Legajos del Pozo LC-669

COMPANIA: YPF S.A.

POZO: YPF.Ch.LC−669

CAMPO: LA CAROLINA

PROVINCIA: CHUBUT **PAIS:** ARGENTINA

Schlumberger

COMBINADA

ESCALA: 1/200

Campo: LA CAROLINA
Locacion: CAS
Pozo: YPF.Ch.LC−669
Compania: YPF S.A.

LOCACION

AIT−LDL−CNL−CAL
RFT

Elev.: B.V. 434.2 m
N. T. 428.4 m
M. R. 433.9 m

Ref. Permanente: NIVEL DEL TERRENO Elev.: 428.4 m
Reg. Medido Desde: NIVEL DEL TERRENO 0.0 m sobre nivel ref.
Perforacion Medida Desde: NIVEL DEL TERRENO

UWI: AR0100006443	Equipo PI−390	Longitud X: 4.946.154,93	Latitud Y: 2.572.688,26

									Run 1	Run 2	Run 3
echa		1−Jun−2005						Logging Date			
orrida No.		1						Run Number			
rof. Perforador		1270 m						Depth Driller			
rof. Registro		1242.7 m						Logger Depth			
rimera Lectura		1240.3 m						Bottom Log Interval			
ltima Lectura		100.7 m						Top Log Interval			
ondo Tuberia Perforador		9.625 in	@ 100.34 m			@		Casing Driller Size @ Depth		@	
ondo Tuberia Registro		100.7 m						Casing Logger			
iametro Trepano		8.750 in						Bit Size			
ipo De Lodo		CALCICA YESO						Type Fluid In Hole			
Densidad	Viscosidad	1.16 g/cm3	60 s					MUD Density / Viscosity			
Perdidas	PH	6.5 cm3	9					MUD Fluid Loss / PH			
Fuente Muestra De Lodo		PILETA						MUD Source Of Sample			
M @ Temp.		1.590 ohm.m	@ 12 degC			@		RM @ Measured Temperature		@	
MF @ Temp.		1.110 ohm.m	@ 12 degC			@		RMF @ Measured Temperature		@	
MC @ Temp.		2.070 ohm.m	@ 12 degC			@		RMC @ Measured Temperature		@	
uente: RMF	RMC	PRENSA	PRENSA					Source RMF / RMC			
M @ T. Fdo.	RMF @ T. Fdo.	0.644 @ 60	0.458 @ 60		@		@	RM @ MRT / RMF @ MRT	@	@	@
emp. Maxima Medida		60 degC						Maximum Recorded Temperatures			
irculacion Final	Hora	31−May−2005	23:30					Circulation Stopped / Time			
egistro Fondo	Hora	1−Jun−2005	8:00					Logger On Bottom / Time			
nidad No.	Locacion	3122	CAS					Unit Number / Location			
egistrado por:		LUIS CURETTI						Recorded By			
estigo		ANIBAL SILVEIRA						Witnessed By			

Run 4

DEPTH SUMMARY LISTING

Date Created: 1−JUN−2005 9:16:35

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−Abr−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:	589.00		
Wheel Correction 2:	−4				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	65.00 M
Rig Up Length At Bottom:	65.00 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. Procedimiento estandard de profundidad de Schlumberger aplicado a esta carrera.
3.
4.
5.
6.

LIMITACION DE RESPONSABILIDAD
LA UTILIZACION Y CONFIANZA EN LOS DATOS AQUI GRABADOS POR PARTE DE LA NOMBRADA COMPANIA (Y POR CUALQUIERA DE SUS SUBSIDIARIAS, AFILIADAS, REPRESENTANTES, AGENTES, CONSULTORES Y EMPLEADOS) ESTA SUJETA A LOS TERMINOS Y CONDICIONES ACORDADOS ENTRE SCHLUMBERGER Y LA COMPANIA, INCLUYENDO: (a) RESTRICCIONES EN EL USO DE LOS DATOS GRABADOS; (b) LIMITACION DE RESPONSABILIDAD Y REVOCACION DE GARANTIAS EN RELACION A LA UTILIZACION Y CONFIANZA EN LOS DATOS GRABADOS POR PARTE DE LA COMPANIA, Y (c) LA SOLA Y TOTAL RESPONSABILIDAD DEL CLIENTE POR CUALQUIER INTERPRETACION HECHA O DECISION BASADA EN EL USO DE ESTOS DATOS.

OTROS SERVICIOS # 1		OTROS SERVICIOS # 2
OS1:	AIT−LDL−CNL−CAL	OS1:
OS2:	RFT	OS2:
OS3:		OS3:
OS4:		OS4:
OS5:	PI−390	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 descentralizada con satnoff de 1,5".	
5. Ultima circulacion termino el 31−May−2005 a las 23:30 hs y duro 1 hs.	
6. Coordenadas definitivas.	
7. Datos adicionales del lodo: Cl: 1300 ppm. Ca: 800 ppm.	
8. Maxima desviacion del pozo segun datos del perforador: 0.75 deg.	
9. Maxima temperatura registrada de 60 degC desde termometro en la punta de la herramienta.	

9. Maxima temperatura registrada de 90 degC desde termometro en la punta de la herramienta.
10. FPHI = DPHZ, FNUM = 0.81 y FEXP = 2 utilizados para calculo de RWA.
11. LDL y CNL corridos hasta 725 m a pedido del cliente.

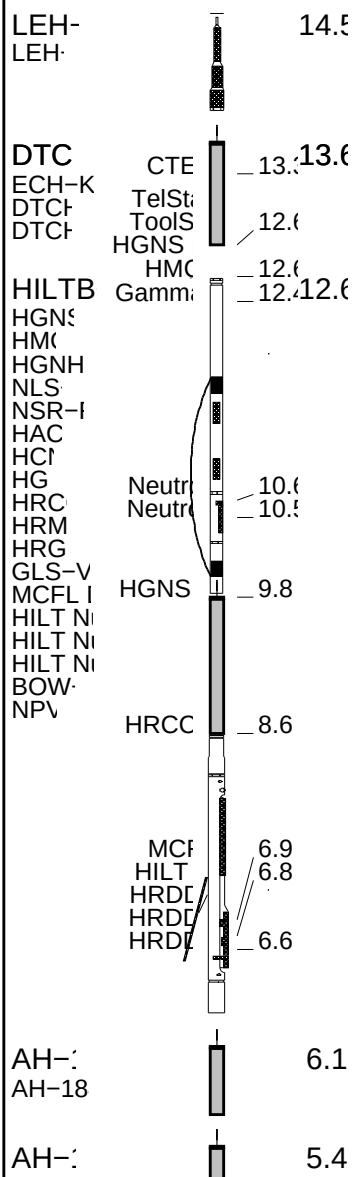
CORRIDA #1			CORRIDA #2		
ORDEN DE SERVICIO:			ORDEN DE SERVICIO:		
VERSION DEL PROGRAMA:	13C0−300		VERSION DEL PROGRAMA:		
NIVEL DEL LODO:			NIVEL DEL LODO:		
INTERVALO REGISTRADO	COMIENZO	FINAL	INTERVALO REGISTRADO	COMIENZO	FINAL

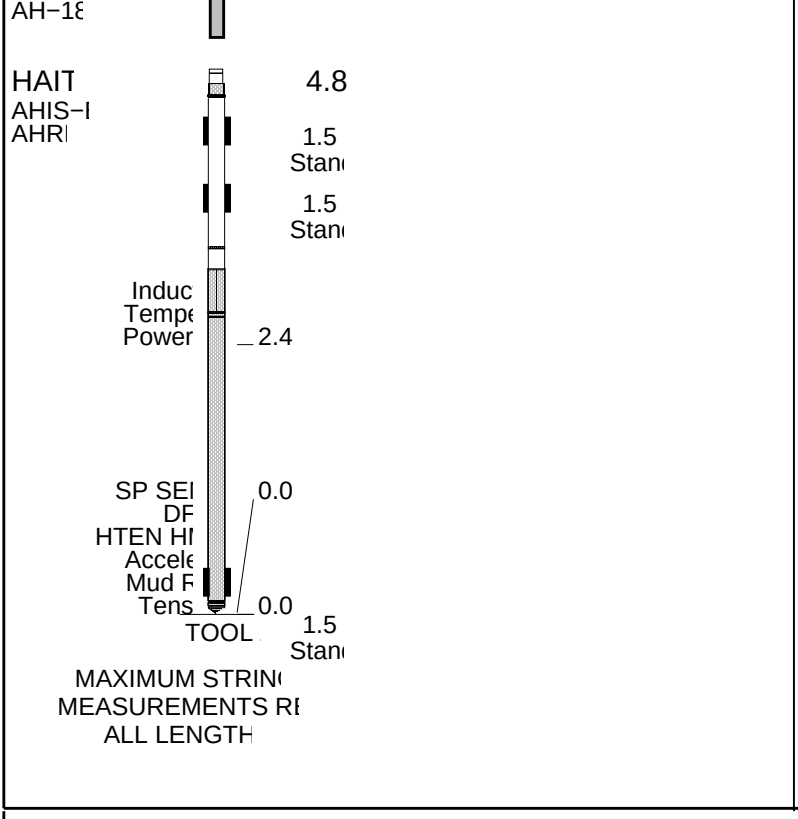
DESCRIPCION DEL EQUIPO

CORRIDA # 1 | CORRIDA # 2

SURFACE I
GSR·
NCT
CNB·
NCS
WITM (

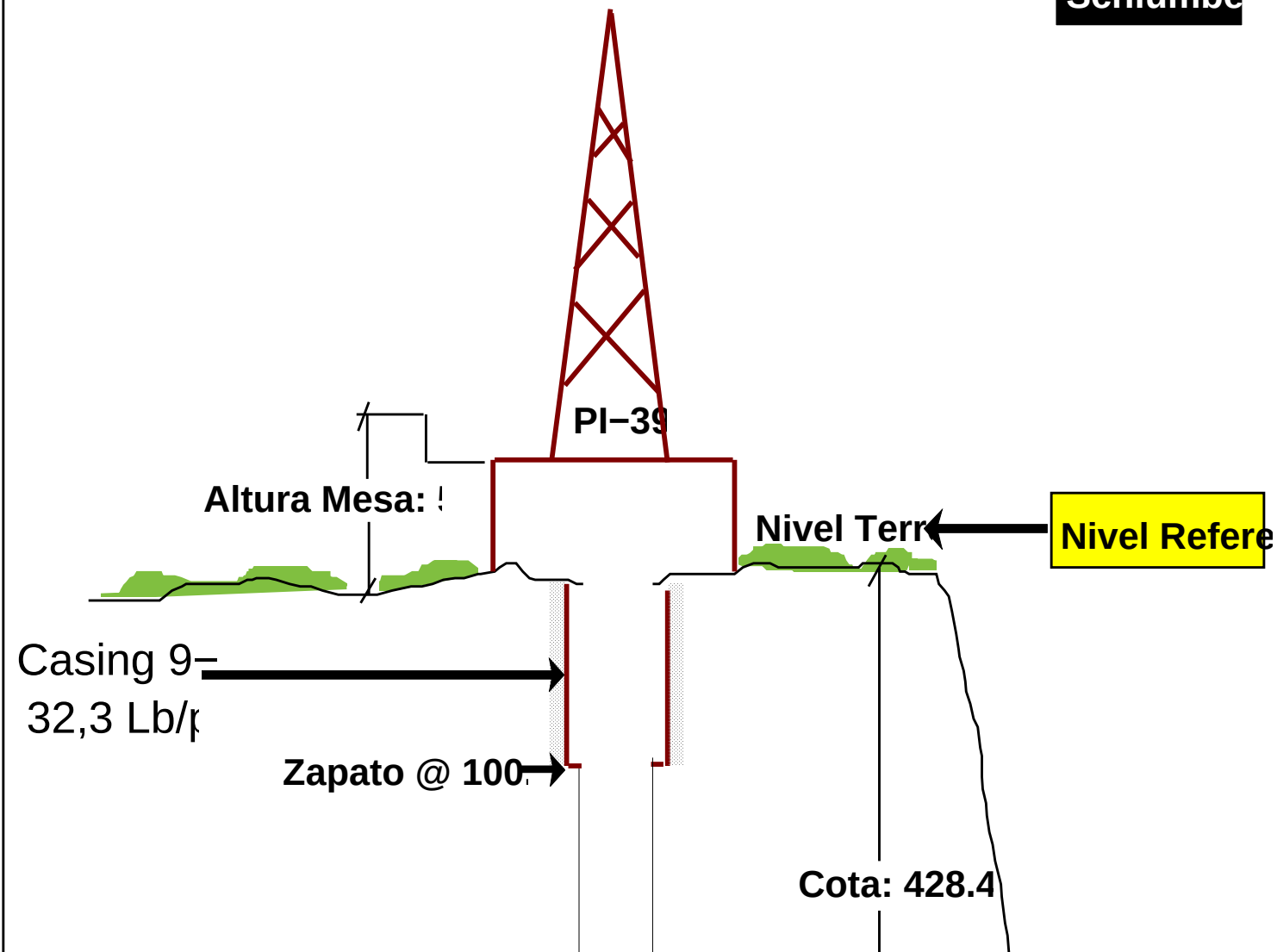
DOWNHOLE

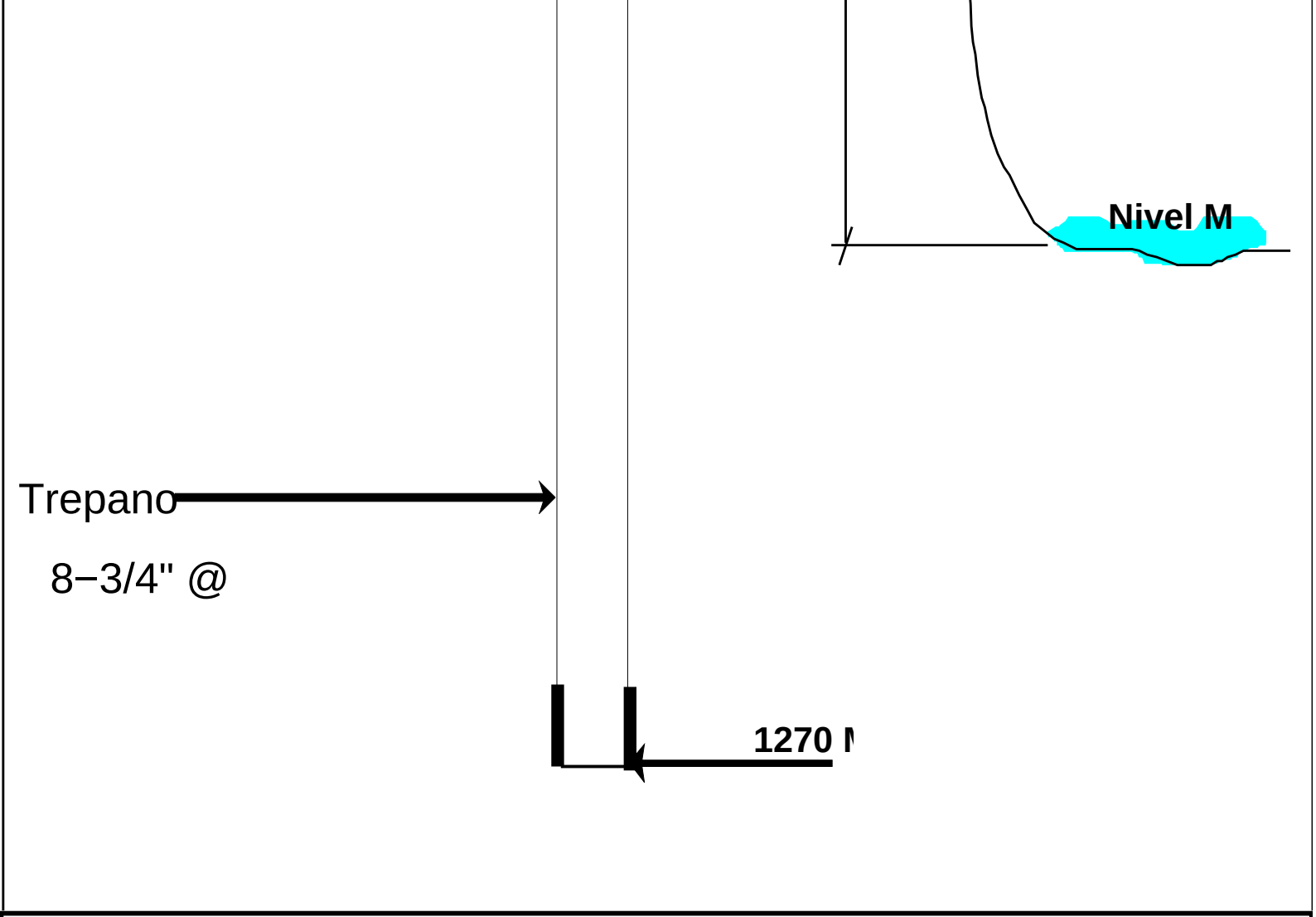




YPF.Ch.LC

Schlumbe





Schlumberger

TRAMO PRINCIPAL

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_047PUP	FN:6	PRODUCER	02−Jun−2005 15:28	1249.1 M	80.6 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33	1249.1 M	82.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 46.00 M3

Cement Volume = 28.50 M3 (assuming 5.50 IN casing O.D.)

Computed from 1242.7 M to 100.7 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT

DTC−H 13C0−300

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

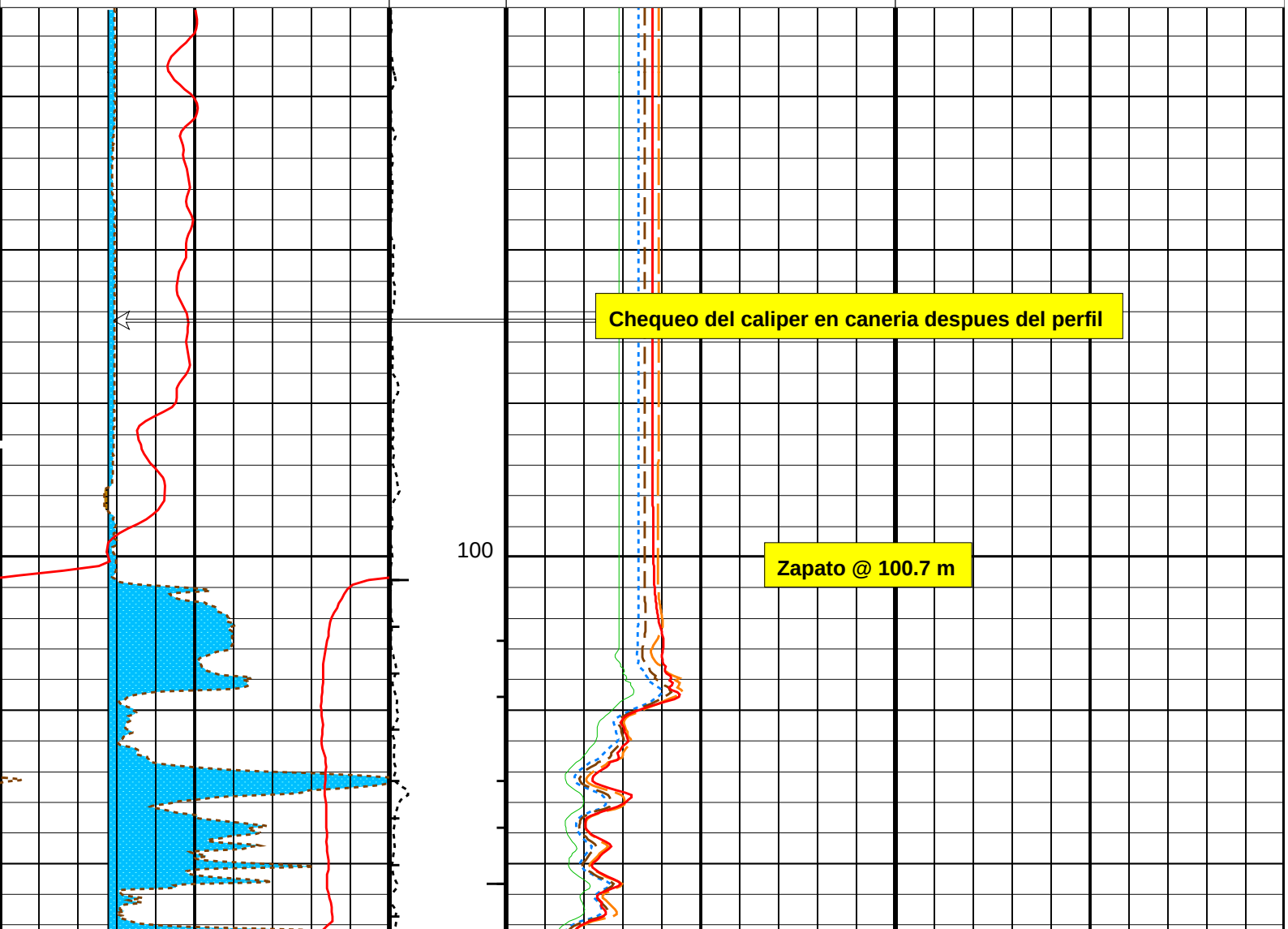
AIT−H 20 Inch Investigation (AHT20)
0 (OHMM) 10

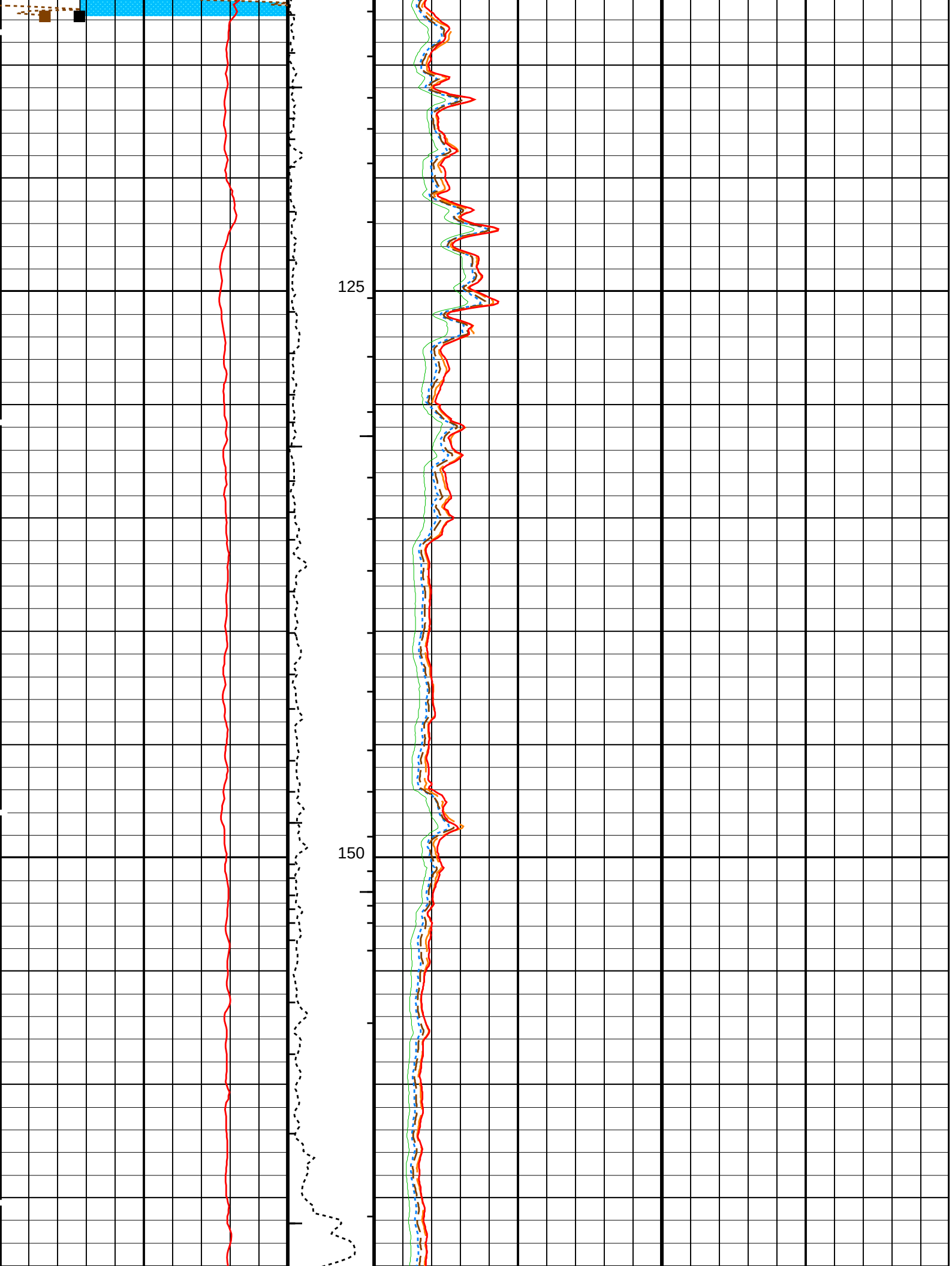
AIT−H 10 Inch Investigation (AHT10)
0 (OHMM) 10

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

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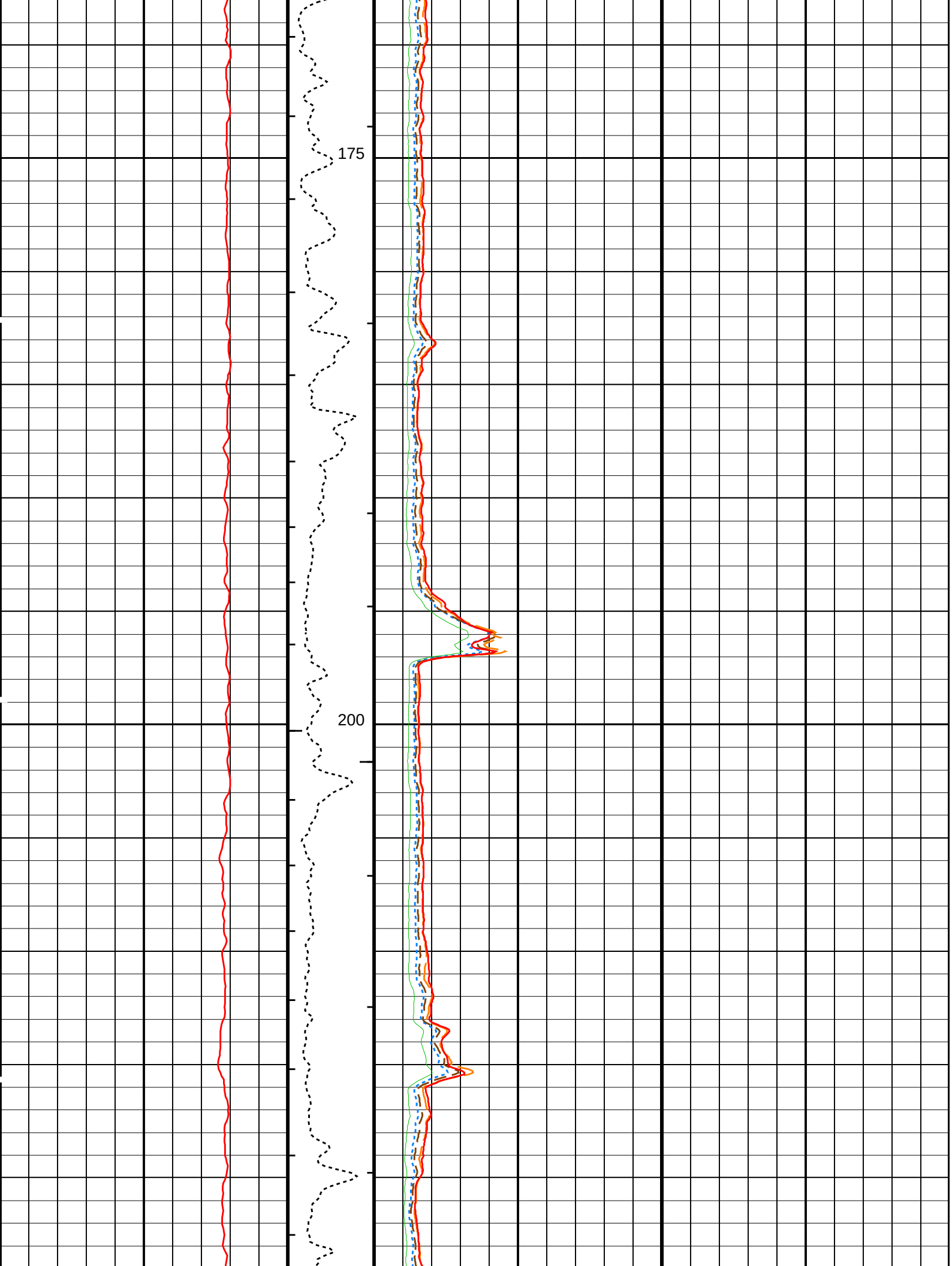
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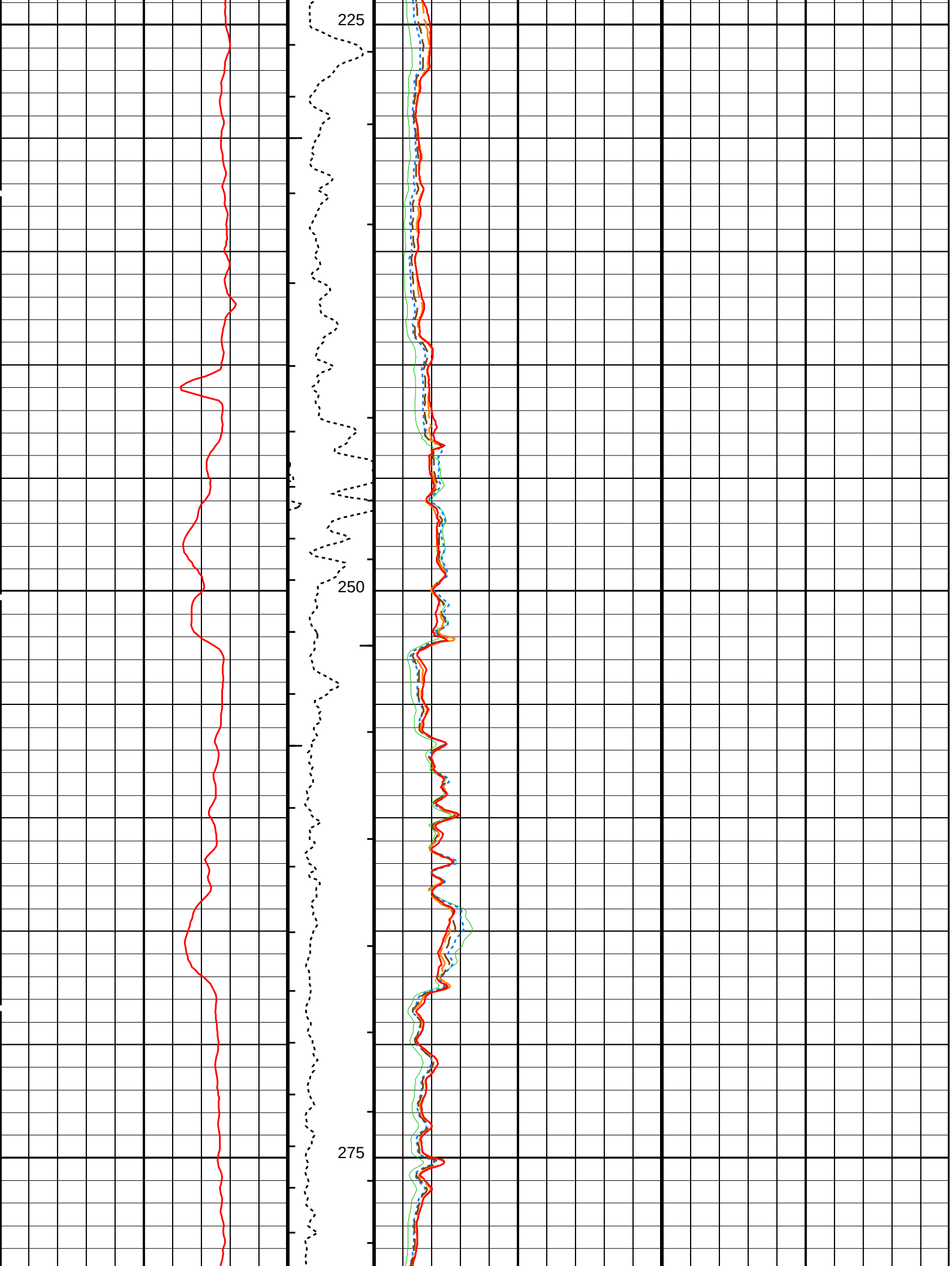
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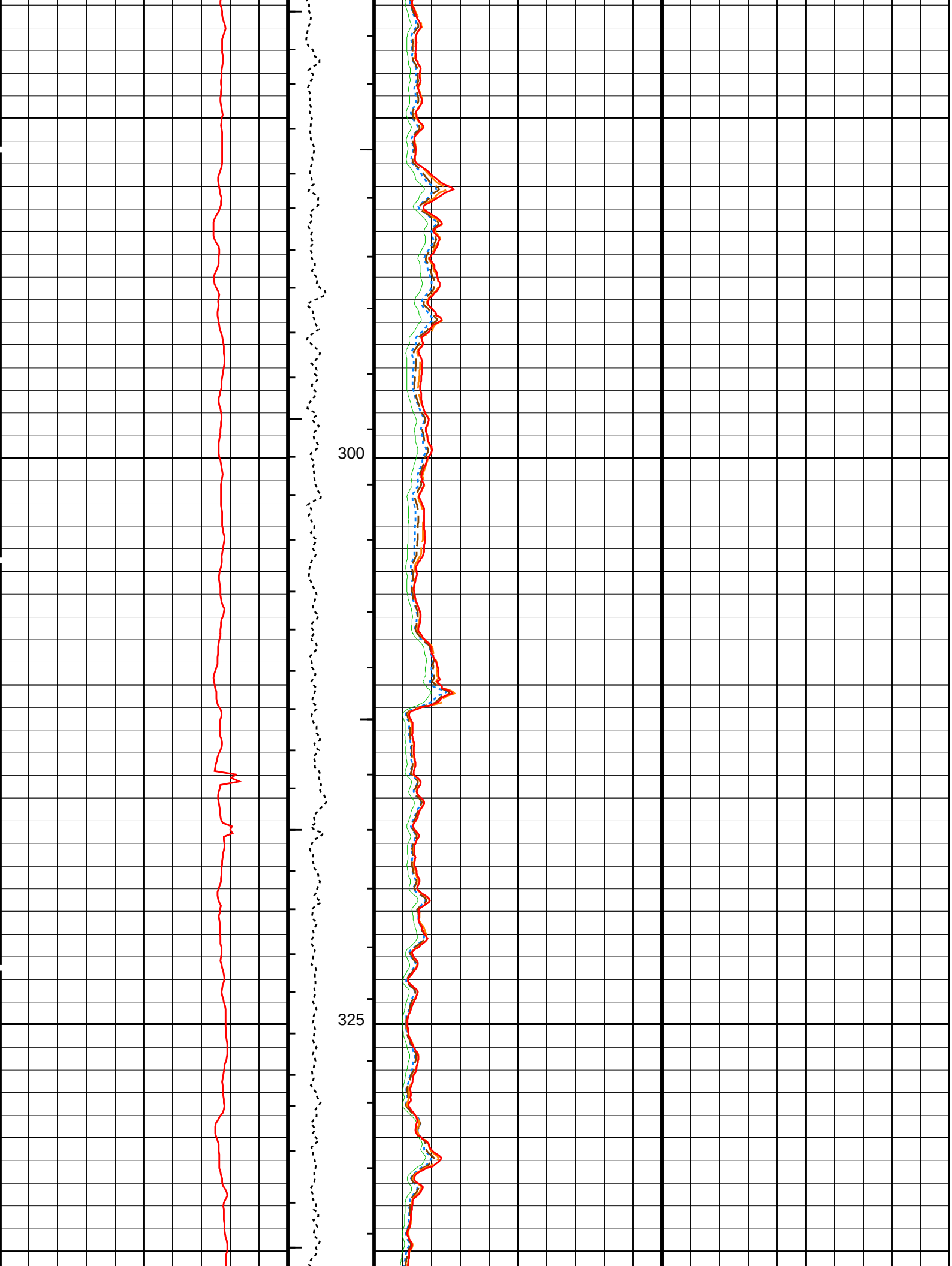
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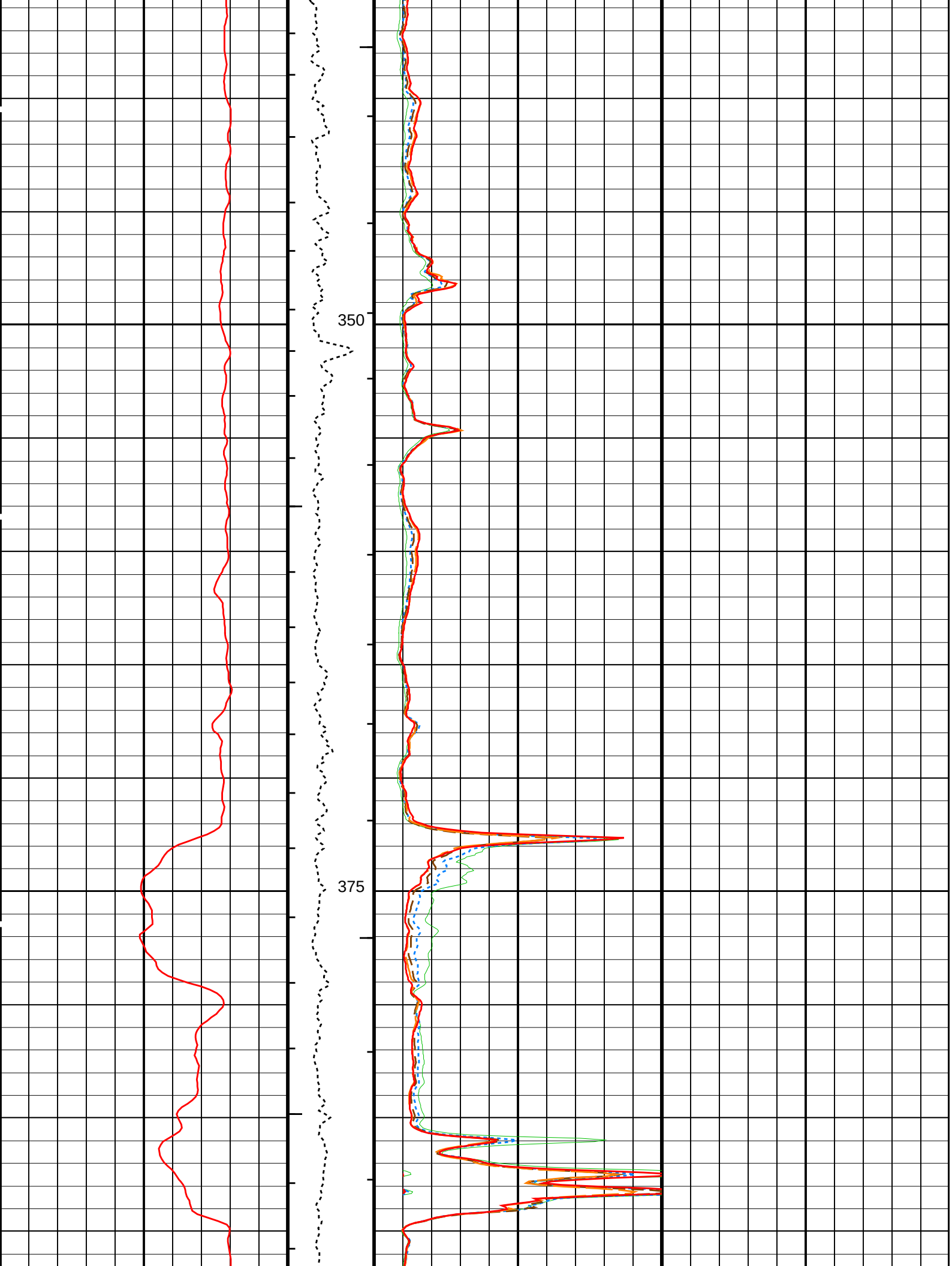
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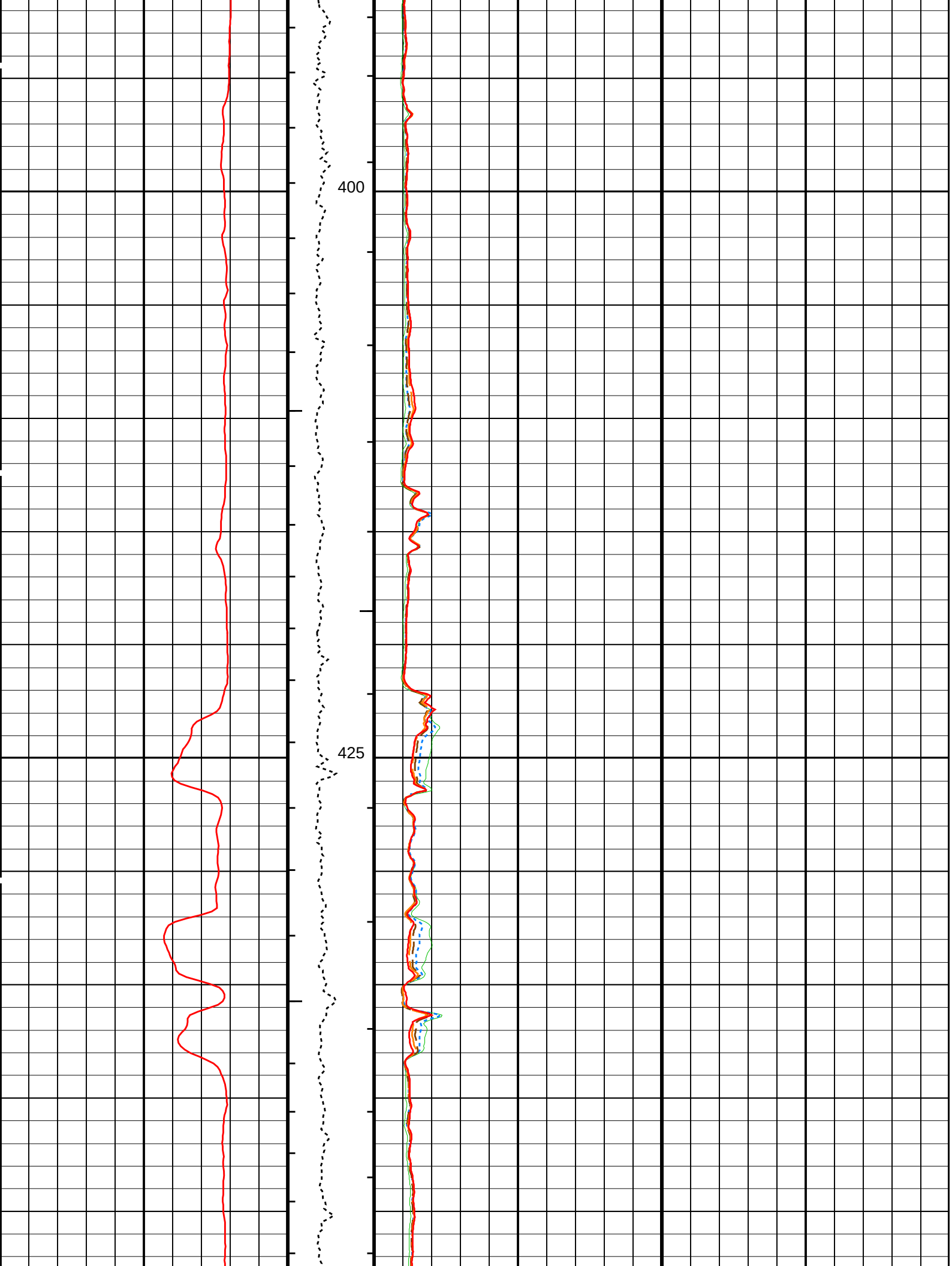
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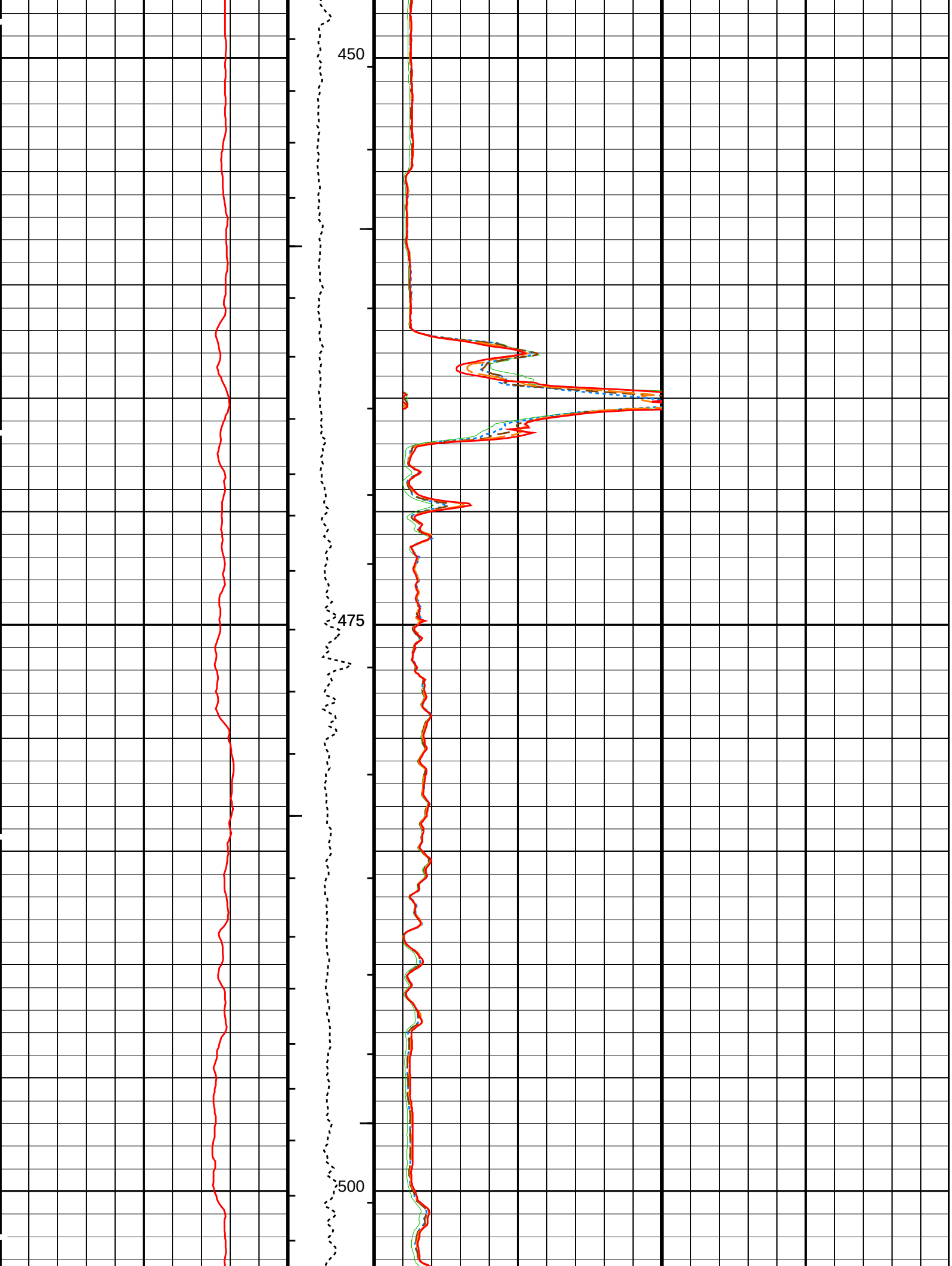
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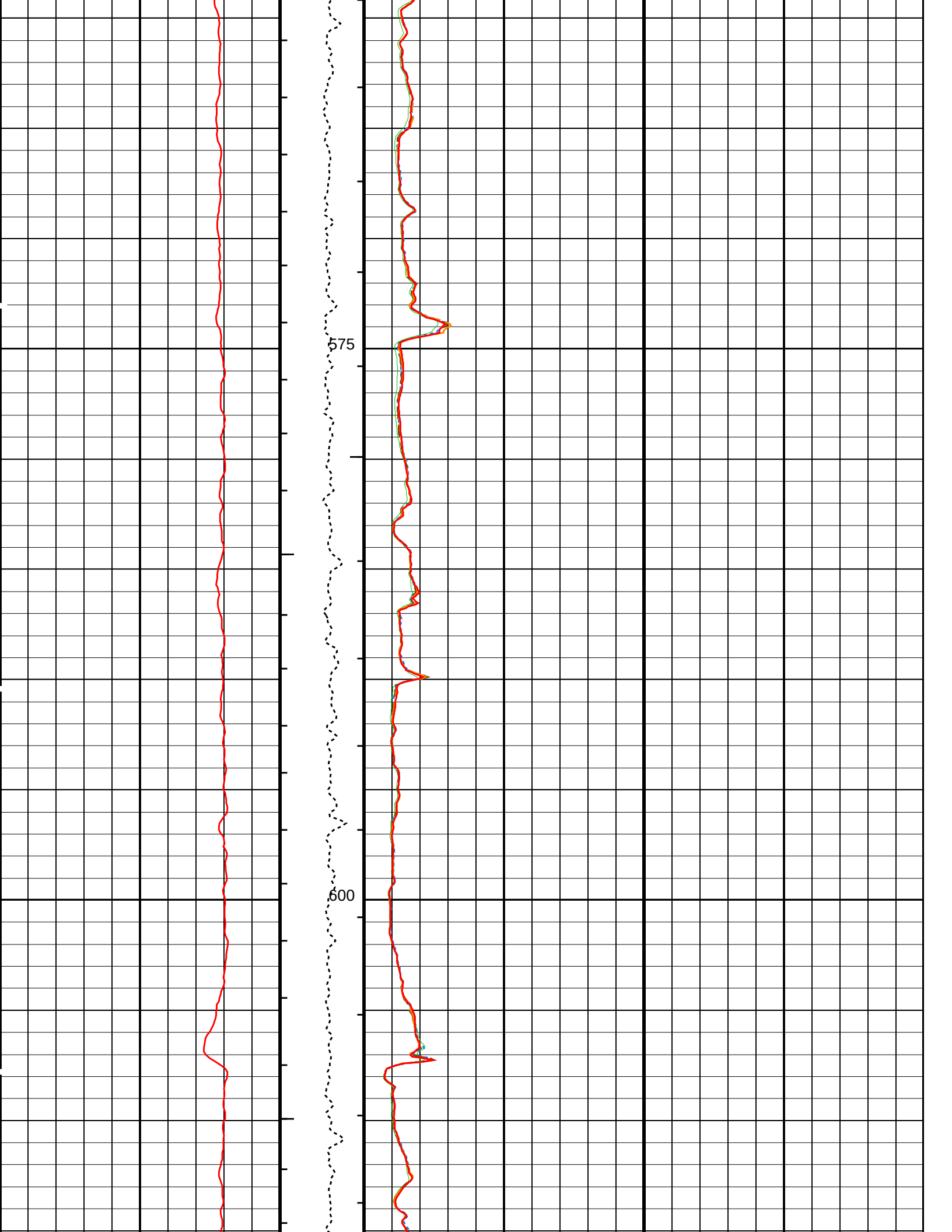
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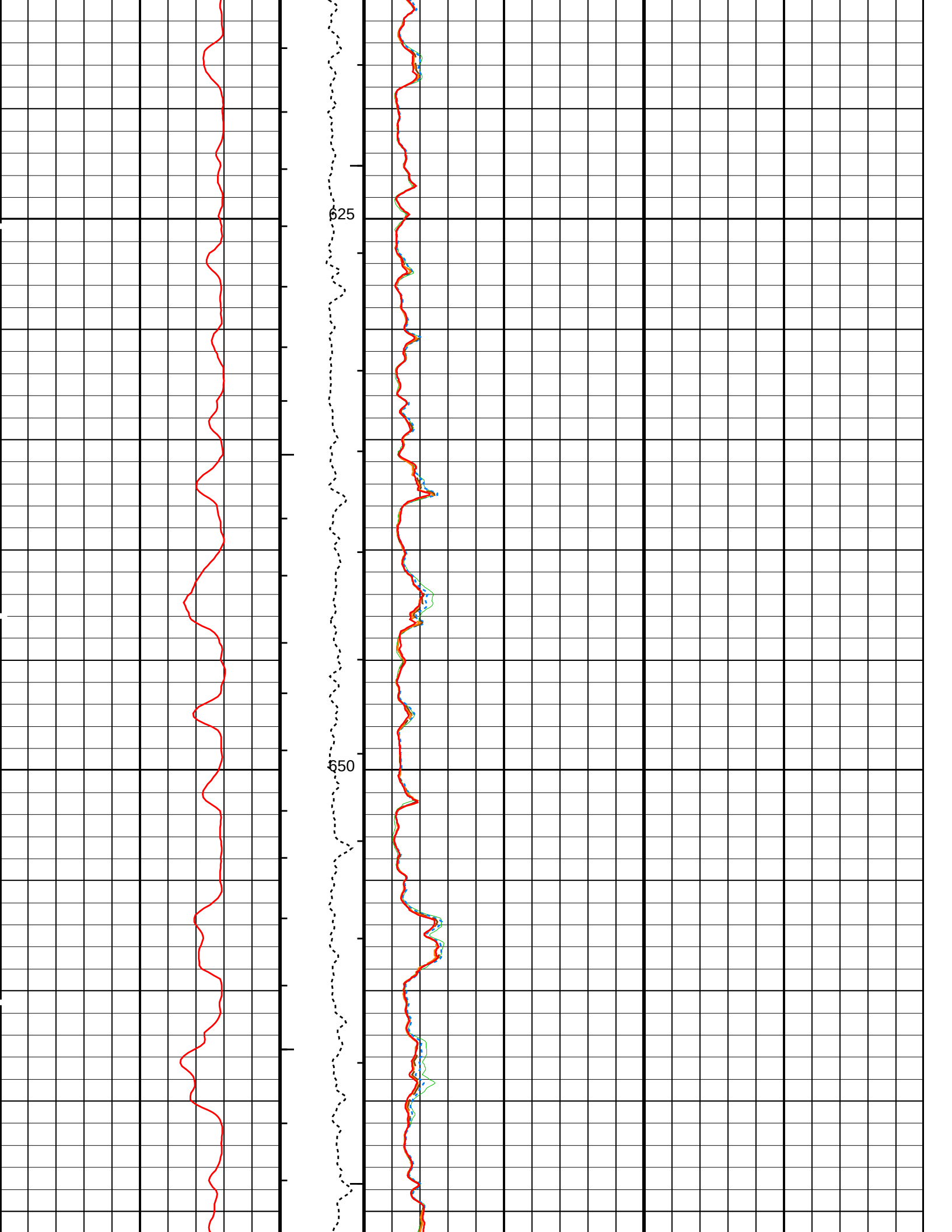
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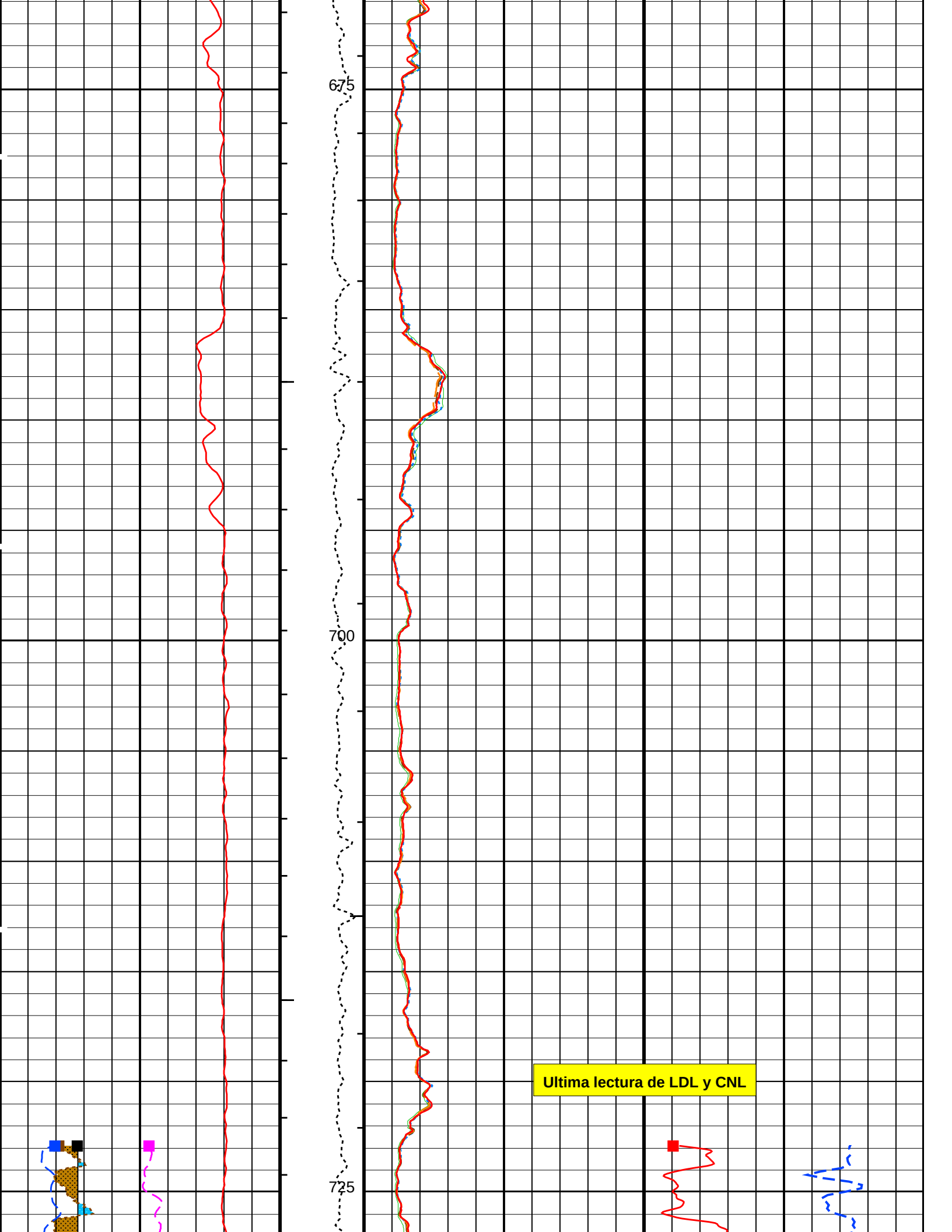
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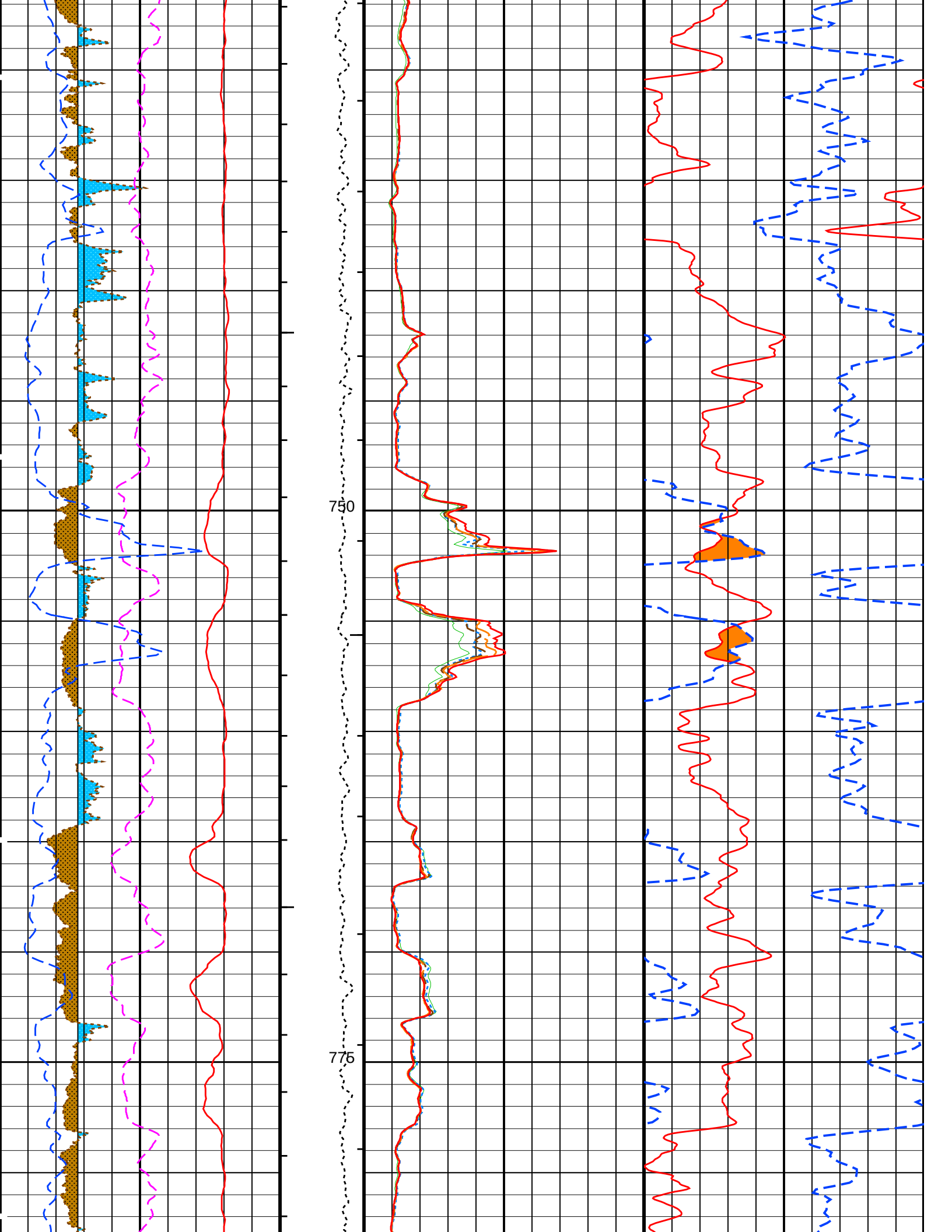
Ultima lectura de LDL y CNL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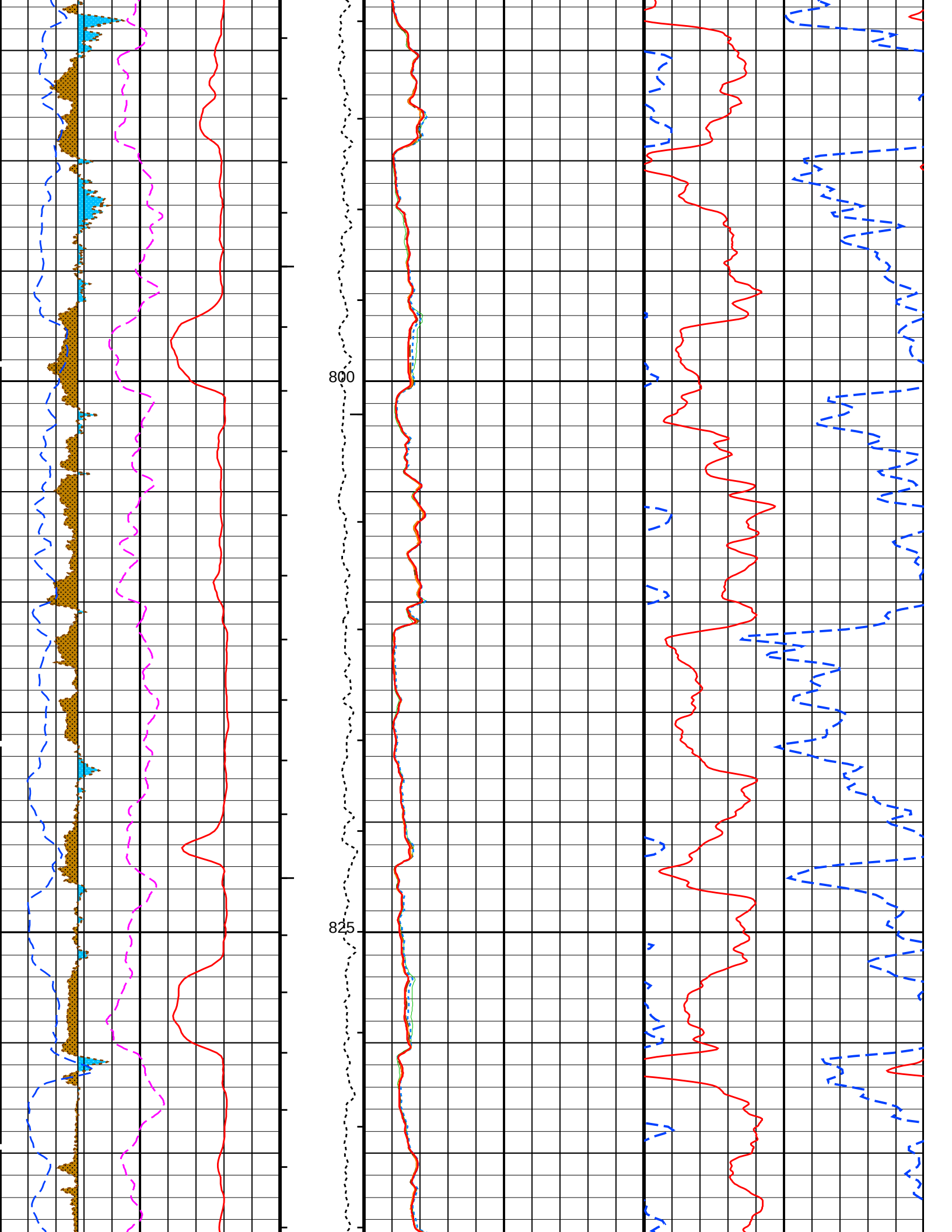
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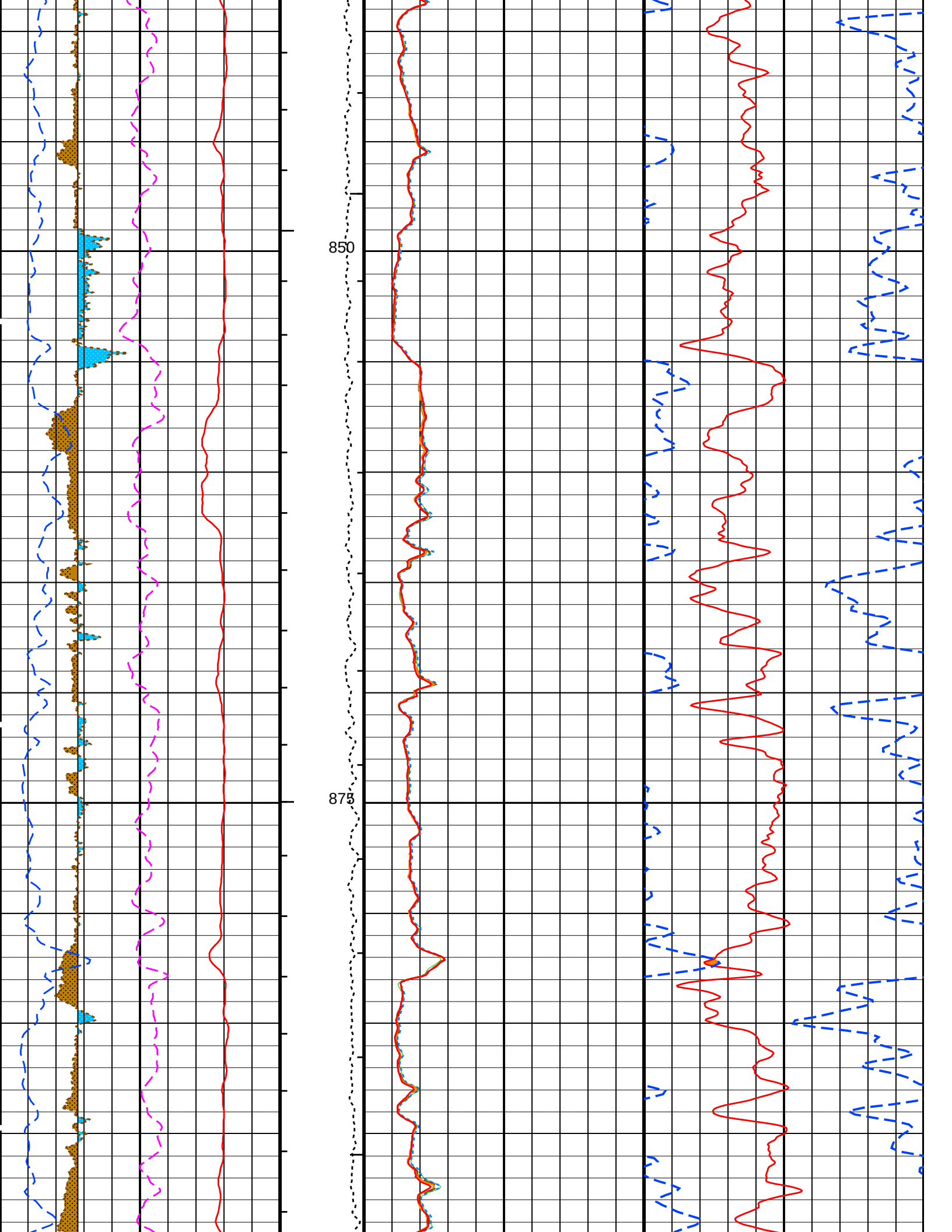
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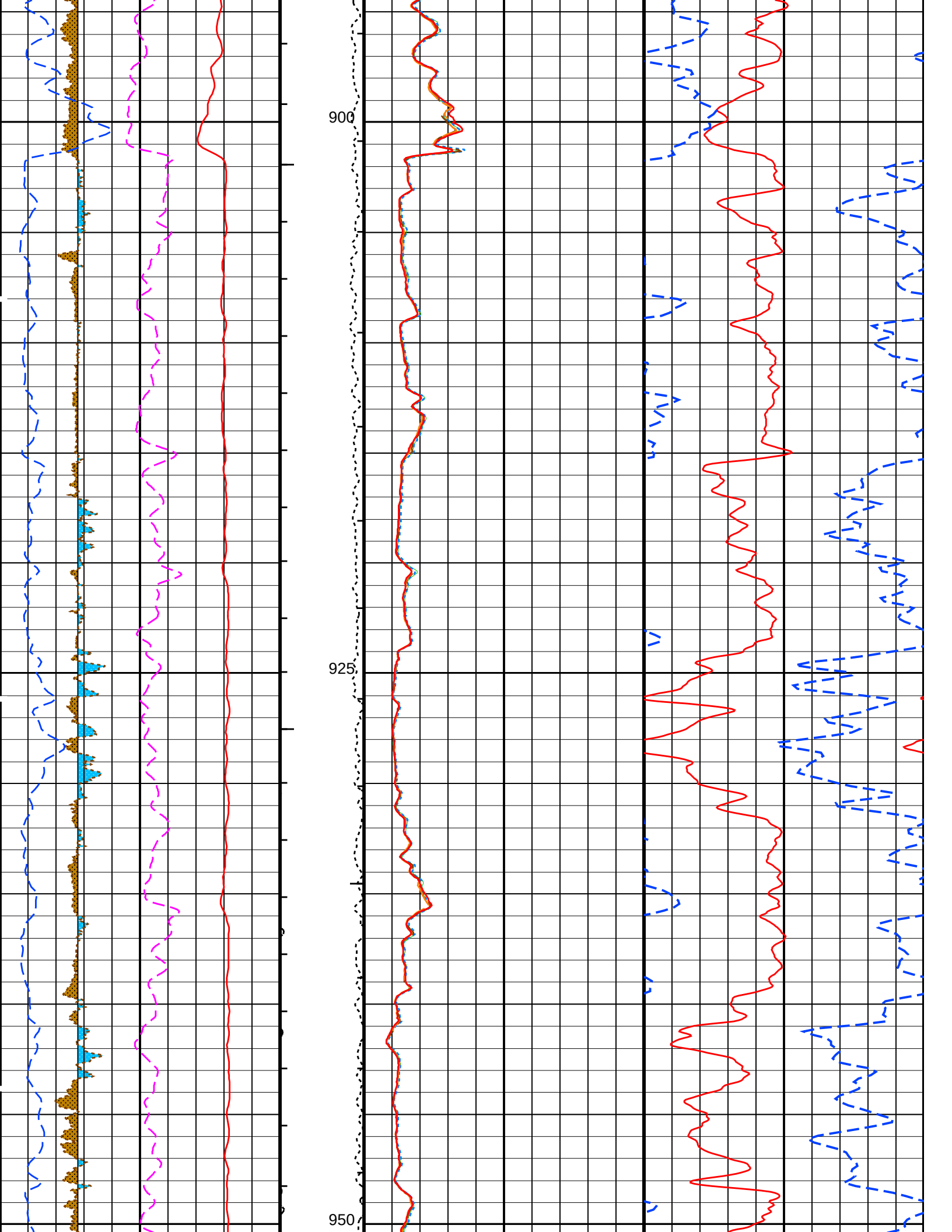
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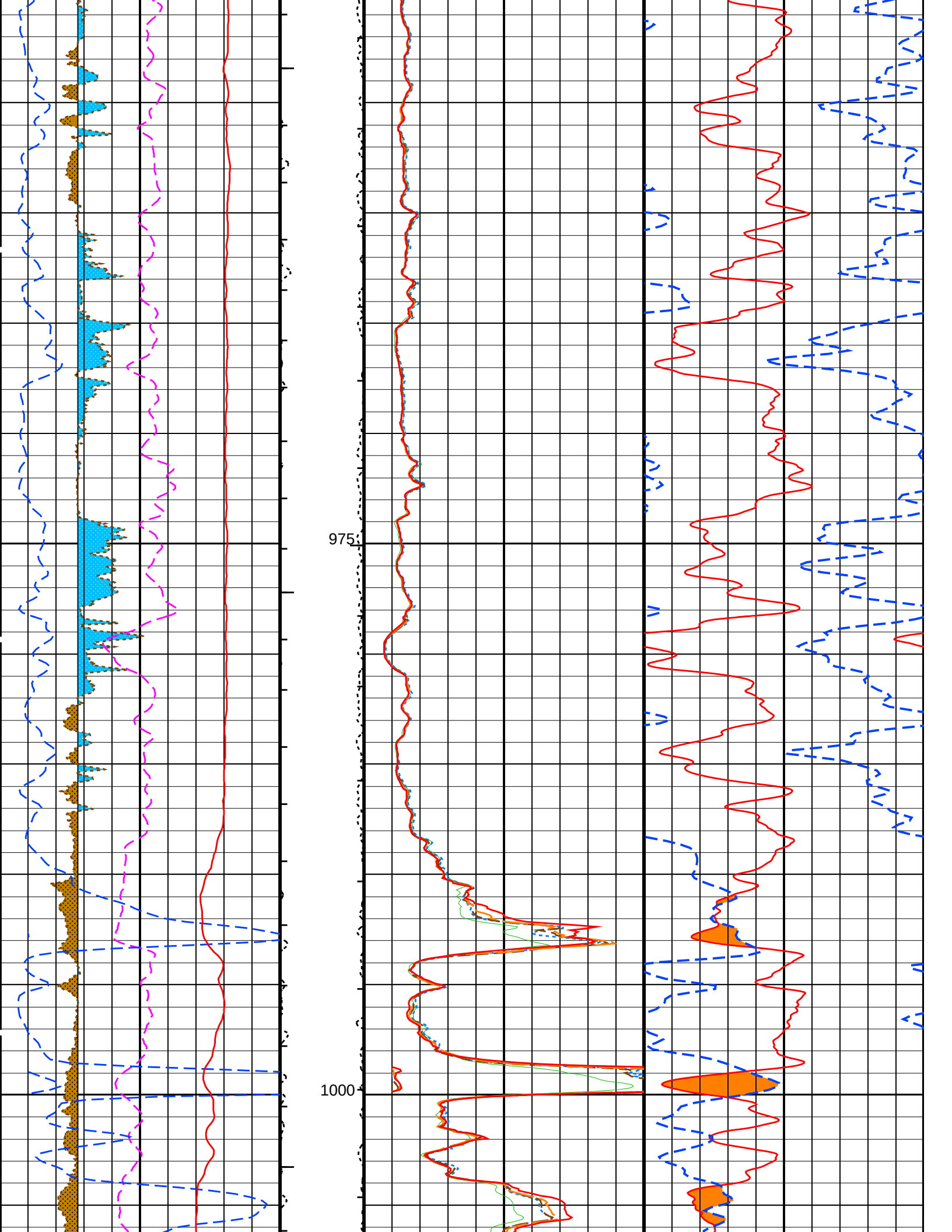
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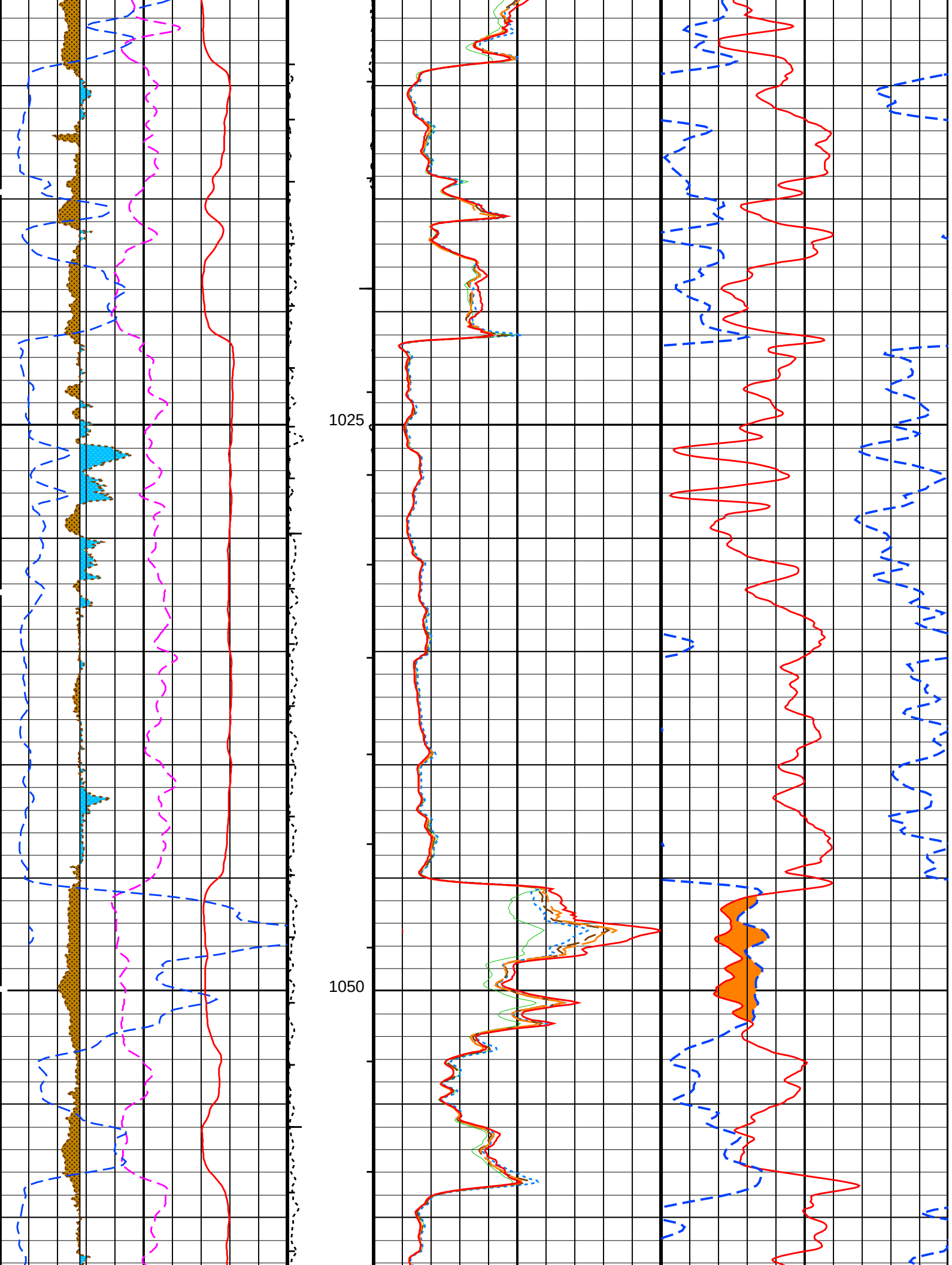
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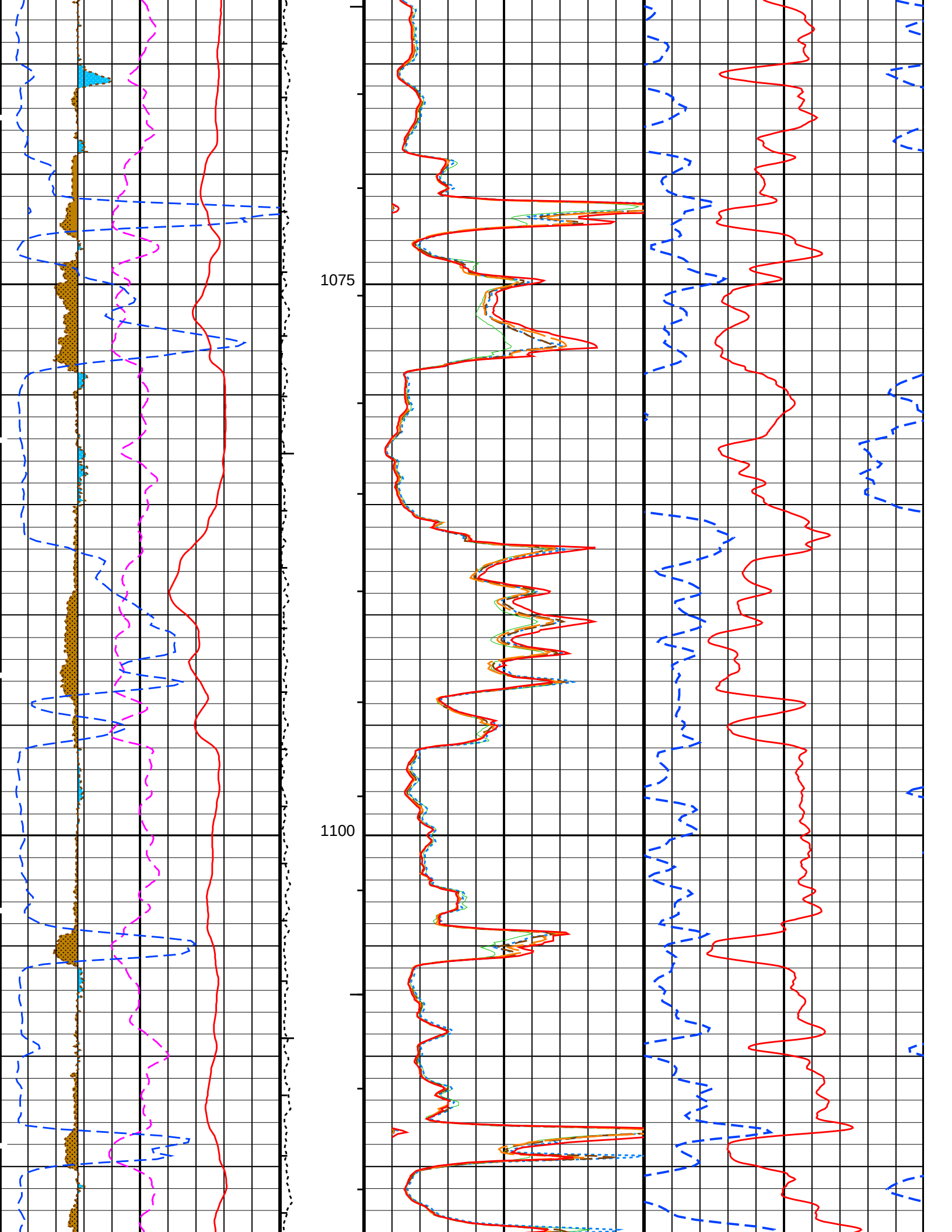
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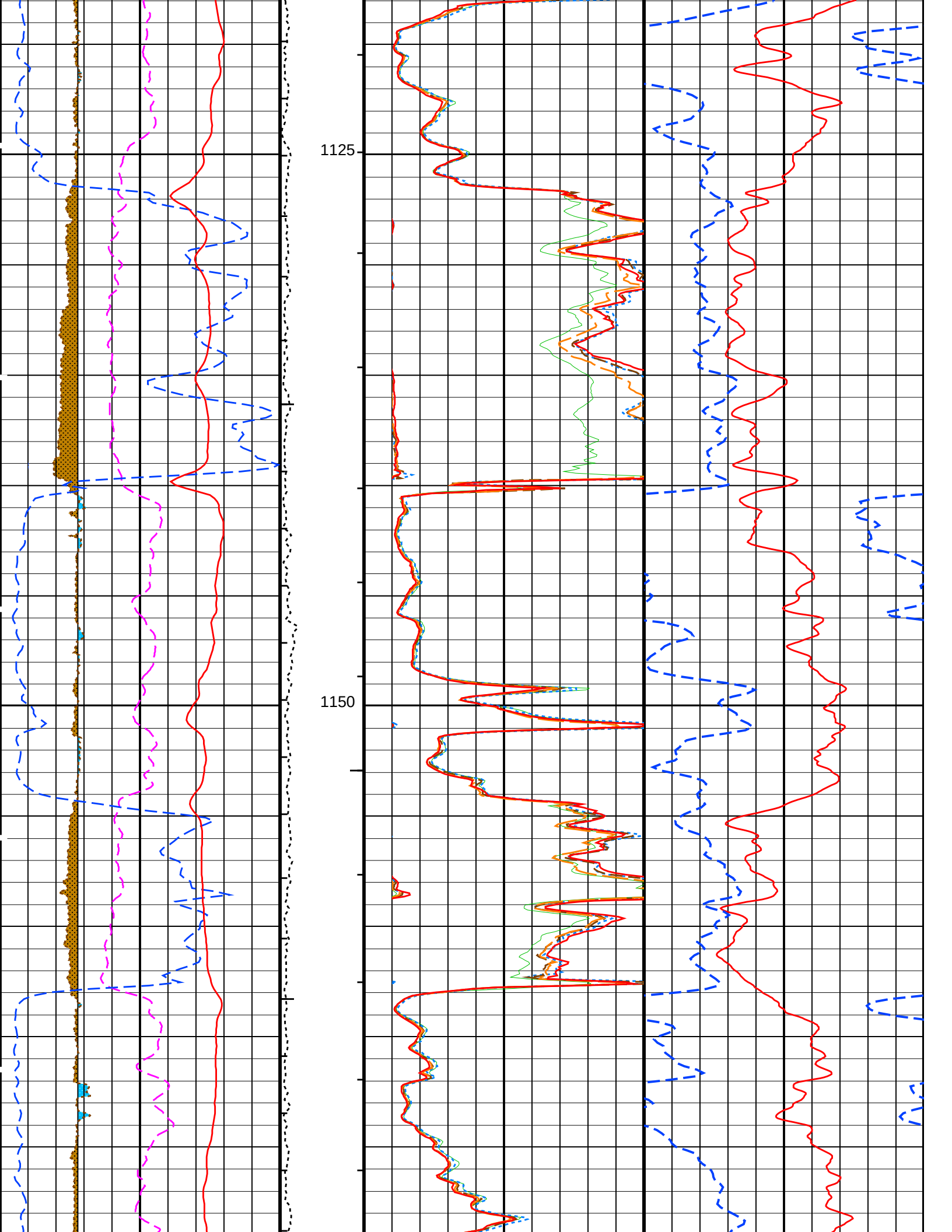
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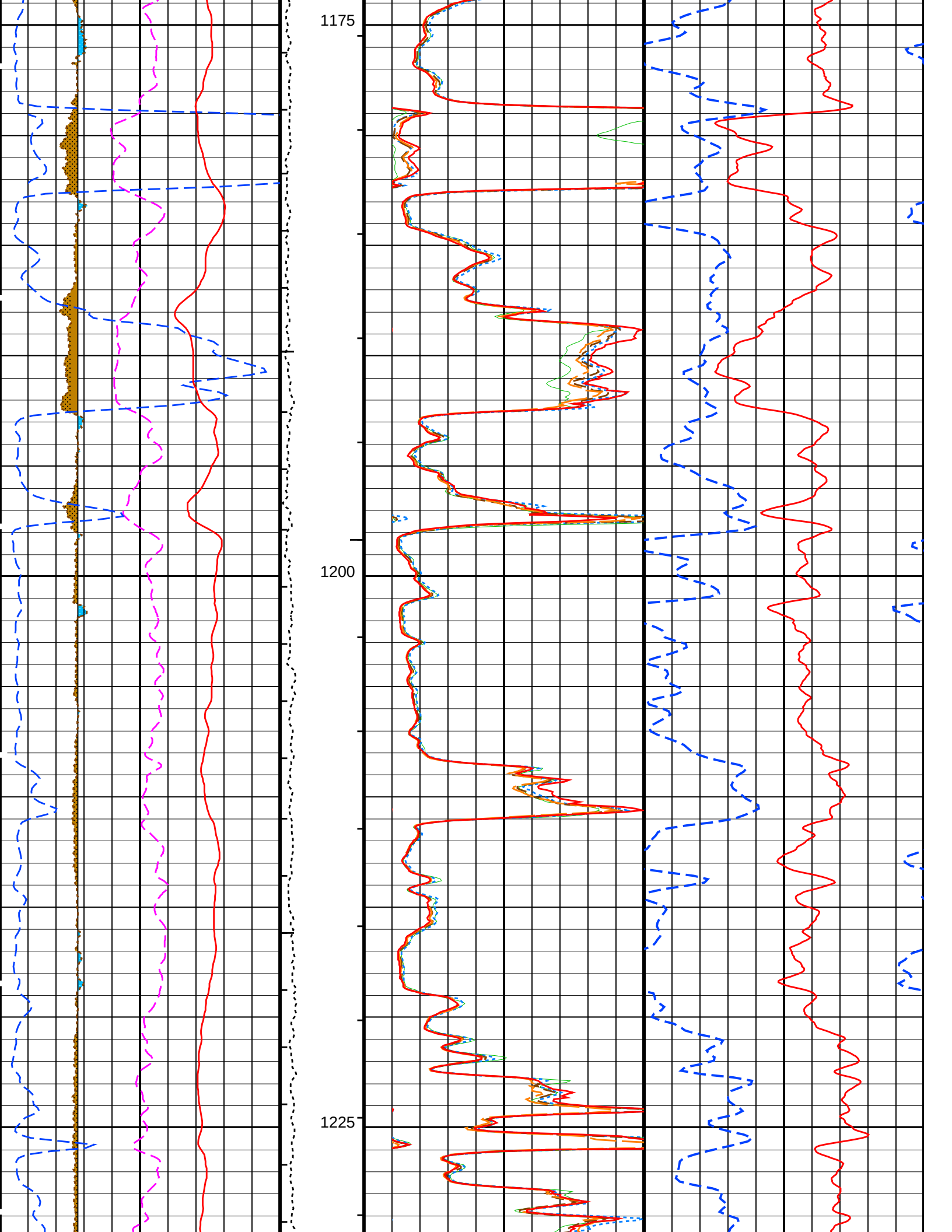
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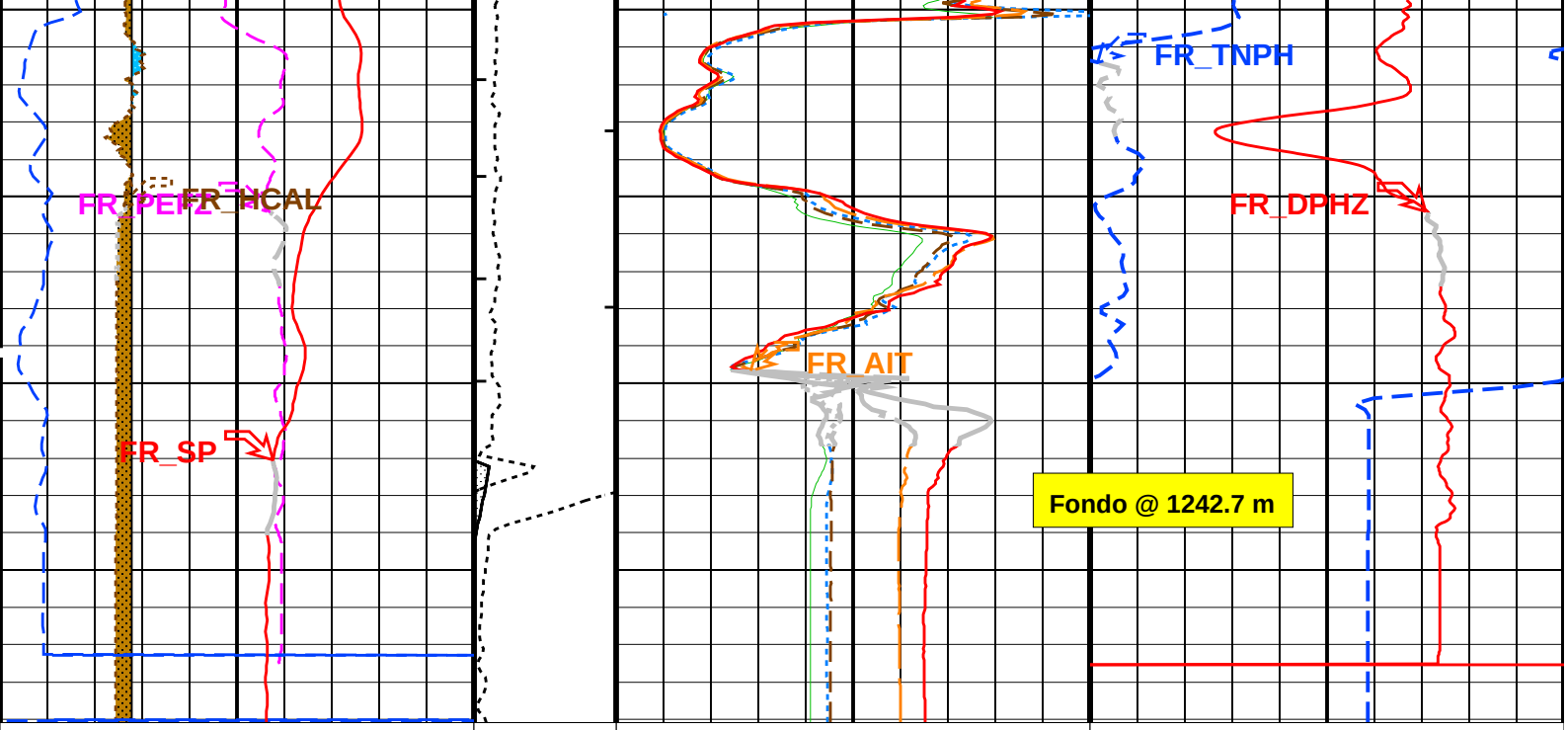

Bit Size (BS) 6 (IN) 16	Tension (TENS) (LBF) 0 1000	AIT−H 10 Inch Investigation (AHT10) 0 (OHMM) 10
Caliper (HCAL) 6 (IN) 16	Stuck Stretch (STIT) 0 (M) 20	AIT−H 20 Inch Investigation (AHT20) 0 (OHMM) 10
Std. Res. Formation Pe (PEFZ) 0 (−−−− 5		AIT−H 30 Inch Investigation (AHT30) 0 (OHMM) 10
RWA (RWA) 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
HAIT−H: Array Induction Tool − H		
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	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGC
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
RTCO	RTCO − Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	10	DEGC
SPNV	SP Next Value	−24	MV
HILTB−FTB: High resolution Integrated Logging Tool−DTS			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	10	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	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	
ALLRES: Basic Resistivity Transforms			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	10	DEGC
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth − Driller	1270.00	M
TDL	Total Depth − Logger	1242.70	M
System and Miscellaneous			
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	1300.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.16	G/C3
DO	Depth Offset for Playback	0.0	M
MST	Mud Sample Temperature	11.50	DEGC

MST	Mud Sample Temperature	11.50	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.1100	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1242.7	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA Vertical Scale: 1:200 Graphics File Created: 02−Jun−2005 15:33

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_047PUP	FN:6	PRODUCER	02−Jun−2005 15:28	1249.1 M	80.6 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33

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TRAMO REPETIDO

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_049PUP	FN:8	PRODUCER	02−Jun−2005 15:40	1250.1 M	1091.9 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_051PUP	FN:10	PRODUCER	02−Jun−2005 15:55	1232.0 M	1168.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 5.61 M3

Cement Volume = 3.30 M3 (assuming 5.50 IN casing O.D.)

Computed from 1242.7 M to 1092.1 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

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

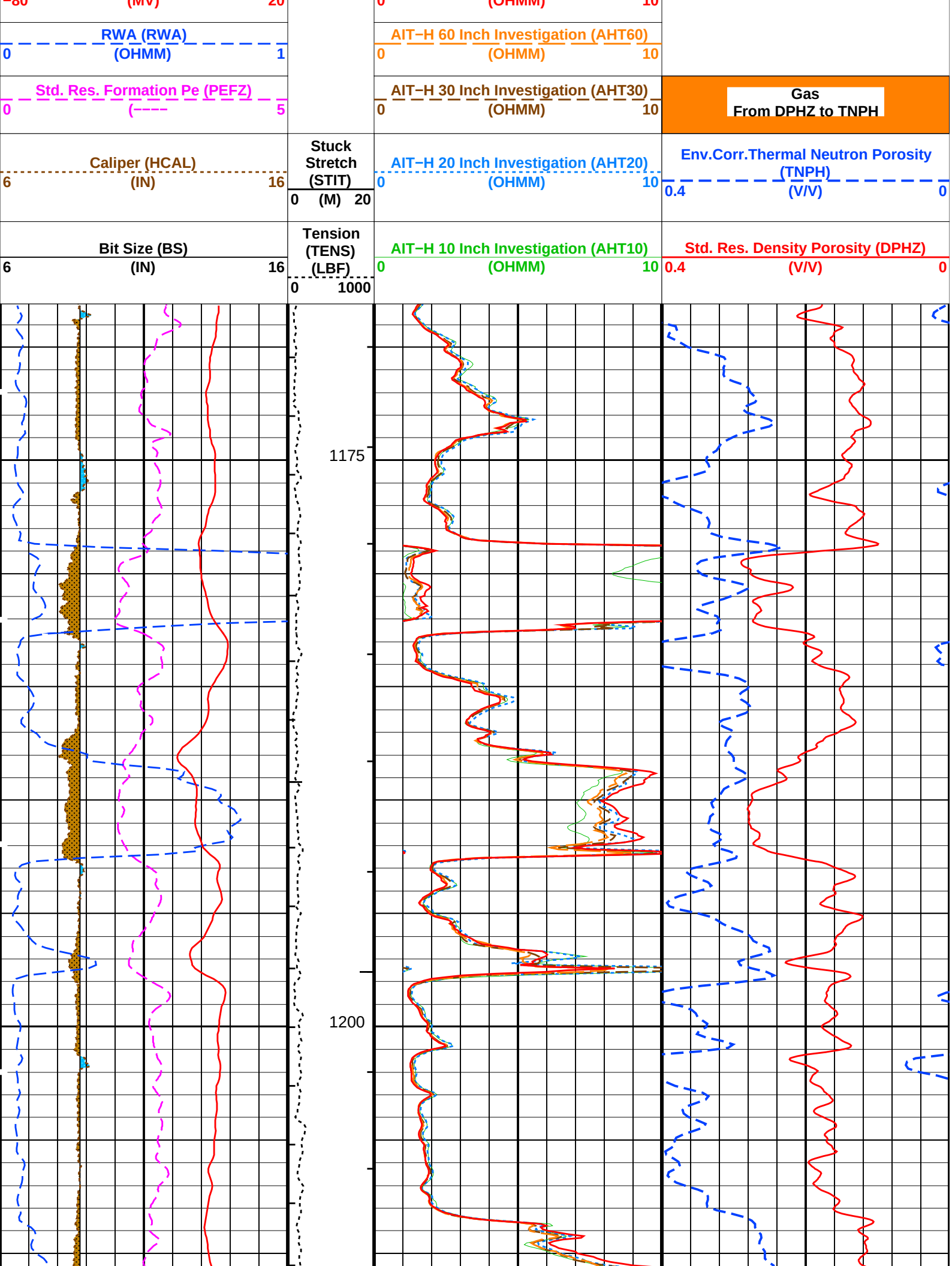
Time Mark Every 60 S

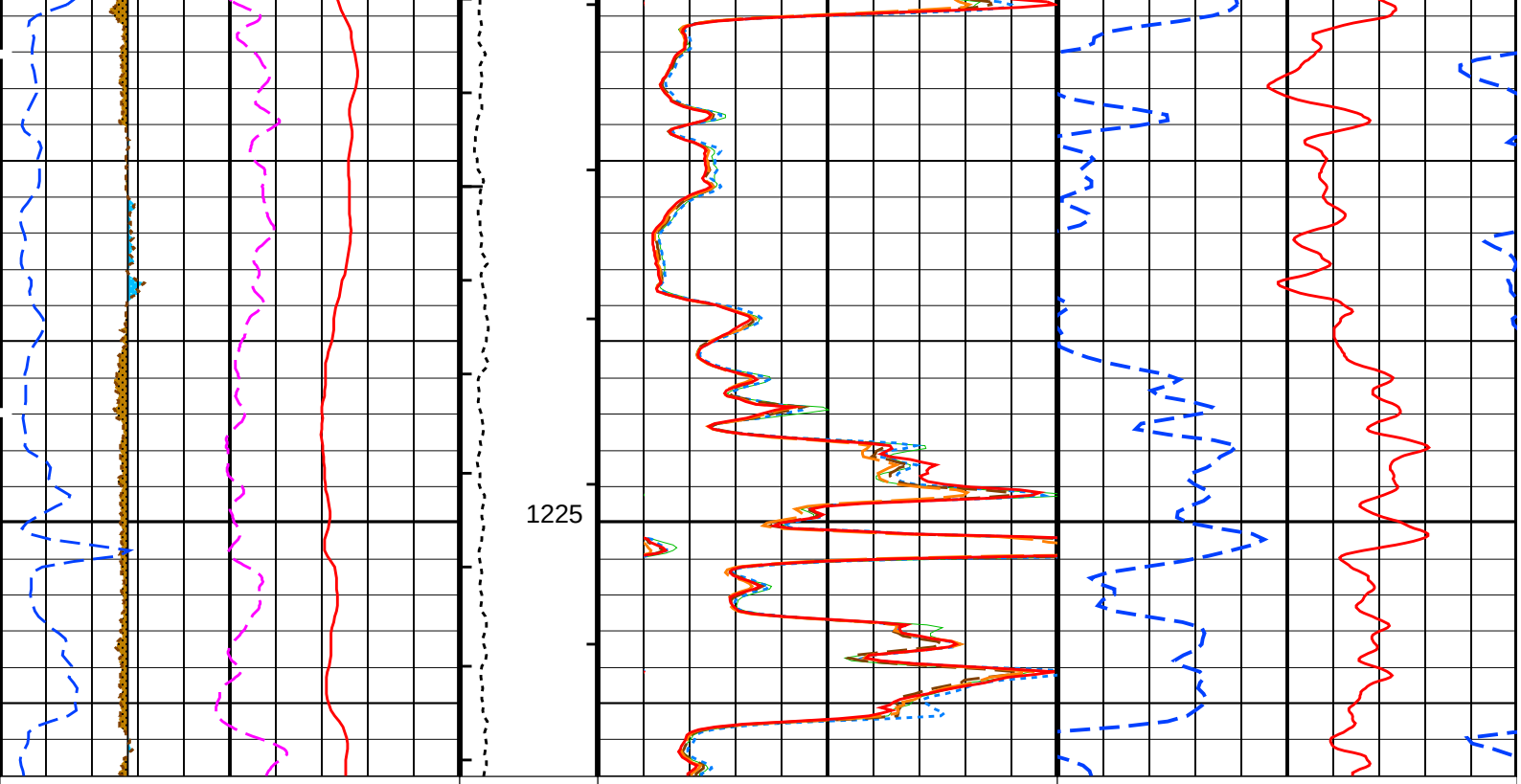
CAVERNA
From BS to HCAL

REVOQUE
From HCAL to BS

SP (SP)

AIT−H 90 Inch Investigation (AHT90)


-80 (MV) 20
0 (OHMM) 10
RWA (RWA)
0 (OHMM) 1
AIT-H 60 Inch Investigation (AHT60)
0 (OHMM) 10
Std. Res. Formation Pe (PEFZ)
0 (---- 5
AIT-H 30 Inch Investigation (AHT30)
0 (OHMM) 10
Gas
From DPHZ to TNPH
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
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
1175
1200



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
	HAIT−H: Array Induction Tool − H	
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

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	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGC
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
RTCO	RTCO − Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	10	DEGC
SPNV	SP Next Value	−24	MV
HILTB−FTB: High resolution Integrated Logging Tool−DTS			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	10	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	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	
ALLRES: Basic Resistivity Transforms			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	10	DEGC
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth − Driller	1270.00	M
TDL	Total Depth − Logger	1242.70	M
System and Miscellaneous			
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	1300.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWTI	Casing Weight	[illegible]	LB/F

CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.16	G/C3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	11.50	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.1100	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1242.7	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA Vertical Scale: 1:200 Graphics File Created: 02−Jun−2005 15:55

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_049PUP	FN:8	PRODUCER	02−Jun−2005 15:40	1250.1 M	1091.9 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_051PUP	FN:10	PRODUCER	02−Jun−2005 15:55

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ANALISIS DE REPETIBILIDAD

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_049PUP	FN:8	PRODUCER	02−Jun−2005 15:40	1250.1 M	1091.9 M
DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33	1249.1 M	82.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_051PUP	FN:10	PRODUCER	02−Jun−2005 15:55	1232.0 M	1168.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 5.61 M3

Cement Volume = 3.30 M3 (assuming 5.50 IN casing O.D.)

Computed from 1242.7 M to 1092.1 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3

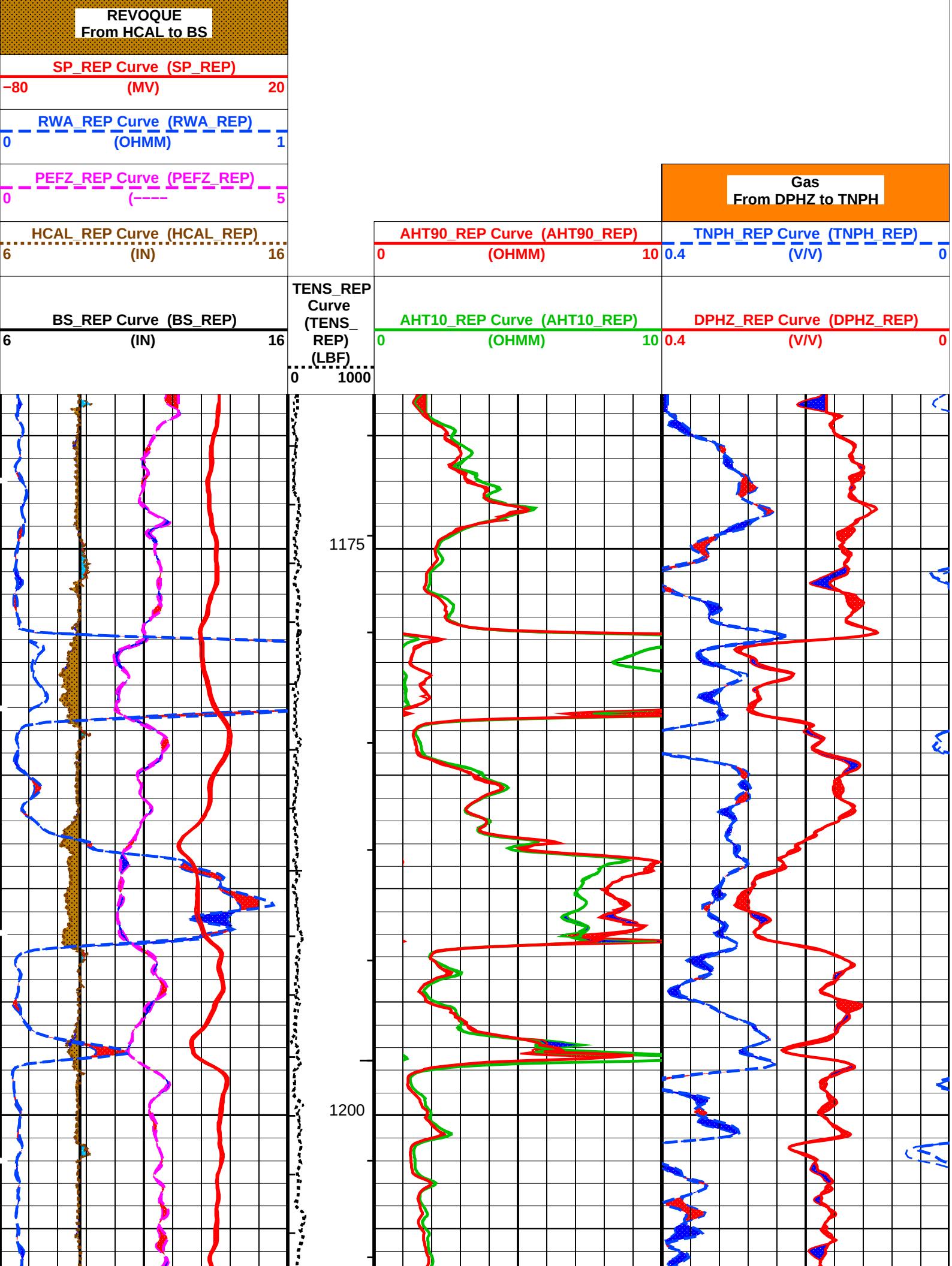
Integrated Hole Volume Major Pip Every 1 M3

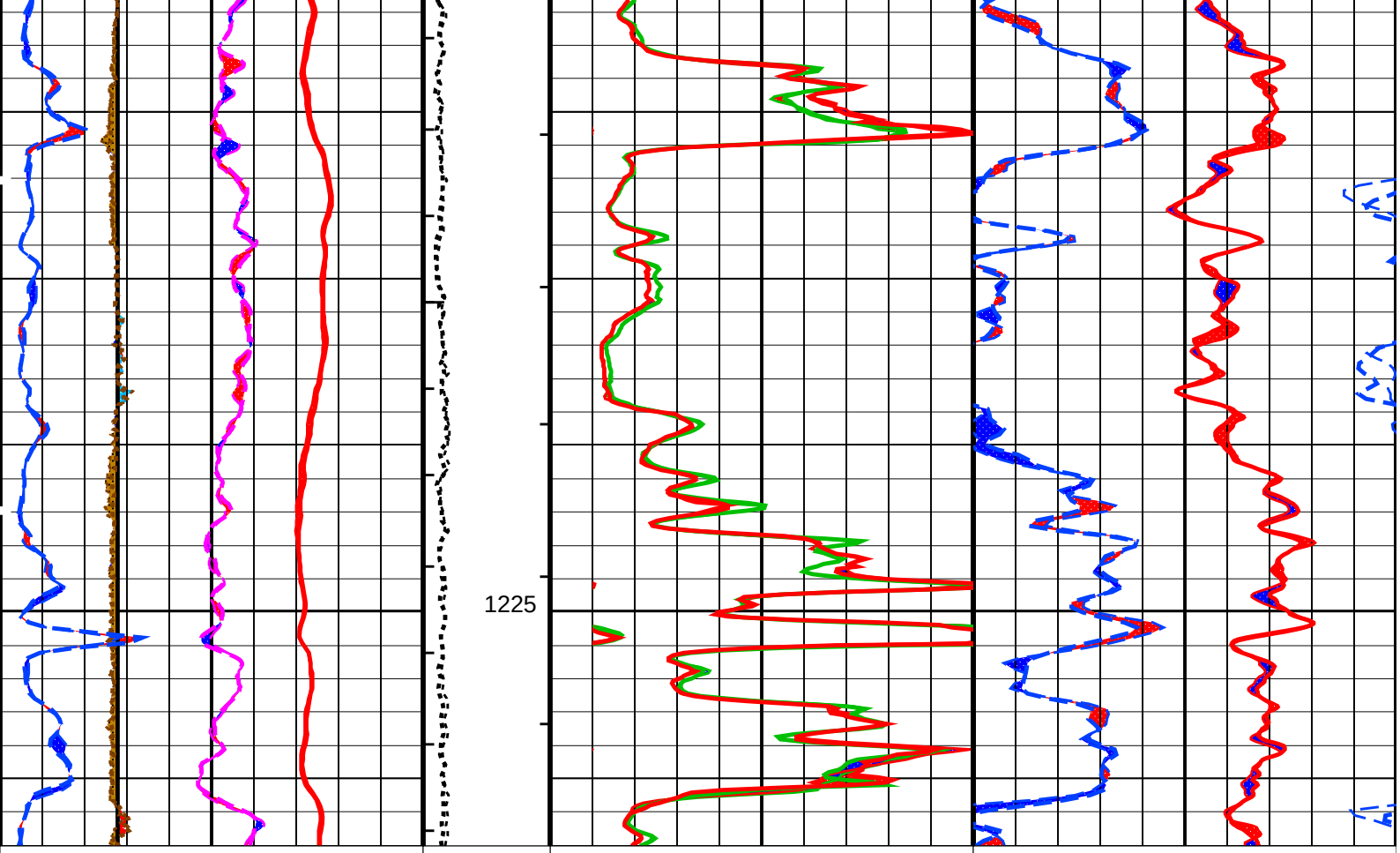
Integrated Cement Volume Minor Pip Every 0.1 M3

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
HCAL_REP Curve (HCAL_REP) 6 (IN) 16		AHT90_REP Curve (AHT90_REP) 0 (OHMM) 10
PEFZ_REP Curve (PEFZ_REP) 0 (-----) 5		
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		

DPHZ_REP Curve (DPHZ_REP) 0.4 (V/V) 0	
TNPH_REP Curve (TNPH_REP) 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
	HAIT-H: Array Induction Tool - H	
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	880

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	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGC
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	0.81	
FPHI	Form Factor Porosity Source	DPHZ	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
RTCO	RTCO − Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	10	DEGC
SPNV	SP Next Value	−24	MV
HILTB−FTB: High resolution Integrated Logging Tool−DTS			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	10	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	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	
ALLRES: Basic Resistivity Transforms			
ARTS	AIT Rt Selection (for ALLRES computation)	AITH_TwoResA90	
RTCO	RTCO − Rt Invasion Correction	YES	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	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	10	DEGC
STI: Stuck Tool Indicator			
TDL	Total Depth − Logger	1242.70	M
System and Miscellaneous			

BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	1300.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	32.30	LB/F
DFD	Drilling Fluid Density	1.16	G/C3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	11.50	DEGC
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	1.1100	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1242.7	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: COMBINADA_REP Vertical Scale: 1:200 Graphics File Created: 02−Jun−2005 15:55

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_049PUP	FN:8	PRODUCER	02−Jun−2005 15:40	1250.1 M	1091.9 M
DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33	1249.1 M	82.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_051PUP	FN:10	PRODUCER	02−Jun−2005 15:55

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CHEQUEO EN CAÑERIA

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_005LUP	FN:6	PRODUCER	02−Jun−2005 06:31	129.8 M	85.8 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_057PUP	FN:16	PRODUCER	02−Jun−2005 16:03	119.9 M	87.3 M

Integrated Hole/Cement Volume Summary

Hole Volume = 5.61 M3

Cement Volume = 3.30 M3 (assuming 5.50 IN casing O.D.)

Computed from 1242.7 M to 1092.1 M using data channel(s) HCAL

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

PIP SUMMARY

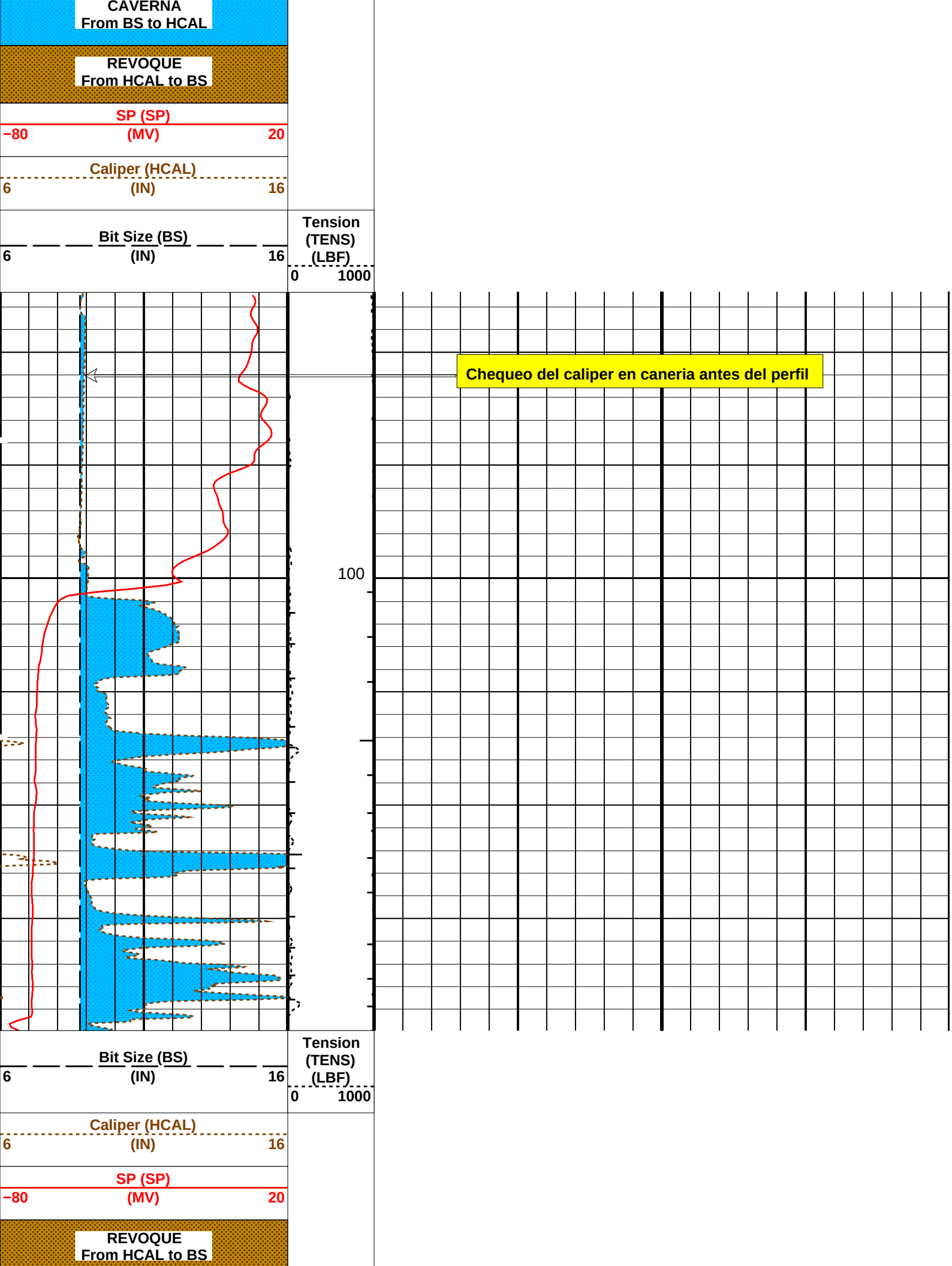
Integrated Hole Volume Minor Pip Every 0.1 M3

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
Caliper (HCAL)
6
(IN)
16
Bit Size (BS)
6
(IN)
16
Tension
(TENS)
(LBF)
0
1000
Chequeo del caliper en caneria antes del perfil
100
Bit Size (BS)
6
(IN)
16
Tension
(TENS)
(LBF)
0
1000
Caliper (HCAL)
6
(IN)
16
SP (SP)
−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	
	HAIT−H: Array Induction Tool − H		
SPNV	SP Next Value	−24	MV
	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	0.2	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	OFF	
TD	Total Depth	1242.7	M

Format: CALIPER Vertical Scale: 1:200 Graphics File Created: 02−Jun−2005 16:03

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_005LUP	FN:6	PRODUCER	02−Jun−2005 06:31	129.8 M	85.8 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_057PUP	FN:16	PRODUCER	02−Jun−2005 16:03

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_005LUP	FN:6	PRODUCER	02−Jun−2005 06:31	129.8 M	85.8 M
DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33	1249.1 M	82.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_057PUP	FN:16	PRODUCER	02−Jun−2005 16:03	119.9 M	87.3 M

Integrated Hole/Cement Volume Summary

Hole Volume = 5.61 M3

Cement Volume = 3.30 M3 (assuming 5.50 IN casing O.D.)

Computed from 1242.7 M to 1092.1 M using data channel(s) HCAL

OP System Version: 13C0−300

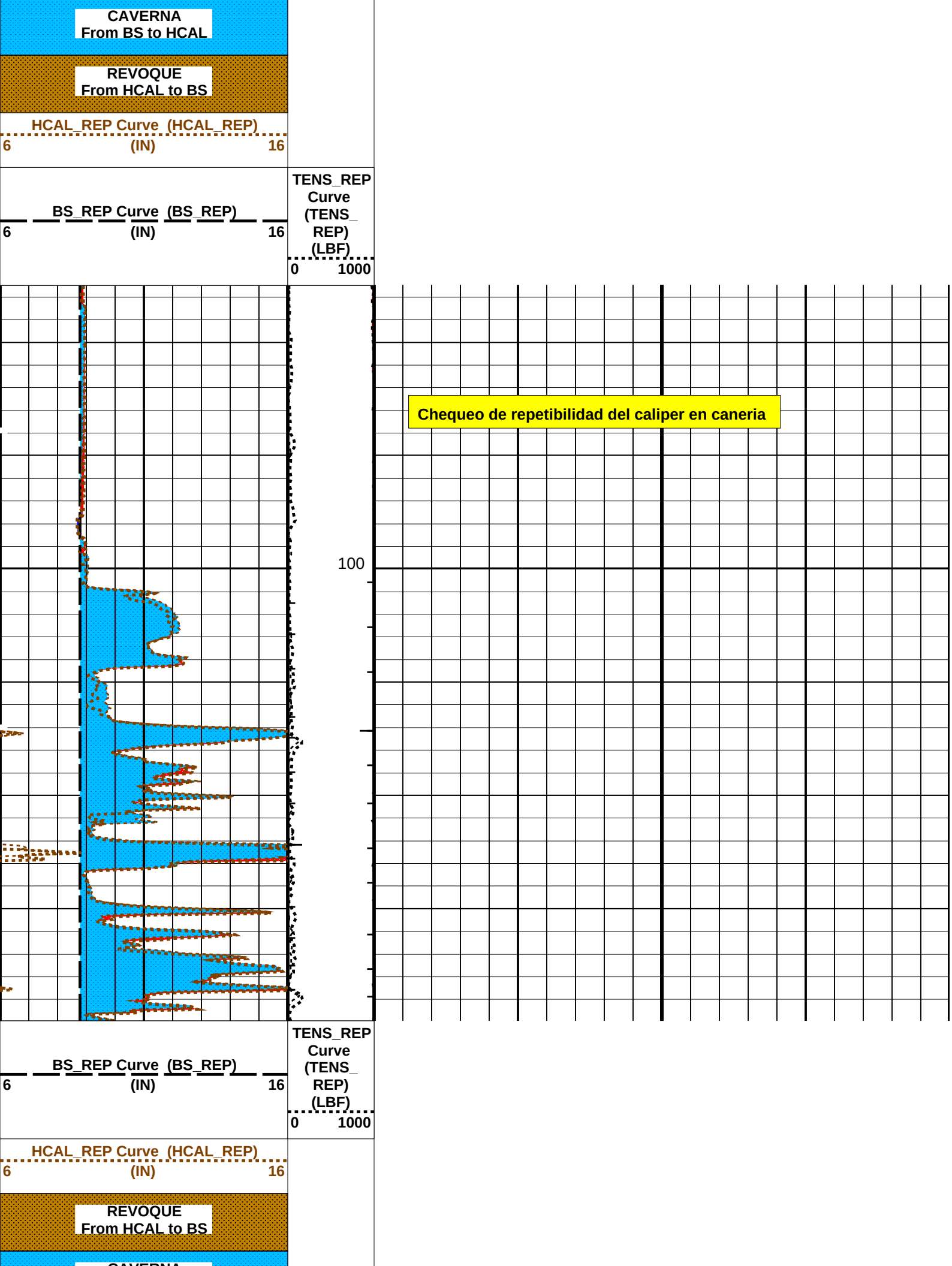
MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

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
HCAL_REP Curve (HCAL_REP)
6
(IN)
16
BS_REP Curve (BS_REP)
6
(IN)
16
TENS_REP Curve (TENS_REP) (LBF)
0
1000
100
Chequeo de repetibilidad del caliper en caneria
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	0.2	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	OFF	
TD	Total Depth	1242.7	M

Format: CALIPER_REP Vertical Scale: 1:200 Graphics File Created: 02−Jun−2005 16:03

OP System Version: 13C0−300

MCM

HAIT−H	SRPC−2718−HILT	HILTB−FTB	SRPC−2718−HILT
DTC−H	13C0−300		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_005LUP	FN:6	PRODUCER	02−Jun−2005 06:31	129.8 M	85.8 M
DEFAULT	AIT_TLD_MCFL_CNL_048PUP	FN:7	PRODUCER	02−Jun−2005 15:33	1249.1 M	82.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_057PUP	FN:16	PRODUCER	02−Jun−2005 16:03

Schlumberger

CALIBRACIONES

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction Tool − H Wellsite Calibration − Electronics Calibration Check − Thru Cal Mag. & Phase							
Master: 7−Mar−2005 9:03 Before: 1−Jun−2005 6:19							
Thru Cal Magnitude − 0	0	0.6176	0.6198	N/A	N/A	N/A	V
Thru Cal Magnitude − 1	0	1.265	1.270	N/A	N/A	N/A	V
Thru Cal Magnitude − 2	0	0.6278	0.6304	N/A	N/A	N/A	V
Thru Cal Magnitude − 3	0	0.7086	0.7113	N/A	N/A	N/A	V
Thru Cal Magnitude − 4	0	1.334	1.338	N/A	N/A	N/A	V
Thru Cal Magnitude − 5	0	1.919	1.927	N/A	N/A	N/A	V
Thru Cal Magnitude − 6	0	1.916	1.925	N/A	N/A	N/A	V
Thru Cal Magnitude − 7	0	1.349	1.361	N/A	N/A	N/A	V
Phase − 0	0	58.02	59.45	N/A	N/A	N/A	DEG
Phase − 1	0	57.00	58.45	N/A	N/A	N/A	DEG
Phase − 2	0	52.73	54.23	N/A	N/A	N/A	DEG

Phase − 3	0	51.87	53.37	N/A	N/A	N/A	DEG
Phase − 4	0	44.78	46.37	N/A	N/A	N/A	DEG
Phase − 5	0	42.61	44.25	N/A	N/A	N/A	DEG
Phase − 6	0	42.63	44.27	N/A	N/A	N/A	DEG
Phase − 7	0	36.57	38.70	N/A	N/A	N/A	DEG

Array Induction Tool − H Wellsite Calibration − Electronics Calibration Check − Auxilliary
Master: 7−Mar−2005 9:03 Before: 1−Jun−2005 6:19

Array Induction SPA Plus	990.5	989.1	989.6	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.4989	0.4598	N/A	N/A	N/A	MV
Array Induction Temperature Pl	0.9150	0.9159	0.9164	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0005063	0.0004580	N/A	N/A	N/A	V

Array Induction Tool − H Wellsite Calibration − Test Loop Gain Correction
Master: 7−Mar−2005 9:03

Test Loop Gain Magnitude − 0	0	1.011	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 1	0	1.011	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 2	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 3	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 4	0	0.9922	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 5	0	1.009	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 6	0	1.017	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 7	0	1.030	N/A	N/A	N/A	N/A	V
Phase − 0	0	0.6056	N/A	N/A	N/A	N/A	DEG
Phase − 1	0	0.5810	N/A	N/A	N/A	N/A	DEG
Phase − 2	0	−0.02779	N/A	N/A	N/A	N/A	DEG
Phase − 3	0	0.03244	N/A	N/A	N/A	N/A	DEG
Phase − 4	0	0.007671	N/A	N/A	N/A	N/A	DEG
Phase − 5	0	−0.1680	N/A	N/A	N/A	N/A	DEG
Phase − 6	0	0.2834	N/A	N/A	N/A	N/A	DEG
Phase − 7	0	−0.2827	N/A	N/A	N/A	N/A	DEG

Array Induction Tool − H Wellsite Calibration − Sonde Error Correction
Master: 7−Mar−2005 9:03

R Sonde Error Correction − 0	0	−86.16	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 1	0	172.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 2	0	111.0	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 3	0	52.01	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 4	0	25.67	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 5	0	12.37	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 6	0	8.859	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 7	0	−1.031	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 0	0	174.9	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 1	0	−59.31	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 2	0	95.78	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 3	0	86.91	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 4	0	34.45	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 5	0	18.85	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 6	0	5.475	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 7	0	−6.647	N/A	N/A	N/A	N/A	MM/M

Array Induction Tool − H Wellsite Calibration − Mud Gain Correction
Master: 7−Mar−2005 9:03

Coarse − Mag, Real, Imag − 0	0	1.083	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 1	0	1.083	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 2	0	1.083	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 0	0	1.074	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 1	0	1.074	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 2	0	1.074	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Stab Measurement Summary
Before: 1−Jun−2005 6:23

BS Window Ratio	0.7645	N/A	0.7628	N/A	N/A	N/A	
BS Window Sum	12400	N/A	12380	N/A	N/A	N/A	CPS
SS Window Ratio	0.4783	N/A	0.4778	N/A	N/A	N/A	
SS Window Sum	10820	N/A	10830	N/A	N/A	N/A	CPS
LS Window Ratio	0.2995	N/A	0.2969	N/A	N/A	N/A	
LS Window Sum	1321	N/A	1317	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Photo−multiplier High Voltages Calibrations
Before: 1−Jun−2005 6:23

BS PM High Voltage (Command)	1840	N/A	1824	N/A	N/A	N/A	V
SS PM High Voltage (Command)	2052	N/A	2025	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1954	N/A	1953	N/A	N/A	N/A	V

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Crystal Quality Resolutions Calibration
Before: 1−Jun−2005 6:23

BS Crystal Resolution	12.65	N/A	12.73	N/A	N/A	N/A	%
SS Crystal Resolution	11.58	N/A	11.49	N/A	N/A	N/A	%
LS Crystal Resolution	9.680	N/A	9.678	N/A	N/A	N/A	%

High resolution Integrated Logging Tool−DTS Wellsite Calibration − MCFL Calibration

High resolution Integrated Logging Tool−DTS Wellsite Calibration − MCFL Calibration
Before: Calibration not done

Raw B0 Resistivity	3875	N/A	N/A	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	N/A	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	N/A	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool−DTS Wellsite Calibration − HILT Caliper Calibration
Before: 31−May−2005 1:34

HILT Caliper Zero Measurement	8.000	N/A	8.345	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.74	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Detector Calibration
Before: 31−May−2005 1:32

Gamma Ray Background	30.00	N/A	14.01	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkg)	192.2	N/A	192.2	N/A	N/A	17.47	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement
Master: 23−Apr−2005 12:12 Before: 1−Jun−2005 6:20

CNTC Background	26.81	26.81	27.51	N/A	N/A	4.022	CPS
CFTC Background	26.25	26.25	26.11	N/A	N/A	3.938	CPS

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement
Master: 23−Apr−2005 12:12

Thermal Near Corr. (Tank)	6031	5475	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2793	2257	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.426	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration
Before: 1−Jun−2005 6:18

Z−Axis Acceleration	9.810	N/A	9.795	N/A	N/A	N/A	M/S2

High resolution Integrated Logging Tool−DTS Master Calibration − Inversion results
Master: 23−May−2005 14:49

Rho Aluminum	2.596	2.601	−−	−−	−−	−−	G/C3
Rho Magnesium	1.686	1.686	−−	−−	−−	−−	G/C3
Pe Aluminum	2.570	2.561	−−	−−	−−	−−	
Pe Magnesium	2.650	2.636	−−	−−	−−	−−	

High resolution Integrated Logging Tool−DTS Master Calibration − Deviation Summary
Master: 23−May−2005 14:49

BS Average Deviation	0	0.5824	−−	−−	−−	−−	%
BS Max Deviation	0	1.562	−−	−−	−−	−−	%
SS Average Deviation	0	0.2185	−−	−−	−−	−−	%
SS Max Deviation	0	0.8470	−−	−−	−−	−−	%
LS Average Deviation	0	0.6189	−−	−−	−−	−−	%
LS Max Deviation	0	1.143	−−	−−	−−	−−	%

The GLS−VJ source activity is acceptable.

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

NCT−B Water Temperature 10.0 DEGC.
Thermal Housing Size 3.374 IN.
NSR−F serial number 1577

Array Induction Tool − H / Equipment Identification

Primary Equipment:

Rm/SP Bottom Nose	AHRM − A	
Array Induction Sonde	AHIS − BA	383

Auxiliary Equipment:

Array Induction Tool − H Wellsite Calibration
Electronics Calibration Check − Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6176		0.6050	58.02		71.00
	Before	0.6198			59.45		
1	Master	1.265		1.270	57.00		70.00

1	Master	1.270	1.270	58.45	70.00
	Before	1.270			
2	Master	0.6278	0.6230	52.73	66.00
	Before	0.6304		54.23	
3	Master	0.7086	0.7040	51.87	65.00
	Before	0.7113		53.37	
4	Master	1.334	1.337	44.78	59.00
	Before	1.338		46.37	
5	Master	1.919	1.955	42.61	57.00
	Before	1.927		44.25	
6	Master	1.916	1.955	42.63	57.00
	Before	1.925		44.27	
7	Master	1.349	1.415	36.57	53.00
	Before	1.361		38.70	
		60.00 % (Minimum) (Nominal) 140.0 % (Maximum)		Nom −60.00 (Minimum) (Nominal) Nom + 60.00 (Maximum)	

Master: 7−Mar−2005 9:03 Before: 1−Jun−2005 6:19

Array Induction Tool − H Wellsite Calibration

Electronics Calibration Check − Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		989.1	Master		0.4989
Before		989.6	Before		0.4598
	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		0.9159	Master		0.0005063
Before		0.9164	Before		0.0004580
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			−0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: 7−Mar−2005 9:03 Before: 1−Jun−2005 6:19

Array Induction Tool − H Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.011	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.6056	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
1	1.011	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.5810	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
2	1.013	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	−0.02779	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
3	1.013	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.03244	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
4	0.9922	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.007671	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
5	1.009	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	−0.1680	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
6	1.017	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.2834	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
7	1.030	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	−0.2827	−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)

Master: 7−Mar−2005 9:03

Master: 7−Mar−2005 9:03

Array Induction Tool − H Wellsite Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	−86.16	−231.0 (Minimum)	−56.00 (Nominal)	119.0 (Maximum)	174.9	−2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	172.9	114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	−59.31	−625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	111.0	66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	95.78	−350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	52.01	39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)	86.91	−250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	25.67	15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	34.45	−63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	12.37	4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)	18.85	−50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	8.859	5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)	5.475	−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	−1.031	−5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	−6.647	−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 7−Mar−2005 9:03

Array Induction Tool − H Wellsite Calibration
Mud Gain Correction

Idx	Value	Coarse − Mag, Real, Imag			Value	Fine − Mag, Real, Imag		
0	1.083	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	1.074	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.083	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	1.074	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.083	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	1.074	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 7−Mar−2005 9:03

Array Induction Tool − H Master Calibration
Electronics Calibration Check − Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6176		0.6050	58.02		71.00
1	Master	1.265		1.270	57.00		70.00
2	Master	0.6278		0.6230	52.73		66.00
3	Master	0.7086		0.7040	51.87		65.00
4	Master	1.334		1.337	44.78		59.00
5	Master	1.919		1.955	42.61		57.00
6	Master	1.916		1.955	42.63		57.00
7	Master	1.349		1.415	36.57		53.00
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom −60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: 7−Mar−2005 9:03

Array Induction Tool − H Master Calibration
Electronics Calibration Check − Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value

Master			989.1	Master			0.4989
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			0.9159	Master			0.0005063
0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		−0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)	

Master: 7−Mar−2005 9:03

Array Induction Tool − H Master Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG		
0	1.011				0.6056			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.011				0.5810			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.013				−0.02779			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.013				0.03244			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	0.9922				0.007671			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	1.009				−0.1680			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.017				0.2834			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.030				−0.2827			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 7−Mar−2005 9:03

Array Induction Tool − H Master Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	−86.16				174.9			
		−231.0 (Minimum)	−56.00 (Nominal)	119.0 (Maximum)		−2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	172.9				−59.31			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		−625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	111.0				95.78			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		−350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	52.01				86.91			
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		−250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	25.67				34.45			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		−63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	12.37				18.85			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		−50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	8.859				5.475			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	−1.031				−6.647			
		−5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 7−Mar−2005 9:03

Array Induction Tool − H Master Calibration

Mud Gain Correction

Idx	Value	Coarse − Mag, Real, Imag	Value	Fine − Mag, Real, Imag
0	1.083	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.074	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)
1	1.083	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.074	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)
2	1.083	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.074	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)

Master: 7−Mar−2005 9:03

High resolution Integrated Logging Tool−DTS / Equipment Identification

Primary Equipment:		
HILT high−Resolution Mechanical Sonde	HRMS − B	1915
HILT Rxo Gamma−ray Device	HRGD − B	1940
HILT Micro Cylindrically Focused Log Dev	MCFL −	
GR Logging Source	GLS − VJ	3765
HILT High Res. Control Cartridge	HRCC − B	1918
HILT Gamma−Ray Neutron Sonde−DTS	HGNS − B	
HILT Gamma−Ray Device	HGR −	
HILT Neutron Detector with Alpha Source	HCNT −	
Auxiliary Equipment:		
Neutron Calibration Tank	NCT − B	
Gamma Source Radioactive	GSR − U/Y	

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before	0.7263 (Minimum) 0.7645 (Nominal) 0.8027 (Maximum)	0.7628	Before	0.4544 (Minimum) 0.4783 (Nominal) 0.5022 (Maximum)	0.4778	Before	0.2845 (Minimum) 0.2995 (Nominal) 0.3144 (Maximum)	0.2969
Phase	**BS Window Sum CPS**	**Value**	**Phase**	**SS Window Sum CPS**	**Value**	**Phase**	**LS Window Sum CPS**	**Value**
Before	11780 (Minimum) 12400 (Nominal) 13020 (Maximum)	12380	Before	10280 (Minimum) 10820 (Nominal) 11360 (Maximum)	10830	Before	1255 (Minimum) 1321 (Nominal) 1387 (Maximum)	1317

Before: 1−Jun−2005 6:23

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Photo−multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before	1740 (Minimum) 1840 (Nominal) 1940 (Maximum)	1824	Before	1952 (Minimum) 2052 (Nominal) 2152 (Maximum)	2025	Before	1854 (Minimum) 1954 (Nominal) 2054 (Maximum)	1953

Before: 1−Jun−2005 6:23

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before	11.65 (Minimum) 12.65 (Nominal) 13.65 (Maximum)	12.73	Before	10.58 (Minimum) 11.58 (Nominal) 12.58 (Maximum)	11.49	Before	8.680 (Minimum) 9.680 (Nominal) 10.68 (Maximum)	9.678

Before: 1−Jun−2005 6:23

High resolution Integrated Logging Tool−DTS Wellsite Calibration

MCFL Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before	NOT DONE 3565 (Minimum) 3875 (Nominal) 4185 (Maximum)	N/A	Before	NOT DONE 3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	N/A	Before	NOT DONE 3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	N/A

Before Calibration not done

Before: Calibration not done

High resolution Integrated Logging Tool−DTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value	Phase	HILT Caliper Plus Measurement IN	Value
Before		8.345	Before		12.74
	6.000 (Minimum) / 8.000 (Nominal) / 10.00 (Maximum)			9.000 (Minimum) / 12.00 (Nominal) / 15.00 (Maximum)	

Before: 31−May−2005 1:34

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		14.01	Before		192.2	Before		165.0
	0 (Minimum) / 30.00 (Nominal) / 120.0 (Maximum)			174.7 (Minimum) / 192.2 (Nominal) / 209.7 (Maximum)			150.0 (Minimum) / 165.0 (Nominal) / 180.0 (Maximum)	

Before: 31−May−2005 1:32

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.81	Master		26.25
Before		27.51	Before		26.11
	5.000 (Minimum) / 26.81 (Nominal) / 40.00 (Maximum)			5.000 (Minimum) / 26.25 (Nominal) / 40.00 (Maximum)	

Master: 23−Apr−2005 12:12 Before: 1−Jun−2005 6:20

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5475	Master		2257	Master		2.426
	5000 (Minimum) / 6031 (Nominal) / 7200 (Maximum)			2075 (Minimum) / 2793 (Nominal) / 3125 (Maximum)			2.120 (Minimum) / 2.159 (Nominal) / 2.540 (Maximum)	

Master: 23−Apr−2005 12:12

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Accelerometer Calibration

Phase	Z−Axis Acceleration M/S2	Value
Before		9.795
	9.610 (Minimum) / 9.810 (Nominal) / 10.01 (Maximum)	

Before: 1−Jun−2005 6:18

High resolution Integrated Logging Tool−DTS Master Calibration

Inversion results

Phase	Rho Aluminum G/C3	Value	Phase	Rho Magnesium G/C3	Value
Master		2.601	Master		1.686
	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		2.561	Master		2.636
	2.470 (Minimum) / 2.570 (Nominal) / 2.670 (Maximum)			2.550 (Minimum) / 2.650 (Nominal) / 2.750 (Maximum)	

Master: 23−May−2005 14:49

High resolution Integrated Logging Tool−DTS Master Calibration

Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master		0.5824	Master		0.2185	Master		0.6189
	−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		1.562	Master		0.8470	Master		1.143
	−1.600 / 0 / 1.600			−2.500 / 0 / 2.500			−3.500 / 0 / 3.500	

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

Master: 23−May−2005 14:49

High resolution Integrated Logging Tool−DTS Master Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.81	Master		26.25
5.000 (Minimum)	26.81 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	26.25 (Nominal)	40.00 (Maximum)

Master: 23−Apr−2005 12:12

High resolution Integrated Logging Tool−DTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5475	Master		2257	Master		2.426
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)	2075 (Minimum)	2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: 23−Apr−2005 12:12

COMPANIA:	**YPF S.A.**	PRIMERA LECTURA	1240.3 m
		PROFUNDIDAD PERFIL	1242.7 m
POZO:	**YPF.Ch.LC−669**	PROF. PERFORADOR	1270 m
CAMPO:	**LA CAROLINA**	BUJE DE VASTAGO	434.2 m
PROVINCIA:	**CHUBUT**	MESA ROTATIVA	433.9 m
PAIS:	**ARGENTINA**	NIVEL TERRENO	428.4 m

Schlumberger

COMBINADA

ESCALA: 1/200

Schlumberger

Compania: **YPF S.A.**

Pozo: **YPF.Ch.LC−669**
Campo: **LA CAROLINA**
Provincia: **CHUBUT** Pais: **ARGENTINA**

CONTROL DE CEMENTO
CBL VDL CNL CCL
1/200

Campo: LA CAROLINA
Locacion: CAS
Pozo: YPF.Ch.LC−669
Compania: YPF S.A.

LOCACION

CAS		Elev.: B.V.	434.2 m
X:4.946.154,93		N.T.	428.4 m
Y:2.572.688,26		M.R.	433.9 m
Ref. Permanente:	NIVEL DE TERRENO	Elev.:	428.4 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:4.946.154,93	Latitud Y:2.572.688,26

Fecha de Registro	6−Jun−2005		
Corrida Numero	1		
Prof. Perforador	1270 m		
Prof. Schlumberger	1235 m		
Primera Lectura	1235 m		
Ultima Lectura	600 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	100.7 m		
Caneria / Tuberia	5.500 in		
Peso	14 lbm/ft		
Grado			
Desde	0 m		
Hasta	1270 m		
Temperaturas Maximas Medidas	68 degC		
Registro en Fondo / Hora	6−Jun−2005	17:45	
Unidad Numero / Locacion	8116	CAS	
Registrado por	D.PEROTTI		
Testigo			

	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			

Corrida 4

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: 01−Jun−2005

Depth Control Remarks

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

LIMITACION DE RESPONSABILIDAD
LA UTILIZACION Y CONFIANZA EN LOS DATOS AQUI GRABADOS POR PARTE DE LA NOMBRADA COMPANIA (Y POR CUALQUIERA DE SUS SUBSIDIARIAS, AFILIADAS, REPRESENTANTES, AGENTES, CONSULTORES Y EMPLEADOS) ESTA SUJETA A LOS TERMINOS Y CONDICIONES ACORDADOS ENTRE SCHLUMBERGER Y LA COMPANIA, INCLUYENDO: (a) RESTRICCIONES EN EL USO DE LOS DATOS GRABADOS; (b) LIMITACION DE RESPONSABILIDAD Y REVOCACION DE GARANTIAS EN RELACION A LA UTILIZACION Y CONFIANZA EN LOS DATOS GRABADOS POR PARTE DE LA COMPANIA, Y (c) LA SOLA Y TOTAL RESPONSABILIDAD DEL CLIENTE POR CUALQUIER INTERPRETACION HECHA O DECISION BASADA EN EL USO DE ESTOS DATOS.

OTROS SERVICIOS #1	OTROS SERVICIOS #2
OS1: MASTIL	OS1:
OS2: PUNZADO 4"	OS2:
OS3:	OS3:
OS4:	OS4:
OS5: MASTIL	OS5:

OBSERVACIONES: CORRIDA #1	OBSERVACIONES: CORRIDA #2
−Peffil de correlacion de cia.Schlumberger del dia 01−Jun−2005	
−Herramienta corrida segun diagrama	
−Sonico centralizado con tres gemcos de 5.5"	
−Primer tramo de registro sin correccion de prfundidad	
−Trabajo con mastil de cia Schlumberger	
−Fondo constatado 1235 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

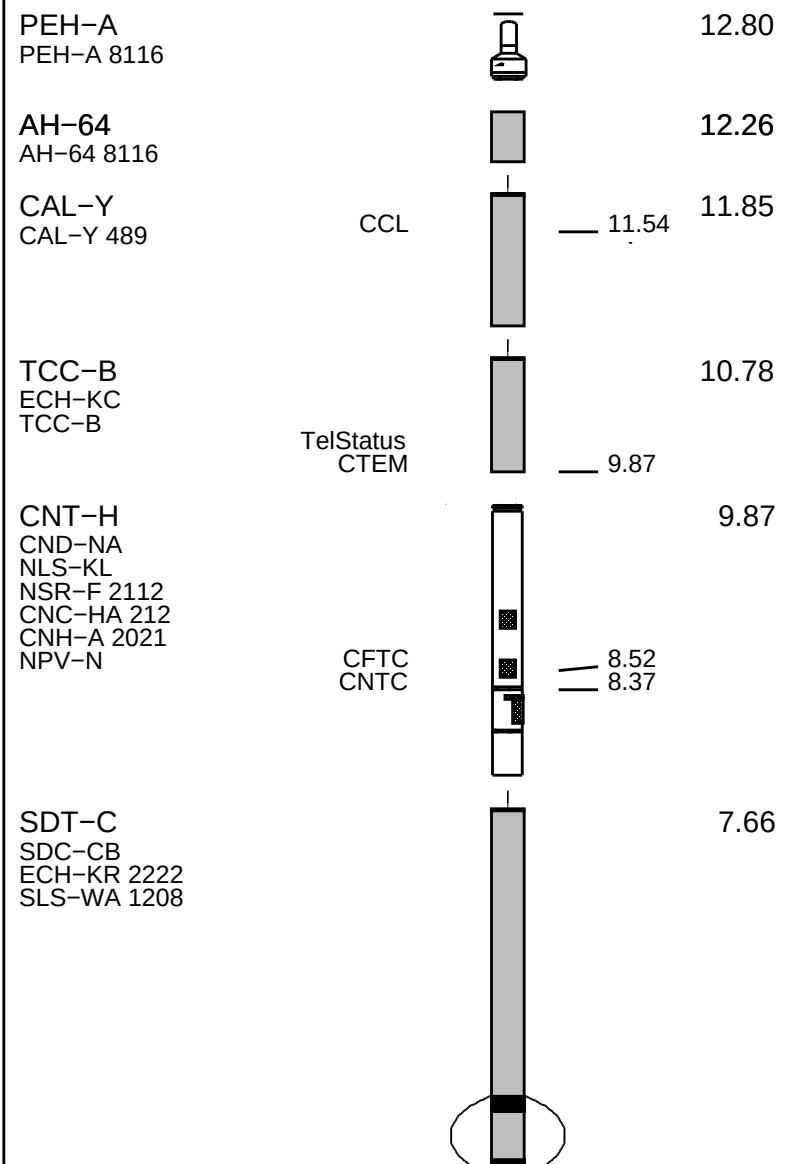
CORRIDA #1 | CORRIDA #2

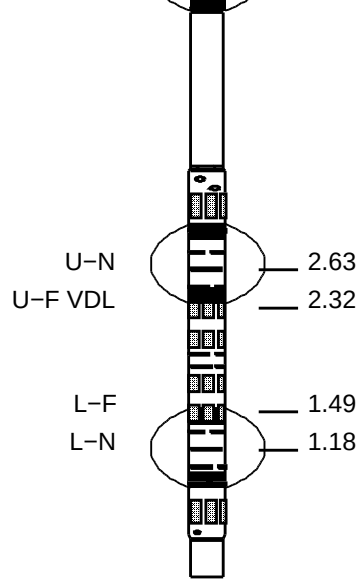
SURFACE EQUIPMENT

STM−C
CNB−AB 3625
NCT−B
NCS−VB

WITM (CTS)−A

DOWNHOLE EQUIPMENT





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−669**

Output DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

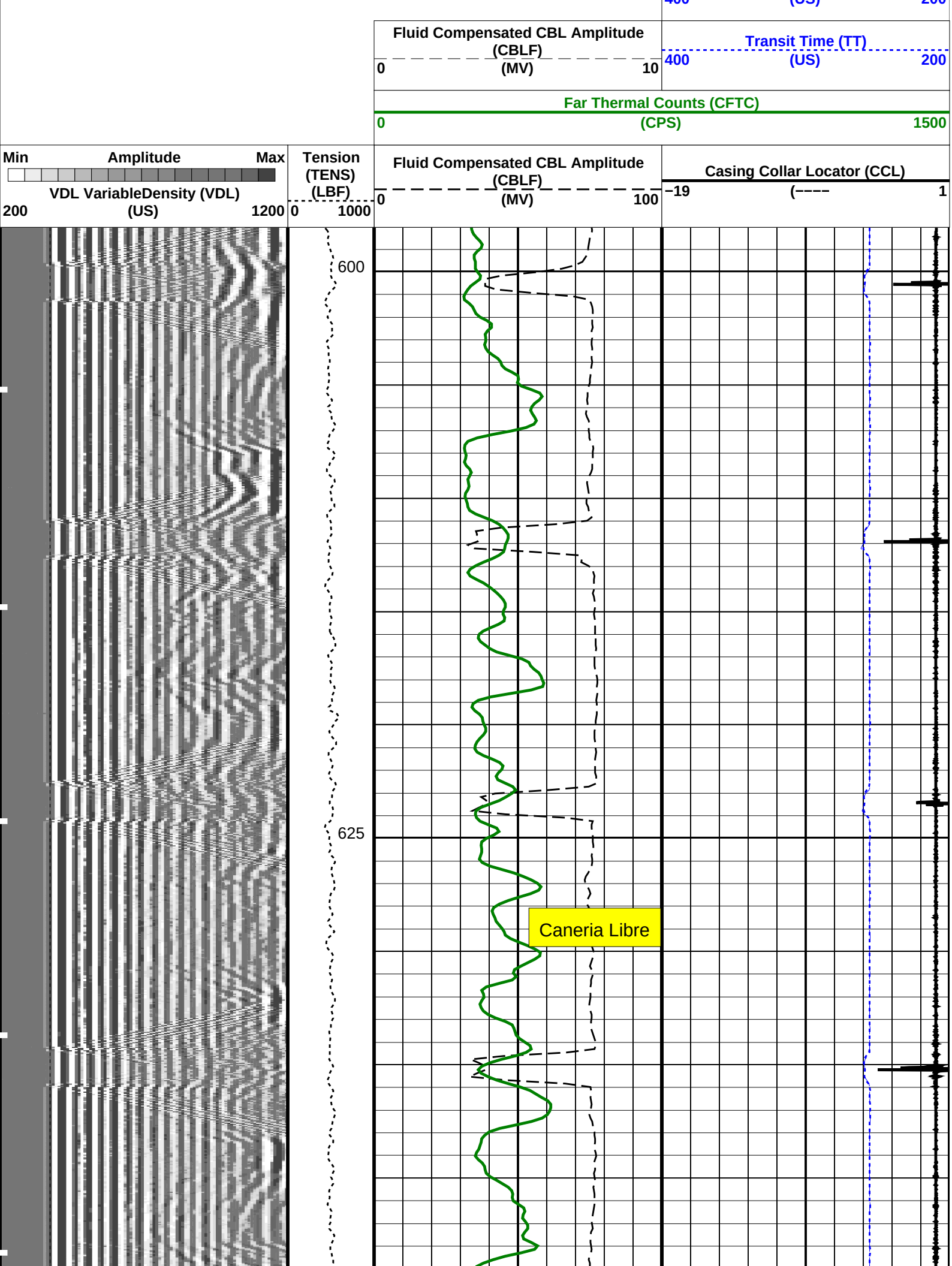
Changed Parameter Summary

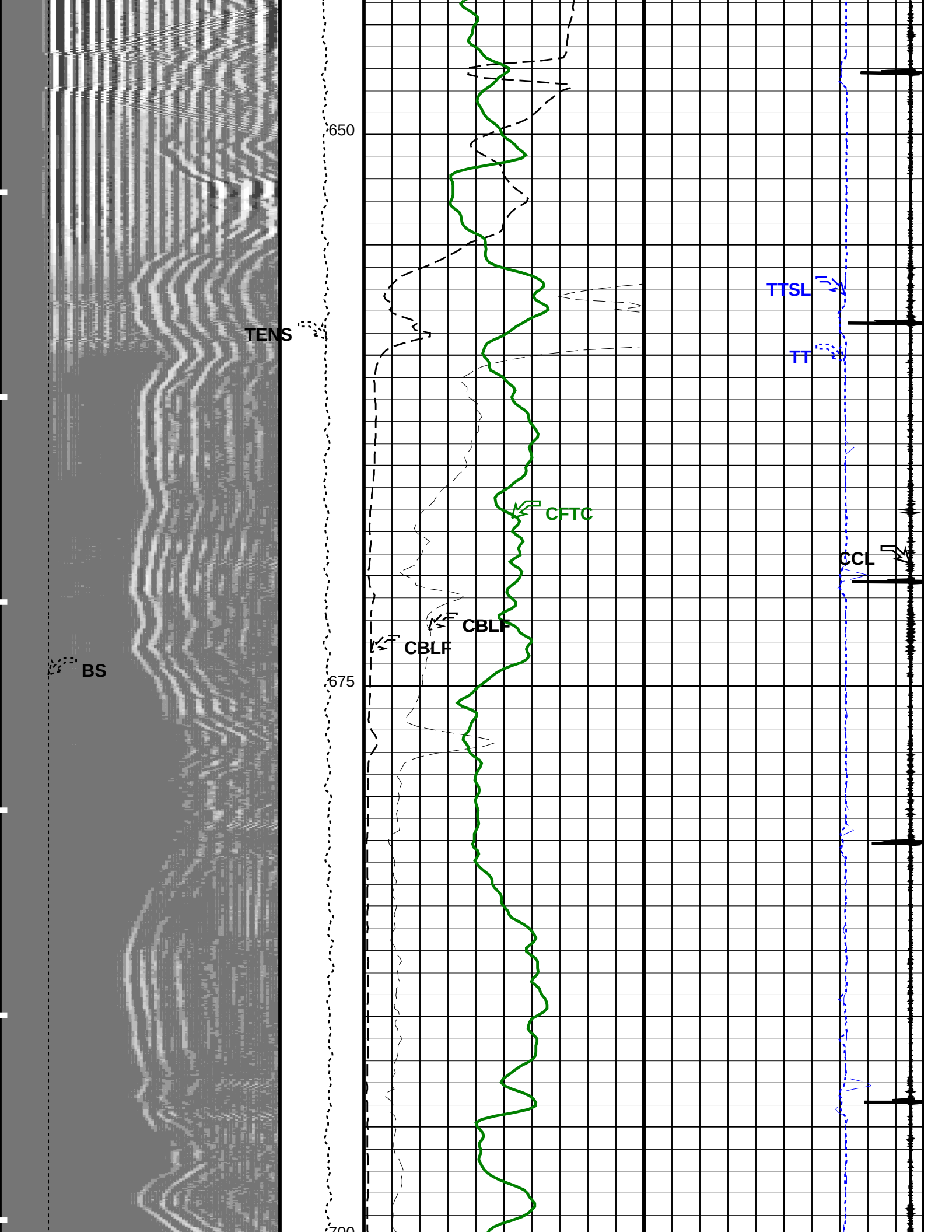
DLIS Name	New Value		Previous Value		Depth & Time
BS	8.500	IN	8.500	IN	1066.8 18:38:42
BSAL	−50000.00	PPM	−50000.00	PPM	1061.9 18:39:14
CSIZ	5.500	IN	5.500	IN	1064.0 18:39:00
CWEI	14.00	LB/F	14.00	LB/F	1063.0 18:39:07
DFD	1.00	G/C3	1.00	G/C3	1062.2 18:39:12
TDD	1270.00	M	−50000.00	M	1071.1 18:38:14
TDL	1235.00	M	−50000.00	M	1070.7 18:38:16

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
600
625
Caneria Libre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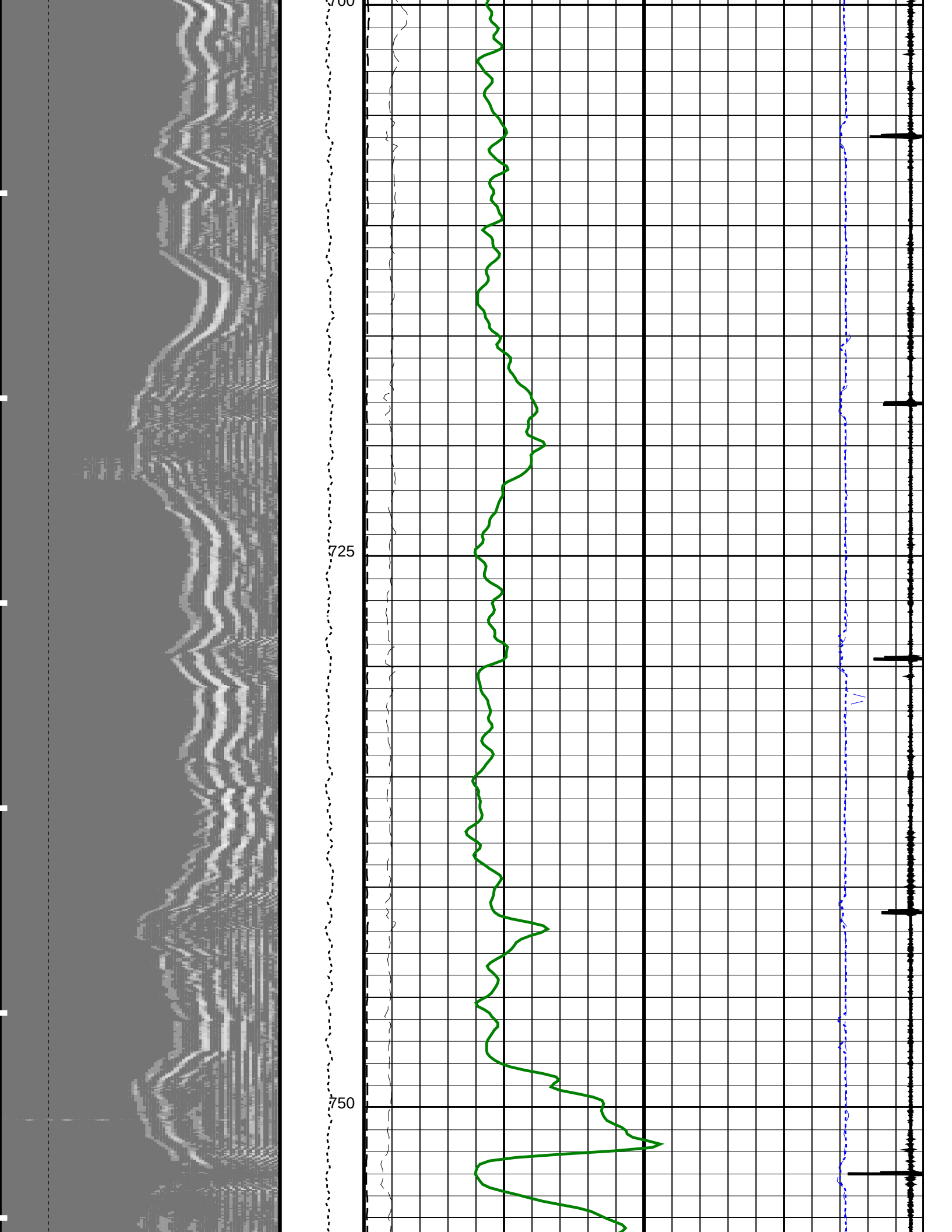
675
700
TENS
BS
CFTC
CBLF
CBLF
TTSL
TT
CCL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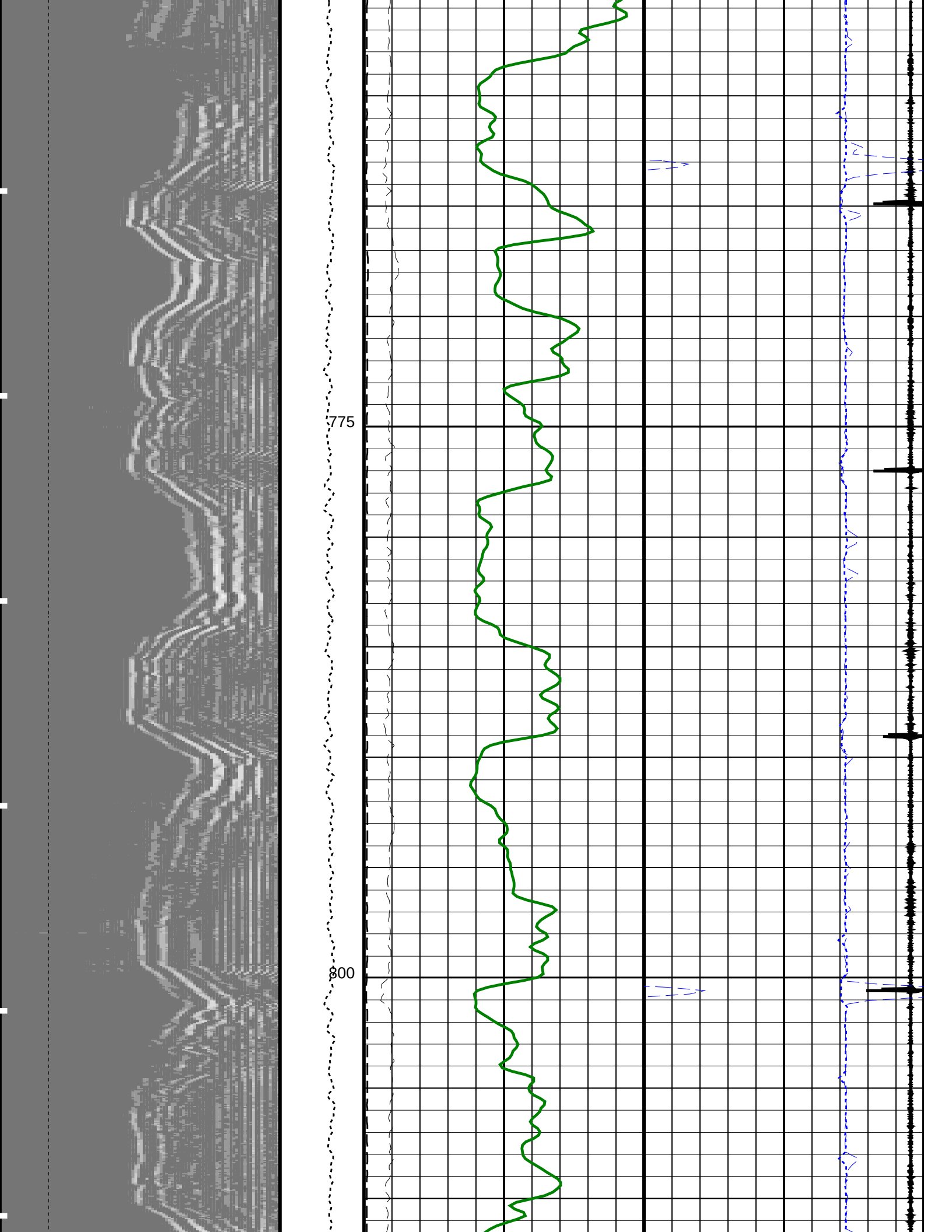
725
750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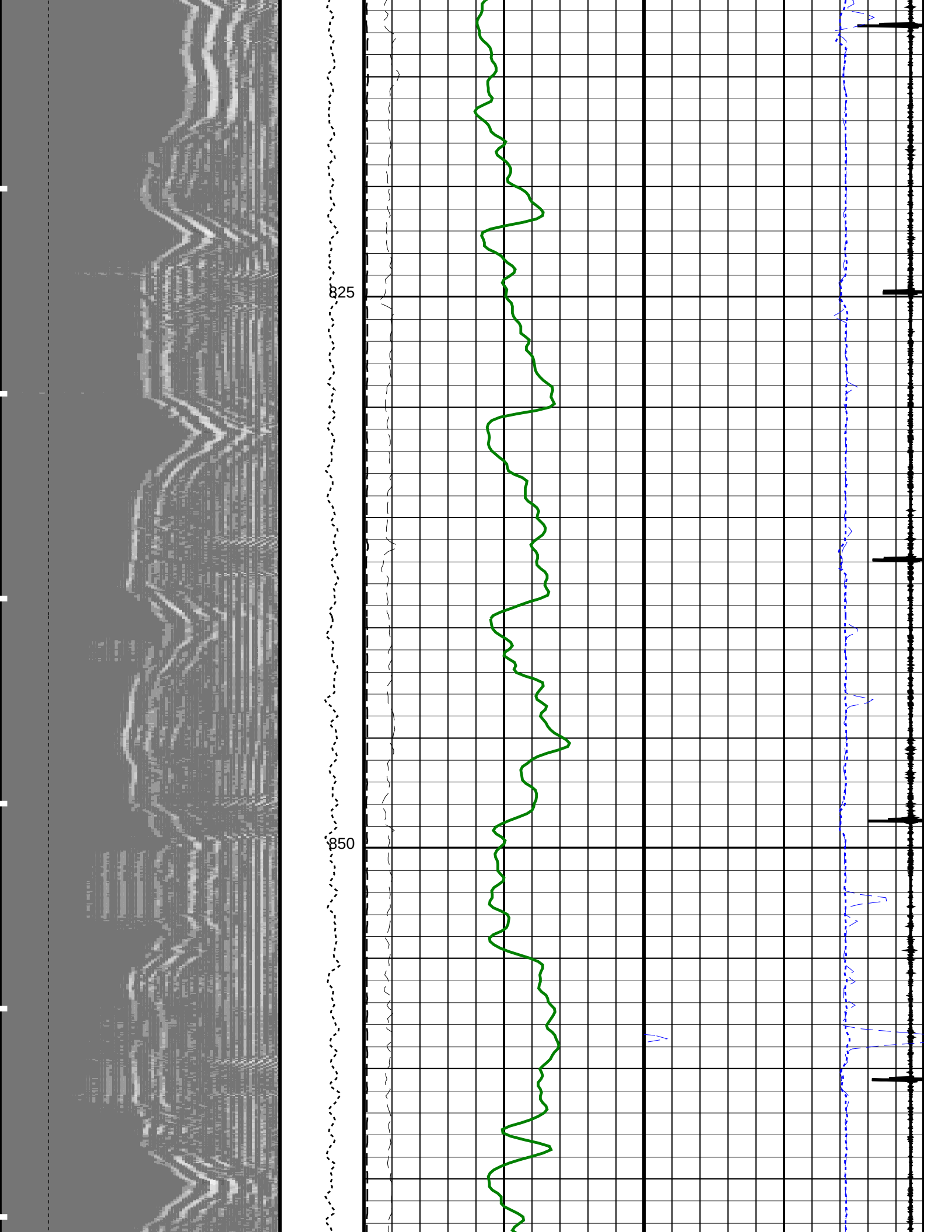
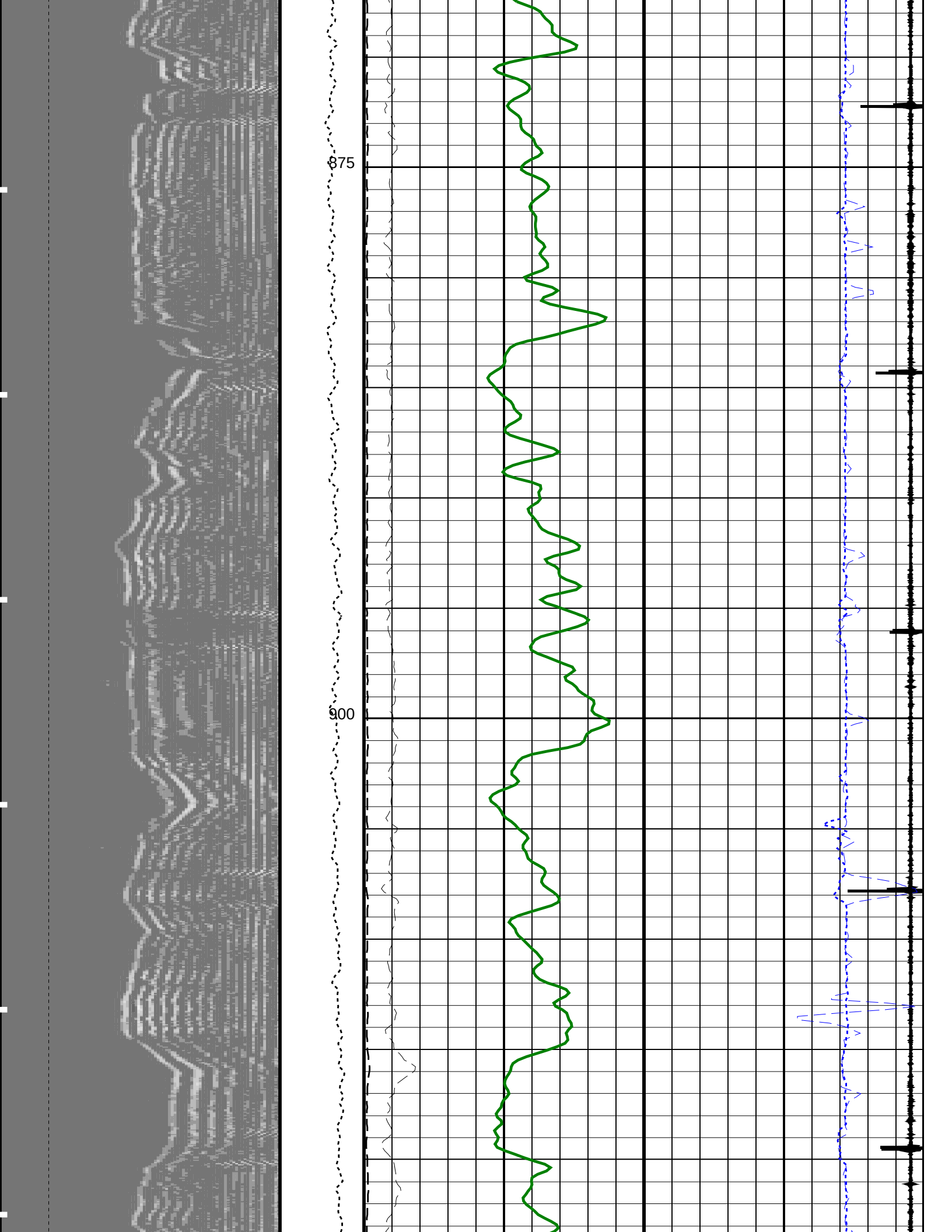
800


825
850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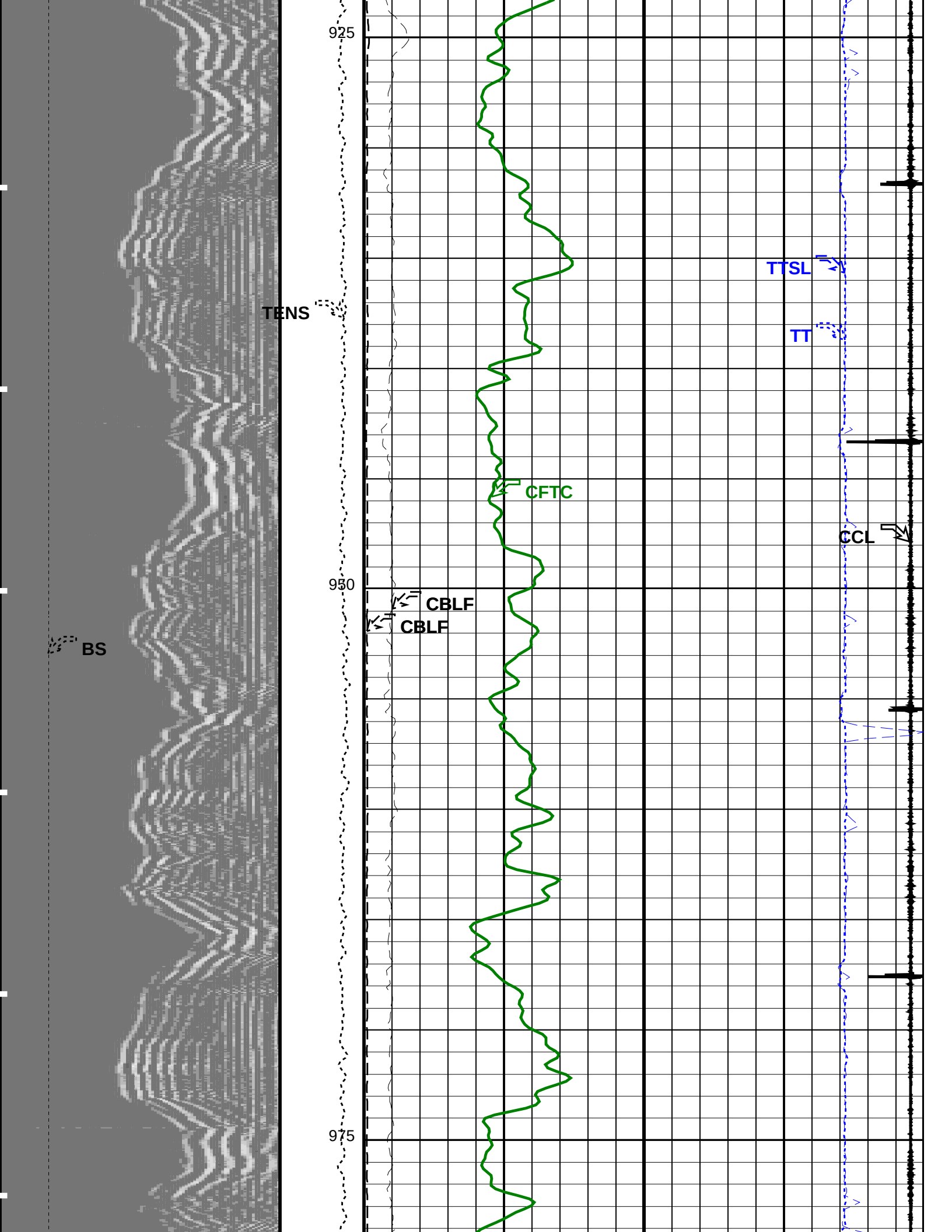
900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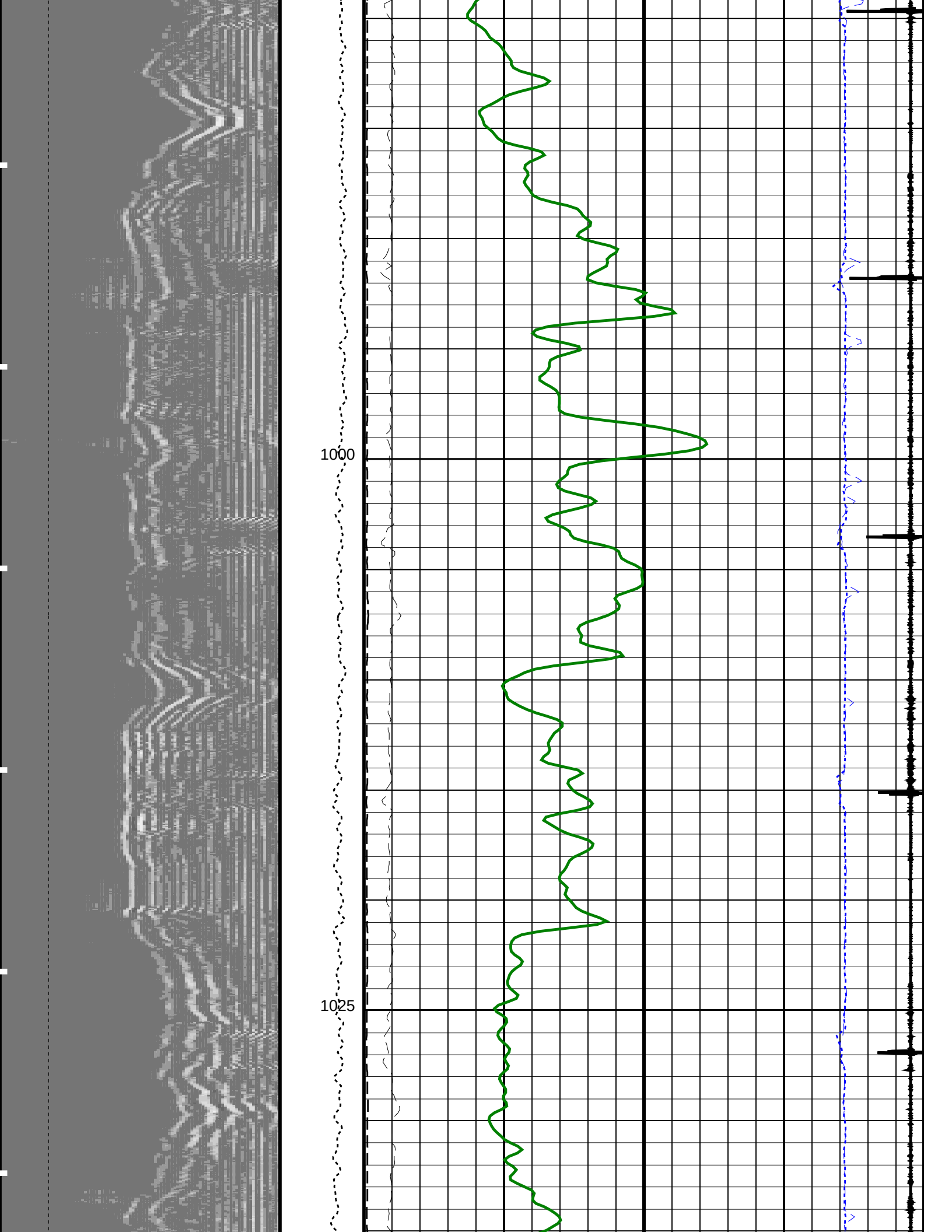
950
975
TENS
BS
CFTC
CBLF
CBLF
TTSL
TT
CCL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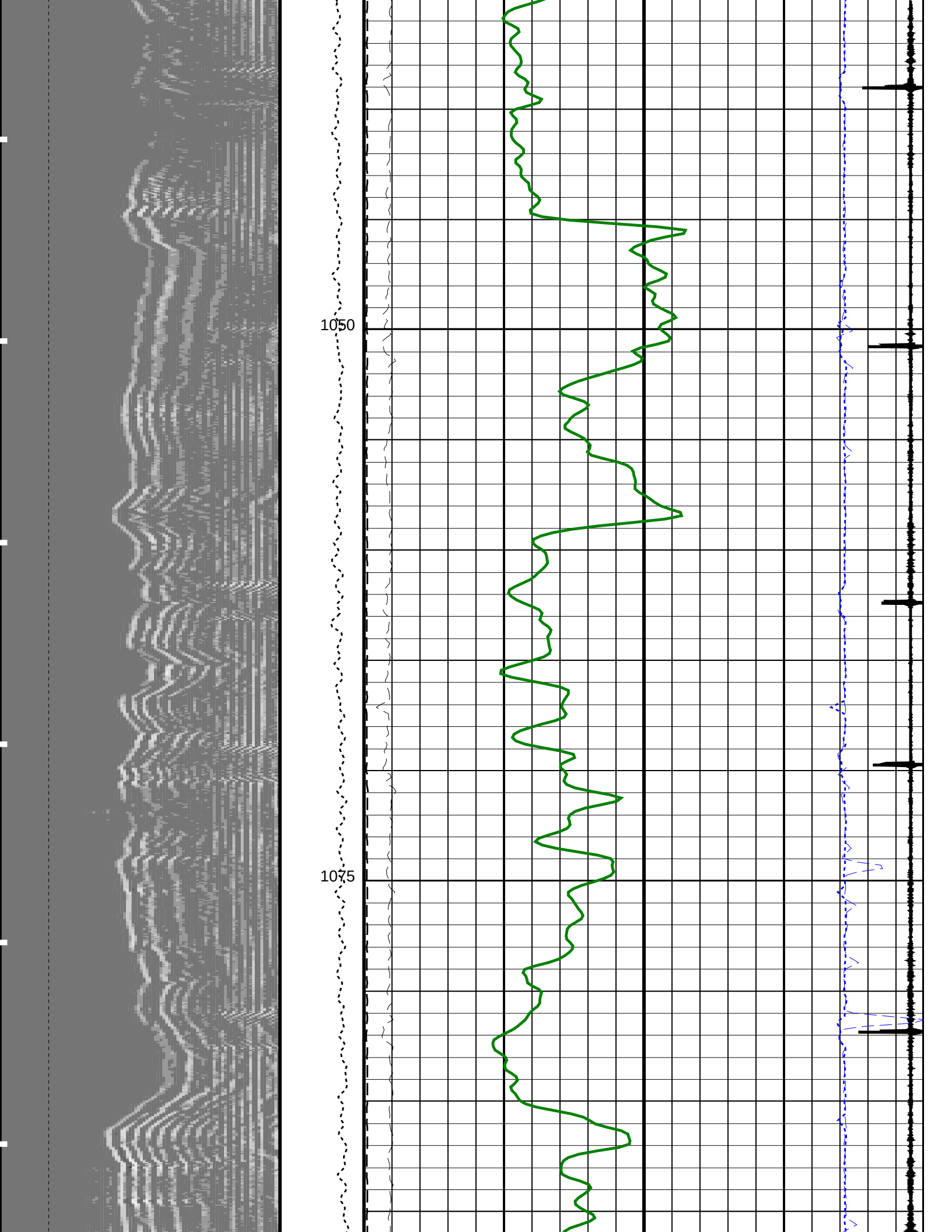
1025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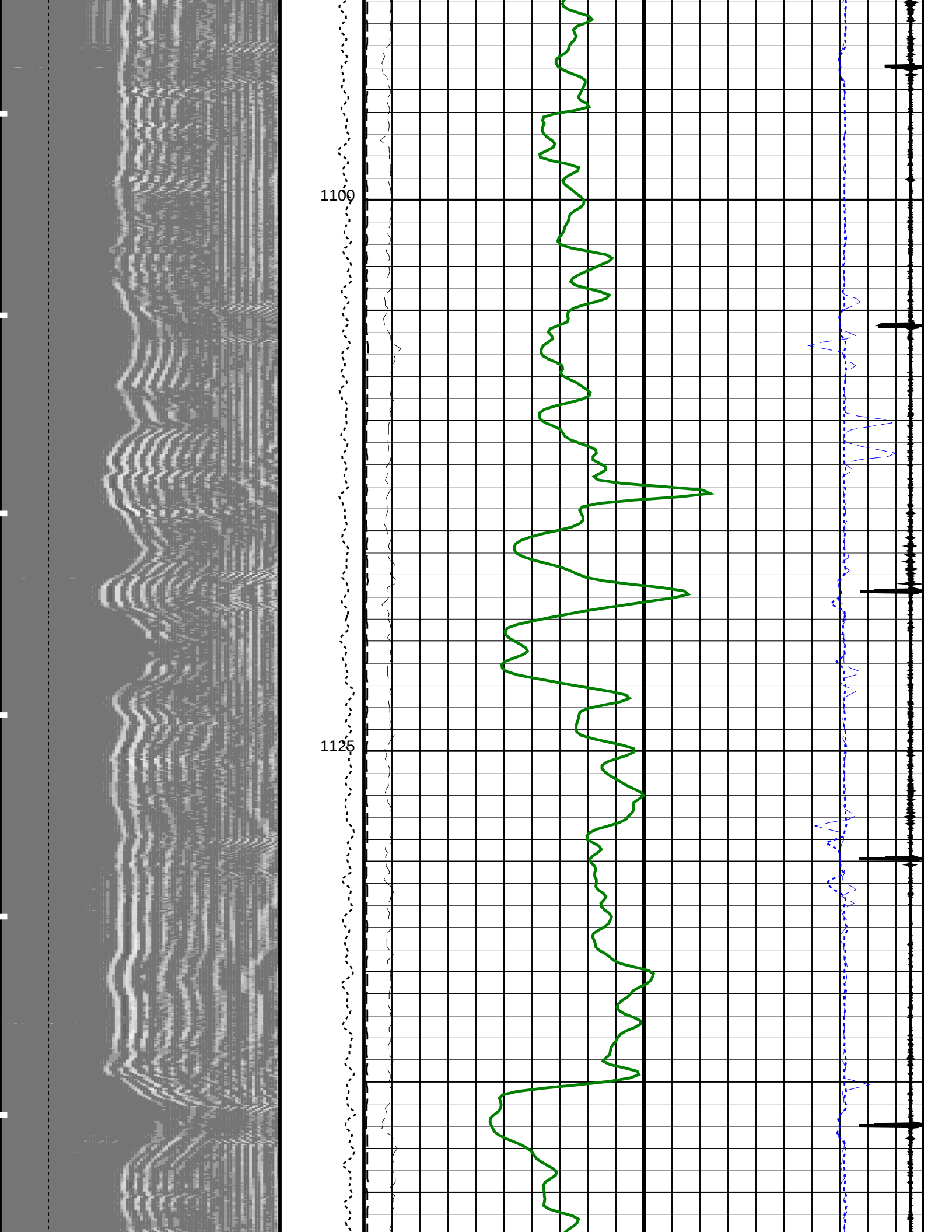
1075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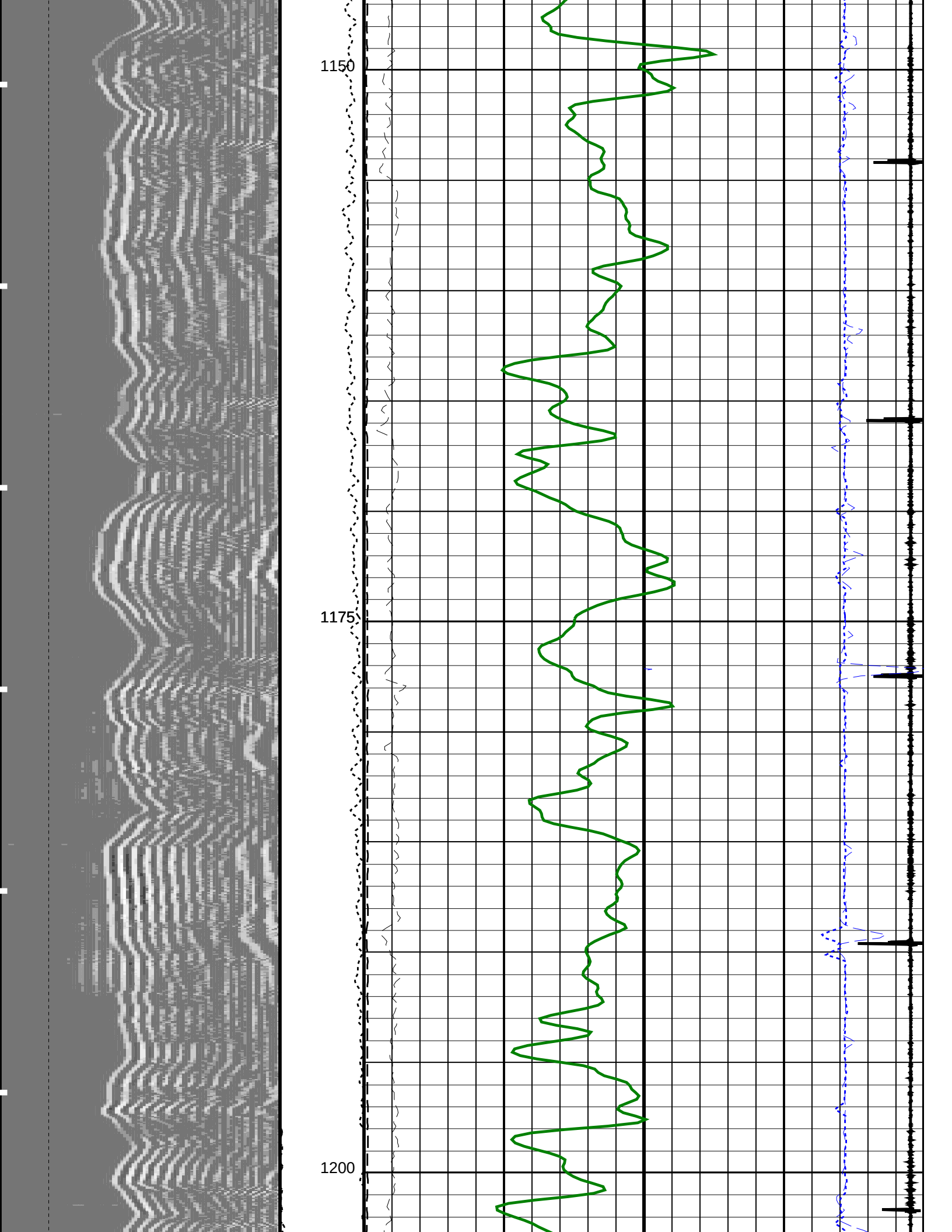
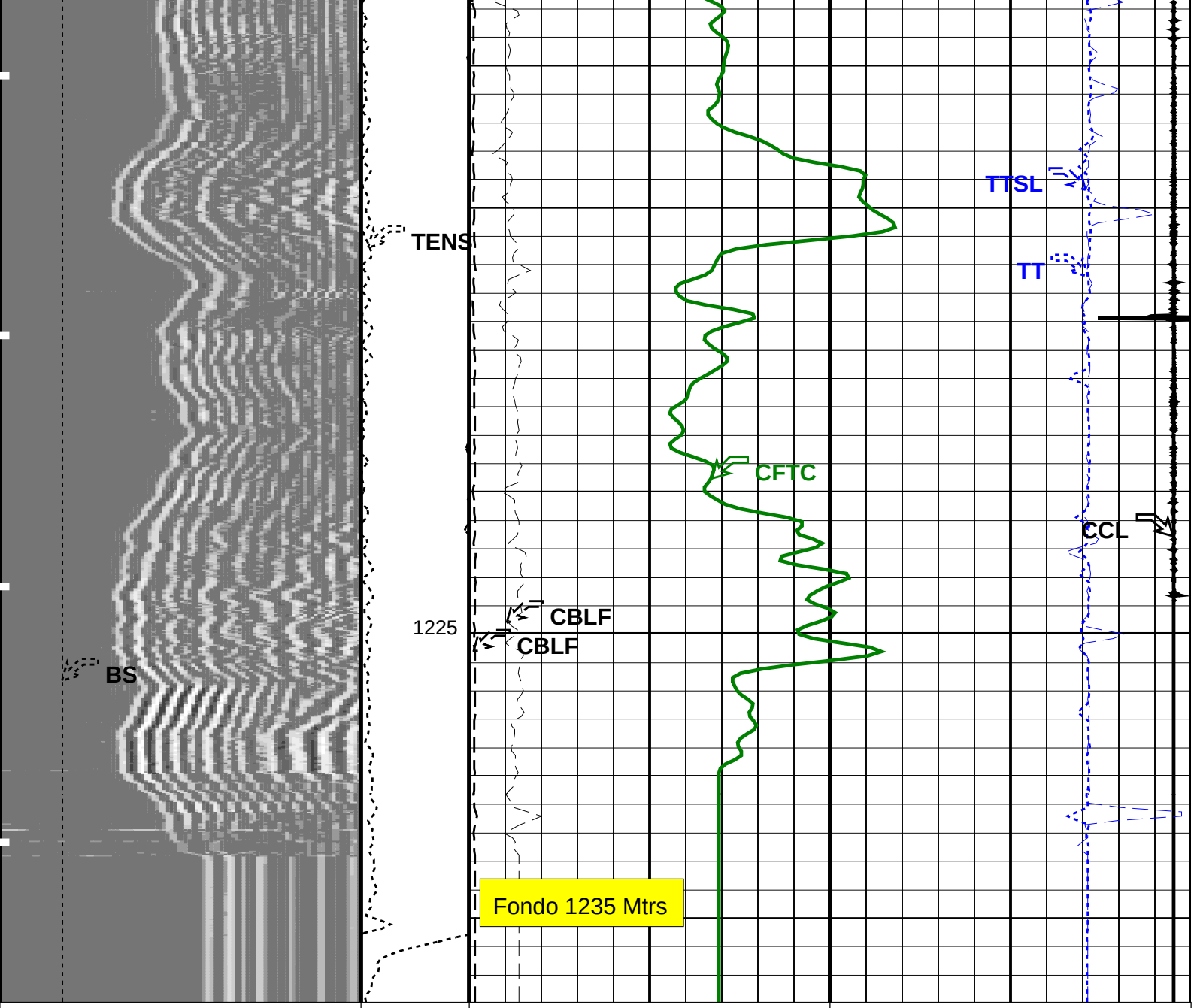
1125


1150
1175
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	0.75	
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: 06−Jun−2005 18:19

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19

MAXIS EXPRESS

Schlumberger

TRAMO REPETIDO

Company: YPF S.A. Well: YPF.Ch.LC−669

Output DLIS Files

DEFAULT	SONIC_CNL_016LUP	FN:8	PRODUCER	06−Jun−2005 19:31

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	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

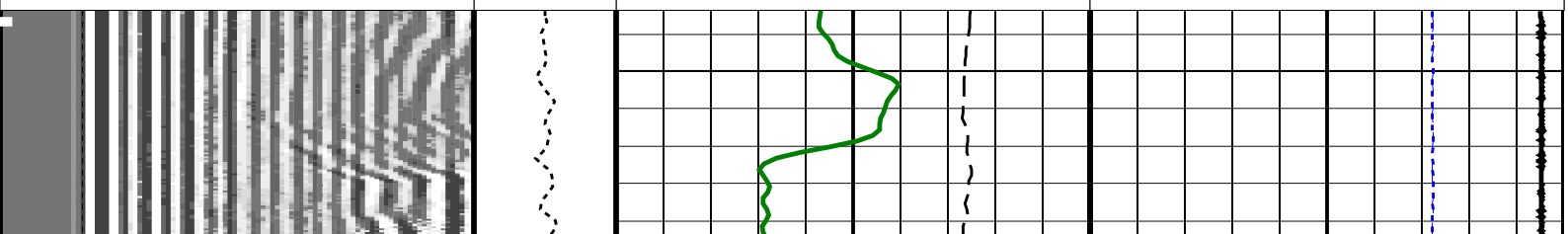
Min Amplitude Max

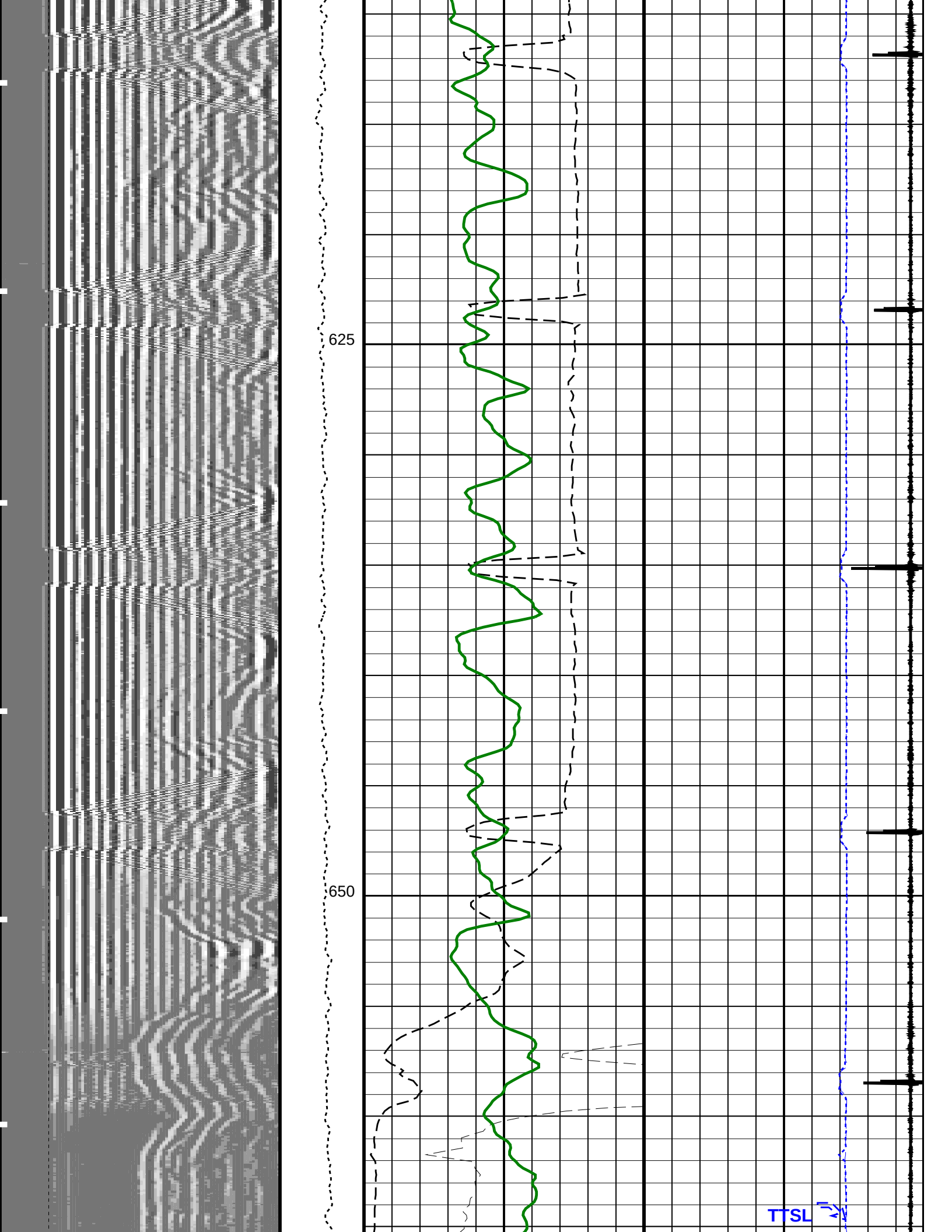
VDL VariableDensity (VDL)
200 (US) 1200

Tension (TENS) (LBF)
0 1000

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

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

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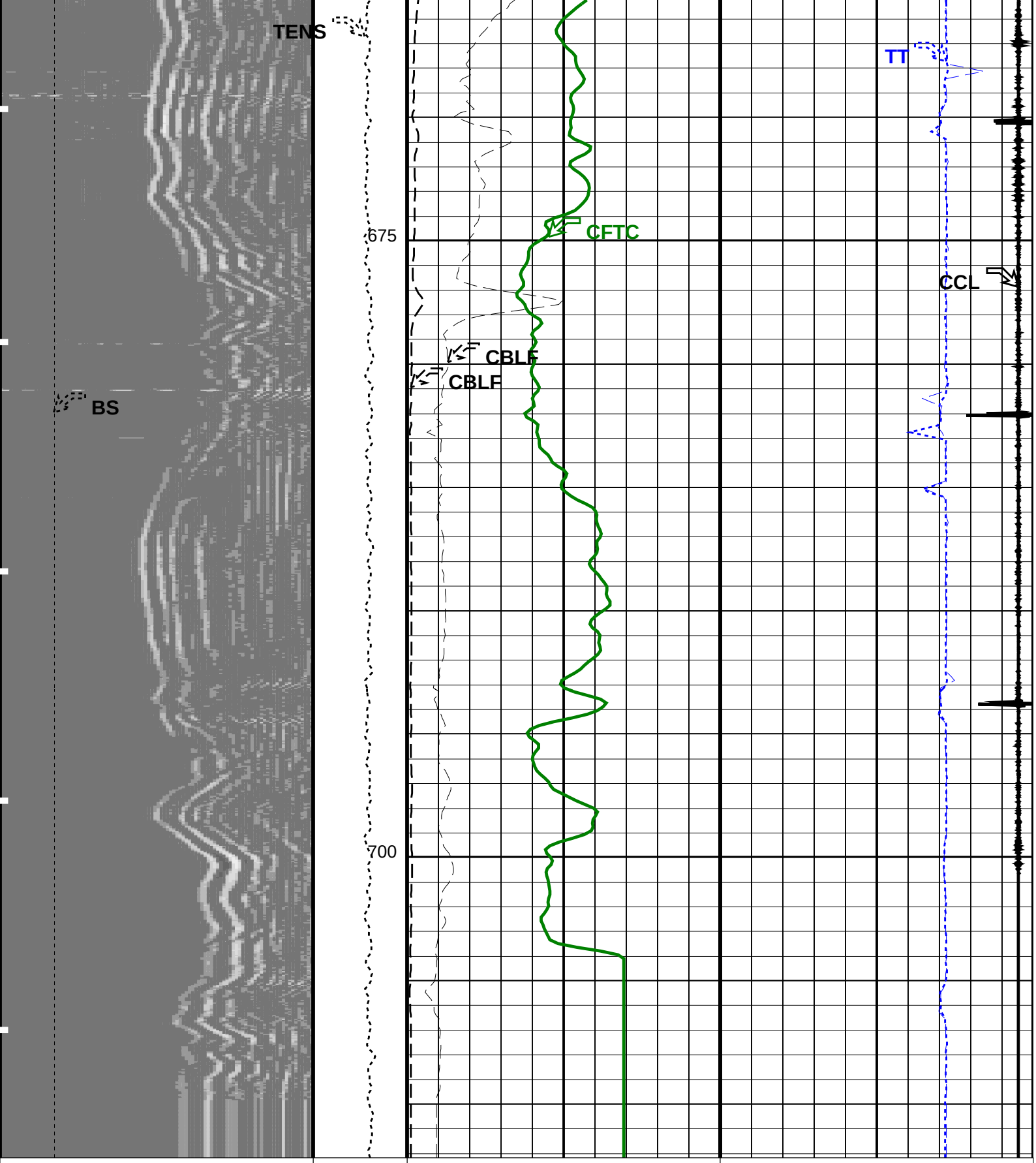
650
TTSL



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

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	0.75	
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	1270.00	M
TDL	Total Depth − Logger	1235.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated Vertical Scale: 1:200 Graphics File Created: 06−Jun−2005 19:31

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_016LUP	FN:8	PRODUCER	06−Jun−2005 19:31

MAXIS EXPRESS

Schlumberger

ANALISIS DE REPETIBILIDAD

Company: YPF S.A. Well: YPF.Ch.LC−669

Input DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19	1237.9 M	598.0 M

Output DLIS Files

DEFAULT	SONIC_CNL_016LUP	FN:8	PRODUCER	06−Jun−2005 19:31

OP System Version: 11C0−305

MCM

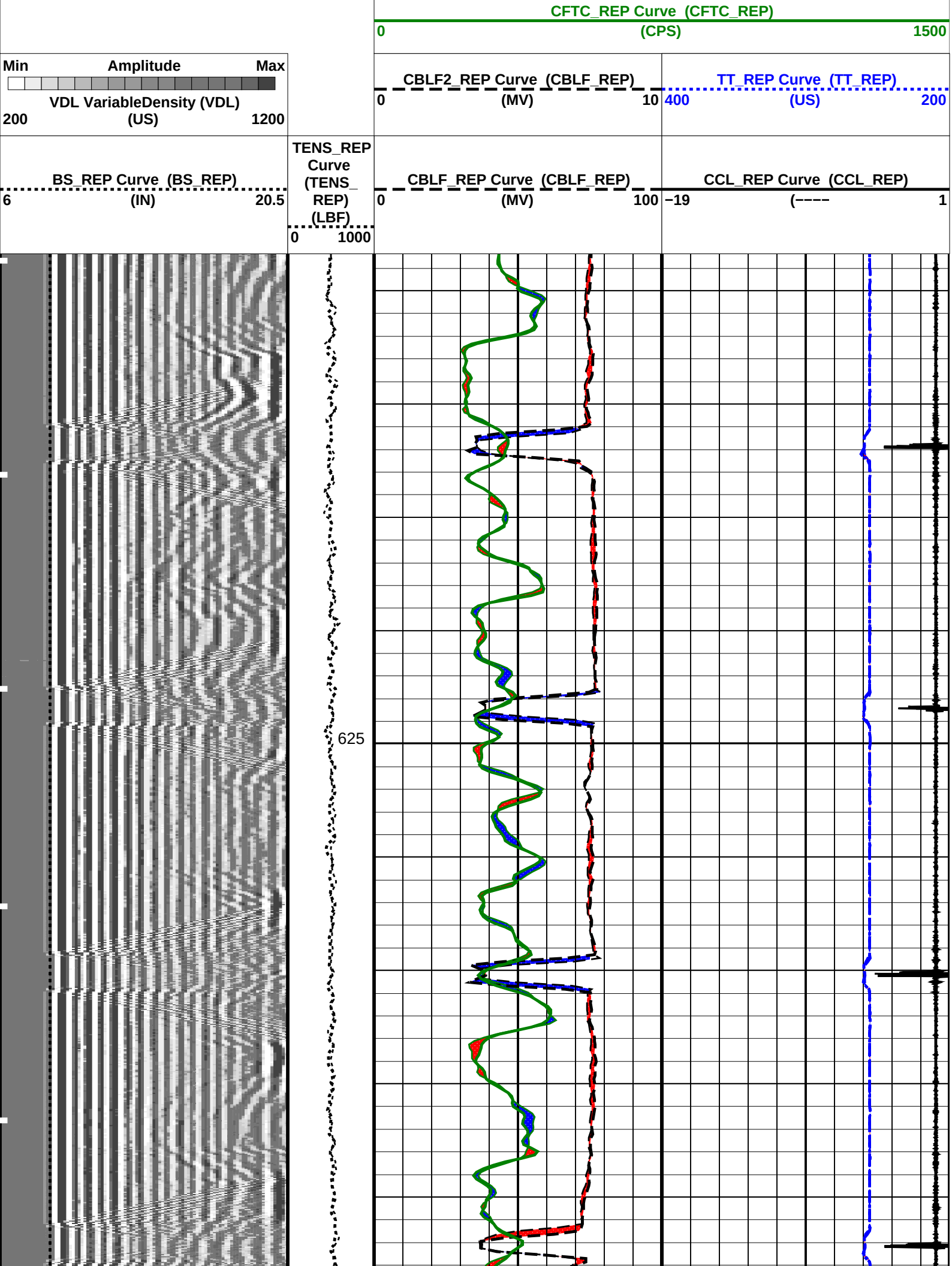
SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

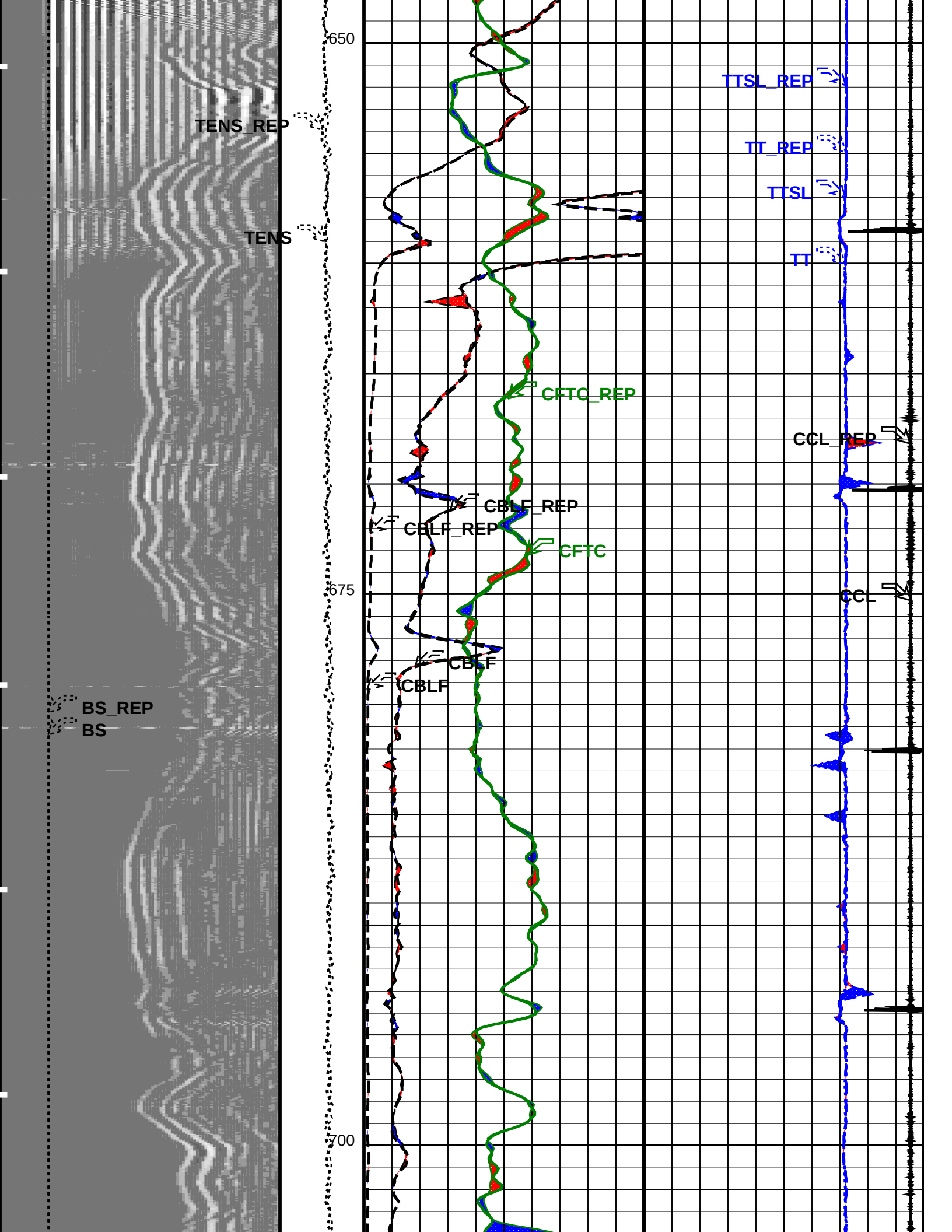
PIP SUMMARY

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
625


650
675
700
TENS_REP
TENS
BS_REP
BS
CFTC_REP
CBLF_REP
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CFTC
CBLF
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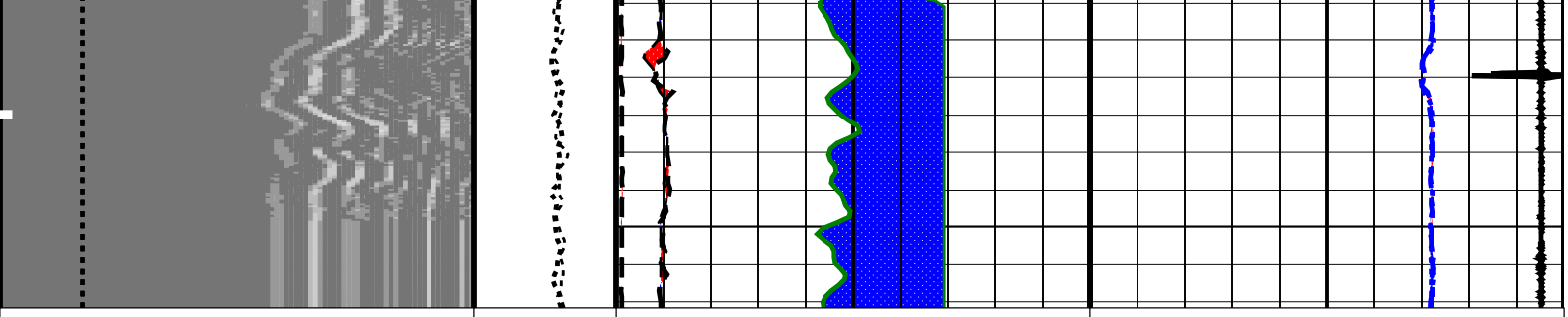
TTSL_REP
TT_REP
TTSL
TT
CCL_REP
CCL



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	0.75	
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	1270.00	M
TDL	Total Depth − Logger	1235.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: CBL_Fluid_Compensated_REP Vertical Scale: 1:200 Graphics File Created: 06−Jun−2005 19:31

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

Input DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19	1237.9 M	598.0 M

Output DLIS Files

DEFAULT	SONIC_CNL_016LUP	FN:8	PRODUCER	06−Jun−2005 19:31

TRAMO SIN CORRECCION DE PROFUNDIDAD

Company: Well:

Output DLIS Files

DEFAULT SONIC_CNL_012LUP FN:4 PRODUCER 06−Jun−2005 17:59

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	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

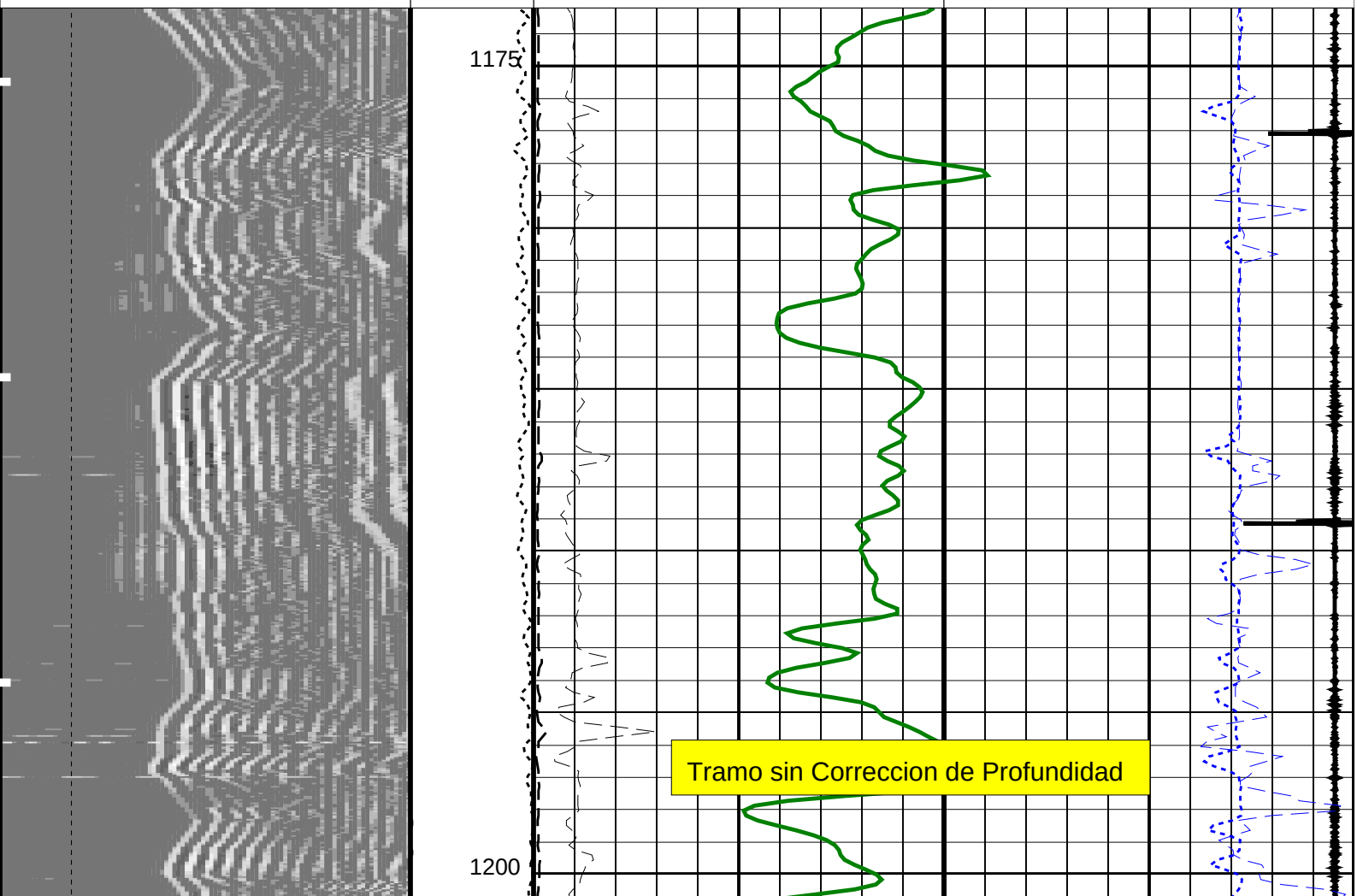
Min Amplitude Max

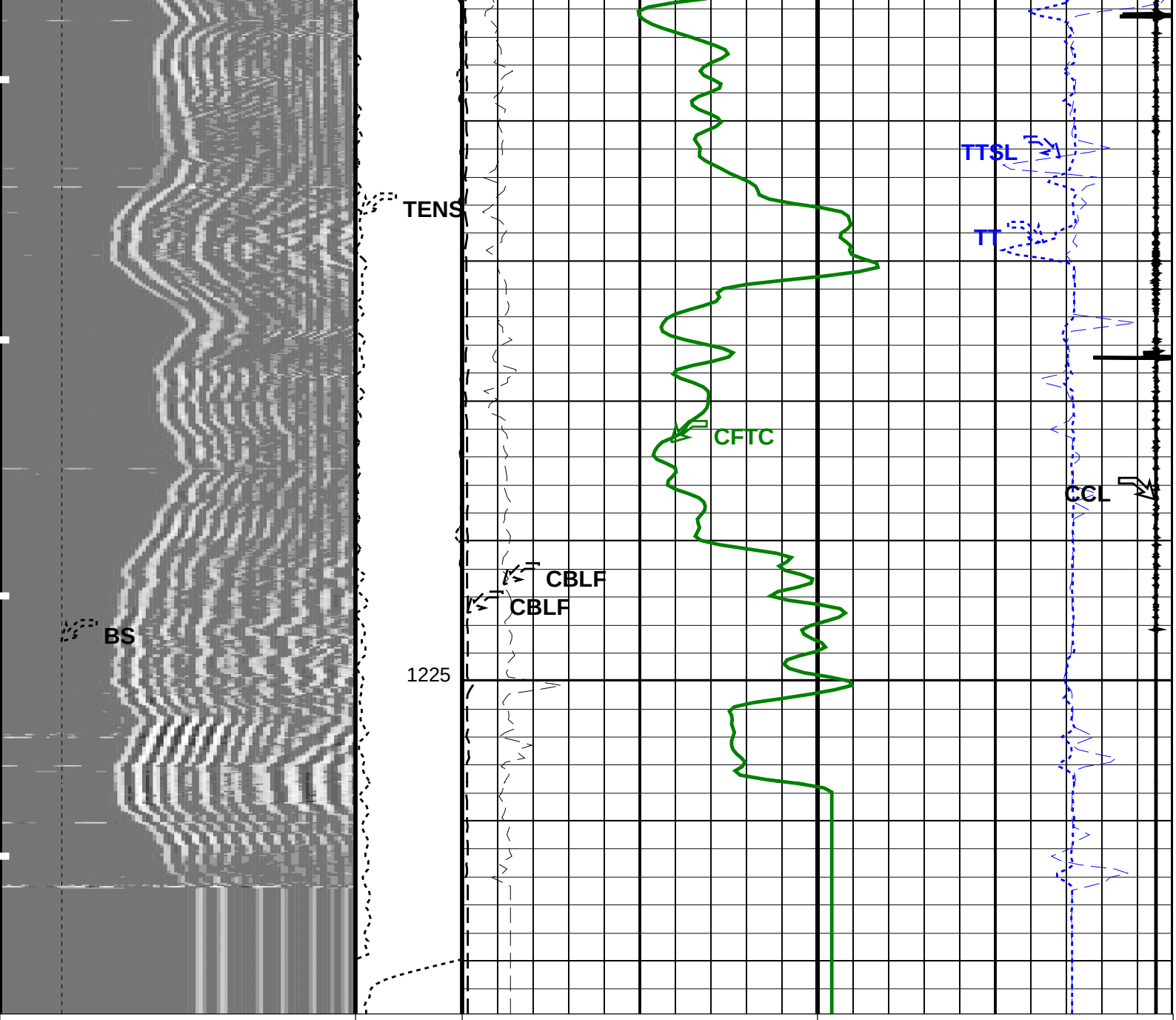
VDL VariableDensity (VDL) 200 (US) 1200

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

ASGE	Auxiliary 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	0.75	
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
PRYSADP	Use alternate depth channel for playback	NO	

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: 06−Jun−2005 17:59

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

Output DLIS Files

DEFAULT	SONIC_CNL_012LUP	FN:4	PRODUCER	06−Jun−2005 17:59

MAXIS EXPRESS

Schlumberger

Analisis de Repetibilidad en Tramo sin Correccion

Company: Well:

Input DLIS Files

DEFAULT	SONIC_CNL_013PUP	FN:5	PRODUCER	06−Jun−2005 18:19	1237.3 M	1174.1 M

Output DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	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

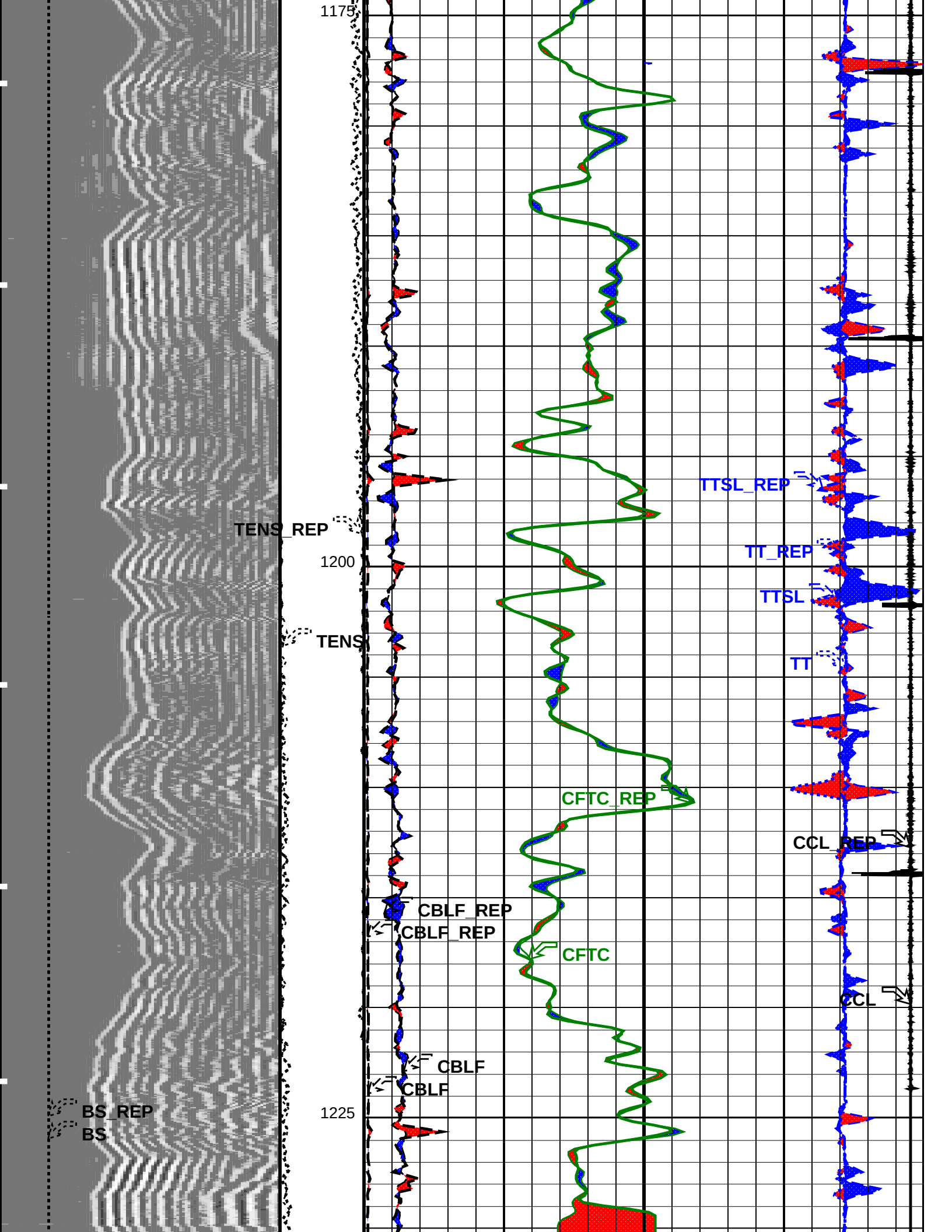
TT_REP Curve (TT_REP)
400 (US) 200

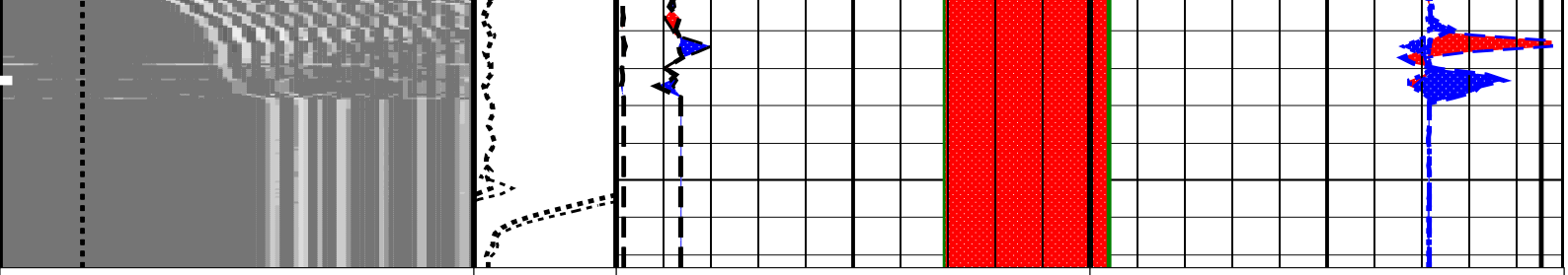
BS_REP Curve (BS_REP)
6 (IN) 20.5

TENS_REP Curve (TENS_REP) (LBF)
0 1000

CBLF_REP Curve (CBLF_REP)
0 (MV) 100

CCL_REP Curve (CCL_REP)
−19 (−−−− 1


1175
TENS_REP
1200
TENS
BS_REP
BS
1225
CBLF_REP
CBLF_REP
CBLF
CBLF
CFTC_REP
CFTC
TTSL_REP
TT_REP
TTSL
TT
CCL_REP
CCL



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	0.75	
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: 06−Jun−2005 18:19

OP System Version: 11C0−305

MCM

SDT−C	11C0−305	CNT−H	OP11−KP1
TCC−B	OP11−KP1	CAL−Y	11C0−305

Input DLIS Files

DEFAULT	SONIC_CNL_013PUP	FN:5	PRODUCER	06−Jun−2005 18:19	1237.3 M	1174.1 M

Output DLIS Files

DEFAULT	SONIC_CNL_014LUP	FN:6	PRODUCER	06−Jun−2005 18:19

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: 06−Jun−2005 17:22							
CNTC Background	1.000	0	0.5321	N/A	N/A	N/A	CPS
CFTC Background	0	0	3.758	N/A	N/A	N/A	CPS
Compensated Neutron − H Wellsite Calibration − Jig Measurement							
Master: 31−Mar−2005 11:58 Before: 06−Jun−2005 17:26							
CNTC Jig	2821	2821	2789	N/A	N/A	N/A	CPS
CFTC Jig	1169	1169	1173	N/A	N/A	N/A	CPS
CNTC/CFTC (Jig)	2.412	2.412	2.377	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	
Compensated Neutron Box	CNB − AB	
Neutron Detector without Alpha Source	CND − NA	
Compensated Neutron Box	CNB − AB	
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	Phase	CFTC Background CPS	Value
Master		0	Master		0
Before		0.5321	Before		3.758
	−0.010000 (Minimum) 1.000 (Nominal) 5.000 (Maximum)			−0.010000 (Minimum) 0 (Nominal) 5.000 (Maximum)	

Master: 31−Mar−2005 11:43 Before: 06−Jun−2005 17:22

Compensated Neutron − H Wellsite Calibration
Jig Measurement

Phase	CNTC Jig CPS	Value	Phase	CFTC Jig CPS	Value	Phase	CNTC/CFTC (Jig)	Value
Master		2821	Master		1169	Master		2.412
Before		2789	Before		1173	Before		2.377
	2679 (Minimum) 2821 (Nominal) 2962 (Maximum)			1111 (Minimum) 1169 (Nominal) 1228 (Maximum)			2.372 (Minimum) 2.412 (Nominal) 2.452 (Maximum)	

Master: 31−Mar−2005 11:58 Before: 06−Jun−2005 17:26

Compania:	**YPF S.A.**
Pozo:	**YPF.Ch.LC−669**
Campo:	**LA CAROLINA**
Provincia:	**CHUBUT**
Pais:	**ARGENTINA**

Schlumberger

CONTROL DE CEMENTO
CBL VDL CNL CCL
1/200

A: Tenorio
DE: Janzen

DISTRITO. M. BEHR / R. ALI

POZO: LC-669
ZONA: La Carolina **FECHA: 15/06/2005**
AREA: M. BEHR **EQUIPO PI-246**

OBJETIVO:

BAJAR INSTALACION DE PRODUCCION (PCP)

Fondo Pozo: 1258

DISEÑO A BAJAR:

TBG

1	BAR COLLAR 2 7/8" a +-	1190	mts
1	TBG FILTRO 2 7/8"		
2	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

DIVISION REGIONAL SUR
UNIDAD ECONOMICA CHUBUT - C.S.

Schlumberger

EQUIPO: PI-246 **POZO:** LC-669

DISTRIT0 N°: 6 **BAT:** **CIA DE CABLE:** Schlumberger
PROYECTO : DRILL 150 **CIA DE FRACTURA:** Schlumberger

ESQUEMA DE TERMINACIÓN

PEP: RS1EC.5E01.53.P0003

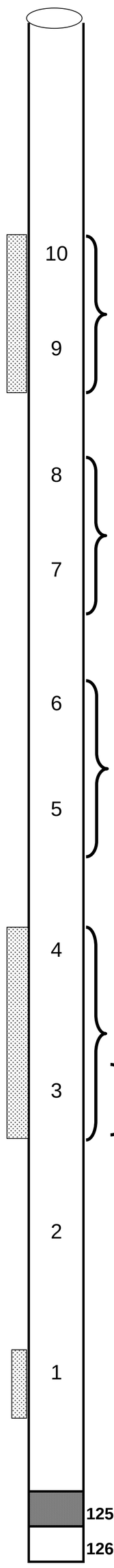
OBJETIVO: Poner en Producción

INICIO: 07-jun-05
TERMINO: 18-jun-05

CASING: 5 1/2"
9-5/8" **14 #**

ACTUAL: Pasa por administración al pozo EA-631

100 1/3



		CAUDAL	FLUIDO	NIVEL	ANALISIS I-T	DEN	Temp	A/SEP	SAL	Hs Ensayo	QB	QN
1015.00	10											
1016.00		1700	Ag S.R.	821			29		5.5/PH-8	7	40.80	
		CTA. 40 bls. PI: 400-PF: 1600-PC:2100 psi.										
1017.50	9	Ens. Hermeticidad con resultado posivito										
1019.50												
1071.00	8											
1072.50												
		1900	Pet. + Gas	900	12	0.875	19	11	4.0/PH-8	6	45.60	40.58
1077.00	7					(70º)						
1079.00												
1087.50	6											
1090.00												
1090.50	5	120	Ag. C/LRP	142			20		4.0/PH-8	8	2.88	
1093.50												
1126.50	4											
1129.00		Ensaya en cjto										
		3000	Ag. S/R	450			25		3.6/PH-8	7	72.00	
1136.00	3	Trató de ensayar se obs. Comunicación entre punzado Capas 3 y 4										
1139.50		Ctó. 40 bls. PI: 1000-PF: 2000 psi.										
		Ens. Hermeticidad con resultado positivo										
1179.00	2	300	Pet.	1073	20	0.825	12	19	3.0/PH-8		7.20	5.83
1182.00						(70º)						
1188.50	1	2400	Ag c/LRP	960			32		3.8/PH-8	6	57.60	
1192.00		Ctó. 30 bls. PI: 1130-PF: 1300 psi.										
		Ens. Hermeticidad con resultado positivo										
											226.08	46.42

Collar: 1258.80
Zapato: 1266.80
P. Final: 1270.00

WellChek® II -- Reporte Inspeccion Tubing Usado

Cliente:	REPSOL YPF	**DE:**	2 7/8"
Pozo:	LC-669	**Peso:**	6,5 lb/ft
Inspector:	Robina, Julio	**Espesor Nominal:**	0,217"
Fecha de insp.:	26/09/2007	**Grado:**	J-55
Nº de Orden:	9	**Rango:**	2
Equipo:	WELLCHEK 356	**Conexión:**	8RDEUE
Operador:	Aldrich, Sergio	**Locación:**	LA CAROLINA
Tipo de Pozo:	Producción secundaria	**Extraccion:**	A.I.B.

Banda Pintura	% Perdida de Espesor	Cantidad Por Grado	Tubos Degradados Por : Corrosion	Desgaste	Corr. y Desg.	Tubos Degradados Por : Daño Mecanico	
azul	<= 15	93				0	Rajado
						0	Agujero
amarillo	<= 16 <= 30	8	0	8	0	0	Aplastado
						0	Torcidos
rojo y blanco	<= 31 <= 50	0	0	0	0	0	Rosca Engr.
rojo	> 51	0	0	0	0	0	Otros
	TOTALES	101	0	8	0	0	

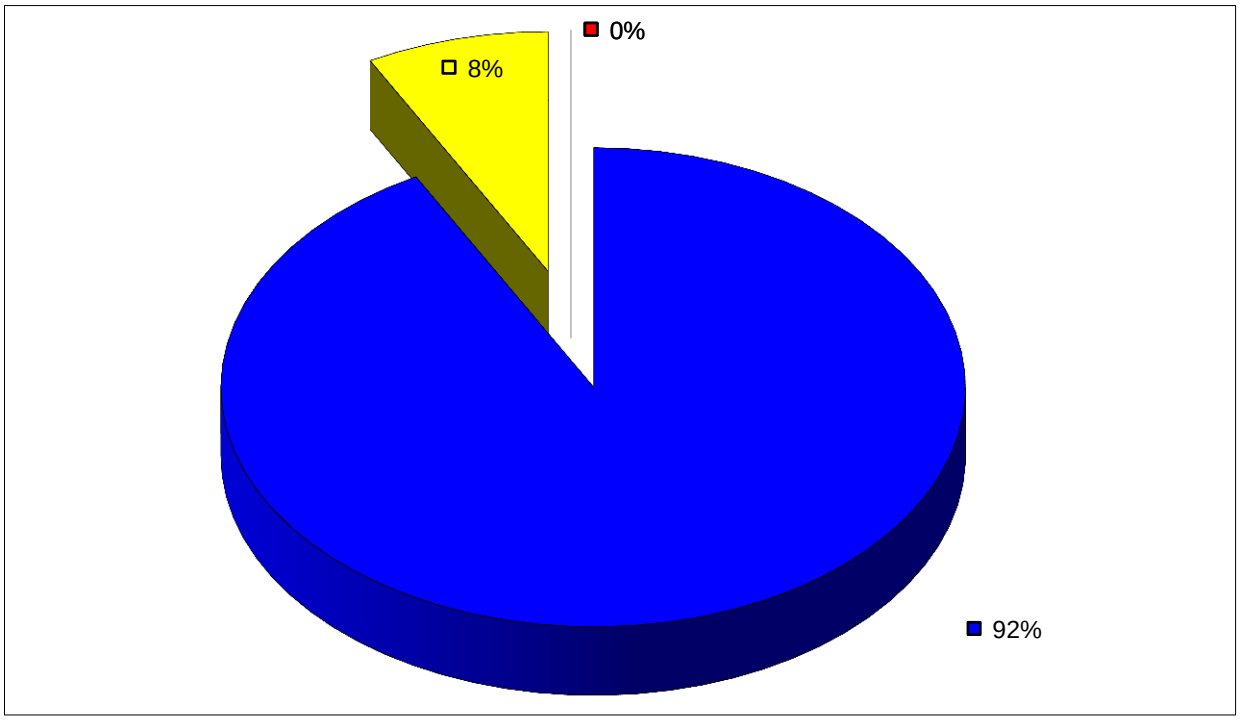
Comentarios Del Operador

Cuaquier trabajo, inspeccion ó testeo realizado por TUBOSCOPE esta en concordancia y sujeto a los terminos y condiciones de la orden de trabajo incluyendo limites de garantias. Los resultados y reportes pueden ser aún mas limitados por trabajo ó condiciones de material, o por las capacidades del equipo testeado ó inspeccionado.

Los resultados de cualquier inspeccion ó testeo reportado, ó sugerencia dada por TUBOSCOPE representa solamente opiniones de buena fe y no deben ser consideradas garantia de calidad, clasificacion ó utilidad del material

WellChek® II -- Reporte Inspeccion Tubing Usado

Cliente:	REPSOL YPF	**DE:**	2 7/8"
Pozo:	LC-669	**Peso:**	6,5 lb/ft
Inspector:	Robina, Julio	**Espesor Nominal:**	0,217"
Fecha de insp.:	26-sep-07	**Grado:**	J-55
Nº de Orden:	9	**Rango:**	2
Equipo:	WELLCHEK 356	**Conexión:**	8RDEUE
Operador:	Aldrich, Sergio	**Locación:**	LA CAROLINA
Tipo de Pozo:	Producción secundaria	**Extraccion:**	A.I.B.



Comentarios Del Operador

0

Cuaquier trabajo, inspeccion ó testeo realizado por TUBOSCOPE esta en concordancia y sujeto a los terminos y condiciones de la orden de trabajo incluyendo limites de garantias. Los resultados y reportes pueden ser aún mas limitados por trabajo ó condiciones de material, o por las capacidades del equipo testeado ó inspeccionado.

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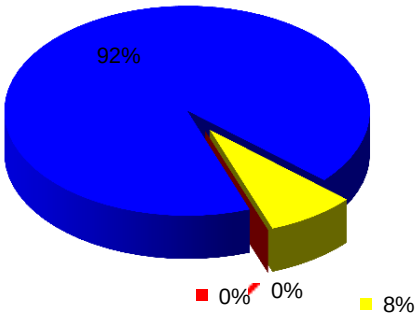
WELLCHEK

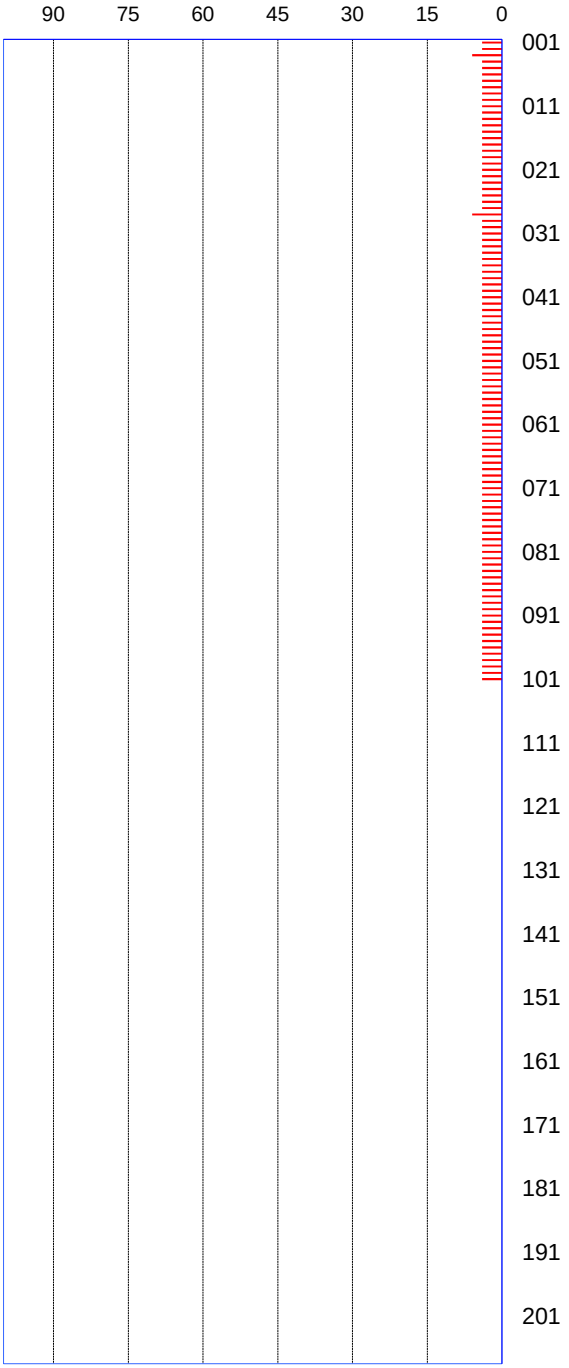
PERFIL GENERAL DE POZO

Locación:	LC-669
Fecha:	26/09/2007

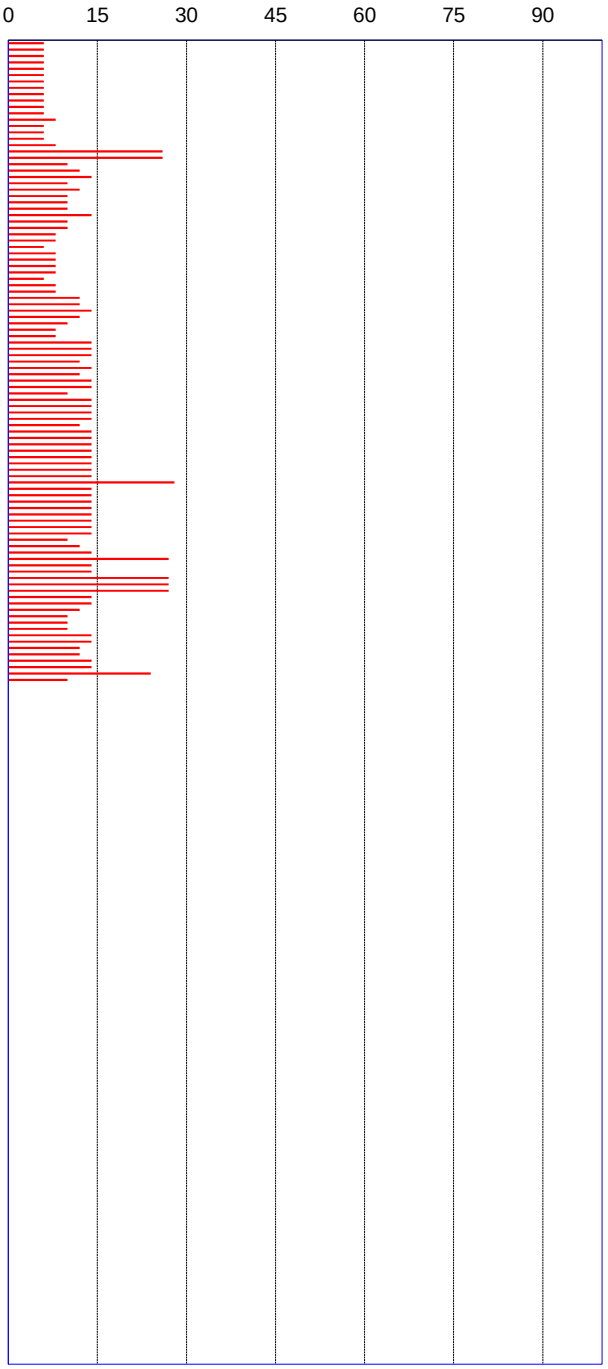
Total tubings insp	101	100,00%
Total tubings G II	93	92,08%
Total tubings G III	8	7,92%
Total tubings G IV	0	0,00%
Total tubings G V	0	0,00%



CORROSION



DESGASTE



Tuboscope NOV

Análisis de los datos

Pozo	LC-669
Fecha	26-sep-07

Equipo:	PRIDE-128
Total tbg insp.:	101

ID	Pitting	Rodwear
1	4	6
2	4	6
3	6	6
4	4	6
5	4	6
6	4	6
7	4	6
8	4	6
9	4	6
10	4	6
11	4	6
12	4	6
13	4	8
14	4	6
15	4	6
16	4	6
17	4	8
18	4	26
19	4	26
20	4	10
21	4	12
22	4	14
23	4	10
24	4	12
25	4	10
26	4	10
27	4	10
28	6	14
29	4	10
30	4	10
31	4	8
32	4	8
33	4	6
34	4	8
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36	4	8
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38	4	6
39	4	8
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41	4	12
42	4	12
43	4	14
44	4	12
45	4	10
46	4	8
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50	4	14
51	4	12
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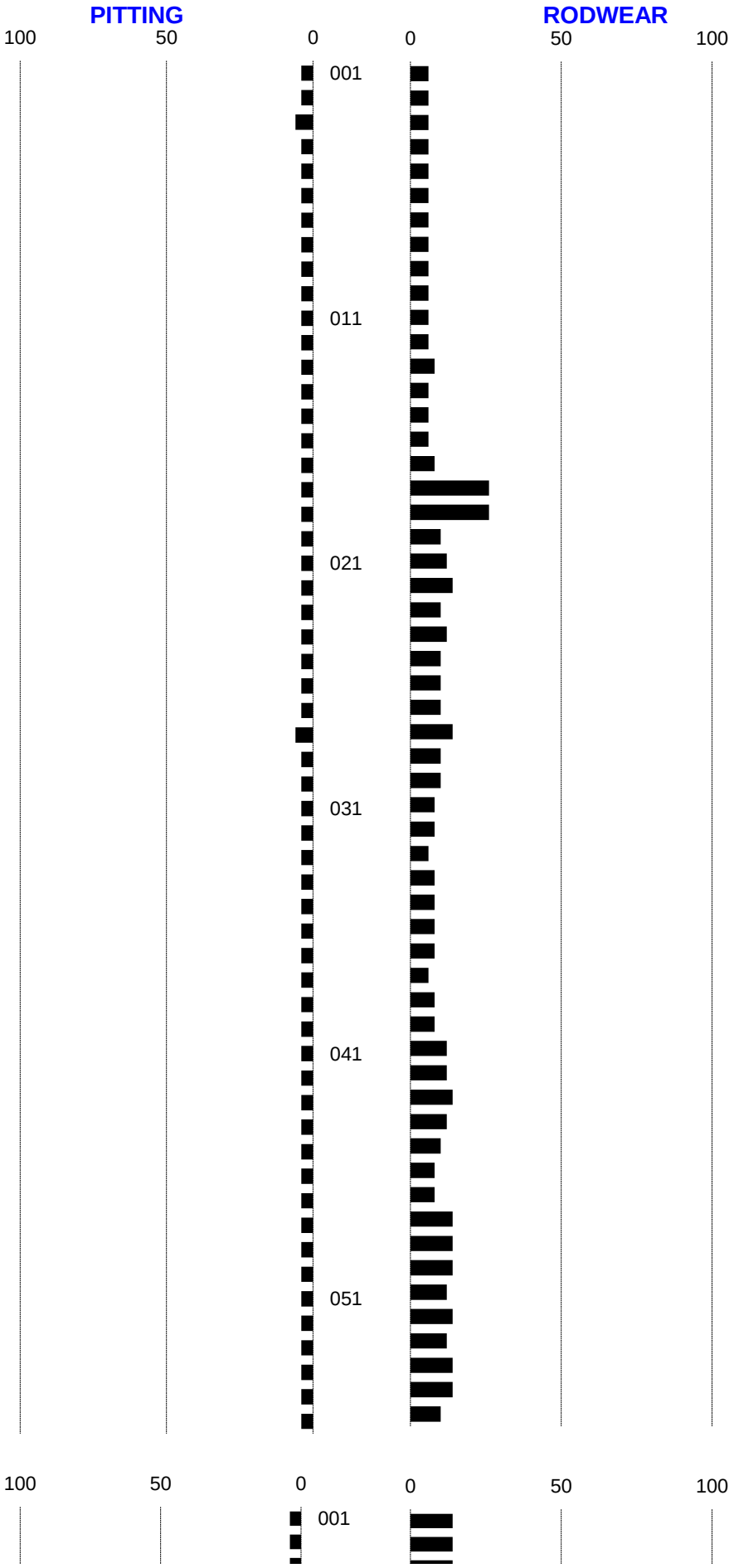

Tuboscope NOV

Análisis de los datos

Pozo	LC-669
Fecha	26-sep-07

Equipo:	PRIDE-128
Total tbg insp.:	101

ID	Pitting	Rodwear
61	4	12
62	4	14
63	4	14
64	4	14
65	4	14
66	4	14
67	4	14
68	4	14
69	4	14
70	4	28
71	4	14
72	4	14
73	4	14
74	4	14
75	4	14
76	4	14
77	4	14
78	4	14
79	4	10
80	4	12
81	4	14
82	4	27
83	4	14
84	4	14
85	4	27
86	4	27
87	4	27
88	4	14
89	4	14
90	4	12
91	4	10
92	4	10
93	4	10
94	4	14
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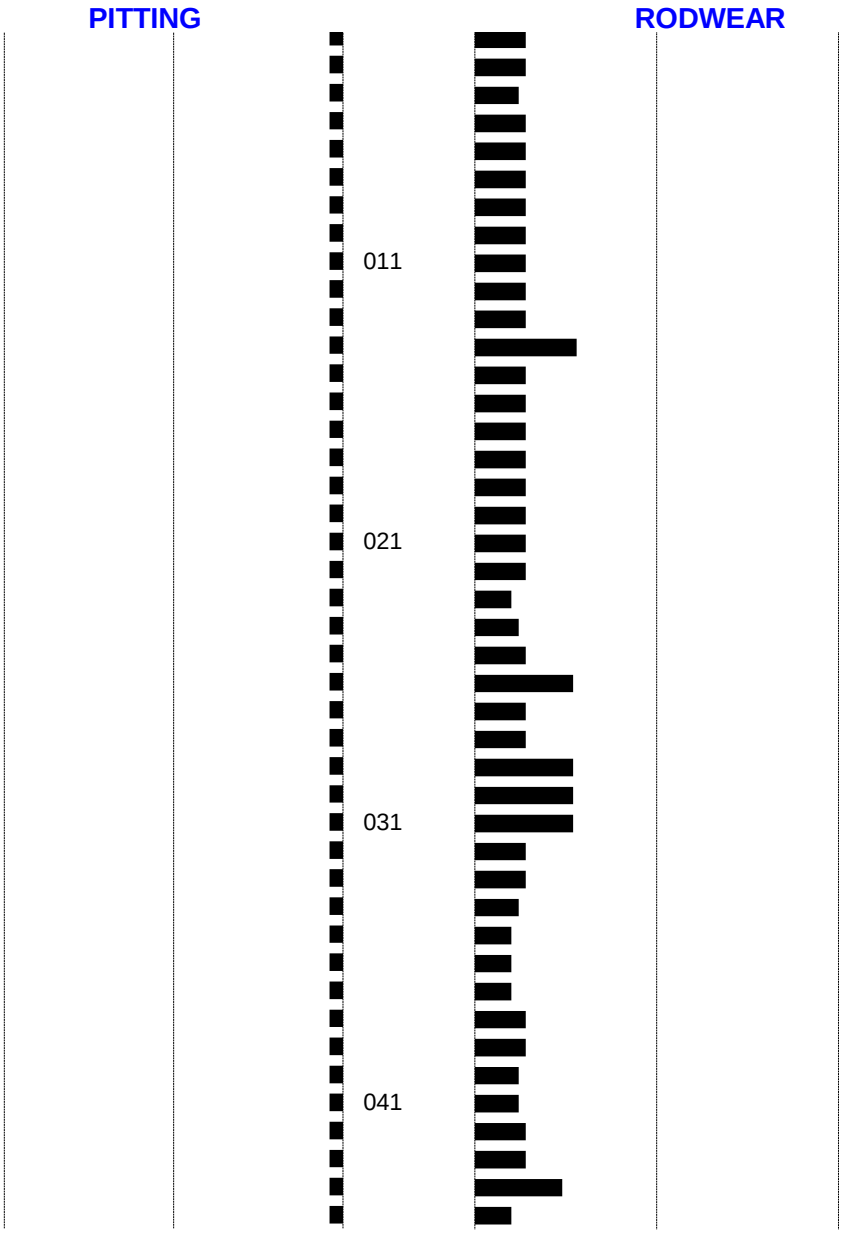
96	4	12
97	4	12
98	4	14
99	4	14
100	4	24
101	4	10



	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-669
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: 5133-12CR

Fecha Informe: 07/09/2012

INFORME DE ENSAYO

PETROLEO HIDRATADO

DETERMINACION	NORMA	UNIDAD	VALOR
%AT (%AL+D4007)	S/N	% v/v	12
%Agua Libre			0
IMPUREZA TOTAL	ASTM D-4007 Mod según acuerdo con cliente	% v/v	12
ARENA Y BARRO			0
AGUA SEPARADA			8
EMULSION			4
AGUA EXACTA			12
DENSIDAD DE PETROLEO A 15ºC	ASTM D-5002	grs/cm3	0,9364
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	0,9262
% PARAFINA	UOP-86 mod	% v/v	7
% ASFALTENO	SPE-23810	% v/v	9

VISCOSIDAD 300RPM				
TEMPERATURA	**30ºC**	POR REOMETRO	Cp	2723
	40ºC			1447
	50ºC			822

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

OBSERVACIONES:

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Mario Faibiscob
Rep.Tec.Epsilon SRL