

Logging Date	15-Feb-2012		
Run Number	TWIN CREEK 12-5A2 (F12E)		
Depth Driller	1149.00 ft		
Schlumberger Depth	1036.00 ft		
Bottom Log Interval	1027.00 ft		
Top Log Interval	30.00 ft		
Casing Fluid Type	Water		
Salinity	34972.17 ppm		
Density	8.4 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	12.25 in		
From	0.00 ft		
To	1036.00 ft		
Casing/Tubing Size	9.625 in		
Weight	36.5 lbm/ft		
Grade	N/A		
From	0.00 ft		
To	1104.00 ft		
Max Recorded Temperatures			
Logger on Bottom	63 degF		
Unit Number	Time	07:14:37	
Recorded By	Location:	2211	VERNAL
Witnessed By	SCHAAF/HOSSAIN		
UNATTENDED			

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Operational Run Summary

Parameter (unit)	TWIN CREEK 12-5A2 (F12E)					
Date Log Started	15-Feb-2012					
Time Log Started	07:10:55					
Date Log Finished	15-Feb-2012					
Time Log Finished	07:59:08					
Top Log Interval (ft)	30.00					
Bottom Log Interval (ft)	1027.00					
Total Depth (ft)	1036.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	12.250					
Logging Unit Number	2211					
Logging Unit Location	VERNAL					
Recorded By	SCHAAF/HOSS AIN					
Witnessed By	UNATTENDED					
Service Order Number	BY8P-00015					

Borehole Fluids

Parameter(unit)	TWIN CREEK 12-5A2 (F12E)					
Fluid Type	Water					
Max Recorded Temperatures (degF)	63					
Salinity (ppm)	34972.17					
Density (lbm/gal)	8.4					
Date Logger on Bottom	15-Feb-2012					
Time Logger on Bottom	07:14:37					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

TWIN CREEK 12-5A2 (F12E): Toolstring				TWIN CREEK 12-5A2 (F12E): Remarks	
<div><div><div>Equip name</div><div>LEH-QT:2603</div><div>LEH-QT:2603</div></div><div><div>Length</div><div>39.92</div></div><div><div>MP name</div><div></div></div><div><div>Offset</div><div></div></div></div>					



HGNS-H:3799 30.5
HGNH:2795
NPV-N
NSR-F
HACCZ-H
HGNS-H:3799
HMCA-H

Temperature 30.47
GR 29.76

PRINT TOOL FOR TOOLSTRING
SCHLUMBERGER!!

CNL Porosity 23.42
HGNS 21.09
HMCA 21.09
Accelerometer 0.00

DSLTH-H 21.09
ECH-KH
DSLCH-H
SLS-E



BNS-STD 0.46

SLS-E 0.46
Head Tension
TOOL_ZERO

Lengths are in ft

Maximum Outer Diameter = 6.250 in

Line: Sensor Location, Value: Gating Offset

All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	TWIN CREEK 12-5A2 (F12E)		
Conveyance Type	Wireline		
Log Sequence	FIRST RUN IN HOLE		
Rig Type	LAND		
Depth Remark Parameters	TWIN CREEK 12-5A2 (F12E)		
Depth Remark 1	ALL SCHLUMBER DEPTH CONTROL PROCEDURES FOLLOWED		
Depth Remark 2	IDW USED AS PRIMARY DEPTH CONTROL		
Depth Remark 3	Z-CHART USED SECONDARY DEPTH CONTROL		
Depth Measuring Device	TWIN CREEK 12-5A2 (F12E)		
Type	IDW-B		
Serial Number	6122		
Calibration Date	11-OCT-2011		
Calibrator Serial Number	33		

Calibration Cable Type	7-46A XS		
Wheel Correction 1	-6		
Wheel Correction 2	-5		
Tension Device	TWIN CREEK 12-5A2 (F12E)		
Type	CMTD-B/A		
Serial Number	2054		
Calibration Date	04-FEB-2012		
Calibrator Serial Number	6105158		
Calibration Points	10		
Calibration RMS	15		
Calibration Peak Error	32		
Logging Cable	TWIN CREEK 12-5A2 (F12E)		
Type	7-46A-XS		
Serial Number	710065		
Logging Cable Length (ft)	16700.00		

TWIN CREEK 12-5A2 (F12E)

MAIN PASS - 5 INCH

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
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Software Version

Acquisition System	Version
MaxWell	3.0.9609.0
Application Patch	SP-20111012-3.0.9609.1274
	EXP_APL-SEC-3.0.9609.1645

Computation	Description		Version
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and Channels		3.0.9609.1274
Tool Elements	Description	Software Version	Firmware Version
CAL-YA	Casing Anomaly Locator 3-3/8 in 31 Pin Heads	3.0.9609.0	
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	3.0.9609.0	
SLS-E	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	3.0.9609.1274	

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
TWIN CREEK 12-5A2 (F12E)	Log[3]:Up	Up	30.00 ft	1041.25 ft	15-Feb-2012 7:33:03 AM	15-Feb-2012 7:50:23 AM	0.00 ft	false

All depths are referenced to toolstring zero

LogTWIN CREEK 12-5A2 (F12E): Log[3]:Up D8B9E3F0-CF05-4024-91EB-581EEEB84220

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Feb-2012 09:31:55

Channel	Source	Sampling
TT	DSLT-H:SLS-E:SLS-E	6in
BIEP	DSLT-H:SLS-E:SLS-E	6in
CBL	DSLT-H:SLS-E:SLS-E	6in
CCL	CAL-YA:CAL-YA:CAL-YA	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
TENS	WLWorkflow	1in
TIME_1900	WLWorkflow	0.1in

TIME_1900 - Time Marked every 60.00 (s)

⌊ BIEP - Bond Index Event Pins DSI T-H

Cable
Tension
(TENS)
4000 lbf 0

Casing Collar
Locator
Amplitude
(CCL)
CAL-YA

CBL Amplitude (CBL) DSLT-H
0 mV 50

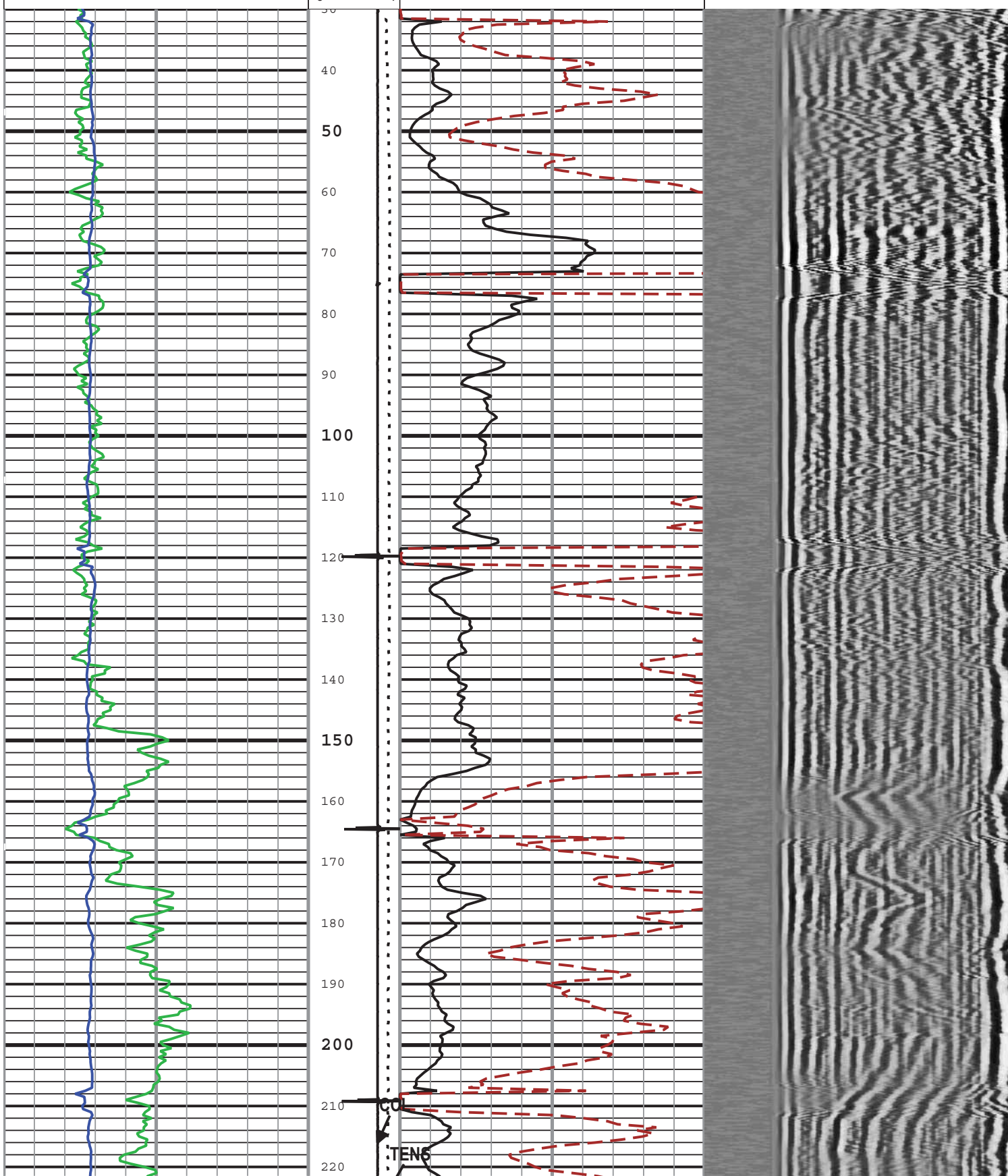
CBL Amplitude (CBL) DSLT-H
0 mV 10

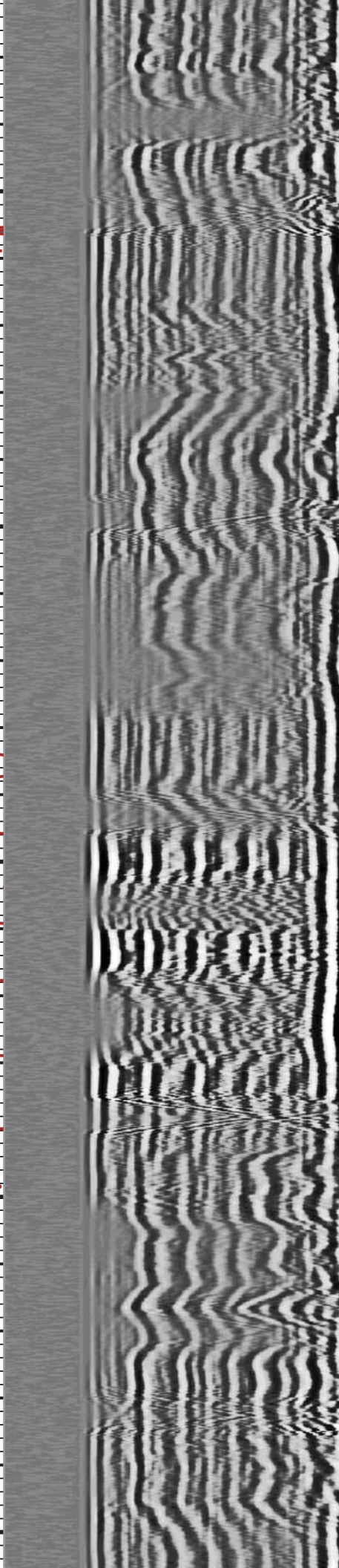
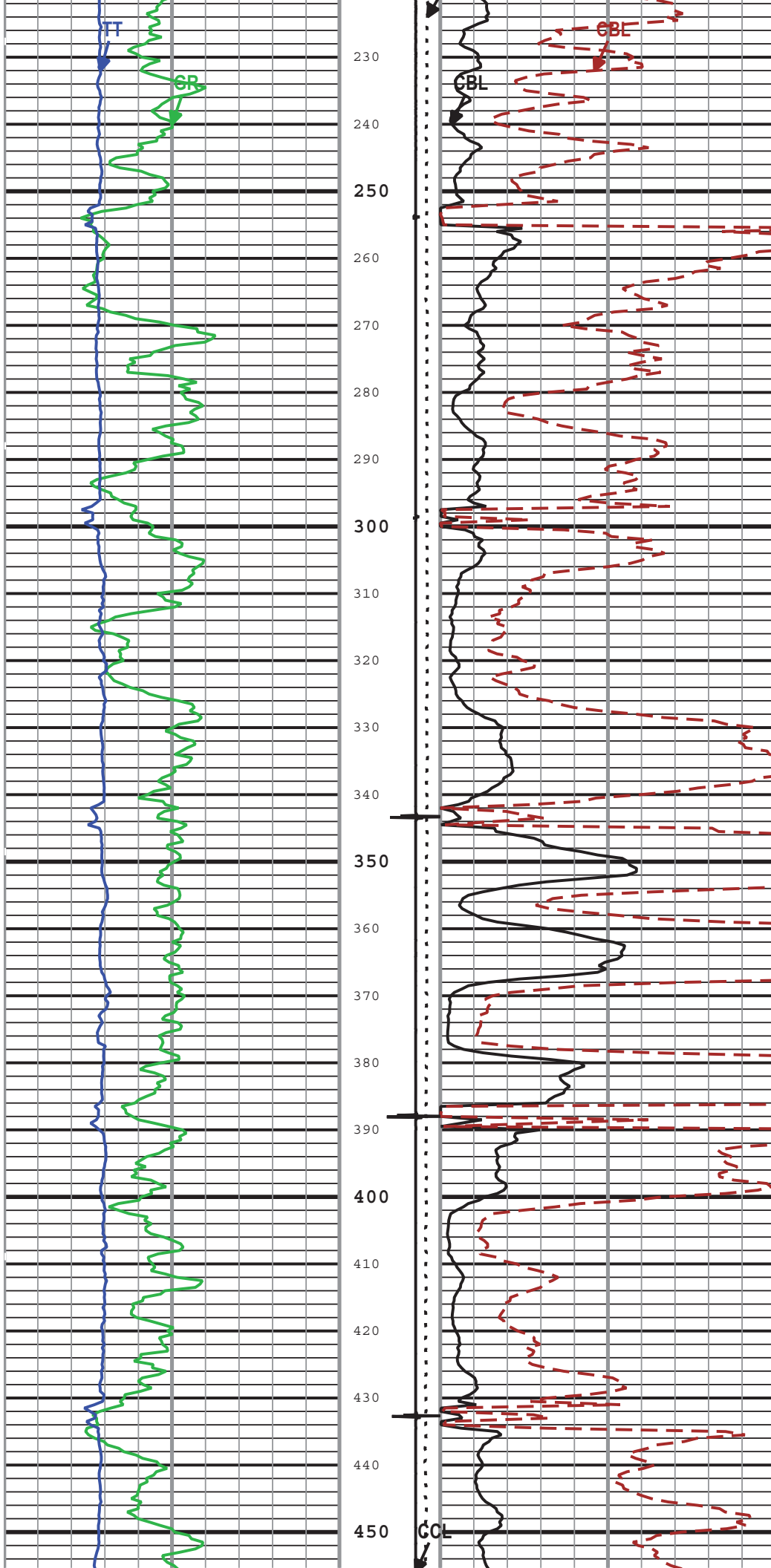
Min Amplitude Max

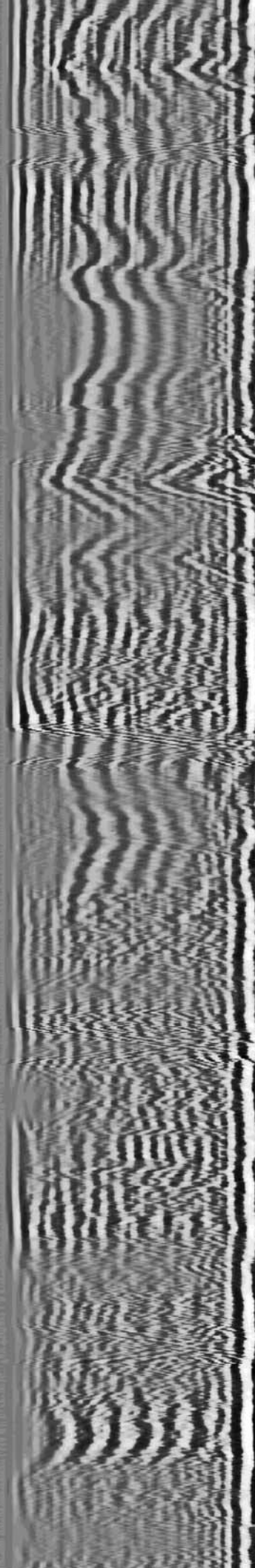
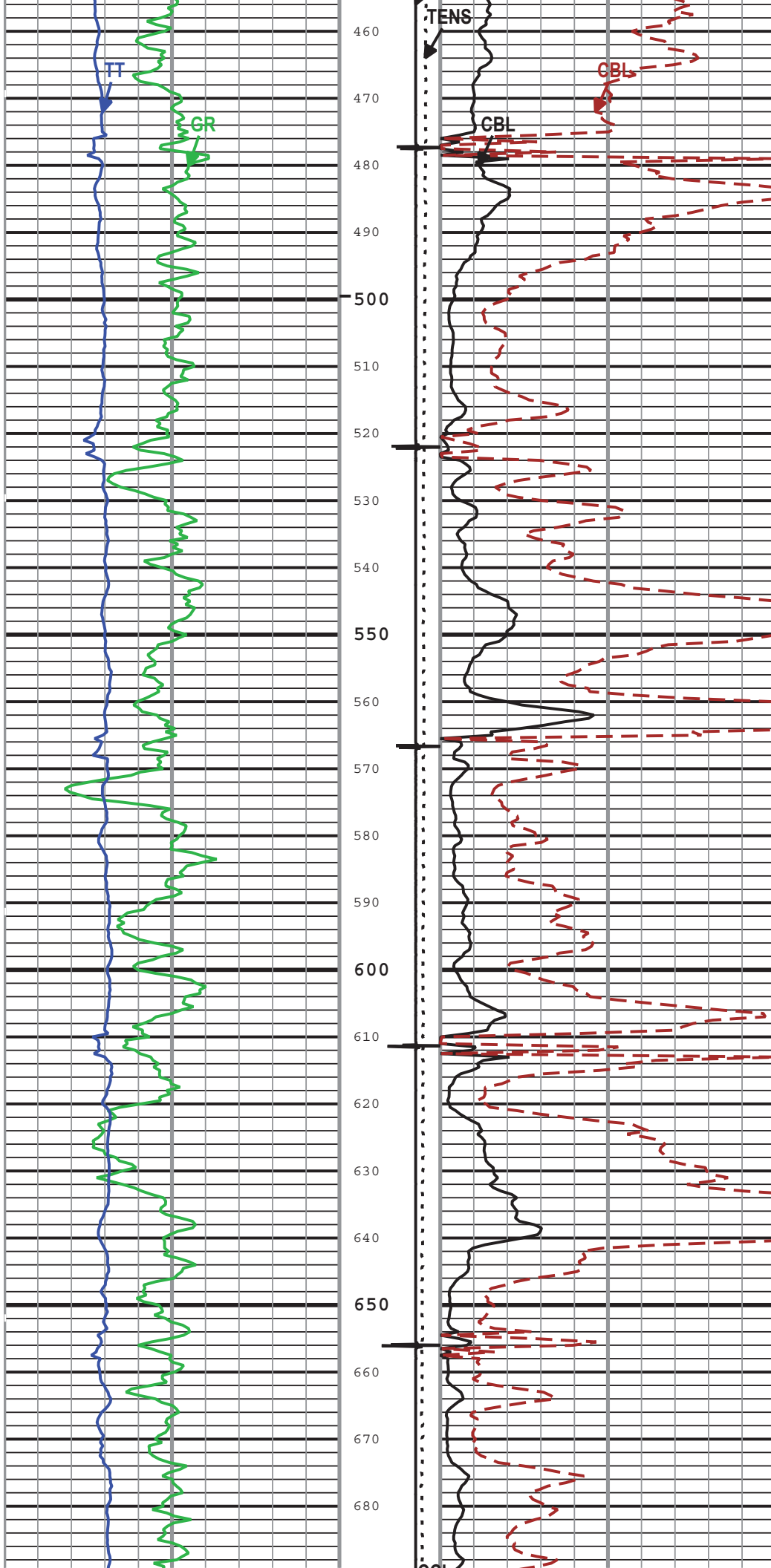
Variable Density Log (VDL) DSLT-H
200 us 1200

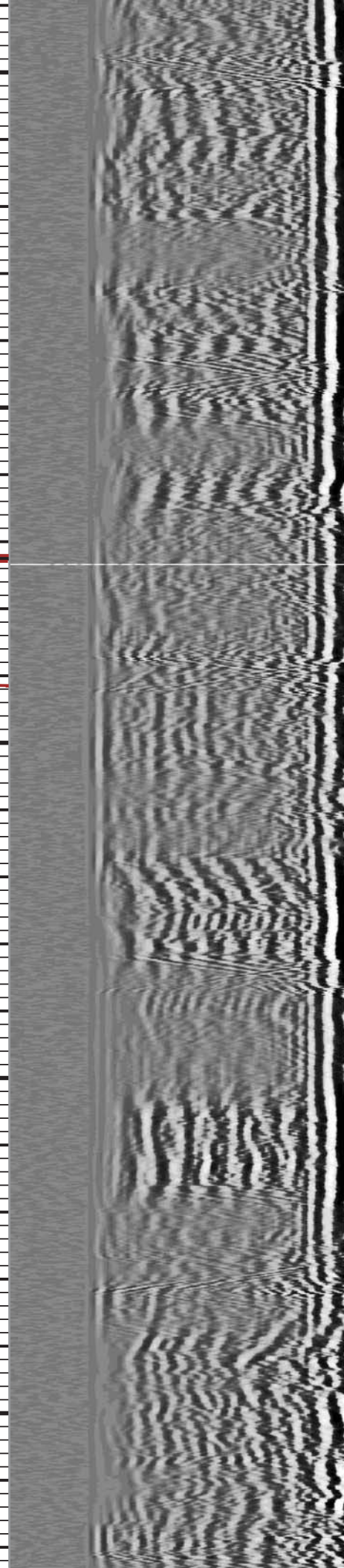
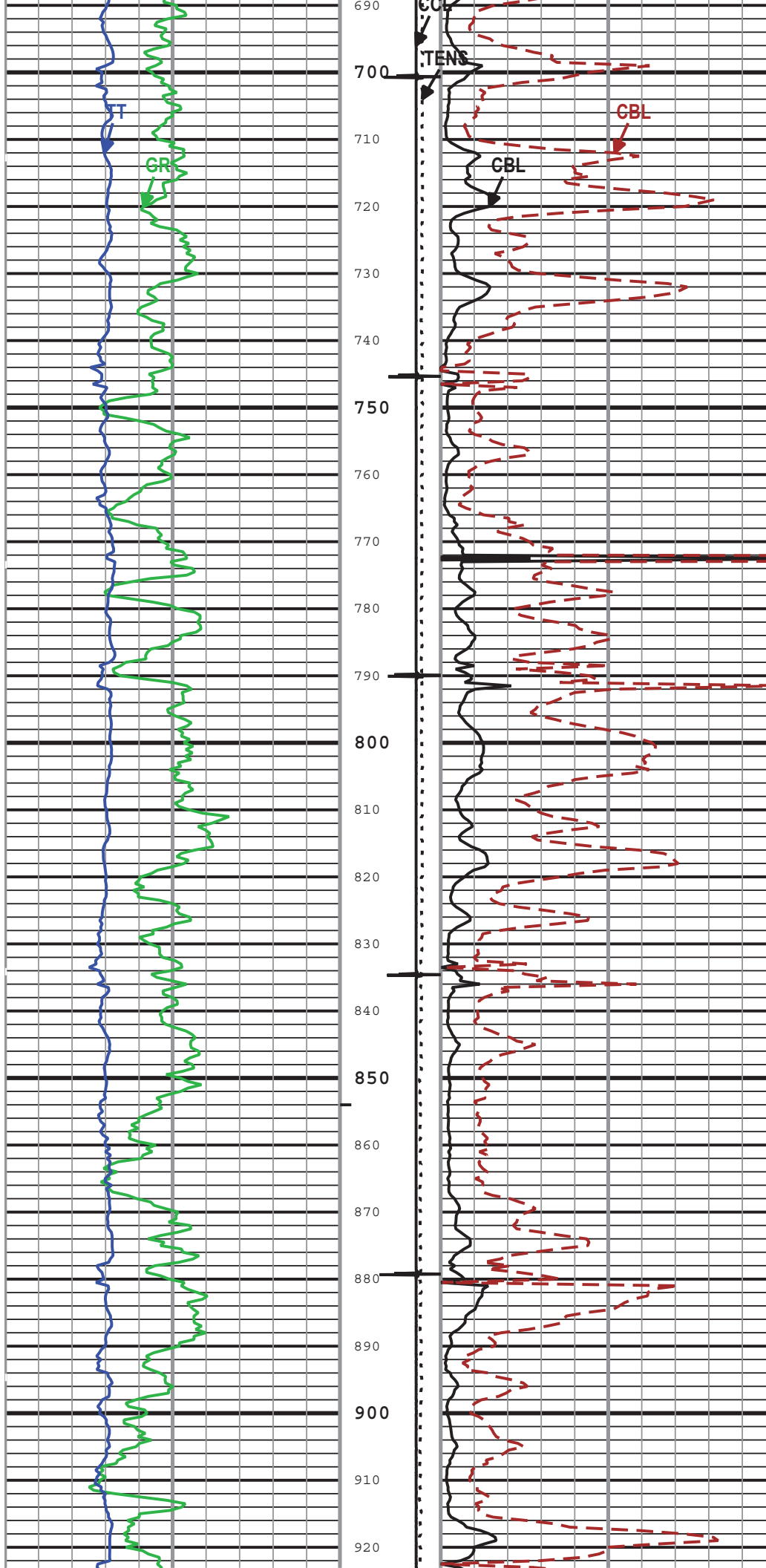
Gamma Ray (GR) HGNS-H
0 gAPI 150

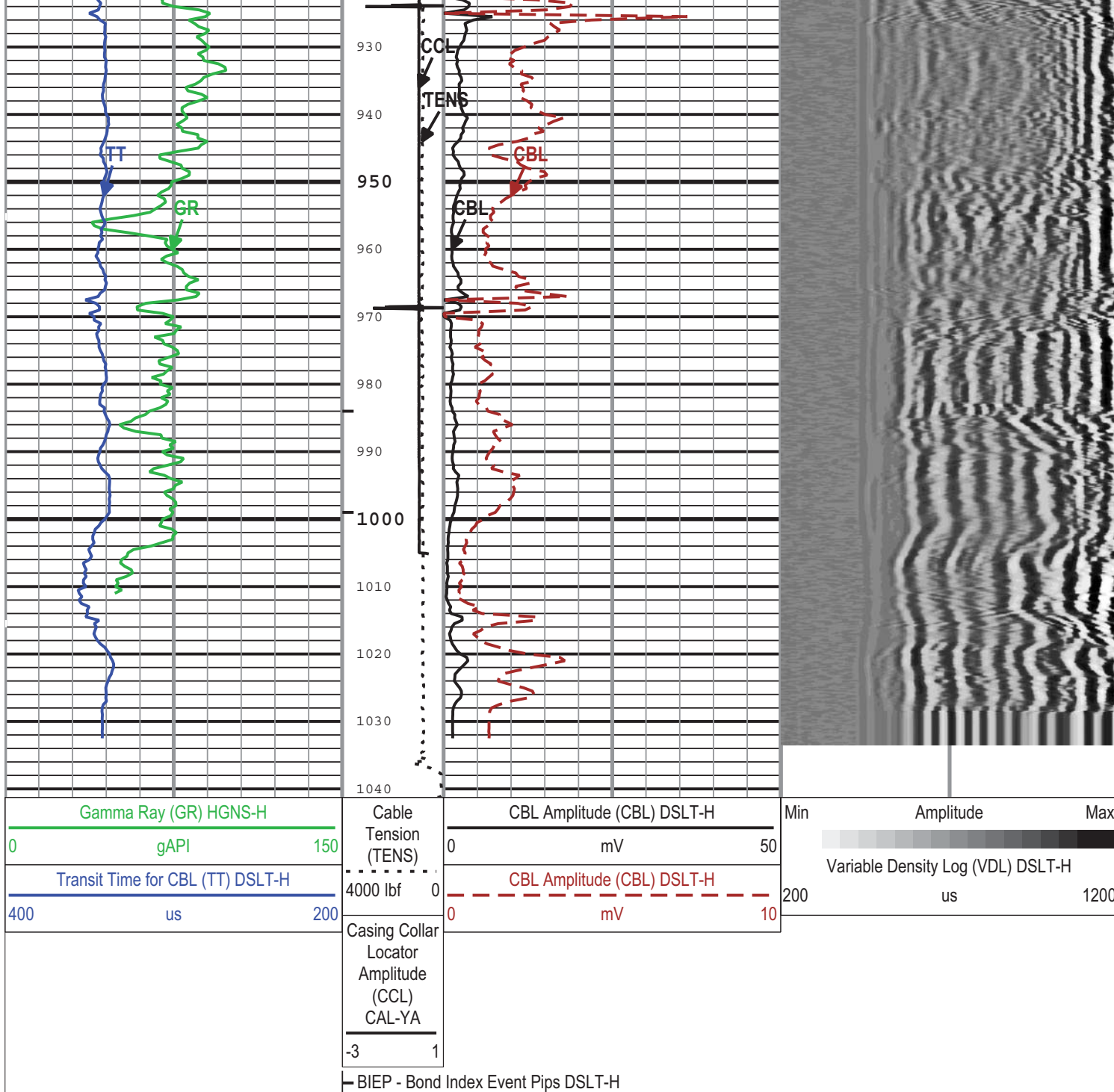
Transit Time for CBL (TT) DSLT-H
400 us 200











TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Feb-2012 09:31:55

Channel Processing Parameters

Parameter	Description	ToolPath	Value	Unit
AMSG	Auxiliary Minimum Sliding Gate	DSL-T-H:SLS-E:SLS-E	237	us
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	COMPLETION	12.25	in
CBLG	CBL Gate Width	DSL-T-H:SLS-E:SLS-E	Time Zoned	us
CBLO	Casing Bottom (Logger)	COMPLETION	1104	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSL-T-H:SLS-E:SLS-E	52	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA:CAL-YA:CAL-YA	1	
CDEN	Cement Density	HGNS-H:HGNS-H:HGNS-H	2	g/cm3
DETE	Delta-T Detection	DSL-T-H:SLS-E:SLS-E	E1	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal

FCF	CBL Fluid Compensation Factor	DSLTH:SLS-E:SLS-E	1.01	
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH:SLS-E:SLS-E	120	
MCI	Minimum Cemented Interval for Isolation	DSLTH:SLS-E:SLS-E	14.81	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLTH:SLS-E:SLS-E	100	
MSA	Minimum Sonic Amplitude	DSLTH:SLS-E:SLS-E	Depth Zoned	mV
NMSG	Near Minimum Sliding Gate	DSLTH:SLS-E:SLS-E	320	us
NMXG	Near Maximum Sliding Gate	DSLTH:SLS-E:SLS-E	1050	us
SFAF	Sonic Formation Attenuation Factor	DSLTH:SLS-E:SLS-E	3.25	dB/ft
SGAD	Sliding Gate Status	DSLTH:SLS-E:SLS-E	On	
SGCL	Sliding Gate Closing Delta-T	DSLTH:SLS-E:SLS-E	130	us/ft
SGDT	Sliding Gate Delta-T	DSLTH:SLS-E:SLS-E	67	us/ft
SGW	Sliding Gate Width	DSLTH:SLS-E:SLS-E	110	us
SLEV	Signal Level for AGC	DSLTH:SLS-E:SLS-E	7000	mV

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
MSA	1.11	30	1041.25
MSA	0	1041.25	1041.25

All depth are actual.

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CBLG	46	15-Feb-2012 07:33:03	15-Feb-2012 07:33:54	1041.22	1020.65
CBLG	38	15-Feb-2012 07:33:54	15-Feb-2012 07:50:23	1020.65	31.03

All depth are at tool zero.

Tool Control Parameters

Parameter	Description	ToolPath	Value	Unit
DSLTH_MODE	DSLTH Acquisition Mode	DSLTH:SLS-E:SLS-E	CBL	
DSLTH_RATE	DSLTH Firing Rate	DSLTH:SLS-E:SLS-E	15 Hz	
DTFS	DSLTH Telemetry Frame Size	DSLTH:SLS-E:SLS-E	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLWorkflow	3600	ft/h

TWIN CREEK 12-5A2 (F12E)

REPEAT ANALYSIS - 5 INCH

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
TWIN CREEK 12-5A2 (F12E)	Log[2]:Up	Up	810.00 ft	1010.00 ft	15-Feb-2012 7:23:45 AM	15-Feb-2012 7:29:41 AM	0.00 ft	false
TWIN CREEK 12-5A2 (F12E)	Log[3]:Up	Up	810.00 ft	1010.00 ft	15-Feb-2012 7:33:03 AM	15-Feb-2012 7:50:23 AM	0.00 ft	false

All depths are referenced to toolstring zero

LogTWIN CREEK 12-5A2 (F12E): Log[3]:Up D8B9E3F0-CF05-4024-91EB-581EEEB84220

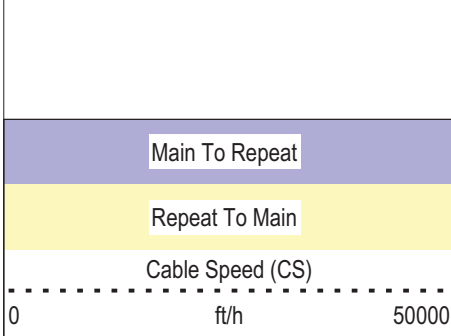
Description: CBL_VDL Format: Log (Sonic CBL with VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Feb-2012 09:31:58

Channel	Source	Sampling
TIME_1900	WLWorkflow	0.1in
BIEP	DSLTH:SLS-E:SLS-E	6in

└─ BIEP - Bond Index Event Pips DSLTH

TIME_1900 - Time Marked every 60.00 (s)

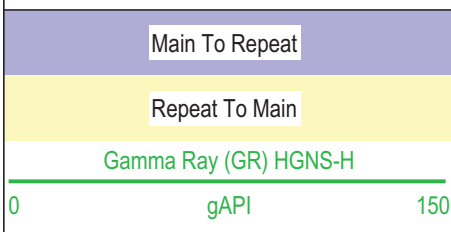
TIME_1000 Time marked every 00.00 (s)



Main To Repeat

Repeat To Main

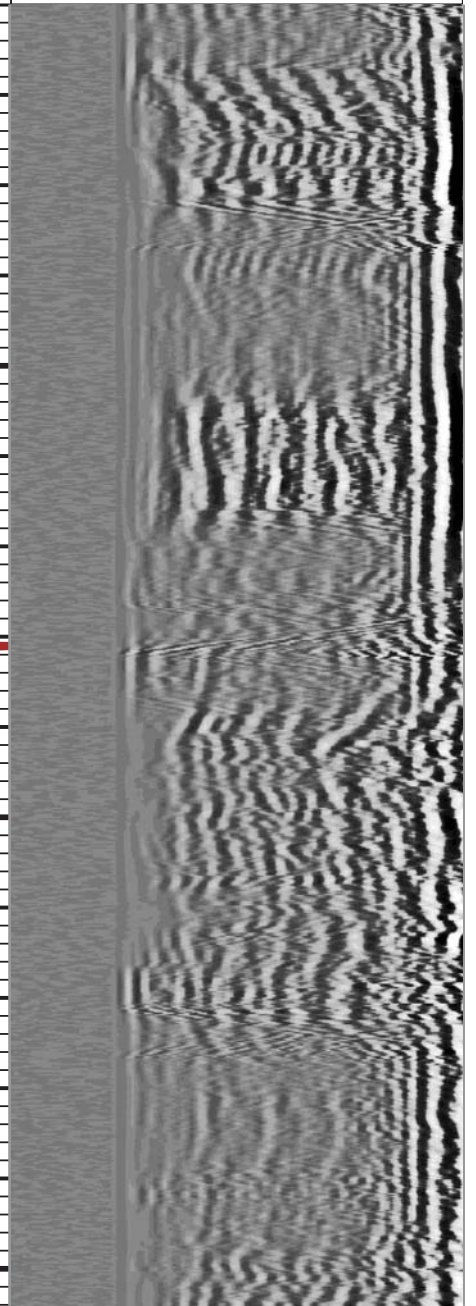
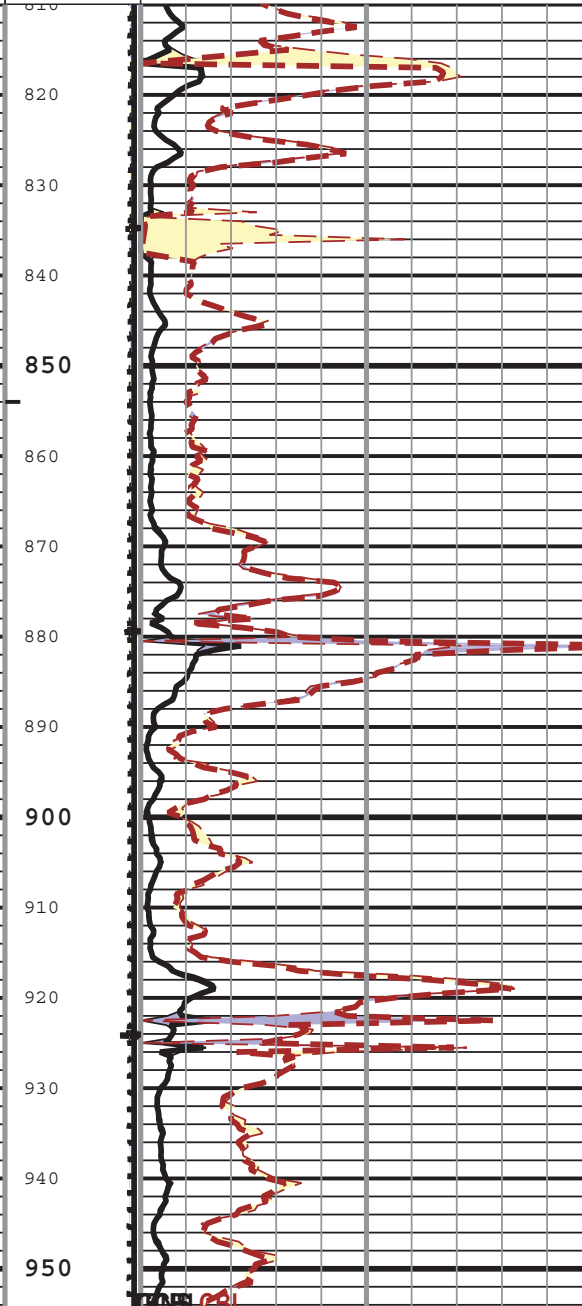
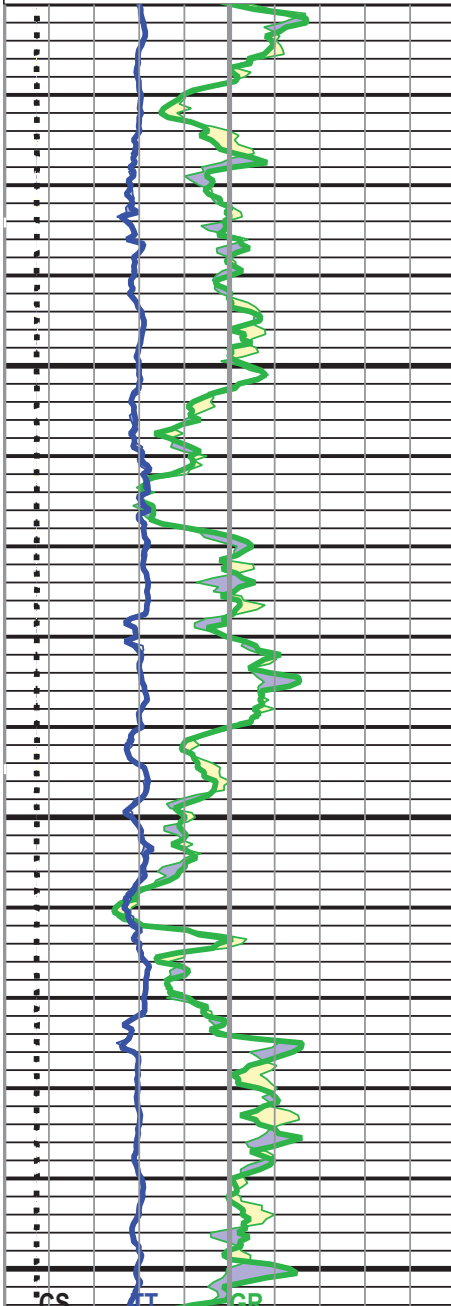
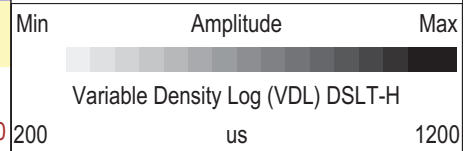
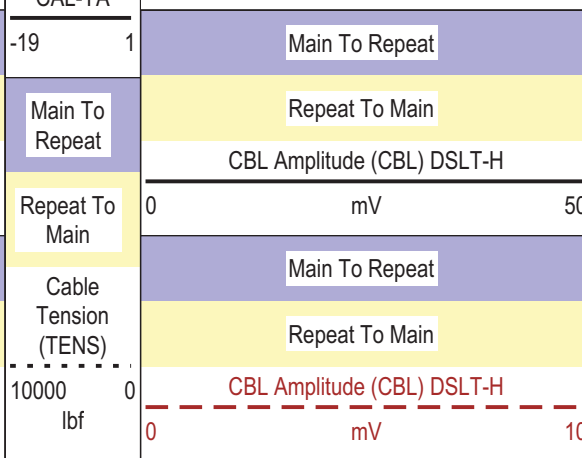
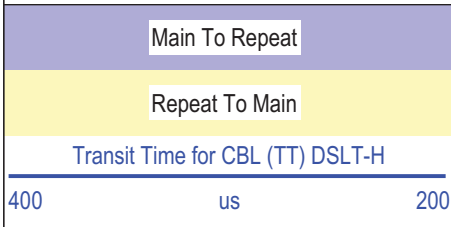
Casing Collar Locator Amplitude (CCL) CAL-YA

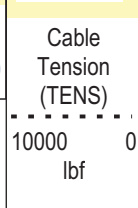
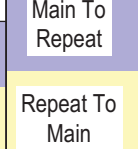
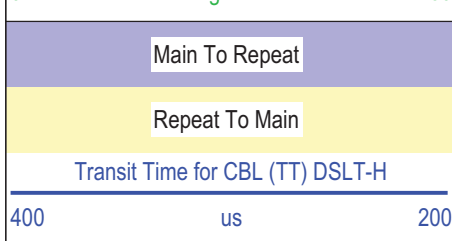
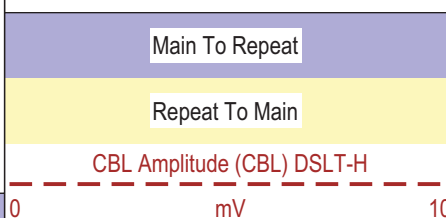
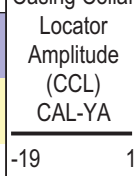
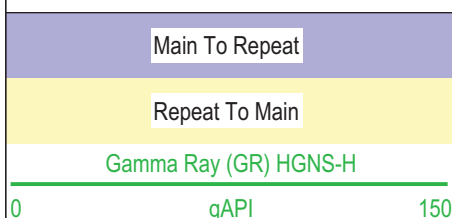
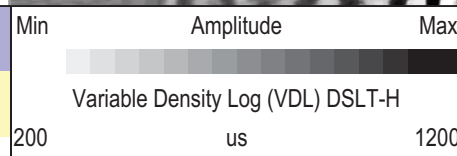
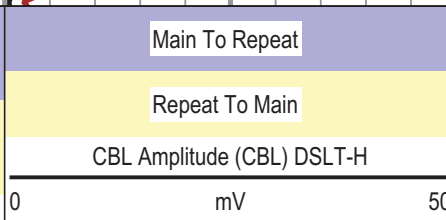
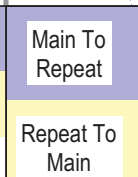
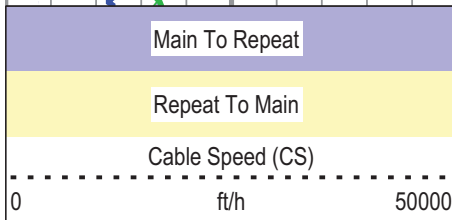
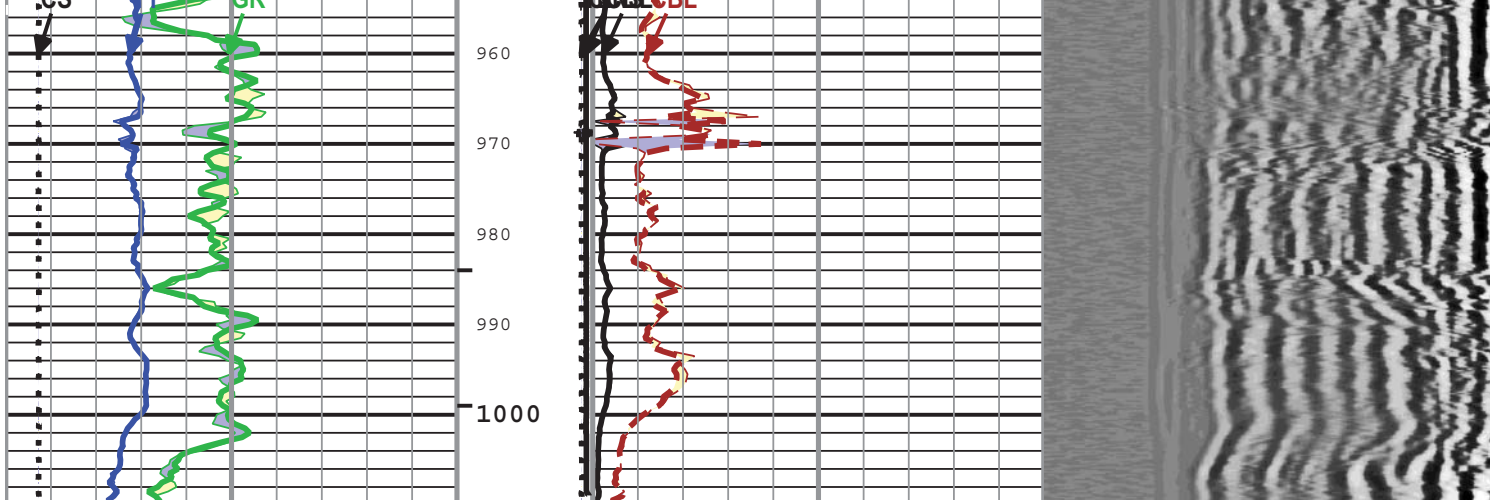


Main To Repeat

Repeat To Main

Cable Tension (TENS)





BIEP - Bond Index Event Pips DSLT-H

Description: CBL_VDL Format: Log (Sonic CBL with VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Feb-2012 09:31:58

Company: ENCANA OIL & GAS (USA) INC.

Schlumberger

Well: Twin Creek 12-5A2 (F12E)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

CEMENT BOND LOG

CBL - VDL

GAMMA RAY - CCL