

Company: Esso Australia Pty Ltd.

Well: A4

Field: Halibut

Rig: Crane/Prod 4

Country: Australia

RST-A  
Static Survey  
10-Jul-2009

Crane/Prod 4  
Halibut  
Gippsland  
A4  
Esso Australia Pty Ltd.

LOCATION	
Gippsland	Elev.: K.B. 28.70 m
Basin	G.L. -73.00 m
Bass Strait	D.F. 28.70 m
Permanent Datum:	Mean Sea Level
Log Measured From:	K.B. 0.00 m above Perm. Datum
Drilling Measured From:	K.B.
State: Victoria	Max. Well Deviation 48 deg
	Longitude 148°19'07.62"E
	Latitude 38°24'20.36"S

Logging Date	10-Jul-2009		
Run Number	1		
Depth Driller	3167.5 m		
Schlumberger Depth	3087 m		
Bottom Log Interval	3087 m		
Top Log Interval	2800 m		
Casing Fluid Type	Production fluids		
Salinity			
Density	0.79 g/cm3		
Fluid Level	13 m		
BIT/CASING/TUBING STRING			
Bit Size	9.875 in		
From	552 m		
To	3167.5 m		
Casing/Tubing Size	7.625 in		
Weight	26.7 lbm/ft		
Grade	N-80		
From	11.58 m		
To	3149.23 m		
Maximum Recorded Temperatures	225 degF		
Logger On Bottom	10-Jul-2009	15:55	
Unit Number	889	Prod 4/AUSL	
Recorded By	Owen Darby		
Witnessed By	Ben Robinson		

PVT DATA				Run 1	Run 2	Run 3
Oil Density						
Water Salinity						
Gas Gravity						
Bo						
Bw						
1/Bg						
Bubble Point Pressure						
Bubble Point Temperature						
Solution GOR						
Maximum Deviation	48 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						

n 3	Run 4
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Date Created: 11-JUL-2009 14:39:26

### Depth Measuring Device

## Tension Device

## Logging Cable

Conveyance Method: Wireline  
Rig Type: LAND

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	Halibut A4
Reference Log Run Number:	
Reference Log Date:	Not provided

1. IDW used as primary depth control.
2. Z-chart used as secondary backup
3. Correlated GR peak located @ 2940m MDKB
4. CMTD Calibration:  $A=8.95E-6$ ,  $B=0.8647$ ,  $C=-82.7$
- 5.
- 6.

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:

REMARKS: RUN NUMBER 2

Objective:  
RIH with RST-A (Sigma) toolstring c/w GR/CCL/Pressure/Temperature  
down to 3100m MDKB, correlating to solar composite logs. Power minitron @ HUD  
and allow tool 15mins to stabilize then complete 2 static SIGMA passes over the  
Range : 3100m to 3800m MDKB @ 000#/hr

RSCH-A 111  
RSC-C 132  
RSS-A 106  
RSXH-A 145  
RSX-C 132

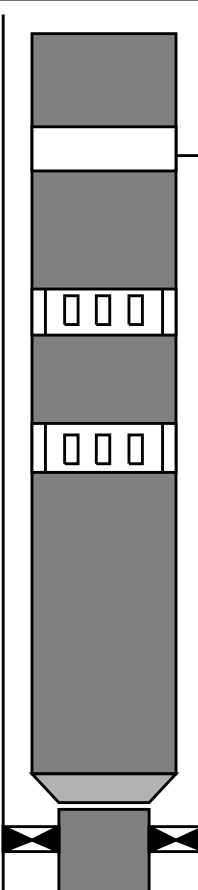
RSC-A Far  
RSC-A PNG  
RSC-A Nea  
RSX-A PNG

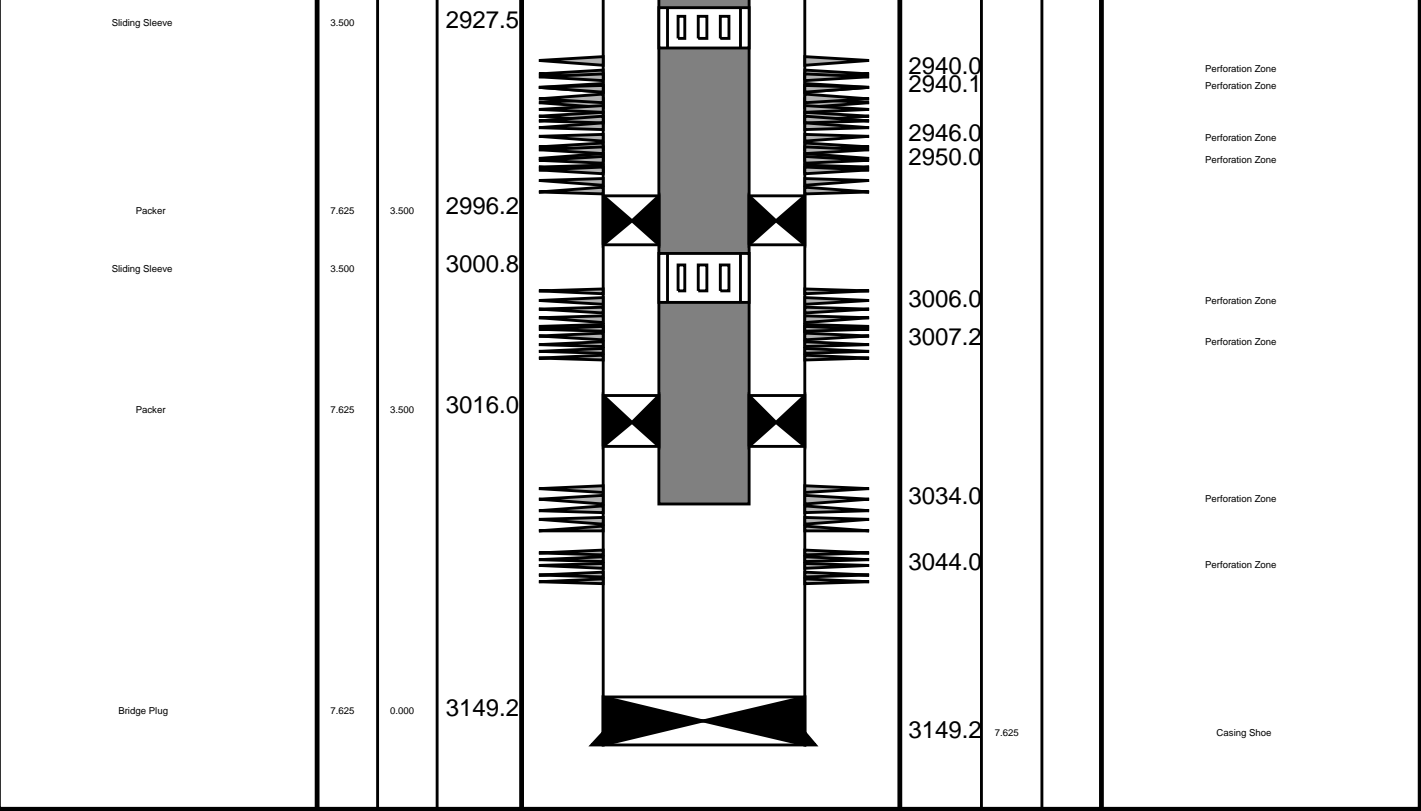
4.24

4.09

Tension HV 0.00  
TOOL ZERO

MAXIMUM STRING DIAMETER 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	5.500	4.892	10.5		11.6	7.625	Casing String	
Gas Lift Mandrel	5.500		132.4		11.6	10.750	Casing String	
Sliding Sleeve	5.500		775.5		552.1	10.750	Casing Shoe	
Sliding Sleeve	5.500		1453.7					
Crossover Joint	5.500	3.500	2921.3					
Tubing Packer	3.500 7.625	3.500	2921.6 2922					



## Job Events Summary

MAXIS Field Log

### Schlumberger Job Event Summary

Time	Elapsed Time	Depth (M)	File
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Simulated Log	10-Jul-2009 14:35	000:01	RST_PSP_017LUP
OP checked toolstring			
Log Pass (down)	10-Jul-2009 14:53	000:48	-7.8 - 2746.6 RST_PSP_018LDP
RIH with RST			
Log Pass (down)	10-Jul-2009 15:42	000:14	2741.2 - 3074.2 RST_PSP_019LDP
Correlation pass			
Log Pass (up)	10-Jul-2009 16:36	001:01	3072.1 - 2774.7 RST_PSP_022LUP
Sigma pass # 1			
Log Pass (up)	10-Jul-2009 17:49	001:05	3088.7 - 2771.7 RST_PSP_024LUP
Sigma pass # 2			

# RST SIGMA

## Repeat Analysis Section

MAXIS Field Log

Company: Esso Australia Pty Ltd.

Well: A4

### Input DLIS Files

DEFAULT	RST_PSP_030PUP	FN:15	PRODUCER	11-Jul-2009 12:28	3089.1 M	2799.9 M
DEFAULT	RST_PSP_029PUP	FN:14	PRODUCER	11-Jul-2009 12:26	3072.2 M	2799.9 M

### Output DLIS Files

DEFAULT	RST_PSP_031PUP	FN:16	PRODUCER	11-Jul-2009 13:09	3069.9 M	3000.0 M
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OP System Version: 16C0-147  
MCM

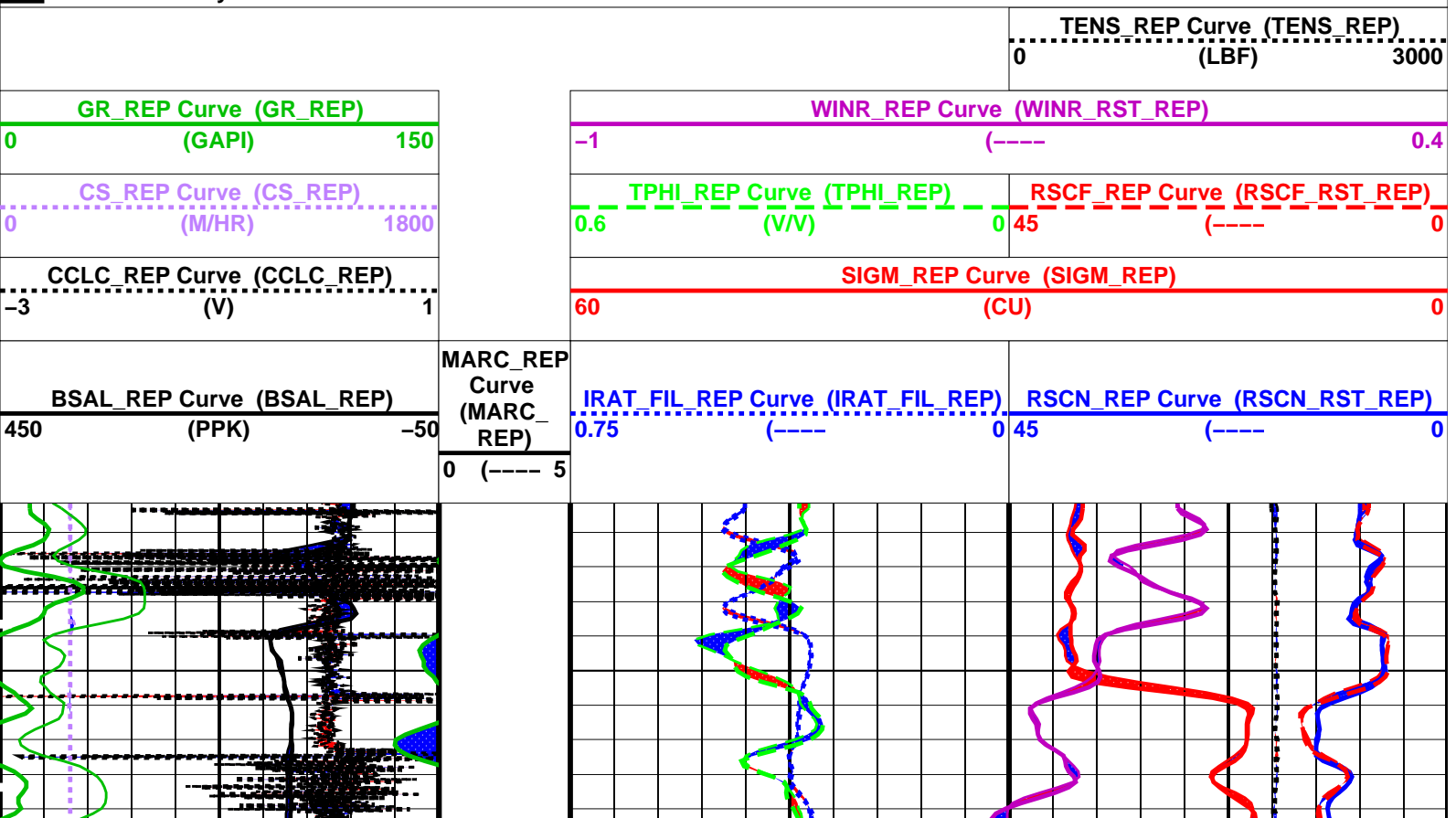
RST-C      SRPC-3777-Q4\_2008\_OP16      PSPT-B      SRPC-3777-Q4\_2008\_OP16

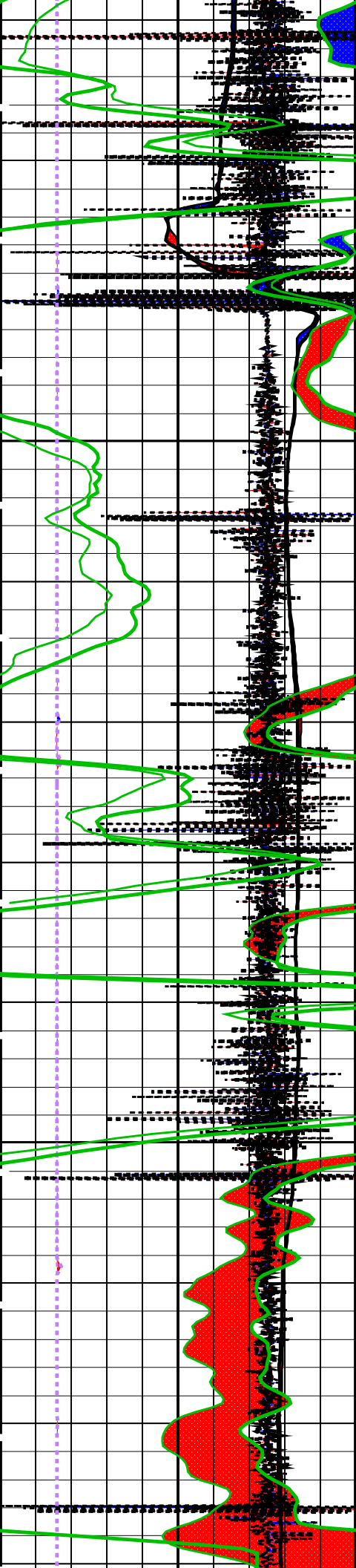
### Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
CWEI	29.70 LB/F 39.00 LB/F	46.70 LB/F 29.70 LB/F	3069.9 13:09:33 3019.0 13:09:47

### PIP SUMMARY

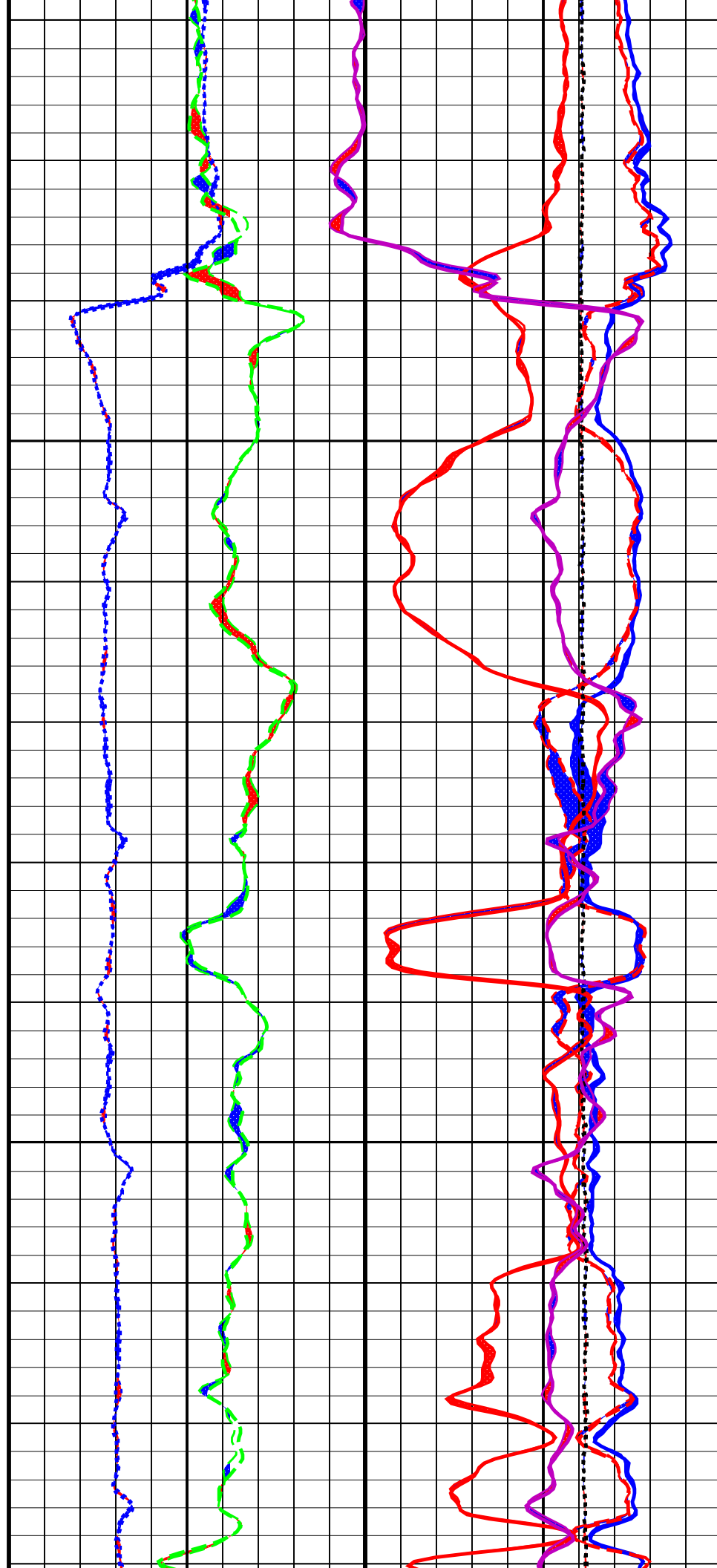
Time Mark Every 60 S

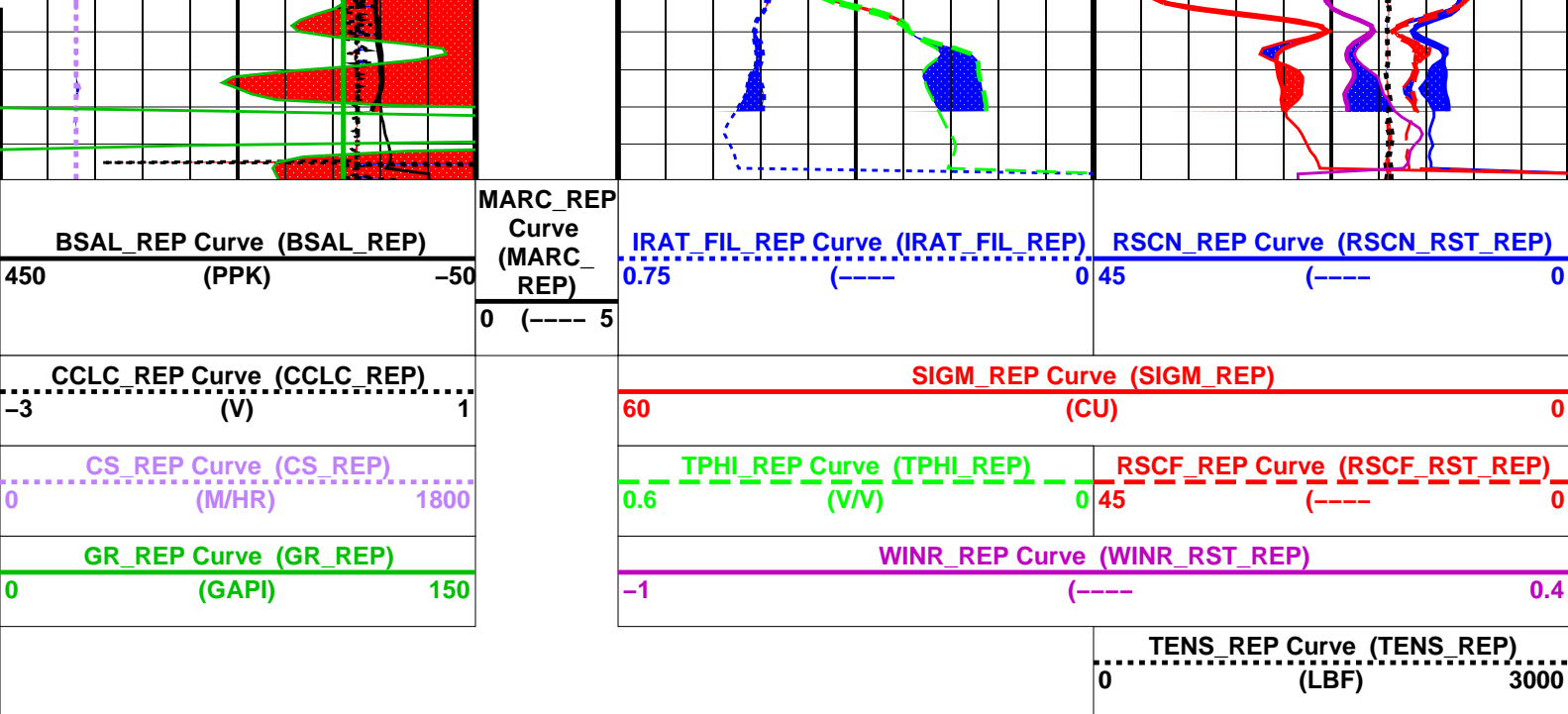




3025

3050





### 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
RGAI	Near/Far Gain Calibration Ratio	1
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma
PSPT-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	7.625 IN
CWEI	Casing Weight	46.70 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: 11-Jul-2009 13:09

### OP System Version: 16C0-147

MCM

RST-C SRPC-3777-Q4\_2008\_OP16 PSPT-B SRPC-3777-Q4\_2008\_OP16

### Input DLIS Files

DEFAULT	RST_PSP_030PUP	FN:15	PRODUCER	11-Jul-2009 12:28	3089.1 M	2799.9 M
DEFAULT	RST_PSP_029PUP	FN:14	PRODUCER	11-Jul-2009 12:26	3072.2 M	2799.9 M

### Output DLIS Files

DEFAULT	RST_PSP_031PUP	FN:16	PRODUCER	11-Jul-2009 13:09
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Company: Esso Australia Pty Ltd.

Well: A4

## Input DLIS Files

DEFAULT	RST_PSP_022PUP	FN:7	PRODUCER	10-Jul-2009 21:16	3089.1 M	2799.9 M
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## Output DLIS Files

DEFAULT	RST_PSP_030PUP	FN:15	PRODUCER	11-Jul-2009 12:28	3089.1 M	2799.9 M
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## OP System Version: 16C0-147

MCM

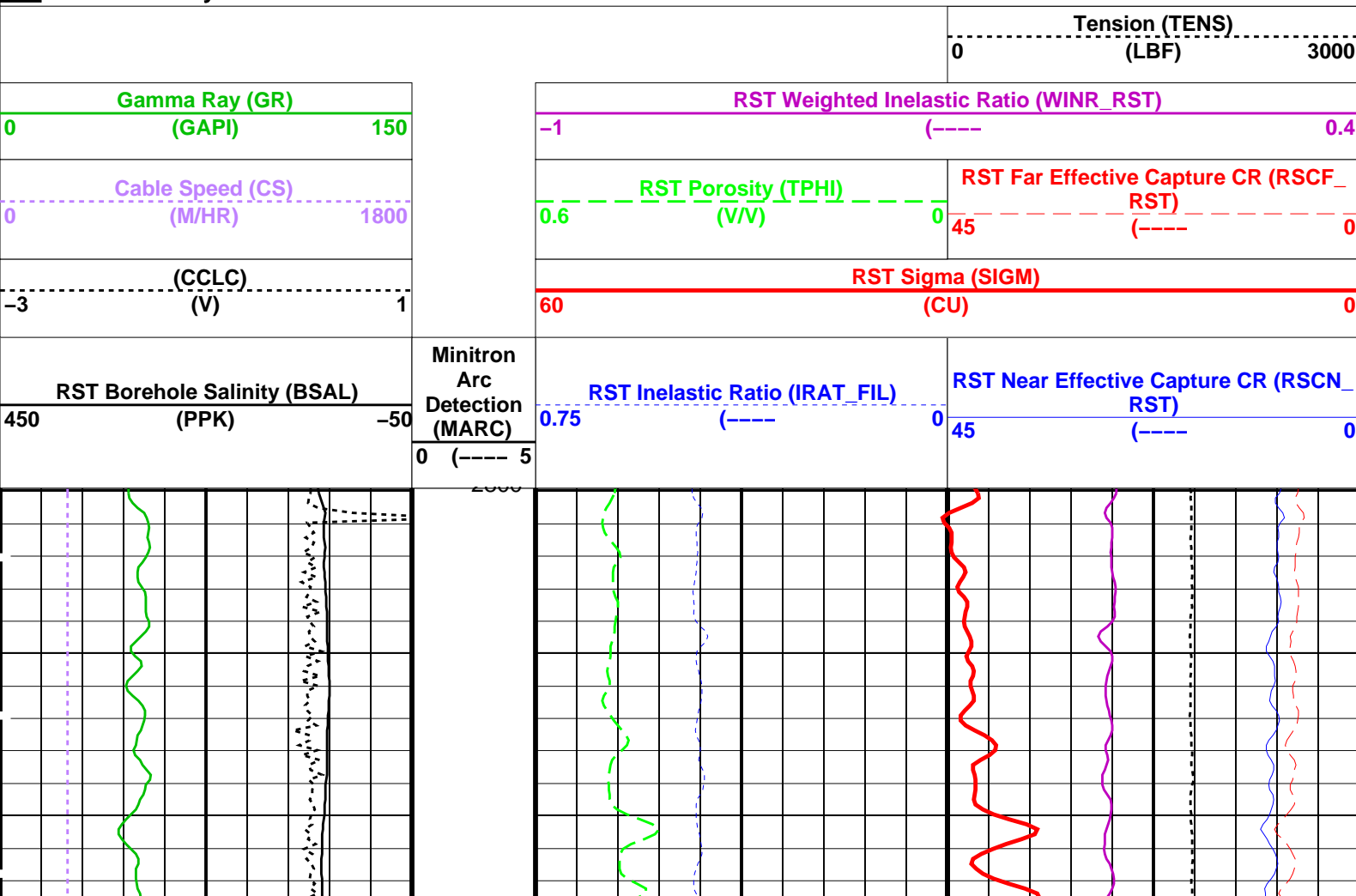
RST-C	SRPC-3777-Q4_2008_OP16	PSPT-B	SRPC-3777-Q4_2008_OP16
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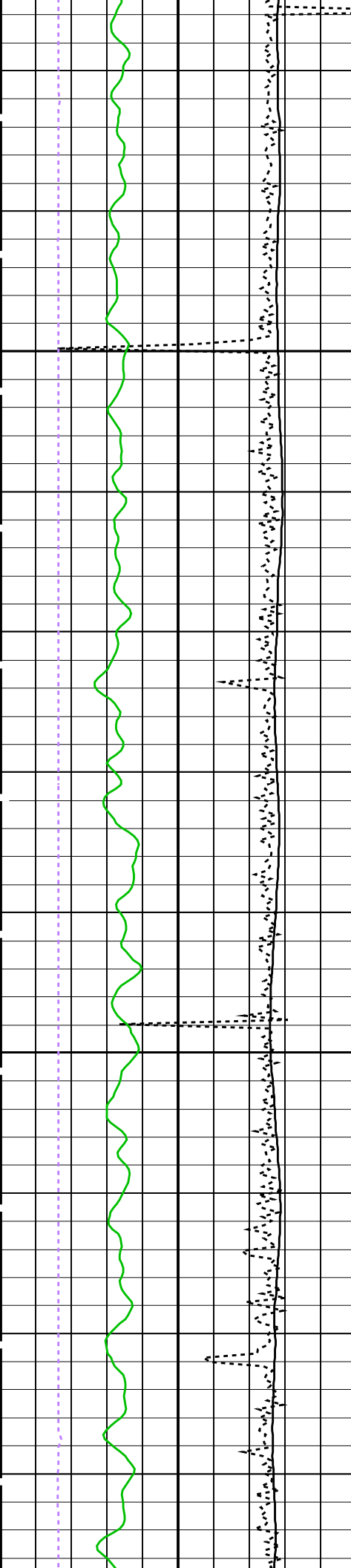
## Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
CWEI	29.70 LB/F	46.70 LB/F	3089.1 12:28:41
	39.00 LB/F	29.70 LB/F	3019.0 12:28:53
	46.70 LB/F	39.00 LB/F	2921.2 12:29:03

## PIP SUMMARY

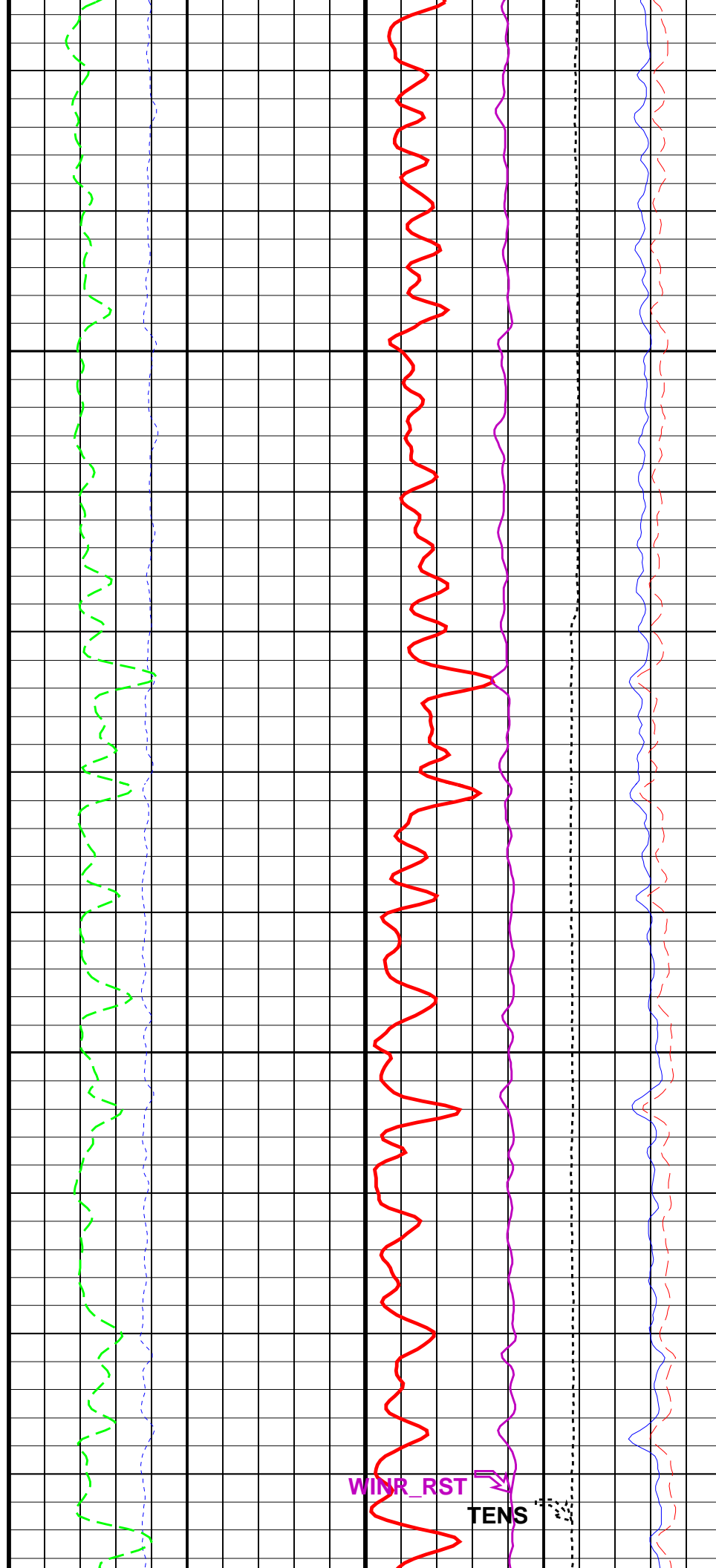
Time Mark Every 60 S

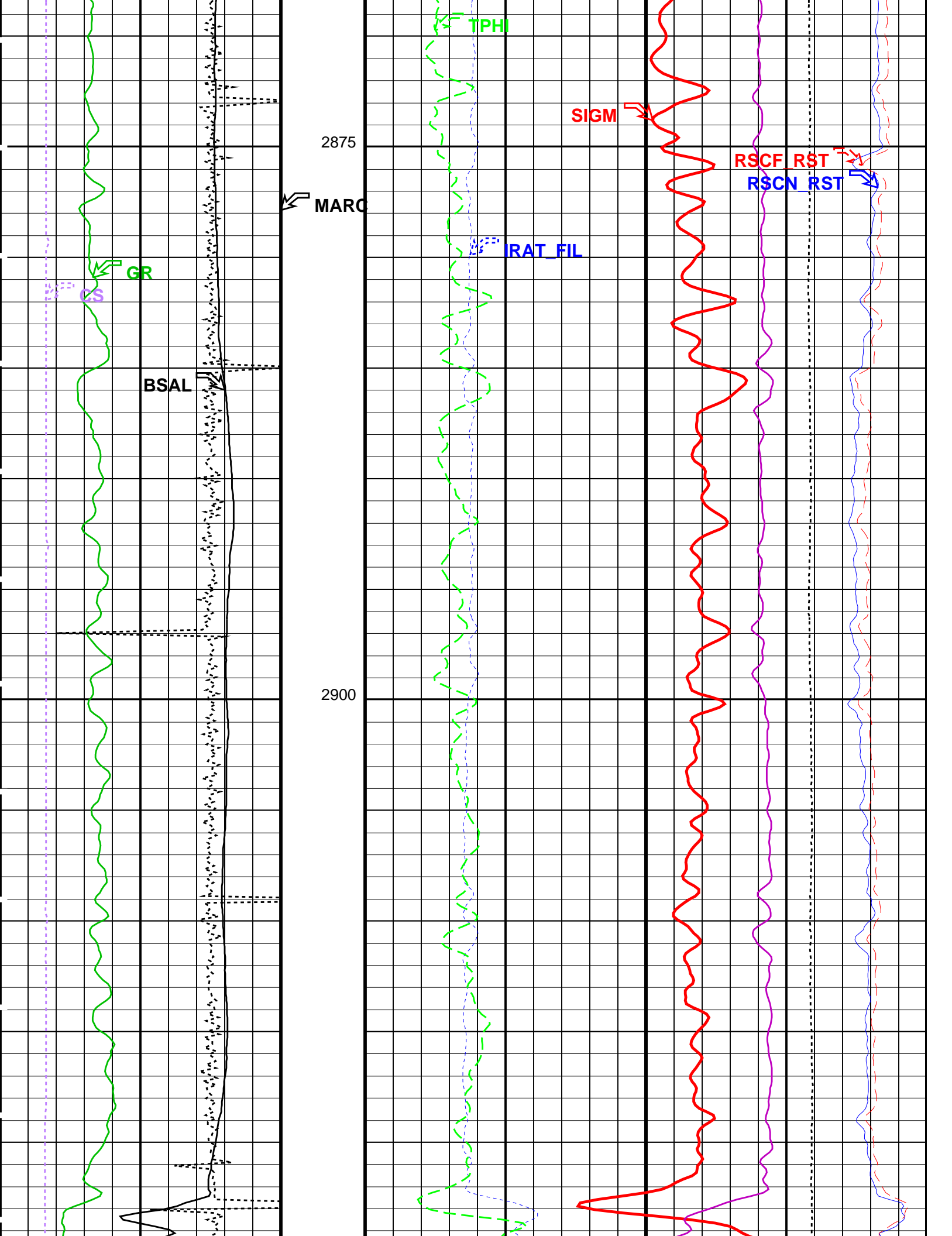


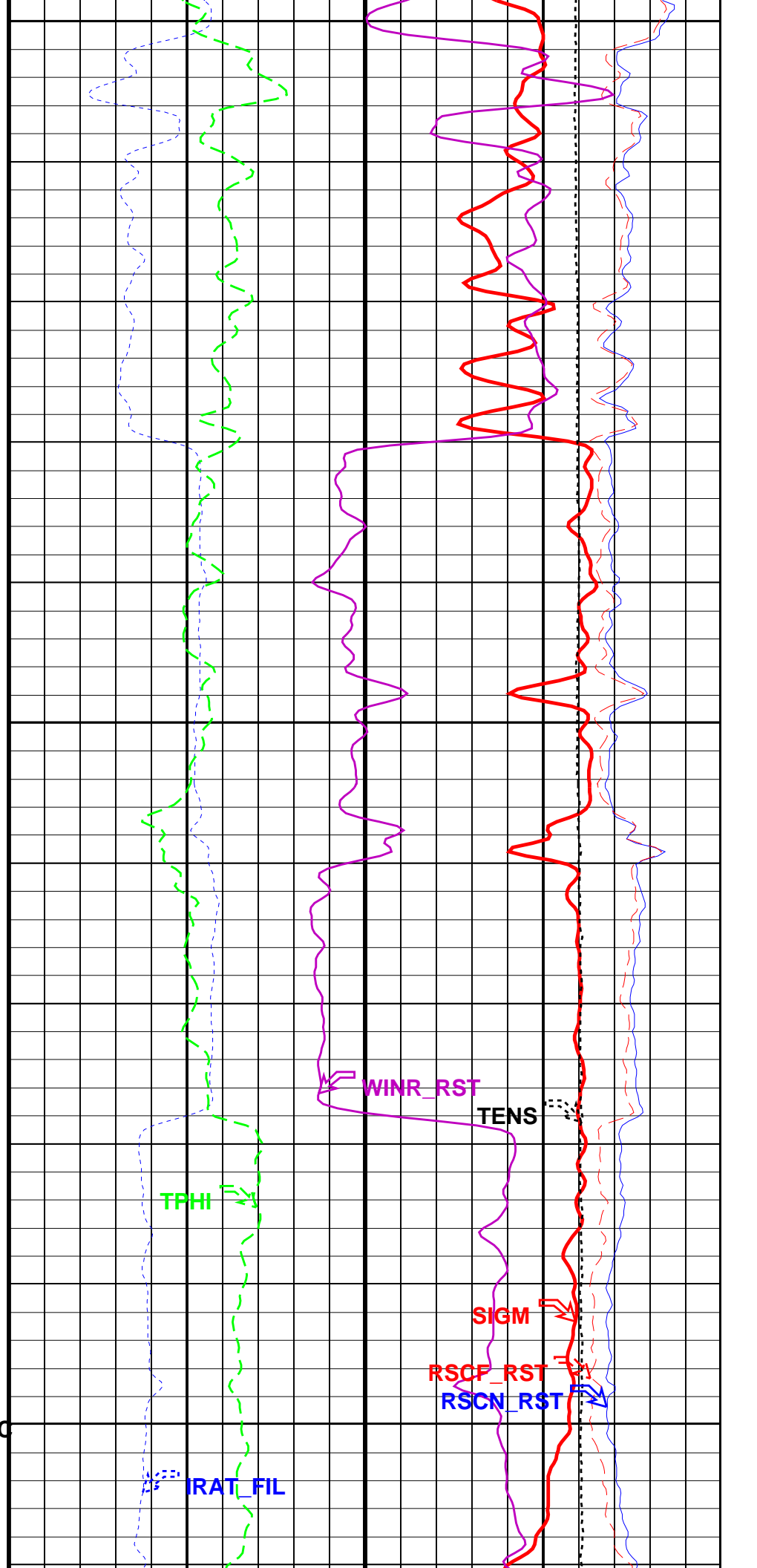
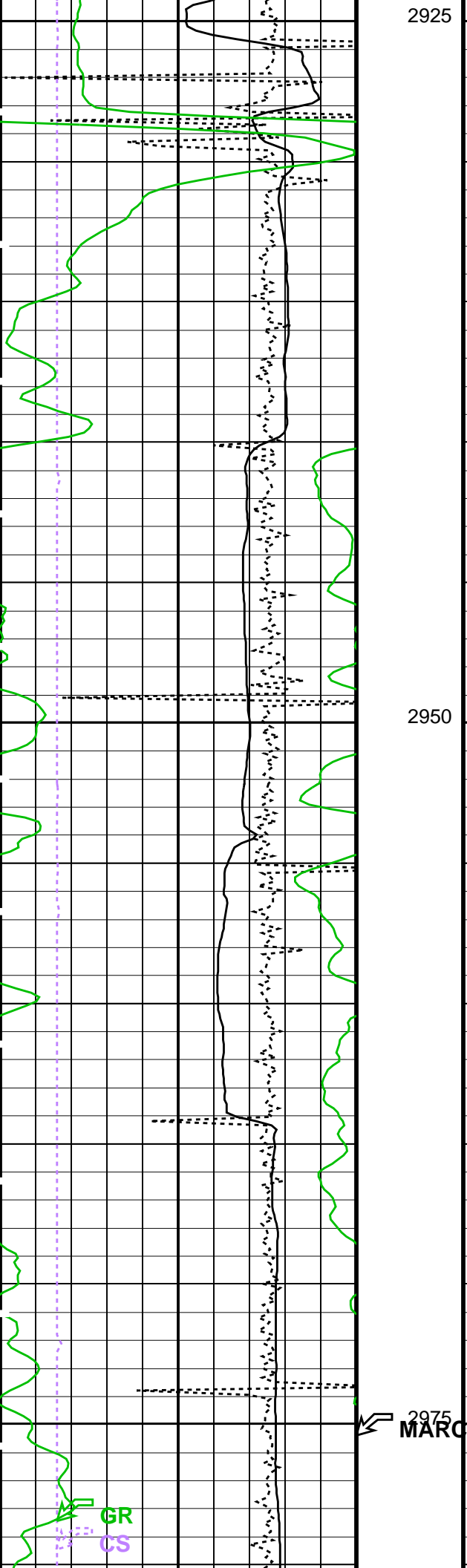


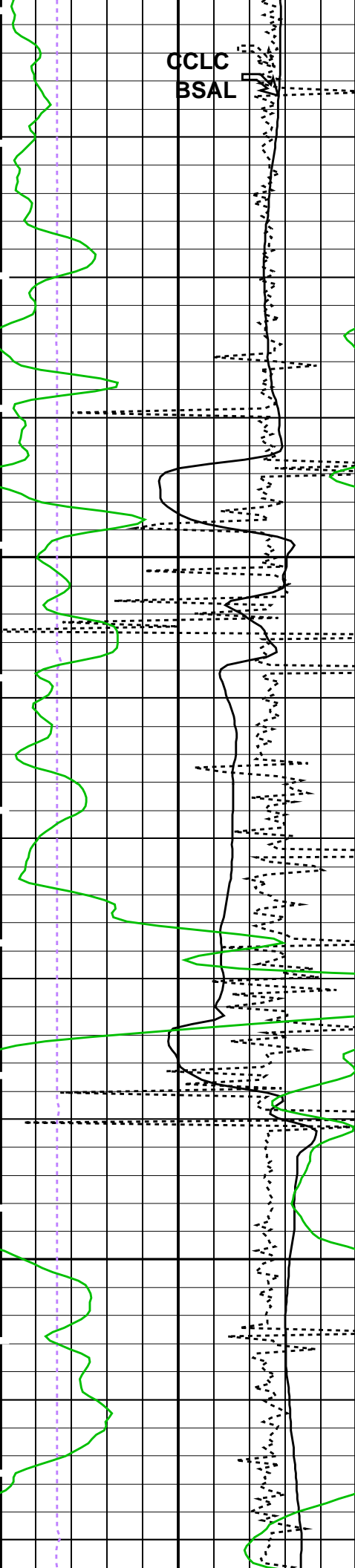
2825

2850



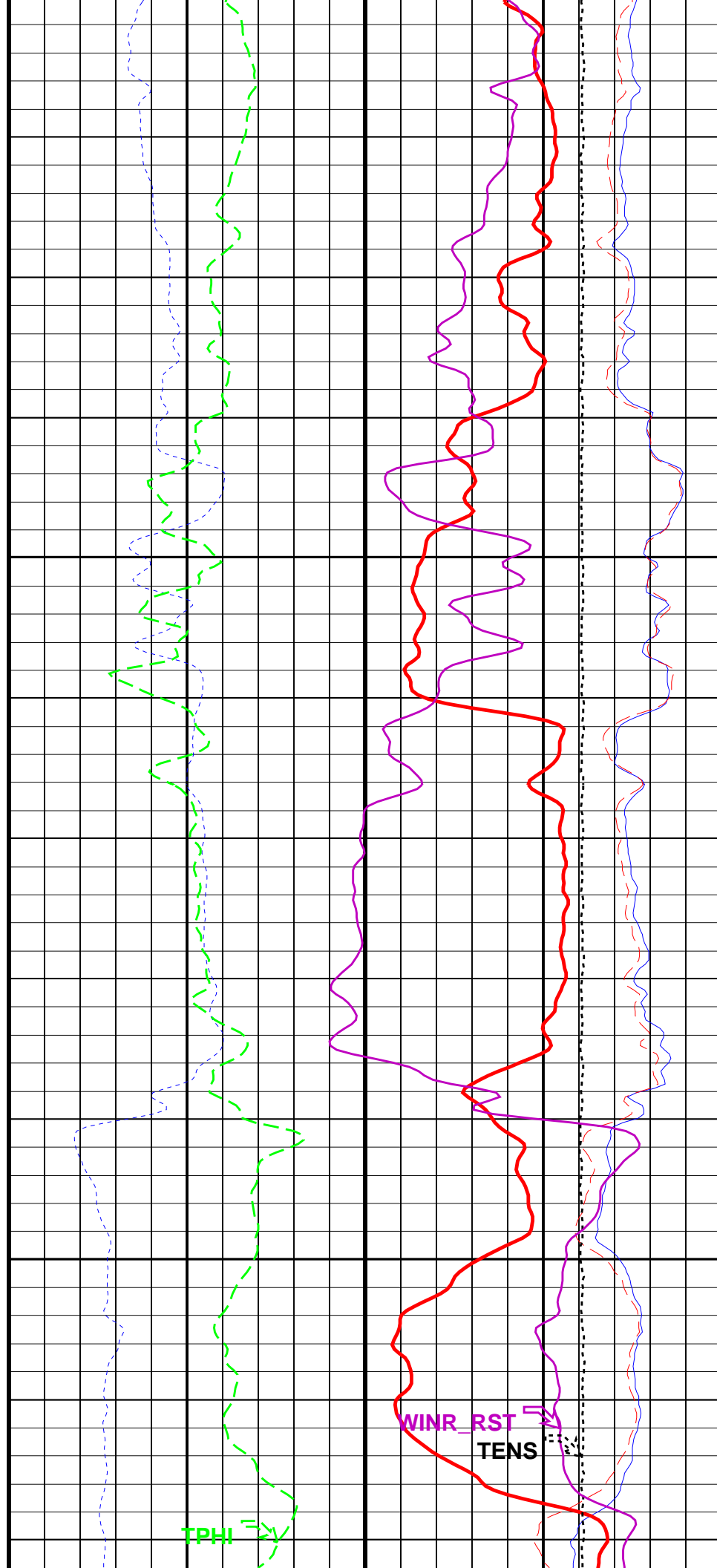


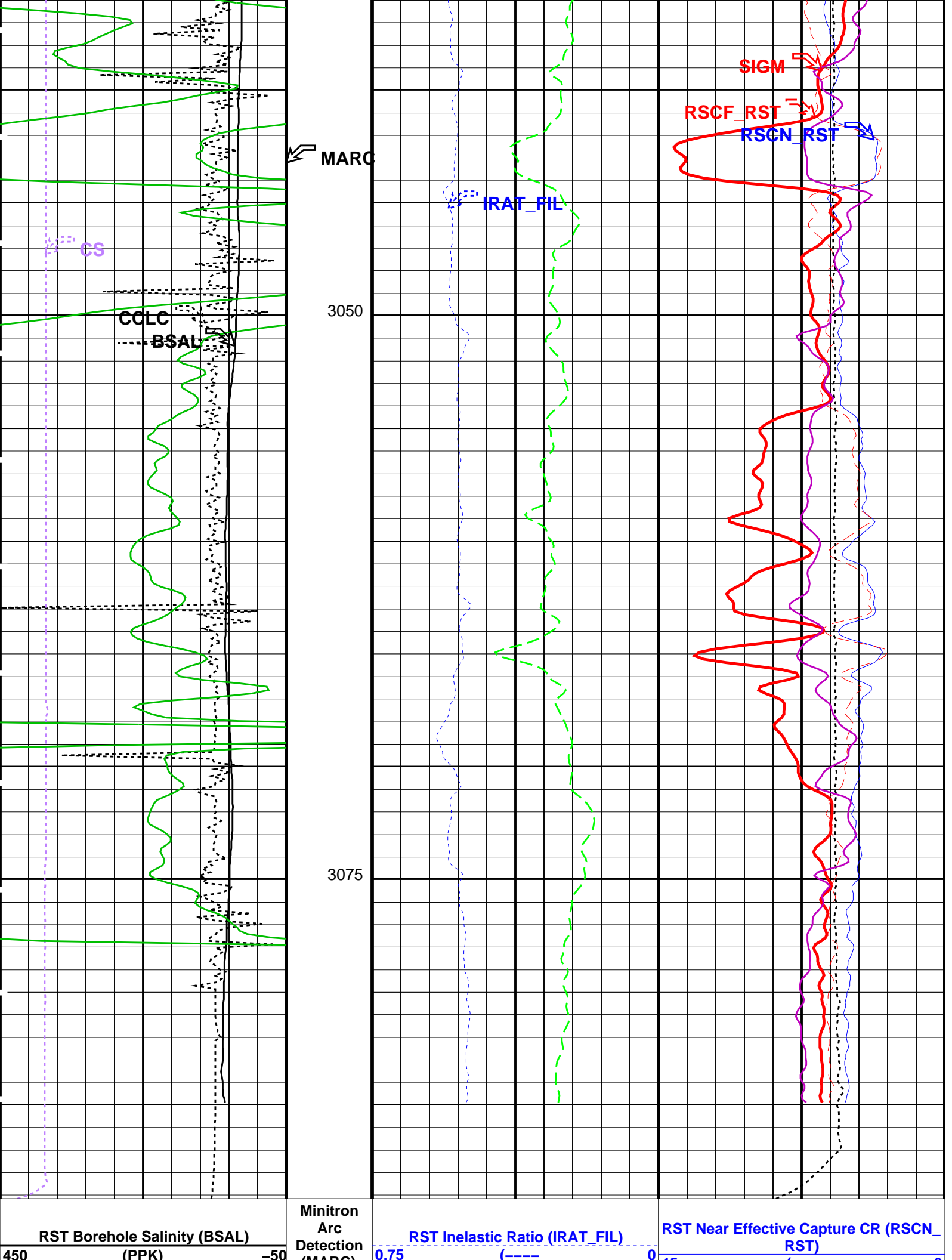




3000

3025





(CCLC)	(MARC)	45	(----	0
-3 (V)	1	60	RST Sigma (SIGM) (CU)	0
Cable Speed (CS) (M/HR)	1800	0.6	RST Porosity (TPHI) (V/V)	0
Gamma Ray (GR) (GAPI)	150	-1	RST Far Effective Capture CR (RSCF_ RST) (----	0
			RST Weighted Inelastic Ratio (WINR_RST)	0.4
		0	Tension (TENS) (LBF)	3000

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-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	7.625	IN
CWEI	Casing Weight	46.70	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: 11-Jul-2009 12:28

OP System Version: 16C0-147			
MCM			
RST-C	SRPC-3777-Q4_2008_OP16	PSPT-B	SRPC-3777-Q4_2008_OP16

Input DLIS Files					
DEFAULT	RST_PSP_022PUP	FN:7	PRODUCER	10-Jul-2009 21:16	3089.1 M    2799.9 M
Output DLIS Files					
DEFAULT	RST_PSP_030PUP	FN:15	PRODUCER	11-Jul-2009 12:28	



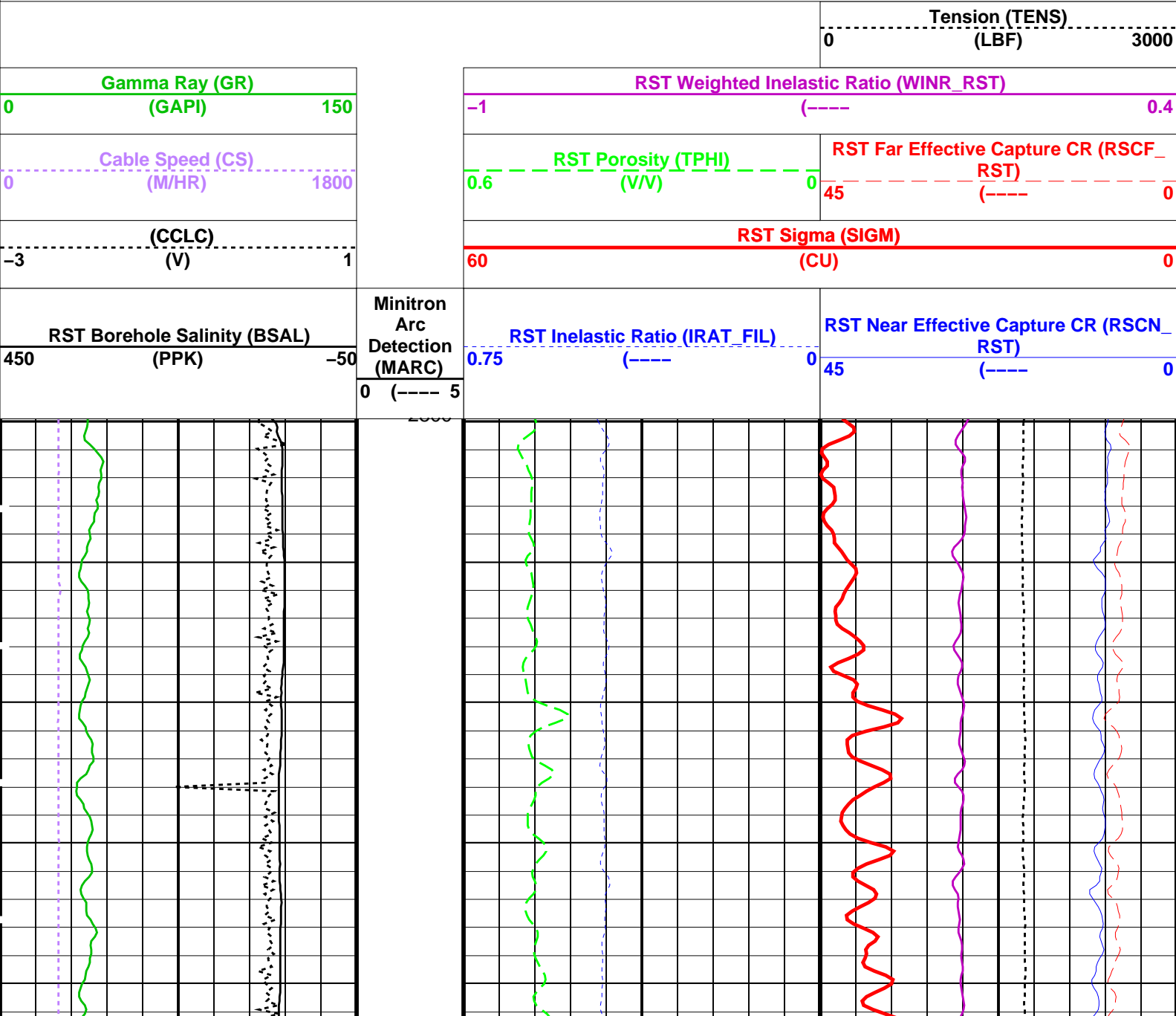
RST SIGMA Pass # 1  
2800 – 3071m MDKB

Input DLIS Files						
DEFAULT	RST_PSP_021PUP	FN:6	PRODUCER	10-Jul-2009 21:14	3072.2 M	2799.9 M
Output DLIS Files						
DEFAULT	RST_PSP_029PUP	FN:14	PRODUCER	11-Jul-2009 12:26	3072.2 M	2799.9 M

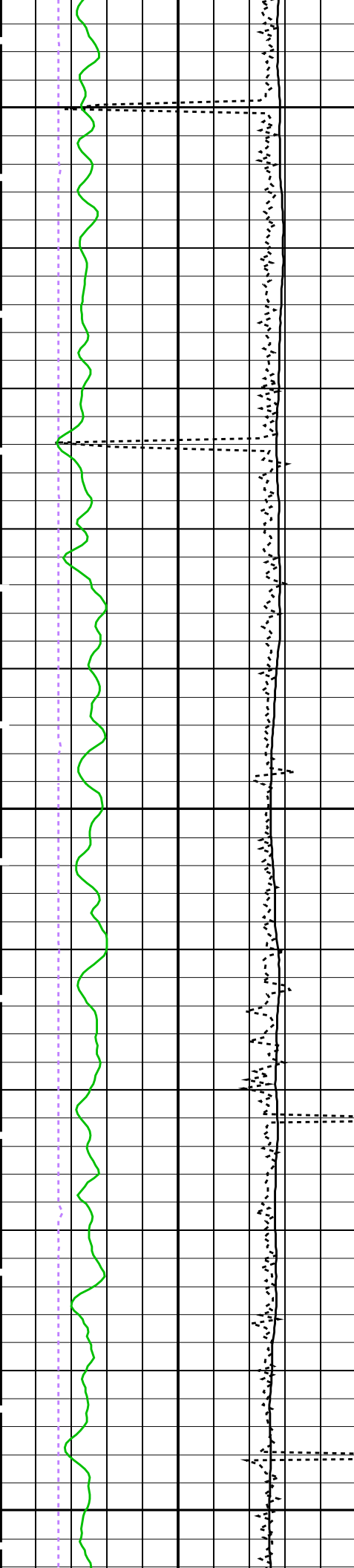
OP System Version: 16C0-147						
MCM						
RST-C	SRPC-3777-Q4_2008_OP16	PSPT-B	SRPC-3777-Q4_2008_OP16			

Changed Parameter Summary						
DLIS Name	New Value		Previous Value		Depth & Time	
CWEI	29.70	LB/F	39.00	LB/F	3072.2 12:26:56	
	39.00	LB/F	29.70	LB/F	3019.0 12:27:11	
	46.70	LB/F	39.00	LB/F	2921.2 12:27:21	

PIP SUMMARY						
Time Mark Every 60 S						



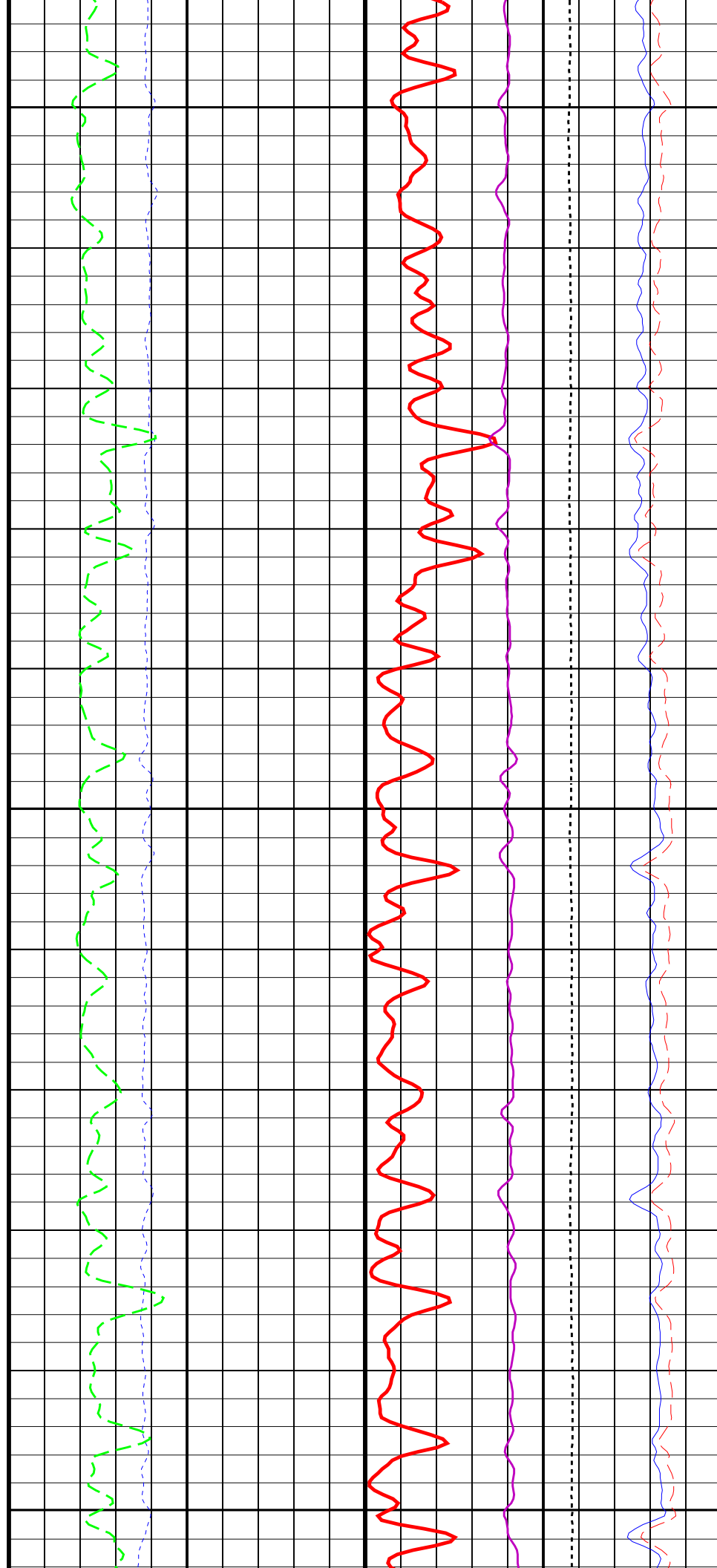


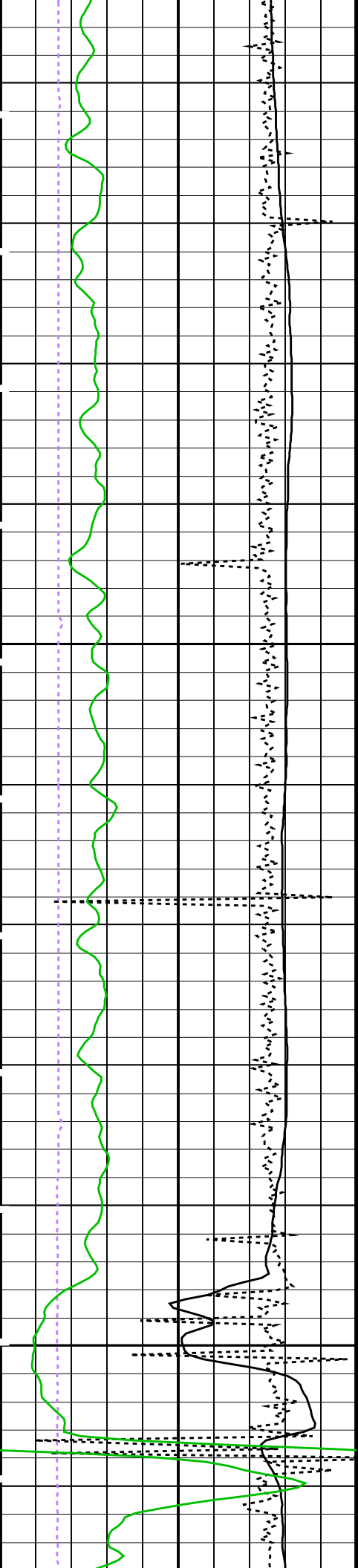


2825

2850

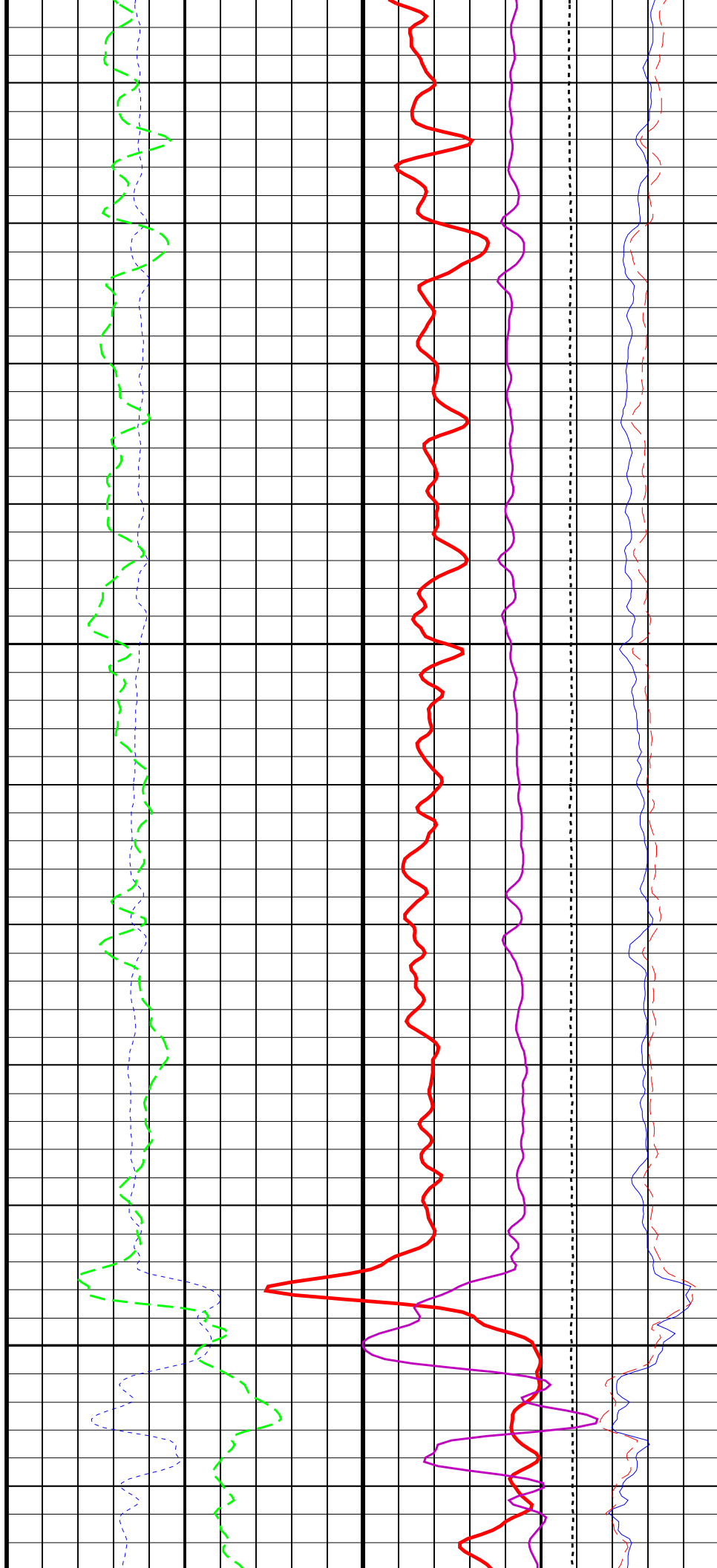
2875

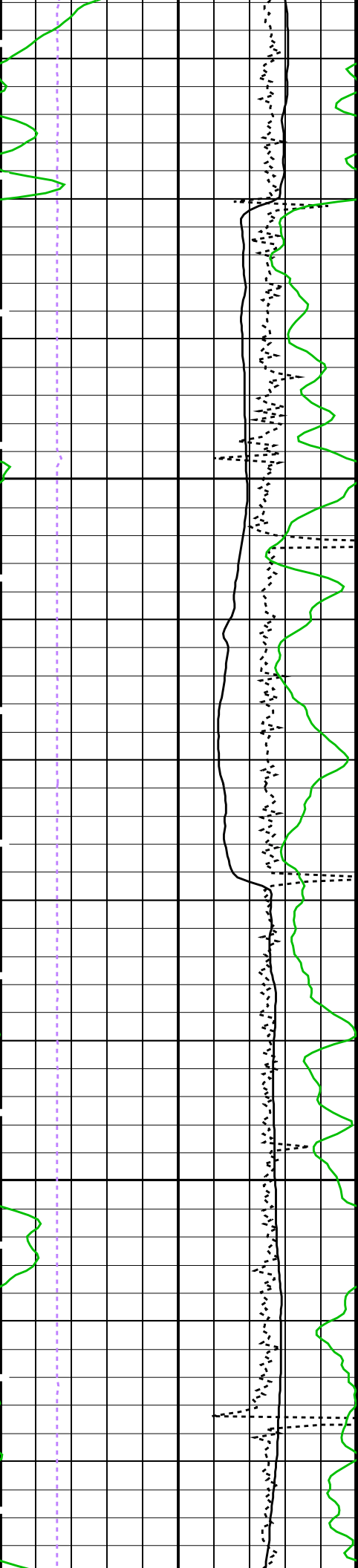




2900

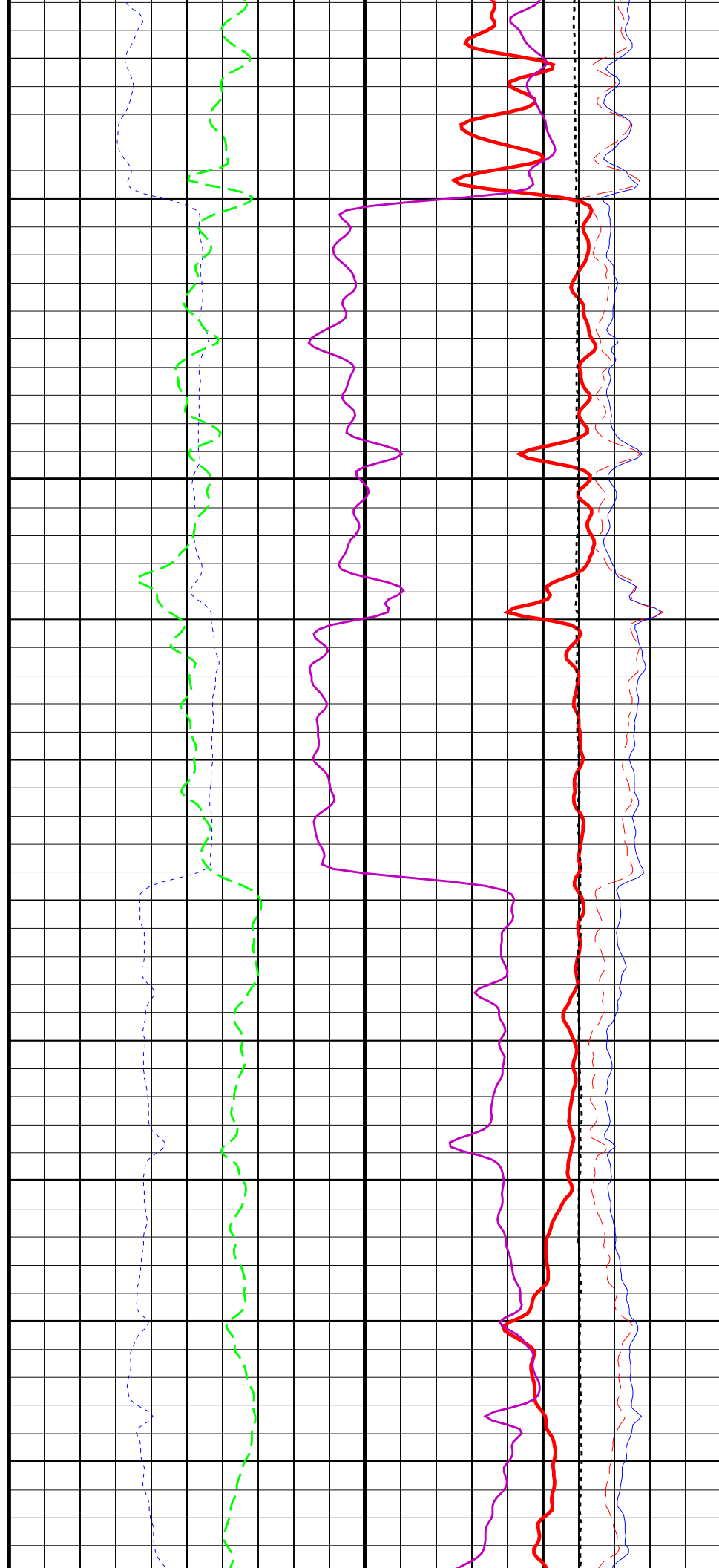
2925

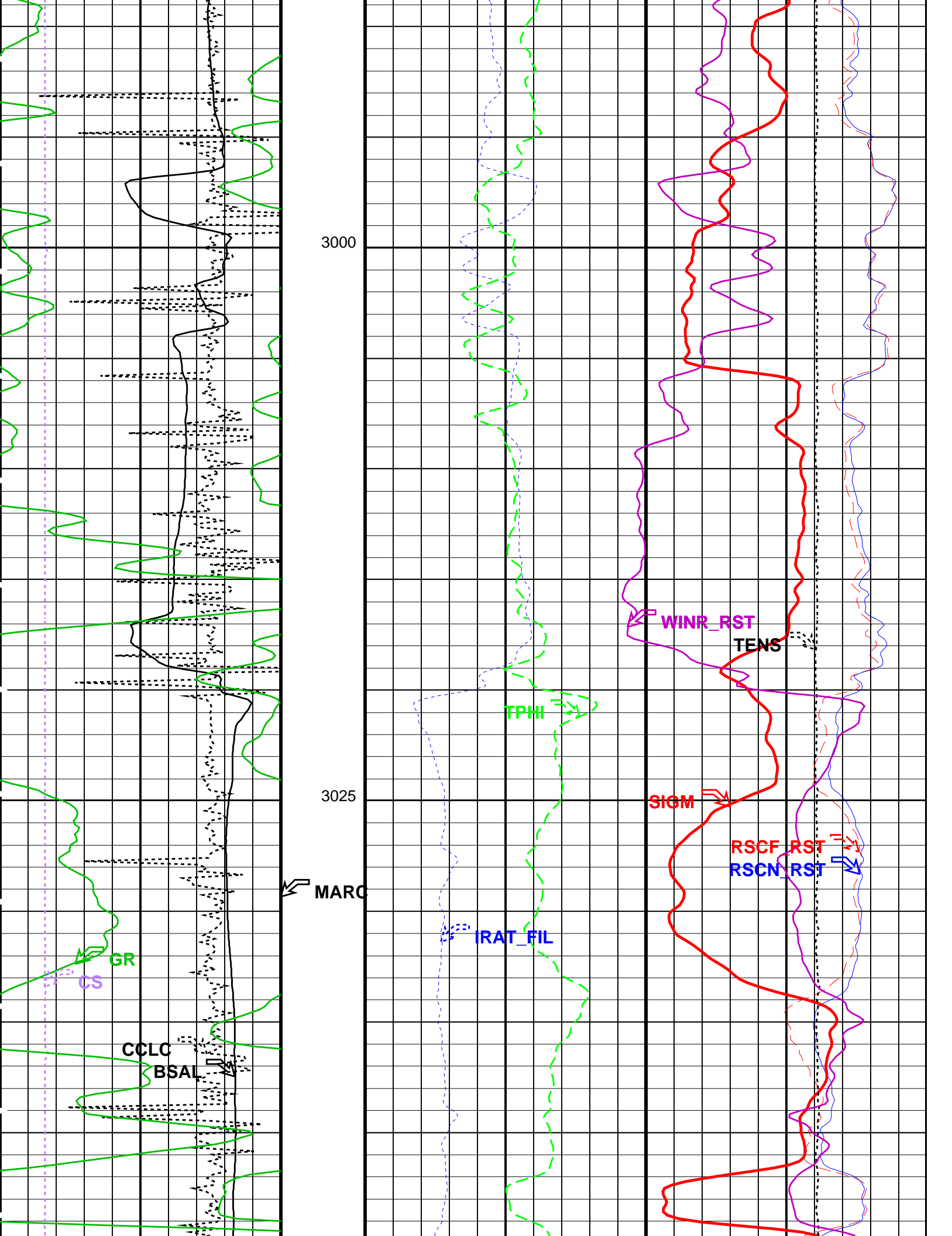


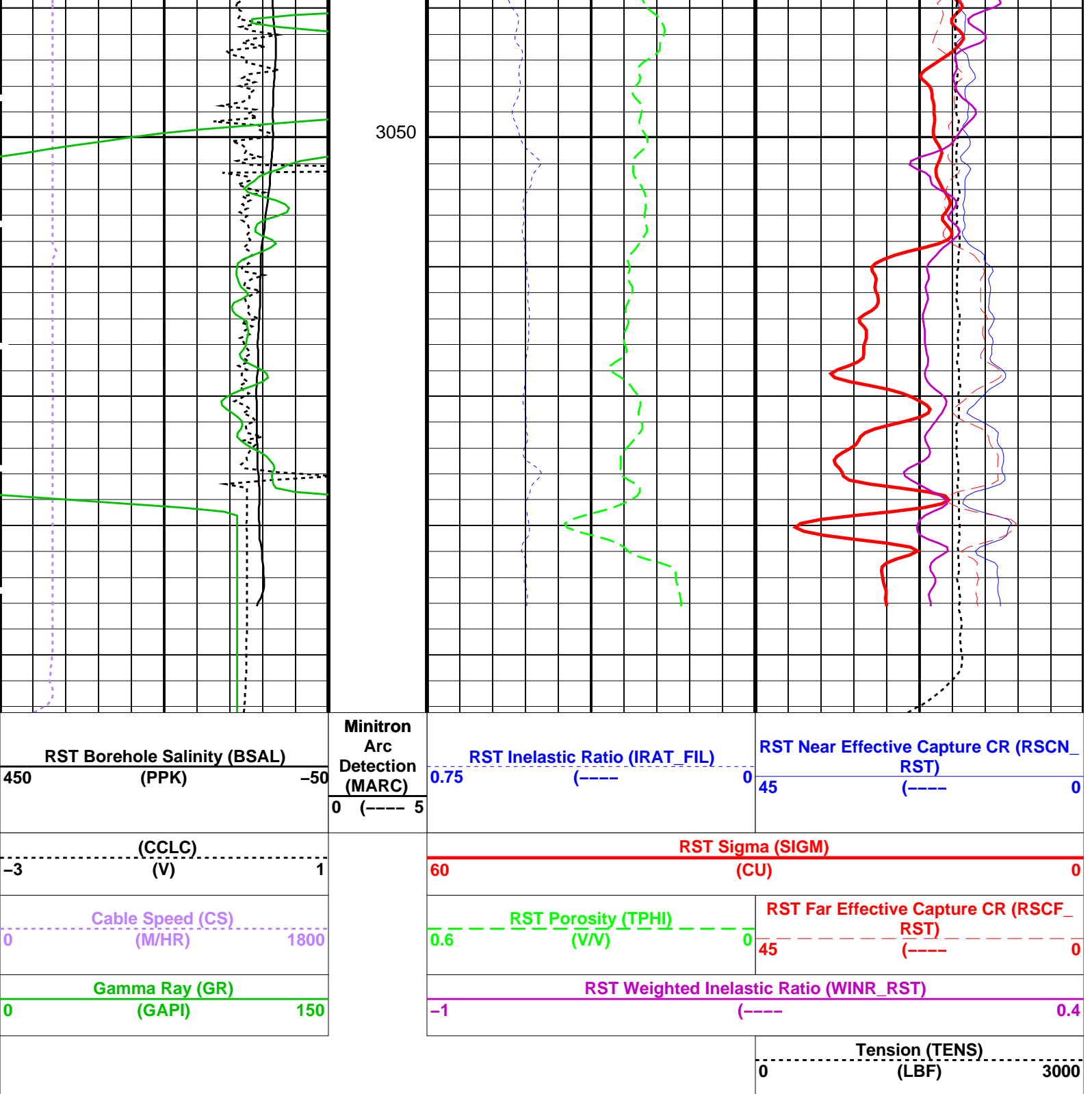


2950

2975







#### 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-B: Production Services Logging Platform	RST Sigma Acquisition Mode	0-RST_Sigma
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	7.625 IN
CWEI	Casing Weight	39.00 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: 11-Jul-2009 12:26

OP System Version: 16C0-147						
MCM						
RST-C	SRPC-3777-Q4_2008_OP16		PSPT-B	SRPC-3777-Q4_2008_OP16		
Input DLIS Files						
DEFAULT	RST_PSP_021PUP	FN:6	PRODUCER	10-Jul-2009 21:14	3072.2 M	2799.9 M
Output DLIS Files						
DEFAULT	RST_PSP_029PUP	FN:14	PRODUCER	11-Jul-2009 12:26		

Schlumberger

RST Correlation Pass  
2800 – 3071m MDKB

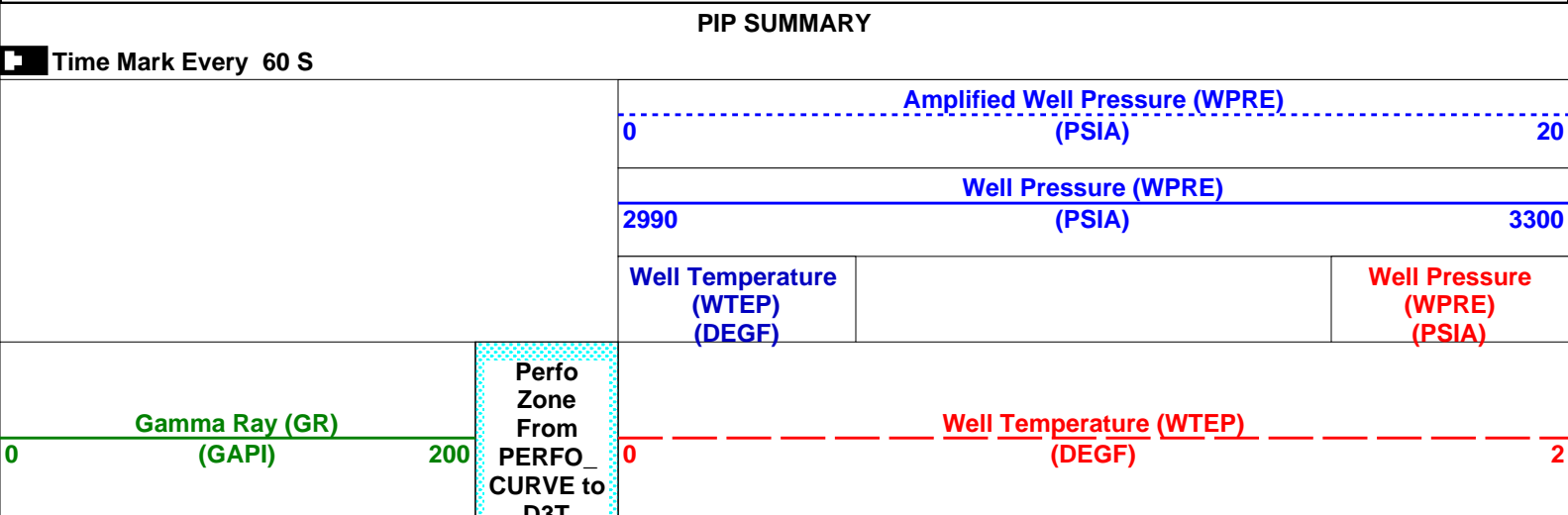
MAXIS Field Log

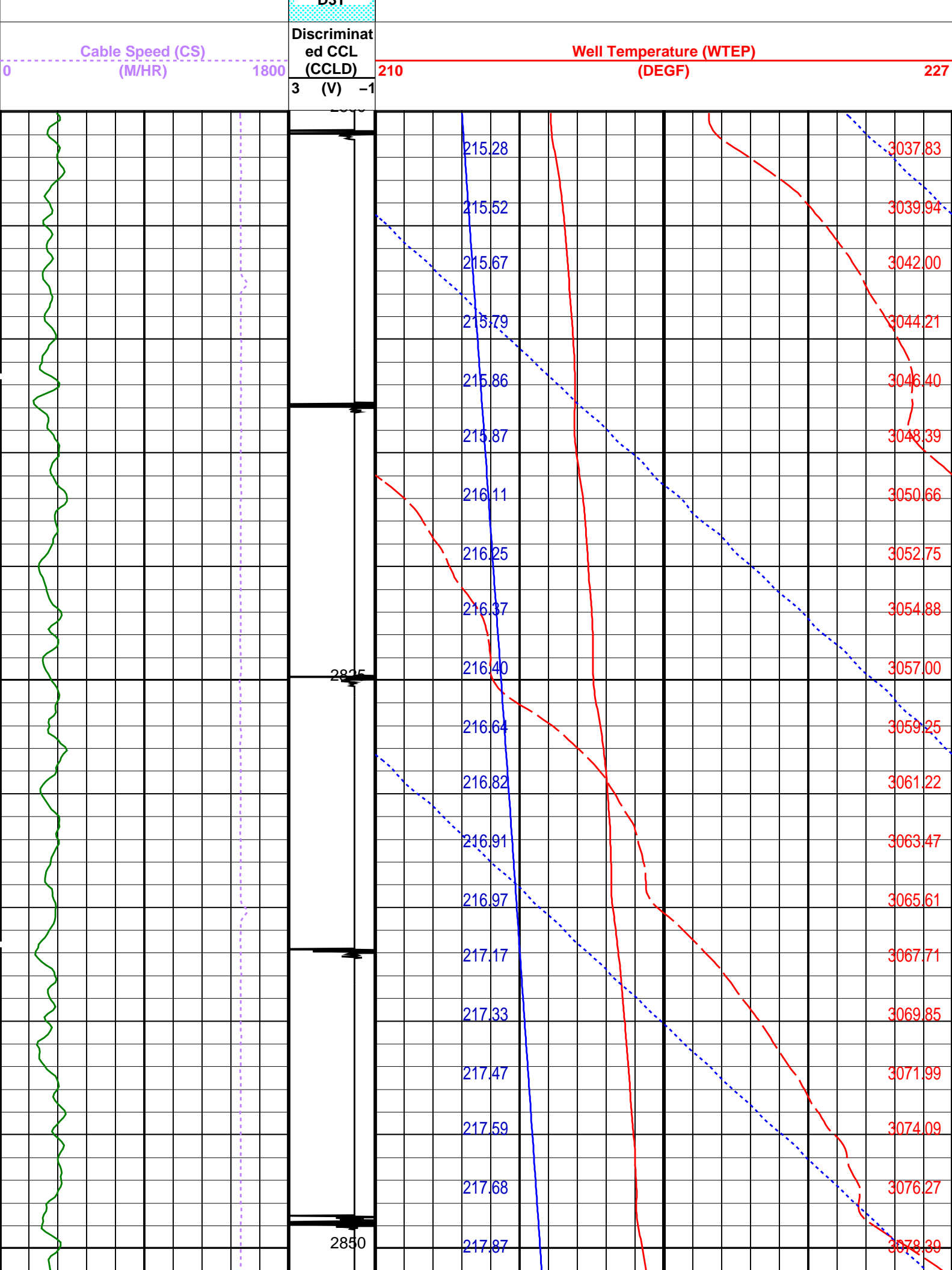
Company: Esso Australia Pty Ltd.

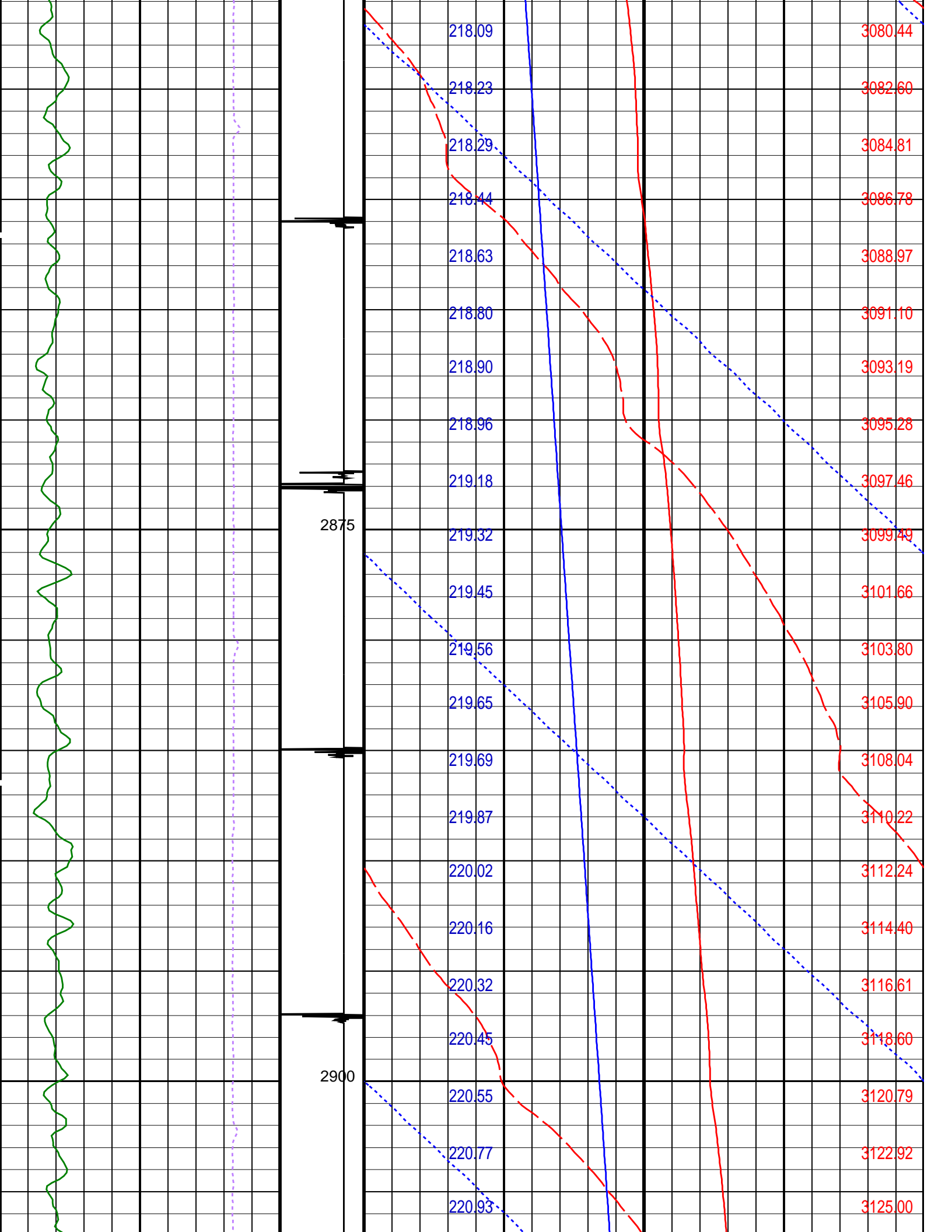
Well: A4

Input DLIS Files					
DEFAULT	RST_PSP_009PUP	FN:7	PRODUCER	10-Jul-2009 18:19	3069.2 M 2799.9 M
Output DLIS Files					
DEFAULT	RST_PSP_012PUP	FN:10	PRODUCER	10-Jul-2009 18:39	3068.6 M 2799.9 M

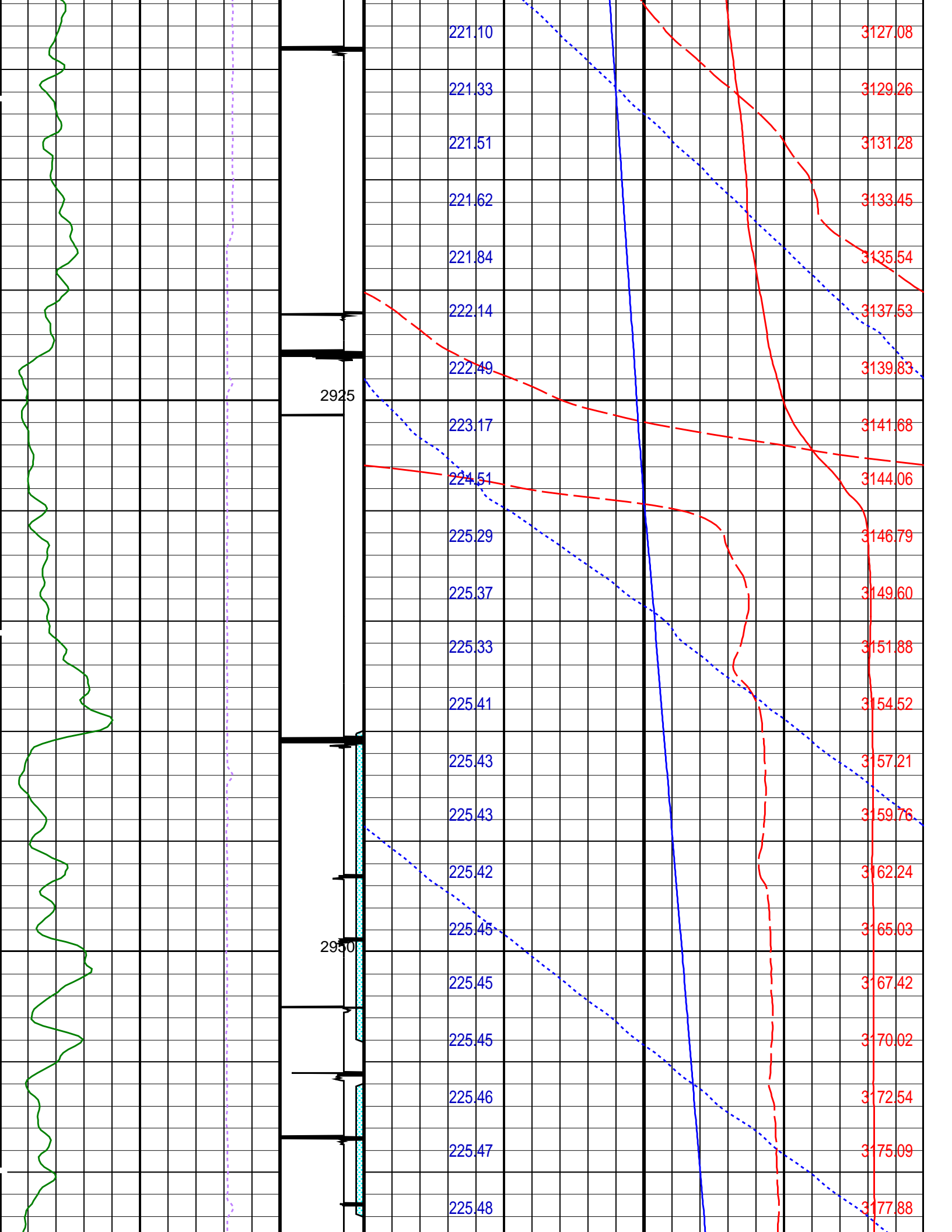
OP System Version: 16C0-147					
MCM					
RST-C	SRPC-3777-Q4_2008_OP16	PSPT-B	SRPC-3777-Q4_2008_OP16		

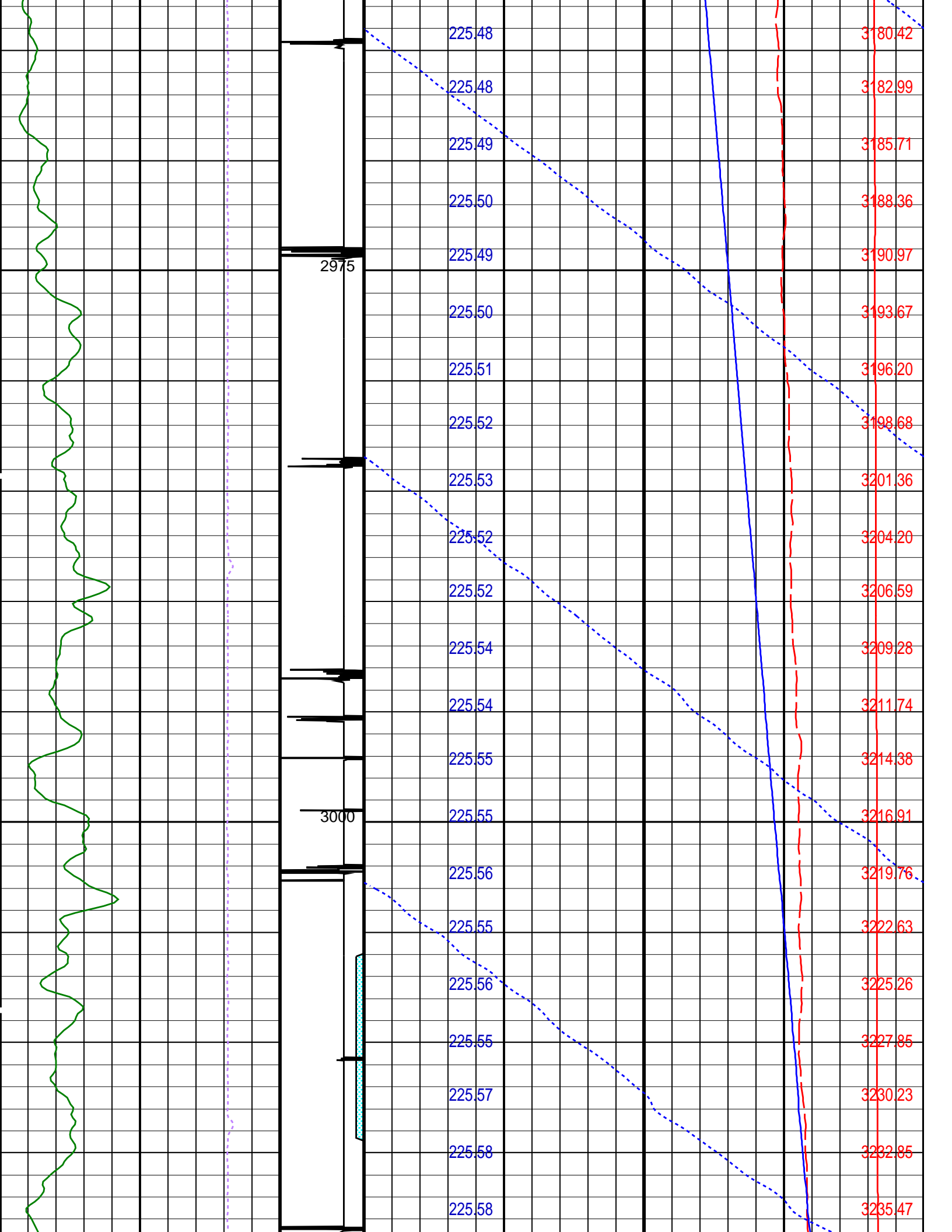


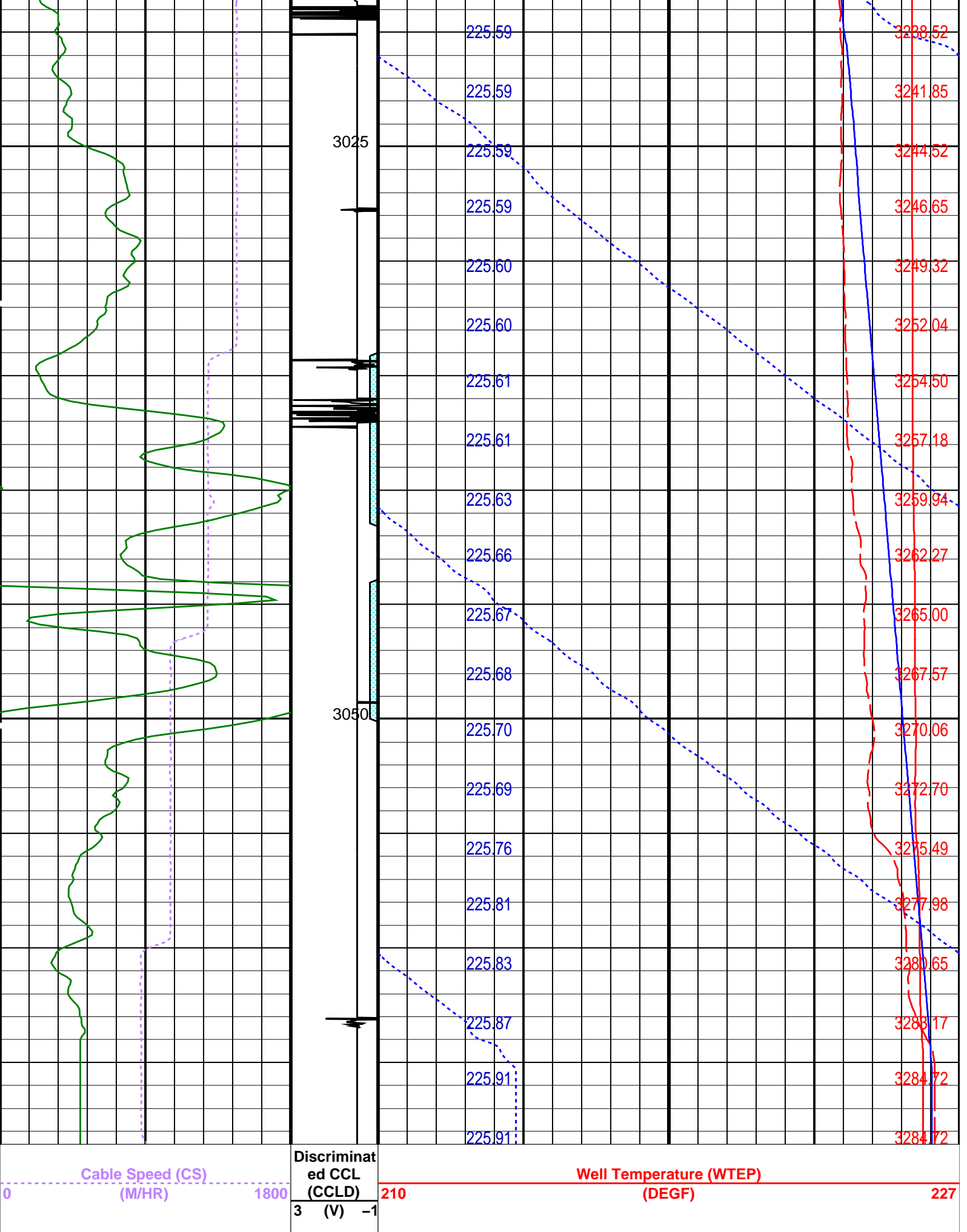












Cable Speed (CS)		Discriminated CCL (CCLD)	Well Temperature (WTEP)
(M/HR)		(V)	(DEGF)
0		3	210
1800		-1	227
Perfo Zone			

<b>Gamma Ray (GR)</b>	<b>From PERFO_CURVE to D3T</b>	<b>Well Temperature (WTEP) (DEGF)</b>
<b>0 (GAPI) 200</b>		<b>0 2</b>
		<div>Well Temperature (WTEP) (DEGF)</div> <div>Well Pressure (WPRESS) (PSIA)</div> <div>Well Pressure (WPRESS) (PSIA)</div> <div>Amplified Well Pressure (WPRESS) (PSIA)</div>
		<div>2990 3300</div> <div>0 20</div>

PIP SUMMARY	
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 Time Mark Every 60 S

Format: PSP\_1      Vertical Scale: 1:200      Graphics File Created: 10-Jul-2009 18:39

**OP System Version: 16C0-147**  
MCM

RST-C                      SRPC-3777-Q4\_2008\_OP16                      PSPT-B                      SRPC-3777-Q4\_2008\_OP16

Parameters		
DLIS Name	Description	Value
System and Miscellaneous		
DO	Depth Offset for Playback	-0.6 M
PP	Playback Processing	NORMAL

Input DLIS Files						
DEFAULT	RST_PSP_009PUP	FN:7	PRODUCER	10-Jul-2009 18:19	3069.2 M	2799.9 M
Output DLIS Files						
DEFAULT	RST_PSP_012PUP	FN:10	PRODUCER	10-Jul-2009 18:39		

Company:	Esso Australia Pty Ltd.	<b>Schlumberger</b>
Well:	A4	
Field:	Halibut	
Rig:	Crane/Prod 4	
Country:	Australia	
RST-A Static Survey 10-Jul-2009		