

Company: Esso Australia Pty.

Well: A17A  
Field: Tuna  
Rig: Prod 2 / Crane

Country: Australia

Prod 2 / Crane

Tuna

Gippsland

A17A

Esso Australia Pty.

LOCATION

Gippsland

Basin

Bass Strait

Permanent Datum: \_\_\_\_\_

Log Measured From: \_\_\_\_\_

Drilling Measured From: \_\_\_\_\_

Elev.: K.B. 32.1 m

G.L. -59 m

D.F. 32.1 m

Elev.: 0 m

32.1 m above Perm. Datum

6 spf, 60 deg

3359 – 3361 mMDKB

2" HSD Perforation

PVT DATA	Oil Density	Run 1	Run 2	R
	Water Salinity			
	Gas Gravity			
	Bo			
	Bw			
Solution GOR	1/Bg			
	Bubble Point Pressure			
	Bubble Point Temperature			
	Solution GOR			
	Maximum Deviation	64 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	12-Feb-2006	Max. Well Deviation 64 deg	Longitude 148°25' 05.29"E	Latitude 38°10' 16.00"S
Run Number	1			
Depth Driller	3402 m			
Schlumberger Depth	not tagged			
Bottom Log Interval	3361 m			
Top Log Interval	3359 m			
Casing Fluid Type	Production Fluids			
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size	6.000 in			
From	2796.5 m			
To	3480 m			
Casing/Tubing Size	4.500 in			
Weight	12.6 lbm/ft			
Grade	L-80			
From	2767 m			
To	3414.38 m			
Maximum Recorded Temperatures	107 degC			
Logger On Bottom	12-Feb-2006	6:00		
Unit Number	3827	AUSL		
Recorded By	R. Gerhardt, O. Tahmiscic			
Witnessed By	Mark Wilson, Bruce Woodward			

	Run 3	Run 4
Time (min)	0.78	0.69
$\lambda_{\text{max}}$ (nm)	214	214
E <sub>1%</sub> 1cm	10.0	10.0
Molar absorptivity	10,000	10,000
IR (KBr disk)	3000-2800 (C-H), 1650 (C=O), 1550 (N-H bend), 1450 (C-N stretch), 1380 (C-O stretch), 1250 (C-N stretch), 1100 (C-O stretch), 750 (C-H bend)	3000-2800 (C-H), 1650 (C=O), 1550 (N-H bend), 1450 (C-N stretch), 1380 (C-O stretch), 1250 (C-N stretch), 1100 (C-O stretch), 750 (C-H bend)
NMR ( <sup>1</sup> H, CDCl <sub>3</sub> )	δ 7.2-7.4 (m, 4H, aromatic), δ 6.8 (d, 2H, aromatic), δ 5.5 (t, 1H, N-H), δ 4.2 (q, 2H, CH <sub>2</sub> -OH), δ 3.8 (s, 3H, OCH <sub>3</sub> ), δ 2.5 (s, 3H, CH <sub>3</sub> )	δ 7.2-7.4 (m, 4H, aromatic), δ 6.8 (d, 2H, aromatic), δ 5.5 (t, 1H, N-H), δ 4.2 (q, 2H, CH <sub>2</sub> -OH), δ 3.8 (s, 3H, OCH <sub>3</sub> ), δ 2.5 (s, 3H, CH <sub>3</sub> )
NMR ( <sup>13</sup> C, CDCl <sub>3</sub> )	δ 165 (C=O), δ 155 (C-O), δ 145 (C-N), δ 135 (aromatic C), δ 125 (aromatic C), δ 115 (aromatic C), δ 105 (aromatic C), δ 100 (aromatic C), δ 75 (CH <sub>2</sub> -OH), δ 55 (OCH <sub>3</sub> ), δ 25 (CH <sub>3</sub> )	δ 165 (C=O), δ 155 (C-O), δ 145 (C-N), δ 135 (aromatic C), δ 125 (aromatic C), δ 115 (aromatic C), δ 105 (aromatic C), δ 100 (aromatic C), δ 75 (CH <sub>2</sub> -OH), δ 55 (OCH <sub>3</sub> ), δ 25 (CH <sub>3</sub> )
Mass (m/z)	254 (M <sup>+</sup> , base peak), 239 (M <sup>+</sup> -15), 224 (M <sup>+</sup> -31), 209 (M <sup>+</sup> -47), 194 (M <sup>+</sup> -62), 179 (M <sup>+</sup> -77), 164 (M <sup>+</sup> -92), 149 (M <sup>+</sup> -107), 134 (M <sup>+</sup> -122), 119 (M <sup>+</sup> -137), 104 (M <sup>+</sup> -152), 89 (M <sup>+</sup> -167), 74 (M <sup>+</sup> -182), 59 (M <sup>+</sup> -197), 44 (M <sup>+</sup> -212), 29 (M <sup>+</sup> -227), 14 (M <sup>+</sup> -242)	254 (M <sup>+</sup> , base peak), 239 (M <sup>+</sup> -15), 224 (M <sup>+</sup> -31), 209 (M <sup>+</sup> -47), 194 (M <sup>+</sup> -62), 179 (M <sup>+</sup> -77), 164 (M <sup>+</sup> -92), 149 (M <sup>+</sup> -107), 134 (M <sup>+</sup> -122), 119 (M <sup>+</sup> -137), 104 (M <sup>+</sup> -152), 89 (M <sup>+</sup> -167), 74 (M <sup>+</sup> -182), 59 (M <sup>+</sup> -197), 44 (M <sup>+</sup> -212), 29 (M <sup>+</sup> -227), 14 (M <sup>+</sup> -242)
Elemental analysis	Calcd: C, 64.5%; H, 4.5%; N, 11.0%. Found: C, 64.2%; H, 4.3%; N, 10.8%.	Calcd: C, 64.5%; H, 4.5%; N, 11.0%. Found: C, 64.2%; H, 4.3%; N, 10.8%.

## DEPTH SUMMARY LISTING

Date Created: 16-APR-2006 0:26:48

## Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-H	Type:	CMTD-B/A	Type:	2-32ZT
Serial Number:	794	Serial Number:	1711	Serial Number:	4202
Calibration Date:	31-May-2005	Calibration Date:	20-JUL-2005	Length:	6722.97 M
Calibrator Serial Number:	1009	Calibrator Serial Number:	57144	Conveyance Method:	Wireline
Calibration Cable Type:	2-32ZT	Calibration Gain:	0.97	Rig Type:	Offshore_Fixed
Wheel Correction 1:	-6	Calibration Offset:	200.00		
Wheel Correction 2:	-5				

## Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	TUNA A17A CORRELATION LOGS
Reference Log Run Number:	
Reference Log Date:	no date available
Subsequent Trip Down Log Correction:	1.50 M

### Depth Control Remarks

1. All Schlumberger Depth Control Procedures followed.
2. Log correlated to correlation log provided by Esso.
3. GR response used for correlation.
4. IDW used as Primary Depth Control.
5. Z-Chart used as Secondary Depth Control.
- 6.

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OTHER SERVICES1 OS1: none OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Log objectives: Perforate well between 3359m and 3361m MDKB.	
Correlated to "TUNA A17A Correlation Logs" (no date) provided by Esso.	
THP: 0 psi THT: 62 degF; BHP: 2503 psi BHT: 215 degF	
Pressure and temperature data gathered from MWPT sensors.	
Guns used: 2m of 2" HSD [2006 PJ, HMX]; 6 spf, 60 deg	

Shooting depth from 3359m to 3361m MDKB	
CCL to Top Shot = 6.5m	
CCL Stop Depth = 3352.5m MDKB	
TD was not tagged.	
Day crew: K. Kerr and J. Light	
Night crew: S. Kiss and L. Wright	
Performed by Schlumberger.	

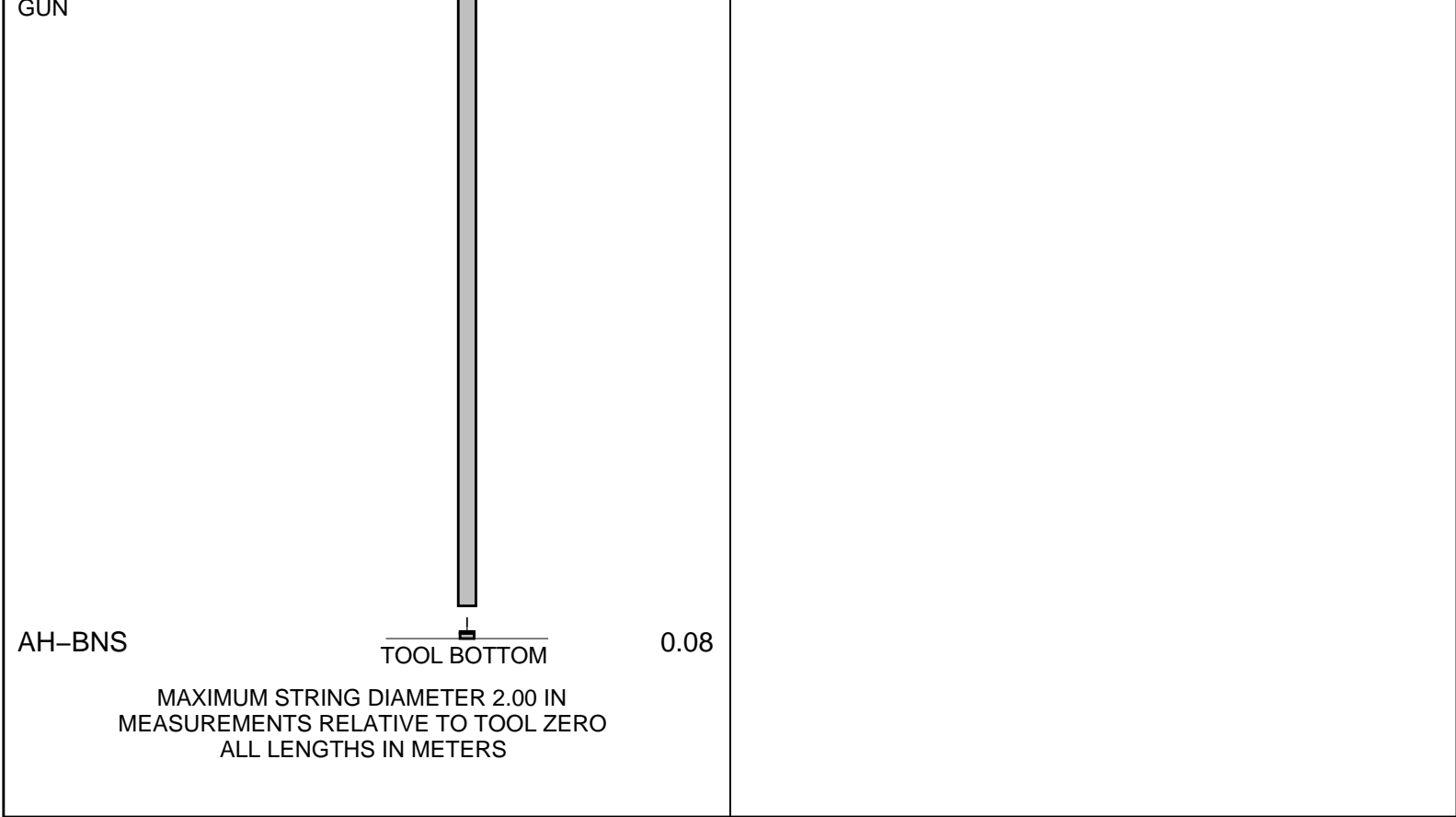
[illegible]

RUN 2

## MWPM-AA 3000

Category	Value
MWP GUN	6.88

GUN



Client: Esso Australia Pty. Ltd.

2/12/2006

Well: TNA A17A

Field: Tuna

Rig Name: Prod 2 / Crane

State: Victoria

Reference Datum: Mean Sea Level

Country: Australia

Elevation: 32.1 m

Production String	(in)		(m)	Well Schematic	(m)		(in)	Casing String
	OD	ID			MD	OD	ID	
Tubing, 13.7lbs/ft, 80	3.500	2.992	9.7		12.5 13.4 14.0	7.000 9.625 13.375	6.276 8.835 12.615	Casing String, 26 lbs/ft, L-80 Casing String, 43.5 lbs/ft, N-80 Casing String, 54.5 lbs/ft, K-55
SSSV	3.500	2.750	450.9		715.5 729.0	13.375 9.625	12.615 8.835	Casing Shoe Casing Shoe
Gas Lift Mandrel	3.500	2.920	1408.8					
Gas Lift Mandrel	3.500	2.920	1919.5					
Landing Nipple	3.500	2.992	2051.6					
					2246.5 2252.5 2261.2			Perforation Zone Perforation Zone Bottom



**Schlumberger**

## After Perforation Depth Log

MAXIS Field Log

### Output DLIS Files

DEFAULT PERFO\_012LUP FN:11 PRODUCER 12-Feb-2006 05:56

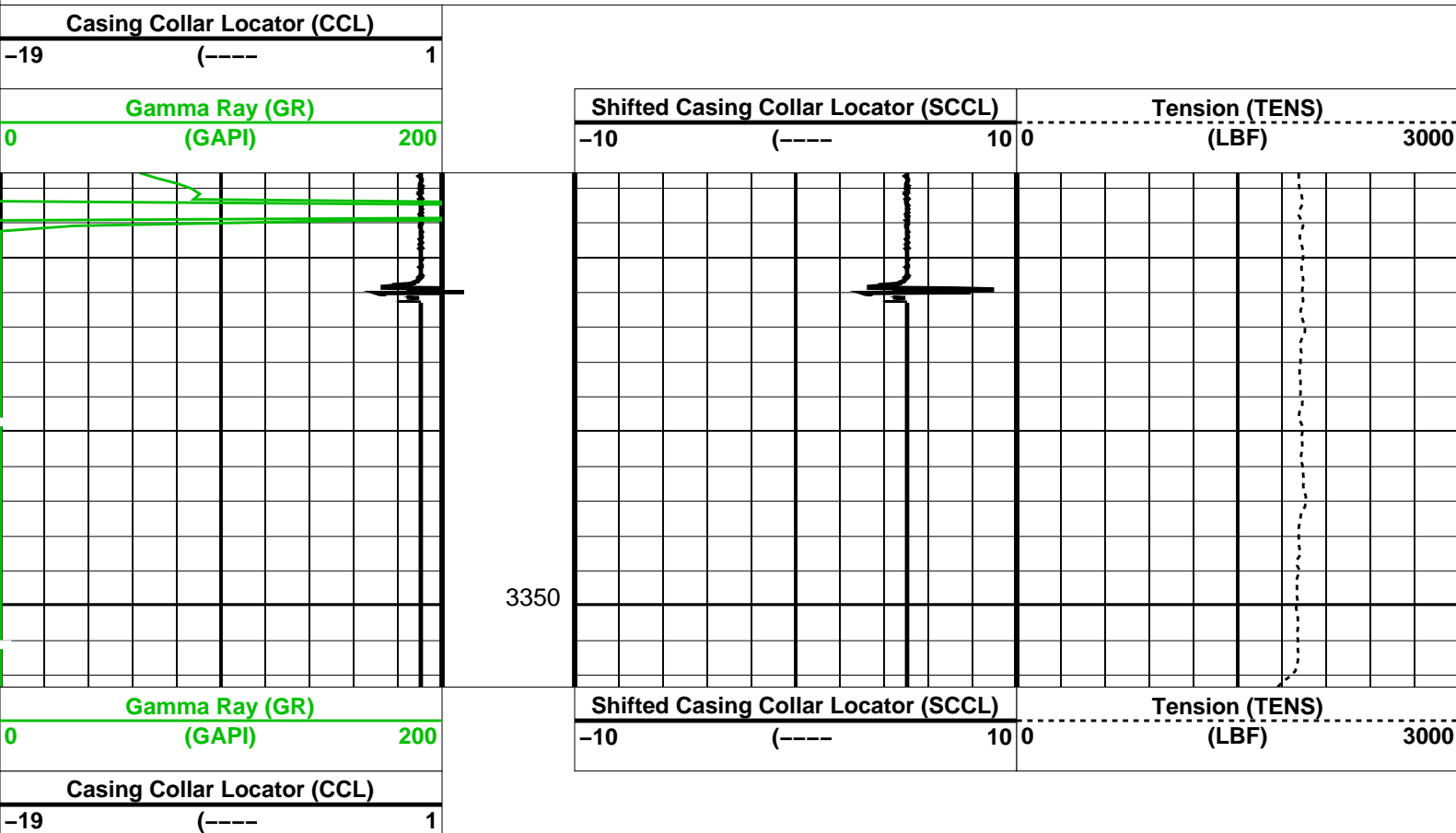
**OP System Version: 13C0-300**  
MCM

MWP\_GUN PTC-2789-NUCL MWPT-CA PTC-2789-NUCL  
MWGT-AA PTC-2789-NUCL

#### PIP SUMMARY

└─ Casing Collars

Time Mark Every 60 S



#### PIP SUMMARY

└─ Casing Collars

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL		
CCLD	CCL reset delay	12 IN
CCLT	CCL detection level	0.3 V
DEVI_FL_CORR	Deviation Angle for Flow Line Correction	0 DEG
FLD	Flow Line Density	1 G/C3
MWPT_NULL_SOURCE	MWPT NULL Temperature Source	TEMS
MWPT_NULL_TEMP	MWPT NULL Temperature	0.0 DEGC

Format: PERFO    Vertical Scale: 1:200    Graphics File Created: 12-Feb-2006 05:56

OP System Version: 13C0-300  
MCM

MWP_GUN	PTC-2789-NUCL	MWPT-CA	PTC-2789-NUCL
MWGT-AA	PTC-2789-NUCL		

Output DLIS Files

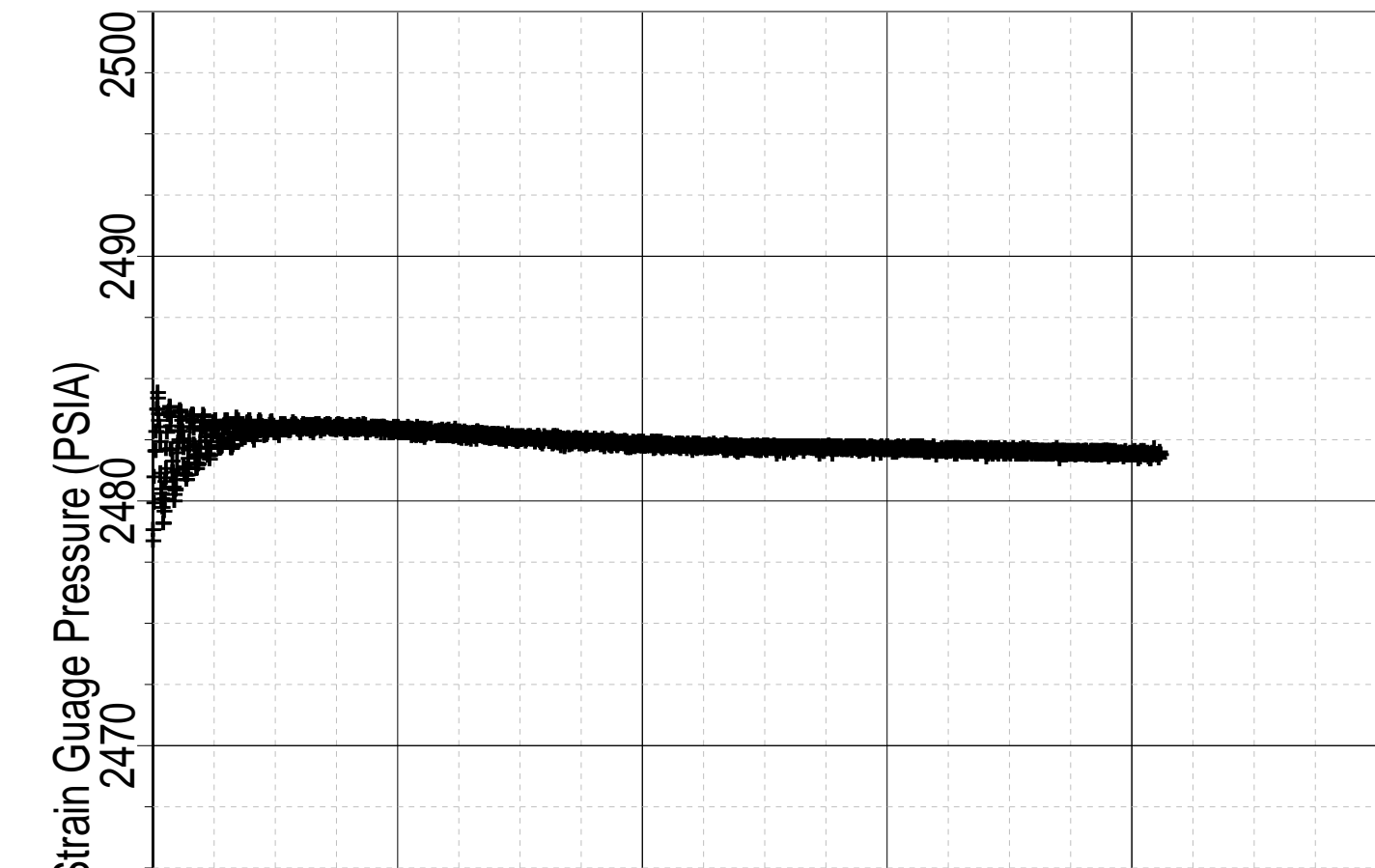
DEFAULT	PERFO_012LUP	FN:11	PRODUCER	12-Feb-2006 05:56
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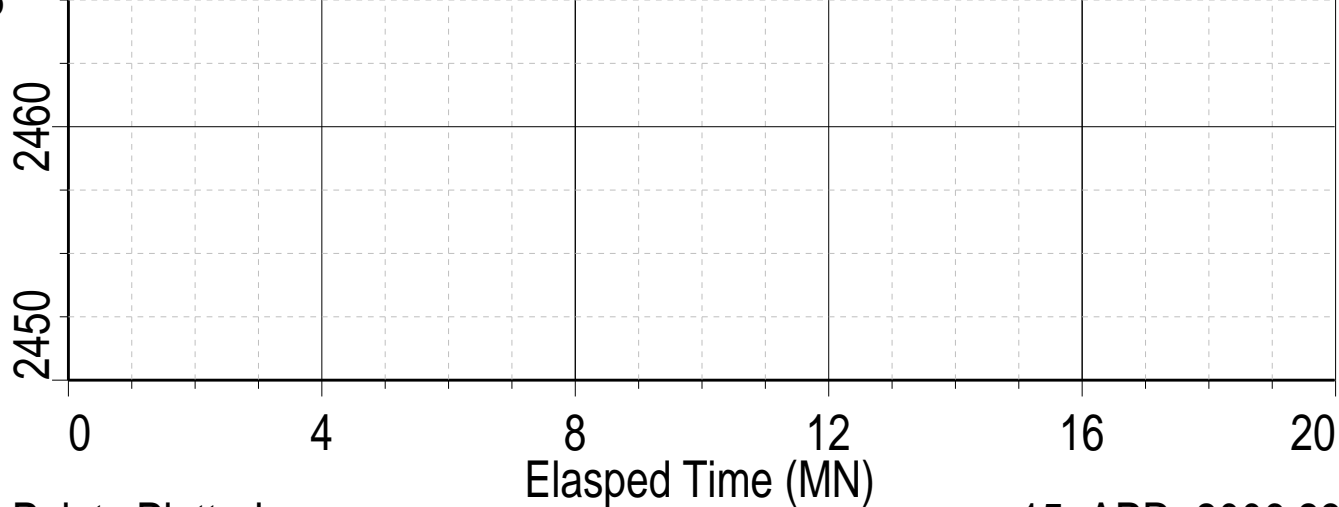


After Perforation  
Station Log

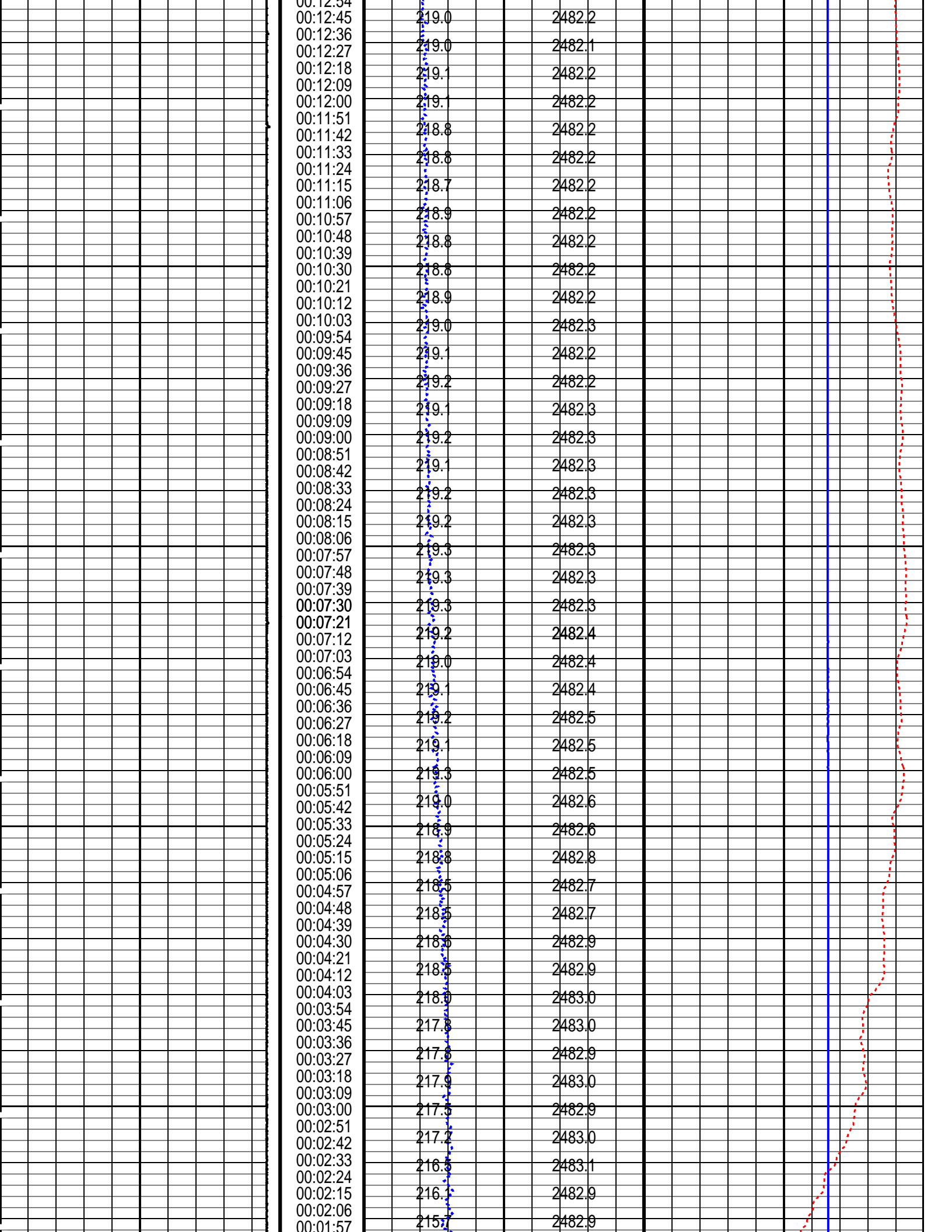
MAXIS Field Log

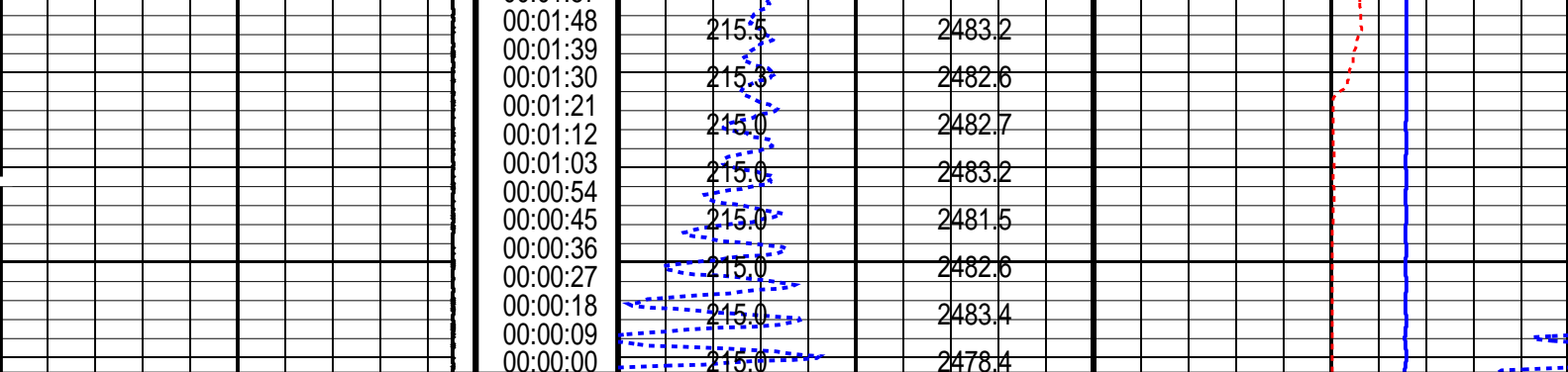
Index: 23037.8 – 28054.3 M











Casing Collar Locator (CCL_SL) -19 (----) 1	Elapsed Time (ETIM) (S)	Strain Gauge Pressure (SGP_SL) (PSIA)		0	20
	Firing Sequence State (FSS SL) (----)	Strain Gauge Pressure (SGP_SL) (PSIA)		0	3000
	0 1024				
		Temperature (TEMP_MWPT_SL) (DEGF)	Pressure (SGPA_SL) (PSIA)		
		Temperature (TEMP_MWPT_SL) (DEGF)		0	20

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL		
DEVI_FL_CORR	Deviation Angle for Flow Line Correction	0 DEG
FLD	Flow Line Density	1 G/C3
MWPT_NULL_SOURCE	MWPT NULL Temperature Source	TEMS
MWPT_NULL_TEMP	MWPT NULL Temperature	0.0 DEGC

Format: MWP\_SL Vertical Scale: 1" per 60S

Graphics File Created: 12-Feb-2006 05:37

OP System Version: 13C0-300  
MCM

MWP_GUN	PTC-2789-NUCL	MWPT-CA	PTC-2789-NUCL
MWGT-AA	PTC-2789-NUCL		

Output DLIS Files

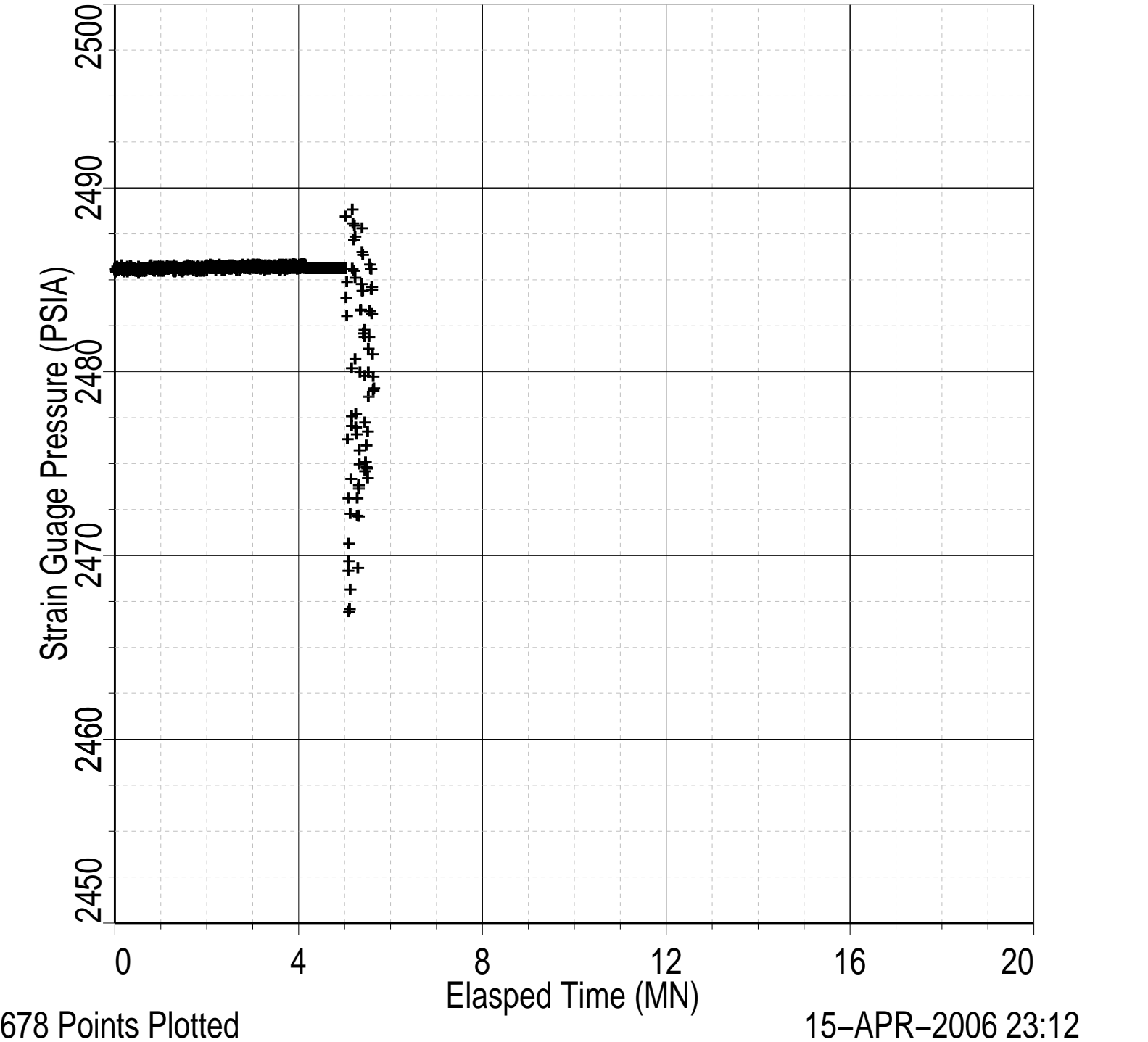
DEFAULT	PERFO_011LTP	FN:10	PRODUCER	12-Feb-2006 05:37
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Schlumberger

Perforation  
Station Log

MAXIS Field Log

Index: 21249.6 – 22969.2 M



Output DLIS Files						
DEFAULT	PERFO_010LTP	FN:9	PRODUCER	12-Feb-2006 05:31	3352.4 M	0.9 M
OP System Version: 13C0-300						
MCM						
MWP_GUN	PTC-2789-NUCL	MWPT-CA		PTC-2789-NUCL		
MWGT-AA	PTC-2789-NUCL					
PIP SUMMARY						
<div>Time Mark Every 60 S</div>						
		Temperature (TEMP_MWPT_SL)				
		0 (DEGF) 20				
		Temperature (TEMP_MWPT_SL) (DEGF)	Pressure (SGPA_SL) (PSIA)			
CCL		Firing Sequence State (FSS)	Strain Gauge Pressure (SGP_SL)			
			0 (PSIA) 2000			

3000

PIP SUMMARY

DLIS Name	Description	Value
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MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL			
DEVI_FL_CORR	Deviation Angle for Flow Line Correction	0	DEG
FLD	Flow Line Density	1	G/C3
MWPT_NULL_SOURCE	MWPT NULL Temperature Source	TEMS	

MWPT\_NULL\_TEMP

MWPT NULL Temperature

0.0

DEGC

Format: MWP\_SL

Vertical Scale: 1" per 60S

Graphics File Created: 12-Feb-2006 05:31

OP System Version: 13C0-300

MCM

MWP\_GUN

MWGT-AA

PTC-2789-NUCL

PTC-2789-NUCL

MWPT-CA

PTC-2789-NUCL

Output DLIS Files

DEFAULT

PERFO\_010LTP

FN:9

PRODUCER

12-Feb-2006 05:31

Schlumberger

Before Perforation  
Depth Log

MAXIS Field Log

Output DLIS Files

DEFAULT

PERFO\_008LUP

FN:7

PRODUCER

12-Feb-2006 05:24

3380.5 M

3352.5 M

OP System Version: 13C0-300

MCM

MWP\_GUN

MWGT-AA

PTC-2789-NUCL

PTC-2789-NUCL

MWPT-CA

PTC-2789-NUCL

PIP SUMMARY

Time Mark Every 60 S

Casing Collars

Casing Collar Locator (CCL)

-19 (----) 1

Gamma Ray (GR)

0 (GAPI) 200

Shifted Casing Collar Locator (SCCL)

-10 (----) 10

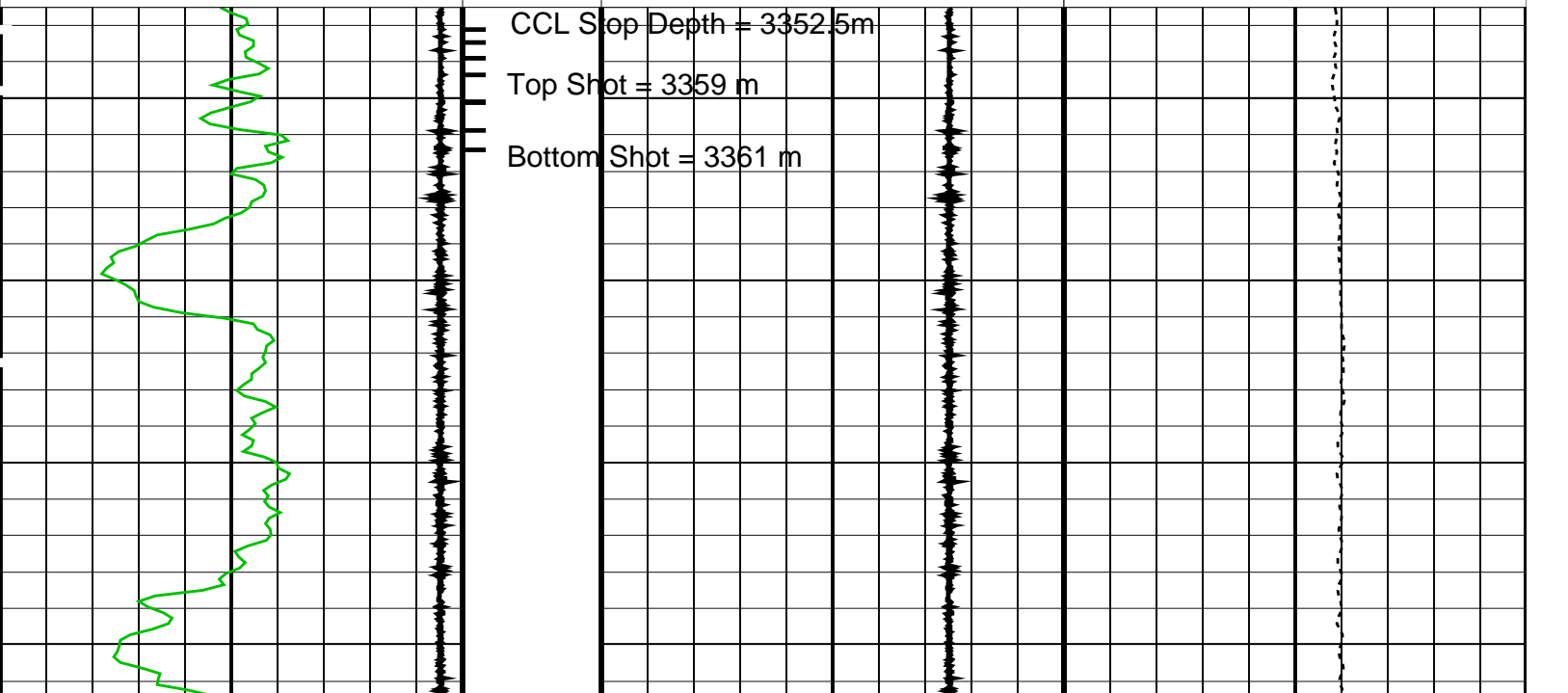
Tension (TENS)

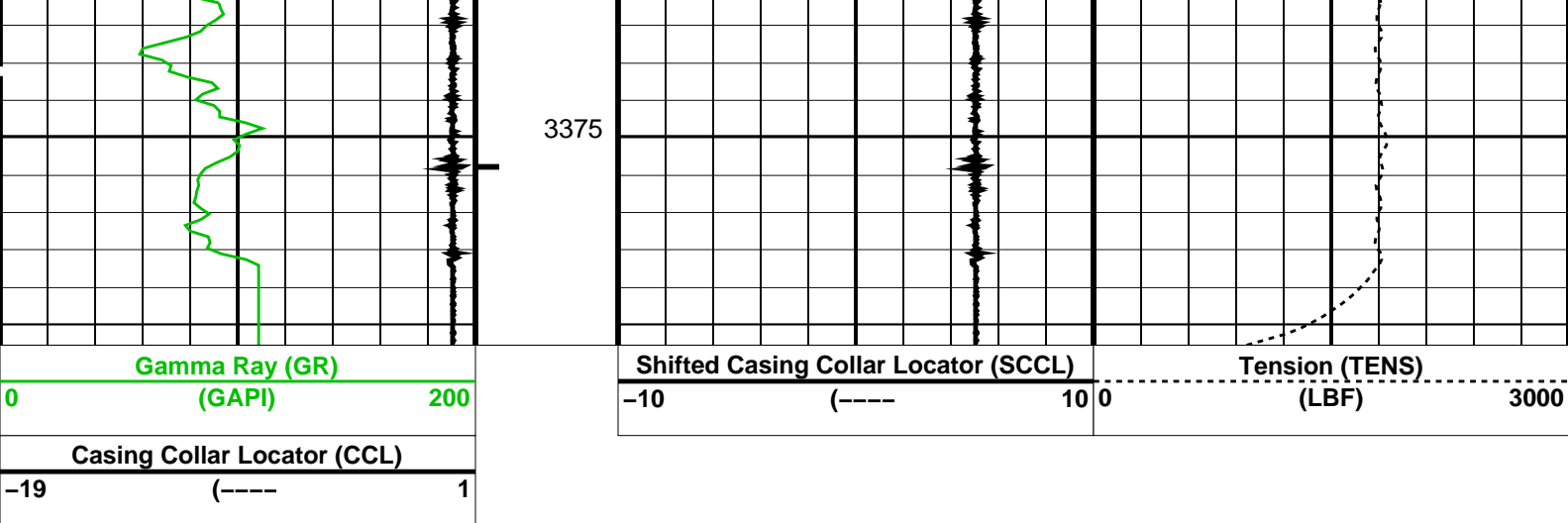
0 (LBF) 3000

CCL Stop Depth = 3352.5m

Top Shot = 3359 m

Bottom Shot = 3361 m





PIP SUMMARY

Time Mark Every 60 S


Casing Collars

Parameters		
DLIS Name	Description	Value
MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL		
CCLD	CCL reset delay	12 IN
CCLT	CCL detection level	0.3 V
DEVI_FL_CORR	Deviation Angle for Flow Line Correction	0 DEG
FLD	Flow Line Density	1 G/C3
MWPT_NULL_SOURCE	MWPT NULL Temperature Source	TEMS
MWPT_NULL_TEMP	MWPT NULL Temperature	0.0 DEGC

Format: PERFO Vertical Scale: 1:200 Graphics File Created: 12-Feb-2006 05:24

OP System Version: 13C0-300			
MCM			
MWP_GUN	PTC-2789-NUCL	MWPT-CA	PTC-2789-NUCL
MWGT-AA	PTC-2789-NUCL		

Output DLIS Files			
DEFAULT	PERFO_008LUP	FN:7	PRODUCER 12-Feb-2006 05:24



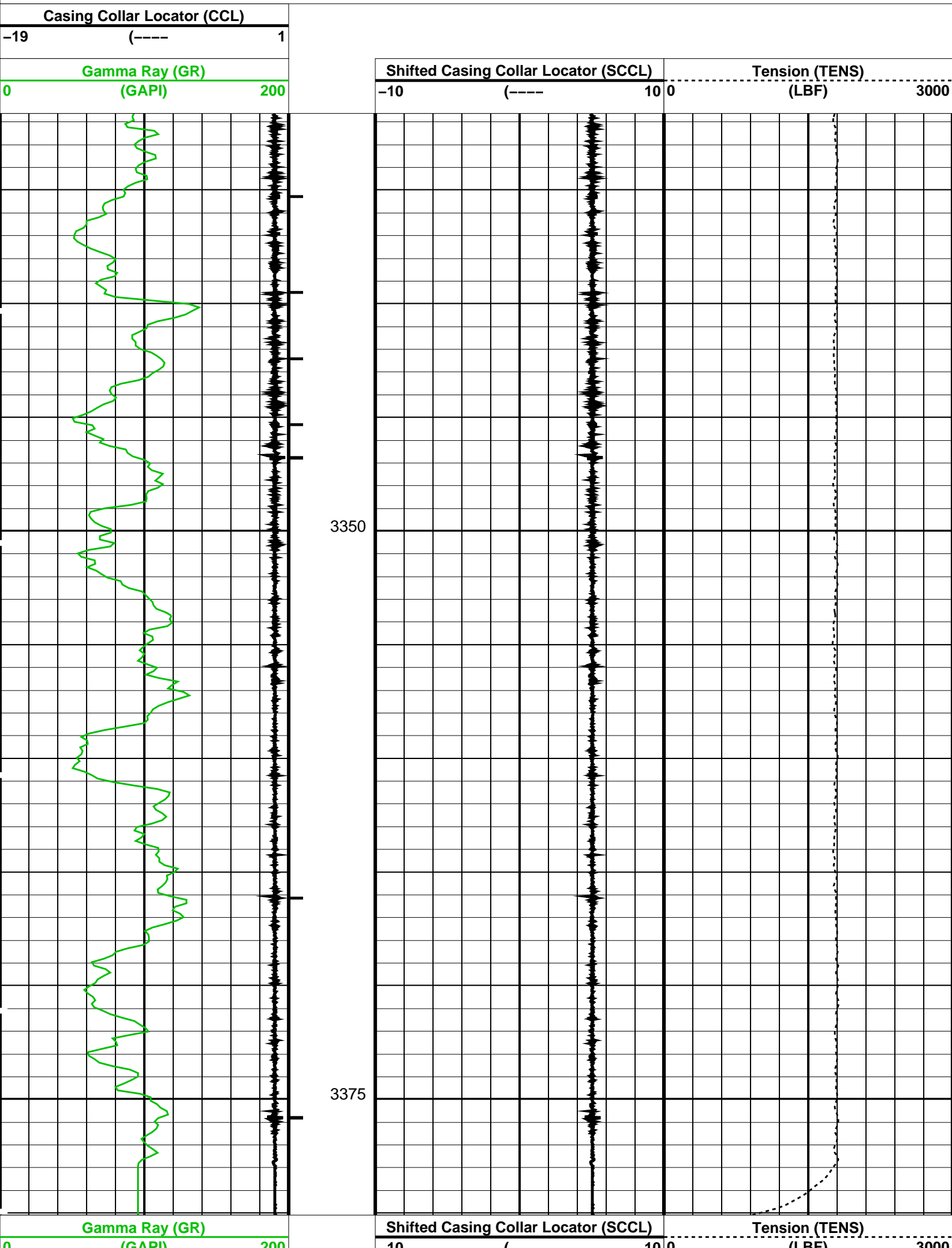
Correlation Log

MAXIS Field Log

Output DLIS Files			
DEFAULT	PERFO_007LUP	FN:6	PRODUCER 12-Feb-2006 05:14 3380.1 M 3331.6 M
OP System Version: 13C0-300			
MCM			
MWP_GUN	PTC-2789-NUCL	MWPT-CA	PTC-2789-NUCL
MWGT-AA	PTC-2789-NUCL		

PIP SUMMARY

Casing Collars



Casing Collar Locator (CCL)		PIP SUMMARY	
-19	(----	1	
<div> <div>Time Mark Every 60 S</div> <div> <div></div> <div>Casing Collars</div> </div> </div>			
Parameters			
DLIS Name	Description	Value	
MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL			
CCLD	CCL reset delay	12	IN
CCLT	CCL detection level	0.3	V
DEVI_FL_CORR	Deviation Angle for Flow Line Correction	0	DEG
FLD	Flow Line Density	1	G/C3
MWPT_NULL_SOURCE	MWPT NULL Temperature Source	TEMS	
MWPT_NULL_TEMP	MWPT NULL Temperature	0.0	DEGC
Format: PERFO		Vertical Scale: 1:200	Graphics File Created: 12-Feb-2006 05:14
OP System Version: 13C0-300			
MCM			
MWP_GUN	PTC-2789-NUCL	MWPT-CA	PTC-2789-NUCL
MWGT-AA	PTC-2789-NUCL		
Output DLIS Files			
DEFAULT	PERFO_007LUP	FN:6	PRODUCER 12-Feb-2006 05:14
Company: Esso Australia Pty.		Schlumberger	
Well:	A17A		
Field:	Tuna		
Rig:	Prod 2 / Crane		
Country:	Australia		
2" HSD Perforation 3359 – 3361 mMDKB 6 spf, 60 deg			