

Company: Esso Australia Ltd.

Well: CBA A-18b

Field: Cobia

Rig: Prod 4/Crane

Country: Australia

RST-A Sigma Survey
Pressure/Temperature
GR-CCL

Prod 4/Crane
Cobia
Gippsland
CBA A-18b
Esso Australia Ltd.

LOCATION	
Gippsland	Elev.: K.B. 32.4 m
Basin	G.L. -78 m
Bass strait	D.F. 32.4 m
Permanent Datum:	Mean Sea Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
State: Victoria	Max. Well Deviation 27 deg
	Longitude 148°18'28.3"E
	Latitude 38°27'03.5"S

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

PVT DATA

Oil Density	
Water Salinity	
Gas Gravity	
Bo	
Bw	
1/Bg	
Bubble Point Pressure	
Bubble Point Temperature	
Solution GOR	
Maximum Deviation	27 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

Run 1

Run 2

R

Depth System Equipment

Date Created: 04-Mar-2006 9:42:23

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-H	Type:	CMTD-C	Type:	2-32ZT
Serial Number:	797	Serial Number:	1037	Serial Number:	4207
Calibration Date:	01-May-2005	Calibration Date:	15-Feb-2006	Length:	5002.07 M
Calibrator Serial Number:	1009	Calibrator Serial Number:	1174	Conveyance Method:	Wireline
Calibration Cable Type:	2-32ZT	Calibration Gain:	1.38	Rig Type:	Offshore_Fixed
Wheel Correction 1:	-3	Calibration Offset:	448.00		
Wheel Correction 2:	2				

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	Schlumberger RST Log
Reference Log Run Number:	Unknown
Reference Log Date:	24-Mar-1998

1. Correlated to Schlumberger RST log provided by client
2. Used IDW as primary depth control
3. Used Z-Chart as secondary depth control
- 4.
- 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 SERVICES1 OS1: None OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Log correlated to Schlumberger RST Log Dated : 24-Mar-1998	
Purpose of log : To conduct RST-A Sigma survey over interval	
2625mMDKB to 2550mMDKB .	
One pass shut in .	
Well unalbe to be flowed due to Well Head issues .	

Run in hole an correlate on depth , conducted one logging pass	
over the interval 2625mMDKB to 2550mMDKB at 900ft/hr .	
SBHT-224degF , SBHP-3300psia	
Gamma ray base line recorded with no minitron activation ,	
logging pass recorded with minitron activated .	
Schlumberger crew : Jake Annear , Andy Hall	
Performed by Schlumberger .	

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT		
WITM-A PSC_16MHZ 827		
DOWNHOLE EQUIPMENT		
AH-SWBS AH-SWBS 761		11.95
AH-SWBS AH-SWBS 762		11.26
AH-SWBS AH-SWBS 763		10.58
MH-SWHS MH-SWHS 726	Detail MT TelStatus CTEM	9.89
PSPT-A/B PSC-A 827 PSPT-B 827 PSTC 827 PBMS-B 827 CQG_F_Mano 827 RTD Thermometer 827 GR 827 CCL 827 PBMS 827	GR	9.54 8.41
	Well_Temp CQG Manom CCL PBMS PSTC	7.48 7.37 7.25 7.02
RST-C RSCH-A 111 RSC-C 111 RSS-A 108 RSXH-A 145 RSX-C 145		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 Ltd

Well: CBA A-18b

Field: Cobia

State: Victoria

Country: Australia

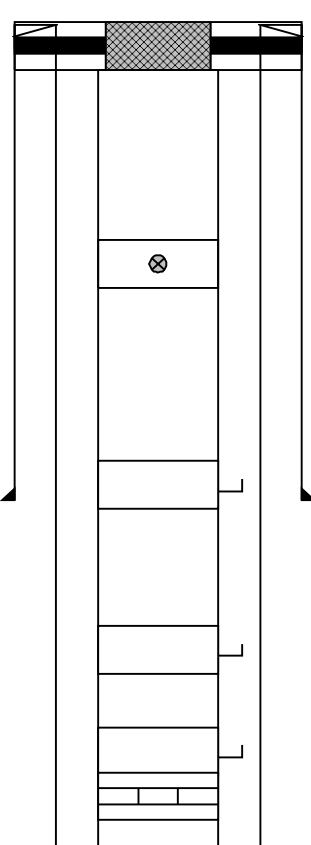
Rig Name:

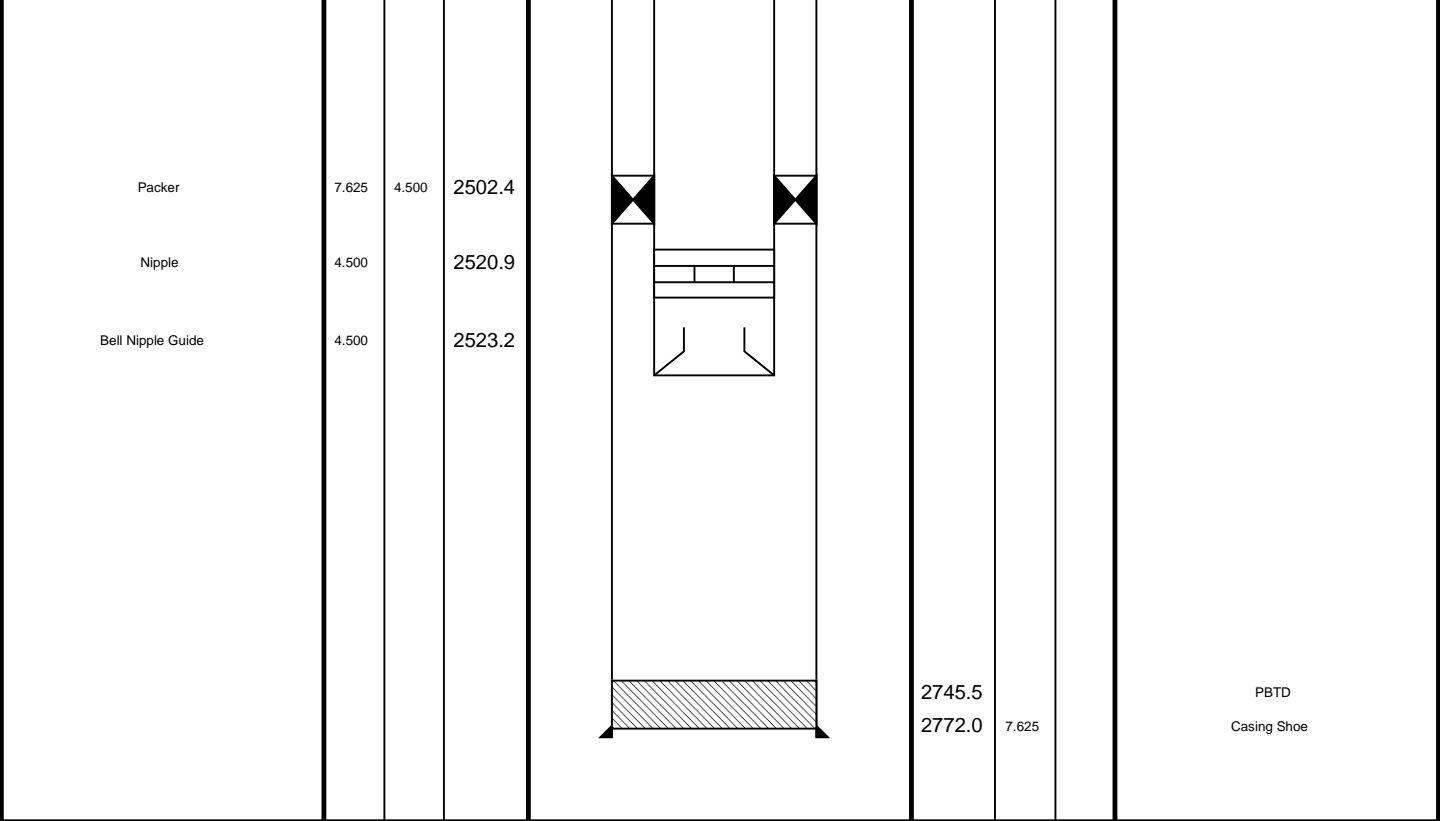
Reference Datum: Kelly Bushing

Elevation: 39.0 m

Drawing Date: 3/3/2006

API #:

Production String	(in)		(m)	Well Schematic	(m)		(in)	Casing String
	OD	ID	MD		MD	OD	ID	
Tubing Hanger	10.750	3.900	18.8		18.8	10.750	7.625	Casing String Liner Hanger
Tubing	4.500		19.3		18.9	10.750		
Shutin Valve	4.500		445.9					
Gas Lift Mandrel	4.500		954.9		704.4	10.750		Casing Shoe
Gas Lift Mandrel	4.500		1444.4					
Gas Lift Mandrel	4.500		1703.4					
Nipple	4.500		1719.4					



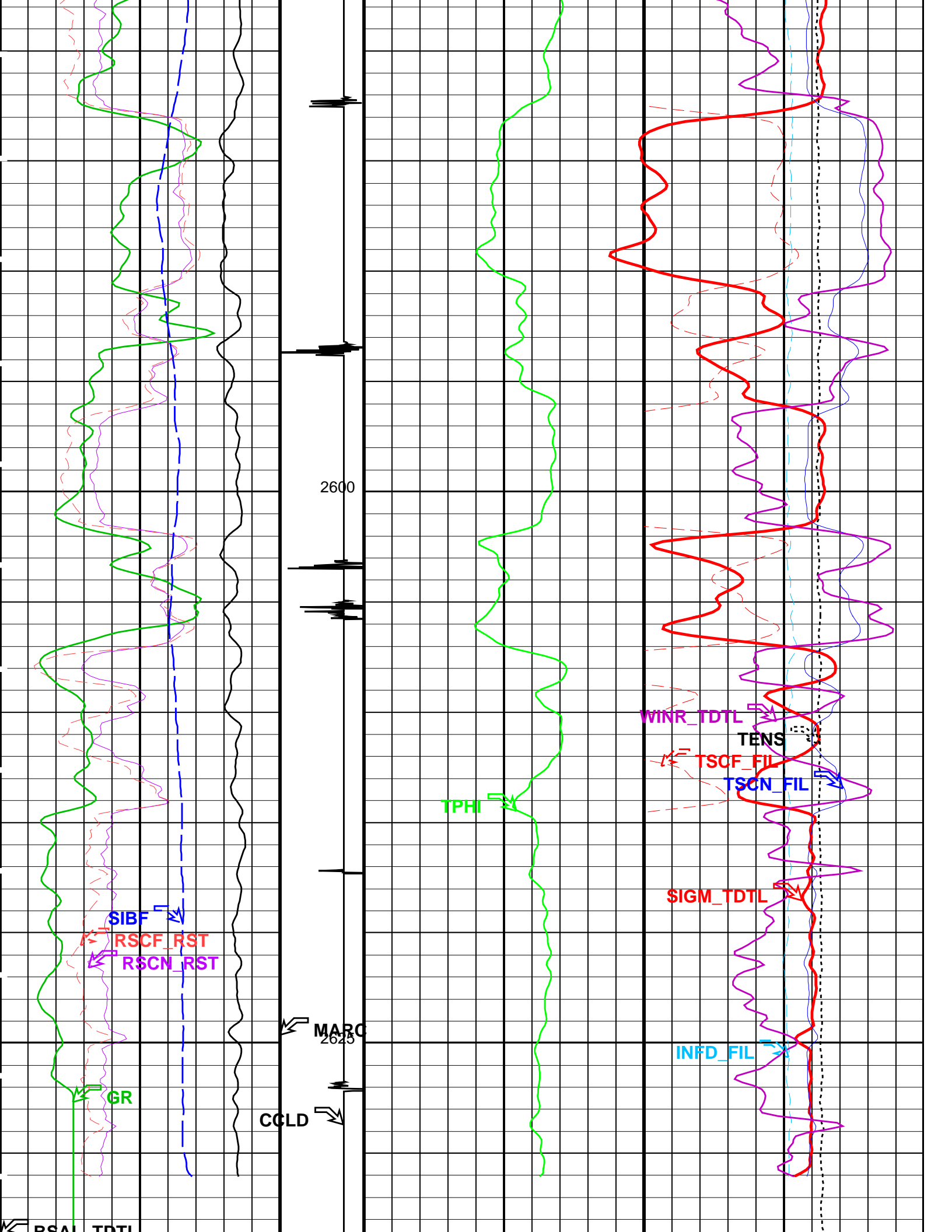
TDT Pass
Shut in

MAXIS Field Log

Company: Esso Australia Ltd. Well: CBA A-18b

Input DLIS Files					
31-Mar-2006 03:37					
Output DLIS Files					
DEFAULT	RST_PSP_008PUP	FN:7	PRODUCER	08-Mar-2006 04:12	2635.1 M 2542.0 M
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B	14C0-302		

PIP SUMMARY



BSAL TDTL					
Gamma Ray (GR) (GAPI)			Discriminat ed CCL (CCLD)	RST Sigma (TDT-like) (SIGM_TDTL)	
0		200	3 (V) -1	60	(CU) 0
RST Sigma Borehole Fluid (SIBF) (CU)			Minitron Arc Detection (MARC)	RST Porosity (TPHI) (V/V)	Inelastic CR Far (INFD_FIL) (CPS)
100		0	0 (---- 5	0.6	0 10000 0
RST Near Effective Capture CR (RSCN_ RST)			RST Weighted Inelastic Ratio (TDT-like) (WINR_TDTL)		
45	(----	0	0.4 (---- 0		
RST Far Effective Capture CR (RSCF_ RST)			Tot Sel CR Near (TSCN_FIL) (CPS)		
45	(----	0	30000 0		
RST Borehole Salinity (TDT-like) (BSAL TDTL)			Tot Sel CR Far (TSCF_FIL) (CPS)		
450	(PPK)	-50	12000 0		
			Tension (TENS) (LBF)		
			0 3000		

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
RST-C: Reservoir Saturation Pro Tool C			
	Tractor Available in Tool String	NO	
AIRB	RST Air Borehole	No	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSALOPT	RST Borehole Salinity Option	Unknown	
BSFL	RST Borehole Salinity Filter Length	51	
CSID	Casing Size I.D.	6.875	IN
DFPC	RST Depth Filter Processing Constant	One	
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	20	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
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
PTIER	RST Tiered Presentation Selection	0_Customer	
PVL_PSNT_PRST	PVL Peak Signal/Noise Threshold	3	
RGAI	Near/Far Gain Calibration Ratio	1	
SHT	Surface Hole Temperature	25	DEGC
SMBMO	RST Sigma Mode Background Minitron Off	No	
TIER_IC	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
WOFSL_PRST	RST WFL-Off Subcycle Length	0	
WONSL_PRST	RST WFL-On Subcycle Length	0	
WSCOM_PRST	RST Station Log Comment		
PSPT-A/B: Production Services Logging Platform			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
CSID	Casing Size I.D.	6.875	IN
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	20	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
PBPO	PBMS Tool position on CAN	2	
PCCG	PBMS CCL Gain	DB36	
PSTP	PSTC Tool Position on CAN Bus	1	

SHT	Surface Hole Temperature	25	DEGC
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.625	IN
CWEI	Casing Weight	29.70	LB/F
DFD	Drilling Fluid Density	-50000.00	G/C3
DO	Depth Offset for Playback	0.0	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	2745	M
TDD	Total Depth - Driller	2662.00	M
TDL	Total Depth - Logger	1.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: RST_TDTL_ANSW Vertical Scale: 1:200 Graphics File Created: 08-Mar-2006 04:12

OP System Version: 14C0-302

MCM

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

Input DLIS Files

31-Mar-2006 03:37

Output DLIS Files

DEFAULT RST_PSP_008PUP FN:7 PRODUCER 08-Mar-2006 04:12



Sigma Pass
Shut in

MAXIS Field Log

Company: Esso Australia Ltd. Well: CBA A-18b

Input DLIS Files

31-Mar-2006 03:37

Output DLIS Files

DEFAULT RST_PSP_008PUP FN:7 PRODUCER 08-Mar-2006 04:12 2635.1 M 2542.0 M

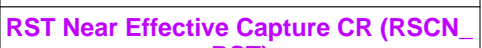
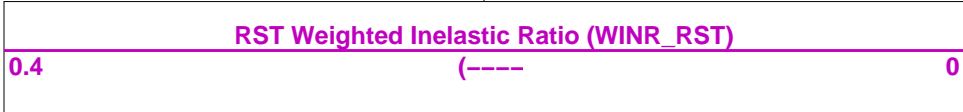
OP System Version: 14C0-302

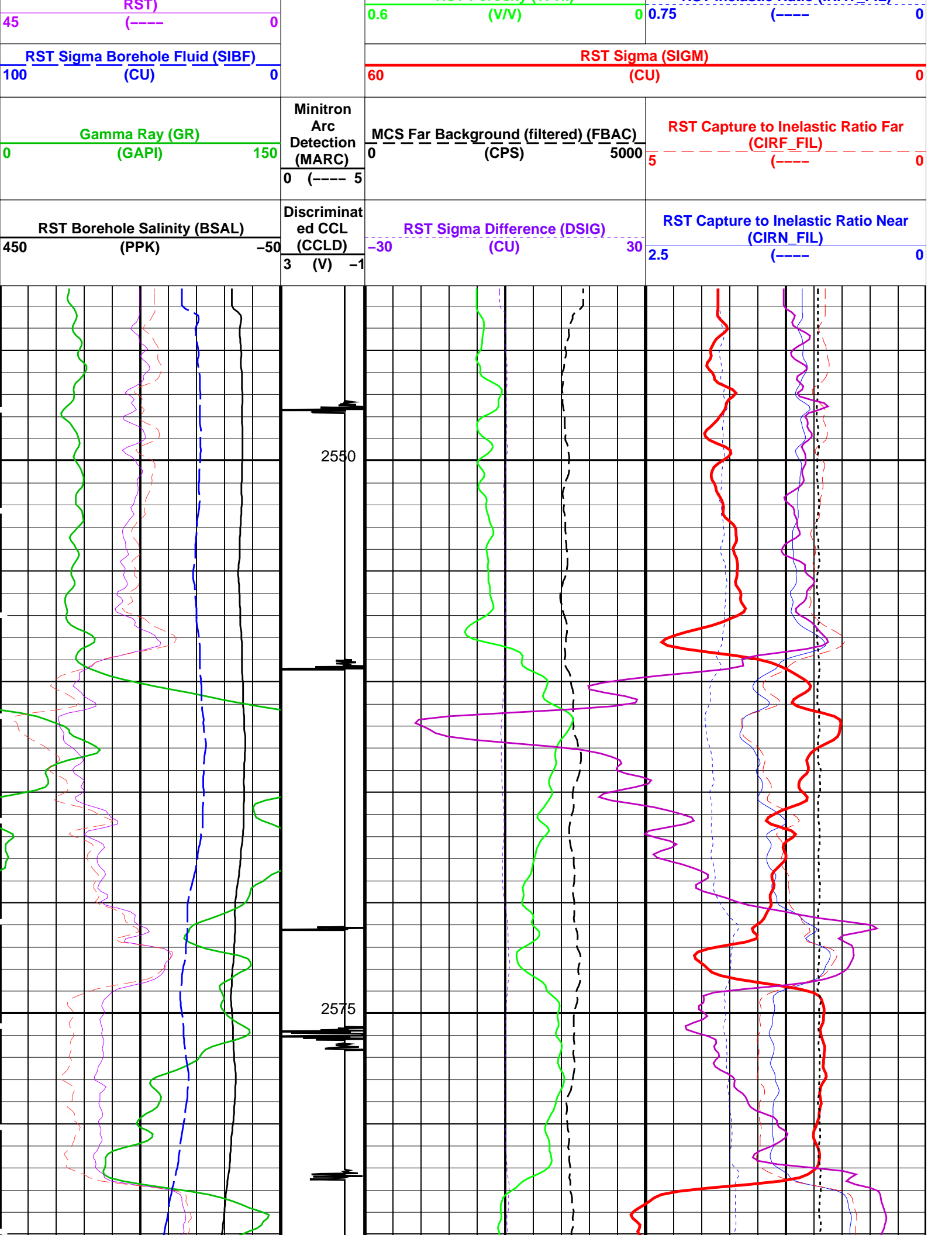
MCM

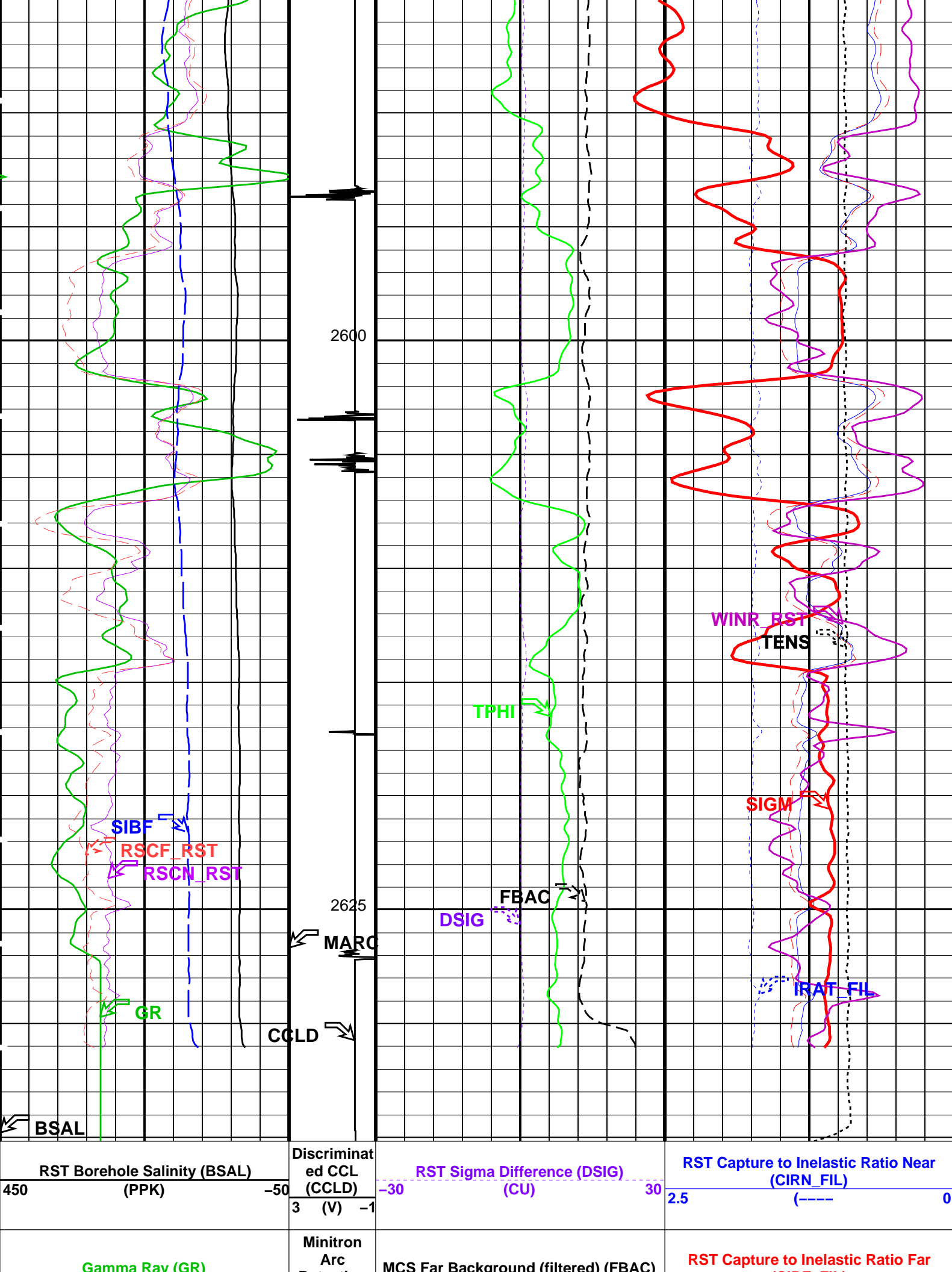
RST-C 14C0-302 PSPT-A/B 14C0-302

PIP SUMMARY

Time Mark Every 60 S







<div>Summa Fil (CIRF_FIL)</div> <div>0 (GAPI) 150</div>			<div>Detection (MARC)</div> <div>0 (---- 5</div>	<div>0 (CPS) 5000</div>			<div>5 (CIRF_FIL) (---- 0</div>		
<div>RST Sigma Borehole Fluid (SIBF)</div> <div>100 (CU) 0</div>				<div>RST Sigma (SIGM)</div> <div>60 (CU) 0</div>					
<div>RST Near Effective Capture CR (RSCN_RST)</div> <div>45 (---- 0</div>				<div>RST Porosity (TPHI)</div> <div>0.6 (V/V) 0</div>			<div>RST Inelastic Ratio (IRAT_FIL)</div> <div>0.75 (---- 0</div>		
<div>RST Far Effective Capture CR (RSCF_RST)</div> <div>45 (---- 0</div>				<div>RST Weighted Inelastic Ratio (WINR_RST)</div> <div>0.4 (---- 0</div>					
							<div>Tension (TENS)</div> <div>0 (LBF) 3000</div>		

PIP SUMMARY


Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
RST-C: Reservoir Saturation Pro Tool C			
	Tractor Available in Tool String	NO	
AIRB	RST Air Borehole	No	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
BSALOPT	RST Borehole Salinity Option	Unknown	
BSFL	RST Borehole Salinity Filter Length	51	
CSID	Casing Size I.D.	6.875	IN
DFPC	RST Depth Filter Processing Constant	One	
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	20	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
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
PTIER	RST Tiered Presentation Selection	0_Customer	
PVL_PSNT_PRST	PVL Peak Signal/Noise Threshold	3	
RGAI	Near/Far Gain Calibration Ratio	1	
SHT	Surface Hole Temperature	25	DEGC
SMBMO	RST Sigma Mode Background Minitron Off	No	
TIER_IC	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
WOFSL_PRST	RST WFL-Off Subcycle Length	0	
WONSL_PRST	RST WFL-On Subcycle Length	0	
WSCOM_PRST	RST Station Log Comment		
PSPT-A/B: Production Services Logging Platform			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
CSID	Casing Size I.D.	6.875	IN
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	20	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
PBPO	PBMS Tool position on CAN	2	
PCCG	PBMS CCL Gain	DB36	
PSTP	PSTC Tool Position on CAN Bus	1	
SHT	Surface Hole Temperature	25	DEGC
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.625	IN
CWEI	Casing Weight	29.70	LB/F
DFD	Drilling Fluid Density	-50000.00	G/C3
DO	Depth Offset for Playback	0.0	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	

RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	2745	M
TDD	Total Depth – Driller	2662.00	M
TDL	Total Depth – Logger	1.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: RST_SIG_ANSW		Vertical Scale: 1:200		Graphics File Created: 08-Mar-2006 04:12	
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B		14C0-302	
Input DLIS Files					
31-Mar-2006 03:37					
Output DLIS Files					
DEFAULT	RST_PSP_008PUP	FN:7	PRODUCER	08-Mar-2006 04:12	

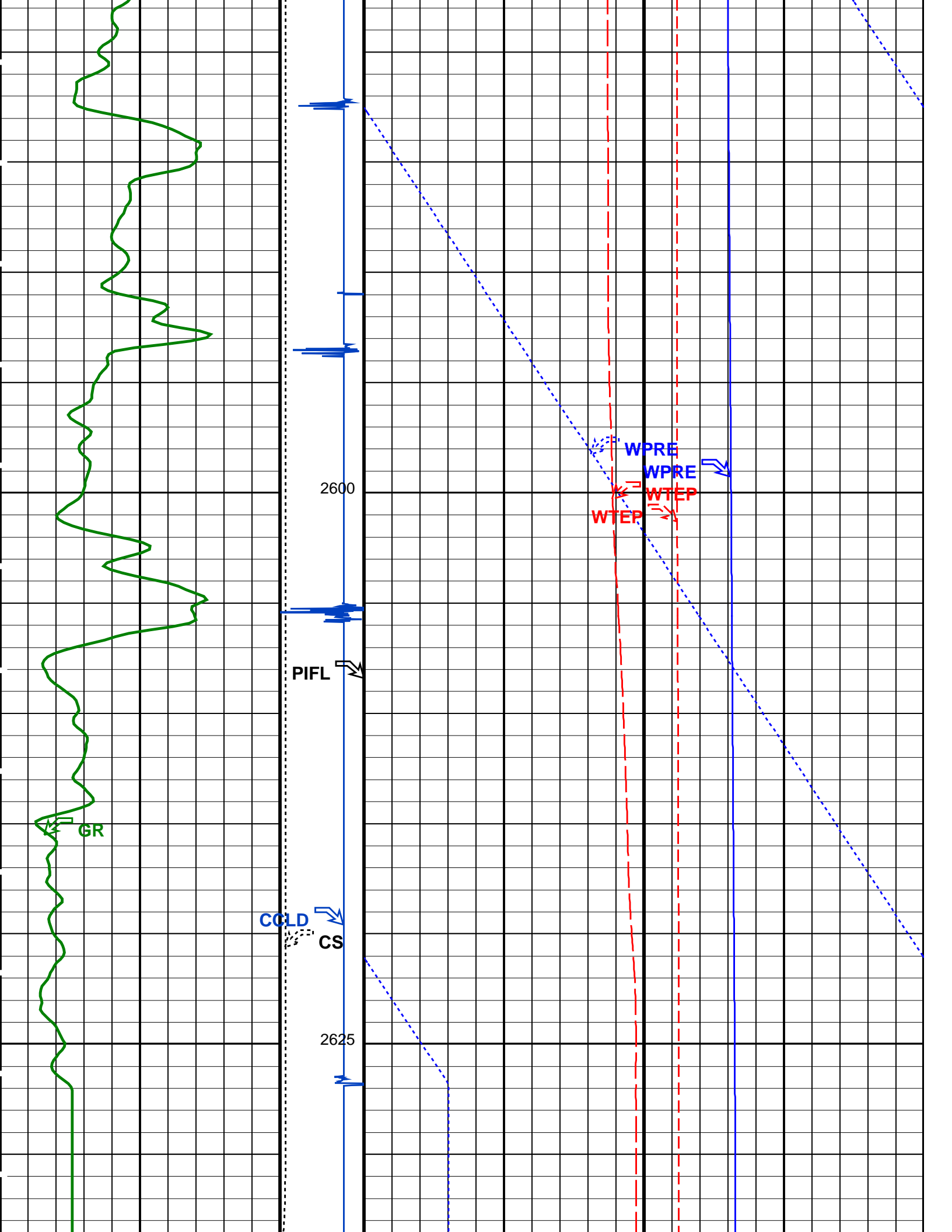


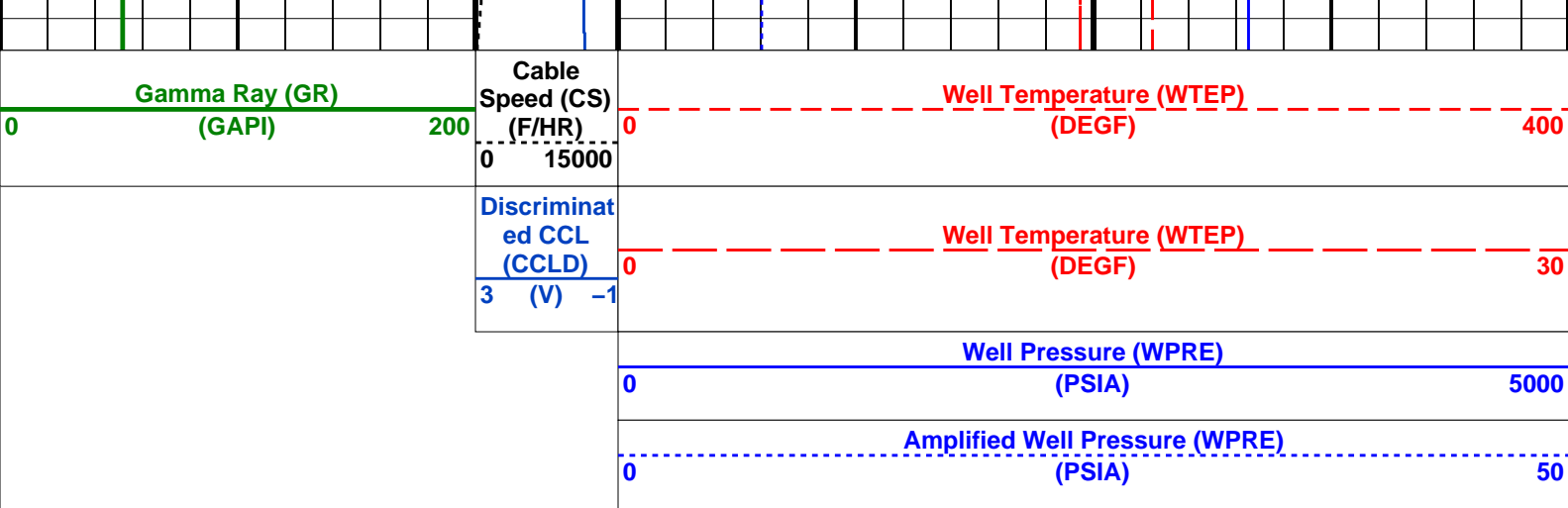
Correlation Pass

Gamma Ray Baseline

MAXIS Field Log

Company: Esso Australia Ltd.				Well: CBA A-18b			
Input DLIS Files							
31-Mar-2006 03:36							
Output DLIS Files							
DEFAULT	RST_PSP_006PUP	FN:5	PRODUCER	08-Mar-2006 04:09	2634.8 M	2575.3 M	
OP System Version: 14C0-302							
MCM							
RST-C	14C0-302	PSPT-A/B		14C0-302			
PIP SUMMARY							
<div>Time Mark Every 60 S</div>							
		Amplified Well Pressure (WPRE)					
		(PSIA)					
		Well Pressure (WPRE)					
		(PSIA)					
		Well Temperature (WTEP)					
		(DEGF)					
		Well Temperature (WTEP)					
		(DEGF)					
		Cable Speed (CS)					
		(F/HR)					
		Gamma Ray (GR)					
		(GAPI)					
		Discriminat					
		ed CCL					
		(CCLD)					
		(V)					
		-1					





PIP SUMMARY

Time Mark Every 60 S

Format: PSP_1 Vertical Scale: 1:200



Graphics File Created: 08-Mar-2006 04:09

OP System Version: 14C0-302

MCM

RST-C14C0-302PSPT-A/B14C0-302

Parameters				
DLIS Name	Description	Value		
RST-C: Reservoir Saturation Pro Tool C				
AIRB	Tractor Available in Tool String	NO		
BHS	RST Air Borehole	No		
BHT	Borehole Status	CASED		
BSALOPT	Bottom Hole Temperature (used in calculations)	100	DEGC	
BSFL	RST Borehole Salinity Option	Unknown		
CSID	RST Borehole Salinity Filter Length	51		
DFPC	Casing Size I.D.	6.875	IN	
DFPC_TDTL	RST Depth Filter Processing Constant	One		
GCSE	RST Depth Filter Processing Constant (TDT-like)	Two		
GDEV	Generalized Caliper Selection	BS		
GGRD	Average Angular Deviation of Borehole from Normal	20	DEG	
GRSE	Geothermal Gradient	0.018227	DC/M	
GTSE	Generalized Mud Resistivity Selection	CHART_GEN_9		
ISSBAR	Generalized Temperature Selection	LINEAR_ESTIMATE		
MATR	Barite Mud Switch	NOBARITE		
NORM_IRAT_RST	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
NORM_SIGM_RST	RST Normalized Inelastic Ratio	0.48		
PTIER	RST Normalized Sigma	30	CU	
PVL_PSNT_PRST	RST Tiered Presentation Selection	0_Customer		
RGAI	PVL Peak Signal/Noise Threshold	3		
SHT	Near/Far Gain Calibration Ratio	1		
SMBMO	Surface Hole Temperature	25	DEGC	
TIER_IC	RST Sigma Mode Background Minitron Off	No		
TIER_SIGM	RST IC Acquisition Mode	0_CO_Yield_and_Spectrolith		
WOFSL_PRST	RST Sigma Acquisition Mode	0_RST_Sigma		
WONSL_PRST	RST WFL-Off Subcycle Length	0		
WSCOM_PRST	RST WFL-On Subcycle Length	0		
PSPT-A/B: Production Services Logging Platform				
BHS	Borehole Status	CASED		
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC	
CSID	Casing Size I.D.	6.875	IN	
GCSE	Generalized Caliper Selection	BS		
GDEV	Average Angular Deviation of Borehole from Normal	20	DEG	
GGRD	Geothermal Gradient	0.018227	DC/M	
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9		
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
ISSBAR	Barite Mud Switch	NOBARITE		
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
PBPO	PBMS Tool position on CAN	2		
PCCG	PBMS CCL Gain	DB36		
PSTP	PSTC Tool Position on CAN Bus	1		
SHT	Surface Hole Temperature	25	DEGC	
System and Miscellaneous				
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth		
BS	Bit Size	9.875	IN	

Production Services Logging Platform Wellsite Calibration							
Detector Calibration							
Phase	Gamma-Ray Background	GAPI	Value	Phase	Gamma-Ray Jig-Bkg	GAPI	Value
Before			3.742	Before			115.9
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		110.0 (Minimum)	125.0 (Nominal)	140.0 (Maximum)

Before: 3-Mar-2006 8:04

Company: **Esso Australia Ltd.**

Schlumberger

Well: **CBA A-18b**

Field: **Cobia**

Rig: **Prod 4/Crane**

Country: **Australia**

RST-A Sigma Survey
Pressure/Temperature
GR-CCL