



Company: CRESTONE PEAK RESOURCES OPERATING LLC

Well: Cosslett 1C-22H-B168

Field: Wattenberg

County: WELD State: COLORADO

CASING BOND LOG
CBL/VDL/CCL/GR

County:	WELD
Field:	Wattenberg
Location:	NWNE 22 1n68w 6 PM
Well:	Cosslett 1C-22H-B168
Company:	CRESTONE PEAK RESOURCES OPERATING LLC
Location:	
NWNE 22 1n68w 6 PM	Elev.: K.B. 5197.00 ft G.L. 5174.00 ft D.F. 5197.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 22
05-123-47671	Township: 1N
	Range: 68w

Logging Date	24-Oct-2018
Run Number	one
Depth Driller	550.00 ft
Schlumberger Depth	550.00 ft
Bottom Log Interval	510.00 ft
Top Log Interval	50.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	17.50 in
From	0.00 ft
To	550.00 ft
Casing/Tubing Size	13.375 in
Weight	54.5 lbm/ft
Grade	J55
From	0.00 ft
To	550.00 ft
Max Recorded Temperatures	
Logger on Bottom	Time
Unit Number	Location: 2377
Recorded By	C.STILES
Witnessed By	

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

Contents

- Header
- Disclaimer
- Contents
- Well Sketch
- Borehole Size/Casing/Tubing Record
- Remarks and Equipment Summary
- Depth Summary
- one
 - Integration Summary
 - Software Version
 - Composite Summary
 - Log (Sonic Fluid-Compensated CBL with VDL)
 - Parameter Listing
- Calibration Report
- Tail

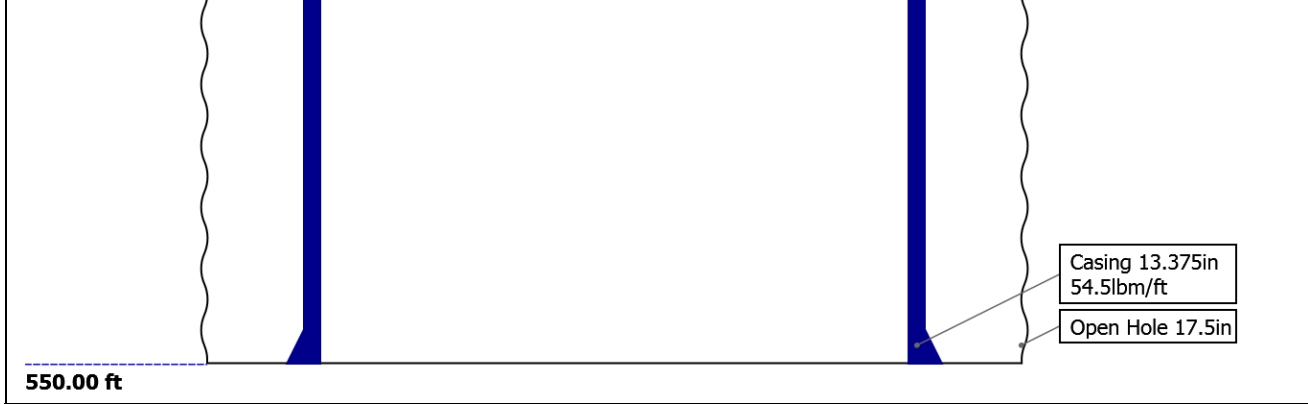
--	--

Well Sketch

Driller Depth

0.00 ft



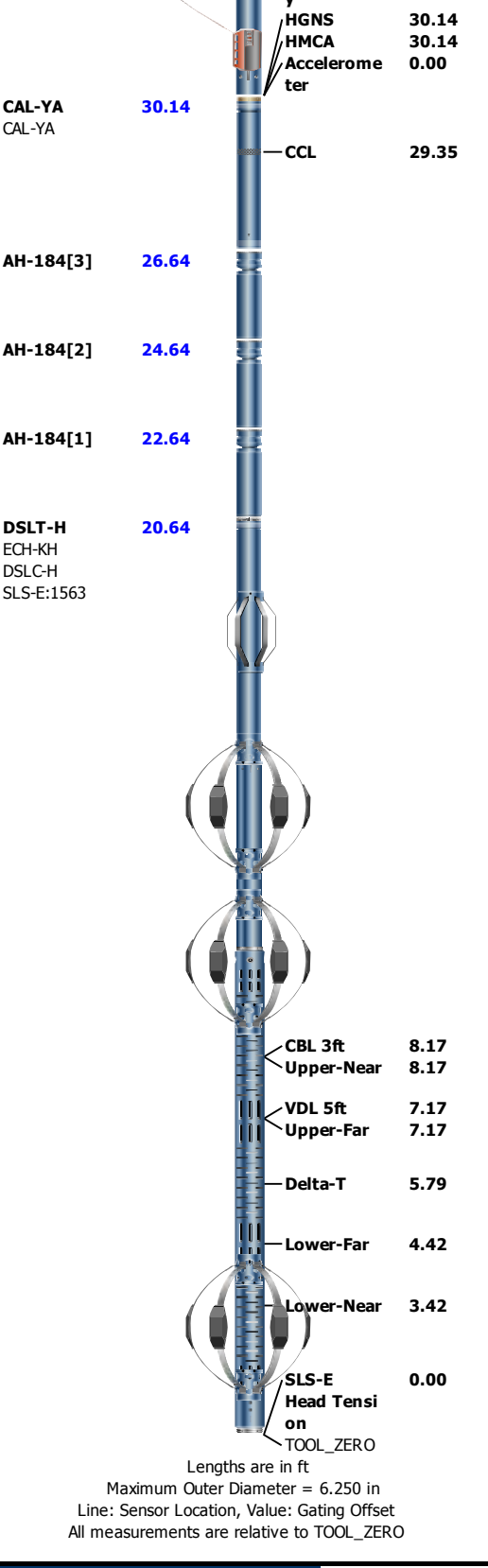


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	17.5					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	550					
Bottom Logger (ft)	550					
Casing						
Size (in)	13.375					
Weight (lbm/ft)	54.5					
Inner Diameter (in)	12.615					
Grade	J55					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	550					
Bottom Logger (ft)	550					

Remarks and Equipment Summary

one: Toolstring				one: Remarks	
Equip name	Length	MP name	Offset		
LEH-QT	49.53				
EDTC-B	46.05				
EDTH-B:9373					
EDTG-A					
EDTC-B					
		CTEM	42.55		
		ACCZ	0.00		
		HV	0.00		
		Gamma Ray	40.68		
		TelStatus	39.55		
		Temperature	39.52		
HGNS-H	39.55				
HGNH					
NPV-N					
NSR-F					
HACCZ-H					
HGNS-H					
HMCA-H					
		GR	38.81		
		CNL Porosit	32.47		



Depth Summary

	one		
--	-----	--	--

Depth Measuring Device

Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Type	7-46PI-XS		
Serial Number			
Length	20000.00 ft		
Conveyance Type	Wireline		
Rig Type			

Depth Control Remarks

Log Sequence	First Log In the Well	
Rig Up Length At Surface		
Rig Up Length At Bottom		
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

one

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
one	Log[4]:Up	Up	49.76 ft	523.14 ft	24-Oct-2018 5:30:50 AM	24-Oct-2018 5:41:23 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

Log	Company:CRESTONE PEAK RESOURCES OPERATING LLC	Well:Cosslett 1C-22H-B168
		one: Log[4]:Up:S004

Description: CBL_Fluid_Compensated Format: Log (Sonic Fluid-Compensated CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Oct-2018 15:21:36

└ BIEP - Bond Index Event Pips DSLT-H

TIME_1900 - Time Marked every 60.00 (s)

Casing Collar Locator Amplitude (CCL) CAL-YA
-9 1

Gamma Ray (ECGR_EDTC) EDTC-B	
0	150
gAPI	

Borehole Diameter (GHD) RT

6 in 16

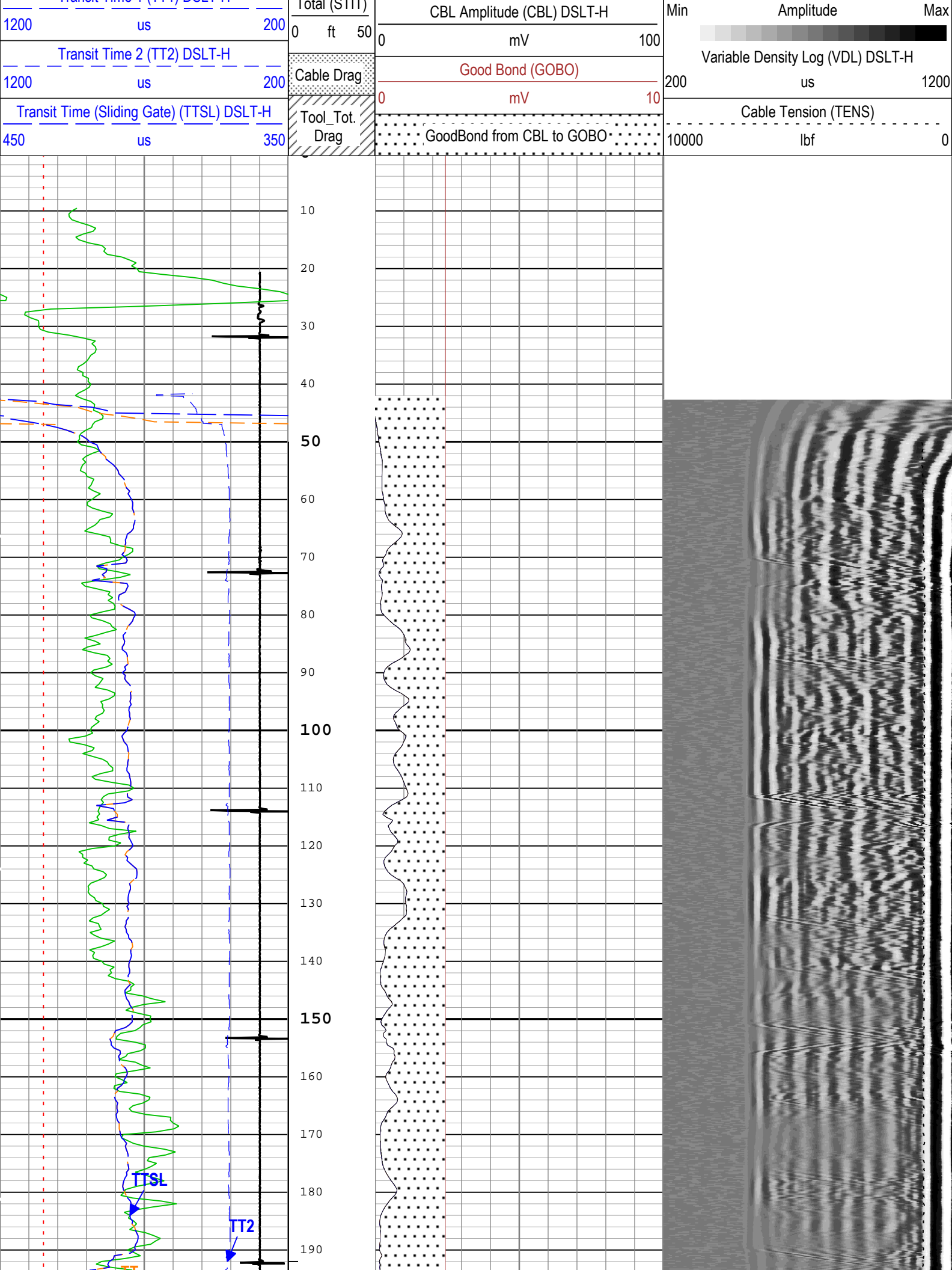
Transit Time for CBL (TT) DSLT-H

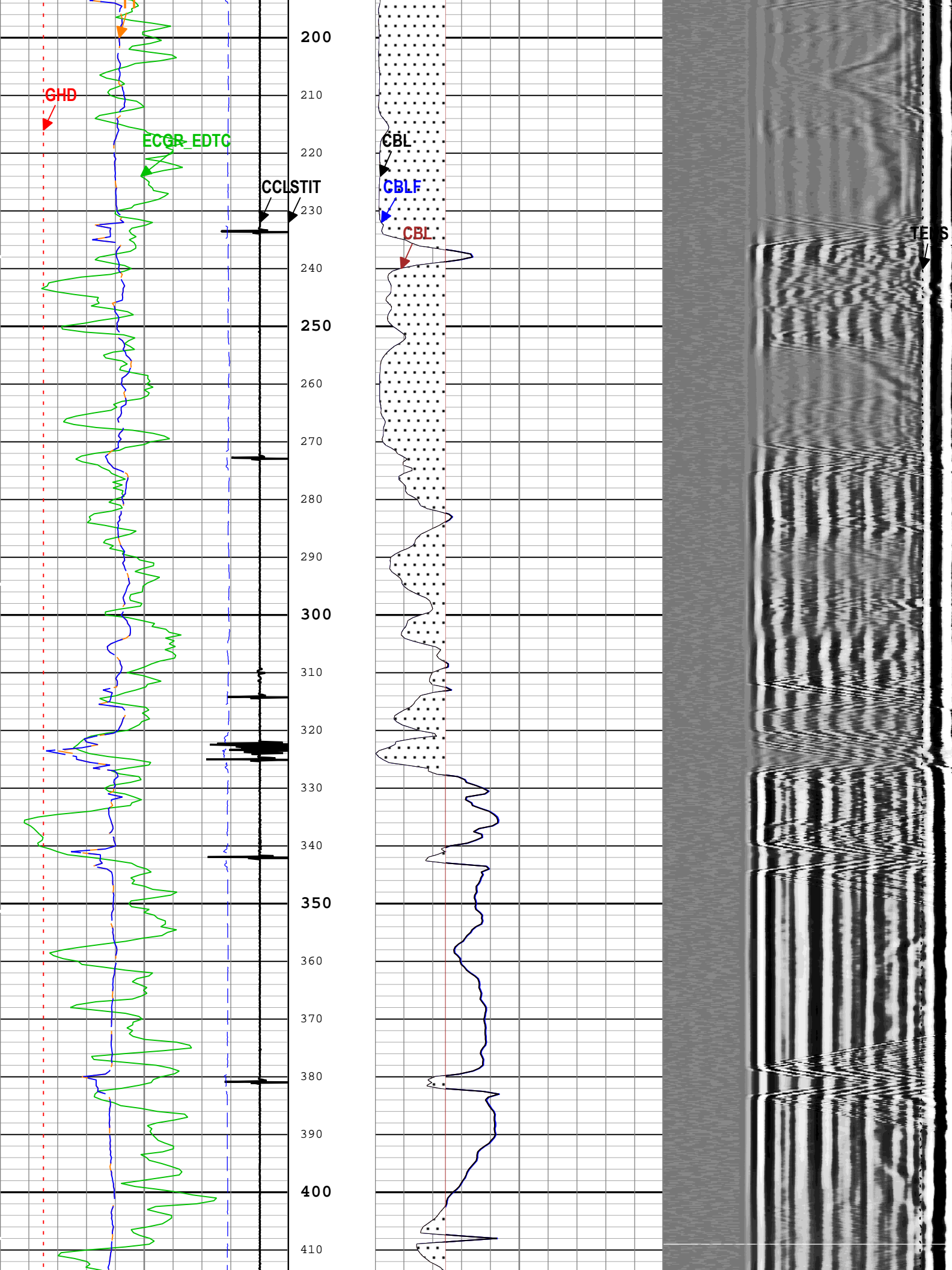
450 us 350

Transit Time 1 (TT1) DSLT-H

CBL Amplitude (CBL) DSLT-H		
0	mV	100
CBL Amplitude (Fluid Compensated) (CBLF) DSLT-H		
0	mV	100

Stuck Tool
Indicator,
Tool (STIT)





DTFS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	17.5	in
CBLG	CBL Gate Width	DSLTH	Time Zoned	us
CBLO	Casing Bottom (Logger)	WLSESSION	550	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	43	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA	1	
CDEN	Cement Density	EDTC-B	2	g/cm3
DETE	Delta-T Detection	DSLTH	E1	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLTH	2.43	mV
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLTH	11.3	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLTH	21.68	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLTH	49	
MSA	Minimum Sonic Amplitude	DSLTH	1.19	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLTH	1.19	mV
NMSG	Near Minimum Sliding Gate	DSLTH	351	us
SGAD	Sliding Gate Status	DSLTH	Off	
SGDT	Sliding Gate Delta-T	DSLTH	57	us/ft
SLEV	Signal Level for AGC	DSLTH	2000	mV

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CBLG	97	24-Oct-2018 05:30:50	24-Oct-2018 05:31:16	523.14	510.87
CBLG	77	24-Oct-2018 05:31:16	24-Oct-2018 05:31:17	510.87	509.8
CBLG	81	24-Oct-2018 05:31:17	24-Oct-2018 05:31:19	509.8	507.76
CBLG	87	24-Oct-2018 05:31:19	24-Oct-2018 05:41:23	507.76	49.76

All depth are at tool zero.

Tool Control Parameters

one: Parameters				
Parameter	Description	Tool	Value	Unit
MODE	DSLTH Acquisition Mode	DSLTH	CBL	
RATE	DSLTH Firing Rate	DSLTH	15 Hz	
DTFS	DSLTH Telemetry Frame Size	DSLTH	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
SGAI	Selectable Acquisition Gain	DSLTH	x1	

Calibration Report

DSLTH (Digitizing Sonic Logging Tool - H) Calibration - Run one			
Primary Equipment :			
Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL		SLS-E	1563

CBL Normalization - CBL Accumulations							
Master (Measured):		09:56:52 29-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude		Master	4200.0	3200.0	3230.1		
Upper Near Raw Amplitude	mV	Master	33.000	27.000	33.807	43.000	
Lower Far Amplitude		Master	4200.0	3200.0	4360.3		
Lower Near Raw Amplitude	mV	Master	46.000	27.000	42.780	68.000	

CBL Normalization - CBL/VDL Coefficients

Master (Measured):		09:56:52 29-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	3.431	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	2.712	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		1.350		
CBL Free Pipe Adjustment - Free Pipe Measurement							
Before (Measured):		05:27:59 24-Oct-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude	mV	Before	60.00	15.00	54.06	174.00	
CBL Reference Amplitude (CBRA)	mV	Before			43.00		
Measurement Depth	ft	Before			372.13		
CBL Free Pipe Adjustment - CBL Amplitude Coefficient							
Before (Measured):		05:27:59 24-Oct-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	0.795	5.000	
Depth of Before Calibration	ft	Before			372.13		

Field:	Wattenberg
County:	WELD
State:	COLORADO

CASING BOND LOG

CBL/VDL/CCL/GR