

Run 4

Date Created: 17-FEB-2010 8:19:35

Logging Cable

Type:	7-39P LXS
Serial Number:	
Length:	13115 FT
<hr/>	
Conveyance Method:	Wireline
Rig Type:	LAND

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:	3.50 FT
Tool Zero Check At Surface:	

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

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 SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

ed wells.

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

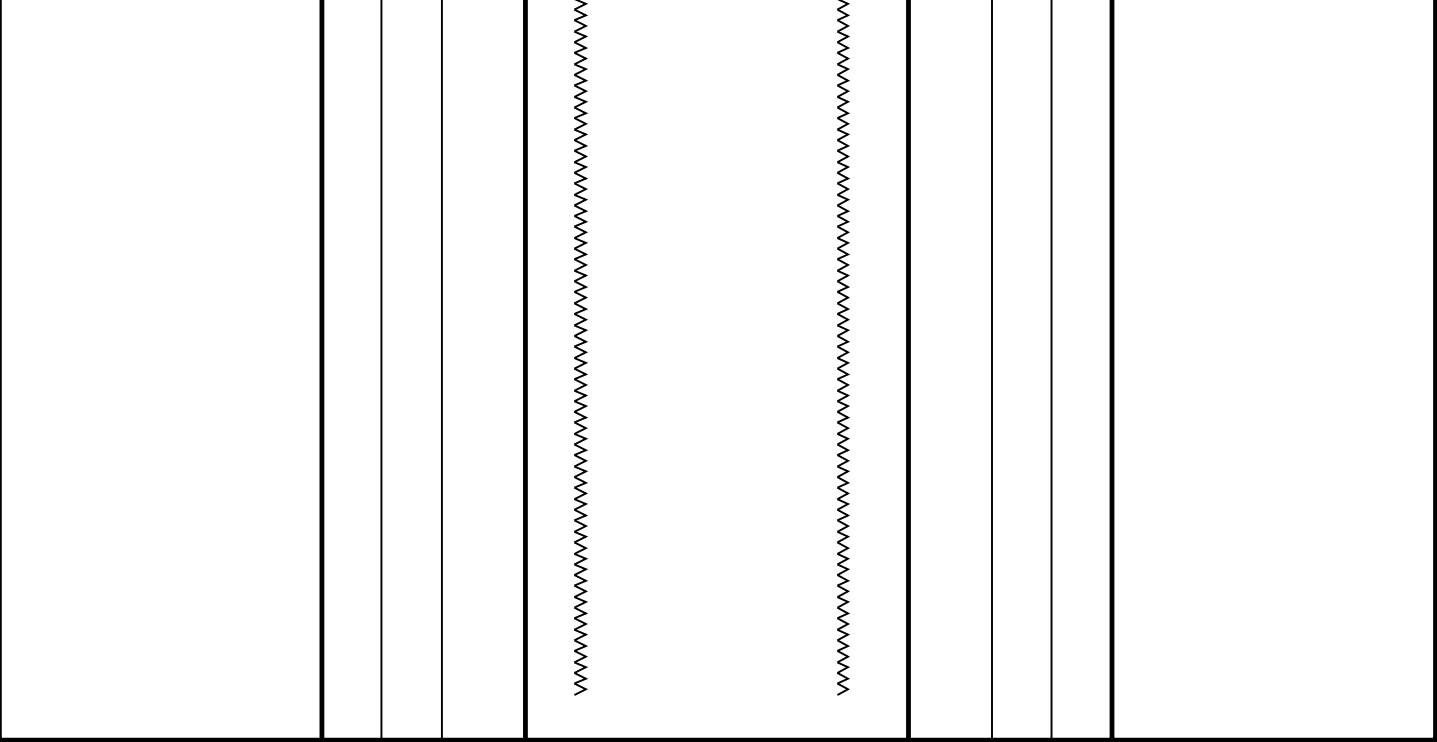
Well Schematic

(ft) (in)
MD OD ID

Casing String

Casing String

Casing Shoe
Borehole Segment



All depths are driller's depths



RESISTIVITY LINEAR 2" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13 8040.0 FT 500.2 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2615.69 F3
Cement Volume = 1794.82 F3 (assuming 4.50 IN casing O.D.)
Computed from 8027.0 FT to 595.0 FT using data channel(s) HCAL

OP System Version: 17C0-154

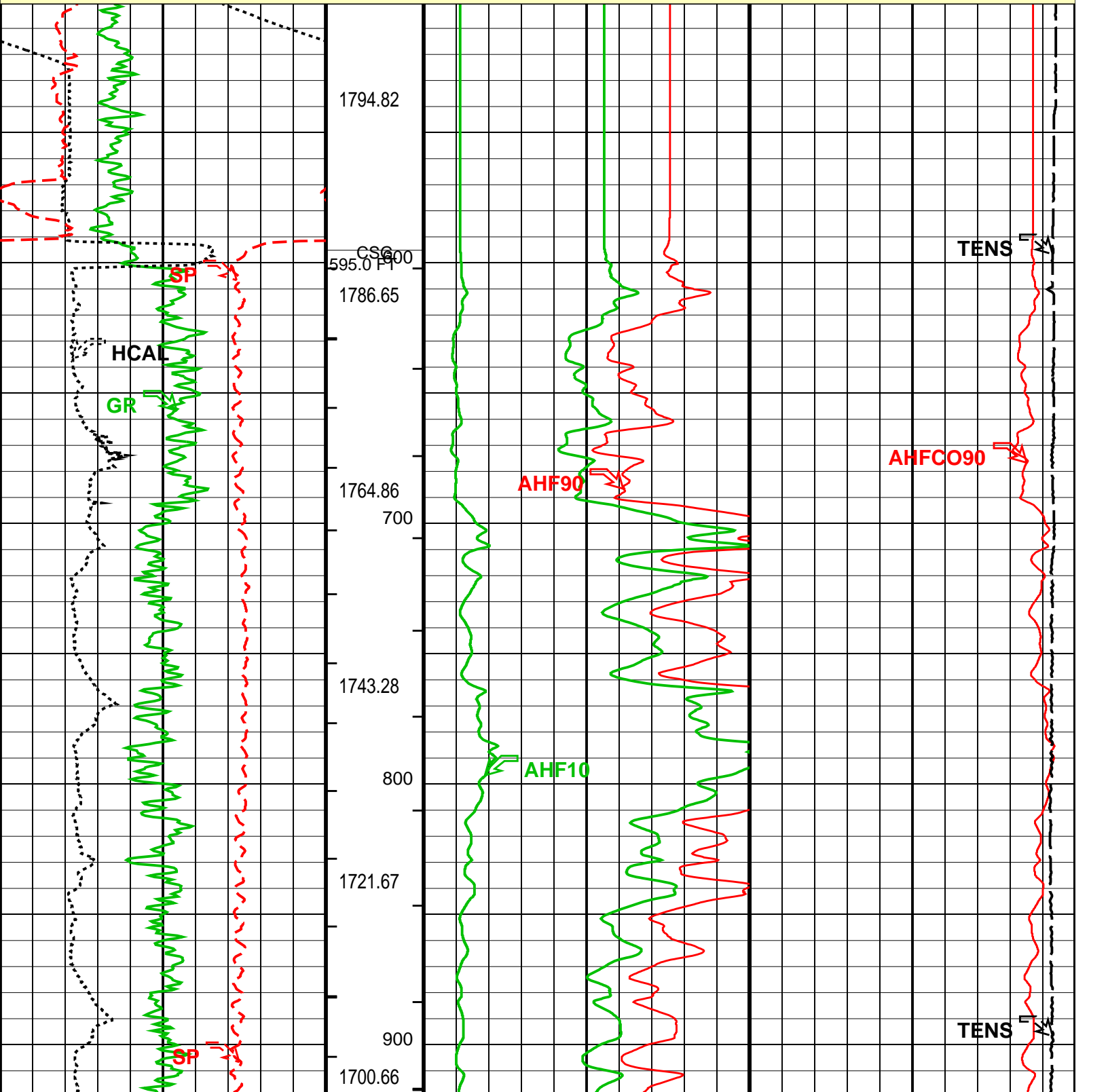
HILTB-CTS 17C0-154

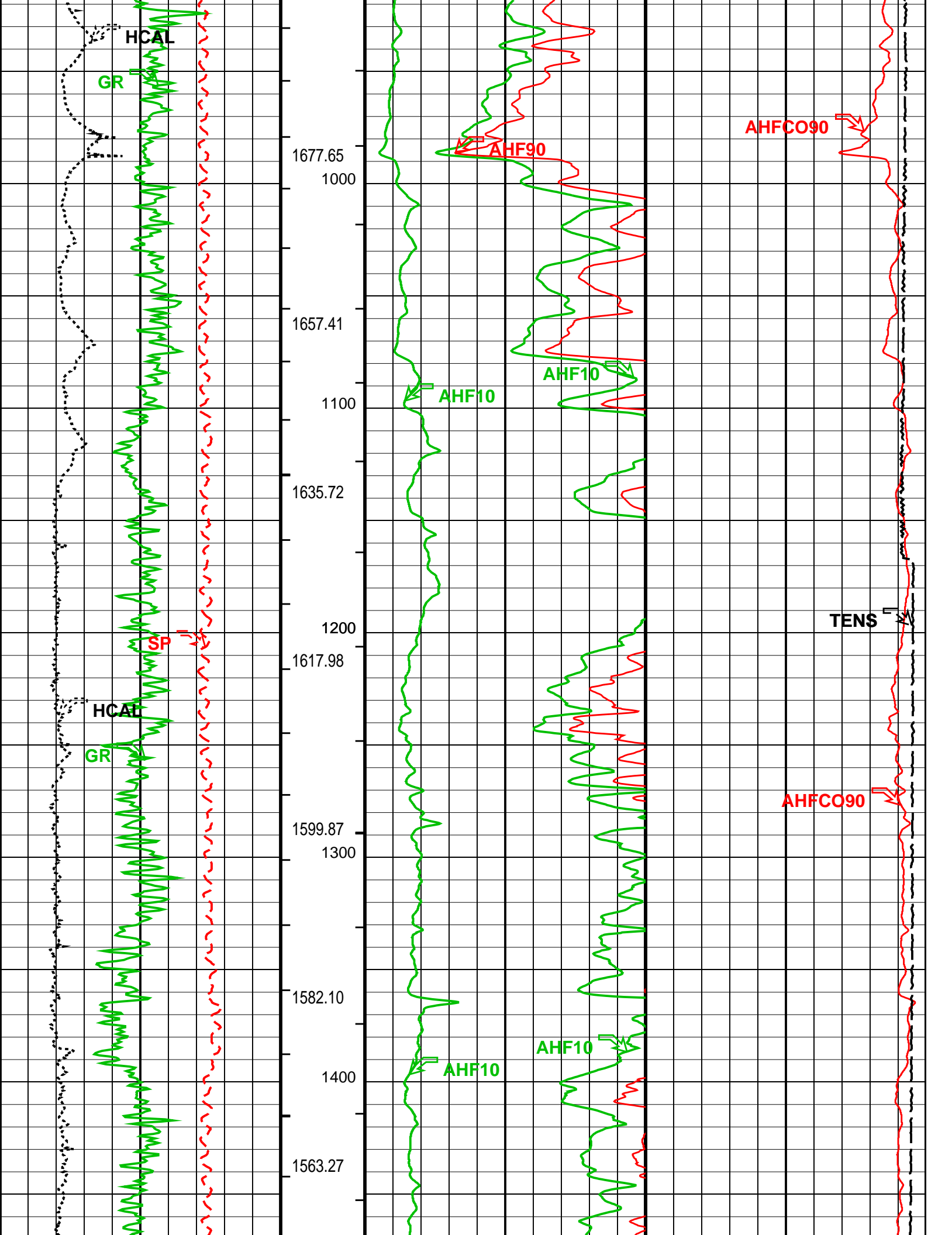
PIP SUMMARY

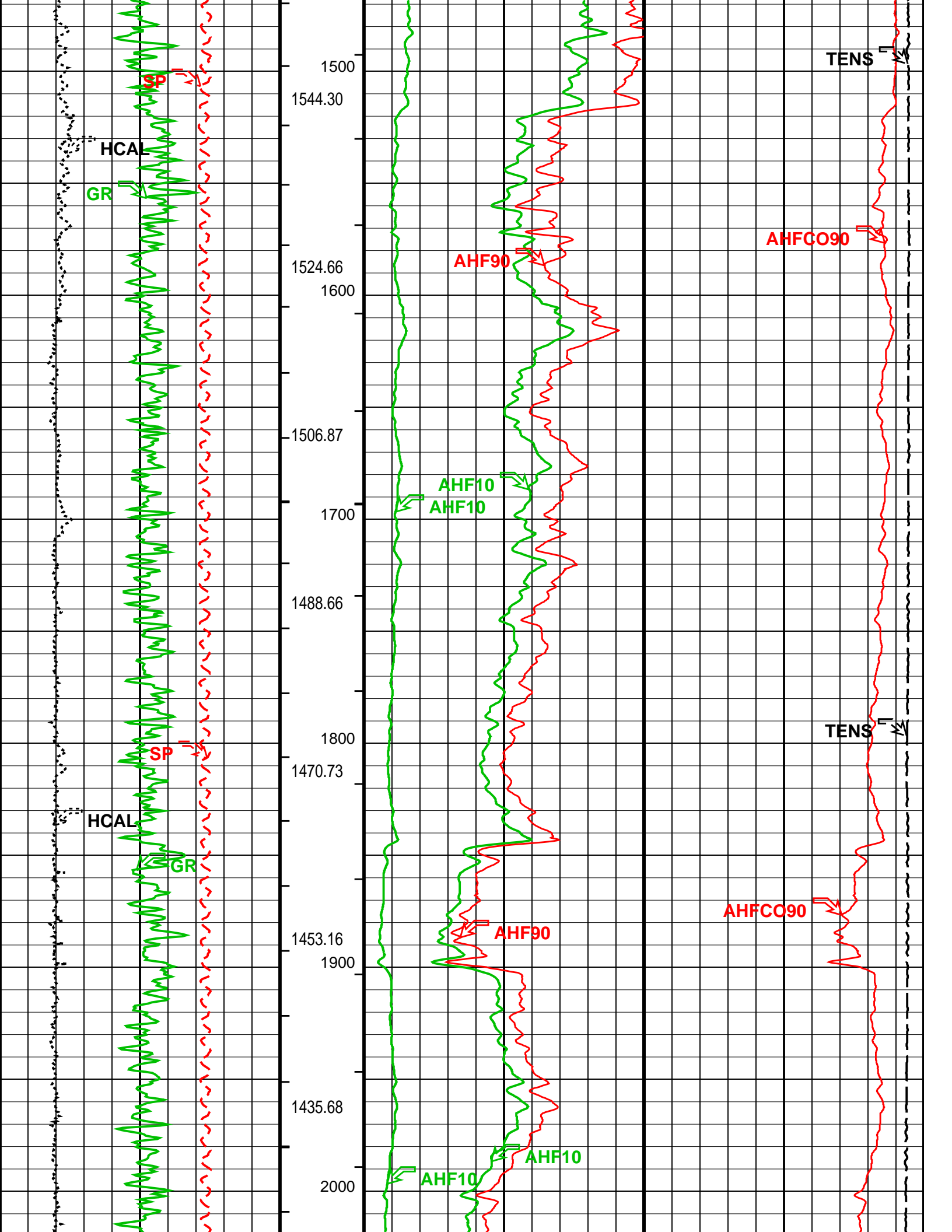
- Integrated Cement Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3

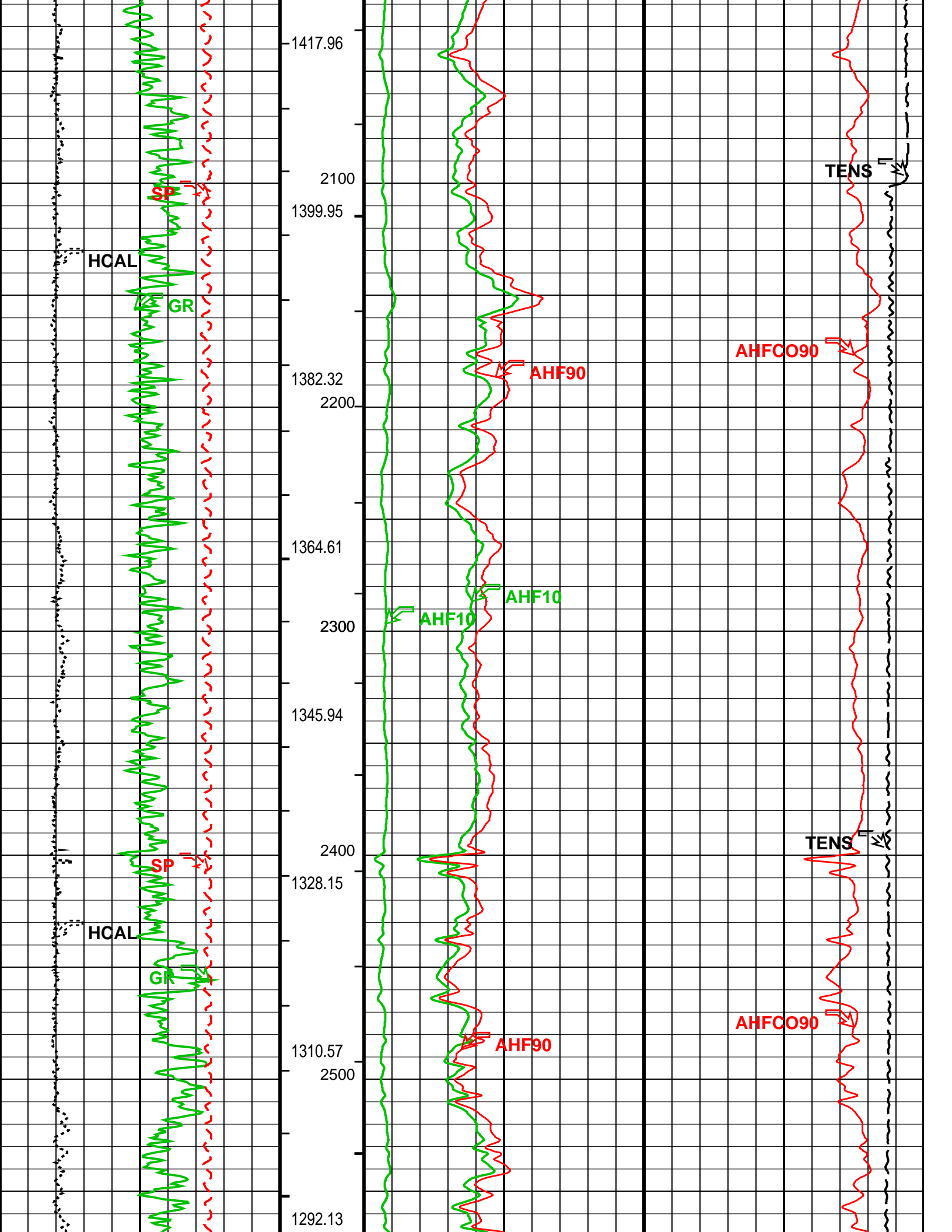
SP (SP) (MV)		AIT-H 90 Inch Investigation (AHF90) (OHMM)		Tension (TENS) (LBF)	
Caliper (HCAL) (IN)		AIT-H 10 Inch Investigation (AHF10) (OHMM)		AIT-H 90 Inch Investigation Conductivity (AHFCO90) (MM/M)	
Gamma Ray (GR) (GAPI)		AIT-H 10 Inch Investigation (AHF10) (OHMM)			
Gamma Ray Backup		Cement Volume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

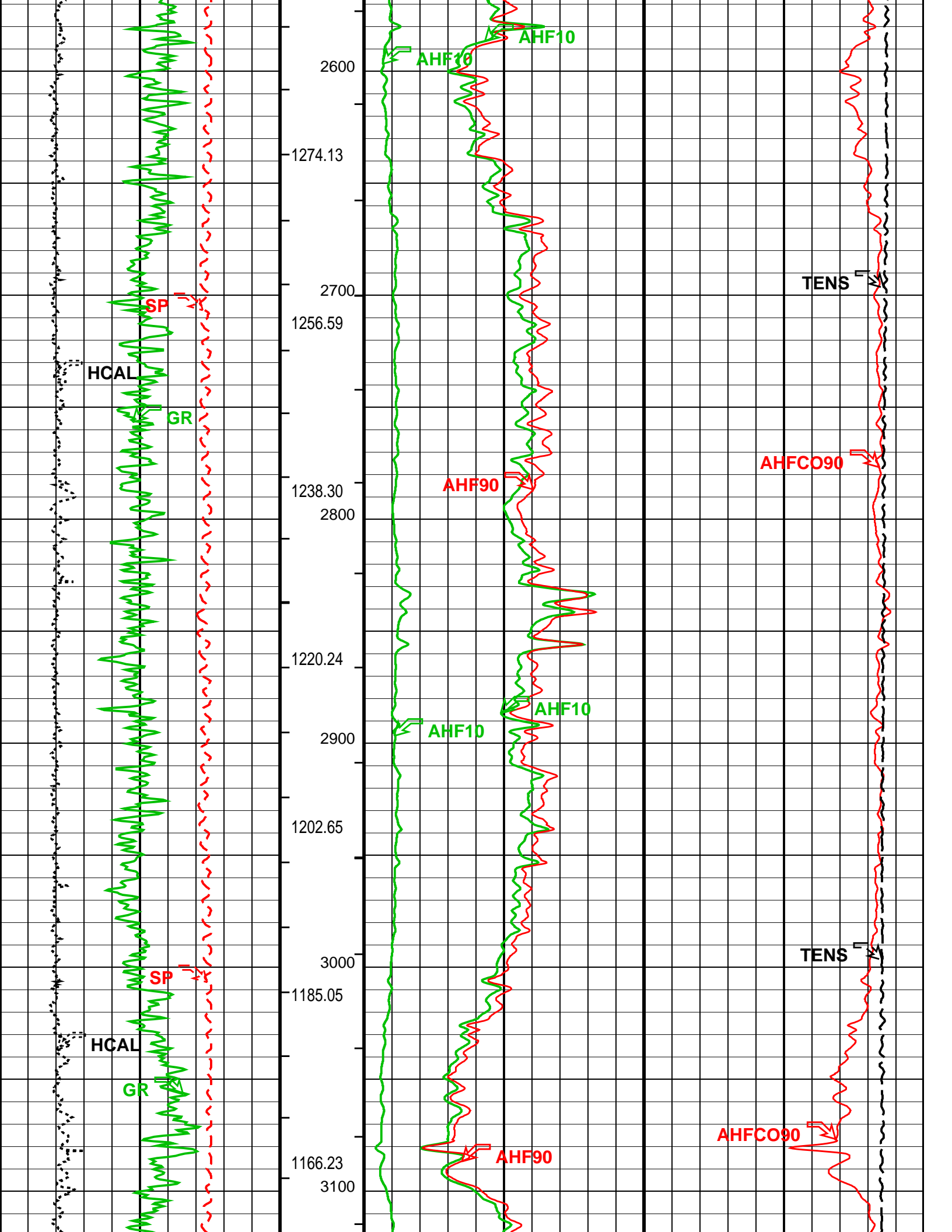
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

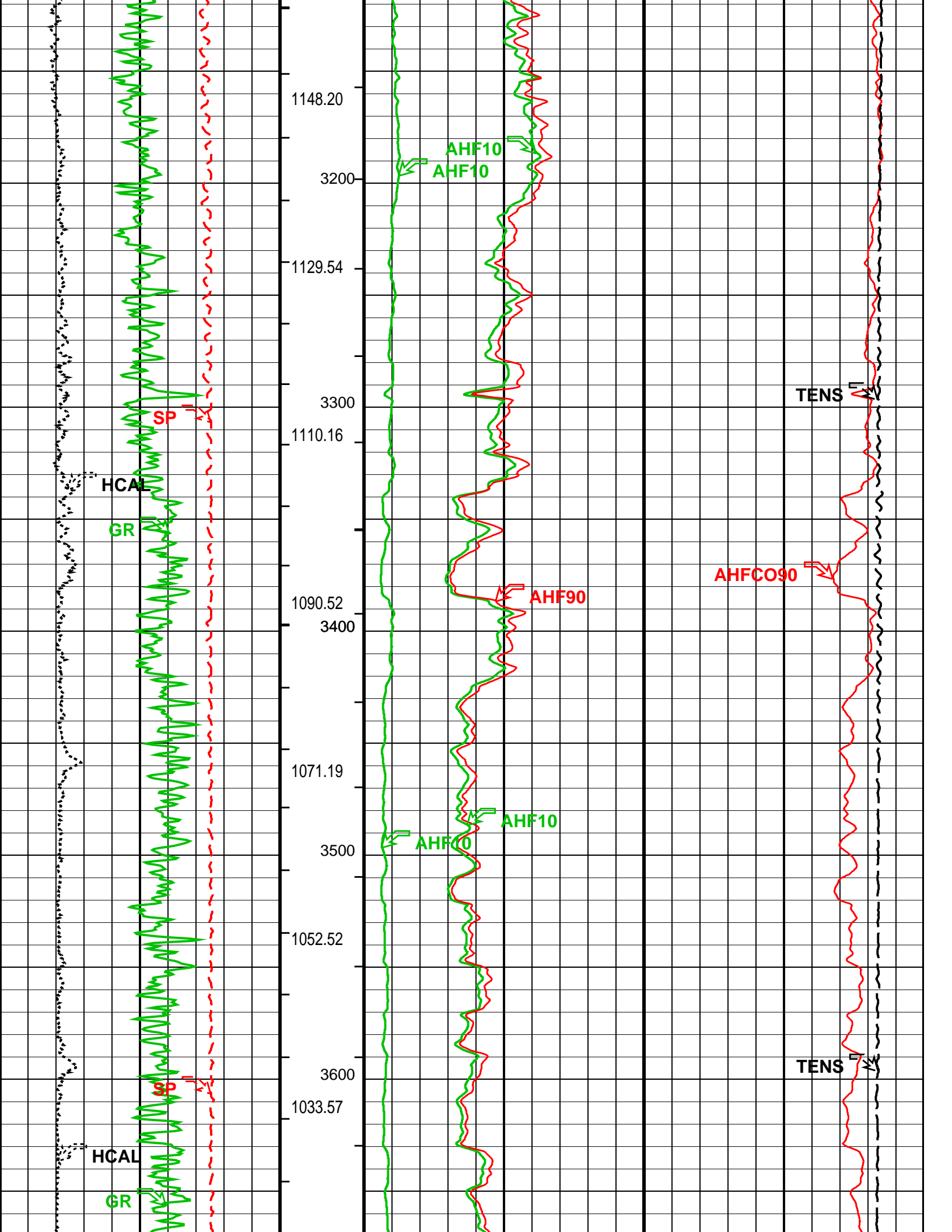


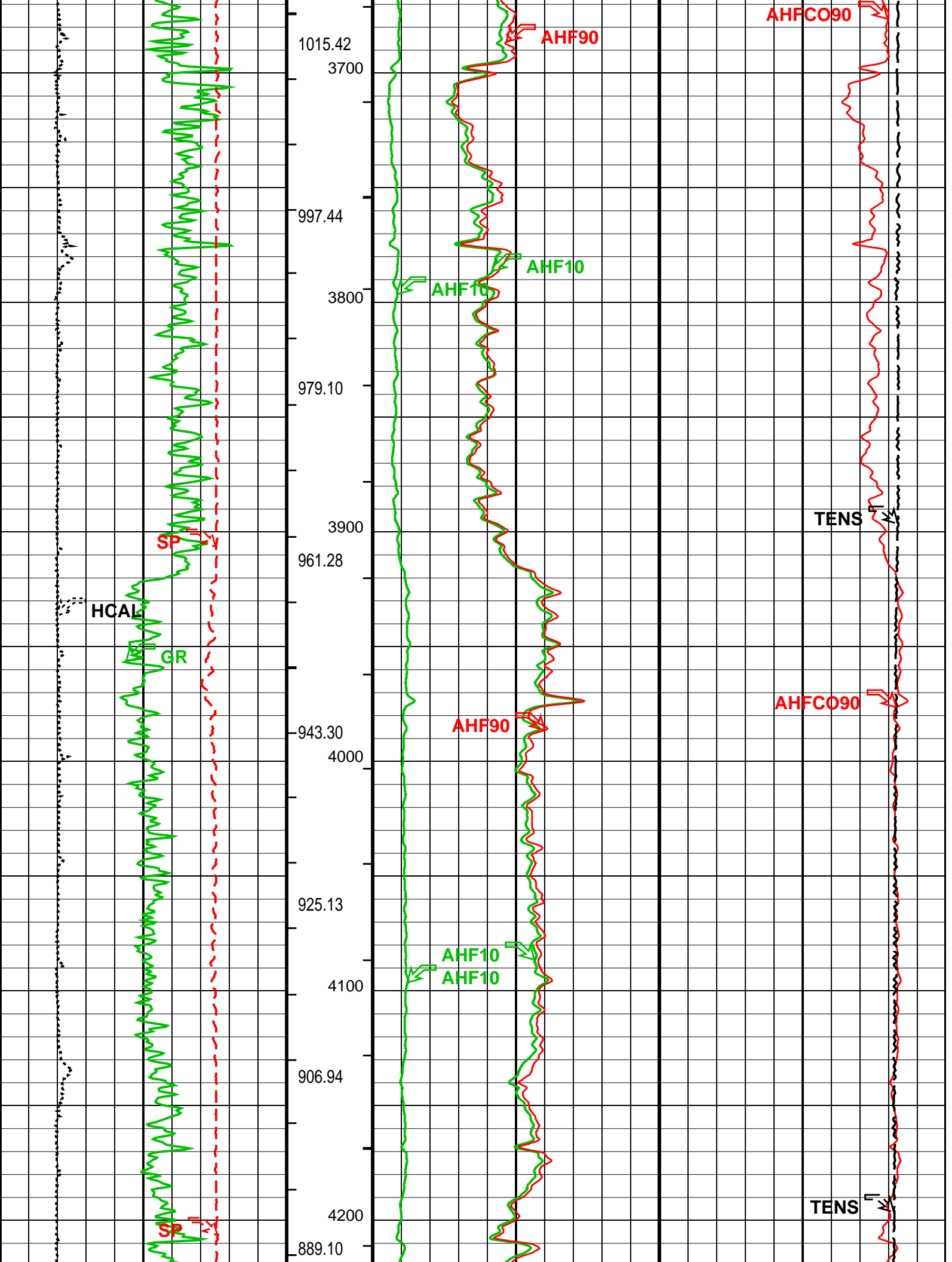


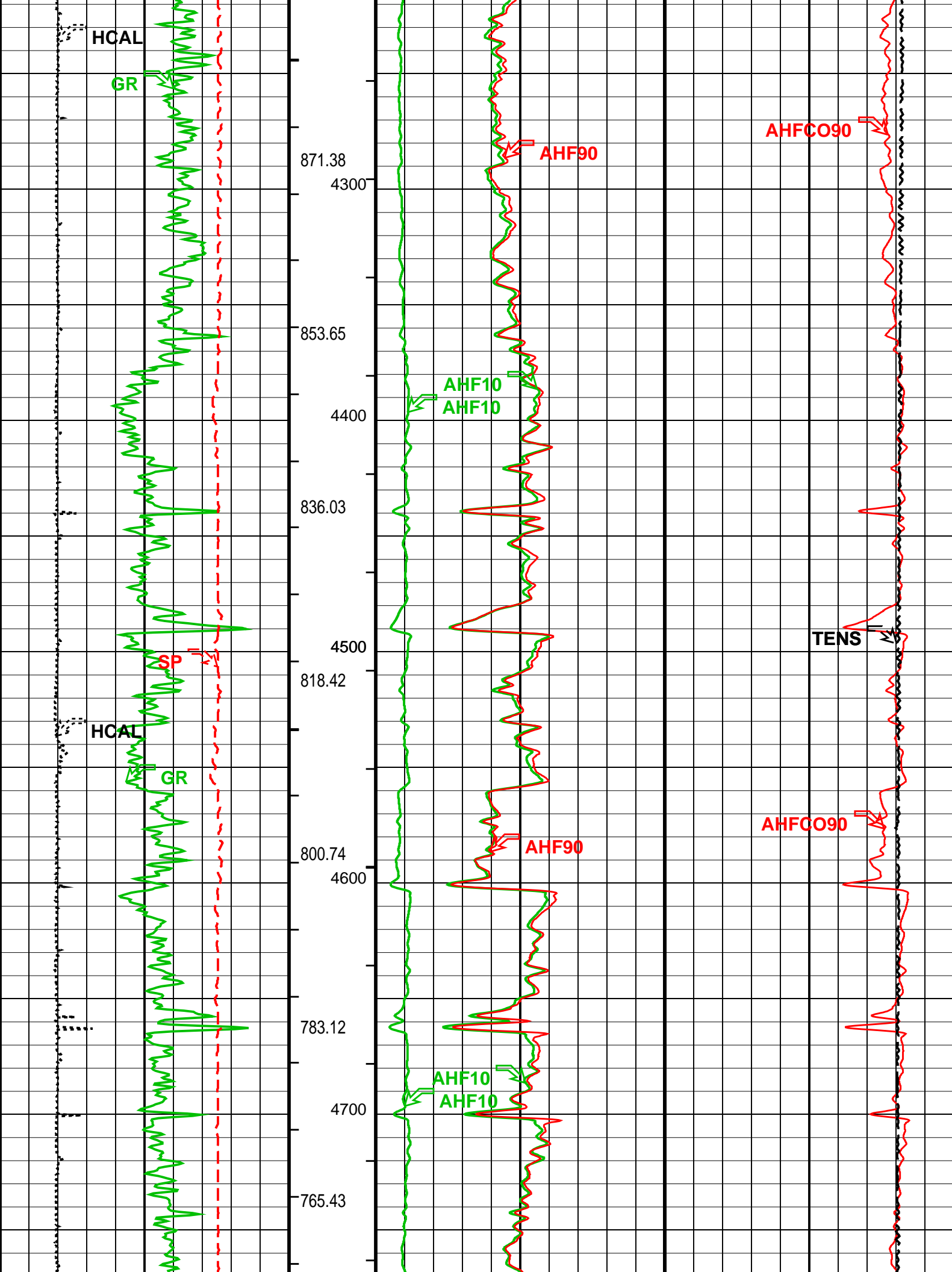


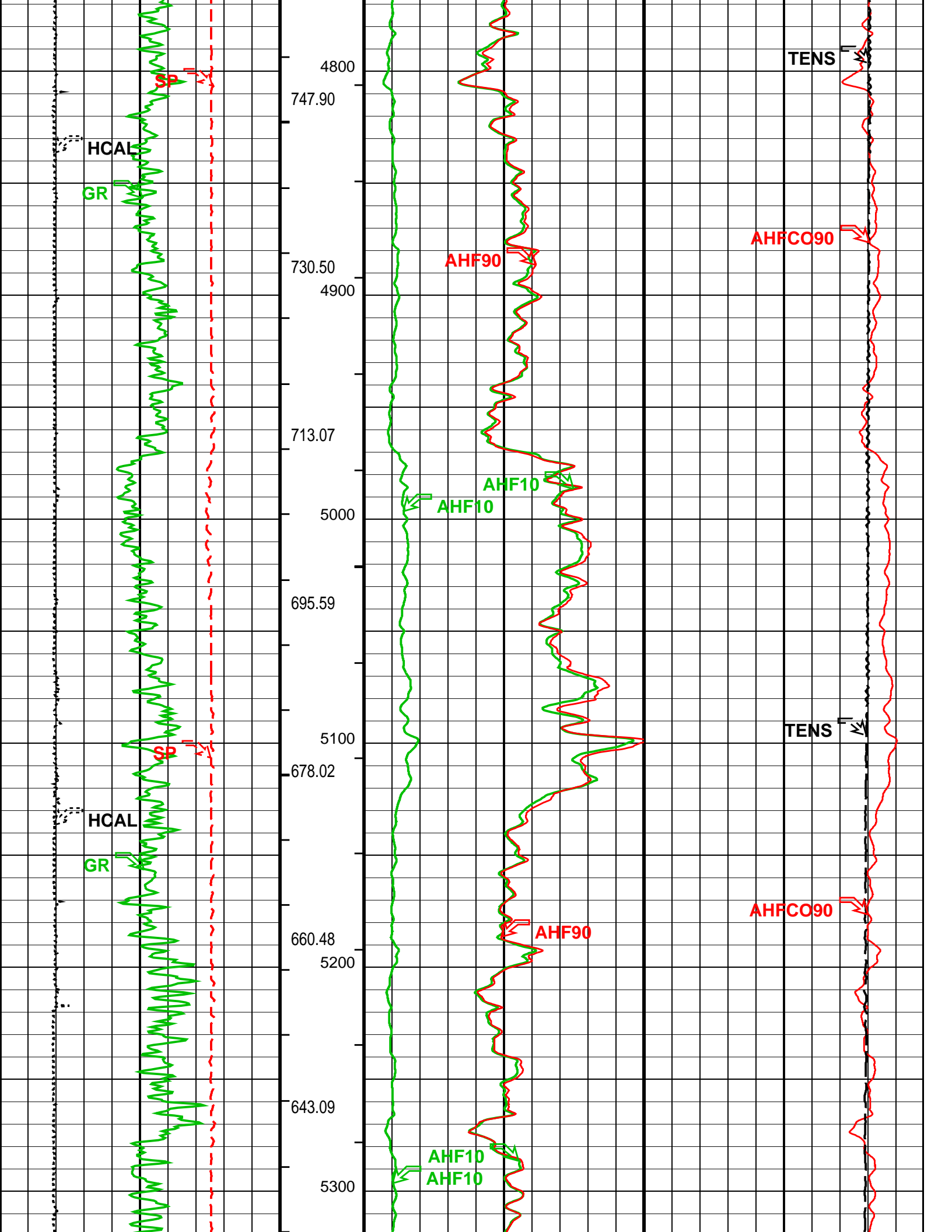


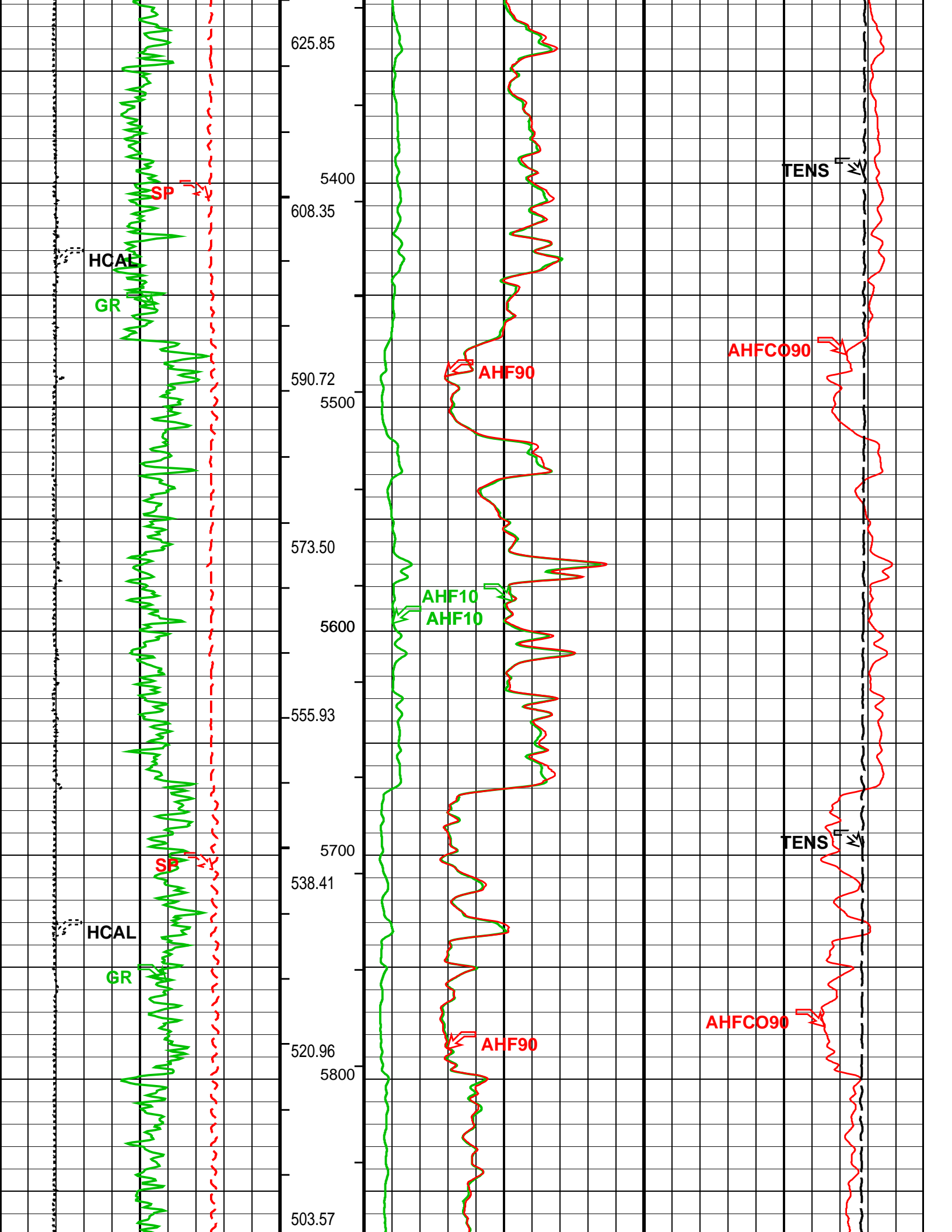


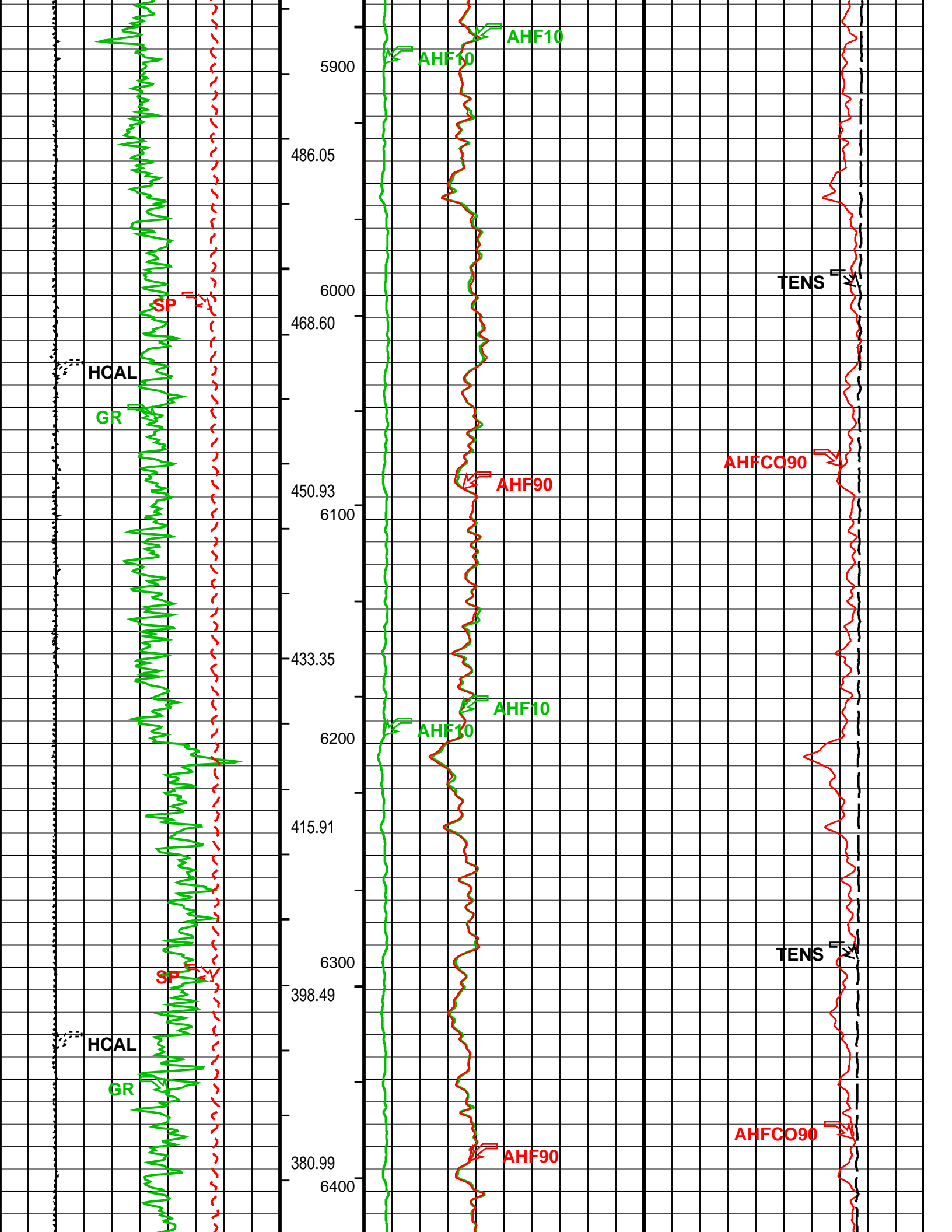


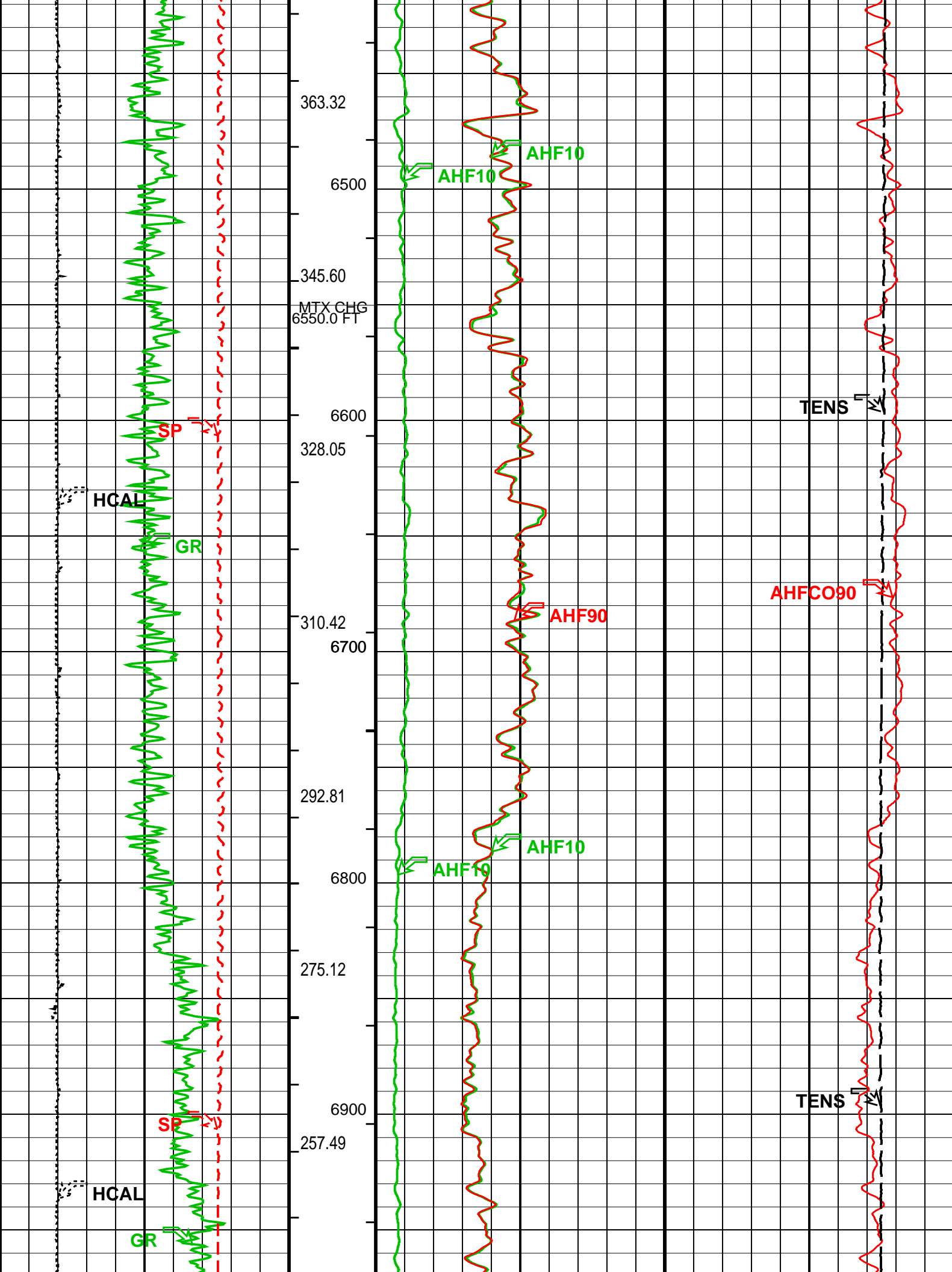


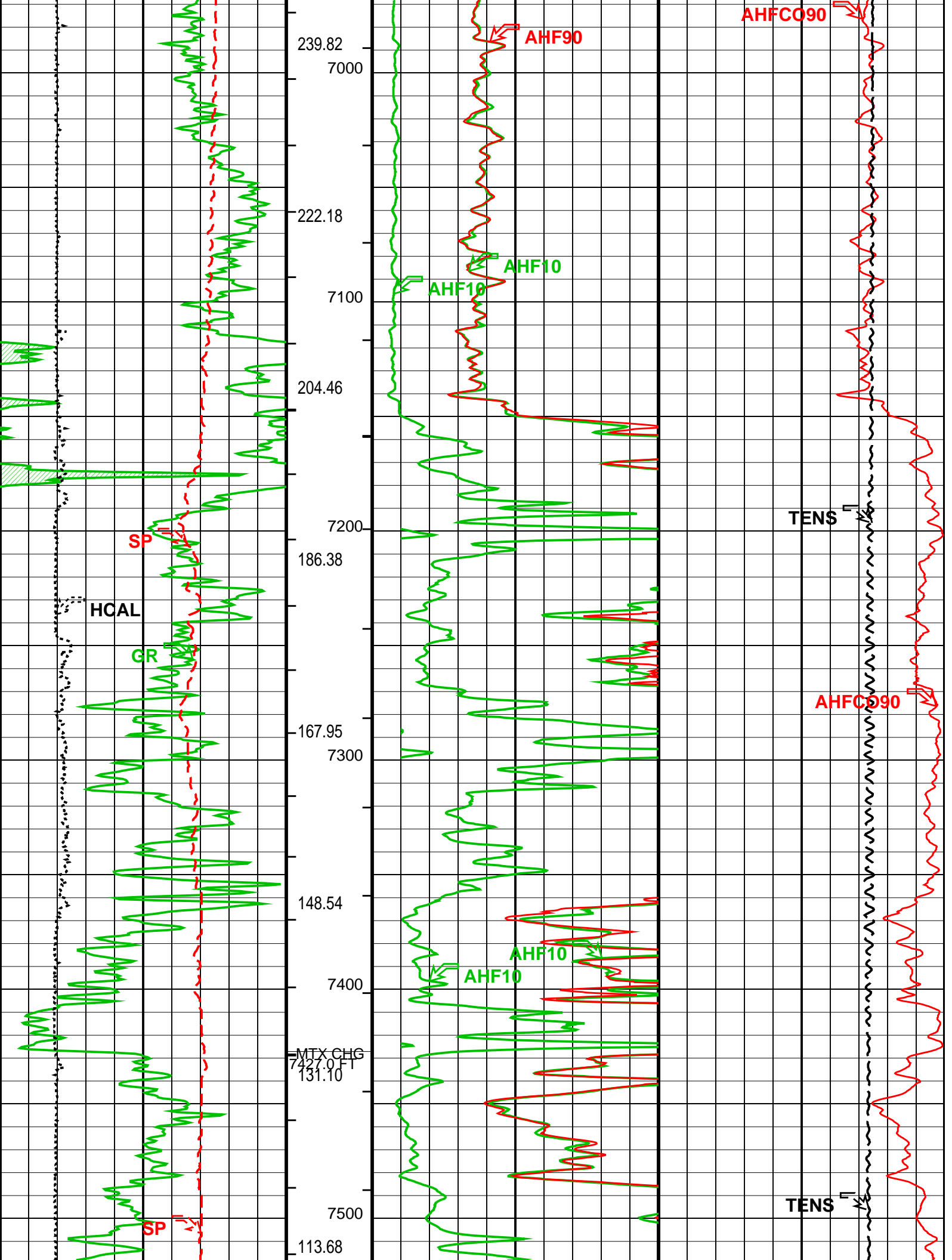


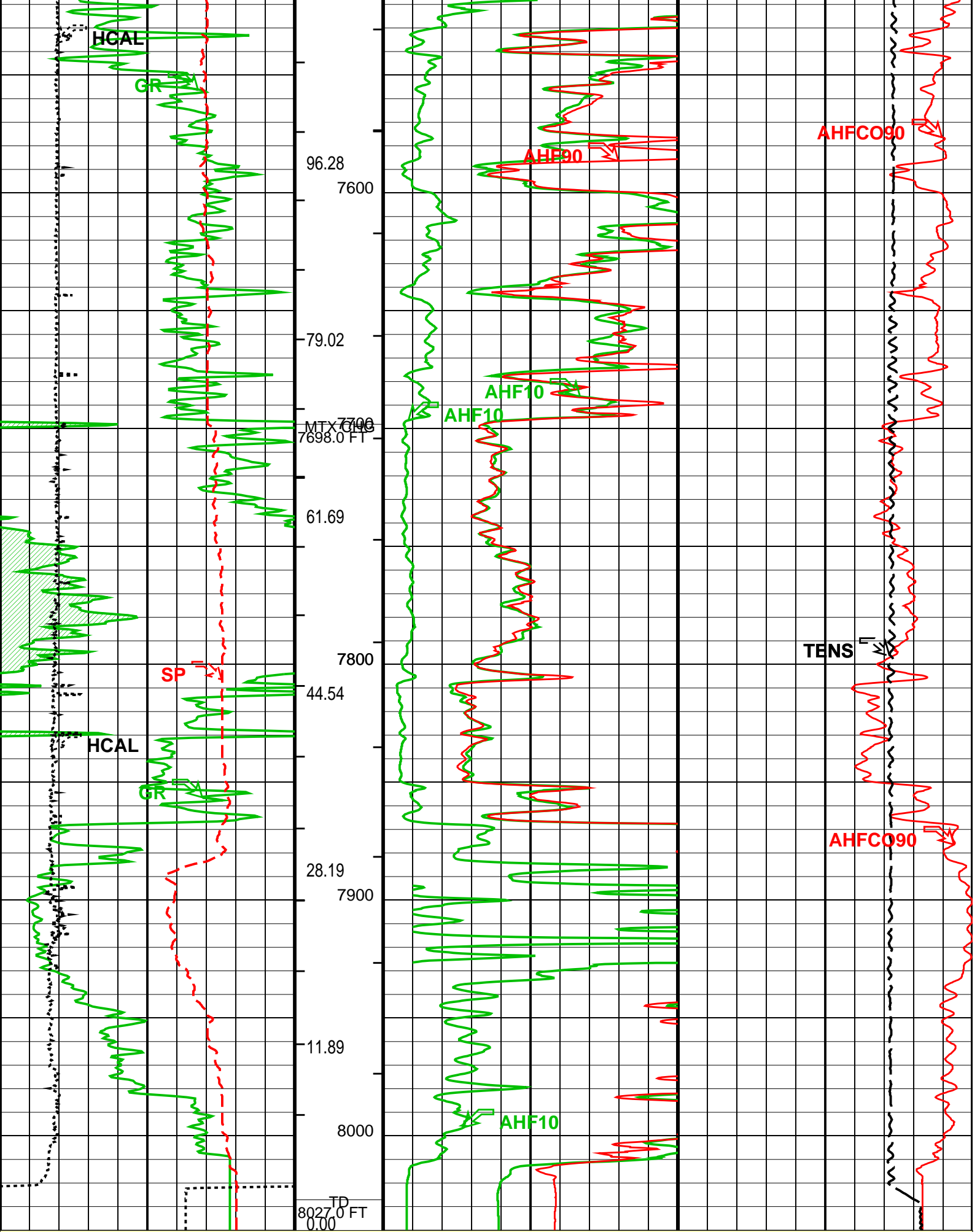












MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

Cement

AIT-H 10 Inch Investigation (AHE10)

AIT-H 90 Inch Investigation Conductivity

Gamma Ray Backup	Volume (ICV) (F3)	0	AIT-H 10 Inch Investigation (AHF10) (OHMM)	50	1000	(AHFCO90) (MM/M)	0
Gamma Ray (GR) (GAPI)		200	AIT-H 10 Inch Investigation (AHF10) (OHMM)	10	10000	Tension (TENS) (LBF)	0
Caliper (HCAL) (IN)		6	AIT-H 90 Inch Investigation (AHF90) (OHMM)	10			
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	
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)	225	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
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)	225	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	HCAL	
SHT	Surface Hole Temperature	68	DEGF
PERT: Preliminary Evaluation - Real Time			
BHT	Bottom Hole Temperature (used in calculations)	225	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
System and Miscellaneous			
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.40	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	10.00	FT
MST	Mud Sample Temperature	65.10	DEGF
TD	Total Depth	8027	FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13



UPPER RESISTIVITY LOG 5" = 100'

MAXIS Field Log

Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13 8040.0 FT 0.0 FT

Integrated Hole/Cement Volume Summary

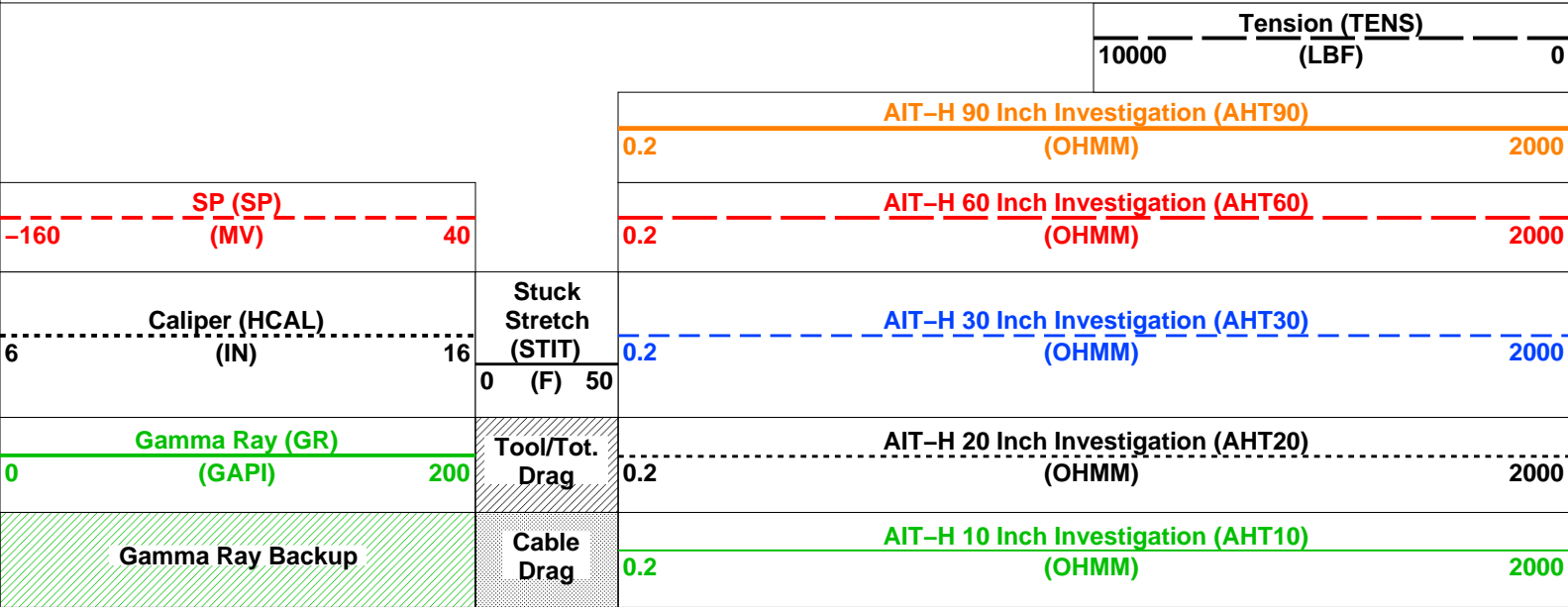
Hole Volume = 417.84 ft3
Cement Volume = 284.82 ft3 (assuming 4.50 in casing O.D.)
Computed from 4999.5 ft to 3795.5 ft

OP System Version: 17C0-154

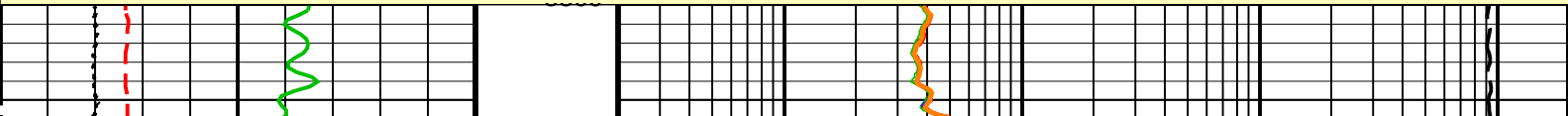
HILTC 17C0-154

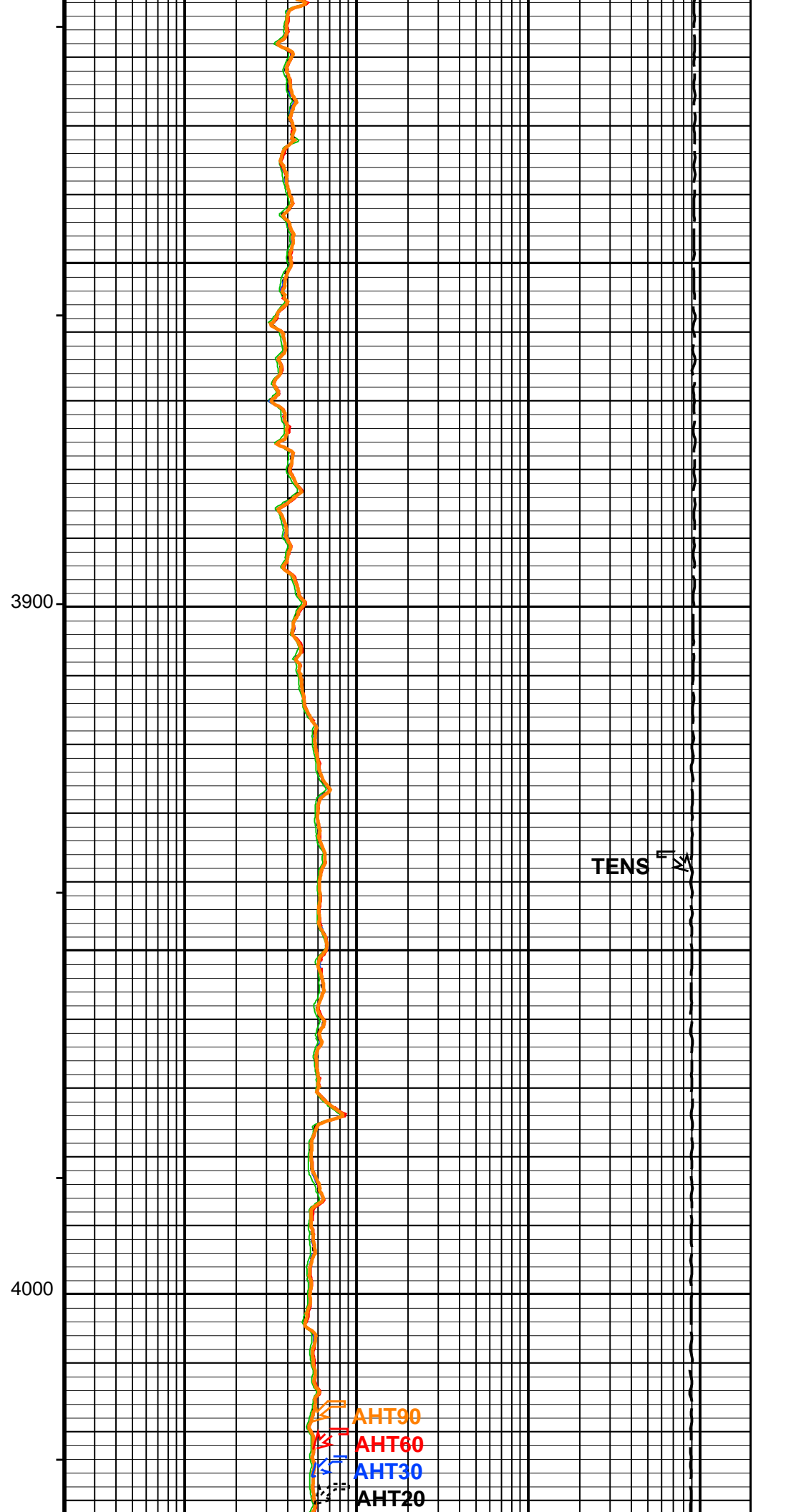
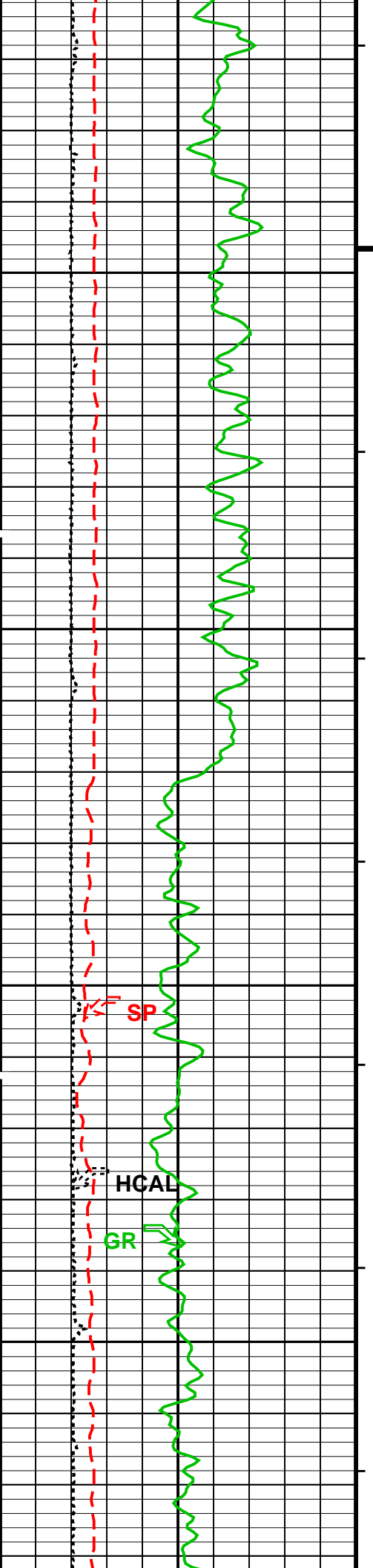
PIP SUMMARY

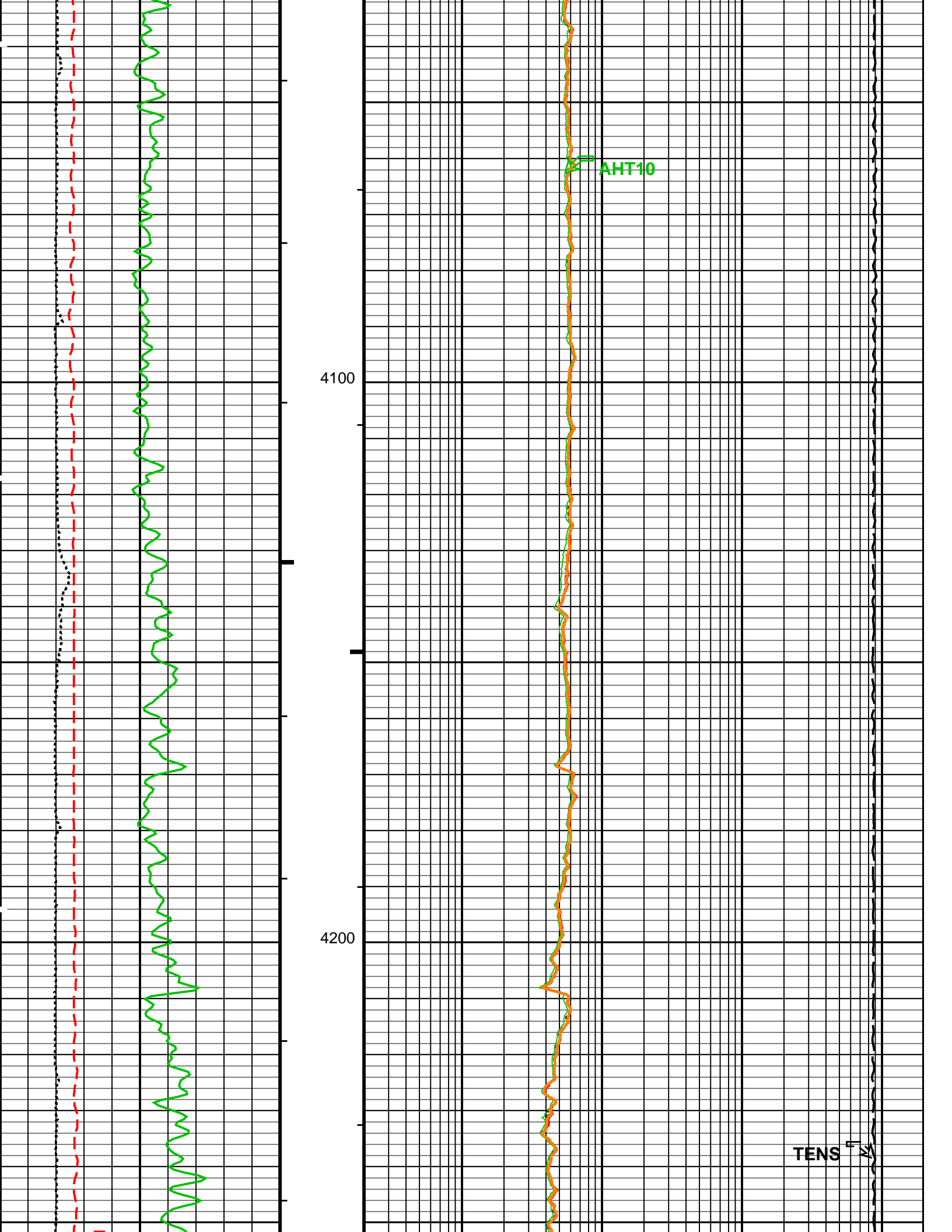
- └ Integrated Hole Volume Minor Pip Every 10 F3
 - └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3
- Time Mark Every 60 S

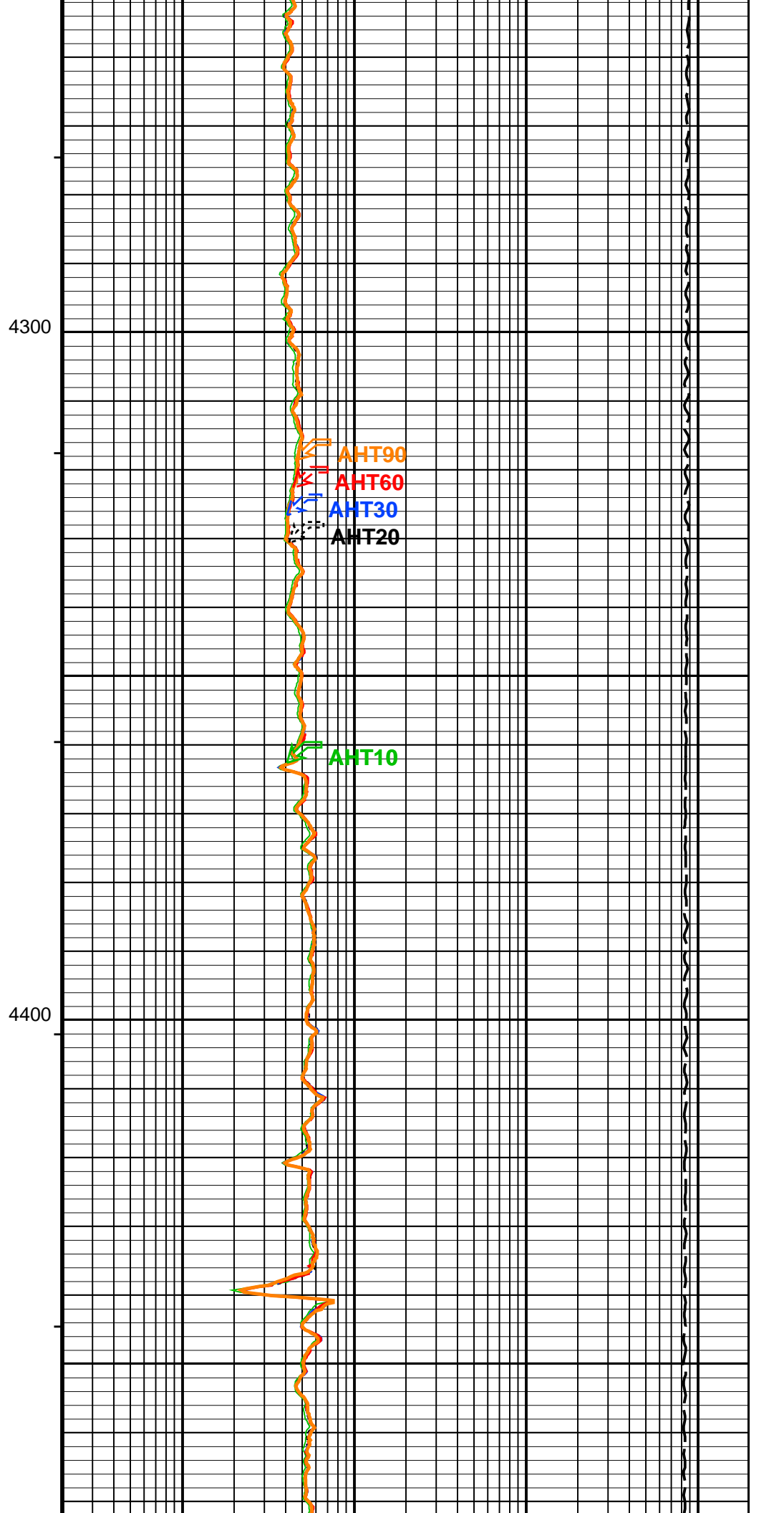
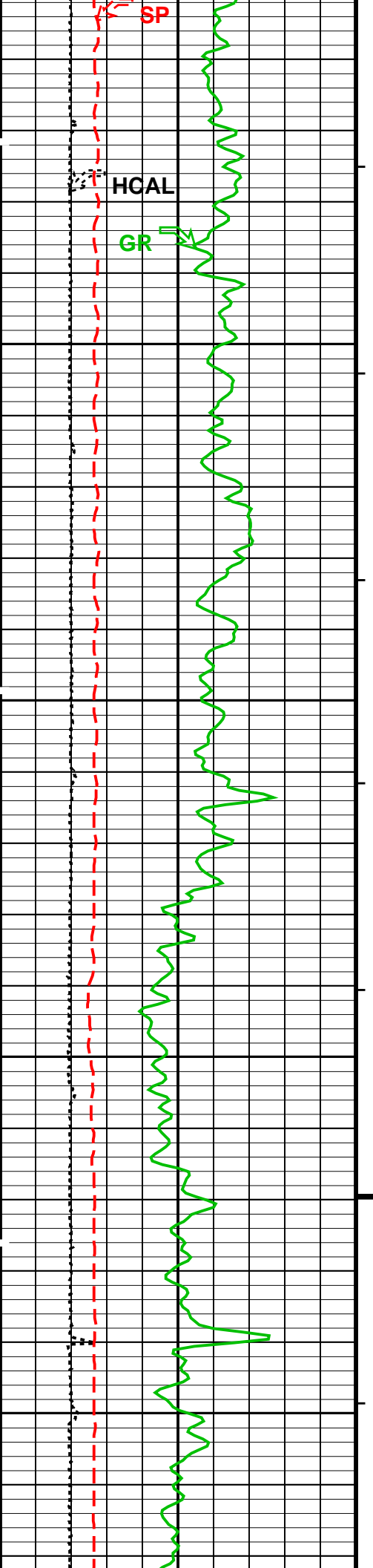


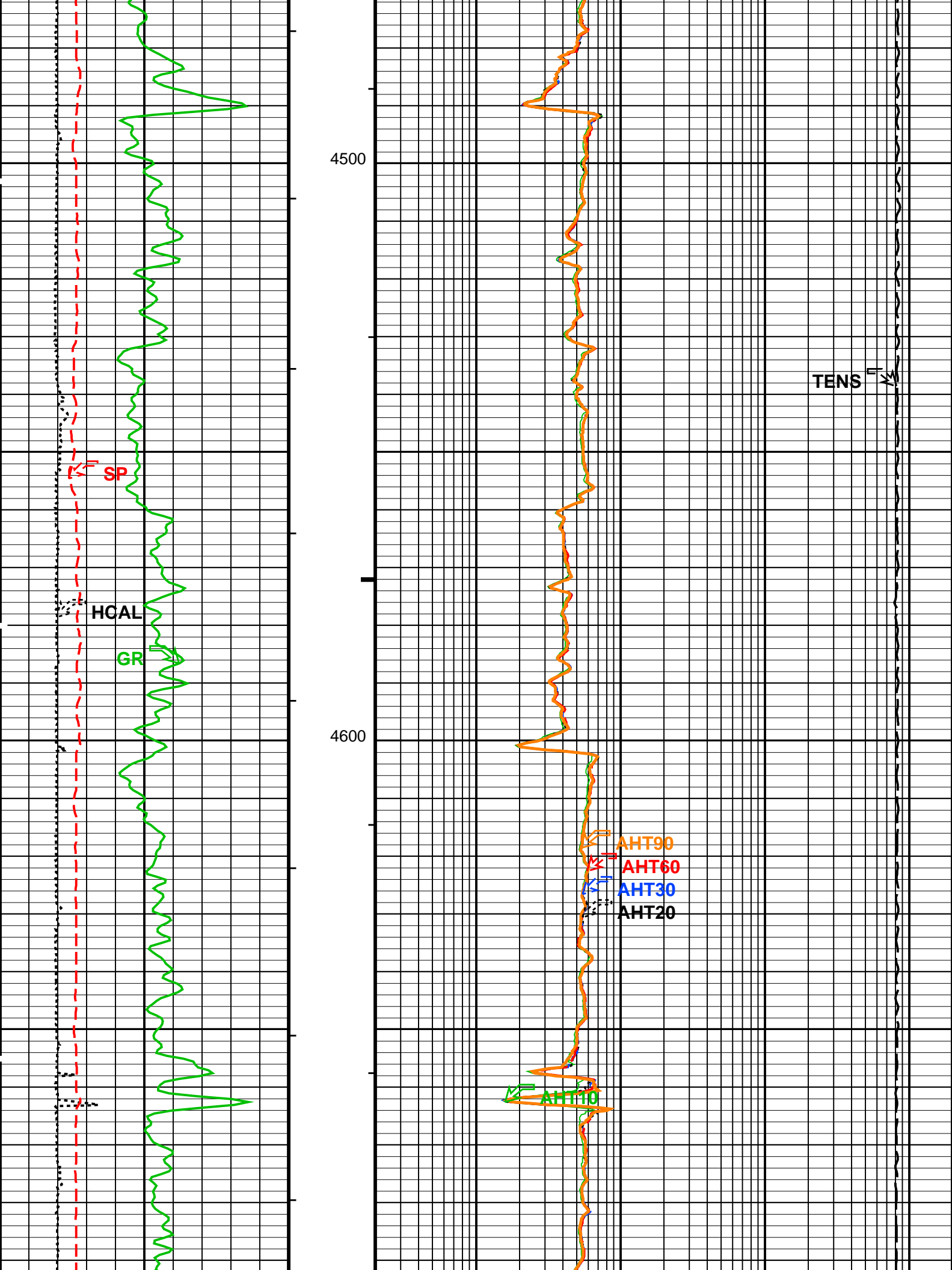
MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

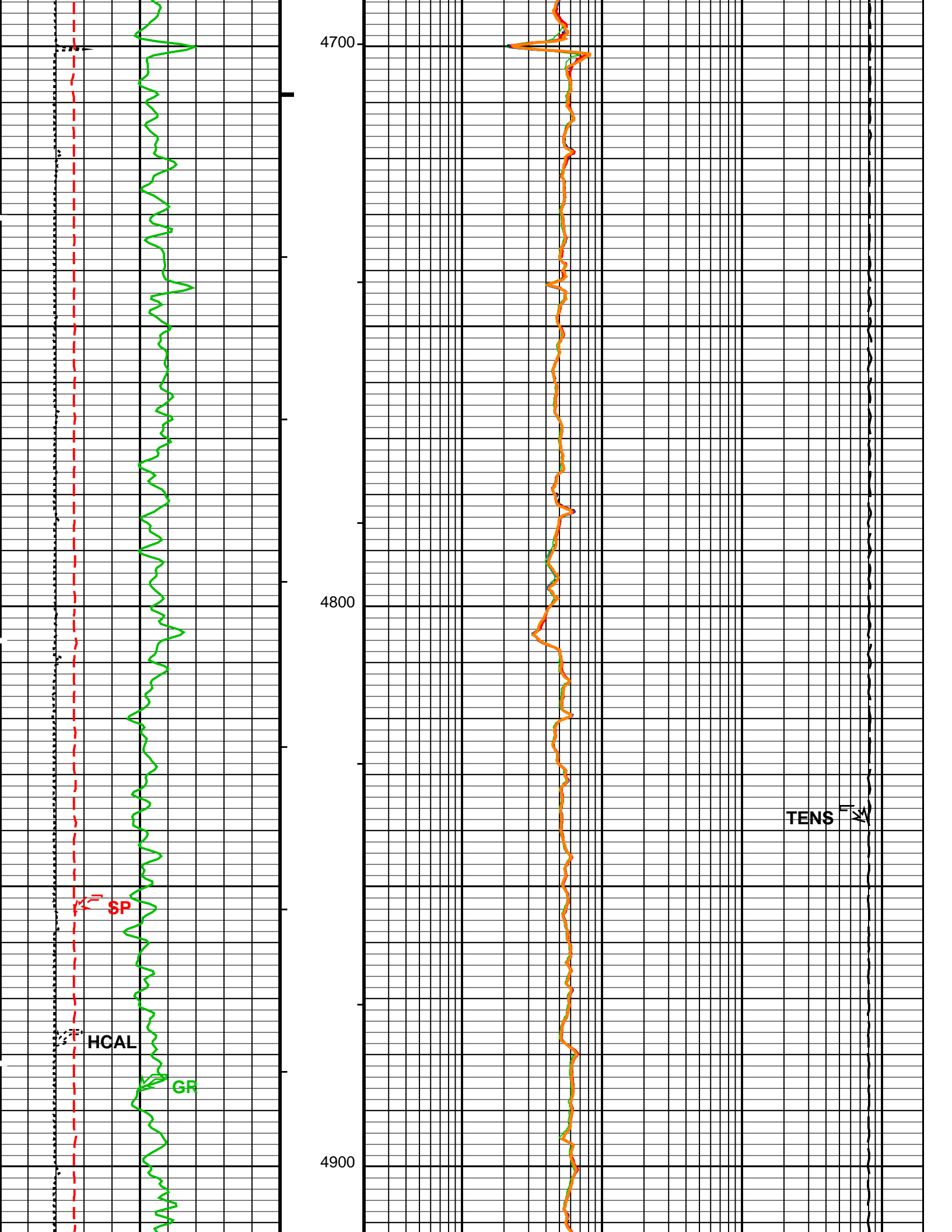


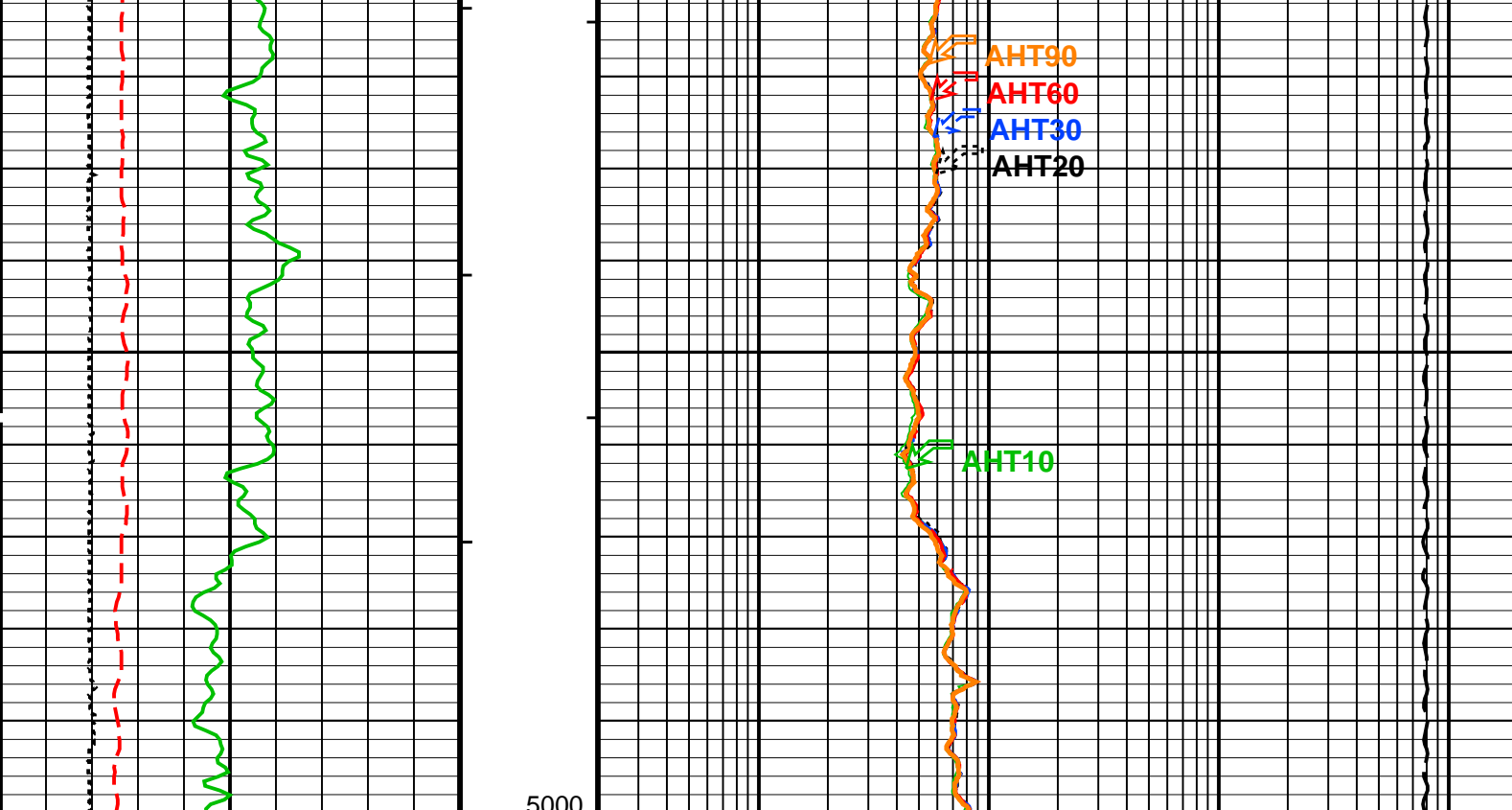












MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

Gamma Ray Backup	Cable Drag	AIT-H 10 Inch Investigation (AHT10) (OHMM)		2000
0	200	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
6	0 50	0.2	AIT-H 60 Inch Investigation (AHT60) (OHMM)	2000
-160	40	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

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)	225.0	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
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)	225.0	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
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	225.0	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
STI: Stuck Tool Indicator			
STKT	STI Stuck Threshold	2.500	ft
TDD	Total Depth – Driller	8035.0	ft
TDL	Total Depth – Logger	8027.0	ft
System and Miscellaneous			
BS	Bit Size	7.875	in
DFD	Drilling Fluid Density	8.400	lbm/gal
FLEV	Fluid Level	10.000	ft
MST	Mud Sample Temperature	65.100	degF
TD	Total Depth	8027.0	ft

Format: UPPER_GRES Vertical Scale: 5" per 100' Graphics File Created: 17-Feb-2010 09:02

OP System Version: 17C0-154

HILTC 17C0-154

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_006LUP	FN:5	PRODUCER	17-Feb-2010 08:13	8040.0 FT	0.0 FT
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Schlumberger

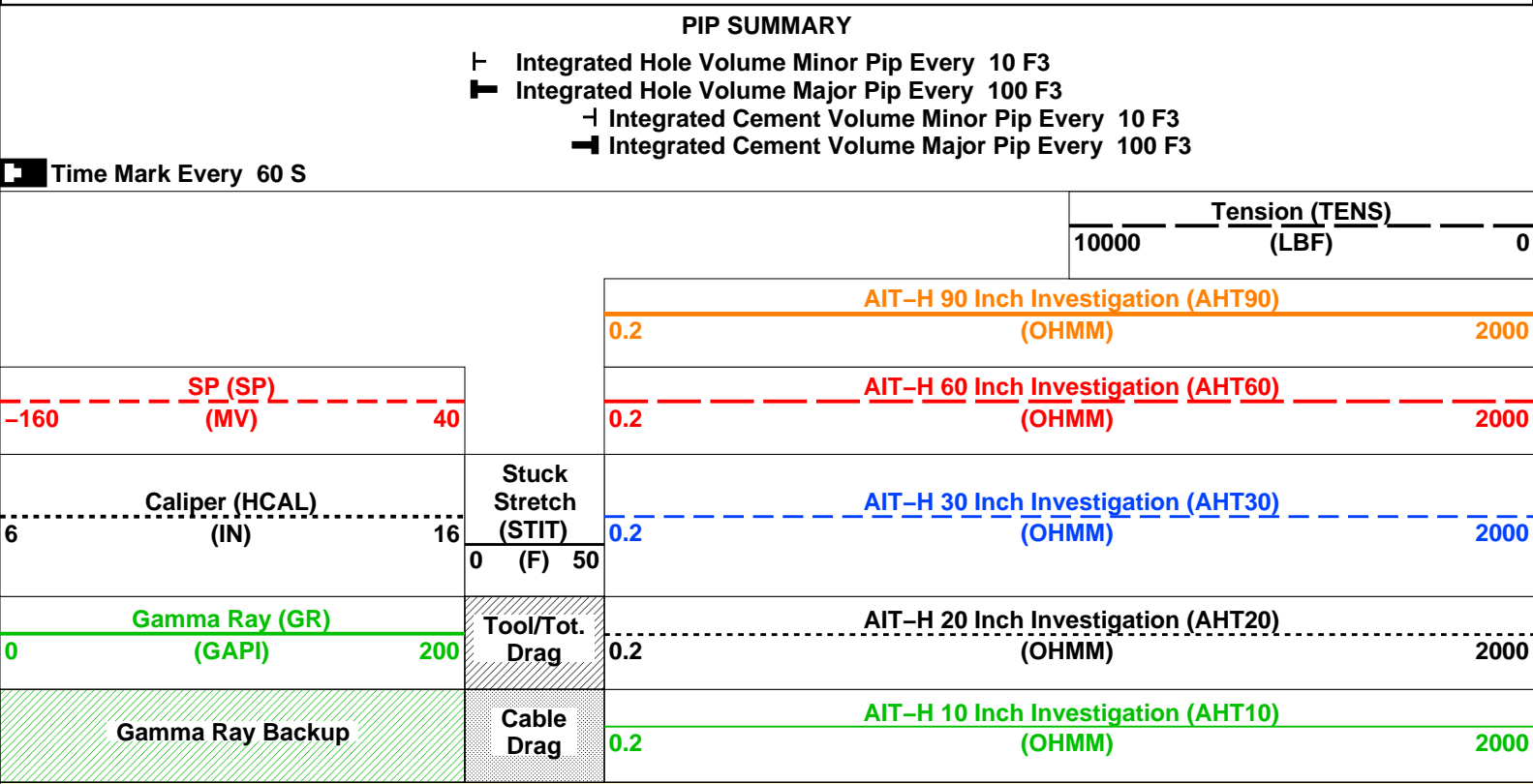
MAIN RESISTIVITY LOG 5" = 100'

MAXIS Field Log

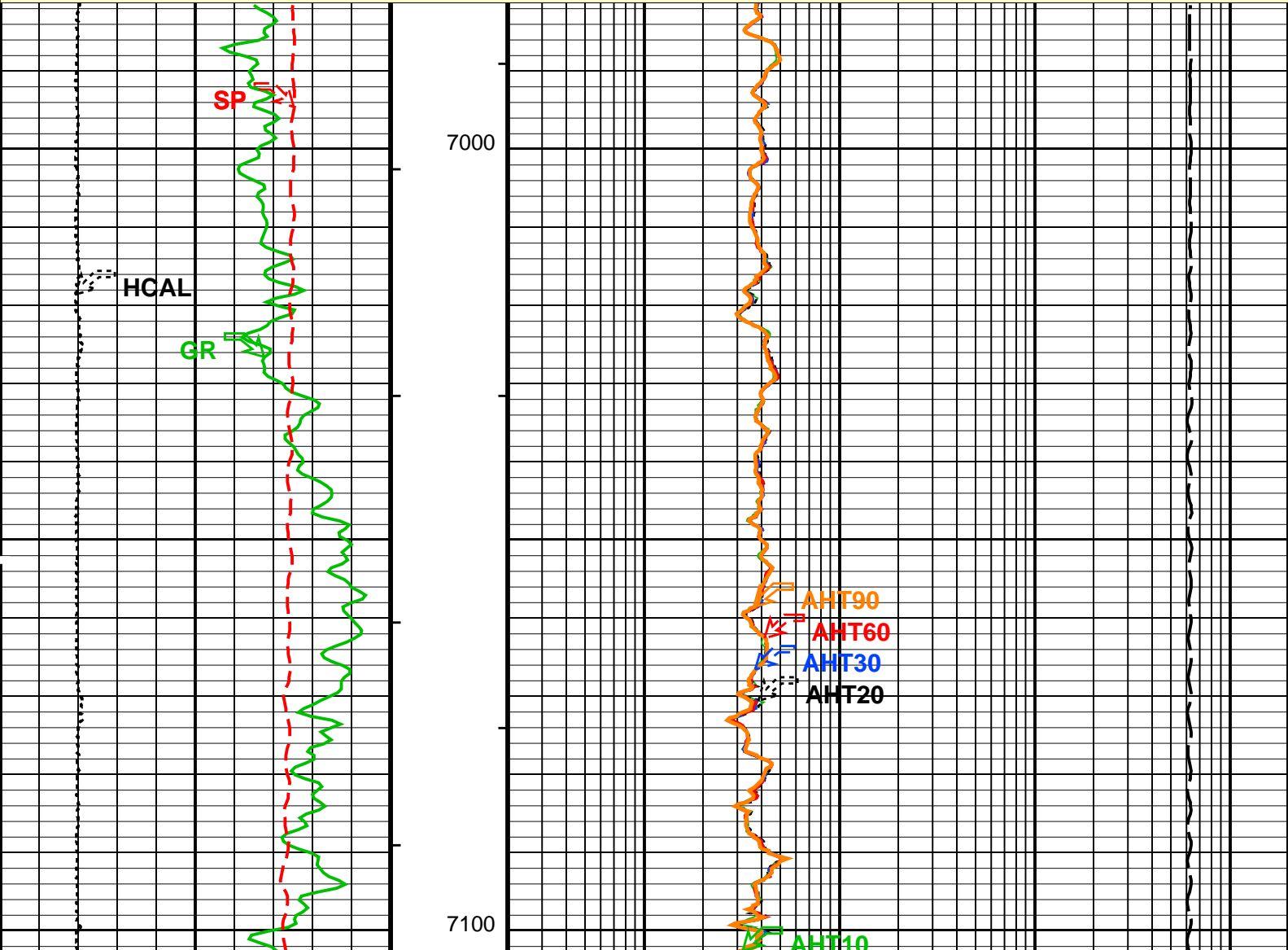
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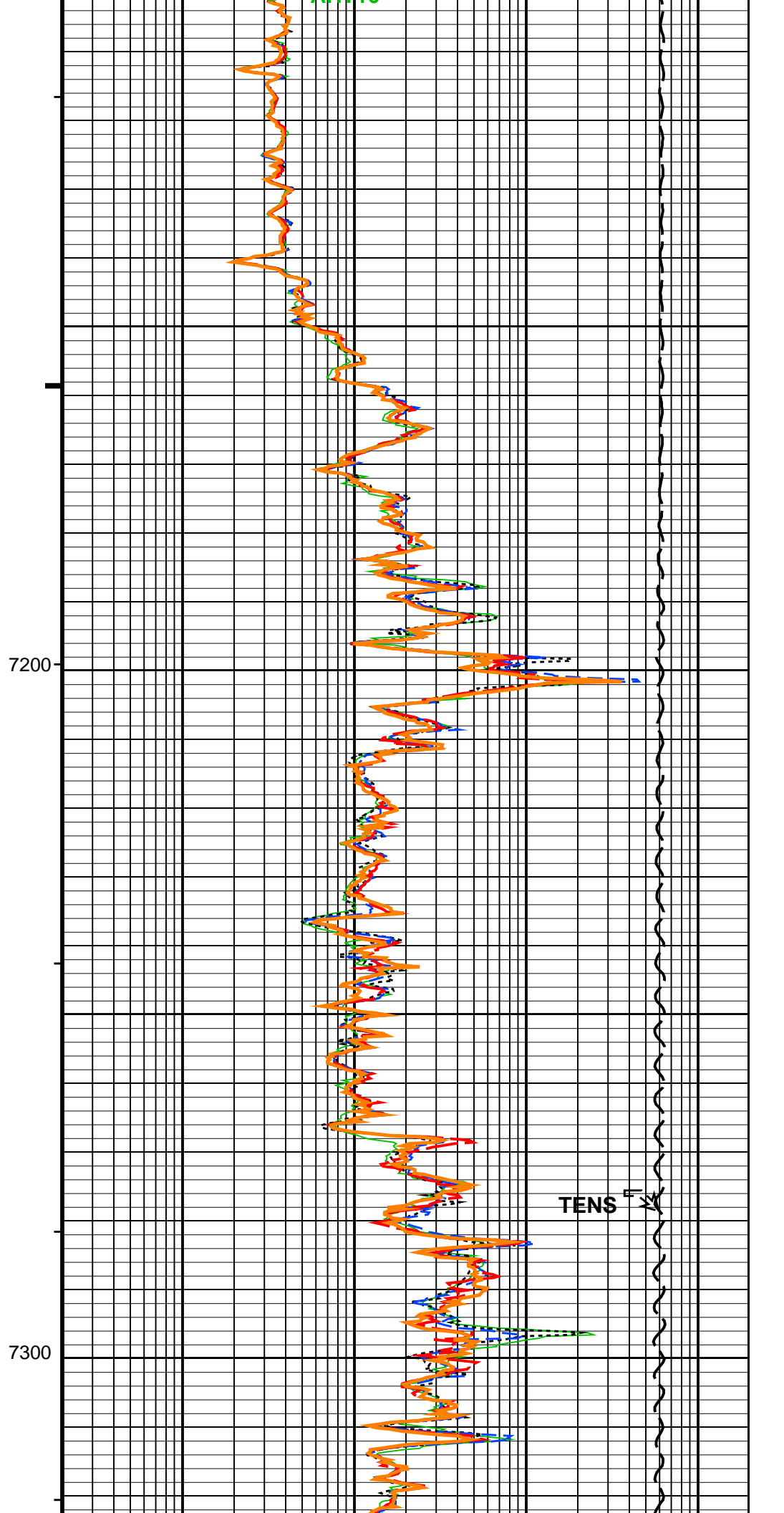
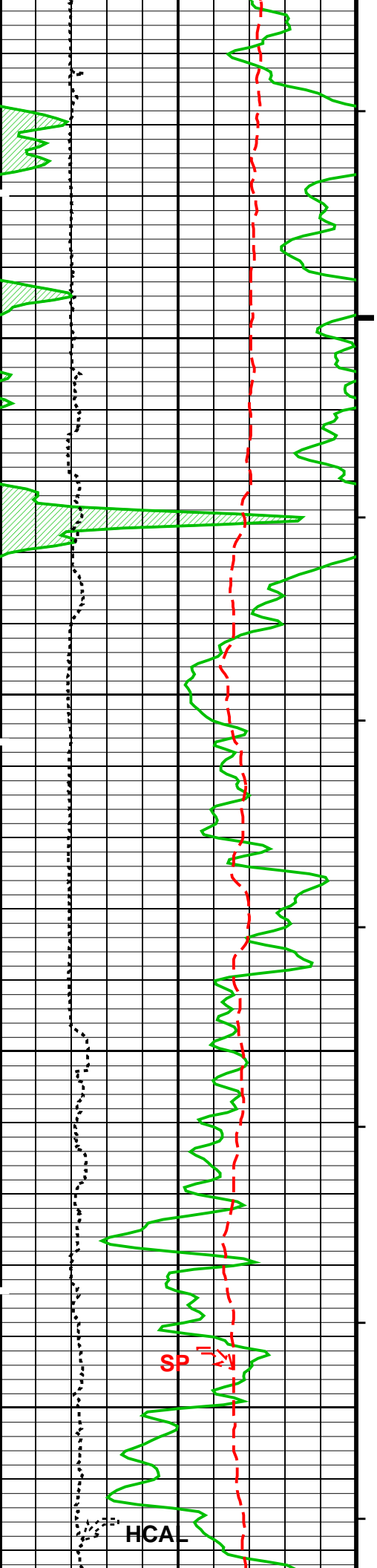
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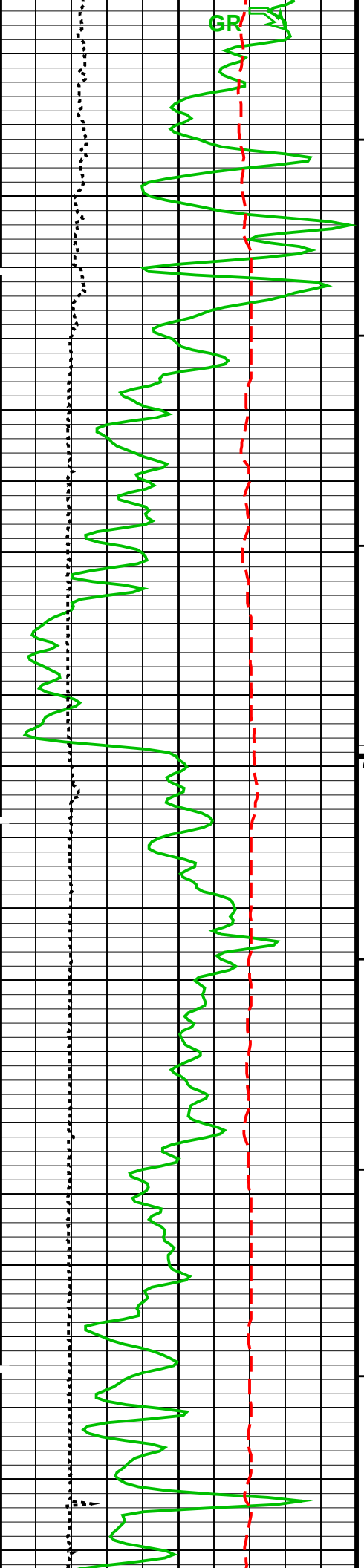
OP System Version: 17C0-154



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



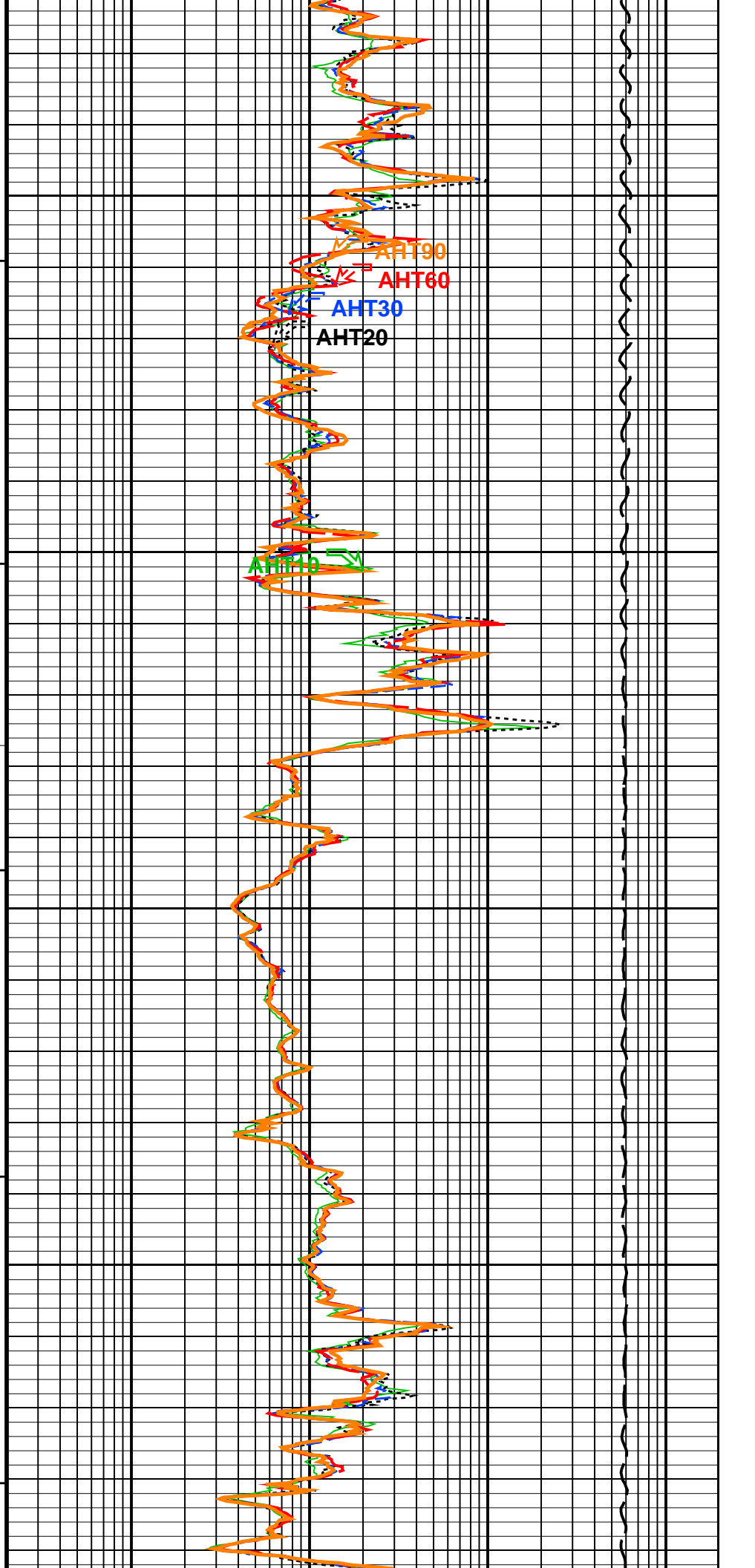


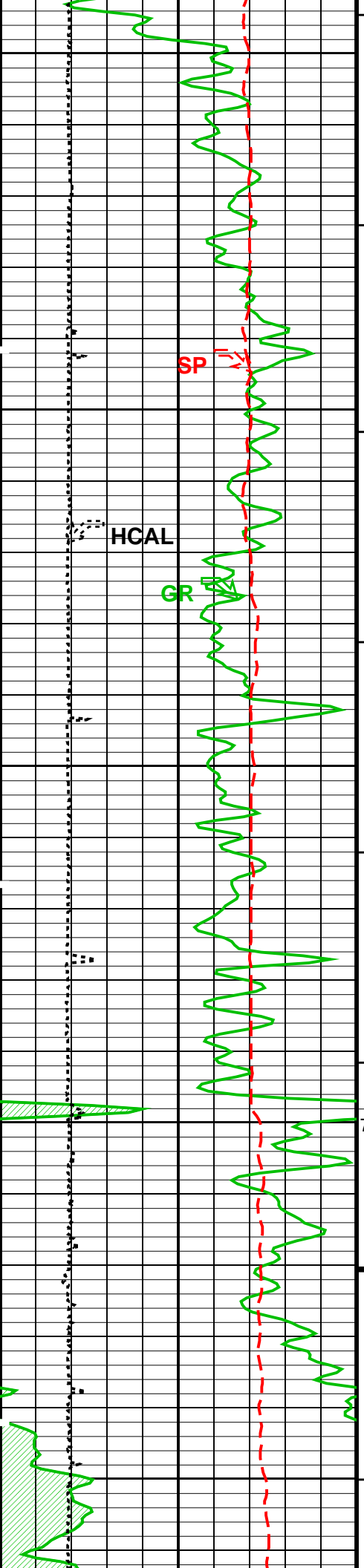


7400

MTX CHG
7427.0 F1

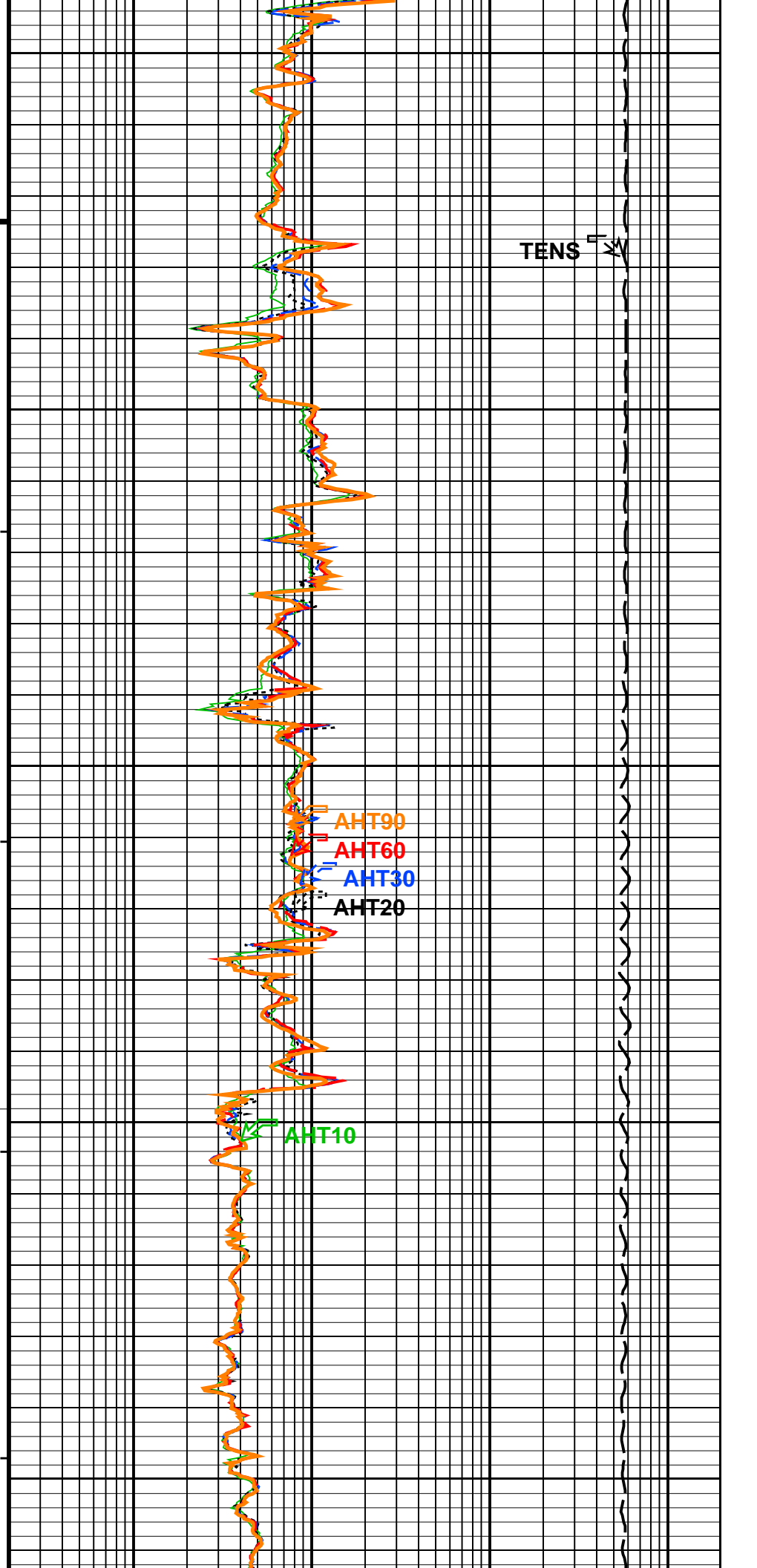
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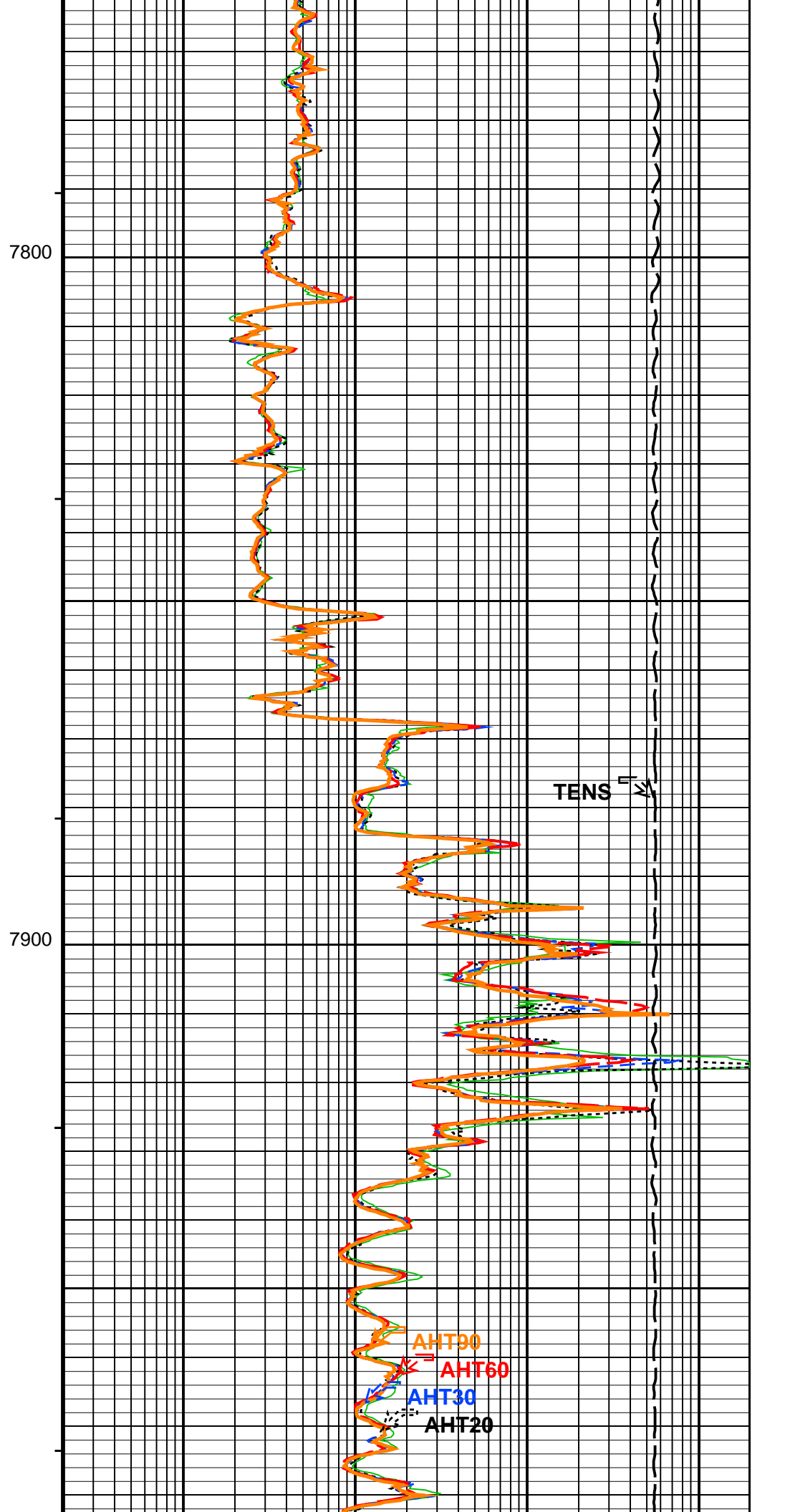
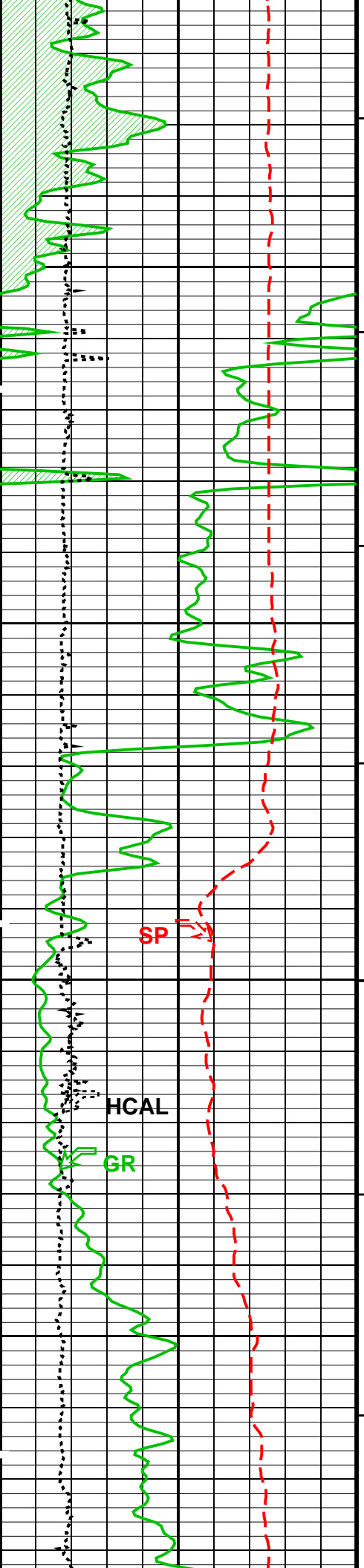


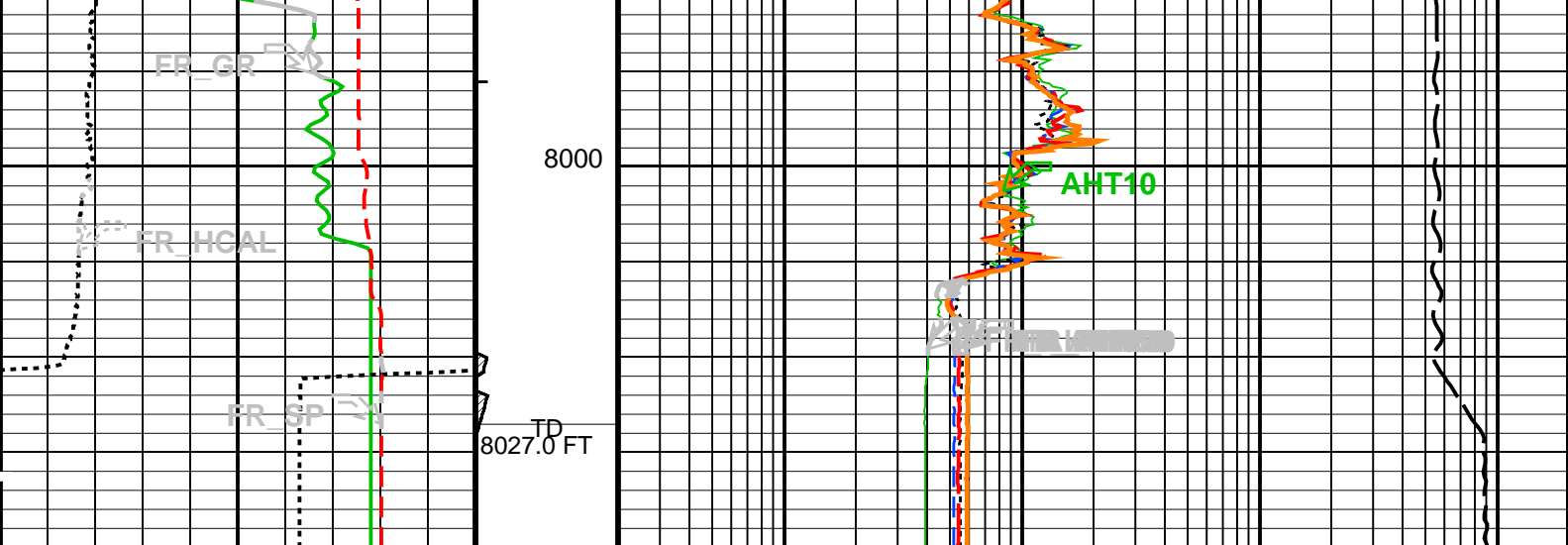


7600

MTX C106
7698.0 F1







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 # 397 (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) 4.387 OHMM Mud Filtrate Sample Temperature (MFST) 65.100 DEGF
Resitivity Connate Water (RW) 1.000 OHMM

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

(AHAPL): 3_BholeCorr_BasicLogs_Radial_Processing

(AHBHM): 2_ComputeStandoff (AHBLM): 6_One_Two_and_Four (AHRPM): 6_One_Two_and_Four

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)	225	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
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)	225	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	HCAL	
SHT	Surface Hole Temperature	68	DEGF
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	225	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
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth – Driller	8035.00	FT
TDL	Total Depth – Logger	8027.00	FT
System and Miscellaneous			
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	8.40	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	10.00	FT
MST	Mud Sample Temperature	65.10	DEGF
TD	Total Depth	8027	FT

Format: LOWER_GRES Vertical Scale: 5" per 100' Graphics File Created: 17-Feb-2010 08:13

OP System Version: 17C0-154

HILTB-CTS 17C0-154

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13



REPEAT ANALYSIS

Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_005PUP FN:4 PRODUCER 17-Feb-2010 08:12 8049.0 FT 7607.0 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13

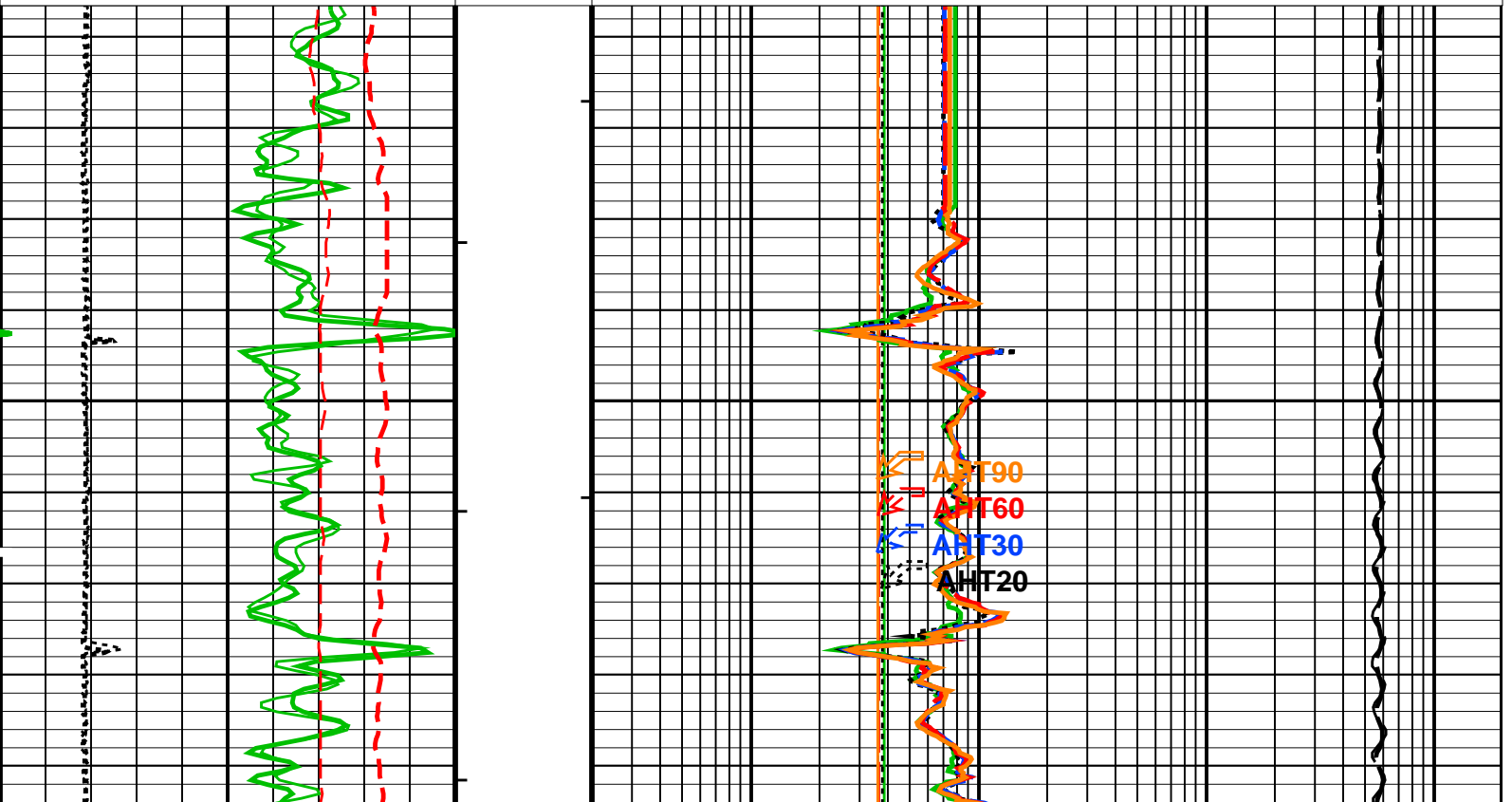
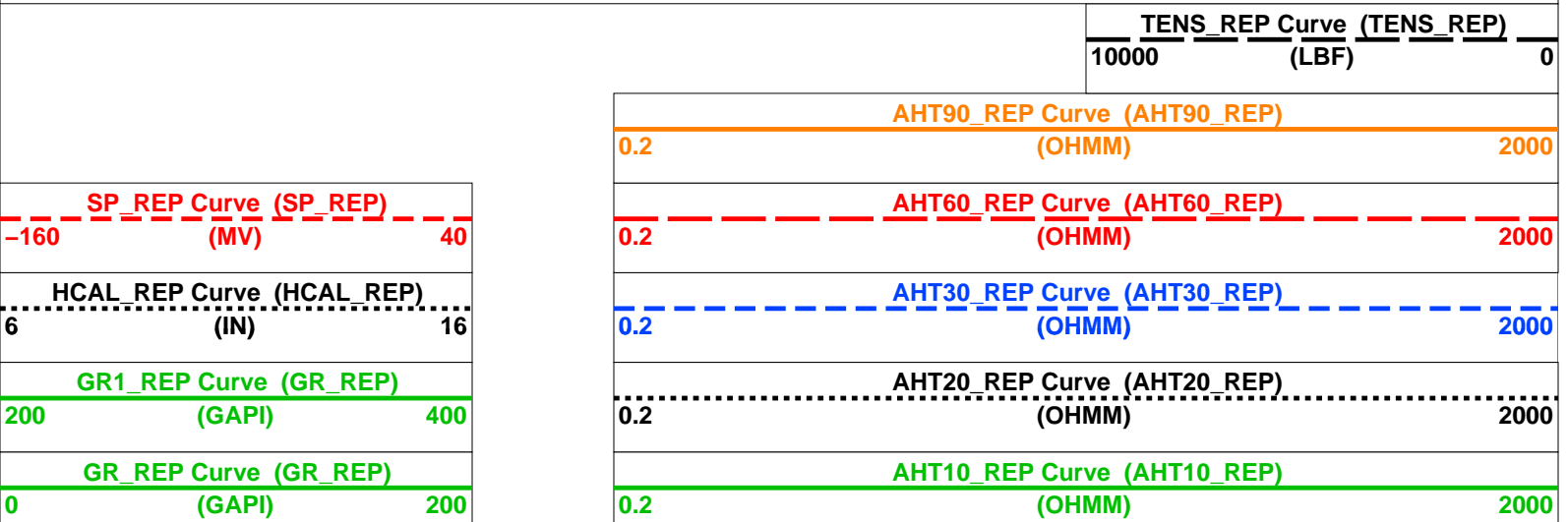
OP System Version: 17C0-154

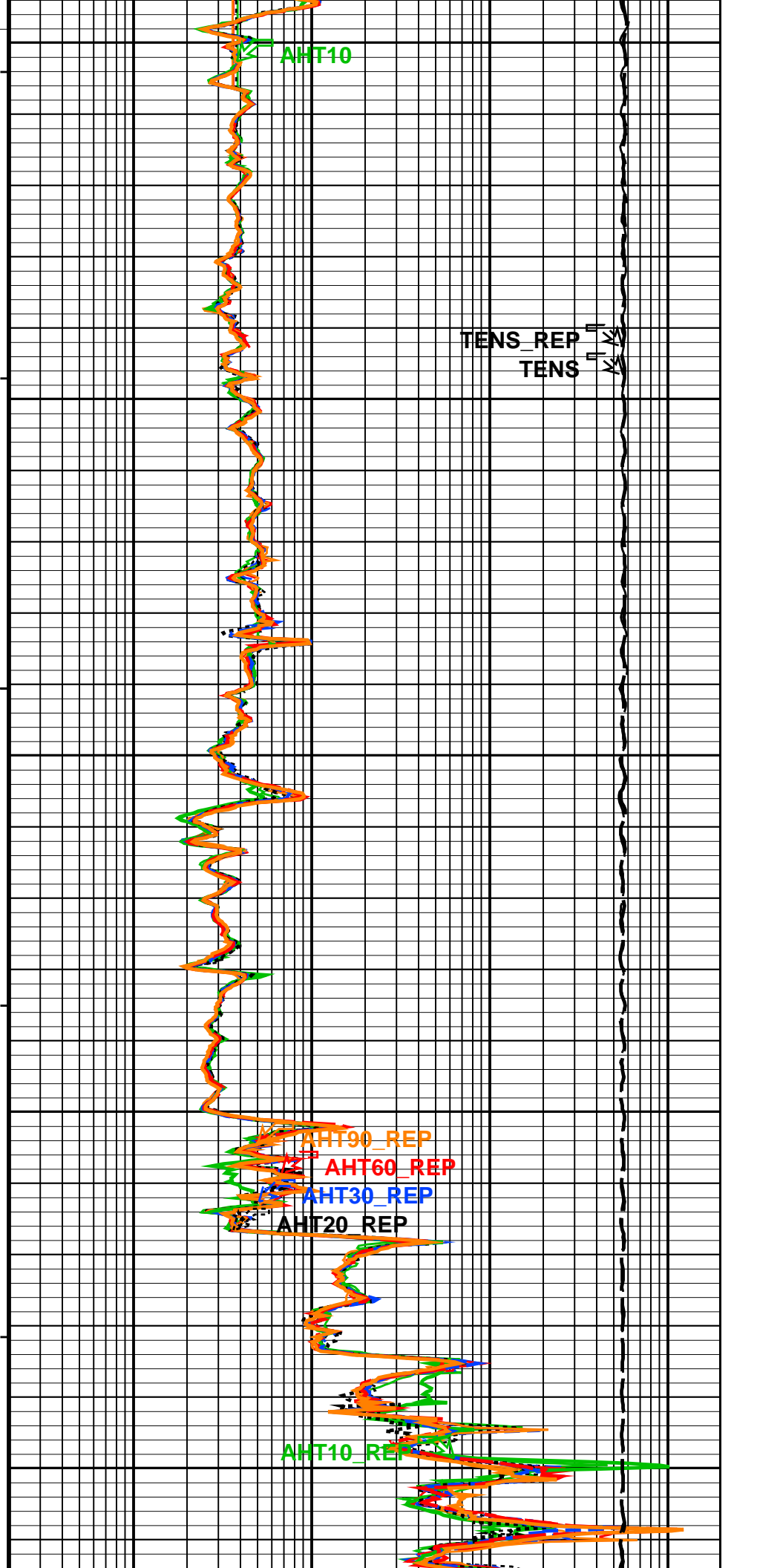
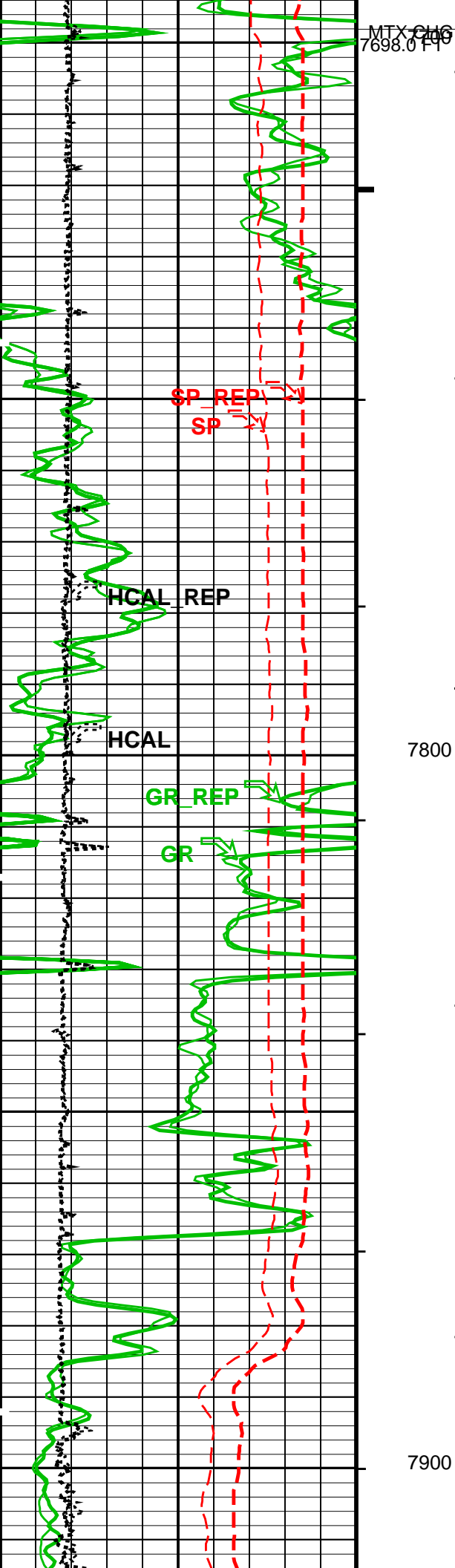
HILTB-CTS 17C0-154

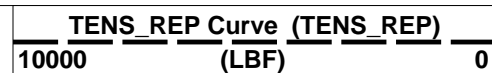
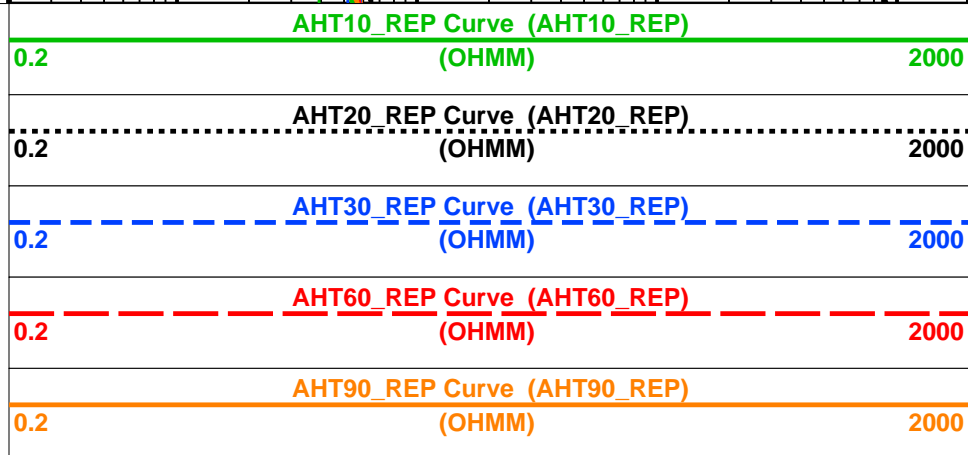
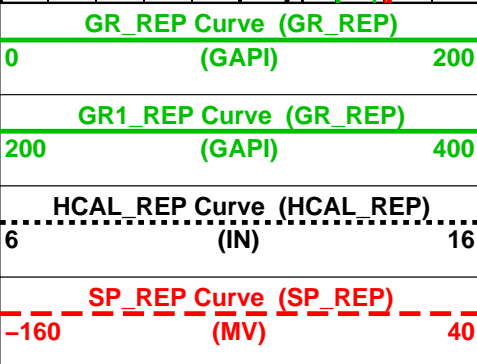
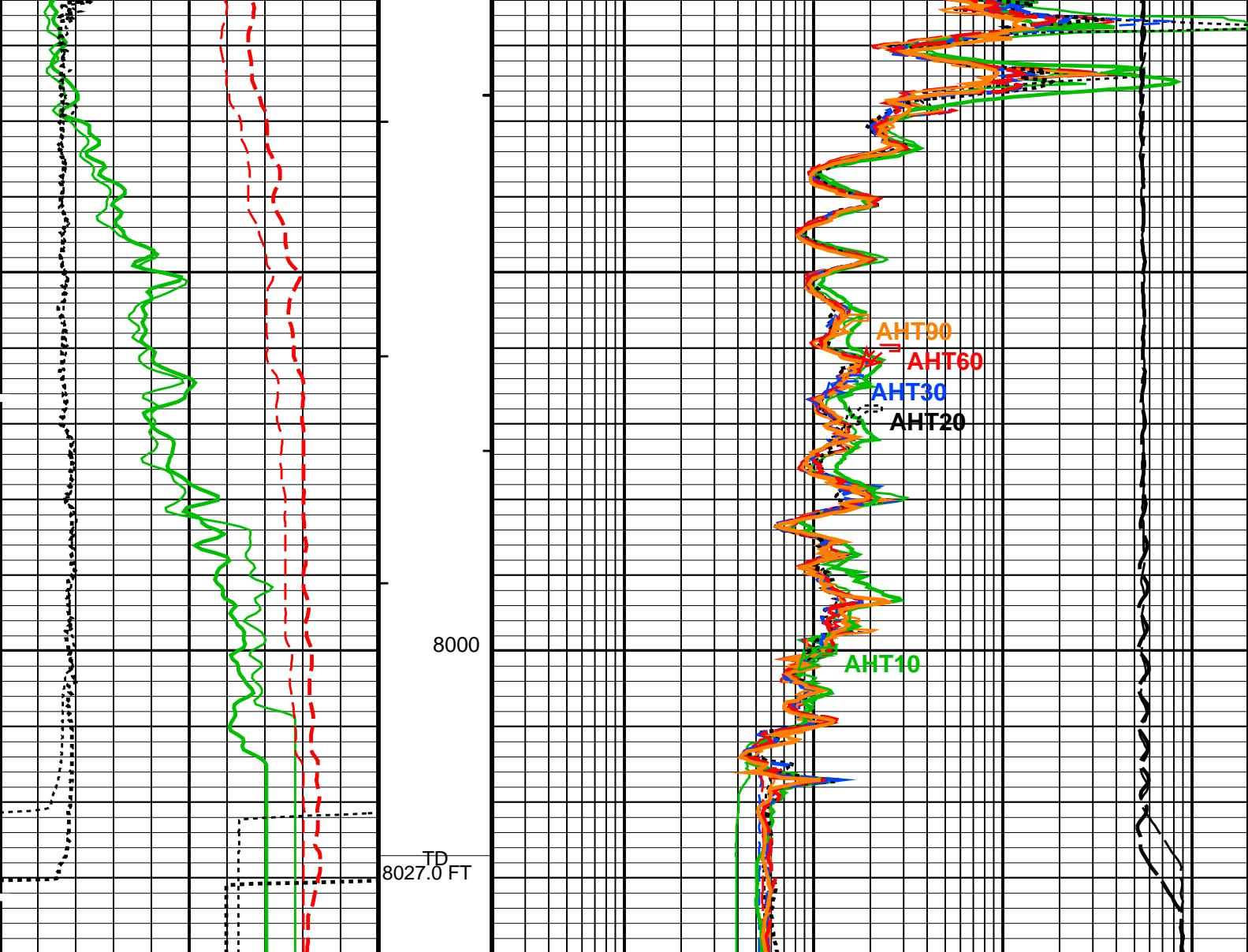
PIP SUMMARY

- └ 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







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 # 397 (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) 4.387 OHMM Mud Filtrate Sample Temperature (MFST) 65.100 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
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)	225 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
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)	225 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	HCAL
SHT	Surface Hole Temperature	68 DEGF
PERT: Preliminary Evaluation - Real Time		
BHT	Bottom Hole Temperature (used in calculations)	225 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
System and Miscellaneous		
BS	Bit Size	7.875 IN
DFD	Drilling Fluid Density	8.40 LB/G
DORL	Depth Offset for Repeat Analysis	0.0 FT
FLEV	Fluid Level	10.00 FT
MST	Mud Sample Temperature	65.10 DEGF
TD	Total Depth	8027 FT

Format: GRES_REP Vertical Scale: 5" per 100' Graphics File Created: 17-Feb-2010 08:13

OP System Version: 17C0-154

HILTB-CTS 17C0-154

Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_005PUP FN:4 PRODUCER 17-Feb-2010 08:12 8049.0 FT 7607.0 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 17-Feb-2010 08:13

Schlumberger

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: 30-Nov-2009 14:59 Before: 16-Feb-2010 10:51							
Thru Cal Magnitude – 0	0	0.6193	0.6195	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.271	1.272	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6293	0.6292	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7116	0.7120	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.330	1.331	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.924	1.926	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.927	1.929	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.353	1.357	N/A	N/A	N/A	V
Phase – 0	0	68.36	69.52	N/A	N/A	N/A	DEG
Phase – 1	0	67.36	68.53	N/A	N/A	N/A	DEG
Phase – 2	0	63.29	64.50	N/A	N/A	N/A	DEG
Phase – 3	0	62.43	63.64	N/A	N/A	N/A	DEG
Phase – 4	0	55.68	56.94	N/A	N/A	N/A	DEG
Phase – 5	0	53.53	54.84	N/A	N/A	N/A	DEG
Phase – 6	0	53.50	54.81	N/A	N/A	N/A	DEG
Phase – 7	0	48.00	49.69	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Electronics Calibration Check – Auxilliary							
Master: 30-Nov-2009 14:59 Before: 16-Feb-2010 10:51							
Array Induction SPA Plus	990.5	992.6	991.7	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	-0.2184	-0.2105	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9150	0.9194	0.9185	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	-0.0002118	-0.0002015	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Test Loop Gain Correction							
Master: 30-Nov-2009 14:59							
Test Loop Gain Magnitude – 0	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 1	0	1.015	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 2	0	1.016	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 3	0	1.012	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 4	0	0.9923	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 5	0	0.9870	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 6	0	0.9920	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 7	0	1.003	N/A	N/A	N/A	N/A	V
Phase – 0	0	-2.469	N/A	N/A	N/A	N/A	DEG
Phase – 1	0	-0.1516	N/A	N/A	N/A	N/A	DEG
Phase – 2	0	0.9347	N/A	N/A	N/A	N/A	DEG
Phase – 3	0	0.1802	N/A	N/A	N/A	N/A	DEG
Phase – 4	0	0.1003	N/A	N/A	N/A	N/A	DEG
Phase – 5	0	-0.09392	N/A	N/A	N/A	N/A	DEG
Phase – 6	0	0.2377	N/A	N/A	N/A	N/A	DEG
Phase – 7	0	-0.1620	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Sonde Error Correction							
Master: 30-Nov-2009 14:59							
R Sonde Error Correction – 0	0	-76.56	N/A	N/A	N/A	N/A	MM/M

R Sonde Error Correction – 1	0	170.5	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	110.7	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	61.12	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	24.14	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	14.16	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.674	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	-1.714	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	-228.6	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	141.0	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	-31.72	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	-44.12	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	2.293	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	17.99	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	-4.867	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	-0.3559	N/A	N/A	N/A	N/A	MM/M

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

Master: 30–Nov–2009 14:59

Coarse – Mag, Real, Imag – 0	0	1.073	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 1	0	1.073	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 2	0	1.073	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 0	0	1.072	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 1	0	1.072	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 2	0	1.072	N/A	N/A	N/A	N/A	

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

Before: 16–Feb–2010 15:10

BS Window Ratio	0.7600	N/A	0.7582	N/A	N/A	N/A	
BS Window Sum	10410	N/A	10390	N/A	N/A	N/A	CPS
SS Window Ratio	0.4998	N/A	0.4982	N/A	N/A	N/A	
SS Window Sum	9832	N/A	9831	N/A	N/A	N/A	CPS
LS Window Ratio	0.2927	N/A	0.2906	N/A	N/A	N/A	
LS Window Sum	1029	N/A	1031	N/A	N/A	N/A	CPS

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

Before: 16–Feb–2010 15:10

BS PM High Voltage (Command)	1363	N/A	1408	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1401	N/A	1427	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1517	N/A	1540	N/A	N/A	N/A	V

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Crystal Quality Resolutions Calibration

Before: 16–Feb–2010 15:10

BS Crystal Resolution	10.64	N/A	10.65	N/A	N/A	N/A	%
SS Crystal Resolution	9.215	N/A	9.156	N/A	N/A	N/A	%
LS Crystal Resolution	10.18	N/A	9.978	N/A	N/A	N/A	%

High resolution Integrated Logging Tool–CTS Wellsite Calibration – MCFL Calibration

Before: 16–Feb–2010 15:06

Raw B0 Resistivity	3875	N/A	3876	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3823	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3825	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool–CTS Wellsite Calibration – HILT Caliper Calibration

Before: 16–Feb–2010 10:49

HILT Caliper Zero Measurement	8.000	N/A	9.852	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	13.98	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Detector Calibration

Before: 16–Feb–2010 10:49

Gamma Ray Background	30.00	N/A	74.73	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	176.8	N/A	176.8	N/A	N/A	16.07	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Zero Measurement

Master: 10–Jan–2010 18:39 Before: 16–Feb–2010 10:58

CNTC Background	26.69	26.69	27.56	N/A	N/A	4.004	CPS
CFTC Background	33.46	33.46	29.01	N/A	N/A	5.019	CPS

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Ratio Measurement

Master: 10–Jan–2010 18:39

Thermal Near Corr. (Tank)	5800	5102	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2170	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.351	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool–CTS Wellsite Calibration – Accelerometer Calibration

Before: 17–Feb–2010 7:29

Z–Axis Acceleration	32.19	N/A	32.21	N/A	N/A	N/A	F/S2
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High resolution Integrated Logging Tool–CTS Master Calibration – Inversion results

Master: 16–Feb–2010 14:22



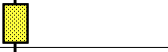
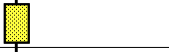




Rho Aluminum	2.596	2.600	--	--	--	--	G/C3
Rho Magnesium	1.686	1.686					G/C3


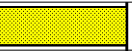














KNO Magnesium	1.686	1.686	---	---	---	---	G/C3
Pe Aluminum	2.570	2.554	---	---	---	---	
Pe Magnesium	2.650	2.639	---	---	---	---	
High resolution Integrated Logging Tool–CTS Master Calibration – Deviation Summary							
Master: 16–Feb–2010 14:22							
BS Average Deviation	0	0.3068	---	---	---	---	%
BS Max Deviation	0	0.7997	---	---	---	---	%
SS Average Deviation	0	0.2497	---	---	---	---	%
SS Max Deviation	0	1.017	---	---	---	---	%
LS Average Deviation	0	0.5285	---	---	---	---	%
LS Max Deviation	0	1.602	---	---	---	---	%
The GLS–VJ source activity is acceptable.							
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	57.6	DEGF.					
Thermal Housing Size	3.357	IN.					
NSR–F serial number	5168						















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	397		
HILT high–Resolution Mechanical Sonde				HRMS – B			
HILT Rxo Gamma–ray Device				HRGD – B	898		
HILT Micro Cylindrically Focused Log Dev				MCFL –			
GR Logging Source				GLS – VJ	5363		
HILT High Res. Control Cartridge				HRCC – B			
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	0.6193		0.6050	68.36		71.00
	Before	0.6195			69.52		
1	Master	1.271		1.270	67.36		70.00
	Before	1.272			68.53		
2	Master	0.6293		0.6230	63.29		66.00
	Before	0.6292			64.50		
3	Master	0.7116		0.7040	62.43		65.00
	Before	0.7120			63.64		
4	Master	1.330		1.337	55.68		59.00
	Before	1.331			56.94		
5	Master	1.924		1.955	53.53		57.00
	Before	1.926			54.84		
6	Master	1.927		1.955	53.50		57.00
	Before	1.929			54.81		
7	Master	1.353		1.415	48.00		53.00
	Before	1.357			49.69		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom –60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 30–Nov–2009 14:59				Before: 16–Feb–2010 10:51			

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			992.6	Master			-0.2184
Before			991.7	Before			-0.2105
	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			0.9194	Master			-0.0002118
Before			0.9185	Before			-0.0002015
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 30–Nov–2009 14:59			Before: 16–Feb–2010 10:51				

High resolution Integrated Logging Tool–CTS Wellsite Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG	
0	1.013				-2.469		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.015				-0.1516		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.016				0.9347		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.012				0.1802		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	0.9923				0.1003		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9870				-0.09392		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9920				0.2377		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.003				-0.1620		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
Master: 30–Nov–2009 14:59							

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	-76.56				-228.6		
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal) 2250 (Maximum)
1	170.5				141.0		
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal) 625.0 (Maximum)
2	110.7				-31.72		
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal) 350.0 (Maximum)
3	61.12				-44.12		
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		-250.0 (Minimum)	0 (Nominal) 250.0 (Maximum)
4	24.14				2.293		
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal) 63.00 (Maximum)
5	14.16				17.99		
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal) 50.00 (Maximum)
6	9.674				-4.867		

		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-1.714					-0.3559		
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 30-Nov-2009 14:59

High resolution Integrated Logging Tool-CTS Wellsite Calibration								
Mud Gain Correction								
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag		
0	1.073				1.072			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.073				1.072			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.073				1.072			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 30-Nov-2009 14:59

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Stab Measurement Summary									
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value
Before				0.7582	Before				0.4982
	0.7220 (Minimum)	0.7600 (Nominal)	0.7980 (Maximum)			0.4748 (Minimum)	0.4998 (Nominal)	0.5248 (Maximum)	
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value
Before				10390	Before				9831
	9887 (Minimum)	10410 (Nominal)	10930 (Maximum)			9341 (Minimum)	9832 (Nominal)	10320 (Maximum)	
Phase	LS Window Ratio			Value	Phase	LS Window Sum CPS			Value
Before				0.2906	Before				1031
	0.2780 (Minimum)	0.2927 (Nominal)	0.3073 (Maximum)			977.6 (Minimum)	1029 (Nominal)	1081 (Maximum)	

Before: 16-Feb-2010 15:10

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
Before				1408	Before				1427
	1263 (Minimum)	1363 (Nominal)	1463 (Maximum)			1301 (Minimum)	1401 (Nominal)	1501 (Maximum)	
Phase	LS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
Before				1540	Before				1540
	1417 (Minimum)	1517 (Nominal)	1617 (Maximum)			1417 (Minimum)	1517 (Nominal)	1617 (Maximum)	



Before: 16-Feb-2010 15:10

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Crystal Quality Resolutions Calibration									
Phase	BS Crystal Resolution %			Value	Phase	SS Crystal Resolution %			Value
Before				10.65	Before				9.156
	9.637 (Minimum)	10.64 (Nominal)	11.64 (Maximum)			8.215 (Minimum)	9.215 (Nominal)	10.21 (Maximum)	
Phase	LS Crystal Resolution %			Value	Phase	LS Crystal Resolution %			Value
Before				9.978	Before				9.978
	9.176 (Minimum)	10.18 (Nominal)	11.18 (Maximum)			9.176 (Minimum)	10.18 (Nominal)	11.18 (Maximum)	

Before: 16-Feb-2010 15:10

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
MCFL Calibration									
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value
Before				3876	Before				3823
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	
Phase	Raw B2 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3825	Before				3825
	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	




Before: 16-Feb-2010 15:06

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			9.852	Before			13.98
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)





Before: 16-Feb-2010 10:49

High resolution Integrated Logging Tool–CTS Wellsite Calibration

Detector Calibration




Phase	Gamma Ray Background	GAPI	Value	Phase	Gamma Ray (Jig – Bkg)	GAPI	Value	Phase	Gamma Ray (Calibrated)	GAPI	Value
Before			74.73	Before			176.8	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		160.7 (Minimum)	176.8 (Nominal)	192.8 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 16–Feb–2010 10:49


High resolution Integrated Logging Tool–CTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.69	Master				33.46
Before				27.56	Before				29.01
5.000 (Minimum) 26.69 (Nominal) 40.00 (Maximum)					5.000 (Minimum) 33.46 (Nominal) 40.00 (Maximum)				
Master: 10–Jan–2010 18:39					Before: 16–Feb–2010 10:58				

Master: 10–Jan–2010 18:39

















Before: 16–Feb–2010 10:58

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			5102	Master			2170	Master			2.351
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 10–Jan–2010 18:39											





Master: 10–Jan–2010 18:39

High resolution Integrated Logging Tool–CTS Wellsite Calibration			
Accelerometer Calibration			
Phase	Z–Axis Acceleration	F/S2	Value
Before			32.21
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)

Before: 17–Feb–2010 7:29

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	0.6193			0.6050	68.36			71.00
1	Master	1.271			1.270	67.36			70.00
2	Master	0.6293			0.6230	63.29			66.00
3	Master	0.7116			0.7040	62.43			65.00
4	Master	1.330			1.337	55.68			59.00
5	Master	1.924			1.955	53.53			57.00
6	Master	1.927			1.955	53.50			57.00
7	Master	1.353			1.415	48.00			53.00
		60.00 % (Minimum)		(Nominal)	140.0 % (Maximum)	Nom –60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)	
Master: 30–Nov–2009 14:59									

Master: 30–Nov–2009 14:59

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			992.6	Master			-0.2184
	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			0.9194	Master			-0.0002118
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 30–Nov–2009 14:59							

Master: 30–Nov–2009 14:59

High resolution Integrated Logging Tool–CTS Master Calibration

Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG
0	1.013				-2.469	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.015				-0.1516	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.016				0.9347	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.012				0.1802	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	0.9923				0.1003	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	0.9870				-0.09392	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
6	0.9920				0.2377	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
7	1.003				-0.1620	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)





Master: 30-Nov-2009 14:59

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
0	-76.56				-228.6	
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal) 2250 (Maximum)
1	170.5				141.0	
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal) 625.0 (Maximum)
2	110.7				-31.72	
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal) 350.0 (Maximum)
3	61.12				-44.12	
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)	-250.0 (Minimum)	0 (Nominal) 250.0 (Maximum)
4	24.14				2.293	
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal) 63.00 (Maximum)
5	14.16				17.99	
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)	-50.00 (Minimum)	0 (Nominal) 50.00 (Maximum)
6	9.674				-4.867	
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)	-30.00 (Minimum)	0 (Nominal) 30.00 (Maximum)
7	-1.714				-0.3559	
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	-30.00 (Minimum)	0 (Nominal) 30.00 (Maximum)



Master: 30-Nov-2009 14:59

High resolution Integrated Logging Tool-CTS Master Calibration						
Mud Gain Correction						
Idx	Value	Coarse - Mag, Real, Imag			Value	Fine - Mag, Real, Imag
0	1.073				1.072	
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal) 1.200 (Maximum)
1	1.073				1.072	
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal) 1.200 (Maximum)

	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
2	1.073			1.072			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
Master: 30-Nov-2009 14:59							

High resolution Integrated Logging Tool—CTS Master Calibration							
Inversion results							
Phase	Rho Aluminum G/C3		Value	Phase	Rho Magnesium G/C3		Value
Master			2.600	Master			1.686
	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			2.554	Master			2.639
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)		2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)
Master: 16–Feb–2010 14:22							

High resolution Integrated Logging Tool-CTS Master Calibration											
Deviation Summary											
Phase	BS Average Deviation %		Value	Phase	SS Average Deviation %		Value	Phase	LS Average Deviation %		Value
Master	<div><div></div></div>		0.3068	Master	<div><div></div></div>		0.2497	Master	<div><div></div></div>		0.5285
	-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	<div><div></div></div>		0.7997	Master	<div><div></div></div>		1.017	Master	<div><div></div></div>		1.602
	-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: 16-Feb-2010 14:22											

High resolution Integrated Logging Tool-CTS Master Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			26.69	Master			33.46
	5.000 (Minimum)	26.69 (Nominal)	40.00 (Maximum)		5.000 (Minimum)	33.46 (Nominal)	40.00 (Maximum)
Master: 10-Jan-2010 18:39							

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	<div><div></div></div>		5102	Master	<div><div></div></div>		2170	Master	<div><div></div></div>		2.351
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 10-Jan-2010 18:39											

Company: **Kerr-McGee Oil and Gas Onshore LP**

Schlumberger

Well: **Bella 19-8**
Field: **Wattenberg**
County: **Weld**
State: **Colorado**

Platform Express
Array Induction

