

Kerr McGee Oil and Gas Onshore, LP

State: Colorado

Platform Express Array Induction with Linear Correlation			
NWSW Sec. 16, T 1S, R 67W	Elev.:	K.B.	5175.00 ft
SHL: 1515' FSL / 1274' FWL NWSW		G.L.	5160.00 ft
BHL: 581' FSL / 608' FWL SWSW (est)		D.F.	5174.00 ft
Permanent Datum:	Ground Level	Elev.:	5160.00 ft
Log Measured From:	Kelly Bushing	15.00 ft	above Perm. Datum
Drilling Measured From:	Kelly Bushing		
API Serial No. 05-001-09685-000C	Section 16	Township 1S	Range 67W

LOCATION		Elev.:	
NWWSW Sec. 16, T 1S, R 67W		K.B.	5175.00 ft
SHL: 1515' FSL / 1274' FWL NWWSW		G.L.	5160.00 ft
BHL: 581' FSL / 608' FWL SWSW (est)		D.F.	5174.00 ft
Permanent Datum:	Ground Level	Elev.:	5160.00 ft
Log Measured From:	Kelly Bushing	15.00 ft	above Perm. Datum
Drilling Measured From:	Kelly Bushing		

[illegible][illegible]

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DEPTH SUMMARY LISTING

Date Created: 2-DEC-2009 12:19:29

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-39P LXS
Serial Number:	799	Serial Number:	1223	Serial Number:	708273
Calibration Date:	1-Oct-2009	Calibration Date:	9-Nov-09	Length:	13900 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100513		
Calibration Cable Type:	7-39P LXS	Number of Calibration Points:	0	Conveyance Method:	Wireline
Wheel Correction 1:	-4			Rig Type:	LAND
Wheel Correction 2:	-5				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	4.50 FT
Tool Zero Check At Surface:	0.00 FT

Depth Control Remarks

1. All Schlumberger depth policy procedures applied
2. This is the primary depth reference
- 3.
- 4.
- 5.
- 6.

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 OF 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.

OTHER SERVICES1	OTHER SERVICES2
OS1: CMR	OS1:
OS2: FMI	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
1. This is the first run in hole.	
2. Tool run as per tool sketch.	
3. Matrix changes are as noted on porosity log.	
4. Toolstring run with minimum jewelry.	
5. Fresh water does have any mud to press. Values were calculated.	
6. Aaron Vandenberg, Herb Meighan, and Peter Hook are also witnesses.	

Rig: Extreme 11	
Crew: Tim Ludgate	

RUN 1			RUN 2		
SERVICE ORDER #:		AXB6-00073	SERVICE ORDER #:		
PROGRAM VERSION:		17C0-154	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

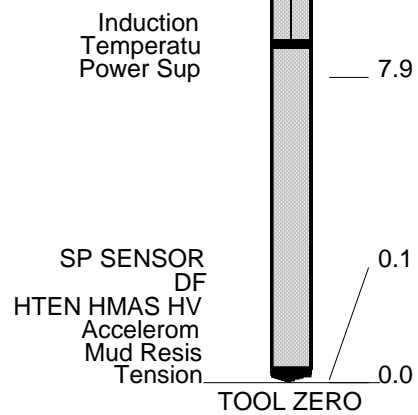
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT	
GSR-U/Y	WITM (DTS)-A
NCT-B	
CNB-AB	
NCS-VB	

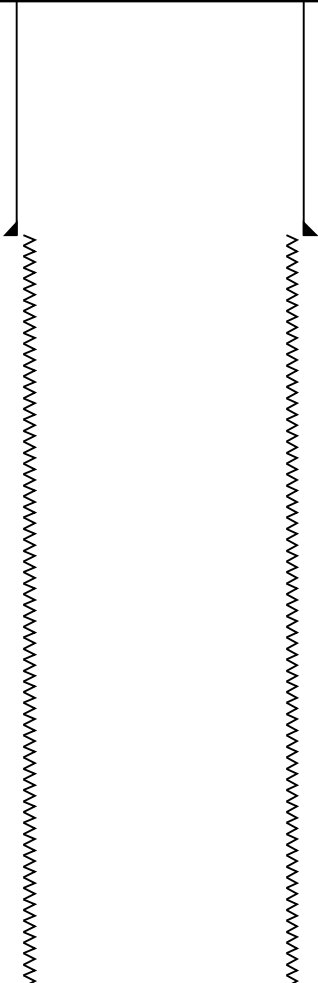
DOWNHOLE EQUIPMENT	
LEH-QT	43.6
LEH-QT 2552	
DTC-H	
ECH-KC	
DTCH0-A 8980	
DTCH1-A	
HILTB-FTB	
HGNSD-B	
HMCA	
HGNH	
NLS-KL	
NSR-F 5068	
HACCZ 749	
HCNT	
HGR	
HRCC-B 1813	
HRMS-B 821	
HRGD-B 1879	
GLS-VJ 5416	
MCFL Device	
HILT Nucl. LS 42767	
HILT Nucl. SS 42767	
HILT Nucl. BS 42767	
NPV-N	
CTEM	39.7
TelStatus	37.6
ToolStatu	37.6
HGNS HTEM	37.6
HMCA	36.9
HGNS Gamm	37.6
HGNS Neut	31.1
HGNS Neut	30.6
HGNS sens	28.2
HRCC cart	24.2
MCFL	18.8
HILT cali	18.3
HRDD-LS	17.9
HRDD-SS	
HRDD-BS	
AIT M	16.0

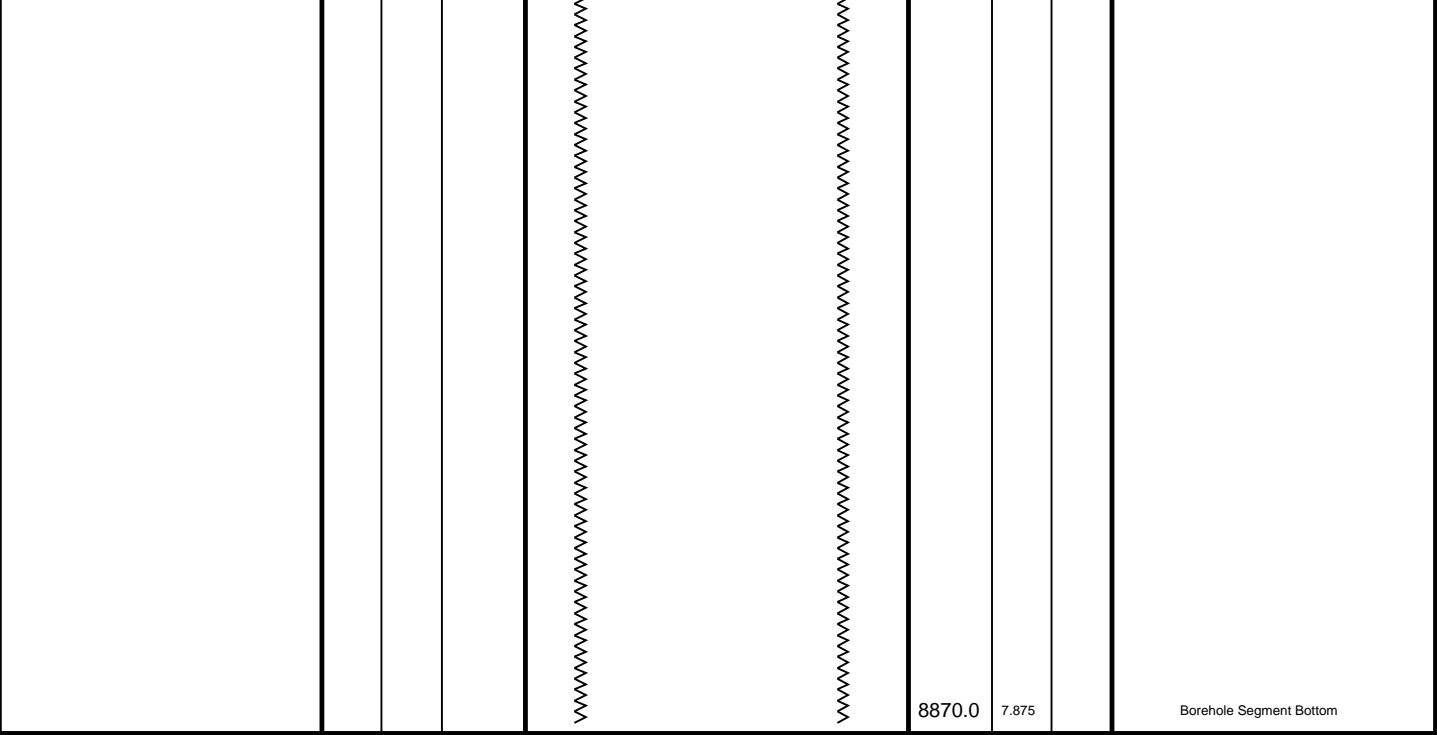
ATI-M
AMIS-A 1372
AMRM-A

16.0



MAXIMUM STRING DIAMETER 4.63 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Production String	(in)		(ft)	Well Schematic	(ft)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	8.625		Casing String
					1220.0	8.625		Casing Shoe
					1220.0	7.875		Borehole Segment



8870.0 7.875 Borehole Segment Bottom

All depths are driller's depths



RESISTIVITY LINEAR 2" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_010LUP FN:9 PRODUCER 02-Dec-2009 11:46 8808.0 FT 1178.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2630.12 F3
Cement Volume = 1792.01 F3 (assuming 4.50 IN casing O.D.)
Computed from 8808.0 FT to 1220.0 FT using data channel(s) HCAL

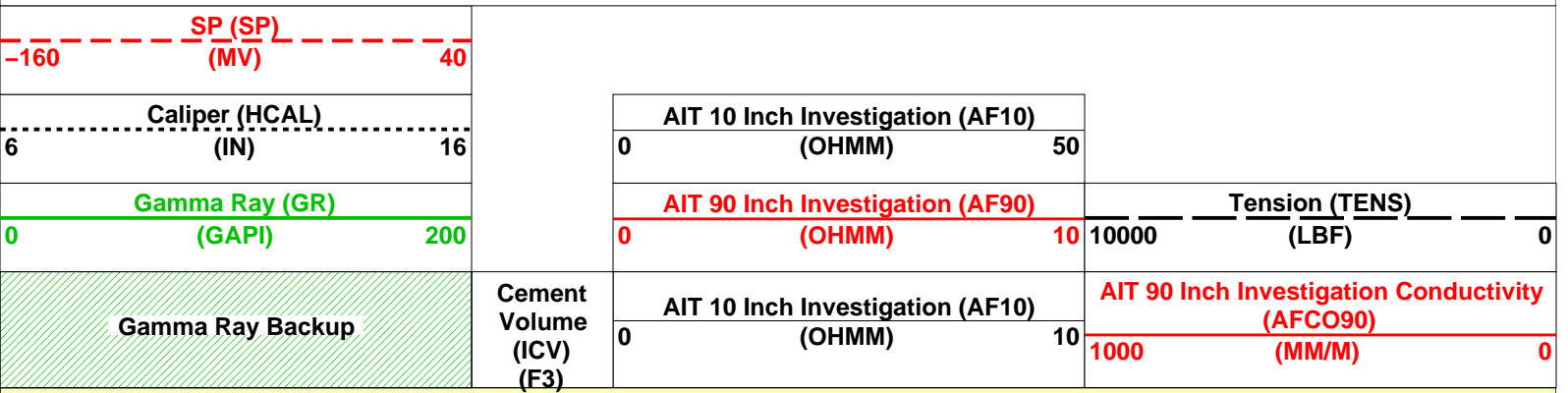
OP System Version: 17C0-154

AIT-M 17C0-154 HILTB-FTB 17C0-154
DTC-H 17C0-154

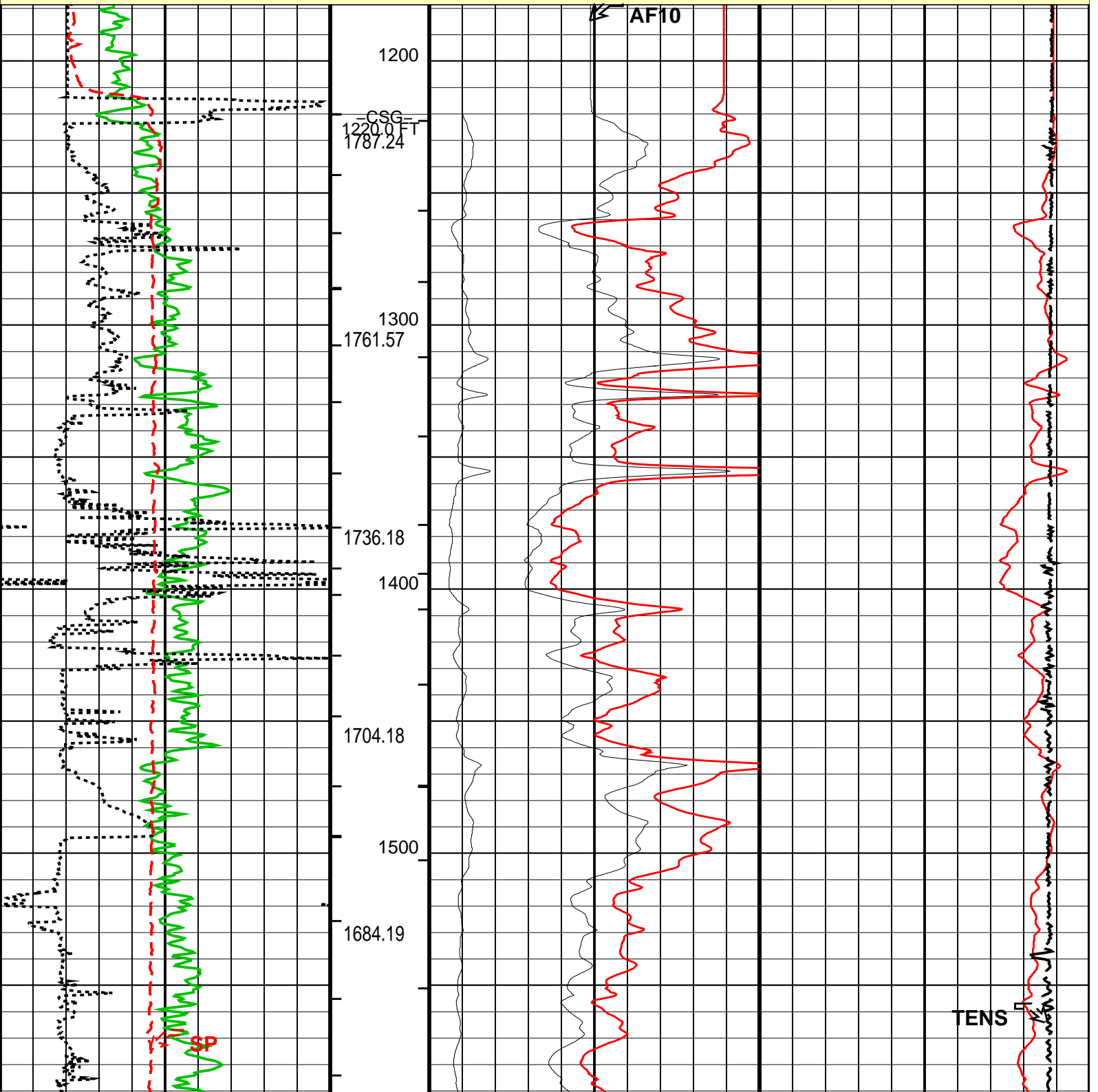
PIP SUMMARY

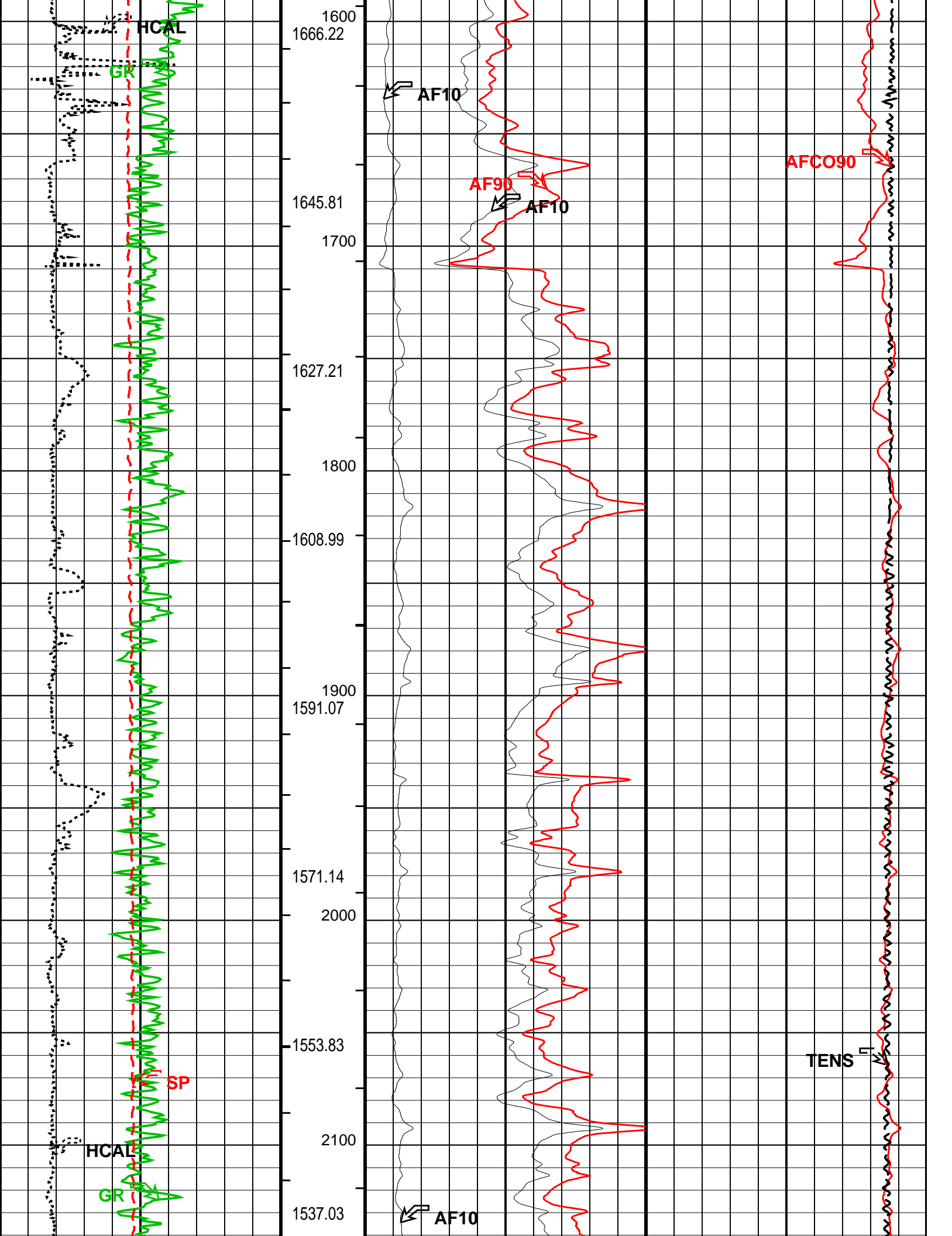
- ➔ Integrated Cement Volume Major Pip Every 100 F3
- ➔ Integrated Cement Volume Minor Pip Every 10 F3

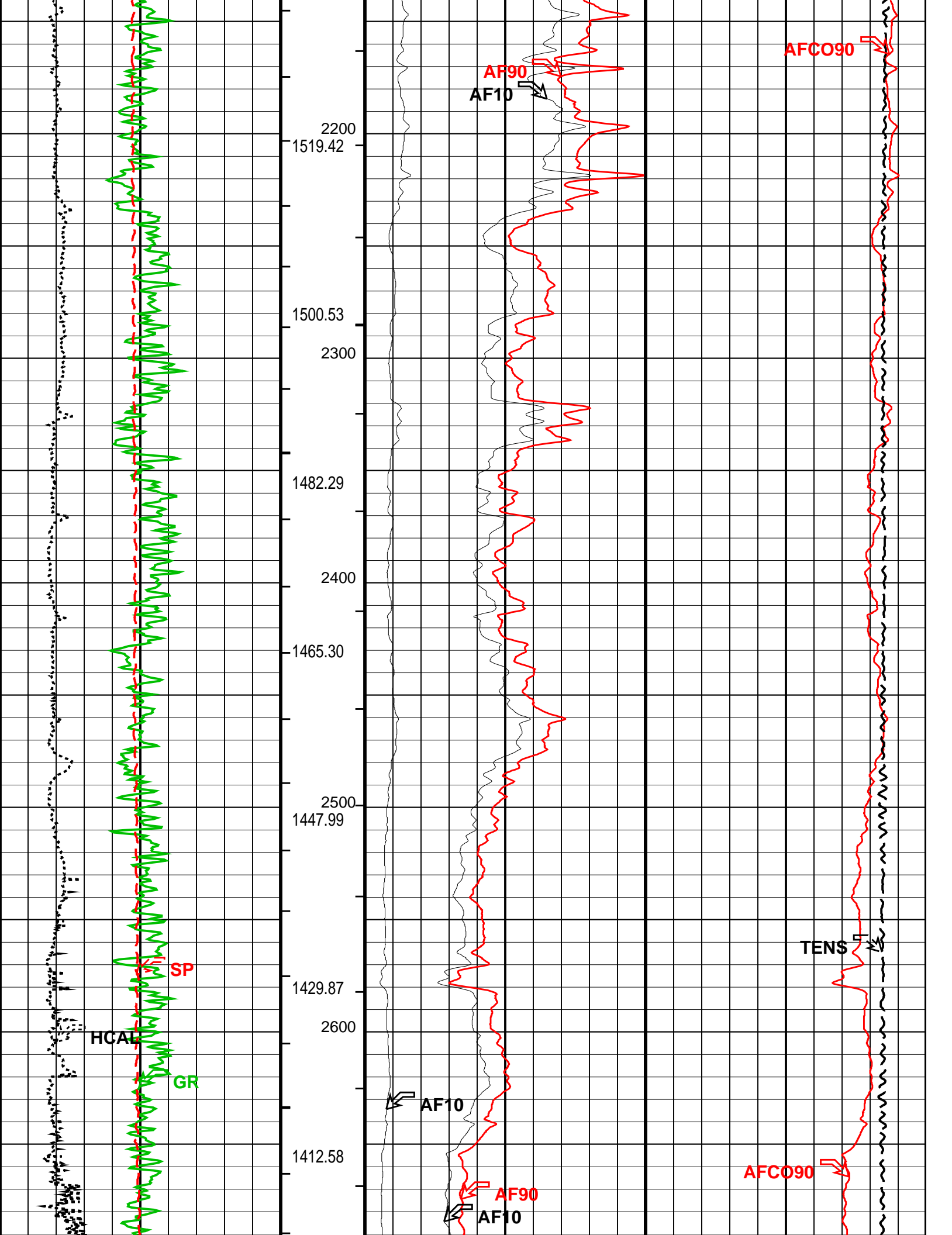
└ Integrated Hole Volume Major Pip Every 100 F3
└ Integrated Hole Volume Minor Pip Every 10 F3

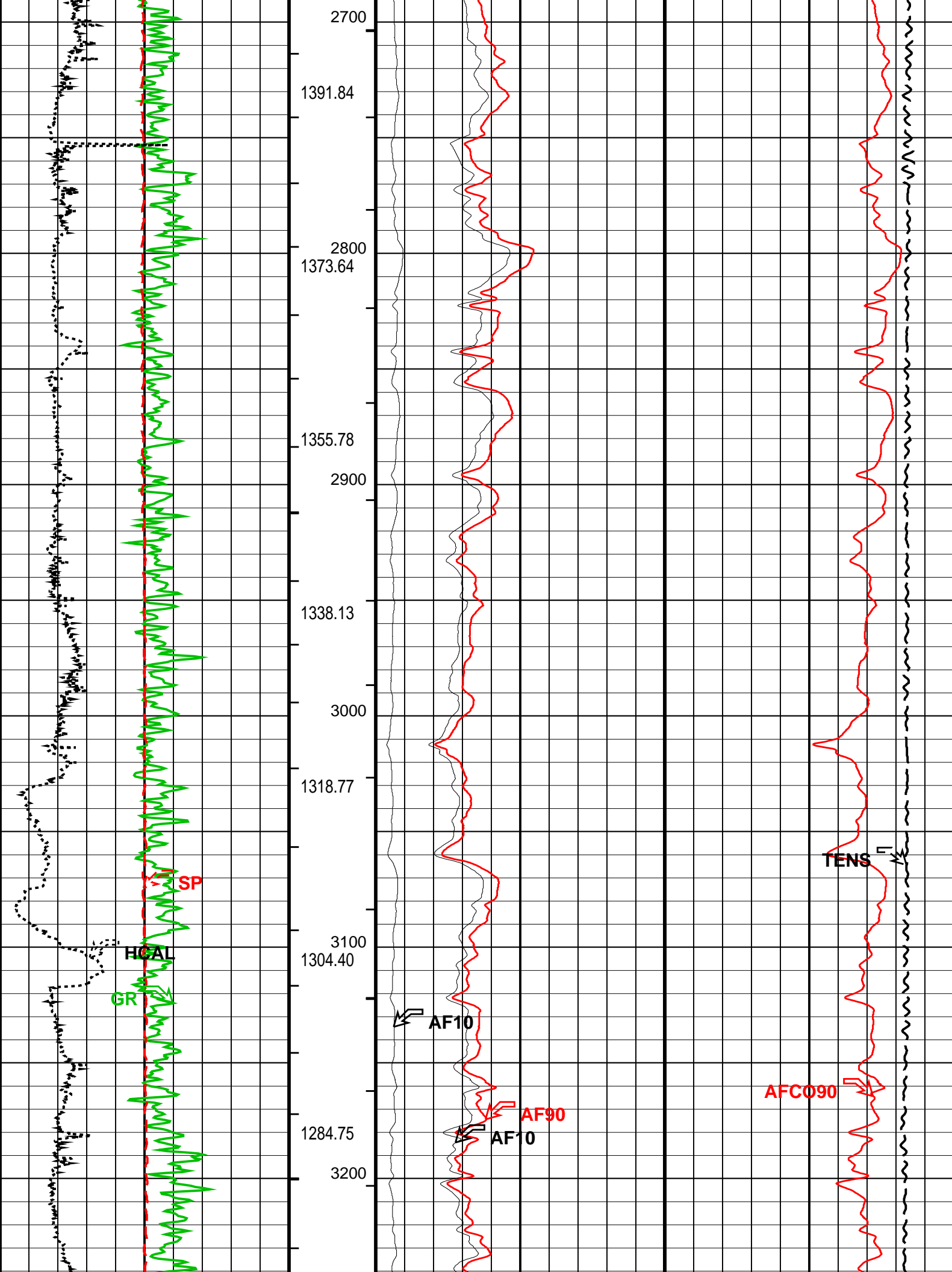


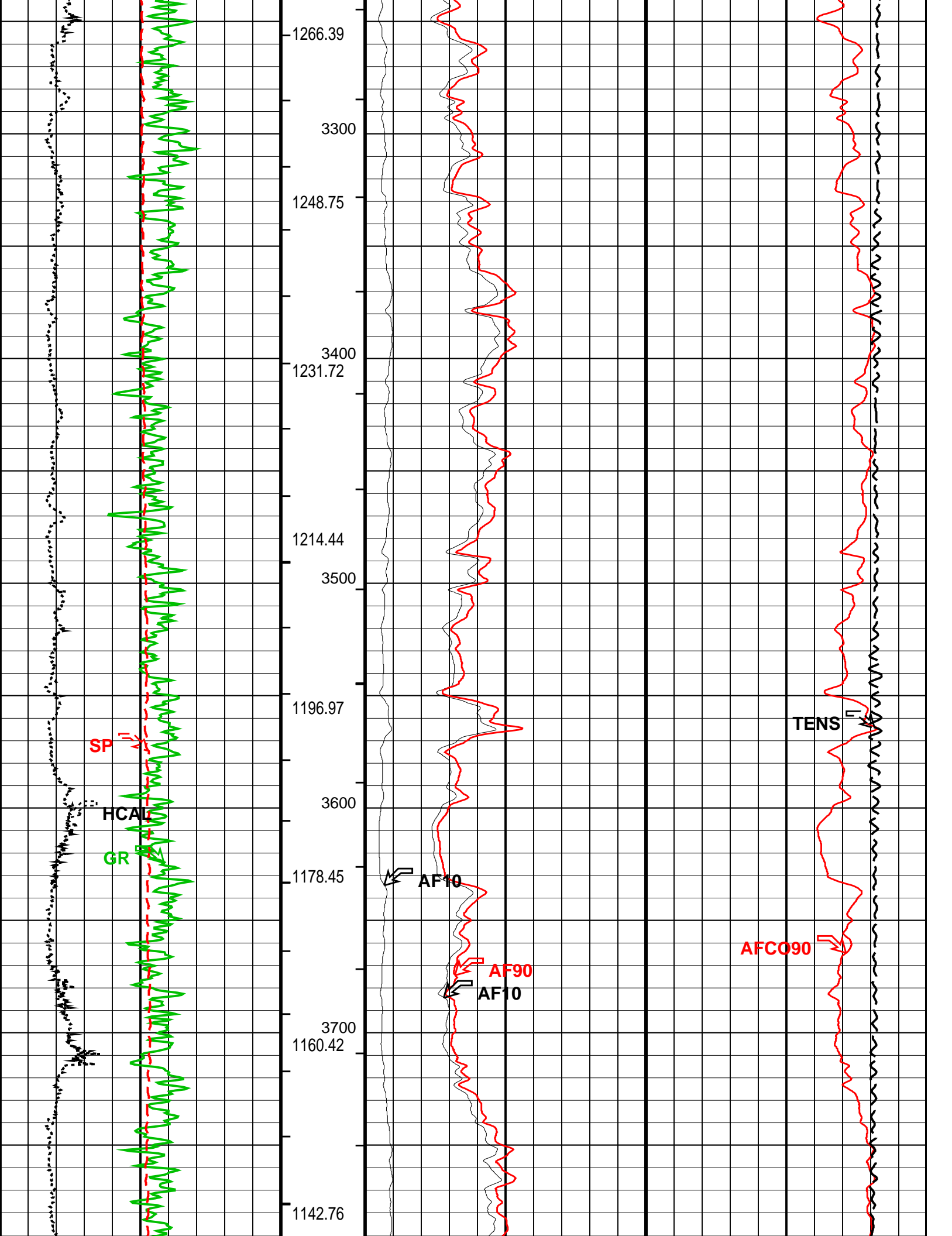
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

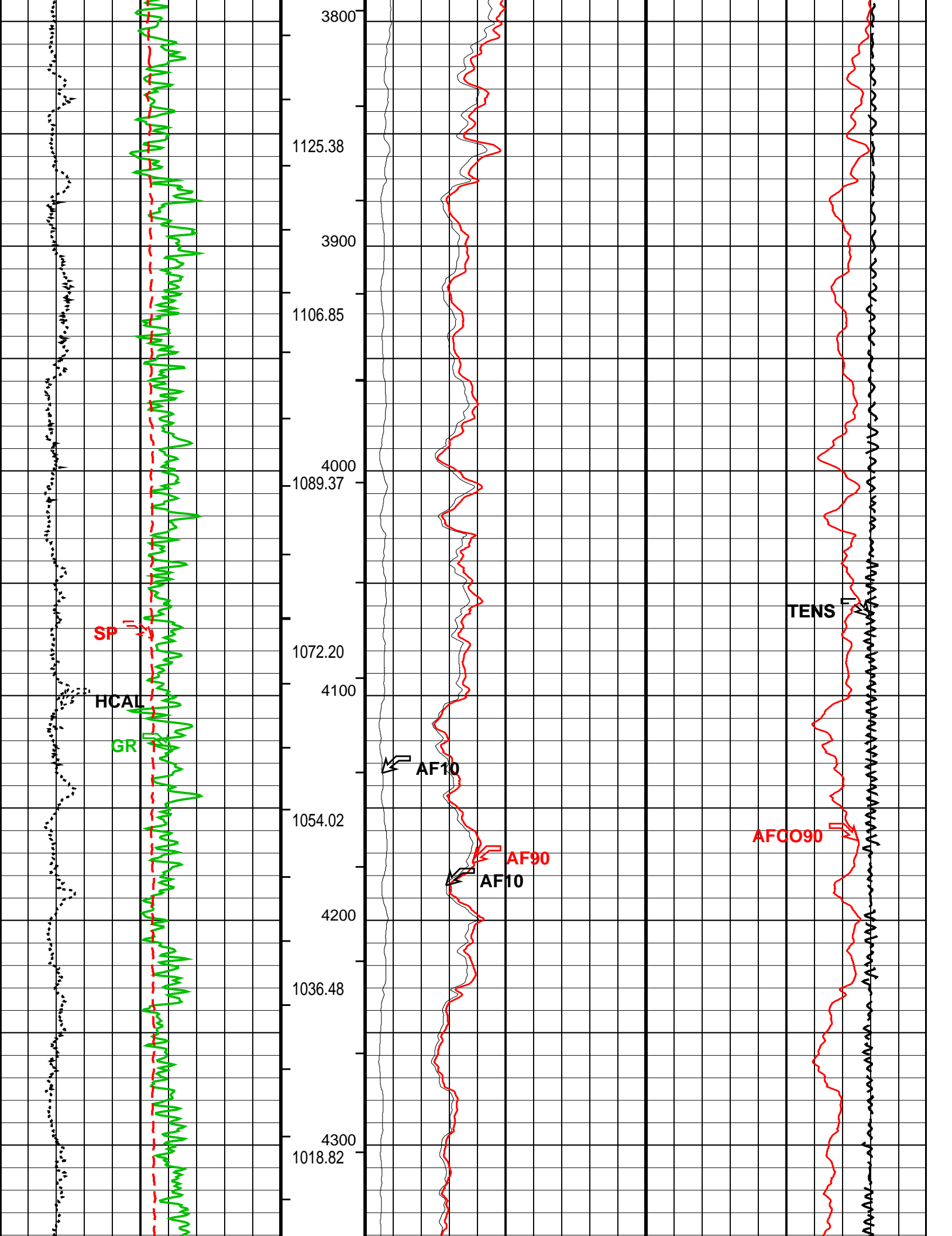


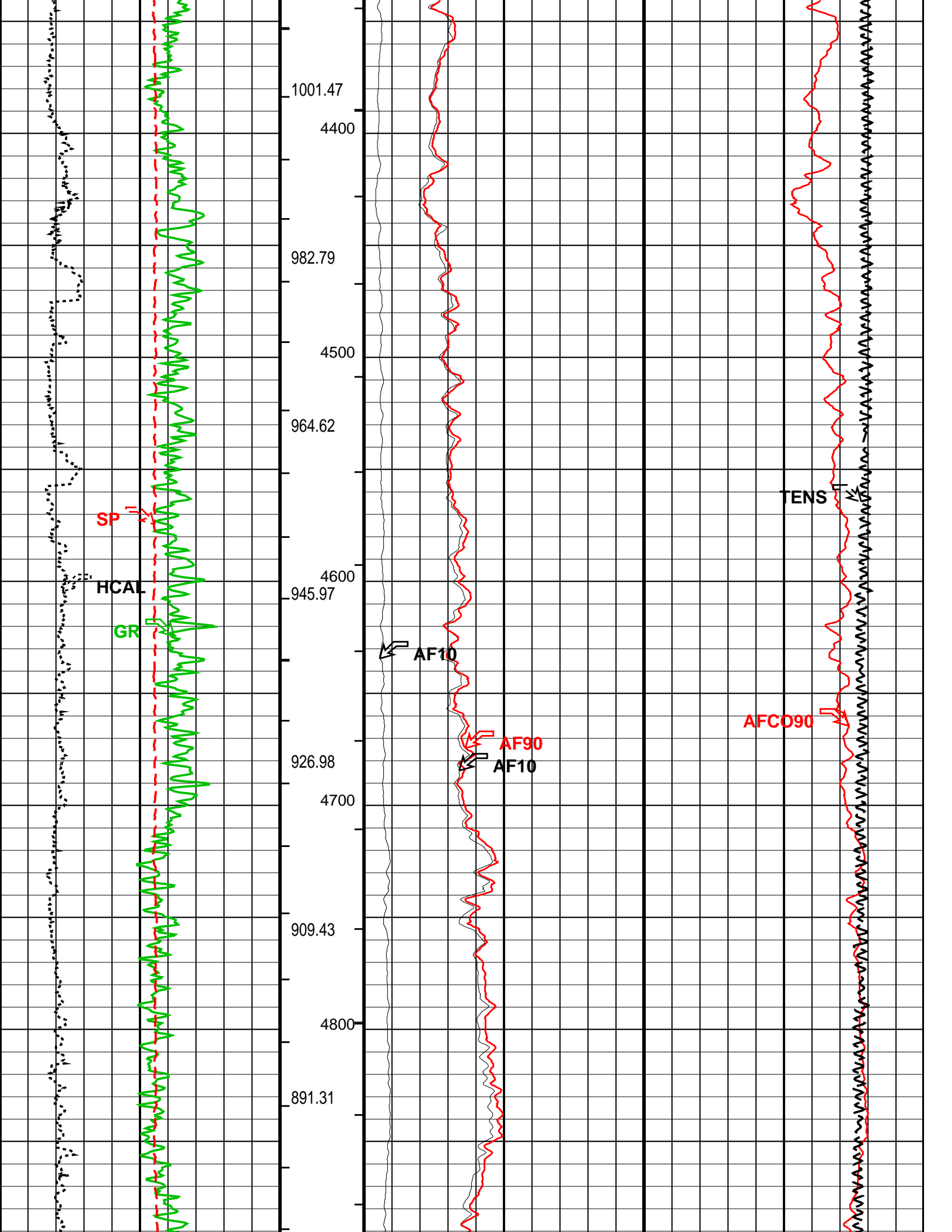


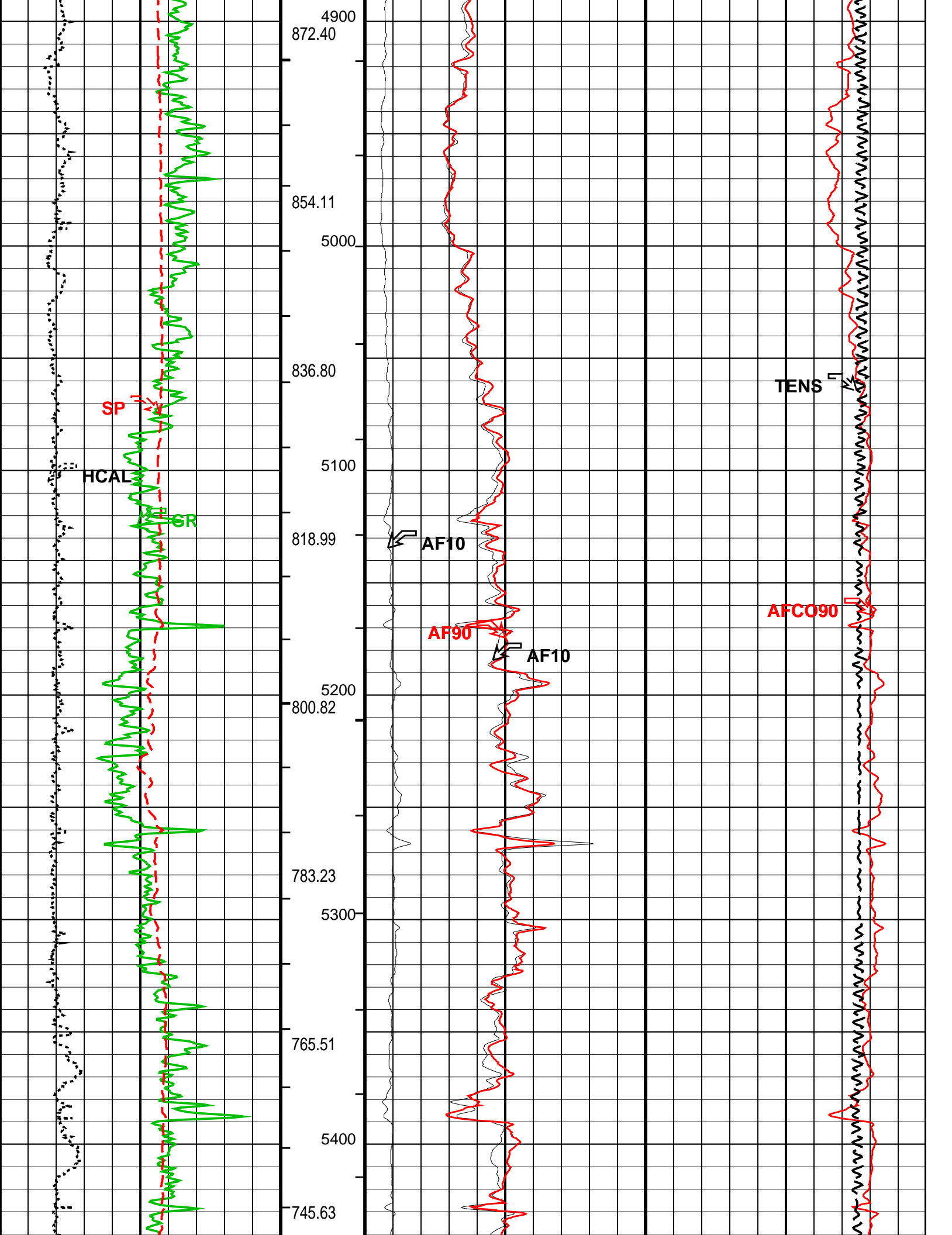


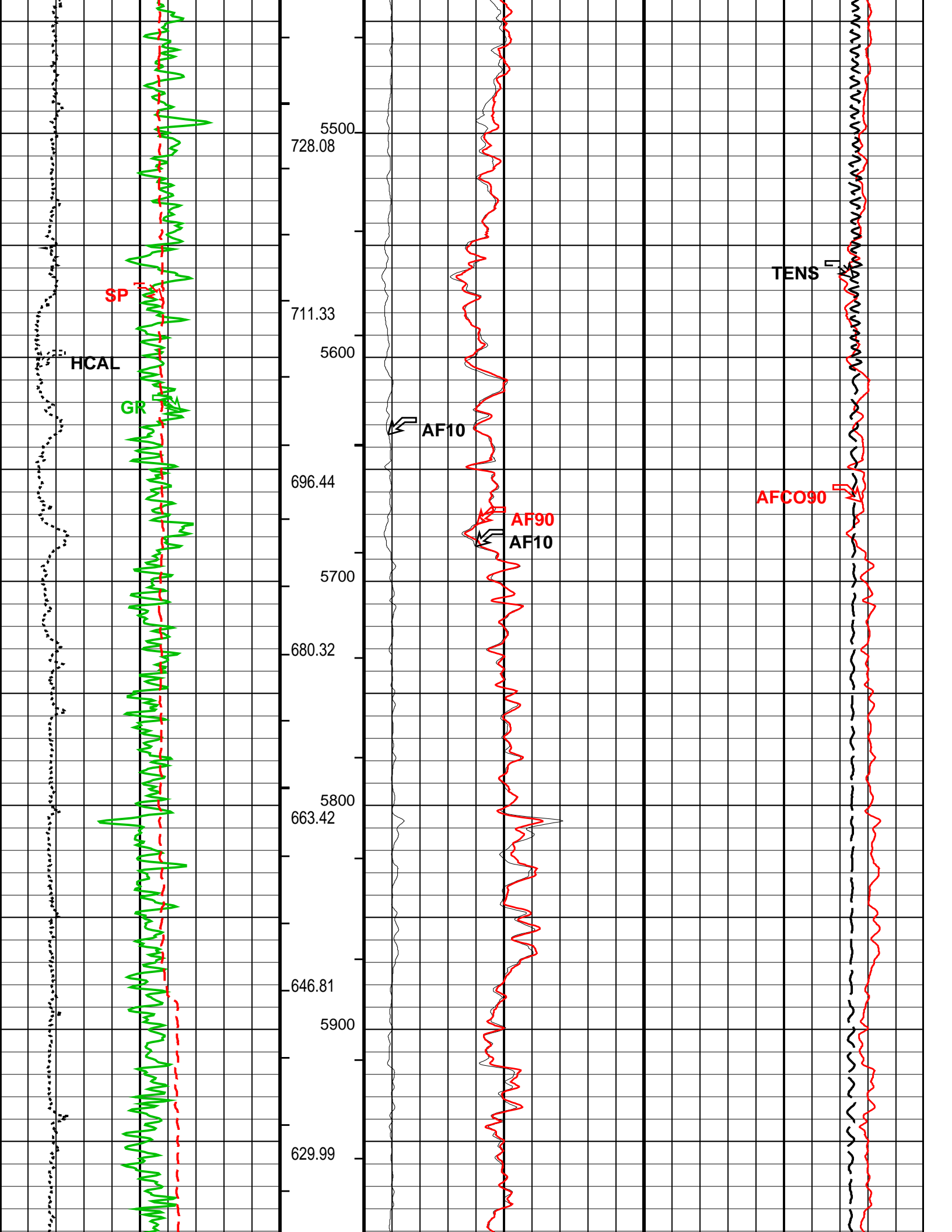


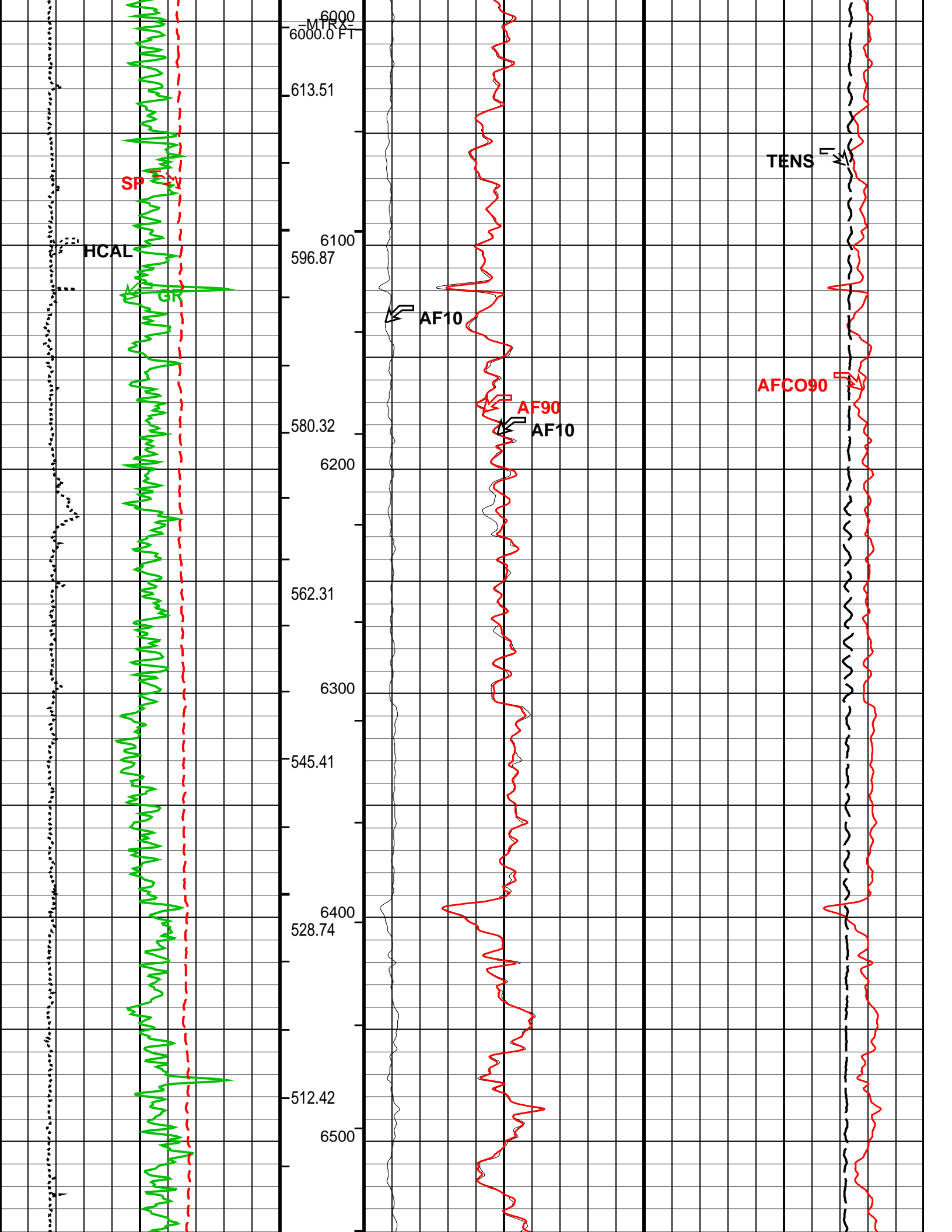


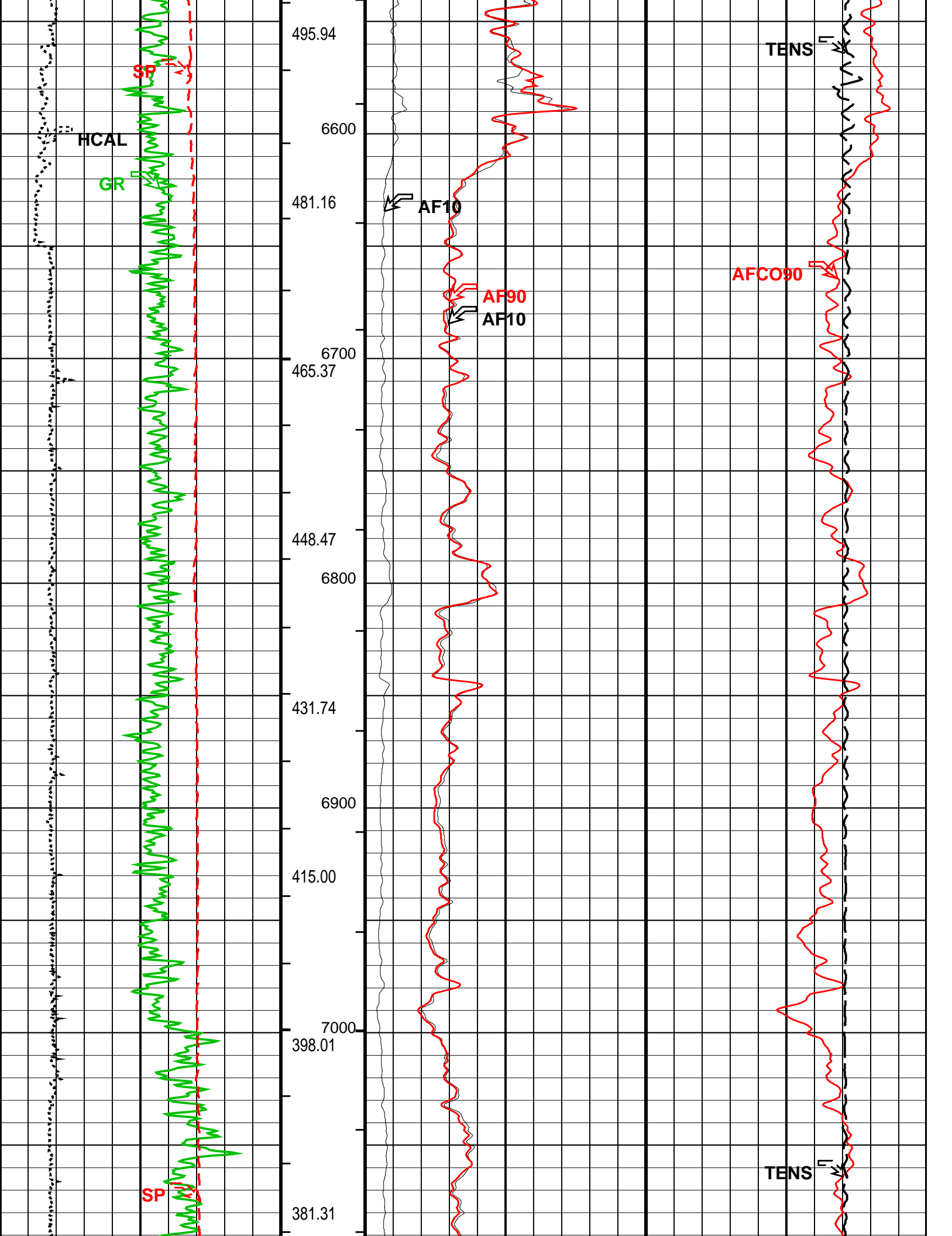


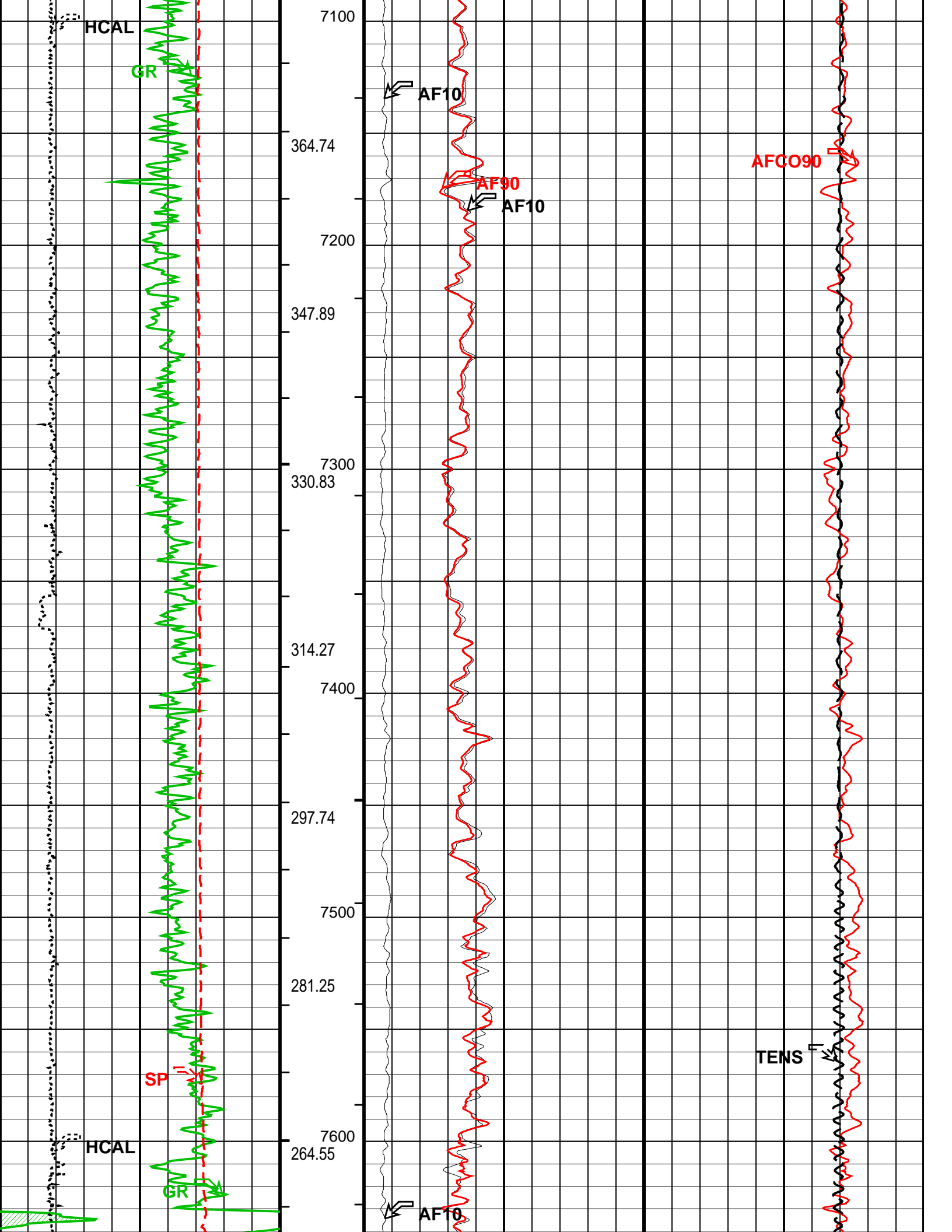


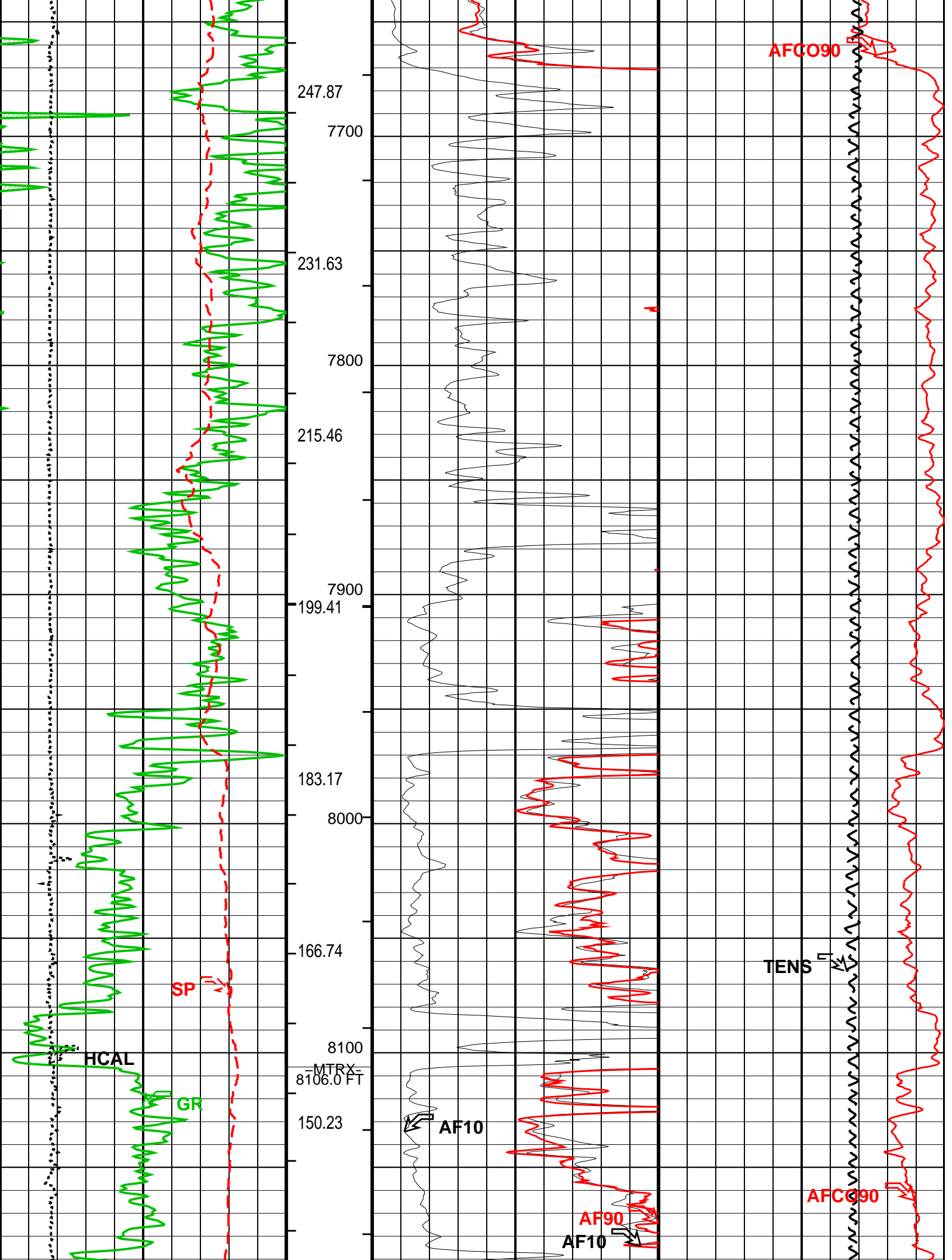


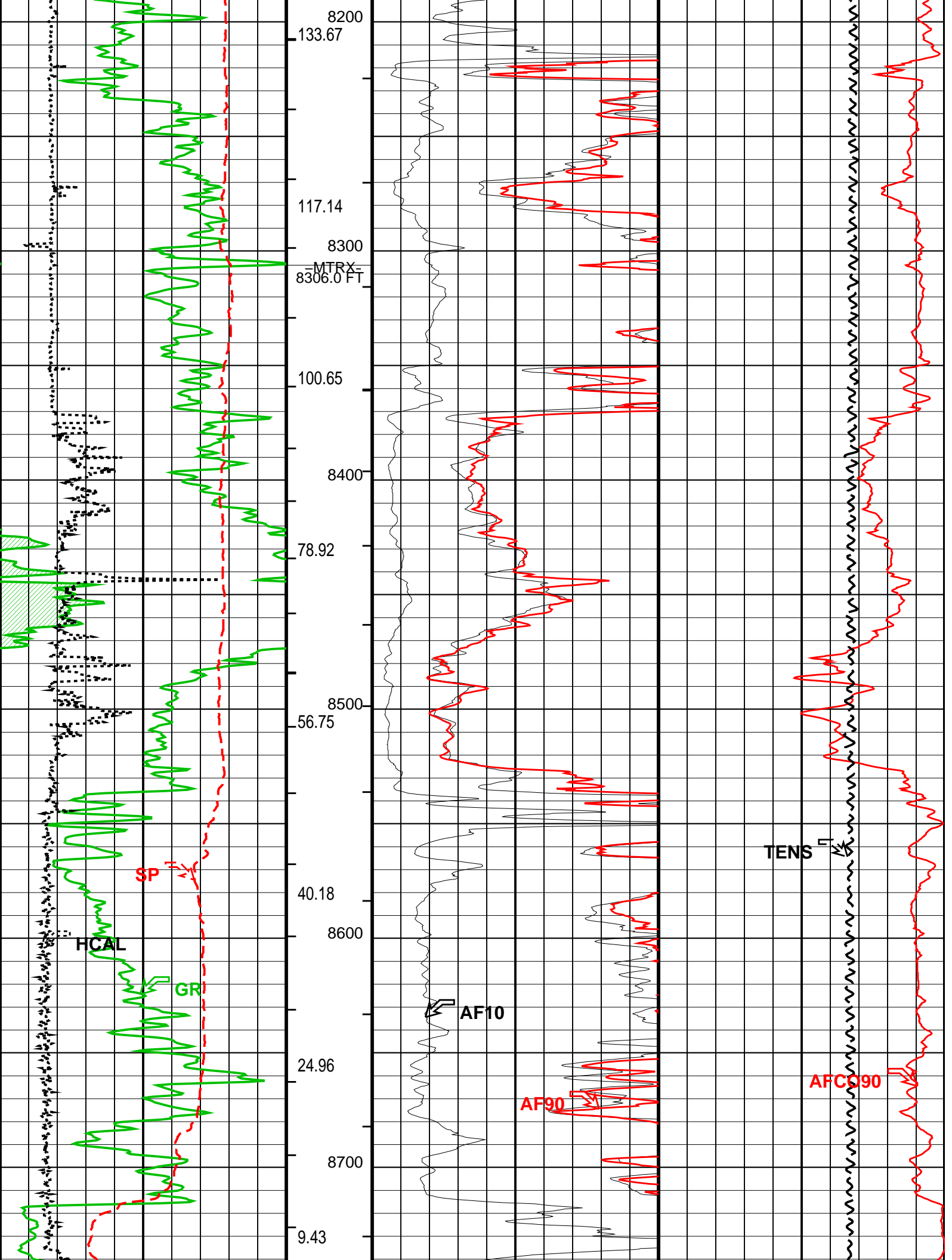


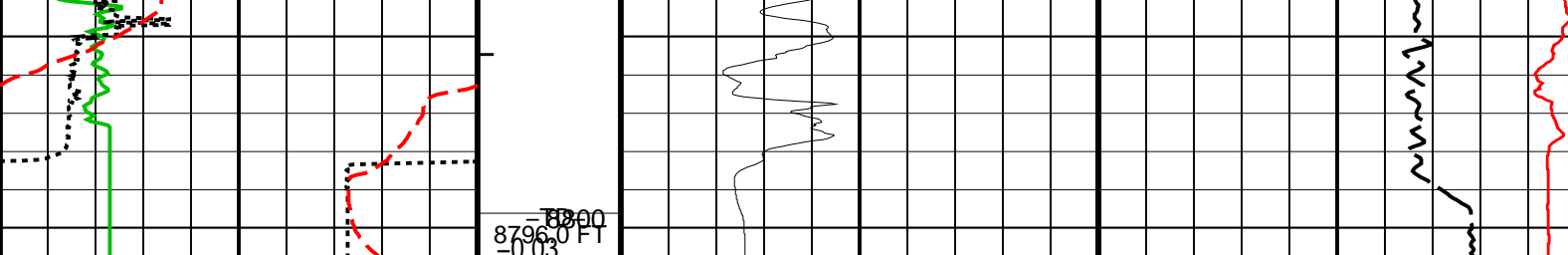












MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

Gamma Ray Backup	Cement Volume (ICV) (F3)	AIT 10 Inch Investigation (AF10)		AIT 90 Inch Investigation Conductivity (AF90)	
		0	10	1000	0
Gamma Ray (GR) (GAPI)		AIT 90 Inch Investigation (AF90)		Tension (TENS)	
0	200	0	10	10000	0
Caliper (HCAL) (IN)		AIT 10 Inch Investigation (AF10)		(LBF)	
6	16	0	50		
SP (SP) (MV)					
-160	40				

PIP SUMMARY

- Integrated Cement Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Hole Volume Minor Pip Every 10 F3

Parameters

DLIS Name	Description	Value	
AIT-M: Array Induction Tool – M			
ABHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
ABHV	Array Induction Borehole Correction Code Version Number	900	
ABLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
ABLV	Array Induction Basic Logs Code Version Number	223	
ACDE	Array Induction Casing Detection Enable	Yes	
ACEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
ACSED	Array Induction Casing Shoe Estimated Depth	-50000	FT
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Yes	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	On	
AMRF	Array Induction Mud Resistivity Factor	1	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ASTA	Array Induction Tool Standoff	0.25	IN
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	Internal	
AULV	Array Induction User Level Control	Normal	
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GRGD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV
HILTB-FTB: High resolution Integrated Logging Tool-DTS			
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GRGD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	

	HOLEV: Integrated Hole/Cement Volume		
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FCD	Future Casing (Outer) Diameter	4.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
SHT	Surface Hole Temperature	68	DEGF
	PERT: Preliminary Evaluation – Real Time		
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	System and Miscellaneous		
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.50	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	-50000.00	FT
MST	Mud Sample Temperature	72.20	DEGF
TD	Total Depth	88870	FT

Format: ERES_S2		Vertical Scale: 2" per 100'		Graphics File Created: 02-Dec-2009 11:46	
OP System Version: 17C0-154					
AIT-M	17C0-154	HILTB-FTB		17C0-154	
DTC-H	17C0-154				
Output DLIS Files					
DEFAULT	AIT_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	02-Dec-2009 11:46	



UPPER RESISTIVITY LOG 5" = 100'

MAXIS Field Log

Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	02-Dec-2009 11:46	8808.0 FT	0.0 FT
Integrated Hole/Cement Volume Summary						
Hole Volume = 527.15 ft3 Cement Volume = 360.99 ft3 (assuming 4.50 in casing O.D.) Computed from 5599.5 ft to 4095.5 ft						
OP System Version: 17C0-154						
AITM	17C0-154	HILTD			17C0-154	
DTCH	17C0-154					

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

			Tension (TENS)	
			10000	0
			(LBF)	
			AIT 90 Inch Investigation (AT90)	
			0.2	2000
			(OHMM)	
			AIT 60 Inch Investigation (AT60)	
			0.2	2000
			(OHMM)	
			AIT 30 Inch Investigation (AT30)	
			0.2	2000
			(OHMM)	
			AIT 20 Inch Investigation (AT20)	
			0.2	2000
			(OHMM)	
			AIT 10 Inch Investigation (AT10)	
			0.2	2000
			(OHMM)	

SP (SP)
(MV)
-160 40

Caliper (HCAL)
(IN)
6 16

Gamma Ray (GR)
(GAPI)
0 200

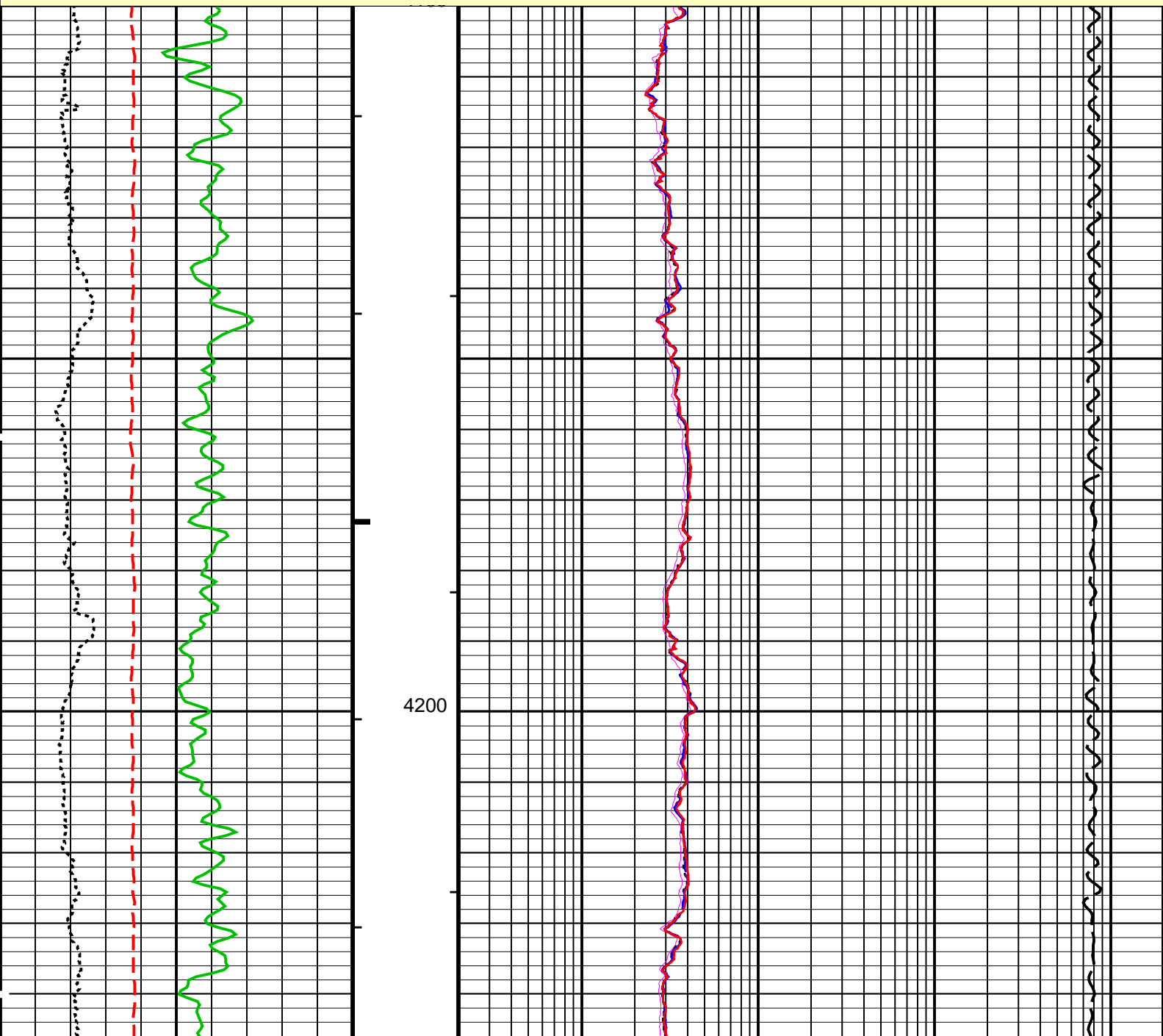
Gamma Ray Backup

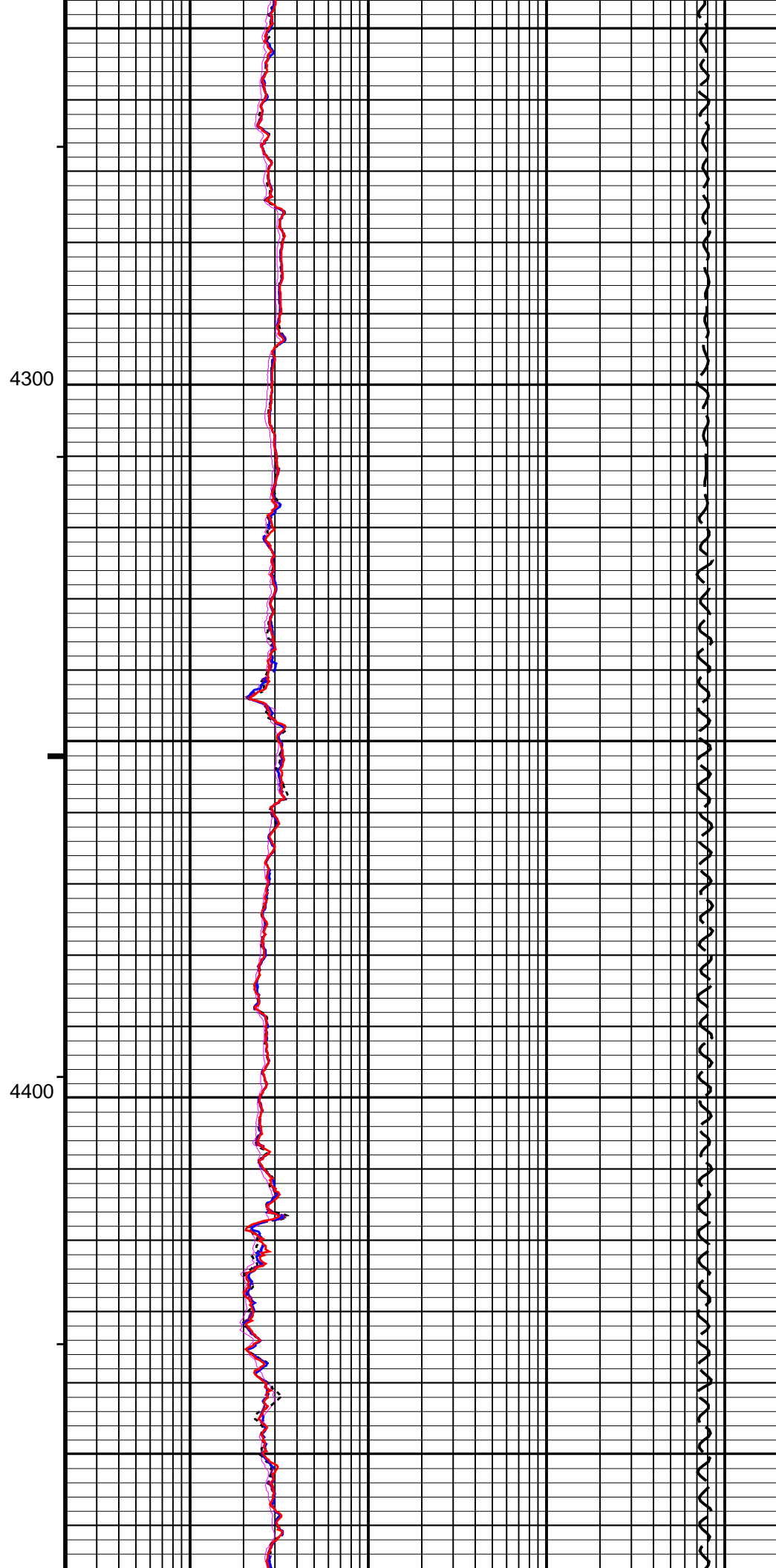
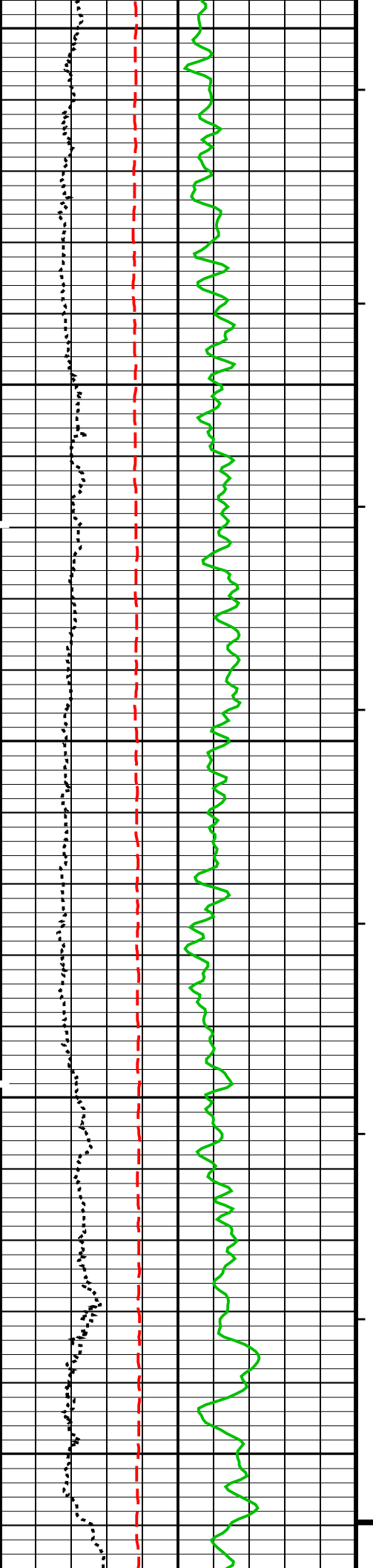
Stuck
Stretch
(STIT)
0 (F) 50

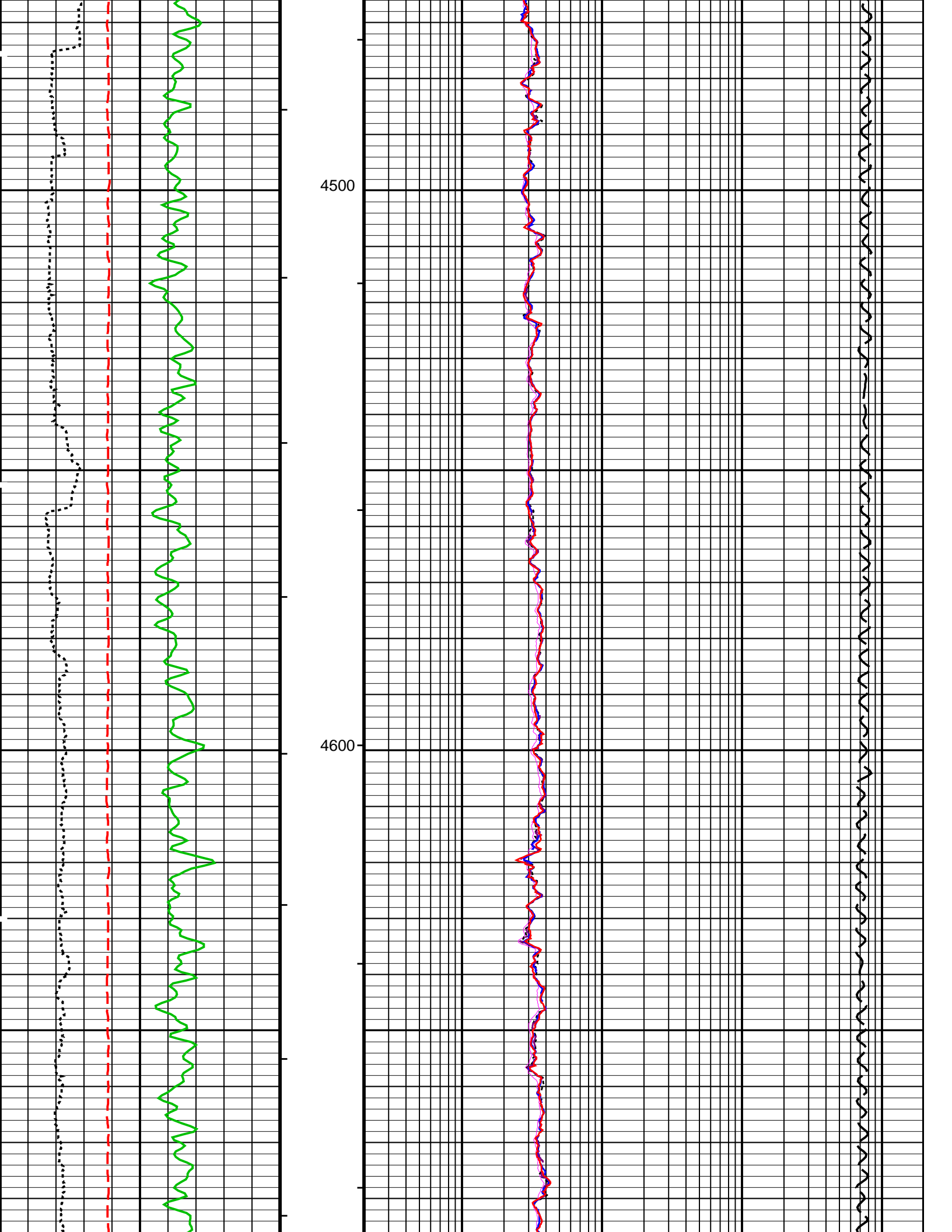
Tool/Tot.
Drag

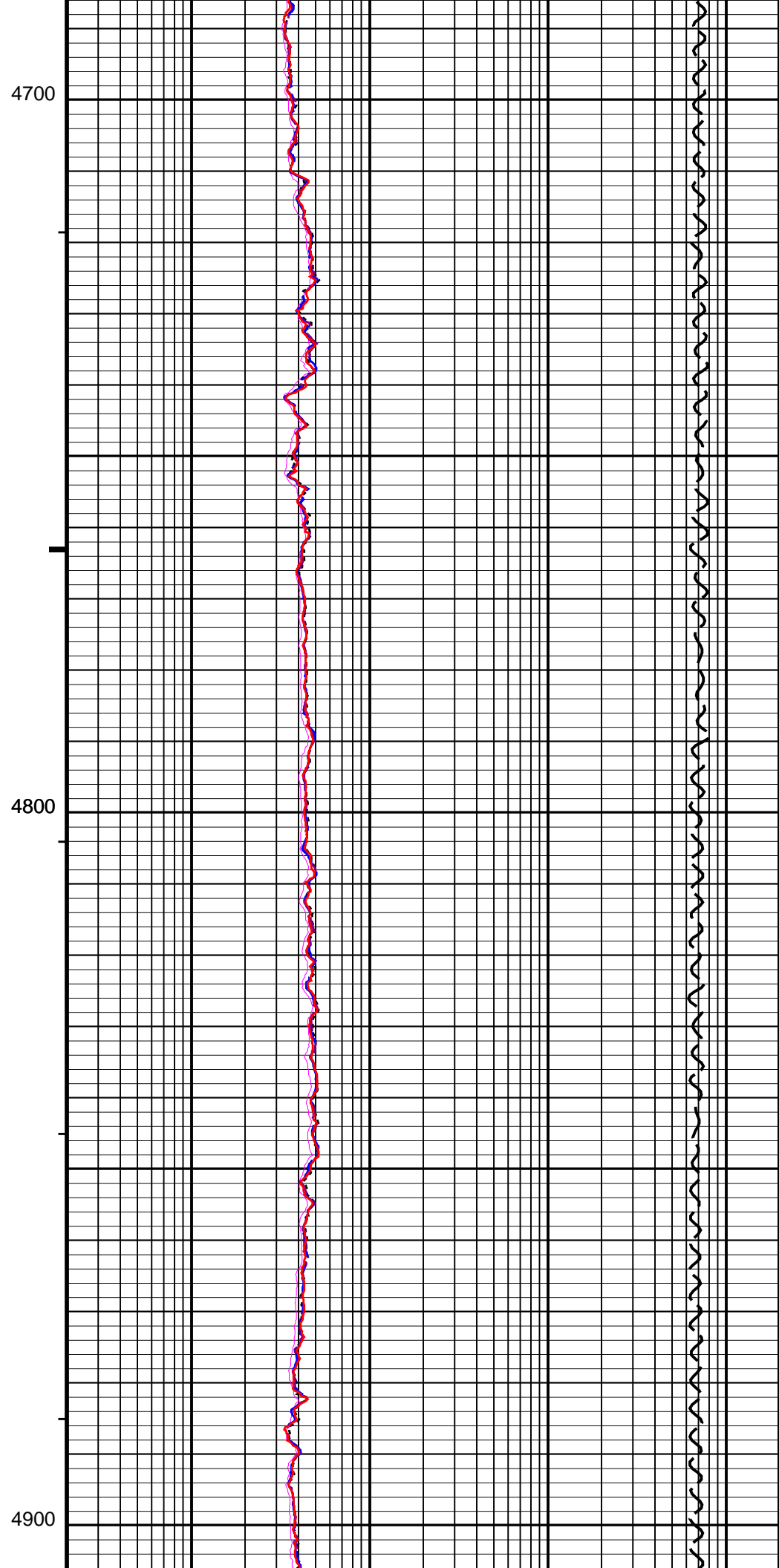
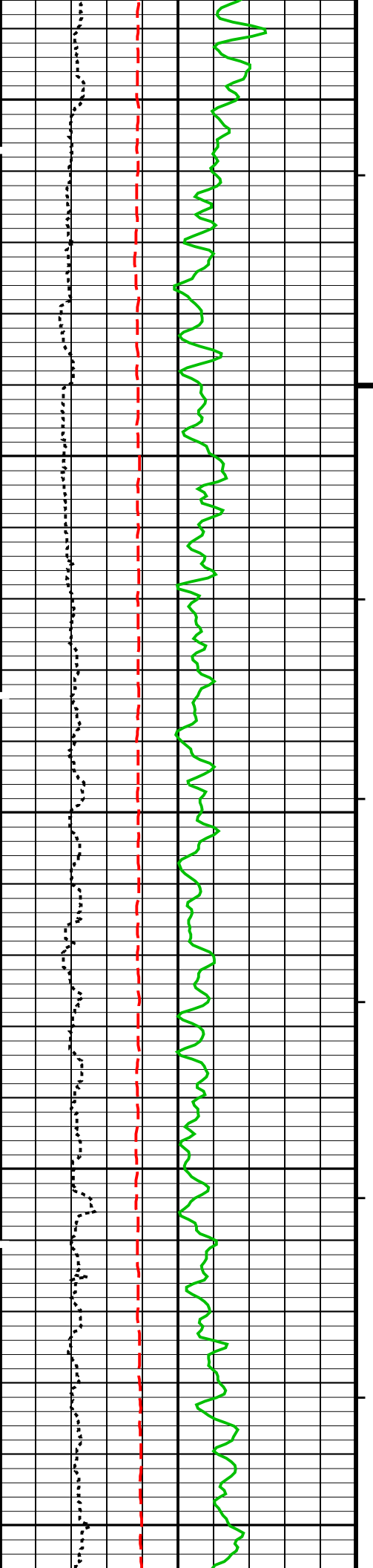
Cable
Drag

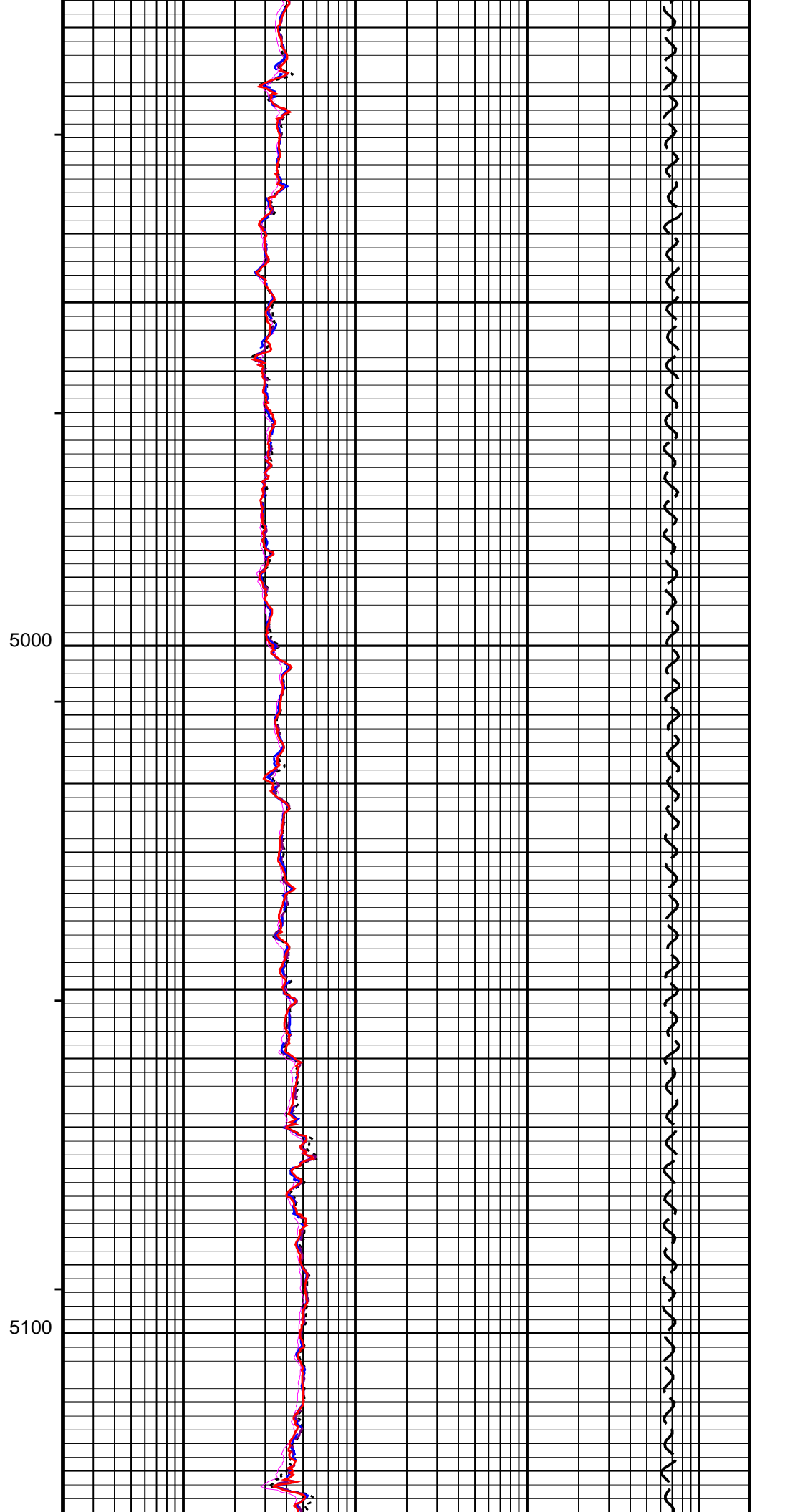
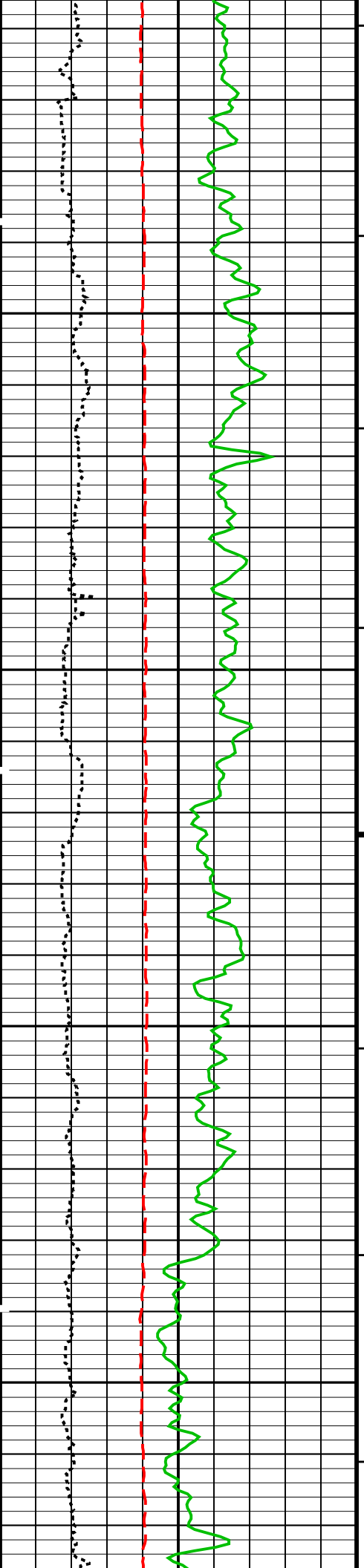
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

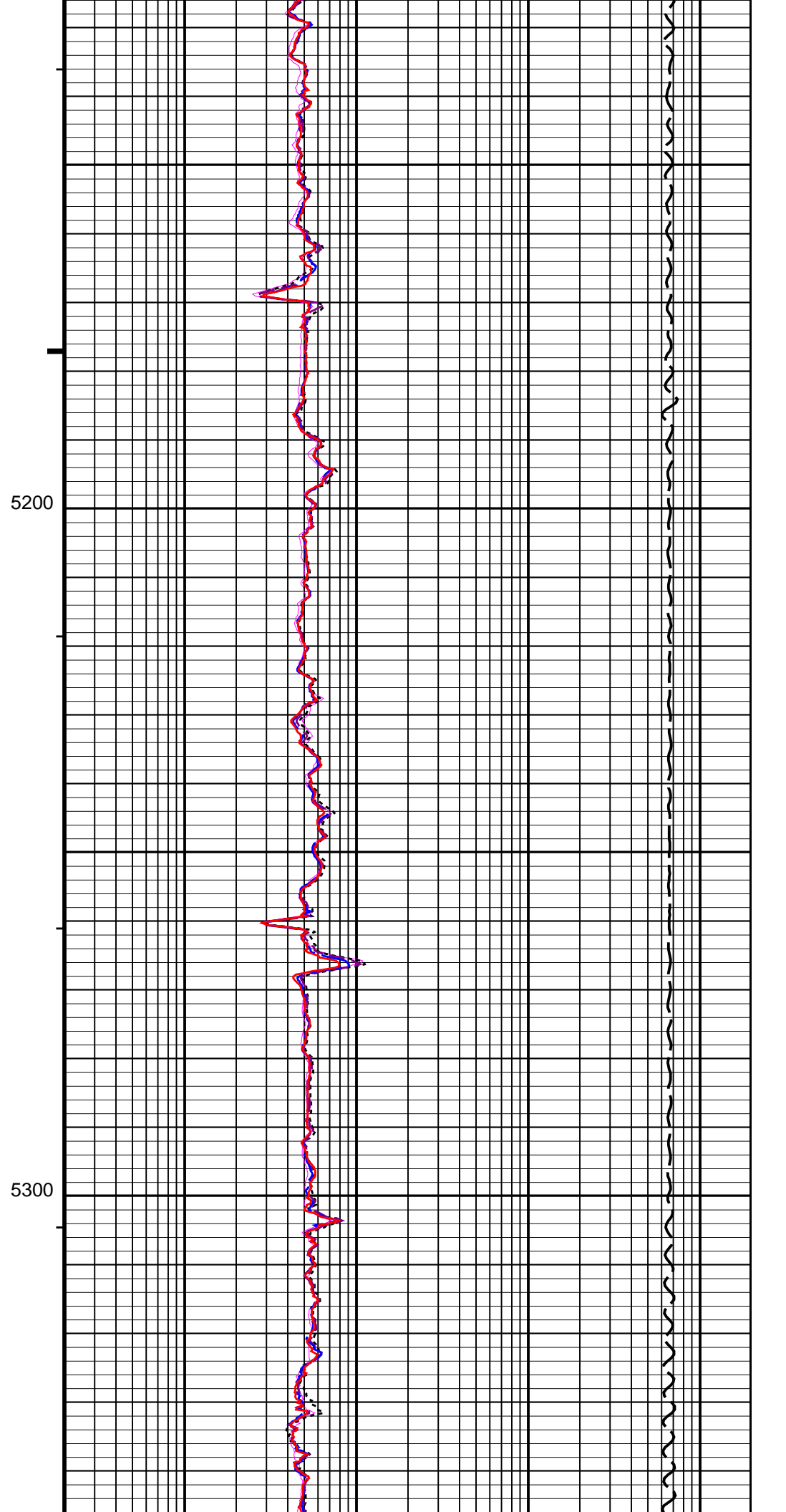
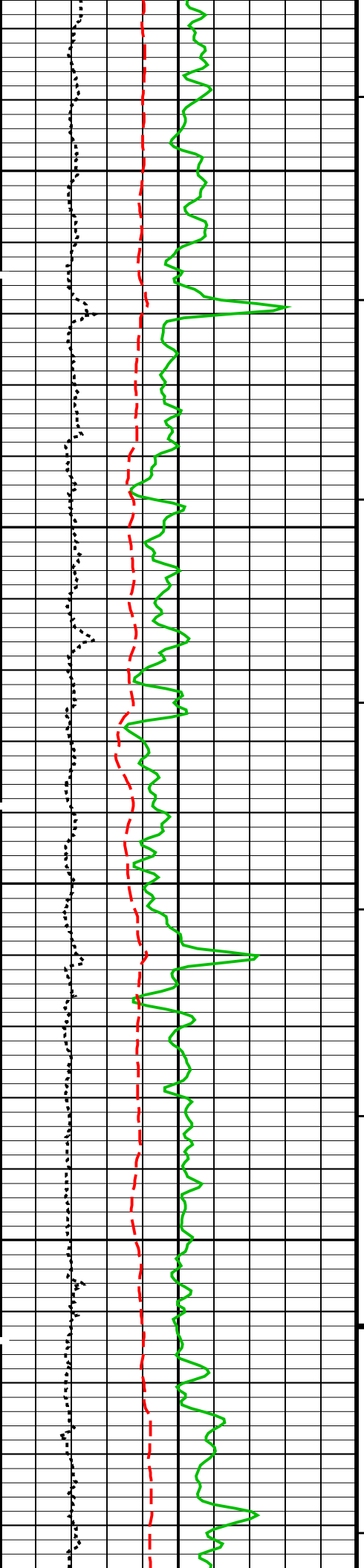


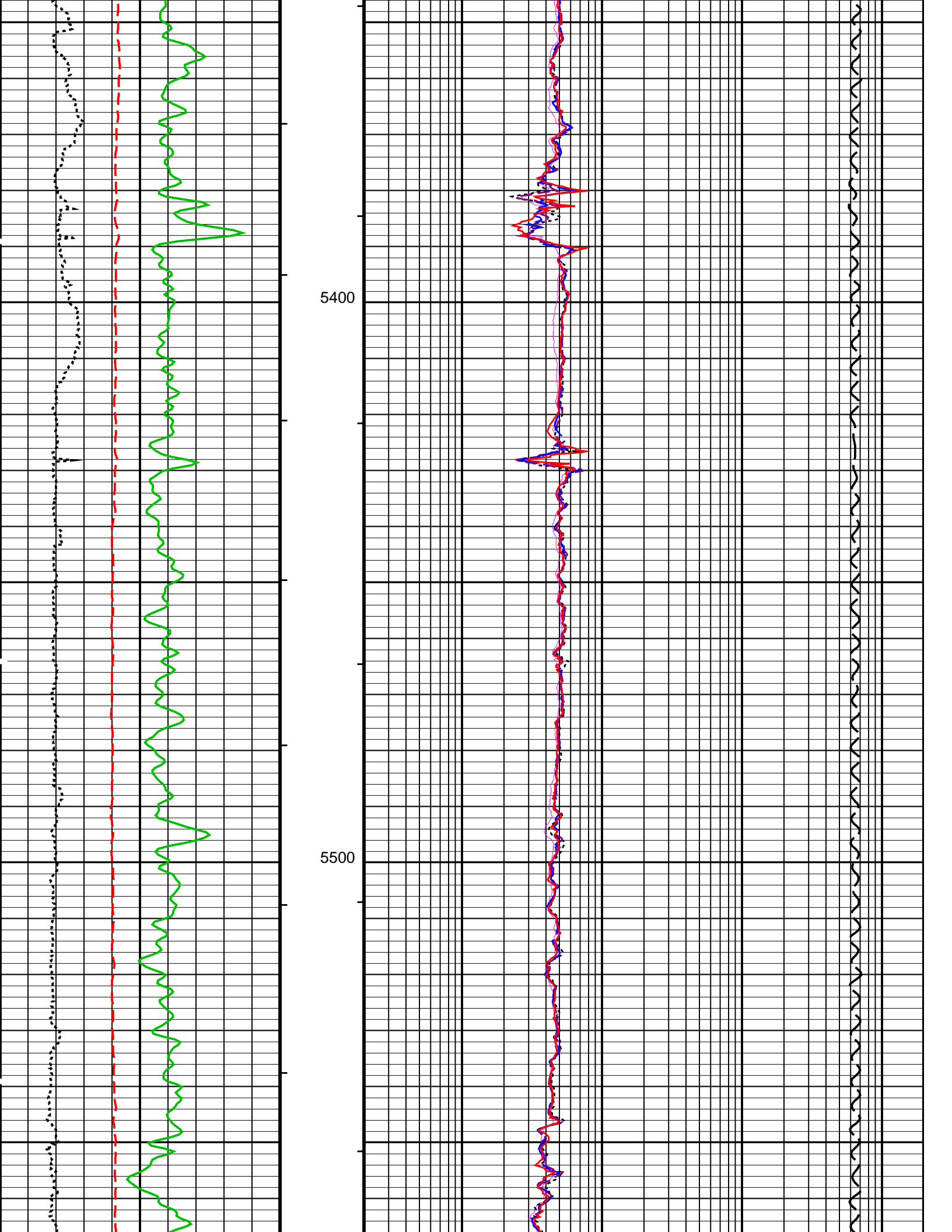


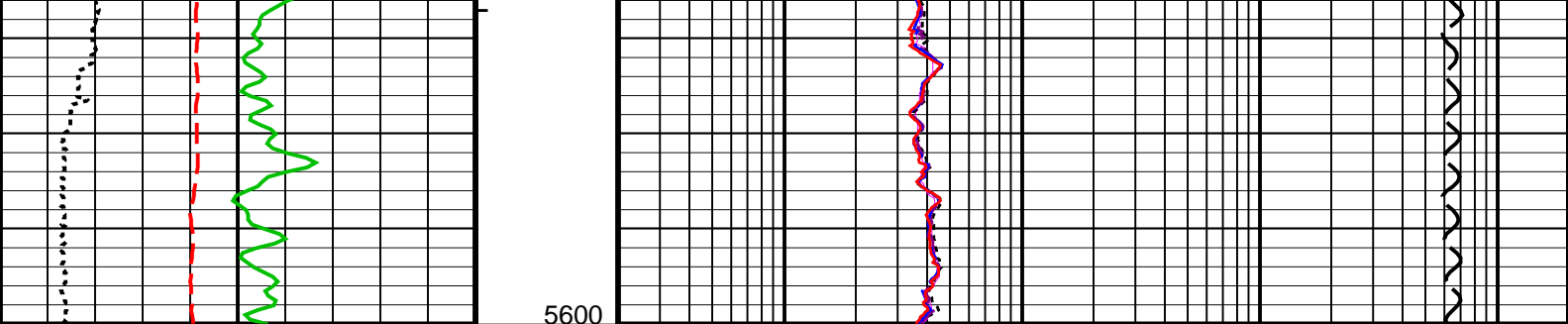












MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

Gamma Ray Backup	Cable Drag	0.2	AIT 10 Inch Investigation (AT10) (OHMM)	2000
Gamma Ray (GR) (GAPI)	Tool/Tot. Drag	0.2	AIT 20 Inch Investigation (AT20) (OHMM)	2000
Caliper (HCAL) (IN)	Stuck Stretch (STIT) (F) 50	0.2	AIT 30 Inch Investigation (AT30) (OHMM)	2000
SP (SP) (MV)		0.2	AIT 60 Inch Investigation (AT60) (OHMM)	2000
		0.2	AIT 90 Inch Investigation (AT90) (OHMM)	2000
		Tension (TENS) (LBF)		
		10000		0

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AIT-M: Array Induction Tool – M			
ABHM	Array Induction Borehole Correction Mode	2_COMPUTESTANDOFF	
ABHV	Array Induction Borehole Correction Code Version Number	900	
ABLM	Array Induction Basic Logs Mode	6_ONE_TWO_AND_FOUR	
ABLV	Array Induction Basic Logs Code Version Number	223	
ACDE	Array Induction Casing Detection Enable	YES	
ACEN	Array Induction Tool Centering Flag (in Borehole)	ECCENTERED	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	YES	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	ON	
AMRF	Array Induction Mud Resistivity Factor	1.000	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ASAP	Array Induction Suspend Answer Product Processing	0_NOSUSPENSION	
ASPC	Array Induction Sonde Characterization Pressure Coefficients	0.000	
ASTA	Array Induction Tool Standoff	0.250	in
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	INTERNAL	
AULV	Array Induction User Level Control	NORMAL	
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00	
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF

SPDR	SP Drift	0.000	mV/ft
SPNV	SP Next Value	0.000	mV
HILTB-FTB: High resolution Integrated Logging Tool-DTS			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
PERT: Preliminary Evaluation - Real Time			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
STI: Stuck Tool Indicator			
STKT	STI Stuck Threshold	2.500	ft
TDD	Total Depth - Driller	88870.0	ft
TDL	Total Depth - Logger	88870.0	ft
System and Miscellaneous			
ACSED	Array Induction Casing Shoe Estimated Depth		
BS	Bit Size	7.875	in
DFD	Drilling Fluid Density	8.500	lbm/gal
FLEV	Fluid Level		
MST	Mud Sample Temperature	72.200	degF
TD	Total Depth	88870.0	ft

Format: UPPER_GRES Vertical Scale: 5" per 100' Graphics File Created: 02-Dec-2009 12:23

OP System Version: 17C0-154

AITM	17C0-154	HILTD	17C0-154
DTCH	17C0-154		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	02-Dec-2009 11:46	8808.0 FT	0.0 FT
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Schlumberger

LOWER RESISTIVITY LOG 5" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	02-Dec-2009 11:46
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OP System Version: 17C0-154

PIP SUMMARY

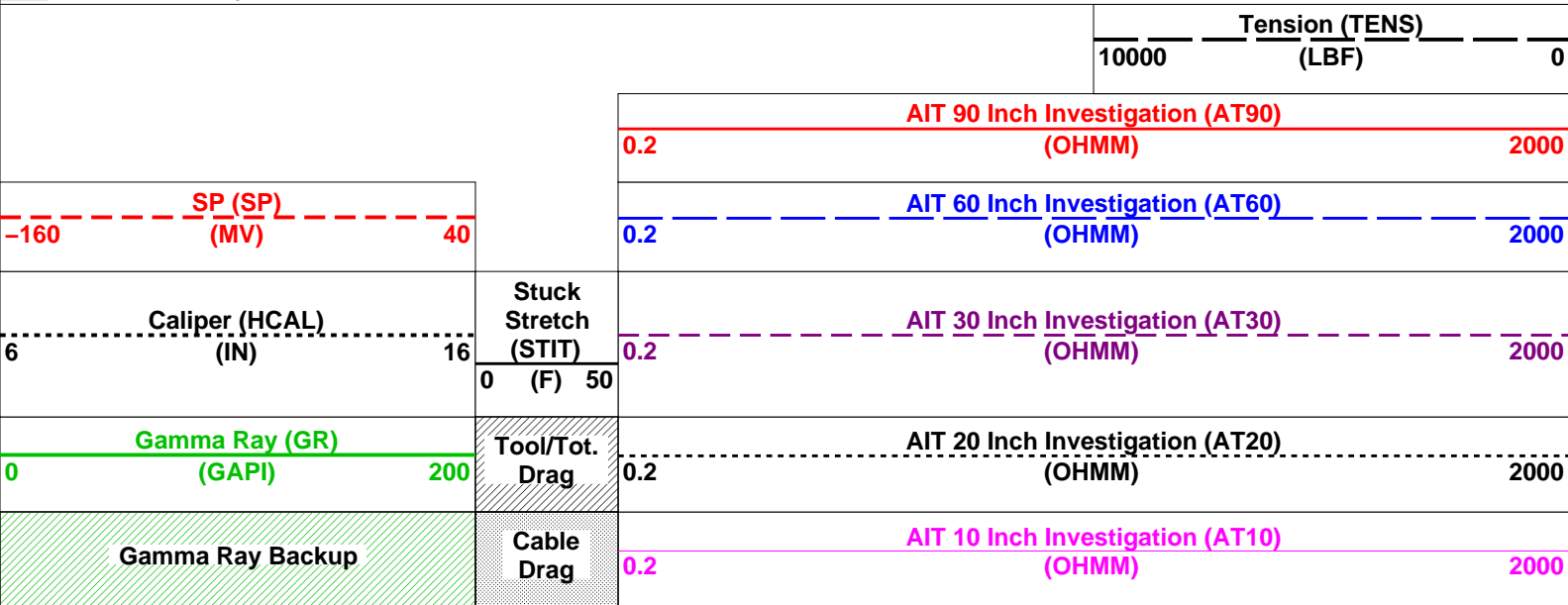
└ Integrated Hole Volume Minor Pip Every 10 F3

└ Integrated Hole Volume Major Pip Every 100 F3

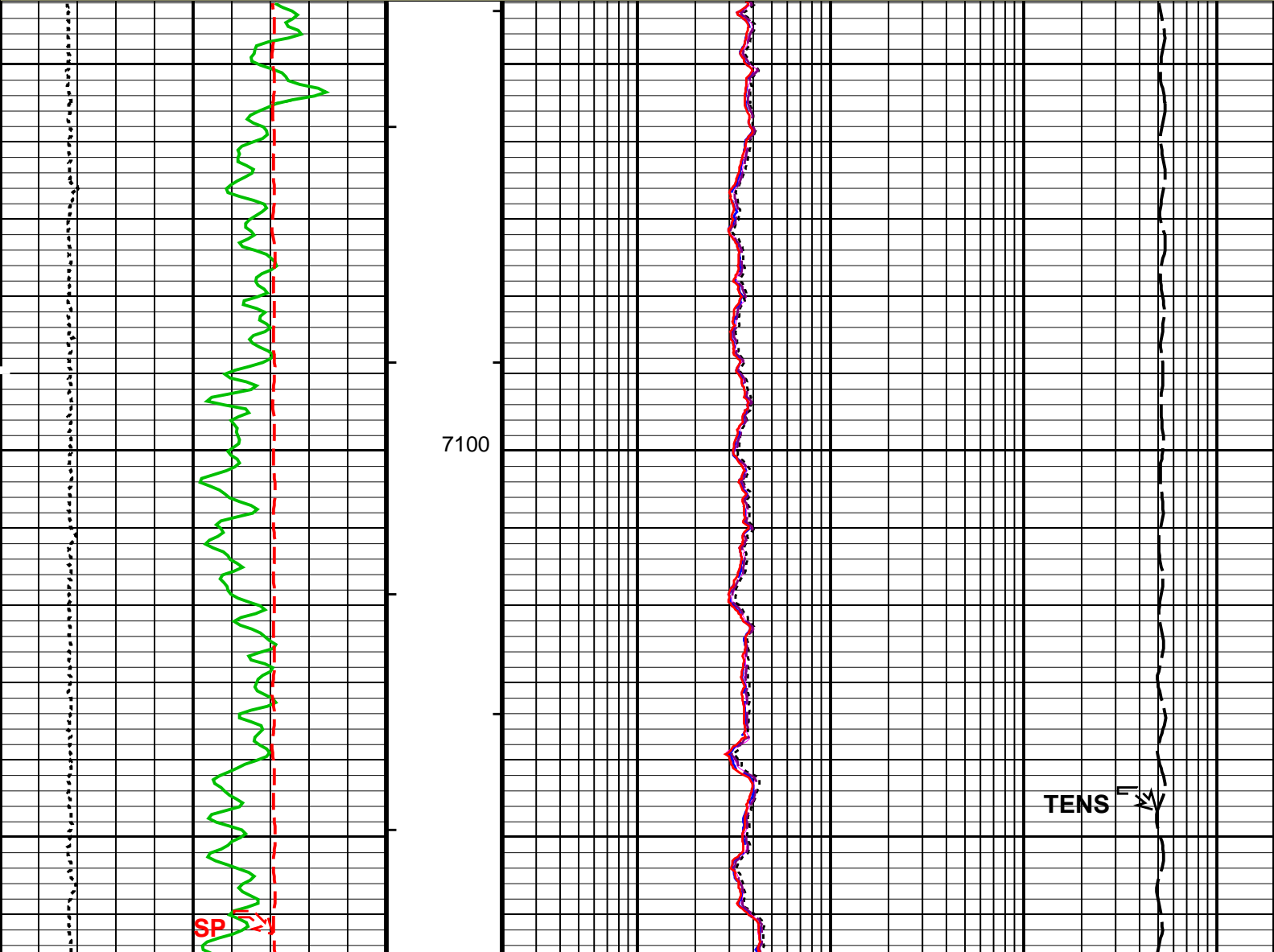
└ Integrated Cement Volume Minor Pip Every 10 F3

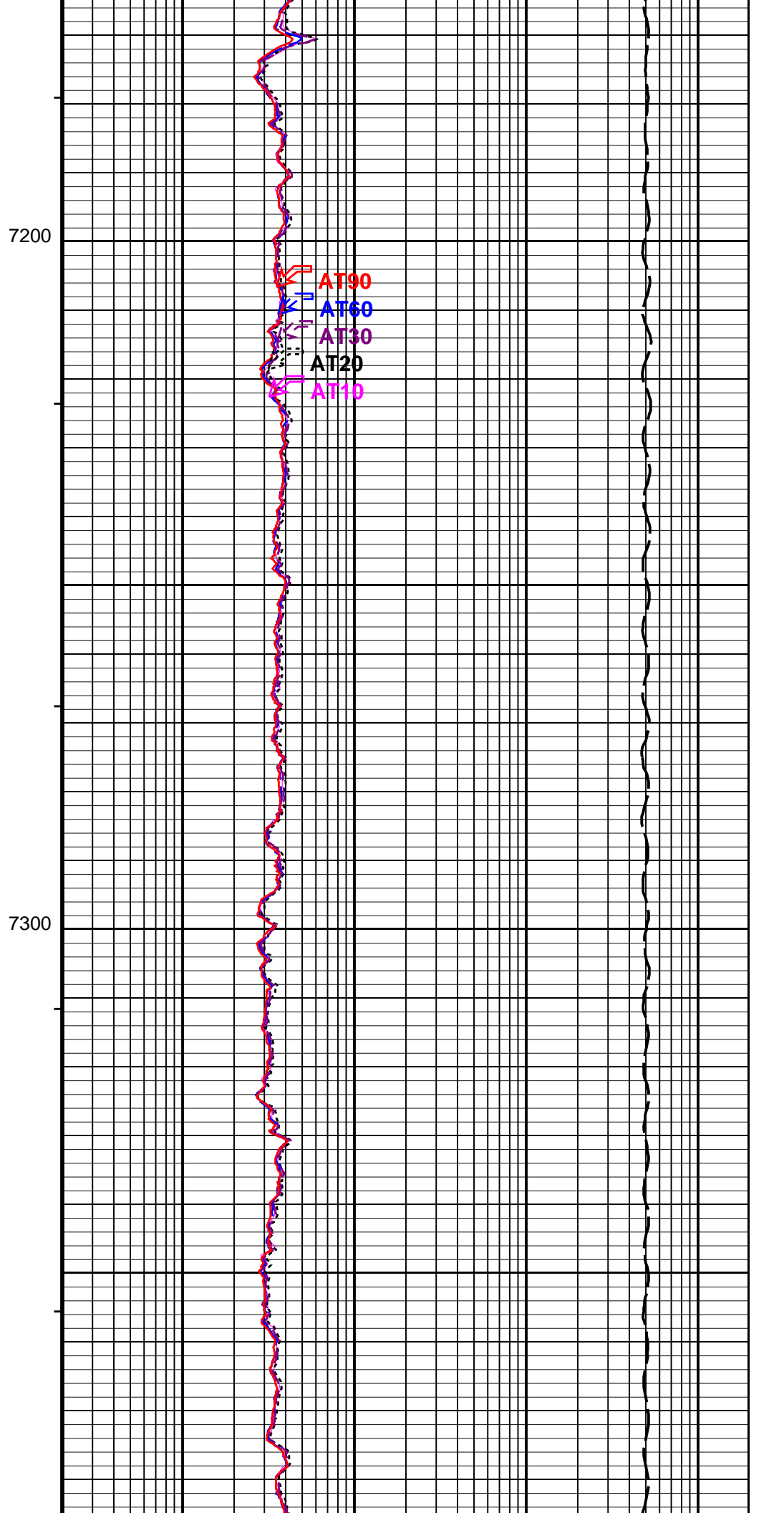
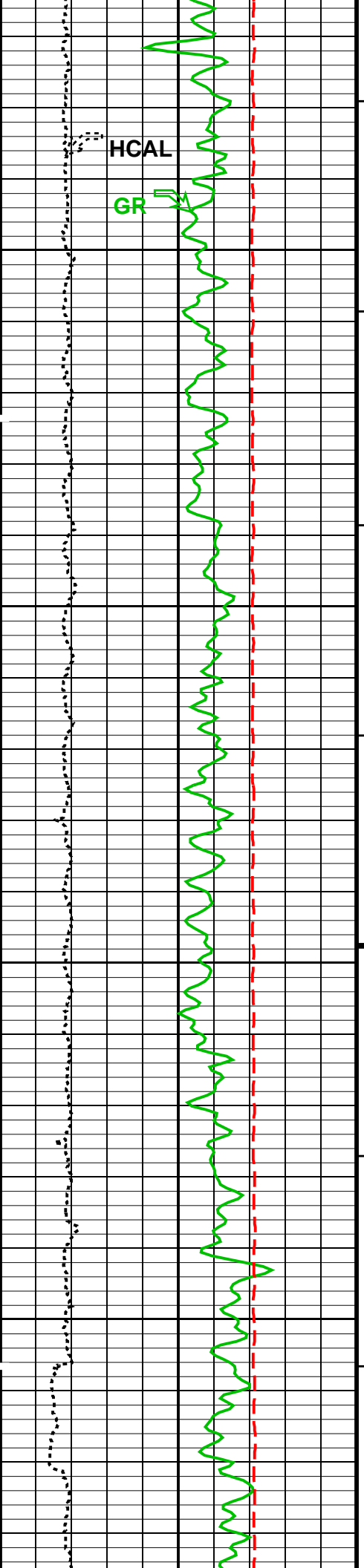
└ Integrated Cement Volume Major Pip Every 100 F3

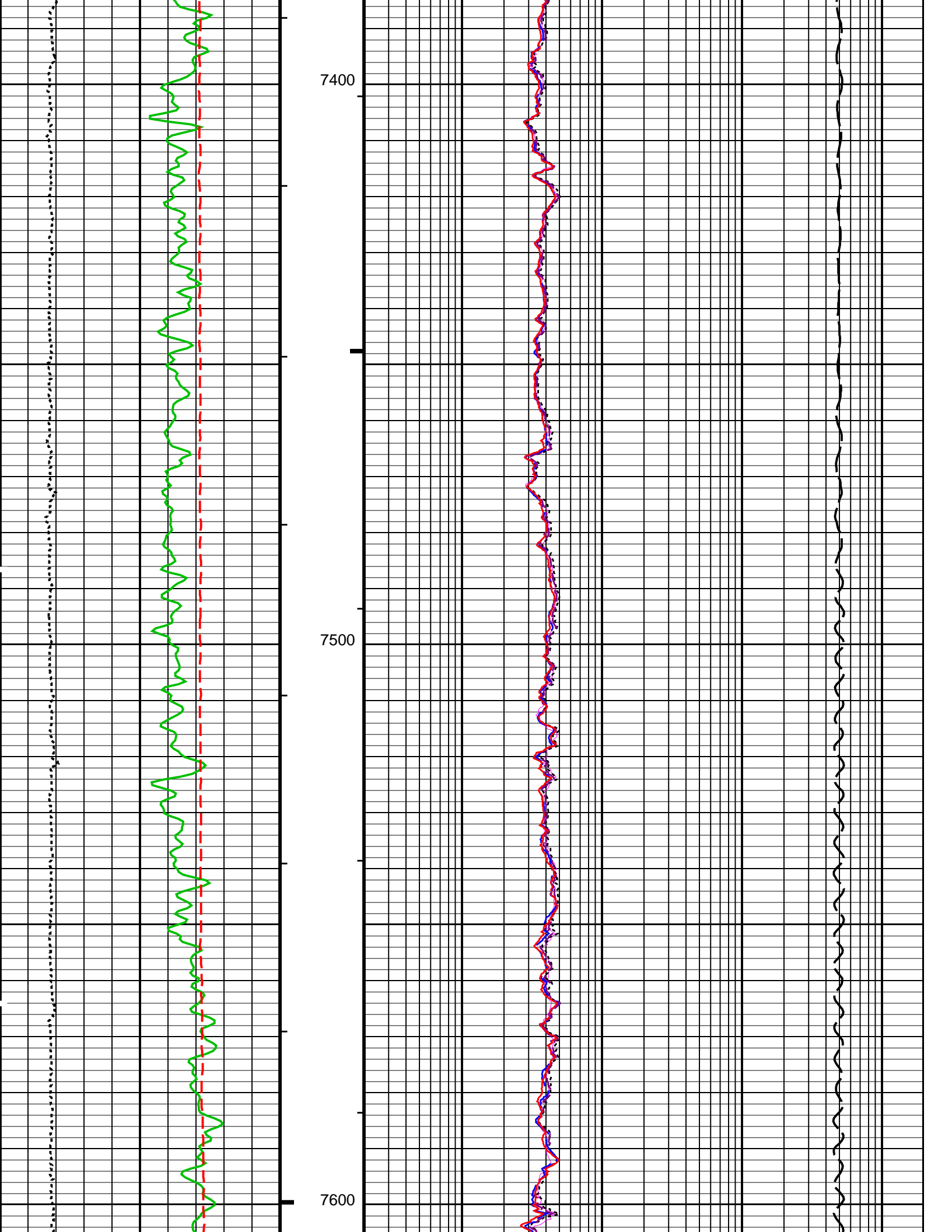
Time Mark Every 60 S

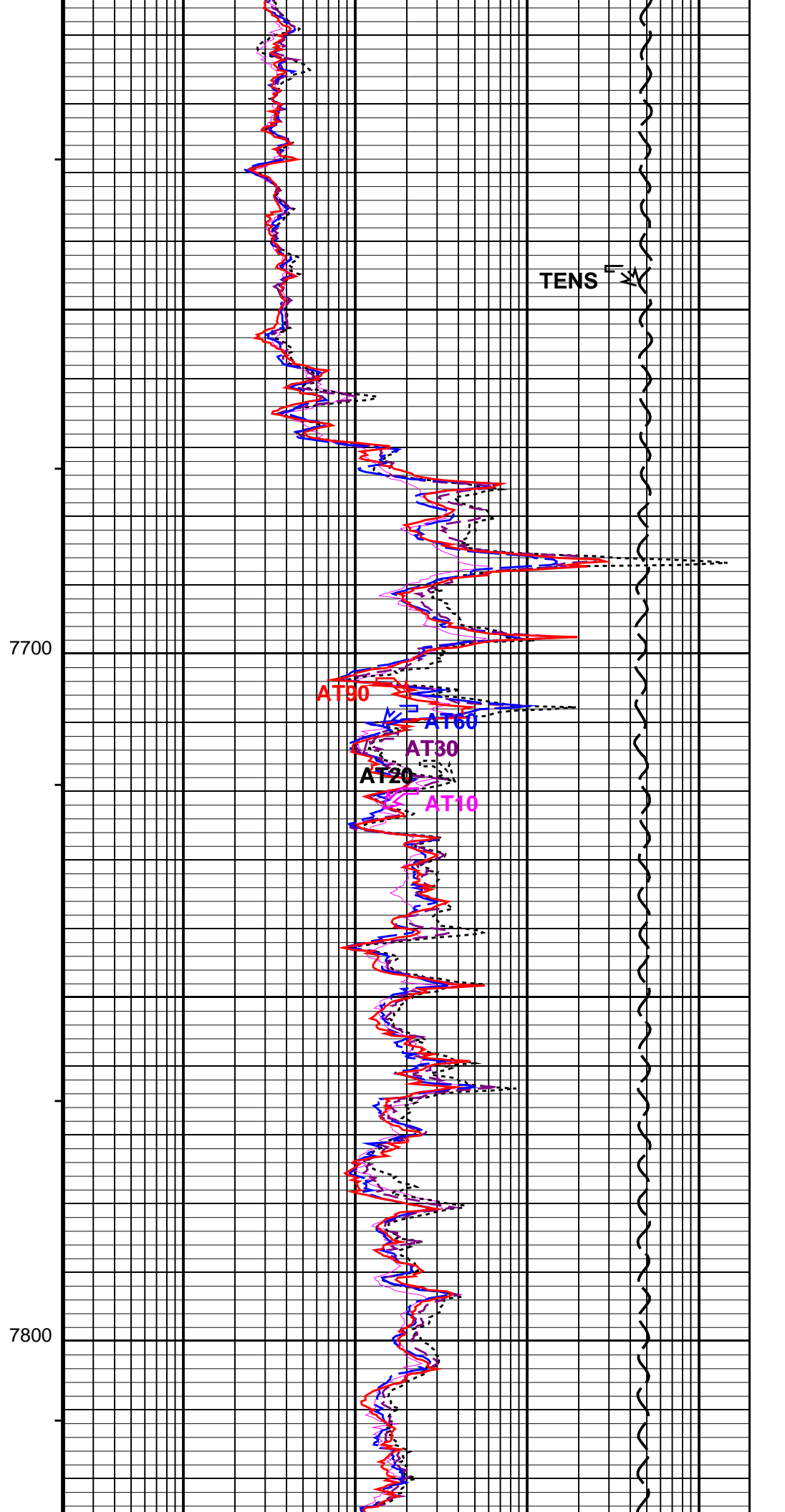
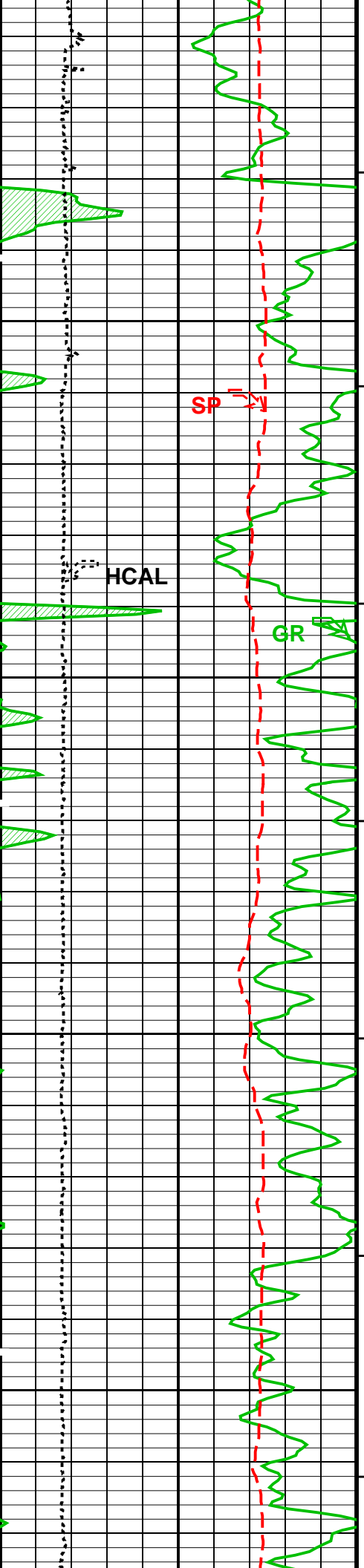


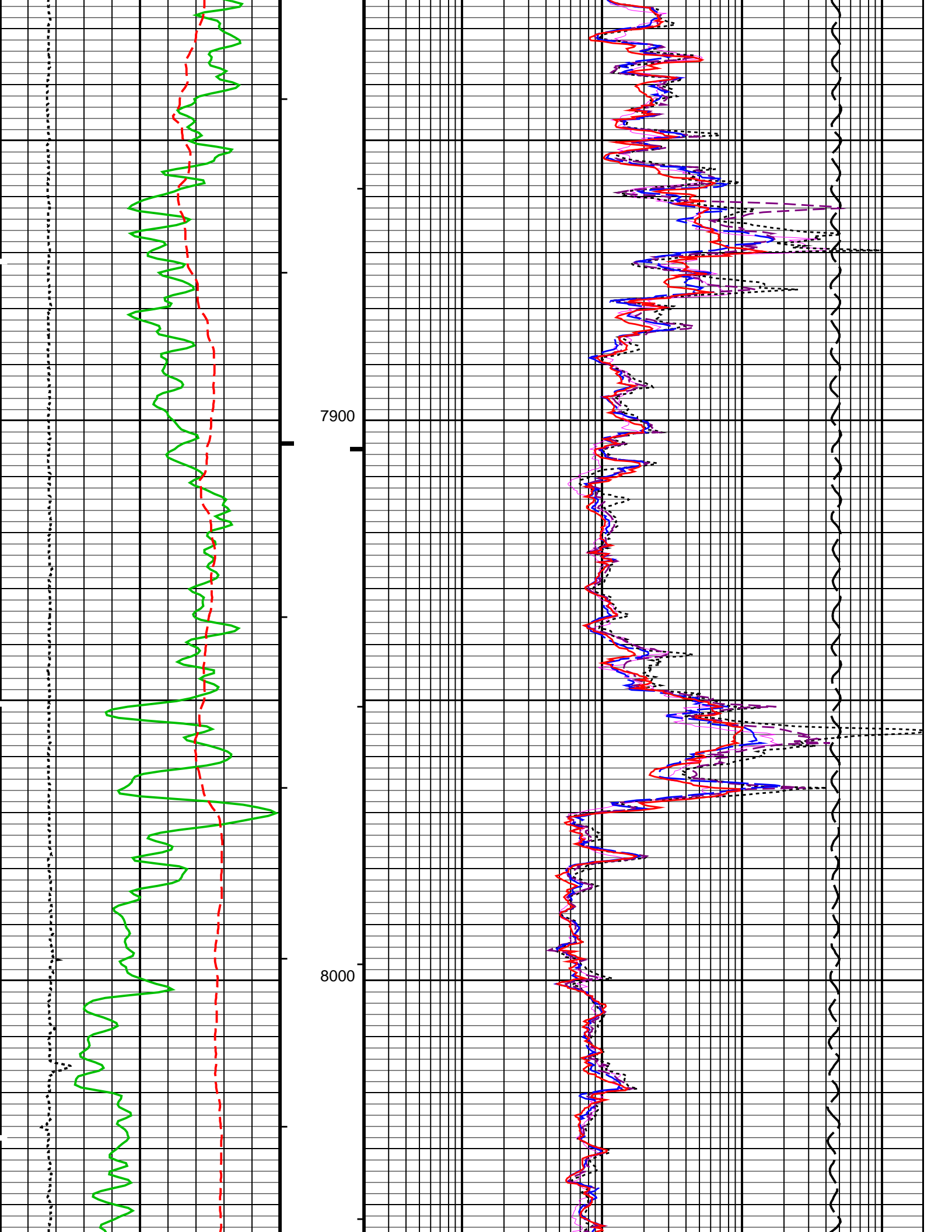
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

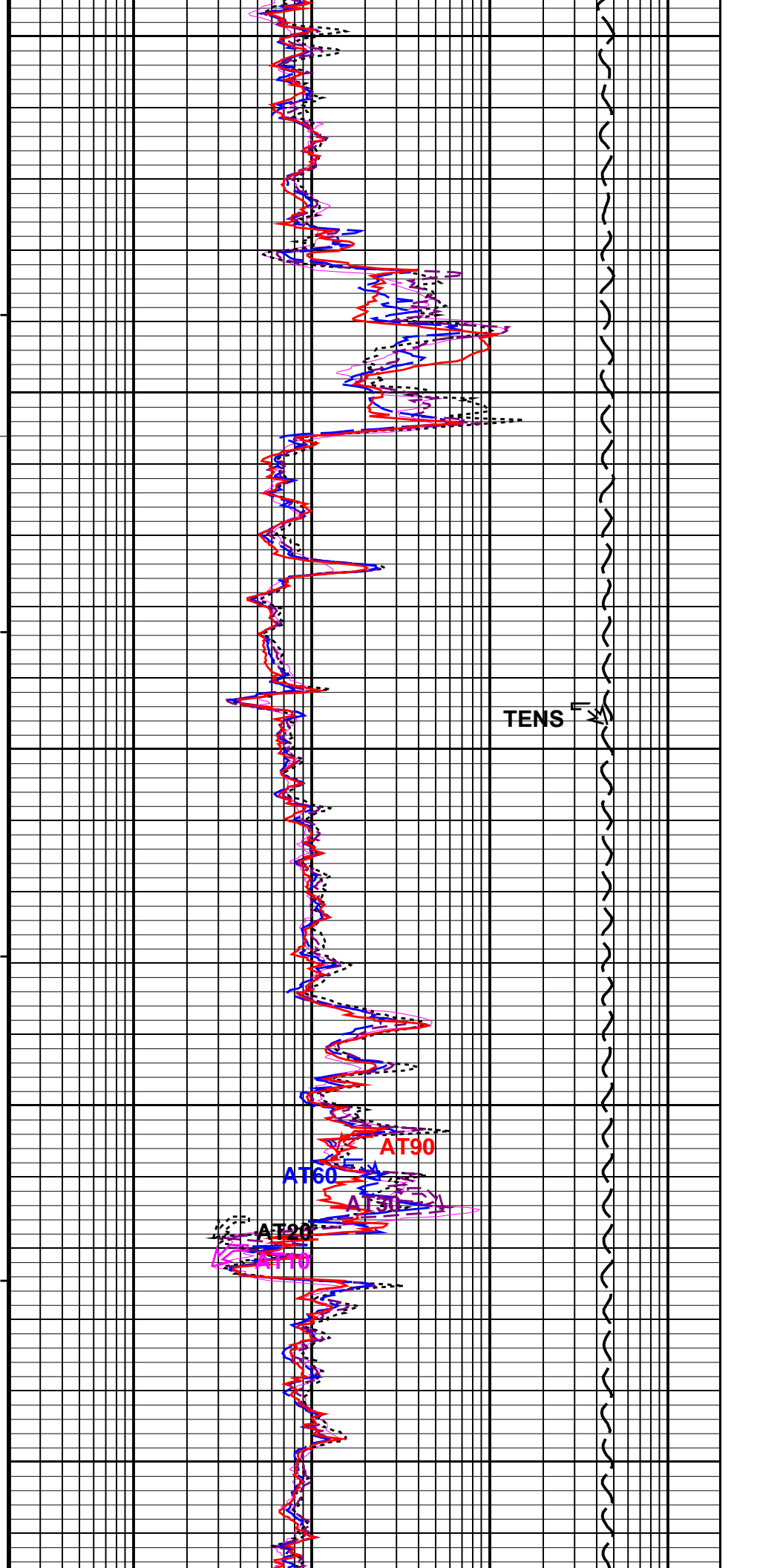
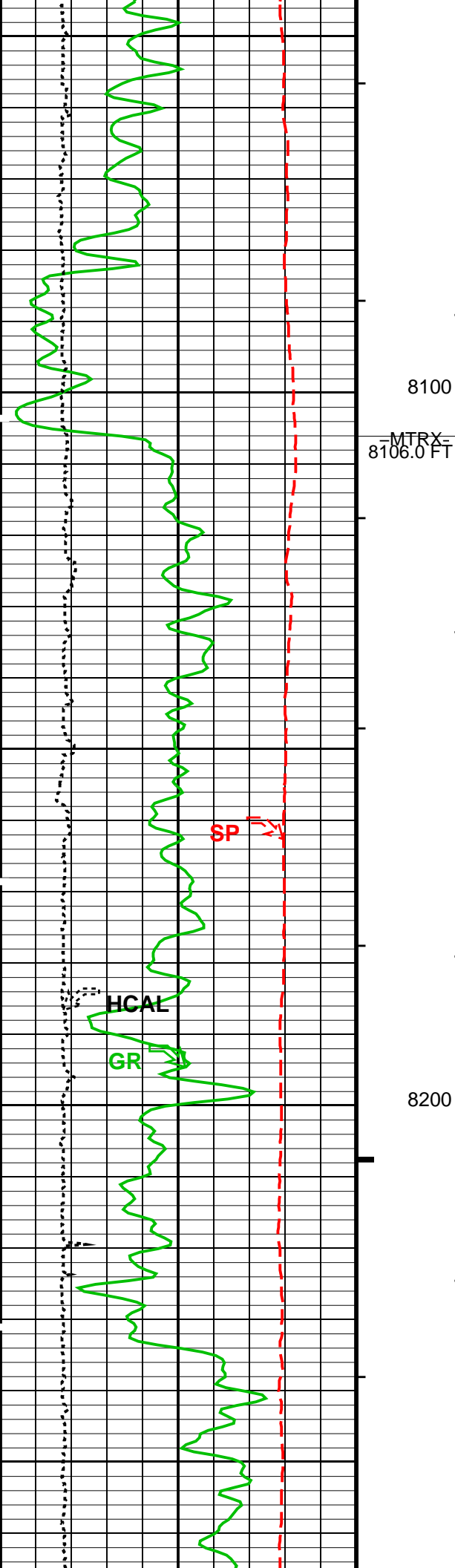


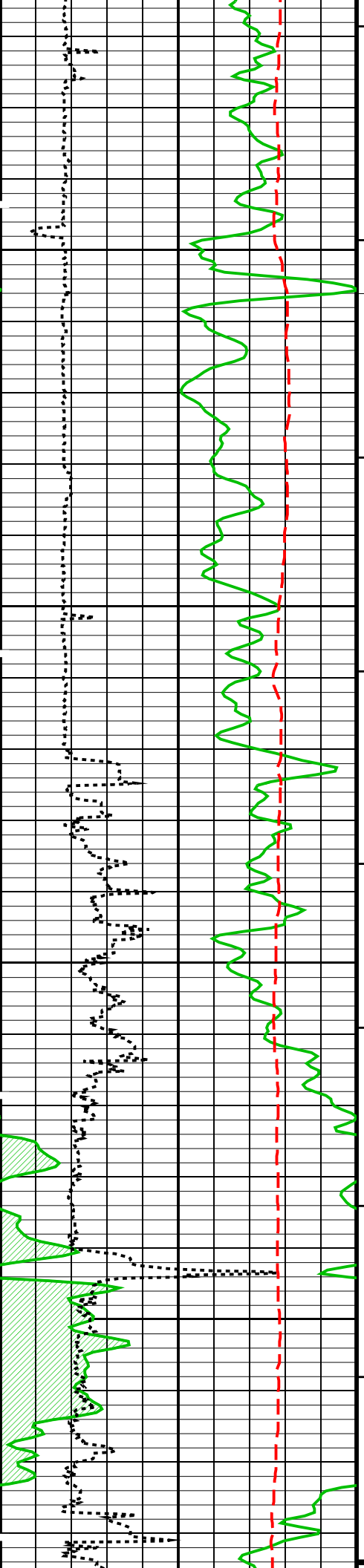






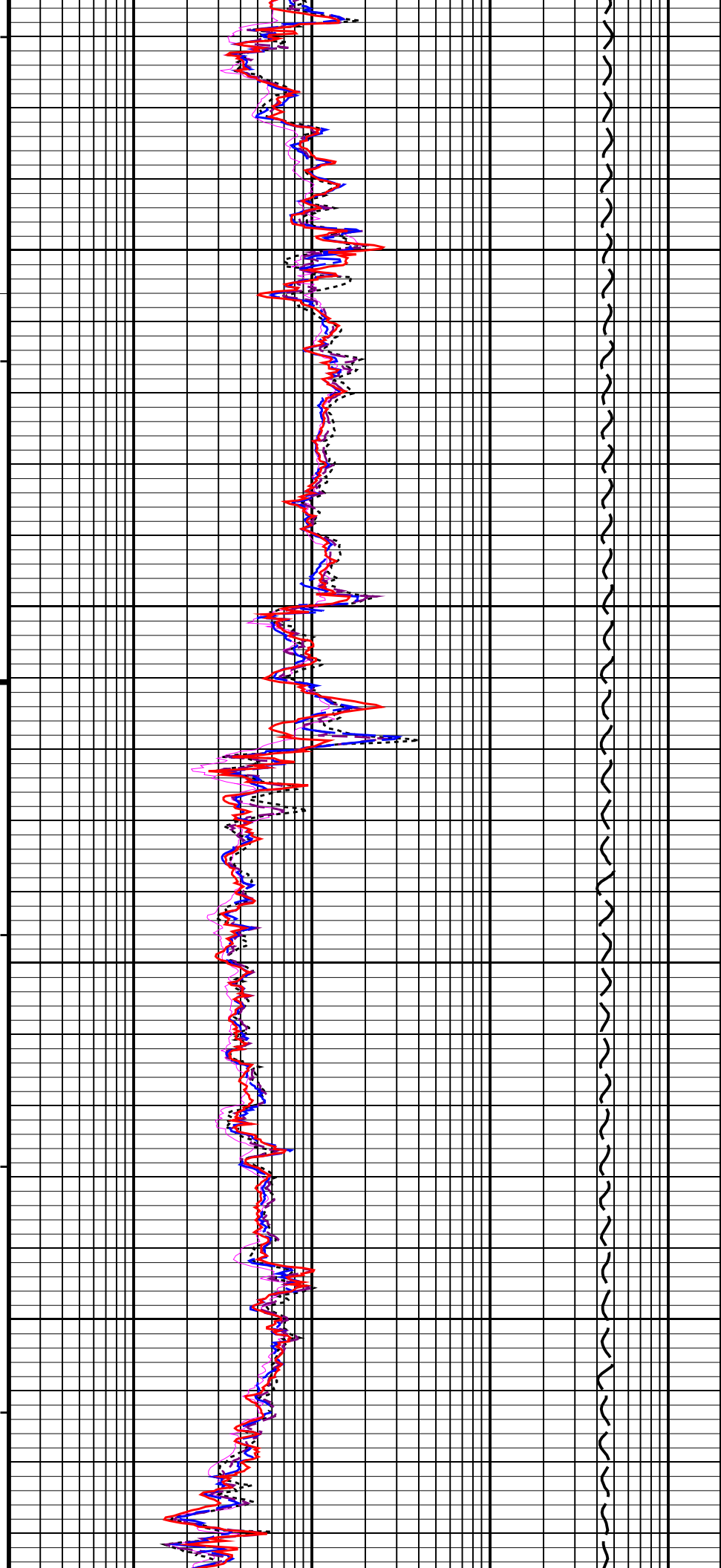


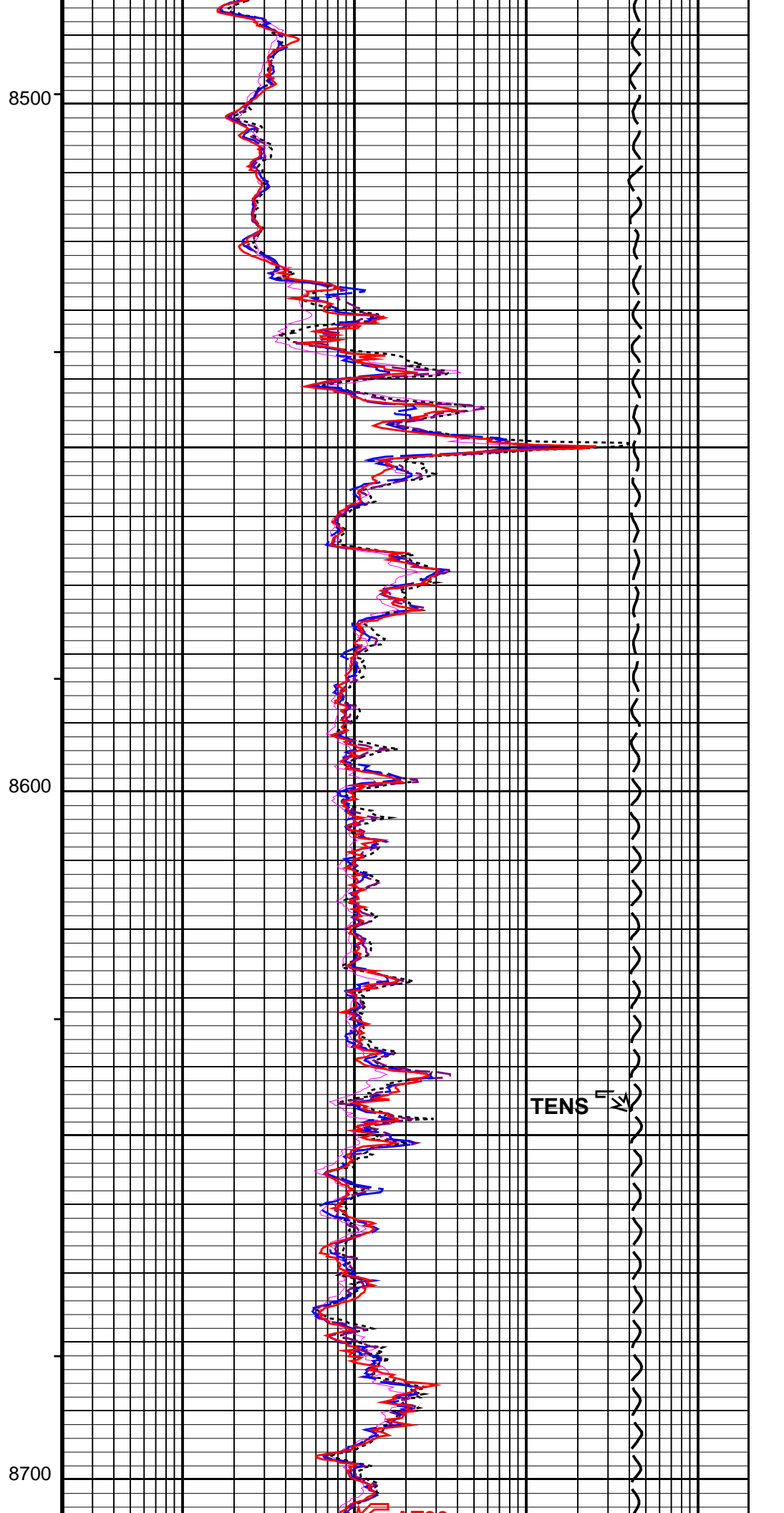
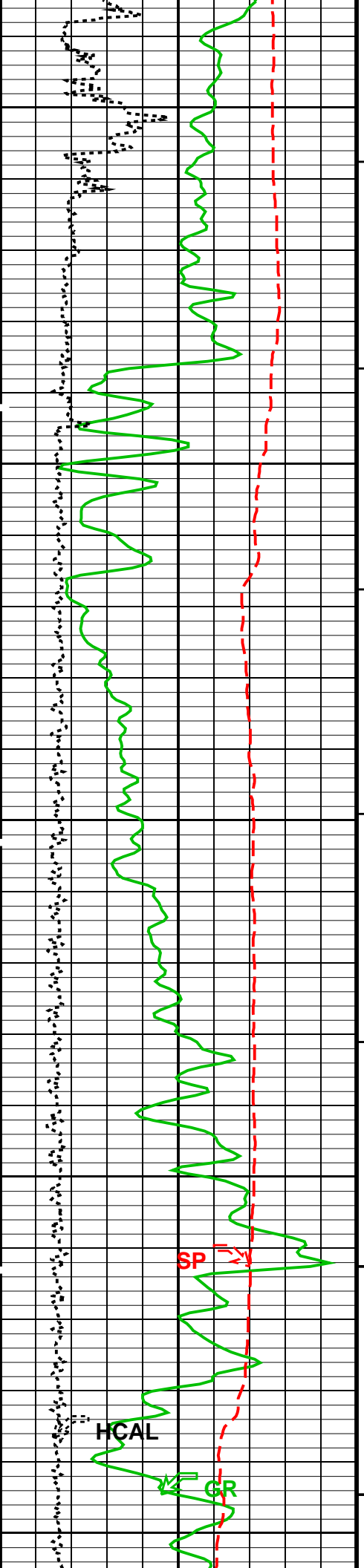


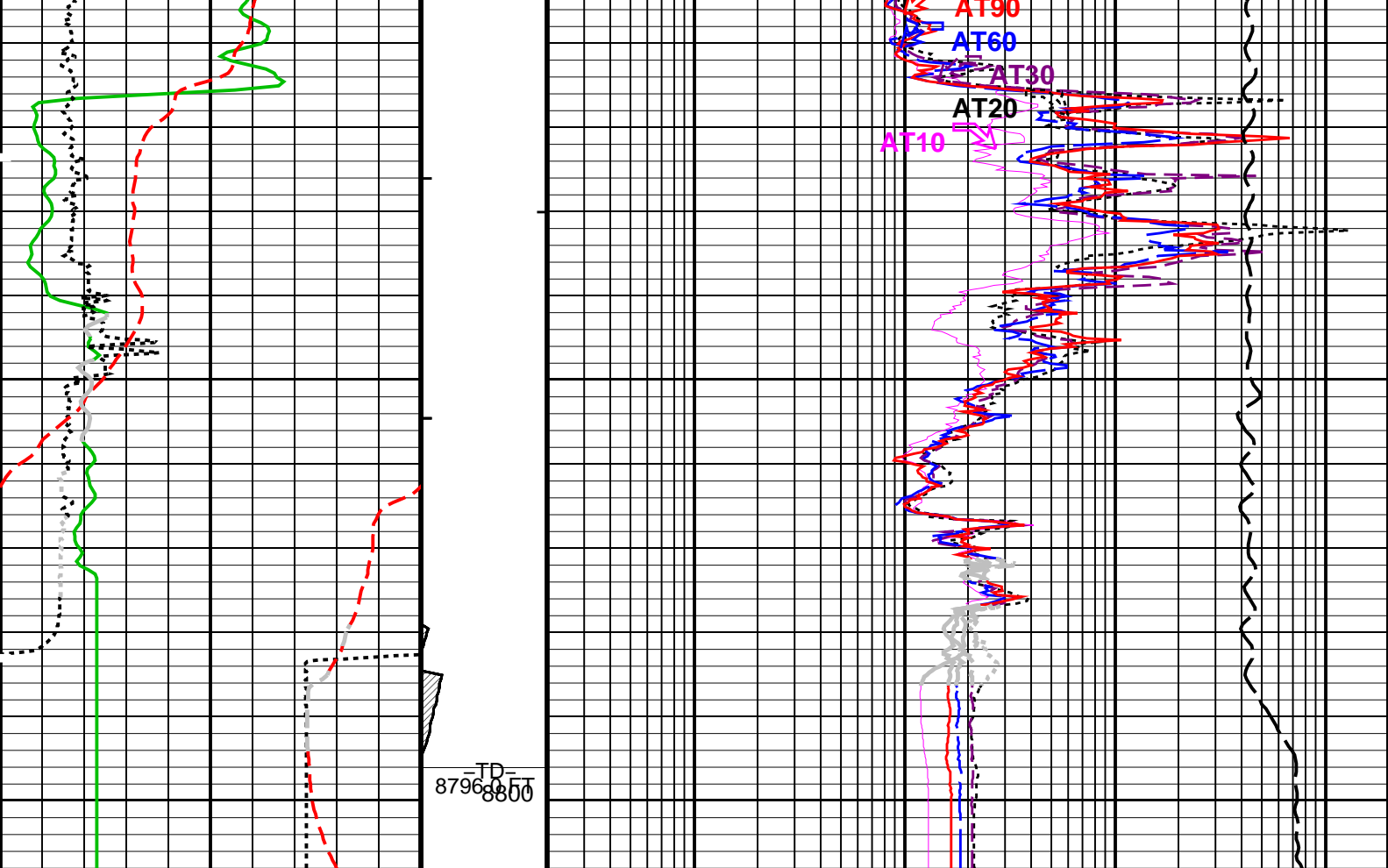


8300
MTRX
8306.0 FT

8400







MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

Gamma Ray Backup	Cable Drag	0.2	AIT 10 Inch Investigation (AT10) (OHMM)	2000
Gamma Ray (GR) (GAPI)	Tool/Tot. Drag	0.2	AIT 20 Inch Investigation (AT20) (OHMM)	2000
Caliper (HCAL) (IN)	Stuck Stretch (STIT)	0.2	AIT 30 Inch Investigation (AT30) (OHMM)	2000
SP (SP) (MV)	0 (F) 50	0.2	AIT 60 Inch Investigation (AT60) (OHMM)	2000
		0.2	AIT 90 Inch Investigation (AT90) (OHMM)	2000
			Tension (TENS) (LBF)	10000 0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name Description Value

AIT-M: Array Induction Tool – M

ABHM Array Induction Borehole Correction Mode 2_ComputeStandoff
 ABHV Array Induction Borehole Correction Code Version Number 900
 ABLM Array Induction Basic Logs Mode 6_One_Two_and_Four
 ABLV Array Induction Basic Logs Code Version Number 222

ABLV	Array Induction Basic Logs Code Version Number	223	Yes	
ACDE	Array Induction Casing Detection Enable		Yes	
ACEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered		
ACSED	Array Induction Casing Shoe Estimated Depth	-50000	FT	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Yes		
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20		
AIGS	Array Induction Select Akima Interpolation Gating	On		
AMRF	Array Induction Mud Resistivity Factor	1		
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20		
ARFV	Array Induction Radial Profiling Code Version Number	701		
ARPV	Array Induction Radial Parametrization Code Version Number	232		
ASTA	Array Induction Tool Standoff	0.25	IN	
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20		
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	Internal		
AULV	Array Induction User Level Control	Normal		
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00		
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
GCSE	Generalized Caliper Selection	HCAL		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
SHT	Surface Hole Temperature	68	DEGF	
SPNV	SP Next Value	0	MV	
HILTB-FTB: High resolution Integrated Logging Tool-DTS				
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
GCSE	Generalized Caliper Selection	HCAL		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
SHT	Surface Hole Temperature	68	DEGF	
FEQL: Formation Evaluation Quick Look				
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
HOLEV: Integrated Hole/Cement Volume				
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
FCD	Future Casing (Outer) Diameter	4.5	IN	
GCSE	Generalized Caliper Selection	HCAL		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
HVCS	Integrated Hole Volume Caliper Selection	HCAL		
SHT	Surface Hole Temperature	68	DEGF	
PERT: Preliminary Evaluation - Real Time				
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF	
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
GCSE	Generalized Caliper Selection	HCAL		
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG	
GGRD	Geothermal Gradient	0.01	DF/F	
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
SHT	Surface Hole Temperature	68	DEGF	
STI: Stuck Tool Indicator				
LBFR	Trigger for MAXIS First Reading Label	TDL		
STKT	STI Stuck Threshold	2.5	FT	
TDD	Total Depth - Driller	88870.00	FT	
TDL	Total Depth - Logger	88870.00	FT	
System and Miscellaneous				
BS	Bit Size	7.875	IN	
DFD	Drilling Fluid Density	8.50	LB/G	
DORL	Depth Offset for Repeat Analysis	0.0	FT	
FLEV	Fluid Level	-50000.00	FT	
MST	Mud Sample Temperature	72.20	DEGF	
TD	Total Depth	88870	FT	

Format: LOWER_GRES Vertical Scale: 5" per 100' Graphics File Created: 02-Dec-2009 11:46

OP System Version: 17C0-154

AIT-M	17C0-154	HILTB-FTB	17C0-154
DTC-H	17C0-154		

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	02-Dec-2009 11:46
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Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_009PUP FN:8 PRODUCER 02-Dec-2009 11:43 8821.5 FT 8263.5 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_010LUP FN:9 PRODUCER 02-Dec-2009 11:46

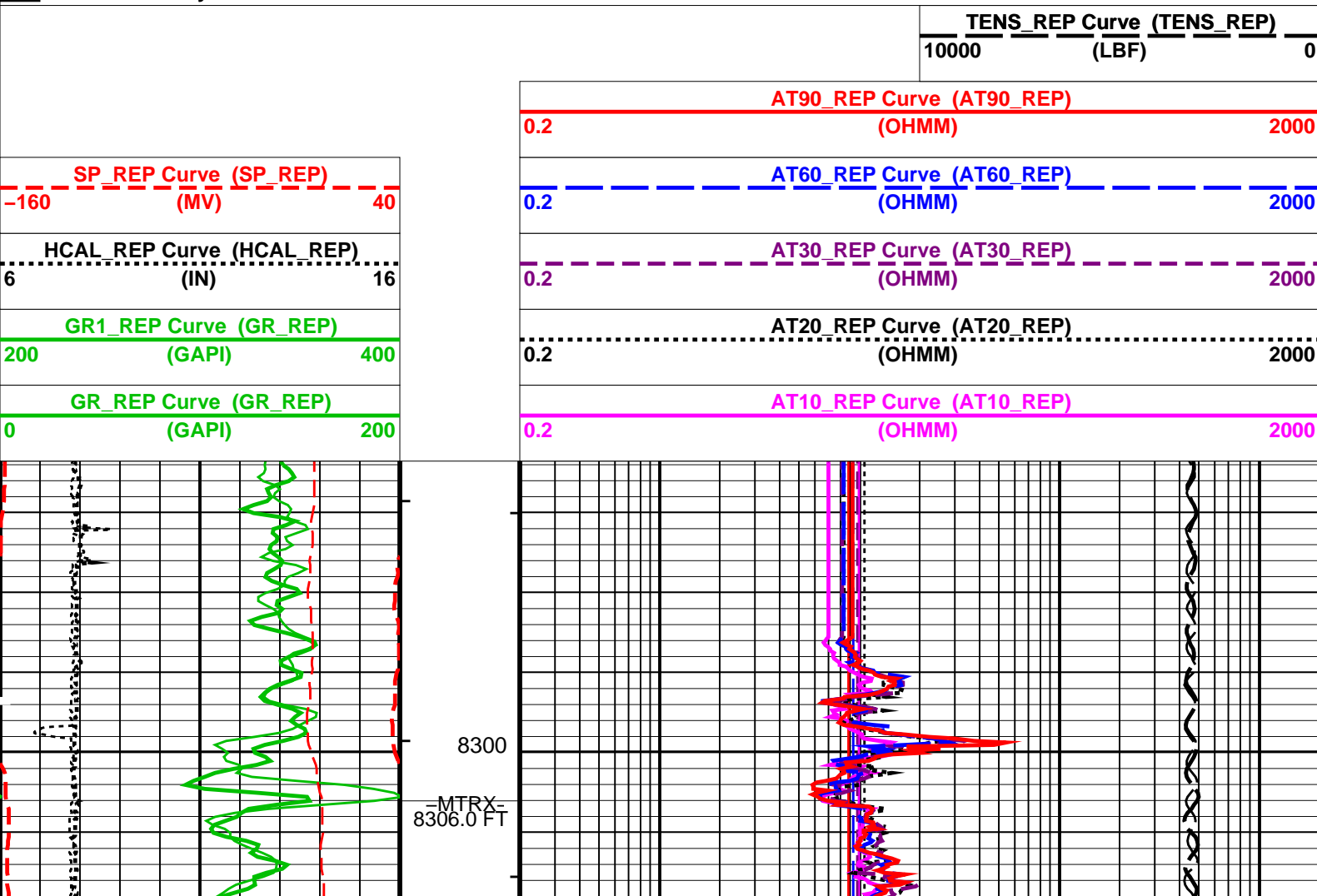
OP System Version: 17C0-154

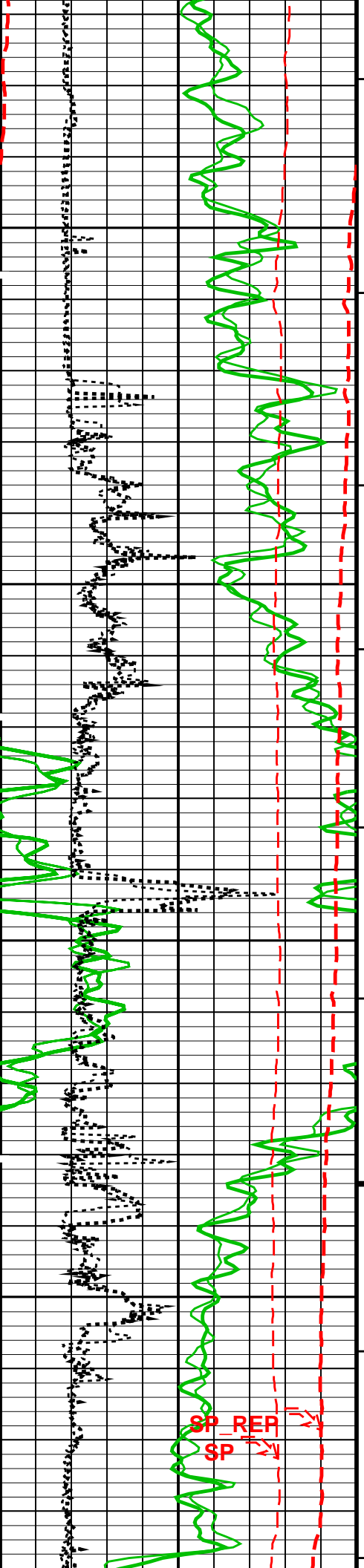
AIT-M 17C0-154 HILTB-FTB 17C0-154
DTC-H 17C0-154

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

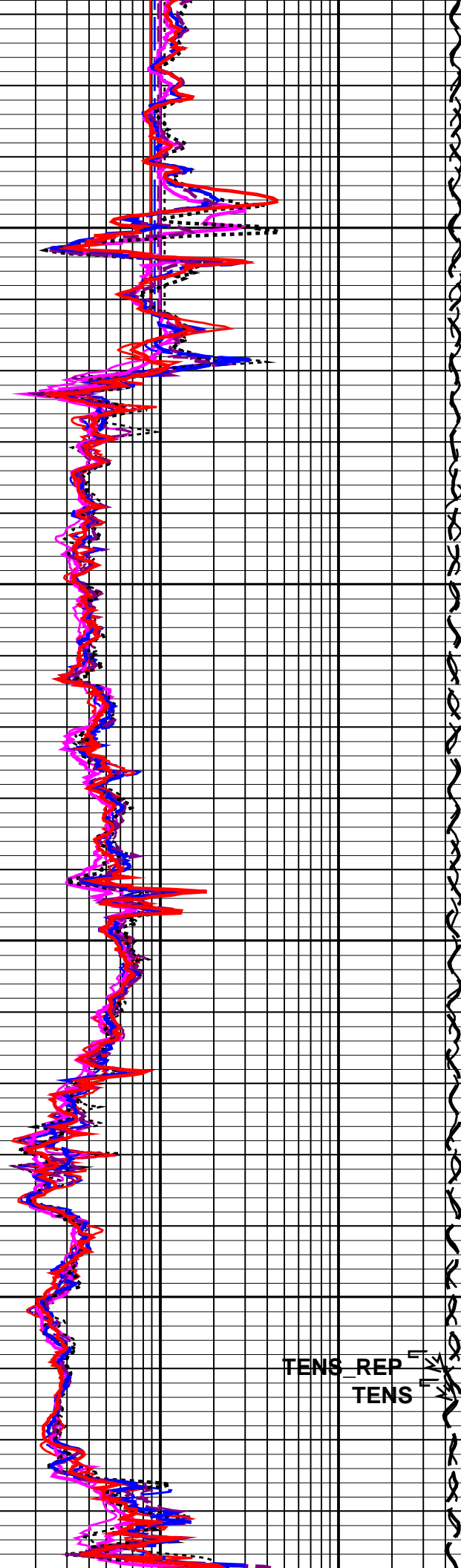




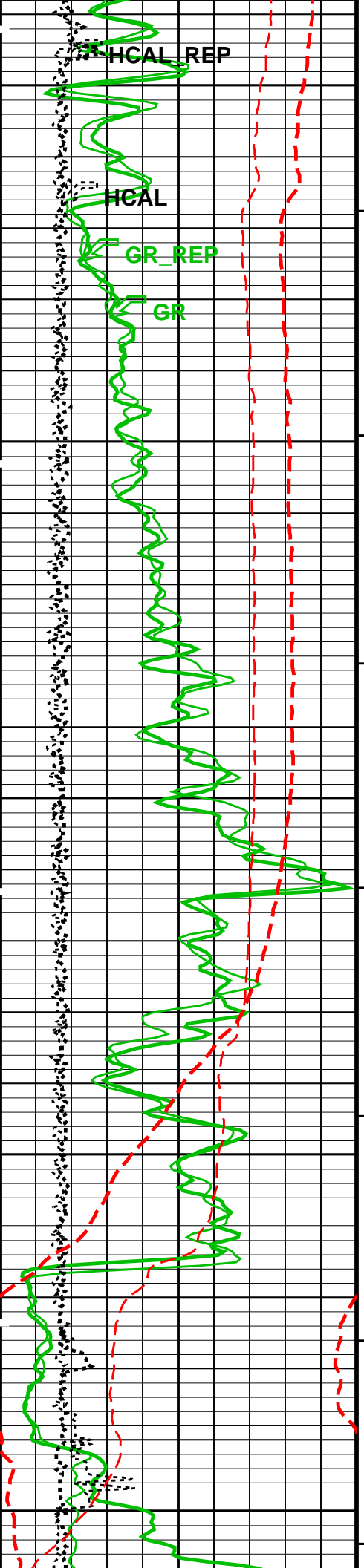
8400

8500

SP-REP
SP

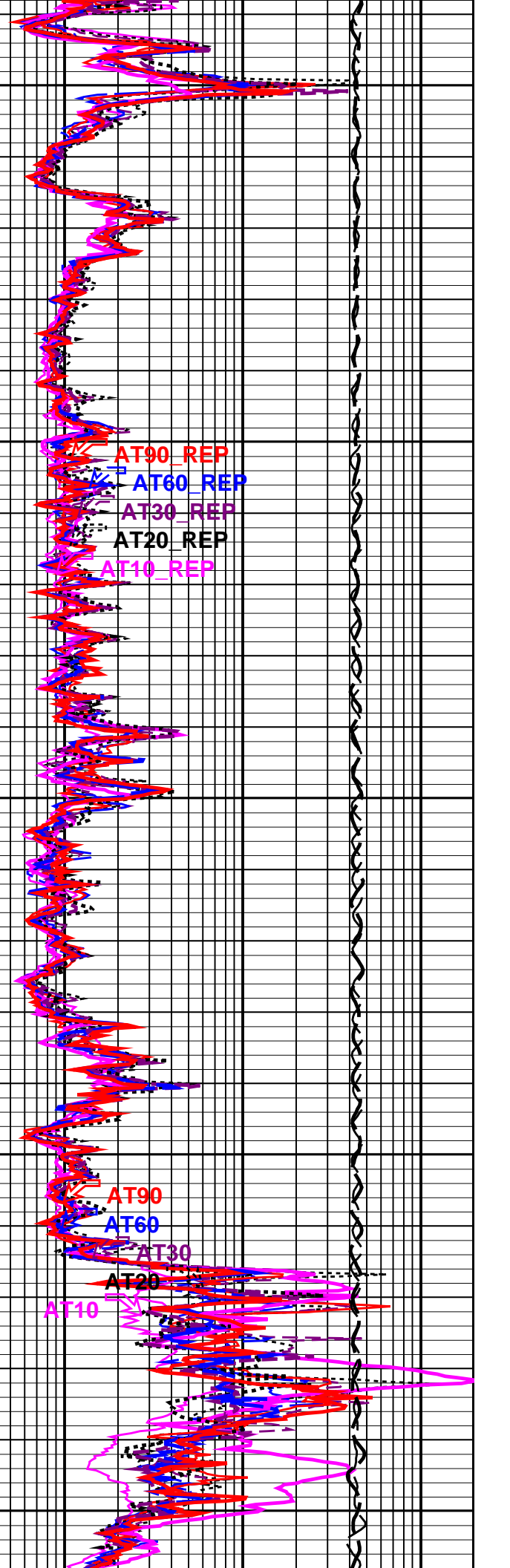


TENS-REP
TENS



8600

8700



AT90

AT60

AT30

AT20

AT10

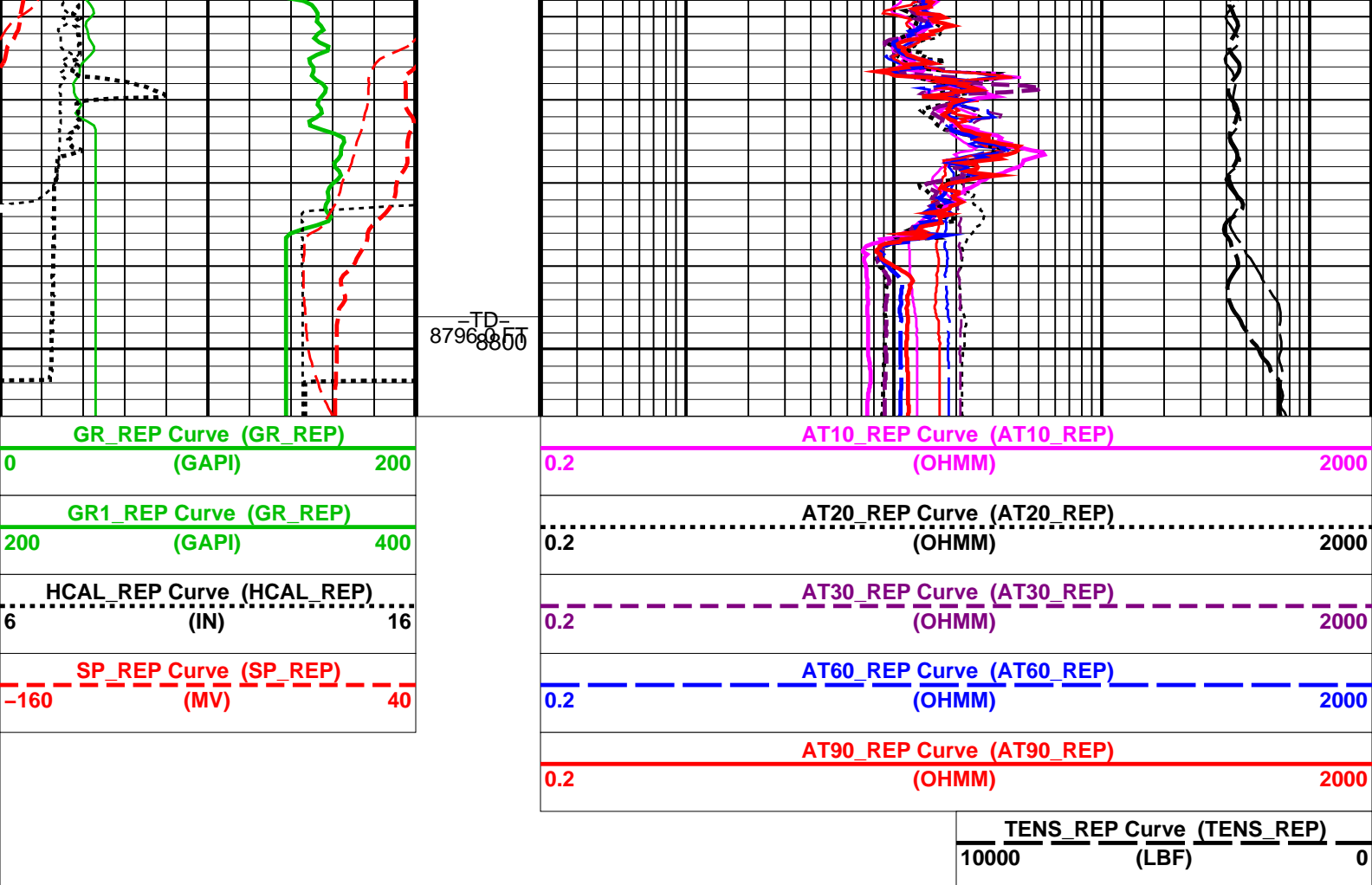
AT90

AT60

AT30

AT20

AT10



PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AIT-M: Array Induction Tool - M			
ABHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
ABHV	Array Induction Borehole Correction Code Version Number	900	
ABLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
ABLV	Array Induction Basic Logs Code Version Number	223	
ACDE	Array Induction Casing Detection Enable	Yes	
ACEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
ACSED	Array Induction Casing Shoe Estimated Depth	-50000	FT
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Yes	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	On	
AMRF	Array Induction Mud Resistivity Factor	1	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ASTA	Array Induction Tool Standoff	0.25	IN
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	Internal	
AULV	Array Induction User Level Control	Normal	
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITM_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction Tool - M.Wellsite Calibration	Electronics Calibration Check	Thru Cal Mag - 8 Phase					

Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase
Master: 14–Oct–2009 17:03 Before: 30–Nov–2009 15:07

Thru Cal Magnitude – 0	0	0.6205	0.6203	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.271	1.271	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6318	0.6316	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7131	0.7129	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.334	1.334	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.953	1.952	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.949	1.948	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.419	1.418	N/A	N/A	N/A	V
Thru Cal Phase – 0	0	180.2	180.2	N/A	N/A	N/A	DEG
Thru Cal Phase – 1	0	179.2	179.1	N/A	N/A	N/A	DEG
Thru Cal Phase – 2	0	175.6	175.5	N/A	N/A	N/A	DEG
Thru Cal Phase – 3	0	174.9	174.8	N/A	N/A	N/A	DEG
Thru Cal Phase – 4	0	168.7	168.6	N/A	N/A	N/A	DEG
Thru Cal Phase – 5	0	167.0	166.9	N/A	N/A	N/A	DEG
Thru Cal Phase – 6	0	167.0	167.0	N/A	N/A	N/A	DEG
Thru Cal Phase – 7	0	166.2	166.2	N/A	N/A	N/A	DEG

Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Auxiliary

Master: 14–Oct–2009 17:03 Before: 30–Nov–2009 15:07

Array Induction SPA Plus	991.0	992.7	992.7	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.6638	0.6725	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9170	0.9196	0.9196	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0006632	0.0006608	N/A	N/A	N/A	V

Array Induction Tool – M Wellsite Calibration – Test Loop Gain Correction

Master: 14–Oct–2009 17:03

Test Loop Gain Correctio – 0	0	1.017	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 1	0	1.014	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 2	0	1.015	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 3	0	1.011	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 4	0	0.9935	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 5	0	0.9888	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 6	0	0.9937	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 7	0	1.007	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 0	0	0.7201	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 1	0	0.7620	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 2	0	0.2948	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 3	0	0.2209	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 4	0	0.1146	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 5	0	–0.009143	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 6	0	0.2984	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 7	0	–0.05307	N/A	N/A	N/A	N/A	DEG

Array Induction Tool – M Wellsite Calibration – Sonde Error Correction

Master: 14–Oct–2009 17:03

R Sonde Error Correction – 0	0	–69.04	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	172.8	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	116.8	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	64.65	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	26.78	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	12.75	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	11.98	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	–2.480	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	–259.4	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	103.1	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	63.05	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	–22.90	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	21.47	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	–15.50	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	–4.060	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	–4.950	N/A	N/A	N/A	N/A	MM/M

Array Induction Tool – M Wellsite Calibration – Mud Gain Correction

Master: 14–Oct–2009 17:03

Coarse – Mag, Real, Imag – 0	0	0.8551	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 1	0	0.8551	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 2	0	0.8551	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 0	0	0.8573	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 1	0	0.8573	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 2	0	0.8573	N/A	N/A	N/A	N/A

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary

Before: 30–Nov–2009 15:13

BS Window Ratio	0.7387	N/A	0.7409	N/A	N/A	N/A
BS Window Sum	10310	N/A	10330	N/A	N/A	N/A
SS Window Ratio	0.4771	N/A	0.4772	N/A	N/A	N/A
SS Window Sum	10520	N/A	10520	N/A	N/A	N/A
LS Window Ratio	0.2960	N/A	0.2941	N/A	N/A	N/A
LS Window Sum	1176	N/A	1172	N/A	N/A	N/A

CPS

CPS











CPS

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 30–Nov–2009 15:13							
BS PM High Voltage (Command)	1473	N/A	1478	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1598	N/A	1617	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1349	N/A	1357	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 30–Nov–2009 15:13							
BS Crystal Resolution	11.38	N/A	11.16	N/A	N/A	N/A	%
SS Crystal Resolution	10.38	N/A	10.45	N/A	N/A	N/A	%
LS Crystal Resolution	8.717	N/A	8.654	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration							
Before: 30–Nov–2009 15:08							
Raw B0 Resistivity	3875	N/A	3832	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3792	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3797	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration							
Before: 30–Nov–2009 15:06							
HILT Caliper Zero Measurement	8.000	N/A	7.815	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	11.89	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 30–Nov–2009 15:06							
Gamma Ray Background	30.00	N/A	77.42	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	175.8	N/A	175.8	N/A	N/A	15.98	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 8–Oct–2009 13:16 Before: 30–Nov–2009 15:07							
CNTC Background	26.34	26.34	26.99	N/A	N/A	3.951	CPS
CFTC Background	27.85	27.85	28.31	N/A	N/A	4.178	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 8–Oct–2009 13:16							
Thermal Near Corr. (Tank)	5800	5423	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2272	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.387	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 2–Dec–2009 11:03							
Z–Axis Acceleration	32.19	N/A	32.02	N/A	N/A	N/A	F/S2
High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results							
Master: 29–Nov–2009 14:51							
Rho Aluminum	2.596	2.602	--	--	--	--	G/C3
Rho Magnesium	1.686	1.687	--	--	--	--	G/C3
Pe Aluminum	2.570	2.559	--	--	--	--	
Pe Magnesium	2.650	2.623	--	--	--	--	
High resolution Integrated Logging Tool–DTS Master Calibration – Deviation Summary							
Master: 29–Nov–2009 14:51							
BS Average Deviation	0	0.2941	--	--	--	--	%
BS Max Deviation	0	0.5746	--	--	--	--	%
SS Average Deviation	0	0.3866	--	--	--	--	%
SS Max Deviation	0	2.080	--	--	--	--	%
LS Average Deviation	0	0.9530	--	--	--	--	%
LS Max Deviation	0	2.032	--	--	--	--	%
The GLS–VJ source activity is acceptable.							
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	57.0	DEGF.					
Thermal Housing Size	3.365	IN.					
NSR–F serial number	5068						

Array Induction Tool – M / Equipment Identification		
Primary Equipment:		
Rm/SP Bottom Nose	AMRM – A	
Array Induction Sonde	AMIS – A	1372

Array Induction Tool – M Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Thru Cal Phase DEG	Nominal
0	Master	0.6205		0.6100	180.2		197.0
	Before	0.6203			180.2		
1	Master	1.271		1.270	179.2		196.0
	Before	1.271			179.1		
2	Master	0.6318		0.6200	175.6		192.0
	Before	0.6316			175.5		
3	Master	0.7131		0.7000	174.9		191.0
	Before	0.7129			174.8		
4	Master	1.334		1.340	168.7		185.0
	Before	1.334			168.6		
5	Master	1.953		1.960	167.0		182.0
	Before	1.952			166.9		
6	Master	1.949		1.960	167.0		181.0
	Before	1.948			167.0		
7	Master	1.419		1.410	166.2		175.0
	Before	1.418			166.2		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 14-Oct-2009 17:03				Before: 30-Nov-2009 15:07			

Array Induction Tool – M Wellsite Calibration											
Electronics Calibration Check – Auxiliary											
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value				
Master			992.7	Master			0.6638				
Before			992.7	Before			0.6725				
941.0 (Minimum)			991.0 (Nominal)	1040 (Maximum)			-50.00 (Minimum)		0 (Nominal)	50.00 (Maximum)	
Phase	Array Induction Temperature Plus V			Value	Phase	Array Induction Temperature Zero V			Value		
Master				0.9196	Master				0.0006632		
Before				0.9196	Before				0.0006608		
0.8710 (Minimum)			0.9170 (Nominal)	0.9630 (Maximum)			-0.05000 (Minimum)			0 (Nominal)	0.05000 (Maximum)
Master: 14-Oct-2009 17:03						Before: 30-Nov-2009 15:07					

Array Induction Tool – M Wellsite Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Correction Magnitude V	Value	Test Loop Gain Correction Phase DEG	DEC		
0	1.017		0.7201				
		0.9500 (Minimum)			0 (Nominal)		3.000 (Maximum)
1	1.014		0.7620				
		0.9500 (Minimum)			0 (Nominal)		3.000 (Maximum)
2	1.015		0.2948				
		0.9500 (Minimum)			0 (Nominal)		3.000 (Maximum)
3	1.011		0.2209				
		0.9500 (Minimum)			0 (Nominal)		3.000 (Maximum)
4	0.9935		0.1146				
		0.9500 (Minimum)			0 (Nominal)		3.000 (Maximum)

		(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)
5	0.9888				-0.009143				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9937				0.2984				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.007				-0.05307				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

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Array Induction Tool – M Wellsite Calibration									
Sonde Error Correction									
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M			
0	-69.04				-259.4				
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)	
1	172.8				103.1				
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)	
2	116.8				63.05				
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)	
3	64.65				-22.90				
		39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)	
4	26.78				21.47				
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)	
5	12.75				-15.50				
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)	
6	11.98				-4.060				
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	
7	-2.480				-4.950				
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	

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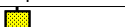
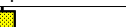
Array Induction Tool – M Wellsite Calibration									
Mud Gain Correction									
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag			
0	0.8551				0.8573				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
1	0.8551				0.8573				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
2	0.8551				0.8573				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	

Master: 14-Oct-2009 17:03

Array Induction Tool – M Master Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Thru Cal Phase DEG	Nominal
0	Master	0.6205		0.6100	180.2		197.0
1	Master	1.271		1.270	179.2		196.0
2	Master	0.6318		0.6200	175.6		192.0
3	Master	0.7131		0.7000	174.9		191.0
4	Master	1.334		1.340	168.7		185.0



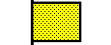





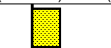

5	Master	1.953		1.960	167.0		182.0
6	Master	1.949		1.960	167.0		181.0
7	Master	1.419		1.410	166.2		175.0
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: 14-Oct-2009 17:03

Array Induction Tool – M Master Calibration							
Electronics Calibration Check – Auxiliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			992.7	Master			0.6638
941.0 (Minimum)		991.0 (Nominal)	1040 (Maximum)	-50.00 (Minimum)		0 (Nominal)	50.00 (Maximum)
Phase	Array Induction Temperature Plus V		Value	Phase	Array Induction Temperature Zero V		Value
Master			0.9196	Master			0.0006632
0.8710 (Minimum)		0.9170 (Nominal)	0.9630 (Maximum)	-0.05000 (Minimum)		0 (Nominal)	0.05000 (Maximum)
Master: 14-Oct-2009 17:03							




Array Induction Tool – M Master Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Correction Magnitude V			Value	Test Loop Gain Correction Phase DEG	
0	1.017				0.7201		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.014				0.7620		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.015				0.2948		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.011				0.2209		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	0.9935				0.1146		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9888				-0.009143		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9937				0.2984		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.007				-0.05307		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 14-Oct-2009 17:03

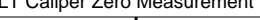
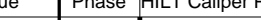
Array Induction Tool – M Master Calibration						
Sonde Error Correction						
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M
0	-69.04				-259.4	
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal) 2250 (Maximum)
1	172.8				103.1	
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal) 625.0 (Maximum)
2	116.8				63.05	
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal) 350.0 (Maximum)
3	64.65				-22.90	
		39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)	-250.0 (Minimum)	0 (Nominal) 250.0 (Maximum)
4	26.78				21.47	
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal) 63.00 (Maximum)

Before		11.16	Before		10.45	Before		8.654
10.38 (Minimum)	11.38 (Nominal)	12.38 (Maximum)	9.384 (Minimum)	10.38 (Nominal)	11.38 (Maximum)	7.717 (Minimum)	8.717 (Nominal)	9.717 (Maximum)
Before: 30-Nov-2009 15:13								

Before: 30–Nov–2009 15:13

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
MCFL Calibration														
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3832	Before				3792	Before				3797
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 30–Nov–2009 15:08														

Before: 30–Nov–2009 15:08

High resolution Integrated Logging Tool–DTS Wellsite Calibration							
HILT Caliper Calibration							
Phase	HILT Caliper Zero Measurement IN		Value	Phase	HILT Caliper Plus Measurement IN		Value
Before			7.815	Before			11.89
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 30–Nov–2009 15:06							

Before: 30–Nov–2009 15:06

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				77.42	Before				175.8	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		159.8 (Minimum)	175.8 (Nominal)	191.8 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)		
Before: 30–Nov–2009 15:06														

Before: 30–Nov–2009 15:06

High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.34	Master				27.85
Before				26.99	Before				28.31
5.000 (Minimum) 26.34 (Nominal) 40.00 (Maximum)					5.000 (Minimum) 27.85 (Nominal) 40.00 (Maximum)				
Master: 8–Oct–2009 13:16					Before: 30–Nov–2009 15:07				

Master: 8–Oct–2009 13:16

Before: 30–Nov–2009 15:07





High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5423	Master				2272	Master				2.387
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 8–Oct–2009 13:16														







Master: 8–Oct–2009 13:16

High resolution Integrated Logging Tool–DTS Wellsite Calibration			
Accelerometer Calibration			
Phase	Z–Axis Acceleration F/S2	Value	
Before		32.02	
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)



Before: 2–Dec–2009 11:03

Before: 2–Dec–2009 11:03




High resolution Integrated Logging Tool–DTS Master Calibration									
Inversion results									
Phase	Rho Aluminum G/C3			Value	Phase	Rho Magnesium G/C3			Value
Master				2.602	Master				1.687
	2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)	1.676 (Minimum)		1.686 (Nominal)	1.696 (Maximum)		
Phase	Pe Aluminum			Value	Phase	Pe Magnesium			Value
Master				2.559	Master				2.623
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)	2.550 (Minimum)		2.650 (Nominal)	2.750 (Maximum)		

High resolution Integrated Logging Tool–DTS Master Calibration														
Deviation Summary														
Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value
Master				0.2941	Master				0.3866	Master				0.9530
	–0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)			–1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)			–1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)	
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value
Master				0.5746	Master				2.080	Master				2.032
	–1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)			–2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)			–3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)	
Master: 29–Nov–2009 14:51														

Master: 29-Nov-2009 14:51

High resolution Integrated Logging Tool-DTS Master Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.34	Master				27.85
	5.000 (Minimum)	26.34 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	27.85 (Nominal)	40.00 (Maximum)	
Master: 8-Oct-2009 13:16									

Master: 8-Oct-2009 13:16

High resolution Integrated Logging Tool-DTS Master Calibration									
Tank Measurement									
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value
Master				5423	Master				2272
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	
Phase	CNTC/CFTC (Tank)			Value					
Master				2.387					
	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)						

Master: 8-Oct-2009 13:16

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry CartridgeDTCH - A
DTCH - A

8980

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Company: **Kerr McGee Oil and Gas Onshore, LP****Schlumberger**Well: **Parterre 13-16**Field: **Spindle**County: **Adams**State: **Colorado**Platform Express
Array Induction
with Linear Correlation