

Company: Esso Australia Pty Ltd.

Well: A-18

Field: Marlin

Rig: Prod 4 / Crane

Country: Australia

RST-C
Sigma
Survey

Rig: Prod 4 / Crane
Field: Marlin
Location: Gippsland
Well: A-18
Company: Esso Australia Pty Ltd.

LOCATION			
Gippsland	Elev.:	K.B.	27.4 m
Basin		G.L.	-59 m
Bass Strait		D.F.	27.4 m
Permanent Datum:	M.S.L.	Elev.:	0 m
Log Measured From:	D.F.	27.4 m	above Perm. Datum
Drilling Measured From:	D.F.		

State: Victoria	Max. Well Deviation 51 deg	Longitude 148 13'09.81"E	Latitude 038 13'55.49"S
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Logging Date	23-Oct-2007
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Run Number	One
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Depth Driller	1874 m
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Schlumberger Depth	1873 m
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Bottom Log Interval	1860 m
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Top Log Interval	1710 m
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Casing Fluid Type	Production Fluid
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Salinity	
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Density	
---------	--

Fluid Level	
-------------	--

BIT/CASING/TUBING STRING	
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Bit Size	12.250 in
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From	669.7 m
------	---------

To	1924.8 m
----	----------

Casing/Tubing Size	9.625 in
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Weight	40 lbn/ft
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Grade	N-80
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From	12.49 m
------	---------

To	1923.47 m
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Maximum Recorded Temperatures	178 degF	
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Logger On Bottom	23-Oct-2007	19:25
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Unit Number	889	Ausl / Prod 4
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Recorded By	G Wright, S Gilbert
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Witnessed By	G Rimmer, A Smyth
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Run 1

PVT DATA

Oil Density

Water Salinity

Gas Gravity

Bo

Bw

1/Bg

Bubble Point Pressure

Bubble Point Temperature

Solution GOR

Maximum Deviation

CEMENTING DATA

Primary/Squeeze

Casing String No

Lead Cement Type

Volume

Density

Water Loss

Additives

Tail Cement Type

Volume

Density

Water Loss

Additives

Expected Cement Top

Logging Date

Run Number

Depth Driller

Schlumberger Depth

Bottom Log Interval

Top Log Interval

Casing Fluid Type

Salinity

Density

Fluid Level

BIT/CASING/TUBING STRING

Bit Size

From

To

Casing/Tubing Size

Weight

Grade

From

To

Maximum Recorded Temperatures

Logger On Bottom

Unit Number

Recorded By

Witnessed By

DEPTH SUMMARY LISTING

Date Created: 23-OCT-2007 7:18:03

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-EB Serial Number: 6373 Calibration Date: 04-Jan-2007 Calibrator Serial Number: 9 Calibration Cable Type: 2-32ZT Wheel Correction 1: -2 Wheel Correction 2: -4	Type: PSDS/OSDS Serial Number: 325357 Calibration Date: 10-Oct-2007 Calibrator Serial Number: 1174 Calibration Gain: 0.89 Calibration Offset: 180.00	Type: 2-32ZT Serial Number: 24426 Length: 5584.85 M Conveyance Method: Wireline Rig Type: Rigless

Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	Solar composite log.
Reference Log Run Number:	
Reference Log Date:	0

Depth Control Remarks

1. IDW used as primary depth control
2. Z Chart used as secondary depth control
3.
4.
5.
6.

DISCLAIMER

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

OTHER SERVICES ¹
OS1: None
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
Log correlated to Solar composite supplied with logging program.
Maximum well deviation = 51 degree's at 1747m MDKB.
RST-C Sigma survey with the well shut-in.
Pass one was a Gamma-Ray survey over the interval
Passes 2 and 3 were RST-C Sigma survey over the same interval.
Logging Interval: HUD to 1710m MDKB

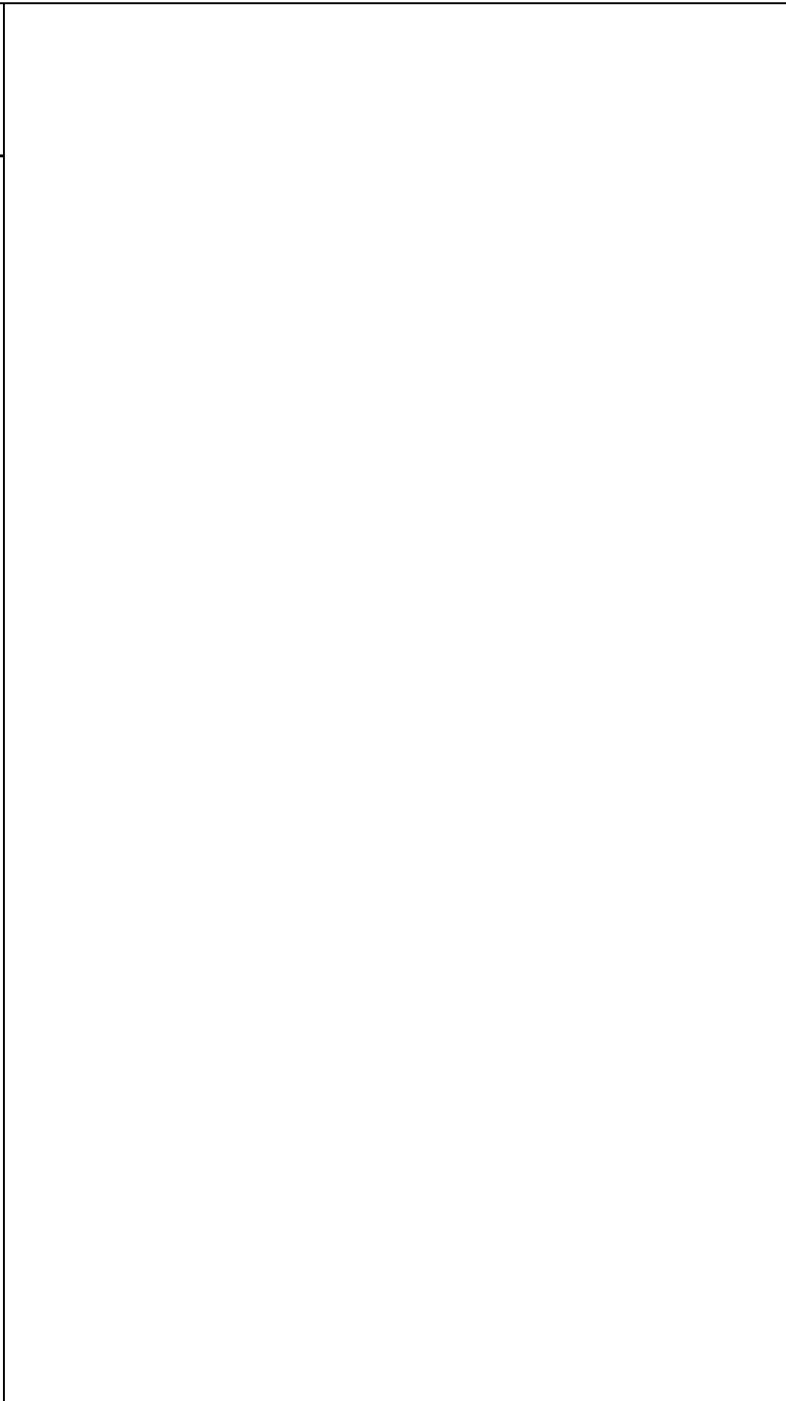
Logging Interval: HUD to 1710m MDKB
SBHP: 2072 psia @ 1865m MDKB
SBHT : 177degf @ 1865m MDKB
HUD: 1873 m MDKB
SLB Crew : J Light , J Annear , K Kerr , B Taylor

RUN 1					
SERVICE ORDER #:		AusI07509094			
PROGRAM VERSION:		14C0-302			
FLUID LEVEL:		0 m			
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

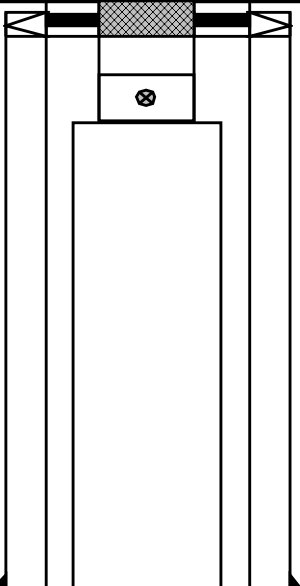
SURFACE EQUIPMENT	
WITM-A 806	
PSC_16MHZ 827	

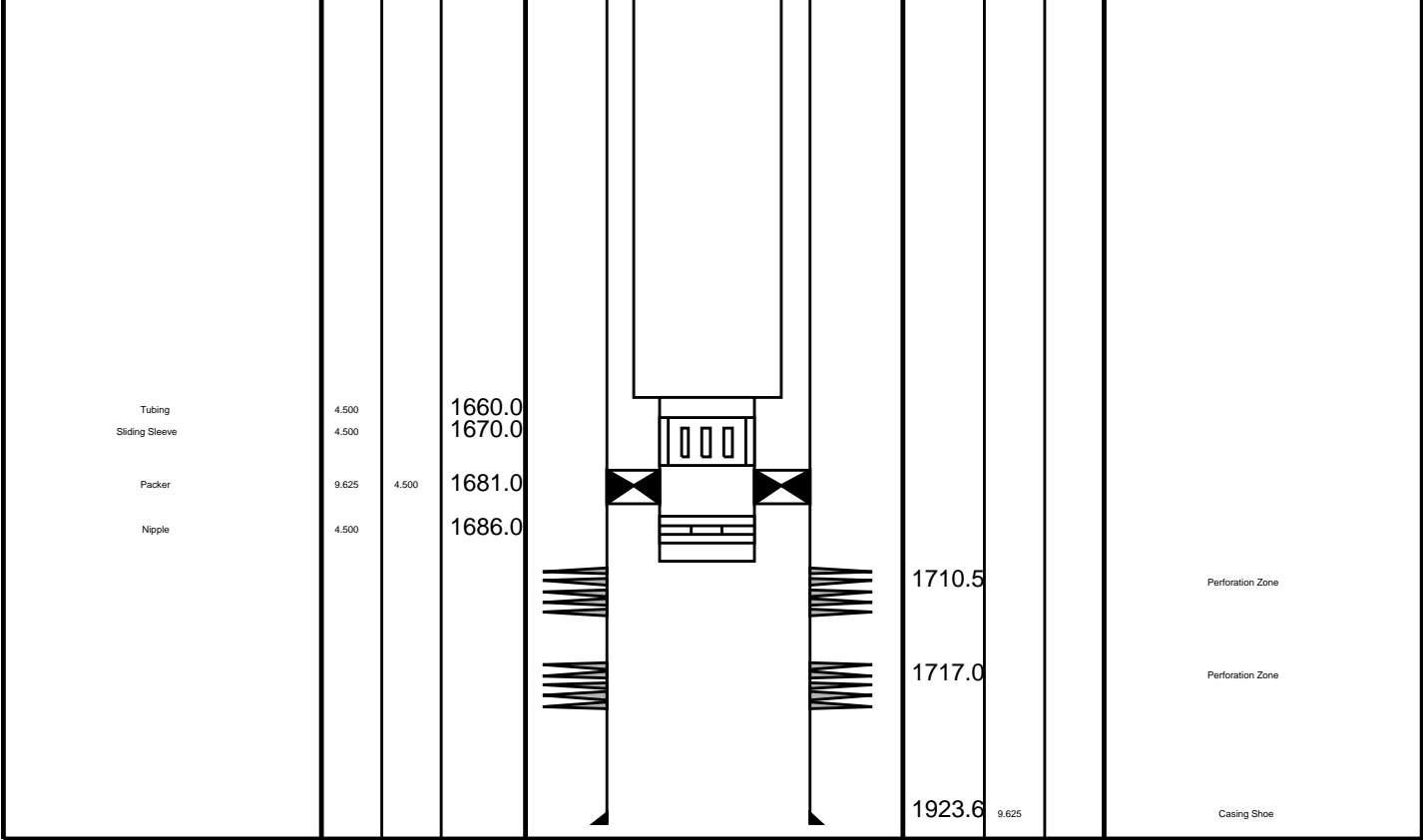
DOWNHOLE EQUIPMENT	
SWBS 731	12.61
SWBS 762	11.93
SWBS 763	11.24
SWBS 761	10.55
SWHS 753	9.87
PSPT-A/B 827	9.54
PSC-A 806	
PSPT-B 827	
PSTC 806	
PBMS-B 827	
CQG_F Mano 827	8.41
RTD Thermometer 827	
GR 827	
CCL 827	
PBMS 827	
Well_Temp	7.48
CQG Manom	7.37
CCL	7.25
PBMS PSTC	7.02
RST-C 45	7.02
RSCH-A 45	
RSC-C 45	
RSS-A 45	
RSXH-A 63	
RSX-C 59	



$$\begin{array}{r} 4.24 \\ - 4.09 \\ \hline \end{array}$$

MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Production String	(in)		(m)	Well Schematic	(m)		(in)	Casing String	
	OD	ID	MD		MD	OD	ID		
Tubing	4.500		12.0		12.5	13.625		Casing String	
Tubing Hanger	9.625	4.500			12.5	13.375	9.625	Liner Hanger	
Shutin Valve	4.500		135.0						
Tubing	7.000		137.0			669.7	13.375		Casing Shoe



Job Events Summary

MAXIS Field Log

Schlumberger Job Event Summary

Time	Elapsed Time	Depth (M)	File
Log Pass (up)	23-Oct-2007 18:56	000:20	1880.6 - 1694.2 RST_PSP_005LUP
Log Pass (up)	23-Oct-2007 19:26	000:39	1877.3 - 1693.8 RST_PSP_007LUP
Log Pass (up)	23-Oct-2007 20:10	000:40	1877.1 - 1693.2 RST_PSP_010LUP



RST-C Sigma Pass # 2
HUD to 1710m MDKB

MAXIS Field Log

Company: Esso Australia Pty Ltd. Well: A-18

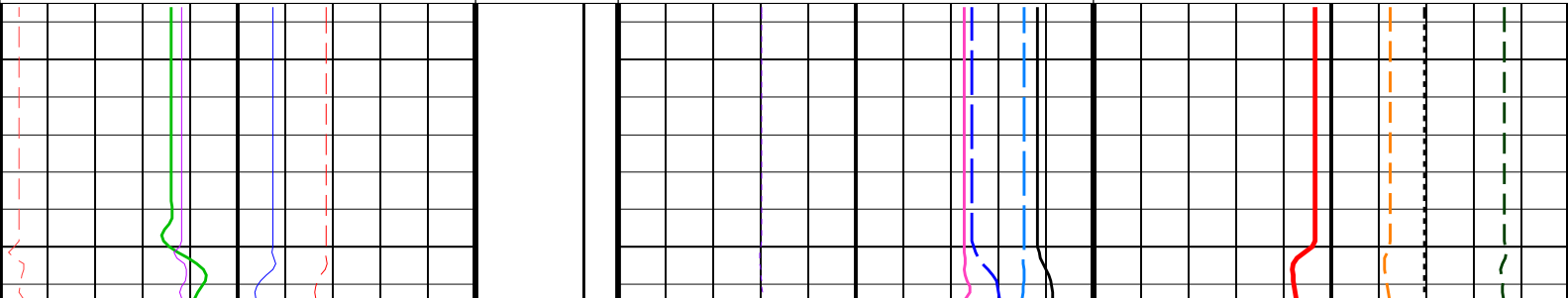
Input DLIS Files					
DEFAULT	RST_PSP_010LUP	FN:9	PRODUCER	23-Oct-2007 20:10	1877.1 M 1693.2 M
Output DLIS Files					
DEFAULT	RST_PSP_011PUP	FN:10	PRODUCER	23-Oct-2007 20:51	1877.4 M 1688.4 M

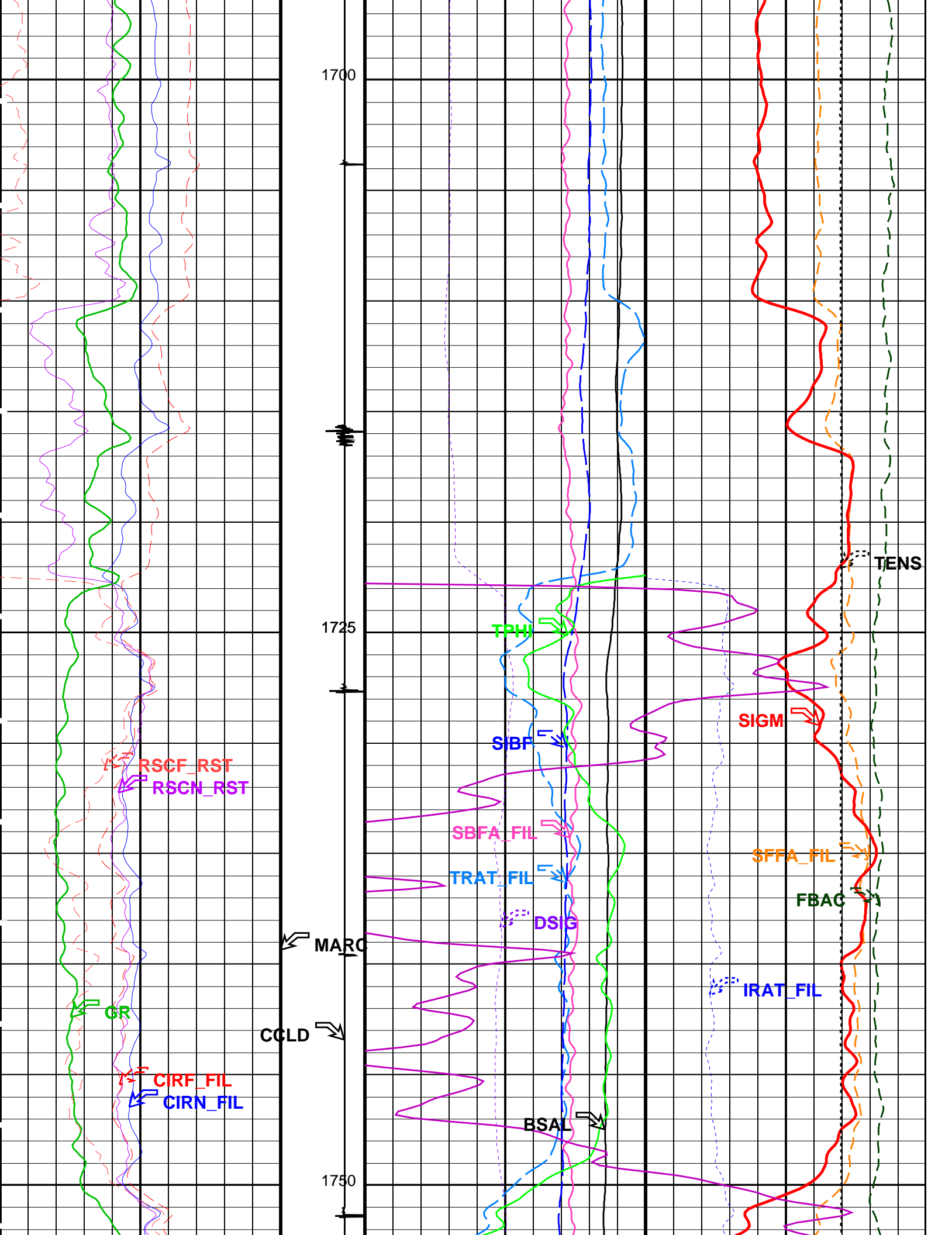
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B	14C0-302		

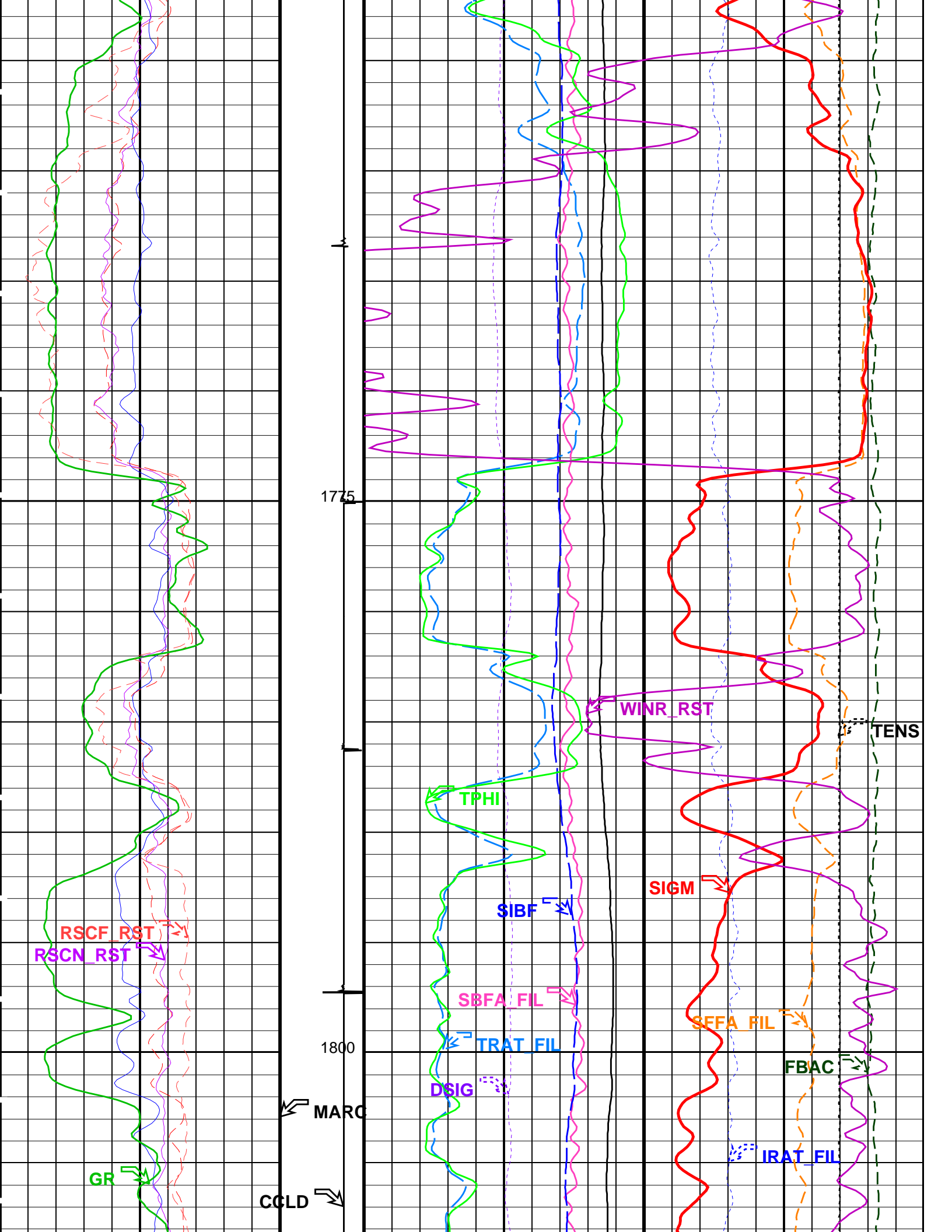
PIP SUMMARY

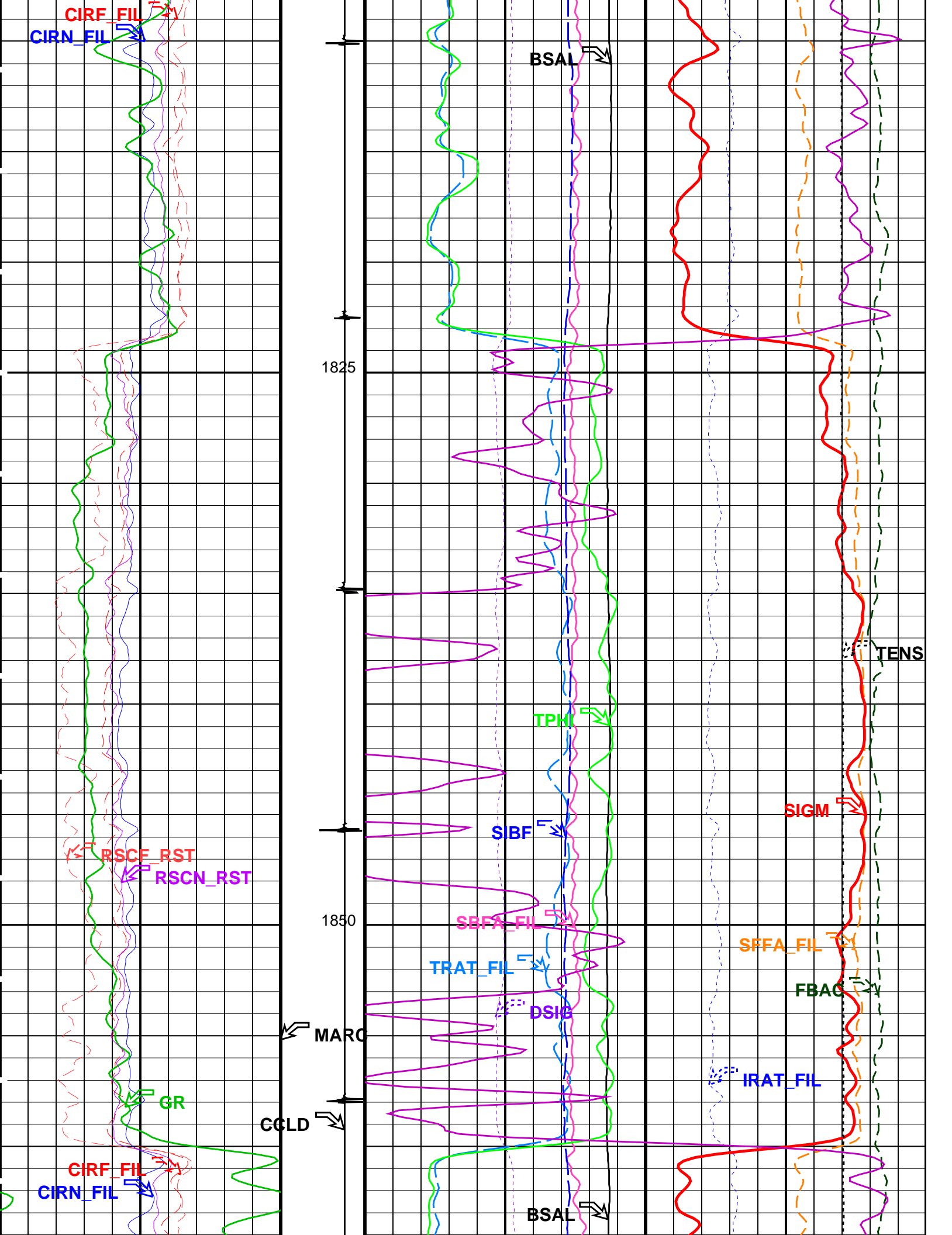
Time Mark Every 60 S

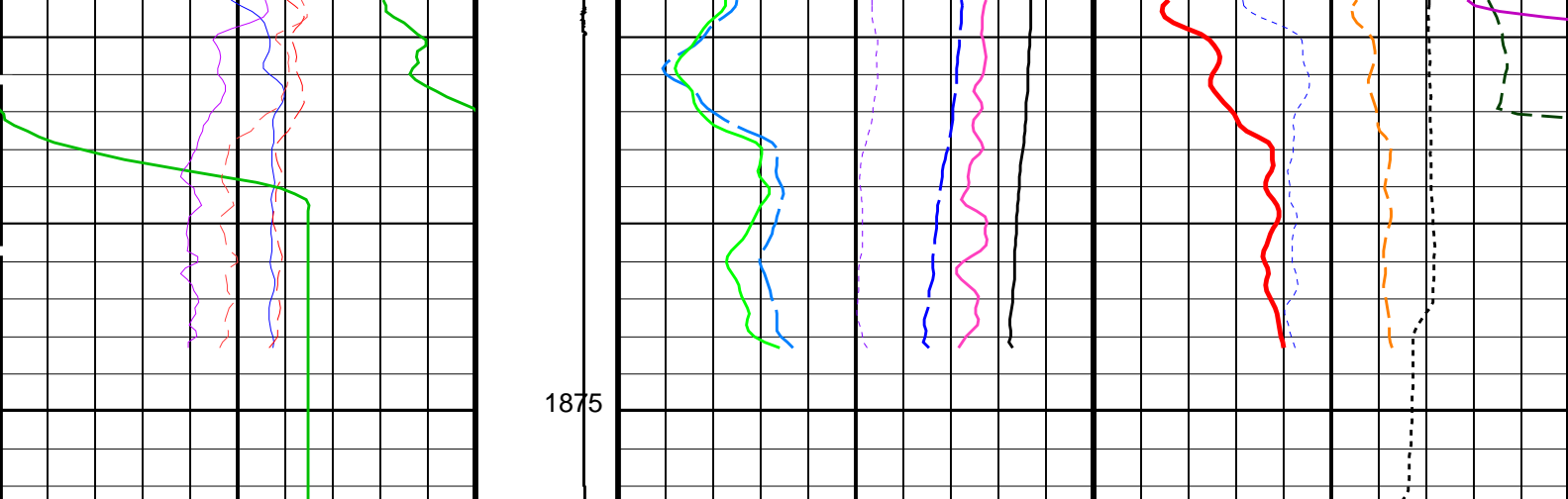
		RST Sigma (SIGM)	
		60 (CU)	0
		RST Weighted Inelastic Ratio (WINR_RST)	
		0.4 (----	0
		RST Porosity (TPHI)	
		0.6 (V/V)	0
RST Far Effective Capture CR (RSCF_RST)		RST Sigma Borehole Fluid (SIBF)	
45 (----	0	100 (CU)	0
RST Near Effective Capture CR (RSCN_RST)		Sigma Borehole Far Apparent (SBFA_FIL)	
45 (----	0	150 (CU)	0
		Tension (TENS)	
		0 (LBF) 3000	
RST Capture to Inelastic Ratio Far (CIRF_FIL)		RST Capture Ratio (TRAT_FIL)	Sigma Formation Far Apparent (SFFA_FIL)
5 (----	0	1.5 (---- 0.5	60 (CU) ---- 0
RST Capture to Inelastic Ratio Near (CIRN_FIL)		RST Sigma Difference (DSIG)	MCS Far Background (filtered) (FBAC)
2.5 (---- 0	0	-30 (CU) 30	0 (CPS) 5000
Gamma Ray (GR)		RST Borehole Salinity (BSAL)	RST Inelastic Ratio (IRAT_FIL)
0 (GAPI) 150		450 (PPK) -50	0.75 (---- 0











Gamma Ray (GR) (GAPI)	Discriminat ed CCL (CCLD) (V)	RST Borehole Salinity (BSAL) (PPK)		RST Inelastic Ratio (IRAT_FIL) (----	
		450	-50	0.75	0
RST Capture to Inelastic Ratio Near (CIRN_FIL)	Minitron Arc Detection (MARC)	RST Sigma Difference (DSIG) (CU)		MCS Far Background (filtered) (FBAC) (CPS)	
2.5	0	-30	30	0	5000
RST Capture to Inelastic Ratio Far (CIRF_FIL)		RST Capture Ratio (TRAT_FIL) (----		Sigma Formation Far Apparent (SFFA_FIL) (CU)	
5	0	1.5	0.5	60	0
RST Near Effective Capture CR (RSCN_RST)		Sigma Borehole Far Apparent (SBFA_FIL) (CU)		Tension (TENS) (LBF)	
45	0	150	0		
RST Far Effective Capture CR (RSCF_RST)		RST Sigma Borehole Fluid (SIBF) (CU)			
45	0	100	0		
		RST Porosity (TPHI) (V/V)			
		0.6	0		
		RST Weighted Inelastic Ratio (WINR_RST) (----			
		0.4	0		
		RST Sigma (SIGM) (CU)			
		60	0		

PIP SUMMARY

Time Mark Every 60 S

Parameters


DLIS Name	Description	Value	
RST-C: Reservoir Saturation Pro Tool C			
AIRB	RST Air Borehole	No	
BHS	Borehole Status	CASED	
BSALOPT	RST Borehole Salinity Option	Unknown	
BSFL	RST Borehole Salinity Filter Length	51	
DFPC	RST Depth Filter Processing Constant	One	
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
RGAI	Near/Far Gain Calibration Ratio	1	
SMBMO	RST Sigma Mode Background Minitron Off	No	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
PSPT-A/B: Production Services Logging Platform			
BHS	Borehole Status	CASED	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
System and Miscellaneous			
BS	Bit Size	12 250	IN

BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	40.00	LB/F
DO	Depth Offset for Playback	0.3	M
PP	Playback Processing	NORMAL	

Format: RST_SIG_ANSW	Vertical Scale: 1:200	Graphics File Created: 23-Oct-2007 20:51
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OP System Version: 14C0-302			
MCM			
RST-C	14C0-302	PSPT-A/B	14C0-302

Input DLIS Files					
DEFAULT	RST_PSP_010LUP	FN:9	PRODUCER	23-Oct-2007 20:10	1877.1 M 1693.2 M
Output DLIS Files					
DEFAULT	RST_PSP_011PUP	FN:10	PRODUCER	23-Oct-2007 20:51	



RST-C Sigma Pass # 1

HUD to 1710m MDKB

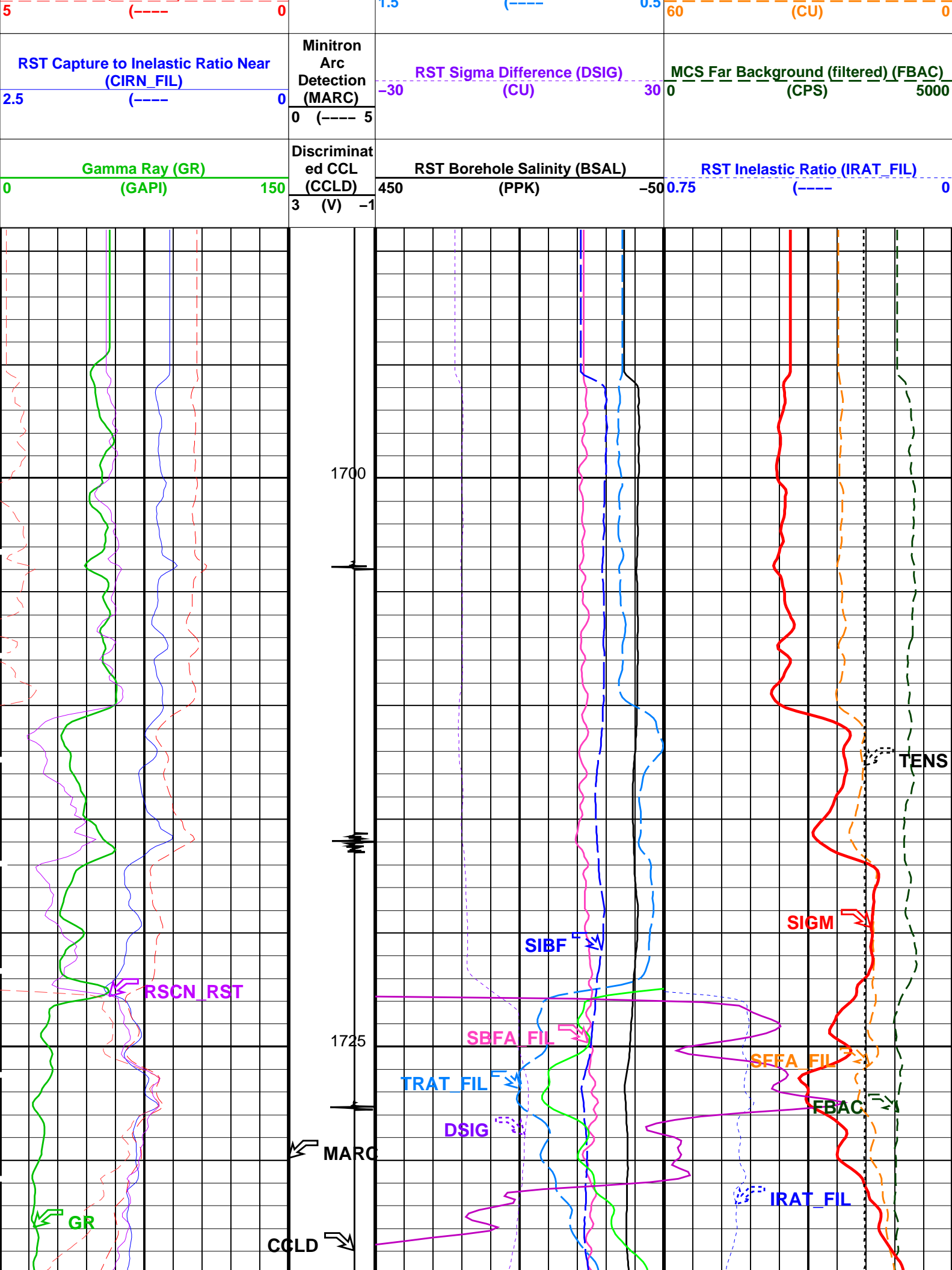
MAXIS Field Log

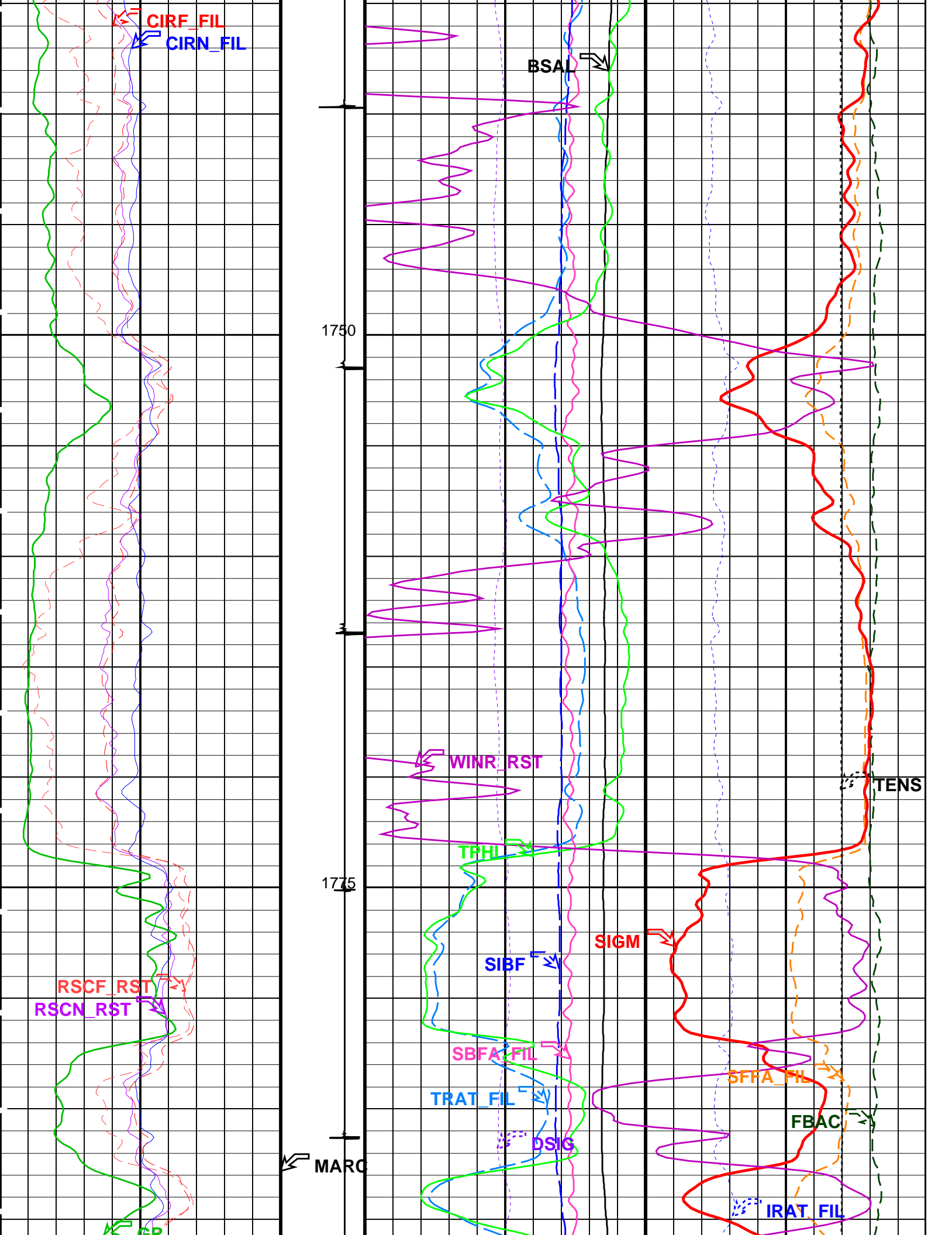
Company: Esso Australia Pty Ltd.	Well: A-18
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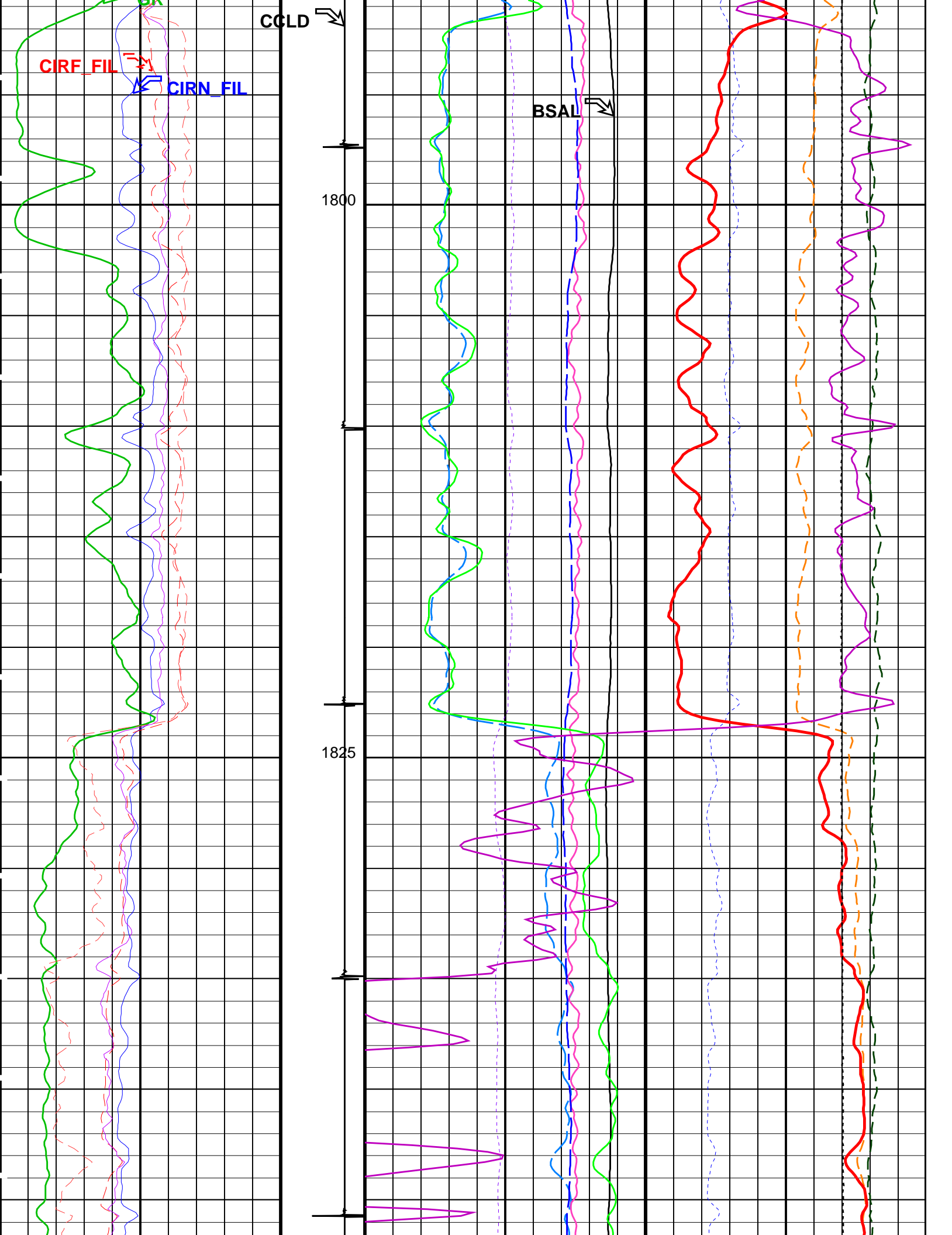
Input DLIS Files					
DEFAULT	RST_PSP_007LUP	FN:6	PRODUCER	23-Oct-2007 19:26	1877.3 M 1693.8 M
Output DLIS Files					
DEFAULT	RST_PSP_009PUP	FN:8	PRODUCER	23-Oct-2007 20:06	1877.4 M 1688.9 M

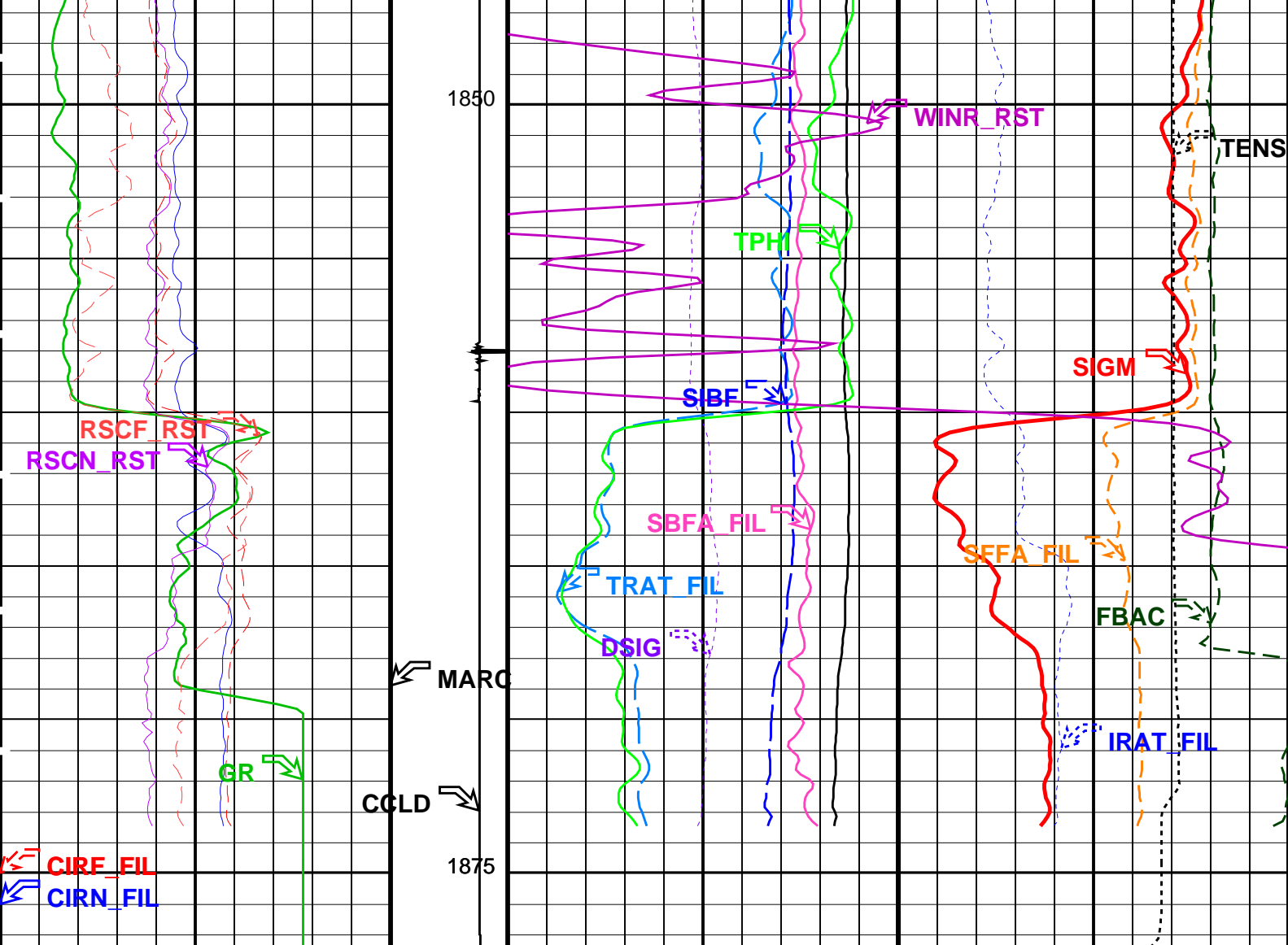
OP System Version: 14C0-302			
MCM			
RST-C	14C0-302	PSPT-A/B	14C0-302

PIP SUMMARY			
Time Mark Every 60 S			
<div>RST Far Effective Capture CR (RSCF_RST)</div> <div>45 (----) 0</div> <div>RST Near Effective Capture CR (RSCN_RST)</div> <div>45 (----) 0</div> <div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>45 (----) 0</div>		<div>RST Sigma (SIGM)</div> <div>60 (CU) 0</div> <div>RST Weighted Inelastic Ratio (WINR_RST)</div> <div>0.4 (----) 0</div> <div>RST Porosity (TPHI)</div> <div>0.6 (V/V) 0</div> <div>RST Sigma Borehole Fluid (SIBF)</div> <div>100 (CU) 0</div> <div>Sigma Borehole Far Apparent (SBFA_FIL)</div> <div>150 (CU) 0</div> <div>RST Capture Ratio (TRAT_FIL)</div> <div>45 (----) 0</div>	
		<div>Tension (TENS)</div> <div>0 (LBF) 3000</div>	
		<div>Sigma Formation Far Apparent (SFFA_FIL)</div> <div>45 (----) 0</div>	









<div>Gamma Ray (GR) (GAPI)</div> <div>0150</div>	<div>Discriminat ed CCL (CCLD)</div> <div>3 (V) -1</div>	<div>RST Borehole Salinity (BSAL) (PPK)</div> <div>450-50</div>	<div>RST Inelastic Ratio (IRAT_FIL) (----</div> <div>0.750</div>
<div>RST Capture to Inelastic Ratio Near (CIRN_FIL)</div> <div>2.50</div>	<div>Minitron Arc Detection (MARC)</div> <div>0 (---- 5</div>	<div>RST Sigma Difference (DSIG) (CU)</div> <div>-3030</div>	<div>MCS Far Background (filtered) (FBAC) (CPS)</div> <div>05000</div>
<div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>50</div>		<div>RST Capture Ratio (TRAT_FIL) (----</div> <div>1.50.5</div>	<div>Sigma Formation Far Apparent (SFFA_ FIL) (CU)</div> <div>600</div>
<div>RST Near Effective Capture CR (RSCN_ RST)</div> <div>450</div>		<div>Sigma Borehole Far Apparent (SBFA_ FIL) (CU)</div> <div>1500</div>	<div>Tension (TENS) (LBF) 3000</div>
<div>RST Far Effective Capture CR (RSCF_ RST)</div> <div>450</div>		<div>RST Sigma Borehole Fluid (SIBF) (CU)</div> <div>1000</div>	
		<div>RST Porosity (TPHI) (V/V)</div> <div>0.60</div>	
		<div>RST Weighted Inelastic Ratio (WINR_RST) (----</div> <div>0.40</div>	
		<div>RST Sigma (SIGM) (CU)</div> <div>600</div>	

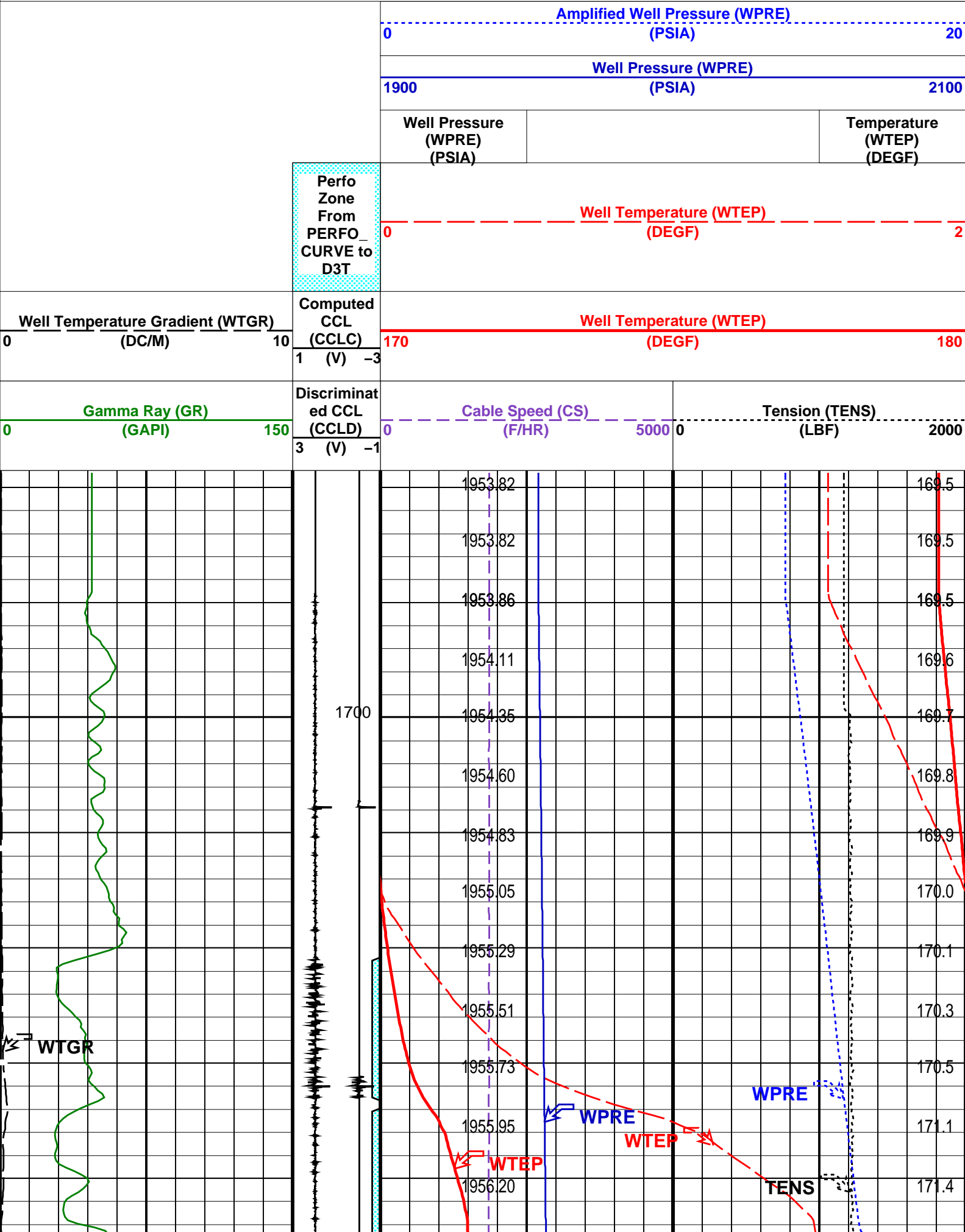
Time Mark Every 60 S

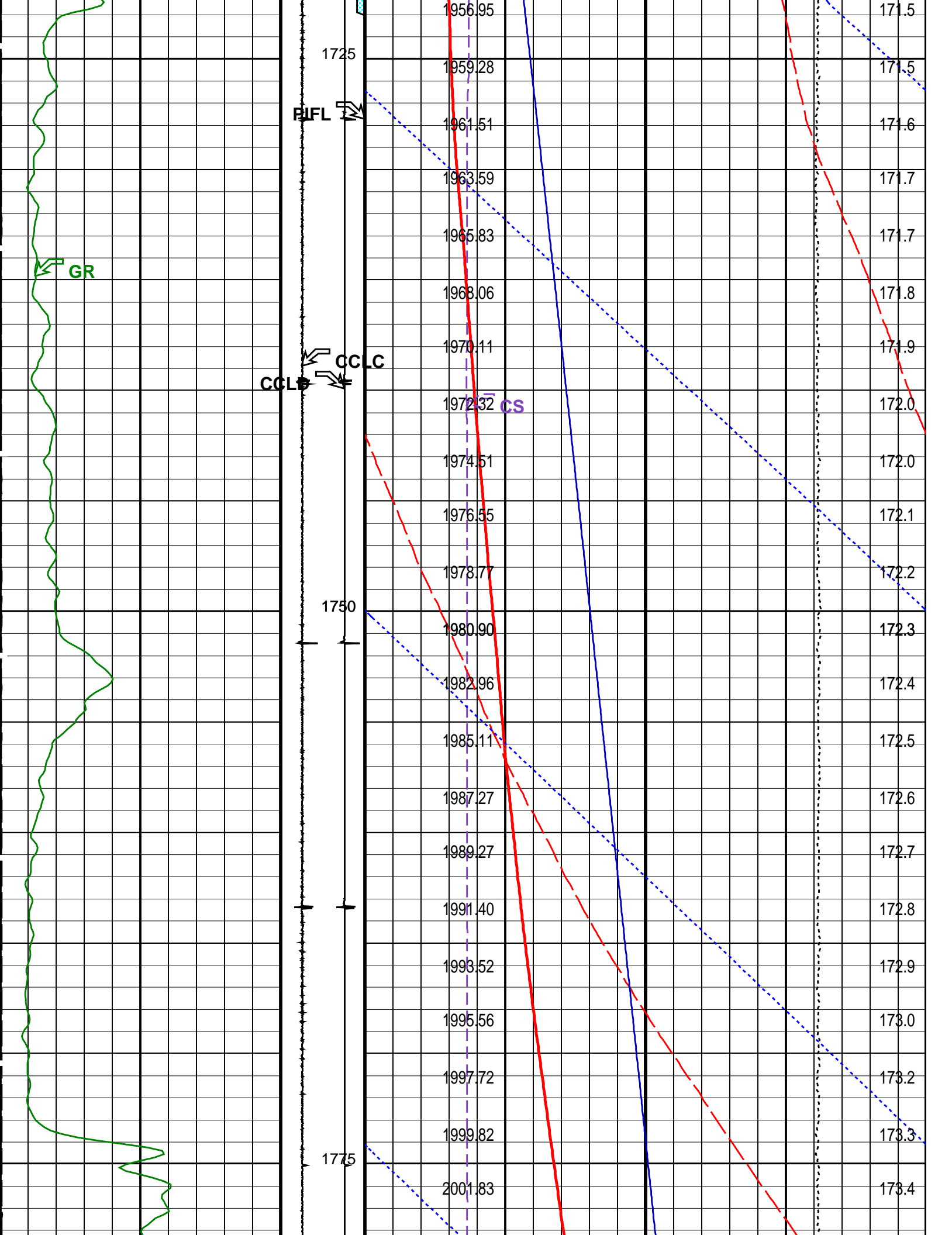
PIP SUMMARY

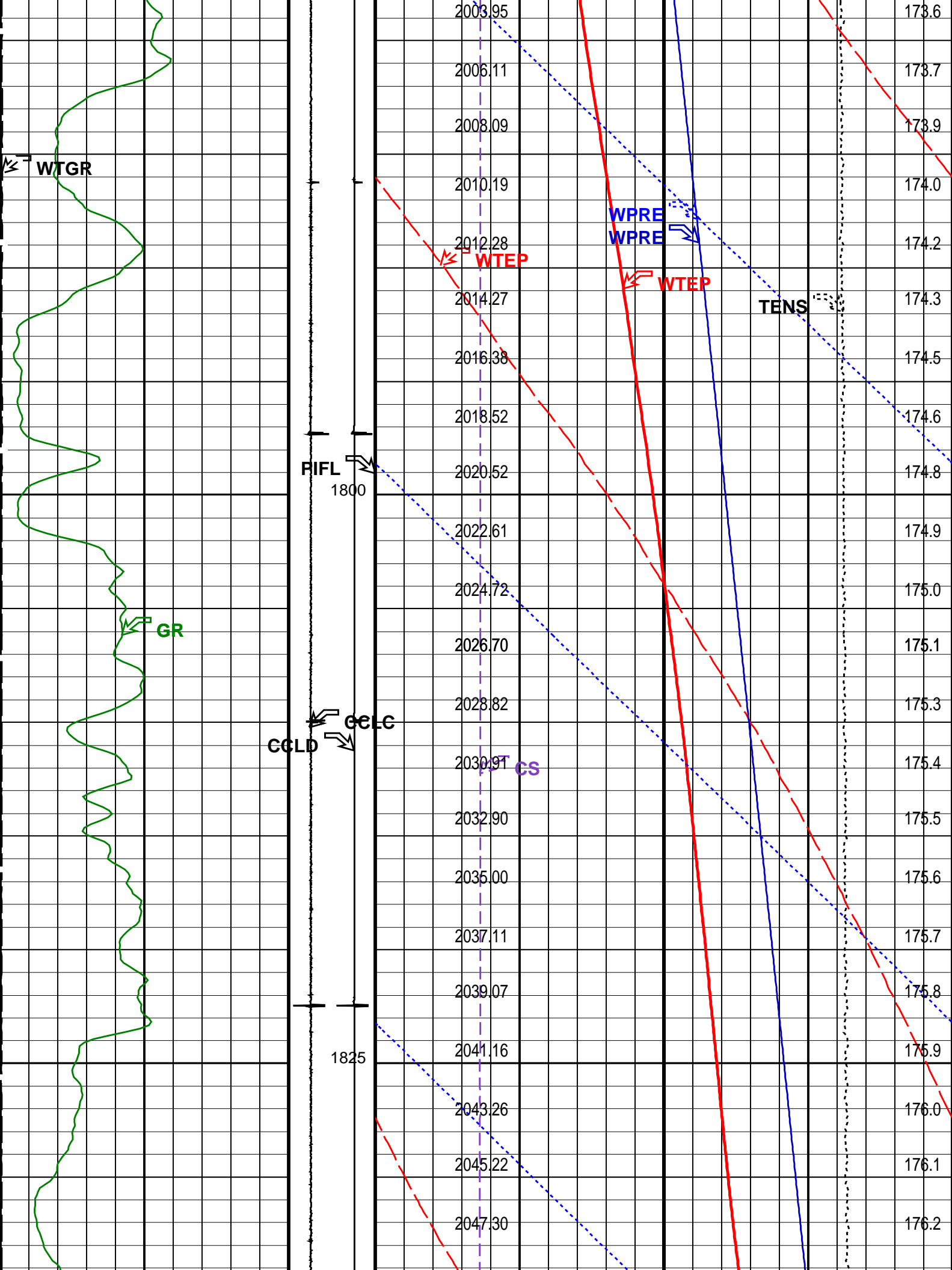
Parameters						
DLIS Name		Description		Value		
RST–C: Reservoir Saturation Pro Tool C						
AIRB		RST Air Borehole		No		
BHS		Borehole Status		CASED		
BSALOPT		RST Borehole Salinity Option		Unknown		
BSFL		RST Borehole Salinity Filter Length		51		
DFPC		RST Depth Filter Processing Constant		One		
DFPC_TDTL		RST Depth Filter Processing Constant (TDT–like)		Two		
MATR		Rock Matrix for Neutron Porosity Corrections		SANDSTONE		
NORM_IRAT_RST		RST Normalized Inelastic Ratio		0.48		
NORM_SIGM_RST		RST Normalized Sigma		30	CU	
RGAI		Near/Far Gain Calibration Ratio		1		
SMBMO		RST Sigma Mode Background Minitron Off		No		
TIER_SIGM		RST Sigma Acquisition Mode		0_RST_Sigma		
PSPT–A/B: Production Services Logging Platform						
BHS		Borehole Status		CASED		
MATR		Rock Matrix for Neutron Porosity Corrections		SANDSTONE		
System and Miscellaneous						
BS		Bit Size		12.250	IN	
BSAL		Borehole Salinity		–50000.00	PPM	
CSIZ		Current Casing Size		9.625	IN	
CWEI		Casing Weight		40.00	LB/F	
DO		Depth Offset for Playback		0.2	M	
PP		Playback Processing		NORMAL		
Format: RST_SIG_ANSW		Vertical Scale: 1:200		Graphics File Created: 23–Oct–2007 20:06		
OP System Version: 14C0–302						
MCM						
RST–C	14C0–302		PSPT–A/B	14C0–302		
Input DLIS Files						
DEFAULT	RST_PSP_007LUP	FN:6	PRODUCER	23–Oct–2007 19:26	1877.3 M	1693.8 M
Output DLIS Files						
DEFAULT	RST_PSP_009PUP	FN:8	PRODUCER	23–Oct–2007 20:06		
<div><div><div>Schlumberger</div><div><div>Gamma–Ray Pass</div><div>HUD to 1710m MDKB</div></div></div><div>MAXIS Field Log</div></div>						
Company: Esso Australia Pty Ltd.						
Well: A–18						
Input DLIS Files						
DEFAULT	RST_PSP_005LUP	FN:4	PRODUCER	23–Oct–2007 18:56	1880.6 M	1694.2 M
Output DLIS Files						
DEFAULT	RST_PSP_006PUP	FN:5	PRODUCER	23–Oct–2007 19:16	1880.6 M	1689.2 M
OP System Version: 14C0–302						
MCM						
RST–C	14C0–302		PSPT–A/B	14C0–302		

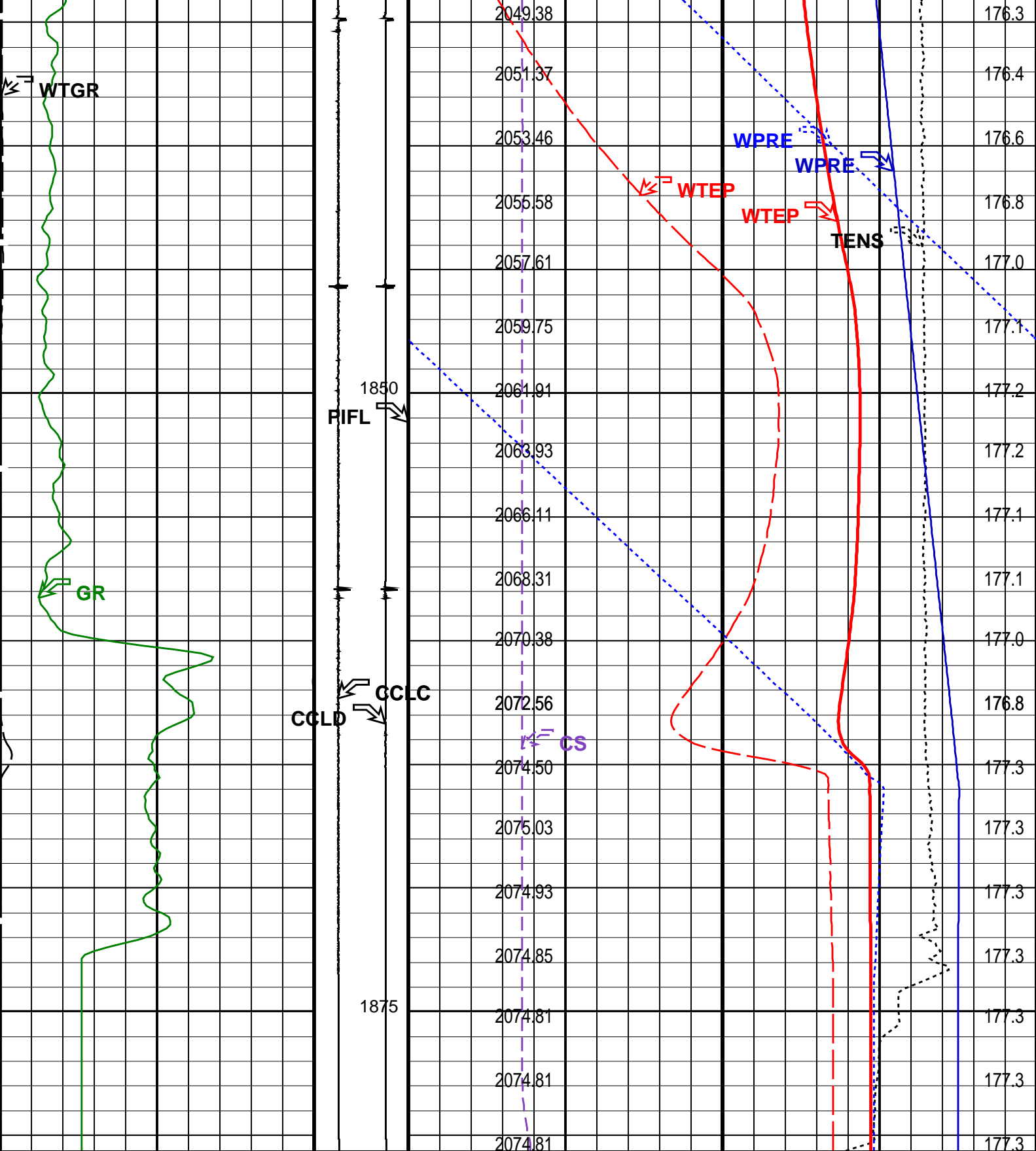
PIP SUMMARY

Time Mark Every 60 S









Gamma Ray (GR) (GAPI)		0	150
Well Temperature Gradient (WTGR) (DC/M)		0	10
Discriminated CCL (CCLD) (V)		3	-1
Computed CCL (CCLC) (V)		1	-3
Cable Speed (CS) (F/HR)		0	5000
Well Temperature (WTEP) (DEGF)		170	180
Tension (TENS) (LBF)		0	2000

Perfo
Zone

Zone From PERFO_ CURVE to D3T	Well Temperature (WTEP) (DEGF)		
	0		2
	Well Pressure (WPRE) (PSIA)		Temperature (WTEP) (DEGF)
	Well Pressure (WPRE)		
	1900	(PSIA)	2100
	Amplified Well Pressure (WPRE)		
	0	(PSIA)	20

PIP SUMMARY				
Time Mark Every 60 S				
Format: PSP_1		Vertical Scale: 1:200		Graphics File Created: 23-Oct-2007 19:16

OP System Version: 14C0-302				
MCM				
RST-C	14C0-302	PSPT-A/B	14C0-302	

Parameters						
DLIS Name		Description			Value	
System and Miscellaneous						
DO		Depth Offset for Playback			0.0	M
PP		Playback Processing			NORMAL	
Input DLIS Files						
DEFAULT	RST_PSP_005LUP	FN:4	PRODUCER	23-Oct-2007 18:56	1880.6 M	1694.2 M
Output DLIS Files						
DEFAULT	RST_PSP_006PUP	FN:5	PRODUCER	23-Oct-2007 19:16		

Company:	Esso Australia Pty Ltd.	Schlumberger
Well:	A-18	
Field:	Marlin	
Rig:	Prod 4 / Crane	
Country:	Australia	
RST-C		
Sigma		
Survey		