

**Platform Express / Compensated Neutron Log / Three  
Detector Litho-Density**

Company: DCP Midstream LP

Well: ZIA AGI D2

Field: AGI Devonian Exploration

County: Lea State: New Mexico

Platform Express

Compensated Neutron Log

Three Detector Litho-Density

1893 FSL & 950' FWL	Elev.:	K.B.	3574.00 ft
Section:19, Township: T19S, Abstract:R32S		G.L.	3547.00 ft
		D.F.	3573.00 ft
Permanent Datum:	Ground Level	Elev.:	3547.00 f
Log Measured From:	Kelly Bushing	27.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Abstract:
30-025-42207	19	T19S	R32S

County: Lea  
 Field: AGI Devonian Exploration  
 Location: 1893' FSL & 950' FWL  
 Well: ZIA AGI D2  
 Company: DCP Midstream LP

Logging Date 11-Dec-2016

Run Number 2A

Depth Driller 14750.00 ft

Schlumberger Depth 14770.00 ft

Bottom Log Interval 14770.00 ft

Top Log Interval 13635.00 ft

Casing Driller Size @ Depth 7 in @ 13622.00 ft

Casing Schlumberger 13635 ft

Bit Size 6 in

Type Fluid In Hole Fresh Water

Density 8.4 lbm/gal

Viscosity 28 s

Fluid Loss PH 0 cm3

Source of Sample Active Tank

MUD RM @ Meas Temp 0.25 ohm.m @ 60 degF

RMF @ Meas Temp 0.13 ohm.m @ 60 degF

RMC @ Meas Temp

Source RMF Calculated

RM @ BHT 0.08 @ 206 0.06 @ 206

Max Recorded Temperatures 206 degF

Circulation Stopped 10-Dec-2016 12:30:00

Logger on Bottom 11-Dec-2016 08:15:00

Unit Number 2191

Recorded By J.Shtull

Witnessed By Jim Hunter

## 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.

## Contents

1. Header
2. Disclaimer
3. Contents
4. Remarks and Equipment Summary
5. Depth Summary
6. 2A Main Pass 2" = 100'
  - 6.1 Integration Summary
  - 6.2 Software Version
  - 6.3 Composite Summary
  - 6.4 Log ( Porosity 2 inch General )
7. 2A Main Pass 5" = 100'
  - 7.1 Integration Summary
  - 7.2 Composite Summary
  - 7.3 Log ( Porosity\_5\_Inch )
  - 7.4 Parameter Listing
8. Tail

# Remarks and Equipment Summary

## 2A: Toolstring

## 2A: Remarks

**Equip name** Length **MP name** **Offset**  
**LEH-QC** **62.8**

**DTC-H** **60.34**  
 ECH-KC  
 DTC-H

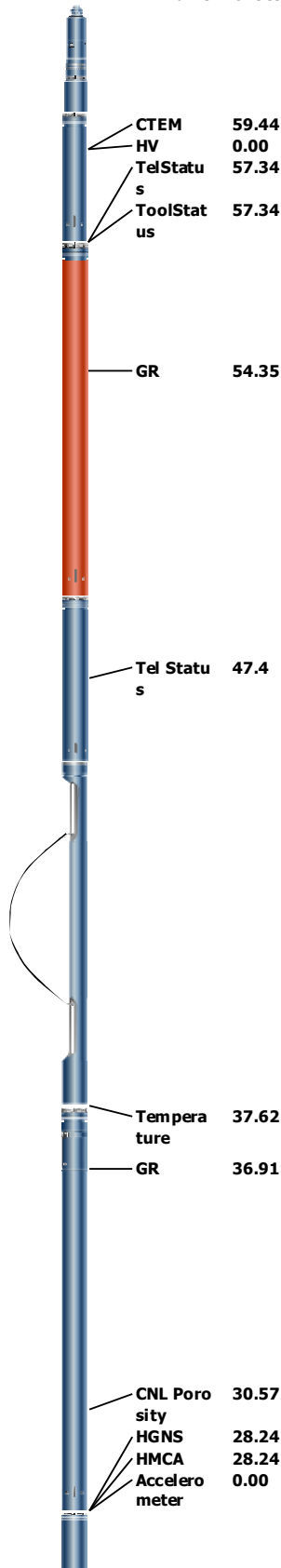
**HNGS-BA:3** **57.34**  
 65  
 HEH-K:365  
 HNGS-BA:3  
 65

**HNGC-B:62** **49.15**  
 3  
 HNGH-A:41  
 04  
 HNGC-B:62  
 3

**ILE-F** **45.65**

**HGNS-B** **37.65**  
 HGNH:2978  
 NPV-N  
 NSR-F:5064  
 HMCA-B  
 HGNS-B  
 HACCZ-B:4  
 19

**HDRS-H** **28.24**  
 ECH-MEB:4  
 916



Thank you for choosing Schlumberger Wireline

Toolstring ran as per tool sketch

Logging program and intervals confirmed with client prior to job

Limestone matrix used

AIT ran slick due to hole size

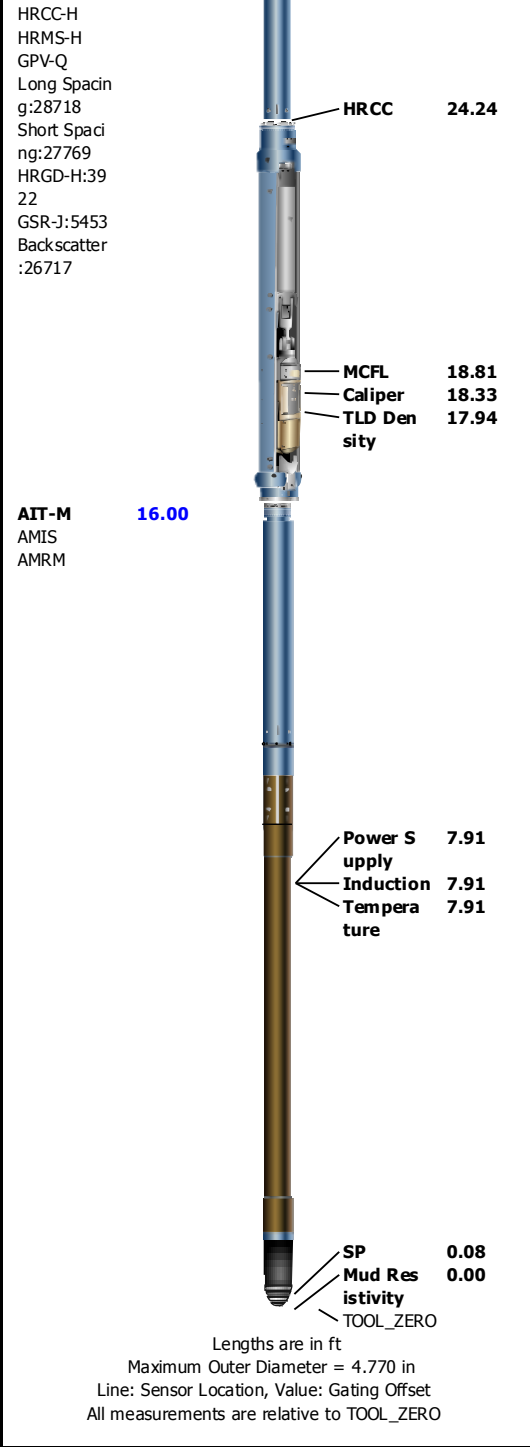
ILE used for eccentralization

HGNS corrected for hole size and standoff correction

Correlation to previous log confirmed with on-site geologist at points: 13500, 13398

Induction tool ran for resistivity as per client request

Resistivity data out of tolerance due to borehole condition



## Depth Summary

	2A		
--	----	--	--

### Depth Measuring Device

Type	IDW-B		
Serial Number	6609		
Calibration Date	03-Jun-2016		
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	-3		
Wheel Correction 2	-2		

### Tension Device

Type	CMTD-B/A		
Serial Number	3500		
Calibration Date	09-Dec-2016		

Calibrator Serial Number	13		
Number of Calibration Points	10		
Calibration Root Mean Square Error	10		
Calibration Peak Error	15		

### Logging Cable

Type	7-46P-XS		
Serial Number	U714051		
Length	22100.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

### 2A: Depth Control Parameters

Log Sequence	Subsequent Log In the Well	IDW used as primary depth control device
Reference Log Name	"Platform Express" - D.Krebs	ZChart used as secondary depth control device
Reference Log Run Number	1A	Correlation confirmed with onsite geologist
Reference Log Date	29-Nov-2016	

### Depth Control Remarks

## 2A

## Main Pass 2" = 100'

### Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	0	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	235	ft3

### Software Version

Acquisition System	Version
Maxwell 2016 SP3	6.3.75395.3100
Application Patch	Wireline_Hotfix-MAST-2016SP3_6.3.77788

### Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2A	Log[4]:Up	Up	13328.05 ft	14782.97 ft	11-Dec-2016 8:47:35 AM	11-Dec-2016 9:38:53 AM	ON	-5.43 ft	Yes

All depths are referenced to toolstring zero

### Log

Company: DCP Midstream LP Well: ZIA AGI D2

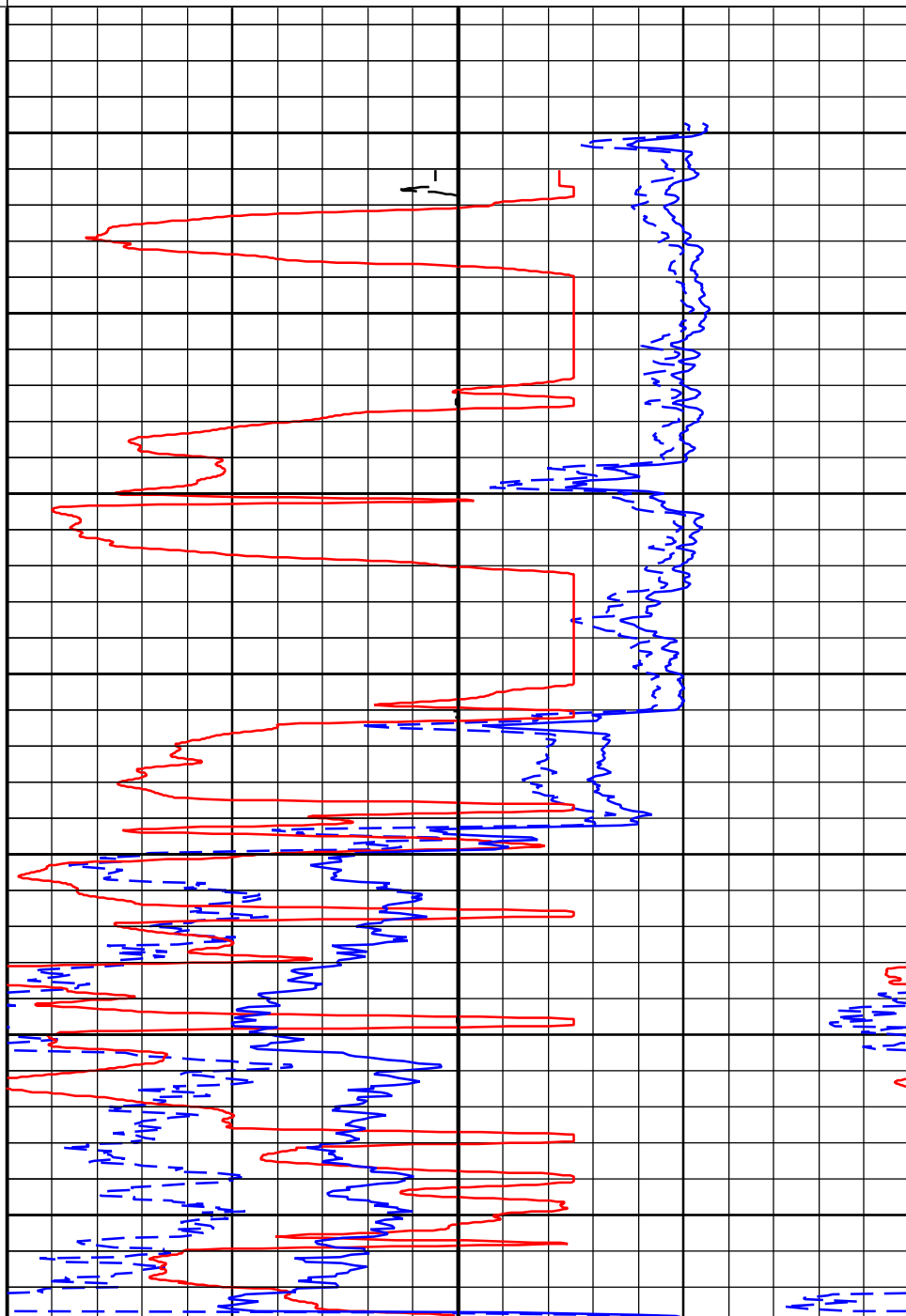
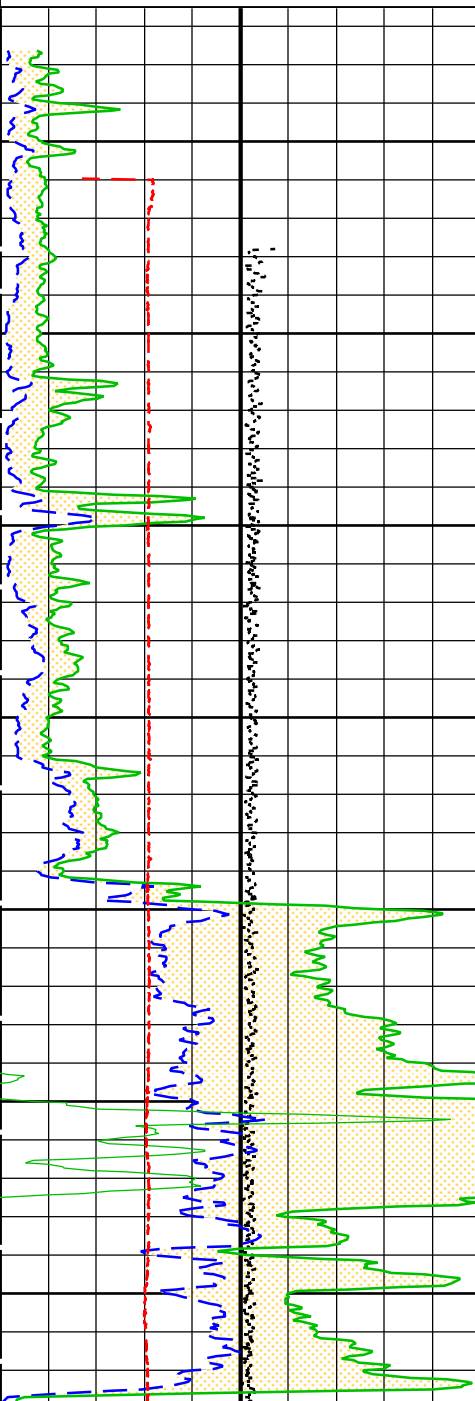
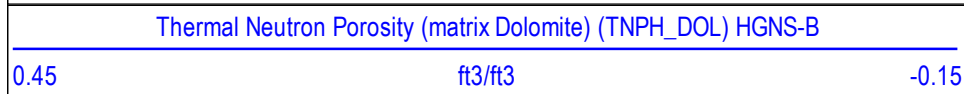
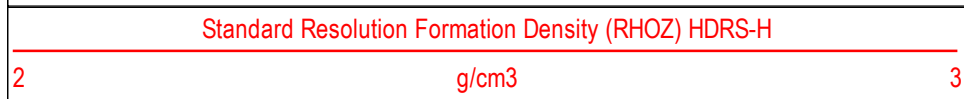
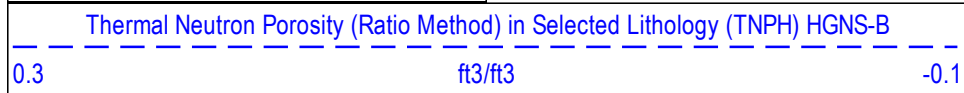
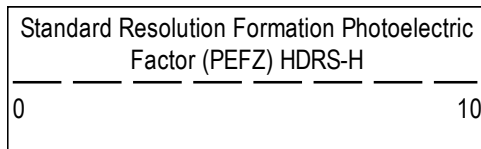
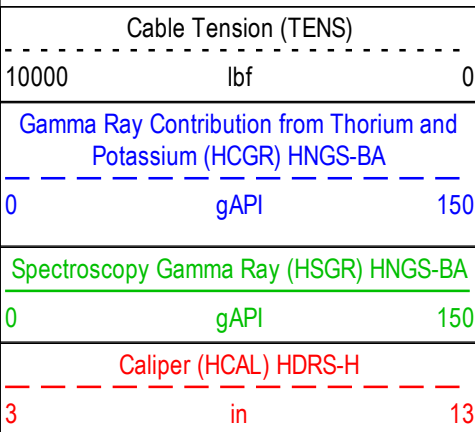
2A: Log[4]:Up:S029

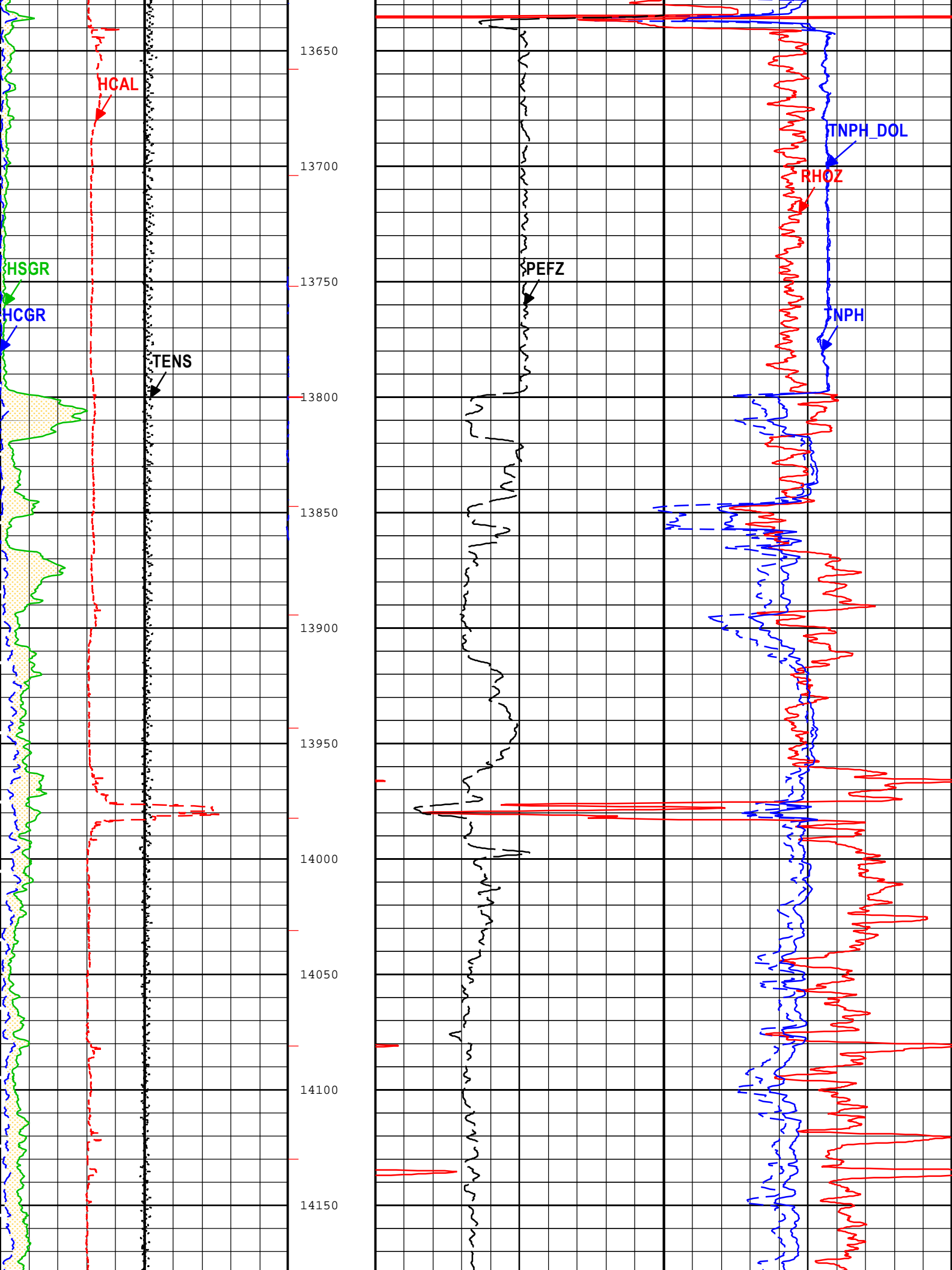
Description: HRLT BASIC LOG Format: Log ( Porosity 2 inch General ) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth  
 Creation Date: 11-Dec-2016 15:00:34

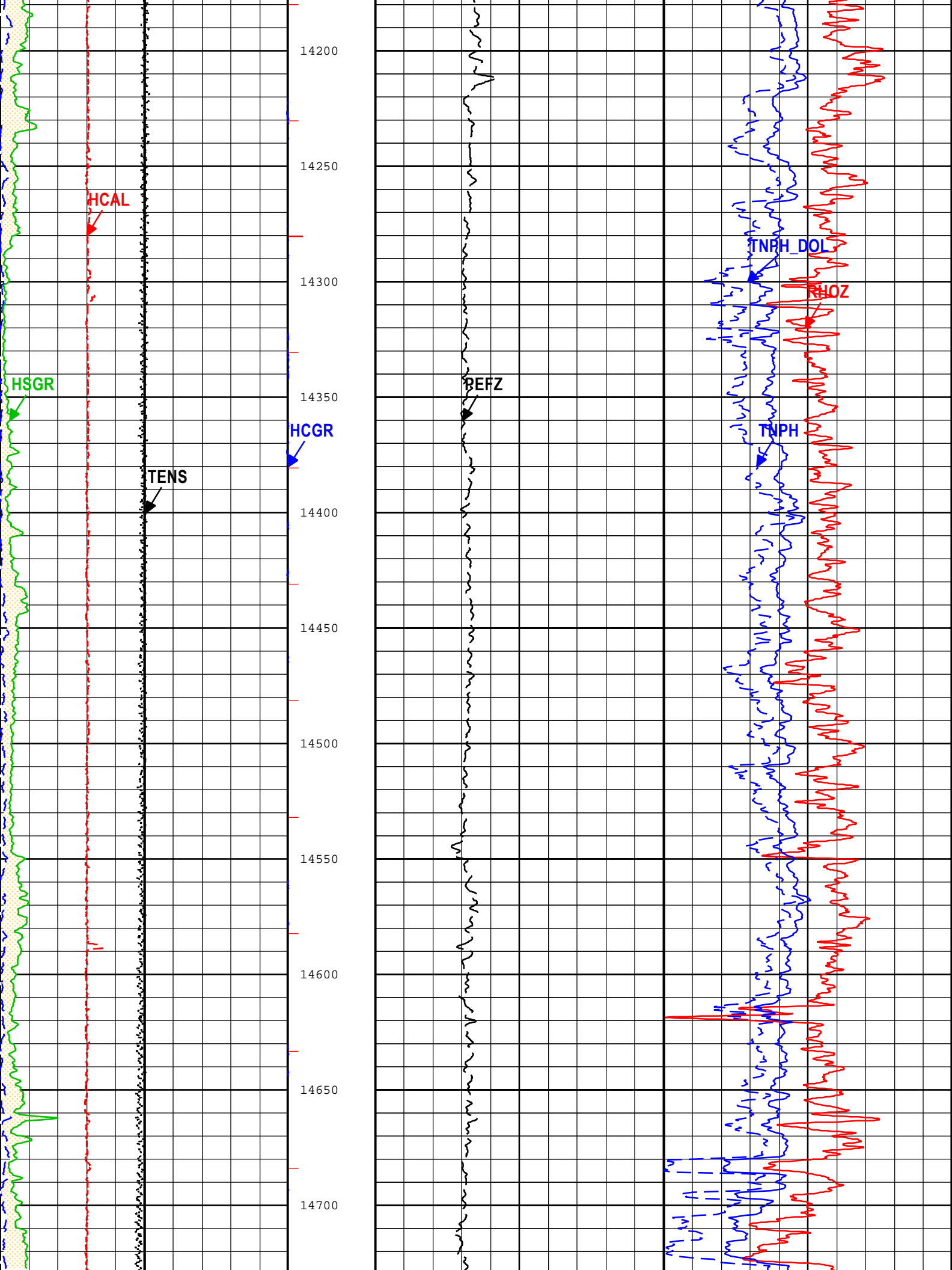
Channel	Source	Sampling
CALI	HDRS-H:HRCC-H:HRCC-H	1in
CGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
RHOZ	HDRS-H:HRMS-H:HRGD-H	2in
SGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
TENS	WLWorkflow	1in
TIME_1900	WLWorkflow	0.1in
TNPH	HGNS-B:HGNS-B:HGNS-B	6in

IHV - Integrated Hole Volume every 100.00 (ft3)  
 IHV - Integrated Hole Volume every 10.00 (ft3)  
 ICV - Integrated Cement Volume every 100.00 (ft3)  
 ICV - Integrated Cement Volume every 10.00 (ft3)

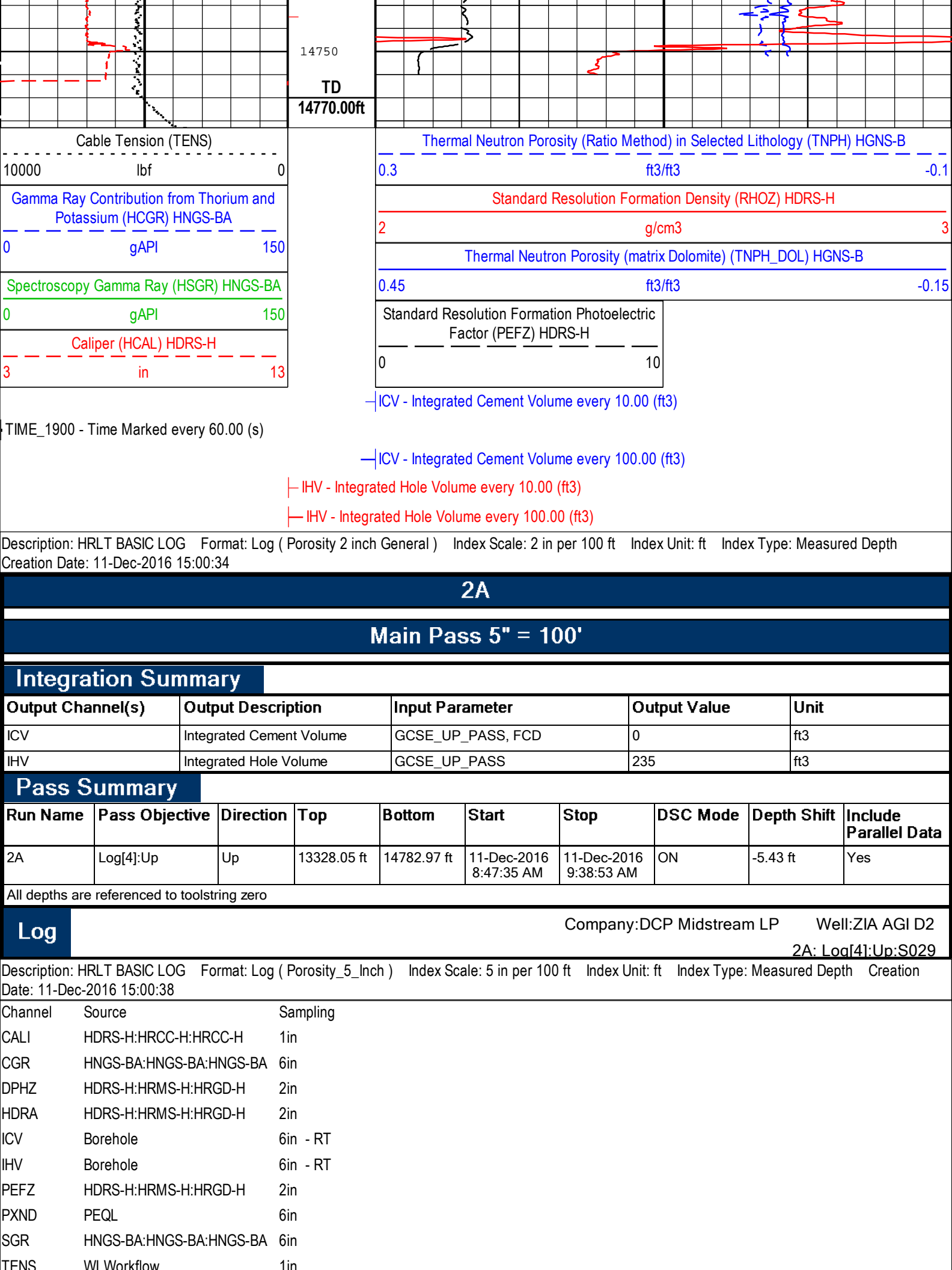
TIME\_1900 - Time Marked every 60.00 (s)











14750  
**TD**  
**14770.00ft**

Cable Tension (TENS)		
10000	lbf	0
Gamma Ray Contribution from Thorium and Potassium (HCGR) HNGS-BA		
0	gAPI	150
Spectroscopy Gamma Ray (HSGR) HNGS-BA		
0	gAPI	150
Caliper (HCAL) HDRS-H		
3	in	13

Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B		
0.3	ft3/ft3	-0.1
Standard Resolution Formation Density (RHOZ) HDRS-H		
2	g/cm3	3
Thermal Neutron Porosity (matrix Dolomite) (TNPH_DOL) HGNS-B		
0.45	ft3/ft3	-0.15
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
0		10

TIME\_1900 - Time Marked every 60.00 (s)

- |ICV - Integrated Cement Volume every 10.00 (ft3)
- |ICV - Integrated Cement Volume every 100.00 (ft3)
- |IHV - Integrated Hole Volume every 10.00 (ft3)
- |IHV - Integrated Hole Volume every 100.00 (ft3)

Description: HRLT BASIC LOG Format: Log ( Porosity 2 inch General ) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth  
 Creation Date: 11-Dec-2016 15:00:34

## 2A

### Main Pass 5" = 100'

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	0	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	235	ft3

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2A	Log[4]:Up	Up	13328.05 ft	14782.97 ft	11-Dec-2016 8:47:35 AM	11-Dec-2016 9:38:53 AM	ON	-5.43 ft	Yes

All depths are referenced to toolstring zero

## Log

Company: DCP Midstream LP Well: ZIA AGI D2  
 2A: Log[4]:Up:S029

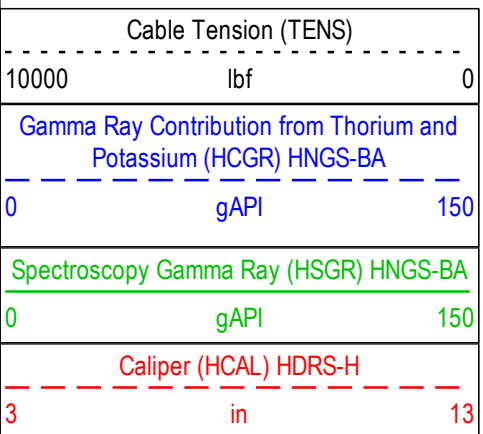
Description: HRLT BASIC LOG Format: Log ( Porosity\_5\_Inch ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation  
 Date: 11-Dec-2016 15:00:38

Channel	Source	Sampling
CALI	HDRS-H:HRCC-H:HRCC-H	1in
CGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in
HDRA	HDRS-H:HRMS-H:HRGD-H	2in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
PXND	PEQL	6in
SGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
TFNS	WI Workflow	1in

IHV - Integrated Hole Volume every 100.00 (ft3)  
 IHV - Integrated Hole Volume every 10.00 (ft3)

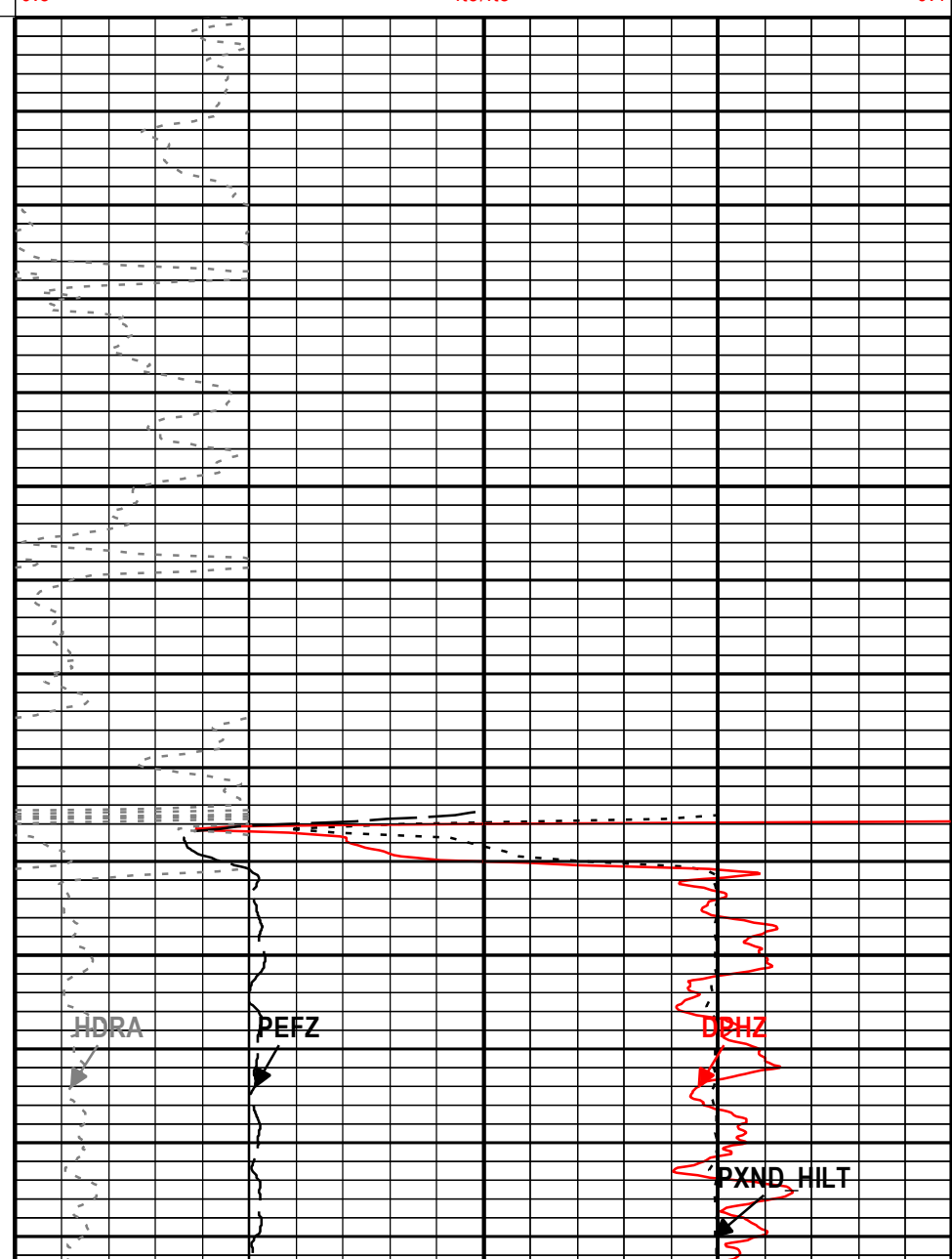
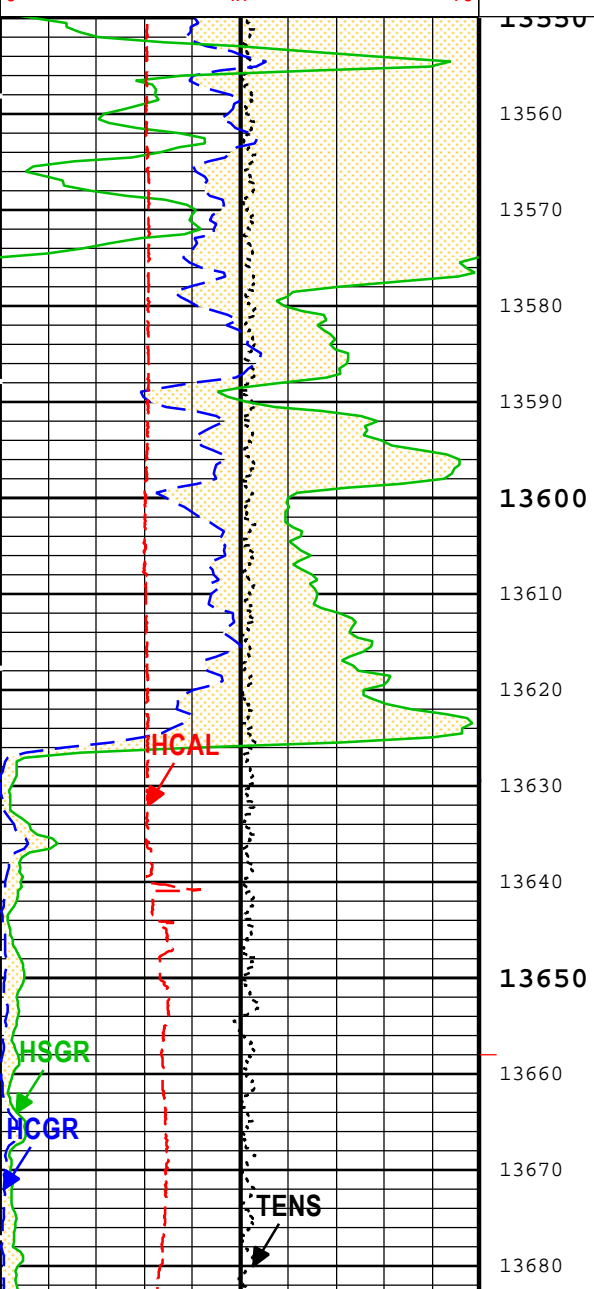
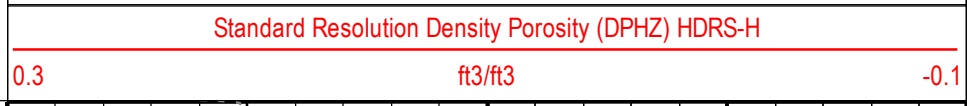
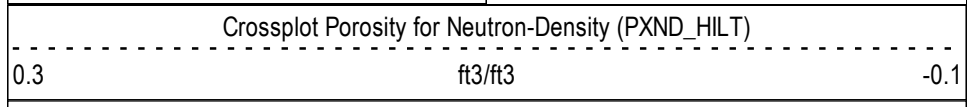
TIME\_1900 - Time Marked every 60.00 (s)

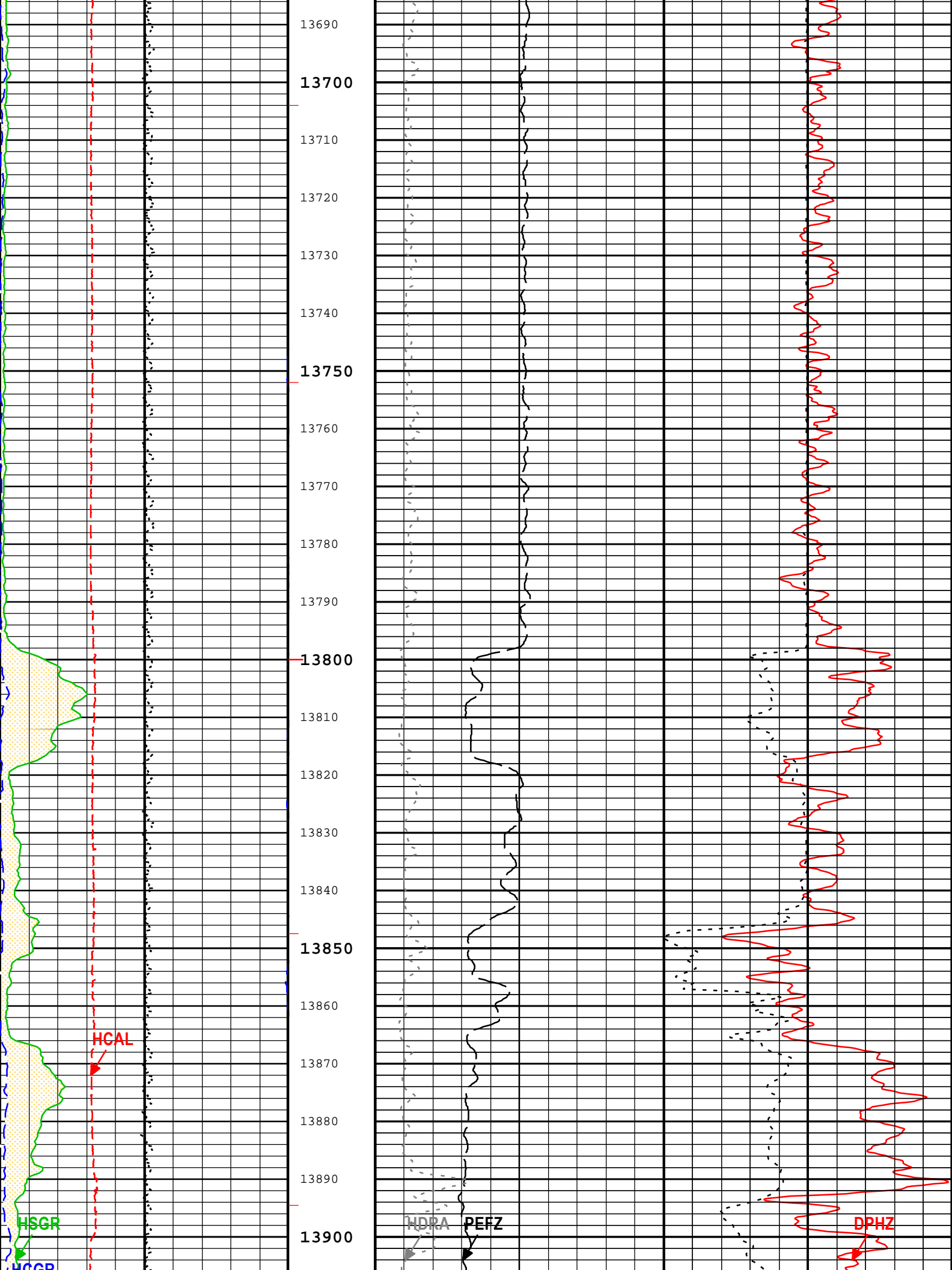
ICV - Integrated Cement Volume every 100.00 (ft3)  
 ICV - Integrated Cement Volume every 10.00 (ft3)

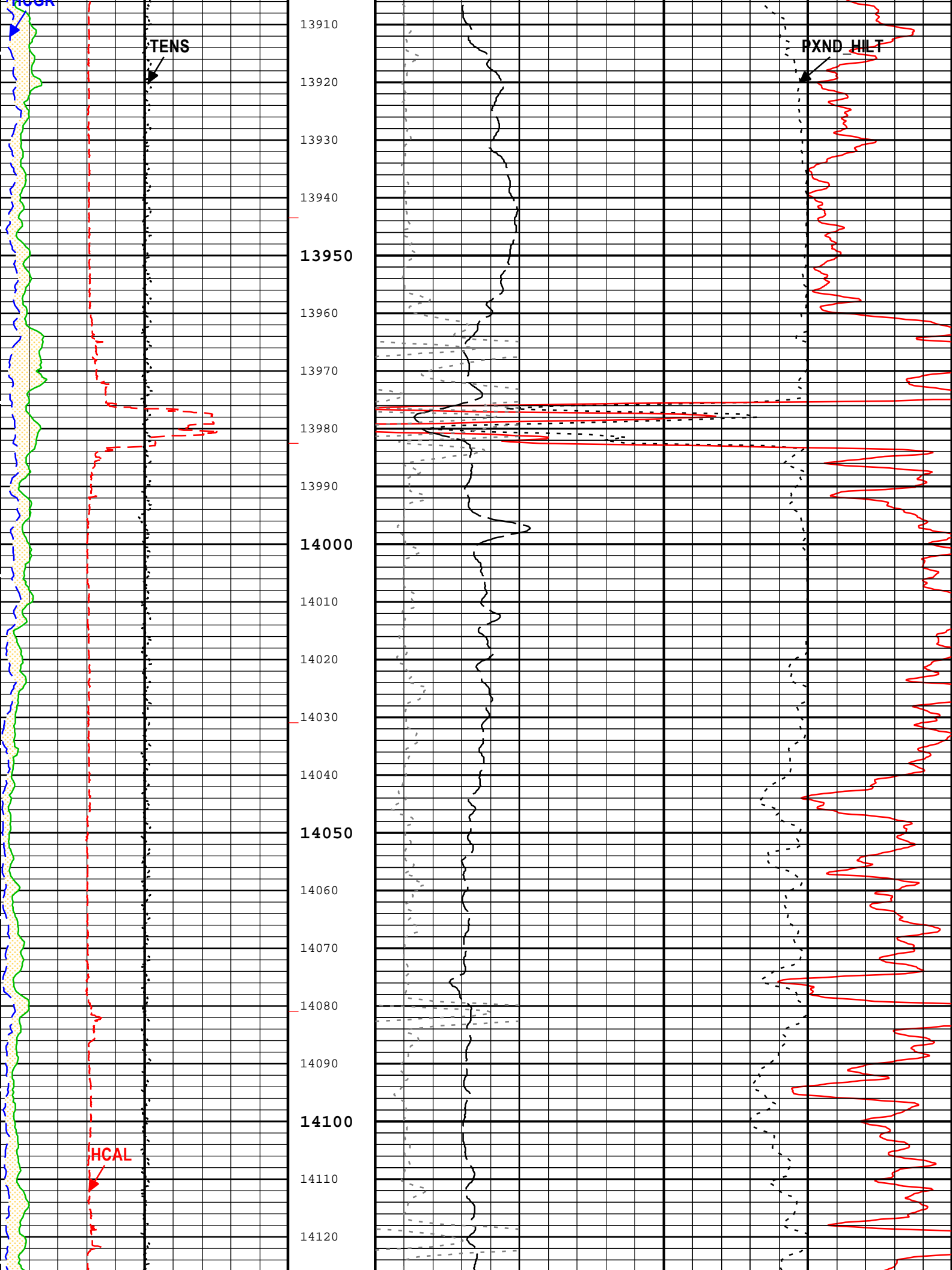


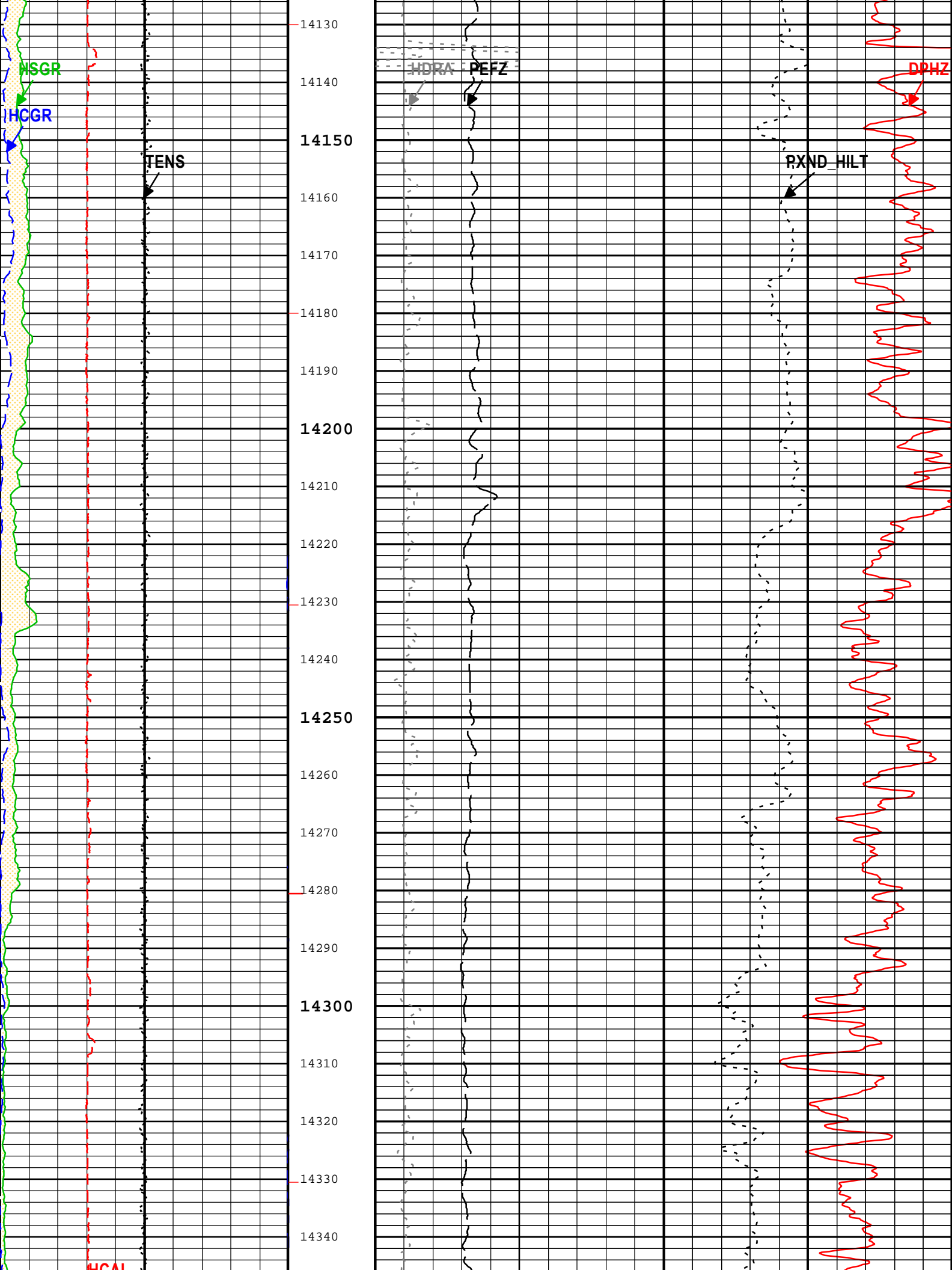
Density Standoff Correction (HDRA) HDRS-H	
-0.05	g/cm3 0.2

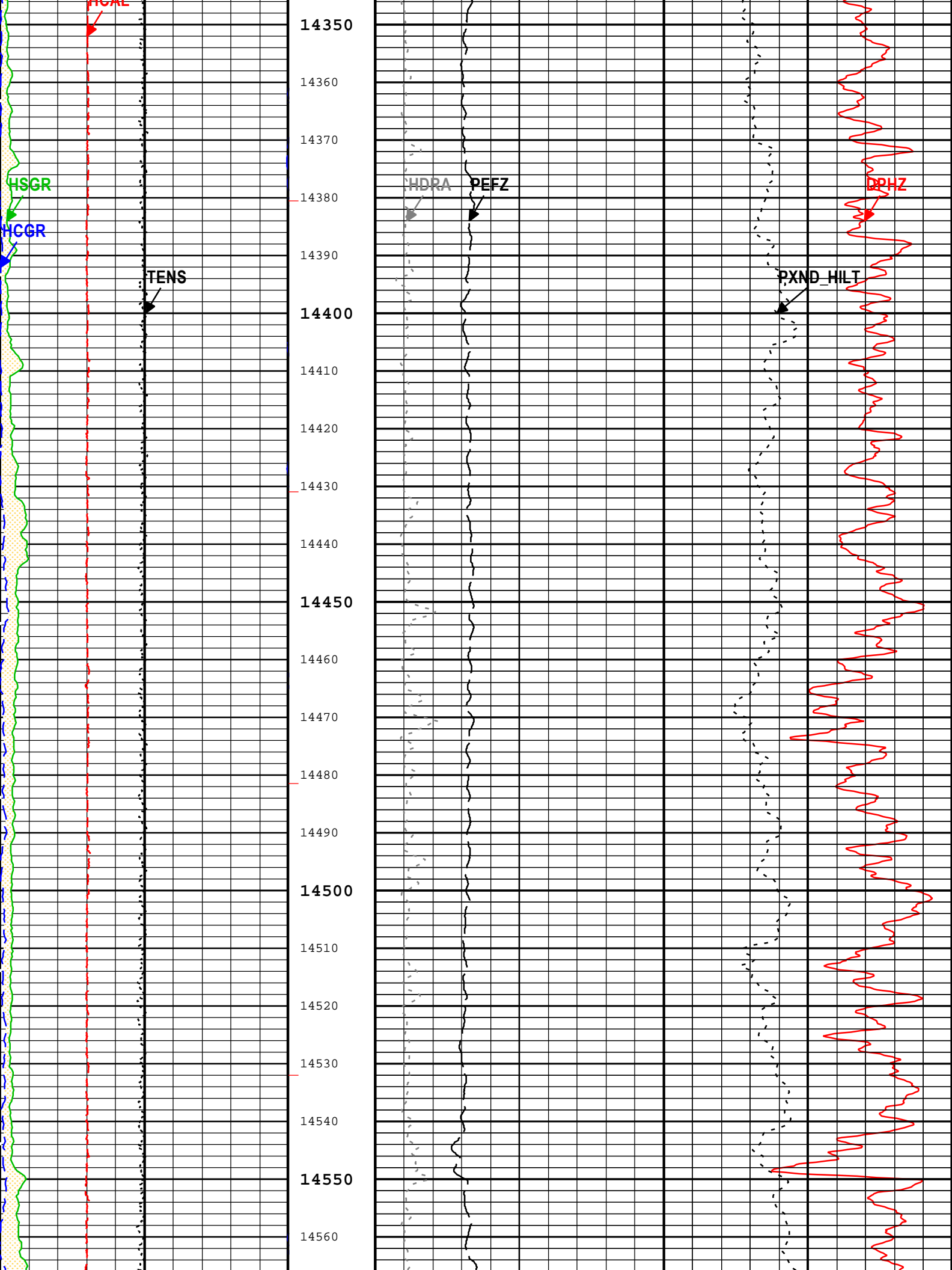
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H	
0	10

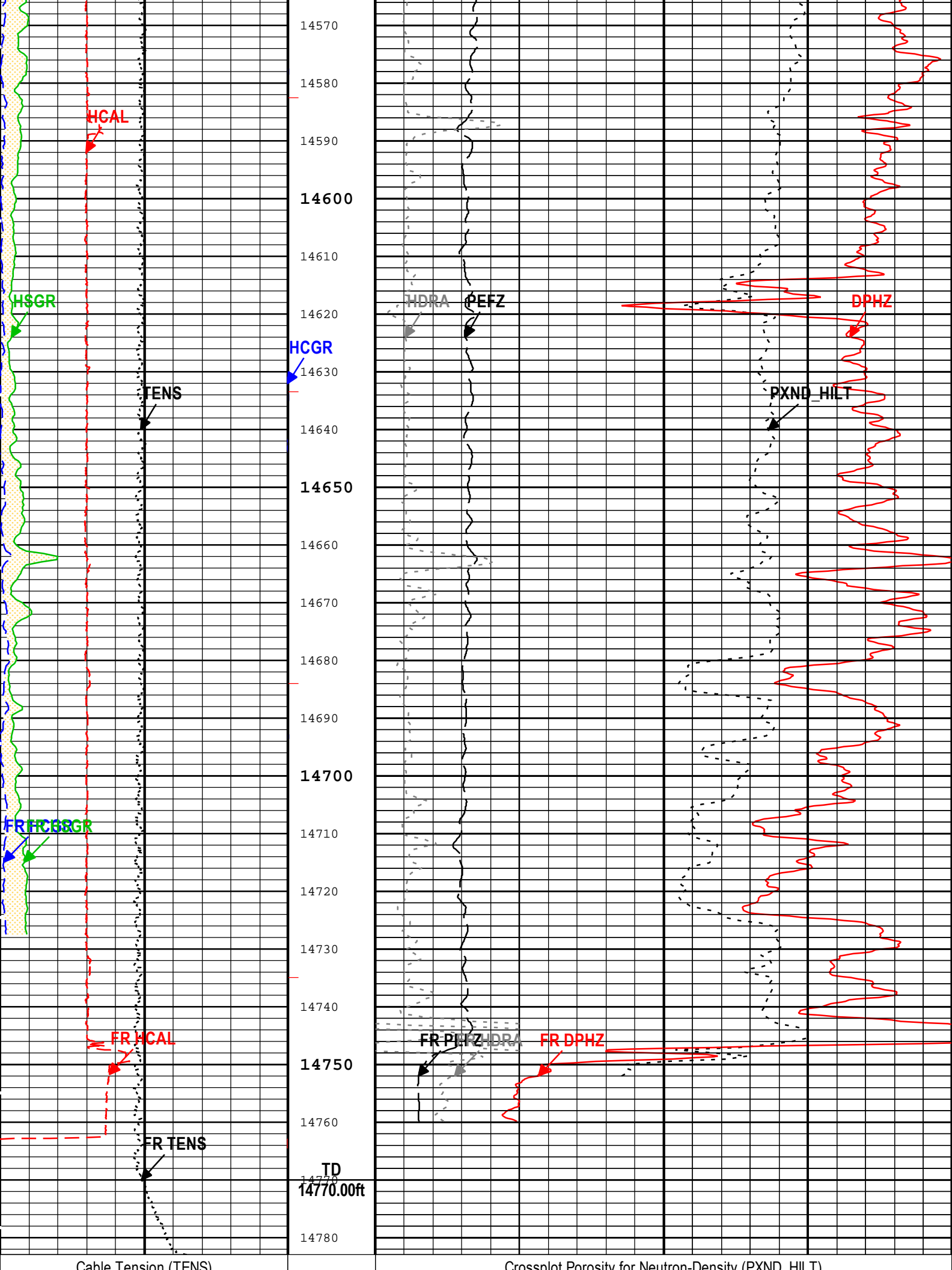












HCAL

HSGR

HCGR

TENS

HDRA

PEFZ

DPHZ

PXND\_HILT

FR HCGR

FR HCAL

FR TENS

FR PEFZ HDRA

FR DPHZ

TD  
14770.00ft

Cable Tension (TENS)

Crossplot Porosity for Neutron-Density (PXND\_HILT)

10000	lbf	0
Gamma Ray Contribution from Thorium and Potassium (HCGR) HNGS-BA		
0	gAPI	150
Spectroscopy Gamma Ray (HSGR) HNGS-BA		
0	gAPI	150
Caliper (HCAL) HDRS-H		
3	in	13

0.3	ft3/ft3	-0.1
Standard Resolution Density Porosity (DPHZ) HDRS-H		
0.3	ft3/ft3	-0.1
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
0		10
Density Standoff Correction (HDRA) HDRS-H		
-0.05	g/cm3	0.2

—ICV - Integrated Cement Volume every 10.00 (ft3)  
—ICV - Integrated Cement Volume every 100.00 (ft3)

TIME\_1900 - Time Marked every 60.00 (s)

—IHV - Integrated Hole Volume every 10.00 (ft3)  
—IHV - Integrated Hole Volume every 100.00 (ft3)

Description: HRLT BASIC LOG Format: Log ( Porosity\_5\_Inch ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 11-Dec-2016 15:00:38

## Channel Processing Parameters

### 2A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BHT	Bottom Hole Temperature	Borehole	206	degF
BS	Bit Size	WLSESSION	6	in
BSAL	Borehole Salinity	Borehole	1000	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.25	in
CBLO	Casing Bottom (Logger)	WLSESSION	13635	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Fresh Water	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FD	Fluid Density	Borehole	1.1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
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	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None	
HEMA	Hematite Presence Flag	Borehole	No	
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	60	degF



NPRM	HRDD Nuclear Processing Mode	HDRS-H	High Resolution	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.13	ohm.m
SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes	
SOCO	Standoff Correction Option	HGNS-B	Yes	

## Depth Zone Parameters

Parameter	Value	Start ( ft )	Stop ( ft )
BHS	Cased	13550	13622
BHS	Open	13622	14783

All depth are actual.

## Tool Control Parameters

### 2A: Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BOARD_TYPE	HMCA Board Type	HGNS-B	0	
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Company: DCP Midstream LP

Well: ZIA AGI D2

Field: AGI Devonian Exploration

County: Lea

State: New Mexico

**Schlumberger**

Platform Express

Compensated Neutron Log

Three Detector Litho-Density