

Company: Anadarko E&amp;P Onshore LLC

Well: Caboose 1548-21-44

Field: Wildcat

County: Cheyenne Country: USA

## Platform Express

## Triple Combo

County:	Cheyenne			
Field:	Wildcat			
Location:	SESE Sec. 21, T15S, R48W			
Well:	Caboose 1548-21-44			
Company:	Anadarko E&P Onshore LLC			
Location:		SESE Sec. 21, T15S, R48W	Elev.:	K.B. 4273.00 ft
		SHL: 675' FSL X 1100' FEL		G.L. 4254.00 ft
				D.F. 4272.00 ft
		Permanent Datum:	Ground Level	Elev.: 4254.00 f
		Log Measured From:	Kelly Bushing	19.00 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing		
		API Serial No.	Max.Hole Deviation	Longitude: Latitude:
05-017-07780-0000			-102.77977 degrees	38.722635 degrees

Logging Date 09-Feb-2014

Run Number Run1: PEX-BHC-AIT-HNGS

Depth Driller 5420.00 ft

Schlumberger Depth 5416.00 ft

Bottom Log Interval 5408.00 ft

Top Log Interval 2778.00 ft

Casing Driller Size @ Depth 9.625 in @ 2784.00 ft

Casing Schlumberger 2778 ft

Bit Size 8.75 in

Type Fluid In Hole Polymer

Density Viscosity 8.7 lbm/gal 44 s

Fluid Loss PH 8.2 cm3 9.2

MUD Source of Sample Active Tank

RM @ Meas Temp 0.55 ohm.m @ 100 degF

RMF @ Meas Temp 0.44 ohm.m @ 100 degF

RMC @ Meas Temp 0.66 ohm.m @ 100 degF

Source RMF RMC

RM @ BHT RMF @ BHT 0.35 @ 160 0.28 @ 160

Max Recorded Temperatures 153 degF

Circulation Stopped Time

Logger on Bottom Time

Unit Number Location: 3022 Tim Hoffman

Recorded By Ft. Morgan, CO

Witnessed By Stuart Nelson

## Disclaimer

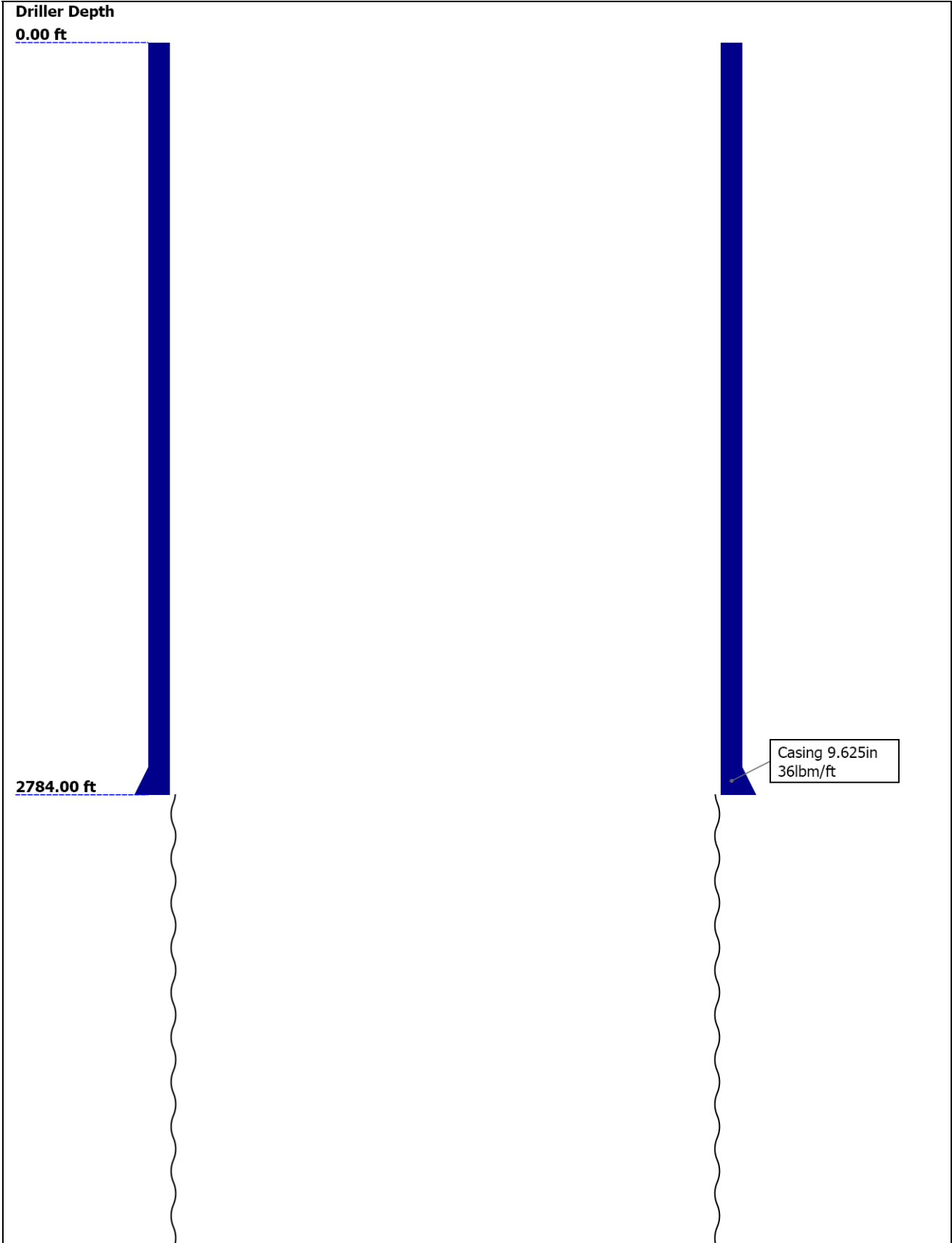
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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Well Sketch



5420.00 ft

Open Hole 8.75in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	8.75					
Top Driller ( ft )	2784					
Top Logger ( ft )	2778					
Bottom Driller ( ft )	5420					
Bottom Logger ( ft )	5416					
Casing						
Size ( in )	9.625					
Weight ( lbm/ft )	36					
Inner Diameter ( in )	8.921					
Grade	P110					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	2784					
Bottom Logger ( ft )	2778					

Operational Run Summary

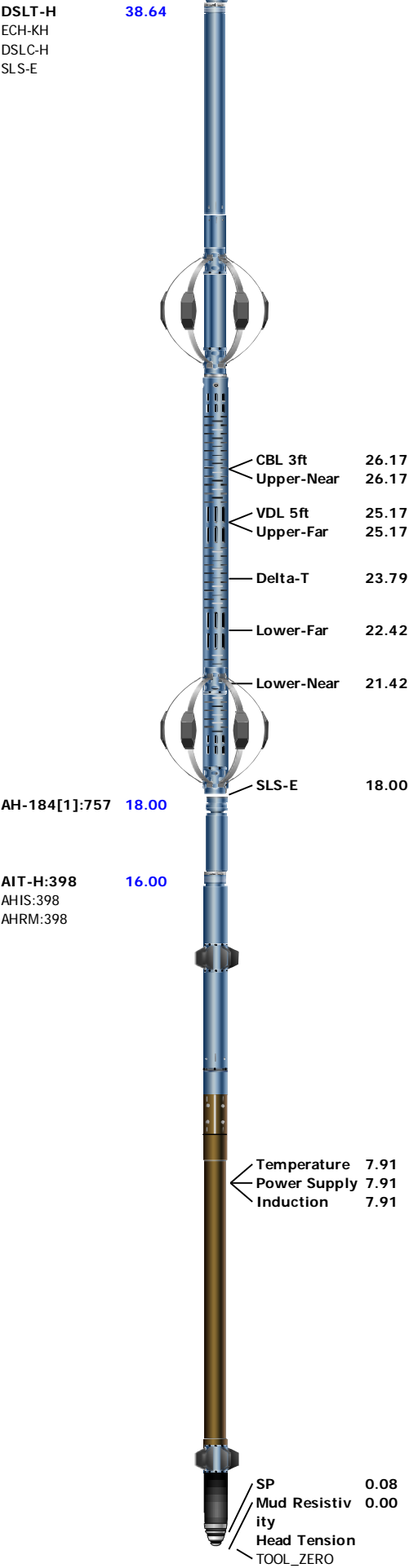
Parameter ( unit )	Run1: PEX-BHC-AIT-HNGS					
Date Log Started	09-Feb-2014					
Time Log Started	09:11:42					
Date Log Finished						
Time Log Finished						
Top Log Interval ( ft )						
Bottom Log Interval ( ft )						
Total Depth ( ft )	5420.00					
Max Hole Deviation ( deg )						
Azimuth of Max Deviation ( deg )						
Bit Size ( in )	8.750					
Logging Unit Number	3022					
Logging Unit Location	Ft. Morgan, CO					
Recorded By	Tim Hoffman					
Witnessed By	Stuart Nelson					

Witnessed By	Stuart Nelson					
Service Order Number	CCN1-00041					

# Remarks and Equipment Summary

Run1: PEX-BHC-AIT-HNGS: Toolstring				Run1: PEX-BHC-AIT-HNGS: Remarks
Equip name	Length	MP name	Offset	<div> This is the first run in hole </div> <div> Toolstring run as per tool sketch </div> <div> Matrix: Limestone (2.71 g/cc) </div> <div> Rig: Pioneer 54 </div> <div> Crew: Derrick Hunter, Alonzo Carrera </div>
LEH-QT	79.9			
LEH-QT				
DTC-H:9469	76.98			
ECH-KC		CTEM	76.08	
DTC-H:9469		HV	0.00	
		ToolStatus	73.98	
		TelStatus	73.98	
HNGS-BA:169	73.98			
HEH-K:186				
HNGS-BA:169				
		GR	70.99	
HNGC-B:292	65.79			
HNGH-A:313				
HNGC-B:292				
		Tel Status	64.04	
HGNS-B:1927	62.29			
HGNH:3878		Temperature	62.26	
NSR-F:5069				
NPV-N		GR	61.55	
HGNS-B:1927				
HACCZ-B:749				
HMCA-B				
		CNL Porosity	55.21	
		HMCA	52.88	
		HGNS	52.88	
		Acceleromete	0.00	
		r		
HDRS-B:1716	52.88			
ECH-MEB:1866				
HRCC-B:860				
HRMS-B:1716				
Long Spacing				
GPV-Q				
Short Spacing				
Backscatter				
HRGD-B:1748		HRCC	48.88	
GSR-J:5094				
		MCFL	43.45	
		Caliper	42.96	
		TLD Density	42.57	
AH-184[2]:909	40.64			

DSLTH  
ECH-KH  
DSLCH  
SLS-E



Lengths are in ft  
Maximum Outer Diameter = 5.625 in  
Line: Sensor Location, Value: Gating Offset  
All measurements are relative to TOOL\_ZERO

Depth Summary									
			Run1: PEX-BHC-AIT-HNGS						
Depth Measuring Device									
Type	IDW-B								
Serial Number	6239								
Calibration Date	10-Jan-2014								
Calibrator Serial Number									
Calibration Cable Type	7-39P LXS								
Wheel Correction 1	-4								
Wheel Correction 2	-2								
Tension Device									
Type	CMTD-B/A								
Serial Number	1109								
Calibration Date	08-Feb-2014								
Calibrator Serial Number	78135								
Number of Calibration Points	10								
Calibration Root Mean Square Error	6								
Calibration Peak Error	12								
Logging Cable									
Type	7-39P-LXS								
Serial Number	u711136								
Length	18000.00 ft								
Conveyance Type	Wireline								
Rig Type									
Run1: PEX-BHC-AIT-HNGS:Depth Control Parameters				Depth Control Remarks					
Log Sequence	First Log In the Well			All Schlumberger depth policies followed  IDW used as primary depth reference. Z-chart used as secondary					
Rig Up Length At Surface									
Rig Up Length At Bottom									
Rig Up Length Correction									
Stretch Correction	3.00 ft								
Tool Zero Check At Surface									
Composite 1									
5" Triple Combo									
Software Version									
Acquisition System						Version			
MaxWell						4.0.9163.3000			
Application Patch						Patch-SP-10767_13393-4.0.9163.3001			
Computation		Description						Version	
HENVIR		Computation Ensemble for the HGNS Neutron environmental corrections						4.0.9033.3000	
DepthCorrection		DepthCorrection						4.0.9213.3000	
Tool Elements		Description				Software Version		Firmware Version	
HRGD-B		HILT Resistivity Gamma-Ray Density Device, 125 degC				4.0.9231.3000		3.0	
AHIS		Array Induction Sonde - H				4.0.9247.3000			
HGNS-B		HILT Gamma-Ray and Neutron Sonde, 125 degC				4.0.9231.3000		2.0	
HRCC-B		HILT High-Resolution Control Cartridge, 125 degC				4.0.9231.3000		2.0	
Composite Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-BHC-AIT-HNGS	Log[4]:Up	Up	4139.97 ft	5428.63 ft	09-Feb-2014 10:34:41 AM	09-Feb-2014 11:18:35 AM	ON	0.00 ft	No
Run1: PEX-BHC-AIT-HNGS	Log[5]:Up	Up	2671.20 ft	4252.48 ft	09-Feb-2014 10:34:41 AM	09-Feb-2014 11:18:35 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Anadarko E&P Onshore LLC

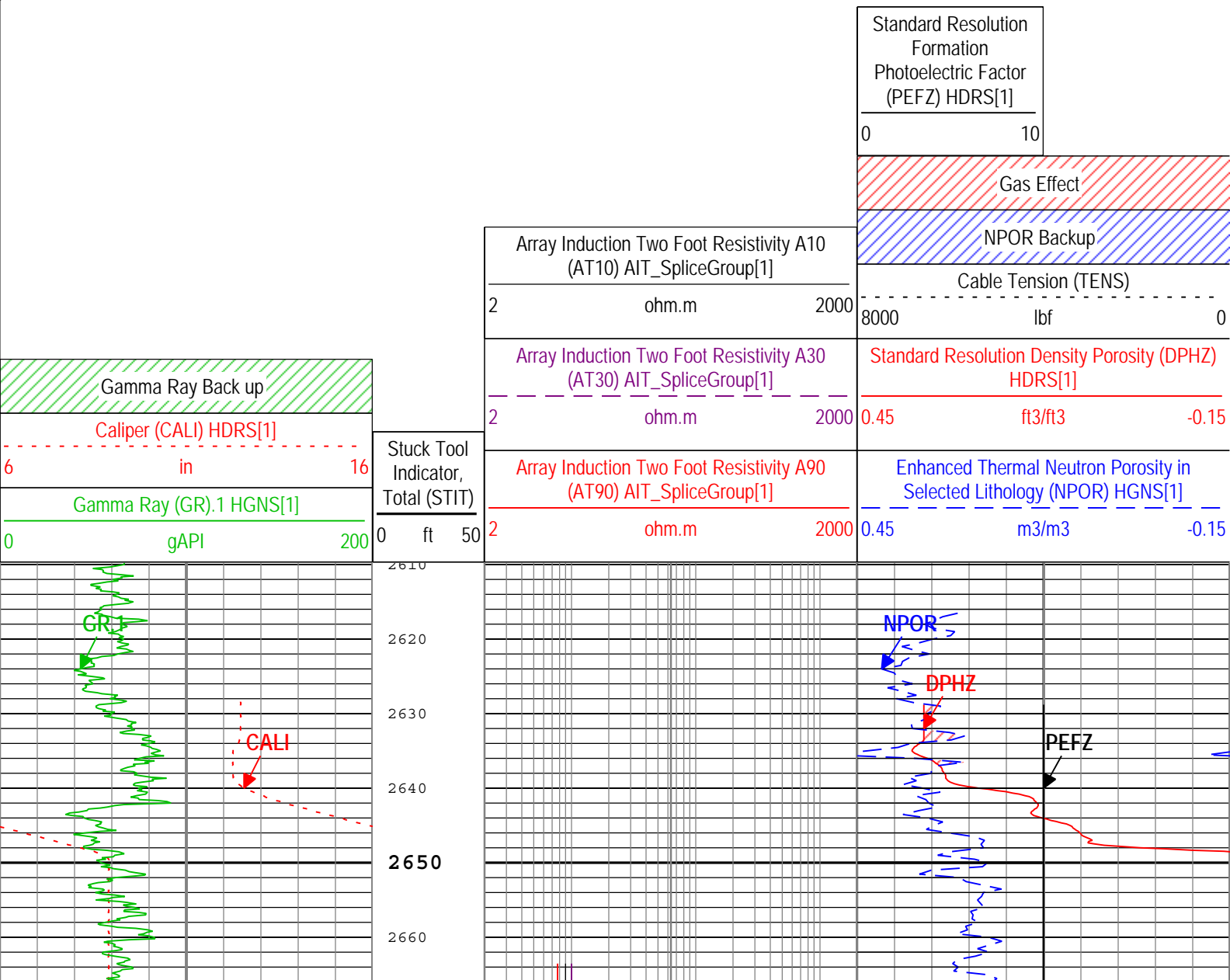
Well:Caboose 1548-21-44

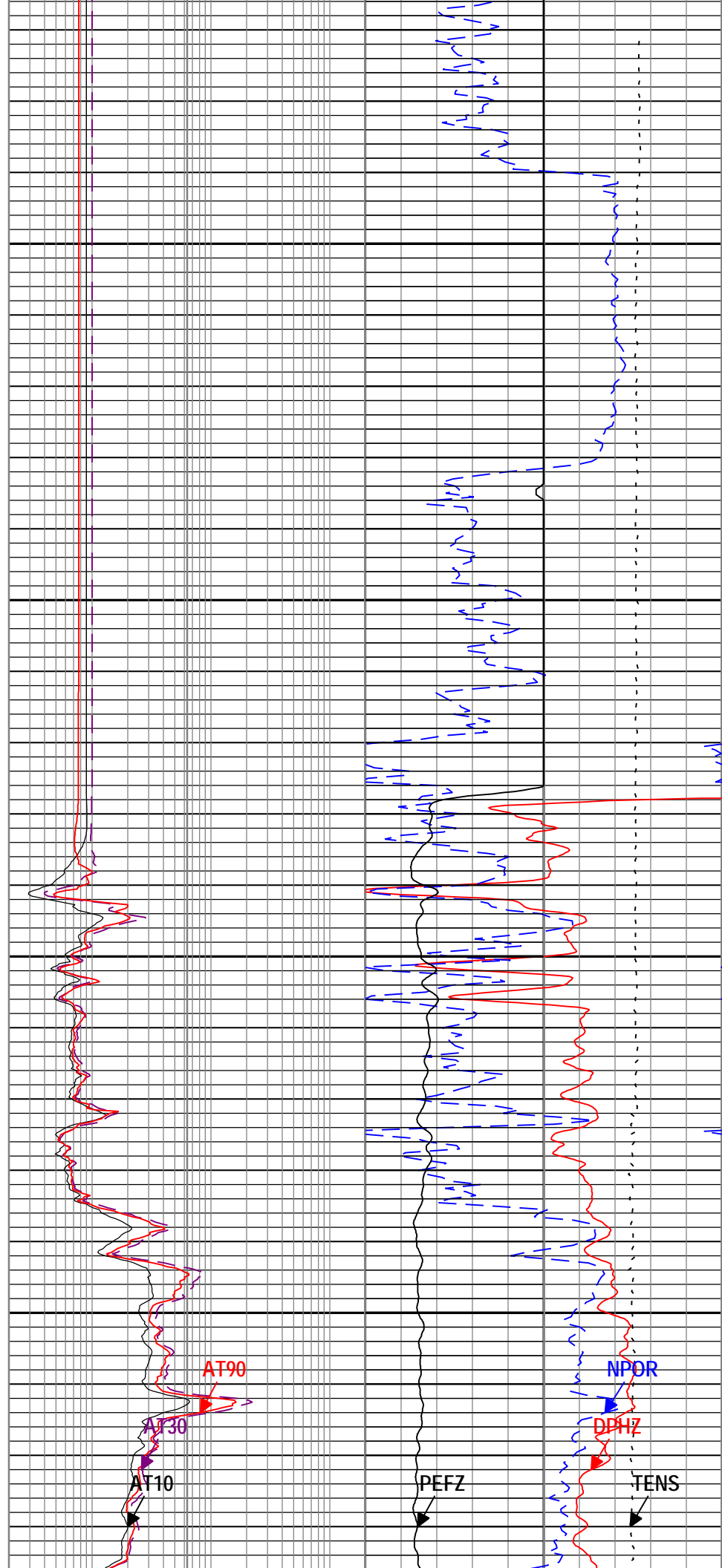
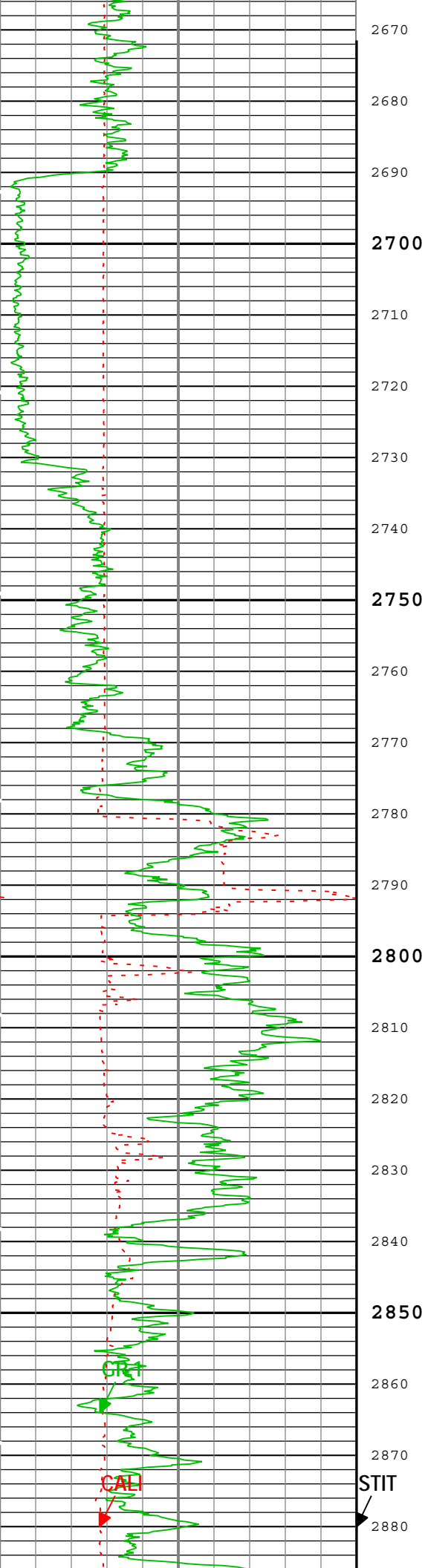
Composite 1:S005

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( Import of KM 5in Triple Combo )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 09-Feb-2014 12:29:54

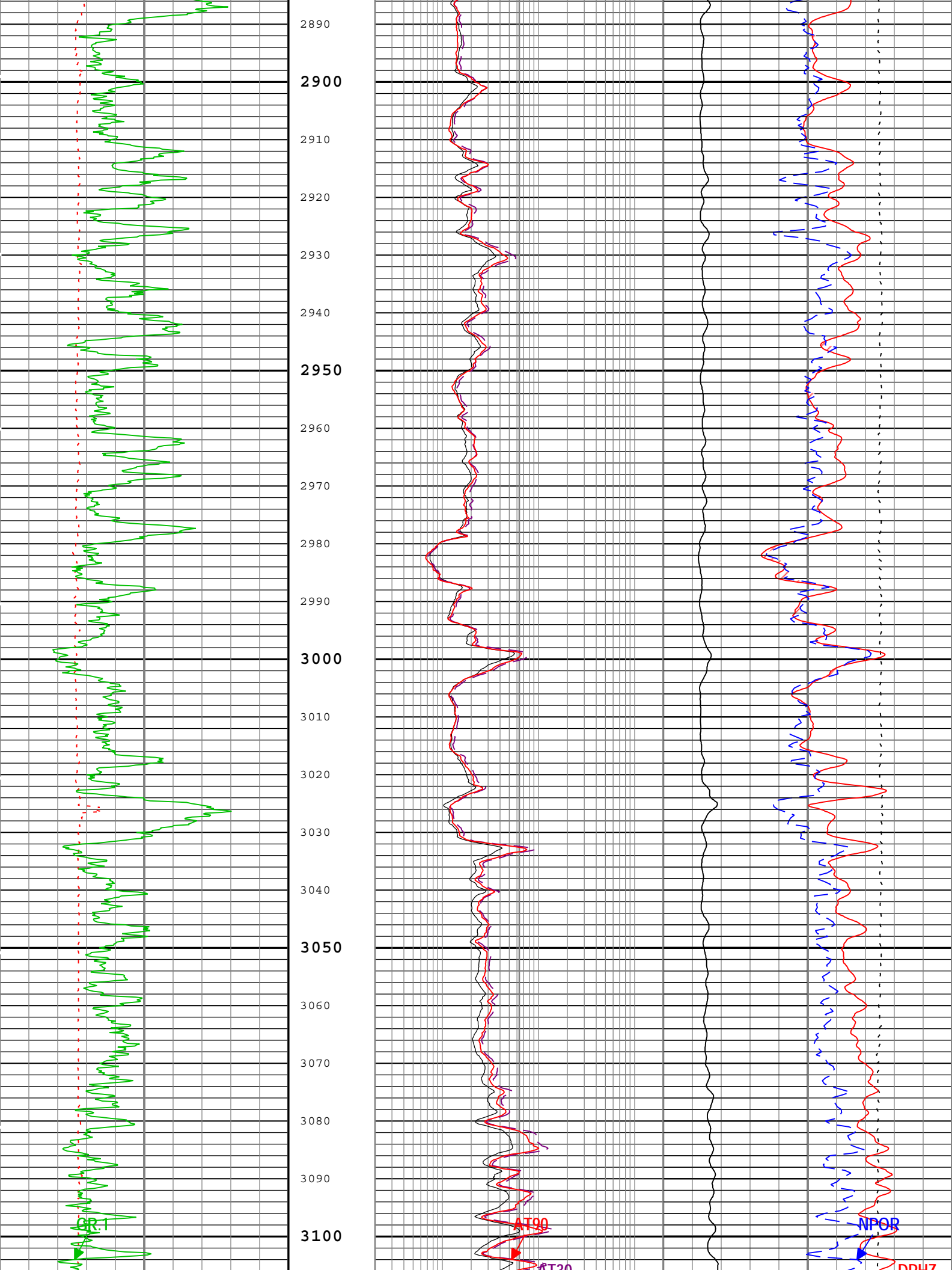
Channel	Source	Sampling
AT10	AIT_SpliceGroup[1]:AHIS[1]:AHIS[1]	3in
AT30	AIT_SpliceGroup[1]:AHIS[1]:AHIS[1]	3in
AT90	AIT_SpliceGroup[1]:AHIS[1]:AHIS[1]	3in
CALI	HDRS[1]:HRCC-B[1]:HRCC-B[1]	1in
DPHZ	HDRS[1]:HRMS-B[1]:HRGD-B[1]	2in
GR.1	HGNS[1]:HGNS-B[1]:HGNS-B[1]	2in
GR.2	HGNS[1]:HGNS-B[1]:HGNS-B[1]	6in
NPOR	HGNS[1]:HGNS-B[1]:HGNS-B[1]	6in
PEFZ	HDRS[1]:HRMS-B[1]:HRGD-B[1]	2in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

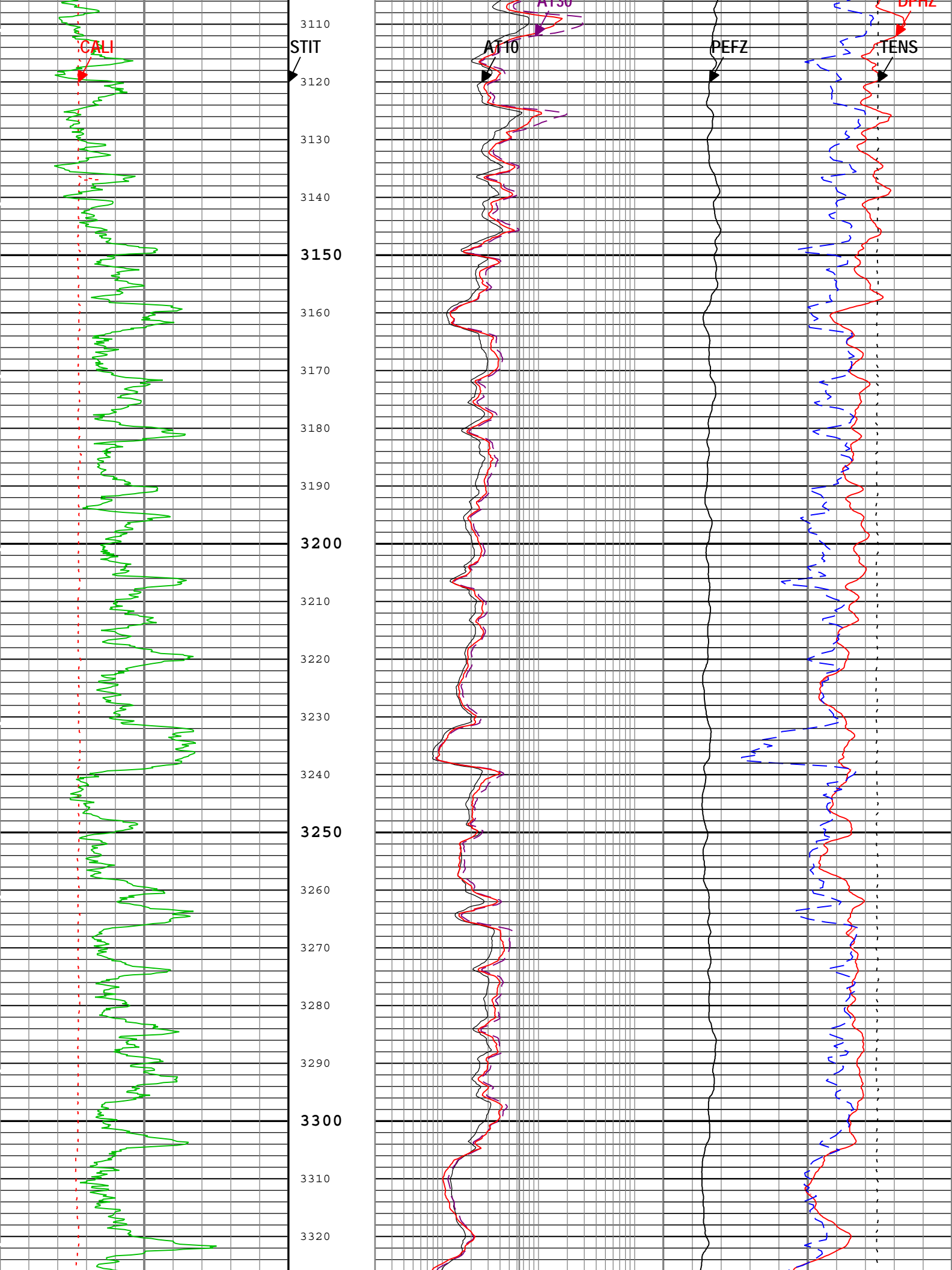
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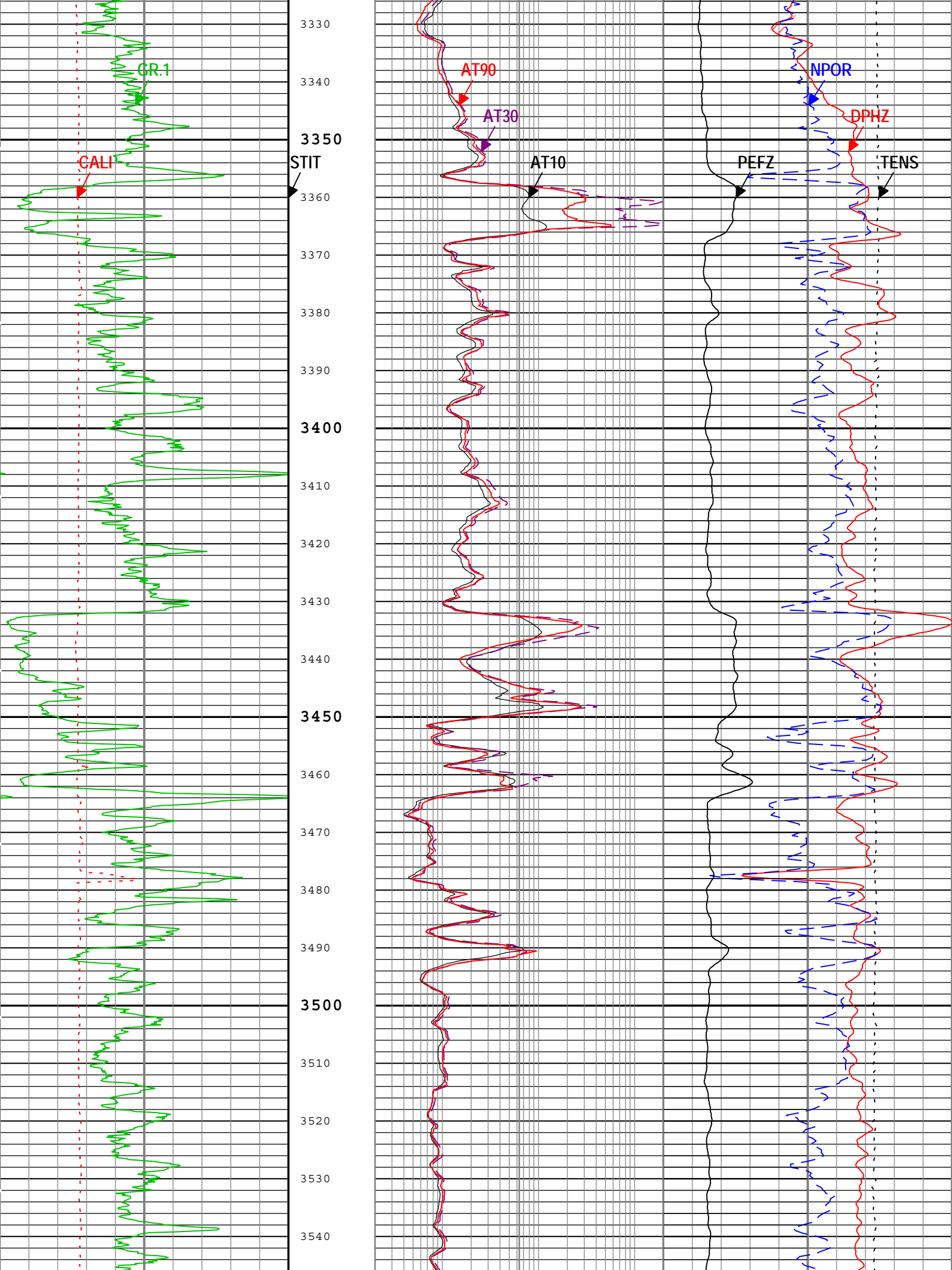


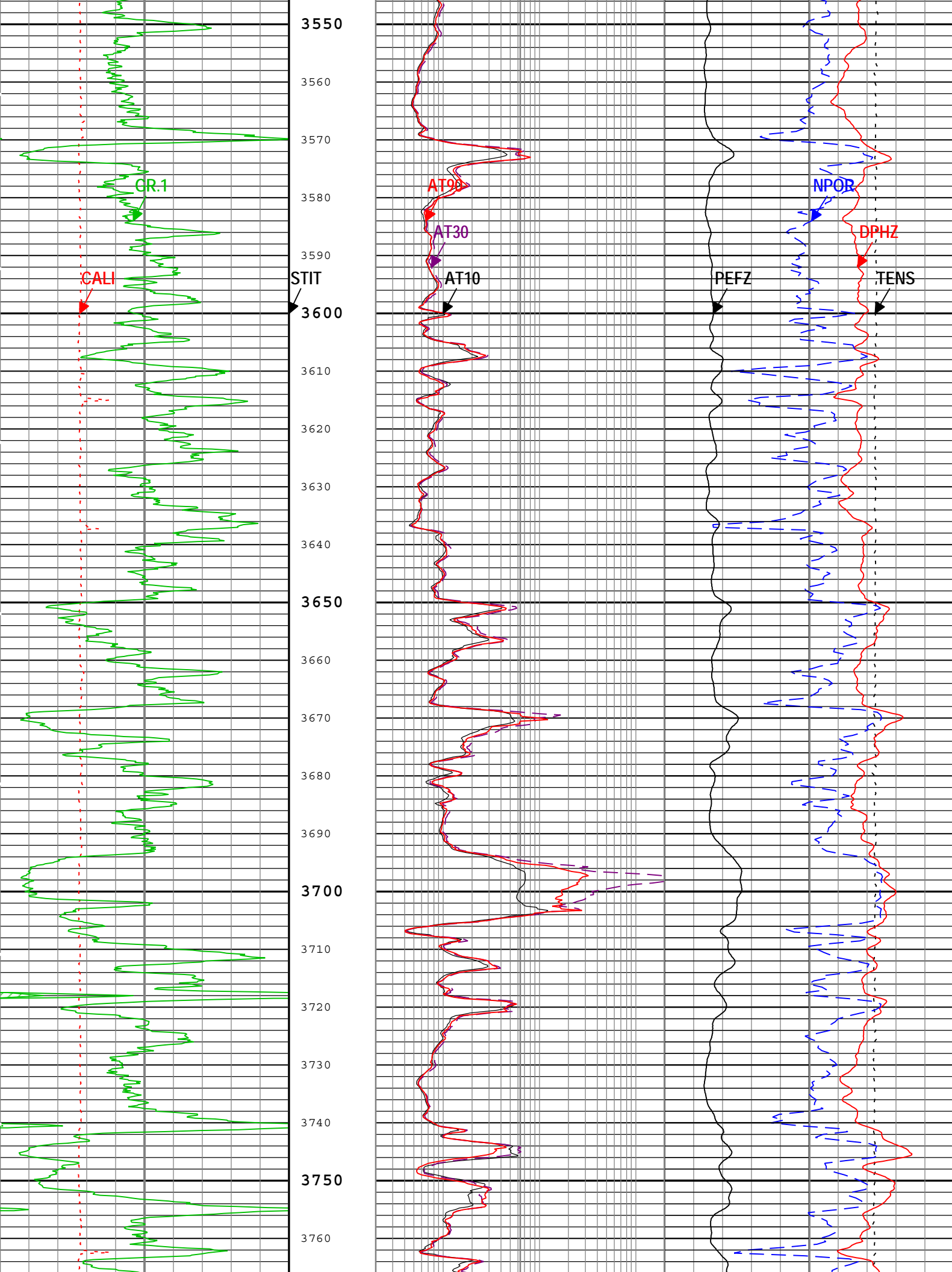


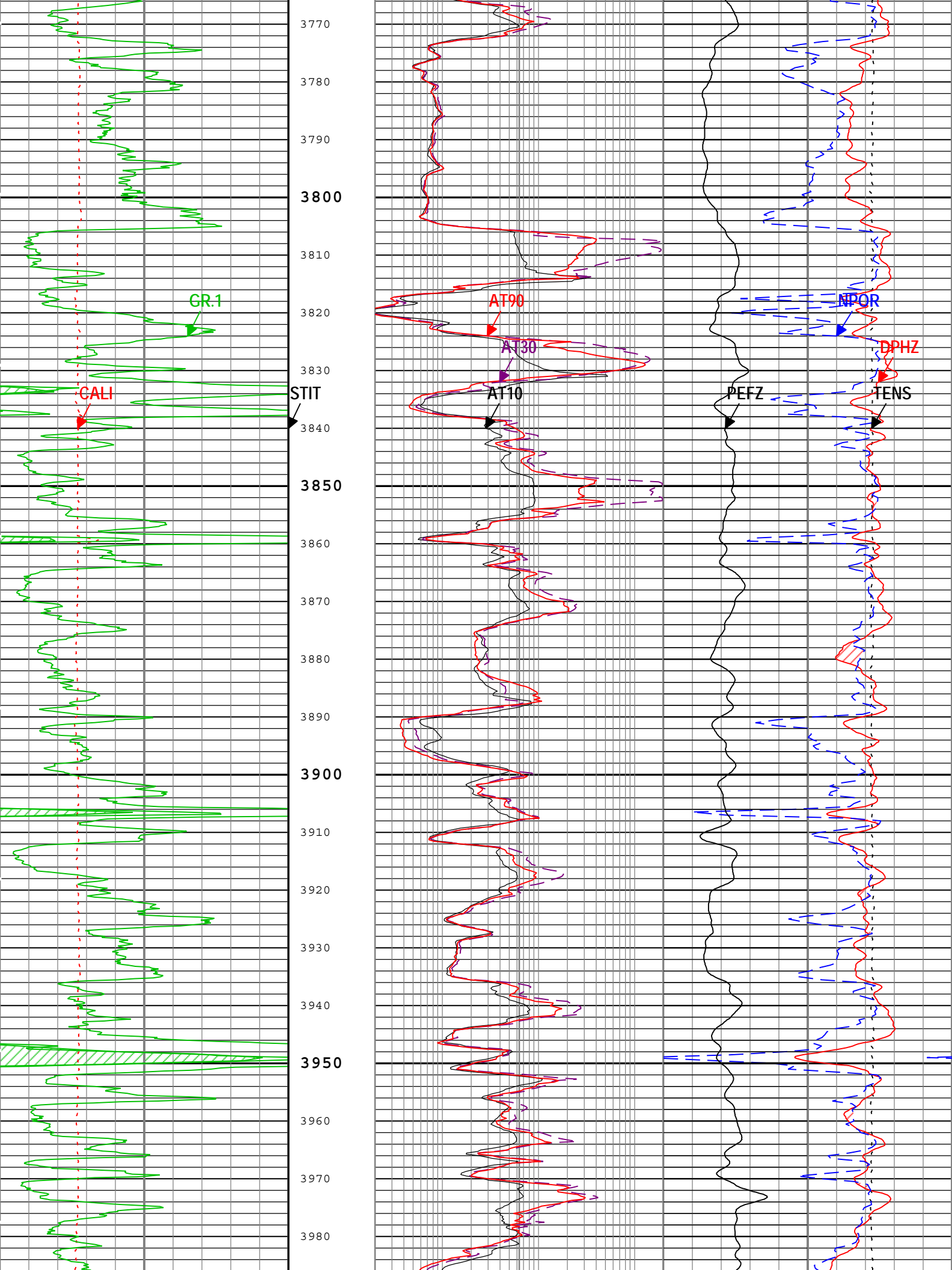


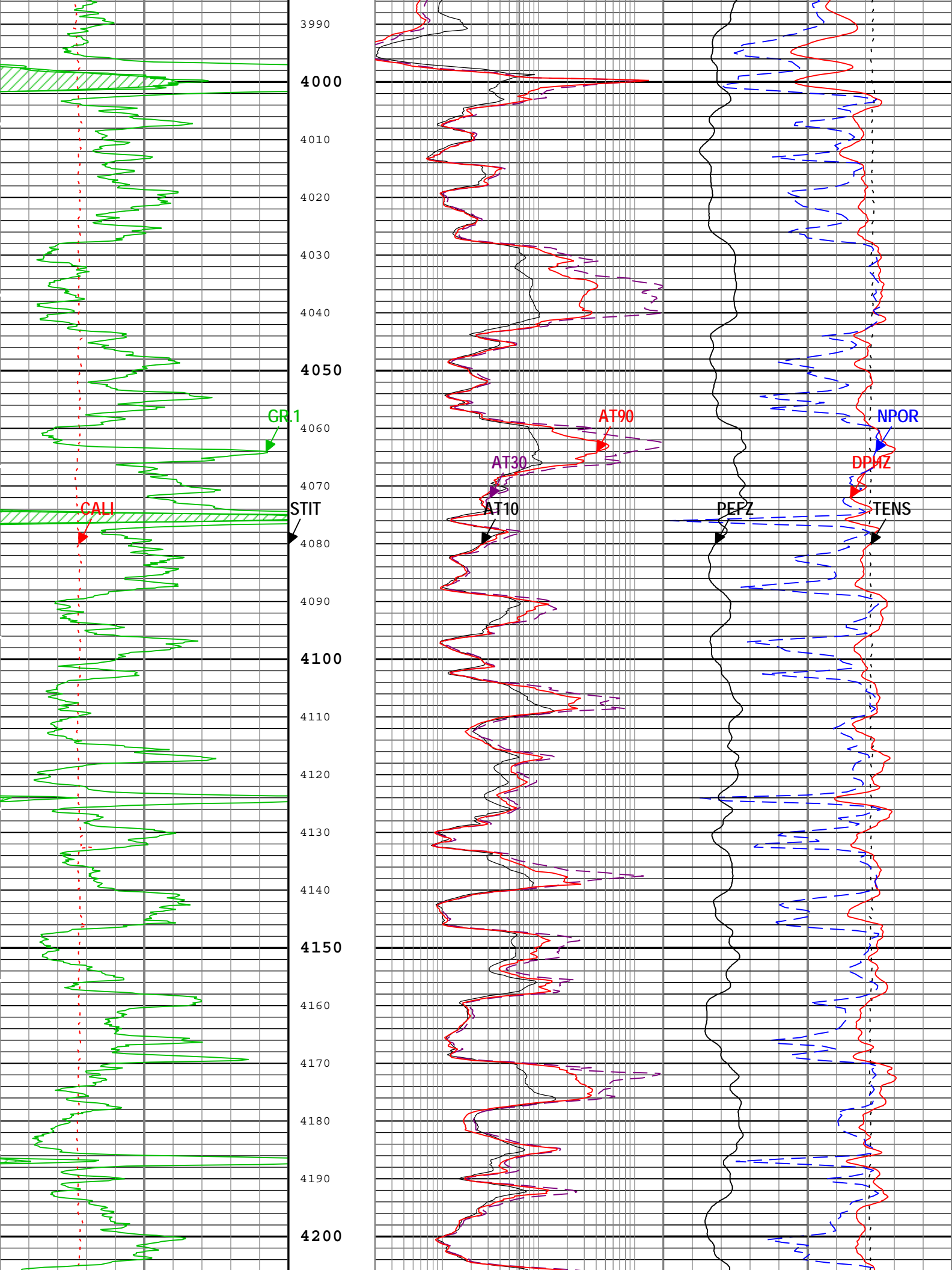


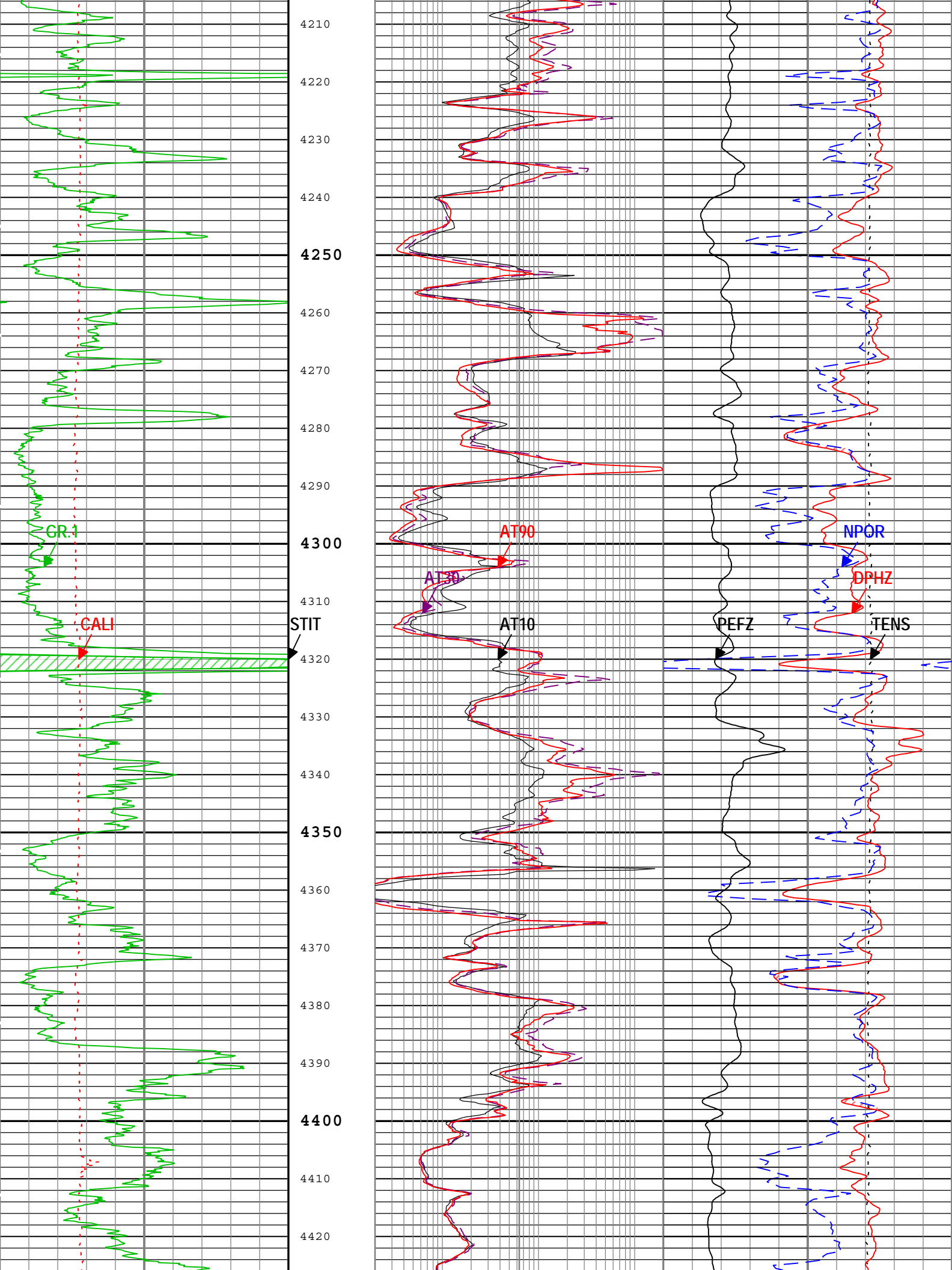


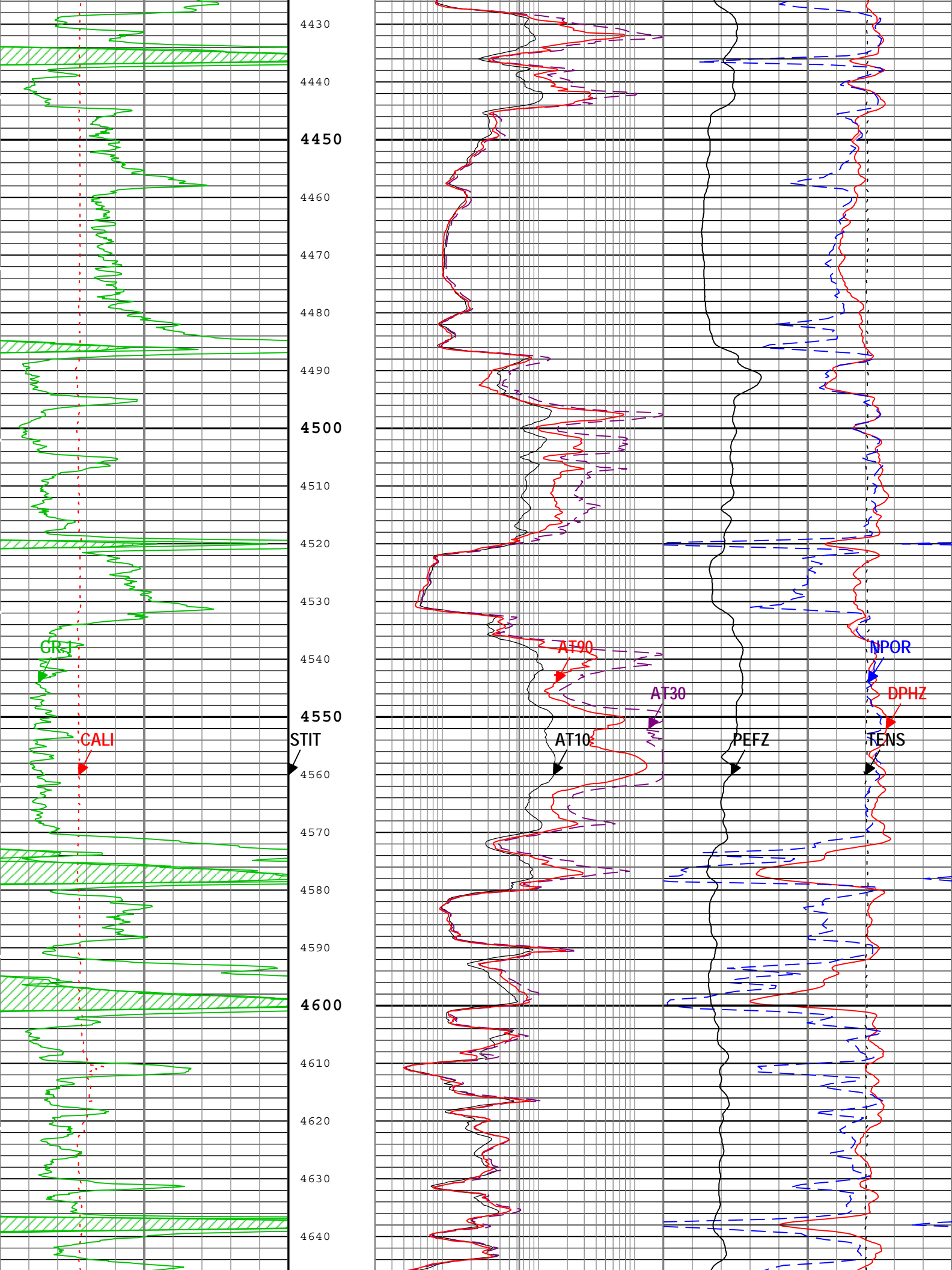




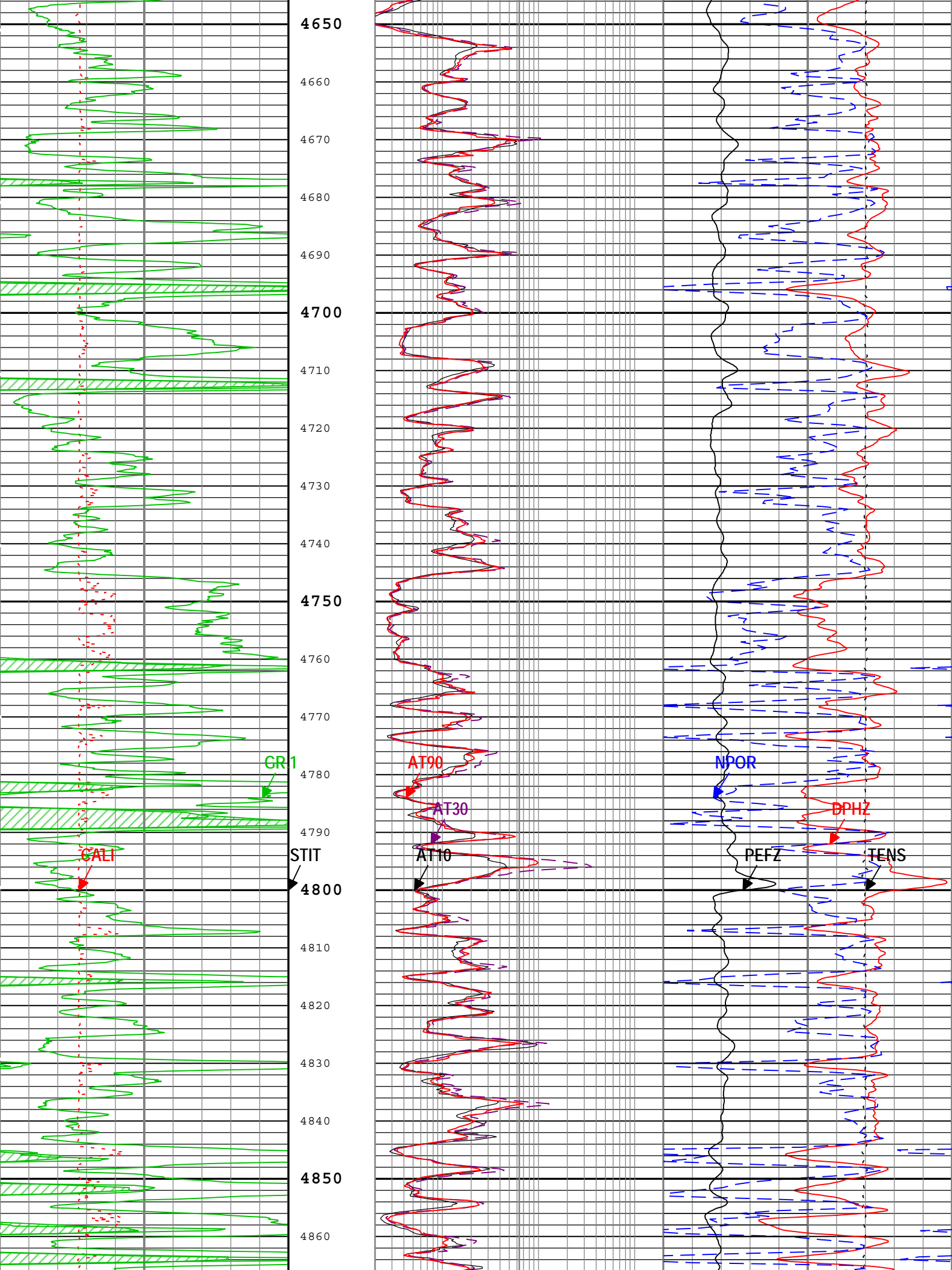


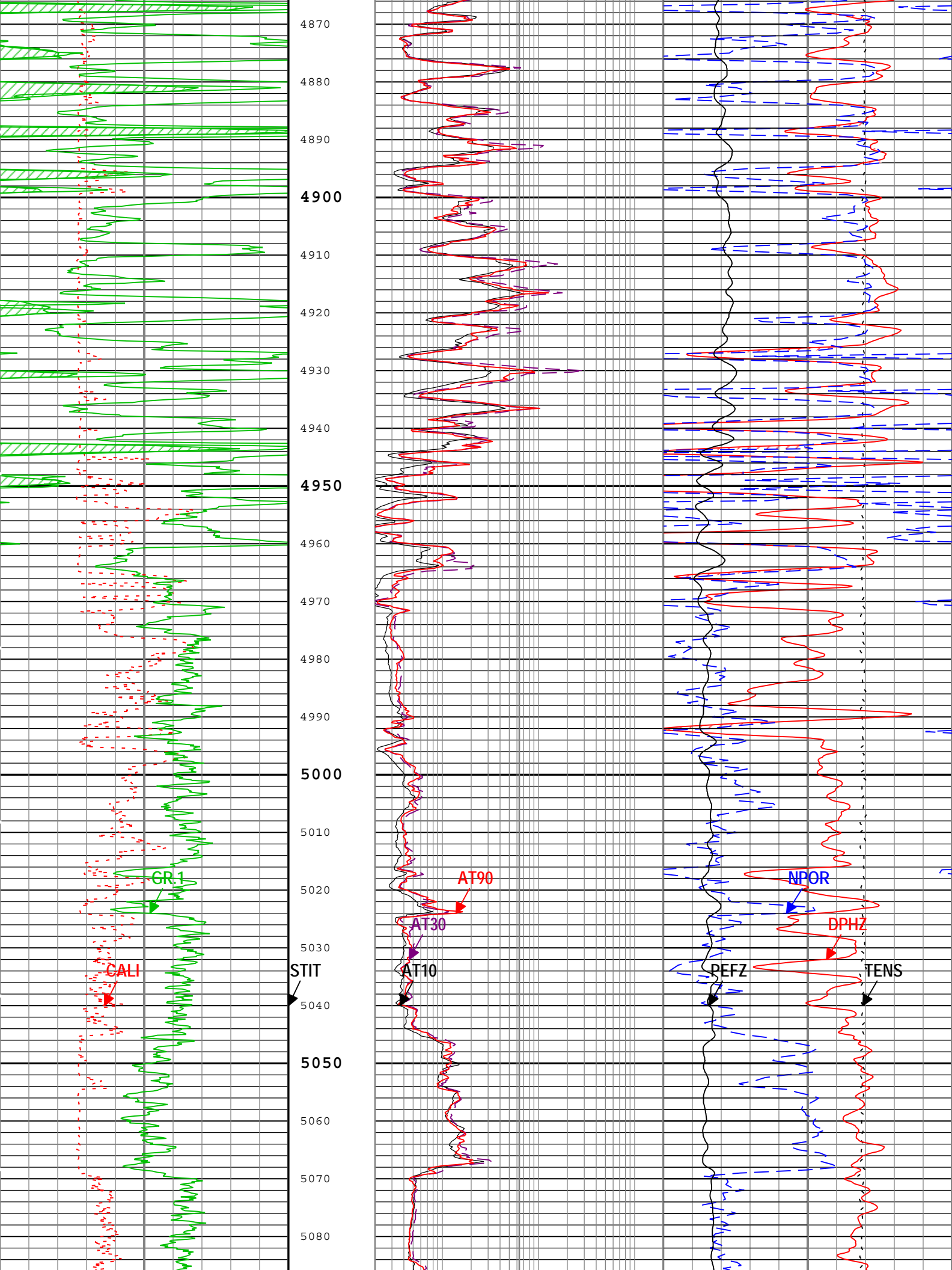


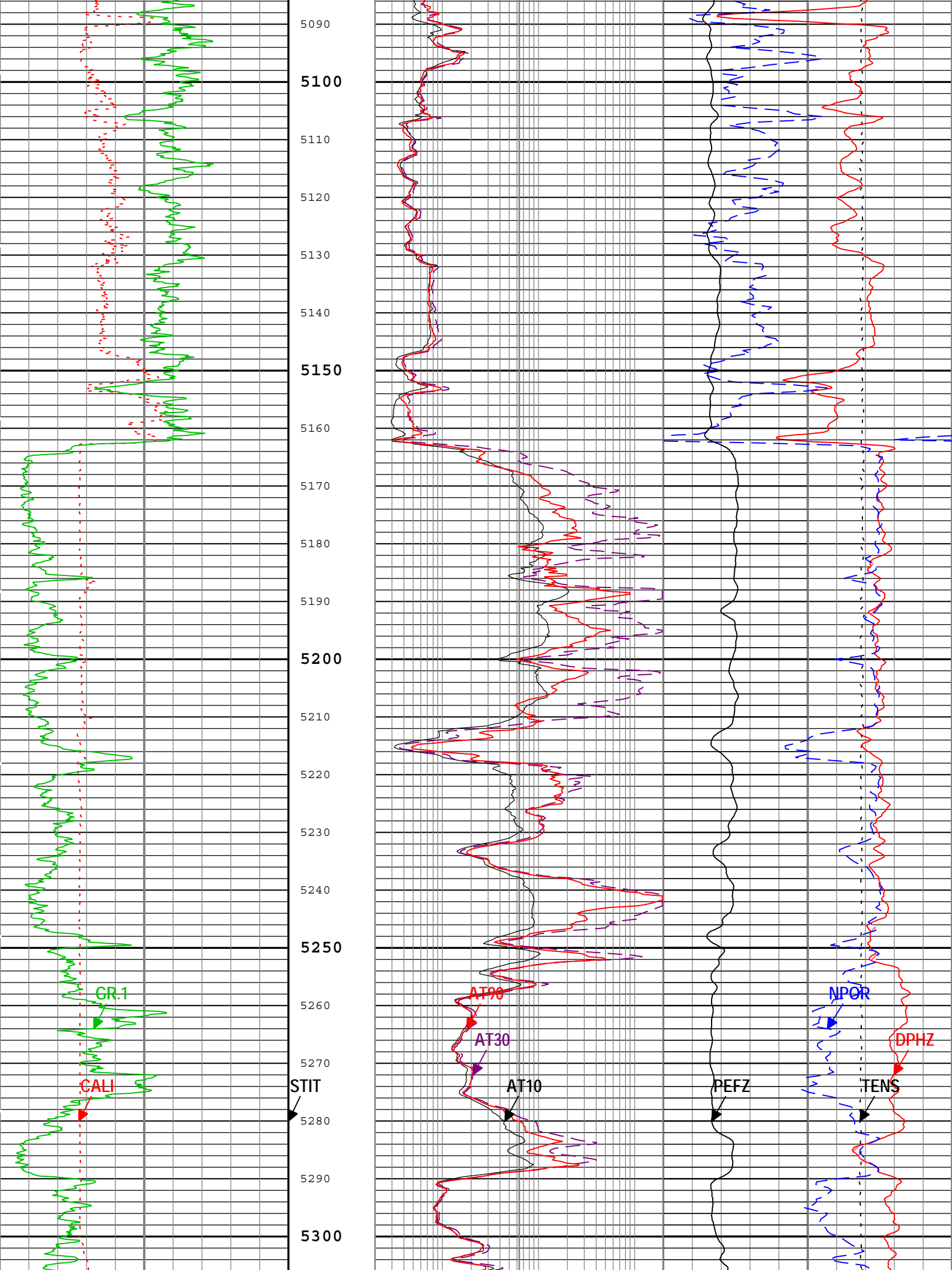


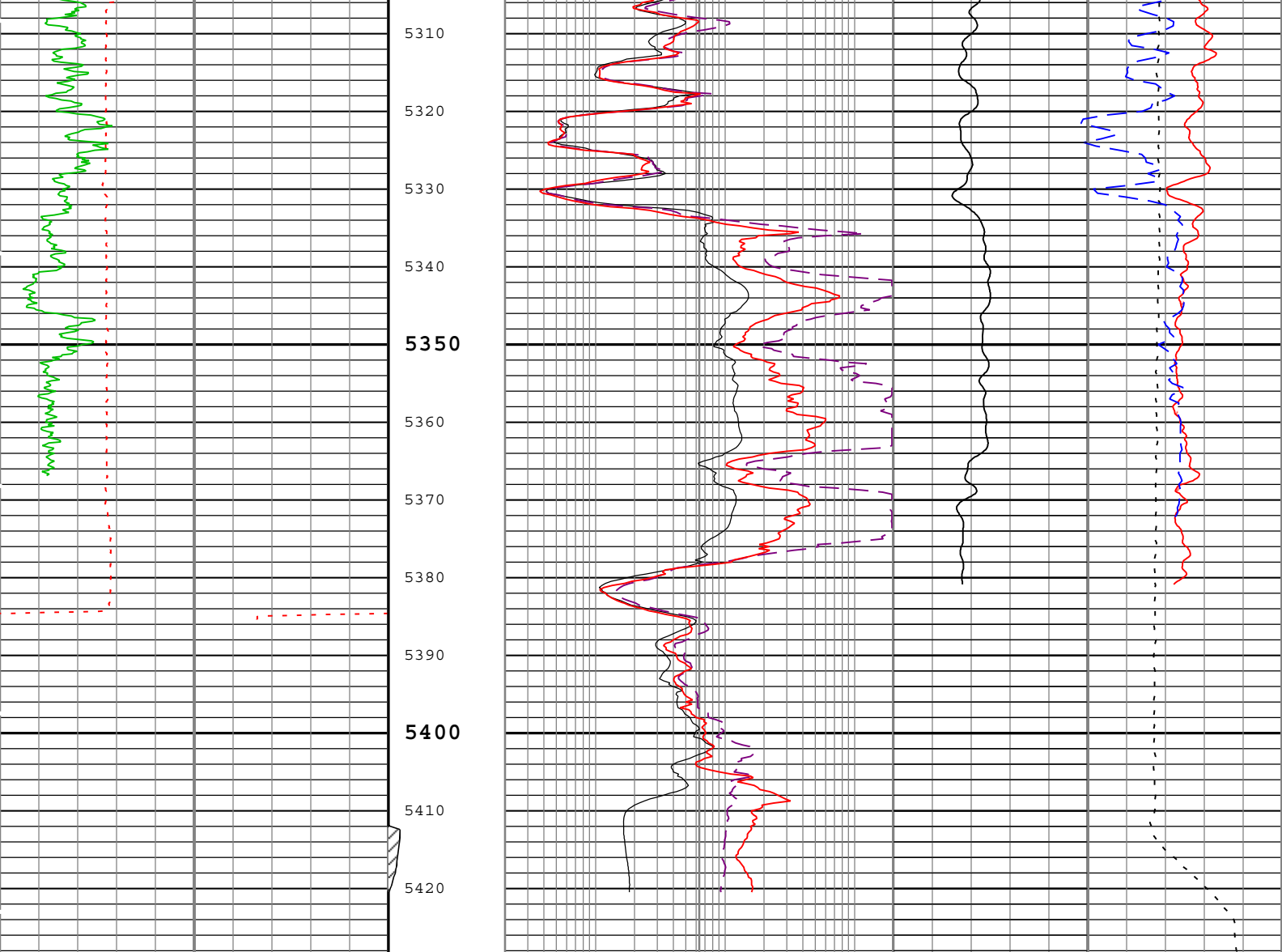












Gamma Ray Back up		Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A10 (AT10) AIT_SpliceGroup[1]	Gas Effect
Caliper (CALI) HDRS[1]		0 ft 50	2 ohm.m 2000	NPOR Backup
6	in 16			Cable Tension (TENS)
Gamma Ray (GR).1 HGNS[1]			Array Induction Two Foot Resistivity A30 (AT30) AIT_SpliceGroup[1]	8000 lbf 0
gAPI 200			2 ohm.m 2000	Standard Resolution Density Porosity (DPHZ) HDRS[1]
			Array Induction Two Foot Resistivity A90 (AT90) AIT_SpliceGroup[1]	0.45 ft3/ft3 -0.15
			2 ohm.m 2000	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]
				0.45 m3/m3 -0.15
				Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS[1]
				0 10

TIME_1900 - Time Marked every 60.00 (s)	
Description: HGNS standard resolution porosities for Platform Express Format: Log ( Import of KM 5in Triple Combo ) Index Scale: 5 in per 100 ft Index	
Unit: ft Index Type: Measured Depth Creation Date: 09-Feb-2014 12:29:54	

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-H	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-H	Yes	
ASTA	Array Induction Tool Standoff	AIT-H	1.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	160	degF
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	1700	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	0.08	in
CBLO	Casing Bottom (Logger)	WLSESSION	2778	ft
CDEN	Cement Density	HGNS-B	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Polymer	
DHC	Density Hole Correction	HDRS-B	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	100	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.44	ohm.m
SOCO	Standoff Correction Option	HGNS-B	Yes	
TD	Total Measured Depth	Borehole	5420	ft

Tool Control Parameters

Run1: PEX-BHC-AIT-HNGS: Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-B	0	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-B	WITHOUT_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
STSO_HRDD	Temperature Source for the Density Algorithm	HDRS-B	Decaytime algorithm	

Run1: PEX-BHC-AIT-HNGS

5" Triple Combo

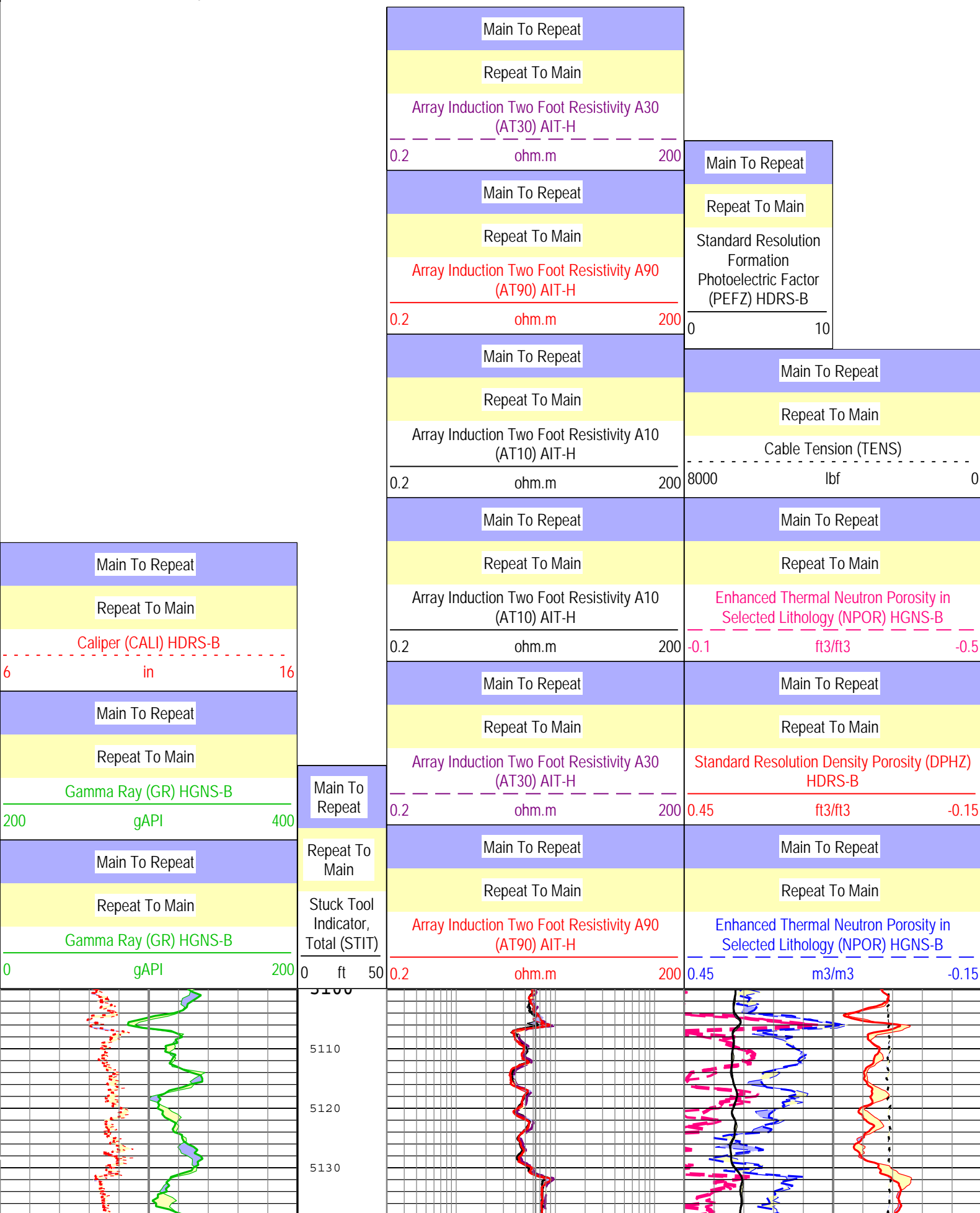
Pass Summary

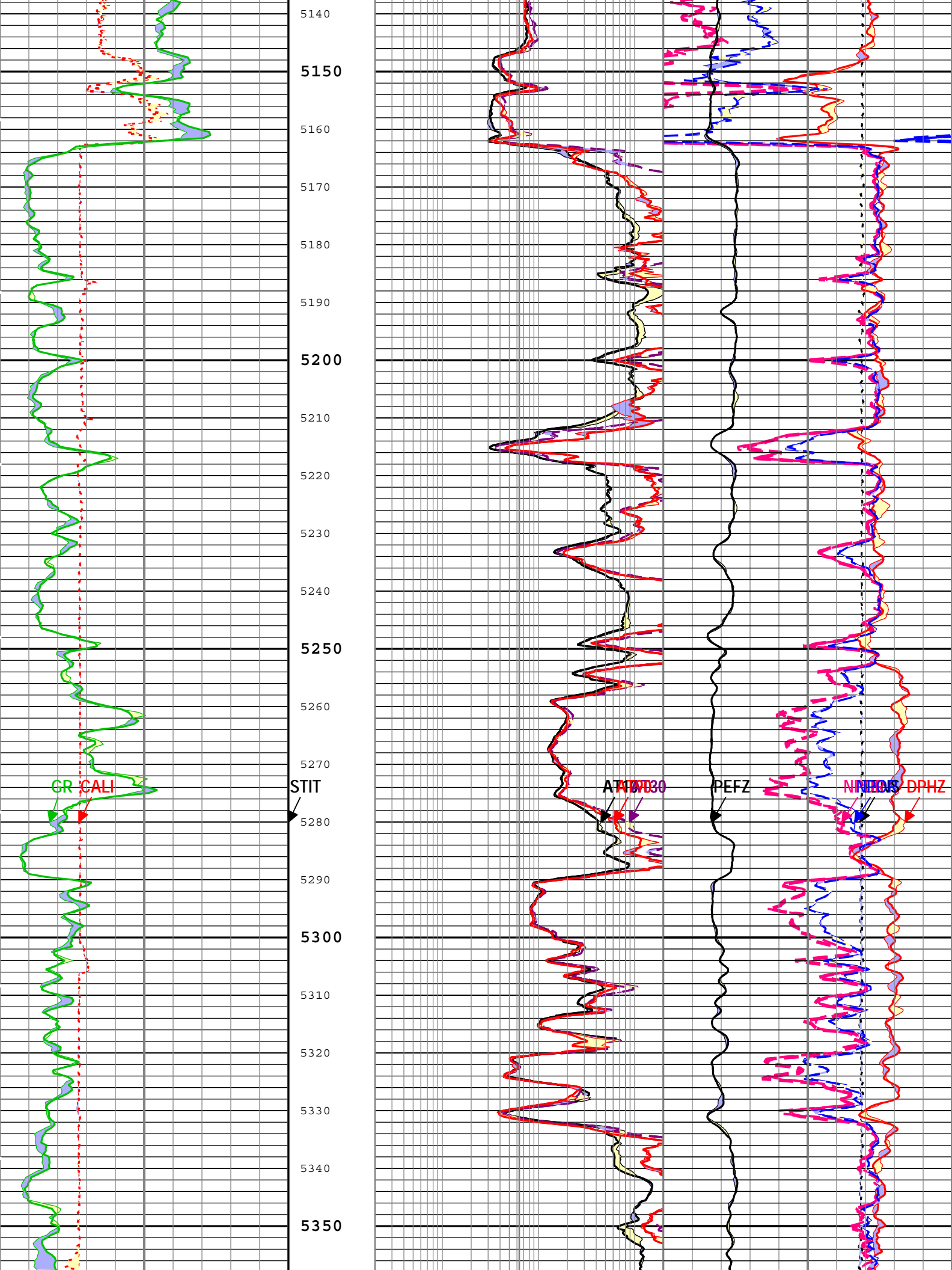
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-BHC-AIT-HNGS	Log[3]:Up	Up	5086.88 ft	5429.83 ft	09-Feb-2014 10:14:59 AM	09-Feb-2014 10:26:24 AM	ON	2.99 ft	No
Run1: PEX-BHC-AIT-HNGS	Log[4]:Up	Up	4139.97 ft	5428.63 ft	09-Feb-2014 10:34:41 AM	09-Feb-2014 11:18:35 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

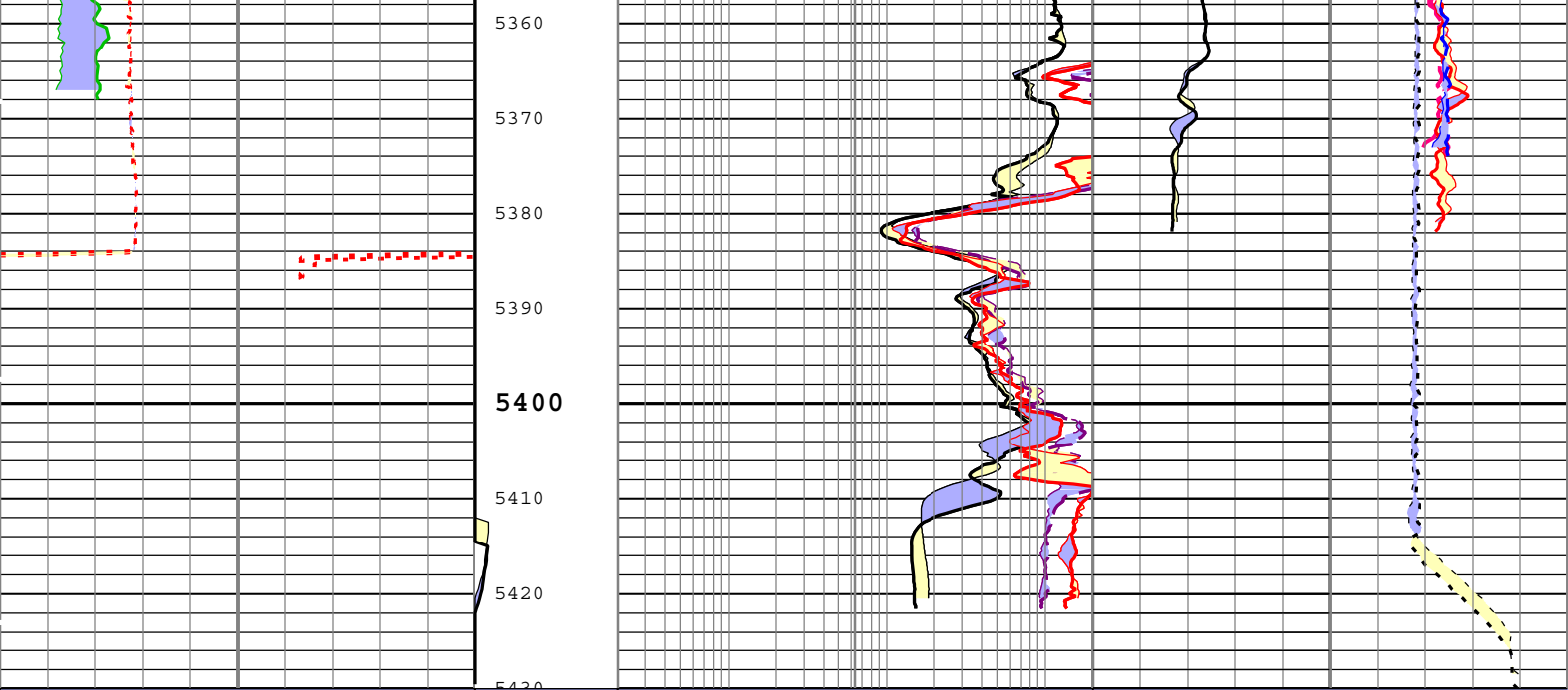
Description: HGNS standard resolution porosities for Platform Express		Format: Import of KM 5in Triple Combo RA	Index Scale: 5 in per 100 ft	Index Unit: ft
Index Type: Measured Depth	Creation Date: 09-Feb-2014 12:29:56			

TIME\_1900 - Time Marked every 60.00 (s)









Main To Repeat
Repeat To Main
Caliper (CALI) HDRS-B
6 in 16
Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-B
200 gAPI 400
Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-B
0 gAPI 200

Main To Repeat
Repeat To Main
Stuck Tool Indicator, Total (STIT)
0 ft 50

Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A30 (AT30) AIT-H
0.2 ohm.m 200
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A90 (AT90) AIT-H
0.2 ohm.m 200
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A10 (AT10) AIT-H
0.2 ohm.m 200
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A10 (AT10) AIT-H
0.2 ohm.m 200
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A30 (AT30) AIT-H
0.2 ohm.m 200
Main To Repeat

Main To Repeat
Repeat To Main
Cable Tension (TENS)
8000 lbf 0
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B
-0.1 ft3/ft3 -0.5
Main To Repeat
Repeat To Main
Standard Resolution Density Porosity (DPHZ) HDRS-B
0.45 ft3/ft3 -0.15
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B
0.45 m3/m3 -0.15
Main To Repeat
Repeat To Main
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B
0 10



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

0.2

ohm.m

200

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express    Format: Import of KM 5in Triple Combo RA    Index Scale: 5 in per 100 ft    Index Unit: ft  
Index Type: Measured Depth    Creation Date: 09-Feb-2014 12:29:56

## Calibration Report

### AIT-H (Array Induction Tool - H) Calibration - Run Run1: PEX-BHC-AIT-HNGS

#### Primary Equipment :

File code for AIT-HA Sonde Tool Element

AHIS

398

#### Auxiliary Equipment :

AITH Rm/SP Bottom Nose

AHRM

398

### AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 14:58:41 22-Nov-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.017	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	0.398	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.549	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.024	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	0.112	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.016	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.068	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.036	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.989	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.113	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.242	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.140	3.000	

### AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 14:58:41 22-Nov-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-84.077	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	104.695	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	169.537	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	138.176	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	113.890	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	30.222	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	59.587	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	52.189	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	23.006	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	-10.696	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	13.578	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	2.378	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.300	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	5.771	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.081	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	3.282	30.000	

### AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 14:58:41 22-Nov-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.805	1.200	
Fine Gain		Master	1.000	0.800	0.805	1.200	

### AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 14:58:41 22-Nov-2013    Before (Measured): 21:29:16 08-Feb-2014    After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
-------------	------	-------	---------	-----------	--------	------------	--

Thru Cal Element	Unit	Phase	Order	Before Master	Before Slave	After Slave	High Order
Thru Cal Mag - 0	V	Master	----	0.363	0.626	0.847	<div><div></div></div>
		Before	----	0.363	0.625	0.847	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 0	deg	Master	----	11.000	74.309	131.000	<div><div></div></div>
		Before	----	11.000	74.549	131.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.240	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 1	V	Master	----	0.762	1.282	1.778	<div><div></div></div>
		Before	----	0.762	1.280	1.778	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.002	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 1	deg	Master	----	10.000	73.289	130.000	<div><div></div></div>
		Before	----	10.000	73.531	130.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.242	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 2	V	Master	----	0.374	0.636	0.872	<div><div></div></div>
		Before	----	0.374	0.634	0.872	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.002	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 2	deg	Master	----	6.000	69.097	126.000	<div><div></div></div>
		Before	----	6.000	69.359	126.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.262	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 3	V	Master	----	0.422	0.722	0.986	<div><div></div></div>
		Before	----	0.422	0.721	0.986	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 3	deg	Master	----	5.000	68.194	125.000	<div><div></div></div>
		Before	----	5.000	68.458	125.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.264	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 4	V	Master	----	0.802	1.345	1.872	<div><div></div></div>
		Before	----	0.802	1.343	1.872	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.002	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 4	deg	Master	----	-1.000	61.223	119.000	<div><div></div></div>
		Before	----	-1.000	61.516	119.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.293	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 5	V	Master	----	1.173	1.943	2.737	<div><div></div></div>
		Before	----	1.173	1.940	2.737	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.003	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 5	deg	Master	----	-3.000	59.049	117.000	<div><div></div></div>
		Before	----	-3.000	59.363	117.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.314	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 6	V	Master	----	1.173	1.939	2.737	<div><div></div></div>
		Before	----	1.173	1.936	2.737	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.003	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 6	deg	Master	----	-3.000	59.112	117.000	<div><div></div></div>
		Before	----	-3.000	59.429	117.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>

		Before-Master After-After	----- -----	----- -----	0.317 -----	----- -----	<div><div></div></div>
Thru Cal Mag - 7	V	Master Before After Before-Master After-After	----- ----- ----- ----- -----	0.849 0.849 ----- ----- -----	1.378 1.378 ----- 0.000 -----	1.981 1.981 ----- ----- -----	<div><div></div></div>
Thru Cal Phase - 7	deg	Master Before After Before-Master After-After	----- ----- ----- ----- -----	-7.000 -7.000 ----- ----- -----	53.464 53.956 ----- 0.492 -----	113.000 113.000 ----- ----- -----	<div><div></div></div>
SPA Zero	mV	Master Before After Before-Master After-After	----- ----- ----- ----- -----	-50.000 -50.000 ----- ----- -----	-0.039 -0.046 ----- -0.007 -----	50.000 50.000 ----- ----- -----	<div><div></div></div>
SPA Plus	mV	Master Before After Before-Master After-After	----- ----- ----- ----- -----	941.000 941.000 ----- ----- -----	993.080 993.305 ----- 0.225 -----	1040.000 1040.000 ----- ----- -----	<div><div></div></div>
Temperature Zero	V	Master Before After Before-Master After-After	----- ----- ----- ----- -----	-0.050 -0.050 ----- ----- -----	0.000 0.000 ----- 0.000 -----	0.050 0.050 ----- ----- -----	<div><div></div></div>
Temperature Plus	V	Master Before After Before-Master After-After	----- ----- ----- ----- -----	0.870 0.870 ----- ----- -----	0.920 0.920 ----- 0.000 -----	0.960 0.960 ----- ----- -----	<div><div></div></div>

<b>DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run Run1: PEX-BHC-AIT-HNGS</b>							
<b>Primary Equipment :</b> Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL      SLS-E							
<b>CBL Normalization - CBL Accumulations</b>							
Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Upper Far Amplitude - 0		Master	-----	-----	-----	-----	<div><div></div></div>
Upper Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	<div><div></div></div>
Lower Far Amplitude - 0		Master	-----	-----	-----	-----	<div><div></div></div>
Lower Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	<div><div></div></div>
<b>CBL Normalization - CBL/VDL Coefficients</b>							
Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
CBL Correction Factor for UT		Master	3.500	2.700	NOT DONE	4.300	<div><div></div></div>
CBL Correction Factor for LT		Master	2.500	1.700	NOT DONE	4.300	<div><div></div></div>
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		NOT DONE		<div><div></div></div>
<b>CBL Free Pipe Adjustment - Free Pipe Measurement</b>							
Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
CBL Amplitude - 0	mV	Before	-----	-----	-----	-----	<div><div></div></div>
CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----	<div><div></div></div>
Measurement Depth - 0	ft	Before	-----	-----	-----	-----	<div><div></div></div>
<b>CBL Free Pipe Adjustment - CBL Amplitude Coefficient</b>							
Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
CBL Adjustment Factor		Before	1.000	0.200	NOT DONE	5.000	<div><div></div></div>
Depth of Before Calibration	ft	Before			NOT DONE		<div><div></div></div>

### Primary Equipment :

HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	860
15 kpsi, tungsten shielding	HRGD-B	1748

### Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5094
HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	860
HRMS, 125 degC, 10 kpsi	HRMS-B	1716

### Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

## HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): 21:37:13 08-Feb-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	9.72	10.00	
Large Ring	in	Before	12.00	9.00	13.92	15.00	

## HDRS Density Calibration - Inversion Results

Master (EEPROM): 21:37:24 08-Feb-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.596	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.689	1.696	
Pe Aluminum		Master	2.570	2.470	2.551	2.670	
Pe Magnesium		Master	2.650	2.550	2.637	2.750	

## HDRS Density Calibration - Deviation Summary

Master (EEPROM): 21:37:24 08-Feb-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.3028	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.8772	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3026	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.3581	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.5871	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.5455	3.5000	

## HDRS Density Calibration - Background Summary

Master (EEPROM): 21:37:24 08-Feb-2014

Before (Measured): 21:33:03 08-Feb-2014




Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7316		
		Before	0.7316	0.6950	0.7302	0.7682	
		Before-Master	----	----	-0.0014	----	
BS Window Sum	1/s	Master	1		9021		
		Before	9021	8570	9048	9472	
		Before-Master	----	----	27	----	
SS Window Ratio		Master	1.0000		0.4772		
		Before	0.4772	0.4533	0.4782	0.5010	
		Before-Master	----	----	0.0010	----	
SS Window Sum	1/s	Master	1		8939		
		Before	8939	8492	8914	9386	
		Before-Master	----	----	-25	----	
LS Window Ratio		Master	1.0000		0.2974		
		Before	0.2974	0.2825	0.2977	0.3123	
		Before-Master	----	----	0.0003	----	
LS Window Sum	1/s	Master	1		988		
		Before	988	938	980	1037	
		Before-Master	----	----	-8	----	

## HDRS Density Calibration - Photo-multiplier High Voltages





Master (EEPROM): 21:37:24 08-Feb-2014

Before (Measured): 21:33:03 08-Feb-2014



Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
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BS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1703 1695 -8	2400 2400 100	
SS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1485 1497 12	2400 2400 100	
LS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1542 1551 9	2400 2400 100	

## HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 21:37:24 08-Feb-2014		Before (Measured): 21:33:03 08-Feb-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master	-----	5.00	11.71	25.00	
		Before		5.00	11.48	25.00	
		Before-Master		-1.00	-0.23	1.00	
SS Crystal Resolution	%	Master	-----	5.00	10.17	20.00	
		Before		5.00	10.34	20.00	
		Before-Master		-1.00	0.17	1.00	
LS Crystal Resolution	%	Master	-----	5.00	8.77	20.00	
		Before		5.00	8.87	20.00	
		Before-Master		-1.00	0.10	1.00	



## HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 21:28:15 08-Feb-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3865	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3806	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3804	4136	






## HGNS-B (HILT Gamma-Ray and Neutron Sonde, 125 degC) Calibration - Run Run1: PEX-BHC-AIT-HNGS

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 125 degC		HGNS-B	1927
Auxiliary Equipment :			
HGNS Accelerometer, 125 degC		HACCZ-B	749
AmBe Neutron Logging Source		NSR-F	5069
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)		165	

## HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 09:32:07 09-Feb-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.2	32.8	

## HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-Mar-2001							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			Sunstrand		
Accelerometer Reference Temperature	degF	Master		30.2	68.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	-5693.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	20.390	-----	
Accelerometer Coefficients - 2		Master	-----	-----	-0.031	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.141	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	295.800	-----	
Accelerometer Coefficients - 9		Master	-----	-----	1.031	-----	

## HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 11:56:32 19-Dec-2013		Before (Measured): 21:29:01 08-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.6	40.0	
		Before	0	5.0	26.8	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.1	-0.8	4.1	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	27.6	40.0	
		Before	0	5.0	27.7	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.1	0.1	4.1	
		After-Before	----	----	----	----	
Near Plus Measurement	1/s	Master	6031.0	4700.0	4839.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2044.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	4918.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2084.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations							
Before (Measured): 21:38:30 08-Feb-2014		After:					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	82.4	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	170.0	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run Run1: PEX-BHC-AIT-HNGS		
Primary Equipment :		
HNGS Sonde Element	HNGS-BA	169
Auxiliary Equipment :		
Hostile Natural Gamma Ray Cartridge	HNGC-B	292
HNGS Housing Element	HEH-K	186
		1
Housing for the HNGC	HNGH-A	313

HNGS Background and Na22 Set Point Determination - Detector 1 Check							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	38.486	42.500	
		Before	40.000	37.500	38.738	42.500	
		After	40.000	37.500	NOT DONE	42.500	
		Before-Master	----	----	0.252	----	
		After-Before	----	----	----	----	
Na 511 Peak Resolution	%	Master	15.500	12.000	16.066	19.000	
		Before	15.500	12.000	15.700	19.000	



HNGS Background and Na22 Set Point Determination - Detector 1 Calibration							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coincidence Count Rate Ratio		Master			1.014		
		Before	1.000	0.950	0.996	1.050	
		After	----	----	----	----	
		Before-Master	----	----	-0.018	----	
		After-Before	----	----	----	----	
HNGS Background and Na22 Set Point Determination - Detector 1 Calibration							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location		Master	209.630	201.000	208.318	218.250	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Th Peak Resolution	%	Master	7.000	5.000	7.114	9.000	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Background Count Rate	CPS	Master			113.912		
		Before	142.500	10.000	114.760	265.000	
		After	----	----	----	----	
		Before-Master	----	----	0.848	----	
		After-Before	----	----	----	----	
Gain Ratio		Master	1.000	0.940	1.029	1.060	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
HNGS Background and Na22 Set Point Determination - Detector 2 Calibration							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location		Master	209.630	201.000	210.558	218.250	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Th Peak Resolution	%	Master	7.000	5.000	7.527	9.000	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Background Count Rate	CPS	Master			115.004		
		Before	142.500	10.000	117.890	265.000	
		After	----	----	----	----	
		Before-Master	----	----	2.886	----	
		After-Before	----	----	----	----	
Gain Ratio		Master	1.000	0.940	1.011	1.060	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
HNGS Background and Na22 Set Point Determination - Detector 1 Calibration							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	40.000	43.500	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
HNGS Background and Na22 Set Point Determination - Detector 2 Calibration							
Master (EEPROM): 14:40:33 30-Dec-2013		Before (Measured): 09:18:44 09-Feb-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	41.000	43.500	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	



Na 511 Peak Set Point		Master	40.000	38.000	41.000	43.500	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

## LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run Run1: PEX-BHC-AIT-HNGS

Primary Equipment :  
 Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor      LEH-QT

### HTEN Master Calibration - HTEN Master Calibration

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500	
HTEN Shop Offset	lbf	Master	0	-1000.000	NOT DONE	1000.000	

### HTEN Before Calibration - HTEN Before Calibration

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement - 0	lbf	Before	----	----	----	----	
RHTE Plus Measurement - 0	lbf	Before	----	----	----	----	
HTEN Gain - 0		Before	----	----	----	----	
HTEN Offset - 0	lbf	Before	----	----	----	----	


Company: Anadarko E&P Onshore LLC

Well: Caboose 1548-21-44

Field: Wildcat

County: Cheyenne

Country: USA



Platform Express  
Triple Combo