

Schlumberger

Company: **Kerr-McGee Oil & Gas Onshore, LP**

Well: **Brehon 18-18**

Field: **Hambert**

County: **Weld**

State: **Colorado**

Brehon 18-18

Weld

State: Colorado

<h1>Platform Express</h1> <h2>Array Induction</h2> <h3>with Linear Correlation</h3>				
<div> <div>Field:</div> <div>Hambert</div> </div>				
<div> <div>Location:</div> <div>Sec. 18, T4N, R65W</div> </div>				
<div> <div>Well:</div> <div>Brehon 18-18</div> </div>				
<div> <div>Company:</div> <div>Kerr-McGee Oil & Gas Onshore,</div> </div>				
LOCATION				
<div> <div>Sec. 18, T4N, R65W</div> <div>SHL: 1860' FNL X 579' FWL SWNW</div> <div>BHL: 1336' FNL X 1309' FWL SWNW</div> </div>		<div> <div>Elev.:</div> <div>K.B. 4721.00 ft</div> <div>G.L. 4706.00 ft</div> <div>D.F. 4720.00 ft</div> </div>		
<div> <div>Permanent Datum:</div> <div>Log Measured From:</div> <div>Drilling Measured From:</div> </div>		<div> <div>Ground Level</div> <div>Kelly Bushing</div> <div>Kelly Bushing</div> </div>		
<div> <div>API Serial No.</div> <div>05-123-29284-000C</div> </div>		<div> <div>Section</div> <div>18</div> </div>		<div> <div>Township</div> <div>4N</div> </div>
		<div> <div>Elev.:</div> <div>4706.00 ft</div> </div>		<div> <div>Range</div> <div>65W</div> </div>
		<div> <div>15.00 ft</div> <div>above Perm. Datum</div> </div>		
<div> <div>16-Mar-2010</div> </div>				

[illegible][illegible]

Induction
Temperatu
Power Sup

7.9

SP SENSOR
HTEN HMAS
Accelerom HV
Mud Resis
Tension

0.1

0.0

TOOL ZERO

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

Production String

(in)

(ft)

OD

ID

MD

Well Schematic

(ft)

(in)

MD

OD

ID

Casing String

Casing String

Casing Shoe
Borehole Segment

0.0

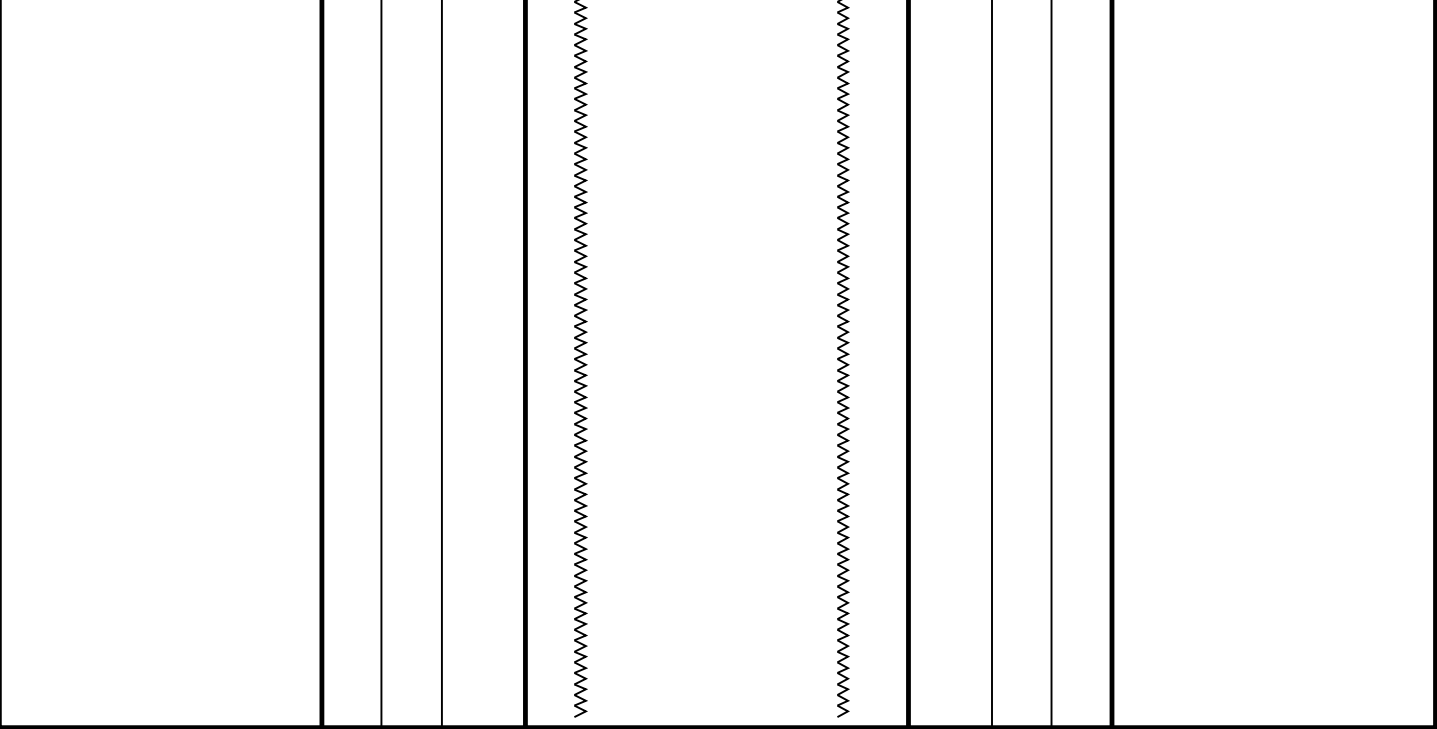
8.625

521.0

8.625

521.0

7.875



All depths are driller's depths



RESISTIVITY LINEAR 2" = 100'

MAXIS Field Log

Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
Output DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36	7825.5 FT	391.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2560.32 F3
Cement Volume = 1756.02 F3 (assuming 4.50 IN casing O.D.)
Computed from 7804.0 FT to 522.0 FT using data channel(s) HCAL

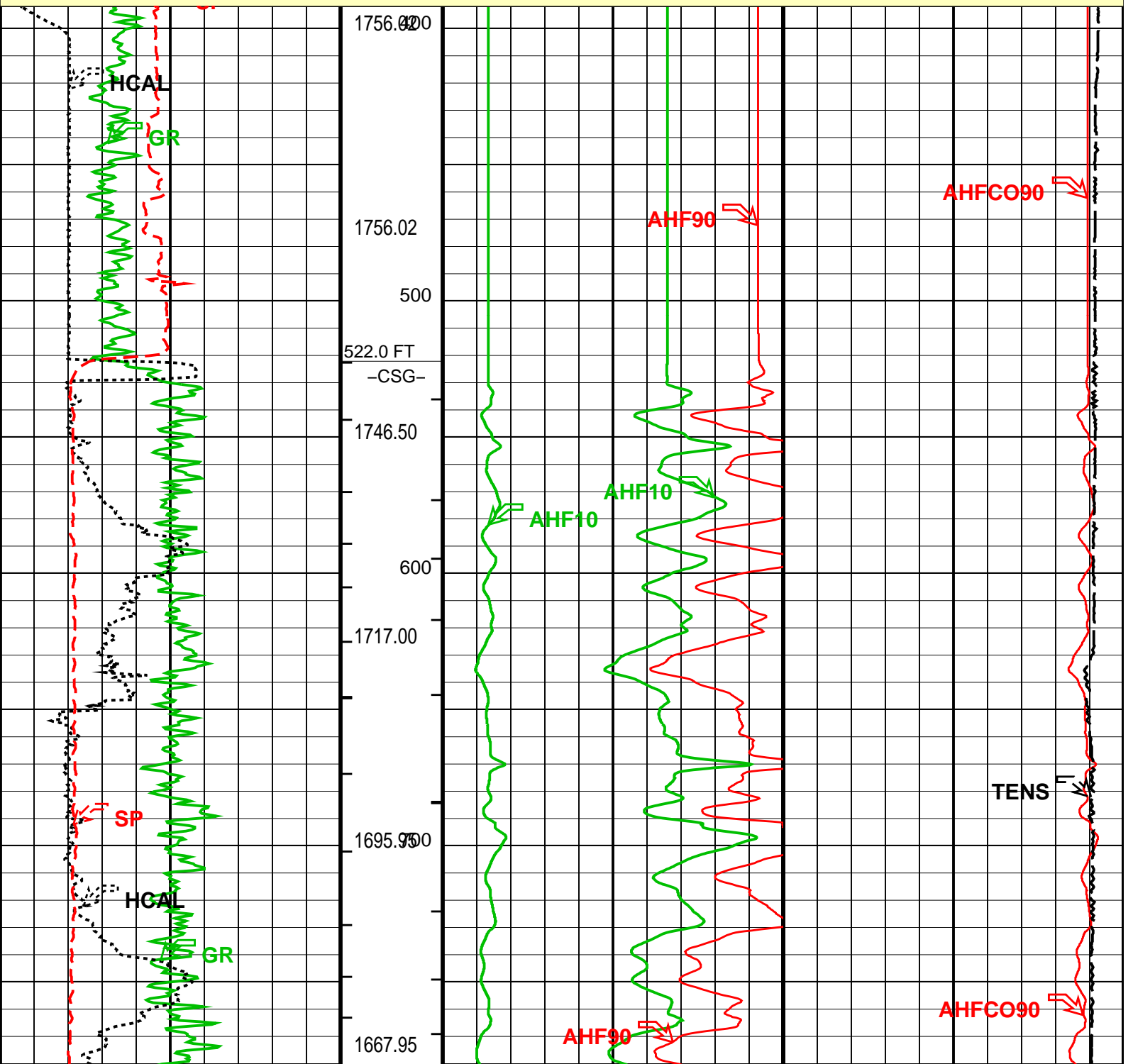
OP System Version: 17C0-154

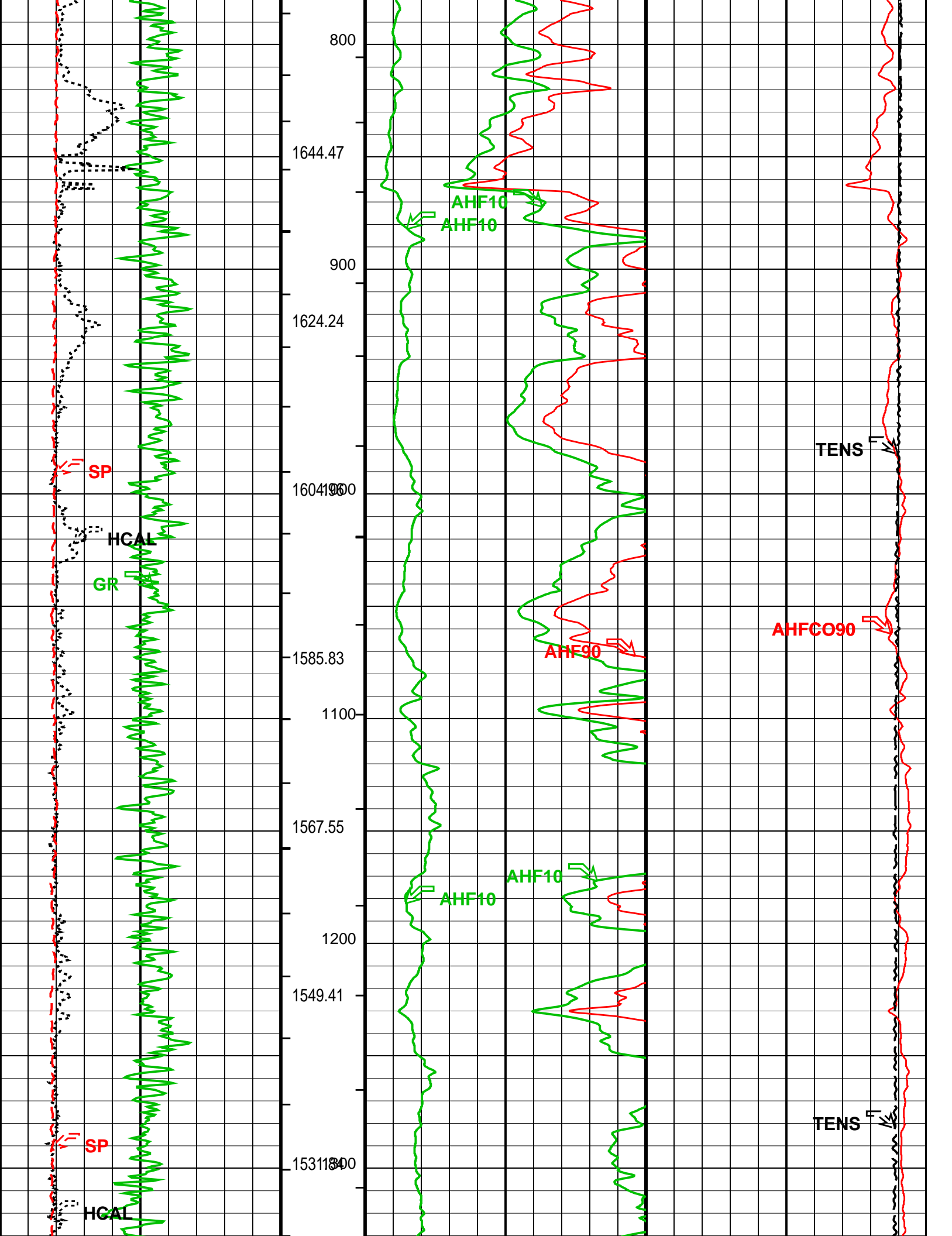
PIP SUMMARY

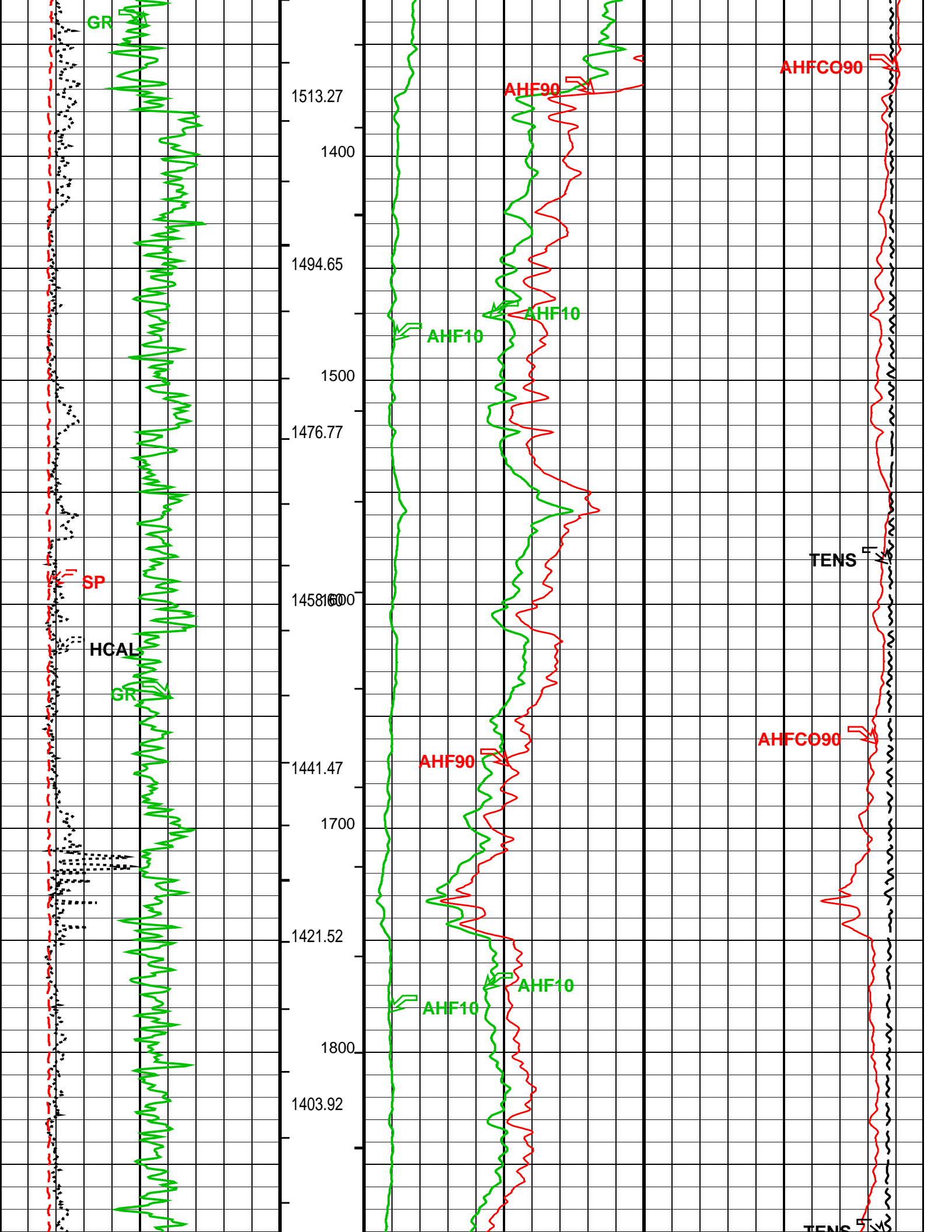
- └ Integrated Cement Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Hole Volume Minor Pip Every 10 F3

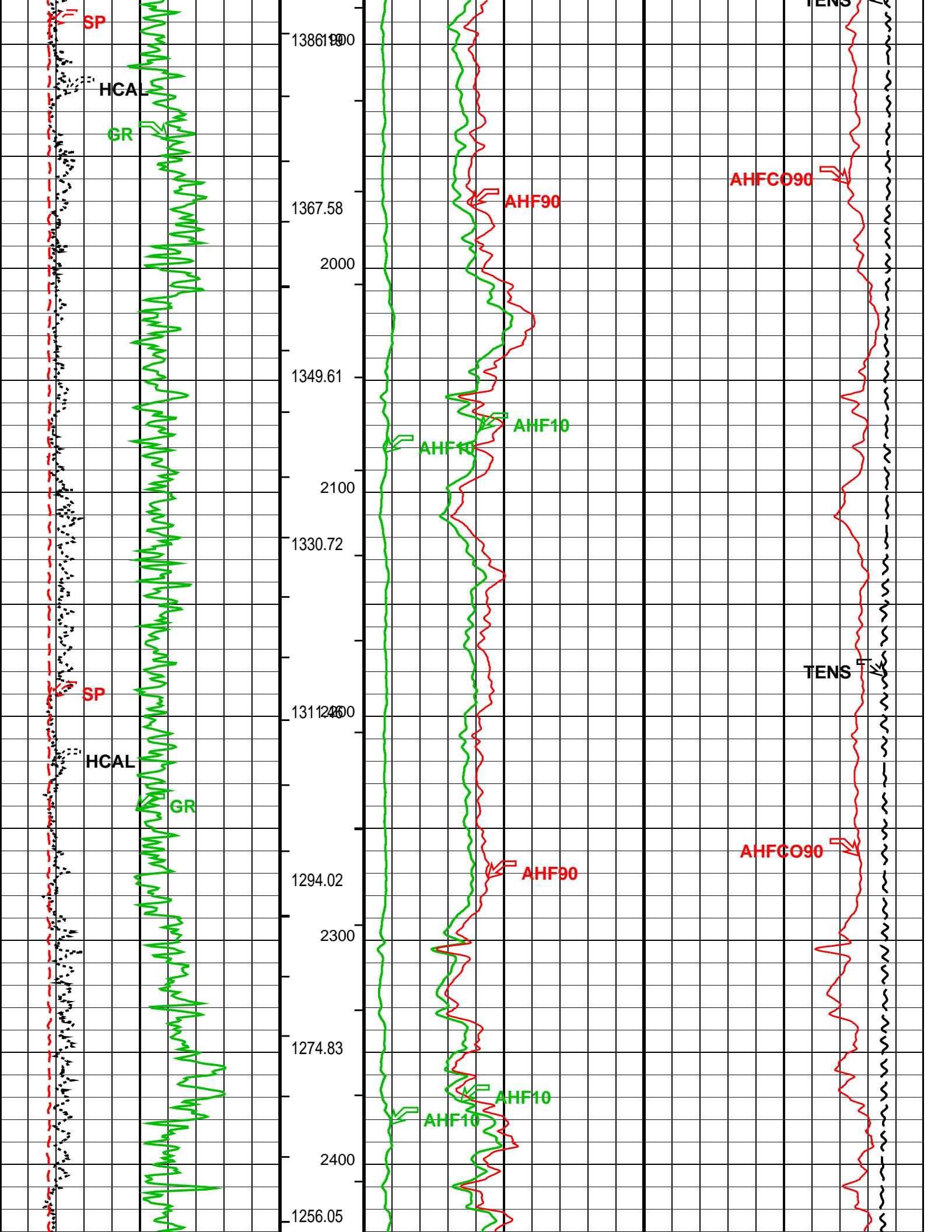
<div>SP (SP) (MV) -16040</div> <div>Caliper (HCAL) (IN) 616</div> <div>Gamma Ray (GR) (GAPI) 0200</div> <div>Gamma Ray Backup</div>	AIT-H 90 Inch Investigation (AHF90) (OHMM)010		Tension (TENS) (LBF)100000	
	AIT-H 10 Inch Investigation (AHF10) (OHMM)010			
	AIT-H 10 Inch Investigation (AHF10) (OHMM)050		AIT-H 90 Inch Investigation Conductivity (AHFCO90) (MM/M)10000	

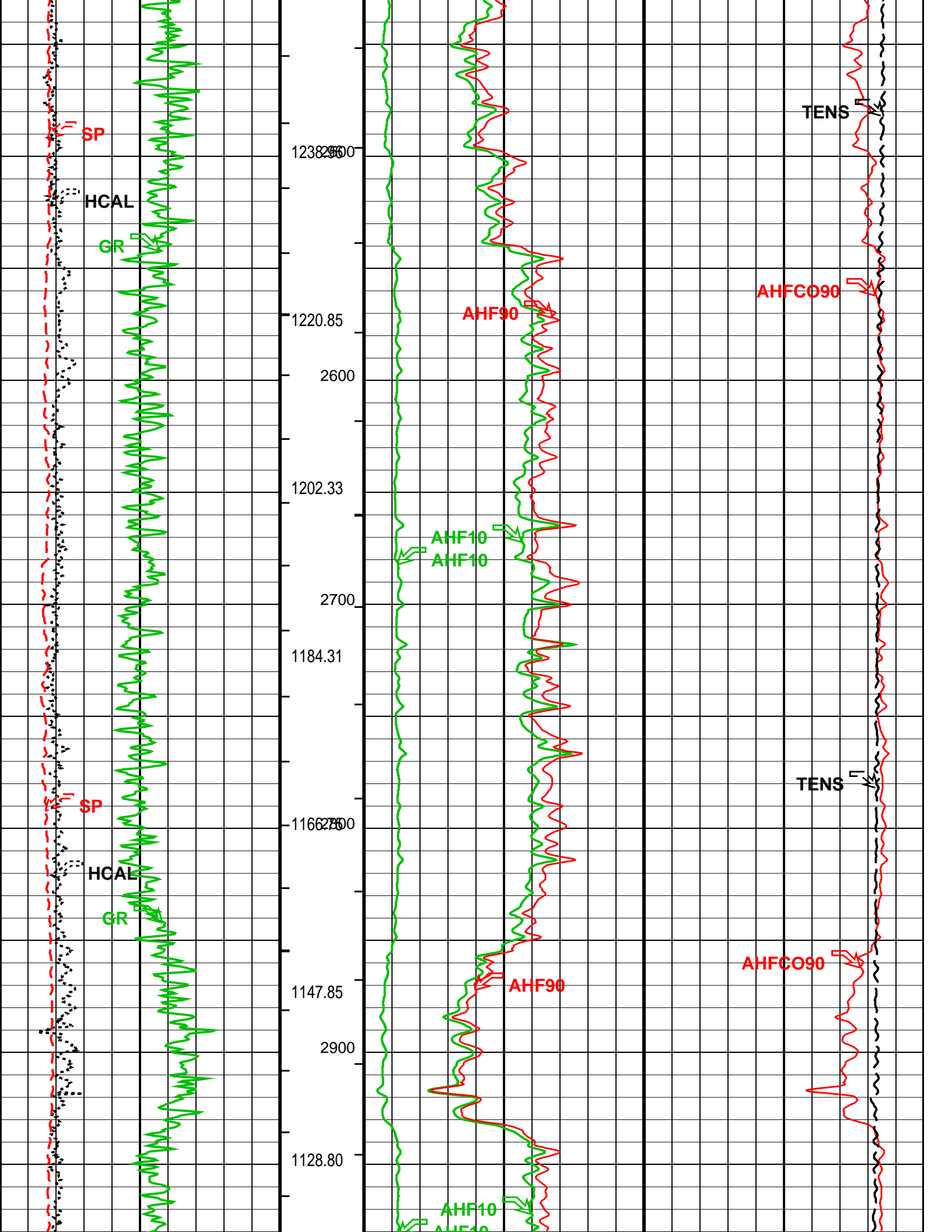
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

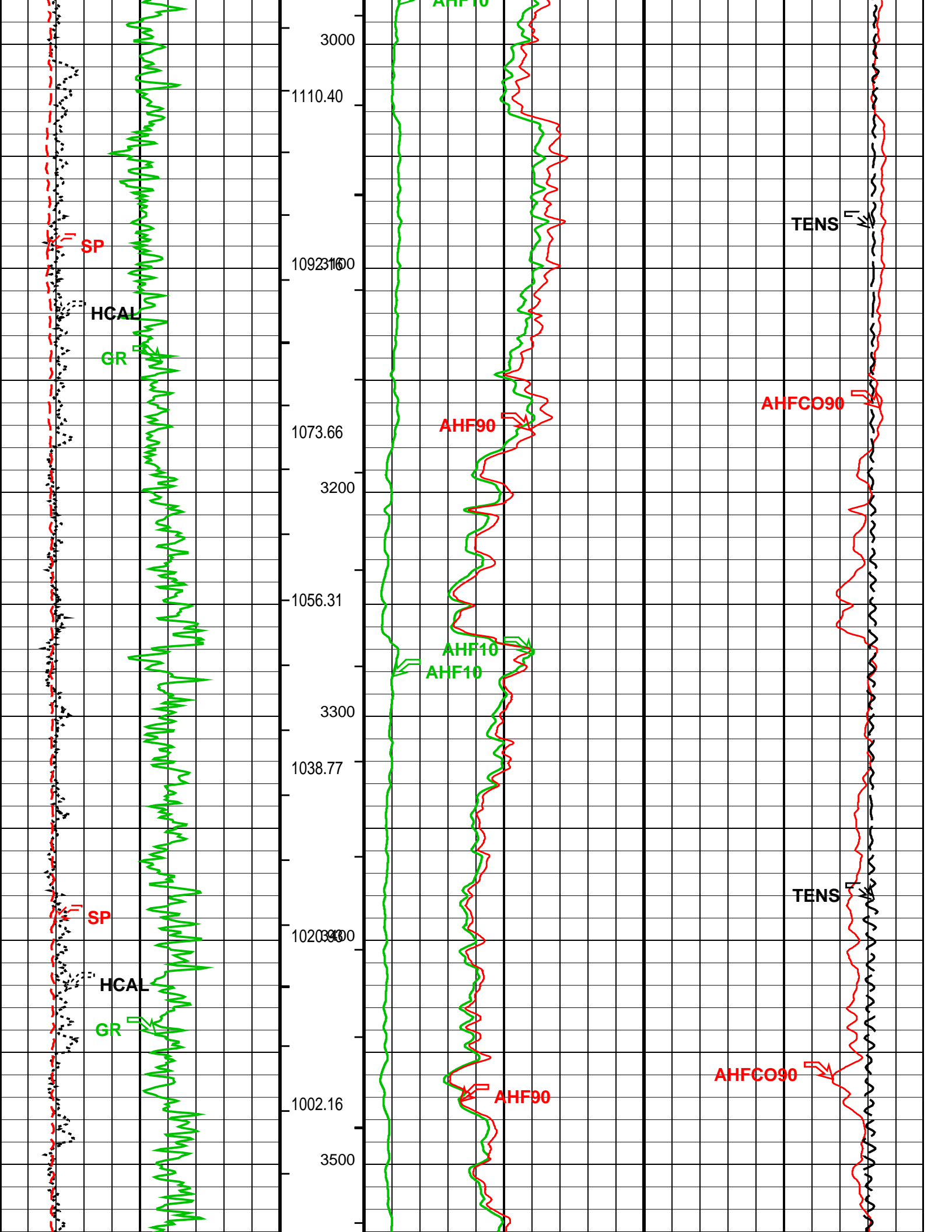


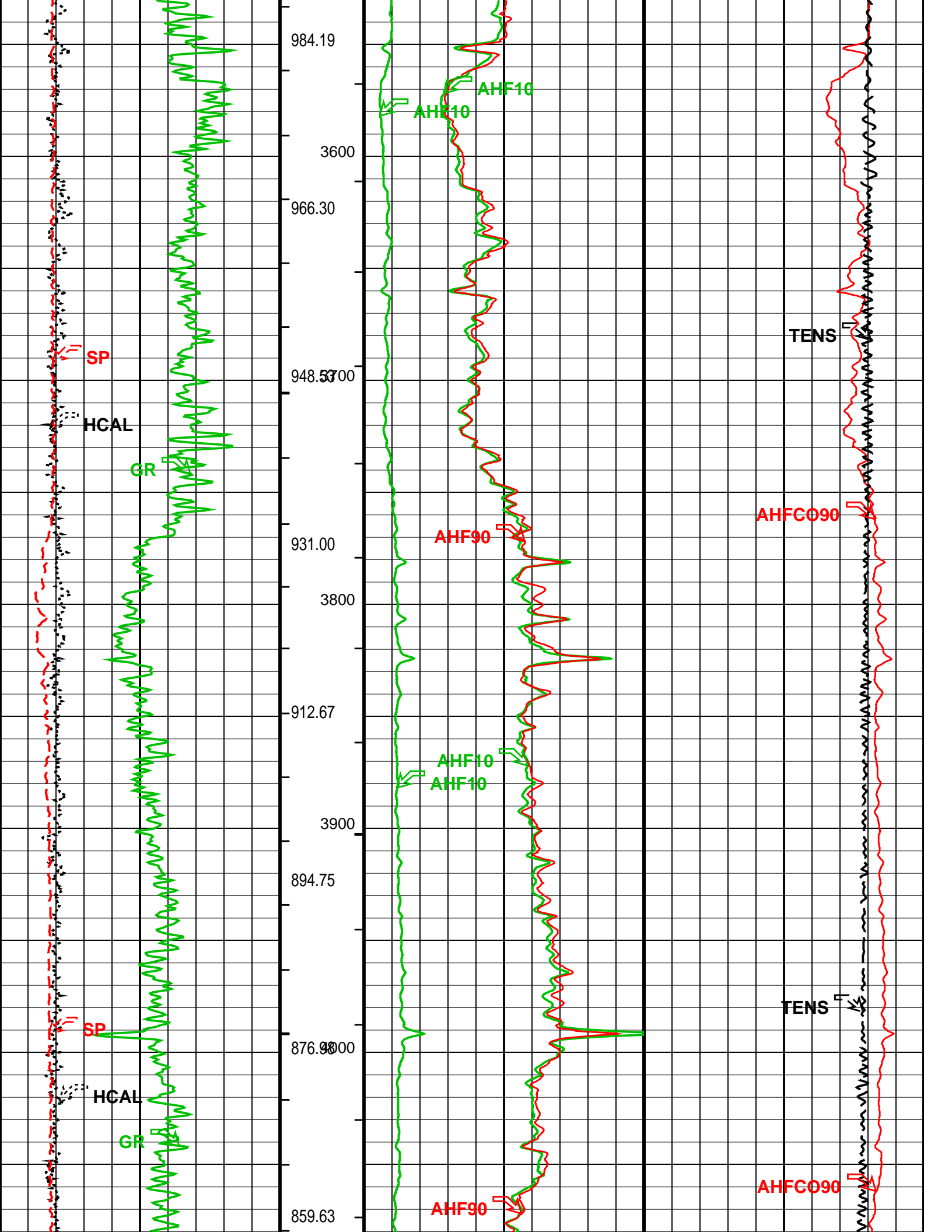


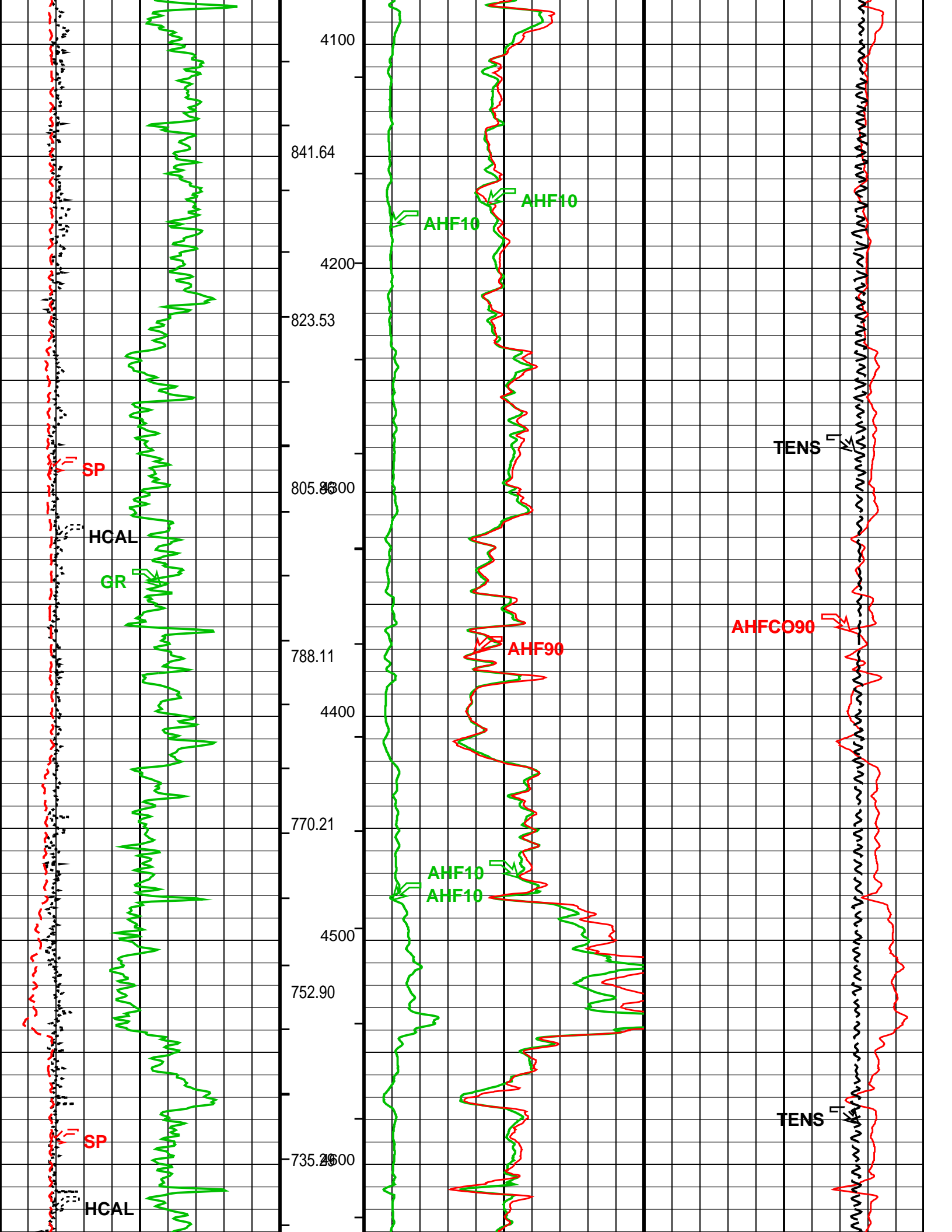


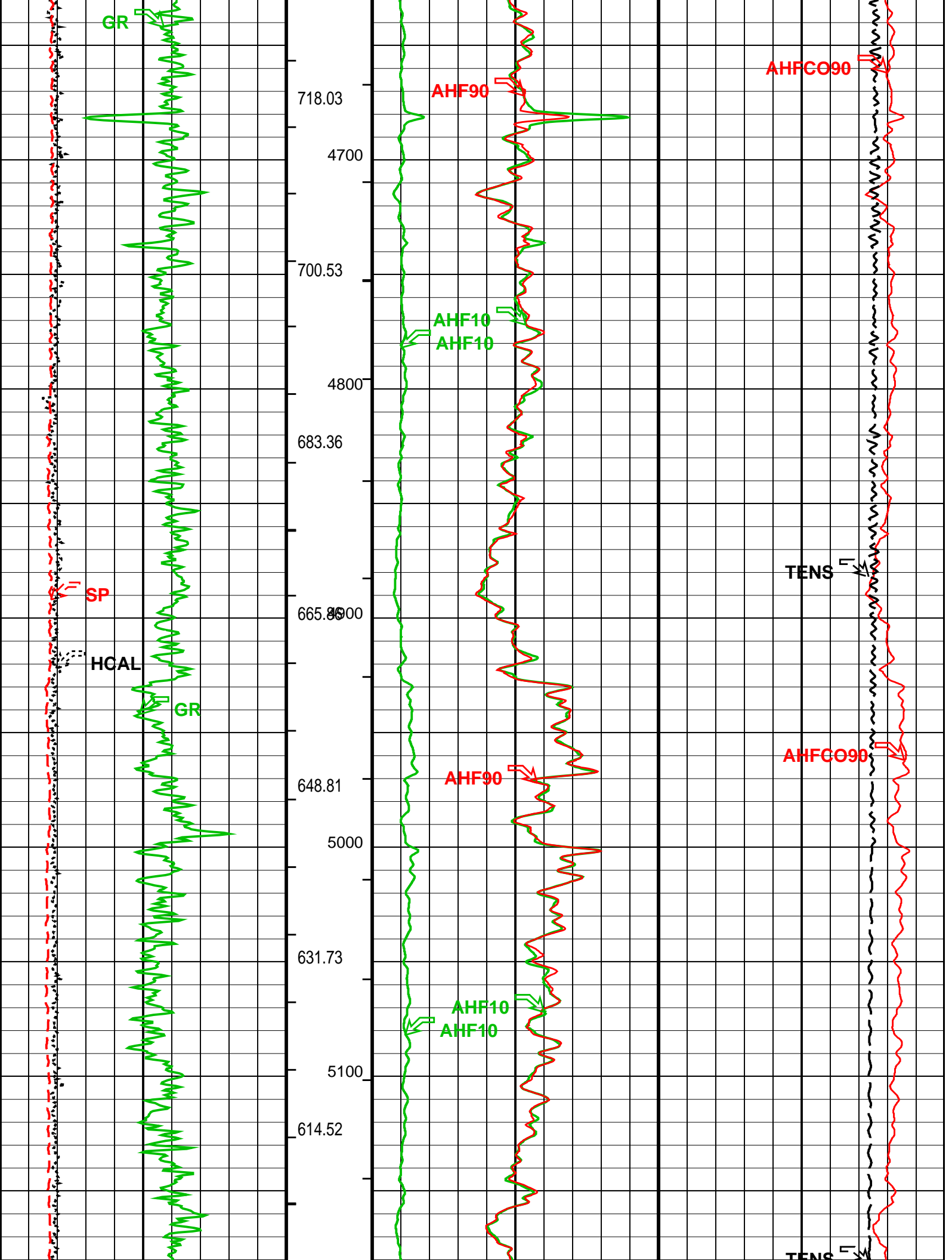


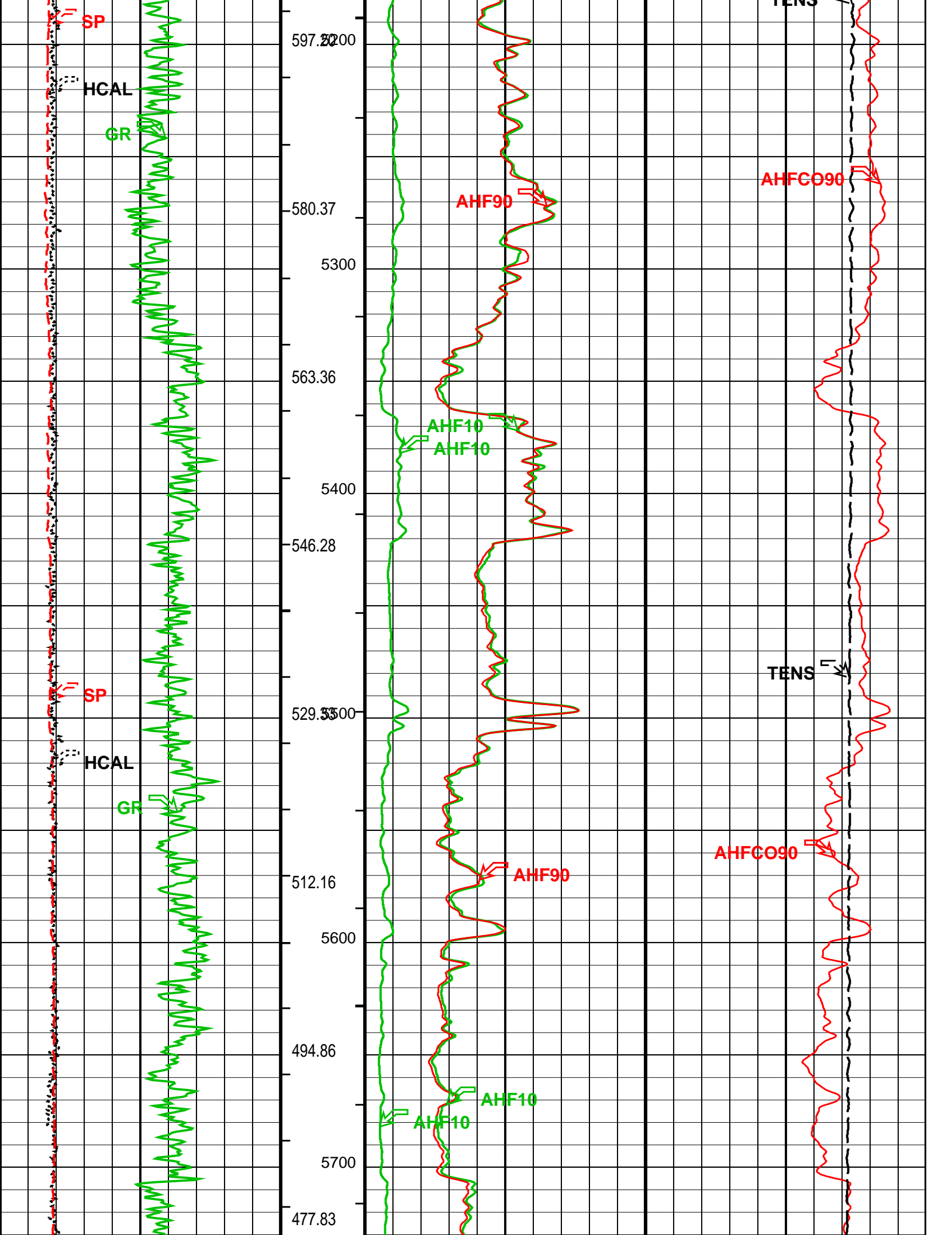


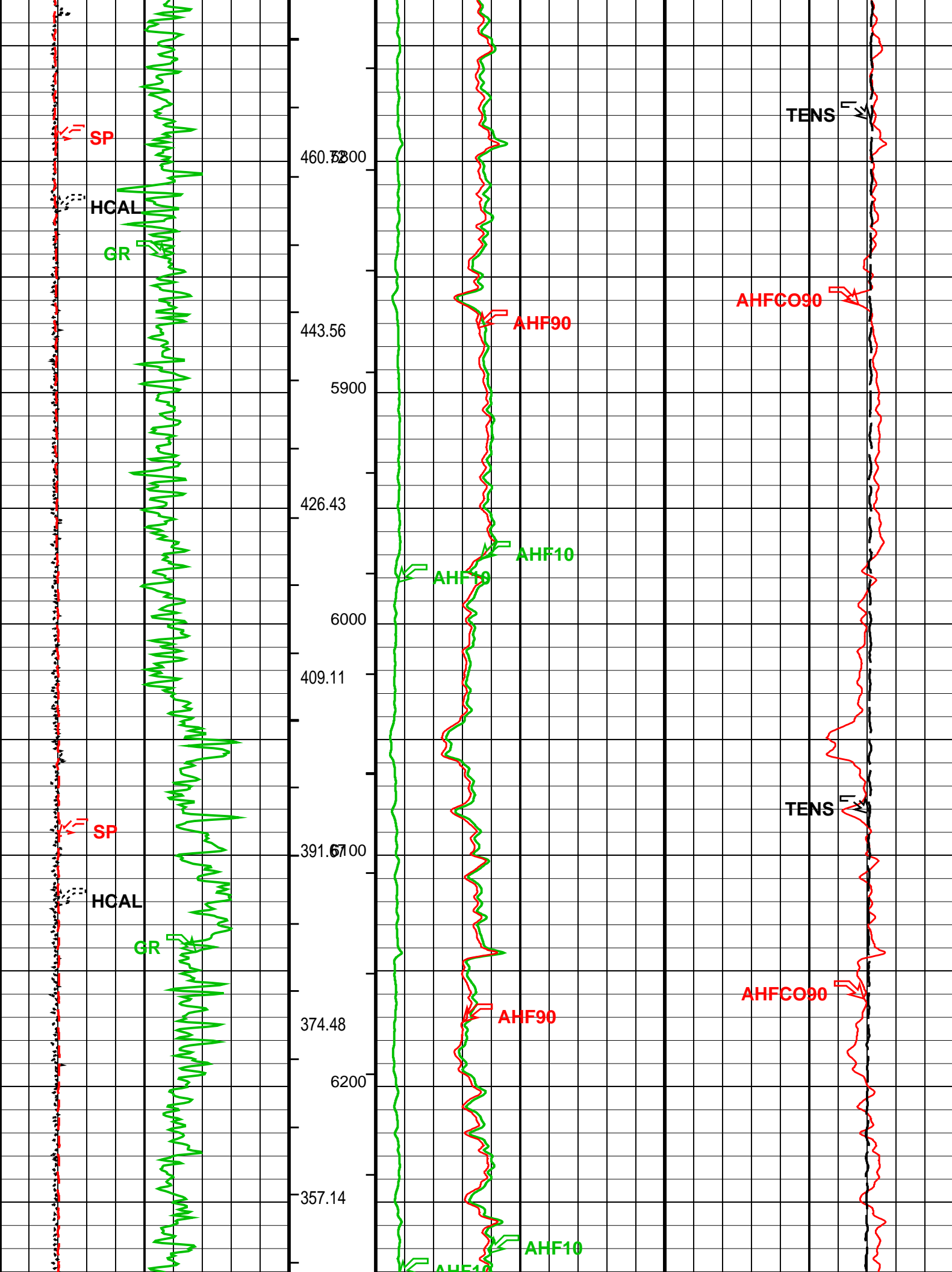


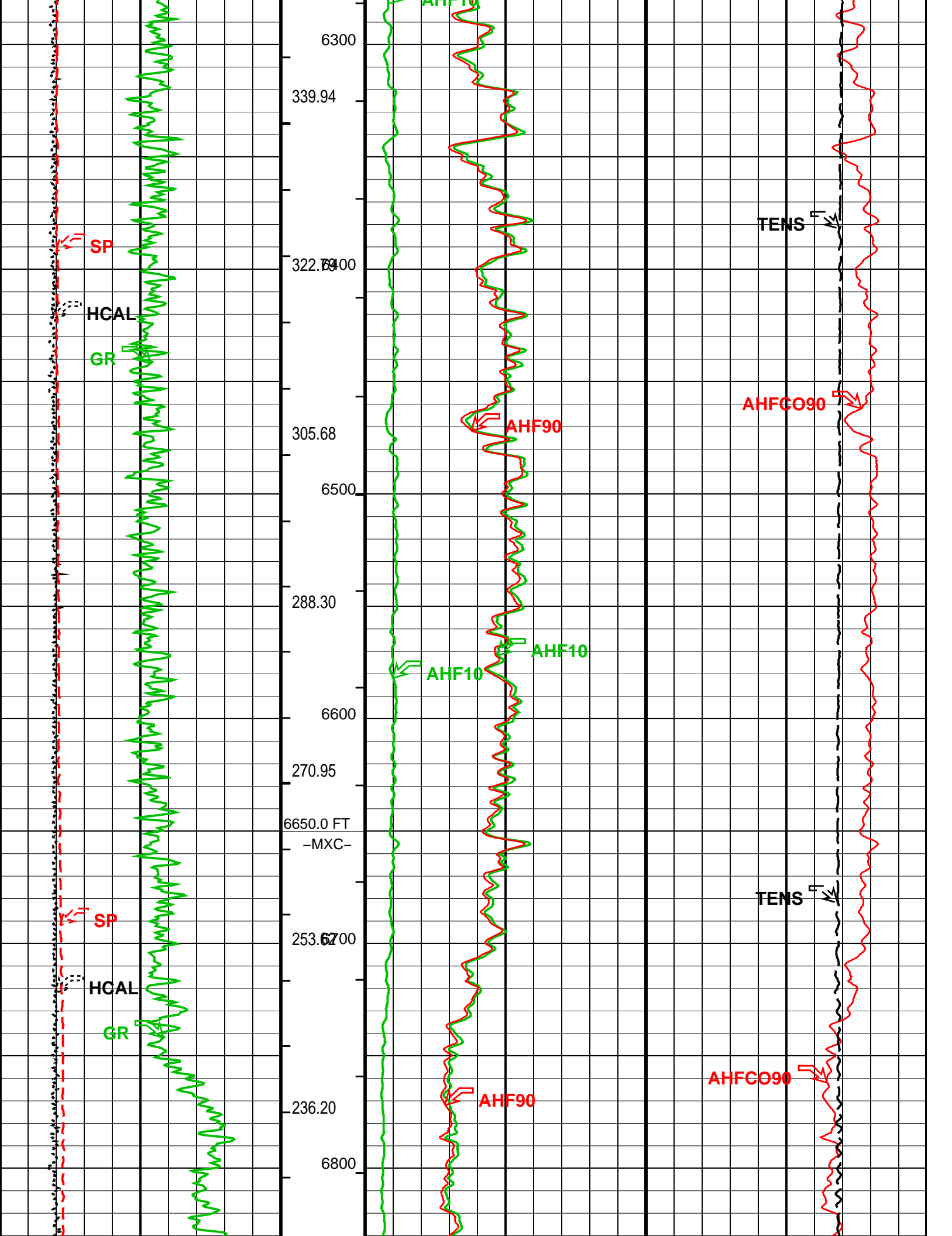


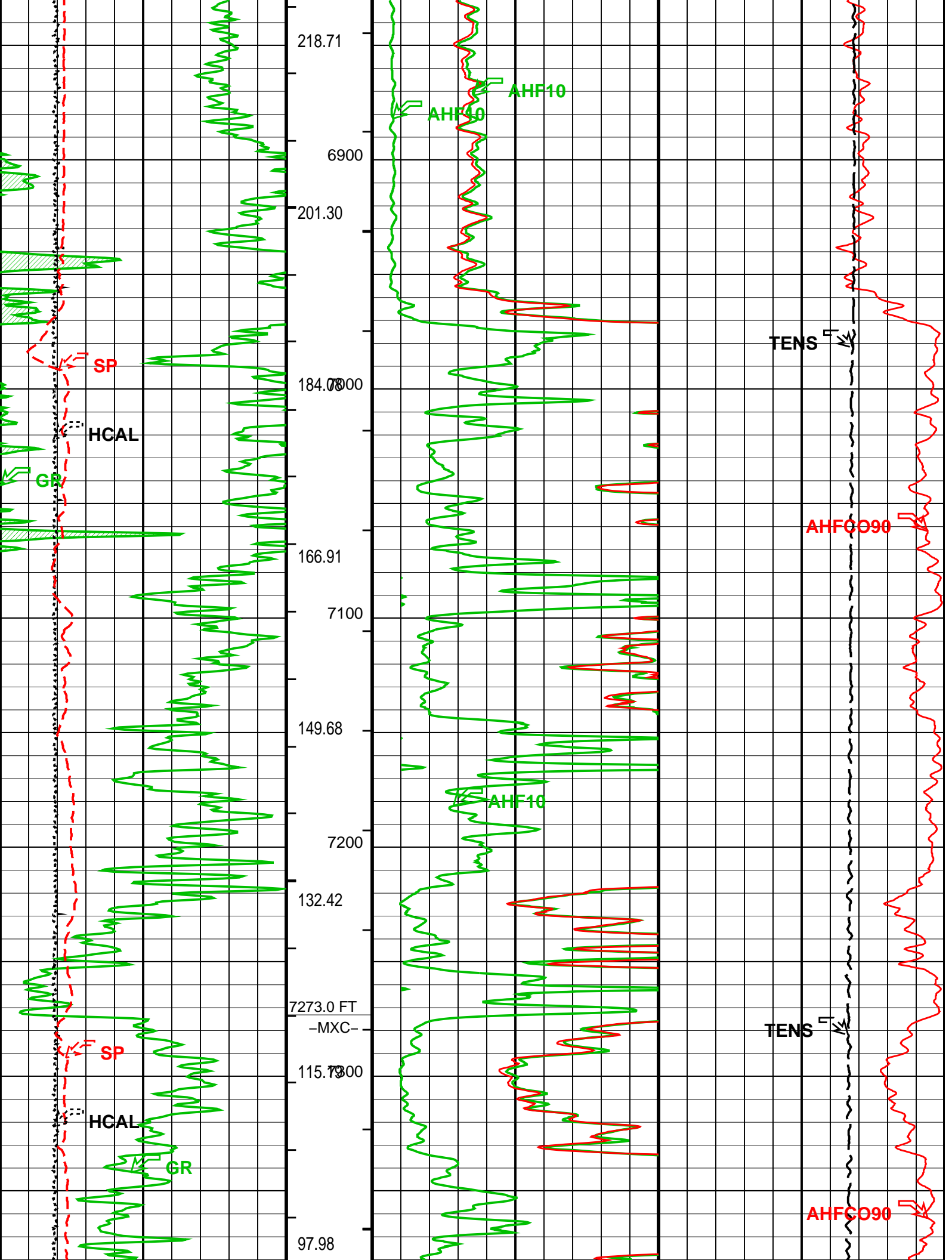


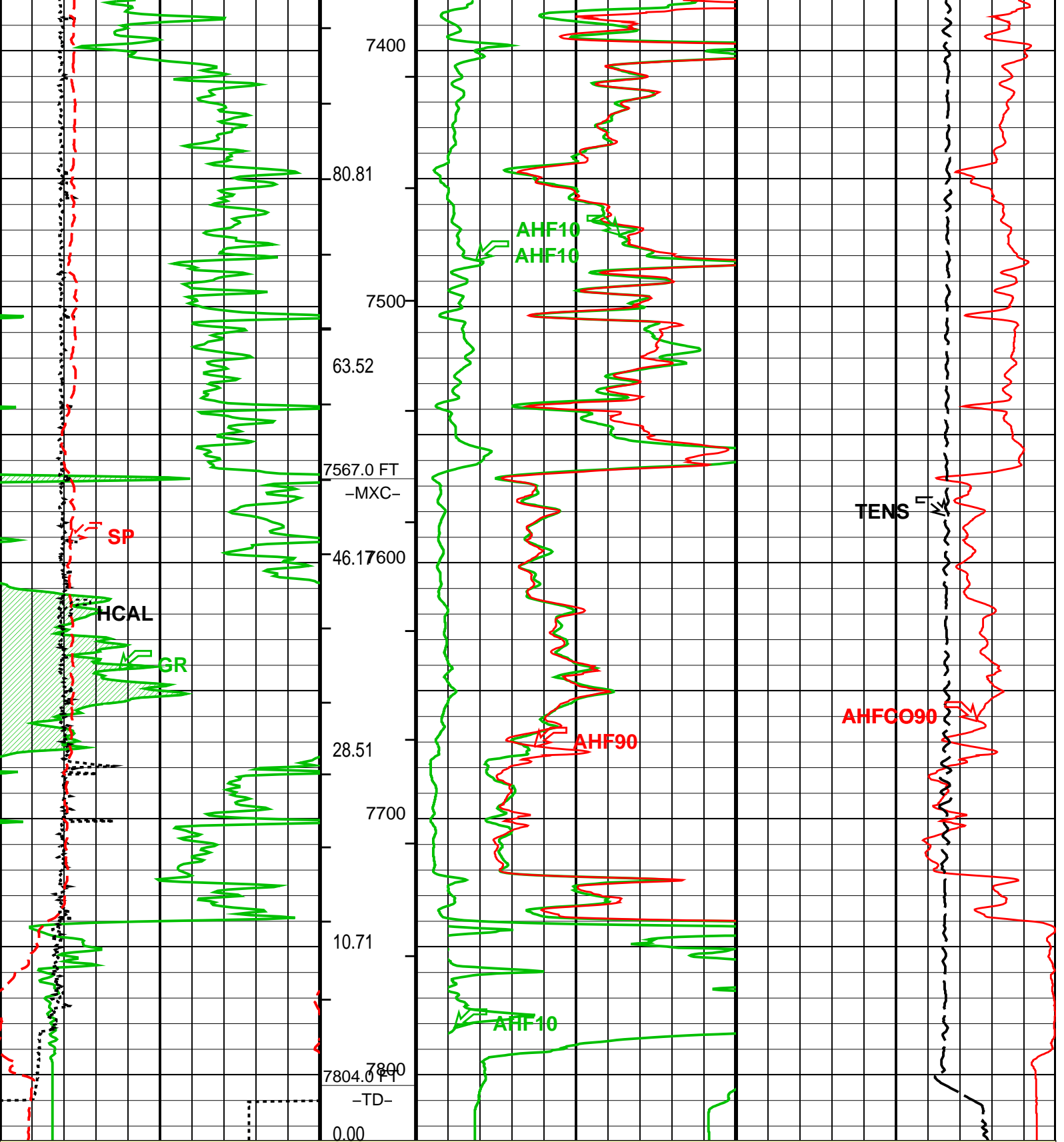












MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

Gamma Ray Backup	Cement Volume (ICV) (F3)	AIT-H 10 Inch Investigation (AHF10)		AIT-H 90 Inch Investigation Conductivity (AHFCO90)	
		0	50	1000	0
		(OHMM)		(MM/M)	
Gamma Ray (GR)		AIT-H 10 Inch Investigation (AHF10)		Tension (TENS)	
0		200	0	10	10000
(GAPI)		(OHMM)		(LBF)	
Caliper (HCAL)	AIT-H 90 Inch Investigation (AHF90)				
6	16	0	10		
(IN)		(OHMM)			
SP (SP)					

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	
HILTB-CTS: High resolution Integrated Logging Tool-CTS			
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	900	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	223	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
AHRFV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
System and Miscellaneous			
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	-50000.00	FT
MST	Mud Sample Temperature	66.10	DEGF
PP	Playback Processing	NORMAL	
TD	Total Depth	7804	FT

Format: ERES_S2 Vertical Scale: 2" per 100' Graphics File Created: 17-Mar-2010 00:36

OP System Version: 17C0-154

HILTB-CTS 17C0-154

Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_025LUP FN:21 PRODUCER 16-Mar-2010 23:29 7824.0 FT 390.5 FT



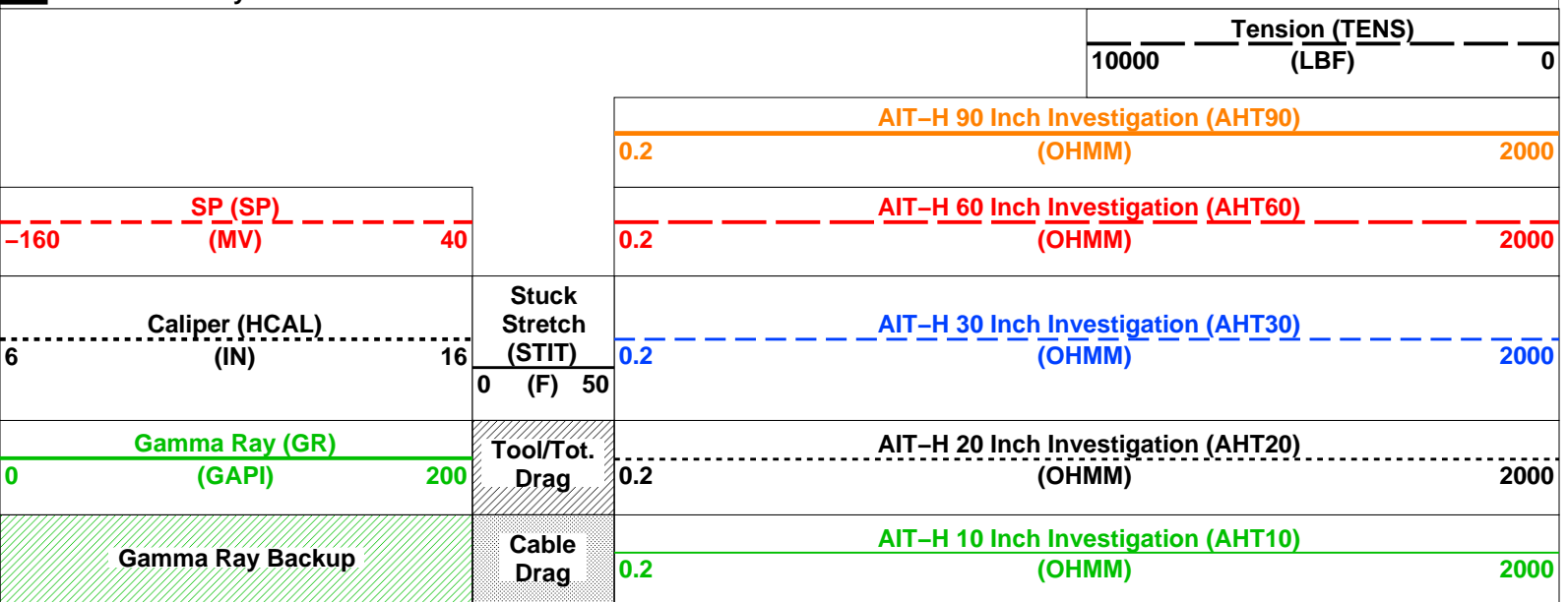
Input DLIS Files

391.5 FT

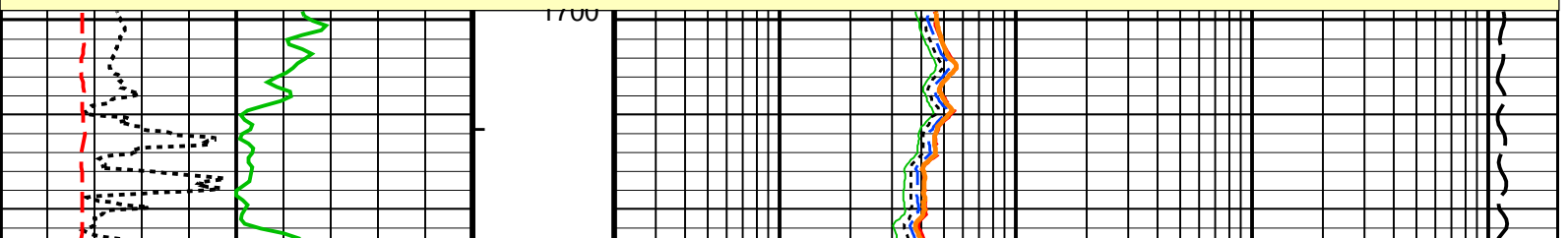
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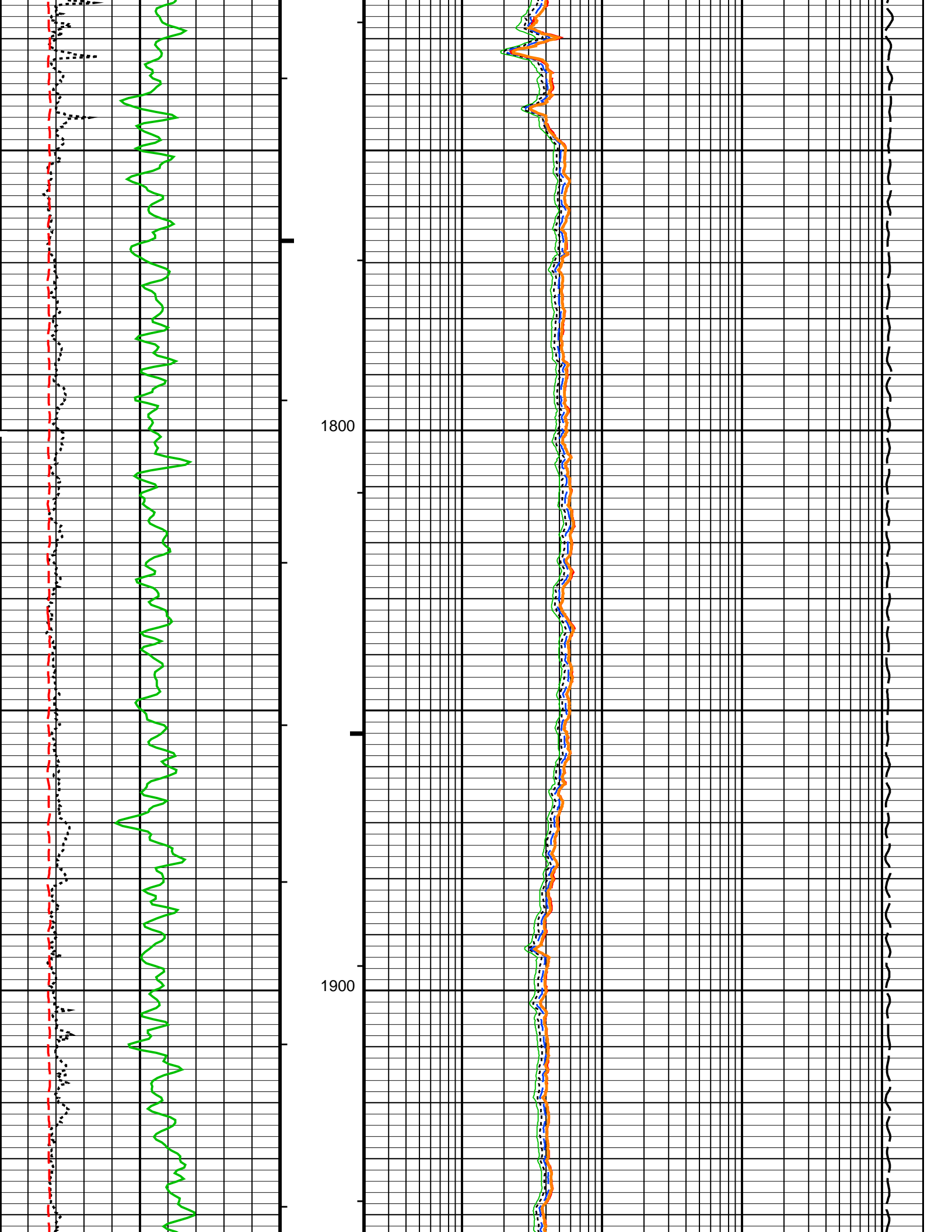
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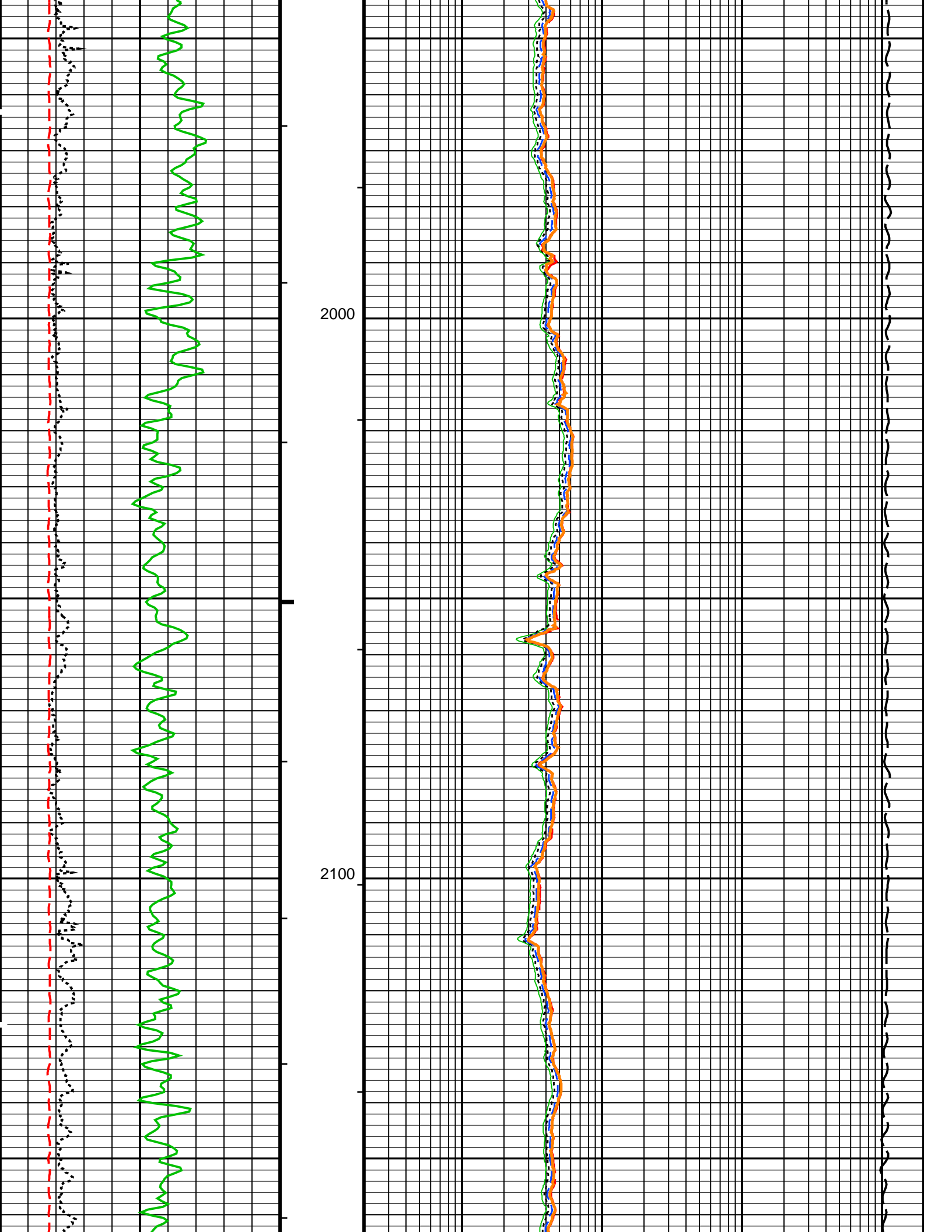
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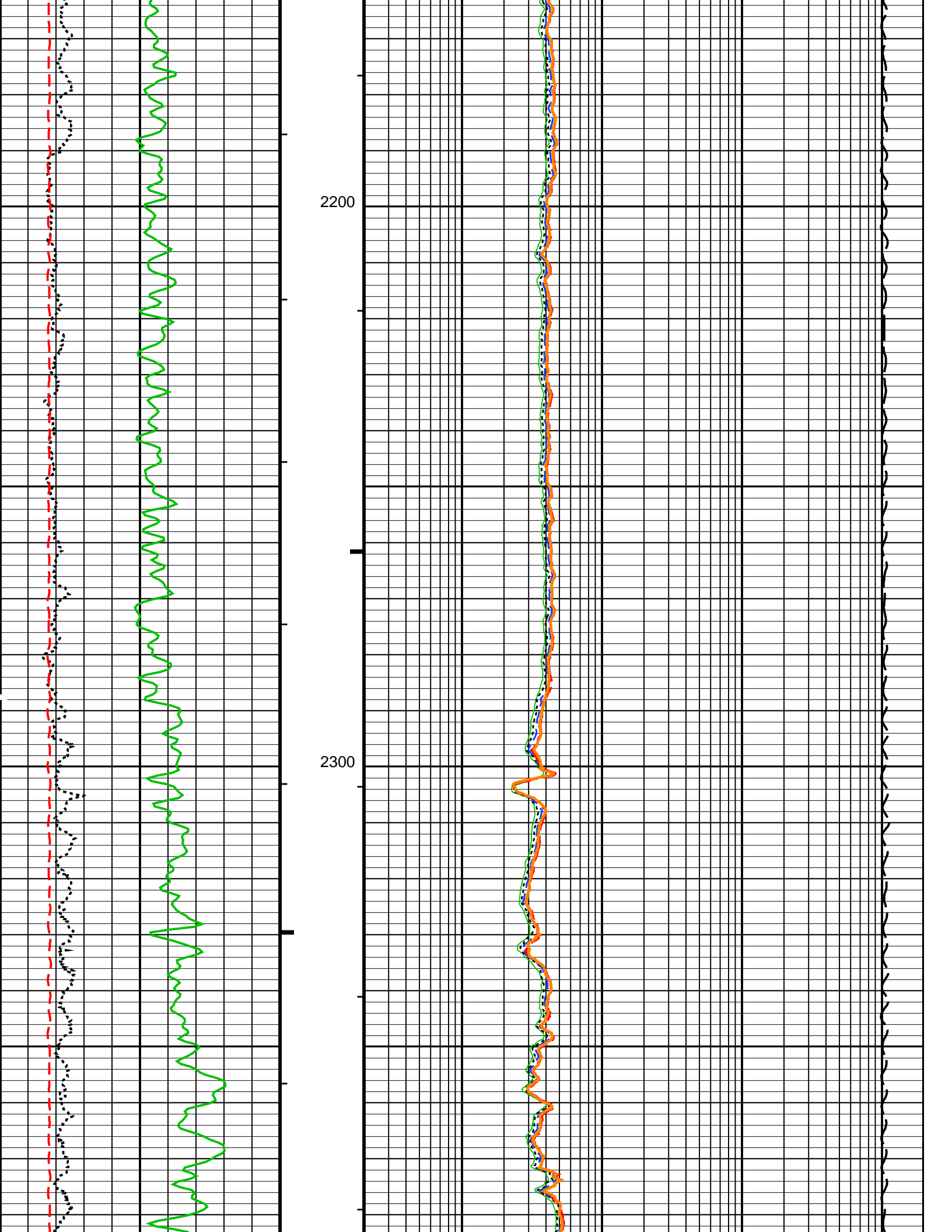


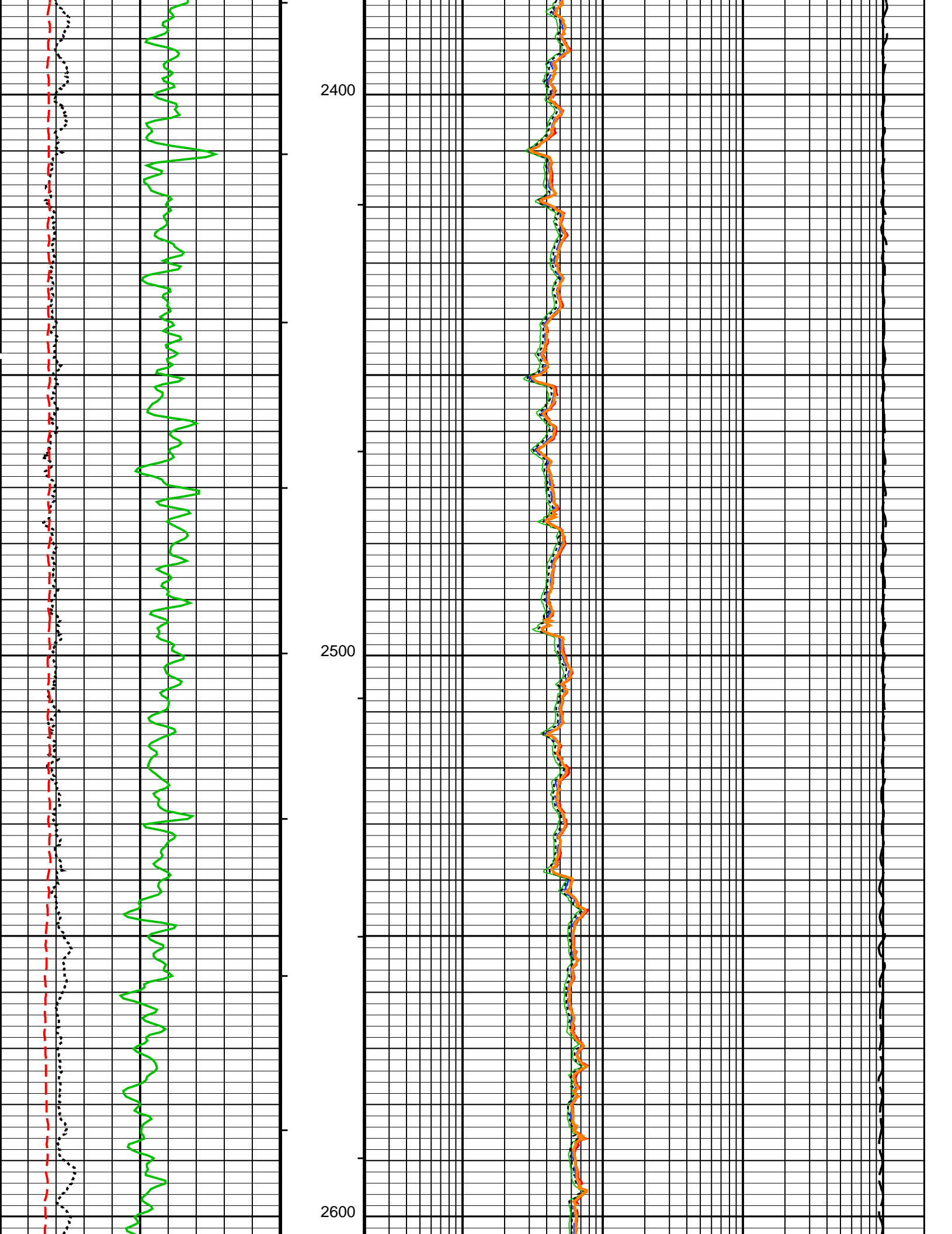
MAIN PASS: * PLATFORM EXPRESS – ARRAY INDUCTION *****

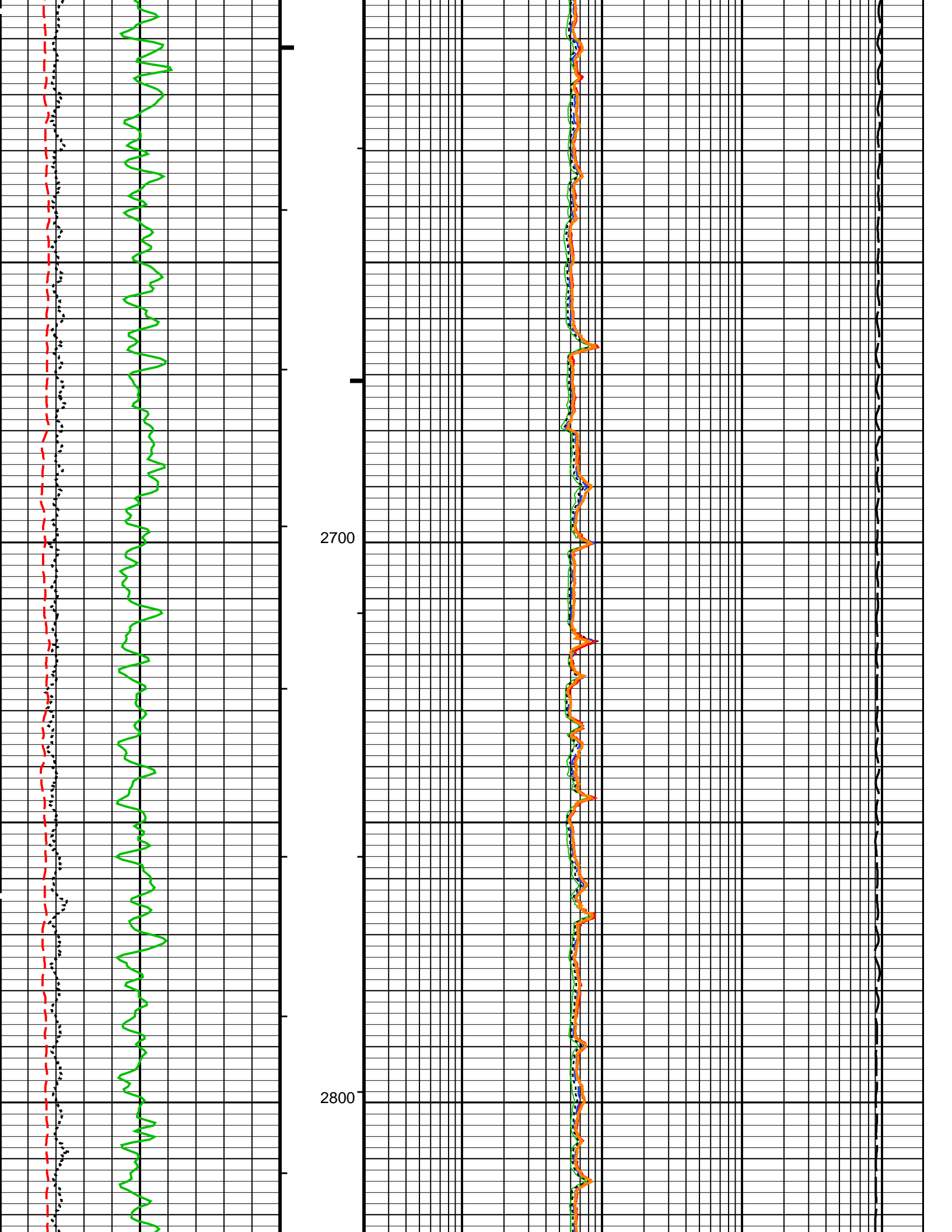


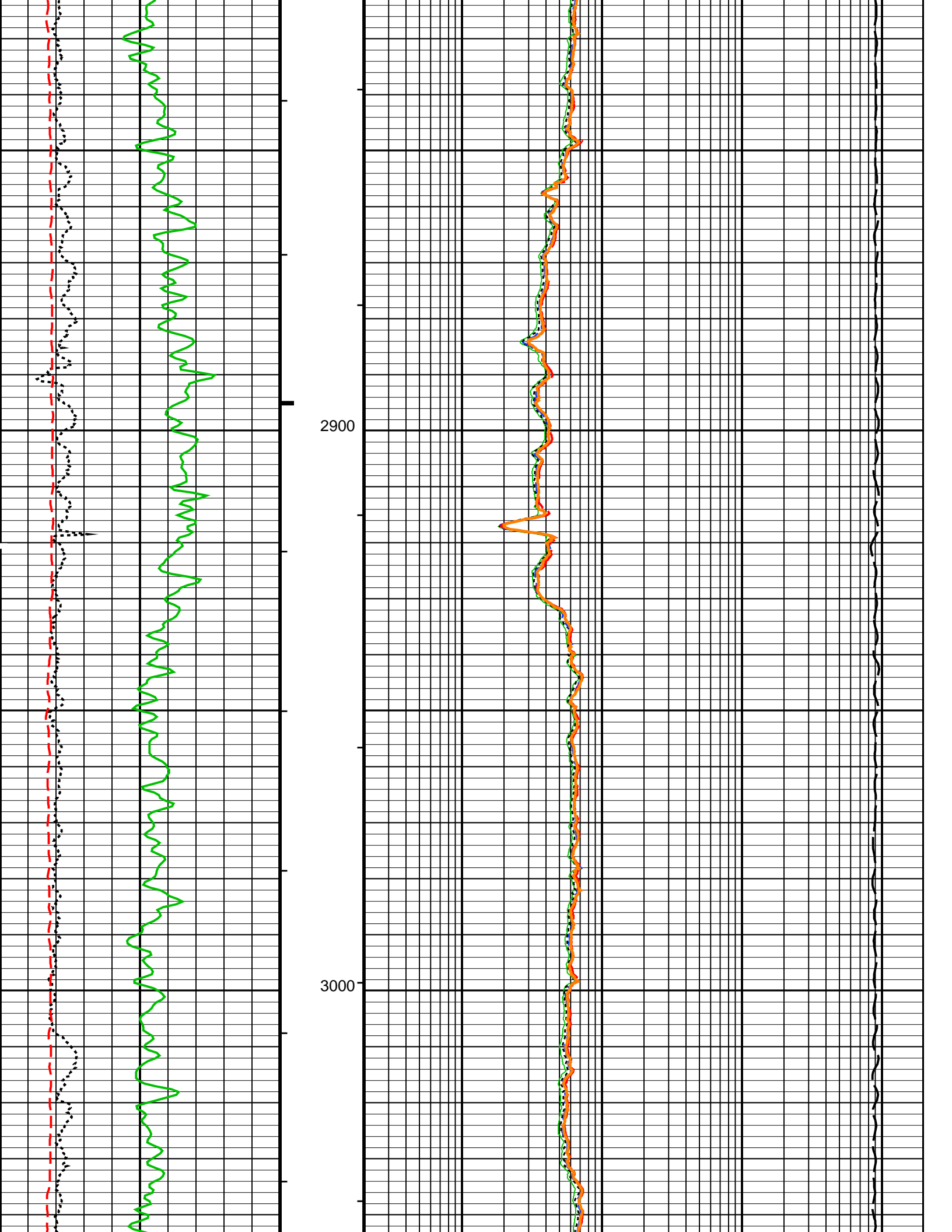


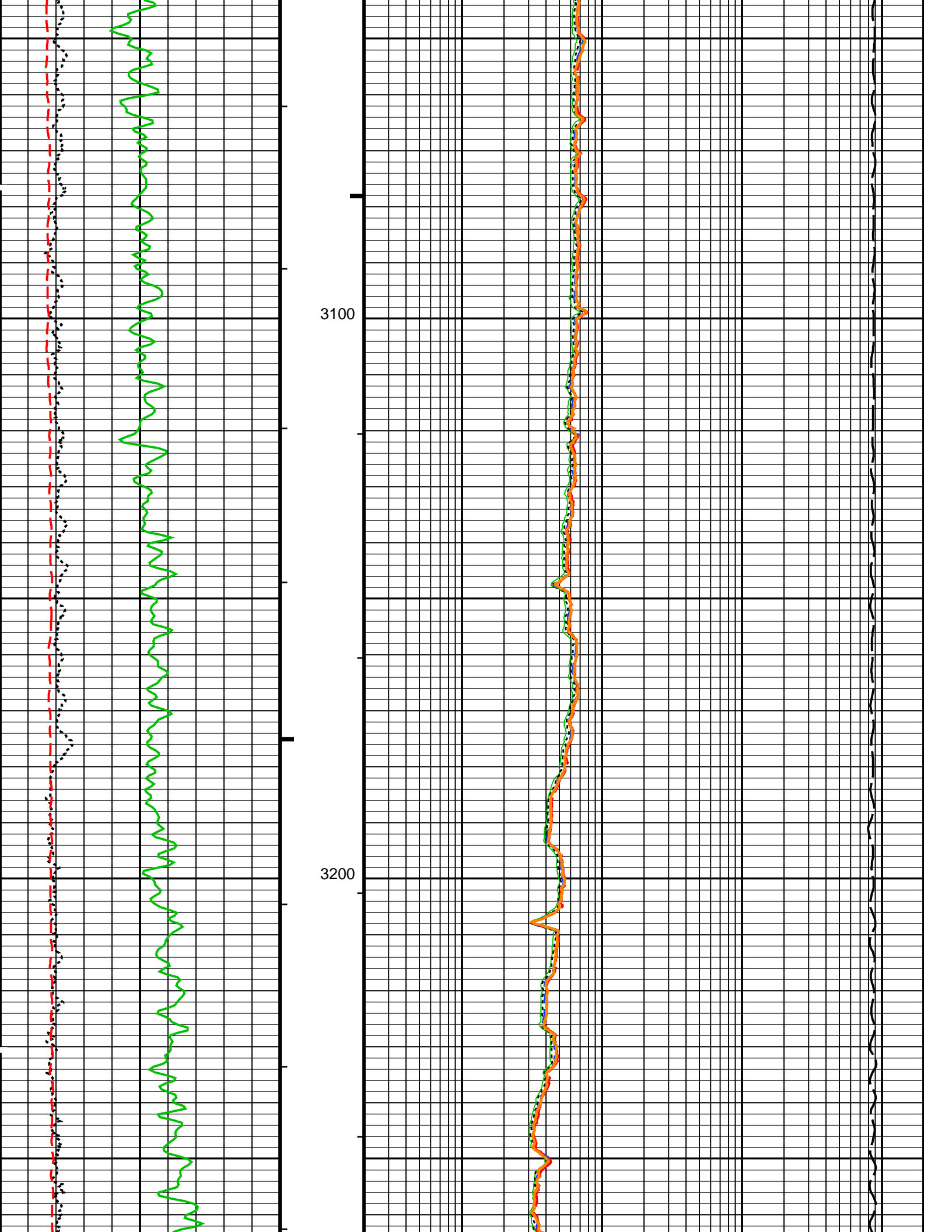


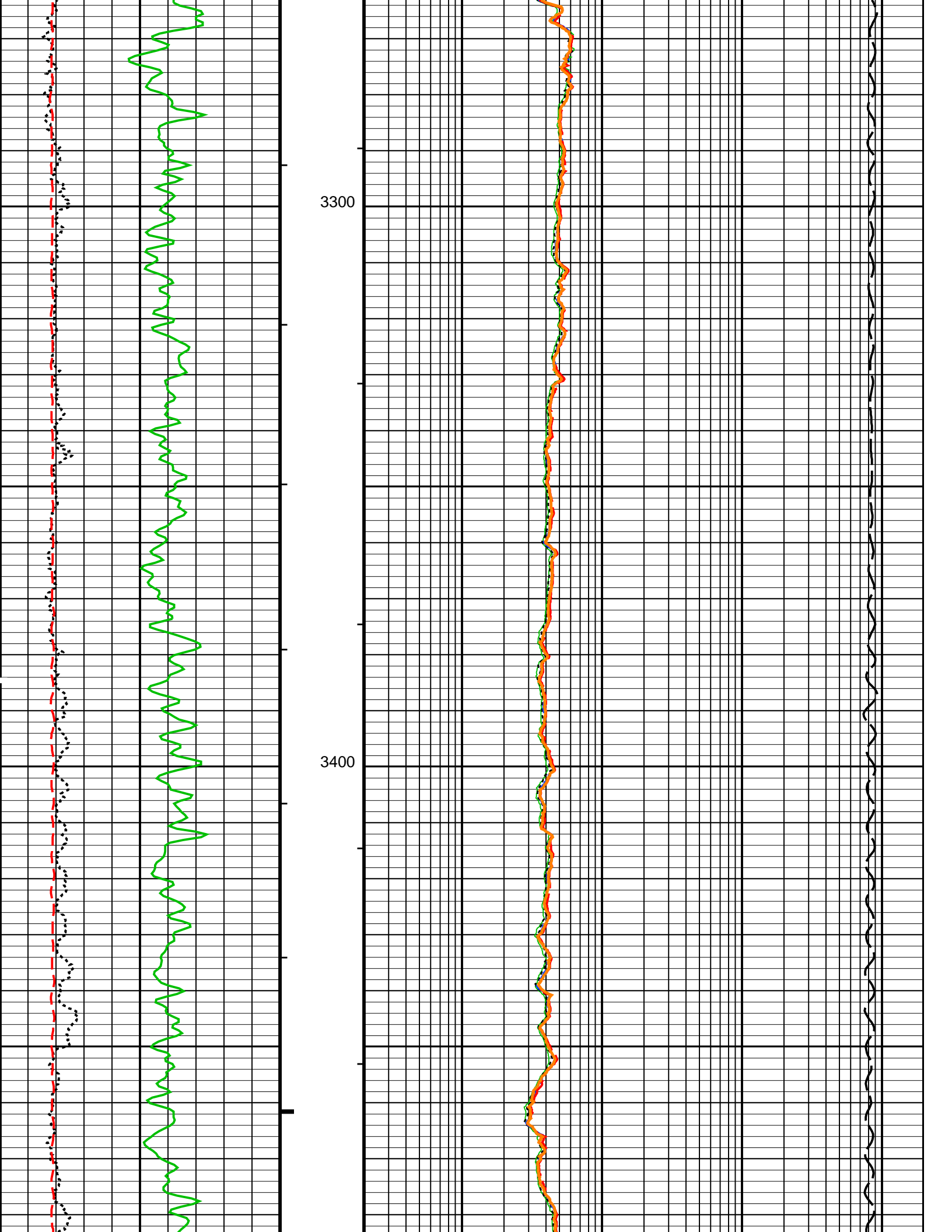


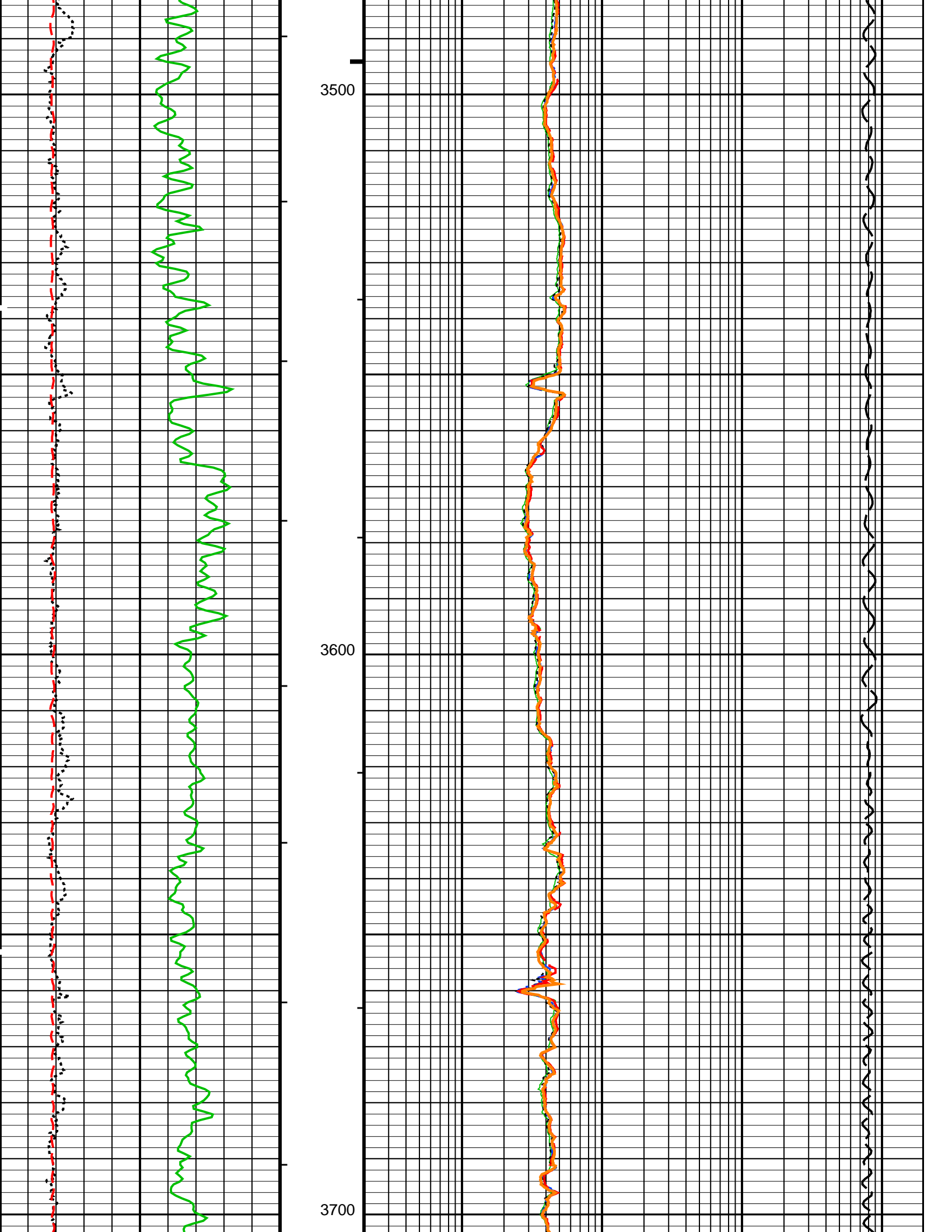


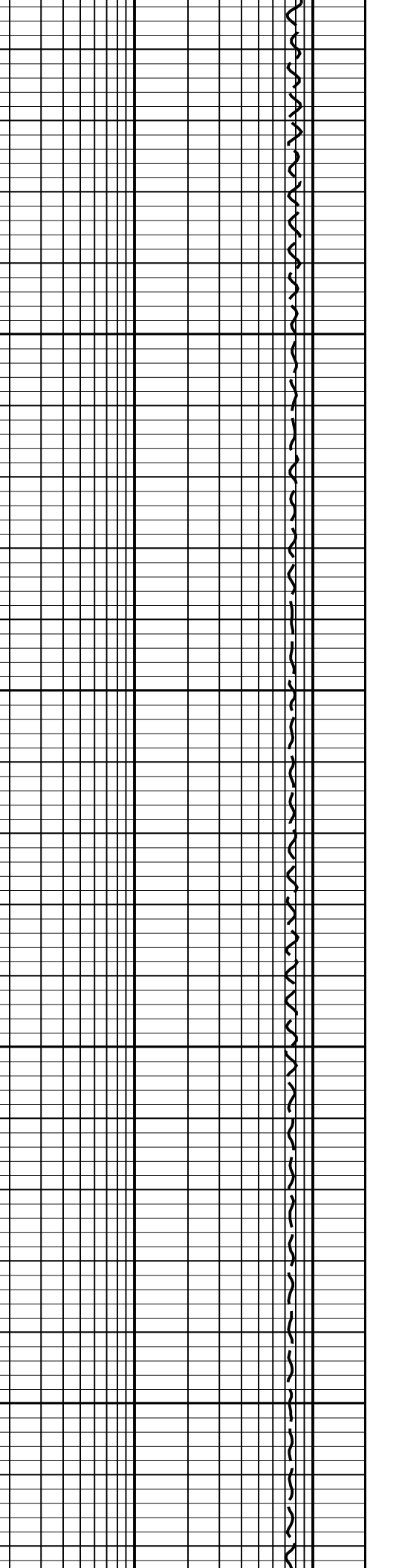
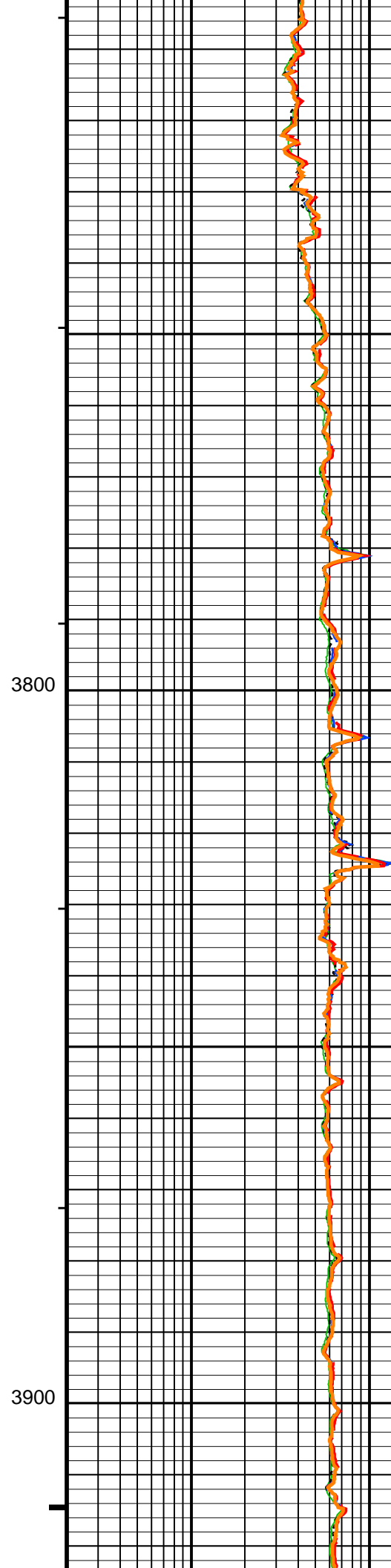
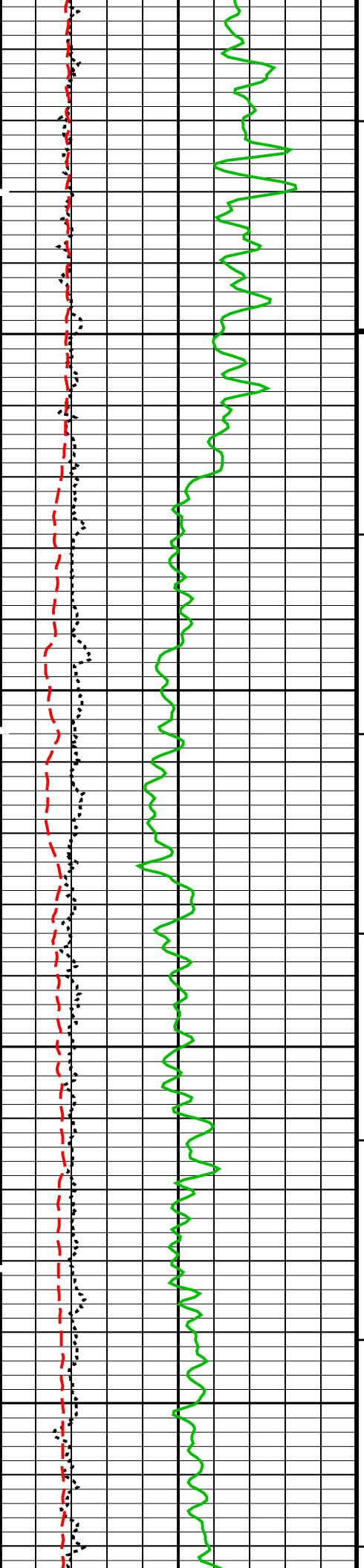


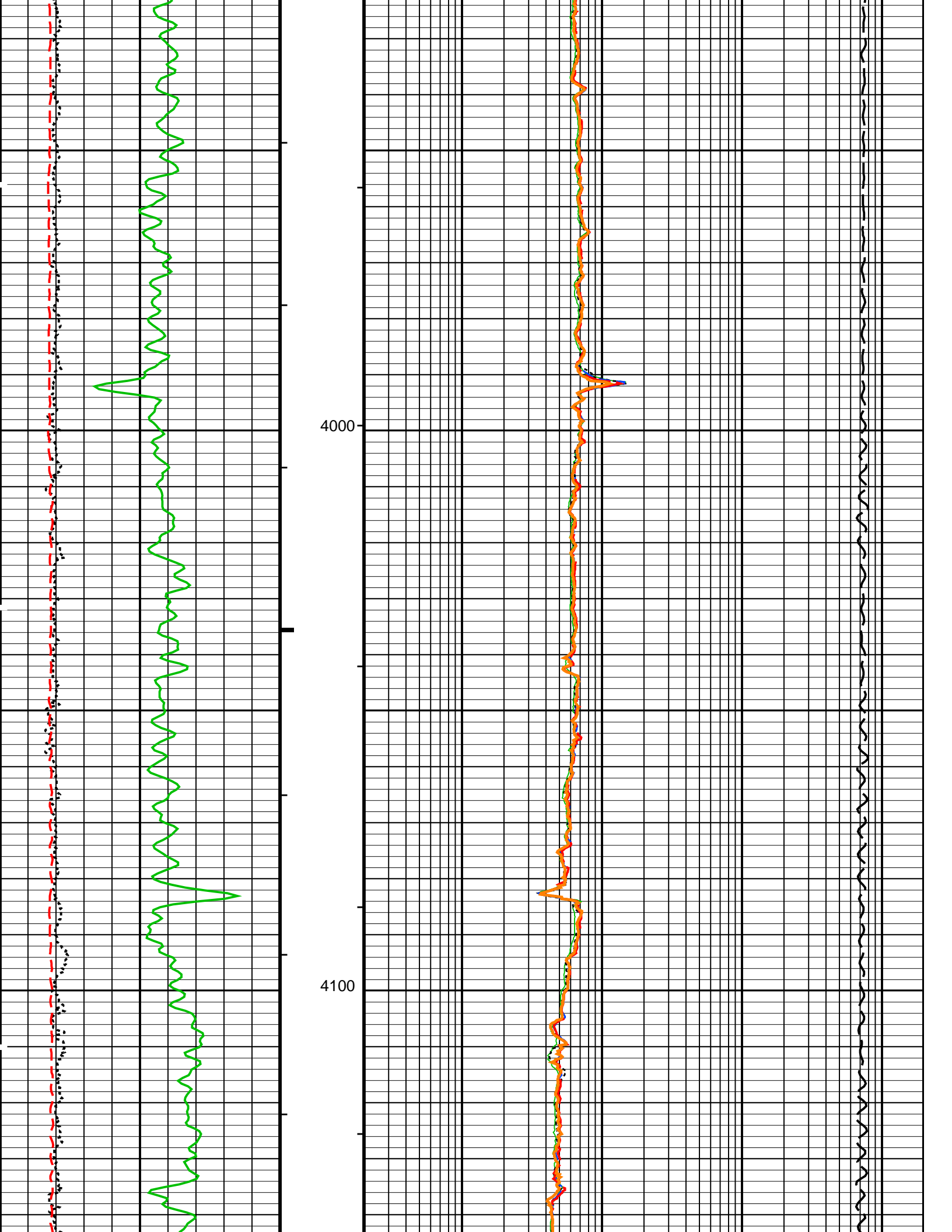


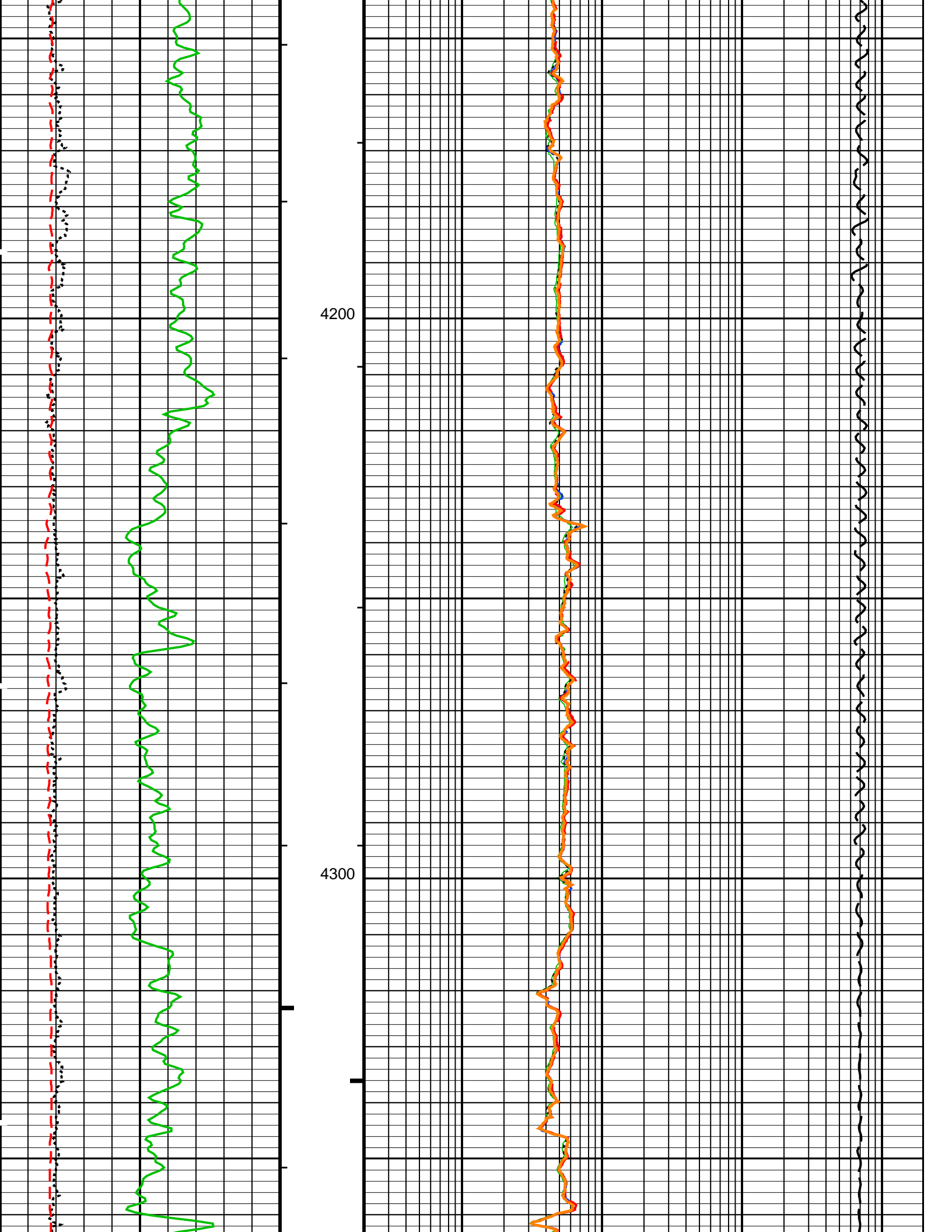


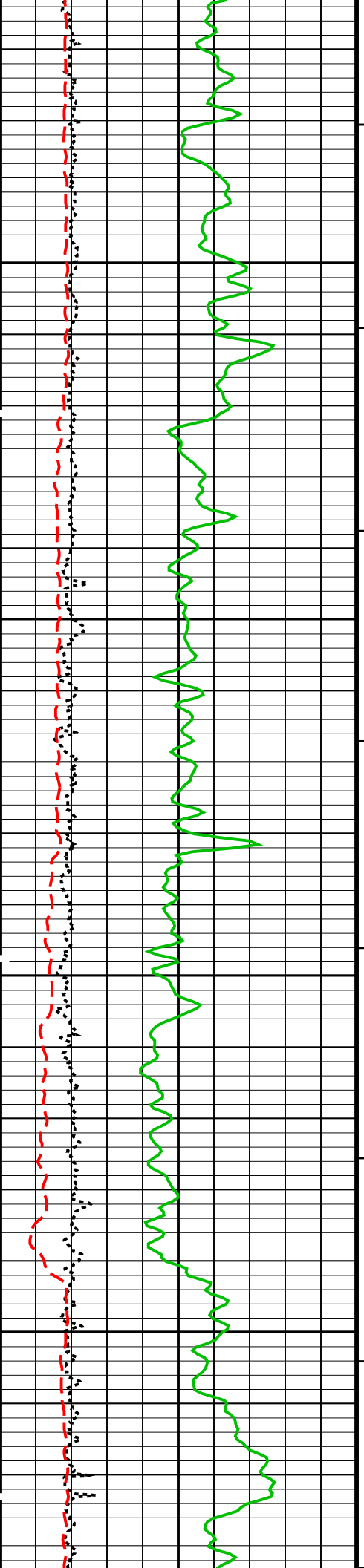






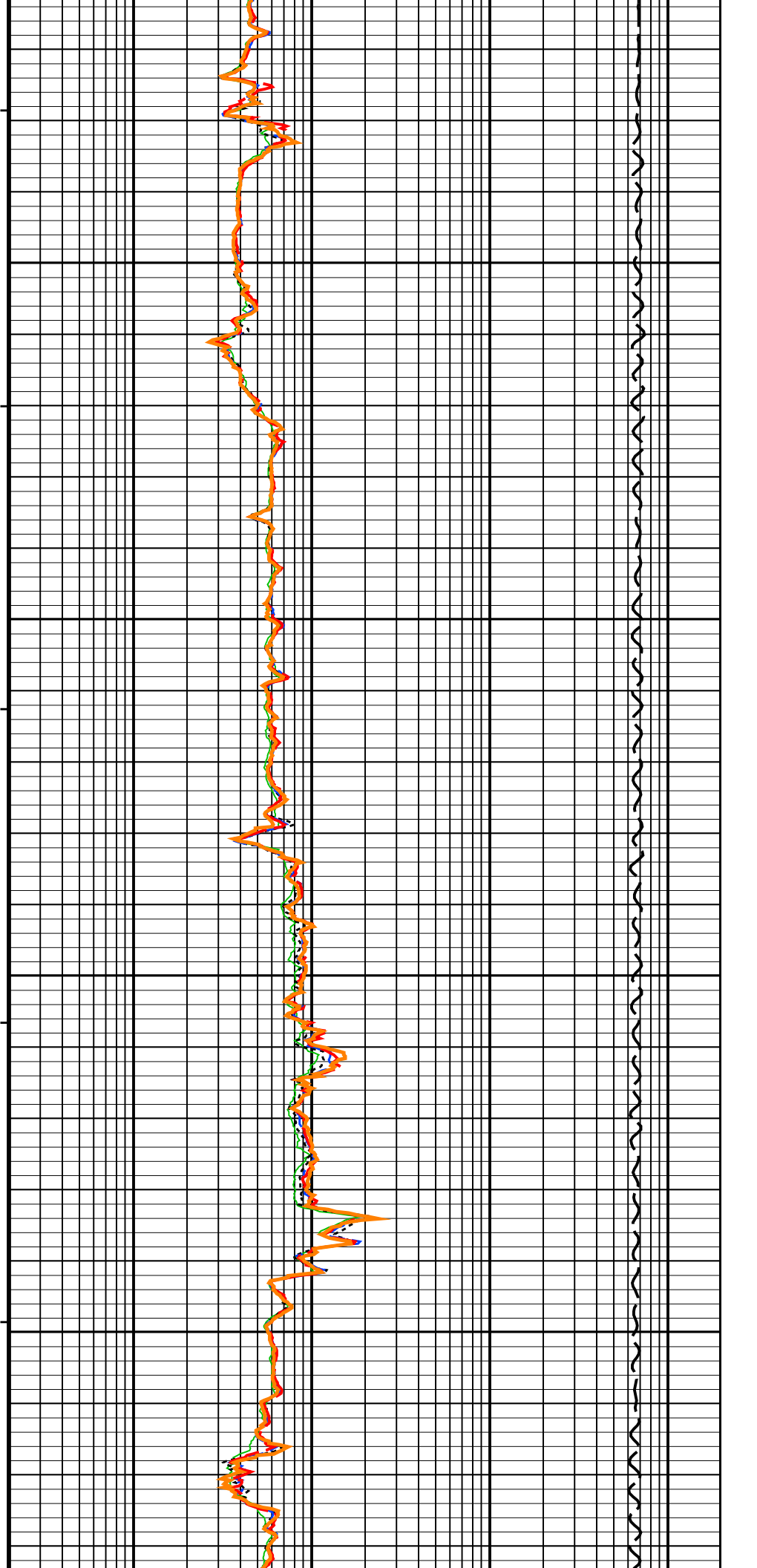


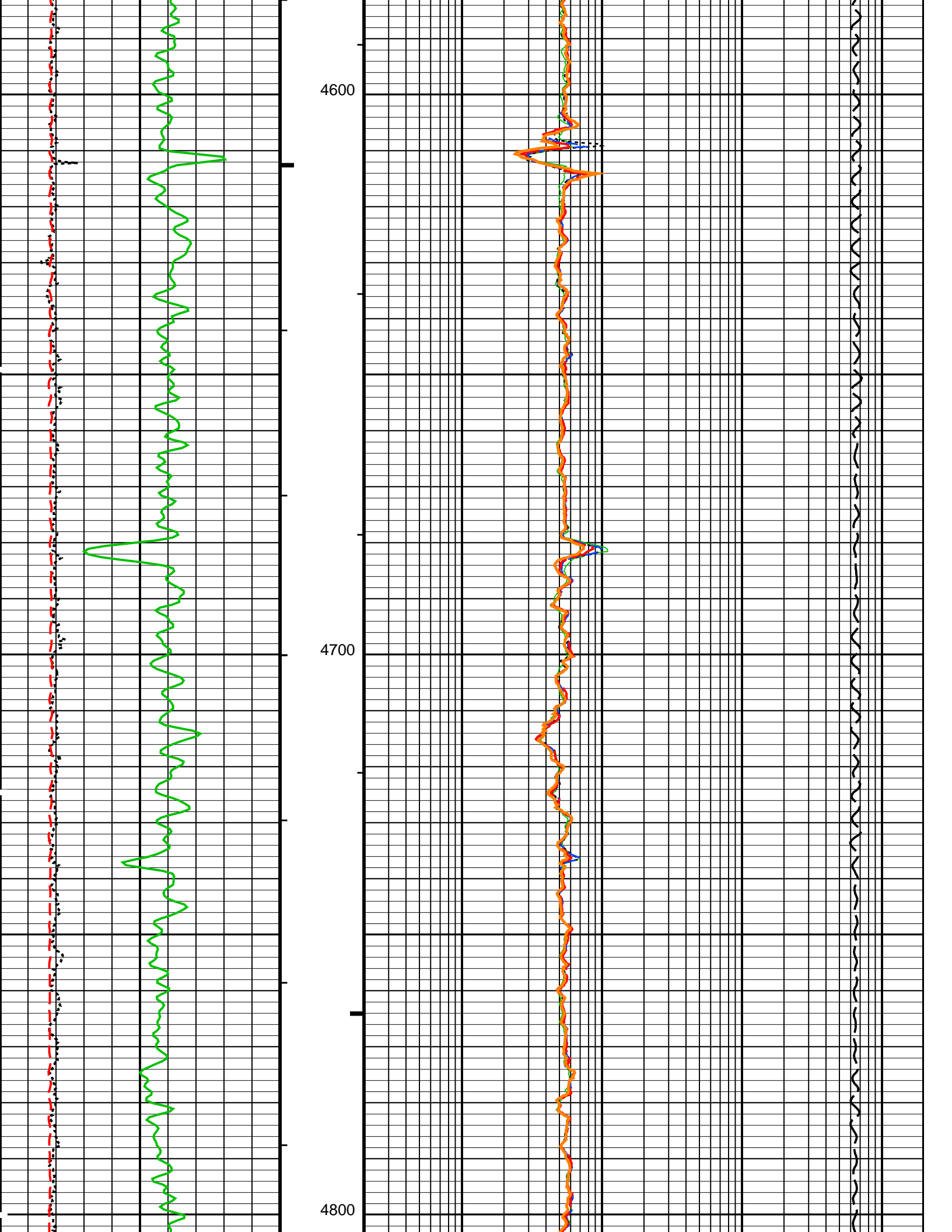


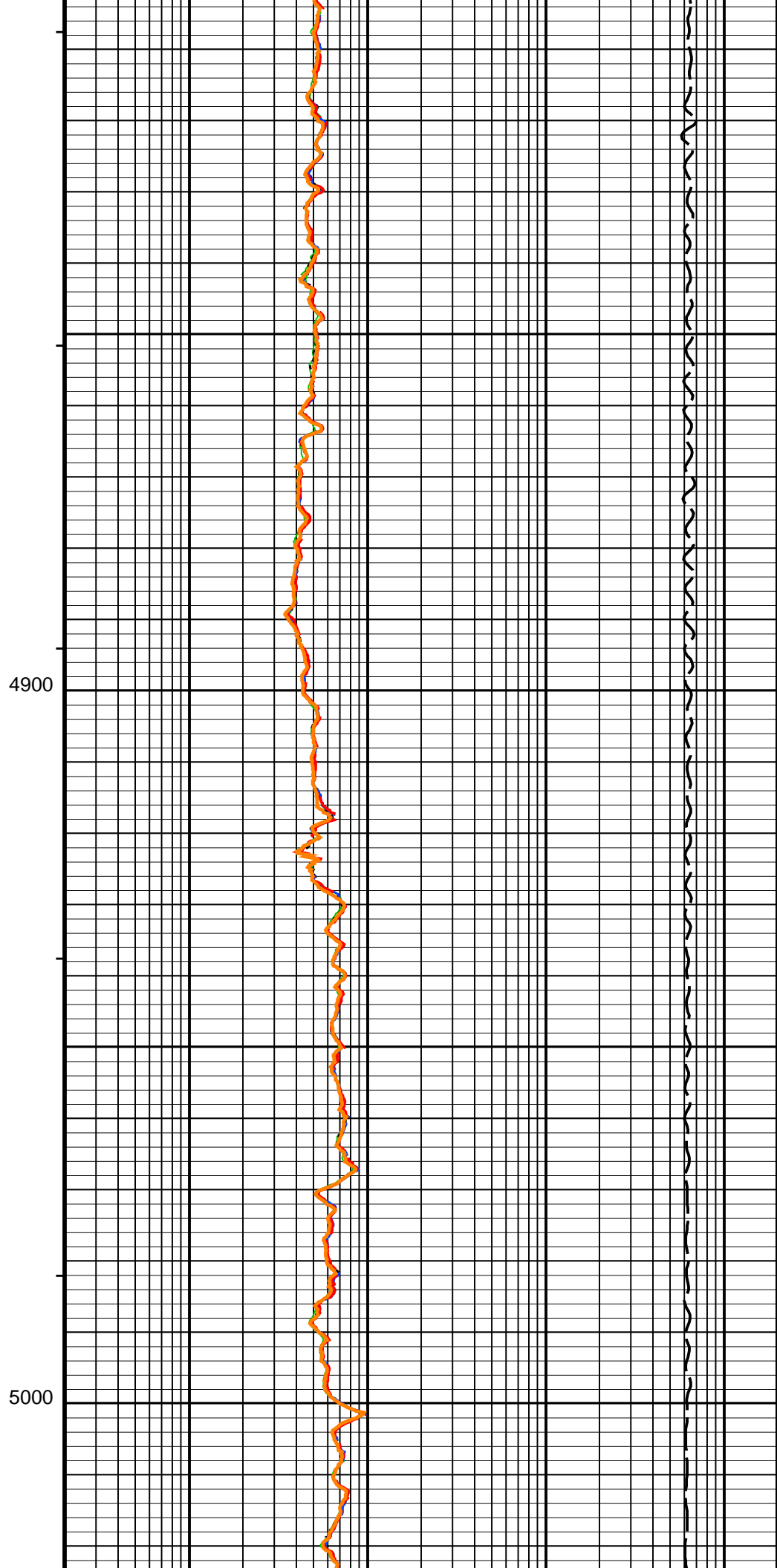
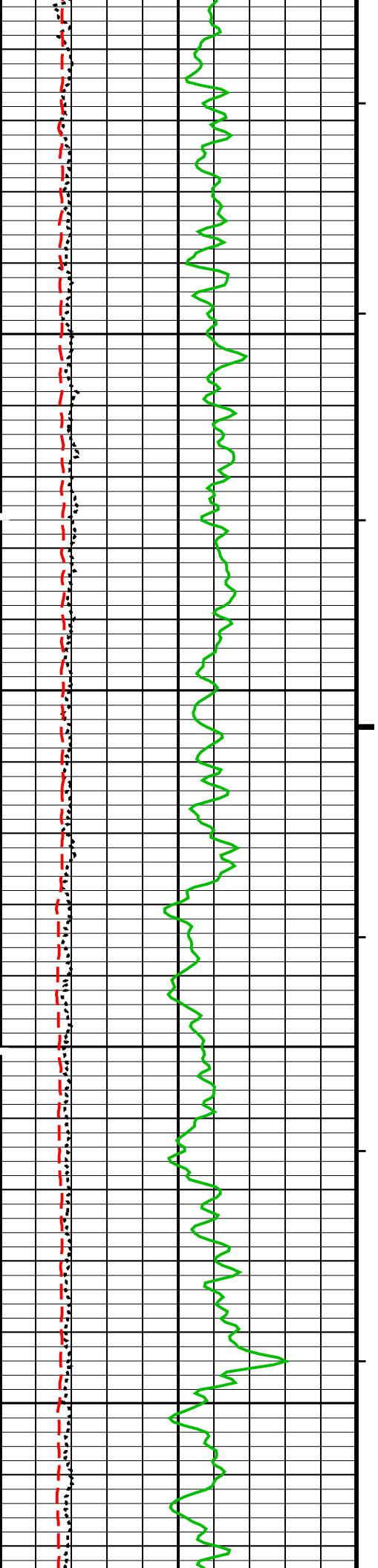


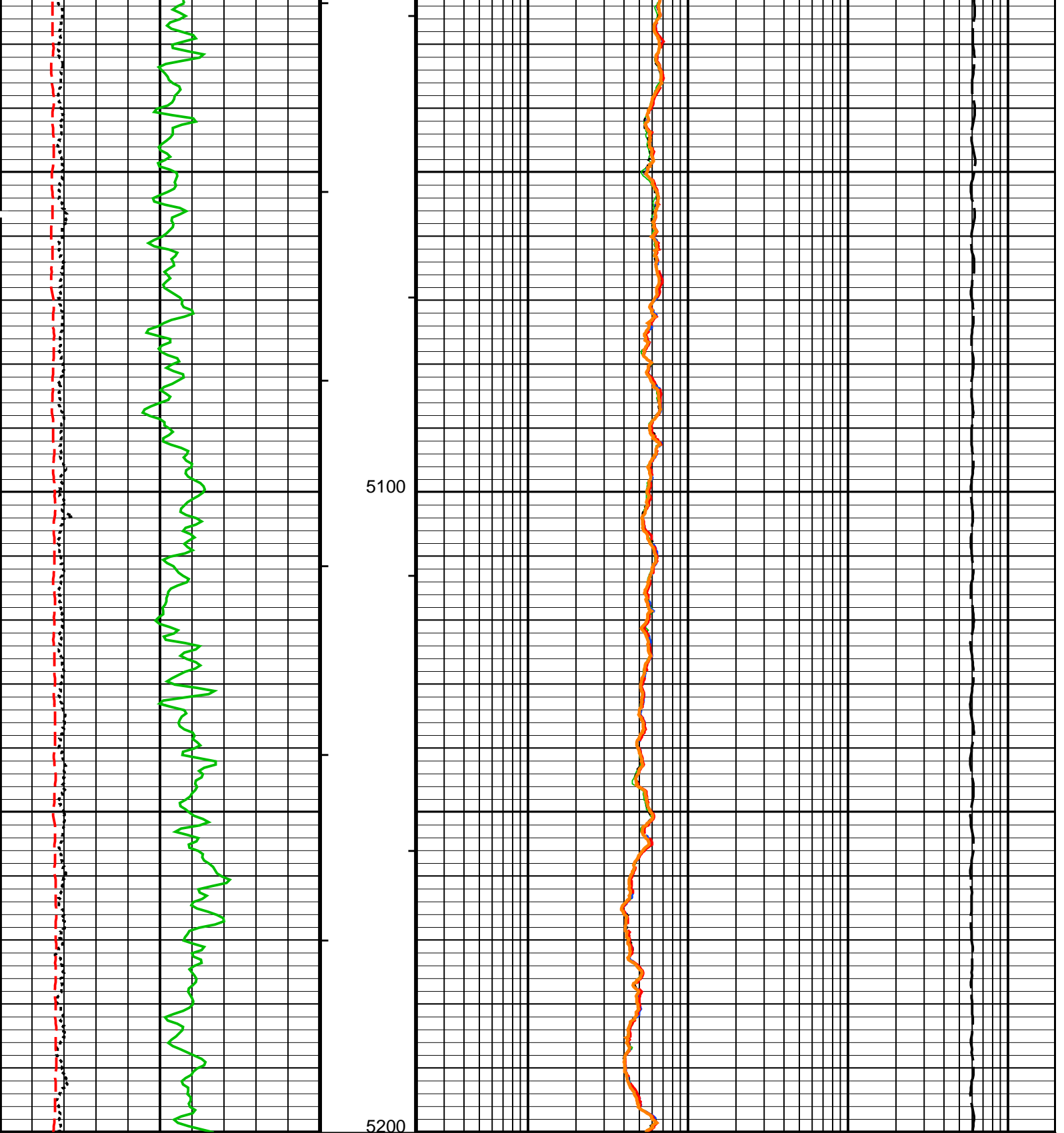
4400

4500









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

Gamma Ray Backup	Cable Drag	0.2	AIT-H 10 Inch Investigation (AHT10) (OHMM)	2000
Gamma Ray (GR) (GAPI)	Tool/Tot. Drag	0.2	AIT-H 20 Inch Investigation (AHT20) (OHMM)	2000
Caliper (HCAL) (IN)	Stuck Stretch (STIT) (F)	0.2	AIT-H 30 Inch Investigation (AHT30) (OHMM)	2000

SP (SP) (MV)	AIT-H 60 Inch Investigation (AHT60) (OHMM)
-160	2000
40	
AIT-H 90 Inch Investigation (AHT90) (OHMM)	
0.2	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
HILTB-CTS: High resolution Integrated Logging Tool-CTS		
AHBHM	Array Induction Borehole Correction Mode	2_COMPUTESTANDOFF
AHBHV	Array Induction Borehole Correction Code Version Number	900
AHBLM	Array Induction Basic Logs Mode	6_ONE_TWO_AND_FOUR
AHBLV	Array Induction Basic Logs Code Version Number	223
AHCDE	Array Induction Casing Detection Enable	YES
AHCEN	Array Induction Tool Centering Flag (in Borehole)	ECCENTERED
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20
AHMRF	Array Induction Mud Resistivity Factor	1.000
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20
AHRFV	Array Induction Radial Profiling Code Version Number	701
AHRPV	Array Induction Radial Parametrization Code Version Number	232
AHSAP	Array Induction Suspend Answer Product Processing	0_NOSUSPENSION
AHSTA	Array Induction Tool Standoff	0.125 in
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20
BHT	Bottom Hole Temperature (used in calculations)	216.0 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	AHMF
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
PERT: Preliminary Evaluation - Real Time		
BHT	Bottom Hole Temperature (used in calculations)	216.0 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	AHMF
GTSE	Generalized Temperature Selection	HSTS_HTEM
SHT	Surface Hole Temperature	68.000 degF
HOLEV: Integrated Hole/Cement Volume		
BHT	Bottom Hole Temperature (used in calculations)	216.0 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	AHMF
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
STI: Stuck Tool Indicator		
STKT	STI Stuck Threshold	2.500 ft
TDD	Total Depth - Driller	7822.0 ft
TDL	Total Depth - Logger	7804.0 ft
System and Miscellaneous		
BS	Bit Size	7.875 in
DFD	Drilling Fluid Density	8.400 lbm/gal
FLEV	Fluid Level	
MST	Mud Sample Temperature	66.100 degF
TD	Total Depth	7804.0 ft

Input DLIS Files

DEFAULT	AIT TLD MCFL CNL 033PUP	FN:28	PRODUCER	17-Mar-2010 00:36	7825.5 FT	391.5 FT
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Schlumberger

LOWER RESISTIVITY LOG 5" = 100'

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT TLD MCFL CNL 025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
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Output DLIS Files

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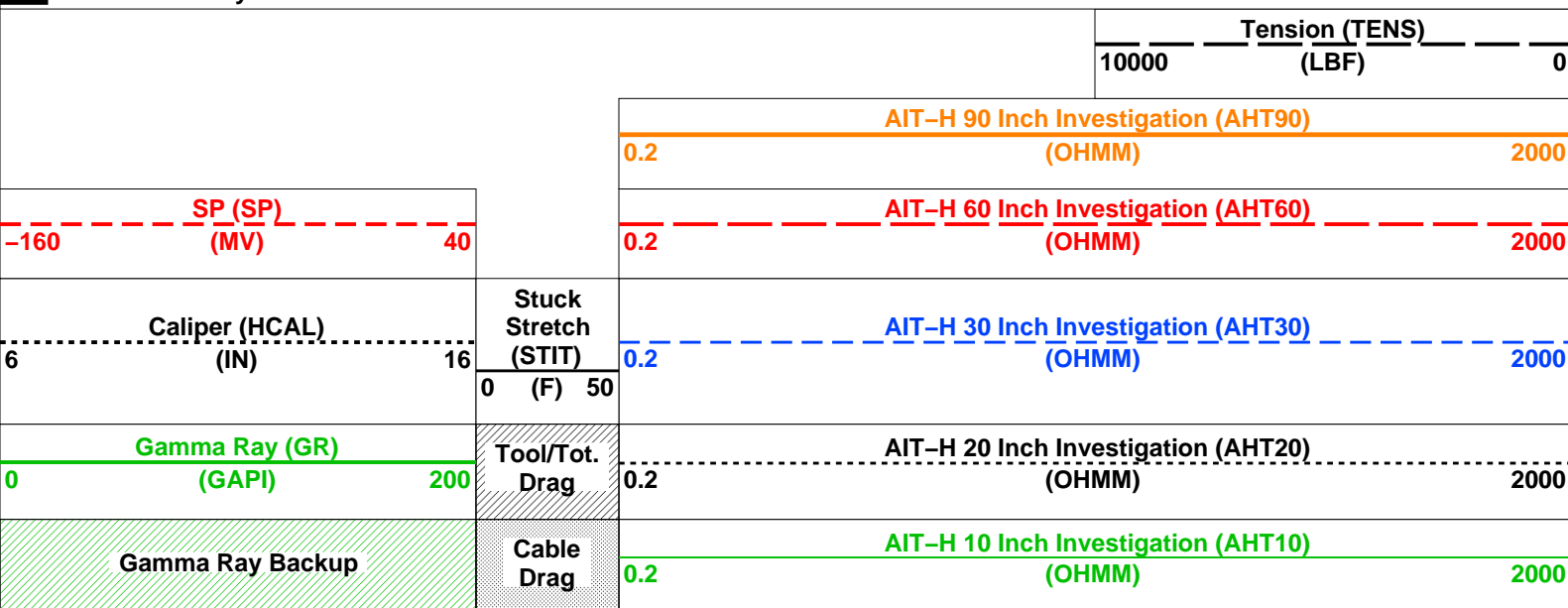
OP System Version: 17C0-154

HILTB-CTS 17C0-154

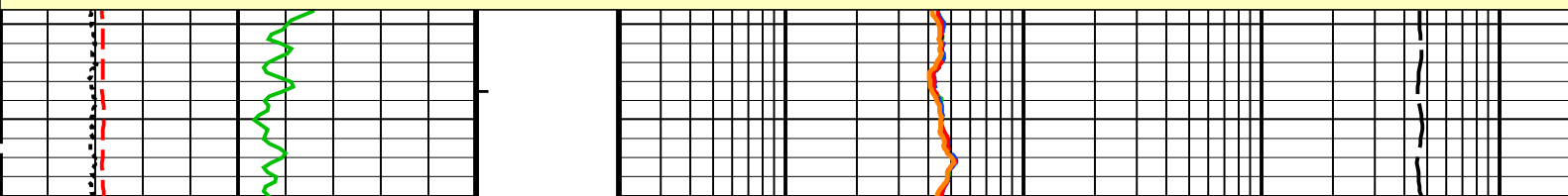
PIP SUMMARY

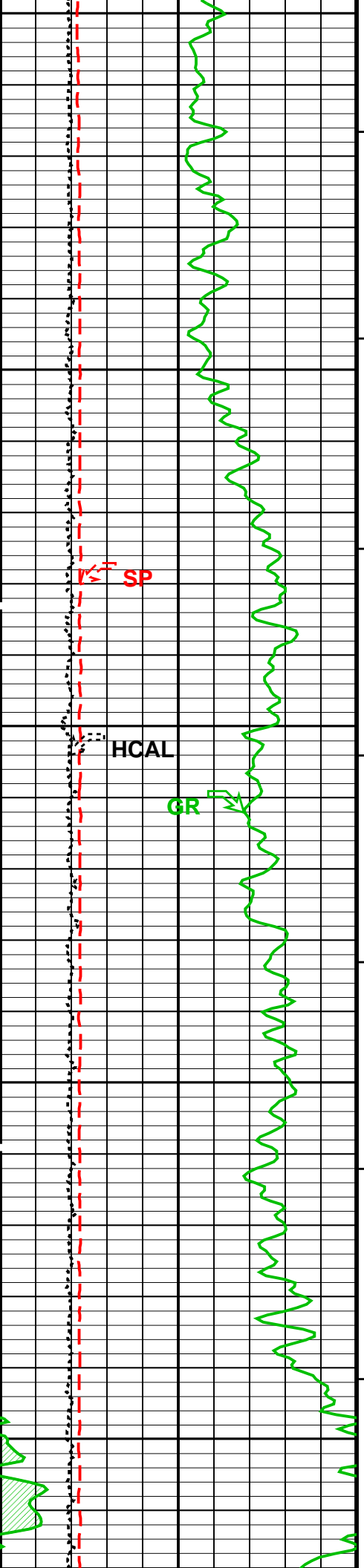
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S



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

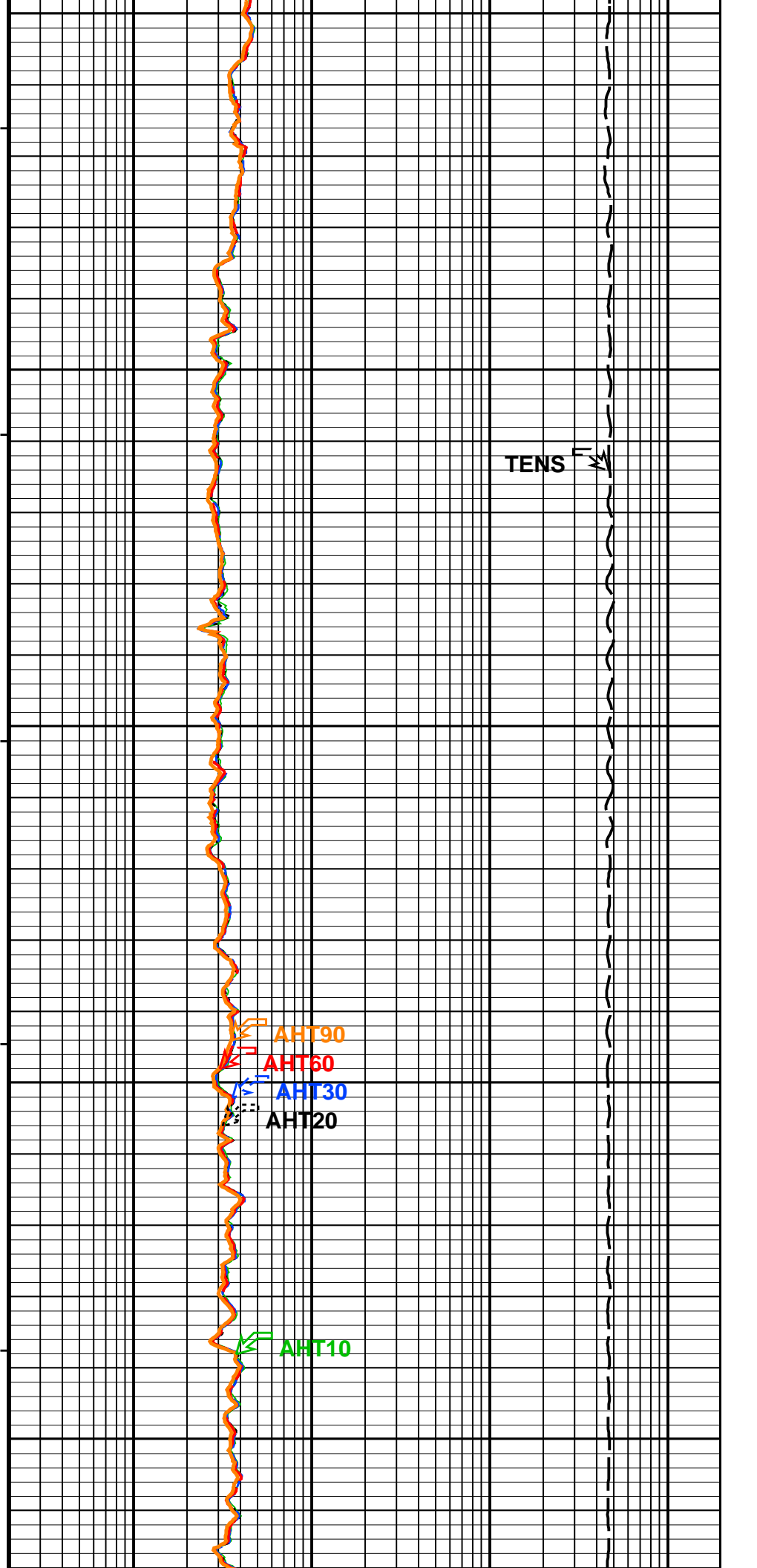


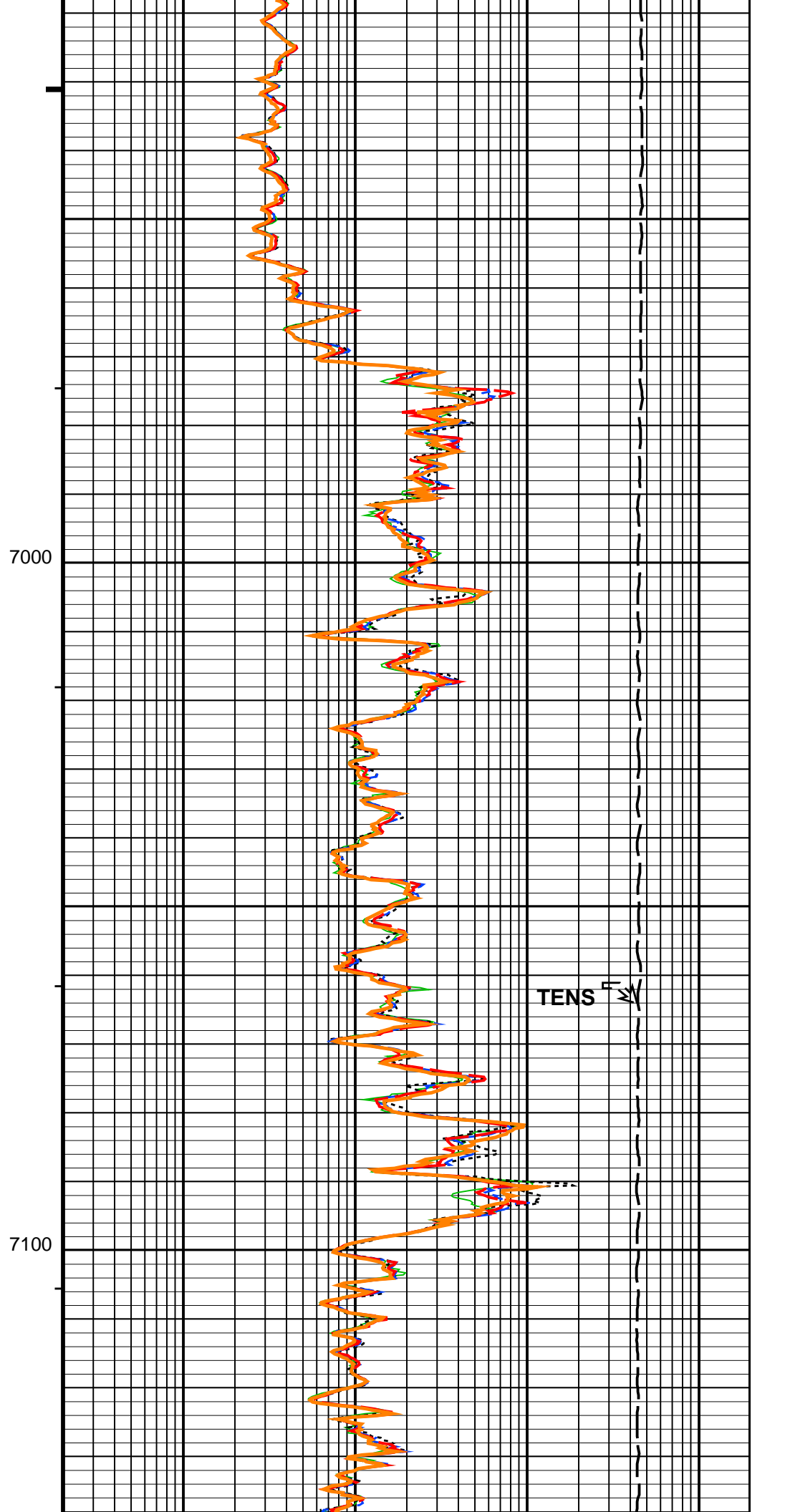
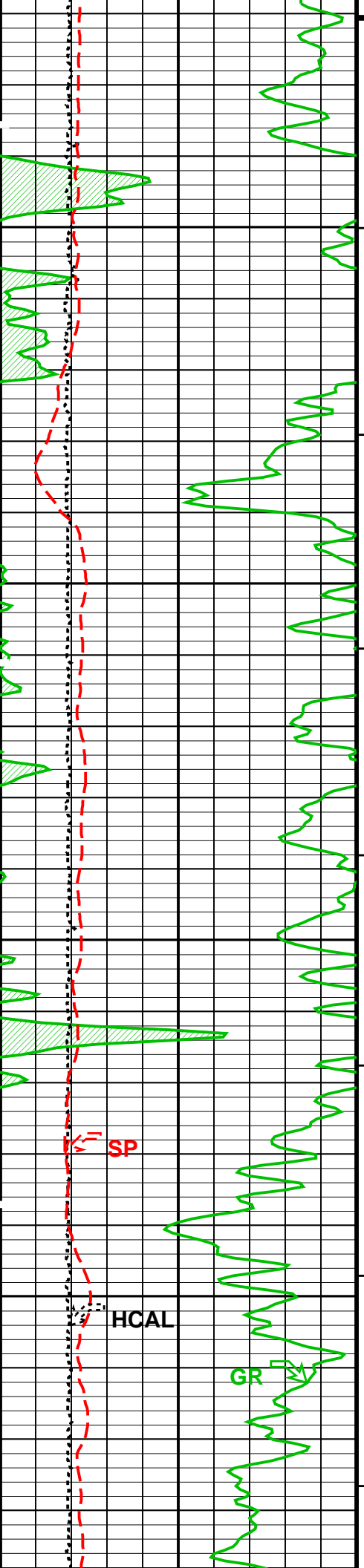


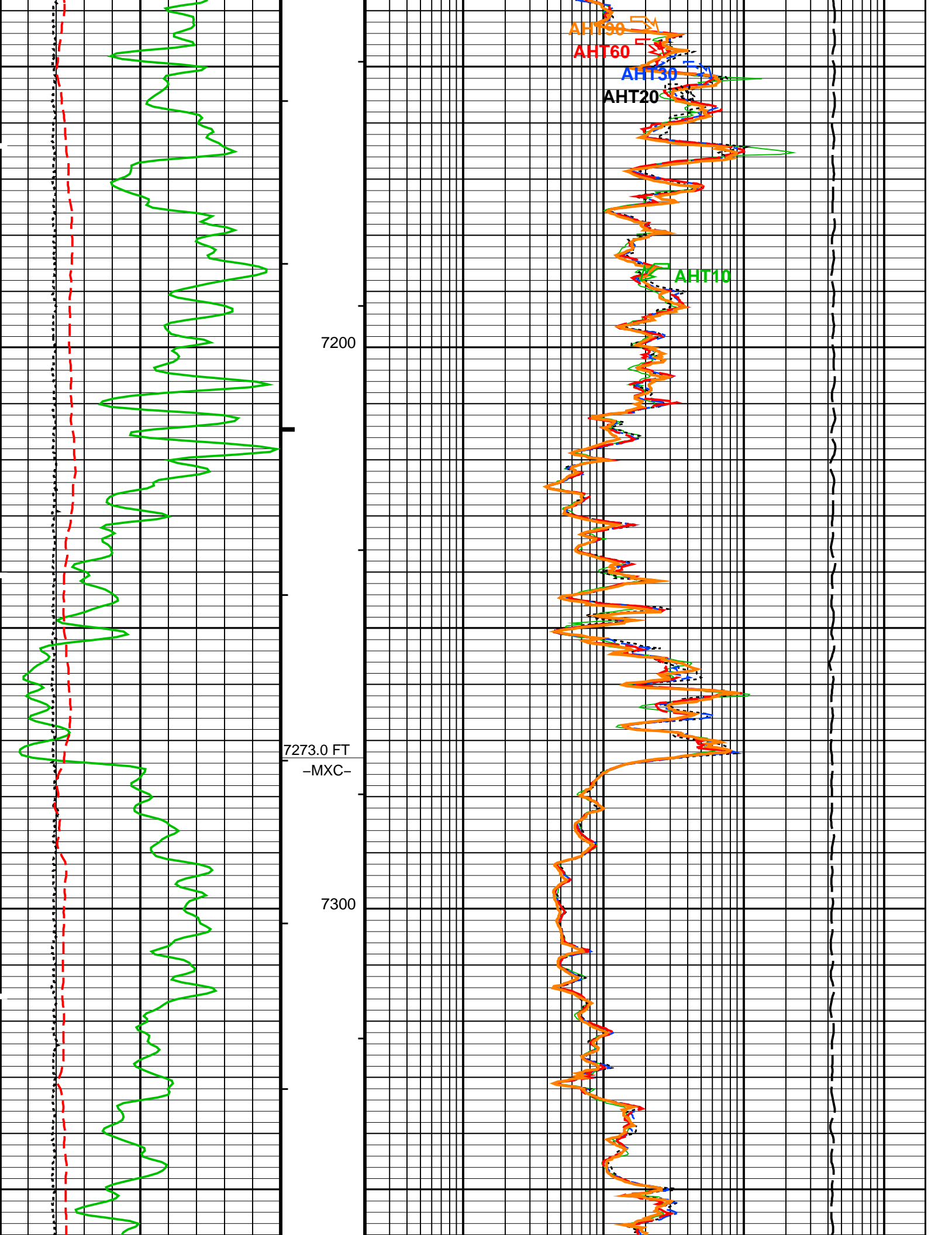
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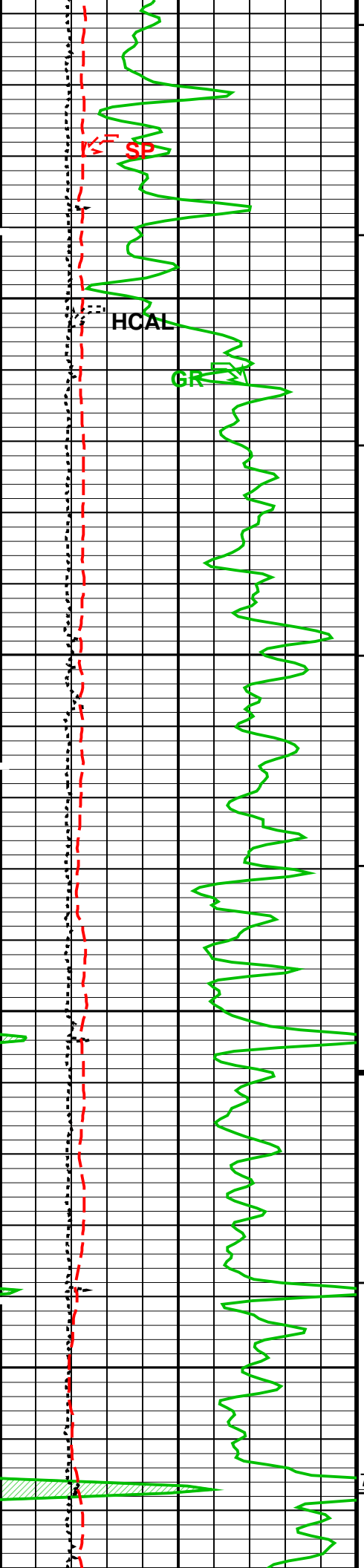
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6900





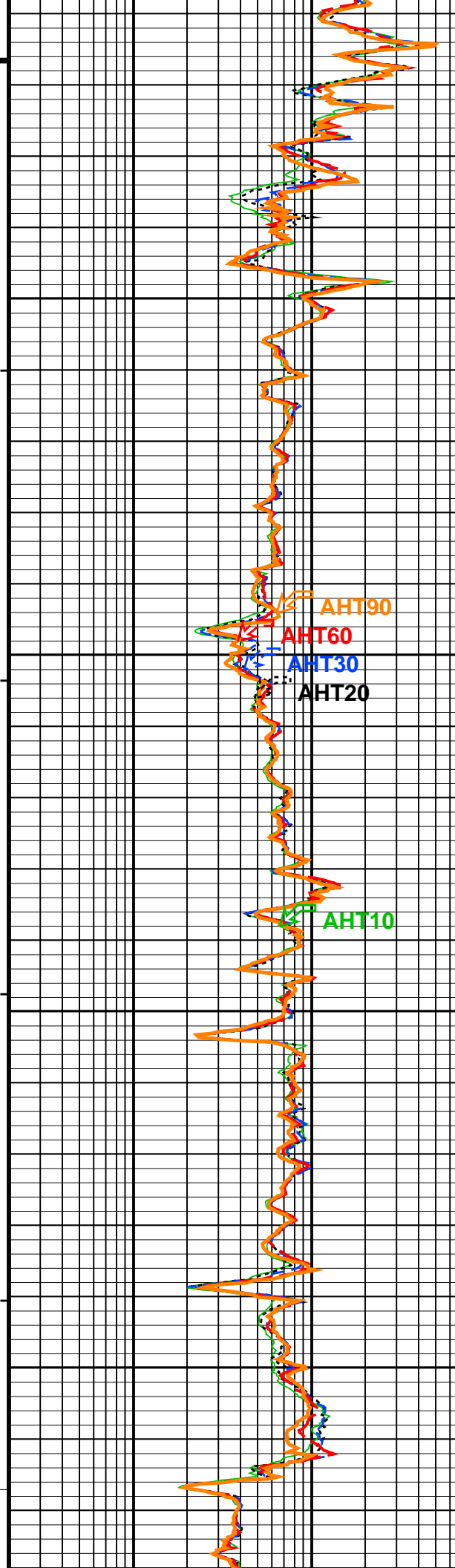




7400

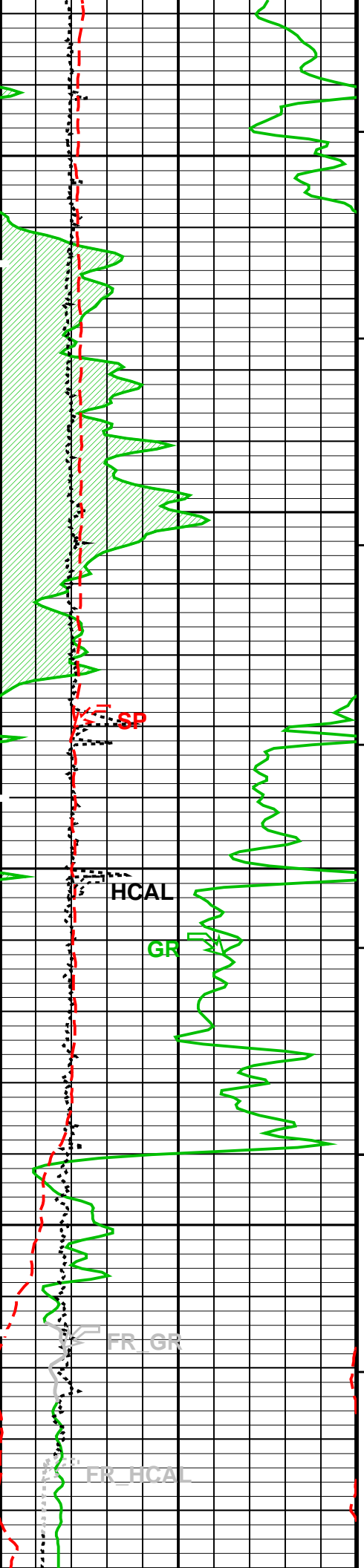
7500

7567.0 FT
-MXC-



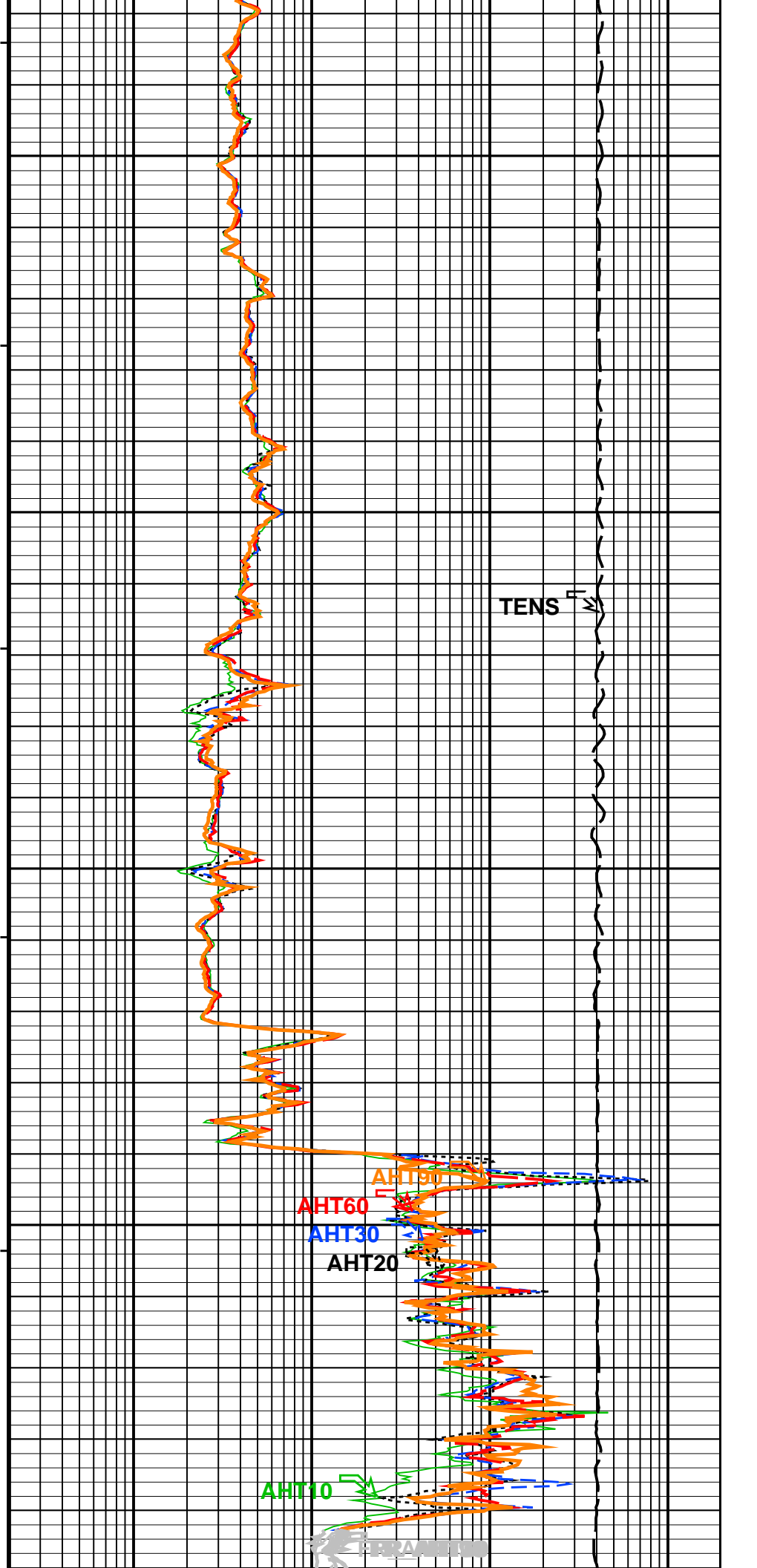
TENS

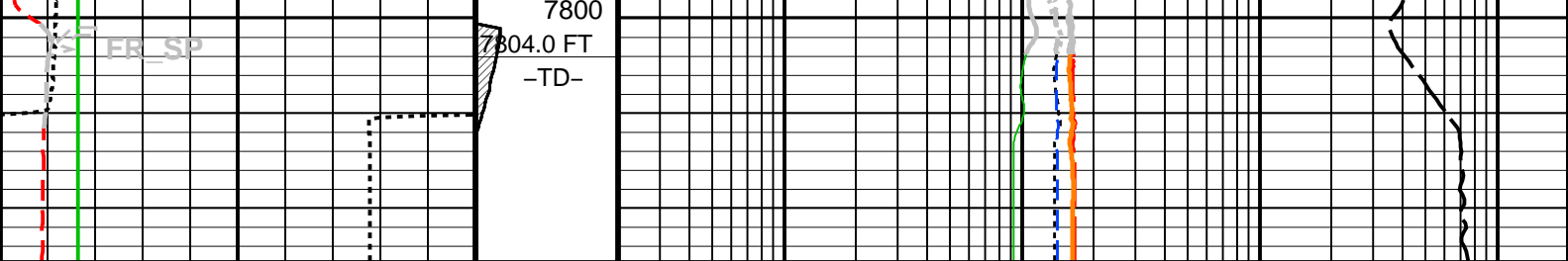




7600

7700





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

Gamma Ray Backup	Cable Drag	0.2	AIT-H 10 Inch Investigation (AHT10) (OHMM)	2000
Gamma Ray (GR) (GAPI)	Tool/Tot. Drag	0.2	AIT-H 20 Inch Investigation (AHT20) (OHMM)	2000
Caliper (HCAL) (IN)	Stuck Stretch (STIT) (F)	0.2	AIT-H 30 Inch Investigation (AHT30) (OHMM)	2000
SP (SP) (MV)		0.2	AIT-H 60 Inch Investigation (AHT60) (OHMM)	2000
		0.2	AIT-H 90 Inch Investigation (AHT90) (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

AIT-H Answer Product Processing Summary. Data taken with Tool # 392 (AHTNO)

...Acquired data from HILT/HAIT

***** Borehole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand-off of 0.13 IN. Bit Size is 7.88 IN.

***** Input Selections to AIT-H Answer Product Processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): HTEM Porosity (FPHI): DPHZ

***** Other Parameters used by AIT-H Answer Product Processing *****

Form Factor Exponent (FEXP) 2.000 Form Factor Numerator (FNUM) 1.000

Mud Filtrate Sample Resistivity (RMFS) 1.095 OHMM Mud Filtrate Sample Temperature (MFST) 66.100 DEGF

Resitivity Connate Water (RW) 1.000 OHMM

***** AIT-H Answer Product Processing Control Parameters *****

Playback Mode: NORMAL

Parameters		
DLIS Name	Description	Value
HILTB-CTS: High resolution Integrated Logging Tool-CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	900
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logs Code Version Number	223
AHCDE	Array Induction Casing Detection Enable	Yes
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20
AHMRF	Array Induction Mud Resistivity Factor	1
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20
AHPSV	Array Induction Radial Profiling Code Version Number	704

AHRPV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth – Driller	7822.00	FT
TDL	Total Depth – Logger	7804.00	FT
System and Miscellaneous			
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	-50000.00	FT
MST	Mud Sample Temperature	66.10	DEGF
PP	Playback Processing	NORMAL	
TD	Total Depth	7804	FT

Format: LOWER_GRES Vertical Scale: 5" per 100' Graphics File Created: 17-Mar-2010 00:36

OP System Version: 17C0-154

HILTB-CTS 17C0-154

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
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Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36
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REPEAT ANALYSIS

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
DEFAULT	AIT_TLD_MCFL_CNL_024PUP	FN:20	PRODUCER	16-Mar-2010 23:25	7830.0 FT	7054.5 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_033PUP FN:28 PRODUCER 17-Mar-2010 00:36

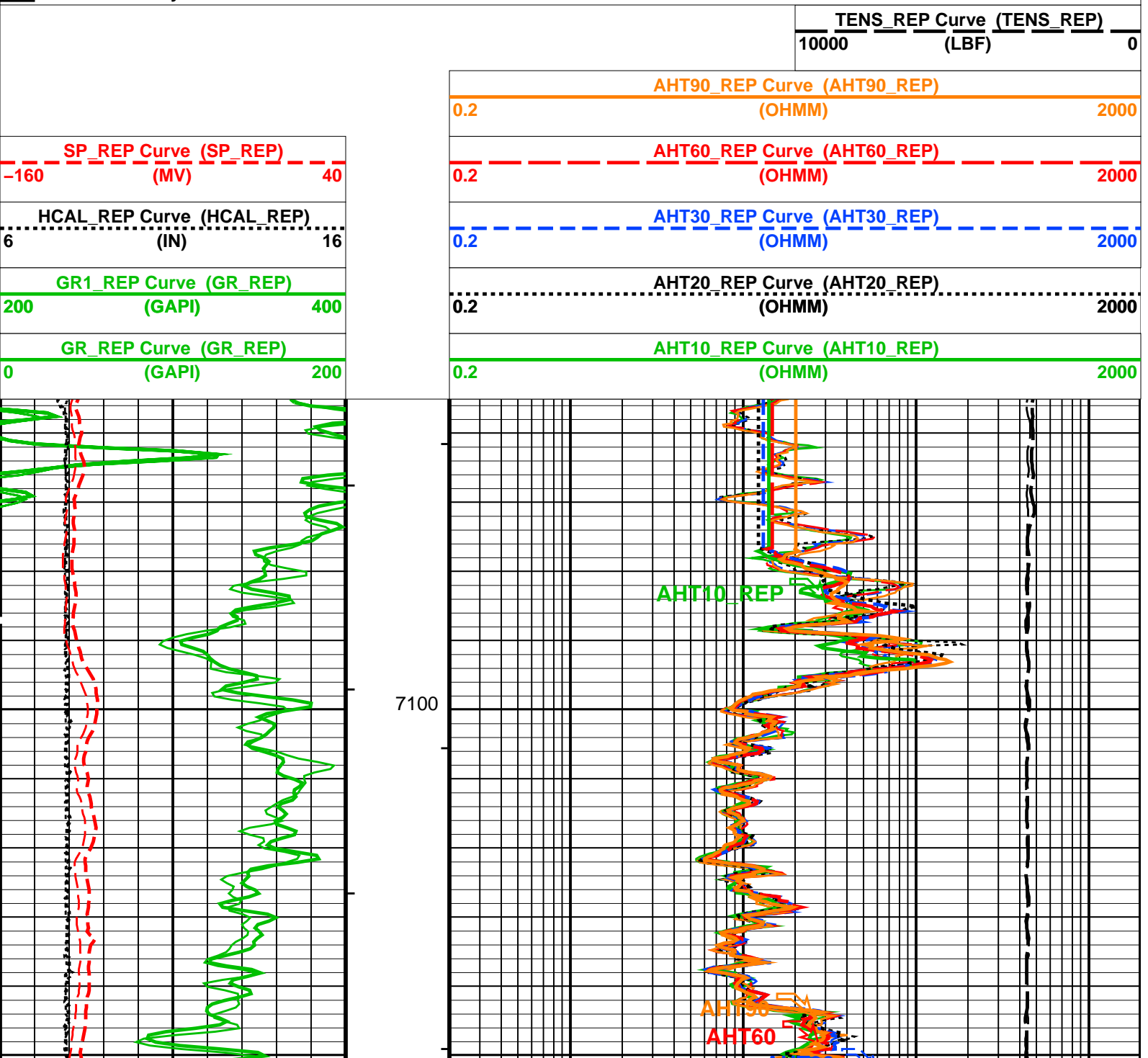
OP System Version: 17C0-154

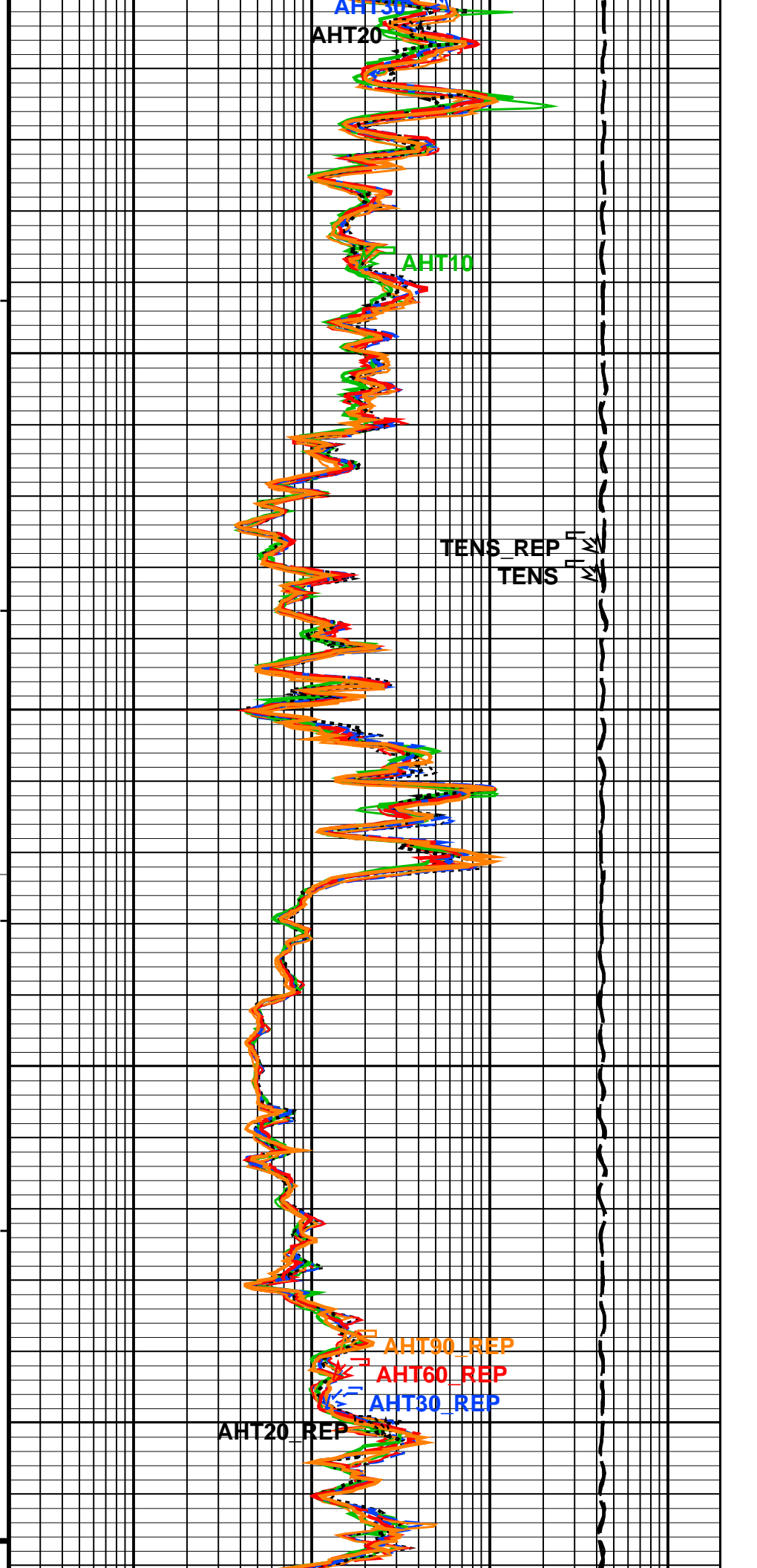
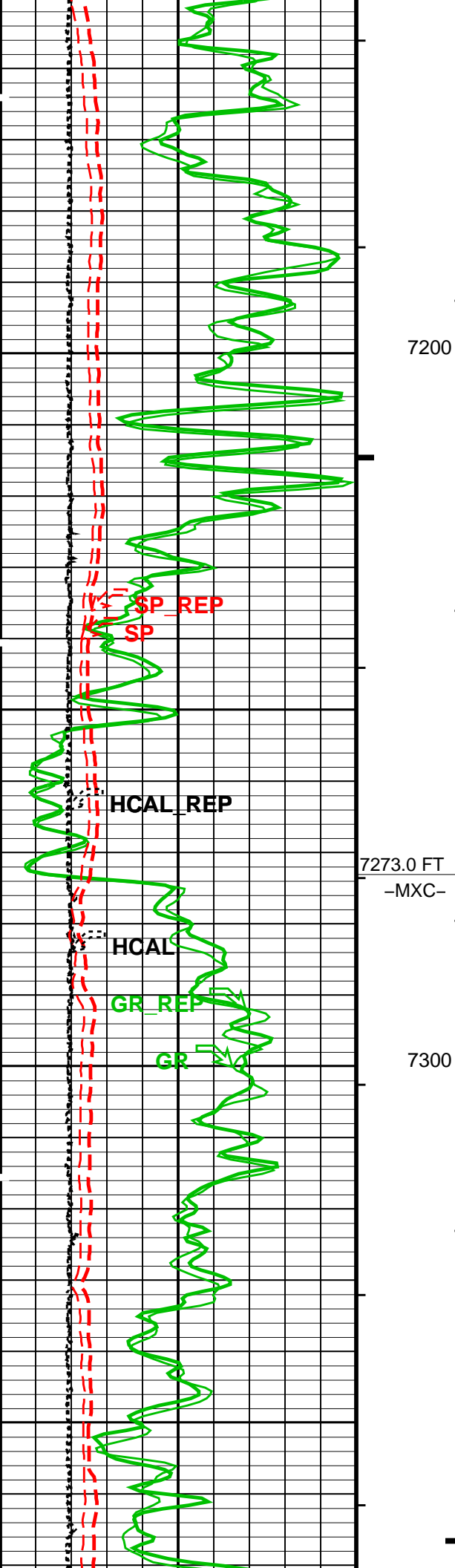
HILTB-CTS 17C0-154

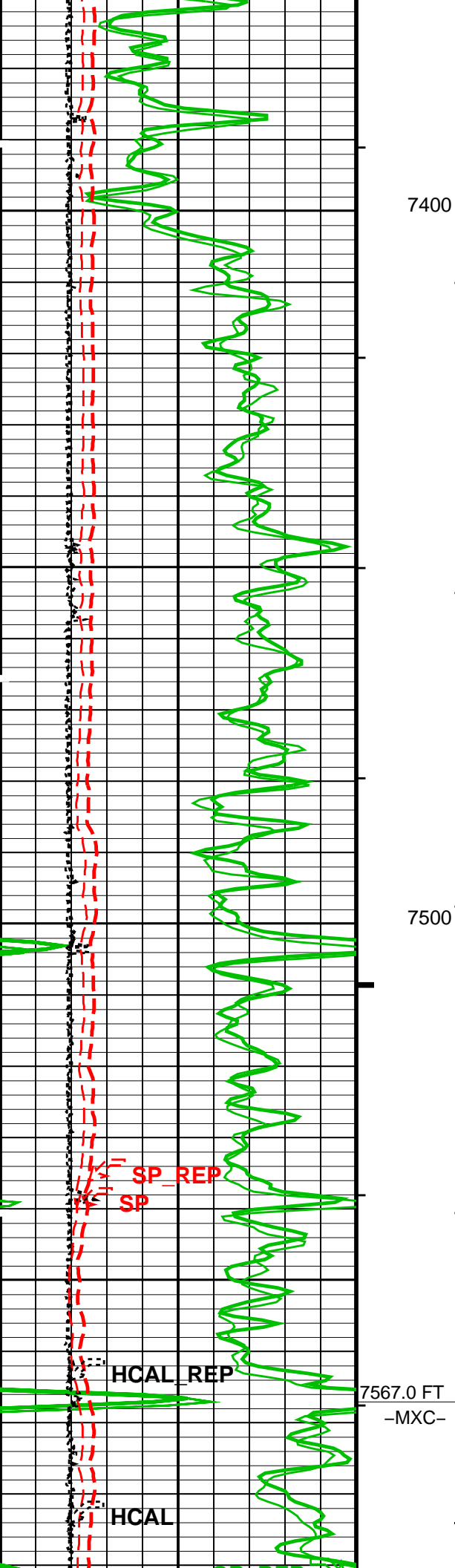
PIP SUMMARY

- └ 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



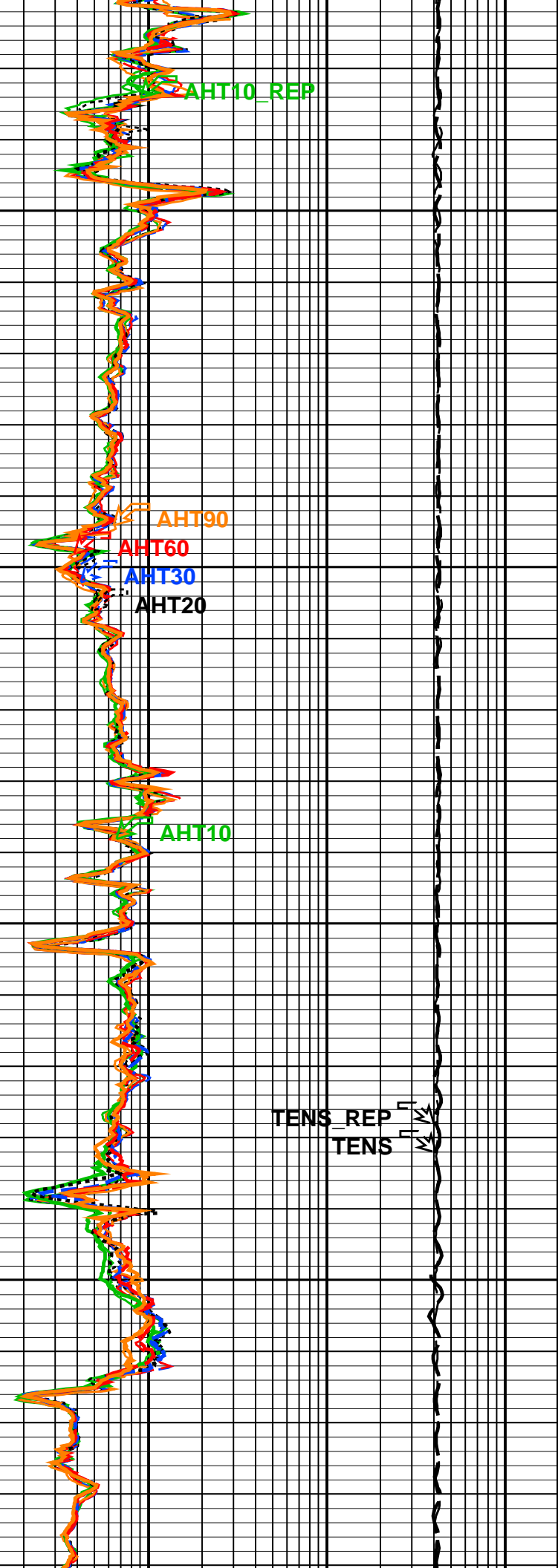




7400

7500

7567.0 FT
-MXC-



AHT10_REP

AHT90

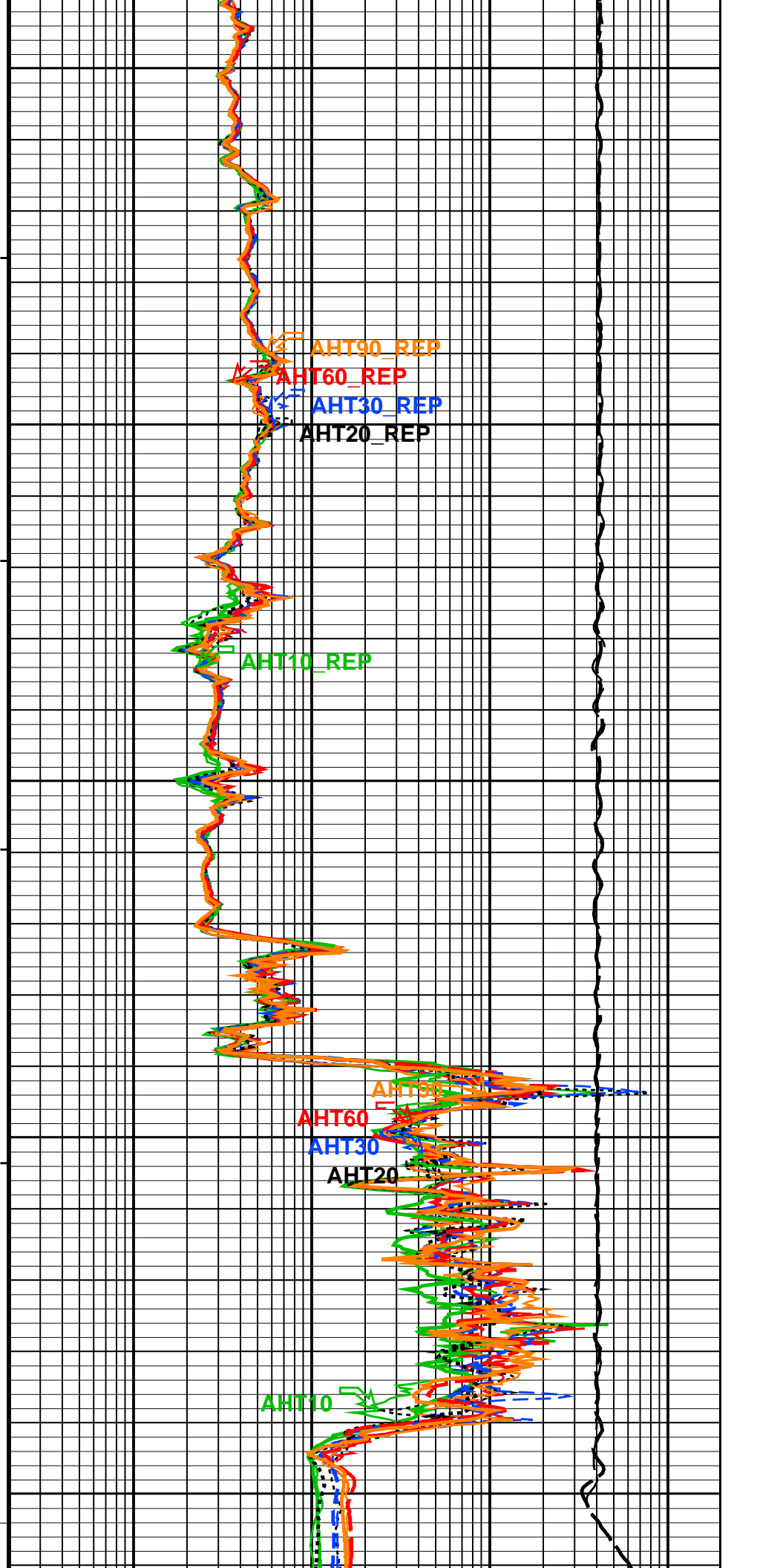
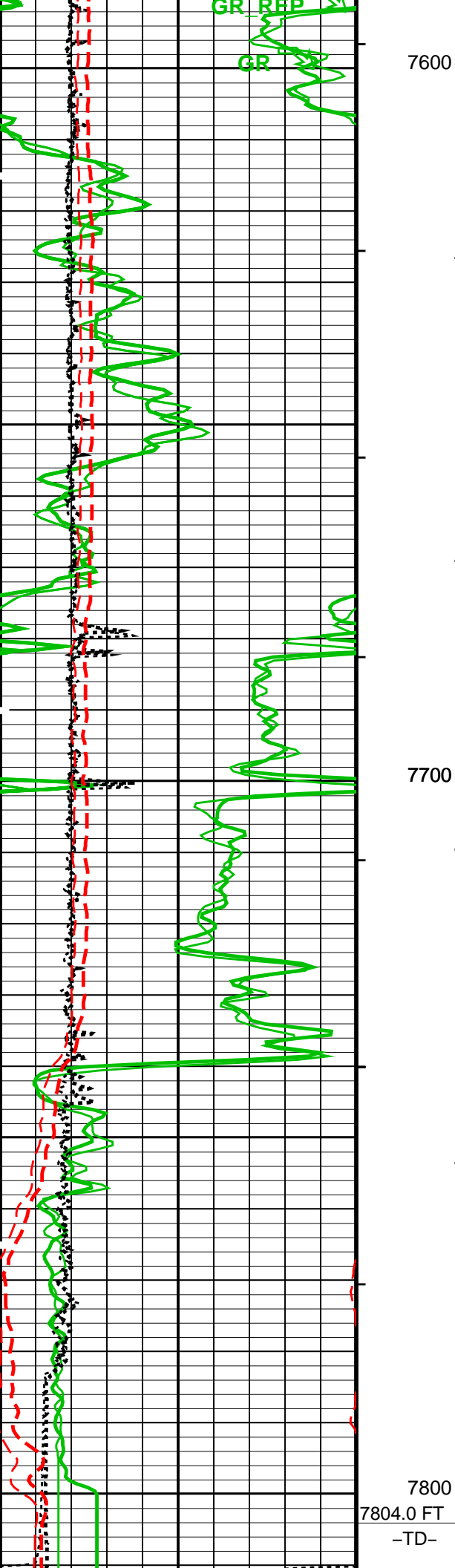
AHT60

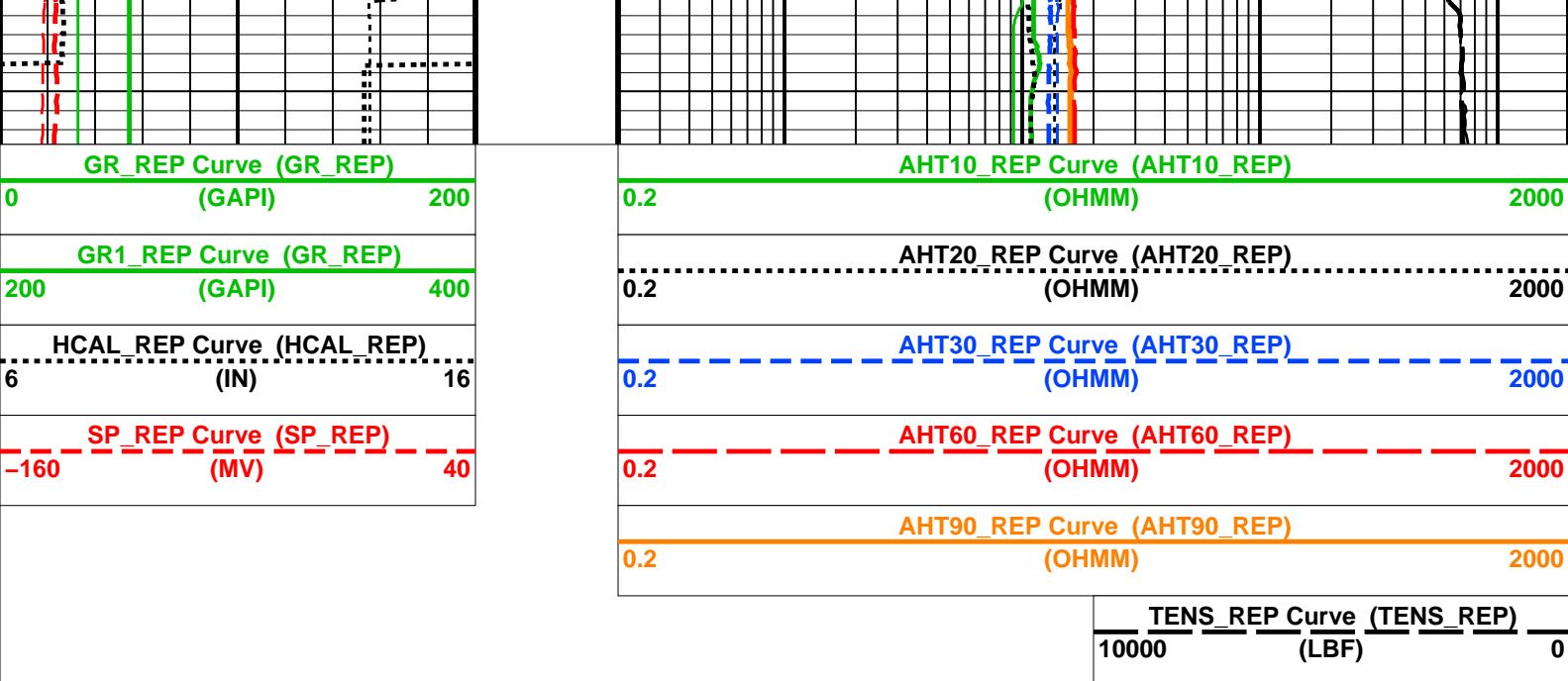
AHT30

AHT20

AHT10

TENS_REP
TENS





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

AIT-H Answer Product Processing Summary. Data taken with Tool # 392 (AHTNO)
...Acquired data from HILT/HAIT

***** Borehole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)
Tool is run in ECCENTERED mode with a tool stand-off of 0.13 IN. Bit Size is 7.88 IN.

***** Input Selections to AIT-H Answer Product Processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): HTEM Porosity (FPHI): DPHZ

***** Other Parameters used by AIT-H Answer Product Processing *****

Form Factor Exponent (FEXP) 2.000 Form Factor Numerator (FNUM) 1.000
Mud Filtrate Sample Resistivity (RMFS) 1.095 OHMM Mud Filtrate Sample Temperature (MFST) 66.100 DEGF
Resitivity Connate Water (RW) 1.000 OHMM

***** AIT-H Answer Product Processing Control Parameters *****

Playback Mode: NORMAL

Parameters		
DLIS Name	Description	Value
HILTB-CTS: High resolution Integrated Logging Tool-CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	900
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logs Code Version Number	223
AHCDE	Array Induction Casing Detection Enable	Yes
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20
AHMRP	Array Induction Mud Resistivity Factor	1
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20
AHRFV	Array Induction Radial Profiling Code Version Number	701
AHRPV	Array Induction Radial Parametrization Code Version Number	232
AHSTA	Array Induction Tool Standoff	0.125 IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20
BHT	Bottom Hole Temperature (used in calculations)	216 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	AHT10_REP

GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	68
SHT	Surface Hole Temperature		DEGF
SPNV	SP Next Value		0
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	216	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	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
System and Miscellaneous			
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	-50000.00	FT
MST	Mud Sample Temperature	66.10	DEGF
PP	Playback Processing	NORMAL	
TD	Total Depth	7804	FT

Format: GRES_REP Vertical Scale: 5" per 100'

Graphics File Created: 17-Mar-2010 00:36

OP System Version: 17C0-154

HILTB-CTS 17C0-154

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
DEFAULT	AIT_TLD_MCFL_CNL_024PUP	FN:20	PRODUCER	16-Mar-2010 23:25	7830.0 FT	7054.5 FT

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36
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BEFORE CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase							
Master: 18-Feb-2010 13:50 Before: 16-Mar-2010 14:13							
Thru Cal Magnitude – 0	0	0.6164	0.6168	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.260	1.261	N/A	N/A	N/A	V

Thru Cal Magnitude – 2	0	0.6288	0.6291	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7109	0.7114	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.324	1.325	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.929	1.930	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.928	1.929	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.378	1.379	N/A	N/A	N/A	V
Phase – 0	0	72.68	72.79	N/A	N/A	N/A	DEG
Phase – 1	0	71.58	71.69	N/A	N/A	N/A	DEG
Phase – 2	0	67.85	67.96	N/A	N/A	N/A	DEG
Phase – 3	0	67.06	67.17	N/A	N/A	N/A	DEG
Phase – 4	0	60.79	60.91	N/A	N/A	N/A	DEG
Phase – 5	0	58.89	59.02	N/A	N/A	N/A	DEG
Phase – 6	0	58.91	59.03	N/A	N/A	N/A	DEG
Phase – 7	0	55.41	55.58	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Electronics Calibration Check – Auxilliary

Master: 18–Feb–2010 13:50 Before: 16–Mar–2010 14:13

Array Induction SPA Plus	990.5	993.5	993.6	N/A	N/A	N/A	MV
Array Induction SPA Zero		0.04114	0.04538	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9150	0.9202	0.9203	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.00004296	0.00004538	N/A	N/A	N/A	V

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Test Loop Gain Correction

Master: 18–Feb–2010 13:50

Test Loop Gain Magnitude – 0	0	1.033	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 1	0	1.025	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 2	0	1.022	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 3	0	1.019	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 4	0	1.009	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 5	0	0.9882	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 6	0	0.9962	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 7	0	1.008	N/A	N/A	N/A	N/A	V
Phase – 0	0	0.5184	N/A	N/A	N/A	N/A	DEG
Phase – 1	0	0.4801	N/A	N/A	N/A	N/A	DEG
Phase – 2	0	0.04542	N/A	N/A	N/A	N/A	DEG
Phase – 3	0	0.007685	N/A	N/A	N/A	N/A	DEG
Phase – 4	0	0.02438	N/A	N/A	N/A	N/A	DEG
Phase – 5	0	–0.2104	N/A	N/A	N/A	N/A	DEG
Phase – 6	0	0.1914	N/A	N/A	N/A	N/A	DEG
Phase – 7	0	–0.3366	N/A	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Sonde Error Correction

Master: 18–Feb–2010 13:50

R Sonde Error Correction – 0	0	–80.17	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	193.6	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	109.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	67.39	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	26.23	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	14.13	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.933	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	–1.518	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	–414.3	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	–63.48	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	–81.94	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	39.49	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	–40.86	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	5.345	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	–4.595	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	–6.732	N/A	N/A	N/A	N/A	MM/M

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Mud Gain Correction

Master: 18–Feb–2010 13:50

Coarse – Mag, Real, Imag – 0	0	0.9412	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 1	0	0.9412	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 2	0	0.9412	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 0	0	0.9507	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 1	0	0.9507	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 2	0	0.9507	N/A	N/A	N/A	N/A

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

Before: 16–Mar–2010 14:55

BS Window Ratio	0.7398	N/A	0.7392	N/A	N/A	N/A	
BS Window Sum	10720	N/A	10710	N/A	N/A	N/A	CPS
SS Window Ratio	0.4726	N/A	0.4731	N/A	N/A	N/A	
SS Window Sum	10190	N/A	10190	N/A	N/A	N/A	CPS
LS Window Ratio	0.2985	N/A	0.3031	N/A	N/A	N/A	
LS Window Sum	1157	N/A	1154	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations

Before: 16–Mar–2010 14:55

BS PM High Voltage (Command)	1478	N/A	1494	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1788	N/A	1788	N/A	N/A	N/A	V

LS PM High Voltage (Command)	1906	N/A	1903	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 16–Mar–2010 14:55							
BS Crystal Resolution	10.87	N/A	10.98	N/A	N/A	N/A	%
SS Crystal Resolution	11.25	N/A	11.22	N/A	N/A	N/A	%
LS Crystal Resolution	9.790	N/A	9.656	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–CTS Wellsite Calibration – MCFL Calibration							
Before: 16–Mar–2010 14:10							
Raw B0 Resistivity	3875	N/A	3856	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3812	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3828	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–CTS Wellsite Calibration – HILT Caliper Calibration							
Before: 16–Mar–2010 14:17							
HILT Caliper Zero Measurement	8.000	N/A	8.869	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	13.01	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Detector Calibration							
Before: 16–Mar–2010 14:52							
Gamma Ray Background	30.00	N/A	89.93	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	173.3	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Zero Measurement							
Master: 26–Feb–2010 18:38 Before: 16–Mar–2010 14:14							
CNTC Background	32.75	32.75	28.48	N/A	N/A	4.913	CPS
CFTC Background	31.37	31.37	26.44	N/A	N/A	4.706	CPS
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Ratio Measurement							
Master: 26–Feb–2010 18:38							
Thermal Near Corr. (Tank)	5800	5578	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2403	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.321	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Accelerometer Calibration							
Before: Calibration not done							
Z–Axis Acceleration	32.19	N/A	32.19	N/A	N/A	N/A	F/S2
High resolution Integrated Logging Tool–CTS Master Calibration – Inversion results							
Master: 23–Feb–2010 17:51							
Rho Aluminum	2.596	2.602	--	--	--	--	G/C3
Rho Magnesium	1.686	1.687	--	--	--	--	G/C3
Pe Aluminum	2.570	2.581	--	--	--	--	
Pe Magnesium	2.650	2.608	--	--	--	--	
High resolution Integrated Logging Tool–CTS Master Calibration – Deviation Summary							
Master: 23–Feb–2010 17:51							
BS Average Deviation	0	0.2623	--	--	--	--	%
BS Max Deviation	0	0.5063	--	--	--	--	%
SS Average Deviation	0	0.3740	--	--	--	--	%
SS Max Deviation	0	1.860	--	--	--	--	%
LS Average Deviation	0	0.9565	--	--	--	--	%
LS Max Deviation	0	2.096	--	--	--	--	%
Density Master Calibration is obsolete !							
The GLS–VJ source activity is acceptable.							
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	62.5	DEGF.					
Thermal Housing Size	3.367	IN.					
NSR–F serial number	5068						









High resolution Integrated Logging Tool–CTS / Equipment Identification			
Primary Equipment:			
Array Induction Tool – H	AIT – H		
Rm/SP Bottom Nose	AHRM – A		
Array Induction Sonde	AHIS – BA	392	
HILT high–Resolution Mechanical Sonde	HRMS – B	1716	
HILT Rxo Gamma–ray Device	HRGD – B	1854	
HILT Micro Cylindrically Focused Log Dev	MCFL –		
GR Logging Source	GLS – VJ	5416	
HILT High Res. Control Cartridge	HRCC – B	1006	











Auxiliary Equipment:

High resolution Integrated Logging Tool—CTS Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6164		0.6050	72.68		71.00
	Before	0.6168			72.79		
1	Master	1.260		1.270	71.58		70.00
	Before	1.261			71.69		
2	Master	0.6288		0.6230	67.85		66.00
	Before	0.6291			67.96		
3	Master	0.7109		0.7040	67.06		65.00
	Before	0.7114			67.17		
4	Master	1.324		1.337	60.79		59.00
	Before	1.325			60.91		
5	Master	1.929		1.955	58.89		57.00
	Before	1.930			59.02		
6	Master	1.928		1.955	58.91		57.00
	Before	1.929			59.03		
7	Master	1.378		1.415	55.41		53.00
	Before	1.379			55.58		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: 18-Feb-2010 13:50

Before: 16-Mar-2010 14:13

High resolution Integrated Logging Tool–CTS Wellsite Calibration							
Electronics Calibration Check – Auxilliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			993.5	Master			0.04114
Before			993.6	Before			0.04538
941.0 (Minimum)				−50.00 (Minimum)			
990.5 (Nominal)				0 (Nominal)			
1040 (Maximum)				50.00 (Maximum)			
Phase	Array Induction Temperature Plus V		Value	Phase	Array Induction Temperature Zero V		Value
Master			0.9202	Master			4.296E−00
Before			0.9203	Before			4.538E−00
0.8700 (Minimum)				−0.05000 (Minimum)			
0.9150 (Nominal)				0 (Nominal)			
0.9600 (Maximum)				0.05000 (Maximum)			
Master: 18–Feb–2010 13:50				Before: 16–Mar–2010 14:13			

High resolution Integrated Logging Tool—CTS Wellsite Calibration						
Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG
0	1.033				0.5184	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.025				0.4801	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.022				0.04542	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.019				0.007685	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	1.009				0.02438	




		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9882						-0.2104		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9962						0.1914		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.008						-0.3366		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
Master: 18-Feb-2010 13:50									

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Sonde Error Correction									
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M			
0	-80.17				-414.3				
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)	
1	193.6				-63.48				
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)	
2	109.9				-81.94				
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)	
3	67.39				39.49				
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)	
4	26.23				-40.86				
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)	
5	14.13				5.345				
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)	
6	9.933				-4.595				
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	
7	-1.518				-6.732				
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	
Master: 18-Feb-2010 13:50									




High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Mud Gain Correction									
Idx	Value	Coarse - Mag, Real, Imag			Value	Fine - Mag, Real, Imag			
0	0.9412				0.9507				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
1	0.9412				0.9507				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
2	0.9412				0.9507				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
Master: 18-Feb-2010 13:50									

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Stab Measurement Summary									
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value
Before				0.7392	Before				0.4731
	0.7028 (Minimum)	0.7398 (Nominal)	0.7768 (Maximum)			0.4490 (Minimum)	0.4726 (Nominal)	0.4963 (Maximum)	
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value
Before				10710	Before				10190
	10180 (Minimum)	10720 (Nominal)	11260 (Maximum)			9680 (Minimum)	10190 (Nominal)	10700 (Maximum)	
Phase	LS Window Ratio			Value	Phase	LS Window Sum CPS			Value
Before				0.3031	Before				1154
	0.2836 (Minimum)	0.2985 (Nominal)	0.3135 (Maximum)			1099 (Minimum)	1157 (Nominal)	1214 (Maximum)	




Before: 16-Mar-2010 14:55

High resolution Integrated Logging Tool-CTS Wellsite Calibration														
Photo-multiplier High Voltages Calibrations														
Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
Before				1494	Before				1788	Before				1903
	1378 (Minimum)	1478 (Nominal)	1578 (Maximum)		1688 (Minimum)	1788 (Nominal)	1888 (Maximum)			1806 (Minimum)	1906 (Nominal)	2006 (Maximum)		
Before: 16-Mar-2010 14:55														



Before: 16-Mar-2010 14:55

High resolution Integrated Logging Tool-CTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			10.98	Before			11.22	Before			9.656
	9.872 (Minimum)	10.87 (Nominal)	11.87 (Maximum)		10.25 (Minimum)	11.25 (Nominal)	12.25 (Maximum)		8.790 (Minimum)	9.790 (Nominal)	10.79 (Maximum)
Before: 16-Mar-2010 14:55											

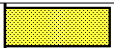

Before: 16-Mar-2010 14:55

High resolution Integrated Logging Tool-CTS Wellsite Calibration											
MCFL Calibration											
Phase	Raw B0 Resistivity OHMM		Value	Phase	Raw B1 Resistivity OHMM		Value	Phase	Raw B2 Resistivity OHMM		Value
Before			3856	Before			3812	Before			3828
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)
Before: 16-Mar-2010 14:10											


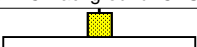


Before: 16-Mar-2010 14:10

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
HILT Caliper Calibration									
Phase	HILT Caliper Zero Measurement IN			Value	Phase	HILT Caliper Plus Measurement IN			Value
Before				8.869	Before				13.01
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)			9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)	
Before: 16-Mar-2010 14:17									

Before: 16-Mar-2010 14:17




High resolution Integrated Logging Tool-CTS Wellsite Calibration							
Detector Calibration							
Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray (Jig – Bkgd) GAPI		Value
Before			89.93	Before			173.3
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		157.1 (Minimum)	165.0 (Nominal)	206.3 (Maximum)
Before: 16-Mar-2010 14:52							

Before: 16-Mar-2010 14:52


High resolution Integrated Logging Tool-CTS Wellsite Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			32.75	Master			31.37
Before			28.48	Before			26.44
5.000 (Minimum)			32.75 (Nominal)	40.00 (Maximum)			
Master: 26-Feb-2010 18:38				Before: 16-Mar-2010 14:14			

Master: 26-Feb-2010 18:38

















Before: 16-Mar-2010 14:14





High resolution Integrated Logging Tool-CTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5578	Master				2403	Master				2.321
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 26-Feb-2010 18:38														

















Master: 26-Feb-2010 18:38

High resolution Integrated Logging Tool-CTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before		32.19

31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)
Before: Calibration not done		

High resolution Integrated Logging Tool–CTS Master Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6164		0.6050	72.68		71.00
1	Master	1.260		1.270	71.58		70.00
2	Master	0.6288		0.6230	67.85		66.00
3	Master	0.7109		0.7040	67.06		65.00
4	Master	1.324		1.337	60.79		59.00
5	Master	1.929		1.955	58.89		57.00
6	Master	1.928		1.955	58.91		57.00
7	Master	1.378		1.415	55.41		53.00
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 18–Feb–2010 13:50							

High resolution Integrated Logging Tool–CTS Master Calibration							
Electronics Calibration Check – Auxilliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			993.5	Master			0.04114
	941.0 (Minimum)	990.5 (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			0.9202	Master			4.296E-00
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 18–Feb–2010 13:50							

High resolution Integrated Logging Tool–CTS Master Calibration								
Test Loop Gain Correction								
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG		
0	1.033				0.5184			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.025				0.4801			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.022				0.04542			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.019				0.007685			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.009				0.02438			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9882				-0.2104			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9962				0.1914			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.008				-0.3366			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
Master: 18–Feb–2010 13:50								



High resolution Integrated Logging Tool–CTS Master Calibration				
Sonde Error Correction				
Idx	Value	R Sonde Error Correction MM/M	Value	X Sonde Error Correction MM/M




Master: 18-Feb-2010 13:50

Master: 18-Feb-2010 13:50

Master: 23-Feb-2010 17:51

Master: 23-Feb-2010 17:51

Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				32.75	Master				31.37
5.000 (Minimum)		32.75 (Nominal)		40.00 (Maximum)	5.000 (Minimum)		31.37 (Nominal)		40.00 (Maximum)
Master: 26-Feb-2010 18:38									

High resolution Integrated Logging Tool—CTS Master Calibration											
Tank Measurement											
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
Master			5578	Master			2403	Master			2.321
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 26–Feb–2010 18:38											

Company: **Kerr-McGee Oil & Gas Onshore, LP**

Schlumberger

Well: **Brehon 18-18**

Field: **Hambert**

County: **Weld**

State: **Colorado**

Platform Express
Array Induction
with Linear Correlation