

Company: Esso Australia Pty Ltd.

Well: COBIA F27
Field: HALIBUT
Rig: Crane / Prod 4

Country: Australia

RST-C Sigma Log 7-Mar-2010		LOCATION	
		Bass Strait	Elev.: K.B. 40.99 m G.L. -79.00 m D.F. 40.99 m
		Permanent Datum: M.S.L. _____ Log Measured From: K.B. _____ Drilling Measured From: K.B. _____	Elev.: 0.00 m 40.99 m above Perm. Datum
		State: Victoria	Max. Well Deviation 59.9 deg Longitude 148 16' 28.3" E Latitude 38 24' 31.39" S
Rig:	Crane / Prod 4		
Field:	HALIBUT		
Location:	Bass Strait		
Well:	COBIA F27		
Company:	Esso Australia Pty Ltd.		

Logging Date	7-Mar-2010		
Run Number	One		
Depth Driller	3983 m		
Schlumberger Depth	3884 m		
Bottom Log Interval	3880 m		
Top Log Interval	3770 m		
Casing Fluid Type	Produced Fluid		
Salinity			
Density			
Fluid Level	644 m		
BIT/CASING/TUBING STRING			
Bit Size	9.875 in		
From	599 m		
To	3983 m		
Casing/Tubing Size	7.000 in		
Weight	26 lbm/ft		
Grade	L-80		
From	21.6 m		
To	3978.6 m		
Maximum Recorded Temperatures	108 degC		
Logger On Bottom	7-Mar-2010	Time	11:38
Unit Number	889	AUSL	
Recorded By	C. Rowand		
Witnessed By	B. White		

PVT DATA			
Oil Density	Run 1	Run 2	R
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	59.9 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			
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			

Date Created: 7-MAR-2010 12:36:46

Logging Cable

Type:	2-32ZT
Serial Number:	208558
Length:	5960 M
Conveyance Method:	Wireline
Rig Type:	Offshore Fixed

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	ExxonMobil Petro Analysis
Reference Log Run Number:	Composite
Reference Log Date:	
Subsequent Trip Down Log Correction:	-5.50 M

1. Rigged up on main deck using the platform crane
2. Tool Zero is referenced from the Tubing Hanger at 20.67m.
3. Depth correlated over the interval: 3820–3870m
- 4.
- 5.
6. Tension: $a = 3.75 \text{ E-}5$. $b = 0.8051$ & $c = -129.5$

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 SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

All depth are MDKB.

RSC-C 132
RSS-A 108
RSXH-A 145
RSX-C 132

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

4.24

4.09

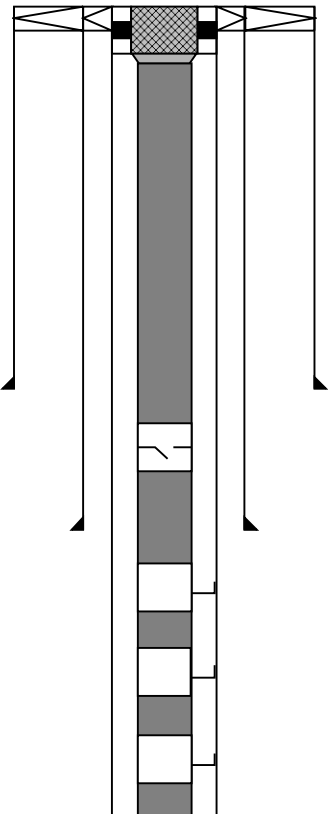
Tension HV 0.00
TOOL ZERO

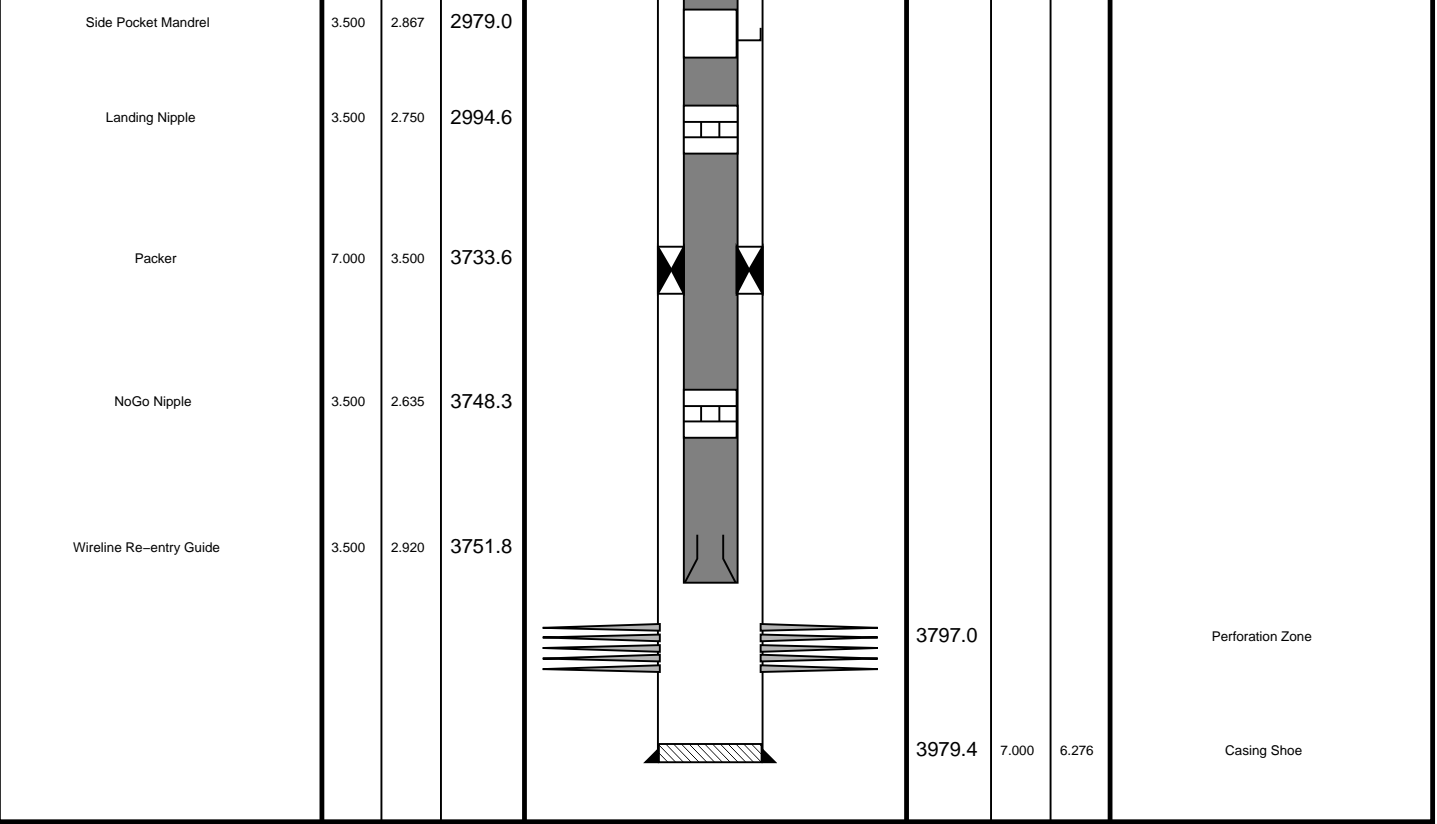
MAXIMUM STRING DIAMETER 2.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Client: Esso Australia Pty Ltd
Well: CBA F27
Field: Halibut
State: Victoria
Country: Australia

Drawing Date: 2/23/2010

Rig Name: Crane / Prod4
Reference Datum: Mean Sea Level
Elevation: 0.0 m

Production String	(in)		(m)	Well Schematic	(m)		(in)	Casing String
	OD	ID	MD		MD	OD	ID	
Tubing Hanger	7.000	4.500	20.7		21.6	7.000	6.276	Production Casing
Crossover Joint	4.500	3.500	24.7		21.6	20.000	18.638	Conductor Casing
Tubing	3.500	2.992	25.2		21.6	10.750	10.050	Surface Casing
SSSV	3.500	2.750	450.6		201.3	20.000	18.638	Casing Shoe
Side Pocket Mandrel	3.500	2.867	906.1		594.1	10.750	10.050	Casing Shoe
Side Pocket Mandrel	3.500	2.867	1718.7					
Side Pocket Mandrel	3.500	2.867	1965.7					



All Depths are Drillers Depths
Not to Scale



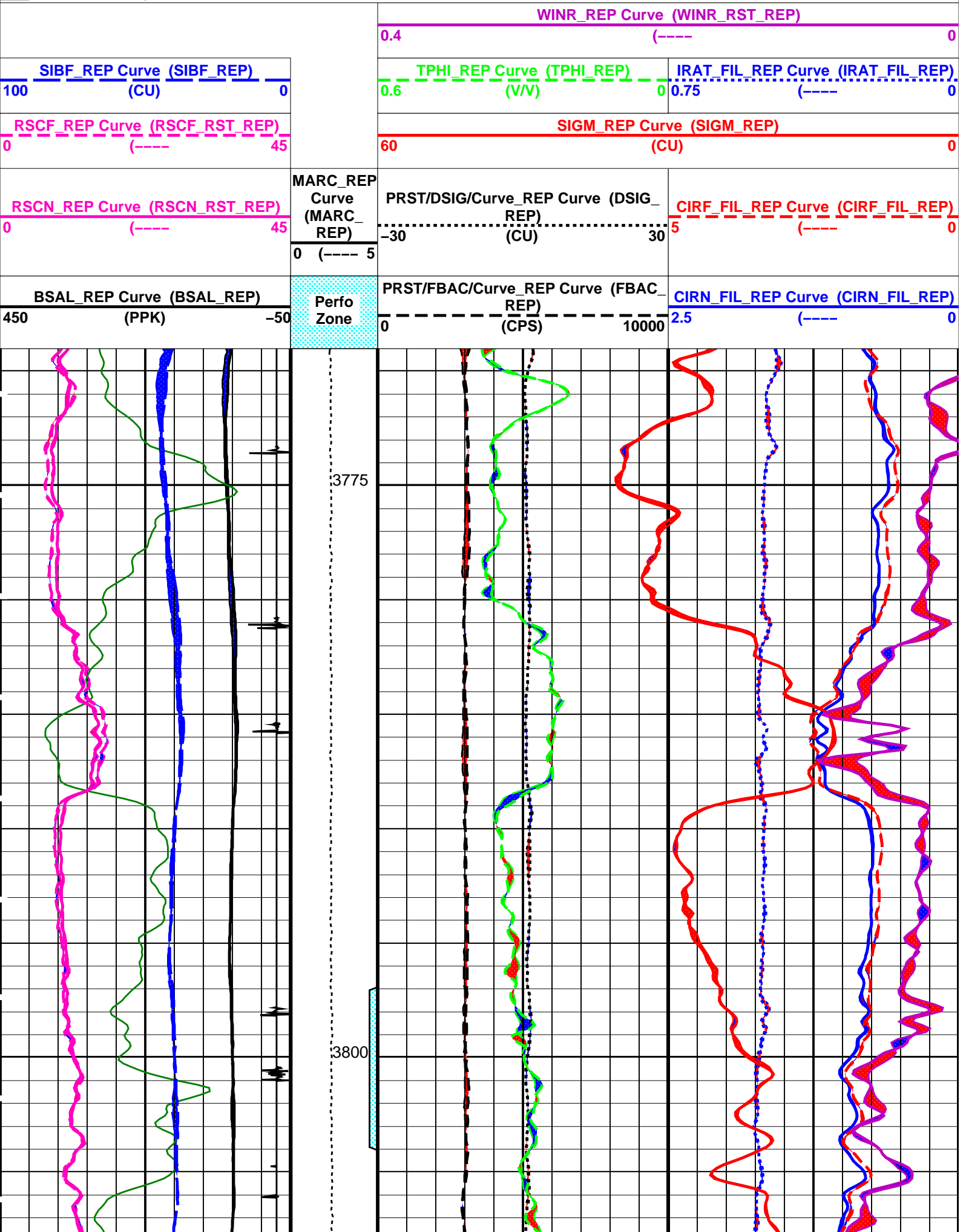
Merged Sgima Passes
Shut In

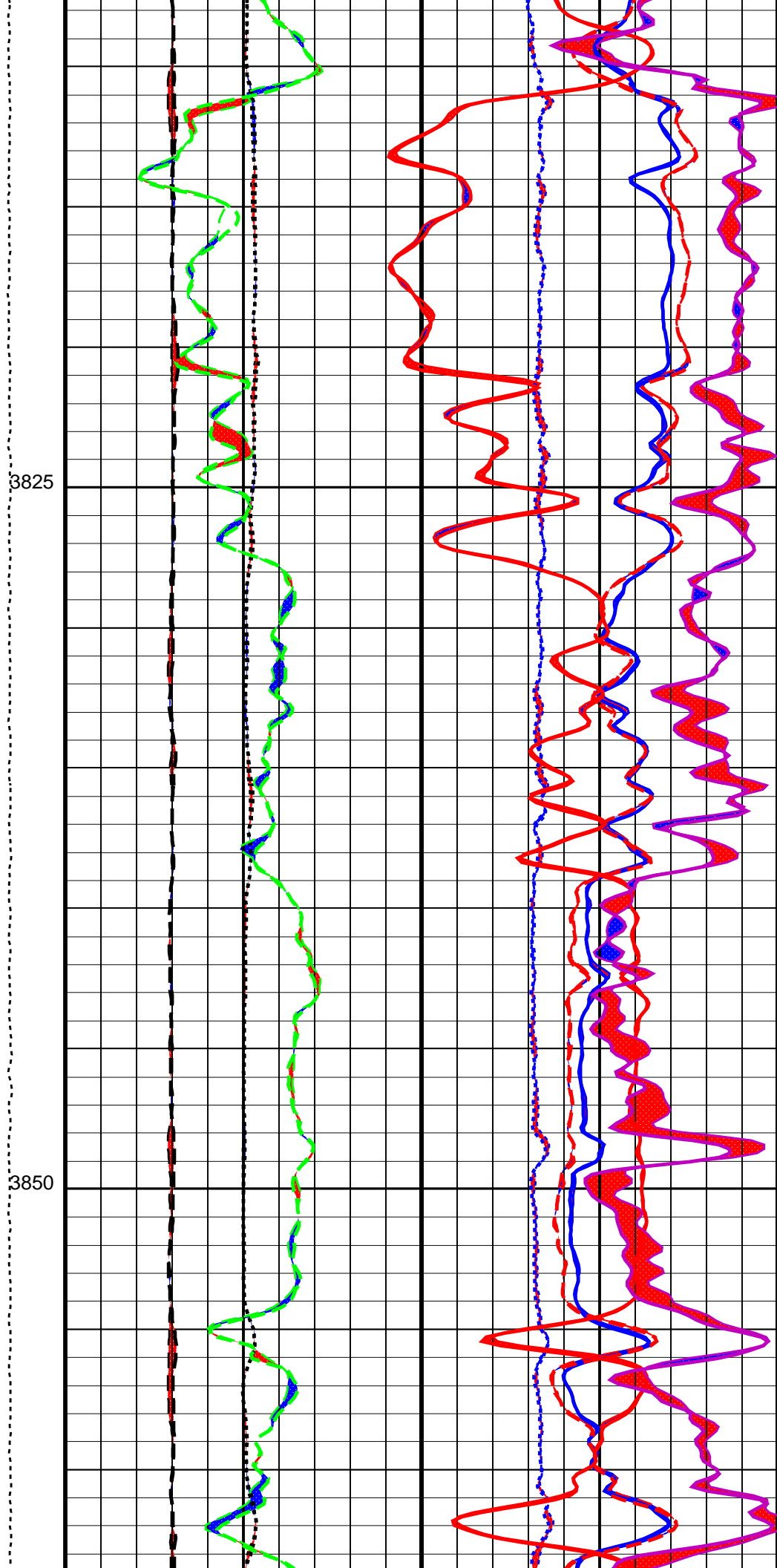
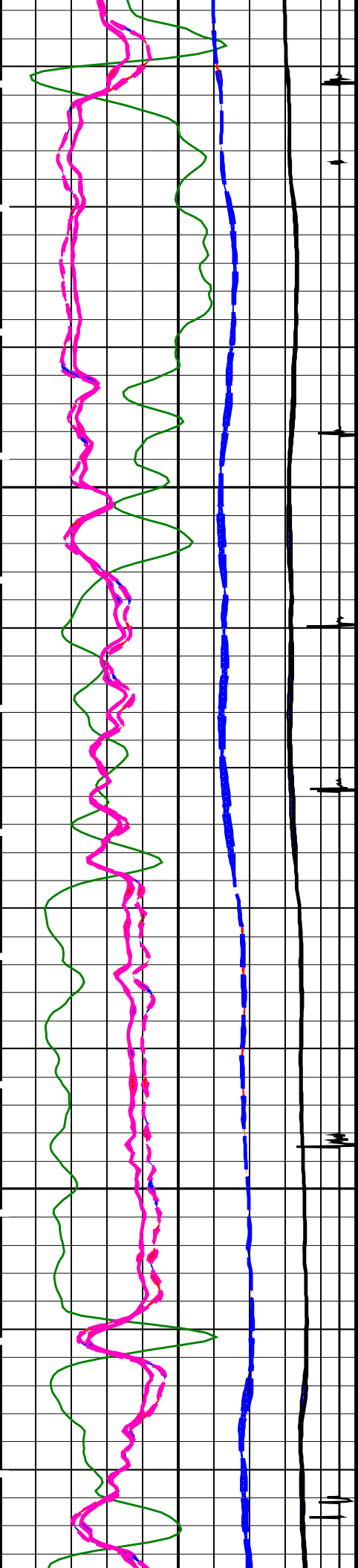
MAXIS Field Log

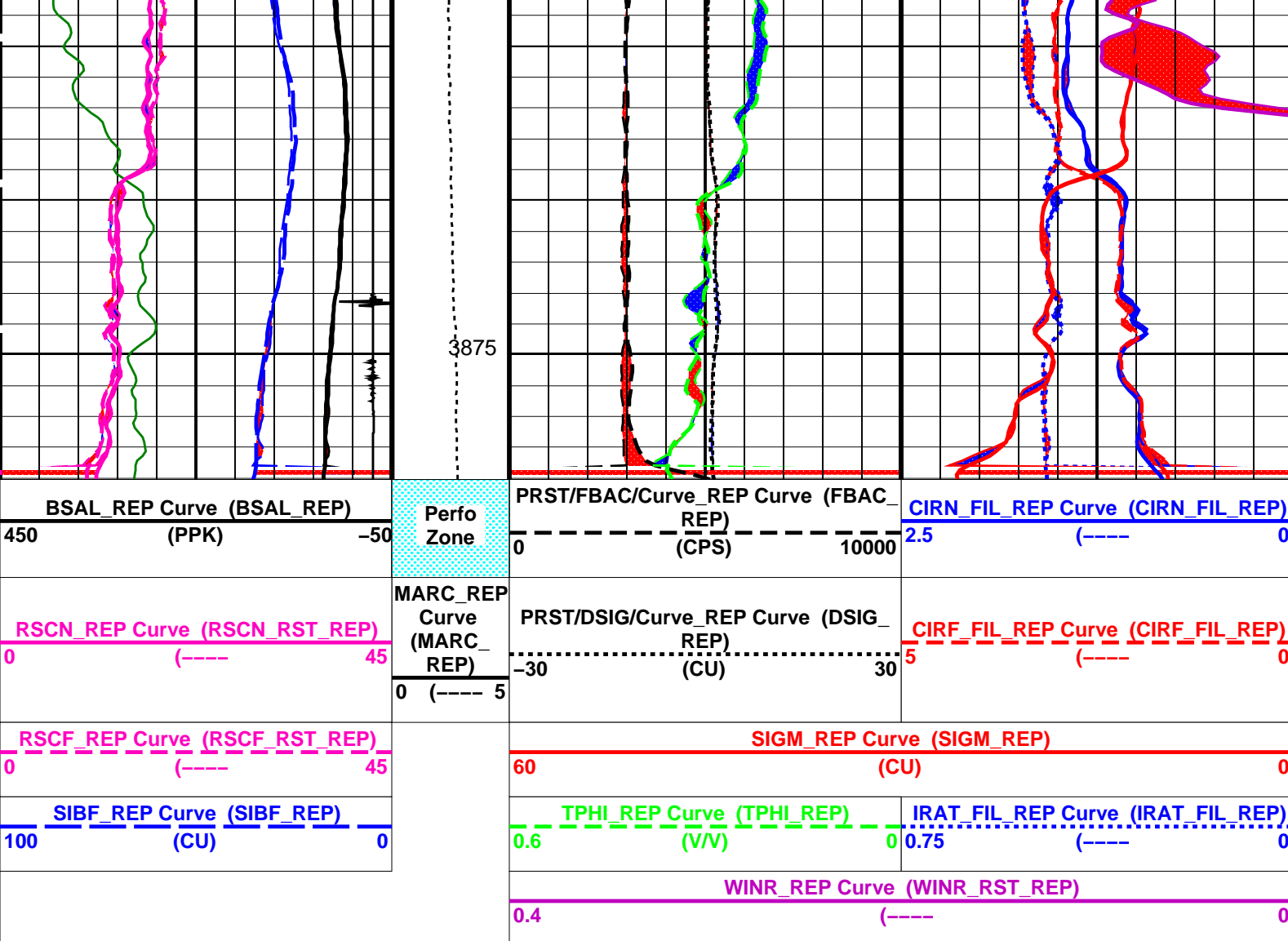
Company: Esso Australia Pty Ltd					Well: COBIA F27	
Input DLIS Files						
DEFAULT	RST_PSP_007PUP	FN:17	PRODUCER	07-Mar-2010 13:46	3885.0 M	3768.9 M
DEFAULT	RST_PSP_008PUP	FN:19	PRODUCER	07-Mar-2010 13:50	3885.0 M	3768.9 M
Output DLIS Files						
DEFAULT	RST_PSP_009PUP	FN:21	PRODUCER	07-Mar-2010 13:55	3879.0 M	3768.9 M
CUST	RST_PSP_009PUC	FN:22	CUSTOMER	07-Mar-2010 13:55	3879.0 M	3768.9 M
OP System Version: 17C0-154						
RST-C	SRPC-3870_Q3_2009_OP17_V3	PSPT	SRPC-3870_Q3_2009_OP17_V3			

PIP SUMMARY

Time Mark Every 60 S







PIP SUMMARY

Time Mark Every 60 S

Format: RST_SIG_ANSW_REP Vertical Scale: 1:200

Graphics File Created: 07-Mar-2010 13:55

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

Input DLIS Files

DEFAULT	RST_PSP_007PUP	FN:17	PRODUCER	07-Mar-2010 13:46	3885.0 M	3768.9 M
DEFAULT	RST_PSP_008PUP	FN:19	PRODUCER	07-Mar-2010 13:50	3885.0 M	3768.9 M

Output DLIS Files

DEFAULT	RST_PSP_009PUP	FN:21	PRODUCER	07-Mar-2010 13:55
CUST	RST_PSP_009PUC	FN:22	CUSTOMER	07-Mar-2010 13:55

Schlumberger

RST Sigma Pass #2
Shut In

Input DLIS Files

DEFAULT

RST_PSP_008LUP

FN:7

PRODUCER

07-Mar-2010 12:49

3887.1 M

3752.4 M

Output DLIS Files

DEFAULT

RST_PSP_008PUP

FN:19

PRODUCER

07-Mar-2010 13:50

3885.0 M

3768.9 M

CUST

RST_PSP_008PUC

FN:20

CUSTOMER

07-Mar-2010 13:50

3885.0 M

3768.9 M

OP System Version: 17C0-154

RST-C

SRPC-3870_Q3_2009_OP17_V3

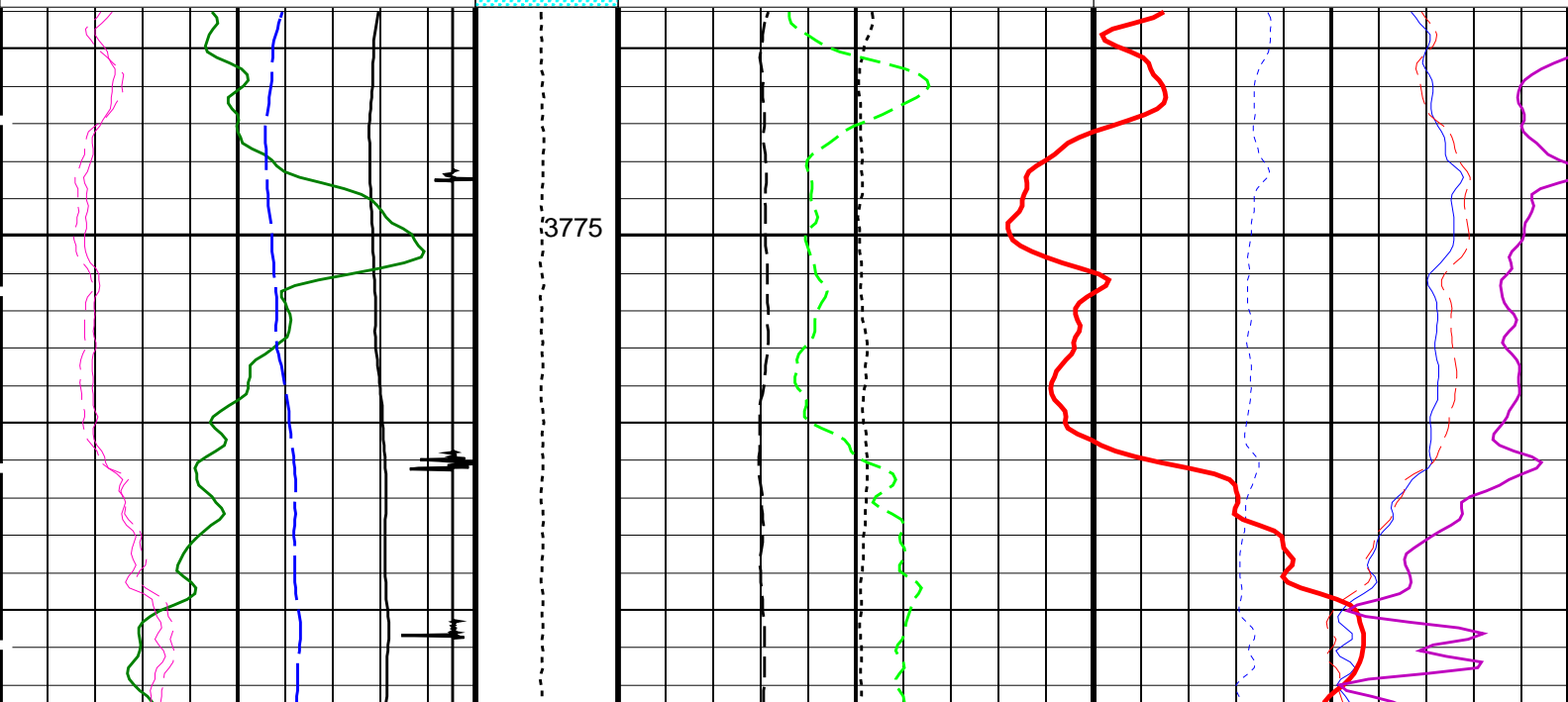
PSPT

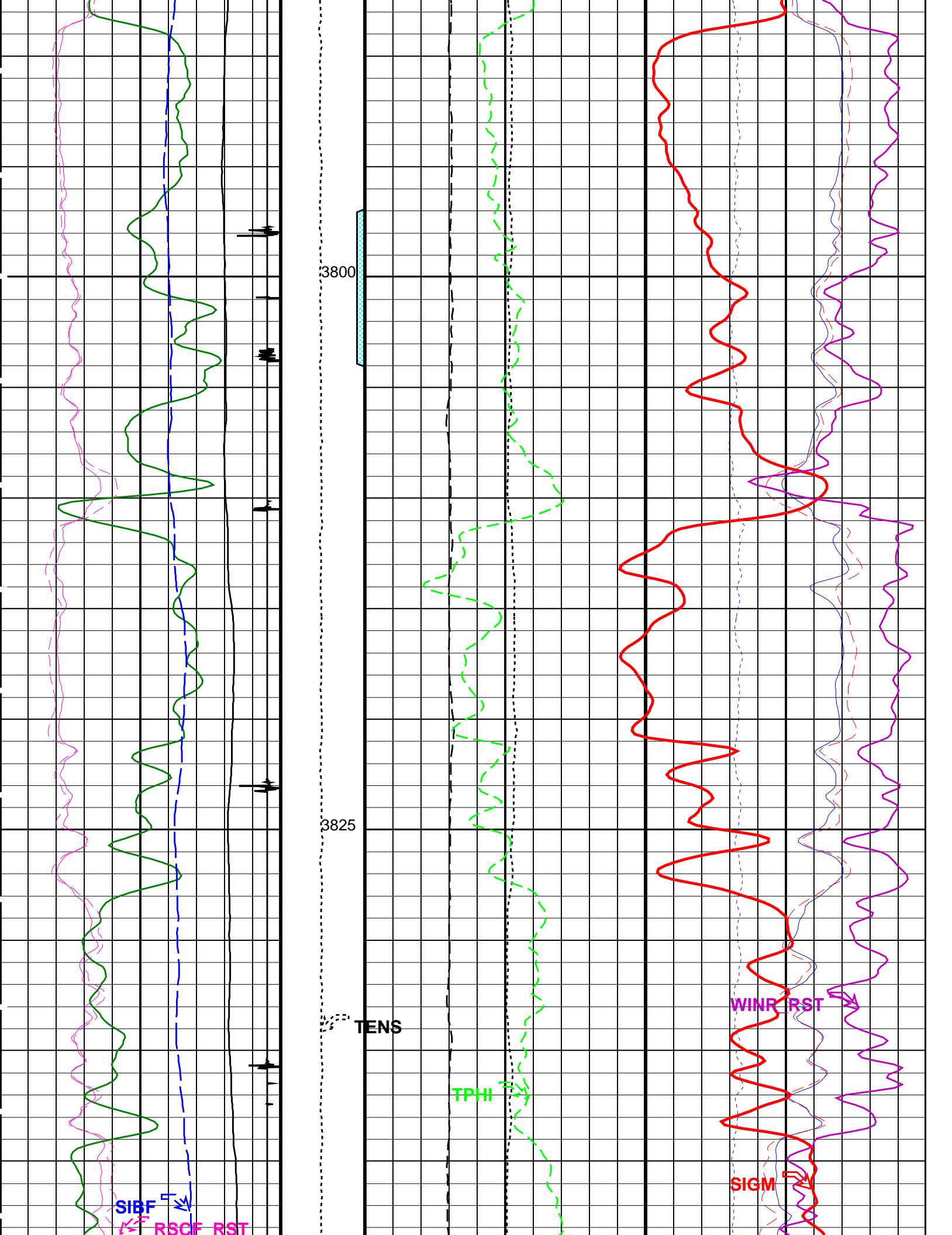
SRPC-3870_Q3_2009_OP17_V3

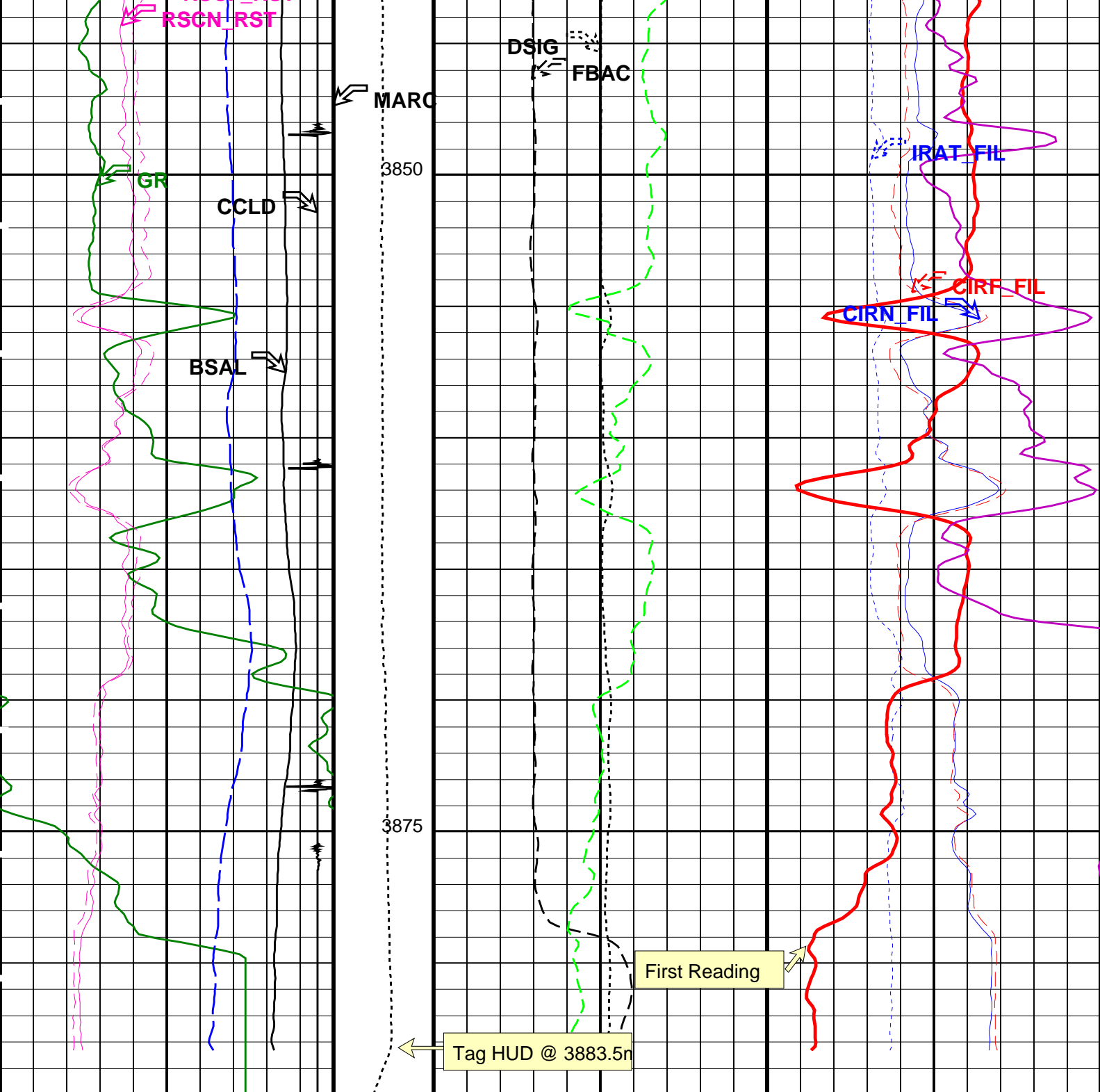
PIP SUMMARY

Time Mark Every 60 S

RST Far Effective Capture CR (RSCF_RST) 0 (----) 45		RST Weighted Inelastic Ratio (WINR_RST) 0.4 (----) 0	
RST Near Effective Capture CR (RSCN_RST) 0 (----) 45		RST Porosity (TPHI) (V/V) 0.6 (----) 0	
RST Sigma Borehole Fluid (SIBF) 100 (CU) 0		RST Inelastic Ratio (IRAT_FIL) 0.75 (----) 0	
Gamma Ray (GR) (GAPI) 0 150		RST Sigma (SIGM) (CU) 60 0	
Discriminated CCL (CCLD) (V) -19 1		RST Sigma Difference (DSIG) (CU) -30 30	
RST Borehole Salinity (BSAL) (PPK) 450 -50		RST Capture to Inelastic Ratio Far (CIRF_FIL) 5 (----) 0	
		RST Capture to Inelastic Ratio Near (CIRN_FIL) 2.5 (----) 0	
		MCS Far Background (filtered) (FBAC) (CPS) 0 10000	







RST Borehole Salinity (BSAL) (PPK)	Perfo Zone	MCS Far Background (filtered) (FBAC) (CPS)	RST Capture to Inelastic Ratio Near (CIRN_FIL)
450 -50		0 10000	2.5 0
Discriminated CCL (CCLD) (V)	Tension (TENS) (LBF)	RST Sigma Difference (DSIG) (CU)	RST Capture to Inelastic Ratio Far (CIRF_FIL)
-19 1	1000 3000	-30 30	5 0
Gamma Ray (GR) (GAPI)	Minitron Arc Detection (MARC)	RST Sigma (SIGM) (CU)	
0 150	0 (---- 5	60 0	
RST Sigma Borehole Fluid (SIBF) (CU)		RST Porosity (TPHI) (V/V)	RST Inelastic Ratio (IRAT_FIL) (CU)
100 0		0.6 0	0.75 0

RST Near Effective Capture CR (RSCN_RST)		RST Weighted Inelastic Ratio (WINR_RST)	
0 (----) 45		0.4 (----) 0	
RST Far Effective Capture CR (RSCF_RST)			
0 (----) 45			

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	9.875	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	0.4	M
PP	Playback Processing	NORMAL	

Format: RST_SIG_ANSW Vertical Scale: 1:200 Graphics File Created: 07-Mar-2010 13:50

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

Input DLIS Files

DEFAULT	RST_PSP_008LUP	FN:7	PRODUCER	07-Mar-2010 12:49	3887.1 M	3752.4 M
---------	----------------	------	----------	-------------------	----------	----------

Output DLIS Files

DEFAULT	RST_PSP_008PUP	FN:19	PRODUCER	07-Mar-2010 13:50
CUST	RST_PSP_008PUC	FN:20	CUSTOMER	07-Mar-2010 13:50

Schlumberger

RST Sigma Pass #1
Shut In

MAXIS Field Log

Company: Esso Australia Pty Ltd

Well: COBIA F27

Input DLIS Files

DEFAULT	RST_PSP_007LUP	FN:6	PRODUCER	07-Mar-2010 12:16	3888.0 M	3754.4 M
---------	----------------	------	----------	-------------------	----------	----------

Output DLIS Files

DEFAULT	RST_PSP_007PUP	FN:17	PRODUCER	07-Mar-2010 13:46	3885.0 M	3768.9 M
CUST	RST_PSP_007PUC	FN:18	CUSTOMER	07-Mar-2010 13:46	3885.0 M	3768.9 M

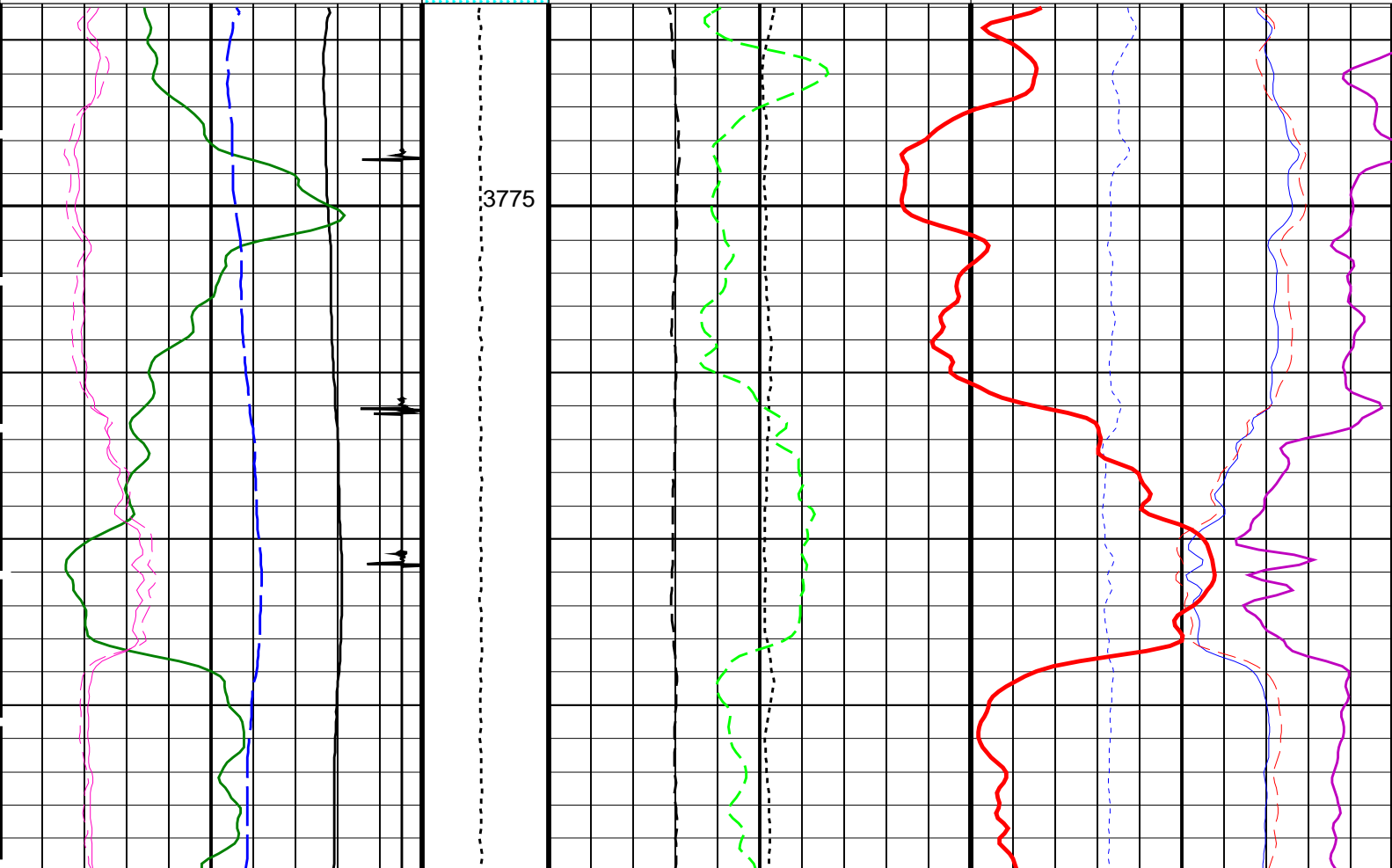
OP System Version: 17C0-154

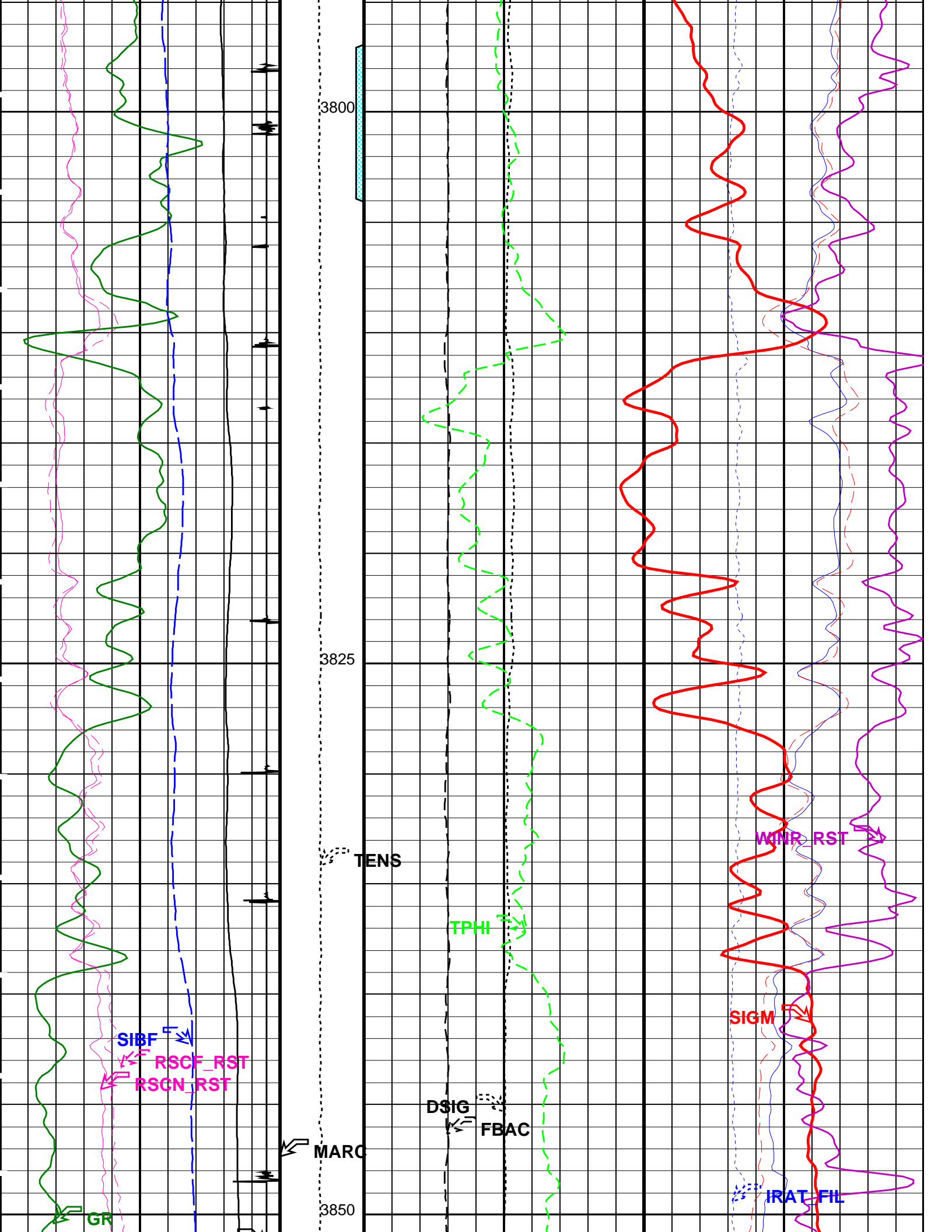
RST-C	SRPC-3870_Q3_2009_OP17_V3	PSPT	SRPC-3870_Q3_2009_OP17_V3
-------	---------------------------	------	---------------------------

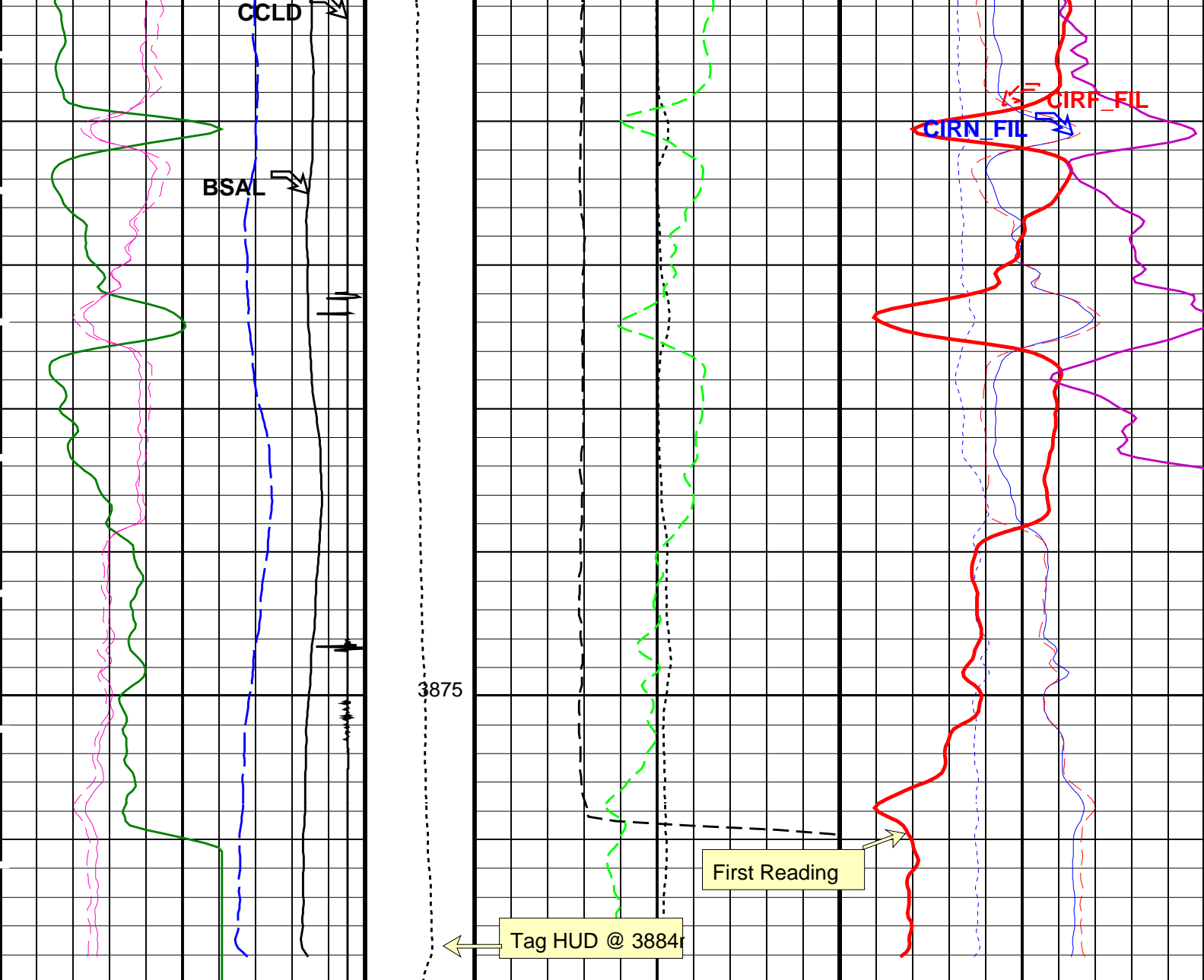
PIP SUMMARY

Time Mark Every 60 S

RST Far Effective Capture CR (RSCF_RST) 0 (----) 45		RST Weighted Inelastic Ratio (WINR_RST) 0.4 (----) 0	
RST Near Effective Capture CR (RSCN_RST) 0 (----) 45		RST Porosity (TPHI) (V/V) 0.6 (----) 0	
RST Sigma Borehole Fluid (SIBF) (CU) 100 (----) 0		RST Inelastic Ratio (IRAT_FIL) 0.75 (----) 0	
Gamma Ray (GR) (GAPI) 0 (----) 150		RST Sigma (SIGM) (CU) 60 (----) 0	
Discriminated CCL (CCLD) (V) -19 (----) 1		RST Sigma Difference (DSIG) (CU) -30 (----) 30	
RST Borehole Salinity (BSAL) (PPK) 450 (----) -50		RST Capture to Inelastic Ratio Far (CIRF_FIL) 5 (----) 0	
Minitron Arc Detection (MARC) 0 (----) 5		RST Capture to Inelastic Ratio Near (CIRN_FIL) 2.5 (----) 0	
Tension (TENS) (LBF) 1000 (----) 3000		MCS Far Background (filtered) (FBAC) (CPS) 0 (----) 10000	
Perfo Zone			







<div>RST Borehole Salinity (BSAL) (PPK)</div> <div>450-50</div>	Perfo Zone	<div>MCS Far Background (filtered) (FBAC) (CPS)</div> <div>010000</div>	<div>RST Capture to Inelastic Ratio Near (CIRN_FIL)</div> <div>2.50</div>
<div>Discriminated CCL (CCLD) (V)</div> <div>-191</div>		<div>RST Sigma Difference (DSIG) (CU)</div> <div>-3030</div>	<div>RST Capture to Inelastic Ratio Far (CIRF_FIL)</div> <div>50</div>
<div>Gamma Ray (GR) (GAPI)</div> <div>0150</div>	<div>Minitron Arc Detection (MARC)</div> <div>05</div>	<div>RST Sigma (SIGM) (CU)</div> <div>600</div>	
<div>RST Sigma Borehole Fluid (SIBF) (CU)</div> <div>1000</div>		<div>RST Porosity (TPHI) (V/V)</div> <div>0.60</div>	<div>RST Inelastic Ratio (IRAT_FIL)</div> <div>0.750</div>
<div>RST Near Effective Capture CR (RSCN_RST)</div> <div>045</div>		<div>RST Weighted Inelastic Ratio (WINR_RST)</div> <div>0.40</div>	
<div>RST Far Effective Capture CR (RSCF_RST)</div> <div>045</div>			

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	9.875	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	0.2	M
PP	Playback Processing	NORMAL	

Format: RST_SIG_ANSW Vertical Scale: 1:200 Graphics File Created: 07-Mar-2010 13:46

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3

Input DLIS Files

DEFAULT	RST_PSP_007LUP	FN:6	PRODUCER	07-Mar-2010 12:16	3888.0 M	3754.4 M
---------	----------------	------	----------	-------------------	----------	----------

Output DLIS Files

DEFAULT	RST_PSP_007PUP	FN:17	PRODUCER	07-Mar-2010 13:46		
CUST	RST_PSP_007PUC	FN:18	CUSTOMER	07-Mar-2010 13:46		



**Background GR Survey
Shut In**

MAXIS Field Log

Company: Esso Australia Pty Ltd

Well: COBIA F27

Input DLIS Files

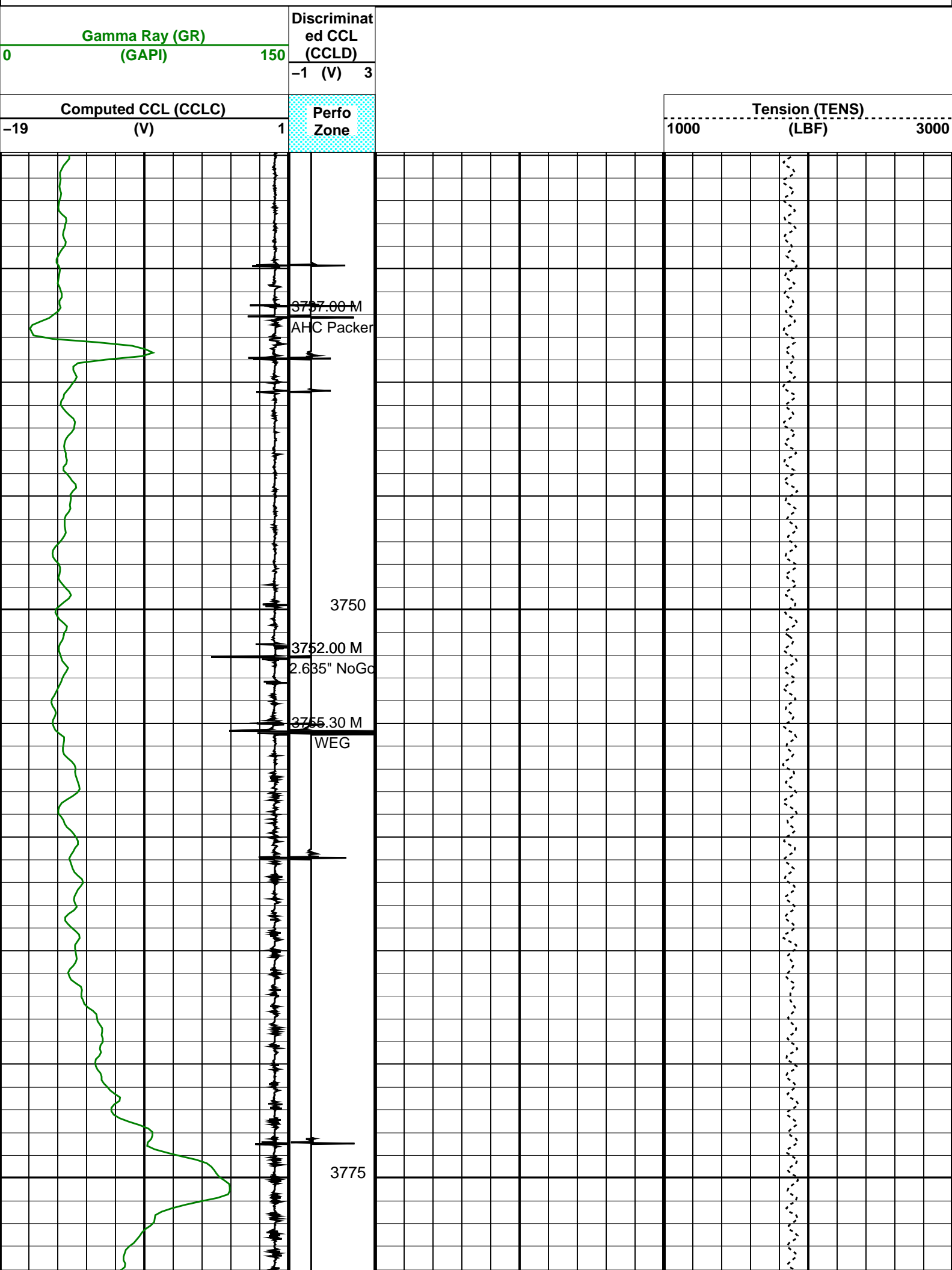
DEFAULT	RST_PSP_006LUP	FN:5	PRODUCER	07-Mar-2010 11:38	3896.6 M	3718.6 M
---------	----------------	------	----------	-------------------	----------	----------

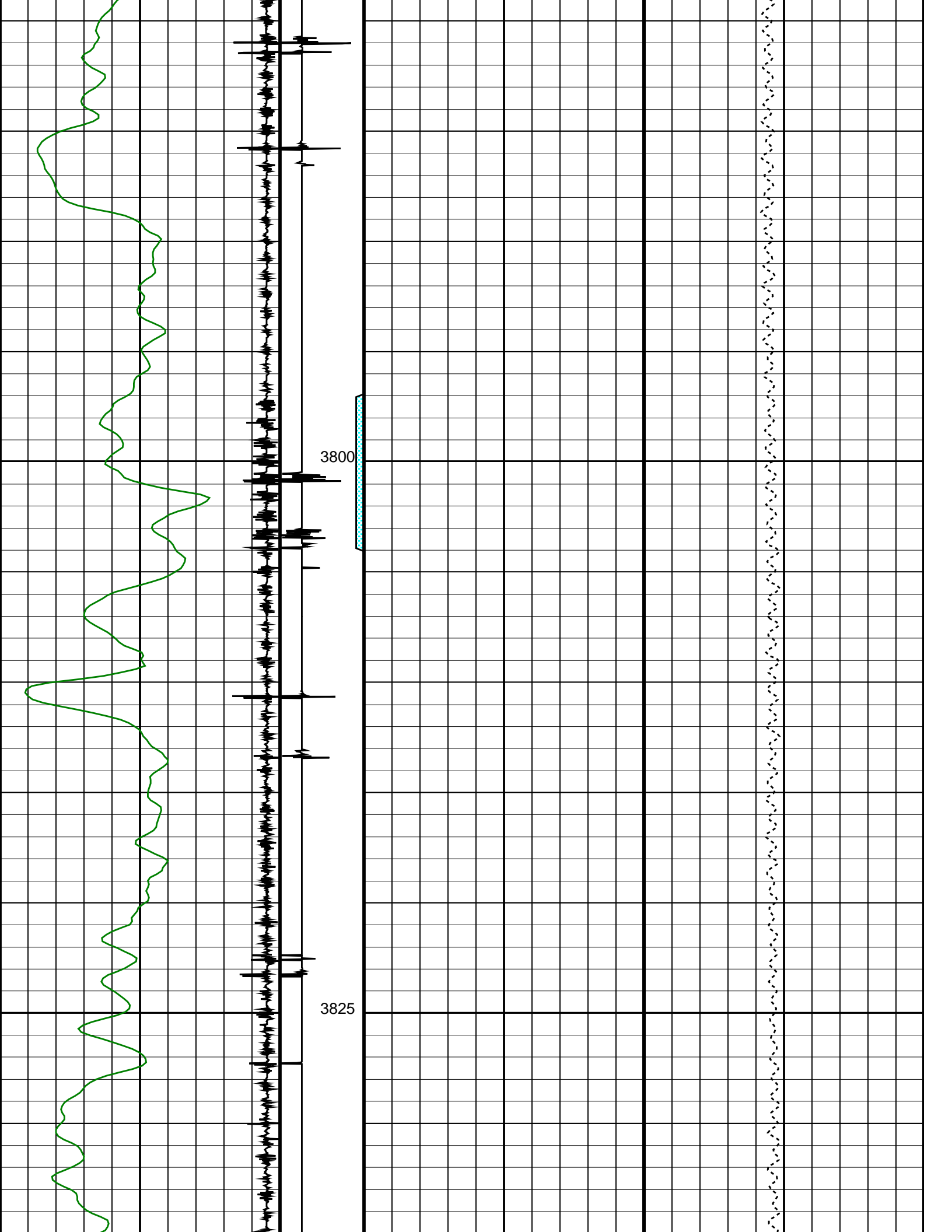
Output DLIS Files

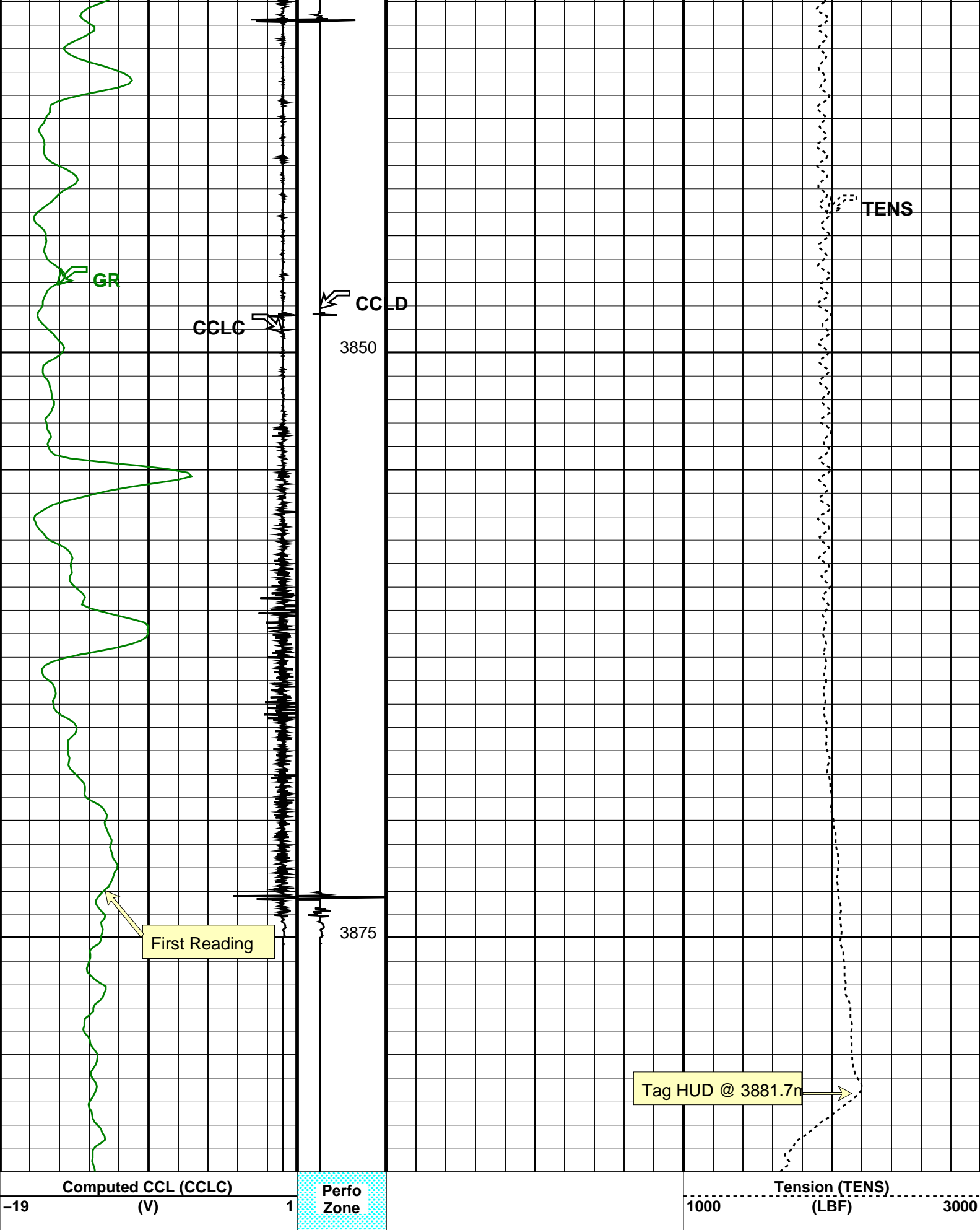
DEFAULT	RST_PSP_006PUP	FN:13	PRODUCER	07-Mar-2010 13:38	3885.0 M	3729.8 M
CUST	RST_PSP_006PUC	FN:14	CUSTOMER	07-Mar-2010 13:38	3885.0 M	3729.8 M

OP System Version: 17C0-154

RST-C SRPC-3870_Q3_2009_OP17_V3 PSPT SRPC-3870_Q3_2009_OP17_V3







Computed CCL (CCLC) (V)		Perfo Zone		Tension (TENS) (LBF)	
-19	1			1000	3000
Gamma Ray (GR) (GAPI)		Discriminat ed CCL (CCLD)			
0	150	-1 (V) 3			

Parameters		
DLIS Name	Description	Value
	System and Miscellaneous	
DO	Depth Offset for Playback	-2.6 M
PP	Playback Processing	NORMAL

System and Miscellaneous	
DO	Depth Offset for Playback
PP	Playback Processing

Format: CORRELATION Vertical Scale: 1:200 Graphics File Created: 07-Mar-2010 13:38

RST-C	SRPC-3870_Q3_2009_OP17_V3	PSPT	SRPC-3870_Q3_2009_OP17_V3
-------	---------------------------	------	---------------------------

DEFAULT	RST_PSP_006LUP	FN:5	PRODUCER	07-Mar-2010 11:38	3896.6 M	3718.6 M
---------	----------------	------	----------	-------------------	----------	----------

DEFAULT	RST_PSP_006PUP	FN:13	PRODUCER	07-Mar-2010 13:38
CUST	RST_PSP_006PUC	FN:14	CUSTOMER	07-Mar-2010 13:38

Schlumberger

Well: **COBIA F27**
Field: **HALIBUT**
Rig: **Crane / Prod 4**
Country: **Australia**

RST-C
Sigma Log
7-Mar-2010