

Company: Esso Australia Pty Ltd.

Well: A-16
Field: Marlin
Rig: Prod 4 / Crane
Country: Australia

Prod 4 / Crane
Marlin
Gippsland
A-16
Esso Australia Pty Ltd.

RST-C
Sigma
Survey

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:	K.B	27.4 m above Perm. Datum
Drilling Measured From:	K.B	
State:	Max. Well Deviation	Longitude
Victoria	52 deg	148 13'09.18"E
		Latitude
		038 13'55.49"S

Logging Date 23-Oct-2007

Run Number One

Depth Driller 1859 m

Schlumberger Depth 1849 m

Bottom Log Interval 1849 m

Top Log Interval 1765 m

Casing Fluid Type Production Fluid

Salinity

Density

Fluid Level

BIT/CASING/TUBING STRING

Bit Size 12.500 in

From 671 m

To 1967 m

Casing/Tubing Size 9.625 in

Weight 40 lbm/ft

Grade N-80

From 10.58 m

To 1967.49 m

Maximum Recorded Temperatures 174 degF

Logger On Bottom 23-Oct-2007

Unit Number 889

Recorded By G Wright. S Gilbert

Witnessed By G Rimmer. A Smyth

Run 1

PVT DATA

Oil Density	
Water Salinity	
Gas Gravity	
Bo	
Bw	
1/Bg	
Bubble Point Pressure	
Bubble Point Temperature	
Solution GOR	
Maximum Deviation	52 deg
CEMENTING DATA	
Primary/Squeeze	Primary
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	Type:	PSDS/OSDS	Type:	2-32ZT
Serial Number:	6373	Serial Number:	325357	Serial Number:	24426
Calibration Date:	04-Jan-2007	Calibration Date:	10-Oct-2007	Length:	5584.85 M
Calibrator Serial Number:	9	Calibrator Serial Number:	1174	Conveyance Method: Wireline Rig Type: Rigless	
Calibration Cable Type:	2-32ZT	Calibration Gain:	0.89		
Wheel Correction 1:	-2	Calibration Offset:	180.00		
Wheel Correction 2:	-4				

Depth Control Parameters

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

Depth Control Remarks

1. IDW used as primary depth control
2. Z Chart used as secondary depth control

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 SERVICES1
OS1: None

REMARKS: RUN NUMBER 1
Log correlated to Solar composite supplied with logging program.
Maximum well deviation = 52 degree's at 1204m 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.
Loogging Interval : HUD to 1776m MDKB
SBHP:1961 psia
GRIT: 1741 degf

SBHT : 174degf
HUD: 1849 m MDKB
SLB Crew : J Light , J Annear , K Kerr , B Taylor

RUN 1		
SERVICE ORDER #:	AusI07509093	
PROGRAM VERSION:	14C0-302	
FLUID LEVEL:	0 m	
LOGGED INTERVAL	START	STOP

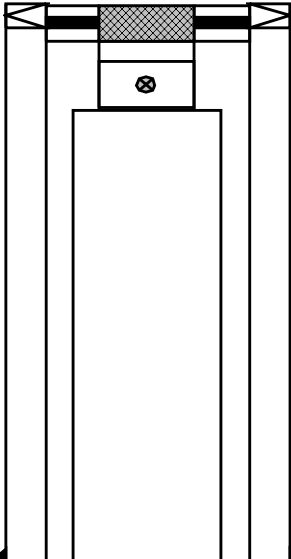
EQUIPMENT DESCRIPTION		
RUN 1		

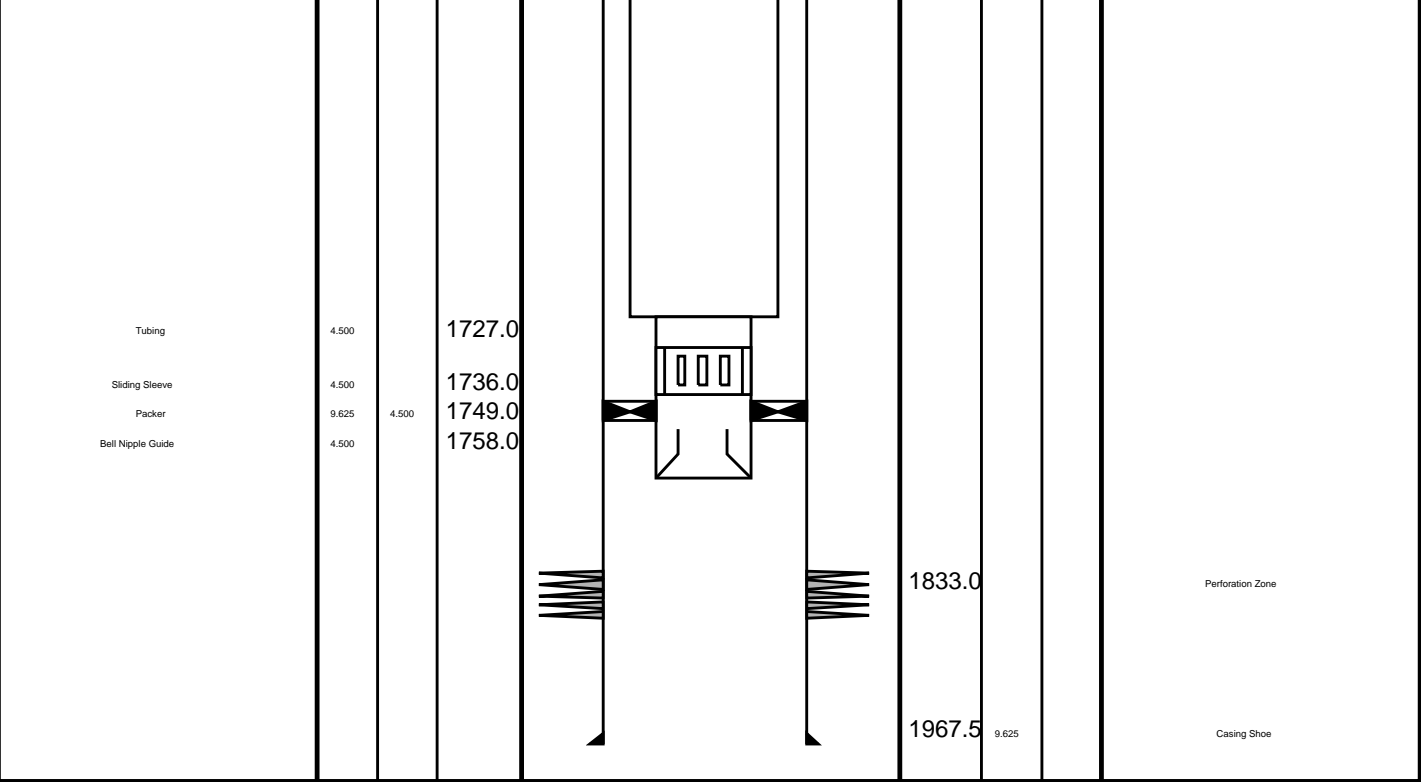
SURFACE EQUIPMENT	
WITM-A 806	
PSC_16MHZ 827	

DOWNHOLE EQUIPMENT	
AH-SWBS 731	
AH-SWBS 763	
AH-SWBS 762	
AH-SWBS 761	
MH-SWHS 753	Detail MT TelStatus CTEM
PSC-A 806	
PSPT-B 827	
PSTC 806	
PBMS-B 827	
CQG_F_Mano 827	GR
RTD_Thermometer 827	
GR 827	
CCL 827	
PBMS 827	Well_Temp CQG Manom CCL PBMS PSTC
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 Hanger Tubing Shutin Valve Tubing	9.625 4.500 4.500 7.000	4.500	11.7 134.0 138.0		12.5 12.5 			



Job Events Summary

MAXIS Field Log

Schlumberger Job Event Summary

	Time	Elapsed Time	Depth (M)	File
Log Pass (up)	23-Oct-2007 4:10	000:10	1858.4 – 1764.3	RST_PSP_006LUP
Log Pass (up)	23-Oct-2007 4:33	000:18	1852.4 – 1764.5	RST_PSP_010LUP
Log Pass (up)	23-Oct-2007 4:55	000:19	1852.9 – 1763.9	RST_PSP_013LUP



Sigma Pass # 2

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: A-16

Input DLIS Files

DEFAULT	RST_PSP_013LUP	FN:12	PRODUCER	23-Oct-2007 04:55	1852.9 M	1763.9 M
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Output DLIS Files

DEFAULT	RST_PSP_015PUP	FN:14	PRODUCER	23-Oct-2007 05:14	1854.1 M	1760.1 M
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OP System Version: 14C0-302

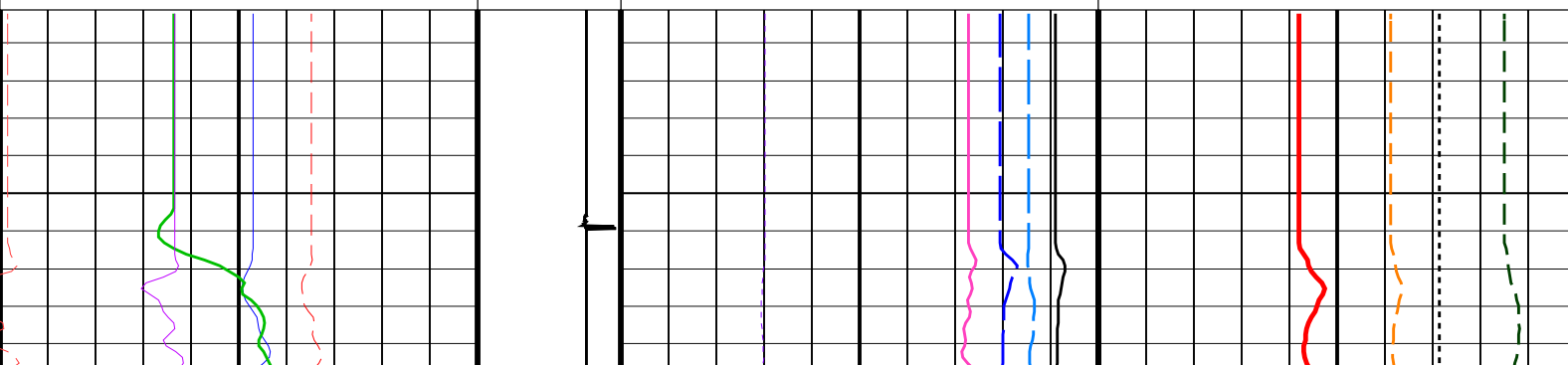
MCM

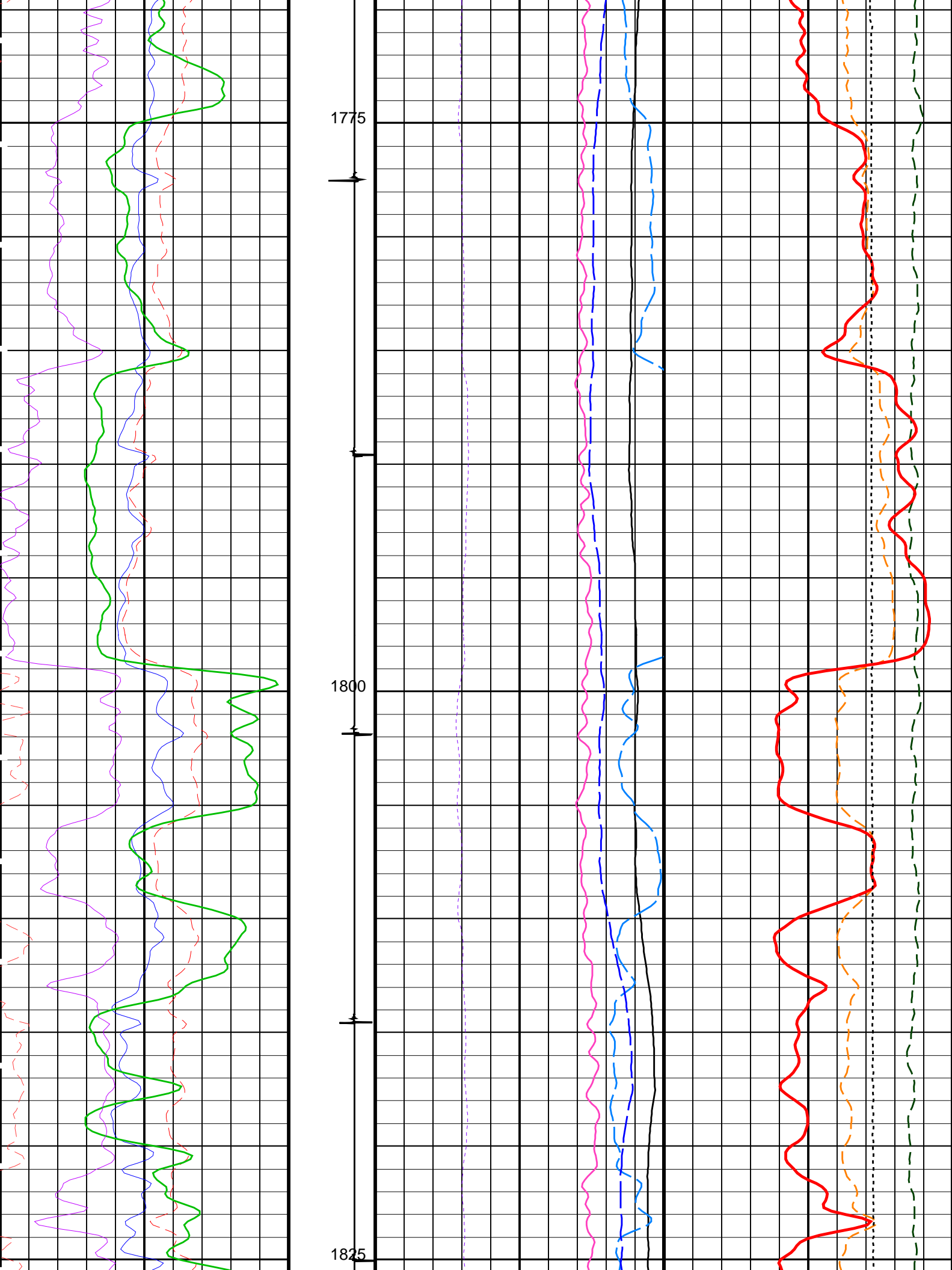
RST-C	14C0-302	PSPT-A/B	14C0-302
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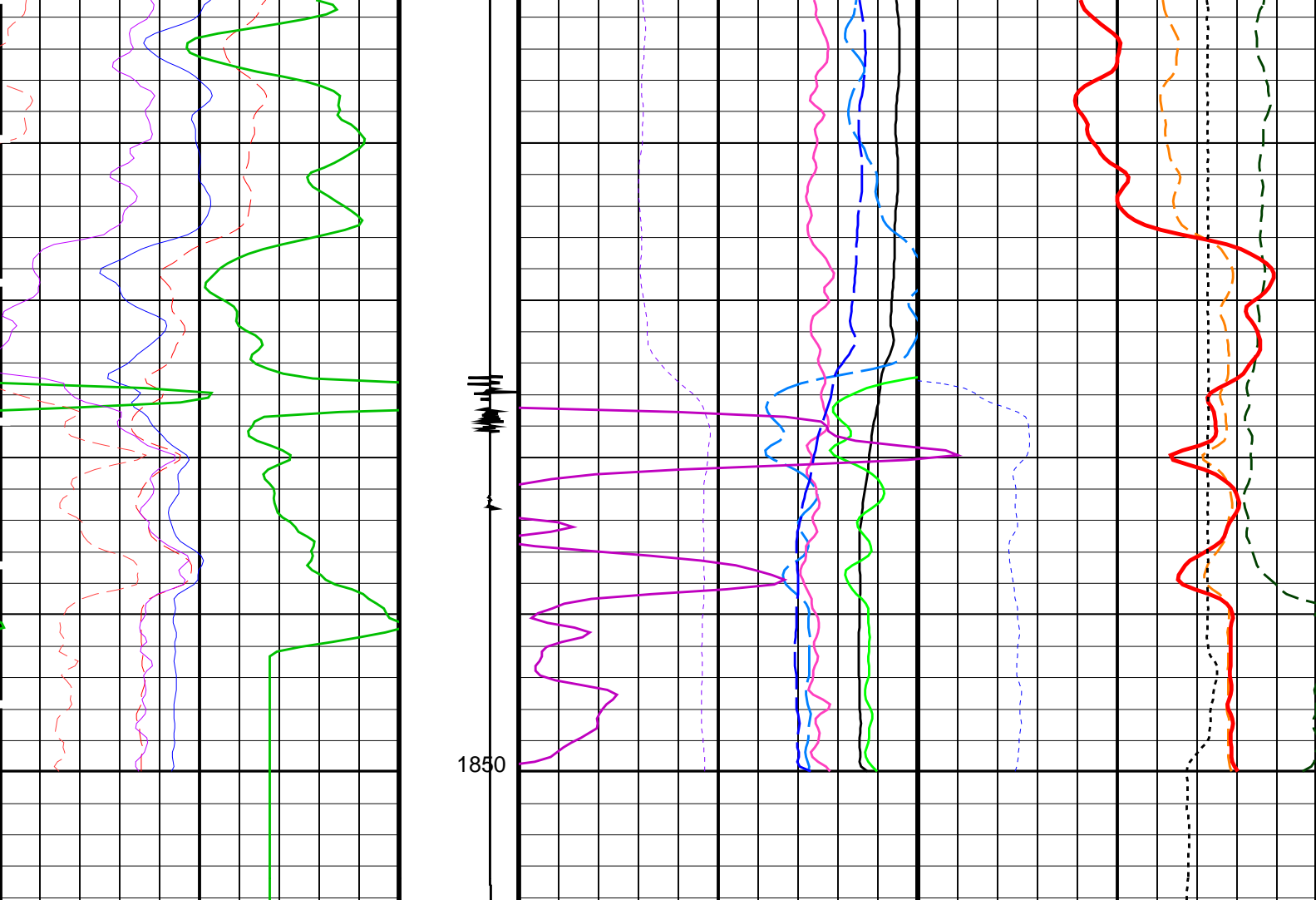
PIP SUMMARY

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	(----	100	(CU) 0
RST Near Effective Capture CR (RSCN_RST)		Sigma Borehole Far Apparent (SBFA_FIL)	
45	(----	150	(CU) 0
		Tension (TENS)	
		0	(LBF) 3000
RST Capture to Inelastic Ratio Far (CIRF_FIL)		RST Capture Ratio (TRAT_FIL)	
5	(----	1.5	(---- 0.5
		Sigma Formation Far Apparent (SFFA_FIL)	
		60	(CU) 0
RST Capture to Inelastic Ratio Near (CIRN_FIL)		RST Sigma Difference (DSIG)	
2.5	(----	-30	(CU) 30
		MCS Far Background (filtered) (FBAC)	
		0	(CPS) 5000
		Minitron Arc Detection (MARC)	
		0	(---- 5
		Discriminated CCL (CCLD)	
		3	(V) -1
Gamma Ray (GR)		RST Borehole Salinity (BSAL)	
0	(GAPI) 150	450	(PPK) -50
		RST Inelastic Ratio (IRAT_FIL)	
		0.75	(---- 0







<div>Gamma Ray (GR)</div> <div>(GAPI)</div> <div>150</div>	<div>Discriminat</div> <div>ed CCL</div> <div>(CCLD)</div> <div>3 (V) -1</div>	<div>RST Borehole Salinity (BSAL)</div> <div>(PPK)</div> <div>-50</div>	<div>RST Inelastic Ratio (IRAT_FIL)</div> <div>(----</div> <div>0</div>	
<div>RST Capture to Inelastic Ratio Near</div> <div>(CIRN_FIL)</div> <div>(----</div> <div>0</div>	<div>Minitron</div> <div>Arc</div> <div>Detection</div> <div>(MARC)</div> <div>0 (---- 5</div>	<div>RST Sigma Difference (DSIG)</div> <div>(CU)</div> <div>-30 30</div>	<div>MCS Far Background (filtered) (FBAC)</div> <div>(CPS)</div> <div>0 5000</div>	
<div>RST Capture to Inelastic Ratio Far</div> <div>(CIRF_FIL)</div> <div>(----</div> <div>0</div>		<div>RST Capture Ratio (TRAT_FIL)</div> <div>(----</div> <div>0.5</div>	<div>Sigma Formation Far Apparent (SFFA_</div> <div>FIL)</div> <div>(CU)</div> <div>60 0</div>	
<div>RST Near Effective Capture CR (RSCN_</div> <div>RST)</div> <div>(----</div> <div>0</div>		<div>Sigma Borehole Far Apparent (SBFA_</div> <div>FIL)</div> <div>(CU)</div> <div>150 0</div>	<div>Tension (TENS)</div> <div>(LBF)</div> <div>0 3000</div>	
<div>RST Far Effective Capture CR (RSCF_</div> <div>RST)</div> <div>(----</div> <div>0</div>		<div>RST Sigma Borehole Fluid (SIBF)</div> <div>(CU)</div> <div>100 0</div>		
		<div>RST Porosity (TPHI)</div> <div>(V/V)</div> <div>0.6 0</div>		
		<div>RST Weighted Inelastic Ratio (WINR_RST)</div> <div>(----</div> <div>0</div>		
	<div>RST Sigma (SIGM)</div> <div>(CU)</div> <div>60 0</div>			

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
RGAI	Near/Far Gain Calibration Ratio	1
SMBMO	RST Sigma Mode Background Minitrone 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	12.500 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	1.2 M
PP	Playback Processing	NORMAL

Format: RST_SIG_ANSW Vertical Scale: 1:200 Graphics File Created: 23-Oct-2007 05:14

OP System Version: 14C0-302
MCM

RST-C 14C0-302 PSPT-A/B 14C0-302

Input DLIS Files

DEFAULT RST_PSP_013LUP FN:12 PRODUCER 23-Oct-2007 04:55 1852.9 M 1763.9 M

Output DLIS Files

DEFAULT RST_PSP_015PUP FN:14 PRODUCER 23-Oct-2007 05:14



Sigma Pass # 1
HUD to 1776m MDKB

MAXIS Field Log

Company: Esso Australia Pty Ltd. Well: A-16

Input DLIS Files

DEFAULT RST_PSP_010LUP FN:9 PRODUCER 23-Oct-2007 04:33 1852.4 M 1764.5 M

Output DLIS Files

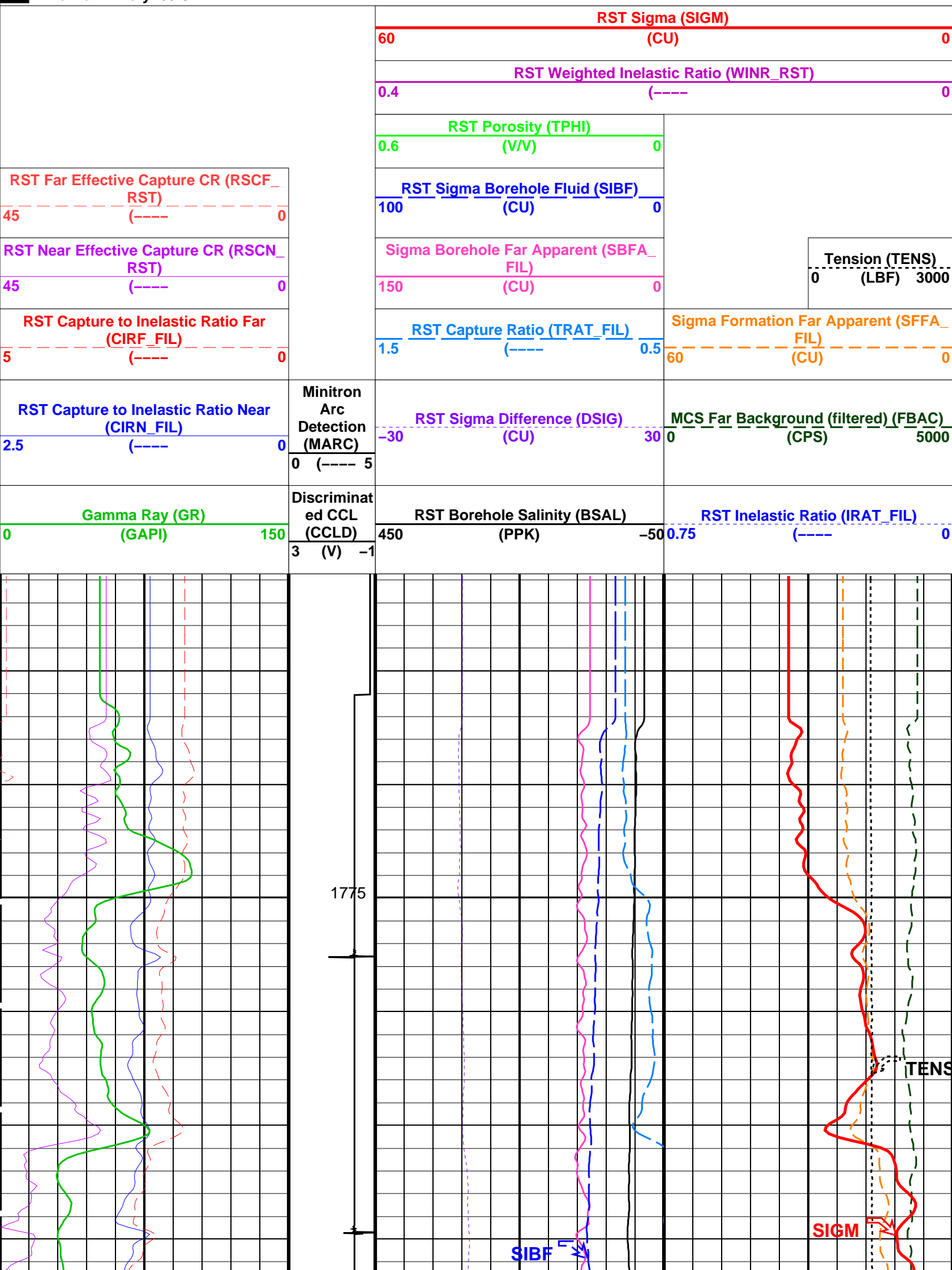
DEFAULT RST_PSP_012PUP FN:11 PRODUCER 23-Oct-2007 04:54 1853.6 M 1760.7 M

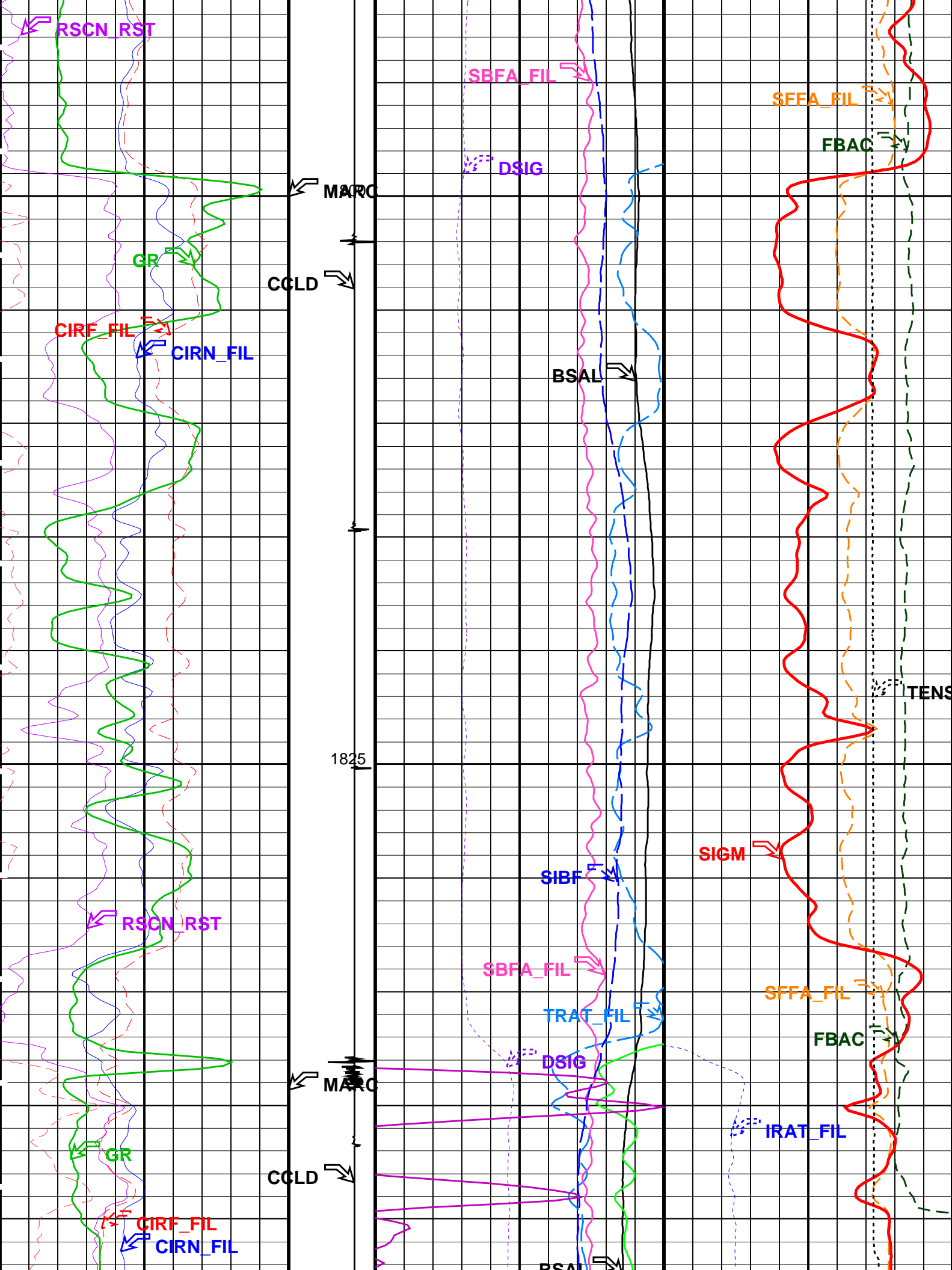
OP System Version: 14C0-302
MCM

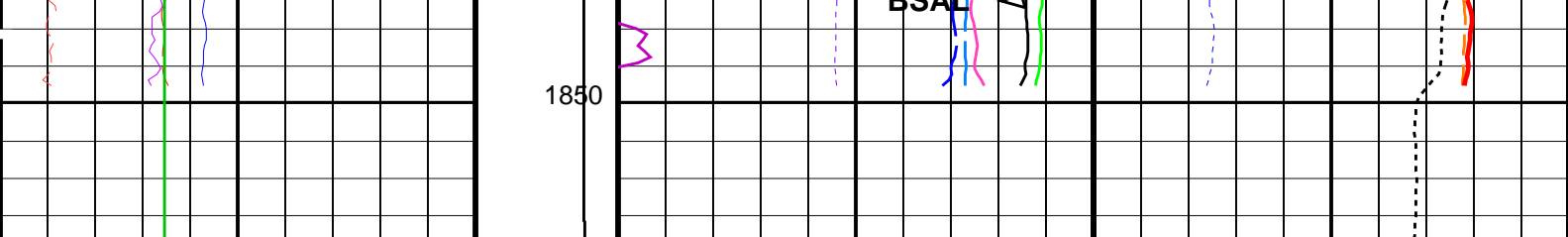
RST-C 14C0-302 PSPT-A/B 14C0-302

PIP SUMMARY

Time Mark Every 60 S







Gamma Ray (GR) (GAPI)	Discriminat ed CCL (CCLD) (V)	RST Borehole Salinity (BSAL) (PPK)	RST Inelastic Ratio (IRAT_FIL) (----
0 150	3 -1	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	0 5	-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	0 3000
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	12.500 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	1.2 M
PP	Playback Processing	NORMAL

Format: RST_SIG_ANSW

Vertical Scale: 1:200

Graphics File Created: 23-Oct-2007 04:54

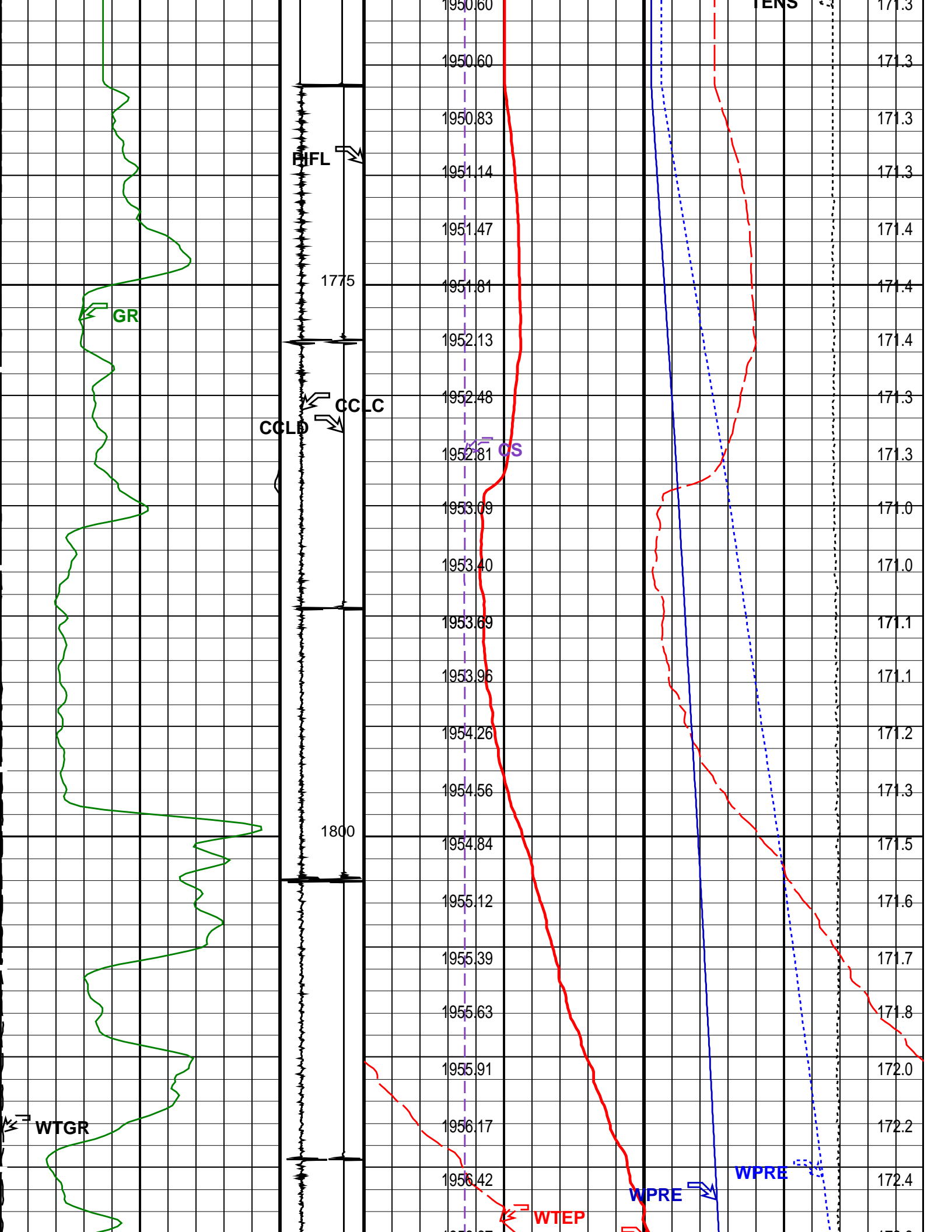
OP System Version: 14C0-302

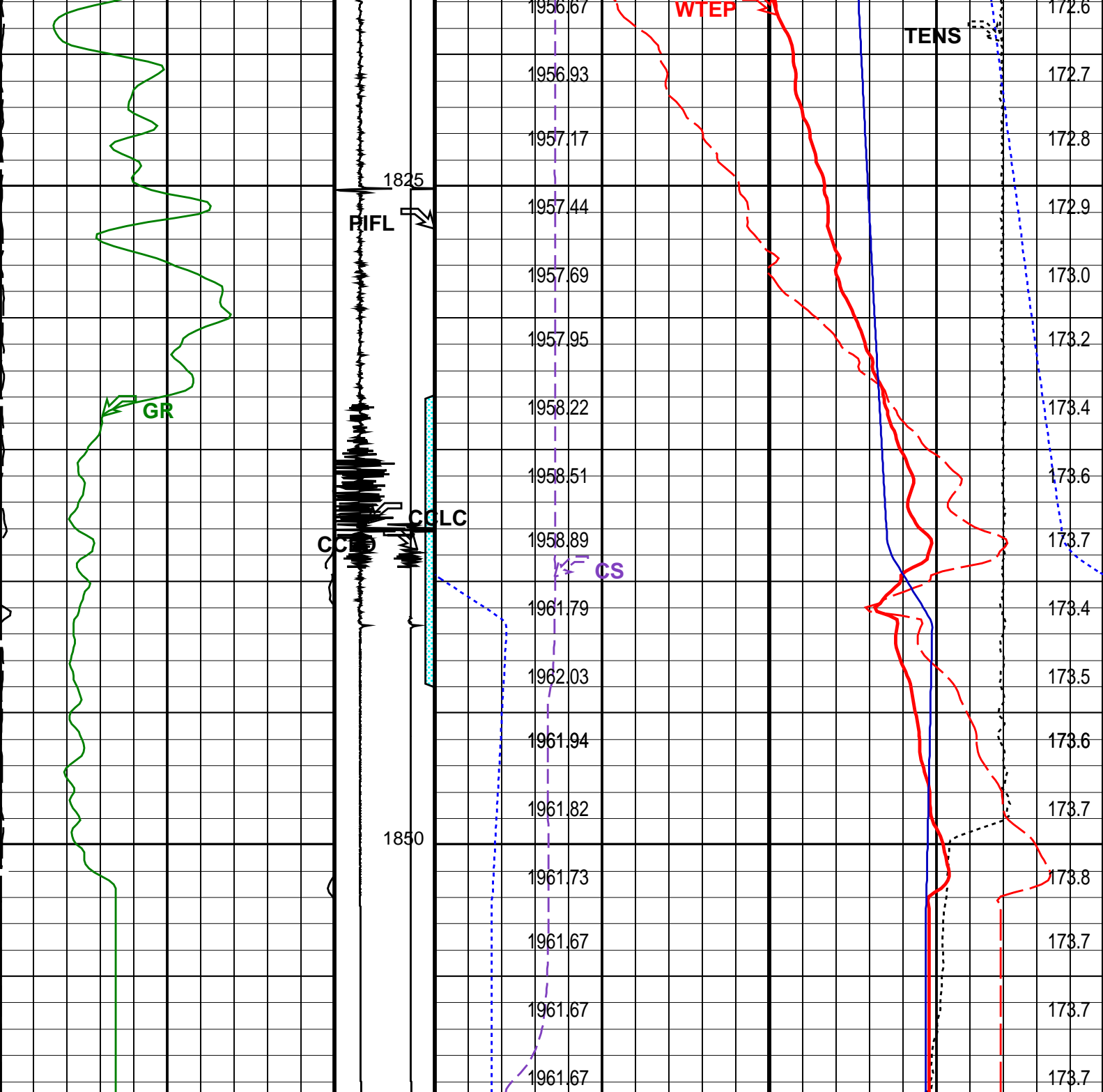
MCM

RST-C	14C0-302	PSPT-A/B	14C0-302
Input DLIS Files			
DEFAULT	RST_PSP_010LUP	FN:9 PRODUCER	23-Oct-2007 04:33 1852.4 M 1764.5 M
Output DLIS Files			
DEFAULT	RST_PSP_012PUP	FN:11 PRODUCER	23-Oct-2007 04:54
<div><div>Schlumberger</div><div>Gamma-Ray Survey HUD to 1776m MDKB</div><div>MAXIS Field Log</div></div>			

Company: Esso Australia Pty Ltd.			Well: A-16
Input DLIS Files			
DEFAULT	RST_PSP_006LUP	FN:5 PRODUCER	23-Oct-2007 04:10 1858.4 M 1764.3 M
Output DLIS Files			
DEFAULT	RST_PSP_011PUP	FN:10 PRODUCER	23-Oct-2007 04:53 1859.4 M 1760.4 M
OP System Version: 14C0-302			
MCM			
RST-C	14C0-302	PSPT-A/B	14C0-302

PIP SUMMARY			
Time Mark Every 60 S			
		Amplified Well Pressure (WPRE)	
		0 (PSIA) 20	
		Well Pressure (WPRE)	
		1925 (PSIA) 1975	
		Well Pressure (WPRE) (PSIA)	Temperature (WTEP) (DEGF)
Perfo Zone From PERFO_CURVE to D3T		Well Temperature (WTEP)	
		0 (DEGF) 2	
Well Temperature Gradient (WTGR)		Well Temperature (WTEP)	
0 (DC/M)	10	170 (DEGF) 175	
1 (V) -3			
Discriminat ed CCL (CCLD)		Cable Speed (CS)	Tension (TENS)
0 (GAPI)	150	0 (F/HR) 5000	0 (LBF) 2000
3 (V) -1			
		WTEP	





Gamma Ray (GR) (GAPI)		0	150
Well Temperature Gradient (WTGR) (DC/M)		0	10
Perfo Zone From PERFO_CURVE to D3T			

Discriminated CCL (CCLD) (V)		3	-1
Computed CCL (CCLC) (V)		1	-3
Well Temperature (WTEP) (DEGF)		170	175
Well Temperature (WTEP) (DEGF)		0	2

Cable Speed (CS) (F/HR)		0	5000
Tension (TENS) (LBF)		0	2000

Well Pressure		Temperature	
---------------	--	-------------	--

		(WPRE) (PSIA)			(WTEP) (DEGF)
		Well Pressure (WPRE)			
		1925	(PSIA)		1975
		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 04:53	
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B	14C0-302		
Parameters					
DLIS Name		Description		Value	
DO	System and Miscellaneous		1.1		M
PP	Depth Offset for Playback Playback Processing		NORMAL		
Input DLIS Files					
DEFAULT	RST_PSP_006LUP	FN:5	PRODUCER	23-Oct-2007 04:10	1858.4 M 1764.3 M
Output DLIS Files					
DEFAULT	RST_PSP_011PUP	FN:10	PRODUCER	23-Oct-2007 04:53	
Company: Esso Australia Pty Ltd.					
Schlumberger					
Well:	A-16				
Field:	Marlin				
Rig:	Prod 4 / Crane				
Country:	Australia				
RST-C					
Sigma					
Survey					