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DEPT. NAT. RES. & ENV.



PE914491

PENRYN-2 PROGRAM
APPROVAL
W1325, PEP153
PE 914491

SABU PETROLEUM ENGINEERING PROGRAM APPROVAL

PLEASE SIGN AND PASS ON TO NEXT PERSON URGENTLY
(DO NOT SEND VIA INTERNAL MAIL)

CIRCULATION

POSITION	NOMINEE	CONTACT	ACTION	SIGNATURE / DATE
<u>Gas Well Services</u> Responsible Officer	N. Baini	(W) 08 8224 7338 (H) 08 8363 4705	Prepare program	<i>N. Baini</i> 23/8/01
Operations Superintendent	M. Gillies	(W) 08 8224 7295 (H) 08 8295 2410	Review	<i>M. Gillies</i> 23/8/01
<u>Reservoir Development</u> Project Leader	R. Price	(W) 08 8224 7856 (H) 08 8276 6143	Review	<i>R. Price</i> 24/8/01
Team Leader	J. Hulme	(W) 08 8224 7324 (H) 08 8338 0169	Review	<i>J. Hulme</i> 24/8/01

DISTRIBUTION

Adelaide

Well File (original)

N. Baini

Victoria

Heytesbury Gas Plant Supervisor

R. Willox

Reeves Wireline

R. Price

P. Min

2

1

1

Dept. Of Natural Resources

Expertest

2

1

Santos Ltd
A.C.N. 007 550 923

Santos

Cost Code: 8ED - 83D271 - 813

BCRs:

<u>Contractor</u>	<u>Contract Number</u>	<u>Release no.</u>	<u>Comment</u>
Ascots	528746	282	Materials Transport
Slickline contractor	SC982940	1279	Slickline Services

Purpose of Program: To complete Penryn #2 as a Waarre Unit "C" gas producer. Well testing will not be carried out on this well after perforating.

Event Summary:

- Rig up and pressure test flareline.
- Slickline drift.
- Memory CBL.
- Slickline perforate Waarre Unit "C" sandstone with underbalance.
- Flow to flare for cleanup, then connect inline.

Current Well Status: 3-1/2" monobore currently cased and suspended pending completion as a Waarre Unit "C" gas producer.

Block: PL5, Onshore Otway Basin, Victoria.

Location:

Latitude 38° 31' 20.15" S
Longitude: 142° 58' 43.05" E
Seismic line CDP 10323 INLINE 3285

Elevation:

Ground Level 128.70 m
Rotary Table: 133.39 m
Elevations are Above Mean Sea Level.
All depths are m. RT unless otherwise noted.

Brief Well History: Penryn #2 was drilled as a 3-1/2" monobore in South Western Victoria (Otway Basin) in August 2001. The well intersected approximately 30m of high porosity, high permeability net pay in the Waarre "C" and "A" sandstone. The well was cased with 3-1/2" J55 production casing to 1696mRT, based on a well life of <4 years. The well is currently suspended as a Waarre gas producer, pending completion activities. The well is located approximately 1.9 km from Penryn 1 and 4.0 km from Fenton Creek 1.

Wellhead Maintenance: Not yet performed.

Casing Details: Refer to Attachment #1 for Surface Casing & Cementing report and Attachment #2 for Production Casing & Cementing report.

TD: 1703m RT (5587' RT)

PBTD: 1682m RT (5518' RT)

Perforations: Yet to be perforated.

Reservoir Pressure & Temperature:

Formation	Pressure	Temperature	Source
Waarre Unit "C"	1751 psia @ 1599m RT (5246ft RT)	144 °F	FMT - 08/2001

Wellhead Equipment: See Wellhead Schematic (Attachment 3).

Downhole Equipment: See Proposed Wellbore Schematic (Attachment 4).

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1. Surface Casing & Cementing Report
2. Production Casing & Cementing Report
3. Wellhead Schematic
4. Proposed Downhole Schematic
5. Perforation Request Advice
6. Generic Lease Layout
7. Emergency Contacts
8. CFA Fire Permits

KILL FLUID CALCULATION SHEET

Formation:	Waarre Unit "C"
Reservoir Depth (ft.)	5246
Reservoir Pressure (psi)	1751
Reservoir Temperature (°F)	144
Kill Fluid Weight :	$\frac{1751 + 150}{5246 \times 0.052}$
	6.97 lb/gal
Temperature Correction:	Average Downhole Temp. $= \frac{144 + 70}{2}$
	= 107 °F
	Density Correction: = 0.003 (107-70) lb/gal
	= 0.111 lb/gal
	Kill Fluid Weight at 70°F = 7.08 lb/gal

If required to the kill well, use 2% KCl fluid with a density of 8.43lb/gal.

PROCEDURES

Note: Phone numbers for the site are 03 5598 3937 & 03 5598 3943

Refer to the following SANPE procedures where necessary.

- 1-7 Wellsite Inspection for Downhole and Surface Completion Equipment.
- 1-10 Tubing Conveyed Perforating – Special Considerations.
- 1-11 Well Control Equipment Testing
- 1-13 Well Maintenance-Top Up and Pressure Testing
- 1-14 Installation of Flarelines.
- 5-1 Slick line rig up
- 7-1 Work Place Hazard Inspections
- 7-2 Chemical Handling and Transport
- 7-3 Manual Handling Task Assessment
- 8-8 Flarelines and Flarepits
- 8-9 Flowback Procedures

1. FLARELINE INSTALLATION & DRIFT

- 1.1. Conduct wellsite safety meeting.
- 1.2. Rig up 3-1/2" flareline complete with 2-1/16" H2 choke to 2-1/16" (R24) x 3-1/8" (R35) adaptor flange and 3-1/8" wing valve.

Note: Ensure that the flare line is laid out taking into account the prevailing wind.

Rig up wing valve, variable choke and flowlines according to the standard procedures ensuring that appropriate spacing is allowed between each major item of equipment. Refer to attachments #6 for lease layout.

Flare pit must be banded for flare containment.

- 1.3. Function test 3-1/8" 5000 psi Trim 2 wellhead.
- 1.4. Rig in slickline with 3000 psi lubricator and pressure test to 3000 psi for 10 mins. Pressure test wellhead to 3000 psi.
- 1.5. Pressure test surface casing string to 1000 psi and hold for 10 minutes. Record and report results of the pressure tests.

Note: The maximum expected shut in surface pressure (full column of gas) is approximately 1700 psi.

- 1.6. Make up and RIH 1.75" drift and tag PBTD @ 1682m RT.
- 1.7. Make up and RIH 2.867" API drift and tag PBTD.
- 1.8. Make up and RIH 2.75" x 20' dummy perforating drift and tag PBTD (for 2-1/8" perforating guns).

2. CONDUCT MEMORY CBL-VDL-GR-CCL

- 2.1. Make up Memory CBL-VDL-GR-CCL toolstring.
- 2.2. RIH and perform Repeat Section from 1620mRT to 1590mRT.
- 2.3. RIH to PBTD and log upwards, performing main log to 1458m RT to determine cement bond quality across the target formation and to record GR/CCL across the Waarre Unit "C" interval for correlation to open hole logs.

Note: The pup joint (marker joint) above the Waarre Unit "C" must be logged.

- 2.4. POOH to approx. 390m RT (35m below surface casing shoe).
- 2.5. Log across the surface casing shoe to 135m RT (70m above expected top of cement) to determine the top of cement.
- 2.6. POOH and download data for depth correlation purposes. Correlate to open-hole log DLL-MLL-DAA-GR-CAL, dated 15/08/2001 as provided in PRA:01/049 Rev. 0 (Attachment #5).

Note: If a suitable log has not been recorded, then the CBL-VDL will need to be re-run.

- 2.7. Prepare to swab well.

3. SWAB WELL

- 3.1. Rig in swabbing equipment.
- 3.2. RIH and swab well down to at least 400m. This will provide an underbalance of approx. 580 psi. Swabbed fluids must be directed to the flare pit.

Note: Brine in wellbore is 8.5 ppg.

A fluid head of at least 500 psi is required on top of the firing head.

- 3.3. Rig down swabbing equipment.

4. RUN SLICKLINE PERFORATING SYSTEM

- 4.1. Conduct an onsite safety meeting and job review.

Note: Before commencing operations, report any wellhead pressures that may be present.

Ensure that the full details of the tubing stop and other downhole components are recorded.

- 4.2. Make up and RIH with "A" tubing stop assembly to approx. 1621m RT (20m below Waarre Unit "C") and perform setting procedure in accordance with standard procedures.

Note: Ensure that the tubing stop setting depth does not interfere with the required perforation intervals given in PRA (Attachment #5).

The lowest perforation is at 1601m RT.

5. CORRELATION & DATA ACQUISITION

- 5.1. Make up memory CCL-GR gauges and Micro Smart firing head without explosive charges (to determine the shooting parameters for the perforating run) to Expertest slickline.
- 5.2. RIH and tag tubing stop. Pull up to the perforating depth to record pressure and temperature. Take note of the time required to land the toolstring at the perforation depth, to give an indication of allowable time to start the fire window. Log from tubing stop up to at least 1560m (5118') RT (ie include marker joint at 1580.89 – 1583.95m RT). POOH.
- 5.3. The perforating engineer will download the data so that a hard copy of the depth correlation is available for reference. Correlate to the open hole depth reference log DLL-MLL-DAA-GR-CAL, dated 15/08/2001, and cased hole CBL-VDL-GR-CCL run previously. Determine the exact depth of the tubing stop in reference to the open hole log.

6. PREPARE & RUN GUN MODULE

- 6.1. Hold safety meeting to discuss operations with explosives. Conduct "Job Safety Analysis" and "Step Back" to review operations.
- 6.2. Load 2-1/8" Owen Retrievable Tubing Gun with 6.5g Raptor SDP-2125-402NTX charges at 6spf and 60° phasing to perforate the Waarre Unit "C" sand as outlined in PRA:01/049 Rev. 0 (Attachment #5).
- 6.3. Conduct WSSM & OB and record on both Santos Daily Report and Slickline contractor Job Logs.

Penryn #2
Perforation

Note: Ensure that there are not any fire restrictions (ie. total fire ban), and that the appropriate authorities (CFA, Police etc.) and local residents have been notified.
Refer to Attachment #7.

If fire restrictions are in place then do not proceed with perforating of the well.
Refer to Attachment #8.

Ensure that the DNRE have been notified 24 hours prior to perforating the well.

- 6.4. Program Micro Smart firing head to detonate at perforation depth according to data collected during the acquisition run.
- 6.5. Make up Micro Smart firing head c/w no-blow sub and perforating gun module to toolstring and RIH.

Note: The Santos representative is to double check perforation interval as marked on gun module.

- 6.6. Tag tubing stop, and pull up required distance to perforate Waarre Unit "C" sand.
- 6.7. Perforate on depth **WITH THE WELL OPEN**. The underbalance will be approximately 500 psi. Leave the gun on depth until the fire window time has elapsed.
- 6.8. Flow to flare to unload water cushion and any perforating debris.
- 6.9. Once the water cushion has unloaded, shut the well in and POOH with perforating assembly.
- 6.10. RIH and pull tubing stop.

Note: Advise GWS-Adelaide if any difficulties are encountered in recovering any of the perforating components.

- 6.11. To ensure that all fluid has unloaded from the wellbore, flow well on ½" choke, recording FTHP and flare status. Note SISCP and bleed down as required.
- 6.12. RDMO Expertest.
- 6.13. Shut in well and secure.
- 6.14. Report results to GWS-Adelaide.

SURFACE CASING & CEMENTING REPORT

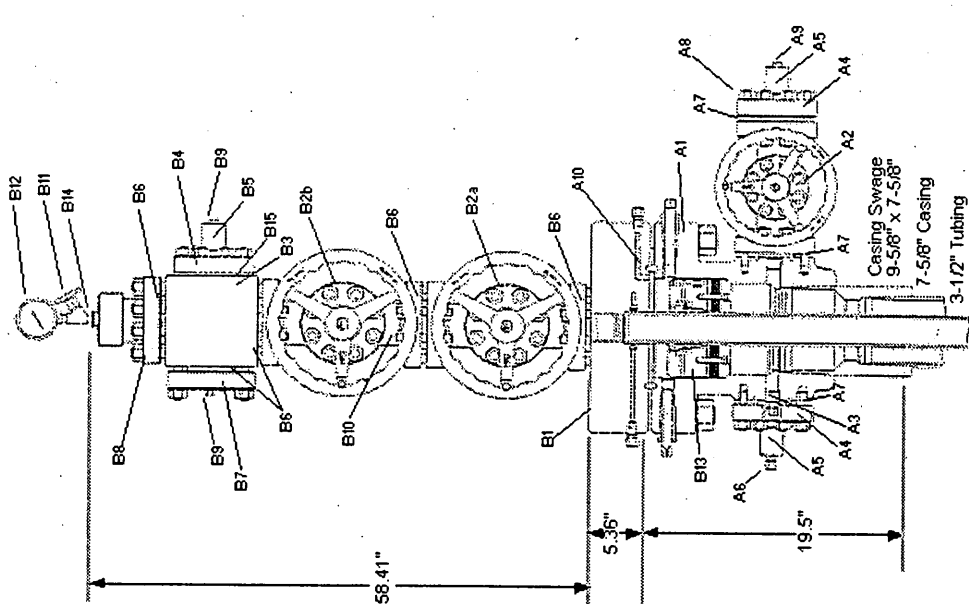
<h1 style="margin: 0;">Santos</h1> <small>Santos Ltd A.C.N. 007 550 923</small>		CASING AND CEMENTING REPORT				FORM	
		Well Name: PENRYN 2				DQMS F-220	
Casing type: <input checked="" type="checkbox"/> Surface casing <input type="checkbox"/> Intermediate Casing <input type="checkbox"/> Production Casing <input type="checkbox"/> 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: Nil		bbls@ ppg.			
Additives: Nil		Nil					
CEMENT				ADDITIVES			
LEAD SLURRY: 100 sacks class G		Product: D 020 Bentonite		%: 4		Amount: 376 lbs	
Slurry Yield: 2.84 cu.ft./sack		S 001, Accelerator		%: 1.5		Amount: 141 lbs	
Mixwater Req't: 17.43 gal./sack							
Actual Slurry Pumped: 50.4 bbls @ 11.5 ppg							
TAIL SLURRY: 85 sacks class G		Product: D 145A Dispersant		%: 0.05 gal/sack		Amount: 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 6 bbls cmt.	
Start Running csg.		07:15		Reciprocate / Rotate Casing:		While circulating, then casing chained down	
Casing on Bottom		10:00		Top Up Job run: (Yes/No)		50 sx class G	
Start Circulation		10:35		Plug Set Make / Type:			
Start Pressure Test		11:05		Centraliser Placement, type/depth:		Bow Spring, Weatherford	
Pump Preflush		11:15		348, 337, 319, 296, 273, & 17 metres			
Start Mixing		11:25		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.	
Finish Mixing		11:41		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 from a depth of 13 metres, RT., at 1300 hrs.			
Start Displacing		11:42					
Stop Displ./Bump		11:54					
Press. test		12:05					
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			

PRODUCTION CASING & CEMENTING REPORT

Santos		CASING AND CEMENTING REPORT			FORM	
Santos Ltd A.C.N. 007 550 923		Well Name: PENRYN 2			DQMS F-220	
Casing type: <input type="checkbox"/> Surface casing <input type="checkbox"/> Intermediate Casing <input checked="" type="checkbox"/> Production Casing <input type="checkbox"/> Completion tubing						
Originated by: Seton Porter		Checked by: Geoff Coker		Date: 17-Aug-01		
Hole Size: 6-3/4"	T.D.: 1703 metres			Contractor: OD & E	30	
PRE-FLUSH: 40 bbls. @ 8.33 ppg. Water			SPACER: 5 bbls @ 8.33 ppg. Water			
Additives: S.A.P.P, Biocide						
CEMENT			ADDITIVES			
LEAD SLURRY:	343 sacks class	G	Product	%	Amount	
Slurry Yield:	2.84 cu.ft./sack		D 020 Bentonite	4	1290 lbs	
Mixwater Req't:	17.43 gal./sack		D081 Retarder	1.5	14 gals	
Actual Slurry Pumped:	172 bbls @ 11.5 ppg		D047 Antifoam	0.01	4 gals	
TAIL SLURRY:	100 sacks class	G	D 145A Dispersant	0.01	5 gals	
Slurry Yield:	1.19 cu.ft./sack		D047 Antifoam	0.01	2 gals	
Mixwater Req't:	5.24 gal./sack		D080 Dispersant	0.05	5 gals	
Actual Slurry Pumped:	21 bbls @ 15.6 ppg					
DISPLACEMENT			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	
ACTIVITY		Time	Returns to Surface: Full	bbls mud		Trace of bbls cement.
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.			
Finish Mixing	17/08/2001 00:36		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			
Start Displacing	17/08/2001 00:38					
Stop Displ./Bump	17/08/2001 00:50					
Press. test	17/08/2009 01:01					
No. JOINTS	SIZE OD	WT lb/ft	GRADE	THREAD	Metres	FROM TO
Stick Up (Enter as negative number)						-0.92
Rotary table to top of Bradenhead						4.64
Bradenhead						
128 Jts		9.2	J-55	Fox	1581.81	-0.92 1580.89
Marker	3-1/2"	9.2	L-80	Fox	3.06	1580.89 1583.95
8 Jts	3-1/2"	9.2	J-55	Fox	98.92	1583.95 1682.87
Float Collar	Weatherford			Fox	0.35	1682.87 1683.22
1 Joint	3-1/2"	9.2	J-55	Fox	12.37	1683.22 1695.59
Float Shoe	Weatherford			Fox	0.41	1695.59 1696.00
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		

WELLHEAD SCHEMATIC

WELLHEAD INSTALLATION REPORT		Santos	
FORM		2 STRING MONOBORE (7-5/8" SURFACE CASING)	
DQMS F-130		Well: PENRYN 2	
Supervisor: Seton Porter		Date: 16-Aug-2001	
COMPONENT	DESCRIPTION	No USED	
A1. Casing Head	11" 5k x 7-5/8" 5k c/w BTC Box (WG-22-L, BTS, PR-2, CC, U)	1	
A2. Gate Valve	2-1/16" 5k Model 2200 (Type FE, PSL-1, PR-1, BB, U)	1	
A3. Plug	1-1/2" line pipe c/w 1-1/4" hex	1	
A4. Companion Flange	2-1/16" 5k x 2" line pipe, (AA, U)	2	
A5. Bull Plug	2" line pipe tapped c/w 1/2" NPT, XX-H	2	
A6. Test Fitting	1/2" NPT	1	
A7. Ring Gasket	RX-24 Stainless Steel	3	
A8. Studs	7/8" x 6-1/4" long c/w nuts	8	
A9. Pipe Plug	1/2" NPT male	1	
A10. Ring Gasket	RX-54 Stainless Steel	1	
B13. Slip & Seal Assy	11" x 3-1/2" (WG-22, PSL-1, PR-2, AA, U)	1	
B1. Adaptor Flange	11" x 3-1/8" 5k, 3.5" P seal, 3" H BPV (WG-A4-P, PSL-1, CC, U)	1	
B2a. Gate Valve	3-1/8" 5k Model 2200 (6A, PSL-1, PR-2, CC, PU)	1	
B2b. Gate Valve	2-1/16" 5k Model 2200 (6A, PSL-1, PR-2, CC, U)	1	
B3. Flow Cross	3-1/8" x 3-1/8" x 3-1/8" x 2-1/16" 5k (PSL-1, PR-2, CC, U)	1	
B4. Companion Flange	2-1/16" 5k x 2" line pipe, (AA, U)	1	
B5. Bull Plug	2" line pipe tapped c/w 1/2" NPT, XX-H	1	
B6. Ring Gasket	RX-35 Stainless Steel	5	
B7. Blind Flange	3-1/8" 5k tapped 1/2" NPT (CC, U)	1	
B8. Tree Cap	3-1/8" 5k c/w Bowen union, 3.5" lift thread, tapped 1" NPT	1	
B9. Pipe Plug	1/2" NPT male	1	
B10. Studs	7-1/4" x 1-1/8" w/ nuts	8	
B11. Needle Valve	1/2" NPT 5k Stainless Steel	1	
B12. Pressure Gauge	1/2" NPT 0-5000psi	1	
B14. Reducer	1" male x 1/2" female NPT Reducer	1	
B15. Ring Gasket	RX-24 Stainless Steel	1	
Notes:			
3-1/2" Tubing stub cut off 85mm above top flange on bradenhead.			
1/2" NPT male Pipe plug fitted in lieu of items B11 & B12 at this time.			



PROPOSED DOWNHOLE SCHEMATIC

PETROLEUM ENGINEERING DEPARTMENT
DOWNHOLE COMPLETION

Penryn #2

28-Aug-2001

Santos

Santos Ltd A.C.N 007 550 923

No	DESCRIPTION	LENGTH (m)	DEPTH(mRT)	MIN. ID (in)				
	Rotary table to top of Bradenhead	4.64						
	Casing Hanger Slip & seal assembly (Type WG-22)		4.64					
1	3-1/2" J55 9.2# Fox Tubing part jt	6.48	4.64					
127	3-1/2" J55 9.2# Fox Tubing	1569.77	11.12					
1	3-1/2" L80 9.2# Fox Tubing marker jt	3.06	1580.89					
8	3-1/2" J55 9.2# Fox Tubing	98.92	1583.95					
1	Float Collar (Weatherford) Fox	0.35	1682.87					
1	3-1/2" J55 9.2# Fox Tubing	12.37	1683.22					
1	Float Shoe (Weatherford) Fox	0.41	1695.59					
	End of Float Shoe		1696.00					
***NB. Average length of production tubing is 12.36m.								
PROPOSED								
A	Surface Casing (7-5/8" L-80 26.4# BTC)							
	Surface Casing Float Shoe		355.30					
PERFORATION INTERVALS:								
FORMATION		INTERVAL (m RT)	GUN:			CHARGES:		
PROPOSED Waarre Unit "C"		PROPOSED 1598 - 1601	SIZE	TYPE	PHASE	SPF	TYPE	WT(g)
			2-1/8"	Owen	60°	6	Raptor SDP	6.5
ANNULUS FLUID:		8.33ppg water						
INDICATED STRING WT:		36,000 lb						
CALCULATED STRING WT:		44,100 lb						
SLACK OFF WT:		N/A						
TENSION:		40,000 lb						
REMARKS:								
WELLSITE SUPERVISOR:		Seton Porter						
	DATE	NAME	OTHER:					
DRAFTED:	23-Aug-01	N. Bains						
REVISED:								
CHECKED:								

PBTD (m RT)
1703

PERFORATION REQUEST ADVICE

PERFORATION RECOMMENDATION APPROVAL

WELL: PENRYN 2 DATE: 20/08/01
FORMATION: WAARRE AUTHOR: G. PARSONS / R. PRICE
DEPTH REFERENCE LOG: DLL-MLL-DAA-GR-CAL LOG DATE: 15/08/01

RECOMMENDED PERFORATIONS:

FORMATION	SAND	SAND Unit	PERFORATION INTERVAL (m RT*)	NET PAY (m)	Ø Avg (%)	Sw Avg (%)	Sand Quality	Temp (°F)	Press (psi)	Source	OGIP (Bcf)	DST	GWC (mRT)	Water
Waarre	C	C	1598 - 1601	31.4	22.1	14.6	Good	144	1751	FMT	3.6	N/A	N/A	N/A

REASONS FOR PERFORATION:

Access undeveloped gas reserves in the Penryn field.

CURRENT WELL STATUS:

Penryn 2 is currently cased and suspended. The well is scheduled to be perforated within the next couple of weeks and on-line by mid- September 2001.

PPL STATUS:

Penryn 2 is located with PL5.

RECOMMENDATION:

The Waarre Sandstone intervals should be perforated as detailed above. The small perforation interval should maximise the reserves produced from the well while not compromising the flow rate. It is expected the well will flow at a rate between 5 and 10 TJ/d. Due to the low reservoir pressure found in Penryn 2, it is likely that compression will be required in the near future to access the total reserves from this field.

INPUT DATA

PREPARED, VERIFIED, APPROVED BY: Project Team (3 signatures only at PIP meeting).

[Signature]
Geoscientist

Date 20/8/01

[Signature]
Geoscience Team Leader

Date 20/08/01

[Signature]
Petroleum Engineer

Date 20/8/01

[Signature]
Reservoir Engineering Team Leader

Date 20/8/01

[Signature]
Completions Engineer

Date 20/8/2001

[Signature]
Completions Team Leader

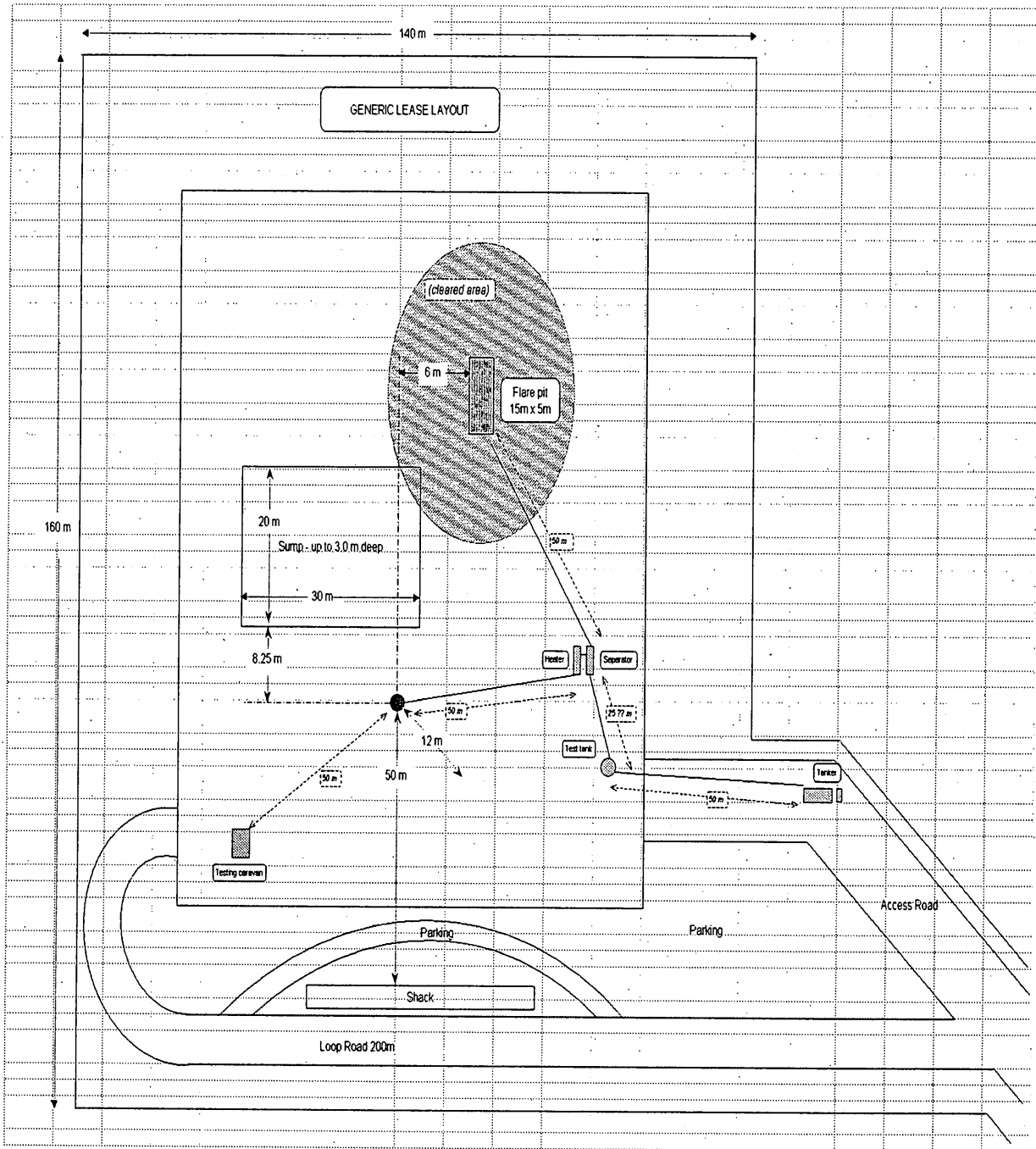
Date / /

WHEN SIGNED:

Copy to: Completions Project & Materials Planner (Peter Min)
 Completions Design Team Leader (Andrew DeGaris)
 Team Leader, Exploration & Development (Craig Gumley)
 Wellfile - Pennyn 2
 Well Data Box - Pennyn 2 (EIC)
 Exploration & Development (Jodie Lindseil)

Original to: Exploration & Development

GENERIC LEASE LAYOUT



EMERGENCY CONTACTS**OTWAY BASIN**

POSITION	NAME	PHONE	FAX
Aboriginal Heritage	Lionel Harridine	03 5567 1236	
Aircraft Hire	Shipwreck Coast Flights	03 5598 5441	
Ambulance, Timboon		000	
Ambulance, Warrnambool		000	
Backhoe Hire	Ian White	03 5598 6376	
CFA, Colac Region 6 Headquarters Operations Officer	Brian Brady	03 5232 1923	03 5231 1370
CFA, Colac Region 6 Headquarters Operations Manager	Mark Gunning	03 5232 1923	03 5231 1370
CFA, Nullawarre		03 5566 5178	
CFA, Timboon	Bassett	03 5598 3386	03 5598 3060
D.N.R.E.	Bruce Armour	(wk) 03 9412 5065	03 9412 5152
Drilling Conductor	Des Gladman	03 5562 0783	
Earth Moving	John Molan	03 5592 1261 0408 529 559	03 5592 2122
Exploration Field Service	Ray Willox	03 5598 5329 0428 529 314	03 5598 5329
Fire Brigades (Fire Calls Only)	Timboon Port Campbell	03 5598 3386 03 5598 6243	
Heavy Haulage	Alan Spikin	03 5561 6111	
Helicopter Hire	Helicopter Operations Aust.	03 5561 5800 018 529 959	
Hospital, Timboon		03 5598 3000	
Hospital, Warrnambool		03 5563 1666	
Land Owner (Wellsite)	Paul Heyden		
Land Owner (Camp)	Wayne Thompson	03 5598 5286	
Medical Centre, Timboon		03 5598 3104	
Police, Port Campbell	B. Hair	03 5598 6310	
Police, Timboon	Russell Martin	03 5598 3026	
Police, Warrnambool		03 5562 1111	
Power Cor	Hutchins	03 5563 2512	03 5563 2511
Ryan's Freighters	Mick Boswell	03 5562 1488	
Shire Council Corangamite	Paul Younis (Eng) Allan Kerr (Councilor)	03 5593 7100 03 5598 3240	03 5593 2695
South West Water	John Huff	03 5564 7600	
State Emergency Services Port Campbell		03 5598 6231	
Surveying	Paul Crowe	03 5561 1500 0419 515 422	03 5561 2935
Water Carting	Alan Gledhill	03 5598 3788	
Water Pumping	Exploration Field Service	03 5598 5329 0428 529 314	03 5598 5329
Wreck Hire Warrnambool		03 5562 1411	

SANTOS

POSITION	NAME	PHONE	FAX
Gas Well Services Operations Superintendent	Milt Gillies	(wk) 08 8224 7295 (ah) 08 8295 2414	08 8224 7755
Reservoir Development Eastern/Northern Gas Team Leader	John Hulme	(wk) 08 8224 7324 (ah) 08 8338 0169	08 8224 7755
Project Leader Staff Geologist	Graeme Parsons	(wk) 08 8224 7182 (ah) 08 8391 0967	
Environmental Dept.	Catriona McTaggart	(wk) 08 8224 7894 (ah) 08 8373 2961	08 8224 7141

SERVICE COMPANIES

POSITION	NAME	PHONE	FAX
Expertest Ltd	Alan Grindlay	08 8445 9099	
Reeves Wireline	David Collecott	07 3881 1969	07 3881 0005

CFA FIRE PERMITS

914491 023

FAX TRANSMISSION

TO: Santos
FOR ATTENTION: Geoff Coker
Drilling Engineer Santos Ltd
FAX NO: 088 224 7864
FROM: Ken Diamond
TELEPHONE NO: 5232 1923
FAX NO: 5231 1370
NO. OF PAGES
(including cover): 1
DATE: 12 July 2001
TIME:

Dear Geoff

Thank you for your facsimile dated 25 June 2001 regarding an intention to drill "Penryn #2" in our area.

CFA has no special requirements for the drilling stage at this time of year.

If you have any further queries please feel free to contact Acting Operations Manager Ken Diamond at Region Six Headquarters.

Yours sincerely


Ken Diamond
Acting Operations Manager
Region Six

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If you do not receive all pages indicated, please advise the sender on the above telephone number

TOTAL P.01