

Company: **Esso Australia Pty Ltd.**

Well: **FORTESCUE A28B**

Field: **Fortescue**

Rig: **Prod 2** Country: **Australia**

RST-C

Sigma Log

4-Jun-2010

Rig: Prod 2
Field: Fortescue
Location: Bass Strait
Well: FORTESCUE A28B
Company: Esso Australia Pty Ltd.

LOCATION

Bass Strait Elev.: K.B. 39.60 m
G.L. -69.00 m
D.F. 39.60 m

Permanent Datum: Mean Sea Level Elev.: 0.00 m
Log Measured From: Drill Floor 39.60 m above Perm. Datum
Drilling Measured From: Drill Floor

State: Victoria Max. Well Deviation 64.06 deg Longitude 148°16'41.498"E Latitude 38°24'25.477"S

PVT DATA

Oil Density
Water Salinity
Gas Gravity
Bo
Bw
1/Bg
Bubble Point Pressure
Bubble Point Temperature
Solution GOR

Maximum Deviation 64.06 deg

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

Run 1

Run 2

Run 3

Logging Date	4-Jun-2010		
Run Number	1		
Depth Driller	4028 m		
Schlumberger Depth	3954 m		
Bottom Log Interval	3950 m		
Top Log Interval	3786 m		
Casing Fluid Type	Produced Fluids		
Salinity			
Density	1 g/cm3		
Fluid Level	705 m		
BIT/CASING/TUBING STRING			
Bit Size	8.500 in		
From	1507.5 m		
To	4028 m		
Casing/Tubing Size	7.000 in		
Weight	35.2 lbm/ft		
Grade	L-80		
From	20.92 m		
To	4016.45 m		
Maximum Recorded Temperatures	223 degF		
Logger On Bottom	Time 4-Jun-2010 19:45		
Unit Number	Location 3827 AUSL		
Recorded By	O.Darby / C.Rowand		
Witnessed By	D.Broomfield / G.Rimmer		

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	
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Date Created: 4-JUN-2010 23:12:18

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-H	Type:	CMTD-B/A	Type:	2-32ZT
Serial Number:	797	Serial Number:	1711	Serial Number:	207309
Calibration Date:	1-Mar-2010	Calibration Date:	22-May-2010	Length:	6180 M
Calibrator Serial Number:	30	Calibrator Serial Number:	1167		
Calibration Cable Type:	2-32ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	-1	Calibration RMS:	16	Rig Type:	Offshore Fixed
Wheel Correction 2:	-2	Calibration Peak Error:	391		

[illegible]

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	Fortescue A28b
Reference Log Run Number:	
Reference Log Date:	15-Jun-2008
Subsequent Trip Down Log Correction:	-6.00 M

Depth Control Remarks	
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1. Correlated to Esso provided Fortescue A28B solar composite log
2. Tool Zero referenced to the well schematic Tubing Hanger depth.
3. Rigged up on the well utilising the platform crane.
- 4.
- 5.
6. Tension Calibration: $A=1.012E-5$, $B=0.954$ & $C=-213.1$

DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: WPRE-WTEP	OS1:
OS2: GR-CCL	OS2:
OS3: 2-1/8" Ph. ENER	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2

REMARKS: FOR NUMBER 1	REMARKS: FOR NUMBER 2
Correlated to the client provided Fortescue A28B solar composite log.	

Objective: with the well shut in, complete two RST-A (Sigma mode) static passes,

over the interval 3934m to 3786m.
RST Logging Parameters:

Matrix = Sandstone.

BS = 8-1/2" , CSIZ = 7" , BSAL = -50000ppm,

CWEI = 26 lb/ft (from HUD to 3818.5m). CWEI = 35.2 lb/ft (from 3818.5m to 3786m)

HUD tagged at 3954m.

RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: 18C0-147 FLUID LEVEL: 705 m			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION	
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RUN 1		RUN 2	
SURFACE EQUIPMENT			
WITM-A PSC_16MHZ			
DOWNHOLE EQUIPMENT			
MH-22 MH-22			13.51
EQF-43 EQF-43			13.20
EQF-43 EQF-43			11.37
PSPT PSC-A PSPT-B 3918 PSTC-A 1864 PBMS-B 3918 CQG_F_Mano RTD_Thermometer GR CCL PBMS	Detail MT TelStatus CTEM	9.54	9.54
	GR	8.41	
	Well_Temp CQG Manom CCL PBMS PSTC	7.48 7.37 7.25 7.02	
RST-C RSCH-A RSC-E 488 RSS-A 437 RSXH-A 500 RSX-E 490			7.02

RSC-A Far
RSC-A PNG
RSC-A Nea
RSX-A PNG

4.24

4.09

Tension HV 0.00
TOOL ZERO

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

Client: Esso Australia Pty Ltd

Well: FORTESCUE A28B

Field: Fortescue

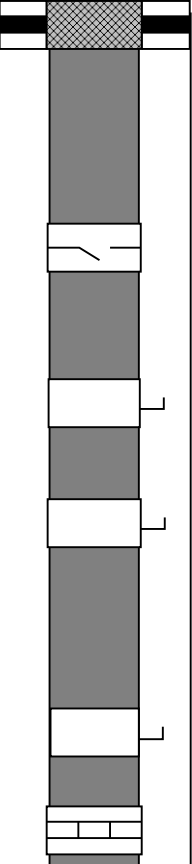
State: VIC

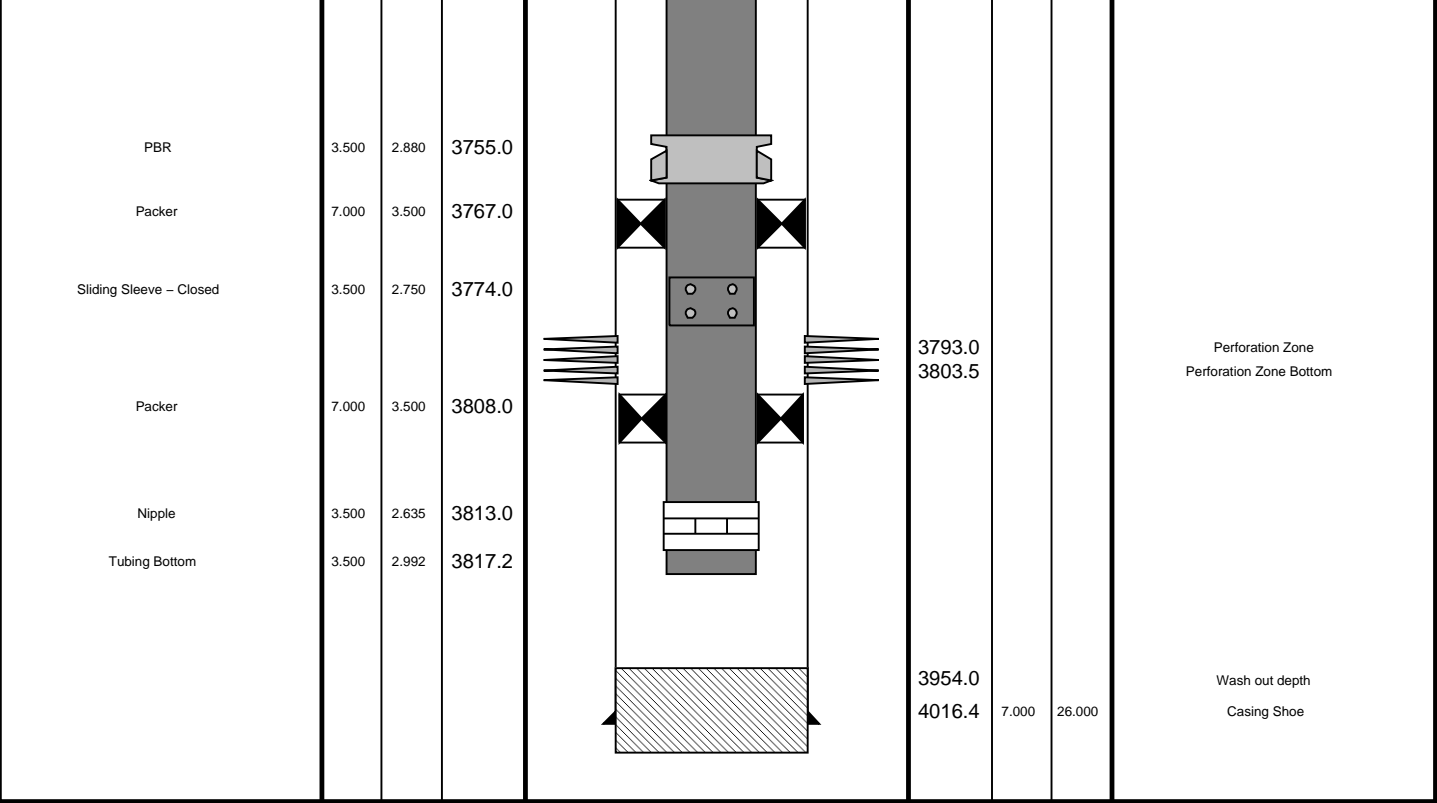
Country: Australia

Rig Name: Prod 2

Reference Datum: Mean Sea Level

Elevation: 39.6 m

Production String	(in)		(m)	Well Schematic	(m)			Casing String
	OD	ID	MD		MD	OD	ID	
Tubing Hanger	7.000	3.500	20.1		21.9	7.000	26.000	Casing String
Tubing	3.500	2.992						
SSSV	3.500	2.750	453.0					
Side Pocket Mandrel	3.500	2.920	741.0					
Side Pocket Mandrel	3.500	2.920	1485.0					
Side Pocket Mandrel	3.500	2.920	2197.0		1507.5	10.750		Casing Shoe
Nipple	3.500	2.750	2214.0					



Driller's Depth



RST– C / Static
SIGMA Pass # 2

MAXIS Field Log

Company: Esso Australia Pty Ltd. Well: FORTESCUE A28B

Input DLIS Files						
DEFAULT	RST_PSP_027LUP	FN:26	PRODUCER	04–Jun–2010 21:18	3960.0 M	3769.2 M
Output DLIS Files						
DEFAULT	RST_PSP_027PUP	FN:60	PRODUCER	04–Jun–2010 23:49	3950.1 M	3783.9 M
CUSTOMER	RST_PSP_027PUC	FN:61	CUSTOMER	04–Jun–2010 23:49	3950.1 M	3783.9 M

OP System Version: 18C0–147

RST–C SRPC–3972–Q1_2010_OP18 PSPT SRPC–3972–Q1_2010_OP18

Changed Parameter Summary

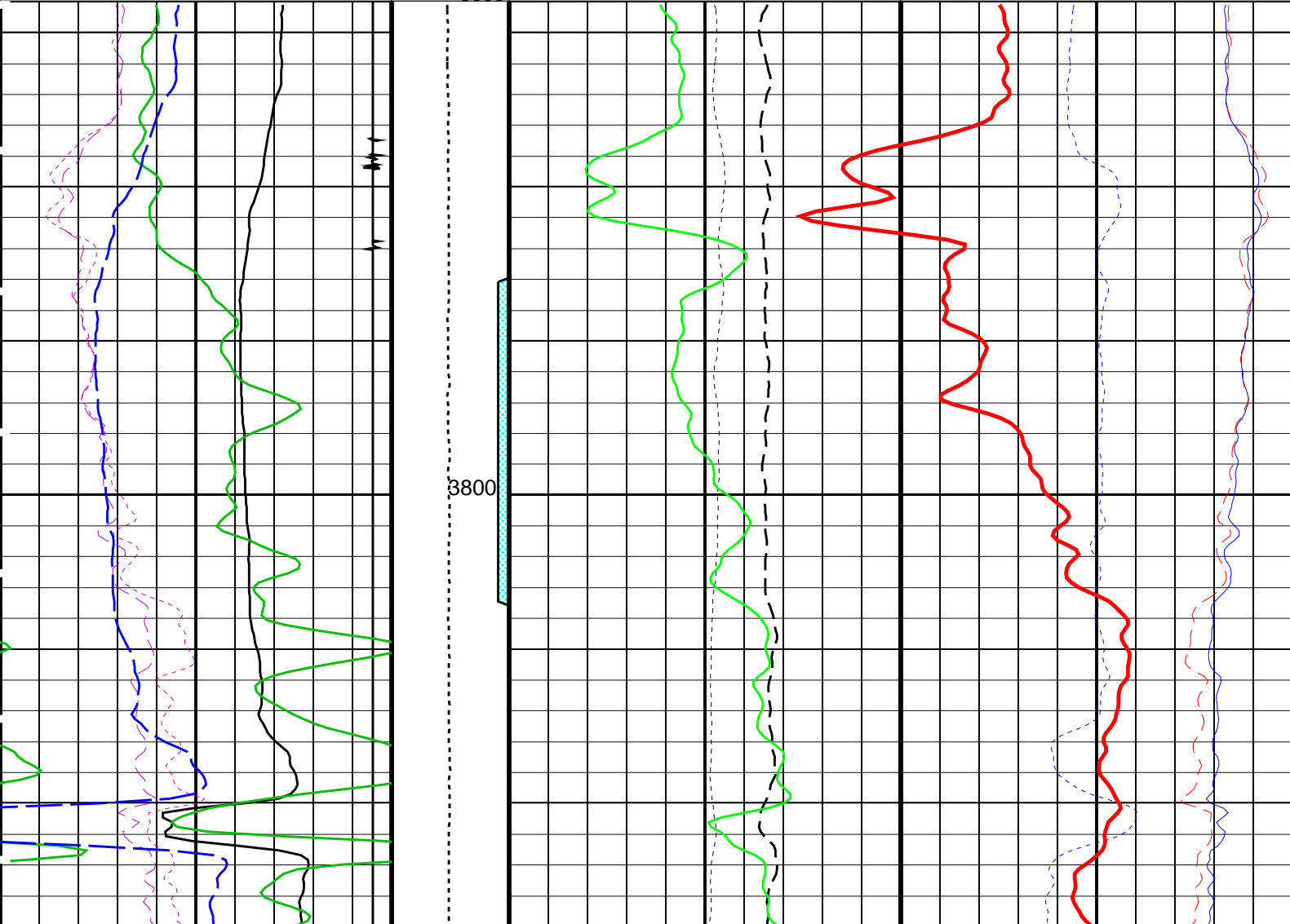
Changes in Parameter Estimation

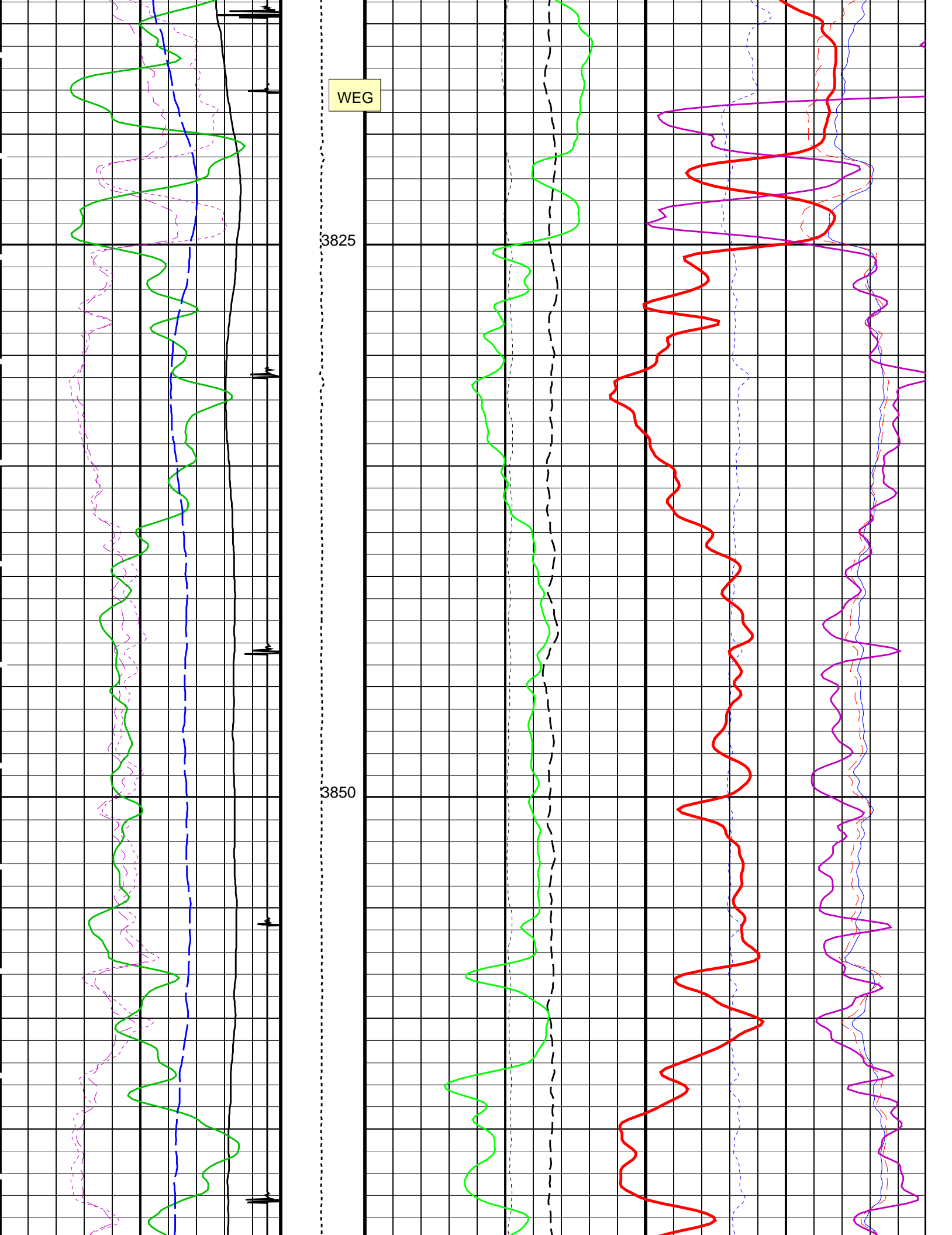
DLIS Name	New Value	Previous Value	Depth & Time
CWEI	26.00 LB/F	35.20 LB/F	3950.1 23:49:37
	35.20 LB/F	26.00 LB/F	3818.4 23:49:59

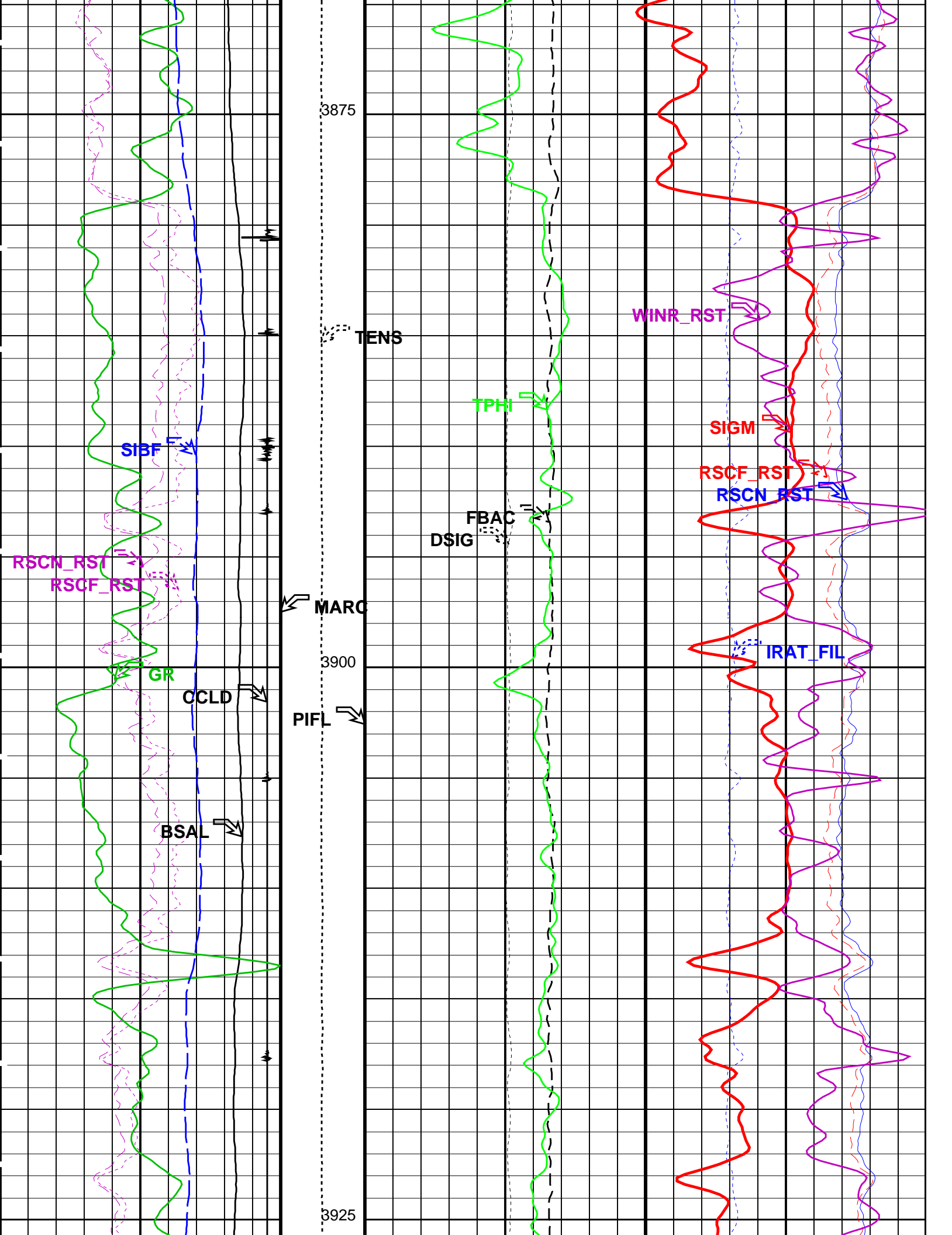
PIP SUMMARY

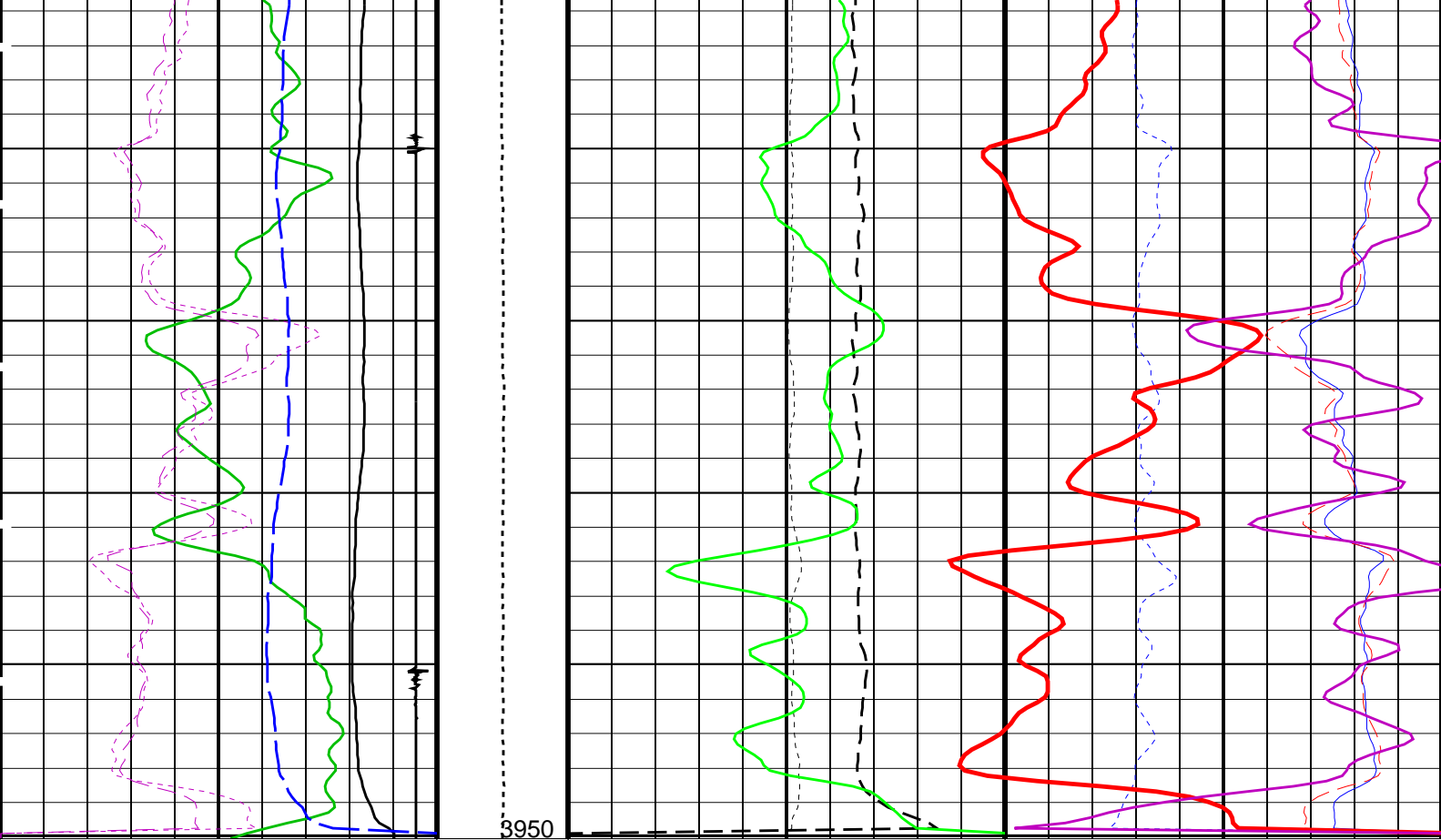
Time Mark Every 60 S

RST Near Effective Capture CR (RSCN_RST)			
0	(-----) 25		
RST Far Effective Capture CR (RSCF_RST)		RST Weighted Inelastic Ratio (WINR_RST)	
0	(-----) 25	0.4	(-----) 0
RST Sigma Borehole Fluid (SIBF)		RST Porosity (TPHI)	RST Far Effective Capture CR (RSCF_RST)
100	(CU) 0	0.6 (V/V) 0	45 (-----) 0
Gamma Ray (GR)		RST Sigma (SIGM)	
0	(GAPI) 150	60	(CU) 0
Discriminated CCL (CCLD)		MCS Far Background (filtered) (FBAC)	RST Near Effective Capture CR (RSCN_RST)
-19	(V) 1	0 (CPS) 5000	45 (-----) 0
		0 (-----) 5	
RST Borehole Salinity (BSAL)		RST Sigma Difference (DSIG)	RST Inelastic Ratio (IRAT_FIL)
450	(PPK) -50	-30 (CU) 30	0.75 (-----) 0
		1000 3000	









RST Borehole Salinity (BSAL) (PPK)	-50	450	Tension (TENS) (LBF)	1000	3000	RST Sigma Difference (DSIG) (CU)	-30	30	RST Inelastic Ratio (IRAT_FIL) (-----)	0.75	0
Discriminated CCL (CCLD) (V)	-19	1	Minitron Arc Detection (MARC) (-----)	0	5	MCS Far Background (filtered) (FBAC) (CPS)	0	5000	RST Near Effective Capture CR (RSCN_RST) (-----)	45	0
Gamma Ray (GR) (GAPI)	0	150	Perfo			RST Sigma (SIGM) (CU)	60	0			
RST Sigma Borehole Fluid (SIBF) (CU)	100	0				RST Porosity (TPHI) (V/V)	0.6	0	RST Far Effective Capture CR (RSCF_RST) (-----)	45	0
RST Far Effective Capture CR (RSCF_RST) (-----)	0	25				RST Weighted Inelastic Ratio (WINR_RST) (-----)	0.4	0			
RST Near Effective Capture CR (RSCN_RST) (-----)	0	25									

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	0.18

NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
RGAI	Near/Far Gain Calibration Ratio	1	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
PSPT: Production Services Logging Platform			
BHS	Borehole Status	CASED	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
System and Miscellaneous			
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.000	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	-2.2	M
PP	Playback Processing	NORMAL	


Format: RST_SIG_ANSW

Vertical Scale: 1:200

Graphics File Created: 04-Jun-2010 23:49

OP System Version: 18C0-147			
RST-C	SRPC-3972-Q1_2010_OP18	PSPT	SRPC-3972-Q1_2010_OP18

Input DLIS Files						
DEFAULT	RST_PSP_027LUP	FN:26	PRODUCER	04-Jun-2010 21:18	3960.0 M	3769.2 M
Output DLIS Files						
DEFAULT	RST_PSP_027PUP	FN:60	PRODUCER	04-Jun-2010 23:49		
CUSTOMER	RST_PSP_027PUC	FN:61	CUSTOMER	04-Jun-2010 23:49		



RST- C / Static

SIGMA Pass # 1

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: FORTESCUE A28B

Input DLIS Files						
DEFAULT	RST_PSP_026LUP	FN:25	PRODUCER	04-Jun-2010 20:23	3960.1 M	3773.7 M
Output DLIS Files						
DEFAULT	RST_PSP_026PUP	FN:58	PRODUCER	04-Jun-2010 23:47	3950.1 M	3783.9 M
CUSTOMER	RST_PSP_026PUC	FN:59	CUSTOMER	04-Jun-2010 23:47	3950.1 M	3783.9 M

OP System Version: 18C0-147			
RST-C	SRPC-3972-Q1_2010_OP18	PSPT	SRPC-3972-Q1_2010_OP18

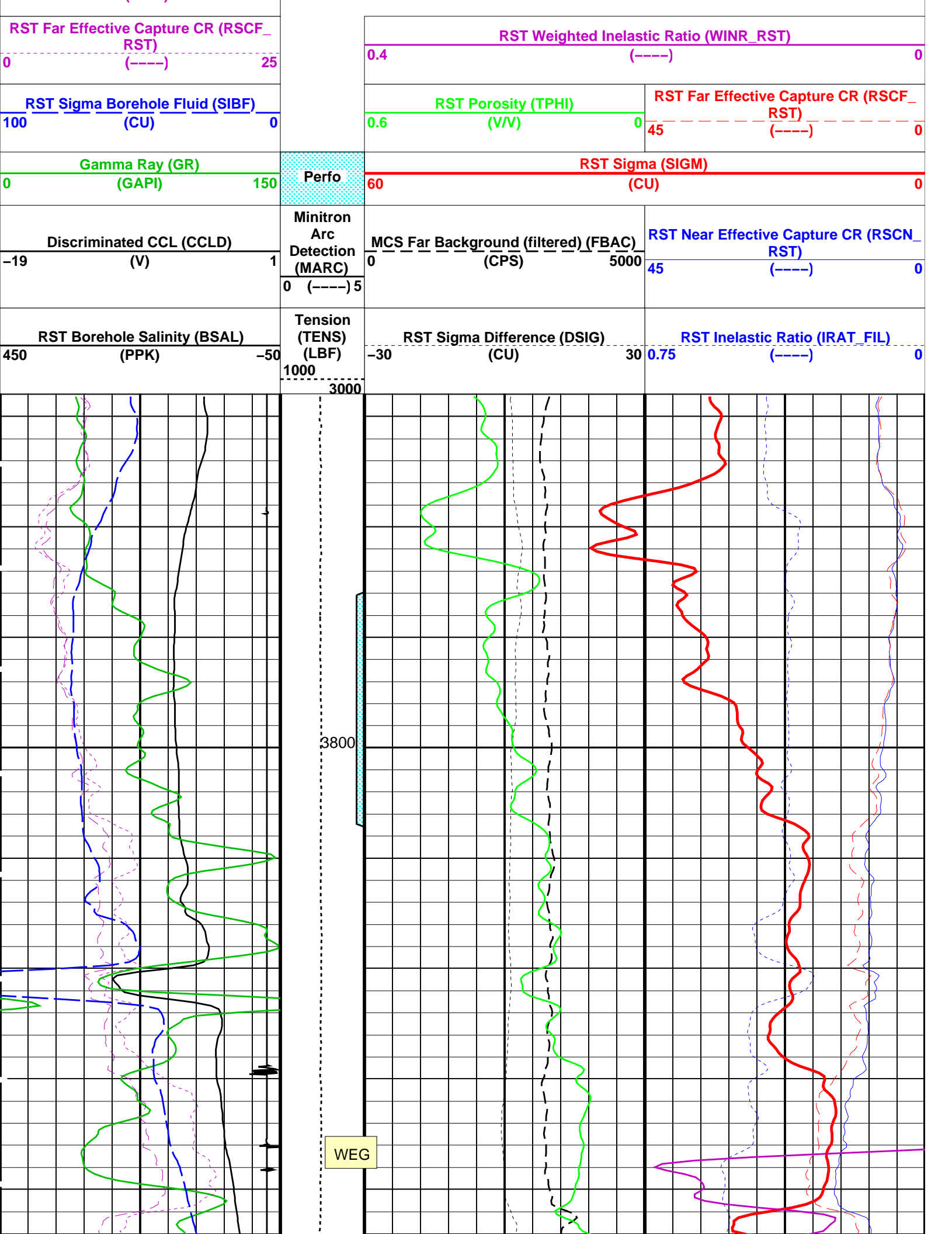
Changed Parameter Summary						
DLIS Name	New Value		Previous Value		Depth & Time	
CWEI	26.00	LB/F	35.20	LB/F	3950.1 23:47:38	
	35.20	LB/F	26.00	LB/F	3818.4 23:47:59	

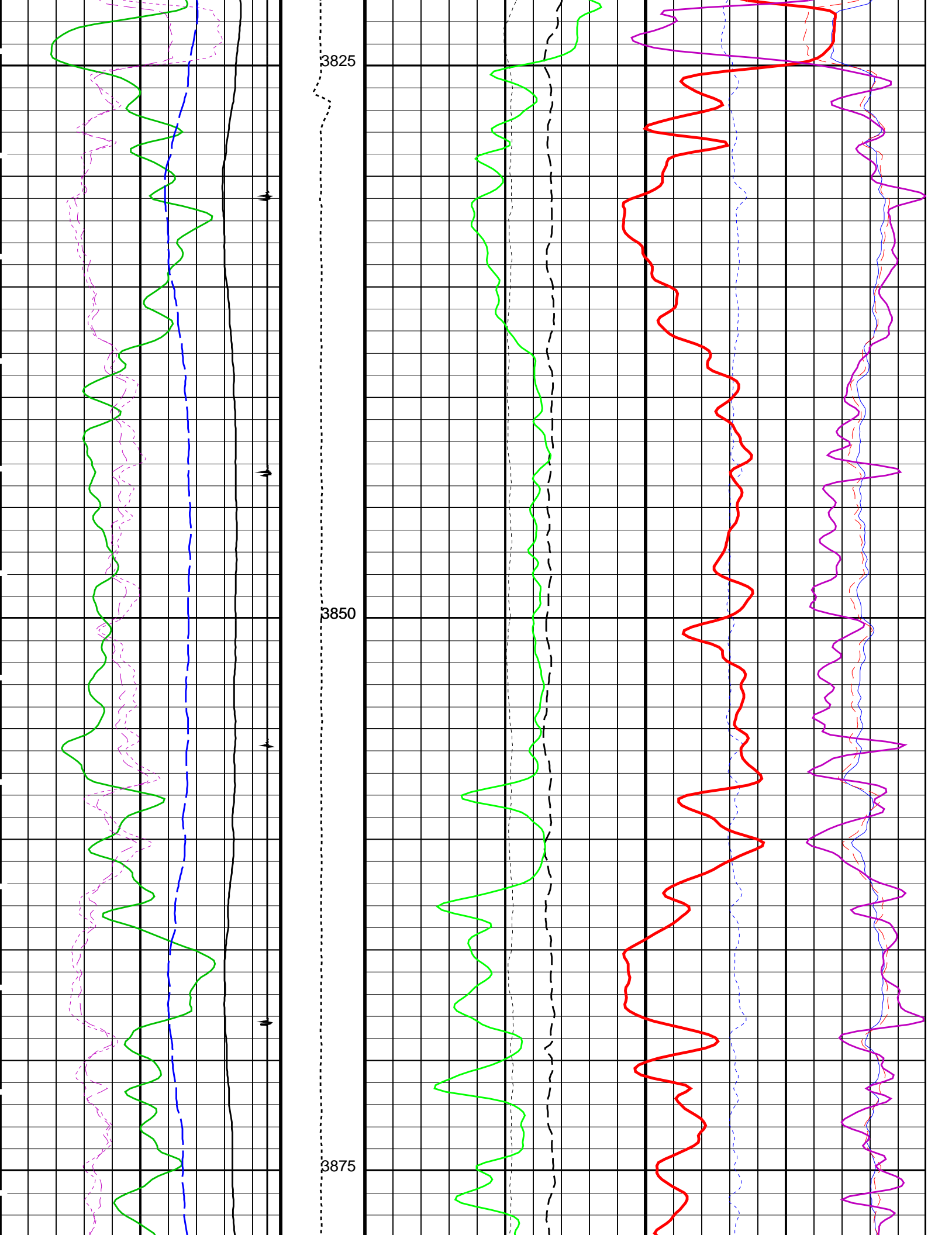
PIP SUMMARY

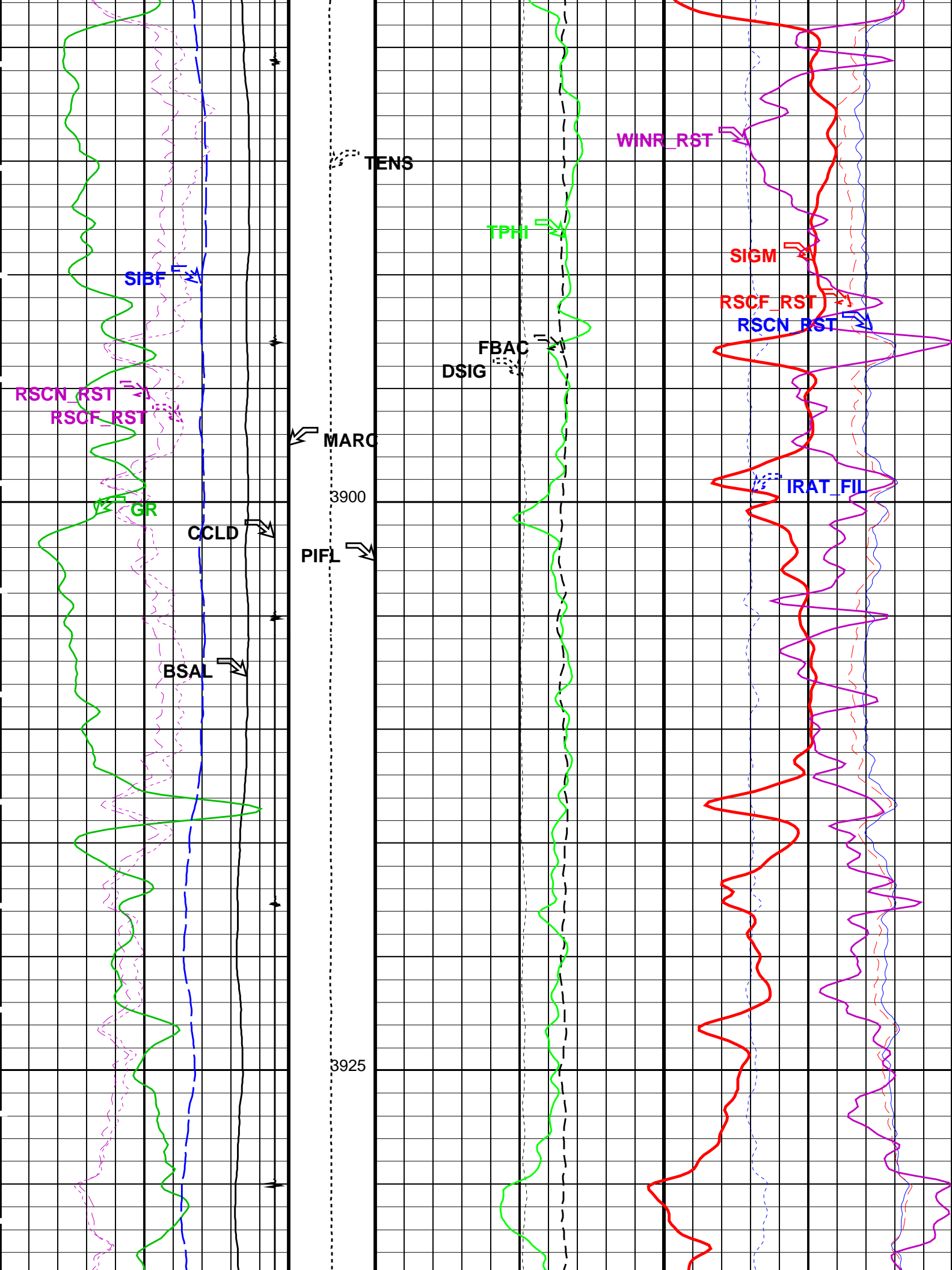
Time Mark Every 60 S

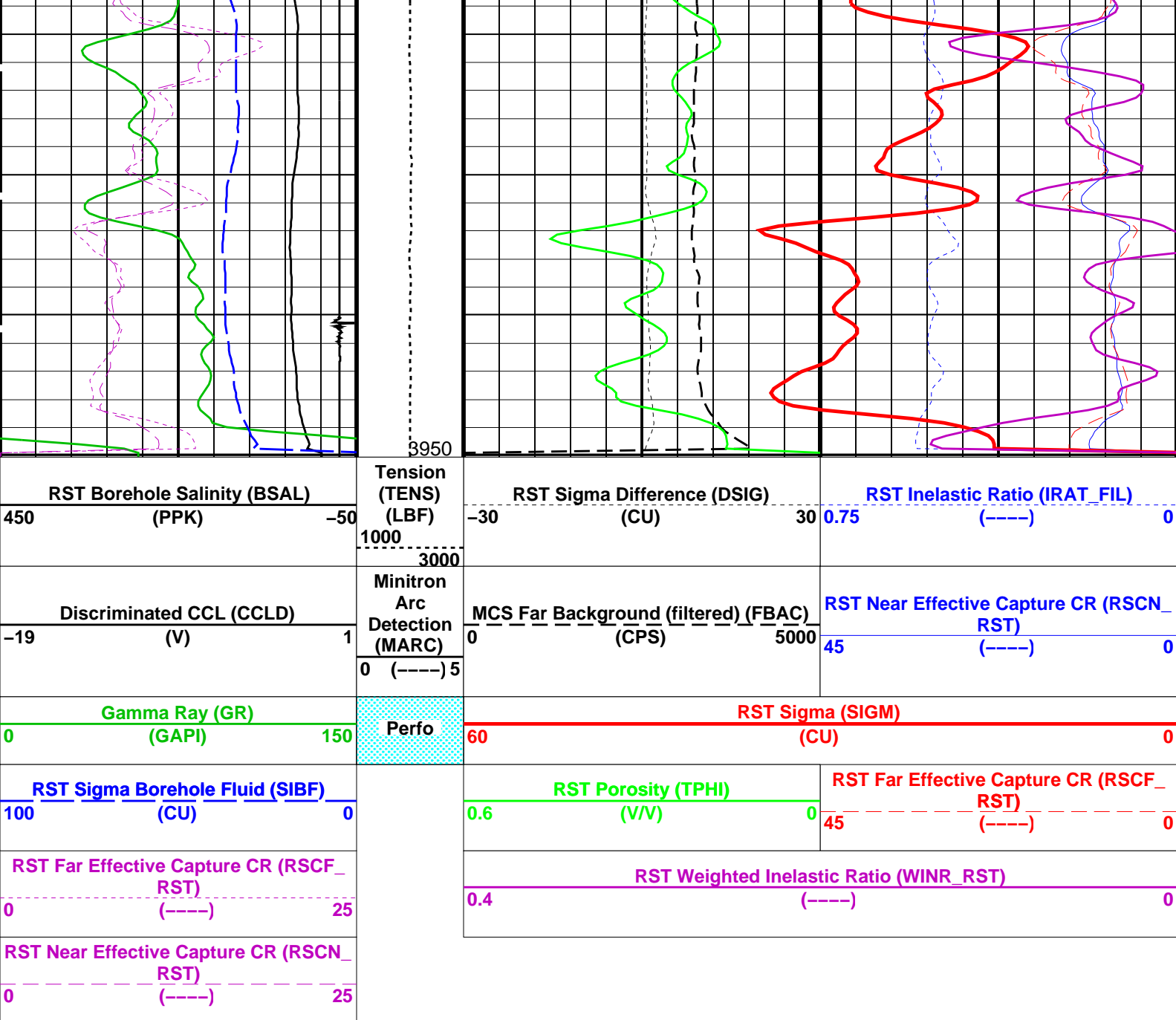
RST Near Effective Capture CR (RSCN_
RST)
0

25









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	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
PSPT: Production Services Logging Platform			
BHS	Borehole Status	CASED	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
System and Miscellaneous			
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.000	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	-2.5	M

PP	Depth Offset for Playback	2.0	ft	NORMAL
Format: RST_SIG_ANSW		Vertical Scale: 1:200		Graphics File Created: 04-Jun-2010 23:47
OP System Version: 18C0-147				
RST-C	SRPC-3972-Q1_2010_OP18	PSPT	SRPC-3972-Q1_2010_OP18	
Input DLIS Files				
DEFAULT	RST_PSP_026LUP	FN:25	PRODUCER	04-Jun-2010 20:23 3960.1 M 3773.7 M
Output DLIS Files				
DEFAULT	RST_PSP_026PUP	FN:58	PRODUCER	04-Jun-2010 23:47
CUSTOMER	RST_PSP_026PUC	FN:59	CUSTOMER	04-Jun-2010 23:47

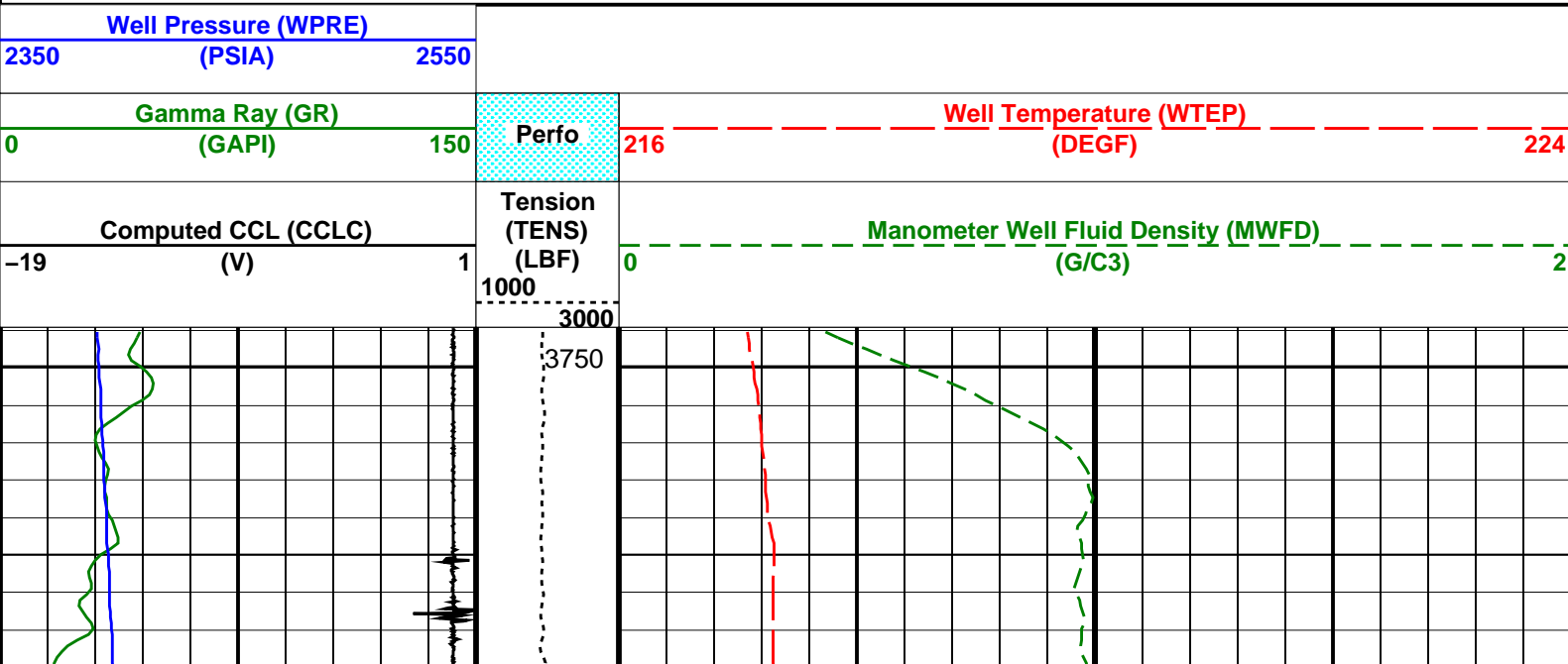
Schlumberger

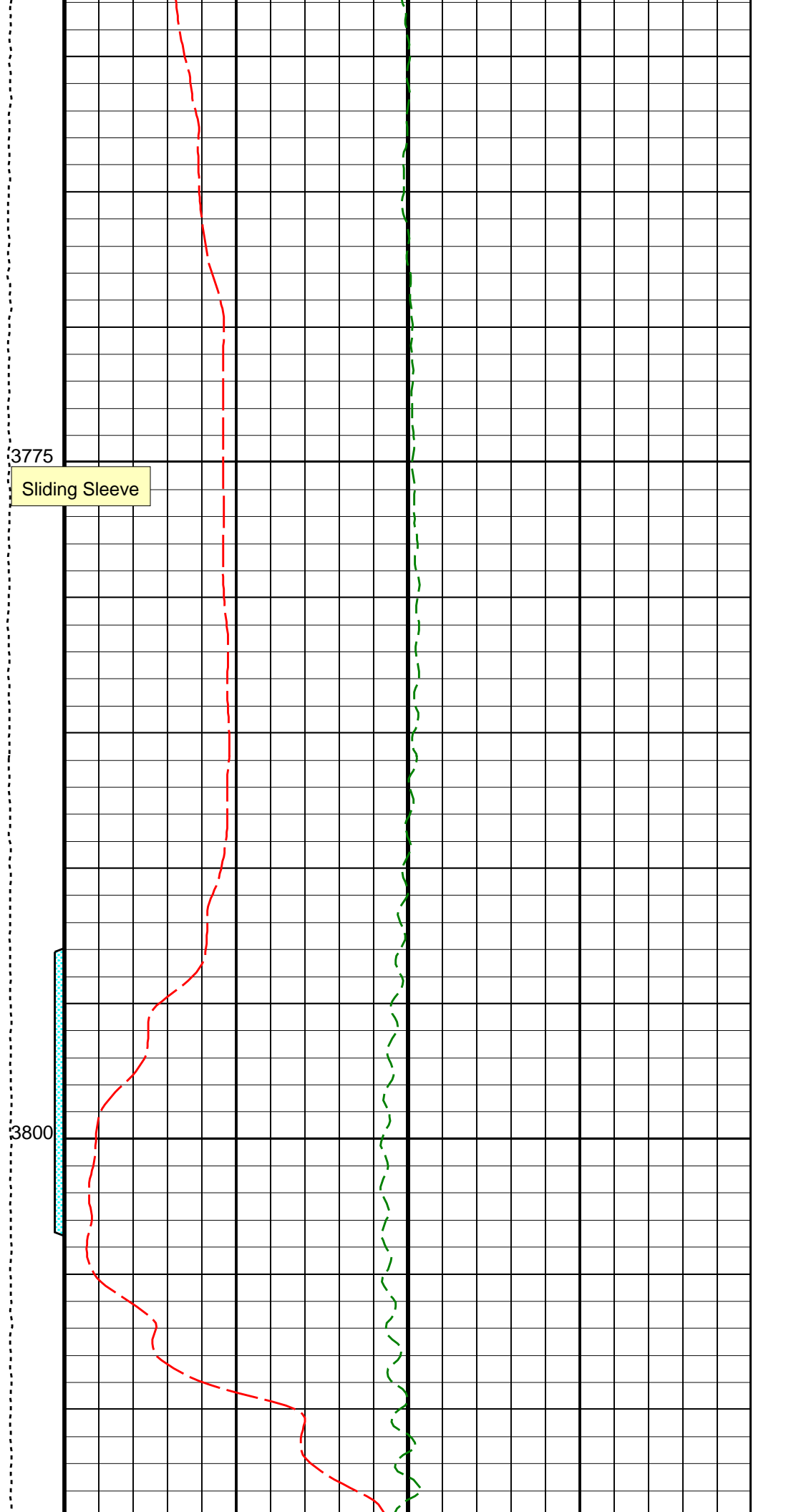
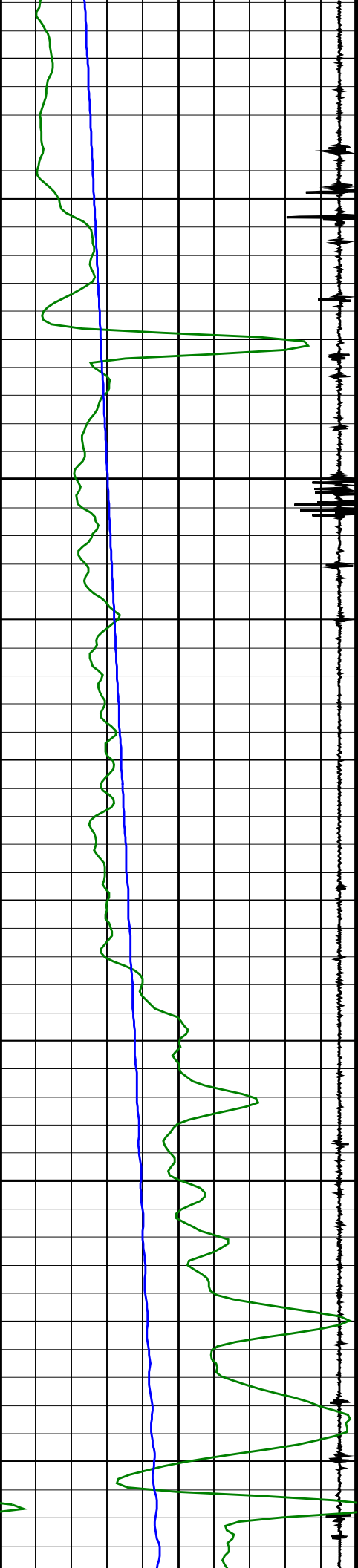
RST- C / Static Correlation Pass

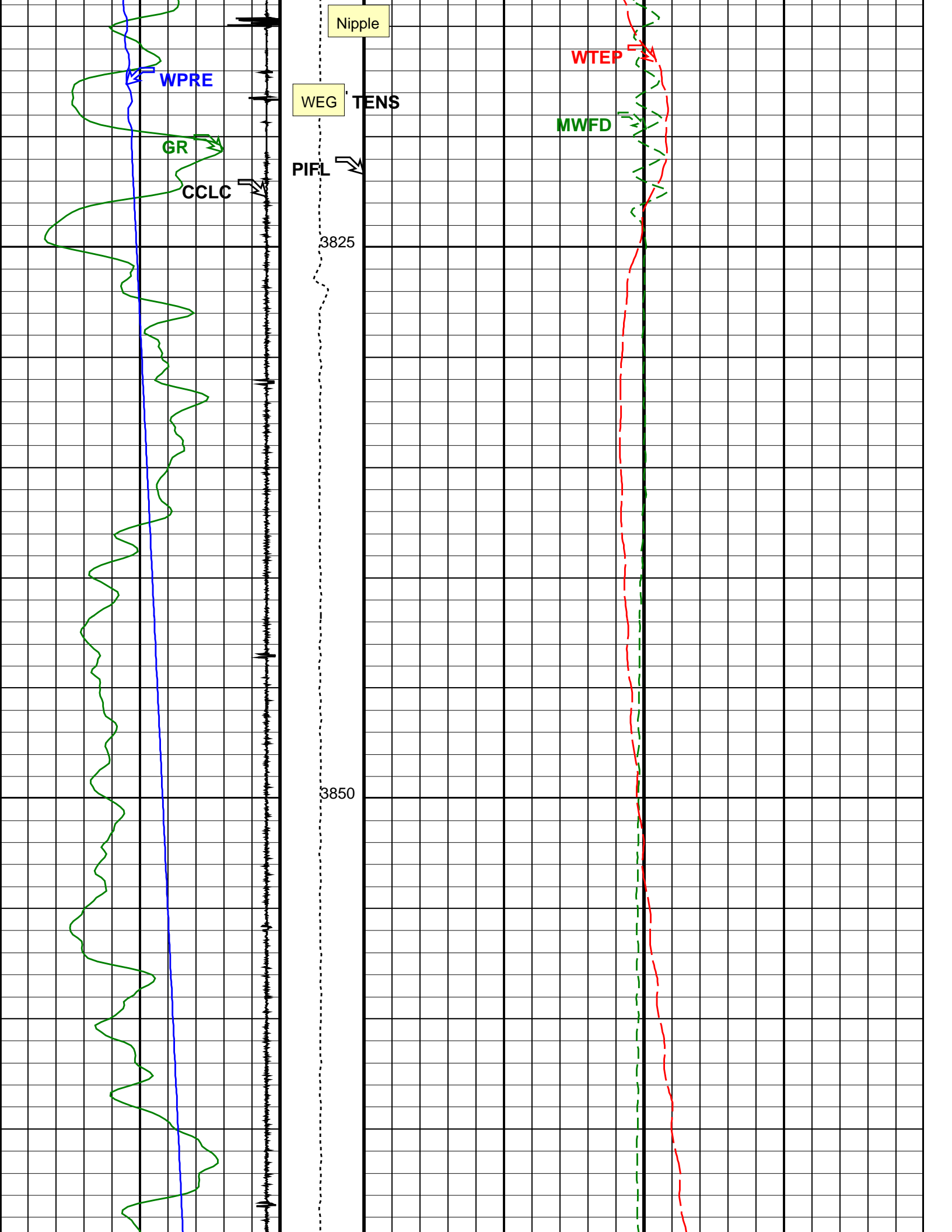
MAXIS Field Log

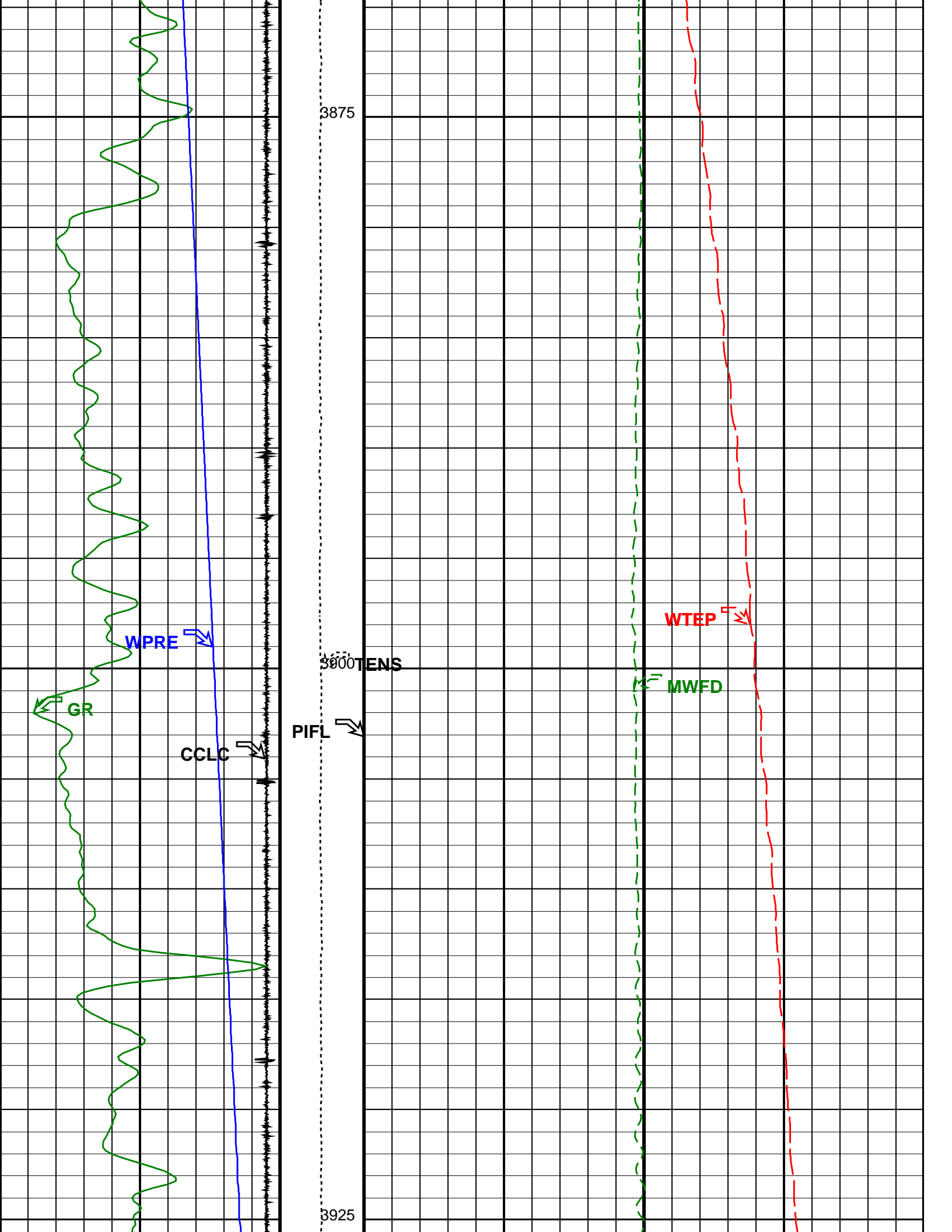
Company: Esso Australia Pty Ltd.					Well: FORTESCUE A28B	
Input DLIS Files						
DEFAULT	RST_PSP_025LUP	FN:24	PRODUCER	04-Jun-2010 19:43	3960.1 M	3737.6 M
Output DLIS Files						
DEFAULT	RST_PSP_025PUP	FN:54	PRODUCER	04-Jun-2010 23:37	3957.4 M	3748.9 M
CUSTOMER	RST_PSP_025PUC	FN:55	CUSTOMER	04-Jun-2010 23:37	3957.4 M	3748.9 M

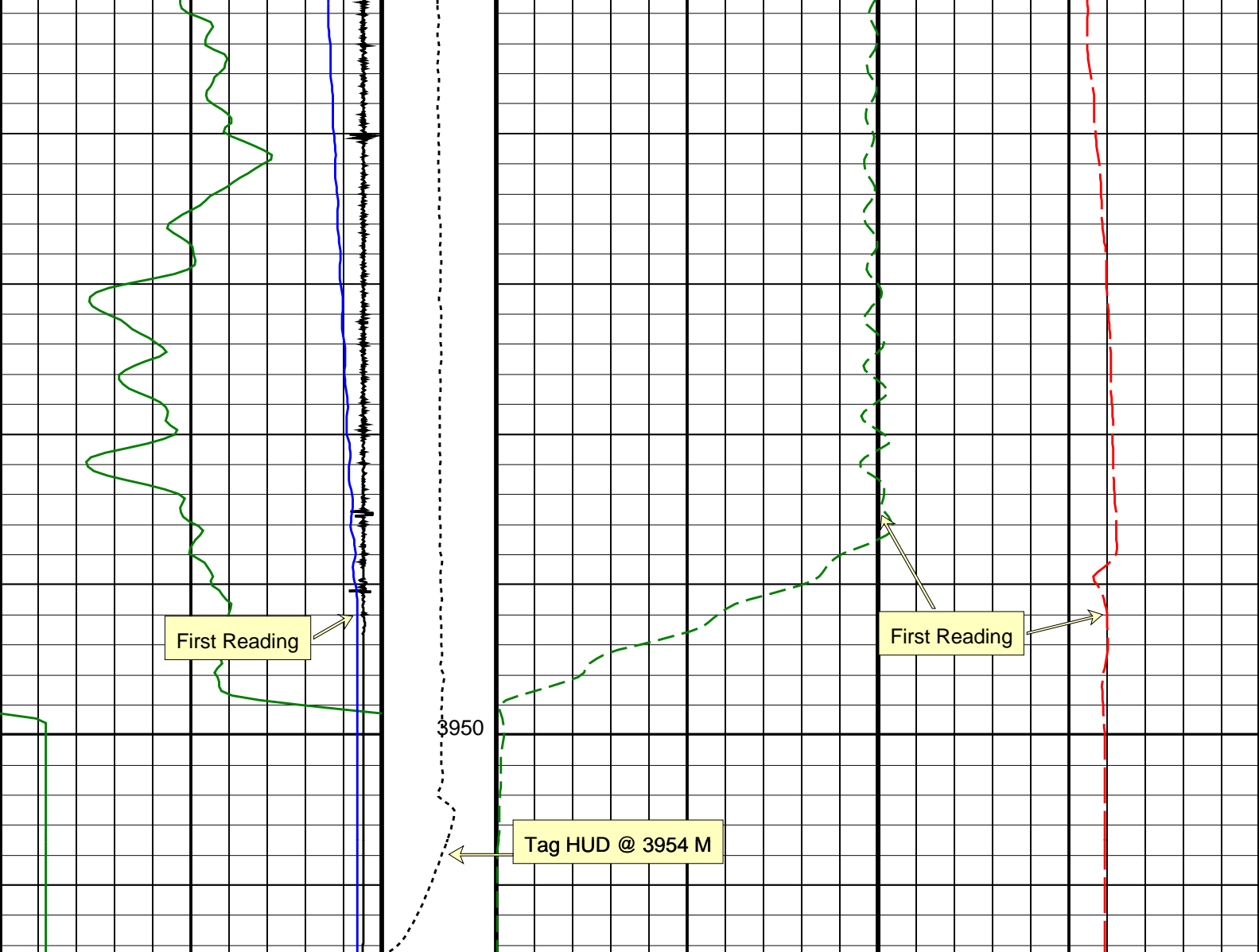
OP System Version: 18C0-147				
RST-C	SRPC-3972-Q1_2010_OP18	PSPT	SRPC-3972-Q1_2010_OP18	











Computed CCL (CCLC) (V)	1	Tension (TENS) (LBF)	0	Manometer Well Fluid Density (MWFD) (G/C3)	2
Gamma Ray (GR) (GAPI)	150	Perfo	216	Well Temperature (WTEP) (DEGF)	224
Well Pressure (WPRE) (PSIA)	2350				

Parameters		
DLIS Name	Description	Value
GDEV	RST-C: Reservoir Saturation Pro Tool C	
	Average Angular Deviation of Borehole from Normal	58 DEG
GDEV	PSPT: Production Services Logging Platform	
	Average Angular Deviation of Borehole from Normal	58 DEG
DO	System and Miscellaneous	
PP	Depth Offset for Playback	-2.7 M
	Playback Processing	NORMAL

Format: CORRELATION Vertical Scale: 1:200 Graphics File Created: 04-Jun-2010 23:37

OP System Version: 18C0-147			
RST-C	SRPC-3972-Q1_2010_OP18	PSPT	SRPC-3972-Q1_2010_OP18

Input DLIS Files	
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Output DLIS Files

Schlumberger

RST- C / Static
Repeat Analysis

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: FORTESCUE A28B

Input DLIS Files

Output DLIS Files

OP System Version: 18C0-147

RST-C

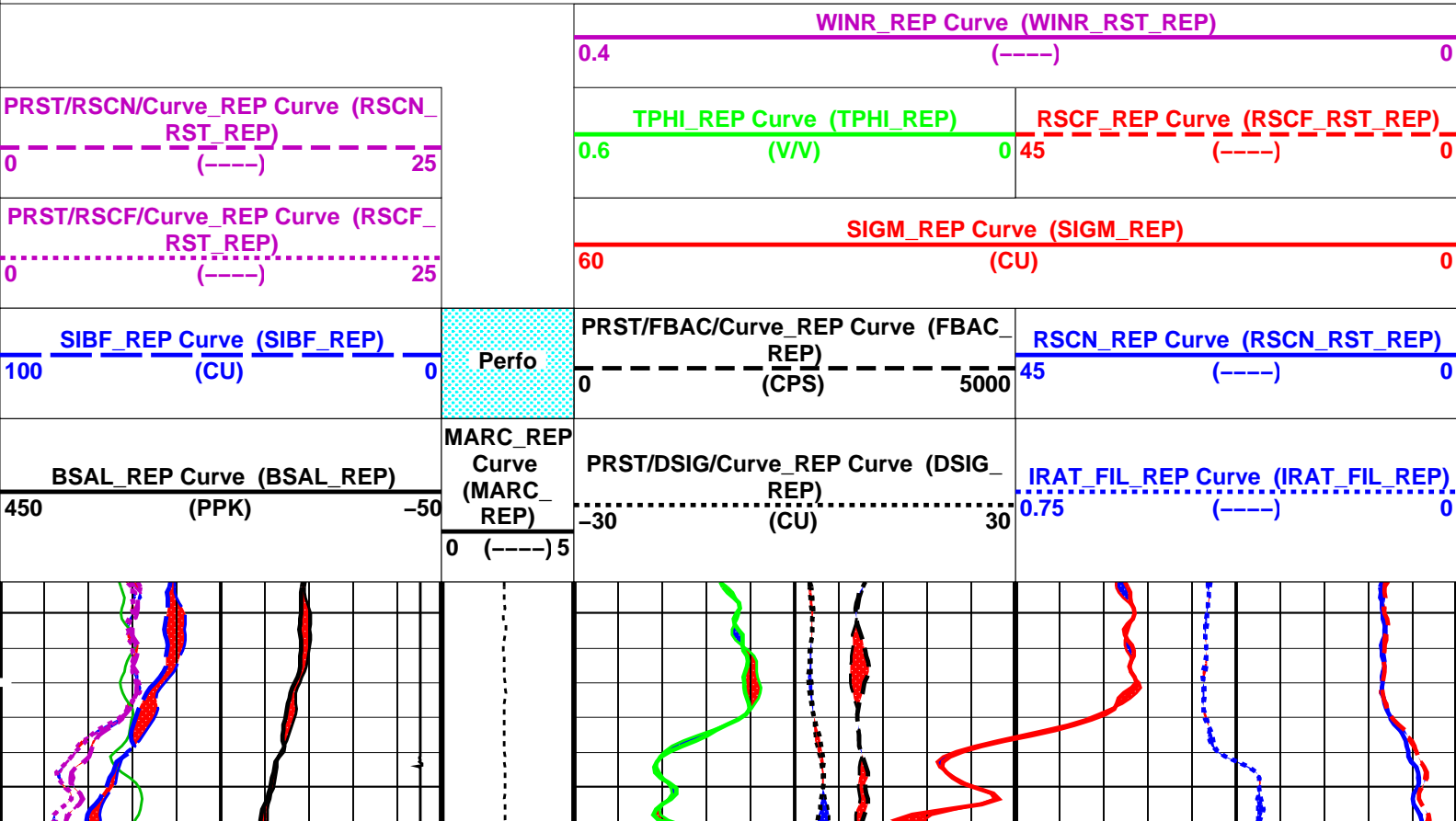
SRPC-3972-Q1_2010_OP18

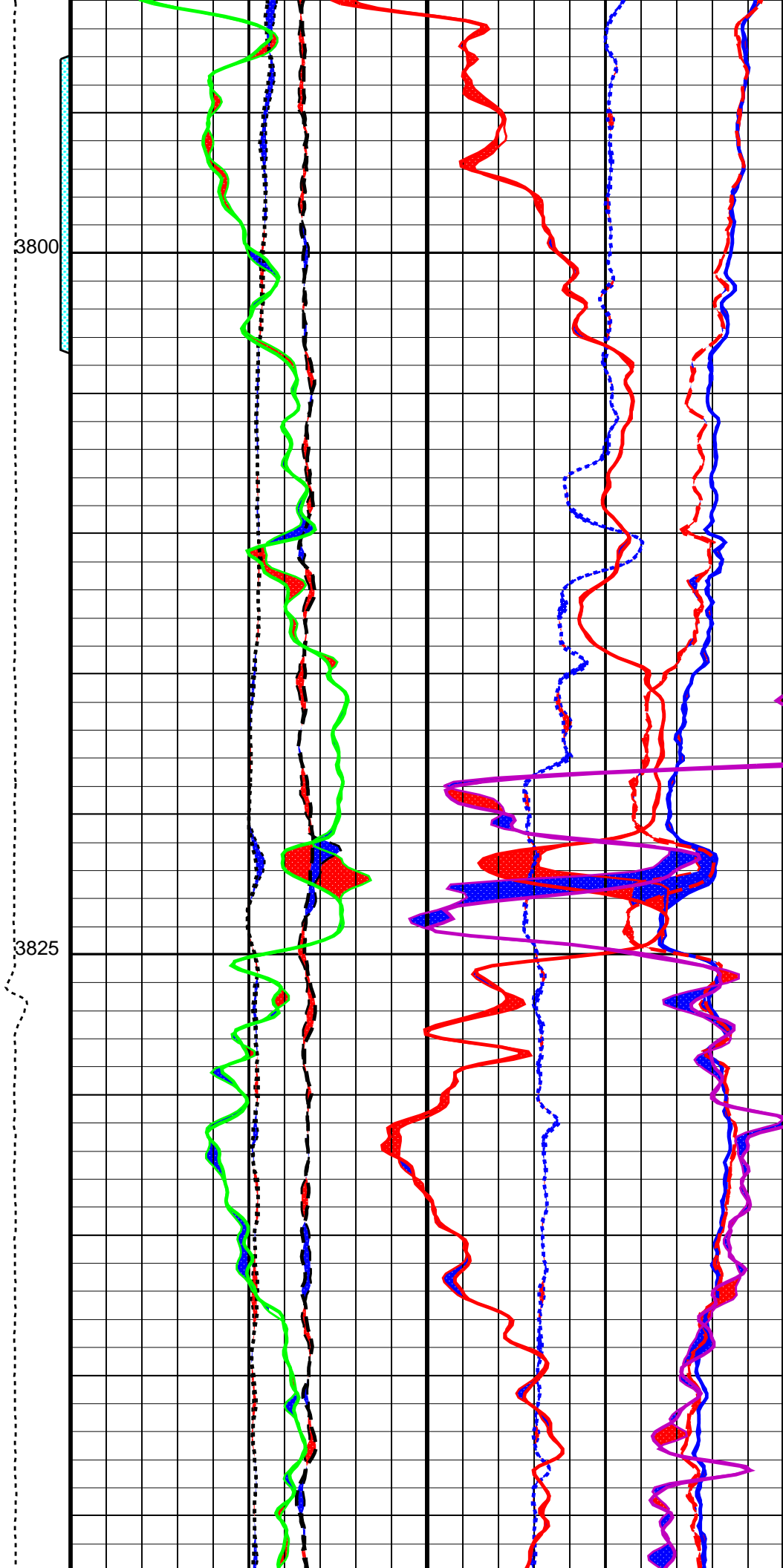
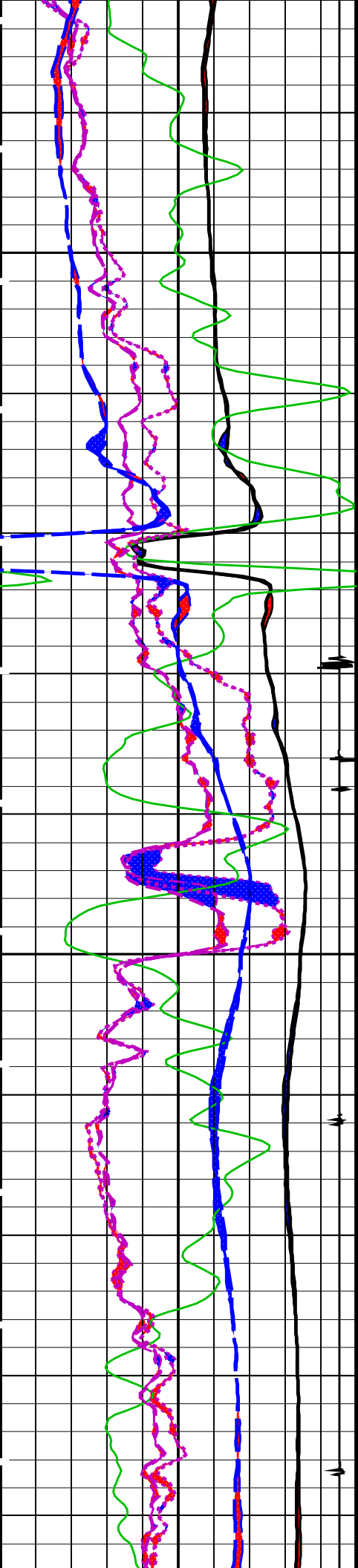
PSPT

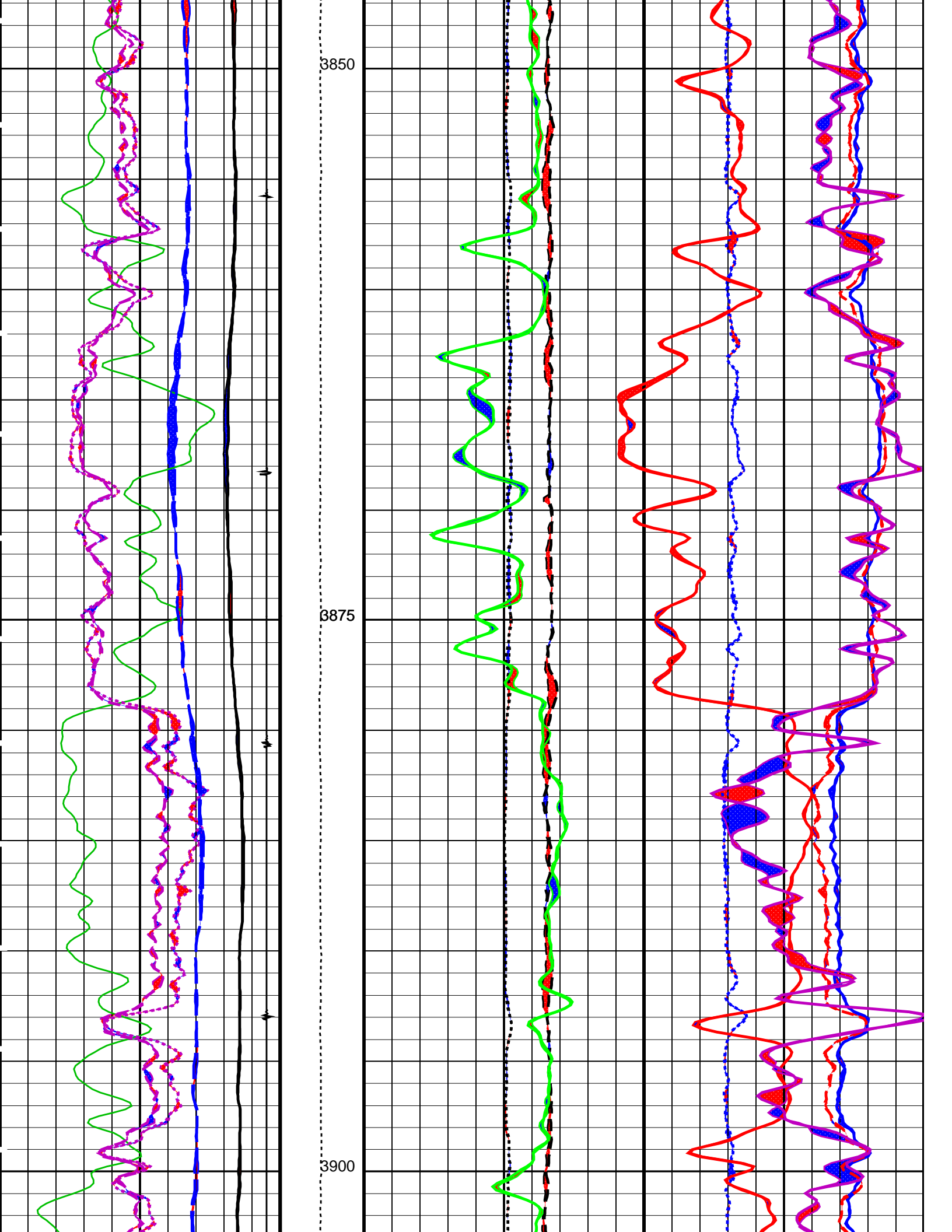
SRPC-3972-Q1_2010_OP18

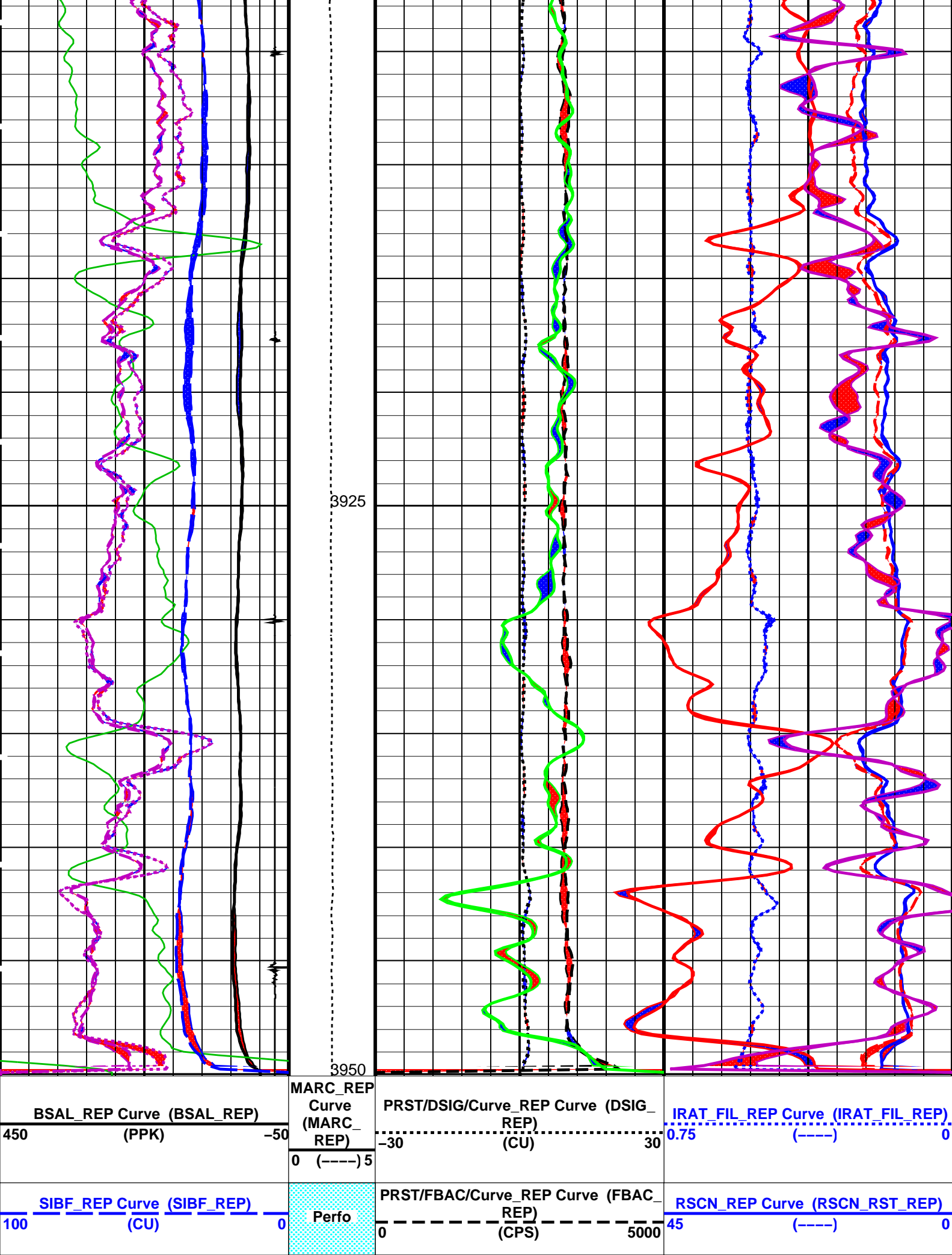
PIP SUMMARY

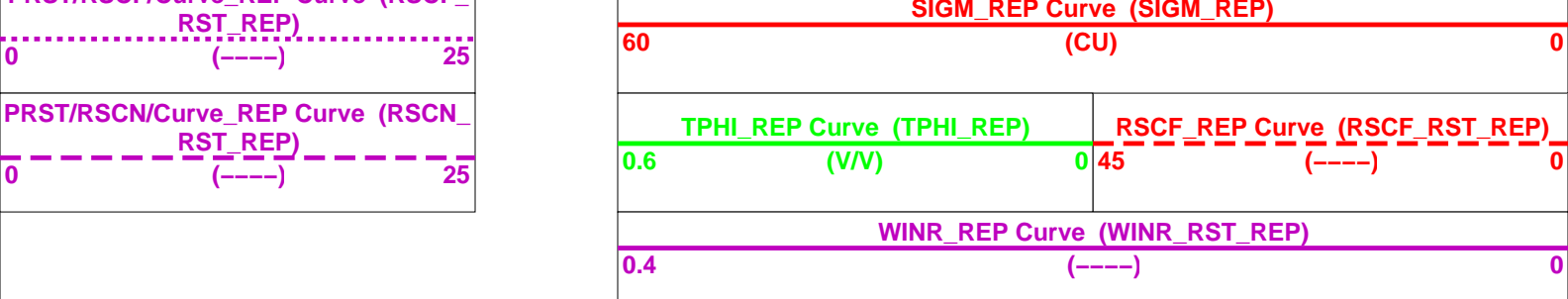
Time Mark Every 60 S











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
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma
PSPT: Production Services Logging Platform		
BHS	Borehole Status	CASED
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
System and Miscellaneous		
BS	Bit Size	8.500 IN
BSAL	Borehole Salinity	-50000.00 PPM
CSIZ	Current Casing Size	7.000 IN
CWEI	Casing Weight	26.00 LB/F
DO	Depth Offset for Playback	0.0 M
DORL	Depth Offset for Repeat Analysis	0.0 M
PP	Playback Processing	NORMAL

Format: RST_SIG_ANSW_REP Vertical Scale: 1:200 Graphics File Created: 04-Jun-2010 22:49

OP System Version: 18C0-147

RST-C SRPC-3972-Q1_2010_OP18 PSPT SRPC-3972-Q1_2010_OP18

Input DLIS Files

DEFAULT RST_PSP_027PUP FN:46 PRODUCER 04-Jun-2010 22:46 3950.1 M 3783.9 M

Output DLIS Files

DEFAULT RST_PSP_028PUP FN:48 PRODUCER 04-Jun-2010 22:49
CUSTOMER RST_PSP_028PUC FN:49 CUSTOMER 04-Jun-2010 22:49

Company: **Esso Australia Pty Ltd.**

Schlumberger

Well: **FORTESCUE A28B**

Field: **Fortescue**

Rig: **Prod 2**

Country: **Australia**

RST-C
Sigma Log
4-Jun-2010