

NORTH PAARATTE 4

PRODUCTION TEST REPORT

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September 1999*

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ATTACHMENTS

Attachment A	Surface and Downhole Data
Attachment B	Fluid Data

INTRODUCTION

North Paaratte 4 was spudded on 3 April 1999. North Paaratte Gas Field is located within the production licence PPL 1 in Otway Basin in Western Victoria (Figure 1). North Paaratte 4 intersected 15 metre of gas bearing sand within the Waarre "C" unit of Late Cretaceous (Figure 2). A composite log display of the well is shown in Figure 3. Figure 4 shows the field depth structure map.

The well reached a total depth of 1651.0 mkb (MD) and was cased with a 7", 26.0 ppf string. North Paaratte 4 was completed with a packerless string as a gas producer in April 1999. The completion string is a 4 ½", EUE, 12.7 ppf, J55 tubing (Figure 5).

The interval between 1509.0 to 1515.0 mkb (6 meters) was perforated under balanced with a 4 ½" TCP gun (12 spf, 45 degree phasing and 21.3 grams charges).

During a post completion clean up flow the well flowed for 3.25 hours at a rate of 15.0 mmscf/day at a flowing wellhead pressure of 1545.0 psig on 40/64" choke.

SUMMARY

Interpretation of the test indicates the following parameters for North Paaratte 4:

Flow capacity	= 346560.0 md.ft
Ave. Permeability	= 7220.0 md
Mechanical skin	= 47.0
Rate dependent skin coefficient	= 0.00283 / MSCFD
Distance to first barrier	= 300.0 ft
Distance to second barrier	= 1000.0 ft
Reservoir pressure - (gauge depth)	= 1915.9 psia
- (top perforation)	= 1945.4 psia
- (@ 1365.0 m ss)	= 1950.1 psia
AOF	= 350.0 MMSCFD

DISCUSSION

A production test comprised of main flow, main build-up and a four points back pressure test (multi-rates test) was conducted at North Paaratte 4. Figure 6 shows a graphical illustration of the test plan.

The objectives of the North Paaratte 4 Production test were as follows:

- To determine reservoir parameters (permeability, skin, etc).
- To determine reservoir pressure.
- To determine well productivity and deliverability constants.
- To collect fluid samples for analysis.
- To detect reservoir heterogeneities and boundaries.

A PRODUCTION TEST DETAILS

Testing equipment, wireline unit and testing personnel were mobilised to North Paaratte 4 site on 15 April 1999 to carry out the planned test program. The well had been cleaned up on 13 April 1999 during a 3.25 hour post-completion clean-up flow.

Two quartz gauges (EMP-Q2123 top gauge and EMPQ-2209 bottom gauge) were hung at XN nipple located at 1488.2 mkb (1308.5 TVD-MSS) and used to measure the bottom hole pressure.

A.1 Main Flow and Build-up Tests

The well was opened on a $40/60$ "choke on 17 April 1999 and the flow was directed to a heater and test separator to flare pit. During the main flow period which took approximately 6.1 hours, the well flowed gas at a rate of 16.2 mmscf/day. The average condensate and water production ratios during the main flow were 1.7 stb/mmscf and 1.0 bbls/mmscf respectively. The final flowing wellhead pressure and temperature were 1637.0 psig and 100.4 °F respectively. The final recorded flowing bottom hole pressure was 1895.3 psia.

The well was shut-in for 14.7 hours (overnight) for the main build-up test. During the shut-in period the bottom hole pressure rose to 1915.9 psia.

An Expertest report containing surface and down hole data is in Attachment A. Figure 7 shows the well performance during the production test while Figure 8 shows the bottom hole pressure chart recorded by the down hole quartz gauges. A summary of the production test result is presented in table 1.

A.2 Back Pressure Test

A back pressure test comprised of 4 two hour flow periods followed by an eight hour shut-in duration was conducted at North Paaratte 4 on 18 April 1999.

Table 1 shows a summary of the test results. Figure 7 shows the well production performance (gas flow rate, condensate ratio, water ratio and wellhead pressure) during the test. Figure 8 shows an overview of the test and pressure chart.

A copy of the Expertest report (surface and down hole data) is in Attachment A.

A.2.1 First Flow

The well was opened on a $2\frac{4}{64}$ " and flowed through a heater and test separator to flare pit. During the first flow period which took 2 hours the average gas production rate was approximately 7.6 mmscf/day. The average condensate and water production ratios were 1.0 stb/mmscf and 1.0 bbls/mmscf respectively.

The wellhead flowing pressure and temperature recorded towards the end of the 1st flow period were 1698.0 psig and 89.6°F respectively. The final flowing bottom hole pressure was 1908.9 psia equivalent to a drawdown of 7.0 psi.

A.2.2 Second Flow

The well was switched to a $3\frac{2}{64}$ " inch choke with the flow passing through a heater and test separator. The second flow period took 2 hours during which the well flowed gas at a rate of 11.7 mmscf/day with a condensate ratio of 1.1 stb/mmscf and water ratio of 1.0 bbls/mmscf. The final flowing wellhead pressure and temperature were 1677.0 psig and 98.6°F respectively. The final flowing bottom hole pressure was 1903.3 psia equivalent to a drawdown of 12.6 psi.

A.2.3 Third Flow

The well was switched to a $4\frac{0}{64}$ " inch choke for the third flow period with the well flowing through a heater and test separator to flare pit. The third flow period took 1.8 hour during which the well flowed gas at a rate of 16.5 mmscf/day. The average condensate and water production ratios were 0.9 stb/ mmscf and .46 bbls/mmscf respectively. The flowing wellhead pressure and temperature reported towards the end of the third flow period were 1640.0 psig and 102.2 °F respectively. The final flowing bottom hole pressure was 1896.0 psia equivalent to a drawdown of 19.9 psi.

A.2.4 Fourth Flow

After completion of the third flow period the well was switched to a $16\frac{6}{64}$ " inch choke for a 2 hour flow duration (the planned $48\frac{6}{64}$ " choke size was not attempted due to unfavorable wind conditions). During the fourth flow period the well flowed gas at a rate of 3.7 mmscf/day. The final flowing wellhead pressure and temperature were 1706.0 psig and 89.6 °F respectively. The final flowing bottom hole pressure was 1913.0 psia indicating a draw down of only 2.9 psi.

After the completion of the fourth flow period the well was shut-in for a build-up test. The total shut-in duration was 15.2 hours during which the wellhead shut-in pressure increased to 1709. The final recorded bottom hole pressure was 1915.4 psia.

B Reservoir Fluid Properties

Two pairs of pressurised gas and condensate samples were taken from the separator lines during the main and third flow periods. These samples have been analysed by Amdel and the details are documented in Attachment B. A summary of the gas compositions is presented in the following table.

Gas Composition of North Paaratte 4		
Components	First Flow (mole %)	Third Flow (mole%)
C ₁	95.84	95.84
C ₂	1.39	1.39
C ₃	0.04	0.04
IC ₄	0.05	0.05
NC ₄	0.00	0.00
IC ₅	0.01	0.01
NC ₅	0.00	0.00
C ₆	0.11	0.12
C ₇	0.17	0.17
C ₈₊	0.29	0.31
N ₂	1.75	1.73
CO ₂	0.34	0.34
TOTAL	100.00	100.00

Two water samples (filtrate)taken during the flow periods have been analysed by Amdel and the details are also included in Attachment B.

C Test Interpretation

Two quartz gauges (EMP-Q 2209 bottom gauge and EMP-Q 2123 top gauge) were used to monitor the bottom hole pressure and temperature (Figure 9). While both the gauges functioned throughout the test, the top gauge data (EMP-Q 2123) has been used for interpretation.

C.1 Reservoir Parameters

Figures 10 to 19 show the diagnostic plots and interpretation of the transient tests.

The Pan System Simulation method was used to interpret the test data by undertaking a pressure matching approach. Figure 10 illustrates the quality of the pressure match using the following parameters.

Flow capacity	= 346560.0 md.ft
Ave. Permeability (assuming h=48.0 ft)	= 7220.0 md
Mechanical Skin factor	= 47.0 md
Rate dependent skin coefficient	= 0.00283/mscfd
Distance to nearest fault (barrier)	= 300.0 ft
Reservoir pressure @ gauge depth	= 1915.9 psia
@ top perforation	= 1945.4 psia
@ 1365.0 m ss	= 1950.1 psia

As shown in Figure 10 the observed and calculated pressure match very well with the exception of the main flow period. It should be noted that the low quality pressure match of the main flow period is due to "well clean-up effect" which has not been incorporated into the model.

Figure 11 to 16 show the diagnostic plots of the first and second build-up tests. The generated plots based on the above mentioned parameters have also shown for comparison. A summary of test results is presented in table 2.

- Figure 11 illustrates a Log-log Derivative Plot of the first build up test.
- Figure 12 demonstrates a Radial flow plot of the first build up test.
- Figure 13 shows a Cartesian plot of the first build up test.
- Figure 14 illustrates a Log-log Derivative plot of the second build-up test.
- Figure 15 demonstrates a Radial flow plot of the second build up test.
- Figure 16 shows a Cartesian plot of the second build up test.
- Figure 17 and Figure 18 show the log-log derivative and radial plots of the Multi Drawdown tests.
- Figure 19 shows a simulation approach based on two barrier (parallel faults) model with the second fault at 1000.0 ft.

C.2 Well Deliverability

The back pressure test (Multi-rate test) data was used to generate a sand-face C and N plot as shown on Figure 20. The generated plot was used and a line of best fit was drawn through the points. Based on this line, the deliverability constants C and N were estimated to be 0.0025 MMSCF/D/PSIA² and 0.785 respectively. An AOF of 350.0 MMSCF/D was also estimated using the calculated deliverability parameters.

NORTH PAARATTE #4
PRODUCTION TEST SUMMARY
1509.0 - 1515.0 M KB

<u>PERIODS</u>	<u>DURATION</u> HRS	<u>CHOKE</u> SIZE INCHES	<u>AVERAGE. F</u> GAS MMSCF/D	<u>COND.</u> RATIO STB/MMSCF	<u>WAT/GAS</u> RATIO BBL/MMSCF	<u>FINAL</u> WHP PSIG	<u>FINAL</u> WHT OF	<u>FINAL</u> BHP PSIA
<u>PRE-TEST</u>	-	-	-	-	-	1709.0	-	1915.9
<u>MAIN FLOW</u>	6.1	40/64	16.2	1.7	1.0	1637.0	100.4	1895.3
<u>MAIN BUILD-UP</u>	14.7	-	-	-	-	1709.0	-	1915.9
<u>1ST FLOW</u>	2.0	24/64	7.6	1.0	1.0	1698.0	89.6	1908.9
<u>2ND FLOW</u>	2.0	32/64	11.7	1.1	1.0	1677.0	98.6	1903.3
<u>3RD FLOW</u>	1.8	40/64	16.5	0.9	0.5	1640.0	102.2	1896.0
<u>4TH FLOW</u>	2.0	16/64	3.7	-	-	1706.0	89.6	1913.0
<u>FINAL BUILD-UP</u>	15.2	-	-	-	-	1709.0	-	1915.6

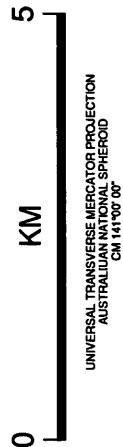
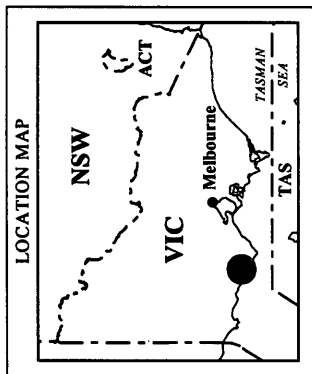
TABLE 1

NORTH PAARATTE #4
SUMMARY OF INTERPRETATIONS
1509.0 - 1515.0 M KB
SIMULATION METHOD

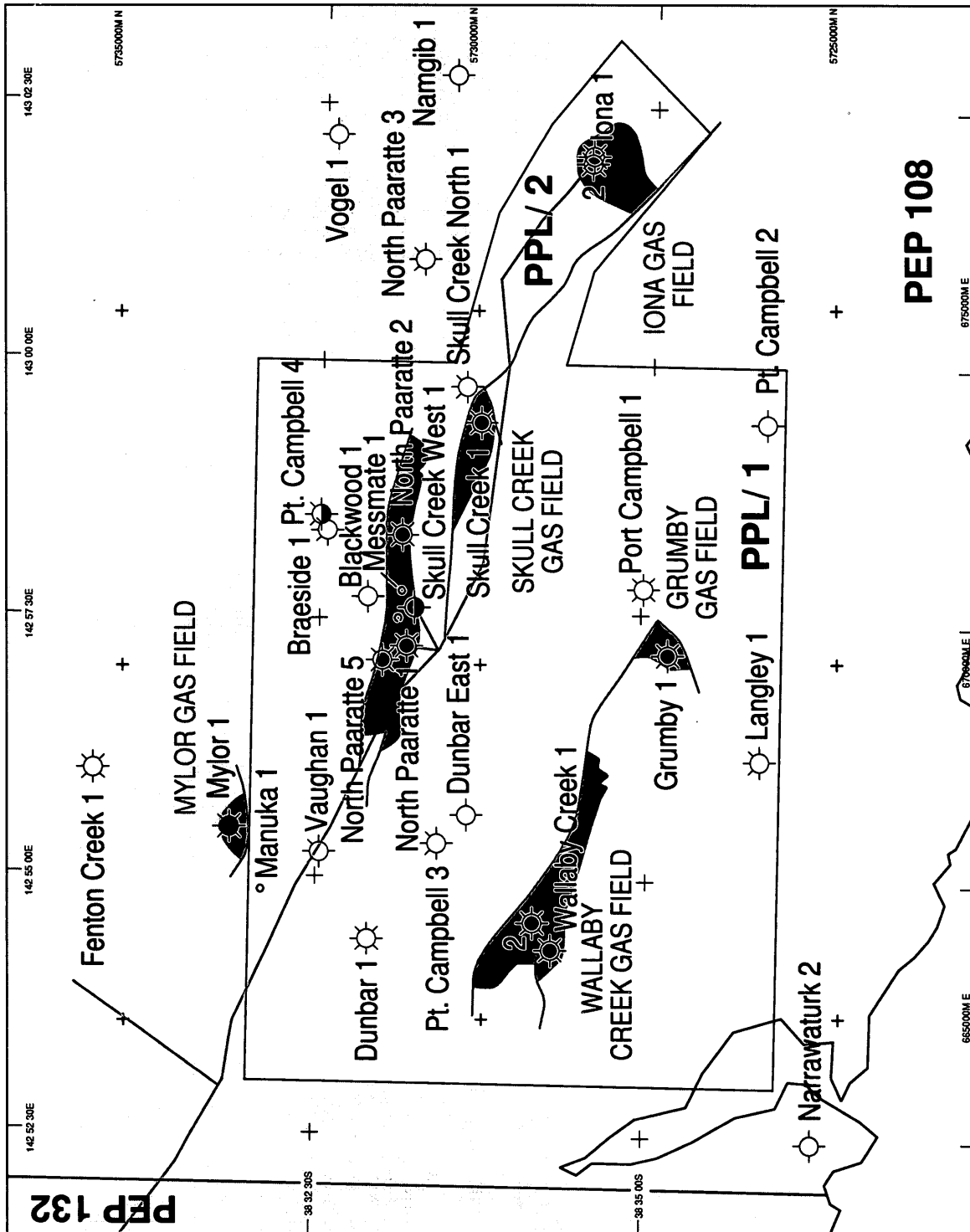
FLOW CAPACITY (md.ft)	<u>346560.0</u>
MECHANICAL SKIN	<u>47.0</u>
RATE DEPENDENT SKIN COEFFICIENT (1/MSCFPD)	<u>2.8E-03</u>
RESERVOIR PRESSURE @ GAUGE DEPTH (PSIA)	<u>1915.9</u>
DISTANCE TO BARRIER (FT)	<u>300.0</u>

Average permeability is estimated to be 7220.0 md assuming a net thickness of 47.0 ft.

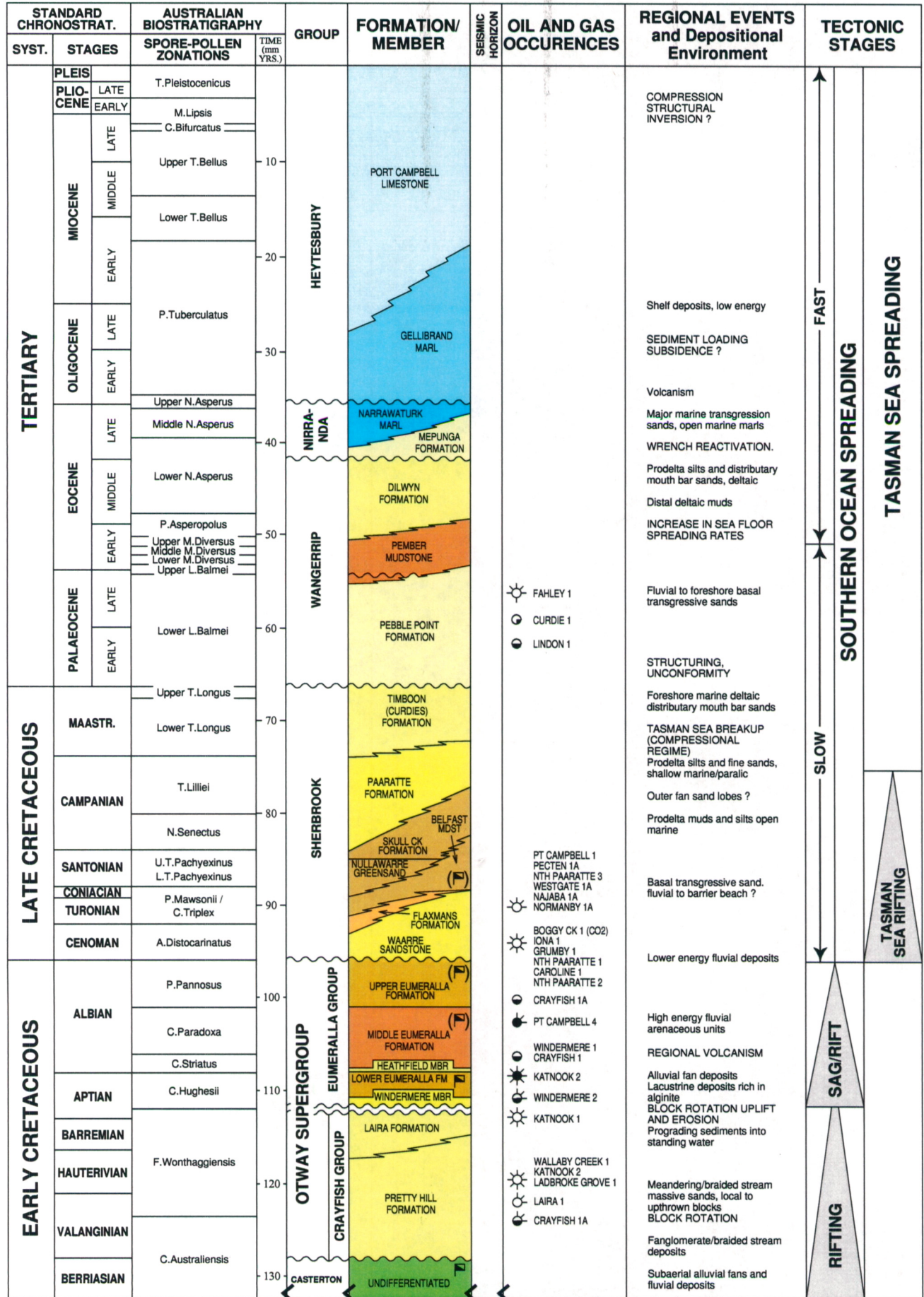
TABLE 2



OTWAY BASIN - VICTORIA PPL 1 - FIELDS



PEP 101/111/133, PPL 1 - OTWAY BASIN
STRATIGRAPHIC COLUMN



Gas Well	Strong Oil Show	Possible contrib. Source rock
Strong Oil Show	Weak Oil Show	Source Rock
Weak Gas Show		

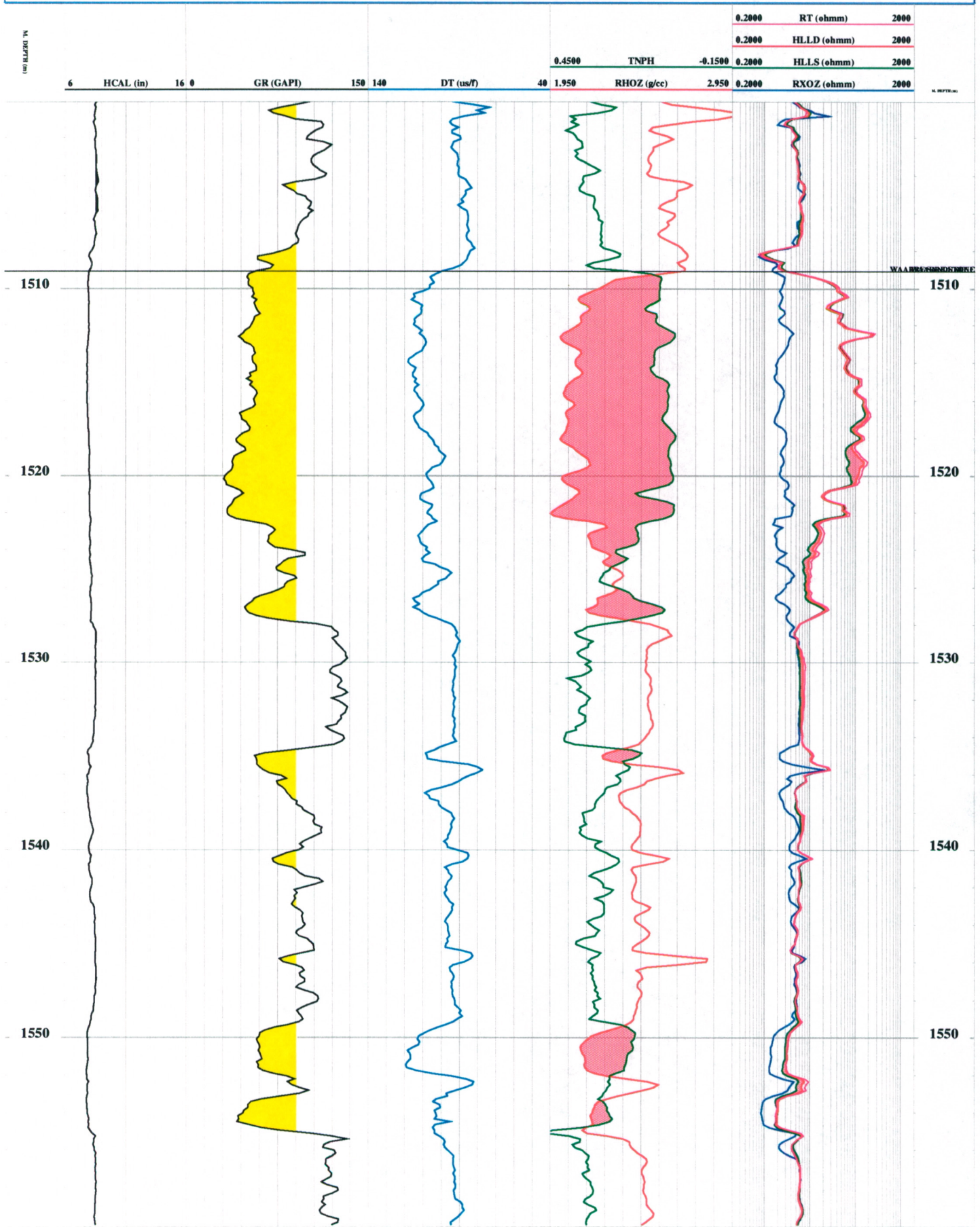
(Modified from LUXTON & EGAN, 1991)

15827.1298 Fig.2



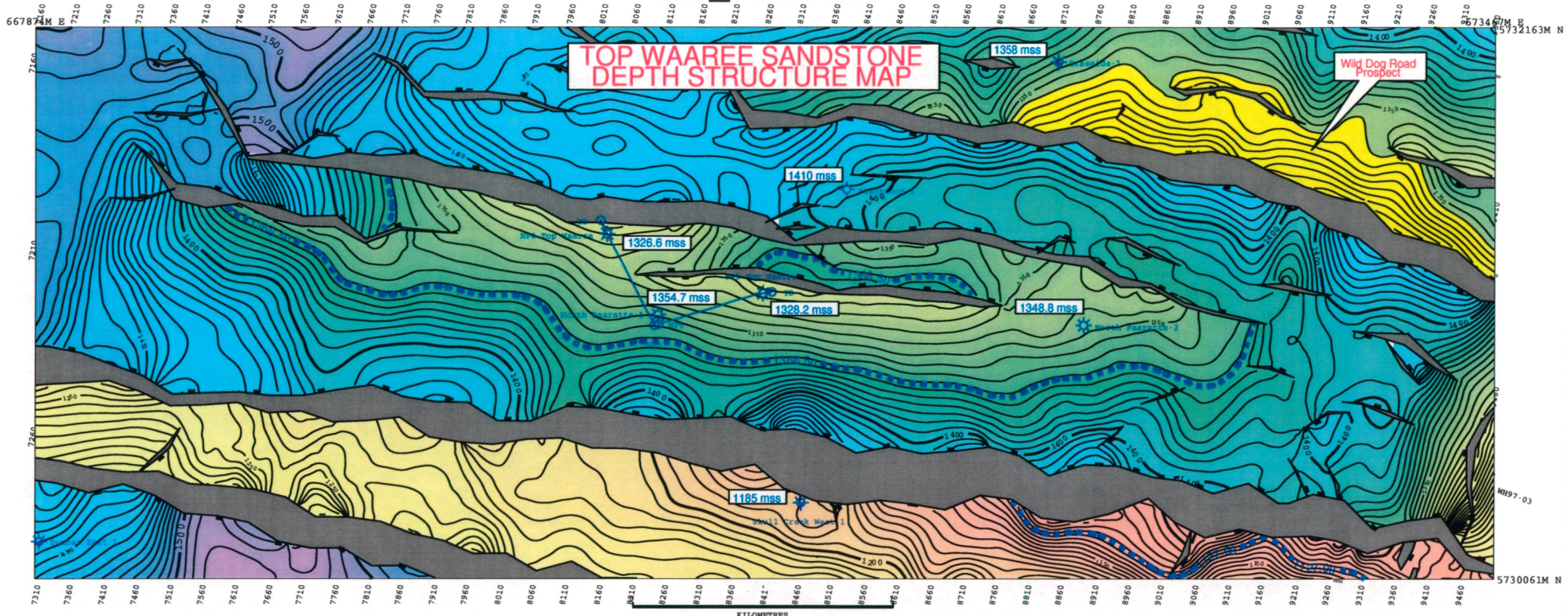
NORTH PAARATTE 4

Fig. 3



Nth_paaratte

TOP WAAREE SANDSTONE
DEPTH STRUCTURE MAP



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
AUSTRALIAN NATIONAL SPHEROID
CENTRAL MERIDIAN 141 00 00E

Figure 4

NORTH PAARATTE 4 PROPOSED TEST PLAN

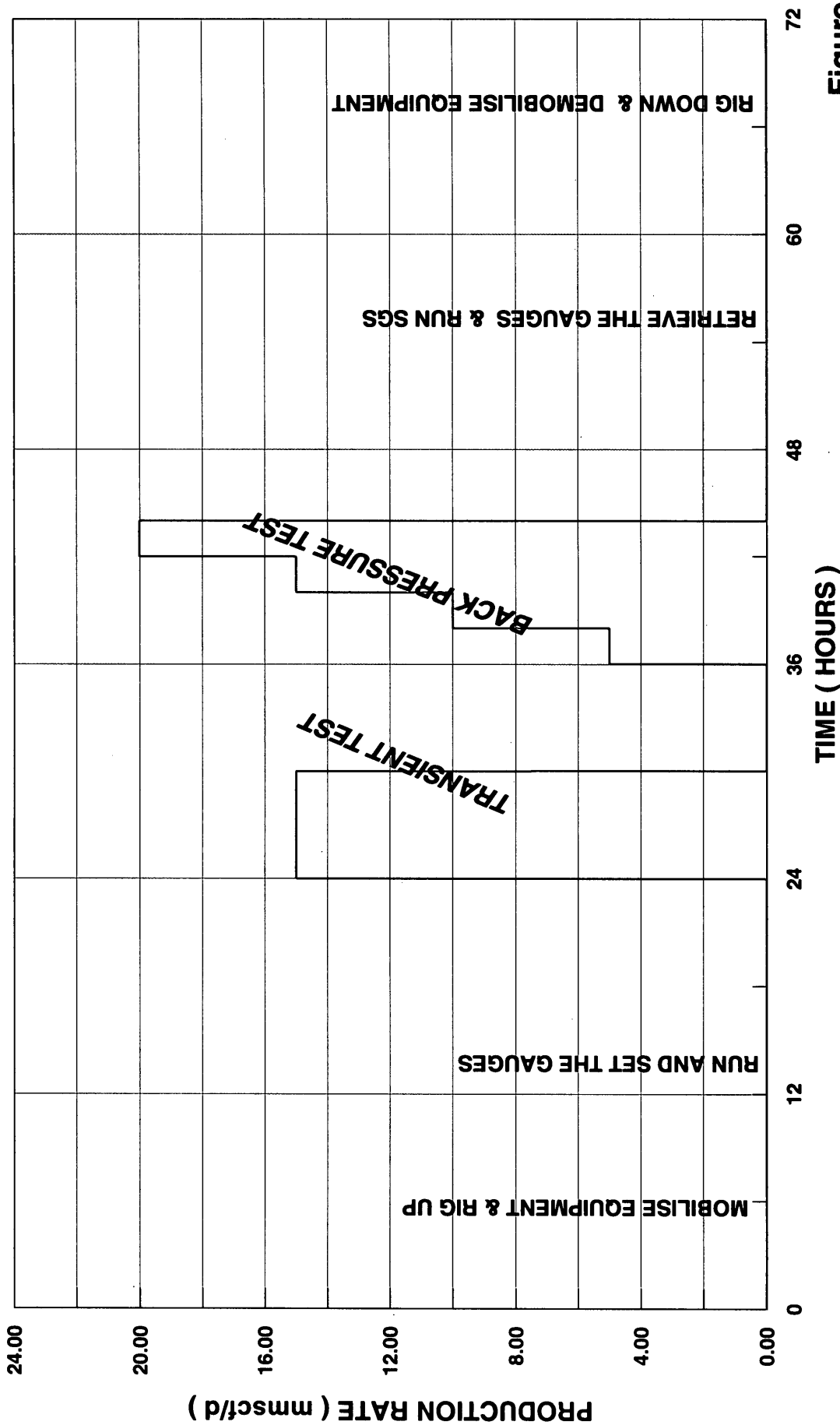


Figure 6

NP#4 PRODUCTION TEST SURFACE FLOW DATA

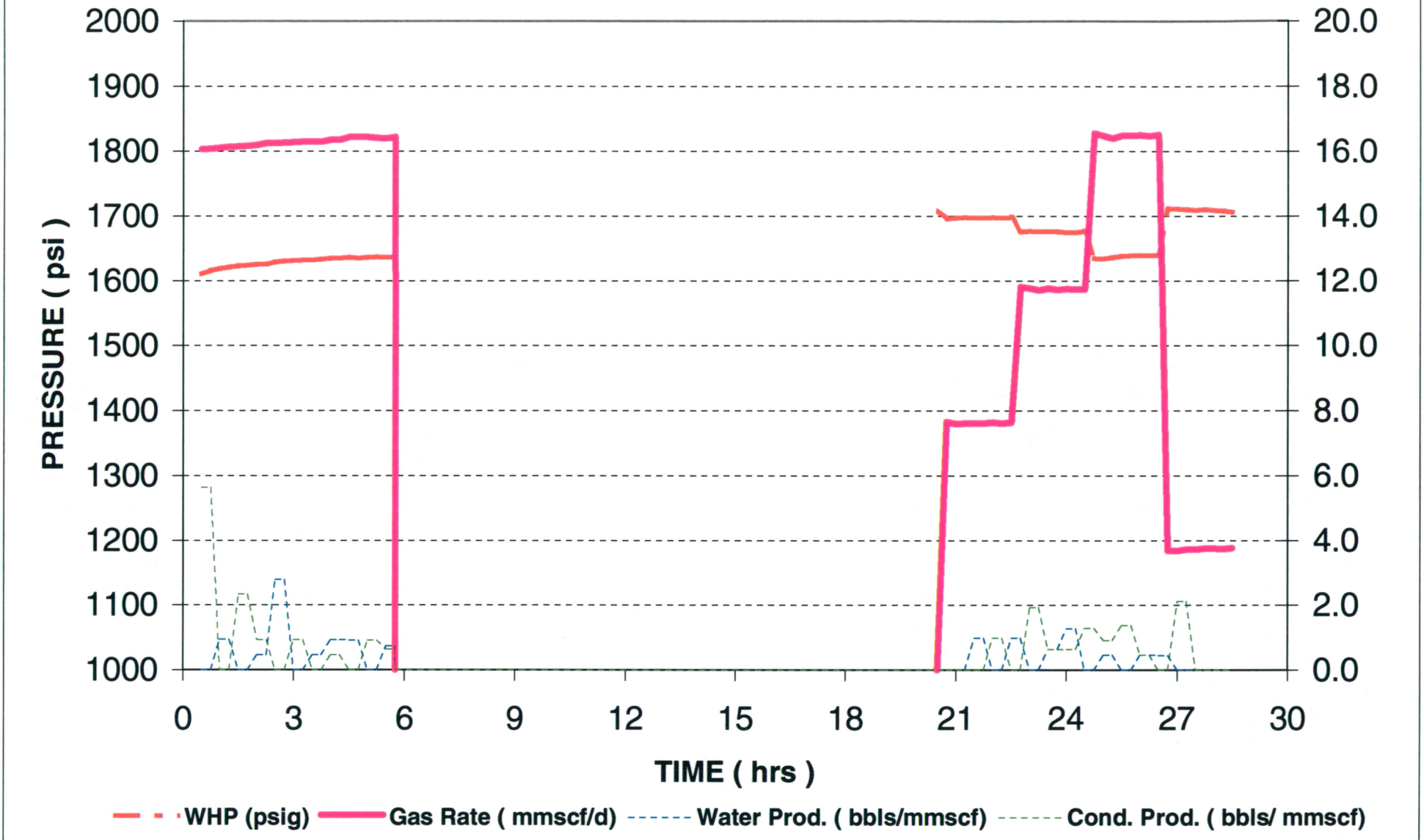


Figure 7

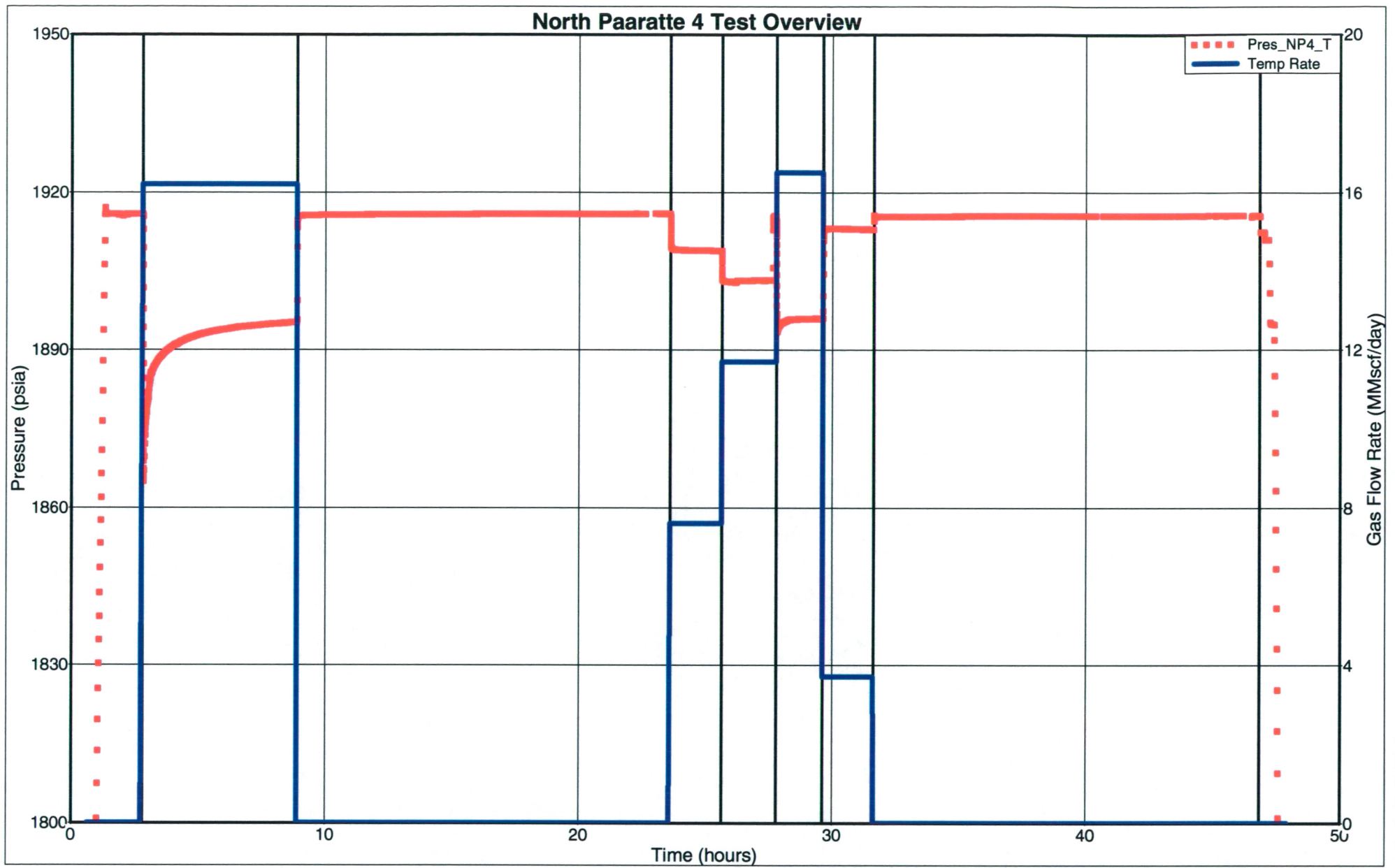


Figure 8

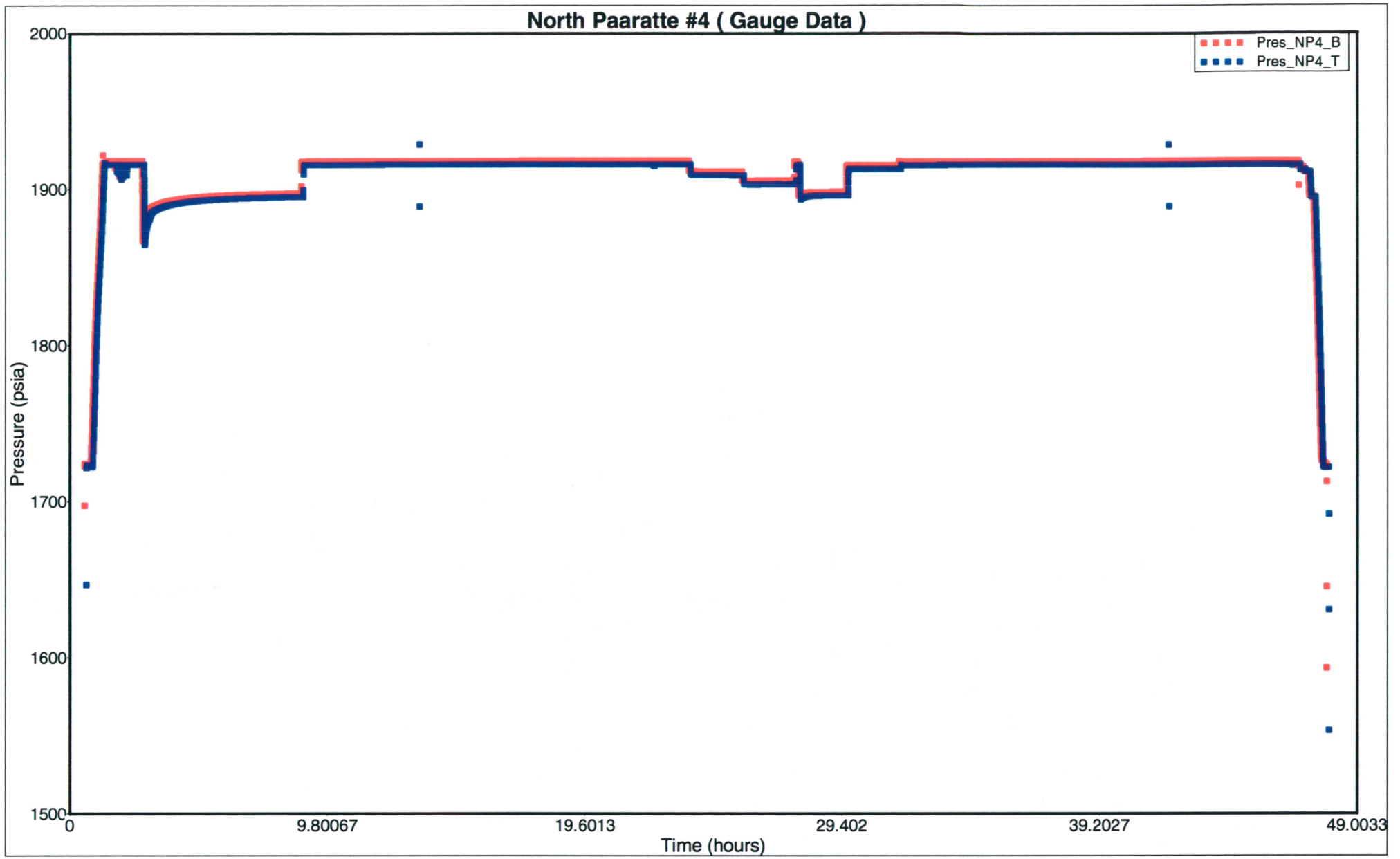


Figure 9

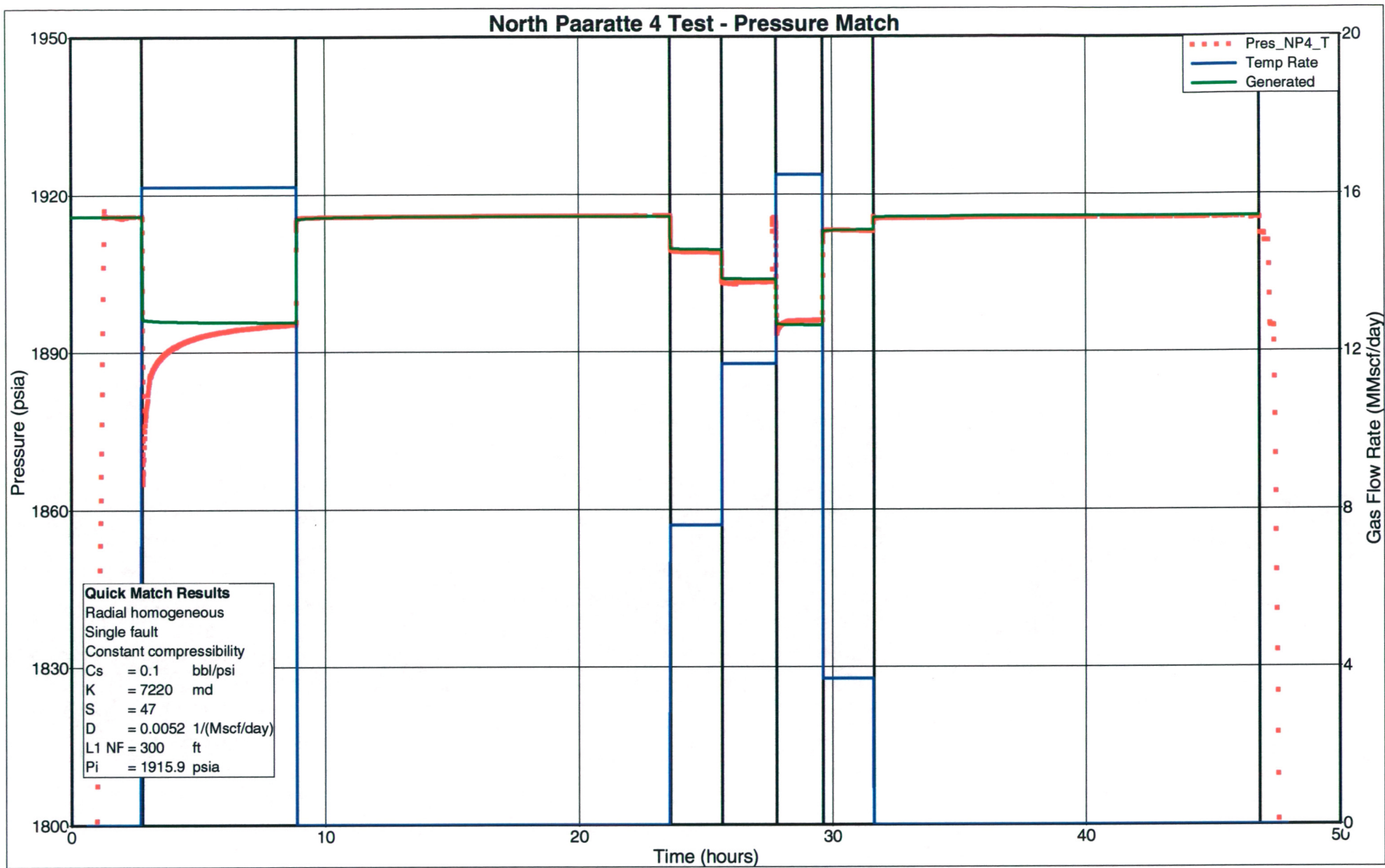


Figure 10

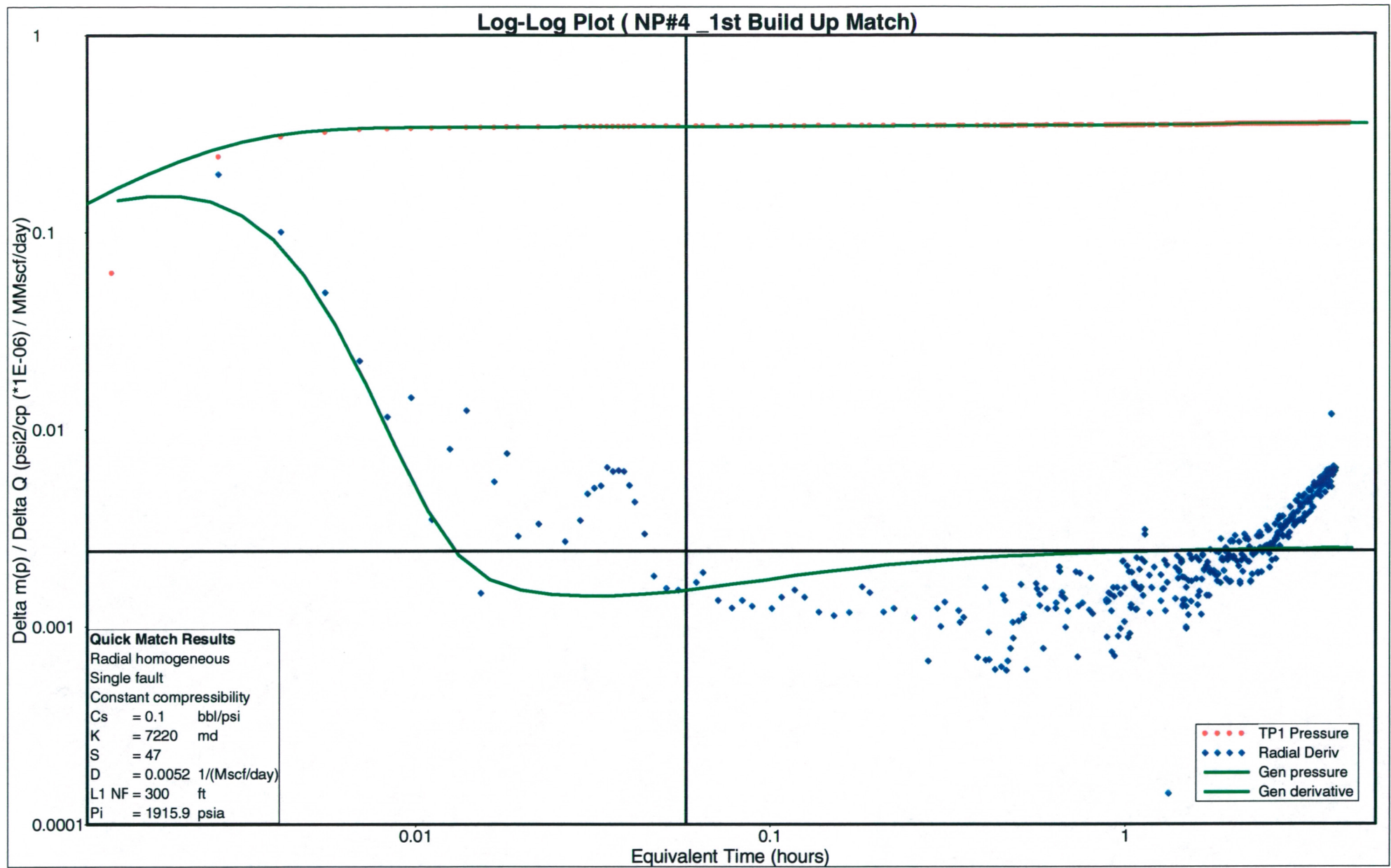


Figure 11

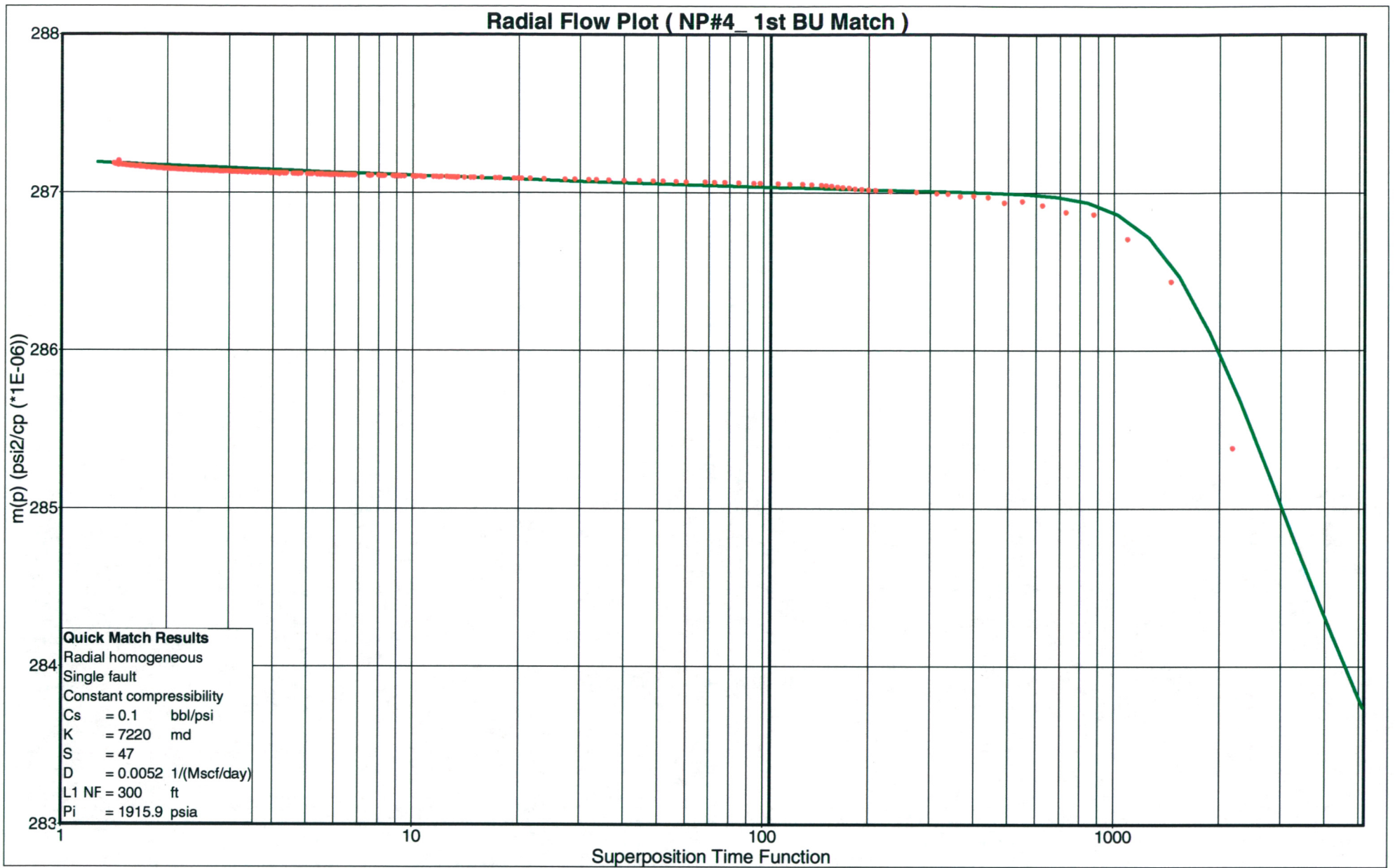


Figure 12

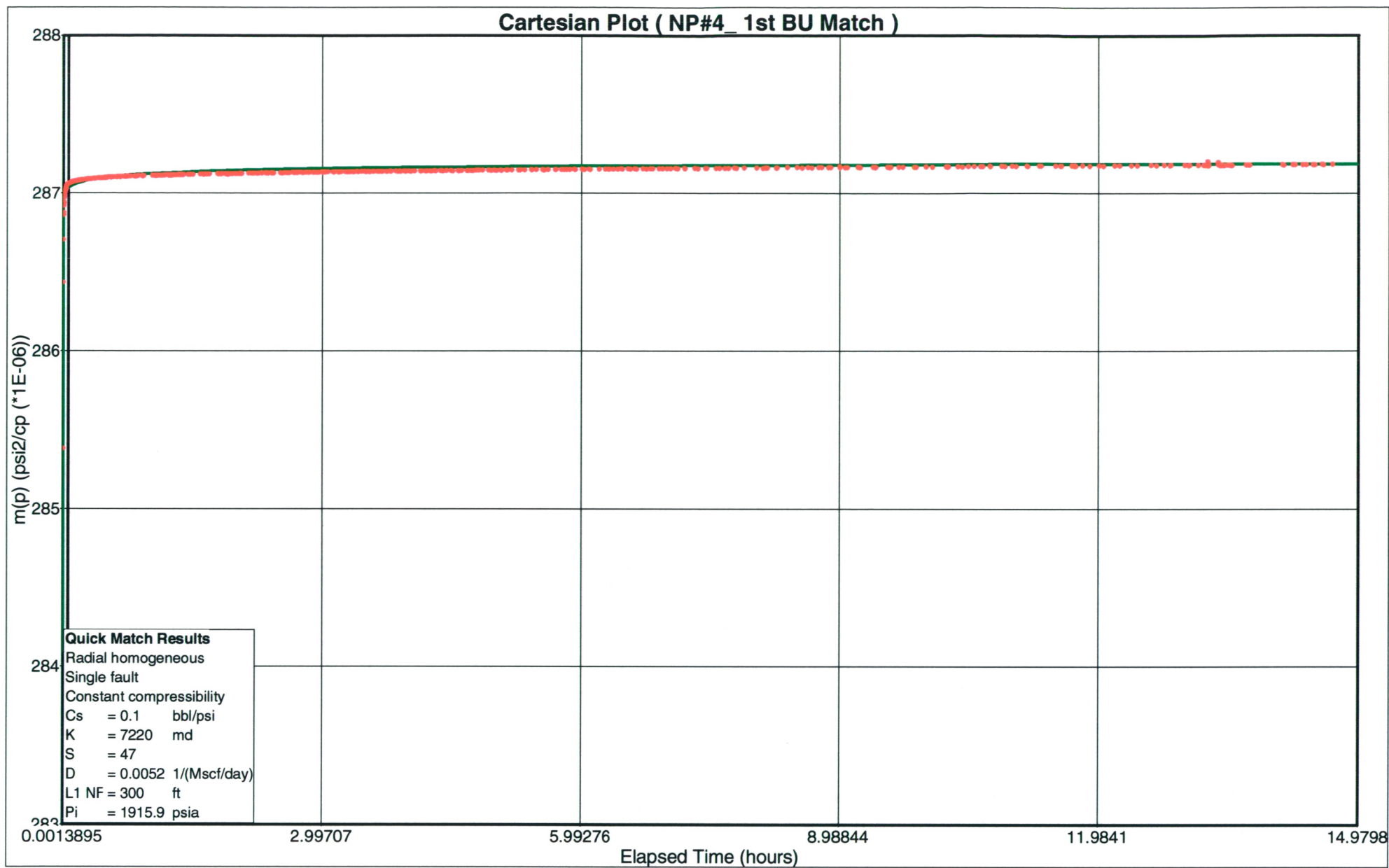


Figure 13

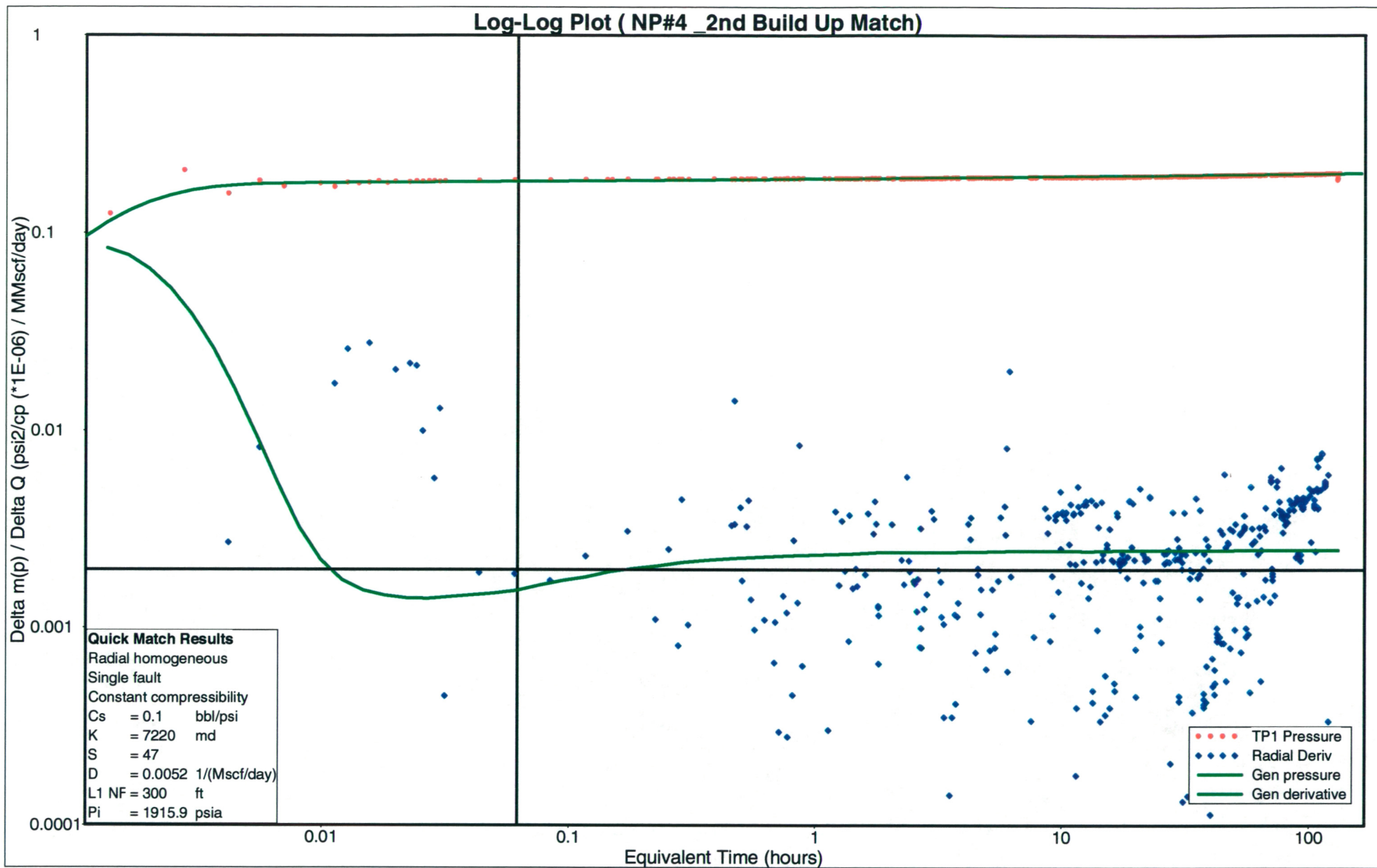


Figure 14

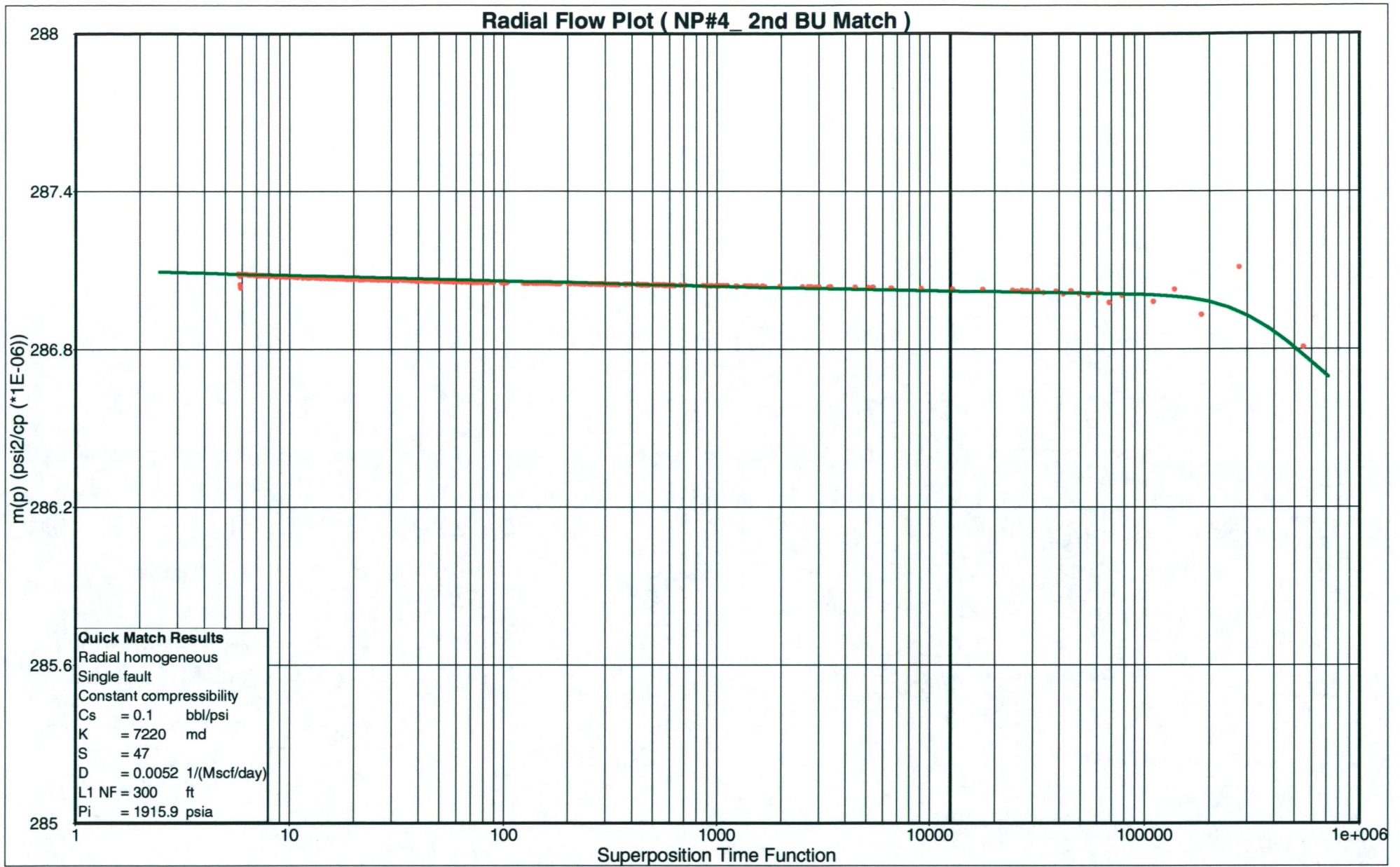


Figure 15

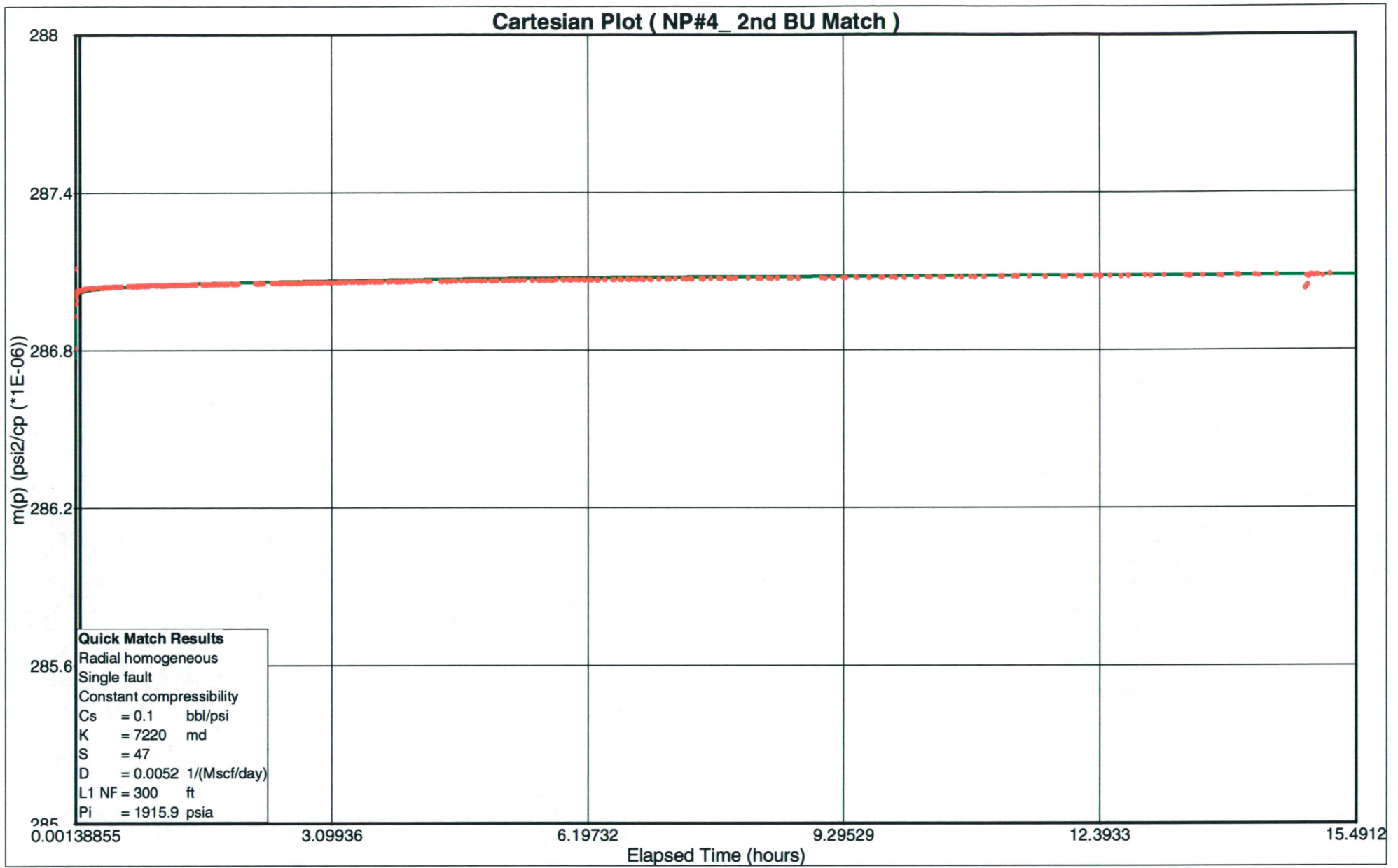


Figure 16

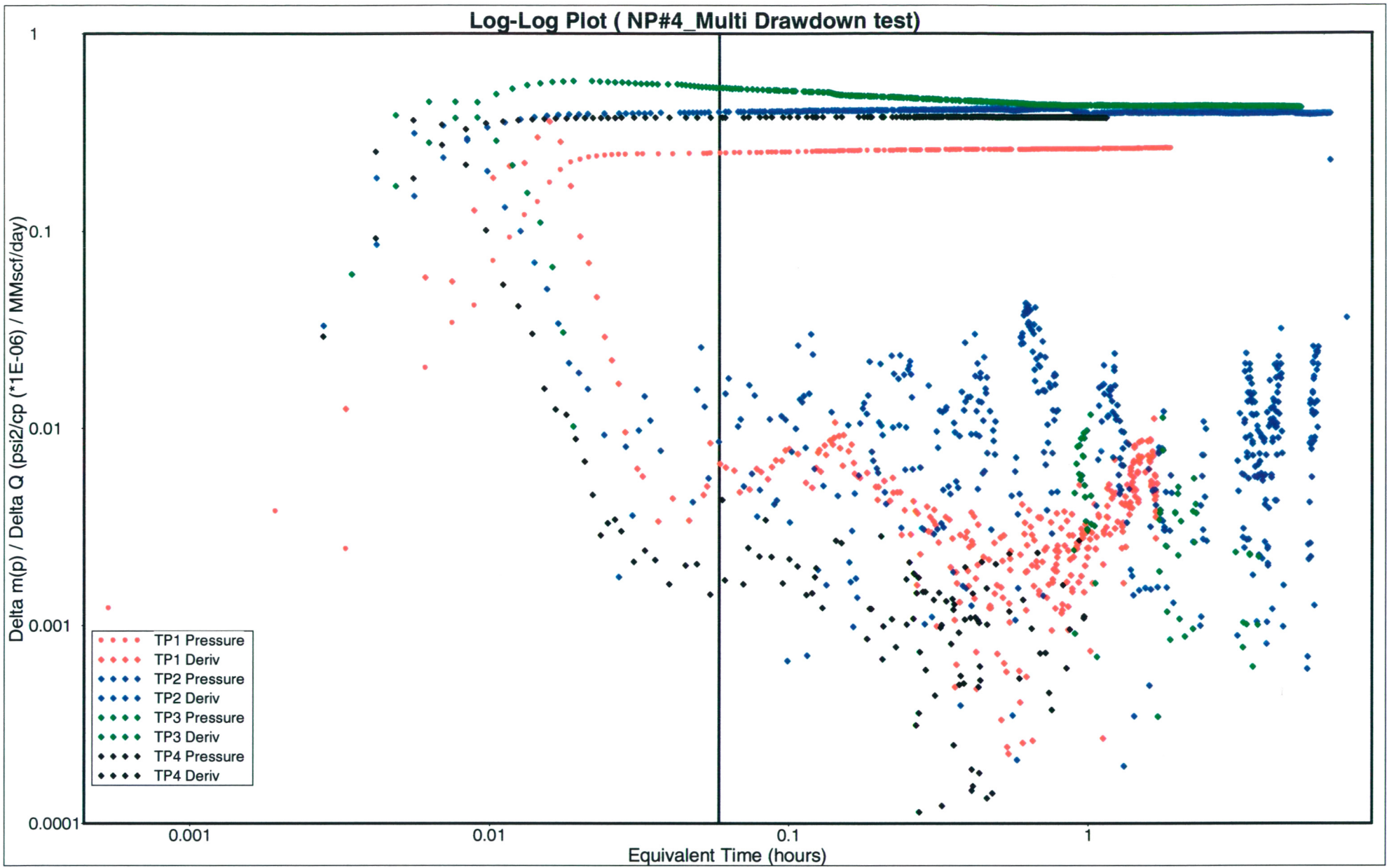


Figure 17

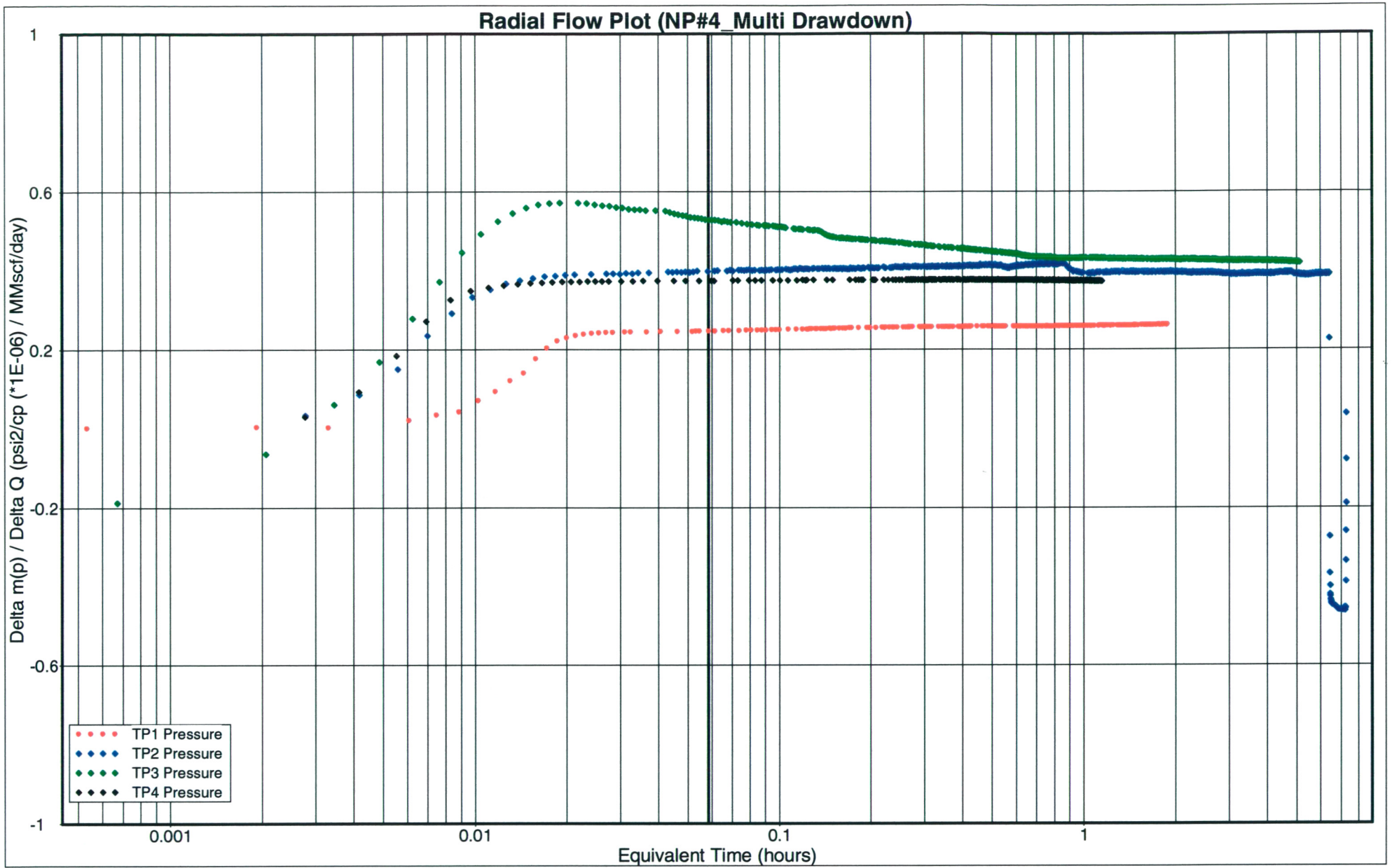


Figure 18

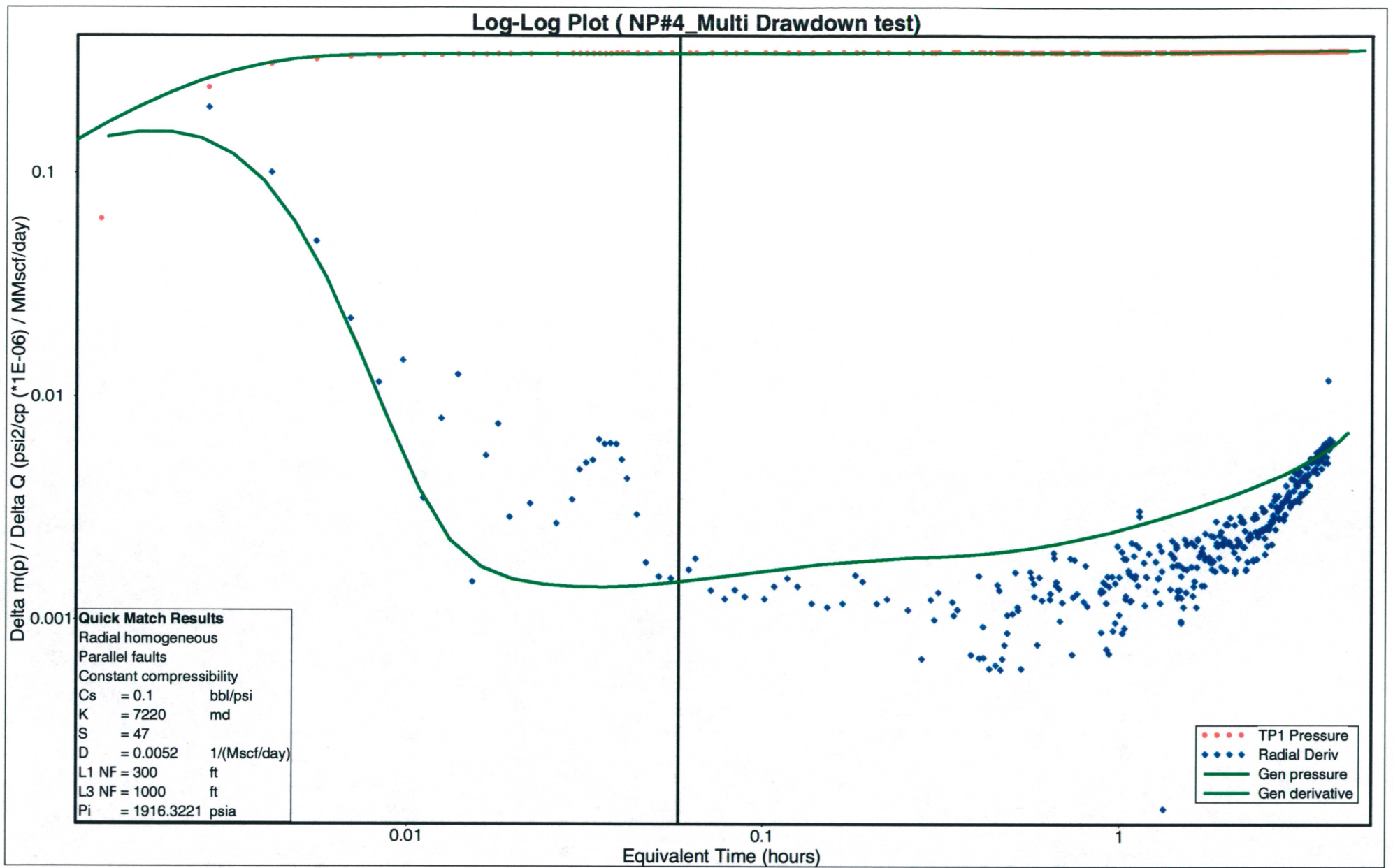


Figure 19

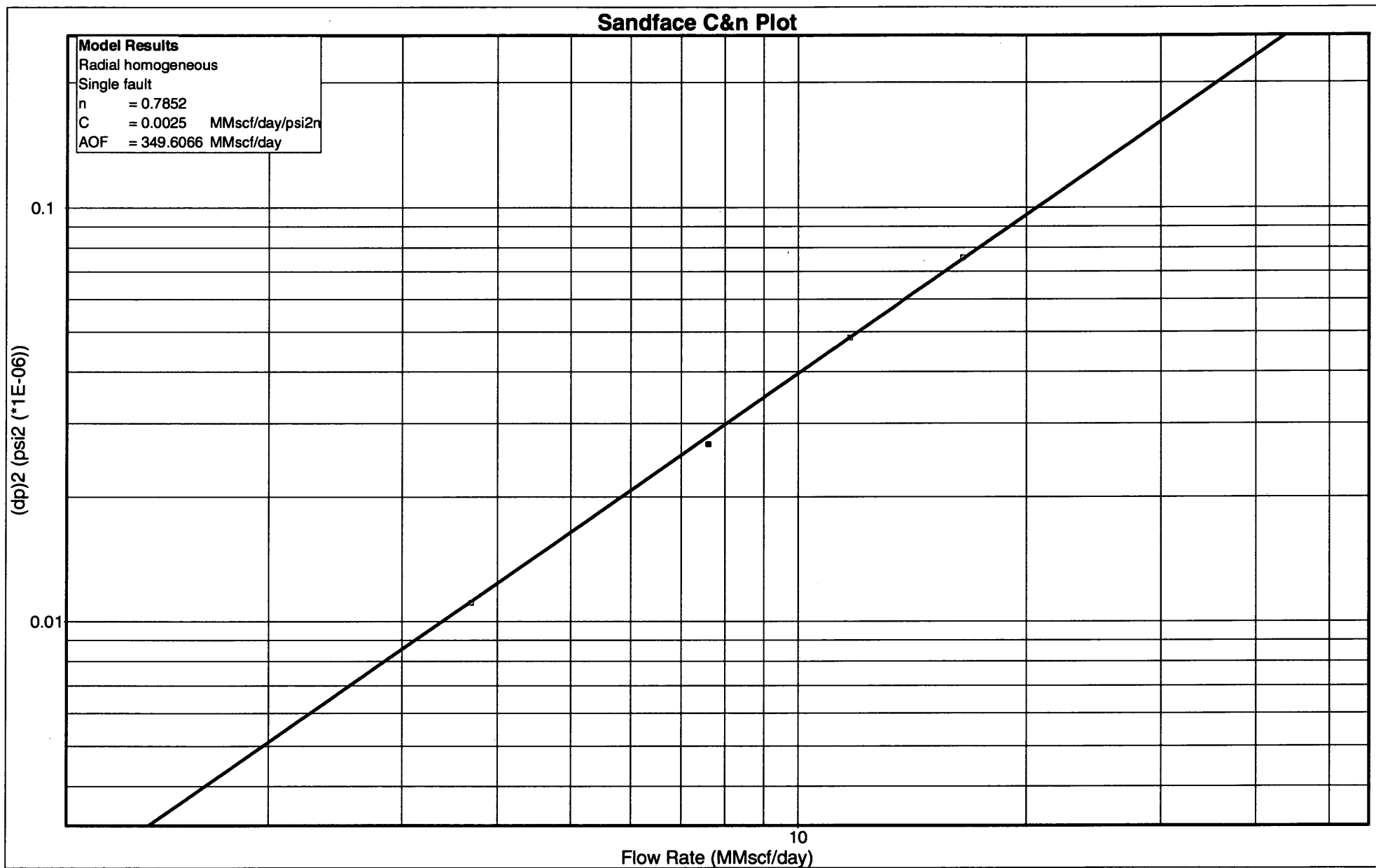
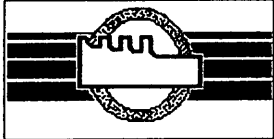


Figure 20

ATTACHMENT A
NORTH PAARATTE 4
SURFACE AND DOWNHOLE DATA

29 APR 1999

**EXPERTEST PTY. LTD.**

A.C.N. 008 034 062

**Production Testing
Report****Test Details**

Customer	Boral Energy
Well Name	North Paaratte #4
Formation	Waarre
Perforations	4950.78'-4970.47' KB
Type Of Test	Production Test
Operator	N Hay
Date Of Test	16/04 - 19/04/99
Reference Date	17/04/99
Reference Time	1130
Control No.	V191604A.99



EXPERTEST PTY. LTD.

Equipment Configuration

General

Customer: Boral Energy
 Well Name: North Paaratte #4
 Formation: Waarre
 Perforations: 4950.78'-4970.47' KB
 Type Of Test: Production Test
 Operator: N Hay
 Date Of Test: 16/04 - 19/04/99
 Control No. V191604A.99
 Ref. Date: 17/04/99
 Ref. Time: 1130

Metering

Orifice Meter Type: Daniel Senior
 Meter Run Size: 3.826 Inches

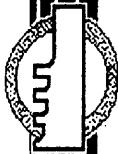
Separator

Separator No.: 75
 Static Pressure Range: 0-1500 PSIG
 Differential Pressure Range: 0-200 In. WC
 Standard Conditions: 14.73 @ 60 Deg F

Tanks

No.	Unit No.	Capacity	Cap. Units	Scale	Scale Units
1	40	8300	Litres	1	Litres/inch
2	40	8300	Litres	1	Litres/inch
3					
4					

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

Customer:	Boral Energy	Well Name	North Paaratte #4	Formation:	Waarre
Perforations:	4950.78'-4970.47' KB	Type Of Test:	Production Test	Operator:	N Hay
Date Of Test:	16/04 - 19/04/99			Control No.:	V191604A.99

Date	Time	Description Of Events
16/04/99	0700	Arrive on location hold toolbox safety meeting
16/04/99	0910	Rig up wireline unit on the well and standby for rig equipment to be moved out of the way
16/04/99	0830	The test equipment arrives on location and stands by on rig move
16/04/99	1245	Run in hole with 2" SB pulling tool to 4871' KB and latched and pulled PX prong.
16/04/99	1315	At surface with prong.
16/04/99	1330	Run in hole with 3" GS pulling tool to 4875' KB and latched and pulled PX plug.
16/04/99	1405	At surface with PX plug.
16/04/99	1415	Run in hole with 2.31" BO shifting tool to 4900' KB, unable to locate the profile in the Gun Release Sub.
16/04/99	1445	At surface with shifting tool.
16/04/99	1638	Run in hole with 2.25" LIB and tagged at 4900' KB.
16/04/99	1705	At surface with LIB. Test equipment is rigged in ready for the test
16/04/99	1735	Run in hole with 2.715" gauge ring and tagged at 4890'.
16/04/99	1805	Arrive back at surface and secure well overnight.
16/04/99	1825	Depart location.
17/04/99	0630	Arrive back on location and hold toolbox safety meeting
17/04/99	0628	Run in hole with bare tool string tagged at 4935' KB, pull out of hole.
17/04/99	0656	At surface w/tool string, prepare BHP gauges.
17/04/99	0812	Connect battery on EMP-Q #2123 Top Gauge
17/04/99	0816	Connect battery on EMP-Q #2209 Bottom Gauge
17/04/99	0851	Run in hole with gauges.
17/04/99	0933	Arrive on depth at 4890' KB, hang gauges in XN nipple, pull out of hole.
17/04/99	1000	At surface with running tool, rig down and assist testing crew set up.
17/04/99	1017	Pressure test the flow line to the inlet and bypass valves of the separator to full well head pressure of 1708 PSI
17/04/99	1030	Pressure up the separator to light the heater
17/04/99	1112	Flow the well on 40/64ths choke through the heater bypassing the separator to flare
17/04/99	1120	Divert the flow through the separator and trim with a 2.75" orifice plate in service
17/04/99	1500	Obtain 1 x 500 cc HP Gas sample #103 and 1 x 500 cc HP Condensate sample #SS-8
17/04/99	1715	Shut well in for a build-up overnight
17/04/99	1730	Depart location.
18/04/99	0630	Arrive back on location and hold safety meeting
18/04/99	0640	Pressure up the separator and light up the inline heater

FIELD READINGS

EXPERTEST PTY. LTD.



Customer: Boral Energy **Well Name:** North Paaratte #4 **Formation:** Waarre
Perforations: 4950.78'-4970.47' KB **Type Of Test:** Production Test **Operator:** N Hay
Date Of Test: 16/04 - 19/04/99 **Control No.:** V191604A.99

Date	Time	WELLHEAD DATA			SEPARATOR DATA				LIQUID PRODUCTION									
		Elapsed Time (Hours)	Pressures	Well Head Temp.	Choke Size	BS & W (%)	Orifice Plate (Inch)	Spec. Grav.	Static Pressure	Differential Pressure	Gas Temp	Tank No.	Total Liquid	Oil Dip	Water Dip	Dip Units	OB API Gravity @ 50°F	
17/04/99	1017	-1.2167	1708	PSI														
17/04/99	1110	-0.3333	1710	1709	PSI													
17/04/99	1130	0.0000	1595	1586	PSI	29 °C	40	64th	678	PSI	104	In WC	24 °C	1	150.00	0.00	150.00	Ltrs
17/04/99	1145	0.2500	1605	1690	PSI	32 °C	40	64th	690	PSI	105	In WC	27 °C					
17/04/99	1200	0.5000	1610	1692	PSI	33 °C	40	64th	695	PSI	107	In WC	29 °C	1	450.00	300.00	150.00	Ltrs
17/04/99	1215	0.7500	1616	1695	PSI	35 °C	40	64th	702	PSI	107	In WC	31 °C					
17/04/99	1230	1.0000	1619	1695	PSI	36 °C	40	64th	704	PSI	108	In WC	33 °C	1	550.00	300.00	200.00	Ltrs
17/04/99	1245	1.2500	1621	1696	PSI	36 °C	40	64th	707	PSI	108	In WC	33 °C					
17/04/99	1300	1.5000	1623	1696	PSI	36 °C	40	64th	708	PSI	108	In WC	33 °C	1	625.00	425.00	200.00	Ltrs
17/04/99	1315	1.7500	1624	1696	PSI	36 °C	40	64th	709	PSI	108	In WC	33 °C					
17/04/99	1330	2.0000	1625	1696	PSI	36 °C	40	64th	709	PSI	108	In WC	32 °C	1	700.00	475.00	225.00	Ltrs
17/04/99	1345	2.2500	1625	1696	PSI	37 °C	40	64th	710	PSI	108	In WC	31 °C					
17/04/99	1400	2.5000	1629	1699	PSI	37 °C	40	64th	710	PSI	108	In WC	31 °C	1	850.00	475.00	375.00	Ltrs
17/04/99	1415	2.7500	1630	1698	PSI	37 °C	40	64th	711	PSI	108	In WC	31 °C					
17/04/99	1430	3.0000	1631	1698	PSI	37 °C	40	64th	710	PSI	108	In WC	30 °C	1	900.00	525.00	375.00	Ltrs
17/04/99	1445	3.2500	1632	1698	PSI	37 °C	40	64th	711	PSI	108	In WC	30 °C					
17/04/99	1500	3.5000	1632	1698	PSI	37 °C	40	64th	711	PSI	108	In WC	30 °C	1	925.00	525.00	400.00	Ltrs
17/04/99	1515	3.7500	1633	1699	PSI	37 °C	40	64th	711	PSI	108	In WC	30 °C					
17/04/99	1530	4.0000	1635	1699	PSI	37 °C	40	64th	713	PSI	108	In WC	29 °C	1	1000.00	550.00	450.00	Ltrs
17/04/99	1545	4.2500	1635	1699	PSI	37 °C	40	64th	713	PSI	108	In WC	29 °C					
17/04/99	1600	4.5000	1636	1699	PSI	37 °C	40	64th	713	PSI	109	In WC	29 °C	1	1050.00	550.00	500.00	Ltrs
17/04/99	1615	4.7500	1635	1698	PSI	37 °C	40	64th	714	PSI	109	In WC	29 °C					
17/04/99	1630	5.0000	1636	1700	PSI	38 °C	40	64th	713	PSI	109	In WC	29 °C	1	1100.00	600.00	500.00	Ltrs
17/04/99	1645	5.2500	1637	1700	PSI	38 °C	40	64th	714	PSI	109	In WC	30 °C					
17/04/99	1700	5.5000	1636	1700	PSI	38 °C	40	64th	713	PSI	109	In WC	30 °C	1	1175.00	635.00	540.00	Ltrs
17/04/99	1715	5.7500	1637	1699	PSI	38 °C	40	64th	714	PSI	109	In WC	29 °C					
17/04/99	1716	5.7667	1637	1699	PSI	38 °C	40	64th	0	PSI	0	In WC	0 °C					
18/04/99	0630	19.0000	1709	1709	PSI													

EXPERTEST PTY. LTD.



TEST RESULTS

Customer:	Boral Energy	Well Name:	North Paaratte #4	Formation:	Waarre
Perforations:	4950.78-4970.47 KB	Type Of Test:	Production Test	Operator:	N Hay
Date Of Test:	16/04 - 19/04/99			Control No.:	V191604A.99

Date	Time	Elapsed Time (Hours)	WELLHEAD DATA			SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION								
			Tubing Pressure (kPa)	Annulus Pressure (kPa)	Wellhead Temp (°C)	Choke Size (64th)	Pressure (kPa)	Temp (°C)	Gas Flow Rate (m ³ /D)	Oil Flow Rate (m ³ /D)	Water Flow Rate (m ³ /D)	Gas (m ³ ·10 ³)	Oil (m ³)	Water (m ³)	W.G.R. (m ³ /10 ³ m ³)	O.G.R. (m ³ /10 ³ m ³)			
17/04/99	1017	-1.2167	11776																
17/04/99	1110	-0.3333	11790	11783															
17/04/99	1130	0.0000	10997	10935	29	40	4675	24	447.462							0.00			
17/04/99	1145	0.2500	11066	11652	32	40	4757	27	450.754							4.70			
17/04/99	1200	0.5000	11101	11666	33	40	4792	29	454.736	14.40	0.00	0.00	0.00	0.00	0.30	9.43	0.00		31.67
17/04/99	1215	0.7500	11142	11687	35	40	4840	31	455.138							14.17			
17/04/99	1230	1.0000	11163	11687	36	40	4854	33	455.941	0.00	2.40					18.92	0.05		
17/04/99	1245	1.2500	11176	11694	36	40	4875	33	456.973							23.68			
17/04/99	1300	1.5000	11190	11694	36	40	4882	33	457.317	6.00	0.00	0.00	0.00	0.00	0.43	28.45	0.05		13.12
17/04/99	1315	1.7500	11197	11694	36	40	4888	33	457.661							33.21			
17/04/99	1330	2.0000	11204	11694	36	40	4888	32	458.670	2.40	1.20					37.99	0.08		5.23
17/04/99	1345	2.2500	11204	11694	37	40	4895	31	460.033							42.78			
17/04/99	1400	2.5000	11232	11714	37	40	4895	31	460.033	0.00	7.20					47.58	0.23		15.65
17/04/99	1415	2.7500	11239	11707	37	40	4902	31	460.379							52.37			
17/04/99	1430	3.0000	11245	11707	37	40	4895	30	461.061	2.40	0.00	0.00	0.00	0.00	0.53	57.17	0.23		5.21
17/04/99	1445	3.2500	11252	11707	37	40	4902	30	461.408							61.98			
17/04/99	1500	3.5000	11252	11707	37	40	4902	30	461.408	0.00	1.20					66.79	0.25		2.60
17/04/99	1515	3.7500	11259	11714	37	40	4902	30	461.408							71.59			
17/04/99	1530	4.0000	11273	11714	37	40	4916	29	463.142	1.20	2.40					76.42	0.30		2.59
17/04/99	1545	4.2500	11273	11714	37	40	4916	29	463.142							81.24			
17/04/99	1600	4.5000	11280	11714	37	40	4916	29	465.283	0.00	2.40					86.09	0.35		5.16
17/04/99	1615	4.7500	11273	11707	37	40	4923	29	465.632							90.94			
17/04/99	1630	5.0000	11280	11721	38	40	4916	29	465.283	2.40	0.00	0.00	0.00	0.00	0.60	95.79	0.35		5.16
17/04/99	1645	5.2500	11287	11721	38	40	4923	30	464.585							100.62			
17/04/99	1700	5.5000	11280	11721	38	40	4916	30	464.238	1.68	1.92					105.46	0.39		3.62
17/04/99	1715	5.7500	11287	11714	38	40	4923	29	465.632							110.31			
17/04/99	1716	5.7667	11287	11714	38	40	0	0	0.000	0.00	0.00					110.31			



TEST RESULTS

Customer: Boral Energy	Well Name: North Paaratte #4	Formation: Waarre
Perforations: 4950.78'-4970.47' KB	Type Of Test: Production Test	Operator: N Hay
Date Of Test: 16/04 - 19/04/99		Control No.: V191604A.99

Date	Time	Elapsed Time (Hours)	WELLHEAD DATA			SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION						
			Tubing Pressure (kPa)	Annulus Pressure (kPa)	Wellhead Temp (°C)	Choke Size (64th)	Pressure (kPa)	Temp (°C)	Gas Flow Rate (m ³ 10 ³ /D)	Oil Flow Rate (m ³ /D)	Water Flow Rate (m ³ /D)	Gas (m ³ 10 ³)	Oil (m ³)	Water (m ³)	W.G.R. (m ³ /10 ³ m ³)	O.G.R. (m ³ /10 ³ m ³)	
18/04/99	0630	19.0000	11783	11783													
18/04/99	0800	20.5000	11783	11783		0	0	0.000	0.00	0.00	110.31						
18/04/99	0815	20.7500	11694	11763	25	24	2282	216.751			112.57						
18/04/99	0830	21.0000	11700	11769	27	24	2275	215.186			114.81						
18/04/99	0845	21.2500	11707	11783	29	24	2275	215.596			117.06						
18/04/99	0900	21.5000	11700	11776	30	24	2261	215.354	0.00	1.20	119.30	0.64	0.42	5.57			
18/04/99	0915	21.7500	11700	11776	31	24	2261	215.354			121.54						
18/04/99	0930	22.0000	11707	11783	31	24	2268	216.096	1.20	0.00	123.79	0.66	0.42	5.55			
18/04/99	0945	22.2500	11700	11783	32	24	2255	215.439			126.04						
18/04/99	1000	22.5000	11707	11797	32	24	2268	216.096	0.00	1.20	128.29	0.66	0.44	5.55			
18/04/99	1015	22.7500	11556	11756	33	32	3475	334.352			131.77						
18/04/99	1030	23.0000	11563	11756	35	32	3475	332.941	3.60	0.00	135.24	0.74	0.44	10.81			
18/04/99	1045	23.2500	11556	11756	37	32	3475	331.553			138.69						
18/04/99	1100	23.5000	11556	11756	36	32	3475	332.941	1.20	1.20	142.16	0.76	0.47	3.60			
18/04/99	1115	23.7500	11556	11756	36	32	3454	331.912			145.62						
18/04/99	1130	24.0000	11549	11756	36	32	3468	332.598	1.20	2.40	149.08	0.79	0.52	7.22			
18/04/99	1145	24.2500	11549	11756	36	32	3461	332.255			152.54						
18/04/99	1200	24.5000	11563	11763	37	32	3475	332.244	2.40	0.00	156.01	0.84	0.52	7.22			
18/04/99	1215	24.7500	11273	11714	36	40	4964	468.776			160.89						
18/04/99	1230	25.0000	11266	11721	38	40	4957	466.281	2.40	1.20	165.75	0.89	0.54	2.57			
18/04/99	1245	25.2500	11280	11721	38	40	4957	464.175			170.58						
18/04/99	1300	25.5000	11294	11721	38	40	4985	466.658	3.60	0.00	175.44	0.96	0.54	7.71			
18/04/99	1315	25.7500	11301	11721	39	40	4985	466.658			180.30						
18/04/99	1330	26.0000	11301	11721	38	40	4992	467.003	1.20	1.20	185.17	0.99	0.57	2.57			
18/04/99	1345	26.2500	11301	11721	38	40	4999	466.306			190.02						
18/04/99	1400	26.5000	11307	11728	39	40	4999	467.406	0.00	1.20	194.89	0.99	0.59	2.57			
18/04/99	1401	26.5167	11307	11728	39	40											

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GAS FLOW CALCULATIONS

EXPERTEST PTY. LTD.

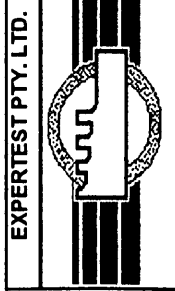


Customer: Boral Energy	Well Name: North Paaratte #4	Formation: Waarre
Perforations: 4950.78-4970.47' KB	Type Of Test: Production Test	Operator: N Hay
Date Of Test: 16/04 - 19/04/99		Control No.: V191604A.99

Orifice Meter Type: Daniel Senior	Static Pressure Range: 0-1500 PSIG	Separator No: 75
Meter Run Size: 3.826 Inches	Differential Pressure Range: 0-200 In. WC	Stand. Conditions: 14.73 @ 60 Deg F

Date	Time Elapsed (Hours)	Choke Size (64th)	Static Press P _s (PSIA)	Diff Press H _w (In. WC)	Gas Flow Temp (°F)	Gas Spec. Grav.	Orifice Plate Size (Ins)	C ₁ = F _B × F _T × F _{pv} × Y ₂			C ₁ √(SG) × C ₂ Where C ₂ =	Gas Flow Rate (MMSCFD)	Gas Flow Rate (m ³ /D)		
								F _B	F _T	F _{pv}				Y ₂	
17/04/99	1130	40	693	104	75	0.575	2.750	1797.13	0.98570	1.04966	1.00061	1860.55	58886.82	15.80581	447.462
	1145		705	105	81	"	"	"	0.98076	1.04859	1.00061	1849.34	58532.01	15.92207	450.754
	1200	0.5000	710	107	84	"	"	"	0.97751	1.04769	1.00062	1841.63	58288.20	16.06272	454.736
	1215	0.7500	717	107	88	"	"	"	0.97430	1.04694	1.00061	1834.24	58054.22	16.07694	455.138
	1230	1.0000	719	108	91	"	"	"	0.97111	1.04588	1.00061	1826.40	57806.18	16.10531	455.941
	1245	1.2500	722	108	91	"	"	"	"	1.04607	1.00061	1826.73	57816.50	16.14177	456.973
	1300	1.5000	723	108	91	"	"	"	"	1.04613	1.00061	1826.84	57819.94	16.15391	457.317
	1315	1.7500	724	108	91	"	"	"	"	1.04619	1.00061	1826.95	57823.38	16.16604	457.661
	1330	2.0000	724	108	90	"	"	"	0.97270	1.04679	"	1830.98	57950.86	16.20168	458.670
	1345	2.2500	725	108	88	"	"	"	0.97430	1.04746	1.00061	1835.15	58083.03	16.24985	460.033
	1400	2.5000	725	108	88	"	"	"	"	"	"	"	"	16.24985	460.033
	1415	2.7500	726	108	88	"	"	"	"	1.04752	1.00061	1835.26	58086.58	16.26205	460.379
	1430	3.0000	725	108	86	"	"	"	0.97590	1.04807	1.00061	1839.25	58212.83	16.28616	461.061
	1445	3.2500	726	108	86	"	"	"	"	1.04814	1.00061	1839.37	58216.45	16.29841	461.408
	1500	3.5000	726	108	86	"	"	"	"	"	"	"	"	16.29841	461.408
	1515	3.7500	726	108	86	"	"	"	"	"	"	"	"	16.29841	461.408
	1530	4.0000	728	108	84	"	"	"	0.97751	1.04890	1.00061	1843.74	58354.85	16.35965	463.142
	1545	4.2500	728	108	84	"	"	"	"	"	"	"	"	16.35965	463.142
	1600	4.5000	728	109	84	"	"	"	"	"	1.00061	1843.75	58355.18	16.43531	465.283
	1615	4.7500	729	109	84	"	"	"	"	1.04897	1.00061	1843.87	58358.86	16.44763	465.632
	1630	5.0000	728	109	84	"	"	"	"	1.04890	1.00061	1843.75	58355.18	16.43531	465.283
	1645	5.2500	729	109	86	"	"	"	0.97590	1.04834	1.00061	1839.72	58227.64	16.41065	464.585
	1700	5.5000	728	109	86	"	"	"	"	1.04827	1.00061	1839.61	58224.02	16.39837	464.238
	1715	5.7500	729	109	84	"	"	"	0.97751	1.04897	1.00061	1843.87	58358.86	16.44763	465.632
	1716	5.7667	15	0	32	"	"	"	1.02806	1.00133	1.00000	1850.02	58553.76	0.00000	0.000

GAS FLOW CALCULATIONS



Customer: Boral Energy	Well Name: North Paaratte #4	Formation: Waarre
Perforations: 4950.78'-4970.47' KB	Type Of Test: Production Test	Operator: N Hay
Date Of Test: 16/04 - 19/04/99		Control No.: V191604A.99
Orifice Meter Type: Daniel Senior	Static Pressure Range: 0-1500 PSIG	Separator No: 75
Meter Run Size: 3.826 Inches	Differential Pressure Range: 0-200 in. WC	Stand. Conditions: 14.73 @ 60 Deg F

Date	Time Elapsed (Hours)	Choke Size (64th)	Static Press P _r (PSIA)	Diff Press H _w (In. WC)	Gas Flow Temp (°F)	Gas Spec. Grav.	Orifice Plate Size (In)	√(P _r H _w)	C ₁ = F _B × F _{TT} × F _{TV} × Y ₂			C ₁	Q = √(P _r × H _w) × C ₁ Where C ₂ = √(1/SQRT24)	Gas Flow Rate (MMSCFD)	
									F _B	F _{TT}	F _{TV}				Y ₂
18/04/99	0800	0	15	0	32	0.575	2.500	0.00	1415.03	1.02806	1.00133	1.00000	1456.67	46104.12	0.00000
	0815	20.7500	346	84	82	"	"	170.42	"	0.97913	1.02332	1.00119	1419.50	44927.63	7.65635
	0830	21.0000	345	84	88	"	"	170.17	"	0.97430	1.02245	1.00120	1411.29	44667.85	7.60106
	0845	21.2500	345	84	86	"	"	"	"	0.97590	1.02271	"	1413.98	44752.92	7.61554
	0900	21.5000	343	84	84	"	"	169.67	"	0.97751	1.02284	1.00120	1416.51	44832.95	7.60699
	0915	21.7500	343	84	84	"	"	"	"	"	"	"	"	"	7.60699
	0930	22.0000	344	84	82	"	"	169.92	"	0.97913	1.02318	1.00120	1419.32	44921.93	7.63320
	0945	22.2500	342	84	82	"	"	169.43	"	"	1.02304	1.00121	1419.14	44916.24	7.61000
	1000	22.5000	344	84	82	"	"	169.92	"	"	1.02318	1.00120	1419.32	44921.93	7.63320
	1015	22.7500	519	128	75	"	"	257.68	"	0.98570	1.03699	1.00121	1448.14	45834.08	11.81039
	1030	23.0000	519	128	79	"	"	"	"	0.98240	1.03609	"	1442.03	45640.69	11.76056
	1045	23.2500	519	128	82	"	"	"	"	0.97913	1.03521	"	1436.02	45450.35	11.71151
	1100	23.5000	519	128	79	"	"	"	"	0.98240	1.03609	"	1442.03	45640.69	11.76056
	1115	23.7500	516	128	79	"	"	256.93	"	"	1.03587	1.00122	1441.75	45631.66	11.72418
	1130	24.0000	518	128	79	"	"	257.43	"	"	1.03601	1.00121	1441.94	45637.68	11.74844
	1145	24.2500	517	128	79	"	"	257.18	"	"	1.03594	1.00122	1441.84	45634.67	11.73631
	1200	24.5000	519	128	81	"	"	257.68	"	0.98076	1.03564	1.00121	1439.01	45545.14	11.73594
	1215	24.7500	735	108	79	"	2.750	281.69	1797.13	0.98240	1.05134	1.00060	1857.26	58782.68	16.55866
	1230	25.0000	734	108	82	"	"	281.50	"	0.97913	1.04995	1.00060	1848.63	58509.66	16.47053
	1245	25.2500	734	108	86	"	"	"	"	0.97590	1.04867	"	1840.28	58245.40	16.39614
	1300	25.5000	738	109	88	"	"	283.57	"	0.97430	1.04830	1.00060	1836.62	58129.58	16.48387
	1315	25.7500	738	109	88	"	"	"	"	"	"	"	"	"	16.48387
	1330	26.0000	739	109	88	"	"	283.76	"	"	1.04837	1.00060	1836.73	58133.13	16.49605
	1345	26.2500	740	109	90	"	"	283.96	"	0.97270	1.04781	1.00060	1832.75	58007.12	16.47142
	1400	26.5000	740	110	91	"	"	285.25	"	0.97111	1.04720	1.00061	1828.71	57879.01	16.51027

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

Customer: Boral Energy	Well Name: North Paaratte #4	Formation: Waarre
Perforations: 4950.78-4970.47' KB	Type Of Test: Production Test	Operator: N Hay
Date Of Test: 16/04 - 19/04/99		Control No. V191604A.99

Tank	Unit No.	Capacity	Cap. Units	Scale	Scale Units
1	40	8300	Litres	1	Litres/inch
2	40	8300	Litres	1	Litres/inch

Tank	Unit No.	Capacity	Cap. Units	Scale	Scale Units
3	0	0	0	0	0
4	0	0	0	0	0

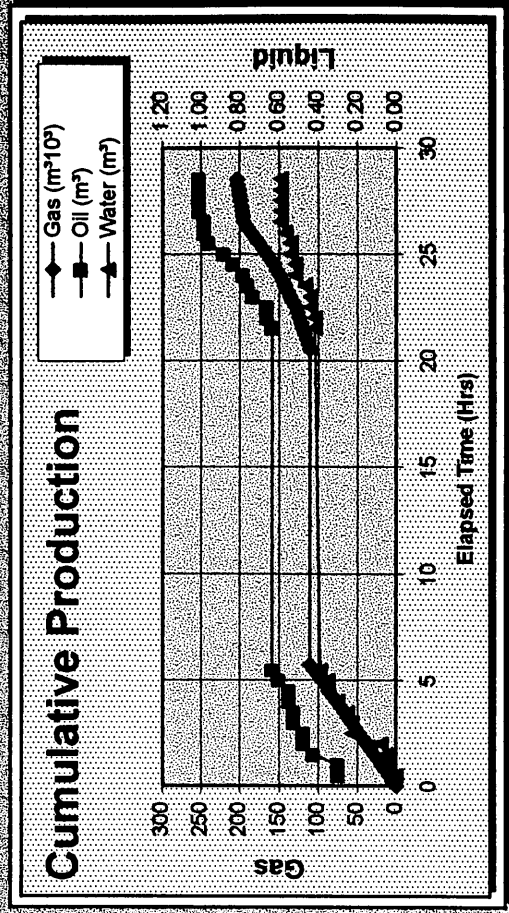
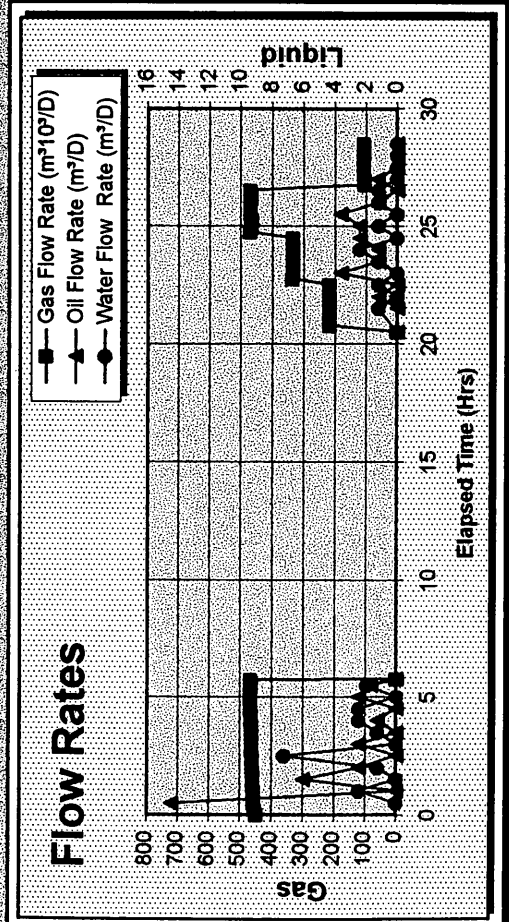
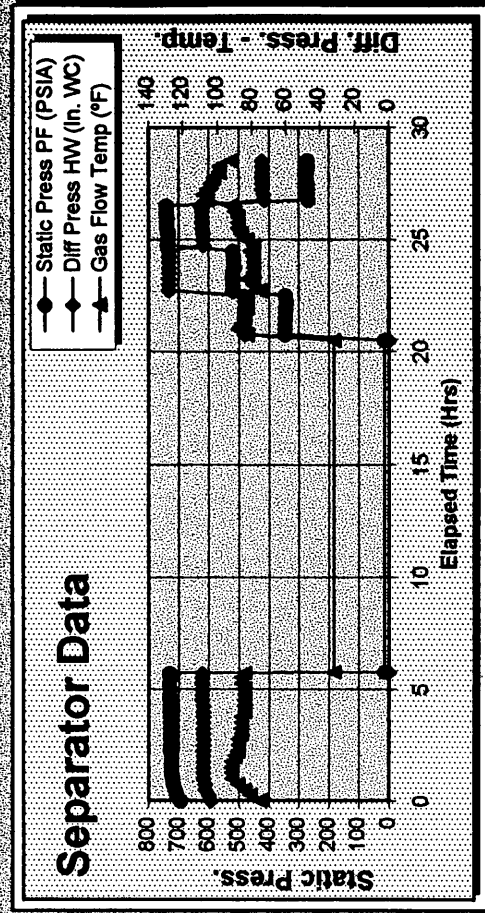
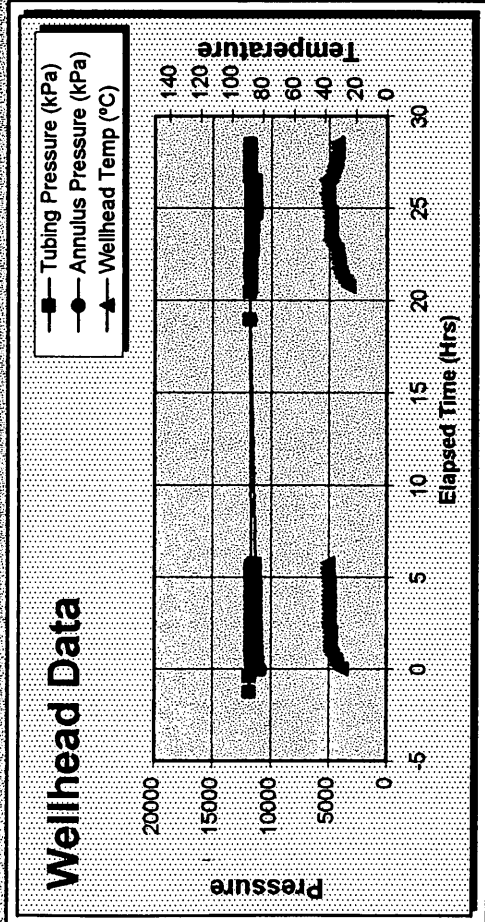
Date	Time	Elapsed Time (Hours)	Tank Used (1-4)	Total Tank Dip (Litres)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION					
					Tank Dip (Litres)	Tank Prod. (m ³)	Flow Rate (m ³ /D)	Cum. Prod. (m ³)	Oil/API Grav	Tank Dip (Litres)	Tank Prod. (m ³)	Flow Rate (m ³ /D)	Cum. Prod. (m ³)	
17/04/99	1130	0.0000	1	150.000	0.000					150.000				
17/04/99	1200	0.5000	1	450.000	300.000	0.3000	14.4000	0.3000	0.3000	150.000	0.0000	0.0000	0.0000	0.0000
17/04/99	1230	1.0000	1	550.000	300.000	0.0000	0.0000	0.3000	0.3000	200.000	0.0500	2.4000	0.0500	0.0500
17/04/99	1300	1.5000	1	625.000	425.000	0.1250	6.0000	0.4250	0.4250	200.000	0.0000	0.0000	0.0500	0.0500
17/04/99	1330	2.0000	1	700.000	475.000	0.0500	2.4000	0.4750	0.4750	225.000	0.0250	1.2000	0.0750	0.0750
17/04/99	1400	2.5000	1	850.000	475.000	0.0000	0.0000	0.4750	0.4750	375.000	0.1500	7.2000	0.2250	0.2250
17/04/99	1430	3.0000	1	900.000	525.000	0.0500	2.4000	0.5250	0.5250	375.000	0.0000	0.0000	0.2250	0.2250
17/04/99	1500	3.5000	1	925.000	525.000	0.0000	0.0000	0.5250	0.5250	400.000	0.0250	1.2000	0.2500	0.2500
17/04/99	1530	4.0000	1	1000.000	550.000	0.0250	1.2000	0.5500	0.5500	450.000	0.0500	2.4000	0.3000	0.3000
17/04/99	1600	4.5000	1	1050.000	550.000	0.0000	0.0000	0.5500	0.5500	500.000	0.0500	2.4000	0.3500	0.3500
17/04/99	1630	5.0000	1	1100.000	600.000	0.0500	2.4000	0.6000	0.6000	500.000	0.0000	0.0000	0.3500	0.3500
17/04/99	1700	5.5000	1	1175.000	635.000	0.0350	1.6800	0.6350	0.6350	540.000	0.0400	1.9200	0.3900	0.3900
18/04/99	0830	21.0000	1	1200.000	750.000			0.6350	0.6350	450.000			0.3900	0.3900
18/04/99	0900	21.5000	1	1225.000	750.000	0.0000	0.0000	0.6350	0.6350	475.000	0.0250	1.2000	0.4150	0.4150
18/04/99	0930	22.0000	1	1250.000	775.000	0.0250	1.2000	0.6600	0.6600	475.000	0.0000	0.0000	0.4150	0.4150
18/04/99	1000	22.5000	1	1275.000	775.000	0.0000	0.0000	0.6600	0.6600	500.000	0.0250	1.2000	0.4400	0.4400
18/04/99	1030	23.0000	1	1350.000	850.000	0.0750	3.6000	0.7350	0.7350	500.000	0.0000	0.0000	0.4400	0.4400
18/04/99	1100	23.5000	1	1400.000	875.000	0.0250	1.2000	0.7600	0.7600	525.000	0.0250	1.2000	0.4650	0.4650
18/04/99	1130	24.0000	1	1475.000	900.000	0.0250	1.2000	0.7850	0.7850	575.000	0.0500	2.4000	0.5150	0.5150
18/04/99	1200	24.5000	1	1525.000	950.000	0.0500	2.4000	0.8350	0.8350	575.000	0.0000	0.0000	0.5150	0.5150
18/04/99	1230	25.0000	1	1600.000	1000.000	0.0500	2.4000	0.8850	0.8850	600.000	0.0250	1.2000	0.5400	0.5400
18/04/99	1300	25.5000	1	1675.000	1075.000	0.0750	3.6000	0.9600	0.9600	600.000	0.0000	0.0000	0.5400	0.5400
18/04/99	1330	26.0000	1	1725.000	1100.000	0.0250	1.2000	0.9850	0.9850	625.000	0.0250	1.2000	0.5650	0.5650
18/04/99	1400	26.5000	1	1750.000	1100.000	0.0000	0.0000	0.9850	0.9850	650.000	0.0250	1.2000	0.5900	0.5900
18/04/99	1401	26.5167	2	225.000	225.000			0.9850	0.9850	0.000			0.5900	0.5900

EXPERTEST PTY. LTD.



GRAPHICAL SUMMARY

Customer:	Boral Energy	Well Name:	North Paaratte #4	Formation:	Waarre
Perforations:	4950.78'-4970.47' KB	Type Of Test:	Production Test	Operator:	N Hay
Date Of Test:	16/04 - 19/04/99			Control No.:	V191604A.99

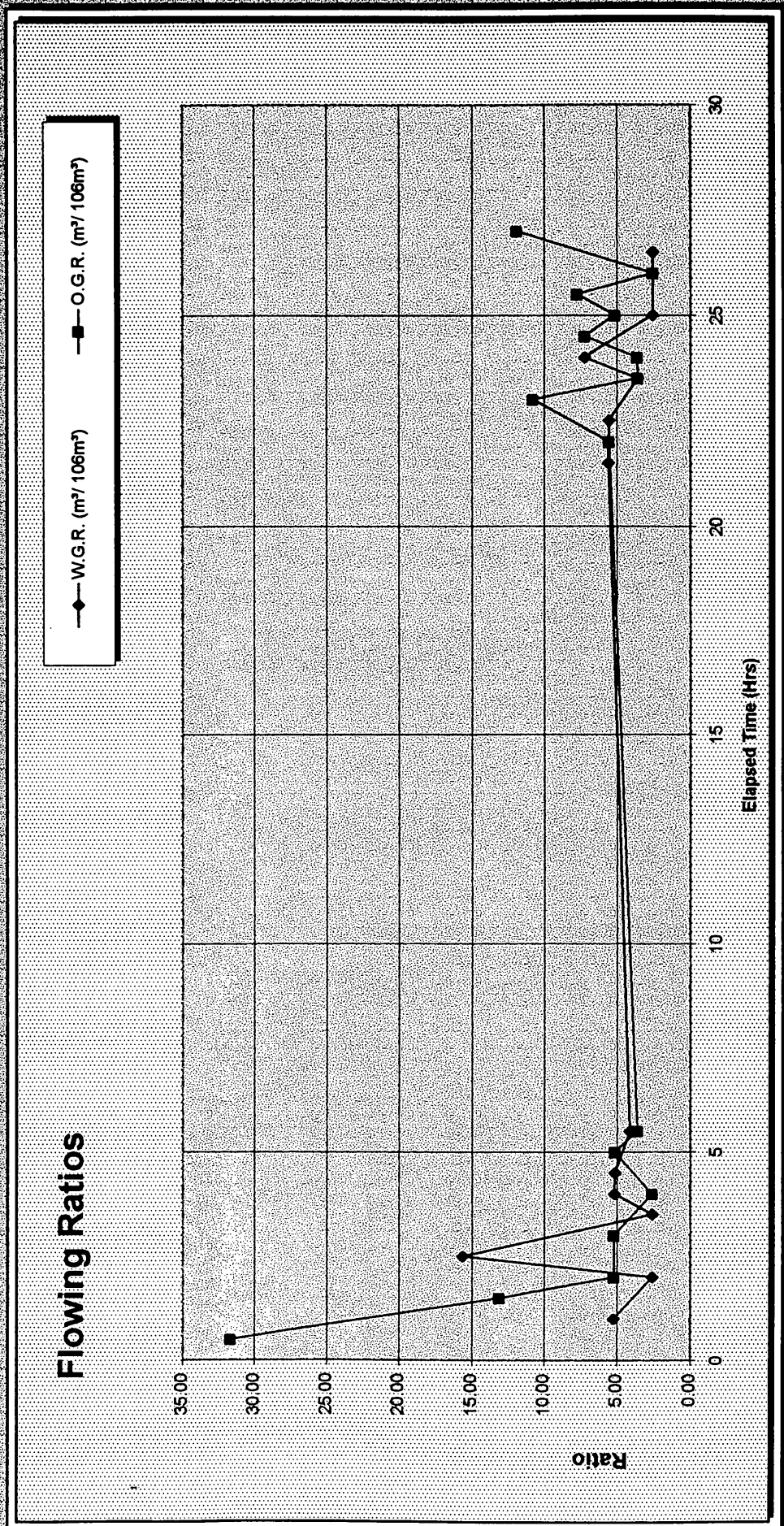


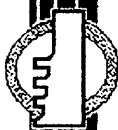
EXPERTEST PTY. LTD.



Flowing Ratio Plot

Customer:	Boral Energy	Well Name:	North Paaratte #4	Formation:	Waarre
Perforations:	4950.78'-4970.47' KB	Type Of Test:	Production Test	Operator:	N Hay
Date Of Test:	16/04 - 19/04/99			Control No.:	V191604A.99





SAMPLING DATA

Customer: Boral Energy Well Name: North Paaratte #4 Formation: Waarre
 Perforations: 4950.78'-4970.47' KB Type Of Test: Production Test Operator: N Hay
 Date Of Test: 16/04 - 19/04/99 Control No.: V191604A.99

SAMPLE # 1

Time Sample Collected	1500	Cylinder Serial Number	103	Cylinder Volume (cc)	500	Sample Type	GAS	Sampling Duration (Mins)	10	Cylinder Initially Filled With	EVACUATED	Volume of Fill Remaining with Sample (cc)		Sample Point	GAS METER RUN	Sample Press (kPa)	4902	Sample Temp (°C)	30	Ambient Press (kPa)	101	Ambient Temp (°C)				
WELLHEAD DATA																										
Tubing Press (kPa)	11252	Wellhead Temp (°C)	37	Choke Size	64ths	40	BS&W (%)		Separator Press (kPa)	4902	Separator Temp (°C)	30	FPV	1.04814	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	461.408	Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2
SEPARATOR DATA																										
Separator Press (kPa)	4902	Separator Temp (°C)	30	FPV	1.04814	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	461.408	Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2									
GRAVITIES																										
Gas Specific Gravity @ 60°F	0.575	Oil API Grav		Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2																	
FLOW RATES																										
WGR	2.6	OGR		WGR	2.6	OGR																				
RATIOS																										
WGR	2.6	OGR		WGR	2.6	OGR																				
BOTTOM HOLE																										
Pressure		Temp																								

SAMPLE # 2

Time Sample Collected	1500	Cylinder Serial Number	SS-8	Cylinder Volume (cc)	500	Sample Type	COND	Sampling Duration (Mins)	15	Cylinder Initially Filled With	BRINE	Volume of Fill Remaining with Sample (cc)	25	Sample Point	OIL SIGHT GLASS	Sample Press (kPa)	4902	Sample Temp (°C)	30	Ambient Press (kPa)	101	Ambient Temp (°C)				
WELLHEAD DATA																										
Tubing Press (kPa)	11252	Wellhead Temp (°C)	37	Choke Size	64ths	40	BS&W (%)		Separator Press (kPa)	4902	Separator Temp (°C)	30	FPV	1.04814	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	461.408	Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2
SEPARATOR DATA																										
Separator Press (kPa)	4902	Separator Temp (°C)	30	FPV	1.04814	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	461.408	Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2									
GRAVITIES																										
Gas Specific Gravity @ 60°F	0.575	Oil API Grav		Gas (10 ³ m ³ /D)	0	Oil (m ³ /D)	1.2	Water (m ³ /D)	1.2																	
FLOW RATES																										
WGR	2.6	OGR		WGR	2.6	OGR																				
RATIOS																										
WGR	2.6	OGR		WGR	2.6	OGR																				
BOTTOM HOLE																										
Pressure		Temp																								

SAMPLE # 3

Time Sample Collected	1300	Cylinder Serial Number	SS-9	Cylinder Volume (cc)	500	Sample Type	GAS	Sampling Duration (Mins)	10	Cylinder Initially Filled With	EVACUATED	Volume of Fill Remaining with Sample (cc)		Sample Point	GAS METER RUN	Sample Press (kPa)	4985	Sample Temp (°C)	31	Ambient Press (kPa)	101	Ambient Temp (°C)				
WELLHEAD DATA																										
Tubing Press (kPa)	11294	Wellhead Temp (°C)	38	Choke Size	64ths	40	BS&W (%)		Separator Press (kPa)	4985	Separator Temp (°C)	31	FPV	1.0483	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	466.658	Gas (10 ³ m ³ /D)	3.6	Oil (m ³ /D)	3.6	Water (m ³ /D)	7.71
SEPARATOR DATA																										
Separator Press (kPa)	4985	Separator Temp (°C)	31	FPV	1.0483	Gas Specific Gravity @ 60°F	0.575	Outage (cc)	475	Volume of Fill Remaining with Sample (cc)	466.658	Gas (10 ³ m ³ /D)	3.6	Oil (m ³ /D)	3.6	Water (m ³ /D)	7.71									
GRAVITIES																										
Gas Specific Gravity @ 60°F	0.575	Oil API Grav		Gas (10 ³ m ³ /D)	3.6	Oil (m ³ /D)	3.6	Water (m ³ /D)	7.71																	
FLOW RATES																										
WGR	7.71	OGR		WGR	7.71	OGR																				
RATIOS																										
WGR	7.71	OGR		WGR	7.71	OGR																				
BOTTOM HOLE																										
Pressure		Temp																								



SAMPLING DATA

Customer: Boral Energy Well Name: North Paaratte #4 Formation: Waare
 Perforations: 4950.78'-4970.47' KB Type Of Test: Production Test Operator: N Hay
 Date Of Test: 16/04 - 19/04/99 Control No.: V191604A.99

SAMPLE # 4


Time Sample Collected	Cylinder Serial Number	Cylinder Volume (cc)	Sample Type	Sampling Duration (Mins)	Cylinder Initially Filled With	Outage (cc)	Volume of Fill Remaining with Sample (cc)	Sample Point	Sample Press (kPa)	Sample Temp (°C)	Ambient Press (kPa)	Ambient Temp (°C)
1300	153	500	COND	15	BRINE	475	25	OIL SIGHT GLASS	3985	31	101	
WELLHEAD DATA												
Tubing Press (kPa)	Wellhead Temp (°C)	Choke Size	BS&W (%)	Separator Press (kPa)	Separator Temp (°C)	Gas Specific Gravity @ 60°F	Oil API Grav	Water (m³/D)	Oil (m³/D)	Gas (10³m³/D)	WGR (m³/10³m³)	OGR (m³/10³m³)
11294	38	40		4985	31	1.0483		466.658	3.6			7.71
SEPARATOR DATA												
RATIOS												
BOTTOM HOLE												
Remarks												


SAMPLE

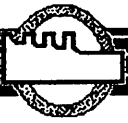
Time Sample Collected	Cylinder Serial Number	Cylinder Volume (cc)	Sample Type	Sampling Duration (Mins)	Cylinder Initially Filled With	Outage (cc)	Volume of Fill Remaining with Sample (cc)	Sample Point	Sample Press (kPa)	Sample Temp (°C)	Ambient Press (kPa)	Ambient Temp (°C)
WELLHEAD DATA												
Tubing Press (kPa)	Wellhead Temp (°C)	Choke Size	BS&W (%)	Separator Press (kPa)	Separator Temp (°C)	Gas Specific Gravity @ 60°F	Oil API Grav	Water (m³/D)	Oil (m³/D)	Gas (10³m³/D)	WGR (m³/10³m³)	OGR (m³/10³m³)
SEPARATOR DATA												
RATIOS												
BOTTOM HOLE												
Remarks												


SAMPLE

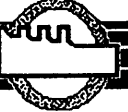
Time Sample Collected	Cylinder Serial Number	Cylinder Volume (cc)	Sample Type	Sampling Duration (Mins)	Cylinder Initially Filled With	Outage (cc)	Volume of Fill Remaining with Sample (cc)	Sample Point	Sample Press (kPa)	Sample Temp (°C)	Ambient Press (kPa)	Ambient Temp (°C)
WELLHEAD DATA												
Tubing Press (kPa)	Wellhead Temp (°C)	Choke Size	BS&W (%)	Separator Press (kPa)	Separator Temp (°C)	Gas Specific Gravity @ 60°F	Oil API Grav	Water (m³/D)	Oil (m³/D)	Gas (10³m³/D)	WGR (m³/10³m³)	OGR (m³/10³m³)
SEPARATOR DATA												
RATIOS												
BOTTOM HOLE												
Remarks												

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2123		
EMP-Q Calibration I.D.: 2123-19056			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:12:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34586			No. of Records Selected: 220		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp (°F)	Remarks
17/04/99	8:12:01	0.0003	4.88	58.84	
17/04/99	8:42:01	0.5003	4.70	56.73	
17/04/99	8:49:51	0.6308	14.29	56.32	
17/04/99	8:49:56	0.6322	393.22	56.32	
17/04/99	8:50:01	0.6336	638.82	56.34	
17/04/99	8:50:06	0.6350	872.01	56.36	
17/04/99	8:50:11	0.6364	1276.02	56.38	
17/04/99	8:50:16	0.6378	1631.95	56.42	
17/04/99	8:50:21	0.6392	1706.86	56.48	
17/04/99	9:05:01	0.8836	1712.41	58.98	
17/04/99	9:05:41	0.8947	1718.00	59.43	
17/04/99	9:06:21	0.9058	1723.58	60.11	
17/04/99	9:07:01	0.9169	1729.17	60.94	
17/04/99	9:07:36	0.9267	1734.98	61.81	
17/04/99	9:08:06	0.9350	1739.99	62.66	
17/04/99	9:08:41	0.9447	1745.77	63.77	
17/04/99	9:09:16	0.9544	1751.57	64.98	
17/04/99	9:09:51	0.9642	1757.35	66.31	
17/04/99	9:10:26	0.9739	1762.97	67.72	
17/04/99	9:11:01	0.9836	1768.58	69.23	
17/04/99	9:11:36	0.9933	1774.30	70.77	
17/04/99	9:12:11	1.0031	1780.00	72.32	
17/04/99	9:12:46	1.0128	1785.43	73.87	
17/04/99	9:13:26	1.0239	1790.78	75.65	
17/04/99	9:14:06	1.0350	1795.88	77.44	
17/04/99	9:14:51	1.0475	1801.33	79.45	
17/04/99	9:15:36	1.0600	1806.65	81.44	
17/04/99	9:16:21	1.0725	1811.86	83.44	
17/04/99	9:17:16	1.0878	1816.88	85.84	
17/04/99	9:18:16	1.1044	1822.26	88.38	
17/04/99	9:19:16	1.1211	1827.57	90.79	
17/04/99	9:20:11	1.1364	1832.84	92.92	
17/04/99	9:21:06	1.1517	1838.04	95.01	
17/04/99	9:22:06	1.1683	1843.24	97.23	
17/04/99	9:23:06	1.1850	1848.60	99.38	
17/04/99	9:24:06	1.2017	1853.95	101.49	
17/04/99	9:25:01	1.2169	1859.45	103.40	
17/04/99	9:25:46	1.2294	1864.59	104.97	
17/04/99	9:26:31	1.2419	1869.77	106.58	
17/04/99	9:27:16	1.2544	1874.87	108.25	
17/04/99	9:28:01	1.2669	1880.35	109.98	
17/04/99	9:28:41	1.2781	1885.52	111.55	
17/04/99	9:29:21	1.2892	1890.59	113.14	

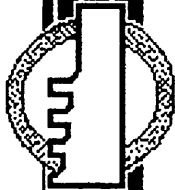
EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2123		
EMP-Q Calibration I.D.: 2123-19056			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:12:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34586			No. of Records Selected: 220		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp (°F)	Remarks
17/04/99	9:30:16	1.3044	1895.61	115.39	
17/04/99	9:30:56	1.3156	1901.08	117.07	
17/04/99	10:00:56	1.8156	1901.06	137.90	
17/04/99	10:02:41	1.8447	1895.87	138.00	
17/04/99	10:03:16	1.8544	1900.96	138.03	
17/04/99	10:06:31	1.9086	1894.86	138.17	
17/04/99	10:07:01	1.9169	1900.37	138.19	
17/04/99	10:09:36	1.9600	1893.82	138.28	
17/04/99	10:10:01	1.9669	1899.98	138.29	
17/04/99	10:13:31	2.0253	1893.51	138.39	
17/04/99	10:13:46	2.0294	1899.26	138.39	
17/04/99	10:22:26	2.1739	1894.18	138.58	
17/04/99	10:22:36	2.1767	1899.52	138.59	
17/04/99	10:52:36	2.6767	1901.17	138.83	
17/04/99	11:01:46	2.8294	1894.79	138.84	
17/04/99	11:01:56	2.8322	1887.10	138.83	
17/04/99	11:02:06	2.8350	1879.54	138.83	
17/04/99	11:02:16	2.8378	1872.67	138.83	
17/04/99	11:02:26	2.8406	1867.09	138.83	
17/04/99	11:02:36	2.8433	1861.27	138.83	
17/04/99	11:02:46	2.8461	1856.03	138.83	
17/04/99	11:03:06	2.8517	1850.83	138.83	
17/04/99	11:05:11	2.8864	1855.93	138.83	
17/04/99	11:07:51	2.9308	1861.04	138.83	
17/04/99	11:13:46	3.0294	1866.06	138.86	
17/04/99	11:22:36	3.1767	1871.06	138.94	
17/04/99	11:52:36	3.6767	1874.79	139.24	
17/04/99	12:22:36	4.1767	1876.46	139.37	
17/04/99	12:52:36	4.6767	1877.59	139.45	
17/04/99	13:22:36	5.1767	1878.35	139.50	
17/04/99	13:52:36	5.6767	1878.88	139.54	
17/04/99	14:22:36	6.1767	1879.27	139.57	
17/04/99	14:52:36	6.6767	1879.64	139.60	
17/04/99	15:22:36	7.1767	1879.87	139.62	
17/04/99	15:52:36	7.6767	1880.11	139.64	
17/04/99	16:22:36	8.1767	1880.29	139.65	
17/04/99	16:52:36	8.6767	1880.46	139.66	
17/04/99	17:05:41	8.8947	1894.87	139.67	
17/04/99	17:05:56	8.8989	1900.08	139.67	
17/04/99	17:35:56	9.3989	1900.92	139.67	
17/04/99	18:05:56	9.8989	1900.96	139.57	
17/04/99	18:35:56	10.3989	1900.99	139.49	
17/04/99	19:05:56	10.8989	1901.01	139.42	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04		EMP-Q Serial Number: 2123			
EMP-Q Calibration I.D.: 2123-19056		Full Scale Pressure: 10000 Psi			
Probe Started: 17/04/99 @ 08:12:00		Data Filter: 1800 Secs; 5 PSI Window			
No. of Records Processed: 34586		No. of Records Selected: 220			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
17/04/99	19:35:56	11.3989	1901.03	139.36	
17/04/99	20:05:56	11.8989	1901.04	139.31	
17/04/99	20:35:56	12.3989	1901.05	139.27	
17/04/99	21:05:56	12.8989	1901.07	139.24	
17/04/99	21:30:06	13.3017	1901.07	139.21	
17/04/99	21:30:31	13.3086	1901.07	139.21	
17/04/99	22:00:31	13.8086	1901.08	139.18	
17/04/99	22:30:31	14.3086	1901.09	139.16	
17/04/99	23:00:31	14.8086	1901.10	139.14	
17/04/99	23:30:31	15.3086	1901.11	139.12	
18/04/99	0:00:31	15.8086	1901.12	139.10	
18/04/99	0:30:36	16.3100	1901.13	139.09	
18/04/99	1:00:36	16.8100	1901.13	139.08	
18/04/99	1:30:36	17.3100	1901.14	139.07	
18/04/99	2:00:36	17.8100	1901.15	139.05	
18/04/99	2:30:36	18.3100	1901.16	139.05	
18/04/99	3:00:36	18.8100	1901.16	139.04	
18/04/99	3:30:36	19.3100	1901.17	139.03	
18/04/99	4:00:36	19.8100	1901.17	139.02	
18/04/99	4:30:36	20.3100	1901.18	139.01	
18/04/99	5:00:36	20.8100	1901.18	139.00	
18/04/99	5:30:36	21.3100	1901.19	139.00	
18/04/99	6:00:36	21.8100	1901.19	138.99	
18/04/99	6:30:36	22.3100	1901.19	138.99	
18/04/99	7:00:36	22.8100	1901.20	139.06	
18/04/99	7:30:36	23.3100	1901.20	139.05	
18/04/99	7:49:51	23.6308	1895.75	139.04	
18/04/99	8:19:51	24.1308	1894.30	139.78	
18/04/99	8:49:51	24.6308	1894.26	139.94	
18/04/99	9:19:51	25.1308	1894.22	139.97	
18/04/99	9:49:51	25.6308	1894.18	139.98	
18/04/99	9:51:26	25.6572	1889.07	139.98	
18/04/99	10:21:26	26.1572	1888.14	139.89	
18/04/99	10:51:26	26.6572	1888.46	139.88	
18/04/99	11:21:26	27.1572	1888.48	139.88	
18/04/99	11:51:26	27.6572	1890.90	139.89	
18/04/99	11:51:31	27.6586	1898.14	139.89	
18/04/99	12:00:16	27.8044	1891.68	139.91	
18/04/99	12:00:31	27.8086	1885.64	139.91	
18/04/99	12:00:51	27.8142	1880.06	139.91	
18/04/99	12:30:51	28.3142	1881.06	139.74	
18/04/99	13:00:51	28.8142	1881.16	139.73	
18/04/99	13:30:51	29.3142	1881.23	139.73	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2123		
EMP-Q Calibration I.D.: 2123-19056			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:12:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34586			No. of Records Selected: 220		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp (°F)	Remarks
18/04/99	13:50:41	29.6447	1889.69	139.74	
18/04/99	13:50:51	29.6475	1896.15	139.74	
18/04/99	14:20:51	30.1475	1898.42	139.93	
18/04/99	14:50:51	30.6475	1898.38	140.03	
18/04/99	15:20:51	31.1475	1898.30	140.07	
18/04/99	15:50:51	31.6475	1900.59	140.08	
18/04/99	16:20:51	32.1475	1900.72	139.98	
18/04/99	16:50:51	32.6475	1900.73	139.87	
18/04/99	17:20:51	33.1475	1900.75	139.78	
18/04/99	17:50:51	33.6475	1900.76	139.70	
18/04/99	18:20:51	34.1475	1900.77	139.63	
18/04/99	18:50:51	34.6475	1900.77	139.57	
18/04/99	19:20:51	35.1475	1900.78	139.52	
18/04/99	19:50:51	35.6475	1900.79	139.48	
18/04/99	20:20:51	36.1475	1900.79	139.45	
18/04/99	20:50:51	36.6475	1900.80	139.41	
18/04/99	21:20:51	37.1475	1900.80	139.38	
18/04/99	21:50:51	37.6475	1900.81	139.35	
18/04/99	22:20:51	38.1475	1900.82	139.33	
18/04/99	22:50:51	38.6475	1900.81	139.31	
18/04/99	23:20:51	39.1475	1900.82	139.29	
18/04/99	23:50:51	39.6475	1900.83	139.27	
19/04/99	0:20:51	40.1475	1900.83	139.26	
19/04/99	0:50:51	40.6475	1900.83	139.24	
19/04/99	1:20:51	41.1475	1900.83	139.23	
19/04/99	1:50:51	41.6475	1900.84	139.22	
19/04/99	2:02:16	41.8378	1900.84	139.21	
19/04/99	2:02:46	41.8461	1900.84	139.21	
19/04/99	2:32:46	42.3461	1900.84	139.20	
19/04/99	3:02:46	42.8461	1900.85	139.19	
19/04/99	3:32:46	43.3461	1900.85	139.18	
19/04/99	4:02:46	43.8461	1900.86	139.17	
19/04/99	4:32:46	44.3461	1900.86	139.17	
19/04/99	5:02:46	44.8461	1900.86	139.16	
19/04/99	5:32:46	45.3461	1900.87	139.15	
19/04/99	6:02:46	45.8461	1900.87	139.14	
19/04/99	6:32:46	46.3461	1900.87	139.14	
19/04/99	7:02:46	46.8461	1900.86	139.14	
19/04/99	7:25:21	47.2225	1895.58	138.51	
19/04/99	7:26:11	47.2364	1890.08	138.43	
19/04/99	7:26:56	47.2489	1885.02	138.19	
19/04/99	7:37:16	47.4211	1879.68	133.75	
19/04/99	7:37:56	47.4322	1874.40	133.55	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2123		
EMP-Q Calibration I.D.: 2123-19056			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:12:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34586			No. of Records Selected: 220		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
19/04/99	7:38:36	47.4433	1868.97	133.23	
19/04/99	7:39:16	47.4544	1863.23	132.77	
19/04/99	7:39:51	47.4642	1858.05	132.25	
19/04/99	7:40:26	47.4739	1852.94	131.61	
19/04/99	7:41:01	47.4836	1847.80	130.90	
19/04/99	7:41:36	47.4933	1842.63	130.12	
19/04/99	7:42:11	47.5031	1837.40	129.28	
19/04/99	7:42:46	47.5128	1832.14	128.39	
19/04/99	7:43:21	47.5225	1826.88	127.44	
19/04/99	7:43:56	47.5322	1821.50	126.44	
19/04/99	7:44:31	47.5419	1816.10	125.40	
19/04/99	7:45:06	47.5517	1810.62	124.34	
19/04/99	7:45:41	47.5614	1805.16	123.25	
19/04/99	7:46:16	47.5711	1799.72	122.12	
19/04/99	7:46:51	47.5808	1794.00	120.93	
19/04/99	7:47:21	47.5892	1788.86	119.87	
19/04/99	7:47:51	47.5975	1783.53	118.79	
19/04/99	7:48:21	47.6058	1778.15	117.66	
19/04/99	7:48:51	47.6142	1772.76	116.50	
19/04/99	7:49:21	47.6225	1767.31	115.32	
19/04/99	7:49:51	47.6308	1761.78	114.14	
19/04/99	7:50:21	47.6392	1756.19	112.99	
19/04/99	7:50:51	47.6475	1750.64	111.77	
19/04/99	7:51:21	47.6558	1744.99	110.52	
19/04/99	7:51:51	47.6642	1739.37	109.19	
19/04/99	7:52:21	47.6725	1733.73	107.81	
19/04/99	7:52:51	47.6808	1728.00	106.36	
19/04/99	7:53:21	47.6892	1722.48	104.85	
19/04/99	7:53:51	47.6975	1716.74	103.25	
19/04/99	7:54:26	47.7072	1711.09	101.23	
19/04/99	8:07:36	47.9267	1677.07	70.74	
19/04/99	8:07:41	47.9281	1615.71	70.65	
19/04/99	8:07:46	47.9294	1538.38	70.56	
19/04/99	8:07:51	47.9308	1425.76	70.47	
19/04/99	8:07:56	47.9322	1216.19	70.37	
19/04/99	8:08:01	47.9336	1009.96	70.26	
19/04/99	8:08:06	47.9350	738.78	70.13	
19/04/99	8:08:11	47.9364	549.93	69.99	
19/04/99	8:08:16	47.9378	333.84	69.82	
19/04/99	8:08:21	47.9392	142.65	69.63	
19/04/99	8:08:26	47.9406	14.88	69.42	
19/04/99	8:08:31	47.9419	0.61	69.20	

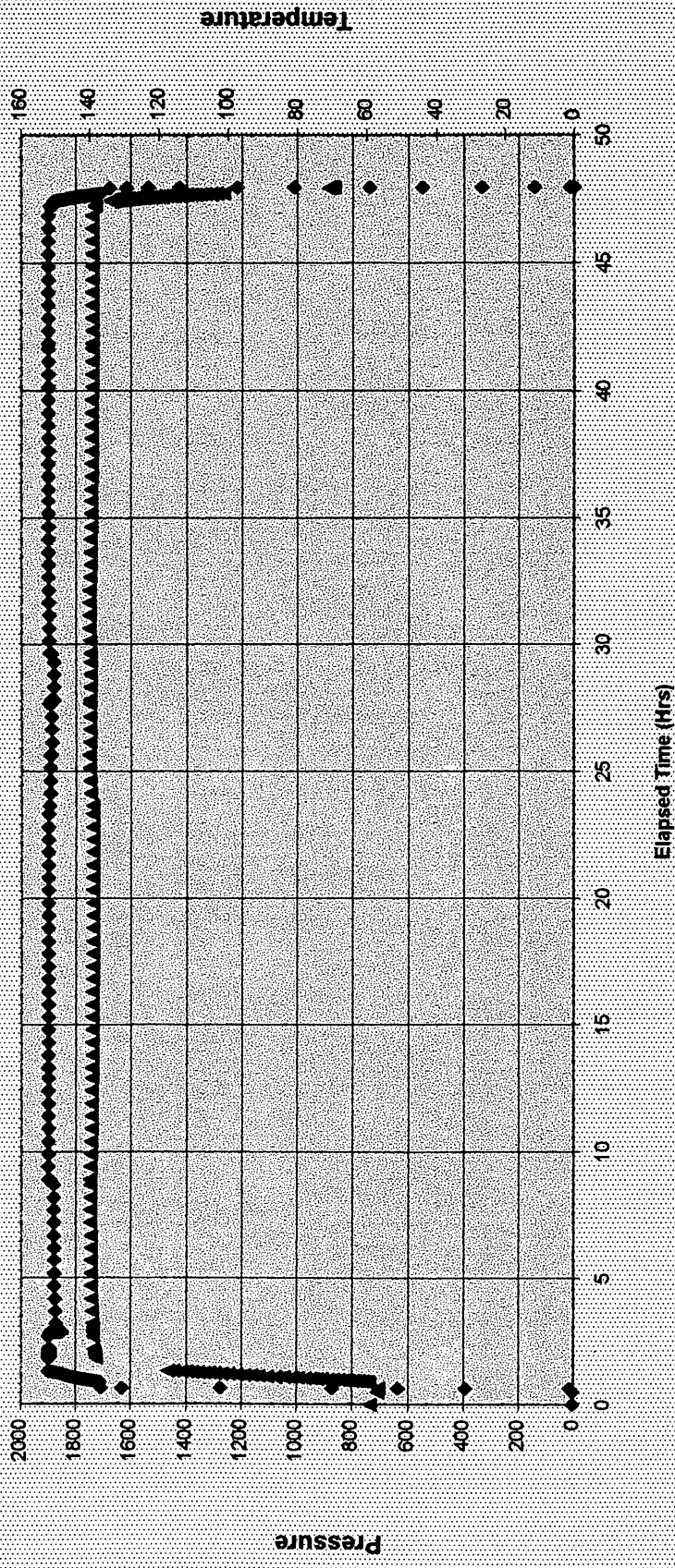
EXPERTEST PTY. LTD.




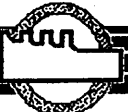
Electronic Memory Recorder - Linear Plot


Customer: Boral Energy	Well Name: North Paaratte #4	Formation: Waarre
Perforations: 4950.78'-4970.47' KB	Type Of Test: Production Test	Operator: N Hay
Date Of Test: 16/04 - 19/04/99		Control No.: V191604A.99
McAllister File Ref: PRN V1.04	EMP-Q Serial Number: 2123	
EMP-Q Calibration I.D.: 2123-19056	Full Scale Pressure: 10000 Psi	
Probe Started: 17/04/99 @ 08:12:00	Data Filter: 1800 Secs; 5 PSI Window	


EMR Linear Plot

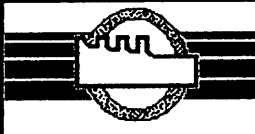


EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04		EMP-Q Serial Number: 2209			
EMP-Q Calibration I.D.: 2209-19049		Full Scale Pressure: 10000 Psi			
Probe Started: 17/04/99 @ 08:16:00		Data Filter: 1800 Secs; 5 PSI Window			
No. of Records Processed: 34563		No. of Records Selected: 214			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
17/04/99	8:16:01	0.0003	5.56	55.32	
17/04/99	8:46:01	0.5003	5.66	55.39	
17/04/99	8:49:36	0.5600	37.02	55.49	
17/04/99	8:49:41	0.5614	665.90	55.49	
17/04/99	8:49:46	0.5628	925.28	55.50	
17/04/99	8:49:51	0.5642	1352.01	55.51	
17/04/99	8:49:56	0.5656	1682.62	55.52	
17/04/99	8:50:01	0.5669	1707.92	55.53	
17/04/99	9:04:41	0.8114	1713.49	57.06	
17/04/99	9:05:21	0.8225	1718.59	57.57	
17/04/99	9:06:01	0.8336	1723.78	58.36	
17/04/99	9:06:41	0.8447	1729.10	59.34	
17/04/99	9:07:16	0.8544	1734.68	60.33	
17/04/99	9:07:51	0.8642	1740.27	61.47	
17/04/99	9:08:26	0.8739	1745.82	62.73	
17/04/99	9:09:01	0.8836	1751.45	64.09	
17/04/99	9:09:36	0.8933	1756.90	65.57	
17/04/99	9:10:11	0.9031	1762.45	67.12	
17/04/99	9:10:46	0.9128	1767.91	68.78	
17/04/99	9:11:21	0.9225	1773.60	70.48	
17/04/99	9:11:56	0.9322	1779.27	72.16	
17/04/99	9:12:31	0.9419	1784.55	73.83	
17/04/99	9:13:11	0.9531	1789.86	75.74	
17/04/99	9:13:51	0.9642	1794.91	77.66	
17/04/99	9:14:36	0.9767	1800.35	79.80	
17/04/99	9:15:21	0.9892	1805.68	81.92	
17/04/99	9:16:06	1.0017	1810.75	84.04	
17/04/99	9:17:01	1.0169	1815.82	86.56	
17/04/99	9:18:01	1.0336	1821.24	89.22	
17/04/99	9:18:56	1.0489	1826.27	91.53	
17/04/99	9:19:51	1.0642	1831.61	93.74	
17/04/99	9:20:46	1.0794	1836.86	95.88	
17/04/99	9:21:46	1.0961	1842.10	98.15	
17/04/99	9:22:46	1.1128	1847.53	100.34	
17/04/99	9:23:46	1.1294	1852.90	102.48	
17/04/99	9:24:41	1.1447	1858.45	104.41	
17/04/99	9:25:26	1.1572	1863.59	105.98	
17/04/99	9:26:11	1.1697	1868.72	107.59	
17/04/99	9:26:56	1.1822	1873.76	109.27	
17/04/99	9:27:41	1.1947	1879.20	111.00	
17/04/99	9:28:21	1.2058	1884.33	112.58	
17/04/99	9:29:06	1.2183	1889.79	114.38	
17/04/99	9:30:06	1.2350	1895.15	116.87	

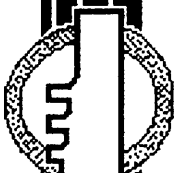
EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2209		
EMP-Q Calibration I.D.: 2209-19049			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:16:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34563			No. of Records Selected: 214		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
17/04/99	9:30:31	1.2419	1900.36	117.93	
17/04/99	9:31:46	1.2628	1907.29	121.09	
17/04/99	9:31:51	1.2642	1901.76	121.28	
17/04/99	10:01:51	1.7642	1903.58	138.17	
17/04/99	10:02:21	1.7725	1898.05	138.19	
17/04/99	10:02:46	1.7794	1903.15	138.20	
17/04/99	10:06:11	1.8364	1896.87	138.33	
17/04/99	10:06:36	1.8433	1902.44	138.34	
17/04/99	10:09:16	1.8878	1896.17	138.42	
17/04/99	10:09:36	1.8933	1901.48	138.43	
17/04/99	10:13:11	1.9531	1896.09	138.52	
17/04/99	10:13:26	1.9572	1901.76	138.53	
17/04/99	10:22:06	2.1017	1896.63	138.71	
17/04/99	10:22:16	2.1044	1902.05	138.71	
17/04/99	10:52:16	2.6044	1903.53	138.91	
17/04/99	11:01:26	2.7572	1896.71	138.91	
17/04/99	11:01:36	2.7600	1888.74	138.91	
17/04/99	11:01:46	2.7628	1881.43	138.91	
17/04/99	11:01:56	2.7656	1874.59	138.91	
17/04/99	11:02:06	2.7683	1869.01	138.91	
17/04/99	11:02:16	2.7711	1863.12	138.91	
17/04/99	11:02:26	2.7739	1858.03	138.91	
17/04/99	11:02:51	2.7808	1852.62	138.90	
17/04/99	11:04:41	2.8114	1857.80	138.90	
17/04/99	11:07:06	2.8517	1862.81	138.90	
17/04/99	11:12:21	2.9392	1867.82	138.89	
17/04/99	11:18:41	3.0447	1872.82	138.92	
17/04/99	11:48:41	3.5447	1876.79	139.18	
17/04/99	12:18:41	4.0447	1878.57	139.32	
17/04/99	12:48:41	4.5447	1879.70	139.40	
17/04/99	13:18:41	5.0447	1880.50	139.45	
17/04/99	13:48:41	5.5447	1881.00	139.49	
17/04/99	14:18:41	6.0447	1881.40	139.53	
17/04/99	14:48:41	6.5447	1881.81	139.55	
17/04/99	15:18:41	7.0447	1882.02	139.57	
17/04/99	15:48:41	7.5447	1882.26	139.59	
17/04/99	16:18:41	8.0447	1882.46	139.61	
17/04/99	16:48:41	8.5447	1882.62	139.62	
17/04/99	17:05:21	8.8225	1897.63	139.63	
17/04/99	17:06:01	8.8336	1902.65	139.63	
17/04/99	17:36:01	9.3336	1903.08	139.65	
17/04/99	18:06:01	9.8336	1903.13	139.54	
17/04/99	18:36:01	10.3336	1903.15	139.46	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2209		
EMP-Q Calibration I.D.: 2209-19049			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:16:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34563			No. of Records Selected: 214		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
17/04/99	19:06:01	10.8336	1903.18	139.39	
17/04/99	19:36:01	11.3336	1903.19	139.33	
17/04/99	20:06:01	11.8336	1903.20	139.29	
17/04/99	20:36:01	12.3336	1903.22	139.25	
17/04/99	21:06:01	12.8336	1903.23	139.22	
17/04/99	21:36:01	13.3336	1903.24	139.19	
17/04/99	22:06:01	13.8336	1903.26	139.16	
17/04/99	22:36:01	14.3336	1903.26	139.14	
17/04/99	23:06:01	14.8336	1903.27	139.12	
17/04/99	23:36:01	15.3336	1903.28	139.11	
18/04/99	0:06:01	15.8336	1903.29	139.09	
18/04/99	0:36:01	16.3336	1903.30	139.08	
18/04/99	1:06:01	16.8336	1903.31	139.07	
18/04/99	1:36:01	17.3336	1903.32	139.06	
18/04/99	2:06:01	17.8336	1903.33	139.05	
18/04/99	2:36:01	18.3336	1903.33	139.04	
18/04/99	3:06:01	18.8336	1903.33	139.03	
18/04/99	3:36:01	19.3336	1903.34	139.02	
18/04/99	4:06:01	19.8336	1903.35	139.01	
18/04/99	4:36:01	20.3336	1903.35	139.01	
18/04/99	5:06:01	20.8336	1903.36	139.00	
18/04/99	5:36:01	21.3336	1903.37	139.00	
18/04/99	6:06:01	21.8336	1903.37	138.99	
18/04/99	6:36:01	22.3336	1903.37	139.03	
18/04/99	7:06:01	22.8336	1903.38	139.08	
18/04/99	7:36:01	23.3336	1903.39	139.06	
18/04/99	7:49:31	23.5586	1897.94	139.05	
18/04/99	8:19:31	24.0586	1896.46	139.79	
18/04/99	8:49:31	24.5586	1896.45	139.91	
18/04/99	9:19:31	25.0586	1896.40	139.93	
18/04/99	9:49:31	25.5586	1896.36	139.94	
18/04/99	9:51:06	25.5850	1891.27	139.94	
18/04/99	10:21:06	26.0850	1890.32	139.86	
18/04/99	10:51:06	26.5850	1890.65	139.84	
18/04/99	11:21:06	27.0850	1890.68	139.84	
18/04/99	11:51:06	27.5850	1892.81	139.85	
18/04/99	11:51:11	27.5864	1899.98	139.85	
18/04/99	11:59:56	27.7322	1894.00	139.87	
18/04/99	12:00:11	27.7364	1887.98	139.87	
18/04/99	12:00:31	27.7419	1882.30	139.87	
18/04/99	12:30:31	28.2419	1883.24	139.72	
18/04/99	13:00:31	28.7419	1883.35	139.69	
18/04/99	13:30:31	29.2419	1883.41	139.69	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2209		
EMP-Q Calibration I.D.: 2209-19049			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:16:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34563			No. of Records Selected: 214		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
18/04/99	13:50:21	29.5725	1891.36	139.70	
18/04/99	13:50:31	29.5753	1898.17	139.70	
18/04/99	14:20:31	30.0753	1900.60	139.90	
18/04/99	14:50:31	30.5753	1900.54	140.00	
18/04/99	15:20:31	31.0753	1900.51	140.03	
18/04/99	15:50:31	31.5753	1902.82	140.04	
18/04/99	16:20:36	32.0767	1902.91	139.97	
18/04/99	16:50:36	32.5767	1902.92	139.86	
18/04/99	17:20:36	33.0767	1902.94	139.76	
18/04/99	17:50:36	33.5767	1902.95	139.67	
18/04/99	18:20:36	34.0767	1902.95	139.61	
18/04/99	18:50:36	34.5767	1902.96	139.55	
18/04/99	19:20:36	35.0767	1902.97	139.51	
18/04/99	19:50:36	35.5767	1902.98	139.47	
18/04/99	20:20:36	36.0767	1902.98	139.43	
18/04/99	20:50:36	36.5767	1902.99	139.40	
18/04/99	21:20:36	37.0767	1902.99	139.37	
18/04/99	21:50:36	37.5767	1903.00	139.35	
18/04/99	22:20:36	38.0767	1903.00	139.33	
18/04/99	22:50:36	38.5767	1903.01	139.31	
18/04/99	23:20:36	39.0767	1903.01	139.29	
18/04/99	23:50:36	39.5767	1903.02	139.27	
19/04/99	0:20:36	40.0767	1903.02	139.26	
19/04/99	0:50:36	40.5767	1903.02	139.25	
19/04/99	1:20:36	41.0767	1903.03	139.23	
19/04/99	1:50:36	41.5767	1903.03	139.22	
19/04/99	2:20:36	42.0767	1903.03	139.21	
19/04/99	2:50:36	42.5767	1903.04	139.20	
19/04/99	3:20:36	43.0767	1903.04	139.19	
19/04/99	3:50:36	43.5767	1903.05	139.18	
19/04/99	4:20:36	44.0767	1903.05	139.18	
19/04/99	4:50:36	44.5767	1903.05	139.17	
19/04/99	5:20:36	45.0767	1903.05	139.16	
19/04/99	5:50:36	45.5767	1903.06	139.16	
19/04/99	6:20:36	46.0767	1903.06	139.15	
19/04/99	6:50:36	46.5767	1903.06	139.15	
19/04/99	7:03:26	46.7906	1887.53	139.15	
19/04/99	7:03:31	46.7919	1899.47	139.15	
19/04/99	7:25:21	47.1558	1894.10	138.48	
19/04/99	7:26:06	47.1683	1889.08	138.39	
19/04/99	7:26:56	47.1822	1883.58	138.09	
19/04/99	7:37:16	47.3544	1878.05	133.37	
19/04/99	7:37:56	47.3656	1872.59	133.15	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: Boral Energy	Well Name: North Paaratte #4		
		Perforations: 4950.78'-4970.47' KB	Formation: Waarre		
		Date Of Test: 16/04 - 19/04/99	Type Of Test: Production Test		
		Operator: N Hay	Control No.: V191604A.99		
McAllister File Ref: PRN V1.04			EMP-Q Serial Number: 2209		
EMP-Q Calibration I.D.: 2209-19049			Full Scale Pressure: 10000 Psi		
Probe Started: 17/04/99 @ 08:16:00			Data Filter: 1800 Secs; 5 PSI Window		
No. of Records Processed: 34563			No. of Records Selected: 214		
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°F)	Remarks
19/04/99	7:38:36	47.3767	1867.17	132.82	
19/04/99	7:39:11	47.3864	1862.14	132.41	
19/04/99	7:39:46	47.3961	1857.11	131.88	
19/04/99	7:40:26	47.4072	1851.45	131.14	
19/04/99	7:41:01	47.4169	1846.42	130.40	
19/04/99	7:41:36	47.4267	1841.33	129.59	
19/04/99	7:42:11	47.4364	1836.15	128.71	
19/04/99	7:42:46	47.4461	1831.02	127.77	
19/04/99	7:43:21	47.4558	1825.77	126.78	
19/04/99	7:43:56	47.4656	1820.47	125.75	
19/04/99	7:44:31	47.4753	1815.11	124.67	
19/04/99	7:45:06	47.4850	1809.72	123.57	
19/04/99	7:45:41	47.4947	1804.31	122.44	
19/04/99	7:46:16	47.5044	1798.83	121.27	
19/04/99	7:46:51	47.5142	1793.04	120.03	
19/04/99	7:47:21	47.5225	1787.86	118.94	
19/04/99	7:47:51	47.5308	1782.56	117.82	
19/04/99	7:48:21	47.5392	1777.26	116.66	
19/04/99	7:48:51	47.5475	1771.92	115.47	
19/04/99	7:49:21	47.5558	1766.44	114.25	
19/04/99	7:49:51	47.5642	1760.86	113.06	
19/04/99	7:50:21	47.5725	1755.37	111.85	
19/04/99	7:50:51	47.5808	1749.82	110.60	
19/04/99	7:51:21	47.5892	1744.26	109.31	
19/04/99	7:51:51	47.5975	1738.76	107.95	
19/04/99	7:52:21	47.6058	1733.17	106.53	
19/04/99	7:52:51	47.6142	1727.67	105.04	
19/04/99	7:53:21	47.6225	1722.16	103.49	
19/04/99	7:53:51	47.6308	1716.83	101.81	
19/04/99	7:54:56	47.6489	1711.79	97.97	
19/04/99	8:07:16	47.8544	1697.71	69.85	
19/04/99	8:07:21	47.8558	1630.44	69.76	
19/04/99	8:07:26	47.8572	1578.44	69.67	
19/04/99	8:07:31	47.8586	1457.45	69.59	
19/04/99	8:07:36	47.8600	1283.75	69.50	
19/04/99	8:07:41	47.8614	1081.75	69.40	
19/04/99	8:07:46	47.8628	808.13	69.30	
19/04/99	8:07:51	47.8642	601.66	69.19	
19/04/99	8:07:56	47.8656	404.46	69.06	
19/04/99	8:08:01	47.8669	197.54	68.92	
19/04/99	8:08:06	47.8683	50.34	68.76	
19/04/99	8:08:11	47.8697	2.48	68.58	

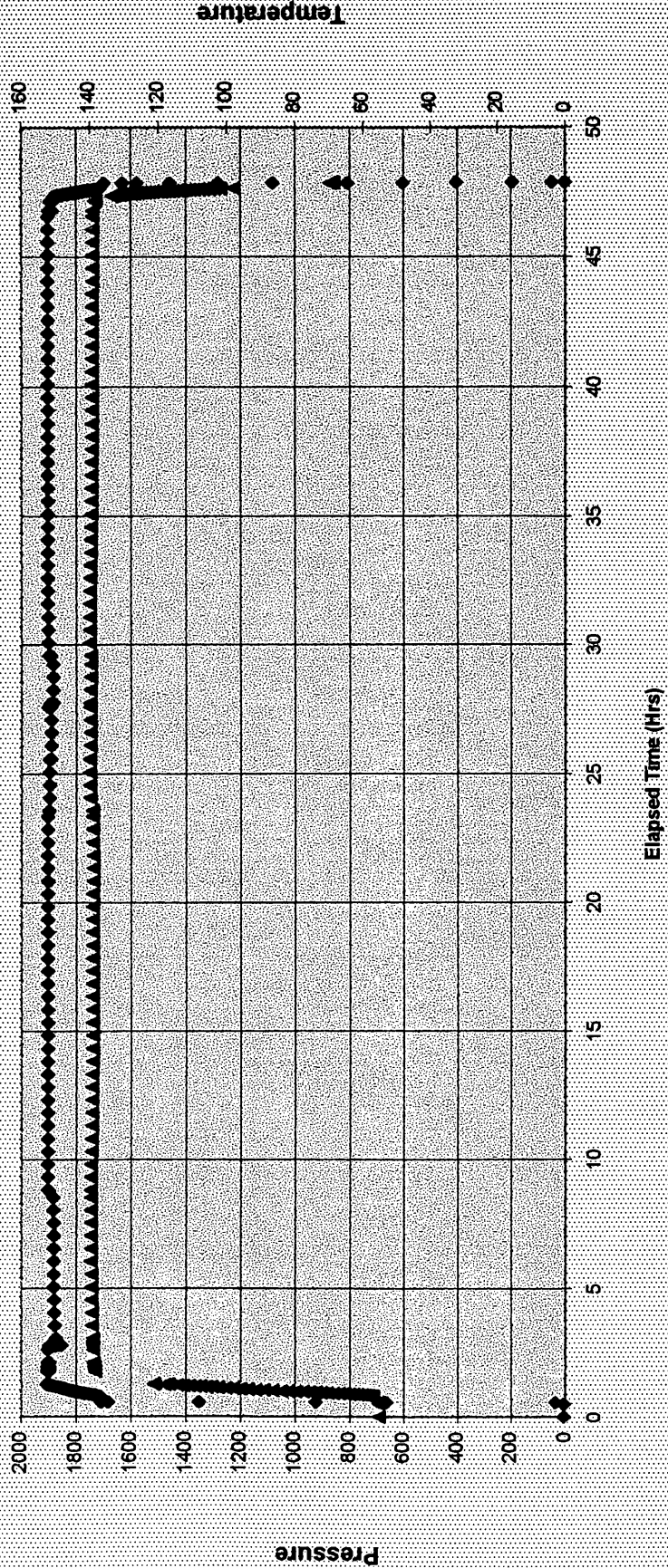
EXPERTEST PTY. LTD.



Electronic Memory Recorder - Linear Plot

Customer:	Boral Energy	Well Name:	North Paaratte #4	Formation:	Waarre
Perforations:	4950.78'-4970.47' KB	Type Of Test:	Production Test	Operator:	N Hay
Date Of Test:	16/04 - 19/04/99			Control No.:	V191604A.99
McAllister File Ref: PRN V1.04		EMP-Q Serial Number: 2209			
EMP-Q Calibration I.D.: 2209-19049		Full Scale Pressure: 10000 Psi			
Probe Started: 17/04/99 @ 08:16:00		Data Filter: 1800 Secs; 5 PSI Window			

EMR Linear Plot



EXPERTEST PTY. LTD.



GAUGE RUN SHEET

V191604A.99

CUSTOMER: **BORAL ENERGY**
 WELL NAME: **Nth Paragette #4**
 TEST TYPE: **PBU/SGS**

PERFORATIONS: **4950.78 KB TO 4970.47** PAGE: **1** OF **1**
 FORMATIONS: **Waarre Formation** DATE: **17/4/99**
 OPR: **R. DOYLE**

GAUGE DATA		BOTTOM GAUGE	TOP GAUGE
ELEMENT SERIAL NO.		2209	2123
ELEMENT RANGE		10,000 PSI	10,000
ELEMENT TYPE		ETP-Q	ETP-Q
DATE OF CALIBRATION:		18/2/99	25/2/99
CLOCK SERIAL NO.			
CLOCK RANGE	HOURS		
ENGAGE BATTERY/DATE:	17/4/99	08:16	08:12
DISENGAGE BATTERY/DATE:	19/4/99	08:17	08:15
GAUGE RUN TIME AGGREGATE	HOURS	0	19:34
TEST DURATION	HOURS	48	48

RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI)	GAUGE RESPONSE (PSI)
DATE: 17/4/99			
PRESSURE LUBRICATOR: 17/4/99	0857	1708.0	1718.8
RUN IN HOLE: 17/4/99	0906	1708.0	1718.8
ON DEPTH AT 17/4/99 4890 (FTM)	0933	1708.0	
MAX. RECORDED BHP			1922.02 Psi.
MAX. RECORDED BHT			140°F
DATE: 19/4/99			
PULL OUT OF HOLE	0706	1709.0	
DEPRESSURE LUBRICATOR	0809	1709.0	1712.2

NB: ALL DEPTHS ARE MEASURED FROM KB.

GAUGE CHECKS	LAB	BOTTOM GAUGE	LAB	TOP GAUGE
DATE/PERFORMED BY: 12/3/99	SGS		Doyle	
PRE-JOB CHECK: PRESS PSI AVG	14.7	20.2	14.7	19.12
TEMP °F	78	79	78	79
DATE/PERFORMED BY: 19/4/99	R Doyle		R Doyle	
POST-JOB CHECK: PRESS PSI AVG		18.13 PSI		17.21 PSI
TEMP °C/F		56.48 F		56.35 F
DATE/PERFORMED BY: 11/3/99	Doyle		Doyle	
CAL. CHECK: PRESS PSI AVG	3997	3996	3997	3997
TEMP °F	250	250	250	250

BATTERY DATA	TOP SERIAL NO.	BOTTOM SERIAL NO.	DATE
	RZ-150-170	RZ-144	
PRE-JOB PBU/BHP CYCLES:	2	2	
PRE-JOB SGS/FGS CYCLES:	2	0	
PRE-JOB LOADED VOLTS:	10.6VL	10.03VL	17/4/99
POST-JOB LOADED VOLTS:	10.69VL	10.66VL	19/4/99

OPERATOR'S SIGNATURE

R Doyle

This sheet is submitted as 'Original' and is Not typed

COMMENTS:

ATTACHMENT B
NORTH PAARATTE 4
FLUID DATA

1. INTRODUCTION

Eight (8) cylinders for North Paaratte – 4 & 5 were received on the 23rd April 1999 for HP gas and HP oil analysis.

2. RESULTS

Full wellstream analysis for North PAARATTE – 4 & 5 are presented on the following pages.

It should be noted that the oil in these samples is heavily biodegraded as indicated by the lack of normal paraffin hydrocarbons and is reflected in the kplot.

North PAARATTE – 5

4465 Kpag @ 34°C

20/4/99, 1300h, Cyl SS-11

This sample contained only gas, it must have been sampled incorrectly.

OPENING PRESSURE

JOB NUMBER: LQ7952

ANALYST: Carmeline Valente

WELL: North Paratte - 4

SEPARATOR: 4906Kpag @ 30°C

DATE: 17/04/99 @ 1500h

CYLINDER NO: #103

OPENING PRESSURE: 5100Kpag @ 40°C

LIQUID CHECK: Nil

OPENING PRESSURE

JOB NUMBER: LQ7952

ANALYST: Carmeline Valente

WELL: North Paratte - 4

SEPARATOR: 4985Kpag @ 31°C

DATE: 18/04/99 @ 1300h

CYLINDER NO: SS-9

OPENING PRESSURE: 5300Kpag @ 40°C

LIQUID CHECK: Nil

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01

ASTMD 1945-91 (modified)

915076 070

Client: BORAL ENERGY RESOURCES Ltd

Report # LQ7952

Sample: NORTH PAARATTE-4
 Separator Meter Run
 4899 kPag @ 30°C
 17/04/99, 1500 h, Cyl# 103

GAS	MOL %
Nitrogen	1.75
Carbon Dioxide	0.34
Methane	95.99
Ethane	1.39
Propane	0.04
I-Butane	0.05
N-Butane	0.00
I-Pentane	0.01
N-Pentane	0.00
Hexanes	0.11
Heptanes	0.15
Octanes and higher h'cs	0.17
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	16.95
Lower Flammability limit	4.96
Upper Flammability limit	15.19
Ratio of upper to lower	3.06
Wobbe Index	49.82
Compressibility Factor	0.9979
Ideal Gas Density (Rel to air = 1)	0.585
Real gas Density (Rel to air = 1)	0.586
Ideal Nett Calorific Value MJ/m ³	34.36
Ideal Gross Calorific Value MJ/m ³	38.12
Real Nett Calorific Value MJ/m ³	34.43
Real Gross Calorific Value MJ/m ³	38.20
Gross calorific value of water-saturated gas MJ/m ³	37.45

This report relates specifically to the sample submitted for analysis.

Approved Signatory

Diane Cass

Accreditation No.

2013

Date :

06-05-99

AMDEL PETROLEUM SERVICES

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
4906 kPag @ 30°C
17/04/99, 1500 h, Cyl #SS-8 & 103

HP Gas Rate 28.32 x 1000 m3/D
Stock Tank Oil Rate 0.27 m3/D

COMPOSITIONAL ANALYSIS OF RECOMBINED RESERVOIR FLUID

Component	Mol %	US Gallon/1000ft3
Nitrogen	1.75	-----
Carbon Dioxide	0.34	-----
Methane	95.84	-----
Ethane	1.39	0.37
Propane	0.04	0.01
I-Butane	0.05	0.02
N-Butane	0.00	0.00
I-Pentane	0.01	0.00
N-Pentane	0.00	0.00
Hexanes	0.11	0.05
Heptanes	0.17	0.08
Octanes plus	0.29	0.15
TOTAL	100.00	0.67

DERIVED DATA FROM FULL WELL STREAM COMPOSITION

Molecular Weight		17.11
Gas Density (rel air = 1)		0.591
Molecular Weight C8+		121.4
Density C8+		0.7383
Wobbe Index	49.94	1341
Heating Value	Gross: 38.38 MJ/m3	1030 BTU/ft3
	Nett: 34.60 MJ/m3	929 BTU/ft3
Critical Temperature Tc	193.8 °K	348.8 °R
Critical Pressure Pc	4584 kPa abs	664.9 psia
Gas Liquid Ratio C4-/C5+	26774 m3/m3	

Sales Gas And Liquid Recovery

Assuming Liquid Recovery of 75% C2, 95% C3, 100% C4+ and Sales Gas Content of 2.5% CO2

Gas Shrinkage	1.0045
Liquid Content of Raw Gas (US Bbl/MMSCF) Ethane	6.6
LPG	0.7
Pentane +	6.5

Approved Signatory

Diane Cass

Accreditation No: 2013

Date

06-May-99

AMDEL PETROLEUM SERVICES

Page 2 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4906 kPag @ 30°C
 17/04/99, 1500 h, Cyl #SS-8 & 103

COMPOSITIONAL ANALYSIS OF RECOMBINED SEPARATOR FLUID

Component	Flashed Stock Tank Liquid Mol %	Flashed Stock Tank Gas Mol %	Recomb. Sep. Liquid Mol %
Nitrogen	-----	0.39	0.08
Carbon Dioxide	-----	0.71	0.15
Methane	-----	89.58	18.32
Ethane	0.25	5.64	1.35
Propane	0.04	0.36	0.11
I-Butane	0.19	0.62	0.28
N-Butane	0.12	0.06	0.11
I-Pentane	0.05	0.14	0.07
N-Pentane	0.04	0.01	0.03
Hexanes	1.32	1.07	1.27
Heptanes	12.55	0.99	10.19
Octanes plus	85.43	0.44	68.05
TOTAL	100.00	100.00	100.00

RATIOS

Molar ratio	0.7956	0.2044	1.0000
Mass Ratio	0.9618	0.0382	1.0000
Gas Liquid Ratio	1.00 bbl @ SC	209.6 SCF	-----

STREAM PROPERTIES

Molecular Weight	126.5	19.6	104.6
Density obs(g/cc)	0.7753 @ 15°C	-----	-----
API-Gas Density	50.94 API @60°F	0.675 (air=1)	-----
GHV (BTU/scf)	-----	1176	-----

OCTANE PLUS PROPERTIES

Mol %	85.43	0.44	68.05
Molecular Weight	131.6	114.2	131.6
Density (g/cc)	0.7889 @ 15°C	-----	-----
API @ 60°F	47.80	-----	-----

LABORATORY FLASH SEPARATION DETAILS

Separation Temperature	21	°C
Flash Gas Volume	15.84	litres
Stabilised Liquid Volume	425	ml
Liquid Density	0.7703	g/ml

AMDEL PETROLEUM SERVICES

Page 3 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4906 kPag @ 30°C
 17/04/99, 1500 h, Cyl #SS-8 & 103

COMPOSITIONAL ANALYSIS OF RECOMBINED RESERVOIR FLUID

Component	Separator	Separator	Recomb.
	Liquid Mol %	Gas Mol %	Reservoir Fluid Mol %
Nitrogen	0.08	1.75	1.75
Carbon Dioxide	0.15	0.34	0.34
Methane	18.32	95.98	95.84
Ethane	1.35	1.39	1.39
Propane	0.11	0.04	0.04
I-Butane	0.28	0.05	0.05
N-Butane	0.11	0.00	0.00
I-Pentane	0.07	0.01	0.01
N-Pentane	0.03	0.00	0.00
Hexanes	1.27	0.11	0.11
Heptanes	10.19	0.15	0.17
Octanes plus	68.05	0.17	0.29
TOTAL	100.00	100.00	100.00

RATIOS

Molar ratio	0.0017	0.9983	1.0000
Mass Ratio	0.0106	0.9894	1.0000

STREAM PROPERTIES

Molecular Weight	104.6	17.0	17.1
Gas Density	-----	0.585 (air=1)	0.591
GHV (BTU/scf)	-----	1023	1030

OCTANE PLUS PROPERTIES

Mol %	68.05	0.17	0.29
Molecular Weight	131.6	114.2	121.4
Density (g/cc) @15°C	-----	-----	0.7383
API @ 60°F	-----	-----	60.08

AMDEL PETROLEUM SERVICES

Flash Liquid Analysis

Page 4 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4906 kPag @ 30°C
 17/04/99, 1500 h, Cyl #SS-8 & 103

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	Ethane	0.06	0.25
-42.1	Propane	0.01	0.04
-11.7	I-Butane	0.09	0.19
-0.5	N-Butane	0.06	0.12
27.9	I-Pentane	0.03	0.05
36.1	N-Pentane	0.02	0.04
36.1-68.9	C-6	0.90	1.32
80.0	Benzene	0.00	0.00
68.9-98.3	C-7	9.95	12.55
100.9	Methylcyclohexane	13.42	17.29
110.6	Toluene	0.06	0.09
98.3-125.6	C-8	11.85	13.11
136.1-144.4	Ethylbenz+Xylenes	3.28	3.91
125.6-150.6	C-9	12.65	12.48
150.6-173.9	C-10	21.14	18.79
173.9-196.1	C-11	11.63	9.41
196.1-215.0	C-12	7.12	5.29
215.0-235.0	C-13	4.22	2.89
235.0-252.2	C-14	2.21	1.41
252.2-270.6	C-15	1.11	0.66
270.6-287.8	C-16	0.16	0.09
287.8-302.8	C-17	0.03	0.01
302.8-317.2	C-18	0.00	0.00
317.2-330.0	C-19	0.00	0.00
330.0-344.4	C-20	0.00	0.00
344.4-357.2	C-21	0.00	0.00
357.2-369.4	C-22	0.00	0.00
369.4-380.0	C-23	0.00	0.00
380.0-391.1	C-24	0.00	0.00
391.1-401.7	C-25	0.00	0.00
401.7-412.2	C-26	0.00	0.00
412.2-422.2	C-27	0.00	0.00
>422.2	C-28+	0.00	0.00
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

The above boiling point ranges refer to the normal paraffin hydrocarbon boiling in that range. Aromatics, branched hydrocarbons, naphthenes and olefins may have higher or lower carbon numbers but are grouped and reported according to their boiling points.

Oil Parameters:

Density of Oil @ 21.0 °C	0.7703	
Specific Gravity @ 15.6 °C	0.7756	
API Gravity	50.94	
Specific Gravity of C8+ fraction	0.7892	(calc)
Average molecular weight of C8+ fraction	132	

AMDEL PETROLEUM SERVICES

Method GL-02-03

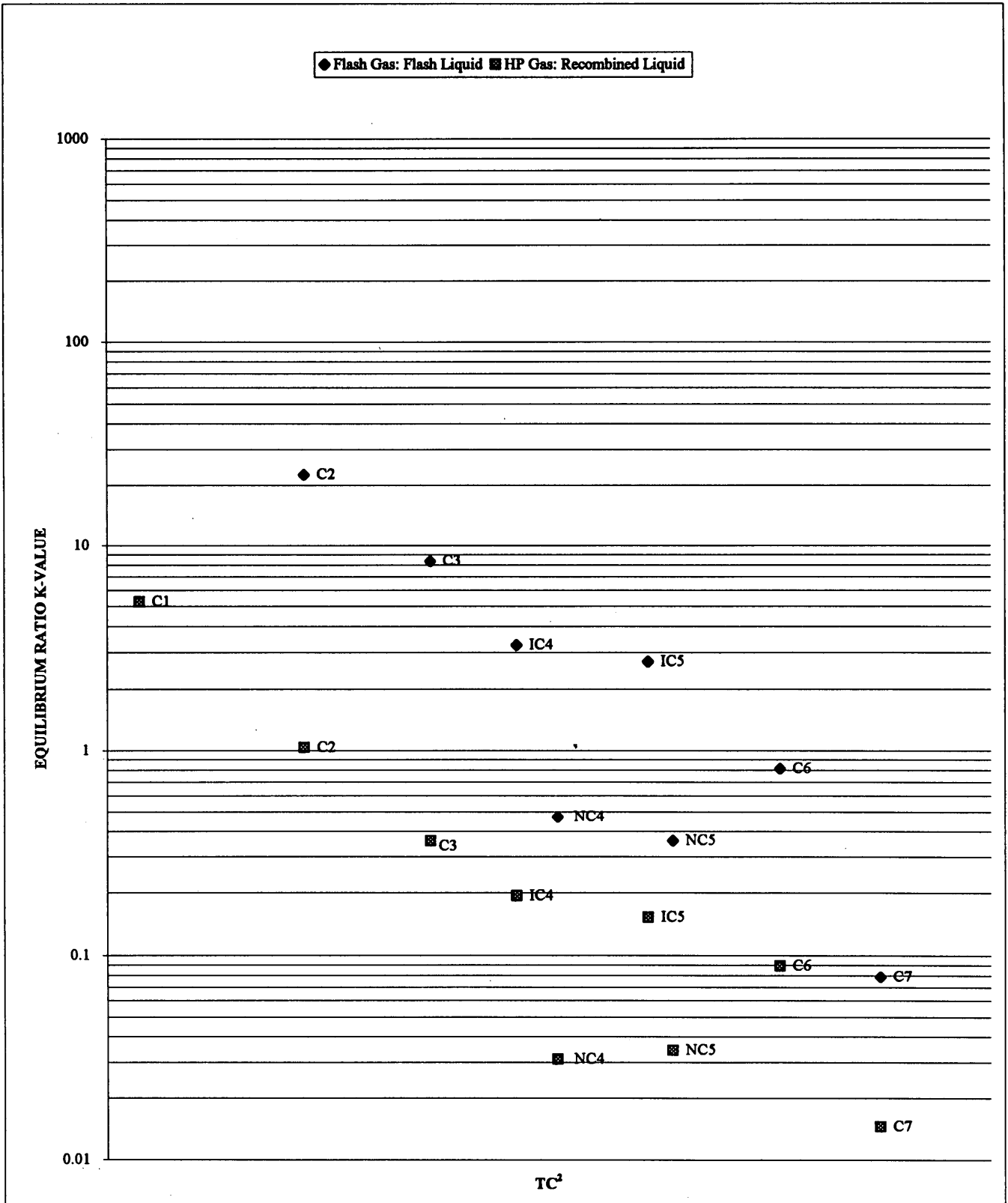
Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4

4906 kPag @ 30°C

17/04/99, 1500 h, Cyl #SS-8 & 103



AMDEL PETROLEUM SERVICES
Method GL-02-03

Appendix A
Page A1

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
4906 kPag @ 30°C
17/04/99, 1500 h, Cyl #SS-8 & 103

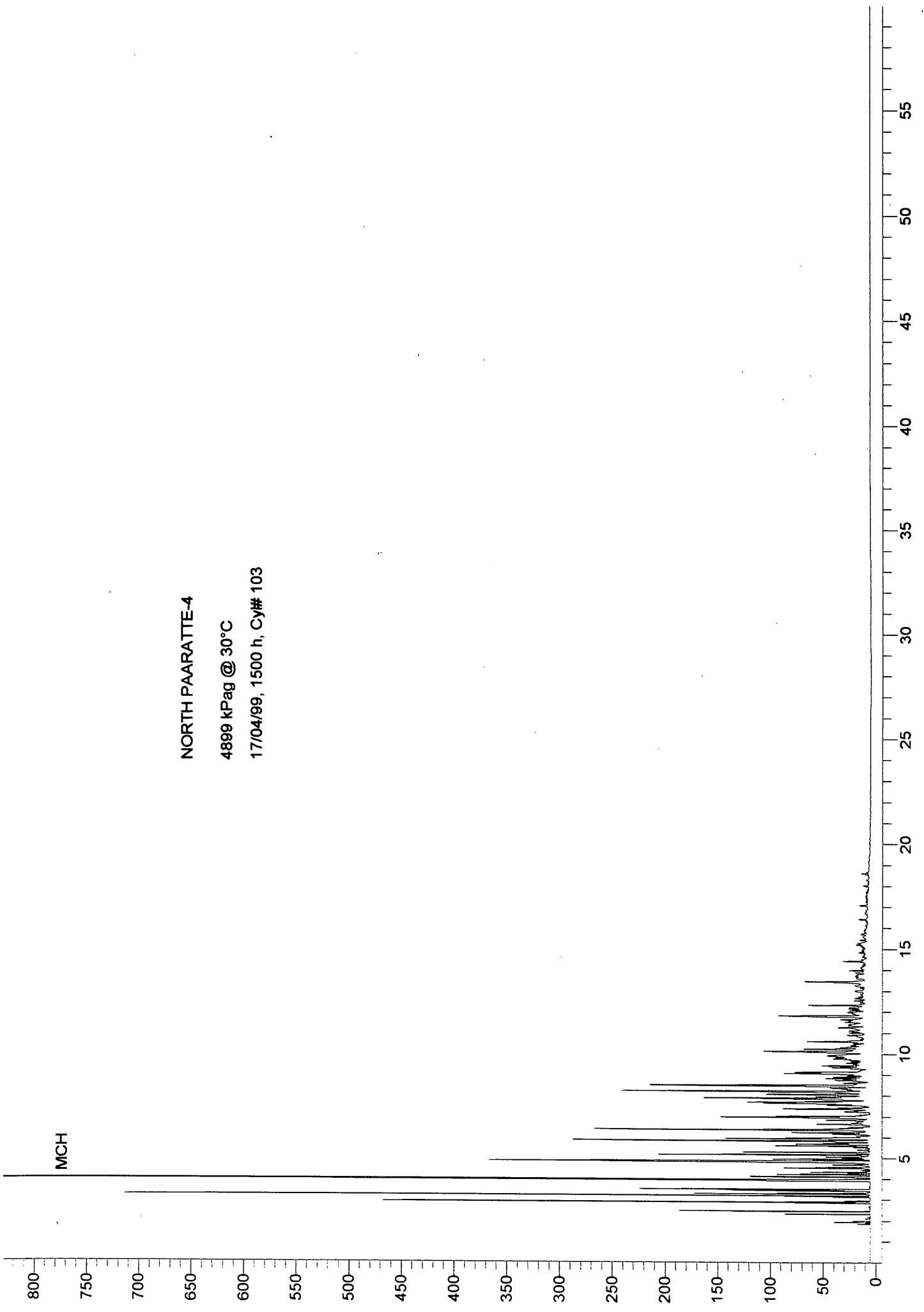
Full Well Stream

Separator Gas	1.000	MMSCF		
Stock Tank Oil Rate	1.700	BBLs		
			Av Mol Wt	
Flash Gas Moles	0.665		19.56	
Flash Liquid Moles	2.589		126.46	
Recombination Moles	3.254			
Molar Shrinkage Factor	0.796			
Full Well Stream	2083	Moles Liquid	0.17%	
Molar ratio	1195108	Moles Gas	99.83%	

	Flash Gas Mol%	Flash Liquid Mol%	Recomb. Liquid Mol%	HP Gas Mol%	Full Well Stream Mol%
Nitrogen	0.39	-----	0.08	1.75	1.75
Carbon Dioxide	0.71	-----	0.15	0.34	0.34
Methane	89.58	-----	18.32	95.98	95.84
Ethane	5.64	0.25	1.35	1.39	1.39
Propane	0.36	0.04	0.11	0.04	0.04
I-Butane	0.62	0.19	0.28	0.05	0.05
N-Butane	0.06	0.12	0.11	0.00	0.00
I-Pentane	0.14	0.05	0.07	0.01	0.01
N-Pentane	0.01	0.04	0.03	0.00	0.00
Hexanes	1.07	1.32	1.27	0.11	0.11
Heptanes	0.99	12.55	10.19	0.15	0.17
Octanes plus	0.44	85.43	68.05	0.17	0.29
	100.00	100.00	100.00	100.00	100.00
Av.Mol.Weight	19.56	126.46	104.60	16.95	17.11

K Factors	Flash Gas/ Flash Liquid	HP Gas/ Recombined Liquid
	Ratio	Ratio
C1	-----	5.24
C2	22.39	1.03
C3	8.35	0.36
IC4	3.25	0.19
NC4	0.47	0.03
IC5	2.72	0.15
NC5	0.36	0.03
C6	0.81	0.09
C7	0.08	0.01

NORTH PAARATTE-4
4899 kPag @ 30°C
17/04/99, 1500 h, Cy# 103



PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01

ASTM D 1945-91 (modified)

915076 078

Client: BORAL ENERGY RESOURCES Ltd

Report # LQ7952

Sample: NORTH PAARATTE-4
 Separator Meter Run
 4985 kPag @ 31°C
 18/04/99, 1300 h, Cyl# SS-9

GAS	MOL %
Nitrogen	1.73
Carbon Dioxide	0.34
Methane	95.93
Ethane	1.39
Propane	0.04
I-Butane	0.05
N-Butane	0.00
I-Pentane	0.01
N-Pentane	0.00
Hexanes	0.11
Heptanes	0.16
Octanes and higher h'cs	0.24
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured constituents are present
 The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs)

Average Molecular Weight	17.03
Lower Flammability limit	4.94
Upper Flammability limit	15.17
Ratio of upper to lower	3.07
Wobbe Index	49.93
Compressibility Factor	0.9979
Ideal Gas Density (Rel to air = 1)	0.588
Real gas Density (Rel to air = 1)	0.589
Ideal Nett Calorific Value MJ/m ³	34.51
Ideal Gross Calorific Value MJ/m ³	38.29
Real Nett Calorific Value MJ/m ³	34.59
Real Gross Calorific Value MJ/m ³	38.37
Gross calorific value of water-saturated gas MJ/m ³	37.61

This report relates specifically to the sample submitted for analysis.

Approved Signatory

Diane Cass

Accreditation No.

2013

Date :

06-05-99

AMDEL PETROLEUM SERVICES

Method GL-02-03

Client: **BORAL ENERGY RESOURCES LTD**

Report # **LQ7952**

Sample: **NORTH PAARATTE-4**
4985 kPag @ 31°C
18/04/99, 1300 h, Cyl# 153 & SS-9

HP Gas Rate 28.32 x 1000 m3/D
 Stock Tank Oil Rate 0.14 m3/D

COMPOSITIONAL ANALYSIS OF RECOMBINED RESERVOIR FLUID

Component	Mol %	US Gallon/1000ft3
Nitrogen	1.73	-----
Carbon Dioxide	0.34	-----
Methane	95.84	-----
Ethane	1.39	0.37
Propane	0.04	0.01
I-Butane	0.05	0.02
N-Butane	0.00	0.00
I-Pentane	0.01	0.00
N-Pentane	0.00	0.00
Hexanes	0.12	0.05
Heptanes	0.17	0.08
Octanes plus	0.31	0.16
TOTAL	100.00	0.68

DERIVED DATA FROM FULL WELL STREAM COMPOSITION

Molecular Weight		17.11
Gas Density (rel air = 1)		0.591
Molecular Weight C8+		117.5
Density C8+		0.7203
Wobbe Index	49.99	1342
Heating Value	Gross: 38.43 MJ/m3	1032 BTU/ft3
	Nett: 34.65 MJ/m3	930 BTU/ft3
Critical Temperature Tc	193.9 °K	349.0 °R
Critical Pressure Pc	4584 kPa abs	664.9 psia
Gas Liquid Ratio C4-/C5+	25918 m3/m3	

Sales Gas And Liquid Recovery

Assuming Liquid Recovery of 75% C2, 95% C3, 100% C4+ and Sales Gas Content of 2.5% CO2

Gas Shrinkage	1.0043
Liquid Content of Raw Gas (US Bbl/MMSCF) Ethane	6.6
	LPG 0.7
	Pentane + 6.8

Approved Signatory

Diane Cass

Accreditation No: 2013

Date

06-May-99

AMDEL PETROLEUM SERVICES

Page 2 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4985 kPag @ 31°C
 18/04/99, 1300 h, Cyl# 153 & SS-9

COMPOSITIONAL ANALYSIS OF RECOMBINED SEPARATOR FLUID

Component	Flashed	Flashed	Recomb.
	Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Sep. Liquid Mol %
Nitrogen	-----	0.30	0.06
Carbon Dioxide	-----	0.77	0.15
Methane	-----	90.04	17.83
Ethane	0.21	5.76	1.31
Propane	0.04	0.42	0.11
I-Butane	0.19	0.65	0.28
N-Butane	0.12	0.09	0.11
I-Pentane	0.04	0.16	0.06
N-Pentane	0.03	0.03	0.03
Hexanes	1.35	0.69	1.22
Heptanes	13.08	0.82	10.65
Octanes plus	84.94	0.27	68.17
TOTAL	100.00	100.00	100.00

RATIOS

Molar ratio	0.8021	0.1979	1.0000
Mass Ratio	0.9637	0.0363	1.0000
Gas Liquid Ratio	1.00 bbl @ SC	203.2 SCF	-----

STREAM PROPERTIES

Molecular Weight	125.2	19.1	104.2
Density obs(g/cc)	0.7749 @ 15°C	-----	-----
API-Gas Density	51.03 API @60°F	0.659 (air=1)	-----
GHV (BTU/scf)	-----	1151	-----

OCTANE PLUS PROPERTIES

Mol %	84.94	0.27	68.17
Molecular Weight	130.2	114.2	130.2
Density (g/cc)	0.7890 @ 15°C	-----	-----
API @ 60°F	47.78	-----	-----

LABORATORY FLASH SEPARATION DETAILS

Separation Temperature	20	°C
Flash Gas Volume	15.67	litres
Stabilised Liquid Volume	434	ml
Liquid Density	0.7707	g/ml

AMDEL PETROLEUM SERVICES

Page 3 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4985 kPag @ 31°C
 18/04/99, 1300 h, Cyl# 153 & SS-9

COMPOSITIONAL ANALYSIS OF RECOMBINED RESERVOIR FLUID

Component	Separator Liquid Mol %	Separator Gas Mol %	Recomb. Reservoir Fluid Mol %
Nitrogen	0.06	1.73	1.73
Carbon Dioxide	0.15	0.34	0.34
Methane	17.83	95.91	95.84
Ethane	1.31	1.39	1.39
Propane	0.11	0.04	0.04
I-Butane	0.28	0.05	0.05
N-Butane	0.11	0.00	0.00
I-Pentane	0.06	0.01	0.01
N-Pentane	0.03	0.00	0.00
Hexanes	1.22	0.11	0.12
Heptanes	10.65	0.16	0.17
Octanes plus	68.17	0.24	0.31
TOTAL	100.00	100.00	100.00

RATIOS

Molar ratio	0.0009	0.9991	1.0000
Mass Ratio	0.0056	0.9944	1.0000

STREAM PROPERTIES

Molecular Weight	104.2	17.0	17.1
Gas Density	-----	0.588 (air=1)	0.591
GHV (BTU/scf)	-----	1028	1032

OCTANE PLUS PROPERTIES

Mol %	68.17	0.24	0.31
Molecular Weight	130.2	114.2	117.5
Density (g/cc) @15°C	-----	-----	0.7203
API @ 60°F	-----	-----	64.85

AMDEL PETROLEUM SERVICES

Flash Liquid Analysis

Page 4 of 5

Method GL-02-03

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATTE-4
 4985 kPag @ 31°C
 18/04/99, 1300 h, Cyl# 153 & SS-9

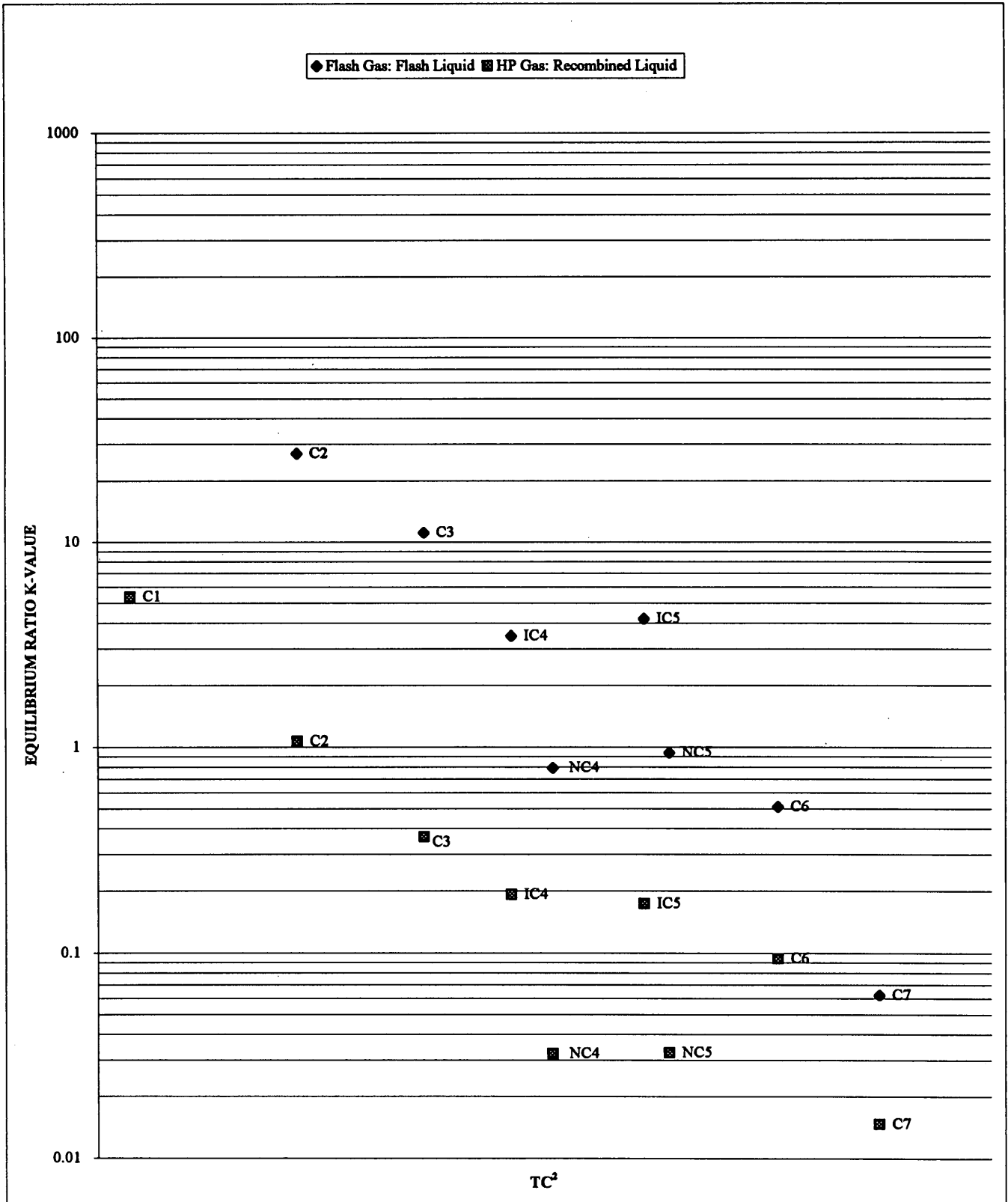
Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	Ethane	0.05	0.21
-42.1	Propane	0.01	0.04
-11.7	I-Butane	0.09	0.19
-0.5	N-Butane	0.06	0.12
27.9	I-Pentane	0.02	0.04
36.1	N-Pentane	0.02	0.03
36.1-68.9	C-6	0.93	1.35
80.0	Benzene	0.00	0.00
68.9-98.3	C-7	10.47	13.08
100.9	Methylcyclohexane	14.17	18.07
110.6	Toluene	0.06	0.08
98.3-125.6	C-8	12.26	13.44
136.1-144.4	Ethylbenz+Xylenes	3.60	4.25
125.6-150.6	C-9	12.62	12.32
150.6-173.9	C-10	21.37	18.81
173.9-196.1	C-11	10.59	8.48
196.1-215.0	C-12	6.72	4.94
215.0-235.0	C-13	4.16	2.82
235.0-252.2	C-14	1.89	1.19
252.2-270.6	C-15	0.83	0.49
270.6-287.8	C-16	0.05	0.03
287.8-302.8	C-17	0.03	0.02
302.8-317.2	C-18	0.00	0.00
317.2-330.0	C-19	0.00	0.00
330.0-344.4	C-20	0.00	0.00
344.4-357.2	C-21	0.00	0.00
357.2-369.4	C-22	0.00	0.00
369.4-380.0	C-23	0.00	0.00
380.0-391.1	C-24	0.00	0.00
391.1-401.7	C-25	0.00	0.00
401.7-412.2	C-26	0.00	0.00
412.2-422.2	C-27	0.00	0.00
>422.2	C-28+	0.00	0.00
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

The above boiling point ranges refer to the normal paraffin hydrocarbon boiling in that range. Aromatics, branched hydrocarbons, naphthenes and olefins may have higher or lower carbon numbers but are grouped and reported according to their boiling points.

Oil Parameters:

Density of Oil @ 20.0 °C	0.7707	
Specific Gravity @ 15.6 °C	0.7752	
API Gravity	51.03	
Specific Gravity of C8+ fraction	0.7893	(calc)
Average molecular weight of C8+ fraction	130	



AMDEL PETROLEUM SERVICES
Method GL-02-03

Appendix A
Page A1

Client: BORAL ENERGY RESOURCES LTD

Report # LQ7952

Sample: NORTH PAARATIE-4
4985 kPag @ 31°C
18/04/99, 1300 h, Cyl# 153 & SS-9

Full Well Stream

Separator Gas	1.000	MMSCF		
Stock Tank Oil Rate	0.900	BBLs		
			Av Mol Wt	
Flash Gas Moles	0.659		19.08	
Flash Liquid Moles	2.671		125.21	
Recombination Moles	3.330			
Molar Shrinkage Factor	0.802			
Full Well Stream	1104	Moles Liquid	0.09%	
Molar ratio	1195108	Moles Gas	99.91%	

	Flash Gas Mol%	Flash Liquid Mol%	Recomb. Liquid Mol%	HP Gas Mol%	Full Well Stream Mol%
Nitrogen	0.30	-----	0.06	1.73	1.73
Carbon Dioxide	0.77	-----	0.15	0.34	0.34
Methane	90.04	-----	17.84	95.91	95.84
Ethane	5.76	0.21	1.31	1.39	1.39
Propane	0.42	0.04	0.11	0.04	0.04
I-Butane	0.65	0.19	0.28	0.05	0.05
N-Butane	0.09	0.12	0.11	0.00	0.00
I-Pentane	0.16	0.04	0.06	0.01	0.01
N-Pentane	0.03	0.03	0.03	0.00	0.00
Hexanes	0.69	1.35	1.22	0.11	0.12
Heptanes	0.82	13.08	10.65	0.16	0.17
Octanes plus	0.27	84.94	68.18	0.24	0.31
	100.00	100.00	100.00	100.00	100.00
Av.Mol.Weight	19.08	125.21	104.19	17.03	17.11

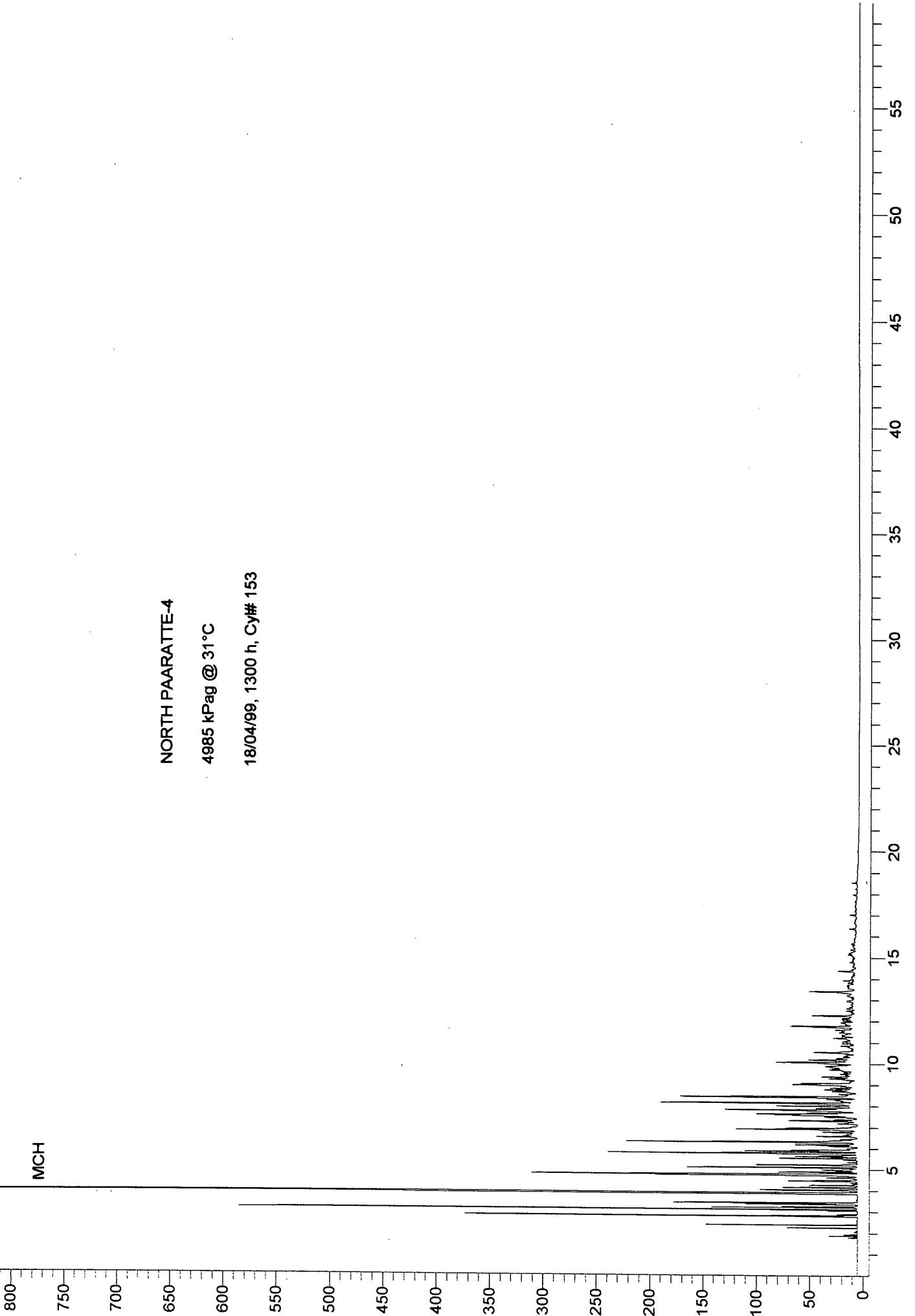
K Factors	Flash Gas/ Flash Liquid	HP Gas/ Recombined Liquid
	Ratio	Ratio
C1	-----	5.38
C2	27.01	1.06
C3	11.15	0.36
IC4	3.48	0.19
NC4	0.79	0.03
IC5	4.21	0.17
NC5	0.94	0.03
C6	0.51	0.09
C7	0.06	0.01

MCH

NORTH PAARATTE-4

4985 kPag @ 31°C

18/04/99, 1300 h, Cy# 153



1. INTRODUCTION

Two (2) samples were received on 30th April 1999 for standard water analysis (WA-10-01). All analyses were performed in according to APHA methods (19th Edition). This report is a formal presentation of results forwarded by facsimile on the 30th April 1999.

2. RESULTS

Results are presented on the following pages.

TABLE 1 - WATER ANALYSIS

JOB NUMBER: LQ 7934

WELL / ID: NORTH PAARATTE-4
 SAMPLE TYPE: Water
 SAMPLE POINT: Stock Tank
 DATE COLLECTED: 17/04/99
 DATE RECEIVED: 27/04/99

FORMATION:
 INTERVAL:
 COLLECTED BY: Client

PROPERTIES:

pH (measured) = 6.9
 Resistivity (Ohm.M @ 25°C) = 0.62
 Electrical Conductivity (µS/cm @ 25°C) = 16100
 Specific Gravity (S.G. @ 20°C) = na
 Measured Total Dissolved Solids(Evap@180°C) mg/L = na
 Measured Total Suspended Solids mg/L = na

CHEMICAL COMPOSITION

CATIONS		mg/L	meq/L	ANIONS		mg/L	meq/L
Ammonium	as NH ₄	na	na	Bromide	as Br	na	na
Potassium	as K	4125	105.50	Chloride	as Cl	4040	113.80
Sodium	as Na	499	21.71	Fluoride	as F	na	na
Barium	as Ba	na	na	Hydroxide	as OH	nd	nd
Calcium	as Ca	30	1.50	Nitrite	as NO ₂	na	na
Iron	as Fe	na	na	Nitrate	as NO ₃	nd	nd
Magnesium	as Mg	30	2.47	Sulphide	as S	na	na
Strontium	as Sr	na	na	Bicarbonate	as HCO ₃	637	10.44
Boron	as B	na	na	Carbonate	as CO ₃	nd	nd
				Sulphite	as SO ₃	na	na
				Sulphate	as SO ₄	163	3.39
Total Cations		4684	131.17	Total Anions		4840	127.64

DERIVED PARAMETERS

a) Ion Balance (Diff*100/Sum) (%) = 1.36
 b) Total Alkalinity (calc as CaCO₃) (mg/L) = 518
 c) Total of Cations + Anions = 9524
 (measured dissolved salts)
 d) Theoretical Total dissolved salts = 10304
 (From Electrical Conductivity)

QUALITY CONTROL COMMENTS

Item	Actual Value	Acceptance Criteria	Satisfactory? (Yes/No)
Ion Balance (%) =	1.36	5%	Yes
Expected pH range		< 8.3	Yes
% difference between measured total dissolved solids and calc total dissolved salts (from ionic comp) =	na	5%	na

na = not applicable
 nd = not detected
 is = insufficient sample

If No - what action is recommended by Amdel

TABLE 1 - WATER ANALYSIS

JOB NUMBER: LQ 7934

WELL / ID: NORTH PAARATTE-4
 SAMPLE TYPE: Water
 SAMPLE POINT: Stock Tank
 DATE COLLECTED: 18/01/99
 DATE RECEIVED: 27/04/99

FORMATION:
 INTERVAL:
 COLLECTED BY: Client

PROPERTIES:

pH (measured) = 6.3
 Resistivity (Ohm.M @ 25°C) = 0.58
 Electrical Conductivity (µS/cm @ 25°C) = 17100
 Specific Gravity (S.G. @ 20°C) = na
 Measured Total Dissolved Solids(Evap@180°C) mg/L = na
 Measured Total Suspended Solids mg/L = na

CHEMICAL COMPOSITION

CATIONS		mg/L	meq/L	ANIONS		mg/L	meq/L
Ammonium	as NH ₄	na	na	Bromide	as Br	na	na
Potassium	as K	4150	106.14	Chloride	as Cl	4252	119.77
Sodium	as Na	522	22.71	Fluoride	as F	na	na
Barium	as Ba	na	na	Hydroxide	as OH	nd	nd
Calcium	as Ca	29	1.45	Nitrite	as NO ₂	na	na
Iron	as Fe	na	na	Nitrate	as NO ₃	nd	nd
Magnesium	as Mg	113	9.30	Sulphide	as S	na	na
Strontium	as Sr	na	na	Bicarbonate	as HCO ₃	584	9.57
Boron	as B	na	na	Carbonate	as CO ₃	nd	nd
				Sulphite	as SO ₃	na	na
				Sulphate	as SO ₄	559	11.64
Total Cations		4814	139.59	Total Anions		5395	140.99

DERIVED PARAMETERS

a) Ion Balance (Diff*100/Sum) (%) = 0.50
 b) Total Alkalinity (calc as CaCO₃) (mg/L) = 479
 c) Total of Cations + Anions = 10209
 (measured dissolved salts)
 d) Theoretical Total dissolved salts = 10944
 (From Electrical Conductivity)

QUALITY CONTROL COMMENTS

Item	Actual Value	Acceptance Criteria	Satisfactory? (Yes/No)
Ion Balance (%) =	0.50	5%	Yes
Expected pH range		< 8.3	Yes
% difference between measured total dissolved solids and calc total dissolved salts (from ionic comp) =	na	5%	na

na = not applicable
 nd = not detected
 is = insufficient sample

If No - what action is recommended by Amdel