

**SANTOS**

**COMPILED FOR**

**SANTOS LIMITED**

(A.C.N. 007 550 923)

**PENRYN 2**

**RAW DATA REPORT**

**Petroleum Development**

**28 NOV 2001**

**Prepared By:  
Operations Geology  
September, 2001**

## PENRYN 2 RDR

TABLE OF CONTENTS

LOCATION MAP

SECTION 1: PRELIMINARY WELL CARD

SECTION 2: DAILY GEOLOGICAL REPORTS

SECTION 3: HYDROCARBON SHOWS

SECTION 4: WIRELINE LOGGING REPORTS

- (A) LOGGING ORDER FORM
- (B) ELECTRIC LOGGING TIME SUMMARY
- (C) FIELD ELECTRIC LOG REPORT
- (D) PRESSURE SURVEY DATA

SECTION 5: PRELIMINARY WELL LOCATION SURVEY

SECTION 6: DEVIATION DATA

SECTION 7: GEOTHERMAL GRADIENT

SECTION 8: TIME/DEPTH CURVE

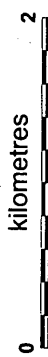
SECTION 9: CATALOGUE OF WELLSITE SAMPLES

ENCLOSURES  
ENCLOSURE I:

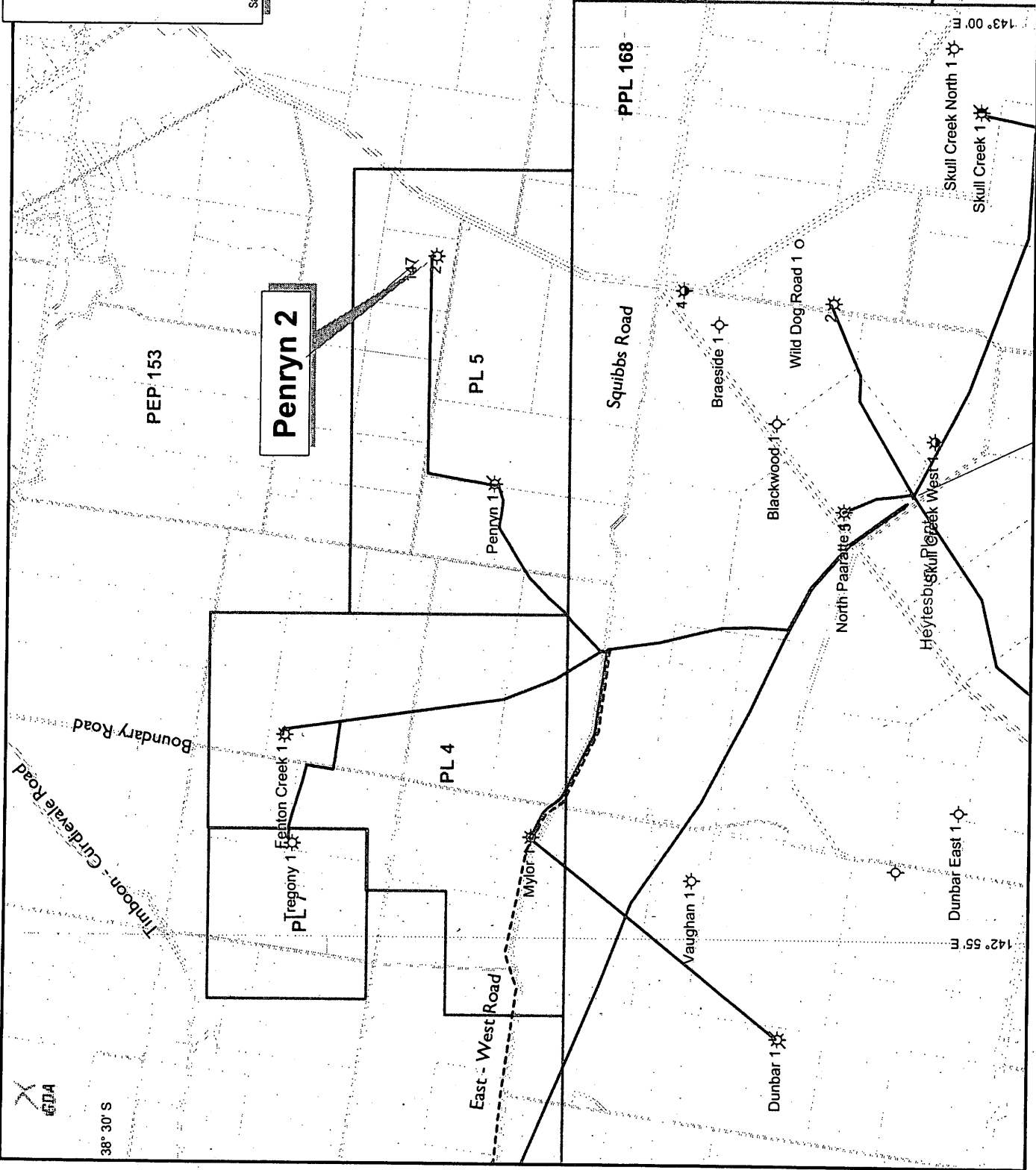
5" = 100' MUDLOG

**LOCATION MAP**

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 Exploration & Development  
 VICTORIA  
 OTWAY BASIN, PEP 153, PL 5  
**PENRYN 2**  
 LOCATION MAP



GDA 1994  
 Santos Ltd ARN 80 007 550 923 30 Oct 2001 File No OTWAY 403



**SECTION 1: PRELIMINARY WELL CARD**

|  |  |   |
|--|--|---|
| <b>WELL: PENRYN 2</b>                                      | <b>WELL CATEGORY: DEVELOPMENT</b><br><b>WELL INTENT: GAS</b> | <b>SPUD: 7-August-01 TD REACHED: 14-August-01</b>                     |
|  |  | <b>RIG RELEASED: 17-August-01</b>                                     |
|  |  | <b>RIG: OD&amp;E 30</b>   |
| <b>LAT: 38° 31' 20.17"</b>                                 | <b>LONG: 142° 58' 43.06"</b> (GDA94)                         | <b>STATUS: CASSED AND SUSPENDED (SUG)</b>                             |
| <b>SEISMIC STATION: LINE 3285 HEYTESBURY 3D, CDP 10323</b> |  | <b>REMARKS: Structure is a tilted-fault block closure, defined by</b> |
| <b>ELEVATION GND: 128.86m</b>                              | <b>RT: 133.56m</b>   | <b>3D seismic.</b>  |
| <b>BLOCK/LICENCE: PEP 153, VICTORIA</b>                    |  | <b>Approx. 31m of net pay was in the Waarre Sandstone reservoir.</b>  |
| <b>TD 1694 m (Logr)</b>                                    | <b>1703 m (Drir)</b>   | <b>Poor oil show was in the Eumeralla Formation.</b>                  |
| <b>PBTD</b>  | <b>m (Logr) m (Drir)</b>                                     |   |
| <b>TYPE STRUCTURE: FAULT TRAP</b>                          |  | <b>CASING SIZE SHOE DEPTH TYPE</b>                                    |
| <b>TYPE COMPLETION: 3 1/2" MONOBORE COMPLETION</b>         |  | 7 5/8" 355.00m (D) 26 lb/ft, L-80, BT&C                               |
| <b>ZONE(S): WAARRE SANDSTONE</b>                           |  | 3 1/2" 1696.00 m (D) Fox (J-55) 9.2 lb/ft                             |

WELLSITE PICKS

| AGE              | FORMATION OR ZONE TOPS   | DEPTH (ft)           |             |                    | INTERVAL THICKNESS (M) | HIGH (H) LOW (L) |
|------------------|--------------------------|----------------------|-------------|--------------------|------------------------|------------------|
|                  |                          | PROGNOSED DEPTH (SS) | LOGGER (MD) | LOGGERS DEPTH (SS) |                        |                  |
| TERTIARY         | PORT CAMPBELL LIMESTONE  |                      | 4.7         | +128.86            | 64.30                  | Not Prognosed    |
| TERTIARY         | GELLIBRAND MARL          |                      | 69.00       | +64.56             | 216.50                 | Not Prognosed    |
| TERTIARY         | CLIFTON FORMATION        | -164.00              | 285.50      | -151.94            | 40.00                  | 12' H            |
| TERTIARY         | NARAWATURK MARL          |                      | 325.50      | -191.94            | 61.00                  | Not Prognosed    |
| TERTIARY         | MEPUNGA FORMATION        | -252.00              | 386.50      | -252.94            | 119.00                 | 1' L             |
| TERTIARY         | DILWYN FORMATION         |                      | 505.50      | -371.94            | 124.00                 | Not Prognosed    |
| TERTIARY         | PEMBER MUDSTONE          |                      | 629.50      | -495.94            | 83.00                  | Not Prognosed    |
| TERTIARY         | PEBBLE POINT FORMATION   | -590.00              | 712.50      | -578.94            | 64.50                  | 11' H            |
| LATE CRETACEOUS  | PAARATTE FORMATION       | -655.00              | 777.00      | -643.44            | 396.50                 | 12' H            |
| LATE CRETACEOUS  | SKULL CREEK MUDSTONE     | -1039.00             | 1173.50     | -1039.94           | 153.00                 | 1' L             |
| LATE CRETACEOUS  | NULLAWARRE GREENDSAND    | -1215.00             | 1326.50     | -1192.94           | 181.00                 | 22' H            |
| LATE CRETACEOUS  | BELFAST MUDSTONE         | -1338.00             | 1507.50     | -1373.94           | 67.50                  | 36' L            |
| LATE CRETACEOUS  | FLAXMANS FORMATION       | -1454.00             | 1575.00     | -1441.44           | 22.50                  | 13' H            |
| LATE CRETACEOUS  | WAARRE FORMATION, UNIT C | -1474.00             | 1597.50     | -1463.94           | 19.50                  | 10' H            |
| LATE CRETACEOUS  | WAARRE FORMATION, UNIT B |                      | 1617.00     | -1483.44           | 5.00                   | Not Prognosed    |
| LATE CRETACEOUS  | WAARRE FORMATION, UNIT A |                      | 1622.00     | -1488.44           | 17.50                  | Not Prognosed    |
| EARLY CRETACEOUS | EUMERALLA FORMATION      | -1538.00             | 1639.50     | -1505.94           | 54.50+                 | 32' H            |
|                  | TD                       | -1600.00             | 1694.00     | -1560.44           |                        | 40' H            |

| PRELIMINARY LOG INTERPRETATION (Interval Averages) |     |      |               |     |      | PERFORATIONS |     |          |     |     |
|--|-----|------|---------------|-----|------|--------------|-----|----------|-----|-----|
| INTERVAL (ft)                                      | Ø % | SW % | INTERVAL (ft) | Ø % | SW % | FORMATION    |     | INTERVAL |     |     |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      | CORES        |     |          |     |     |
|  |     |      |               |     |      | FORM         | NO. | INTERVAL | CUT | REC |
|  |     |      |               |     |      |              |     |          |     |     |
|  |     |      |               |     |      |              |     |          |     |     |

| LOG | SUITE/RUN | INTERVAL  | BHT/TIME/REMARKS                               | LOG | SUITE/RUN   | INTERVAL  | BHT/TIME/REMARKS  |
|-----|-----------|-----------|--|-----|-------------|-----------|---|
| GR  | 1/1       | 1675-0    | BHT: 140F @ 1652.7m @8:25hrs since circulation | CN  |             | 1659-624  | BHT: 146F @ 1674.5m @15:17hrs since circulation<br>24 POINTS. 1 NO SEAL, 2 CURTAILED, 21 GOOD TESTS, INCLUDING SAMPLE @ 1605m |
| DLL |           | 1664-356  |  | GR  | 1/2         | 1679-1588 |   |
| MLL |           | 1690-356  | FMT  |     | 1674.5-1598 |           |   |
| DAC |           | 1664-356  |  |     |             |           |   |
| DAC |           | 1671-1535 | Semblance processing                           |     |             |           |   |
| CAL |           | 1694-356  |  |     |             |           |   |
| SP  |           | 1653-356  |  |     |             |           |   |
| ZDL |           | 1668-624  |  |     |             |           |   |

| FORMATION TESTS |               |                     |             |                |                           |     |                       |                      |       |         |
|-----------------|---------------|---------------------|-------------|----------------|---------------------------|-----|-----------------------|----------------------|-------|---------|
| NO.             | INTERVAL (ft) | FORMATION           | FLOW (mins) | SHUT IN (mins) | BOTTOM GAUGE IP/FP (psia) | SIP | MAX SURF PRESS (psia) | FLUID TO SURF (mins) | TC/BC | REMARKS |
|                 |               | No tests conducted. |             |                |                           |     |                       |                      |       |         |

**SECTION 2: DAILY GEOLOGICAL REPORTS**

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## WELL PROGRESS REPORT

### PENRYN 2

DATE: 08/08/01 (0600 Hours)

DEPTH: 125 m

PROGRESS: 125 m

DAYS FROM SPUD: 1

CURRENT OPERATION: DRILLING AHEAD 9 7/8" SURFACE HOLE.

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161

FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE: \$784,763

CASING DEPTH: 7.625" @ m

RIG: ODE 30

PROGRAMMED TD: 1734m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA<br>(2400 Hours) | Type: | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|--------------------------|-------|-----|-------|-----|-----|------------------|-------------------|--------|------|
|                          |       |     |       |     |     |                  |                   |        |      |

| BIT DATA<br>(2400 Hours) | PRESENT | No. | Make  | Type   | Size   | Hours | Meterage | Condition<br>IN HOLE |
|--------------------------|---------|-----|-------|--------|--------|-------|----------|----------------------|
|                          |         | 1   | SMITH | FGSS+2 | 9.875" | 13    | 63m      |                      |

| SURVEYS: | MD  | INCLINATION | AZIMUTH (T) | MD | INCLINATION | AZIMUTH (T) |
|----------|-----|-------------|-------------|----|-------------|-------------|
| 1        | 26m | 0.25°       | 37.9°       | 5  | 118m        | 2.25°       |
| 2        | 52m | 1.2°        | 166.9°      |    |             | 175.9°      |
| 3        | 63m | 2.5°        | 174.9       |    |             |             |
| 4        | 90m | 2.5°        | 176.9       |    |             |             |

#### PREVIOUS 24 HOURS OPERATIONS:

RIG TO DRILL. SPUD WELL @ 0630 HRS 07/08/01. DRILL FROM 14M TO 16M. JET FROM 16M TO 19M. DRILL FROM 19M TO 24M. CONTINUE JET AND DRILL FROM 24M TO 63M. RUN SURVEY @ 26M AND 53M. DRILL FROM 63M TO 125M. RUN SURVEY @ 63M AND 90M AND 118M.

#### ANTICIPATED OPERATIONS:

CONTINUE DRILLING TO 350M WITH SURVEYS. CONDUCT WIPER TRIP. RUN 7 5/8" CASING. CEMENT CASING.



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## WELL PROGRESS REPORT

### PENRYN 2

DATE: 08/08/01 (0600 Hours)

| FORMATION TOPS: | RT | -Subsea | H/L to Prog | H/L to Offsets |
|-----------------|----|---------|-------------|----------------|
|                 |    |         |             |                |
|                 |    |         |             |                |

#### HYDROCARBON SHOW SUMMARY

| INTERVAL | LITHOLOGY | GAS |
|----------|-----------|-----|
|----------|-----------|-----|

#### GEOLOGICAL SUMMARY

| INTERVAL                                | LITHOLOGY   | GAS |
|---|---|-----|
| 17m-40m<br>Rop:1.2-2.5<br>Ave:1.8mn/m   | <b>LIMESTONE</b><br>LIMESTONE: off white, yellow to orange in part, trace clear to translucent, occasional medium crystalline, common fossiliferous, shell fragments in part, trace coral.  | NIL |
| 40m-60m<br>Rop:1.8-3.5<br>Ave:2.2mn/m   | <b>INTERBEDDED LIMESTONE AND MARL</b><br>MARL: pale grey, trace pale brown, calcareous, trace fossil fragments, trace lithics, firm to soft, amorphous to subblocky.<br>LIMESTONE: light brown, yellow to orange, crystalline to fossiliferous, occasional shell fragments, hard to soft.                                 | NIL |
| 60m-100m<br>Rop:0.4-1.2<br>Ave:0.7mn/m  | <b>INTERBEDDED GELLIBRAND MARL AND LIMESTONE</b><br>MARL: grey to light grey, grey to medium grey in part, common arenaceous, occasional lithics, trace glauconite, occasional pyrite, firm to hard, subblocky.<br>MARL: grey to light grey, common fossil, abundant shell fragments, very soft to dispersive, amorphous. | NIL |
| 100m-125m<br>Rop:1.1-2.1<br>Ave:1.3mn/m | <b>MARL: light grey, common strongly calcareous, abundant fossil and shell fragments, nodular pyrite in part, very soft, amorphous.</b><br>MARL: grey, occasional light brown to medium brown, abundant of fossil, predominantly shell fragments, coral and forams in part, very soft to dispersive, amorphous.           | NIL |

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## WELL PROGRESS REPORT

### PENRYN 2

DATE: 09/08/01 (0600 Hours)

DEPTH: 357 m

PROGRESS: 232 m

DAYS FROM SPUD: 2

CURRENT OPERATION: RIG TO RUN 7 5/8" SURFACE CASING.

NOPE COST (P&A)\$1,277,248 FINAL FORECAST COST (P&A)\$  
(C&S)\$1,406,161 (C&S)\$

COST TO DATE: \$891,216

CASING DEPTH: 7 5/8" CASING SHOE @ m

RIG: ODE 30

PROGRAMMED TD: 1734m ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

|                                 |                 |            |             |     |            |                  |                          |                 |      |
|---------------------------------|-----------------|------------|-------------|-----|------------|------------------|--------------------------|-----------------|------|
| <b>MUD DATA</b><br>(2400 Hours) | Type:<br>AQUGEL | Wt:<br>8.9 | Visc:<br>45 | WL: | pH:<br>9.7 | K <sup>+</sup> : | Cl <sup>-</sup> :<br>150 | PV/YP:<br>14/22 | Rmf: |
|---------------------------------|-----------------|------------|-------------|-----|------------|------------------|--------------------------|-----------------|------|

|                                 |         |          |               |                |                |               |                  |                      |
|---------------------------------|---------|----------|---------------|----------------|----------------|---------------|------------------|----------------------|
| <b>BIT DATA</b><br>(2400 Hours) | PRESENT | No.<br>1 | Make<br>SMITH | Type<br>FGSS+2 | Size<br>9.875" | Hours<br>10.7 | Meterage<br>294m | Condition<br>IN HOLE |
|---------------------------------|---------|----------|---------------|----------------|----------------|---------------|------------------|----------------------|

| SURVEYS: | MD   | INCLINATION | AZIMUTH (T) |    | MD   | INCLINATION | AZIMUTH (T) |
|----------|------|-------------|-------------|----|------|-------------|-------------|
| 1        | 26m  | 0.25°       | 62.1°       | 8  | 203m | 1.70°       | 202°        |
| 2        | 52m  | 1.2°        | 191.1°      | 9  | 232m | 1.5°        | 201°        |
| 3        | 63m  | 2.5°        | 199.1       | 10 | 260m | 1.6°        | 202°        |
| 4        | 90m  | 2.5°        | 201.1       | 11 | 290m | 1.6°        | 199.2°      |
| 5        | 118m | 2.25°       | 200.1°      | 12 | 327m | 3.7°        | 140°        |
| 6        | 145m | 2.25°       | 198°        | 13 | 351m | 3.7°        | 138°        |
| 7        | 175m | 1.80°       | 204°        |    |      |             |             |

#### PREVIOUS 24 HOURS OPERATIONS:

DRILL FROM 125m TO 153m RUN SURVEY @ 145m. DRILL FROM 153 TO 181m RUN SURVEY @ 175m. DRILL FROM 181m TO 210m RUN SURVEY @ 203m. DRILL FROM 210m TO 239m RUN SURVEY @ 232m. DRILL FROM 239m TO 268m RUN SURVEY @ 260m. DRILL FROM 268m TO 296m RUN SURVEY @ 290m. DRILL FROM 296m TO 316m. JET FROM 316m TO 321m. DRILL FROM 321m TO 334m RUN SURVEY @ 327m. DRILL FROM 334m TO 357.3m RUN SURVEY @ 351m. CIRCULATE HOLE CLEAN. WIPER TRIP TO SURFACE AND BACK. PUMP HI-VISUAL SWEEP AND CIRCULATE HOLE CLEAN. PUMP SLUG AND PULL OUT OF HOLE. LAYING OUT THE 6 1/2" DC's AND 9 7/8" TOOLS. RIG TO RUN 30 JOINTS OF SURFACE CASING.

#### ANTICIPATED OPERATIONS:

RUN IN HOLE 7 5/8" CASING. CIRCULATE HOLE CLEAN. CEMENT CASING. NIPPLE UP AND TEST BRADENHEAD AND BLOW OUT PREVENTORS. EXPECT TO RESUME DRILLING MAIN HOLE BY LATE FRIDAY.

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## WELL PROGRESS REPORT

### PENRYN 2

DATE: 09/08/01 (0600 Hours)

| FORMATION TOPS: | RT | -Subsea | H/L to Prog | H/L to Offsets |
|-----------------|----|---------|-------------|----------------|
|                 |    |         |             |                |
|                 |    |         |             |                |

| HYDROCARBON SHOW SUMMARY |           |     |
|--------------------------|-----------|-----|
| INTERVAL                 | LITHOLOGY | GAS |
|                          |           |     |

| GEOLOGICAL SUMMARY                      |  |         |
|---|--|---------|
| INTERVAL                                | LITHOLOGY  | GAS     |
| 125m-357m<br>Rop:1.1-2.3<br>Ave:1.4mn/m | <b>MASSIVE MARL</b><br>MARL: pale to medium grey, pale brown, trace light orange, calcareous, abundant fossil fragments, occasional echinoid spines, common forams, corals in part, trace nodular pyrite, very soft to dispersive, commonly washing out, occasional sticky, amorphous. | NIL GAS |

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## WELL PROGRESS REPORT

### PENRYN 2

DATE: 10/08/01 (0600 Hours)

DEPTH: 357 m

PROGRESS: 0

DAYS FROM SPUD: 3

CURRENT OPERATION: NIPPLE UP BLOW OUT PREVENTORS.

NOPE COST (P&A)\$1,277,248 FINAL FORECAST COST (P&A)\$  
(C&S)\$1,406,161 (C&S)\$

COST TO DATE: \$955,045

CASING DEPTH: 7 5/8" CASING SHOE @ 355m.

RIG: ODE 30

PROGRAMMED TD: 1734m ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:  | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|--------------|--------|-----|-------|-----|-----|------------------|-------------------|--------|------|
| (2400 Hours) | AQUGEL | 8.9 | 45    |     | 9.7 |                  | 150               | 14/22  |      |

| BIT DATA     | PRESENT | No. | Make  | Type   | Size   | Hours | Meterage | Condition |
|--------------|---------|-----|-------|--------|--------|-------|----------|-----------|
| (2400 Hours) |         | 1   | SMITH | FGSS+2 | 9.875" | 23.7  | 357m     |           |

| SURVEYS: | MD   | INCLINATION | AZIMUTH (T) | MD | INCLINATION | AZIMUTH (T) |
|----------|------|-------------|-------------|----|-------------|-------------|
| 1        | 26m  | 0.25°       | 62.1°       | 8  | 203m        | 1.70°       |
| 2        | 52m  | 1.2°        | 191.1°      | 9  | 232m        | 1.5°        |
| 3        | 63m  | 2.5°        | 199.1       | 10 | 260m        | 1.6°        |
| 4        | 90m  | 2.5°        | 201.1       | 11 | 290m        | 1.6°        |
| 5        | 118m | 2.25°       | 200.1°      | 12 | 327m        | 3.7°        |
| 6        | 145m | 2.25°       | 198°        | 13 | 351m        | 3.7°        |
| 7        | 175m | 1.80°       | 204°        |    |             |             |

#### PREVIOUS 24 HOURS OPERATIONS:

RUN 30 JOINTS OF 7 5/8" CASING. RIG UP DOWELL SCHLUMBERGER LINES AND CEMENT HEAD. CIRCULATE HOLE CLEAN. MIX & PUMP 100 SKS OF LEAD CEMENT AT 11.5 PPG AND 85 SKS OF TAIL CEMENT AT 16.6 PPG. DISPLACE WITH 51 BARRELS OF MUD, BUMP PLUG AND PRESSURE TESTING CASING TO 2000 PSI. CEMENT CASING. RIG DOWN CEMENT HEAD. TOP UP JOB WITH DOWELL. FLUSH CEMENT LINES AND CONDUCTOR RISER AND FLOW LINES. WAIT ON CEMENT. NIPPLE UP BLOW OUT PREVENTORS.

#### ANTICIPATED OPERATIONS:

PRESSURE TEST BREDENHEAD AND BLOW OUT PREVENTORS. RUN IN HOLE WITH NEW BOTTOM HOLE ASSEMBLY AND 6.75" BIT. DRILL OUT SHOE TRACK AND 3m(10') OF NEW HOLE. PERFORM LOT TEST. DRILL 6.75" HOLE WITH SURVEY.

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A.C.N. 007 550 923

## WELL PROGRESS REPORT

### PENRYN 2

DATE: 11/08/01 (0600 Hours)

DEPTH: 357 m

PROGRESS: 0

DAYS FROM SPUD: 4

CURRENT OPERATION: DRILLING OUT CEMENT @ 331m.

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE: \$

CASING DEPTH: 7 5/8" CASING SHOE @ 355m.

RIG: ODE 30

PROGRAMMED TD: 1734m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:  | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|--------------|--------|-----|-------|-----|-----|------------------|-------------------|--------|------|
| (2400 Hours) | AQUGEL | 8.5 | 50    |     | 9.1 | 17800            | 18k               | 10/8   |      |

| BIT DATA     | LAST   | No. | Make     | Type   | Size   | Hours | Meterage | Condition           |
|--------------|--------|-----|----------|--------|--------|-------|----------|---------------------|
| (2400 Hours) | PRESEN | 1   | SMITH    | FGSS+2 | 9.875" | 23.7  | 357m     | 1-2-WT-A-E-I-NO- TD |
|              | T      | 2   | SECURITY | FM2465 | 6.75"  |       |          | IN HOLE             |

| SURVEYS: | MD   | INCLINATION | AZIMUTH (T) | MD | INCLINATION | AZIMUTH (T) |
|----------|------|-------------|-------------|----|-------------|-------------|
| 1        | 26m  | 0.25°       | 62.1°       | 8  | 203m        | 1.70°       |
| 2        | 52m  | 1.2°        | 191.1°      | 9  | 232m        | 1.5°        |
| 3        | 63m  | 2.5°        | 199.1       | 10 | 260m        | 1.6°        |
| 4        | 90m  | 2.5°        | 201.1       | 11 | 290m        | 1.6°        |
| 5        | 118m | 2.25°       | 200.1°      | 12 | 327m        | 3.7°        |
| 6        | 145m | 2.25°       | 198°        | 13 | 351m        | 3.7°        |
| 7        | 175m | 1.80°       | 204°        |    |             |             |

#### PREVIOUS 24 HOURS OPERATIONS:

CONTINUE PRESSURE TESTING. PRESSURE TEST CHOCK MANIFOLD. INSTALL W/BUSHING. PRESSURE TEST KELLY COCKS. PICK UP AND MAKE UP BOTTOM HOLE ASSEMBLY AND RUN IN HOLE. LAY OUT 10 DRILL PIPES AND CONTINUE RUN IN HOLE. PICK UP KELLY AND PRESSURE TEST PIPE RAMS AND OUTER KILL LINE VALVE. NOT ABLE TO GET TEST. WORK ON KILL LINE. PRESSURE TEST PIPE RAMS AND OUTER KILL LINE VALVE TO 200 AND 2000psi. ANNULAR TO 200 TO 1500psi. RUN IN HOLE AND DRILL OUT CEMENT AND PLUGS FROM 326m.

#### ANTICIPATED OPERATIONS:

DRILL OUT SHOE TRACK @ 355.3m AND 3m(10') OF NEW HOLE TO 360m. CIRCULATE HOLE CLEAN AND PREPARE THE PRESSURE TEST UNIT. PERFORM LEAK OFF TEST. DRILL AHEAD AND DISPLACE TO NEW MUD. DRILL 6.75" HOLE WITH SURVEYS.

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**WELL PROGRESS REPORT****PENRYN 2****DATE: 12/08/01 (0600 Hours)****DEPTH: 833m****PROGRESS: 476m****DAYS FROM SPUD: 5****CURRENT OPERATION: DRILLING AHEAD 6 3/4" HOLE IN THE PAARATTE FORMATION.****NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161****FINAL FORECAST COST (P&A)\$  
(C&S)\$****COST TO DATE: \$****CASING DEPTH: 355m (7 5/8" CASING SHOE)****RIG: ODE 30****PROGRAMMED TD: ~1733m****ROTARY TABLE: 133.56m****GROUND LEVEL: 128.86m**

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf:        |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|-------------|
| (2400 Hours) | KCl/PHPA | 8.7 | 45    | 8.5 | 9.4 | -                | 17.5k             | 45/10  | No Filtrate |

| BIT DATA     | PRESENT | No. | Make  | Type    | Size  | Hours | Meterage | Condition          |
|--------------|---------|-----|-------|---------|-------|-------|----------|--------------------|
| (2400 Hours) | LAST    | 1   | SMITH | FGSS+2C | 9.875 | 23.7  | 357      | 1-2-WT-A-E-I-NO-TD |

|    | MD(m) | INCLINATION | AZIMUTH (T) |    | MD(m) | INCLINATION | AZIMUTH |
|----|-------|-------------|-------------|----|-------|-------------|---------|
| 14 | 382   | 3.2°        | 142         | 19 | 564   | 2.75°       | 127     |
| 15 | 411   | 3.1°        | 138         | 20 | 621   | 2.6°        | 125     |
| 16 | 449   | 2.8°        | 129         | 21 | 680   | 2.75°       | 127     |
| 17 | 478   | 2.9°        | 125         | 22 | 737   | 3.25°       | 122     |
| 18 | 526   | 2.7°        | 124         | 23 | 795   | 2.8°        | 118     |

**TVD: 794m Maximum Offset: 29m 145° True North****PREVIOUS 24 HOURS OPERATIONS:**

DRILL OUT CEMENT AND PLUGS FROM 326m AND NEW HOLE TO 360m. CIRCULATE HOLE CLEAN, PERFORM LEAK OFF TEST, 17.2 ppg EMW. DRILL AHEAD 6 3/4" HOLE WITH SURVEYS FROM 360m TO 833m.

**ANTICIPATED OPERATIONS:**

DRILL AHEAD 6 3/4" HOLE (PICK UP DIRECTIONAL ASSEMBLY IF REQUIRED).

908042 015

**Santos**

A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 12/08/01 (0600 hours)

| FORMATION TOPS |             |             |                 |                    |                          |                |
|----------------|-------------|-------------|-----------------|--------------------|--------------------------|----------------|
| FORMATION      | MDRT<br>(m) | MDSS<br>(m) | H/L TO<br>PROG. | H/L TO<br>PENRYN 1 | H/L TO FENTON<br>CREEK 1 | H/L TO MYLOR 1 |
| MEPUNGA        | 378         | 244.5       | 7.5mH           | 27.6m H            | 86.1m H                  | 112.3m H       |
| DILWYN         | 512         | 378.5       | Not Prog        | 34.6 m H           | 87.6 m H                 | 104.3 m H      |
| PEMBER MDST    | 662         | 528.5       | Not Prog        | 23.1 m H           | 63.1 m H                 | 87.3 m H       |
| PEBBLE POINT   | 728         | 594.5       | 4.5m L          | 31.6 m H           | 69.6 m H                 | 89.8 m H       |
| PAARRATTE      | 785         | 651.5       | Not Prog        | 41.1 m H           | 155.0 m H                | 84.3 m H       |

| HYDROCARBON SHOW SUMMARY |           |     |
|--------------------------|-----------|-----|
| INTERVAL                 | LITHOLOGY | GAS |
|                          |           |     |

| GEOLOGICAL SUMMARY                           |  |                        |
|--|--|------------------------|
| INTERVAL                                     | LITHOLOGY  | GAS                    |
| 355 – 378m<br>ROP: 0.5 – 2.2<br>Av: 0.4 mn/m | <b>NARRAWATURK MARL</b><br><u>MARL</u> : Pale to medium grey, light green/grey, light brown, light olive grey, calcareous, abundant fossil and shell fragments, common forams, inoceramus, corals, abundant pyrite, soft to very dispersive, sticky, amorphous.  | No Gas                 |
| 378 – 512m<br>ROP: 0.2 – 10.7<br>Av: 2 mn/m  | <b>MEPUNGA FORMATION</b><br><b>SANDSTONE WITH MINOR CLAYSTONE</b><br><u>SANDSTONE</u> : Medium brown, occasionally yellow/brown, fine, trace coarse, moderate to poor sorting, sub angular, trace iron staining, trace fossil fragments, trace to common disseminated pyrite, commonly loose, poor inferred porosity, no fluorescence.<br><u>CLAYSTONE</u> : Medium brown, argillaceous, trace pyrite, trace lithics, trace calcareous fragments, soft to dispersive, amorphous in part.   | No Gas                 |
| 512 – 630<br>ROP: 0.8 – 17.1<br>Av: 2.1 mn/m | <b>DILWYN FORMATION</b><br><b>INTERBEDDED SANDSTONE AND CLAYSTONE</b><br><u>SANDSTONE</u> : Translucent, opaque, pale grey/blue, fine to very coarse pebbles, poor sorting, sub rounded to rounded, trace disseminated and nodular pyrite, rare mica, loose, friable to good inferred porosity, no fluorescence.<br><u>CLAYSTONE</u> : Dark brown, argillaceous grading to SILTSTONE in part, common micromicaceous and lithics, very soft to dispersive, amorphous.   | No Gas                 |
| 630 – 662<br>ROP: 0.9 – 3.1<br>Av: 1.7 mn/m  | <b>INTERBEDDED SANDSTONE, SILTSTONE AND CLAYSTONE</b><br><u>SANDSTONE</u> : Translucent, opaque, pale grey, pale blue grey, coarse to very coarse, pebbles, poor sorting, rounded to sub rounded, loose, fair inferred porosity, no fluorescence.<br><u>SILTSTONE</u> : Light to medium brown, medium grey/green, dark green, argillaceous grading to CLAYSTONE, common glauconite and lithics, trace carbonaceous fragments, very soft, dispersive, occasionally firm, amorphous to sub blocky.<br><u>CLAYSTONE</u> : Medium brown, common micromicaceous, dispersive, amorphous. | 0 – 2 Units<br>100% C1 |

908042 016

# Santos

A.B.N. 80 007 550 923

## WELL PROGRESS REPORT

### PENRYN 2

DATE: 12/08/01 (0600 hours)

#### GEOLOGICAL SUMMARY

| INTERVAL                                    | LITHOLOGY   | GAS    |
|---|---|--------|
| 662 – 728<br>ROP: 0.9 – 3.1<br>Av: 1.3 mn/m | <b>PEMBER MUDSTONE</b><br><b>INTERBEDDED CLAYSTONE, SILTSTONE AND SANDSTONE</b><br><u>SANDSTONE</u> : Translucent, opaque, pale grey, pale blue grey, coarse to very coarse, pebbles, poor sorting, rounded to sub rounded, trace to common pyrite fragments, loose, fair inferred porosity, no fluorescence.<br><u>SILTSTONE</u> : Dark brown, dark grey/brown, argillaceous grading to <b>CLAYSTONE</b> , common micromicaceous, trace lithics, very soft, dispersive, amorphous to sub blocky.<br><u>CLAYSTONE</u> : Medium to dark brown, common micromicaceous, dispersive, amorphous.   | No Gas |
| 728 – 785<br>ROP: 0.8 – 4.1<br>Av: 2.0 mn/m | <b>PEBBLE POINT FORMATION</b><br><b>SANDSTONE WITH MINOR CLAYSTONE AND SILTSTONE.</b><br><u>SANDSTONE</u> : Translucent, pale yellow to pale brown, fine to coarse, poor sorting, sub rounded, common pyrite fragments, trace iron staining, loose, fair inferred porosity, no fluorescence.<br><u>SILTSTONE</u> : Dark brown, argillaceous grading to <b>CLAYSTONE</b> , trace lithics, trace micromicaceous and glauconite fragments, very soft, amorphous to sub blocky.<br><u>CLAYSTONE</u> : Dark green, red/brown, glauconite, trace micromicaceous, trace lithics, firm to sub blocky. | No Gas |
| 785 – 833<br>ROP: 1.5-6.5<br>Av: 3.6 mn/m   | <b>PAARATTE FORMATION</b><br><b>SANDSTONE WITH MINOR CLAYSTONE.</b><br><u>SANDSTONE</u> : Colourless to translucent, opaque, pale grey, pale yellow, fine to very coarse, pebbles, poor sorting, sub rounded, loose, fair inferred porosity, no fluorescence.<br><u>CLAYSTONE</u> : Light to medium grey, argillaceous grading to <b>SILTSTONE</b> , common carbonaceous specks, micromicaceous, trace disseminated pyrite, very soft, amorphous to sub blocky.   | No Gas |



908042 017

**Santos**

A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2****DATE: 13/08/01 (0600 Hours)****DEPTH: 1110 m****PROGRESS: 277m****DAYS FROM SPUD: 6****CURRENT OPERATION: DRILLING AHEAD 6 3/4" HOLE IN THE PAARATTE FORMATION.****NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161****FINAL FORECAST COST (P&A)\$  
(C&S)\$****COST TO DATE: \$1,076,943****CASING DEPTH: 355m (7 5/8" CASING SHOE)****RIG: ODE 30****PROGRAMMED TD: ~1733m****ROTARY TABLE: 133.56m****GROUND LEVEL: 128.86m**

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf:        |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|-------------|
| (2400 Hours) | KCI/PHPA | 8.9 | 45    | 7.5 | 9.4 | 20.4k            | 20500             | 13/12  | No Filtrate |

| BIT DATA     | PRESENT | No. | Make | Type   | Size   | Hours | Meterage | Condition           |
|--------------|---------|-----|------|--------|--------|-------|----------|---------------------|
| (2400 Hours) | LAST    | 2   | SEC  | FM2465 | 6 3/4" | 23    | 731      | 2-3-CT-N-X-I-WT-BHA |
|              |         | 3   | HU   | STR90D | 6 3/4" | 1.3   | 22       | In Hole             |

|    | MD(m) | INCLINATION | AZIMUTH (T) |    | MD(m) | INCLINATION | AZIMUTH |
|----|-------|-------------|-------------|----|-------|-------------|---------|
| 24 | 853   | 2.8°        | 120         | 28 | 1073  | 3.44°       | 102.8   |
| 25 | 910   | 3.0°        | 116         | 29 | 1083  | 3.52°       | 101.8   |
| 26 | 968   | 3.1°        | 113         | 30 | 1093  | 3.27°       | 109.2   |
| 27 | 1026  | 3.5°        | 110         |    |       |             |         |

**TVD: 1093m Maximum Offset: 43.6m 134° True North****PREVIOUS 24 HOURS OPERATIONS:**

DRILL AHEAD 6 3/4" HOLE WITH SURVEYS FROM 833m TO 1087 m. RUN HI-VIS WEEP, CIRCULATE HOLE CLEAN AND PUMP SLUG. PULL OUT OF HOLE TO PICK UP DIRECTIONAL ASSEMBLY AND MWD FOR CORRECTION RUN. LAY DOWN TOOLS, NMDC AND 1 ONE DRILL COLLAR. MAKE UP DOWN HOLE MOTOR AND MWD. RUN IN HOLE WITH DOWN HOLE MOTOR. REAM AND WASH BRIDGE FROM 1059-1110m, SLIDING/ROTATING TO CORRECT DIRECTION. DRILL AHEAD 6 3/4" HOLE TO TD.

**ANTICIPATED OPERATIONS:**

STEER WELL TO TARGET, DRILL AHEAD 6 3/4" HOLE TO T.D. WITH DOWN HOLE MOTOR IF ACCEPTABLE PENETRATION RATES ARE MAINTAINED.

**Santos**

A.B.N. 80 007 550 923

908042 018

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 13/08/01 (0600 hours)

| FORMATION TOPS |             |             |                 |                    |                          |                |
|----------------|-------------|-------------|-----------------|--------------------|--------------------------|----------------|
| FORMATION      | MDRT<br>(m) | MDSS<br>(m) | H/L TO<br>PROG. | H/L TO<br>PENRYN 1 | H/L TO FENTON<br>CREEK 1 | H/L TO MYLOR 1 |
| PEBBLE POINT   | 728         | 594.5       | 4.5m L          | 31.6 m H           | 69.6 m H                 | 89.8 m H       |
| PAARRATTE      | 785         | 651.5       | Not Prog        | 41.1 m H           | 155.0 m H                | 84.3 m H       |

| HYDROCARBON SHOW SUMMARY |           |     |
|--------------------------|-----------|-----|
| INTERVAL                 | LITHOLOGY | GAS |
|                          |           |     |

| GEOLOGICAL SUMMARY                          |   |                      |
|---|---|----------------------|
| INTERVAL                                    | LITHOLOGY   | GAS                  |
| 833 - 890<br>ROP: 0.6-5.0<br>Ave: 2.8 mn/m  | <p><b>SANDSTONE WITH MINOR SILTSTONE</b><br/> <u>SANDSTONE</u>: Colourless to translucent, pale brown, light grey, coarse to very coarse, poor sorting, sub rounded, trace to common pyrite nodules, trace pyrite coated sand grains, loose, fair inferred porosity, no fluorescence.<br/> <u>SILTSTONE</u>: Off white to light grey, medium brown, argillaceous grading to CLAYSTONE, common arenaceous inclusions, abundant lithics, very soft, dispersive, amorphous to rarely sub blocky.</p>           | No Gas               |
| 890 - 930<br>ROP: 0.7-1.8<br>Ave: 1.2 mn/m  | <p><b>SANDSTONE WITH MINOR CLAYSTONE</b><br/> <u>SANDSTONE</u>: Colourless to translucent, pale brown, light grey, common smoky quartz fragments, coarse to very coarse, poor sorting, sub rounded, trace to common pyrite nodules, loose, fair inferred porosity, no fluorescence.<br/> <u>CLAYSTONE</u>: Light to medium grey, medium grey brown, common micromicaceous and lithics, very soft, dispersive, amorphous.</p>  | No Gas               |
| 930 - 990<br>ROP: 0.6-3.2<br>Ave: 1.7 mn/m  | <p><b>SANDSTONE WITH MINOR SILTSTONE</b><br/> <u>SANDSTONE</u>: Colourless to translucent, pale brown, light grey, coarse to very coarse, poor sorting, sub rounded to rounded, trace pyrite nodules, loose, fair inferred porosity, trace dim, green, pinpoint fluorescence, no cut.<br/> <u>SILTSTONE</u>: Light grey brown, medium brown, argillaceous grading to CLAYSTONE, abundant lithics, trace carbonaceous fragments, very soft, dispersive, amorphous to rarely sub blocky.</p>                  | No Gas               |
| 990 - 1055<br>ROP: 0.7-4.1<br>Ave: 1.9 mn/m | <p><b>INTERBEDDED SANDSTONE AND CLAYSTONE</b><br/> <u>SANDSTONE</u>: Translucent, light grey, light blue grey, common smoky quartz fragments, fine to very coarse, poor sorting, trace pyrite nodules, loose, clean, fair inferred porosity, no fluorescence.<br/> <u>CLAYSTONE</u>: Light to medium grey, medium brown, argillaceous grading to SILTSTONE in part, common carbonaceous specks, micromicaceous and lithics, very soft to occasionally firm, dispersive, amorphous to rarely sub blocky.</p> | 0-3 Units<br>100% C1 |

908042 019

**Santos**

A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 13/08/01 (0600 hours)

**GEOLOGICAL SUMMARY**

| INTERVAL                                      | LITHOLOGY  | GAS    |
|---|--|--------|
| 1055 - 1087<br>ROP: 1.0-28.4<br>Ave: 2.8 mn/m | <b>SANDSTONE WITH MINOR CLAYSTONE</b><br><u>SANDSTONE</u> : (1) Translucent, light grey, light blue grey, common smoky quartz fragments, fine to very coarse, poor sorting, loose, clean, fair inferred porosity, no fluorescence.<br><u>SANDSTONE</u> : (2) Off white to light grey, very fine grading to arenaceous SILTSTONE, well sorted, sub rounded, abundant off white to light grey argillaceous matrix, trace carbonaceous specks, feldspar, glauconite and lithics, friable, poor visual porosity, no fluorescence.<br><u>CLAYSTONE</u> : Light to medium grey, medium brown, argillaceous grading to SILTSTONE in part, common carbonaceous specks, micromicaceous and lithics, very soft to occasionally firm, dispersive, amorphous to rarely sub blocky.   | No Gas |
| 1087 - 1110<br>ROP: 1.8-6<br>Ave: 2.9 mn/m    | <b>SANDSTONE WITH MINOR SILTSTONE AND CLAYSTONE</b><br><u>SANDSTONE</u> : (1) Off white to light grey, very fine grading to arenaceous SILTSTONE, well sorted, sub rounded, abundant off white to light grey argillaceous matrix, trace carbonaceous specks, feldspar, glauconite and lithics, friable, poor visual porosity, no fluorescence.<br><u>SANDSTONE</u> : (2) Translucent, light grey, common smoky quartz fragments, fine to very coarse, poor sorting, trace pyrite nodules, loose, clean, fair inferred porosity, no fluorescence.<br><u>CLAYSTONE</u> : Light to medium grey, medium brown, argillaceous grading to SILTSTONE in part, common carbonaceous specks, micromicaceous and lithics, very soft to occasionally firm, dispersive, amorphous to rarely sub blocky.<br><u>SILTSTONE</u> : Medium to dark grey, argillaceous grading to CLAYSTONE, trace carbonaceous specks and glauconite, trace micromicaceous, firm to moderately hard, sub blocky to blocky. | No Gas |

**Santos**

A.B.N. 80 007 550 923

908042 020

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 14/08/01 (0600 Hours)

DEPTH: 1283 m

PROGRESS: 173m

DAYS FROM SPUD: 7

CURRENT OPERATION: RUNNING IN HOLE WITH NEW BIT TO DRILL AHEAD IN THE SKULL CREEK MUDSTONE.

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE: \$

CASING DEPTH: 355m (7 5/8" CASING SHOE)

RIG: ODE 30

PROGRAMMED TD: ~1733m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf:         |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|--------------|
| (2400 Hours) | KCI/PHPA | 9.0 | 44    | 7.5 | 9.0 | 20.4k            | 20.5k             | 12/12  | 0.22Ω @ 68°F |

| BIT DATA     | PRESENT | No. | Make | Type   | Size   | Hours | Meterage | Condition  |
|--------------|---------|-----|------|--------|--------|-------|----------|------------|
| (2400 Hours) | LAST    | 3   | HU   | STR90D | 6 3/4" | 14.4  | 196      | Not Graded |

|    | MD(m)   | INCLINATION | AZIMUTH (T) |    | MD(m)   | INCLINATION | AZIMUTH |
|----|---------|-------------|-------------|----|---------|-------------|---------|
| 30 | 1093.07 | 3.27°       | 109         | 40 | 1188.57 | 4.06°       | 215.9   |
| 31 | 1102.34 | 2.95°       | 132.12      | 41 | 1198.29 | 4.00°       | 221.42  |
| 32 | 1112.12 | 3.09°       | 159.92      | 42 | 1207.81 | 3.89°       | 229.52  |
| 33 | 1121.82 | 3.39°       | 171.76      | 43 | 1217.46 | 3.92°       | 231.80  |
| 34 | 1131.53 | 3.52°       | 184.64      | 44 | 1227.20 | 3.88°       | 232.92  |
| 35 | 1141.26 | 3.63°       | 199.16      | 45 | 1236.99 | 3.86°       | 233.51  |
| 36 | 1150.98 | 3.9°        | 208.13      | 46 |         | .           |         |
| 37 | 1159.94 | 3.93°       | 216.41      | 47 |         | .           |         |
| 38 | 1169.1  | 3.94°       | 218.19      | 58 |         |             |         |
| 39 | 1178    | 3.98°       | 217.55      | 59 |         |             |         |

TVD: 1235.44m Maximum Offset: 46.77m 143.42° True North

**PREVIOUS 24 HOURS OPERATIONS:**

DRILL AHEAD 6 3/4" HOLE WITH SURVEYS FROM 1110 m TO 1283 m. PUMP SLUG AND PULL OUT OF HOLE. LAY DOWN DOWNHOLE MOTOR AND MWD. MAKE UP PDC BIT AND BOTTOM HOLE ASSEMBLY. RUN IN HOLE. SLIP LINE. RUN IN HOLE.

**ANTICIPATED OPERATIONS:**

DRILL AHEAD TO T.D.

908042 021

**Santos**

A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 14/08/01 (0600 hours)

| FORMATION TOPS |          |          |              |                 |                       |                |
|----------------|----------|----------|--------------|-----------------|-----------------------|----------------|
| FORMATION      | MDRT (m) | MDSS (m) | H/L TO PROG. | H/L TO PENRYN 1 | H/L TO FENTON CREEK 1 | H/L TO MYLOR 1 |
| SKULL CREEK    | 1152     | 1018.5   | 20.5 m H     | 34.1 m H        | 93.0 m H              | 223.0 m H      |

| HYDROCARBON SHOW SUMMARY |           |     |
|--------------------------|-----------|-----|
| INTERVAL                 | LITHOLOGY | GAS |
|                          |           |     |

| GEOLOGICAL SUMMARY                          |  |        |
|---|--|--------|
| INTERVAL                                    | LITHOLOGY  | GAS    |
| 1110-1140<br>ROP: 1.6-5.2<br>Ave: 2.6 mn/m  | <p><b>SANDSTONE WITH MINOR SILTSTONE</b><br/> <u>SANDSTONE</u>: Colourless to translucent, fine to medium, minor coarse, moderately sorting, sub rounded to rounded, trace siliceous cement, trace carbonaceous and glauconitic fragments, trace pyrite nodules, friable to generally loose, fair inferred porosity, no fluorescence.<br/> <u>SILTSTONE</u>: Light grey, grey brown, medium dark brown, dark grey in part, argillaceous grading to <b>CLAYSTONE</b>, arenaceous grading to very fine <b>SANDSTONE</b>, trace carbonaceous fragments and micromicaceous, very soft to firm, dispersive in part, amorphous to sub blocky.</p>  | No Gas |
| 1140-1152<br>ROP: 1.6-17.0<br>Ave: 6.0 mn/m | <p><b>SANDSTONE WITH MINOR SILTSTONE</b><br/> <u>SANDSTONE</u>: Colourless to translucent, white, dominantly very fine grading to arenaceous <b>SILTSTONE</b>, occasionally fine to medium, moderately well sorted, sub angular to sub rounded, abundant white kaolinitic matrix, common carbonaceous fragments, friable, poor visual porosity, trace to 5% dim green/yellow spotted fluorescence, no cut.<br/> <u>SILTSTONE</u>: Medium grey, medium grey brown, argillaceous grading to <b>CLAYSTONE</b> in part, common micromicaceous and lithics, trace disseminated pyrite, very soft, dispersive, locally firm to moderately hard, amorphous to sub blocky.</p>   | No Gas |
| 1152-1180<br>ROP: 1.1-30.0<br>Ave: 4.9 mn/m | <p><b>SKULL CREEK MUDSTONE</b><br/> <b>INTERBEDDED SANDSTONE AND SILTSTONE</b><br/> <u>SANDSTONE</u>: (1) Light grey, light grey green, very fine grading to arenaceous <b>SILTSTONE</b>, well sorted, sub angular to sub rounded, abundant light grey green argillaceous matrix, common carbonaceous specks, lithics and glauconite, friable, poor visual porosity, no fluorescence.<br/> <u>SANDSTONE</u>: (2) Colourless to translucent, very fine to fine, trace medium, well sorted, sub rounded to rounded, trace pyrite coated grains, loose, clean, fair inferred porosity, no fluorescence.<br/> <u>SILTSTONE</u>: Light to dominantly dark grey/ dark grey brown, argillaceous grading to <b>CLAYSTONE</b> in part, trace arenaceous, common carbonaceous fragments, micromicaceous and lithics, very soft to firm, amorphous to sub blocky.</p> | No Gas |

908042 022

**Santos**

A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 14/08/01 (0600 hours)

**GEOLOGICAL SUMMARY**

| INTERVAL                                    | LITHOLOGY  | GAS           |
|---|--|---------------|
| 1180-1230<br>ROP: 1.5-9.0<br>Ave: 3.9 mn/m  | <b>SILTSTONE WITH MINOR SANDSTONE</b><br><u>SILTSTONE</u> : Medium to dark brown, medium grey brown, argillaceous grading to <b>CLAYSTONE</b> in part, trace carbonaceous fragments, micromicaceous, disseminated pyrite and lithics, very soft, dispersive, amorphous.<br><u>SANDSTONE</u> : Colourless to translucent, fine to very coarse, predominantly medium, moderately well sorted, sub rounded to rounded, trace weak siliceous cement, rare glauconite grains, loose, fair inferred porosity, no fluorescence.   | <b>No Gas</b> |
| 1230-1283<br>ROP: 1.7-10.0<br>Ave: 4.9 mn/m | <b>SILTSTONE WITH MINOR SANDSTONE</b><br><u>SANDSTONE</u> : Light grey, light grey green, very fine grading to arenaceous <b>SILTSTONE</b> , well sorted, sub angular to sub rounded, abundant light grey green argillaceous matrix, common carbonaceous specks, lithics and glauconite, friable, poor visual porosity, no fluorescence.<br><u>SILTSTONE</u> : Medium to dark brown, medium grey brown, argillaceous grading to <b>CLAYSTONE</b> in part, trace carbonaceous fragments, micromicaceous, disseminated pyrite and lithics, very soft to firm, amorphous to sub blocky. | <b>No Gas</b> |

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A.B.N. 80 007 550 923

**WELL PROGRESS REPORT****PENRYN 2****DATE: 15/08/01 (0600 Hours)****DEPTH:** 1703 m**PROGRESS:** 420m**DAYS FROM SPUD:** 8**CURRENT OPERATION:** RIGGING TO RUN WIRELINE LOGS.**NOPE COST (P&A)**\$1,277,248  
(C&S)\$1,406,161**FINAL FORECAST COST (P&A)**\$  
(C&S)\$**COST TO DATE:****CASING DEPTH:** 355m (7 5/8" CASING SHOE).**RIG:** ODE 30**PROGRAMMED TD:** ~1733m**ROTARY TABLE:** 133.56m**GROUND LEVEL:** 128.86m

| <b>MUD DATA</b> | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|-----------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|------|
| (2400 Hours)    | KCI/PHPA | 9.1 | 44    | 7.0 | 9.5 | 19.9k            | 19.5k             | 12/13  |      |

| <b>BIT DATA</b> | PRESENT | No. | Make | Type   | Size   | Hours | Meterage | Condition           |
|-----------------|---------|-----|------|--------|--------|-------|----------|---------------------|
| (2400 Hours)    | LAST    | 3   | HU   | STR90D | 6 3/4" | 14.4  | 196      | 1-1-WT-A-E-I-NO-BHA |

|    | <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH (T)</u> |    | <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH</u> |
|----|--------------|--------------------|--------------------|----|--------------|--------------------|----------------|
| 45 | 1236.99      | 3.86°              | 233.51             | 50 | 1397         | 4.2°               | 234            |
| 46 | 1246.71      | 3.86°              | 230.8              | 51 | 1450         | 4.3°               | 234            |
| 47 | 1256.46      | 3.92°              | 231.85             | 52 | 1594         | 5.9°               | 229            |
| 48 | 1265.65      | 3.85°              | 231.36             | 53 | 1685         | 7.25°              | 221            |
| 49 | 1338         | 3.7°               | 234                |    |              |                    |                |

TVD: 1681.7m Maximum Offset: 61.8m 181° True North

**PREVIOUS 24 HOURS OPERATIONS:**

DRILL AHEAD FROM 1283m TO 1703m. REACHED TD @ 2145 HOURS, 14/08/01. CIRCULATE HOLE CLEAN. WIPER TRIP TO 900m AND BACK TO BOTTOM. BREAK CIRCULATION AND WASH TO BOTTOM FROM 1672m. CIRCULATE HOLE CLEAN, PUMP SLUG, DROP SURVEY. PULL OUT OF HOLE.

**ANTICIPATED OPERATIONS:**

RUN IN HOLE FOR LOGGING RUN 1: GRAND SLAM. PULL OUT OF HOLE, RUN IN HOLE FOR LOGGING RUN 2: FMT SURVEY.

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908042 024

**WELL PROGRESS REPORT****PENRYN 2**

DATE: 15/08/01 (0600 hours)

| FORMATION TOPS        |          |          |              |                 |                       |                |
|-----------------------|----------|----------|--------------|-----------------|-----------------------|----------------|
| FORMATION             | MDRT (m) | MDSS (m) | H/L TO PROG. | H/L TO PENRYN 1 | H/L TO FENTON CREEK 1 | H/L TO MYLOR 1 |
| SKULL CREEK           | 1152     | 1018.5   | 20.5m H      | 34.1m H         | 93.0m H               | 223.0m H       |
| NULLAWARR<br>E GRNSND | 1317     | 1183.5   | 31.5m H      | 38.6m H         | 53.6m H               | 102.3m H       |
| BELFAST<br>MUDSTONE   | 1466     | 1332.5   | 5.5m H       | 32.1m H         | 2.4m L                | 77.8m H        |
| FLAXMANS              | 1562     | 1428.5   | NP           | 107.1m H        | 9m H                  | 120.3m H       |
| WAAREE                | 1582.5   | 1449     | 25m H        | 107.1m H        | 16.5m H               | 120.3m H       |
| EUMERALLA             | 1634     | 1500.5   | 37.5m H      | 136.6m H        | 67.6m H               | 158.3m H       |
| TD                    | 1703     | 1569.5   | 30.5m H      |                 |                       |                |

| HYDROCARBON SHOW SUMMARY                                      |   |  |
|---|---|--|
| <b>INTERVAL</b><br>1590-1612<br>ROP: 0.8-1.5<br>Ave: 1.1 mn/m | <b>LITHOLOGY</b><br><b>WAARRE FORMATION : GAS SHOW</b><br><u>SANDSTONE</u> : Colourless to translucent, frosted, opaque, pale grey, minor white, very fine to very coarse, poor sorting, angular to sub rounded, trace siliceous cement, loose, clean, fair to good inferred porosity, no fluorescence.   | <b>GAS</b><br>1675 Units<br>Max.<br>BG: 100 Units<br>88/6/4/2% |
| 1616-1628<br>ROP: 0.8-1.2<br>Ave: 1.0 mn/m                    | <b>WAARRE FORMATION : GAS SHOW</b><br><u>SANDSTONE</u> : (1) Translucent, white, medium to very coarse, poor sorting, angular to sub rounded, trace siliceous cement, trace pyrite cement, friable to generally loose, fair inferred porosity, no fluorescence.<br><u>SANDSTONE</u> : (2) White to off white, very fine to fine, well sorted, sub angular to sub rounded, moderately strong siliceous cement, common white kaolinitic matrix, trace carbonaceous fragments and lithics, moderately hard to friable aggregates, poor visual porosity, no fluorescence.   | 1203 Units<br>Max.<br>BG: 100 Units<br>88/6/4/2%               |
| 1653-1665<br>ROP: 0.9-1.5<br>Ave: 1.2 mn/m                    | <b>EUMERALLA FORMATION : TRACE OIL SHOW</b><br><u>SANDSTONE</u> : White to light green, very fine grading to arenaceous<br><u>SILTSTONE</u> in part, well sorted, moderately strong siliceous cement, trace calcareous cement, abundant white kaolinitic matrix, abundant glauconite fragments, trace carbonaceous fragments and micromicaceous, moderately hard to dominantly friable aggregates, poor visual porosity, trace fluorescence.<br><u>Fluorescence</u> : Dim to moderately bright yellow / white pinpoint fluorescence, no visible cut, thin ring residue. | 300 Units Max.<br>BG: 80 Units<br>89/7/3/1%                    |



908042 025

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**WELL PROGRESS REPORT****PENRYN 2**

DATE: 15/08/01 (0600 hours)

**GEOLOGICAL SUMMARY**

| INTERVAL                                   | LITHOLOGY   | GAS                    |
|--|---|------------------------|
| 1283-1317<br>ROP: 0.5-1.6<br>Ave: 0.7 mn/m | <b>SILTSTONE WITH MINOR SANDSTONE</b><br><u>SANDSTONE</u> : Light grey, light grey green, very fine grading to arenaceous SILTSTONE, well sorted, sub angular to sub rounded, abundant light grey green argillaceous matrix, common carbonaceous specks, lithics and glauconite, friable, poor visual porosity, no fluorescence.<br><u>SILTSTONE</u> : Medium to dark brown, medium grey brown, argillaceous grading to CLAYSTONE in part, trace carbonaceous fragments, micromicaceous, disseminated pyrite and lithics, very soft to firm, amorphous to sub blocky.   | No Gas                 |
| 1317-1466<br>ROP: 0.5-9.0<br>Ave: 1.1 mn/m | <b>NULLAWARRE GREENSAND SANDSTONE WITH MINOR CLAYSTONE</b><br><u>SANDSTONE</u> : Yellow, orange, red brown to brown, fine to coarse, dominantly medium, moderately well sorted, sub rounded to rounded, locally common yellow to orange clay matrix, common iron oxide staining, trace rounded glauconite fragments with occasional pyrite coating, trace pyrite fragments, trace rounded black lithics, friable to generally loose, fair inferred porosity, no fluorescence.<br><u>CLAYSTONE</u> : Yellow to orange, ochre, trace carbonaceous specks and lithics, very soft, dispersive, amorphous.   | No Gas                 |
| 1466-1510<br>ROP: 0.6-3.0<br>Ave: 0.8 mn/m | <b>BELFAST FORMATION INTERBEDDED CLAYSTONE AND SANDSTONE</b><br><u>CLAYSTONE</u> : Olive grey, grey brown, light grey, grey green, grading to SILTSTONE in part, common carbonaceous specks, trace glauconite and lithics, very soft to firm, sub blocky.<br><u>SANDSTONE</u> : Colourless to translucent, pale yellow to orange, fine to medium grains, moderately well sorted, sub rounded to sub angular, minor yellow to orange clay matrix, trace carbonaceous specks, friable to generally loose, fair inferred porosity, no fluorescence.  | 0-10 Units<br>100% C1  |
| 1510-1562<br>ROP: 0.7-1.8<br>Ave: 0.8 mn/m | <b>CLAYSTONE WITH MINOR SANDSTONE AND SILTSTONE</b><br><u>CLAYSTONE</u> : Medium to dark grey, medium grey brown, grey green in part, grading to arenaceous SILTSTONE in part, glauconitic in part, common disseminated pyrite, trace worm burrows, moderately hard, sub blocky.<br><u>SANDSTONE</u> : Colourless to translucent, pale yellow, pale brown, fine to very coarse, poor sorting, sub angular to rounded, loose, fair inferred porosity, no fluorescence.<br><u>SILTSTONE</u> : Medium grey brown, dark grey, argillaceous, common very fine arenaceous, common carbonaceous specks, trace micromicaceous, firm to moderately hard, sub blocky. | 10-80 Units<br>94/5/1% |

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908042 026

## WELL PROGRESS REPORT

### PENRYN 2

DATE: 15/08/01 (0600 hours)

#### GEOLOGICAL SUMMARY

| INTERVAL                                     | LITHOLOGY  | GAS                         |
|--|--|-----------------------------|
| 1562-1582.5<br>ROP: 0.5-2.1<br>Ave: 0.8 mn/m | <b>FLAXMANS FORMATION</b><br><b>SILTSTONE WITH MINOR SANDSTONE</b><br><u>SILTSTONE</u> : Medium grey, grey green, argillaceous grading to CLAYSTONE in part, trace very fine arenaceous, common micromicaceous and glauconite fragments, moderately hard, sub blocky to blocky.<br><u>SANDSTONE</u> : Colourless to translucent, pale brown, fine to medium, moderately well sorted, sub rounded to rounded, loose, fair inferred porosity, no fluorescence.   | 40-90 Units<br>96/4/1%      |
| 1582.5-1615<br>ROP: 0.8-1.5<br>Ave: 0.8 mn/m | <b>WAARRE FORMATION</b><br><b>MASSIVE SANDSTONE WITH MINOR SILTSTONE</b><br><u>SANDSTONE</u> : Colourless to translucent, frosted, opaque, pale grey, minor white, very fine to very coarse, poor sorting, angular to sub rounded, trace siliceous cement, loose, clean, fair to good inferred porosity, no fluorescence.<br><u>SILTSTONE</u> : Medium grey, grey brown, arenaceous, trace micromicaceous, moderately hard, sub blocky.  | 100-1675 Units<br>88/6/4/2% |
| 1615-1634<br>ROP: 0.6-2.1<br>Ave: 0.8mn/m    | <b>MASSIVE SANDSTONE WITH TRACE SILTSTONE</b><br><u>SANDSTONE</u> : (1) Translucent, white, medium to very coarse, poor sorting, angular to sub rounded, trace siliceous cement, trace pyrite cement, friable to generally loose, fair inferred porosity, no fluorescence.<br><u>SANDSTONE</u> : (2) White to off white, very fine to fine, well sorted, sub angular to sub rounded, moderately strong siliceous cement, common white kaolinitic matrix, trace carbonaceous fragments and lithics, moderately hard to friable aggregates, poor visual porosity, no fluorescence.<br><u>SILTSTONE</u> : Medium grey, grey brown, arenaceous, trace micromicaceous, moderately hard, sub blocky. | 800-1200 Units<br>88/6/4/2% |
| 1634-1680<br>ROP: 0.7-5.0<br>Ave: 0.6 mn/m   | <b>EUMERALLA FORMATION</b><br><b>INTERBEDDED SANDSTONE AND SILTSTONE</b><br><u>SANDSTONE</u> : White to light green, very fine grading to arenaceous<br><u>SILTSTONE</u> in part, well sorted, moderately strong siliceous cement, trace calcareous cement, abundant white kaolinitic matrix, abundant glauconite fragments, trace carbonaceous fragments and micromicaceous, moderately hard to dominantly friable aggregates, poor visual porosity, trace dim to moderately bright yellow / white pinpoint fluorescence, no visible cut, thin ring residue.<br><u>SILTSTONE</u> : Dark grey to black, argillaceous, trace micromicaceous, hard, sub blocky.                                  | 70-300 Units<br>89/7/3/1%   |
| 1680-1703<br>ROP: 0.5-2.0<br>Ave: 0.7 mn/m   | <b>INTERBEDDED SILTSTONE AND SANDSTONE</b><br><u>SILTSTONE</u> : (1) Light grey brown to medium brown, argillaceous, trace carbonaceous specks, firm to moderately hard, sub blocky to blocky.<br><u>SILTSTONE</u> : (2) Light grey green to medium grey, arenaceous, glauconitic in part, firm, sub blocky.<br><u>SANDSTONE</u> : Light to medium green, colourless to translucent, medium grey, very fine to fine, well sorted, sub rounded to rounded, moderately strong siliceous cement, abundant grey green argillaceous matrix, abundant glauconite fragments, moderately hard, poor visual porosity, no fluorescence.  | 40-150 Units<br>92/5/2/1%   |

908042 027

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**WELL PROGRESS REPORT****PENRYN 2**

DATE: 16/08/01 (0600 Hours)

DEPTH: 1703 m

PROGRESS: Nil

DAYS FROM SPUD: 9

CURRENT OPERATION: PULLING OUT OF HOLE, LAYING DOWN DRILL PIPE.

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE: \$1,288,672

CASING DEPTH: 355m (7 5/8" CASING SHOE)

RIG: ODE 30

PROGRAMMED TD: ~1733m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf:            |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|-----------------|
| (2400 Hours) | KCl/PHPA | 9.2 | 46    | 7   | 9.5 | -                | 19.5k             | 13/11  | 0.162 @ 55.27°C |

| BIT DATA     | PRESENT | No. | Make | Type     | Size   | Hours | Meterage | Condition           |
|--------------|---------|-----|------|----------|--------|-------|----------|---------------------|
| (2400 Hours) | LAST    | 3   | HU   | STR90D   | 6 3/4" | 14.4  | 196      | 1-1-WT-A-E-I-NO-BHA |
|              |         | 4   | HYC  | DS185GNV | 6 3/4" | 7.9   | 420      | 1-2-WT-N-X-I-NO-TD  |

|    | MD(m) | INCLINATION | AZIMUTH (T) |    | MD(m) | INCLINATION | AZIMUTH |
|----|-------|-------------|-------------|----|-------|-------------|---------|
| 49 | 1338  | 3.7°        | 234         | 52 | 1594  | 5.9°        | 229     |
| 50 | 1397  | 4.2°        | 234         | 53 | 1685  | 7.25°       | 221     |
| 51 | 1450  | 4.3°        | 234         |    |       |             |         |

TVD: 1681.7m Maximum Offset: 61.8m 181° True North

**PREVIOUS 24 HOURS OPERATIONS:**

COMPLETE PULLING OUT OF HOLE. CLEAR RIG FLOOR. HOLD SAFETY MEETING. RIG UP BAKER ATLAS. RUN IN HOLE WITH RUN 1, GR-MLL-DLL-DAC-CAL-ZDL-CN. COMPLETE RUN 1. RIG UP AND RUN GR-FMT 23 POINTS PLUS 2 SAMPLE CHAMBERS. COMPLETE FMT'S, RIG DOWN BAKER ATLAS. RUN IN HOLE TO COME OUT SIDEWAYS. REAM AND WASH FROM FROM 1667m TO 1703m. CIRCULATE HOLE CLEAN. PULL OUT OF HOLE, LAYING DOWN DRILL PIPE.

**ANTICIPATED OPERATIONS:**

LAY DOWN DRILL PIPE. RUN AND CEMENT 3 1/2" MONOBORE TUBING.

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908042 028  
SPG800E**WELL PROGRESS REPORT****PENRYN 2****DATE: 17/08/01 (0600 Hours)**

DEPTH: 1703 m

PROGRESS: Nil

DAYS FROM SPUD: 10

CURRENT OPERATION: WAITING ON CEMENT.

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE:

CASING DEPTH: 3 1/2" 1696m.

RIG: ODE 30

PROGRAMMED TD: ~1733m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|------|
| (2400 Hours) | KCl/PHPA | 9.2 | 46    | 0   | 0   | 0                | 0                 | 0/0    | -    |

| BIT DATA     | PRESENT | No. | Make | Type | Size | Hours | Meterage | Condition |
|--------------|---------|-----|------|------|------|-------|----------|-----------|
| (2400 Hours) | LAST    |     |      |      |      |       |          |           |

| <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH(T)</u> | <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH</u> |
|--------------|--------------------|-------------------|--------------|--------------------|----------------|
|--------------|--------------------|-------------------|--------------|--------------------|----------------|

**PREVIOUS 24 HOURS OPERATIONS:**

PULL OUT OF HOLE. LAYING OUT PIPE TO RUN CASING. LAY DOWN KELLY, SWIVEL & RKB's. RIG TO RUN CASING. HOLD SAFETY MEETING. RUN 3-1/2" CASING (VERY HIGH WINDS & RAIN). RUN 137 JOINTS & 1 MARKER. CIRCULATE CASING, PUMP BIOCIDES TREATED MUD. PUMP S.A.P.P. PRE-FLUSH. PRESSURE TEST DOWELL LINES PRIOR TO CEMENTING. MIX & PUMP 343 SACKS OF LEAD CEMENT AT 11.5 PPG AND 100 SACKS OF TAIL CEMENT AT 15.6 PPG. DISPLACE WITH 48 BARRELS OF 2% KCL BRINE & PUMP LUG TO 2000 PSI, HELD OK. WAIT ON CEMENT.

**ANTICIPATED OPERATIONS:**

WAIT ON CEMENT SET SLIPS & NIPPLE DOWN BLOW OUT PREVENTORS. INSTALL & TEST XMAS TREE. RELEASE RIG.

908042 029

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**WELL PROGRESS REPORT****PENRYN 2****DATE: 18/08/01 (0600 Hours)**

DEPTH: 1703 m

PROGRESS: Nil

DAYS FROM SPUD: 10.7

CURRENT OPERATION: WELL CASED AND SUSPENDED. RIG RELEASED..

NOPE COST (P&A)\$1,277,248  
(C&S)\$1,406,161FINAL FORECAST COST (P&A)\$  
(C&S)\$

COST TO DATE:

CASING DEPTH: 3 1/2" 1696m.

RIG: ODE 30

PROGRAMMED TD: ~1733m

ROTARY TABLE: 133.56m

GROUND LEVEL: 128.86m

| MUD DATA     | Type:    | Wt: | Visc: | WL: | pH: | K <sup>+</sup> : | Cl <sup>-</sup> : | PV/YP: | Rmf: |
|--------------|----------|-----|-------|-----|-----|------------------|-------------------|--------|------|
| (2400 Hours) | KCl/PHPA | 0   | 0     | 0   | 0   | 0                | 0                 | 0/0    | -    |

| BIT DATA     | PRESENT | No. | Make | Type | Size | Hours | Meterage | Condition |
|--------------|---------|-----|------|------|------|-------|----------|-----------|
| (2400 Hours) | LAST    |     |      |      |      |       |          |           |

| <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH (T)</u> | <u>MD(m)</u> | <u>INCLINATION</u> | <u>AZIMUTH</u> |
|--------------|--------------------|--------------------|--------------|--------------------|----------------|
|--------------|--------------------|--------------------|--------------|--------------------|----------------|

**PREVIOUS 24 HOURS OPERATIONS:**

WAIT ON CEMENT. LIFT BLOW OUT PREVENTORS AND SET SLIP & SEAL ASSEMBLY WITH 40 KLBS OVER CASING STRING WEIGHT. NIPPLE DOWN AND LAY OUT BLOW OUT PREVENTORS & SPOOLS. HELD UP BY NOT HAVING A FORKLIFT, BROKEN DOWN. USED EXCAVATOR TO PULL BLOW OUT PREVENTORS OUT AND MOVE THEM. MOVE V-DOOR & CATWALKS. NIPPLE UP XMAS TREE & ADAPTOR FLANGE. ENGERGISE SEAL. PRESSURE TEST ADAPTOR FLAGS - BRADENHEAD TO 200 & 500 PSI, OK. RIG RELEASED AT 1700 HRS. 17/08/01. RIG WILL MOVE OFF SITE.

**ANTICIPATED OPERATIONS:**

**SECTION 3: HYDROCARBON SHOWS**

SANTOS LIMITED

# OIL SHOW EVALUATION REPORT

WELL: PENRYN 2      GEOLOGIST: M. D'CRUZ  
 INTERVAL: 1653m - 1665m      DATE: 14/08/01  
 FORMATION: EUMERALLA

|                            | 5k      | 10k               | 20k          | 30k               | 40k                   | 50k           | 100k               | 150k      | 200k           | >250k   |
|----------------------------|---------|-------------------|--------------|-------------------|-----------------------|---------------|--------------------|-----------|----------------|---------|
| C1 ppm                     |         |                   | 20k          | 30k               | 40k                   | 50k           | 100k               | 150k      | 200k           | >250k   |
| C2+ ppm                    | 500     | 750               | 1k           | 2k                | 3k                    | 4k            | 5k                 | 7.5k      | 10k            | >15k    |
| Porosity Ø                 | tight   |                   |              | poor              |                       | fair          |                    | good      |                |         |
| % with fluorescence        | trace   | 10                | 20           | 30                | 40                    | 50            | 60                 | 70        | 80             | >90     |
| Fluorescence appearance    | trace   |                   | spotted      | pinpoint          |                       | streaked      |                    | patchy    |                | solid   |
| Brightness of fluorescence | v. dull |                   | dull         |                   | dim                   |               |                    | bright    | v. bright      | glowing |
| Type of cut                | trace   | v. slow crush cut | crush cut    | instant crush cut | v. slow streaming cut | slow stream   | moderate streaming | streaming | fast streaming | instant |
| Residue on spot plate      | trace   | heavy trace       | v. thin ring | thin ring         | thick ring            | v. thick ring | thin film          | mod. film | thick film     | solid   |
| Show rating                | trace   |                   | poor         |                   | fair                  |               | good               |           |                |         |

Comments: SANDSTONE: White to light green, very fine grading to arenaceous SILTSTONE in part, well sorted, moderately strong siliceous cement, trace calcareous cement, abundant white kaolinic matrix, abundant glauconite fragments, trace carbonaceous fragments and micromicaceous, moderately hard to dominantly friable aggregates, poor visual porosity, trace fluorescence as above.

**SECTION 4: WIRELINE LOGGING REPORTS**



**SECTION 4 (a): LOGGING ORDER FORM**

**Santos**  
A.B.N. 80007 550 923

## LOGGING ORDER FORM

COMPANY: Santos

|                                       |   |
|---------------------------------------|---|
| WELL: PENRYN 2                        | FIELD: OTWAY                                |
| RIG: OD&E 30                          | STATE: VICTORIA                             |
| LOCATION: OTWAY, VICTORIA             | BLOCK: PEP 153                              |
| LATITUDE: 38 31' 20.168" E (GDA 94)   | LONGITUDE: 142 58' 43.06" S (GDA 94)        |
| ELEVATION: GL: 128.86                 | RT: 133.56 DF: 4.70                         |
| 9 7/8" HOLE: 357m                     | 7 5/8" CSG: 355 (D) WT: 26 lb/ft, L-80, BT& |
| 6 3/4" HOLE: 1703                     | 3 1/2" CSG: WT:                             |
| TD (Drilr.) 1703                      | TD (Logr.): 1694.00                         |
| MUD SYSTEM: 2% KCl / Polymer          | CIRC. STOPPED: 03:30 AM 15/August/2001      |
| WT: 9.1 VISC: 44 PV/YP: 12/13 PH: 9.5 | FLUID LOSS: 7 CHL: 19.5k                    |
| GEOLOGIST: T. PRATER / M. D'CRUZ      |   |

INFORMATION GIVEN ABOVE IS TO BE USED ON LOG HEADING SHEETS.

**HOLE CONDITIONS:** (TIGHT SPOTS, DEVIATION, COALS, BARITE IN MUD, ETC..)

Maximum Hole Deviation: 5.9deg @ 1594m

Maximum Dog Leg Severity: 4.47 @ 1112.12m

Barite: 0.26%

KCl: 19.9ppm, 3.9%

No expected over-pressure or depletion. Expected fm press: 2170psi (If Penryn 2 in communication with Penryn 1 fm press could be depleted by 100-300psi.)

Expected BHT: 75degC

**DRILL STEM TESTS/CORED INTERVALS:**

NO FORMATION TESTS

**COMMENTS**

**LOGS:**

PROGRAM CONFIRMED WITH OPERATIONS GEOLOGIST AT 7:00 HOURS ON 15/08/2001

PROGRAM VARIES FROM PRE-SPUD NOTES: YES:  NO:

| LOG   | INTERVAL (m)       | REMARKS/REPEAT SECTION |
|---|--------------------|------------------------|
| <b>RUN # 1</b>  |                    |                        |
| GR  | TD to Surface      | DOWNLOG                |
| DLL   | TD to 355          | DOWNLOG                |
| MLL   | TD to 355          | UPLOG                  |
| CAL   | TD to 355          | UPLOG                  |
| DAC   | TD to 355          | DOWNLOG                |
| DAC   | TD TO 1550         | Semblance Processing   |
| SP  | TD to 355          | DOWNLOG                |
| ZDL   | TD to 650          | UPLOG                  |
| CN  | TD to 650          | UPLOG                  |
| <b>RUN # 2</b>  |                    |                        |
| GR  | 20 - Preset points | 2 samples              |
| FMT   |                    |                        |
| <i>Transmitted Ascii data to include: dt24, dth, dtr, dtt, so11, so12, so13, so14 sonic curves.</i> |                    |                        |

**REMARKS:**

(ALL OPERATIONS ARE TO CONFORM TO CURRENT SANTOS OPERATING PROCEDURES)

- 1 TENSION CURVE - TO BE DISPLAYED ON LOG FROM T.D. TO CASING SHOE.
- 2 ALL CALIBRATIONS IN CASING MUST BE VERSUS DEPTH. (IF HOLE CONDITIONS PERMIT).
- 3 SONIC WAVEFORMS TO BE RECORDED FROM TD TO 30m ABOVE CONIACIAN (WAARRE FORMATION).
- 4 ALL ZONES OF SONIC CYCLE SKIPPING OR POOR QUALITY DATA TO BE REPEATED AND NOTED IN REMARKS SECTION. (EXCEPT ABOVE NARRAWATURK MARL. IF HOLE CONDITION IS POOR).
- 5 REPEAT SECTION NOT TO BE RUN IN 6" HOLES, COMPARE DOWN LOG FOR REPEAT ANALYSIS.
- 6 REPEAT SECTION TO BE LOGGED PRIOR TO MAIN LOG OVER INTERVAL OF INTEREST. (IF HOLE CONDITIONS ALLOW). CONFIRM REPEAT SECTION INTERVAL WITH OPERATIONS GEOLOGIST.
- 7 ALL THERMOMETER READINGS TO BE RECORDED ON LOG
- 8 ALL SCALES AND PRESENTATIONS TO CONFIRM TO STANDARDS UNLESS OTHERWISE ADVISED.
- 9 THE FIELD/EDIT TAPE MUST BE A MERGED COPY OF ALL LOGS RUN. SEPARATE TAPES ARE ONLY ACCEPTABLE AS AN INTERIM MEASURE.
- 10 ANY CHANGE FROM STANDARD PROCEDURES/SCALES TO BE NOTED IN REMARKS SECTION.
- 11 RM, RMF, RMC AND BHT MUST BE ANNOTATED ON FAXED LOGS. FAXED LOGS SHOULD ALSO INDICATE IF ON DEPTH OR NOT.
- 12 LOG DATA IS TO BE TRANSMITTED AS SOON AS POSSIBLE AFTER ACQUISITION. IF ANY DELAYS ARE LIKELY OR IF DATA TRANSMISSION WILL ADVERSELY EFFECT THE OPERATION THEN THE OPERATIONS GEOLOGIST MUST BE IMMEDIATELY INFORMED.
- 13 THE OPERATIONS GEOLOGIST MUST BE INFORMED IMMEDIATELY OF ANY TOOL OR HOLE PROBLEMS, LOST TIME OR ANY OTHER EVENT WHICH MAY AFFECT THE LOGGING OPERATIONS.

**SECTION 4 (b): ELECTRIC LOGGING TIME SUMMARY**

**ELECTRIC LOGGING TIME SUMMARY**

|                |           |                          |               |                   |                       |
|----------------|-----------|--------------------------|---------------|-------------------|-----------------------|
| LOGGING UNIT:  | 4107      | LEFT BASE:               | AM (6/08)     | WELL NAME:        | PENRYN 2              |
| START DATE:    | 15-Aug-01 | ARRIVED AT THE WELLSITE: | 12:00 (8/08)  | TRIP NUMBER:      | SUITE 1, RUN 1 & 2    |
| END DATE:      | 15-Aug-01 | INITIAL RIG UP:          | 05:45 (15/08) | WSG:              | T. PRATER / M. D'CRUZ |
| DEPTH DRILLER: | 1703 MD   | FINAL RIG DOWN:          | 23:30 (15/08) | LOGGING ENGINEER: | S. CARTER / S. BLAIR  |
| DEPTH LOGGER:  | 1694 MD   | RETURN TO BASE:          |               | PAGE / DATE:      | PAGE 1 15/08/2001     |

| 14-Aug        | RIG UP / DOWN | TOOL CHECK | RH / POOH | LOGGING | DATA TX | LOST TIME LOGGER | I. O. | WIPER TRIP | LOST TIME OTHERS | OTHERS | COMMENTS / REMARKS |                 |
|---------------|---------------|------------|-----------|---------|---------|------------------|-------|------------|------------------|--------|--------------------|-----------------|
| 12:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 13:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 14:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 15:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 16:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 17:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 18:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 19:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 20:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 21:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 22:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| 23:00         |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| :30           |               |            |           |         |         |                  |       |            |                  |        |                    |                 |
| <b>TOTALS</b> |               |            |           |         |         |                  |       |            |                  |        | WSG (SIGN)         | ENGINEER (SIGN) |

|               |      |            |          |       |   |
|---------------|------|------------|----------|-------|---|
| LOGGING UNIT: | 4107 | WELL NAME: | PENRYN 2 | PAGE: | 2 |
|---------------|------|------------|----------|-------|---|

| 15-Aug | RIG UP / DOWN | TOOL CHECK | RIH / POOR | LOGGING | DATA TX | LOST TIME<br>LOGGER | I. O. | WPER<br>TRIP | LOST TIME<br>OTHERS | OTHERS | COMMENTS / REMARKS              |
|--------|---------------|------------|------------|---------|---------|---------------------|-------|--------------|---------------------|--------|---------------------------------|
| 0:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 1:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 2:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 3:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 4:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 5:00   |               |            |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            |         |         |                     |       |              |                     |        |                                 |
| 6:00   |               | 0:15       |            |         |         |                     |       |              |                     |        | check tools                     |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        | well to baker                   |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        | rig up                          |
| :30    |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        | Safety meeting - rig up         |
| 7:00   |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
| 8:00   |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               | 0:15       |            |         |         |                     |       |              |                     |        | load sources - power up         |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        | Run in hole to casing shoe      |
| 9:00   |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
| :30    |               | 0:15       |            |         |         |                     |       |              |                     |        | Calibrate caliper               |
|        |               | 0:15       |            |         |         |                     |       |              |                     |        |                                 |
| 10:00  |               |            |            | 0:15    |         |                     |       |              |                     |        | Begin Downlog of run 1.         |
|        |               |            |            | 0:15    |         |                     |       |              |                     |        |                                 |
| :30    |               |            |            | 0:15    |         |                     |       |              |                     |        |                                 |
|        |               |            |            | 0:15    |         |                     |       |              |                     |        |                                 |
| 11:00  |               |            |            | 0:15    |         |                     |       |              |                     |        |                                 |
|        |               |            |            | 0:15    |         |                     |       |              |                     |        | hung up at 1189m.               |
| :30    |               |            |            | 0:15    |         |                     |       |              |                     |        | TD at 1694m and begin uplogging |
|        |               |            |            | 0:15    |         |                     |       |              |                     |        |                                 |

TOTALS

|            |                 |
|------------|-----------------|
| WSG (SIGN) | ENGINEER (SIGN) |
|            |                 |

|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 6:15 | 2:30 | 0:30 | 1:15 | 2:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |

TOOLS RUN: GR-MLL-DLL-DAC-CAL-SP-ZDL-CN

TOOLS RUN: GR-FMT

TOOLS RUN:

|               |      |            |          |       |   |
|---------------|------|------------|----------|-------|---|
| LOGGING UNIT: | 4107 | WELL NAME: | PENRYN 2 | PAGE: | 3 |
|---------------|------|------------|----------|-------|---|

| 15-Aug | RIG UP / DOWN | TOOL CHECK | RIH / POOH | LOGGING | DATA TX | LOST TIME LOGGER | I. O. | WIPER TRIP | LOST TIME OTHERS | OTHERS | COMMENTS / REMARKS                             |
|--------|---------------|------------|------------|---------|---------|------------------|-------|------------|------------------|--------|--|
| 12:00  |               |            |            | 0:15    |         |                  |       |            |                  |        | stop semblance processing @ 1550m              |
|        |               |            |            | 0:15    |         |                  |       |            |                  |        |  |
| :30    |               |            |            | 0:15    |         |                  |       |            |                  |        |  |
|        |               |            |            | 0:15    |         |                  |       |            |                  |        |  |
| 13:00  |               |            |            | 0:15    |         |                  |       |            |                  |        |  |
|        |               |            |            | 0:15    |         |                  |       |            |                  |        | stop ZDL-CN acquisition @ 650m and increase    |
| :30    |               |            |            | 0:15    |         |                  |       |            |                  |        | speed  |
|        |               |            |            | 0:15    |         |                  |       |            |                  |        | reach casing shoe. Begin logging GR to surface |
| 14:00  |               |            |            | 0:15    |         |                  |       |            |                  |        |  |
|        |               |            |            | 0:15    |         |                  |       |            |                  |        | At surface                                     |
| :30    | 0:15          |            |            |         |         |                  |       |            |                  |        | Rig down Grand slam tool.                      |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| 15:00  | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| :30    | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| 16:00  | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        | Pick up tools for Run 2.                       |
| :30    | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| 17:00  | 0:15          |            |            |         |         |                  |       |            |                  |        | Rig up FMT tool                                |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| :30    |               |            | 0:15       |         |         |                  |       |            |                  |        | Run in hole for logging run 2.                 |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| 18:00  |               |            | 0:15       |         |         |                  |       |            |                  |        | Calibrate in casing shoe                       |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| :30    |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        | begin 1st FMT point                            |
| 19:00  |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| :30    |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| 20:00  |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        | GR tie in (from TD), on depth                  |
| :30    |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| 21:00  |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| :30    |               |            | 0:15       |         |         |                  |       |            |                  |        | begin sampling - open upper & lower tank       |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        | POOH, 900lbs overpressure                      |
| 22:00  |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
|        |               |            | 0:15       |         |         |                  |       |            |                  |        |  |
| :30    | 0:15          |            |            |         |         |                  |       |            |                  |        | at surface                                     |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        |  |
| 23:00  | 0:15          |            |            |         |         |                  |       |            |                  |        | Rig down FMT-GR tool                           |
|        | 0:15          |            |            |         |         |                  |       |            |                  |        | 1220psi measured in upper tank                 |
| :30    | 0:15          |            |            |         |         |                  |       |            |                  |        | 1280psi measured in lower tank                 |
|        |               |            |            |         |         |                  |       |            |                  |        | Well to customer                               |

TOTALS

|            |                 |
|------------|-----------------|
| WSG (SIGN) | ENGINEER (SIGN) |
|------------|-----------------|

|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 1:45 | 1:45 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| 6:45 | 1:45 | 0:00 | 2:00 | 3:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |

TOOLS RUN: GR-MLL-DLL-DAC-CAL-SP-ZDL-CN

TOOLS RUN: GR-FMT

TOOLS RUN:

908042 040

**GRAND TOTALS**

|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 8:00 | 4:15 | 0:30 | 1:15 | 2:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
|------|------|------|------|------|------|------|------|------|------|------|

TOOLS RUN: GR-MLL-DLL-DAC-CAL-SP-ZDL-CN

|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 6:45 | 1:45 | 0:00 | 2:00 | 3:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
|------|------|------|------|------|------|------|------|------|------|------|

TOOLS RUN: GR-FMT

|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
|------|------|------|------|------|------|------|------|------|------|------|

TOOLS RUN:

**OVERALL JOB TOTAL**

|       |      |      |      |      |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|------|------|------|------|
| 14:45 | 6:00 | 0:30 | 3:15 | 5:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
|-------|------|------|------|------|------|------|------|------|------|------|

**SERVICE QUALITY SUMMARY**

| CLIENT WSG |   |   |   |   | ENGINEER |   |   |   |   |                                   |
|------------|---|---|---|---|----------|---|---|---|---|-----------------------------------|
| 1          | 2 | 3 | 4 | 5 | 1        | 2 | 3 | 4 | 5 |                                   |
|            |   |   |   |   | ✓        |   |   |   |   | SAFETY                            |
|            |   |   |   |   | ✓        |   |   |   |   | PROMPTNESS                        |
|            |   |   |   |   | ✓        |   |   |   |   | TOOL & SURFACE SYSTEM PERFORMANCE |
|            |   |   |   |   | ✓        |   |   |   |   | ATTITUDE & CO-OPERATION           |
|            |   |   |   |   | ✓        |   |   |   |   | WELLSITE PRODUCTS / LOG QUALITY   |
|            |   |   |   |   | ✓        |   |   |   |   | COMMUNICATIONS / TX PERFORMANCE   |
|            |   |   |   |   |          |   |   |   |   | OTHER (PLEASE SPECIFY)            |

1 Excellent, 2 - 3 Normal, 4 - 5 Very Poor



**SECTION 4 (c): FIELD ELECTRIC LOG REPORT**

SANTOS LIMITED

**FIELD ELECTRIC LOG REPORT**

|                      |                      |
|----------------------|----------------------|
| WELL:                | PENRYN 2             |
| LOGGING ENGINEER:    | S. CARTER / S. BLAIR |
| RUN No.:             | 1,2                  |
| DRILLERS DEPTH:      | 1703.00              |
| ARRIVED ON SITE:     | 12:00 (8/08)         |
| ACTUAL LOGGING TIME: | 5:00                 |
| TOTAL TIME:          | 14:45                |

|                      |                       |
|----------------------|-----------------------|
| GEOLOGIST:           | T. PRATER / M. D'CRUZ |
| DATE LOGGED:         | 15-Aug-01             |
| LOGGERS DEPTH:       | 1694.00               |
| CIRCULATION STOPPED: | 03:30 15/Aug/01       |
| LOST TIME LOGGERS:   | 0:00                  |
| LOST TIME OTHERS:    | 0:00                  |

|                     |                              |                 |
|---------------------|------------------------------|-----------------|
| TYPE OF LOG         | GR-MLL-DLL-DAC-CAL-SP-ZDL-CN | GR-FMT          |
| TIME CIRC. STOPPED: | 03:30 15/Aug/01              | 03:30 15/Aug/01 |
| TIME TOOL RIG UP:   | 06:15 15/Aug/01              | 17:00 15/Aug/01 |
| TIME TOOL RIH:      | 08:45 15/Aug/01              | 17:30 15/Aug/01 |
| TIME TOOL RIG DOWN: | 14:30 15/Aug/01              | 23:00 15/Aug/01 |
| TOTAL TIME:         | 8:15                         | 6:00            |

| TYPE OF LOG    | FROM (m) | TO (m)  | REPEAT SECTION | TIME SINCE LAST CIRCULATION | BHT     |
|----------------|----------|---------|----------------|-----------------------------|---------|
| <b>RUN # 1</b> |          |         |                |                             |         |
| GR             | 1694     | SURFACE |                | 8.25hrs                     | 140degF |
| MLL            | 1694     | 356     |                |                             |         |
| DLL            | 1694     | 356     |                |                             |         |
| DAC            | 1694     | 356     |                |                             |         |
| DAC            | 1694     | 356     |                |                             |         |
| CAL            | 1694     | 356     |                |                             |         |
| SP             | 1694     | 356     |                |                             |         |
| ZDL            | 1694     | 625     |                |                             |         |
| CN             | 1694     | 625     |                |                             |         |
| <b>RUN # 2</b> |          |         |                |                             |         |
| GR             | 1694     | 1598    |                | 15.17hrs                    | 146degF |
| FMT            | 1674.5   | 1598    |                |                             |         |

| SUITE/RUN | BHT | DEPTH  | TIME | SUITE/RUN | BHT | DEPTH  | TIME  | SUITE/RUN | BHT | DEPTH | TIME | SUITE/RUN | BHT | DEPTH | TIME |
|-----------|-----|--------|------|-----------|-----|--------|-------|-----------|-----|-------|------|-----------|-----|-------|------|
| 1/1       | 140 | 1652.7 | 8.25 | 1/2       | 146 | 1674.5 | 15.17 | 1/3       |     |       |      | 1/4       |     |       |      |

| MUD SYSTEM: | TYPE             | WT. | VISC. | WL | PH  | CI    | PV/YP | RMF                 | RM                    | RMC                  |
|-------------|------------------|-----|-------|----|-----|-------|-------|---------------------|-----------------------|----------------------|
|             | 2% KCl / Polymer | 9.1 | 44    | 7  | 9.5 | 19.5k | 12/13 | 0.172 ohmm @ 65.8 F | 0.1985 ohmm @ 65.34 F | 0.338 ohmm @ 64.05 F |

**HOLE CONDITIONS:**

Maximum Hole Deviation: 5.9deg @ 1594m  
 Maximum Dog Leg Severity: 4.47 @ 1112.12m  
 Barite: 0.26%  
 KCl: 19.9ppm, 3.9%

WELLSITE LOG QUALITY CONTROL CHECKS

|                  |   |                        |   |                       |   |
|------------------|---|------------------------|---|-----------------------|---|
| LOG ORDER FORM   | ✓ | MUD SAMPLE RESISTIVITY | ✓ | TOOL NO. / CODE CHECK | ✓ |
| OFFSET WELL DATA | ✓ | CABLE DATA CARD        | ✓ | LOG SEQUENCE CONFIRM. | ✓ |

| LOG TYPE                  | DAC | GR | CAL | DLL | MLL | SP | ZDL | CNL | GR | FMT | REMARKS |
|---------------------------|-----|----|-----|-----|-----|----|-----|-----|----|-----|---------|
| CASING CHECK              |     | ✓  | ✓   |     |     |    |     |     |    | ✓   |         |
| SCALE CHECK               | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  |     |     | ✓  |     |         |
| DEPTH Casing Total        |     |    | ✓   |     |     |    |     |     |    |     |         |
| CALIBRATIONS OK           | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  |     |         |
| REPEATABILITY             | ✓   | ✓  |     | ✓   |     | ✓  |     |     |    | ✓   |         |
| LOGGING SPEED             | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  |     |         |
| OFFSET WELL Repeatability | ✓   | ✓  |     | ✓   | ✓   |    |     |     | ✓  |     |         |
| NOISY / MISSING DATA      | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |    |     |         |
| CURVES/LOGS Depth Matched | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  |     |         |
| Rm MEASUREMENT            | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  |     |         |
| LLS / LLD / CHECK         |     |    |     | ✓   |     |    |     |     |    |     |         |
| PERF / RHOB CHECK         |     |    |     |     |     |    |     |     |    |     |         |
| LOG HEADER / TAIL         | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  | ✓   |         |
| PRINT/FILM QUALITY        | ✓   | ✓  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   | ✓  | ✓   |         |

COMMENTS:

ENGINEERS COMMENTS (If this report has not been discussed with the Engineer state reason)

**SECTION 4 (d): PRESSURE SURVEY DATA**

SANTOS LIMITED  
PRESSURE SURVEY

WELL: PENRYN 2 K.B.: 133.56 TOOL AND GAUGE TYPE: FMT / HP Quartz 5 1/8" PAGE: 1  
 WITNESS: M. D'CRUZ / T. PRATER TIME SINCE LAST CIRC.: 3:30 15 Aug. 01 PROBE / PACKER TYPE: 5 1/8" DATE: 15/08/01

| TEST | FORMATION UNIT SANDS | DEPTH  |         | DEPTH S.S. | EXCEPT. FORM PRESS. | EXCEPT. TEMP. | FILE NO. | TEST RESULTS     |                 |                 | INTERPRETATION |                        |          | COMMENTS (FLUID TYPE) |              |             |
|------|----------------------|--------|---------|------------|---------------------|---------------|----------|------------------|-----------------|-----------------|----------------|------------------------|----------|-----------------------|--------------|-------------|
|      |                      | FT/M   | R.T.    |            |                     |               |          | HYDR. BEFORE PSI | FORM. PRESS PSI | HYDR. AFTER PSI | TEMP. °F/°C    | DRAW D. MOBILITY MD/CP | TYPE D/D |                       | TYPE BUILDUP | DEPLET -S/C |
| 1    | WAARRE               | 1598   | 1464.50 |            |                     |               |          | 2532.4           | 1751.5          | 2532.4          | 143.78         | 152.6                  | N        | Rapid                 |              | GOOD TEST   |
| 2    | WAARRE               | 1599   | 1465.50 |            |                     |               |          | 2534.2           | 1751.2          | 2535            | 144.14         | 303.2                  | N        | Rapid                 |              | GOOD TEST   |
| 3    | WAARRE               | 1601.2 | 1467.70 |            |                     |               |          | 2537.9           | 1751.7          | 2538.5          | 144.14         | 318.2                  | N        | Rapid                 |              | GOOD TEST   |
| 4    | WAARRE               | 1605   | 1471.50 |            |                     |               |          | 2543.9           | 1752.4          | 2544.8          | 144.5          | 136.5                  | N        | Rapid                 |              | GOOD TEST   |
| 5    | WAARRE               | 1607.5 | 1474.00 |            |                     |               |          | 2548             | 1752.7          | 2548.6          | 144.68         | 140.3                  | N        | Rapid                 |              | GOOD TEST   |
| 6    | WAARRE               | 1610.8 | 1477.30 |            |                     |               |          | 2553.3           | 1775.2          | 2553.6          | 144.68         | 161.8                  | N        | Mod Fast              |              | GOOD TEST   |
| 7    | WAARRE               | 1614   | 1480.50 |            |                     |               |          | 2558.7           | 1753.7          | 2558.7          | 145.04         | 393.1                  | N        | Rapid                 |              | GOOD TEST   |
| 8    | WAARRE               | 1616   | 1482.50 |            |                     |               |          | 2561.7           | 1759.2          | 2561.9          | 145.22         | 447.1                  | N        | Rapid                 |              | GOOD TEST   |
| 9    | WAARRE               | 1623   | 1489.50 |            |                     |               |          | 2572.8           | 1754.9          | 2573            | 145.4          | 423.3                  | N        | Rapid                 |              | GOOD TEST   |
| 10   | WAARRE               | 1626   | 1492.50 |            |                     |               |          | 2577.5           | 1779.7          | 2578            | 145.76         | 254.7                  | N        | Rapid                 | S/C ?        | GOOD TEST   |
| 11   | WAARRE               | 1627   | 1493.5  |            |                     |               |          | 2579.3           | 1755.9          | 2579.5          | 145.94         | 317.8                  | N        | Rapid                 |              | GOOD TEST   |
| 12   | WAARRE               | 1631   | 1497.50 |            |                     |               |          | 2585.6           | 1779.2          | 2585.7          | 146.12         | 43                     | N        | Rapid                 | S/C ?        | GOOD TEST   |
| 13   | WAARRE               | 1630.5 | 1497    |            |                     |               |          | 2584.9           | 1840.8          | 2584.6          | 146.3          | 49.1                   | N        | Rapid                 | S/C ?        | GOOD TEST   |
| 14   | WAARRE               | 1632.4 | 1498.90 |            |                     |               |          | 2587.9           | 1758.4          | 2588            | 146.48         | 203.6                  | N        | Mod Fast              |              | GOOD TEST   |
| 15   | WAARRE               | 1639.4 | 1505.9  |            |                     |               |          | 2599.4           | 1795.5          | 2599.3          | 148.28         | 11                     | N        | Fast                  |              | CURTAILED   |
| 16   | WAARRE               | 1645.5 | 1512.00 |            |                     |               |          | 2608.8           | 1836.4          | 2608.8          | 147.74         | 59.3                   | N        | Rapid                 |              | GOOD TEST   |
| 17   | WAARRE               | 1647.5 | 1514.00 |            |                     |               |          | 2611.8           | 1839.4          | 2612.1          | 147.92         | 90.9                   | N        | Rapid                 |              | GOOD TEST   |
| 18   | WAARRE               | 1651.5 | 1518.00 |            |                     |               |          | 2618.4           | 1846.2          | 2618.6          | 148.28         | 136.4                  | N        | Rapid                 |              | GOOD TEST   |
| 19   | WAARRE               | 1653.5 | 1520.00 |            |                     |               |          | 2621.6           | 1473.9          | 2619.3          | 148.28         | 37.6                   | N        | Slow                  |              | CURTAILED   |

| TEST | FORMATION UNIT SANDS | DEPTH  |      | DEPTH S.S. | EXPECT. FORM PRESS. PSIG | EXPECT. TEMP. °F/°C | FILE NO. | TEST RESULTS     |                 |                 |             | INTERPRETATION         |          |              | COMMENTS (FLUID TYPE) |  |
|------|----------------------|--------|------|------------|--------------------------|---------------------|----------|------------------|-----------------|-----------------|-------------|------------------------|----------|--------------|-----------------------|--|
|      |                      | FT/M   | R.T. |            |                          |                     |          | HYDR. BEFORE PSI | FORM. PRESS PSI | HYDR. AFTER PSI | TEMP. °F/°C | DRAW D. MOBILITY MD/CP | TYPE D/D | TYPE BUILDUP |                       | DEPLET -S/C                                  |
| 20   | WAARRE               | 1661   |      | 1527.50    |                          |                     |          | 2634             | 1866.9          | 2634.3          | 148.82      | 114.3                  | N        | Rapid        |                       | GOOD TEST                                    |
| 21   | WAARRE               | 1664   |      | 1530.50    |                          |                     |          | 2639.3           | 1871.1          | 2639.6          | 149.36      | 126.8                  | N        | Rapid        |                       | GOOD TEST                                    |
| 22   | EUMERALLA            | 1674.5 |      | 1541.00    |                          |                     |          |                  |                 |                 | 32          |                        |          |              |                       | NO SEAL                                      |
| 23   | WAARRE               | 1651.5 |      | 1518.00    |                          |                     |          | 2618.6           | 1846.9          | 2618.7          | 149.72      | 80.5                   | N        | Rapid        |                       | GOOD TEST                                    |
| 24   | WAARRE               | 1605   |      | 1471.44    |                          |                     |          | 2544.6           | 1753.2          | 2543.9          | 146.84      | 78.5                   | N        | Very Rapid   |                       | SAMPLE:GOOD TEST<br>70sec / 30 sec fill time |
| 25   | EUMERALLA            | 1685.5 |      | 1552       |                          |                     |          |                  |                 |                 | 32          |                        |          |              |                       | Could not get down                           |

ANTICIPATED GEOTHERMAL GRADIENT: \_\_\_\_\_  
 ANTICIPATED WATER GRADIENT: \_\_\_\_\_  
 MUD WEIGHT / GRADIENT: \_\_\_\_\_

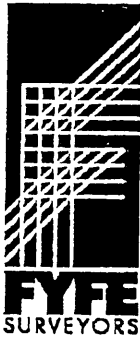
DRAWDOWN NORMAL : PRESSURE DOES NOT DROP TO ZERO  
 BUILD UP LIMITED : PRESSURE DROPS TO ZERO  
 TYPES : IMMEDIATE - RAPID - GOOD - SLOW

**COMMENTS:**

Supercharging suspected at test point no. 10. Test was re-tried a metre lower. Test no. 12 was also suspected as being supercharged and retried half a metre higher with the same result. Test point 1685.5m could not be tested as the measure point of the tool could not get below 1684m.

2 samples were taken at test point 1605m. The first chamber filled in 70 seconds and the second chamber filled in 30 seconds. Sample chambers were checked on surface with a pressure gauge to confirm sampling. The first chamber registered 1220 psi and the second indicated 1280 psi indicating that sampling was successful.

**SECTION 5: PRELIMINARY WELL LOCATION SURVEY**



Licensed & Engineering Surveyors  
 Land & Property Development  
 Project Management  
 Geographic Information Management  
 Petroleum Infrastructure Survey & Design



**FYFE SURVEYORS PTY LTD**  
 ACN 082 592 465

Adelaide Head Office

143 Fullarton Road  
 Rose Park, South Australia 5067

PO Box 114  
 Kent Town, South Australia 5071

telephone 08 8364 1000  
 facsimile 08 8364 0904  
 email info@fyfe.com.au

Moomba Office

telephone & facsimile 08 8675 6639

# Facsimile

## WELL PEGGING ADVICE - OTWAY BASIN

### DISTRIBUTION

#### SANTOS LIMITED

|                    |                                |
|--------------------|--------------------------------|
| To: Mr A PIETSCH   | Geology Operations             |
| Fax (08) 8224 7962 | Telephone (08) 8224 7957       |
| Ms C BATCHELOR     | Drilling Department (Adelaide) |
| Fax (08) 8224 7864 | Telephone (08) 8224 7289       |

**GDA 94**

faxed by: / /  
 transmission no:

faxed by: *MS* 28 / 6 / 01  
 transmission no:

To: FYFE SURVEYORS PTY LTD - Adelaide  
 Fax (08) 8364 0904 Telephone (08) 8364 1000  
 Attention: Simon Liebelt / Geoffrey Allen

faxed by: / /  
 transmission no:

WELL NAME PENRYN # 2

Scout Number 01 - 030/2

#### PEGGED LOCATION

Geographic Co ordinates (GDA 94)  
 Latitude S 38° 31' 20".168  
 Longitude E 142° 58' 43".06  
 Grid Co ordinates (MGA 94)  
 Easting 672 486.747  
 Northing 5 734 380.226

Contract 505916 BCR. 123

Fyfe Instruction number 10,673/14/1

~~Constructed Lease level will / will not vary from existing natural surface level by more than 300mm~~

Location DIRECTED BY RAY WILLOX ON SITE  
 AS TO THE POSITION OF THE WELL  
 LOCATION. COORDINATES  
 SURVEYED FOR THIS POSITION BY  
 JOE D'ALOIA

Comments GROUND LEVEL AT TIME OF  
 PEGGING 128.86m AHD

Date Pegged 20 / 06 / 2001

Field Services representative present during pegging

yes  Name RAY WILLOX  
 no

Sump reference line pegged at NA  
 magnetic bearing from pegged well location  
 preliminary flowline route to exit lease at NA  
 magnetic bearing

Comments .....

Surveyor JOE D'ALOIA / MIKE BESSEN .....

#### Additional Field Services Survey Requirements

yes Description .....

If this transmission is incomplete or illegible, please phone (08) 8364 1000 or fax (08) 8364 0904

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**SECTION 6: DEVIATION DATA**

# PENRYN 2

908042 050

RT= 133.56

**Minimum Curvature Method**  
Enter Azimuth

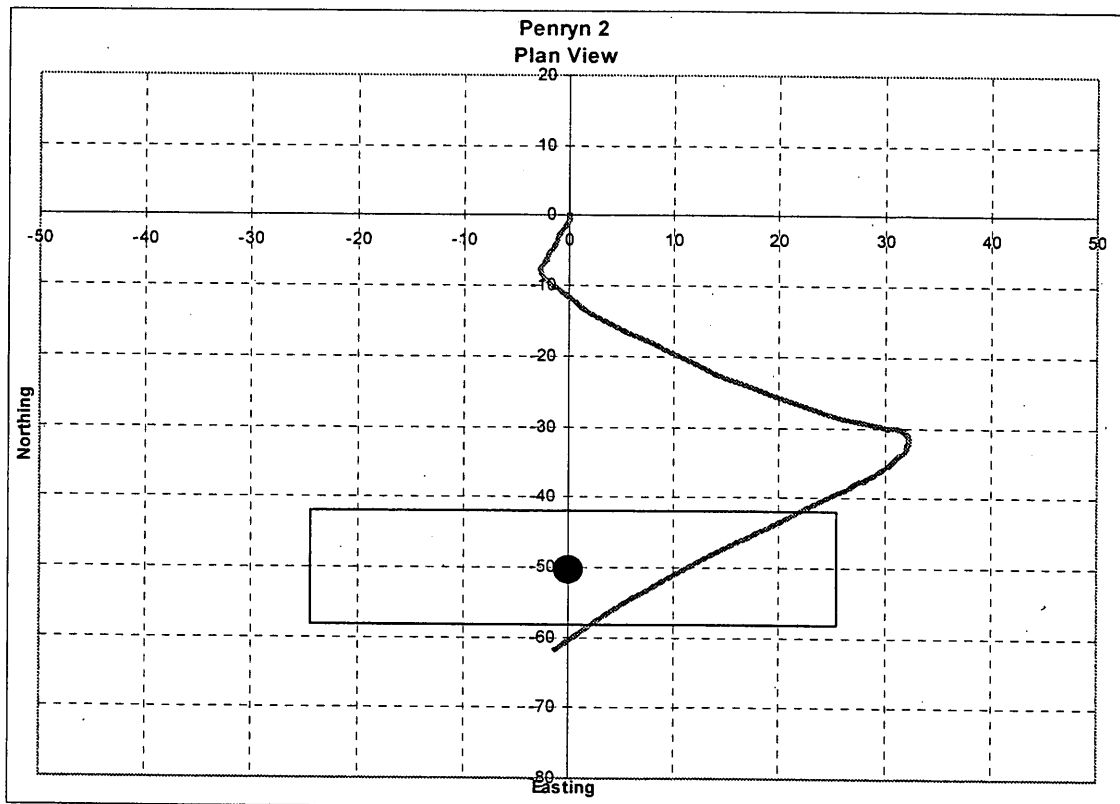
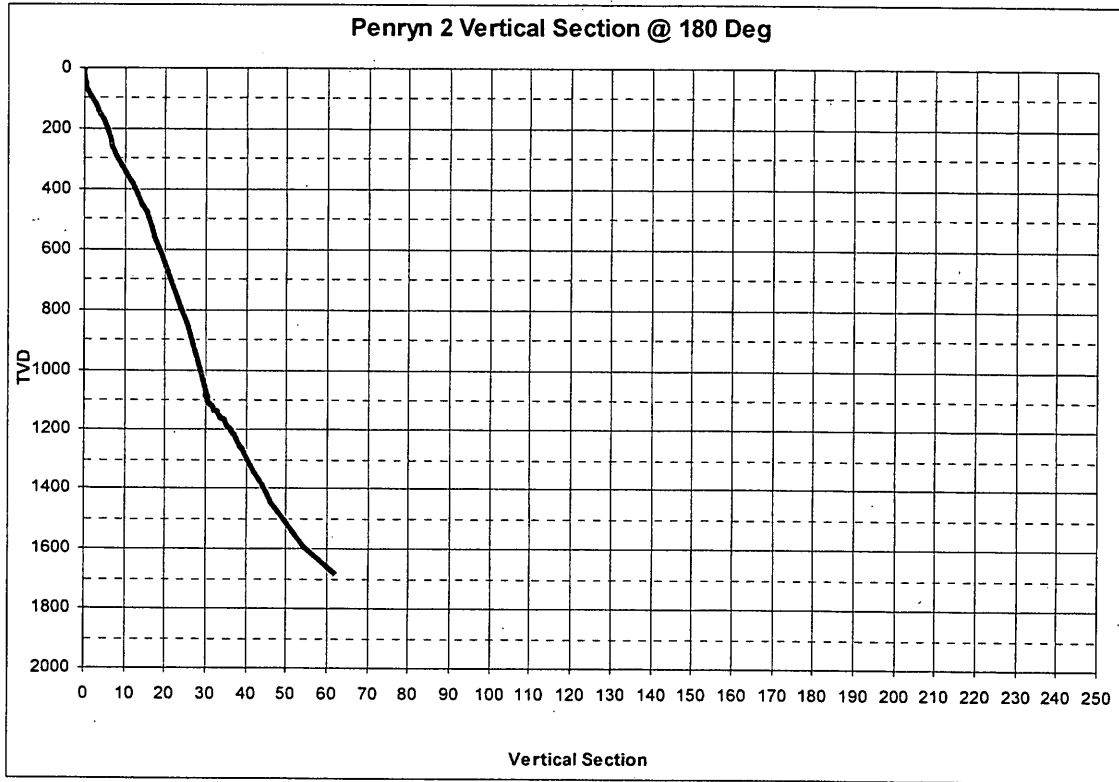
180.0

(offset)

| DEPTH   | Inclination | Azimuth | TVD     | TVD     | Northing | Easting | Q    | Vert  | Vert   | Displ | Direction |
|---------|-------------|---------|---------|---------|----------|---------|------|-------|--------|-------|-----------|
| m       | DEG         | DEG     | m       | S/S m   | north    | east    | DEG  | Sect  | Plane  |       | True      |
| 0       | 0.00        | 0.00    | 0.00    | -133.56 | 0.00     | 0.00    | 0.00 | 0.00  | 0.00   | 0.00  | 0.00      |
| 26      | 0.25        | 62.10   | 26.00   | -107.56 | 0.03     | 0.05    | 0.00 | -0.03 | 0.03   | 0.06  | 0.00      |
| 52      | 1.20        | 191.10  | 52.00   | -81.56  | -0.21    | 0.05    | 0.02 | 0.21  | -0.21  | 0.22  | 167.40    |
| 63      | 2.50        | 199.10  | 62.99   | -70.57  | -0.55    | -0.05   | 0.02 | 0.55  | -0.55  | 0.56  | 185.45    |
| 90      | 2.50        | 201.10  | 89.97   | -43.59  | -1.66    | -0.46   | 0.00 | 1.66  | -1.66  | 1.72  | 195.41    |
| 118     | 2.25        | 200.10  | 117.94  | -15.62  | -2.75    | -0.87   | 0.00 | 2.75  | -2.75  | 2.88  | 197.51    |
| 145     | 2.25        | 198.10  | 144.92  | 11.36   | -3.75    | -1.21   | 0.00 | 3.75  | -3.75  | 3.94  | 197.94    |
| 175     | 1.80        | 204.00  | 174.90  | 41.34   | -4.74    | -1.59   | 0.01 | 4.74  | -4.74  | 5.00  | 198.53    |
| 203     | 1.70        | 202.00  | 202.89  | 69.33   | -5.52    | -1.92   | 0.00 | 5.52  | -5.52  | 5.85  | 199.19    |
| 232     | 1.50        | 199.00  | 231.88  | 98.32   | -6.28    | -2.21   | 0.00 | 6.28  | -6.28  | 6.66  | 199.36    |
| 260     | 1.60        | 202.00  | 259.87  | 126.31  | -6.99    | -2.47   | 0.00 | 6.99  | -6.99  | 7.42  | 199.48    |
| 290     | 1.60        | 197.00  | 289.86  | 156.30  | -7.78    | -2.75   | 0.00 | 7.78  | -7.78  | 8.25  | 199.48    |
| 327     | 3.70        | 140.00  | 326.82  | 193.26  | -9.19    | -2.14   | 0.05 | 9.19  | -9.19  | 9.43  | 193.08    |
| 351     | 3.70        | 138.00  | 350.77  | 217.21  | -10.36   | -1.12   | 0.00 | 10.36 | -10.36 | 10.42 | 186.17    |
| 382     | 3.20        | 142.00  | 381.71  | 248.15  | -11.78   | 0.08    | 0.01 | 11.78 | -11.78 | 11.78 | 179.60    |
| 411     | 3.10        | 138.00  | 410.67  | 277.11  | -13.00   | 1.11    | 0.00 | 13.00 | -13.00 | 13.05 | 175.14    |
| 449     | 2.80        | 129.00  | 448.62  | 315.06  | -14.35   | 2.51    | 0.01 | 14.35 | -14.35 | 14.57 | 170.06    |
| 478     | 2.90        | 125.00  | 477.58  | 344.02  | -15.22   | 3.67    | 0.00 | 15.22 | -15.22 | 15.65 | 166.46    |
| 526     | 2.70        | 124.00  | 525.53  | 391.97  | -16.55   | 5.60    | 0.00 | 16.55 | -16.55 | 17.47 | 161.31    |
| 564     | 2.75        | 127.00  | 563.48  | 429.92  | -17.59   | 7.07    | 0.00 | 17.59 | -17.59 | 18.96 | 158.11    |
| 621     | 2.60        | 125.00  | 620.42  | 486.86  | -19.16   | 9.22    | 0.00 | 19.16 | -19.16 | 21.26 | 154.30    |
| 680     | 2.75        | 127.00  | 679.36  | 545.80  | -20.78   | 11.45   | 0.00 | 20.78 | -20.78 | 23.72 | 151.15    |
| 737     | 3.25        | 122.00  | 736.28  | 602.72  | -22.46   | 13.91   | 0.01 | 22.46 | -22.46 | 26.42 | 148.23    |
| 795     | 2.80        | 118.00  | 794.20  | 660.64  | -23.99   | 16.55   | 0.01 | 23.99 | -23.99 | 29.15 | 145.40    |
| 853     | 2.80        | 120.00  | 852.13  | 718.57  | -25.37   | 19.03   | 0.00 | 25.37 | -25.37 | 31.71 | 143.12    |
| 910     | 3.00        | 116.00  | 909.06  | 775.50  | -26.72   | 21.58   | 0.00 | 26.72 | -26.72 | 34.34 | 141.08    |
| 968     | 3.10        | 113.00  | 966.97  | 833.41  | -28.00   | 24.38   | 0.00 | 28.00 | -28.00 | 37.13 | 138.94    |
| 1026    | 3.50        | 110.00  | 1024.88 | 891.32  | -29.21   | 27.49   | 0.01 | 29.21 | -29.21 | 40.12 | 136.74    |
| 1073.52 | 3.44        | 103.00  | 1072.31 | 938.75  | -30.03   | 30.24   | 0.01 | 30.03 | -30.03 | 42.62 | 134.80    |
| 1083.29 | 3.52        | 102.00  | 1082.06 | 948.50  | -30.16   | 30.82   | 0.00 | 30.16 | -30.16 | 43.12 | 134.38    |
| 1093.07 | 3.27        | 109.00  | 1091.83 | 958.27  | -30.31   | 31.38   | 0.01 | 30.31 | -30.31 | 43.63 | 134.01    |
| 1102.34 | 2.95        | 132.12  | 1101.08 | 967.52  | -30.56   | 31.81   | 0.02 | 30.56 | -30.56 | 44.11 | 133.85    |
| 1112.12 | 3.09        | 159.92  | 1110.85 | 977.29  | -30.97   | 32.08   | 0.03 | 30.97 | -30.97 | 44.60 | 133.99    |
| 1121.82 | 3.39        | 171.76  | 1120.53 | 986.97  | -31.50   | 32.22   | 0.01 | 31.50 | -31.50 | 45.06 | 134.36    |
| 1131.53 | 3.52        | 184.64  | 1130.23 | 996.67  | -32.09   | 32.23   | 0.01 | 32.09 | -32.09 | 45.48 | 134.87    |
| 1141.26 | 3.63        | 199.16  | 1139.94 | 1006.38 | -32.67   | 32.11   | 0.02 | 32.67 | -32.67 | 45.81 | 135.50    |
| 1150.98 | 3.90        | 208.13  | 1149.64 | 1016.08 | -33.26   | 31.85   | 0.01 | 33.26 | -33.26 | 46.05 | 136.24    |
| 1159.94 | 3.93        | 216.41  | 1158.58 | 1025.02 | -33.77   | 31.52   | 0.01 | 33.77 | -33.77 | 46.20 | 136.97    |
| 1169.1  | 3.94        | 218.19  | 1167.71 | 1034.15 | -34.27   | 31.14   | 0.00 | 34.27 | -34.27 | 46.31 | 137.74    |
| 1178    | 3.98        | 217.55  | 1176.59 | 1043.03 | -34.76   | 30.77   | 0.00 | 34.76 | -34.76 | 46.42 | 138.49    |
| 1188.57 | 4.06        | 215.90  | 1187.14 | 1053.58 | -35.35   | 30.32   | 0.00 | 35.35 | -35.35 | 46.57 | 139.38    |
| 1198.29 | 4.00        | 221.42  | 1196.83 | 1063.27 | -35.88   | 29.90   | 0.01 | 35.88 | -35.88 | 46.71 | 140.20    |
| 1207.81 | 3.89        | 229.52  | 1206.33 | 1072.77 | -36.34   | 29.43   | 0.01 | 36.34 | -36.34 | 46.77 | 141.00    |

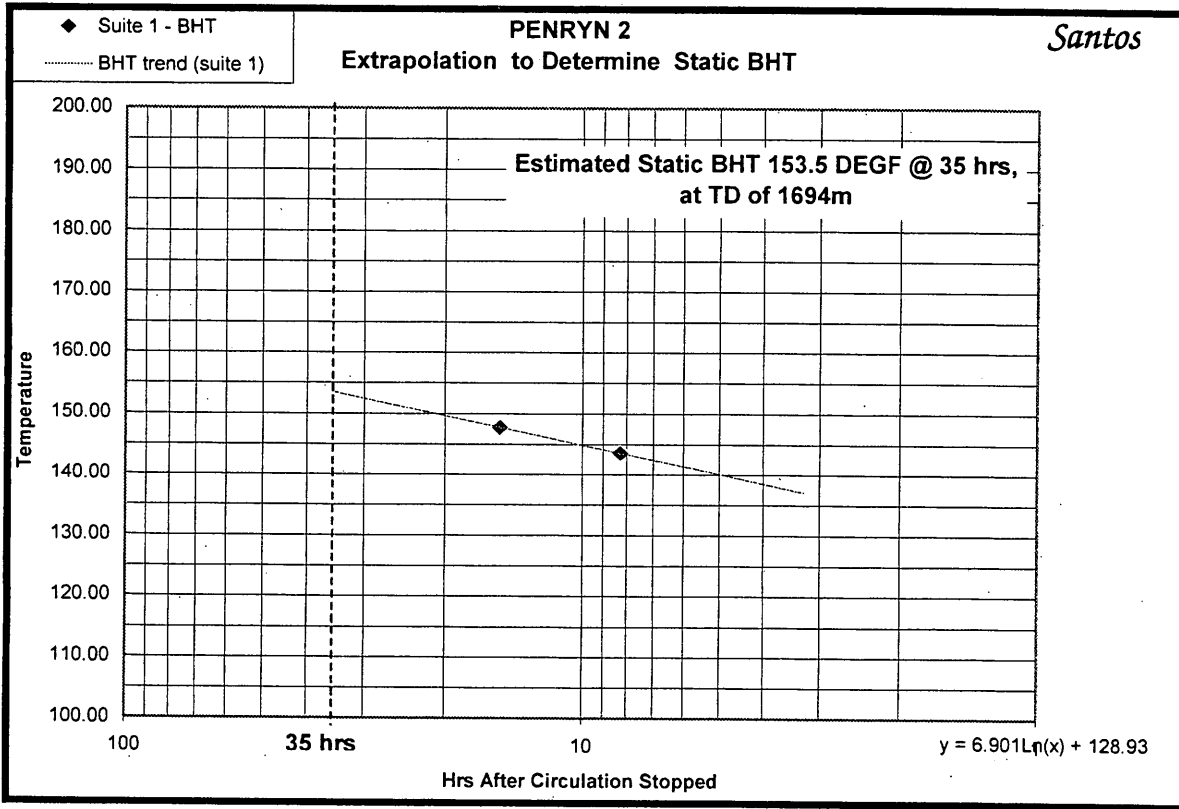
|         |      |        |         |         |        |       |      |       |        |       |        |
|---------|------|--------|---------|---------|--------|-------|------|-------|--------|-------|--------|
| 1217.46 | 3.92 | 231.80 | 1215.96 | 1082.40 | -36.76 | 28.92 | 0.00 | 36.76 | -36.76 | 46.77 | 141.80 |
| 1227.2  | 3.88 | 232.92 | 1225.68 | 1092.12 | -37.16 | 28.40 | 0.00 | 37.16 | -37.16 | 46.77 | 142.61 |
| 1236.99 | 3.86 | 233.51 | 1235.44 | 1101.88 | -37.56 | 27.87 | 0.00 | 37.56 | -37.56 | 46.77 | 143.42 |
| 1246.71 | 3.86 | 230.80 | 1245.14 | 1111.58 | -37.96 | 27.35 | 0.00 | 37.96 | -37.96 | 46.79 | 144.22 |
| 1256.46 | 3.92 | 231.85 | 1254.87 | 1121.31 | -38.37 | 26.84 | 0.00 | 38.37 | -38.37 | 46.83 | 145.03 |
| 1265.65 | 3.85 | 231.36 | 1264.04 | 1130.48 | -38.76 | 26.35 | 0.00 | 38.76 | -38.76 | 46.87 | 145.79 |
| 1338    | 3.70 | 234.00 | 1336.23 | 1202.67 | -41.65 | 22.56 | 0.00 | 41.65 | -41.65 | 47.37 | 151.55 |
| 1397    | 4.20 | 234.00 | 1395.09 | 1261.53 | -44.04 | 19.28 | 0.01 | 44.04 | -44.04 | 48.07 | 156.36 |
| 1450    | 4.30 | 234.00 | 1447.94 | 1314.38 | -46.35 | 16.10 | 0.00 | 46.35 | -46.35 | 49.06 | 160.85 |
| 1594    | 5.90 | 229.00 | 1591.37 | 1457.81 | -54.38 | 6.14  | 0.03 | 54.38 | -54.38 | 54.72 | 173.55 |
| 1685    | 7.25 | 221.00 | 1681.77 | 1548.21 | -61.78 | -1.15 | 0.03 | 61.78 | -61.78 | 61.79 | 181.07 |

# PENRYN 2 DEVIATION PLOTS

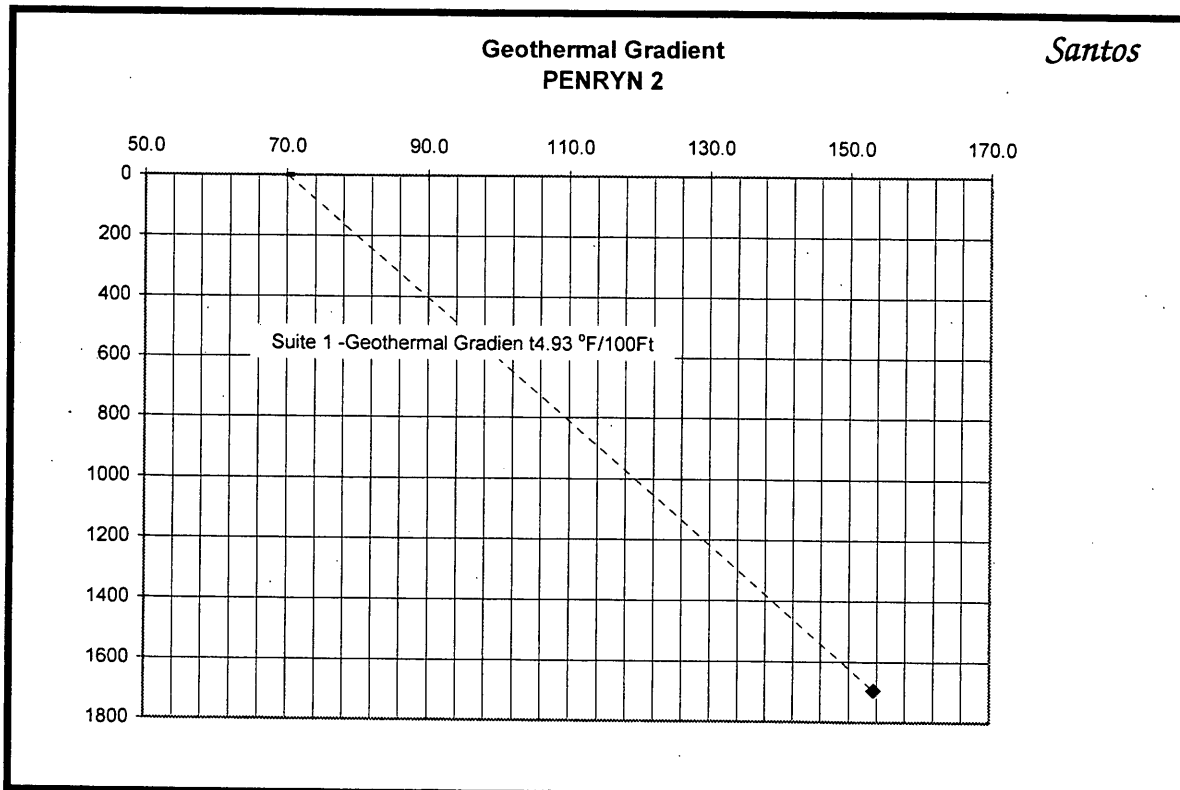


**SECTION 7: GEOTHERMAL GRADIENT**

|       | Max Recorded Temp | Depth Recorded | Time Since Circulation | Total Depth | Estimated BHT |
|-------|-------------------|----------------|------------------------|-------------|---------------|
| Run 1 | 140               | 1652.72        | 8.25                   | 1694        | 143.50        |
| Run 2 | 146               | 1674.5         | 15.17                  | 1694        | 147.70        |
| Run 3 |                   |                |                        |             |               |



|                                 |       |               |   |      |   |
|---------------------------------|-------|---------------|---|------|---|
| STATIC BHT @ 35 hrs             | 153.5 | °F            | @ | 1694 | m |
| SURFACE TEMP.                   | 70    | °F            | @ | 0    | m |
| Geothermal Gradient for Suite 1 |       | 4.93 °F/100 m |   |      |   |



**SECTION 8: TIME/DEPTH CURVE**

**SECTION 9: CATALOGUE OF WELLSITE SAMPLES**



# SAMPLE MANIFEST PENRYN #2

### Sampling Frequency

10m: Spud - 1000m  
3m: 1000m - 1703m (T.D.)

SPUD DATE: 7/3/01 TD DATE: 14/8/01

To: SANTOS CORE LIBRARY

Sampler Trays: Box 1 of 1: Spud-1703m (TD)

Washed & Dried  
Cuttings:

Box 1 of 5: Spud-600m  
" 2 of 5: 600m-1036m

Box 3 of 5: 1036m-1239m  
" 4 of 5: 1242m-1485m  
" 5 of 5: 1488m-1703m

To: DNRE (Victoria)  
Petroleum Branch  
250 Victoria Pde.  
Fitzroy, Victoria 3065

Washed & Dried  
Cuttings:

Box 1 of 3: Spud-820m  
" 2 of 3: 820m-1230m

Box 3 of 3: 1233m-1703m

Total No of Boxes: 9

WELL SITE: shly D

DATE: 16/8/01

GEO-SERVICES: [Signature]

DATE: 16/8/01

**ENCLOSURE I: 5"= 100' MUDLOG**

|   |   |   |
|---|---|---|
| <h1 style="margin:0;">Santos</h1> <p style="font-size: small; margin: 5px 0;">Santos Ltd<br/>A.C.N. 007 550 923</p> | <h2 style="margin:0;">CASING AND CEMENTING REPORT</h2>                | <h2 style="margin:0;">FORM</h2>                       |
|   | <p style="font-size: large; margin:0;">Well Name: <b>PENRYN 2</b></p> | <p style="font-size: large; margin:0;">DQMS F-220</p> |

Casing type:  Surface casing     Intermediate Casing     Production Casing     Completion tubing

Originated by: Seton Porter    Checked by: Justine Bevern    Date: 09-Aug-01

Hole Size: 9-7/8"    T.D.: 357.3 metres    Contractor: O D & E 30

PRE-FLUSH: 40 bbls @ 8.33 ppg. Water    SPACER: bbls @ ppg.  
Additives: Nil    Nil

| CEMENT                                     | ADDITIVES | Product            | %             | Amount  |
|--|-----------|--------------------|---------------|---------|
| LEAD SLURRY: 100 sacks class G             |           | D 020 Bentonite    | 4             | 376 lbs |
| Slurry Yield: 2.84 cu.ft./sack             |           | S 001, Accelerator | 1.5           | 141 lbs |
| Mixwater Req't: 17.43 gal./sack            |           |                    |               |         |
| Actual Slurry Pumped: 50.4 bbls @ 11.5 ppg |           |                    |               |         |
| TAIL SLURRY: 85 sacks class G              |           | D 145A Dispersant  | 0.05 gal/sack | 5 gals  |
| Slurry Yield: 1.19 cu.ft./sack             |           |                    |               |         |
| Mixwater Req't: 5.24 gal./sack             |           |                    |               |         |
| Actual Slurry Pumped: 18.3 bbls @ 15.6 ppg |           |                    |               |         |

**DISPLACEMENT**    Fluid: Mud @ 8.9 ppg

Theoretical Displ.: 51.3 bbl.    Bumped plug with 2000 psi

Actual Displ. 51.2 bbl @ 6 bpm    Pressure Tested to: 2000 psi

Displaced via RIG TRUCK PUMP    Bleed back: 0.3 bbls

| ACTIVITY            | Time  | Returns to Surface: bbls mud  |
|---------------------|-------|---|
| Start Running csg.  | 07:15 | 6 bbls cmt.   |
| Casing on Bottom    | 10:00 | Reciprocate / Rotate Casing: While circulating, then casing chained down  |
| Start Circulation   | 10:35 | Top Up Job run: Yes/No 50 sx class G  |
| Start Pressure Test | 11:05 | Plug Set Make / Type:   |
| Pump Preflush       | 11:15 | Centraliser Placement, type/depth: Bow Spring, Weatherford  |
| Start Mixing        | 11:25 | 348, 337, 319, 296, 273, & 17 metres  |
| Finish Mixing       | 11:41 | Remarks: Casing went right to bottom, head up & circulate. Pressure test lines to 2500 psi & pump 40 bbls of water ahead. Mix & pump 100 sacks of Lead & 86 sacks of Tail cement. |
| Start Displacing    | 11:42 | Displaced with mud, using rig pump. Had 6 bbls of good cement back (minimal mud returns for a short time at start of displacement) Ran Top-Up job & circulated good cement back   |
| Stop Displ./Bump    | 11:54 |   |
| Press. test         | 12:05 | from a depth of 13 metres, RT., at 1300 hrs.  |

| No. JOINTS                          | SIZE OD     | WT lb/ft | GRADE | THREAD | Metres | FROM   | TO     |
|-------------------------------------|-------------|----------|-------|--------|--------|--------|--------|
| Stick Up (Enter as negative number) |             |          |       |        | -0.98  |        |        |
| Rotary table to top of Bradenhead   |             |          |       |        | 4.64   |        | 4.64   |
| Bradenhead                          |             |          |       |        |        |        |        |
| Jts                                 |             |          |       |        |        |        |        |
| marker                              |             |          |       |        |        |        |        |
| Jts                                 |             |          |       |        |        |        |        |
| marker                              |             |          |       |        |        |        |        |
| Jts                                 |             |          |       |        |        |        |        |
| Landing Joint                       | 7-5/8"      | 26.4     | L-80  | BTC    | 6.15   | -0.98  | 5.17   |
| 28 Jts                              | 7-5/8"      | 26.4     | L-80  | BTC    | 326.04 | 5.17   | 331.21 |
| Float Collar                        | Weatherford |          |       | BTC    | 0.40   | 331.21 | 331.61 |
| Joints                              | 7-5/8"      | 26.4     | L-80  | BTC    | 23.24  | 331.61 | 354.85 |
| Float Shoe                          | Weatherford |          |       | BTC    | 0.45   | 354.85 | 355.30 |

Theoretical Bouyed wt of casing(klb): 26.6    Bradenhead Height above GL

Actual wt of casing (last joint run-block wt, klb) 24.0    Casing wt just prior to landing csg/ 23 klbs

Landing WT (after cementing and pressure bleed off) 23.0    setting slips

|   |                |   |              |   |               |   |           |
|---|----------------|---|--------------|---|---------------|---|-----------|
| <h1 style="margin: 0;">Santos</h1>  |                | <h2 style="margin: 0;">CASING AND CEMENTING REPORT</h2> |              |   |               | <h2 style="margin: 0;">FORM</h2>  |           |
| Santos Ltd<br>A.C.N. 007 550 923  |                | <b>Well Name: PENRYN 2</b>                              |              |   |               | <b>DQMS F-220</b>   |           |
| <b>Casing type:</b> <input type="checkbox"/> Surface casing <input type="checkbox"/> Intermediate Casing <input checked="" type="checkbox"/> Production Casing <input type="checkbox"/> Completion tubing |                |   |              |   |               |   |           |
| <b>Originated by:</b> Seton Porter  |                | <b>Checked by:</b> Geoff Coker                          |              | <b>Date:</b> 17-Aug-01  |               |   |           |
| <b>Hole Size:</b> 6-3/4"  |                | <b>T.D.:</b> 1703 metres                                |              | <b>Contractor:</b> O D & E 30                                       |               |   |           |
| <b>PRE-FLUSH</b> 40 bbls @ 8.33 ppg. Water  |                | SPACER 5 bbls @ 8.33 ppg. Water                         |              |   |               |   |           |
| Additives: S.A.P.P, Biocide   |                |   |              |   |               |   |           |
| <b>CEMENT</b>   |                |   |              | <b>ADDITIVES</b>  |               |   |           |
| LEAD SLURRY:  |                | 343 sacks class G                                       |              | Product   |               | %   |           |
| Slurry Yield:   |                | 2.84 cu.ft./sack  |              | D 020 Bentonite   |               | 4   |           |
| Mixwater Req't:   |                | 17.43 gal./sack   |              | D081 Retarder   |               | 1.5   |           |
| Actual Slurry Pumped:   |                | 172 bbls @ 11.5 ppg                                     |              | D047 Antifoam   |               | 0.01  |           |
| TAIL SLURRY:  |                | 100 sacks class G                                       |              | D 145A Dispersant   |               | 0.01  |           |
| Slurry Yield:   |                | 1.19 cu.ft./sack  |              | D047 Antifoam   |               | 0.01  |           |
| Mixwater Req't:   |                | 5.24 gal./sack  |              | D080 Dispersant   |               | 0.05  |           |
| Actual Slurry Pumped:   |                | 21 bbls @ 15.6 ppg                                      |              |   |               |   |           |
| <b>DISPLACEMENT</b> Fluid: 3% KCL Brine 8.5 ppg   |                |   |              |   |               |   |           |
| Theoretical Displ.:   |                | 48.05 bbl.  |              | Bumped plug with  |               | 2000 psi  |           |
| Actual Displ.   |                | 45 bbl @ 6 bpm  |              | Pressure Tested to:   |               | 2000 psi  |           |
| Displaced via   |                | RIG TRUCK PUMP  |              | Bleed back:   |               | 0.3 bbls  |           |
| <b>ACTIVITY</b>   |                | <b>Time</b>   |              | <b>Returns to Surface:</b> Full bbls mud                            |               | <b>Trace of bbls cement.</b>  |           |
| Start Running csg.  |                | 16/08/2001 15:30  |              | Reciprocate/ Rotate Casing: Yes                                     |               |   |           |
| Casing on Bottom  |                | 16/08/2001 21:55  |              | Top Up Job run: Yes/No  |               | sx class G  |           |
| Start Circulation   |                | 16/08/2001 22:25  |              | Plug Set Make / Type:   |               |   |           |
| Pump Preflush   |                | 16/08/2001 23:15  |              | Centraliser Placement, type/depth:                                  |               | Bow Spring, Weatherford   |           |
| Start Pressure Test   |                | 16/08/2001 23:20  |              | 1693, 1670, 1658, 1633, 1608, 1584, 1556, 1531, 344, 319 m          |               |   |           |
| Start Mixing  |                | 17/08/2001 00:03  |              | Remarks:  |               | Casing went right to bottom at 1703 m. Laid out 1 joint, shoe at 1696 m. Head up & circulate. Pump 40 bbls of Biocide treated mud ahead, then 40 bbls of S.A.P.P Pre-Flush. Trouble with Dowell line plugged with cement then pressure tested to 2500 psi. Mix & pump Lead & Tail cement slurries, on spec. Displaced cement with 2% KCL brine & bumped plug to 2000 psi. Start of Lead returned over shakers. W.O.C then set slips |           |
| Finish Mixing   |                | 17/08/2001 00:36  |              |   |               |   |           |
| Start Displacing  |                | 17/08/2001 00:38  |              |   |               |   |           |
| Stop Displ./Bump  |                | 17/08/2001 00:50  |              |   |               |   |           |
| Press. test   |                | 17/08/2009 01:01  |              |   |               |   |           |
| <b>No. JOINTS</b>   | <b>SIZE OD</b> | <b>WT lb/ft</b>   | <b>GRADE</b> | <b>THREAD</b>   | <b>Metres</b> | <b>FROM</b>   | <b>TO</b> |
| Stick Up (Enter as negative number)   |                |   |              |   | -0.92         |   |           |
| Rotary table to top of Bradenhead   |                |   |              |   | 4.64          |   | 4.64      |
| Bradenhead  |                |   |              |   |               |   |           |
| 128 Jts   |                |   |              |   | 9.2           | J-55  | Fox       |
| Marker  |                |   |              |   | 3-1/2"        | 9.2   | L-80      |
| 8 Jts   |                |   |              |   | 9.2           | J-55  | Fox       |
| Float Collar  |                |   |              |   | Weatherford   |   | Fox       |
| 1 Joint   |                |   |              |   | 3-1/2"        | 9.2   | J-55      |
| Float Shoe  |                |   |              |   | Weatherford   |   | Fox       |
| Theoretical Bouyed wt of casing(klb):   |                |   | 44.1         | Bradenhead Height above GL  |               |   |           |
| Actual wt of casing (last joint run-block wt, klb)  |                |   | 40.0         | Casing wt just prior to landing csg/ 36 klbs                        |               |   |           |
| Landing WT (after cementing and pressure bleed off)   |                |   | 36.0         | setting slips. Set slips with 40 klbs over casing weight ie 76.klbs |               |   |           |

PE605300

This is an enclosure indicator page.  
The enclosure PE605300 is enclosed within the  
container PE908042 at this location in this  
document.

The enclosure PE605300 has the following characteristics:

ITEM\_BARCODE = PE605300  
CONTAINER\_BARCODE = PE908042  
NAME = Penryn-2 Mud Log  
BASIN = OTWAY  
ONSHORE? = Y  
DATA\_TYPE = WELL  
DATA\_SUB\_TYPE = MUD\_LOG  
DESCRIPTION = Encl.1 Penryn-2 Mud Log, Scale 1:500,  
W1325, PEP/153, Enclosure 1 contained  
within "Penryn-2 Raw Data Report"  
(PE908042).  
REMARKS =  
DATE\_WRITTEN =  
DATE\_PROCESSED =  
DATE\_RECEIVED = 28-NOV-2001  
RECEIVED\_FROM = Santos Ltd  
WELL\_NAME = Penryn-2  
CONTRACTOR = Santos Ltd  
AUTHOR =  
ORIGINATOR = Santos Ltd  
TOP\_DEPTH = 0  
BOTTOM\_DEPTH = 1703  
ROW\_CREATED\_BY = DN07\_SW

(Inserted by DNRE - Vic Govt Mines Dept)