Legajos del Pozo LC-668

COMPANIA: **YPF S.A.**

POZO: **YPF.Ch.LC−668**

CAMPO: **LA CAROLINA**

PROVINCIA: **CHUBUT** PAIS: **ARGENTINA**

Schlumberger

COMBINADA

ESCALA: 1/200

Campo: LA CAROLINA
Locacion: CAS
Pozo: YPF.Ch.LC−668
Compania: YPF S.A.

LOCACION

AIT−LDL−CNL−CAL
RFT

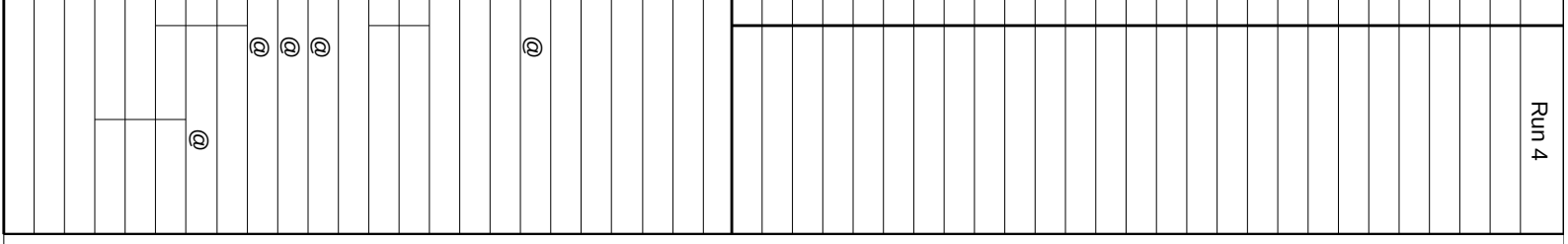
Elev.: B.V. 434.61 m
N. T. 430.06 m
M. R. 434.31 m

Ref. Permanente: NIVEL TERRENO — Elev.: 430.06 m
Reg. Medido Desde: NIVEL TERRENO — 0.0 m sobre nivel ref.
Perforacion Medida Desde: NIVEL TERRENO

UWI: AR0100006442	Equipo PI−245	Longitud X: 4.946.409,71	Latitud Y: 2.571.899,61

	Run 1	Run 2	Run 3
Logging Date			
Run Number			
Depth Driller			
Logger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth		@	
Casing Logger			
Bit Size			
Type Fluid In Hole			
MUD Density / Viscosity			
MUD Fluid Loss / PH			
MUD Source Of Sample			
RM @ Measured Temperature		@	
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF / RMC			
RM @ MRT / RMF @ MRT	@	@	@
Maximum Recorded Temperatures			
Circulation Stopped / Time			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			

Fecha		26−Jun−2005				
Corrida No.		1				
Prof. Perforador		1250 m				
Prof. Registro		1252.1 m				
Primera Lectura		1249.4 m				
Ultima Lectura		114 m				
Fondo Tuberia Perforador		9.625 in @ 113.64 m		@		
Fondo Tuberia Registro		114 m				
Diametro Trepano		8.750 in				
Tipo De Lodo		IDCAP−YESO				
Densidad	Viscosidad	1.19 g/cm3	65 s			
Perdidas	PH	5.5 cm3	8.5			
Fuente Muestra De Lodo		PILETA				
RM @ Temp.		1.540 ohm.m @ 4 degC		@		
RMF @ Temp.		1.220 ohm.m @ 4 degC		@		
RMC @ Temp.		1.610 ohm.m @ 9 degC		@		
Fuente: RMF	RMC	PRENSA	PRENSA			
RM @ T. Fdo.	RMF @ T. Fdo.	0.525 @ 54	0.416 @ 54	@	@	
Temp. Maxima Medida		54 degC				
Circulacion Final	Hora	26−Jun−2005	2:00			
Registro Fondo	Hora	26−Jun−2005	7:53			
Unidad No.	Locacion	3122	CAS			
Registrado por:		Roberto Zerkowski				
Testigo		Anibal Silveira				



DEPTH SUMMARY LISTING

Date Created: 27−JUN−2005 12:06:19

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−42P−XS
Serial Number:	4810	Serial Number:	2193	Serial Number:	4127
Calibration Date:	06−Apr−2005	Calibration Date:	03−Feb−2005	Length:	4810.05 M
Calibrator Serial Number:	5969	Calibrator Serial Number:	1028	Conveyance Method:	Wireline
Calibration Cable Type:	7−42P−XS	Calibration Gain:	1.02	Rig Type:	LAND
Wheel Correction 1:	−3	Calibration Offset:	−13.00		
Wheel Correction 2:	−4				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	59.50 M
Rig Up Length At Bottom:	59.50 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	1.20 M
Tool Zero Check At Surface:	0.10 M

Depth Control Remarks

1. Primera carrera en el pozo y perfil de referencia de profundidad.
2. Control estandard de profundidad de Schlumberger aplicado a esta carrera.
3. Correccion por estiramiento del cable entre perfil subiendo y bajando = 1.2 m.
4.
5.
6.

OTROS SERVICIOS # 1		OTROS SERVICIOS # 2
OS1:	AIT−LDL−CNL−CAL	OS1:
OS2:	RFT	OS2:
OS3:		OS3:
OS4:		OS4:
OS5:	PI−245	OS5:

OBSERVACIONES: CORRIDA # 1	OBSERVACIONES: CORRIDA # 2
1. Primera carrera en el pozo y perfil de referencia de profundidad.	
2. Herramienta corrida segun diagrama.	
3. Diagrama del pozo segun datos del perforador.	
4. AIT corrida eccentralizada con standoffs de 1,5".	
5. Ultima circulacion termino el 26−Jun−2005 a las 2:00 hs y duro 2:45 hs.	
6. Coordenadas definitivas.	
7. Datos adicionales del lodo: Cl = 700 ppm, Ca = 460 ppm.	
8. Maxima desviacion del pozo segun datos del perforador: 2−1/4 grados.	
9. Maxima temperatura registrada de 54 degC desde termometro en la punta de la herramienta.	

9. Maxima temperatura registrada de 54 degC desde termometro en la punta de la herramienta.

10. FPHI=DPHZ, FNUM=0.81y FEXP=2 utilizados para el calculo de RWA.

11. Lecturas de LDL y CNL afectadas en zonas de mal caliper.

12. CALI, LDL y CNL corridos hasta 750 m a pedido del cliente.

13. Trepano de 8−3/4" desde fondo hasta zapato.

CORRIDA #1			CORRIDA #2		
ORDEN DE SERVICIO:			ORDEN DE SERVICIO:		
VERSION DEL PROGRAMA:		13C0−300	VERSION DEL PROGRAMA:		
NIVEL DEL LODO:		0 m	NIVEL DEL LODO:		
INTERVALO REGISTRADO	COMIENZO	FINAL	INTERVALO REGISTRADO	COMIENZO	FINAL

DESCRIPCION DEL EQUIPO

CORRIDA # 1

CORRIDA # 2

SURFACE I

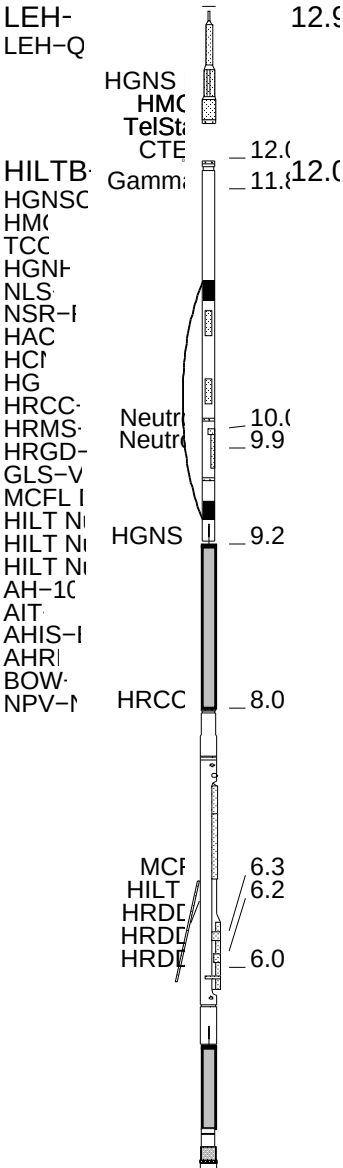
WITM (I NCS−V

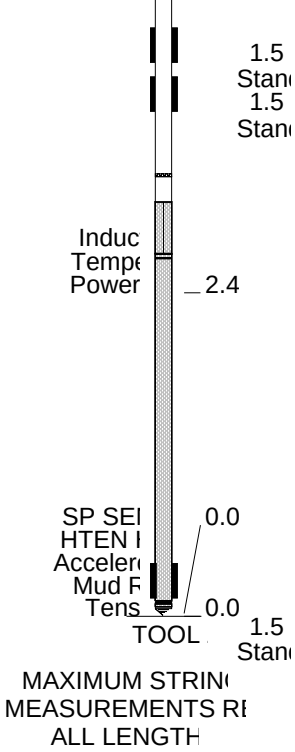
GSR−U

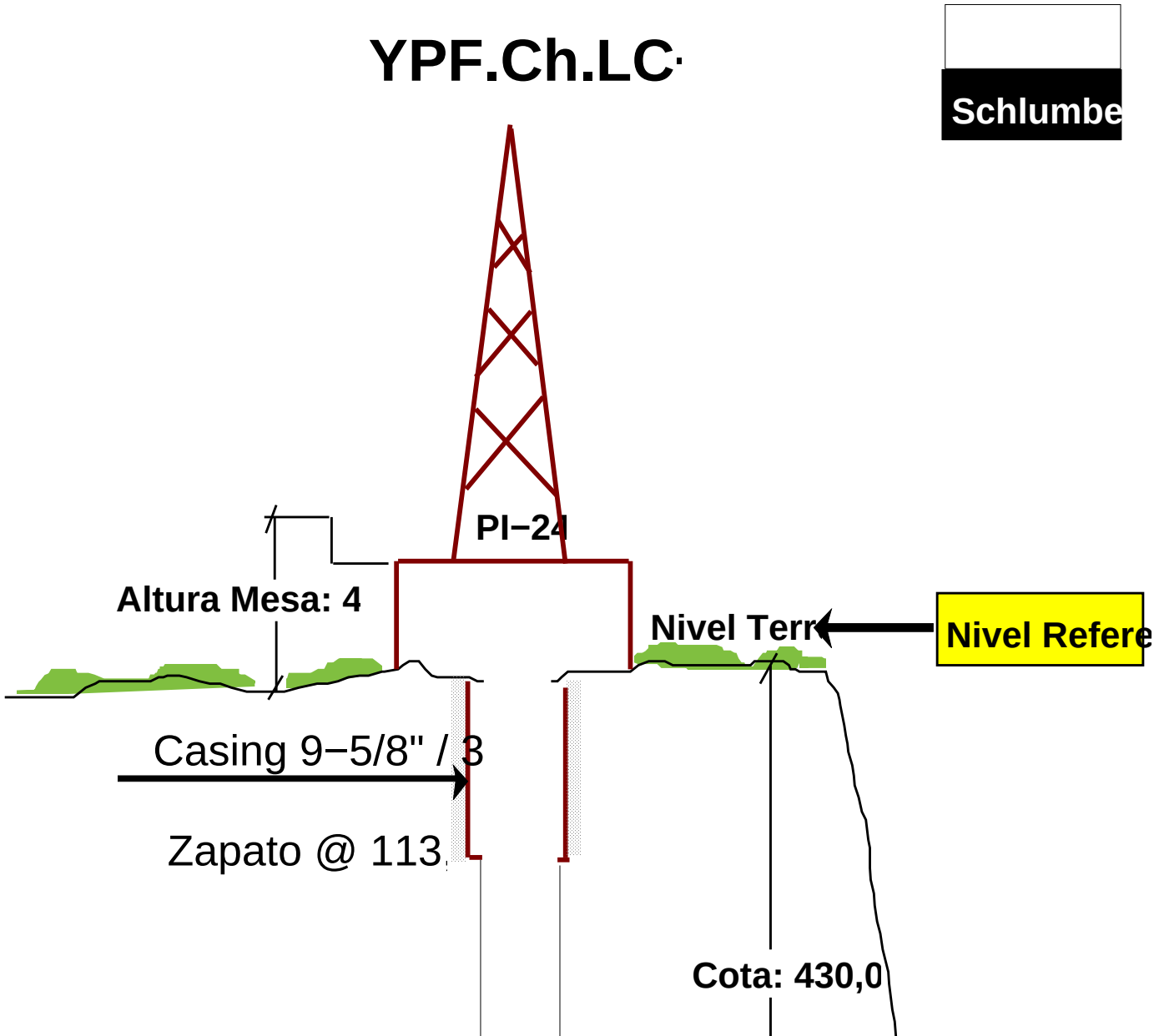
NCT−

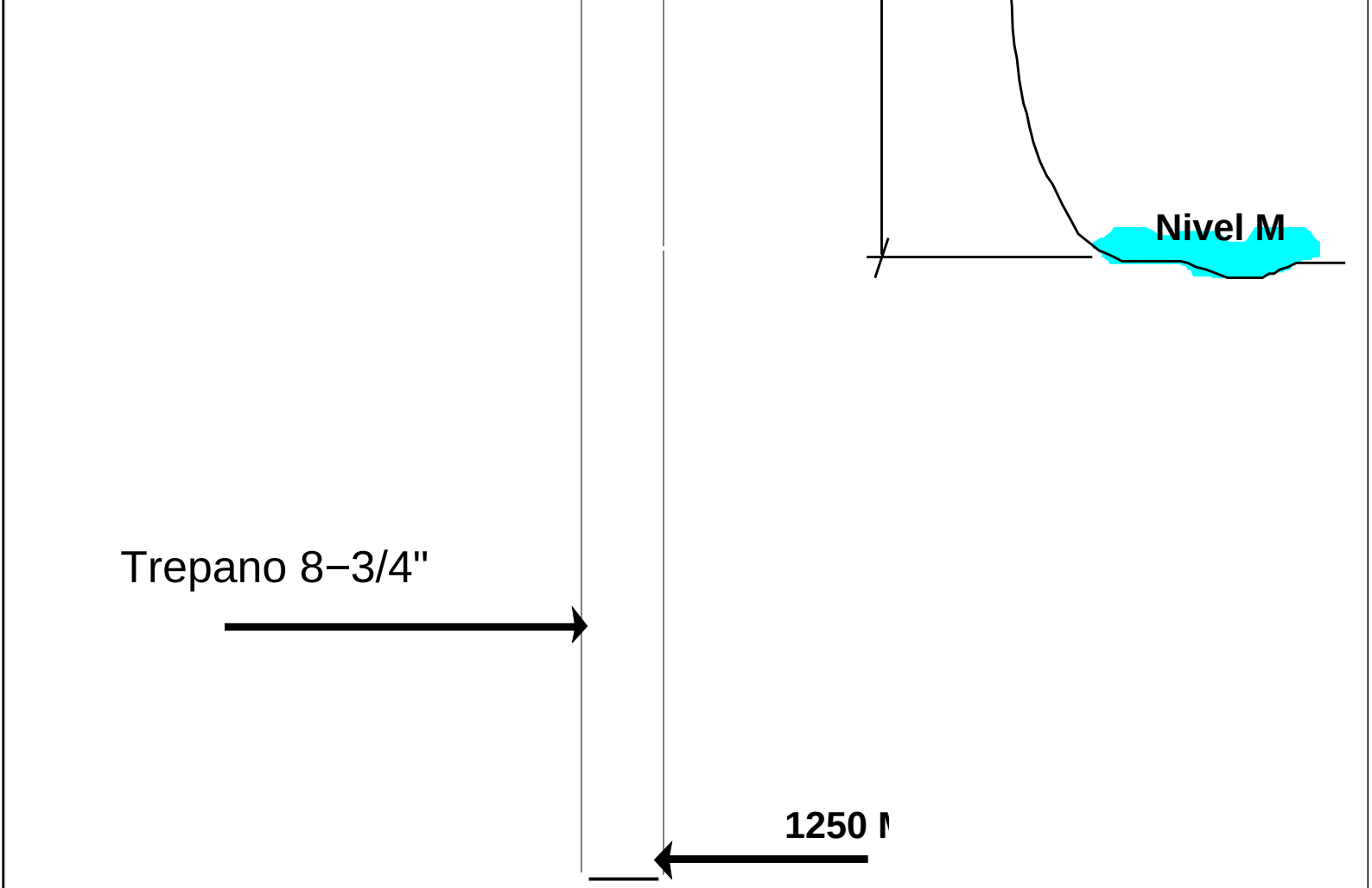
CNB

DOWNHOLE




1.5
Stan
1.5
Stan
Induc
Tempe
Power
2.4
SP SEI
HTEN I
Acceler
Mud F
Tens
0.0
0.0
TOOL
1.5
Stan
MAXIMUM STRIN
MEASUREMENTS RI
ALL LENGTH


YPF.Ch.LC
Schlumbe
PI−24
Altura Mesa: 4
Nivel Terr
Nivel Refere
Casing 9−5/8" / 3
Zapato @ 113
Cota: 430,0



Schlumberger

TRAMO PRINCIPAL

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27−Jun−2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_072PUP	FN:103	PRODUCER	27−Jun−2005 12:24	1258.4 M	100.1 M

Integrated Hole/Cement Volume Summary

Hole Volume = 62.70 M3

Cement Volume = 45.26 M3 (assuming 5.50 IN casing O.D.)

Computed from 1252.0 M to 114.1 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
AHCDE	No	Yes	746.0 12:27:52
SPDR	−0.21 MV/M	0 MV/M	1189.9 12:24:09
	0.23 MV/M	−0.21 MV/M	1170.9 12:24:11
	0 MV/M	0.23 MV/M	1149.9 12:24:13
	0.25 MV/M	0 MV/M	892.9 12:24:40
	0 MV/M	0.25 MV/M	872.9 12:24:42

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

CAVERNA
From BS to HCAL

REVOQUE
From HCAL to BS

SP (SP)
−80 (MV) 20

RWA (RWA)
0 (OHMM) 1

Std. Res. Formation Pe (PEFZ)
0 (−−−− 5

Caliper (HCAL)
6 (IN) 16

Bit Size (BS)
6 (IN) 16

Stuck Stretch (STIT)
0 (M) 20

Tension (TENS) (LBF)
0 1000

AIT−H 90 Inch Investigation (AHT90)
0 (OHMM) 10

AIT−H 60 Inch Investigation (AHT60)
0 (OHMM) 10

AIT−H 30 Inch Investigation (AHT30)
0 (OHMM) 10

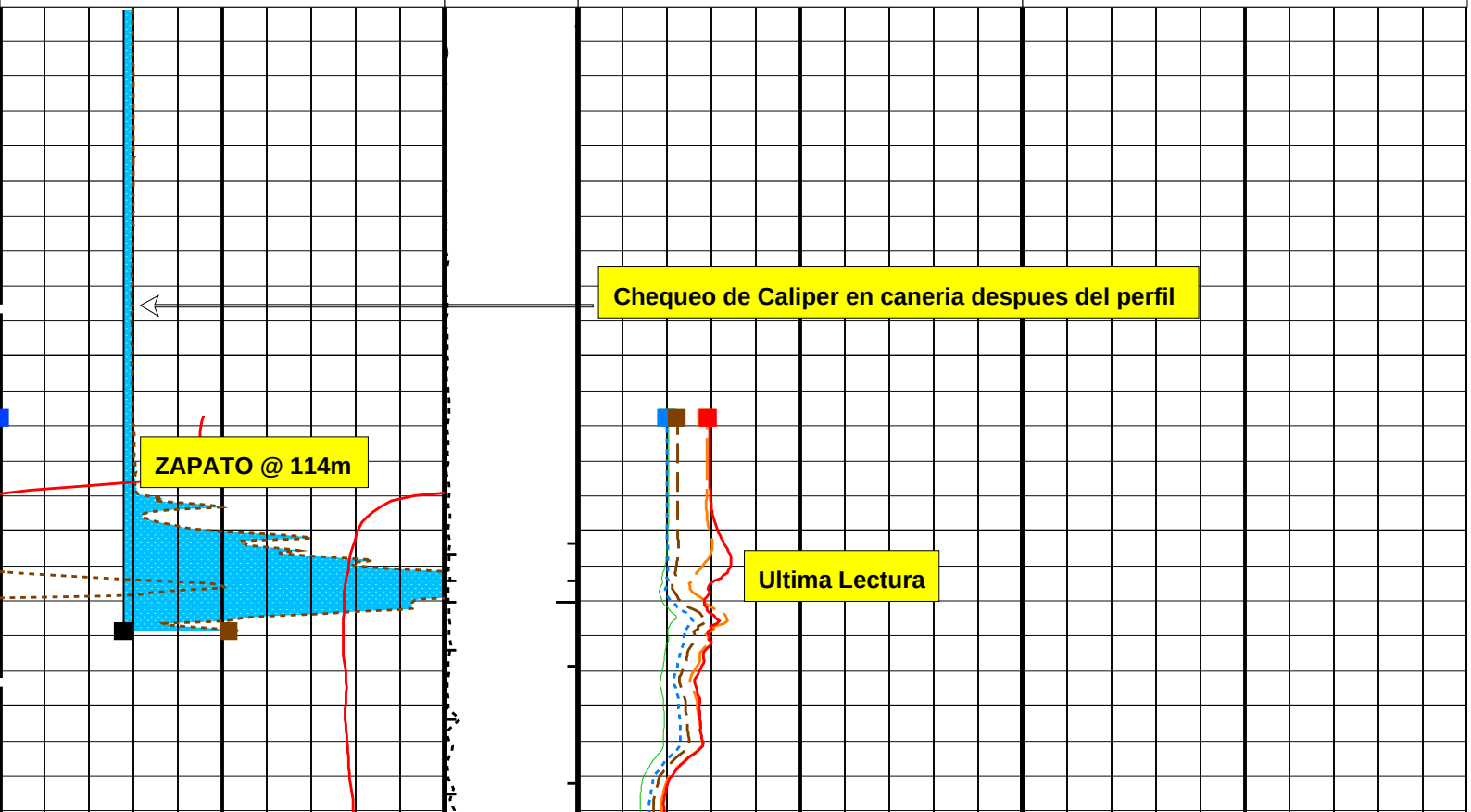
AIT−H 20 Inch Investigation (AHT20)
0 (OHMM) 10

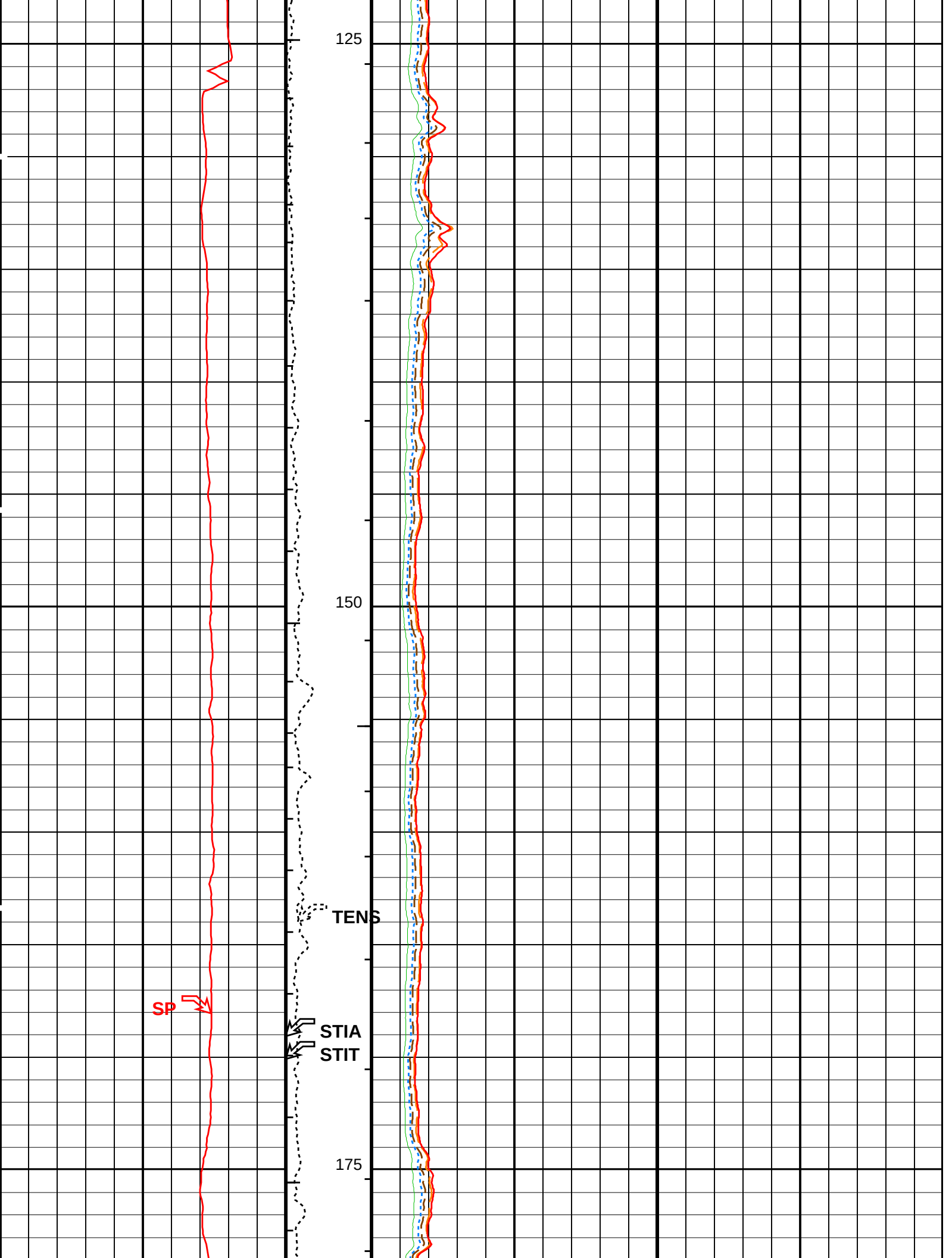
AIT−H 10 Inch Investigation (AHT10)
0 (OHMM) 10

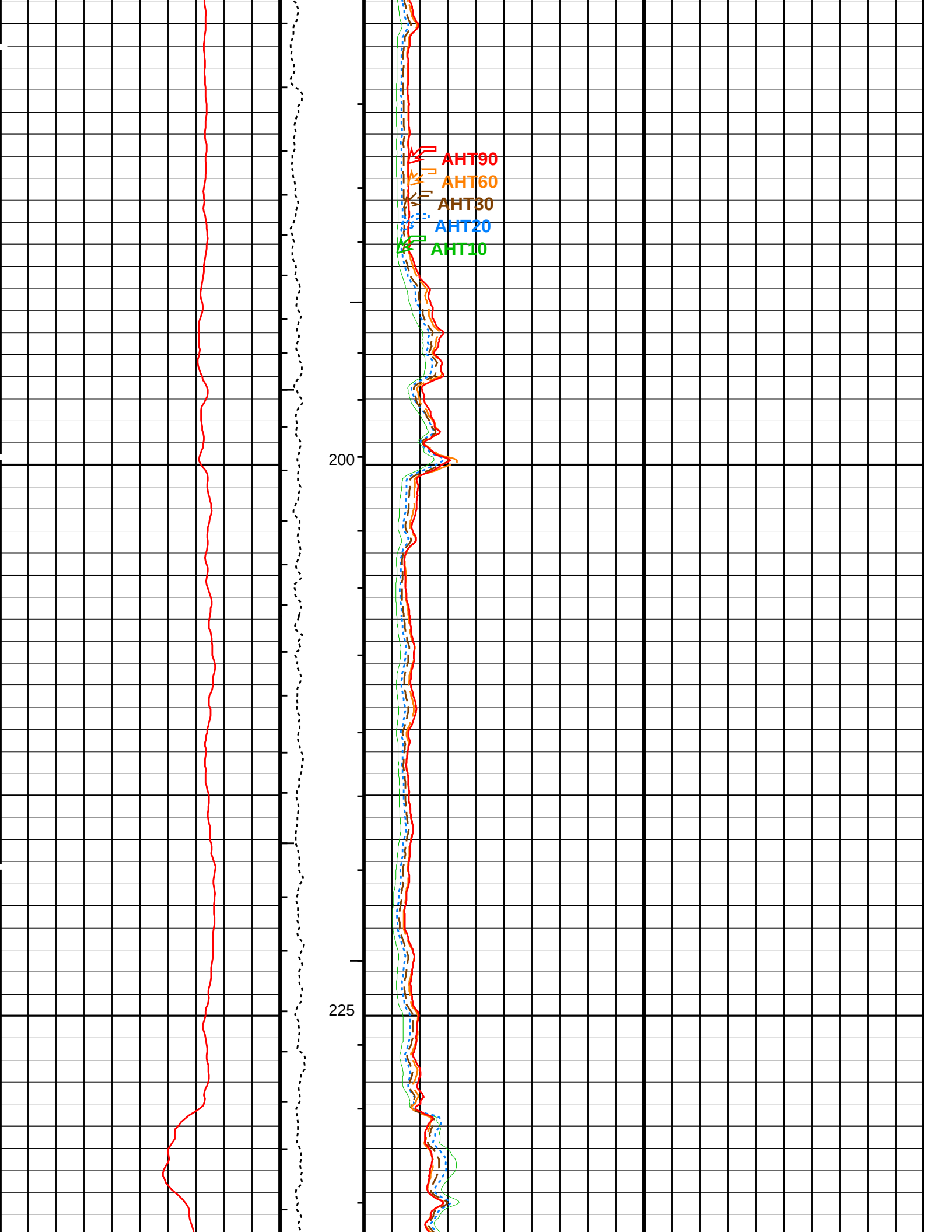
Gas
From DPHZ to TNPH

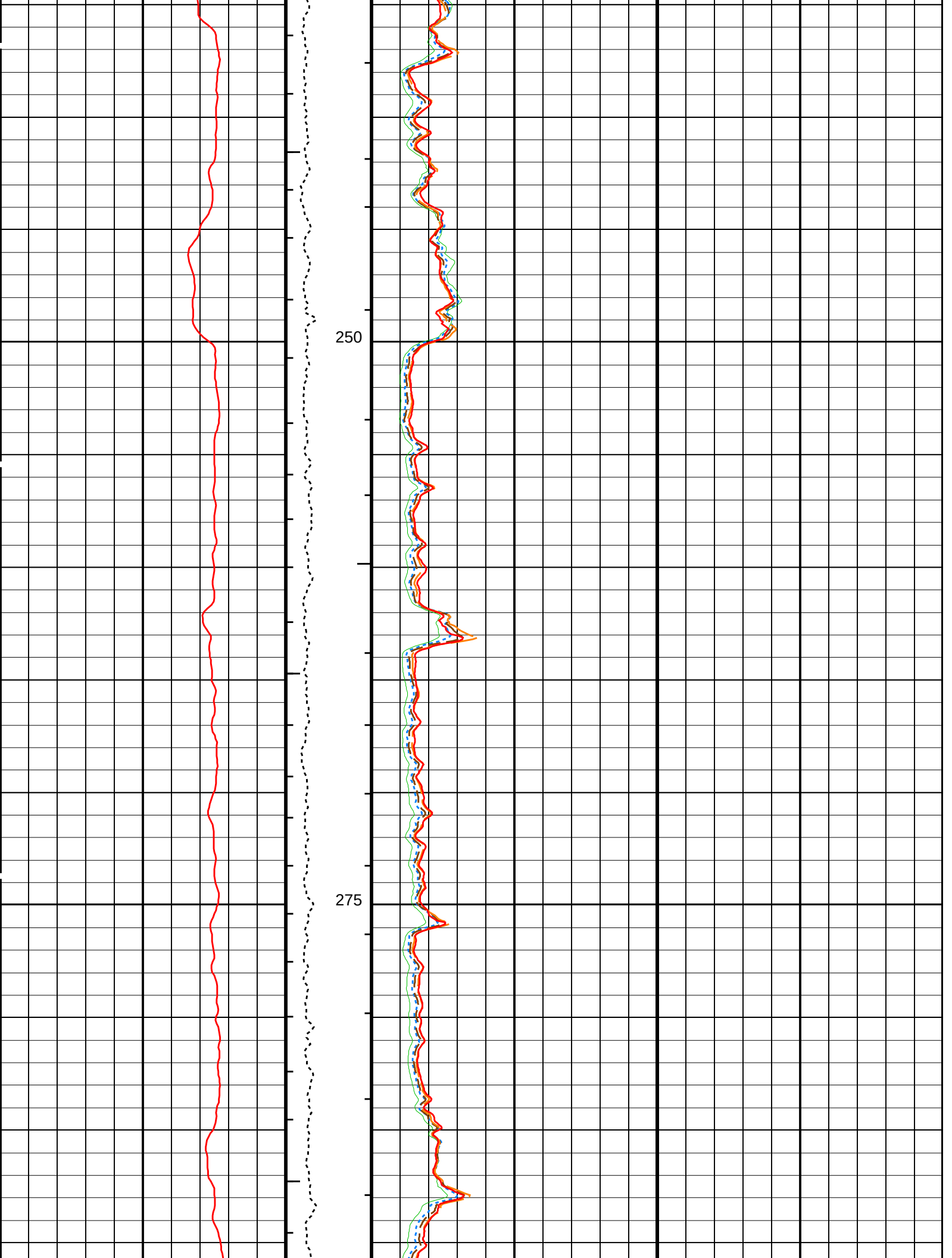
Env.Corr.Thermal Neutron Porosity (TNPH)
0.4 (V/V) 0

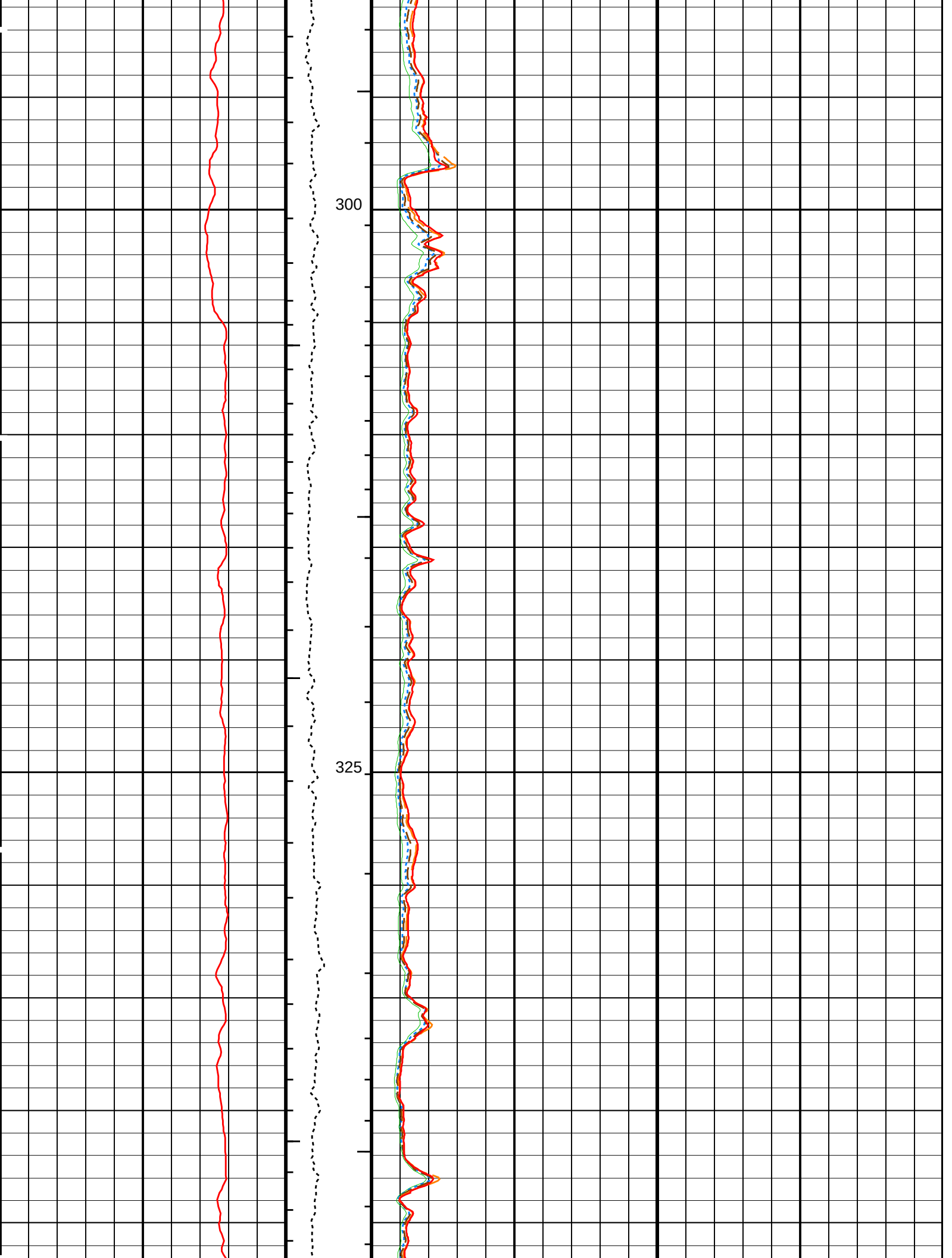
Std. Res. Density Porosity (DPHZ)
0.4 (V/V) 0

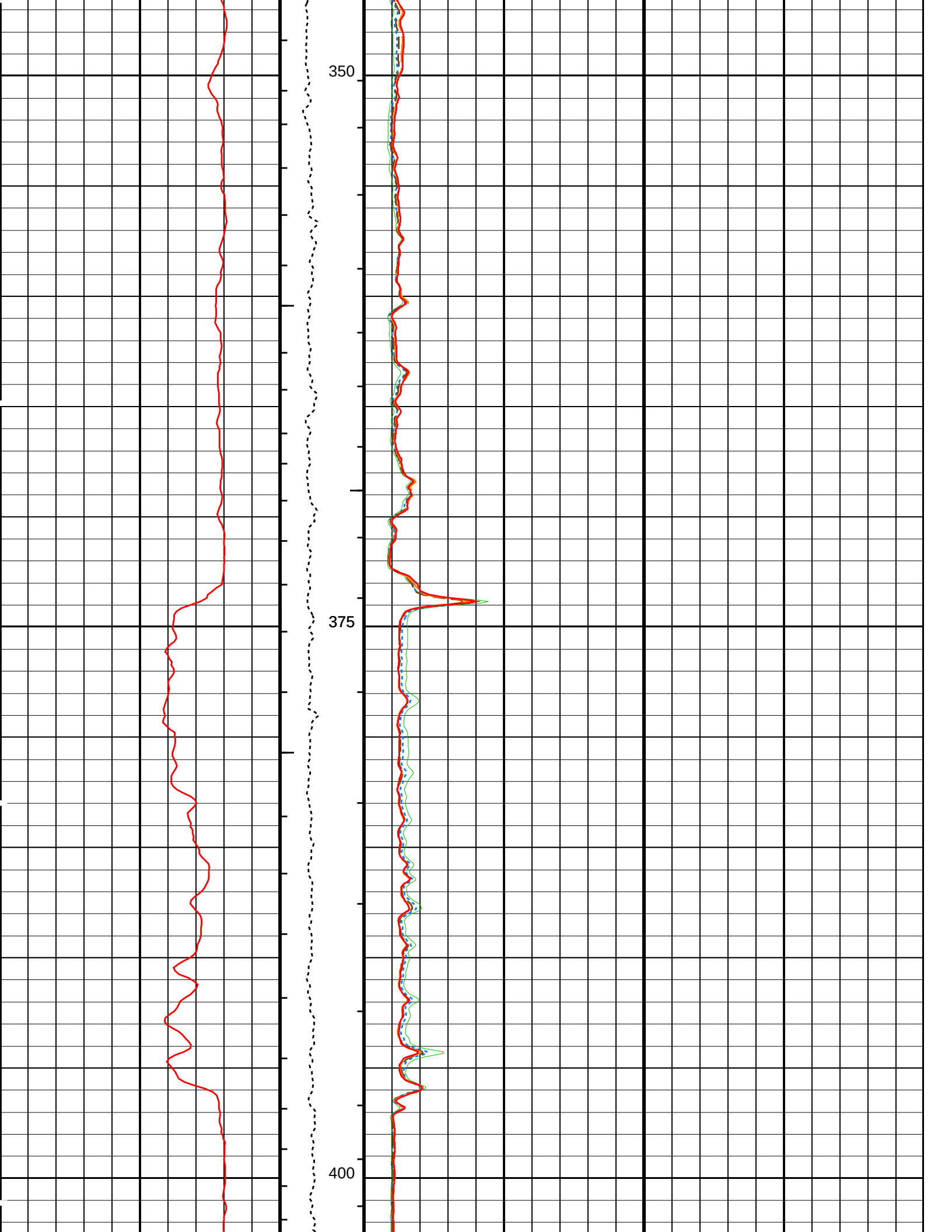


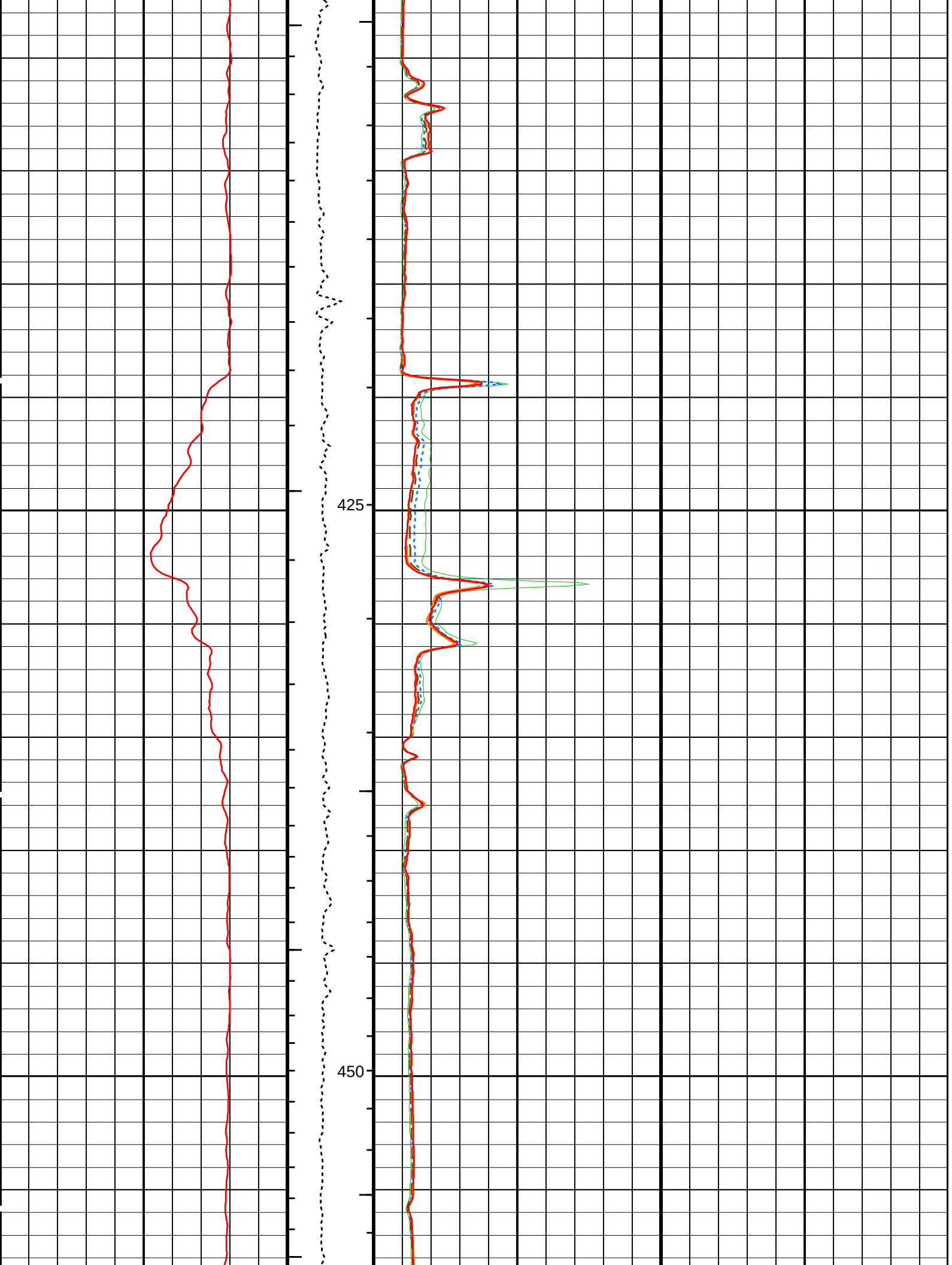

125
150
175
TENS
SP
STIA
STIT

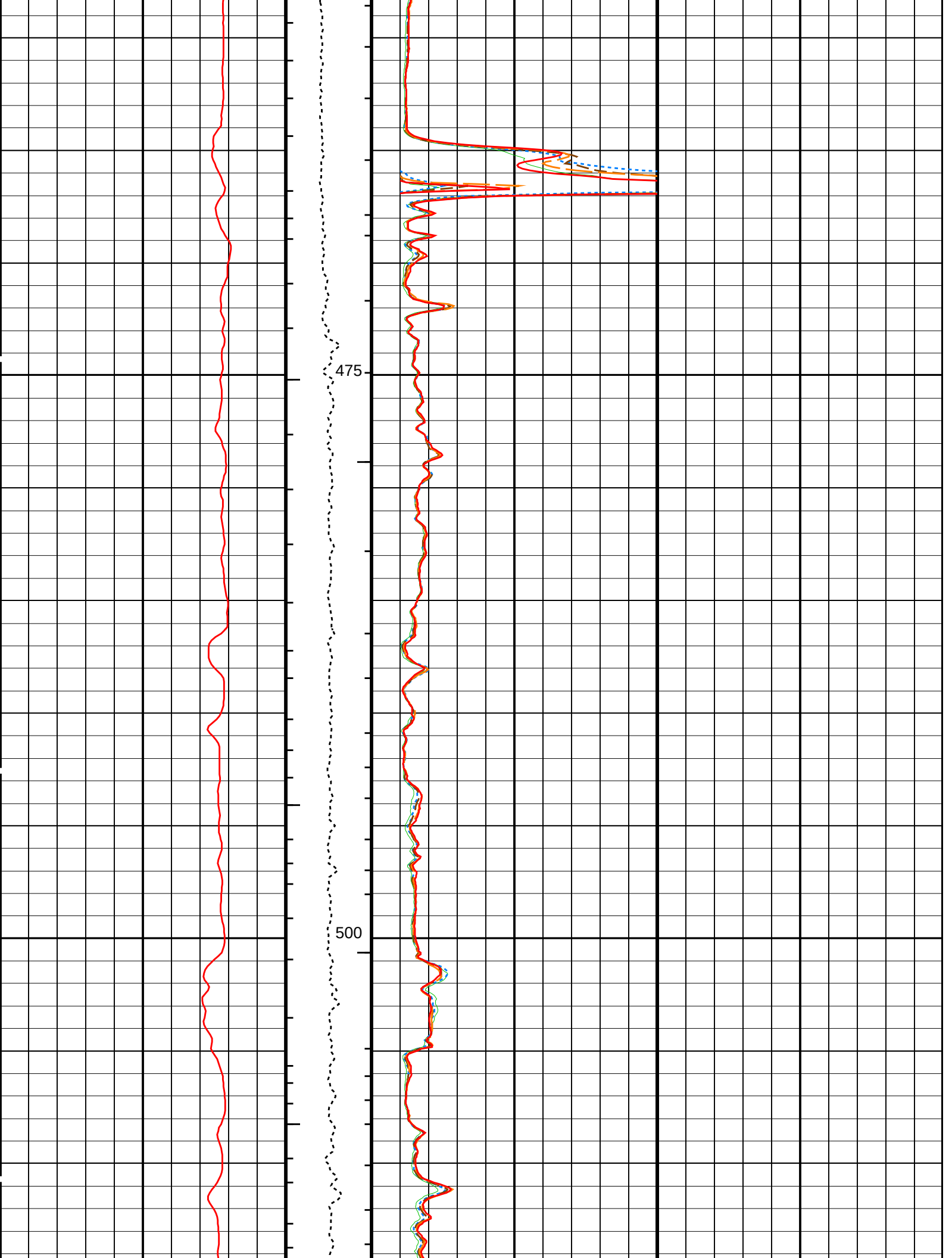

AHT90
AHT60
AHT30
AHT20
AHT10
200
225

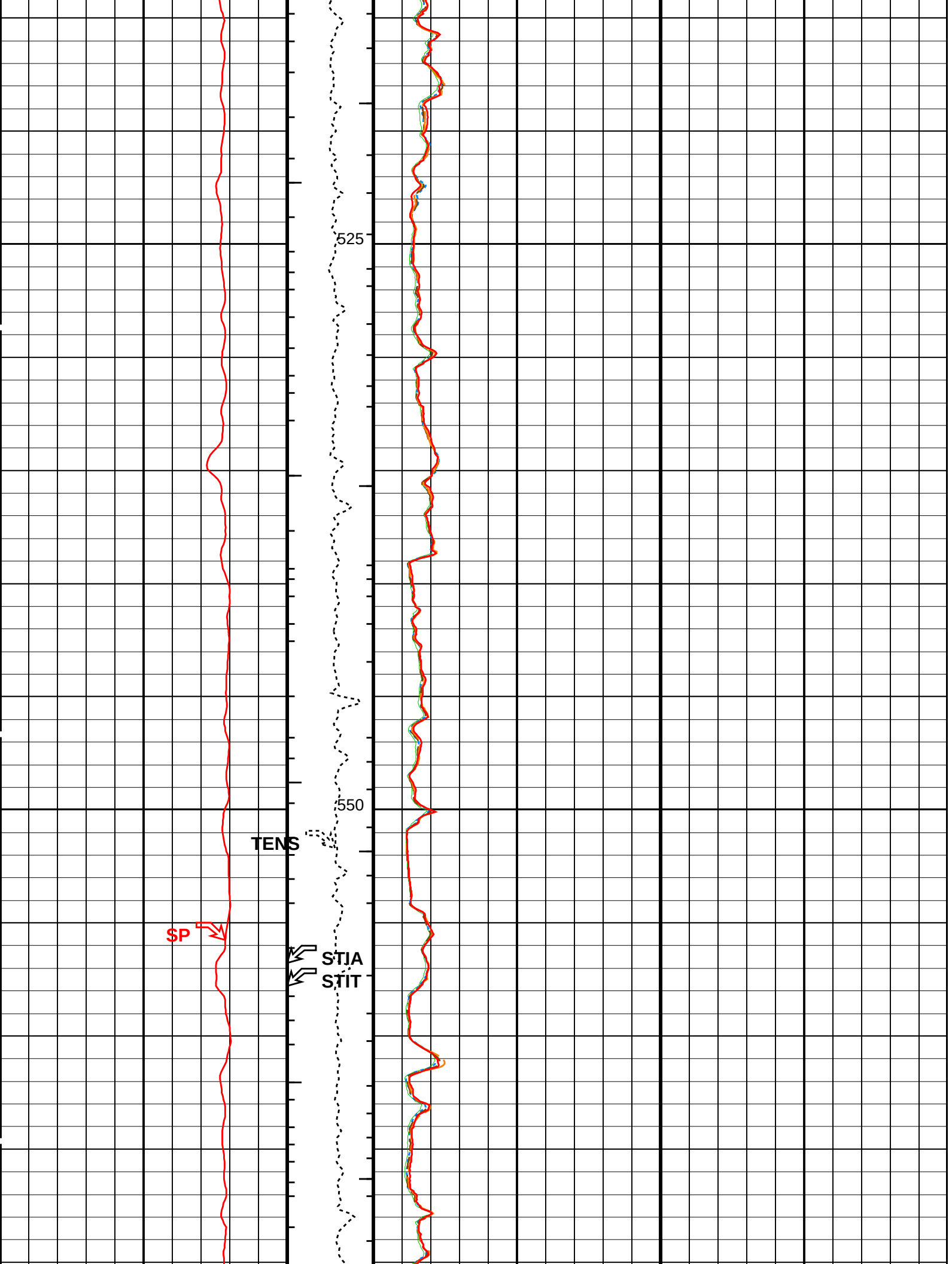

250
275

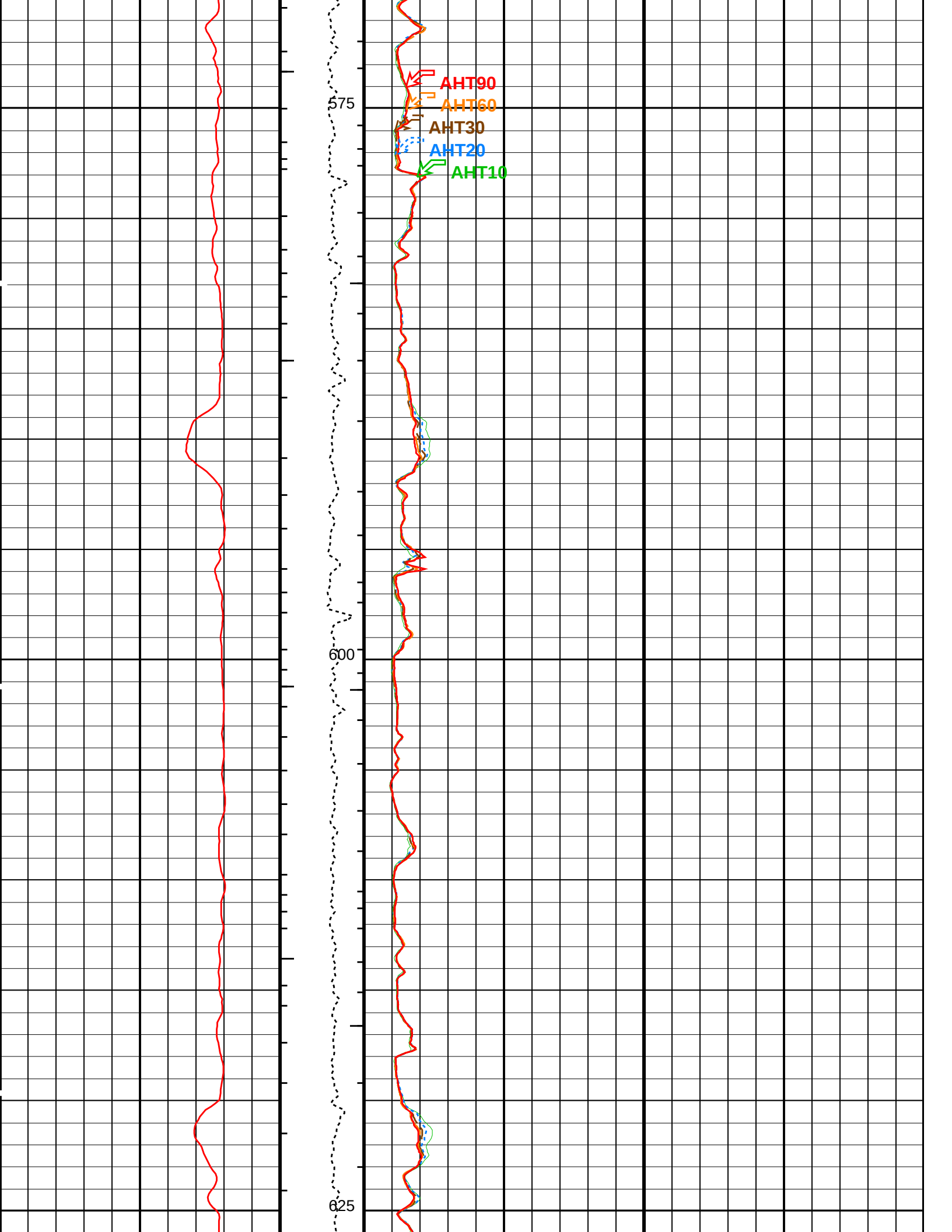

300
325

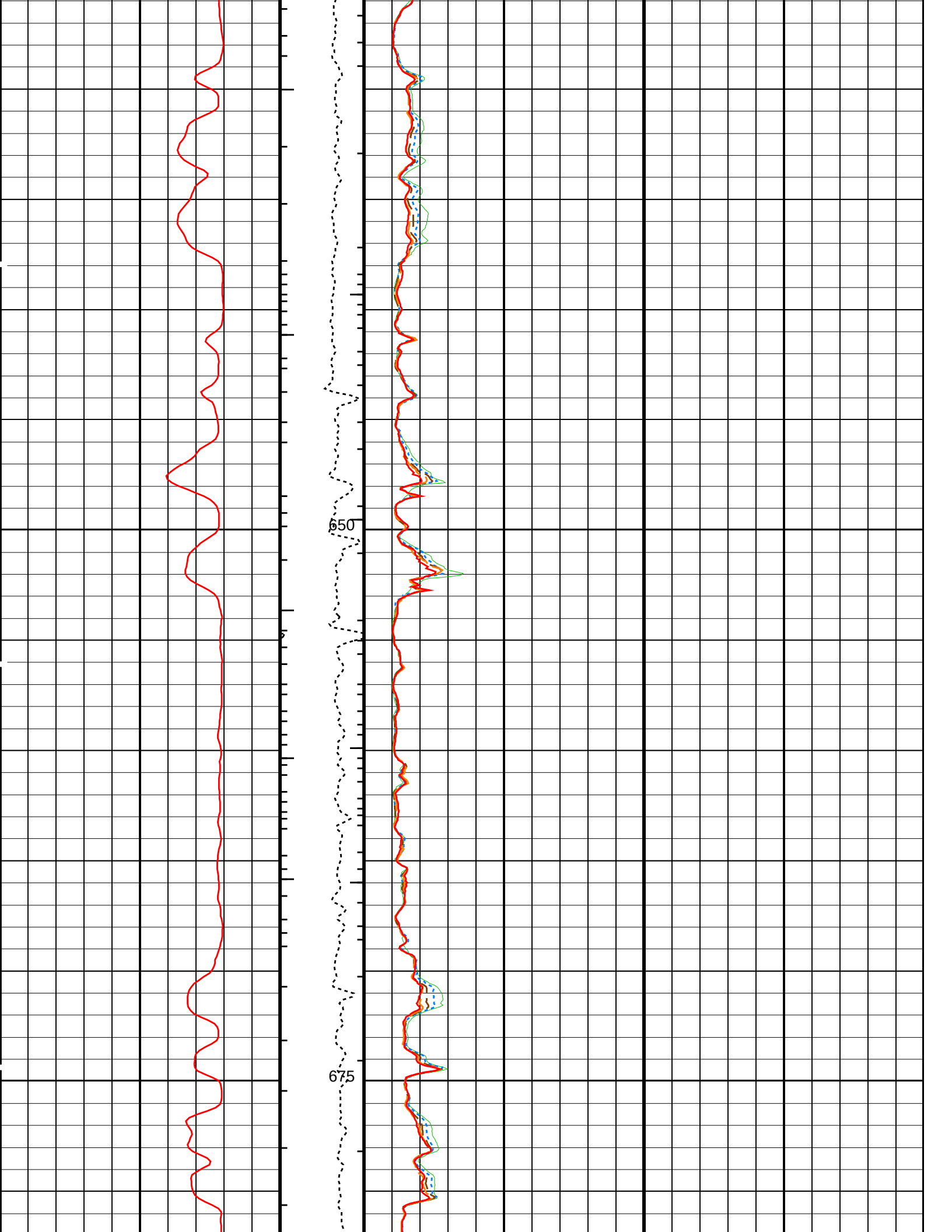

350
375
400

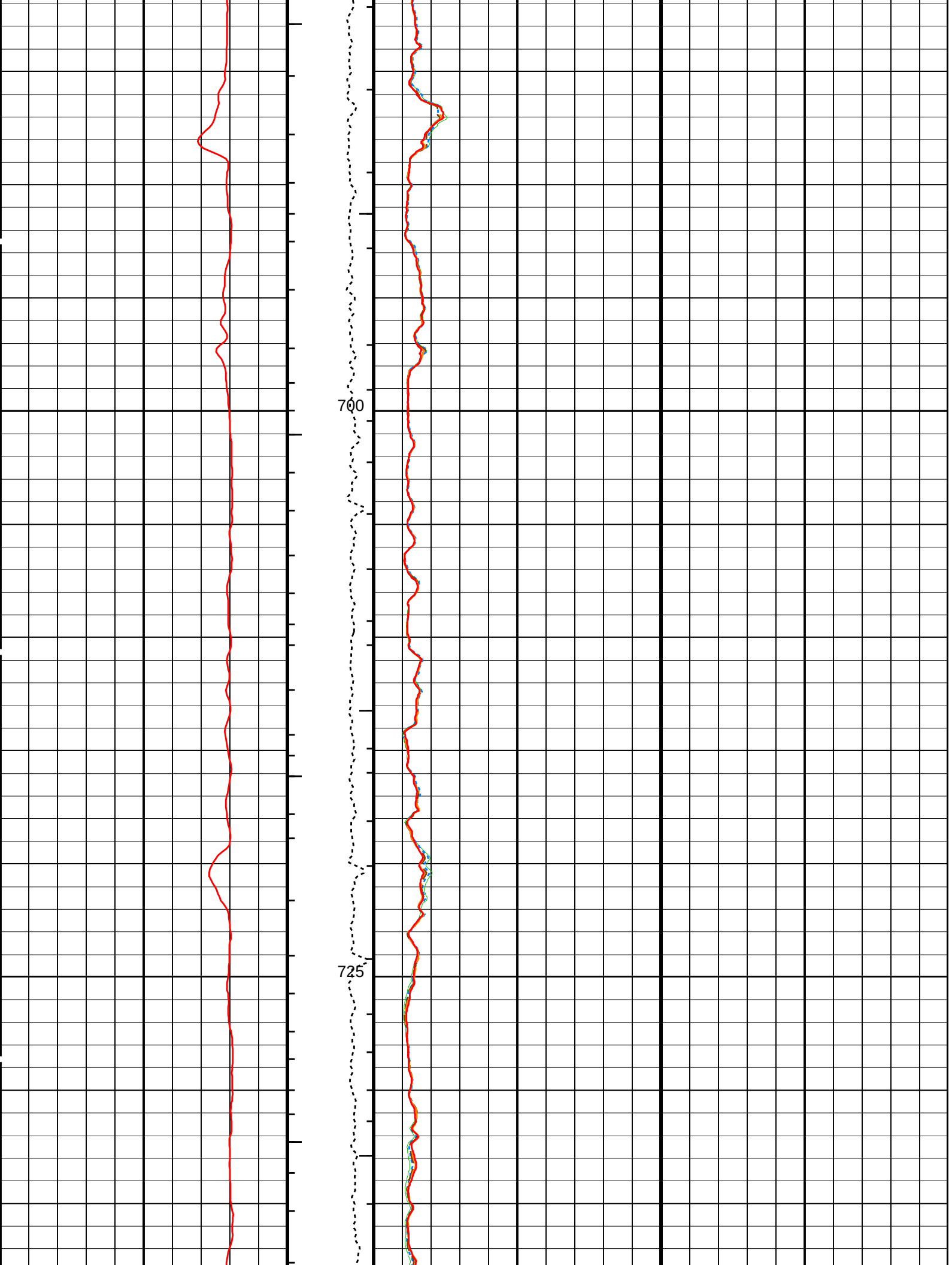

425
450

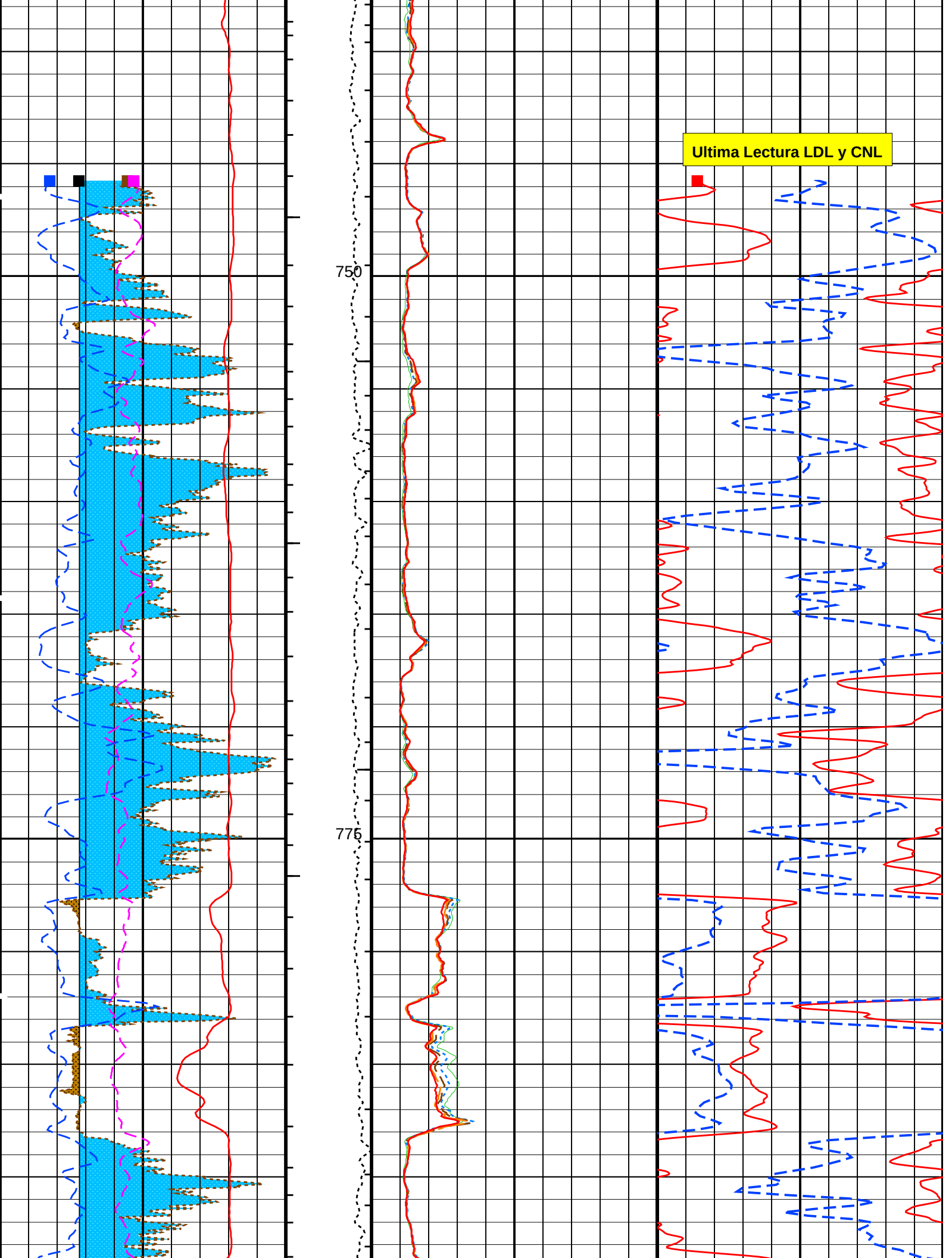

475
500

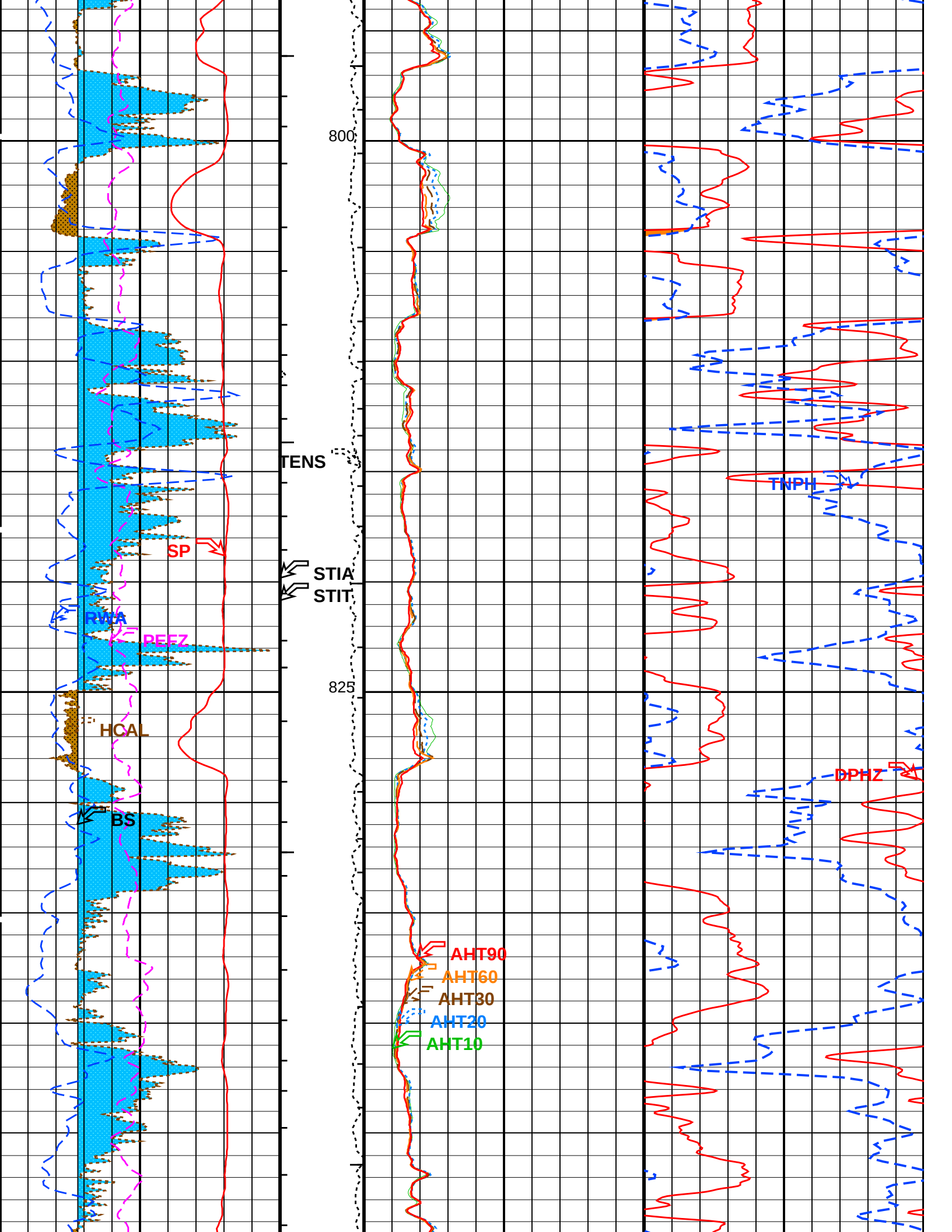

525
550
TENS
SP
STIA
STIT

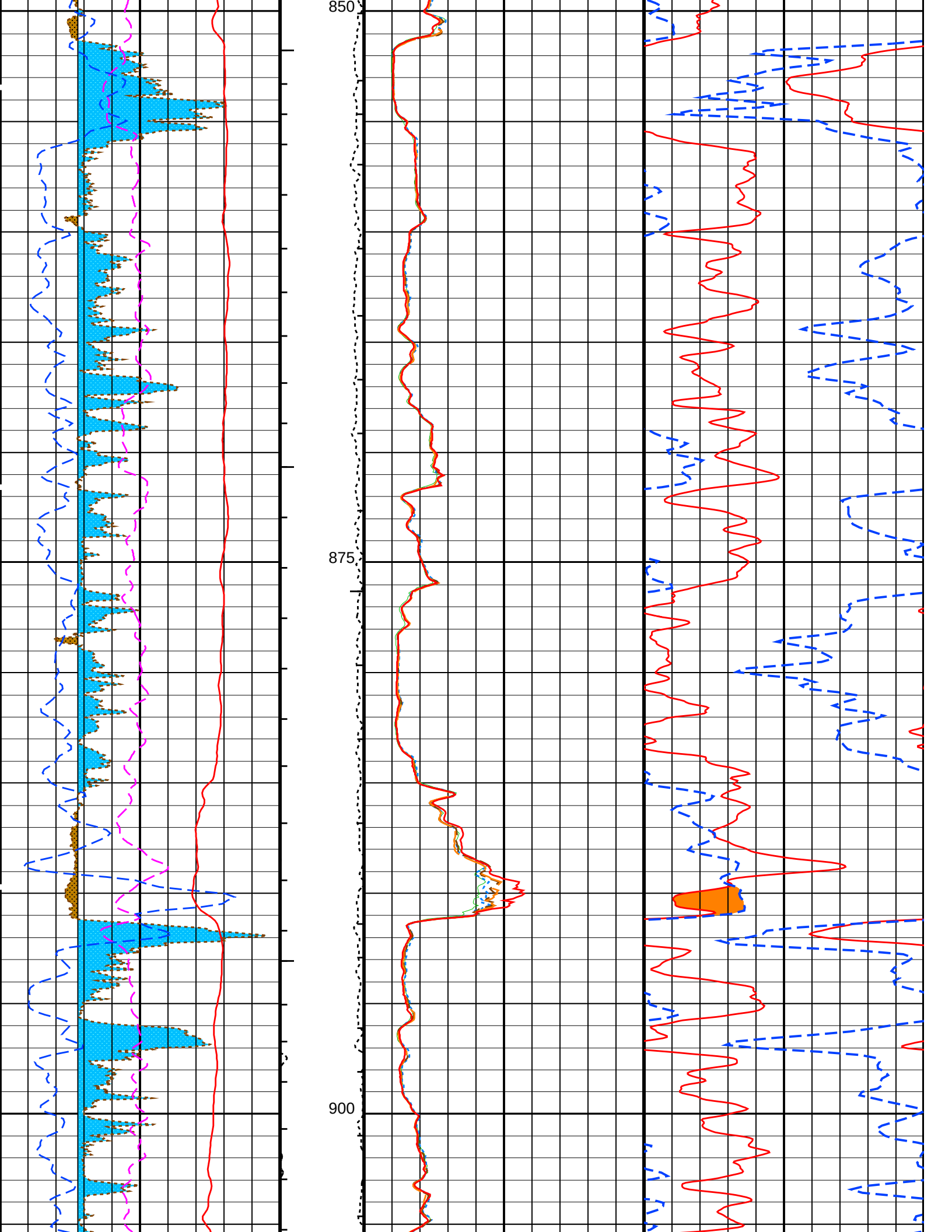

AHT90
AHT60
AHT30
AHT20
AHT10
575
600
625


650
675


700
725


Ultima Lectura LDL y CNL
750
775


800
825
TENS
SP
STIA
STIT
RWA
PEFZ
HCAL
BS
AHT90
AHT60
AHT30
AHT20
AHT10
TNPH
DPHZ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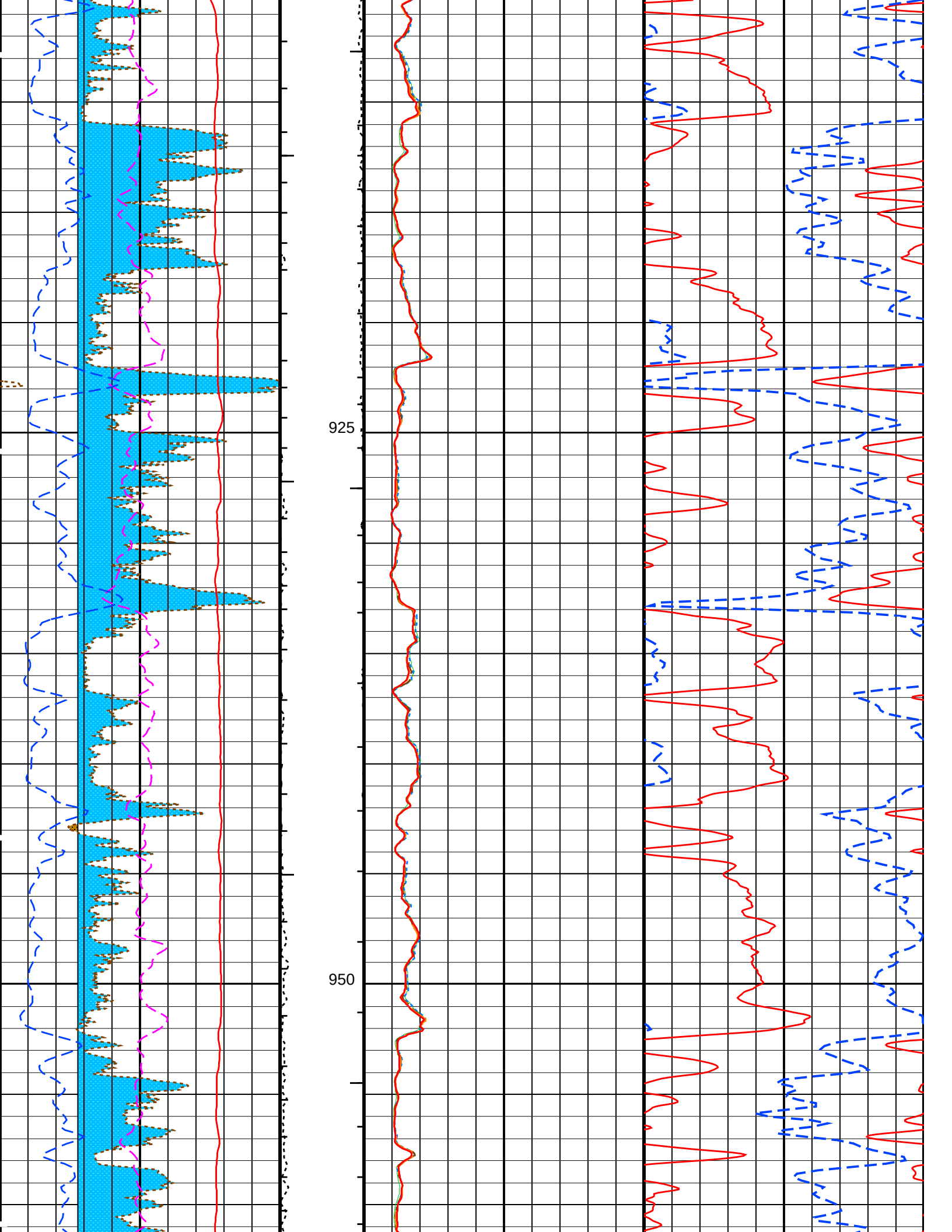
875
900


925
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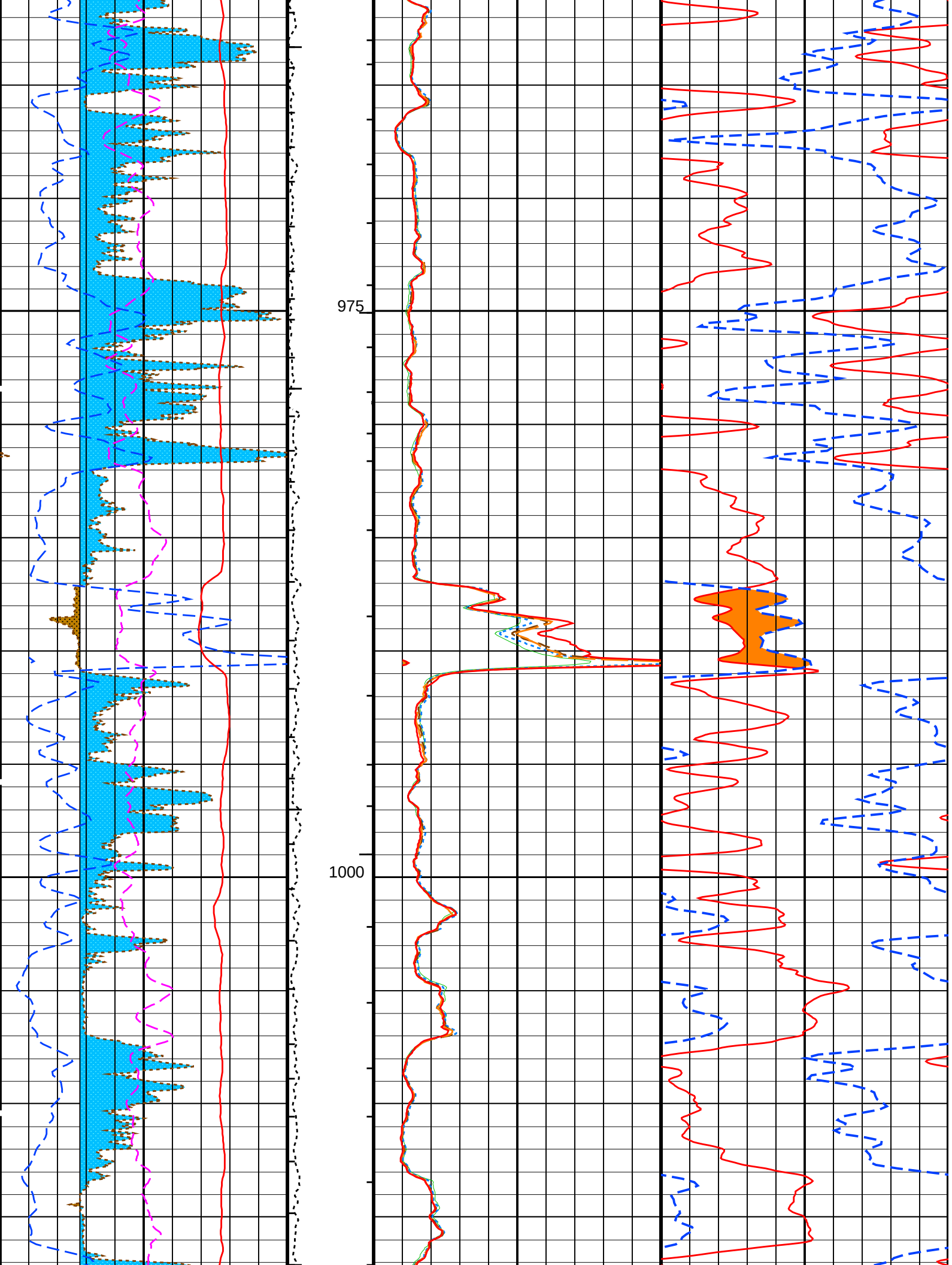
975
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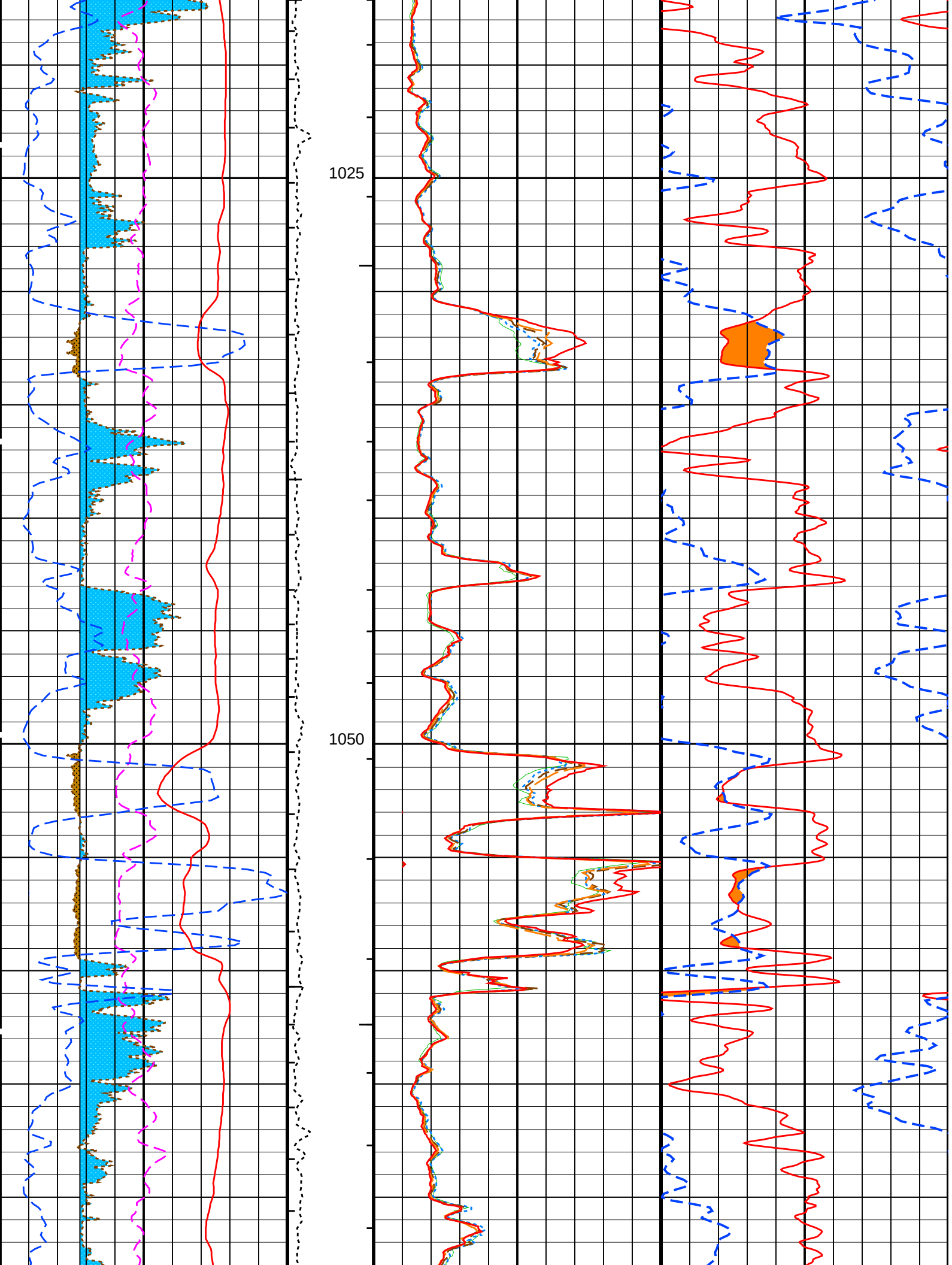
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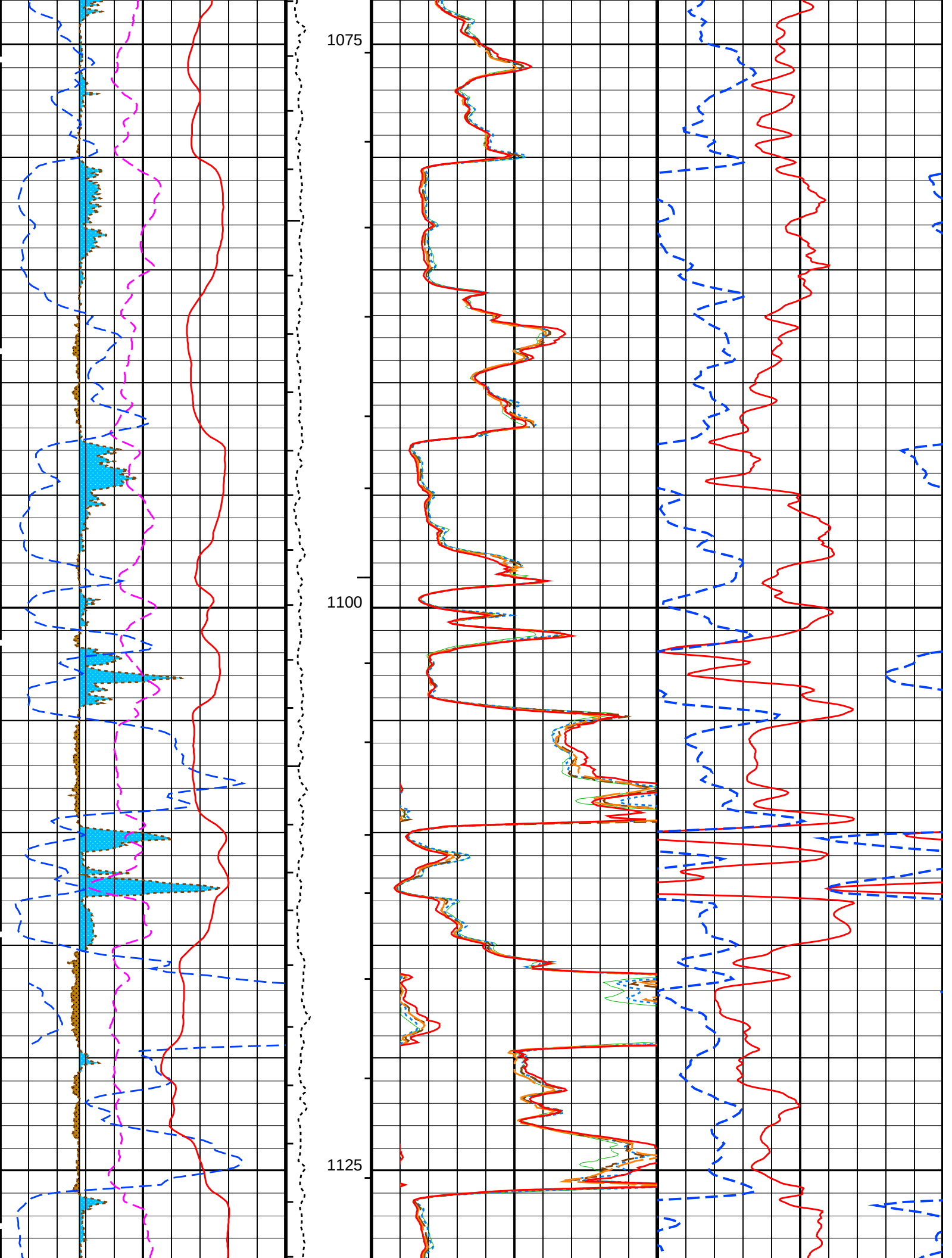
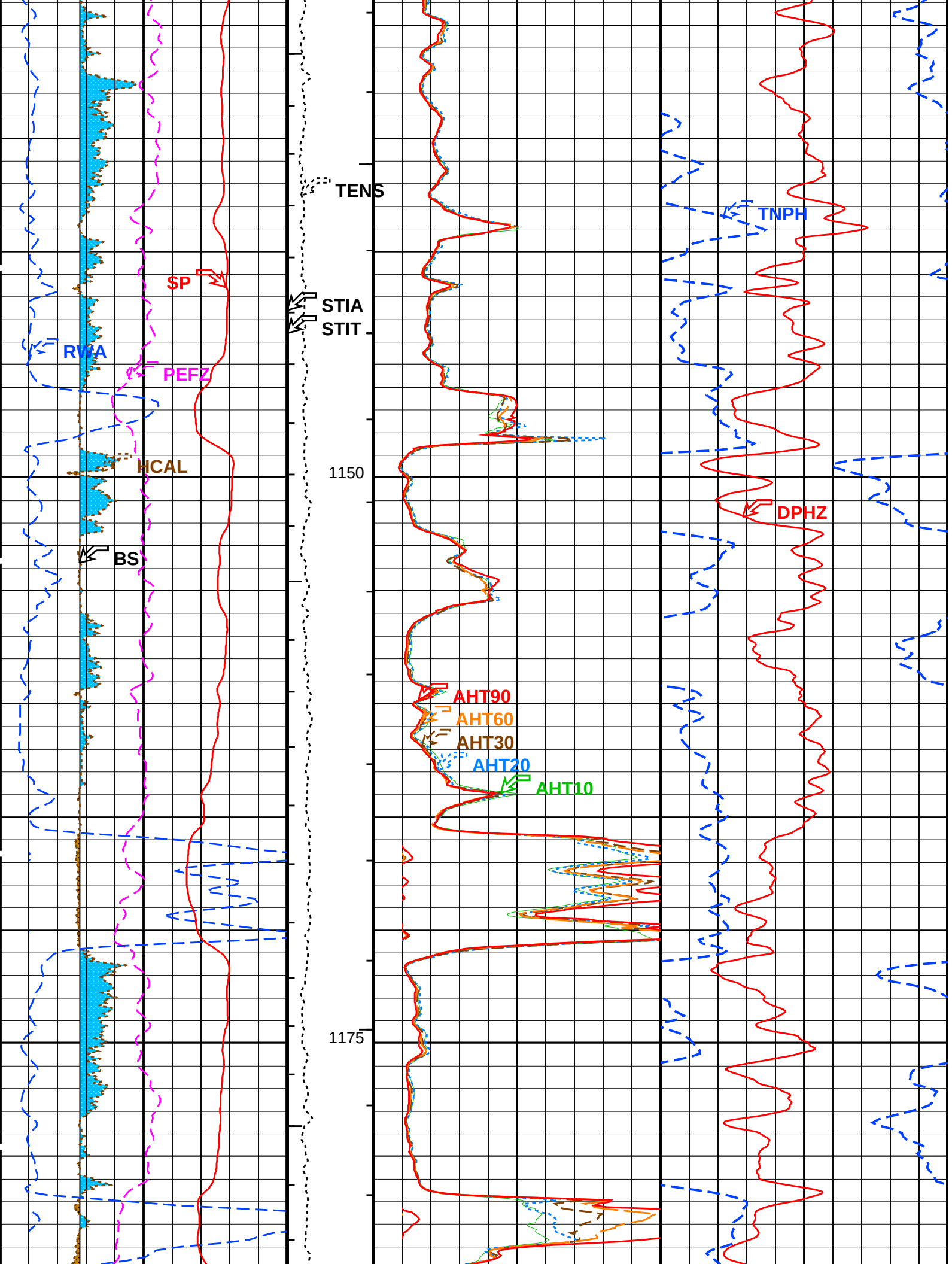
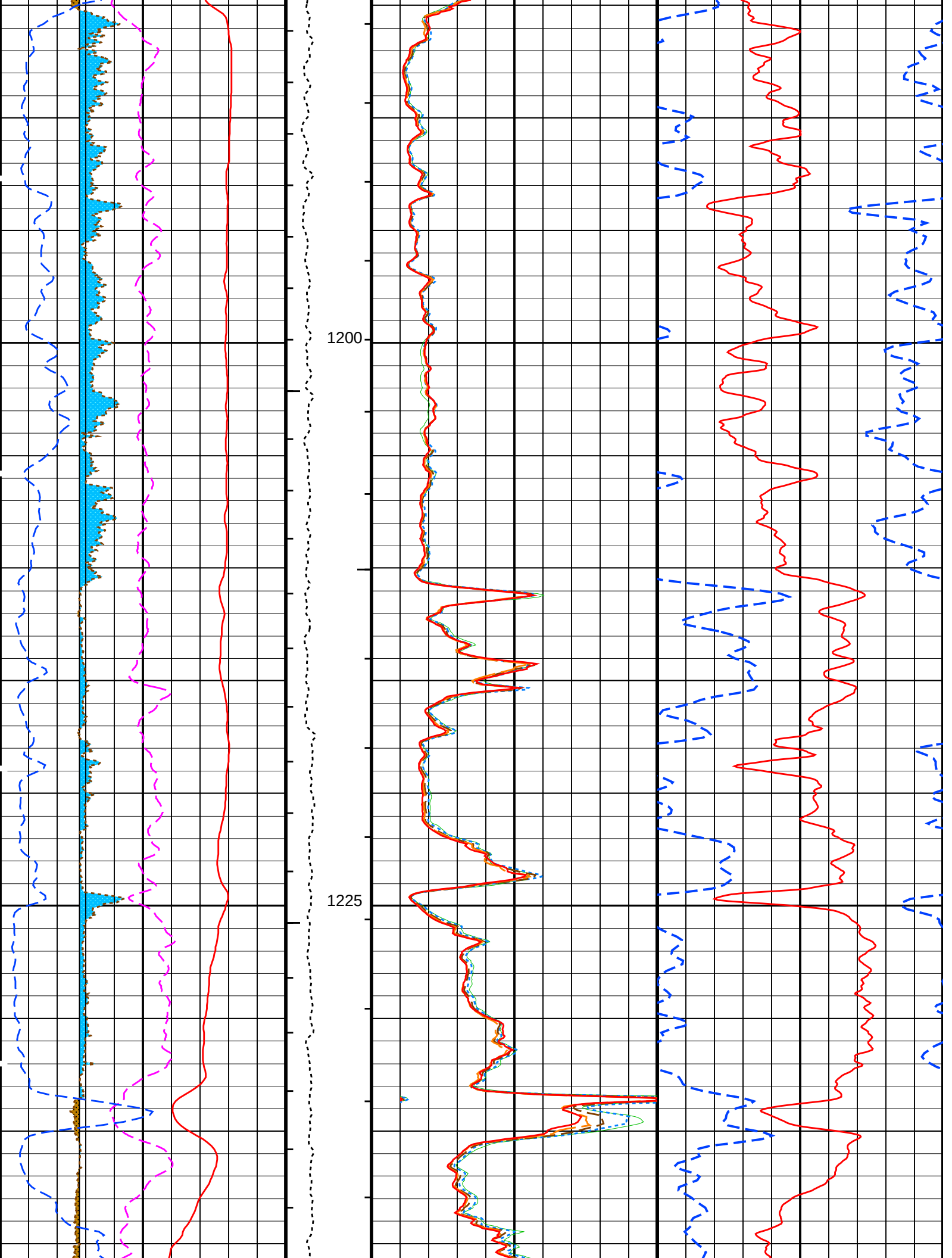
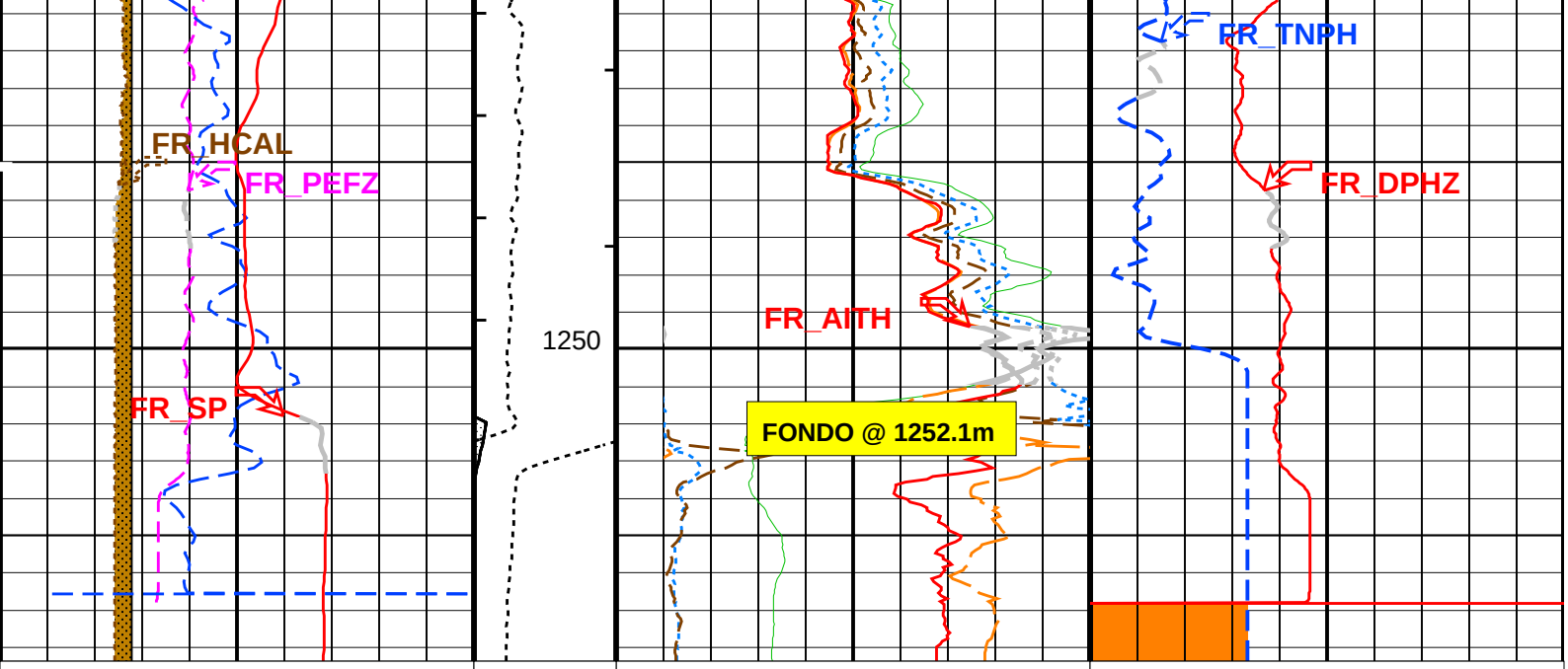
1050


1075
1100
1125


TENS
TNPH
SP
STIA
STIT
RWA
PEFZ
HCAL
DPHZ
BS
1150
AHT90
AHT60
AHT30
AHT20
AHT10
1175


1200
1225



Bit Size (BS) 6 (IN) 16	Tension (TENS) (LBF) 0 1000	AIT−H 10 Inch Investigation (AHT10) 0 (OHMM) 10
Caliper (HCAL) 6 (IN) 16	Stuck Stretch (STIT) 0 (M) 20	AIT−H 20 Inch Investigation (AHT20) 0 (OHMM) 10
Std. Res. Formation Pe (PEFZ) 0 (---- 5		AIT−H 30 Inch Investigation (AHT30) 0 (OHMM) 10
RWA (RWA) 0 (OHMM) 1		AIT−H 60 Inch Investigation (AHT60) 0 (OHMM) 10
SP (SP) −80 (MV) 20		AIT−H 90 Inch Investigation (AHT90) 0 (OHMM) 10
REVOQUE From HCAL to BS		
CAVERNA From BS to HCAL		

Std. Res. Density Porosity (DPHZ) 0.4 (V/V) 0	
Env.Corr.Thermal Neutron Porosity (TNPH) 0.4 (V/V) 0	
Gas From DPHZ to TNPH	

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HILTB−CTS: High resolution Integrated Logging Tool−CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	880	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	108	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	40.70.24.21	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	40.70.24.21	
AHRFV	Array Induction Radial Profiling Code Version Number	700	
AHRPV	Array Induction Radial Parametrization Code Version Number	223	
AHSTA	Array Induction Tool Standoff	1.5	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	40.70.24.21	

ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
BSCO	Borehole Salinity Correction Option	YES	
CCCO	Casing & Cement Thickness Correction Option	NO	
DFB	HILT Nuclear Mud Base	Water	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	YES	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MWCO	Mud Weight Correction Option	YES	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	YES	
RTCO	RTCO − Rt Invasion Correction	YES	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	0	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	YES	
SPDR	SP Drift	0	MV/M
SPNV	SP Next Value	−12	MV
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth − Driller	1250.00	M
TDL	Total Depth − Logger	1252.10	M
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	0	DEGC
ALLRES: Basic Resistivity Transforms			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
RWA: Apparent Water Resistivity			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
RTCO	RTCO − Rt Invasion Correction	YES	
System and Miscellaneous			
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	700.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.19	G/C3
DO	Depth Offset for Playback	0.0	M
MST	Mud Sample Temperature	4.20	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.2200	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1252.1	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA **Vertical Scale: 1:200** **Graphics File Created: 27−Jun−2005 12:24**

OP System Version: 13C0−300

MCM

HILTB−CTS **SRPC−2718−HILT**

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27−Jun−2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_072PUP	FN:103	PRODUCER	27−Jun−2005 12:24		

Schlumberger

TRAMO REPETIDO

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_075PUP	FN:106	PRODUCER	27−Jun−2005 12:36	1259.4 M	1045.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_076PUP	FN:107	PRODUCER	27−Jun−2005 12:39	1230.0 M	1161.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 8.65 M3

Cement Volume = 5.48 M3 (assuming 5.50 IN casing O.D.)

Computed from 1252.0 M to 1045.5 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
SPDR	−0.21 MV/M	0 MV/M	1189.9 12:40:03
	0.23 MV/M	−0.21 MV/M	1170.9 12:40:05

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3

Integrated Hole Volume Major Pip Every 1 M3

Integrated Cement Volume Minor Pip Every 0.1 M3

Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

CAVERNA
From BS to HCAL

REVOQUE
From HCAL to BS

SP (SP)
−80 (MV) 20

RWA (RWA)
0 (OHMM) 1

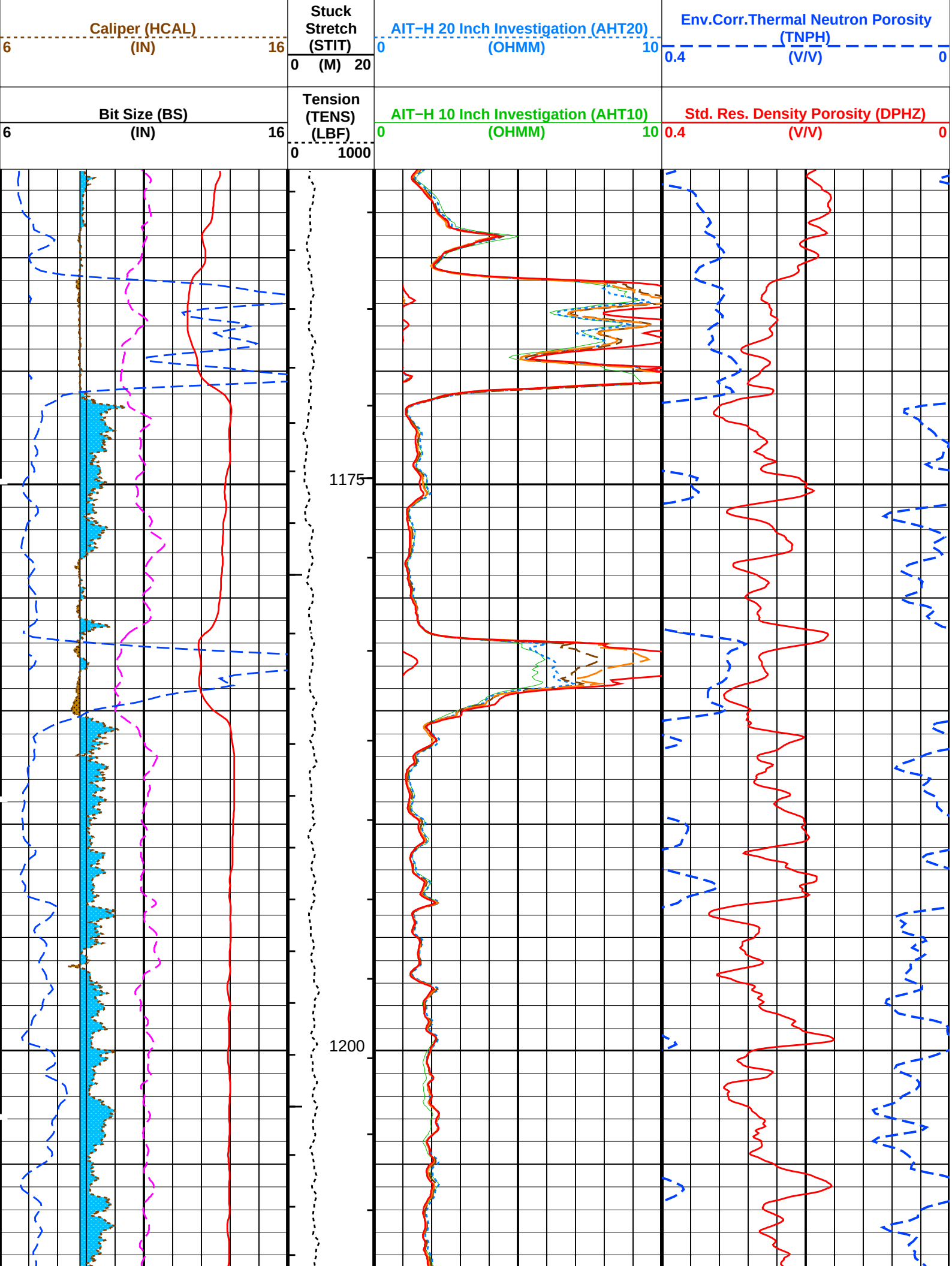
Std. Res. Formation Pe (PEFZ)
0 (---- 5

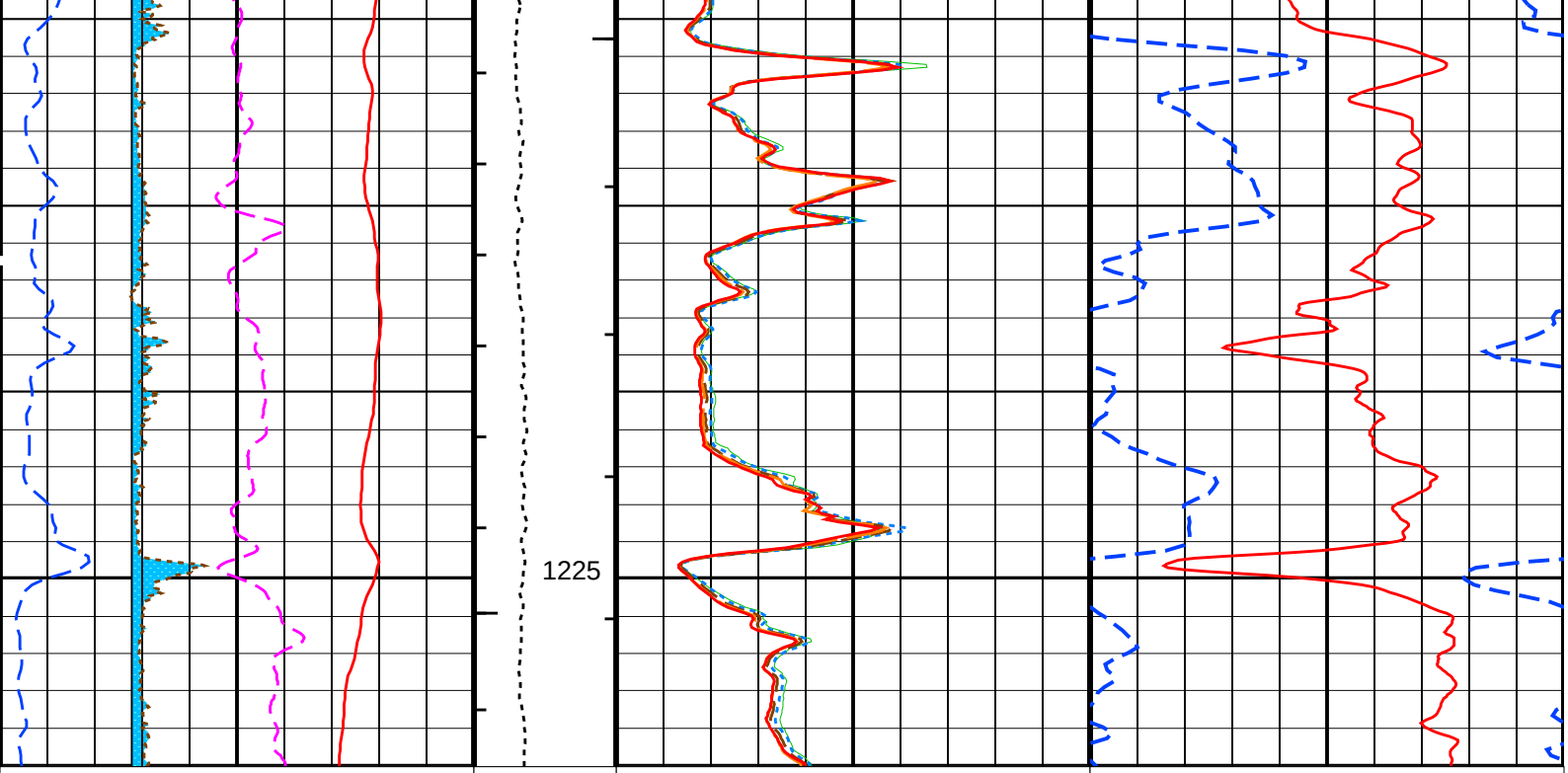
AIT−H 90 Inch Investigation (AHT90)
0 (OHMM) 10

AIT−H 60 Inch Investigation (AHT60)
0 (OHMM) 10

AIT−H 30 Inch Investigation (AHT30)
0 (OHMM) 10

Gas
From DPHZ to TNPH


Caliper (HCAL)
6
(IN)
16
Bit Size (BS)
6
(IN)
16
Stuck Stretch (STIT)
0
(M)
20
Tension (TENS)
(LBF)
0
1000
AIT−H 20 Inch Investigation (AHT20)
0
(OHMM)
10
AIT−H 10 Inch Investigation (AHT10)
0
(OHMM)
10
Env.Corr.Thermal Neutron Porosity (TNPH)
0.4
(V/V)
0
Std. Res. Density Porosity (DPHZ)
0.4
(V/V)
0
1175
1200



Bit Size (BS) 6 (IN) 16	Tension (TENS) (LBF) 0 1000	AIT−H 10 Inch Investigation (AHT10) 0 (OHMM) 10	Std. Res. Density Porosity (DPHZ) 0.4 (V/V) 0
Caliper (HCAL) 6 (IN) 16	Stuck Stretch (STIT) 0 (M) 20	AIT−H 20 Inch Investigation (AHT20) 0 (OHMM) 10	Env.Corr.Thermal Neutron Porosity (TNPH) 0.4 (V/V) 0
Std. Res. Formation Pe (PEFZ) 0 (---- 5		AIT−H 30 Inch Investigation (AHT30) 0 (OHMM) 10	Gas From DPHZ to TNPH
RWA (RWA) 0 (OHMM) 1		AIT−H 60 Inch Investigation (AHT60) 0 (OHMM) 10	
SP (SP) −80 (MV) 20		AIT−H 90 Inch Investigation (AHT90) 0 (OHMM) 10	
REVOQUE From HCAL to BS			
CAVERNA From BS to HCAL			

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB−CTS: High resolution Integrated Logging Tool−CTS	
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	880
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logs Code Version Number	108
AHCDE	Array Induction Casing Detection Enable	No
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered
AHFRSV	Array Induction Response Set Version for Four ft Resolution	40.70.24.21
AHMRF	Array Induction Mud Resistivity Factor	1
AHORSV	Array Induction Response Set Version for One ft Resolution	40.70.24.21

AHRFV	Array Induction Radial Profiling Code Version Number	700	
AHRPV	Array Induction Radial Parametrization Code Version Number	223	
AHSTA	Array Induction Tool Standoff	1.5	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	40.70.24.21	
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
BSCO	Borehole Salinity Correction Option	YES	
CCCO	Casing & Cement Thickness Correction Option	NO	
DFB	HILT Nuclear Mud Base	Water	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	YES	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MWCO	Mud Weight Correction Option	YES	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	YES	
RTCO	RTCO − Rt Invasion Correction	YES	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	0	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	YES	
SPDR	SP Drift	0	MV/M
SPNV	SP Next Value	−16	MV
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth − Driller	1250.00	M
TDL	Total Depth − Logger	1252.10	M
	HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	0	DEGC
	ALLRES: Basic Resistivity Transforms		
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
	RWA: Apparent Water Resistivity		
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
RTCO	RTCO − Rt Invasion Correction	YES	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	700.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.19	G/C3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	4.20	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.2200	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1252.1	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA **Vertical Scale: 1:200** **Graphics File Created: 27−Jun−2005 12:39**

QP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_075PUP	FN:106	PRODUCER	27−Jun−2005 12:36	1259.4 M	1045.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_076PUP	FN:107	PRODUCER	27−Jun−2005 12:39		

Schlumberger

ANALISIS DE REPETIBILIDAD

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_075PUP	FN:106	PRODUCER	27−Jun−2005 12:36	1259.4 M	1045.3 M
DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27−Jun−2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_076PUP	FN:107	PRODUCER	27−Jun−2005 12:39	1230.0 M	1161.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 8.65 M3

Cement Volume = 5.48 M3 (assuming 5.50 IN casing O.D.)

Computed from 1252.0 M to 1045.5 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
SPDR	−0.21 MV/M	0 MV/M	1189.9 12:40:03
	0.23 MV/M	−0.21 MV/M	1170.9 12:40:05

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3

Integrated Hole Volume Major Pip Every 1 M3

Integrated Cement Volume Minor Pip Every 0.1 M3

Integrated Cement Volume Major Pip Every 1 M3

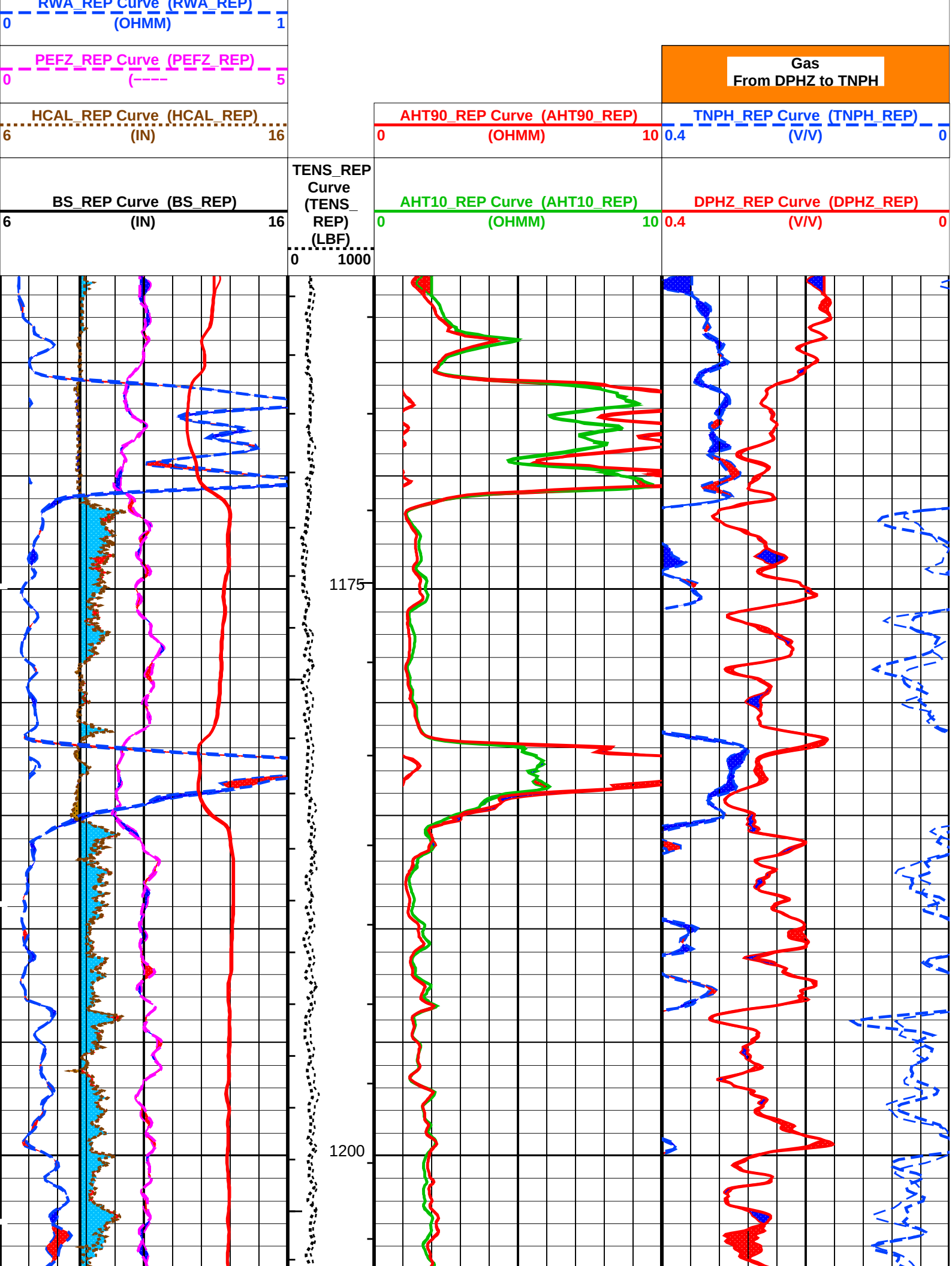
Time Mark Every 60 S

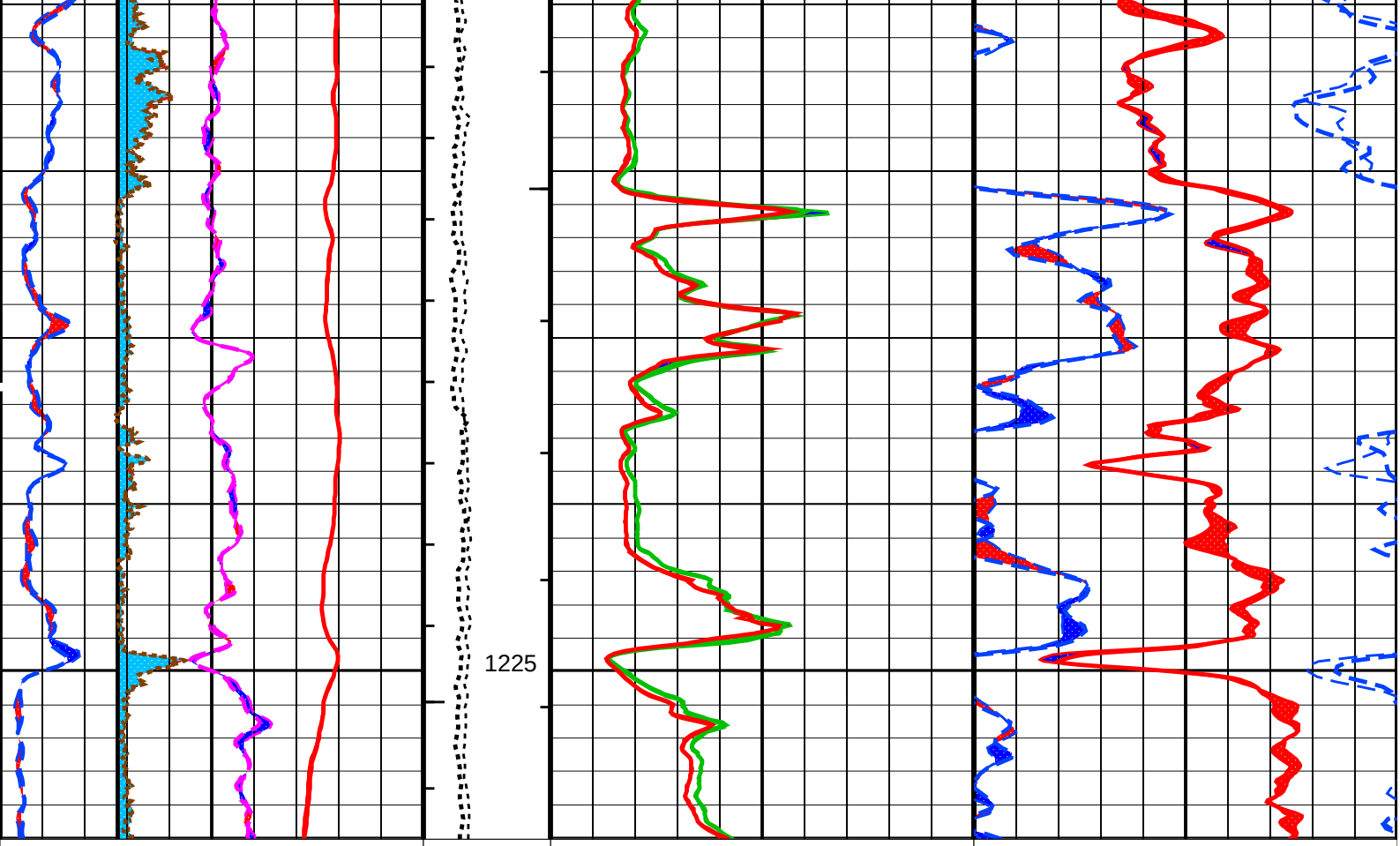
CAVERNA
From BS to HCAL

REVOQUE
From HCAL to BS

SP_REP Curve (SP_REP)

−80 (MV) 20


RWA_REP Curve (RWA_REP)
0 (OHMM) 1
PEFZ_REP Curve (PEFZ_REP)
0 (---- 5
HCAL_REP Curve (HCAL_REP)
6 (IN) 16
BS_REP Curve (BS_REP)
6 (IN) 16
TENS_REP Curve (TENS_REP) (LBF)
0 1000
AHT90_REP Curve (AHT90_REP)
0 (OHMM) 10
AHT10_REP Curve (AHT10_REP)
0 (OHMM) 10
Gas
From DPHZ to TNPH
TNPH_REP Curve (TNPH_REP)
0.4 (V/V) 0
DPHZ_REP Curve (DPHZ_REP)
0.4 (V/V) 0
1175
1200



BS_REP Curve (BS_REP)
6 (IN) 16

TENS_REP Curve (TENS_REP) (LBF)
0 1000

AHT10_REP Curve (AHT10_REP)
0 (OHMM) 10

DPHZ_REP Curve (DPHZ_REP)
0.4 (V/V) 0

HCAL_REP Curve (HCAL_REP)
6 (IN) 16

AHT90_REP Curve (AHT90_REP)
0 (OHMM) 10

TNPH_REP Curve (TNPH_REP)
0.4 (V/V) 0

PEFZ_REP Curve (PEFZ_REP)
0 (---- 5

Gas
From DPHZ to TNPH

RWA_REP Curve (RWA_REP)
0 (OHMM) 1

SP_REP Curve (SP_REP)
−80 (MV) 20

REVOQUE
From HCAL to BS

CAVERNA
From BS to HCAL

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB−CTS: High resolution Integrated Logging Tool−CTS	
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	880

AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	108	
AHCDE	Array Induction Casing Detection Enable	No	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	40.70.24.21	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	40.70.24.21	
AHRFV	Array Induction Radial Profiling Code Version Number	700	
AHRPV	Array Induction Radial Parametrization Code Version Number	223	
AHSTA	Array Induction Tool Standoff	1.5	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	40.70.24.21	
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
BSCO	Borehole Salinity Correction Option	YES	
CCCO	Casing & Cement Thickness Correction Option	NO	
DFB	HILT Nuclear Mud Base	Water	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	YES	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.65	G/C3
MWCO	Mud Weight Correction Option	YES	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	YES	
RTCO	RTCO − Rt Invasion Correction	YES	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	0	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	YES	
SPDR	SP Drift	0	MV/M
SPNV	SP Next Value	−16	MV
STI: Stuck Tool Indicator			
TDL	Total Depth − Logger	1252.10	M
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	54	DEGC
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	0	DEGC
ALLRES: Basic Resistivity Transforms			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
RWA: Apparent Water Resistivity			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
RTCO	RTCO − Rt Invasion Correction	YES	
System and Miscellaneous			
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	700.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.19	G/C3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	4.20	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.2200	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1252.1	M
TWS	Temperature of Connate Water Sample	27.78	DEGC

TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA_REP Vertical Scale: 1:200 Graphics File Created: 27−Jun−2005 12:39

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_075PUP	FN:106	PRODUCER	27−Jun−2005 12:36	1259.4 M	1045.3 M
DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27−Jun−2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_076PUP	FN:107	PRODUCER	27−Jun−2005 12:39		

Schlumberger

CHEQUEO EN CAÑERIA

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:11	PRODUCER	26−Jun−2005 06:41	129.8 M	53.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_082PUP	FN:113	PRODUCER	27−Jun−2005 12:48	119.9 M	100.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 0.47 M3

Cement Volume = 0.38 M3 (assuming 5.50 IN casing O.D.)

Computed from 119.9 M to 114.1 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3

Integrated Hole Volume Major Pip Every 1 M3

Integrated Cement Volume Minor Pip Every 0.1 M3

Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

CAVERNA
From BS to HCAL

REVOQUE
From HCAL to BS

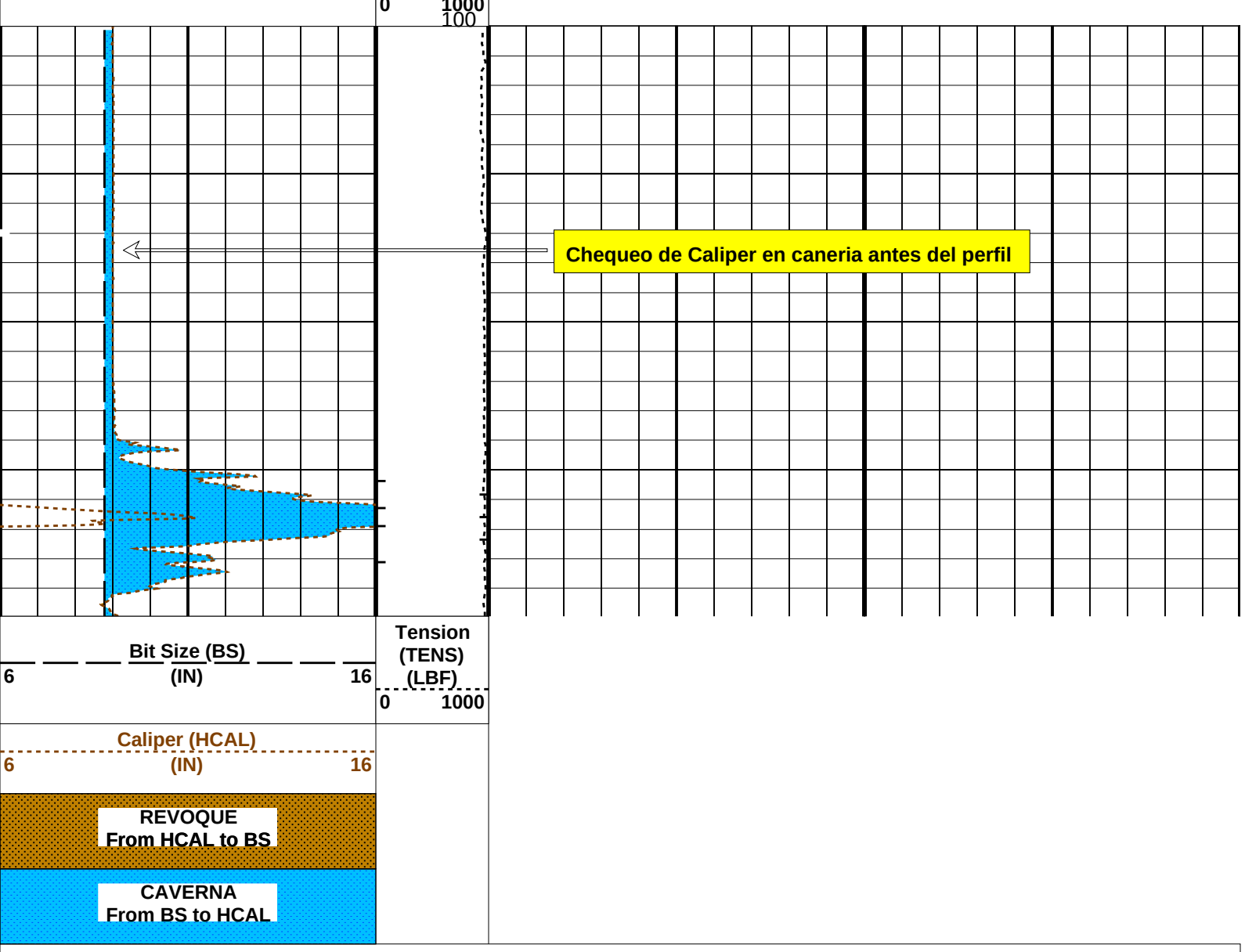
Caliper (HCAL)

6 (IN) 16

Bit Size (BS)

6 (IN) 16

Tension (TENS) (LBF)



PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HOLEV: Integrated Hole/Cement Volume		
FCD	Future Casing (Outer) Diameter	5.5	IN
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DO	Depth Offset for Playback	0.4	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1252.1	M

Format: CALIPER Vertical Scale: 1:200 Graphics File Created: 27−Jun−2005 12:48

OP System Version: 13C0−300

MCM

HILTB−CTS SRPC−2718−HILT

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:11	PRODUCER	26−Jun−2005 06:41	129.8 M	53.0 M

Output DLIS Files

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_082PUP	FN:113	PRODUCER	27−Jun−2005 12:48		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:11	PRODUCER	26−Jun−2005 06:41	129.8 M	53.0 M
DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27−Jun−2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_082PUP	FN:113	PRODUCER	27−Jun−2005 12:48	119.9 M	100.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 0.47 M3

Cement Volume = 0.38 M3 (assuming 5.50 IN casing O.D.)

Computed from 119.9 M to 114.1 M using data channel(s) HCAL

OP System Version: 13C0−300

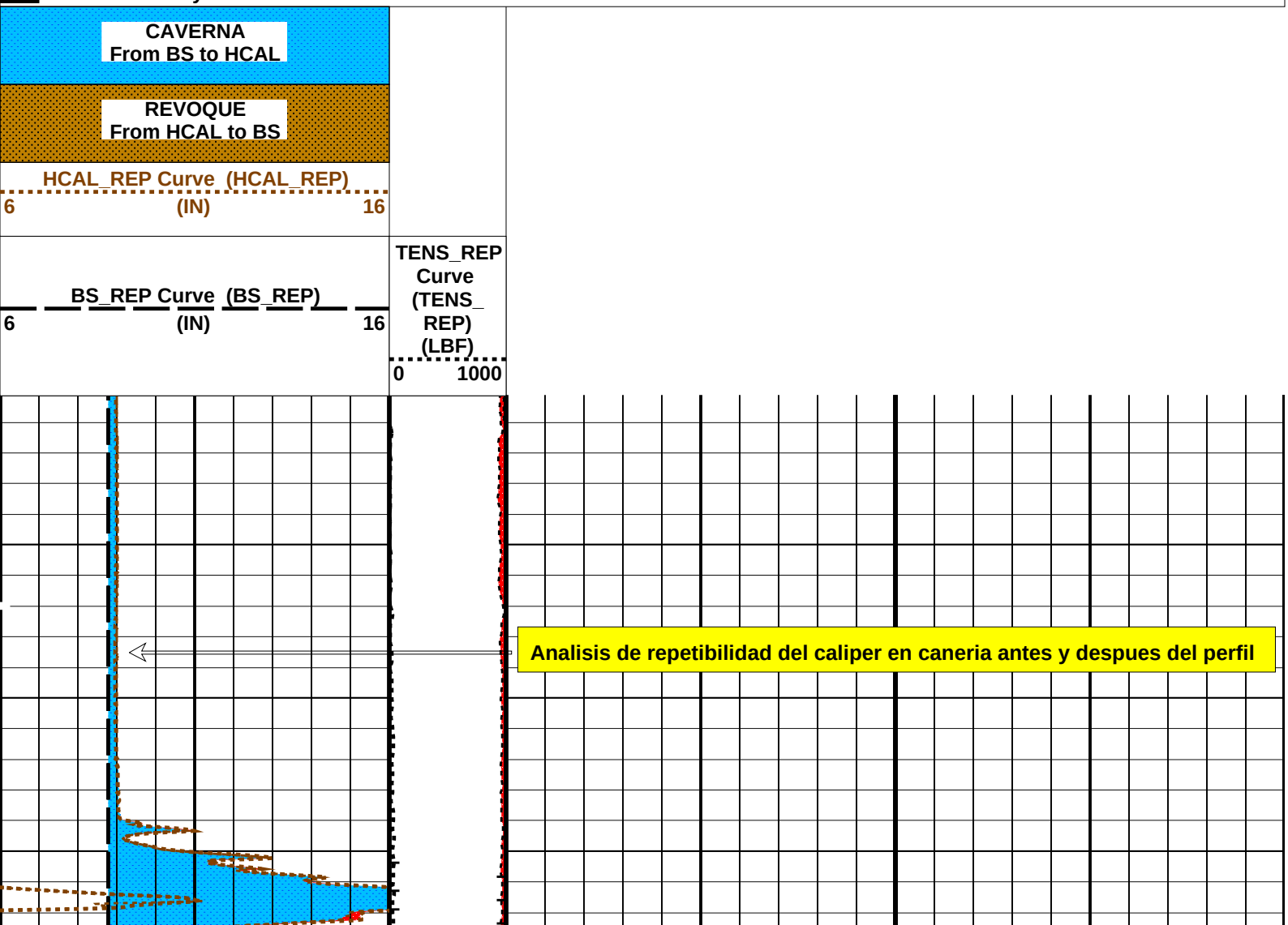
MCM

HILTB−CTS SRPC−2718−HILT

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S



BS_REP Curve (BS_REP)
6 (IN) 16

TENS_REP Curve (TENS_REP) (LBF)
0 1000

HCAL_REP Curve (HCAL_REP)
6 (IN) 16

REVOQUE
From HCAL to BS

CAVERNA
From BS to HCAL

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HOLEV: Integrated Hole/Cement Volume		
FCD	Future Casing (Outer) Diameter	5.5	IN
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DO	Depth Offset for Playback	0.4	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1252.1	M

Format: CALIPER_REP Vertical Scale: 1:200 Graphics File Created: 27-Jun-2005 12:48

OP System Version: 13C0-300

MCM

HILTB-CTS SRPC-2718-HILT

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:11	PRODUCER	26-Jun-2005 06:41	129.8 M	53.0 M
DEFAULT	AIT_TLD_MCFL_CNL_071PUP	FN:102	PRODUCER	27-Jun-2005 12:14	1258.4 M	43.3 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_082PUP	FN:113	PRODUCER	27-Jun-2005 12:48

Schlumberger

CALIBRACIONES

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Electronics Calibration Check − Thru Cal Mag. & Phase							
Master: 15−Jun−2005 13:54 Before: 26−Jun−2005 7:24							
Thru Cal Magnitude − 0	0	0.6250	0.6297	N/A	N/A	N/A	V
Thru Cal Magnitude − 1	0	1.282	1.291	N/A	N/A	N/A	V
Thru Cal Magnitude − 2	0	0.6353	0.6402	N/A	N/A	N/A	V
Thru Cal Magnitude − 3	0	0.7185	0.7239	N/A	N/A	N/A	V
Thru Cal Magnitude − 4	0	1.344	1.354	N/A	N/A	N/A	V
Thru Cal Magnitude − 5	0	1.942	1.957	N/A	N/A	N/A	V
Thru Cal Magnitude − 6	0	1.939	1.953	N/A	N/A	N/A	V
Thru Cal Magnitude − 7	0	1.374	1.386	N/A	N/A	N/A	V
Phase − 0	0	63.02	63.82	N/A	N/A	N/A	DEG
Phase − 1	0	62.02	62.83	N/A	N/A	N/A	DEG
Phase − 2	0	57.87	58.68	N/A	N/A	N/A	DEG
Phase − 3	0	57.00	57.81	N/A	N/A	N/A	DEG
Phase − 4	0	50.11	50.93	N/A	N/A	N/A	DEG
Phase − 5	0	48.07	48.89	N/A	N/A	N/A	DEG
Phase − 6	0	48.09	48.92	N/A	N/A	N/A	DEG
Phase − 7	0	43.46	44.34	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Electronics Calibration Check − Auxilliary							
Master: 15−Jun−2005 13:54 Before: 26−Jun−2005 7:24							
Array Induction SPA Plus	990.5	990.5	991.2	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	−0.2366	−0.2160	N/A	N/A	N/A	MV
Array Induction Temperature Pl	0.9150	0.9172	0.9179	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	−0.0002293	−0.0002093	N/A	N/A	N/A	V
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Test Loop Gain Correction							
Master: 15−Jun−2005 13:54							
Test Loop Gain Magnitude − 0	0	1.012	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 1	0	1.014	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 2	0	1.012	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 3	0	1.014	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 4	0	0.9963	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 5	0	1.006	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 6	0	1.016	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 7	0	1.027	N/A	N/A	N/A	N/A	V
Phase − 0	0	0.4956	N/A	N/A	N/A	N/A	DEG
Phase − 1	0	−0.6404	N/A	N/A	N/A	N/A	DEG
Phase − 2	0	−0.05543	N/A	N/A	N/A	N/A	DEG
Phase − 3	0	0.1479	N/A	N/A	N/A	N/A	DEG
Phase − 4	0	0.01085	N/A	N/A	N/A	N/A	DEG
Phase − 5	0	−0.1539	N/A	N/A	N/A	N/A	DEG
Phase − 6	0	0.1657	N/A	N/A	N/A	N/A	DEG
Phase − 7	0	−0.3211	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Sonde Error Correction							
Master: 15−Jun−2005 13:54							
R Sonde Error Correction − 0	0	−123.1	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 1	0	159.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 2	0	110.2	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 3	0	54.67	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 4	0	26.76	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 5	0	11.12	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 6	0	9.035	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 7	0	−0.7777	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 0	0	106.6	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 1	0	−147.3	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 2	0	−106.5	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 3	0	108.2	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 4	0	2.783	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 5	0	10.38	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 6	0	1.634	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 7	0	1.304	N/A	N/A	N/A	N/A	MM/M
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Mud Gain Correction							
Master: 15−Jun−2005 13:54							
Coarse − Mag, Real, Imag − 0	0	1.011	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 1	0	1.011	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 2	0	1.011	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 0	0	1.004	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 1	0	1.004	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 2	0	1.004	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Stab Measurement Summary							
Before: 26−Jun−2005 7:29							
BS Window Ratio	0.7379	N/A	0.7337	N/A	N/A	N/A	

BS Window Sum	11450	N/A	11480	N/A	N/A	N/A	CPS
SS Window Ratio	0.4801	N/A	0.4813	N/A	N/A	N/A	
SS Window Sum	11360	N/A	11330	N/A	N/A	N/A	CPS
LS Window Ratio	0.2946	N/A	0.2981	N/A	N/A	N/A	
LS Window Sum	1202	N/A	1201	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Photo−multiplier High Voltages Calibrations
Before: 26−Jun−2005 7:29

BS PM High Voltage (Command)	1748	N/A	1785	N/A	N/A	N/A	V
SS PM High Voltage (Command)	2176	N/A	2130	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1634	N/A	1622	N/A	N/A	N/A	V

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Crystal Quality Resolutions Calibration
Before: 26−Jun−2005 7:29

BS Crystal Resolution	12.45	N/A	12.40	N/A	N/A	N/A	%
SS Crystal Resolution	11.62	N/A	11.07	N/A	N/A	N/A	%
LS Crystal Resolution	9.432	N/A	9.488	N/A	N/A	N/A	%

High resolution Integrated Logging Tool−CTS Wellsite Calibration − MCFL Calibration
Before: 26−Jun−2005 7:30

Raw B0 Resistivity	3875	N/A	3845	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3831	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3840	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool−CTS Wellsite Calibration − HILT Caliper Calibration
Before: 26−Jun−2005 7:25

HILT Caliper Zero Measurement	8.000	N/A	7.890	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.27	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Detector Calibration
Before: 26−Jun−2005 7:23

Gamma Ray Background	30.00	N/A	61.09	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkg)	159.3	N/A	159.3	N/A	N/A	14.48	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Zero Measurement
Master: 6−Apr−2005 20:01 Before: 26−Jun−2005 7:24

CNTC Background	31.86	31.86	32.06	N/A	N/A	4.779	CPS
CFTC Background	32.87	32.87	33.11	N/A	N/A	4.931	CPS

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Ratio Measurement
Master: 6−Apr−2005 20:01

Thermal Near Corr. (Tank)	6031	5394	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2793	2313	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.332	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Accelerometer Calibration
Before: 26−Jun−2005 7:27

Z−Axis Acceleration	9.810	N/A	9.798	N/A	N/A	N/A	M/S2

High resolution Integrated Logging Tool−CTS Master Calibration − Inversion results
Master: 12−Jun−2005 12:57

Rho Aluminum	2.596	2.594	−−	−−	−−	−−	G/C3
Rho Magnesium	1.686	1.687	−−	−−	−−	−−	G/C3
Pe Aluminum	2.570	2.563	−−	−−	−−	−−	
Pe Magnesium	2.650	2.633	−−	−−	−−	−−	

High resolution Integrated Logging Tool−CTS Master Calibration − Deviation Summary
Master: 12−Jun−2005 12:57

BS Average Deviation	0	0.5357	−−	−−	−−	−−	%
BS Max Deviation	0	1.283	−−	−−	−−	−−	%
SS Average Deviation	0	0.5178	−−	−−	−−	−−	%
SS Max Deviation	0	1.315	−−	−−	−−	−−	%
LS Average Deviation	0	0.8568	−−	−−	−−	−−	%
LS Max Deviation	0	1.811	−−	−−	−−	−−	%

The GLS−VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT−B Water Temperature 15.0 DEGC.
Thermal Housing Size 3.363 IN.
NSR−F serial number 1089

High resolution Integrated Logging Tool−CTS / Equipment Identification

Primary Equipment:

Array Induction Tool − H	AIT − H	
Rm/SP Bottom Nose	AHRM − A	
Array Induction Sonde	AHIS − BA	379
HILT high−Resolution Mechanical Sonde	HRMS − B	704
HILT Rxo Gamma−ray Device	HRGD − B	1886
HILT Micro Cylindrically Focused Log Dev	MCFL −	
GR Logging Source	GLS − VJ	3766
HILT High Res. Control Cartridge	HRCC − B	704

Auxiliary Equipment:

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Electronics Calibration Check − Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6250		0.6050	63.02		71.00
	Before	0.6297			63.82		
1	Master	1.282		1.270	62.02		70.00
	Before	1.291			62.83		
2	Master	0.6353		0.6230	57.87		66.00
	Before	0.6402			58.68		
3	Master	0.7185		0.7040	57.00		65.00
	Before	0.7239			57.81		
4	Master	1.344		1.337	50.11		59.00
	Before	1.354			50.93		
5	Master	1.942		1.955	48.07		57.00
	Before	1.957			48.89		
6	Master	1.939		1.955	48.09		57.00
	Before	1.953			48.92		
7	Master	1.374		1.415	43.46		53.00
	Before	1.386			44.34		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom −60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: 15−Jun−2005 13:54 Before: 26−Jun−2005 7:24

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Electronics Calibration Check − Auxilliary

Phase	Array Induction SPA Plus MV	Value
Master		990.5
Before		991.2
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)	

Phase	Array Induction SPA Zero MV	Value
Master		−0.2366
Before		−0.2160
	−50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	

Phase	Array Induction Temperature Plus V	Value
Master		0.9172
Before		0.9179
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)	

Phase	Array Induction Temperature Zero V	Value
Master		−0.0002293
Before		−0.0002093
	−0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: 15−Jun−2005 13:54 Before: 26−Jun−2005 7:24

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.012		0.4956	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
1	1.014		−0.6404	

		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.012				−0.05543			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.014				0.1479			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	0.9963				0.01085			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	1.006				−0.1539			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.016				0.1657			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.027				−0.3211			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	−123.1				106.6			
		−231.0 (Minimum)	−56.00 (Nominal)	119.0 (Maximum)		−2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	159.9				−147.3			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		−625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	110.2				−106.5			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		−350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	54.67				108.2			
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		−250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	26.76				2.783			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		−63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	11.12				10.38			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		−50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.035				1.634			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	−0.7777				1.304			
		−5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Mud Gain Correction

Idx	Value	Coarse − Mag, Real, Imag			Value	Fine − Mag, Real, Imag		
0	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Stab Measurement Summary

Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before		0.7337	Before		0.4813	Before		0.2981
0.7010 (Minimum)	0.7379 (Nominal)	0.7748 (Maximum)	0.4561 (Minimum)	0.4801 (Nominal)	0.5041 (Maximum)	0.2798 (Minimum)	0.2946 (Nominal)	0.3093 (Maximum)

Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before		11480	Before		11330	Before		1201
10880 (Minimum)	11450 (Nominal)	12020 (Maximum)	10790 (Minimum)	11360 (Nominal)	11930 (Maximum)	1142 (Minimum)	1202 (Nominal)	1262 (Maximum)

Before: 26−Jun−2005 7:29

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Photo−multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before		1785	Before		2130	Before		1622
1648 (Minimum)	1748 (Nominal)	1848 (Maximum)	2076 (Minimum)	2176 (Nominal)	2276 (Maximum)	1534 (Minimum)	1634 (Nominal)	1734 (Maximum)

Before: 26−Jun−2005 7:29

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before		12.40	Before		11.07	Before		9.488
11.45 (Minimum)	12.45 (Nominal)	13.45 (Maximum)	10.62 (Minimum)	11.62 (Nominal)	12.62 (Maximum)	8.432 (Minimum)	9.432 (Nominal)	10.43 (Maximum)

Before: 26−Jun−2005 7:29

High resolution Integrated Logging Tool−CTS Wellsite Calibration

MCFL Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before		3845	Before		3831	Before		3840
3565 (Minimum)	3875 (Nominal)	4185 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)

Before: 26−Jun−2005 7:30

High resolution Integrated Logging Tool−CTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value	Phase	HILT Caliper Plus Measurement IN	Value
Before		7.890	Before		12.27
6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)	9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)

Before: 26−Jun−2005 7:25

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		61.09	Before		159.3	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	144.8 (Minimum)	159.3 (Nominal)	173.7 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 26−Jun−2005 7:23

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		31.86	Master		32.87
Before		32.06	Before		33.11
5.000 (Minimum)	31.86 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	32.87 (Nominal)	40.00 (Maximum)

Master: 6−Apr−2005 20:01 Before: 26−Jun−2005 7:24

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5394	Master		2313	Master		2.332
5000	6031	7200	2075	2793	3125	2.120	2.159	2.540

(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Master: 6−Apr−2005 20:01

High resolution Integrated Logging Tool−CTS
Wellsite Calibration
Accelerometer Calibration

Phase	Z−Axis Acceleration M/S2	Value
Before		9.798
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	

Before: 26−Jun−2005 7:27

High resolution Integrated Logging Tool−CTS Master Calibration
Electronics Calibration Check − Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6250		0.6050	63.02		71.00
1	Master	1.282		1.270	62.02		70.00
2	Master	0.6353		0.6230	57.87		66.00
3	Master	0.7185		0.7040	57.00		65.00
4	Master	1.344		1.337	50.11		59.00
5	Master	1.942		1.955	48.07		57.00
6	Master	1.939		1.955	48.09		57.00
7	Master	1.374		1.415	43.46		53.00
		60.00 % (Minimum) (Nominal)		140.0 % (Maximum)	Nom −60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Master Calibration
Electronics Calibration Check − Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		990.5	Master		−0.2366
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			−50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	
Phase	Array Induction Temperature Plus V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.9172	Master		−0.0002293
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			−0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Master Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.012		0.4956	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
1	1.014		−0.6404	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
2	1.012		−0.05543	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
3	1.014		0.1479	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
4	0.9963		0.01085	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
5	1.006		−0.1539	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
6	1.016		0.1657	
	0.9500	1.000	1.050	−3.000	0	3.000

		(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
7	1.027				−0.3211			
		0.9500	1.000	1.050		−3.000	0	3.000

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Master Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	−123.1				106.6			
		−231.0 (Minimum)	−56.00 (Nominal)	119.0 (Maximum)		−2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	159.9				−147.3			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		−625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	110.2				−106.5			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		−350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	54.67				108.2			
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		−250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	26.76				2.783			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		−63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	11.12				10.38			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		−50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.035				1.634			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	−0.7777				1.304			
		−5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Master Calibration

Mud Gain Correction

Idx	Value	Coarse − Mag, Real, Imag			Value	Fine − Mag, Real, Imag		
0	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.011				1.004			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 15−Jun−2005 13:54

High resolution Integrated Logging Tool−CTS Master Calibration

Inversion results

Phase	Rho Aluminum G/C3	Value	Phase	Rho Magnesium G/C3	Value
Master		2.594	Master		1.687
	2.586 (Minimum) 2.596 (Nominal) 2.606 (Maximum)			1.676 (Minimum) 1.686 (Nominal) 1.696 (Maximum)	

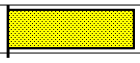
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.563	Master		2.633
	2.470 (Minimum) 2.570 (Nominal) 2.670 (Maximum)			2.550 (Minimum) 2.650 (Nominal) 2.750 (Maximum)	

Master: 12−Jun−2005 12:57

High resolution Integrated Logging Tool−CTS Master Calibration

Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master		0.5357	Master		0.5178	Master		0.8568

−0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		−1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)		−1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)
Phase	BS Max Deviation %		Value	Phase	SS Max Deviation %		Value	Phase	LS Max Deviation %		Value
Master			1.283	Master			1.315	Master			1.811
−1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)		−2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)		−3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)

Master: 12−Jun−2005 12:57

High resolution Integrated Logging Tool−CTS Master Calibration

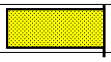
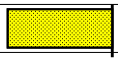
Zero Measurement

Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			31.86	Master			32.87
5.000 (Minimum)	31.86 (Nominal)	40.00 (Maximum)		5.000 (Minimum)	32.87 (Nominal)	40.00 (Maximum)	

Master: 6−Apr−2005 20:01

High resolution Integrated Logging Tool−CTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
Master			5394	Master			2313	Master			2.332
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)		2075 (Minimum)	2793 (Nominal)	3125 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	

Master: 6−Apr−2005 20:01

COMPANIA: YPF S.A.

POZO: YPF.Ch.LC−668

CAMPO: LA CAROLINA

PROVINCIA: CHUBUT

PAIS: ARGENTINA

PRIMERA LECTURA	1249.4 m
PROFUNDIDAD PERFIL	1252.1 m
PROF. PERFORADOR	1250 m
BUJE DE VASTAGO	434.61 m
MESA ROTATIVA	434.31 m
NIVEL TERRENO	430.06 m

Schlumberger

COMBINADA

ESCALA: 1/200

Schlumberger

Compania: **YPF S.A.**

Pozo: **YPF.Ch.LC−668**
Campo: **LA CAROLINA**
Provincia: **CHUBUT** Pais: **ARGENTINA**

Provincia: CHUBUT
Campo: LA CAROLINA
Locacion: CAS
Pozo: YPF.Ch.LC−668
Compania: YPF S.A.

CONTROL DE CEMENTO
CBL VDL CNL CCL
1/200

LOCACION

CAS
X:4.946.409,71
Y:2.571.899,61

Elev.: B.V. 434.61 m
N.T. 430.06 m
M.R. 434.31 m

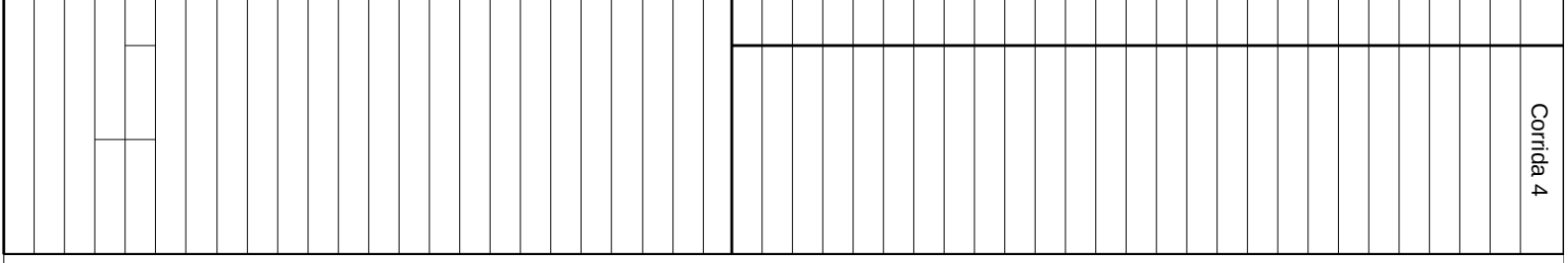
Ref. Permanente: NIVEL DE TERRENO Elev.: 430.06 m
Reg. Medido Desde: NIVEL DE TERRENO 0.0 m sobre Ref. Permanente
Perforacion Medida Desde: NIVEL DE TERRENO

Equipo	Desviacion Maxima del Hoyo	Longitud X:4.946.409,71	Latitud Y:2.571.899,61

Fecha de Registro	30−Jun−2005		
Corrida Numero	1		
Prof. Perforador	1250 m		
Prof. Schlumberger	1230 m		
Primera Lectura	1230 m		
Ultima Lectura	725 m		
Tipo de Fluido en la Caneria	AGUA		
Salinidad			
Densidad	1 g/cm3		
Nivel del Fluido	0 m		
BROCA/CANERIA/TUBERIA			
Broca	8.500 in		
Desde	0 m		
Hasta	114 m		
Caneria / Tuberia	5.500 in		
Peso	14 lbm/ft		
Grado			
Desde	0 m		
Hasta	1250 m		
Temperaturas Maximas Medidas	63 degC		
Registro en Fondo / Hora	30−Jun−2005	21:11	
Unidad Numero / Locacion	8116	CAS	
Registrado por	D.PEROTTI		
Testigo	E.GONZALEZ		

		Corrida 1	Corrida 2	Corrida 3
DATOS PVT	Densidad del Crudo			
	Salinidad del Agua			
	Gravedad del Gas			
	Bo			
	Bw			
	1/Bg			
	Presion del Punto de Burbuja			
	Temperatura del Punto de Burbuja			
	GOR en Solucion			
	Desviacion Maxima			
	DATOS DE CEMENTACION			
	Primaria/Reparacion	Primary		
	Sarta de la Caneria No.			
	Tipo de Cemento Primario			
	Volumen			
	Densidad			
	Perdida de Agua			
	Aditivos			
	Tipo de Cemento Cola			
	Volumen			
	Densidad			
	Perdidad de Agua			
	Aditivos			
	Tope de Cemento Esperado			

Fecha de Registro			
Corrida Numero			
Prof. Perforador			
Prof. Schlumberger			
Primera Lectura			
Ultima Lectura			
Tipo de Fluido en la Caneria			
Salinidad			
Densidad			
Nivel del Fluido			
BROCA/CANERIA/TUBERIA			
Broca			
Desde			
Hasta			
Caneria / Tuberia			
Peso			
Grado			
Desde			
Hasta			
Temperaturas Maximas Medidas			
Registro en Fondo / Hora			
Unidad Numero / Locacion			
Registrado por			
Testigo			



DEPTH SUMMARY LISTING

Date Created: 25−APR−2004 15:28:43

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46P
Serial Number:	824	Serial Number:	1689	Serial Number:	77353
Calibration Date:		Calibration Date:	3−Ene−2004	Length:	6985.10 M
Calibrator Serial Number:		Calibrator Serial Number:	1077	Conveyance Method:	Wireline
Calibration Cable Type:	7−46P	Calibration Gain:	1.00	Rig Type:	LAND
Wheel Correction 1:	−2	Calibration Offset:	0.00		
Wheel Correction 2:	−2				

Depth Control Parameters

Log Sequence: Subsequent Log In the Well

Reference Log Name: Combinada
Reference Log Run Number: 1
Reference Log Date: 26−Jun−2005

Depth Control Remarks

1. IDW usado como sistema de profundidad primario.
2.
3.
4.
5.
6.

OTROS SERVICIOS #1	OTROS SERVICIOS #2
OS1: PUNZADO 4"	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5: P.INT−246	OS5:
OBSERVACIONES: CORRIDA #1	OBSERVACIONES: CORRIDA #2
−Perfil de correlacion de cia.Schlumberger	
−Herramienta corrida segun diagrama	
−Sonico centralizado con tres gemcos de 5.5"	
−Primer tramo de registro sin correccion de profundidad	
−Lectura de Cbl en caneria libre 70 Mv(+ −) 10 Mv	
−Lectura de TT afectada por buen cemento	
−Fondo constatado 1230 Mtrs	

CORRIDA #1			CORRIDA #2		
ORDEN DE SERVICIO:			ORDEN DE SERVICIO:		
VERSION DEL PROGRAMA:		11C0−305	VERSION DEL PROGRAMA:		
NIVEL DEL FLUIDO:		0 m	NIVEL DEL FLUIDO:		
INTERVALO REGISTRADO	COMIENZO	FINAL	INTERVALO REGISTRADO	COMIENZO	FINAL

DESCRIPCION DEL EQUIPO

CORRIDA #1

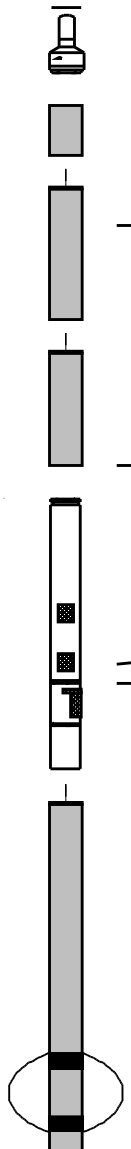
CORRIDA #2

SURFACE EQUIPMENT

STM−C
CNB−AB
NCT−B
NCS−VB

WITM (CTS)−A

DOWNHOLE EQUIPMENT



PEH−A 12.80
PEH−A 8116

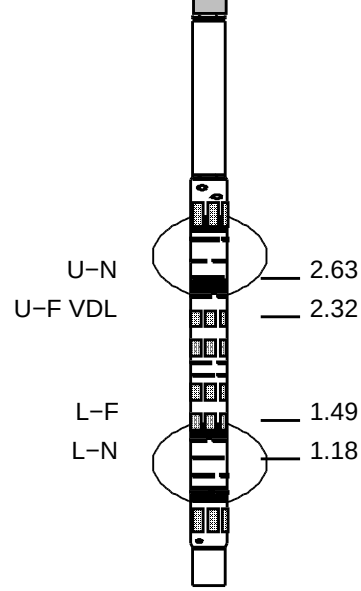
AH−64 12.26
AH−64 8116

CAL−Y 11.85
CAL−Y 489

TCC−B 10.78
ECH−KC 9016
TCC−B

CNT−H 9.87
CND−NA
NLS−KL
NSR−F
CNC−HA
CNH−A 2021
NPV−N

SDT−C 7.66
SDC−CB
ECH−KR 2222
SLS−WA 1208



BNS−CCS Tension HV 0.00 0.14

TOOL ZERO

MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

PROVINCIA: NEUQUEN
MAXIS EXPRESS

Schlumberger

TRAMO PRINCIPAL

Company: YPF S.A. **Well: YPF.Ch.LC−668**

Output DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26	1232.5 M	722.4 M

OP System Version: 11C0−305

MCM

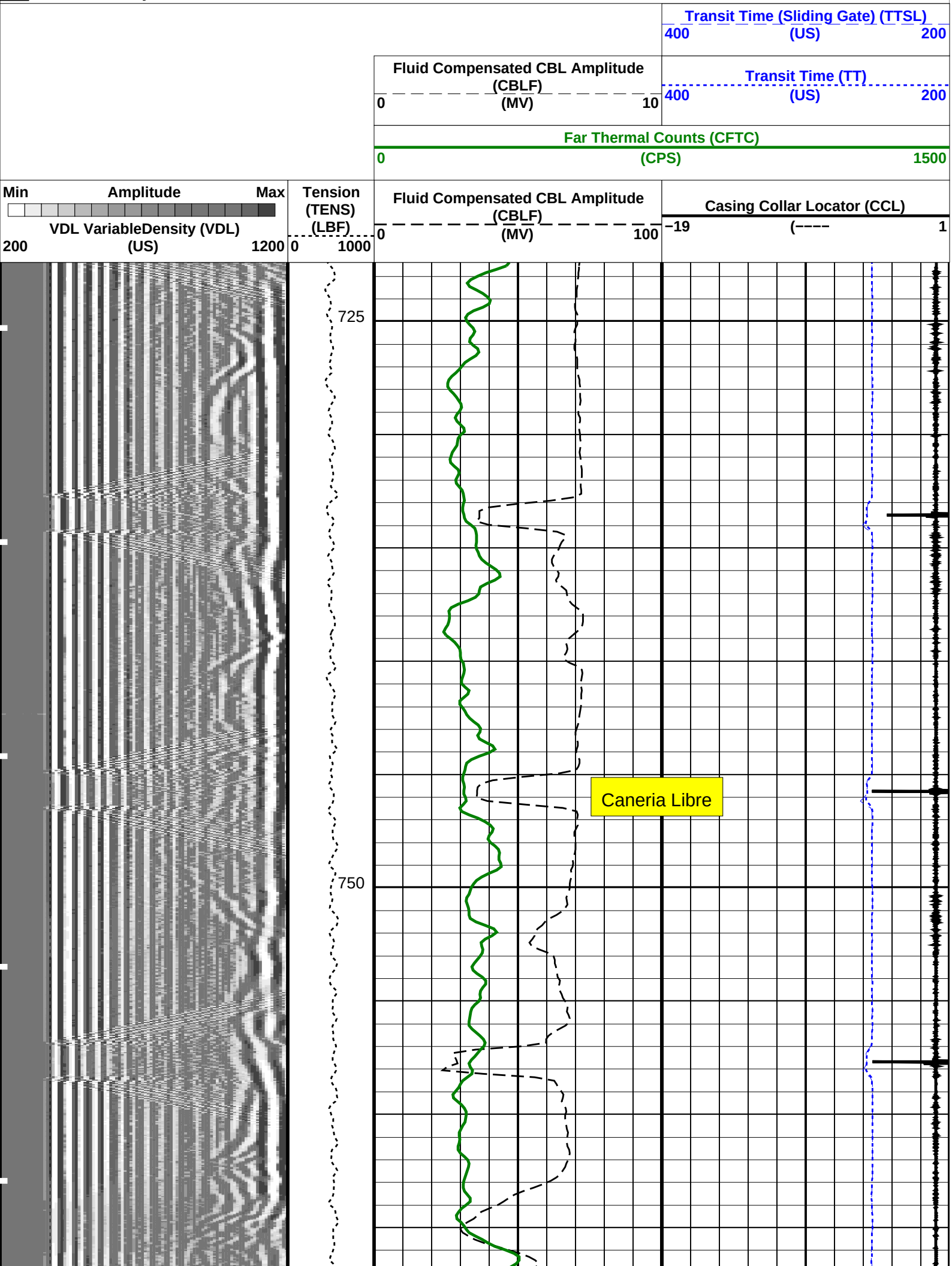
SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

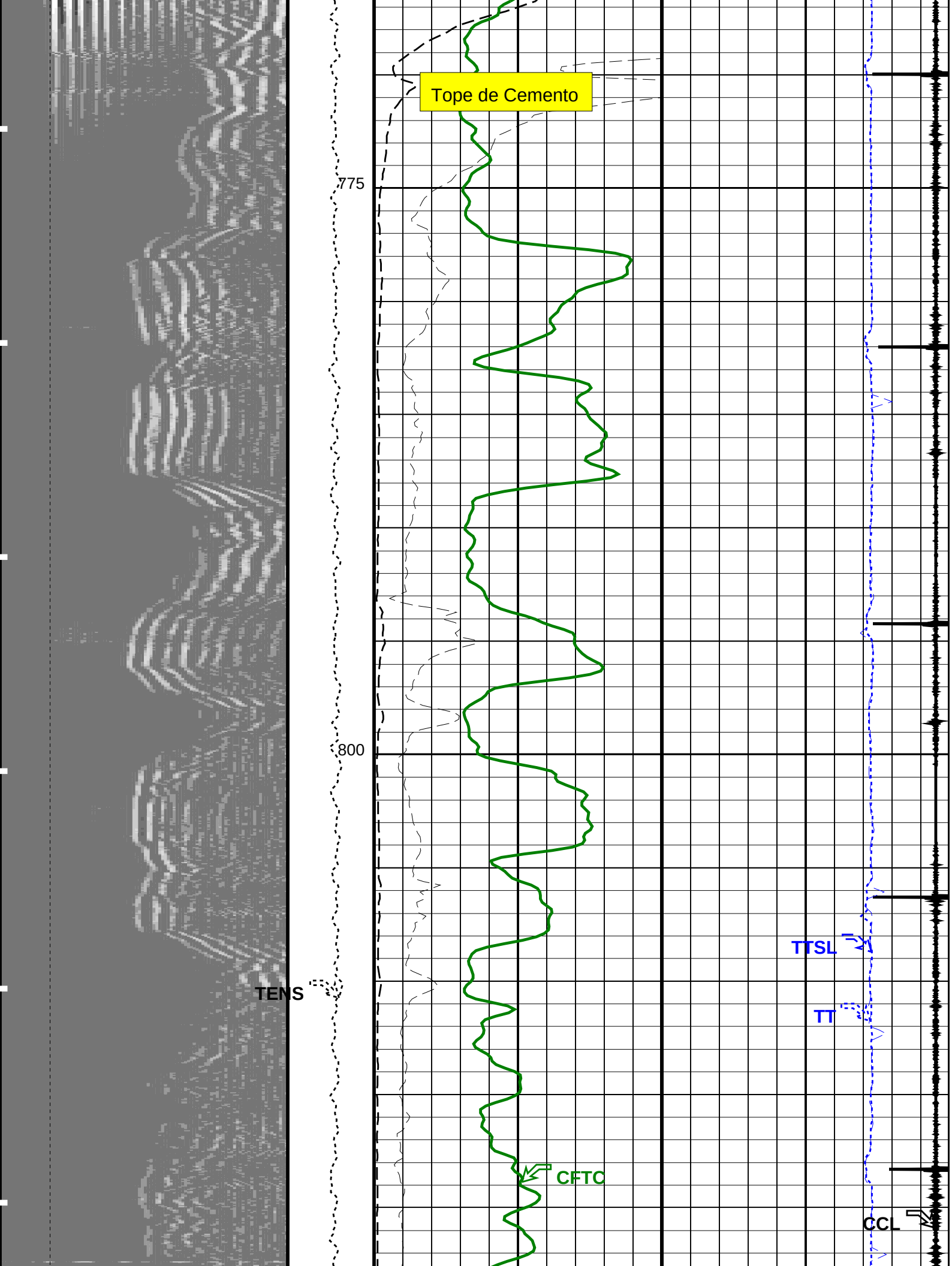
Changed Parameter Summary

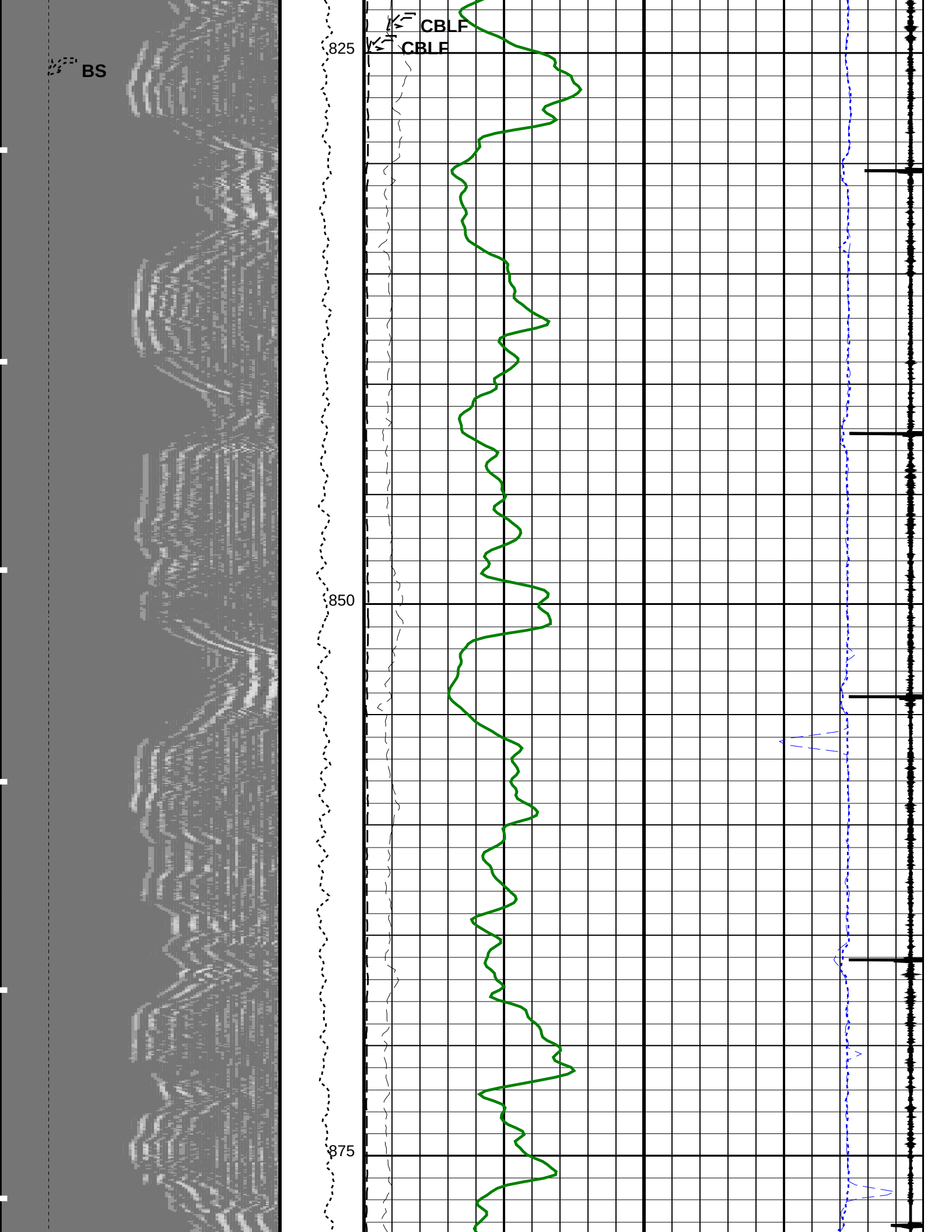
DLIS Name	New Value		Previous Value		Depth & Time
BS	8.500	IN	8.500	IN	1054.5 21:45:45
BSAL	−50000.00	PPM	−50000.00	PPM	1051.3 21:46:06
CSIZ	5.500	IN	5.500	IN	1053.7 21:45:50
CWEI	14.00	LB/F	14.00	LB/F	1052.8 21:45:56
DFD	1.00	G/C3	1.00	G/C3	1052.0 21:46:01
	1.00	G/C3	1.00	G/C3	1052.0 21:46:01
	1.00	G/C3	1.00	G/C3	1051.5 21:46:04
TDD	1250.00	M	−50000.00	M	1058.6 21:45:19
TDL	1230.00	M	−50000.00	M	1058.3 21:45:21

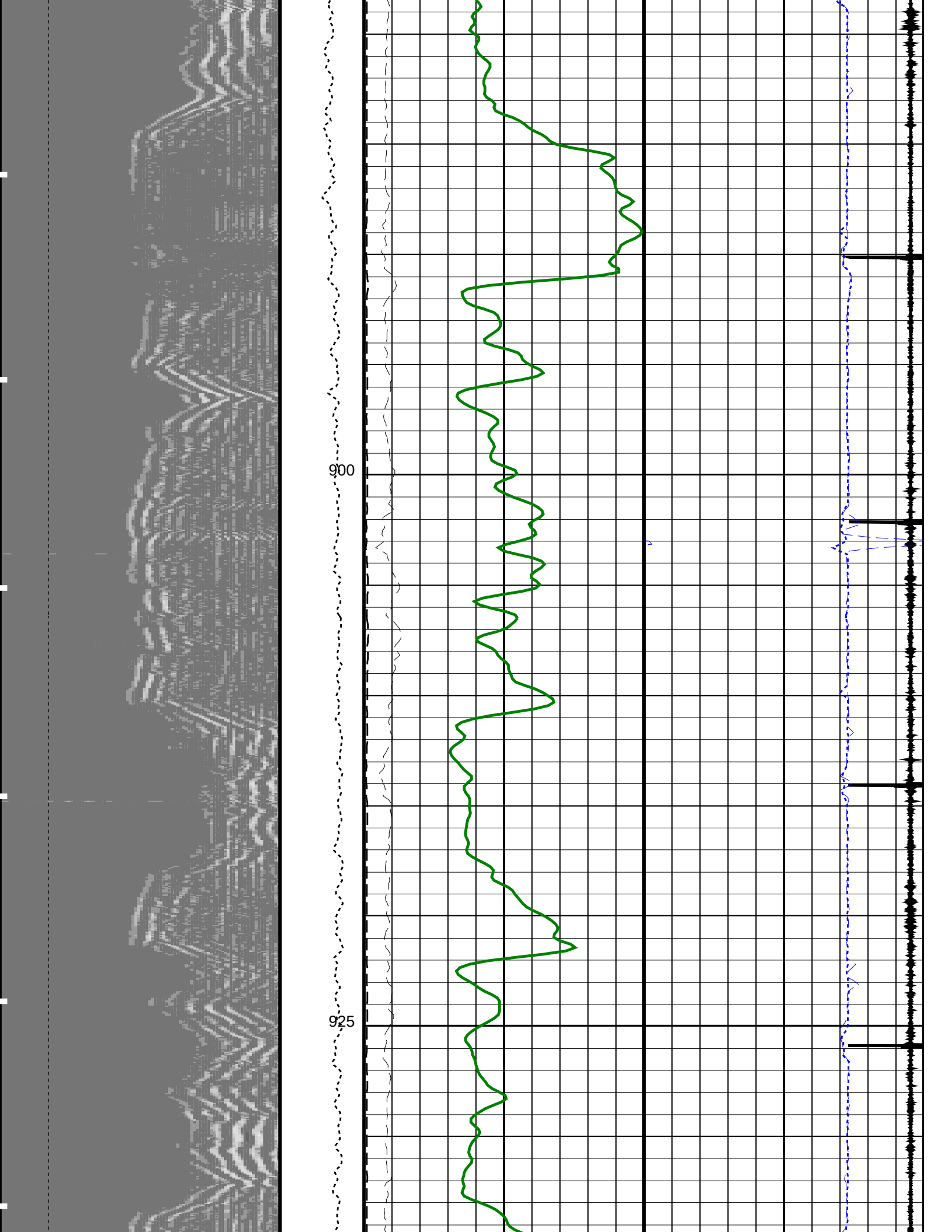
PIP SUMMARY

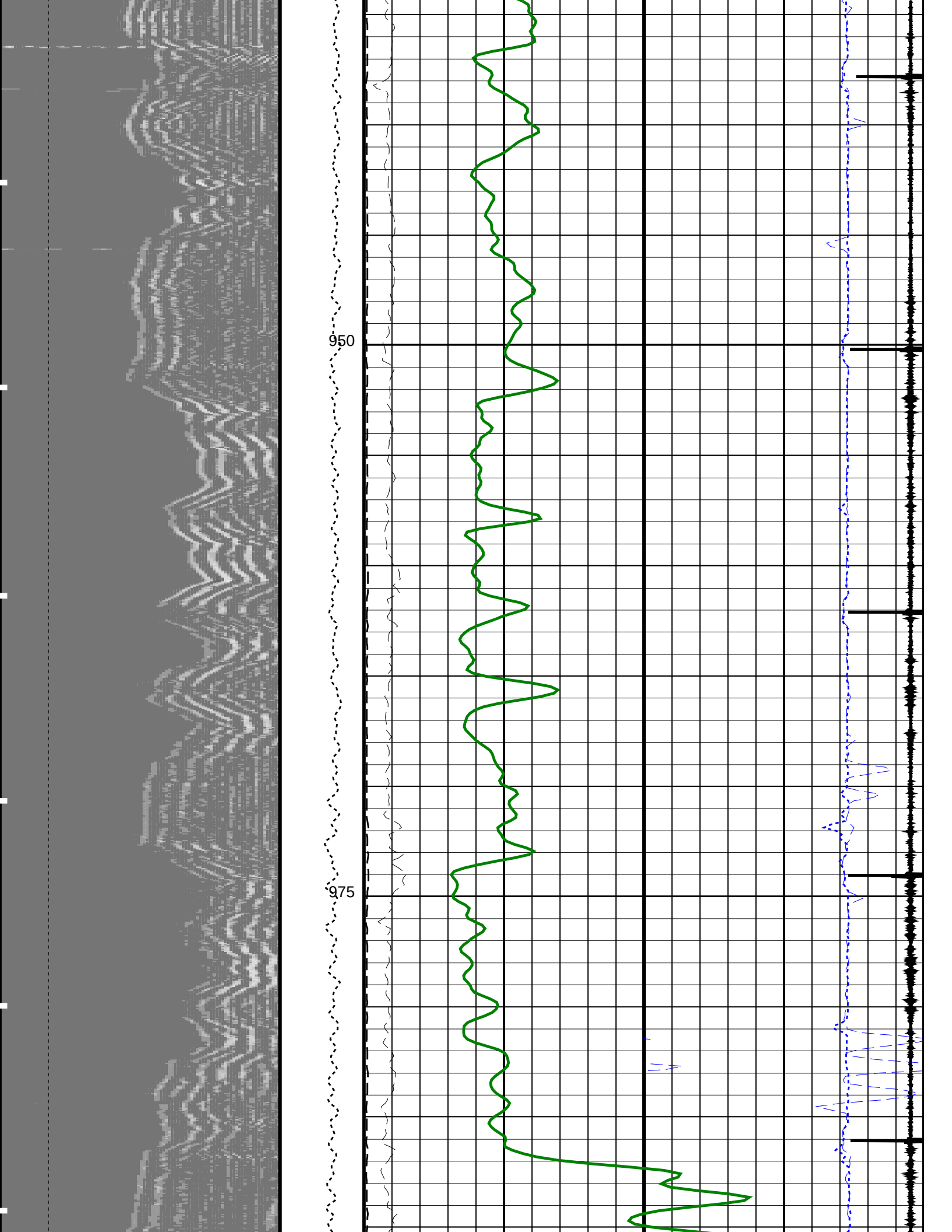
Time Mark Every 60 S

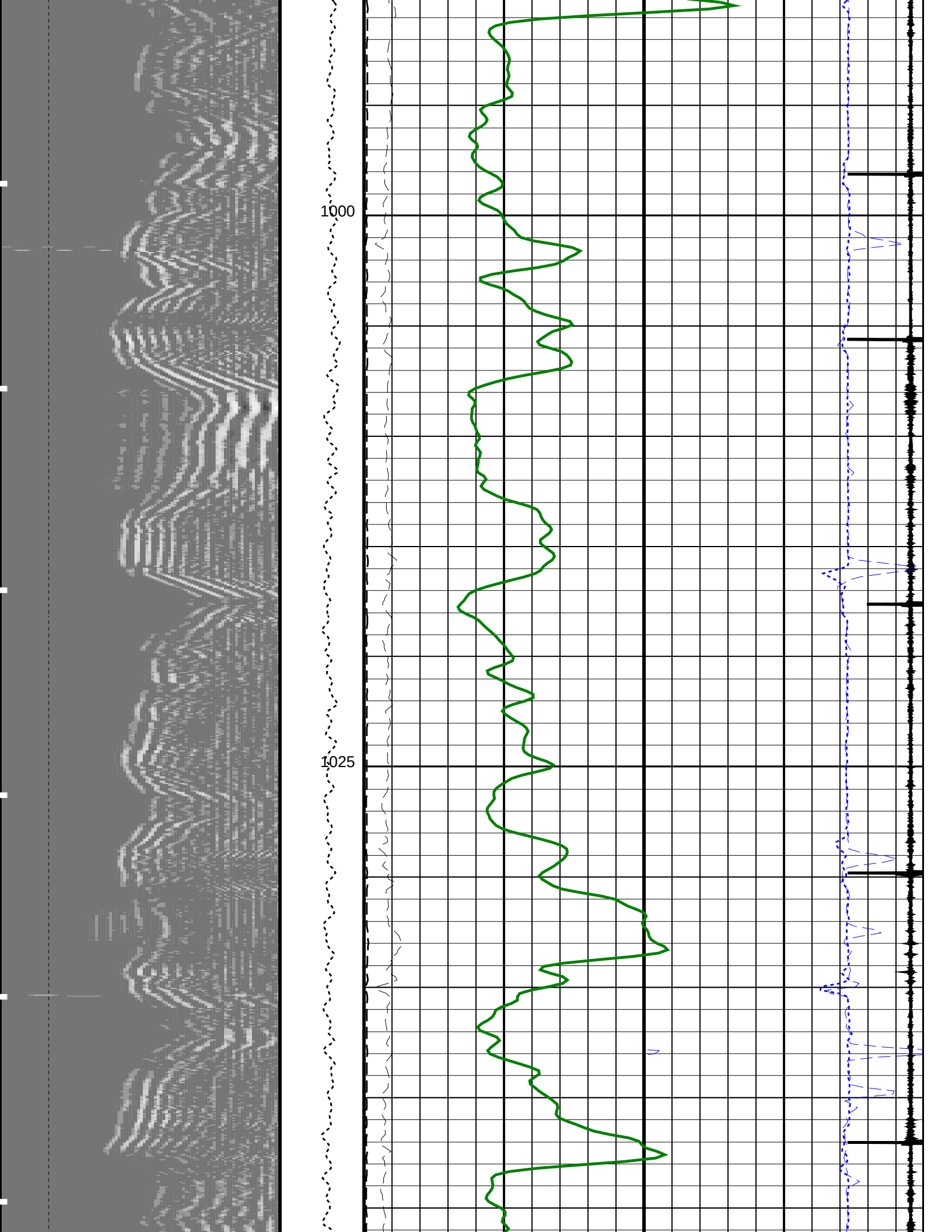

Transit Time (Sliding Gate) (TTSL)
400
(US)
200
Fluid Compensated CBL Amplitude (CBLF)
0
(MV)
10
Transit Time (TT)
400
(US)
200
Far Thermal Counts (CFTC)
0
(CPS)
1500
Min
Amplitude
Max
VDL VariableDensity (VDL)
200
(US)
1200
Tension (TENS) (LBF)
0
1000
Fluid Compensated CBL Amplitude (CBLF)
0
(MV)
100
Casing Collar Locator (CCL)
−19
(----
1
725
750
Caneria Libre

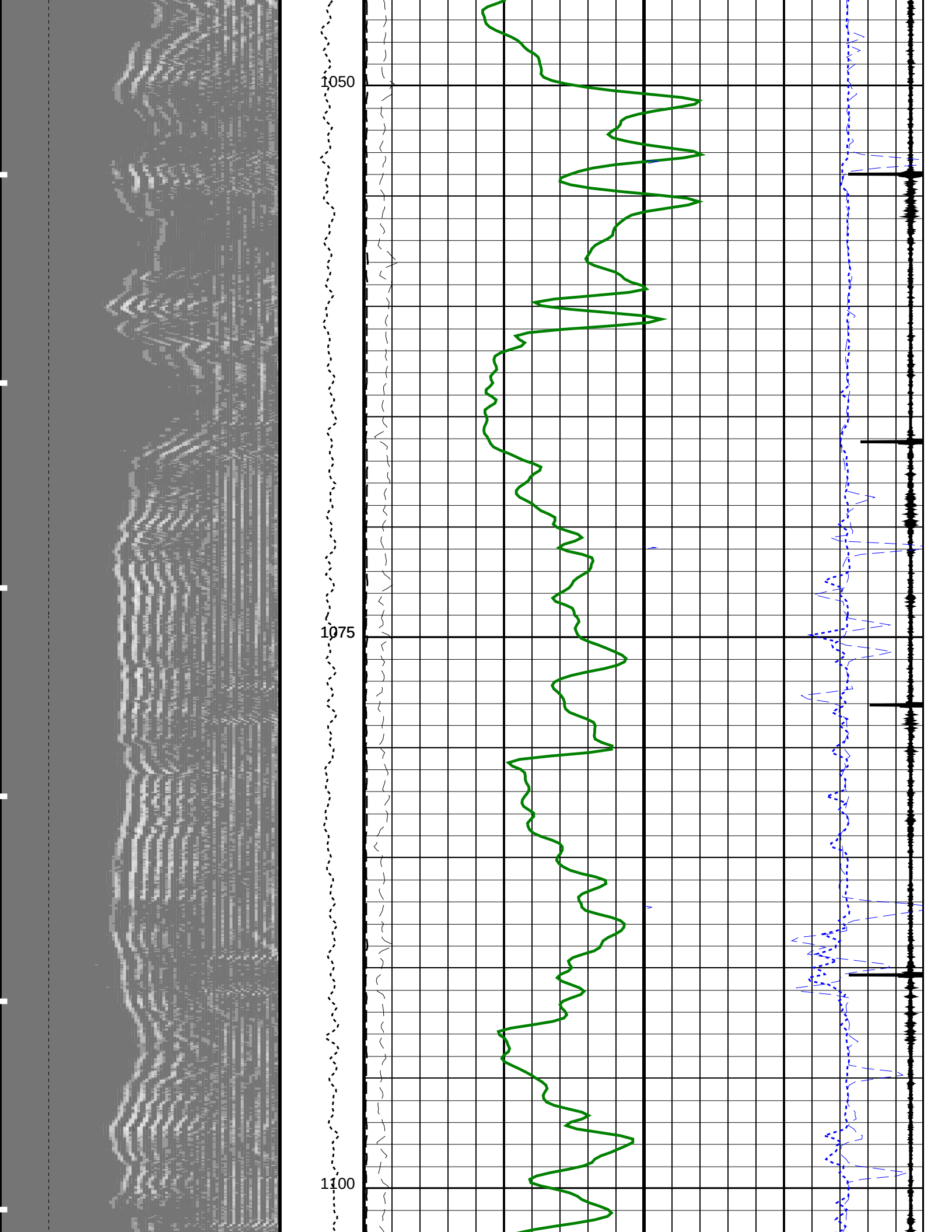

Tope de Cemento
775
800
TENS
TTSL
TT
CFTC
CCL

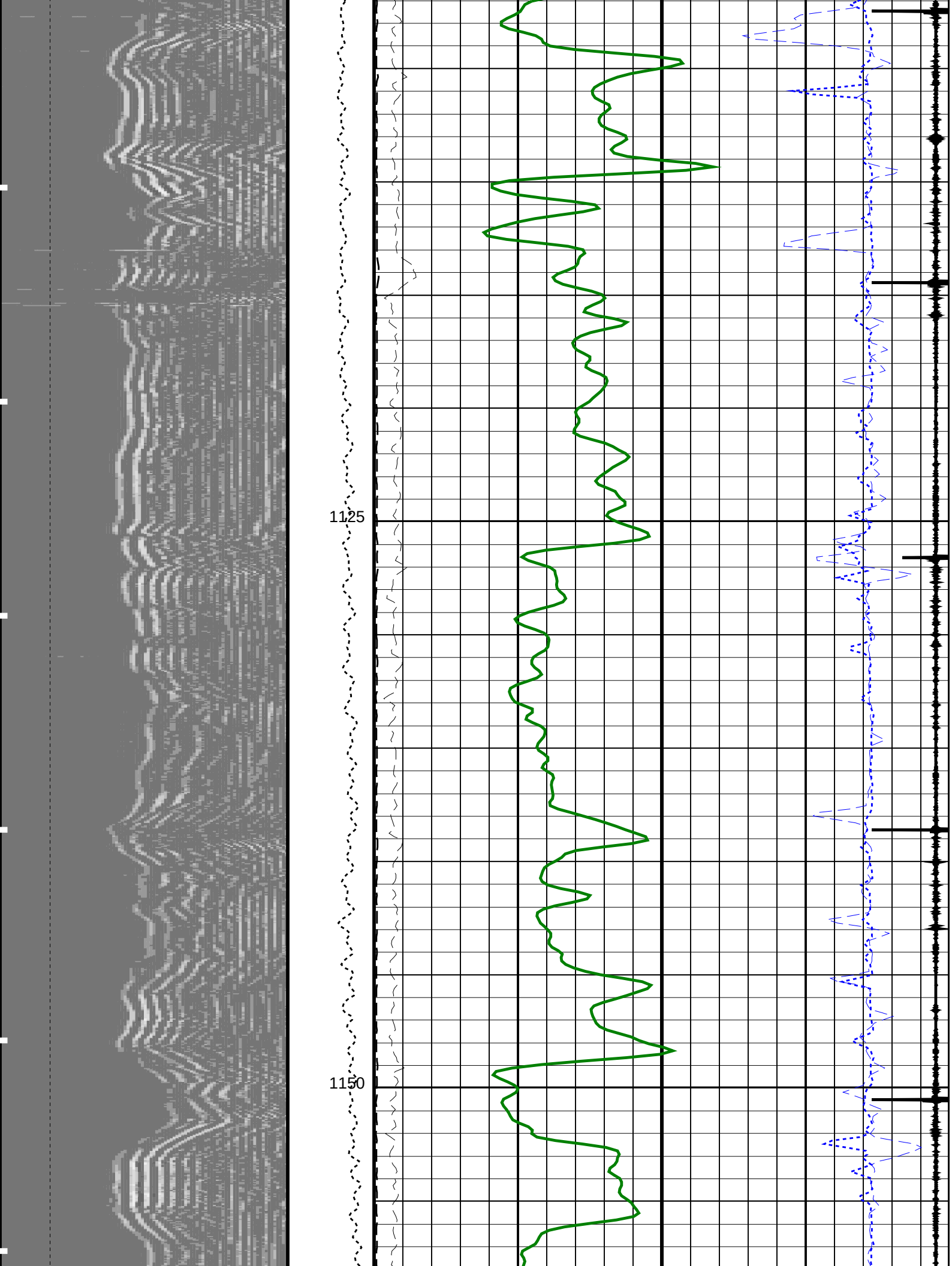

BS
CBLF
CBLF
825
850
875

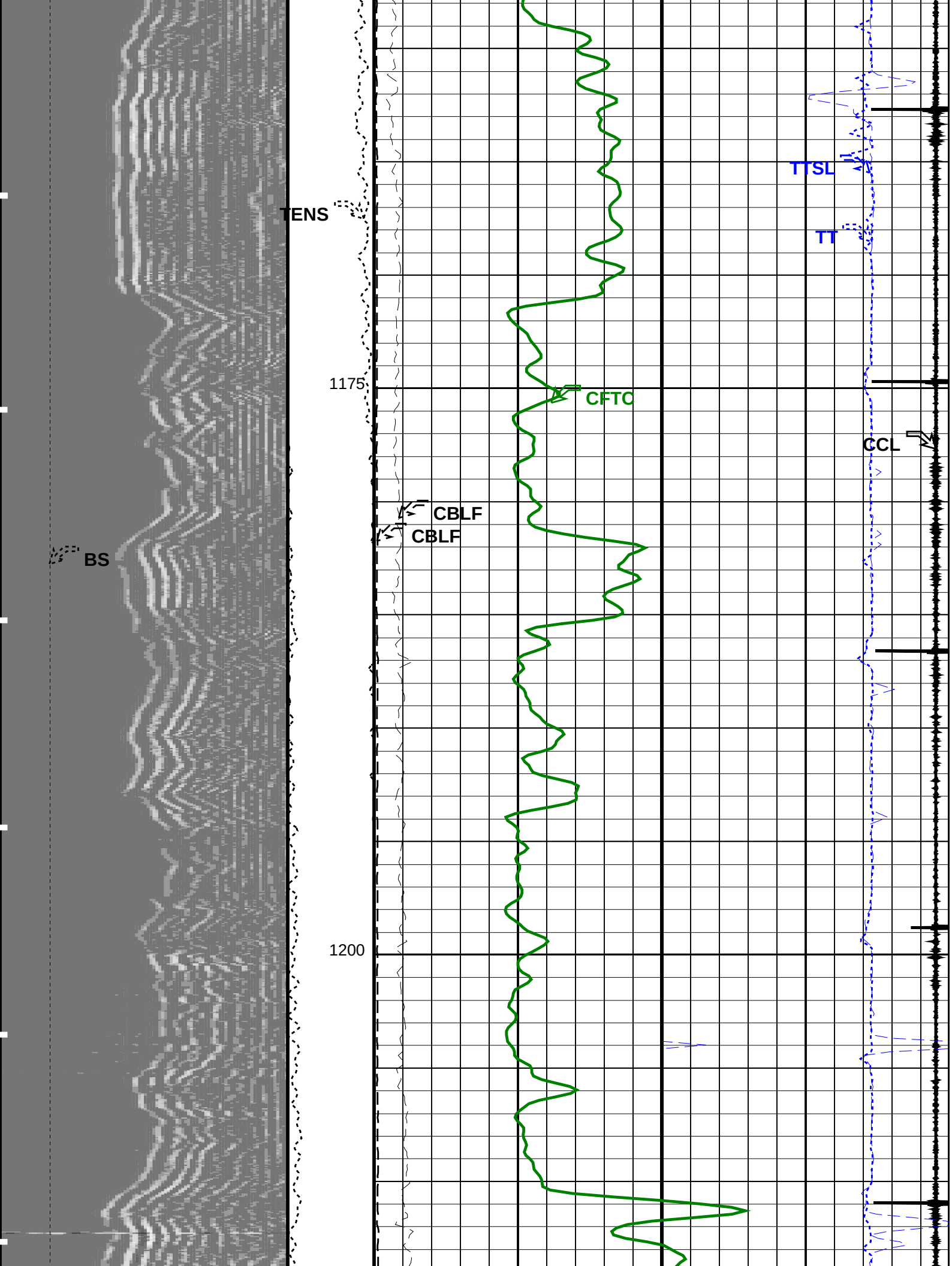

900
925

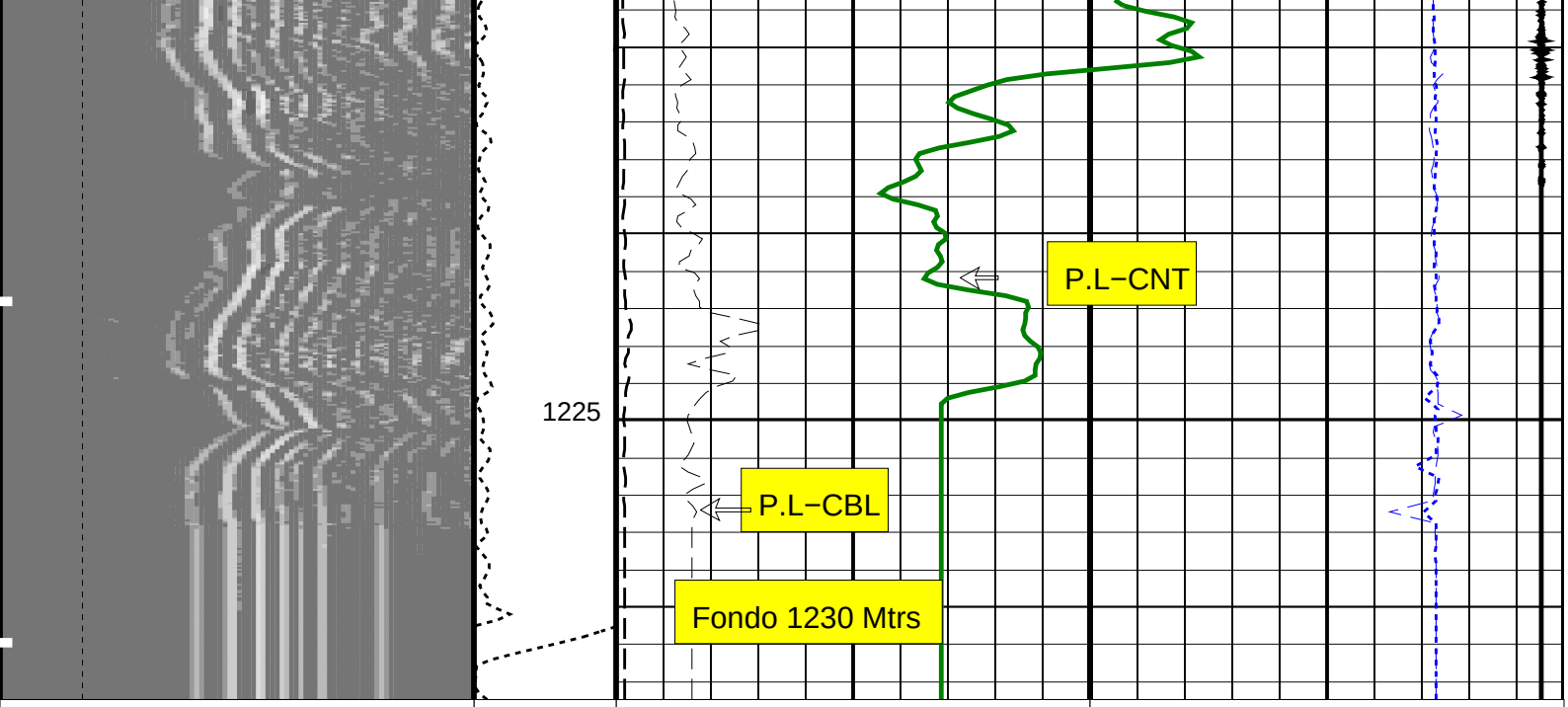

950
975


1000
1025


1050
1075
1100


1125
1150


TENS
1175
CFTC
TTSL
TT
CCL
CBLF
CBLF
BS
1200



Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200

Tension (TENS) (LBF)
0 1000

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 100

Casing Collar Locator (CCL)
−19 (−−−− 1

Far Thermal Counts (CFTC)
0 (CPS) 1500

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 10

Transit Time (TT)
400 (US) 200

Transit Time (Sliding Gate) (TTSL)
400 (US) 200

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	SDT−C: Sonic Digital − C		
AGC	Automatic Gain Control	ON	
AMSG	Auxilliary Minimum Sliding Gate	140	US
ASGL	Auxilliary Minimum Sliding Gate Width	100	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBLG	CBL Gate Width	40	US
CDDEL	Digitizing Delay (Acq Monitor Checked)	200	US
CDSIN	Digitizer Sample Interval (Acq Monitor Checked)	DS10	
CDTS	C−Delta−T Shale	100	US/F
CDWCO	Digitizer Word Count (Acq Monitor Checked)	500	
CRMOD	Receiver Mode (Acq Monitor Checked)	B	
CSTR	Compressive Strength of Cement	13789.5	KPAA
CVDLM	VDL Firing Mode (Acq Monitor Checked)	UTFR	
CWMOD	Waveform Firing Mode (Acq Monitor Checked)	NONE	
DDE0	Digitizing Delay 0	200	US
DDEL	Digitizing Delay	200	US
DDMG	Downhole Differential Multi−Gain	10	
DETE	Detection	E1	
DSI0	Digitizer Sample Interval 0	10	US
DSIN	Digitizer Sample Interval	DS10	
DTCM	Delta−T Computation Mode	FULL	
DTF	Delta−T Fluid	189	US/F
DTM	Delta−T Matrix	56	US/F
DWC0	Digitizer Word Count 0	500	
DWCO	Digitizer Word Count	500	
FCF	CBL Fluid Compensation Factor	0.9	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MCI	Minimum Cemented Interval for Isolation	1.4478	M

MGAI	Maximum Gain	3500	
MODE	Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	0.643961	MV
NMSG	Near Minimum Sliding Gate	248	US
RATE	Firing Rate	R15	
RMOD	Receiver Mode	B	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate	ON	
SGDT	Sliding Gate Delta−T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	MV
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SWW	Sonic Window Width	13	MS
T0CA	T0 Correction	ON	
TSIG	Test Signal	OFF	
VDLG	VDL Manual Gain	5	
VDLM	VDL Firing Mode	UTFR	
WAGC	Waveform AGC	ON	
WGAI	Waveform Manual Gain WGAI	20	
WGDT	Waveform Gain Delta−T	240	US/F
WGIN	Waveform Gain Interval	4800	US
WMOD	Waveform Firing Mode	NONE	
CNT−H: Compensated Neutron − H			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
DPPM	Density Porosity Processing Mode	STAN	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	15	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
CAL−Y: Casing Anomaly Locator − Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	14.00	LB/F
DFD	Drilling Fluid Density	1.00	G/C3
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	−50000	M
TDD	Total Depth − Driller	−50000.00	M
TDL	Total Depth − Logger	−50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated Vertical Scale: 1:200 Graphics File Created: 30−Jun−2005 21:26

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26

MAXIS EXPRESS

Schlumberger

TRAMO REPETIDO

Company: YPF S.A. **Well: YPF.Ch.LC−668**

Output DLIS Files

DEFAULT	SONIC_CNL_006LUP	FN:5	PRODUCER	30−Jun−2005 22:24	811.1 M	721.5 M

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

PIP SUMMARY

Time Mark Every 60 S

Transit Time (Sliding Gate) (TTSL)
400 (US) 200

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 10

Transit Time (TT)
400 (US) 200

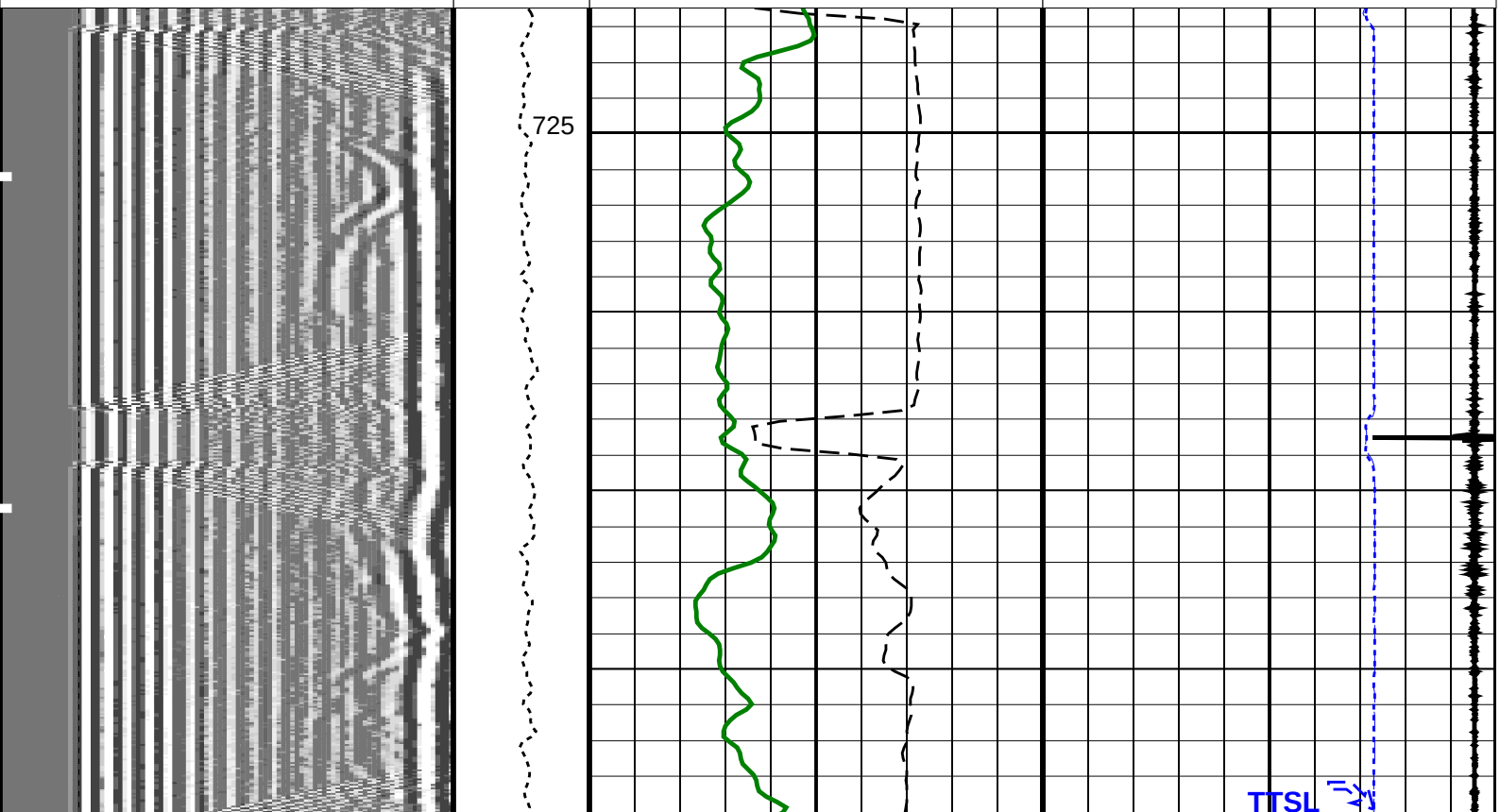
Far Thermal Counts (CFTC)
0 (CPS) 1500

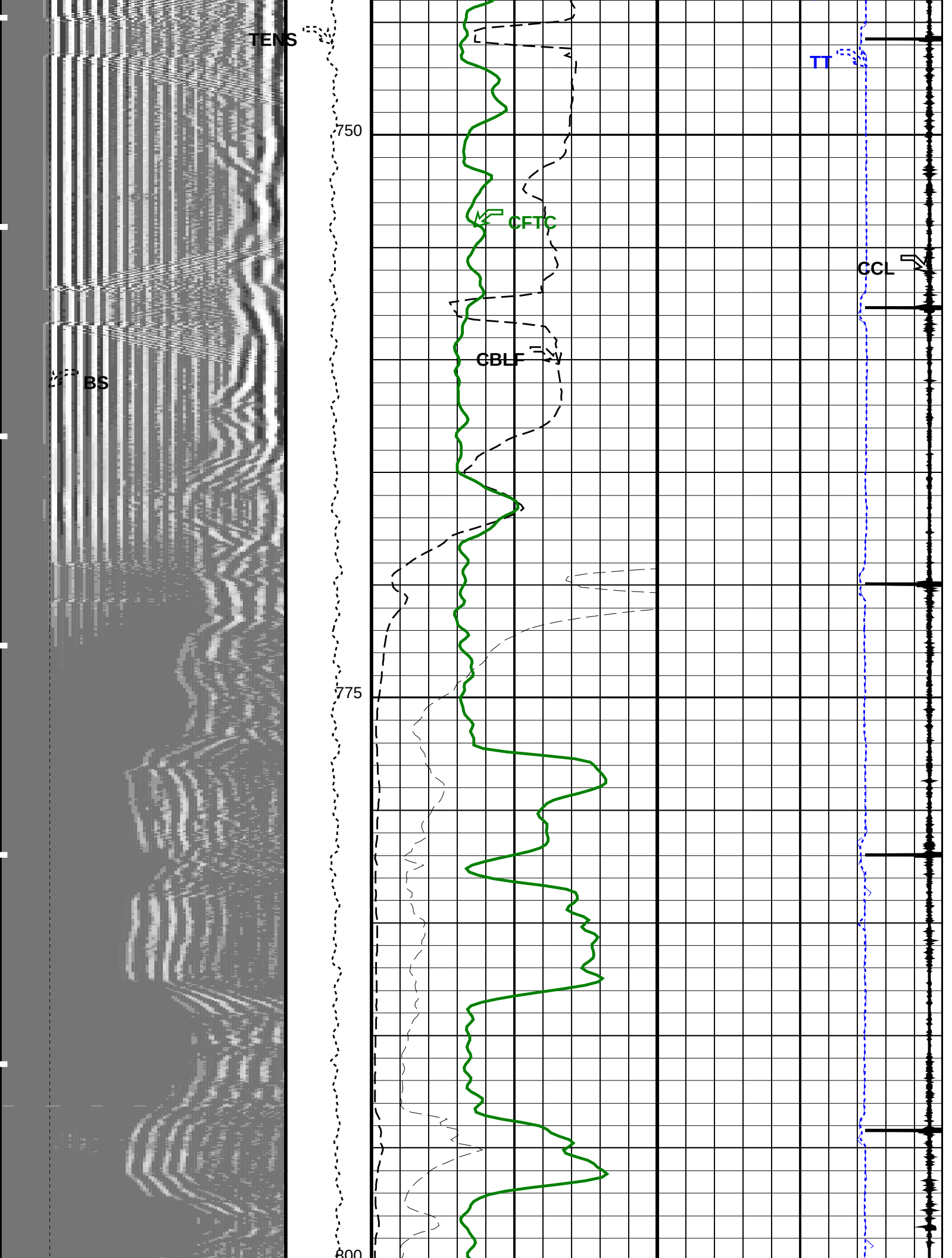
Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200

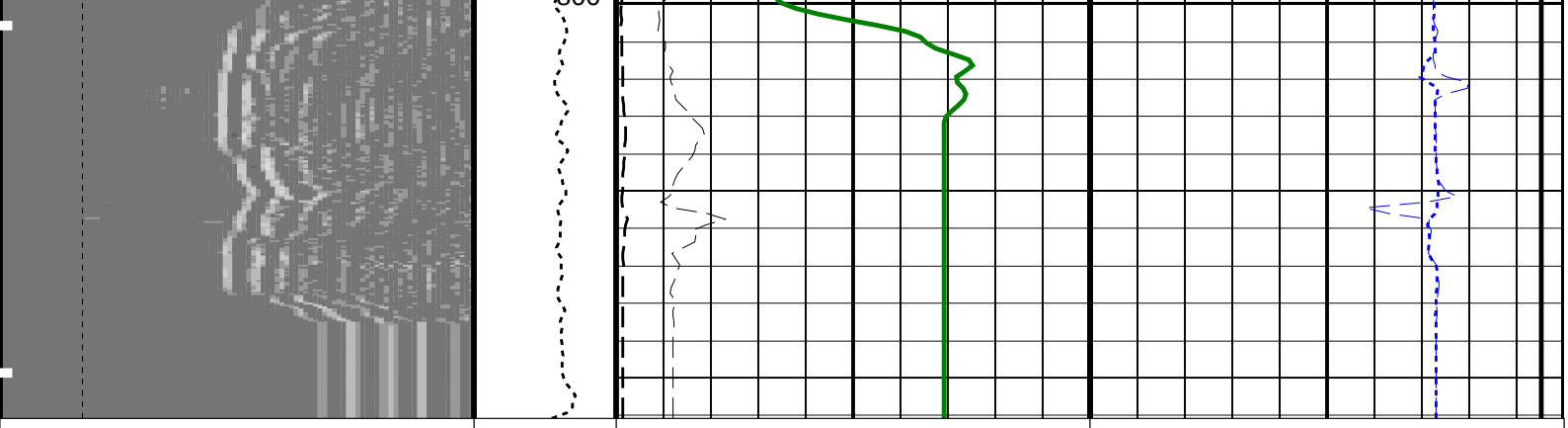
Tension (TENS) (LBF)
0 1000

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 100

Casing Collar Locator (CCL)
−19 (−−−− 1




TENS
BS
750
CFTC
TT
CCL
CBLF
775
800



Parameters

DLIS Name	Description	Value	
	SDT−C: Sonic Digital − C		
AGC	Automatic Gain Control	ON	
AMSG	Auxilliary Minimum Sliding Gate	140	US
ASGL	Auxilliary Minimum Sliding Gate Width	100	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBLG	CBL Gate Width	40	US
CDDEL	Digitizing Delay (Acq Monitor Checked)	200	US
CDSIN	Digitizer Sample Interval (Acq Monitor Checked)	DS10	
CDTS	C−Delta−T Shale	100	US/F
CDWCO	Digitizer Word Count (Acq Monitor Checked)	500	
CRMOD	Receiver Mode (Acq Monitor Checked)	B	
CSTR	Compressive Strength of Cement	13789.5	KPAA
CVDLM	VDL Firing Mode (Acq Monitor Checked)	UTFR	
CWMOD	Waveform Firing Mode (Acq Monitor Checked)	NONE	
DDE0	Digitizing Delay 0	200	US
DDEL	Digitizing Delay	200	US
DDMG	Downhole Differential Multi−Gain	10	
DETE	Detection	E1	
DSI0	Digitizer Sample Interval 0	10	US
DSIN	Digitizer Sample Interval	DS10	
DTCM	Delta−T Computation Mode	FULL	
DTF	Delta−T Fluid	189	US/F
DTM	Delta−T Matrix	56	US/F
DWC0	Digitizer Word Count 0	500	
DWCO	Digitizer Word Count	500	
FCF	CBL Fluid Compensation Factor	0.9	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MCI	Minimum Cemented Interval for Isolation	1.4478	M
MGAI	Maximum Gain	3500	
MODE	Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	0.643961	MV
NMSG	Near Minimum Sliding Gate	248	US
RATE	Firing Rate	R15	
RMOD	Receiver Mode	B	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate	ON	
SGDT	Sliding Gate Delta−T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	MV
SPES	Sonic Porosity Formula	RAYMER_HUNT	

SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SWW	Sonic Window Width	13	MS
T0CA	T0 Correction	ON	
TSIG	Test Signal	OFF	
VDLG	VDL Manual Gain	5	
VDLM	VDL Firing Mode	UTFR	
WAGC	Waveform AGC	ON	
WGAI	Waveform Manual Gain WGAI	20	
WGDT	Waveform Gain Delta−T	240	US/F
WGIN	Waveform Gain Interval	4800	US
WMOD	Waveform Firing Mode	NONE	
CNT−H: Compensated Neutron − H			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
DPPM	Density Porosity Processing Mode	STAN	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	15	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
CAL−Y: Casing Anomaly Locator − Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	14.00	LB/F
DFD	Drilling Fluid Density	1.00	G/C3
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	−50000	M
TDD	Total Depth − Driller	1250.00	M
TDL	Total Depth − Logger	1230.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated Vertical Scale: 1:200 Graphics File Created: 30−Jun−2005 22:24

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_006LUP	FN:5	PRODUCER	30−Jun−2005 22:24

Schlumberger

ANALISIS DE REPETIBILIDAD

Company: YPF S.A. | Well: YPF.Ch.LC−668

Input DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26	1232.5 M	722.4 M

Output DLIS Files

DEFAULT	SONIC_CNL_006LUP	FN:5	PRODUCER	30−Jun−2005 22:24

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

PIP SUMMARY

Time Mark Every 60 S

TTSL_REP Curve (TTSL_REP)
400 (US) 200

CFTC_REP Curve (CFTC_REP)
0 (CPS) 1500

Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200

CBLF2_REP Curve (CBLF_REP)
0 (MV) 10

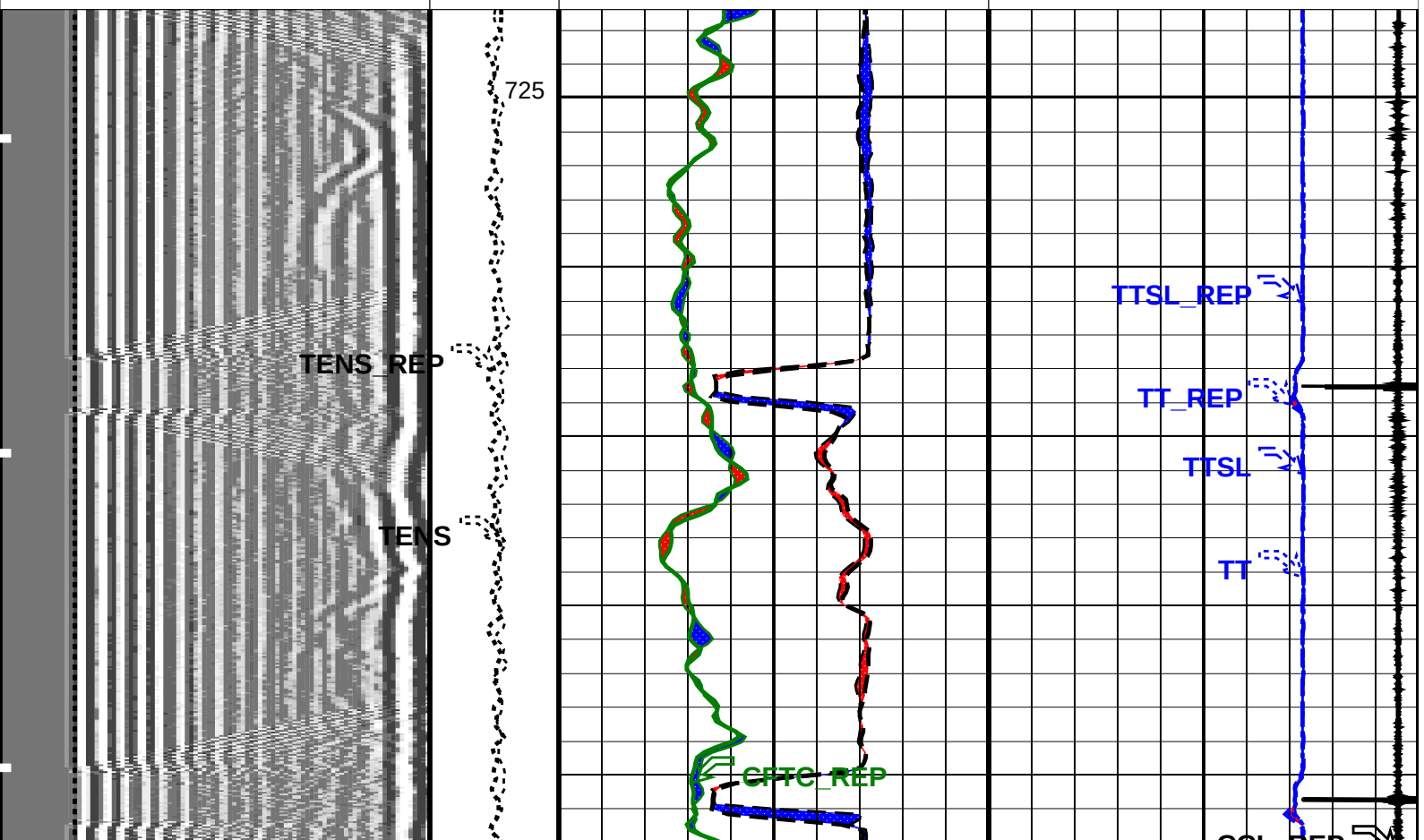
TT_REP Curve (TT_REP)
400 (US) 200

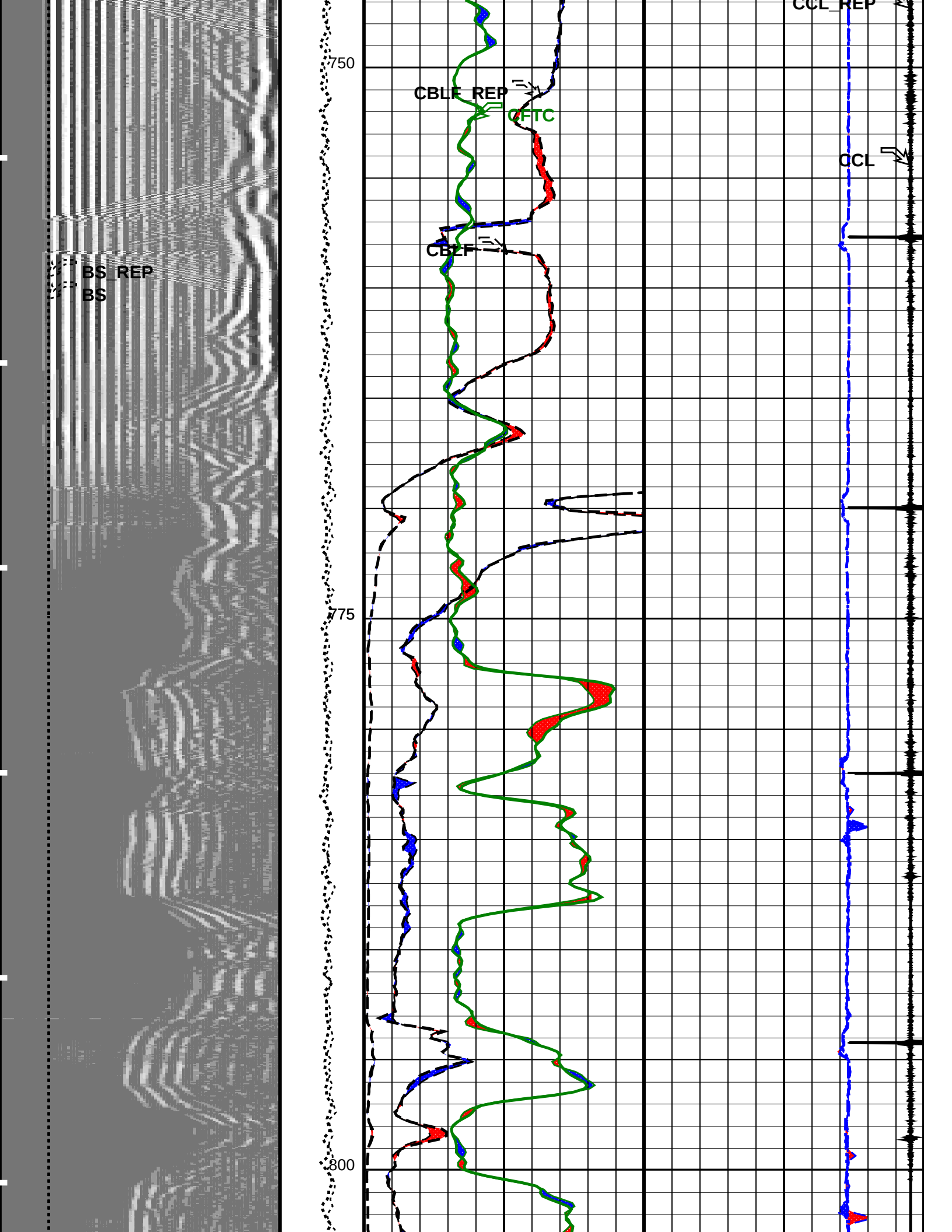
BS_REP Curve (BS_REP)
6 (IN) 20.5

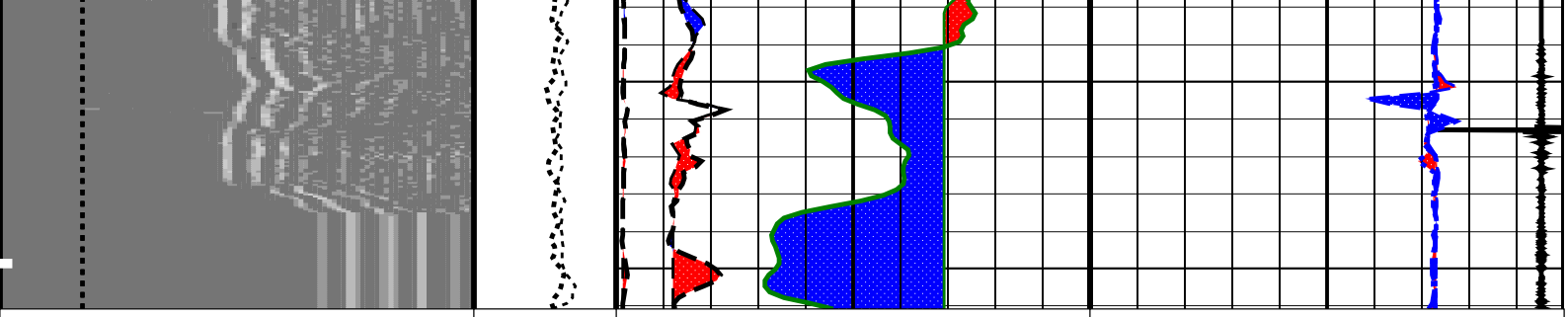
TENS_REP Curve (TENS_REP) (LBF)
0 1000

CBLF_REP Curve (CBLF_REP)
0 (MV) 100

CCL_REP Curve (CCL_REP)
−19 (−−−− 1




BS_REP
BS
750
CBLF_REP
CFTC
CBLF
CCL_REP
CCL
775
800



BS_REP Curve (BS_REP)
6 (IN) 20.5

TENS_REP Curve (TENS_REP) (LBF)
0 1000

CBLF_REP Curve (CBLF_REP)
0 (MV) 100

CCL_REP Curve (CCL_REP)
−19 (−−−− 1

Min Amplitude Max

VDL VariableDensity (VDL)
200 (US) 1200

CBLF2_REP Curve (CBLF_REP)
0 (MV) 10

TT_REP Curve (TT_REP)
400 (US) 200

CFTC_REP Curve (CFTC_REP)
0 (CPS) 1500

TTSL_REP Curve (TTSL_REP)
400 (US) 200

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	SDT−C: Sonic Digital − C		
AGC	Automatic Gain Control	ON	
AMSG	Auxilliary Minimum Sliding Gate	140	US
ASGL	Auxilliary Minimum Sliding Gate Width	100	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBLG	CBL Gate Width	40	US
CDDEL	Digitizing Delay (Acq Monitor Checked)	200	US
CDSIN	Digitizer Sample Interval (Acq Monitor Checked)	DS10	
CDTS	C−Delta−T Shale	100	US/F
CDWCO	Digitizer Word Count (Acq Monitor Checked)	500	
CRMOD	Receiver Mode (Acq Monitor Checked)	B	
CSTR	Compressive Strength of Cement	13789.5	KPAA
CVDLM	VDL Firing Mode (Acq Monitor Checked)	UTFR	
CWMOD	Waveform Firing Mode (Acq Monitor Checked)	NONE	
DDE0	Digitizing Delay 0	200	US
DDEL	Digitizing Delay	200	US
DDMG	Downhole Differential Multi−Gain	10	
DETE	Detection	E1	
DSI0	Digitizer Sample Interval 0	10	US
DSIN	Digitizer Sample Interval	DS10	
DTCM	Delta−T Computation Mode	FULL	
DTF	Delta−T Fluid	189	US/F
DTM	Delta−T Matrix	56	US/F
DWC0	Digitizer Word Count 0	500	
DWCO	Digitizer Word Count	500	
FCF	CBL Fluid Compensation Factor	0.9	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MCI	Minimum Cemented Interval for Isolation	1.4478	M
MGAI	Maximum Gain	3500	
MODE	Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	0.643961	MV
NMSG	Near Minimum Sliding Gate	248	US
RATE	Firing Rate	R15	
RMOD	Receiver Mode	B	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate	ON	
SGDT	Sliding Gate Delta−T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	MV
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	

SPSO	Sonic Porosity Source	DT	
SWW	Sonic Window Width	13	MS
T0CA	T0 Correction	ON	
TSIG	Test Signal	OFF	
VDLG	VDL Manual Gain	5	
VDLM	VDL Firing Mode	UTFR	
WAGC	Waveform AGC	ON	
WGAI	Waveform Manual Gain WGAI	20	
WGDT	Waveform Gain Delta−T	240	US/F
WGIN	Waveform Gain Interval	4800	US
WMOD	Waveform Firing Mode	NONE	
	CNT−H: Compensated Neutron − H		
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
DPPM	Density Porosity Processing Mode	STAN	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	15	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
	CAL−Y: Casing Anomaly Locator − Y		
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
	System and Miscellaneous		
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	14.00	LB/F
DFD	Drilling Fluid Density	1.00	G/C3
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	−50000	M
TDD	Total Depth − Driller	1250.00	M
TDL	Total Depth − Logger	1230.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated_REP Vertical Scale: 1:200 Graphics File Created: 30−Jun−2005 22:24

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

Input DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26	1232.5 M	722.4 M

Output DLIS Files

DEFAULT	SONIC_CNL_006LUP	FN:5	PRODUCER	30−Jun−2005 22:24

Schlumberger

TRAMO SIN CORRECCION DE PROFUNDIDAD

Company: **Well:**

Output DLIS Files

DEFAULT SONIC_CNL_002LUP FN:1 PRODUCER 30−Jun−2005 21:18

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

PIP SUMMARY

Time Mark Every 60 S

Transit Time (Sliding Gate) (TTSL)
400 (US) 200

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 10

Transit Time (TT)
400 (US) 200

Far Thermal Counts (CFTC)
0 (CPS) 1500

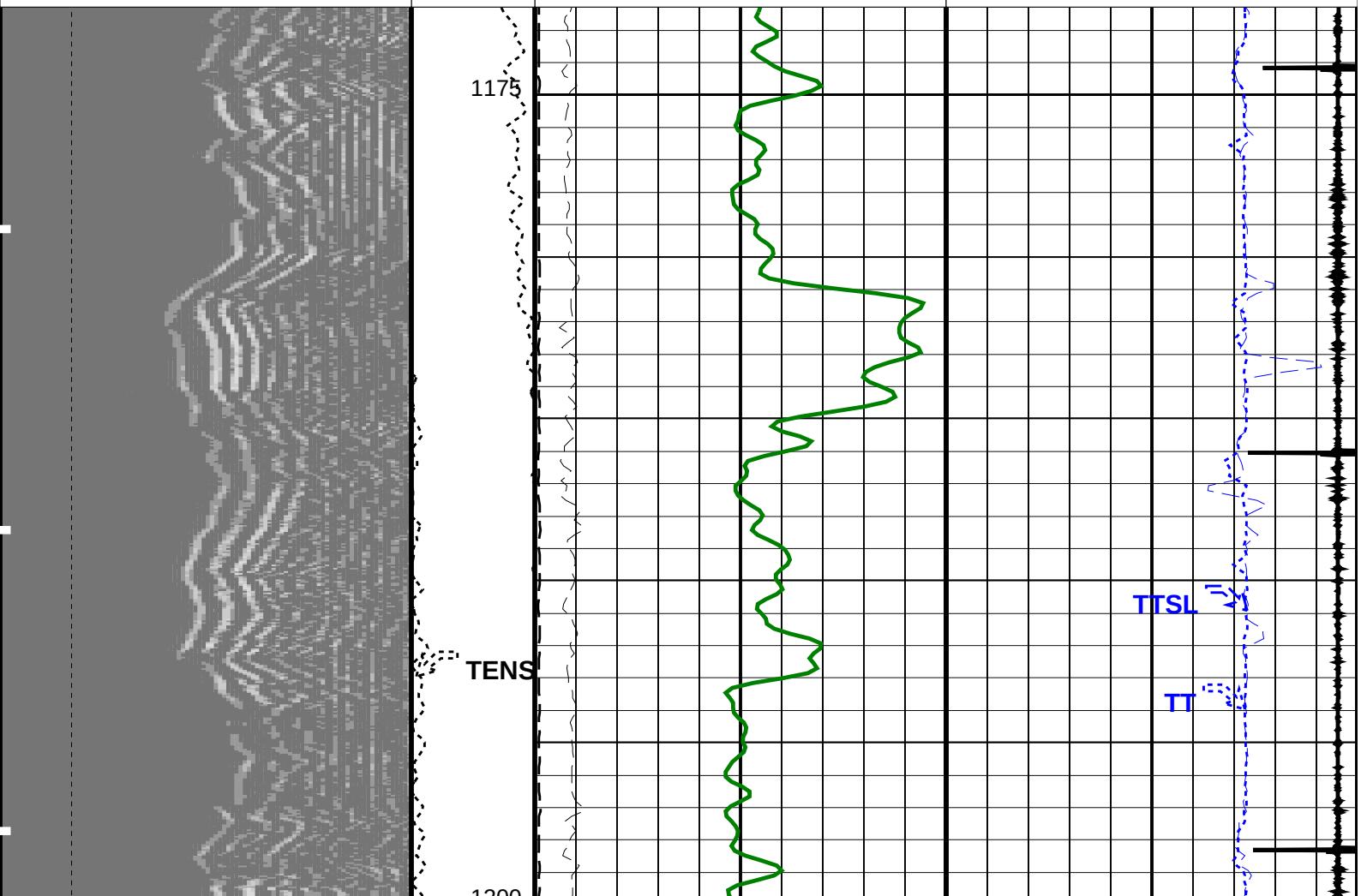
Min Amplitude Max

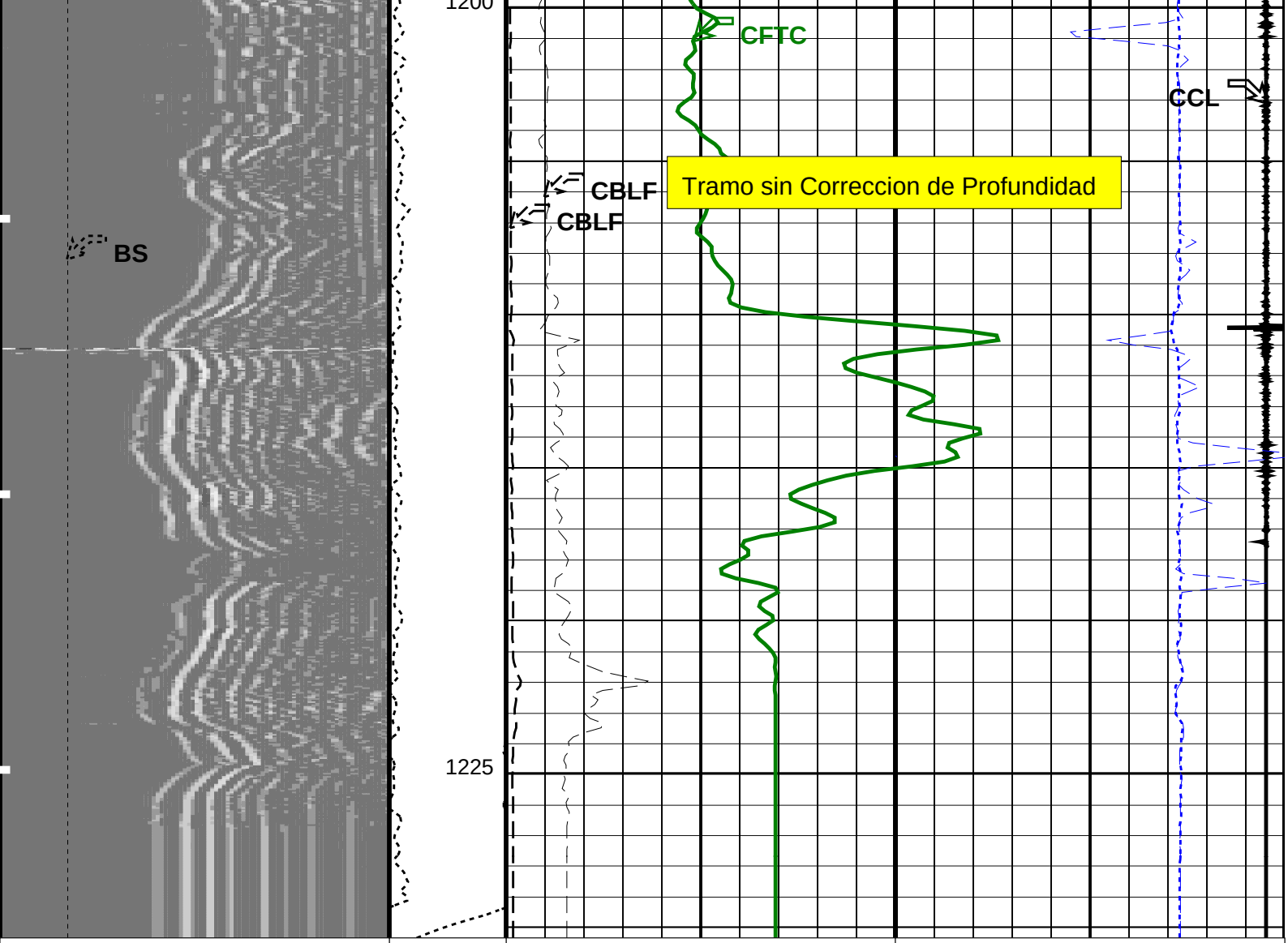
VDL VariableDensity (VDL)
200 (US) 1200

Tension (TENS) (LBF)
0 1000

Fluid Compensated CBL Amplitude (CBLF)
0 (MV) 100

Casing Collar Locator (CCL)
−19 (−−−− 1





Min Amplitude Max

VDL VariableDensity (VDL)

200 (US) 1200

Tension (TENS) (LBF)

0 1000

Fluid Compensated CBL Amplitude (CBLF)

0 (MV) 100

Casing Collar Locator (CCL)

−19 (−−−− 1

Far Thermal Counts (CFTC)

0 (CPS) 1500

Fluid Compensated CBL Amplitude (CBLF)

0 (MV) 10

Transit Time (TT)

400 (US) 200

Transit Time (Sliding Gate) (TTSL)

400 (US) 200

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	SDT−C: Sonic Digital − C		
AGC	Automatic Gain Control	ON	
AMSG	Auxilliary Minimum Sliding Gate	140	US
ASGL	Auxilliary Minimum Sliding Gate Width	100	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBLG	CBL Gate Width	40	US
CDDEL	Digitizing Delay (Acq Monitor Checked)	200	US
CDSIN	Digitizer Sample Interval (Acq Monitor Checked)	DS10	
CDTS	C−Delta−T Shale	100	US/F
CDWCO	Digitizer Word Count (Acq Monitor Checked)	500	
CRMOD	Receiver Mode (Acq Monitor Checked)	B	
CSTR	Compressive Strength of Cement	13789.5	KPAA

CVDLM	VDL Firing Mode (Acq Monitor Checked)	UTFR	
CWMOD	Waveform Firing Mode (Acq Monitor Checked)	NONE	
DDE0	Digitizing Delay 0	200	US
DDEL	Digitizing Delay	200	US
DDMG	Downhole Differential Multi−Gain	10	
DETE	Detection	E1	
DSI0	Digitizer Sample Interval 0	10	US
DSIN	Digitizer Sample Interval	DS10	
DTCM	Delta−T Computation Mode	FULL	
DTF	Delta−T Fluid	189	US/F
DTM	Delta−T Matrix	56	US/F
DWC0	Digitizer Word Count 0	500	
DWCO	Digitizer Word Count	500	
FCF	CBL Fluid Compensation Factor	0.9	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MCI	Minimum Cemented Interval for Isolation	1.4478	M
MGAI	Maximum Gain	3500	
MODE	Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	0.643961	MV
NMSG	Near Minimum Sliding Gate	248	US
RATE	Firing Rate	R15	
RMOD	Receiver Mode	B	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate	ON	
SGDT	Sliding Gate Delta−T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	MV
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SWW	Sonic Window Width	13	MS
T0CA	T0 Correction	ON	
TSIG	Test Signal	OFF	
VDLG	VDL Manual Gain	5	
VDLM	VDL Firing Mode	UTFR	
WAGC	Waveform AGC	ON	
WGAI	Waveform Manual Gain WGAI	20	
WGDT	Waveform Gain Delta−T	240	US/F
WGIN	Waveform Gain Interval	4800	US
WMOD	Waveform Firing Mode	NONE	
CNT−H: Compensated Neutron − H			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
DPPM	Density Porosity Processing Mode	STAN	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	15	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
CAL−Y: Casing Anomaly Locator − Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	14.00	LB/F
DFD	Drilling Fluid Density	1.00	G/C3
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	−50000	M
TDD	Total Depth − Driller	−50000.00	M
TDL	Total Depth − Logger	−50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_002LUP	FN:1	PRODUCER	30−Jun−2005 21:18		

MAXIS EXPRESS

Schlumberger

Analisis de Repetibilidad en Tramo sin Correccion

Company: **Well:**

Input DLIS Files

DEFAULT	SONIC_CNL_003PUP	FN:2	PRODUCER	30−Jun−2005 21:25	1230.8 M	1173.2 M

Output DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26		

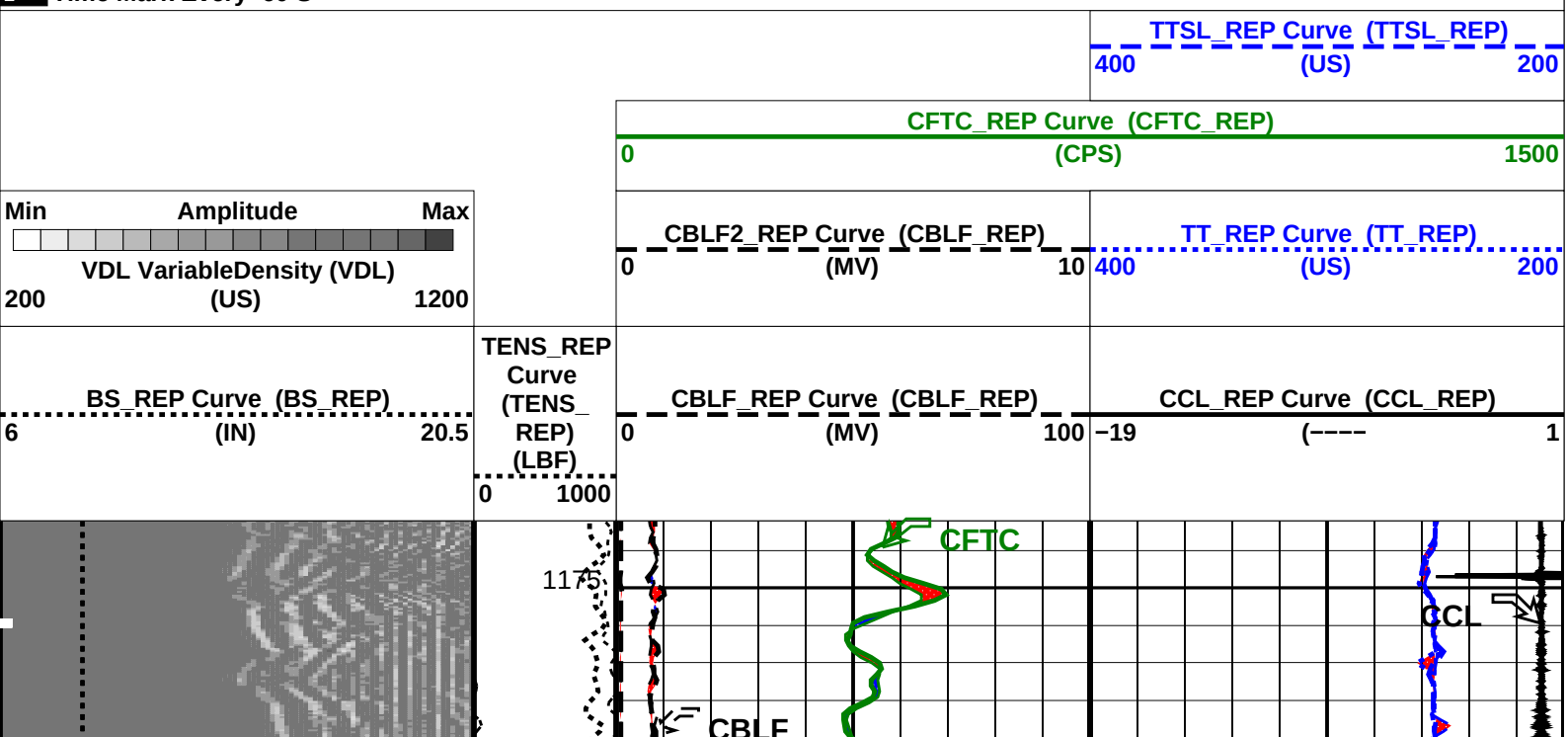
OP System Version: 11C0−305

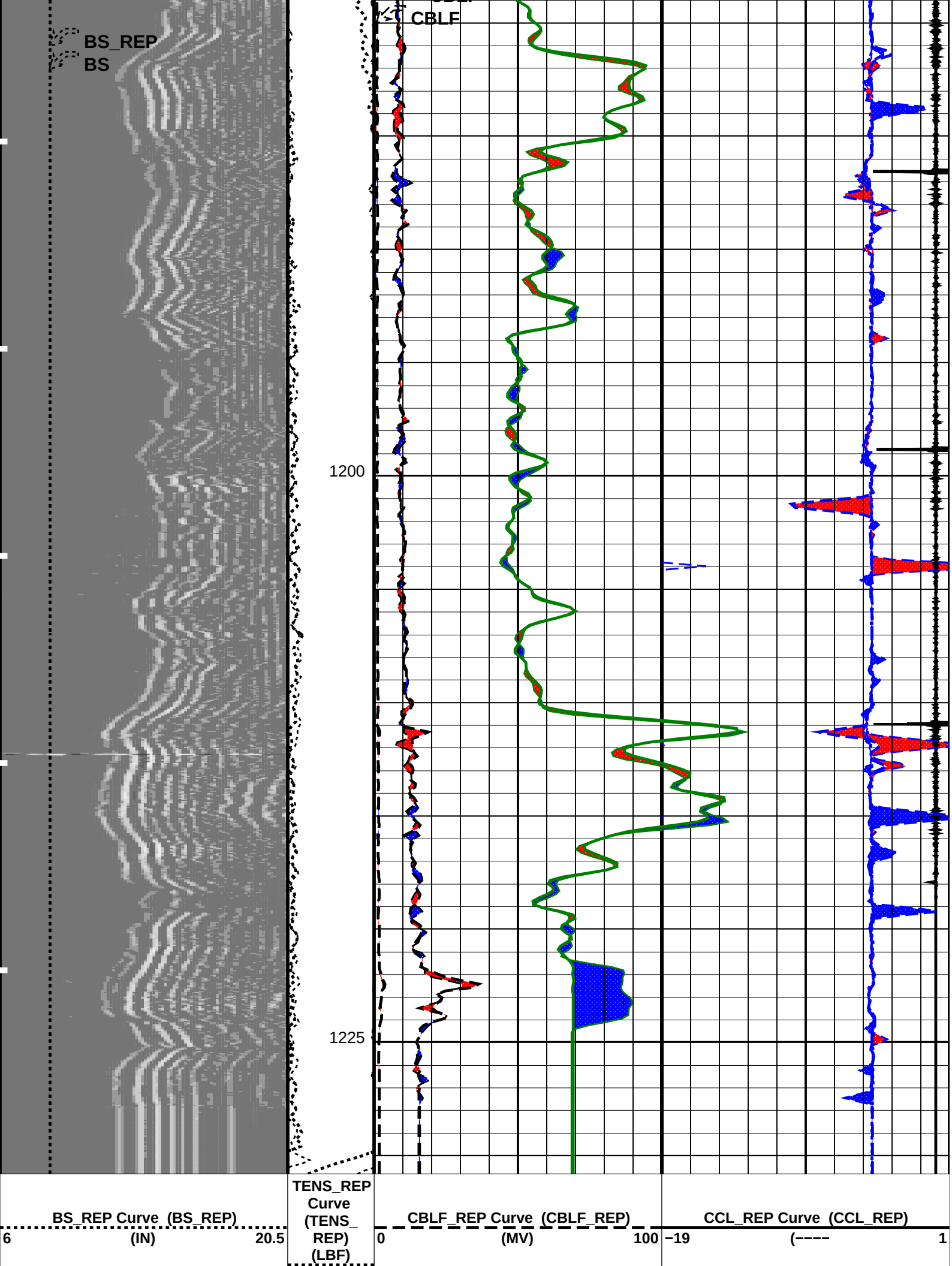
MCM

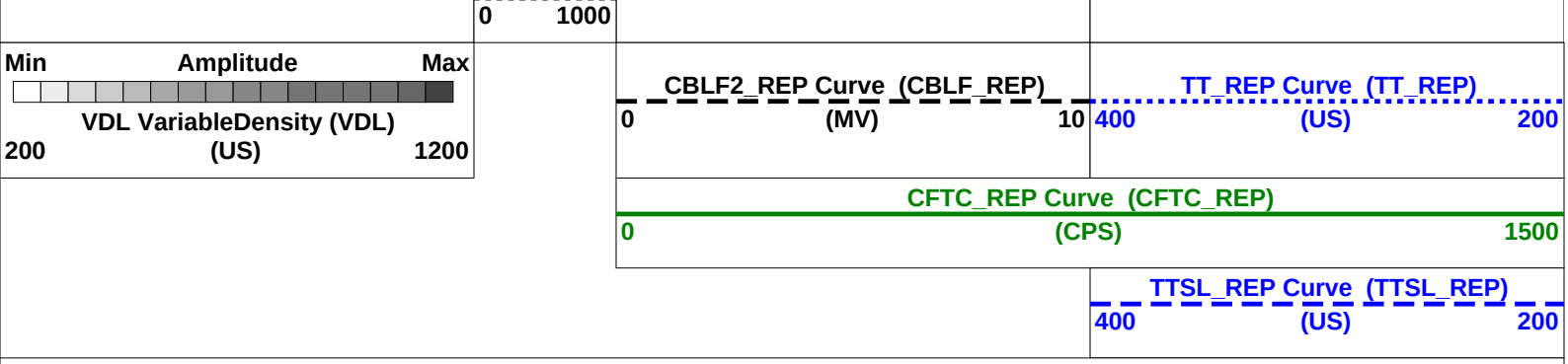
SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

PIP SUMMARY

Time Mark Every 60 S




BS_REP
BS
CBLF
1200
1225
BS_REP Curve (BS_REP)
6
(IN)
20.5
TENS_REP Curve (TENS_REP) (LBF)
CBLF_REP Curve (CBLF_REP)
0
(MV)
100
CCL_REP Curve (CCL_REP)
−19
(−−−−
1



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	SDT−C: Sonic Digital − C		
AGC	Automatic Gain Control	ON	
AMSG	Auxilliary Minimum Sliding Gate	140	US
ASGL	Auxilliary Minimum Sliding Gate Width	100	US
BILI	Bond Index Level for Zone Isolation	0.8	
CBLG	CBL Gate Width	40	US
CDDEL	Digitizing Delay (Acq Monitor Checked)	200	US
CDSIN	Digitizer Sample Interval (Acq Monitor Checked)	DS10	
CDTS	C−Delta−T Shale	100	US/F
CDWCO	Digitizer Word Count (Acq Monitor Checked)	500	
CRMOD	Receiver Mode (Acq Monitor Checked)	B	
CSTR	Compressive Strength of Cement	13789.5	KPAA
CVDLM	VDL Firing Mode (Acq Monitor Checked)	UTFR	
CWMOD	Waveform Firing Mode (Acq Monitor Checked)	NONE	
DDE0	Digitizing Delay 0	200	US
DDEL	Digitizing Delay	200	US
DDMG	Downhole Differential Multi−Gain	10	
DETE	Detection	E1	
DSI0	Digitizer Sample Interval 0	10	US
DSIN	Digitizer Sample Interval	DS10	
DTCM	Delta−T Computation Mode	FULL	
DTF	Delta−T Fluid	189	US/F
DTM	Delta−T Matrix	56	US/F
DWC0	Digitizer Word Count 0	500	
DWCO	Digitizer Word Count	500	
FCF	CBL Fluid Compensation Factor	0.9	
GAI	Manual Gain	40	
GOBO	Good Bond	2	MV
ITTS	Integrated Transit Time Source	DT	
MCI	Minimum Cemented Interval for Isolation	1.4478	M
MGAI	Maximum Gain	3500	
MODE	Firing Mode	CBL	
MSA	Minimum Sonic Amplitude	0.643961	MV
NMSG	Near Minimum Sliding Gate	248	US
RATE	Firing Rate	R15	
RMOD	Receiver Mode	B	
SFAF	Sonic Formation Attenuation Factor	0	DB/M
SGAD	Sliding Gate	ON	
SGDT	Sliding Gate Delta−T	50	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for AGC	5000	MV
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DT	
SWW	Sonic Window Width	13	MS
T0CA	T0 Correction	ON	
TSIG	Test Signal	OFF	
VDLG	VDL Manual Gain	5	
VDLM	VDL Firing Mode	UTFR	
WAGC	Waveform AGC	ON	
WGAI	Waveform Manual Gain WGAI	20	
WGDT	Waveform Gain Delta−T	240	US/F
WGIN	Waveform Gain Interval	4800	US
WMOD	Waveform Firing Mode	NONE	
	CNT−H: Compensated Neutron − H		
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
DPPM	Density Porosity Processing Mode	STAN	
FSAL	Formation Salinity	−50000	PPM

FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	15	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
CAL−Y: Casing Anomaly Locator − Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	14.00	LB/F
DFD	Drilling Fluid Density	1.00	G/C3
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	−50000	M
TDD	Total Depth − Driller	−50000.00	M
TDL	Total Depth − Logger	−50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated_REP Vertical Scale: 1:200 Graphics File Created: 30−Jun−2005 21:26

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	11C0−305
TCC−B	11C0−305	CAL−Y	11C0−305

Input DLIS Files

DEFAULT	SONIC_CNL_003PUP	FN:2	PRODUCER	30−Jun−2005 21:25	1230.8 M	1173.2 M

Output DLIS Files

DEFAULT	SONIC_CNL_004LUP	FN:3	PRODUCER	30−Jun−2005 21:26

MAXIS EXPRESS

Schlumberger

CALIBRACION

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units

Compensated Neutron − H Wellsite Calibration − Zero Measurement
Master: 31−Mar−2005 11:43 Before: 29−Jun−2005 19:09

CNTC Background	1.000	0	0.5509	N/A	N/A	N/A	CPS
CFTC Background	0	0	3.598	N/A	N/A	N/A	CPS

Compensated Neutron − H Wellsite Calibration − Jig Measurement
Master: 31−Mar−2005 11:58 Before: 29−Jun−2005 19:14

CNTC Jig	2821	2821	2790	N/A	N/A	N/A	CPS
CFTC Jig	1169	1169	1171	N/A	N/A	N/A	CPS
CNTC/CFTC (Jig)	2.412	2.412	2.382	N/A	N/A	N/A	

The CNT Master Calibration Was Done With The Following Parameters :

NCT−B Water Temperature 15.0 DEGC.
Thermal Housing Size 3.375 IN.

Compensated Neutron − H / Equipment Identification

Primary Equipment:		
Compensated Neutron Cartridge	CNC − HA	212
Neutron Logging Source	NLS − KL	
Neutron Source Radioactive	NSR − F	2112
Compensated Neutron Box	CNB − AB	3625
Neutron Detector without Alpha Source	CND − NA	
Compensated Neutron Box	CNB − AB	3625
Auxiliary Equipment:		
Compensated Neutron Housing	CNH − A	2021
Neutron Calibration Tank	NCT − B	

Compensated Neutron − H Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value
Master		0
Before		0.5509
	−0.010000 (Minimum) 1.000 (Nominal) 5.000 (Maximum)	

Phase	CFTC Background CPS	Value
Master		0
Before		3.598
	−0.010000 (Minimum) 0 (Nominal) 5.000 (Maximum)	

Master: 31−Mar−2005 11:43 Before: 29−Jun−2005 19:09

Compensated Neutron − H Wellsite Calibration
Jig Measurement

Phase	CNTC Jig CPS	Value
Master		2821
Before		2790
	2679 (Minimum) 2821 (Nominal) 2962 (Maximum)	

Phase	CFTC Jig CPS	Value
Master		1169
Before		1171
	1111 (Minimum) 1169 (Nominal) 1228 (Maximum)	

Phase	CNTC/CFTC (Jig)	Value
Master		2.412
Before		2.382
	2.372 (Minimum) 2.412 (Nominal) 2.452 (Maximum)	

Master: 31−Mar−2005 11:58 Before: 29−2005 19:14

Compania: **YPF S.A.**

Schlumberger

Pozo: **YPF.Ch.LC−668**
Campo: **LA CAROLINA**
Provincia: **CHUBUT**
Pais: **ARGENTINA**

CONTROL DE CEMENTO

CONTROL DE CEMENTO
CBL VDL CNL CCL
1/200

A: Tenorio
DE: Janzen

REPSOL YPF

DISTRITO. M. BEHR / R. ALI

POZO: LC-668
ZONA: La Carolina **FECHA: 01/07/2005**
AREA: M. BEHR **EQUIPO PI-246**

OBJETIVO:

BAJAR INSTALACION DE PRODUCCION (PCP)

Fondo Pozo: 1234

DISEÑO A BAJAR:

TBG

1	BAR COLLAR 2 7/8" a +-	1180	mts
1	TBG FILTRO 2 7/8"		
1	TBG LISO 2 7/8"		
1	ANCLA DE TORQUE 2.7/8X5.1/2"	1160	mts
1	NIPLE DE PARO		
1	ESTATOR GEREMIA 28-35-300	1155	mts
1	TBG LISO 2 7/8"		
1	CAMISA DE CIRCULACIÓN AOS	1145	mts
1	TBG LISO 2 7/8"		
1	NIPLE ASIENTO BHD 2 7/8"	1135	
119	TBG 2. 7/8"		

B/B

1	**ROTOR GEREMIA 28-35-300 (PROVEE WEATHERFORD)**
152	BARRAS DE BOMBEO 7/8" (GRADO D)
	TROZOS 1"
1	VASTAGO BOMBEO 1.1/4" x 10'

NOTA

ANTES DE BAJAR DISEÑO CALIBRAR ROTOR PCP EN CAMISA DE CIRCULACIÓN Y BHD
PEDIR CON 2 hs ANTICIPACION PERSONAL WEATHERFORD P/ AJUSTE MEDIDA

CABEZAL **"VÁLVULA DE 2" Y NIPLE DE 2" REALIZAR RESERVA Y RETIRAR DE ALMACENES MB"**
"VÁLVULA DE 1/2" Y NIPLE DE 1/2" REALIZAR RESERVA Y RETIRAR DE ALMACENES MB"
M2 (PROVEE WEATHERFORD)
VASTAGO PROVEE WEATHERFORD
LA BOMBA SERA ENVIADA POR WEATHERFORD AL POZO
ARRANCAR A 100 RPM

MOTOR **20 HP**
1000 V

PROYECTO :		AREA:	MANANTIALES BEHR
ESTADO ACTUAL :		Yacimiento:	LA CAROLINA
OBJETIVO :	TERMINACIÓN	POZO:	LC-668
FECHA INICIO :	30 de Junio 2005	Equipo :	PRIDE INTERNAT.-246
FECHA FINAL :	03 de Julio 2005	Coordenadas X:	4.946.409,00
RESULTADO :	PRODUCTOR DE PETROLEO	Coordenadas Y:	2.571.899,00
ESTADO FINAL :		Cota:	427,00

Coordenadas Pampa del Castillo (Faja 2)

P.E.P.	
ORDEN INTERNA:	
PRESUPUESTO IAP U$S:	
PRESUPUESTO WO U$S:	
ACTUAL U$S:	

Pozo Comprometido del Proyecto					Estimación de Caudal Inicial		
Pozo Tipo [m3]	Éxito	Qi Oil [m3/d]	Qi con risk [m3/d]	Responsable Propuesta		Qbruto (m3/día):	34,20
						Qneto (m3/día):	18,07
						% AGUA:	47

FLUIDO DE TERMINACIÓN	Agua Dulce con MARCAT 0,4 % (MARBAR)

Cañería Guía 9 5/8"

Zpto. Guía: 112,05 Metros

Prof. Inducción		
PUNZADOS		Total
Tope	Base	0 Metros

NOMBRE CAPA

Cañería Aislación 5 1/2"

TOPES COMPLEJOS

Secuencia Ensayos

Plan de Trabajos:

Montar equipo de RTP de acuerdo a procedimientos
Sacar instalacion de produccion
Calibrar con fresa de superficie hasta fondo de pozo (Collar).
Punzar según se indica en programa
Ensayar por pistoneo las capas con el ordén establecido arriba.
Si resulta sin entrada probar admisión y reensayar
Extraer muestras de hidrocarburo o agua de todos los ensayos para análisis geoquímico
En caso de ser gas y/o petróleo surgente medir presiones por distintos orificios a determinar por Ing de Producción y tomar muestra.
Bajar instalación de producción según diseño proporcionado por Ing. De Producción. Bajar solamente instalación de tubing **(varillas de bombeo se**
Desmontar equipo

COMPAÑÍAS	
Cable	
Cementación	
Punzado	
Fractura	
Acido	
Motor Fondo	
Pesca	
Geles	
Densificantes	
Inhibidores	
Neutrón	
Filtrado	
Cuerda explos.	
Fresas	
Trepanos	

CII 775 m.

CIII 967 m.

Petrofísica					Ensayos de capa				Análisis de Fluido					QBr	QNet
Hu [m]	Swi %	Φeff %	Presión [kg/cm2]	% PN	CAUDAL [lts/hs]	FLUIDO	Nivel [m]	Horas Fm	I.T. %	DEN [gr/cm3]	Temp [°C]	% AGUA SEP	SAL [gr/lts]	[m3/día]	[m3/día]
1116,00	1119,50				3000	PCA	850	6	47,0	0,815	25,0	47,0	3,0	21,60	11,45
					5 carr/hr	Sumerg	266								
1166,00	1170,50				1150	PCA	957	6	20,0	0,890	28,0	19,0	4,0	8,28	6,62
					2 carr/hr	Sumerg	209								
1182,00	1184,00				600	ASFcRP visc	978	8	100,0	SD	26,0	100,0	4,2	4,32	0,00
					1 carr/hr	Sumerg	204								
					Agua de formacion con leve rastro de pleo viscoso									34,20	18,07

Collar: 1235,0 mbbp
Zapato: 1247,0 mbbp
PF: 1250,0 mbbp

Instalación Final:

Responsable de los datos cargados

	LABORATORIO BASE CHUBUT	**EPSILON S.R.L.** **LABORATORIO INDUSTRIAL**

Ruta 3 Km. 1838, Bo. Gral. Mosconi - (9005) C. Rivadavia - Chubut, Argentina - Tel/Fax: (0297)- 4550825/4559365

Muestra de: Producción
Lugar de Muestreo: LC-668
Zona: S/D
Extraída por: Cliente.
Fecha de Extracción: S/D
Fecha de Recepción: 30/08/2012
Solicitado por : YPF -Sosa Marcelo.
Objetivo del Control: Análisis completo de petróleo

PROTOCOLO Nº: 5132-12CR

Fecha Informe: 07/09/2012

INFORME DE ENSAYO

PETROLEO HIDRATADO

DETERMINACION	NORMA	UNIDAD	VALOR
%AT (%AL+D4007)	S/N	% v/v	61
%Agua Libre			53
IMPUREZA TOTAL	ASTM D-4007 Mod según acuerdo con cliente	% v/v	18
ARENA Y BARRO			0
AGUA SEPARADA			10
EMULSION			8
AGUA EXACTA			18
DENSIDAD DE PETROLEO A 15ºC	ASTM D-5002	grs/cm3	0,9498
PUNTO DE ESCURRIMIENTO	ASTM D-97	º C	3

PETROLEO DESHIDRATADO

DETERMINACION	NORMA	UNIDAD	VALOR
DENSIDAD DE PETROLEO A 15ºC	ASTM D-5002	grs/cm3	0,9377
% PARAFINA	UOP-86 mod	% v/v	8
% ASFALTENO	SPE-23810	% v/v	14

VISCOSIDAD 300RPM				
TEMPERATURA	**30ºC**	POR REOMETRO	Cp	3913
	40ºC			2040
	50ºC			1137

Analista: ***R.D. / L.G / B.M.***

OBSERVACIONES:

.....
Mario Faibiscob
Rep.Tec.Epsilon SRL

Interpretación Petrofísica

Company	YPF S.A.
Well Name	YPF.Ch.LC-668
Field	LA CAROLINA-Manantiales Behr
Country	ARGENTINA
State	CHUBUT
Location	

Interpretó: René E. Hudecek
Terminación Junio 2005

Petrophysical Zone Averages Report

Reservoir Summary

Zn #	Zone Name	Top	Bottom	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116.00	1119.50	3.50	3.50	1.000	0.251	0.493	0.100	0.88	0.44
2	Pet	1166.00	1170.50	4.50	4.50	1.000	0.220	0.653	0.150	0.99	0.34
3	AgcRP	1182.00	1184.00	2.00	2.00	1.000	0.229	0.596	0.133	0.46	0.19
	All Zones	**1116.00**	**1184.00**	**10.00**	**10.00**	**1.000**	**0.233**	**0.582**	**0.129**	**2.33**	**0.97**

Pay Summary

Zn #	Zone Name	Top	Bottom	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116.00	1119.50	3.50	2.90	0.827	0.262	0.454	0.090	0.76	0.41
2	Pet	1166.00	1170.50	4.50	2.28	0.506	0.227	0.598	0.131	0.52	0.21
3	AgcRP	1182.00	1184.00	2.00	1.68	0.838	0.234	0.564	0.122	0.39	0.17
	All Zones	**1116.00**	**1184.00**	**10.00**	**6.85**	**0.685**	**0.243**	**0.524**	**0.111**	**1.67**	**0.79**

Cutoffs Used

Zn #	Zone Name	Top	Bottom	Min. Height	Phi INTERP:PHIE	Sw INTERP:SW	Vcl INTERP:VCL
	Reservoir						
1	Pet+Ag	1116.00	1119.50	0	>= 0.08		<= 0.3
2	Pet	1166.00	1170.50	0	>= 0.08		<= 0.3
3	AgcRP	1182.00	1184.00	0	>= 0.08		<= 0.3
	Pay						
1	Pet+Ag	1116.00	1119.50	0	>= 0.08	<= 0.65	<= 0.3
2	Pet	1166.00	1170.50	0	>= 0.08	<= 0.65	<= 0.3
3	AgcRP	1182.00	1184.00	0	>= 0.08	<= 0.65	<= 0.3

Depth Units : m

CLAY VOLUME PARAMETERS

Top Bottom	SP Clean SP Clay	Res Clean Res Clay
775	-21	2.96
845	1	1.26
845	-12	7.06
970	1	1.15
967	-15	13.9
1037.84	1	1.39
1037.84	-25	29
1195.88	1	1.29
1195.88	-23.3	11.6
1254.1	1	1.54

POROSITY WATER SATURATION PARAMETERS

Top Bottom	Phi Model Sw eq.	Rw Rw temp.	Rmf Rmf temp.	"m" "n"	"a" OBM ?	Rho HC Rho Mat	Rho Fluid Rho Clay	Rwb Rwb temp.	Rh Dry Cly PhiT Clay
771.47	Density	0.345	1.22	1.7	1	0.92	Calc.	0.081	2.323
845	Dual water	CALC:Temp	4	1.91	No	2.6	2.19	CALC:Temp	
845	Density	0.336	1.22	1.7	1	0.92	Calc.	0.079	2.431
967	Dual water	CALC:Temp	4	1.91	No	2.6	2.27	CALC:Temp	
967	Density	0.354	1.22	1.95	1	0.9	Calc.	0.074	2.489
1032.73	Dual water	CALC:Temp	4	1.9	No	2.61	2.334	CALC:Temp	
1032.73	Density	0.345	1.22	1.95	1	0.9	Calc.	0.069	2.515
1196.04	Dual water	CALC:Temp	4	1.9	No	2.61	2.383	CALC:Temp	
1196.04	Density	0.376	1.22	1.95	1	0.9	Calc.	0.066	2.52
1254	Dual water	CALC:Temp	4	1.9	No	2.61	2.394	CALC:Temp	

CRUDAS:SP : Spontaneous Potential
CRUDAS:RWA : Resistividad Aparente Agua desde el Densidad
CRUDAS:CAL : Caliper
CRUDAS:PEF : HRDD Formation Photoelectric Factor
INTERP:VCL : Clay Volume
CRUDAS:BS : Bit Size
CRUDAS:TENS : Cable tension
CRUDAS:R10 : 10" Array Induction, two foot resolution Resistivity
CRUDAS:R20 : 20" Array Induction, two foot resolution Resistivity
CRUDAS:R30 : 30" Array Induction, two foot resolution Resistivity
CRUDAS:R60 : 60" Array Induction, two foot resolution Resistivity
CRUDAS:R90 : 90" Array Induction, two foot resolution Resistivity
CRUDAS:PorDen : Porosidad calculada desde el Densidad
INTERP:PHIE : Effective Porosity
CRUDAS:PorNeu : Neutron porosity
INTERP:SW : Water Saturation
INTERP:PHIT : Total Porosity
INTERP:BVW : Bulk Volume water (Phie x SW)
CALC:Temp : Formation Temperature
INTERP:VWCL : Volume wet Clay
INTERP:VCOAL : Volume Coal
INTERP:VSALT : Volume Salt
INTERP:KillFlag :

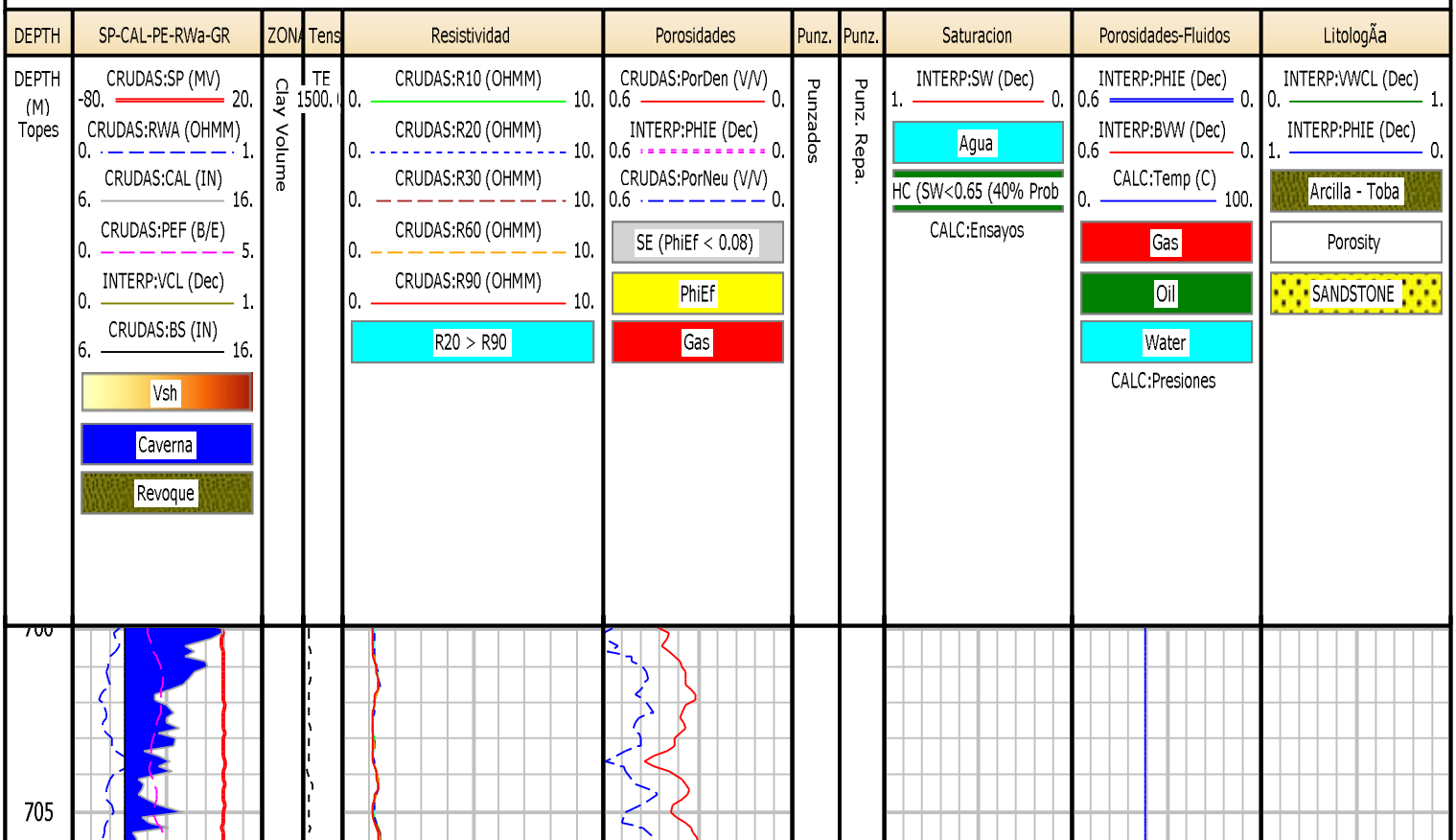
Scale : 1 : 200

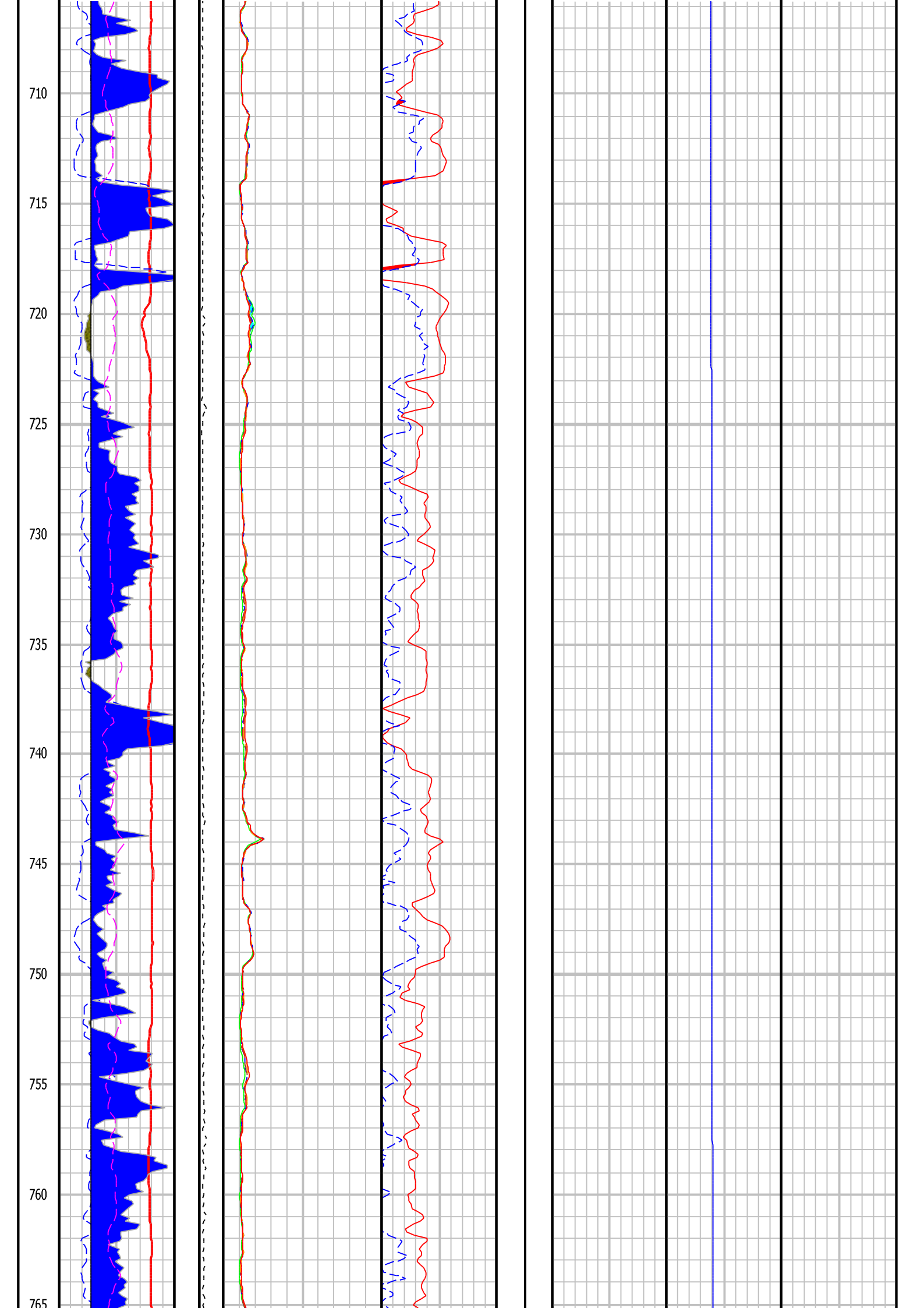
YPF.Ch.LC-668

DB : Petrofisica LA CAROLINA SOMERA (7)

DEPTH (699.97M - 1224.99M)

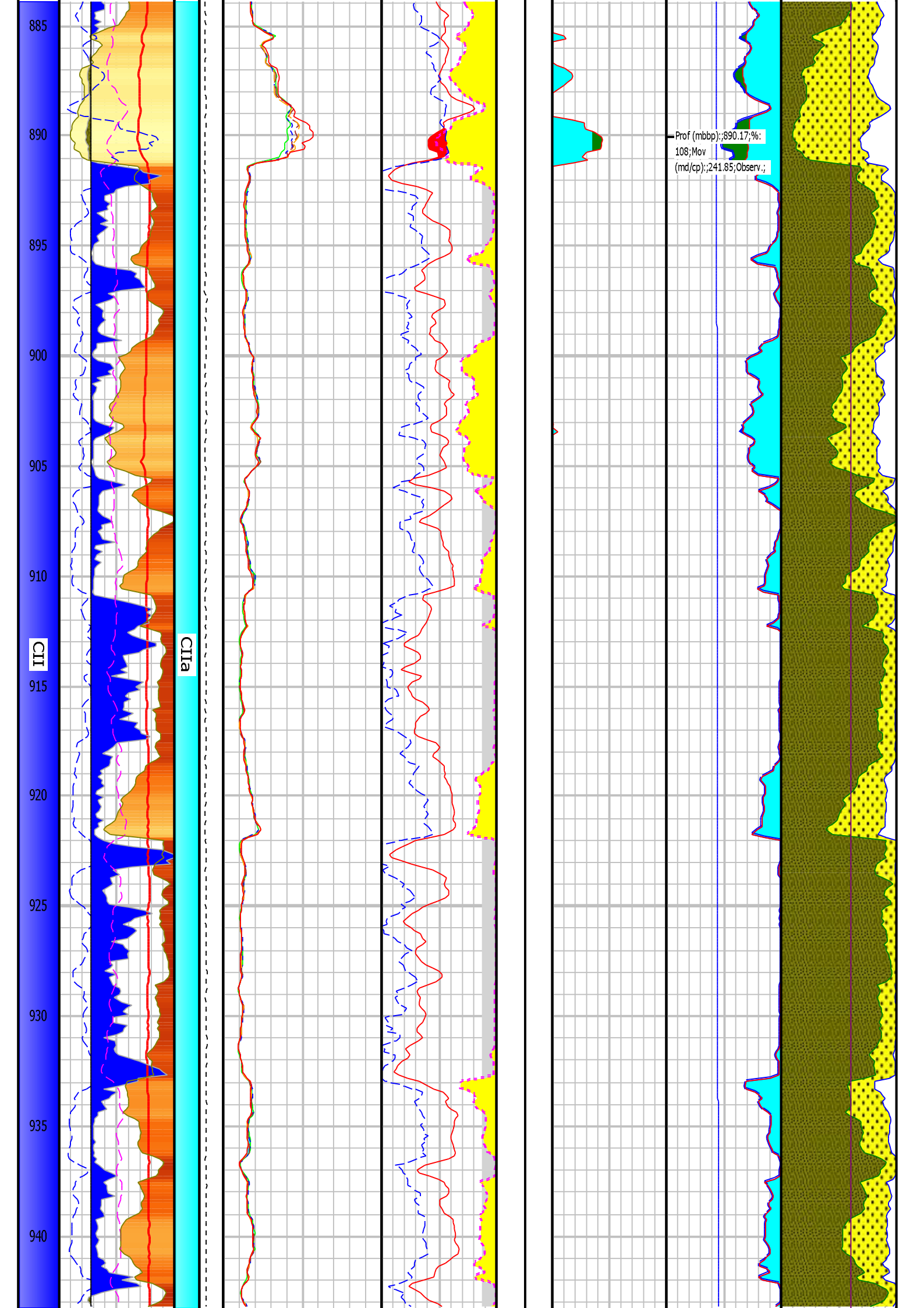
09/10/2014 11:03

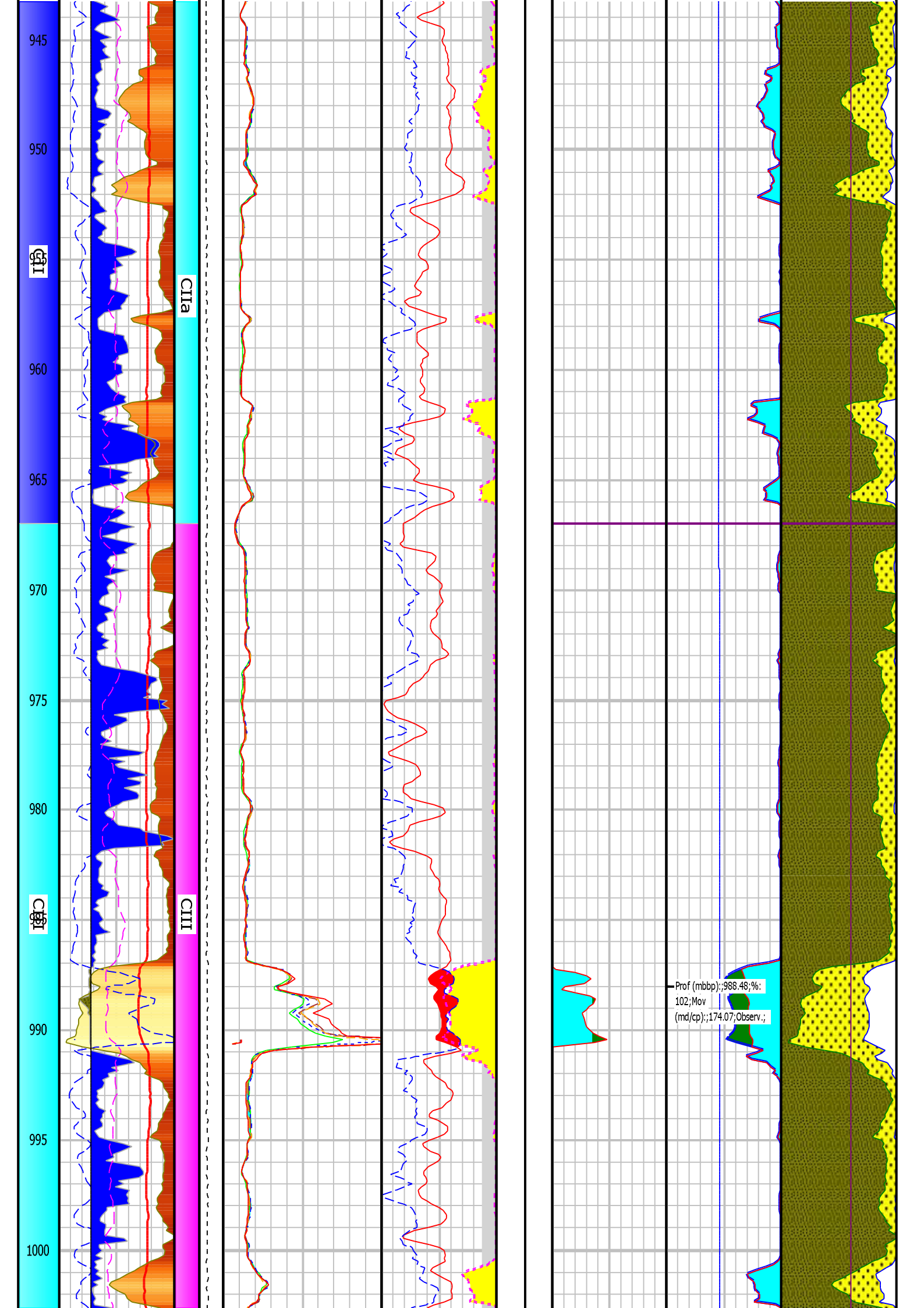



710
715
720
725
730
735
740
745
750
755
760
765

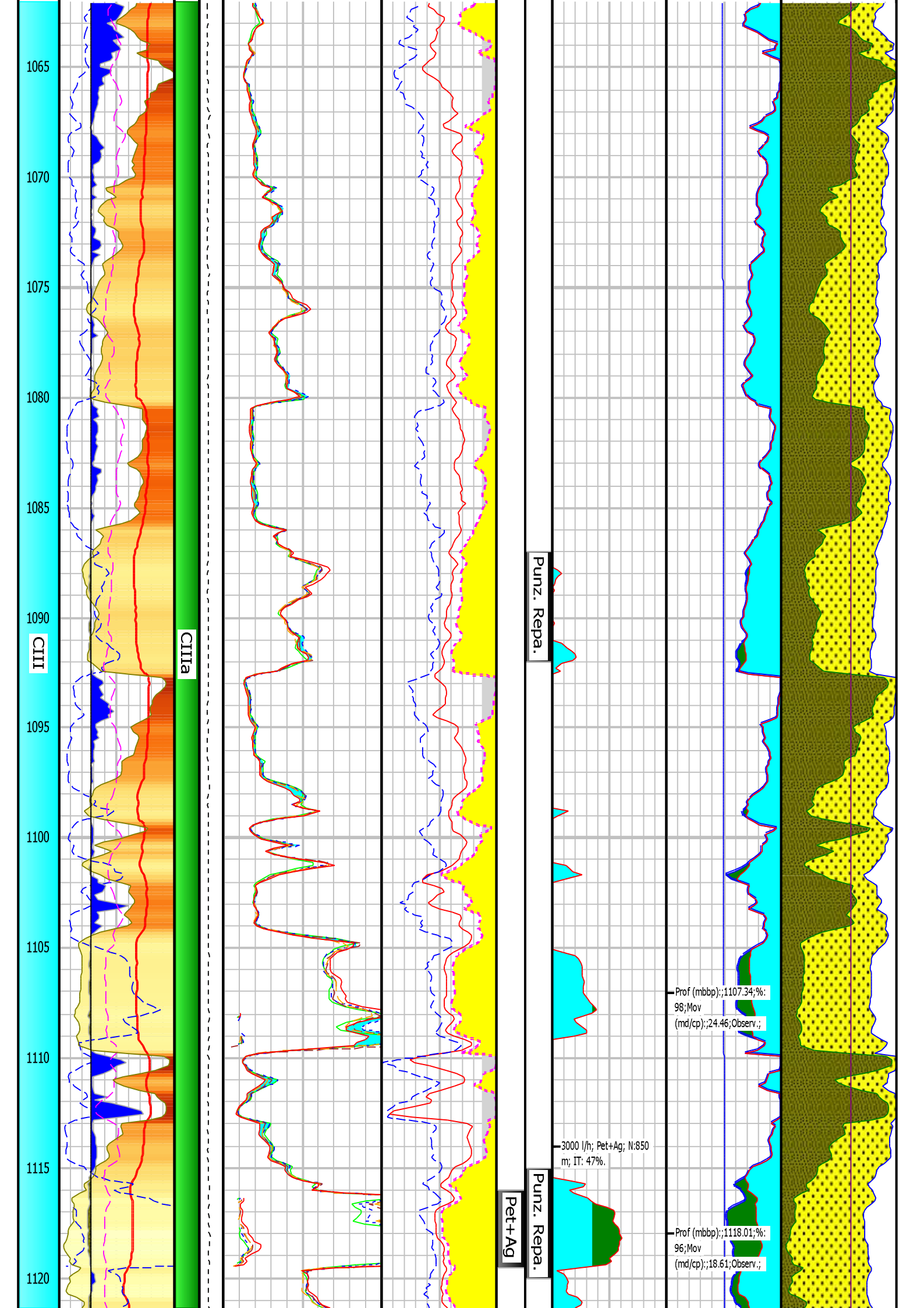
770
775
780
785
790
795
800
805
810
815
820
CIII
CIII

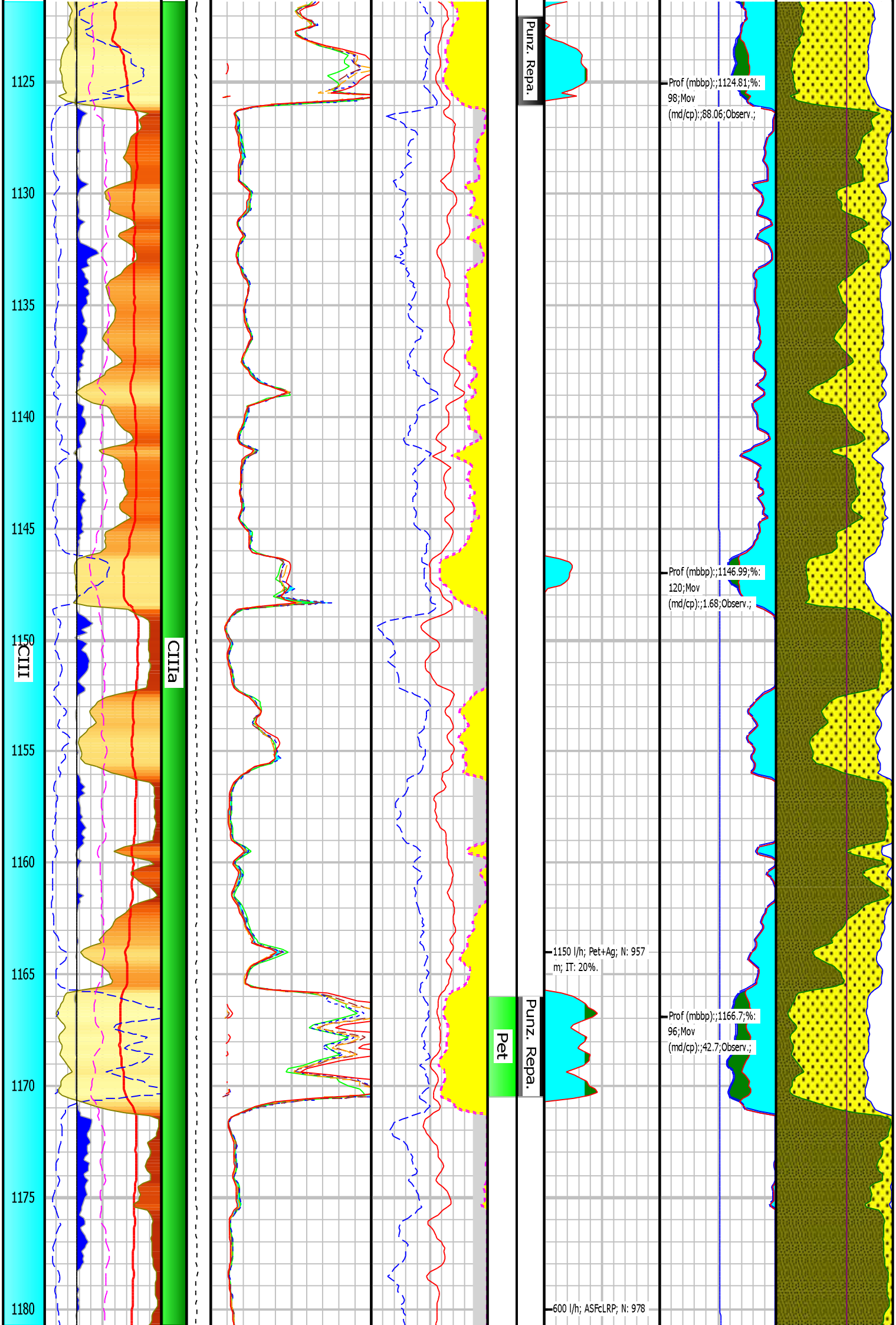
825
830
835
840
845
850
855
860
865
870
875
880
CII
CIIb
CIIa

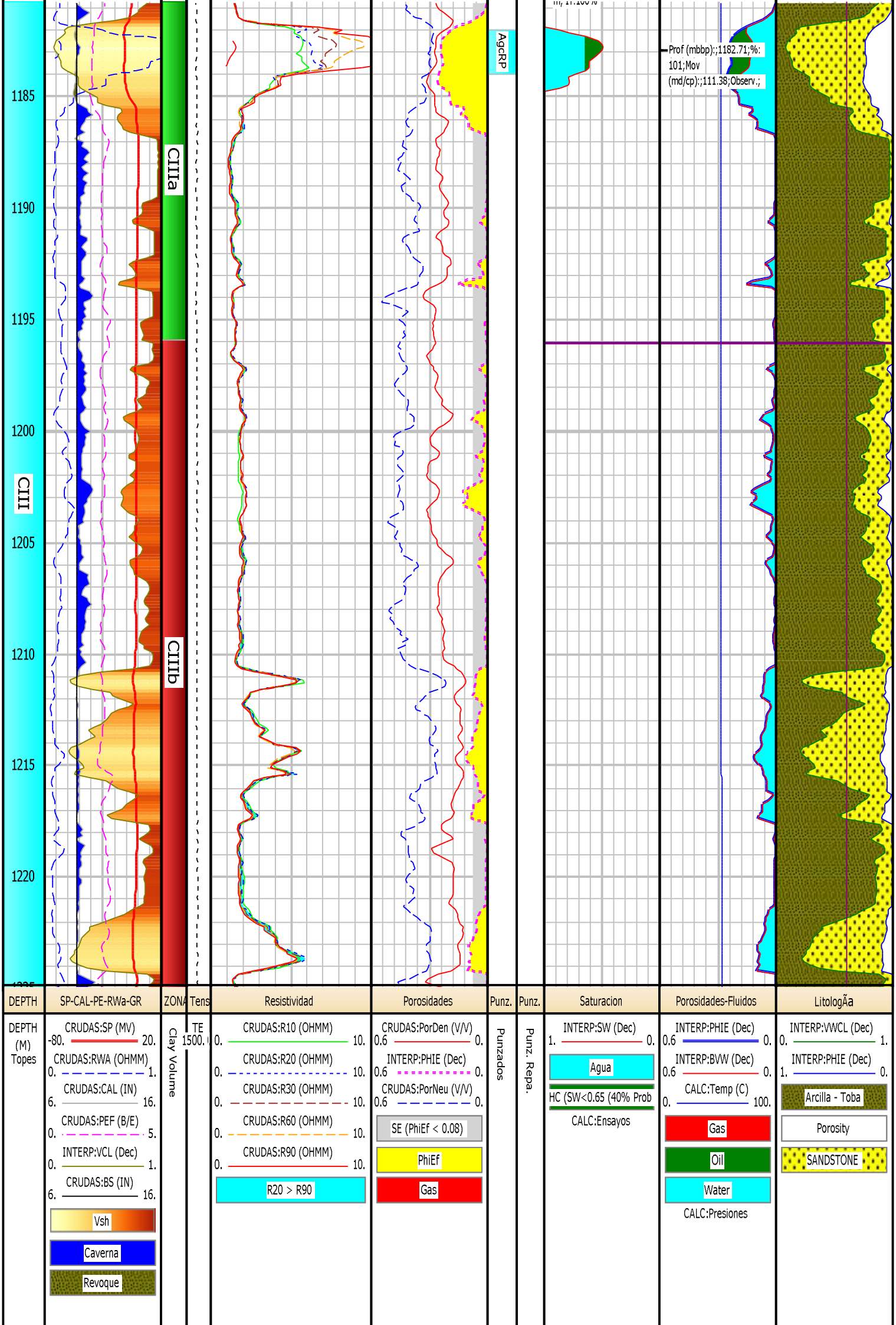

885
890
895
900
905
910
915
920
925
930
935
940
CII
CIIa
Prof (mbbp):;890.17;%:
108;Mov
(md/cp):;241.85;Observ.;


945
950
955
960
965
970
975
980
985
990
995
1000
CIIa
CIII
Prof (mbbp):;988.48;%:
102;Mov
(md/cp):;174.07;Observ.;

1005
1010
1015
1020
1025
1030
1035
1040
1045
1050
1055
1060
CIII
CIII
CIIIa
Prof (mbbp):;1032.31;%:
104;Mov
(md/cp):;9.56;Observ.;
Punz. Repa.
Prof (mbbp):;1056.7;%:
30;Mov
(md/cp):;1.84;Observ.;


1065
1070
1075
1080
1085
1090
1095
1100
1105
1110
1115
1120
CIII
CIIIa
Punz. Repa.
Pet+Ag
Punz. Repa.
3000 l/h; Pet+Ag; N:850 m; IT: 47%.
Prof (mbbp):;1107.34;%: 98;Mov (md/cp):;24.46;Observ.;
Prof (mbbp):;1118.01;%: 96;Mov (md/cp):;18.61;Observ.;


1125
1130
1135
1140
1145
1150
1155
1160
1165
1170
1175
1180
CIII
CIIIa
Punz. Repa.
Prof (mbbp):;1124.81;%:
98;Mov
(md/cp):;88.06;Observ.;
Prof (mbbp):;1146.99;%:
120;Mov
(md/cp):;1.68;Observ.;
1150 l/h; Pet+Ag; N: 957
m; IT: 20%.
Pet
Punz. Repa.
Prof (mbbp):;1166.7;%:
96;Mov
(md/cp):;42.7;Observ.;
600 l/h; ASFcLRP; N: 978


1185
1190
1195
1200
1205
1210
1215
1220
CIIIa
CIIIb
CIII
AgcRP
Prof (mbbp):;1182.71;%:
101;Mov
(md/cp):;111.38;Observ.;
DEPTH
SP-CAL-PE-RWa-GR
ZONA
Tens
Resistividad
Porosidades
Punz.
Punz.
Saturacion
Porosidades-Fluidos
LitologÃa
DEPTH (M) Topes
CRUDAS:SP (MV)
-80.
20.
CRUDAS:RWA (OHMM)
0.
1.
CRUDAS:CAL (IN)
6.
16.
CRUDAS:PEF (B/E)
0.
5.
INTERP:VCL (Dec)
0.
1.
CRUDAS:BS (IN)
6.
16.
Vsh
Caverna
Revoque
Clay Volume
TE
1500.
CRUDAS:R10 (OHMM)
0.
10.
CRUDAS:R20 (OHMM)
0.
10.
CRUDAS:R30 (OHMM)
0.
10.
CRUDAS:R60 (OHMM)
0.
10.
CRUDAS:R90 (OHMM)
0.
10.
R20 > R90
CRUDAS:PorDen (V/V)
0.6
0.
INTERP:PHIE (Dec)
0.6
0.
CRUDAS:PorNeu (V/V)
0.6
0.
SE (PhiEf < 0.08)
PhiEf
Gas
Punzados
Punz. Repa.
INTERP:SW (Dec)
1.
0.
Agua
HC (SW<0.65 (40% Prob
CALC:Ensayos
INTERP:PHIE (Dec)
0.6
0.
INTERP:BVW (Dec)
0.6
0.
CALC:Temp (C)
0.
100.
Gas
Oil
Water
CALC:Presiones
INTERP:VWCL (Dec)
0.
1.
INTERP:PHIE (Dec)
1.
0.
Arcilla - Toba
Porosity
SANDSTONE

Petrophysical Zone Averages Report

Well : YPF.Ch.LC-668
Date : 09/09/2014 17:28:31

Reservoir Summary

Zn #	Zone Name	Top	Bottom	Gross	**Net**	N/G	**Av Phi**	**Av Sw**	Av Vcl Ari	Phi*H	PhiSo*H
1	Punz. Repa.	1055	1059	4	**4**	1	**0,235**	**0,674**	0,189	0,94	0,31
2	Punz. Repa.	1087	1092	5	**3,93**	0,787	**0,189**	**0,947**	0,251	0,74	0,04
3	Punz. Repa.	1115	1120	5	**4,66**	0,932	**0,244**	**0,574**	0,126	1,14	0,49
4	Punz. Repa.	1122	1126	4	**3,86**	0,964	**0,197**	**0,782**	0,173	0,76	0,17
5	Punz. Repa.	1166	1170,5	4,5	**4,5**	1	**0,22**	**0,653**	0,15	0,99	0,34
	All Zones	1055	1170,5	22,5	**20,95**	0,931	**0,218**	**0,707**	0,175	4,57	1,34

Pay Summary

Zn #	Zone Name	Top	Bottom	Gross	**Net**	N/G	**Av Phi**	**Av Sw**	Av Vcl Ari	Phi*H	PhiSo*H
1	Punz. Repa.	1055	1059	4	**2,44**	0,61	**0,257**	**0,598**	0,174	0,63	0,25
2	Punz. Repa.	1087	1092	5	**0**	0	**---**	**---**	---	---	---
3	Punz. Repa.	1115	1120	5	**2,9**	0,579	**0,262**	**0,454**	0,09	0,76	0,41
4	Punz. Repa.	1122	1126	4	**0,61**	0,152	**0,222**	**0,632**	0,141	0,14	0,05
5	Punz. Repa.	1166	1170,5	4,5	**2,28**	0,506	**0,227**	**0,598**	0,131	0,52	0,21
	All Zones	1055	1170,5	22,5	**8,22**	0,365	**0,248**	**0,547**	0,13	2,04	0,92

Cutoffs Used

Zn #	Zone Name	Top	Bottom	Min. Height	**Phi INTERP:PHIE**	Sw INTERP:SW	**Vcl INTERP:VCL**
Reservoir							
1	Punz. Repa.	1055	1059	0	**>= 0.08**		**<= 0.3**
2	Punz. Repa.	1087	1092	0	**>= 0.08**		**<= 0.3**
3	Punz. Repa.	1115	1120	0	**>= 0.08**		**<= 0.3**
4	Punz. Repa.	1122	1126	0	**>= 0.08**		**<= 0.3**
5	Punz. Repa.	1166	1170,5	0	**>= 0.08**		**<= 0.3**
Pay							
1	Punz. Repa.	1055	1059	0	**>= 0.08**	<= 0.65	**<= 0.3**
2	Punz. Repa.	1087	1092	0	**>= 0.08**	<= 0.65	**<= 0.3**
3	Punz. Repa.	1115	1120	0	**>= 0.08**	<= 0.65	**<= 0.3**
4	Punz. Repa.	1122	1126	0	**>= 0.08**	<= 0.65	**<= 0.3**
5	Punz. Repa.	1166	1170,5	0	**>= 0.08**	<= 0.65	**<= 0.3**

Depth Units : m

Capas
"Capas" Zones

Well: YPF.Ch.LC-668
Date: 09/10/2014 11:08:43

Zone_Name	Top	Bottom
B190	1050	1053.3
B210	1069.1	1080
B230	1085	1093
B260	1113.3	1119.3
B266	1120	1126
B310	1163.2	1173
B320	1179.6	1185

CLAY VOLUME PARAMETERS

Well : YPF.Ch.LC-668
Date : 09/10/2014 11:07:22

Input Curves
SP : CRUDAS:SPedit Resistivity : CRUDAS:R90
Output Curves
VClay SP : INTERP:VCLSP VClay Resistivity : INTERP:VCLR
VClay minimum : INTERP:VCL VClay average : INTERP:VCLAV
VClay mixed : INTERP:VCLmix

Zone number 1 CII Top : 775.00 Bottom : 845.00
SP Use : Yes SP Clean : -21 SP Clay : 1
Res Use : Yes Res Clean : 2.96 Res Clay : 1.26
Link PhiSw Clay : No Vcl Av Method : Mean Vcl Mix Method : Minimum

Zone number 2 CIIa Top : 845.00 Bottom : 970.00
SP Use : Yes SP Clean : -12 SP Clay : 1
Res Use : Yes Res Clean : 7.06 Res Clay : 1.15
Link PhiSw Clay : No Vcl Av Method : Mean Vcl Mix Method : Minimum

Zone number 3 CIII Top : 967.00 Bottom : 1037.84
SP Use : Yes SP Clean : -15 SP Clay : 1
Res Use : Yes Res Clean : 13.9 Res Clay : 1.39
Link PhiSw Clay : No Vcl Av Method : Mean Vcl Mix Method : Minimum

Zone number 4 CIIIa Top : 1037.84 Bottom : 1195.88
SP Use : Yes SP Clean : -25 SP Clay : 1
Res Use : Yes Res Clean : 29 Res Clay : 1.29
Link PhiSw Clay : No Vcl Av Method : Mean Vcl Mix Method : Minimum

Zone number 5 CIIIb Top : 1195.88 Bottom : 1254.10
SP Use : Yes SP Clean : -23.3 SP Clay : 1
Res Use : Yes Res Clean : 11.6 Res Clay : 1.54
Link PhiSw Clay : No Vcl Av Method : Mean Vcl Mix Method : Minimum

Petrophysical Zone Averages Report

Well : YPF.Ch.LC-668
Date : 09/10/2014 10:29:39

Reservoir Summary

Zn #	Zone Name	Top	Bottom	Gross	**Net**	N/G	**Av Phi**	**Av Sw**	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116	1119,5	3,5	**3,5**	1	**0,251**	**0,493**	0,1	0,88	0,44
2	Pet	1166	1170,5	4,5	**4,5**	1	**0,22**	**0,653**	0,15	0,99	0,34
3	AgcRP	1182	1184	2	**2**	1	**0,229**	**0,596**	0,133	0,46	0,19
	All Zones	1116	1184	10	**10**	1	**0,233**	**0,582**	0,129	2,33	0,97

Pay Summary

Zn #	Zone Name	Top	Bottom	Gross	**Net**	N/G	**Av Phi**	**Av Sw**	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116	1119,5	3,5	**2,9**	0,827	**0,262**	**0,454**	0,09	0,76	0,41
2	Pet	1166	1170,5	4,5	**2,28**	0,506	**0,227**	**0,598**	0,131	0,52	0,21
3	AgcRP	1182	1184	2	**1,68**	0,838	**0,234**	**0,564**	0,122	0,39	0,17
	All Zones	1116	1184	10	**6,85**	0,685	**0,243**	**0,524**	0,111	1,67	0,79

Cutoffs Used

Zn #	Zone Name	Top	Bottom	Min. Height	**Phi INTERP:PHIE**	Sw INTERP:SW	**Vcl INTERP:VCL**
Reservoir							
1	Pet+Ag	1116	1119,5	0	**>= 0.08**		**<= 0.3**
2	Pet	1166	1170,5	0	**>= 0.08**		**<= 0.3**
3	AgcRP	1182	1184	0	**>= 0.08**		**<= 0.3**
Pay							
1	Pet+Ag	1116	1119,5	0	**>= 0.08**	<= 0.65	**<= 0.3**
2	Pet	1166	1170,5	0	**>= 0.08**	<= 0.65	**<= 0.3**
3	AgcRP	1182	1184	0	**>= 0.08**	<= 0.65	**<= 0.3**

Depth Units : m

Reservorio y Neto

Company	YPF S.A.
Well Name	YPF.Ch.LC-668
Field	LA CAROLINA-Manantiales Behr
Country	ARGENTINA
State	CHUBUT
Location	

Petrophysical Zone Averages Report

Reservoir Summary

Zn #	Zone Name	Top	Bottom	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116.00	1119.50	3.50	3.50	1.000	0.251	0.493	0.100	0.88	0.44
2	Pet	1166.00	1170.50	4.50	4.50	1.000	0.220	0.653	0.150	0.99	0.34
3	AgcRP	1182.00	1184.00	2.00	2.00	1.000	0.229	0.596	0.133	0.46	0.19
	All Zones	**1116.00**	**1184.00**	**10.00**	**10.00**	**1.000**	**0.233**	**0.582**	**0.129**	**2.33**	**0.97**

Pay Summary

Zn #	Zone Name	Top	Bottom	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl Ari	Phi*H	PhiSo*H
1	Pet+Ag	1116.00	1119.50	3.50	2.90	0.827	0.262	0.454	0.090	0.76	0.41
2	Pet	1166.00	1170.50	4.50	2.28	0.506	0.227	0.598	0.131	0.52	0.21
3	AgcRP	1182.00	1184.00	2.00	1.68	0.838	0.234	0.564	0.122	0.39	0.17
	All Zones	**1116.00**	**1184.00**	**10.00**	**6.85**	**0.685**	**0.243**	**0.524**	**0.111**	**1.67**	**0.79**

Cutoffs Used

Zn #	Zone Name	Top	Bottom	Min. Height	Phi INTERP:PHIE	Sw INTERP:SW	Vcl INTERP:VCL
	Reservoir						
1	Pet+Ag	1116.00	1119.50	0	>= 0.08		<= 0.3
2	Pet	1166.00	1170.50	0	>= 0.08		<= 0.3
3	AgcRP	1182.00	1184.00	0	>= 0.08		<= 0.3
	Pay						
1	Pet+Ag	1116.00	1119.50	0	>= 0.08	<= 0.65	<= 0.3
2	Pet	1166.00	1170.50	0	>= 0.08	<= 0.65	<= 0.3
3	AgcRP	1182.00	1184.00	0	>= 0.08	<= 0.65	<= 0.3

Depth Units : m

CLAY VOLUME PARAMETERS

Top Bottom	SP Clean SP Clay	Res Clean Res Clay
775 845	-21 1	2.96 1.26
845 970	-12 1	7.06 1.15
967 1037.84	-15 1	13.9 1.39
1037.84 1195.88	-25 1	29 1.29
1195.88 1254.1	-23.3 1	11.6 1.54

POROSITY WATER SATURATION PARAMETERS

Top Bottom	Phi Model Sw eq.	Rw Rw temp.	Rmf Rmf temp.	"m" "n"	"a" OBM ?	Rho HC Rho Mat	Rho Fluid Rho Clay	Rwb Rwb temp.	Rh Dry Cly PhiT Clay
771.47	Density	0.345	1.22	1.7	1	0.92	Calc.	0.081	2.323
845	Dual water	CALC:Temp	4	1.91	No	2.6	2.19	CALC:Temp	
845	Density	0.336	1.22	1.7	1	0.92	Calc.	0.079	2.431
967	Dual water	CALC:Temp	4	1.91	No	2.6	2.27	CALC:Temp	
967	Density	0.354	1.22	1.95	1	0.9	Calc.	0.074	2.489
1032.73	Dual water	CALC:Temp	4	1.9	No	2.61	2.334	CALC:Temp	
1032.73	Density	0.345	1.22	1.95	1	0.9	Calc.	0.069	2.515
1196.04	Dual water	CALC:Temp	4	1.9	No	2.61	2.383	CALC:Temp	
1196.04	Density	0.376	1.22	1.95	1	0.9	Calc.	0.066	2.52
1254	Dual water	CALC:Temp	4	1.9	No	2.61	2.394	CALC:Temp	

CRUDAS:SP : Spontaneous Potential
INTERP:PHIE : Effective Porosity
INTERP:SW : Water Saturation
INTERP:VCL : Clay Volume

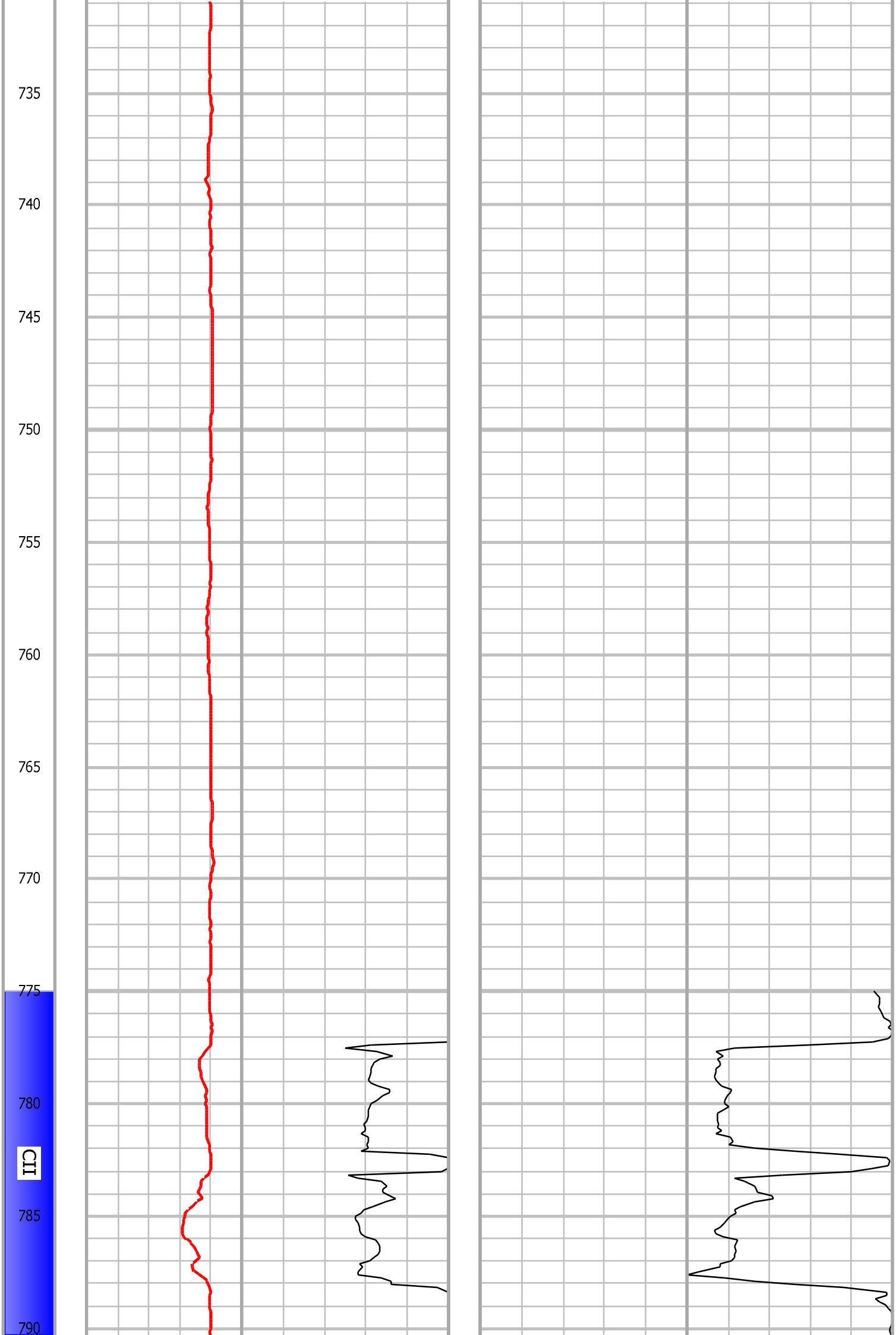
Scale : 1 : 200

YPF.Ch.LC-668

DB : Petrofisica LA CAROLINA SOMERA (7)

DEPTH (699.97M - 1224.99M)

09/10/2014 10:28


735
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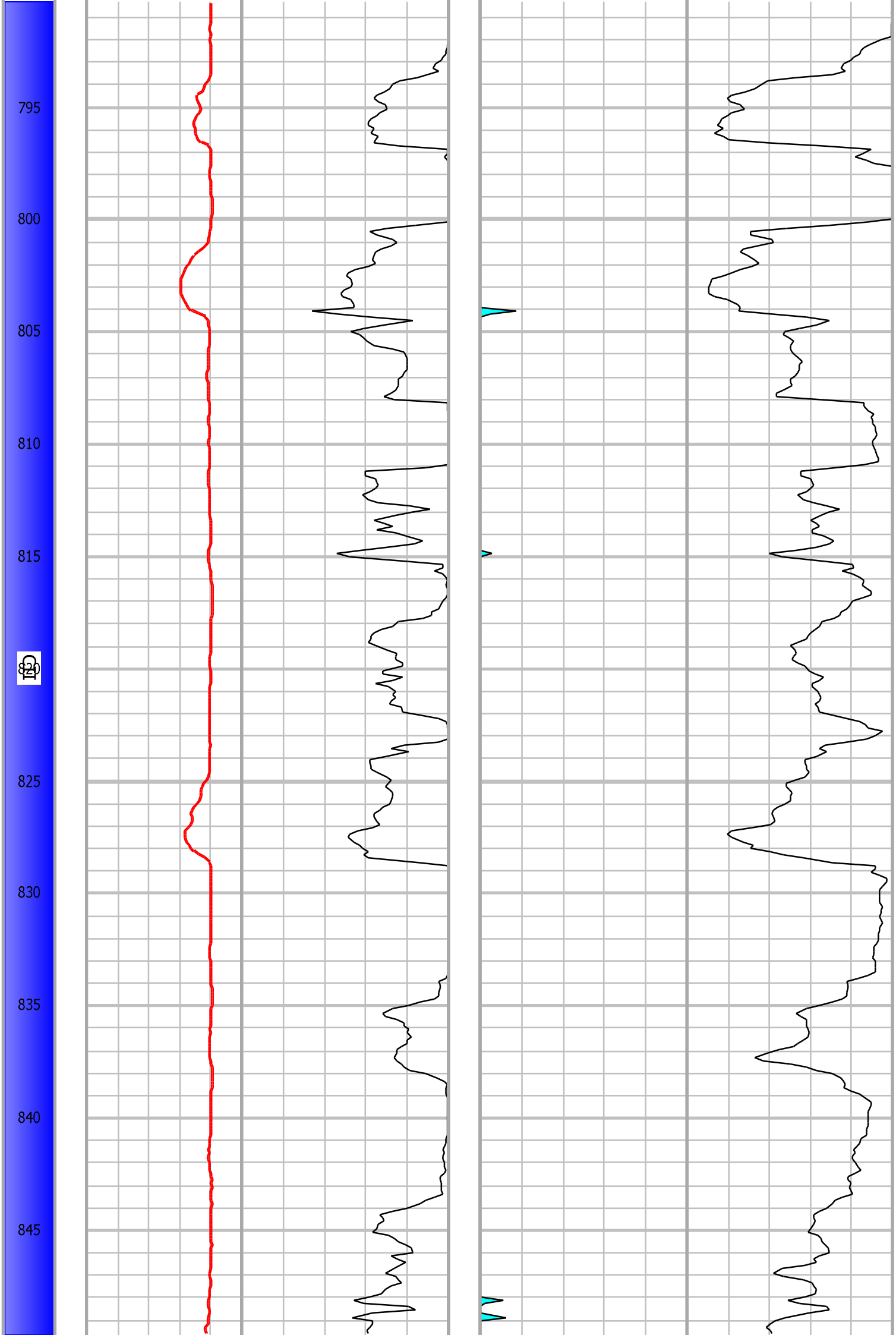
760
765
770
775
780
CII
785
790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825
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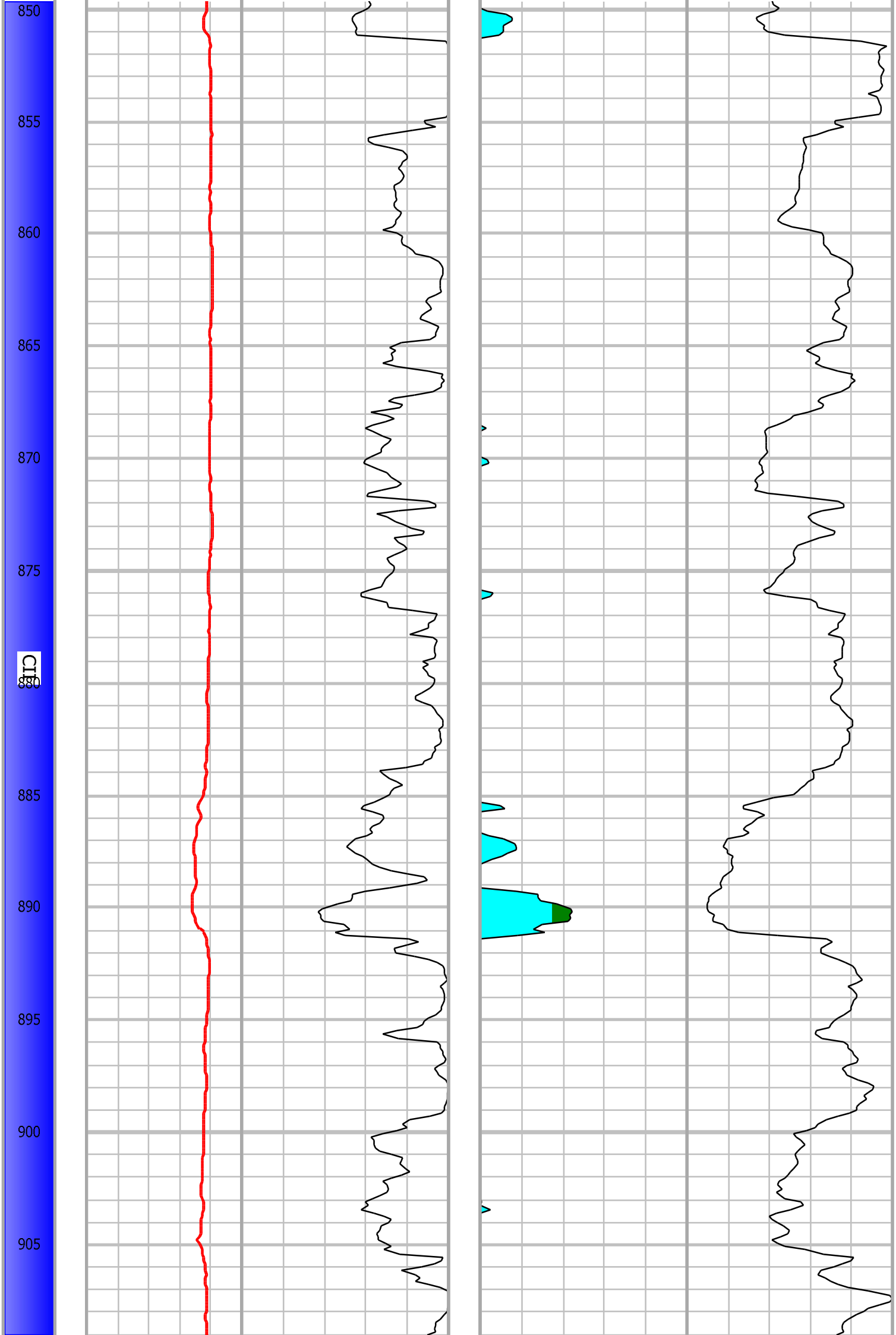
840
845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895
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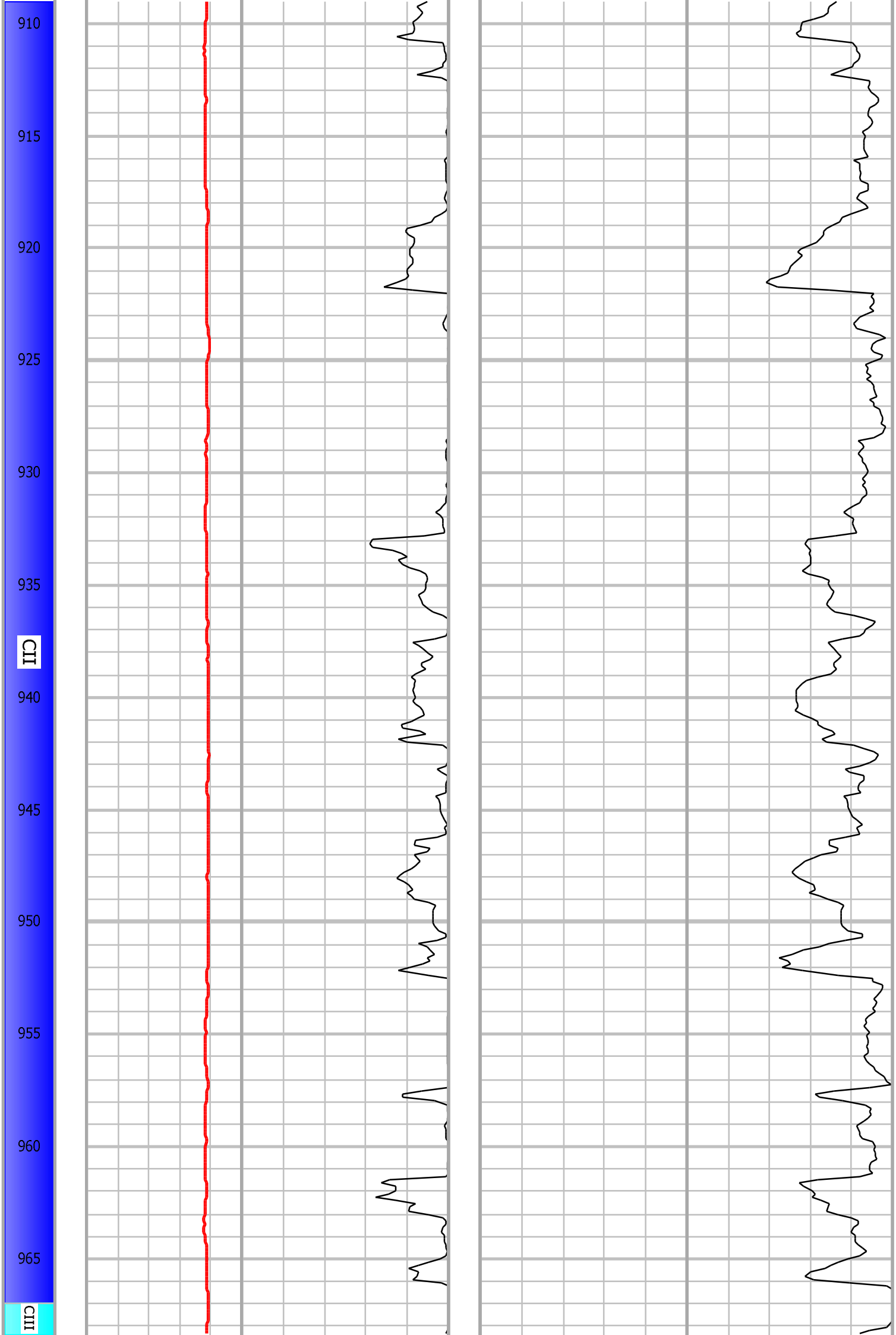
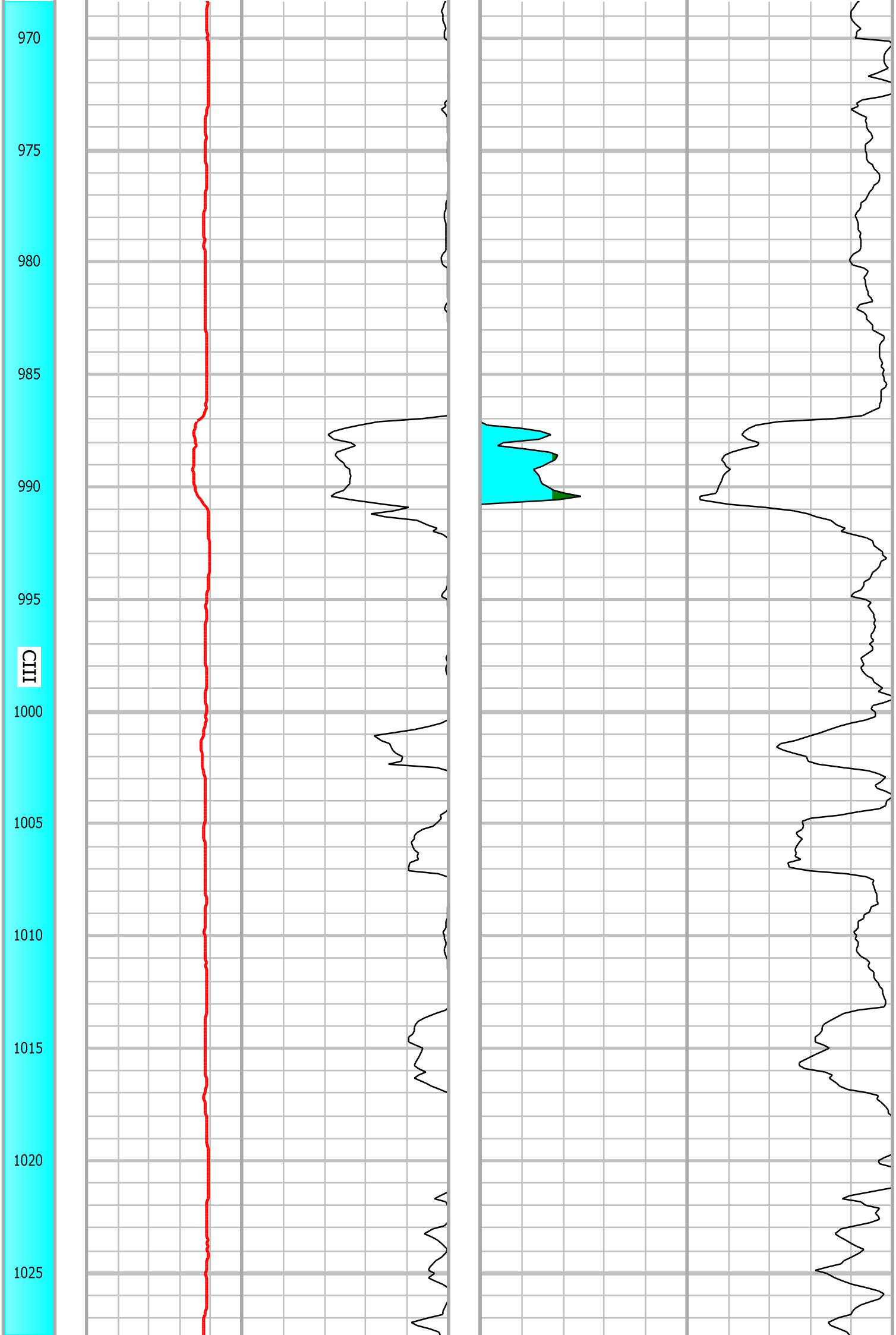
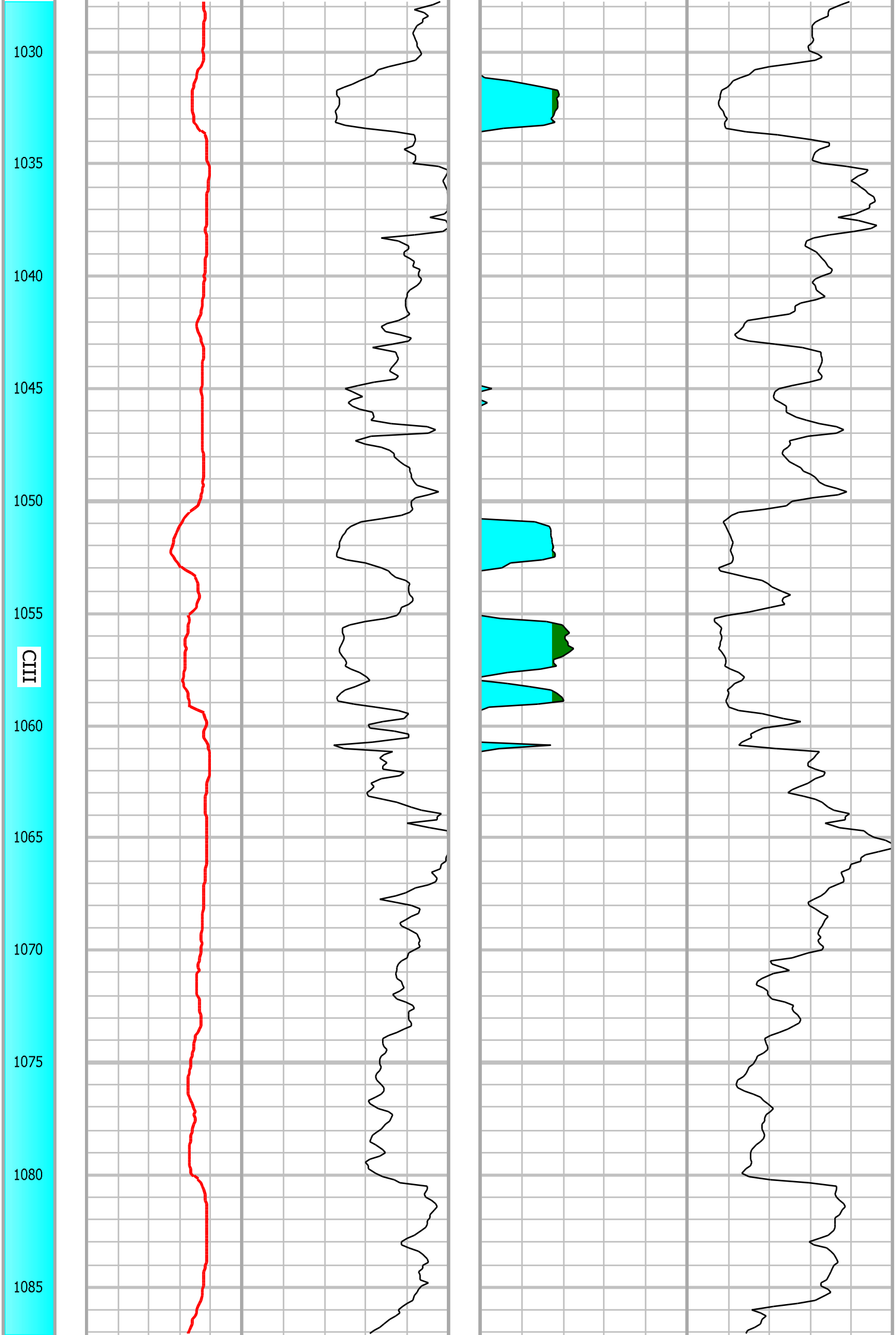
905
CIP


910
915
920
925
930
935
CII
940
945
950
955
960
965
CIII


970
975
980
985
990
995
CIII
1000
1005
1010
1015
1020
1025


1030
1035
1040
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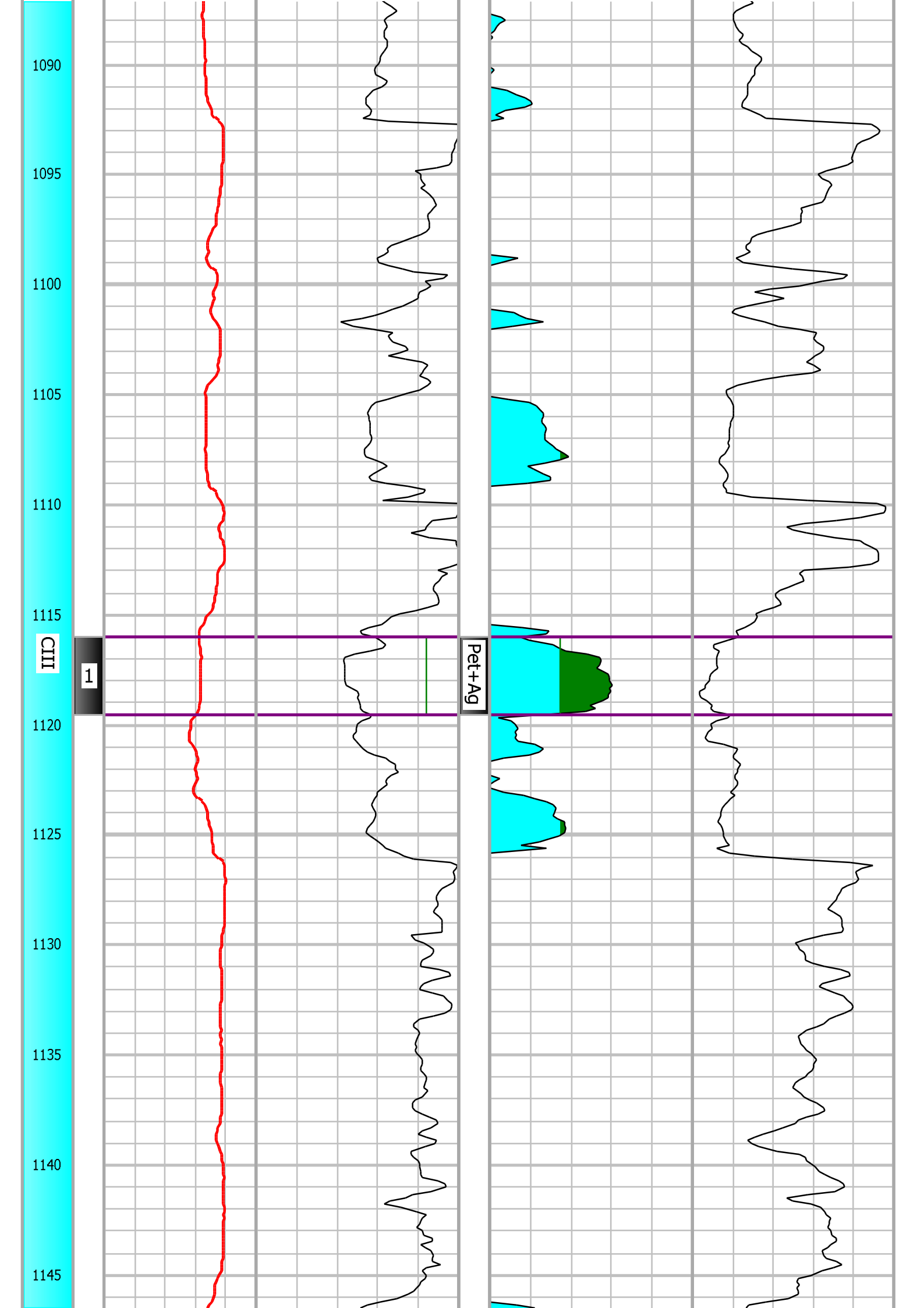
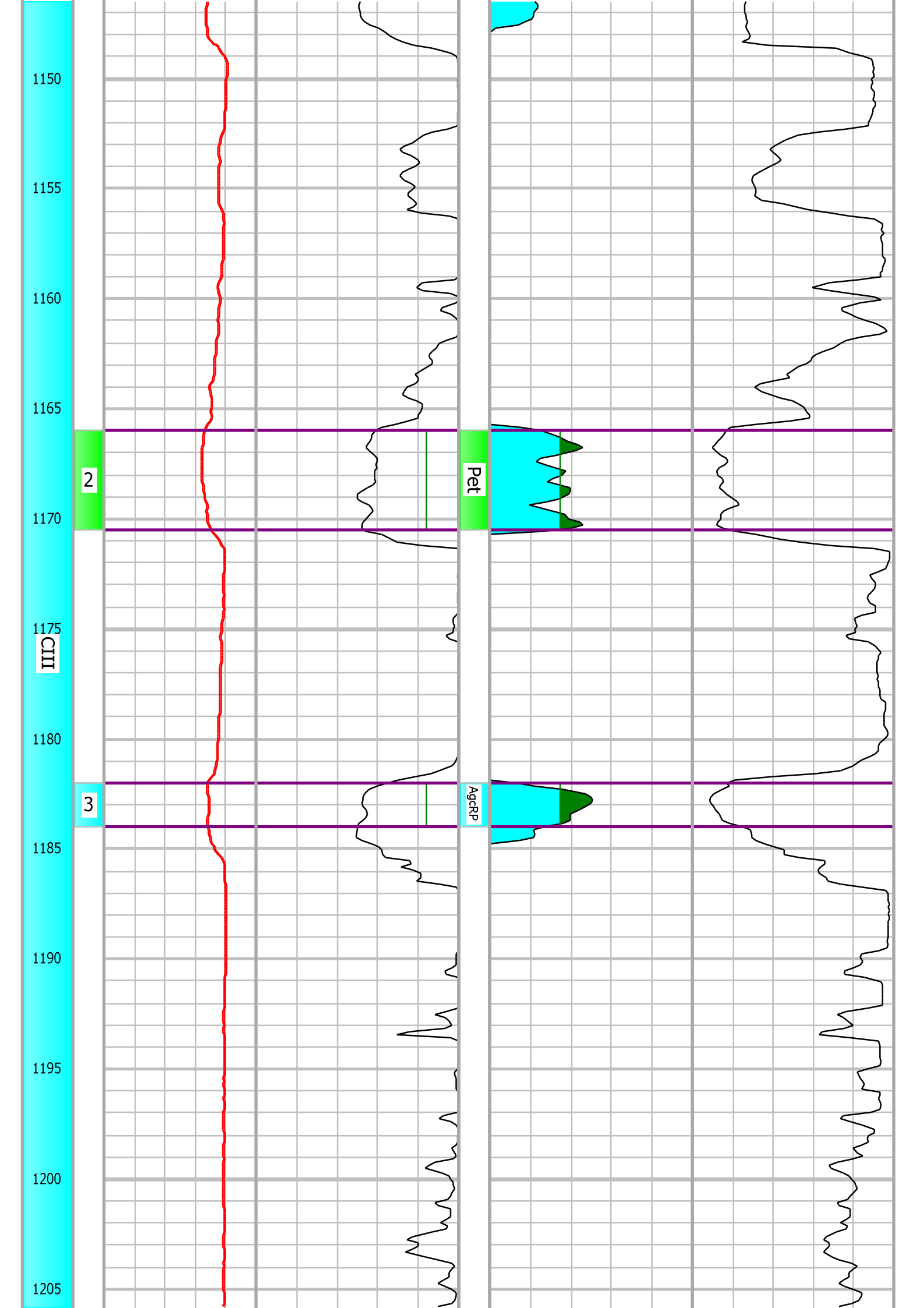
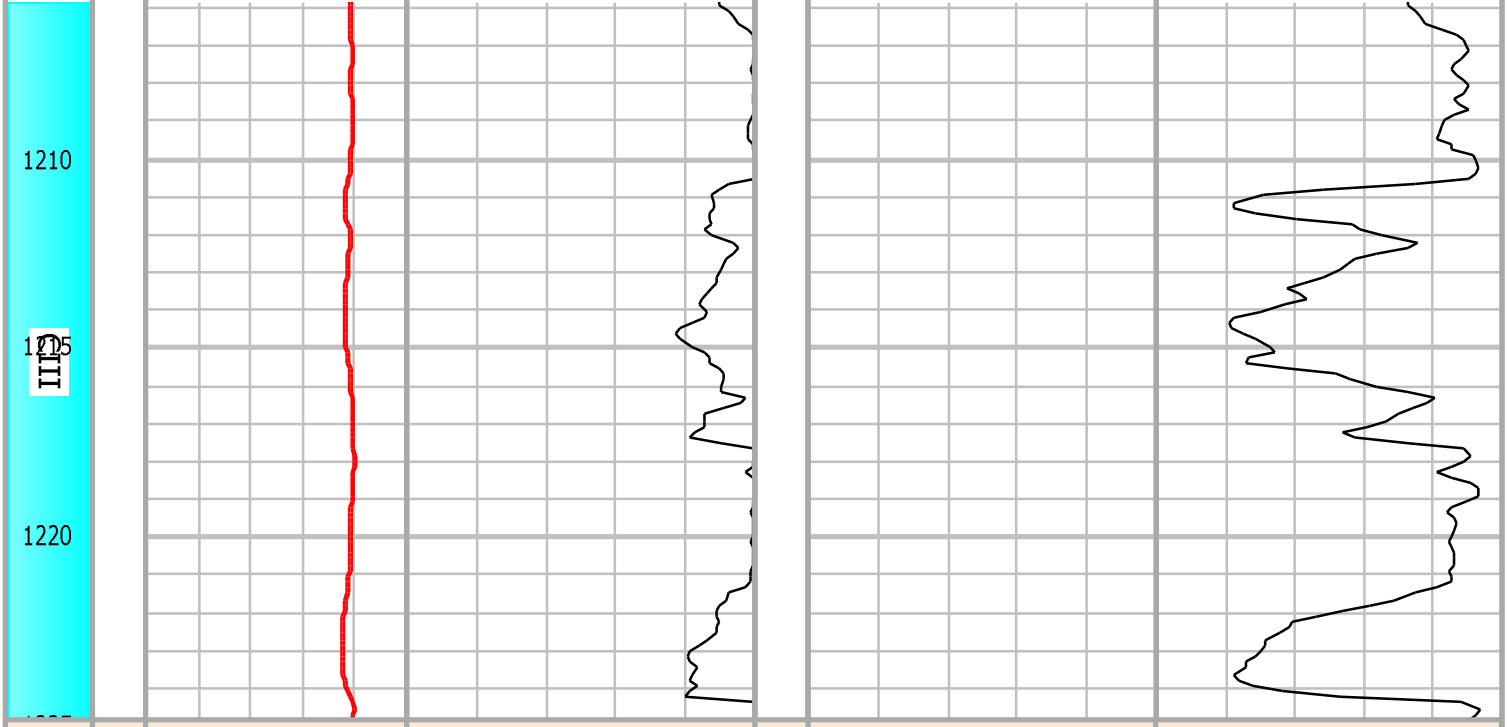
1050
1055
CIII
1060
1065
1070
1075
1080
1085


1090
1095
1100
1105
1110
1115
CIII
1
Pet+Ag
1120
1125
1130
1135
1140
1145


1150
1155
1160
1165
1170
1175
1180
1185
1190
1195
1200
1205
CIII
2
3
Pet
AgcRP



Topes	Cutof	SP - GR	Porosidad	Zona	SaturaciÃ³n Agua	Volumen de Arcilla
DEPTH (M) Topes	Cutoffs	CRUDAS:SP (MV) -80. 20.	INTERP:PHIE (Dec) 0.5 0.	Punzados	INTERP:SW (Dec) 1. 0. Agua HC (SW<0.65 (40% Prob Pet))	INTERP:VCL (Dec) 0. 1.

POROSITY WATER SATURATION PARAMETERS

Well : YPF.Ch.LC-668
Date : 09/10/2014 11:07:41

Input Curves
Neutron : CALC:Phi_Neu Density : CRUDAS:RHOD
PEF : CRUDAS:PEF Clay Volume : INTERP:VCL
Rt : CRUDAS:R90 Temperature : CALC:Temp
Bad hole : CALC:Bad Hole
Output Curves
Phi Total : INTERP:PHIT Phi effective : INTERP:PHIE
Sw : INTERP:SW Sw unlimited : INTERP:SWU
Sw total : INTERP:SWT Sw total unlim : INTERP:SWTU
Sxo total : INTERP:SXOT Sxo total unlim : INTERP:SXOTU
Bulk vol water : INTERP:BVW Wet clay volume : INTERP:VWCL
Dry Clay volume : INTERP:VDCL Bound water sat : INTERP:SWB
Volume silt : INTERP:VSILT Logic flag : INTERP:PHIFLAG
Matrix density : INTERP:RHOMA Coal Volume : INTERP:VCOAL
Salt volume : INTERP:VSALT Anhydrite volume : INTERP:VANHY
Hydrocarbon den : INTERP:RHOHY Kill Anal. Flag : INTERP:KillFlag
Grain Density : INTERP:GrainDen

Zone number 1 CII Top : 771.47 Bottom : 845.00
Rw : 0.345 Rw Temp : CALC:Temp Rmf : 1.22
Rmf Temp : 4 Rw bound : 0.081 Rwb Temp : CALC:Temp
Rmf bound : 0.081 Rmfb Temp : CALC:Temp Rho Sxo zone :
Rho Wet Clay : 2.19 Rho Dry Clay : 2.323 Hc Den : 0.92
Hc Den Min : 0.1 Den Hc app : GD source : Param
Rho GD : 2.6 Porosity Method : Density OBM ? : No
Phi max : 0.3 Delta Phi max : 0.15 m vari wth Vcl : No
Vcl cutoff : 0.6 Bad Hole Disc ? : No Sat Equation : Dual water
a factor : 1 m exponent : 1.7 n exponent : 1.91
Invasion factor : 2 Sxo Method : Inv Fac m source : Param
n source : Param Coal Logic : No Salt Logic : No
PhiT Clay : Phie Sw Limit : 0 Phie Limit : 0
Vcl Limit : 1 Kill Logic : No Swi Limit : 0
Anhydrite Logic : No Den Hyd model : Modified Clay Shale Rati : 1

Zone number 2 CIIa Top : 845.00 Bottom : 967.00
Rw : 0.336 Rw Temp : CALC:Temp Rmf : 1.22
Rmf Temp : 4 Rw bound : 0.079 Rwb Temp : CALC:Temp
Rmf bound : 0.079 Rmfb Temp : CALC:Temp Rho Sxo zone :
Rho Wet Clay : 2.27 Rho Dry Clay : 2.431 Hc Den : 0.92
Hc Den Min : 0.1 Den Hc app : GD source : Param
Rho GD : 2.6 Porosity Method : Density OBM ? : No
Phi max : 0.3 Delta Phi max : 0.15 m vari wth Vcl : No
Vcl cutoff : 0.6 Bad Hole Disc ? : No Sat Equation : Dual water
a factor : 1 m exponent : 1.7 n exponent : 1.91
Invasion factor : 2 Sxo Method : Inv Fac m source : Param
n source : Param Coal Logic : No Salt Logic : No
PhiT Clay : Phie Sw Limit : 0 Phie Limit : 0
Vcl Limit : 1 Kill Logic : No Swi Limit : 0
Anhydrite Logic : No Den Hyd model : Modified Clay Shale Rati : 1

Zone number 3 CIII Top : 967.00 Bottom : 1032.73
Rw : 0.354 Rw Temp : CALC:Temp Rmf : 1.22
Rmf Temp : 4 Rw bound : 0.074 Rwb Temp : CALC:Temp
Rmf bound : 0.074 Rmfb Temp : CALC:Temp Rho Sxo zone :
Rho Wet Clay : 2.334 Rho Dry Clay : 2.489 Hc Den : 0.9

Hc Den Min : 0.1 Den Hc app : GD source : Param
Rho GD : 2.61 Porosity Method : Density OBM ? : No
Phi max : 0.3 Delta Phi max : 0.15 m vari wth Vcl : No
Vcl cutoff : 0.6 Bad Hole Disc ? : No Sat Equation : Dual water
a factor : 1 m exponent : 1.95 n exponent : 1.9
Invasion factor : 2 Sxo Method : Inv Fac m source : Param
n source : Param Coal Logic : No Salt Logic : No
PhiT Clay : Phie Sw Limit : 0 Phie Limit : 0
Vcl Limit : 1 Kill Logic : No Swi Limit : 0
Anhydrite Logic : No Den Hyd model : Modified Clay Shale Rati : 1

Zone number 4 CIIIa Top : 1032.73 Bottom : 1196.04
Rw : 0.345 Rw Temp : CALC:Temp Rmf : 1.22
Rmf Temp : 4 Rw bound : 0.069 Rwb Temp : CALC:Temp
Rmf bound : 0.069 Rmfb Temp : CALC:Temp Rho Sxo zone :
Rho Wet Clay : 2.383 Rho Dry Clay : 2.515 Hc Den : 0.9
Hc Den Min : 0.1 Den Hc app : GD source : Param
Rho GD : 2.61 Porosity Method : Density OBM ? : No
Phi max : 0.3 Delta Phi max : 0.15 m vari wth Vcl : No
Vcl cutoff : 0.6 Bad Hole Disc ? : No Sat Equation : Dual water
a factor : 1 m exponent : 1.95 n exponent : 1.9
Invasion factor : 2 Sxo Method : Inv Fac m source : Param
n source : Param Coal Logic : No Salt Logic : No
PhiT Clay : Phie Sw Limit : 0 Phie Limit : 0
Vcl Limit : 1 Kill Logic : No Swi Limit : 0
Anhydrite Logic : No Den Hyd model : Modified Clay Shale Rati : 1

Zone number 5 CIIIb Top : 1196.04 Bottom : 1254.00
Rw : 0.376 Rw Temp : CALC:Temp Rmf : 1.22
Rmf Temp : 4 Rw bound : 0.066 Rwb Temp : CALC:Temp
Rmf bound : 0.066 Rmfb Temp : CALC:Temp Rho Sxo zone :
Rho Wet Clay : 2.394 Rho Dry Clay : 2.52 Hc Den : 0.9
Hc Den Min : 0.1 Den Hc app : GD source : Param
Rho GD : 2.61 Porosity Method : Density OBM ? : No
Phi max : 0.3 Delta Phi max : 0.15 m vari wth Vcl : No
Vcl cutoff : 0.6 Bad Hole Disc ? : No Sat Equation : Dual water
a factor : 1 m exponent : 1.95 n exponent : 1.9
Invasion factor : 2 Sxo Method : Inv Fac m source : Param
n source : Param Coal Logic : No Salt Logic : No
PhiT Clay : Phie Sw Limit : 0 Phie Limit : 0
Vcl Limit : 1 Kill Logic : No Swi Limit : 0
Anhydrite Logic : No Den Hyd model : Modified Clay Shale Rati : 1

Punz. Repa.
"Punz. Repa." Zones

Well: YPF.Ch.LC-668
Date: 09/10/2014 11:08:53

Zone_Name	Top	Bottom
Punz. Repa.	1055	1059
Punz. Repa.	1087	1092
Punz. Repa.	1115	1120
Punz. Repa.	1122	1126
Punz. Repa.	1166	1170.5

Punzados
"Punzados" Zones

Well: YPF.Ch.LC-668
Date: 09/10/2014 11:09:02

Zone_Name	Top	Bottom
Pet+Ag	1116	1119.5
Pet	1166	1170.5
AgcRP	1182	1184

Wellname : YPF.Ch.LC-668
Date : 09/10/2014 11:08:24

CALC:DEPTH M	CALC:Temp C
100.1268	21.6099
100.2792	21.6142
100.4316	21.6185
100.584	21.6228
100.7364	21.6271
100.8888	21.6314
101.0412	21.6356
101.1936	21.6399
101.346	21.6442
101.4984	21.6485
101.6508	21.6528
101.8032	21.6571
101.9556	21.6613
102.108	21.6656
102.2604	21.6699
102.4128	21.6742
102.5652	21.6785
102.7176	21.6828
102.87	21.6871
103.0224	21.6913
103.1748	21.6956
103.3272	21.6999
103.4796	21.7042
103.632	21.7085
103.7844	21.7128
103.9368	21.7171
104.0892	21.7213
104.2416	21.7256
104.394	21.7299
104.5464	21.7342
104.6988	21.7385
104.8512	21.7428
105.0036	21.747
105.156	21.7513
105.3084	21.7556
105.4608	21.7599
105.6132	21.7642
105.7656	21.7685
105.918	21.7728
106.0704	21.777
106.2228	21.7813
106.3752	21.7856
106.5276	21.7899
106.68	21.7942
106.8324	21.7985
106.9848	21.8028
107.1372	21.807
107.2896	21.8113
107.442	21.8156
107.5944	21.8199
107.7468	21.8242
107.8992	21.8285
108.0516	21.8327
108.204	21.837
108.3564	21.8413
108.5088	21.8456
108.6612	21.8499
108.8136	21.8542
108.966	21.8585
109.1184	21.8627
109.2708	21.867
109.4232	21.8713
109.5756	21.8756
109.728	21.8799
109.8804	21.8842
110.0328	21.8885
110.1852	21.8927
110.3376	21.897
110.49	21.9013
110.6424	21.9056
110.7948	21.9099
110.9472	21.9142
111.0996	21.9184
111.252	21.9227
111.4044	21.927
111.5568	21.9313
111.7092	21.9356
111.8616	21.9399
112.014	21.9442
112.1664	21.9484
112.3188	21.9527
112.4712	21.957
112.6236	21.9613
112.776	21.9656
112.9284	21.9699
113.0808	21.9742
113.2332	21.9784
113.3856	21.9827
113.538	21.987
113.6904	21.9913
113.8428	21.9956
113.9952	21.9999
114.1476	22.0042
114.3	22.0084
114.4524	22.0127
114.6048	22.017
114.7572	22.0213
114.9096	22.0256
115.062	22.0299
115.2144	22.0341
115.3668	22.0384
115.5192	22.0427
115.6716	22.047
115.824	22.0513
115.9764	22.0556
116.1288	22.0599
116.2812	22.0641
116.4336	22.0684
116.586	22.0727
116.7384	22.077
116.8908	22.0813
117.0432	22.0856
117.1956	22.0899
117.348	22.0941
117.5004	22.0984
117.6528	22.1027
117.8052	22.107
117.9576	22.1113
118.11	22.1156
118.2624	22.1198
118.4148	22.1241
118.5672	22.1284
118.7196	22.1327
118.872	22.137
119.0244	22.1413
119.1768	22.1456
119.3292	22.1498
119.4816	22.1541
119.634	22.1584
119.7864	22.1627
119.9388	22.167
120.0912	22.1713
120.2436	22.1756
120.396	22.1798
120.5484	22.1841
120.7008	22.1884
120.8532	22.1927
121.0056	22.197
121.158	22.2013
121.3104	22.2055
121.4628	22.2098
121.6152	22.2141
121.7676	22.2184
121.92	22.2227
122.0724	22.227
122.2248	22.2313
122.3772	22.2355
122.5296	22.2398
122.682	22.2441
122.8344	22.2484
122.9868	22.2527
123.1392	22.257
123.2916	22.2613
123.444	22.2655
123.5964	22.2698
123.7488	22.2741
123.9012	22.2784
124.0536	22.2827
124.206	22.287
124.3584	22.2912
124.5108	22.2955
124.6632	22.2998
124.8156	22.3041
124.968	22.3084
125.1204	22.3127
125.2728	22.317
125.4252	22.3212
125.5776	22.3255
125.73	22.3298
125.8824	22.3341
126.0348	22.3384
126.1872	22.3427
126.3396	22.347
126.492	22.3512
126.6444	22.3555
126.7968	22.3598
126.9492	22.3641
127.1016	22.3684
127.254	22.3727
127.4064	22.3769
127.5588	22.3812
127.7112	22.3855
127.8636	22.3898
128.016	22.3941
128.1684	22.3984
128.3208	22.4027
128.4732	22.4069
128.6256	22.4112
128.778	22.4155
128.9304	22.4198
129.0828	22.4241
129.2352	22.4284
129.3876	22.4327
129.54	22.4369
129.6924	22.4412
129.8448	22.4455
129.9972	22.4498
130.1496	22.4541
130.302	22.4584
130.4544	22.4626
130.6068	22.4669
130.7592	22.4712
130.9116	22.4755
131.064	22.4798
131.2164	22.4841
131.3688	22.4884
131.5212	22.4926
131.6736	22.4969
131.826	22.5012
131.9784	22.5055
132.1308	22.5098
132.2832	22.5141
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132.7404	22.5269
132.8928	22.5312
133.0452	22.5355

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183.9468 23.9667
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184.2516 23.9753
184.404 23.9796
184.5564 23.9838
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184.8612 23.9924
185.0136 23.9967
185.166 24.001
185.3184 24.0053
185.4708 24.0095
185.6232 24.0138
185.7756 24.0181
185.928 24.0224
186.0804 24.0267
186.2328 24.031
186.3852 24.0353
186.5376 24.0395
186.69 24.0438
186.8424 24.0481
186.9948 24.0524
187.1472 24.0567
187.2996 24.061
187.452 24.0653
187.6044 24.0695
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187.9092 24.0781
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188.214 24.0867
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188.976 24.1081
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189.8904 24.1338
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190.1952 24.1424
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190.6524 24.1552
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190.9572 24.1638
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191.262 24.1724
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192.3288 24.2024
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192.9384 24.2195
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196.596 24.3224
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196.9008 24.3309
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Topes
"Topes" Zones

Well: YPF.Ch.LC-668
Date: 09/10/2014 11:09:28

Zone_Name	Top	Bottom
CII	775	967
CIII	967	1252.1

Zonas

"Zonas" Zones

Well: YPF.Ch.LC-668
Date: 09/10/2014 11:09:20

Zone_Name	Top	Bottom
CII	775	845
CIIa	845	970
CIII	967	1037.844
CIIIa	1037.844	1196.035
CIIIb	1196.035	1254.1