

# Open File Envelope

**NUMBER 7204/2**

**PPL 17**

**EROMANGA AND COOPER BASINS**

**PELICAN 3**

**TEST REPORTS**

**Submitted by**

**Santos Ltd  
1989**

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**MINES AND ENERGY**  
SOUTH AUSTRALIA



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**ENVELOPE 7204/2**

**TENEMENT:** PPL 17; Eromanga and Cooper Basins

**TENEMENT HOLDER:** Santos Ltd (operator), Alliance Oil Development NL, Delhi Petroleum Pty Ltd, Vamgas Ltd and Sagasco Resources Ltd

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| <b>REPORTS:</b> | <b>Dodman, A.P., 1989.</b> Cased hole DST report (14/8/89).                                                                                                                                                                                                                                                                                                                         | <b>MESA NO.</b><br><b>7204/2 R 1</b><br>Pgs 3-28 |
|                 | <b>Knox, L., Thorp, G. and Hirst, T., 1989.</b> Field testing contractor's results of the extended oil and as production test, and reservoir pressure buildup plus flowing and static wellbore pressure gradient surveys, of the Patchawarra Formation oil and gas reservoir producing zone 8477-8595 feet depth KB, conducted over the period 17-28/10/89 (Oilserv Australia Ltd). | <b>7204/2 R 2</b><br>Pgs 29-49                   |
|                 | <b>McAllister, D.J., 1989.</b> Field maintenance contractor's results of the static gradient survey of the above producing zone, conducted on 13/11/89 (Expertest Pty Ltd).                                                                                                                                                                                                         | <b>7204/2 R 3</b><br>Pgs 50-54                   |

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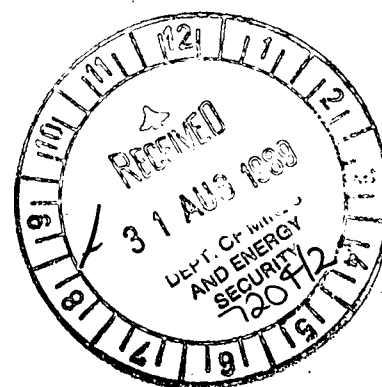
0003

CASED HOLE DST REPORT

PELICAN 3

BY A.P.DODMAN

14 August 1989



## 1. INTRODUCTION

Pelican 3 was drilled in December 1988 and encountered oil and gas pay in the Patchawarra Formation. DST 3 over the oil bearing 84-0 and 84-9 sands flowed gas at 0.1 mmcf/d and recovered 2000 feet of oil and water. A significant portion of the recovery from DST 3 was reported to have been lost.

A 23 feet interval over the 84-0 and 84-9 sands was perforated and tested by a cased hole DST on the 14 May 1989 to confirm the presence of the oil observed on the openhole DST and to test the oil flow rate potential of the sands.

## 2. TEST SUMMARY

Pelican 3 flowed oil to surface 83 minutes after opening the tool for the cased hole DST. The well flowed oil at an average rate of 103 bopd for 10.4 hours, with a gas/oil ratio of 1474 scf/stb and 10 bwpd, at a flowing tubing head pressure of 122 psi. The flowing bottomhole pressure was 869 psia at 8263' KB.

The well was shut in and the pressure buildup monitored for 14.7 hours. Bottomhole pressures were monitored during the flow and buildup periods with electronic strain gauges. Oil and gas samples were taken from the separator during the flow period for recombination analysis.

## 3. TEST RESULTS

1. The productivity index of the well is 0.035 bpd/psi.
2. A Horner analysis was made of the pressure buildup yielding the following values for extrapolated reservoir pressure, permeability, and Skin factor.

|                  |                       |
|------------------|-----------------------|
| Permeability (k) | 0.35 md               |
| Skin (S)         | -0.61                 |
| P*               | 3703 psia at 8263' KB |

3. Simulation and history matching of the transient portion of the buildup curve confirmed that the sands have a low permeability and are not damaged, but indicated an apparent Skin factor of 0.2.

4. Neither the Horner or simulated apparent skin factors are likely to be representative of the true wellbore damage because multiphase flow is likely to have occurred during the flow and early buildup periods.

Multiphase flow is indicated by the gradient to surface during the flow period (0.09 psi/ft) corresponding to a gas gradient and because correlations indicate that the oil is likely to have a bubble point equal to the initial reservoir pressure.

LIST OF ATTACHMENTS

1. Well and Formation Properties.
2. Oil Properties.
3. Horner Buildup Plot.
4. Pressure Buildup History Match - Horner Plot.
5. Pressure Buildup History Match - Type Curves.
6. Drawdown and Buildup History Match.
7. Oil and Gas Flowrate Measurements.
8. Pressure Drawdown and Buildup Measurements.
9. Reservoir Fluid Composition.
10. Oil Property Correlations (Formation Volume Factor, Compressibility, Viscosity, Bubble Point).
11. Downhole Diagram

0006

ATTACHMENT 1

WELL AND FORMATION PROPERTIES

|                       |                                          |
|-----------------------|------------------------------------------|
| KB Elevation          | 129 ft ASL                               |
| Wellbore Radius       | 0.354 ft                                 |
| Formation Thickness   | 23 ft                                    |
| Porosity              | 9.1 percent                              |
| Water Saturation      | 41.18 percent                            |
| Water Compressibility | $3.514 \times 10^{-6}$ psi <sup>-1</sup> |
| Rock Compressibility  | $5.06 \times 10^{-6}$ psi <sup>-1</sup>  |
| Reservoir Temperature | 273 deg F at 8263' KB                    |

ATTACHMENT 2.

OIL PROPERTIES

|                         |                                                       |
|-------------------------|-------------------------------------------------------|
| Stock Tank Oil Density  | 0.797 (Flopetrol 89pva015)                            |
| Formation Volume Factor | 1.85 rb/stb (correlation)                             |
| Compressibility         | $23.0 \times 10^{-6}$ psi <sup>-1</sup> (correlation) |
| Viscosity               | 0.18 cp (correlation)                                 |
| Gas/Oil Ratio           | 1660 scf/stb (Flopetrol 89pva015)                     |

P psia

4000

3500

3000

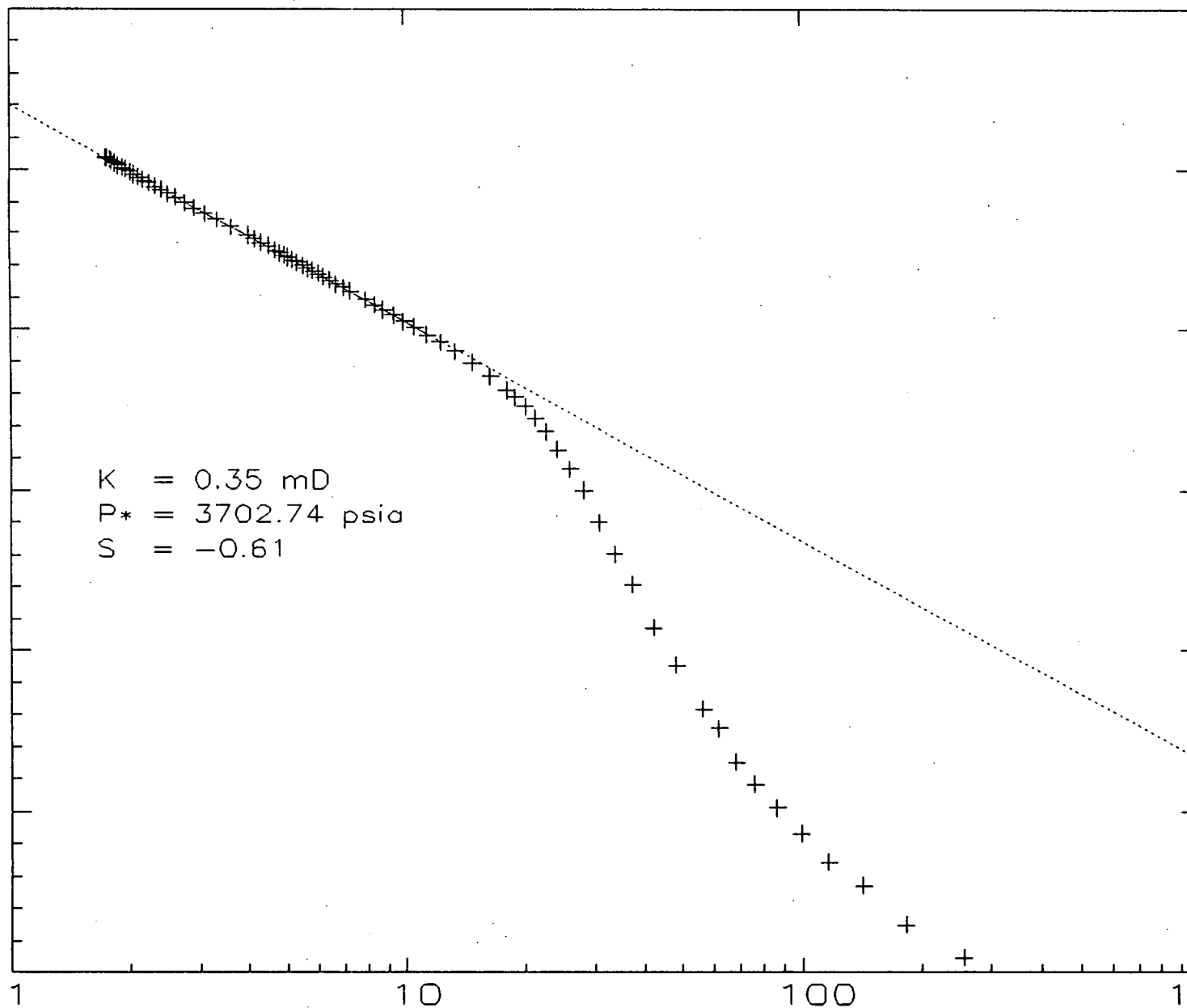
2500

2000

1500

1000

K = 0.35 mD  
P\* = 3702.74 psia  
S = -0.61



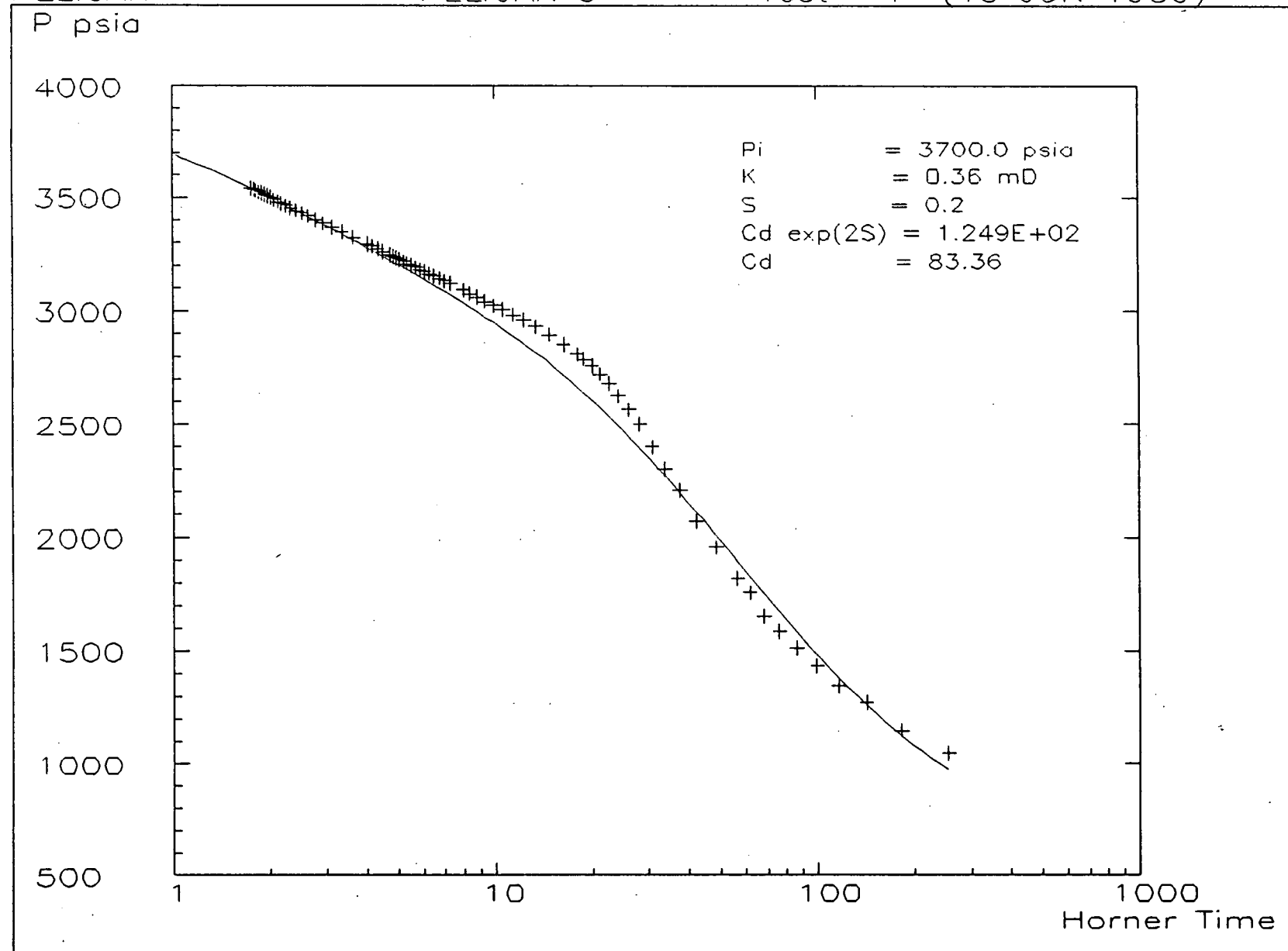
Horner Time

0007

PELICAN

PELICAN 3

Test 1 (13 JUN 1989)



0008

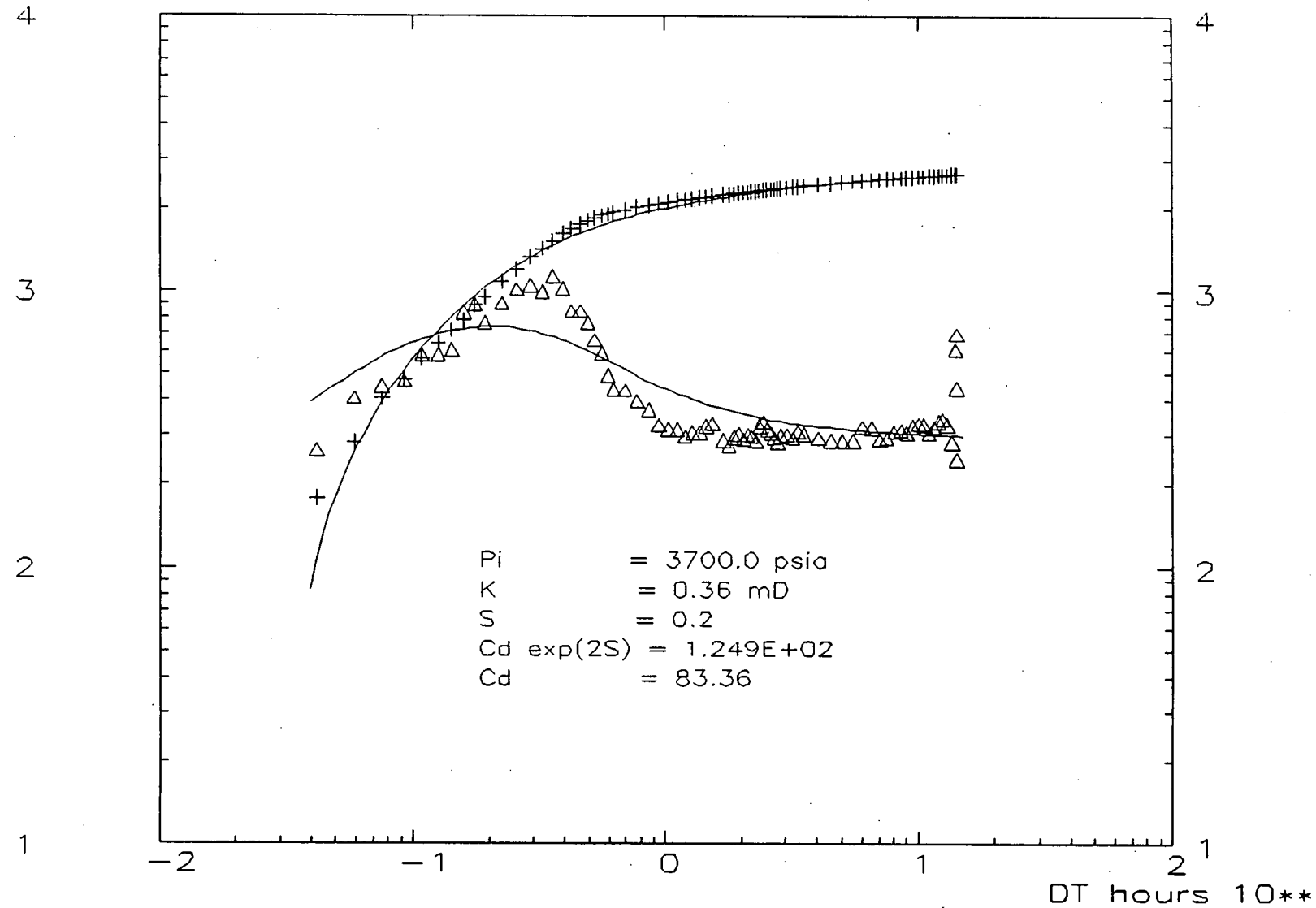
PELICAN

PELICAN 3

Test 1 (13 JUN 1989)

DP psia 10\*\*

Derivative P psia 10\*\*



0009

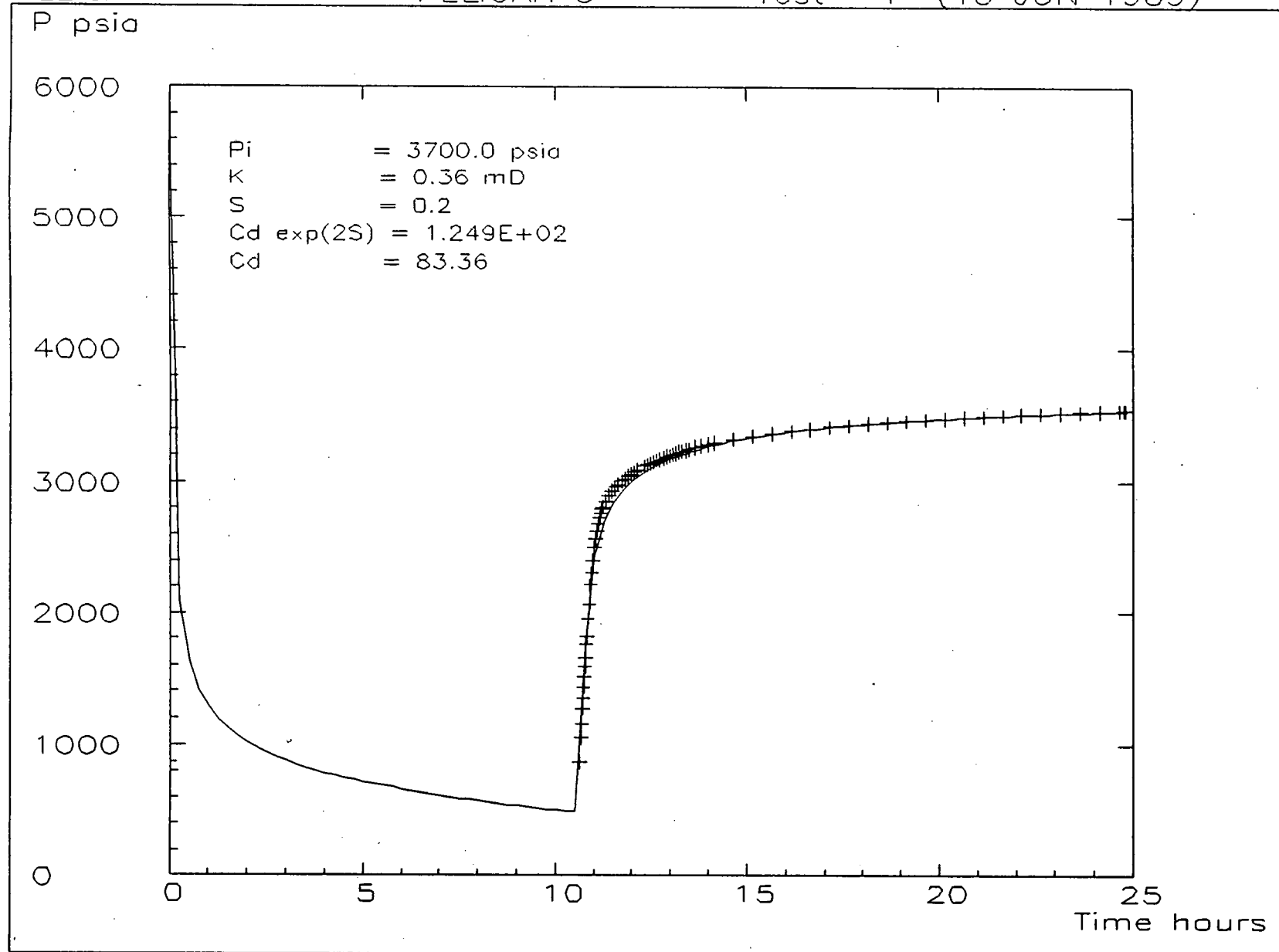
Type Curves

Attachment S - Pressure Buildup History Match

PELICAN

PELICAN 3

Test 1 (13 JUN 1989)



0010

Drawdown and Buildup

Attachment 6 Pressure Buildup History Match

APD

|                              |  |  |  |  |  |                                                   |  |  |  |  |  |  |  |                             |  |  |  |  |
|------------------------------|--|--|--|--|--|---------------------------------------------------|--|--|--|--|--|--|--|-----------------------------|--|--|--|--|
| WELL: <u>PELICAN # 3</u>     |  |  |  |  |  | <b>SANTOS LTD.</b><br><b>WELL TEST DATA SHEET</b> |  |  |  |  |  |  |  | DATE: <u>13/5 - 14/5/89</u> |  |  |  |  |
| TYPE OF TEST: <u>DST # 1</u> |  |  |  |  |  |                                                   |  |  |  |  |  |  |  | PAGE No: <u>1 of 3</u>      |  |  |  |  |

| DATE    | WELLHEAD                              |               |               |                                                                             |                                                         | GAS FLOW DATA |           |                             |             | OIL/CONDENSATE PRODUCTION |                    |                      | WATER PRODUCTION          |                    | WELL TEST RESULTS    |                        |                              |                              |                              |
|---------|---------------------------------------|---------------|---------------|-----------------------------------------------------------------------------|---------------------------------------------------------|---------------|-----------|-----------------------------|-------------|---------------------------|--------------------|----------------------|---------------------------|--------------------|----------------------|------------------------|------------------------------|------------------------------|------------------------------|
|         |                                       |               |               |                                                                             |                                                         |               |           |                             |             |                           |                    |                      |                           |                    | GAS                  | OIL                    | WATER                        | TOTAL LIQUID                 | G.O.R.                       |
|         | TIME                                  | CASING<br>PSI | TUBING<br>PSI | TEMP.<br>°F                                                                 | CHOKE<br>SIZE<br>INS                                    | B.S.W.<br>%   | PI<br>PSI | HW<br>INS. H <sub>2</sub> O | TEMP.<br>°F | ORIFICE<br>SIZE<br>INS    | TANK<br>DIP<br>INS | TANK<br>PROD<br>BBLs | API<br>GRAVITY<br>@ 60 °F | TANK<br>DIP<br>INS | TANK<br>PROD<br>BBLs | FLOW<br>RATE<br>MMSCFD | FLOW<br>RATE<br>BBLs/<br>DAY | FLOW<br>RATE<br>BBLs/<br>DAY | FLOW<br>RATE<br>BBLs/<br>DAY |
|         |                                       |               |               | PATCHAWARRA FORMATION -                                                     |                                                         |               |           |                             |             |                           | 8477               | -                    | 8492                      |                    | 8587                 | -                      | 8595                         |                              |                              |
| 13/5/89 |                                       |               |               |                                                                             |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
|         | M.I R.U. separator for cased hole DST |               |               |                                                                             |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 14/5/89 |                                       |               |               |                                                                             |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0645    |                                       |               |               | Pressure test flowlines to separator to 2000 psi - OK.                      |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0652    |                                       |               |               | Pressure up on annulus to fire T.C.P. guns. Well shut in at choke manifold. |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0703    |                                       |               |               | Weak blow to surface.                                                       |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0706    |                                       | 3             |               |                                                                             |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0709    |                                       | 18            |               | 32/64"                                                                      | Open well to flare on 32/64" positive choke.            |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0710    |                                       | 22            |               | "                                                                           |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0715    |                                       | 33            |               | "                                                                           | Flowing dry gas only.                                   |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0730    |                                       | 23            |               | "                                                                           |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0745    |                                       | 1             |               | "                                                                           |                                                         |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0800    |                                       | 15            |               | "                                                                           | Water cushion to surface.                               |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0815    |                                       | 20            |               | "                                                                           | Oil to surface. Clear blockage in bubble hose manifold. |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0825    |                                       | 210           |               | "                                                                           | Divert well flow through separator.                     |               |           |                             |             |                           |                    |                      |                           |                    |                      |                        |                              |                              |                              |
| 0900    |                                       | 155           | 70            | "                                                                           |                                                         | 85            | 56        | 68                          | 1.0         | 2.5                       | A.17.              |                      | 1.0                       |                    |                      |                        |                              |                              |                              |
| 1000    |                                       | 110           | 74            | "                                                                           |                                                         | 85            | 66        | 72                          | 0.75        | 3.25                      |                    |                      | 1.75                      |                    |                      |                        |                              |                              |                              |

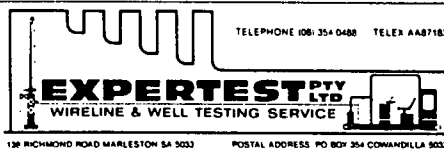
0011

| WELL: PELICAN # 3     |               |                                                                                                                                                                         |             |                      |             | SANTOS LTD.          |                           |             |                        |                    |                           |                           |                    |                      |                               | DATE: 14/5/89                       |                                       |                                                 |                     |  |
|-----------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|-------------|----------------------|---------------------------|-------------|------------------------|--------------------|---------------------------|---------------------------|--------------------|----------------------|-------------------------------|-------------------------------------|---------------------------------------|-------------------------------------------------|---------------------|--|
| TYPE OF TEST: DST # 1 |               |                                                                                                                                                                         |             |                      |             | WELL TEST DATA SHEET |                           |             |                        |                    |                           |                           |                    |                      |                               | PAGE No: 2 of 3                     |                                       |                                                 |                     |  |
| DATE<br>TIME          | WELLHEAD      |                                                                                                                                                                         |             |                      |             | GAS FLOW DATA        |                           |             |                        |                    | OIL/CONDENSATE PRODUCTION |                           |                    | WATER PRODUCTION     |                               | WELL TEST RESULTS                   |                                       |                                                 |                     |  |
|                       | CASING<br>PSI | TUBING<br>PSI                                                                                                                                                           | TEMP.<br>°F | CHOKE<br>SIZE<br>INS | B.S.W.<br>% | PI<br>PSI            | HW<br>INSH <sub>2</sub> O | TEMP.<br>°F | ORIFICE<br>SIZE<br>INS | TANK<br>DIP<br>INS | TANK<br>PROD<br>BBLs      | API<br>GRAVITY<br>@ 60 °F | TANK<br>DIP<br>INS | TANK<br>PROD<br>BBLs | GAS<br>FLOW<br>RATE<br>MMSCFD | OIL<br>FLOW<br>RATE<br>BBLs/<br>DAY | WATER<br>FLOW<br>RATE<br>BBLs/<br>DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>BBLs/<br>DAY | L.G.R.<br>BBL/MMSCF |  |
| 14/5/89               |               |                                                                                                                                                                         |             |                      |             |                      |                           |             |                        |                    |                           |                           |                    |                      |                               |                                     |                                       |                                                 |                     |  |
| 1030                  |               | 115                                                                                                                                                                     | 81          | 3 7/16"              |             | 85                   | 68                        | 75          | 0.75                   | 5.00               | 2.93                      | 45.7                      | 1.75               | φ                    | 0.211                         | 141                                 | φ                                     | 141                                             | 668                 |  |
| 1100                  |               | 102                                                                                                                                                                     | 81          | "                    |             | 85                   | 60                        | 75          | "                      | 6.25               | 2.09                      |                           | 1.75               | φ                    | 0.198                         | 101                                 | φ                                     | 101                                             | 510                 |  |
| 1130                  |               | 110                                                                                                                                                                     | 81          | "                    |             | 85                   | 54                        | 77          | "                      | 7.50               | 2.09                      |                           | 1.75               | φ                    | 0.188                         | 101                                 | φ                                     | 101                                             | 537                 |  |
| 1200                  |               | 110                                                                                                                                                                     | 82          |                      |             | 85                   | 60                        | 79          | "                      | 8.50               | 1.68                      | 46.4                      | 1.75               | 0                    | 0.198                         | 81                                  | φ                                     | 81                                              | 409                 |  |
| 1220                  |               | Liquid level in separator increasing, due to insufficient separator pressure to displace oil into stock tank, and overcome hydrostatic pressure of fluid in riser pipe. |             |                      |             |                      |                           |             |                        |                    |                           |                           |                    |                      |                               |                                     |                                       |                                                 |                     |  |
|                       |               | Reduce orifice plate to 0.5".                                                                                                                                           |             |                      |             |                      |                           |             |                        |                    |                           |                           |                    |                      |                               |                                     |                                       |                                                 |                     |  |
| 1230                  |               | 124                                                                                                                                                                     | 83          | 3 7/16"              |             | 110                  | 154                       | 79          | 0.5                    | 10.0               | 2.51                      |                           | 1.75               | φ                    | 0.159                         | 121                                 | φ                                     | 121                                             | 761                 |  |
| 1300                  |               | 118                                                                                                                                                                     | 84          | "                    |             | 110                  | 80                        | 79          | "                      | 11.25              | 2.09                      | 46.6                      | 2.25               | 0.84                 | 0.114                         | 101                                 | 40                                    | 141                                             | 1236                |  |
| 1330                  |               | 135                                                                                                                                                                     | 84          | "                    |             | 110                  | 120                       | 81          | "                      | 12.25              | 1.68                      |                           | 2.5                | 0.42                 | 0.140                         | 81                                  | 20                                    | 101                                             | 721                 |  |
| 1400                  |               | 124                                                                                                                                                                     | 82          | "                    |             | 110                  | 114                       | 81          | "                      | 13.5               | 2.09                      |                           | 2.75               | 0.42                 | 0.136                         | 101                                 | 20                                    | 121                                             | 890                 |  |
| 1430                  |               | 131                                                                                                                                                                     | 82          | "                    |             | 110                  | 112                       | 81          | "                      | 14.5               | 1.68                      | 46.6                      | 3.0                | 0.42                 | 0.135                         | 81                                  | 20                                    | 101                                             | 748                 |  |
| 1500                  |               | 126                                                                                                                                                                     | 82          | "                    |             | 110                  | 110                       | 80          | "                      | 15.75              | 2.09                      |                           | 3.0                | φ                    | 0.134                         | 101                                 | φ                                     | 101                                             | 754                 |  |
| 1530                  |               | 119                                                                                                                                                                     | 81          | "                    |             | 110                  | 108                       | 79          | "                      | 16.75              | 1.68                      |                           | 3.25               | 0.42                 | 0.133                         | 81                                  | 20                                    | 101                                             | 759                 |  |
| 1600                  |               | 139                                                                                                                                                                     | 81          | "                    |             | 110                  | 110                       | 79          | "                      | 18.0               | 2.09                      |                           | 3.25               | φ                    | 0.134                         | 101                                 | φ                                     | 101                                             | 754                 |  |
| 1630                  |               | 131                                                                                                                                                                     | 79          | "                    |             | 110                  | 108                       | 77          | "                      | 19.0               | 1.68                      |                           | 3.25               | φ                    | 0.133                         | 81                                  | φ                                     | 81                                              | 808                 |  |
| 1700                  |               | 122                                                                                                                                                                     | 77          | "                    |             | 105                  | 116                       | 75          | "                      | 20.0               | 1.68                      | 46.1                      | 3.5                | 0.42                 | 0.135                         | 81                                  | 20                                    | 101                                             | 748                 |  |
| 1730                  |               | 122                                                                                                                                                                     | 77          | "                    |             | 105                  | 120                       | 74          | "                      | 21.25              | 2.09                      |                           | 3.75               | 0.42                 | 0.138                         | 101                                 | 20                                    | 121                                             | 877                 |  |
|                       |               | BYPASS SEPARATOR. DST # 1 COMPLETED.                                                                                                                                    |             |                      |             |                      |                           |             |                        |                    |                           |                           |                    |                      |                               |                                     |                                       |                                                 |                     |  |

OPERATOR

0012



CLIENT SANTOSWELL PELICAN # 3

TELEPHONE (08) 354 0488 TELE FAX 087183

Date 14/5/89 Page No. 1 of 2Operator McALLISTER / PARDONOrifice Fitting Type DANIELS  
Gas Flow Recorder Type FOXBORO  
Date of Last Calibration 12/3/89Orifice Fitting Size 4.026"  
Pressure Range 0 - 500 PSI  
Differential Range 0 - 200" W.C.Gas Specific Gravity 1.1664  
Perforated Interval 8477 - 8595  
Formation Tested PATCHAWARRABase Conditions = 14.73psi @ 60°F  
☒ Flange Taps ☐ Pipe Taps

| TIME DATA    |                          | Choke<br>Size<br>64ths<br>Inch | METER RUN DATA                                                         |                              |             |                         | $\sqrt{P_f \times H_w}$ | $C' = F_u \times F_b \times F_g \times F_{tf} \times F_{pv} \times Y_2$ |        |        |        |        |        |        | Flow Rate<br>$Q = C' \times \sqrt{P_f \times H_w}$<br>mm scfd. |  |
|--------------|--------------------------|--------------------------------|------------------------------------------------------------------------|------------------------------|-------------|-------------------------|-------------------------|-------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|----------------------------------------------------------------|--|
| Date<br>Time | Elapsed<br>Time<br>Hours |                                | (Pf)<br>Press<br>P.S.I.A.                                              | Diff (Hw)<br>Inches<br>Water | Temp.<br>°F | Plate<br>Size<br>Inches |                         | Fu                                                                      | Fb     | Fg     | Ftf    | Fpv    | Y2     | C'     |                                                                |  |
|              |                          |                                | Used gas specific gravity of Patchawarra formation / Tirrawarra field. |                              |             |                         |                         |                                                                         |        |        |        |        |        |        |                                                                |  |
| 14/5/89.     |                          |                                |                                                                        |                              |             |                         |                         |                                                                         |        |        |        |        |        |        |                                                                |  |
| 0825         | 1-27                     | 32/64"                         | Divert well flow through separator. Commence rate # 1.                 |                              |             |                         |                         |                                                                         |        |        |        |        |        |        |                                                                |  |
| 0900         | 1-85                     | 32/64"                         | 100                                                                    | 56                           | 68          | 1.0                     | 74.8331                 | 24                                                                      | 201.98 | 0.9259 | 0.9924 | 1.0312 | 1.0037 | 4610.6 | 0.345                                                          |  |
| 1000         | 2-85                     | "                              | 100                                                                    | 66                           | 72          | 0.75                    | 81.2404                 | "                                                                       | 113.08 | "      | 0.9887 | 1.0304 | 1.0044 | 2571.2 | 0.209                                                          |  |
| 1030         | 3-35                     | "                              | 100                                                                    | 68                           | 75          | "                       | 82.4621                 | "                                                                       | "      | "      | 0.9859 | 1.0298 | 1.0045 | 2562.9 | 0.211                                                          |  |
| 1100         | 3-85                     | "                              | 100                                                                    | 60                           | 75          | "                       | 77.460                  | "                                                                       | "      | "      | 0.9859 | 1.0298 | 1.0040 | 2561.5 | 0.198                                                          |  |
| 1130         | 4-35                     | "                              | 100                                                                    | 54                           | 77          | "                       | 73.4847                 | "                                                                       | "      | "      | 0.9840 | 1.0294 | 1.0036 | 2554.8 | 0.188                                                          |  |
| 1200         | 4-85                     | "                              | 100                                                                    | 60                           | 79          | "                       | 77.460                  | "                                                                       | "      | "      | 0.9822 | 1.0291 | 1.0040 | 2550.1 | 0.198                                                          |  |
| 1230         | 5-35                     | "                              | 125                                                                    | 154                          | 79          | 0.5                     | 138.744                 | "                                                                       | 50.22  | "      | 0.9822 | 1.0371 | 1.0083 | 1146.4 | 0.159                                                          |  |
| 1300         | 5-85                     | "                              | 125                                                                    | 80                           | 79          | "                       | 100.0000                | "                                                                       | "      | "      | 0.9822 | 1.0371 | 1.0043 | 1141.8 | 0.114                                                          |  |
| 1330         | 6-35                     | "                              | 125                                                                    | 120                          | 81          | "                       | 122.4745                | "                                                                       | "      | "      | 0.9804 | 1.0366 | 1.0064 | 1141.6 | 0.140                                                          |  |
| 1400         | 6-85                     | "                              | 125                                                                    | 114                          | 81          | "                       | 119.3734                | "                                                                       | "      | "      | 0.9804 | 1.0366 | 1.0061 | 1141.3 | 0.136                                                          |  |
| 1430         | 7-35                     | "                              | 125                                                                    | 112                          | 81          | "                       | 118.3216                | "                                                                       | "      | "      | 0.9804 | 1.0366 | 1.0060 | 1141.1 | 0.135                                                          |  |
| 1500         | 7-85                     | "                              | 125                                                                    | 110                          | 80          | "                       | 117.2604                | "                                                                       | "      | "      | 0.9813 | 1.0368 | 1.0059 | 1142.3 | 0.134                                                          |  |
| 1530         | 8-35                     | "                              | 125                                                                    | 108                          | 79          | "                       | 116.1895                | "                                                                       | "      | "      | 0.9822 | 1.0371 | 1.0058 | 1143.5 | 0.133                                                          |  |
| 1600         | 8-85                     | "                              | 125                                                                    | 110                          | 79          | "                       | 117.2604                | "                                                                       | "      | "      | 0.9822 | 1.0371 | 1.0059 | 1143.7 | 0.134                                                          |  |
| 1630         | 9-35                     | "                              | 125                                                                    | 108                          | 79          | "                       | 116.1895                | "                                                                       | "      | "      | 0.9822 | 1.0371 | 1.0058 | 1143.5 | 0.133                                                          |  |
| 1700         | 9-85                     | "                              | 120                                                                    | 116                          | 75          | "                       | 117.9830                | "                                                                       | "      | "      | 0.9859 | 1.0364 | 1.0065 | 1147.8 | 0.135                                                          |  |

WELL... PELICAN # 3



Date 14/5/89... Page No. 2 of 2...

Operator MCALISTER / PARDON

Orifice Fitting Type . . . DANIELS  
Gas Flow Recorder Type . . . FOXBORO  
Date of Last Calibration . . . 12/3/89

|                      |             |
|----------------------|-------------|
| Orifice Fitting Size | 4.026       |
| Pressure Range       | 0 - 500 PSI |
| Differential Range   | 0 - 200" WC |

Gas Specific Gravity. 1.1664  
Perforated Interval. 8477 - 8595  
Formation Tested. PATCHAWARRA

Base Conditions = 14.73psi @ 60°F  
☒ Flange Taps    ☐ Pipe Taps

[illegible]

WELL PELICAN # 3TANK:- CAPACITY 356 BBLS  
SCALE 1.677 /

SANTOS LTD

## FLUID PRODUCTION SHEET

DATE 14/5/89PAGE No. 1OPERATOR M. ALLISTER/PARDON

| DATE<br>TIME | CUM.<br>TIME | OIL/CONDENSATE PRODUCTION |                    |                    |                   |                                         | WATER PRODUCTION |                    |                    |                   |                 | REMARKS |
|--------------|--------------|---------------------------|--------------------|--------------------|-------------------|-----------------------------------------|------------------|--------------------|--------------------|-------------------|-----------------|---------|
|              |              | TANK DIP<br>INS           | TANK PROD.<br>BBLS | FLOWRATE<br>BBLS/D | CUM.PROD.<br>BBLS | OIL<br>CONDENSATE<br>GRAVITY<br>°API60F | TANK DIP<br>INS  | TANK PROD.<br>BBLS | FLOWRATE<br>BBLS/D | CUM.PROD.<br>BBLS | SALINITY<br>PPM |         |
| 1000         | 2.85         | 3.25                      | Initial            | oil dip            |                   |                                         | 1.75             | Initial            | water dip          |                   |                 |         |
| 1030         | 3.35         | 5.00                      | 2.93               | 140.9              | 2.93              | 45.7                                    | 1.75             | φ                  | φ                  | φ                 |                 |         |
| 1100         | 3.85         | 6.25                      | 2.09               | 100.6              | 5.02              |                                         | 1.75             | φ                  | φ                  | φ                 |                 |         |
| 1130         | 4.35         | 7.50                      | 2.09               | 100.6              | 7.11              |                                         | 1.75             | φ                  | φ                  | φ                 |                 |         |
| 1200         | 4.85         | 8.50                      | 1.68               | 80.5               | 8.79              |                                         | 1.75             | φ                  | φ                  | φ                 |                 |         |
| 1230         | 5.35         | 10.0                      | 2.51               | 120.7              | 11.3              |                                         | 1.75             | φ                  | φ                  | φ                 |                 |         |
| 1300         | 5.85         | 11.25                     | 2.09               | 100.6              | 13.4              | 46.6                                    | 2.25             | 0.84               | 40.2               | 0.84              |                 |         |
| 1330         | 6.35         | 12.25                     | 1.68               | 80.5               | 15.1              |                                         | 2.5              | 0.42               | 20.1               | 1.26              |                 |         |
| 1400         | 6.85         | 13.5                      | 2.09               | 100.6              | 17.2              |                                         | 2.75             | 0.42               | 20.1               | 1.68              |                 |         |
| 1430         | 7.35         | 14.5                      | 1.68               | 80.5               | 18.9              | 46.6                                    | 3.0              | 0.42               | 20.1               | 2.1               |                 |         |
| 1500         | 7.85         | 15.75                     | 2.09               | 100.6              | 21.0              |                                         | 3.0              | φ                  | φ                  | 2.1               |                 |         |
| 1530         | 8.35         | 16.75                     | 1.68               | 80.5               | 22.7              |                                         | 3.25             | 0.42               | 20.1               | 2.52              |                 |         |
| 1600         | 8.85         | 18.0                      | 2.09               | 100.6              | 24.8              |                                         | 3.25             | φ                  | φ                  | 2.52              |                 |         |
| 1630         | 9.35         | 19.0                      | 1.68               | 80.5               | 26.4              |                                         | 3.25             | φ                  | φ                  | 2.52              |                 |         |
| 1700         | 9.85         | 20.0                      | 1.68               | 80.5               | 28.1              | 46.1                                    | 3.5              | 0.42               | 20.1               | 2.94              |                 |         |
| 1730         | 10.35        | 21.25                     | 2.09               | 100.6              | 30.2              |                                         | 3.75             | 0.42               | 20.1               | 3.36              |                 |         |
|              | BYPASS       | SEPARATOR                 |                    |                    |                   |                                         |                  |                    |                    |                   |                 |         |
|              | DST #        | COMPLETED.                |                    |                    |                   |                                         |                  |                    |                    |                   |                 |         |
|              |              |                           |                    |                    |                   |                                         |                  |                    |                    |                   |                 |         |

Date: 13-MAY-89

Ticket No: 328073

Page No: 3.1.1

0017

## PRESSURE VS TIME

MECHANICAL gauge no.: 7884  
Clock no.:

Hour:

Gauge Depth: 8263.00 ft

TIME  
HH:MM:SSD TIME  
(min)PRESSURE  
(psi)TEMP  
(F)

COMMENTS

13-MAY-89

Data Print Frequency: 1

START EMR GAUGE S/N 70638  
MAKE UP TOOLS  
R.I.H.

08:07:00

10:00:00

12:15:00

13:41:39

364.277 273.0

13:59:22

379.769 273.0

15:03:14

410.274 273.0

15:17:34

788.329 273.0

15:44:58

1385.883 273.0

16:29:26

2516.774 273.0

17:02:27

3273.659 273.0

17:11:53

3480.940 273.0

17:29:04

3861.143 273.0

17:45:00

RIG SCHLUMBERGER TO CORROLATE

17:48:10

3861.772 273.0

18:40:41

3859.726 273.0

19:21:25

3859.726 273.0

19:25:38

3868.538 273.0

19:30:00

SET RTTS AND RE-CORROLATE

19:33:49

4071.371 273.0

19:56:13

4046.073 273.0

21:04:42

4015.426 273.0

21:30:00

RIG DOWN SCHLUMBERGER INSTALL  
STABBING VALVE AND SECURE  
UNTIL DAYLIGHT.

21:30:00

21:30:00

22:16:55

3997.506 273.0

14-MAY-89

01:23:40

3958.828 273.0

02:52:11

3944.046 273.0

05:27:34

3912.432 273.0

06:15:00

HEAD UP AND RIG MANIFOLD  
PRESS. TEST SURFACE EQUIPMENT  
TO 2000 psi

06:40:00

06:40:00

06:47:40

3897.488 273.0

06:48:34

3898.117 273.0

\*\*\* Start of Period 1 \*\*\*

06:48:37

0.00

639.885 273.0

06:49:00

SET 15000# ON TOOL

06:50:00

TOOL OPENED.

06:52:00

PRESSURE ANNULUS TO FIRE GUNS

06:52:00

3.38

640.524 273.0

06:56:02

7.41

655.211 273.0

06:57:59

9.37

686.179 273.0

06:58:00

NO BLOW. CLOSE FLARE LINE.

07:00:00

11.38

716.826 273.0

07:02:01

13.40

743.641 273.0

07:03:00

WEAK BLOW.

Date: 13-MAY-89

Ticket No: 328073

Page No: 3.1.2

0018

## PRESSURE VS TIME

MECHANICAL gauge no.: 7884  
Clock no.:

Hour:

Gauge Depth: 8263.00 ft

| TIME<br>HH:MM:SS | D TIME<br>(min) | PRESSURE<br>(psi) | TEMP<br>(F) | COMMENTS                       |
|------------------|-----------------|-------------------|-------------|--------------------------------|
| -----            |                 |                   |             |                                |
| 14-MAY-89        |                 |                   |             | Data Print Frequency: 1        |
| 07:06:00         |                 |                   |             | WEAK BLOW.                     |
| 07:07:00         | 18.38           | 805.086           | 273.0       |                                |
| 07:08:00         |                 |                   |             | MODERATE TO STRONG.            |
| 07:09:00         |                 |                   |             | INCREASING. OPEN FLARE LINE.   |
| 07:12:00         |                 |                   |             | GAS TO SURFACE.                |
| 07:12:02         | 23.42           | 886.947           | 273.0       |                                |
| 07:15:00         |                 |                   |             | GAS TO SURFACE.                |
| 07:17:01         | 28.40           | 925.239           | 273.0       |                                |
| 07:22:00         | 33.38           | 965.283           | 273.0       |                                |
| 07:30:00         |                 |                   |             | GAS TO SURFACE.                |
| 07:32:01         | 43.40           | 1039.137          | 273.0       |                                |
| 07:42:02         | 53.42           | 1112.340          | 273.0       |                                |
| 07:52:00         | 63.38           | 1195.733          | 273.0       |                                |
| 08:00:00         |                 |                   |             | WATER CUSHION TO SURFACE.      |
| 08:02:01         | 73.40           | 1284.525          | 273.0       |                                |
| 08:04:02         | 75.41           | 1289.626          | 273.0       |                                |
| 08:05:59         | 77.37           | 1292.654          | 273.0       |                                |
| 08:08:00         | 79.39           | 1296.798          | 273.0       |                                |
| 08:08:40         | 80.04           | 1297.117          | 273.0       |                                |
| 08:10:01         | 81.40           | 1295.523          | 273.0       |                                |
| 08:12:02         | 83.42           | 1287.713          | 273.0       |                                |
| 08:15:00         |                 |                   |             | OIL CUT WATER TO SURFACE.      |
| 08:15:00         |                 |                   |             | STRONG FLARE, SLUGGING, PRESS. |
| 08:15:00         |                 |                   |             | GAUGE READING SUSPECT-         |
| 08:15:00         |                 |                   |             | CLEAR BLOCKAGE.                |
| 08:20:00         |                 |                   |             | STRONG FLARE.                  |
| 08:22:00         | 93.38           | 1183.934          | 273.0       |                                |
| 08:25:00         |                 |                   |             | SWITCH TO SEPARATOR.           |
| 08:30:00         |                 |                   |             | FLARING GAS AND FLOWING OIL    |
| 08:30:00         |                 |                   |             | TO FRAC-TANK.                  |
| 08:37:00         | 108.38          | 1001.015          | 273.0       |                                |
| 08:52:00         | 123.38          | 883.437           | 273.0       |                                |
| 09:00:00         |                 |                   |             |                                |
| 09:02:05         | 133.46          | 809.555           | 273.0       |                                |
| 09:11:59         | 143.36          | 769.497           | 273.0       |                                |
| 09:17:01         | 148.40          | 763.432           | 273.0       |                                |
| 09:30:00         |                 |                   |             |                                |
| 09:32:01         | 163.40          | 749.547           | 273.0       |                                |
| 10:00:00         |                 |                   |             |                                |
| 10:02:01         | 193.40          | 779.871           | 273.0       |                                |
| 10:30:00         |                 |                   |             |                                |
| 10:30:00         |                 |                   |             |                                |
| 10:32:01         | 223.39          | 776.360           | 273.0       |                                |
| 11:00:00         |                 |                   |             |                                |
| 11:02:01         | 253.39          | 764.390           | 273.0       |                                |
| 11:30:00         |                 |                   |             |                                |

Date: 13-MAY-89

Ticket No: 328073

Page No: 3.1.3

0019

## PRESSURE VS TIME

MECHANICAL gauge no.: 7884  
Clock no.:

Hour:

Gauge Depth: 8263.00 ft

| TIME<br>HH:MM:SS | D TIME<br>(min) | PRESSURE<br>(psi)         | TEMP<br>(F) | COMMENTS    |
|------------------|-----------------|---------------------------|-------------|-------------|
| -----            |                 |                           |             |             |
| 14-MAY-89        |                 | Data Print Frequency:     | 1           |             |
| 11:32:01         | 283.39          | 795.990                   | 273.0       |             |
| 12:00:00         |                 |                           |             |             |
| 12:02:01         | 313.39          | 806.842                   | 273.0       |             |
| 12:30:00         |                 |                           |             |             |
| 12:32:01         | 343.39          | 787.053                   | 273.0       |             |
| 13:00:00         |                 |                           |             |             |
| 13:01:57         | 373.33          | 814.183                   | 273.0       |             |
| 13:30:00         |                 |                           |             |             |
| 13:32:01         | 403.39          | 832.854                   | 273.0       |             |
| 14:00:00         |                 |                           |             |             |
| 14:02:01         | 433.39          | 822.002                   | 273.0       |             |
| 14:30:00         |                 |                           |             |             |
| 14:32:01         | 463.39          | 833.492                   | 273.0       |             |
| 15:00:00         |                 |                           |             |             |
| 15:02:01         | 493.39          | 846.258                   | 273.0       |             |
| 15:30:00         |                 |                           |             |             |
| 15:32:01         | 523.39          | 855.513                   | 273.0       |             |
| 16:00:00         |                 |                           |             |             |
| 16:02:00         | 553.39          | 850.247                   | 273.0       |             |
| 16:30:00         |                 |                           |             |             |
| 16:32:00         | 583.39          | 853.598                   | 273.0       |             |
| 17:00:00         |                 |                           |             |             |
| 17:02:00         | 613.39          | 868.119                   | 273.0       |             |
| 17:17:00         | 628.39          | 857.268                   | 273.0       |             |
| 17:27:37         | 639.00          | 869.395                   | 273.0       |             |
|                  |                 | *** End of Period 1 ***   |             |             |
|                  |                 | *** Start of Period 2 *** |             |             |
| 17:28:38         | 1.01            | 1046.953                  | 273.0       |             |
| 17:29:38         | 2.02            | 1150.132                  | 273.0       |             |
| 17:30:00         |                 |                           |             | CLOSE TOOL. |
| 17:30:39         | 3.02            | 1271.933                  | 273.0       |             |
| 17:31:39         | 4.03            | 1343.335                  | 273.0       |             |
| 17:32:36         | 4.98            | 1431.770                  | 273.0       |             |
| 17:33:36         | 5.99            | 1512.854                  | 273.0       |             |
| 17:34:37         | 7.00            | 1583.565                  | 273.0       |             |
| 17:35:37         | 8.00            | 1651.075                  | 273.0       |             |
| 17:36:38         | 9.01            | 1755.335                  | 273.0       |             |
| 17:37:38         | 10.02           | 1816.757                  | 273.0       |             |
| 17:39:36         | 11.98           | 1954.509                  | 273.0       |             |
| 17:41:37         | 13.99           | 2070.409                  | 273.0       |             |
| 17:43:38         | 16.01           | 2207.860                  | 273.0       |             |
| 17:45:39         | 18.02           | 2301.088                  | 273.0       |             |
| 17:47:36         | 19.98           | 2400.150                  | 273.0       |             |
| 17:49:37         | 22.00           | 2500.276                  | 273.0       |             |
| 17:51:38         | 24.01           | 2565.626                  | 273.0       |             |
| 17:53:39         | 26.03           | 2625.881                  | 273.0       |             |

Date: 13-MAY-89

Ticket No: 328073

Page No: 3.1.4

0020

## PRESSURE VS TIME

MECHANICAL gauge no.: 7884

Gauge Depth: 8263.00 ft

Clock no.:

Hour:

| TIME<br>HH:MM:SS | D TIME<br>(min) | PRESSURE<br>(psi)     | TEMP<br>(F) | COMMENTS |
|------------------|-----------------|-----------------------|-------------|----------|
| -----            |                 |                       |             |          |
| 14-MAY-89        |                 | Data Print Frequency: | 1           |          |
| 17:55:40         | 28.04           | 2681.521              | 273.0       |          |
| 17:57:37         | 30.00           | 2722.885              | 273.0       |          |
| 17:59:38         | 32.02           | 2759.011              | 273.0       |          |
| 18:01:39         | 34.03           | 2788.794              | 273.0       |          |
| 18:03:36         | 35.99           | 2810.178              | 273.0       |          |
| 18:07:38         | 40.02           | 2852.147              | 273.0       |          |
| 18:12:37         | 45.00           | 2894.897              | 273.0       |          |
| 18:17:39         | 50.04           | 2929.882              | 273.0       |          |
| 18:22:38         | 55.02           | 2959.638              | 273.0       |          |
| 18:27:37         | 60.00           | 2981.318              | 273.0       |          |
| 18:32:39         | 65.04           | 3005.527              | 273.0       |          |
| 18:37:38         | 70.02           | 3023.405              | 273.0       |          |
| 18:42:37         | 75.00           | 3041.914              | 273.0       |          |
| 18:47:39         | 80.04           | 3058.523              | 273.0       |          |
| 18:52:38         | 85.02           | 3074.497              | 273.0       |          |
| 18:57:37         | 90.00           | 3090.471              | 273.0       |          |
| 19:07:38         | 100.02          | 3118.934              | 273.0       |          |
| 19:12:37         | 105.00          | 3129.686              | 273.0       |          |
| 19:17:39         | 110.04          | 3140.594              | 273.0       |          |
| 19:22:38         | 115.02          | 3151.661              | 273.0       |          |
| 19:27:37         | 120.00          | 3161.936              | 273.0       |          |
| 19:32:39         | 125.04          | 3171.262              | 273.0       |          |
| 19:37:38         | 130.02          | 3181.378              | 273.0       |          |
| 19:42:37         | 135.00          | 3189.439              | 273.0       |          |
| 19:47:36         | 139.98          | 3198.132              | 273.0       |          |
| 19:52:38         | 145.02          | 3207.772              | 273.0       |          |
| 19:57:37         | 150.00          | 3216.306              | 273.0       |          |
| 20:02:39         | 155.04          | 3224.207              | 273.0       |          |
| 20:07:38         | 160.02          | 3231.633              | 273.0       |          |
| 20:12:37         | 165.00          | 3238.270              | 273.0       |          |
| 20:17:36         | 169.98          | 3244.748              | 273.0       |          |
| 20:27:37         | 180.00          | 3258.967              | 273.0       |          |
| 20:37:38         | 190.02          | 3270.025              | 273.0       |          |
| 20:47:36         | 199.98          | 3281.873              | 273.0       |          |
| 20:57:37         | 210.00          | 3292.772              | 273.0       |          |
| 21:27:37         | 240.00          | 3321.201              | 273.0       |          |
| 21:57:37         | 269.99          | 3344.414              | 273.0       |          |
| 22:27:37         | 299.99          | 3364.782              | 273.0       |          |
| 22:57:37         | 329.99          | 3382.306              | 273.0       |          |
| 23:27:37         | 359.99          | 3398.249              | 273.0       |          |
| 23:57:37         | 389.99          | 3415.611              | 273.0       |          |
| 15-MAY-89        |                 |                       |             |          |
| 00:27:37         | 419.99          | 3427.922              | 273.0       |          |
| 00:57:33         | 449.93          | 3439.758              | 273.0       |          |
| 01:27:37         | 479.99          | 3450.172              | 273.0       |          |
| 01:57:37         | 509.99          | 3461.218              | 273.0       |          |

Date: 13-MAY-89

Ticket No: 328073

Page No: 3.1.5

0021

## PRESSURE VS TIME

MECHANICAL gauge no.: 7884

Gauge Depth: 8263.00 ft

Clock no.:

Hour:

| TIME<br>HH:MM:SS | D TIME<br>(min) | PRESSURE<br>(psi) | TEMP<br>(F) | COMMENTS |
|------------------|-----------------|-------------------|-------------|----------|
|------------------|-----------------|-------------------|-------------|----------|

15-MAY-89

Data Print Frequency: 1

02:27:36 539.99 3470.053 273.0

02:57:36 569.99 3479.204 273.0

03:27:36 599.99 3487.566 273.0

03:57:33 629.93 3495.769 273.0

04:27:36 659.99 3502.867 273.0

04:57:36 689.99 3509.019 273.0

05:27:36 719.99 3515.959 273.0

05:57:36 749.98 3521.795 273.0

06:27:36 779.98 3528.262 273.0

06:57:36 809.98 3532.835 273.0

07:27:36 839.98 3537.251 273.0

07:36:19 848.70 3540.248 273.0

07:37:00

RELAESE DROP BAR.

07:37:37 850.00 3540.405 273.0

07:39:00

REVERSING PIN SHEARED.

07:39:00

BEGIN TO REVERSE CIRCULATE.

07:52:37 865.00 3547.502 273.0

08:02:38 875.02 3548.290 273.0

08:08:02 880.42 3549.394 273.0

\*\*\* End of Period 2 \*\*\*

08:08:41 3887.419 273.0

08:09:00

OPEN BY-PASS AND PULL FREE.  
POOH.

08:09:00

08:11:14 3887.734 273.0

08:13:40 3887.419 273.0

08:17:31 3888.520 273.0

08:18:10 3871.056 273.0

08:47:38 3652.964 273.0

08:53:45 3583.452 273.0

09:05:47 3579.038 273.0

09:09:49 3587.078 273.0

09:41:53 3268.604 273.0

09:43:54 3285.032 273.0

09:59:30 3292.298 273.0

10:20:18 3090.312 273.0

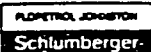
10:49:39 2823.007 273.0

16:30:00

BREAK DOWN TOOLS.  
STOP EMR GAUGE.  
OUT OF THE HOLE.

17:30:00

18:20:00



COMPANY : SANTOS LIMITED

0022

WELL : PELICAN 3

MOLECULAR COMPOSITION OF RECOMBINED RESERVOIR FLUID

| Component                             | mole percent | mass percent |
|---------------------------------------|--------------|--------------|
| Nitrogen                              | 0.45         | 0.20         |
| Carbon dioxide                        | 19.22        | 13.43        |
| Methane                               | 31.20        | 7.95         |
| Ethane                                | 11.84        | 5.65         |
| Propane                               | 6.58         | 4.61         |
| I - Butane                            | 0.94         | 0.87         |
| N - Butane                            | 2.72         | 2.51         |
| I - Pentane                           | 0.86         | 0.98         |
| N - Pentane                           | 1.38         | 1.59         |
| Hexanes                               | 1.80         | 2.47         |
| Benzene                               | 0.12         | 0.14         |
| Heptanes                              | 2.28         | 3.62         |
| Methylcyclohexane                     | 1.48         | 2.28         |
| Toluene                               | 0.60         | 0.88         |
| Octanes                               | 1.95         | 3.54         |
| Ethylbenz. & Xylenes                  | 0.50         | 0.84         |
| Nonanes                               | 1.67         | 3.40         |
| Decanes                               | 1.41         | 3.19         |
| Undecanes                             | 0.78         | 1.93         |
| Dodecanes plus                        | 12.22        | 39.92        |
| TOTAL                                 | 100.00       | 100.00       |
| Molecular weight                      | 62.970       | 62.970       |
| Molecular weight of<br>dodecanes plus |              | 205.629      |
| Gravity of dodecanes<br>plus          |              |              |
| Octanes plus                          | 18.53        | 52.82        |
| Molecular weight of<br>octanes plus   |              | 179.458      |
| Gravity of octanes<br>plus            |              |              |

Oil Property Correlations

0023

2003.10.25

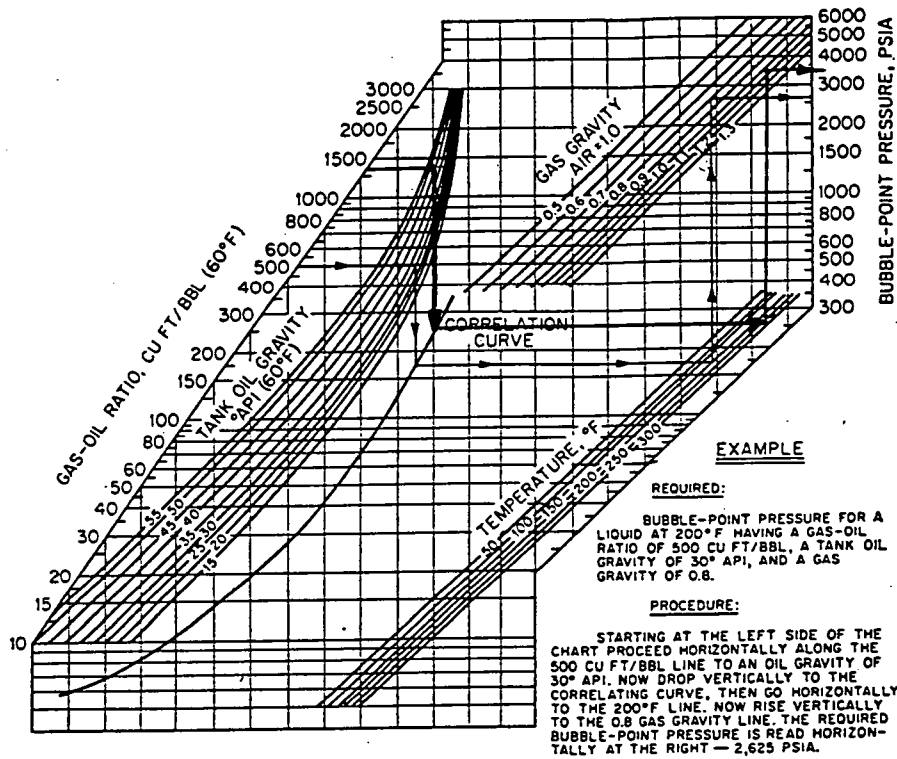
Bubble Point Pressure

FIG. 19-8. Chart for calculating bubble-point pressure by Lasater's correlation. (From Lasater.)

$$P_b = 3700 \text{ psia}$$

Oil Property Correlations

0024

Viscosity

1. 
$$\frac{\text{Viscosity Gas Free Crude}}{(46^\circ \text{ API})} = 0.55 \text{ cp}$$

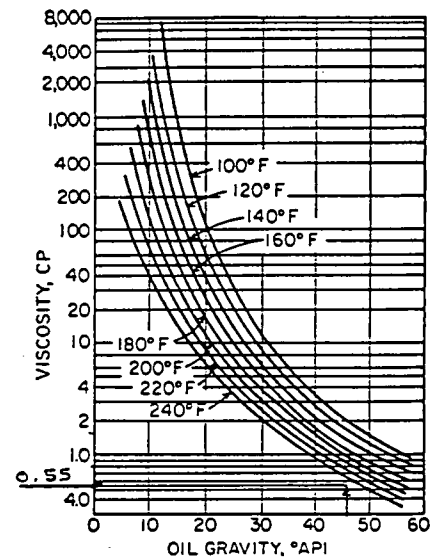


FIG. 19-40. Viscosity of gas-free crude oils at atmospheric pressure vs. °API.

2. Viscosity of Gas Saturated Crude

$$= 0.18 \text{ cp.}$$

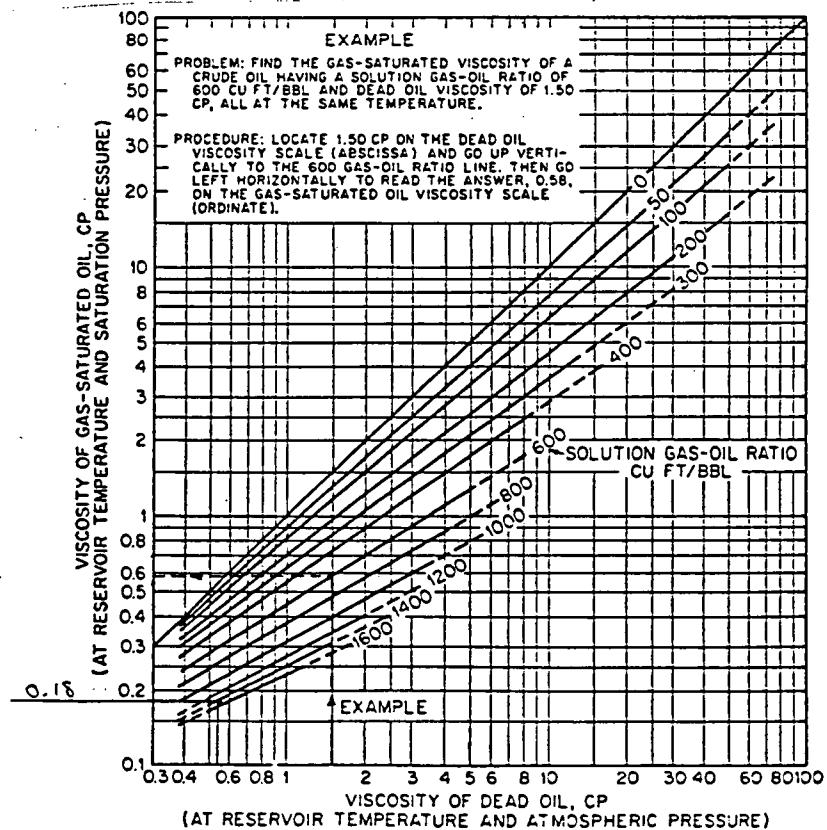


FIG. 19-44. Viscosity of gas-saturated crude oils at reservoir temperature and pressure. Chew and Connally's correlation. (From Chew and Connally.<sup>11</sup>)

## Oil Property Correlations

0025

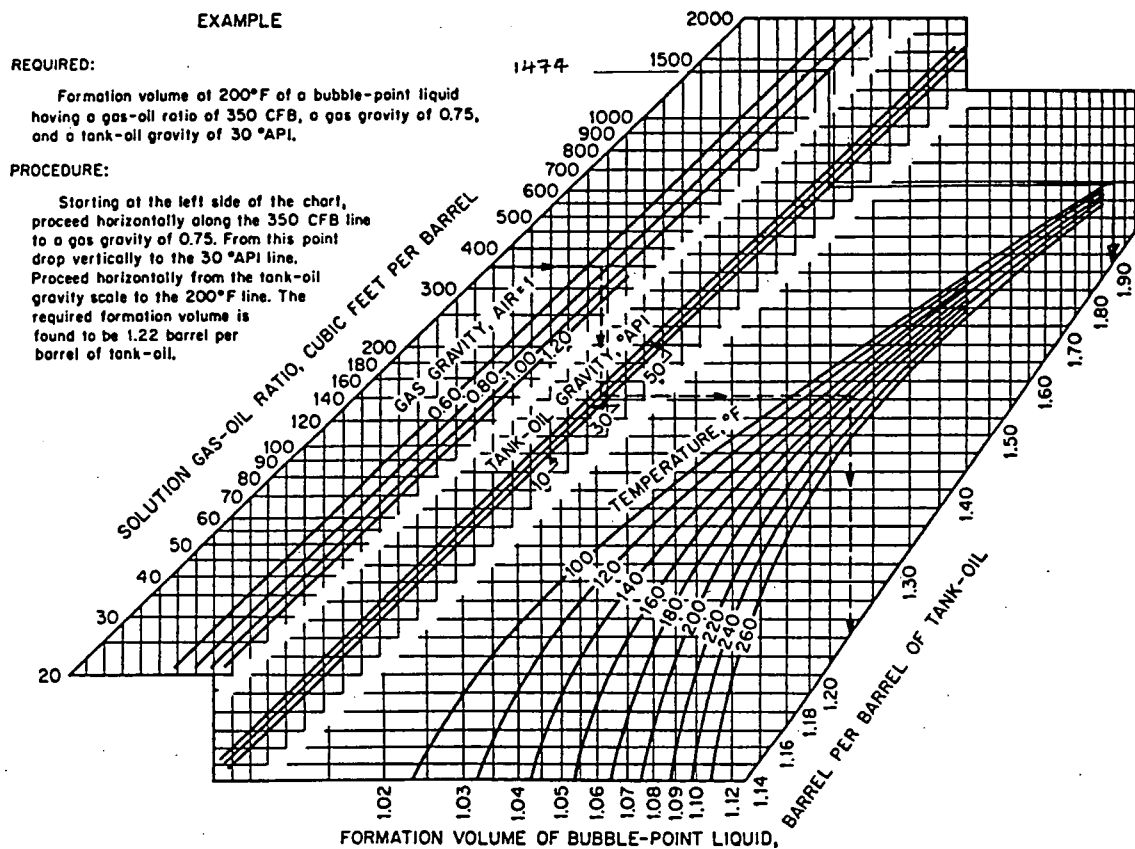
Formation Volume Factor

FIG. 19-29. Chart for calculating oil-formation volume by Standing's correlation. (California Research Corporation, copyright 1947.)

$$B_G = 1.85 \text{ SCF/STB}$$

Compressibility

1. Pseudo Critical Temperature

(Fig 19-30)

$$= 840^{\circ}R$$

$$= T_{pc}$$

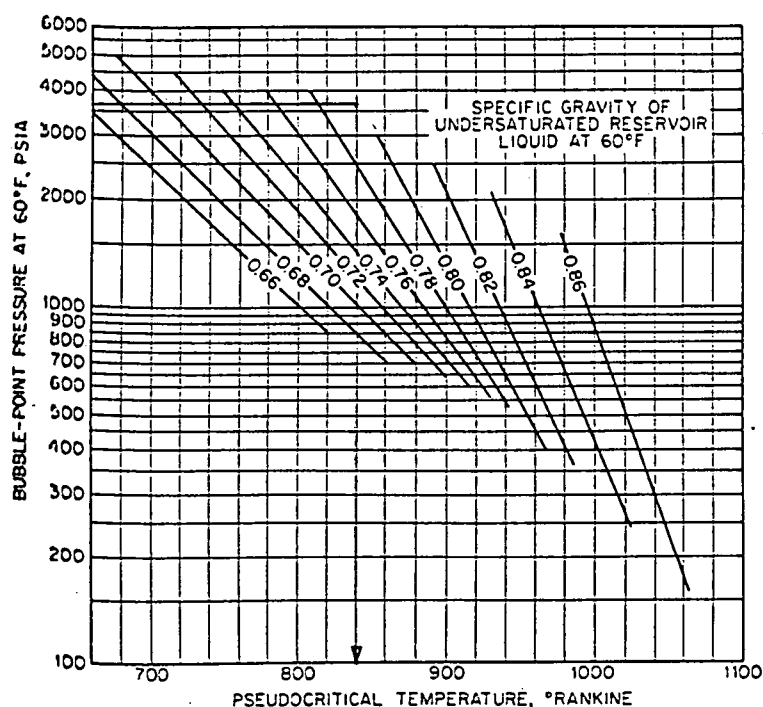


FIG. 19-30. Variation of pseudocritical temperature of reservoir oils with 60°F specific gravity and 60°F bubble-point pressure, Trube's correlation. (From Trube.<sup>11</sup>)

2. Pseudo Critical Pressure

(Fig 19-31)

$$= 780 \text{ psia}$$

$$= P_{pc}$$

$$\therefore T_{pr} = \frac{460 + 273}{840} = 0.87$$

$$P_{pr} = \frac{3700}{780} = 4.74$$

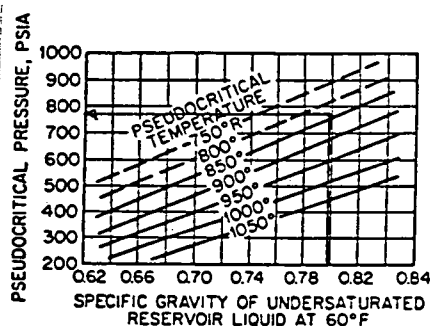


FIG. 19-31. Pseudocritical pressure variation with pseudocritical temperature and 60°F specific gravity of reservoir oil, Trube's correlation. (From Trube.<sup>11</sup>)

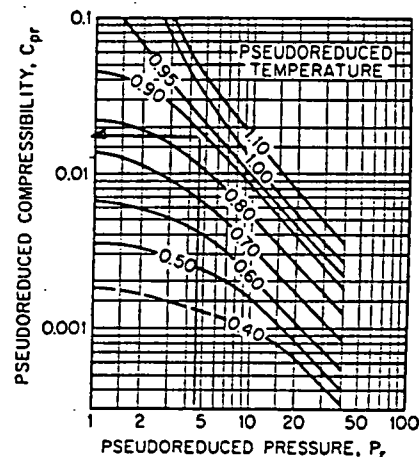


FIG. 19-32. Variation of pseudoreduced compressibility with pseudoreduced pressure and temperature.

3. Compressibility

Pseudoreduced Compressibility (Fig 19-32) = 0.018

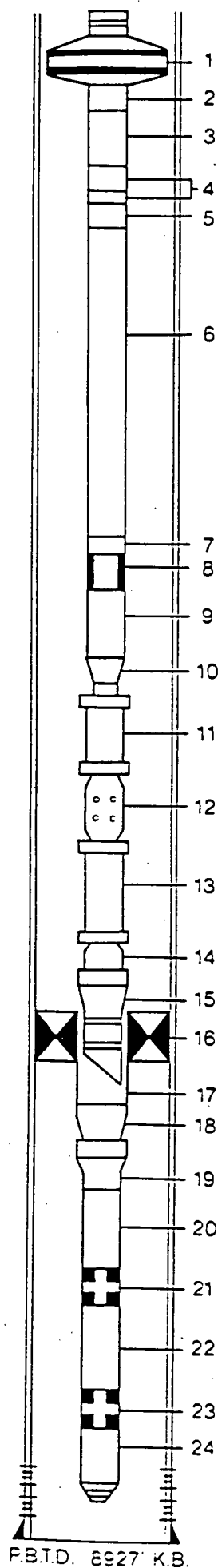
$$C_o = \frac{C_{pr}}{P_{pc}} = \frac{0.018}{780} = 23 \times 10^{-6} \text{ psi}^{-1}$$



## DOWNHOLE INSTALLATION

## PELICAN 3

0027



| ITEM NO. | DESCRIPTION                                      | LENGTH (ft) | DEPTH K.B. (ft) | MIN. I.D. (in) |
|----------|--------------------------------------------------|-------------|-----------------|----------------|
|          | K.B. to top of tubinghead spool                  | 16.40       | 0.00            |                |
| 1        | C.I.W. FBB-EN tubing hanger c/w 2 7/8" CS        |             |                 |                |
|          | Hydril box-up 2 7/8" ABIJ3SS box-down            | 0.83        | 16.40           |                |
| 2        | 2 7/8" ABDSS J55 nipple pin x pin                | 0.34        |                 |                |
| 3        | 1 joint 2 7/8" ABDSS J55 6.5# tubing             | 30.61       |                 |                |
| 4        | 1 x 6', 1 x 2' 2 7/8" ABDSS J55 6.5# pup joint   | 7.43        |                 |                |
| 5        | X-over 2 7/8" ABDSS box x 2 7/8" Lock-it J55 pin | 1.76        |                 |                |
| 6        | 263 joints 2 7/8" J55 6.5# Lock-it tubing        | 8162.60     |                 |                |
| 7        | X-over 2 7/8" Lock-it box x 2 7/8" EUE J55 pin   | 0.63        |                 |                |
| 8        | 2 7/8" EUE pump seating nipple c/w 2 7/8" collar | 1.08        | 8220.60         | 2.28           |
| 9        | 1 joint 2 7/8" EUE J55 6.5# tubing               | 31.53       |                 |                |
| 10       | X-over 2 7/8" EUE box x 2 7/8" EUE pin           | 0.54        | 8253.21         | 1.901          |
| 11       | 12' x 2 3/8" EUE J55 4.7# pup joint              | 12.21       |                 |                |
| 12       | Otis 2 3/8" EUE 121X01 sliding sleeve            |             |                 |                |
| 9        | (Open down)                                      | 2.89        |                 |                |
| 13       | 12' x 2 3/8" EUE J55 4.7# pup joint              | 12.20       |                 |                |
| 14       | Swage 2 3/8" x 2 7/8" EUE c/w 2 3/8" EUE collar  | 0.75        |                 |                |
| 15       | Baker E22 anchor seal assembly 80-32 c/w         |             |                 |                |
|          | 2 3/8" EUE box-up                                | 2.98        | 8281.80         |                |
| 12       | Permanent Bottomhole Equipment                   |             |                 |                |
| 16       | Baker 7" DB packer Size 84-32 c/w 4 1/2"         |             | 8281.80         |                |
| 13       | LT&C box-down                                    | 3.90        |                 |                |
| 17       | Millout extension 4 1/2" LT&C pin x pin          | 5.57        |                 |                |
| 18       | X-over 4 1/2" LT&C box x 2 7/8" EUE pin          | 0.63        |                 |                |

## PERFORATED INTERVALS:

## GUN:

## CHARGES:

| FORMATION   | INTERVAL      | SIZE | TYPE | S.P.F. | TYPE | WT(g) |
|-------------|---------------|------|------|--------|------|-------|
| PATCHAWARRA |               |      |      |        |      |       |
| 84-0        | 8477' - 8492' | 5"   | TCP  | 6      | HIMX | 22    |
| 84-9        | 8587' - 8595' | 5"   | TCP  | 6      | HIMX | 22    |

## REMARKS:

ANNULUS FLUID: 1108 kg/m<sup>3</sup> 2% KCL inhibited brine

INDICATED STRING WEIGHT: 43000=

CALCULATED STRING WEIGHT: 46000=

SLACK-OFF WEIGHT: 8000=

TENSION:

NOT TO SCALE

WELLSITE SUPERVISOR

W. Baer

PROPOSED

DATE OF INSTALLATION

17/5/1989

RE-COMPLETION

DRAFTED

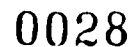
H. Sulzmann

DATE 7/6/1989

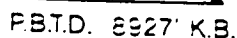
COMPLETION

REVISED

DATE



**PELICAN 3**

[illegible]

PELICAN #3Extended Production Test19th - 28th October 1989Production Test

19/10/89 : Brought well on line @ 1400 hrs on 32/64" choke.

Flowed well on 32/64" choke for 27.5 hours.

|                       |   |                           |                              |
|-----------------------|---|---------------------------|------------------------------|
| Separator Pressure    | = | 249 kPa                   | (average over last 23.5 hrs) |
| Separator Temperature | = | 23 °C                     | (average over last 23.5 hrs) |
| Gas Flow Rate         | = | 0.521 E3m <sup>3</sup> /d | (average over last 23.5 hrs) |
| Oil Flow Rate         | = | 3.272 m <sup>3</sup> /d   |                              |
| Water Flow Rate       | = | NIL m <sup>3</sup> /d     |                              |

20/10/89 : Shut well in @ 1730 hrs for 19 hours buildup.

21/10/89 : Brought well on line @ 1230 hrs on 8/64" choke.

Flowed well on 8/64" choke for 19.5 hours.

|                 |   |                         |
|-----------------|---|-------------------------|
| Gas Flow Rate   | = | NIL E3m <sup>3</sup> /d |
| Oil Flow Rate   | = | 4.224 m <sup>3</sup> /d |
| Water Flow Rate | = | NIL m <sup>3</sup> /d   |

22/10/89 : Opened choke to 16/64" @ 0800 hrs.

Flowed well on 16/64" choke for 25 hours.

|                 |   |                         |
|-----------------|---|-------------------------|
| Gas Flow Rate   | = | NIL E3m <sup>3</sup> /d |
| Oil Flow Rate   | = | 0.355 m <sup>3</sup> /d |
| Water Flow Rate | = | NIL m <sup>3</sup> /d   |

23/10/89 : Opened choke to 32/64" @ 0900 hrs.

Opened choke to 64/64" @ 1100 hrs.

Flowed well on 64/64" choke for 117 hours.

|                 |   |                         |
|-----------------|---|-------------------------|
| Gas Flow Rate   | = | NIL E3m <sup>3</sup> /d |
| Oil Flow Rate   | = | 2.523 m <sup>3</sup> /d |
| Water Flow Rate | = | 0.469 m <sup>3</sup> /d |

28/10/89 : Shut well in @ 0830 hrs.

End of test.

Cont...

Gradient Surveys

MPP (84-0 sand) = 8484' KB

MPP (89-9 sand) = 8591' KB

19/10/89 : Ran a static pressure gradient

Element #53563 had a clock failure

Element #53564 @ 8484' KB = 26035 kPa

Element #53564 @ 8591' KB = 26331 kPa

20/10/89 : Ran a flowing pressure gradient (32/64" choke)

Element #53563 @ 8484' KB = 14462 kPa

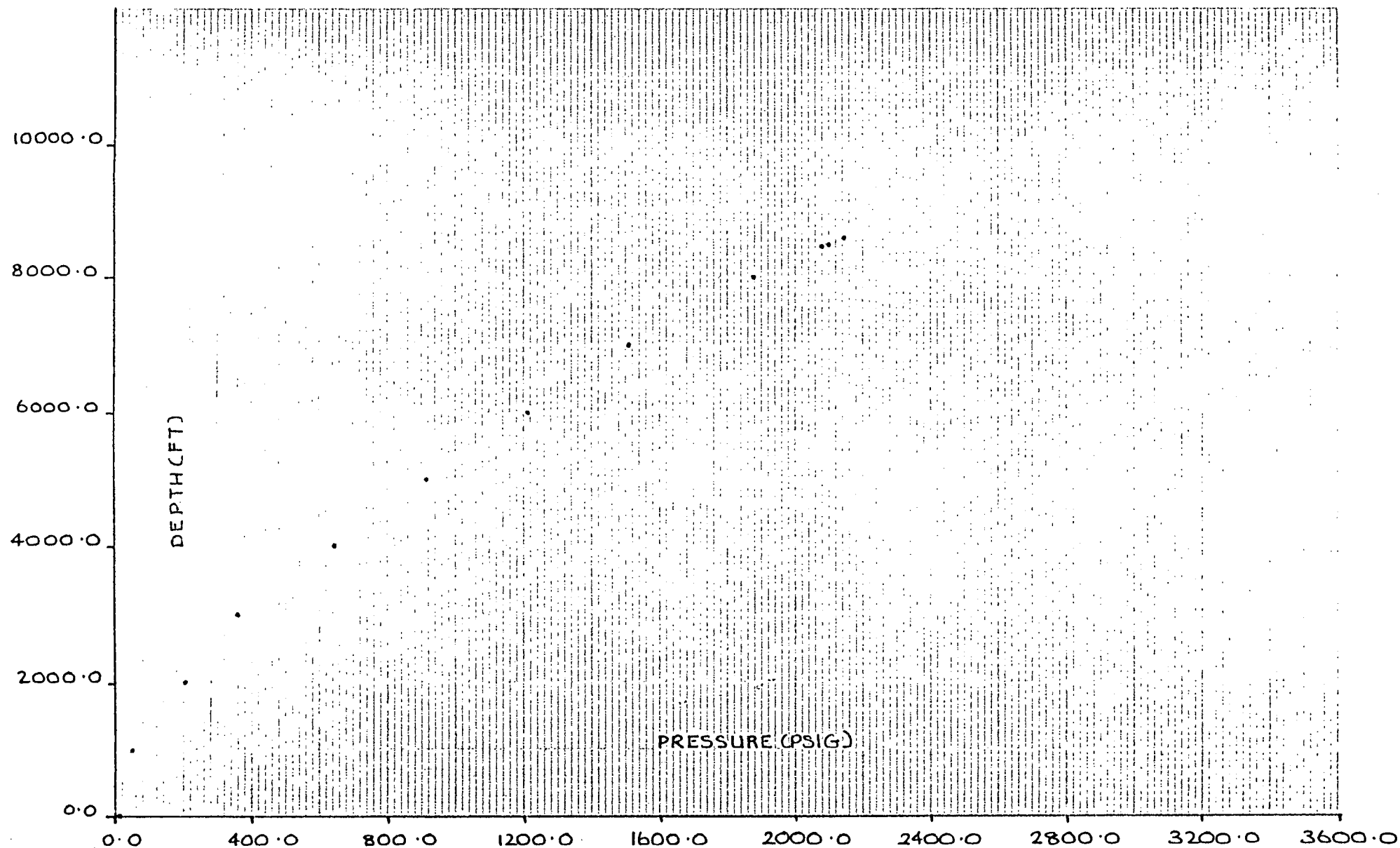
Element #53563 @ 8591' KB = 14786 kPa

Element #53564 had a clock failure

26/10/89 : Ran a flowing pressure gradient (64/64" choke)

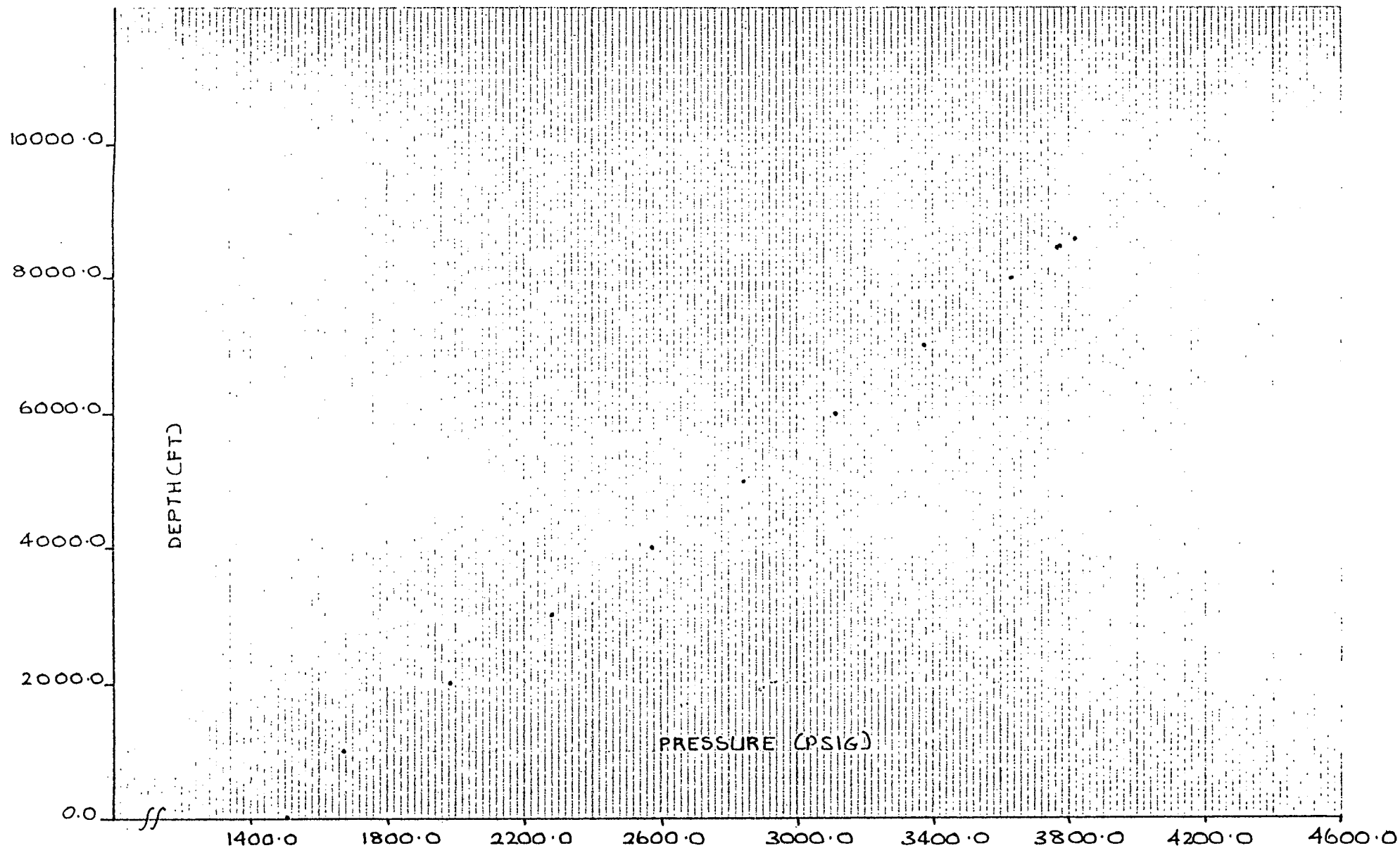
Unable to read charts due to clock drive problems

PELICAN # 3 — FLOWING PRESSURE GRADIENT — 20 / 10 / 89  
ELEMENT # 53463 / 5000 (TOP) — 32 / 64" CHOKE



0031

PELICAN # 3 — STATIC PRESSURE GRADIENT — 19 / 10 / 89  
ELEMENT # 53634 / 5000 (BOT)





AUSTRALIA LIMITED

CLIENT:..... SANTOS LTD

WELL:..... PELICAN NO 3

TEST:..... EXTENDED PRODUCTION

## OPERATIONS/WIRELINE REPORT

|           |                          |                             |
|-----------|--------------------------|-----------------------------|
| OILSERV   | COMPANY: SANTOS LTD.     | PAGE # 1                    |
| AUSTRALIA | WELL NAME: PELICAN # 3   | INTERVAL: 8477' TO 8595' KB |
| LIMITED   | FIELD: COOPER BASIN      | TECHNICIAN: L. KNOX         |
|           | OPERATION: TBG.DRIFT RUN | DATE: 17/10/89              |

TIME:  
Hrs.

REMARKS

|      |                                                                                              |
|------|----------------------------------------------------------------------------------------------|
| 1430 | OCTOBER 17TH 1989.<br>ARRIVE ON LOCATION WITH ACCOMODATION UNIT AND SPOT SAME.               |
| 1645 | TEST EQUIPMENT ON LOCATION, SPOT EQUIPMENT.                                                  |
| 0600 | OCTOBER 18TH 1989.<br>COMMENCE TO RIG UP TEST EQUIPMENT.                                     |
| 0930 | PRESSURE TEST BOP'S AND LUBRICATOR.                                                          |
| 0945 | TBG. =10810 KPAG, RUN IN HOLE WITH 1.75" BLIND BOX.                                          |
| 1035 | TAG PBD @ 8914' KB, PULL OUT OF HOLE.                                                        |
| 1130 | TBG. = 10770 KPAG, TOOL STRING @ SURFACE.                                                    |
| 1400 | HIAB TO MOOMBA TO PICK UP GIN POLE ETC, CONTINUE TO RIG UP EQUIPMENT.                        |
| 0630 | 19TH OCTOBER 1989.<br>R.I.H. FOR STATIC GRADIENT.                                            |
| 1400 | OPEN WELL & COMMENCE EXTENDED PRODUCTION TEST                                                |
| 1615 | 20TH OCTOBER 1989<br>CONTINUE TP ,PMOTPR E.P.T.                                              |
| 1730 | RIH FOR FLOWING GRADIENT.<br>SHUT IN WELL FOR BUILD UP & MONITOR SAME                        |
| 1230 | 21ST OCTOBER 1989<br>CONTINUE TO MONITOR BUILD UP.<br>OPEN WELL & MONITOR FLOW TO FRAC TANKS |
|      | 22ND OCTOBER 1989<br>CONTINUE TO MONITOR FLOW.                                               |

CONTINUED PAGE 2.

|      |                                                                                                               |
|------|---------------------------------------------------------------------------------------------------------------|
|      | 23RD OCTOBER 1989<br>CONTINUE TO MONITOR FLOW.                                                                |
|      | 24TH OCTOBER 1989<br>CONTINUE TO MONITOR FLOW                                                                 |
| 0915 | EXPERTEST ARRIVE ON LOCATION & SWAB WELL TO 6000 FT<br>NO FLUID RETURNS TO FRAC TANK                          |
| 1130 | EXPERTEST CREW LEAVE LOCATION                                                                                 |
|      | 25TH OCTOBER 1989<br>CONTINUE TO MONITOR FLOW<br>RIG IN TEST TANK<br>T. HIRST REPLACES G. THORP (CREW CHANGE) |
| 1500 | SHUT IN WELL IN FOR SONOLOG                                                                                   |
| 1530 | OPEN WELL & FLOW INTO OILSERV TEST TANK                                                                       |
|      | 26TH OCTOBER 1989<br>CONTINUE TO MONITOR FLOW                                                                 |
| 1235 | R.I.H. FOR FLOWING GRADIENT                                                                                   |
|      | 27TH OCTOBER 1989<br>CONTINUE TO MONITOR FLOW                                                                 |
| 1600 | TAKE H <sub>2</sub> O SAMPLES FROM FRAC TANK & TEST TANK AND<br>DELIVER TO MOOMBA.                            |
|      | 28TH OCTOBER 1989<br>CONTINUE TO MONITOR FLOW                                                                 |
| 0830 | SHUT WELL IN AND RIG DOWN ALL EQUIPMENT AND RETURN TO<br>MOOMBA.                                              |

| WELL: <u>Pelican #3</u>     |               |               |             |                      |             | SANTOS LTD.                                |           |             |                        |                           |                                |                          |                   |                                |                                            | DATE: <u>19/10/89</u>                      |                                              |                                                        |        |  |                        |  |  |  |  |
|-----------------------------|---------------|---------------|-------------|----------------------|-------------|--------------------------------------------|-----------|-------------|------------------------|---------------------------|--------------------------------|--------------------------|-------------------|--------------------------------|--------------------------------------------|--------------------------------------------|----------------------------------------------|--------------------------------------------------------|--------|--|------------------------|--|--|--|--|
| TYPE OF TEST: <u>E.P.T.</u> |               |               |             |                      |             | SANTOS                                     |           |             |                        |                           |                                |                          |                   |                                |                                            | WELL TEST DATA SHEET                       |                                              |                                                        |        |  | PAGE No: <u>1 of 7</u> |  |  |  |  |
| DATE<br>TIME                | WELLHEAD      |               |             |                      |             | GAS FLOW DATA                              |           |             |                        | OIL/CONDENSATE PRODUCTION |                                |                          | WATER PRODUCTION  |                                | WELL TEST RESULTS                          |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
|                             | CASING<br>KPA | TUBING<br>KPA | TEMP.<br>°C | CHOKE<br>SIZE<br>INS | B.S.W.<br>% | PI<br>KPA                                  | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS | TANK<br>DIP<br>CM         | TANK<br>PROD<br>M <sup>3</sup> | API<br>GRAVITY<br>@60 °F | TANK<br>DIP<br>CM | TANK<br>PROD<br>M <sup>3</sup> | GAS<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | OIL<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | WATER<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | G.L.R. |  |                        |  |  |  |  |
| October 19th, 1989          |               |               |             |                      |             |                                            |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0615                        | Ø             | 10487         |             | S.I.                 |             | Pressure Up Lubricator                     |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0630                        | Ø             | 10377         |             |                      |             | Run In Hole For Static Gradient Survey     |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0817                        | Ø             | 10522         |             |                      |             | Begin To Pull Out Of Hole                  |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0847                        | Ø             | 10377         |             |                      |             | Amoradas @ Surface                         |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0900                        | Ø             | 10377         |             |                      |             | Depressure Lubricator & Read Charts        |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
|                             |               |               |             |                      |             | Continue To Rig Up Test Equipment          |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 1400                        | Ø             | 10508         |             |                      |             | Open Well Through Separator On 32/64 Choke |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 1415                        | Ø             | 3275          |             | 32/64                |             | Change To 32/64 Fixed Choke                |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 1430                        | Ø             | 2579          | 32          |                      |             | 660                                        | 8.7       | 29          | 1.75                   |                           |                                |                          |                   |                                | 24.67                                      |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 1500                        | Ø             | 552           | 40          |                      |             | 517                                        | 0.2       | 39          |                        | 32                        | 3.36                           |                          | 12                | Ø                              | 3.77                                       | 80.60                                      | Ø                                            | 80.60                                                  | 46.8   |  |                        |  |  |  |  |
| 1600                        | Ø             | 524           | 41          |                      |             | 510                                        | 4.7       | 41          | 0.50                   | 33                        | 0.10                           |                          | 12                | Ø                              | 1.30                                       | 2.52                                       | Ø                                            | 2.52                                                   | 515.9  |  |                        |  |  |  |  |
| 1800                        | Ø             | 421           | 24          |                      |             | 414                                        | 2.0       | 23          |                        | 34                        | 0.10                           | 43.2                     | 12                | Ø                              | 0.79                                       | 1.26                                       | Ø                                            | 1.26                                                   | 630.9  |  |                        |  |  |  |  |
| 2200                        | Ø             | 338           | 26          |                      |             | 331                                        | 2.0       | 25          |                        | 35                        | 0.10                           | 43.2                     | 12                | Ø                              | 0.72                                       | 0.60                                       | Ø                                            | 0.60                                                   | 1200.0 |  |                        |  |  |  |  |
| October 20th, 1989          |               |               |             |                      |             |                                            |           |             |                        |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |        |  |                        |  |  |  |  |
| 0200                        | Ø             | 290           | 24          | 32/64                |             | 283                                        | 1.7       | 22          |                        | 35.5                      | 0.05                           | 45.8                     | 12                | Ø                              | 0.64                                       | 0.30                                       | Ø                                            | 0.30                                                   | 2133.0 |  |                        |  |  |  |  |
| 0600                        | Ø             | 262           | 20          |                      |             | 262                                        | 1.5       | 18          |                        | 35.5                      | Ø                              | -                        | 12                | Ø                              | 0.58                                       | Ø                                          | Ø                                            | Ø                                                      | -      |  |                        |  |  |  |  |
| 1000                        | Ø             | 214           | 24          |                      |             | 214                                        | 1.0       | 23          |                        | 35.5                      | Ø                              | -                        | 12                | Ø                              | 0.44                                       | Ø                                          | Ø                                            | Ø                                                      | -      |  |                        |  |  |  |  |

| WELL: <u>Pelican # J</u>    |               |                           |             |                       |             | SANTOS LTD.                                     |           |             |                         |                           |                    |                          |                   |                    |                               | DATE: <u>20/10/89</u>         |                                 |                                           |                 |  |
|-----------------------------|---------------|---------------------------|-------------|-----------------------|-------------|-------------------------------------------------|-----------|-------------|-------------------------|---------------------------|--------------------|--------------------------|-------------------|--------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------------------|-----------------|--|
| TYPE OF TEST: <u>F.P.T.</u> |               |                           |             |                       |             | SANTOS<br>WELL TEST DATA SHEET                  |           |             |                         |                           |                    |                          |                   |                    |                               | PAGE No: <u>2 of 7</u>        |                                 |                                           |                 |  |
| DATE<br>TIME                | WELLHEAD      |                           |             |                       |             | GAS FLOW DATA                                   |           |             |                         | OIL/CONDENSATE PRODUCTION |                    |                          | WATER PRODUCTION  |                    | WELL TEST RESULTS             |                               |                                 |                                           |                 |  |
|                             | CASING<br>KPA | TUBING<br>KPA             | TEMP.<br>°C | CHOKE<br>SIZE<br>INS. | B.S.W.<br>% | PI<br>KPA                                       | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS. | TANK<br>DIP<br>CM         | TANK<br>PROD<br>M3 | API<br>GRAVITY<br>@60 °F | TANK<br>DIP<br>CM | TANK<br>PROD<br>M3 | GAS<br>FLOW<br>RATE<br>M3/DAY | OIL<br>FLOW<br>RATE<br>M3/DAY | WATER<br>FLOW<br>RATE<br>M3/DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M3/DAY | G.L.R.<br>M3/M3 |  |
| October 20, 1989            |               |                           |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1400                        | Ø             | 165                       | 28          | 32/64                 |             | 138                                             | 0.5       | 27          | 0.50                    | 35.5                      | Ø                  |                          | 12                | Ø                  | 0.27                          | Ø                             | Ø                               | Ø                                         | —               |  |
| 1505                        | Ø             | 159                       | 29          |                       |             | Pressure Up Lub. To Run Flowing Gradient Survey |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1515                        | Ø             | 152                       | 29          |                       |             | Begin To Run In Hole                            |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1707                        | Ø             | 55                        | 26          |                       |             | Gauges @ Surface                                |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1717                        | Ø             | 28                        | 25          |                       |             | Depressure Lubricator                           |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| * 1730                      | Ø             | 14                        | 25          | ✓                     |             | 14                                              | 10.0      | 23          | 0.25                    | 35.5                      | Ø                  |                          | 12                | Ø                  | 0.21                          | Ø                             | Ø                               | Ø                                         | —               |  |
|                             | *             | Shut In Well For TBUILDUP |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1735                        | Ø             | 96                        |             | S.I.                  |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1740                        | Ø             | 179                       |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1745                        | Ø             | 365                       |             |                       |             | Cumulative Gas Flared = 1.24 KS-M3              |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1800                        | Ø             | 593                       |             |                       |             | Cumulative Oil Produced = 3.71 M3               |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 1900                        | Ø             | 834                       |             |                       |             | Cumulative Water Produced = Ø                   |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 2000                        | Ø             | 1151                      |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 2200                        | Ø             | 1641                      |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 2400                        | Ø             | 1834                      |             | ✓                     |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| October 21, 1989            |               |                           |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 0200                        | Ø             | 2068                      |             | S.I.                  |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |
| 0600                        | Ø             | 2530                      |             |                       |             |                                                 |           |             |                         |                           |                    |                          |                   |                    |                               |                               |                                 |                                           |                 |  |

0037

| WELL: <u>PELICAN #3</u>     |                        |               |             |                       |             | SANTOS LTD.          |           |             |                                                      |                           |                    |                           |                   |                    |                             | DATE: <u>21 OCTOBER 1989</u>  |                                 |                                           |              |  |  |  |
|-----------------------------|------------------------|---------------|-------------|-----------------------|-------------|----------------------|-----------|-------------|------------------------------------------------------|---------------------------|--------------------|---------------------------|-------------------|--------------------|-----------------------------|-------------------------------|---------------------------------|-------------------------------------------|--------------|--|--|--|
| TYPE OF TEST: <u>E.P.T.</u> |                        |               |             |                       |             | WELL TEST DATA SHEET |           |             |                                                      |                           |                    |                           |                   |                    |                             | PAGE No: <u>3 OF 7</u>        |                                 |                                           |              |  |  |  |
| DATE<br>TIME                | WELLHEAD               |               |             |                       |             | GAS FLOW DATA        |           |             |                                                      | OIL/CONDENSATE PRODUCTION |                    |                           | WATER PRODUCTION  |                    | WELL TEST RESULTS           |                               |                                 |                                           |              |  |  |  |
|                             | CASING<br>KPA          | TUBING<br>KPA | TEMP.<br>°C | CHOKE<br>SIZE<br>INS. | B.S.W.<br>% | PI<br>KPA            | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS.                              | TANK<br>DIP<br>CM         | TANK<br>PROD<br>M3 | API<br>GRAVITY<br>@ 60 °F | TANK<br>DIP<br>CM | TANK<br>PROD<br>M3 | GAS<br>FLOW<br>RATE<br>M3/D | OIL<br>FLOW<br>RATE<br>M3/DAY | WATER<br>FLOW<br>RATE<br>M3/DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M3/DAY | G.O.R.       |  |  |  |
|                             | <u>21 OCTOBER 1989</u> |               |             |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           | <u>M3/M3</u> |  |  |  |
| 1000                        | φ                      | 3006          |             | SI                    |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1200                        | φ                      | 3351          |             |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1230                        | φ                      | 3454          | 28          | 8/64                  |             |                      |           |             | OPEN WELL TO FLARE ON 8/64 CHOKE, BY PASS SEPARATOR. |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1231                        | φ                      | 3137          | 29          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1232                        | φ                      | 2978          | 29          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1233                        | φ                      | 2655          | 29          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1234                        | φ                      | 2427          | 29          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1235                        | φ                      | 2220          | 30          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1240                        | φ                      | 1820          | 30          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1245                        | φ                      | 1482          | 30          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1250                        | φ                      | 1524          | 30          |                       |             |                      |           |             |                                                      |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1255                        | φ                      | 1751          | 30          |                       |             |                      |           |             | OIL TO SURFACE @ FLARE                               |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
|                             |                        |               |             |                       |             |                      |           |             | DIVERT FLOW TO FRAC TANK                             |                           |                    |                           |                   |                    |                             |                               |                                 |                                           |              |  |  |  |
| 1300                        | φ                      | 1634          | 31          |                       |             |                      |           |             |                                                      | 48.5                      | 0.10               |                           | 12                | φ                  |                             | 10.14                         | φ                               | 10.14                                     |              |  |  |  |
| 1315                        | φ                      | 1744          | 31          |                       |             |                      |           |             |                                                      | 49.5                      | 0.10               |                           | 12                | φ                  |                             | 10.14                         | φ                               | 10.14                                     |              |  |  |  |
| 1330                        | φ                      | 1834          | 30          |                       |             |                      |           |             |                                                      | 50.0                      | 0.05               |                           | 12                | φ                  |                             | 4.80                          | φ                               | 4.80                                      |              |  |  |  |
| 1345                        | φ                      | 1937          | 29          |                       |             |                      |           |             |                                                      | 50.5                      | 0.05               |                           | 12                | φ                  |                             | 4.80                          | φ                               | 4.80                                      |              |  |  |  |
| 1400                        | φ                      | 1993          | 29          |                       |             |                      |           |             |                                                      | 53.5                      | 0.32               |                           | 12                | φ                  |                             | 7.68                          | φ                               | 7.68                                      |              |  |  |  |
| 1500                        | φ                      | 2151          | 30          |                       |             |                      |           |             |                                                      | 57.0                      | 0.37               |                           | 12                | φ                  |                             | 8.88                          | φ                               | 8.88                                      |              |  |  |  |

0038

| WELL: <u>PELICAN #3</u>     |               |               |             |                       |             | SANTOS LTD.             |           |             |                         |                           |                    |                          |                   |                    |                              | DATE: <u>21 OCTOBER 1989</u>  |                                 |                                           |                 |  |
|-----------------------------|---------------|---------------|-------------|-----------------------|-------------|-------------------------|-----------|-------------|-------------------------|---------------------------|--------------------|--------------------------|-------------------|--------------------|------------------------------|-------------------------------|---------------------------------|-------------------------------------------|-----------------|--|
| TYPE OF TEST: <u>E.P.T.</u> |               |               |             |                       |             | SANTOS                  |           |             |                         |                           |                    |                          |                   |                    |                              | PAGE No: <u>4 OF 7</u>        |                                 |                                           |                 |  |
| DATE<br>TIME                | WELLHEAD      |               |             |                       |             | GAS FLOW DATA           |           |             |                         | OIL/CONDENSATE PRODUCTION |                    |                          | WATER PRODUCTION  |                    | WELL TEST RESULTS            |                               |                                 |                                           |                 |  |
|                             | CASING<br>KPA | TUBING<br>KPA | TEMP.<br>°C | CHOKE<br>SIZE<br>INS. | B.S.W.<br>% | PI<br>KPA               | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS. | TANK<br>DIP<br>CM         | TANK<br>PROD<br>M3 | API<br>GRAVITY<br>@60 °F | TANK<br>DIP<br>CM | TANK<br>PROD<br>M3 | GAS<br>FLOW<br>RATE<br>E3/M3 | OIL<br>FLOW<br>RATE<br>M3/DAY | WATER<br>FLOW<br>RATE<br>M3/DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M3/DAY | G.O.R.<br>M3/M3 |  |
| 21                          | OCTOBER 1989  |               |             |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 1700                        | φ             | 2303          | 29          | 8/64                  |             |                         |           |             |                         | 59.5                      | 0.26               |                          | 12                | φ                  |                              | 6.34                          | φ                               | 6.34                                      |                 |  |
| 1800                        | φ             | 2234          | 28          |                       |             |                         |           |             |                         | 62.0                      | 0.26               | 43.2                     | 12                | φ                  |                              | 6.34                          | φ                               | 6.34                                      |                 |  |
| 2000                        | φ             | 2151          | 24          |                       |             |                         |           |             |                         | 66.0                      | 0.42               |                          | 12                | φ                  |                              | 5.07                          | φ                               | 5.07                                      |                 |  |
| 2200                        | φ             | 2110          | 24          |                       |             |                         |           |             |                         | 69.0                      | 0.32               |                          | 12                | φ                  |                              | 3.80                          | φ                               | 3.80                                      |                 |  |
| 2400                        | φ             | 2041          | 22          |                       |             |                         |           |             |                         | 71.0                      | 0.21               |                          | 12                | φ                  |                              | 2.54                          | φ                               | 2.54                                      |                 |  |
| 22                          | OCTOBER 1989  |               |             |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0200                        | φ             | 2000          | 20          |                       |             |                         |           |             |                         | 73.5                      | 0.26               |                          | 12                | φ                  |                              | 3.17                          | φ                               | 3.17                                      |                 |  |
| 0600                        | φ             | 1793          | 20          | 8/64                  |             |                         |           |             |                         | 78.0                      | 0.48               | 42.6                     | 12                | φ                  |                              | 2.85                          | φ                               | 2.85                                      |                 |  |
| 0800                        | φ             | 1620          | 21          | 16/64                 |             | INCREASE CHOKE TO 16/64 |           |             |                         | 80.0                      | 0.21               |                          | 12                | φ                  |                              | 2.54                          | φ                               | 2.54                                      |                 |  |
| 0805                        | φ             | 1469          | 22          |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0810                        | φ             | 1269          | 23          |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0815                        | φ             | 1103          | 23          |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0830                        | φ             | 1083          | 25          |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0845                        | φ             | 565           | 25          |                       |             |                         |           |             |                         |                           |                    |                          |                   |                    |                              |                               |                                 |                                           |                 |  |
| 0900                        | φ             | 386           | 25          |                       |             |                         |           |             |                         | 81.5                      | 0.16               |                          | 12                | φ                  |                              | 3.80                          | φ                               | 3.80                                      |                 |  |
| 1000                        | φ             | 124           | 29          |                       |             |                         |           |             |                         | 81.5                      | φ                  |                          | 12                | φ                  |                              | φ                             | φ                               | φ                                         |                 |  |
| 1400                        | φ             | 152           | 29          |                       |             |                         |           |             |                         | 81.5                      | φ                  |                          | 12                | φ                  |                              | φ                             | φ                               | φ                                         |                 |  |
| 1800                        | φ             | 145           | 28          |                       |             |                         |           |             |                         | 81.7                      | 0.02               |                          | 12                | φ                  |                              | 0.13                          | φ                               | 0.13                                      |                 |  |
| 2200                        | φ             | 124           | 25          | 16/64                 |             |                         |           |             |                         | 82.5                      | 0.08               |                          | 12                | φ                  |                              | 0.51                          | φ                               | 0.51                                      |                 |  |

0039

| WELL: <u>PELICAN #3</u>     |               |               |             |                       |             | SANTOS LTD.                                |           |             |                         |                           |                                |                          |                   |                                |                                            | DATE: <u>22 OCTOBER</u>                    |                                              |                                                        |                                          |  |
|-----------------------------|---------------|---------------|-------------|-----------------------|-------------|--------------------------------------------|-----------|-------------|-------------------------|---------------------------|--------------------------------|--------------------------|-------------------|--------------------------------|--------------------------------------------|--------------------------------------------|----------------------------------------------|--------------------------------------------------------|------------------------------------------|--|
| TYPE OF TEST: <u>E.P.T.</u> |               |               |             |                       |             | WELL TEST DATA SHEET                       |           |             |                         |                           |                                |                          |                   |                                |                                            | PAGE No: <u>5 OF 7</u>                     |                                              |                                                        |                                          |  |
| DATE<br>TIME                | WELLHEAD      |               |             |                       |             | GAS FLOW DATA                              |           |             |                         | OIL/CONDENSATE PRODUCTION |                                |                          | WATER PRODUCTION  |                                | WELL TEST RESULTS                          |                                            |                                              |                                                        |                                          |  |
|                             | CASING<br>KPA | TUBING<br>KPA | TEMP.<br>°C | CHOKE<br>SIZE<br>INS. | B.S.W.<br>% | PI<br>KPA                                  | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS. | TANK<br>DIP<br>CM         | TANK<br>PROD<br>M <sup>3</sup> | API<br>GRAVITY<br>@60 °F | TANK<br>DIP<br>CM | TANK<br>PROD<br>M <sup>3</sup> | GAS<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | OIL<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | WATER<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | G.O.R.<br>M <sup>3</sup> /M <sup>3</sup> |  |
| 23 OCTOBER 1989             |               |               |             |                       |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 0200                        | φ             | 124           | 23          | 16/64                 |             |                                            |           |             |                         | 83.0                      | 0.05                           |                          | 12                | φ                              |                                            | 0.32                                       | φ                                            | 0.32                                                   |                                          |  |
| 0600                        | φ             | 131           | 21          |                       |             |                                            |           |             |                         | 83.5                      | 0.05                           |                          | 12                | φ                              |                                            | 0.32                                       | φ                                            | 0.32                                                   |                                          |  |
| 0900                        | φ             | 131           | 23          | 32/64                 |             | INCREASE CHOKE TO 32/64                    |           |             |                         | 83.5                      | φ                              |                          | 12                | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |
| 0905                        | φ             | 128           | 22          | ↑                     |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 0910                        | φ             | 128           | 22          |                       |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 0915                        | φ             | 128           | 22          |                       |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 0930                        | φ             | 128           | 22          | ↓                     |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 1000                        | φ             | 131           | 22          | 32/64                 |             |                                            |           |             |                         | 83.5                      | φ                              |                          | 12                | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |
| 1100                        | φ             | 134           | 23          | 64/64                 |             | INCREASE CHOKE TO 64/64                    |           |             |                         | 83.5                      | φ                              |                          | 12                | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |
| 1200                        | φ             | 83            | 27          | ↑                     |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 1300                        | φ             | 90            | 27          |                       |             |                                            |           |             |                         | 83.5                      | φ                              |                          | 12                | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |
| 1800                        | φ             | 90            | 27          |                       |             |                                            |           |             |                         | 83.5                      | φ                              |                          | 12                | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |
| 2200                        | φ             | 83            | 24          |                       |             |                                            |           |             |                         | 106.0                     | 2.38                           |                          | 13.5              | 0.16                           |                                            | 14.26                                      | 0.95                                         | 15.21                                                  |                                          |  |
| 24 OCTOBER 1989             |               |               |             |                       |             |                                            |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 0200                        | φ             | 76            | 20          |                       |             |                                            |           |             |                         | 112.5                     | 0.67                           |                          | 16.5              | 0.32                           |                                            | 4.12                                       | 1.90                                         | 6.02                                                   |                                          |  |
| 0600                        | φ             | 76            | 22          |                       |             |                                            |           |             |                         | 116.5                     | 0.42                           | 43.4                     | 20.5              | 0.42                           |                                            | 2.53                                       | 2.53                                         | 5.06                                                   |                                          |  |
| 0915                        |               |               |             |                       |             | EXPERTEST SWABBING CREW ARRIVE ON LOCATION |           |             |                         |                           |                                |                          |                   |                                |                                            |                                            |                                              |                                                        |                                          |  |
| 1000                        | φ             | 97            | 25          |                       |             |                                            |           |             |                         | 116.5                     | φ                              |                          | 20.5              | φ                              |                                            | φ                                          | φ                                            | φ                                                      |                                          |  |

0040

| WELL:..... <u>PELICAN #3</u> .....     |                     |            |           |                 |          |  SANTOS LTD.          |                                              |          |                   |                           |              |                    |                  |              |                      | DATE:..... <u>24 OCTOBER 1989</u> ..... |                        |                               |                        |  |  |
|----------------------------------------|---------------------|------------|-----------|-----------------|----------|--------------------------------------------------------------------------------------------------------|----------------------------------------------|----------|-------------------|---------------------------|--------------|--------------------|------------------|--------------|----------------------|-----------------------------------------|------------------------|-------------------------------|------------------------|--|--|
| TYPE OF TEST:..... <u>E.P.T.</u> ..... |                     |            |           |                 |          |  WELL TEST DATA SHEET |                                              |          |                   |                           |              |                    |                  |              |                      | PAGE No:..... <u>6 of 7</u> .....       |                        |                               |                        |  |  |
| DATE<br>TIME                           | WELLHEAD            |            |           |                 |          | GAS FLOW DATA                                                                                          |                                              |          |                   | OIL/CONDENSATE PRODUCTION |              |                    | WATER PRODUCTION |              | WELL TEST RESULTS    |                                         |                        |                               |                        |  |  |
|                                        | CASING KPA          | TUBING KPA | TEMP. °C  | CHOKE SIZE INS. | B.S.W. % | PI KPA                                                                                                 | HW KPA                                       | TEMP. °C | ORIFICE SIZE INS. | TANK DIP CM               | TANK PROD M³ | API GRAVITY @60 °F | TANK DIP CM      | TANK PROD M³ | GAS FLOW RATE M³/DAY | OIL FLOW RATE M³/DAY                    | WATER FLOW RATE M³/DAY | TOTAL LIQUID FLOW RATE M³/DAY | G.O.R. M³/M³           |  |  |
| <u>24</u>                              | <u>OCTOBER 1989</u> |            |           |                 |          |                                                                                                        |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>1130</u>                            |                     |            |           |                 |          | <u>WELL HEAD RECORDER BACK IN SERVICE,</u>                                                             | <u>EXPERTES SWABBING CREW LEAVE LOCATION</u> |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>1400</u>                            | <u>Ø</u>            | <u>14</u>  | <u>29</u> | <u>64/164</u>   |          |                                                                                                        |                                              |          | <u>116.5</u>      | <u>Ø</u>                  |              |                    | <u>20.5</u>      | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |
| <u>1800</u>                            | <u>Ø</u>            | <u>14</u>  | <u>27</u> |                 |          |                                                                                                        |                                              |          | <u>118.5</u>      | <u>0.21</u>               |              |                    | <u>24.0</u>      | <u>0.37</u>  |                      | <u>1.27</u>                             | <u>2.22</u>            | <u>3.49</u>                   |                        |  |  |
| <u>2200</u>                            | <u>Ø</u>            | <u>14</u>  | <u>26</u> |                 |          |                                                                                                        |                                              |          | <u>118.5</u>      | <u>Ø</u>                  |              |                    | <u>24.0</u>      | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |
| <u>25</u>                              | <u>OCTOBER 1989</u> |            |           |                 |          |                                                                                                        |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>0200</u>                            | <u>Ø</u>            | <u>14</u>  | <u>22</u> |                 |          |                                                                                                        |                                              |          | <u>123.5</u>      | <u>0.53</u>               |              |                    | <u>26.0</u>      | <u>0.21</u>  |                      | <u>3.17</u>                             | <u>1.27</u>            | <u>4.44</u>                   |                        |  |  |
| <u>0600</u>                            | <u>Ø</u>            | <u>28</u>  | <u>23</u> |                 |          |                                                                                                        |                                              |          | <u>129.5</u>      | <u>0.63</u>               |              |                    | <u>28.0</u>      | <u>0.21</u>  |                      | <u>3.80</u>                             | <u>1.27</u>            | <u>5.07</u>                   |                        |  |  |
| <u>1000</u>                            | <u>Ø</u>            | <u>17</u>  | <u>34</u> |                 |          |                                                                                                        |                                              |          | <u>129.5</u>      | <u>Ø</u>                  |              |                    | <u>28.0</u>      | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |
| <u>1400</u>                            | <u>Ø</u>            | <u>21</u>  | <u>34</u> |                 |          |                                                                                                        |                                              |          | <u>130.0</u>      | <u>0.05</u>               |              |                    | <u>28.0</u>      | <u>Ø</u>     |                      | <u>0.32</u>                             | <u>Ø</u>               | <u>0.32</u>                   |                        |  |  |
| <u>1500</u>                            | <u>Ø</u>            | <u>21</u>  | <u>34</u> | <u>64/164</u>   |          | <u>SHUT IN WELL FOR SONOLOG.</u>                                                                       |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>1530</u>                            |                     |            |           |                 |          | <u>OPEN WELL &amp; FLOW INTO OILSERV TEST TANK.</u>                                                    |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>1530</u>                            | <u>Ø</u>            | <u>21</u>  | <u>34</u> | <u>64/164</u>   |          |                                                                                                        |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               | <u>FRAC. TANK</u>      |  |  |
| <u>1800</u>                            | <u>Ø</u>            | <u>14</u>  | <u>29</u> |                 |          |                                                                                                        |                                              |          | <u>Ø</u>          | <u>Ø</u>                  |              |                    | <u>Ø</u>         | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      | <u>OILSERV T. TANK</u> |  |  |
| <u>2200</u>                            | <u>Ø</u>            | <u>Ø</u>   | <u>24</u> |                 |          |                                                                                                        |                                              |          | <u>Ø</u>          | <u>Ø</u>                  |              |                    | <u>Ø</u>         | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |
| <u>26</u>                              | <u>OCTOBER 1989</u> |            |           |                 |          |                                                                                                        |                                              |          |                   |                           |              |                    |                  |              |                      |                                         |                        |                               |                        |  |  |
| <u>0200</u>                            | <u>Ø</u>            | <u>21</u>  | <u>25</u> |                 |          |                                                                                                        |                                              |          | <u>3075</u>       | <u>2.75</u>               |              |                    | <u>325</u>       | <u>0.33</u>  |                      | <u>22</u>                               | <u>2.64</u>            |                               |                        |  |  |
| <u>0600</u>                            | <u>Ø</u>            | <u>23</u>  | <u>23</u> |                 |          |                                                                                                        |                                              |          | <u>3075</u>       | <u>Ø</u>                  |              |                    | <u>325</u>       | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |
| <u>1000</u>                            | <u>Ø</u>            | <u>21</u>  | <u>32</u> |                 |          |                                                                                                        |                                              |          | <u>3075</u>       | <u>Ø</u>                  |              |                    | <u>325</u>       | <u>Ø</u>     |                      | <u>Ø</u>                                | <u>Ø</u>               | <u>Ø</u>                      |                        |  |  |

0091

| WELL: <u>PELICAN #3</u>    |               |               |             |                       |             | SANTOS LTD.          |           |             |                         |                           |                                |                          |                                      |                                |                                            | DATE: <u>26 OCTOBER 1989</u>               |                                              |                                                        |        |  |
|----------------------------|---------------|---------------|-------------|-----------------------|-------------|----------------------|-----------|-------------|-------------------------|---------------------------|--------------------------------|--------------------------|--------------------------------------|--------------------------------|--------------------------------------------|--------------------------------------------|----------------------------------------------|--------------------------------------------------------|--------|--|
| TYPE OF TEST: <u>E.P.T</u> |               |               |             |                       |             | WELL TEST DATA SHEET |           |             |                         |                           |                                |                          |                                      |                                |                                            | PAGE No: <u>7 of 7</u>                     |                                              |                                                        |        |  |
| DATE<br>TIME               | WELLHEAD      |               |             |                       |             | GAS FLOW DATA        |           |             |                         | OIL/CONDENSATE PRODUCTION |                                |                          | WATER PRODUCTION                     |                                | WELL TEST RESULTS                          |                                            |                                              |                                                        |        |  |
|                            | CASING<br>KPA | TUBING<br>KPA | TEMP.<br>°C | CHOKE<br>SIZE<br>INS. | B.S.W.<br>% | PI<br>KPA            | HW<br>KPA | TEMP.<br>°C | ORIFICE<br>SIZE<br>INS. | TANK<br>DIP<br>LITRES     | TANK<br>PROD<br>M <sup>3</sup> | API<br>GRAVITY<br>@60 °F | TANK<br>DIP<br>LITRES                | TANK<br>PROD<br>M <sup>3</sup> | GAS<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | OIL<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | WATER<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | TOTAL<br>LIQUID<br>FLOW<br>RATE<br>M <sup>3</sup> /DAY | G.O.R. |  |
| 1235                       |               |               |             | 6 3/4                 |             | RUN IN HOLE          |           |             |                         | FOR FLOWING GRADIENT      |                                |                          |                                      |                                | SURVEY                                     |                                            |                                              |                                                        |        |  |
| 1355                       |               |               |             | ↑                     |             | PULL OUT OF HOLE     |           |             |                         |                           |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
| 1400                       | Ø             | 14            | 29          |                       |             |                      |           |             |                         | 3075                      | Ø                              |                          | 325                                  | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 1455                       | Ø             | 14            | 29          |                       |             | DEPRESSURE           |           |             |                         | LUBRICATOR                |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
| 1800                       | Ø             | 7             | 28          |                       |             |                      |           |             |                         | 3075                      | Ø                              |                          | 325                                  | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 2200                       | Ø             | 21            | 21          |                       |             |                      |           |             |                         | 150                       | 0.15                           |                          | Ø                                    | Ø                              |                                            | 0.9                                        | Ø                                            | 0.9                                                    |        |  |
| 27 OCTOBER 1989            |               |               |             |                       |             |                      |           |             |                         |                           |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
| 0200                       | Ø             | 21            | 18          |                       |             |                      |           |             |                         | 5040                      | 1.76                           |                          | 530                                  | 0.205                          |                                            | 10.56                                      | 1.23                                         | 11.79                                                  |        |  |
| 0600                       | Ø             | 21            | 16          |                       |             |                      |           |             |                         | 5040                      | Ø                              |                          | 530                                  | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 1000                       | Ø             | 14            | 22          |                       |             |                      |           |             |                         | 150                       | Ø                              |                          | Ø                                    | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 1400                       | Ø             | 14            | 23          |                       |             |                      |           |             |                         | 150                       | Ø                              |                          | Ø                                    | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 1800                       | Ø             | 14            | 23          |                       |             |                      |           |             |                         | 150                       | Ø                              |                          | Ø                                    | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 2200                       | Ø             | 34            | 23          |                       |             |                      |           |             |                         | 1400                      | 1.25                           |                          | Ø                                    | Ø                              |                                            | 7.5                                        | Ø                                            | 7.5                                                    |        |  |
| 28 OCTOBER 1989            |               |               |             |                       |             |                      |           |             |                         |                           |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
| 0200                       | Ø             | 34            | 18          |                       |             |                      |           |             |                         | 6150                      | 0.58                           |                          | 530                                  | Ø                              |                                            | 3.48                                       | Ø                                            | 3.48                                                   |        |  |
| 0600                       | Ø             | 34            | 18          | ↓                     |             |                      |           |             |                         | 6150                      | Ø                              |                          | 530                                  | Ø                              |                                            | Ø                                          | Ø                                            | Ø                                                      |        |  |
| 0830                       | Ø             | 21            | 24          | 6 3/4                 |             | SHUT WELL IN         |           |             |                         |                           |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
| 0830                       |               |               |             | 8 1/2                 |             | COMMENCE RIG DOWN    |           |             |                         |                           |                                |                          |                                      |                                |                                            |                                            |                                              |                                                        |        |  |
|                            |               |               |             |                       |             | FRAC TANK            |           |             |                         | OIL 7.02 M <sup>3</sup>   |                                |                          | H <sub>2</sub> O 3.70 M <sup>3</sup> |                                | (OIL 44.15 BBLs)                           |                                            |                                              |                                                        |        |  |

0042

| WELL <u>Pelican #3</u>                                       |              |  <b>SANTOS LTD</b><br><b>FLUID PRODUCTION SHEET</b> |                  |                  |                 |                                          | DATE <u>19/10/89</u>    |                  |                  |                 |                 |                          |
|--------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-----------------|------------------------------------------|-------------------------|------------------|------------------|-----------------|-----------------|--------------------------|
| TANK:- CAPACITY <u>56.8 M3</u><br>SCALE <u>1 cm = 105 M3</u> |              |                                                                                                                                      |                  |                  |                 |                                          | PAGE No. <u>1 of 4</u>  |                  |                  |                 |                 |                          |
|                                                              |              |                                                                                                                                      |                  |                  |                 |                                          | OPERATOR <u>L. Knox</u> |                  |                  |                 |                 |                          |
| DATE<br>TIME                                                 | CUM.<br>TIME | OIL/CONDENSATE PRODUCTION                                                                                                            |                  |                  |                 |                                          | WATER PRODUCTION        |                  |                  |                 |                 | REMARKS                  |
|                                                              |              | TANK DIP<br>CM                                                                                                                       | TANK PROD.<br>M3 | FLOWRATE<br>M3/D | CUM.PROD.<br>M3 | OIL<br>CONDENSATE<br>GRAVITY<br>"API60F" | TANK DIP<br>cm          | TANK PROD.<br>M3 | FLOWRATE<br>M3/D | CUM.PROD.<br>M3 | SALINITY<br>PPM |                          |
| October 19, 1989                                             |              |                                                                                                                                      |                  |                  |                 |                                          |                         |                  |                  |                 |                 |                          |
| 1400                                                         |              | Ø                                                                                                                                    |                  |                  | Ø               |                                          | 12                      |                  |                  | Ø               |                 | Open Well                |
| 1500                                                         | 1            | 32                                                                                                                                   | 3.36             | 80.60            | 3.36            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1600                                                         | 2            | 33                                                                                                                                   | 0.10             | 2.52             | 3.46            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1800                                                         | 4            | 34                                                                                                                                   | 0.10             | 1.26             | 3.56            | 43.2                                     | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 2200                                                         | 8            | 35                                                                                                                                   | 0.10             | 0.60             | 3.66            | 43.2                                     | 12                      | Ø                | Ø                | Ø               |                 |                          |
| October 20, 1989                                             |              |                                                                                                                                      |                  |                  |                 |                                          |                         |                  |                  |                 |                 |                          |
| 0500                                                         | 12           | 35.5                                                                                                                                 | 0.05             | 0.30             | 3.71            | 45.8                                     | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 0600                                                         | 16           | 35.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1000                                                         | 20           | 35.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1400                                                         | 24           | 35.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1730                                                         | 27.5         | 35.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 | SHUT IN WELL/BUILD UP    |
| OCTOBER 21, 1989                                             |              |                                                                                                                                      |                  |                  |                 |                                          |                         |                  |                  |                 |                 |                          |
| 1230                                                         | 0            | 47.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 | OPEN WELL                |
| 1300                                                         | 0.50         | 47.5                                                                                                                                 | Ø                | Ø                | 3.71            |                                          | 12                      | Ø                | Ø                | Ø               |                 | DIVERT FLOW TO FRAC TANK |
| 1315                                                         | 0.75         | 48.5                                                                                                                                 | 0.10             | 10.14            | 3.81            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1330                                                         | 1.00         | 49.5                                                                                                                                 | 0.10             | 10.14            | 3.91            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1345                                                         | 1.25         | 50.0                                                                                                                                 | 0.05             | 4.80             | 3.96            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1400                                                         | 1.50         | 50.5                                                                                                                                 | 0.05             | 4.80             | 4.01            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |
| 1500                                                         | 2.50         | 53.5                                                                                                                                 | 0.32             | 7.68             | 4.33            |                                          | 12                      | Ø                | Ø                | Ø               |                 |                          |

0043

|                                                                          |                                                                                                                                      |                                                                                      |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| WELL <u>PELICAN #3</u>                                                   |  <b>SANTOS LTD</b><br><b>FLUID PRODUCTION SHEET</b> | DATE <u>21 OCTOBER 1989</u><br>PAGE No. <u>2 OF 4</u><br>OPERATOR <u>GLENN THORP</u> |
| TANK:— CAPACITY <u>56.60</u><br>SCALE <u>1 CM = 0.1056 M<sup>3</sup></u> |                                                                                                                                      |                                                                                      |

| DATE<br><br>TIME | CUM.<br>TIME | OIL/CONDENSATE PRODUCTION |                              |                               |                             |                                          | WATER PRODUCTION |                              |                               |                             |                 | REMARKS                 |
|------------------|--------------|---------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------------------|------------------|------------------------------|-------------------------------|-----------------------------|-----------------|-------------------------|
|                  |              | TANK DIP<br>CM            | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | OIL<br>CONDENSATE<br>GRAVITY<br>"API60F" | TANK DIP<br>CM   | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | SALINITY<br>PPM |                         |
| 21 OCTOBER 1989  |              |                           |                              |                               |                             |                                          |                  |                              |                               |                             |                 |                         |
| 1600             | 3.50         | 57.0                      | 0.37                         | 8.88                          | 4.70                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 1700             | 4.50         | 59.5                      | 0.26                         | 6.34                          | 4.96                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 1800             | 5.50         | 62.0                      | 0.26                         | 6.34                          | 5.22                        | 43.2                                     | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 2000             | 7.50         | 66.0                      | 0.42                         | 5.07                          | 5.64                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 2200             | 9.50         | 69.0                      | 0.32                         | 3.80                          | 5.96                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 2400             | 11.50        | 71.0                      | 0.21                         | 2.54                          | 6.17                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 22 OCTOBER 1989  |              |                           |                              |                               |                             |                                          |                  |                              |                               |                             |                 |                         |
| 0200             | 13.5         | 73.5                      | 0.26                         | 3.17                          | 6.43                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 0600             | 17.5         | 78.0                      | 0.48                         | 2.85                          | 6.91                        | 42.6                                     | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 0800             | 19.5         | <del>80.0</del>           | 0.21                         | 2.54                          | 7.12                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 | INCREASE CHOKE TO 16/64 |
| 0900             | 20.5         | 81.5                      | 0.16                         | 3.80                          | 7.28                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 1000             | 21.5         | 81.5                      | ∅                            | ∅                             | 7.28                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 1400             | 25.5         | 81.5                      | ∅                            | ∅                             | 7.28                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 1800             |              | 81.7                      | 0.02                         | 0.13                          | 7.30                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 2200             |              | 82.5                      | 0.08                         | 0.51                          | 7.38                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 23 OCTOBER 1989  |              |                           |                              |                               |                             |                                          |                  |                              |                               |                             |                 |                         |
| 0200             |              | 83.0                      | 0.05                         | 0.32                          | 7.43                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 0600             |              | 83.5                      | 0.05                         | 0.32                          | 7.48                        | 42.6                                     | 12               | ∅                            | ∅                             | ∅                           |                 |                         |
| 0900             |              | 83.5                      | ∅                            | ∅                             | 7.48                        |                                          | 12               | ∅                            | ∅                             | ∅                           |                 | INCREASE CHOKE TO 32/64 |

0044

|                                                                         |  |                                                                                                                                             |  |  |  |  |                              |  |  |
|-------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|------------------------------|--|--|
| WELL <u>PELICAN #3</u>                                                  |  | <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <b>SANTOS LTD</b><br/> <b>FLUID PRODUCTION SHEET</b> </div> |  |  |  |  | DATE <u>23 OCTOBER 1989</u>  |  |  |
| TANK:— CAPACITY <u>56.60</u><br>SCALE <u>1CM = 0.1056 M<sup>3</sup></u> |  |                                                                                                                                             |  |  |  |  | PAGE No. <u>3 OF 4</u>       |  |  |
|                                                                         |  |                                                                                                                                             |  |  |  |  | OPERATOR <u>GLENN THORP.</u> |  |  |

| DATE<br>TIME           | CUM.<br>TIME | OIL/CONDENSATE PRODUCTION |                              |                               |                             |                                         | WATER PRODUCTION |                              |                               |                             |                 | REMARKS                    |
|------------------------|--------------|---------------------------|------------------------------|-------------------------------|-----------------------------|-----------------------------------------|------------------|------------------------------|-------------------------------|-----------------------------|-----------------|----------------------------|
|                        |              | TANK DIP<br>CM            | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | OIL<br>CONDENSATE<br>GRAVITY<br>°API60F | TANK DIP<br>CM   | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | SALINITY<br>PPM |                            |
| <u>23 OCTOBER 1989</u> |              |                           |                              |                               |                             |                                         |                  |                              |                               |                             |                 |                            |
| 1000                   |              | 83.5                      | ∅                            | ∅                             | 7.48                        | 42.6                                    | 12               | ∅                            | ∅                             | ∅                           |                 |                            |
| 1100                   | 0            | 83.5                      | ∅                            | ∅                             | 7.48                        |                                         | 12               | ∅                            | ∅                             | ∅                           | INCREASE        | CHOKE TO <sup>64</sup> /64 |
| 1400                   |              | 83.5                      | ∅                            | ∅                             | 7.48                        |                                         | 12               | ∅                            | ∅                             | ∅                           |                 |                            |
| 1800                   |              | 83.5                      | ∅                            | ∅                             | 7.48                        |                                         | 12               | ∅                            | ∅                             | ∅                           |                 |                            |
| 2200                   |              | 106.0                     | 2.38                         | 14.26                         | 9.86                        |                                         | 13.5             | 0.16                         | 0.95                          | 0.16                        |                 |                            |
| <u>24 OCTOBER 1989</u> |              |                           |                              |                               |                             |                                         |                  |                              |                               |                             |                 |                            |
| 0200                   |              | 112.5                     | 0.67                         | 4.12                          | 10.53                       |                                         | 16.5             | 0.32                         | 1.90                          | 0.48                        |                 |                            |
| 0600                   |              | 116.5                     | 0.42                         | 2.53                          | 10.95                       | 43.4                                    | 20.5             | 0.42                         | 2.53                          | 0.90                        |                 |                            |
| 1000                   |              | 116.5                     | ∅                            | ∅                             | 10.95                       |                                         | 20.5             | ∅                            | ∅                             | 0.90                        |                 |                            |
| 1400                   |              | 116.5                     | ∅                            | ∅                             | 10.95                       |                                         | 20.5             | ∅                            | ∅                             | 0.90                        |                 |                            |
| 1800                   |              | 118.5                     | 0.21                         | 1.27                          | 11.16                       |                                         | 24.0             | 0.37                         | 2.22                          | 1.27                        |                 |                            |
| 2200                   |              | 118.5                     | ∅                            | ∅                             | 11.16                       |                                         | 24.0             | ∅                            | ∅                             | 1.27                        |                 |                            |
| <u>25 OCTOBER 1989</u> |              |                           |                              |                               |                             |                                         |                  |                              |                               |                             |                 |                            |
| 0200                   |              | 123.5                     | 0.53                         | 3.17                          | 11.69                       |                                         | 26.0             | 0.21                         | 1.27                          | 1.48                        |                 |                            |
| 0600                   |              | 129.5                     | 0.63                         | 3.80                          | 12.32                       |                                         | 28.0             | 0.21                         | 1.27                          | 1.69                        |                 |                            |
| 1000                   |              | 129.5                     | ∅                            | ∅                             | 12.32                       |                                         | 28.0             | ∅                            | ∅                             | 1.69                        |                 |                            |
| 1400                   | 5            | 130.0                     | 0.05                         | 0.32                          | 12.37                       | 4.910                                   | 28.0             | ∅                            | ∅                             | 1.69                        |                 |                            |
| 1530                   |              |                           |                              |                               |                             |                                         |                  |                              |                               |                             |                 | DIVERT TO OSA              |
| 1800                   | 0            | ∅                         | ∅                            | ∅                             | 12.37                       |                                         | ∅                | ∅                            | ∅                             | 1.69                        |                 | TEST TANK                  |

0045

|                                 |                                                                                   |                                                    |                             |
|---------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------|
| WELL <u>PELICAN #3</u>          |  | <b>SANTOS LTD</b><br><b>FLUID PRODUCTION SHEET</b> | DATE <u>25 OCTOBER 1989</u> |
| TANK:— CAPACITY <u>2 x 8000</u> |                                                                                   | PAGE No. <u>4 OF 4</u>                             |                             |
| SCALE <u>DIP STICK: LITRES</u>  |                                                                                   | OPERATOR <u>T. HIRST</u>                           |                             |

| DATE<br>TIME | CUM.<br>TIME | OIL/CONDENSATE PRODUCTION |                              |                               |                             |                                          | WATER PRODUCTION  |                              |                               |                             |                 | REMARKS       |
|--------------|--------------|---------------------------|------------------------------|-------------------------------|-----------------------------|------------------------------------------|-------------------|------------------------------|-------------------------------|-----------------------------|-----------------|---------------|
|              |              | TANK DIP<br>LITRE         | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | OIL<br>CONDENSATE<br>GRAVITY<br>"API60F" | TANK DIP<br>LITRE | TANK PROD.<br>M <sup>3</sup> | FLOWRATE<br>M <sup>3</sup> /D | CUM.PROD.<br>M <sup>3</sup> | SALINITY<br>PPM |               |
| 2200         |              | 0                         | 0                            | 0                             | 12.37                       |                                          | 0                 | 0                            | 0                             | 1.69                        |                 |               |
| 26 OCTOBER   |              | 1989                      |                              |                               |                             |                                          |                   |                              |                               |                             |                 |               |
| 0200         |              | 3075                      | 2.75                         | 22                            | 15.12                       |                                          | 325               | 0.33                         | 2.64                          | 2.02                        |                 | SIDE 'A' TANK |
| 0600         |              | 3075                      | 0                            | 0                             | 15.12                       |                                          | 325               | 0                            | 0                             | 2.02                        |                 | "             |
| 1000         |              | 3075                      | 0                            | 0                             | 15.12                       |                                          | 325               | 0                            | 0                             | 2.02                        |                 | "             |
| 1400         |              | 3075                      | 0                            | 0                             | 15.12                       |                                          | 325               | 0                            | 0                             | 2.02                        |                 | "             |
| 1800         |              | 3075                      | 0                            | 0                             | 15.12                       |                                          | 325               | 0                            | 0                             | 2.02                        |                 | "             |
| 2200         |              | 150                       | 0.15                         | 0.9                           | 15.27                       |                                          | 0                 | 0                            | 0                             | 2.02                        |                 | SIDE 'B' TANK |
| 27 OCTOBER   |              | 1989                      |                              |                               |                             |                                          |                   |                              |                               |                             |                 | SIDE 'A' TANK |
| 0.00         |              | 5040                      | 1.76                         | 10.56                         | 17.03                       |                                          | 530               | 0.205                        | 1.23                          | 2.225                       |                 | SIDE 'A' TANK |
| 0600         |              | 5040                      | 0                            | 0                             | 17.03                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 | "             |
| 1000         |              | 5040                      | 0                            | 0                             | 17.03                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 | "             |
| 1400         |              | 5040                      | 0                            | 0                             | 17.03                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 | "             |
| 1800         |              | 150                       | 0                            | 0                             | 17.03                       |                                          | 0                 | 0                            | 0                             | 2.225                       |                 | SIDE 'A' TANK |
| 2200         |              | 1400                      | 1.25                         | 0                             | 18.28                       |                                          | 0                 | 0                            | 0                             | 2.225                       |                 | "             |
| 28 OCTOBER   |              | 1989                      | 1.110                        |                               |                             |                                          |                   |                              |                               |                             |                 |               |
| 0200         |              | 6150                      | 0.58                         | 3.48                          | 18.86                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 | SIDE 'B' TANK |
| 0600         |              | 6150                      | 0                            | 0                             | 18.86                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 |               |
| 0830         |              | 6150                      | 0                            | 0                             | 18.86                       |                                          | 530               | 0                            | 0                             | 2.225                       |                 |               |

0046

Client: Santos Ltd.Well: Pelican #3Test: E.P.T.Operator: L. KnoxInterval: 8477' To 8595' KBMeter Run Size: 2.067"

| Date             |       | Gas Gravity              | Orifice diam. | Gas Temp | Diff hw | Static Pf | VHw*Pf | Fb     | Fg    | Y      | Ftf  | Fpv    | C      | Gas Rate Q | Production |
|------------------|-------|--------------------------|---------------|----------|---------|-----------|--------|--------|-------|--------|------|--------|--------|------------|------------|
| Time             | Accum | Air=1                    | Inches        | deg F    | "H2O    | psia      |        |        |       |        |      |        |        | MscfD      | E3-M3/D    |
| October 19, 1989 |       |                          |               |          |         |           |        |        |       |        |      |        |        |            |            |
| 1400             |       | Open Well On 3 3/4 Choke |               |          |         |           |        |        |       |        |      |        |        |            |            |
| 1430             |       | 1.122                    | 1.75          | 29       | 35      | 105       | 60.54  | 634.39 | 944.1 | 1.0021 | 9775 | 1.0273 | 602.69 | 0.875      | 24.67      |
| 1500             | 1     |                          |               | 39       | 1       | 90        | 9.47   |        |       | 1.0001 | 9617 | 1.0207 | 587.97 | 0.134      | 3.77       |
| 1600             | 2     |                          | 0.500         | 41       | 19      | 89        | 41.06  | 50.52  |       | 1.0014 | 9587 | 1.0201 | 46.71  | 0.046      | 1.30       |
| 1800             | 4     |                          |               | 23       | 8       | 75        | 24.45  |        |       | 1.0007 | 9874 | 1.0204 | 48.08  | 0.028      | 0.79       |
| 2200             | 8     |                          |               | 25       | 8       | 73        | 22.40  |        |       | 1.0008 | 9840 | 1.0166 | 47.75  | 0.026      | 0.72       |
| October 20, 1989 |       |                          |               |          |         |           |        |        |       |        |      |        |        |            |            |
| 0200             | 12    | 1.122                    | 0.500         | 22       | 7       | 56        | 19.75  |        |       | 1.0008 | 9890 | 1.0151 | 47.92  | 0.023      | 0.64       |
| 0600             | 16    |                          |               | 18       | 6       | 53        | 17.79  |        |       | 1.0008 | 9958 | 1.0149 | 48.24  | 0.021      | 0.58       |
| 1000             | 20    |                          |               | 23       | 4       | 46        | 13.52  |        |       | 1.0006 | 9874 | 1.0122 | 47.69  | 0.015      | 0.44       |
| 1400             | 24    |                          |               | 27       | 2       | 35        | 8.33   |        |       | 1.0004 | 9808 | 1.0088 | 47.21  | 0.009      | 0.27       |
| * 1730           | 27.5  |                          |               | 23       | 40      | 17        | 25.87  | 12.71  |       | 1.0161 | 9874 | 1.0044 | 12.09  | 0.008      | 0.21       |
| * Shut In Well,  |       |                          |               |          |         |           |        |        |       |        |      |        |        |            |            |
|                  |       |                          |               |          |         |           |        |        |       |        |      |        |        | ave        | 0.521      |



Well Name Pelican #3

Date 19/10/89

0048



# FLOWING STATIC GRADIENT SURVEY

Date 20/10/89

| BOMB No. 1 DATA           |             |                                                |                               |                   |                      | BOMB No. 2 DATA           |                      |                           |                      | LUBRICATOR DATA                       |  |
|---------------------------|-------------|------------------------------------------------|-------------------------------|-------------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|---------------------------------------|--|
| Element No. <u>53463</u>  |             | Element Range <u>0-5000</u>                    |                               |                   |                      | Element No. <u>53464</u>  |                      | Element Range <u>5000</u> |                      | Pressure with D. W. T. <u>23 psig</u> |  |
| Recorder No. <u>73359</u> |             | Clock Data <u>3 Hr</u>                         |                               |                   |                      | Recorder No. <u>47405</u> |                      | Clock Data <u>3 Hr</u>    |                      | Time Pressured <u>1505 Hrs.</u>       |  |
| Engage Stylus <u>1453</u> |             | Disengage <u>1724</u>                          |                               |                   |                      | Engage Stylus <u>1453</u> |                      | Disengage <u>1724</u>     |                      | Time Depressed <u>1717 Hrs.</u>       |  |
| DATE                      | TIME        | DEPTH                                          | DEFLECTION                    | PRESSURE<br>TEMP. | GRADIENT<br>Psi/Feet | DEPTH                     | DEFLECTION           | PRESSURE<br>TEMP.         | GRADIENT<br>Psi/Feet | REMARKS                               |  |
| <u>20/10/89</u>           | <u>1505</u> |                                                | <u>Pressure Up Lubricator</u> |                   |                      |                           |                      |                           |                      |                                       |  |
|                           | <u>1515</u> | <u>Lub</u>                                     | <u>0.0055</u>                 | <u>16.5</u>       | <u>-</u>             |                           |                      |                           |                      | <u>Begin To R.I.H.</u>                |  |
|                           | <u>1520</u> | <u>1000</u>                                    | <u>0.0182</u>                 | <u>50.1</u>       | <u>0.336</u>         |                           |                      |                           |                      |                                       |  |
|                           | <u>1528</u> | <u>2000</u>                                    | <u>0.0761</u>                 | <u>203.1</u>      | <u>1.1530</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1535</u> | <u>3000</u>                                    | <u>0.1358</u>                 | <u>360.9</u>      | <u>1.1578</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1542</u> | <u>4000</u>                                    | <u>0.2425</u>                 | <u>642.8</u>      | <u>1.2819</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1549</u> | <u>5000</u>                                    | <u>0.3462</u>                 | <u>916.9</u>      | <u>1.2741</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1556</u> | <u>6000</u>                                    | <u>0.4578</u>                 | <u>1211.8</u>     | <u>1.2949</u>        |                           | <u>Clock Failure</u> |                           |                      |                                       |  |
|                           | <u>1603</u> | <u>7000</u>                                    | <u>0.5693</u>                 | <u>1506.5</u>     | <u>1.2947</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1610</u> | <u>8000</u>                                    | <u>0.7102</u>                 | <u>1878.8</u>     | <u>1.3723</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1615</u> | <u>8450</u>                                    | <u>0.7862</u>                 | <u>2079.7</u>     | <u>1.4464</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1626</u> | <u>8484</u>                                    | <u>0.7929</u>                 | <u>2097.4</u>     | <u>1.5206</u>        |                           |                      |                           |                      |                                       |  |
|                           | <u>1630</u> | <u>8591</u>                                    | <u>0.8107</u>                 | <u>2144.4</u>     | <u>1.4393</u>        | <u>8591</u>               | <u>0.8178</u>        | <u>2147.5</u>             |                      |                                       |  |
|                           | <u>1707</u> | <u>Lub.</u>                                    | <u>0.0044</u>                 | <u>13.6</u>       | <u>-</u>             |                           |                      |                           |                      | <u>Tool String Surface</u>            |  |
|                           | <u>1717</u> | <u>Depressure Lubricator</u>                   |                               |                   |                      |                           |                      |                           |                      |                                       |  |
|                           |             | <u>&amp; &amp; Well Flowing On 32/64 Choke</u> |                               |                   |                      |                           |                      |                           |                      |                                       |  |

0045

**WIRELINE REPORT**

CLIENT SANTOS WELL PELICAN #3

DATE 13:11:85

PROGRAMME STATIC GRADIENT

PURPOSE OF WORK BLIND BOX RUN (TO ENSURE TUBING IS FREE OF OBSTRUCTIONS)

REPORT OF WORK PERFORMED

13:11:85

1134 HRS ARRIVE ON LOCATION.

1210 HRS COMPLETE RIG UP

1212 HRS PRESSURE LUBRICATOR

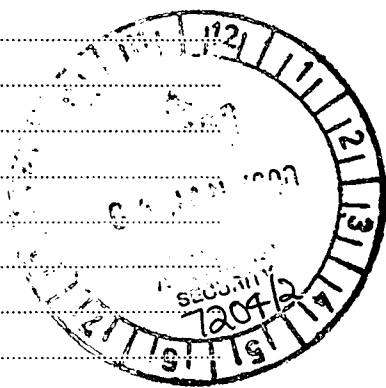
1215 HRS R.I.H 1.75" BLIND BOX

1230 HRS @ 8921' - KB (NO OBSTRUCTIONS ENCOUNTERED)

1232 HRS P.O.D.H.

1249 HRS IN LUBRICATOR

1321 R.I.H. CONDUCTING STATIC GRADIENT (REFER STATIC GRADIENT REPORT)



*[Signature]*

Operator's Signature

WORKED PERFORMED BY D. J. McALLISTER OF EXPERTEST

WELL DATA:

Tubing Size 2 7/8" FWHP — SIWHP 9405

Subsurface ~~SV~~/Landing Nipple @ 8302.79 KB S.S.D. @

'X' Nipple @ 'N'/'XN' Nipple @ 8315.5 Other @

Min. I.D. 1.791" @ 8315.5 Packer @ 8281.8

Perforated Interval: PATCHAWARRA 8477' - 8492'

8507' - 8595

**EXPERTEST**

WIRELINE &amp; WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON  
SOUTH AUSTRALIA 5033

Tested Monday, 13th November 1989.

| CLIENT      | LOCATION   | FORMATION   |
|-------------|------------|-------------|
| Santos Ltd. | Pelican #3 | Patchawarra |

**STATIC PRESSURE GRADIENT REPORT**

| PRESSURE ELEMENT DATA |            |       |            |
|-----------------------|------------|-------|------------|
| POSITION              | SERIAL NO. | RANGE | CALIBRATED |
| Top                   | 60322      | 5000  | 3/11/89    |
| Bottom                | 59451      | 5000  | 3/11/89    |

| WELL DATA |          |
|-----------|----------|
| PARAMETER | VALUE    |
| DWT In    | 9405 KPA |
| DWT Out   | 9419 KPA |
| Max BHT   | 280 OF   |

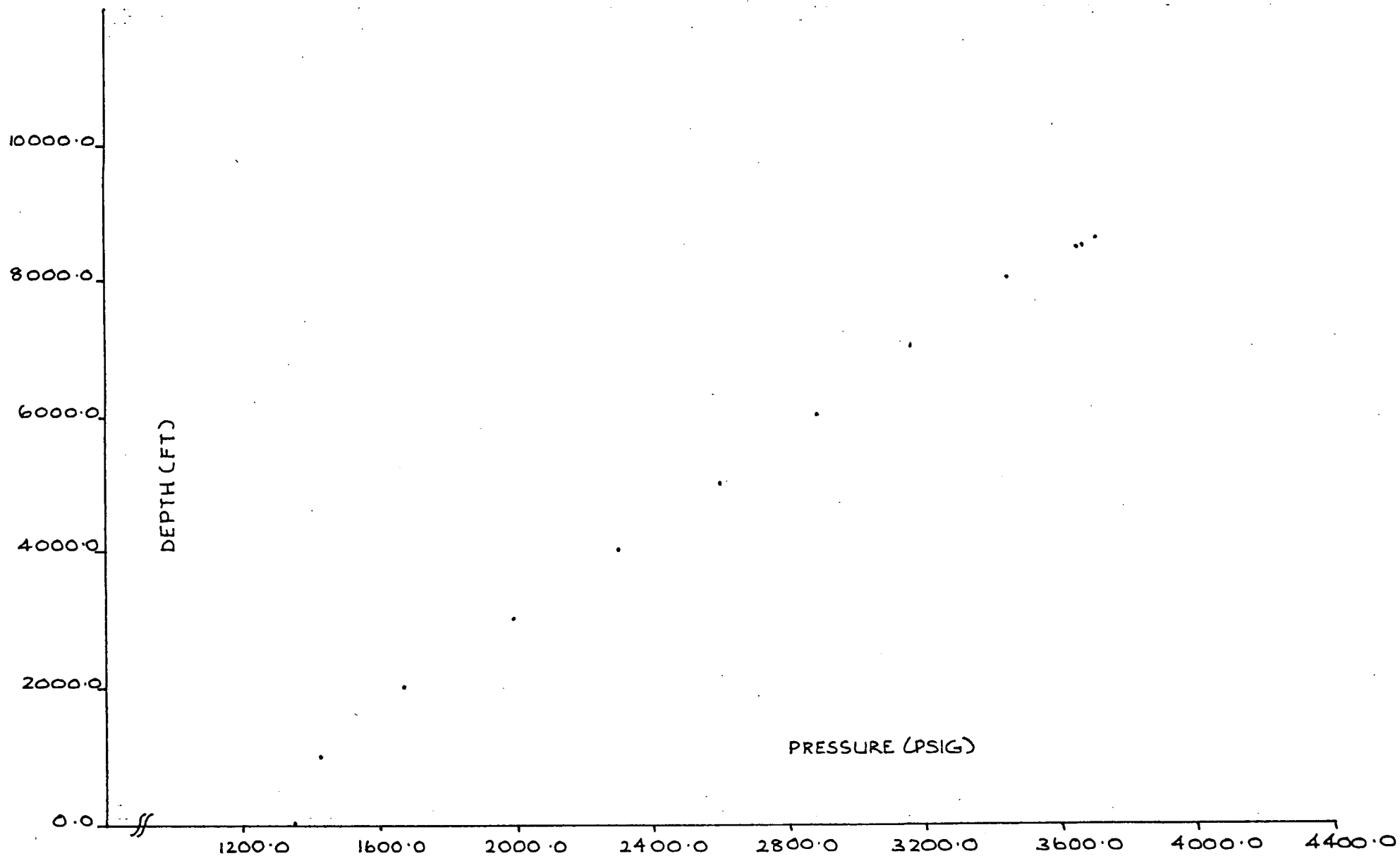
| TOP ELEMENT     |                      |                  |                    | BOTTOM ELEMENT       |                  |                    |
|-----------------|----------------------|------------------|--------------------|----------------------|------------------|--------------------|
| DEPTH<br>FT. KB | DEFLECTION<br>INCHES | PRESSURE<br>PSIG | GRADIENT<br>PSI/FT | DEFLECTION<br>INCHES | PRESSURE<br>PSIG | GRADIENT<br>PSI/FT |
| LUB.            | 0.5280               | 1350.5           | ----               |                      |                  |                    |
| 1000            | 0.5580               | 1427.1           | 0.077              |                      |                  |                    |
| 2000            | 0.6530               | 1669.8           | 0.243              |                      |                  |                    |
| 3000            | 0.7780               | 1989.3           | 0.319              |                      |                  |                    |
| 4000            | 0.8990               | 2298.8           | 0.310              |                      |                  |                    |
| 5000            | 1.0160               | 2598.5           | 0.300              |                      |                  |                    |
| 6000            | 1.1270               | 2883.4           | 0.285              |                      |                  |                    |
| 7000            | 1.2350               | 3161.0           | 0.278              |                      |                  |                    |
| 8000            | 1.3480               | 3451.9           | 0.291              |                      |                  |                    |
| 8450            | 1.4260               | 3653.0           | 0.447              |                      |                  |                    |
| 8484            | 1.4320               | 3668.4           | 0.455              |                      |                  |                    |
| 8591            | 1.4490               | 3712.3           | 0.410              |                      |                  |                    |
| LUB.            | 0.5320               | 1360.7           | ----               |                      |                  |                    |

**GENERAL REMARKS**

Element #59451 Failed Due To O Ring Failure On Recording Section

PELICAN # 3 — STATIC PRESSURE GRADIENT — 13/11/89

ELEMENT # 60322 / 5000 (TOP)



0052



CLIENT SANTOS  
WELL PELICAN #3

## STATIC GRADIENT SURVEY

OPERATOR D.J. McALLISTER

DATE 13:11:89

| T BOMB No. 1 DATA                                                   |      |        |             |                |                 | B BOMB No. 2 DATA                                                   |             |                |                 | DWT IN<br>9405 KPA      |  |
|---------------------------------------------------------------------|------|--------|-------------|----------------|-----------------|---------------------------------------------------------------------|-------------|----------------|-----------------|-------------------------|--|
| ELEMENT No. <u>60322</u> ELEMENT RANGE <u>5000 PSI</u>              |      |        |             |                |                 | ELEMENT No. <u>59451</u> ELEMENT RANGE <u>5000 PSI</u>              |             |                |                 | DWT OUT<br>9419 KPA     |  |
| RECORDER No. <u>12952 x 15 TCS</u> CLOCK DATA <u>A16080 x 3 HRS</u> |      |        |             |                |                 | RECORDER No. <u>13028 x 15 TCS</u> CLOCK DATA <u>A15012 x 3 HRS</u> |             |                |                 |                         |  |
| ENGAGE STYLUS <u>1300 HRS</u> DISENGAGE <u>1537 HRS</u>             |      |        |             |                |                 | ENGAGE STYLUS <u>1300 HRS</u> DISENGAGE <u>1537 HRS</u>             |             |                |                 |                         |  |
| PRESSURE LUBRICATOR <u>1306 HRS</u>                                 |      |        |             |                |                 | BLEED LUBRICATOR <u>1532 HRS</u>                                    |             |                |                 |                         |  |
| DATE                                                                | TIME | DEPTH' | DEFLEC-TION | PRESSURE TEMP. | GRADIENT psi/ft | DEPTH'                                                              | DEFLEC-TION | PRESSURE TEMP. | GRADIENT psi/ft | REMARKS                 |  |
| 13:11:89                                                            | 1306 | LUB    |             |                |                 |                                                                     |             |                |                 | PRESS LUBRICATOR 15 MIN |  |
|                                                                     | 1321 |        |             |                |                 |                                                                     |             |                |                 | R.I. H                  |  |
|                                                                     | 1325 | 1000'  |             |                |                 |                                                                     |             |                |                 | 5 MIN                   |  |
|                                                                     | 1332 | 2000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1339 | 3000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1346 | 4000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1353 | 5000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1400 | 6000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1407 | 7000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1414 | 8000'  |             |                |                 |                                                                     |             |                |                 |                         |  |
|                                                                     | 1420 | 8450'  |             |                |                 |                                                                     |             |                |                 | 5 MIN                   |  |
|                                                                     | 1426 | 8484'  |             |                |                 |                                                                     |             |                |                 | 15 MIN                  |  |
|                                                                     | 1442 | 8591   |             |                |                 |                                                                     |             |                |                 | 9432 KPA 15 MIN         |  |
|                                                                     | 1457 |        |             |                |                 |                                                                     |             |                |                 | P.O.O.H.                |  |
|                                                                     | 1517 | LUB    |             |                |                 |                                                                     |             |                |                 | IN LUBRICATOR 15 MIN    |  |

GENERAL REMARKS: M.B.H.T. = 280°F

ELEMENT #59451 x 5000 PSI FAILED, DUE TO "O" RING FAILURE ON RECORDING SECTION. RECORDING CHAMBER PRESSUREIZED.

0053

E12

0054