Schlumberger

Company: **Esso Australia Pty Ltd.**

Well: **A−13**
Field: **Marlin**
Rig: **Prod 4 / Crane** Country: **Australia**

RST−C
Sigma
Survey

Rig: Prod 4 / Crane
Field: Marlin
Location: Gippsland
Well: A−13
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:	K.B	27.4 m	above Perm. Datum
Drilling Measured From:	K.B		

State:	Max. Well Deviation	Longitude	Latitude
Victoria	59 deg	148 13'09.18"E	038 13'55.49"S

Logging Date		23−Oct−2007		
Run Number		One		
Depth Driller		2030 m		
Schlumberger Depth		2030 m		
Bottom Log Interval		2030 m		
Top Log Interval		1960 m		
Casing Fluid Type		Production Fluid		
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size		12.000 in		
From		676.7 m		
To		2139.4 m		
Casing/Tubing Size		9.625 in		
Weight		47 lbm/ft		
Grade		N−80		
From		12.6 m		
To		2139.39 m		
Maximum Recorded Temperatures		229 degF		
Logger On Bottom	Time	23−Oct−2007	10:00	
Unit Number	Location	889	Ausl / Prod 4	
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	59 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	Time			
Unit Number	Location			
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
Calibration Cable Type:	2−32ZT	Calibration Gain:	0.89	Rig Type:	Rigless
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
3.
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: None	
OS2:	
OS3:	
OS4:	
OS5:	

REMARKS: RUN NUMBER 1

Log correlated to Solar composite supplied with logging program.

Maximum well deviation = 59 degree's at 1859m MDKB.

RST−C Sigma survey with the well shut−in.

Pass one was a Gamma−Ray,RST Sigma survey over the

interval 2030m to 1960m MDKB.

Second pass was cancelled due to lack of depth.

Second pass was cancelled due to lack of depth.

expected HUD was 2035m MDKB.

SBHP = 1979 psia.

SBHT = 171 degf.

Crew : J Light,J Annear,K Kerr,B Taylor.

RUN 1

SERVICE ORDER #:	Ausl07509084
PROGRAM VERSION:	14C0−302
FLUID LEVEL:	0 m

LOGGED INTERVAL	START	STOP

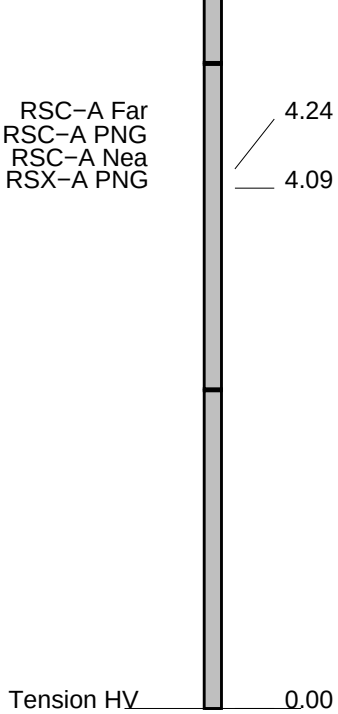
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

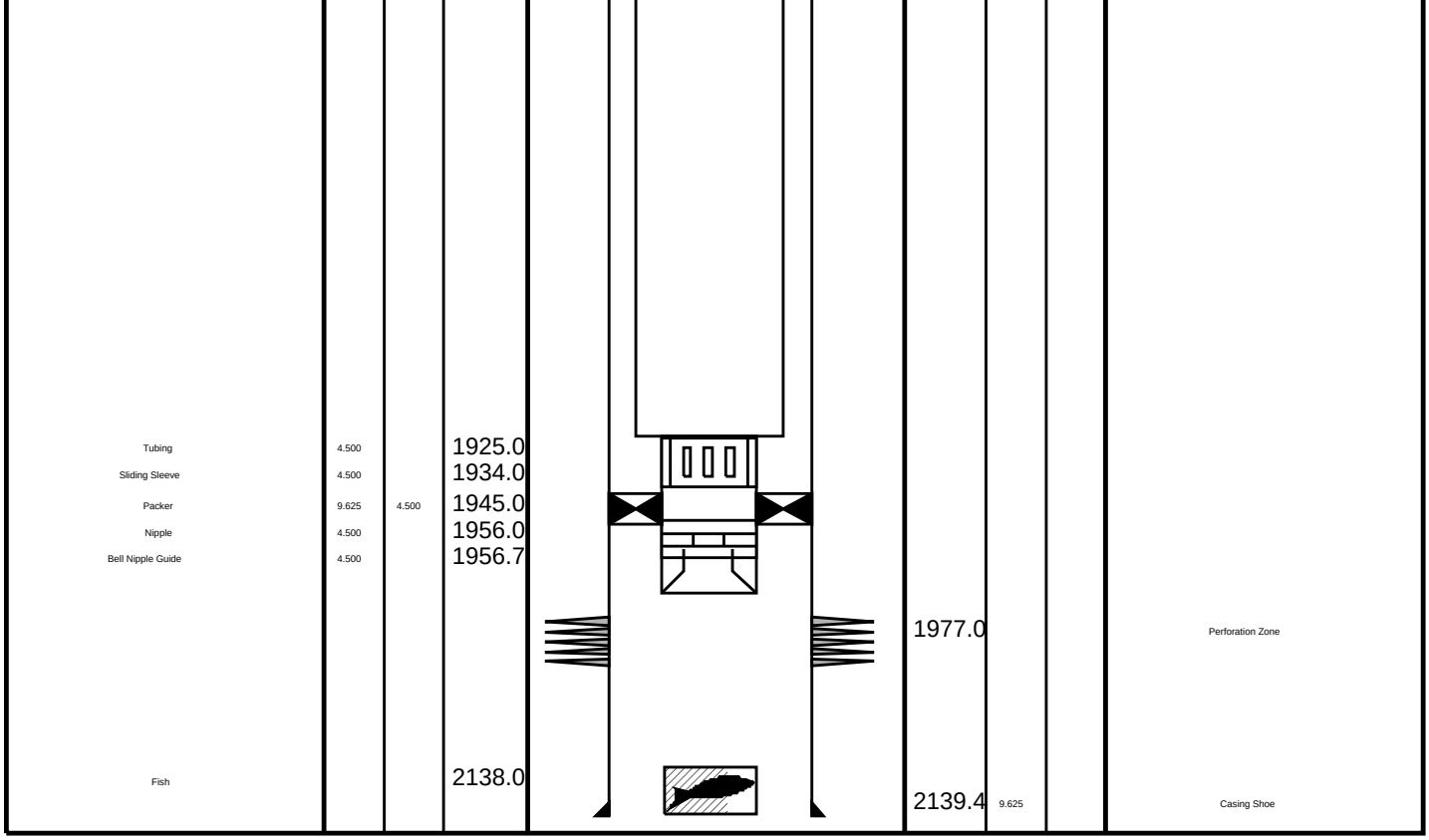
WITM−A 806
PSC_16MHZ 827

DOWNHOLE EQUIPMENT



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

Production String	(in) OD	(in) ID	(m) MD	Well Schematic	(m) MD	(in) OD	(in) ID	Casing String
Tubing	4.500		11.8		12.6	13.375		Casing String
Tubing Hanger	9.625	4.500	10.0		12.6	13.375	9.625	Liner Hanger
Shutin Valve	4.500		134.8					
Tubing	7.000		135.0					
					676.7	13.375		Casing Shoe



Schlumberger

Job Event Summary

MAXIS Field Log

Schlumberger Job Event Summary

	Time	Elapsed Time	Depth (M)		File
Log Pass (down)	23−Oct−2007 8:55	000:46	−5.3 −	2040.8	RST_PSP_004LDP
Log Pass (up)	23−Oct−2007 9:42	000:03	2044.9 −	2033.2	RST_PSP_005LUP
Log Pass (up)	23−Oct−2007 9:46	000:17	2041.1 −	1955.1	RST_PSP_006LUP
Log Pass (up)	23−Oct−2007 10:15	000:08	546.4 −	−3.8	RST_PSP_008LUP

Schlumberger

RST−C Sigma Pass
900 ft/hr 2030m to 1960m MDKB

MAXIS Field Log

Company: Esso Australia Pty Ltd. **Well: A−13**

Input DLIS Files

DEFAULT	RST_PSP_006LUP	FN:5	PRODUCER	23−Oct−2007 09:46	2041.1 M	1955.1 M

Output DLIS Files

DEFAULT	RST_PSP_007PUP	FN:6	PRODUCER	23−Oct−2007 10:11	2041.2 M	1950.3 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)
45 (−−−− 0

RST Sigma Borehole Fluid (SIBF)
100 (CU) 0

RST Near Effective Capture CR (RSCN_RST)
45 (−−−− 0

Sigma Borehole Far Apparent (SBFA_FIL)
150 (CU) 0

Tension (TENS)
0 (LBF) 3000

RST Capture to Inelastic Ratio Far (CIRF_FIL)
5 (−−−− 0

RST Capture Ratio (TRAT_FIL)
1.5 (−−−− 0.5

Sigma Formation Far Apparent (SFFA_FIL)
60 (CU) 0

RST Capture to Inelastic Ratio Near (CIRN_FIL)
2.5 (−−−− 0

Minitron Arc Detection (MARC)
0 (−−−− 5

RST Sigma Difference (DSIG)
−30 (CU) 30

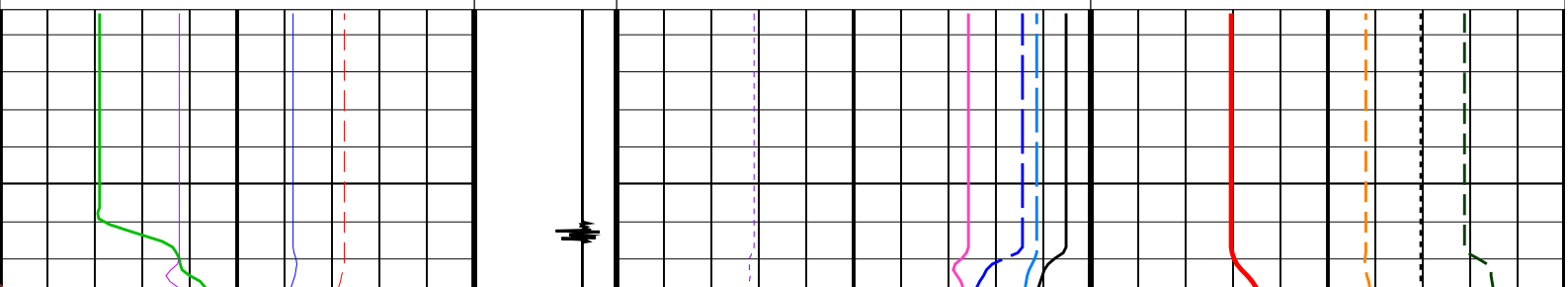
MCS Far Background (filtered) (FBAC)
0 (CPS) 5000

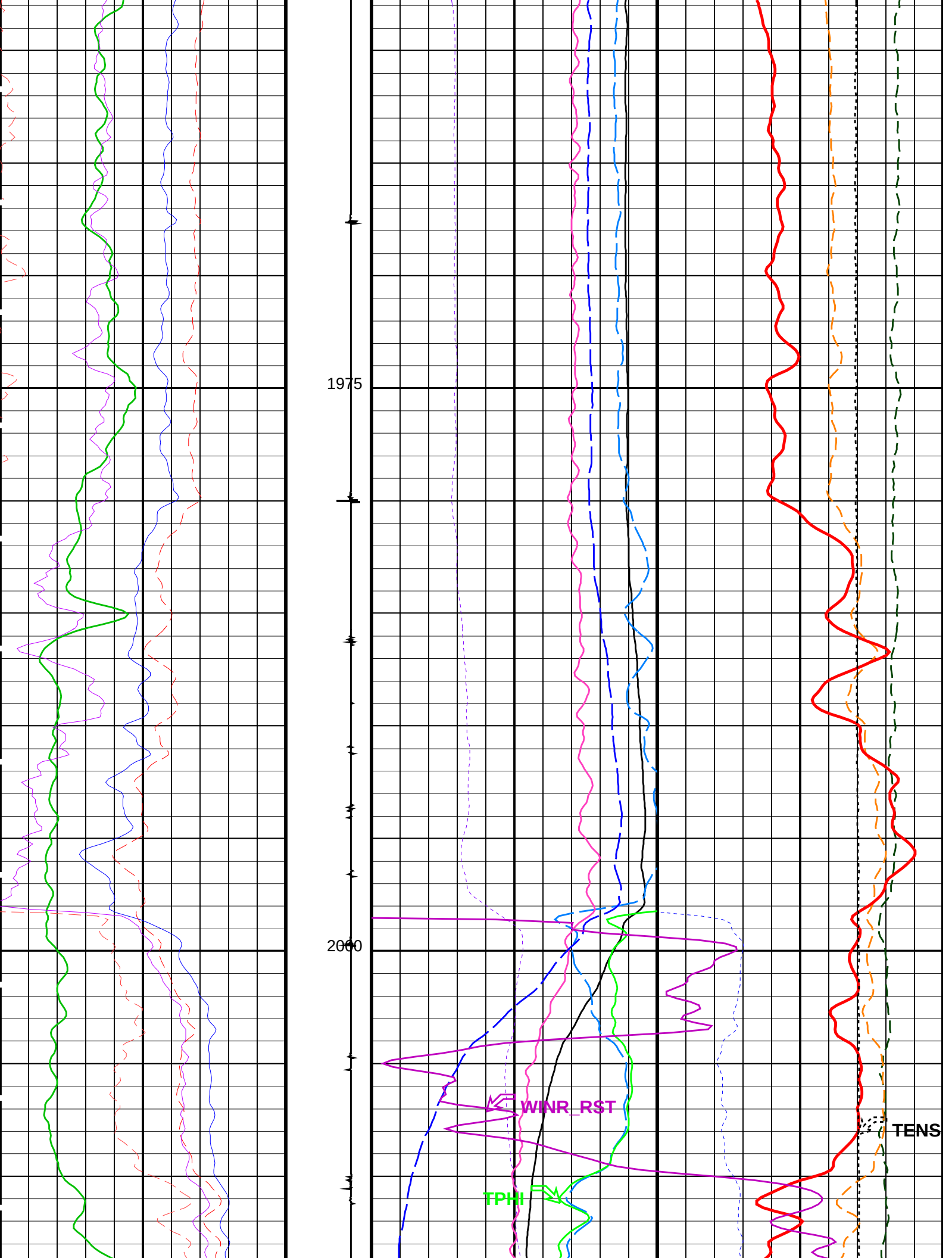
Gamma Ray (GR)
0 (GAPI) 150

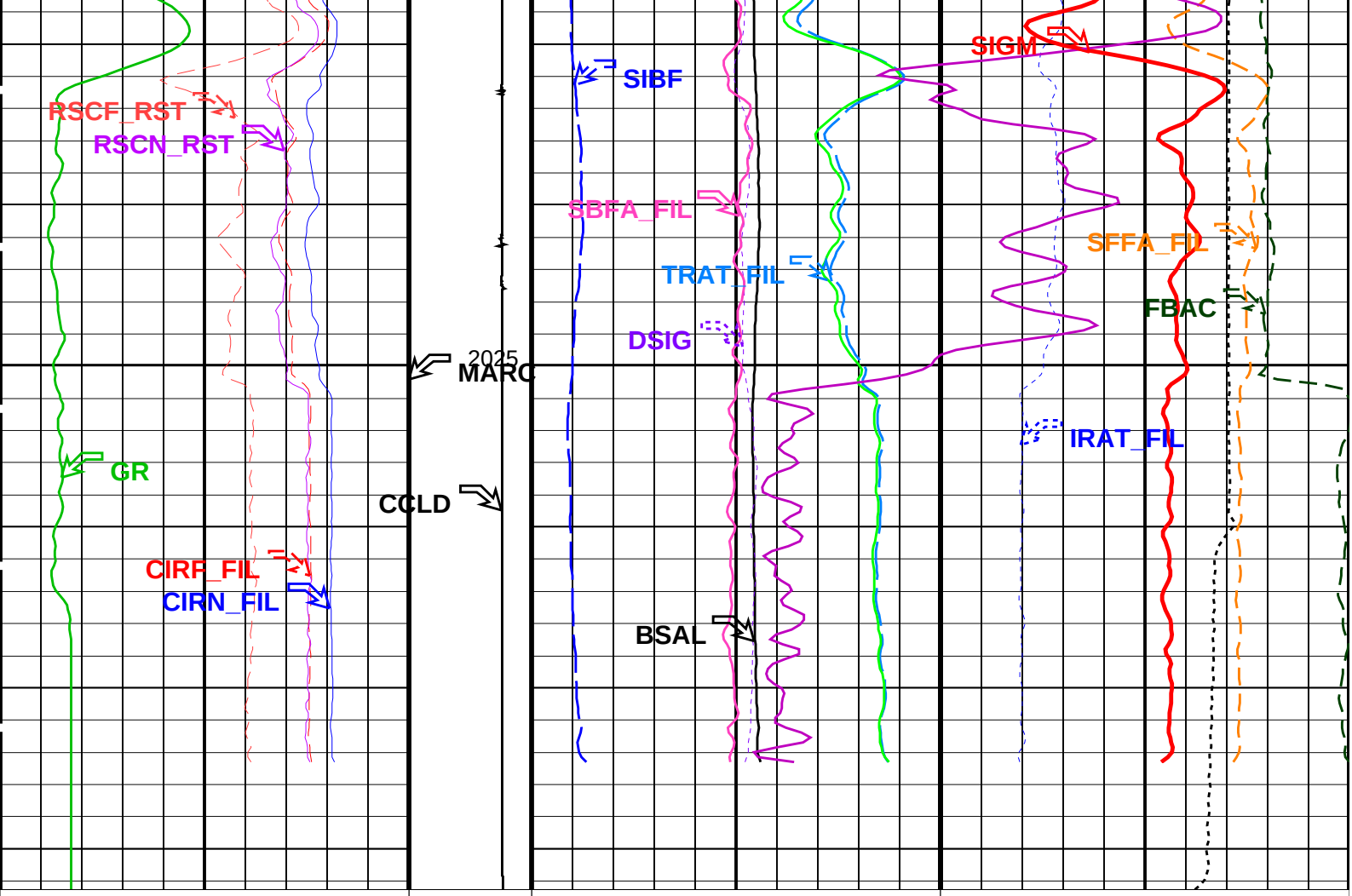
Discriminated CCL (CCLD)
3 (V) −1

RST Borehole Salinity (BSAL)
450 (PPK) −50

RST Inelastic Ratio (IRAT_FIL)
0.75 (−−−− 0




1975
2000
WINR_RST
TPHI
TENS



Gamma Ray (GR) 0 (GAPI) 150	Discriminated CCL (CCLD) 3 (V) −1	RST Borehole Salinity (BSAL) 450 (PPK) −50
RST Inelastic Ratio (IRAT_FIL) 0.75 (---- 0	RST Capture to Inelastic Ratio Near (CIRN_FIL) 2.5 (---- 0	Minitron Arc Detection (MARC) 0 (---- 5
RST Sigma Difference (DSIG) −30 (CU) 30	MCS Far Background (filtered) (FBAC) 0 (CPS) 5000	RST Capture to Inelastic Ratio Far (CIRF_FIL) 5 (---- 0
RST Capture Ratio (TRAT_FIL) 1.5 (---- 0.5	Sigma Formation Far Apparent (SFFA_FIL) 60 (CU) 0	RST Near Effective Capture CR (RSCN_RST) 45 (---- 0
Sigma Borehole Far Apparent (SBFA_FIL) 150 (CU) 0	Tension (TENS) 0 (LBF) 3000	RST Far Effective Capture CR (RSCF_RST) 45 (---- 0
RST Sigma Borehole Fluid (SIBF) 100 (CU) 0		
RST Porosity (TPHI) 0.6 (V/V) 0		
RST Weighted Inelastic Ratio (WINR_RST) 0.4 (---- 0		
RST Sigma (SIGM) 60 (CU) 0		

PIP SUMMARY

Time Mark Every 60 S

Parameters

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	
	BORDYN: BorDyn (Well Test Validation)		
BHS	Borehole Status	CASED	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
	System and Miscellaneous		
BS	Bit Size	12.000	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	47.00	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 10:11**

OP System Version: 14C0−302

MCM

RST−C	**14C0−302**	**PSPT−A/B**	**14C0−302**

Input DLIS Files

DEFAULT	**RST_PSP_006LUP**	**FN:5**	**PRODUCER**	**23−Oct−2007 09:46**	**2041.1 M**	**1955.1 M**

Output DLIS Files

DEFAULT	**RST_PSP_007PUP**	**FN:6**	**PRODUCER**	**23−Oct−2007 10:11**

Schlumberger

Gamma−Ray Pass

MAXIS Field Log

Company: Esso Australia Pty Ltd. **Well: A−13**

Input DLIS Files

DEFAULT	**RST_PSP_006LUP**	**FN:5**	**PRODUCER**	**23−Oct−2007 09:46**	**2041.1 M**	**1955.1 M**

Output DLIS Files

DEFAULT	**RST_PSP_007PUP**	**FN:6**	**PRODUCER**	**23−Oct−2007 10:11**	**2041.2 M**	**1950.3 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)
0 (PSIA) 3000

Well Temperature (WTEP)
0 (DEGF) 10

Well Pressure (WPRE) (PSIA) | Temperature (WTEP) (DEGF)

Well Temperature Gradient (WTGR)
0 (DC/M) 10

Perfo Zone From PERFO_CURVE to D3T

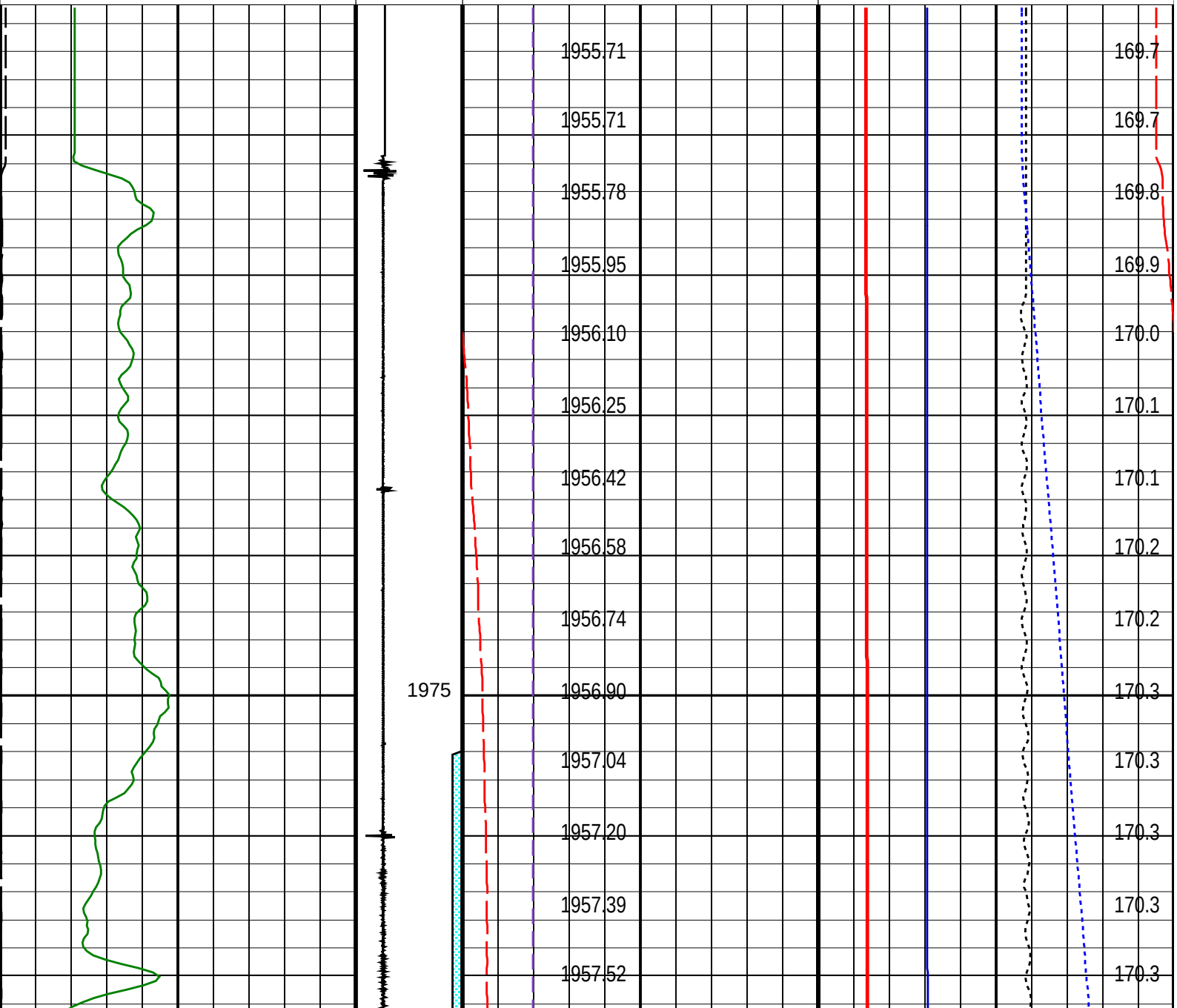
Well Temperature (WTEP)
0 (DEGF) 300

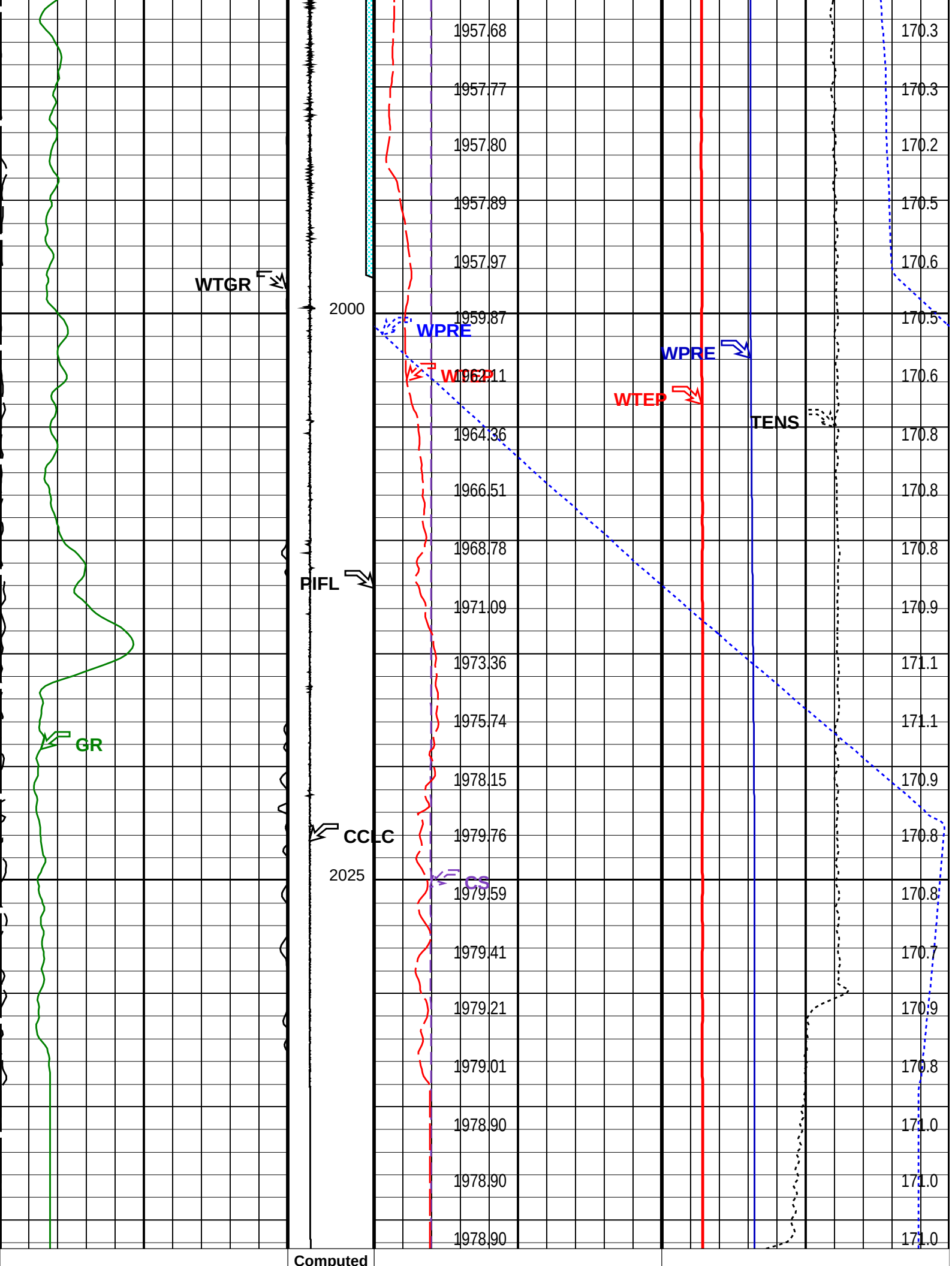
Gamma Ray (GR)
0 (GAPI) 150

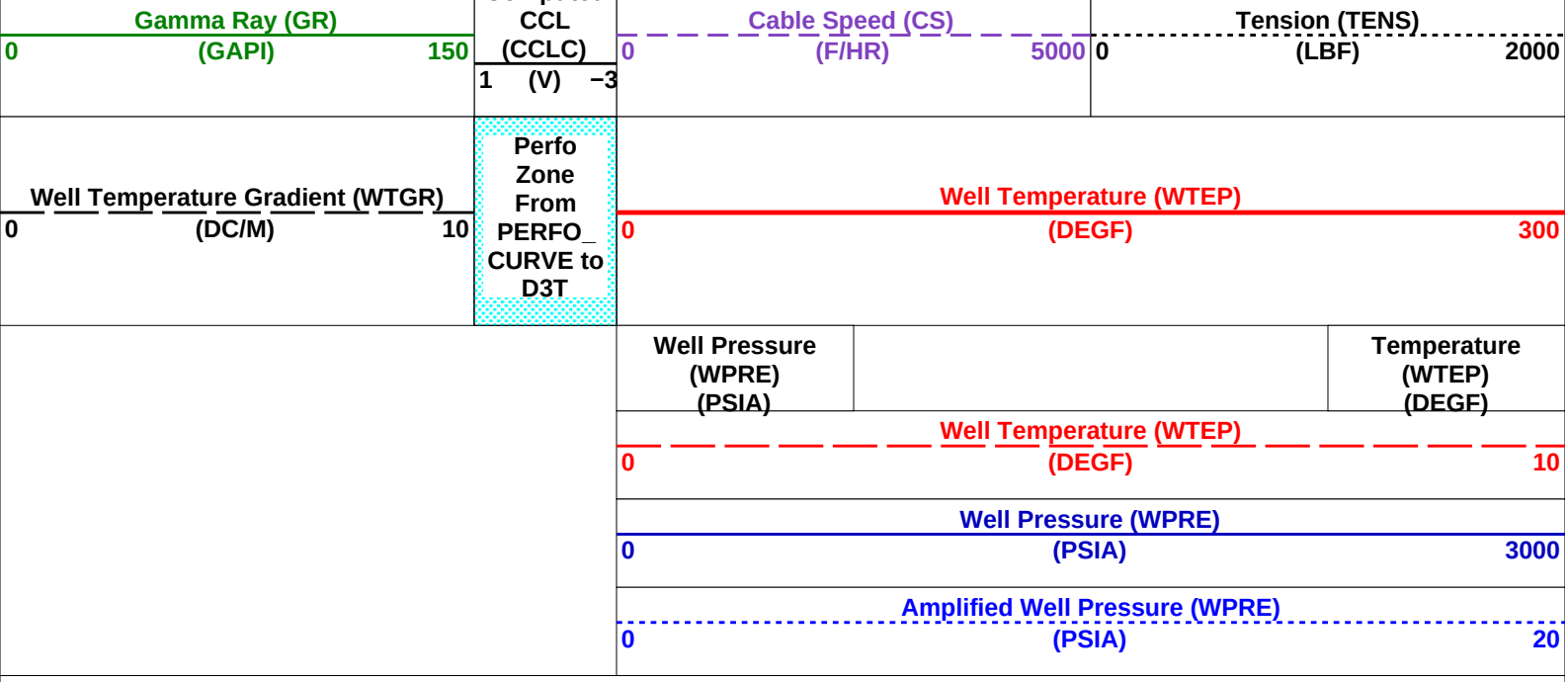
Computed CCL (CCLC)
1 (V) −3

Cable Speed (CS)
0 (F/HR) 5000

Tension (TENS)
0 (LBF) 2000




1957.68
1957.77
1957.80
1957.89
1957.97
1959.87
1962.11
1964.36
1966.51
1968.78
1971.09
1973.36
1975.74
1978.15
1979.76
1979.59
1979.41
1979.21
1979.01
1978.90
1978.90
1978.90
170.3
170.3
170.2
170.5
170.6
170.5
170.6
170.8
170.8
170.8
170.9
171.1
171.1
170.9
170.8
170.8
170.7
170.9
170.8
171.0
171.0
171.0
WTGR
2000
WPRE
WTEP
WPRE
TENS
PIFL
GR
CCLC
2025
CS
Computed



PIP SUMMARY

Time Mark Every 60 S

Format: PSP_1 Vertical Scale: 1:200 Graphics File Created: 23−Oct−2007 10:11

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	0.2	M
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	RST_PSP_006LUP	FN:5	PRODUCER	23−Oct−2007 09:46	2041.1 M	1955.1 M

Output DLIS Files

DEFAULT	RST_PSP_007PUP	FN:6	PRODUCER	23−Oct−2007 10:11

Company: **Esso Australia Pty Ltd.**

Schlumberger

Well: **A−13**
Field: **Marlin**
Rig: **Prod 4 / Crane**
Country: **Australia**

RST−C
Sigma
Survey