

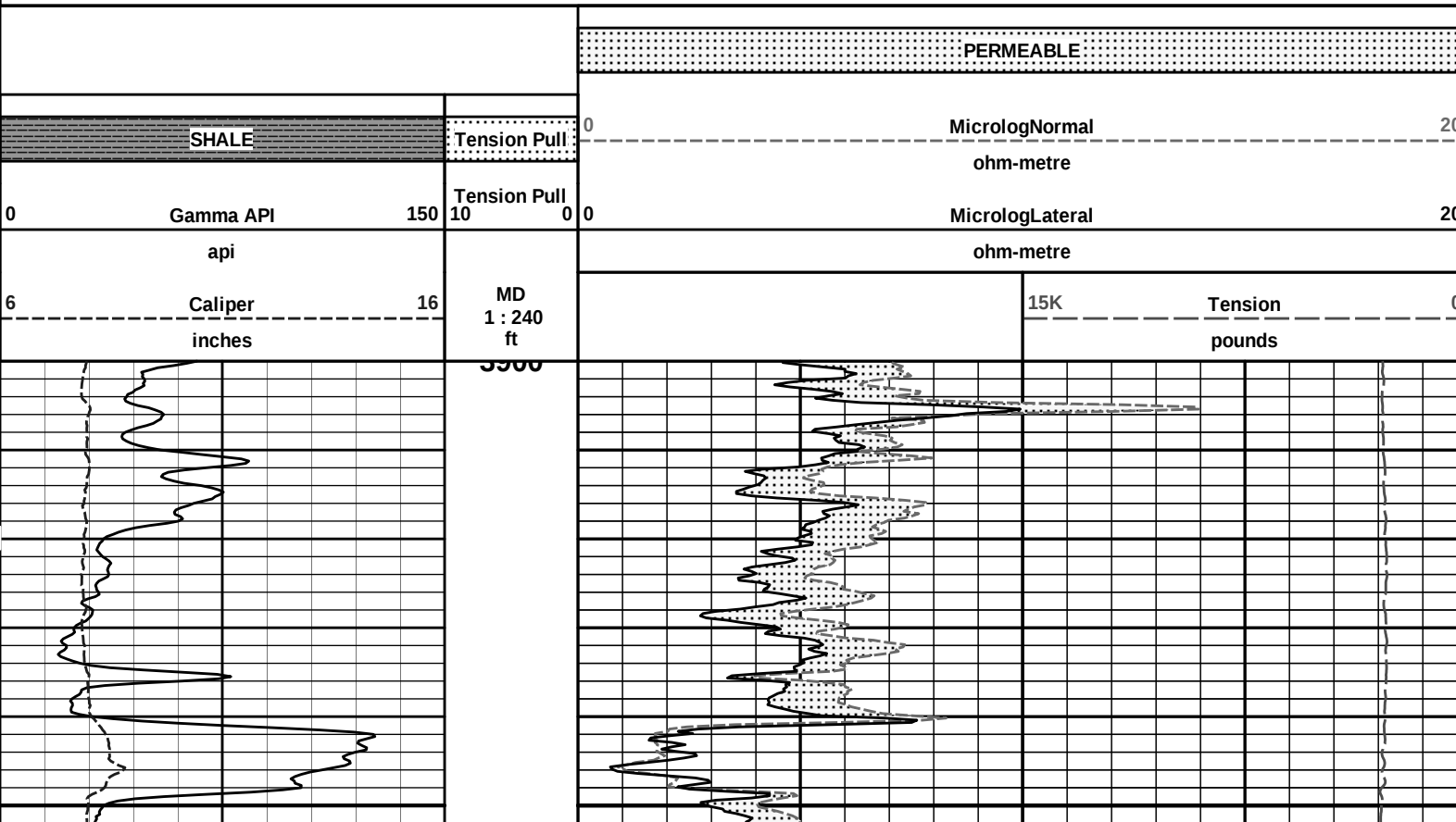
MICROLOG

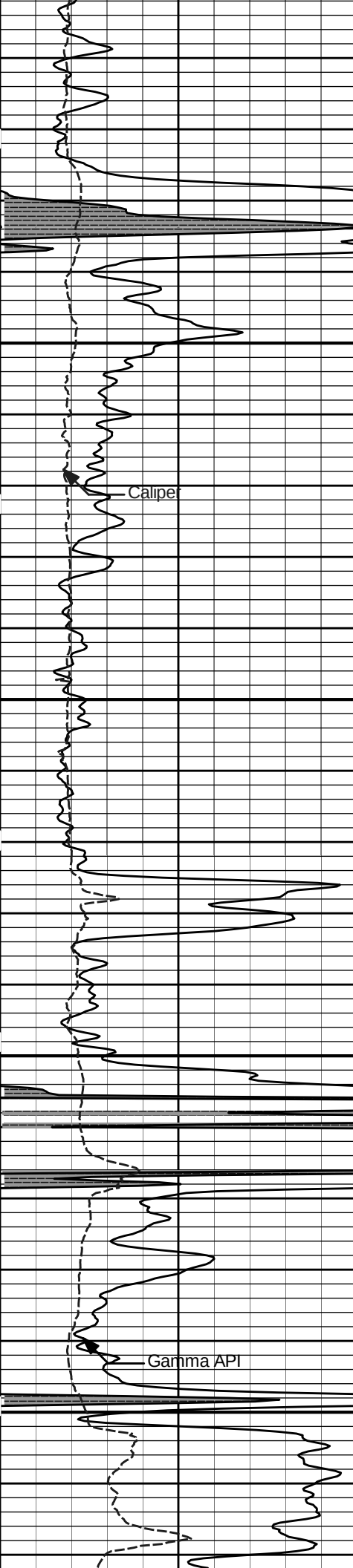
Service Ticket No.: 9291693												API Serial No.: 15-097-21716				PGM Version: WL INSITE R3.4.2 (Build 2)			
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE								RESISTIVITY SCALE CHANGES											
Date	Sample No.							Type Log	Depth	Scale Up Hole	Scale Down Hole								
Depth-Driller																			
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	MICRO M469	RUBBER	ADJ	N/A							
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.				Run No.							
Serial No.		11039640		Serial No.				Serial No.				Serial No.							
Model No.		GTET		Model No.				Model No.				Model No.							
Diameter		3.625"		No. of Cent.				Diameter				Diameter							
Detector Model No.		T-102		Spacing				Log Type				Log Type							
Type		SCINT						Source Type				Source Type							
Length		8"		LSA [Y/N]				Serial No.				Serial No.							
Distance to Source		10'		FWDA [Y/N]				Strength				Strength							
LOGGING DATA																			
GENERAL				GAMMA		ACOUSTIC		DENSITY				NEUTRON							

GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	3900	REC	0	150									
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: AHV CALCULATED FOR 5.5 INCH CASING														
CHLORIDES 5900 MG/L														
LCM 2 #/BBL														
POST VERIFICATION NOT PERFORMED PER CUSTOMER REQUEST														
SPLICE MADE AT 4738														
TODAYS CREW K. KING V. JAMIE														
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123														
HALLIBURTON 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.														
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5 INCH MAIN LOG



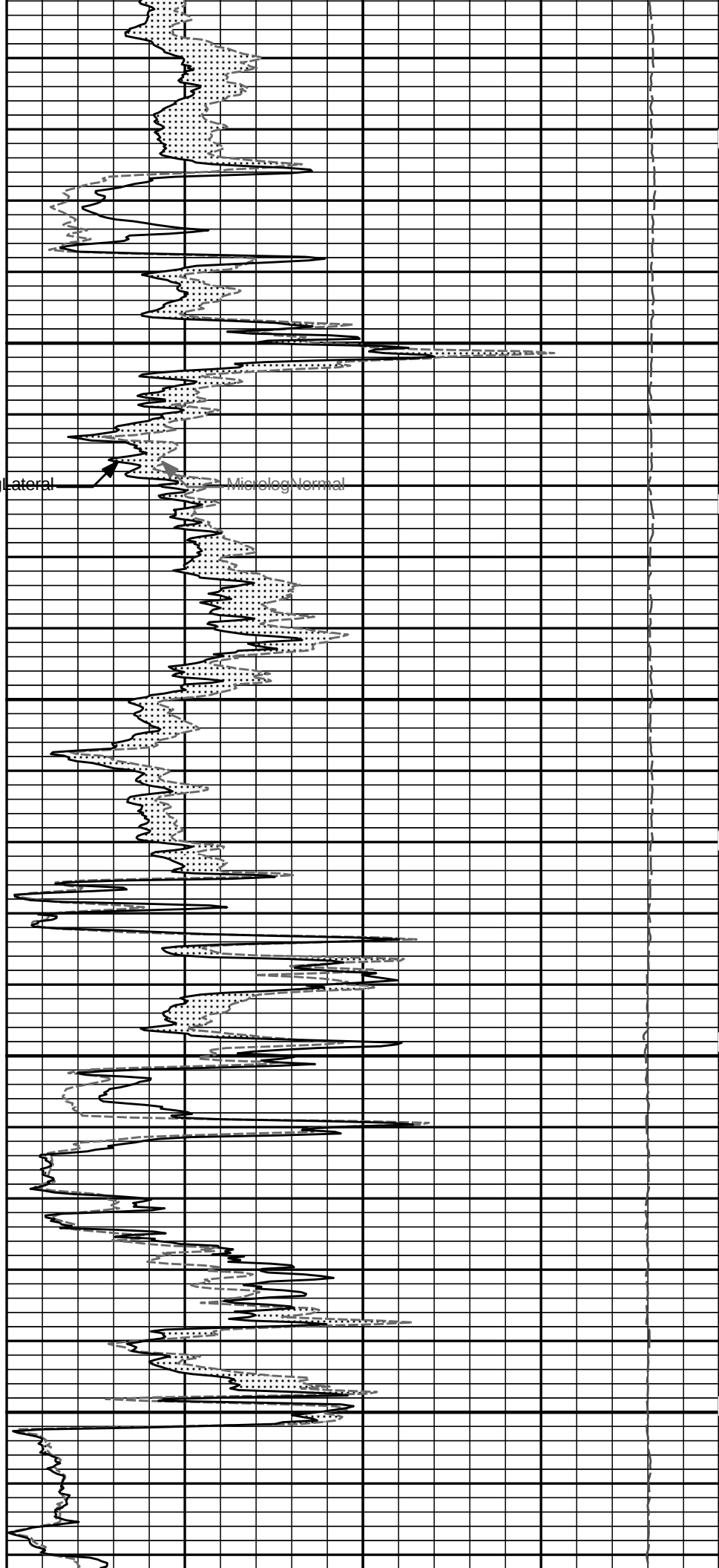


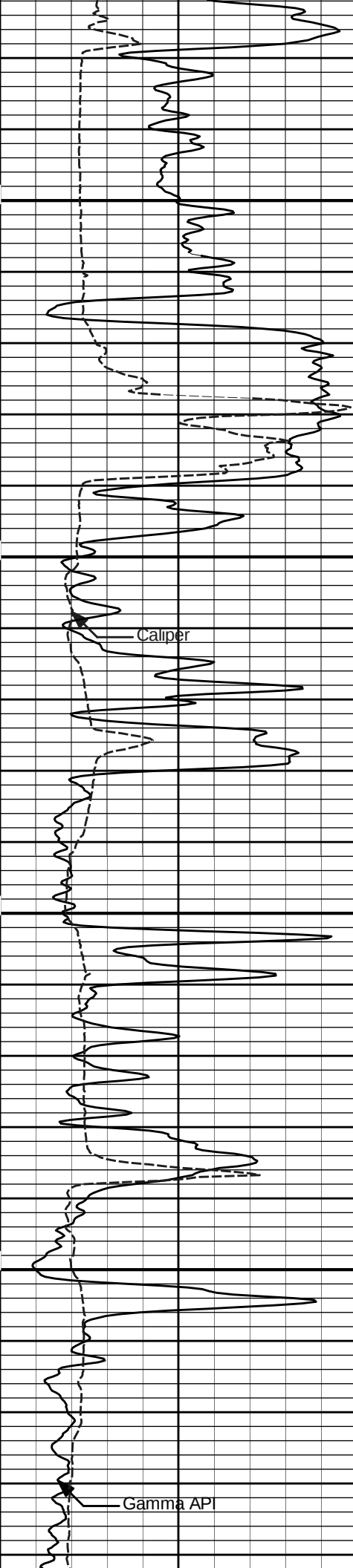
4000

Microlog Lateral

Microlog Normal

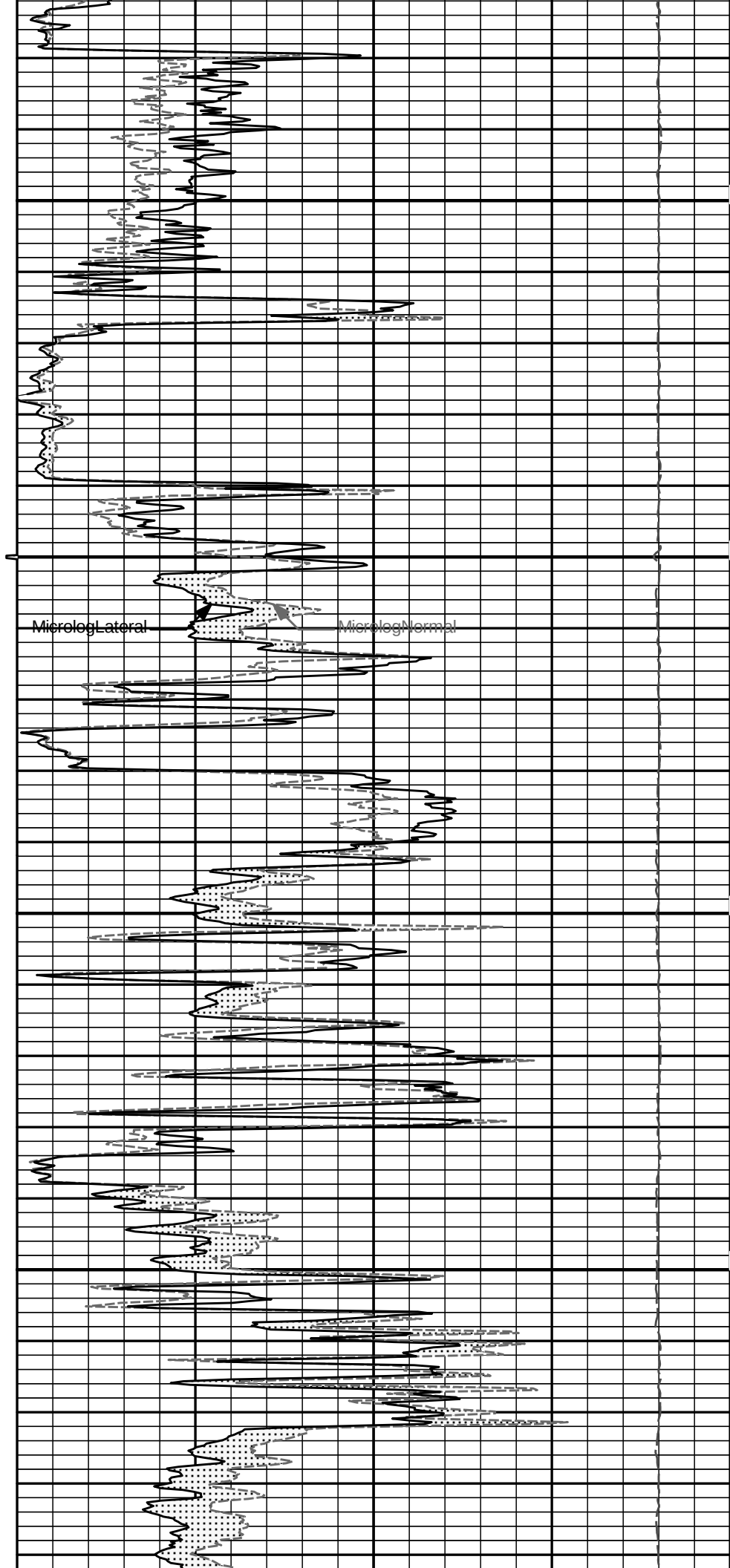
4100

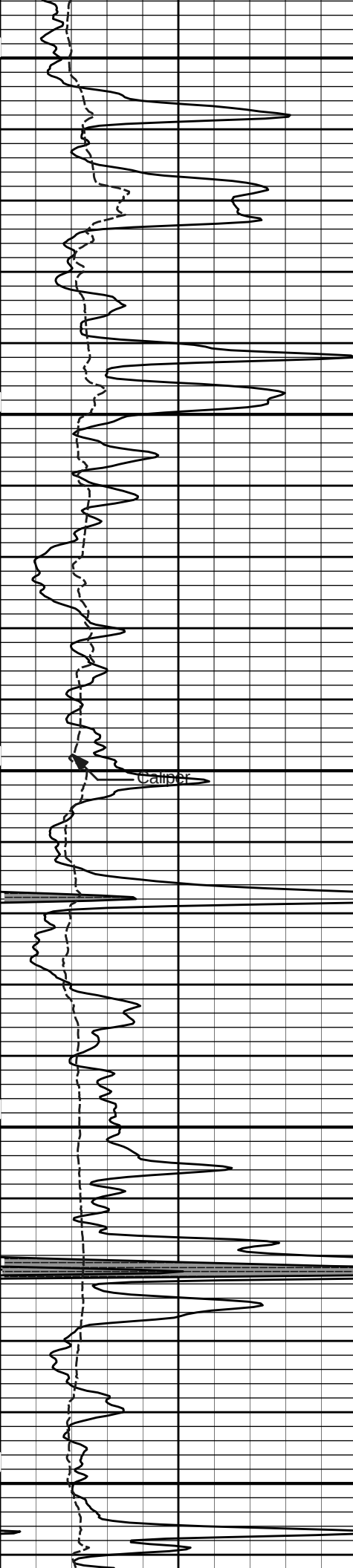




4200

4300

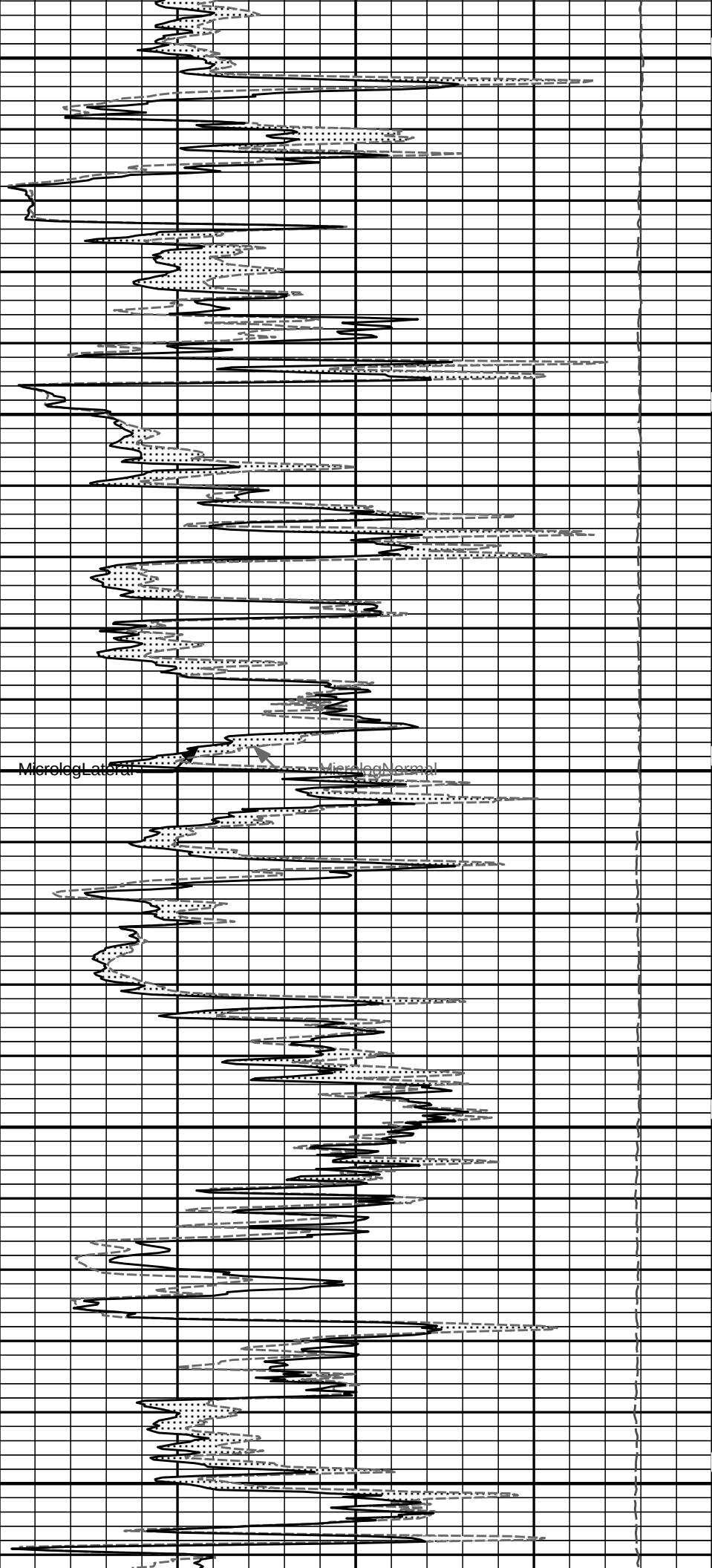




4400

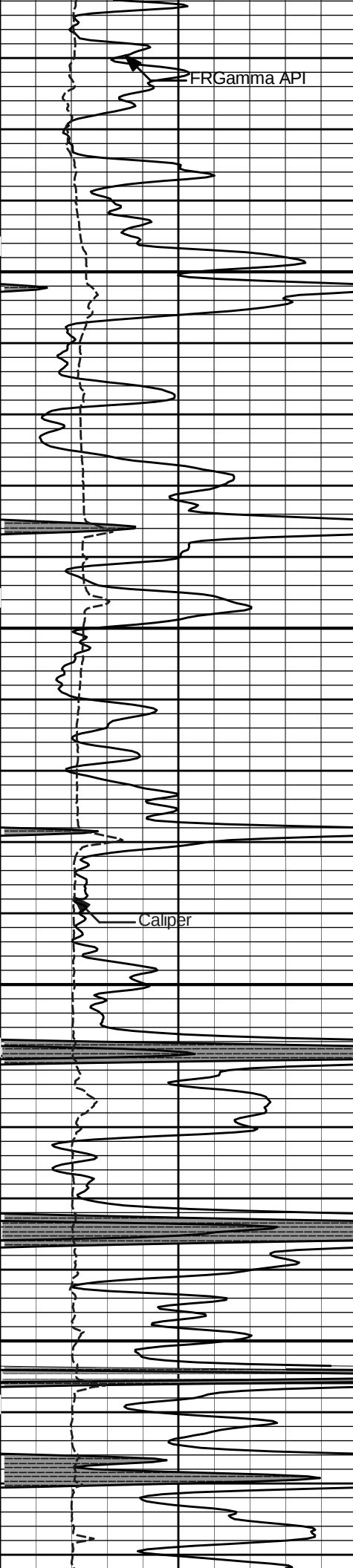
4500

4600



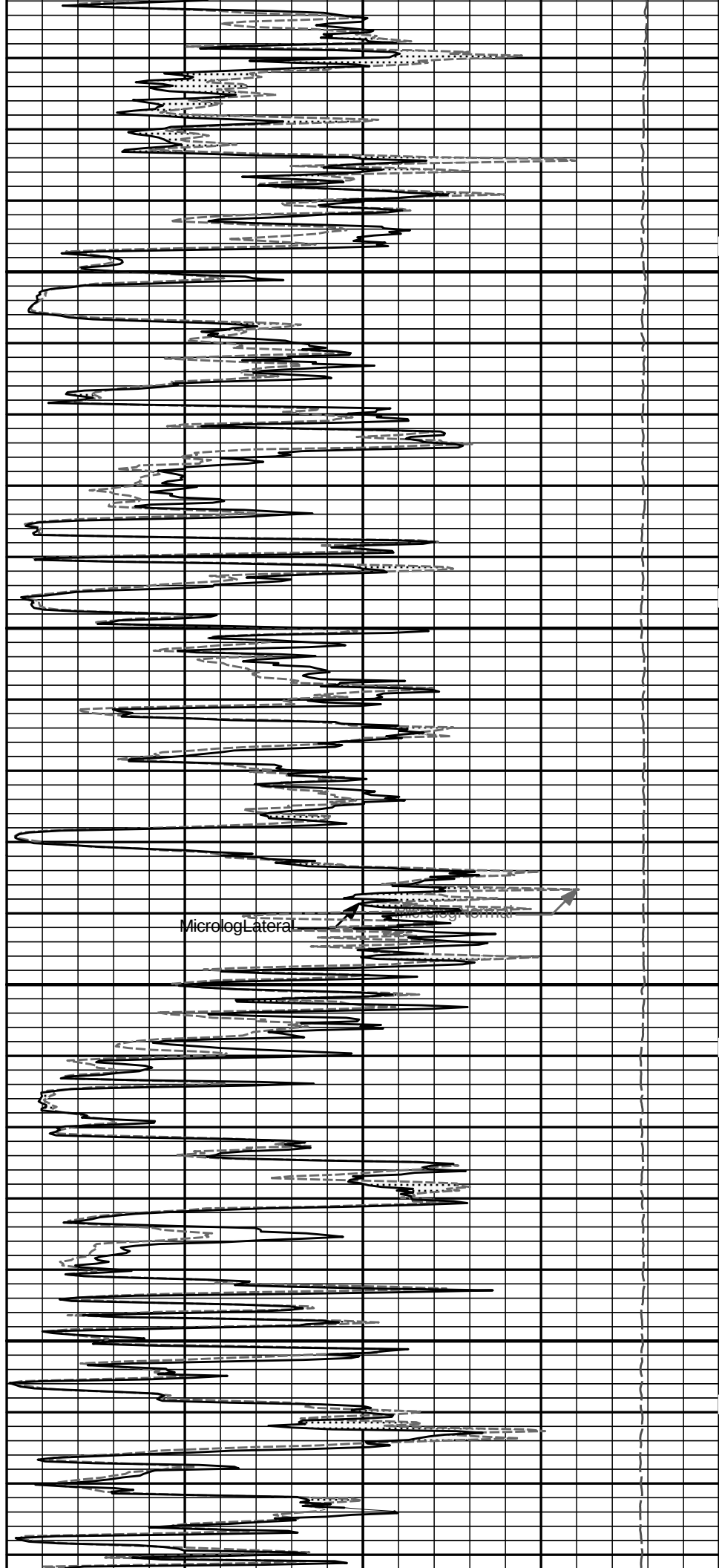
MicrologLateral

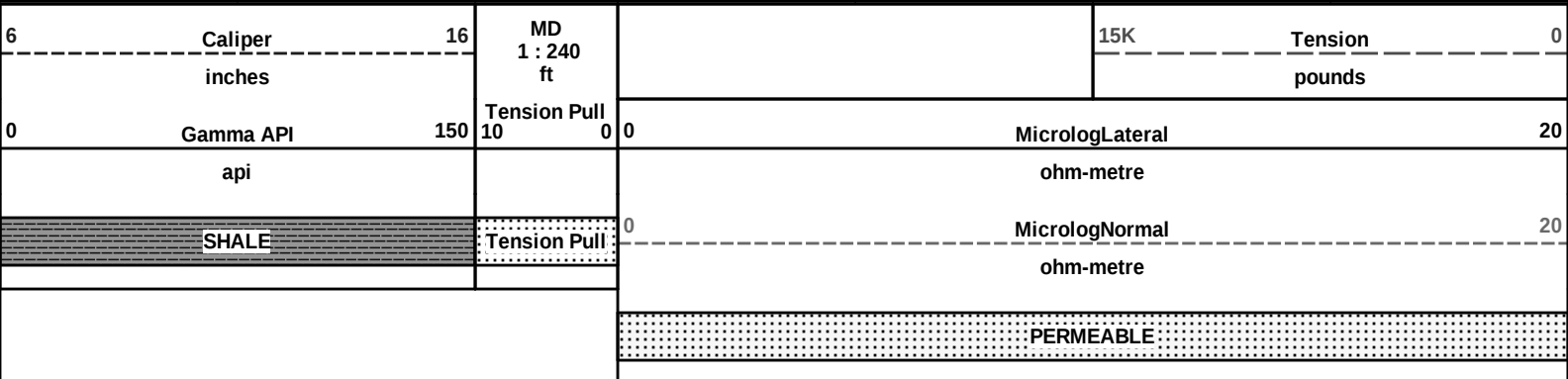
MicrologNormal



4700

4800



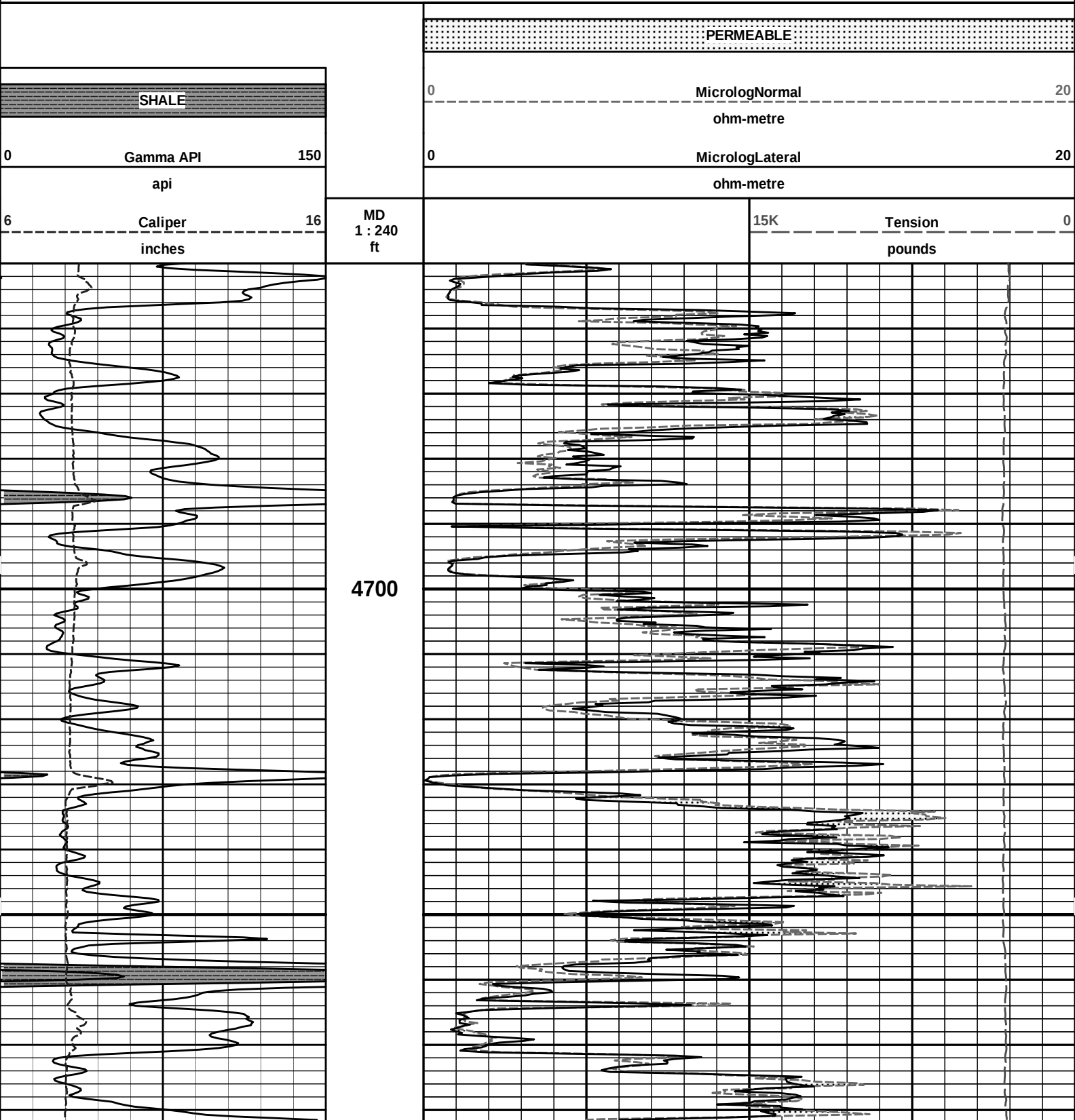


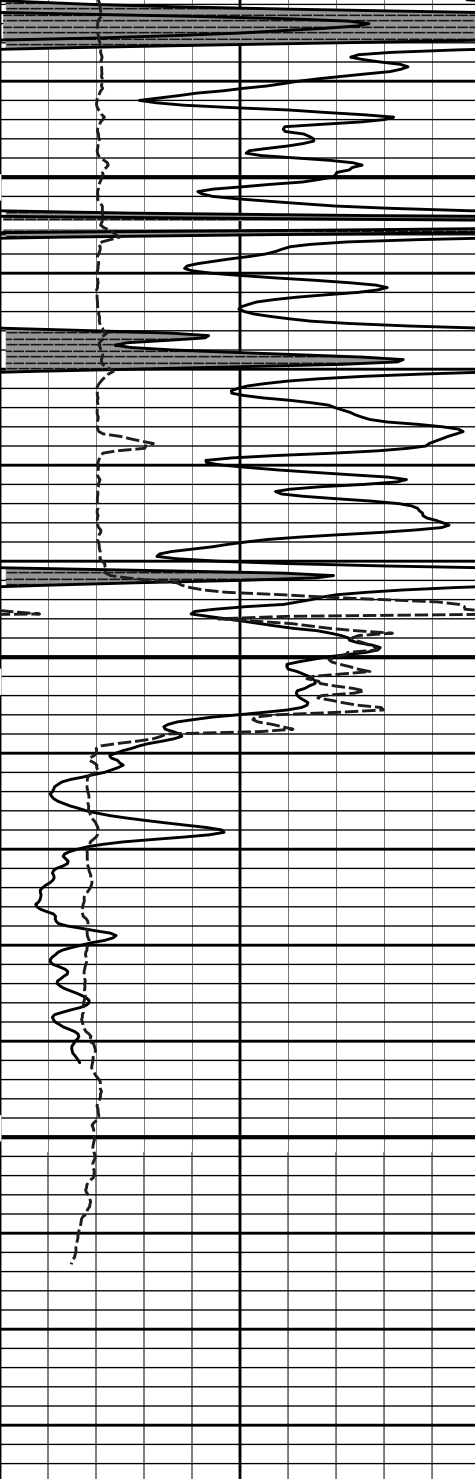
5 INCH MAIN LOG

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Plot Time: 17-Feb-12 11:37:16
 Plot Range: 4650 ft to 4936.17 ft
 Data: CHARLES_EINSEL\\Well Based\\DAQ-0001-002\\
 Plot File: \\-LOCAL-\\CHARLES_EINSEL\\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\\MICRO\\Microlog_IQ_5_rep.lib

REPEAT SECTION





4800

4900

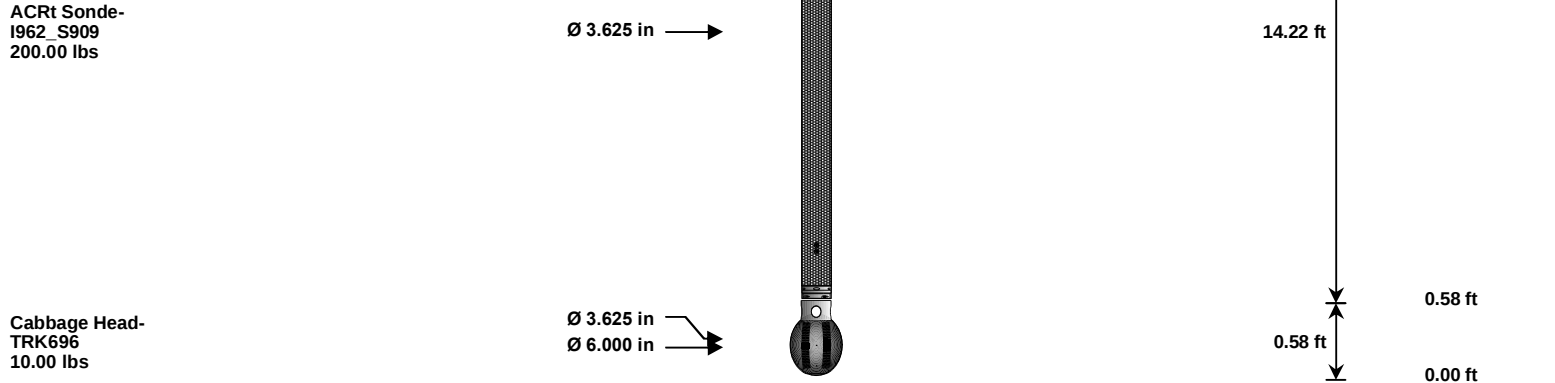
6	Caliper	16
	inches	
0	Gamma API	150
	api	
SHALE		

MD 1 : 240 ft

15K	Tension	0
	pounds	
0	MicrologLateral	20
	ohm-metre	
0	MicrologNormal	20
	ohm-metre	
PERMEABLE		

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 54.59 ft	3.03 ft	55.62 ft
SP Sub-001 60.00 lbs		Ø 3.625 in →		← SP @ 50.81 ft	3.74 ft	52.59 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →		← GammaRay @ 42.79 ft	8.52 ft	48.85 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer- 11005605 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 33.39 ft ← DSN Near @ 32.64 ft	9.69 ft	40.33 ft
SDLT-I43_M469 360.00 lbs	SDLT Pad-P81 65.00 lbs Microlog Pad-M469 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 22.83 ft SDL Caliper @ 22.65 ft SDL @ 22.64 ft	10.81 ft	30.64 ft
ACRt Instrument- I962 50.00 lbs		Ø 3.625 in →		← Mud Resistivity @ 13.44 ft	5.03 ft	19.83 ft
				← ACRt @ 9.46 ft	14.80 ft	14.80 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	HOS	Hostile Cable Head with Load Cell	CH 696	37.50	3.03	52.59	300.00
SP		SP Sub	001	60.00	3.74	48.85	300.00
GTET		Gamma Telemetry Tool	11039640	165.00	8.52	40.33	60.00
DSNT		Dual Spaced Neutron	11019643	174.00	9.69	30.64	60.00
DCNT		DSN Decentralizer	11005605	6.60	5.13	*	33.97
SDLT		Spectral Density Tool	I43_M469	360.00	10.81	19.83	60.00
MICP		Microlog Pad	M469	8.00	1.00	*	22.33
SDLP		Density Insite Pad	P81	65.00	2.55	*	22.04
ACRt		Array Compensated True Resistivity Instrument Section	I962	50.00	5.03	14.80	300.00
ACRt		Array Compensated True Resistivity	I962_S909	200.00	14.22	0.58	300.00
CBHD		Cabbage Head	TRK696	10.00	0.58	0.00	300.00
Total				1,136.10	55.62		
* Not included in Total Length and Length Accumulation.							
Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE						Date: 16-Feb-12 18:23:02	

HALLIBURTON

CALIBRATION REPORT

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

Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
Measurement	Measured	Calibrated	Units
Background	24.3	24.2	api
Background + Calibrator	295.6	293.8	api
Calibrator	271.3	269.6	api

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

Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
Field Verification	Shop	Field	Units
Background	24.2	48.4	api
Background + Calibrator	293.8	317.2	api

Shop	Field	Difference	Tolerance
269.6	268.8	0.8	+/- 9.00

Tool Name:	GTET - 11039640	Reference Calibration Date:	20-May-09 16:10:54
Engineer:	W.MILLER	Calibration Date:	13-Jan-10 16:43:01
are Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	-----
Offset	-0.012	-----
Noise	0.0020	0.0000 - 0.0030

Tool Name:	Microlog Pad - M469	Reference Calibration Date:	20-Jan-12 09:25:17
Engineer:	C.PARKER	Calibration Date:	16-Feb-12 10:13:03
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Tool Name:	Microlog Pad - M469	Reference Calibration Date:	16-Feb-12 10:13:03
Engineer:	C.PARKER	Calibration Date:	16-Feb-12 10:13:48
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Signal	Shon	Field	Difference	Tolerance
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Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.94	19.94	0.00	+/- 0.80
Microlog Lateral	19.99	19.99	0.00	+/- 0.80

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	269.6	268.8	-----	0.8	+/- 9.00	api
Microlog Pad-M469						
MicroLog Normal	19.94	19.94	-----	0.00	+/-0.80	ohmm
MicroLog Lateral	19.99	19.99	-----	0.00	+/-0.80	ohmm

Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\003 16-Feb-12 18:56 Up @4936.3f	Date: 16-Feb-12 19:12:06
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HALLIBURTON						
PARAMETERS REPORT						
Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units	
TOP						
	DSNT	DNOK	Process DSN?	No		
	SDLT	CLOK	Process Caliper Outputs?	No		
	SDLT Pad	DNOK	Process Density?	No		
	Microlog Pad	MLOK	Process MicroLog Outputs?	No		
3840.00						
	SHARED	BS	Bit Size	7.875	in	
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No		
	SHARED	MDBS	Mud Base	Water		
	SHARED	MDWT	Borehole Fluid Weight	9.350	ppg	
	SHARED	WAGT	Weighting Agent	Natural		
	SHARED	BSAL	Borehole salinity	0.00	ppm	
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm	
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%	
	SHARED	RMUD	Mud Resistivity	2.000	ohmm	
	SHARED	TRM	Temperature of Mud	75.0	degF	
	SHARED	CSD	Logging Interval is Cased?	No		
	SHARED	ICOD	AHV Casing OD	5.500	in	
	SHARED	ST	Surface Temperature	75.0	degF	
	SHARED	TD	Total Well Depth	4932.00	ft	
	SHARED	BHT	Bottom Hole Temperature	110.0	degF	
	SHARED	SVTM	Navigation and Survey Master Tool	NONE		
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET		
	SHARED	TEMM	Temperature Master Tool	NONE		
	SHARED	BHSM	Borehole Size Master Tool	NONE		
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes		
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic		
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200		
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500		
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm	
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF	
	Rwa /					

Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
BOTTOM				
Data: CHARLES_EINSEL0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE				Date: 16-Feb-12 19:10:42

HALLIBURTON				
INPUTS, DELAYS AND FILTERS TABLE				
Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
CH_HOS				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	50.81	NO	
SP	Spontaneous Potential	50.81	BLK	1.250
SPR	Raw Spontaneous Potential	50.81	NO	
SPO	Spontaneous Potential Offset	50.81	NO	
GTET				

TPUL	Tension Pull	42.79	NO	
GR	Natural Gamma Ray API	42.79	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	42.79	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.79	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	32.54	NO	
RNDS	Near Detector Telemetry Counts	32.64	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.39	TRI	0.583
DNTT	DSN Tool Temperature	32.64	NO	
DSNS	DSN Tool Status	32.54	NO	
ERND	Near Detector Telemetry Counts EVR	32.64	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.39	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.64	NO	
SDLT				
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
ACRt Sonde				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000

F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
SDLT Pad				
TPUL	Tension Pull	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250
FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	22.04	NO	
FHV	Far Detector High Voltage	22.04	NO	
ITMP	Instrument Temperature	22.04	NO	
DDHV	Detector High Voltage	22.04	NO	
Microlog Pad				
TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750
Data: CHARLES_EINSEL\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\003 16-Feb-12 18:56 Up @4936.3f			Date: 16-Feb-12 19:12:53	

COMPANY	HERMAN L LOEB
WELL	CHARLES EINSEL 3-21

WELL		CHARLES LINCOLN II	
FIELD	FRALICK WEST		
COUNTY	KIOWA	STATE	KANSAS
HALLIBURTON		MICROLOG	