

Company: Texas American Resources Company

Well: Roth 44-30

Field: Wattenberg

County: Weld Country: USA

Borehole Compensated Sonic

County:	Weld		
Field:	Wattenberg		
Location:	SESE Sec 30, T5N, R63W		
Well:	Roth 44-30		
Company:	Texas American Resource		
Location:			
SESE Sec 30, T5N, R63W	Elev.	K.B.	4590.00 ft
SHL: 641 FSL / 655 FEL		G.L.	4576.00 ft
LatLong: 40.365020 / -104.47196		D.F.	4589.00 ft
Permanent Datum:	Ground Level	Elev.:	4576.00 f
Log Measured From:	Kelly Bushing	14.00 ft	above Perm. Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Max. Hole Deviation	Longitude:	Latitude:
05-123-32101-0000	0 deg	-104.47190 degrees	40.365000 degrees

Run Number	1_PEx-BHC
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Depth Driller	6767.00 ft
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Schlumberger Depth	6767.00 ft
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Bottom Log Interval	6763.00 ft
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Top Log Interval	708.00 ft
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Casing Driller Size @ Depth	8.625 in @ 714.00 ft
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Casing Schlumberger	714 ft
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Bit Size	7.875 in
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Type Fluid In Hole	Fresh Water
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Density	9.5 lbm/gal	50 s
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Fluid Loss	PH
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Source of Sample	Flowline
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RM @ Meas Temp	1.18 ohm.m @ 56 degF
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RMF @ Meas Temp	0.15 ohm.m @ 68 degF
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RMC @ Meas Temp	N/A @ 68 degF
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Source RMF	Calculated	Calculated
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RM @ BHT	0.39 @ 185	0.06 @ 185
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Max Recorded Temperatures	185 degF
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Circulation Stopped	03-Nov-2011	08:00:00
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Logger on Bottom	03-Nov-2011	13:18:16
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Unit Number	Location:	2153	Fort Morgan, Co
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Recorded By	Keri Loring, Jared R. Hoskins		
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Witnessed By	Jim Boyd		
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Disclaimer

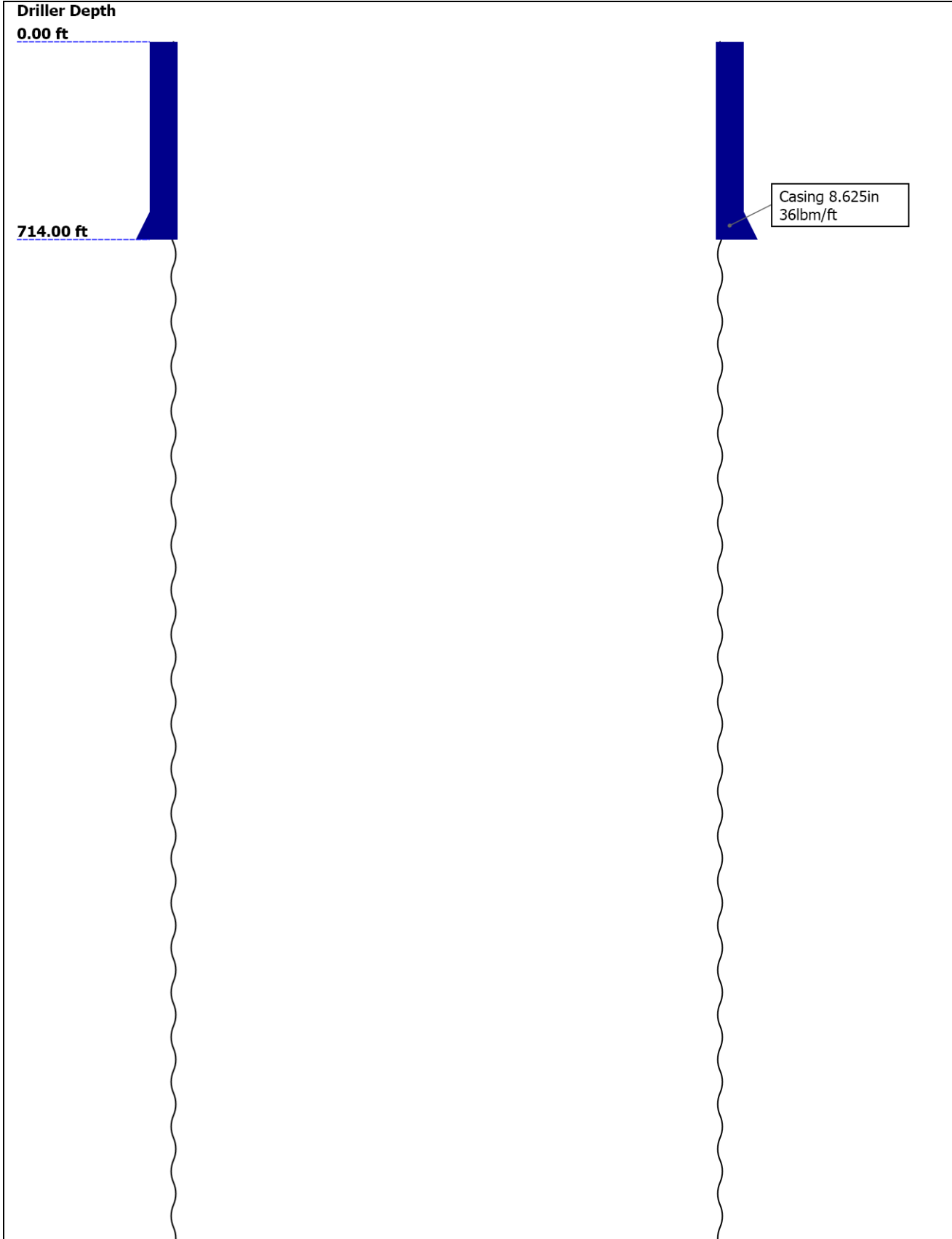
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (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
- Operational Run Summary
- Borehole Fluids
- Remarks and Equipment Summary
- Depth Summary
- Survey Record
- 1_PEx-BHC
 - Integration Summary
 - Software Version
 - Composite Summary
 - Log (Sonic Delta-t)
 - Parameter Listing
- 1_PEx-BHC

- 12.1 Composite Summary
- 12.2 Log (Sonic Delta-t RA)
- 13. Calibration Report
- 14. Tail

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	6767					
Bottom Logger (ft)	6767					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	7.823					
Grade	N80					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	714					
Bottom Logger (ft)	714					

Operational Run Summary

Parameter (unit)	1_PEx-BHC					
Date Log Started	03-Nov-2011					
Time Log Started	15:37:21					
Date Log Finished	03-Nov-2011					
Time Log Finished	17:35:15					
Top Log Interval (ft)	708.00					
Bottom Log Interval (ft)	6763.00					
Total Depth (ft)	6767.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	7.875					
Logging Unit Number	2153					
Logging Unit Location	Fort Morgan, Co					
Recorded By	Keri Loring, Jared R. Hoskins					
Witnessed By	Jim Boyd					

Service Order Number	BSS4-00132					
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Borehole Fluids						
Parameter(unit)	1_PEx-BHC					
Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	185					
Source of Sample	Flowline					
Salinity (ppm)	6101.52					
Density (lbm/gal)	9.5					
Viscosity (s)	50					
Fluid Loss (cm3)						
PH						
Date/Time Circulation Stopped	03-Nov-2011 08:00:00					
Date Logger on Bottom	03-Nov-2011					
Time Logger on Bottom	13:18:16					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	1.18 @ 56					
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68					
RMC @ Meas Temp (ohm.m@degF)						
RM @ BHT (ohm.m@degF)	0.39 @ 185					
RMF @ BHT (ohm.m@degF)	0.06 @ 185					
RMC @ BHT (ohm.m@degF)	NaN @ 185					

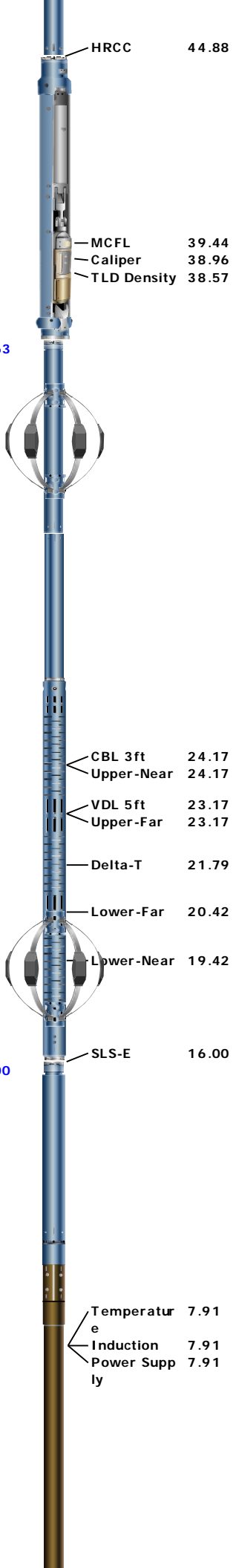
Remarks and Equipment Summary

1_PEx-BHC: Toolstring				1_PEx-BHC: Remarks	
Equip name	Length	MP name	Offset	Tool ran as per tool sketch.	
LEH-QT LEH-QT	64.2				
DTC-H:9469 ECH-KC DTC -H:9469	61.28	CTEM HV	60.38 0.00		
HGNS-H:4779 HGNH NPV-N NSR-F:5168 HMCA -H:5736 HGNS -H:4779 HACCZ-H:5736	58.28	TelStatus ToolStatus Temperature GR	58.28 58.28 58.26 57.54		
HDRS-H:4706 ECH-MEB HRC C-H:5705 HRMS-H:4706 GPV-Q	48.88	CNL Porosit y HGNS HMCA Accelerome ter	51.21 48.88 48.88 0.00		

GSR-J:5363
Short Spacing:27
634
HRGD-H:3816
Backscatter
Long Spacing:28
732

DSLT-H
ECH-KH
DSLC-H
SLS-E

AIT-M:1372
AMIS:1372
AMRM

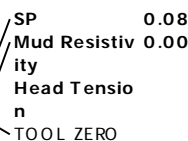


HRCC 44.88
MCFL 39.44
Caliper 38.96
TLD Density 38.57

CBL 3ft 24.17
Upper-Near 24.17
VDL 5ft 23.17
Upper-Far 23.17
Delta-T 21.79
Lower-Far 20.42
Lower-Near 19.42

SLS-E 16.00

Temperature 7.91
Induction 7.91
Power Supply 7.91



Lengths are in ft

Maximum Outer Diameter = 6.000 in

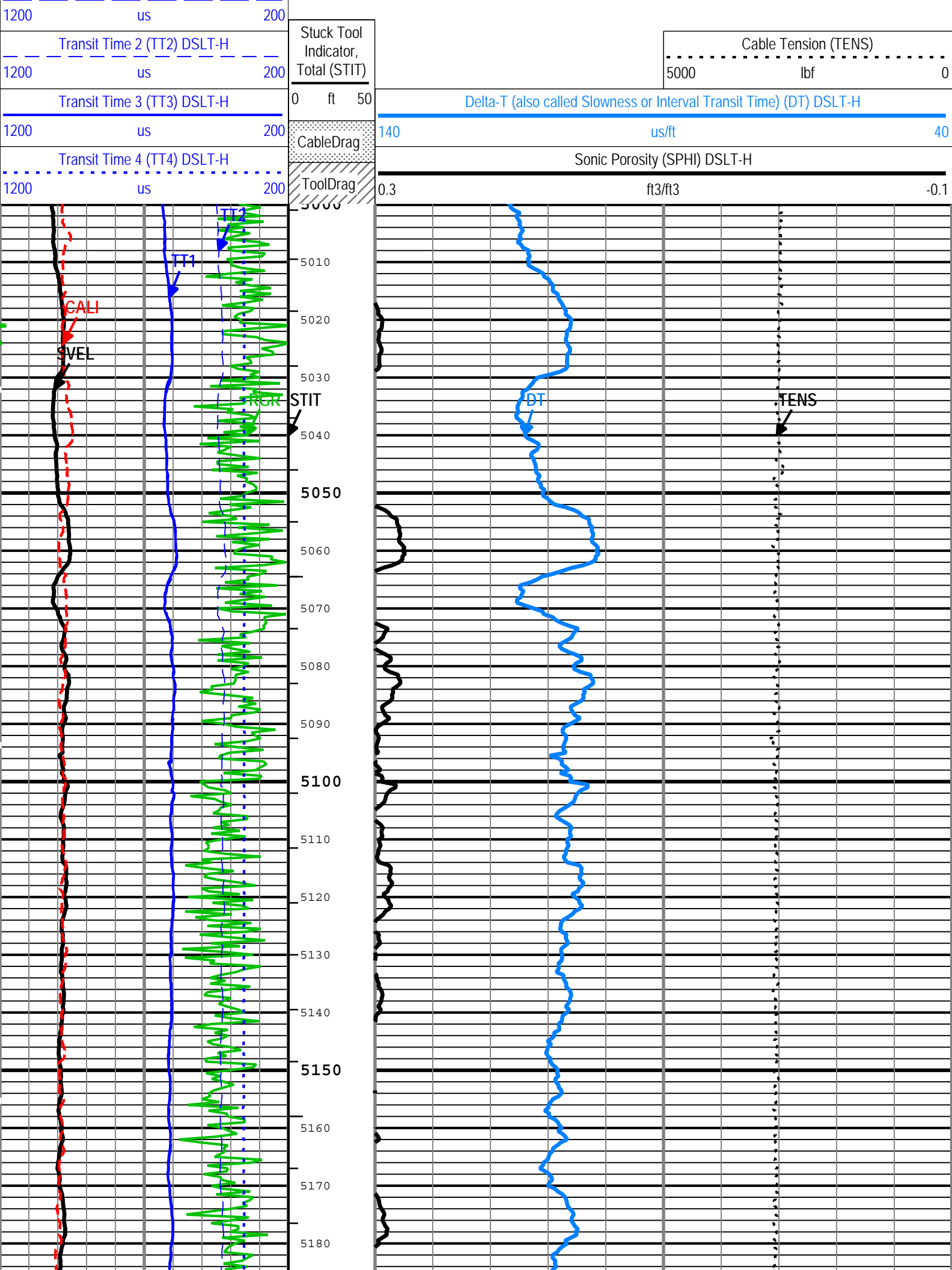
Line: Sensor Location, V alue: Gating O f fset

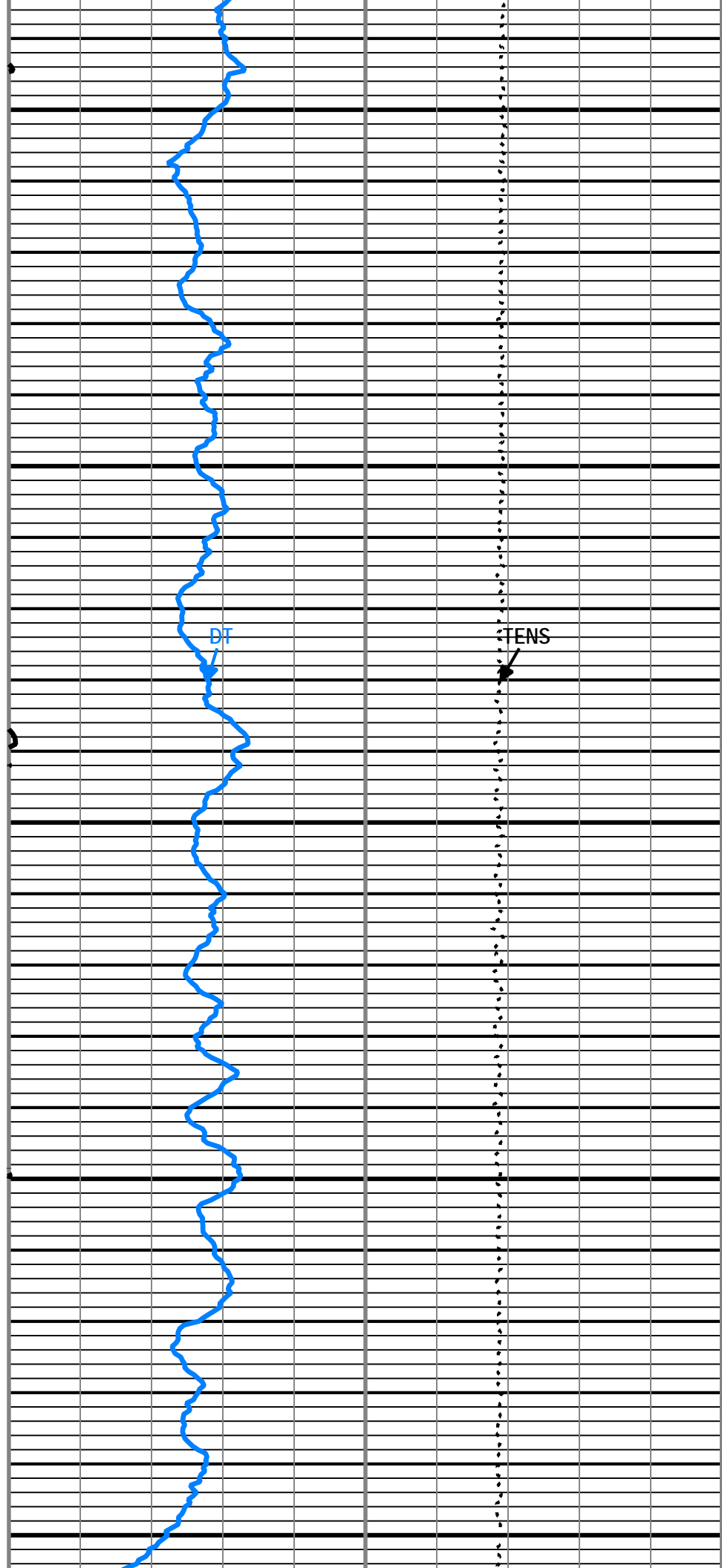
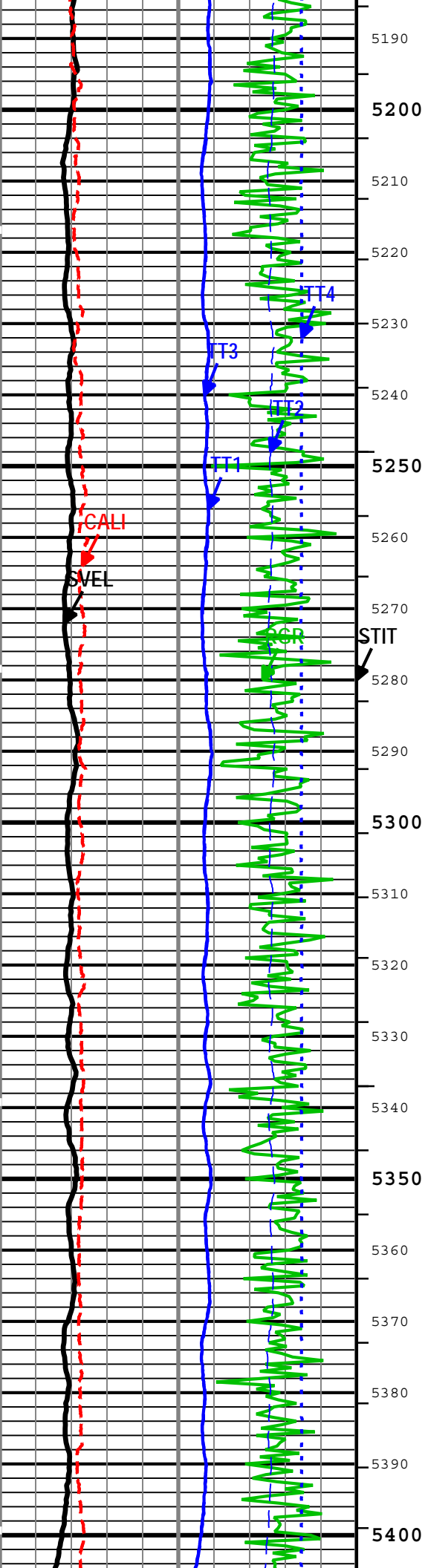
All measurements are relative to TOOL_ZERO

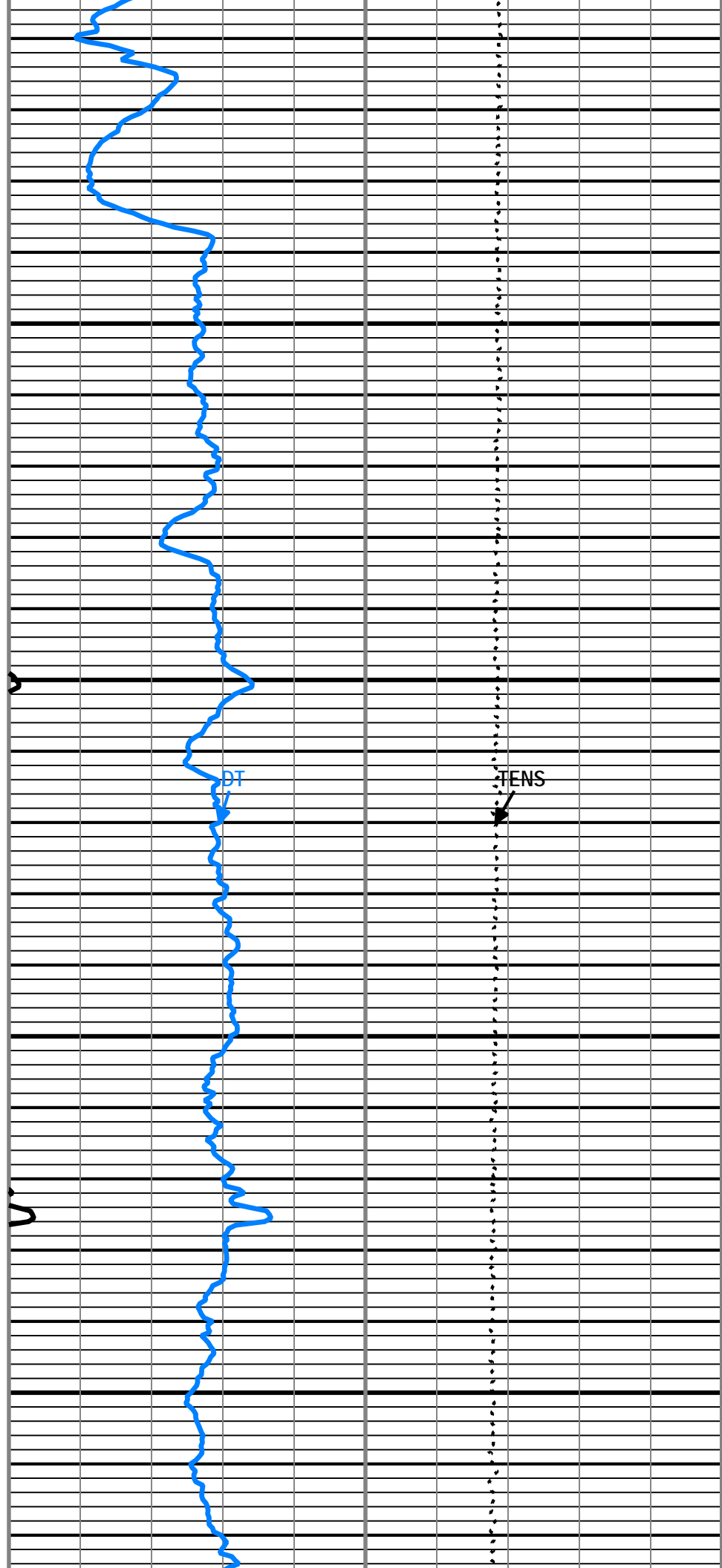
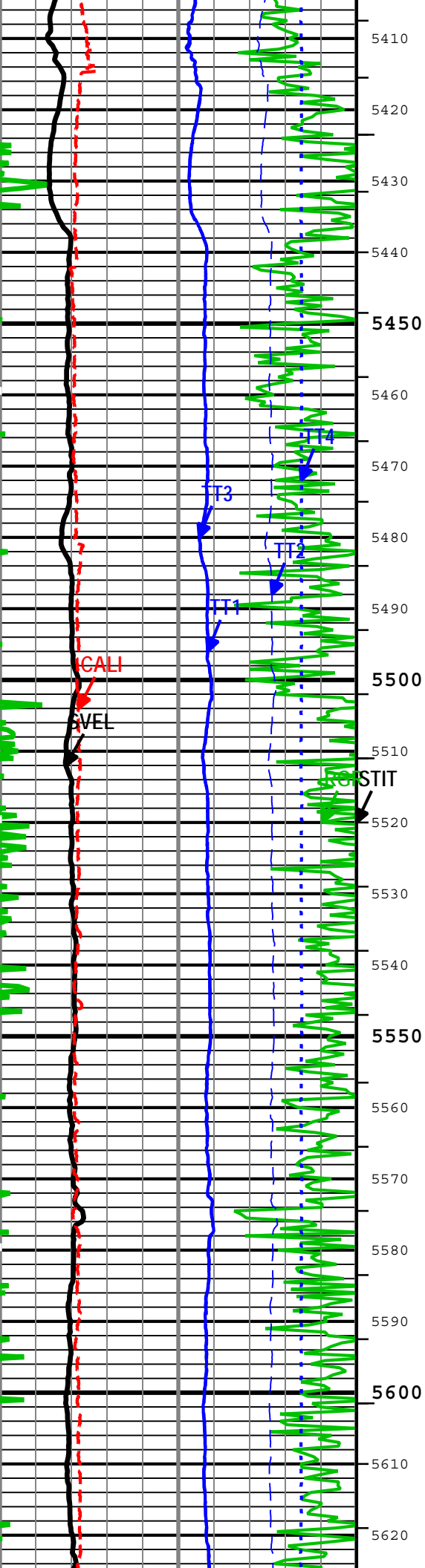
Depth Control Parameters	1_PEx-BHC		
Conveyance Type	Wireline		
Rig Type	Land		
Depth Remark Parameters	1_PEx-BHC		
Depth Remark 1	First run in hole.		
Depth Measuring Device	1_PEx-BHC		
Type	IDW-B		
Serial Number	6380		
Calibration Date	17-Sep-2011		
Calibration Cable Type	7-46A-XS		
Wheel Correction 1	-9		
Wheel Correction 2	-8		
Tension Device	1_PEx-BHC		
Type	CMTD-B/A		
Serial Number	1433		
Calibration Date	27-Oct-2011		
Calibrator Serial Number	100513		
Calibration Points	10		
Calibration RMS	11		
Calibration Peak Error	20		
Logging Cable	1_PEx-BHC		
Type	7-46A-XS		
Serial Number	4		
Logging Cable Length (ft)	13300.00		

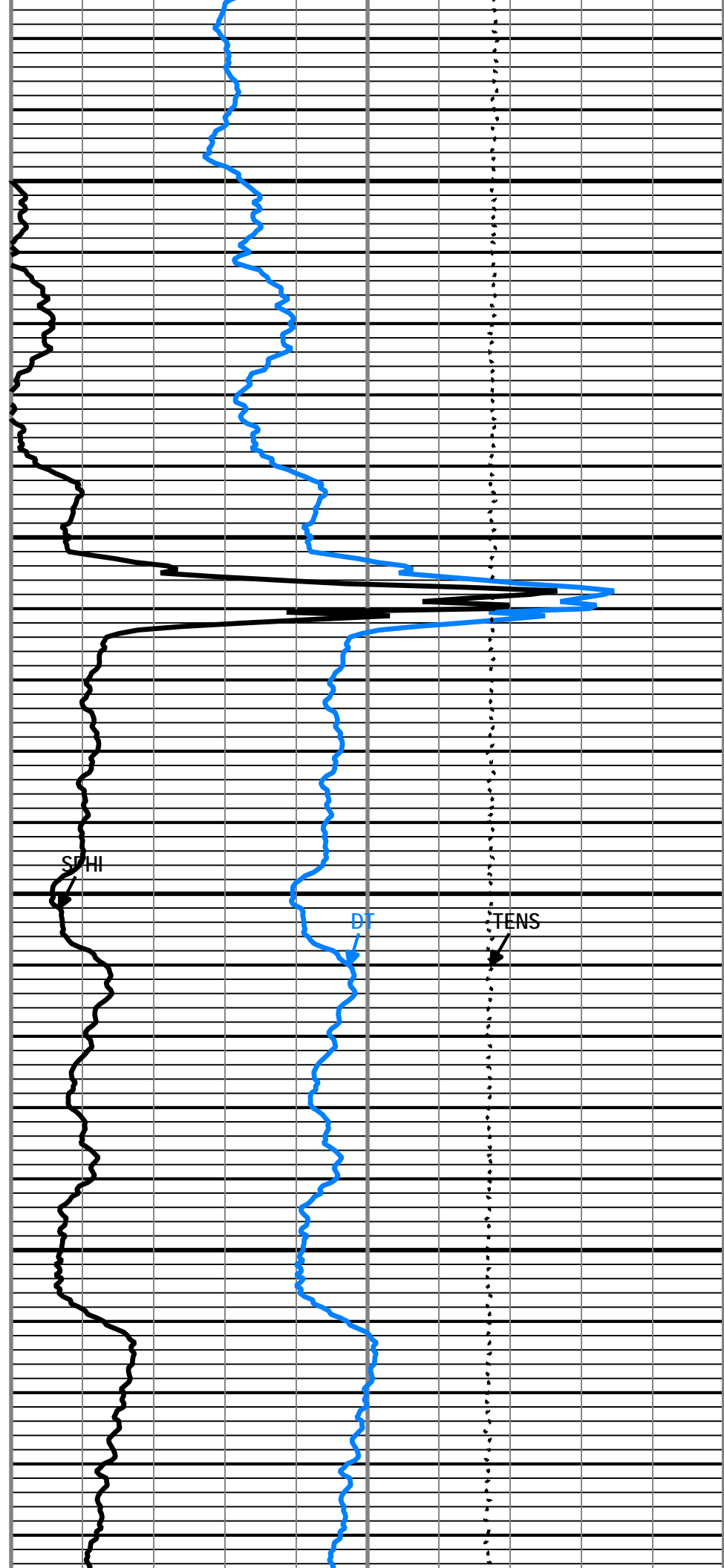
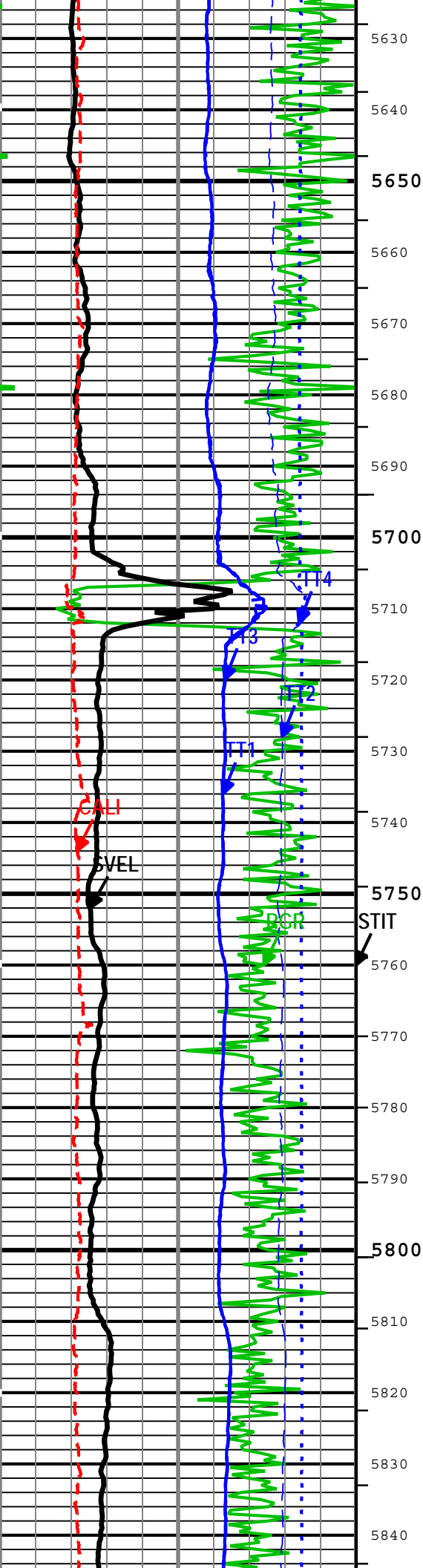
Survey Calculation															
Method :		Minimum Radius of Curvature				DLS Method :				Lubinski					
North Reference :		True North				Total Correction Formula :				Magnetic Dec					
Rig Location															
Latitude :		40.365000 degrees				Longitude :				-104.47190 degrees					
Tie In Point															
Measured Depth:		0.00 ft		Inclination:		0.00 deg		Azimuth:		0.00 deg					
True Vertical Depth:		0.00 ft		North Displacement:		0.00 ft		East Displacement:		0.00 ft					
Survey Quality Index															
28 : Tie-In Point															
Survey Correction Index															
0 : No correction															
Survey Description Index															
0 : Not Flagged Survey															
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azim (deg)	DLS deg/100ft	Tool Type	QI	CI	DI
1	0.00	0.00	0.00	----	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0

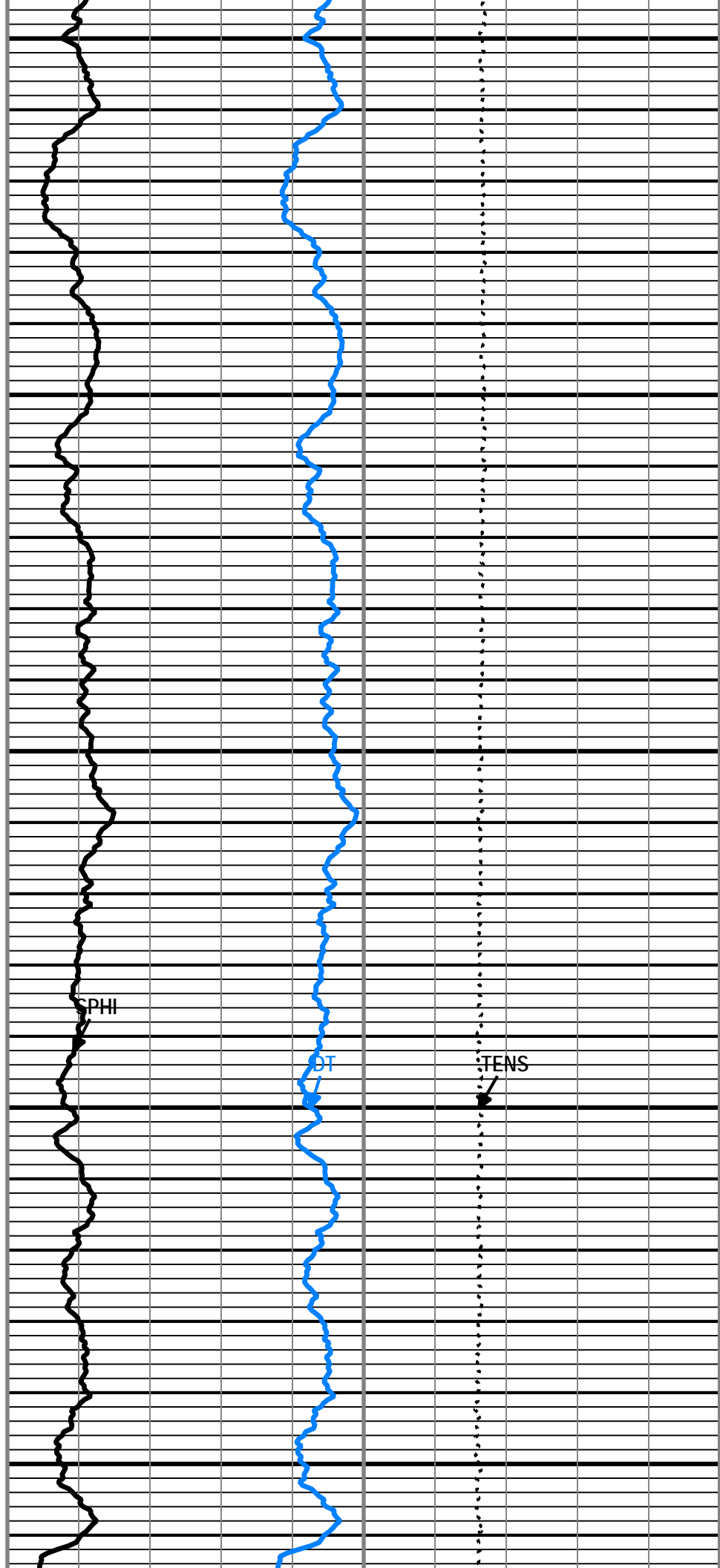
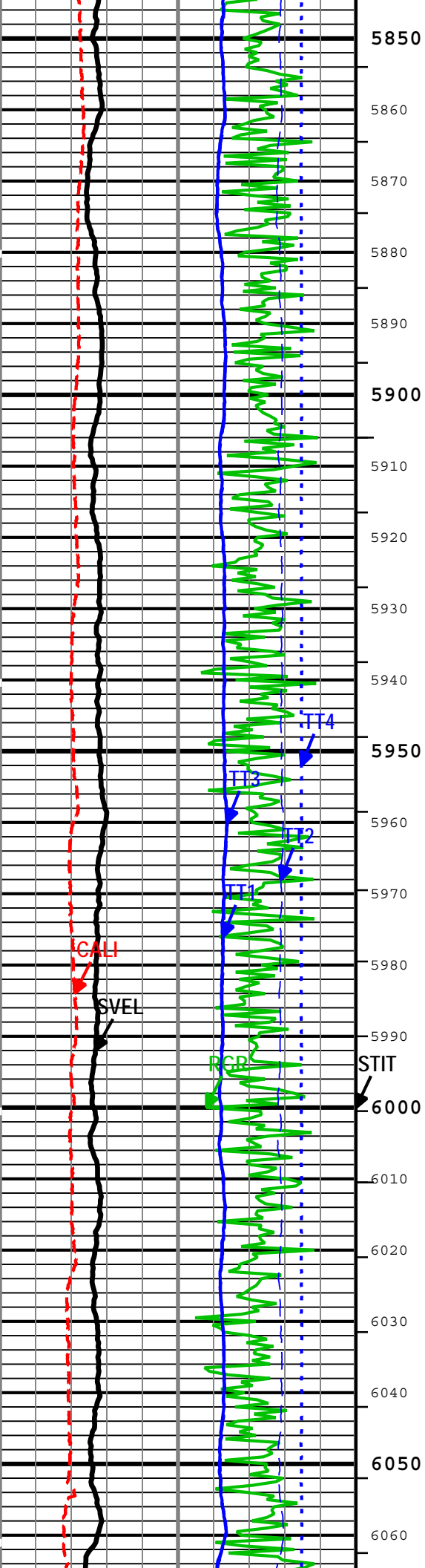
1_PEx-BHC

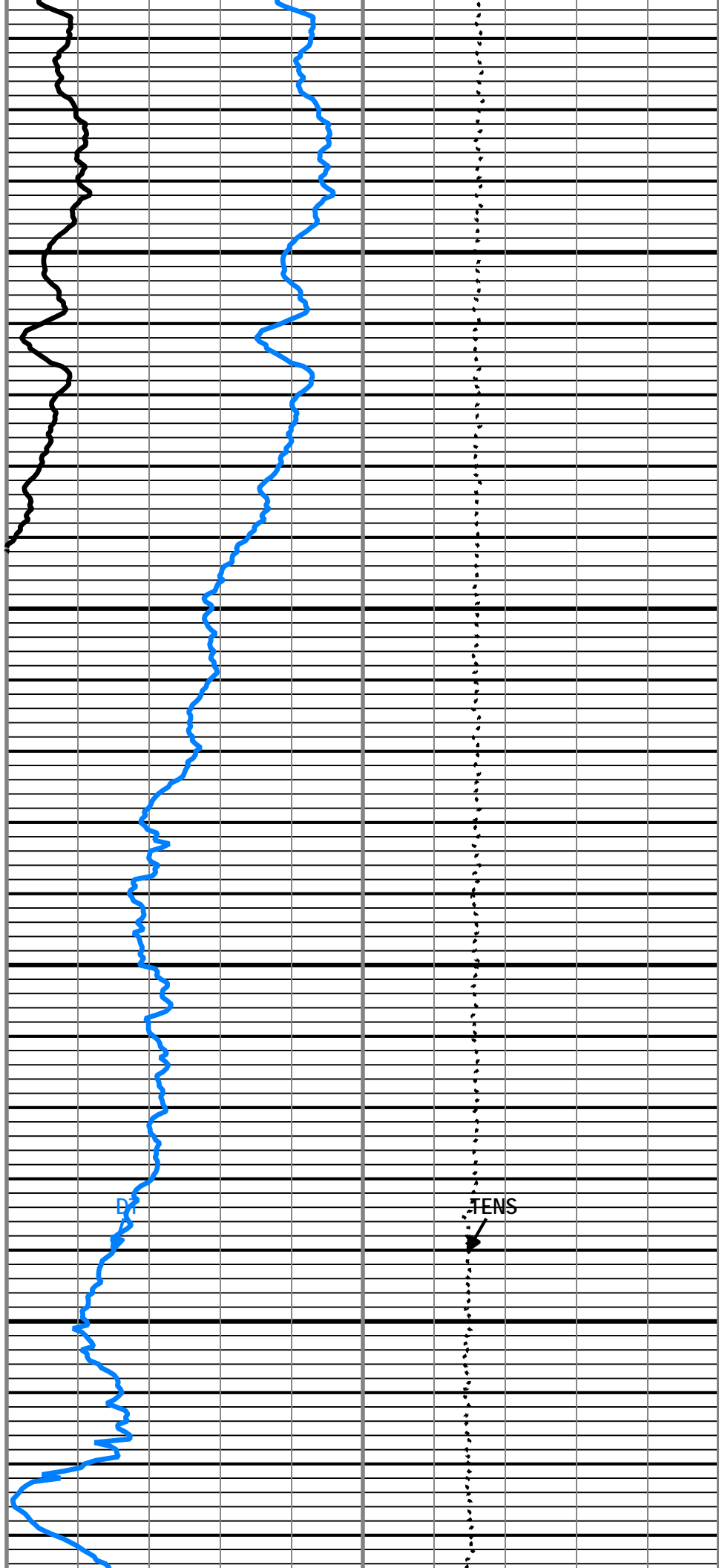
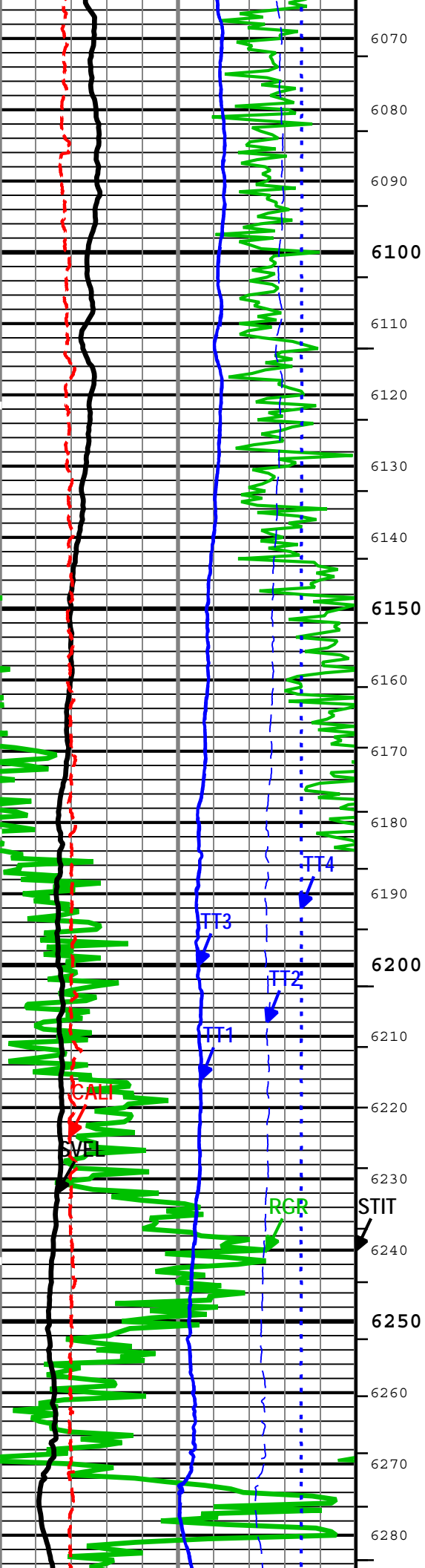


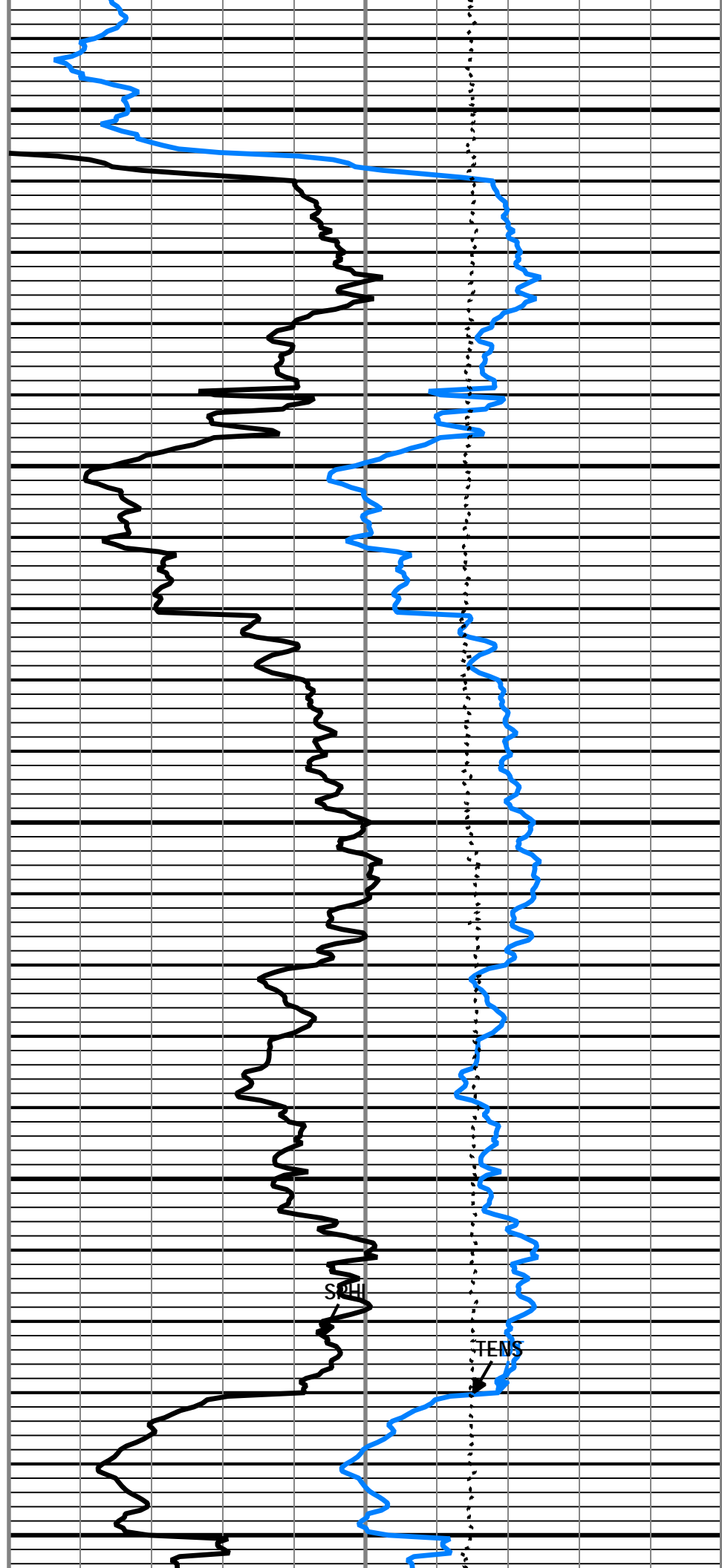
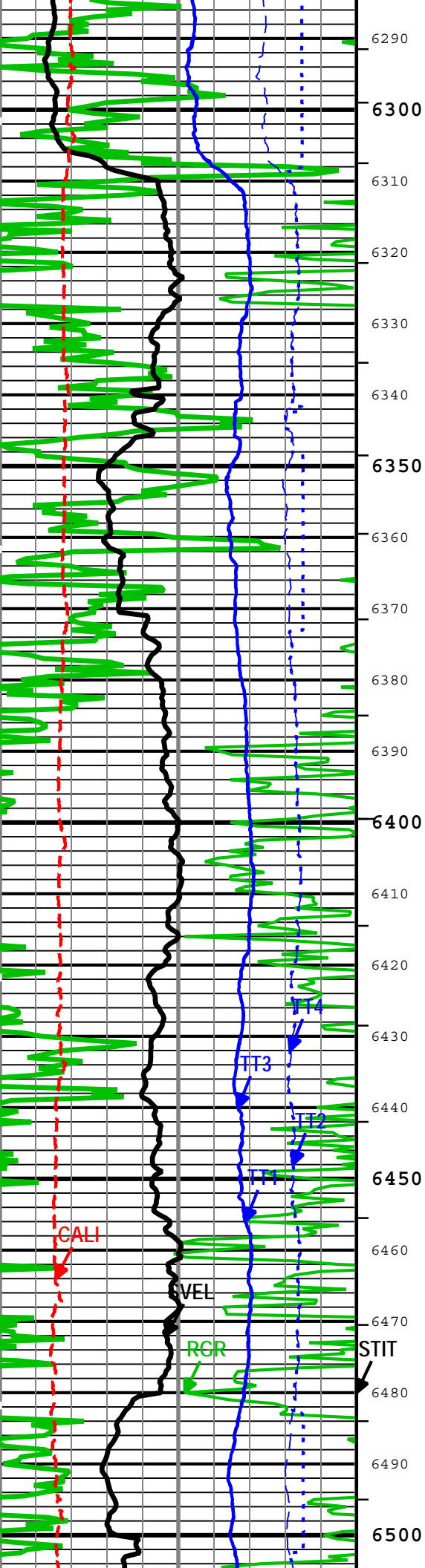


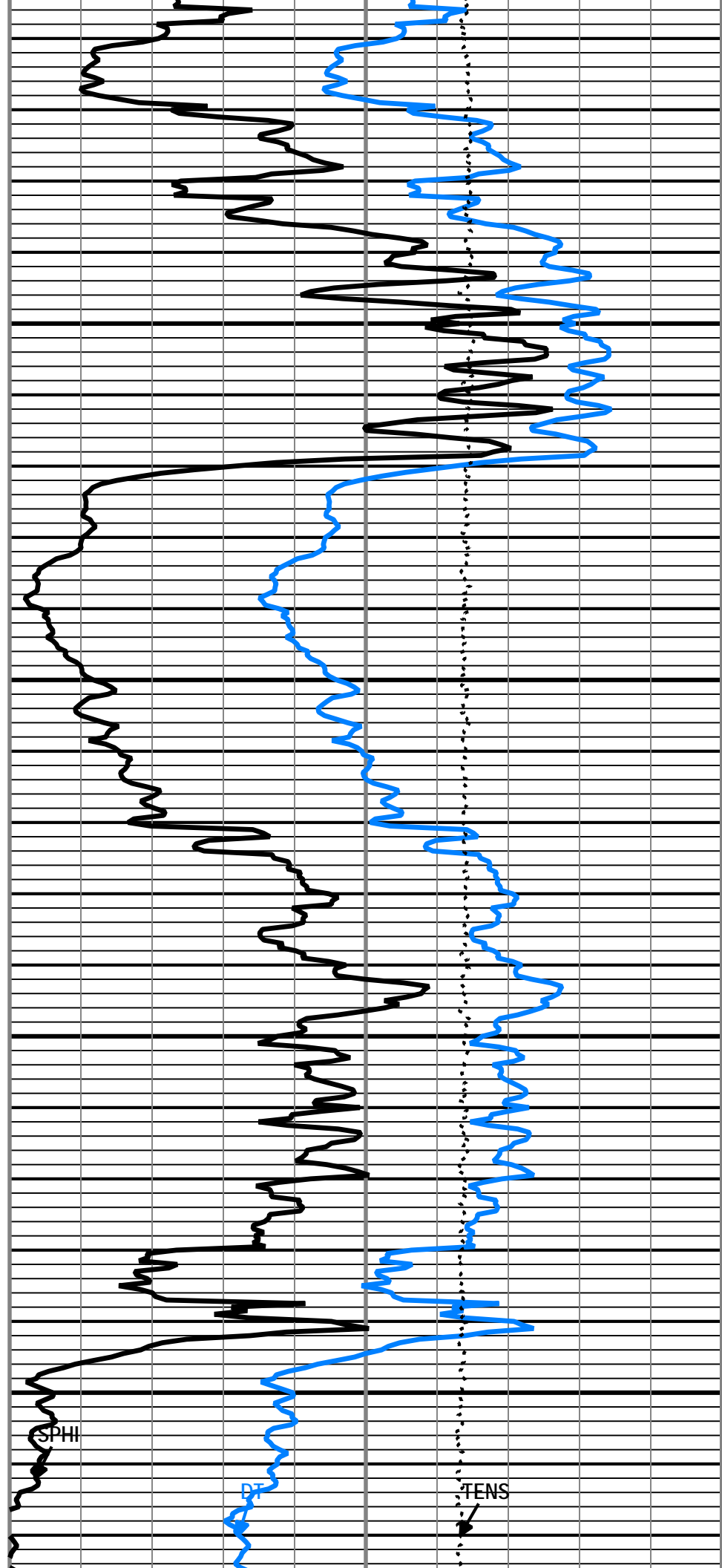
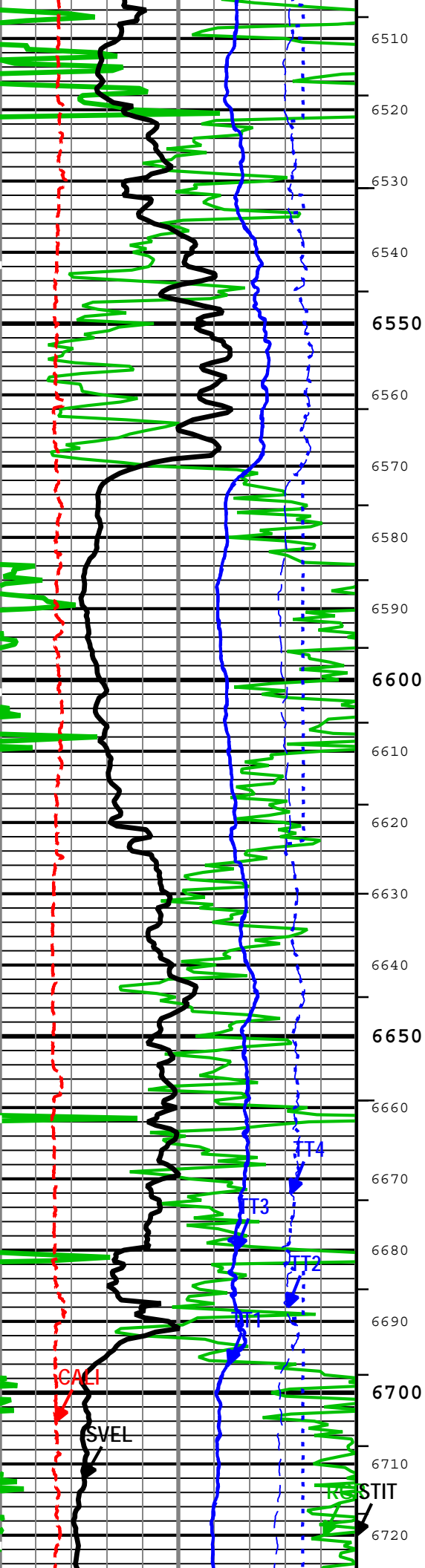


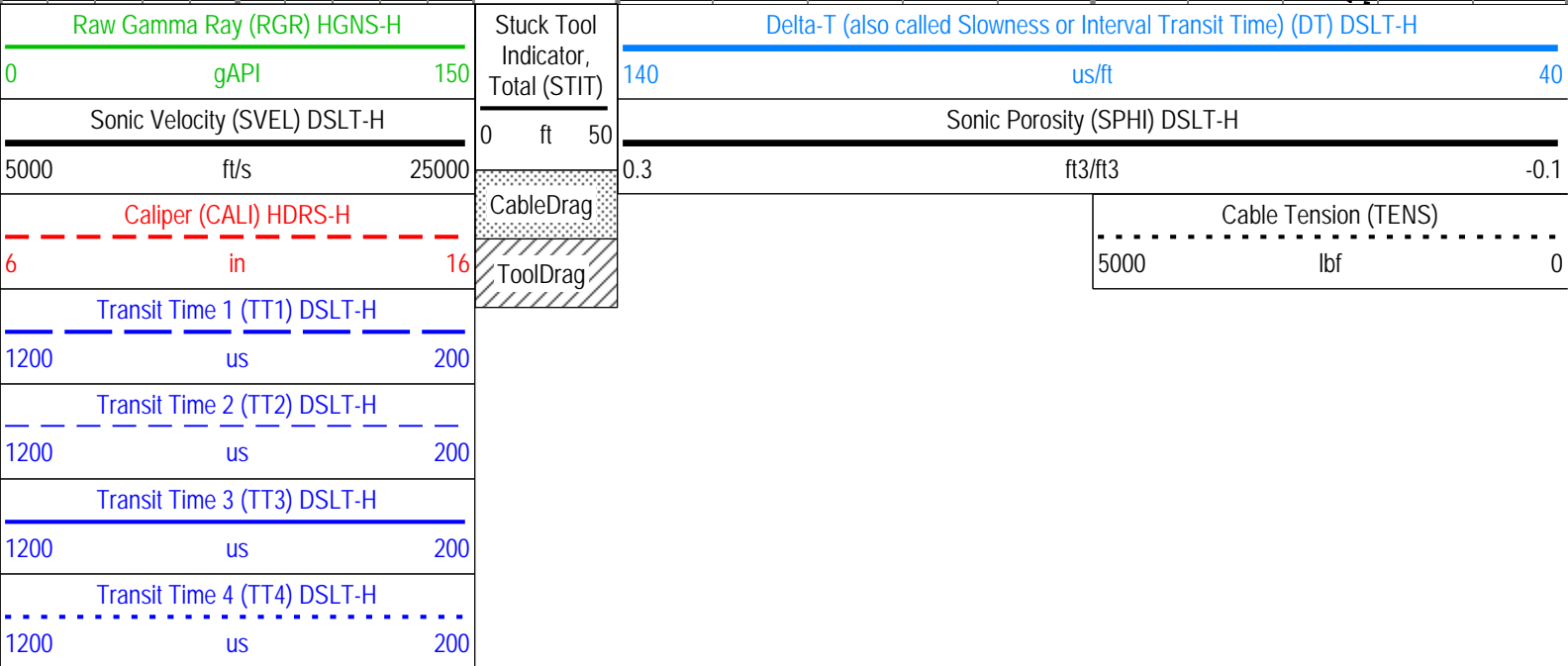
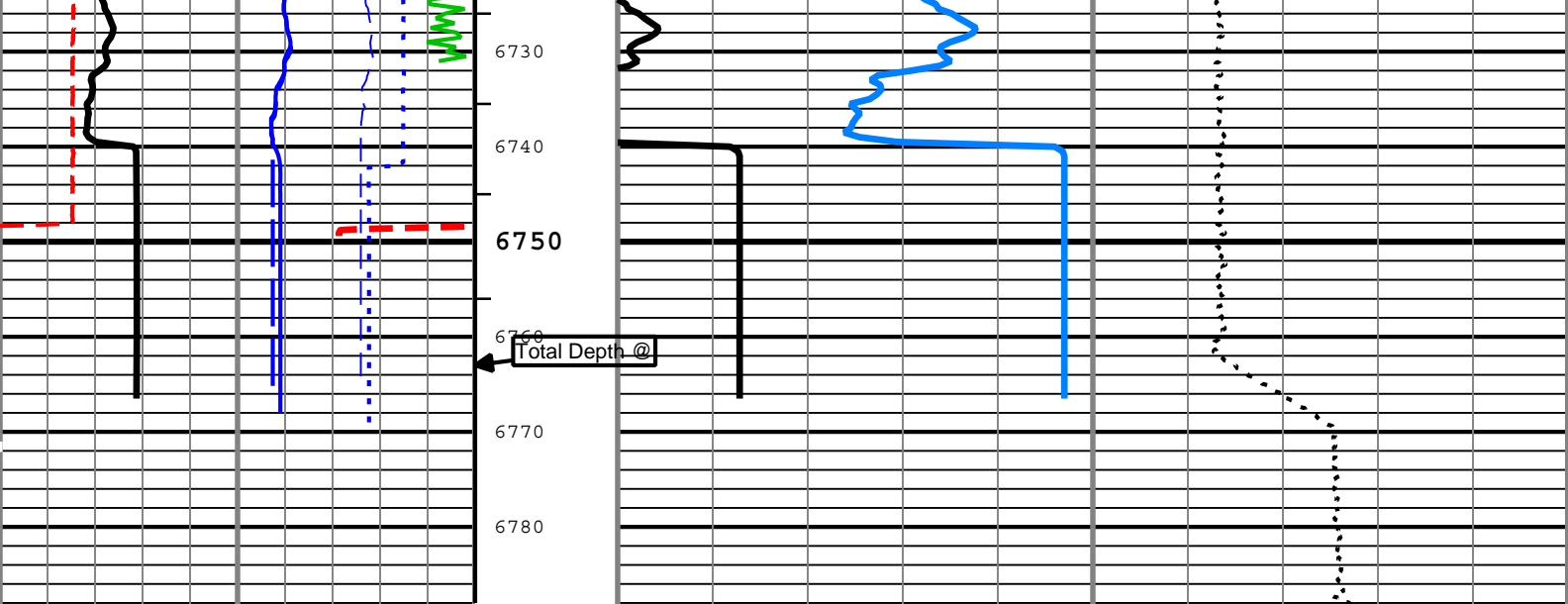












TIME_1900 - Time Marked every 60.00 (s)

ITT - Integrated Transit Time every 10.00 (ms)

ITT - Integrated Transit Time every 1.00 (ms)

Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 04-Nov-2011 02:24:29

Channel Processing Parameters				
Parameter	Description	ToolPath	Value	Unit
CALI_SHIFT	CALI Supplementary Offset	HDRS-H:HRCC-H:HRCC-H	0	in
CDTS	Correction for Delta-T Shale, Empirical	Borehole	100	us/ft
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	DSLT-H:SLS-E:SLS-E	E2	
DTCM	Delta-T Computation Mode	DSLT-H:SLS-E:SLS-E	Full	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTM	Delta-T Matrix	Borehole	56	us/ft
ITTS	Integrated Transit Time Source	DSLT-H:SLS-E:SLS-E	DT	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H:SLS-E:SLS-E	120	
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H:SLS-E:SLS-E	100	
NMSG	Near Minimum Sliding Gate	DSLT-H:SLS-E:SLS-E	140	us
NMXG	Near Maximum Sliding Gate	DSLT-H:SLS-E:SLS-E	820	us

Tool Control Parameters				
Parameter	Description	ToolPath	Value	Unit
DSLT_MODE	DSLT Acquisition Mode	DSLT-H:SLS-E:SLS-E	BHC	
DSLT_RATE	DSLT Firing Rate	DSLT-H:SLS-E:SLS-E	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H:SLS-E:SLS-E	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLWorkflow	3600	ft/h

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift
1_PEx-BHC	Repeat[2]:Up	Up	6343.53 ft	6789.44 ft	03-Nov-2011 4:13:48 PM	03-Nov-2011 4:23:23 PM	4.43 ft
1_PEx-BHC	Main[3]:Up	Up	625.56 ft	6788.41 ft	03-Nov-2011 4:27:22 PM	03-Nov-2011 5:31:43 PM	4.43 ft

Log

1_PEx-BHC: Main[3]:Up 856C951F-172C-4A89-BF1B-E6F55FDFB74E

1_PEx-BHC: Main[3]:Up 856C951F-172C-4A89-BF1B-E6F55FDFB74E

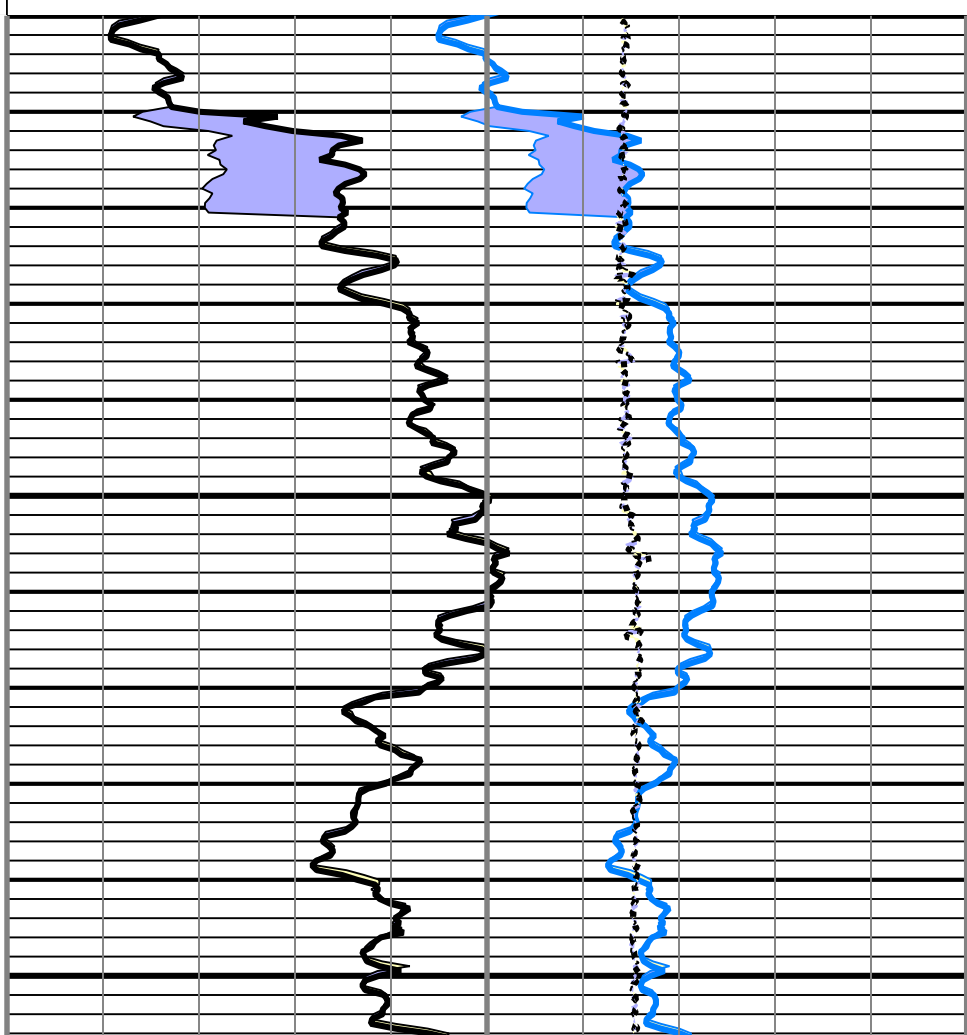
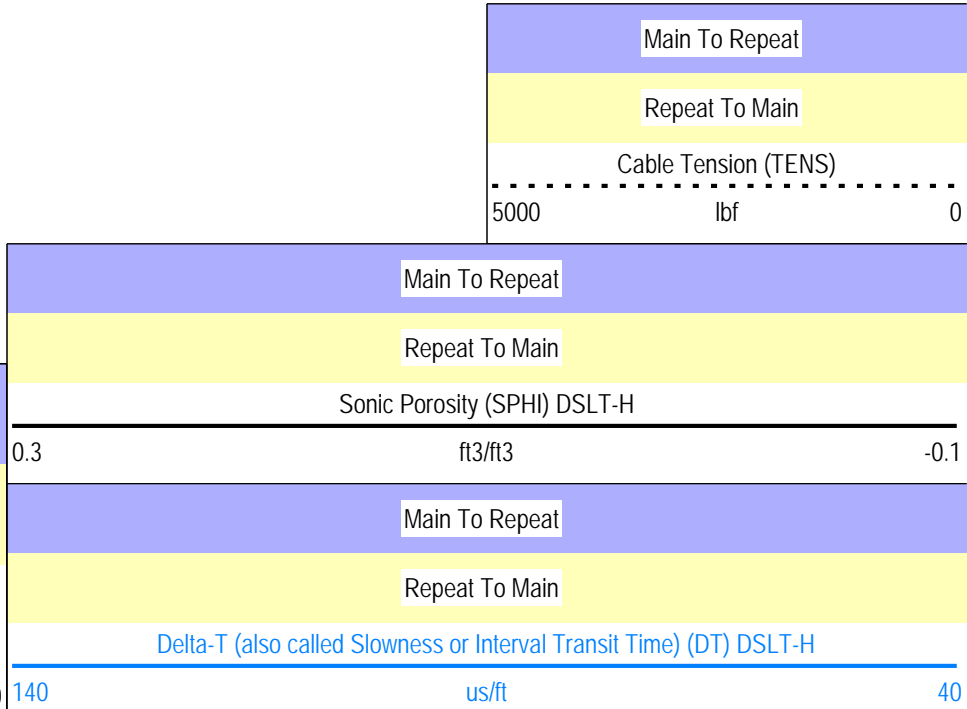
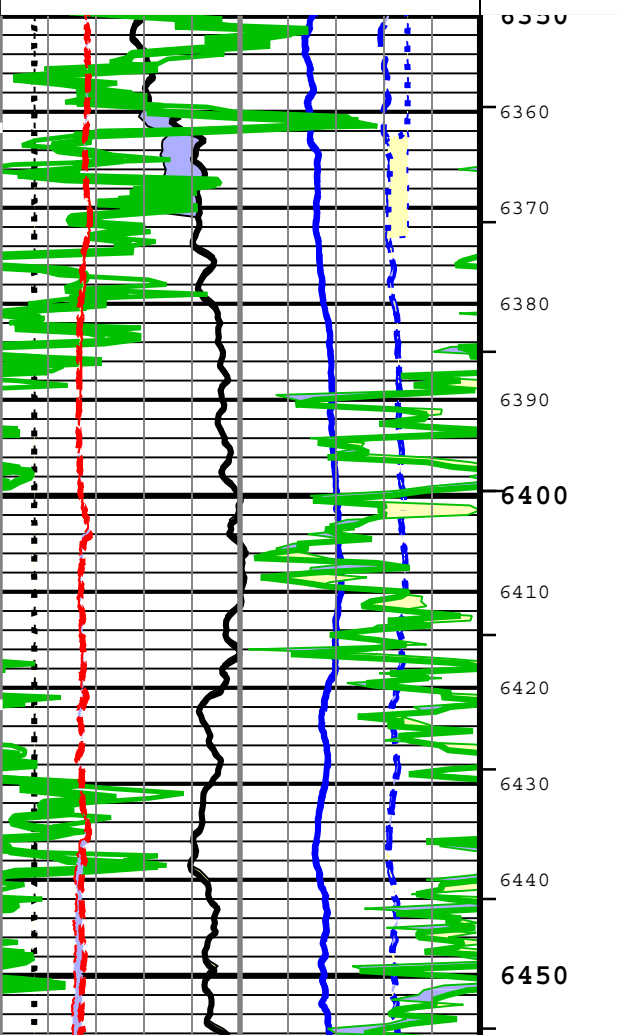
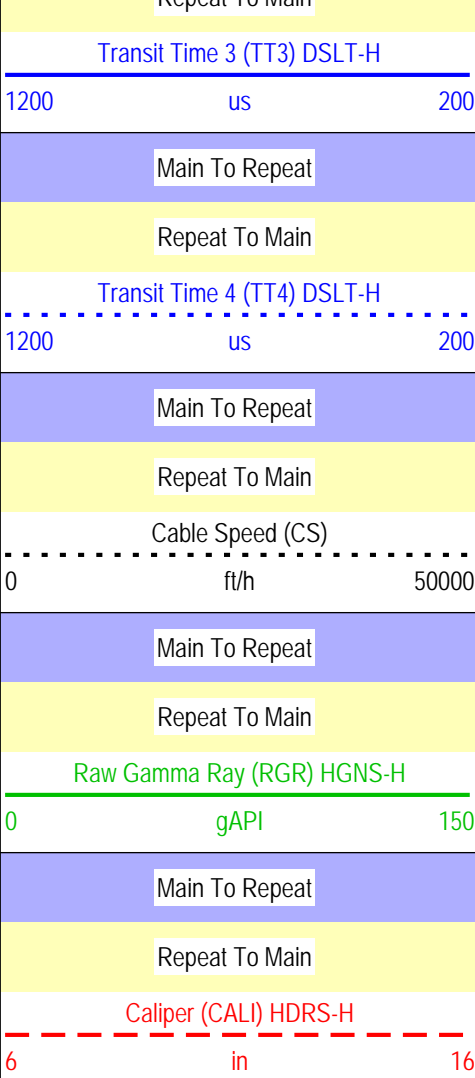
Channel	Source	Sampling
ITT	DSL-T-H:SLS-E:SLS-E	6in
TIME_1900	WLWorkflow	0.1in

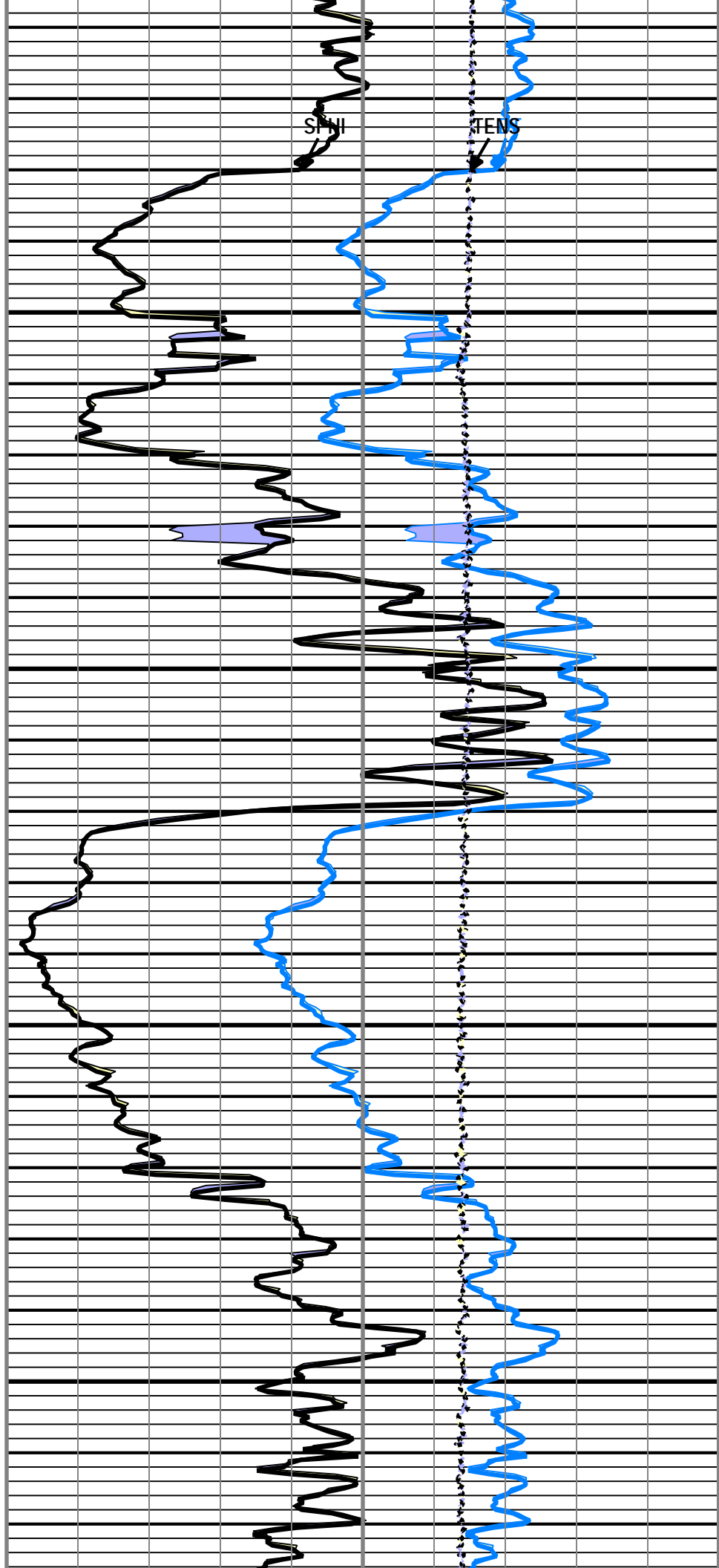
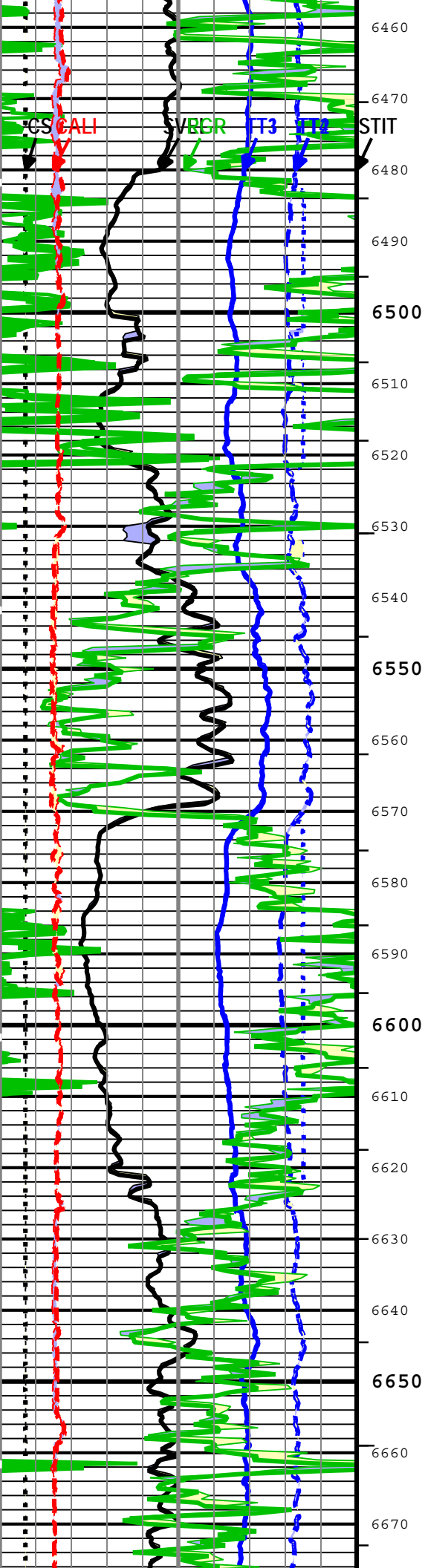
└ ITT - Integrated Transit Time every 10.00 (ms)

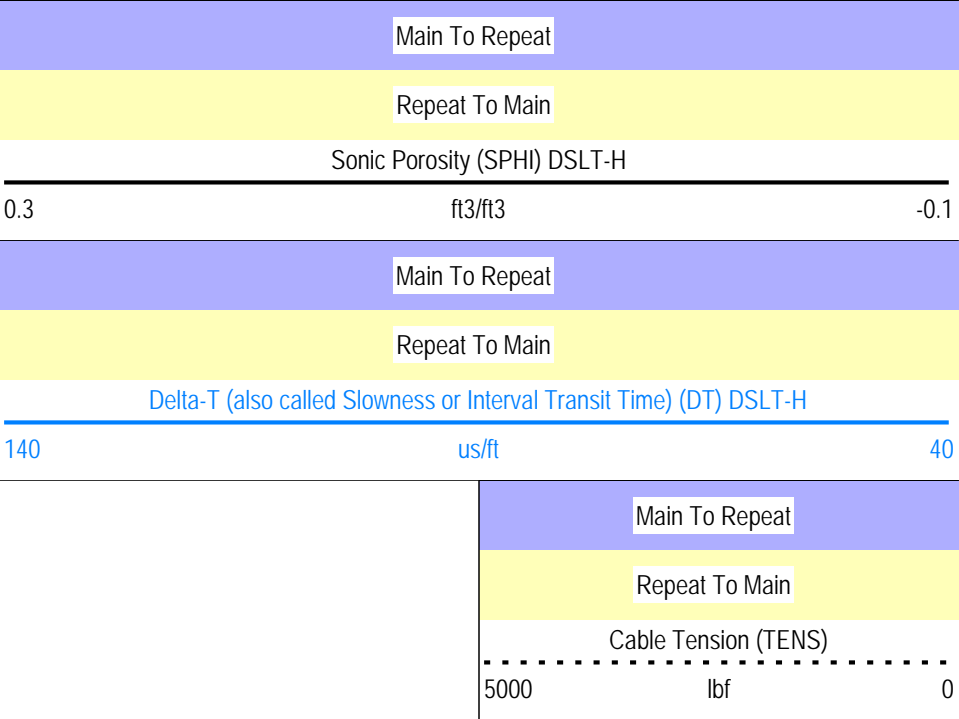
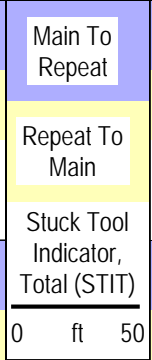
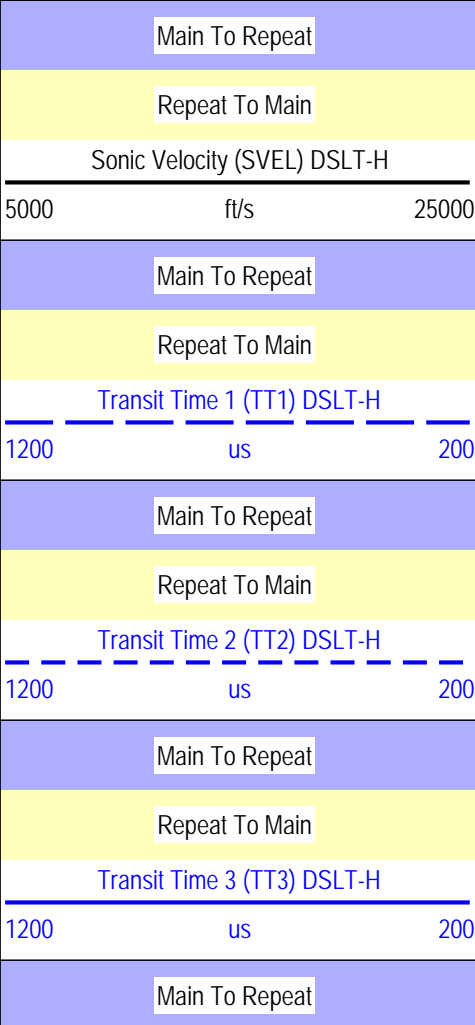
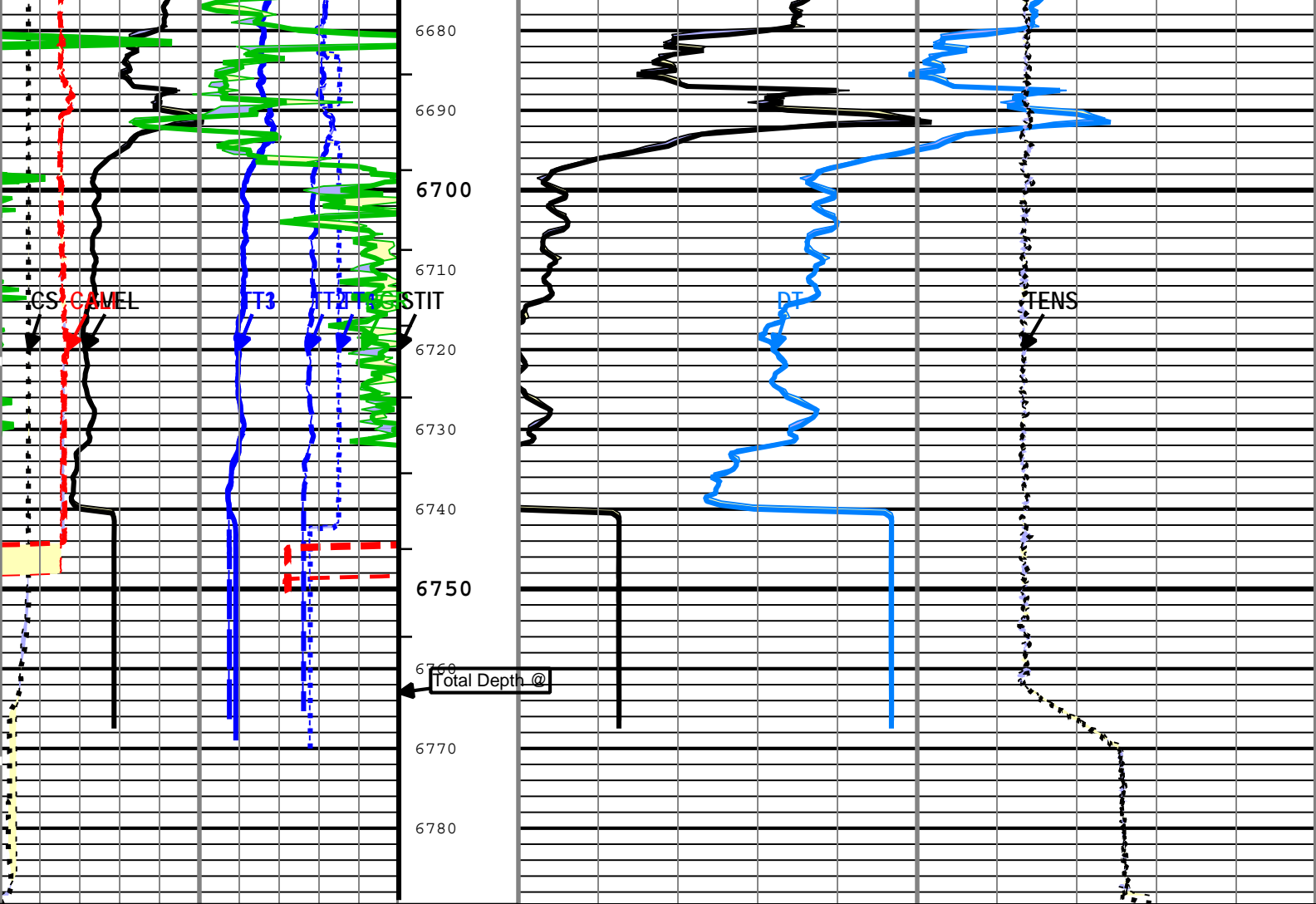
Diagram illustrating the relationship between Sonic Velocity (SVEL) and Transit Time (TT) for DSLT-H.

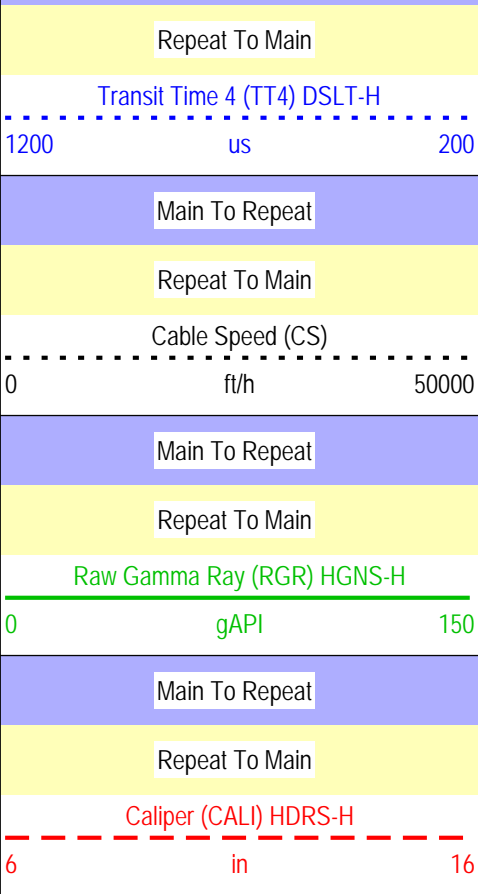
The diagram is divided into three horizontal sections, each representing a different parameter:

- Top Section:** Shows the relationship between Sonic Velocity (SVEL) and Transit Time (TT). The top bar is labeled "Main To Repeat" and the bottom bar is labeled "Repeat To Main". The middle bar is labeled "Sonic Velocity (SVEL) DSLT-H". The scale ranges from 5000 to 25000 ft/s.
- Middle Section:** Shows the relationship between Transit Time 1 (TT1) and Transit Time 2 (TT2). The top bar is labeled "Main To Repeat" and the bottom bar is labeled "Repeat To Main". The middle bar is labeled "Transit Time 1 (TT1) DSLT-H". The scale ranges from 1200 to 2000 us.
- Bottom Section:** Shows the relationship between Transit Time 2 (TT2) and Transit Time 1 (TT1). The top bar is labeled "Main To Repeat" and the bottom bar is labeled "Repeat To Main". The middle bar is labeled "Transit Time 2 (TT2) DSLT-H". The scale ranges from 1200 to 2000 us.









TIME_1900 - Time Marked every 60.00 (s)

└─ ITT - Integrated Transit Time every 10.00 (ms)

└─ ITT - Integrated Transit Time every 1.00 (ms)

Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured
Depth Creation Date: 04-Nov-2011 02:24:32

Calibration Report

AIT-M (Array Induction Tool - M) Calibration - Run 1

Primary Equipment :			
Array Induction Sonde - M	AMIS	1372	
Auxiliary Equipment :			
AITM Rm/SP Bottom Nose	AMRM		

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM):		18:53:08 10-Aug-2011						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Test Loop Gain - 0		Master	1.000	0.950	1.018	1.050		
Test Loop Phase - 0	deg	Master	0	-3.000	0.403	3.000		
Test Loop Gain - 1		Master	1.000	0.950	1.016	1.050		
Test Loop Phase - 1	deg	Master	0	-3.000	0.616	3.000		
Test Loop Gain - 2		Master	1.000	0.950	1.015	1.050		
Test Loop Phase - 2	deg	Master	0	-3.000	0.029	3.000		
Test Loop Gain - 3		Master	1.000	0.950	1.011	1.050		
Test Loop Phase - 3	deg	Master	0	-3.000	0.117	3.000		
Test Loop Gain - 4		Master	1.000	0.950	0.993	1.050		
Test Loop Phase - 4	deg	Master	0	-3.000	0.035	3.000		
Test Loop Gain - 5		Master	1.000	0.950	0.989	1.050		
Test Loop Phase - 5	deg	Master	0	-3.000	-0.149	3.000		
Test Loop Gain - 6		Master	1.000	0.950	0.994	1.050		
Test Loop Phase - 6	deg	Master	0	-3.000	0.212	3.000		
Test Loop Gain - 7		Master	1.000	0.950	1.006	1.050		
Test Loop Phase - 7	deg	Master	0	-3.000	-0.190	3.000		

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM):		18:53:08 10-Aug-2011						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	----	-231.000	-65.663	119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 0		Master	----	-2250.000	-635.734	2250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 1	mS/m	Master	----	114.000	172.526	204.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 1		Master	----	-625.000	182.961	625.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 2	mS/m	Master	----	66.000	117.800	156.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 2		Master	----	-350.000	43.888	350.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 3	mS/m	Master	----	39.000	63.841	89.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 3		Master	----	-250.000	-64.676	250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 4	mS/m	Master	----	15.000	26.623	35.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 4		Master	----	-63.000	18.539	63.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 5	mS/m	Master	----	4.000	11.882	24.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 5		Master	----	-50.000	-14.739	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 6	mS/m	Master	----	5.000	9.348	15.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 6		Master	----	-30.000	-5.042	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 7	mS/m	Master	----	-5.000	-1.492	5.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7		Master	----	-30.000	-12.274	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 18:53:08 10-Aug-2011							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.922	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	0.928	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 18:53:08 10-Aug-2011	Before (Measured):	14:02:18 29-Oct-2011 Expired by 3 days	After:
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	----	0.366	0.619	0.854	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	0.366	0.619	0.854	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 0	deg	Master	----	137.000	-179.825	-103.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	137.000	179.822	-103.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	359.647	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 1	V	Master	----	0.762	1.268	1.778	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	0.762	1.269	1.778	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.000999999999999999	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 1	deg	Master	----	136.000	179.097	-104.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	136.000	178.744	-104.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	0.353000000000000009	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 2	V	Master	----	0.372	0.630	0.868	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	0.372	0.631	0.868	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 2	deg	Master	----	132.000	175.539	-108.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	132.000	175.190	-108.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	0.348999999999999999	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 3	V	Master	----	0.420	0.711	0.980	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	0.420	0.712	0.980	<div><div></div><div></div><div></div><div></div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 3	deg	Master	----	131.000	174.782	-109.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	----	131.000	174.434	-109.000	<div><div></div><div></div><div></div><div></div><div></div></div>

		After Before-Master	----- -----	----- -----	NOT DONE - 0.348000000000 013	----- -----	<div><div></div><div></div></div> <div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div> <div><div></div><div></div></div>
Thru Cal Mag - 4	V	Master	-----	0.804	1.331	1.876	<div><div></div><div></div><div></div></div>
		Before	-----	0.804	1.332	1.876	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.001000000000 00011	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Master	-----	125.000	168.627	-115.000	<div><div></div><div></div><div></div></div>
		Before	-----	125.000	168.292	-115.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	- 0.335000000000 008	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master	-----	1.176	1.949	2.744	<div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.951	2.744	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.002	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master	-----	122.000	166.916	-118.000	<div><div></div><div></div><div></div></div>
		Before	-----	122.000	166.588	-118.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	- 0.328000000000 003	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master	-----	1.176	1.945	2.744	<div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.947	2.744	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.002	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Master	-----	121.000	166.946	-119.000	<div><div></div><div></div><div></div></div>
		Before	-----	121.000	166.616	-119.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	- 0.329999999999 984	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Mag - 7	V	Master	-----	0.846	1.419	1.974	<div><div></div><div></div><div></div></div>
		Before	-----	0.846	1.420	1.974	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.000999999999 99989	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Master	-----	115.000	166.055	-125.000	<div><div></div><div></div><div></div></div>
		Before	-----	115.000	165.802	-125.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	- 0.253000000000 014	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
SPA Zero	mV	Master	-----	-50.000	-0.193	50.000	<div><div></div><div></div><div></div></div>
		Before	-----	-50.000	-0.192	50.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.001	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
SPA Plus	mV	Master	-----	941.000	983.866	1040.000	<div><div></div><div></div><div></div></div>
		Before	-----	941.000	983.587	1040.000	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	-0.279	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Temperature Zero	V	Master	-----	-0.050	0.000	0.050	<div><div></div><div></div><div></div></div>
		Before	-----	-0.050	0.000	0.050	<div><div></div><div></div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div><div></div></div>
Temperature Plus	V	Master	-----	0.870	0.912	0.960	<div><div></div><div></div><div></div></div>

		Before	-----	0.870	0.911	0.960	
		After	-----	-----	NOT DONE	-----	
		Before-Master	-----	-----	-0.001	-----	
		After-Before	-----	-----	-----	-----	

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1

Primary Equipment :			
	HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	5705
	HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3816
Auxiliary Equipment :			
	HRDD Backscatter Detector	Backscatter	
	HRDD Long Spacing Detector	Long Spacing	28732
	HRDD Short Spacing Detector	Short Spacing	27634
	Cesium 137 Gamma-Ray Logging Source	GSR-J	5363
	HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	5705
	HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	4706
Calibration Parameter :			
	Small Ring Size (Caliper Calibration Small Ring)	8.00	
	Large Ring Size (Caliper Calibration Large Ring)	12.00	

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): 14:02:36 29-Oct-2011 Expired by 3 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.80	10.00	
Large Ring	in	Before	12.00	9.00	13.15	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 12:02:32 06-Oct-2011							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.597	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.686	1.696	
Pe Aluminum		Master	2.570	2.470	2.551	2.670	
Pe Magnesium		Master	2.650	2.550	2.628	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 12:02:32 06-Oct-2011							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.3594	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.7808	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3948	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.8764	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.6879	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.7586	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 12:02:32 06-Oct-2011				Before (Measured): 13:59:36 29-Oct-2011 Expired by 3 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000	-----	0.7474	-----	
		Before	0.7474	0.7100	0.7469	0.7847	
		Before-Master	-----	-----	-0.0005	-----	
BS Window Sum	1/s	Master	1	-----	26409	-----	
		Before	26409	25088	26715	27729	
		Before-Master	-----	-----	306	-----	
SS Window Ratio		Master	1.0000	-----	0.4817	-----	
		Before	0.4817	0.4577	0.4827	0.5058	
		Before-Master	-----	-----	0.0010	-----	
SS Window Sum	1/s	Master	1	-----	10560	-----	
		Before	10560	10032	10555	11088	
		Before-Master	-----	-----	-5	-----	
LS Window Ratio		Master	1.0000	-----	0.3037	-----	
		Before	0.3037	0.2885	0.3020	0.3189	
		Before-Master	-----	-----	-0.0017	-----	
LS Window Sum	1/s	Master	1	-----	1238	-----	

Window Cam		Master	1238	1176	1230	1300	
		Before	-----	-----	-8	-----	
		Before-Master					

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		12:02:32 06-Oct-2011		Before (Measured):		13:59:36 29-Oct-2011 Expired by 3 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master	-----	1000	1383	2400	
		Before	-----	1000	1420	2400	
		Before-Master	-----	-100	37	100	
SS PM High Voltage	V	Master	-----	1000	1396	2400	
		Before	-----	1000	1403	2400	
		Before-Master	-----	-100	7	100	
LS PM High Voltage	V	Master	-----	1000	1198	2400	
		Before	-----	1000	1212	2400	
		Before-Master	-----	-100	14	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		12:02:32 06-Oct-2011		Before (Measured):		13:59:36 29-Oct-2011 Expired by 3 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master	-----	5.00	10.81	25.00	
		Before	-----	5.00	10.81	25.00	
		Before-Master	-----	-1.00	0.00	1.00	
SS Crystal Resolution	%	Master	-----	5.00	9.87	20.00	
		Before	-----	5.00	10.04	20.00	
		Before-Master	-----	-1.00	0.17	1.00	
LS Crystal Resolution	%	Master	-----	5.00	8.00	20.00	
		Before	-----	5.00	8.02	20.00	
		Before-Master	-----	-1.00	0.02	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		14:01:20 29-Oct-2011 Expired by 3 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3878	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3826	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3824	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4779	
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC	HACCZ-H	5736	
AmBe Neutron Logging Source	NSR-F	5168	
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)	165		

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):		15:44:45 03-Nov-2011					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.2	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):		00:00:00 15-Mar-2006					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master	-----	-----	QAT_160	-----	
Accelerometer Reference Temperature	degF	Master	-----	30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	8084.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	-8.467	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.009	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.722	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	

Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	298.700	----	
Accelerometer Coefficients - 9		Master	----	----	0.995	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 06:22:24 07-Oct-2011		Before (Measured): 13:55:47 29-Oct-2011		After: Expired by 3 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	24.1	40.0	
		Before	0	5.0	24.7	40.0	
		After	----	----	NOT DONE	----	
		Before-Master	----	-3.6	0.6	3.6	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	28.1	40.0	
		Before	0	5.0	27.2	40.0	
		After	----	----	NOT DONE	----	
		Before-Master	----	-4.2	-0.9	4.2	
		After-Before	----	----	----	----	
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	5352.0	6900.0	
		Before	----	----	NOT DONE	----	
		After	----	----	NOT DONE	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2227.0	2900.0	
		Before	----	----	NOT DONE	----	
		After	----	----	NOT DONE	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement - 0	1/s	Master	----	4700.0	5354.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement - 0	1/s	Master	----	1900.0	2215.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 14:02:11 29-Oct-2011		Expired by 3 days		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	97.5	120.0	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	169.8	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

Company:	Texas American Resources Company	Schlumberger
Well:	Roth 44-30	
Field:	Wattenberg	
County:	Weld	
Country:	USA	

Borehole Compensated Sonic