

Schlumberger

Company: **Pronghorn Operating LLC**

Well: **Hanavan 1**

Field: **Smoky Creek**

County: **Cheyenne**

State: **Colorado**

Well: **Hanavan 1**
Field: **Smoky Creek**
County: **Cheyenne**
State: **Colorado**

Field: **Smoky Creek**
County: **Cheyenne** State: **Colorado**

County: **Cheyenne** State: **Colorado**

[illegible]

Logging Date			3-Nov-2013						
Run Number			1						
Depth Driller			5504 ft						
Schlumberger Depth			5435 ft						
Bottom Log Interval			5427 ft						
Top Log Interval			471 ft						
Casing Driller Size @ Depth			13.375 in @ 470 ft						
Casing Schlumberger			471 ft						
Bit Size			7.875 in						
Type Fluid In Hole			Water Based Mud						
Density		Viscosity	9 lbm/gal		63 s				
Fluid Loss		PH	6.6 cm3		9				
Source Of Sample			Flowline						
RM @ Measured Temperature			1.500 ohm.m @ 75 degF						
RMF @ Measured Temperature			1.200 ohm.m @ 75 degF						
RMC @ Measured Temperature			1.800 ohm.m @ 75 degF						
Source RMF		RMC	Calculated		Calculated				
RM @ MRT	RMF @ MRT	0.836 @ 140	0.669 @ 140	@	@				
Maximum Recorded Temperatures			140 degF						
Circulation Stopped		Time	3-Nov-2013		11:00				
Logger On Bottom		Time	3-Nov-2013		18:15				
Unit Number	Location		3022		Ft. Morgan, CO				
Recorded By			Tim Hoffman						
Witnessed By			Jim Thorson						

OTHER SERVICES1	OTHER SERVICES2
OS1: HNGS	OS1:
OS2: BHC	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
This is the first run in hole	
Toolstring run as per tool sketch	
Matrix: Limestone (2.71g/cc)	
Sandstone (2.65g/cc) from 5145' to 5260'	

All tools run from TD to 3800'					
AIT and GR run to surface					
Bridged and logged out from 5435'					
Rig: Excel 3					
Crew: Dave Marquez, Cody Bruns, Elizabeth Wilson					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
CCN1-00030 19C2-270 100 ft					
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT					
GSR-U/Y NCT-B CNB-AB NCS-VB					
GSR-U 599 WITM (DTS)-A					
DOWNHOLE EQUIPMENT					
</					

USN
UHN
USF UHF
LSF LHF
LHN
LSN
DSLT Aux.

24.2
23.4
23.2
20.4
20.2
19.4

16.0

HAIT-H
AHIS-BA 398
AHRM-A

16.0

1.0 IN
Standoff

Induction
Temperatu
Power Sup

7.9

SP SENSOR
DF
HTEN HMAS HV
Accelerom
Mud Resis
Tension

0.1

0.0

TOOL ZERO

1.0 IN
Standoff

MAXIMUM STRING DIAMETER 5.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN INDUCTION 5" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT AIT_SONIC_TLD_MCFL_030LUP FN:28 PRODUCER 03-Nov-2013 19:21 5445.0 FT 315.0 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2798.87 F3

Cement Volume = 1979.81 F3 (assuming 5.50 IN casing O.D.)

Computed from 5435.0 FT to 471.0 FT using data channel(s) HCAL

OP System Version: 19C2-270

HAIT-H	19C2-270	DSLT-FTB	19C2-270
HILTB-FTB	19C2-270	HNGC-B	19C2-270
HNGS-BA	19C2-270	DTC-H	19C2-270

PIP SUMMARY

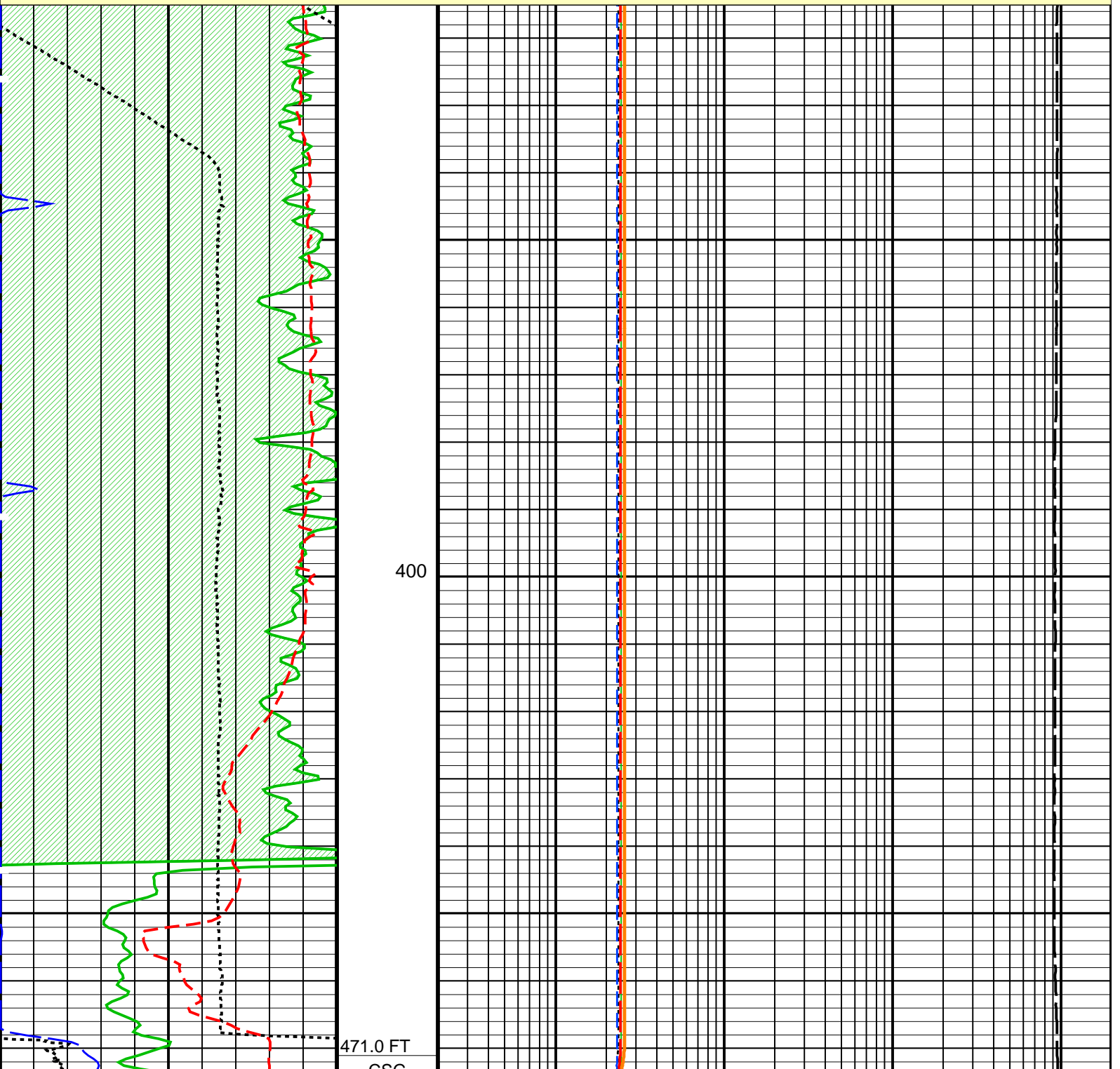
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

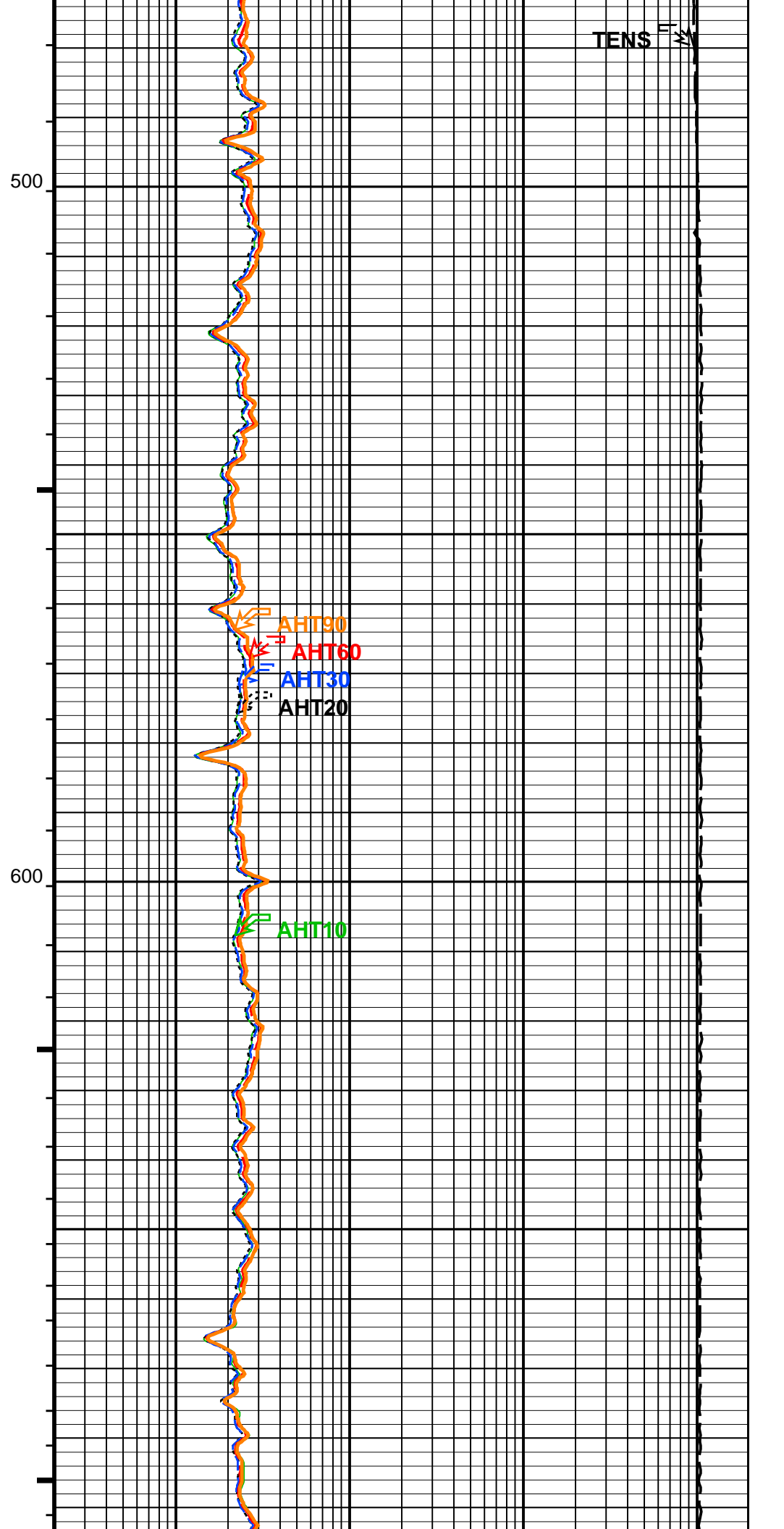
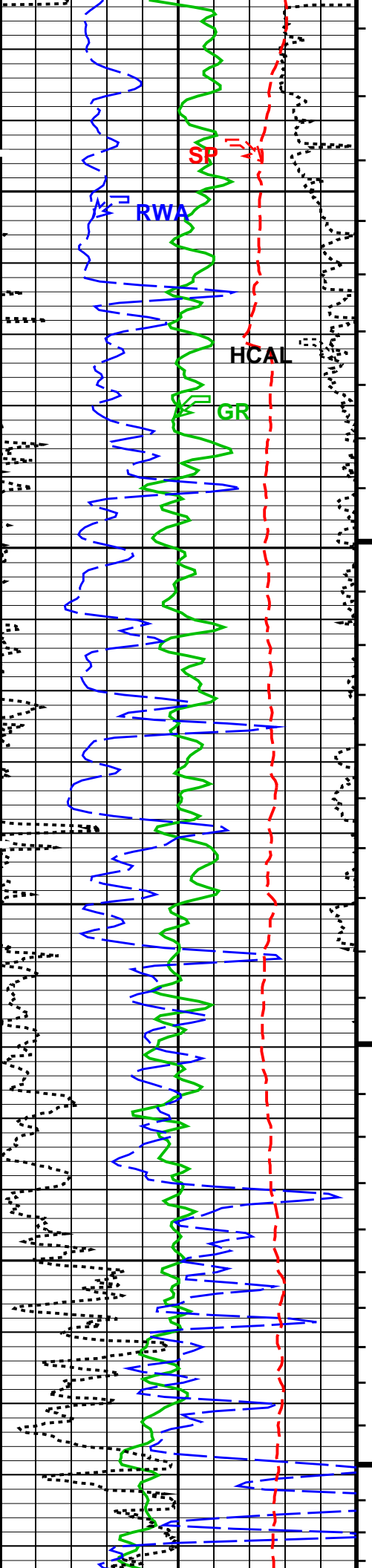
Time Mark Every 60 S

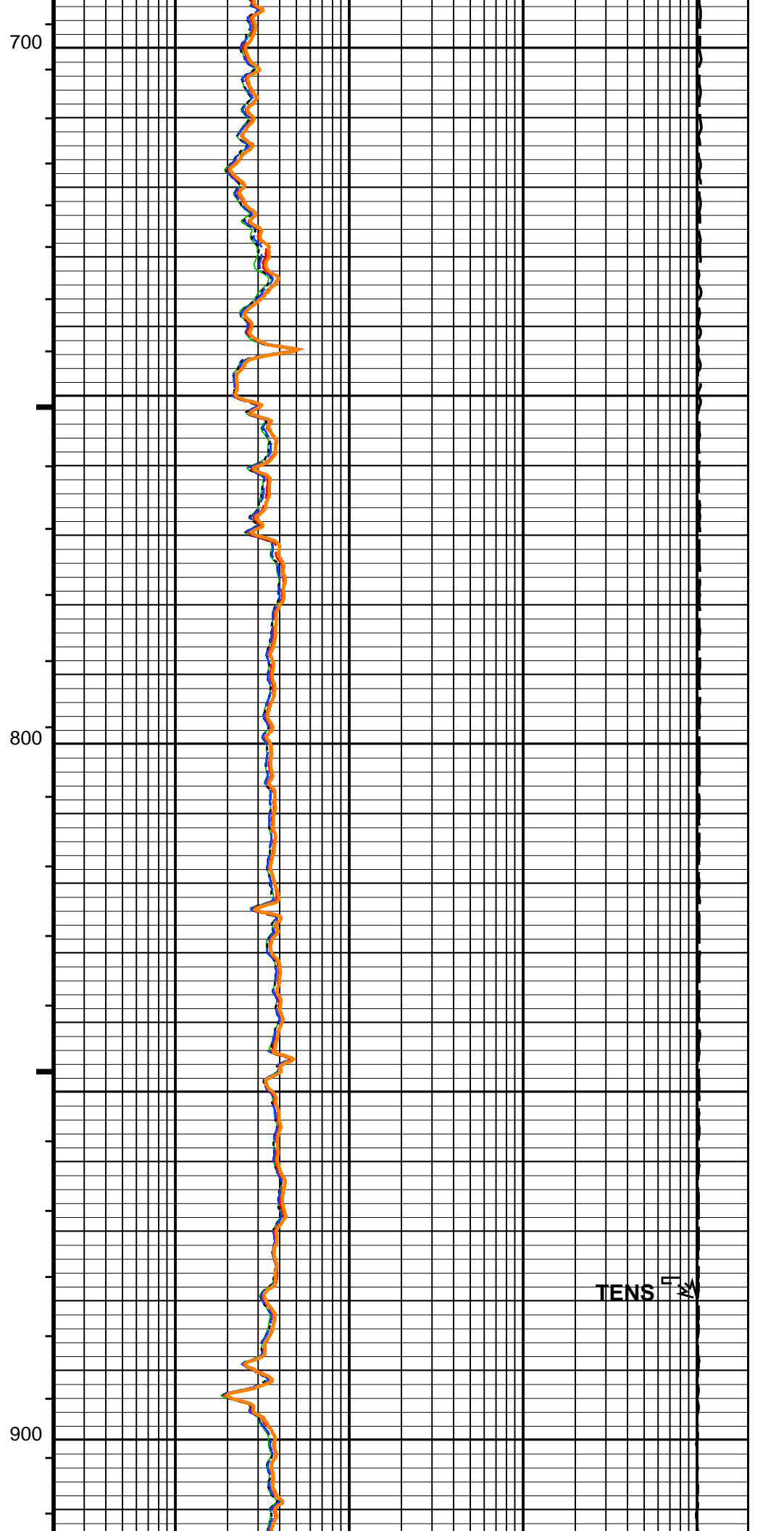
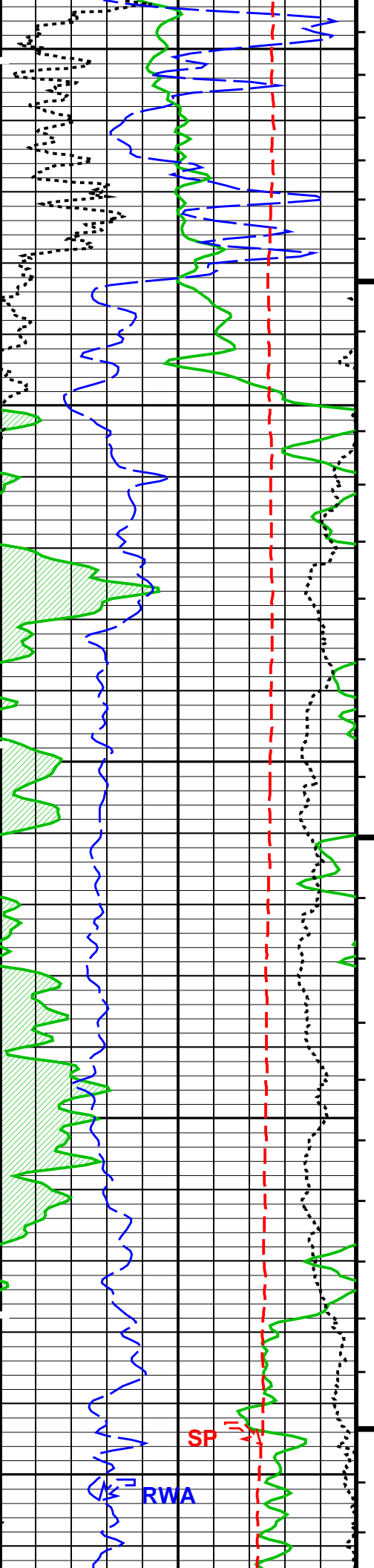
Tension (TENS)
(LBF) 10000 0

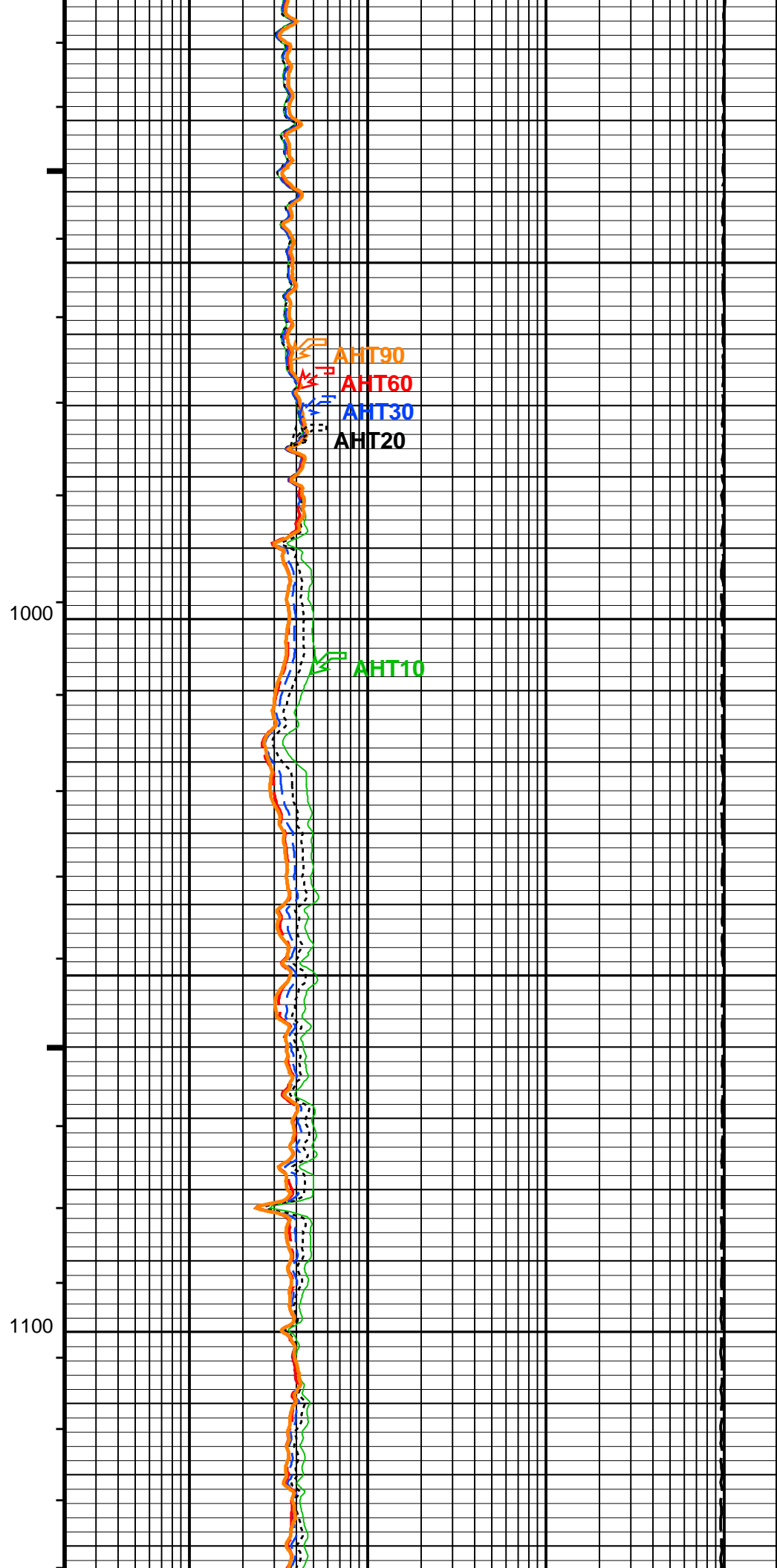
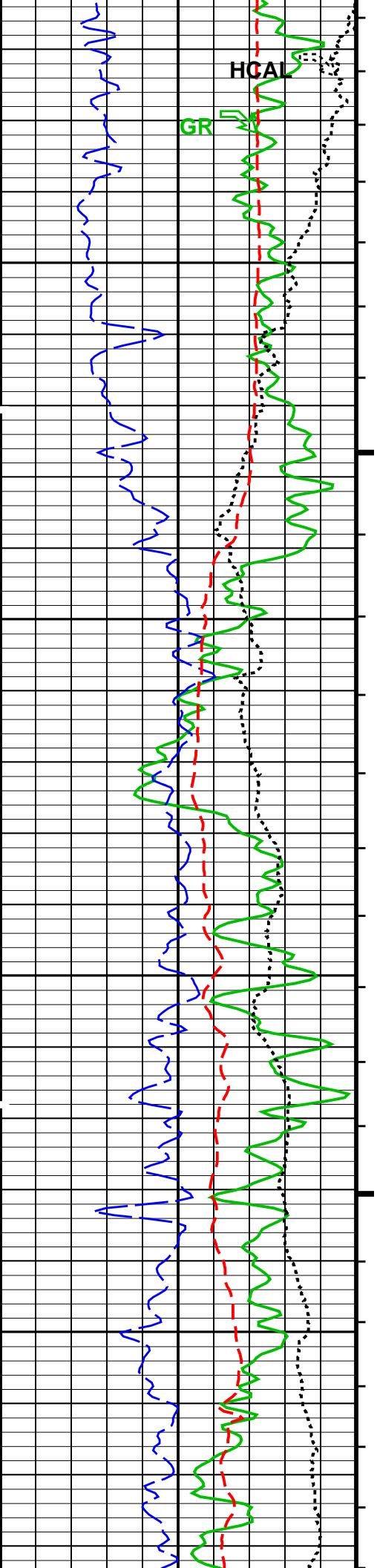
SP (SP) (MV)	AIT-H 90 Inch Investigation (AHT90) (OHMM)
-140 40	0.2 2000
Caliper (HCAL) (IN)	AIT-H 60 Inch Investigation (AHT60) (OHMM)
6 16	0.2 2000
Gamma Ray (GR) (GAPI)	AIT-H 30 Inch Investigation (AHT30) (OHMM)
0 150	0.2 2000
RWA (RWA) (OHMM)	AIT-H 20 Inch Investigation (AHT20) (OHMM)
0 1	0.2 2000
Gamma Ray Backup	AIT-H 10 Inch Investigation (AHT10) (OHMM)
	0.2 2000
Stuck Stretch (STIT) (F) 50	
Tool/Tot. Drag	
Cable Drag	

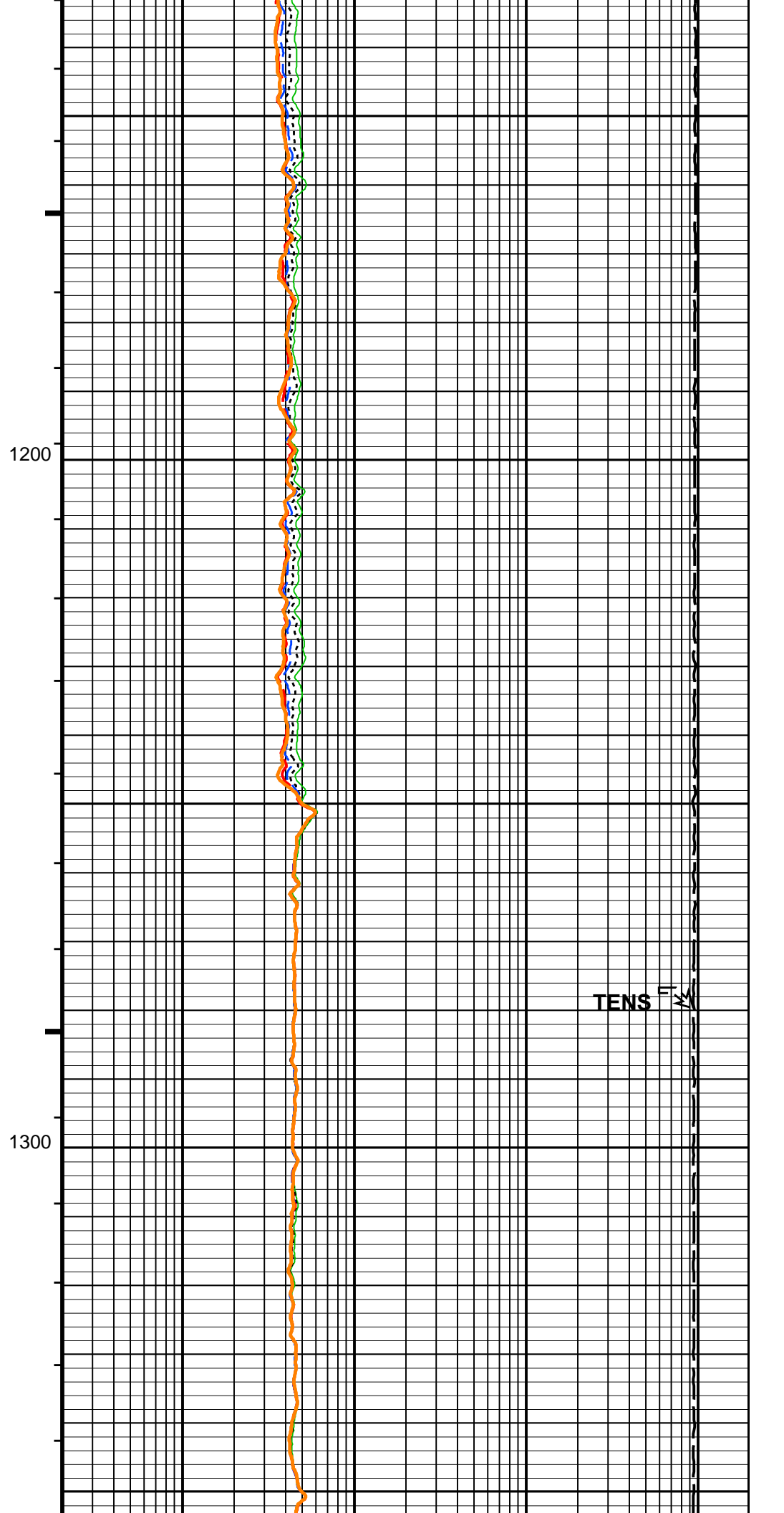
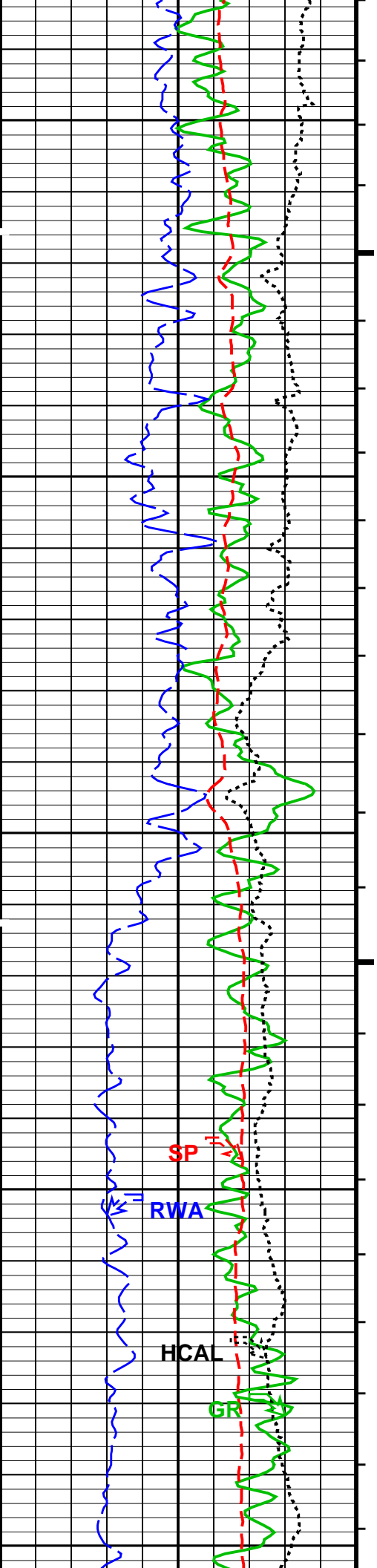
MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***

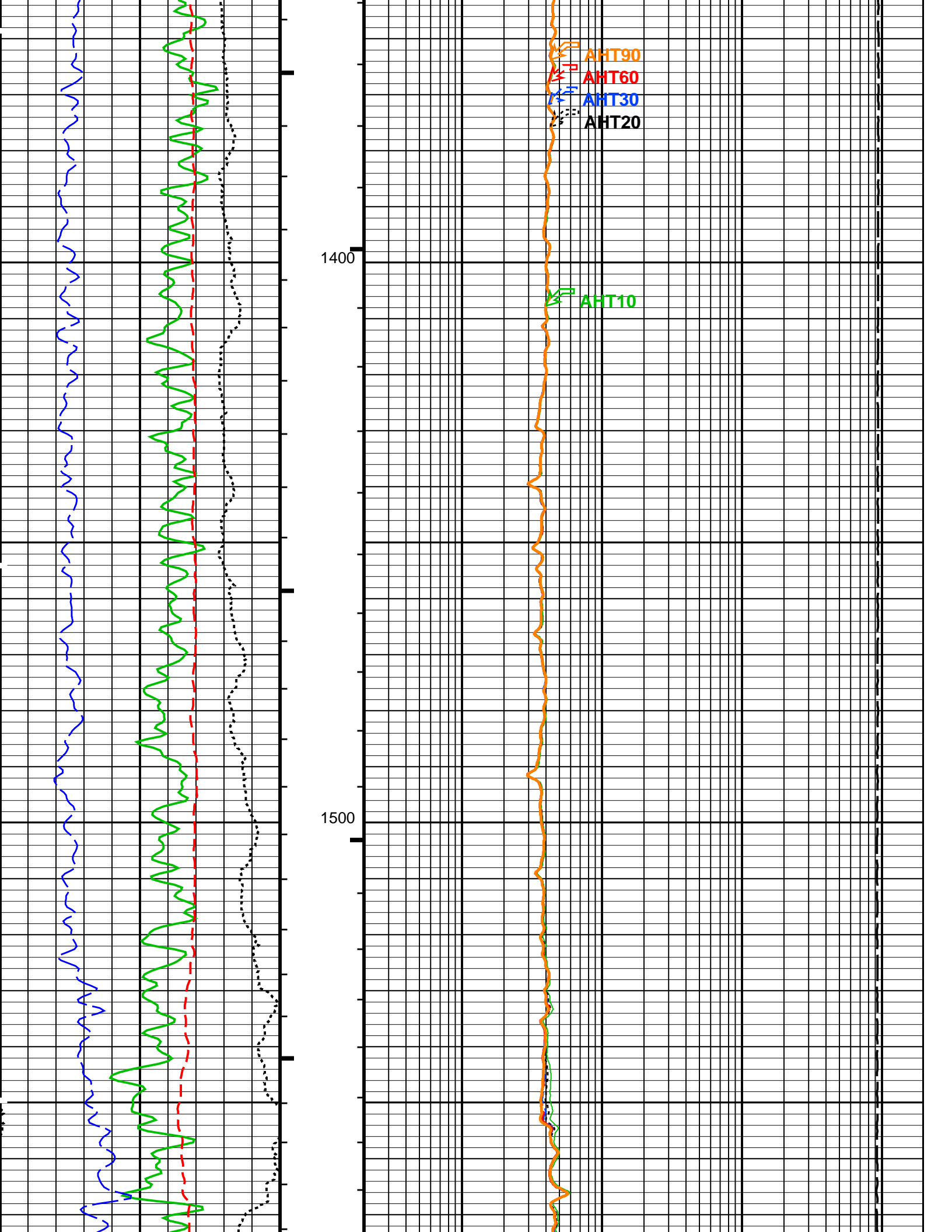


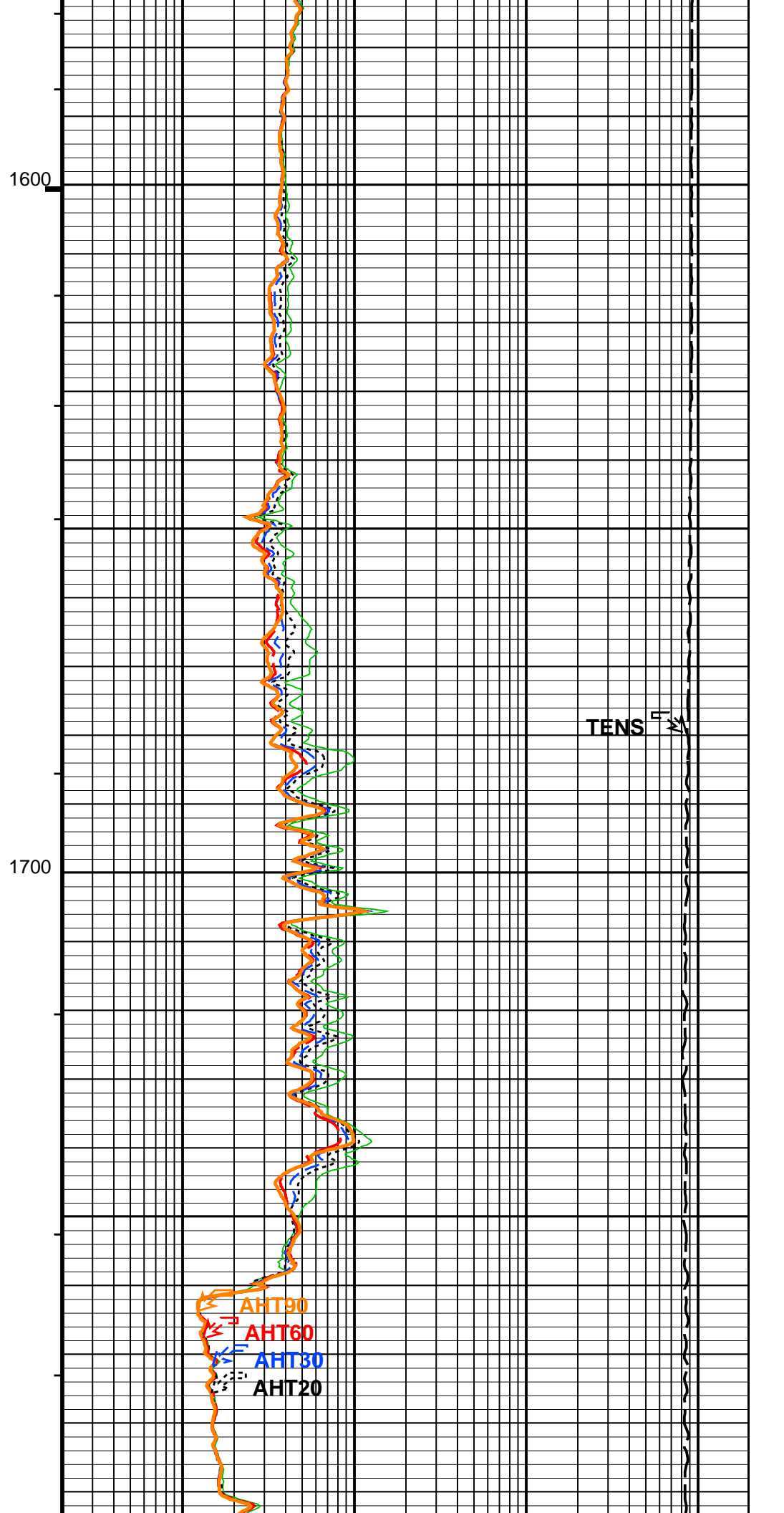
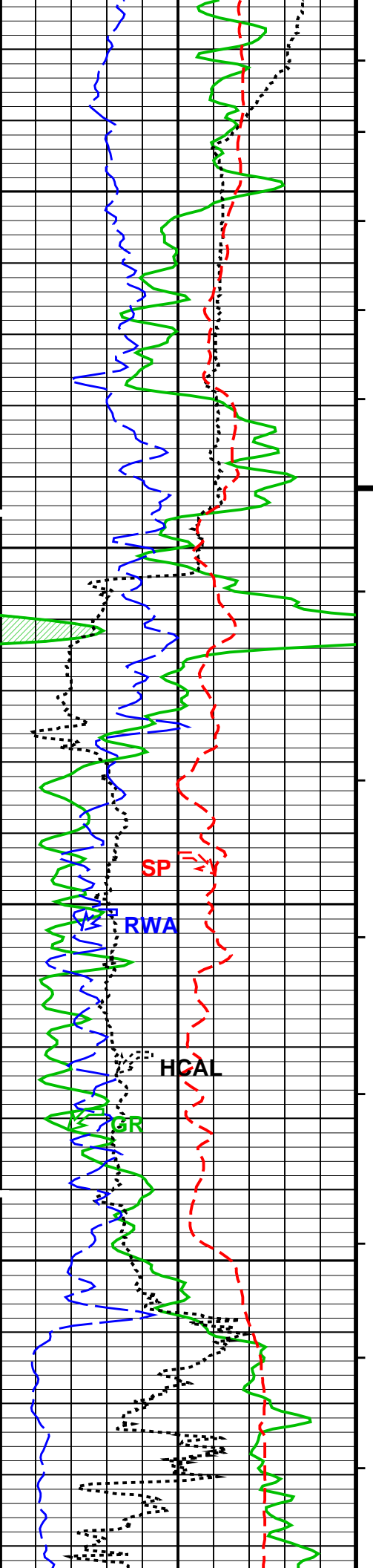


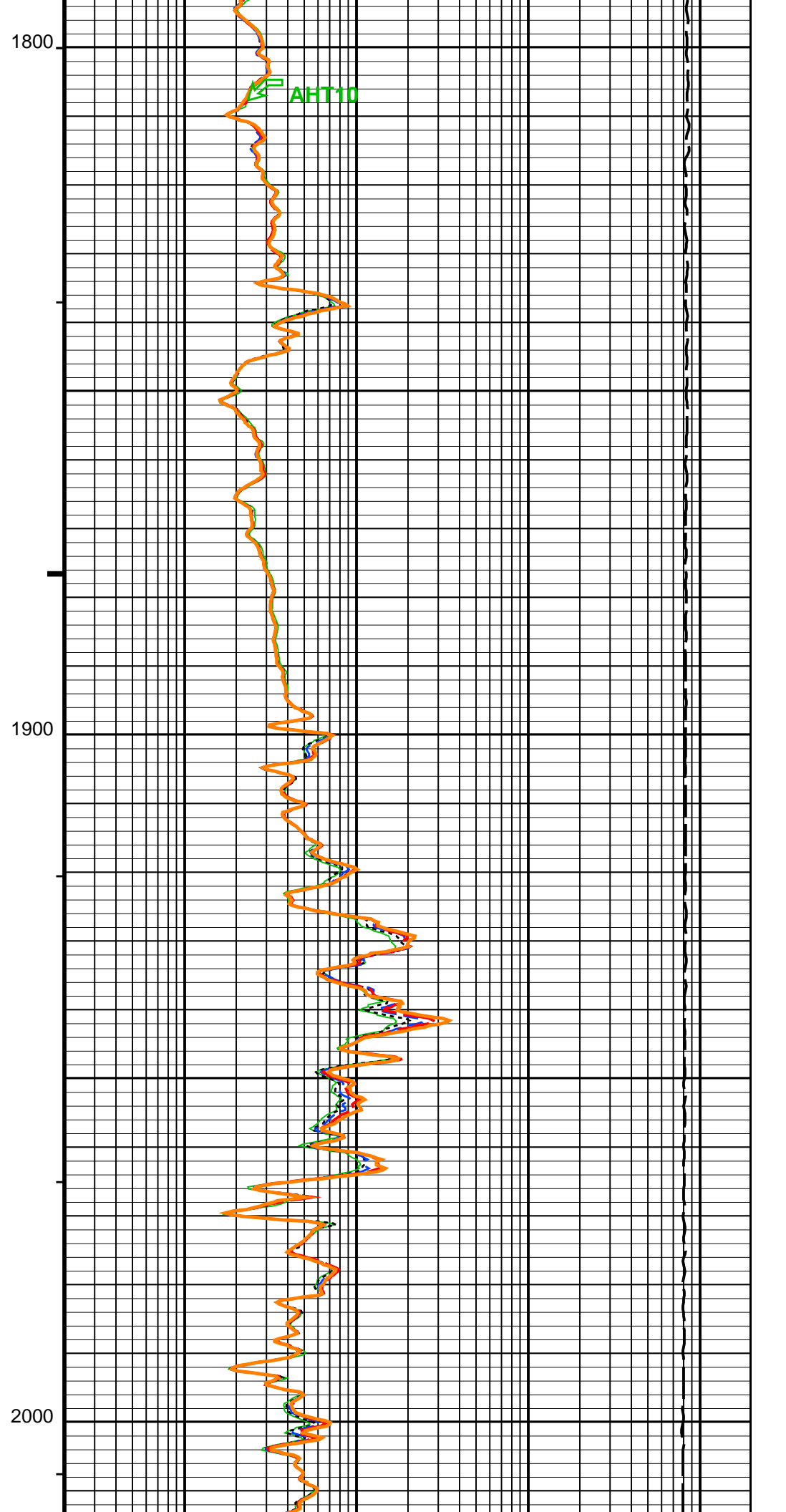
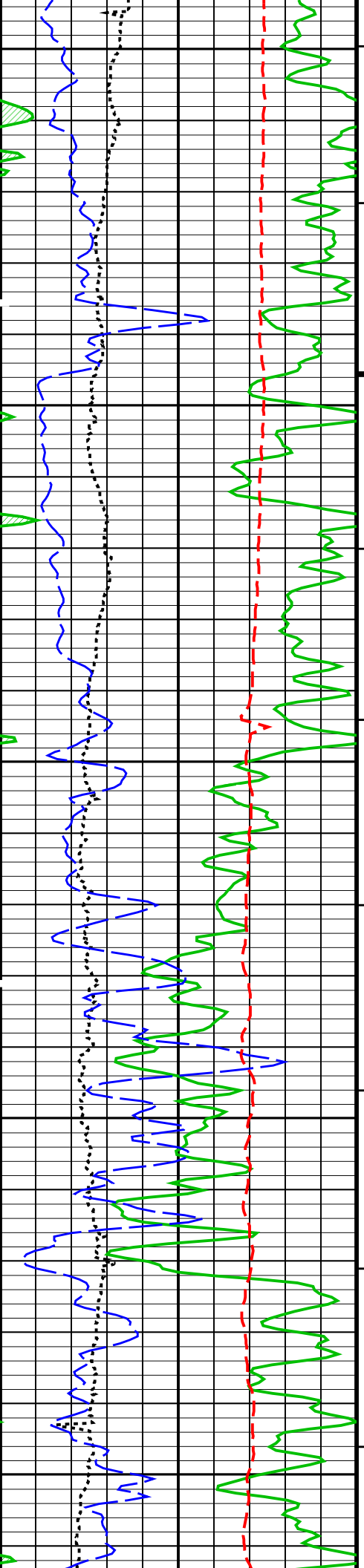


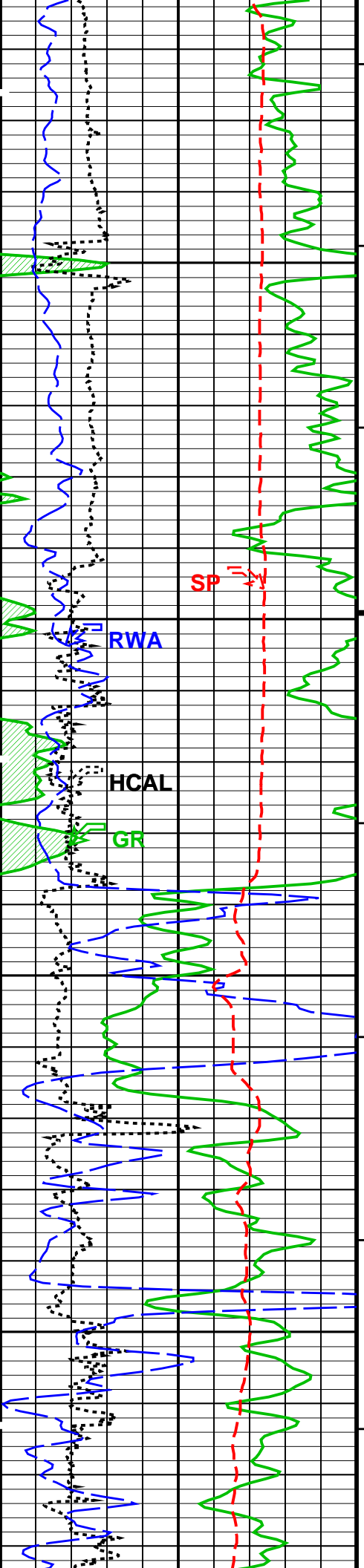






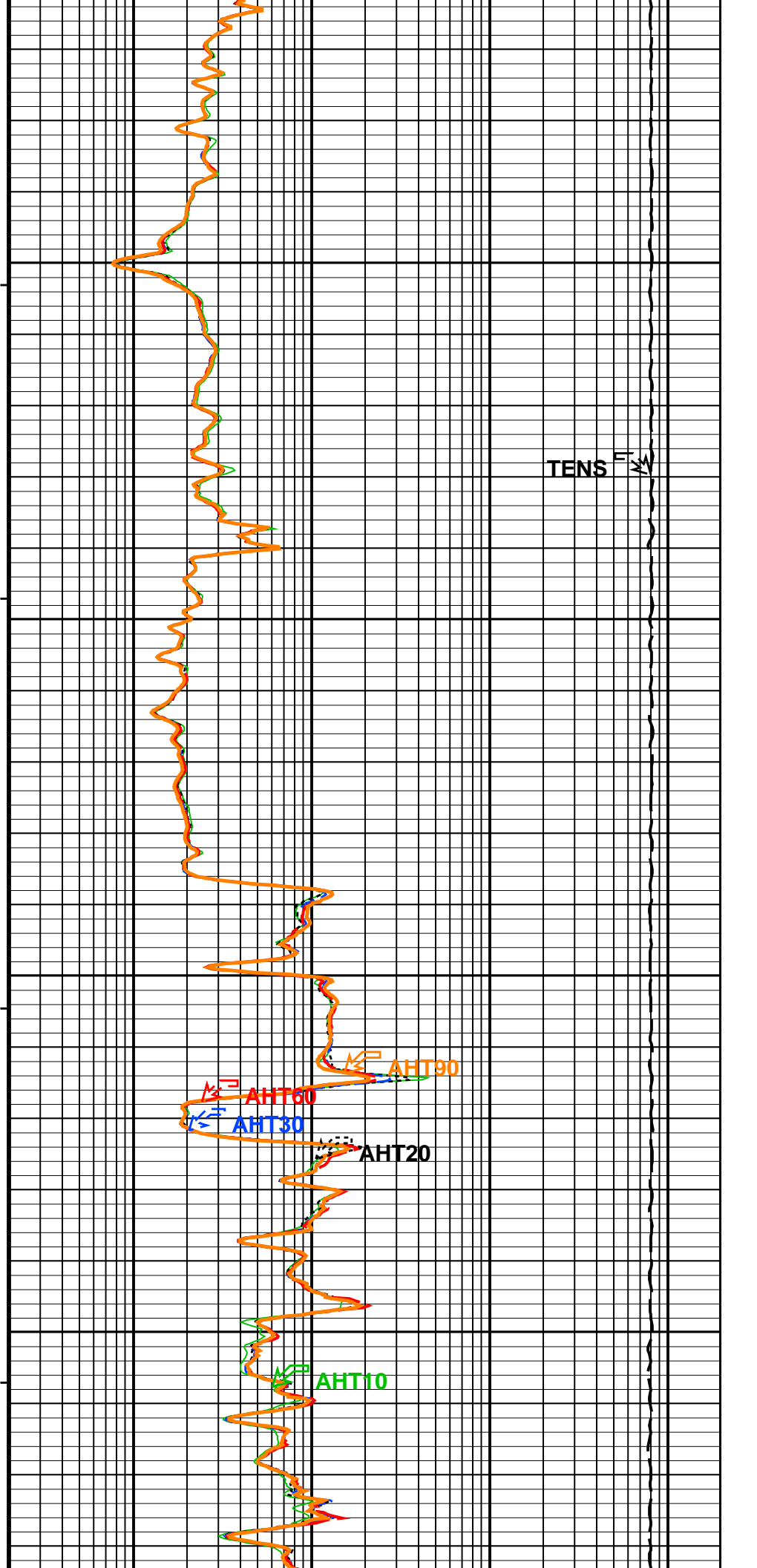


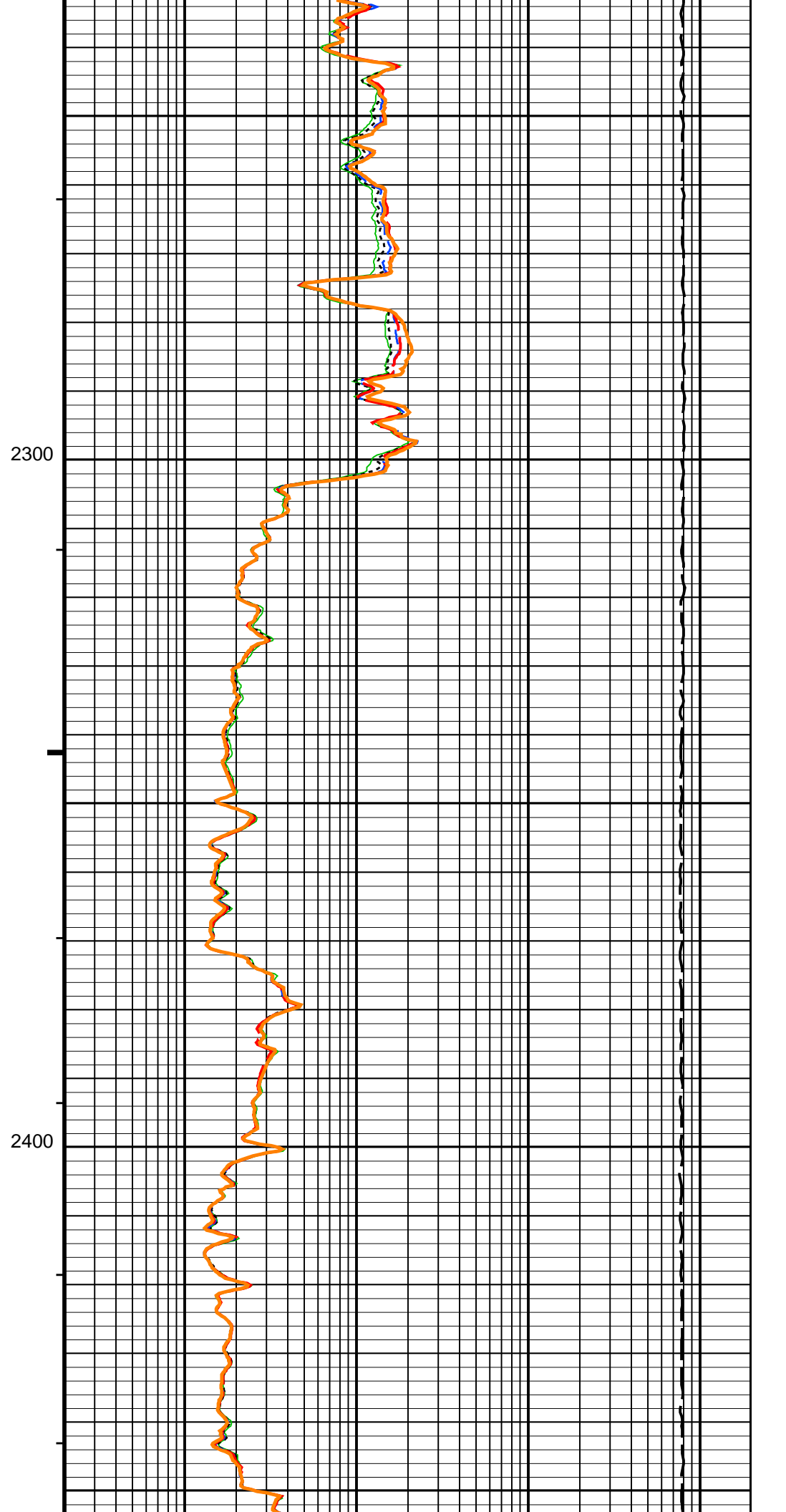
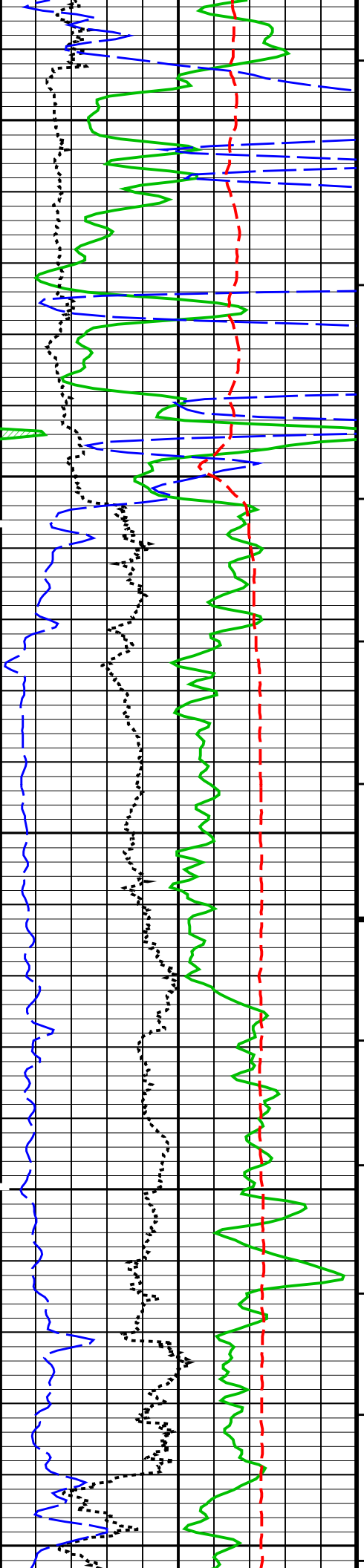


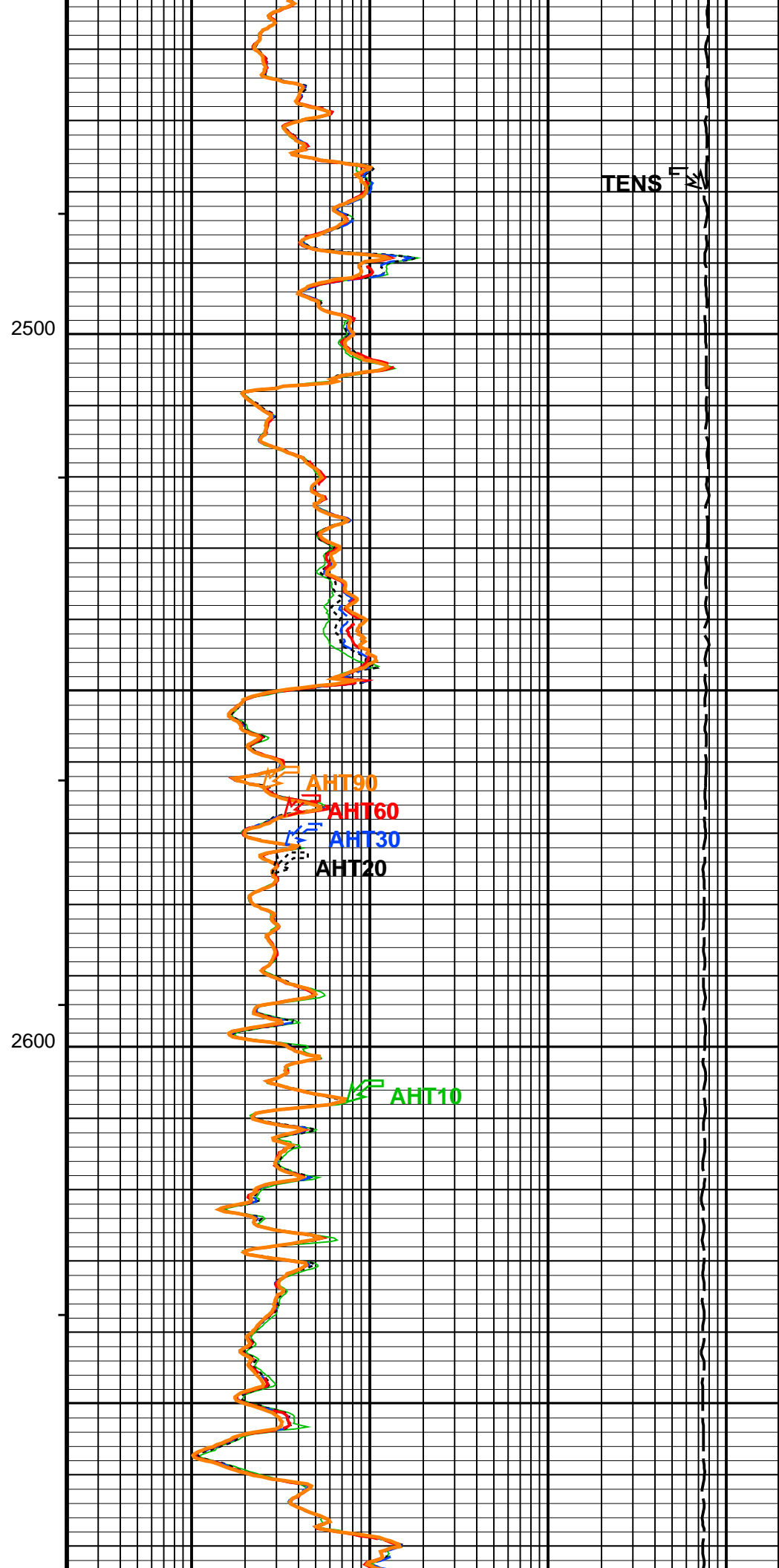
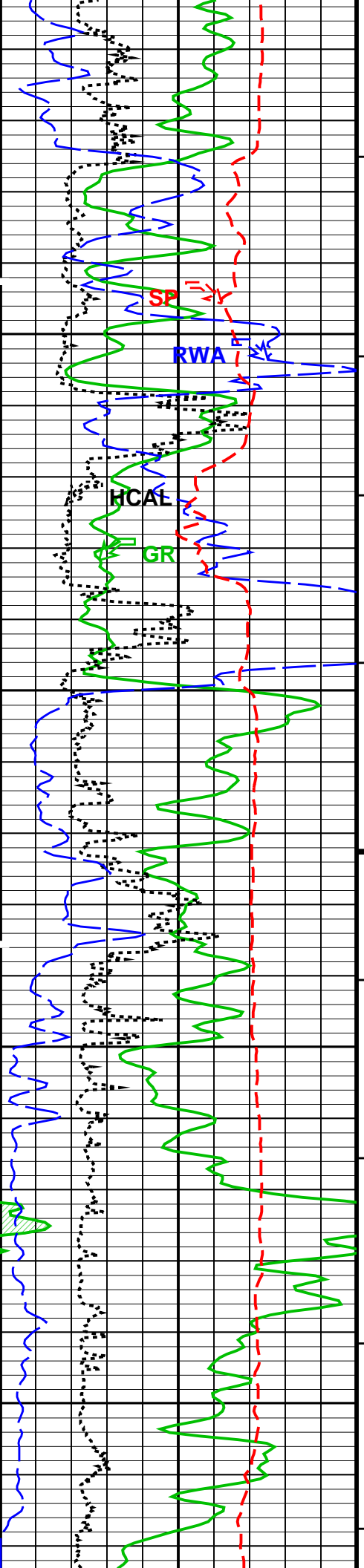


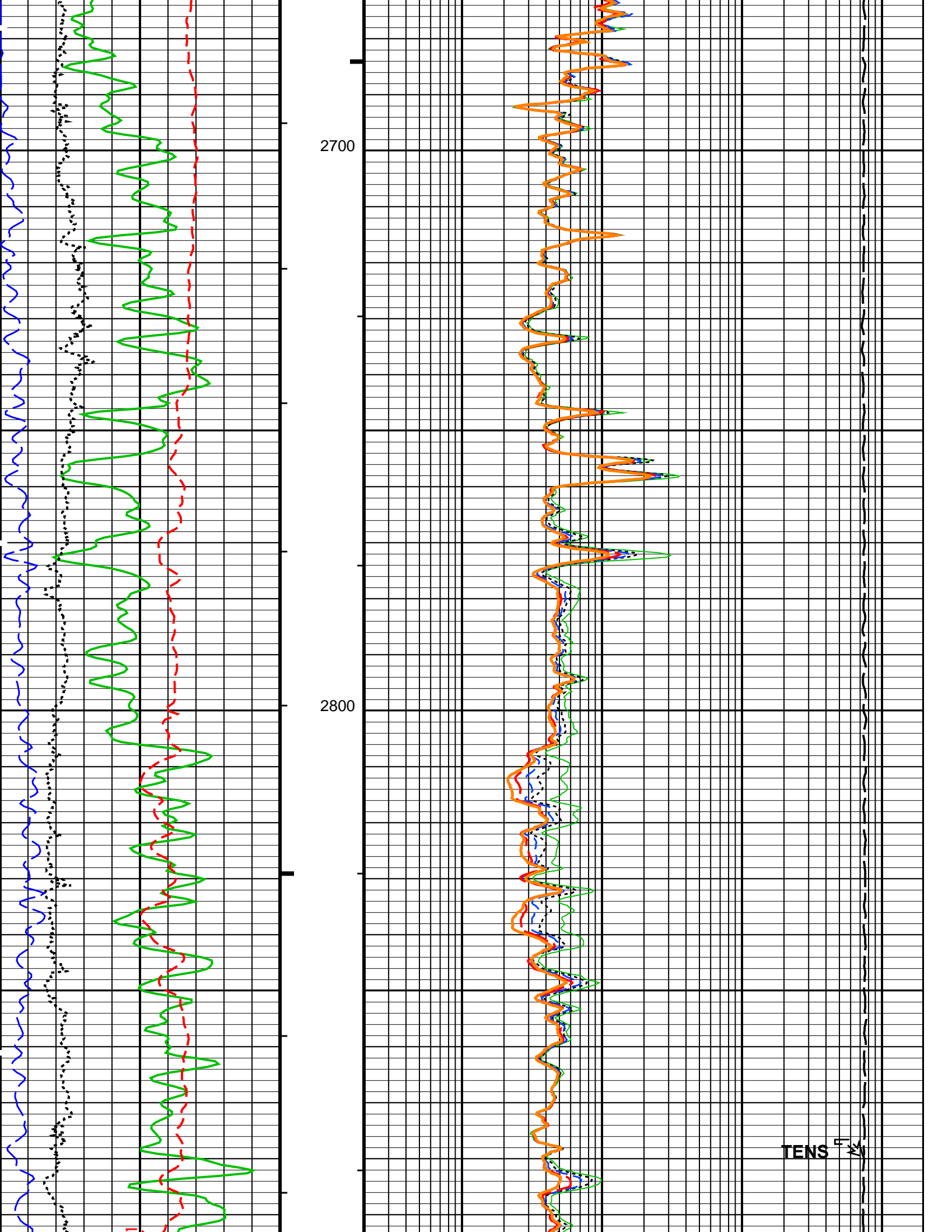
2100

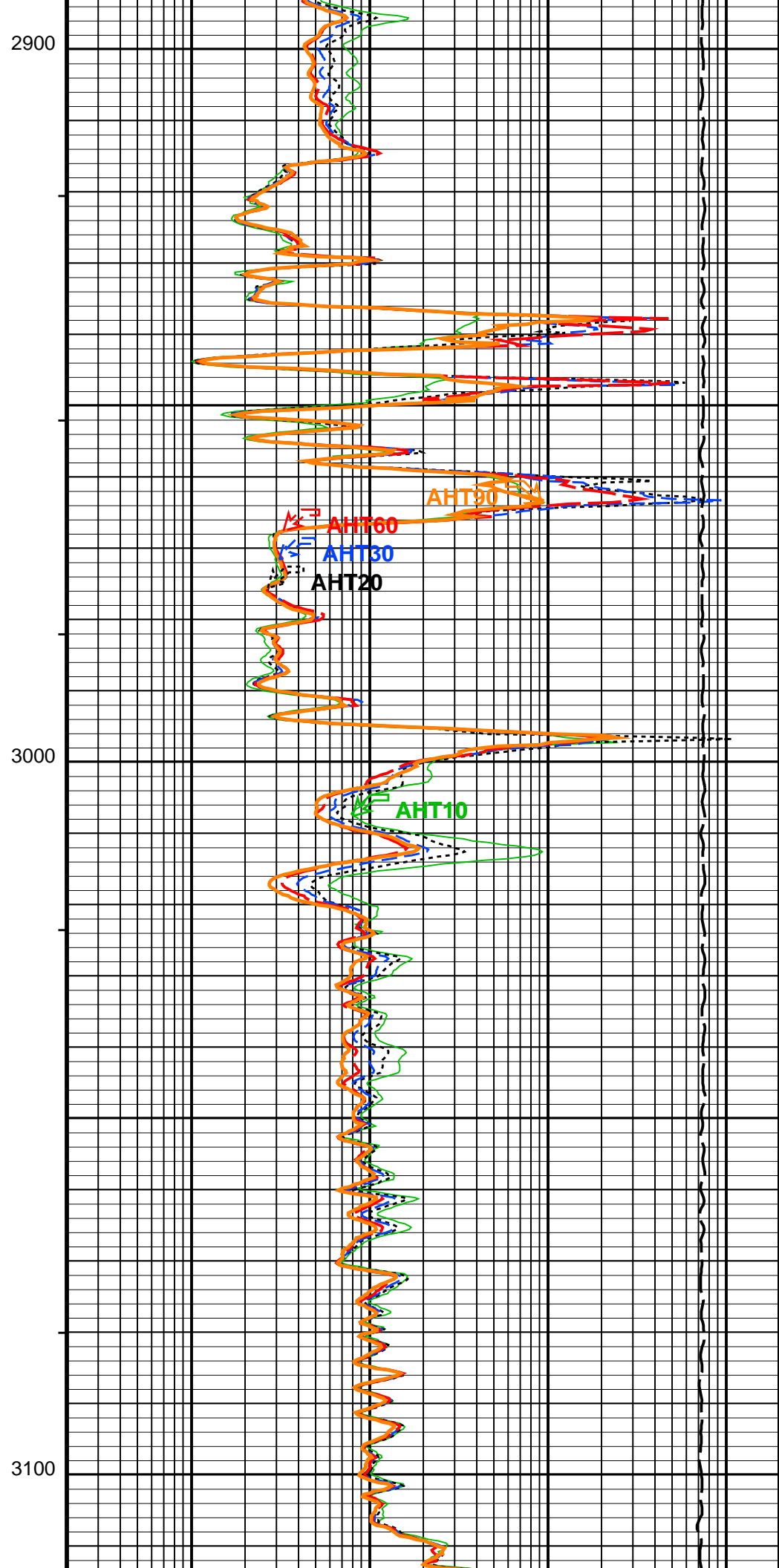
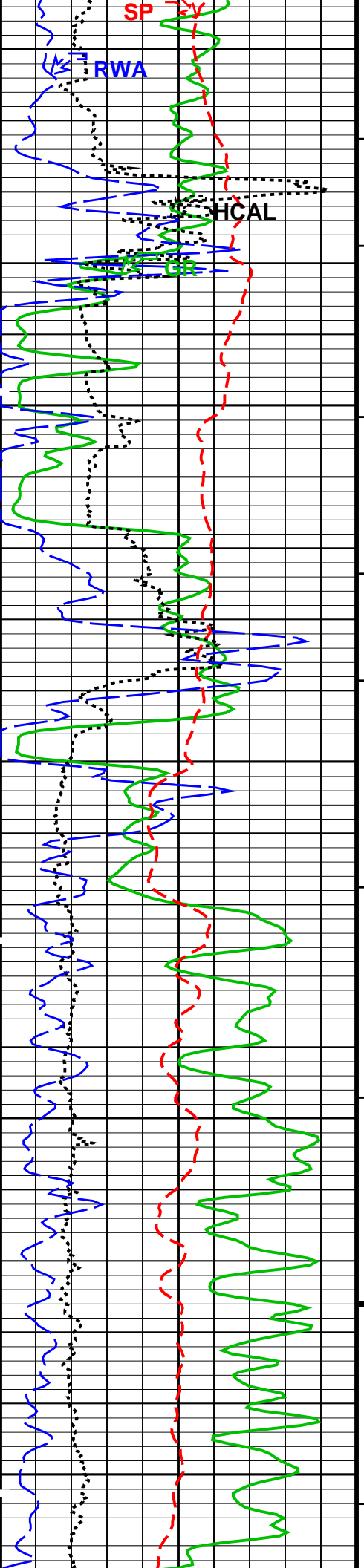
2200

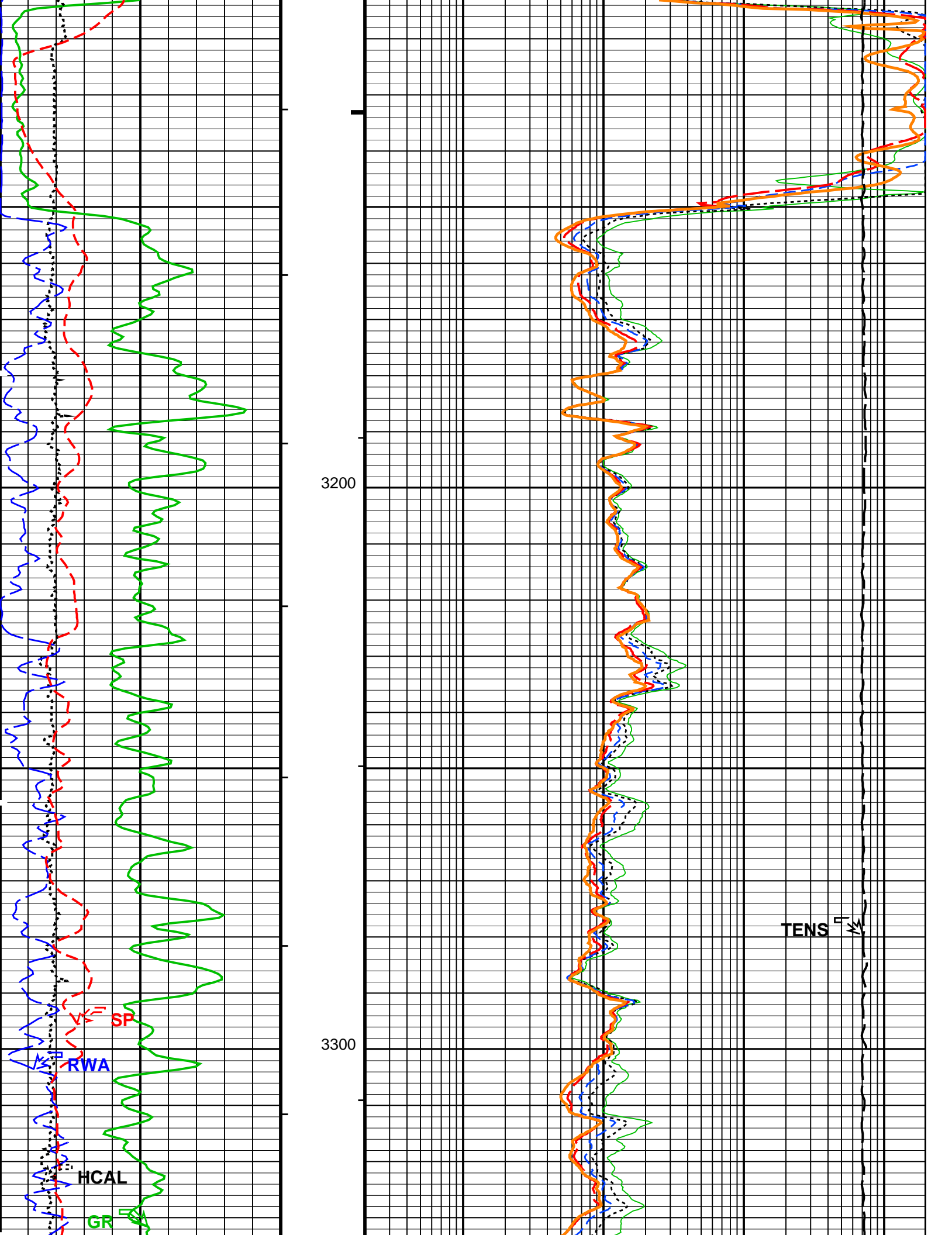


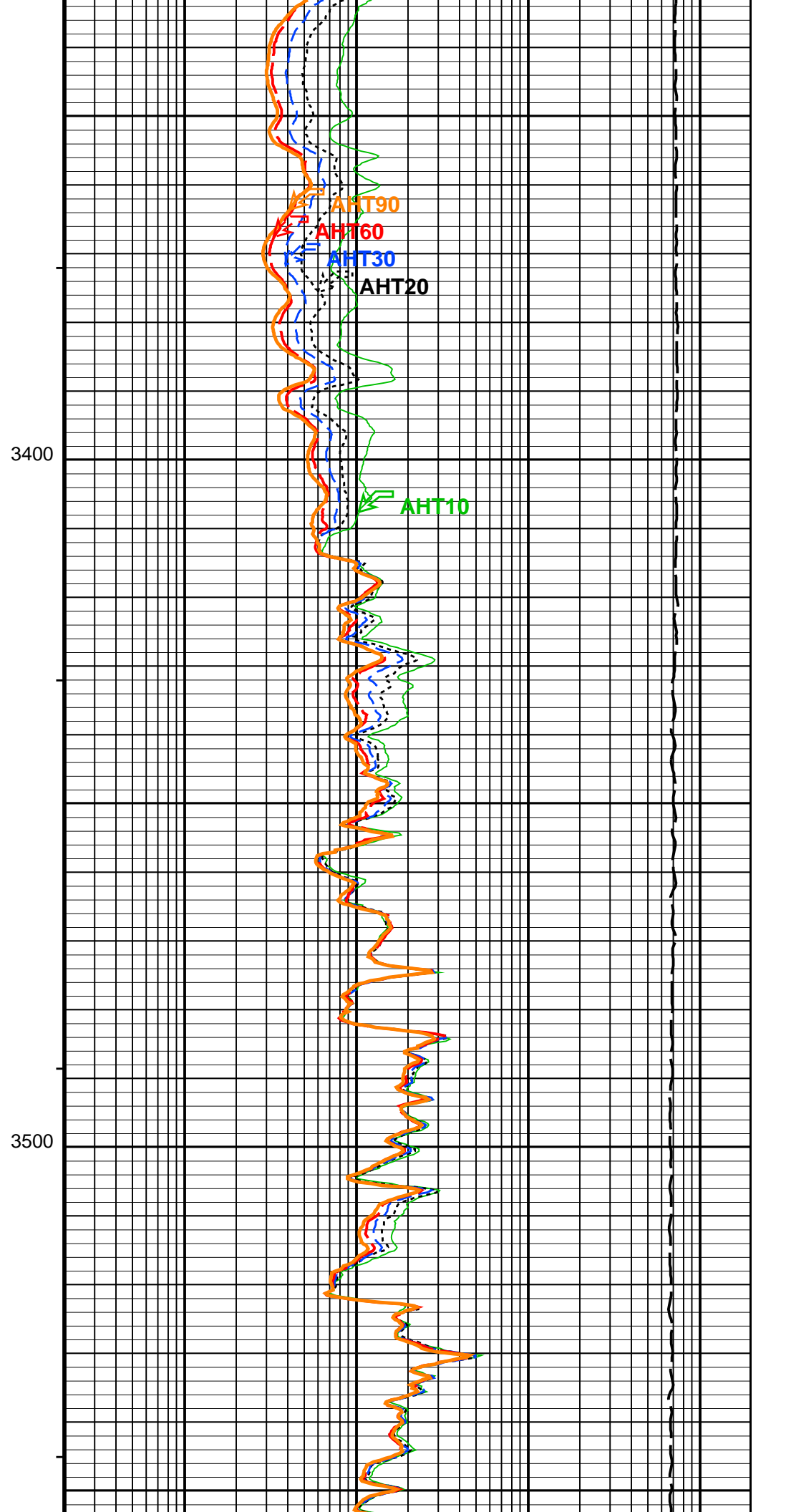
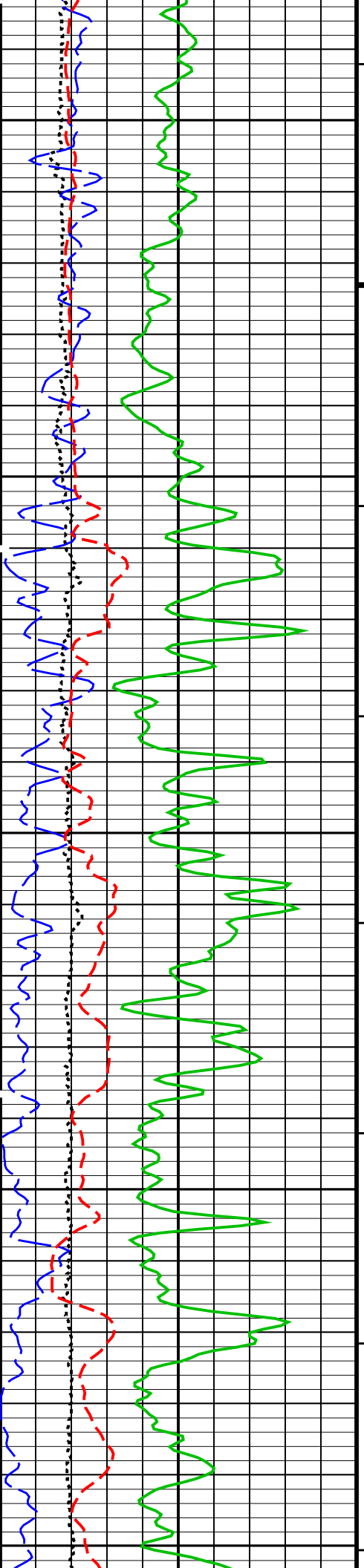


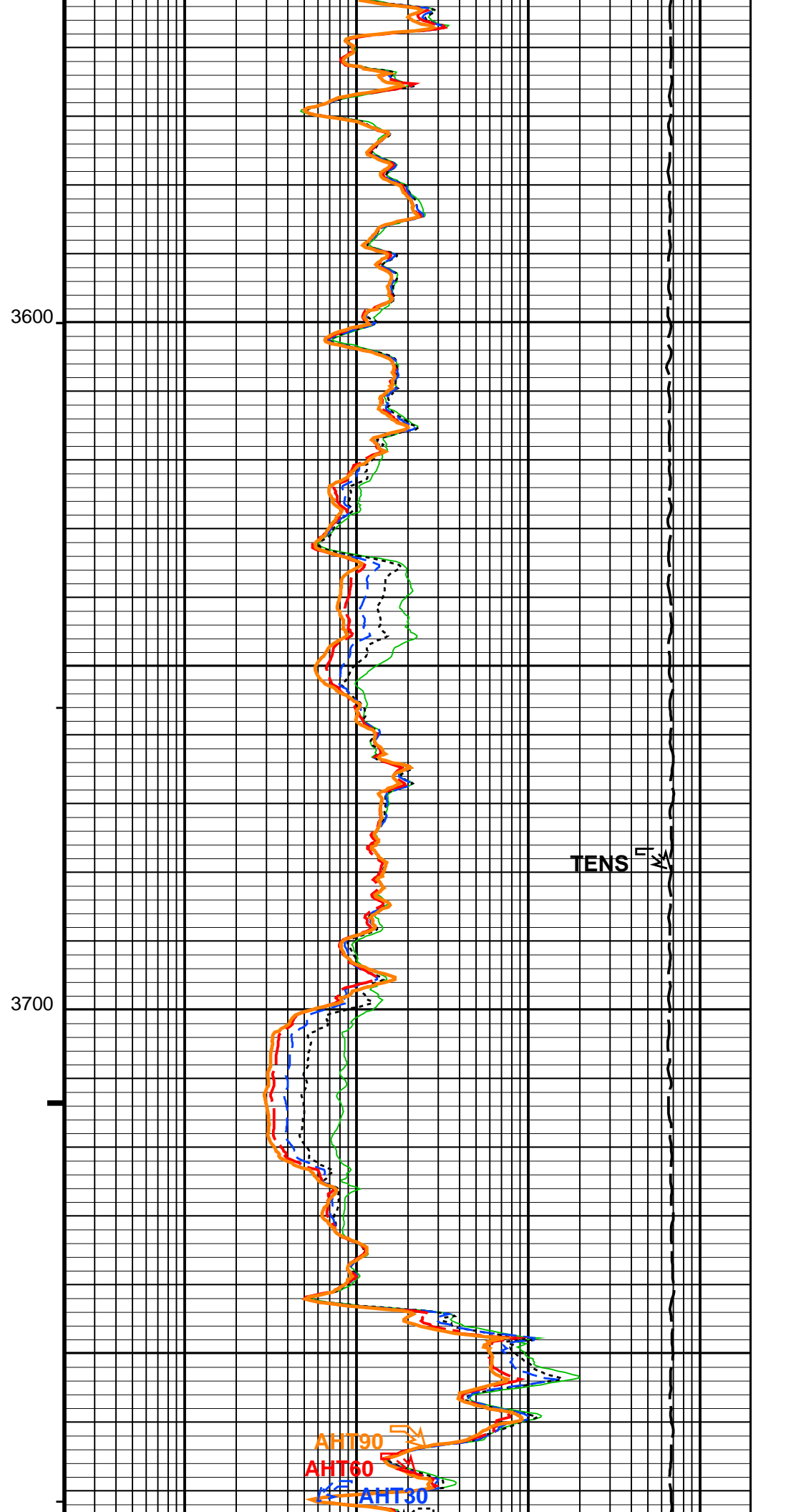
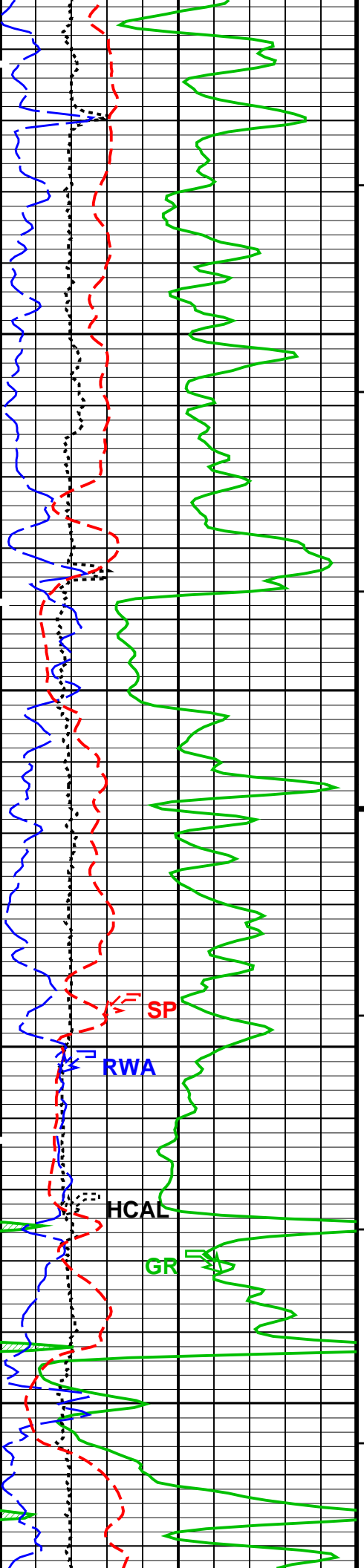


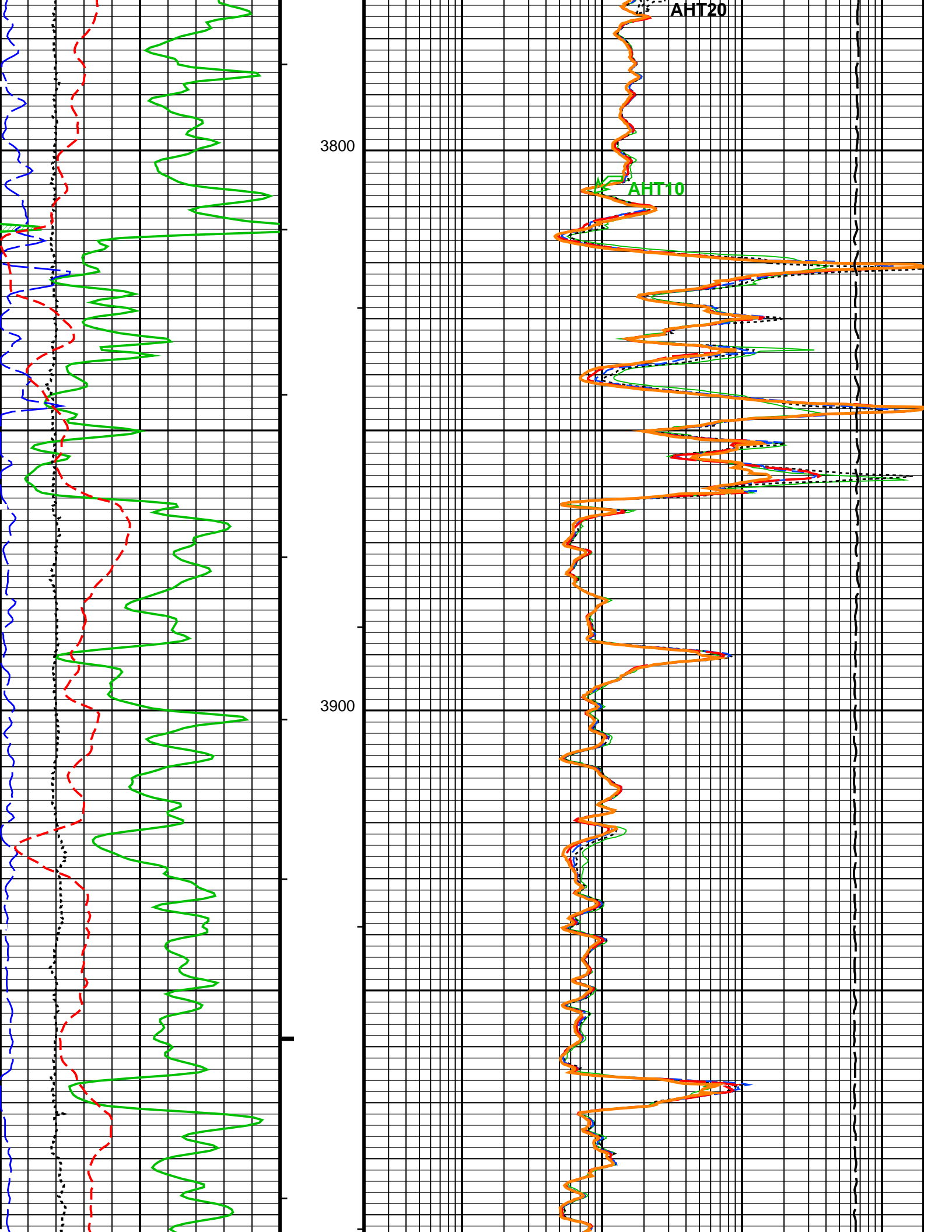


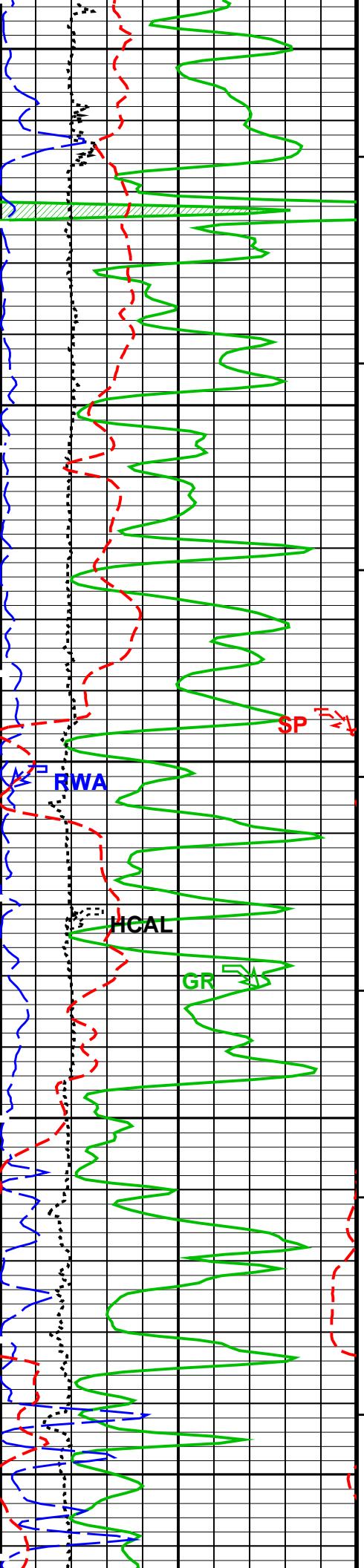








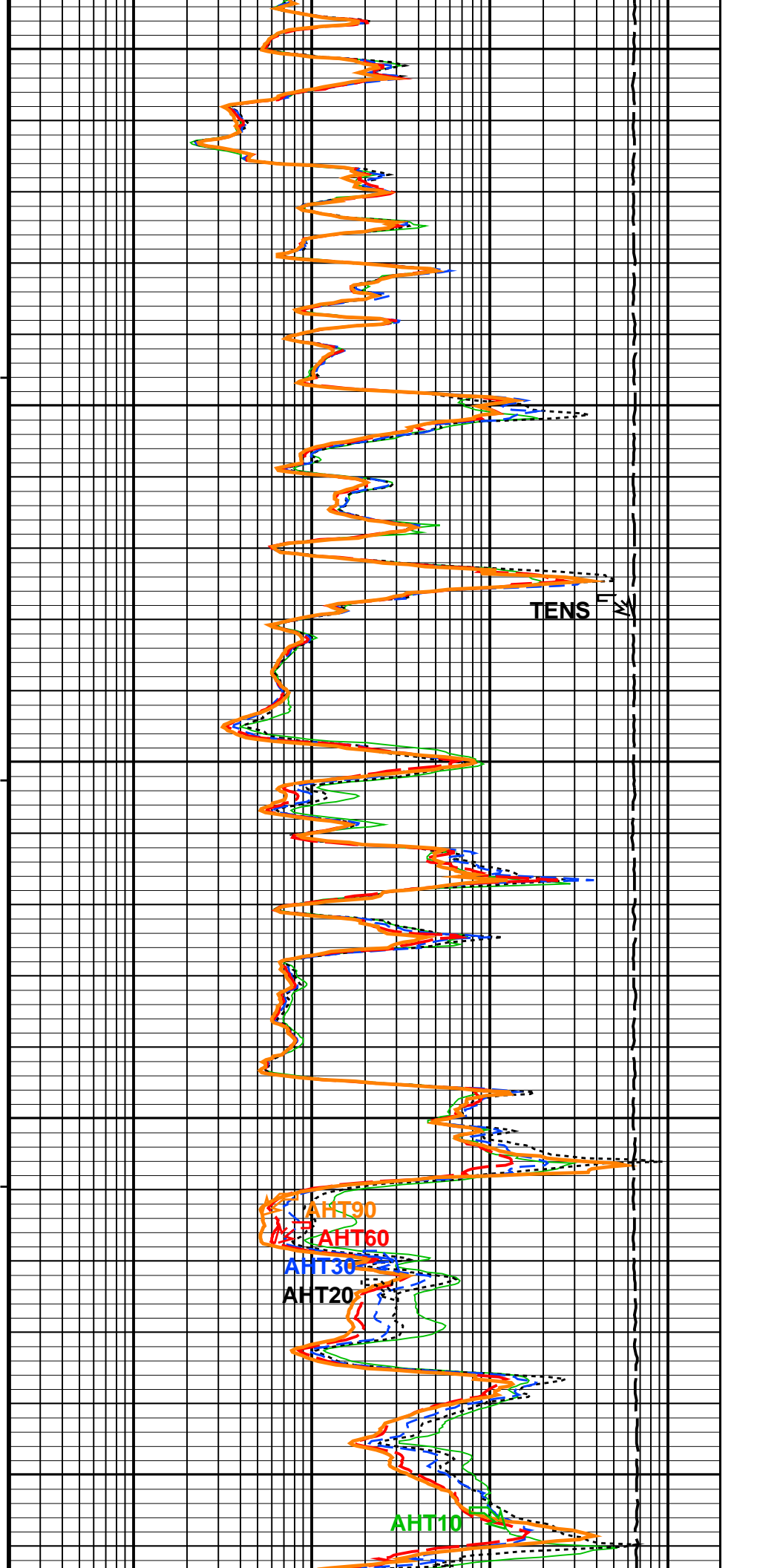




4000

4100

4200



TENS

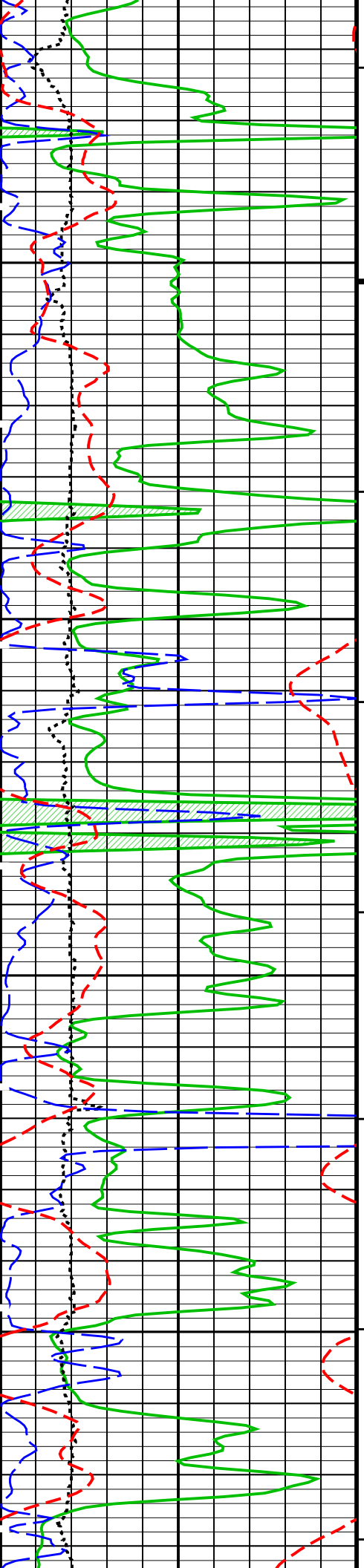
AHT90

AHT60

AHT30

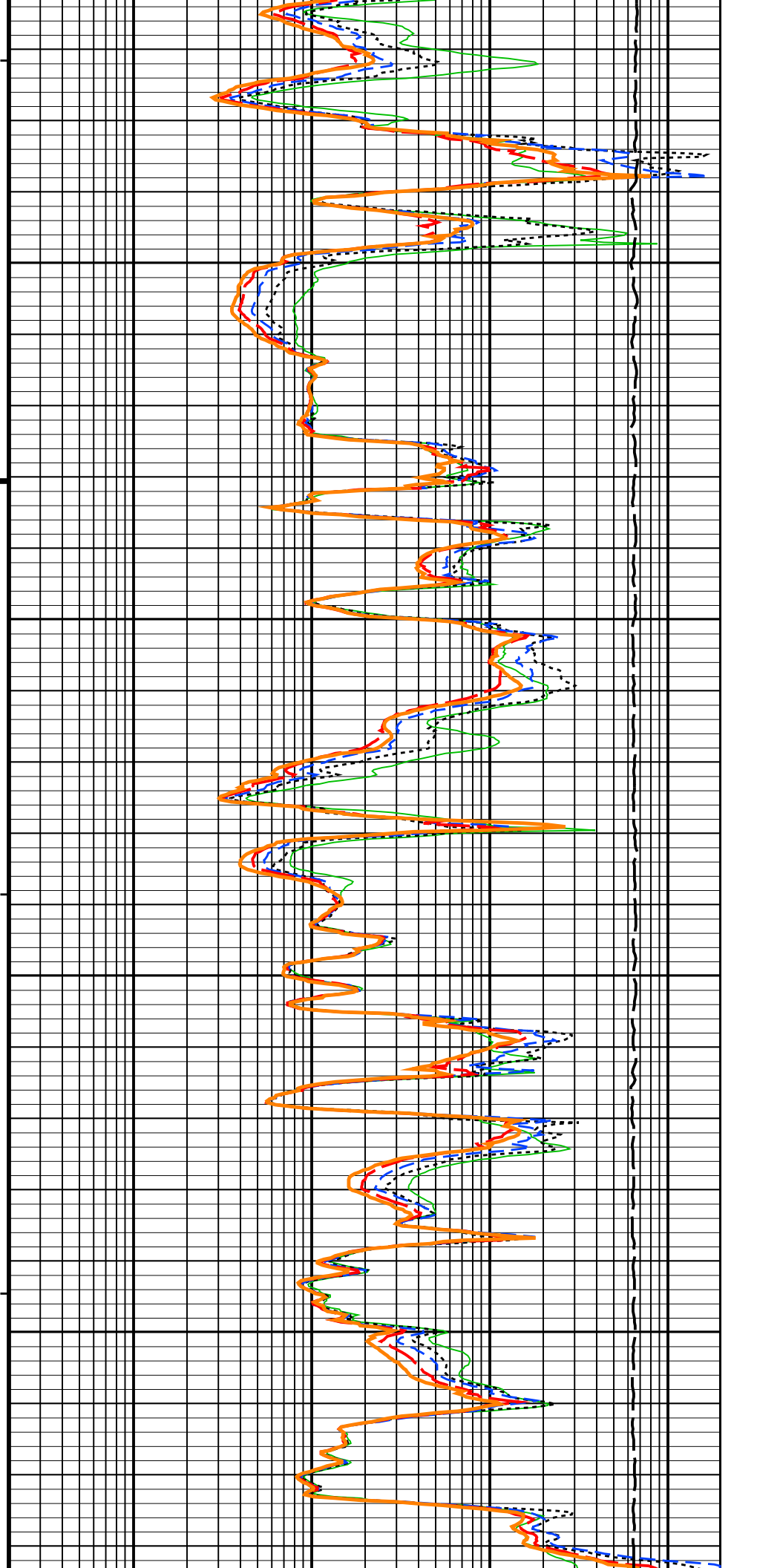
AHT20

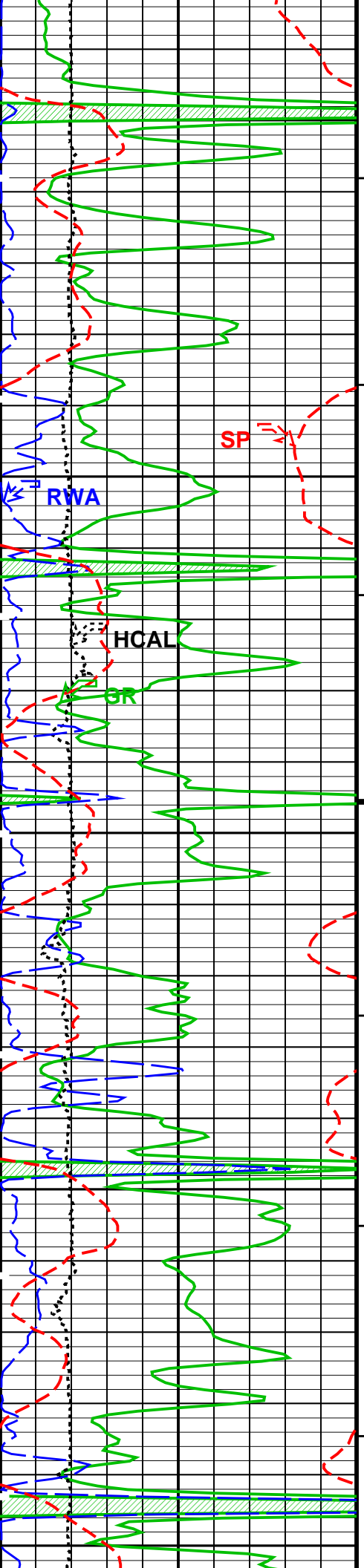
AHT10



4300

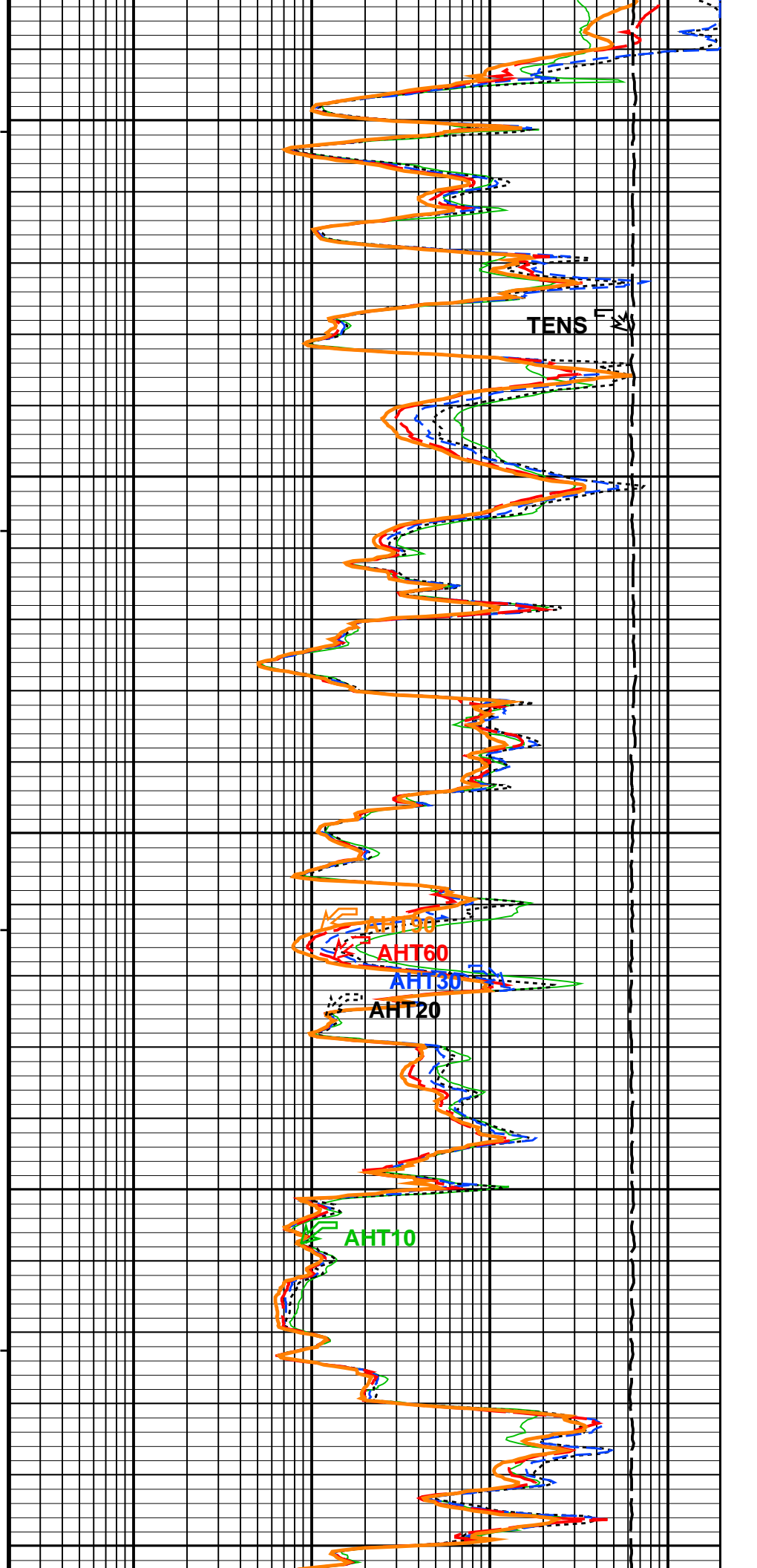
4400

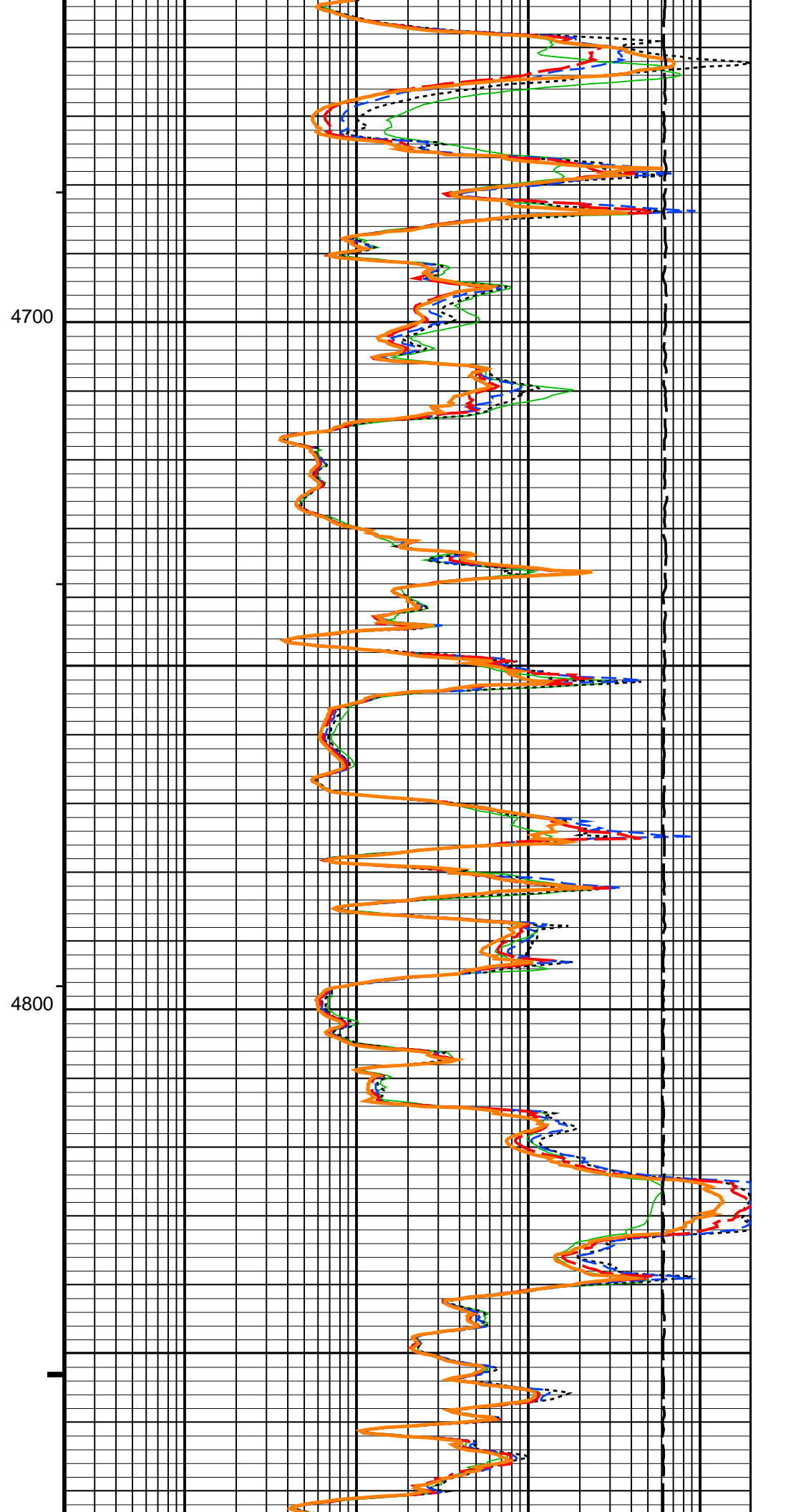
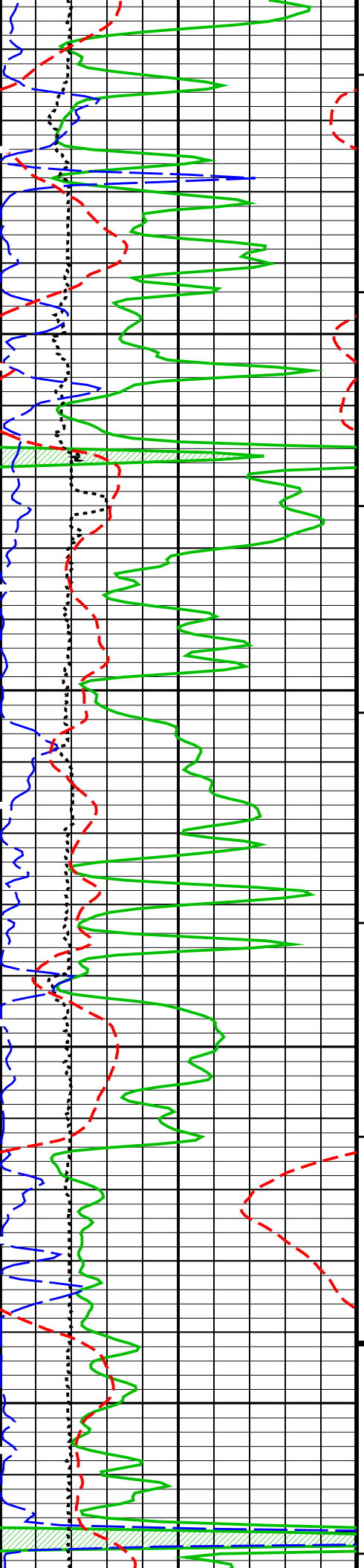


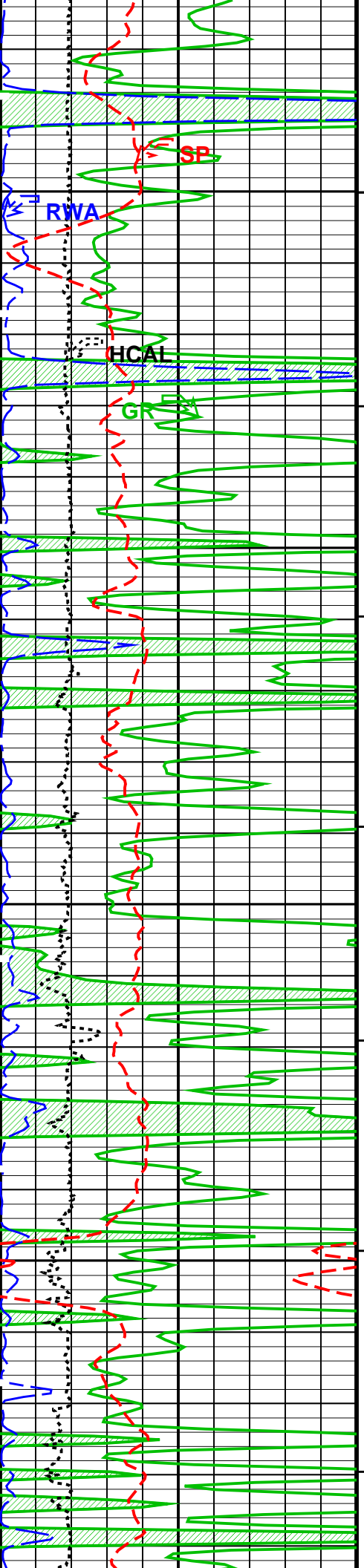


4500

4600

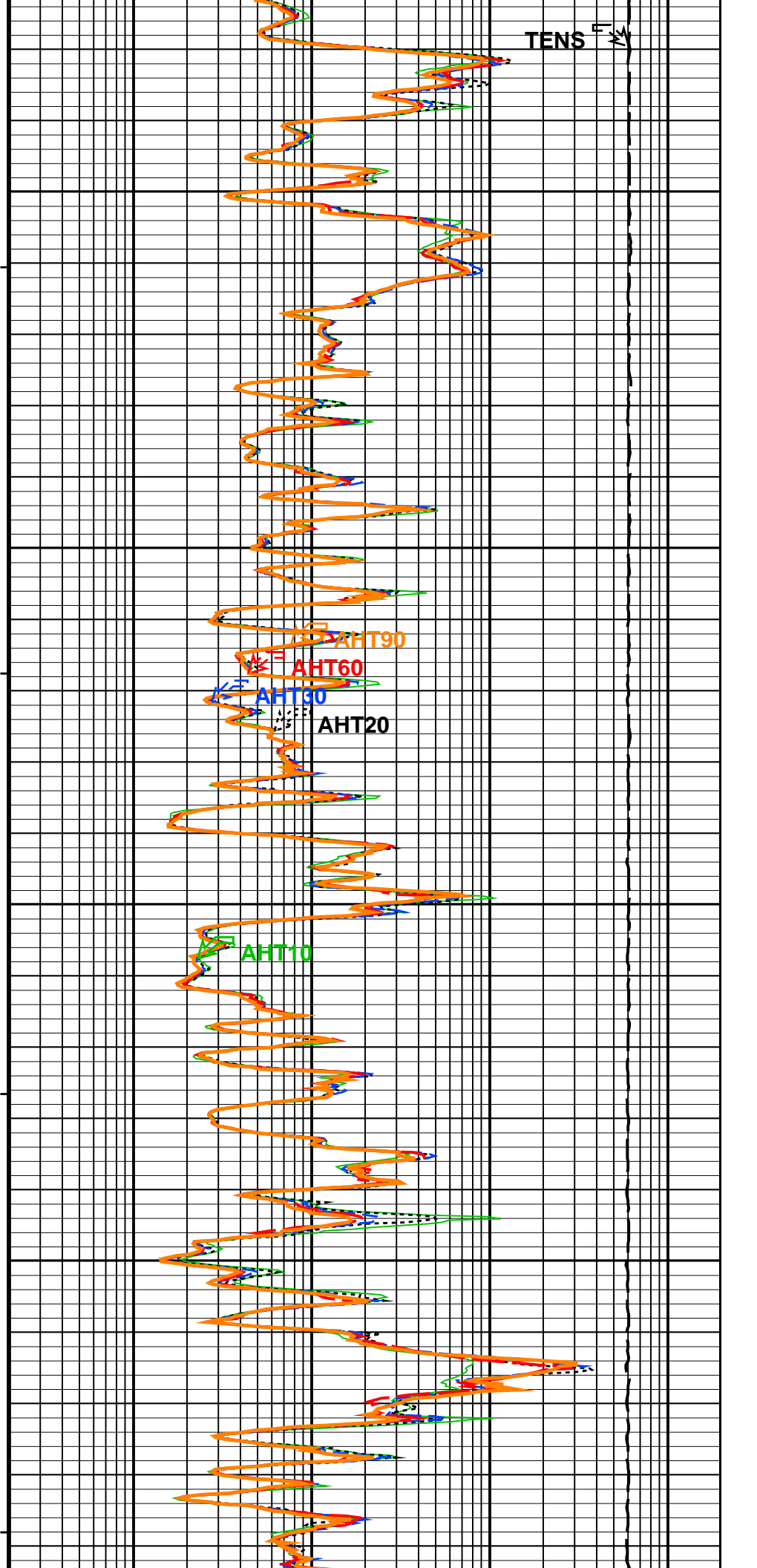






4900

5000



TENS

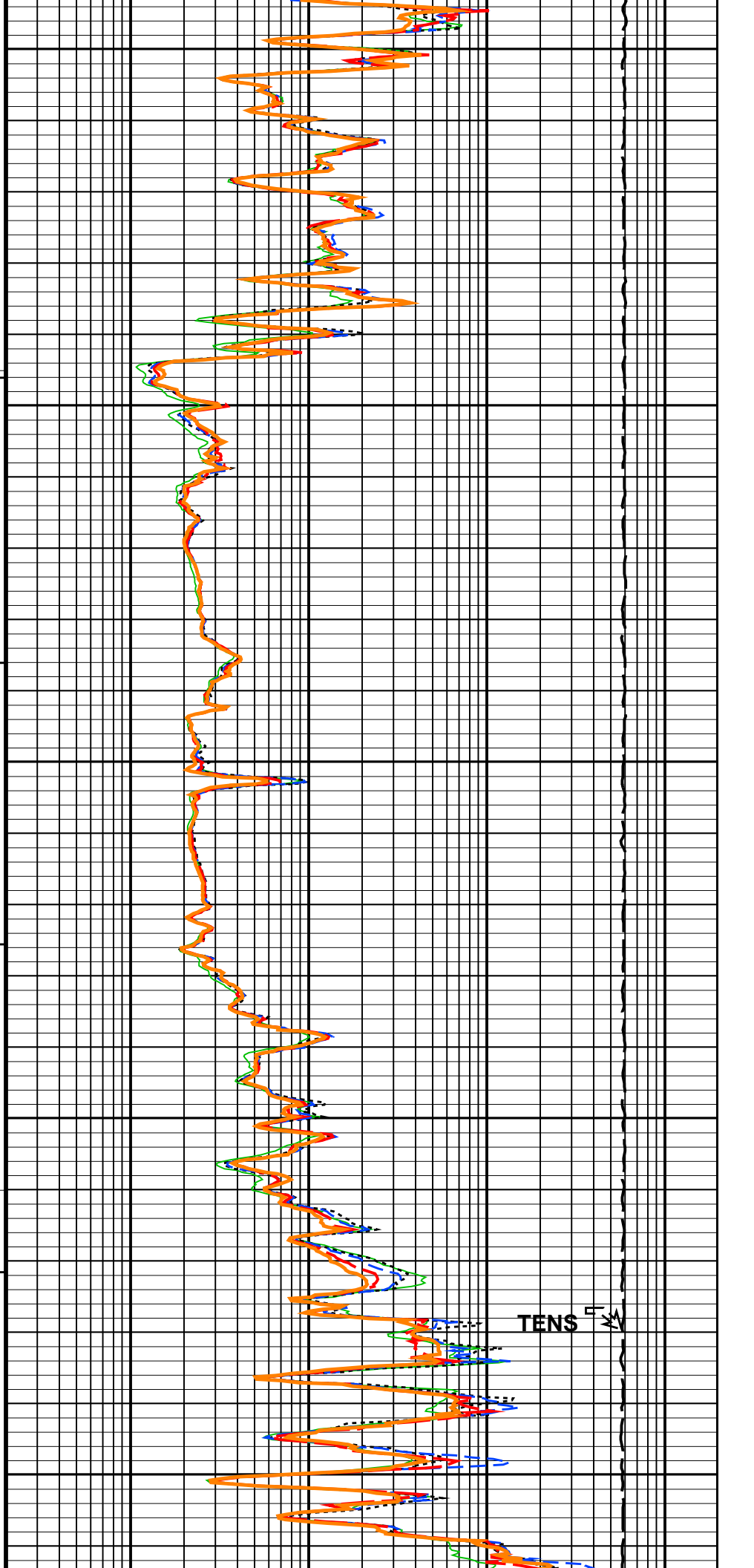
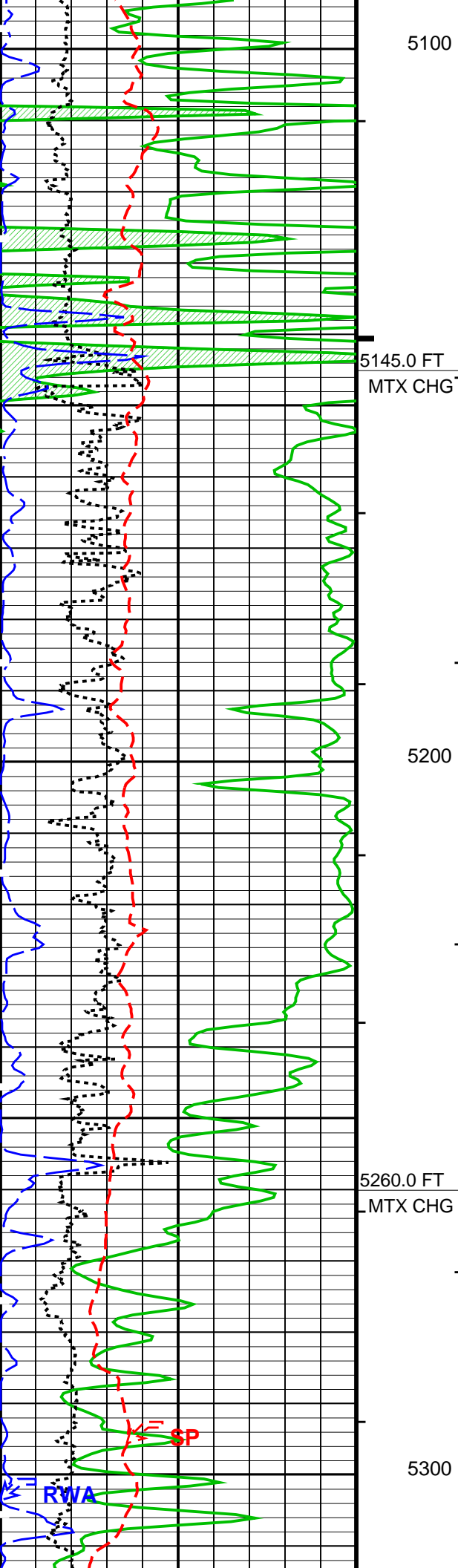
AHT90

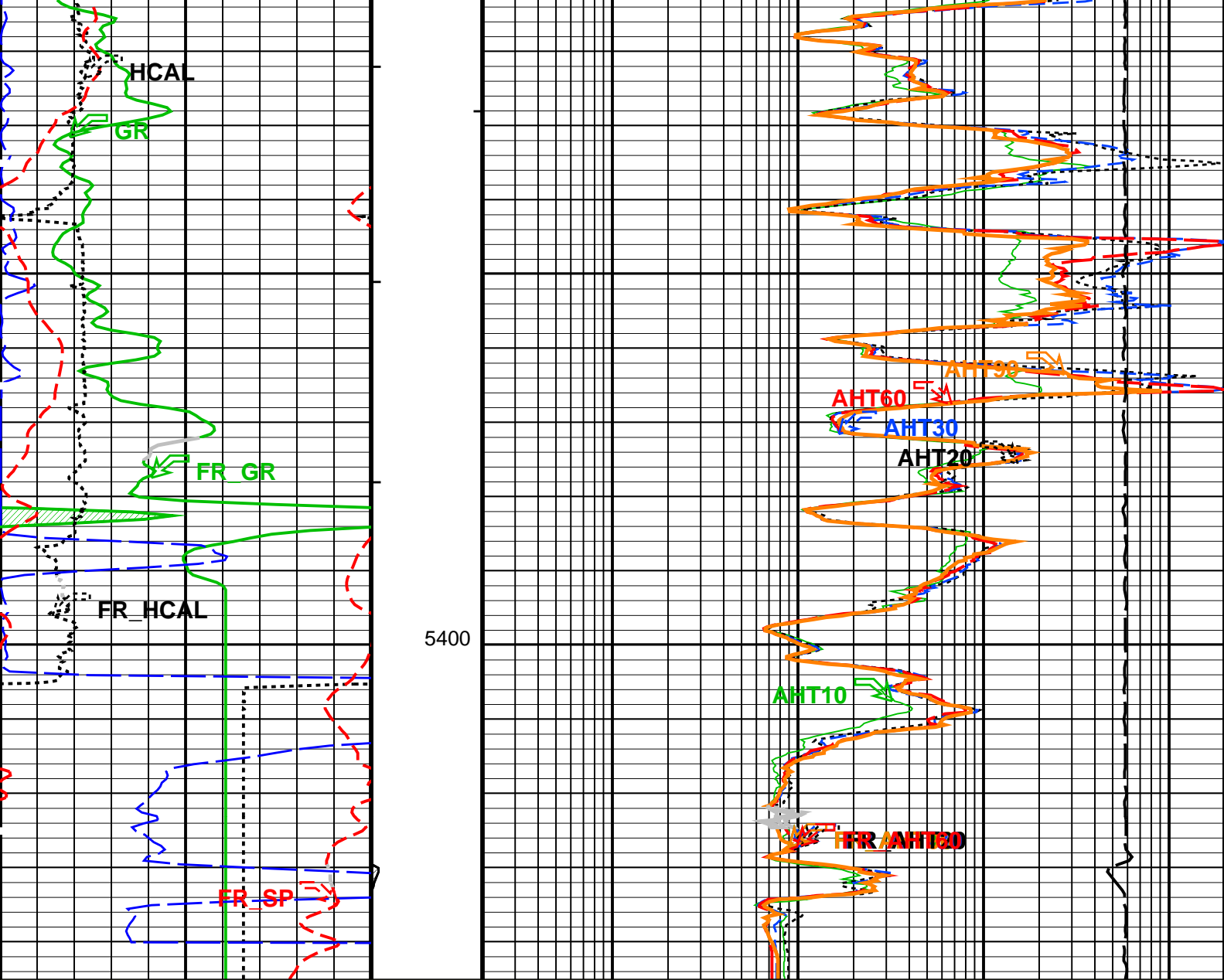
AHT60

AHT30

AHT20

AHT10





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

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

AIT-H Answer Product Processing Summary. Data taken with Tool # 398 (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 1.13 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) 1.200 OHMM Mud Filtrate Sample Temperature (MFST) 75.000 DEGF
 Resistivity 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
HAIT-H: Array Induction Tool - H		
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	1.125 IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GRD	Geothermal Gradient	0.01 DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	HSTS_HTEM
RTCO	RTCO - Rt Invasion Correction	YES
SHT	Surface Hole Temperature	68 DEGF
SPNV	SP Next Value	0 MV
HILTB-FTB: High resolution Integrated Logging Tool-DTS		
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GRD	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
HNGBS-BA: Hostile Natural Gamma Ray Sonde		
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GRD	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
RWA: Apparent Water Resistivity		
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
RTCO	RTCO - Rt Invasion Correction	YES
FEQL: Formation Evaluation Quick Look		
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1

FPHI	Form Factor Porosity Source	DPHZ	
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FCD	Future Casing (Outer) Diameter	5.5	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
PERT: Preliminary Evaluation – Real Time			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
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	
RTCO	RTCO – Rt Invasion Correction	YES	
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	5504.00	FT
TDL	Total Depth – Logger	5435.00	FT
System and Miscellaneous			
BS	Bit Size	7.875	IN
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	100.00	FT
MST	Mud Sample Temperature	75.00	DEGF
RMFS	Resistivity of Mud Filtrate Sample	1.2000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	5435	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Format: GRES Vertical Scale: 5" per 100' Graphics File Created: 03–Nov–2013 19:21

OP System Version: 19C2–270

HAIT–H	19C2–270	DSLT–FTB	19C2–270
HILTB–FTB	19C2–270	HNGC–B	19C2–270
HNGS–BA	19C2–270	DTC–H	19C2–270

Output DLIS Files

DEFAULT AIT_SONIC_TLD_MCFL_030LUP FN:28 PRODUCER 03–Nov–2013 19:21

Schlumberger

Induction 2" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT AIT_SONIC_TLD_MCFL_030LUP FN:28 PRODUCER 03–Nov–2013 19:21

OP System Version: 19C2–270

HAIT–H	19C2–270	DSLT–FTB	19C2–270
HILTB–FTB	19C2–270	HNGC–B	19C2–270
HNGS–BA	19C2–270	DTC–H	19C2–270

PIP SUMMARY

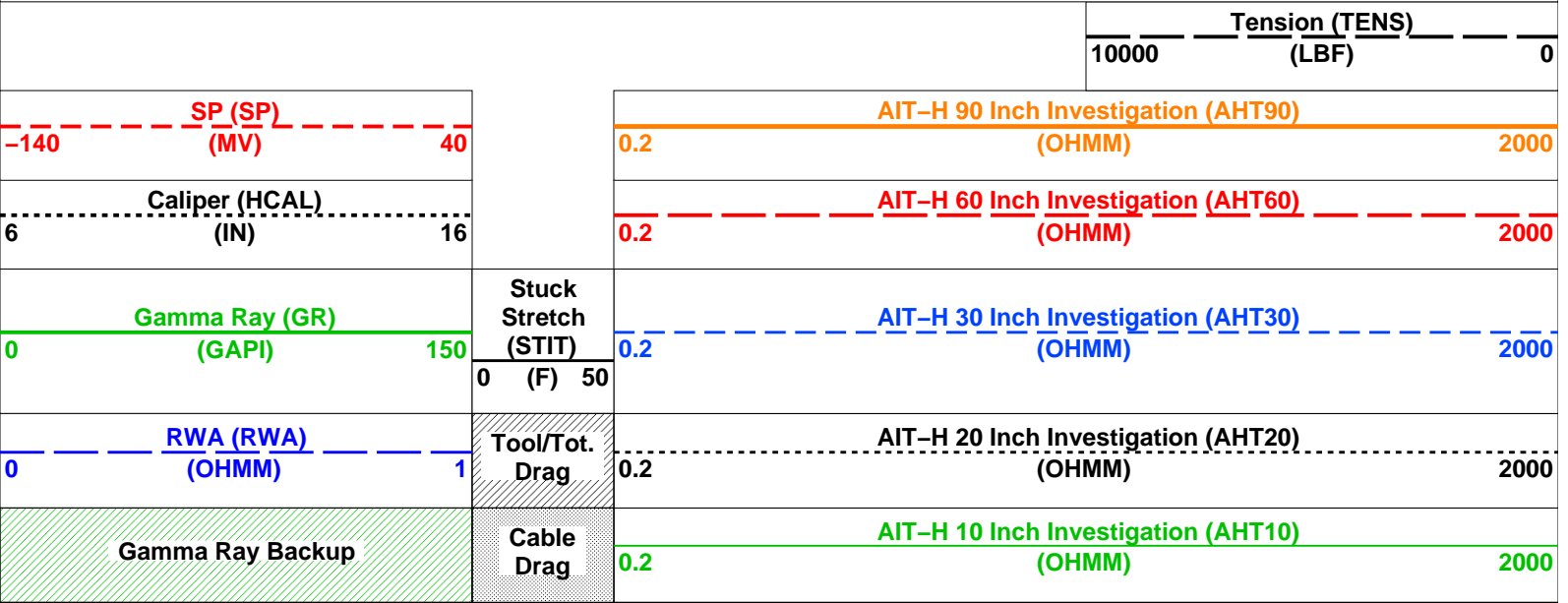
└ Integrated Hole Volume Minor Pip Every 10 F3

└ Integrated Hole Volume Major Pip Every 100 F3

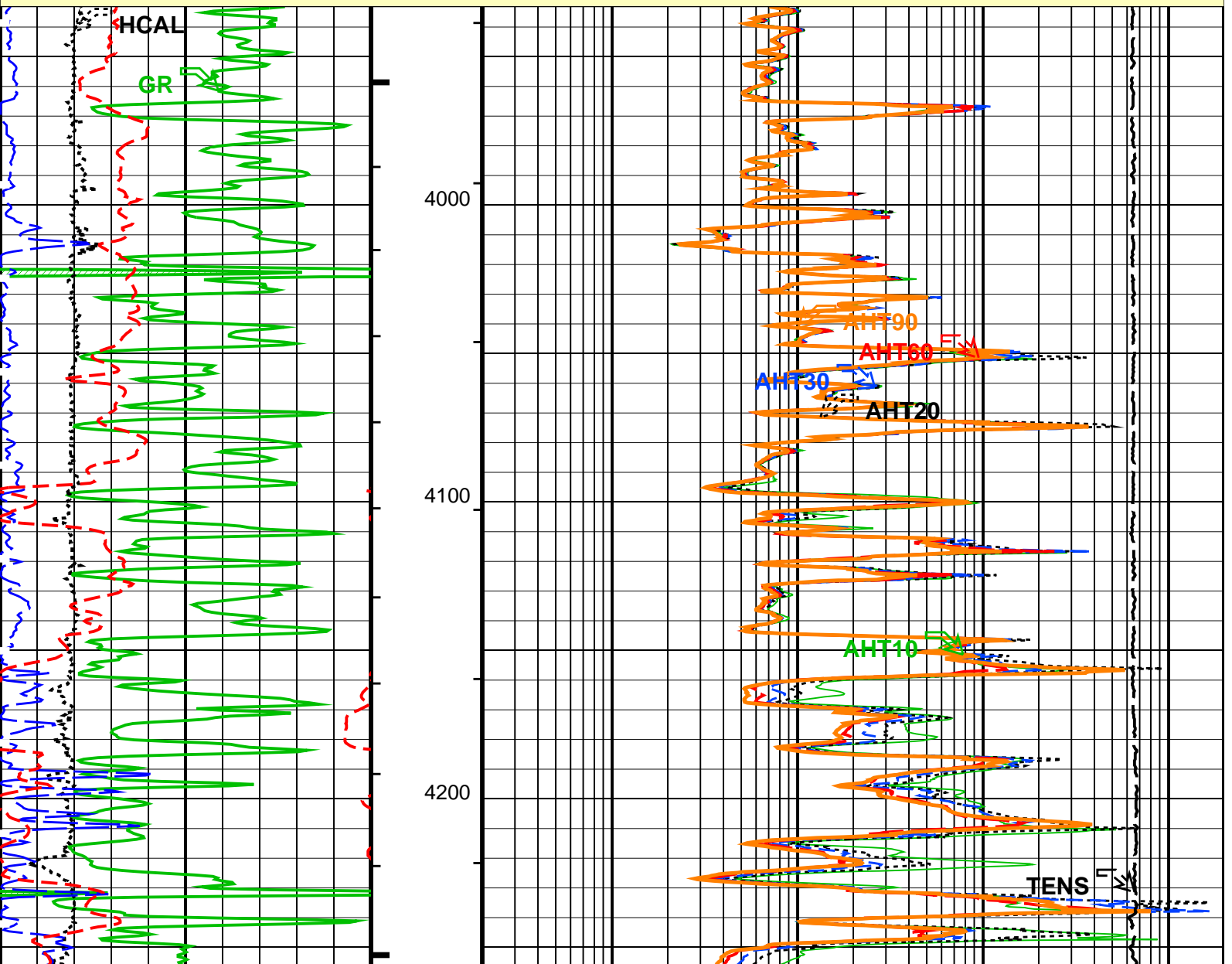
└ Integrated Cement Volume Minor Pip Every 10 F3

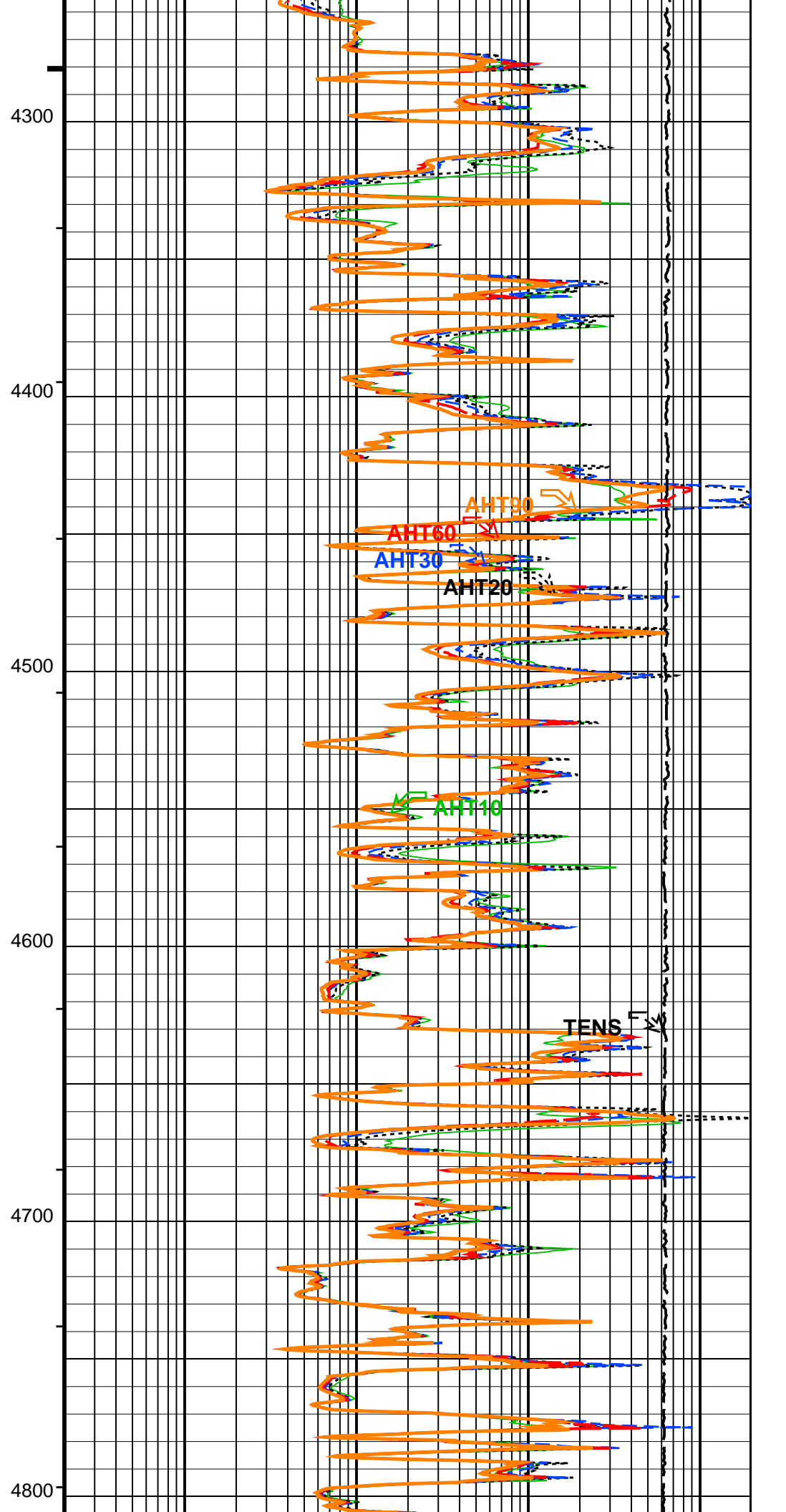
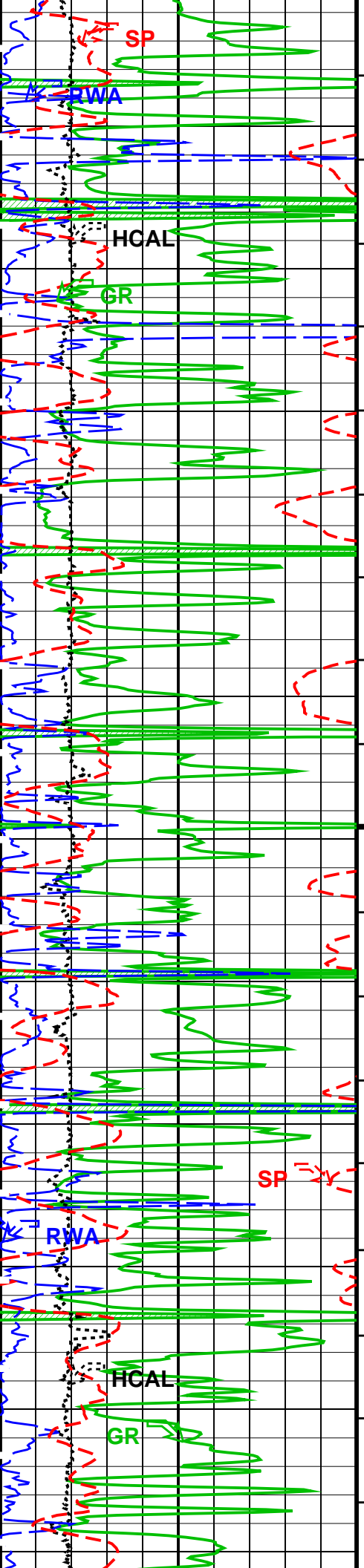
└ Integrated Cement Volume Major Pip Every 100 F3

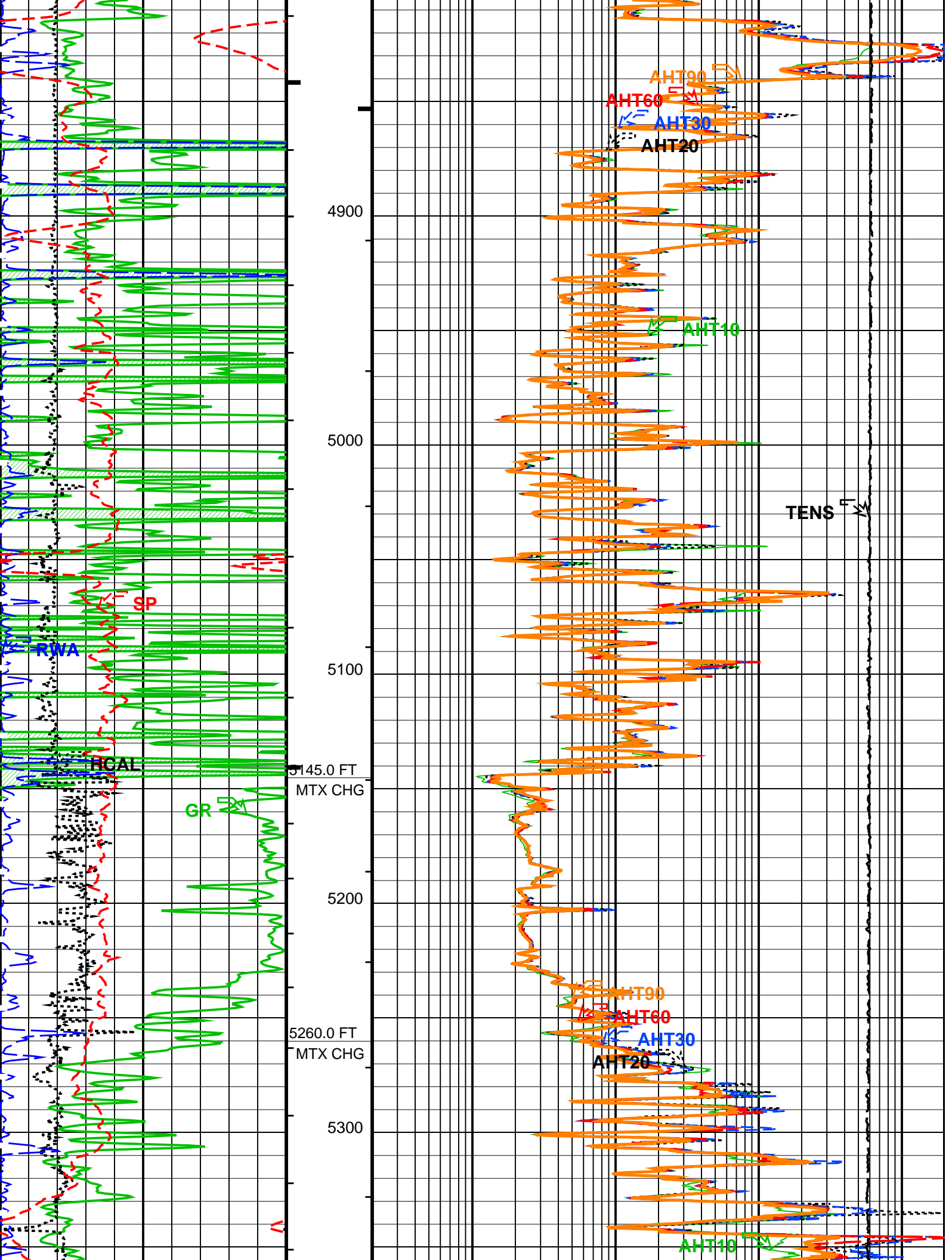
■ Time Mark Every 60 S

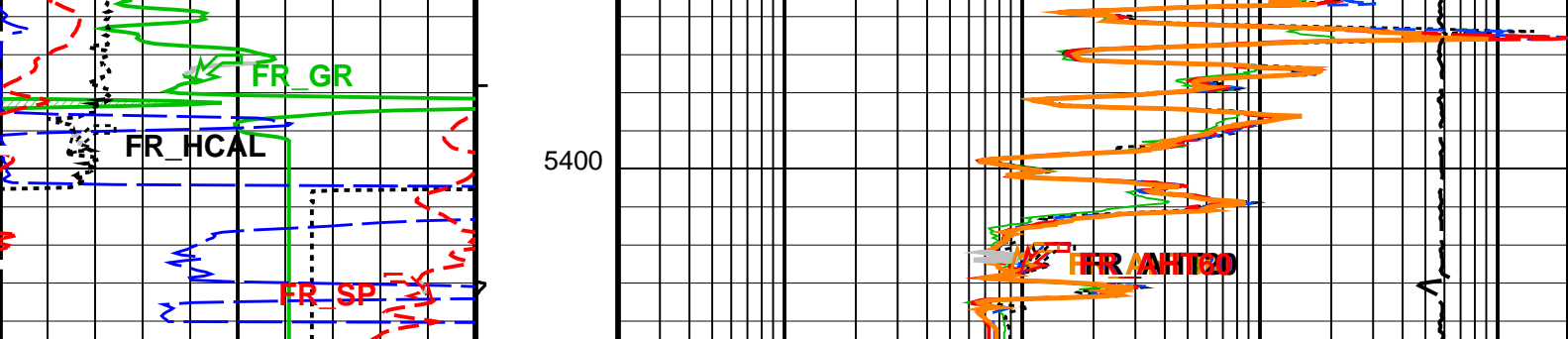


MAIN PASS: *** PLATFORM EXPRESS – ARRAY INDUCTION ***









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

<div>Gamma Ray Backup</div>	<div>Cable Drag</div>	<div>0.2</div>	<div>AIT-H 10 Inch Investigation (AHT10) (OHMM)</div>	<div>2000</div>
<div>0</div> <div>RWA (RWA) (OHMM)</div> <div>1</div>	<div>Tool/Tot. Drag</div>	<div>0.2</div>	<div>AIT-H 20 Inch Investigation (AHT20) (OHMM)</div>	<div>2000</div>
<div>0</div> <div>Gamma Ray (GR) (GAPI)</div> <div>150</div>	<div>Stuck Stretch (STIT)</div>	<div>0.2</div>	<div>AIT-H 30 Inch Investigation (AHT30) (OHMM)</div>	<div>2000</div>
	<div>0 (F) 50</div>			
<div>6</div> <div>Caliper (HCAL) (IN)</div> <div>16</div>		<div>0.2</div>	<div>AIT-H 60 Inch Investigation (AHT60) (OHMM)</div>	<div>2000</div>
<div>-140</div> <div>SP (SP) (MV)</div> <div>40</div>		<div>0.2</div>	<div>AIT-H 90 Inch Investigation (AHT90) (OHMM)</div>	<div>2000</div>
			<div>Tension (TENS) (LBF)</div>	
		<div>10000</div>		<div>0</div>

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 # 398 (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 1.13 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) 1.200 OHMM Mud Filtrate Sample Temperature (MFST) 75.000 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

HAIT-H: Array Induction Tool – H

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	1.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
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	
RTCO	RTCO – Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV
HILTB–FTB: High resolution Integrated Logging Tool–DTS			
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
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
HNGBS–BA: Hostile Natural Gamma Ray Sonde			
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
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
RWA: Apparent Water Resistivity			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
RTCO	RTCO – Rt Invasion Correction	YES	
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FCD	Future Casing (Outer) Diameter	5.5	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
PERT: Preliminary Evaluation – Real Time			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
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	
RTCO	RTCO – Rt Invasion Correction	YES	
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	5504.00	FT
TDL	Total Depth – Logger	5435.00	FT
System and Miscellaneous			
BS	Bit Size	7.875	IN
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	100.00	FT
MST	Mud Sample Temperature	75.00	DEGF
RMFS	Resistivity of Mud Filtrate Sample	1.2000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	5435	FT

OP System Version: 19C2-270

HAIT-H	19C2-270	DSLT-FTB	19C2-270
HILTB-FTB	19C2-270	HNGC-B	19C2-270
HNGS-BA	19C2-270	DTC-H	19C2-270

Output DLIS Files

DEFAULT	AIT_SONIC_TLD_MCFL_030LUP	FN:28	PRODUCER	03-Nov-2013 19:21
---------	---------------------------	-------	----------	-------------------



REPEAT PASS

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_SONIC_TLD_MCFL_028LUP	FN:26	PRODUCER	03-Nov-2013 19:06	5407.5 FT	5084.0 FT
---------	---------------------------	-------	----------	-------------------	-----------	-----------

Output DLIS Files

DEFAULT	AIT SONIC TLD MCFL 029PUP	FN:27	PRODUCER	03-Nov-2013 19:19	5412.0 FT	5088.5 FT
---------	---------------------------	-------	----------	-------------------	-----------	-----------

Integrated Hole/Cement Volume Summary

Hole Volume = 105.81 F3
Cement Volume = 52.44 F3 (assuming 5.50 IN casing O.D.)
Computed from 5412.0 FT to 5089.0 FT using data channel(s) HCAL

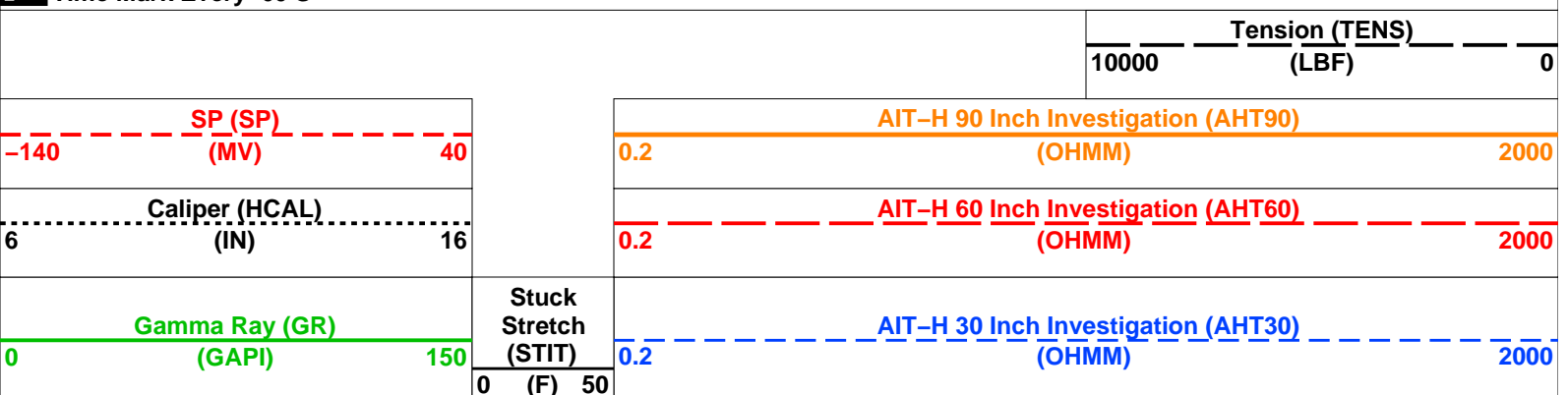
OP System Version: 19C2-270

HAIT-H	19C2-270	DSLT-FTB	19C2-270
HILTB-FTB	19C2-270	HNGC-B	19C2-270
HNGS-BA	19C2-270	DTC-H	19C2-270

PIP SUMMARY

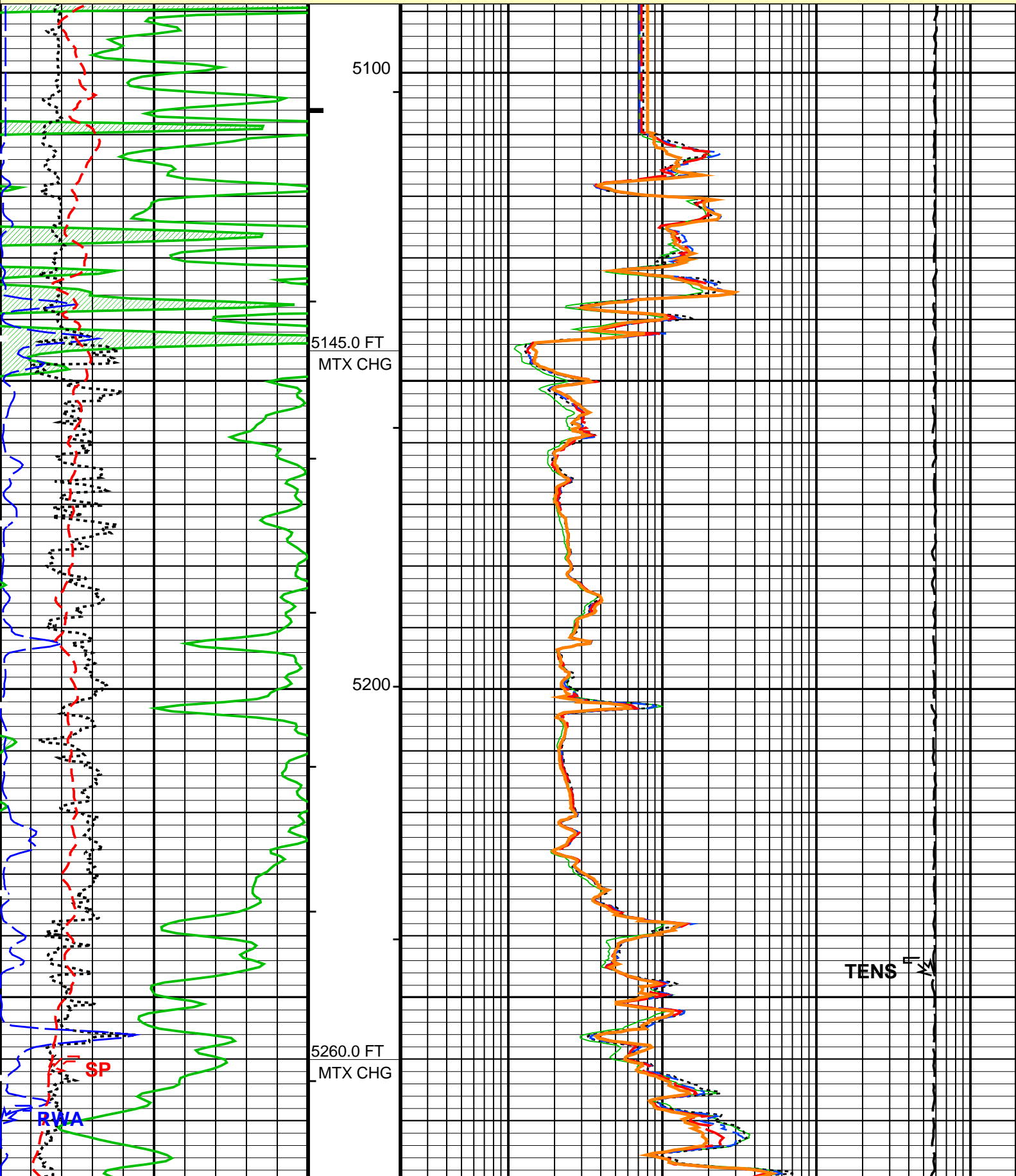
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

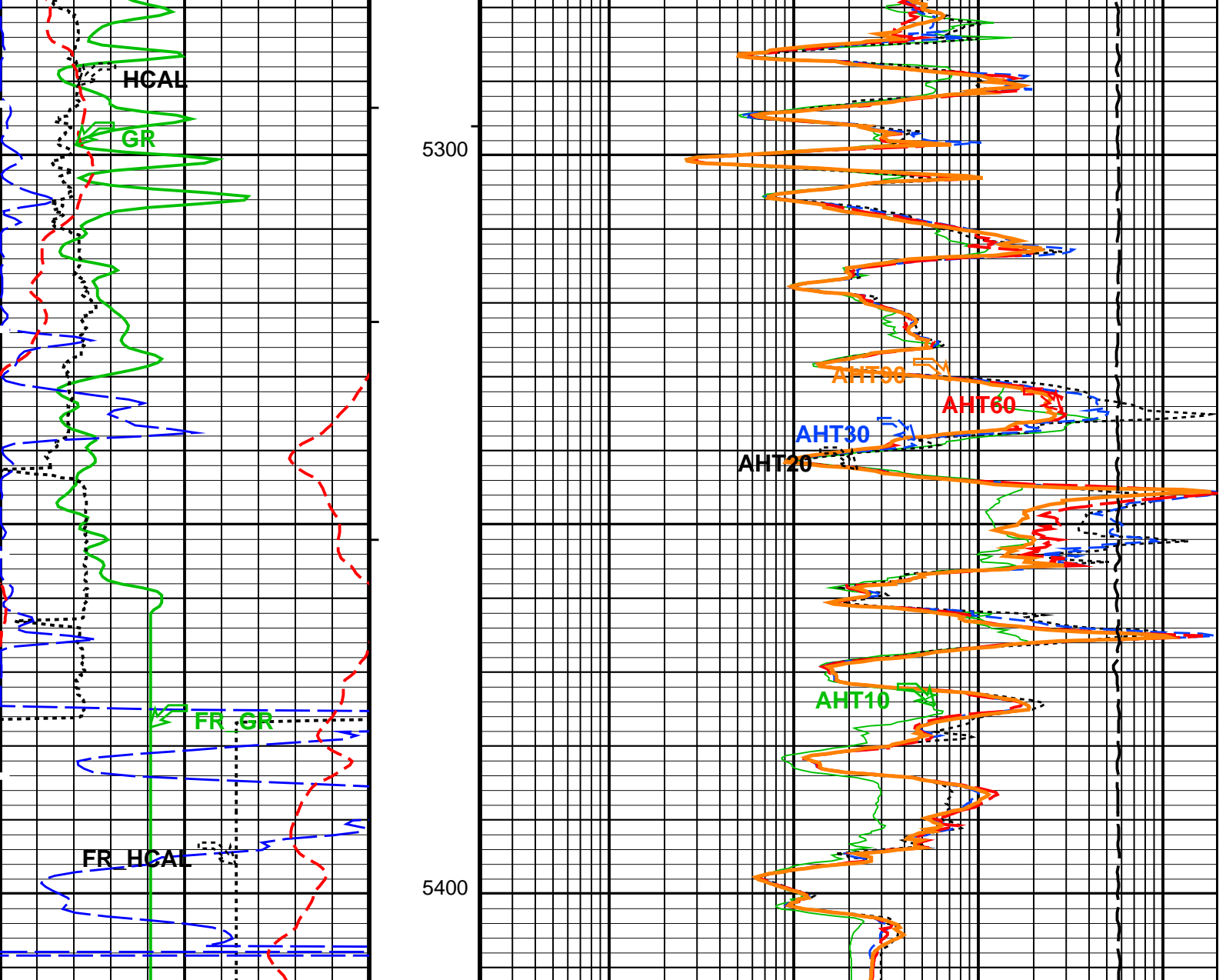
Time Mark Every 60 S



0	RWA (RWA) (OHMM)	1	Tool/Tot. Drag	0.2	AIT-H 20 Inch Investigation (AHT20) (OHMM)	2000
	Gamma Ray Backup		Cable Drag	0.2	AIT-H 10 Inch Investigation (AHT10) (OHMM)	2000

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





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

Gamma Ray Backup	Cable Drag	0.2	AIT-H 10 Inch Investigation (AHT10) (OHMM)	2000
RWA (RWA) (OHMM)	Tool/Tot. Drag	0.2	AIT-H 20 Inch Investigation (AHT20) (OHMM)	2000
Gamma Ray (GR) (GAPI)	Stuck Stretch (STIT)	0.2	AIT-H 30 Inch Investigation (AHT30) (OHMM)	2000
Caliper (HCAL) (IN)	0 (F) 50	0.2	AIT-H 60 Inch Investigation (AHT60) (OHMM)	2000
SP (SP) (MV)		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

AIT-H Answer Product Processing Summary. Data taken with Tool # 398 (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 1.13 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) 1.200 OHMM Mud Filtrate Sample Temperature (MFST) 75.000 DEGF
 Resistivity Connate Water (RW) 1.000 OHMM

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

Playback Mode: RECOMPUTE

(AHEBC) : Yes (AHEBL) : Yes (AHERP) : Yes

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

Parameters

DLIS Name	Description	Value
HAIT-H: Array Induction Tool - H		
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	1.125 IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
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
RTCO	RTCO - Rt Invasion Correction	YES
SHT	Surface Hole Temperature	68 DEGF
SPNV	SP Next Value	0 MV
HILTB-FTB: High resolution Integrated Logging Tool-DTS		
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
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
HNCS-BA: Hostile Natural Gamma Ray Sonde		
BHT	Bottom Hole Temperature (used in calculations)	140 DEGF
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
RWA: Apparent Water Resistivity		
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
FPHI	Form Factor Porosity Source	DPHZ
RTCO	RTCO - Rt Invasion Correction	YES

RTCO	FEQL: Formation Evaluation Quick Look	RTCO – Rt Invasion Correction	YES	
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
FPHI	Form Factor Porosity Source	DPHZ		
	HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF	
FCD	Future Casing (Outer) Diameter	5.5	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	
	PERT: Preliminary Evaluation – Real Time			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90		
BHT	Bottom Hole Temperature (used in calculations)	140	DEGF	
FEXP	Form Factor Exponent	2		
FNUM	Form Factor Numerator	1		
FPHI	Form Factor Porosity Source	DPHZ		
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		
RTCO	RTCO – Rt Invasion Correction	YES		
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	5504.00	FT	
TDL	Total Depth – Logger	5435.00	FT	
	System and Miscellaneous			
BS	Bit Size	7.875	IN	
DO	Depth Offset for Playback	4.5	FT	
FLEV	Fluid Level	100.00	FT	
MST	Mud Sample Temperature	75.00	DEGF	
PP	Playback Processing	RECOMPUTE		
RMFS	Resistivity of Mud Filtrate Sample	1.2000	OHMM	
RW	Resistivity of Connate Water	1.0000	OHMM	
TD	Total Depth	5435	FT	
TWS	Temperature of Connate Water Sample	100.00	DEGF	

Format: GRES Vertical Scale: 5" per 100' Graphics File Created: 03–Nov–2013 19:19

OP System Version: 19C2–270

HAIT–H	19C2–270	DSLT–FTB	19C2–270
HILTB–FTB	19C2–270	HNGC–B	19C2–270
HNGS–BA	19C2–270	DTC–H	19C2–270

Input DLIS Files

DEFAULT	AIT_SONIC_TLD_MCFL_028LUP	FN:26	PRODUCER	03–Nov–2013 19:06	5407.5 FT	5084.0 FT
---------	---------------------------	-------	----------	-------------------	-----------	-----------

Output DLIS Files

DEFAULT	AIT_SONIC_TLD_MCFL_029PUP	FN:27	PRODUCER	03–Nov–2013 19:19
---------	---------------------------	-------	----------	-------------------

Schlumberger

Before Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction Tool – H Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase							
Master: 23–Aug–2013 12:43 Before: 2–Nov–2013 14:00							
Thru Cal Magnitude – 0	0	0.6250	0.6271	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.281	1.285	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6354	0.6370	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7208	0.7233	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.343	1.348	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.940	1.948	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.936	1.943	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.370	1.381	N/A	N/A	N/A	V
Phase – 0	0	73.52	74.53	N/A	N/A	N/A	DEG
Phase – 1	0	72.48	73.51	N/A	N/A	N/A	DEG
Phase – 2	0	68.24	69.32	N/A	N/A	N/A	DEG
Phase – 3	0	67.33	68.42	N/A	N/A	N/A	DEG
Phase – 4	0	60.29	61.45	N/A	N/A	N/A	DEG
Phase – 5	0	58.02	59.28	N/A	N/A	N/A	DEG
Phase – 6	0	58.09	59.34	N/A	N/A	N/A	DEG
Phase – 7	0	51.87	53.72	N/A	N/A	N/A	DEG
Array Induction Tool – H Wellsite Calibration – Electronics Calibration Check – Auxilliary							
Master: 23–Aug–2013 12:43 Before: 2–Nov–2013 14:00							
Array Induction SPA Plus	990.5	991.5	992.9	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	–0.01210	–0.03388	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9150	0.9185	0.9198	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	–0.00002541	–0.00003630	N/A	N/A	N/A	V
Array Induction Tool – H Wellsite Calibration – Test Loop Gain Correction							
Master: 23–Aug–2013 12:43							
Test Loop Gain Magnitude – 0	0	1.017	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	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 3	0	1.017	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 4	0	0.9993	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 5	0	0.9919	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 6	0	0.9994	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 7	0	1.013	N/A	N/A	N/A	N/A	V
Phase – 0	0	0.3811	N/A	N/A	N/A	N/A	DEG
Phase – 1	0	0.5097	N/A	N/A	N/A	N/A	DEG
Phase – 2	0	–0.05324	N/A	N/A	N/A	N/A	DEG
Phase – 3	0	–0.07552	N/A	N/A	N/A	N/A	DEG
Phase – 4	0	–0.08022	N/A	N/A	N/A	N/A	DEG
Phase – 5	0	–0.2470	N/A	N/A	N/A	N/A	DEG
Phase – 6	0	0.1174	N/A	N/A	N/A	N/A	DEG
Phase – 7	0	–0.2478	N/A	N/A	N/A	N/A	DEG
Array Induction Tool – H Wellsite Calibration – Sonde Error Correction							
Master: 23–Aug–2013 12:43							
R Sonde Error Correction – 0	0	–88.79	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	166.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	111.5	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	58.50	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	22.96	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	13.80	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.406	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	–0.5903	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	110.6	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	155.8	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	20.31	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	44.99	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	–12.67	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	2.384	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	4.958	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	2.526	N/A	N/A	N/A	N/A	MM/M
Array Induction Tool – H Wellsite Calibration – Mud Gain Correction							
Master: 23–Aug–2013 12:43							
Coarse – Mag, Real, Imag – 0	0	0.8059	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 1	0	0.8059	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 2	0	0.8059	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 0	0	0.8124	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 1	0	0.8125	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 2	0	0.8125	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary							
Before: 2–Nov–2013 14:03							
BS Window Ratio	0.7333	N/A	0.7296	N/A	N/A	N/A	
BS Window Sum	9110	N/A	9099	N/A	N/A	N/A	CPS
SS Window Ratio	0.4778	N/A	0.4802	N/A	N/A	N/A	

SS Window Ratio	8.4770	N/A	8.4802	N/A	N/A	N/A	CPS
SS Window Sum	8997	N/A	9003	N/A	N/A	N/A	
LS Window Ratio	0.2950	N/A	0.2906	N/A	N/A	N/A	
LS Window Sum	991.1	N/A	991.0	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 2–Nov–2013 14:03							
BS PM High Voltage (Command)	1672	N/A	1669	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1466	N/A	1462	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1546	N/A	1549	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 2–Nov–2013 14:03							
BS Crystal Resolution	11.51	N/A	11.47	N/A	N/A	N/A	%
SS Crystal Resolution	10.29	N/A	10.42	N/A	N/A	N/A	%
LS Crystal Resolution	8.796	N/A	8.976	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration							
Before: 2–Nov–2013 14:03							
Raw B0 Resistivity	3875	N/A	3867	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3805	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3803	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration							
Before: 2–Nov–2013 14:00							
HILT Caliper Zero Measurement	8.000	N/A	9.575	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	13.75	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 2–Nov–2013 14:00							
Gamma Ray Background	30.00	N/A	79.02	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	175.8	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 10–Oct–2013 15:24 Before: 2–Nov–2013 14:01							
CNTC Background	26.26	26.26	26.41	N/A	N/A	3.939	CPS
CFTC Background	27.90	27.90	27.94	N/A	N/A	4.185	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 10–Oct–2013 15:24							
Thermal Near Corr. (Tank)	5800	4952	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2048	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.418	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 3–Nov–2013 18:22							
Z–Axis Acceleration	32.19	N/A	32.22	N/A	N/A	N/A	F/S2
The GLS–VJ source activity is acceptable.							
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	65.0	DEGF.					
Thermal Housing Size	3.375	IN.					
NSR–F serial number	5069						

















Array Induction Tool – H / Equipment Identification			
Primary Equipment:			
Rm/SP Bottom Nose	AHRM – A		
Array Induction Sonde	AHIS – BA	398	
Auxiliary Equipment:			

Array Induction Tool – H Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6250		0.6050	73.52		71.00
	Before	0.6271			74.53		
1	Master	1.281		1.270	72.48		70.00

2	Before	1.285		1.270	73.51		70.00
	Master	0.6354		0.6230	68.24		66.00
3	Before	0.6370			69.32		
	Master	0.7208		0.7040	67.33		65.00
4	Before	0.7233			68.42		
	Master	1.343		1.337	60.29		59.00
5	Before	1.348			61.45		
	Master	1.940		1.955	58.02		57.00
6	Before	1.948			59.28		
	Master	1.936		1.955	58.09		57.00
7	Before	1.943			59.34		
	Master	1.370		1.415	51.87		53.00
	Before	1.381			53.72		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 23-Aug-2013 12:43				Before: 2-Nov-2013 14:00			

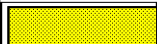
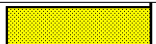
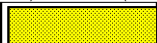
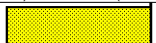
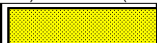
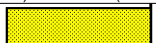
Array Induction Tool – H Wellsite Calibration							
Electronics Calibration Check – Auxilliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			991.5	Master			-0.01210
Before			992.9	Before			-0.03388
941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)				-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)			
Phase	Array Induction Temperature Plus V		Value	Phase	Array Induction Temperature Zero V		Value
Master			0.9185	Master			-2.541E-00
Before			0.9198	Before			-3.630E-00
0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)				-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)			
Master: 23-Aug-2013 12:43				Before: 2-Nov-2013 14:00			

Array Induction Tool – H Wellsite Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG	
0	1.017				0.3811		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.015				0.5097		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.018				-0.05324		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.017				-0.07552		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	0.9993				-0.08022		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	0.9919				-0.2470		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
6	0.9994				0.1174		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
7	1.013				-0.2478		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
Master: 23-Aug-2013 12:43							

Array Induction Tool – H Wellsite Calibration							
Sonde Error Correction							
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M	
0	-88.79				110.6		
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal) 2250 (Maximum)
1	166.9				155.8		
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal) 625.0 (Maximum)
2	111.5				20.31		
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal) 350.0 (Maximum)
3	58.50				44.99		
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		-250.0 (Minimum)	0 (Nominal) 250.0 (Maximum)
4	22.96				-12.67		
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal) 63.00 (Maximum)
5	13.80				2.384		
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal) 50.00 (Maximum)
6	9.406				4.958		
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal) 30.00 (Maximum)
7	-0.5903				2.526		
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal) 30.00 (Maximum)

Master: 23-Aug-2013 12:43

Master: 23-Aug-2013 12:43

Array Induction Tool – H Wellsite Calibration							
Mud Gain Correction							
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag	
0	0.8059				0.8124		
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal) 1.200 (Maximum)
1	0.8059				0.8125		
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal) 1.200 (Maximum)
2	0.8059				0.8125		
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal) 1.200 (Maximum)

Master: 23–Aug–2013 12:43

Master: 23-Aug-2013 12:43

Digitizing Sonic Logging Tool / Equipment Identification

Primary Equipment:

BHC Sonde
Digitizing Sonic Logging Cartridge

SLS – W
DSLCL – B

Auxiliary Equipment:

Electronics Cartridge Housing

ECH – KH







High resolution Integrated Logging Tool–DTS / Equipment Identification




Primary Equipment:




HILT high-Resolution Mechanical Sonde
HILT Rxo Gamma-ray Device
HILT Micro Cylindrically Focused Log Dev
GR Logging Source
HILT High Res. Control Cartridge
HILT Gamma-Ray Neutron Sonde–DTS
HGNS Gamma-Ray Device
HGNS Neutron Detector with Alpha Source




HRMS – B 1716
HRGD – B 1748
MCFL –
GLS – VJ 5094
GRCC – B 860
HGNS – B 1927
HGR –
HCNT –



Auxiliary Equipment:



High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Stab Measurement Summary														
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value	Phase	LS Window Ratio			Value
Before				0.7296	Before				0.4802	Before				0.2906
	0.6967 (Minimum)	0.7333 (Nominal)	0.7700 (Maximum)		0.4539 (Minimum)	0.4778 (Nominal)	0.5017 (Maximum)			0.2802 (Minimum)	0.2950 (Nominal)	0.3097 (Maximum)		
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value
Before				9099	Before				9003	Before				991.0
	8655 (Minimum)	9110 (Nominal)	9566 (Maximum)		8547 (Minimum)	8997 (Nominal)	9446 (Maximum)			941.5 (Minimum)	991.1 (Nominal)	1041 (Maximum)		
Before: 2–Nov–2013 14:03														





High resolution Integrated Logging Tool–DTS 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			1669	Before			1462	Before			1549
	1572 (Minimum)	1672 (Nominal)	1772 (Maximum)		1366 (Minimum)	1466 (Nominal)	1566 (Maximum)		1446 (Minimum)	1546 (Nominal)	1646 (Maximum)
Before: 2–Nov–2013 14:03											

High resolution Integrated Logging Tool–DTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			11.47	Before			10.42	Before			8.976
	10.51 (Minimum)	11.51 (Nominal)	12.51 (Maximum)		9.289 (Minimum)	10.29 (Nominal)	11.29 (Maximum)		7.796 (Minimum)	8.796 (Nominal)	9.796 (Maximum)
Before: 2–Nov–2013 14:03											

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
MCFL Calibration														
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3867	Before				3805	Before				3803
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 2–Nov–2013 14:03														

High resolution Integrated Logging Tool–DTS Wellsite Calibration							
HILT Caliper Calibration							
Phase	HILT Caliper Zero Measurement IN		Value	Phase	HILT Caliper Plus Measurement IN		Value
Before			9.575	Before			13.75
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 2–Nov–2013 14:00							

High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Detector Calibration									
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkgd) GAPI			Value
Before				79.02	Before				175.8
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			157.1 (Minimum)	165.0 (Nominal)	206.3 (Maximum)	
Before: 2–Nov–2013 14:00									


High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.26	Master				27.90
Before				26.41	Before				27.94
5.000 (Minimum) 26.26 (Nominal) 40.00 (Maximum)					5.000 (Minimum) 27.90 (Nominal) 40.00 (Maximum)				
Master: 10–Oct–2013 15:24					Before: 2–Nov–2013 14:01				

High resolution Integrated Logging Tool–DTS Wellsite Calibration																																			
Ratio Measurement																																			
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)		Value																						
Master	<div></div>			4952	Master	<div></div>			2048	Master	<div></div>		2.418																						
4700 (Minimum)				5800 (Nominal)				6900 (Maximum)				1900 (Minimum)				2400 (Nominal)				2900 (Maximum)				2.120 (Minimum)				2.159 (Nominal)				2.540 (Maximum)			
Master: 10–Oct–2013 15:24																																			

High resolution Integrated Logging Tool–DTS		
Wellsite Calibration		
Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before	<div><div></div></div>	32.22
	<div><div>31.53 (Minimum)</div><div>32.19 (Nominal)</div><div>32.84 (Maximum)</div></div>	
Before: 3–Nov–2013 18:22		

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification		
Primary Equipment:		
HNGC Cartridge	HNGC – B	250
Auxiliary Equipment:		
HNGC Housing	HNGH – A	87

DTS Telemetry Tool / Equipment Identification		
Primary Equipment:		
DTC–H Auxiliary Cartridge	DTCH – A	
DTC–H Telemetry Cartridge	DTCH – A	
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH – KC	9562

Company:	Pronghorn Operating LLC	
Well:	Hanavan 1	
Field:	Smoky Creek	
County:	Cheyenne	
State:	Colorado	
Triple Combo (Limestone) Array Induction Linear Correlation		