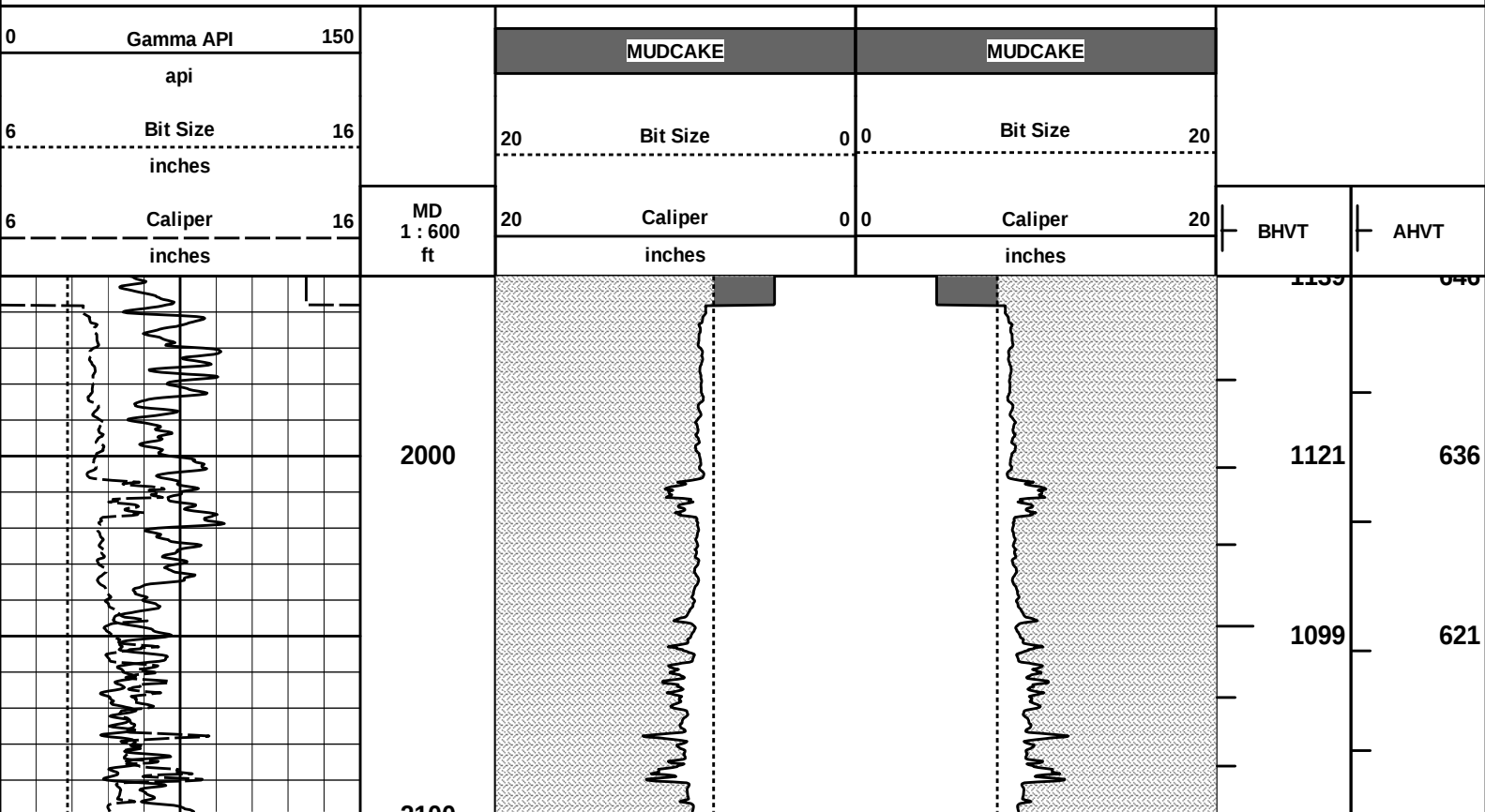
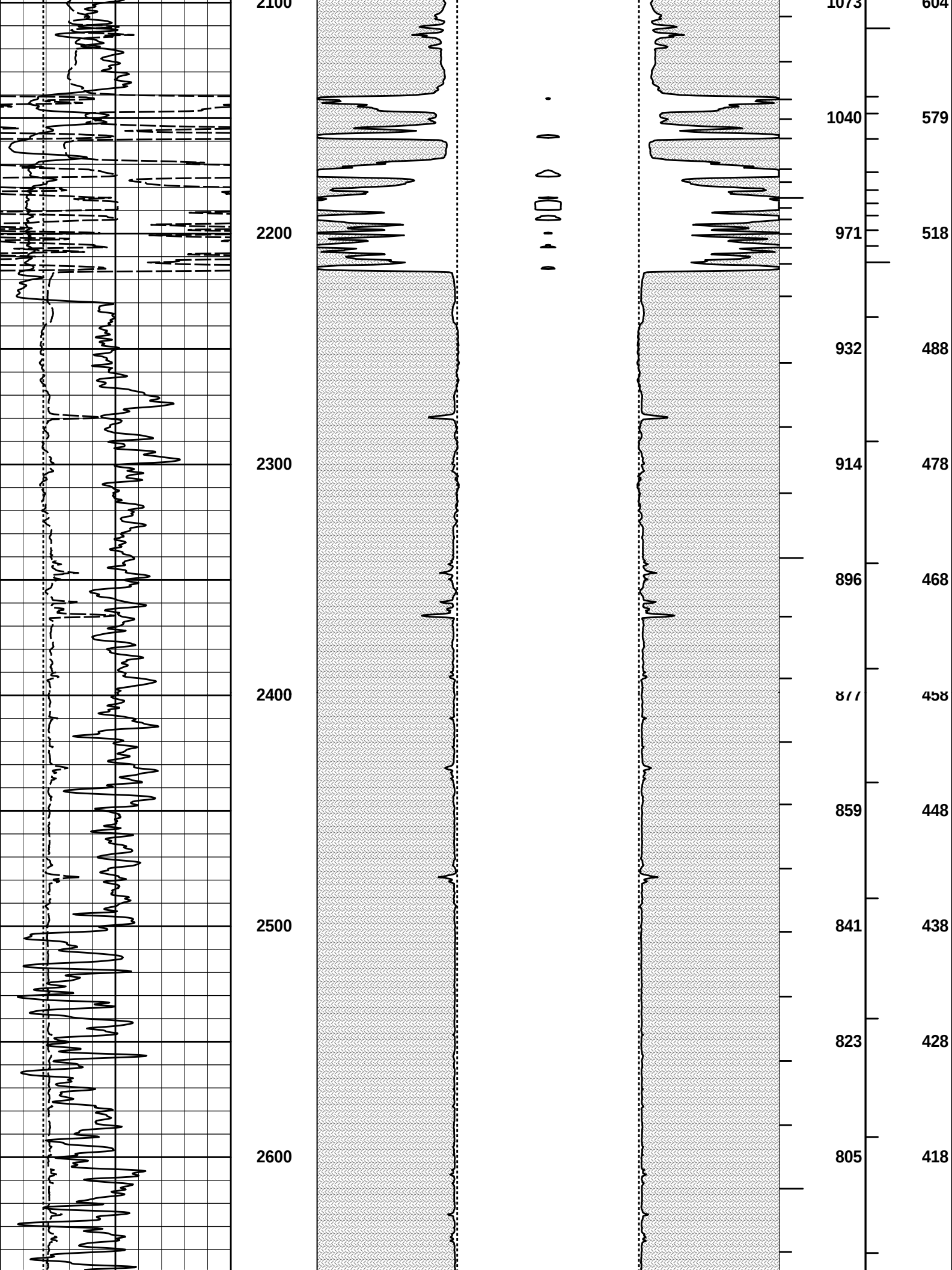


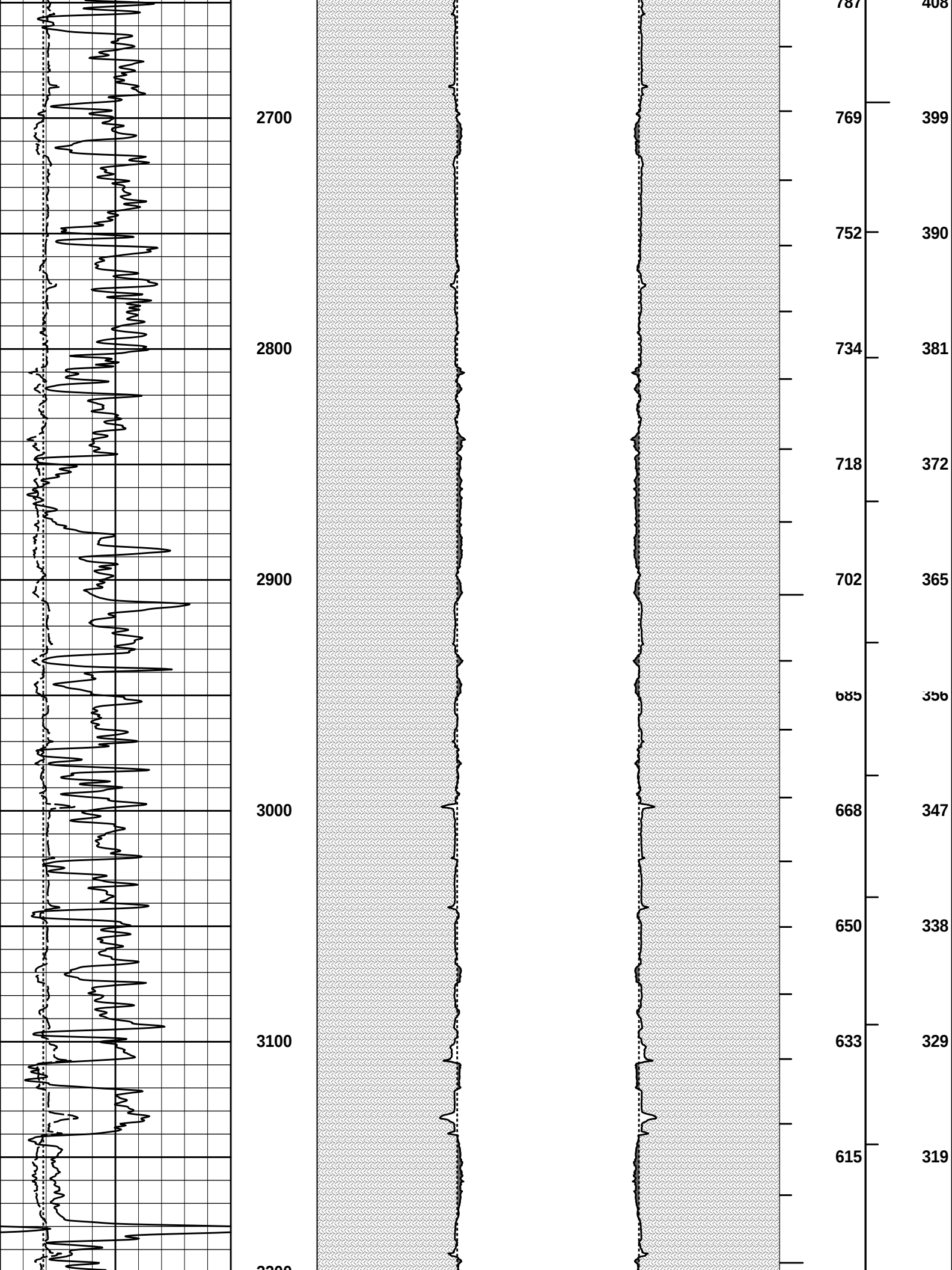
ANNULAR HOLE VOLUME PLOT

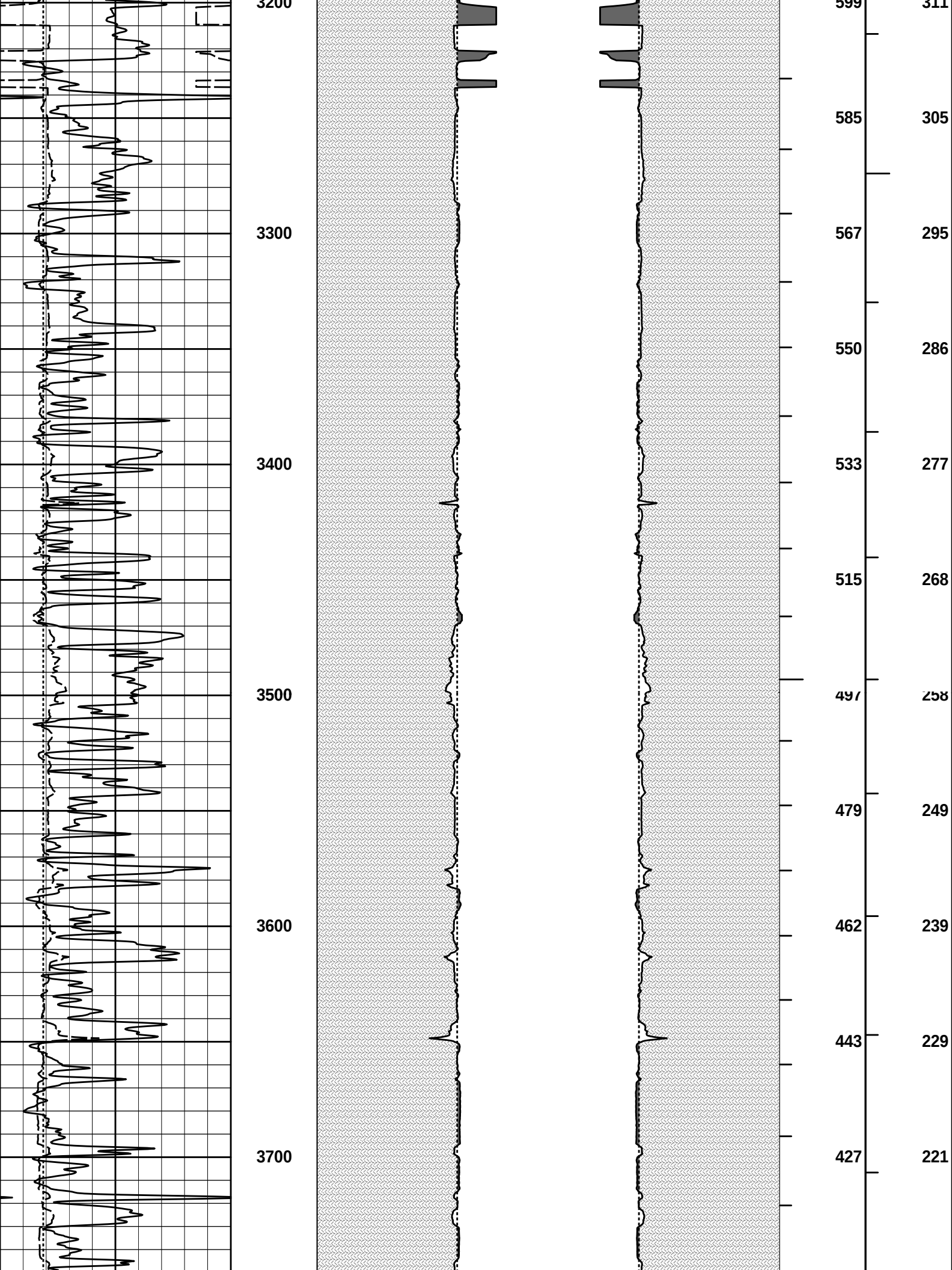
LOGGING DATA									
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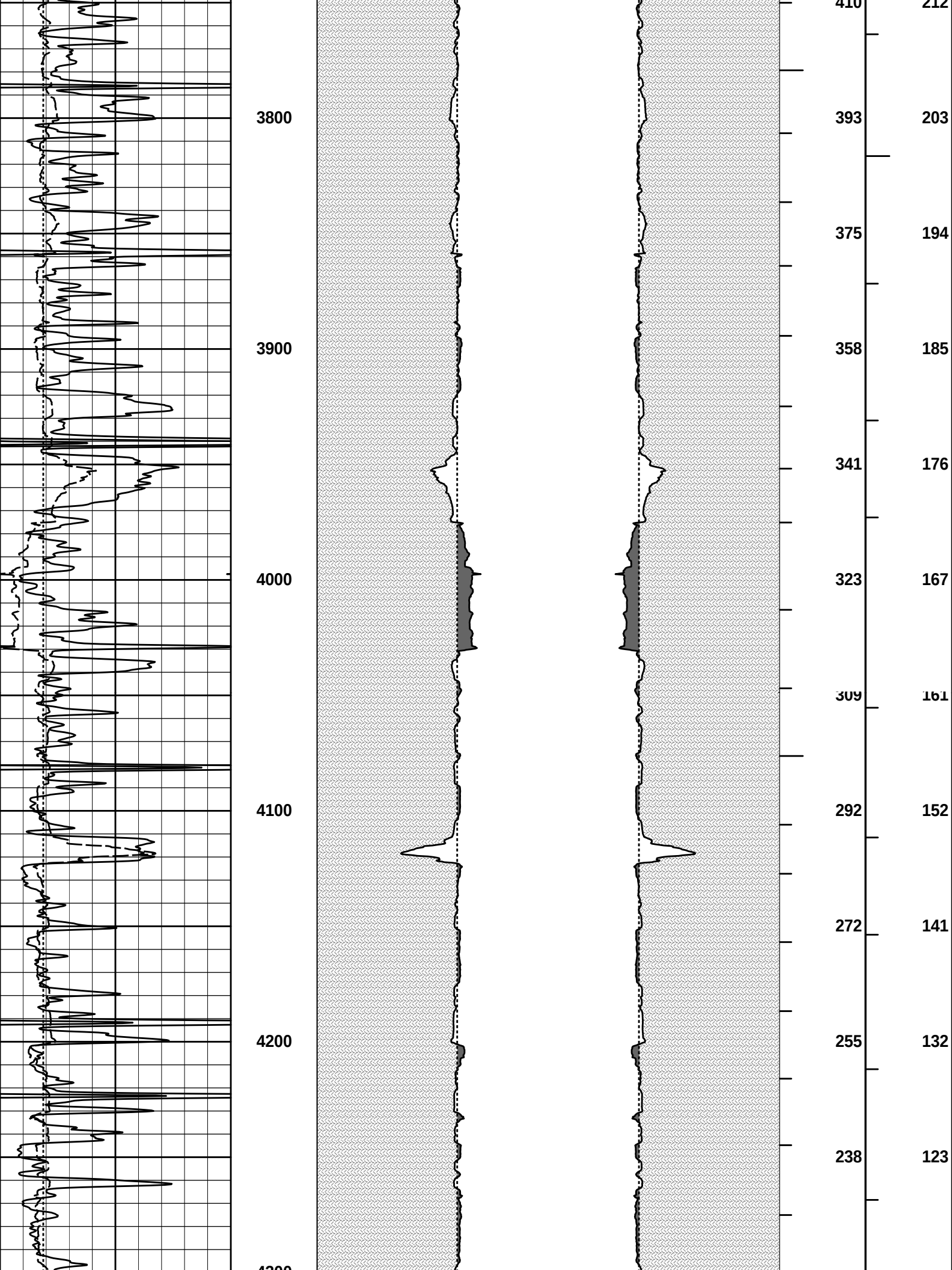
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	4949	1960	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.														
HAD TO CLOSE CALIPER 3 TIMES BETWEEN 3250 - 3200 DUE TO PULLING TIGHT.														
SP SHIFTED AT 3208' DUE TO WORKING TOOL PAST A TIGHT SPOT, THEN MANUALLY SHIFTED BACK AT 3196'.														
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														

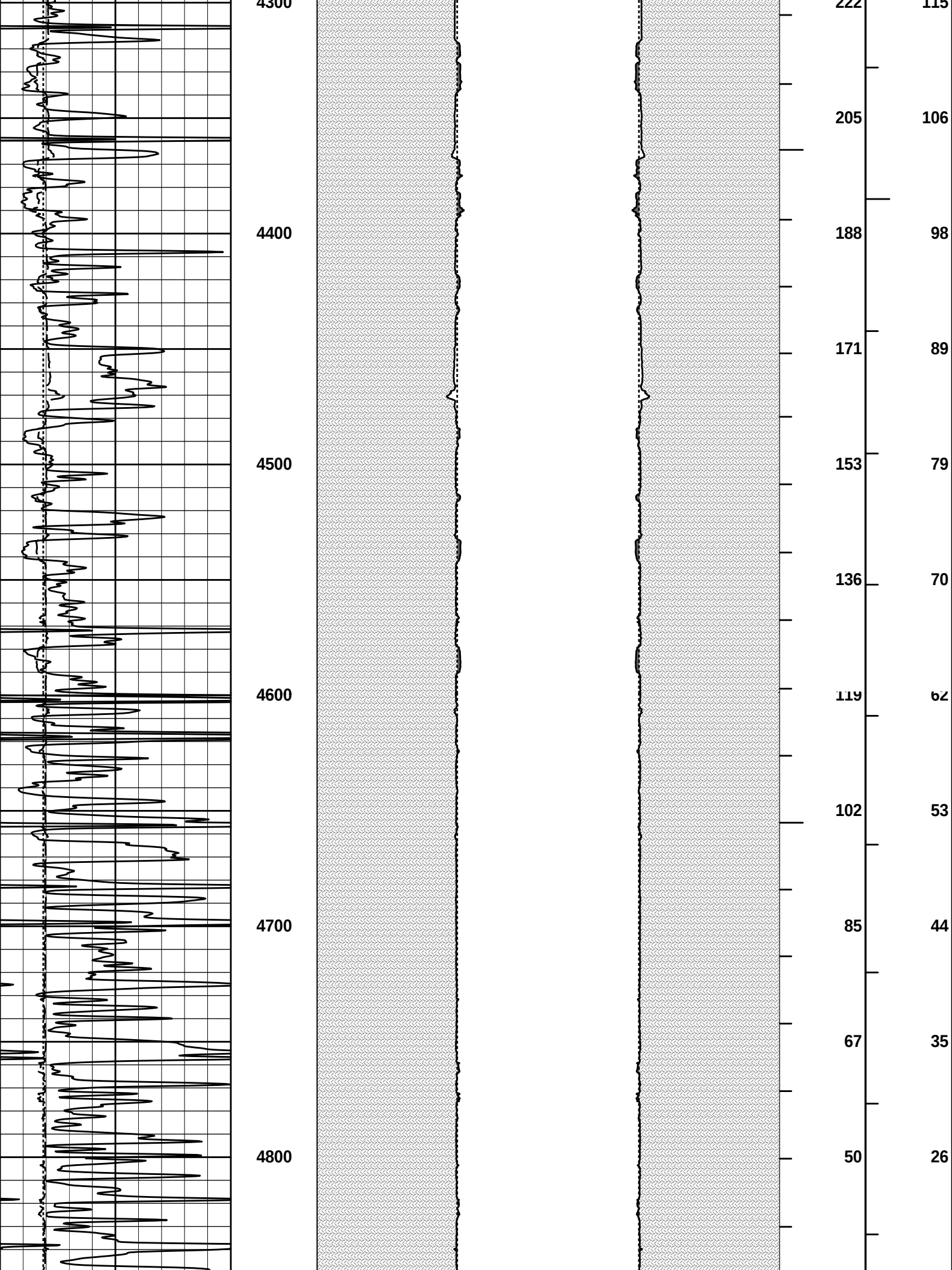


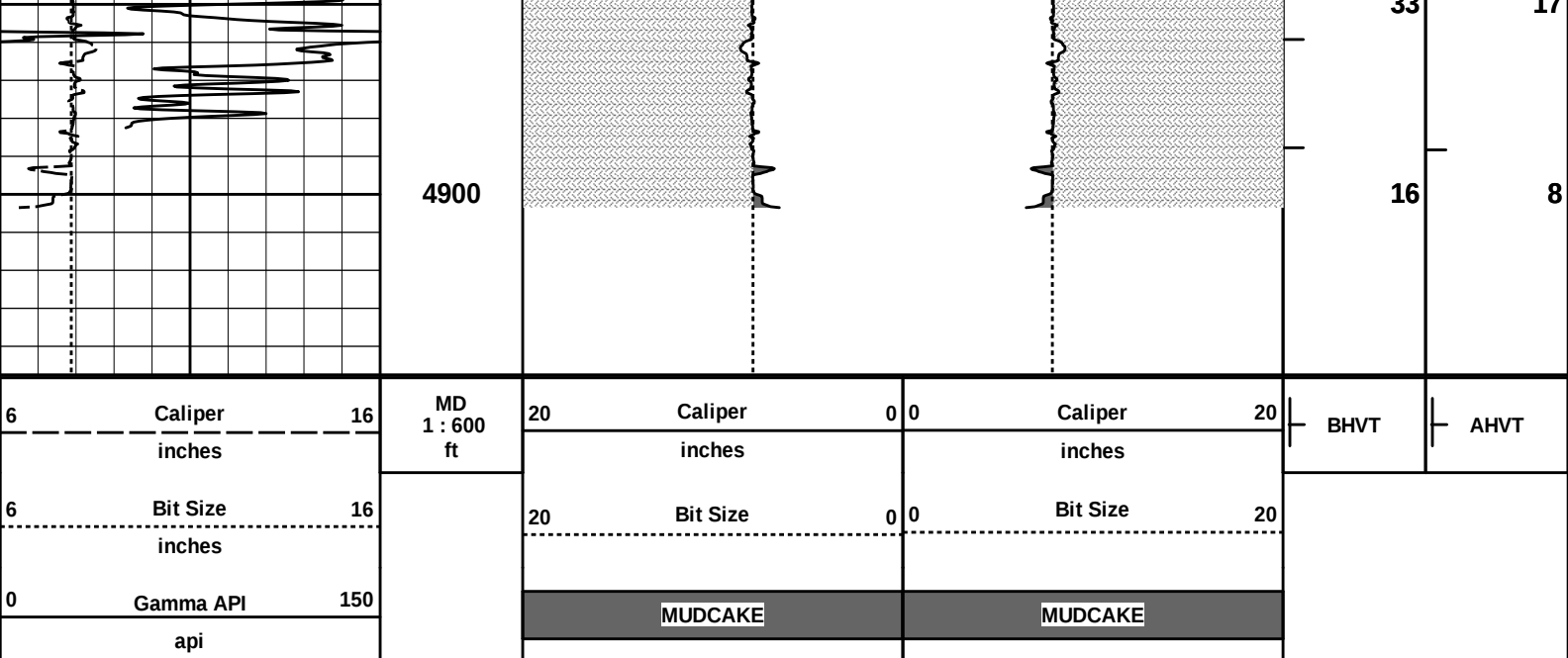












HALLIBURTON

Plot Time: 28-Mar-13 12:52:18
 Plot Range: 1950 ft to 4947.5 ft
 Data: PRENTICE_A-1\Well Based\CASING\
 Plot File: \\-LOCAL-\\PRENTICE_A-1\Well Based\AHV\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

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	75.71 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 72.01 ft	3.74 ft	73.79 ft
GTET-10748374 165.00 lbs		Ø 3.625 in →		← GammaRay @ 63.99 ft	8.52 ft	70.05 ft
						61.53 ft
DSN Decentralizer- 10735145 6.60 lbs		Ø 5.000 in* →				
DSNT-10735145 174.00 lbs		Ø 3.625 in →		← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft	9.69 ft	

SDLT-10673803
360.00 lbs

SDLT Pad-10673790
65.00 lbs

Microlog Pad-10673803
8.00 lbs

Ø 4.500 in →

Ø 4.750 in* →

Ø 4.750 in* →

Microlog @ 44.03 ft

SDL Caliper @ 43.84 ft

SDL @ 43.83 ft

10.81 ft

51.84 ft

Flex Joint-00000001
140.00 lbs

Ø 3.625 in →

5.67 ft

41.03 ft

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in* →

35.36 ft

BSAT-10747684
300.00 lbs

Ø 3.625 in →

Sonic Receivers @ 26.84 ft

15.77 ft

ACRt Instrument-
10929776
50.00 lbs

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in* →

Ø 3.625 in →

19.58 ft

5.03 ft

14.55 ft

Mud Resistivity @ 13.19 ft

ACRt @ 9.21 ft

ACRt Sonde-
10929775
200.00 lbs

Ø 3.625 in →

14.22 ft

Bull Nose-00000001
5.00 lbs

Ø 2.750 in →

0.33 ft

0.33 ft

0.00 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	73.79	300.00	
SP	SP Sub	12345678	60.00	3.74	70.05	300.00	
GTET	Gamma Telemetry Tool	10748374	165.00	8.52	61.53	60.00	
DSNT	Dual Spaced Neutron	10735145	174.00	9.69	51.84	60.00	
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	55.17	300.00
SDLT	Spectral Density Tool	10673803	360.00	10.81	41.03	60.00	
MICP	Microlog Pad	10673803	8.00	1.00	*	43.53	60.00
SDLP	Density Insite Pad	10673790	65.00	2.55	*	43.24	60.00
FLEX	Flex Joint	00000001	140.00	5.67	35.36	300.00	
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.58	60.00	
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	32.82	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03	14.55	300.00	
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	16.55	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22	0.33	300.00	
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00	
Total			1,579.60	75.71			
* Not included in Total Length and Length Accumulation.							
Data: PRENTICE_A-110002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BNIDLE					Date: 28-Mar-13 08:34:10		

HALLIBURTON					
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	9.200	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.500	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	4955.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	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 / 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	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRT?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: PRENTICE_A-1\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\005 28-Mar-13 10:38 Up @4947.8f

Date: 28-Mar-13 12:06:22

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	17-Jan-13 13:03:23
Engineer:	THOMAS HYDE	Calibration Date:	12-Mar-13 13:11:16
Software Version:	WL INSITE R3.8.4 (Build 5)	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	43.5	43.2	api
Background + Calibrator	277.4	275.2	api
Calibrator	233.9	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	12-Mar-13 13:11:16
Engineer:	S. INGERSOLL	Calibration Date:	27-Mar-13 23:33:12
Software Version:	WL INSITE R3.8.4 (Build 5)	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	43.2	62.7	api
Background + Calibrator	275.2	292.2	api
Calibrator	232.0	229.5	api

Shop	Field	Difference	Tolerance
232.0	229.5	2.5	+/- 9.00

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 10673803	Reference Calibration Date:	12-Mar-13 13:14:02
Engineer:	THOMAS HYDE	Calibration Date:	12-Mar-13 13:18:16
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	DSNT - 10735145		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3713.67	-3673.34	-7000.00 - -1000.00
Pad Gain	0.0003799	0.0003767	0.000200 - 0.000600
Arm Offset	-4381.70	-4510.72	-5000.00 - 3000.00
Arm Gain	0.0005135	0.0005258	0.000300 - 0.000700
Arm Power	-0.000005109	-0.000005867	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER
Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.23	8.25	0.02	+/- 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 - 10673803		Reference Calibration Date: 12-Mar-13 13:18:16					
Engineer: S. INGERSOLL		Calibration Date: 27-Mar-13 23:38:49					
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	3.76	0.01	+/- 0.10		
	Ring Diameter	8.25	8.34	0.09	+/- 0.15		
PASS/FAIL SUMMARY							
Pad Extension Check:			Passed				
Diameter Check:			Passed				
CALIBRATION SUMMARY							
Sensor		Shop	Field	Post	Difference	Tolerance	Units
GTET-10748374							
Gamma Ray Calibrator		232.0	229.5	-----	2.5	+/- 9.00	api
SDLT-10673803							
Pad Extension		3.75	3.76	-----	-0.01	+/-0.10	in
Ring Diameter		8.25	8.34	-----	-0.09	+/-0.15	in
Data: PRENTICE_A-1\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\005 28-Mar-13 10:38 Up @4947.8f					Date: 28-Mar-13 12:09:34		
HALLIBURTON							
INPUTS, DELAYS AND FILTERS TABLE							
Mnemonic		Input Description			Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel							
TENS	Tension				0.00	NO	
SP Sub							
PLTC	Plot Control Mask				72.01	NO	
SP	Spontaneous Potential				72.01	BLK	1.250
SPR	Raw Spontaneous Potential				72.01	NO	
SPO	Spontaneous Potential Offset				72.01	NO	
GTET							
TPUL	Tension Pull				63.99	NO	
GR	Natural Gamma Ray API				63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API				63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution				63.99	W	1.416 , 0.750
ACCZ	Accelerometer Z				0.00	BLK	0.083
DEVI	Inclination				0.00	NO	
DSNT							
TPUL	Tension Pull				53.74	NO	
RNDS	Near Detector Telemetry Counts				53.84	BLK	1.417
RFDS	Far Detector Telemetry Counts				54.59	TRI	0.583
DNTE	Downhole Telemetry Error				53.84	NO	

DNTH	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERND	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
SDLT				
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
BSAT				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000

F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	

SDLT Pad				
TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250
NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	

Microlog Pad				
TPUL	Tension Pull	44.03	NO	
MINV	Microlog Lateral	44.03	BLK	0.750
MNOR	Microlog Normal	44.03	BLK	0.750
Data: PRENTICE_A-1\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\005 28-Mar-13 10:38 Up @4947.8f			Date: 28-Mar-13 12:05:58	

COMPANY	OXY USA
WELL	PRENTICE A-1
FIELD	HUGOTON GAS AREA

STATE	KANSAS	COUNTRY	USA
HALLIBURTON		ANNULAR HOLE VOLUME PLOT	