

Company: Esso Australia Pty Ltd.

Well: A-13a
Field: Bream A
Rig : Prod4 / Crane
Country: Australia

Prod4 / Crane
Bream A
Gippsland
A-13a
Esso Australia Pty Ltd.

RST-C Sigma Survey		LOCATION		
		Gippsland	Elev.: K.B. 32.2 m	
		Basin	G.L. -59 m	
		Bass Strait	D.F. 32.2 m	
		Permanent Datum:	M.S.L.	
Log Measured From:		D.F.	32.2 m	above Perm. Datum
Drilling Measured From:		D.F.		
State : Victoria	Max. Well Deviation 65 deg	Longitude 147 46'20.24"E	Latitude 038 30'58.84"S	
Logging Date		18-Jun-2007		
Run Number		One		
Depth Driller		2585 m		
Schlumberger Depth		2585 m		
Bottom Log Interval		2585 m		
Top Log Interval		2525 m		
Casing Fluid Type		Production Fluids		
Salinity				
Density				
Fluid Level		1070 m		
BIT/CASING/TUBING STRING				
Bit Size		6.000 in		
From				
To				
Casing/Tubing Size		4.500 in		
Weight		12.6 lbm/ft		
Grade		Vam-Ace		
From		2302.04 m		
To		2672.98 m		
Maximum Recorded Temperatures		207 degF		
Logger On Bottom		18-Jun-2007		12:45
Unit Number		Location		
Recorded By		G Wright & S Gilbert.		
Witnessed By		B White & B Robinson.		

	Oil Density	Run 1
	Water Salinity	
	Gas Gravity	
	Bo	
	Bw	
	1/Bg	
	Bubble Point Pressure	
	Bubble Point Temperature	
	Solution GOR	
	Maximum Deviation	65 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: 18-JUN-2007 9:54:56

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:	24425
Calibration Date:	04-Jan-2007	Calibration Date:	10-Jun-2007	Length:	6473.04 M
Calibrator Serial Number:	9	Calibrator Serial Number:	1174	Conveyance Method: Wireline Rig Type: Offshore_Fixed	
Calibration Cable Type:	2-32ZT	Calibration Gain:	0.92		
Wheel Correction 1:	-2	Calibration Offset:	199.00		
Wheel Correction 2:	-4				

Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	ExxonMobil correlation log.
Reference Log Run Number:	
Reference Log Date:	31-Jan-2005

Depth Control Remarks

1. IDW-EB 6373 used as primary depth control.
2. Z chart used as secondary 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 SERVICES1
OS1: 2 1/8" Powerjet
OS2: Perforation
OS3: 4.5"MPBT Plug

REMARKS: RUN NUMBER 1
Log correlated to ExxonMobil composite supplied with logging program.
Maximum well deviation = 65 degrees at 1113m MDKB.
Objective: Conduct RST Sigma survey from HUD @ 2585m to 2530m MDKB
making 2 passes @ 900ft/hr with well shut in .
SBHP: 2632 psia
SBHT: 207 degf
HUD:
Following this survey the well will be re-perforated and

Following this survey the well will be re-perforated and
a 4.5" MPBT plug set to isolate current water production zone.

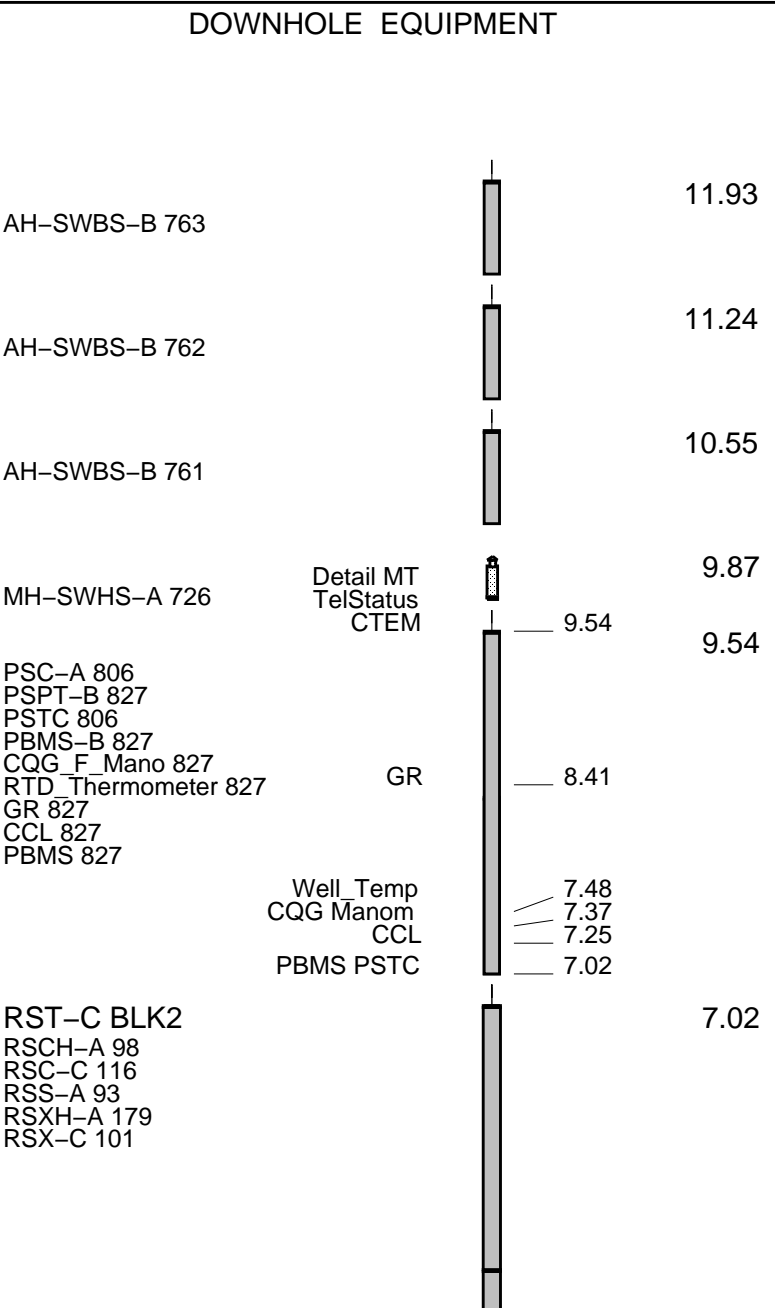
Crew : J Annear,J Light,P Lawrence,K Kerr.

RUN 1
SERVICE ORDER #: AusI07328224
PROGRAM VERSION: 14C0-302
FLUID LEVEL: 1070 m

LOGGED INTERVAL	START	STOP

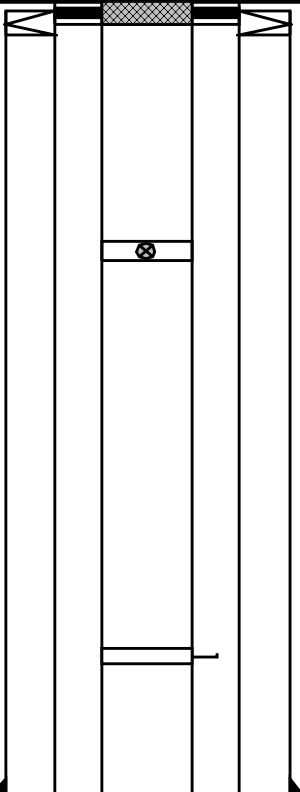
EQUIPMENT DESCRIPTION

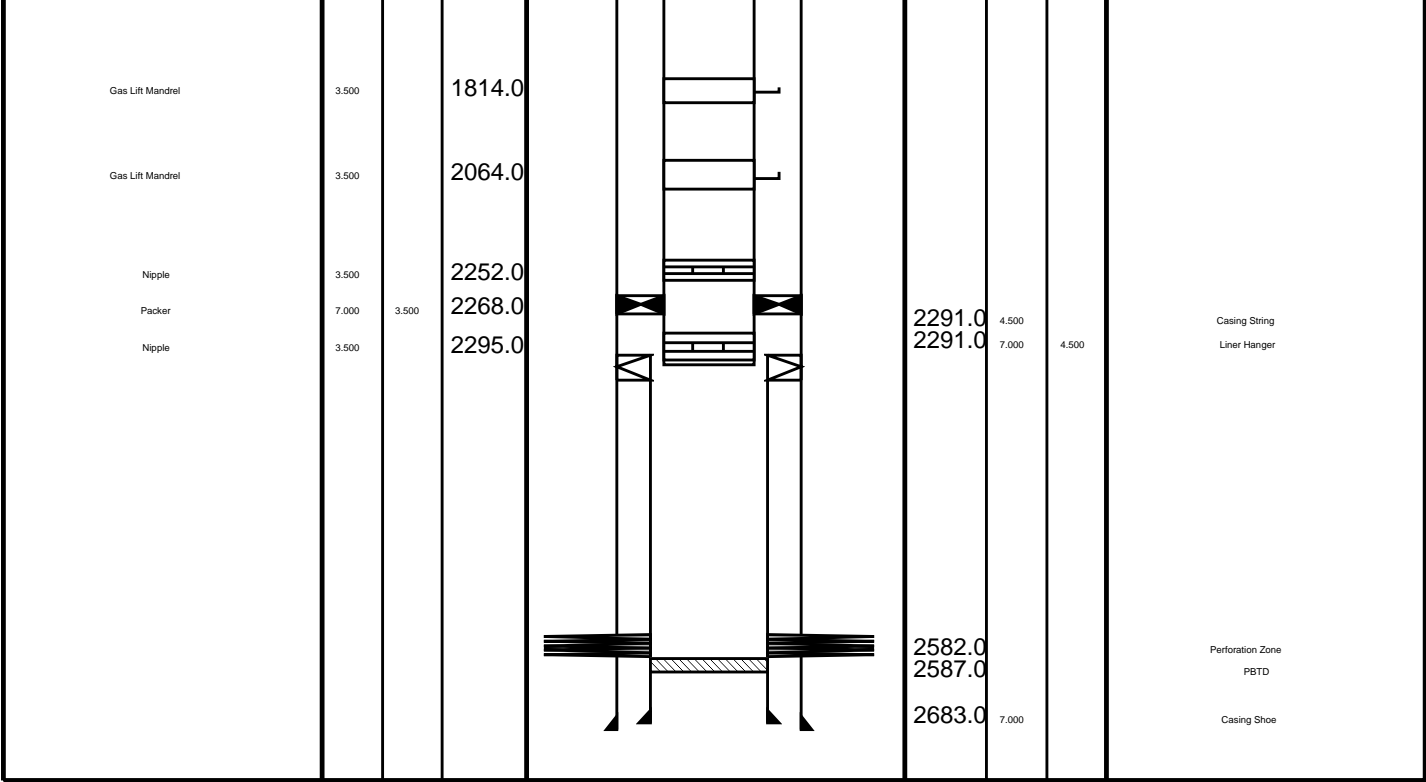
RUN 1
SURFACE EQUIPMENT
WITM-A
PSC_16MHZ 806



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

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

Production String	(in)		MD	Well Schematic	(in)		MD	Casing String
	OD	ID			OD	ID		
Tubing Hanger	7.500	3.500	14.0		14.1	10.750	7.000	Casing String Liner Hanger
Shutin Valve		3.500	463.0			14.1		
Gas Lift Mandrel		3.500	1135.0					
						1283.9	10.750	Casing Shoe



Job Event Summary

MAXIS Field Log

Schlumberger Job Event Summary

Time	Elapsed Time	Depth (M)	File
Log Pass (down)	18-Jun-2007 11:58	000:45	-10.1 - 2585.6 RST_PSP_006LDP
Log Pass (up)	18-Jun-2007 12:44	000:08	2589.6 - 2509.7 RST_PSP_007LUP
Log Pass (up)	18-Jun-2007 12:59	000:16	2591.9 - 2517.6 RST_PSP_008LUP
Log Pass (up)	18-Jun-2007 13:16	000:16	2593.2 - 2518.9 RST_PSP_009LUP

Company: Esso Australia Pty Ltd.

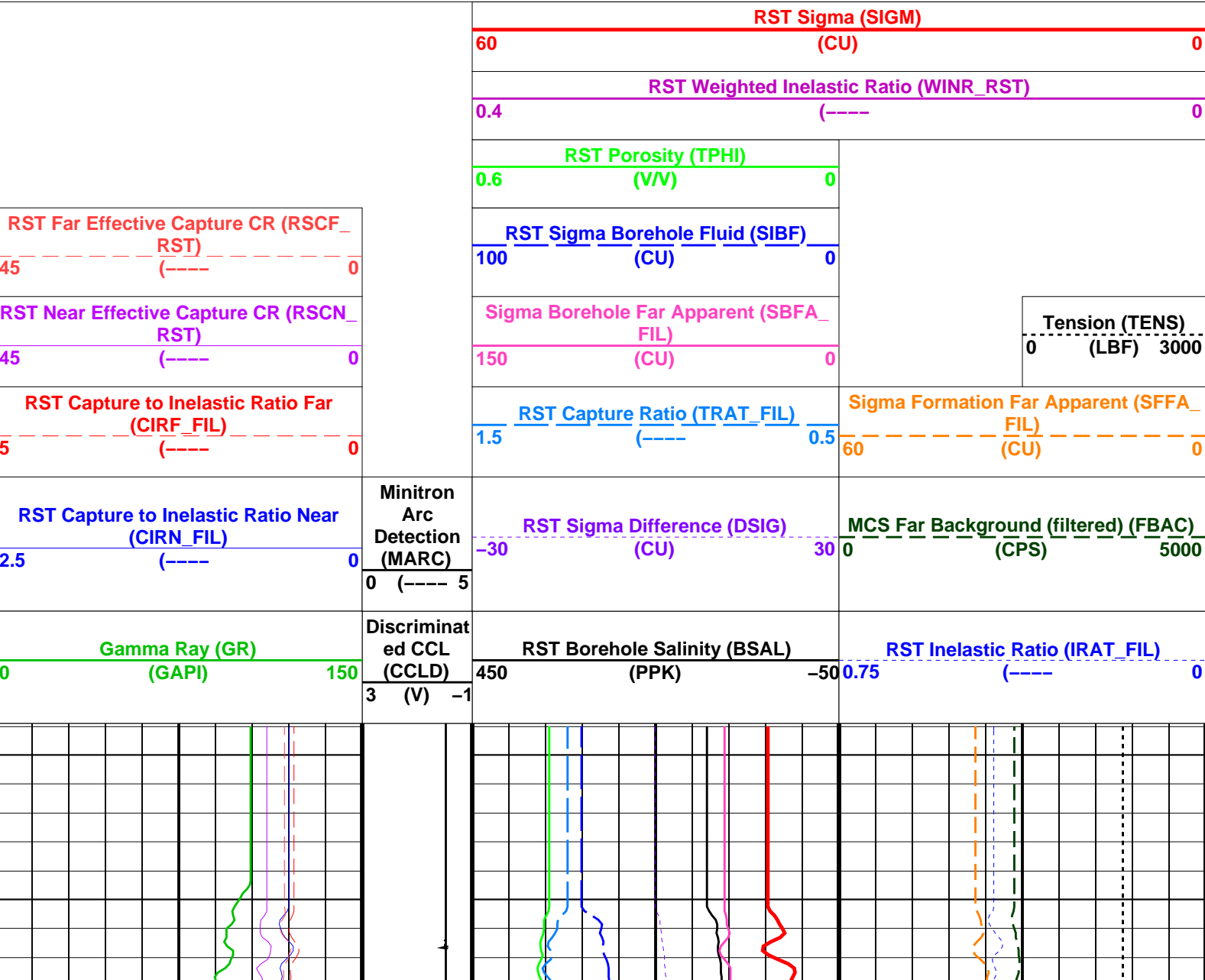
Well: A-13a

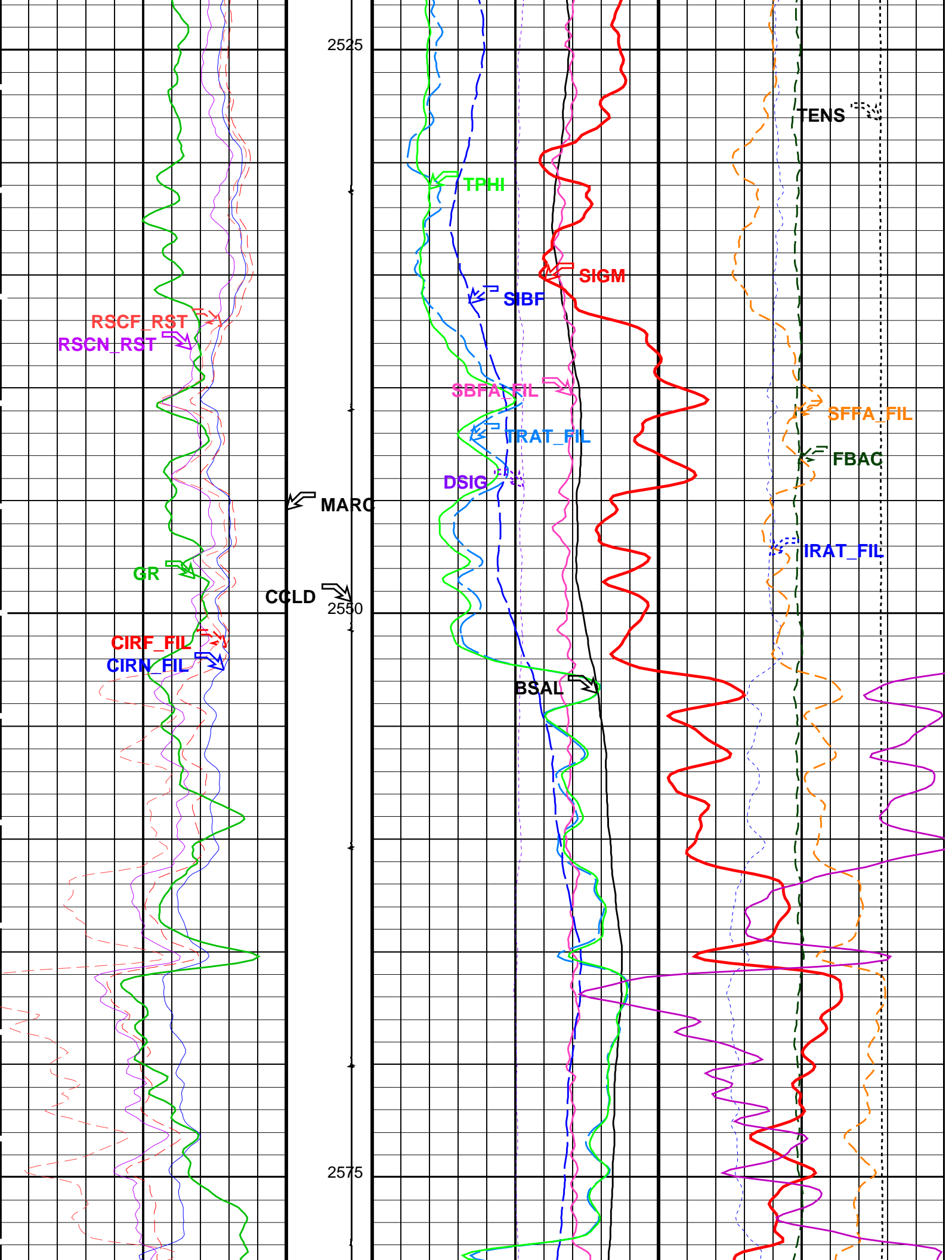
Input DLIS Files					
DEFAULT	RST_PSP_009LUP	FN:8	PRODUCER	18-Jun-2007 13:16	2593.2 M 2518.9 M
Output DLIS Files					
DEFAULT	RST_PSP_016PUP	FN:15	PRODUCER	18-Jun-2007 13:54	2593.2 M 2513.8 M

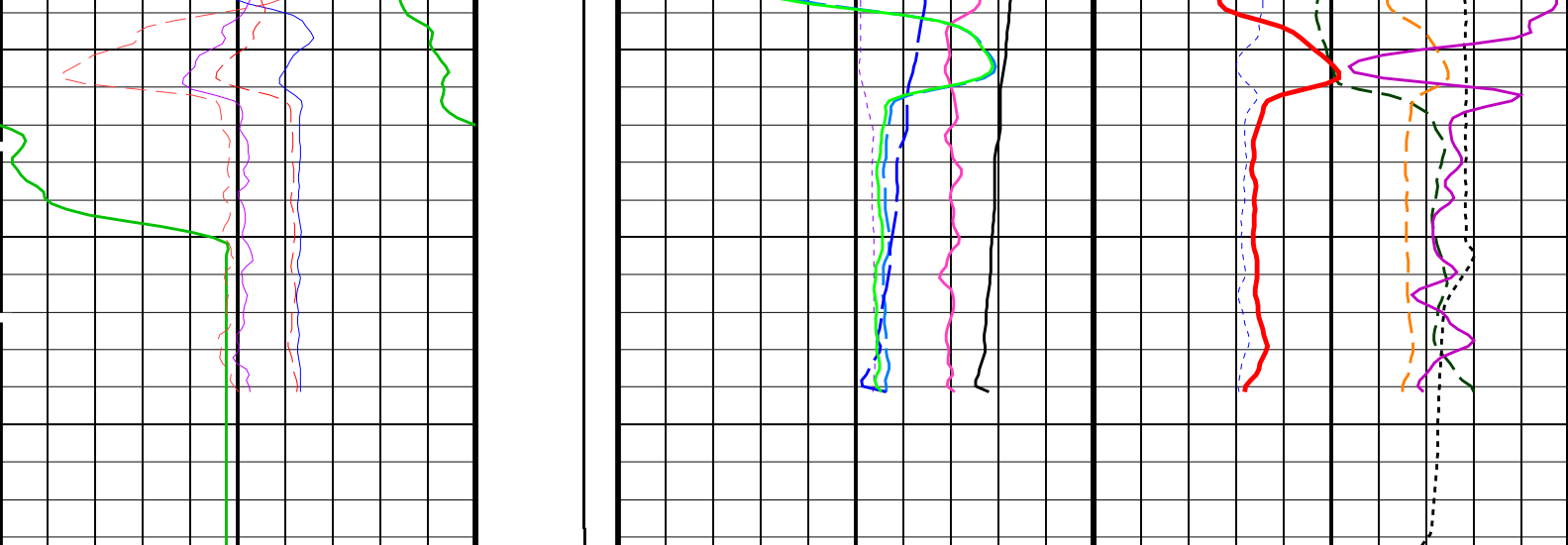
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B		14C0-302	

PIP SUMMARY

Time Mark Every 60 S







<div>Gamma Ray (GR) (GAPI)</div> <div>0150</div>	Discriminat ed CCL (CCLD) 3 (V) -1	RST Borehole Salinity (BSAL)		RST Inelastic Ratio (IRAT_FIL)	
		450 (PPK) -50	0.75 (----) 0		
<div>RST Capture to Inelastic Ratio Near (CIRN_FIL)</div> <div>2.5 (----) 0</div>	Minitron Arc Detection (MARC) 0 (---- 5	RST Sigma Difference (DSIG) -30 (CU) 30		MCS Far Background (filtered) (FBAC) 0 (CPS) 5000	
<div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>5 (----) 0</div>		RST Capture Ratio (TRAT_FIL) 1.5 (----) 0.5		Sigma Formation Far Apparent (SFFA_ FIL) 60 (CU) 0	
<div>RST Near Effective Capture CR (RSCN_ RST)</div> <div>45 (----) 0</div>		Sigma Borehole Far Apparent (SBFA_ FIL) 150 (CU) 0		<div>Tension (TENS) 0 (LBF) 3000</div>	
<div>RST Far Effective Capture CR (RSCF_ RST)</div> <div>45 (----) 0</div>		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

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		Bit Size	6.000	IN
BS		Borehole Salinity	-50000.00	PPM
BSAL		Current Casing Size	4.500	IN
CSIZ		Casing Weight	12.60	LB/F
CWEI		Depth Offset for Playback	0.0	M
DO		Playback Processing	NORMAL	
PP				

Format: RST_SIG_ANSW		Vertical Scale: 1:200		Graphics File Created: 18-Jun-2007 13:54	
----------------------	--	-----------------------	--	--	--

OP System Version: 14C0-302

MCM

RST-C

14C0-302

PSPT-A/B

14C0-302

Input DLIS Files

DEFAULT

RST_PSP_009LUP

FN:8

PRODUCER

18-Jun-2007 13:16

2593.2 M

2518.9 M

Output DLIS Files

DEFAULT

RST_PSP_016PUP

FN:15

PRODUCER

18-Jun-2007 13:54

Schlumberger

RST-C Sigma Pass # 1

MAXIS Field Log

Company: Esso Australia Pty Ltd.		Well: A-13a	
----------------------------------	--	-------------	--

Input DLIS Files

DEFAULT

RST_PSP_008LUP

FN:7

PRODUCER

18-Jun-2007 12:59

2591.9 M

2517.6 M

Output DLIS Files

DEFAULT

RST_PSP_014PUP

FN:13

PRODUCER

18-Jun-2007 13:53

2591.9 M

2512.6 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 Sigma Borehole Fluid (SIBF)

100(CU)0

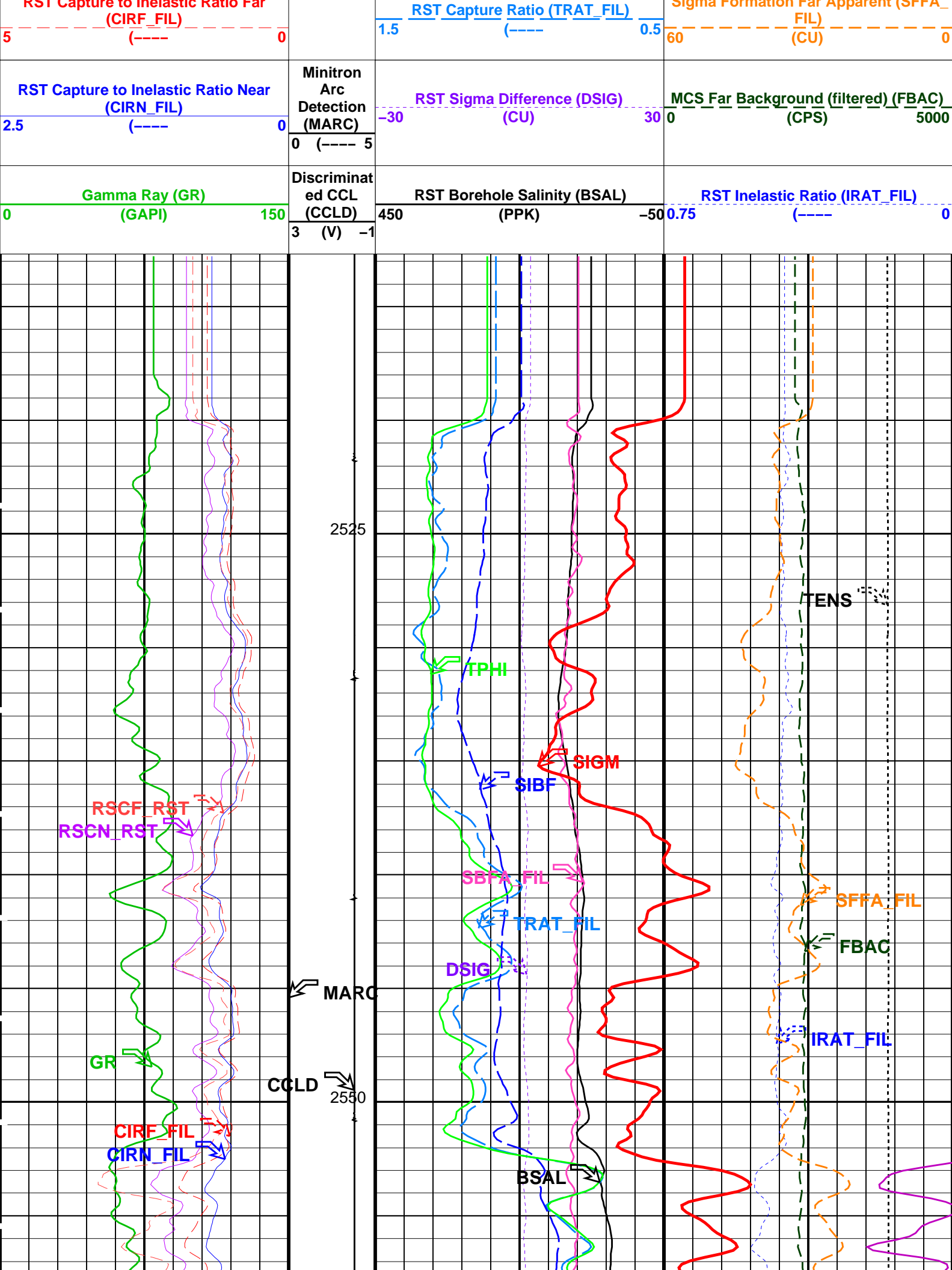
Sigma Borehole Far Apparent (SBFA_FIL)

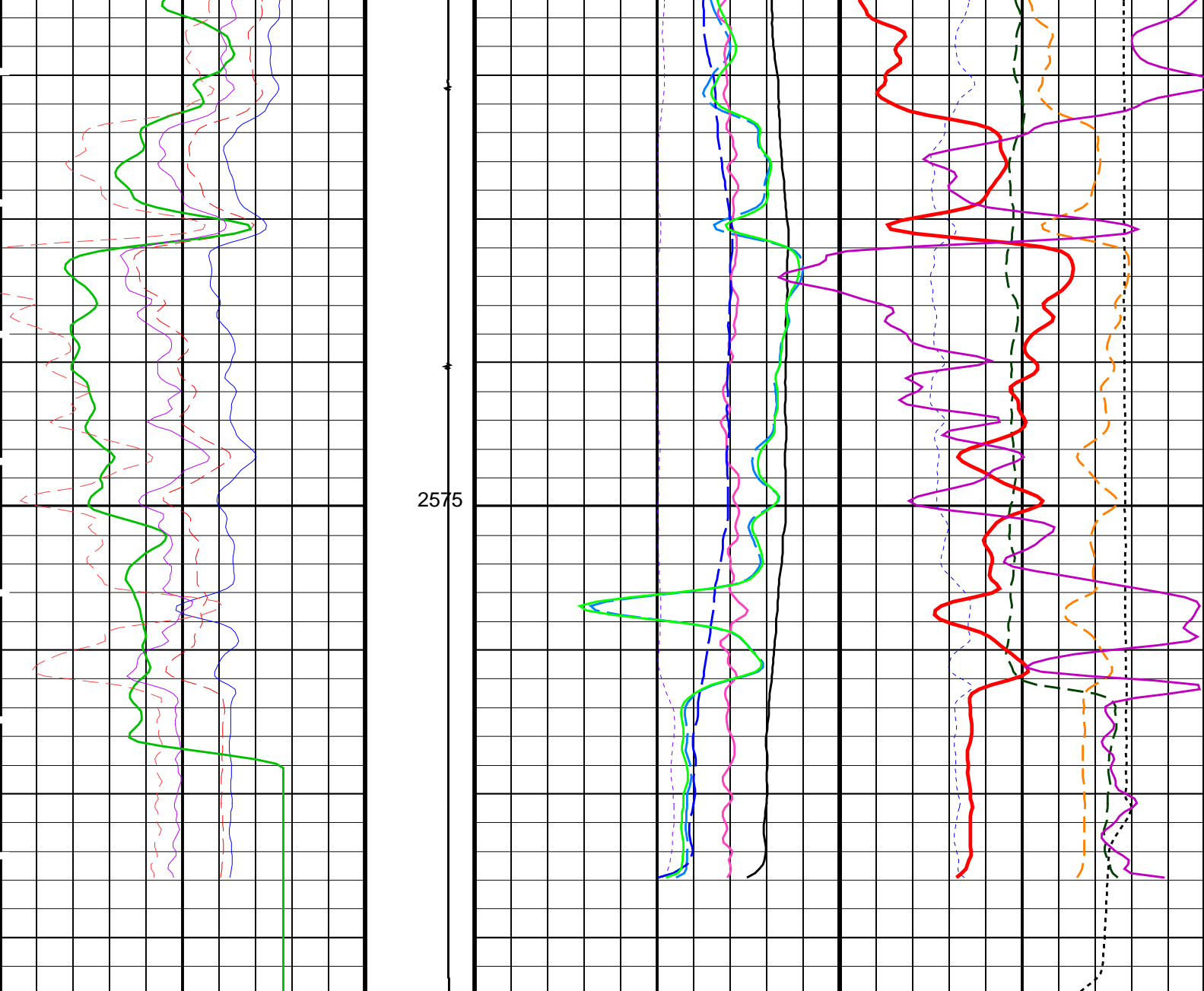
150(CU)0

Tension (TENS)

0(LBF)3000

Sigma Formation Far Apparent (SFFA)





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

	0.4	(----	0
	RST Sigma (SIGM)		
	60	(CU)	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 Minित्रon 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	6.000	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	12.60	LB/F
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	NORMAL	

Format: RST_SIG_ANSW Vertical Scale: 1:200 Graphics File Created: 18-Jun-2007 13:53

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

Input DLIS Files					
DEFAULT	RST_PSP_008LUP	FN:7	PRODUCER	18-Jun-2007 12:59	2591.9 M 2517.6 M
Output DLIS Files					
DEFAULT	RST_PSP_014PUP	FN:13	PRODUCER	18-Jun-2007 13:53	



Gamma-Ray Pass

MAXIS Field Log

Input DLIS Files					
DEFAULT	RST_PSP_007LUP	FN:6	PRODUCER	18-Jun-2007 12:44	2589.6 M 2509.7 M
Output DLIS Files					
DEFAULT	RST_PSP_010PUP	FN:9	PRODUCER	18-Jun-2007 13:34	2591.6 M 2506.7 M

OP System Version: 14C0-302

PIP SUMMARY

Time Mark Every 60 S			Cable Speed (CS) 0 (F/HR) 5000	
			Tension (TENS) 0 (LBF) 3000	
			Amplified Well Pressure (WPRE) 0 (PSIA) 20	
Well Pressure (WPRE) (PSIA)		Perfo Zone From PERFO_CURVE to D3T	Well Pressure (WPRE) (PSIA) 2550 2650	
Well Temperature Gradient (WTGR) (DGFM) 0 10		Computed CCL (CCLC) 1 (V) -3	Well Temperature (WTEP) (DEGF) 0 1	
Gamma Ray (GR) (GAPI) 0 150		Discriminat ed CCL (CCLD) 3 (V) -1	Well Temperature (WTEP) (DEGF) 202 209	

