HALLIBURTON

TRIPLE COMBO LOG

COMPANY	NEW GULF OPERATING, LLC
WELL	BOYD 1-3
FIELD/BLOCK	WILDCAT
COUNTY	LOGAN
STATE	KANSAS

COMPANY NEW GULF OPERATING, LLC
WELL BOYD 1-3
FIELD/BLOCK WILDCAT
COUNTY LOGAN STATE KANSAS

API No. 15-109-21258-00-00
Location 997' FNL 140' FWL
Other Services:

Sect. 3 Twp. 12S Rge. 32W

Permanent Datum	GL	Elev. 3049.0 ft	Elev.: K.B. 3058.0 ft
Log measured from	KB	9.0 ft above perm. Datum	D.F. 3056.0 ft
Drilling measured from	KB		G.L. 3049.0 ft

Date		25-Apr-14			
Run No.		ONE			
Depth - Driller		4760.00 ft			
Depth - Logger		4756.0 ft			
Bottom - Logged Interval		4746.0 ft			
Top - Logged Interval		2500.0 ft			
Casing - Driller		8.625 in	@ 270.0 ft	@	@
Casing - Logger		261.0 ft			
Bit Size		7.875 in		@	@
Type Fluid in Hole		Water Based Mud			
Density	Viscosity	9.3 ppg	57.00 s/qt		
PH	Fluid Loss	11.00 pH	6.4 cptm		
Source of Sample		MUD PIT			
Rm @ Meas. Temperature		1.080 ohmm	@ 85.00 degF	@	@
Rmf @ Meas. Temperature		0.91 ohmm	@ 82.00 degF	@	@
Rmc @ Meas. Temperature		1.250 ohmm	@ 85.00 degF	@	@
Source Rmf	Rmc	MEASURED	MEASURED		
Rm @ BHT		0.79 ohmm	@ 118.0 degF	@	@
Time Since Circulation		3.0000 hr			
Time on Bottom		25-Apr-14 10:54			
Max. Rec. Temperature		118.0 degF	@ 4756.0 ft	@	@
Equipment	Location	11454566	LIBERAL		
Recorded By		THOMAS K HYDE			
Witnessed By		J. GOLDSMITH			

Fold here

Service Ticket No.: 901294689 API Serial No.: 15-109-21258-00-00 PGM Version: WL INSITE R4.2.0 (Build 2)

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.	N/A
	I10811256			
	S10800784			
ONE	MICRO	RUBBER	ADJ.	N/A
	10685803			

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.	T-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5073 GW	Serial No.	DSN-436
Distance to Source	10'	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	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	4756	261	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

LCM REPORTED AT 2 PPB

CHLORIDES REPORTED AT 3000 MG/L

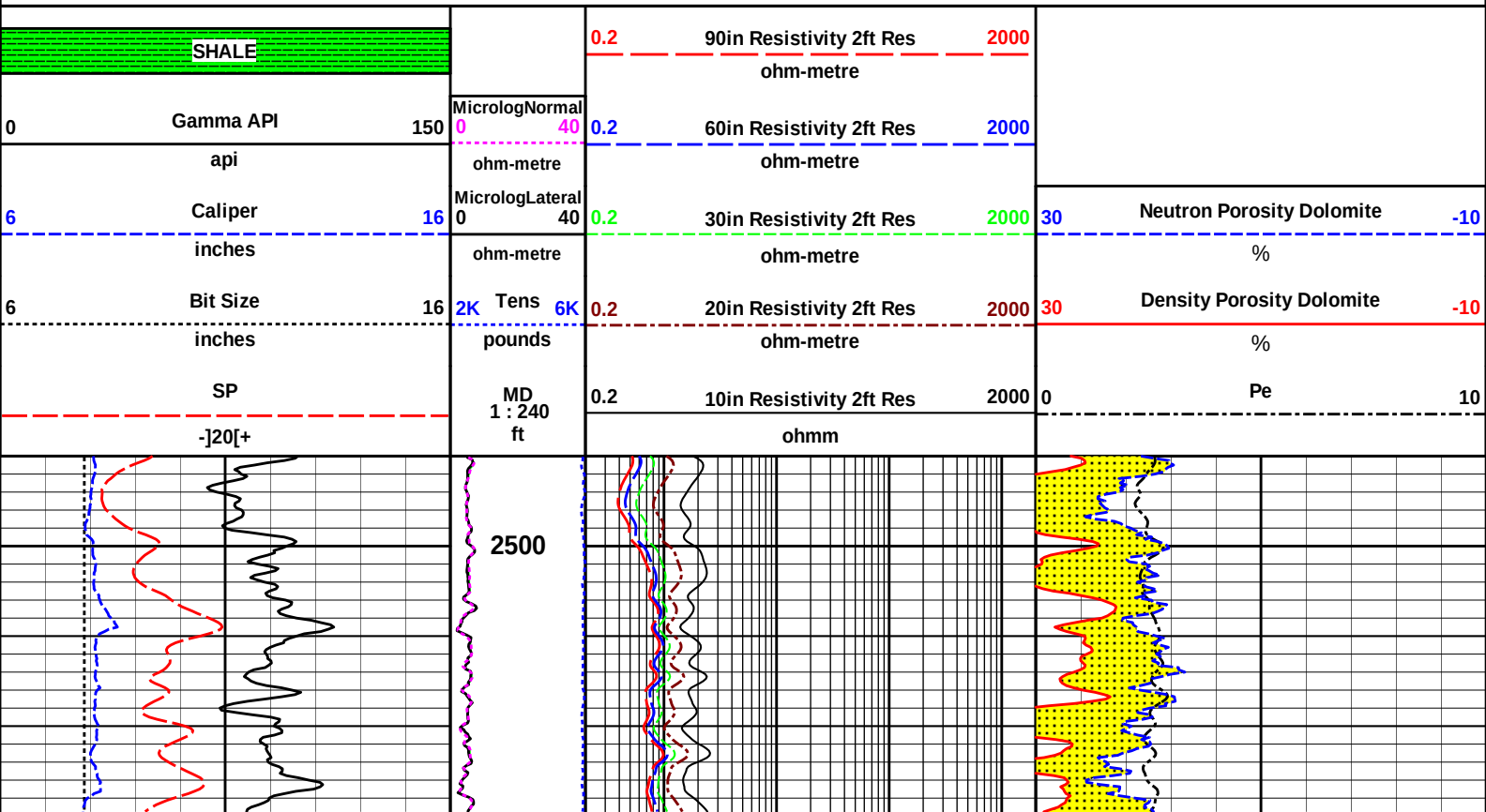
TODAY'S CREW F. VILLA E. ZAPIEN K. PIDDINGTON

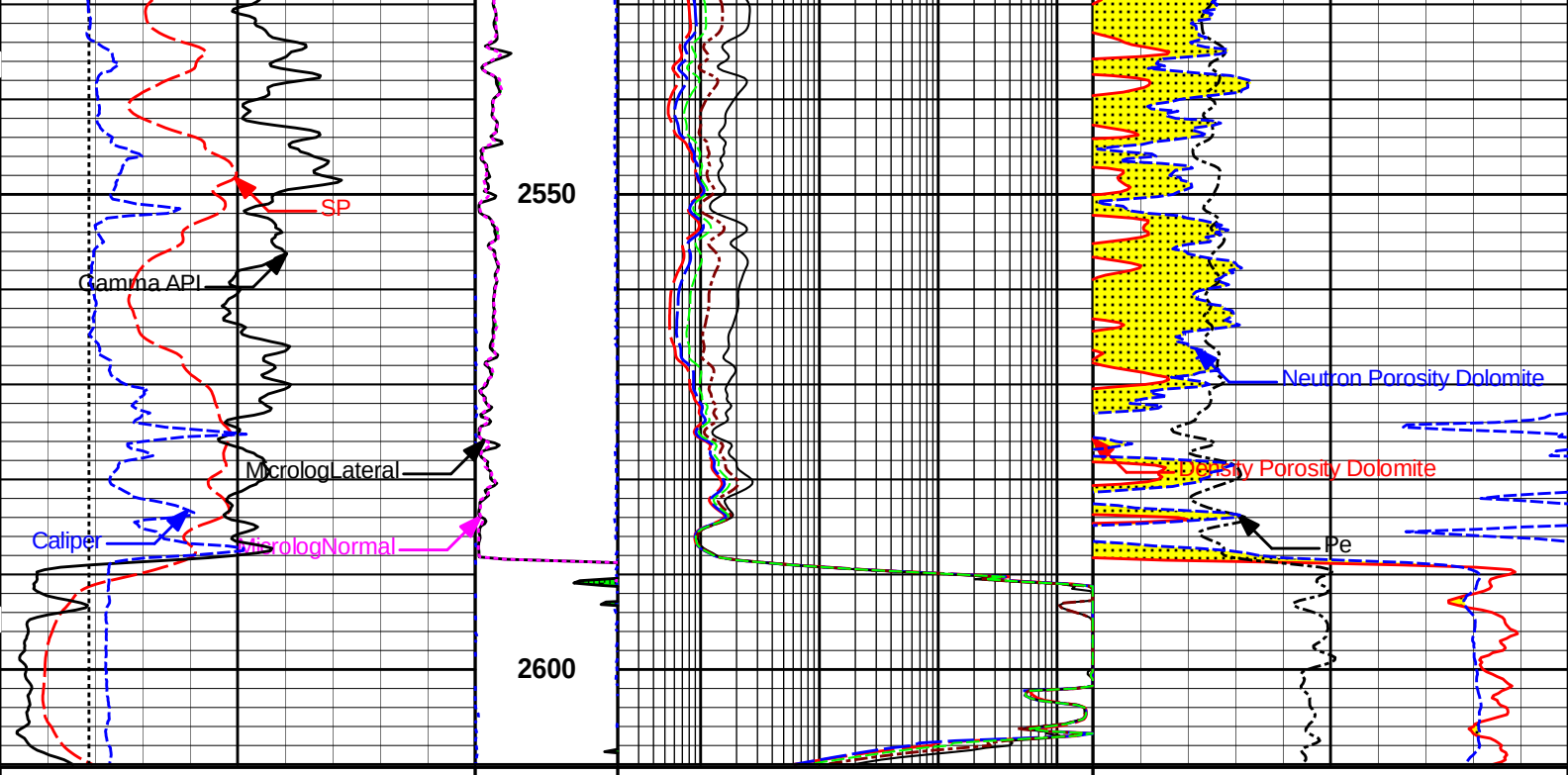
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

HALLIBURTON

Plot Time: 25-Apr-14 12:36:19
Plot Range: 2490 ft to 2610 ft
Data: BOYD 1-3\Well Based\DAQ-0001-004
Plot File: \\TC\TC_5_MAIN

5 INCH MAIN LOG





SP -]20[+ 6 Bit Size 16 inches 6 Caliper 16 inches 0 Gamma API 150 api SHALE	MD 1 : 240 ft 2K Tens 6K pounds MicrologLateral 0 40 ohm-metre MicrologNormal 0 40 ohm-metre	0.2 10in Resistivity 2ft Res 2000 ohmm 0.2 20in Resistivity 2ft Res 2000 ohm-metre 0.2 30in Resistivity 2ft Res 2000 ohm-metre 0.2 60in Resistivity 2ft Res 2000 ohm-metre 0.2 90in Resistivity 2ft Res 2000 ohm-metre	0 Pe 10 30 Density Porosity Dolomite -10 % 30 Neutron Porosity Dolomite -10 %

HALLIBURTON

Plot Time: 25-Apr-14 12:36:21
Plot Range: 2490 ft to 2610 ft
Data: BOYD 1-3\Well Based\DAQ-0001-004\
Plot File: \\TC\TC_5_MAIN

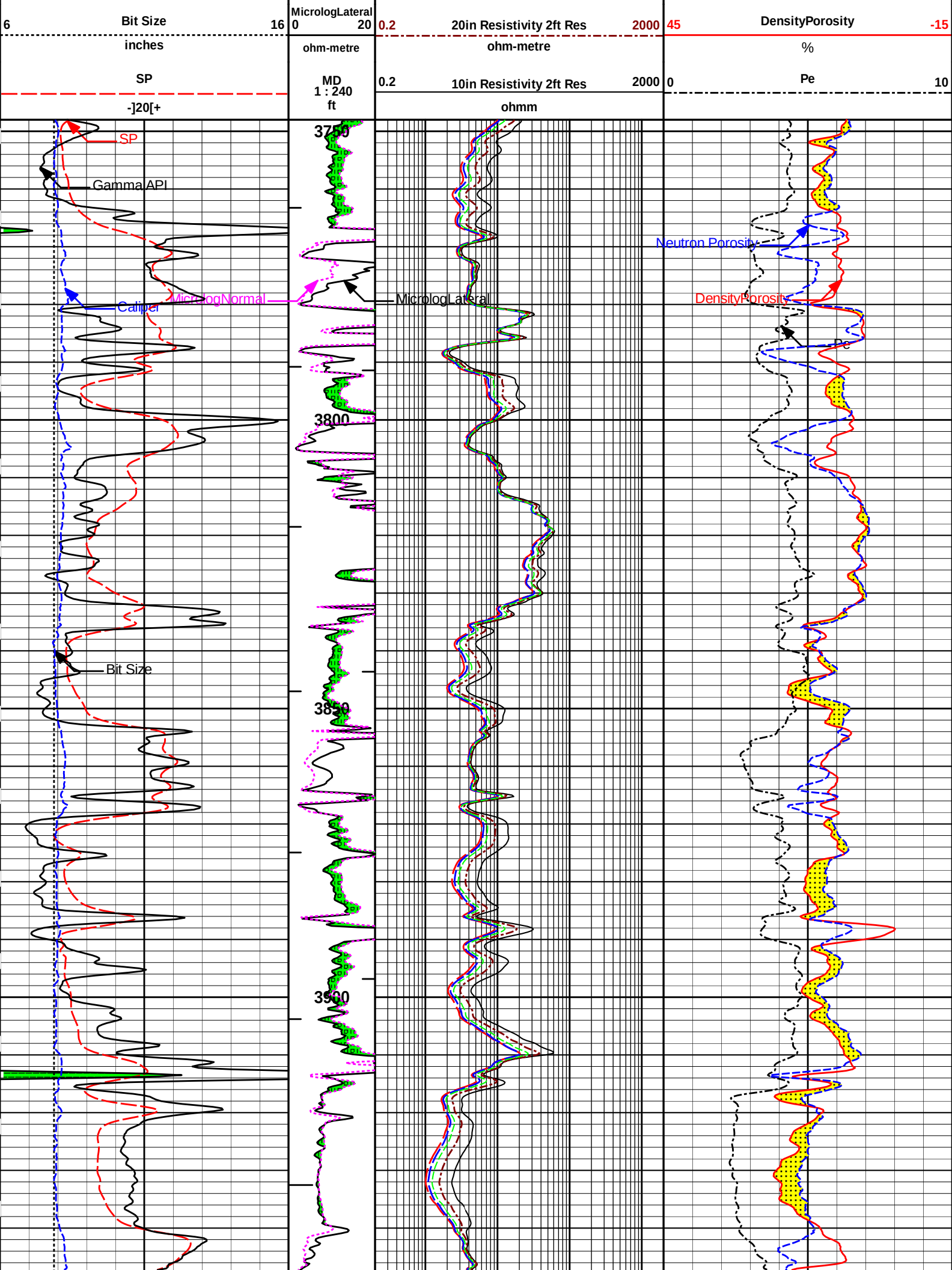
5 INCH MAIN LOG

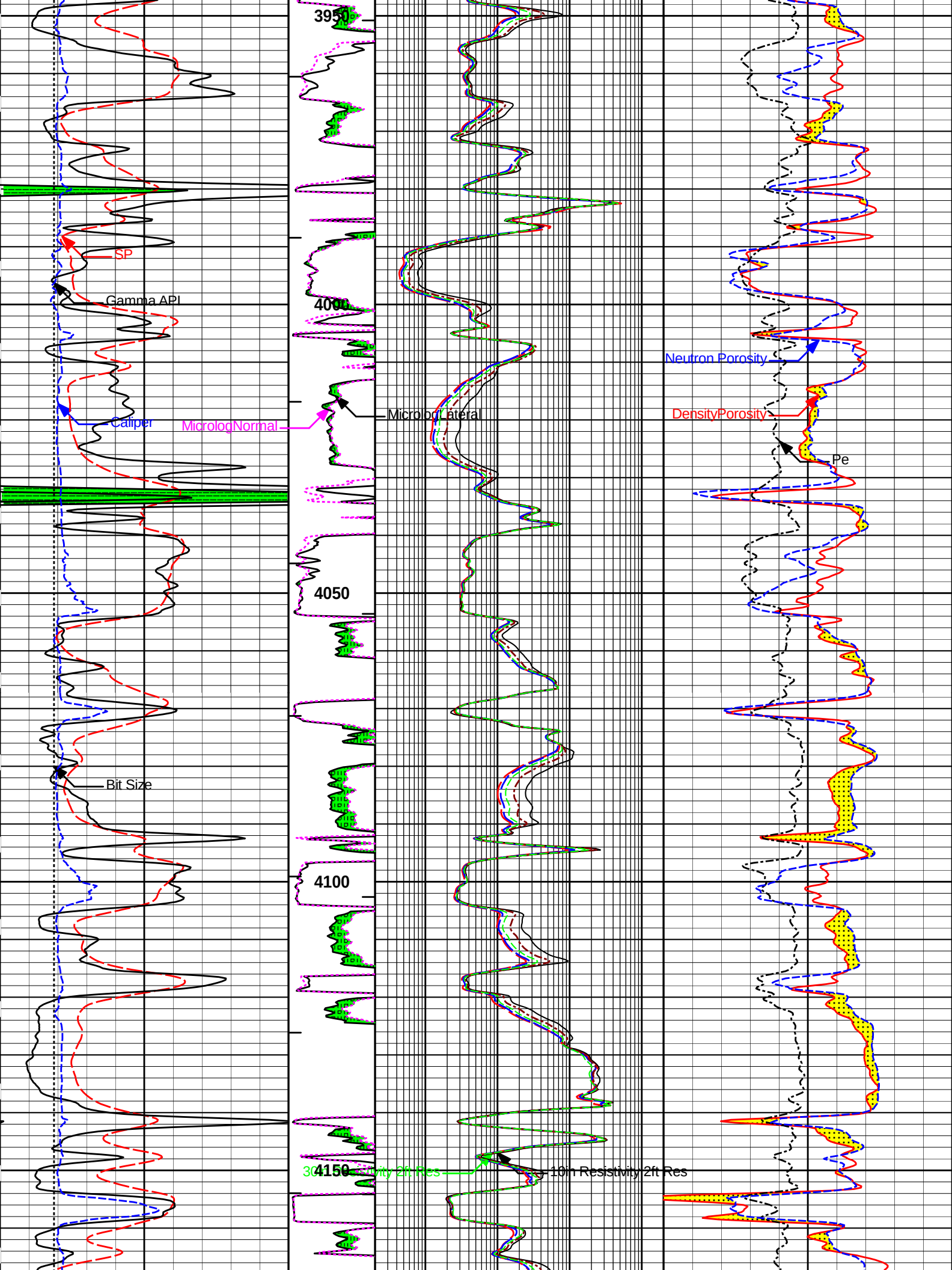
HALLIBURTON

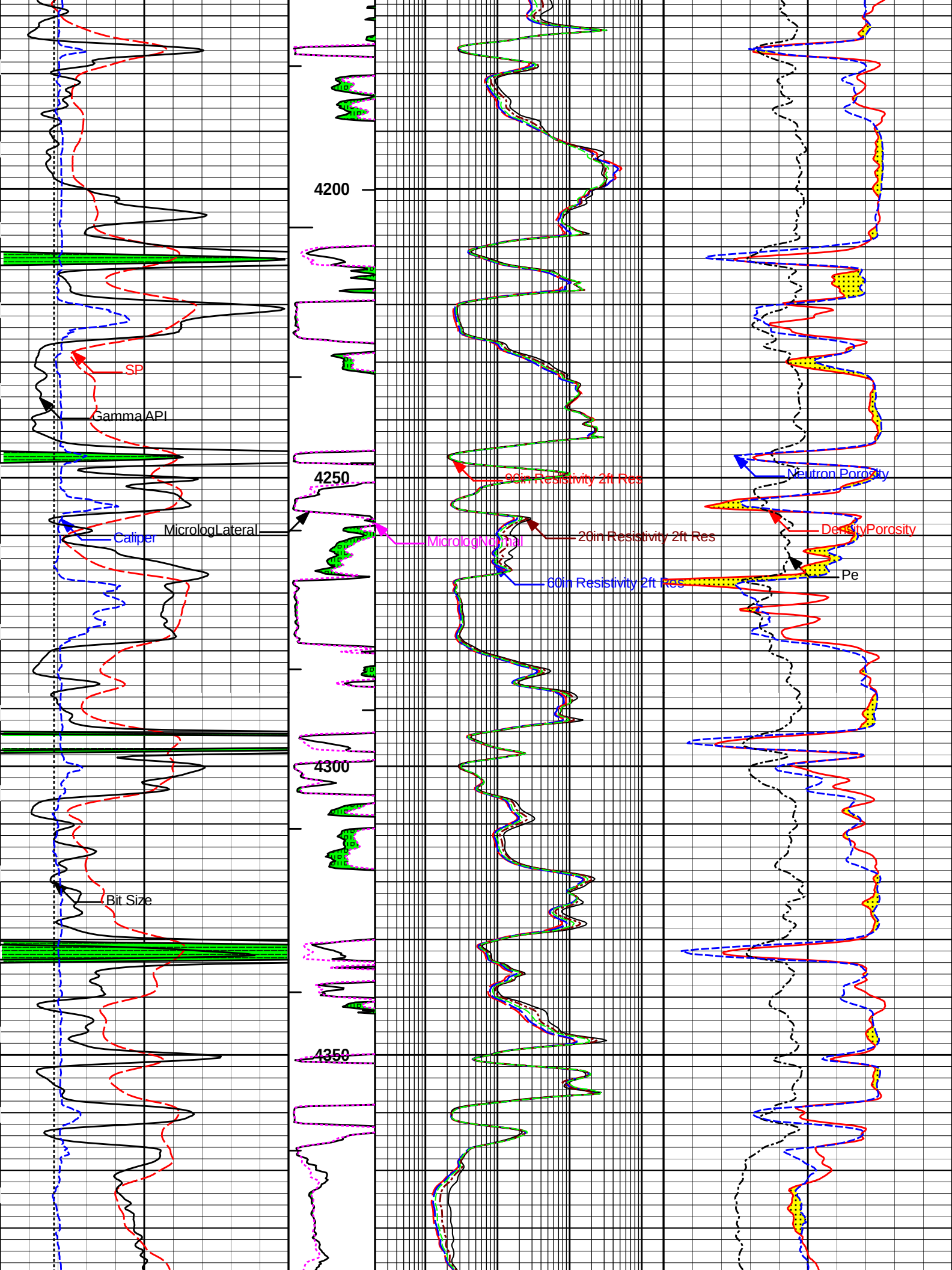
Plot Time: 25-Apr-14 12:36:21
Plot Range: 3748 ft to 4759.75 ft
Data: BOYD 1-3\Well Based\DAQ-0001-004\
Plot File: \\TC\TC_5_MAIN

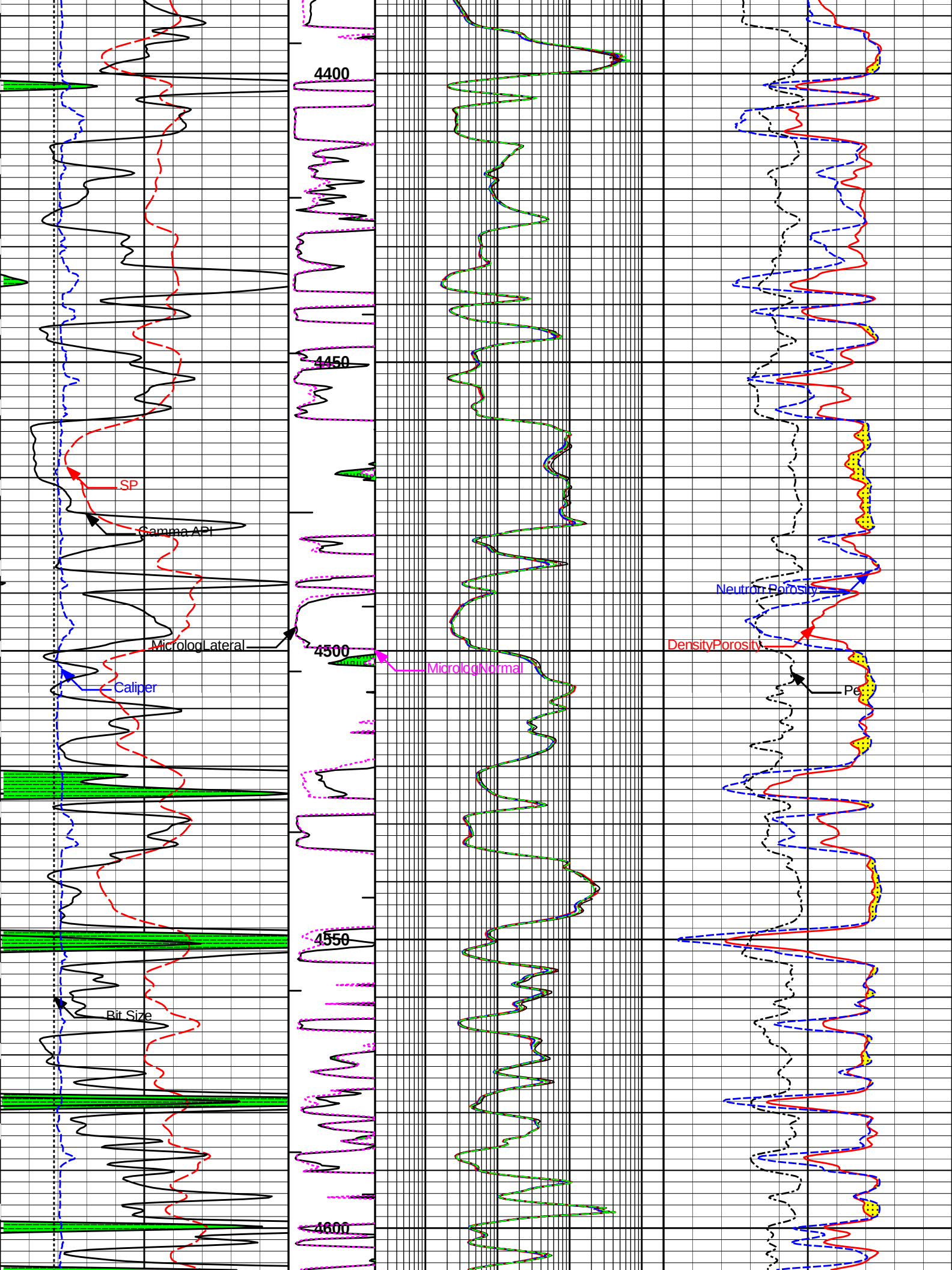
5 INCH MAIN LOG

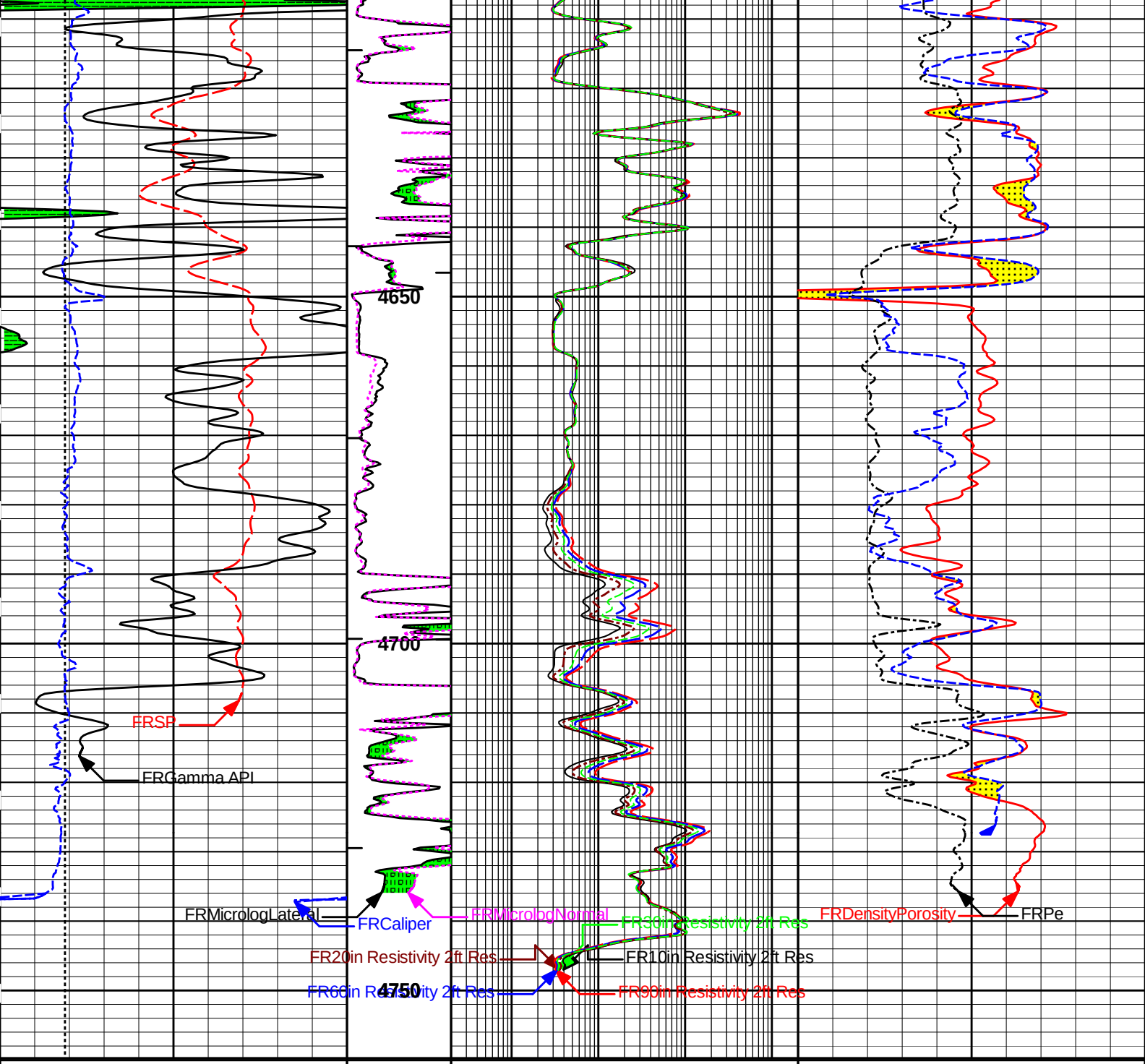
SHALE 0 Gamma API 150 api 6 Caliper 16 inches	AHVT BHVT MicrologNormal 0 20 ohm-metre	0.2 90in Resistivity 2ft Res 2000 ohm-metre 0.2 60in Resistivity 2ft Res 2000 ohm-metre 0.2 30in Resistivity 2ft Res 2000 ohm-metre	45 Neutron Porosity -15 %


6
Bit Size
16
inches
SP
-]20[+
MicrologLateral
0
20
ohm-metre
MD
1 : 240
ft
0.2
20in Resistivity 2ft Res
2000
ohm-metre
0.2
10in Resistivity 2ft Res
2000
ohmm
45
DensityPorosity
-15
%
0
Pe
10
SP
Gamma API
Caliper
MicrologNormal
Bit Size
MicrologLateral
Neutron Porosity
DensityPorosity
Pe
3750
3800
3850
3900


SP
Gamma API
Caliper
MicrologNormal
Bit Size
3950
4000
4050
4100
4150
MicrologLateral
10in Resistivity 2ft Res
Neutron Porosity
DensityPorosity
Pe


4200
4250
4300
4350
SP
Gamma API
Caliper
MicrologLateral
Bit Size
MicrologNormal
90in Resistivity 2ft Res
20in Resistivity 2ft Res
60in Resistivity 2ft Res
Neutron Porosity
DensityPorosity
Pe


4400
4450
4500
4550
4600
SP
Gamma API
MicrologLateral
Caliper
Bit Size
MicrologNormal
NeutronPorosity
DensityPorosity
Pe



SP	MD 1 : 240 ft	0.2 10in Resistivity 2ft Res 2000	0 Pe 10	
-]20[+		ohmm		
6 Bit Size 16	MicrologLateral 0 20	0.2 20in Resistivity 2ft Res 2000	45 DensityPorosity -15	
inches	ohm-metre	ohm-metre	%	
6 Caliper 16	MicrologNormal 0 20	0.2 30in Resistivity 2ft Res 2000	45 Neutron Porosity -15	
inches	ohm-metre	ohm-metre	%	
0 Gamma API 150	BHVT	0.2 60in Resistivity 2ft Res 2000		
api		ohm-metre		
SHALE	AHVT	0.2 90in Resistivity 2ft Res 2000		
		ohm-metre		

HALLIBURTON

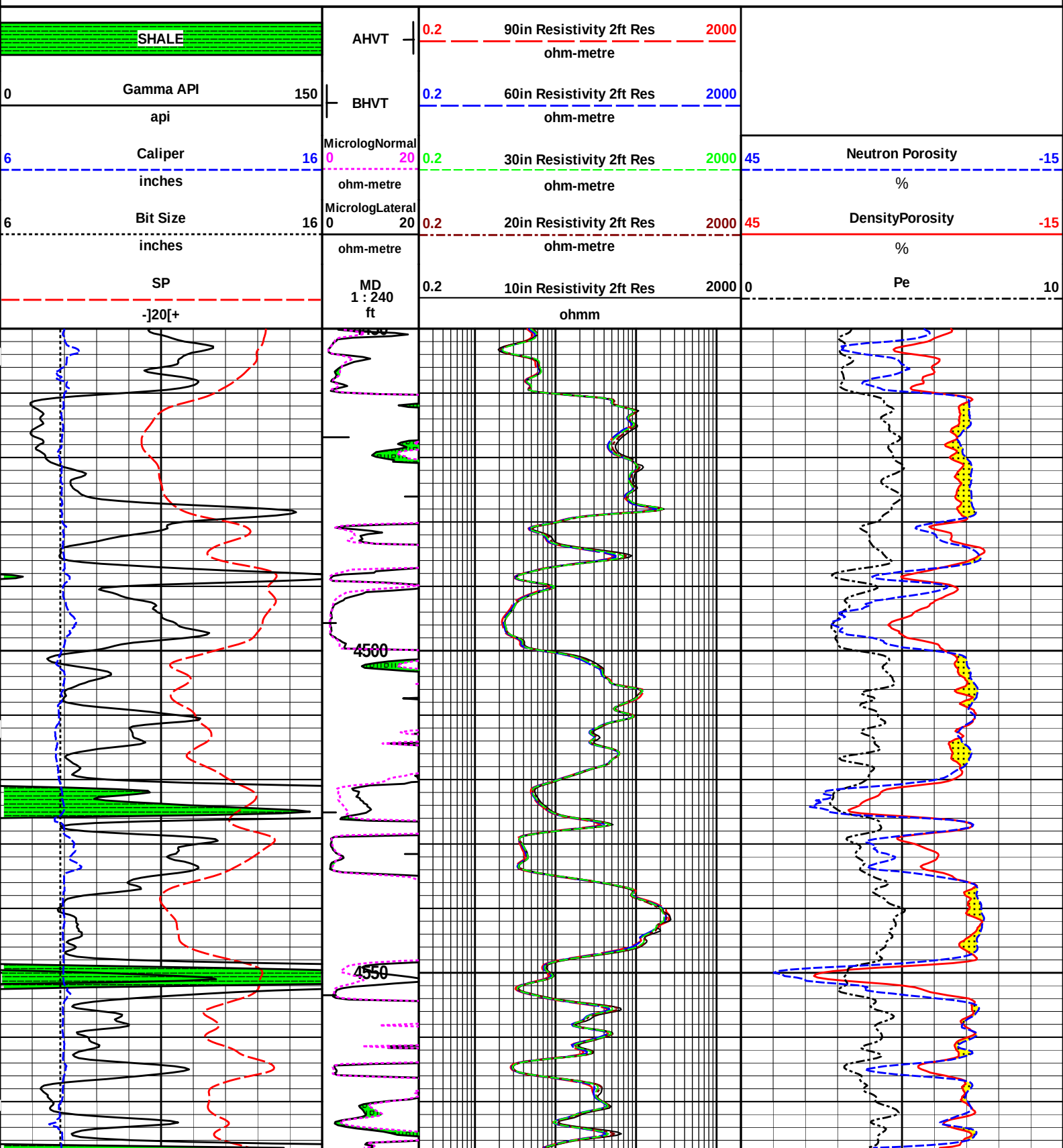
Plot Time: 25-Apr-14 12:36:23
Plot Range: 3748 ft to 4759.75 ft
Data: BOYD 1-3\Well Based\DAQ-0001-004\
Plot File: \\TC\TC_5_MAIN

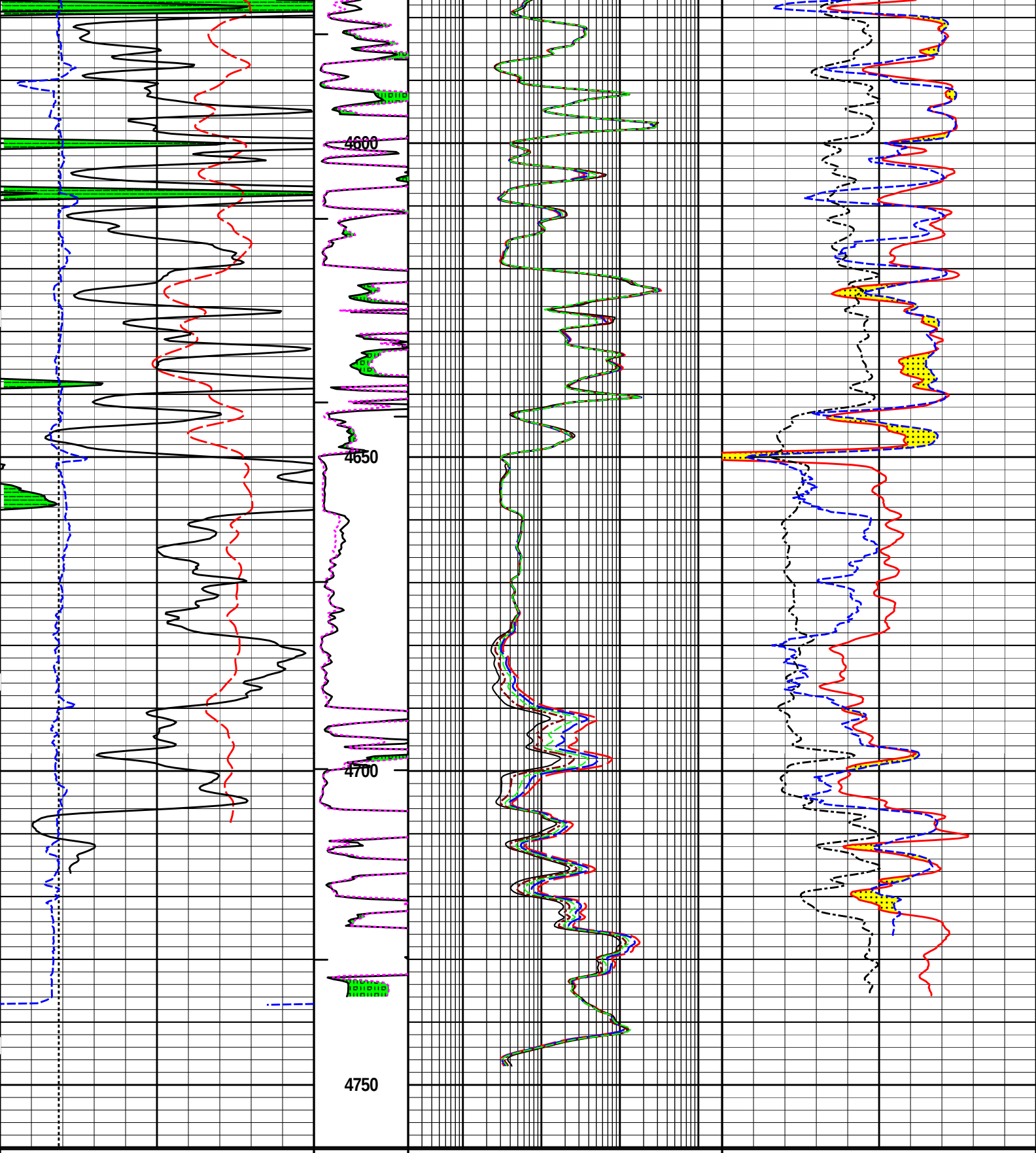
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 25-Apr-14 12:36:24
Plot Range: 4450 ft to 4759.92 ft
Data: BOYD 1-3\Well Based\DAQ-0001-003\
Plot File: \\TC\TC_5_REPEAT

5 INCH MAIN LOG





SP	MD 1 : 240 ft	0.2 10in Resistivity 2ft Res 2000	0 Pe 10
-]20[+		ohmm	
6 Bit Size 16	MicrologLateral 0 20	0.2 20in Resistivity 2ft Res 2000	45 DensityPorosity -15
inches	ohm-metre	ohm-metre	%
6 Caliper 16	MicrologNormal 0 20	0.2 30in Resistivity 2ft Res 2000	45 Neutron Porosity -15
inches	ohm-metre	ohm-metre	%
0 Gamma API 150	BHVT	0.2 60in Resistivity 2ft Res 2000	
api		ohm-metre	

			ohm-metre
SHALE	AHVT	0.2	90in Resistivity 2ft Res 2000
			ohm-metre

HALLIBURTON

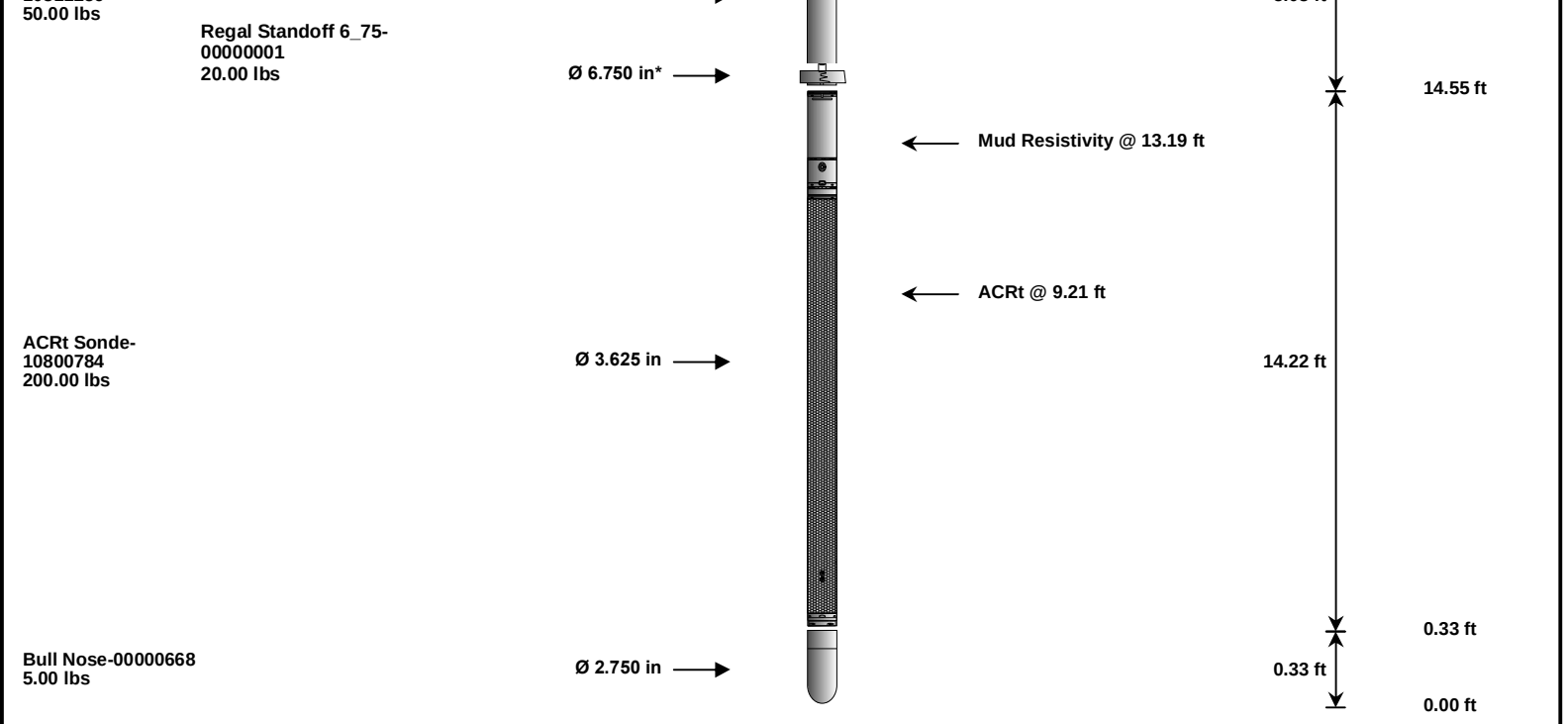
Plot Time: 25-Apr-14 12:36:25
Plot Range: 4450 ft to 4759.92 ft
Data: BOYD 1-3\Well Based\DAQ-0001-003\
Plot File: \\TC\TC_5_REPEAT

5 INCH MAIN LOG

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						54.26 ft
Cable Head-12345678 30.00 lbs		Ø 3.625 in			1.92 ft	
						52.34 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in		SP @ 50.56 ft	3.74 ft	
						48.60 ft
GTET-10811258 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 42.54 ft		
						40.08 ft
	DSN Decentralizer-10735145 6.60 lbs	Ø 5.000 in*				
DSNT-10755066 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 33.15 ft DSN Near @ 32.40 ft		
						30.40 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*		Microlog @ 22.58 ft		
		Ø 4.750 in*		SDL Caliper @ 22.40 ft SDL @ 22.39 ft		
						19.58 ft
ACRt Instrument-10811256		Ø 3.625 in			5.03 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		52.34	300.00
SP	SP Sub	12345678	60.00	3.74		48.60	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		40.08	60.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	*	21.79	60.00
MICP	Microlog Pad	10685803	8.00	1.00	*	22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	10811256	50.00	5.03		14.55	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	14.71	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22		0.33	120.00
BLNS	Bull Nose	00000668	5.00	0.33		0.00	300.00
Total			**1,143.60**	**54.26**			

* Not included in Total Length and Length Accumulation.

Data: BOYD 1-3\0001 SP-GTET-DSNT-SDLT-ACRT-BN\IDLE **Date: 25-Apr-14 08:10:20**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 25-Apr-14 08:20:22

Engineer: THOMAS K HYDE **Calibration Date:** 25-Apr-14 08:23:37

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	44.8	44.7	api
Background + Calibrator	277.2	276.7	api
Calibrator	232.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**25-Apr-14 08:23:37**
Engineer:	**THOMAS K HYDE**	**Calibration Date:**	**25-Apr-14 08:26:59**
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	44.7	43.9	api
Background + Calibrator	276.7	279.3	api
Calibrator	232.0	235.4	api

Shop	Field	Difference	Tolerance
232.0	235.4	-3.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**14-Apr-14 13:53:02**
Engineer:	**J. BOLLOM**	**Calibration Date:**	**14-Apr-14 14:08:27**
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: 65 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.949	0.948	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):	0.2113	0.2110	0.0003	+/- 0.0020
Calibrated Ratio:	9.74	9.73	0.011	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0629	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:**	**14-Apr-14 14:08:27**
Engineer:	**THOMAS K HYDE**	**Calibration Date:**	**25-Apr-14 08:30:18**
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):	0.0629	0.0577	-0.0052	+/- 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: 14-Apr-14 11:26:43
Engineer: J. BOLLOM
Calibration Date: 14-Apr-14 11:31:00
Software Version: WL INSITE R4.2.0 (Build 2)
Calibration Version: 1
Host Tool Name: DSNT - 10755066

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4362.95	-4420.65	-7000.00 - -1000.00
Pad Gain	0.0003849	0.0003863	0.000200 - 0.000600
Arm Offset	-3135.46	-3304.43	-5000.00 - 3000.00
Arm Gain	0.0005085	0.0005300	0.000300 - 0.000700
Arm Power	-0.000004496	-0.000005774	-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)	2.01	2.00	-0.01	+/- 0.20
Medium Ring (in)	3.76	3.75	-0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.53	6.50	-0.03	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 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 - 10685803
Reference Calibration Date: 14-Apr-14 11:31:00
Engineer: THOMAS K HYDE
Calibration Date: 25-Apr-14 08:32:19
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	3.73	-0.02	+/- 0.10
Ring Diameter	8.25	8.35	0.10	+/- 0.15

PASS/FAIL SUMMARY	

Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10714945**	**Reference Calibration Date:**	**19-Mar-14 09:26:25**
Engineer:	**THOMAS K HYDE**	**Calibration Date:**	**19-Mar-14 09:44:49**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5073 GW

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	1.0250	1.0159	0.90 - 1.10
Near Dens Gain	1.0029	1.0031	0.90 - 1.10
Near Peak Gain	1.0141	0.9933	0.90 - 1.10
Near Lith Gain	0.9906	0.9672	0.90 - 1.10
Far Bar Gain	1.0073	1.0056	0.90 - 1.10
Far Dens Gain	0.9954	0.9960	0.90 - 1.10
Far Peak Gain	0.9889	0.9924	0.90 - 1.10
Far Lith Gain	0.9706	0.9726	0.90 - 1.10
Near Bar Offset	0.0725	0.1547	NONE
Near Dens Offset	0.2447	0.2443	NONE
Near Peak Offset	0.1342	0.3085	NONE
Near Lith Offset	0.2942	0.4893	NONE
Far Bar Offset	0.1435	0.1572	NONE
Far Dens Offset	0.2251	0.2198	NONE
Far Peak Offset	0.2698	0.2399	NONE
Far Lith Offset	0.3742	0.3620	NONE
Near Bar Background	953.28	949.61	700 - 1450
Near Dens Background	316.71	314.65	230 - 480
Near Peak Background	138.04	137.76	100 - 210
Near Lith Background	168.70	167.57	125 - 260
Far Bar Background	484.96	489.13	450 - 900
Far Dens Background	189.91	190.41	175 - 345
Far Peak Background	74.41	74.49	70 - 140
Far Lith Background	78.83	77.89	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.684	0.001	+/- 0.015
Pe	2.560	2.557	-0.003	+/- 0.150
ALUMINUM				
Density (g/cc)	2.593	2.598	0.005	+/- 0.01500
Pe	3.155	3.126	-0.029	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits

	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0013	+/- 0.0110	0.0009	+/- 0.0140
Magnesium Block	-0.0012	+/- 0.0110	0.0011	+/- 0.0140
Aluminum Block	0.0006	+/- 0.0110	0.0009	+/- 0.0140
Resolution	9.87	6.00 - 11.50	9.15	6.00 - 11.50
Internal Verifier(B+D+P+L)	1570	1200 - 2700	832	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: 19-Mar-14 09:44:49
Engineer: THOMAS K HYDE
Calibration Date: 25-Apr-14 08:36:16
Software Version: WL INSITE R4.2.0 (Build 2)
Calibration Version: 1

Pad Temperature: 71.7 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1569.604	1579.566	9.962	15.941
Far (B+D+P+L) cps	831.924	828.636	-3.288	15.877
Near Resolution	9.87	9.83	-0.040	0.50
Far Resolution	9.15	9.24	0.090	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: 05-Mar-14 15:40:55
Engineer: THOMAS K HYDE
Calibration Date: 19-Mar-14 08:32:41
Software Version: WL INSITE R4.2.0 (Build 2)
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	-0.07	-0.00	-0.00	ohmm
Calibration Point #1	-0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	19.98	20.00	20.00	20.00	ohmm
Internal Reference	19.92	19.94	20.00	20.01	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-1.73	0.52	V

Calibration Point #1	17.60	1.96	V
Calibration Point #2	5295.12	6871.20	V
Internal Reference	5279.92	6873.34	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 10685803 | **Reference Calibration Date:** 19-Mar-14 08:32:41

Engineer: THOMAS K HYDE | **Calibration Date:** 25-Apr-14 08:37:15

Software Version: WL INSITE R4.2.0 (Build 2) | **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.07	-0.07	-0.00	-0.00	ohmm
Internal Reference	19.94	19.95	20.01	20.02	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.94	19.95	-0.01	+/- 0.80
Microlog Lateral	20.01	20.02	-0.01	+/- 0.80

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 10800784 | **Reference Calibration Date:** 19-Mar-14 11:38:30

Engineer: THOMAS K HYDE | **Calibration Date:** 19-Mar-14 11:46:10

Software Version: WL INSITE R4.2.0 (Build 2) | **Calibration Version:** 1

Host Tool Name: ACRt Instrument - 10811256

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0309	1.05	0.95	1.0230	1.05	0.95	1.0090	1.05
A2 (50")	0.95	1.0448	1.05	0.95	1.0375	1.05	0.95	1.0253	1.05
A3 (29")	0.95	1.0143	1.05	0.95	1.0067	1.05	0.95	0.9946	1.05
A4 (17")	0.95	1.0172	1.05	0.95	1.0083	1.05	0.95	1.0003	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0099	1.05	0.95	1.0014	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9987	1.05	0.95	0.9903	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	0.282	-3.841	-5.287
A2 (50")	-1.602	-3.836	-4.722
A3 (29")	-16.009	-4.660	-3.606
A4 (17")	-99.202	-32.925	-26.758
A5 (10")	N/A	-99.062	-49.020
A6 (6")	N/A	297.853	159.220

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.85	1.3
36K	1.0	1.18	2.0
72K	1.0	1.51	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 CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	235.4	----------	-3.4	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0629	0.0577	----------	0.0052	+/- 0.0150	decp
SDLT-10685803						
Pad Extension	3.75	3.73	----------	0.02	+/-0.10	in
Ring Diameter	8.25	8.35	----------	-0.10	+/-0.15	in
SDLT Pad-10714945						
Near(B+D+P+L)	1569.604	1579.566	----------	-9.962	+/-15.941	cps
Far(B+D+P+L)	831.924	828.636	----------	3.288	+/-15.877	cps
Microlog Pad-10685803						
MicroLog Normal	19.94	19.95	----------	-0.01	+/-0.80	ohmm
MicroLog Lateral	20.01	20.02	----------	-0.01	+/-0.80	ohmm
ACRt Sonde-10800784						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

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PARAMETERS REPORT

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	9.300	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4720.00	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	
	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?	Yes	
	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?	Yes	
	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?	Yes	
	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	
	Micrologg Pad	MLOK	Process MicroLog Outputs?	Yes	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
	ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM					

Data: BOYD 1-3\0001 SP-GTET-DSNT-SDLT-ACRT-BN\IDLE **Date: 25-Apr-14 08:55:40**

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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	54.26	NO	
BS	Bit Size	54.26	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SP Sub				
PLTC	Plot Control Mask	50.56	NO	
SP	Spontaneous Potential	50.56	BLK	1.250
SPR	Raw Spontaneous Potential	50.56	NO	
SPO	Spontaneous Potential Offset	50.56	NO	
GTET				
TPUL	Tension Pull	42.54	NO	
GR	Natural Gamma Ray API	42.54	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	42.54	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.54	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	32.30	NO	
RNDS	Near Detector Telemetry Counts	32.40	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.15	TRI	0.583
DNTT	DSN Tool Temperature	32.40	NO	
DSNS	DSN Tool Status	32.30	NO	
ERND	Near Detector Telemetry Counts EVR	32.40	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.15	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.40	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	22.40	NO	
PCAL	Pad Caliper	22.40	TRI	0.250
ACAL	Arm Caliper	22.40	TRI	0.250
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

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	
HDIA	Measured Hole Diameter	0.00	NO	

SDLT Pad				
TPUL	Tension Pull	22.39	NO	
NAB	Near Above	22.21	BLK	0.920
NHI	Near Cesium High	22.21	BLK	0.920
NLO	Near Cesium Low	22.21	BLK	0.920
NVA	Near Valley	22.21	BLK	0.920
NBA	Near Barite	22.21	BLK	0.920
NDE	Near Density	22.21	BLK	0.920
NPK	Near Peak	22.21	BLK	0.920
NLI	Near Lithology	22.21	BLK	0.920
NBAU	Near Barite Unfiltered	22.21	BLK	0.250
NLIU	Near Lithology Unfiltered	22.21	BLK	0.250
FAB	Far Above	22.56	BLK	0.250
FHI	Far Cesium High	22.56	BLK	0.250
FLO	Far Cesium Low	22.56	BLK	0.250
FVA	Far Valley	22.56	BLK	0.250
FBA	Far Barite	22.56	BLK	0.250
FDE	Far Density	22.56	BLK	0.250
FPK	Far Peak	22.56	BLK	0.250
FLI	Far Lithology	22.56	BLK	0.250

PTMP	Pad Temperature	22.40	BLK	0.920
NHV	Near Detector High Voltage	21.79	NO	
FHV	Far Detector High Voltage	21.79	NO	
ITMP	Instrument Temperature	21.79	NO	
DDHV	Detector High Voltage	21.79	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad

TPUL	Tension Pull	22.58	NO	
MINV	Microlog Lateral	22.58	BLK	0.750
MNOR	Microlog Normal	22.58	BLK	0.750

Data: BOYD 1-3\0001 SP-GTET-DSNT-SDLT-ACRT-BN\IDLE **Date: 25-Apr-14 08:55:48**

COMPANY	**NEW GULF RESOURCES, LLC**		
WELL	**BOYD 1-3**		
FIELD	**WILDCAT**		
COUNTY	**LOGAN**	STATE	**KANSAS**

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TRIPLE COMBO LOG