

Company: NGL Water Solutions DJ LLC

Well: NGL C5

Field: Wattenberg

County: Weld Country: US

Platform Express

Triple Combo

County:	Weld			
Field:	Wattenberg			
Location:	SWSW Sec29 T2N R64W			
Well:	NGL C5			
Company:	NGL Water Solutions DJ LLC			
Location:		SWSW Sec29 T2N R64W	Elev.:	K.B. 4950.50 ft
		SHL: 234' FSL, 403' FWL		G.L. 4937.00 ft
				D.F. 4949.50 ft
		Permanent Datum:	Ground Level	Elev.: 4937.00 f
		Log Measured From:	Kelly Bushing	13.50 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing		
		API Serial No. 05-123-40645	Max.Hole Deviation	Longitude: -104.58280 degrees Latitude: 40.102965 degrees
Logging Date	14-Mar-2015			

Run Number	TWO		
Depth Driller	10560.00 ft		
Schlumberger Depth	10595.00 ft		
Bottom Log Interval	10595.00 ft		
Top Log Interval	8789.00 ft		
Casing Driller Size @ Depth	7 in @ 8783.00 ft		
Casing Schlumberger	8789 ft		
Bit Size	6.125 in		
Type Fluid In Hole	Water		
Density	9 lbm/gal	36 s	
Fluid Loss	PH 7 cm3	9.5	
MUD		Source of Sample	AIT Measured
RM @ Meas Temp	0.47 ohm.m	@	80 degF
RMF @ Meas Temp	0.36 ohm.m	@	80 degF
RMC @ Meas Temp	0.59 ohm.m	@	80 degF
Source RMF	RMC	Calculated	
RM @ BHT	0.15 @ 261	0.12 @ 261	
Max Recorded Temperatures	261 degF		
Circulation Stopped	14-Mar-2015	14:00:00	
Logger on Bottom	14-Mar-2015	21:06:00	
Unit Number	9115	Fort Morgan	
Recorded By	B Makinson		
Witnessed By	Aaron Palmer		

Disclaimer

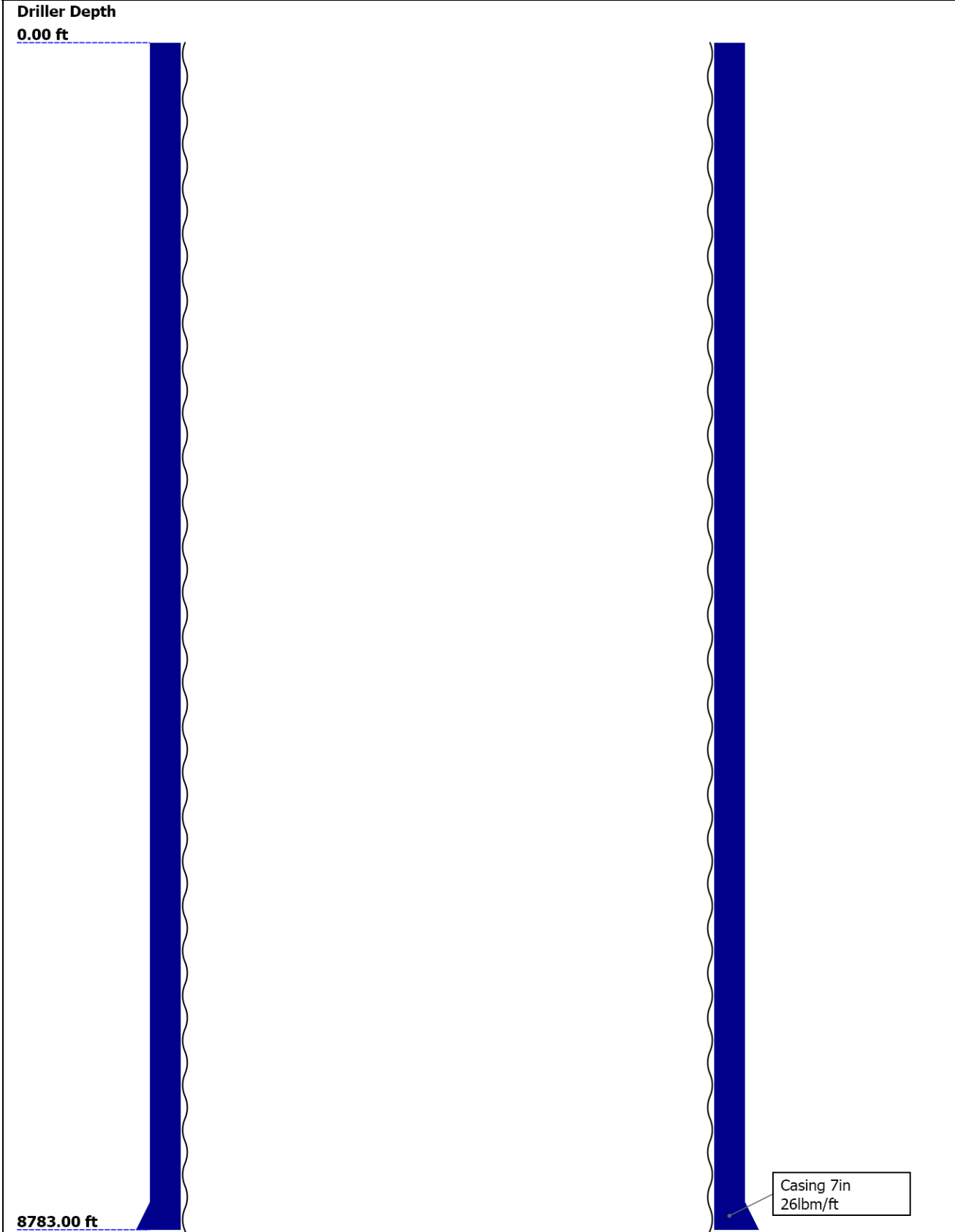
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Well Sketch





Borehole Size/Casing/Tubing Record						
Bit						
Bit Size (in)	6.125					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	10560					
Bottom Logger (ft)	10595					
Casing						
Size (in)	7					
Weight (lbm/ft)	26					
Inner Diameter (in)	6.276					
Grade	N80					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	8783					
Bottom Logger (ft)	8789					

Operational Run Summary						
Parameter (unit)	TWO					
Date Log Started	14-Mar-2015					
Time Log Started	20:18:00					
Date Log Finished	14-Mar-2015					
Time Log Finished	22:08:22					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)	10595.00					
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	6.125					
Logging Unit Number	9115					
Logging Unit Location	Fort Morgan					
Recorded By	B Makinson					

Witnessed By	Aaron Palmer					
Service Order Number	CZOH-00055					

Borehole Fluids						
Parameter(unit)	TWO					
Fluid Type	Water					
Max Recorded Temperatures (degF)	261					
Source of Sample	AIT Measured					
Salinity (ppm)	1100					
Density (lbm/gal)	9					
Funnel Viscosity (s)	36					
Fluid Loss (cm3)	7					
PH	9.5					
Date/Time Circulation Stopped	14-Mar-2015 14:00:00					
Date Logger on Bottom	14-Mar-2015					
Time Logger on Bottom	21:06:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.47 @ 80					
RMF @ Meas Temp (ohm.m@degF)	0.36 @ 80					
RMC @ Meas Temp (ohm.m@degF)	0.59 @ 80					
RM @ BHT (ohm.m@degF)	0.15 @ 261					
RMF @ BHT (ohm.m@degF)	0.12 @ 261					
RMC @ BHT (ohm.m@degF)	0.19 @ 261					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary						
TWO: Toolstring				TWO: Remarks		
Equip name	Length	MP name	Offset	This is the second run in the well. (Subsequent Trip)		
LEH-QT	43.57			Drillers TD: 10560ft.		
LEH-QT				Surface CSG: 1032ft.		
DTC-H	40.65			Intermediate CSG: 8789ft.		
ECH-KC		CTEM	39.75	Caliper shift 0.2"		
DTC-H		HV	0.00	Cement volumes calculated assuming 4.5" FCD.		
HGNS-H:473	37.65	TelStatus	37.65	Toolstring run as per tool sketch.		
6		ToolStatus	37.65	Neutron corrections applied: Hole size and Standoff		
HGNH:2987		Temperatu	37.62	HGNS run without bow spring as per client request. (6.125" hole)		
NSR-F:5069		re		Sandstone 2.65 from CSG to 9200ft.		
NPV-N		GR	36.91	Dolomite 2.87 from 9200ft to 9760ft.		
HACCZ-H:511				Limestone 2.71 from 9760ft to 9948ft.		
8				Sandstone 2.68 from 9948ft to TD.		
HGNS-H:4736						
HMCA-H						
		CNL Porosity	30.57			
		HGNS	28.24			
		HMCA	28.24			
		Accelerom	0.00			

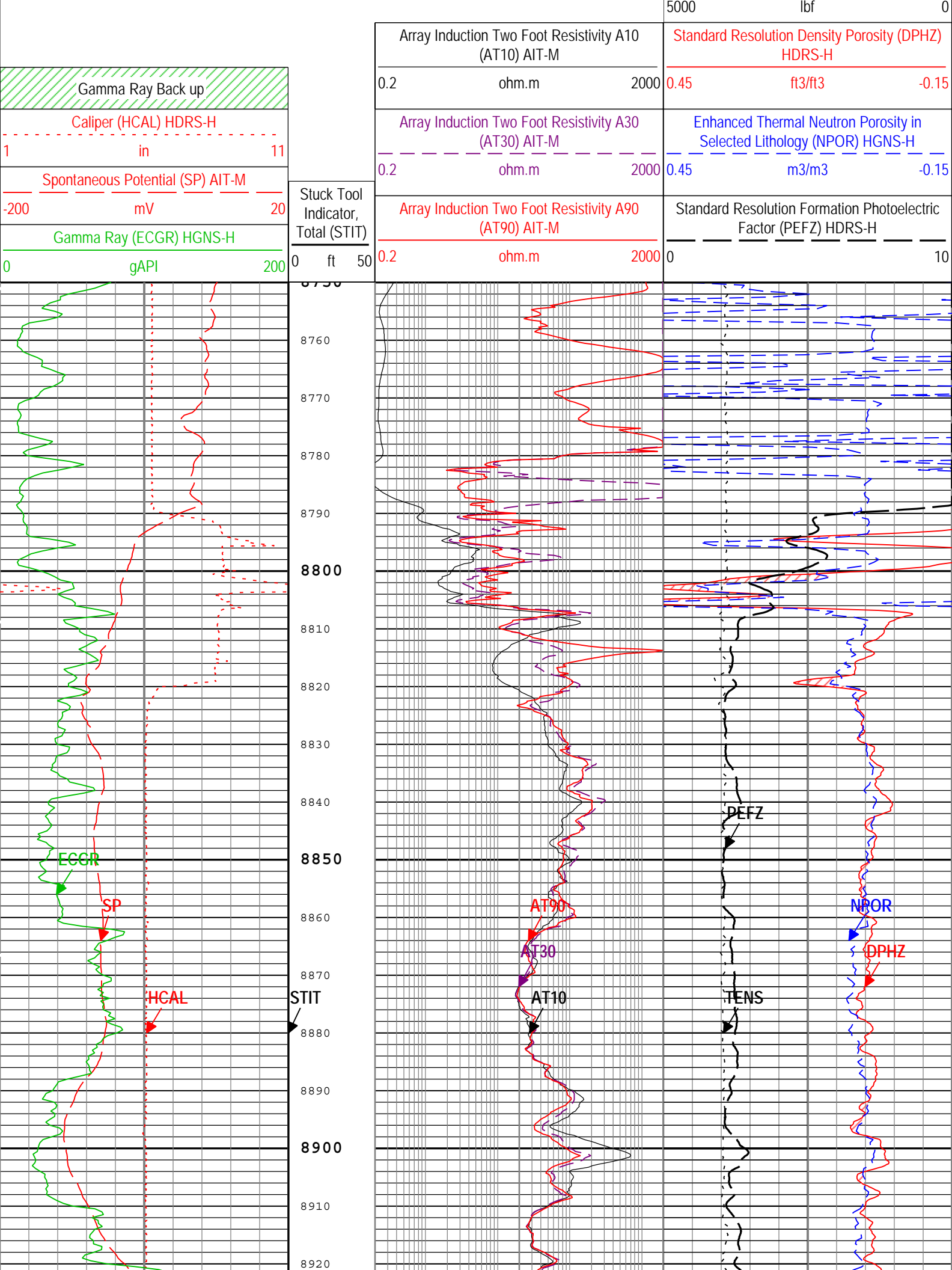
The diagram illustrates a vertical toolstring in a wellbore, with various sensors and components labeled along its length. The toolstring is divided into several sections, each with a specific color and function. The components and their depths are as follows:

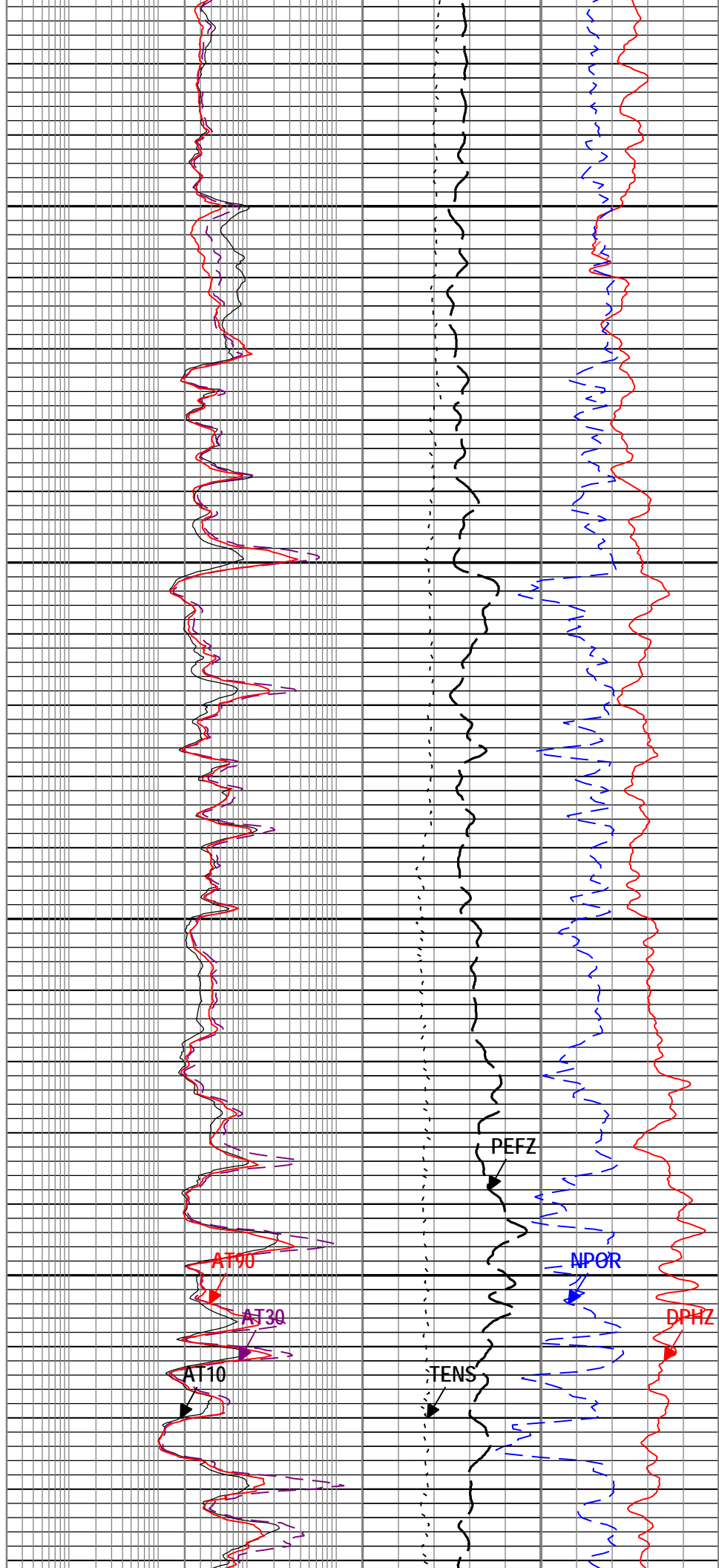
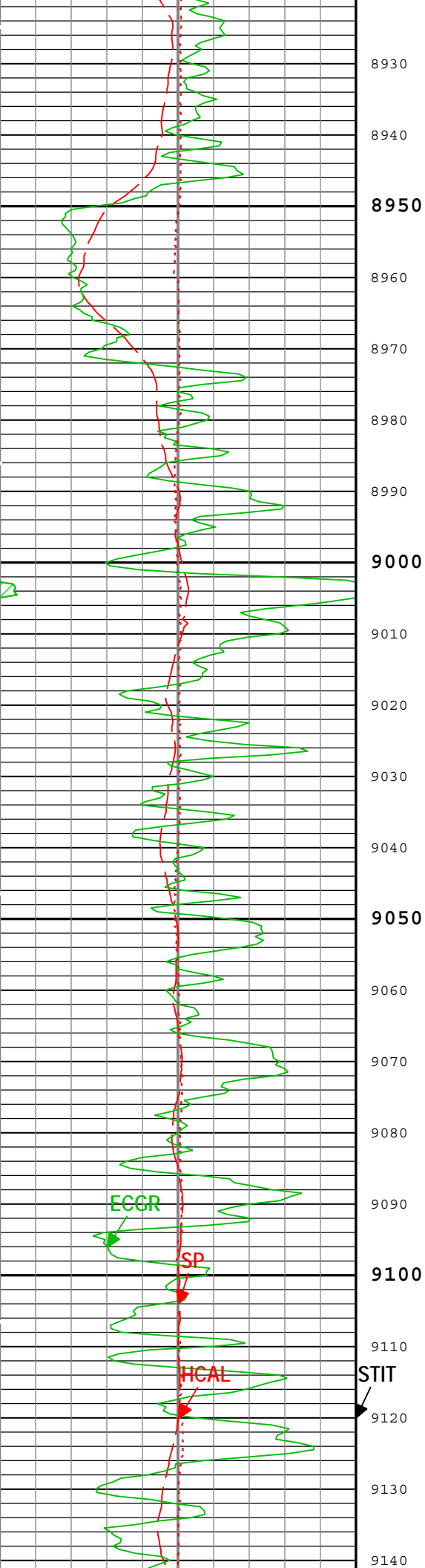
- HRCC (Hole Ranging and Corrosion Control):** Located at the top of the toolstring, with a depth of 24.24 ft.
- MCFL (Mud Column Flow Log):** Located below the HRCC, with a depth of 18.81 ft.
- Caliper:** Located below the MCFL, with a depth of 18.33 ft.
- TLD Dens (Tool Joint Density):** Located below the Caliper, with a depth of 17.94 ft.
- AIT-M:50 (Automatic Inflow Tool):** Located below the TLD Dens, with a depth of 16.00 ft.
- Power Supply:** Located below the AIT-M:50, with a depth of 7.91 ft.
- Induction:** Located below the Power Supply, with a depth of 7.91 ft.
- Temperature:** Located below the Induction, with a depth of 7.91 ft.
- SP (Surface Pressure):** Located at the bottom of the toolstring, with a depth of 0.08 ft.
- Mud Resistivity:** Located below the SP, with a depth of 0.00 ft.
- Head Tension:** Located below the Mud Resistivity, with a depth of 0.00 ft.
- TOOL_ZERO:** Located at the very bottom of the toolstring, with a depth of 0.00 ft.

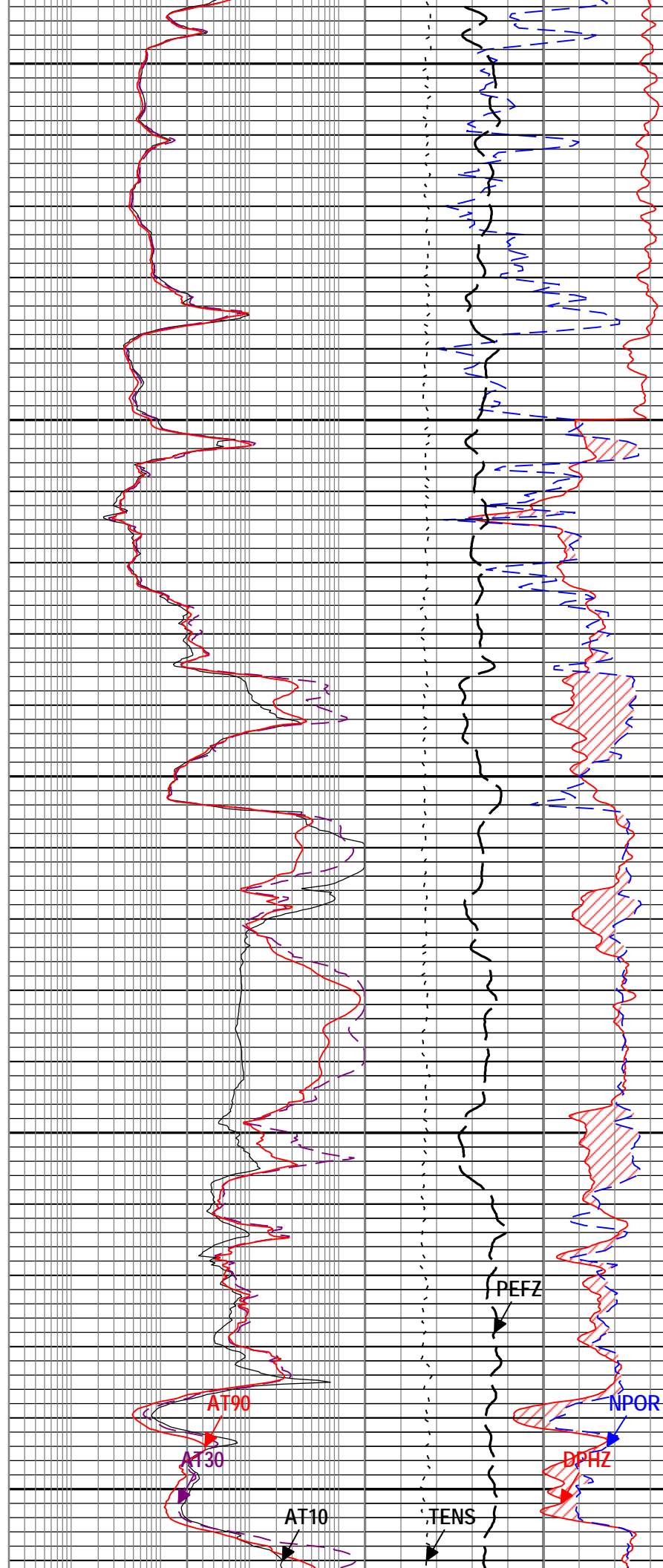
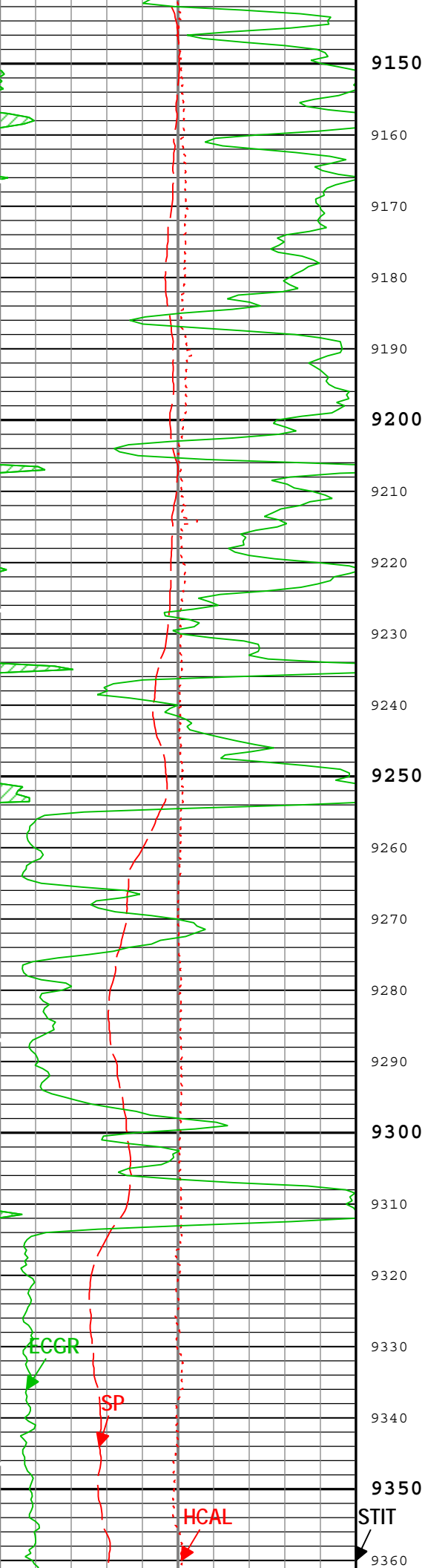
Additional labels on the left side of the diagram include:

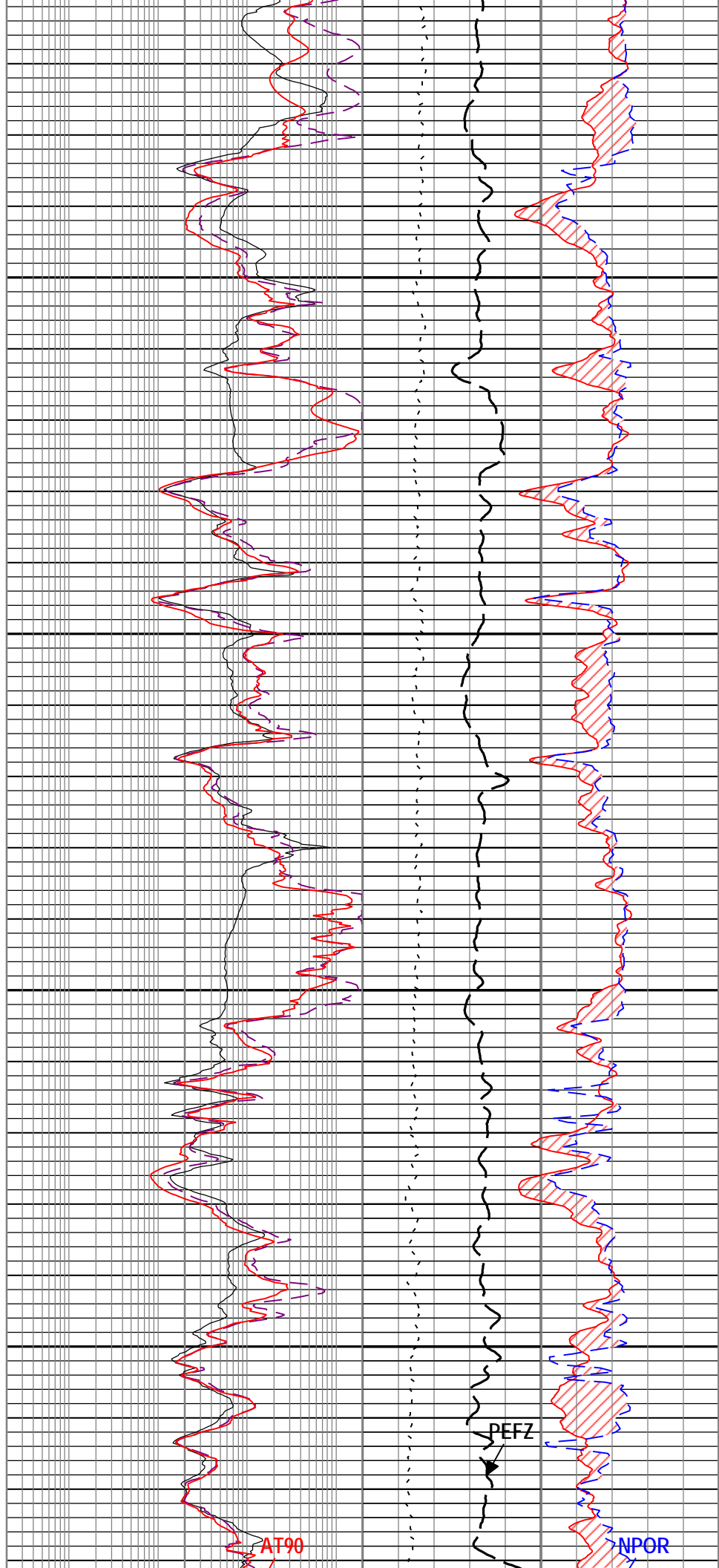
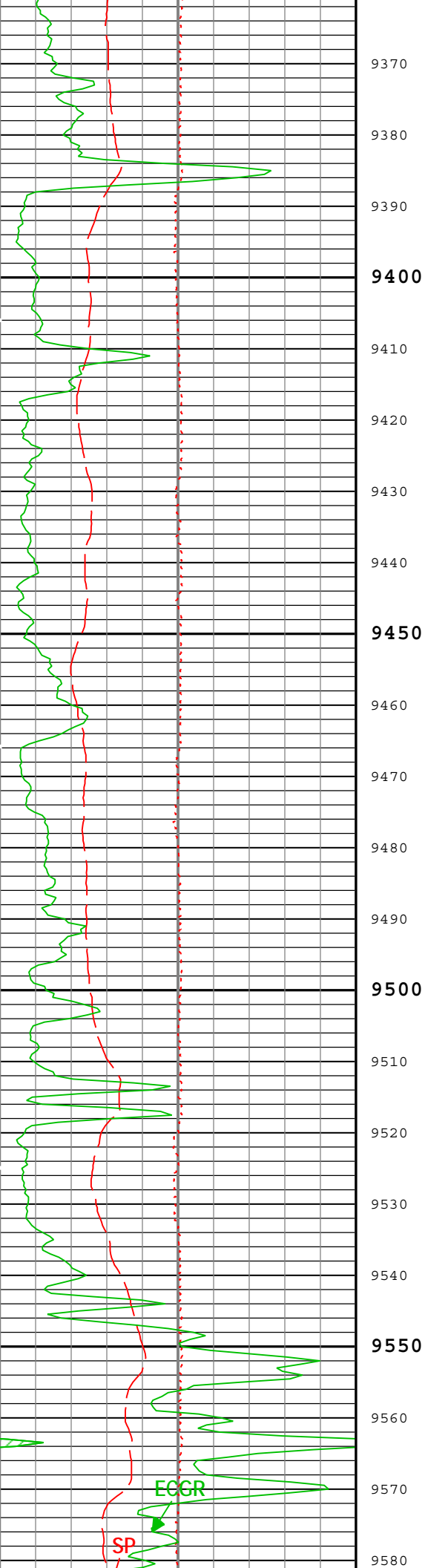
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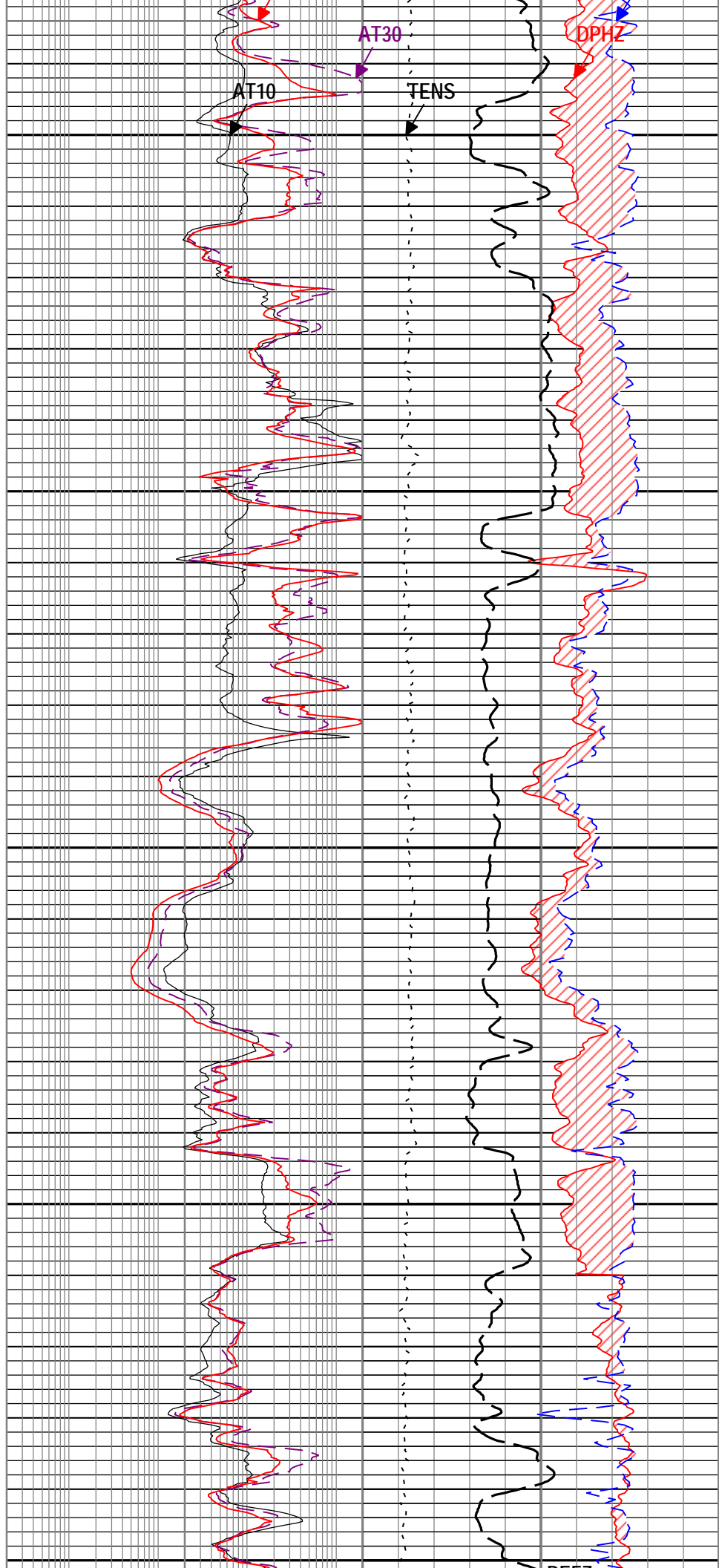
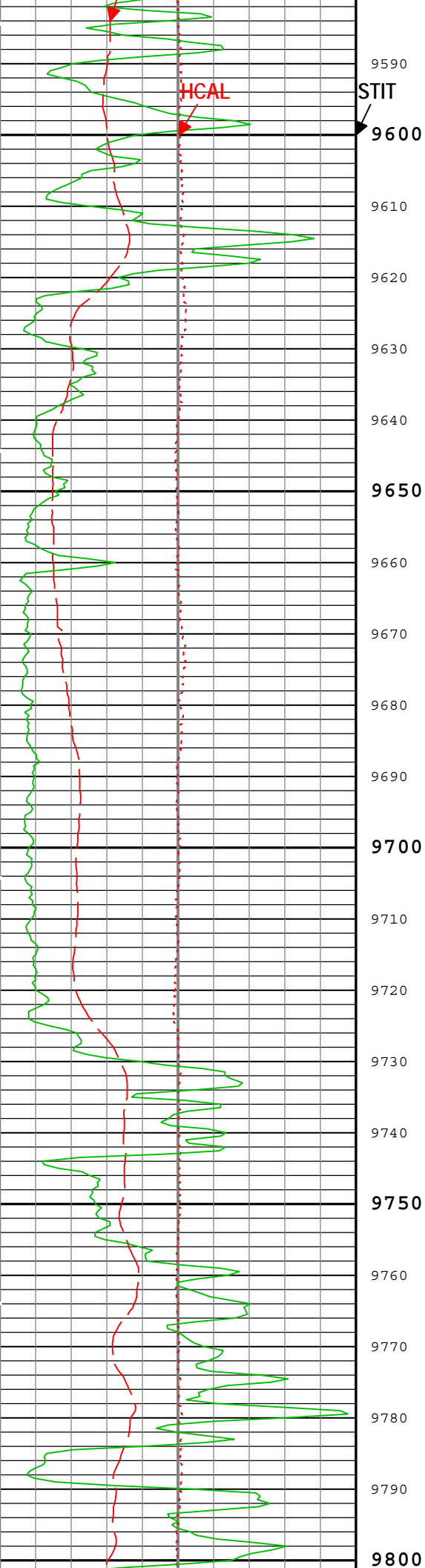
Calibration Date	01-Mar-2015								
Calibrator Serial Number	100513A								
Number of Calibration Points	10								
Calibration Root Mean Square Error	7								
Calibration Peak Error	11								
Logging Cable									
Type	7-46A-XS								
Serial Number									
Length	24900.00 ft								
Conveyance Type	Wireline								
Rig Type	Triple								
TWO:Depth Control Parameters		Depth Control Remarks							
Log Sequence	Subsequent Trip To the Well	All Schlumberger depth control procedures followed.							
Reference Log Name	Platform Express - Triple Combo	IDW used as primary depth control.							
Reference Log Run Number	One	Z-Chart used as secondary depth control.							
Reference Log Date	09-Mar-2015								
Subsequent Trip Down Log Correction	6.24 ft								
TWO									
5" Triple Combo									
Software Version									
Acquisition System		Version							
Maxwell		5.1.33858.3100							
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
TWO	Log[3]:Up	Up	8554.08 ft	10622.28 ft	14-Mar-2015 9:21:09 PM	14-Mar-2015 9:57:19 PM	ON	6.24 ft	No
All depths are referenced to toolstring zero									
Log	Company:NGL Water Solutions DJ LLC Well:NGL C5 TWO: Log[3]:Up:S004								
Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Mar-2015 22:19:25									
Channel	Source	Sampling							
AT10	AIT-M:AMIS:AMIS	3in							
AT30	AIT-M:AMIS:AMIS	3in							
AT90	AIT-M:AMIS:AMIS	3in							
CALI	HDRS-H:HRCC-H:HRCC-H	1in							
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in							
GR	HGNS-H:HGNS-H:HGNS-H	6in							
NPOR	HGNS-H:HGNS-H:HGNS-H	6in							
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in							
SP	AIT-M:AMIS:AMIS	6in							
STIT	DepthCorrection	6in							
TENS	WLWorkflow	6in							
TIME_1900	WLWorkflow	0.1in							
TIME_1900 - Time Marked every 60.00 (s)									
<div>Gas Effect</div> <div>NPOR Backup</div> <div>Cable Tension (TENS)</div>									

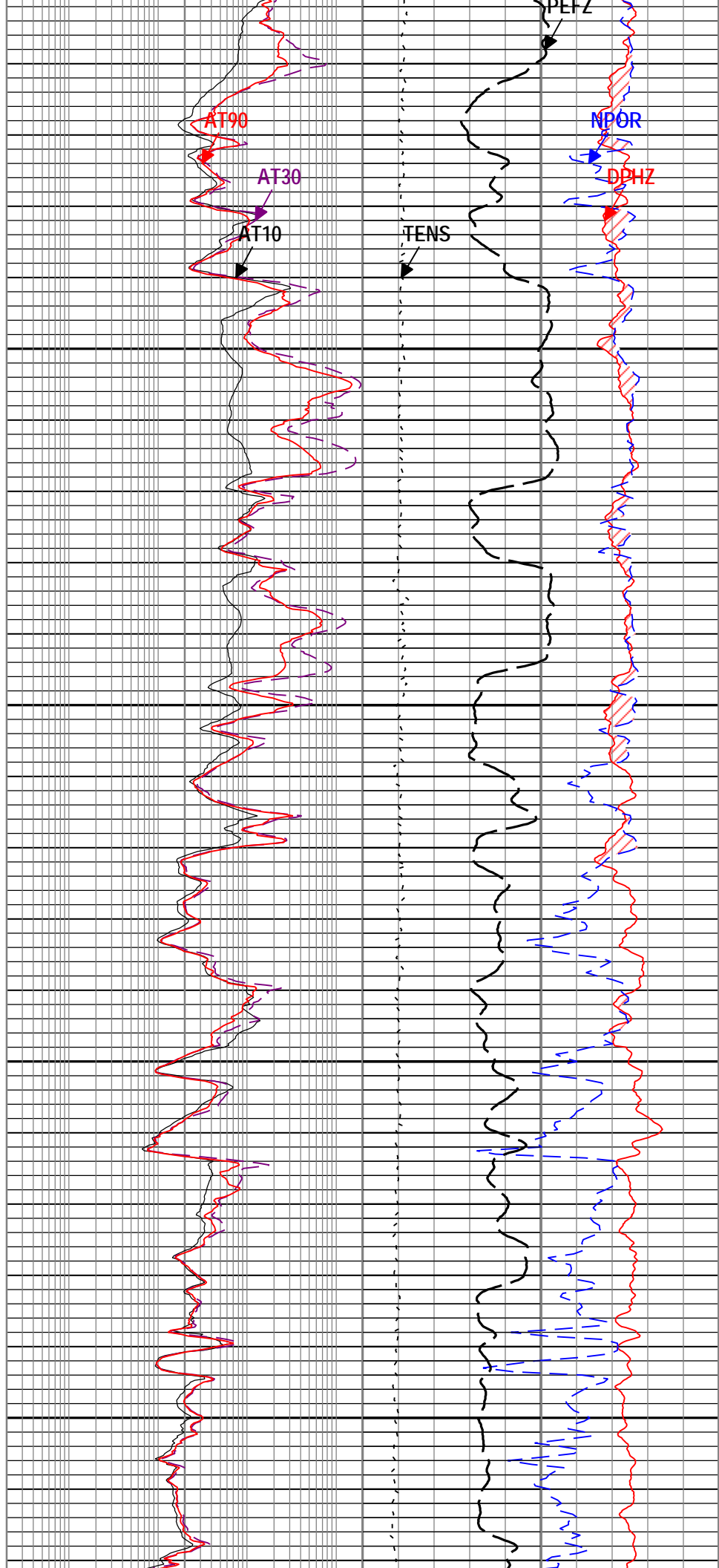
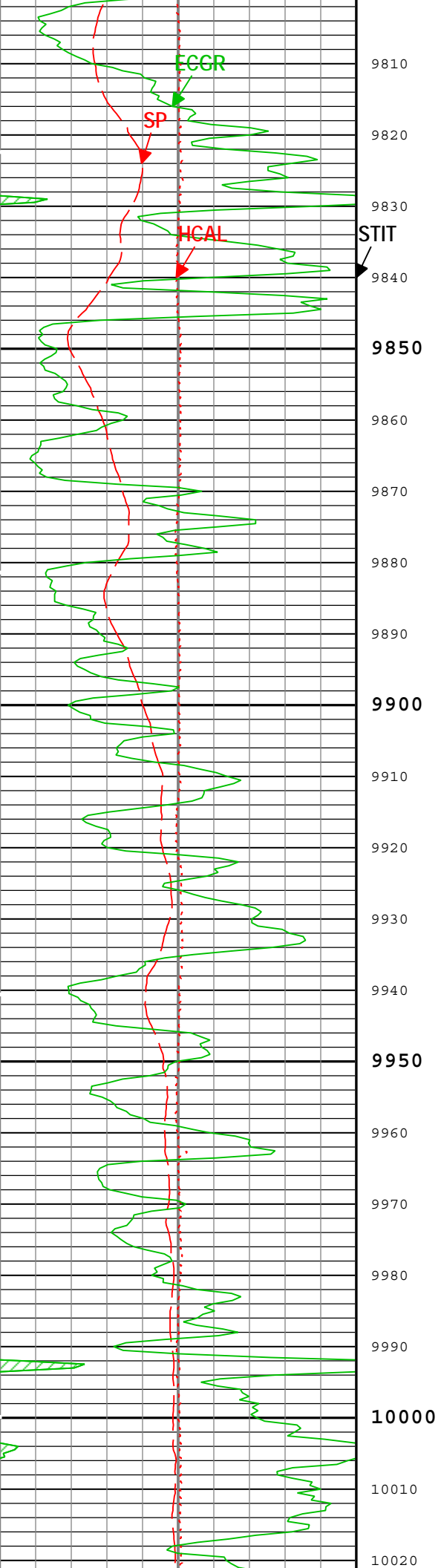


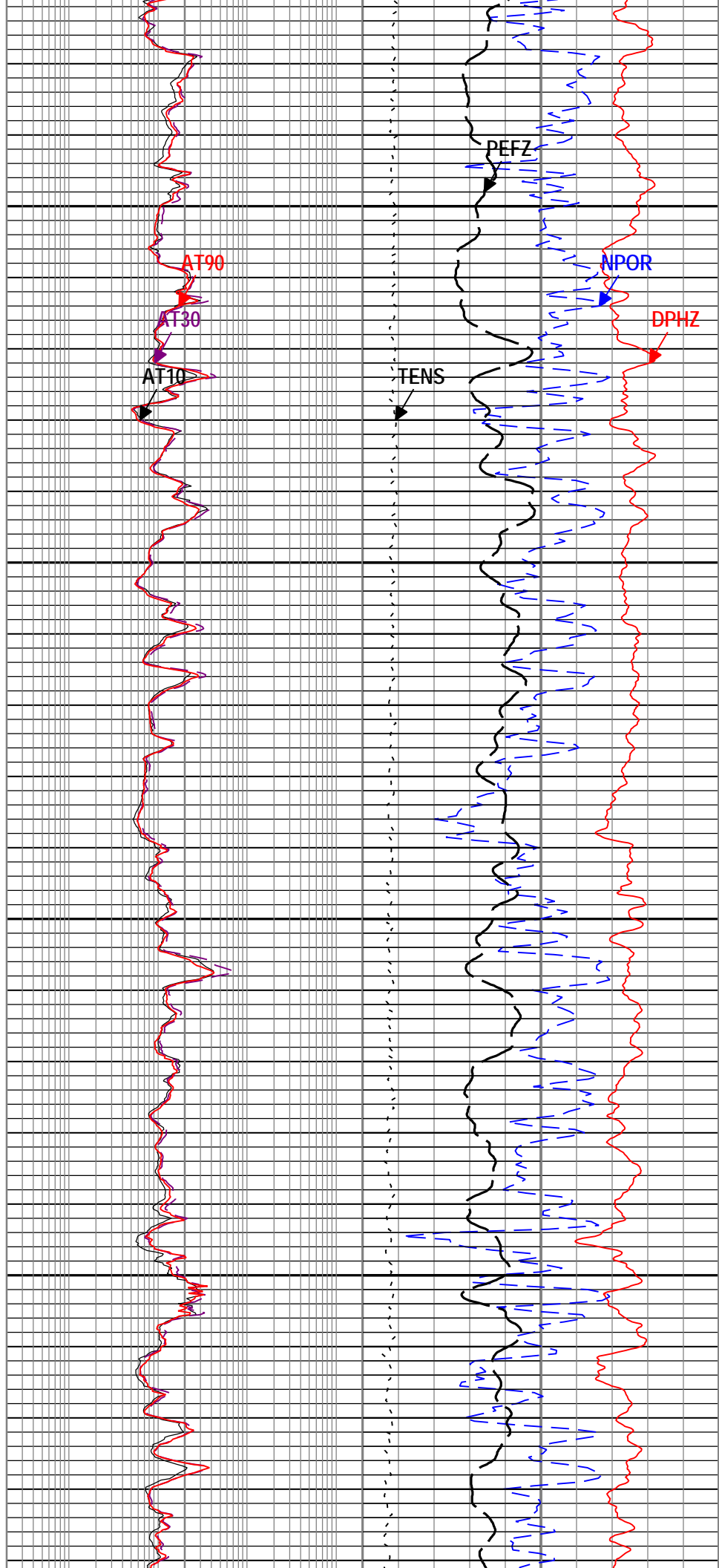
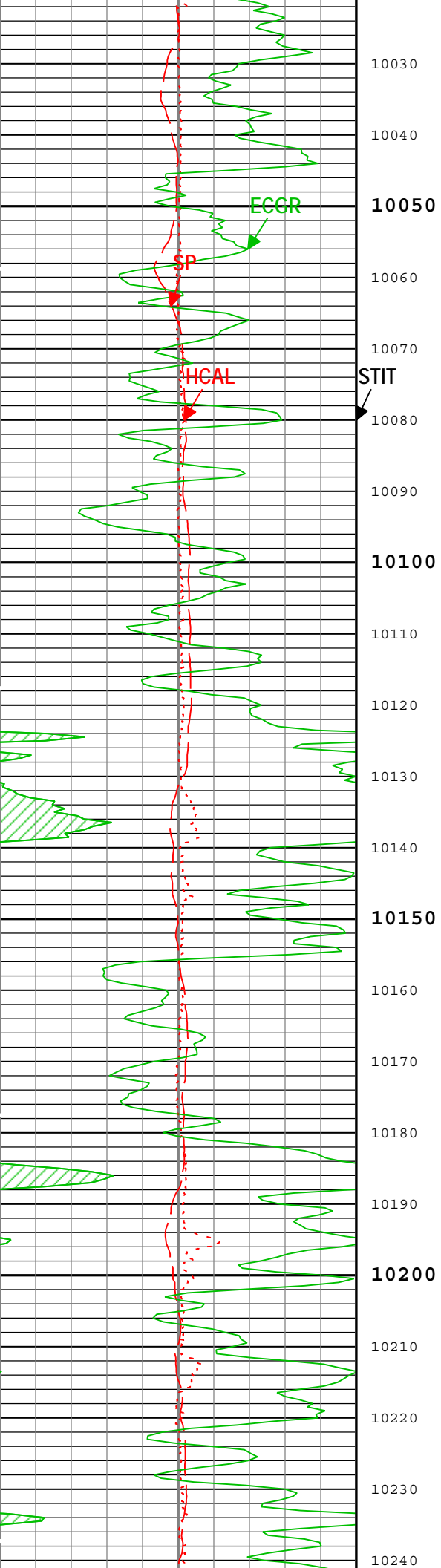


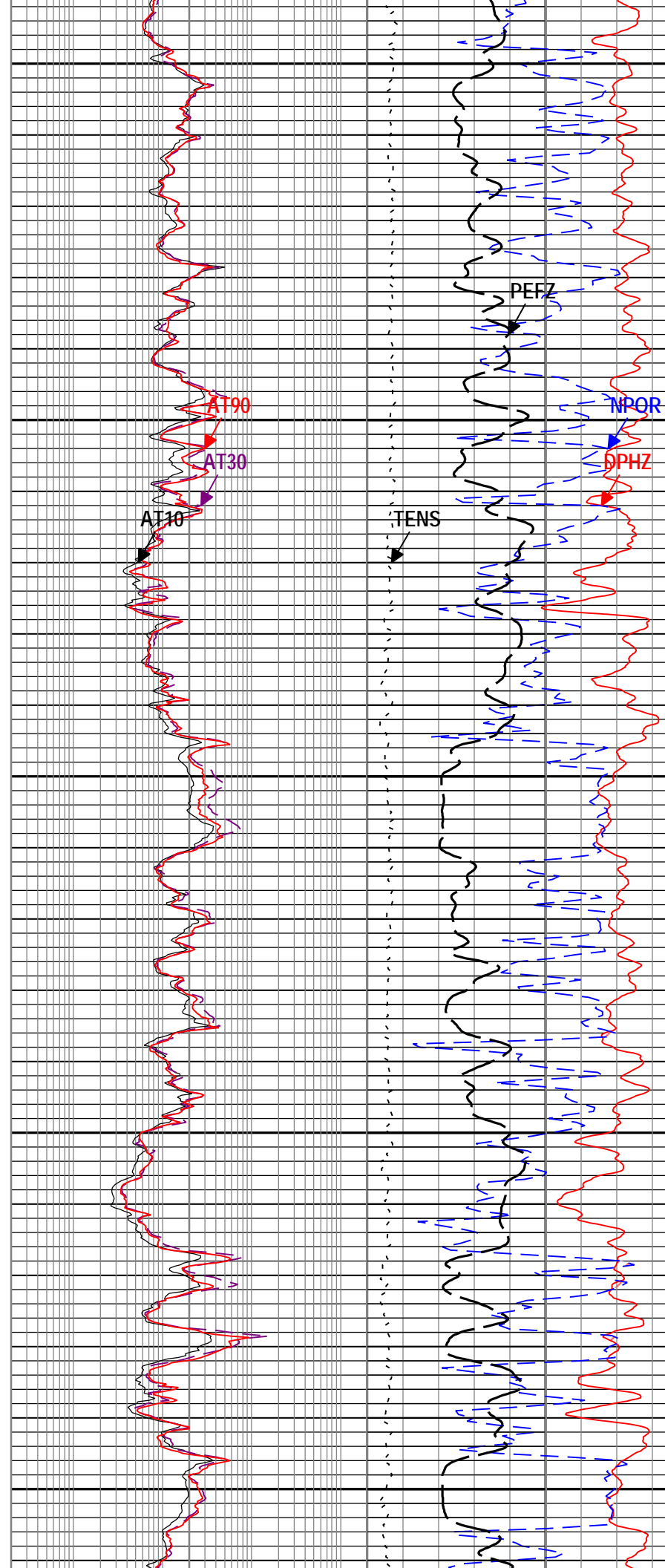
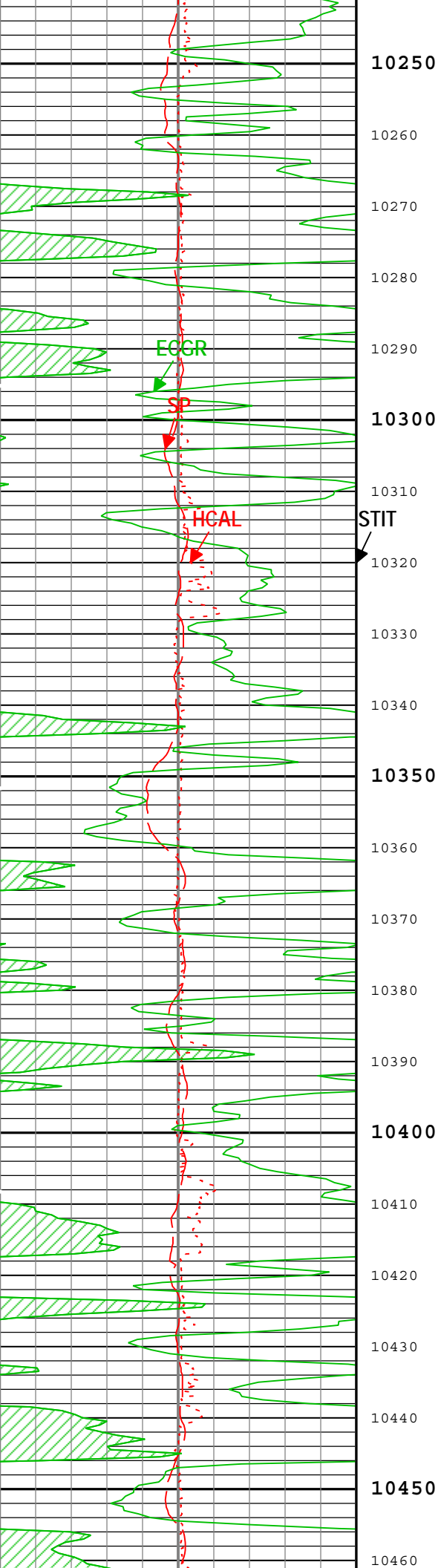


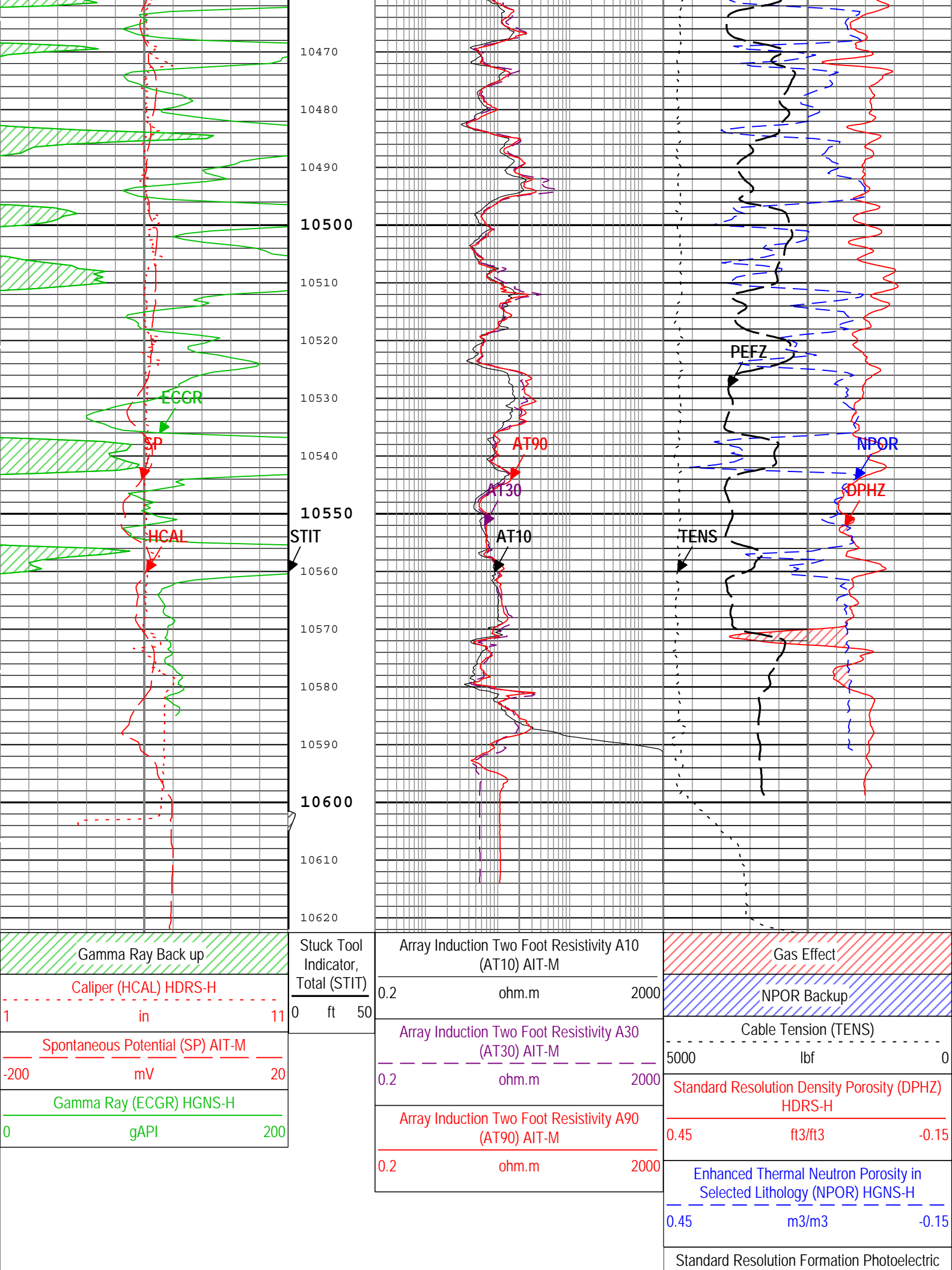




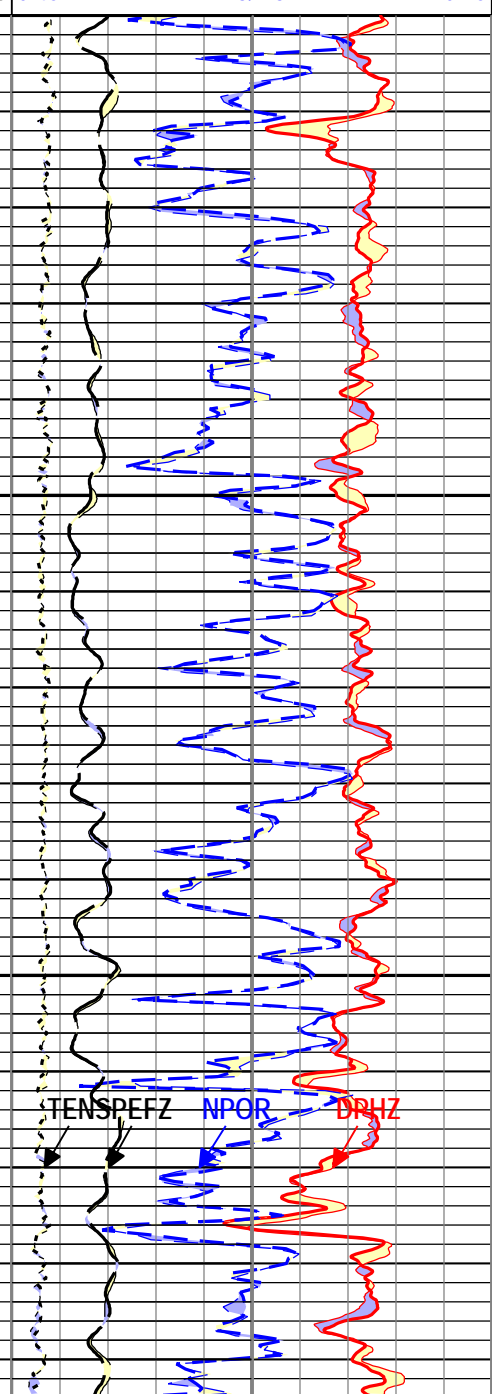
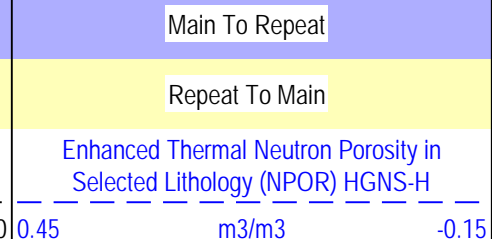
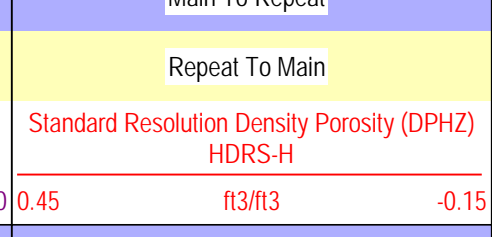
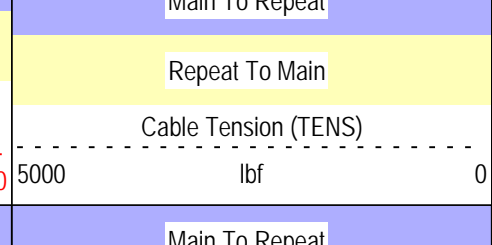
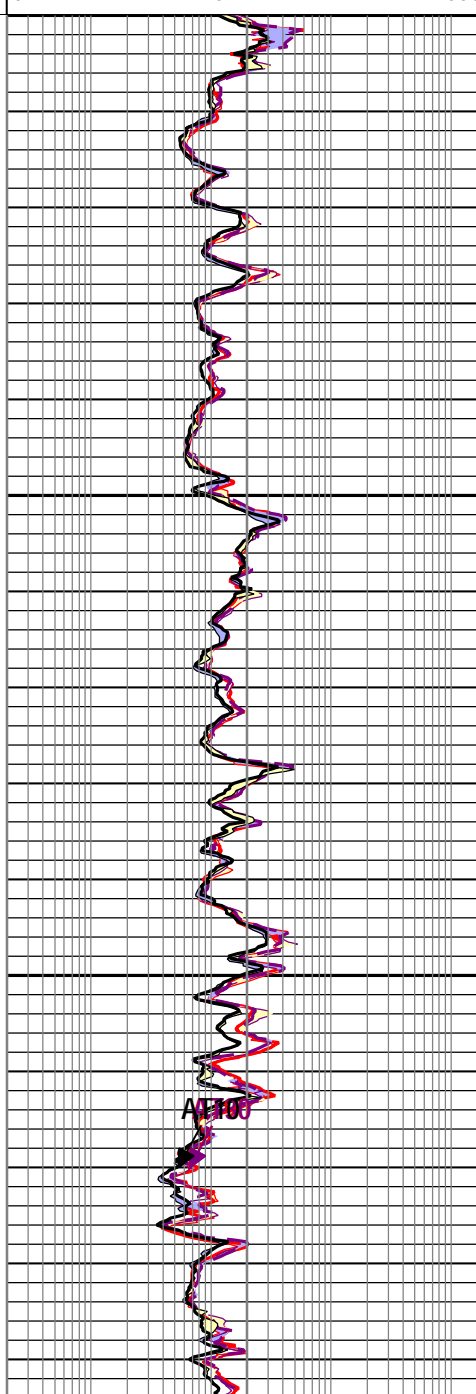
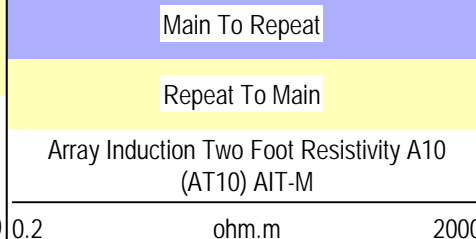
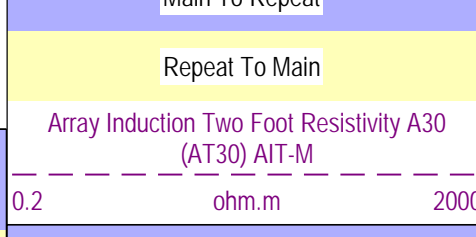
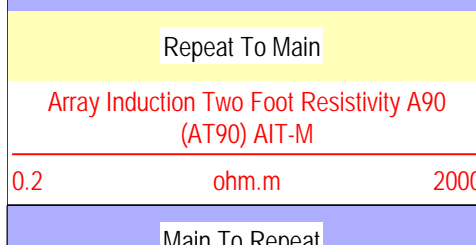
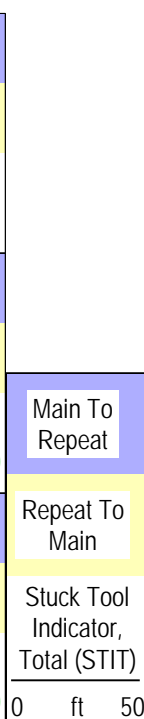
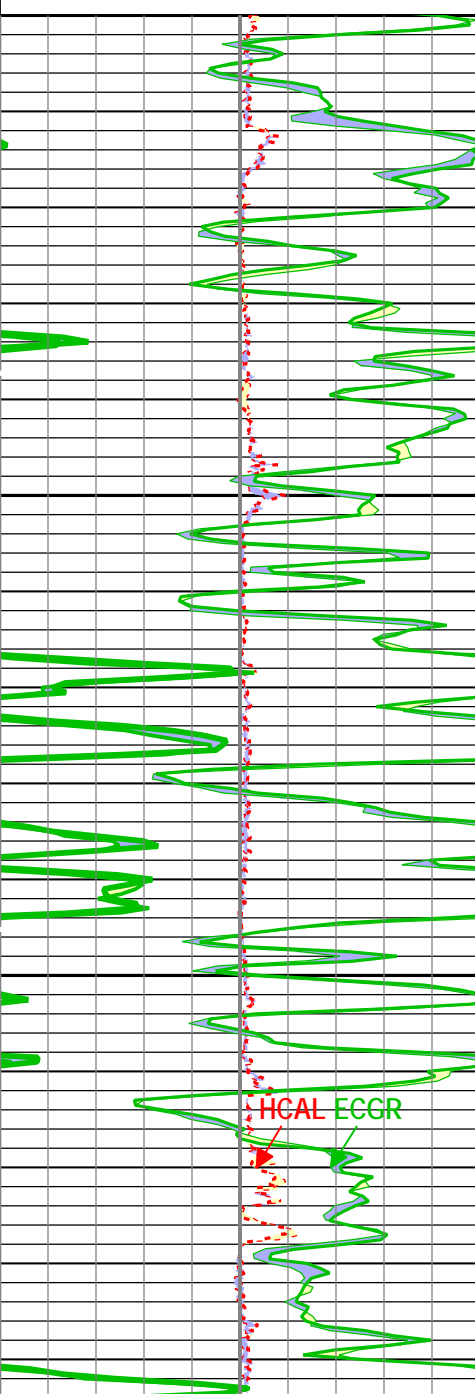
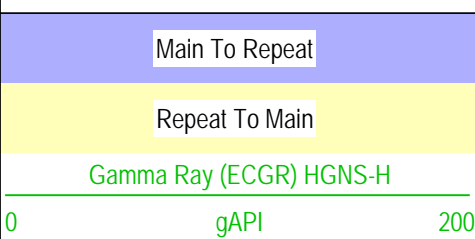
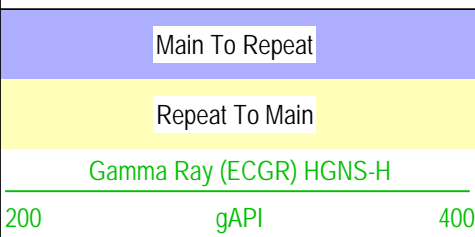
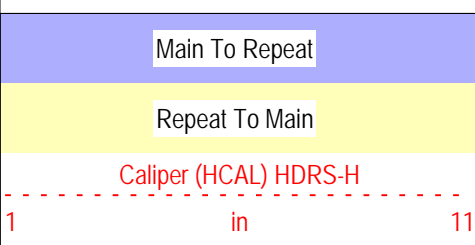


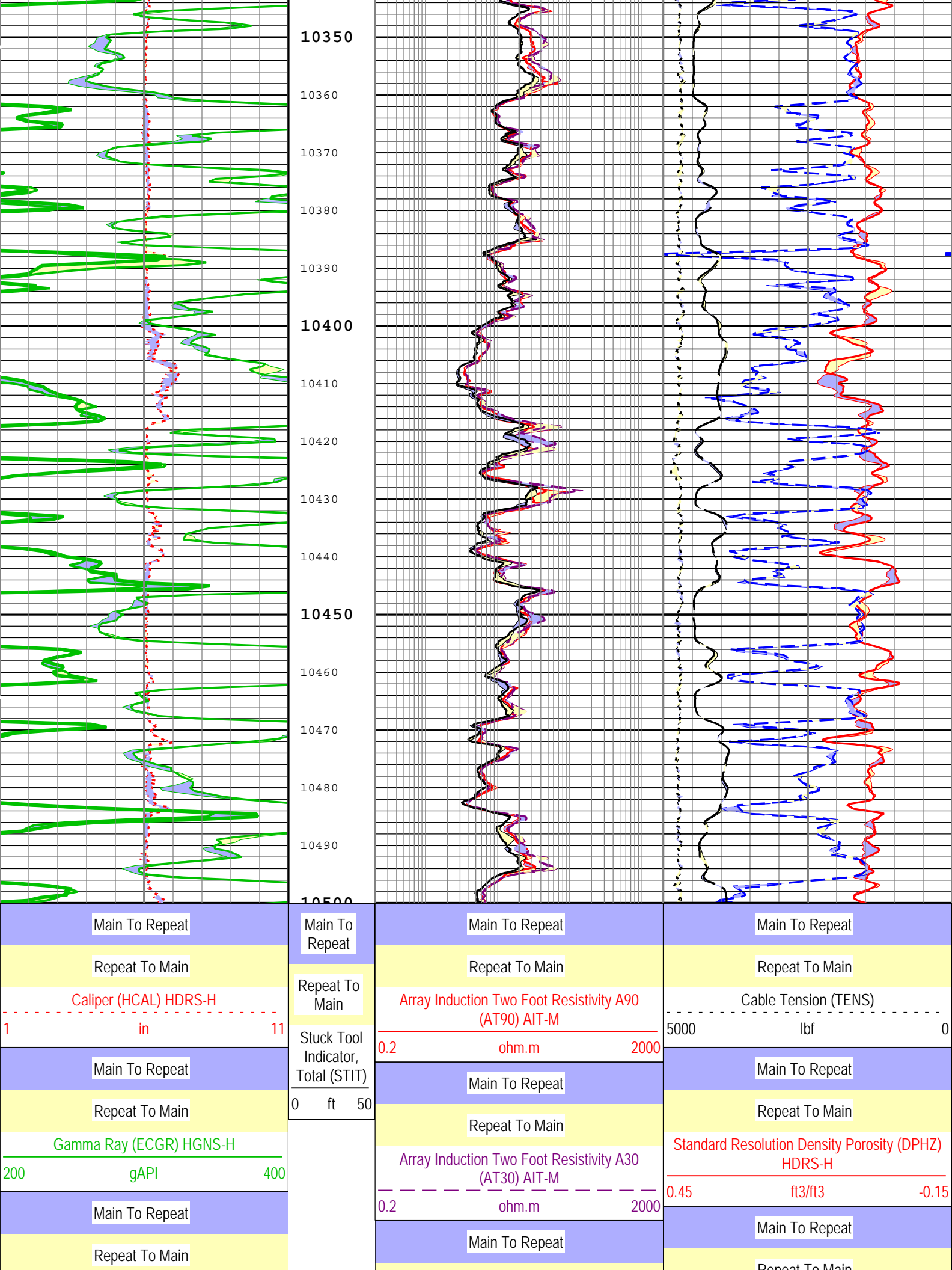






					Factor (PEFZ) HDRS-H					0	10
TIME_1900 - Time Marked every 60.00 (s)											
Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft											
Index Type: Measured Depth Creation Date: 14-Mar-2015 22:19:25											
Channel Processing Parameters											
TWO: Parameters											
Parameter	Description	Tool	Value	Unit							
AAPL	Array Induction Answer Product Level(Depth Log/View only)	AIT-M	Radial								
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff								
ACEN	Array Induction Tool Centering Flag (in Borehole)	AIT-M	Eccentered								
AMRF	Array Induction Mud Resistivity Factor	AIT-M	1								
ASTA	Array Induction Tool Standoff	AIT-M	1	in							
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	AIT-M	Internal								
ISSBAR	Barite Mud Presence Flag	Borehole	No								
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open								
BHT	Bottom Hole Temperature	Borehole	261	degF							
BS	Bit Size	WLSESSION	6.125	in							
BSAL	Borehole Salinity	Borehole	1100	ppm							
BSCO	Borehole Salinity Correction Option	HGNS-H	No								
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.2	in							
CBLO	Casing Bottom (Logger)	WLSESSION	8789	ft							
CCCO	Casing & Cement Thickness Correction Option	HGNS-H	No								
CDEN	Cement Density	HGNS-H	2	g/cm3							
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time								
DFD	Drilling Fluid Density	Borehole	9	lbm/gal							
DFT	Drilling Fluid Type	Borehole	Water								
DHC	Density Hole Correction	HDRS-H	Bit Size								
FD	Fluid Density	Borehole	1	g/cm3							
FSAL	Formation Salinity	Borehole	0	ppm							
FSCO	Formation Salinity Correction Option	HGNS-H	No								
GCLF	Coal-Like Formation	HDRS-H	No								
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								
GR_MULTIPLIER	Gamma Ray Multiplier	HGNS-H	1								
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-H	Yes								
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	Depth Zoned								
MCCO	Mud Cake Correction Option	HGNS-H	No								
MDEN	Matrix Density for Density Porosity	Borehole	Depth Zoned	g/cm3							
MFST	Mud Filtrate Sample Temperature	Borehole	80	degF							
MWCO	Mud Weight Correction Option	HGNS-H	No								
NAAC	Switch for the correction of formation activation by the APS	HDRS-H	Off								
NPRM	HRDD Nuclear Processing Mode	HDRS-H	Standard Resolution								
NTCO	HRDD Nuclear Temperature Correction Option	HDRS-H	On								
PTCO	Pressure Temperature Correction Option	HGNS-H	No								
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.36	ohm.m							





Gamma Ray (ECGR) HGNS-H		
0	gAPI	200

Repeat To Main		
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0.2	ohm.m	2000

Repeat To Main		
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
0.45	m3/m3	-0.15
Main To Repeat		
Repeat To Main		
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
0	10	

TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo RA) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 14-Mar-2015 22:19:28

Calibration Report							
AIT-M (Array Induction Tool - M) Calibration - Run TWO							
Primary Equipment :							
File code for AIT-MA Sonde Tool Element			AMIS		50		
Auxiliary Equipment :							
File code for AIT Bottom Nose Tool Element			AMRM		50		
AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		14:22:14 17-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Test Loop Gain - 0		Master	1.000	0.950	1.015	1.050	<div><div></div><div></div><div></div></div>
Test Loop Phase - 0	deg	Master	0	-3.000	-0.507	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 1		Master	1.000	0.950	1.015	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 1	deg	Master	0	-3.000	-0.651	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 2		Master	1.000	0.950	1.023	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 2	deg	Master	0	-3.000	0.144	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 3		Master	1.000	0.950	1.012	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 3	deg	Master	0	-3.000	0.239	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 4		Master	1.000	0.950	0.995	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 4	deg	Master	0	-3.000	0.155	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 5		Master	1.000	0.950	0.985	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 5	deg	Master	0	-3.000	0.021	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 6		Master	1.000	0.950	0.996	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 6	deg	Master	0	-3.000	0.309	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 7		Master	1.000	0.950	1.006	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 7	deg	Master	0	-3.000	0.054	3.000	<div><div></div><div></div><div></div><div></div></div>

AIT Sonde Calibration - Sonde Error Correction							
Master (EEPROM):		14:22:14 17-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-122.844	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-514.595	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	156.684	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	-161.597	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	114.628	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	112.908	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	67.616	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	-161.279	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	24.670	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	16.335	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	14.727	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	-37.578	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.701	15.000	

Sonde Error Correction Quad - 6	mS/m	Master	-----	-30.000	-5.982	30.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7	mS/m	Master	-----	-5.000	-1.519	5.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7		Master	-----	-30.000	-5.758	30.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
AIT Mud Calibration - Mud Calibration Gain							
Master (EEPROM):		14:22:14 17-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Coarse Gain		Master	1.000	0.800	0.889	1.200	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	0.888	1.200	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
AIT Electronics Check - Thru Calibration Check							
Master (EEPROM):		14:22:14 17-Dec-2014		Before (Measured):		13:01:42 13-Mar-2015 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 0	V	Master	-----	0.366	0.630	0.854	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.366	0.603	0.854	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.027	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 0	deg	Master	-----	137.000	-178.691	-103.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	137.000	-164.918	-103.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	13.773	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 1	V	Master	-----	0.762	1.290	1.778	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.762	1.237	1.778	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.053	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 1	deg	Master	-----	136.000	-179.747	-104.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	136.000	-165.865	-104.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	13.882	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 2	V	Master	-----	0.372	0.640	0.868	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.372	0.613	0.868	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.027	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 2	deg	Master	-----	132.000	176.738	-108.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	132.000	-169.351	-108.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-346.089	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 3	V	Master	-----	0.420	0.721	0.980	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.420	0.691	0.980	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.030	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 3	deg	Master	-----	131.000	175.996	-109.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	131.000	-170.087	-109.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-346.083	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 4	V	Master	-----	0.804	1.353	1.876	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.804	1.297	1.876	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.056	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Master	-----	125.000	169.915	-115.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	125.000	-176.048	-115.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-345.963	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master	-----	1.176	1.968	2.744	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.887	2.744	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.081	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master	-----	122.000	168.313	-118.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	122.000	-177.574	-118.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-345.887	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master	-----	1.176	1.972	2.744	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.886	2.744	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.086	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Master	-----	121.000	168.315	-119.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	121.000	-177.551	-119.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-345.866	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 7	V	Master	-----	0.846	1.420	1.974	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.846	1.358	1.974	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.062	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Master	-----	115.000	167.459	-125.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	115.000	-178.301	-125.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-345.760	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
SPA Zero	mV	Master		-50.000	0.170	50.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before		-50.000	0.157	50.000	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.013	-----	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>

SPA Plus	mV	Before Master		941.000	991.089	1040.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		941.000	987.963	1040.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-3.126	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Zero	V	Master		-0.050	0.000	0.050	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		-0.050	0.000	0.050	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Plus	V	Master		0.870	0.918	0.960	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		0.870	0.915	0.960	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.003	-----	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run TWO			
Primary Equipment :			
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H		4923
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H		3933
Auxiliary Equipment :			
HRDD Backscatter Detector	Backscatter		
HRDD Long Spacing Detector	Long Spacing		28736
HRDD Short Spacing Detector	Short Spacing		
Cesium 137 Gamma-Ray Logging Source	GSR-J		5094
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H		4923
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H		3911
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):		13:04:28 13-Mar-2015 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Small Ring	in	Before	8.00	6.00	7.55	10.00	<div><div></div><div></div><div></div><div></div><div></div></div>
Large Ring	in	Before	12.00	9.00	11.91	15.00	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Inversion Results							
Master (EEPROM):		12:42:32 13-Mar-2015					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Rho Aluminum	g/cm3	Master	2.596	2.586	2.594	2.606	<div><div></div><div></div><div></div><div></div><div></div></div>
Rho Magnesium	g/cm3	Master	1.686	1.676	1.689	1.696	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Aluminum		Master	2.570	2.470	2.578	2.670	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Magnesium		Master	2.650	2.550	2.588	2.750	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Deviation Summary							
Master (EEPROM):		12:42:32 13-Mar-2015					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Average Deviation	%	Master	0	-0.6000	0.2472	0.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Max Deviation	%	Master	0	-1.6000	0.6318	1.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Average Deviation	%	Master	0	-1.0000	0.3490	1.0000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Max Deviation	%	Master	0	-2.5000	0.8701	2.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Average Deviation	%	Master	0	-1.5000	0.8126	1.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Max Deviation	%	Master	0	-3.5000	2.9844	3.5000	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Background Summary							
Master (EEPROM):		12:42:32 13-Mar-2015		Before (Measured):		13:04:26 13-Mar-2015 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Ratio		Master	1.0000		0.7484		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0.7484	0.7110	0.7495	0.7858	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.0011	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Sum	1/s	Master	1		23153		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	23153	21995	23152	24310	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-1	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Ratio		Master	1.0000		0.4876		<div><div></div><div></div><div></div><div></div><div></div></div>

		Before Before-Master	0.4876 -----	0.4633 -----	0.4860 -0.0016	0.5120 -----	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Sum	1/s	Master Before Before-Master	1 10830 -----	10289 -----	10830 10820 -10	11372 -----	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Window Ratio		Master Before Before-Master	1.0000 0.2980 -----	0.2831 -----	0.2980 0.2994 0.0014	0.3128 -----	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Window Sum	1/s	Master Before Before-Master	1 1183 -----	1124 -----	1183 1180 -3	1242 -----	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 12:42:32 13-Mar-2015		Before (Measured): 13:04:26 13-Mar-2015 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS PM High Voltage	V	Master		1000	1623	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1659	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	36	100	<div><div></div><div></div><div></div><div></div><div></div></div>
SS PM High Voltage	V	Master		1000	1480	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1506	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	26	100	<div><div></div><div></div><div></div><div></div><div></div></div>
LS PM High Voltage	V	Master		1000	1288	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1294	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	6	100	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 12:42:32 13-Mar-2015		Before (Measured): 13:04:26 13-Mar-2015 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Crystal Resolution	%	Master		5.00	11.01	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	11.07	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.06	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Crystal Resolution	%	Master		5.00	9.78	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	9.83	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.05	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Crystal Resolution	%	Master		5.00	8.12	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	8.27	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.15	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 13:05:59 13-Mar-2015 Expired by 1 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Main Resistivity	ohm.m	Before	3875	3565	3877	4185	<div><div></div><div></div><div></div><div></div><div></div></div>
Deep Resistivity	ohm.m	Before	3830	3524	3812	4136	<div><div></div><div></div><div></div><div></div><div></div></div>
Shallow Resistivity	ohm.m	Before	3830	3524	3820	4136	<div><div></div><div></div><div></div><div></div><div></div></div>

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run TWO

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC		HGNS-H	4736
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC		HACCZ-H	5118
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): 20:21:41 14-Mar-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>

AZ Vertical Measurement	tt/s2	Before	32.2	31.5	32.1	32.8	
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HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-May-2006

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	2900.000	----	
Accelerometer Coefficients - 1		Master	----	----	19.000	----	
Accelerometer Coefficients - 2		Master	----	----	0.002	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.747	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	299.100	----	
Accelerometer Coefficients - 9		Master	----	----	0.993	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations


Master (EEPROM): 19:10:48 01-Mar-2015 Before (Measured): 13:01:09 13-Mar-2015 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.5	40.0	
		Before	0	5.0	26.6	40.0	
		Before-Master	----	-4.1	-0.9	4.1	
Far Zero Measurement	1/s	Master	0	5.0	29.3	40.0	
		Before	0	5.0	26.4	40.0	
		Before-Master	----	-4.4	-2.9	4.4	
Near Plus Measurement	1/s	Master	6031.0	4700.0	4886.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2048.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	4973.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2092.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 13:05:02 13-Mar-2015 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	67.8	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	173.0	206.3	
GR Calibration Gain		Before	0.89	0.80	0.95	1.05	

Company:	NGL Water Solutions DJ LLC	
Well:	NGL C5	
Field:	Wattenberg	
County:	Weld	
Country:	US	
Platform Express		
Triple Combo		