halting 006 06-Mar-14 12:53 Up @8664.0f
	06-Mar-14 13:25:24	8662.50	Logging 007 06-Mar-14 13:25 Up @8662.5f
	06-Mar-14 13:54:15	8047.54	Halting 007 06-Mar-14 13:25 Up @8662.5f
Data: KIND_MOR_CS_1\0001 TRIPLE_CSNG\HW11574			Date: 06-Mar-14 14:19:29

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-A032 135.00 lbs		Ø 3.625 in		<ul style="list-style-type: none"> ← Load Cell @ 59.34 ft ← BH Temperature @ 58.77 ft 	6.25 ft	63.02 ft
GTET-11005602		Ø 3.625 in				56.77 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	A032	135.00	6.25	56.77	300.00
GTET	Gamma Telemetry Tool	11005602	165.00	8.52	48.25	60.00
CSNG	Compensated Spectral Natural Gamma	11568970	114.00	8.17	40.08	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	11568970	5.00	0.35 *	44.16	300.00
DSNT	Dual Spaced Neutron	10993888	174.00	9.69	30.40	60.00
SDLT	Spectral Density Tool	10951300	360.00	10.81	19.58	60.00
SDLP	Density Insite Pad	10865876	65.00	2.55 *	21.79	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11585787	50.00	5.03	14.55	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11585797	200.00	14.22	0.33	300.00
SP	SP Ring	00000004	0.00	0.25 *	1.61	300.00
BLNS	Bull Nose	00000028	5.00	0.33	0.00	300.00
Total			1,273.00	63.02		

* Not included in Total Length and Length Accumulation.

Data: KIND_MOR_CS_1\0001 TRIPLE_CSNG\IDLE Date: 06-Mar-14 11:54:22

COMPANY	KINDER MORGAN CO2 Co. L.P.		
WELL	COW CANYON CS #1		
FIELD	MCELMO DOME		
COUNTY	MONTEZUMA	STATE	CO
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY	