

**YOLLA FIELD**

**T/RL1, OFFSHORE BASS BASIN**

**OIL AND GAS IN PLACE**

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**CONTENTS****SUMMARY****UPPER EASTERN VIEW COAL MEASURES**

Introduction  
Input Parameters  
Results

**EARLY EOCENE AND PALAEOCENE EASTERN VIEW COAL MEASURES**

Introduction  
Input Parameters  
Results

**APPENDIX**

1. Top EVCM – Oil and Gas in Place
2. Yolla 1 – RFT Interpretation

**FIGURES:**

1. T/RL1 Bass Basin – Yolla Structure Fault Compartments
2. Yolla Field – Gas in Place Summary of Results
3. Yolla Field – Risked Reserves Profile
4. Yolla Structure Schematic

**SUMMARY**

This report documents the Operators oil and gas in place estimates for the Yolla Field, in retention lease T/RL1 offshore Bass Basin, Tasmania. The report is divided into two parts addressing the two objectives at Yolla Field:

1. Oil and Gas in place estimates for the Upper Eastern View Coal Measures (EVCM). This trap is volumetrically smaller than the early Eocene and Palaeocene trap, but may be economic to produce in conjunction with development of the deeper reservoirs.
2. Gas in place estimates for the early Eocene and Palaeocene reservoirs of the EVCM and other potential gas accumulations associated with the structure. The gas is condensate-rich and is likely to yield 63 STB of liquids per MMSCF of raw gas.

The calculations demonstrate the potential for 35-45 BCF OGIP and 46-71 MMSTB OOIP at the top Eastern View Coal Measures, whilst the larger early Eocene and Palaeocene gas accumulation has proven OGIP of 95.8 BCF and proven, probable and possible OGIP of 691 BCF. Remaining higher risk upside potential at Yolla Field brings the combined total OGIP to in excess of 2 TCF.

## UPPER EASTERN VIEW COAL MEASURES

### Introduction

Oil and gas in place calculations have been performed for the upper EVCM at Yolla Field based on mapping using the Yolla Field 3D seismic survey. Two cases have been calculated:

- \* **Case 1** - based on a top EVCM interval velocity depth map
- \* **Case 2** - based on depth contouring of the top EVCM guided to conform with the shape of an amplitude anomaly occurring at approximately the level of a gas-oil contact intersected in Yolla 1. This model is used to recognise the uncertainty in predicting seismic velocity underlying a sequence of shallow Miocene extrusives present over the northern part of the area covered by the amplitude anomaly. In the southern part of the area the limits of the amplitude anomaly and the interval velocity depth map are in agreement and no adjustments are required.

### Input parameters

The top of the pay zone in Yolla 1 is at 1812 mKB (1801 mSS) and is based on an increase in effective porosity from less than 10% to approximately 15%. Siltstones above this depth may contribute minor gas to any production but are not considered here.

A gas-oil contact occurs at approximately 1833 mKB (1822 mSS). The mapped amplitude anomaly ties to this level at the well location, increasing confidence that the anomaly is hydrocarbon related.

A most likely oil-water contact is interpreted at approximately 1846 mKB (1835 mSS). The possibility of a deeper oil-water contact (see internal memo by RJ Suttill, 30 June 1992) at 1857mKB (1846 mSS) provides higher risk upside to the oil reserves but is not used in the calculations presented in this report.

At Yolla 1 the top EVCM reservoir consists of two layers with differing average porosities, an upper layer with an average effective porosity of 15% and a lower layer with average effective porosity of 26%. This simple layered reservoir model has been extended over the structure, and hydrocarbon volumes are reported separately for each layer.

The near top EVCM interval velocity depth map ties to Yolla 1 at 1788 mSS and therefore to calculate hydrocarbon in place volumes the map was bulk shifted to the top of pay (15% porosity layer) and to the top of the high porosity (26%) layer (1830 mKB at Yolla 1).

Reservoir parameters are based on log analysis results calibrated to core data by the previous Operator (Amoco).

Bulk (or Gross) rock volumes were determined from digital map grids using Petrosys software and therefore wedge edge volumes are accurately calculated.

**Results**

Detailed results and input parameters are shown for case 1 and 2 in Appendix 1. A summary of the results is shown in the table below:

<b>Depth Map</b>	<b>OGIP (BCF)</b>	<b>Rec. Gas (BCF)</b>	<b>OOIP (MMSTB)</b>	<b>Rec. Oil (MMSTB)</b>
Interval Velocity	35.2	29.9	46.3	11.6
Amplitude Adjusted	45.3	38.5	71.4	17.9

**EARLY EOCENE AND PALAEOCENE EASTERN VIEW COAL MEASURES****Introduction**

Gas-in-place calculations have been performed for the early Eocene and Palaeocene gas and condensate bearing reservoirs intersected in Yolla 1 based on mapping using the Yolla Field 3D Seismic Survey.

Two depth maps were used;

- \* the N2718 interval velocity depth map which ties to Yolla 1 at 2668 mSS and was used for mapping the 2720 to 2873 sands
- \* a Palaeocene interval velocity depth map which ties to Yolla 1 at 2895 mSS and was used for mapping the 2952 to 2986 sands.

These maps demonstrate that the Yolla Field may extend across four fault compartments:

- \* Yolla 1 Fault Compartment (large fault compartment on which Yolla 1 is located)
- \* Yolla North
- \* Yolla North East
- \* Yolla North West

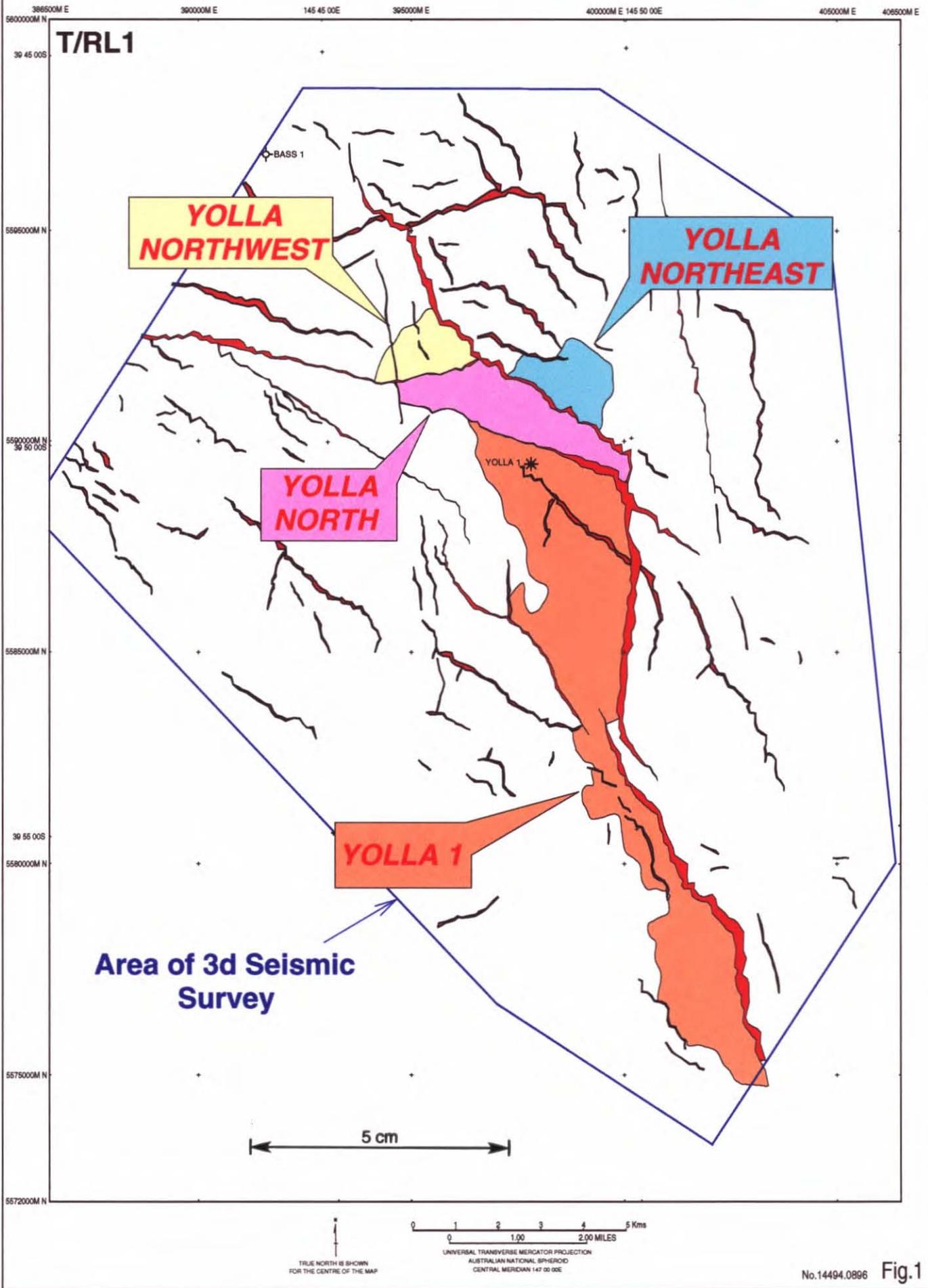
An index map showing the four fault compartments is shown in figure 1.

OGIP results are classified into four categories which reflect increasing risk, namely:

- \* PROVEN
- \* PROBABLE
- \* POSSIBLE
- \* POTENTIAL

Definitions of these categories are described later in this report.

# T/RL1 BASS BASIN YOLLA STRUCTURE FAULT COMPARTMENTS



### Input parameters

Several reservoir sandstones were intersected in Yolla 1 in the Eocene and Palaeocene part of the EVCM. Local correlation of the sandstones and interbedded shale packages to Tilana 1 (approximately 16 kms ESE of Yolla1) and regional correlation to the north suggests that there is a high probability of sandstone continuity over the field. Therefore for hydrocarbon in-place calculations a simple model of laterally extensive sandstones with the same thickness and reservoir parameters as in Yolla 1 has been used. Note, therefore, that the possibility of thickening sandstones off structure is not included in these estimates.

Two sets of petrophysical results have been included in the hydrocarbon in-place calculations; a conservative set with 27.0 m of total pay is used in the calculation of proven volumes whilst a most likely set with 36.9 m is used in the calculation of higher risk volumes (probable, possible and potential). The differences in these results reflect absence of core and water samples with which to calibrate volume of shale, porosity and hydrocarbon saturation. Reservoir parameters used are shown in the following table:

EARLY EOCENE AND PALAEOCENE RESERVOIRS						
Reservoir / Zone	Conservative parameters			Most likely parameters		
	Pay Thickness (m)	Porosity (%)	Sh (%)	Pay Thickness (m)	Porosity (%)	Sh (%)
2720 Z1	0.00	10.30	43.10	1.98	11.70	63.00
2755 Z1	2.40	13.20	78.80	5.64	13.40	87.00
2809 Z1	10.70	14.90	74.50	11.28	12.00	78.20
2844 Z1	0.00	10.20	32.80	1.10	12.00	53.10
2873 Z2	2.10	13.00	60.10	2.30	14.00	69.40
2952 Z3	1.20	9.90	62.90	4.57	10.40	78.30
2973 Z3	2.10	13.30	76.70			
2986 Z3	8.50	14.90	76.50	10.06	13.00	85.00
TOTAL	27.00			36.93		

Interpretation of RFT pressure data from Yolla 1 demonstrates the probability that the gas reservoirs are part of three separately sealed gas accumulations, referred to here as zones 1, 2 and 3 (see memo by J. Parvar, Appendix 2).

Bulk (or Gross) rock volume was calculated using Petrosys software from digital grids representing the top and base of each sand, this method accurately calculates the wedge edge volumes near the limit of closure.

**Results**

A summary of the results is shown on the attached spreadsheet and graphically on a risked reserves profile. Deterministic reserve calculations were performed using the input parameters described previously and the assumptions made below. A Chance of Success (COS) has been assigned to each reserves volume.

**PROVEN (95.76 BCF OGIP, COS 99%)**

Proven gas-in-place is defined as:

- \* OGIP located updip of the LKG's in each individual sand encountered in Yolla 1.
- \* OGIP is limited to the Yolla 1 fault compartment
- \* OGIP calculated using conservative petrophysical parameters (see above)

**PROVEN AND PROBABLE (588.24 BCF OGIP, COS 50%)**

Proven and Probable gas-in-place is defined as:

- \* OGIP located updip of the most likely gas-water contacts determined from RFT pressure data.
- \* except for zone 1 where the most likely gas-water contact is below the lowest closing contour, therefore the lowest closing contour is used. It is possible however that the lowest closing contour could be deeper either because of the poor seismic control (outside of the 3D seismic grid) at the critical southern limit of the structure or because of poorly controlled depth conversion away from the Yolla 1 well location. (Note a more optimistic interpretation of RFT data by the previous Operator, Amoco had even deeper gas-water contacts).
- \* is geographically limited to the Yolla 1 fault compartment.
- \* is calculated using the most likely reservoir parameters (see above).

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<b>YOLLA FIELD - GAS IN PLACE SUMMARY OF RESULTS</b>		<b>BERL March 1996 Cumulative OGIP (BCF)</b>	<b>Chance of success (%)</b>
<b>1. PROVEN</b>			
Conservative petrophysical model and gas updip of LKG's in geographically limited Yolla Main fault compartment		<b>95.76</b>	<b>99.00</b>
<b>2. PROVEN AND PROBABLE</b>			
Most likely petrophysical model, gas updip of most likely GWC's or LCC's in entire Yolla 1 fault compartment		<b>588.24</b>	<b>50.00</b>
<b>3. PROVEN, PROBABLE AND POSSIBLE</b>			
Most likely petrophysical model, gas updip of most likely GWC's or LCC's in Yolla 1, Yolla North, Yolla North West, and Yolla North East fault compartments		<b>691.40</b>	<b>30.00</b>
<b>4. PROVEN, PROBABLE, POSSIBLE AND POTENTIAL</b>			
	Incremental		
	OGIP (BCF)		
Potential OGIP in onlap sands between base pay in Yolla 1 and big onlap event	112.78	<b>804.18</b>	<b>15.00</b>
Potential OGIP in 100 metre columns in Yolla North West	148.93	<b>953.11</b>	<b>10.00</b>
Potential OGIP in deeper (sub big-onlap event) sands	358.93	<b>1312.04</b>	<b>2.00</b>
Potential OGIP extending to mapped independent closure of Yolla North West	534.06	<b>1846.10</b>	<b>0.50</b>
Potential OGIP to individual sand LCC's in Yolla 1, Yolla North, Yolla North East fault compartments	372.18	<b>2218.28</b>	<b>0.01</b>

FIGURE 2.

### YOLLA FIELD - RISKED RESERVES PROFILE

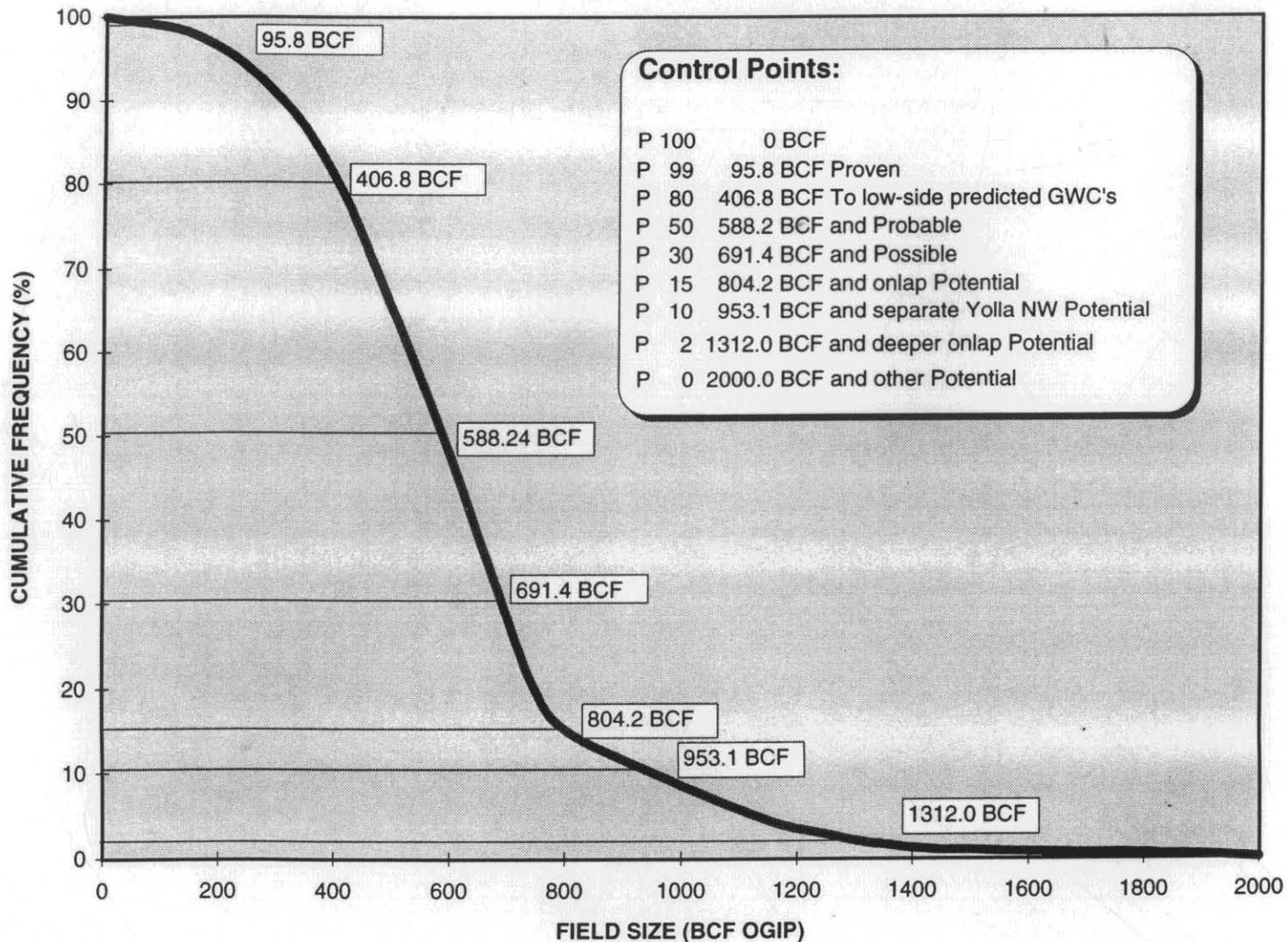
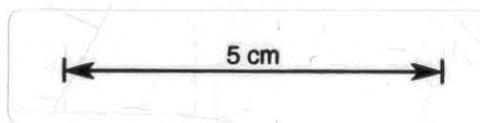


FIGURE 3.



PROVEN, PROBABLE AND POSSIBLE (691.40 BCF OGIP, COS 30%)

Proven, Probable and Possible gas-in-place is defined as:

- \* OGIP located updip of the most likely gas-water contacts determined from RFT pressure data (ie the same as for probable OGIP).
- \* except for zone 1 where the most-likely gas-water contact is below the lowest closing contour, therefore the lowest closing contour is used (ie the same as for probable OGIP).
- \* is geographically limited to the Yolla 1, Yolla North, Yolla North East and Yolla North West fault compartments.
- \* is calculated using the most likely reservoir parameters.

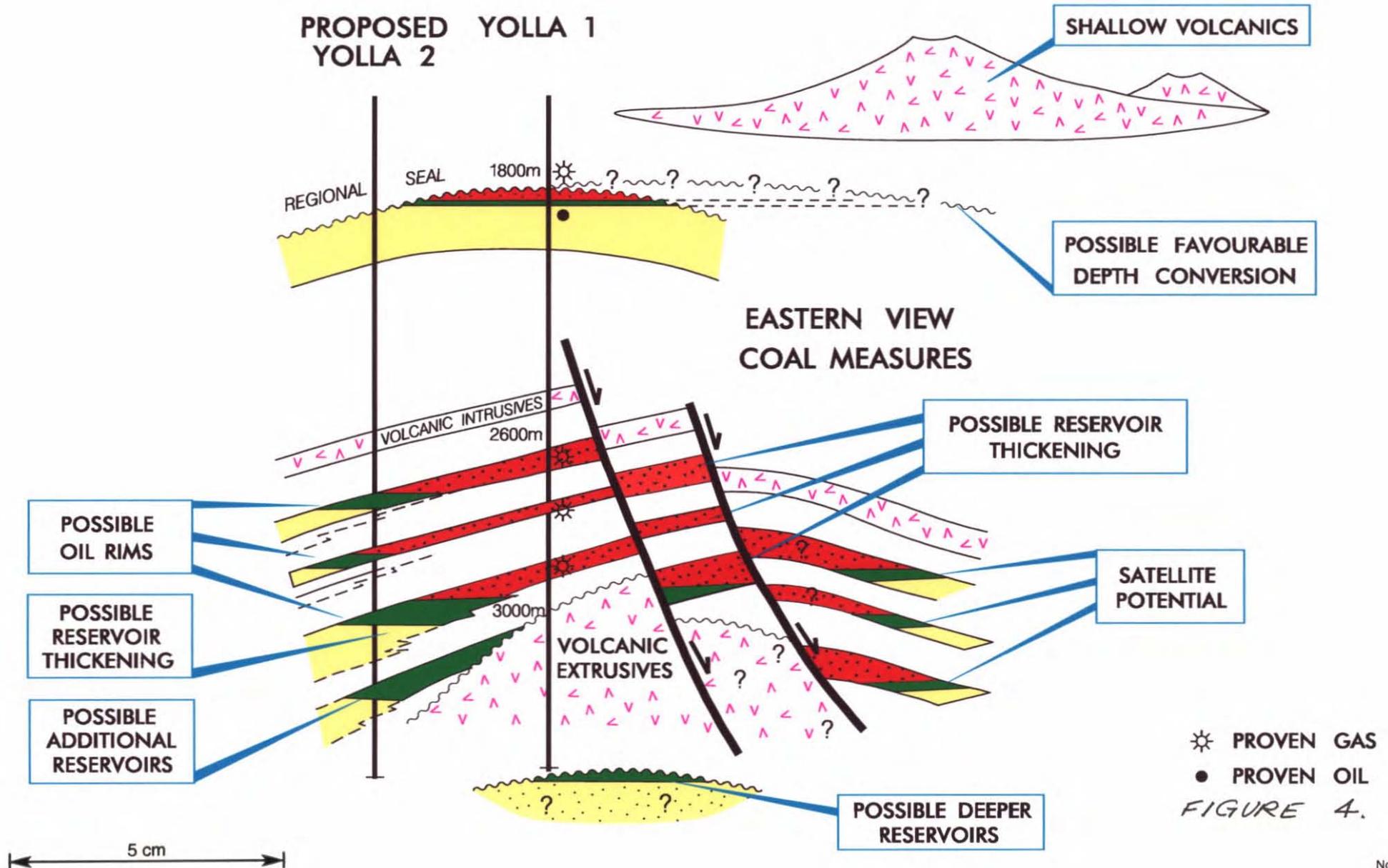
PROVEN, PROBABLE, POSSIBLE AND POTENTIAL (up to 2218 BCF OGIP, COS 15- 0.01%)

Proven, Probable, Possible and Potential OGIP includes OGIP in several potential trapping configurations (refer to figure 2) which are untested by Yolla 1 and too high risk to be included in the possible OGIP category. Nevertheless some of these volumes are significantly large and as the appraisal of the Yolla Field progresses their risk may be reduced as new data is acquired. Note that Yolla 2 will test any deeper onlapping sands (see below) and also determine if known gas sands thicken downdip. An attempt has been made to rank the potential volumes in order of increasing risk, they are as follows:

- \* Potential OGIP in possible sands located in an onlapping sedimentary wedge between the basal extrusives intersected in Yolla 1 and a mapped event within the onlapping sequence.
  - \* uses the average net-gross ratio and most likely petrophysical parameters from the gas-bearing interval intersected in Yolla1.
  - \* potential OGIP is calculated to the lowest closing contour of the near top Palaeocene interval velocity depth map.
  - \* potential OGIP in onlap sands is restricted to the Yolla 1 and Yolla North fault compartments, where mapping of the onlapping event is possible. Poor data quality in other fault compartments occurs at this stratigraphic level.

# YOLLA STRUCTURE SCHEMATIC

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- \* Potential OGIP in approximate 100 metre columns in Yolla North West. This model assumes the faults bounding Yolla North West are sealing and that similar column heights to the Yolla 1 fault compartment are possible.
  - \* uses most-likely petrophysical parameters.
  - \* OGIP is extended to give 100 m columns (note greater vertical closure is possible in Yolla North West if the faults seal, as discussed below).
  - \* the assumed gas-water contacts are therefore different and deeper than those of the Yolla 1 fault compartment.
- \* Potential OGIP in deeper onlapping sands, below the mapped onlapping seismic event.
  - \* petrophysical parameters are estimated.
  - \* assumes three 10 metre sands with closure extending to the poorly defined lowest closing contour of the mapped onlapping event.
  - \* potential OGIP in the deeper onlapping sands is limited to the Yolla 1 and Yolla North fault compartments, where mapping of the onlapping seismic event is possible.
- \* Potential OGIP extending to the mapped limit of fault dependent closure in the Yolla North West fault compartment.
  - \* calculated using the most likely petrophysical parameters (previously described).
  - \* assumes Yolla North West is not in hydraulic communication with Yolla 1 and Yolla North fault compartments.
  - \* model assumes that the intraformational top seals are able to contain greater column heights than is interpreted in the Yolla 1 fault compartment.
- \* Potential OGIP to the lowest closing contour of individual sands.
  - \* calculated using the most likely petrophysical parameters.
  - \* calculated for Yolla 1, Yolla North and Yolla North East fault compartments.
  - \* assumes current RFT pressure interpretation is incorrect.

**APPENDIX 1**

**TOP EVCM - OIL AND GAS IN PLACE**

## YOLLA - T/RL1

Top EVCM - Based on interval velocity depth map

HYDROCARBONS IN PLACE AND RECOVERABLE HYDROCARBONS											
	Bulk Rock Volume (cubic m)	Porosity	Sh	Bg	Boi	Recovery factor (gas)	Recovery factor (oil)	OGIP (BCF)	Rec. Gas (BCF)	OOIP (MMSTB)	REC. OIL (MMSTB)
GAS ZONE, LOW POROSITY	4.14E+07	0.15	0.75	167		0.85		27.49	23.37		
GAS ZONE, HIGH POROSITY	6.70E+06	0.26	0.75	167		0.85		7.70	6.55		
<b>TOTAL GAS</b>								<b>35.19</b>	<b>29.91</b>		
OIL ZONE, LOW POROSITY	4.79E+07	0.15	0.75		1.40		0.25			24.22	6.06
OIL ZONE, HIGH POROSITY	2.52E+07	0.26	0.75		1.40		0.25			22.08	5.52
<b>TOTAL OIL</b>										<b>46.30</b>	<b>11.58</b>

## YOLLA - T/RL1

Top EVCM - Based on depth map contoured to follow area of high seismic amplitudes

HYDROCARBONS IN PLACE AND RECOVERABLE HYDROCARBONS											
	Bulk Rock Volume (cubic m)	Porosity	Sh	Bg	Boi	Recovery factor (gas)	Recovery factor (oil)	OGIP (BCF)	Rec. Gas (BCF)	OOIP (MMSTB)	REC. OIL (MMSTB)
GAS ZONE, LOW POROSITY	5.19E+07	0.15	0.75	167		0.85		34.46	29.29		
GAS ZONE, HIGH POROSITY	9.44E+06	0.26	0.75	167		0.85		10.86	9.23		
<b>TOTAL GAS</b>								<b>45.31</b>	<b>38.52</b>		
OIL ZONE, LOW POROSITY	8.36E+07	0.15	0.75		1.40		0.25			42.26	10.66
OIL ZONE, HIGH POROSITY	3.33E+07	0.26	0.75		1.40		0.25			29.13	7.28
<b>TOTAL OIL</b>										<b>71.39</b>	<b>17.85</b>

**APPENDIX 2**

**YOLLA 1 - RFT INTERPRETATION**

**L. Balmei:** The well encountered wet gas within the palaeocene section of the EVCM Formation. At least three separate zones are interpreted as gas bearing within the L. Balmei level. No fluid contacts were detected within this section. DST 1 conducted over the 2809.1 to 2824.6m KB interval produced gas at a rate of 15.1 MMscf/day (condensate rate was 580 BBLs/day) using  $40/64$  choke size. There was no water production during the test.

Two RFT runs were conducted in Yolla 1 to evaluate the hydrocarbon zones within the EVCM Formation.

Run 1 was conducted on 25 August 1985 using a strain gauge for pressure measurements. Data recovered from run 1 is shown in Table 1.

There were 68 attempts to set the RFT tool and to test the formation from which 34 tests were successful, 7 tests were tight and the seal failed 27 times. Generally most of the successful tests had high drawdown differential pressure.

Run 2 was conducted on 31 August 1985. The HP gauge was used for pressure measurements during Run 2. Data related to run 2 is presented in Table 2. From the 33 attempts to set the tool and to test the formation, 13 tests were successful, 3 tests were tight and seal failure occurred 9 times. Generally most of the tests had very low drawdown differential pressure.

## INTERPRETATION

Table 1 and 2 show RFT data for Run 1 and 2. As mentioned above, most of the tests conducted during Run 1 showed very high drawdown differential pressure while the tests from Run 2 had very low drawdown differential pressure. The HP gauge used during Run 2 has a higher accuracy and resolution in comparison to strain gauge (Run 1) and it is likely that the data collected during Run 2 (HP gauge data) is more reliable than the data from Run 1 (strain gauge data).

Figure 1 shows the mud hydrostatic pressure of the RFT data for both the strain and HP gauges. The lines fitted through the points represent a mud gradient of 9.8 ppg. As can be seen in this plot there are shifts in the hydrostatic pressure from the top of the EVCM Formation to the L. Balmei level for both the HP gauge (+70 psi) and the strain gauge (-92 psi). If these shifts can be related to gauge performances (which is one possibility) then the RFT pressure data for both the upper and lower zones in the EVCM Formation will be questionable. Under this condition also relating the hydrodynamic pressure of the upper zone to the lower section (without applying proper correction factor) will be incorrect. This is only one of a few possibilities to explain the data however, the unusual hydrostatic data does reduce the level of confidence of the RFT results. In the following interpretation it has been assumed that the shifts are not gauge related problems.

Figure 2 is a plot of the RFT pressure profile showing data from both the N. Aspersus and L. Balmei levels. The profile is generated based on the HP gauge data while the strain gauge data is plotted for comparison. The water line in this plot is drawn based on the RFT data from the upper section (N. Aspersus level).

Figure 2A is an enlarged view of the top section. Based on the expected lowest known hydrocarbon at this level (below 1833.8m KB from the DST results) there are only three HP pressure points that could be located in the water zone. The point at 1845m KB (2725.7 psia) appears to be slightly supercharged. A water line with a slope of 0.433 psi/ft (based on the King 1 RFT data) is fitted through the points (1845m KB, 2722.4 psia) and (1837 MKB, 2712.8 psia). This line has been extended to the lower section as a possible water line in the L. Balmei level.

Figure 2B is the enlarged view of the lower section. The water line is extended from the upper level. Three gas lines with 0.115 psi/ft gradient (based on the DST 1 fluid sample) have been fitted through the HP pressure data. The point at 2724m KB (4126 psia) which does not fit the upper most line has low permeability in comparison with the other points which have excellent to very good permeability.

The RFT pressure data suggests that at least three separate zones exist within the L. Balmei level. The indicated GWC levels for Zones 1 to 3 are 2884m KB, 2925m KB and 3031m KB respectively assuming the zones do not contain oil legs.

### PREVIOUS WORK

The Yolla 1 RFT data have been interpreted previously by Amoco, BMR and recently Enron. The main difference between the various interpretations lies in the methodology for establishing a water line for the L. Balmei level.

**Amoco:** Amoco used a water gradient of 0.44 psi/ft (based on log derived salinity) and the intercept of zero psig at mean sea level (based on the assumption that the formation probably subcrops into the sea bed) to establish a water gradient for the L. Balmei level. Amoco used a gas gradient of 0.115 psi/ft (based on the DST 1 fluid analysis) and RFT data from the HP gauge to draw the gas lines.

Based on the above, Amoco identified three separate gas columns at 2913, 2961 and 3064m KB. It is significant that seismic flat spots observed on 2D seismic lines to the south-west of the structure broadly support the fluid contacts assessed by Amoco. However, uncertainties due to the velocity interpretation does not give a high level of confidence to the results.

**BMR:** BMR used a water gradient of 0.433 psi/ft and the RFT pressure data from the HP gauge. BMR generated a water line in the upper section and extended it to the L. Balmei level using a gas gradient of 0.104 psi/ft to construct the gas lines.

Based on the above, BMR identified four separate gas zones within the L. Balmei level. The BMR calculated gas water contacts fell below the spill point of the structural map provided by Amoco and, consequently, BMR used the mapped spill point as the contact level.

**ENRON:** ENRON used a water gradient of 0.442 psi/ft and RFT data from both the HP and strain gauges (with stress on the strain gauge data). ENRON also constructed a water line in the upper section and extended it to the L. Balmei level and used a gas gradient of 0.087 psi/ft to generate the gas lines.

ENRON identified four separate gas columns in the L. Balmei with fluid contact levels at about 54 metres shallower than the Amoco figures.

### CONCLUSION AND RECOMMENDATION

No fluid contacts can be identified unambiguously at the L. Balmei level of the EVCM Formation in Yolla 1. SAGASCO have attempted to construct a line of best fit through available water points by honouring all available data to establish potential GWCs. The water line thus constructed in the top of the EVCM Formation uses a water gradient of 0.433 psi/ft and RFT data from the HP gauge. The line was extended to the L. Balmei level to be used as the water line for this section. A gas gradient of 0.115 psi/ft was used to construct the hydrodynamic pressure profile for the L. Balmei level. At least three separate hydrocarbon columns were identified in the L. Balmei section with the fluid contact levels at 2884m KB, 2925m KB and 3031m KB respectively assuming the zones do not contain any oil legs.

Based on SAGASCO's best estimate as outlined above and in light of the uncertainties and the work performed by Amoco and ENRON, it is recommended to incorporate the following range of probability into reserve calculations.

	<i>LOW SIDE</i>	<i>MOST LIKELY</i>	<i>HIGH SIDE</i>
	(ENRON)	(SAGASCO)	(AMOCO)
Zone 1	2859m KB	2884m KB	2913m KB
Zone 2	2907m KB	2925m KB	2961m KB
Zone 3	3010m KB	3031m KB	3064m KB

Obviously the LKG and spill point levels should be still used for proven and possible cases of OGIP.

  
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Senior Petroleum Engineer

Att

# YOLLA #1 RFT PRESSURE DATA

## RUN#1 (STRAIN GAUGE)

### 25 AUGUST 1985

SEAT NO.	DEPTH (m kb)	HYDROSTATIC PRESSURE (psia)	FORMATION PRESSURE (psia)	REMARKS:
1	1819.2	3023	-	Tight
2	1818.0	3024	2746	Low flowing pressure
3	1833.0	3052	2752	Low flowing pressure
4	1832.5	3054	2722	Low flowing pressure
5	1838.0	3064	-	Seal Failure
6	1839.0	3067	2731	Low flowing pressure
7	1843.0	3073	2739	Low flowing pressure
8	1846.5	3080	2742	Low flowing pressure
9	1856.0	3095	2753	Low flowing pressure
10	1868.0	3108	2763	Low flowing pressure
11	1905.0	3177	2836	Low flowing pressure
12	1921.0	3207	2850	Low flowing pressure
13	1946.0	3249	2888	Low flowing pressure
14	2034.0	3396	3019	Low flowing pressure
15	2125.0	3551	3160	Low flowing pressure
16	2215.0	3705	3299	Low flowing pressure
17	2327.0	3854	3415	Very Low flowing pressure
18	2428.0	4015	3556	Very Low flowing pressure
19	2636.0	4369	-	Tight
20	2637.0	4347	-	Tight
21	2639.5	4341	-	Tight
22	2642.5	4340	-	Tight
23	2720.0	4462	-	Tight
24	2722.5	4459	-	Seal Failure
25	2724.0	4458	-	Tight
26	2725.0	4458	4088	Very Low flowing pressure
27	2756.0	4513	4135	Very Low flowing pressure
28	2760.5	4506	4123	Very Low flowing pressure
29	2763.3	4507	4120	Very Low flowing pressure
31	2756.0	4518	-	Seal Failure
33	2811.0	4617	4168	Low flowing pressure
34	2813.0	4618	4162	Low flowing pressure
35	2819.0	4627	-	Seal Failure
36	2820.0	4623	-	Seal Failure
37	2821.0	4620	-	Seal Failure
38	2920.5	4617	-	Seal Failure
39	2823.5	4620	-	Seal Failure
40	2845.5	4651	4156	Very Low flowing pressure
41	2846.5	4648	-	Seal Failure
42	2874.0	4709	-	Seal Failure
43	2952.5	4865	-	Seal Failure

SEAT NO.	DEPTH (m kb)	HYDROSTATIC PRESSURE (psia)	FORMATION PRESSURE (psia)	REMARKS:
44	2720.0	4421	-	Seal Failure
45	2720.0	4465	-	Seal Failure
46	2722.5	4460	-	Seal Failure
47	2725.0	4462	4085	Very Low flowing pressure
48	2756.0	4519	-	Seal Failure
49	2760.5	4521	4114	Very Low flowing pressure
50	2763.3	4518	4123	Very Low flowing pressure
51	2811.0	4605	4152	High flowing pressure
52	2813.0	4598	-	Seal Failure
53	2815.0	4592	-	Seal Failure
54	2819.0	4591	-	Seal Failure
55	2820.0	4592	4122	Low flowing pressure
56	2821.0	4591	4146	Low flowing pressure
57	2823.5	4598	4144	Low flowing pressure
58	2845.5	4635	4129	Low flowing pressure
59	2874.0	4689	-	Seal Failure
61	2952.5	4855	-	Seal Failure
62	2952.8	4835	-	Seal Failure
63	2974.0	4870	-	Seal Failure
64	2973.8	4861	-	Seal Failure
65	2988.0	4889	-	Seal Failure
66	2989.0	4885	-	Seal Failure
67	2991.5	4884	-	Seal Failure
68	2821.0	4566	-	Seal Failure

YOLLA #1 RFT PRESSURE DATARUN#2 (HP GAUGE)31 AUGUST 1985

SEAT NO.	DEPTH (m kb)	HYDROSTATIC PRESSURE (psia)	FORMATION PRESSURE (psia)	REMARKS:
1	1845.0	3238	2725.7	Low flowing pressure
2	1820.0	3095	-	Tight
4	1832.7	3116	2710.1	V.High flowing pressure
6	1807.0	3070	-	Tight
7	1814.0	3080	-	Tight
8	1820.0	3090	-	Seal Failure
9	1826.0	3102	-	Seal Failure
10	1830.0	3103	2712.0	High flowing pressure
11	1830.2	3108	-	Seal Failure
12	1832.0	3108	-	Seal Failure
13	1833.0	3111	2709.3	V.High flowing pressure
14	1837.0	3117	2712.8	V.High flowing pressure
15	1845.0	3130	2722.4	V.High flowing pressure
22	2724.0	4671	4126.0	Low flowing pressure
23	2762.0	4745	-	Seal Failure
24	2761.1	4735	-	Seal Failure
25	2761.3	4730	4156.0	V.High flowing pressure
26	2810.0	4823	-	Seal Failure
27	2811.0	4822	-	Seal Failure
28	2820.0	4832	4170.5	V.High flowing pressure
29	2874.0	4923	4238.0	V.High flowing pressure
30	2952.5	5060	4382.4	V.High flowing pressure
31	2974.0	5089	-	Seal Failure
32	2973.5	5084	4387.2	High flowing pressure
33	2988.0	5105	4387.3	V.High flowing pressure

YOLLA -1 RFT HYDROSTATIC PRESSURE

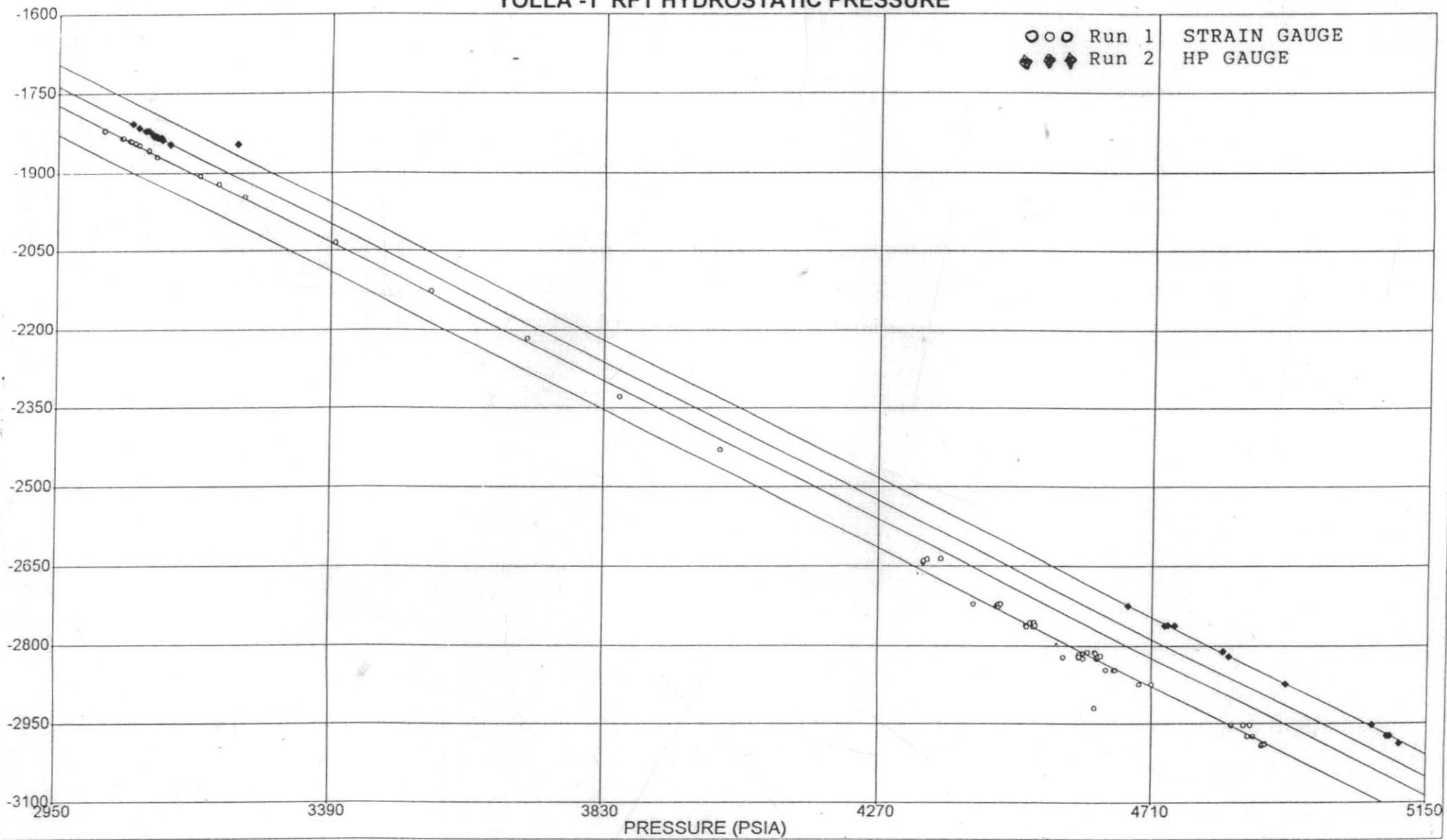
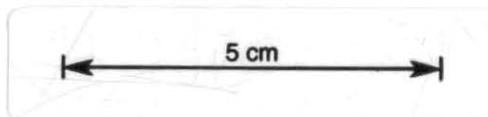


FIGURE 1



YOLLA -1 RFT PRESSURE PROFILE

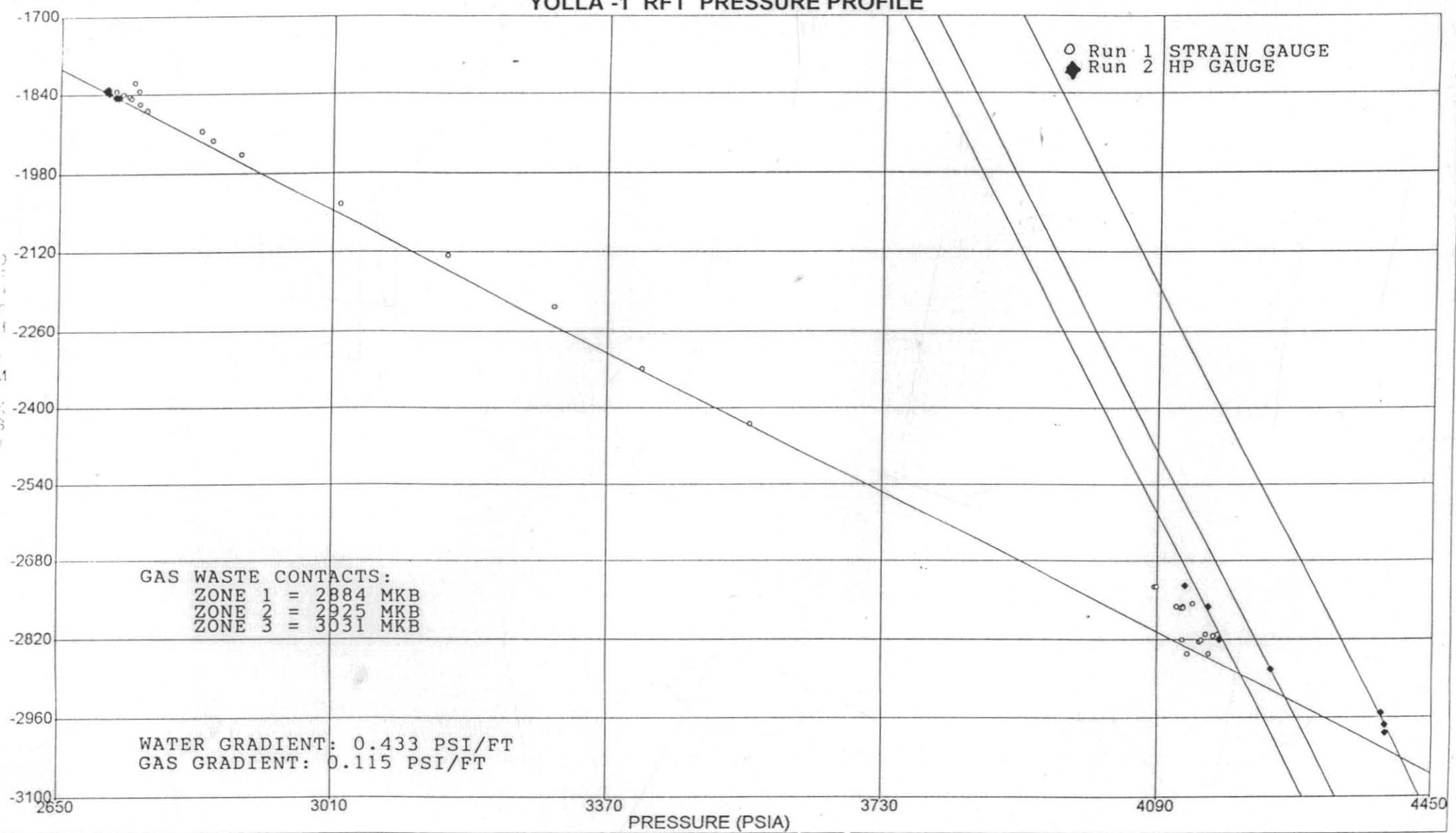
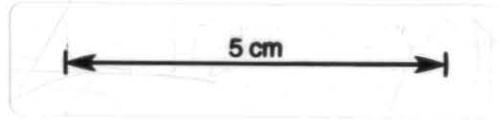


FIGURE 2



521028

### YOLLA -1 RFT PRESSURE PROFILE

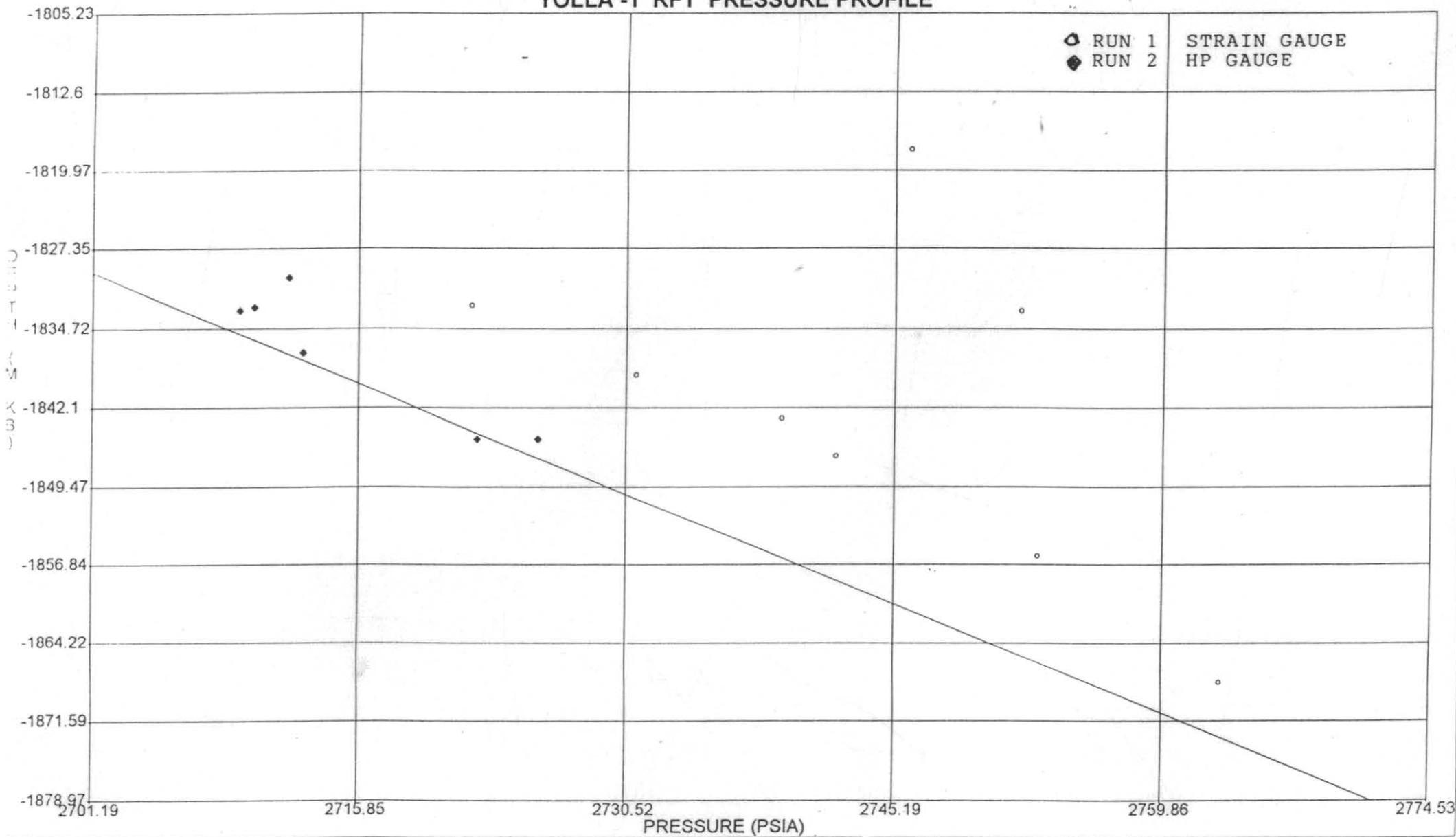
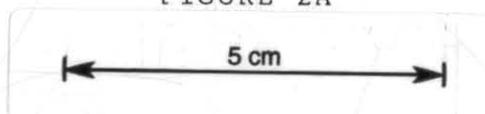


FIGURE 2A



521029

YOLLA -1 RFT PRESSURE PROFILE

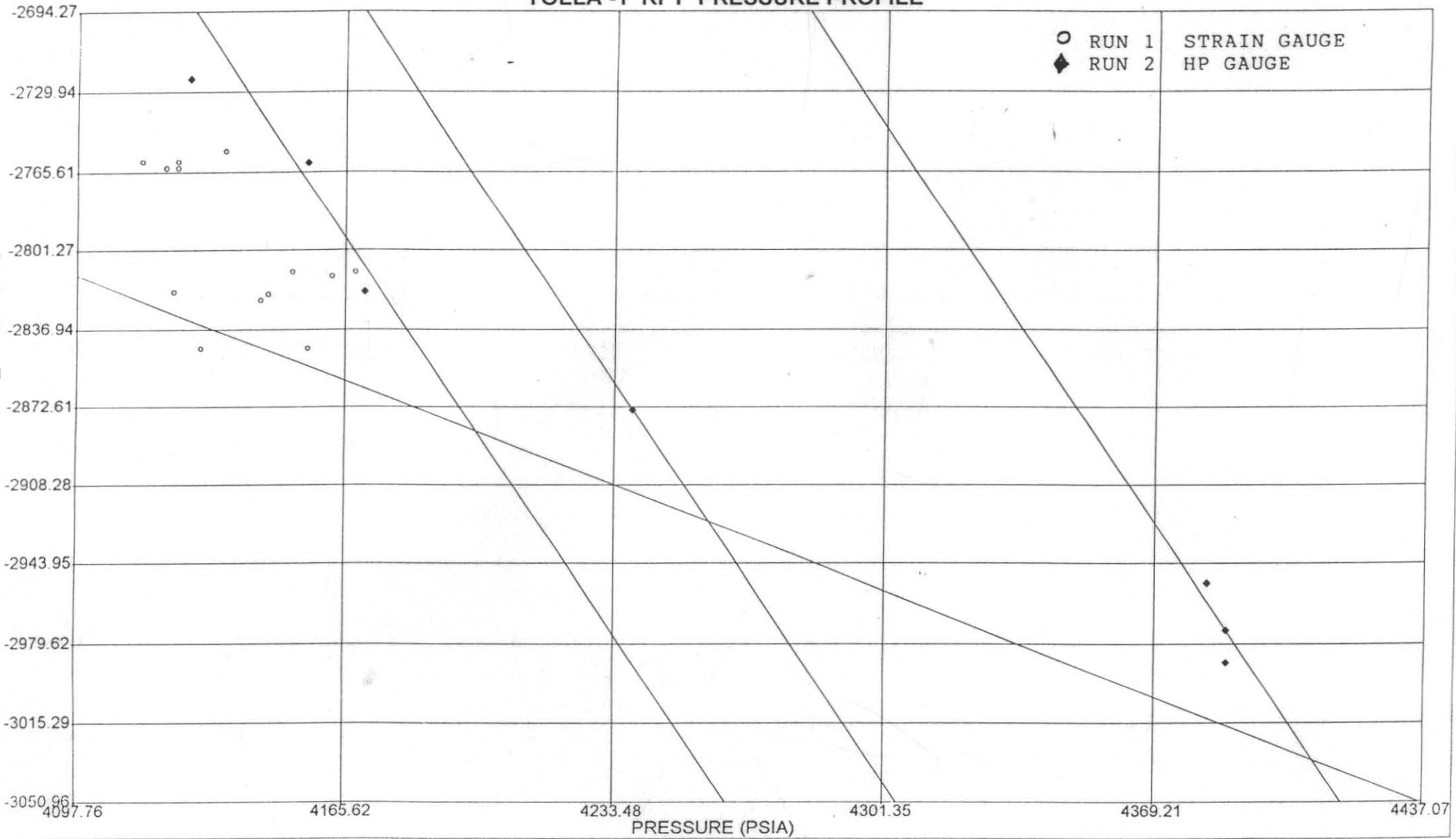


FIGURE 2B

