

APPENDIX F

OPEN-HOLE GEOPHYSICAL LOGS

Surface Casing Logs

Upper Intermediate Casing Logs

Lower Intermediate Casing Logs

Production Casing Logs

Composite Casing Logs

Surface Casing Logs

- **Borehole Volume Log**
- **Platform Express / High
Resolution Laterolog Array /
Micro-CFL\HNGS**
- **Caliper Log**

Borehole Volume Plot

**BOREHOLE
VOLUME
PLOT**

DCP MIDSTREAM, LLC LINAM AGI No 2 AGI; BONE SPRING - WOLFCAMP LEA NEW MEXICO				COMPANY DCP MIDSTREAM, LLC WELL LINAM AGI No 2 FIELD/BLOCK AGI; BONE SPRING - WOLFCAMP COUNTY LEA STATE NEW MEXICO			
COMPANY WELL FIELD/BLOCK COUNTY				DCP MIDSTREAM, LLC LINAM AGI No 2 AGI; BONE SPRING - WOLFCAMP LEA STATE NEW MEXICO			
API No. 30-025-42139 Location 1600' FSL AND 1750' FWL				Other Services: NONE			
Permanent Datum GL Log measured from KB Drilling measured from KB				Elev. 3738.0 ft Elev.: K.B. 3763.0 ft D.F. 3762.0 ft G.L. 3738.0 ft			
Date 20-Oct-14							
Run No. ONE							
Depth - Driller 1580.00 ft							
Depth - Logger 1574.0 ft							
Bottom - Logged Interval 1562 ft							
Top - Logged Interval 136 ft							
Casing - Driller 30.000 in @ 145.0 ft				@			
Casing - Logger 134.0 ft							
Bit Size 26.000 in				@			
Type Fluid in Hole Fresh Water							
Density		Viscosity	34.00 s/qt				
PH		Fluid Loss					
Source of Sample FLOWLINE							
Rm @ Meas. Temperature 1.750 ohmm @ 75.00 degF				@			
Rmt @ Meas. Temperature 1.54 ohmm @ 75.00 degF				@			
Rmc @ Meas. Temperature 1.960 ohmm @ 75.00 degF				@			
Source Rmt		Rmc	MEAS				
Rm @ BHT 1.38 ohmm @ 97.0 degF				@			
Time Since Circulation 8.0000 hr							
Time on Bottom 20-Oct-14 09:39:59.000							
Max. Rec. Temperature 97.0 degF @ 1574.0 ft				@			
Equipment		Location	HOBS, NM				
Recorded By CRAIG ISNER							
Witnessed By RUSSELL BENTLEY							

Fold here

Service Ticket No.: 901740028				API Serial No.: 30-025-42139				PGM Version: WL INSITE R4.4.1 (Build 9)			
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.		@		@											
Rmc @ Meas. Temp.		@		@											
Source Rmf	Rmc														
Rm @ BHT		@		@											
Rmf @ BHT		@		@											
Rmc @ BHT		@		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.				Run No.				Run No.			
Serial No.		10778013		Serial No.				Serial No.				Serial No.			
Model No.		GTET		Model No.				Model No.				Model No.			
Diameter		3.625 in		No. of Cent.				Diameter				Diameter			
Detector Model No.		T-102A		Spacing				Log Type				Log Type			
Type		SCINT						Source Type				Source Type			
Length		8 in		LSA [Y/N]				Serial No.				Serial No.			
Distance to Source		N/A		FWDA [Y/N]				Strength				Strength			
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	1574	136	REC	0	100										
DIRECTIONAL INFORMATION															
Maximum Deviation @								KOP @							
Remarks: WELL SITE COORDINATES: LAT:32.72 deg N; LONG: 103.29 deg W															
TOOL STRING: GTET-ICT-CENT															
ANNULAR HOLE VOLUME CALCULATED USING 20 in CASING															
HES CREW: V. SOLIS, R. GRANGER															
ALL HALLIBURTON DEPTH CONTROL PROCEDURES FOLLOWED: FMM: 95.2 ft; LMM: 1495.4 ft															
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES! 1-800-416-6081 (HOBBS, NM)															
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															

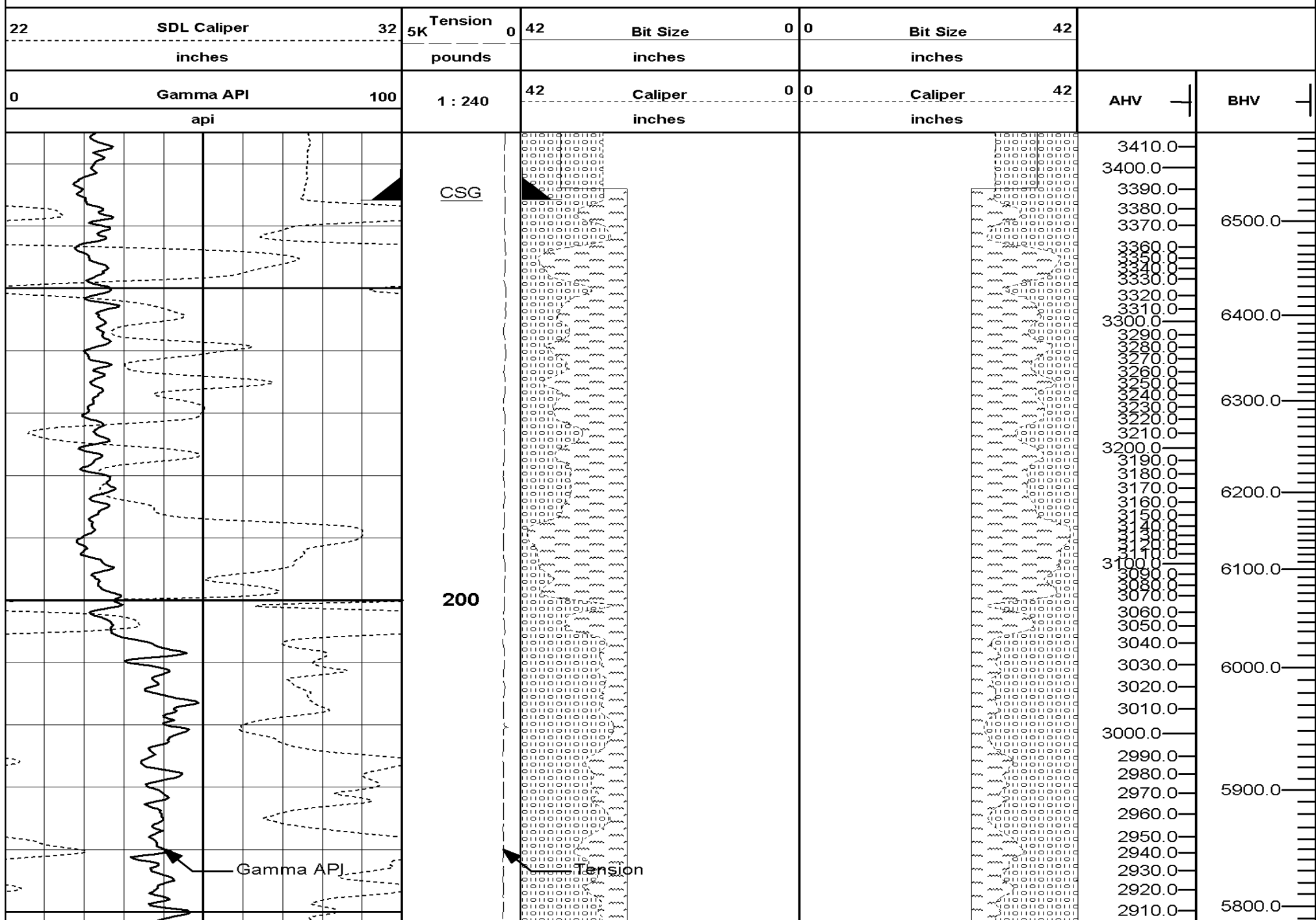
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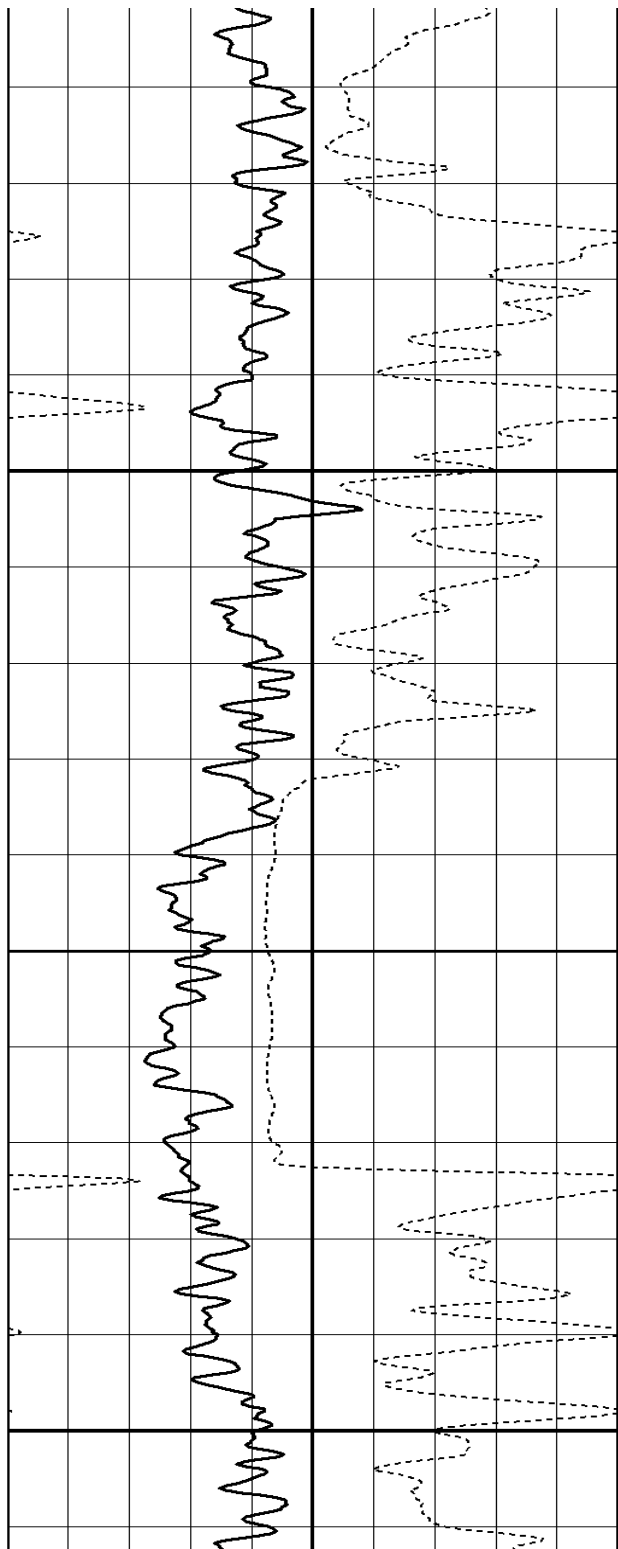
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Plot Range: 125 ft to 1580 ft

Data: 1020_DPC\Well Based\DAQ-0001-004

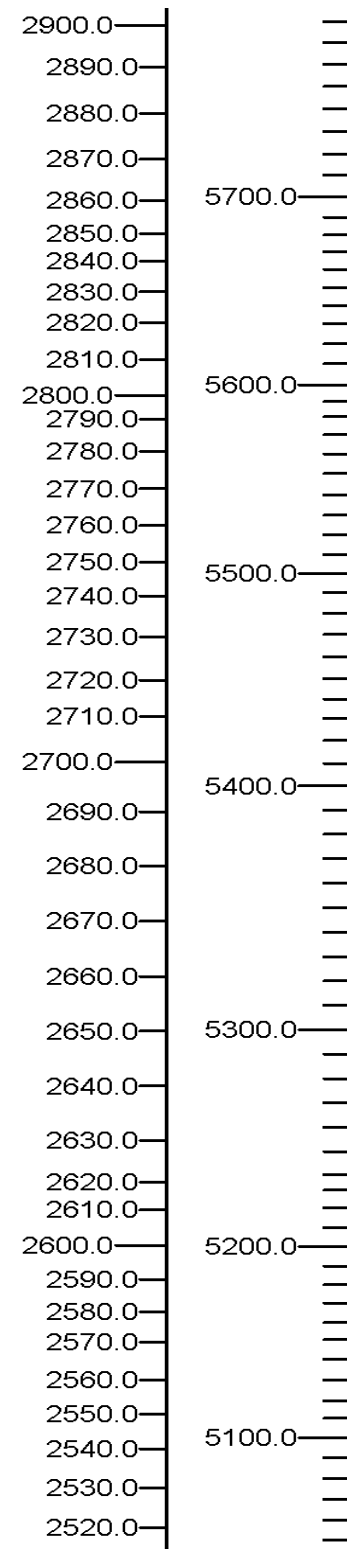
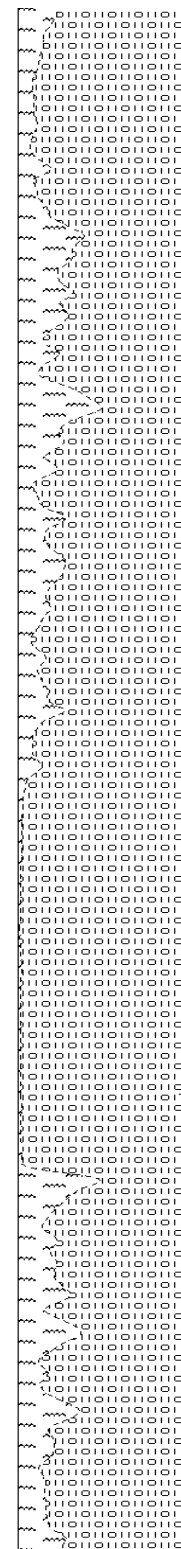
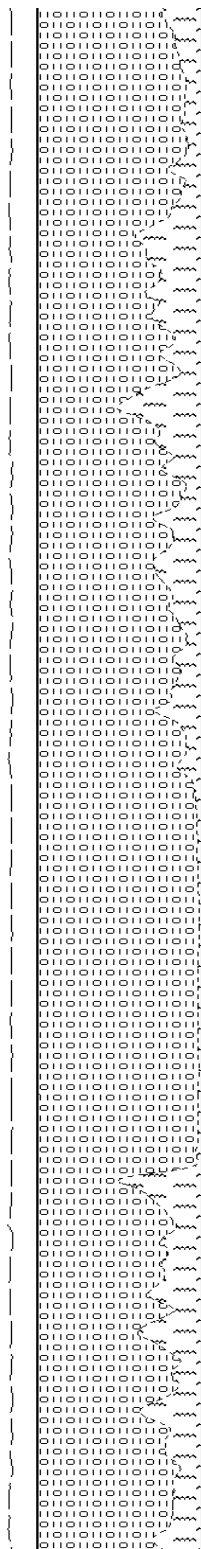
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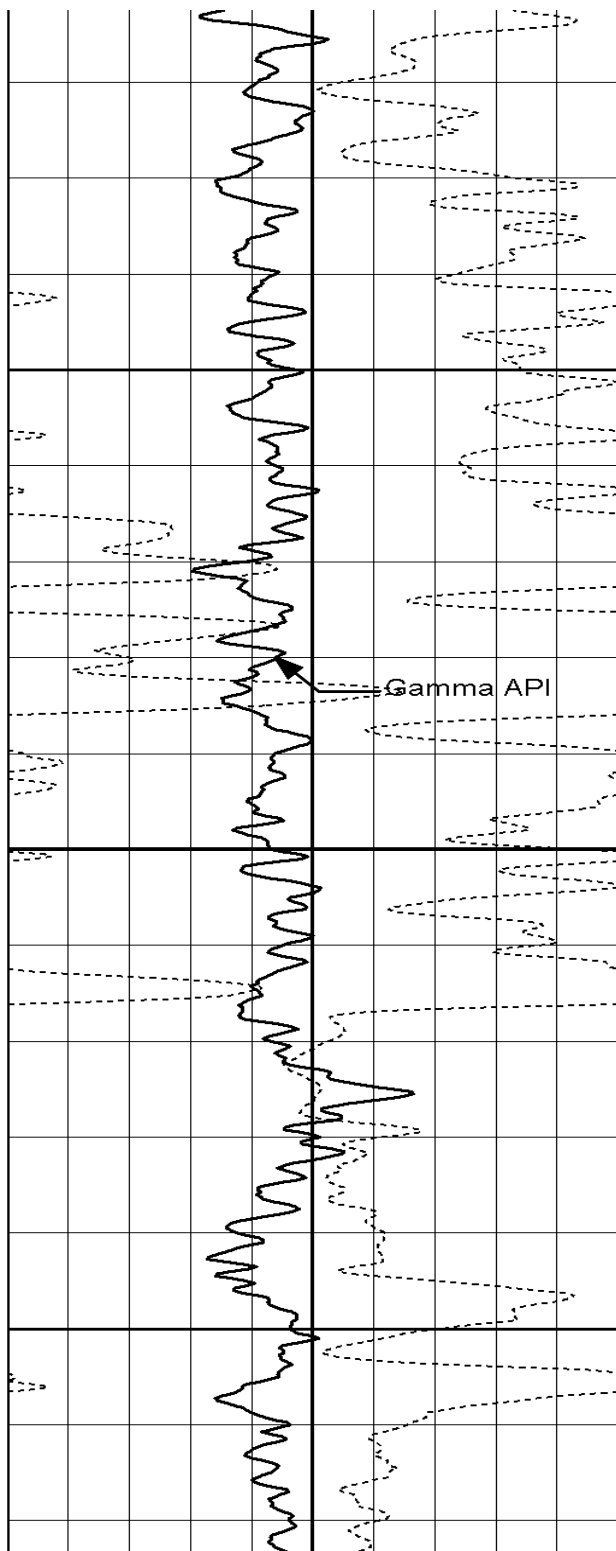




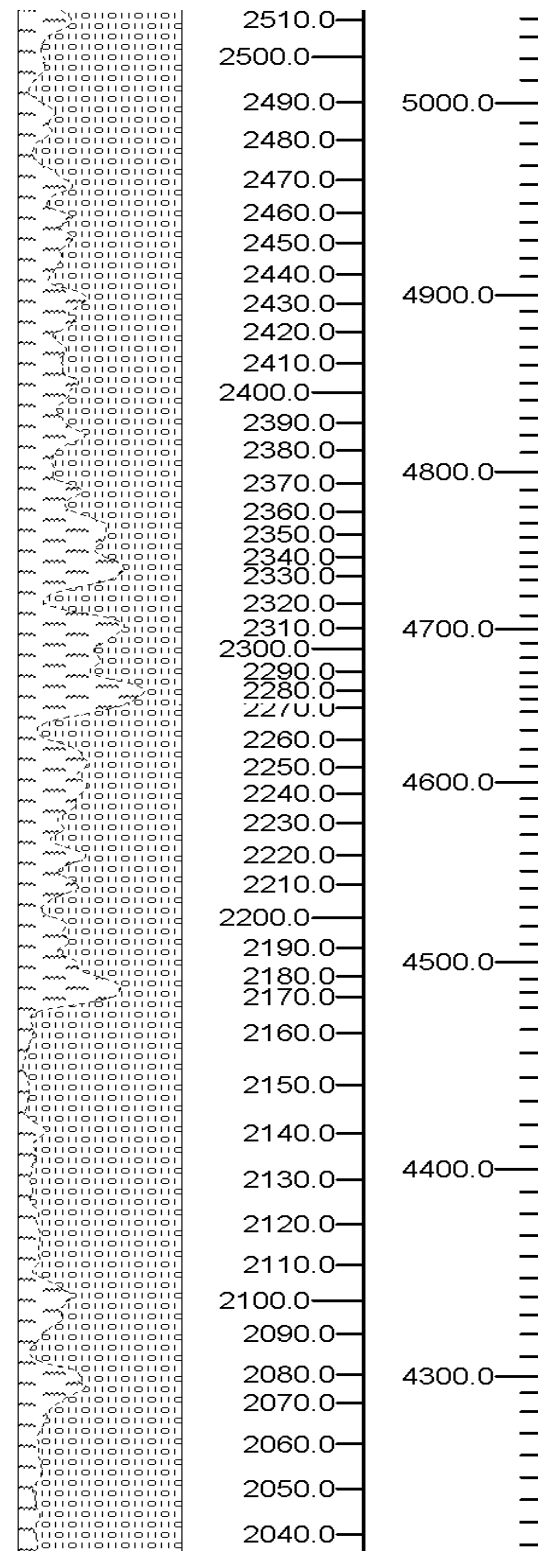
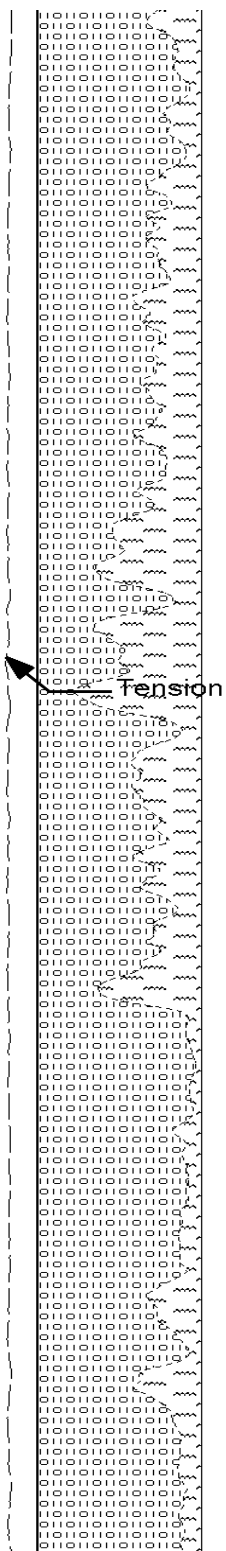
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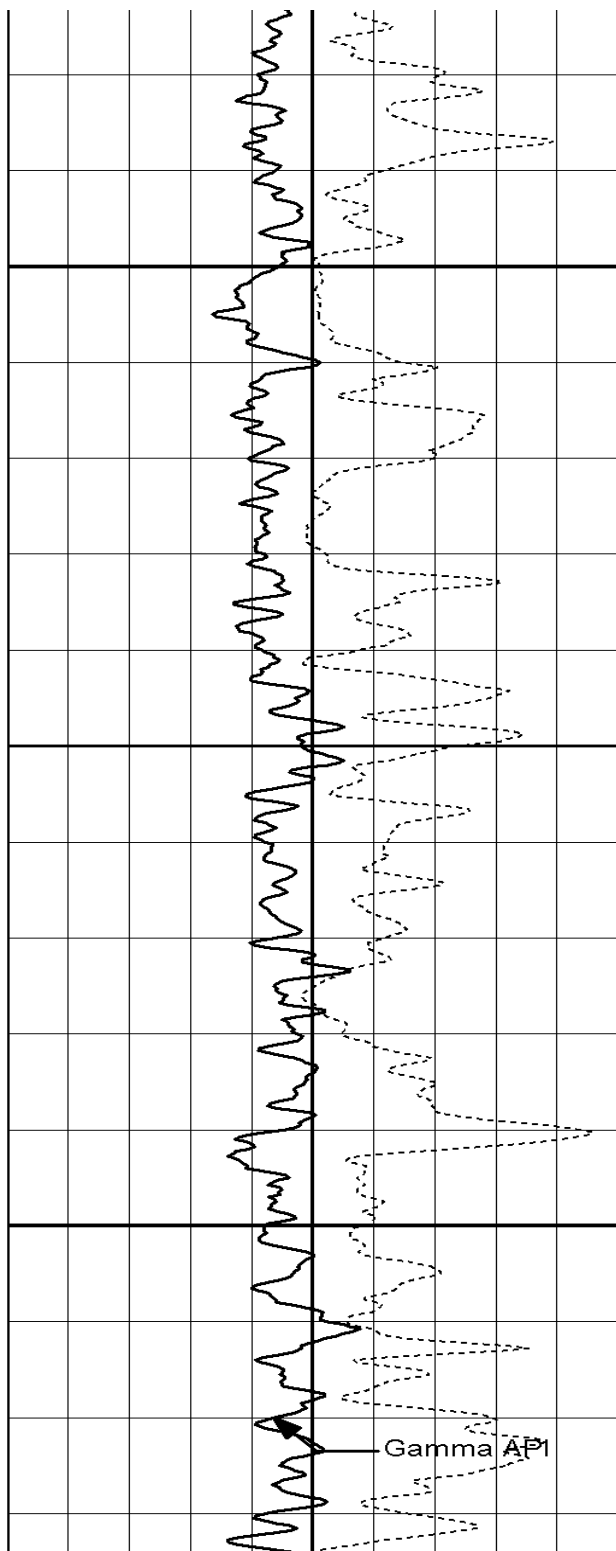
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500

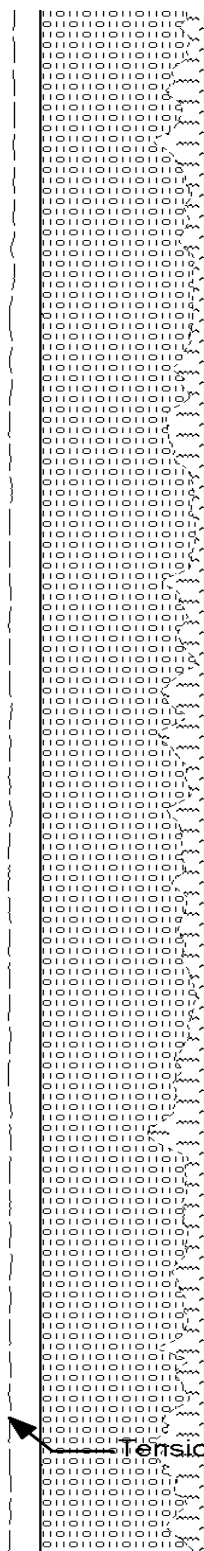




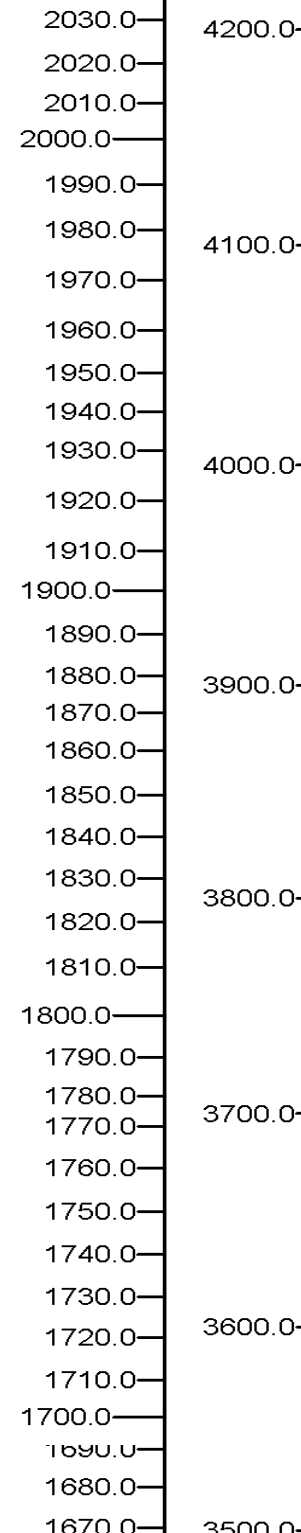
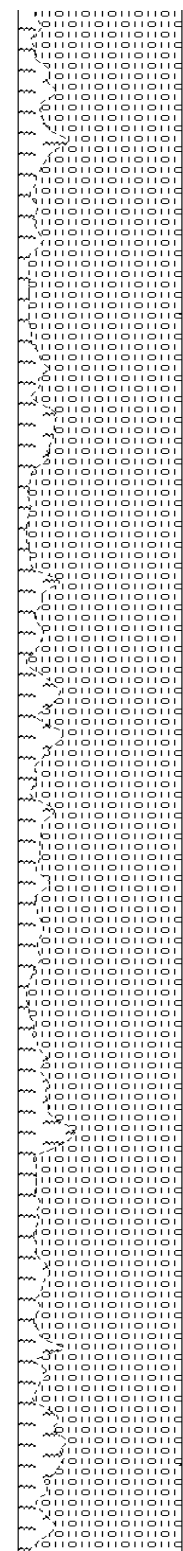
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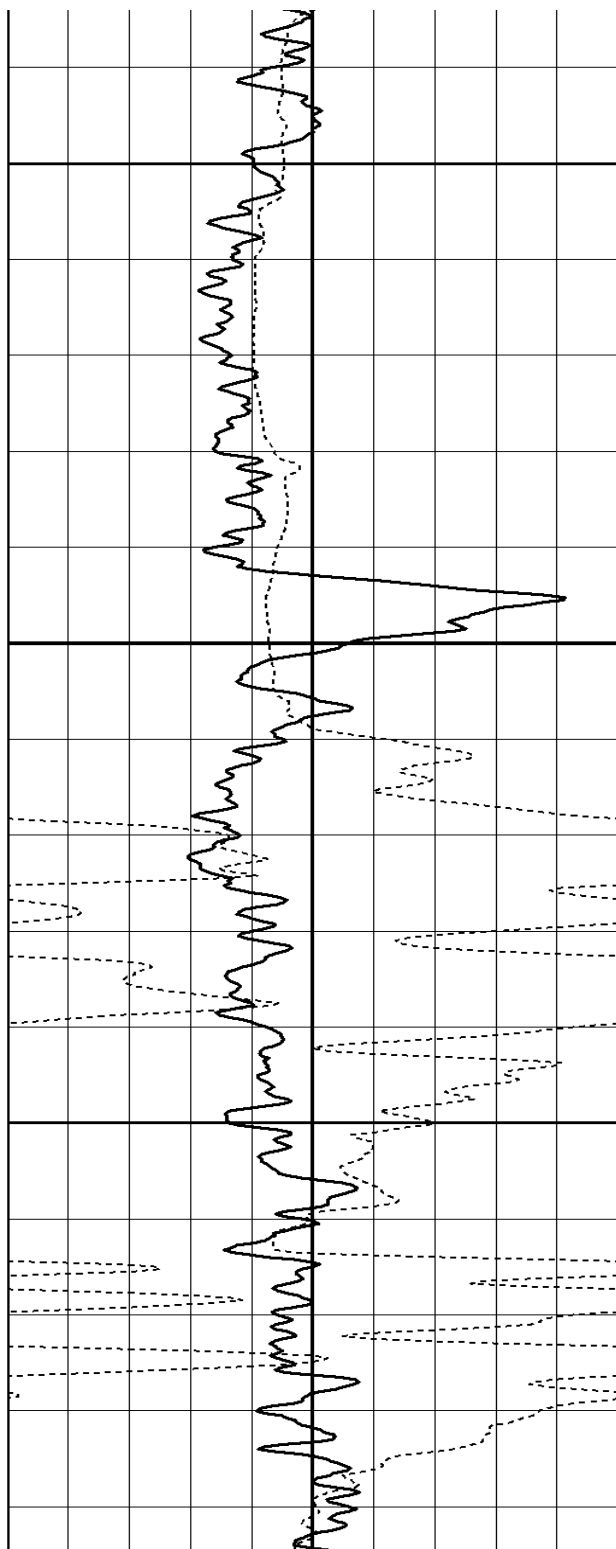
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Gamma AP1

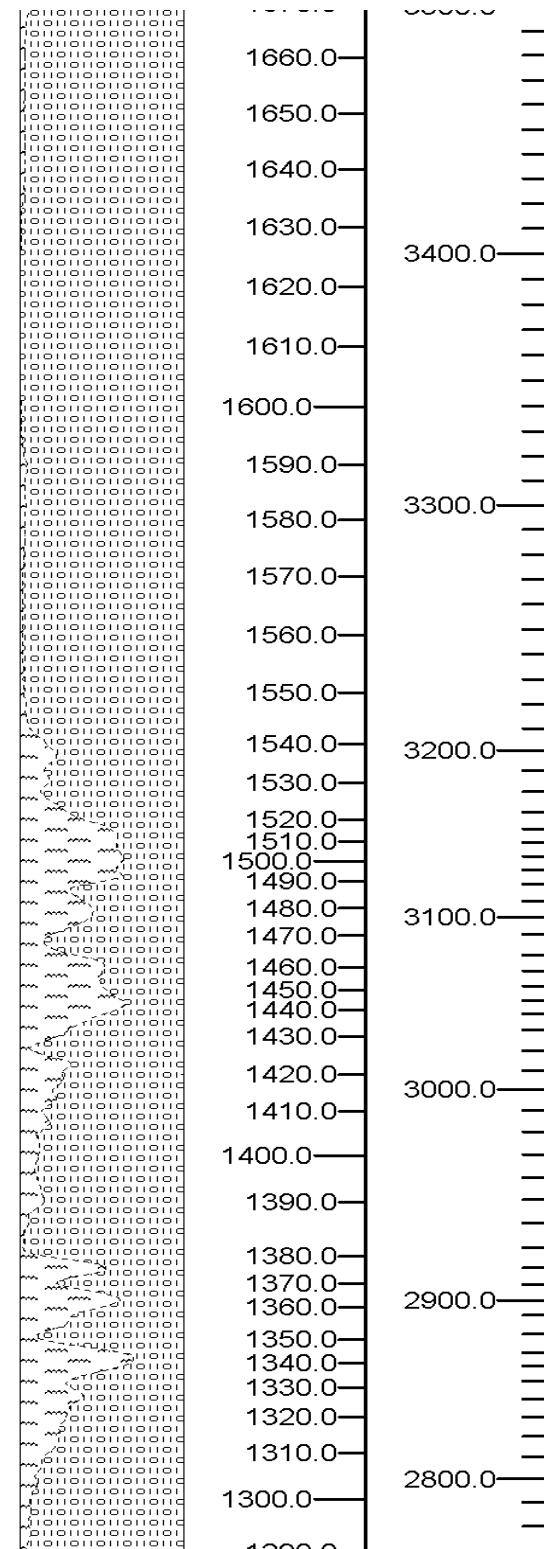
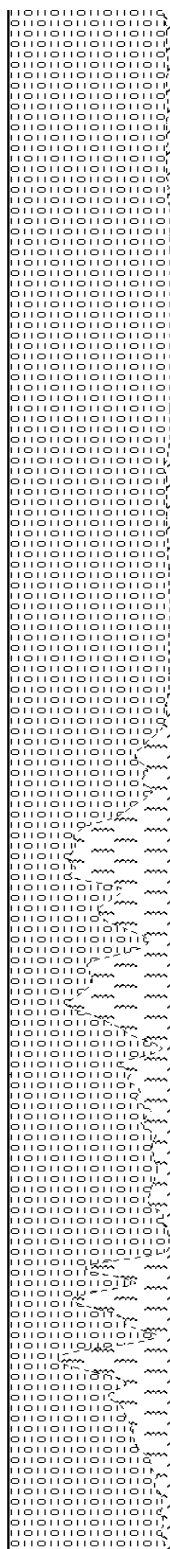


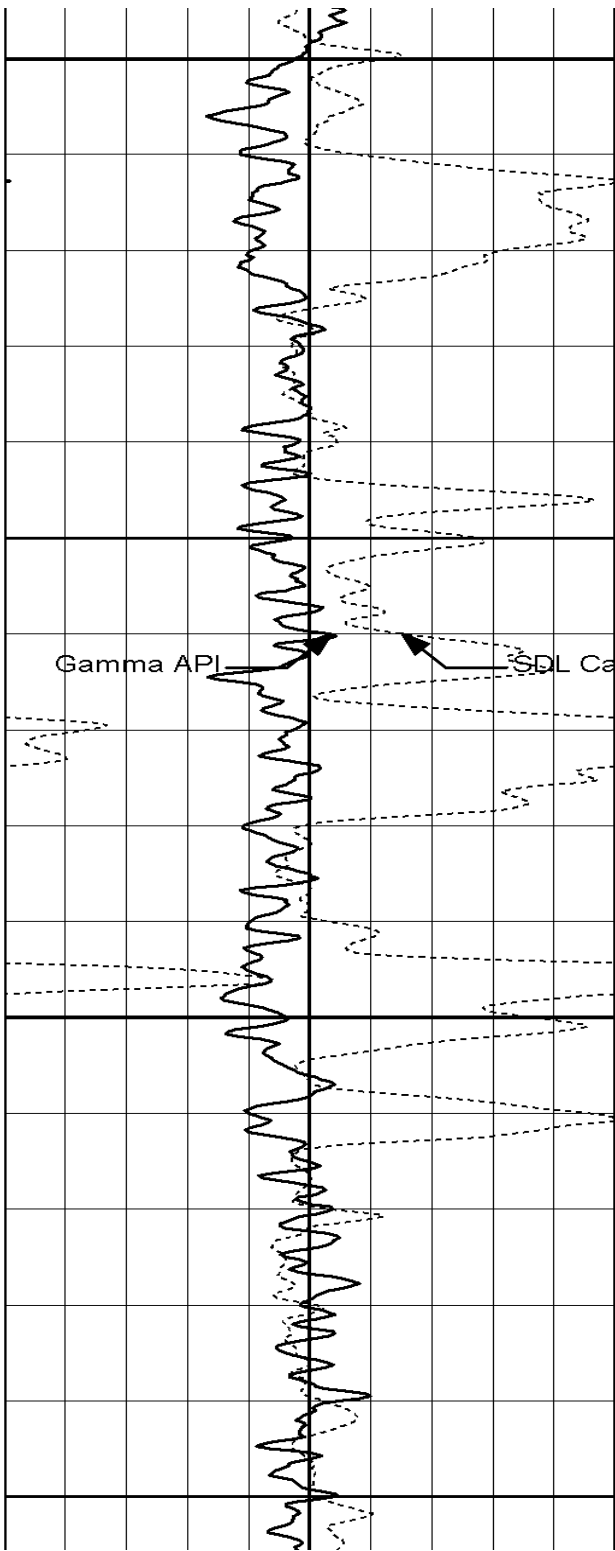
Tension





800



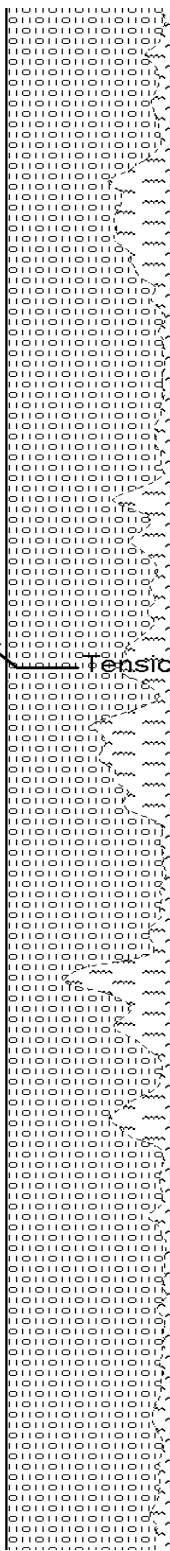


900

1000

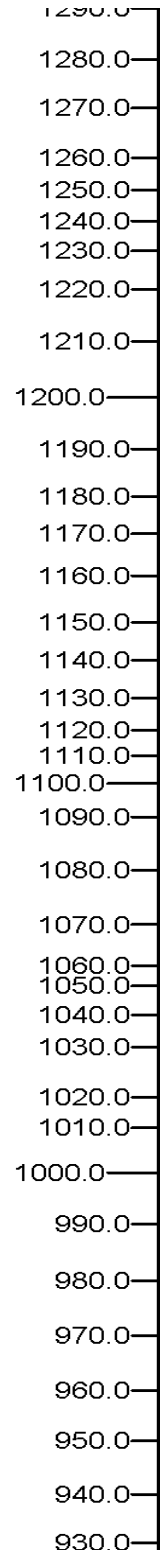
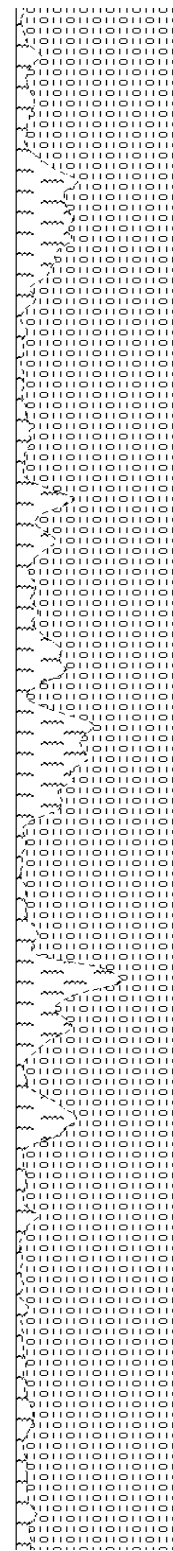
Gamma API

SDL Caliper



Gamma API

SDL Caliper



2700.0

2600.0

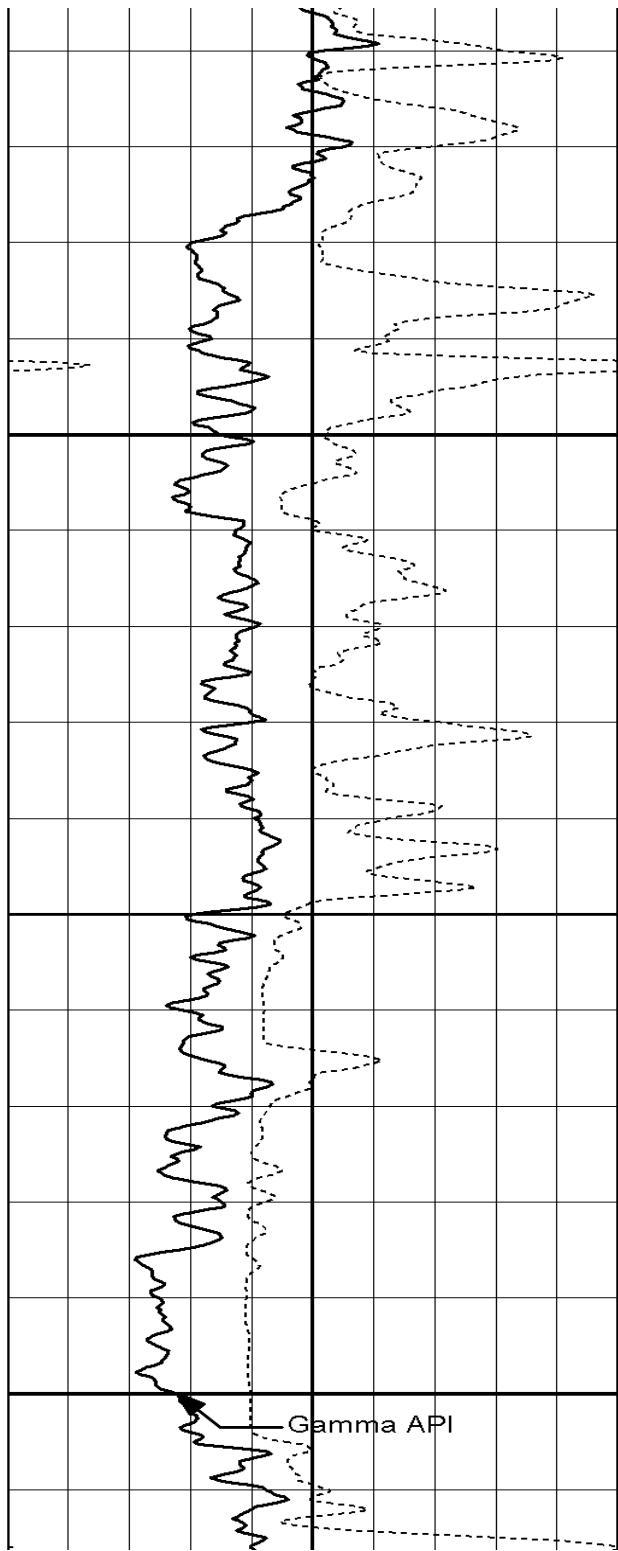
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2400.0

2300.0

2200.0

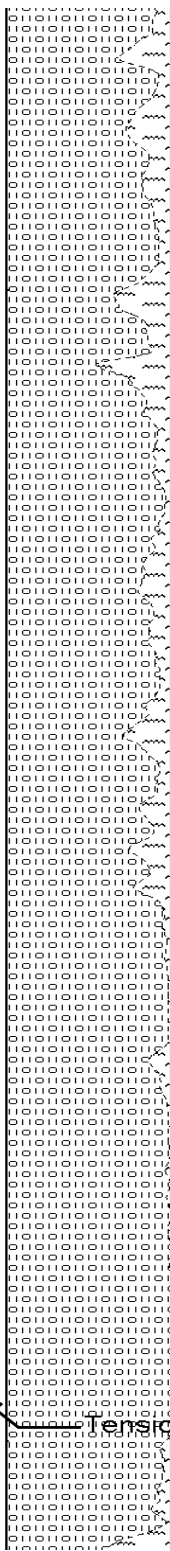
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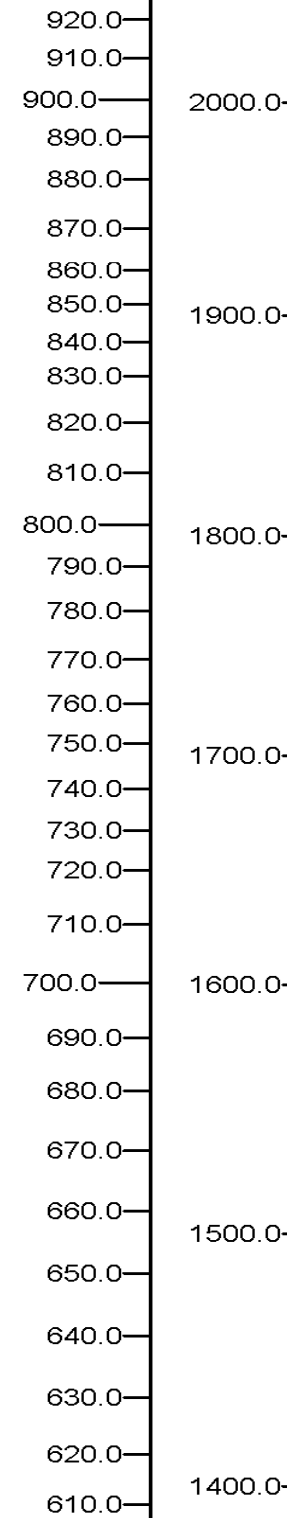
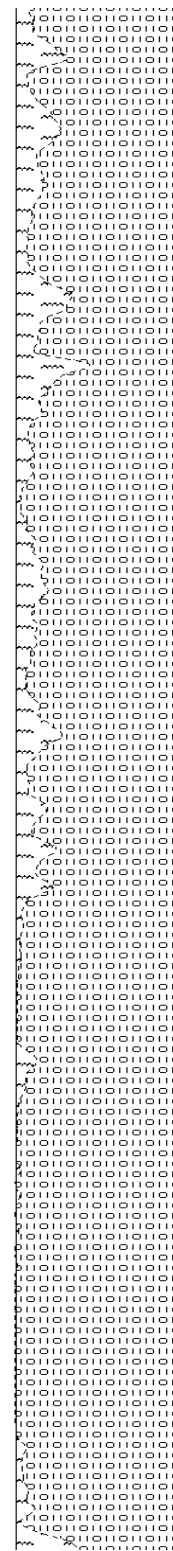
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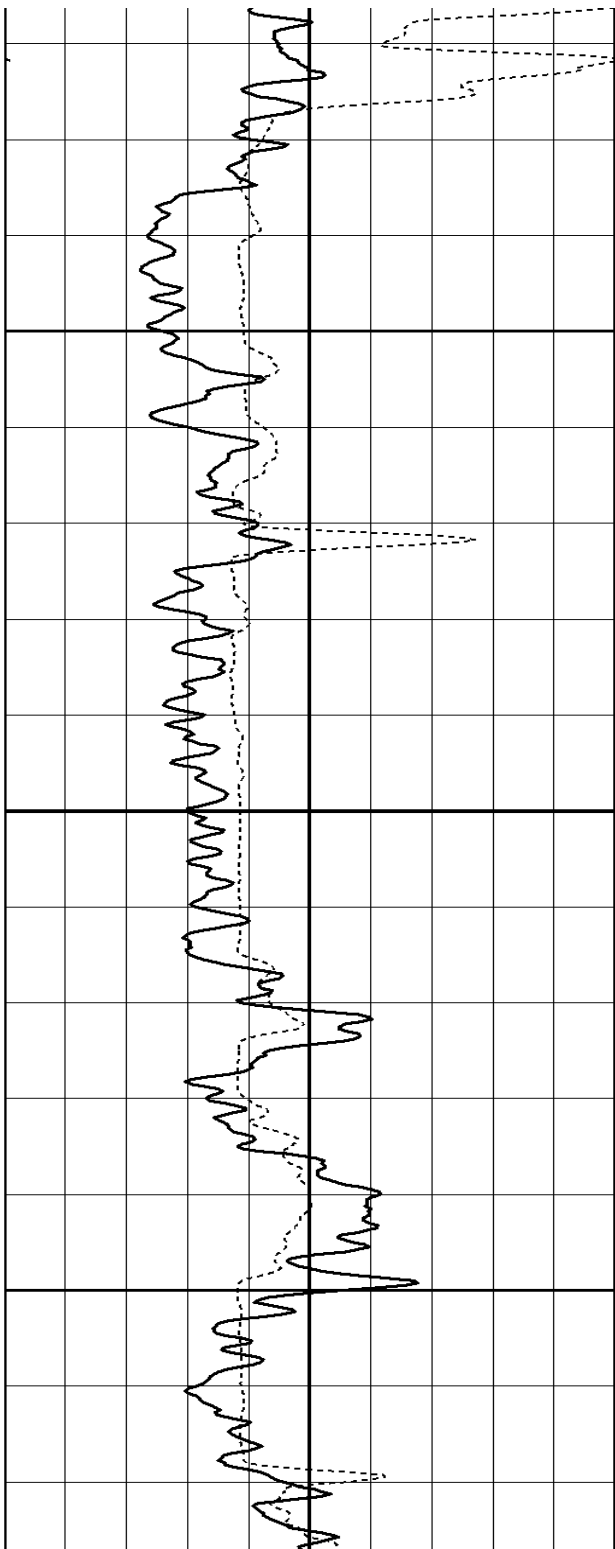
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Gamma API

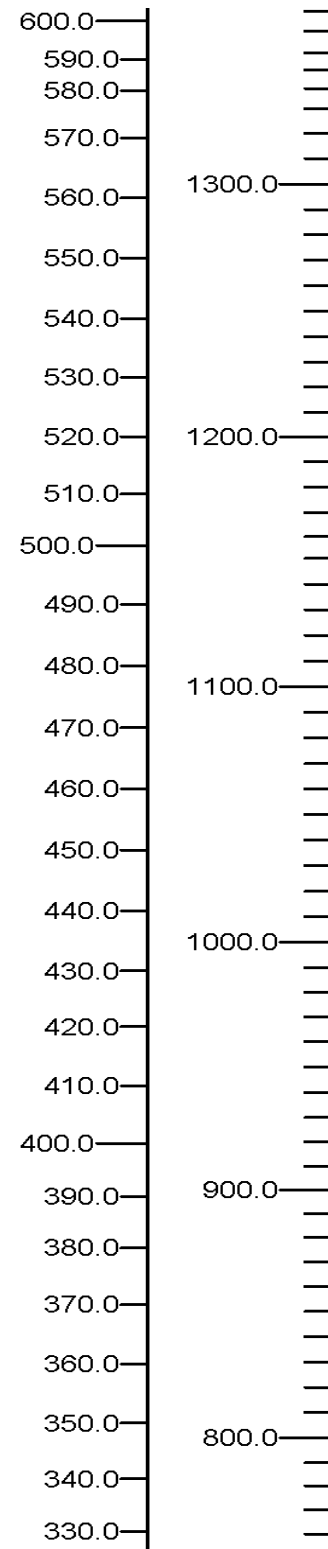
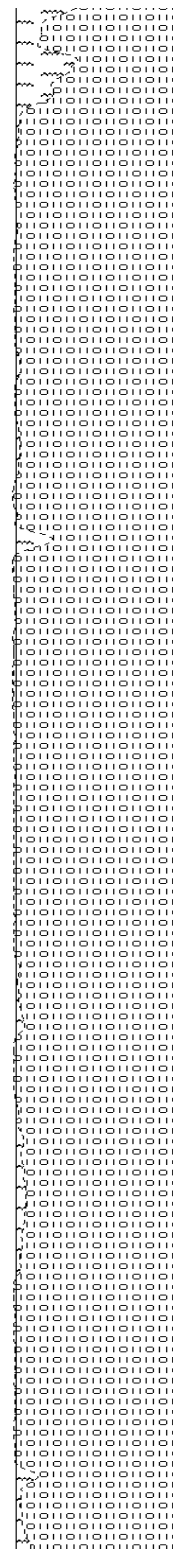
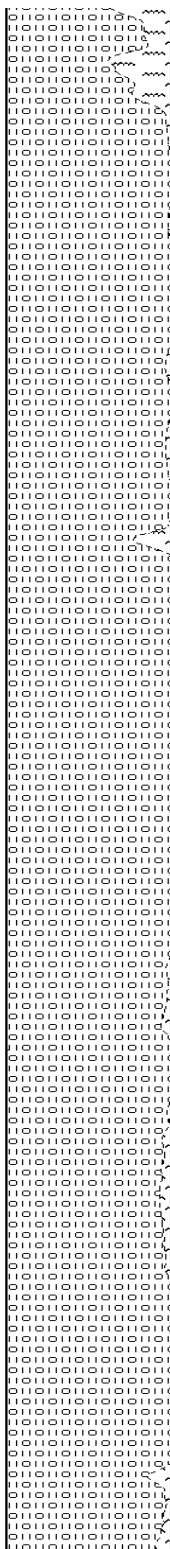


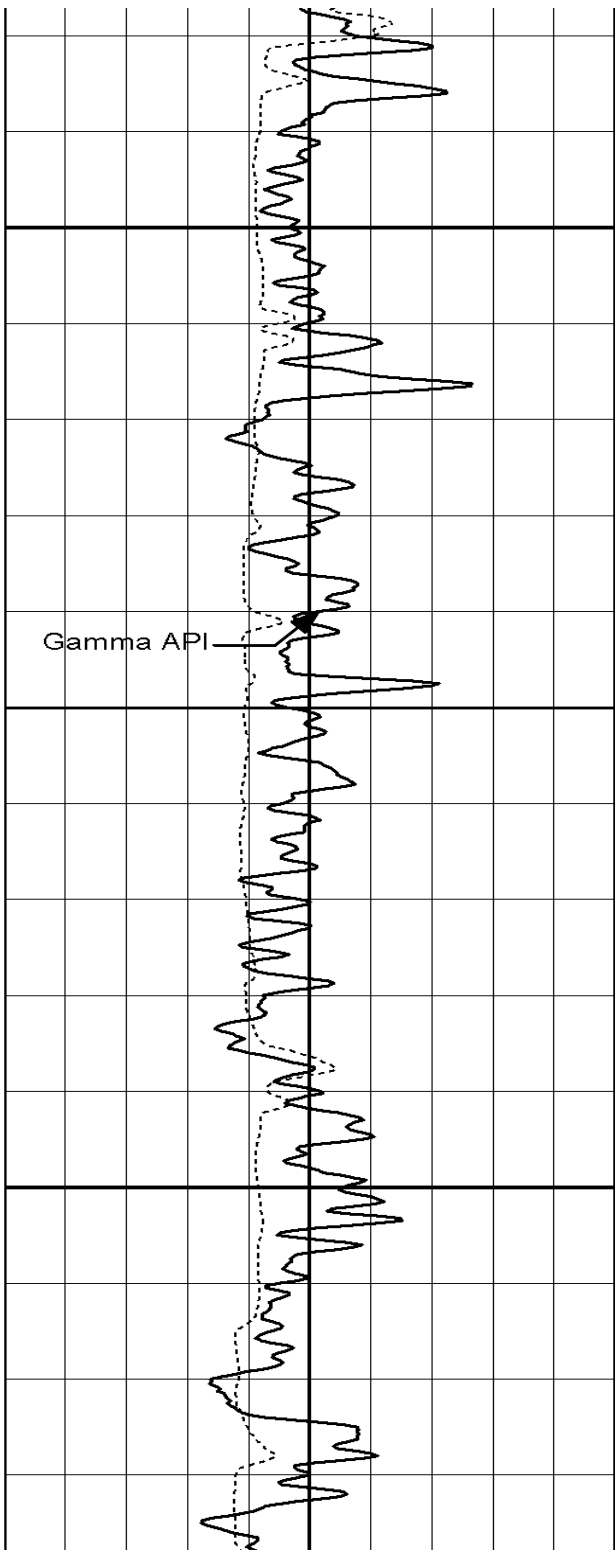
Tension





1300

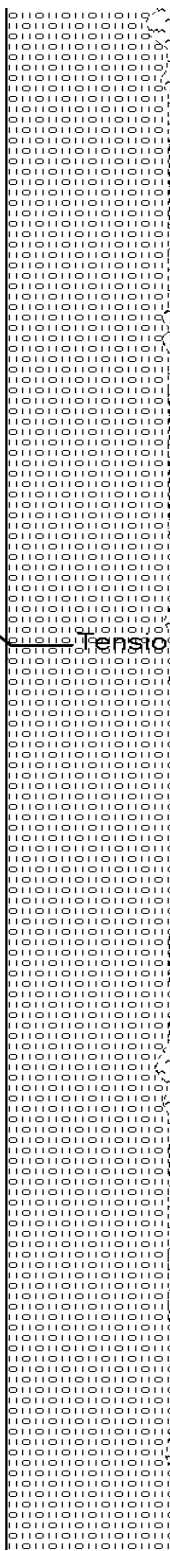




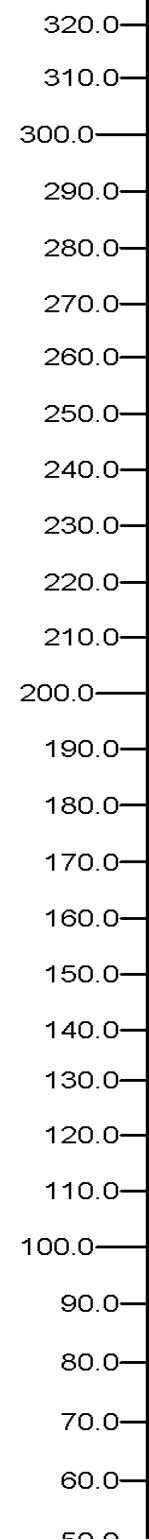
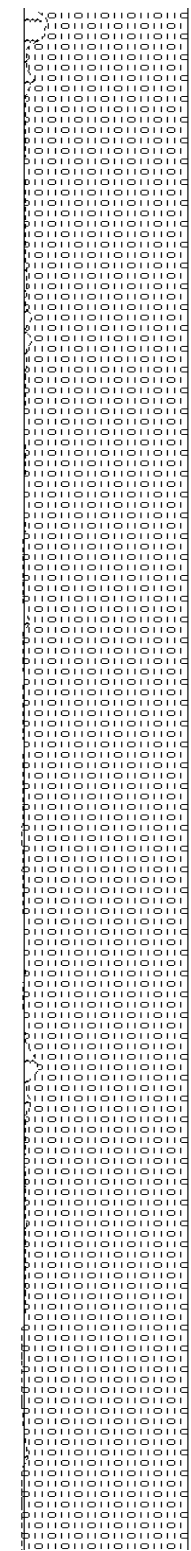
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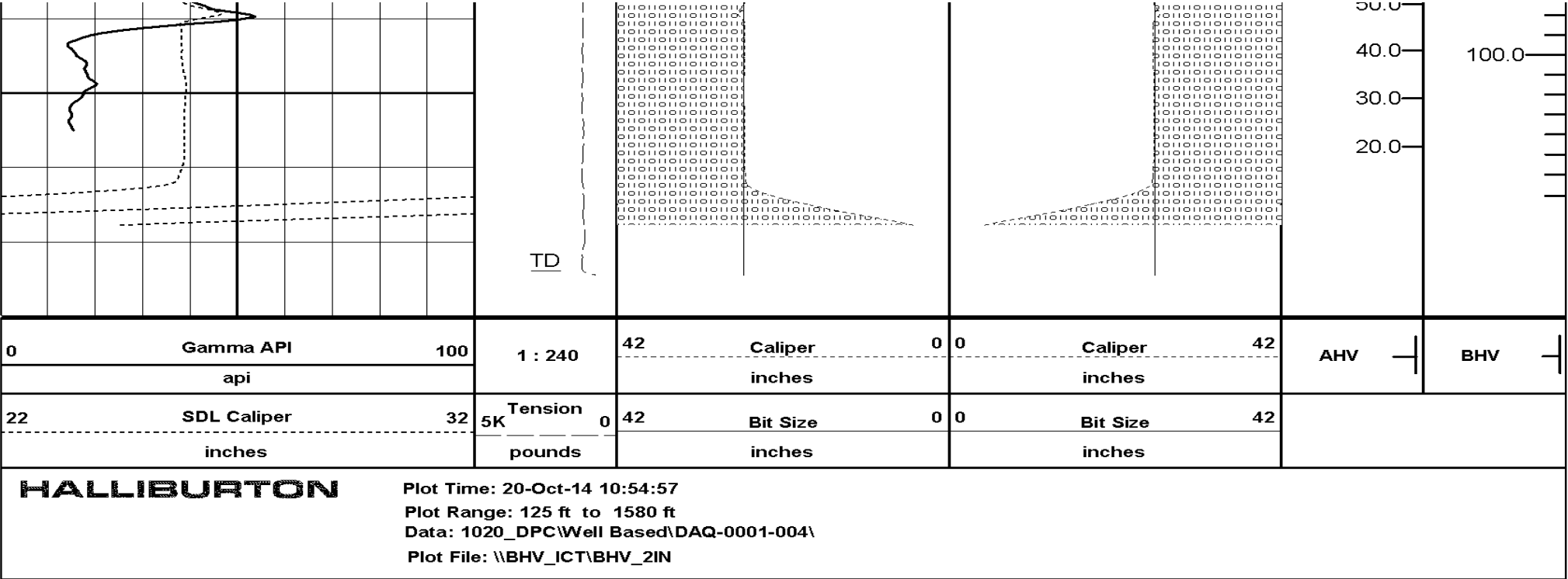
1500

Gamma API



Pressure





COMPANY	DCP MIDSTREAM, LLC										
WELL	LINAM AGI No 2										
FIELD	AGI; BONE SPRING - WOLFCAMP										
COUNTY	LEA				STATE			NEW MEXICO			
HALLIBURTON						BOREHOLE VOLUME PLOT					

**Platform Express /
High Resolution Laterolog Array /
Micro-CFL\HNGS**

Company: PB ENERGY STORAGE SERVICES, INC

Well: LINAM #2

Field: AGI; BONE SPRING-WOLFCAMP

County: LEA State: NEW MEXICO

Platform Express

High Resolution Laterolog Array

Micro-CFLHNGS

County:	LEA
Field:	AGI; BONE SPRING-WOLFCAMP
Location:	1600' FSL & 1750' FWL
Well:	LINAM #2
Company:	PB ENERGY STORAGE SERVICES, INC
Location:	
1600' FSL & 1750' FWL	Elev.: K.B. 3763.00 ft G.L. 3738.00 ft D.F. 3762.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No. 30-025-42139	Section: 30
	Township: 18S
	Range: 37E

Logging Date	12-Oct-2014
Run Number	One
Depth Driller	1585.00 ft
Schlumberger Depth	1526.00 ft
Bottom Log Interval	1525.00 ft
Top Log Interval	142.00 ft
Casing Driller Size @ Depth	30 in @ 145.00 ft
Casing Schlumberger	142 ft
Bit Size	17.5 in
Type Fluid In Hole	Fresh Water
Density	9.3 lbm/gal
Fluid Loss	PH 12 cm3
Source of Sample	Active Tank
RM @ Meas Temp	0.46 ohm.m @ 64.8 degF
RMF @ Meas Temp	0.38 ohm.m @ 75 degF
RMC @ Meas Temp	0.31 ohm.m @ 75 degF
Source RMF	RMC Pressed
RM @ BHT	0.32 @ 98.3 0.29 @ 98.3
Max Recorded Temperatures	98.3 degF
Circulation Stopped	11-Oct-2014 20:00:00
Logger on Bottom	12-Oct-2014 09:55:41
Unit Number	2133
Recorded By	EMIL LUDICK
Witnessed By	TERRY WALLY

Disclaimer

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 - Composite Summary

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 - Composite Summary
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8.2 Log (HRLA_5_Inch RA)

9. One Repeat Pass 5"=100'

9.1 Integration Summary

9.2 Composite Summary

9.3 Log (HRLA_5_Inch)

10. Calibration Report

11. Tail

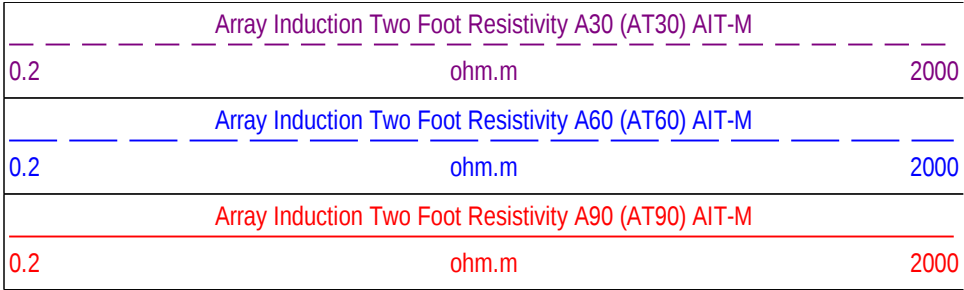
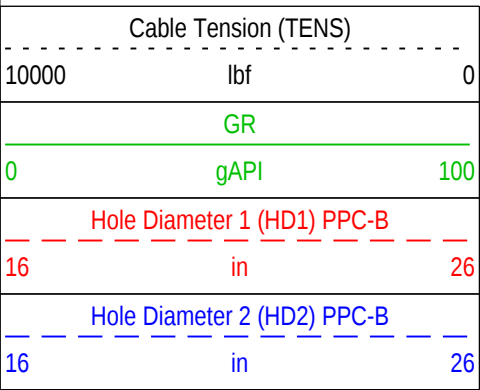
Remarks and Equipment Summary

One: Toolstring				One: Remarks
Equip name LEH-QT:3338 LEH-QT:3338	Length 31.93	MP name	Offset	THANK YOU FOR CHOOSING SCHLUMBERGER!
EDTC-B:9071 EDTH-B:8196 EDTG-A:79243 EDTC-B:9071	29.02		25.52 0.00 0.00 23.65 22.52	LOGGER REQUESTED: 20:00 11-OCT-2014 LOGGER ARRIVAL: RIG READY: RIG: PRECISION #107
				CREW: E. LUDICK, C. CRUZ, M. MARTINEZ, A. HUANG, T. ARNZEN
				TOOLS RUN AS PER TOOL SKETCH AND PRESENTATIONS AS PER CLIENT LOGGING PROGRAM.
				NO CASING RUN. 30 INCH CONDUCTIVE TUBING WITH AN INNER DIAMETER OF 29.35 INCH SET.
				AIT RUN IN COMPUTE STANDOFF MODE WITH TWO 1.5 INCH STANDOFFS. AIT RUN CENTRALIZED WITH PPC.
PPC-B:8601 PPC-B:8601	22.52	PPC-B Calipers	21.37	CALIPERS CHECKED IN CASING WITH INNER CASING ID OF 29.35 INCHES.
				MATRIX LIMESTONE DENSITY 2.71 g/cc AND FLUID DENSITY 1.0 g/cc
AIT-M:160 AMIS:160 AMRM:160	16.00			PPC USED FOR CALIPER LOG. NO FUTURE CASING DIAMETER. BIT SIZE TO BE EXPANDED TO 26 INCHES.
				HD1 CALIPER SCALE 10 - 20 INCHES AS PER CLIENT REQUEST
		</		

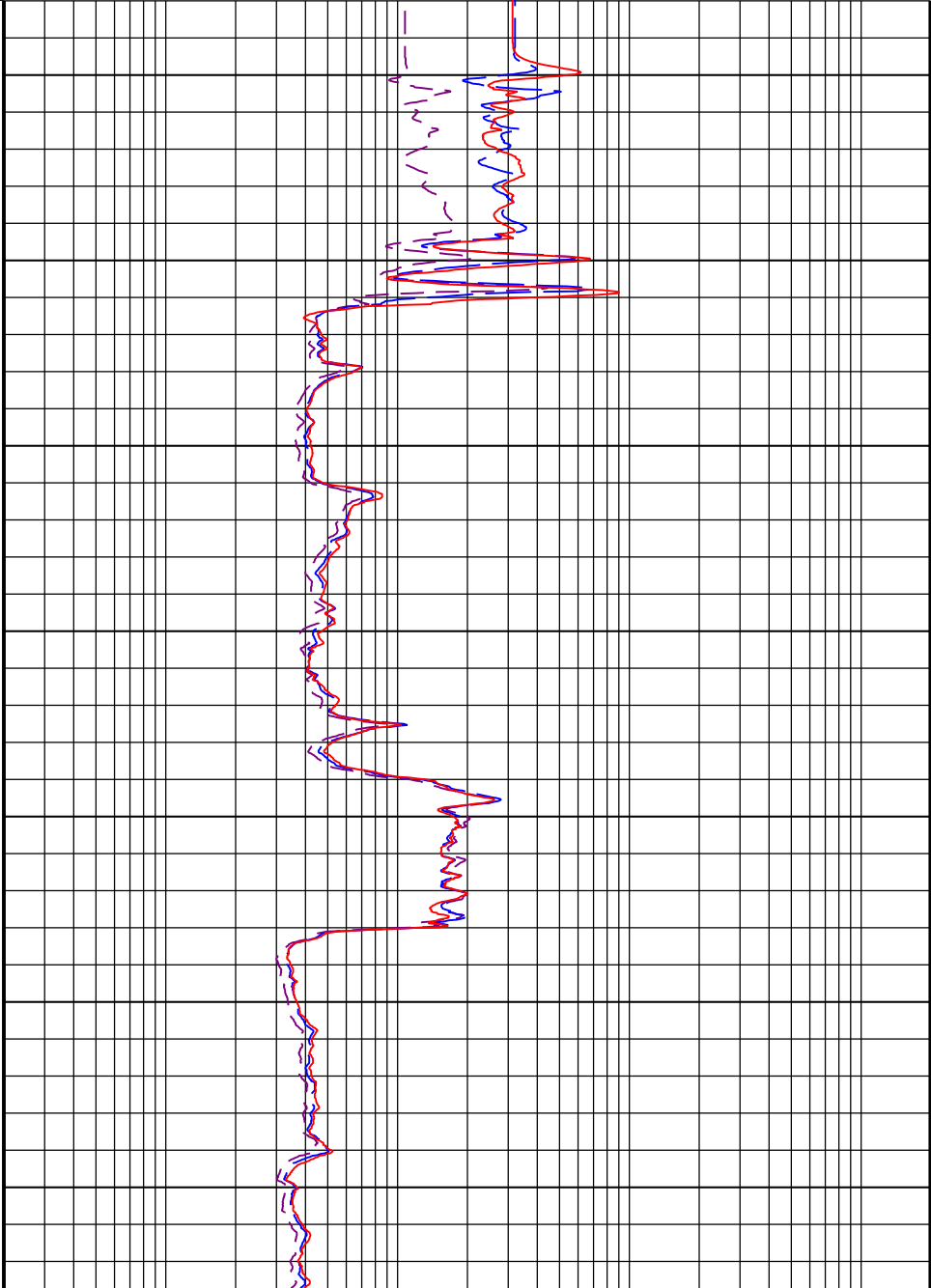
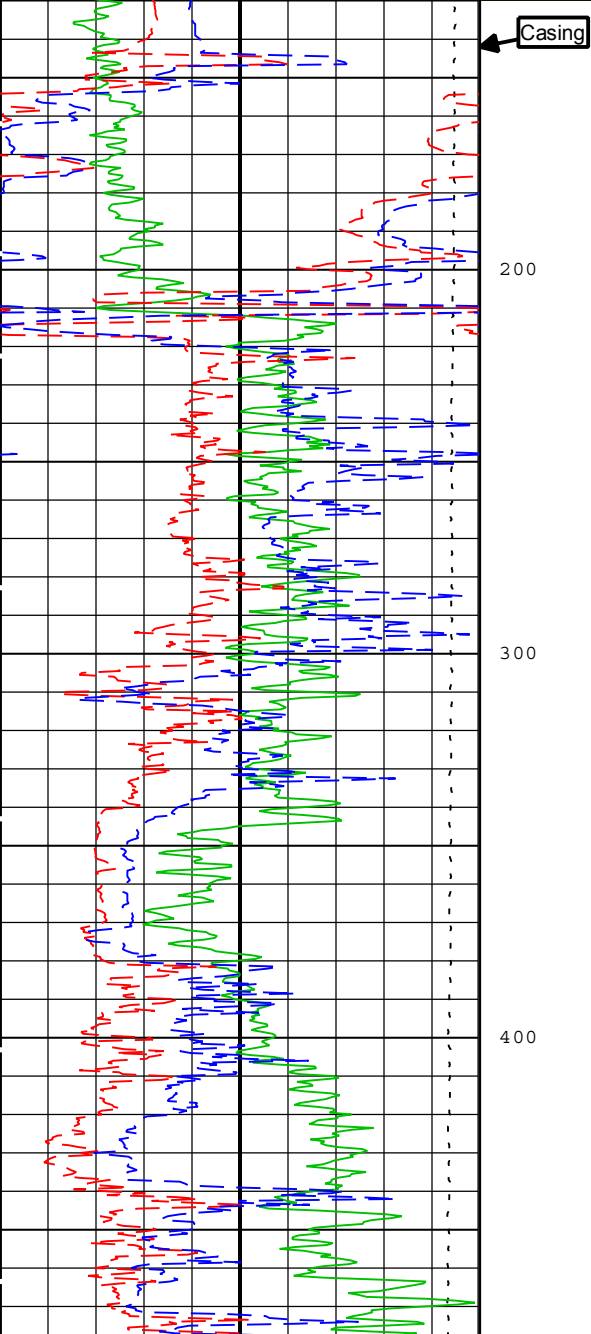
Calibration Cable Type	7-46P-XS								
Wheel Correction 1	-2								
Wheel Correction 2	-1								
Tension Device									
Type	CMTD-B/A								
Serial Number	3872								
Calibration Date	03-OCT-2014								
Calibrator Serial Number	1019								
Number of Calibration Points	0								
Logging Cable									
Type	7-46P-XS								
Serial Number	U713011								
Length	19700.00 ft								
Conveyance Type	Wireline								
Rig Type	LAND								
One:Depth Control Parameters		Depth Control Remarks							
Log Sequence	First Log In the Well	IDW USED AS PRIMARY DEPTH CONTROL DEVICE.							
Rig Up Length At Surface		Z-CHART USED AS SECONDARY DEPTH CONTROL DEVICE.							
Rig Up Length At Bottom		FOLLOWED SCHLUMBERGER FULL DEPTH CONTROL POLICY DATED APRIL 7TH, 2012.							
Rig Up Length Correction		ALL LOGS CORRELATED TO DOWN LOG BOTTOM 300 ft.							
Stretch Correction	0.75 ft	STRETCH CORRECTION OF 0.75 ft APPLIED BY COMPARING MAIN PASS TO DOWN PASS.							
Tool Zero Check At Surface	0.14 ft								
One									
Main Pass 2"=100'									
Software Version									
Acquisition System		Version							
MaxWell		4.0.9163.3000							
Application Patch		Patch-SP-10767_18214-4.0.9163.3001							
		Patch-NPD_NEXT_C_Fld2-20493-4.0.9434.3002							
		Patch-Hotfix_Task_Tree_GDI_SP2-20806-4.0.9434.3002							
		Patch-NPD_CMRTF_SP2-22354-4.0.9434.3002							
Computation	Description		Version						
DepthCorrection	DepthCorrection		4.0.9433.3000						
Tool Elements	Description	Software Version	Firmware Version						
PPC-B	PPC-B Element is used for usual logging at wellsite and check/diagnostics.	4.0.9433.3000	1.0						
AMIS	Array Induction Sonde - M	4.0.9427.3000	1						
EDTC-B	Enhanced Digital Telemetry Cartridge - B	4.0.9433.3000							
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Main[3]:Up	Up	40.69 ft	1545.04 ft	12-Oct-2014 10:12:58 AM	12-Oct-2014 10:42:41 AM	ON	0.90 ft	No
All depths are referenced to toolstring zero									
Log	Company:PB ENERGY STORAGE SERVICES, INC			Well:LINAM #2					
One: Main[3]:Up:S007									
Description: HRLT BASIC LOG Format: Log (HRLA_2_inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:24									
Channel	Source	Sampling							
AT30	AIT-M:AMIS:AMIS	3in							
AT60	AIT-M:AMIS:AMIS	3in							

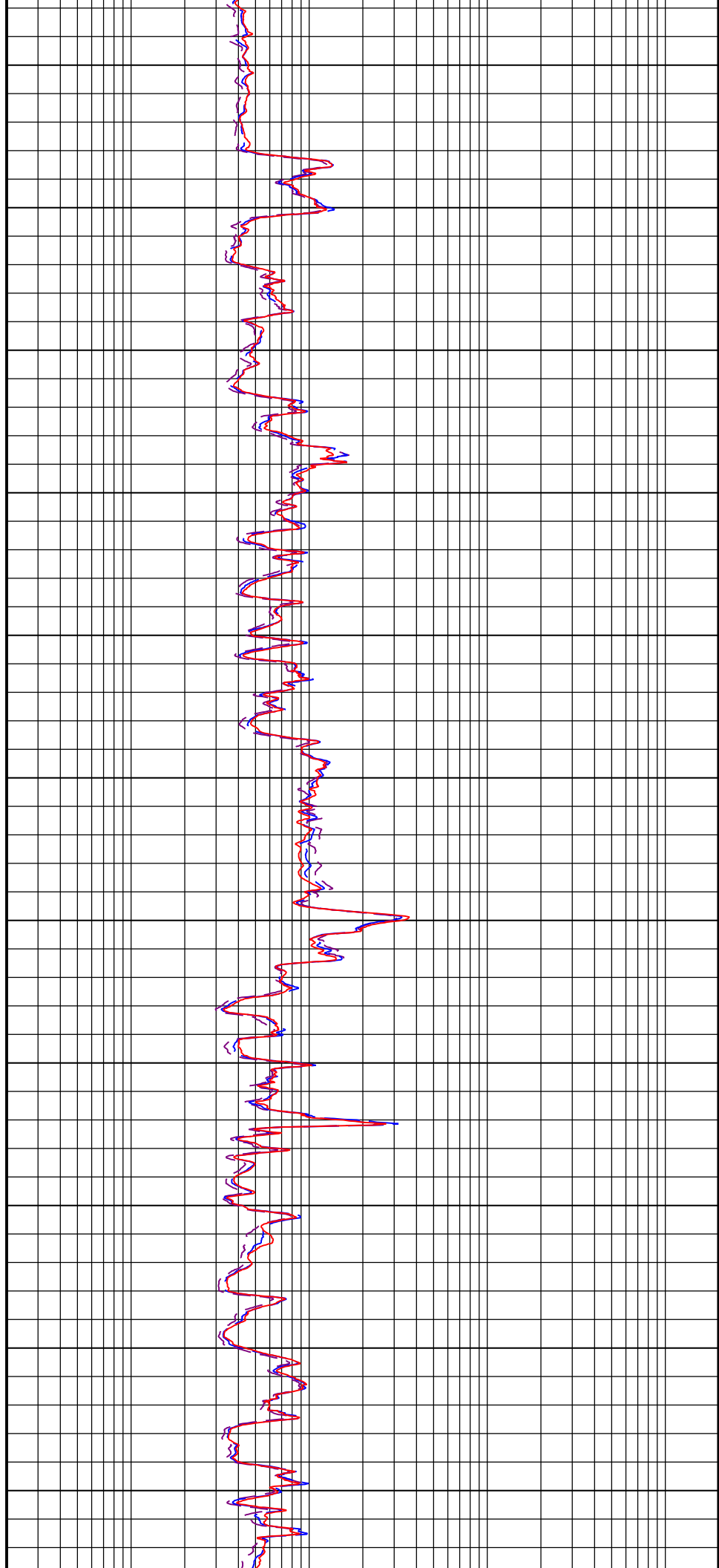
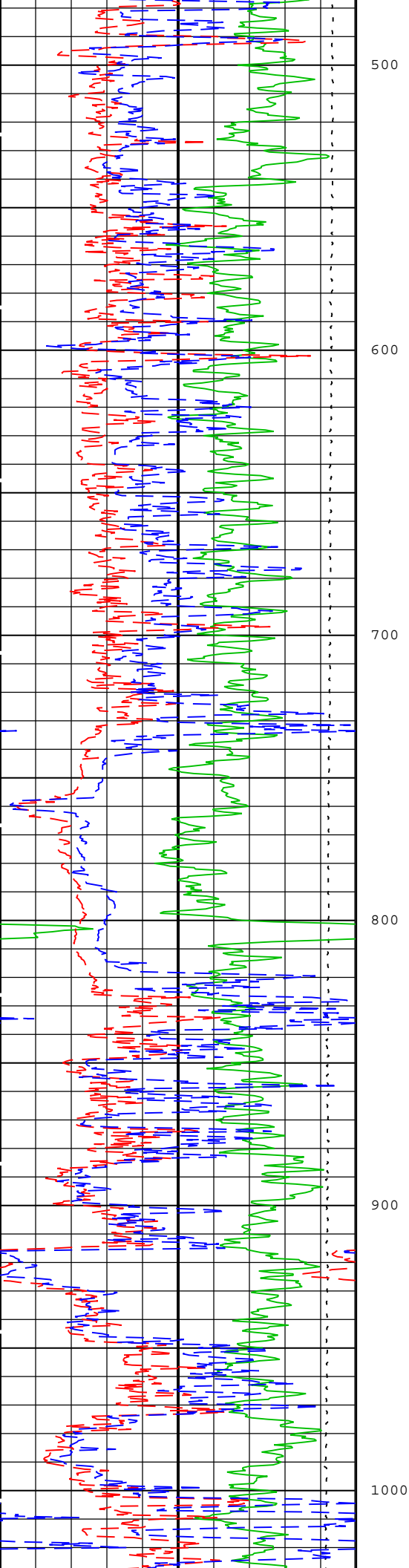
AT90	AIT-M:AMIS:AMIS	3in
GR_CAL	EDTC-B:EDTC-B:EDTC-B	6in
HD1	PPC-B:PPC-B:PPC-B	6in
HD2	PPC-B:PPC-B:PPC-B	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

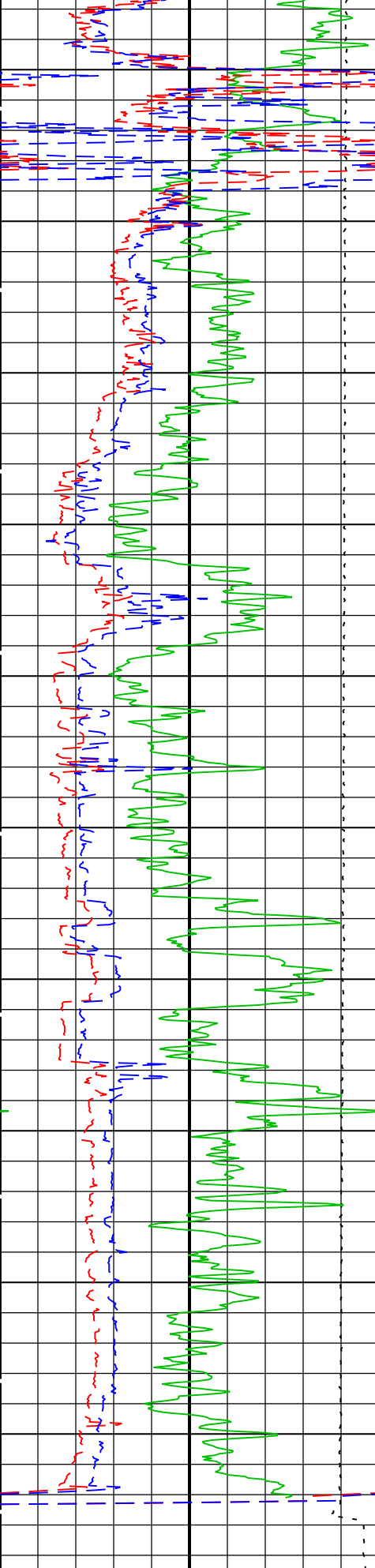
TIME_1900 - Time Marked every 60.00 (s)



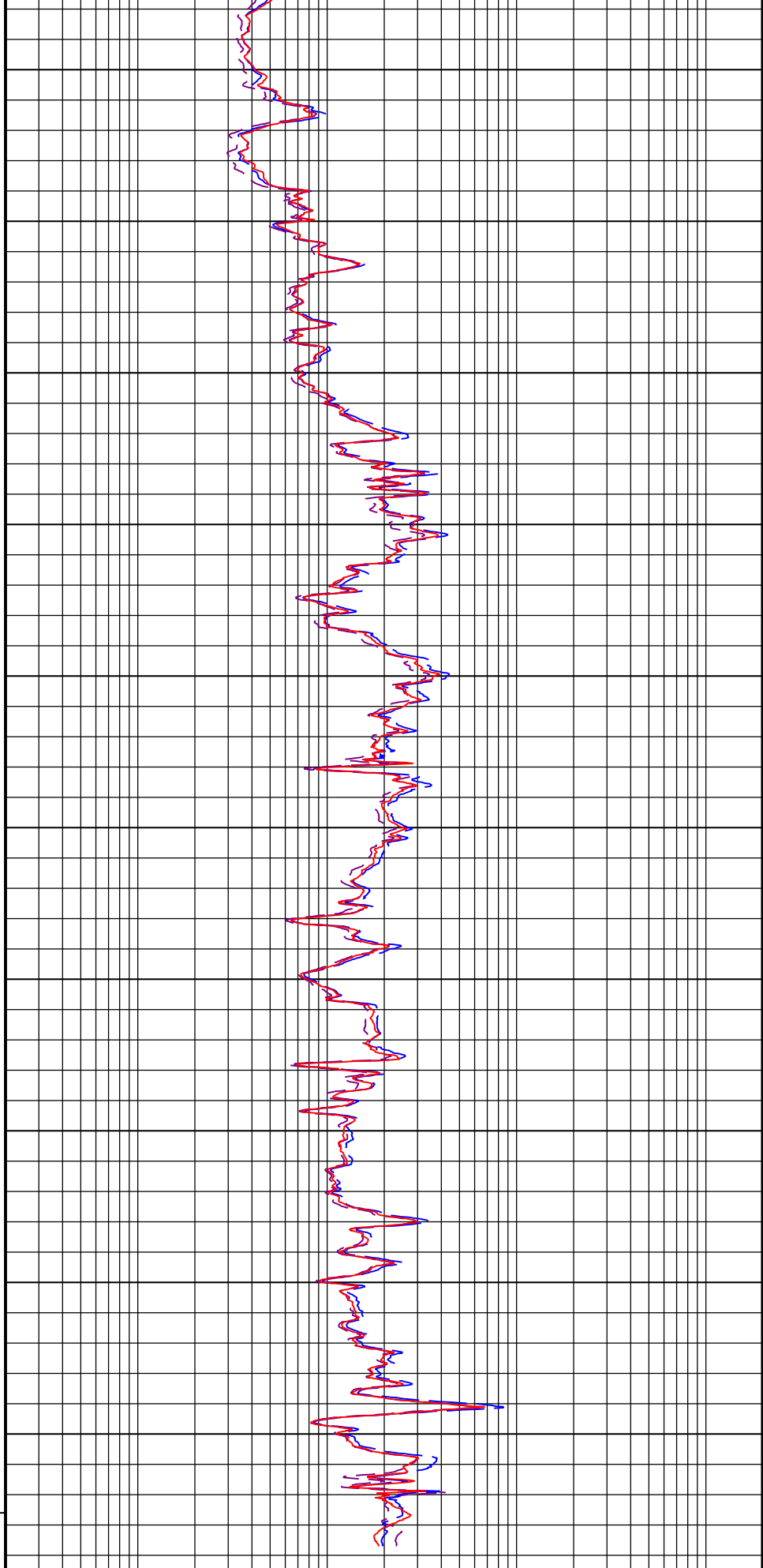
2" Resistivity







TD
1526.00ft



GR		
0	gAPI	100
Hole Diameter 1 (HD1) PPC-B		
16	in	26
Hole Diameter 2 (HD2) PPC-B		
16	in	26

TIME_1900 - Time Marked every 60.00 (s)

Description: HRLT BASIC LOG Format: Log (HRLA_2_inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:24

One									
Main Pass 5"=100'									
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Main[3]:Up	Up	40.69 ft	1545.04 ft	12-Oct-2014 10:12:58 AM	12-Oct-2014 10:42:41 AM	ON	0.90 ft	No
All depths are referenced to toolstring zero									
Log	Company:PB ENERGY STORAGE SERVICES, INC Well:LINAM #2 One: Main[3]:Up:S007								

Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:25

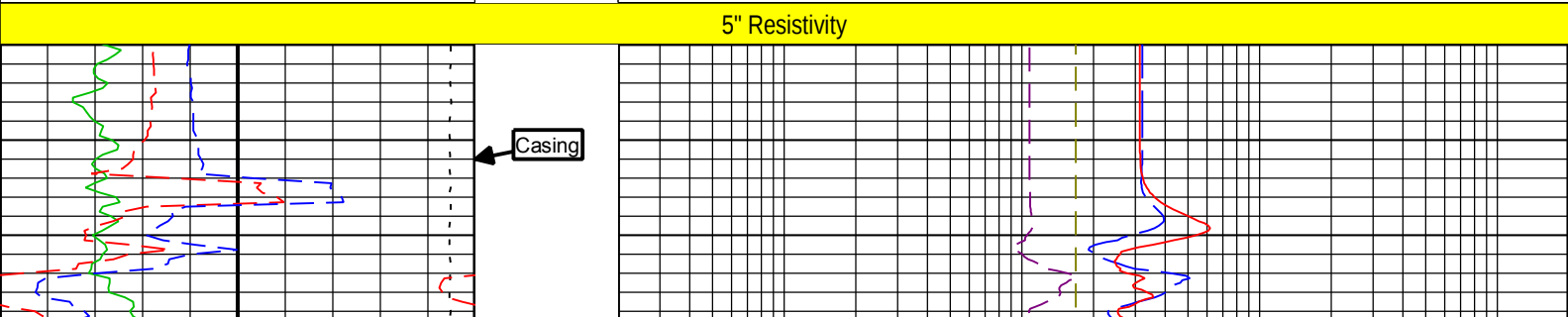
Channel	Source	Sampling
AMF	AIT-M:AMIS:AMIS	12in
AT30	AIT-M:AMIS:AMIS	3in
AT60	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in
GR_CAL	EDTC-B:EDTC-B:EDTC-B	6in
HD1	PPC-B:PPC-B:PPC-B	6in
HD2	PPC-B:PPC-B:PPC-B	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

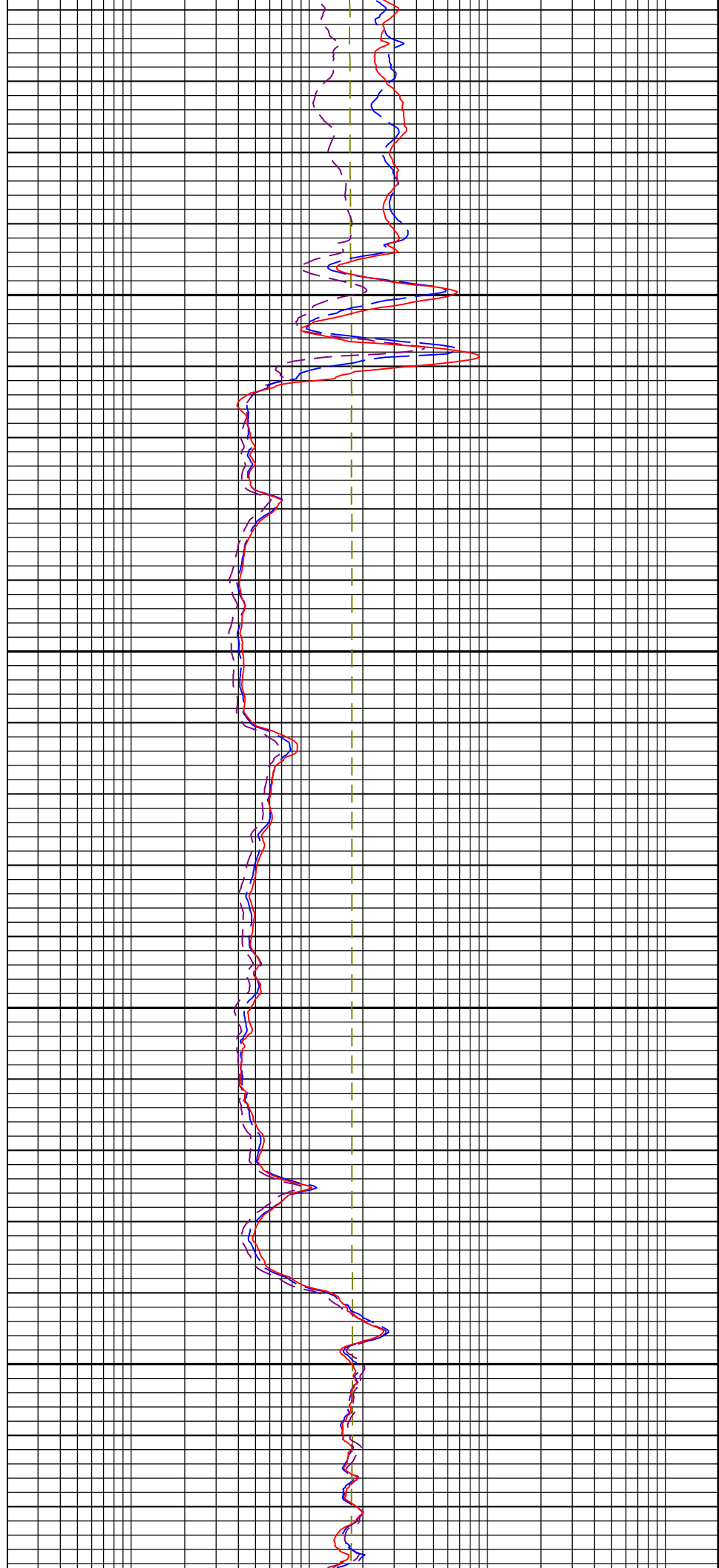
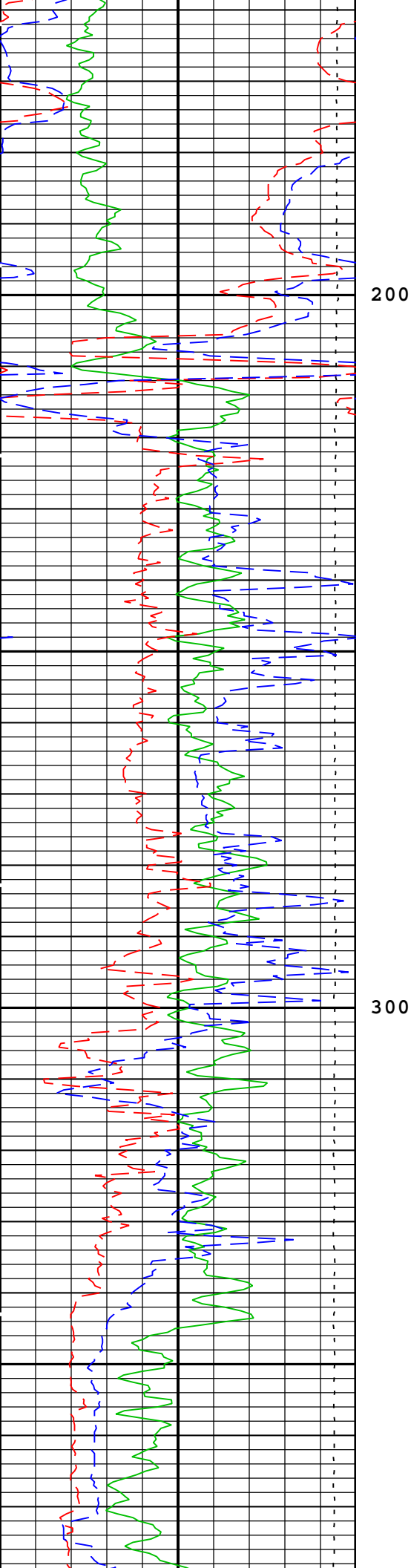
TIME_1900 - Time Marked every 60.00 (s)

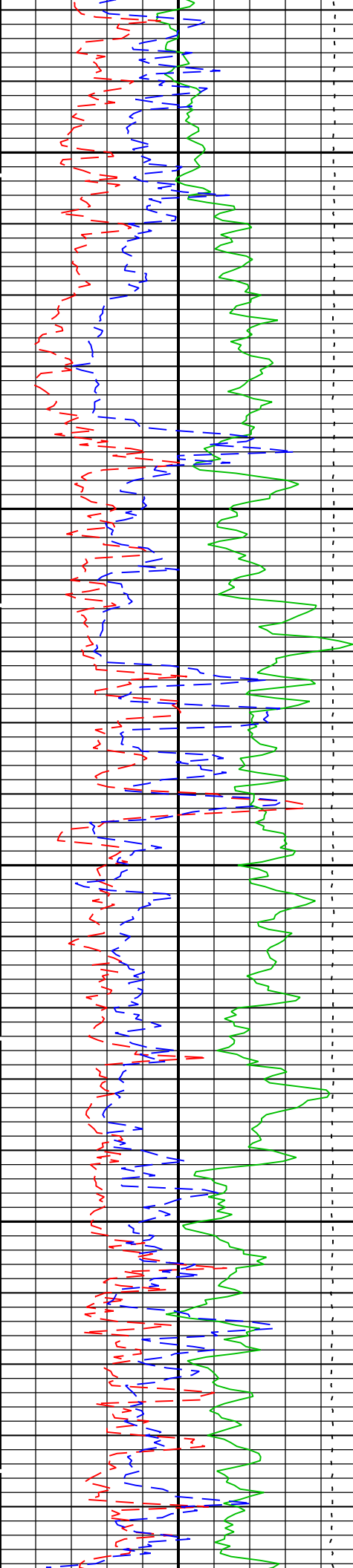
Cable Tension (TENS)		
10000	lbf	0
GR		
0	gAPI	100
Hole Diameter 1 (HD1) PPC-B		
16	in	26
Hole Diameter 2 (HD2) PPC-B		
16	in	26

Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000

Array Induction Mud Resistivity Fully Calibrated (AMF) AIT-M		
0.02	ohm.m	200
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000

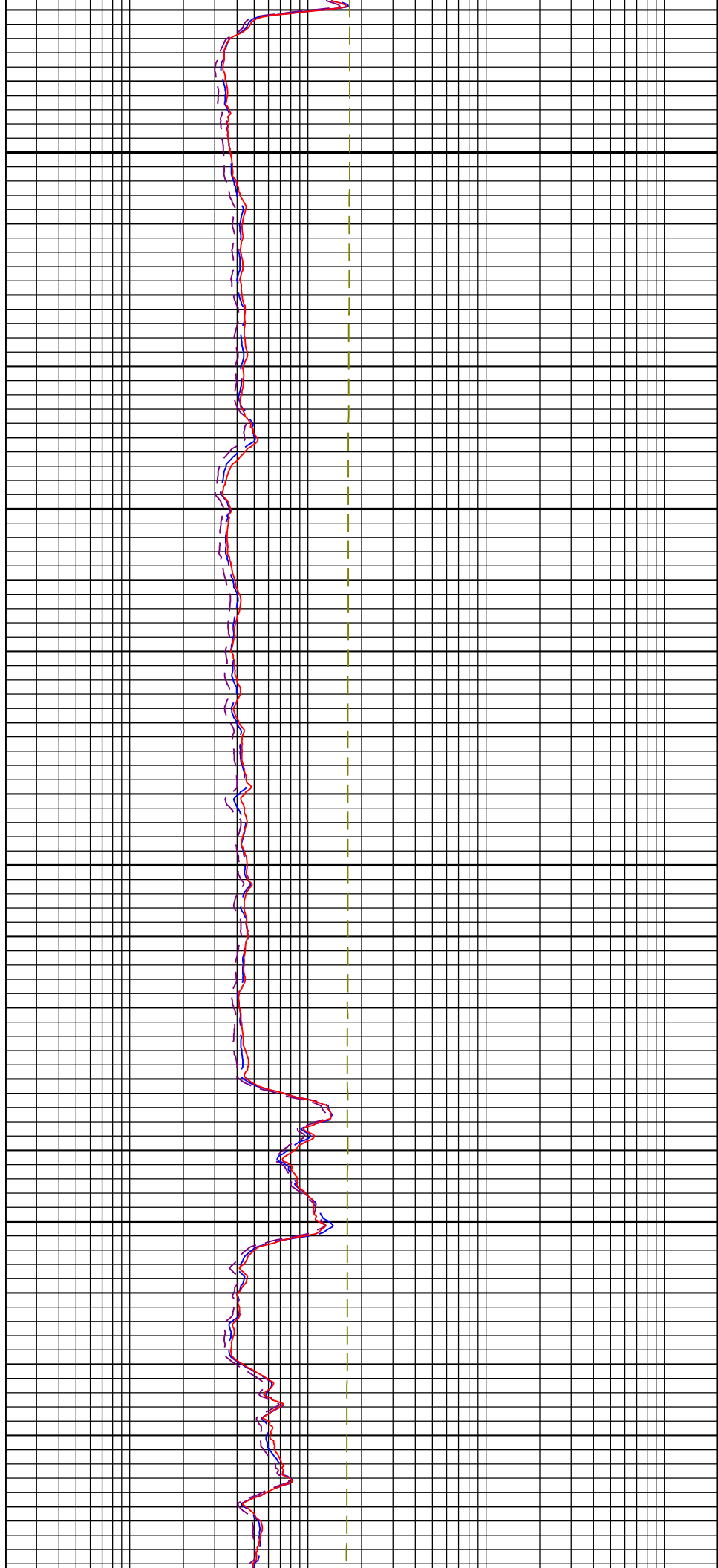


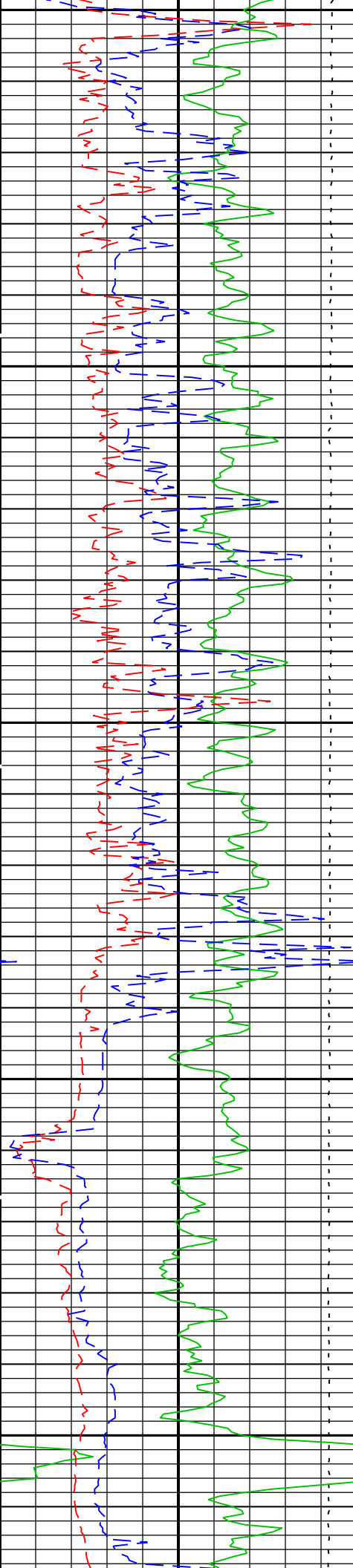




400

500

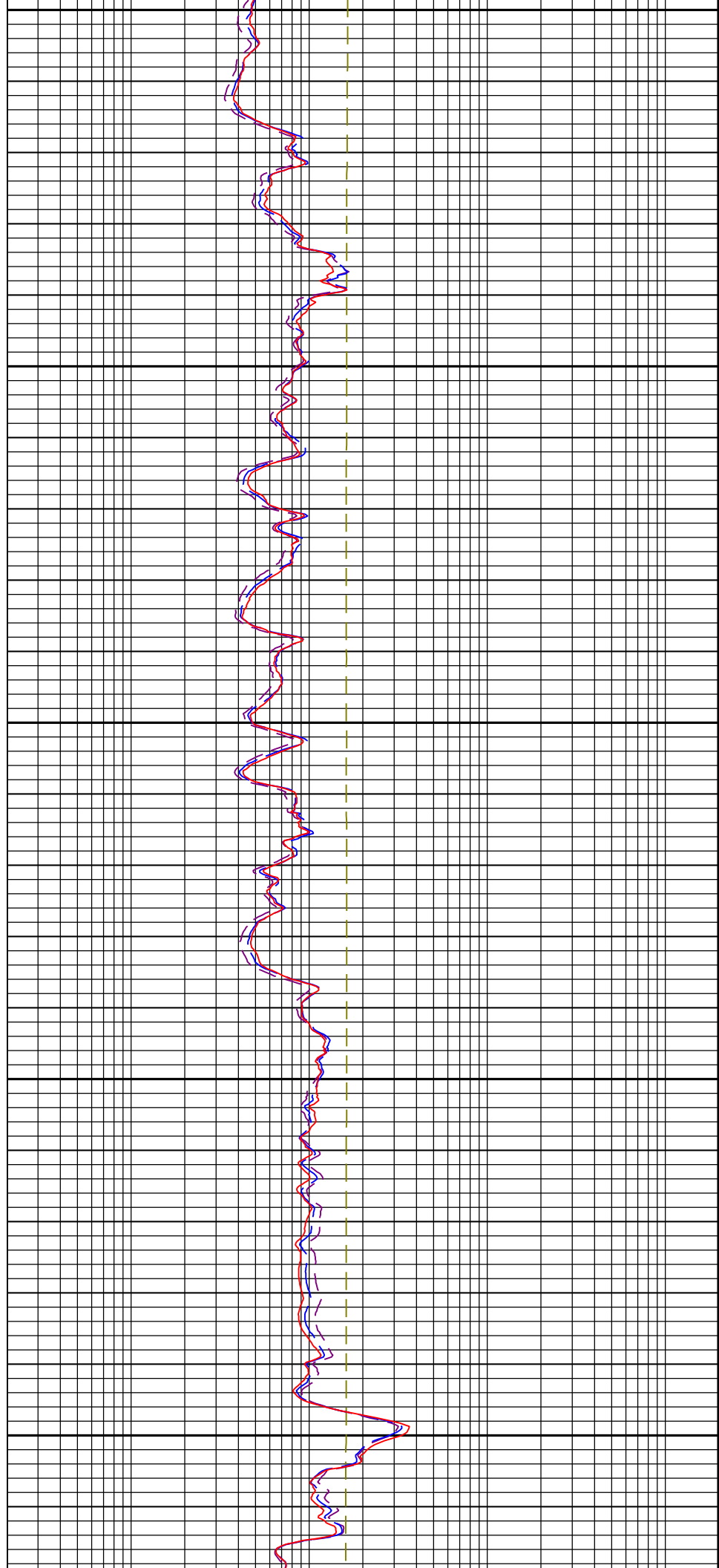


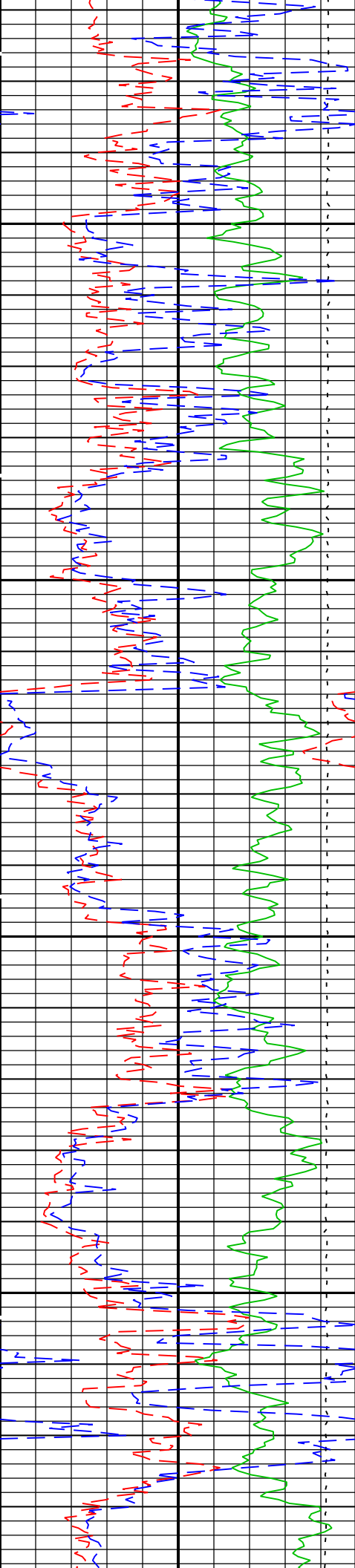


600

700

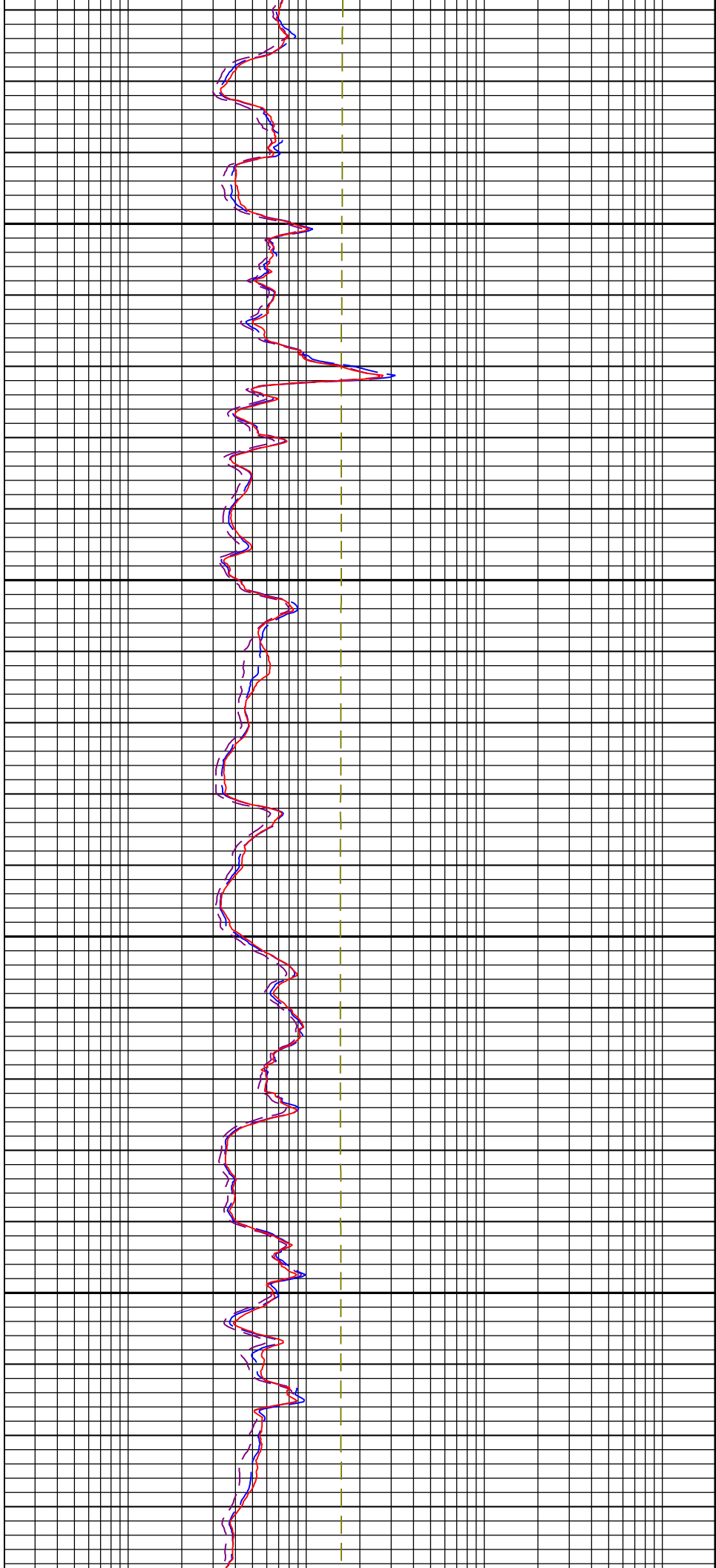
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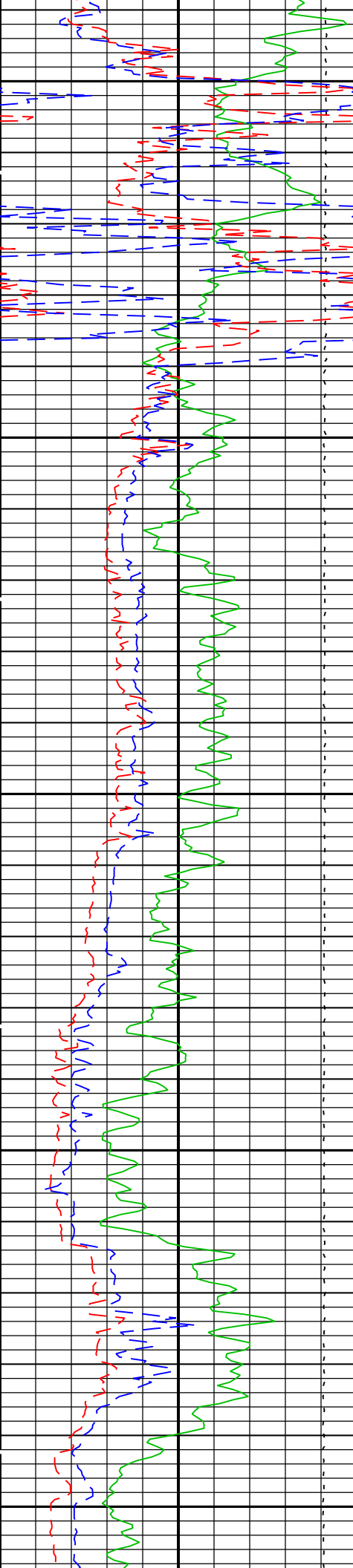




900

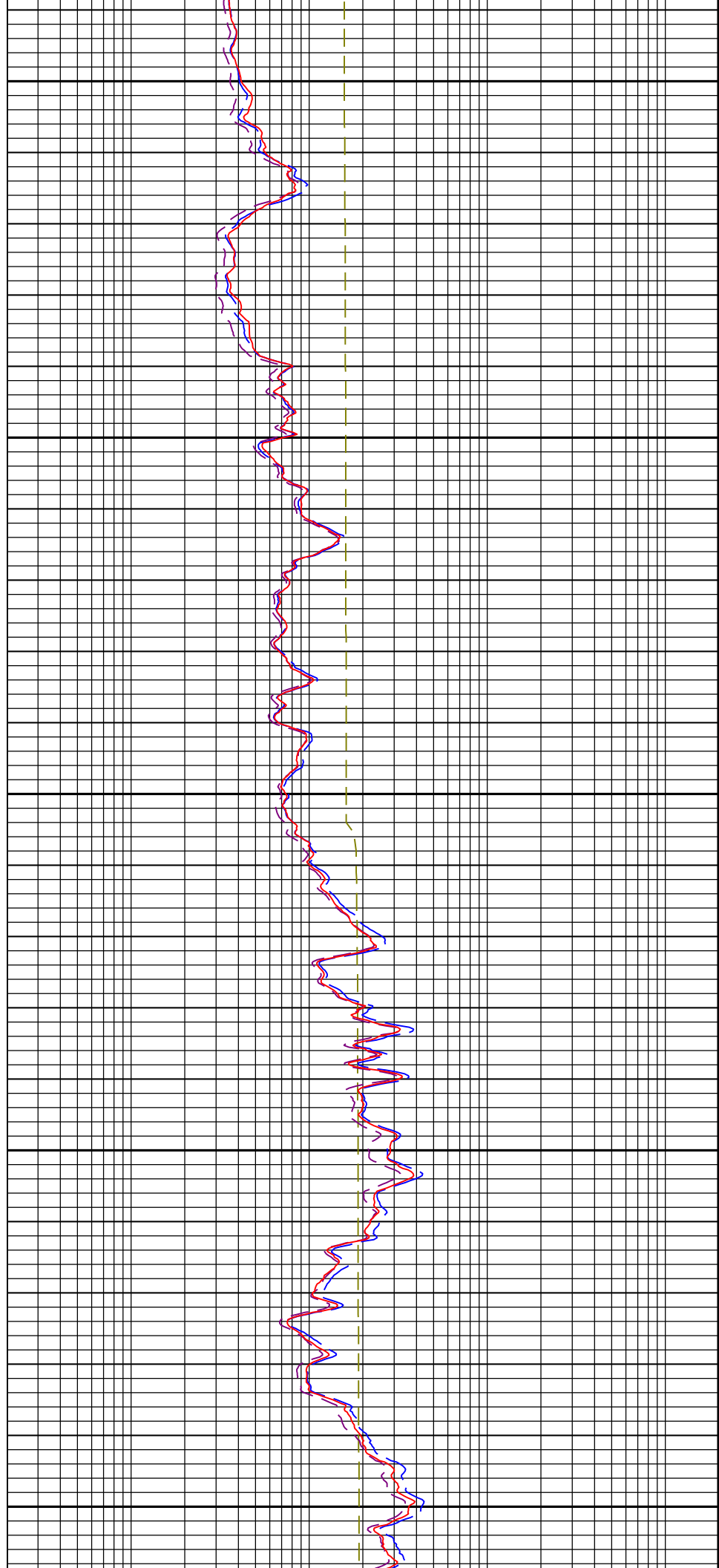
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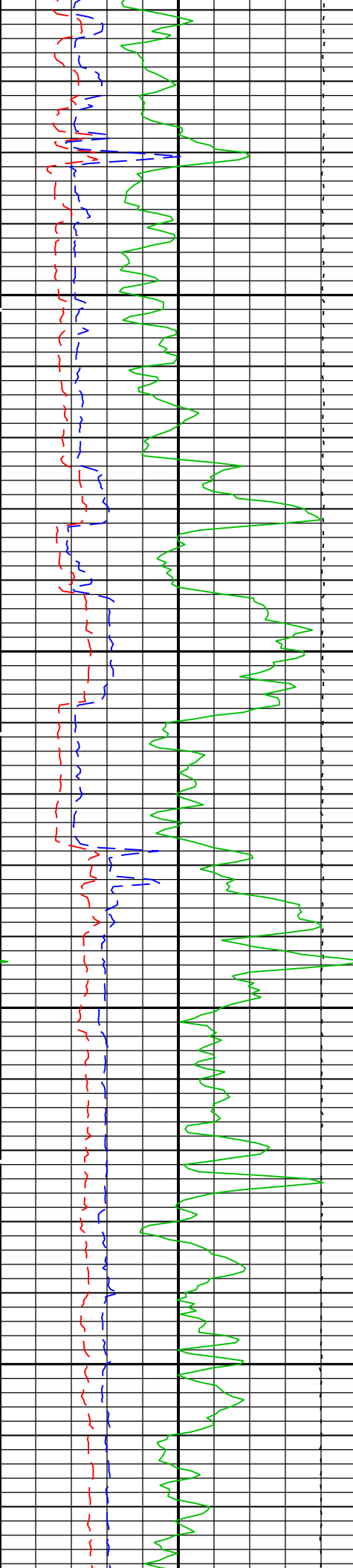




1100

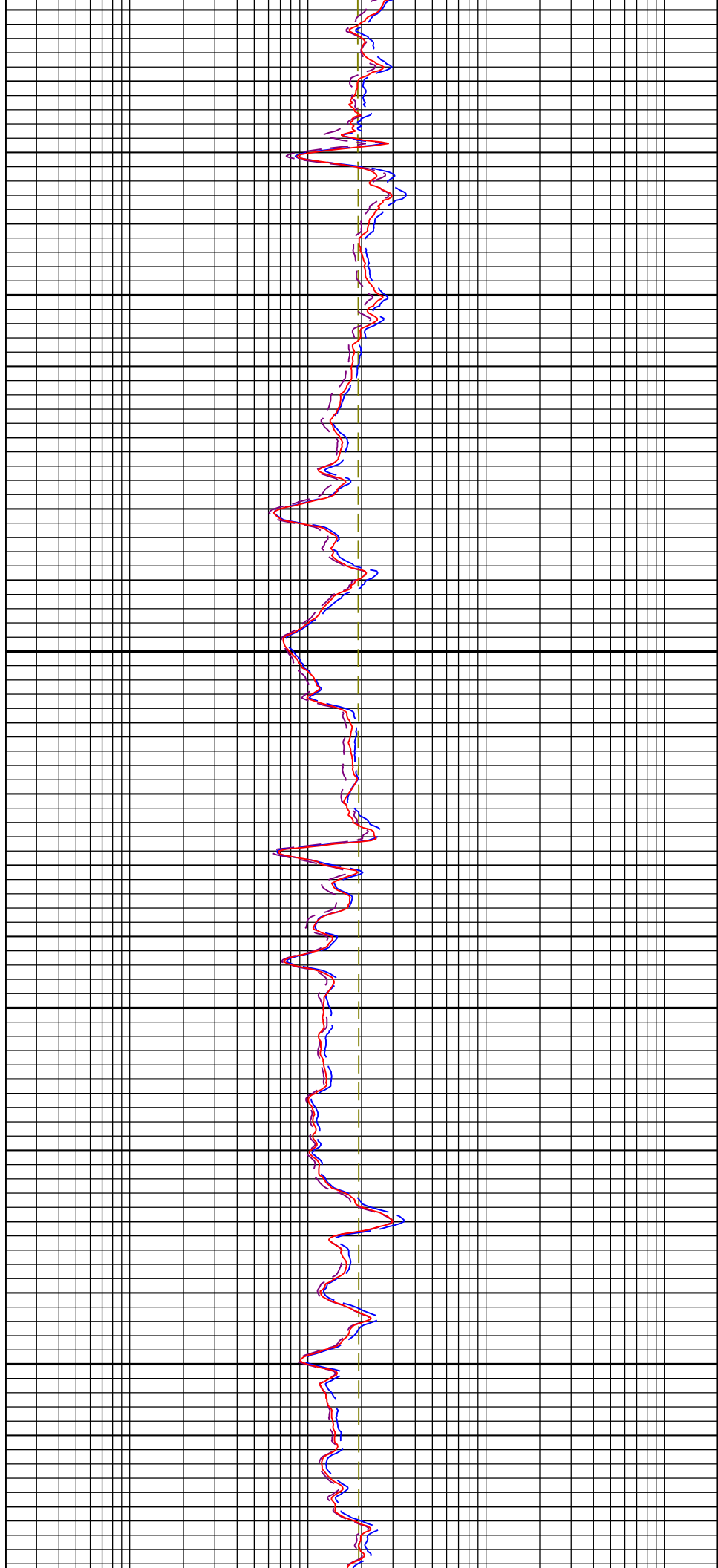
1200

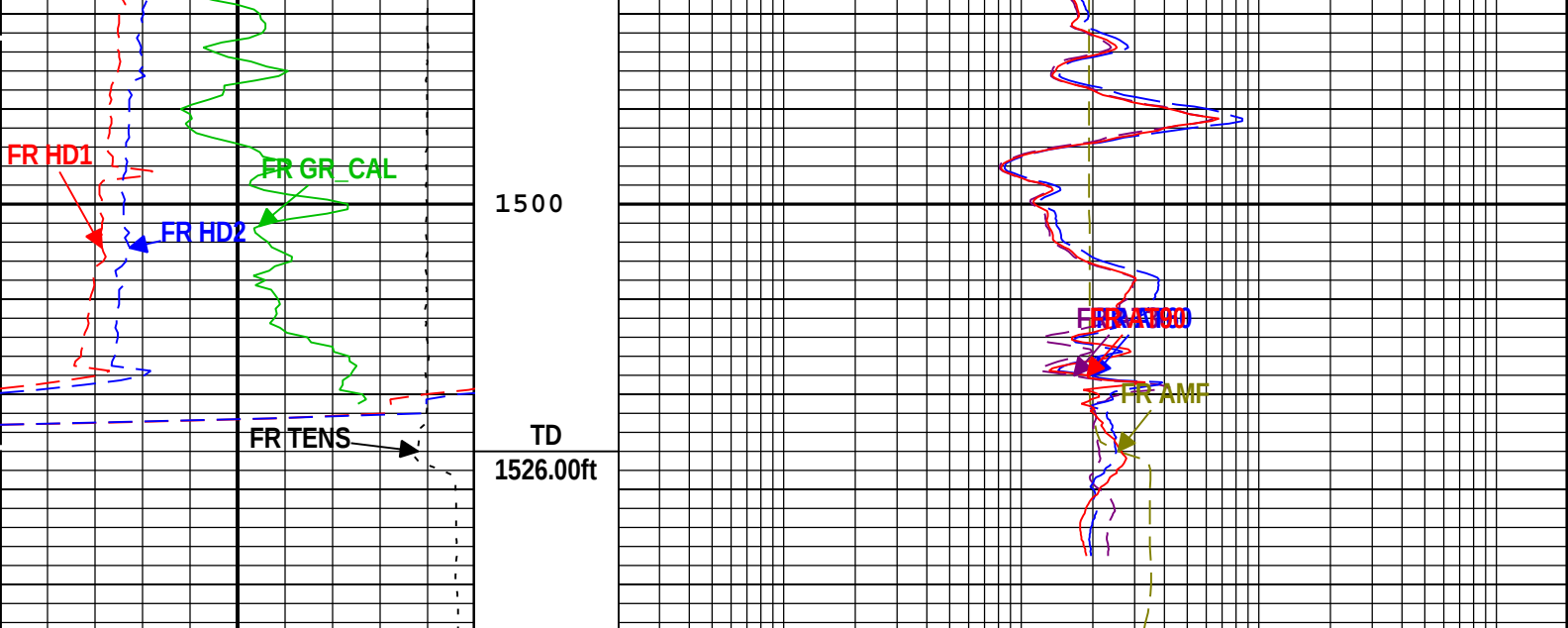




1300

1400





5" Resistivity					
Cable Tension (TENS)			Array Induction Mud Resistivity Fully Calibrated (AMF) AIT-M		
10000	lbf	0	0.02	ohm.m	200
GR			Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0	gAPI	100	0.2	ohm.m	2000
Hole Diameter 1 (HD1) PPC-B			Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
16	in	26	0.2	ohm.m	2000
Hole Diameter 2 (HD2) PPC-B			Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
16	in	26	0.2	ohm.m	2000

TIME_1900 - Time Marked every 60.00 (s)

Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:25

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	142	ft
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	HD1	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	130	142
BHS	Open	142	1545
BS	30	130	145
BS	17.5	145	1526

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Repeat Analysis 5"=100'

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Repeat[2]:Up	Up	1199.88 ft	1539.95 ft	12-Oct-2014 10:01:02 AM	12-Oct-2014 10:07:36 AM	ON	0.75 ft	No
One	Main[3]:Up	Up	40.69 ft	1545.04 ft	12-Oct-2014 10:12:58 AM	12-Oct-2014 10:42:41 AM	ON	0.90 ft	No

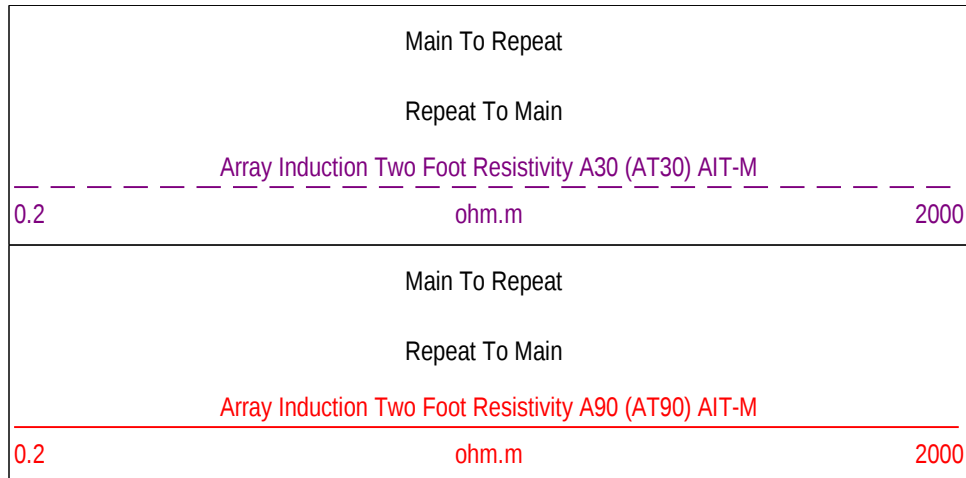
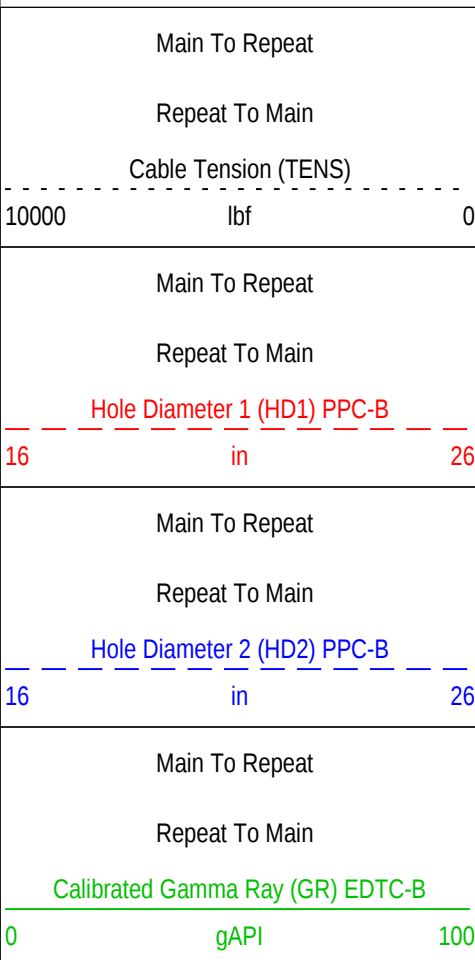
All depths are referenced to toolstring zero

Log

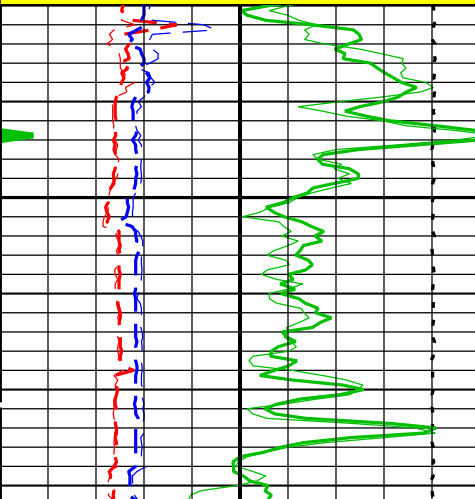
Company:PB ENERGY STORAGE SERVICES, INC Well:LINAM #2
One: Main[3]:Up:S007

Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:26

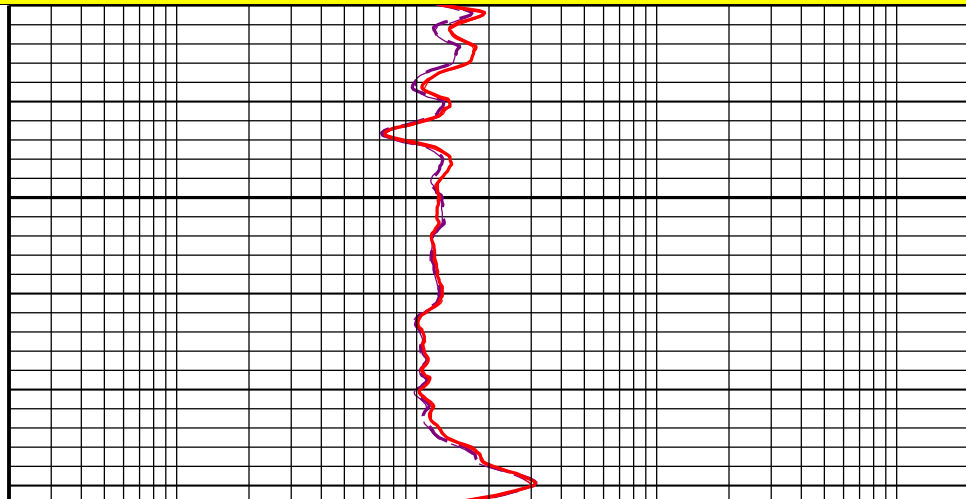
TIME_1900 - Time Marked every 60.00 (s)

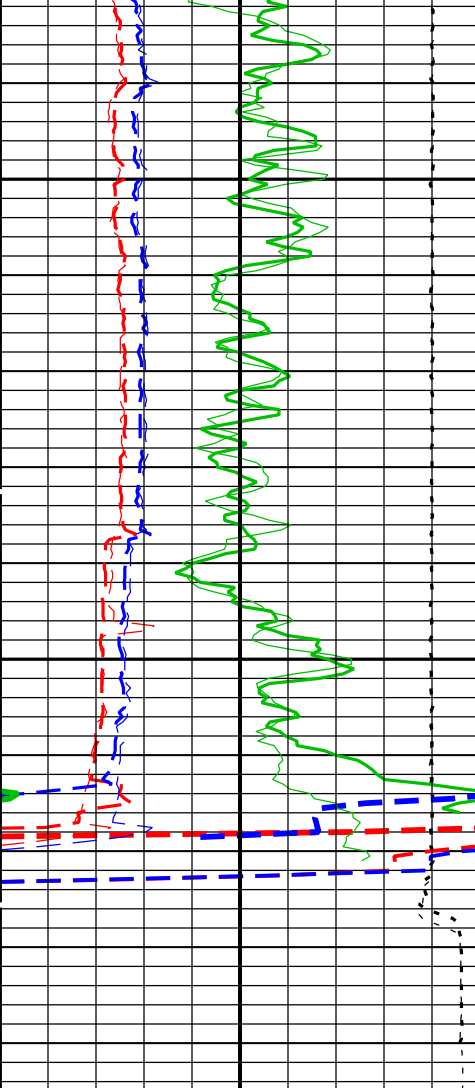


Repeat Analysis: 5"



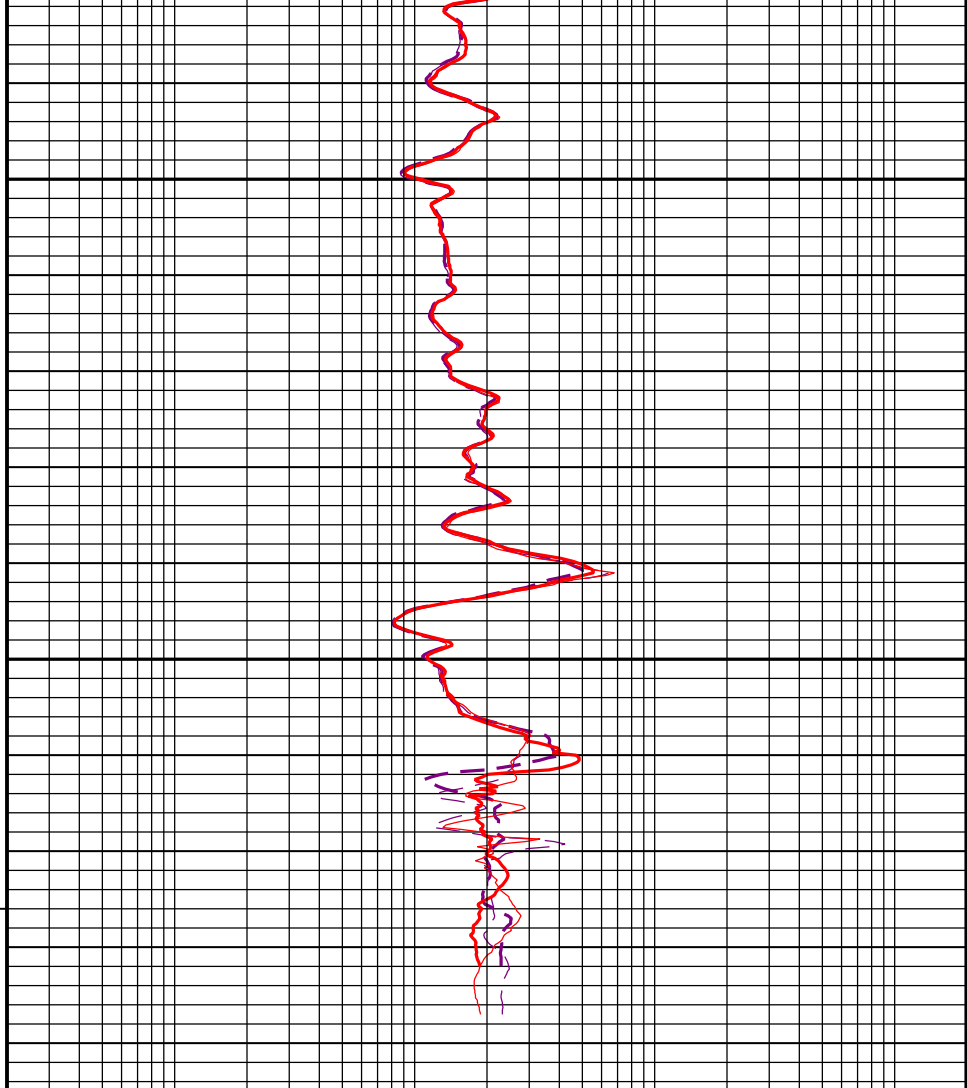
1400



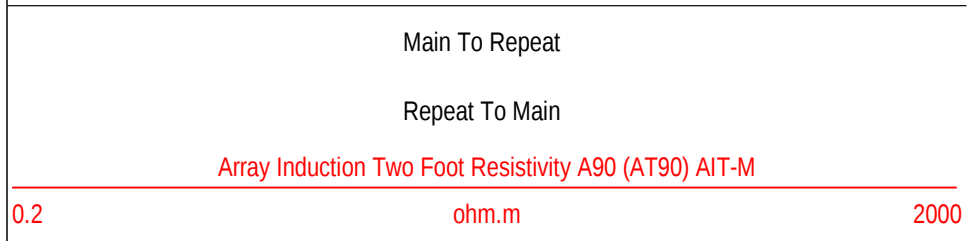
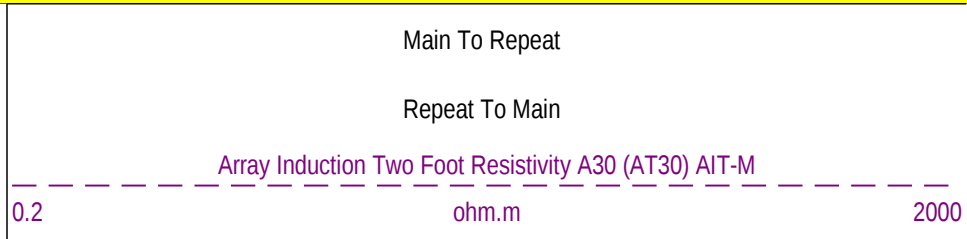
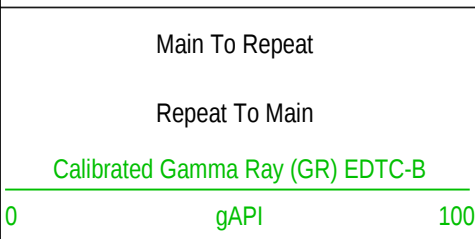
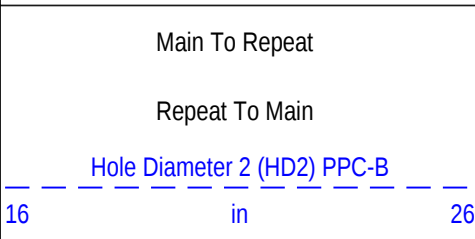
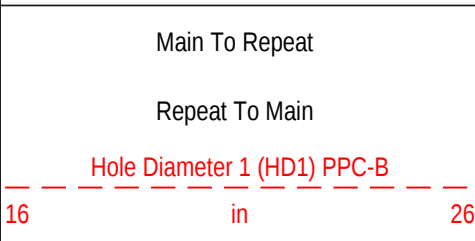
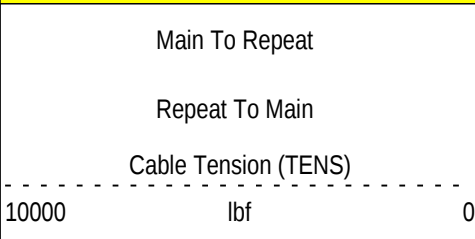


1500

TD
1526.00ft



Repeat Analysis: 5"



TIME_1900 - Time Marked every 60.00 (s)

Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:26

One

Repeat Pass 5"=100'

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Repeat[2]:Up	Up	1199.88 ft	1539.95 ft	12-Oct-2014 10:01:02 AM	12-Oct-2014 10:07:36 AM	ON	0.75 ft	No

All depths are referenced to toolstring zero

Log

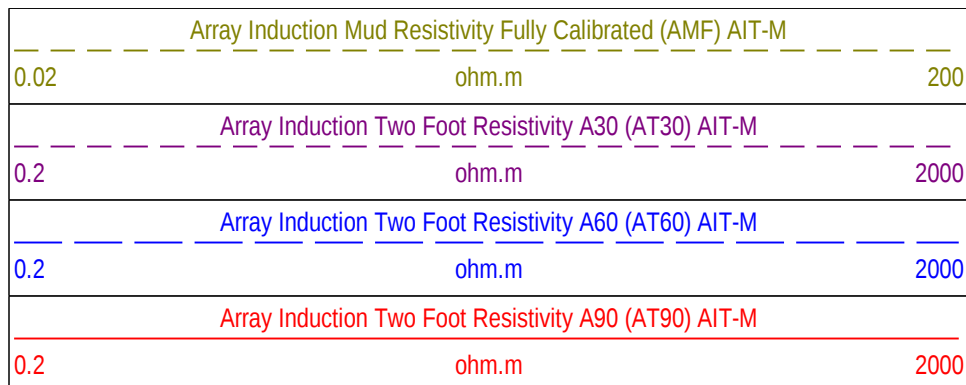
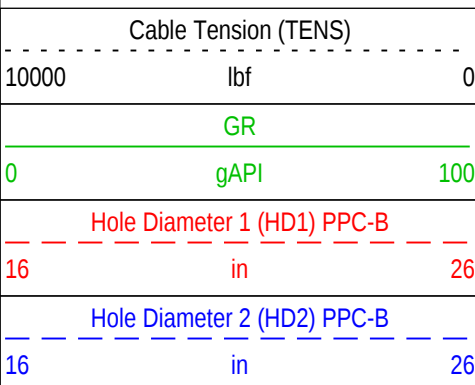
Company:PB ENERGY STORAGE SERVICES, INC Well:LINAM #2

One: Repeat[2]:Up:S007

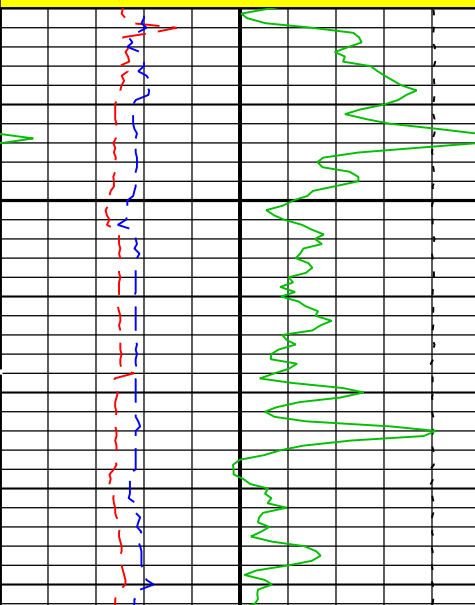
Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:27

Channel	Source	Sampling
AMF	AIT-M:AMIS:AMIS	12in
AT30	AIT-M:AMIS:AMIS	3in
AT60	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in
GR_CAL	EDTC-B:EDTC-B:EDTC-B	6in
HD1	PPC-B:PPC-B:PPC-B	6in
HD2	PPC-B:PPC-B:PPC-B	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

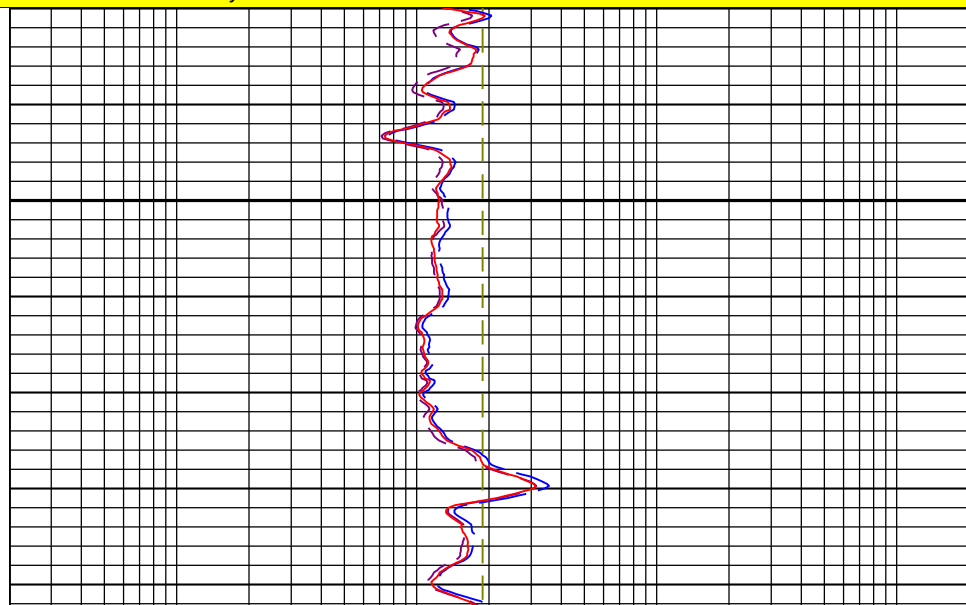
TIME_1900 - Time Marked every 60.00 (s)

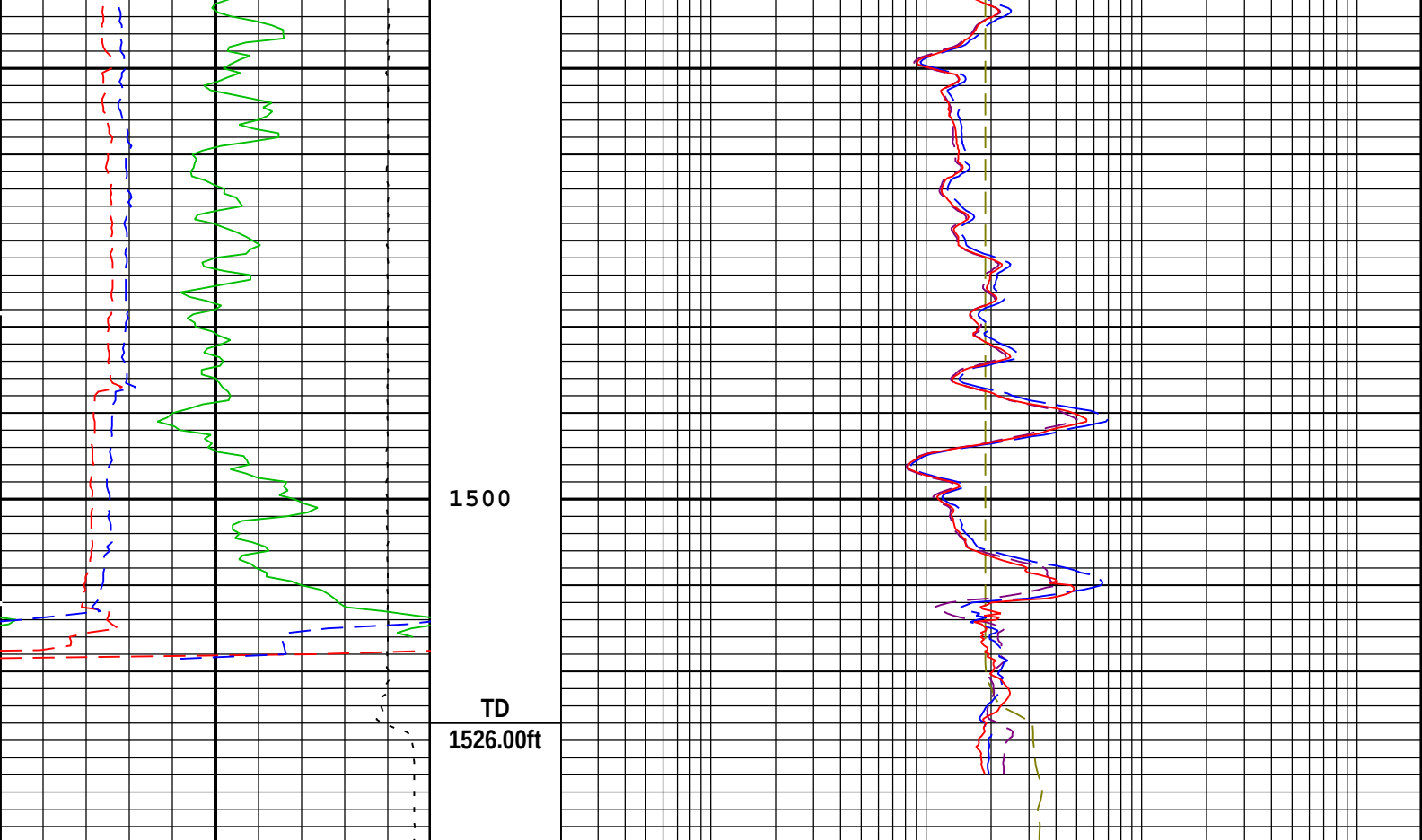


5" Resistivity



1400





5" Resistivity		
Cable Tension (TENS)	Array Induction Mud Resistivity Fully Calibrated (AMF) AIT-M	
10000 lbf 0	0.02 ohm.m	200
GR	Array Induction Two Foot Resistivity A30 (AT30) AIT-M	
0 gAPI 100	0.2 ohm.m	2000
Hole Diameter 1 (HD1) PPC-B	Array Induction Two Foot Resistivity A60 (AT60) AIT-M	
16 in 26	0.2 ohm.m	2000
Hole Diameter 2 (HD2) PPC-B	Array Induction Two Foot Resistivity A90 (AT90) AIT-M	
16 in 26	0.2 ohm.m	2000

TIME_1900 - Time Marked every 60.00 (s)

Description: HRLT BASIC LOG Format: Log (HRLA_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:27

Calibration Report		
PPC-B (Powered Positioning device and Caliper.) Calibration - Run One		
Primary Equipment :		
PPC-B Element is used for usual logging at wellsite and check/diagnostics.		PPC-B 8601
Calibration Parameter :		
ZERO_REF		
PLUS_REF		
Equipment Properties :		
Caliper Arm Equipment Type for PPC		PPC_CAL_17EXT

PPC Check - Downhole Electronics Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Positive Analog Voltage	V	Before		7	8.67275	9	
Minus Analog Voltage	V	Before		-9	-8.70439	-7	
Digital Voltage	V	Before		3.15	3.37877	3.45	
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.04082	5.5	

Digital Voltage for Analog Digital Converter	V	Before		4.3	5.04062	5.3	
Status Word of Analog Digital Converter Offset		Before		-8	0.888889	8	

PPC Check - Cartridge Temperature Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Cartridge Temperature	degF	Before		-58	72.9472	482	

PPC Check - Power Control LVDT Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
LVDT5 Caliper Open Position	in	Before			0		
LVDT5 Full Power Position	in	Before			0		

PPC Caliper Calibration - PPC CaliCoefficients

Before (Manual Entry): 12:29:58 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RD1_GAIN		Before	1	0.82	1	1.29	
RD2_GAIN		Before	1	0.82	1	1.29	
RD3_GAIN		Before	1	0.82	1	1.29	
RD4_GAIN		Before	1	0.82	1	1.29	
RD1_OFFSET	in	Before	0	-6	-0.9	6.5	
RD2_OFFSET	in	Before	0	-6	0.55	6.5	
RD3_OFFSET	in	Before	0	-6	-0.9	6.5	
RD4_OFFSET	in	Before	0	-6	0.55	6.5	

PPC Caliper Calibration - PPC Accumulations

Before (Manual Entry): 12:29:58 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper 1 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 2 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 3 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 4 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 1 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 2 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 3 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 4 Plus Radius - 0	in	Before	----	----	----	----	

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run One

Primary Equipment :	EDTC-B	EDTC-B	9071
Calibration Parameter :	Plus Reference (Jig minus background reference)	165	

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement - 0	ft/s2	Before	----	----	----	----	

EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients

Before (Measured): 12:47:43 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Gain		Before	1.000	0.900	1.058	1.100	

EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations

Before (Measured): 12:47:43 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before		0	42.212	120.000	
RGR Plus Measurement	gAPI	Before	165.000	150.000	156.008	180.000	

Platform Express

High Resolution Laterolog Array

Micro-CFL\HNGS

One

Main Pass 1"=100'

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Main[3]:Up	Up	40.69 ft	1545.04 ft	12-Oct-2014 10:12:58 AM	12-Oct-2014 10:42:41 AM	ON	0.90 ft	No

All depths are referenced to toolstring zero

Log

Company:PB ENERGY STORAGE SERVICES, INC Well:LINAM #2

One: Main[3]:Up:S007

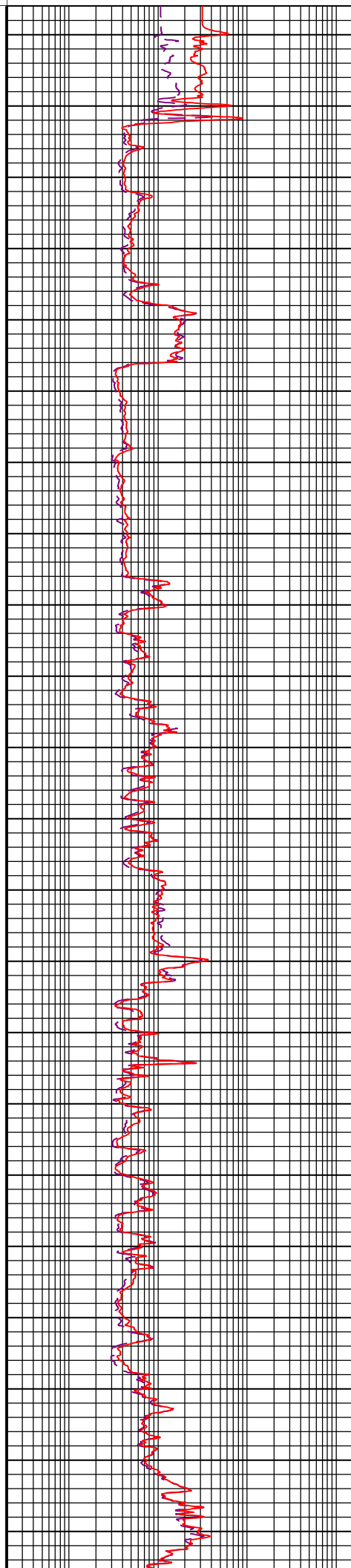
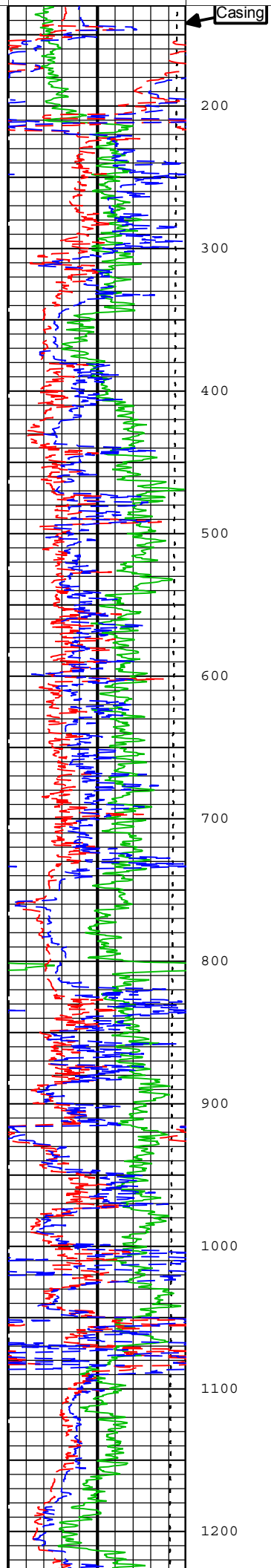
Description: HRLT BASIC LOG Format: Log (HRLA_1_inch) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:28

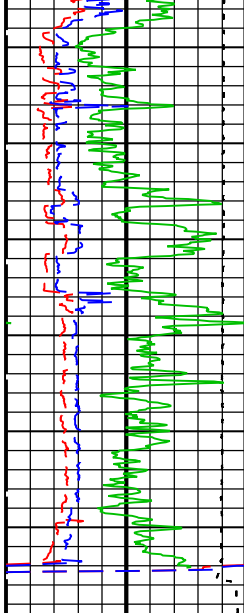
Channel	Source	Sampling
AT30	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in
GR_CAL	EDTC-B:EDTC-B:EDTC-B	6in
HD1	PPC-B:PPC-B:PPC-B	6in
HD2	PPC-B:PPC-B:PPC-B	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

TIME_1900 - Time Marked every 60.00 (s)

Cable Tension (TENS)		
10000	lbf	0
Calibrated Gamma Ray (GR_CAL) EDTC-B		
0	gAPI	100
Hole Diameter 1 (HD1) PPC-B		
16	in	26
Hole Diameter 2 (HD2) PPC-B		
16	in	26

Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000





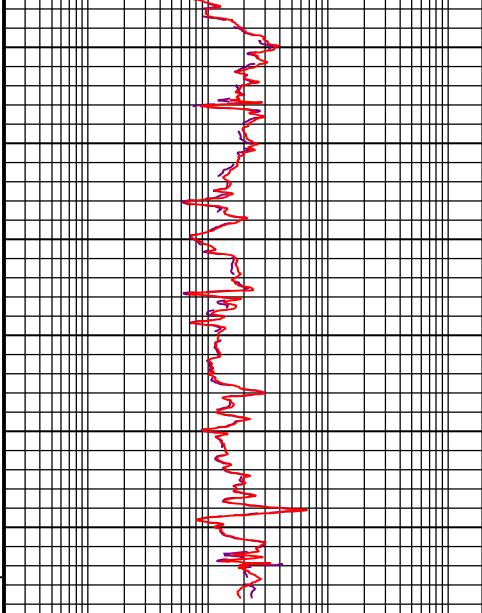
1300

1400

1500

TD

1526.00ft



Cable Tension (TENS)
10000 lbf 0

Calibrated Gamma Ray (GR_CAL)
EDTC-B
0 gAPI 100

Hole Diameter 1 (HD1)
PPC-B
16 in 26

Hole Diameter 2 (HD2)
PPC-B
16 in 26

Array Induction Two Foot Resistivity A30
(AT30) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A90
(AT90) AIT-M

0.2 ohm.m 2000

TIME_1900 - Time Marked every 60.00 (s)

Description: HRLT BASIC LOG Format: Log (HRLA_1_inch) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:54:28

Caliper Log

Company: PB ENERGY STORAGE SERVICES, INC

Well: LINAM #2

Field: AGI, BONE SPRING-WOLFCAMP

County: LEA State: NEW MEXICO

Caliper Log

County:	LEA		
Field:	AGI; BONE SPRING-WOLFCAMP		
Location:	1600' FSL & 1750' FWL		
Well:	LINAM #2		
Company:	PB ENERGY STORAGE SERVICES, INC		
	Location:		
	1600' FSL & 1750' FWL	Elev.:	K.B. 3763.00 ft
			G.L. 3738.00 ft
			D.F. 3762.00 ft
	Permanent Datum:	Ground Level	Elev.: 3738.00 f
Log Measured From:	Kelly Bushing	25.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
30-025-42139	30	18S	37E

Logging Date	12-Oct-2014					
Run Number	One					
Depth Driller	1585.00 ft					
Schlumberger Depth	1526.00 ft					
Bottom Log Interval	1504.00 ft					
Top Log Interval	142.00 ft					
Casing Driller Size @ Depth	30 in @ 145.00 ft					
Casing Schlumberger	142 ft					
Bit Size	17.5 in					
Type Fluid In Hole	Fresh Water					
D M U M	Density	Viscosity	40 s			
	Fluid Loss	PH	9			
	Source of Sample					
RM @ Meas Temp	0.46 ohm.m @ 64.8 degF					
RMF @ Meas Temp	0.38 ohm.m @ 75 degF					
RMC @ Meas Temp	0.31 ohm.m @ 75 degF					
Source RMF	RMC		Pressed			
RM @ BHT	RMF @ BHT		0.32 @ 98.3 0.29 @ 98.3			
Max Recorded Temperatures						
Circulation Stopped		Time	11-Oct-2014 20:00:00			
Logger on Bottom		Time	12-Oct-2014 09:55:41			
Unit Number	Location:		2133	ROSWELL		
Recorded By	EMIL LUDICK					
Witnessed By	TERRY WALLY					

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

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- 2. Disclaimer
- 3. Contents
- 4. Borehole Fluids
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- 6. One Main Pass 2" = 100'
 - 6.1 Integration Summary
 - 6.2 Composite Summary
 - 6.3 Log (Abilene HNGS Hole Profile 2 inch)
 - 6.4 Parameter Listing
- 7. Calibration Report
- 8. Tail

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Borehole Fluids						
Parameter(unit)	One					
Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	98.3					
Source of Sample	Active Tank					
Salinity (ppm)	500					
Density (lbm/gal)	9.3					
Funnel Viscosity (s)	40					
Fluid Loss (cm3)	12					
PH	9					
Date/Time Circulation Stopped	11-Oct-2014 20:00:00					
Date Logger on Bottom	12-Oct-2014					
Time Logger on Bottom	09:55:41					
Source RMF	Pressed					
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	0.46 @ 64.8					
RMF @ Meas Temp (ohm.m@degF)	0.38 @ 75					
RMC @ Meas Temp (ohm.m@degF)	0.31 @ 75					
RM @ BHT (ohm.m@degF)	0.32 @ 98.3					
RMF @ BHT (ohm.m@degF)	0.29 @ 98.3					
RMC @ BHT (ohm.m@degF)	0.24 @ 98.3					
Total Solid (%)						
High Gravity Solids (%)						

Survey Record					
Survey Calculation					
Method :		Minimum Radius of Curvature		DLS Method :	
North Reference :		True North		Total Correction Formula :	
				Lubinski	
				Magnetic Dec	
Rig Location					
Latitude :		32.715690 degrees		Longitude :	
				-103.29305 degrees	
Tie In Point					
Measured Depth:		0.00 ft	Inclination:	0.00 deg	Azimuth:
True Vertical Depth:		0.00 ft	North Displacement:	0.00 ft	East Displacement:
					0.00 deg
					0.00 ft
Survey Quality Index					
28 : Tie-In Point					
Survey Correction Index					
0 : No correction					
Survey Description Index					
0 : Not Flagged Survey					

1	0.00	0.00	0.00	----	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
---	------	------	------	------	------	------	------	------	-------	------	-----	----	---	---

One

Main Pass 2" = 100'

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	HVAS	2972.45	ft3
ICV	Integrated Cement Volume	HVAS, FCD	0	ft3

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Main[3]:Up	Up	40.69 ft	1545.04 ft	12-Oct-2014 10:12:58 AM	12-Oct-2014 10:42:41 AM	ON	0.90 ft	No

All depths are referenced to toolstring zero

Log

Company:PB ENERGY STORAGE SERVICES, INC

Well:LINAM #2

One: Main[3]:Up:S007

Description:

Format: Log (Abilene HNGS Hole Profile 2 inch)

Index Scale: 2 in per 100 ft

Index Unit: ft

Index Type: Measured Depth

Creation Date: 12-Oct-2014 10:56:03

Channel	Source	Sampling
BS	Borehole	6in
GR_CAL	EDTC-B:EDTC-B:EDTC-B	6in
HD1	PPC-B:PPC-B:PPC-B	6in
HD2	PPC-B:PPC-B:PPC-B	6in
ICV	Borehole	6in
IHV	Borehole	6in
TENS	WLWorkflow	6in

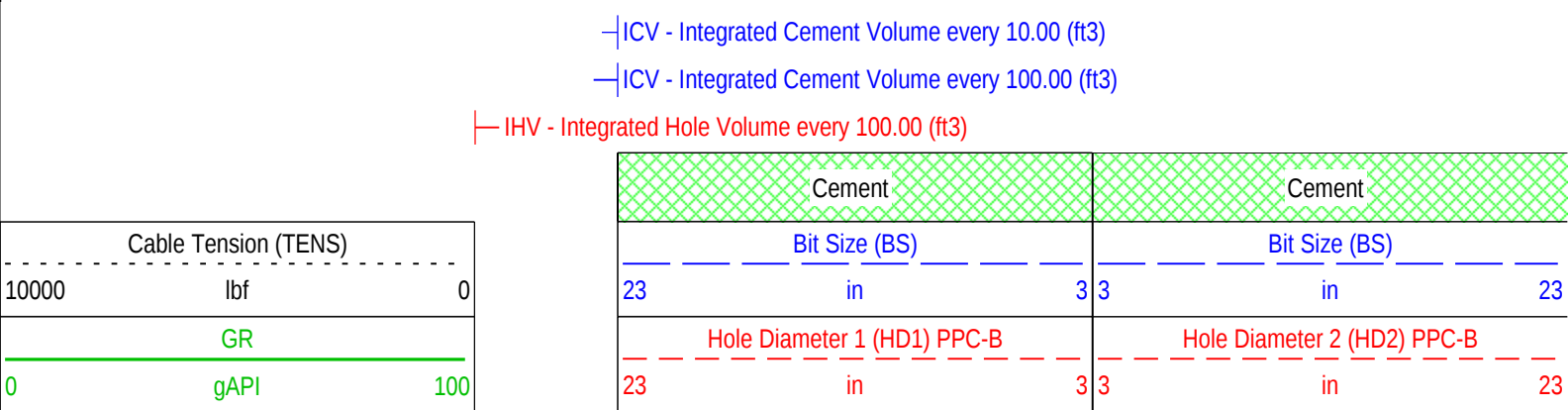
TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 10.00 (ft3)

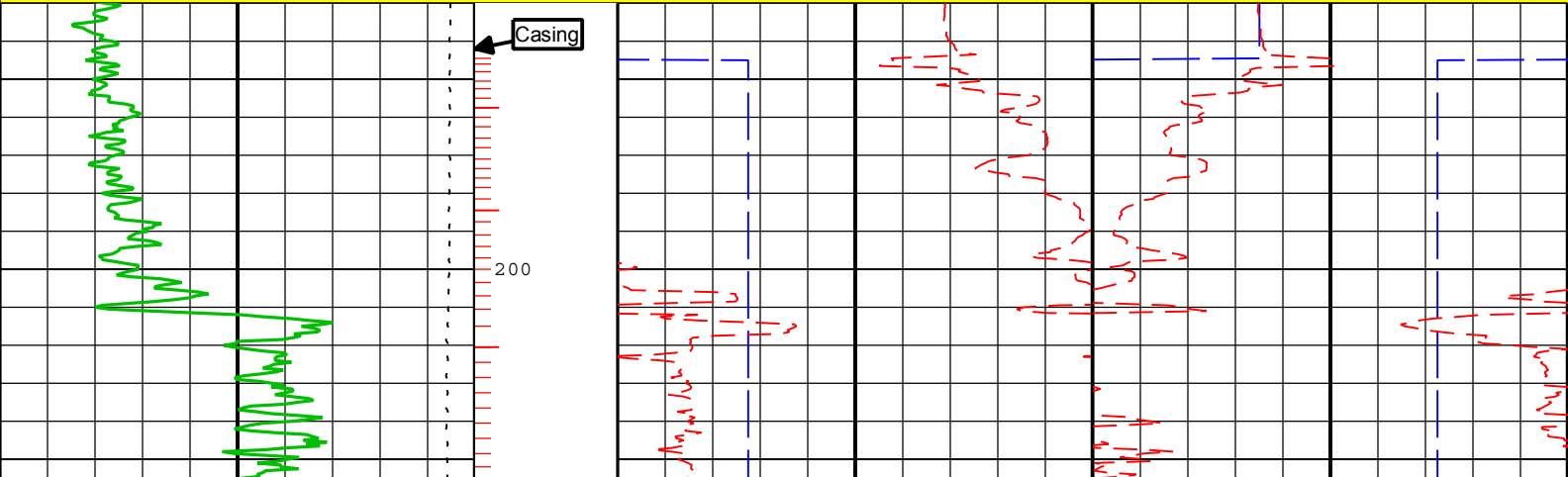
ICV - Integrated Cement Volume every 10.00 (ft3)

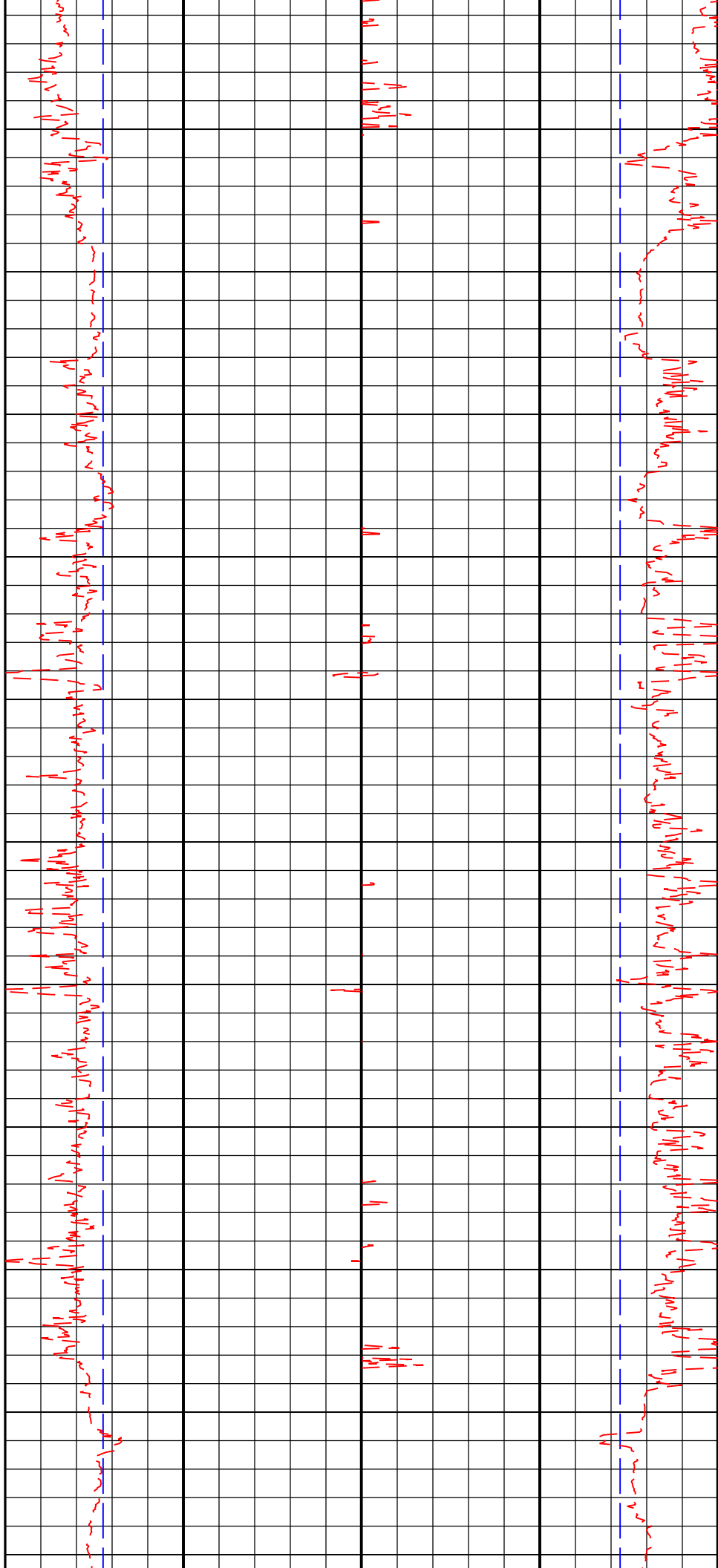
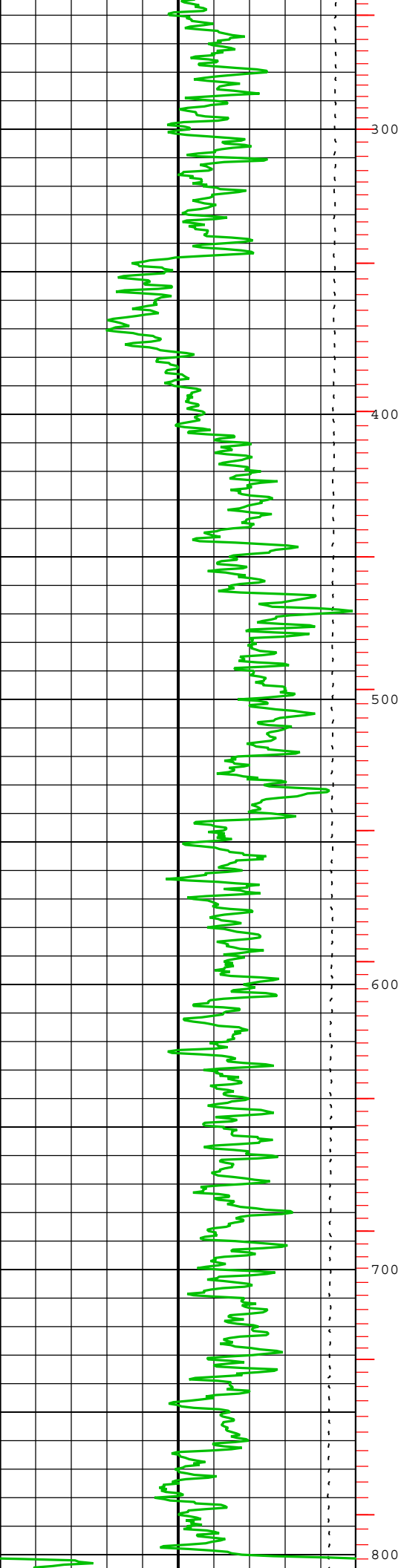
ICV - Integrated Cement Volume every 100.00 (ft3)

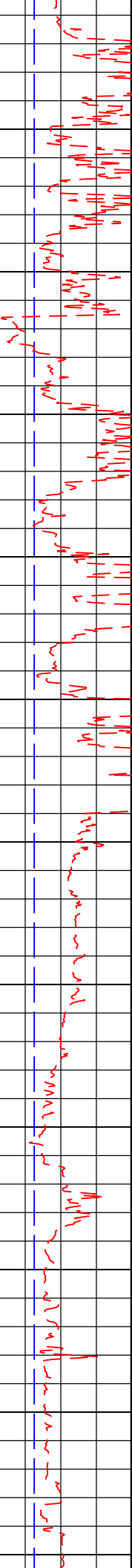
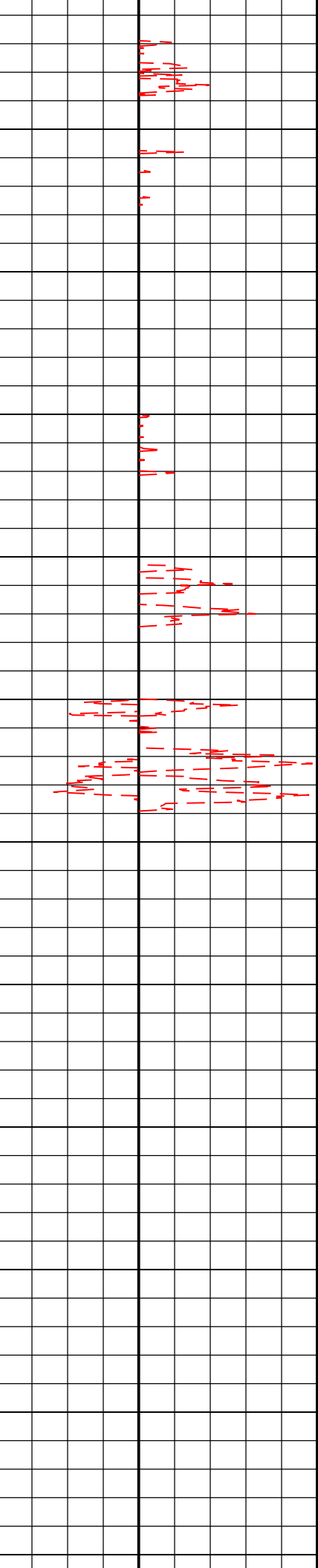
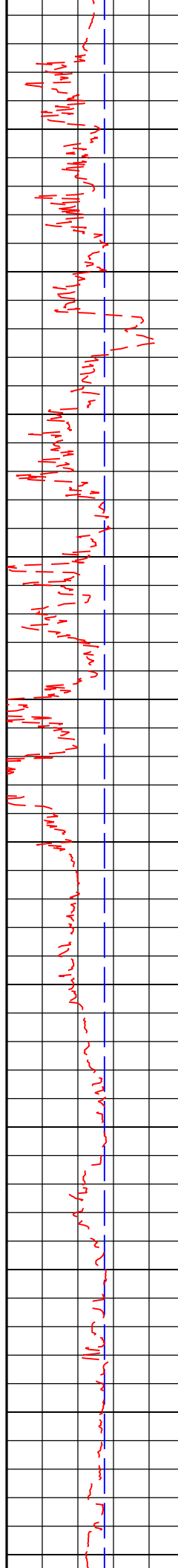
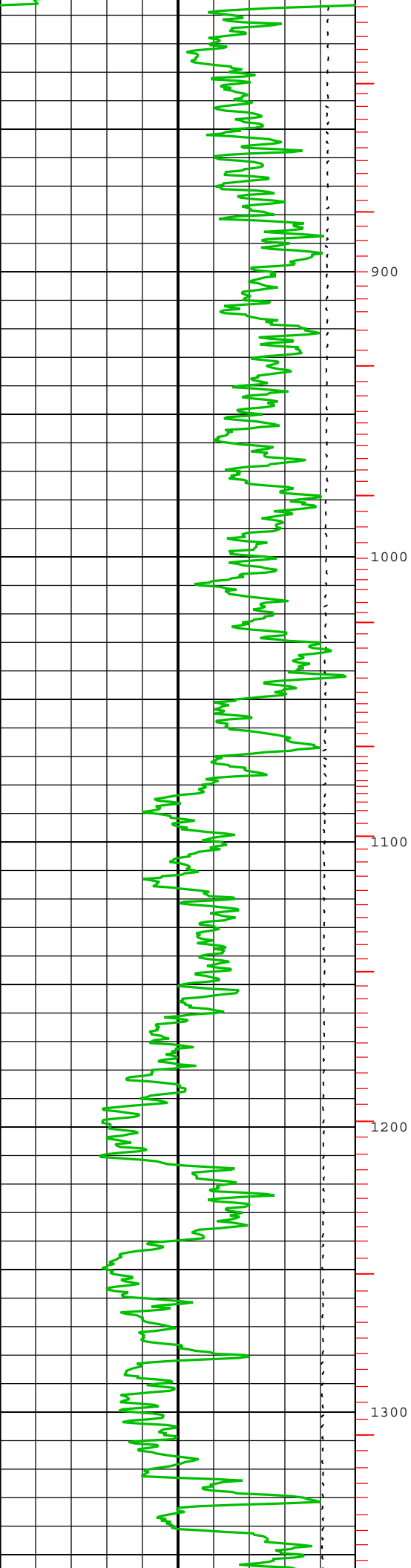
IHV - Integrated Hole Volume every 100.00 (ft3)

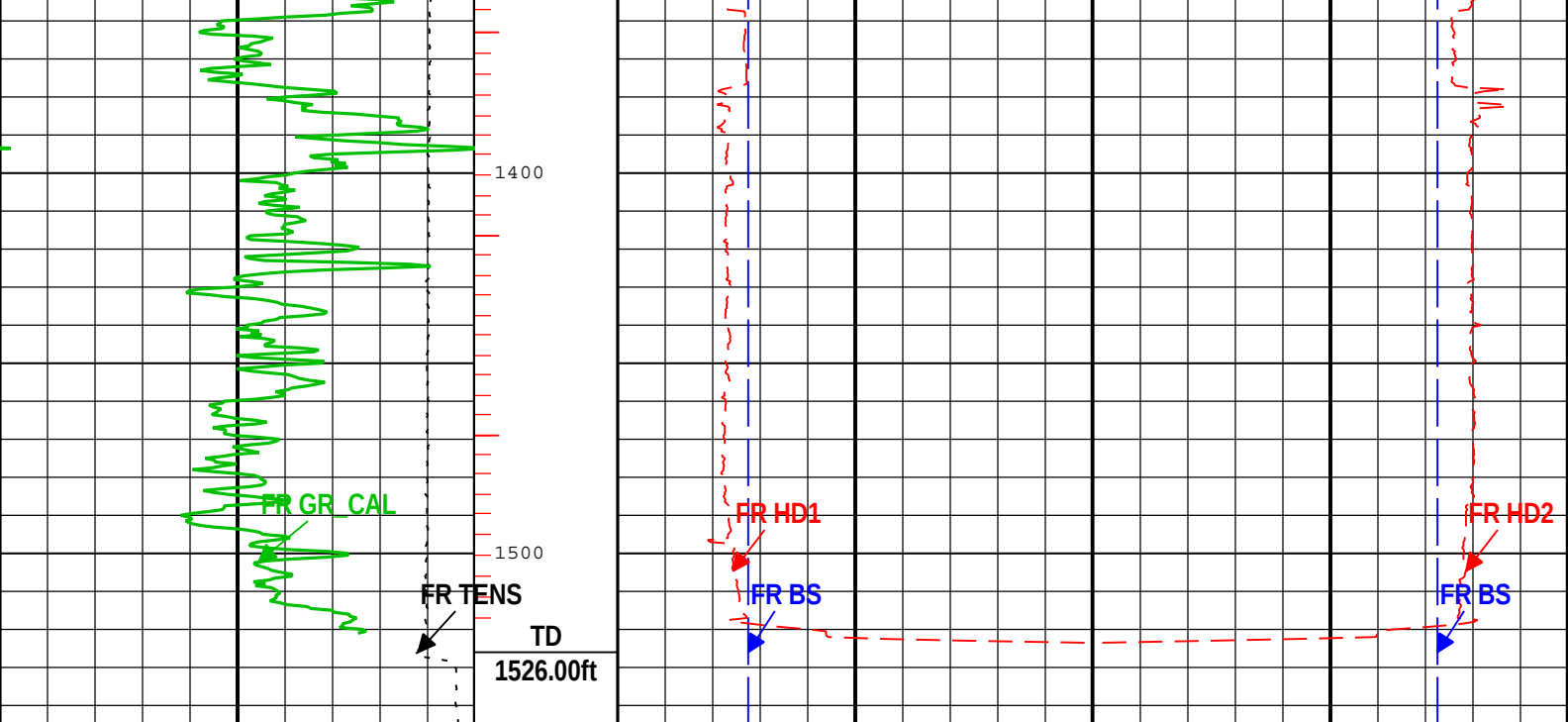


Hole Profile and Cement Volume









Hole Profile and Cement Volume

Cable Tension (TENS)		Cement		Cement	
10000	lbf	0			
GR		Bit Size (BS)		Bit Size (BS)	
0	gAPI	100			
		Hole Diameter 1 (HD1) PPC-B		Hole Diameter 2 (HD2) PPC-B	
		23	in	33	in

- IHV - Integrated Hole Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 10.00 (ft3)

Description: Format: Log (Abilene HNGS Hole Profile 2 inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Oct-2014 10:56:03

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	142	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	30	in
FCD	Future Casing (Outer) Diameter	WLSESSION	0	in
HVAS	Borehole area measurement selector for hole volume computation	Borehole	AREA	
HVCS	Integrated Hole Volume Caliper Selection	Borehole	Measured Area	

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	30	130	145
BS	17.5	145	1526

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Calibration Report

Calibration Report

PPC-B (Powered Positioning device and Caliper.) Calibration - Run One

Primary Equipment :

PPC-B Element is used for usual logging at wellsite and check/diagnostics.

PPC-B

8601

Calibration Parameter :

ZERO_REF

PLUS_REF

Equipment Properties :

Caliper Arm Equipment Type for PPC

PPC_CAL_17EXT

PPC Check - Downhole Electronics Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Positive Analog Voltage	V	Before		7	8.67275	9	
Minus Analog Voltage	V	Before		-9	-8.70439	-7	
Digital Voltage	V	Before		3.15	3.37877	3.45	
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.04082	5.5	
Status Word of Analog Digital Converter Offset		Before		-8	0.888889	8	

PPC Check - Cartridge Temperature Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Cartridge Temperature	degF	Before		-58	72.9472	482	

PPC Check - Power Control LVDT Test

Before (Measured): 12:02:09 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
LVDT5 Caliper Open Position	in	Before			0		
LVDT5 Full Power Position	in	Before			0		

PPC Caliper Calibration - PPC CaliCoefficients

Before (Manual Entry): 12:29:58 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RD1_GAIN		Before	1	0.82	1	1.29	
RD2_GAIN		Before	1	0.82	1	1.29	
RD3_GAIN		Before	1	0.82	1	1.29	
RD4_GAIN		Before	1	0.82	1	1.29	
RD1_OFFSET	in	Before	0	-6	-0.9	6.5	
RD2_OFFSET	in	Before	0	-6	0.55	6.5	
RD3_OFFSET	in	Before	0	-6	-0.9	6.5	
RD4_OFFSET	in	Before	0	-6	0.55	6.5	

PPC Caliper Calibration - PPC Accumulations

Before (Manual Entry): 12:29:58 10-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper 1 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 2 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 3 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 4 Zero Radius - 0	in	Before	----	----	----	----	
Caliper 1 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 2 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 3 Plus Radius - 0	in	Before	----	----	----	----	
Caliper 4 Plus Radius - 0	in	Before	----	----	----	----	

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run One

Primary Equipment :

EDTC-B

EDTC-B

9071

Calibration Parameter :

Plus Reference (Jig minus background reference)

165

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
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AZ Vertical Measurement - 0		ft/s2	Before	-----	-----	-----	-----		
EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients									
Before (Measured):		12:47:43 10-Oct-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit			
Gamma Ray Gain		Before	1.000	0.900	1.058	1.100			
EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations									
Before (Measured):		12:47:43 10-Oct-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit			
RGR Zero Measurement	gAPI	Before		0	42.212	120.000			
RGR Plus Measurement	gAPI	Before	165.000	150.000	156.008	180.000			

Company:	PB ENERGY STORAGE SERVICES, INC	Schlumberger
Well:	LINAM #2	
Field:	AGI; BONE SPRING-WOLFCAMP	
County:	LEA	
State:	NEW MEXICO	
Caliper Log		