

Company: Esso Australia Pty Ltd.

Well: A 5

Field: Flounder

Rig: Prod 4

Country: Australia

RST-C
Sigma
Survey

Prod 4
Flounder
Gippsland
A 5
Esso Australia Pty Ltd.

LOCATION	
Gippsland	Elev.: K.B. 34 m
Basin	G.L. -94 m
Bas Strait	D.F. 34 m
Permanent Datum:	M.S.L. _____
Log Measured From:	D.F. _____
Drilling Measured From:	D.F. _____
State: Victoria	Max. Well Deviation 33 deg
	Longitude 148°06'15.1"E
	Latitude 38°18'45.2"S

Logging Date	10-Feb-2007
Run Number	One
Depth Driller	2843 m
Schlumberger Depth	2840 m
Bottom Log Interval	2840 m
Top Log Interval	2780 m
Casing Fluid Type	Production Fluid
Salinity	
Density	
Fluid Level	590 m
BIT/CASING/TUBING STRING	
Bit Size	9.875 in
From	
To	
Casing/Tubing Size	7.658 in
Weight	29.7 lbm/ft
Grade	N -80
From	13 m
To	2905 m
Maximum Recorded Temperatures	230 degF
Logger On Bottom	10-Feb-2007
Unit Number	889
Recorded By	S Gilbert / G Wright
Witnessed By	B White / B Robinson

PVT DATA		Run 1	
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	33 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: 10-FEB-2007 8:03:46

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6373 Calibration Date: 4-JAN-2007 Calibrator Serial Number: 9 Calibration Cable Type: 2-32ZT Wheel Correction 1: -2 Wheel Correction 2: -4	Type: CMTD-B/A Serial Number: 325357 Calibration Date: 6-FEB-2007 Calibrator Serial Number: 1174 Calibration Gain: 0.90 Calibration Offset: 197.00	Type: 2-32ZT Serial Number: 24426 Length: 6600.14 M Conveyance Method: Wireline Rig Type: Offshore_Mobile

Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	Solar Compersite 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.

DISCLAIMER

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OTHER SERVICES1
OS1: 2 1/8" Powerjet
OS2: Perforation
OS3: Mwpt










REMARKS: RUN NUMBER 1
Log correlated to Solar composite log supplied with program.
Maximum well deviation = 33 degrees at 745m MDKB.
Passes one and two were RST Sigma log static from 2845 to 2775 MDKB @ 900ft/hr.
Station log at 2841m MDKB while well opened & stabilized for flowing survey.
Pass 3 was a Sigma log while well flowing 2845 to 2775 MDKB @ 900ft/hr
SBHT 231degf
SBHP 3115 psia
Well was flowed at 100% choke total fluids = 370 kl/d

Well was flowed at 100 % choke, total fluids = 370 K/d.
FBHP = 3152 psia.
FBHT = 231 degf.
Pass 3 there were some tool anomalies, minitron arcing etc.

Crew : J Annear,A Hall,P Lawrence,G Martin.

RUN 1				
SERVICE ORDER #:		AUSL07336255		
PROGRAM VERSION:		14C0-302		
FLUID LEVEL:		590 m		
LOGGED INTERVAL	START	STOP		

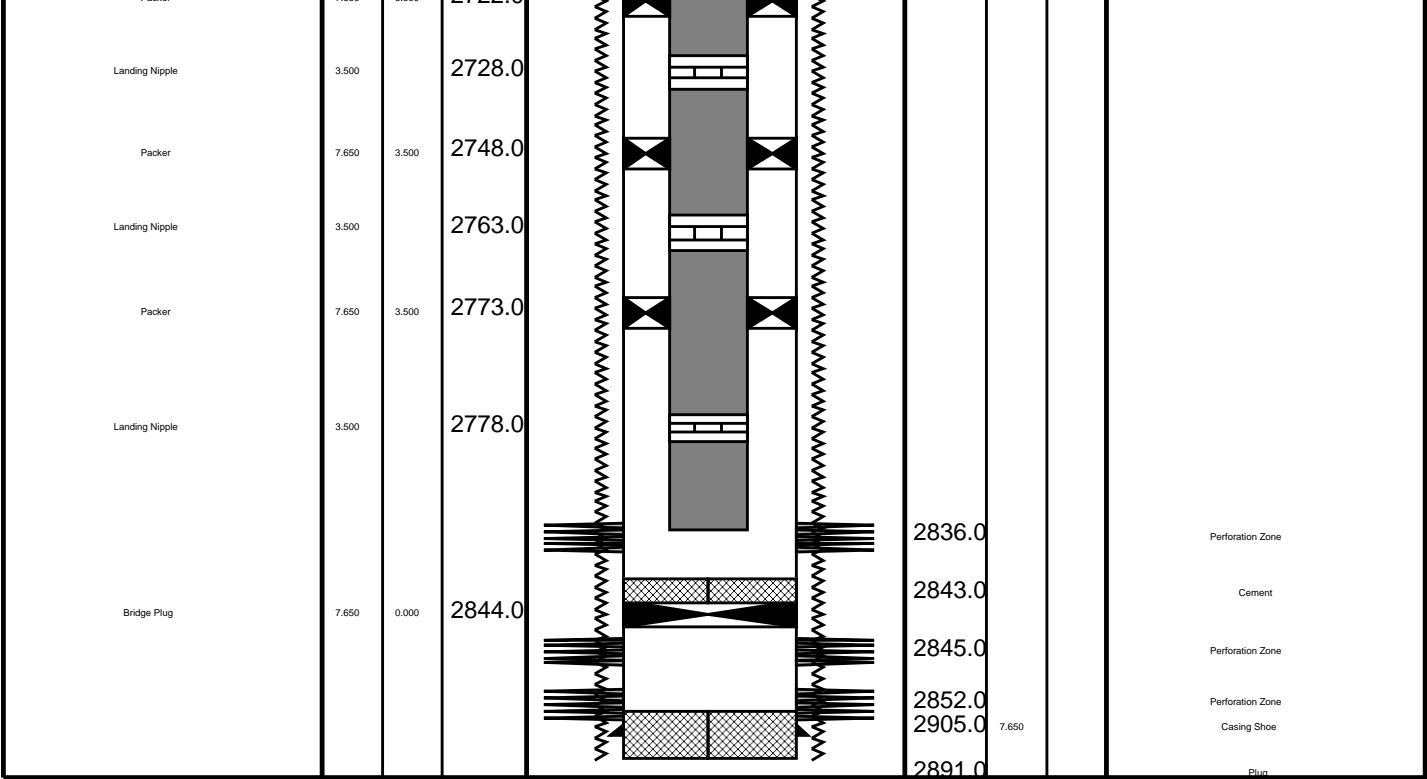
EQUIPMENT DESCRIPTION

RUN 1				
SURFACE EQUIPMENT				
WITM-A 806 PSC_16MHZ 827				
DOWNHOLE EQUIPMENT				
AH-SWBS 731			12.71	
AH-SWBS 763			12.03	
AH-SWBS 762			11.34	
AH-SWBS 761			10.66	
MH-SWHS 726	Detail MT TelStatus CTEM		9.97	
			9.54	
PSC-A 806 PSPT-B 827 PSTC 827 PBMS-B 827 CQG_F_Mano 827 RTD_Thermometer 827 GR 827 CCL 827 PBMS 827	GR		8.41	
	Well_Temp CQG Manom CCL PBMS PSTC		7.48 7.37 7.25 7.02	
RSCH-A 45 RSC-C 45 RSS-A 45 RSXH-A 63 RSX-C 63			7.02	

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

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	8.000	3.500	12.5		13.0	10.750	<div>Casing String</div> <div>Casing String</div> <div>Liner Hanger</div> <div>Borehole Segment</div> <div></div> <div></div> <div></div> <div>Casing Shoe</div> <div>Borehole Segment</div>	
Tubing	3.500	2.900	12.6		13.0	7.650		7.650
					13.0	7.625		
					20.0	12.500		
SSSV	3.500		443.0					
Gas Lift Mandrel	3.500		793.0		611.0	10.750		
					610.0	9.560		
Gas Lift Mandrel	3.500		1247.0					
Gas Lift Mandrel	3.500		1430.0					
Gas Lift Mandrel	3.500		1708.0					
Landing Nipple	3.500		1724.0					
Packer	7.650	3.500	2722.0					



RST-C Sigma Flowing
Pass # 3 900 ft/hr

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: A 5

Output DLIS Files

DEFAULT RST_PSP_029LUP FN:27 PRODUCER 10-Feb-2007 23:21

OP System Version: 14C0-302
MCM

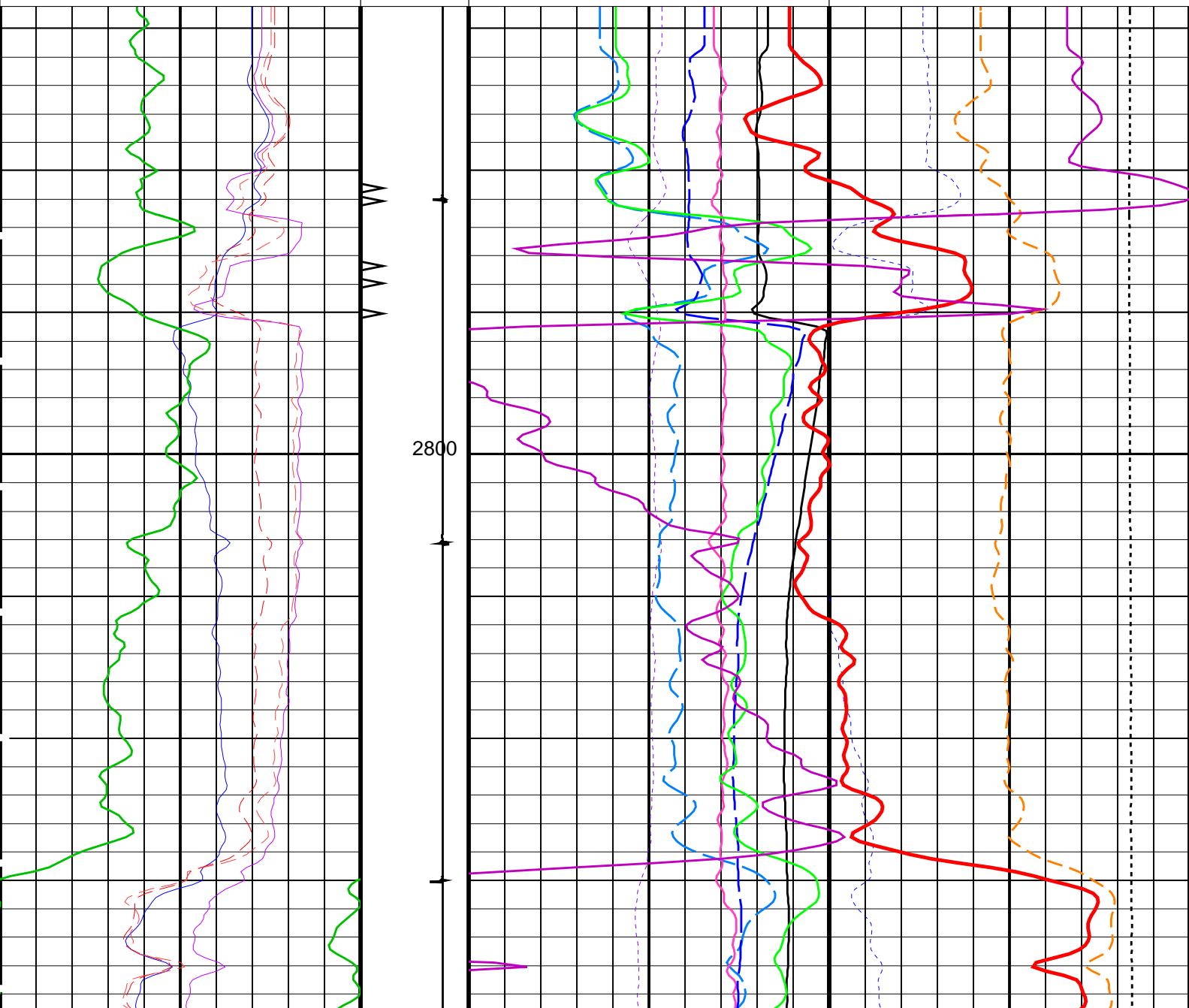
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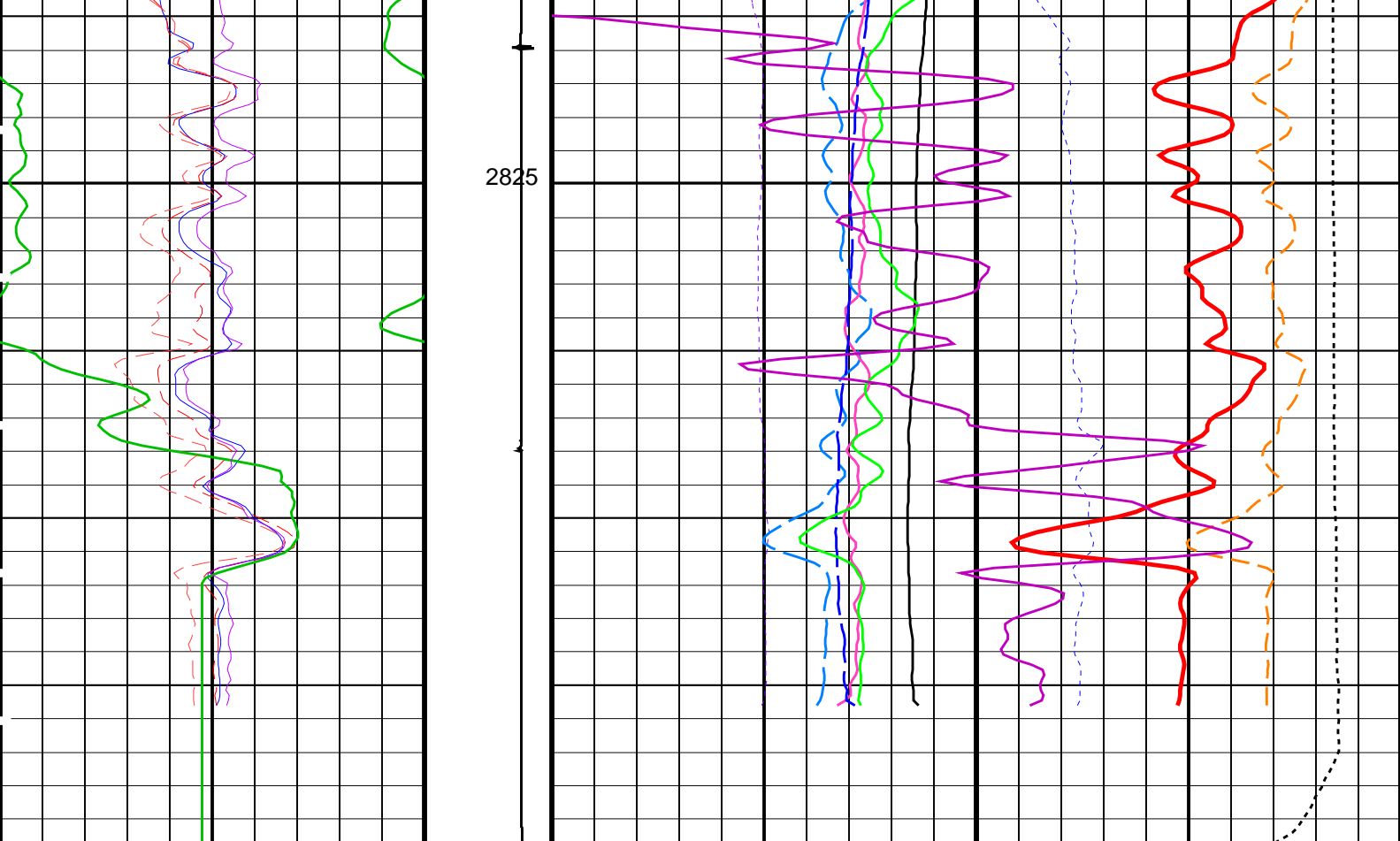
PIP SUMMARY

Time Mark Every 60 S

RST Sigma (SIGM)		
60	(CU)	0
RST Weighted Inelastic Ratio (WINR_RST)		
0.4	(----	0

		<div>RST Porosity (TPHI)</div> <div>0.6 (V/V) 0</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 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)</div> <div>0 (LBF) 3000</div>	
<div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>5 (----) 0</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 Capture to Inelastic Ratio Near (CIRN_FIL)</div> <div>2.5 (----) 0</div>		<div>Minitron Arc Detection (MARC)</div> <div>0 (----) 5</div>		<div>RST Sigma Difference (DSIG)</div> <div>-30 (CU) 30</div>	
<div>Gamma Ray (GR)</div> <div>0 (GAPI) 150</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>	





Gamma Ray (GR) (GAPI)	Discriminat ed CCL (CCLD) (V)	RST Borehole Salinity (BSAL) (PPK)	RST Inelastic Ratio (IRAT_FIL) (----
RST Capture to Inelastic Ratio Near (CIRN_FIL) (----	Minitron Arc Detection (MARC) (----	RST Sigma Difference (DSIG) (CU)	MCS Far Background (filtered) (FBAC) (CPS)
RST Capture to Inelastic Ratio Far (CIRF_FIL) (----		RST Capture Ratio (TRAT_FIL) (----	Sigma Formation Far Apparent (SFFA_ FIL) (CU)
RST Near Effective Capture CR (RSCN_ RST)		Sigma Borehole Far Apparent (SBFA_ FIL) (CU)	Tension (TENS) (LBF)
RST Far Effective Capture CR (RSCF_ RST)		RST Sigma Borehole Fluid (SIBF) (CU)	
		RST Porosity (TPHI) (V/V)	
		RST Weighted Inelastic Ratio (WINR_RST) (----	
		RST Sigma (SIGM) (CU)	

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	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.658	IN
CWEI	Casing Weight	29.70	LB/F

Format: RST_SIG_ANSW

Vertical Scale: 1:200

Graphics File Created: 10-Feb-2007 23:21

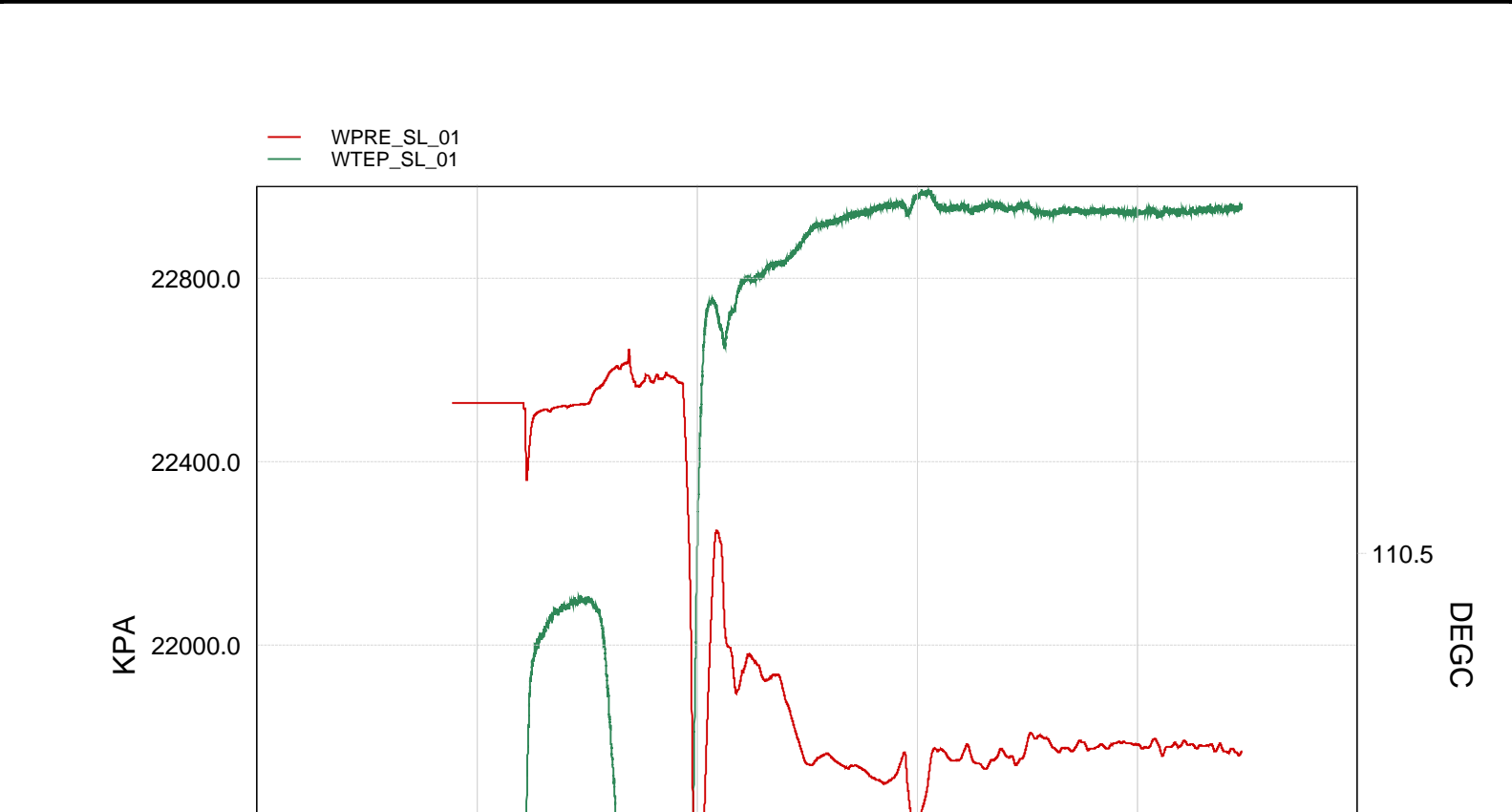
OP System Version: 14C0-302			
MCM			
RST-C	14C0-302	PSPT-A/B	14C0-302

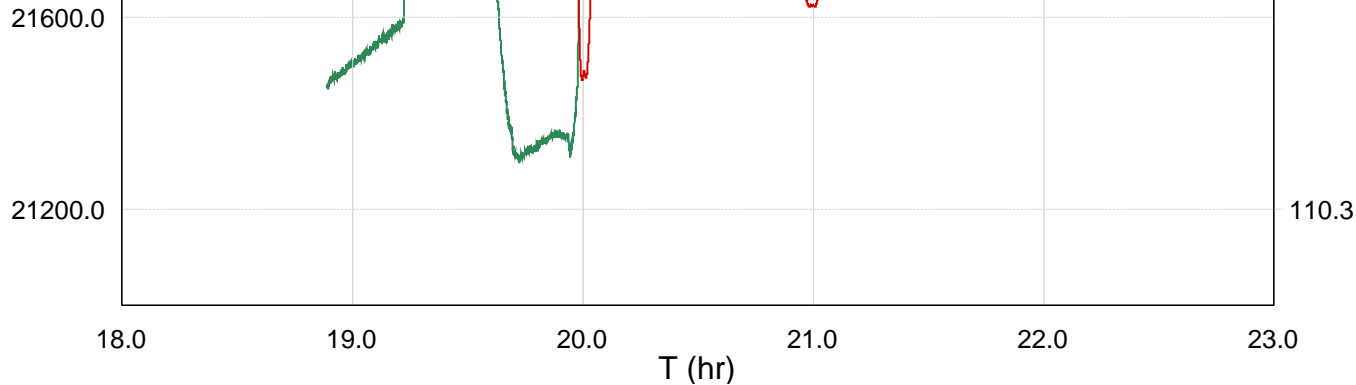
Output DLIS Files			
DEFAULT	RST_PSP_029LUP	FN:27	PRODUCER 10-Feb-2007 23:21

Schlumberger

Drawdown @ 2841m MDKB

MAXIS Field Log





TIME	DEGF	PSIA
19760.0	231.2379	3157.0522
19500.0	231.2368	3159.4213
19240.0	231.2353	3158.7318
18980.0	231.2377	3158.5198
18720.0	231.2344	3155.8127
18460.0	231.2355	3158.3232
18200.0	231.2343	3159.8287
17940.0	231.2359	3159.8716
17680.0	231.2344	3159.0723
17420.0	231.2352	3160.0900
17160.0	231.2346	3158.4463
16900.0	231.2340	3158.9862
16640.0	231.2341	3161.1756
16380.0	231.2413	3154.6804
16120.0	231.2391	3156.9585
15860.0	231.2412	3152.4063
15600.0	231.2350	3155.0164
15340.0	231.2399	3154.3760
15080.0	231.2414	3157.8250
14820.0	231.2551	3141.3059
14560.0	231.2329	3144.0816
14300.0	231.2414	3148.7265
14040.0	231.2387	3148.2313
13780.0	231.2359	3151.8535
13520.0	231.2304	3152.2765
13260.0	231.2262	3156.1748
13000.0	231.2188	3153.1131
12740.0	231.2013	3161.7153
12480.0	231.1844	3179.0544
12220.0	231.1769	3179.7140
11960.0	231.1687	3187.5192
11700.0	231.1367	3181.7919
11440.0	231.1354	3226.8593
11180.0	231.0650	3118.7531
10920.0	230.5036	3252.3547
10660.0	230.5202	3275.7599
10400.0	230.5100	3274.2190
10140.0	230.4981	3272.9606
9880.0	230.5632	3279.5664
9620.0	230.7817	3275.1529
9360.0	230.8543	3268.3642
9100.0	230.8523	3266.7534
8840.0	230.8437	3266.1913
8580.0	230.8185	3265.1428

8320.0	230.6773	3243.5303
8060.0	230.6147	3267.3495
7800.0	230.6020	3267.3449
7540.0	230.5884	3267.3406
7280.0	230.5734	3267.3304
7020.0	230.5621	3267.9730

Schlumberger

RST-C Sigma Static
Pass # 2 900 ft/hr

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: A 5

Output DLIS Files

DEFAULT	RST_PSP_024LUP	FN:22	PRODUCER	10-Feb-2007 18:27	2845.2 M	2768.7 M
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OP System Version: 14C0-302

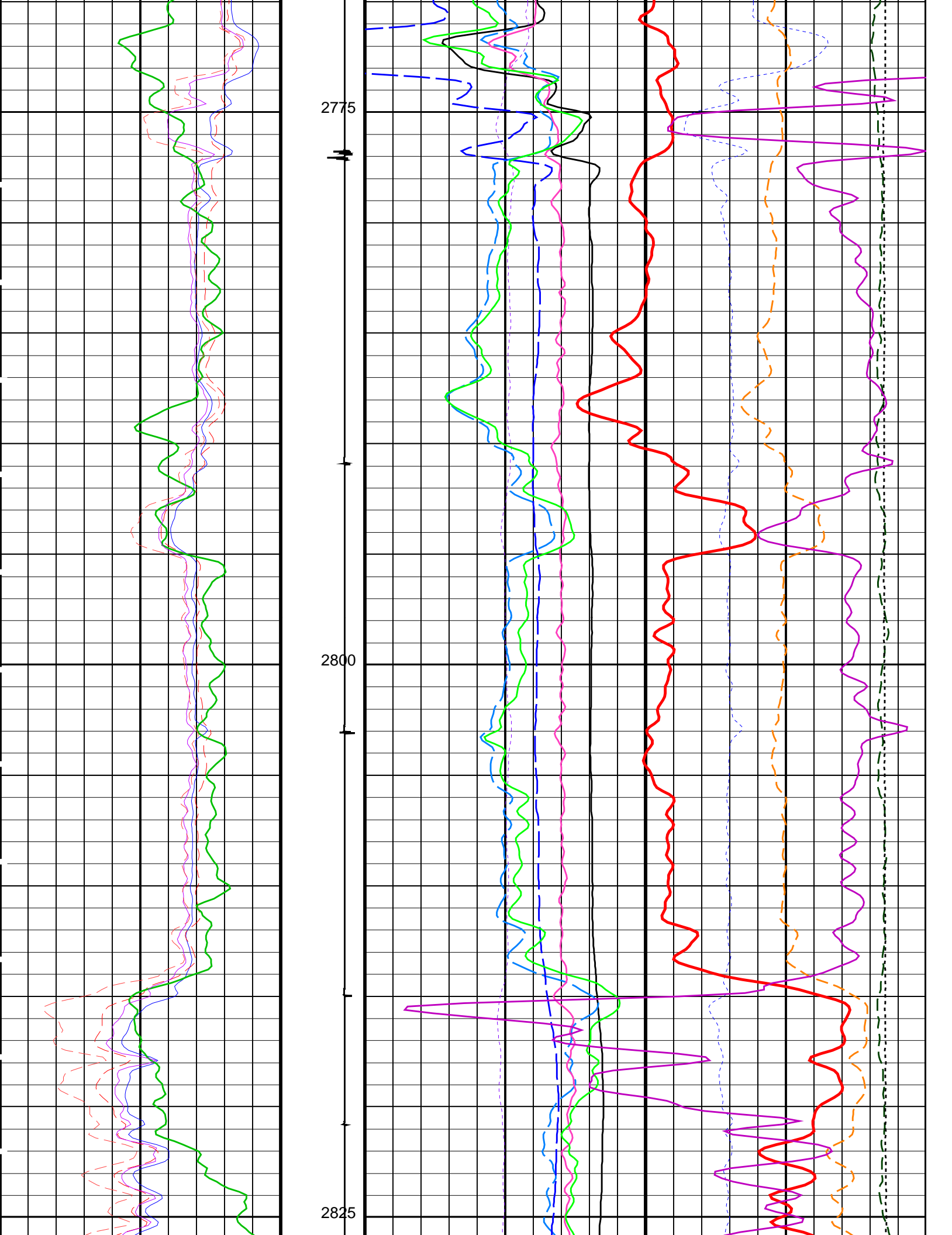
MCM

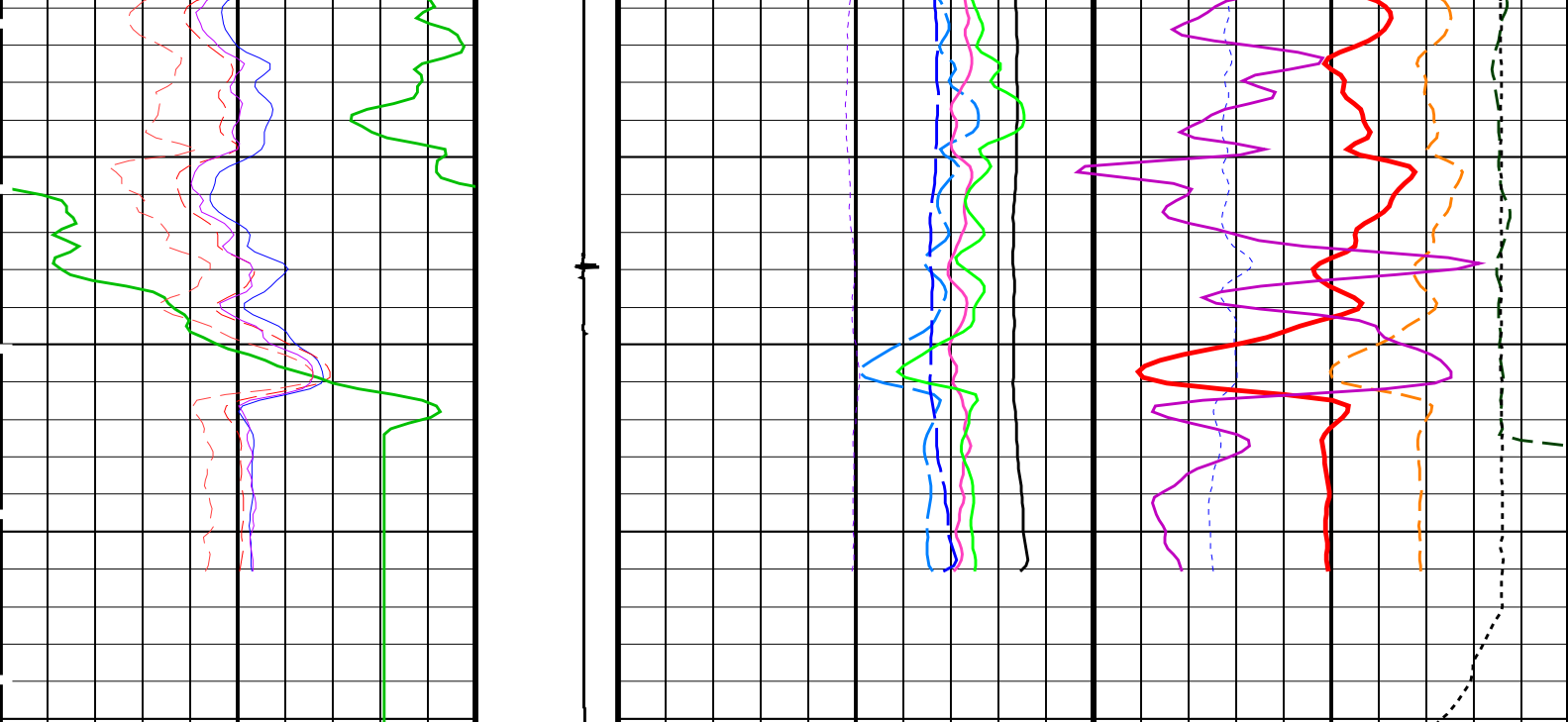
RST-C	14C0-302	PSPT-A/B	14C0-302
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PIP SUMMARY

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





Gamma Ray (GR) (GAPI)	0150	Discriminat ed CCL (CCLD)	RST Borehole Salinity (BSAL) (PPK)	-450-50	RST Inelastic Ratio (IRAT_FIL) (----	0.750
RST Capture to Inelastic Ratio Near (CIRN_FIL)	2.50	Minitron Arc Detection (MARC)	RST Sigma Difference (DSIG) (CU)	-3030	MCS Far Background (filtered) (FBAC) (CPS)	05000
RST Capture to Inelastic Ratio Far (CIRF_FIL)	50		RST Capture Ratio (TRAT_FIL) (----	1.50.5	Sigma Formation Far Apparent (SFFA_ FIL) (CU)	600
RST Near Effective Capture CR (RSCN_ RST)	450		Sigma Borehole Far Apparent (SBFA_ FIL) (CU)	1500	Tension (TENS) 03000 (LBF)	
RST Far Effective Capture CR (RSCF_ RST)	450		RST Sigma Borehole Fluid (SIBF) (CU)	1000		
			RST Porosity (TPHI) (V/V)	0.60		
			RST Weighted Inelastic Ratio (WINR_RST) (----	0.40		
			RST Sigma (SIGM) (CU)	600		

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	0.45	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	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.658	IN
CWEI	Casing Weight	29.70	LB/F

Format: RST_SIG_ANSW

Vertical Scale: 1:200

Graphics File Created: 10-Feb-2007 18:27

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

Output DLIS Files			
DEFAULT	RST_PSP_024LUP	FN:22	PRODUCER 10-Feb-2007 18:27

Schlumberger

RST-C Sigma Static

Pass # 1 900 ft/hr

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: A 5

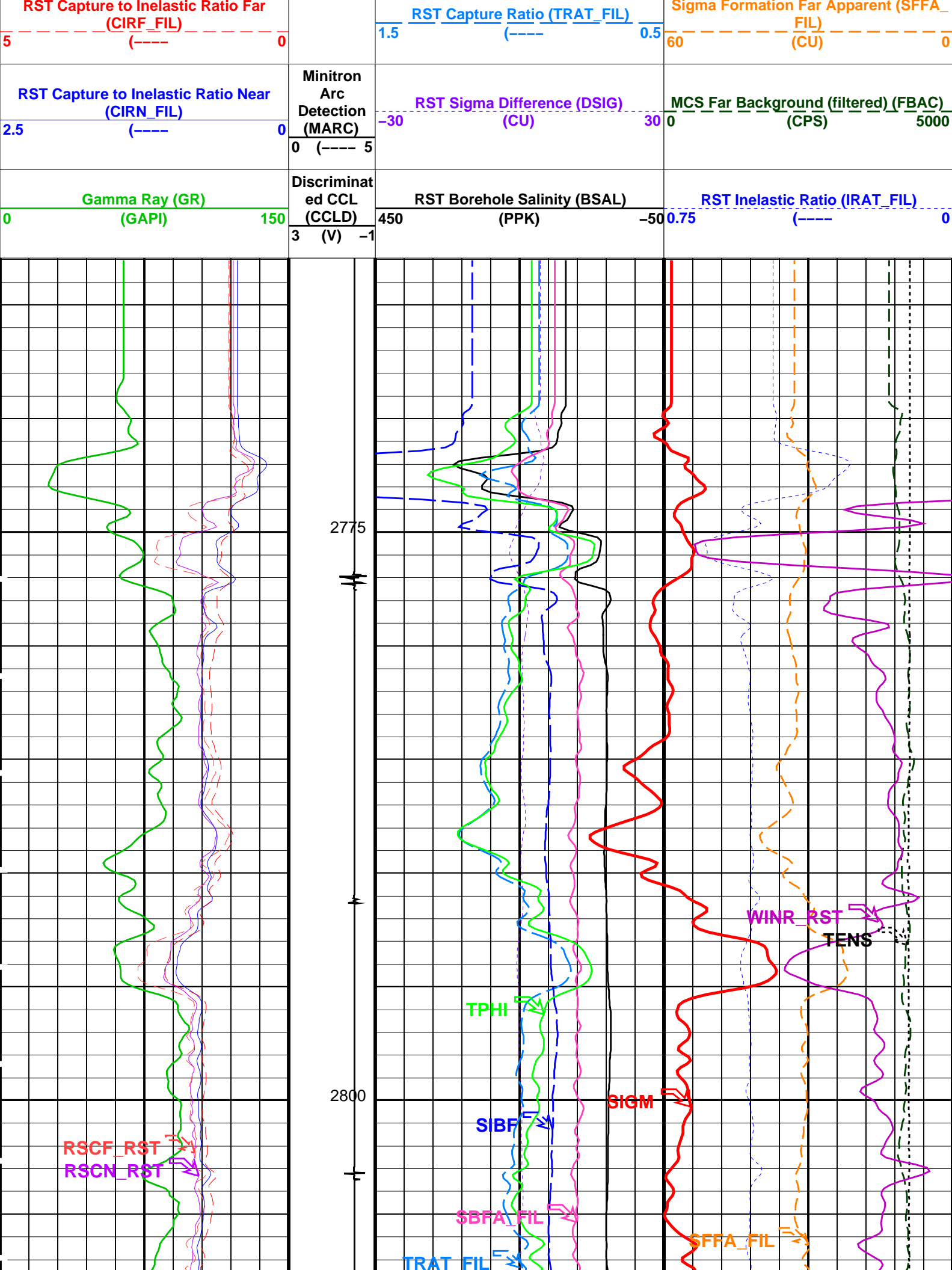
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Output DLIS Files					
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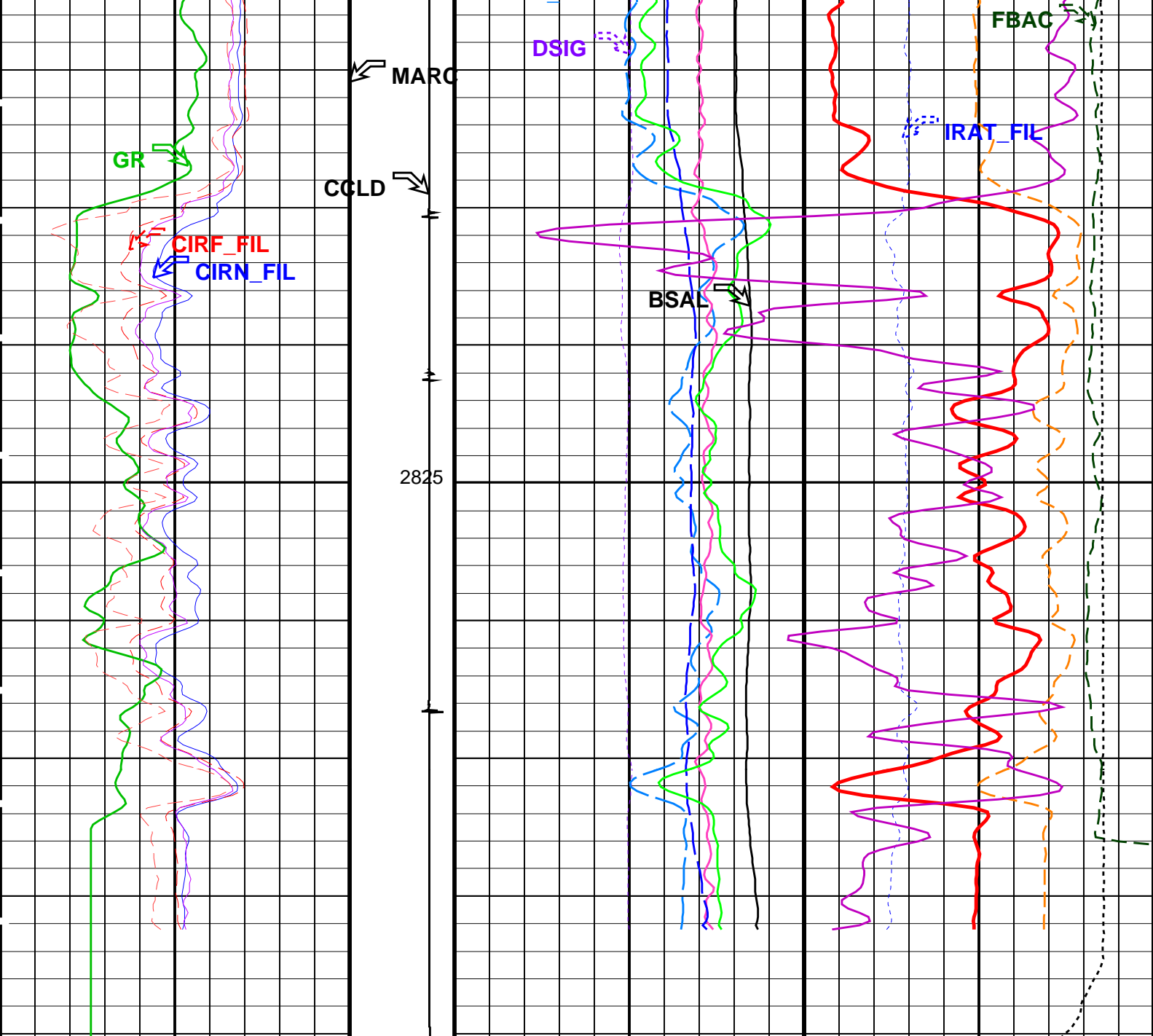
OP System Version: 14C0-302			
MCM			
RST-C	14C0-302	PSPT-A/B	14C0-302

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





<div>Gamma Ray (GR)</div> <div>(GAPI)</div> <div>0150</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>450-50</div>	<div>RST Inelastic Ratio (IRAT_FIL)</div> <div>(----</div> <div>0.750</div>
<div>RST Capture to Inelastic Ratio Near</div> <div>(CIRN_FIL)</div> <div>2.5 (----) 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>-3030</div>	<div>MCS Far Background (filtered) (FBAC)</div> <div>(CPS)</div> <div>05000</div>
<div>RST Capture to Inelastic Ratio Far</div> <div>(CIRF_FIL)</div> <div>5 (----) 0</div>		<div>RST Capture Ratio (TRAT_FIL)</div> <div>(----</div> <div>1.50.5</div>	<div>Sigma Formation Far Apparent (SFFA_</div> <div>FIL)</div> <div>(CU)</div> <div>600</div>
<div>RST Near Effective Capture CR (RSCN_</div> <div>RST)</div> <div>45 (----) 0</div>		<div>Sigma Borehole Far Apparent (SBFA_</div> <div>FIL)</div> <div>(CU)</div> <div>1500</div>	<div>Tension (TENS)</div> <div>(LBF)</div> <div>03000</div>
<div>RST Far Effective Capture CR (RSCF_</div> <div>RST)</div> <div>45 (----) 0</div>		<div>RST Sigma Borehole Fluid (SIBF)</div> <div>(CU)</div> <div>1000</div>	

OP System Version: 14C0-302

MCM

RST-C

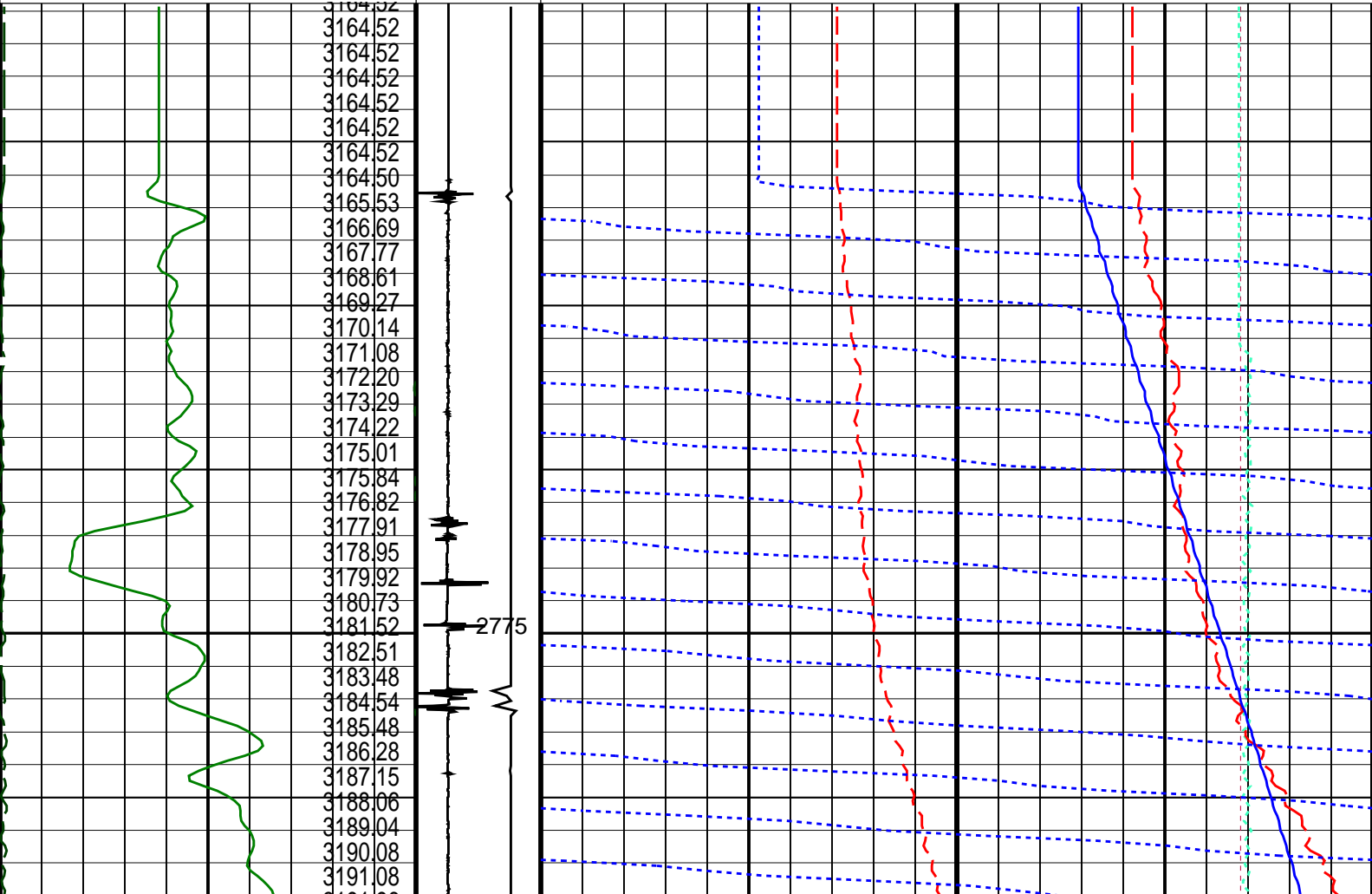
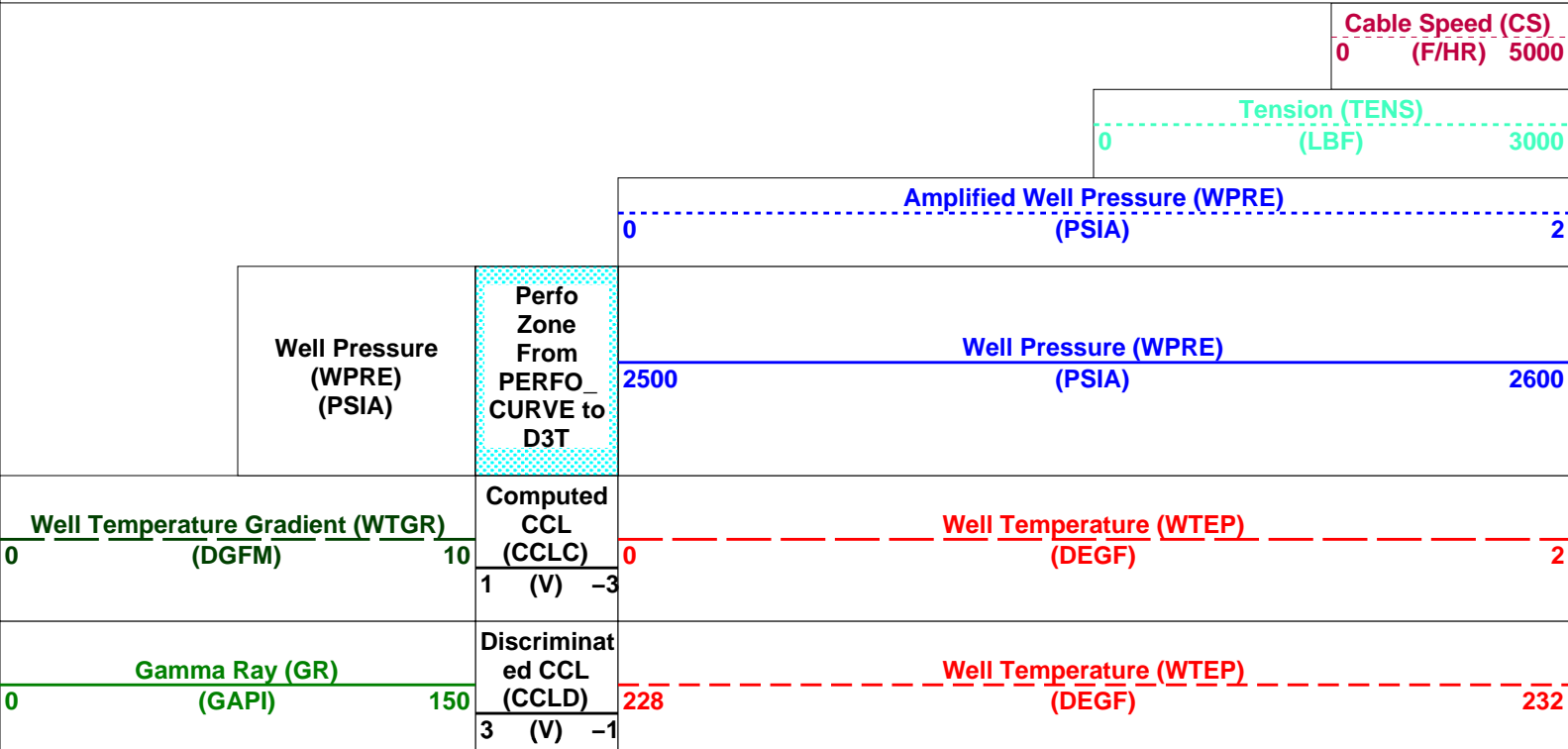
14C0-302

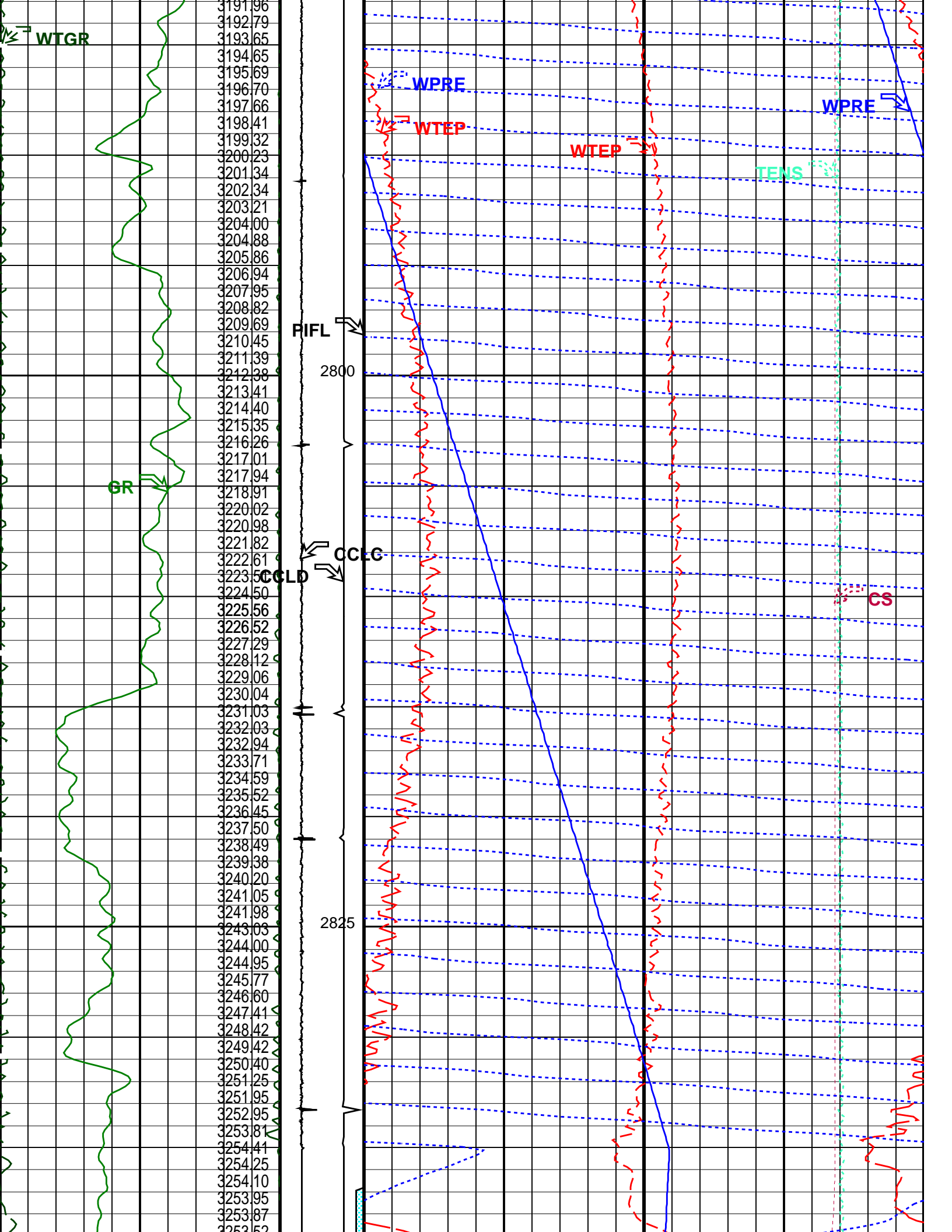
PSPT-A/B

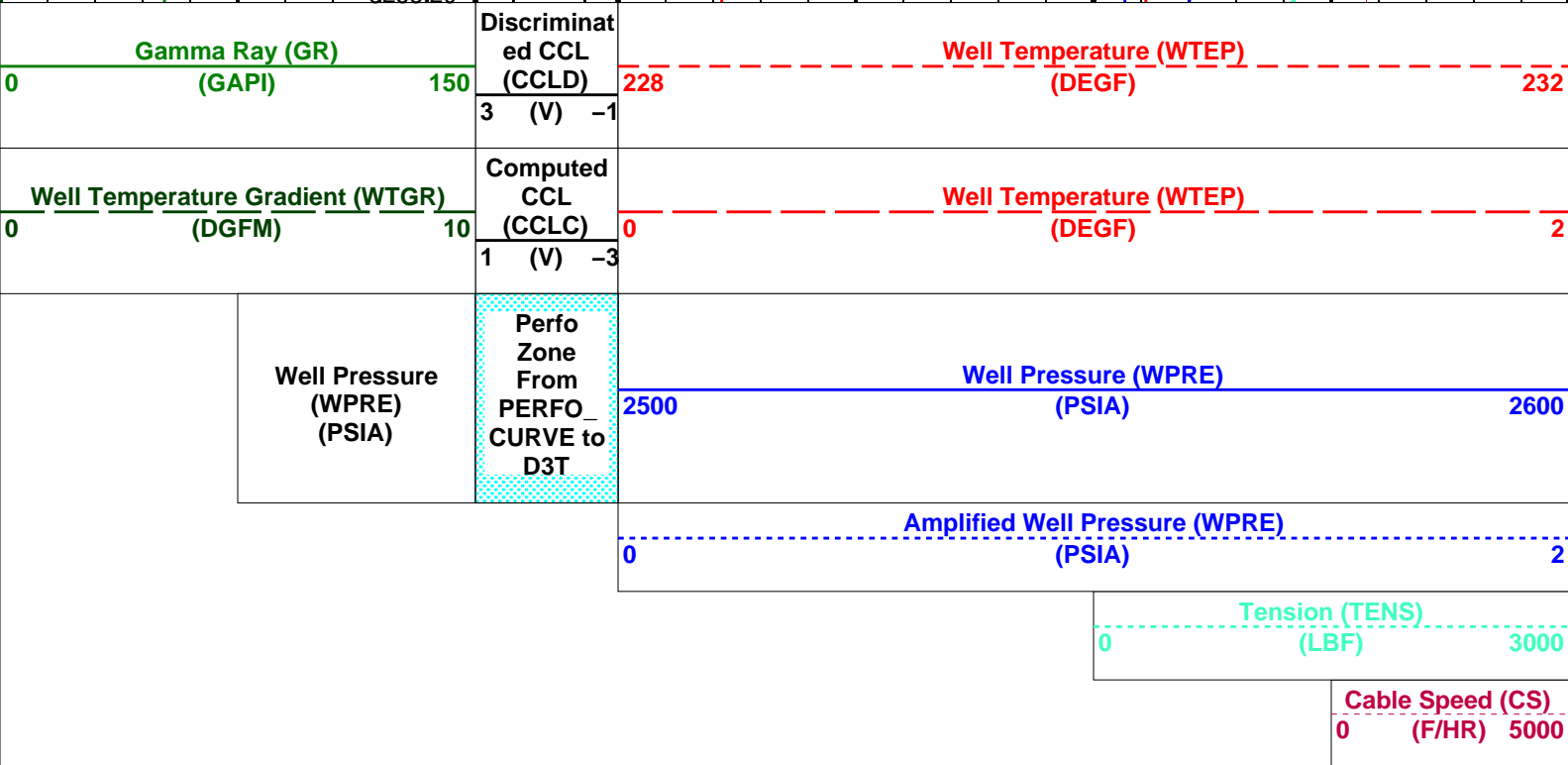
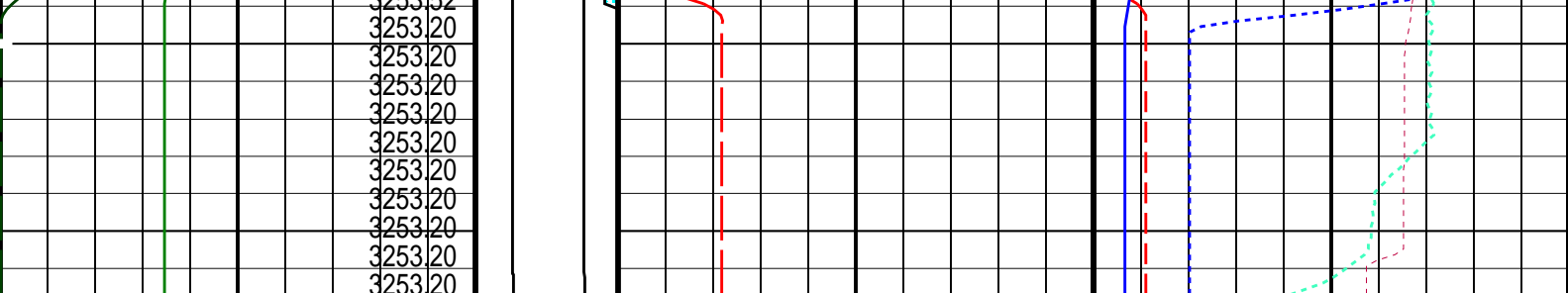
14C0-302

PIP SUMMARY

Time Mark Every 60 S







PIP SUMMARY

Time Mark Every 60 S

Format: PSP_1_1 Vertical Scale: 1:200 Graphics File Created: 10-Feb-2007 17:45

OP System Version: 14C0-302
MCM

RST-C	14C0-302	PSPT-A/B	14C0-302
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Parameters		
DLIS Name	Description	Value
DO	System and Miscellaneous	
PP	Depth Offset for Playback	-4.8 M
	Playback Processing	NORMAL

Input DLIS Files						
DEFAULT	RST_PSP_019LUP	FN:17	PRODUCER	10-Feb-2007 17:34	2851.4 M	2765.5 M
Output DLIS Files						
DEFAULT	RST_PSP_020PUP	FN:18	PRODUCER	10-Feb-2007 17:45		

Company:	Esso Australia Pty Ltd.	Schlumberger
Well:	A 5	
Field:	Flounder	
Rig:	Prod 4	
Country:	Australia	

Country:	Australia
	RST-C Sigma Survey