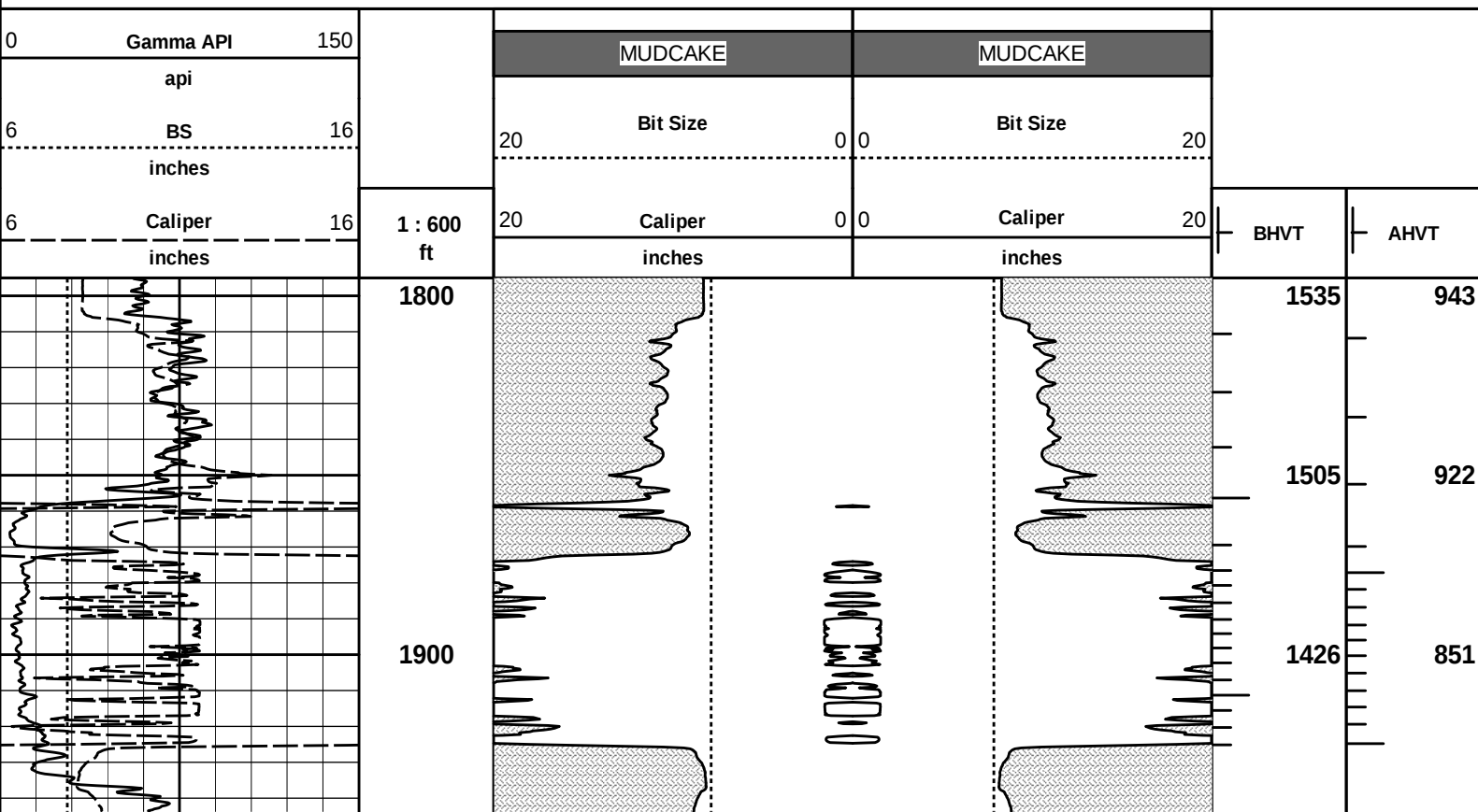


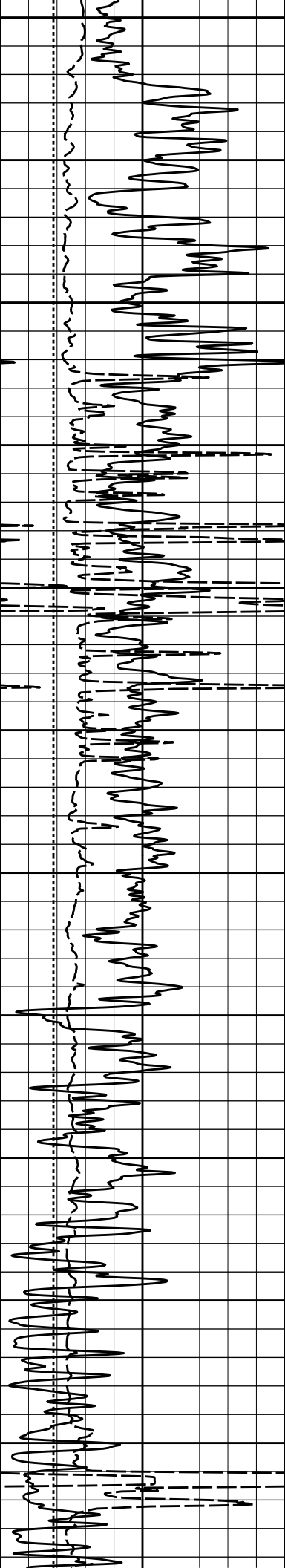
ANNULAR HOLE VOLUME PLOT

Fold here

Service Ticket No.: 900161133						API Serial No.: 15055221940000						PGM Version: WL INSITE R3.8.0 (Build 2)																	
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES																	
Date		Sample No.										Type Log		Depth		Scale Up Hole				Scale Down Hole									
Depth-Driller																													
Type Fluid in Hole																													
Density		Viscosity																											
Ph		Fluid Loss																											
Source of Sample												RESISTIVITY EQUIPMENT DATA																	
Rm @ Meas. Temp						@						Run No.		Tool Type & No.				Pad Type				Tool Pos.				Other			
Rmf @ Meas. Temp.						@						ONE		ACRT				N/A				CENT.							
Rmc @ Meas. Temp.						@								10800784															
Source Rmf		Rmc																											
Rm @ BHT						@																							
Rmf @ BHT						@																							
Rmc @ BHT						@																							
EQUIPMENT DATA																													
GAMMA				ACOUSTIC				DENSITY				NEUTRON																	
Run No.		ONE		Run No.		ONE		Run No.		ONE		Run No.		ONE															
Serial No.		10748374		Serial No.		10747684		Serial No.		10673803		Serial No.		10735145															
Model No.		GTET		Model No.		BSAT		Model No.		SDLT		Model No.		DSNT															
Diameter		3.625"		No. of Cent.		2		Diameter		5.3"		Diameter		3.625"															
Detector Model No.		GTET		Spacing		.5'		Log Type		GAM-GAM		Log Type		NEU-NEU															
Type		SCINT						Source Type		CS-137		Source Type		AM-241BE															
Length		8"		LSA [Y/N]				Serial No.		5073GW		Serial No.		DSN-436															
Distance to Source		N/A		FWDA [Y/N]				Strength		1.5 CI		Strength		15 CI															
LOGGING DATA																													

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	5382	1806	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 CASING.														





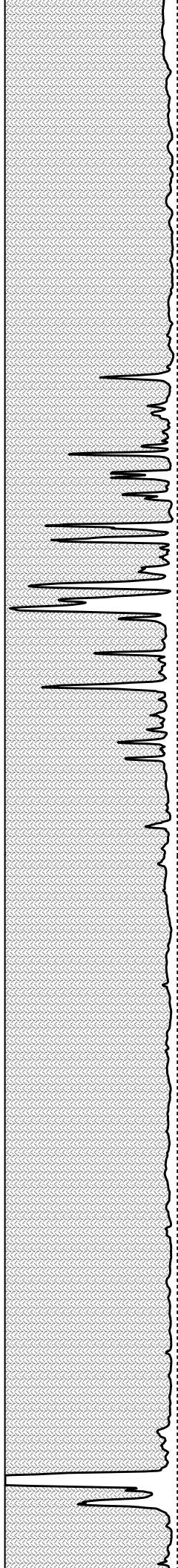
2000

2100

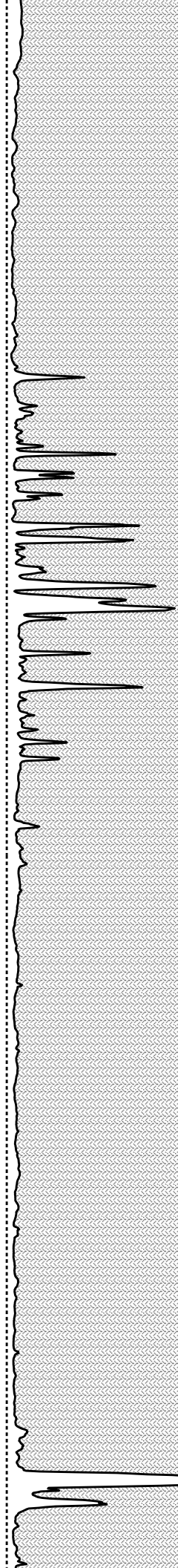
2200

2300

2400



0



1359

1339

1320

1299

1270

1239

1217

1197

1177

1157

1138

793

781

770

757

736

713

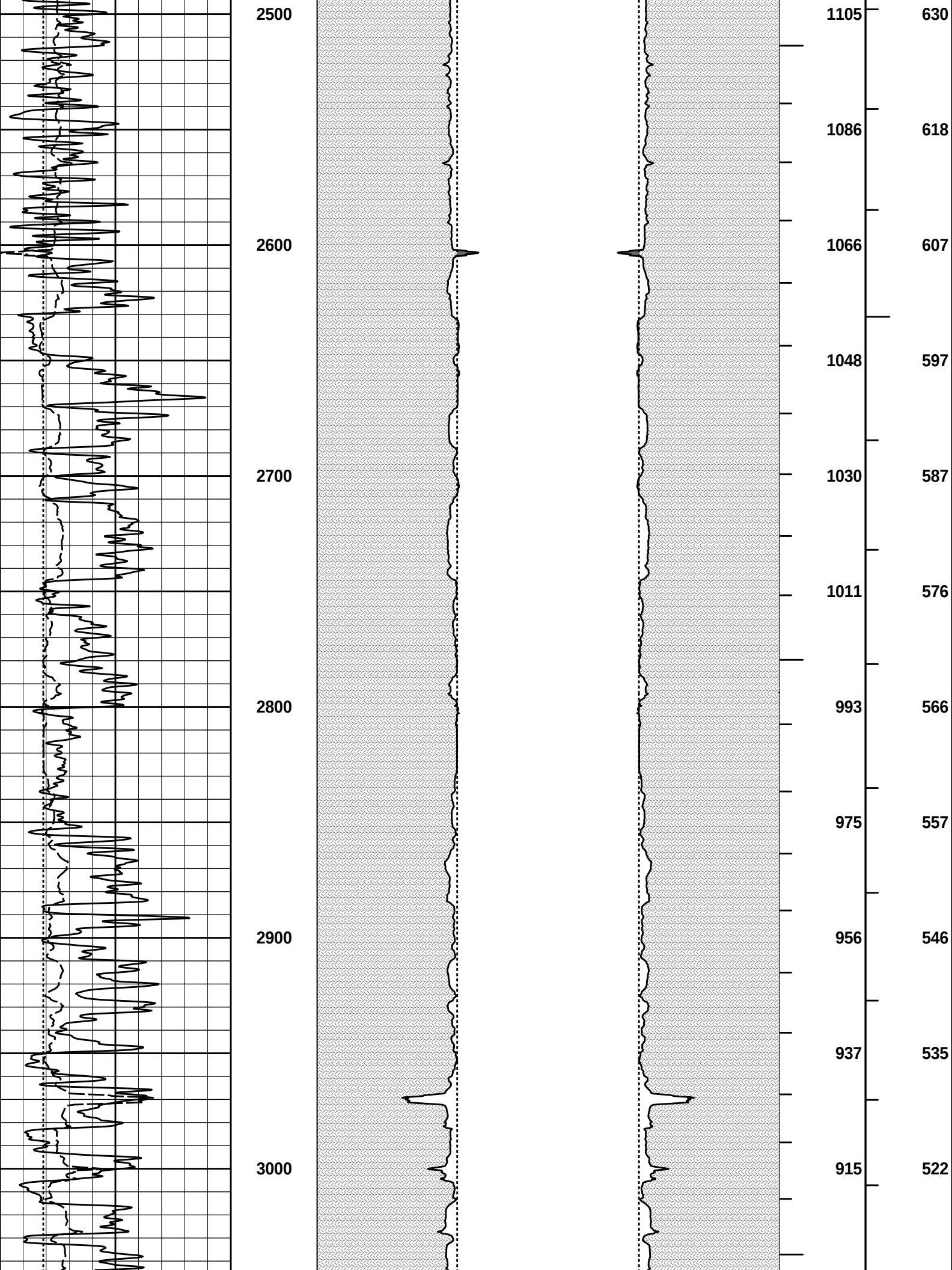
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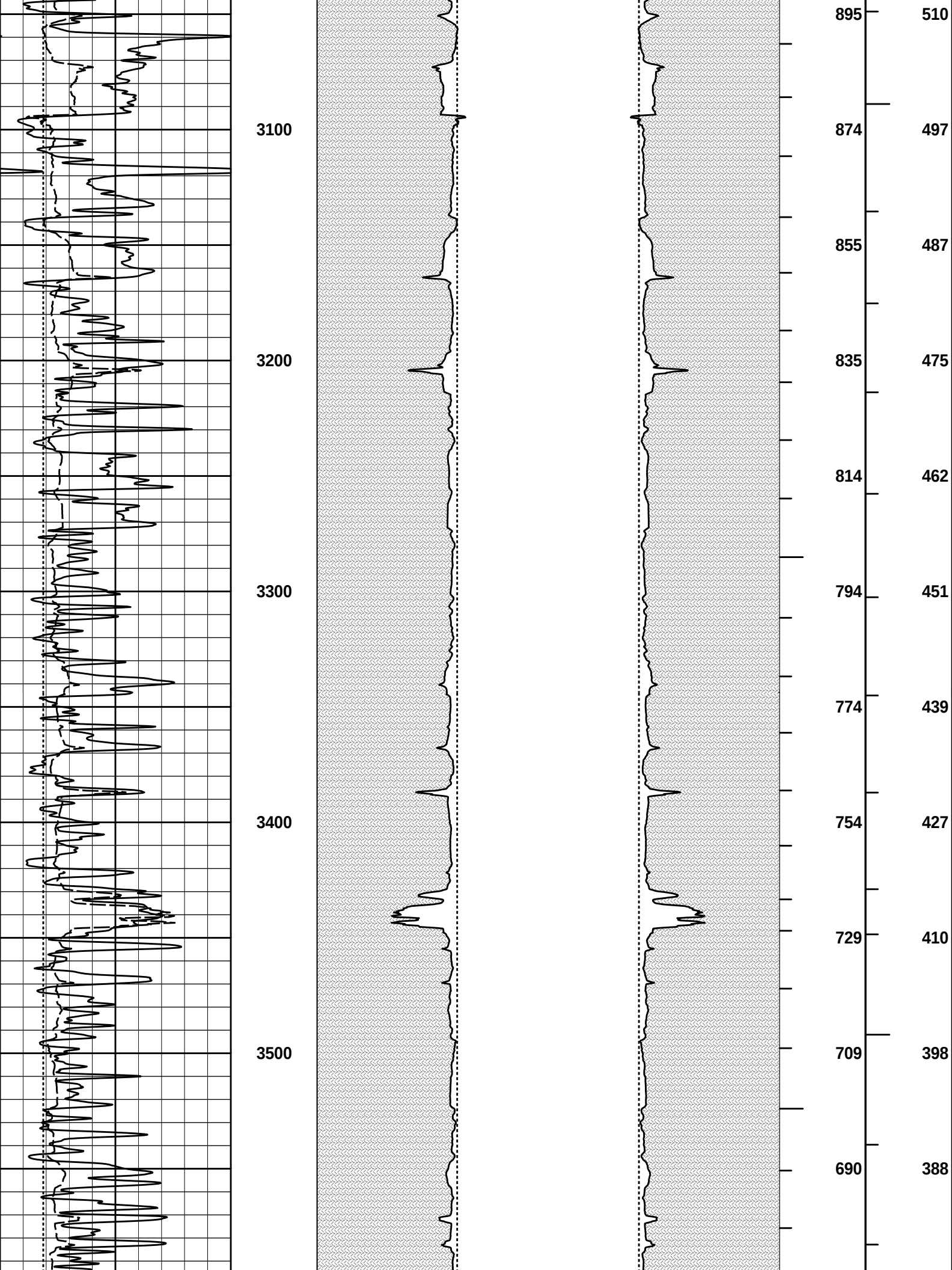
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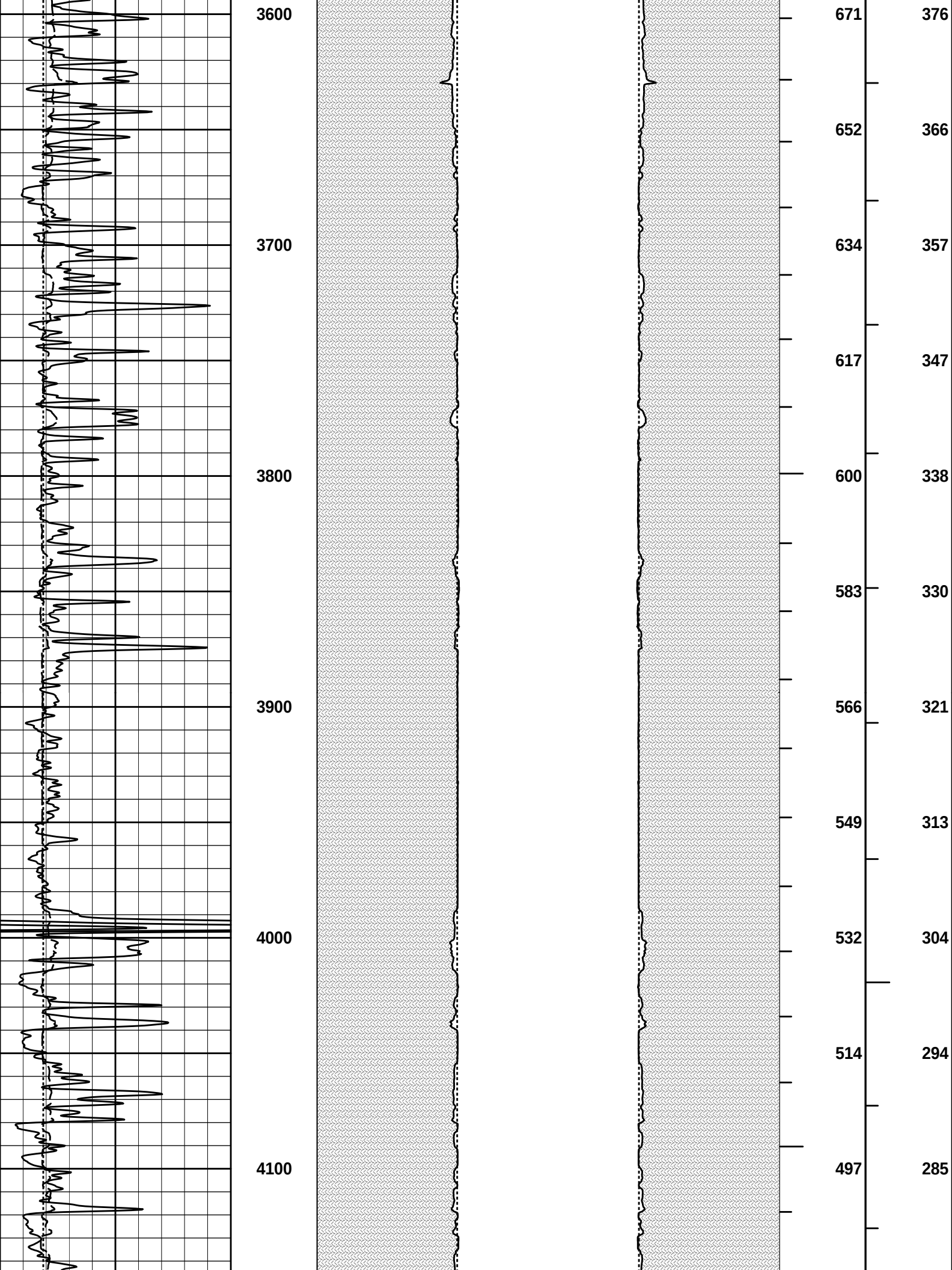
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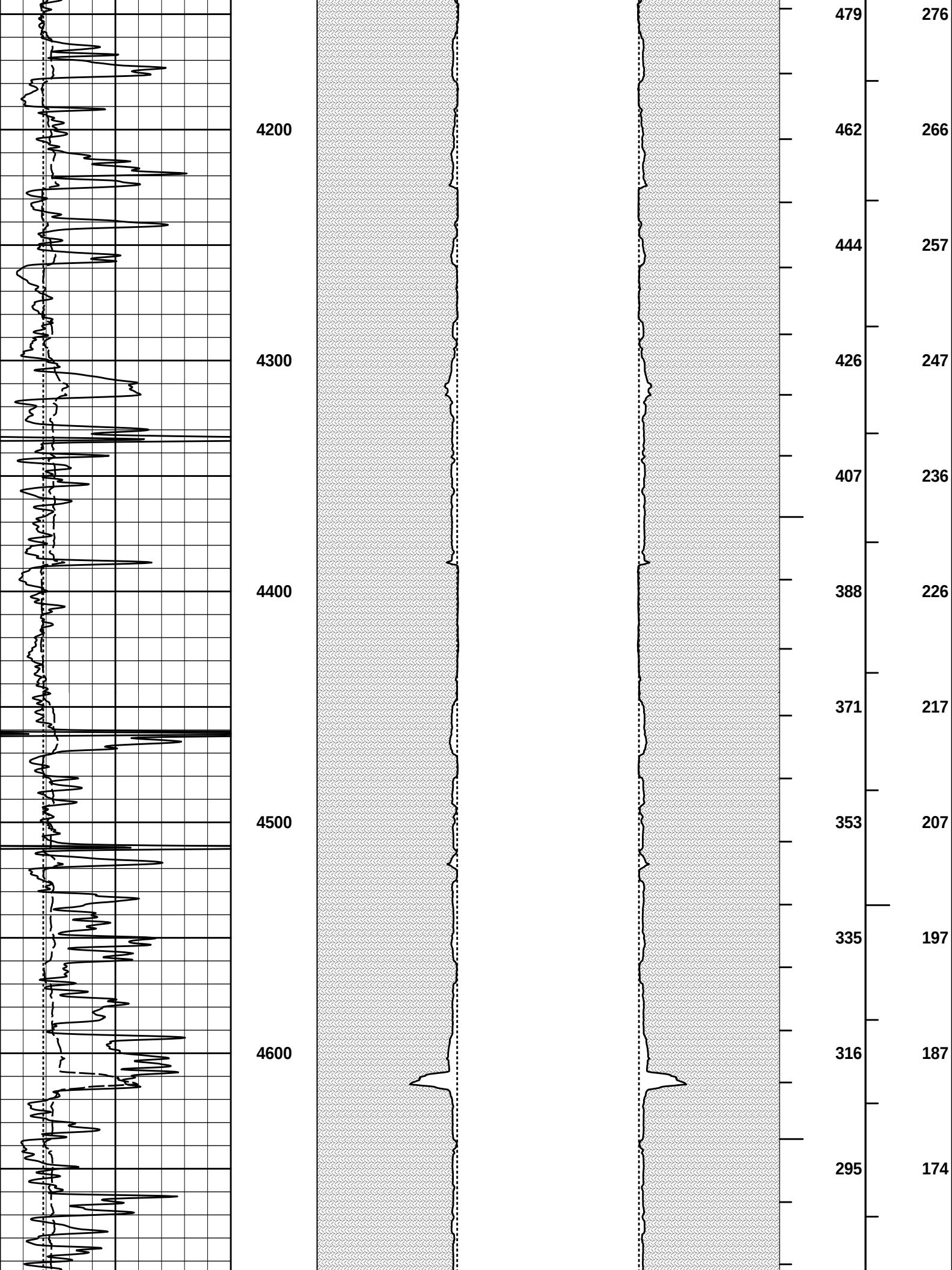
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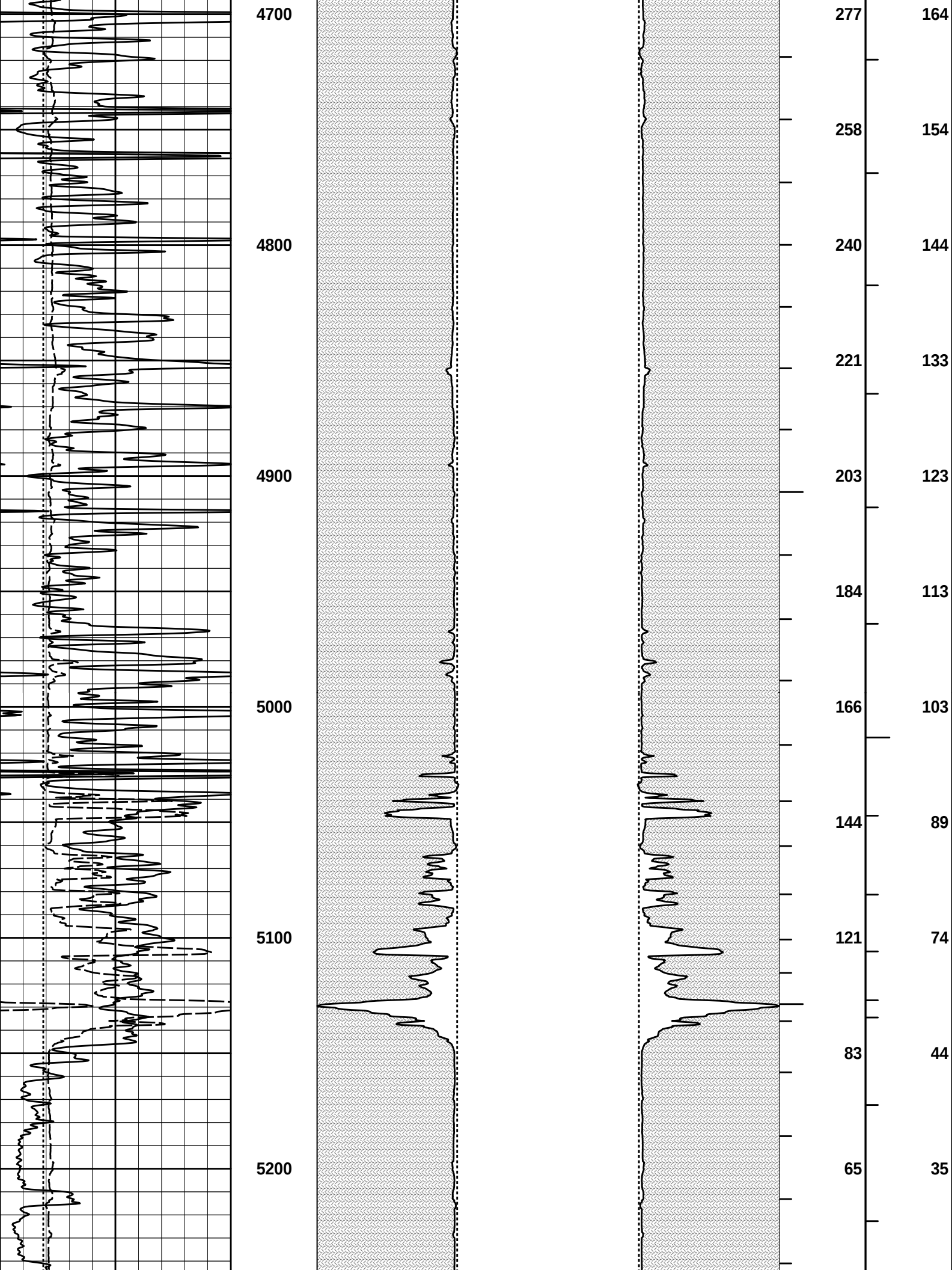
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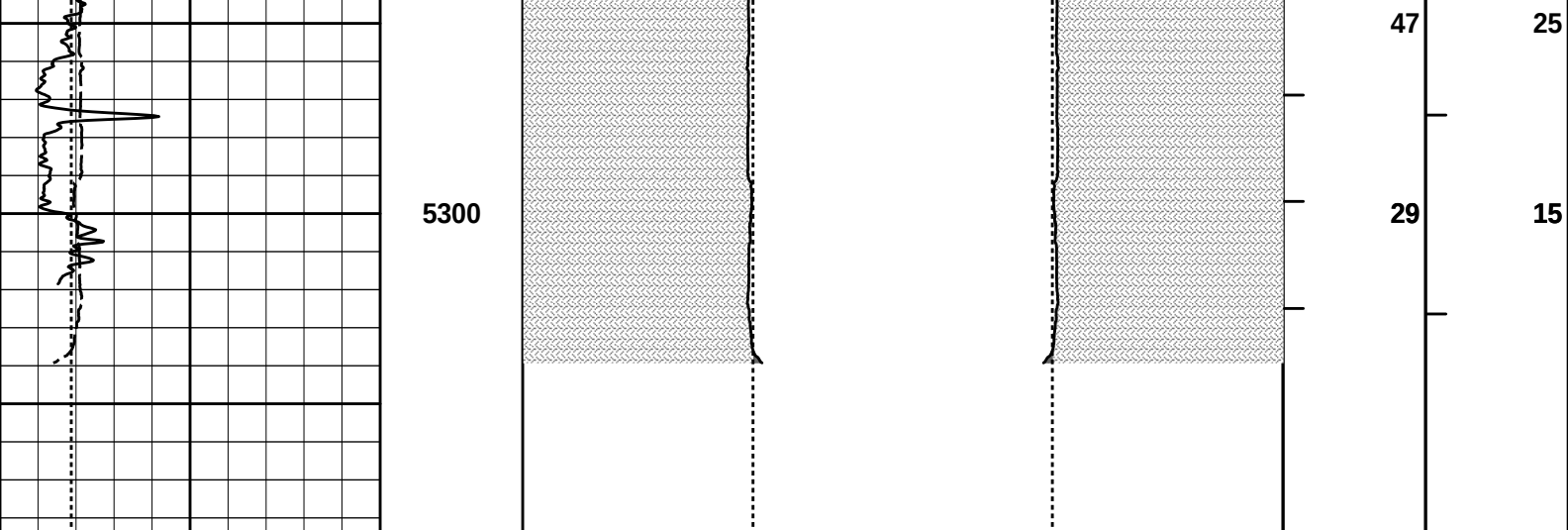












6	Caliper	16	1 : 600 ft	20	Caliper	0 0	20	BHVT	AHVT
	inches				inches				
6	BS	16		20	Bit Size	0 0	20		
	inches								
0	Gamma API	150			MUDCAKE		MUDCAKE		
	api								

HALLIBURTON

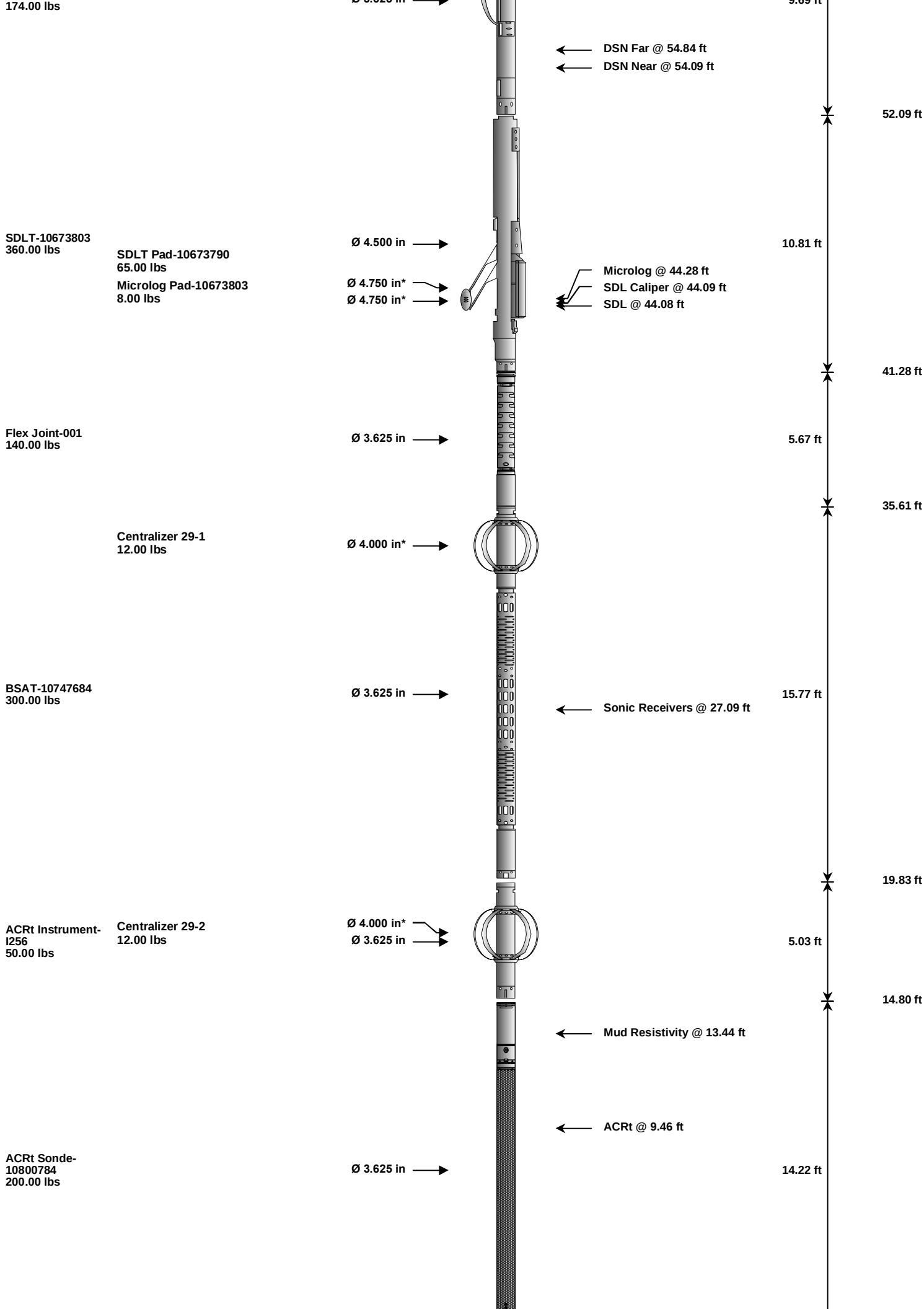
Plot Time: 28-Jan-13 19:23:55
Plot Range: 1795 ft to 5383.67 ft
Data: DEVORE_D-1\Well Based\DEVORE_CASING\
Plot File: \\-LOCAL-DEVORE_D-1\Well Based\AHVBHV\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head- PROT01 30.00 lbs		Ø 3.625 in →			1.92 ft	75.95 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 72.26 ft	3.74 ft	74.03 ft
						70.30 ft
GTET-10748374 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft	8.52 ft	
						61.78 ft
DSN Decentralizer- 11019643 6.60 lbs		Ø 5.000 in* →				
DSNT-10735145		Ø 3.625 in →				



Cabbage Head-
TRK696
10.00 lbs

Ø 3.625 in

Ø 6.000 in



0.58 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		PROT01	30.00	1.92	74.03	300.00
SP	SP Sub		11441455	60.00	3.74	70.30	300.00
GTET	Gamma Telemetry Tool		10748374	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron		10735145	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer		11019643	6.60	5.13	*	55.42
SDLT	Spectral Density Tool		10673803	360.00	10.81	41.28	60.00
MICP	Microlog Pad		10673803	8.00	1.00	*	43.78
SDLP	Density Insite Pad		10673790	65.00	2.55	*	43.49
FLEX	Flex Joint		001	140.00	5.67	35.61	300.00
BSAT	Borehole Sonic Array Tool		10747684	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 29 in.Overbody		1	12.00	2.42	*	32.77
ACRt	Array Compensated True Resistivity Instrument Section		I256	50.00	5.03	14.80	300.00
OBCEN	Centralizer - 29 in.Overbody		2	12.00	2.42	*	16.39
ACRt	Array Compensated True Resistivity Sonde Section		10800784	200.00	14.22	0.58	300.00
CBHD	Cabbage Head		TRK696	10.00	0.58	0.00	300.00
Total				1,592.60	75.95		
* Not included in Total Length and Length Accumulation.							
Data: DEVORE_D-1I0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE							
Date: 28-Jan-13 14:46:59							

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	8.800	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5555.00	ft
	SHARED	BHT	Bottom Hole Temperature	130.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	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: DEVORE_D-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHI005 28-Jan-13 16:58 Up @5383.8f			Date: 28-Jan-13 18:25:53	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 10748374	Reference Calibration Date:	19-Dec-12 08:49:49	
Engineer:	T. HYDE	Calibration Date:	17-Jan-13 13:03:23	
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1	
Calibrator Source S/N: TB-185 Calibrator API Reference:228.00 api Equivalent Calibrator API Reference:232.0 api				
	Measurement	Measured	Calibrated	Units
	Background	47.0	47.4	api
	Background + Calibrator	277.4	279.4	api
	Calibrator	230.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 10748374	Reference Calibration Date:	17-Jan-13 13:03:23	
Engineer:	S. INGERSOLL	Calibration Date:	27-Jan-13 22:24:16	
Software Version:	WL INSITE R3.8.0 (Build 2)	Calibration Version:	1	
Calibrator Source S/N: TB-185 Calibrator API Reference:228.00 api Equivalent Calibrator API Reference:232.0 api				
	Field Verification	Shop	Field	Units
	Background	47.4	30.2	api
	Background + Calibrator	279.4	263.6	api
	Calibrator	232.0	233.4	api
	Shop	Field	Difference	Tolerance
	232.0	233.4	-1.4	+/- 9.00

DENSITY CALIPER SHOP CALIBRATION				
Tool Name:	SDLT - 10673803	Reference Calibration Date:	17-Jan-13 12:49:23	
Engineer:	T. HYDE	Calibration Date:	17-Jan-13 12:54:06	
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1	
Host Tool Name:	DSNT - 10735145			

	CALIBRATION COEFFICIENTS			
	Measurement	Previous Value	New Value	Control Limit On New Value
	Pad Offset	-4248.56	-4260.08	-7000.00 - -1000.00
	Pad Gain	0.0003791	0.0003793	0.000200 - 0.000600
	Arm Offset	-3809.03	-3741.95	-5000.00 - 3000.00
	Arm Gain	0.0005254	0.0005191	0.000300 - 0.000700
	Arm Power	-0.000005762	-0.000005410	-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)	3.75	3.75	0.00 +/- 0.20
	RING DIAMETER:			
	Small Ring (in)	6.49	6.50	0.01 +/- 0.20
	Medium Ring (in)	8.26	8.25	-0.01 +/- 0.20
	Large Ring (in)	15.01	15.00	-0.01 +/- 0.20

DSNT				
TPUL	Tension Pull	53.99	NO	
RNDS	Near Detector Telemetry Counts	54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.84	TRI	0.583
DNTT	DSN Tool Temperature	54.09	NO	
DSNS	DSN Tool Status	53.99	NO	
ERND	Near Detector Telemetry Counts EVR	54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR	54.09	NO	
SDLT				
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
BSAT				
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	
GMOD	Gain processing mode	19.83	NO	
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 Current Raw 12K X Receiver	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	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	

Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750

Data: DEVORE_D-110001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH1005 28-Jan-13 16:58 Up @5383.8f Date: 28-Jan-13 18:18:58

COMPANY	OXY USA INC.
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WELL	DEVORE D-1		
FIELD	PANOMA GAS AREA		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		ANNULAR HOLE VOLUME PLOT	