

HALLIBURTON		BOREHOLE VOLUME PLOT	
COMPANY WELL FIELD/BLOCK COUNTY STATE		LARAMIE ENERGY LLC CC-0697-03-13W GRAND VALLEY GARFIELD COLORADO	
Permanent Datum Log measured from Drilling measured from		Other Services:	
Date Run No. Depth - Driller Depth - Logger Bottom - Logged Interval Top - Logged Interval Casing - Driller Casing - Logger Bit Size Type Fluid in Hole Density PH Source of Sample Rm @ Meas. Temperature Rmf @ Meas. Temperature Rmc @ Meas. Temperature Source Rmf Rm @ BHT Time Since Circulation Time on Bottom Max. Rec. Temperature Equipment Recorded By Witnessed By		GL KB KB KB 30.0 ft above perm. Datum Elev. 8428.0 ft D.F. G.L. Sect. 3 Twp. 6S Rge. 9TW Elev. 8458.0 ft D.F. G.L.	
COMPANY WELL FIELD/BLOCK COUNTY STATE		LARAMIE ENERGY LLC CC-0697-03-13W GRAND VALLEY GARFIELD STATE COLORADO	

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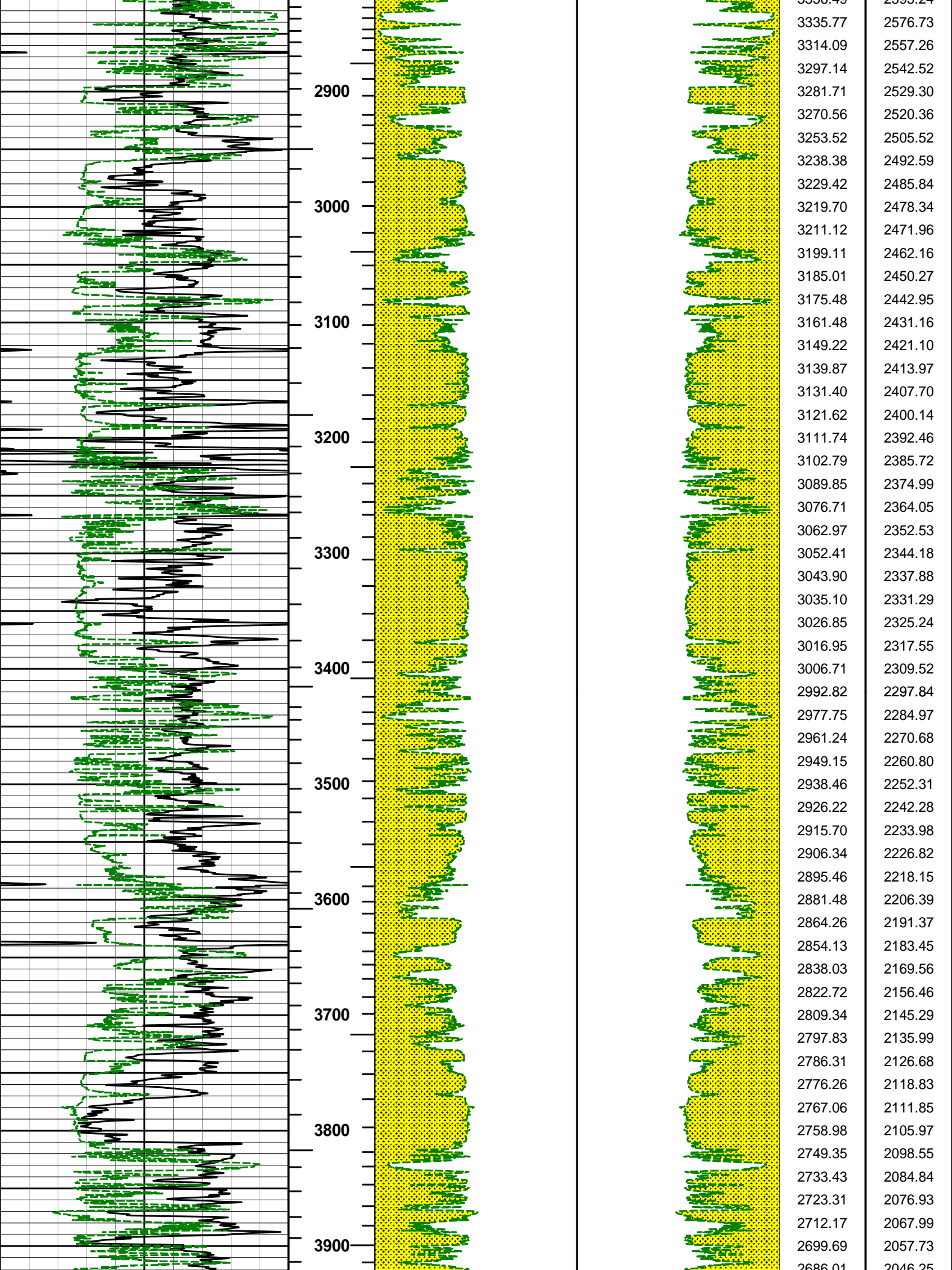
Service Ticket No.: 904906072				API No.: 050452379400				PGM Version: WL INSITE R5.6.5 (Build 2)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid in Hole															
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		SACRT		N/A		0.25 in S.O.		N/A	
Rmc @ Meas. Temp.		@		@				I: 12055741							
Source Rmf		Rmc						S:12055737							
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.		11577724		Serial No.				Serial No.		11790681		Serial No.		11790665	
Model No.		S4TG		Model No.				Model No.		SSDL		Model No.		SDSN	
Diameter		2.35 in		No. of Cent.				Diameter		2.35 in		Diameter		2.35 in	
Detector Model No.		S4TG		Spacing				Log Type		GAMMA		Log Type		THERMAL	
Type		SCINT						Source Type		Cs137		Source Type		Am241Be	
Length		8 in		LSA [Y/N]				Serial No.		5265GW		Serial No.		DSN-359	
Distance to Source		7 ft		FWDA [Y/N]				Strength		1.78 Ci		Strength		15 Ci	
LOGGING DATA															

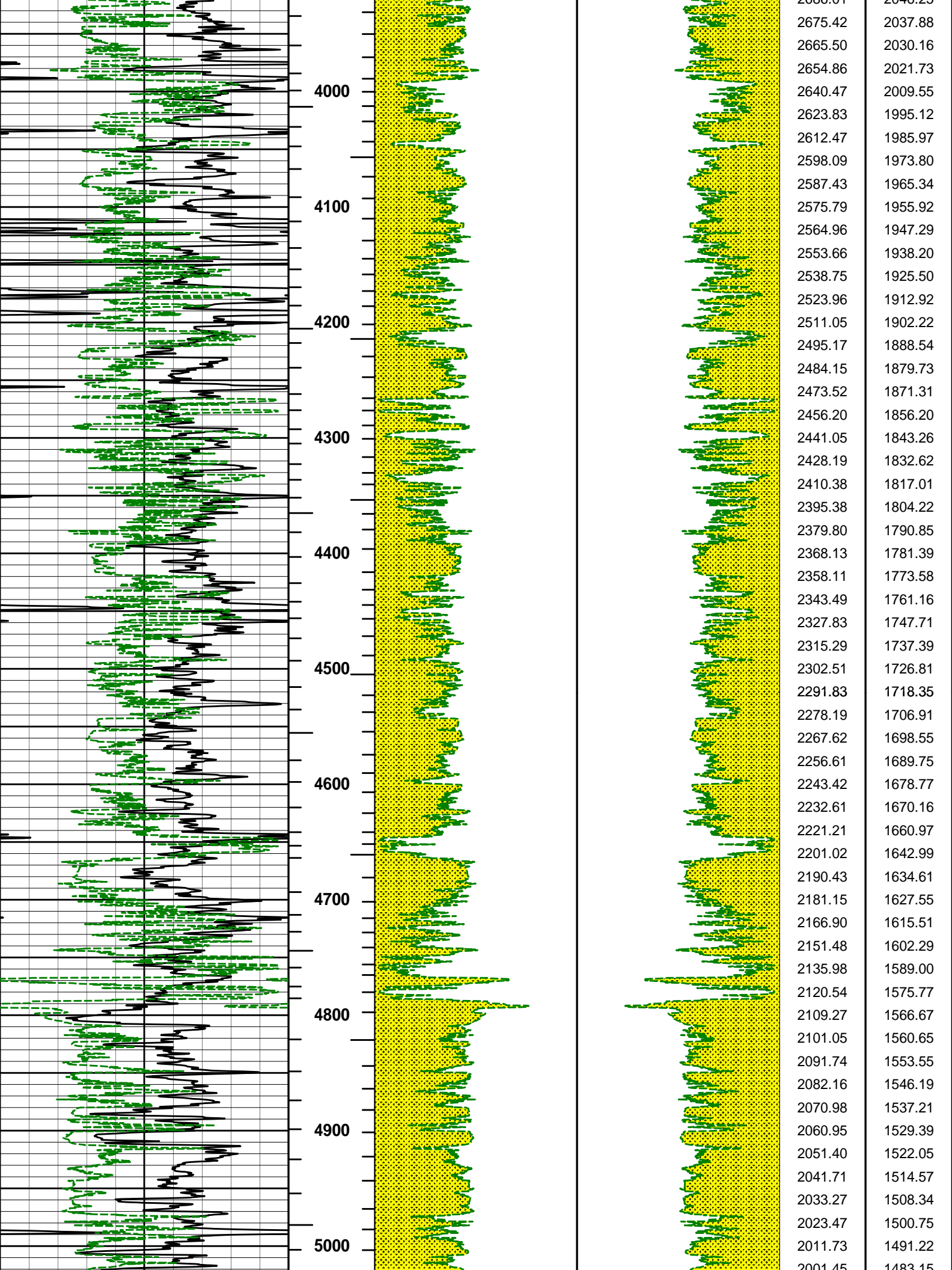
GENERAL				GAMMA		ACOUSTIC		DENSITY			NEUTRON				
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix	
No.	From	To	ft/min	L	R	L	R		L	R		L	R		
ONE	9739 ft	2606 ft	REC	0 api	150 api							30%	-10%	SAND	
ONE	2606 ft	100 ft	REC	0 api	150 api										
DIRECTIONAL INFORMATION															
Maximum Deviation								@	KOP						
Remarks: TOOL STRING CONFIGURATION: SBLT-C/SBLT-S/SMCSA/SBLT-B/SBLT-I/S4TG/SDSN/SSDL/SACRT/BN															
ANNULAR HOLE VOLUME CALCULATED USING 4.5-INCH CASING															
SDSN DECENTRALIZER AND SACRT STANDOFFS WERE NOT USED DUE TO CONVEYANCE METHOD															
DEPTH BASED ON DRILLER'S DEPTH AQUIRED THROUGH TOTCO															
ULTRASLIM SMART CONVEYANCE USED FOR LOGGING METHOD															
SSDL DATA NOT PRESENTED DUE TO A TOOL FAILURE DOWNHOLE															
LATITUDE: 39.558302 N															
LONGITUDE: 108.205146 W															
TODAY'S CREW: A. FULGHUM, T. CHASE, A. TATE								RIG: H&P 522							
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, ROCK SPRINGS, WY (307)352-8600															
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															

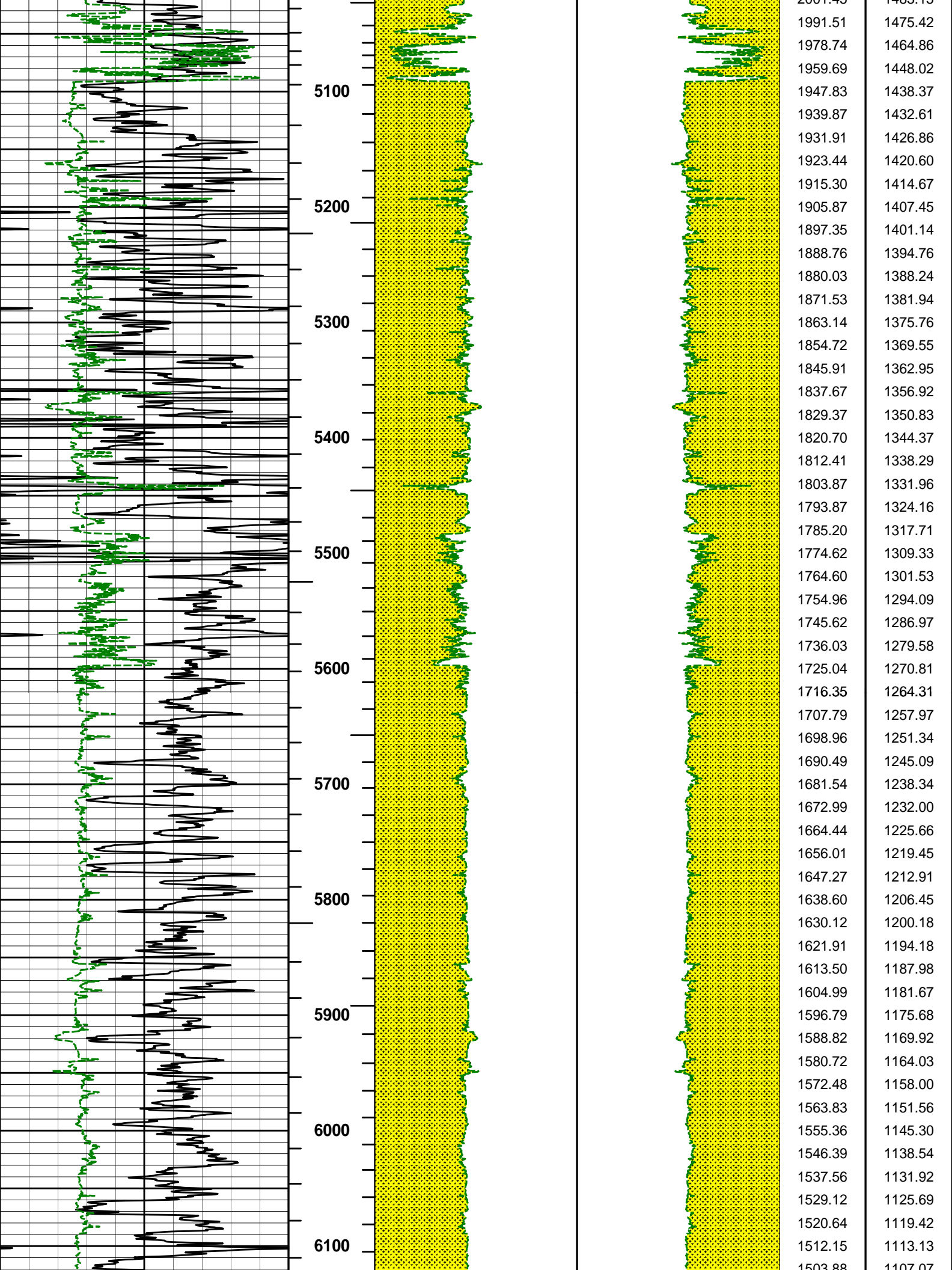
HALLIBURTON	Plot Time: 16-Jun-18 22:13:12
	Plot Range: 2580 ft to 9688.04 ft
	Data: L_CC0697_03_13W\Well Based\MAIN*
	Plot File: \\BHV\LARAMIE_BHV

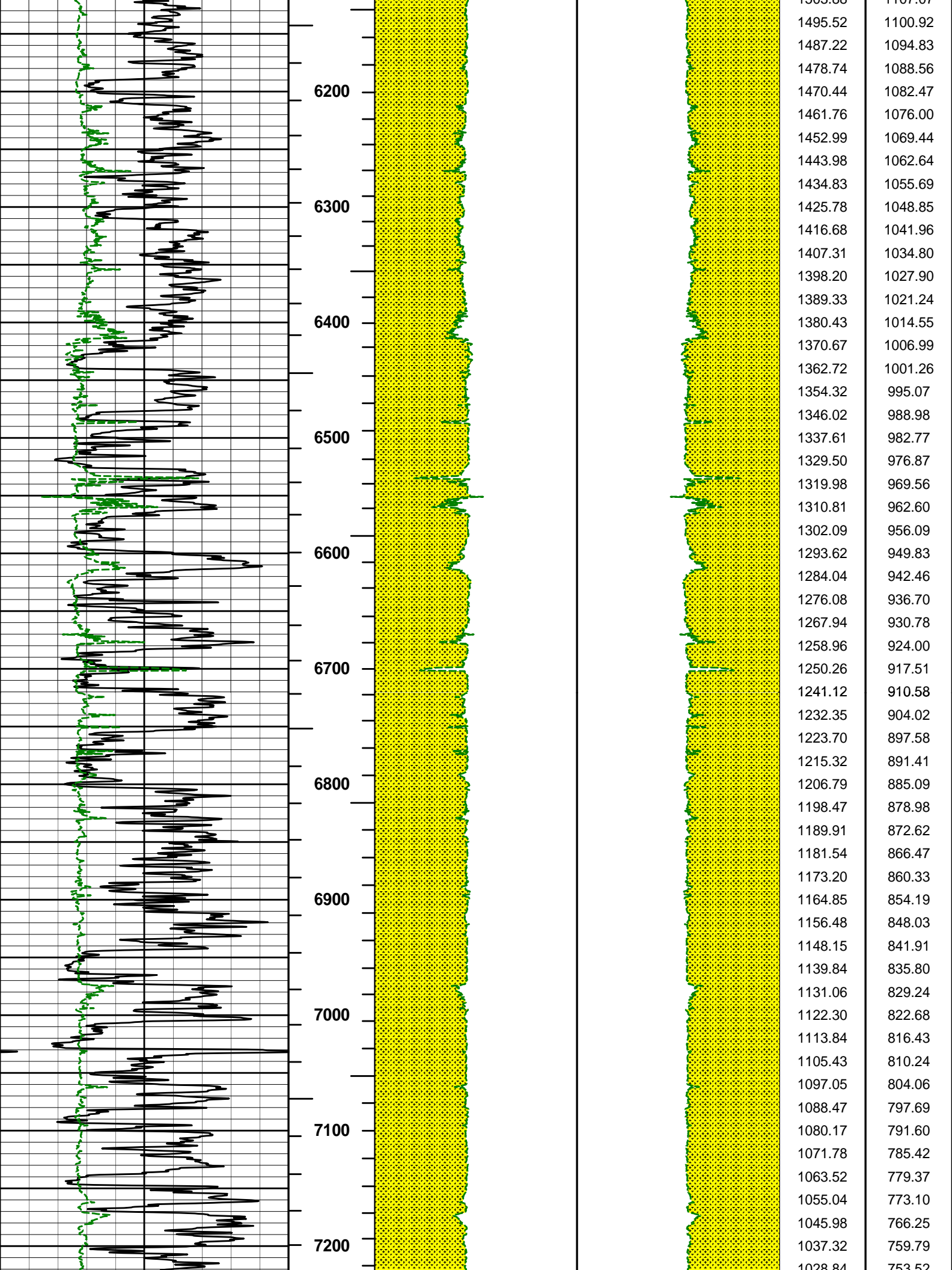
AHV USES 4.5" CASING											
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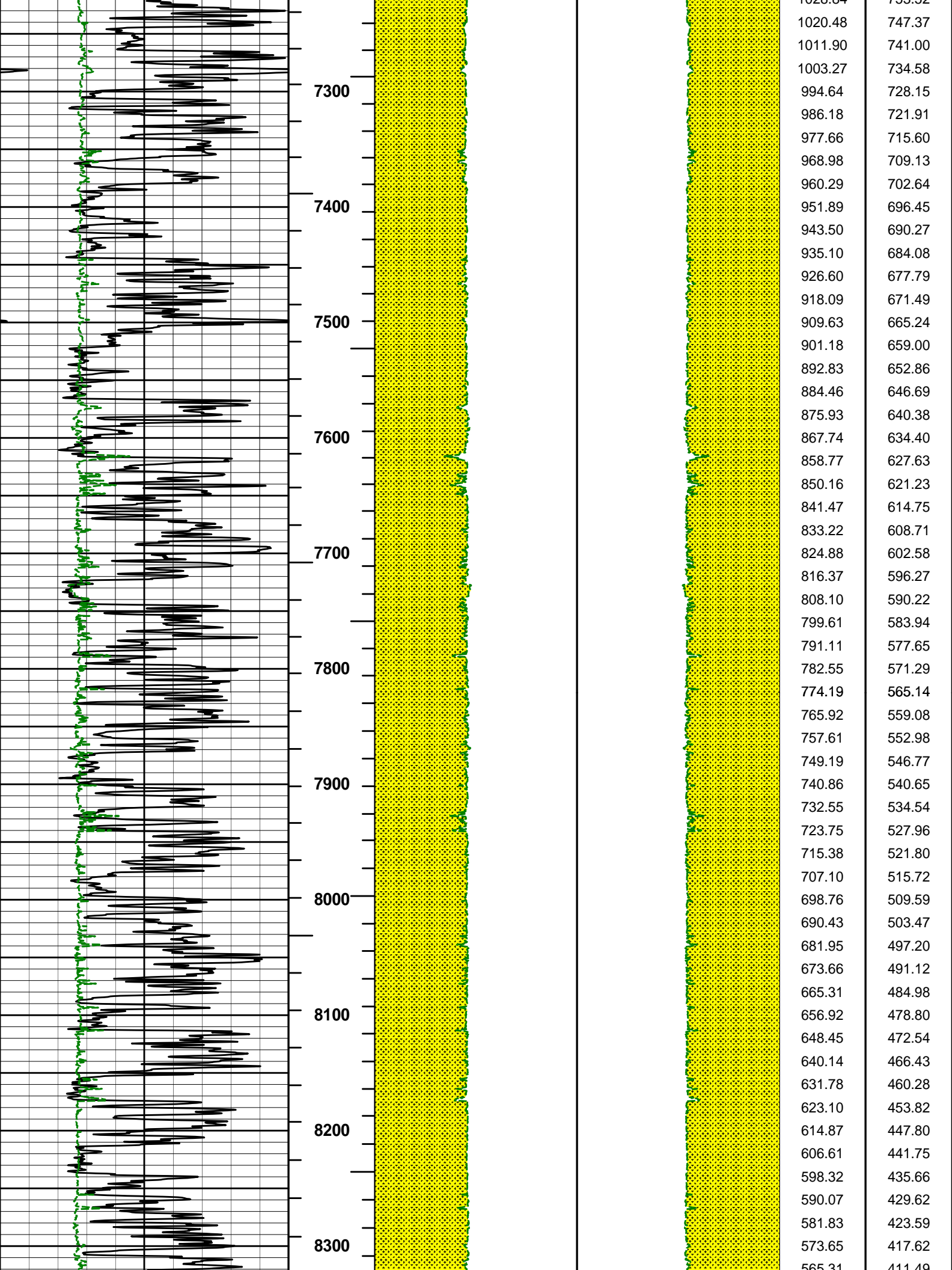
Caliper		AHVT	Casing OD		Casing OD			
inches								
0	Gamma API	150	BHVT	16	Caliper	0 0	Caliper	16
	api				inches		inches	
4	Bit Size	14	1 : 1200	16	Bit Size	0 0	Bit Size	16
	inches				inches		inches	
			2600				3542.18	2756.64
							3530.95	2747.61
							3519.15	2738.02
							3504.50	2725.58
							3482.25	2705.54
			2700				3458.65	2684.14
							3436.96	2664.67
							3424.37	2654.29
							3405.06	2637.19
							3388.12	2622.45
			2800				3374.49	2611.03
							3356.49	2595.24

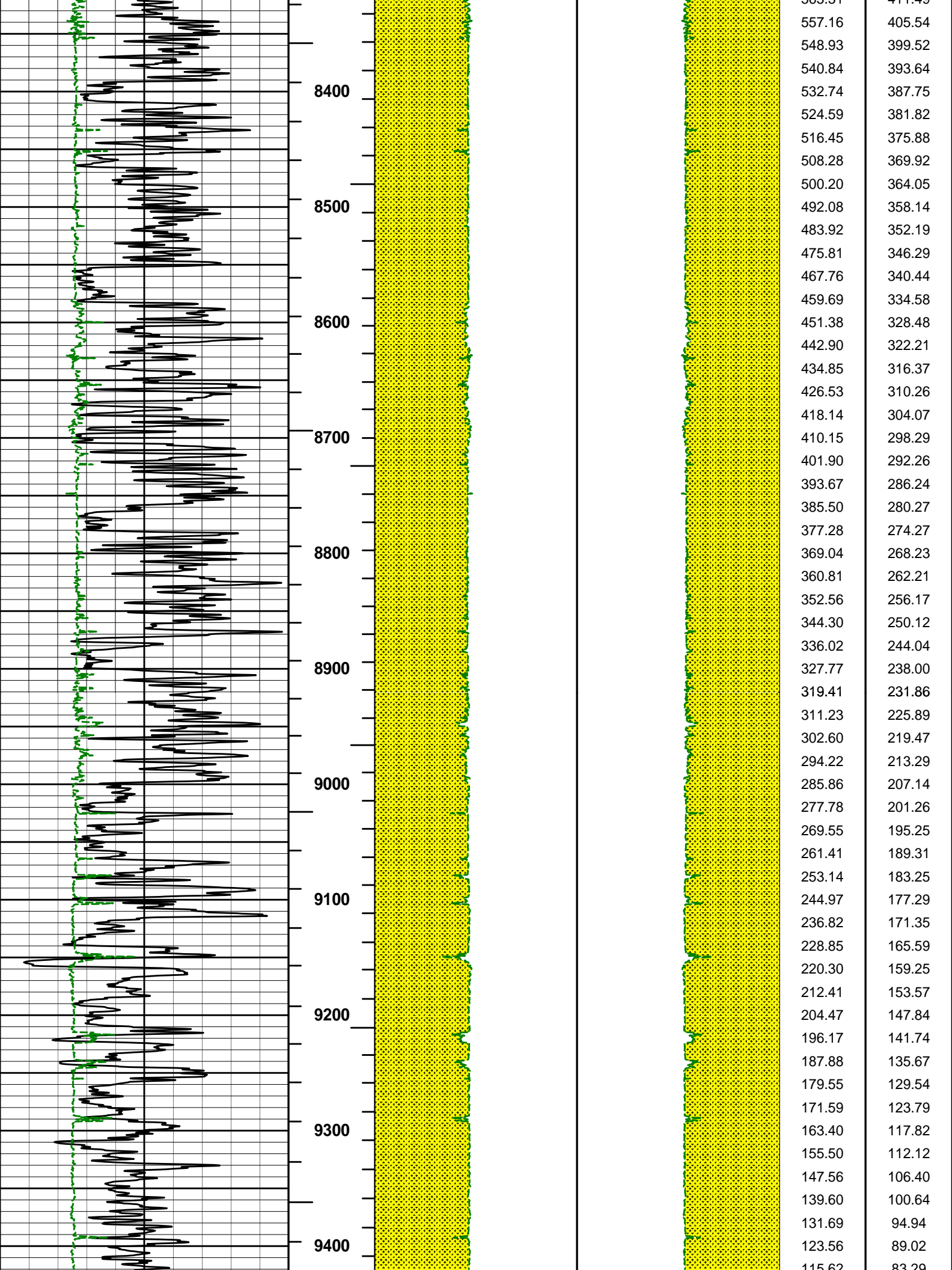


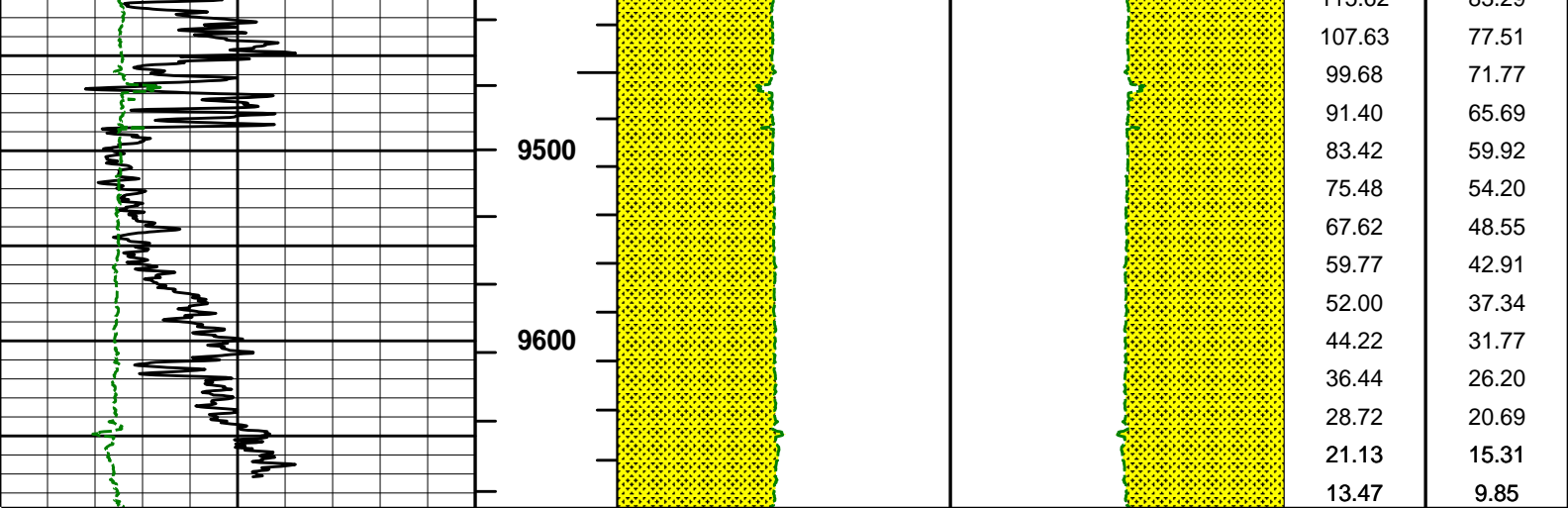












4	Bit Size inches	14	1 : 1200	16	Bit Size inches	0 0	16	Bit Size inches	16	BHVT	AHVT
0	Gamma API	150	BHVT	16	Caliper inches	0 0	16	Caliper inches	16		
6	Caliper inches	16	AHVT		Casing OD			Casing OD			

HALLIBURTON Plot Time: 16-Jun-18 22:13:28
Plot Range: 2580 ft to 9688.04 ft
Data: L_CC0697_03_13W\Well Based\MAIN*
Plot File: \\BHVL\ARAMIE_BHV

AHV USES 4.5" CASING

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length	
SBLT-C-11974791 31.00 lbs		Ø 2.350 in →			3.32 ft	73.31 ft	
SBLT-S-11974784 42.00 lbs		Ø 2.350 in →			2.88 ft	69.99 ft	
SMCSA-12075178 57.00 lbs		Ø 2.350 in →			4.65 ft	67.11 ft	
						62.46 ft	
SBLT-B-12006177 85.00 lbs		Ø 2.350 in →			8.01 ft		

SBLT-I-11974782
55.00 lbs

Ø 2.350 in →

54.45 ft
6.12 ft
48.33 ft

S4TG-11577724
70.00 lbs

Ø 2.350 in →

9.77 ft

← GammaRay @ 39.61 ft

38.56 ft

SDSN-11790665
74.00 lbs

Ø 2.350 in →

7.96 ft

← DSN Far @ 32.70 ft

← DSN Near @ 31.85 ft

30.60 ft

SSDL-11790674
140.00 lbs

SSDL Pad-11790681
65.00 lbs

Ø 2.350 in →

Ø 4.750 in* →

SDL Arm Caliper @ 23.49 ft
SDL Pad Caliper @ 23.42 ft
SDL @ 23.00 ft

12.27 ft

18.33 ft

SACRT Instrument-
12055741
50.00 lbs

Ø 2.350 in →

5.03 ft

← Mud Resistivity @ 13.19 ft

13.30 ft

SACRT Sonde-
12055737
58.00 lbs

Ø 2.350 in →

12.97 ft

SP Ring-12055737

Ø 3.625 in*

SD @ 1.01 ft

0.00 lbs		Ø 2.350 in		SP @ 1.61 ft		0.33 ft		0.33 ft		0.00 ft			
SBLNS-11335318 3.00 lbs													
Mnemonic		Tool Name		Serial Number		Weight (lbs)		Length (ft)		Accumulated Length (ft)		Max.Log. Speed (fpm)	
SBLT-C	Ultra-Slim Hole Motorized Releasable Sub		11974791		31.00		3.32		69.99		300.00		
SBLT-S	Ultra-Slim Hole Shock Sub		11974784		42.00		2.88		67.11		300.00		
SMCSA	Ultra-Slim Hole Multi Conductor Swivel		12075178		57.00		4.65		62.46		300.00		
SBLT-B	Ultra-Slim Hole Battery Sub		12006177		85.00		8.01		54.45		300.00		
SBLT-I	Ultra-Slim Hole Sensor / Inverter Sub		11974782		55.00		6.12		48.33		300.00		
S4TG	Ultra-Slim Quad Telemetry Gamma Cartridge		11577724		70.00		9.77		38.56		60.00		
SDSN	Ultra-Slim Hole Dual Spaced Neutron		11790665		74.00		7.96		30.60		60.00		
SSDL	Ultra-Slim Hole Spectral Density		11790674		140.00		12.27		18.33		60.00		
SDLP	Slim Density Pad		11790681		65.00		2.55 *		21.72		60.00		
SACRT	Array Compensated True Resistivity Instrument Section		12055741		50.00		5.03		13.30		120.00		
SACRT	Array Compensated True Resistivity Sonde Section		12055737		58.00		12.97		0.33		120.00		
SP	SP Ring		12055737		0.00		0.25 *		1.61		300.00		
SBLNS	Ultra-Slim Bull Nose		11335318		3.00		0.33		0.00		300.00		
Total					730.00		73.31						
* Not included in Total Length and Length Accumulation.													
Date: L_CC0697_03_13W0001 USC\004.01 16-Jun-18 19:11 Up													
Date: 16-Jun-18 21:59:04													

COMPANY	LARAMIE ENERGY LLC		
WELL	CC-0697-03-13W		
FIELD	GRAND VALLEY		
COUNTY	GARFIELD	STATE	COLORADO
HALLIBURTON		BOREHOLE VOLUME PLOT	