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NUMBER 7128/2

PPL 28

EROMANGA BASIN AND COOPER BASIN

KANOWANA 3

TEST REPORTS

Submitted by

Santos Ltd
1995

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MINES and ENERGY
RESOURCES SOUTH
AUSTRALIA



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ENVELOPE 7128/2

TENEMENT: PPL 28; Eromanga and Cooper Basins

TENEMENT HOLDER: Santos Ltd (operator), Vamgas Ltd, Hartogen Energy Ltd, Delhi Petroleum Pty Ltd and South Australian Oil and Gas Corp. Pty Ltd

CONTENTS

REPORTS:	Mueller, M. and Micheltmore, R., 1990. Field maintenance contractor's results of the clean up flow plus single rate gas production test, 107.37 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra Formation gas reservoir perforated interval 9108-9217 feet depth KB, conducted over the period 3-12/2/90 (Expertest Pty Ltd).	MESA NO. 7128/2 R 1 Pgs 3-44
	Van der Linden, F.M., 1990. Operator's reservoir engineering interpretation of the above results [of the prefrac single rate test and pressure buildup survey conducted during 3-12 February, 1990] (Santos Ltd Petroleum Development Department report no. RE: 019/90, April 1990).	7128/2 R 2 Pgs 45-53
APPENDIX 1:	Location map and well card.	Pgs 54-57
APPENDIX 2:	Log sections.	Pgs 58-60
APPENDIX 3:	Welltest reports.	Pgs 61-83
APPENDIX 4:	Field reports.	Pgs 84-91
APPENDIX 5:	Composition and Gaspac output.	Pgs 92-97
REPORTS:	Micheltmore, R., 1990. Field maintenance contractor's results of the single rate gas production test, 96 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 8-16/9/90 (Expertest Pty Ltd).	7128/2 R 3 Pgs 98-128
	Mueller, M., 1991. Field maintenance contractor's results of the flowing bottomhole pressure, 96 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 8-13/3/91 (Expertest Pty Ltd).	7128/2 R 4 Pgs 129-145
	Potter, B., 1992. Field maintenance contractor's results of the liquids evaluation test and flowing bottomhole pressure, 110.25 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 22-30/8/92 (Expertest Pty Ltd).	7128/2 R 5 Pgs 146-167
	Comstock, K., 1993. Field maintenance contractor's results of the flowing bottomhole pressure, 97.45 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 14-19/10/93 (Expertest Pty Ltd).	7128/2 R 6 Pgs 168-179

REPORT:

Wilkie, S., 1995. Field maintenance contractor's results of the flowing bottomhole pressure, 96 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 16-22/3/95 (Expertest Pty Ltd).

MESA NO.
7128/2 R 7
Pgs 180-202

END OF CONTENTS

Kanowana #3
Pre-Frac Single Rate Test & Buildup Survey
3rd - 12th February 1990

000003

Flow Test

3rd - 7th February

- 3/2/90 : Opened well to atmosphere on 16/64" choke @ 1227 hrs.
Choke adjusted several times and well shut in @ 2200 hrs due to hydrate problems.
- 4/2/90 : Started test through separator @ 1100 hrs on 26/64" choke.
Abandoned test @ 2400 hrs as unable to obtain gas rates.
- 5/2/90 : Determined vessel frozen internally @ 1050 hrs.
Installed heater @ 2045 hrs.
Restarted test @ 2300 hrs on 26/64" choke.
Tested well for 45 hours.

F.T.H.P. (final)	=	1553	kPa
Separator Pressure	=	2643	kPa
Separator Temperature	=	38	°C
Gas Rate	=	143.179	E ³ m ³ /d
Condensate Rate	=	16.316	m ³ /d
Water Rate	=	2.595	m ³ /d

- 7/2/90 : Shut well in @ 2000 hrs.
Element #28904 @ 9074' KB = 17170 kPa
Element #15451 @ 9080' KB = 17415 kPa

NOTE: Top chart badly bent at beginning of survey hence accuracy of flowing pressure for element #28904 is questionable.

Buildup

7th - 12th February

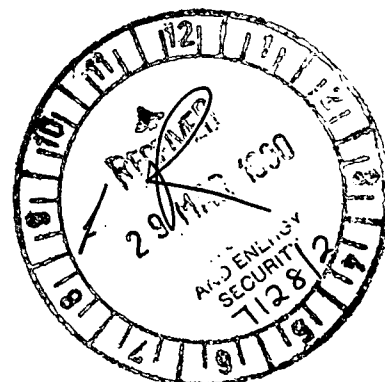
- 7/2/90 : Shut well in @ 2000 hrs for 107.37 hours.
Please note clocks failed during later part of test.
Element #28904 @ 9074' KB after 90.4 hrs buildup = 27154 kPa
Element #15451 @ 9080' KB after 71.8 hrs buildup = 27182 kPa

12/2/90 : P.O.O.H. @ 0722 hrs.

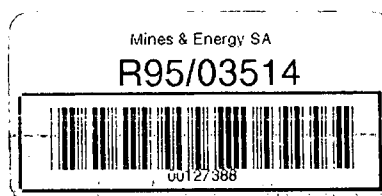
Static Reservoir Pressure

Mid Point of Perforations = 9163' KB

- 12/2/90 : Ran static pressure gradient.
Element #28904 @ MPP = 27306 kPa
Element #15451 @ MPP = 27308 kPa



LGA/ih - 27/2/90
WP6064G(14)



SUB-SURFACE PRESSURE SURVEY

000004

CO. SANTOS		RUN 01 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 9074'
CASING	-	CASING PRESS	ON BOTTOM 1334 7/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 12/2
DATE	900212	ELEMENT RANGE 0 - 5166	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2000 7/2
MAX TEMP	N/A	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 28904	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

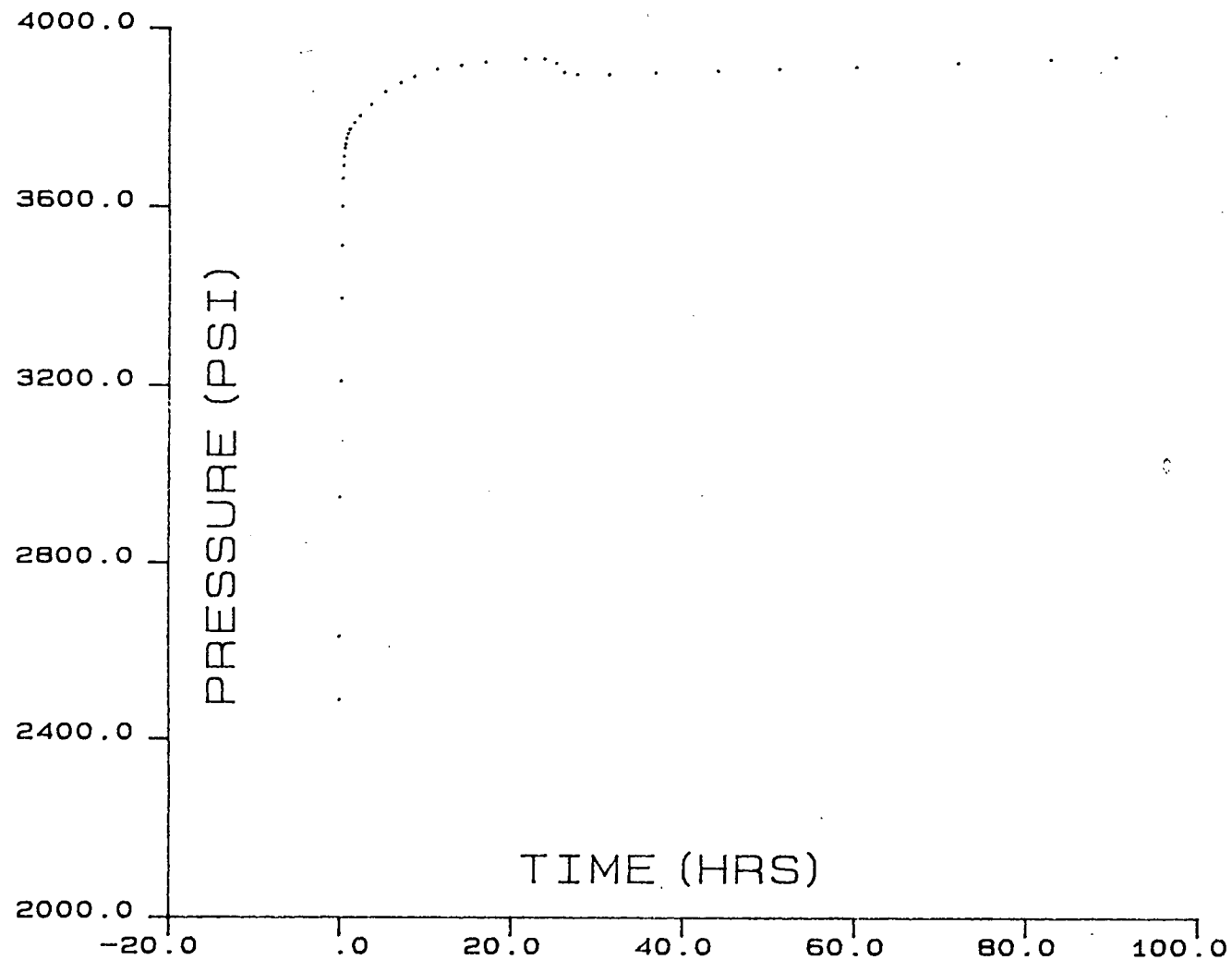
SURVEY DATA

CO. SANTOS			RUN 01 FIELD KANOWANA			WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
20:00	2490.2	2490.2	.0	3:05	3879.4	3879.4	7.1	
20:00	2632.0	2632.0	.0	4:39	3893.0	3893.0	8.6	
20:03	2947.4	2947.4	.0	7:18	3909.0	3909.0	11.3	
20:08	3209.5	3209.5	.1	10:07	3918.4	3918.4	14.1	
20:13	3393.7	3393.7	.2	12:57	3924.8	3924.8	17.0	
20:15	3513.3	3513.3	.3	17:33	3932.9	3932.9	21.5	
20:19	3601.2	3601.2	.3	19:51	3932.5	3932.5	23.8	
20:23	3663.5	3663.5	.4	21:13	3921.1	3921.1	25.2	
20:27	3692.3	3692.3	.4	22:06	3902.0	3902.0	26.1	
20:31	3713.9	3713.9	.5	23:39	3895.8	3895.8	27.6	
20:37	3731.3	3731.3	.6	3:21	3896.4	3896.4	31.4	
20:41	3741.4	3741.4	.7	8:47	3901.5	3901.5	36.8	
20:50	3753.9	3753.9	.8	16:00	3906.2	3906.2	44.0	
20:59	3764.3	3764.3	1.0	23:11	3910.0	3910.0	51.2	
21:12	3774.0	3774.0	1.2	8:11	3915.5	3915.5	60.2	
21:44	3788.6	3788.6	1.7	20:02	3924.1	3924.1	72.0	
22:23	3805.1	3805.1	2.4	6:52	3932.0	3932.0	82.9	
23:39	3831.3	3831.3	3.6	14:25	3938.2	3938.2	90.4	
1:17	3859.1	3859.1	5.3	0:00	.0	.0	.0	

LUB IN DWT = 1549 PSI / OUT = 2535 PSI
LUB IN AMERADA = 1546 PSI / OUT = 2556 PSI

NOTE;CLOCK FAILED IN THE LATTER PART OF THE SURVEY.
CHART BADLY BENT HENCE PRESSURES MIGHT NOT BE ACCURATE.

KANOWANA #3 BUILD-UP FEBRUARY 1990
ELEMENT #28904 (TOP)



000005

SUB-SURFACE PRESSURE SURVEY

000006

CO. SANTOS		RUN 02 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 9080'
CASING	-	CASING PRESS	ON BOTTOM 1334 7/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 12/2
DATE	900212	ELEMENT RANGE 0 - 5098	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2000 7/2
MAX TEMP	N/A	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 15451	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

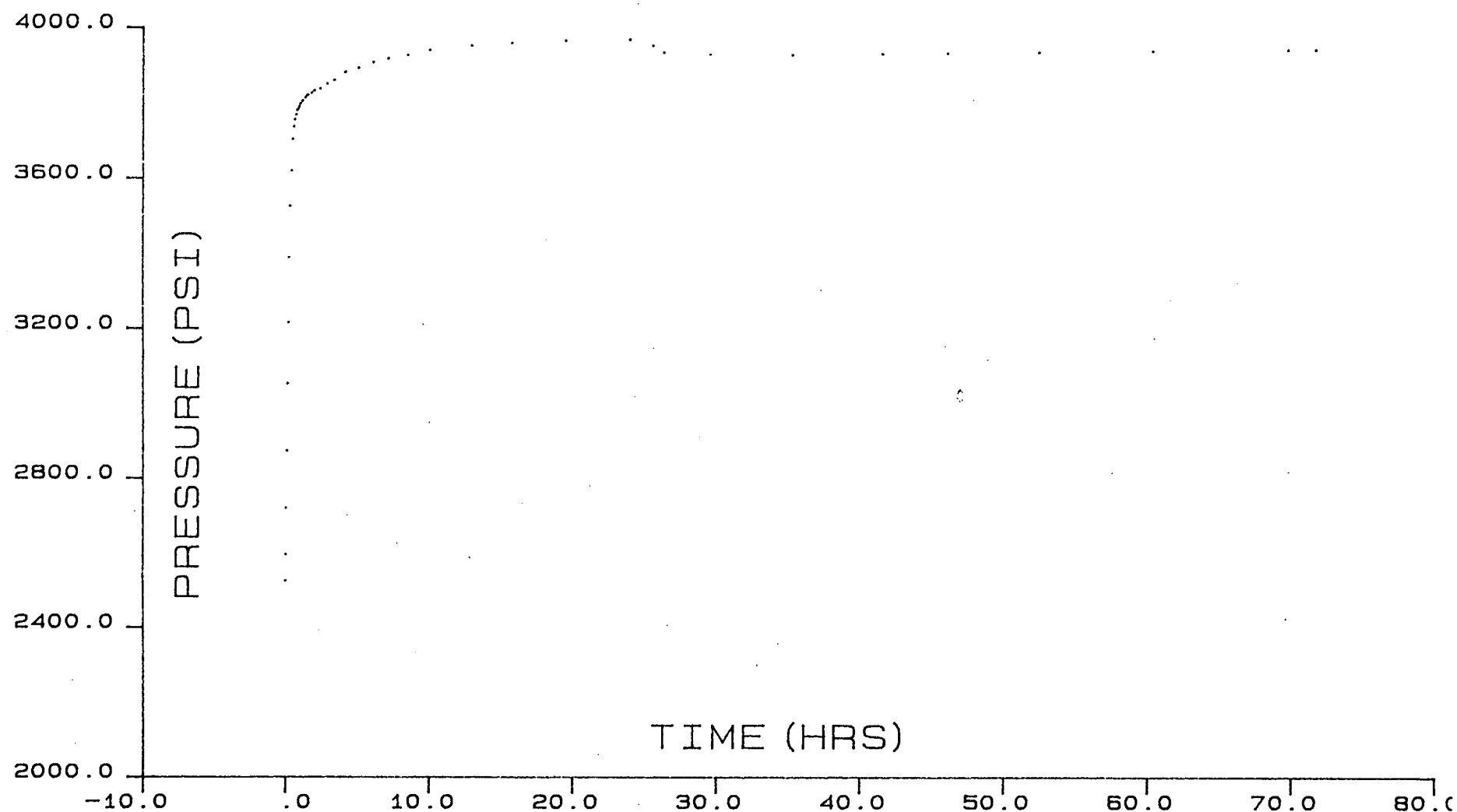
SURVEY DATA

CO. SANTOS				RUN 02 FIELD KANOWANA				WELL 03			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
20:00	2525.7	2525.7	.0	22:55	3852.7	3852.7	2.9				
20:02	2596.5	2596.5	.0	23:24	3862.8	3862.8	3.4				
20:03	2720.5	2720.5	.0	0:10	3881.8	3881.8	4.2				
20:06	2873.8	2873.8	.1	1:06	3894.0	3894.0	5.1				
20:09	3052.3	3052.3	.1	2:08	3908.6	3908.6	6.1				
20:13	3216.5	3216.5	.2	3:09	3918.5	3918.5	7.2				
20:16	3390.1	3390.1	.3	4:33	3928.7	3928.7	8.5				
20:20	3526.7	3526.7	.3	6:03	3941.8	3941.8	10.0				
20:26	3620.2	3620.2	.4	8:59	3953.7	3953.7	13.0				
20:30	3704.6	3704.6	.5	11:48	3961.3	3961.3	15.8				
20:34	3737.3	3737.3	.6	15:34	3967.7	3967.7	19.6				
20:39	3756.2	3756.2	.6	20:01	3970.6	3970.6	24.0				
20:44	3768.7	3768.7	.7	21:38	3952.9	3952.9	25.6				
20:49	3781.5	3781.5	.8	22:23	3934.2	3934.2	26.4				
20:53	3786.1	3786.1	.9	1:37	3929.1	3929.1	29.6				
20:58	3792.4	3792.4	1.0	7:22	3927.5	3927.5	35.4				
21:02	3800.1	3800.1	1.0	13:38	3930.9	3930.9	41.6				
21:10	3807.7	3807.7	1.2	18:10	3933.1	3933.1	46.2				
21:23	3816.1	3816.1	1.4	0:32	3934.7	3934.7	52.5				
21:33	3823.2	3823.2	1.6	8:26	3938.3	3938.3	60.4				
21:49	3829.5	3829.5	1.8	17:50	3941.8	3941.8	69.8				
22:01	3835.3	3835.3	2.0	19:45	3942.2	3942.2	71.8				
22:25	3840.9	3840.9	2.4	0:00	.0	.0	.0				

LUB IN DWT = 1549 PSI / OUT = 2535 PSI
 LUB IN AMERADA = 1561 PSI / OUT = 2544 PSI

NOTE; CLOCK FAILED IN THE LATTER PART OF THE SURVEY.

KANOWANA #3 BUILD-UP FEBRUARY 1990
ELEMENT #15451 (BOT)



000007

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

000008

Tested Monday, 12th February 1990.

PH. (08) 354 0488 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

CLIENT	LOCATION	FORMATION
Santos Ltd.	KANOWANA #3	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	28904	5200	24/11/89
Bottom	15451	5650	24/11/89

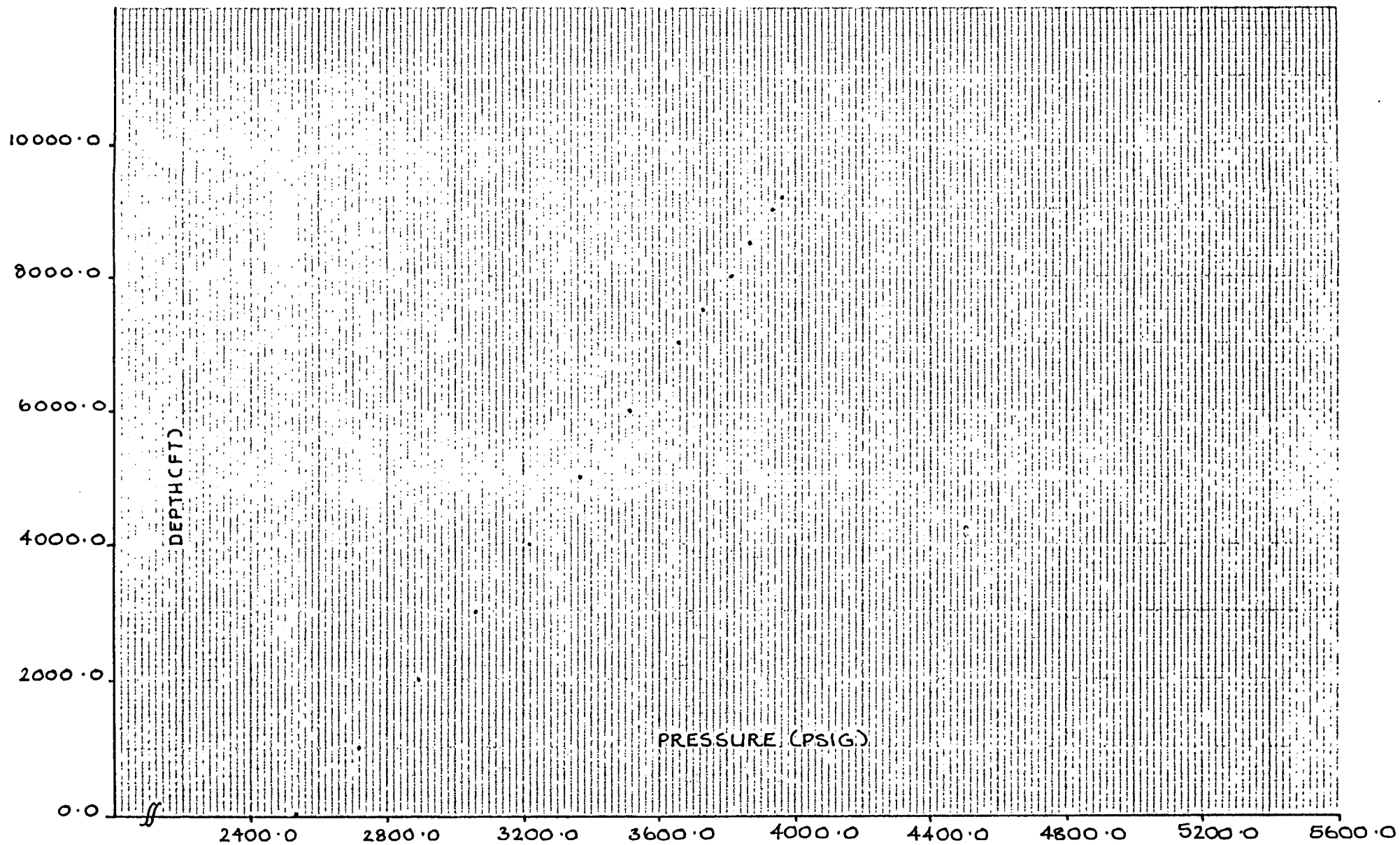
WELL DATA	
PARAMETER	VALUE
DWT In	17478 KPA
DWT Out	17458 KPA
Max BHT	266 F

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.9850	2532.7	---	0.9940	2516.4	---
1000	1.0570	2718.6	0.186	1.0660	2700.7	0.184
2000	1.1240	2891.8	0.173	1.1350	2877.4	0.177
3000	1.1890	3059.3	0.168	1.1990	3041.4	0.164
4000	1.2500	3217.8	0.158	1.2630	3205.5	0.164
5000	1.3070	3365.5	0.148	1.3210	3354.3	0.149
6000	1.3640	3513.3	0.148	1.3780	3500.7	0.146
7000	1.4190	3656.1	0.143	1.4350	3647.0	0.146
7500	1.4470	3728.9	0.146	1.4630	3719.0	0.144
8000	1.4780	3809.4	0.161	1.4900	3788.4	0.139
8500	1.4990	3864.1	0.109	1.5180	3860.3	0.144
9000	1.5260	3934.3	0.141	1.5450	3929.8	0.139
9163	1.5360	3960.3	0.160	1.5570	3960.6	0.189
LUB.	0.9910	2548.2	---	0.9990	2529.2	---

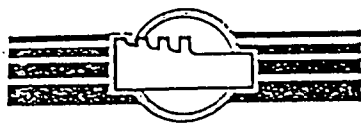
GENERAL REMARKS

GRADIENT STOP AT 7500 KB WAS MISSED RUNNING IN. STOP WAS MADE WHILST
PULLING OUT OF HOLE.

KANOWANA # 3 — STATIC PRESSURE GRADIENT — 12 / 2 / 90
ELEMENT # 28904 / 5200 (TOP)



600000



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 1 OF

WELL NAME: KANOWANA #3

FORMATION : PATAWAPARA.

DATE: 2.2.90

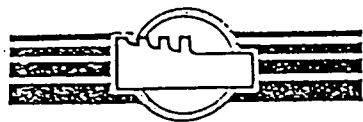
TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MILLER.

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE (64th)	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN)	GAS TEMP (C)	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
1-2-90														
1400		SPOT EQUIPMENT ON LEASE & START RIG IN.												
2-2-90														
0800		CONTINUE RIG IN.												
1300		COMPLETE RIG IN.												
1309		HAVE PROBLEMS PRESSURE TESTING EQUIPMENT RECTIFY PROBLEM LEAKS.												
3-2-90														
1220		2555	8	PRESSURE LINES ALL OK										
1227		OPEN WELL ON		16/64	TO ATMOSPHERE									
1245		1990	32	28	20/64	INCREASE CHOKER.								
1310		1620	97	29										
1330	1	1140	110	30	26/64	INCREASE CHOKER.								
1400	1.5	1150	306	30	"	PRESSURE SEPARATOR.								
1500	2.5	1135	547	31	"									
1600	3.5	1146	698	32	"		2.625	302	39	37	13.0	13.0		0
1642		DECREASE CHOKER			12/64									
1700	4.5	DECREASE CHOKER			12/64									
1715		2144			10/64	DECREASE CHOKER.								
1800	5.5	2280	835	31	"		1.375	95	147	-20	20.5	19.25		1.25
1900	6.5	2308	802	31	"		1.375	95	140	-25	24.75	23.25		1.50
2000	7.5	2313	800	30	"		1.375	90	134	-34	29.25	27.75		1.50
2000		INCREASE CHOKER.												

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000010



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9108-9217

PAGE: 2 OF

WELL NAME: KANONIWIA #3

FORMATION : PATCHAGUARRA

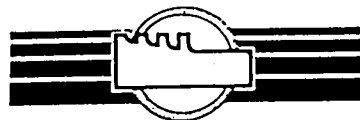
DATE: 3.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M MUELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION					
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE (64th)	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°C)	TOTAL LIQUID (IN³)	OIL (IN³)	WATER (IN³)			
3.2.90																
2100	8.5	2035	909	31	14/64		2000	115	86	-40	30.0	28.25	1.75			
2200	9.5	1708	1075	32	18/64		2000	155	132	-40	30.0	28.25	1.75			
		SHUT WELL IN DUE TO HYDRATE PROBLEMS														
4.2.90																
0915		2567	59	21		PRESSURE FLOW LINES										
0920		FLOW ON BYPASS			26/64		2.625									
0935		FLOW THROUGH SEP.														
1000	.5	1233	363	30	"		"	302	50	2						
1012		SHUT WELL IN CHANGE OUT CHECKS														
1050		2340	475	27	"	FLOW WELL ON BYPASS										
1056		FLOW THROUGH SEP.														
1100	0	1440	500	31	"		"	335	47	4	31.50	29.75	1.75	INITIAL	DIP	
1200	1	1201	822	33	"		"	360	42	7	31.75	30.00	1.75			
1300	2	1198	981	34	"		"	332	43	7	32.125	30.25	1.875			
1400	3	1196	1090	35	"		"	338	44	9	34.625	32.625	2.00			
1500	4	1204	1120	36	"		"	290	53	9	LOST LIQUID LEVEL					
1600	5	1200	1271	36	"		"	295	50	9						
1700	6	1207	1369	37	"		"	340	44	10	35.50	33.50	2.00	LEVELS	BACK UP	
1800	7	1226	1389	37	"		"	320	54	10	35.50	33.50	2.00			
1900	8	1229	1429	38	"		"	337	54	10	35.50	33.50	2.00			
2000	9	1235	1469	38	"		"	329	56	9	35.50	33.50	2.00			

00001



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 3 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA

DATE: 4.2.90

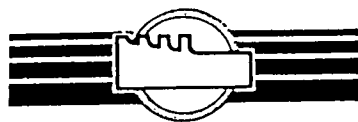
TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. FIDELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°C)	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN)
4.2.90														
2100	10	1234	1507	38	2 1/4		2.625	318	56	8	36.125	33.625		2.50
2200	11	1246	1534	38	"		"	320	56	9	37.125	34.125		3.0
2300	12	1246	1563	38	"		"	319	56	9	37.125	34.125		3.0
2400	13	1250	1593	38	"		"				37.125	34.125		3.0
		UNABLE TO GET GAS RATE AS VESSEL PRESSURE INCREASED TO MAXIMUM OPERATING PRESSURE.												
5.2.90		BLEW PSV. UNABLE TO DECREASE PRESSURE AS BACK PRESSURE VALVE ALREADY WIDE OPEN.												
0010		SHUT WELL IN LOOK FOR OBSTRUCTION REMOVE BACK PRESSURE VALVE & 2" AG VALVE.												
		FIND NOTHING REPLACE VALVES.												
0320		2579	952	SHUT IN PRESSURE.										
0324		FLOW WELL THROUGH SEPARATOR ON 2 1/4 CHOKER.												
0400	.5	1311	1103	34	"		"	250	66	0	39.125	34.625		4.5
0500	1.5	1279	1359	37	"		"	235	66	1	47.75	41.75		6.0
0600	2.5	1275	1455	38	"		"	250	65	3	47.75	41.75		6.0
0700	3.5	1275	1551	38	"		"	255	64	5	47.75	41.75		6.0
0800	4.5	1275	1609	39	"		"	275	58	8	48.625	42.125		6.5
0900	5.5	1277	1651	41	"		"	412	37	13	52.375	44.375		8.0
1000	6.5	1283	1683	43	"		"	425	42	10	64.375	54.375		10.0
1050		SWT VESSEL FROZEN INTERNALLY WAIT ON HEATER.												
1730		HEATER ARRIVES (TRUCK GOT LOGGED ON THE WAY TO THE LEASE) RIS IN.												
2045		STEAM GAS TO LIGHT HEATER & ALLOW TEMPERATURE TO RISE.												

000012

000012



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9/08 - 9217

PAGE: 4 OF

WELL NAME: KANOWANJA #3

FORMATION : PATCHMARRA

DATE: 5.2.90

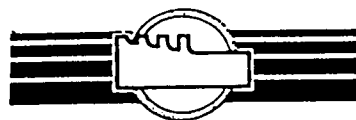
TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MILLER

TEST TYPE : PRE FRAC SINGLE RATE															
TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP C,	TOTAL LIQUID (IN),	OIL (IN),	OIL API GRAVITY @ 60°F	WATER (IN),	
5.2.90															
2200		2562	519	26	SHUT IN TUBING PRESSURE.										
2206		FLOW WELL TO ATMOSPHERE ON 26/64 CHOKE BYPASS SEPARATOR													
2220		FLOW WELL THROUGH SEPARATOR. RESTART SINGLE RATE.													
2300	0	1569	939	34	26/64		2.125	390	116	35	1.0	1.0		0	
2400	1	1523	1223	36	"		"	393	112	35	5.0	5.0		0	
6.2.90															
0100	2	1519	1390	36	"		"	395	112	37	7.25	6.75		5	
0200	3	1522	1523	36	"		"	399	113	38	9.75	8.625		1.125	
0300	4	1525	1609	38	"		"	400	113	39	12.125	10.25		1.875	
0400	5	1527	1685	39	"		"	375	120	39	16.375	13.625		2.75	
0500	6	1524	1755	39	"		"	377	118	37	19.25	16.25		3.125	
0600	7	1522	1775	40	"		"	378	118	37	22.125	18.50		3.625	
0700	8	1524	1807	40	"		"	379	118	36	25.50	21.50		4.00	
0800	9	1529	1851	41	"		"	380	119	38	28.375	24.125		4.25	
0900	10	1525	1889	44	"		"	379	120	37	31.375	26.75		4.625	
1000	11	1526	1907	45	"		"	365	123	35	34.375	29.125		5.25	
1030		BLEED CASING DOWN TO 1000 PSI.													
1100	12	1526	1031	46	"		"	365	124	35	37.0	31.50		5.50	
1200	13	1528	1058	46	"		"	364	125	35	40.0	34.0		6.0	
1300	14	1529	1085	47	"		"	363	125	35	43.125	36.875		6.25	
1400	15	1529	1109	47	"		"	362	124	36	46.375	39.375		7.00	

000013

000013



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217'

PAGE: 5 OF

WELL NAME: KANOWANA #3

FORMATION : PATUHANARA

DATE: 6.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN)
6.2.90														
1500	16	1528	1123	47	2 1/4		2.125	368	121	36	49.125	41.75		7.375
1600	17	1532	1141	47	"		"	365	124	36	52.0	44.375		7.625
1700	18	1531	1153	46	"		"	368	122	37	54.625	46.75		7.875
1800	19	1533	1170	46	"		"	370	119	37	57.625	49.50		8.125
1900	20	1534	1185	46	"		"	370	119	37	60.50	52.125		8.375
2000	21	1530	1191	45	"		"	370	119	37	63.375	54.25		9.125
2100	22	1531	1202	45	"		"	368	119	37	66.50	56.875		9.625
2200	23	1534	1214	45	"		"	368	119	38	69.625	59.625		10.00
2300	24	1534	1224	45	"		"	375	118	38	72.125	61.875		10.25
2400	25	1536	1234	45	"		"	380	116	38	75.50	64.875		10.625
7.2.90														
0100	26	1537	1245	45	"		"	380	117	38	78.125	67.125		11.00
0200	27	1535	1249	44	"		"	382	117	37	81.25	69.875		11.375
0300	28	1535	1262	44	"		"	382	117	37	84.50	72.625		11.875
0400	29	1539	1270	44	"		"	383	117	37	88.03	75.625		12.375
0500	30	1539	1274	45	"		"	384	117	38	90.125	77.50		12.625
0600	31	1539	1281	44	"		"	385	118	37	92.625	79.625		13.00
0700	32	1542	1296	44	"		"	385	118	37	95.875	82.50		13.375
0800	33	1535	1300	45	"		"	385	118	37	99.50	85.625		13.875
0900	34	1529	1300	46	"		"	385	118	37	102.875	88.75		14.125
1000	35	1530	1309	48	"		"	385	118	39	105.375	90.875		14.75

000014

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER :

SANTOS

PERFORATIONS:

9108 - 9217

PAGE: 6 OF

WELL NAME:

KANOWANA #3

FORMATION :

PETEHAUWERA

DATE: 7.2.90

TEST TYPE :

PRE FRAC SINGLE RATE

OPR: M. MUELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°C)	TOTAL LIQUID (IN/)	OIL (IN/)	OIL API GRAVITY @ 60°F	WATER (IN/)
7.2.90														
1103	36	1549	1315	49	26/64		2.125	393	120	41	107.50	92.5		15.00
1109		PRESSURE LUB WITH 2x 5000 PSI					BHP GAUGES COMPLETED TO				120 HR CLOCKS.			
1300	37	1549	1320	50	"		"	395	119	40	110.50	95.125		15.375
1300	38	1550	1327	49	"		"	398	116	40	113.375	97.75		15.625
1400	39	1547	1320	49	"		"	398	111	40	116.50	100.50		16.00
1450		BEGIN H.P. SAMPLE SET # 1.												
1500	40	1564	1345	49	"		"	410	115	41	119.75			16.50
1550		BEGIN H.P. SAMPLE SET # 2.												
1600	41	1563	1350	49	"		"	410	113	41	122.75			17.00
1700	42	1559	1359	49	"		"	410	113	41	125.75			17.25
1800	43	1557	1362	49	"		"	405	112	40	128.50			17.75
1900	44	1555	1365	48	"		"	405	111	40	131.50			18.00
2000	45	1553	1370	48	"		"	405	111	40	134.00			18.25
		COLLECT L.P. WATER SAMPLES FROM SEPARATOR												
	0	S.I.W. AT CHOKE MANIFOLD.												
2015		2409	1384											
2030		2509	1293											
2045		2527	1187											
2100	1	2535	1109											
2115		2539	1034											
2130		2543	981											

000015

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS.

PERFORATIONS:

PAGE: 7. OF

WELL NAME: KANOWANA #3.

FORMATION :

DATE: 7.2.90

TEST TYPE : S.R.T.

OPR : R.M.

TIME

WELLHEAD DATA

SEPARATOR DATA

LIQUID PRODUCTION

DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE 64th in	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
7 FEB.														
2145		2543	925											
2200	2	2545	871											
2300	3	2555	700											
2400	4	2562	589											
8 FEB.														
0100	5	2570	481											
0200	6	2575	386											
0600	10	2584	103											
1000	14	2585	0											
1400	18	2585												
1800	22	2584												
2200	26	2557												
9 FEB.														
0200	30	2549												
0600	34	2545												
1000	38	2541												
1400	42	2539												
1800	46	2539												
2200	50	2540												
10 FEB														
0200	54	2540												

000016

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 8. OF

WELL NAME: KANOWANA #3.

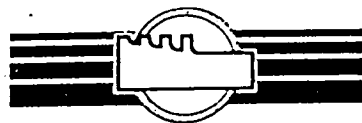
FORMATION :

DATE: 10.2.90

TEST TYPE : S.R.T.

OPR : RDM

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
10 FEB														
0600	58	2540	0											
1000	62	2535												
1400	66	2531												
1800	70	2534												
2200	74	2535												
11 FEB														
0200	78	2537												
0600	82	2538												
1000	86	2536												
1400	90	2533												
1800	94	2534												
2200	98	2535												
12 FEB.														
0200	102	2536												
0600	106	2537												
0722		2539		P.O.H WITH GAUGES.										
0747				GAUGES IN LUB.										
0950		2535		DEPRESSURE LUB. RELOAD GAUGES FOR S.G.S. (Re. GAUGE RUN DATA)										



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 1 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA

DATE: 2.2.90

TEST TYPE : PRE FRAC SINGLE RPTIE.

OPR : M. MUELLER

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS m ³ 10 ³ /D	OIL m ³ /D	WATER m ³ /D	GAS m ³ 10 ³	OIL m ³	WATER m ³	LGR m ³ /m ³
3.2.90														
1220		17617	0	SHUT IN PRESSURE										
1227		OPEN WELL ON		1 1/4" 64 ADJUSTABLE CHOKE BYPASS SEP TO ATMOSPHERE. COMMENCE CLEAN UP.										
1245		13721	221	28	20/64	INCREASE CHOKE.								
1310		11170	669	29										
1330	1	7860	758	30	26/64	INCREASE CHOKE.								
1400	1.5	7929	2110	30	"	FLOW THROUGH SEPARATOR.								
1500	2.5	7826	3772	31	"									
1600	3.5	7902	4813	32	"	2082	39	131.94	30.96	0				234.5
1642		DECREASE CHOKE			18/64	FLOW RATE MUCH HIGHER THAN PRE EXPECTED.								
1700	4.5	DECREASE CHOKE			12/64									
1715		DECREASE CHOKE			10/64									
1800	5.5	15721	5757	31	"	641	-20	34.65	INITIAL DIP. ... ACHIEVE APPROXIMATE RATE REQUIRED.					
1900	6.5	15914	5530	31	"	655	-25	34.65	9.60	40				296.5
2000	7.5	15948	5516	30	"	621	-34	33.92	10.80	0				317.6
2000		INCREASE CHOKE.			14/64	SEPARATOR HYDRATING.								
2100	8.5	14031	6268	31	"	793	-40	68.86	1.20	43				24.3
2100		INCREASE CHOKE			18/64									
2200	9.5	11777	7412	32	"	1069	-40	102.78	0	0	26.84	.90	.04	-
2200		SHUT WELL IN		SEPARATOR HYDRATED NEED HEATER.										

000018

TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 2 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA

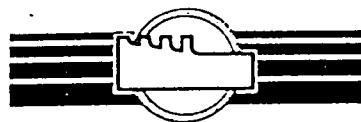
DATE: 4.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M/MUELLER

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (KPa)	TEMP (°C)	GAS m³10³/D	OIL m³/D	WATER m³/D	GAS m³10³	OIL m³	WATER m³	LGR m³/m³
4.2.90														
0915		17699	407	21										
0935		FLOW WELL THROUGH SEP.												
1000		8504	2503	30	26/64	2082	2	149.91	-	-				
1012		SHUT WELL IN CHICKSAN SEAL BLEND OUT AT WELL HEAD												
1056		FLOW WELL THROUGH SEP.												
1100	0	9929	3448	31	"	2310	4	156.87	-	-				
1200	1	8281	5668	33	"	2482	7	161.21	48	0			-	2.98
1300	2	8260	6764	34	"	2289	7	145.69	48	24				4.97
1400	3	8246	7516	35	"	2331	9	148.08	576	24				40.54
1500	4	8302	7722	36	"	2000	9	144.87	-	-	LOST LIQUID LEVELS.			-
1600	5	8274	8764	36	"	2034	9	142.42	-	-				-
1700	6	8322	9439	37	"	2344	10	147.83	72	0	LEVELS BACK UP.			4.86
1800	7	8453	9577	37	"	2206	10	156.20	0	0				-
1900	8	8474	9853	38	"	2324	10	162.62	0	0				-
2000	9	8515	10129	38	"	2268	9	165.47	0	0				-
2100	10	8508	10391	38	"	2193	8	160.17	24	120				9.0
2200	11	8591	10577	38	"	2206	9	159.97	120	120				15.0
2300	12	8591	10777	38	"	2200	9	159.61	0	0	77.17	43	112	-
2400	13	8619	10984	39	"				0	0				-

000019



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 3 OF

WELL NAME: KANDOWANI "3"

FORMATION : PATCHAMARRA

DATE: 5.2.90

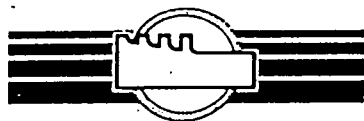
TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MULLER

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (KPa)	TEMP (°C)	GAS m ³ /10 ³ D	OIL m ³ /D	WATER m ³ /D	GAS m ³ /10 ³	OIL m ³	WATER m ³	LGR m ³ /m ³	
5.2.90															
2400		UNABLE TO GET GAS RATE AS VESSEL PRESSURE INCREASED TO MAXIMUM OPERATING PRESSURE.													
		& BLEW PSV UNABLE TO DECREASE PRESSURE AS BACK PRESSURE VALVE ALREADY WIDE OPEN.													
0010		SHUT WELL IN & LOOK FOR OBSTRUCTION REMOVE BACK PRESSURE VALVE & DOWN STREAM 2" P.E. VALVE.													
		NOTE: HYDRATES NOT EXPECTED TO BE THE PROBLEM AS BACK PRESSURE VALVE ACTUATING PERFECTLY.													
		& METER RUN TEMPERATURE AS HIGH AS IT HAD BEEN FOR ENTIRE FLOW PERIOD.													
0320		17782	6564			SHUT IN PRESSURE.									
0334	5.5	FLOW WELL THROUGH SEPARATOR ON 26/64 CHOKE.													
0400	.5	9039	7605	34	26/64	1724	Ø	151.97	-	-					
0500	1.5	8819	9370	37	"	1620	1	145.27							
		IN ATTEMPTING TO SET LIQUID LEVELS IN SEPARATOR LEVELS WERE LOST TO THE TANK													
		FLUID READINGS NOT AVAILABLE. (ICE IN VESSEL & SIGHT GLASSES)													
0600	2.5	8791	10032	38	"	1724	3	148.70	Ø	Ø	15.48	Ø	Ø	-	2.5 HRS.
											77.17	.43	.12		12 HRS.
											92.65				14.5 HRS.
0700	3.5	8791	10694	38	"	1758	5	148.48	Ø	Ø					
0800	4.5	8791	11094	39	"	1896	8	146.87	.96	1.20				14.7	
0900	5.5	8805	11590	42	"	2841	13	159.38	5.28	3.60				55.85	
1000	6.5	8846	11604	43	"	2930	10	182.88	23.76	4.80	26.6	7.68	.52	156.07	
1050		SWI SEPARATOR INTERNALS FROZEN WAIT ON HEATER. FROM MOOMISA.													
1930		TRUCK ARRIVES WITH HEATER (HAD BEEN BOGGED ALL AFTERNOON). RIG IN HEATER.													

000020

000020



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108-9217

PAGE: 4 OF

WELL NAME: KANDOWANA #3

FORMATION : PATCHAWARRA

DATE: 5.2.90

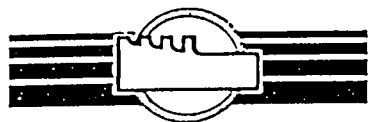
TEST TYPE: PRE FRAC SINGLE RATE

OPR: M MUELLER

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (KPa)	TEMP (°C)	GAS m³10³/D	OIL m³/D	WATER m³/D	GAS m³10³	OIL m³	WATER m³	LG R m³/m³	
5.2.90															
2045		LIGHT HEATER & ALLOW TEMPERATURE TO INCREASE													
2200		17665	3579	34	SHUT IN TUBING PRESSURE.										
2206		FLOW WELL TO ATMOSPHERE ON 26/64 CHOKE BYPASS SEPARATOR													
2220		DIVERT FLOW THROUGH SEPARATOR. RESTART SINGLE RATE TEST.													
2300	0	10818	6474	34	26/64	2689	35	145.58	-	-	LEVELS UP IN SEPARATOR				
2400	1	10501	8437	36	"	2710	35	143.80	25.68	0				178.3	
6.2.90															
0100	2	10474	9584	36	"	2724	37	143.04	11.04	3.12				99.02	
0200	3	10494	10501	36	"	2751	38	144.36	12.00	4.08				111.67	
0300	4	10515	11094	38	"	2758	39	143.97	10.32	4.80				105.0	
0400	5	10529	11618	39	"	2586	39	142.11	21.60	5.52				190.99	
0500	6	10508	11949	39	"	2599	37	142.25	16.08	2.40				130.14	
0600	7	10494	12239	40	"	2606	37	142.50	15.12	3.12	41.75	4.66	.96	127.55	
0700	8	10508	12459	40	"	2613	36	143.35	19.20	2.40				151.05	
0800	9	10542	12763	41	"	2620	38	143.32	16.80	1.68				129.23	
0900	10	10515	13025	44	"	2613	37	143.97	16.80	2.40				133.33	
1000	11	10522	13149	45	"	2517	35	143.32	15.12	4.08				134.27	
		BLEED ANNULUS DOWN TO 6875 KPA.													
1100	12	10522	7109	46	"	2517	35	143.91	15.12	1.63				116.32	
1200	13	10536	7295	46	"	2510	35	144.22	16.08	3.12				133.33	
1300	14	10542	7481	47	"	2503	35	143.97	18.48	1.68				140.0	

000021

000021



TEST RESULTS

CUSTOMER : SANTOS
 WELL NAME : KANDULAN #3
 TEST TYPE : PRE FRAC SINGLE RATE

PERFORATIONS: 9108- 9217
 FORMATION : PATIHANJARA

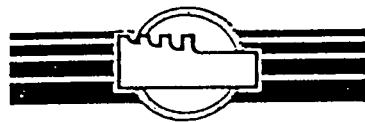
PAGE: 5 OF

DATE: 6.2.90

OPR : M. MULLER

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (KPa)	TEMP (°C)	GAS m ³ /10 ³ /D	OIL m ³ /D	WATER m ³ /D	GAS m ³ /10 ³	OIL m ³	WATER m ³	LCR m ³ /m ³	
6.2.90		CONTINUOUS SINGLE RATE FLOW.													
1400	15	10542	7647	47	24/64	2496	36	142.56	16.08	4.80				146.01	
1500	16	10536	7743	47	"	2537	36	142.34	15.12	2.40				123.38	
1600	17	10563	7867	47	"	2517	36	143.32	16.80	1.68				129.23	
1700	18	10556	7950	46	"	2537	37	142.36	15.12	1.68				118.31	
1800	19	10570	8067	46	"	2551	37	141.10	17.52	1.68				136.17	
1900	20	10577	8136	46	"	2551	37	141.10	16.80	1.68				131.06	
2000	21	10549	8212	45	"	2551	37	141.10	13.68	4.80				131.06	
2100	22	10556	8288	45	"	2537	37	140.59	16.80	3.12				141.28	
2200	23	10577	8371	45	"	2537	38	140.33	17.52	2.40				142.29	
2300	24	10577	8439	45	"	2586	38	141.46	14.40	1.68				114.04	
2400	25	10591	8508	45	"	2620	38	141.49	19.20	2.40				153.19	
7.2.90															
0100	26	10598	8584	45	"	2620	38	142.11	14.40	2.40				118.31	
0200	27	10584	8612	44	"	2634	37	142.90	17.52	2.40				139.30	
0300	28	10584	8701	44	"	2634	37	142.90	17.52	3.12				144.34	
0400	29	10611	8757	44	"	2641	37	143.15	19.20	3.12				156.08	
0500	30	10611	8784	45	"	2648	38	143.12	12.00	1.68	59 HR TEST TOTAL			95.66	
0600	31	10611	8832	44	"	2655	37	144.28	13.68	2.40	330.43	23.96	4.16	111.67	24.00
0700	32	10632	8936	44	"	2655	37	144.28	18.48	2.40				145.0	
0800	32	10584	8964	45	"	2655	37	144.28	19.92	3.12				160.0	
0900	34	10542	8964	46	"	2655	37	144.28	19.92	1.68				150.0	

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9102 - 9217

PAGE: 6 OF

WELL NAME: KANOWANJA #3

FORMATION : PATCHAWARRA

DATE: 7.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR :

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°C)	CHOKE SIZE	PRESSURE (KPa)	TEMP (°C)	GAS m³10³/D	OIL m³/D	WATER m³/D	GAS m³10³	OIL m³	WATER m³	LGR m³/in	
7.2.90															
1000	35	10549	9012	48	26/64	2655	39	143.38	13.68	4.08				124.20	
1100	36	10680	9066	49	"	2710	4	145.41	11.28	1.68				89.38	
1109		PRESSURE LINES WITH 2x 5000 PSI BHP GAUGES COUPLED TO 120 PSI CHECKS.													
1200	37	10680	9101	50	"	2724	40	145.88	16.08	2.40				126.58	
1300	38	10687	9150	49	"	2744	40	144.79	16.80	1.68				127.45	
1400	39	10667	9170	49	"	2744	40	144.14	17.52	2.40				132.33	
1500	40	10783	9273	49	"	2826	41	146.05	17.59	3.19				142.38	
1600	41	10776	9308	49	"	2826	41	144.77	15.99	3.19				132.58	
1700	42	10749	9370	49	"	2826	41	144.77	17.59	1.59				132.58	
1800	43	10735	9390	49	"	2792	40	143.53	14.39	3.19				122.58	
1900	44	10721	9411	48	"	2792	40	142.89	17.59	1.59				134.33	
2000	45	10707	9446	48	"	2792	40	142.89	14.39	1.59	414.65	33.59	5.58	111.94	
	0	S.I.W.													
2015		16610	9542												
2030		17299	8915												
2045		17423	8184												
2100	1	17478	7646												
2115		17506	7129												
2130		17533	6763												
2145		17533	6377												
2200	2	17547	6005												

000023

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 7. OF

WELL NAME: KANOWANA # 3.

FORMATION :

DATE: 7.2.90

TEST TYPE : S.R.T.

OPR : RRM

TIME

WELLHEAD DATA

FLOW RATES

CUMULATIVE PRODUCTION

DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /D	OIL BBLS m ³	WATER BBLS m ³		
7 FEB															
2300	3.	17616	4826												
2400	4.	17664	4061												
8 FEB															
0100	5	17720	3316												
0200	6	17754	2661												
0600	10	17816	710.												
1000	14	17823	0												
1400	18	17823													
1800	22	17816													
2200	26	17630													
9 FEB															
0200	30	17575													
0600	34	17547													
1000	38	17520													
1400	42	17506													
1800	46	17506													
2200	50	17513													
10 FEB															
0200	54	17513													
0600	58	17513													

000024

PERFORATIONS:

WELL NAME: KANOWANA #3

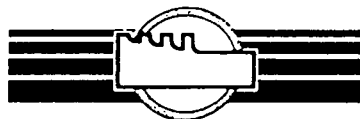
FORMATION :

DATE: 10.2.90

OPR : RAM

[illegible]

000025



GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 1 OF

WELL NAME: KANDAWANA #3

FORMATION : PATCAWARRA

DATE: 3.2.90

TEST TYPE: PRE FRAC SINGLE RATE

OPR: M. MUELLER

ORIFICE METER TYPE: DANIELS

STATIC PRESSURE RANGE : 500 PSIG

GAS SPECIFIC GRAVITY (SG) = 1.1664

METER RUN SIZE : 4.026"

DIFFERENTIAL PRESS. RANGE: 200 IN WC

FG $\sqrt{(1/SG)}$ = .9259

SEPARATOR NO : 76

STANDARD CONDITIONS : 14.73 PSI @ 60°F

C₂ (FU x FG) = 22.2216

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ /10 ³ /D)
2.2.90			FLOW	CLEAN UP											
1600	3.5	26/64	317	39	37	2.625	111.1417	1558.19	1.0229	1.1890	1.0006	1896.2514	42137.74	4.683	131.94
1800	5.5	10/64	108	147	-4	1.375	125.8424	385.51	1.0679	1.0590	1.0090	439.89938	9775.268	1.230	34.65
1900	6.5	"	110	140	-13	"	123.9443	385.81	1.0786	1.0653	1.0084	446.68443	9926.0427	1.230	34.65
2000	7.5	"	105	134	-29	"	118.4644	385.51	1.0984	1.0714	1.0084	457.48898	10166.137	1.204	33.92
2100	8.5	14/64	130	86	-40	2.000	105.6257	842.12	1.1127	1.1068	1.0040	1041.2497	23138.234	2.444	68.86
2200	9.5	18/64	170	132	-40	"	149.6809	842.12	1.1127	1.1649	1.0048	1096.782	24372.25	3.648	102.78
			SHUT WELL IN	DUE TO HYDRATE PROBLEMS											
4.2.90			FLOW	SINGLE RATE											
1100	0	26/64	350	47	39	2.625	128.2081	1558.19	1.0208	1.2278	1.0007	1954.306	43427.806	5.568	156.87
1200	1	"	375	42	45	"	127.9401	"	1.0147	1.2721	1.0005	2012.3169	44716.901	5.722	161.21
1300	2	"	347	43	45	"	122.1040	"	1.0147	1.2045	1.0006	1905.5718	42544.854	5.171	145.69
1400	3	"	353	44	48	"	124.5798	"	1.0117	1.2035	1.0006	1898.3607	42184.612	5.256	148.08
1500	4	"	305	53	48	"	127.0854	"	1.0117	1.1541	1.0009	1820.9846	40465.191	5.142	144.87
1600	5	"	310	50	48	"	124.4448	"	1.0117	1.1585	1.0008	1827.7444	4065.404	5.055	142.42
1700	6	"	355	44	50	"	124.9325	"	1.0098	1.2004	1.0006	1889.9148	41996.193	5.247	147.80
1800	7	"	335	54	50	"	134.4449	"	1.0098	1.1784	1.0008	1855.6487	41235.683	5.544	156.20
1900	8	"	352	54	50	"	137.8166	"	1.0098	1.1969	1.0008	1884.7811	41882.851	5.772	162.62
2000	9	"	344	56	48	"	138.7403	"	1.0117	1.1928	1.0008	1881.8589	41817.915	5.802	163.47
2100	10	"	333	56	46	"	136.5023	"	1.0137	1.1854	1.0008	1873.3812	41640.638	5.685	160.17

EXPERTEST PTY. LTD.



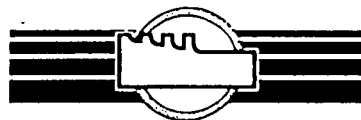
GAS FLOW CALCULATIONS

CUSTOMER :	SANTOS	PERFORATIONS:	9108 - 9217	PAGE:	2 OF
WELL NAME:	KANJOWANA #3	FORMATION :	PATCHAWARRA	DATE:	4.2.90
TEST TYPE :	PRE FRAC SINGLE RATE			OPR :	M. MUELLER.

ORIFICE METER TYPE:	DANIELS	STATIC PRESSURE RANGE :	500 PSIG	GAS SPECIFIC GRAVITY (SG) =	1.1664
METER RUN SIZE :	4.026	DIFFERENTIAL PRESS. RANGE:	200 IN WC	FG $\sqrt{(1/SG)}$	= .9259
SEPARATOR NO :	76	STANDARD CONDITIONS :	14.73 PSI @ 60°F	C ₂ (FU x FG)	= 22.2216

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{FPV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W) \times C}$	
								F _B	F _{TF}	F _{FPV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
4.2.90															
2200	11	26/64	335	56	48	2.625	136.9119	1858.19	1.0117	1.1829	1.0008	2060.4823	45787.213	5.678	159.97
2300	12	"	334	56	48	"	136.7073	"	1.0117	1.1819	1.0008	1864.6622	44335.777	5.665	159.61
2400		WELL SHUT IN					VESSEL OVER PRESSURED.								
5.2.90															
0324		FLOW WELL													
0400	3	"	265	66	32	"	132.1824	"	1.0281	1.1449	1.0012	1836.3021	40805.57	5.394	151.97
0500	1.5	"	250	66	34	"	128.3829	"	1.0260	1.1291	1.0013	1807.442	40164.253	5.156	145.27
0600	2.5	"	265	65	38	"	131.1772	"	1.0218	1.1558	1.0012	1810.5436	40233.175	5.278	148.70
0700	3.5	"	270	64	41	"	131.3877	"	1.0188	1.1356	1.0012	1804.9099	40107.985	5.270	148.48
0800	4.5	"	290	58	46	"	129.6316	"	1.0157	1.1446	1.0010	1809.7461	40215.453	5.213	146.87
0900	5.5	"	427	37	55	"	125.6543	"	1.0048	1.2933	1.0004	2025.69	45014.072	5.657	159.38
1000	6.5	"	440	42	50	"	135.8994	"	1.0098	1.3654	1.0005	2149.4767	47764.811	6.491	182.88
1015		SHUT WELL IN					VESSEL FROZEN.								
2220		FLOW WELL					RIE START SINGLE RATE.								
2300	8	26/64	405	116	95	2.125	216.6764	960.48	.9680	1.1522	1.0017	1073.0728	23845.394	5.167	145.58
2400	1	"	408	112	95	"	213.6955	"	.9680	1.1541	1.0016	1074.735	23882.331	5.104	143.80
6.2.90															
0100	2	"	410	112	99	"	214.2190	"	.9645	1.1693	1.0016	1066.3954	23697.012	5.077	143.04
0200	3	"	414	113	100	"	216.2209	"	.9636	1.1503	1.0016	1066.3272	23695.496	5.124	144.36

000027



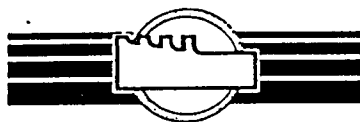
GAS FLOW CALCULATIONS

CUSTOMER : SANTOS PERFORATIONS: 9102 - 9217 PAGE: 3 OF 3
 WELL NAME: KANOAWA #3 FORMATION : FATH MALJARRA DATE: 6.2.90
 TEST TYPE : PRE FRAC SINGLE RATE. OPR : M. MUELLER

ORIFICE METER TYPE: DANIELS. SR. STATIC PRESSURE RANGE : 500 PSIG GAS SPECIFIC GRAVITY (SG) = 1.1664
 METER RUN SIZE : 4.026 DIFFERENTIAL PRESS. RANGE: 200 IN WC FG $\sqrt{1/SG}$ = .9259
 SEPARATOR NO : 76 STANDARD CONDITIONS : 14.73 PSI @ 60°F C₂ (FU x FG) = 22.2216

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
6.2.90															
0300	4	2 1/4	415	113	102	2.125	216.4821	960.48	.9619	1.1480	1.0016	1062.3176	23606.396	5.110	143.97
0400	5	"	400	120	102	"	216.2582	"	.9619	1.1339	1.0018	1049.4796	23321.115	5.044	142.11
0500	6	"	392	118	99	"	214.9980	"	.9645	1.1388	1.0018	1056.8633	23485.204	5.049	142.25
0600	7	"	393	118	99	"	215.2722	"	.9645	1.1394	1.0018	1057.4206	23497.577	5.058	142.50
0700	8	"	394	118	97	"	215.5461	"	.9662	1.1426	1.0018	1062.2594	23605.103	5.083	143.35
0800	9	"	395	119	100	"	216.7323	"	.9636	1.1392	1.0018	1056.2484	23471.529	5.087	143.32
0900	10	"	394	120	99	"	217.3651	"	.9645	1.1400	1.0018	1057.9774	23509.95	5.110	143.97
1000	11	"	380	123	95	"	216.1175	"	.9680	1.1372	1.0019	1059.3144	23539.66	5.087	143.32
1100	12	"	383	124	95	"	216.9943	"	.9680	1.1372	1.0019	1059.3144	23539.66	5.108	143.91
1200	13	"	379	125	95	"	217.5804	"	.9680	1.1366	1.0020	1058.8611	23529.587	5.119	144.22
1300	14	"	378	125	95	"	217.2930	"	.9680	1.1360	1.0020	1058.3022	23517.168	5.110	143.97
1400	15	"	377	124	97	"	216.1354	"	.9662	1.1330	1.0020	1053.5446	23411.446	5.060	142.56
1500	16	"	383	121	97	"	215.1984	"	.9662	1.1363	1.0019	1056.5078	23477.293	5.052	142.34
1600	17	"	380	124	97	"	216.9943	"	.9662	1.1346	1.0019	1054.9271	23442.168	5.087	143.32
1700	18	"	383	122	99	"	216.0858	"	.9645	1.1338	1.0019	1052.3286	23384.425	5.053	142.36
1800	19	"	385	119	99	"	213.9693	"	.9645	1.1349	1.0018	1053.2444	23404.775	5.008	141.10
1900	20	"	385	119	99	"	213.9693	"	.9645	1.1349	1.0018	1053.2444	23404.775	5.008	141.10
2000	21	"	385	119	99	"	213.9693	"	.9645	1.1349	1.0018	1053.2444	23404.775	5.008	141.10
2100	22	"	383	119	99	"	213.9693	"	.9645	1.1338	1.0018	1052.2235	23382.089	4.990	140.59

000028



GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 4 OF

WELL NAME: KANDAWANA T3

FORMATION : PARAHUARRA

DATE: 6.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLE

ORIFICE METER TYPE:	DANIELS SR.	STATIC PRESSURE RANGE :	500	PSIG	GAS SPECIFIC GRAVITY (SG) =	1.1664
METER RUN SIZE :	4.026	DIFFERENTIAL PRESS. RANGE:	200	IN WC	FG $\sqrt{(1/SG)}$	= .9259
SEPARATOR NO :	76	STANDARD CONDITIONS :	14.73 PSI @ 60°F		C ₂ (FU x FG)	= 22.2216

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
6.2.90															
2200	23	26/64	383	119	100	2.125	213.4124	960.48	.9636	1.1326	1.0018	1050.129	23335.546	4.981	140.33
2300	24	"	390	118	100	"	214.4485	"	.9636	1.1364	1.0018	1053.6523	23413.839	5.021	141.46
2400	25	"	395	116	100	"	213.9829	"	.9636	1.1392	1.0017	1056.1429	23467.185	5.022	141.49
7.2.90															
0100	26	"	395	117	100	"	214.9033	"	.9636	1.1392	1.0018	1056.2484	23471.529	5.044	142.11
0200	27	"	397	117	99	"	215.4470	"	.9645	1.1417	1.0017	1059.4494	23542.66	5.072	142.90
0300	28	"	397	117	99	"	215.4470	"	.9645	1.1417	1.0017	1059.4494	23542.66	5.072	142.90
0400	29	"	398	117	99	"	215.7184	"	.9645	1.1422	1.0017	1059.9133	23552.969	5.081	143.15
0500	30	"	399	117	100	"	215.9894	"	.9636	1.1415	1.0017	1058.2753	23516.57	5.080	143.12
0600	31	"	400	118	99	"	217.1823	"	.9645	1.1434	1.0017	1061.0268	23577.713	5.121	144.28
0700	32	"	400	118	99	"	217.1823	"	.9645	1.1434	1.0017	1061.0268	23577.713	5.121	144.28
0800	33	"	400	118	99	"	217.1823	"	.9645	1.1434	1.0017	1061.0268	23577.713	5.121	144.28
0900	34	"	400	118	99	"	217.1823	"	.9645	1.1434	1.0017	1061.0268	23577.713	5.121	144.28
1000	35	"	400	118	102	"	217.1823	"	.9619	1.1394	1.0017	1054.4648	23431.894	5.089	143.38
1100	36	"	408	120	106	"	221.1958	"	.9585	1.1386	1.0017	1049.9999	23332.677	5.161	145.41
1200	37	"	410	119	104	"	220.8118	"	.9602	1.1423	1.0017	1055.2803	23450.016	5.178	145.88
1300	38	"	413	116	104	"	218.8074	"	.9602	1.1440	1.0017	1056.8508	23434.915	5.139	144.79
1400	39	"	413	115	104	"	217.8622	"	.9602	1.1440	1.0017	1056.8508	23484.915	5.116	144.16
1500	40	"	425	115	106	"	221.0769	"	.9585	1.1385	1.0016		23330.12	5.157	146.05

000029

CUSTOMER :	SANTOS	PERFORATIONS:	9108-9217	PAGE:	5	OF	
WELL NAME:	KNOWNS #5	FORMATION :	PATCHAWARRA.	DATE:	7.2.90		
TEST TYPE :	PRE FRAC SINGLE RATE.			OPR :	M. MUELLER.		

[illegible]

000030



LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 1 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHALJARRA

DATE: 2.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M MUELLER

TANK
NUMBER

#1 = 86

#2 =

TANK
CAPACITY#1 = 20.67 m³#2 = bbls/m³TANK
SCALE

#1 = .099 cm/in

#2 = bbls/in · m³/cm

OIL API GRAVITY = @ 60°F

DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN.)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN.)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)	TANK DIP (IN.)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)
3.2.90		CLEAN UP FLOW									
1600		86	Ø	Ø	INITIAL DIP			Ø			
1600	3.5		13.0	13.0	1.29	30.96		Ø			
1645		CHANGE CHOKE SETTING									
1800	5.5		20.5	19.25	INITIAL DIP			1.25			
1900	6.5		24.75	23.25	.40	9.60	.40	1.50	.02	.48	.02
2000	7.5	INCREASE CHOKE	29.25	27.75	.45	10.80	.85	1.50	Ø	Ø	.02
2100	8.5	INCREASE CHOKE	30.0	28.25	.05	1.20	.90	1.75	.02	.48	.04
2200	9.5	NO RATE AS DUMP LINE HYDRATED UP									
4.2.90											
1100		SINGLE RATE FLOW									
1100	Ø	86	31.50	29.75	INITIAL DIP			1.75			
1200	1		31.75	30.00	.02	.48	.02	1.75	Ø	Ø	Ø
1300	2		32.125	30.25	.02	.48	.04	1.875	.01	.24	.01
1400	3		34.625	32.625	.24	5.76	.28	2.00	.01	.24	.02
1700	6		35.50	33.50	.09	.72	.37	2.00	Ø	Ø	.02
1800	7		35.50	33.50	Ø	Ø	.37	2.00	Ø	Ø	.02
1900	8		35.50	33.50	Ø	Ø	.37	2.00	Ø	Ø	.02
2000	9		35.50	33.50	Ø	Ø	.37	2.00	Ø	Ø	.02
2100	10		36.125	33.625	.01	.24	.38	2.50	.05	1.20	.07
2200	11		37.125	34.125	.05	1.20	.43	3.00	.05	1.20	.12

EXPERTEST PTY. LTD.

LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS: 9102 - 9217

PAGE: 2 OF

WELL NAME: KANOWANA #5

FORMATION : PATCHAWARKA

DATE: 4.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLER

TANK #1 = 86

TANK #1 = 20.67 m³TANK #1 = .099 m³/IN

OIL API GRAVITY = 60.1 @ 60°F

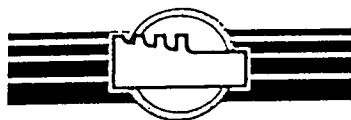
TANK #2 = 64

CAPACITY #2 = 56.6 m³SCALE #2 = .2666 m³/IN

DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)	TANK DIP (IN/)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)
4.2.90											
2300	12	86	37.125	34.125	Ø	Ø	.43	3.00	Ø	Ø	.12
2400	13	"	37.125	34.125	Ø	Ø	.43	3.00	Ø	Ø	.12
		WELL SHUT IN. INCREASE IN LEVELS DUE TO FLUID LOSS TO TANK WHILE SHUT IN.									
0400			39.125	34.625				4.50			
0500		IN ATTEMPTING TO SET FLUID LEVELS ON SEPARATOR FLUID WAS LOST TO TANK SO READINGS NOT AVAILABLE. (ICE IN VESSEL & SIGHT GLASSES).									
0500	1.5	"	47.75	41.75	INITIAL DIP			6.00			
0600	2.5	"	47.75	41.75	Ø	Ø	.43	6.00	Ø	Ø	.12
0700	3.5	"	47.75	41.75	Ø	Ø	.43	6.00	Ø	Ø	.12
0800	4.5	"	48.625	42.125	.04	.96	.47	6.50	.05	1.20	.17
0900	5.5	"	52.375	44.375	.22	5.28	.69	8.00	.15	3.60	.32
1000	6.5	"	64.375	54.375	.99	23.76	1.68	10.00	.20	4.80	.52
1050		SWI VESSEL FROZEN INTERNALLY.									
2200		FLOW WELL RESTART SINGLE RATE.									
2300	Ø	#64	1.0	1.0	INITIAL DIP			Ø			
2400	1	"	5.0	5.0	1.07	25.68	1.07	Ø	Ø	Ø	Ø
6.2.90											
0100	2	"	7.25	6.75	.46	11.04	1.53	.5	.13	3.12	.13
0200	3	"	9.75	8.625	.50	12.00	2.03	1.125	.17	4.08	.30
0300	4	"	12.125	10.25	.43	10.32	2.46	1.875	.20	4.80	.50

000032

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS: 9102 - 9217

PAGE: 3 OF

WELL NAME: KANDUWA #3

FORMATION : PATHEHARRA

DATE: 6.2.90

TEST TYPE : PRE FRAC SINGLE RATE

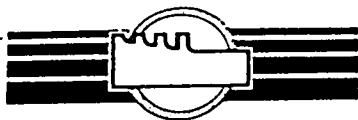
OPR : M. MULLER

OIL API GRAVITY = 61.2 @ 60°F

TANK NUMBER	#1 =	TANK CAPACITY	#1 =	TANK SCALE	#1 =	OIL API GRAVITY = 61.2 @ 60°F					
	#2 = 64		#2 = 56.6		#2 = .2666 m ³ /IN						
DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)	TANK DIP (IN/)	TANK PRODUCTION (m ³)	FLOW RATE (m ³ /D)	CUMULATIVE PRODUCTION (m ³)
6-2-90											
0400	5	64	16.375	13.625	.90	21.60	3.36	2.75	.23	5.52	.73
0500	6	"	19.25	16.125	.67	16.08	4.03	3.125	.10	2.40	.83
0600	7	"	22.125	18.50	.63	15.12	4.66	3.625	.13	3.12	.96
0700	8	"	25.50	21.50	.80	19.20	5.46	4.00	.10	2.40	1.06
0800	9	"	28.375	24.125	.70	16.80	6.16	4.25	.07	1.68	1.13
0900	10	"	31.375	26.75	.70	16.80	6.86	4.625	.10	2.40	1.23
1000	11	"	34.375	29.125	.63	15.12	7.49	5.25	.17	4.08	1.40
1100	12	"	37.00	31.50	.63	15.12	8.12	5.50	.07	1.68	1.47
1200	13	"	40.00	34.00	.67	16.08	8.79	6.00	.13	3.12	1.60
1300	14	"	43.125	36.875	.77	18.48	9.56	6.25	.07	1.68	1.67
1400	15	"	46.375	39.375	.67	16.08	10.23	7.00	.20	4.80	1.87
1500	16	"	49.125	41.75	.63	15.12	10.86	7.375	.10	2.40	1.97
1600	17	"	52.0	44.375	.70	16.80	11.56	7.625	.07	1.68	2.04
1700	18	"	54.625	46.75	.63	15.12	12.19	7.875	.07	1.68	2.11
1800	19	"	57.625	49.50	.73	17.52	12.92	8.125	.07	1.68	2.18
1900	20	"	60.50	52.125	.70	16.80	13.62	8.375	.07	1.68	2.25
2000	21	"	63.375	54.25	.57	13.68	14.19	9.125	.20	4.80	2.45
2100	22	"	66.50	56.875	.70	16.80	14.89	9.625	.13	3.12	2.58
2200	23	"	69.625	59.625	.73	17.52	15.62	10.00	.10	2.40	2.68
2300	24	"	72.125	61.875	.60	14.40	16.22	10.25	.07	1.68	2.75

000033

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 4 OF

WELL NAME: KANOWANAH #3

FORMATION : PATCHOWARRA

DATE: 6.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. T. WHEELER

TANK

#1 =

TANK

#1 =

bbls/m³

TANK

#1 =

bbls/in - m³/cm

OIL API GRAVITY = @ 60°F

NUMBER

#2 =

CAPACITY

#2 =

m³

SCALE

#2 = 2666 m³/in

DATE

FLOW

TANK

TOTAL

OIL/CONDENSATE PRODUCTION

WATER PRODUCTION

TIME

TIME
(HOURS)USED
(NUMBER)TANK DIP
(IN.)TANK
DIP
(IN.)TANK
PRODUCTION
(m³)FLOW
RATE
(m³/D)CUMULATIVE
PRODUCTION
(m³)TANK
DIP
(IN.)TANK
PRODUCTION
(m³)FLOW
RATE
(m³/D)CUMULATIVE
PRODUCTION
(m³)

6.2.90

2400

25

75.50

64.875

80

19.20

17.02

10.625

10

2.40

2.85

7.2.90

0100

26

"

78.125

67.125

60

14.40

17.62

11.00

10

2.40

2.95

0200

27

"

81.25

69.875

73

17.52

18.35

11.375

10

2.40

3.05

0300

28

"

84.50

72.625

73

17.52

19.08

11.875

13

3.12

3.18

0400

29

"

88.00

75.625

80

19.20

19.88

12.375

13

3.12

3.31

0500

30

"

90.125

77.50

50

12.00

20.38

12.625

07

1.68

3.38

0600

31

"

92.625

79.625

57

13.68

20.95

13.00

10

2.40

3.48

0700

32

"

95.875

82.50

77

18.48

21.72

13.375

10

2.40

3.58

0800

33

"

99.50

85.625

83

19.92

22.55

13.875

13

3.12

3.72

0900

34

"

102.875

88.75

83

19.92

23.38

14.125

07

1.68

3.79

1000

35

"

105.875

90.875

57

13.68

23.95

14.75

17

4.08

3.96

1100

36

"

107.50

92.625

47

11.28

24.42

15.00

07

1.68

4.03

1200

37

"

110.50

95.125

67

16.08

25.09

15.375

10

2.40

4.13

1300

38

"

113.375

97.75

70

16.80

25.79

15.625

07

1.68

4.20

1400

39

"

116.50

100.50

73

17.52

26.52

16.00

10

2.40

4.30

1500

40

"

119.75

103.25

733

17.59

27.25

16.50

0.133

3.19

4.43

1600

41

"

122.75

105.75

666

15.99

27.92

17.00

0.133

3.19

4.57

1700

42

"

125.75

108.50

733

17.59

28.65

17.25

0.066

1.59

4.63

1800

43

"

128.50

110.75

599

14.39

29.25

17.75

0.133

3.19

4.77

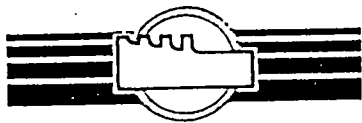
CUSTOMER :	SANTOS	PERFORATIONS:	9103-9217	PAGE:	5	OF	
WELL NAME:	KANDOUHANA #3	FORMATION :	PATCHAWARRA	DATE:	7.2.90		
TEST TYPE :	PRE FRAC SINGLE RATE.			OPR :	ARM		

TANK	#1 =	bbls/m ³	TANK	#1 =	OIL API GRAVITY = @ 60°F
CAPACITY	#2 =	56.6 /m ³	SCALE	#2 = 2666 m ³ /m	

[illegible]

000035

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS
 WELL NAME : KANDAWANA #3
 TEST TYPE : PRE FRAC SINGLE RATE

PERFORATIONS: 9108 - 9217'
 FORMATION : PATEHAWARRA

PAGE: 1 OF

DATE: 7.2.90

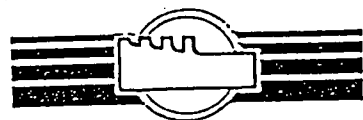
OPR : M. MUELLER

GAUGE DATA	UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)
ELEMENT SERIAL NO.	28906	15451	N/A.	DATE : 7.2.90			
ELEMENT RANGE	5200 PSI	5650 PSI		PRESSURE LUBRICATOR :	1110	10680	9066
RECORDING SECTION SERIAL NO.	12979	12961		RUN IN HOLE :	1310	10687	9150
DATE OF CALIBRATION: 2 290 °F	24.11.89	24.11.89		ON DEPTH AT : 9080 FTI	1334	10673	9157
				SI	2000		
CLOCK SERIAL NO.	24711	24710		DATE : 12.2.90			
CLOCK RANGE	120 HR	120 HR.		PULL OUT OF HOLE :	0722	17506	0
LEAD SCREW TYPE	15 TLS	15 TLS.		AT SURFACE :	0747		
				DEPRESSURE LUBRICATOR : 12.2.90	0950	17478	0
ENGAGE STYLUS DATE 7.2.90 TIME 1101	1101	1101		MAXIMUM BHT AT 9080 FTI = 262 °F			
DISENGAGE STYLUS DATE 12.2.90 TIME 1000	1000	1000		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

DATE	TIME	REMARKS
		NO TEMPERATURE ELEMENT AVAILABLE.
		BOTH 120 HOUR CLOCKS FAILED IN THE LATER PART OF THE SURVEY.
		(DWT) LUB IN: 1549 PSI / OUT: 2535 PSI
		TOP (AMERADA) IN: 1546 PSI / OUT: 2556 PSI
		BOT (AMERADA) IN: 1561 PSI / OUT: 2544 PSI

000036

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA # 3

FORMATION :

DATE: 12-2-90

TEST TYPE : S.G.S.

OPR : PDM

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)

ELEMENT SERIAL NO.

28904

15451

N/A.

DATE : 12-2-90.

ELEMENT RANGE

psi

5200

5650

PRESSURE LUBRICATOR : 1020

RECORDING SECTION SERIAL NO.

12979

12961

RUN IN HOLE : 1035

DATE OF CALIBRATION:

2290°F

24.11.4

24.11.89

ON DEPTH AT : 9163' FT/M

CLOCK SERIAL NO.

2431

2489

DATE : 12-2-90

CLOCK RANGE

hr.

3

3

PULL OUT OF HOLE : 1205

LEAD SCREW TYPE

T/S

15

15

AT SURFACE : 1232

DEPRESSURE LUBRICATOR : 1247

17458

0

ENGAGE STYLUS DATE

12-2-90

TIME

1010

1010

MAXIMUM BHT AT 9163' FT/M = 266 °F/°C

DISENGAGE STYLUS DATE

12-2-90

TIME

1254

1254

N.B. ALL DEPTHS ARE MEASURED FROM K.B.

REMARKS

DATE

TIME

GRADIENT STOP AT 7500' WAS MISSED WHILST R.I.H. STOP WAS
MADE WHILST P.O.H.

000037

EXPERTEST PTY. LTD.

SAMPLING DATA

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 1. OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWATRA.

DATE: 7.2.90

TEST TYPE : S.R.T.

OPR : RRM

SAMPLE # 1

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
1450	001	500	GAS	20	EVAC			SEP.	2826	41		

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE (PSI/KPa)	TEMPERATURE (°F/°C)
10783	49	26		2826	41	1.1385	1.1664		146.05	17.59	3.19	142.38		

REMARKS:

SAMPLE # 2

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
1450	024	500	OIL	20	ACID. BRINE	25	25	SEP.	2826	41		

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE (PSI/KPa)	TEMPERATURE (°F/°C)
10783	49	26		2826	41	1.1385	1.1664	51.3	146.05	17.59	3.19	142.38.		

REMARKS:

SAMPLE # 3

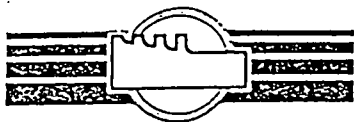
TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
1550	036	500	GAS	20	EVAC.		-	SEP	2826	41		

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE (PSI/KPa)	TEMPERATURE (°F/°C)
10776	49	26		2826	41	1.1385	1.1664		144.77	15.99	3.19	132.58.		

REMARKS:

00038

EXPERTEST PTY. LTD.



SAMPLING DATA

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 7.2.90

TEST TYPE : SRT.

OPR : EDM

SAMPLE # 4.

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)	
1550	069	500	OIL	20	ACID. BRINE	25	25		SEP		2826	41			
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE	TEMPERATURE	
														(PSI/KPa)	(°F/°C)
10776	49	26		2826	41	1.1385	1.1664	51.3	144.77	15.99	3.19	132.58			

REMARKS:

SAMPLE # 5

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)	
2000		500	H ₂ O						SEP.		0				
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³ / 10⁶ m³	PRESSURE	TEMPERATURE	
													(PSI/KPa)	(°F/°C)	
10707	48	26		2792	40				142.89	14.39	1.59	111.94			

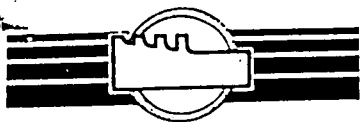
REMARKS: L.P.

SAMPLE # 6

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)	
2000	500								SEP		0.				
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE (64TH)	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE	TEMPERATURE	
														(PSI/KPa)	(°F/°C)
10707	48	26		2792	40				142.89	14.39	1.59	111.94			

REMARKS: L.P.

000039



CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217

PAGE: 1 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA.

DATE: 1.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLER.

DATE/TIME

DESCRIPTION OF EVENTS

1.2.90

1400

SPOT EQUIPMENT ON LEASE.

1530

START RIG IN.

2.2.90

0800

RIG UP WIRELINE UNIT & GIN POLE.

1025

RUN IN HOLE WITH 1.75" BLIND BOX

1100

TAG PBTD @ 10263' KB NO OBSTRUCTIONS PULL OUT OF HOLE.

1118

BACK IN LUB. SECURE WELL.

1130

CONTINUE RIGGING IN TEST EQUIPMENT.

1309

PRESSURE FLOW LINES TEST FLANGE LEAKING UNABLE TO FIX WAIT ON ANOTHER FROM MOOMBA.

1530

REPLACE FLANGE WITH NEW RING-GASKET.

1545

PRESSURE LINES FLANGE OK BUT COMPANION FLANGE BETWEEN PRODUCTION FLOW LINE & PRODUCTION CHOKE LEAKING. & BTHS VALVES ON SEPARATOR USELESS REMOVE & TAKE TO MOOMBA FOR REDRESS.

2115

RETURN TO LEASE & FIT VALVES STILL NOT HOLDING PRESSURE. RETURN TO MOOMBA FOR NEW VALVE.

1155

ARRIVE LOCATION! FIT VALVE ALL FIT. CORRECT RING GASKET BETWEEN PRODUCTION FLOW LINE & PRODUCTION CHOKE.

1250

PRESSURE TEST LINES PRODUCTION FLANGE STILL LEAKING & O-RING BLEW OUT ON SEP VALVE.

1300

SECURE WELL.

3.2.90

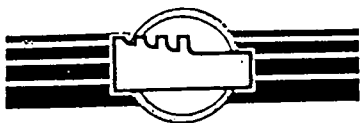
0600

GO TO MOOMBA FOR VALVE REPAIR KIT & COMPANION FLANGE TO RIG STRAIGHT ONTO THE WELL HEAD.

0930

REPAIR VALVE & RIG IN TO WELL HEAD.

000040



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 2 OF

WELL NAME: KANDAWWA #3

FORMATION : PATCHAWARRA

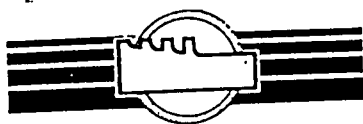
DATE: 3.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLER

DATE/TIME	DESCRIPTION OF EVENTS
3.2.90	
1210	PRESSURE TEST OK.
1227	FLOW WELL ON SEPARATOR BYPASS TO ATMOSPHERE. 16/64 COMMENCE CLEAN UP.
1245	INCREASE CHOKE TO 20/64.
1330	INCREASE CHOKE TO 26/64.
1403	PRESSURE SEPARATOR. & TRIM FLOW.
1642	FLOW RATES MUCH HIGHER THAN EXPECTED BY P.E. DECREASE CHOKE TO 19/64.
1700	DECREASE CHOKE TO 14/64.
1715	DECREASE CHOKE TO 10/64.
1800	ACHIEVE REQUIRED FLOW RATE.
2000	INCREASE CHOKE TO 14/64 SEPARATOR & FLOW LINES HYDRATING.
2100	INCREASE CHOKE TO 18/64 SEPARATOR STILL HYDRATING.
2200	SHUT WELL IN UNABLE TO CONTINUE FLOW BECAUSE OF HYDRATE PROBLEMS NEED HEATER.
4.2.90	
0915	PRESSURE LINES.
0920	FLOW WELL ON 26/64 CHOKE ON SEP BYPASS TO ATMOSPHERE.
0935	DIVERT FLOW THROUGH SEP.
1012	SHUT WELL IN CHICKSAN SEAL BLEW OUT AT WELLHEAD. CHANGE CHICKSAN OUT.
1050	FLOW WELL TO BYPASS. ON 26/64.
1056	FLOW THROUGH SEP. FOR SINGLE RATE.
5.2.90	
0010	SHUT WELL IN. SEPARATOR PRESSURE EXCEEDING VESSEL RATING. BLOWN PSV. UNABLE TO REDUCE PRESSURE AS BACK PRESSURE VALVE ALREADY WIDE OPEN. REMOVE VALVES SUSPECT OBSTRUCTION.

000041



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 3 OF

WELL NAME: KANONANA #3

FORMATION : PATCHIGWARRA

DATE: 5.2.90

TEST TYPE : PRE FRAC SINGLE RATE

OPR : M. MUELLER

DATE/TIME

DESCRIPTION OF EVENTS

5.2.90

0320

PRESSURE FLOW LINES

0324

FLOW WELL THROUGH SEP. ON 26/64 CHOKE

1050

SWI SEPARATOR VESSEL FROZEN SOLID. NEED HEATER

1930

HEATER ARRIVES TRUCK HAD BEEN BOGGED ON THE WAY TO THE LEASE. RIG IN.

2045

LIGHT HEATER & ALLOW TEMPERATURE TO INCREASE

2200

PRESSURE LINES ALL OK

2206

FLOW WELL ON 26/64 CHOKE BYPASS SEPARATOR TO ATMOSPHERE

2220

DIVERT FLOW THROUGH SEPARATOR. & TRIM FLOW

2300

RESTART SINGLE RATE TEST

6.2.90

CONTINUE SINGLE RATE FLOW

7.2.90

CONTINUE SINGLE RATE FLOW

1109

PRESSURE LUB WITH 2x 5000 PSI PRESSURE GAUGES COUPLED TO 120 HR CLOCKS

1309

R.I.H. & ...

1334

GAUGES HANGING AT 9080' KB.

1450

BEGIN COLLECTING 2 H.P. SAMPLE SET FROM SEPARATOR

1610

COMPLETE H.P. SAMPLING

2000

S.I.W. FOR P.B.U.

12.2.90

0722

P.O.H. WITH GAUGES

0747

GAUGES IN LUB

0950

DEPRESS LUBRICATOR. CHECK CHARTS - BOTH CLOCKS FAILED LATE IN PBU PERIOD.

1035

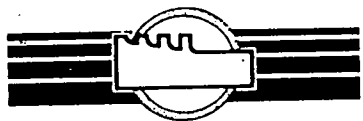
R.I.H. WITH GAUGES TO PERFORM S.G.S.

1149

AT BOTTOM STOP - 9163' KB. P.O.H.

000042

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 4. OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 12-2-90

TEST TYPE : S.R.T.

OPR : PAM

DATE/TIME

DESCRIPTION OF EVENTS

12-2-90.

1247

DEPRESSURE LUB. RECOVER GOOD CHARTS.

1400

R.D.M.O.

000043

DOWNHOLE INSTALLATION DRAWING

WELL ... Kanawana #3 DATE OF INSTALLATION 16/12/89 ... 000044
WELLSITE SUPERVISOR: Bim Steel

RE-COMPLETION	
COMPLETION	✓

Item No.	Description	Length (Ft.)	Depth Ref. K.B. (Ft.)	Minimum I.D. (In)
	K.B. to top of tubinghead spool	20	0.00	
1	CW FBB-EN 7 1/4" X 2 7/8" AB X 2 7/8" CS It'd.	.79	20.79	2.3147
2	Nipple 2 7/8" L80 AB-1J3SS Pin x Pin	.32	21.11	2.38
3	1 Jnt 2 7/8" 6.5" L80 AB-1J3SS	31.34	52.45	2.3147
4	2' Pop 2 7/8" AB-1J3SS L80	1.75	54.20	2.3147
5	Xlover 2 7/8" AB-1J3SS Pin X NK3SB L80	1.50	55.70	2.401
6	279 Jnts 2 7/8" NK3SB 6.5" L80	8674.79	8730.49	2.3147
7	Xlover 2 7/8" NK3SB X AB-1J3SS L80	1.73	8732.22	2.3147
8	Picker E-22 anchor seal 80.32	.78	8733	2.406
	2 7/8" AB-1J3SS box			
	Permanent downhole equipment			
9	7" Baker DB packer 84.32 1 1/2"			
	AB-1J3SS	4.08	8737.08	3.25
10	Millout extension 1 1/2" AB-1J3SS	5.39	8742.47	3.87
11	Surge 4 1/2" Box X 2 7/8" AB-1J3SS	1.73	8744.2	2.55
12	10' Pop jnt 2 7/8" 6.5" JSS AB-1J3SS	9.8	8754.01	2.35
13	Otis 2 7/8" nipple 711 X 23160A AB-1J3SS	.95	8754.96	2.313
14	2 pop jnts 10' X 2 7/8" 6.5" JSS AB-1J3SS	14.61	8774.57	2.35
15	Otis 2 7/8" nipple 711 X 23117 AB-1J3SS	1.02	8775.59	2.205
16	Re-entry guide 2 7/8" AB-1J3SS Box X	1.00	8776.59	2.40
	3 1/2" JSS			

PERFORATED INTERVALS:			GUN:		CHARGES:	
Formation	Interval (Ft. KB)	Size	Type	SPF	Type	Wt.(g.)
Patchawarra	9108' - 9138'	5	C-39	6	120'	22
	9148' - 9154'					
	9165' - 9175'					
	9190' - 9217'					

REMARKS:

REMARKS: 2% KCl 9.4% brine treated w/ 205 lbs 2100 inhibitor

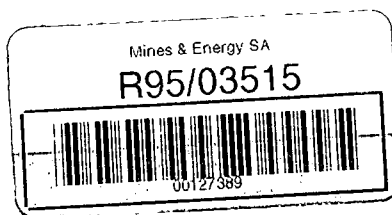
Annulus Fluid:	Indicated:	42,000	(with hose block up)
String Weight	Calculated:	54,000	(with 1000 lbs. wt.)
Slack-off Weight:		7,000 lbs.	Compression

000045

PETROLEUM DEVELOPMENT

KANOWANA 3
PREFRAC SINGLE RATE TEST
AND
PRESSURE BUILDUP SURVEY
3rd-12th FEBRUARY, 1990

Report No.: RE:019/90
Author: F.M. Van der Linden
Date: April 1990



- 1.0 Introduction
- 2.0 Results and Interpretation
- 3.0 Conclusions
- 4.0 Recommendations
- 5.0 Discussion
 - 5.1 General
 - 5.2 Analysis
 - 5.3 Reservoir Pressure
 - 5.4 Reservoir Parameters

Appendices:

- 1.0 Location Map and Well Card
- 2.0 Log Sections
- 3.0 Welltest Reports
- 4.0 Field Reports
- 5.0 Composition and Gaspac Output

READ & SEE WHAT
000047
IT SAYS. — ASK?

1.0 INTRODUCTION

Kanowana 3 was drilled in February 1988 to appraise the Patchawarra Formation in the undrilled western flank of the Kanowana field located in the Patchawarra South West Block 38 km North-Northwest of Moomba (Appendix 1). The well encountered 191' of log pay: 136' in the Patchawarra Formation, and 55' in the Tirrawarra Sandstone. The latter was rejected as pay on the results of DST 4. The open hole testing of Kanowana 3 is summarised below (and in Appendix 1)

<u>DST NO.</u>	<u>FORMATION</u>	<u>SAND</u>	<u>INTERVAL</u> ('KB)	<u>RESULTS</u>
1	Patchawarra	88-5	8876-9012	Q=1.26 MMCFD @ 415 psia rec: 105' GCC, 155' GCCWM, 225' G & CCMW and 168' MW. k=1 md, s'=-4.8
2	Patchawarra	92-8	9322-9488	Q=1.0 MMCFD @ 240 psia rec: 464' GCMW 712' WC. k = 1md, s' = 1.8
3	Patchawarra	94-7	9552-9582	Q=0.486 MMCFD rec: 184' VMW and 700' WG. k = 0.25 md, s' = -1.6
4	Tirrawarra	100-2	10074-10185	Q=RTSTM rec: 742' WC and 820' RM

X In December 1989 the well was singly completed across the Patchawarra 90-7 and 91-3 sands with 5" casing guns. A string of 2 7/8" L80 NK 35B tubing was run as a fracture stimulation treatment had been recommended (ref PEO:349/89).

The 90-7 and 91-3 sands (Log sections, Appendix 2) were untested in Kanowana 3 so the frac recommendation was based on permeabilities estimated from porosity crossplots to be 0.2 md and 0.14 md respectively.

This report presents the results and interpretation of the prefrac single rate flow and buildup test performed on the Kanowana 3 90-7 and 91-3 sands from the 3rd to 12th February, 1990.

The Kanowana Field was brought online in March 1990.

2.0 RESULTS AND INTERPRETATION

The results of the Kanowana 3 single rate flow and buildup test of the 90-7 and 91-3 sands are summarised below and in Appendix 3.

Flow time:	45 hours			
Buildup time:	107 hours			
Rate Data:	Gas:	5.05 MMCFD		
	Condensate:	102.6 BCPD	CGR	20.2 BBLS/MMSCF
	Water:	16.3 BWPD	WGR	3.2 BBLS/MMSCF
Well head Pressure:	1530 psia			
Separator Pressure:	380 psia			

Interpretation of the test data yielded the following results:

	<u>TOP GAUGE</u>	<u>BOTTOM GAUGE</u>
kh	110 md-ft	104 md-ft
k	2.9 md	2.7 md
s'	+3.8	+3.4
P _i	4014 psia @ 9074' KB	4067 psia @ 9084' KB
P _{@ datum}	4040 psia @ 9271' KB	4092 psia @ 9271' KB

3.0 CONCLUSIONS

The permeability derived from the buildup test interpretation is higher than the permeabilities indicated by the average porosities of the 90-7/91-3 sand pair. Under these circumstances the previously planned fracture stimulation treatment will be of reduced benefit.

The extrapolated reservoir pressures interpreted from the test are comparable to those obtained from the Kanowana 1 Production Test (July 1987).

4.0 RECOMMENDATIONS

- a) No further perforating of the Kanowana 3 Patchawarra sands is recommended until the sustained productivity of the 90-7 and 91-3 sands is assured and it has been determined conclusively that no fracture stimulation treatment is required.
- b) The 90-7 and 91-3 sands should be production tested for 4-6 months to verify the deliverability seen on this 45 hour single rate test and to ensure that neither sand produces formation water.
- c) Prior to any additional perforating, another buildup survey is recommended for Kanowana 3 to check depletion and to compare the reservoir parameters determined from this buildup survey.
- d) The previously proposed fracture stimulation treatment (ref PEO:349/89) should be reviewed further to b) and c) above.

5.0 DISCUSSION

5.1 General

The Kanowana 3 single rate flow and buildup test was interpreted with the aid of the Eclipse Welltest package. Twin gauges were run in the well: both sets of data have been interpreted (Appendix 3).

5.2 Analysis

Analysis of the pressure buildup data shows some slight humping in the early time, probably due to phase redistribution in the wellbore (Appendix 3). In the late time, after approximately 21 hours of shutin, a sharp pressure distortion is seen that persists until the end of the test and was possibly caused by a sudden loss of pressure through a leaking lubricator. This is confirmed by the recorded tubing head pressures which also reflect a sudden, sharp drop in pressure after 21 hours of shut in. In contrast, the annulus pressure gradually returned to zero gauge pressure after the thermal effects of the flow period had subsided. The field reports do not comment on these phenomena, however (Appendix 4).

The buildup data obtained during the middle time appears valid and was analysed with the Welltest Package for reservoir parameters by both Horner Analysis and Type Curves and verified by optimisation (Appendix 3).

The results of the analysis of each pressure gauge data set are presented below:

<u>GAUGE</u>	<u>TOP</u>	<u>BOTTOM</u>
kh (md-ft)	110	104
k (md)	2.9	2.7
s'	3.8	3.4
P _i (psia)	4014	4067
Depth 'KB	9074	9084

5.3 Reservoir Pressure

The Kanowana 1 Production Test (Delhi July 1987) report recommends reservoir pressures 4079 and 4093 psia at datum 9133'SS. These pressures compare favourably to the 4040 psia and 4092 psia measured in the Top and Bottom gauges, respectively, in Kanowana 3 and corrected to the same datum. A gas gradient of 0.133 psi/ft was calculated for the Patchawarra gas using a composition obtained from Kanowana 1 which compares well with the preliminary results of the recombined samples from Kanowana 3 (Appendix 5). Further sampling of Kanowana 3 is planned after all of the pay sands have been perforated.

5.4 Reservoir Parameters

The 90-7 and 91-3 sands were not previously tested in Kanowana 3. The recommendation to fracture stimulate these sands was based upon permeabilities of 0.2 md and 0.14 md for each sand respectively, estimated from porosity - permeability crossplots (ref PEO:346/89). A comparison of these sands with the 92-8 sand, which was DST'd is given below:

<u>SAND</u>	<u>NP'</u>	<u>Ø_{avg}</u>	<u>Sw</u>	<u>kh</u>	<u>k</u>	<u>s'</u>	<u>Deliverability</u>
92-8	17	10.5	34	17	1.0	3	1.0 MMCFD @ 240 psia
90-7	17	10	26.5]	110	2.9	3	5.0 MMCFD @ 1530 psia
91-3	21	9.7	29.3]				

On the basis of the average log properties, the 90-7/91-3 sand pair would flow 1-2 MMCFD post completion; instead the well produced at 5.0 MMCFD during the single rate test at an FTP 1530 psia.

The source of the higher than expected deliverability may be an apparent high porosity streak in the 90-7 sand at 9130'KB (Appendix 2). This streak may not be continuous throughout the Kanowana Field, although the 90-7 sand is present in all three wells, and may deplete quickly. A longer production test than the 45 hour flow period of the single rate test would be required to confirm the sustainable deliverability of the sand and to ensure that no formation water is produced via the high porosity streak.

An estimate of when depletion may be evident in the sand streak is obtained by assuming the bulk of the perforated sands are of comparable permeability to the previously described 92-8 sand and calculating the time to pseudo steady state for the single high permeability streak as follows:

total kh 90-7/91-3 sands: 110 md-ft

assume 110 md-ft = 1 ft x 72 md + 37 ft x 1 md

calculate $tp_{ss} = \frac{0.0002637 C_t \pi r_e^2 t_{DA}}{2.64 \times 10^{-4} k}$ for the 1' of 72 md sand

Data: $\phi = .23$ (from Log calc @ 4129'KB)

$\mu = .028$ cp

$C_t = 142 \times 10^{-6}$ psia⁻¹

$r_e = 400$ acres (90-7 sand 1186 acres, 3 wells)

$k = 72$ md

$t_{DA} = 1.0$ for rectangular reservoir

$tp_{ss} = \frac{.23 \times .028 \times 142 \times 10^{-6} \times \pi \times 3429^2 \times 1.0}{2.64 \times 10^{-4} \times 72}$

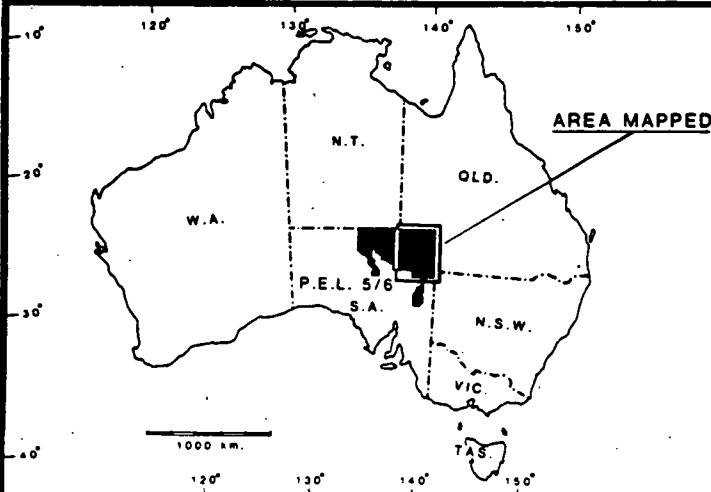
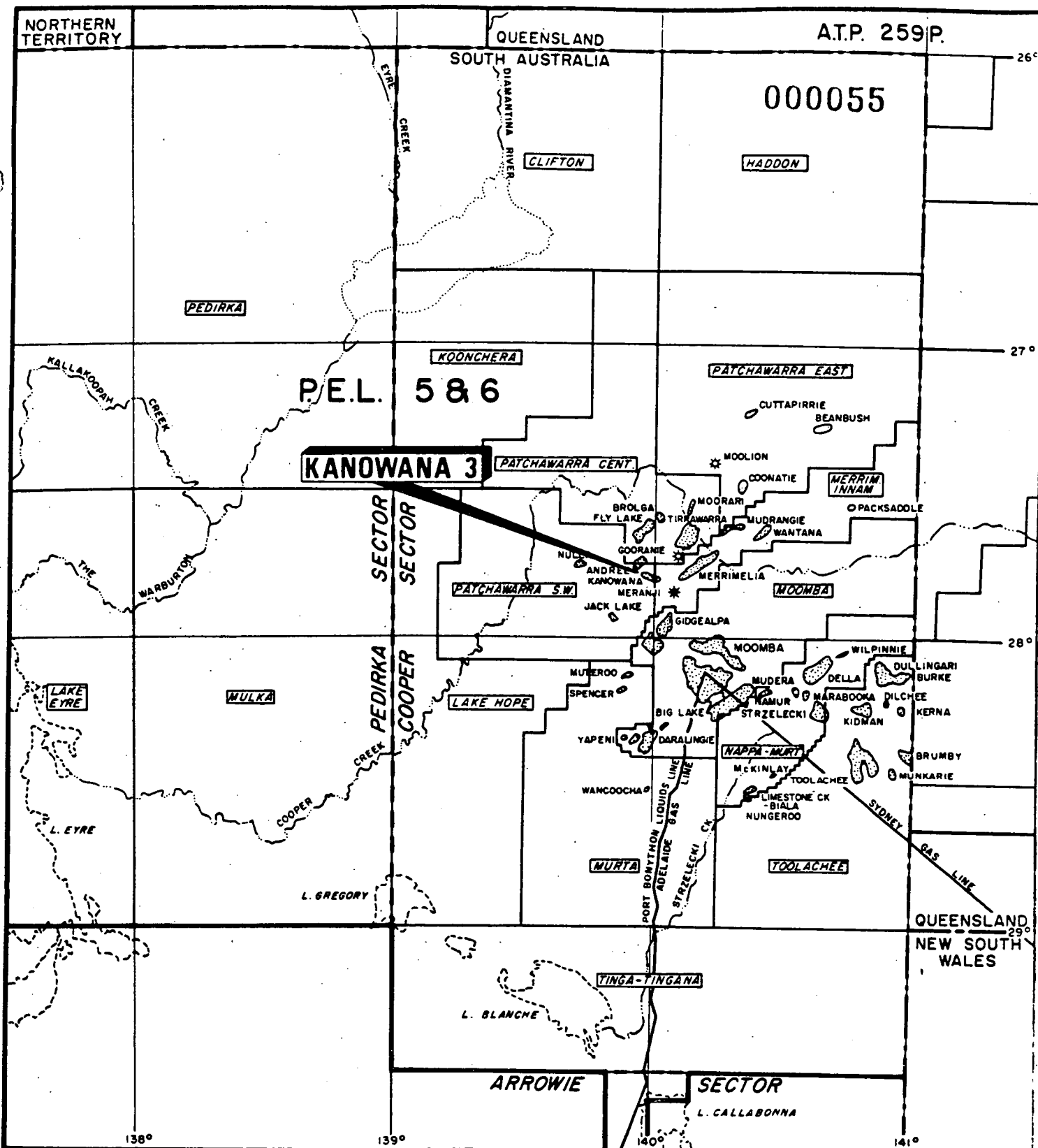
$tp_{ss} = 1777$ hours or 74 days

Kanowana 3 should therefore be production tested from the 90-7/91-3 sands for a period of not less than 4 months in order to confirm the sustained productivity of this high permeability streak. If the streak is limited to an areal extent less than that of the entire 90-7 sand, depletion will become evident before 4 months have elapsed. Another pressure buildup survey should be conducted after testing and the benefits of fracture stimulating the sand pair should subsequently be reviewed.

000054

APPENDIX 1

- LOCATION MAP
- WELL CARD



SANTOS LIMITED
S.A. EXPLORATION



P.E.L. 5&6
PATCHAWARRA S.W. BLOCK
LOCATION MAP
KANOWANA 3

KILOMETRES 20 0 20 40 60 80 100 KILOMETRES

Original Scale 1 : 2,000,000 Drafted A Shearer

Date October 1987

Author C Rudzki

Fig. 1

[illegible]

FORMATION TESTS

000057

No	INTERVAL	FORMATION	Flow (min)	Shut In (min)	Bottom Gauge IP/FP	SIP	Max Surf Pres	Fluid To Surf (min.)	TC	BC	REMARKS
1	8876-9012(L) 8830-9002(D)	88-5 PATCHAWARRA	125	240	1065/1267	3659	415	9	1/2	3/4	Q=1.26 MMCFD, REC: 105 GCC, 155' GOCM, 225' GOCMW, 168' MW
2	9322-9488(L) 9310-9476(D)	92-8 PATCHAWARRA	180	180	532/871	4028	240	20	1/2	3/4	Q=1.0 MMCFD REC: 464' GCMW & 712' WC
3	9552-9582(L) 9540-9570(D)	94-7 PATCHAWARRA	90	270	428/558	3766	103	11	1/2	3/4	Q=0.486 MMCFD REC: 184' VWM & 700' WC
4	10074-10185(L) 10064-10173(D)	100-2 TIRRAWARRA	120	240	323/453	4159	1	25	1/2	3/4	Q=RTSTM REC: 742' WC & 820' RM

Summary:

KANOWANA 3 IS A GAS APPRAISAL WELL LOCATED ON A NE-SW TRENDING ANTICLINE IN THE PATCHAWARRA SOUTHWEST BLOCK OF PELS 5 6, SA, 1.3 KM NW OF KANOWANA 1 AND APPROXIMATELY 38 KM NORTH-NORTH WEST OF THE MOOMBA GAS PLANT.

THE PRIMARY OBJECTIVE WAS APPRAISAL OF SANDSTONES IN THE PATCHAWARRA FORMATION (GAS) AND TIRRAWARRA FORMATION (OIL) RESERVOIRS, ADDRESSING THE PRODUCTIVITY OF THESE SANDSTONES ON THE UNDRILLED WESTERN FLANK OF THE KANOWANA STRUCTURE.

GEOPHYSICAL CONTROL WAS FAIR WITH MOST SEISMIC REFLECTORS INTERSECTED HIGH TO PROGNOSIS WITH THE EXCEPTION OF THE MERRIMELIA FORMATION WHICH WAS 26' LOW TO PROGNOSIS.

FOUR OPEN HOLE DSTs WERE CONDUCTED. DST'S 1-3 FLOWED GAS FROM SANDSTONES IN THE PATCHAWARRA FORMATION. DST 4 TESTED THE TIRRAWARRA SANDSTONE AND FLOWED GAS AT RTSTM.

A PROGRAMMED CORE WAS NOT TAKEN DUE TO POOR DEVELOPMENT OF THE 89-7 SANDSTONE.

LOG INTERPRETATION INDICATES 136' OF PAY WITHIN THE PATCHAWARRA FORMATION (AV Ø 9.8 AV SH 31.2) COMPARED TO A PROGNOSIS OF 113'.

NO PAY IS MAPPED IN THE TIRRAWARRA SANDSTONE; FIFTY FOUR FEET OF LOG PAY (AV Ø 11.9, AV SH 33.5) WAS REJECTED ON THE RESULTS OF DST 4. SOME 55' OF PAY HAD BEEN PROGNOSSED.

KANOWANA 3 HAS RESULTED IN A LOWERING OF THE LKG'S FOR THE MAJORITY OF SANDS WITHIN THE PATCHAWARRA FORMATION AND THE MAPPING OF A POSSIBLE OWC IN THE TIRRAWARRA SANDSTONE AT -10014'.

KANOWANA 3 WAS CASED AND SUSPENDED AS A PATCHAWARRA GAS WELL AND WILL BE COMPLETED AT A LATER DATE.

Author

Date

GEOLOP 006

000058

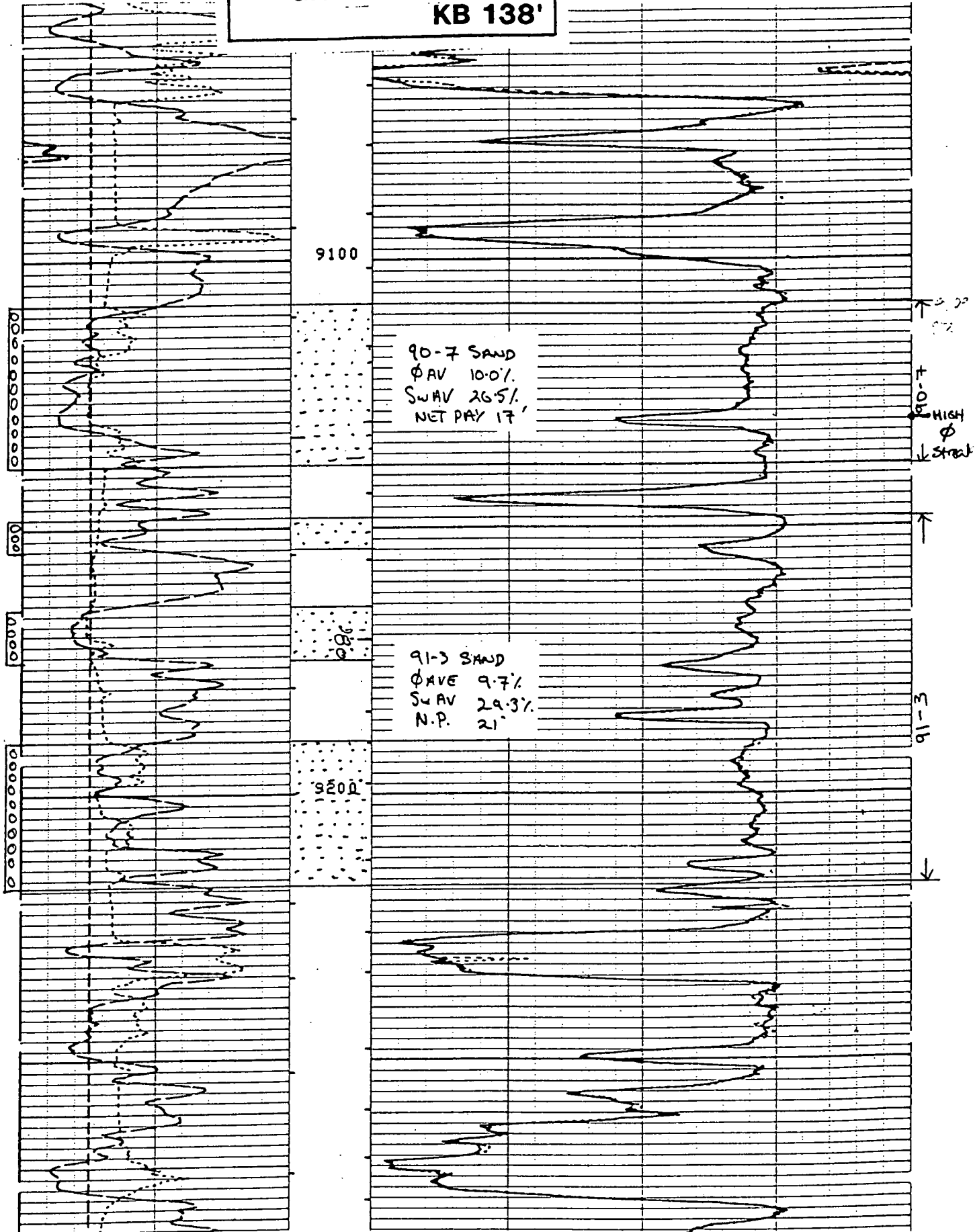
APPENDIX 2

LOG SECTIONS

KANOWANA #3
PATCHAWARRA FM
GR-SLS

000059

KB 138'



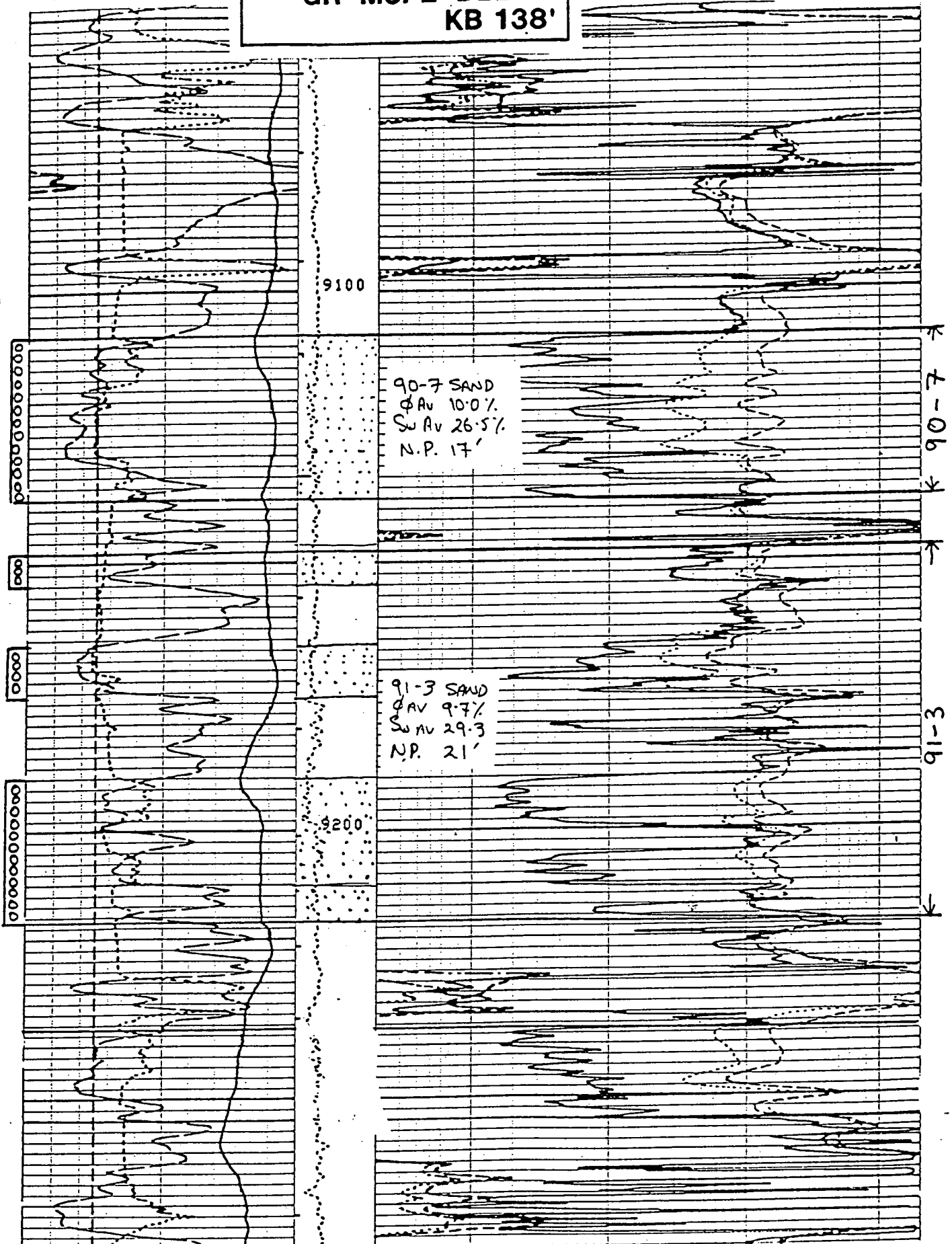
KANOV. AREA #3

PATCHAWARRA FM

GR-MSFL-DLL

KB 138'

000060



000061

APPENDIX 3

WELLTEST REPORTS

000062

FIELD : kanowana

WELL : kanowana 3

TEST NO. : PRE-FRAC SINGLE RATE AND PBU
LOWER GAUGE

DATE : 3 FEB 1990

RUN TYPE : Analysis

000063

PHASE : GAS

NO. OF WELLS : 1

PVT DATA : Reservoir temperature = 266.0 deg F
Standard temperature = 60.0 deg F
Standard pressure = 14.7 psia
Gas gravity = 0.8

Calculations to use PSEUDO time

WELL DATA : Well radius = 0.354 feet
Formation thickness = 38.0 feet
Porosity = 0.1
Rock compressibility = 4.500E-06 1/psi
Water saturation = 0.28
Water compressibility = 3.000E-06 1/psi

RATE DATA

000064

Time	Rate
Hours	Mscf/day
0.0	5082.0
44.99	0.0

PRESSURE DATA

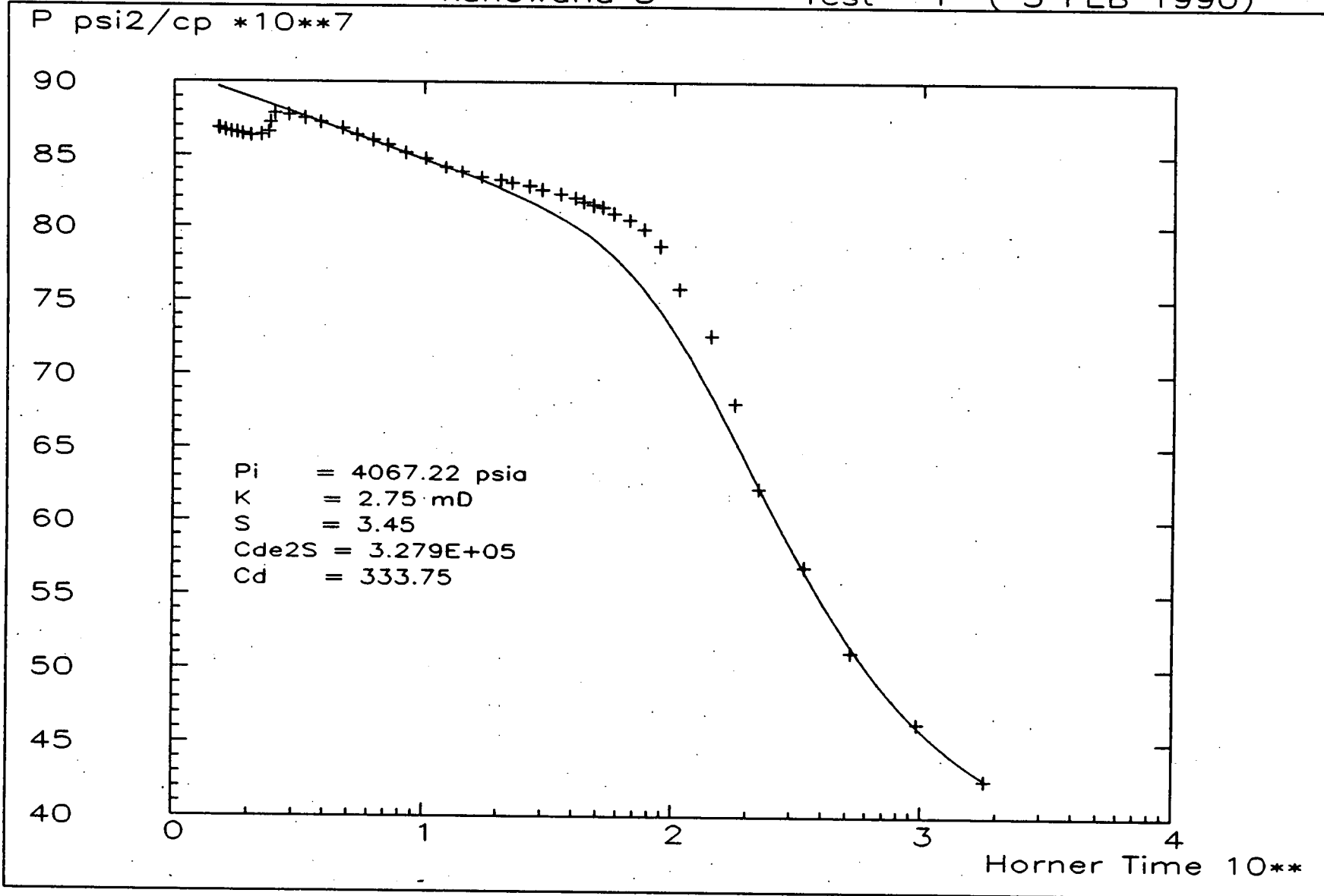
000065

Time	Pressure	Time	Pressure
Hours	psia	Hours	psia
0.0	4014.65	47.412	3855.5
44.99	2440.35	47.909	3867.37
45.022	2611.13	48.406	3877.46
45.049	2735.19	49.16	3896.4
45.095	2888.43	50.106	3908.67
45.146	3066.94	51.126	3923.21
45.218	3231.12	52.153	3933.18
45.269	3404.72	53.543	3943.32
45.329	3541.37	55.048	3956.48
45.429	3634.88	57.979	3968.35
45.502	3719.21	60.794	3975.93
45.574	3751.95	64.56	3982.32
45.649	3770.86	69.022	3985.28
45.741	3783.36	70.629	3967.51
45.815	3796.12	71.383	3948.87
45.885	3800.7	74.62	3943.7
45.959	3807.07	80.358	3942.12
46.032	3814.71	86.63	3945.51
46.173	3822.34	91.166	3947.71
46.382	3830.71	97.535	3949.31
46.55	3837.82	105.439	3952.9
46.814	3844.14	114.828	3956.47
47.018	3849.97	116.755	3956.87

kanowana

kanowana 3

Test 1 (3 FEB 1990)

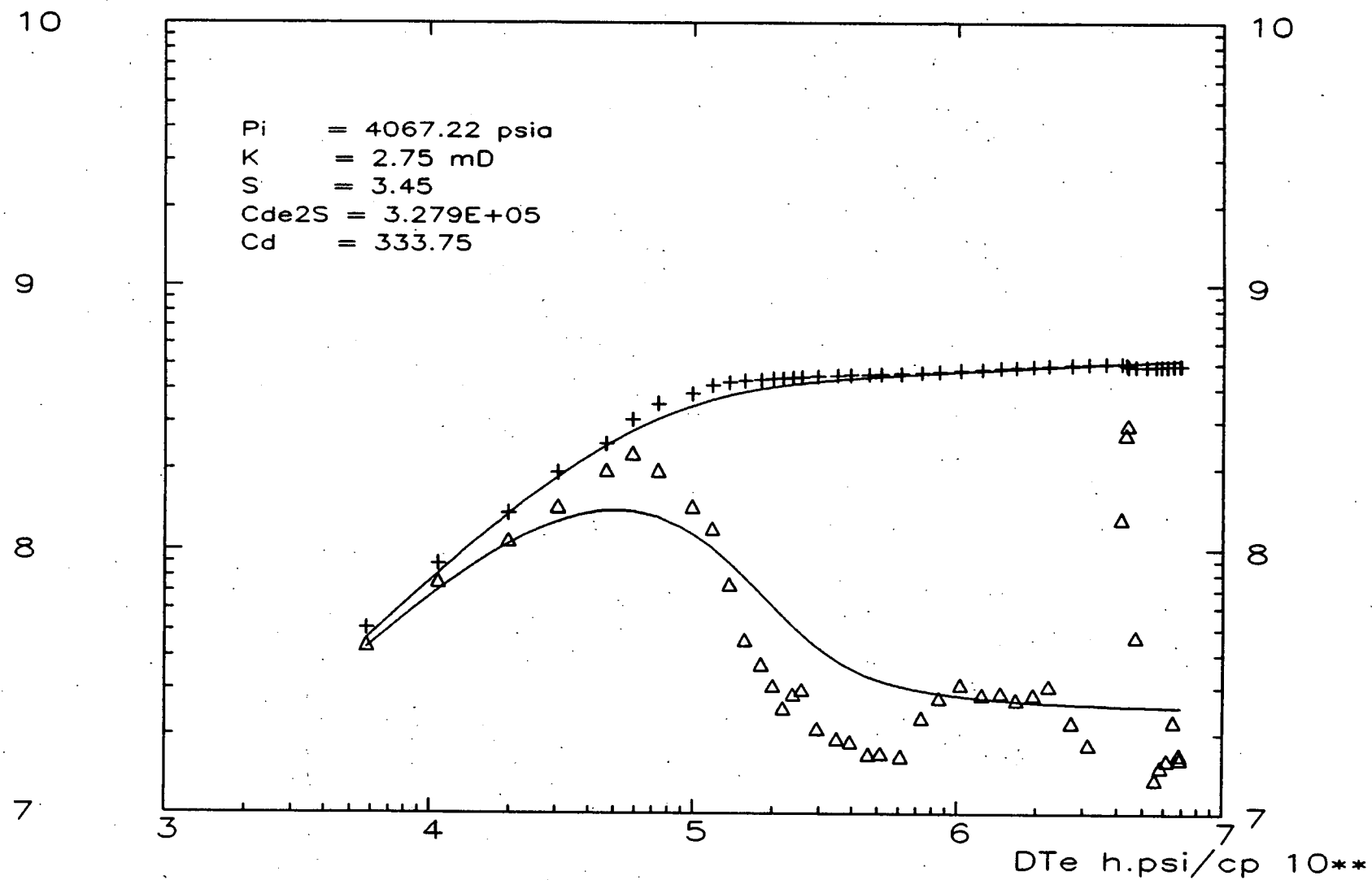


9900066

kanowana

kanowana 3

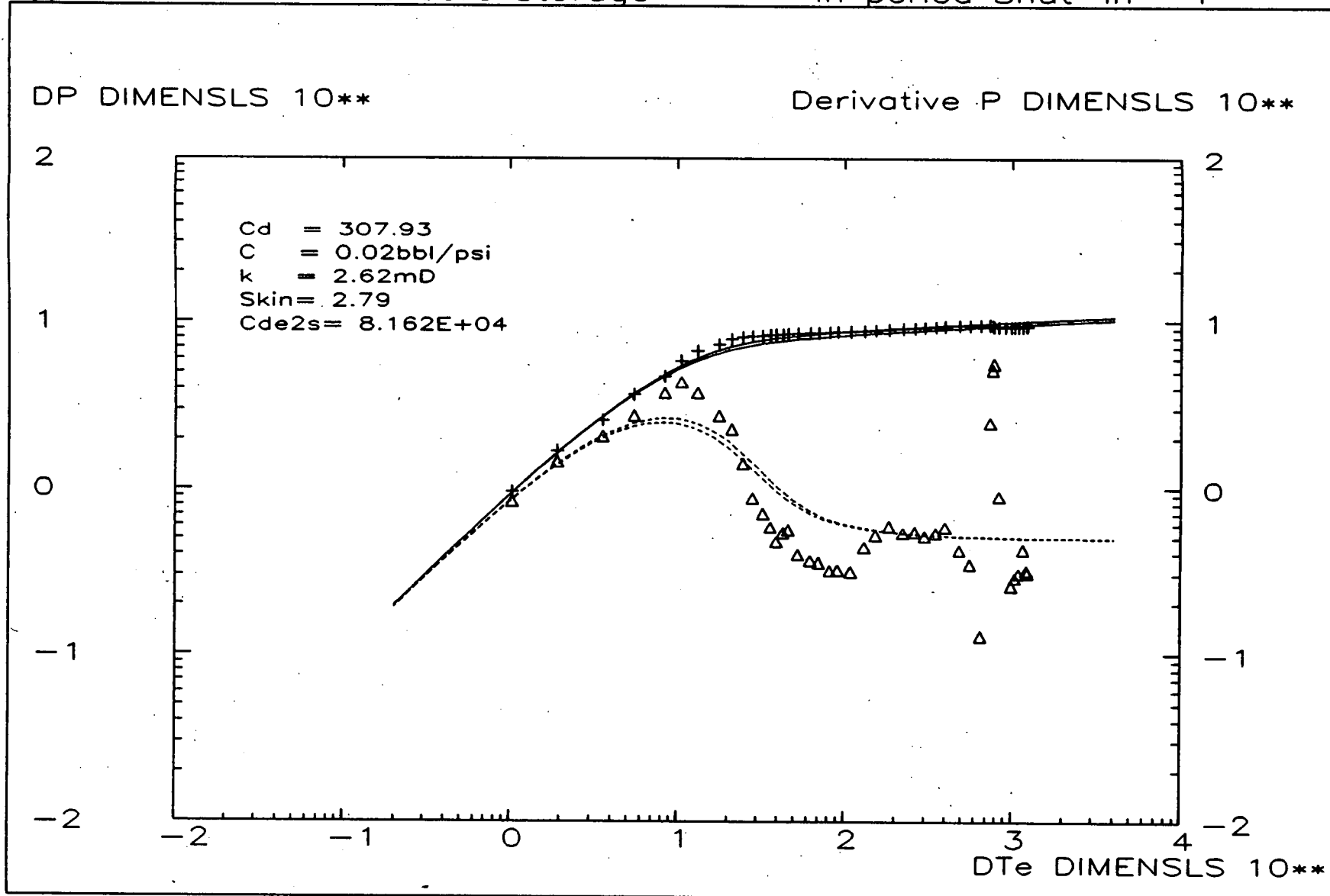
Test 1 (3 FEB 1990)

DP psi²/cp 10**Derivative P psi²/cp 10**

000067

Type curve model Wellbore Storage

in period Shut-in 1



890000

P psi2/cp *10**7

90

85

80

75

70

65

60

55

50

45

40

K = 2.61 mD
P* = 4071.19 psia
S = 3.05

0

1

2

3

4

Horner Time 10**

690000

FIELD : kanowana

WELL : kanowana 3

TEST NO. : PRE-FRAC SINGLE RATE AND PBU
UPPER GAUGE

DATE : 3 FEB 1990

000071

RUN TYPE : Analysis

PHASE : GAS

NO. OF WELLS : 1

PVT DATA : Reservoir temperature = 266.0 deg F
Standard temperature = 60.0 deg F
Standard pressure = 14.7 psia
Gas gravity = 0.8

Calculations to use PSEUDO time

WELL DATA : Well radius = 0.354 feet
Formation thickness = 38.0 feet
Porosity = 0.1
Rock compressibility = 4.500E-06 1/psi
Water saturation = 0.28
Water compressibility = 3.000E-06 1/psi

RATE DATA

000072

Time	Rate
Hours	Mscf/day
0.0	5082.0
44.9	0.0
90.41	0.0

PRESSURE DATA

000073

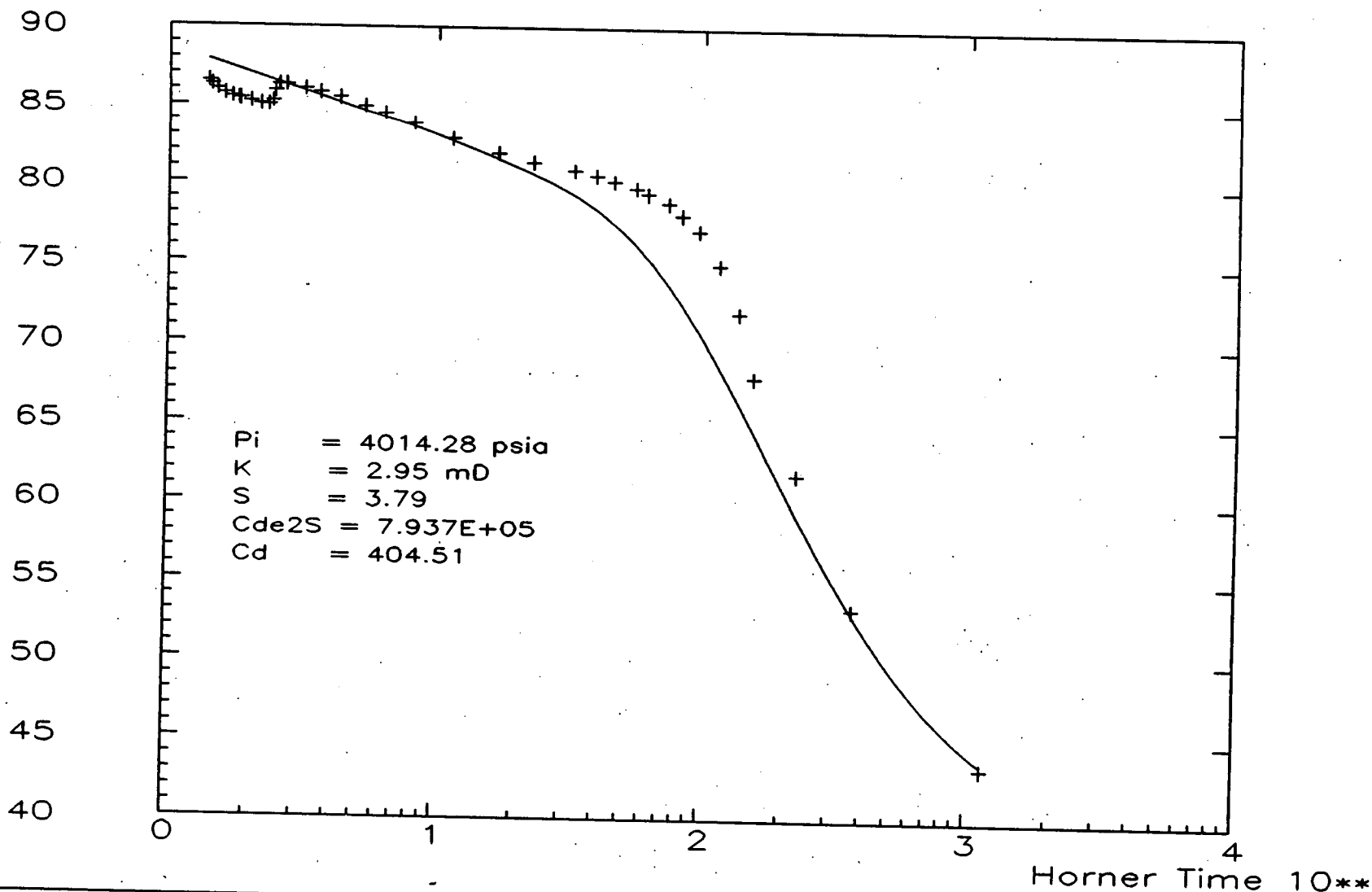
Time	Pressure
Hours	psia
0.0	4014.65
44.9	2504.84
44.95	2646.65
45.046	2962.03
45.128	3224.19
45.219	3408.38
45.258	3527.9
45.315	3615.84
45.383	3678.13
45.45	3706.96
45.51	3728.51
45.615	3745.93
45.684	3756.07
45.835	3768.56
45.982	3778.97
46.195	3788.62
46.728	3803.26
47.378	3819.74
48.65	3845.94
50.291	3873.77
52.078	3894.09
53.648	3907.62
56.304	3923.68
59.124	3933.01
61.951	3939.48
66.55	3947.57
68.849	3947.19
70.212	3935.73
71.108	3916.66
72.646	3910.43
76.354	3911.08
81.776	3916.19
89.0	3920.84
96.18	3924.69
105.185	3930.17
117.034	3938.75
127.87	3946.63
135.41	3952.89

kanowana

kanowana 3

Test 1 (3 FEB 1990)

P psi2/cp *10**7



000074

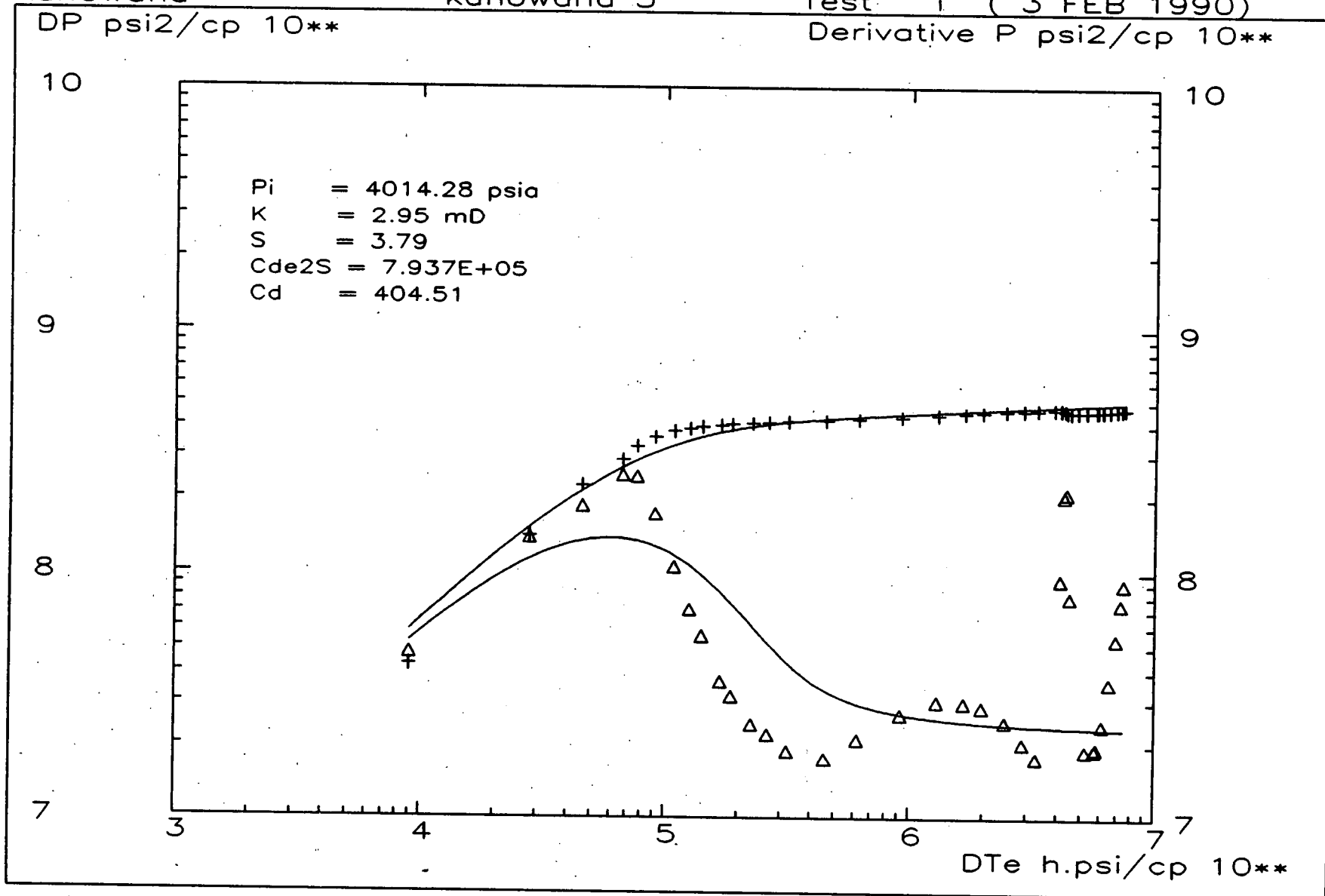
kanowana

kanowana 3

Test 1 (3 FEB 1990)

DP psi²/cp 10**

Derivative P psi²/cp 10**



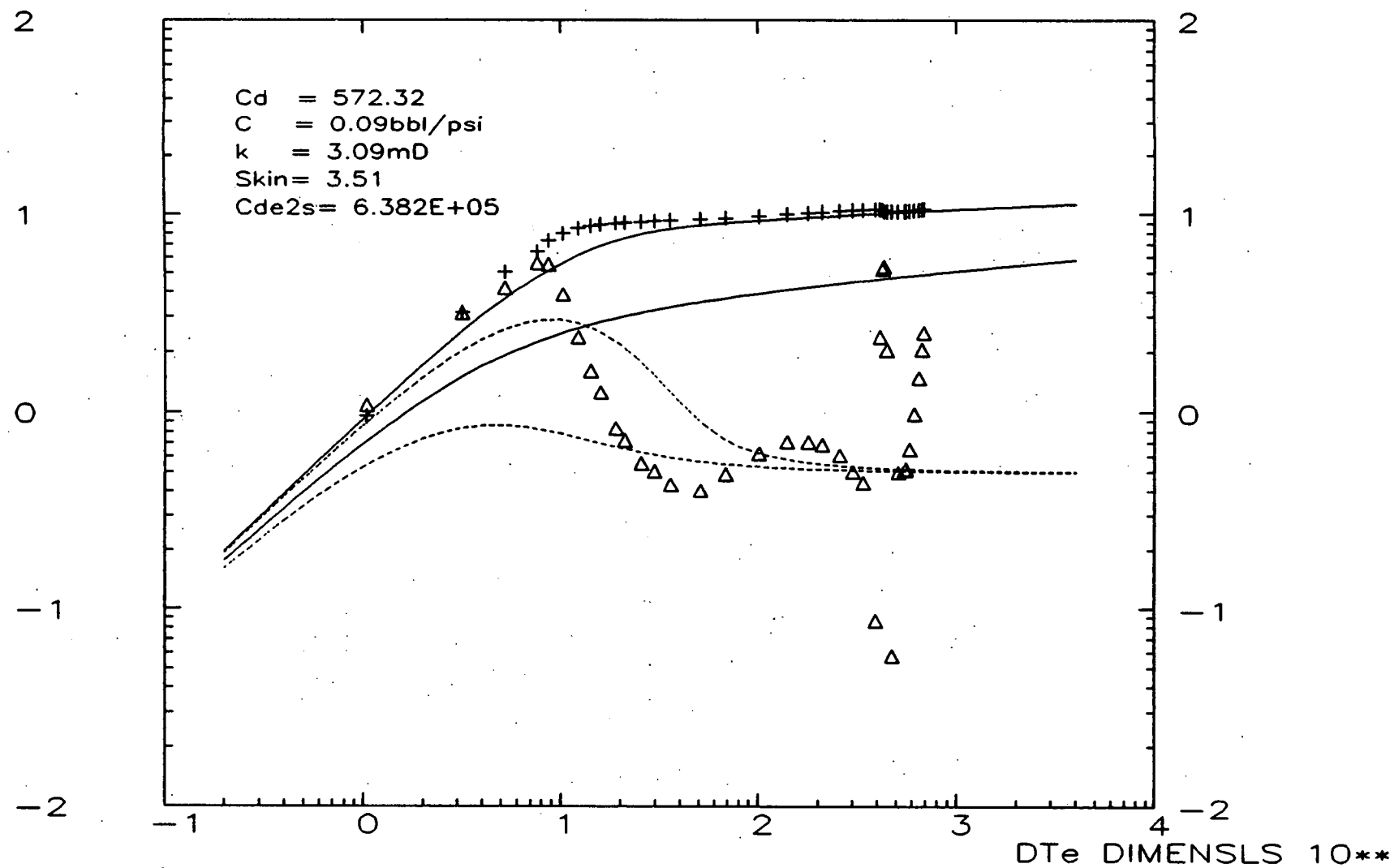
000075

Type curve model Wellbore Storage

in period Shut-in 1

DP DIMENSLS 10**

Derivative P DIMENSLS 10**



920000

Kanowana #3
Pre-Frac Single Rate Test & Buildup Survey
3rd - 12th February 1990

000077

Flow Test

3rd - 7th February

- 3/2/90 : Opened well to atmosphere on 16/64" choke @ 1227 hrs.
Choke adjusted several times and well shut in @ 2200 hrs due to hydrate problems.
- 4/2/90 : Started test through separator @ 1100 hrs on 26/64" choke.
Abandoned test @ 2400 hrs as unable to obtain gas rates.
- 5/2/90 : Determined vessel frozen internally @ 1050 hrs.
Installed heater @ 2045 hrs.
Restarted test @ 2300 hrs on 26/64" choke.
Tested well for 45 hours.

F.T.H.P. (final)	=	1553	kPa
Separator Pressure	=	2643	kPa
Separator Temperature	=	38	°C
Gas Rate	=	143.179	E ³ m ³ /d
Condensate Rate	=	16.316	m ³ /d
Water Rate	=	2.595	m ³ /d

- 7/2/90 : Shut well in @ 2000 hrs.
Element #28904 @ 9074' KB = 17170 kPa
Element #15451 @ 9080' KB = 17415 kPa

NOTE: Top chart badly bent at beginning of survey hence accuracy of flowing pressure for element #28904 is questionable.

Buildup

7th - 12th February

- 7/2/90 : Shut well in @ 2000 hrs for 107.37 hours.
Please note clocks failed during later part of test.
Element #28904 @ 9074' KB after 90.4 hrs buildup = 27154 kPa
Element #15451 @ 9080' KB after 71.8 hrs buildup = 27182 kPa
- 12/2/90 : P.O.O.H. @ 0722 hrs.

Static Reservoir Pressure

Mid Point of Perforations = 9163' KB

- 12/2/90 : Ran static pressure gradient.
- * Element #28904 @ MPP = 27306 kPa
 - Element #15451 @ MPP = 27308 kPa

SUB-SURFACE PRESSURE SURVEY

000078

CO. SANTOS		RUN 01 FIELD KANOWANA	WELL 03
DEPTH		WELL STAT	TOOL HUNG 9074'
CASING	-	CASING PRESS	ON BOTTOM 1334 7/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 12/2
DATE 900212		ELEMENT RANGE 0 - 5166	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2000 7/2
MAX TEMP N/A		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 28904	MPP
UNITING	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

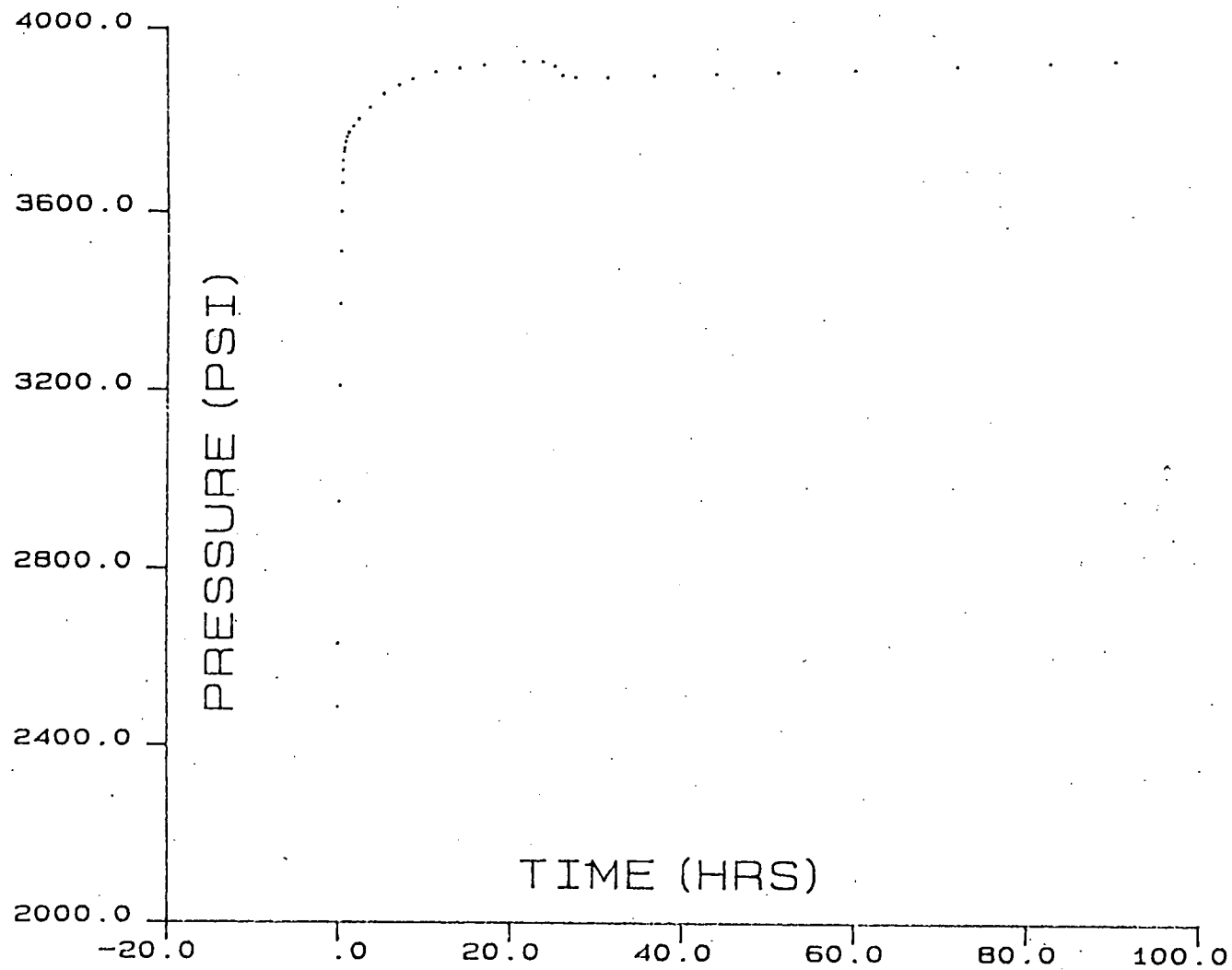
SURVEY DATA

CO. SANTOS			RUN 01 FIELD KANOWANA			WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
0:00	2490.2	2490.2	.0	3:05	3879.4	3879.4	7.1	
20:00	2632.0	2632.0	.0	4:39	3893.0	3893.0	8.6	
20:03	2947.4	2947.4	.0	7:18	3909.0	3909.0	11.3	
20:08	3209.5	3209.5	.1	10:07	3918.4	3918.4	14.1	
20:13	3393.7	3393.7	.2	12:57	3924.8	3924.8	17.0	
20:15	3513.3	3513.3	.3	17:33	3932.9	3932.9	21.5	
20:19	3601.2	3601.2	.3	19:51	3932.5	3932.5	23.8	
20:23	3663.5	3663.5	.4	21:13	3921.1	3921.1	25.2	
20:27	3692.3	3692.3	.4	22:06	3902.0	3902.0	26.1	
20:31	3713.9	3713.9	.5	23:39	3895.8	3895.8	27.6	
20:37	3731.3	3731.3	.6	3:21	3896.4	3896.4	31.4	
20:41	3741.4	3741.4	.7	8:47	3901.5	3901.5	36.8	
20:50	3753.9	3753.9	.8	16:00	3906.2	3906.2	44.0	
20:59	3764.3	3764.3	1.0	23:11	3910.0	3910.0	51.2	
21:12	3774.0	3774.0	1.2	8:11	3915.5	3915.5	60.2	
21:44	3788.6	3788.6	1.7	20:02	3924.1	3924.1	72.0	
22:23	3805.1	3805.1	2.4	6:52	3932.0	3932.0	82.9	
23:39	3831.3	3831.3	3.6	14:25	3938.2	3938.2	90.4	
1:17	3859.1	3859.1	5.3	0:00	.0	.0	.0	

IN DWT = 1549 PSI / OUT = 2535 PSI
 IN AMERADA = 1546 PSI / OUT = 2556 PSI

NOTE; CLOCK FAILED IN THE LATTER PART OF THE SURVEY.
 CHART BADLY BENT HENCE PRESSURES MIGHT NOT BE ACCURATE.

KANOWANA #3 BUILD-UP FEBRUARY 1990
ELEMENT #28904 (TOP)



000079

SUB-SURFACE PRESSURE SURVEY

000080

DO. SANTOS		RUN 02 FIELD KANOWANA	WELL 03
DEPTH		WELL STAT	TOOL HUNG 9080'
CASING	-	CASING PRESS	ON BOTTOM 1334 7/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 12/2
DATE 900212		ELEMENT RANGE 0 - 5098	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2000 7/2
MAX TEMP N/A		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 15451	MPP
UNIT	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

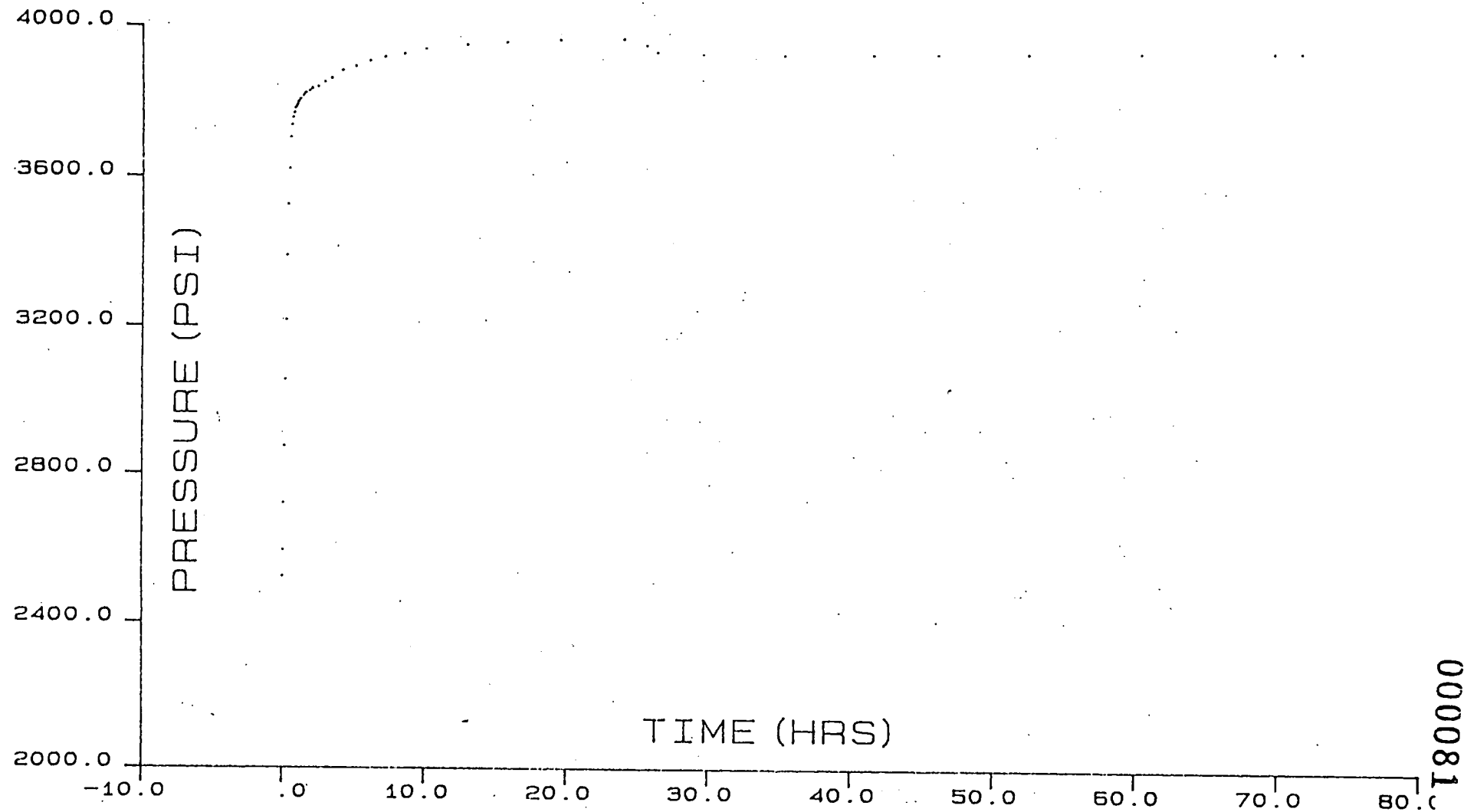
SURVEY DATA

DO. SANTOS			RUN 02 FIELD KANOWANA			WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
20:00	2525.7	2525.7	.0	22:55	3852.7	3852.7	2.9	
20:02	2596.5	2596.5	.0	23:24	3862.8	3862.8	3.4	
20:03	2720.5	2720.5	.0	0:10	3881.8	3881.8	4.2	
20:06	2873.8	2873.8	.1	1:06	3894.0	3894.0	5.1	
20:09	3052.3	3052.3	.1	2:08	3908.6	3908.6	6.1	
20:13	3216.5	3216.5	.2	3:09	3918.5	3918.5	7.2	
20:16	3390.1	3390.1	.3	4:33	3928.7	3928.7	8.5	
20:20	3526.7	3526.7	.3	6:03	3941.8	3941.8	10.0	
20:26	3620.2	3620.2	.4	8:59	3953.7	3953.7	13.0	
20:30	3704.6	3704.6	.5	11:48	3961.3	3961.3	15.8	
20:34	3737.3	3737.3	.6	15:34	3967.7	3967.7	19.6	
20:39	3756.2	3756.2	.6	20:01	3970.6	3970.6	24.0	
20:44	3768.7	3768.7	.7	21:38	3952.9	3952.9	25.6	
20:49	3781.5	3781.5	.8	22:23	3934.2	3934.2	26.4	
20:53	3786.1	3786.1	.9	1:37	3929.1	3929.1	29.6	
20:58	3792.4	3792.4	1.0	7:22	3927.5	3927.5	35.4	
21:02	3800.1	3800.1	1.0	13:38	3930.9	3930.9	41.6	
21:10	3807.7	3807.7	1.2	18:10	3933.1	3933.1	46.2	
21:23	3816.1	3816.1	1.4	0:32	3934.7	3934.7	52.5	
21:33	3823.2	3823.2	1.6	8:26	3938.3	3938.3	60.4	
21:49	3829.5	3829.5	1.8	17:50	3941.8	3941.8	69.8	
22:01	3835.3	3835.3	2.0	19:45	3942.2	3942.2	71.8	
22:25	3840.9	3840.9	2.4	0:00	.0	.0	.0	

LUB IN DWT = 1549 PSI / OUT = 2535 PSI
 LUB IN AMERADA = 1561 PSI / OUT = 2544 PSI

NOTE: CLOCK FAILED IN THE LATTER PART OF THE SURVEY.

KANOWANA #3 BUILD-UP FEBRUARY 1990
ELEMENT #15451 (BOT)



000081

Tested Monday, 12th February 1990.

WIRELINE & WELL TESTING SERVICE

PO BOX 554 COLANDREA 5033

PH. (08) 554 0488 TELEX RAG7165

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

000082

CLIENT	LOCATION	FORMATION
Santos Ltd.	KANOWANA #3	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	28904	5200	24/11/89
Bottom	15451	5650	24/11/89

WELL DATA	
PARAMETER	VALUE
DWT In	17478 KPA
DWT Out	17458 KPA
Max BHT	266 F

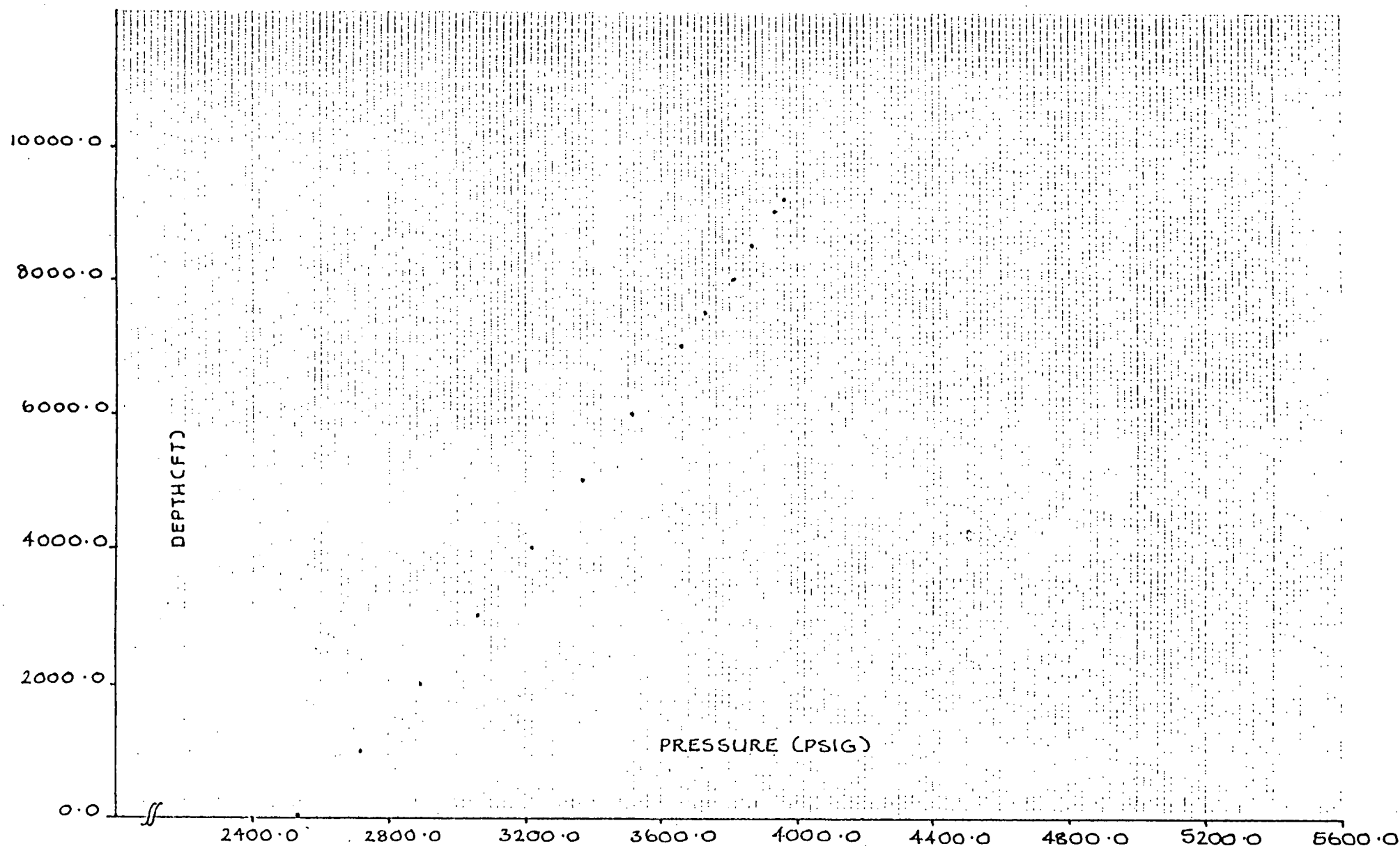
TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.9850	2532.7	---	0.9940	2516.4	---
1000	1.0570	2718.6	0.186	1.0660	2700.7	0.184
2000	1.1240	2891.8	0.173	1.1350	2877.4	0.177
3000	1.1890	3058.9	0.168	1.1990	3041.4	0.164
4000	1.2500	3217.8	0.158	1.2630	3205.5	0.164
5000	1.3070	3365.5	0.148	1.3210	3354.3	0.149
6000	1.3640	3513.3	0.148	1.3780	3500.7	0.146
7000	1.4190	3656.1	0.143	1.4350	3647.0	0.146
7500	1.4470	3728.9	0.146	1.4630	3719.0	0.144
8000	1.4780	3809.4	0.161	1.4900	3788.4	0.139
8500	1.4990	3864.1	0.109	1.5180	3860.3	0.144
9000	1.5260	3934.3	0.141	1.5450	3929.8	0.139
9163	1.5360	3960.3	0.160	1.5570	3960.6	0.189
LUB.	0.9910	2548.2	---	0.9990	2529.2	---

GENERAL REMARKS

GRADIENT STOP AT 7500 KB WAS MISSED RUNNING IN. STOP WAS MADE WHILST PULLING OUT OF HOLE.

R 2/2/90

KANOWANA # 3 - STATIC PRESSURE GRADIENT - 12 / 2 / 90
ELEMENT # 28904 / 5200 (TOP)



000083

000084

APPENDIX 4

FIELD REPORTS

1350	1	1100	110	50	64	INCREASE CHOKER									
1400	1.5	1130	506	30	"	PRESSURE SEPARATOR									
1500	2.5	1135	547	31	"										
1600	3.5	1146	678	32	"		2.625	302	39	37	13.0	13.0		8	
1642		DECREASE CHOKER			18/64										
1700	4.5	DECREASE CHOKER			12/64										
1715		2144			10/64	DECREASE CHOKER									
1800	5.5	2280	835	31	"		1.375	95	147	-20	20.5	19.25		1.25	
1900	6.5	2308	802	31	"		1.375	95	140	-25	24.75	23.25		1.50	
2000	7.5	2313	800	30	"		1.375	90	134	-34	29.25	27.75		1.50	
2000		INCREASE CHOKER													

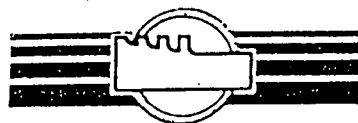
ET 103

		SHORT WELL IN		LONG TO HYDRAULIC PROPERTIES											
4-2-90															
0915		2567	59	21		PRESSURE FLOW LINES									
0920		FLOW ON BYPASS			26/64		2.625								
0935		FLOW THROUGH SEP													
1000	5	1235	365	30	"		"	302	50	2					
1012		SHORT WELL IN		CHANGE OUT CHOKER IN											
1050		2340	475	27	"	FLOW WELL ON BYPASS									
1056		FLOW THROUGH SEP													
1100	8	1240	500	31	"		"	335	47	2	31.50	29.75	1.75	INITIAL	1212
1200	1	1201	522	33	"		"	360	42	7	31.75	30.00	1.75		
1300	2	1198	481	34	"		"	332	43	7	32.125	30.25	1.875		
1400	3	1196	1090	35	"		"	338	44	9	34.625	32.625	2.00		
1500	4	1204	1120	36	"		"	290	53	9	LOST L (GUM) L (WELL)				
1600	5	1200	1271	36	"		"	295	50	9					
1700	6	1207	1369	37	"		"	340	44	10	35.50	33.50	2.00	SELLER	BACK
1800	7	1226	1389	37	"		"	320	54	10	35.50	33.50	2.00		
1900	8	1229	1429	38	"		"	337	54	10	35.50	33.50	2.00		
2000	9	1235	1469	38	"		"	329	56	9	35.50	33.50	2.00		

ET 103

000085

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9103 - 9217

PAGE: 3 OF

WELL NAME: KAWOWAHAI #3

FORMATION : PATEHIAHIAHIA

DATE: 4.2.90

TEST TYPE : PRE FIVE SAMPLE RATE

OPR : M. FIDELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°C)	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN)
4.2.90														
2100	10	1234	1507	38	26/64		2.625	318	56	8	36.125	33.625		2.50
2200	11	1246	1534	38	"		"	320	56	9	37.125	34.125		3.0
2300	12	1246	1563	38	"		"	319	56	9	37.125	34.125		3.0
2400	13	1250	1593	38	"		"				37.125	34.125		3.0
		UNABLE TO GET GAS RATE AS VESSEL PRESSURE INCREASED TO MAXIMUM OPERATING PRESSURE.												
5.2.90		4 BLEND PSV UNABLE TO EXCEED PRESSURE AS BACK PRESSURE VALVE ALREADY WIDE OPEN.												
0010		SHUT WELL IN LOOK FOR OBSTRUCTION REMOVE BACK PRESSURE VALVE & 2" PG VALVE.												
		FIND NOTHING REPLACE VALVES.												
0320		2579	952	SHUT IN PRESSURE.										
0324		FROM WELL THROUGH SEPARATOR ON 26/64 CHOKER.												
0400	15	1311	1103	34	"		"	250	66	0	39.125	34.625		4.5
0500	1.5	1279	1359	37	"		"	235	66	1	47.75	41.75		6.0
0600	2.5	1275	1455	38	"		"	250	65	3	47.75	41.75		6.0
0700	3.5	1275	1551	38	"		"	255	64	5	47.75	41.75		6.0
0800	4.5	1275	1609	39	"		"	275	58	8	48.625	42.125		6.5
0900	5.5	1277	1651	41	"		"	412	57	13	52.375	44.375		8.0
1000	6.5	1283	1683	43	"		"	425	42	10	64.375	54.375		10.0
1050		SWI VESSEL FROZEN INTERNALLY WITH AN HEATER.												
1700		HEATER ARRIVES (TRUCK GOT ISSUED ON THE WAY TO THE LEASE) RIS IN.												
2045		STEAK GAS TO LIGHT HEATER & ALLOW TEMPERATURE TO RISE.												

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980086

000086

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 4 OF

WELL NAME: KANOWANA #3

FORMATION : PATCHMARREN

DATE: 5.2.90

TEST TYPE : PRE FRAC SINGLE RATE

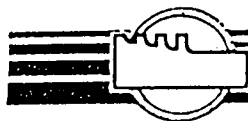
OPR : M. L. MULLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP C	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN)
5.2.90														
2200		2562	519	26	SHUT IN TUBING PRESSURE									
2206		FLOW WELL TO ATMOSPHERE ON 26/64 CHOKE BYPASS SEPARATOR												
2220		FLOW WELL THROUGH SEPARATOR. RESUMPT SINGLE RATE.												
2300	0	1569	939	34	26/64		2.125	390	116	35	1.0	1.0		0
2400	1	1523	1223	36	"		"	393	112	35	5.0	5.0		0
6.2.90														
0100	2	1519	1390	36	"		"	375	112	37	7.25	6.75		5
0200	3	1522	1523	36	"		"	379	113	38	9.75	8.625		1.125
0300	4	1525	1609	38	"		"	400	113	39	12.125	10.25		1.875
0400	5	1527	1685	39	"		"	375	120	39	16.375	13.625		2.75
0500	6	1524	1753	39	"		"	377	118	37	19.25	16.25		3.125
0600	7	1522	1775	40	"		"	378	118	37	22.125	18.50		3.625
0700	8	1524	1807	40	"		"	379	118	36	25.50	21.50		4.00
0800	9	1529	1851	41	"		"	380	119	38	28.375	24.125		4.25
0900	10	1525	1889	44	"		"	379	120	37	31.375	26.75		4.625
1000	11	1526	1907	45	"		"	365	123	35	34.375	29.125		5.25
1030		BLEED CASING DOWN TO 1500 PSI.												
1100	12	1526	1931	46	"		"	365	124	35	37.0	31.50		5.50
1200	13	1528	1958	46	"		"	364	125	35	40.0	34.0		6.0
1300	14	1529	1985	47	"		"	363	125	35	43.125	36.875		6.25
1400	15	1529	1991	47	"		"	362	124	36	46.375	39.375		7.00

000087

EXPERTEST PTY. LTD.

FIELD READINGS



CUSTOMER : SANTOS

PERFORATIONS: 9108-9217

PAGE: 5 OF

WELL NAME: KANOWANA #3

FORMATION : PARANANARA

DATE: 6.2.90

TEST TYPE : SPEE FRAC SINGLE RATE

OPR : M. MULLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN)	OIL (IN)	OIL API GRAVITY @ 60°F	WATER (IN)
6.2.90														
1500	16	1528	1123	47	2 1/2 / 64		2.125	368	121	36	49.125	41.75		7.375
1600	17	1532	1141	47	"		"	365	124	36	52.0	44.375		7.625
1700	18	1531	1153	46	"		"	363	122	37	54.625	46.75		7.875
1800	19	1533	1170	46	"		"	370	119	37	57.625	49.50		8.125
1900	20	1534	1180	46	"		"	370	119	37	60.50	52.125		8.375
2000	21	1535	1191	45	"		"	370	119	37	63.375	54.25		9.125
2100	22	1531	1202	45	"		"	368	119	37	66.50	56.875		9.625
2200	23	1536	1214	45	"		"	368	119	38	69.625	59.625		10.00
2300	24	1534	1224	45	"		"	375	118	38	72.125	61.875		10.25
2400	25	1536	1234	45	"		"	380	116	38	75.50	64.875		10.625
7.2.90														
0100	26	1537	1245	45	"		"	380	117	38	78.125	67.125		11.00
0200	27	1535	1249	44	"		"	382	117	37	81.25	69.875		11.375
0300	28	1535	1262	44	"		"	382	117	37	84.50	72.625		11.875
0400	29	1539	1270	44	"		"	383	117	37	88.00	75.625		12.375
0500	30	1539	1274	45	"		"	384	117	38	90.125	77.50		12.625
0600	31	1539	1281	44	"		"	385	118	37	92.625	79.625		13.00
0700	32	1542	1276	44	"		"	385	118	37	95.875	82.50		13.375
0800	33	1535	1300	45	"		"	385	118	37	99.50	85.625		13.875
0900	34	1529	1300	46	"		"	385	118	37	102.875	88.75		14.125
1000	35	1530	1307	48	"		"	385	118	37	105.875	90.875		14.375

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 9105-9217

PAGE: 6 OF

WELL NAME: KANOWANA #3

FORMATION : PETICHAMBERO

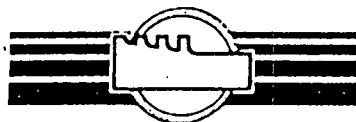
DATE: 7-2-90

TEST TYPE : ONE FRAC SINGLE RATE

OPR : M/MUELLER

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI)	ANNULUS PRESSURE (PSI)	WELLHEAD TEMP (°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°C)	TOTAL LIQUID (INI)	OIL (INI)	OIL API GRAVITY @ 60°F	WATER (INI)
7-2-90														
1103	36	1549	135	49	26/64		2-125	393	120	41	107.50	92.5		15.00
1109		PRESSURE 1103 WITH 2x 5200 PSI BHP GRUUSEZ COMPLETED TO 120 1/2 CLOCKS												
1203	37	1549	1320	50	"		"	395	119	40	110.50	95.125		15.375
1203	38	1550	1327	49	"		"	398	116	40	113.375	97.75		15.625
1400	39	1547	1320	49	"		"	398	"	40	116.50	100.50		16.00
1450		BEGIN H.P. SAMPLE SET # 1												
1500	40	1564	1345	49	"		"	410	115	41	119.75			16.50
1550		BEGIN H.P. SAMPLE SET # 2												
1600	41	1563	1350	49	"		"	410	113	41	122.75			17.00
1700	42	1559	1359	49	"		"	410	113	41	125.75			17.25
1800	43	1557	1362	49	"		"	405	112	40	128.50			17.75
1900	44	1555	1365	48	"		"	405	111	40	131.50			18.00
2000	45	1553	1370	48	"		"	405	111	40	134.00			18.25
		COLLECT L.P. WATER SAMPLES FROM SEPARATOR												
	0	S.I.W. AT CHOKE MANIFOLD.												
2015		2409	1384											
2030		2509	1293											
2045		2527	1187											
2100	1	2535	1109											
2115		2539	1034											
2130		2543	981											

680000



CUSTOMER : SANTOS.

PERFORATIONS:

PAGE: 7. OF

WELL NAME: KANOWANA #3.

FORMATION :

DATE: 7. 2. 90

TEST TYPE : S.R.T.

OPR : R.M.

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
7 FEB.					644 in									
2145		2543	925											
2200	2	2545	871											
2300	3	2555	700											
2400	4	2562	589											
8 FEB.														
0100	5	2570	481											
0200	6	2575	386											
0600	10	2584	103											
1000	14	2585	0											
1400	18	2585												
1800	22	2584												
2200	26	2557												
9 FEB.														
0200	30	2549												
0600	34	2545												
1000	38	2541												
1400	42	2539												
1800	46	2539												
2200	50	2540												
10 FEB.														
0200	54	2540												

000090

REPERCUSSIONI

WELL NAME: 160-1

TEST TYPE : SECRET

WELL HEAD DATA

FORMATION

DATE: 10 3 8

QED: $\Delta \Delta \Delta$

INTRODUCTION

60000

000092

APPENDIX 5

- COMPOSITION
- GASPAC OUTPUT

COMPOSITIONAL DATA

000093

FIELD/WELL
FORMATIONKANOWANA 1, 2, 3
PATCHAWARRA

	FWS	LIQUIDS	SALES	COMPONENT BBL/MMCF	RAW BBL/MMCF
N2+	0.27		0.27		NIL
C02	44.66		1.14		NIL
C1	42.39		42.39		NIL
C2	7.17	5.38	1.79	632.6	34.02
C3	2.51	2.38	0.13	651.3	15.53
iC4	0.36	0.36		774.0	2.79
C4	0.64	0.64		745.8	4.77
C5	0.20	0.20		866.0	1.73
HC5	0.24	0.24		857.4	2.06
C6	0.25	0.25		973.2	2.43
C7	0.26	0.26		1092.0	2.84
C8+	1.05	1.05		1332.5	13.99
	100.00	10.76	45.72		80.16

FWS = 1.1224

SG C8+ = 0.7220

W C8+ = 128.30

Source: Kanowana 1 Production Test 19/04/87

SANTOS RESERVOIR ENGINEERING

000094

COMPOSITIONAL DATA

FIELD/WELL KANAWANA # 3 REVISION.
 FORMATION PATOHAWARRA
 TYPE OF TEST SRT AND PBU
 SOURCE OF GAS SAMPLE... SEPARATOR
 SOURCE OF LIQ SAMPLE... HIGH PRESSURE LIQUID
 SAMPLE DATE..... 07/12/90
 LAB... AMDEL LAB. REFERENCE No.... 009/197

COMPONENT	F.W.S. (%)	LIQUID (%)	SALES (%)	COMPONENT (M3/M3E6)	RAW (M3/M3E6)
N2	0.30	.	0.30	.	.
CO2	42.34	.	1.14	.	.
C1	42.18	.	42.18	.	.
C2	7.12	5.34	1.78	3551	189.6
C3	3.70	3.51	0.18	3669	129.0
iC4	0.58	0.58	.	4204	24.4
nC4	1.22	1.22	.	4361	53.2
iC5	0.35	0.35	.	4831	16.9
nC5	0.35	0.35	.	4882	17.1
C6	0.42	0.42	.	5486	23.0
C7	0.38	0.38	.	6154	23.4
C8+	1.03	1.03	.	7256	74.7
TOTAL	99.97	13.18	45.58		551.4
				(bbl/mmcft =	97.7)

MW FWS.. 33.02 RAW LPG (M3/M3E6)....: 206.6
 SG FWS.. 1.120 (air=1) (bbl/mmcft)...: 36.6
 MW C8+... 143.0 RAW C5+ (M3/M3E6)....: 155.2
 SG C8+... 0.833 (water=1) (bbl/mmcft)...: 27.5
 SHRINKAGE FACTOR: 0.4558

(MW * 1 E03)
 M3/M3E6 RAW = FWS -----
 (SG 23.6447)

SALES PROCESSING CONDITIONS

(%HC + %N2) * 2.5
 CO2 SALES ----- (2.5 % of SALES)
 97.5

C2 SALES = 0.25 * C2 (FWS)

C3 SALES = 0.05 * C3 (FWS)

DATE GENERATED: APR 11, 1990

BY FMV
 APPROVED.:
 DATE.....

SANTOS RESERVOIR ENGINEERING

000095

RESERVOIR ENGINEERING DATA

FIELD/WELL KANAWANA # 3 REVISION.
 FORMATION PATOHAWARRA
 DATUM DEPTH (m KB)..... 2826 (9272 ft KB)
 SOURCE OF GAS ANALYSIS. SEPARATOR
 SOURCE INITIAL TEMP.... DST
 SOURCE INITIAL PRESS... SRT

COMPONENT	MOLE. (%)	Tc (K) (COMPONENT)	MOLE % x Tc	Pc (kPa) (COMPONENT)	MOLE % x Pc
N2	0.30	126.2	0.38	3399	10.2
CO2	42.34	304.2	128.81	7384	3126.5
C1	42.18	190.5	80.39	4604	1942.1
C2	7.12	305.4	21.75	4880	347.5
C3	3.70	369.8	13.68	4249	157.2
iC4	0.58	408.1	2.37	3648	21.2
nC4	1.22	425.1	5.19	3797	46.3
iC5	0.35	460.4	1.61	3381	11.8
nC5	0.35	469.6	1.64	3369	11.8
C6	0.42	507.4	2.13	3012	12.7
C7	0.38	540.2	2.05	2736	10.4
C8+	1.03	594.6	6.12	2289	23.6
TOTAL	99.97	Tc =	266.12	Pc =	5721.3

Ta (K)... 288 Pa (kPa)... 101.3
 Ti (K)... 389 Pi (kPa)... 28041
 (Deg. R = 700) (psia = 4067)
 Tc (K)... 266 Pc (kPa) ... 5721
 (Deg. R = 479) (psia = 830)
 Zi (corr) . Z500 (corr) .
 1 Pi Ta 1
 - = - * - * - = . STD.m3/RES.m3
 Bg Ti Pa Zi(corr)

(= . scf/pcf)
 Pi/Zi (corr) - 3447/Z500
 RECOVERY FACTOR -----
 (3447 kPa) Pi/Zi (corr)
 (500 psia)

BY FMV
 APPROVED.:
 DATE.....

DATE GENERATED: APR 11, 1990

NOTE: Metric standard conditions: 101.325 kPa, 25 deg C.
 Imperial standard conditions: 14.65 psia, 60 deg F.

OPTIONS

CALCULATE SPECIFIC GRAVITY, PSEUDO-CRITICAL TEMPERATURE AND PRESSURE?	YES
USE DEFAULT VALUES FOR FINAL HYDROCARBON PROPERTIES?	NO
USE RESERVOIR TEMPERATURE FOR FIRST PVT TABLE?	YES
USE AVERAGE TUBING TEMPERATURE FOR SECOND PVT TABLE?	YES
USE GATH. SYSTEM TEMPERATURE FOR THIRD PVT TABLE?	YES
CALCULATE PVT TABLE(S)?	YES
PRINT PVT TABLE(S)?	YES
PLOT POTENTIAL?	NO

GAS PROPERTIES

CONSTITUENTS	MOLE PERCENT
NITROGEN	0.260
CO2	44.670
H2S	0.000
METHANE	42.390
ETHANE	7.170
PROPANE	2.510
I-BUTANE	0.360
N-BUTANE	0.640
I-PENTANE	0.200
N-PENTANE	0.240
HEXANE	0.250
HEPTANE	0.260
OCTANE +	1.050
TOTAL	100.000

MOLECULAR WEIGHT OF OCTANE +	=	128.300	
PSEUDO-CRITICAL TEMPERATURE OF OCTANE +	=	1088.00	DEG. R
PSEUDO-CRITICAL PRESSURE OF OCTANE +	=	327.3	PSIA
MOLECULAR WEIGHT	=	32.52	
SPECIFIC GRAVITY	=	1.1226	
PSEUDO-CRITICAL TEMPERATURE	=	474.2	DEG. R
PSEUDO-CRITICAL PRESSURE	=	842.1	PSIA
RESERVOIR TEMPERATURE	=	274.0	DEG. F
TUBING HEAD TEMPERATURE	=	200.0	DEG. F
GATH. SYSTEM TEMPERATURE	=	154.0	DEG. F
MAXIMUM PRESSURE FOR PVT TABLES	=	4500.	PSIA
PRESSURE INCREMENT FOR PVT TABLES	=	100.	PSI

960000

PVT TABLE AT RESERVOIR

TEMPERATURE = 274. DEG. F = 734. DEG. R

PRESSURE PSIA	Z	COMPRESS. PSIA(-1) X 10(-3)	VISCOSITY CP	POTENTIAL PSIA(2)/CP X 10(6)	PRESSURE GRADIENT PSI/FT	P/Z PSIA
14.65	0.99861	68.35437	0.01505			
100.00	0.99055	10.09491	0.01506	0.668	0.00290	100.95
200.00	0.98120	5.09467	0.01517	2.682	0.00585	203.83
300.00	0.97198	3.42759	0.01529	6.044	0.00886	308.65
400.00	0.96289	2.59365	0.01543	10.754	0.01193	415.42
500.00	0.95395	2.09283	0.01563	16.802	0.01505	524.14
600.00	0.94518	1.75844	0.01575	24.186	0.01823	634.80
700.00	0.93661	1.51904	0.01596	32.906	0.02147	747.38
800.00	0.92824	1.33890	0.01625	42.889	0.02475	861.84
900.00	0.92011	1.19814	0.01647	54.127	0.02809	978.14
1000.00	0.91223	1.08485	0.01666	66.650	0.03148	1096.21
1100.00	0.90464	0.99143	0.01689	80.435	0.03492	1215.96
1200.00	0.89735	0.91283	0.01713	95.445	0.03841	1337.28
1300.00	0.89038	0.84554	0.01742	111.633	0.04193	1460.05
1400.00	0.88376	0.78705	0.01771	128.962	0.04550	1584.13
1500.00	0.87753	0.73555	0.01800	147.406	0.04909	1709.35
1600.00	0.87168	0.68967	0.01832	166.926	0.05272	1835.53
1700.00	0.86626	0.64837	0.01866	187.465	0.05636	1962.46
1800.00	0.86127	0.61086	0.01902	208.972	0.06002	2089.94
1900.00	0.85674	0.57654	0.01938	231.404	0.06369	2217.72
2000.00	0.85267	0.54492	0.01974	254.728	0.06737	2345.58
2100.00	0.84908	0.51563	0.02011	278.912	0.07103	2473.27
2200.00	0.84597	0.48837	0.02047	303.922	0.07469	2600.56
2300.00	0.84336	0.46292	0.02083	329.724	0.07833	2727.20
2400.00	0.84123	0.43908	0.02119	356.284	0.08194	2852.98
2500.00	0.83958	0.41670	0.02155	383.567	0.08552	2977.67
2600.00	0.83842	0.39567	0.02197	411.511	0.08906	3101.07
2700.00	0.83773	0.37589	0.02240	440.016	0.09257	3223.01
2800.00	0.83749	0.35725	0.02284	469.044	0.09602	3343.32
2900.00	0.83770	0.33971	0.02327	498.560	0.09943	3461.85
3000.00	0.83834	0.32318	0.02371	528.530	0.10278	3578.49
3100.00	0.83940	0.30760	0.02415	558.921	0.10607	3693.12
3200.00	0.84085	0.29293	0.02458	589.701	0.10930	3805.66
3300.00	0.84268	0.27911	0.02502	620.840	0.11247	3916.06
3400.00	0.84488	0.26609	0.02545	652.308	0.11558	4024.25
3500.00	0.84741	0.25383	0.02589	684.077	0.11862	4130.21
3600.00	0.85028	0.24227	0.02632	716.121	0.12160	4233.92
3700.00	0.85345	0.23139	0.02675	748.413	0.12451	4335.37
3800.00	0.85691	0.22113	0.02719	780.929	0.12736	4434.55
3900.00	0.86064	0.21146	0.02762	813.645	0.13015	4531.49
4000.00	0.86464	0.20235	0.02806	846.539	0.13287	4626.21
4100.00	0.86888	0.19375	0.02849	879.589	0.13552	4718.73
4200.00	0.87335	0.18565	0.02893	912.776	0.13812	4809.08
4300.00	0.87804	0.17799	0.02936	946.081	0.14065	4897.30
4400.00	0.88293	0.17077	0.02980	979.486	0.14313	4983.43
4500.00	0.88801	0.16395	0.03023	1012.975	0.14554	5067.51

000097

Summary of Single Rate Test & Buildup Survey
8th - 16th September 1990

Production Test

8th - 12th September

08/9/90: Ran 1.75" blind box to 10229' KB.

09/9/90: Well flowing on 100% choke @ 1400 hrs.

10/9/90: Started test @ 0600 hrs.

Tested well on 100% choke for 50 hours.

F.T.H.P. (Final)	=	4309	kPa
Separator Pressure	=	4455	kPa
Separator Temperature	=	47	°C
Gas Flow Rate	=	82.491	E3m ³ /d
Oil Production	=	6.558	m ³ /d
Water Production	=	1.344	m ³ /d

12/9/90: Shut well in @ 0800 hrs.

Element #15451 @ 9068' KB @ 0800 hrs = 7593 kPa

Element #28904 @ 9074' KB @ 0800 hrs = 7657 kPa

Flowing bottomhole temperature = 116 °C

Buildup Survey

12th - 16th September

12/9/90: Shut well in @ 0800 hrs for 96 hours buildup.

Element #15451 @ 9068' KB after 96 hrs buildup = 18624 kPa

Element #28904 @ 9074' KB after 96 hrs buildup = 18677 kPa

Shut in bottomhole temperature = 129 °C

16/9/90: P.O.O.H. @ 0800 hrs.

Static Pressure Gradient

Mid Point of Perforations = 9163' KB

16/9/90: Ran static pressure gradient

Element #15451 @ MPP = 18715 kPa

Element #28904 @ MPP = 18741 kPa

Shut in bottomhole temperature = 126 °C

✓
6/3/91

SUB-SURFACE PRESSURE SURVEY

000099

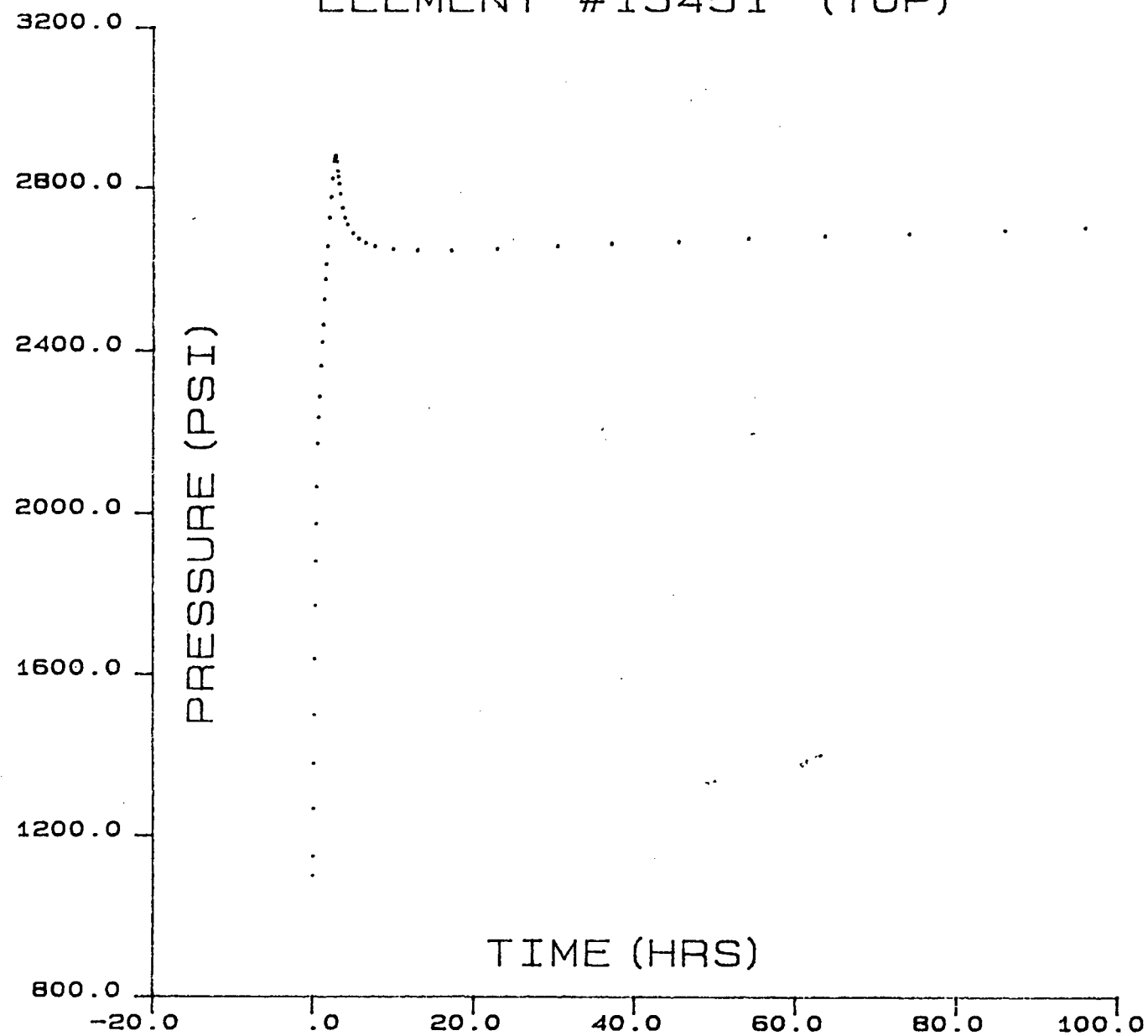
CO.		RUN 01 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 9068'
CASING	-	CASING PRESS	ON BOTTOM 1425 11/9
LINER	-	TUBING PRESS	OFF BOTTOM 0800 16/9
DATE	900916	ELEMENT RANGE 0 - 5109	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 12/9
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 15451	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	8:00	1101.3	1101.3	.0	10:47	2883.2	2883.2	2.8
	8:02	1148.4	1148.4	.0	10:50	2877.3	2877.3	2.8
	8:04	1267.2	1267.2	.1	10:55	2865.3	2865.3	2.9
	8:06	1380.3	1380.3	.1	11:02	2840.9	2840.9	3.0
	8:10	1499.2	1499.2	.2	11:08	2826.3	2826.3	3.1
	8:12	1637.5	1637.5	.2	11:13	2809.4	2809.4	3.2
	8:16	1768.7	1768.7	.3	11:22	2784.0	2784.0	3.4
	8:19	1878.8	1878.8	.3	11:39	2750.8	2750.8	3.7
	8:23	1972.8	1972.8	.4	11:58	2725.4	2725.4	4.0
	8:29	2065.6	2065.6	.5	12:16	2708.8	2708.8	4.3
	8:35	2172.2	2172.2	.6	12:56	2686.1	2686.1	4.9
	8:40	2237.8	2237.8	.7	13:38	2673.1	2673.1	5.6
	8:47	2288.3	2288.3	.8	14:31	2661.9	2661.9	6.5
	8:58	2363.4	2363.4	1.0	15:37	2655.1	2655.1	7.6
	9:06	2420.4	2420.4	1.1	17:55	2648.1	2648.1	9.9
	9:15	2463.1	2463.1	1.2	20:58	2644.9	2644.9	13.0
	9:23	2525.0	2525.0	1.4	1:11	2645.3	2645.3	17.2
	9:33	2573.9	2573.9	1.5	6:52	2650.4	2650.4	22.9
	9:39	2612.5	2612.5	1.6	14:23	2656.5	2656.5	30.4
	9:48	2655.6	2655.6	1.8	21:09	2662.8	2662.8	37.1
	10:02	2726.5	2726.5	2.0	5:28	2668.3	2668.3	45.5
	10:12	2776.8	2776.8	2.2	14:08	2675.8	2675.8	54.1
	10:23	2821.9	2821.9	2.4	23:39	2681.3	2681.3	63.6
	10:36	2865.7	2865.7	2.6	10:08	2686.4	2686.4	74.1
	10:39	2875.2	2875.2	2.7	22:01	2693.7	2693.7	86.0
	10:42	2883.2	2883.2	2.7	8:00	2701.1	2701.1	96.0

LUB IN DWT = 668 PSI / OUT = 1746 PSI
LUB IN AMERADA = 657 PSI / OUT = 1747 PSI

KANOWANA #3 SEPTEMBER 1990
ELEMENT #15451 (TOP)



000100

SUB-SURFACE PRESSURE SURVEY

000101

CO.		RUN 02 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 9074'
CASING	-	CASING PRESS	ON BOTTOM 1425 11/9
LINER	-	TUBING PRESS	OFF BOTTOM 0800 16/9
DATE	900916	ELEMENT RANGE 0 - 5159	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 12/9
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 28904	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

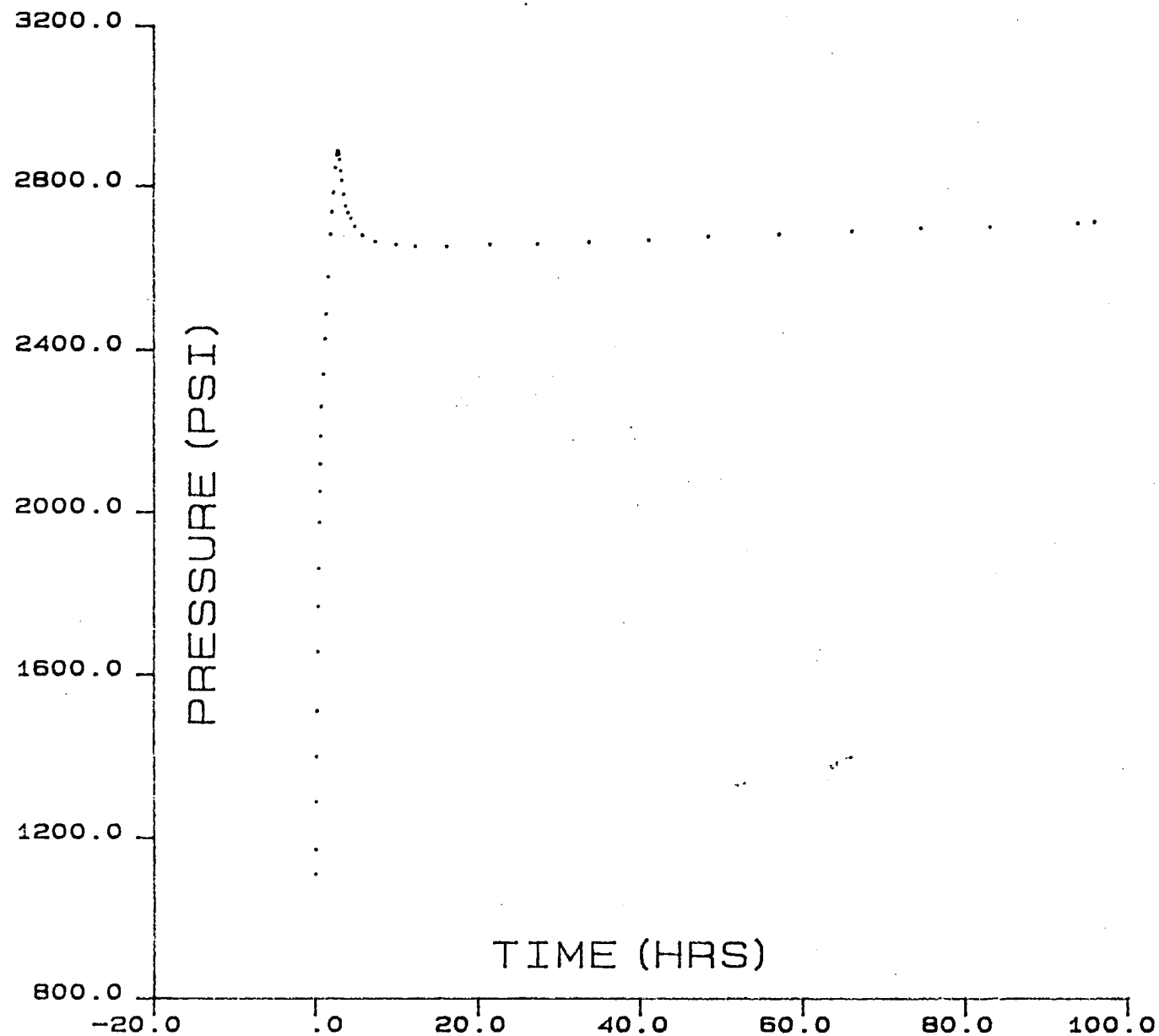
SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	8:00	1110.5	1110.5	.0	10:53	2877.4	2877.4	2.9
	8:03	1170.1	1170.1	.0	10:58	2863.7	2863.7	3.0
	8:05	1290.9	1290.9	.1	11:06	2835.8	2835.8	3.1
	8:07	1401.0	1401.0	.1	11:13	2813.0	2813.0	3.2
	8:11	1511.8	1511.8	.2	11:28	2779.9	2779.9	3.5
	8:16	1655.6	1655.6	.3	11:44	2750.1	2750.1	3.7
	8:20	1764.5	1764.5	.3	12:00	2733.7	2733.7	4.0
	8:24	1858.5	1858.5	.4	12:23	2718.9	2718.9	4.4
	8:30	1974.2	1974.2	.5	12:52	2700.2	2700.2	4.9
	8:35	2051.1	2051.1	.6	13:47	2678.3	2678.3	5.8
	8:37	2118.0	2118.0	.6	15:23	2663.0	2663.0	7.4
	8:40	2187.5	2187.5	.7	17:56	2655.7	2655.7	9.9
	8:46	2260.6	2260.6	.8	20:19	2651.0	2651.0	12.3
	8:59	2340.0	2340.0	1.0	0:10	2650.1	2650.1	16.2
	9:12	2425.6	2425.6	1.2	5:28	2657.0	2657.0	21.5
	9:19	2486.4	2486.4	1.3	11:21	2658.2	2658.2	27.4
	9:35	2577.2	2577.2	1.6	17:43	2662.5	2662.5	33.7
	9:53	2681.5	2681.5	1.9	1:05	2667.3	2667.3	41.1
10:02	2736.8	2736.8	2.0	8:23	2675.5	2675.5	48.4	
10:14	2784.0	2784.0	2.2	17:05	2680.8	2680.8	57.1	
10:27	2843.9	2843.9	2.4	2:05	2687.3	2687.3	66.1	
10:37	2875.4	2875.4	2.6	10:40	2694.4	2694.4	74.7	
10:39	2881.6	2881.6	2.7	19:09	2698.2	2698.2	83.2	
10:44	2890.7	2890.7	2.7	5:55	2705.4	2705.4	93.9	
10:48	2886.8	2886.8	2.8	8:00	2708.8	2708.8	96.0	

LUB IN DWT = 668 PSI / OUT = 1746 PSI

LUB IN AMERADA = 675 PSI / OUT = 1769 PSI

KANOWANA #3 SEP 1990
ELEMENT #28904 (BOT)



000102

Tested Sunday, 16th September 1990.

PH. (08) 354 0486 TELEX AR87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

CLIENT	LOCATION	FORMATION
Santos Ltd.	KANOWANA #3	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	15451	5650	28/ 8/90
Bottom	28904	5200	28/ 8/90

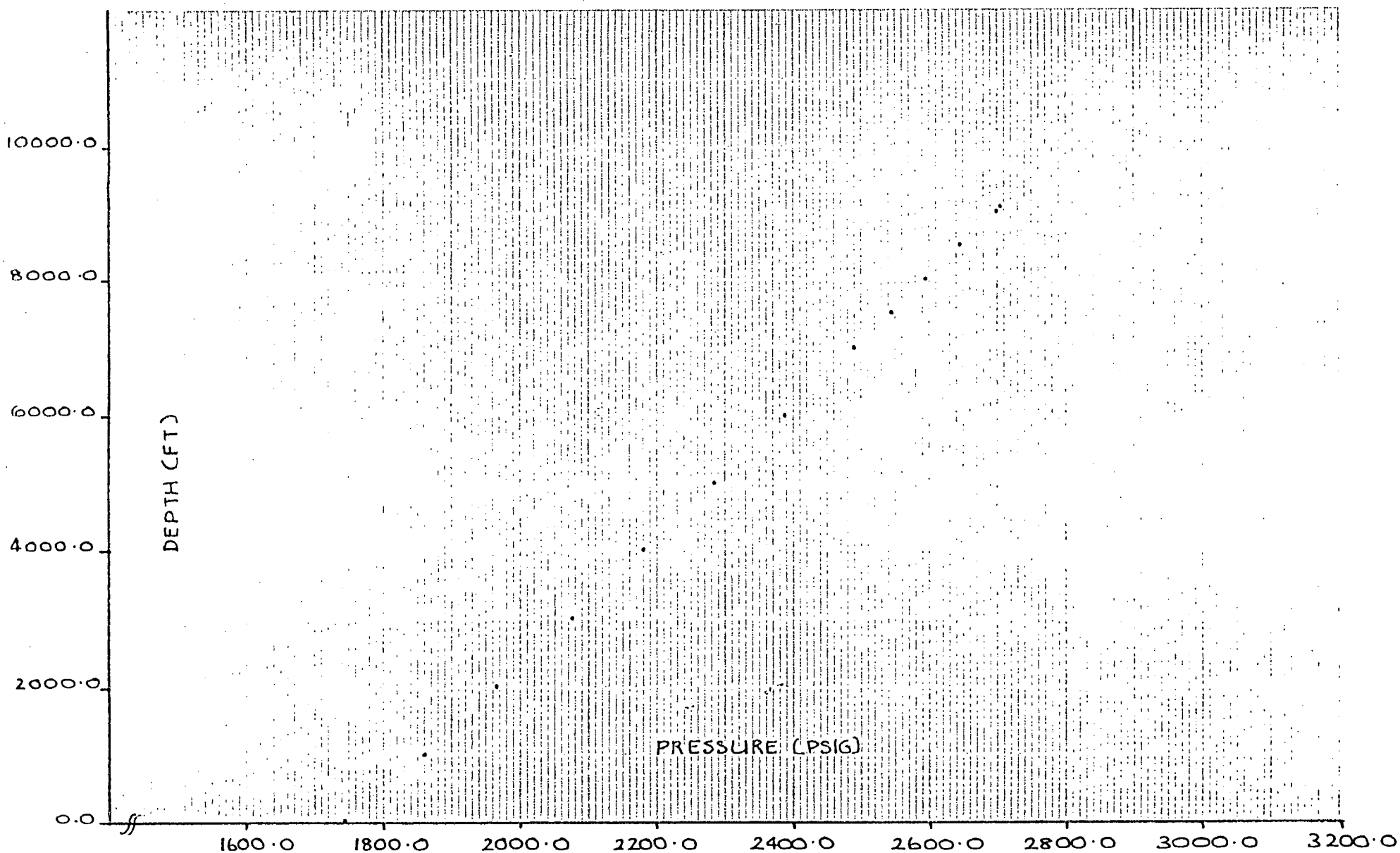
WELL DATA	
PARAMETER	VALUE
DWT In	1746 PSIG
DWT Out	1748 PSIG
Max BHT	258 °F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6900	1743.5	-----	0.6830	1754.5	-----
1000	0.7350	1858.2	0.115	0.7270	1867.6	0.113
2000	0.7770	1965.3	0.107	0.7700	1978.2	0.111
3000	0.8200	2075.0	0.110	0.8110	2083.7	0.106
4000	0.8610	2179.7	0.105	0.8530	2191.8	0.108
5000	0.9020	2284.4	0.105	0.8920	2292.2	0.100
6000	0.9420	2386.6	0.102	0.9320	2395.3	0.103
7000	0.9820	2488.8	0.102	0.9710	2495.8	0.101
7500	1.0030	2542.5	0.107	0.9900	2544.8	0.098
8000	1.0230	2593.7	0.102	1.0100	2596.4	0.103
8500	1.0430	2644.8	0.102	1.0310	2650.6	0.108
9000	1.0640	2698.6	0.108	1.0510	2702.3	0.103
9080	1.0670	2706.3	0.096	1.0540	2710.0	0.097
LUB.	0.6940	1753.7	-----	0.6820	1752.0	-----

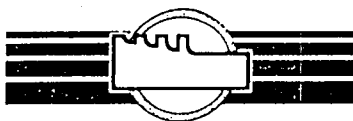
GENERAL REMARKS

TEMPERATURE ELEMENT #22821 RUN.

KANOWANA # 3 — STATIC PRESSURE GRADIENT — 16/9/90
ELEMENT # 15451/5650 (TOP)



000104



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 1. OF

WELL NAME: KANOWANA # 3.

FORMATION :

DATE: 9.9.90

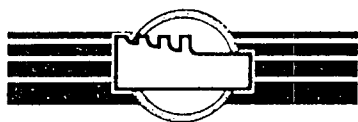
TEST TYPE : S.R.T.

OPR : RRM.

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	LGR. m ³ /10 ⁶ m ³	
9 SEPT															
1400		3895	737		100										
1445		DIVER T FLOW THRU SEPARATOR.													
1600		4598	751	53	100	4412	123	81.56							
1700		5122	765	53	"	4964	122	85.75							
1800		5212	779	53	"	5067	122	83.26							
1900		8908	875	51	5	5447	107	28.96							
		PRODUCTION CHOKES SHUTTING IN. LINE PRESSURE BUILDING. BYPASS SEPARATOR.													
2000		12031	530	31	1.										
2100		12900	358	23	"										
2200		12659	220	19	"										
2400		5185	165	48	65										
10 SEPT.															
0200		5129	248	49	100		DIVER T THRU SEPARATOR VESSEL.								
0400		5019	303	49	"										
0600	0	4895	351	49	"	4757	113	75.08			11.65	0	0		
0700	1	4881	393	49	"	4757	113	77.63	15.99	1.59				226.65	
0800	2	4881	413	50	"	4757	114	77.93	11.19	3.19				184.72	
0900	3	4881	441	50	"	4757	114	79.16	3.19	0				40.41	
1000	4	4874	461	51	"	4757	116	79.12	3.19	0				40.43	
1100	5	4874	482	51	"	4757	116	80.13	0	1.59				19.91	
1200	6	4874	510	51	"	4757	118	80.27	6.39	1.59				99.62	

000105

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2. OF

WELL NAME: KANOWANA # 3

FORMATION :

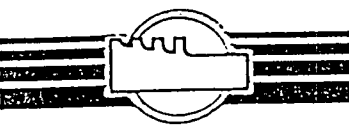
DATE: 10.9.90

TEST TYPE : S.R.T.

OPR : PDM.

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCFD m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	L.G.R. m ³ /10 ⁶ m ³	
10 SEPT.															
1300	7	4881	537	51	100	4792	120	80.78	7.99	1.59				118.80	
1400	8	4881	551	51	"	4792	120	81.36	4.79	1.59				78.64	
1500	9	4798	579	51	"	4792	120	81.93	6.39	0				78.09	
1600	10	4688	599	52	"	4550	120	82.47	6.39	3.19				116.36	
1700	11	4605	613	52	"	4550	120	82.47	4.79	1.59				77.57	
1800	12	4592	627	51	"	4550	120	82.47	6.39	0				77.57	
1900	13	4626	627	51	"	4516	120	81.93	7.99	1.59				117.13	
2000	14	4633	641	50	"	4481	118	82.44	3.19	3.19				77.60	
2100	15	4633	641	50	"	4481	116	83.01	6.39	1.59				96.34	
2200	16	4647	648	50	"	4481	116	83.01	7.99	0				96.34	
2300	17	4647	648	50	"	4481	116	83.01	6.39	1.59				96.34	
2400	18	4640	661	50	"	4481	116	83.52	6.39	1.59				95.75	
11 SEPT.															
0100	19	4633	668	50	"	4481	116	83.52	7.99	1.59				114.90	
0200	20	4612	675	50	"	4447	116	83.46	7.99	0				95.82	
0300	21	4605	675	50	"	4412	116	83.40	7.99	1.59				115.07	
0400	22	4598	682	50	"	4412	116	83.40	4.79	1.59				76.71	
0500	23	4598	682	49	"	4412	114	83.47	6.39	1.59				95.81	
0600	24	4598	682	50	"	4412	114	83.47	7.99	0	81.41	6.587	1.323	95.81	
0700	25	4598	696	51	"	4412	116	82.90	6.39	1.59				96.47	
0800	26	4605	696	51	"	4481	114	85.14	9.59	0				112.72	

000106



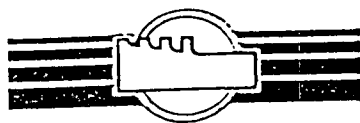
TEST RESULTS

CUSTOMER : SANTOS	PERFORATIONS:	PAGE: 3 OF
WELL NAME: KANOWANA # 3	FORMATION :	DATE: 11.9.90
TEST TYPE : S.R.T.		OPR : RDM.

TIME		WELLHEAD DATA				SEPARATOR.		FLOW RATES			CUMULATIVE PRODUCTION			L.G.R. m ³ /10 ⁶ m ³	
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE kpa	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³		
11 SEPT.															
0900	27	4626	703	51	100	4481	114	84.63	4.79	1.59				75.60	
1000	28	4647	710	52	"	4481	116	84.03	7.99	1.59				114.20	
1100	29	4647	710	52	"	4550	116	85.18	7.99	0				93.88	
1200	30	4667	723	52	"	4550	118	84.58	6.39	3.19				113.46	
1205		HANG	2 X	5000	PSI	AND	1	TEMPERATURE ELEMENT IN LUBRICATOR AND PRESSURE						75.70	
1300	31	4667	717	52	"	4550	120	84.51	4.79	1.59				92.45	
1400	32	4612	723	52	"	4550	120	86.50	6.39	1.59					
1405		4612	723	R.I.H. GAUGES.											
1425		4509	723	HANG	GAUGES AT 9080' KB.										
1500	33	4502	710	52	"	4378	120	85.59	6.39	1.59				93.44	
1600	34	4495	710	52	"	4343	120	84.10	4.79	1.59				76.08	
1700	35	4488	696	52	"	4343	120	83.15	3.19	3.19				76.94	
1800	36	4495	689	52	"	4343	120	83.15	7.99	1.59				115.41	
1900	37	4495	689	51	"	4343	118	83.67	6.39	0				76.46	
2000	38	4481	675	50	"	4343	113	84.09	4.79	1.59				76.08	
2030		BEGIN	H.P.	SAMPLING (SEE SAMPLING DATA)											
2100	39	4474	675	49	"	4343	113	84.57	7.99	0				94.56	
2135		H.P.	SAMPLING COMPLETE.												
2200	40	4433	661	49	"	4274	111	84.45	6.39	1.59				94.69	
2300	41	4405	668	49	"	4240	111	84.34	6.39	1.59				94.82	
2400	42	4385	668	49	"	4205	111	84.22	7.99	0				94.96	

000107

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 4 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 12.9.90.

TEST TYPE : S.R.T.

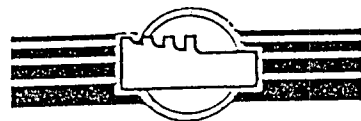
OPR : RPM.

TEST TYPE : S.R.T.															
TIME		WELLHEAD DATA					FLOW RATES					CUMULATIVE PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³10³	OIL BBLG m³	WATER BBLG m³	L.G.R. m³/D m³	
12 SEPT															
0100	43	4371	675	50	100	4205	113	83.67	6.39	1.59				95.58	
0200	44	4385	689	50	"	4171	111	84.09	7.99	1.59				114.12	
0300	45	4392	668	49	"	4137	111	83.96	7.99	1.59				114.30	
0400	46	4357	682	49	"	4137	111	83.96	7.99	0				95.25	
0500	47	4330	682	49	"	4137	111	83.96	6.39	1.59				95.25	
0600	48	4336	682	50	"	4137	111	83.96	4.79	1.59	165.68	13.172	2.645	76.20	
0700	49	4330	689	50	"	4137	111	83.96	4.79	1.59				76.20	
0800	50	4309	710	49	"	4137	111	83.96	6.39	1.59	172.68	13.637	2.777	95.25	
	0	S.I.W.	CN	WING VALVE											
0815		9259													
0830		10480													
0845		11004													
0900	1	11418													
0915		11811													
0930		12204													
0945		12542													
1000	2	12838													
1100	3	12666													
1200	4	12328													
1300	5	12183													
1400	6	12135													

000108

000108

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 5 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 12.9.90

TEST TYPE : S.R.T.

OPR : EDM.

TIME

WELLHEAD DATA

FLOW RATES

CUMULATIVE PRODUCTION

DATE

FLOW OR
SHUT IN
TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)WELLHEAD
TEMP
(°F/°C)CHOKE
SIZEPRESSURE
(PSI/KPa)TEMP
(°F/°C)GAS
MMSCFD
m³10³/DOIL
BPD
m³/DWATER
BPD
m³/DGAS
MMSCF
m³10³OIL
BBLS
m³WATER
BBLS
m³

12 SEPT

1800 10 12031 0

2200 14 11976 0

13 SEPT

0200 18 11962 0

0600 22 11962 0

1000 26 11969 0

1400 30 11976 0

1800 34 11969 0

2200 38 11962 0

14 SEPT

0200 42 11969 0

0600 46 11969 0

1000 50 11976 0

1400 54 11997 0

1800 58 11990 0

2200 62 11990 0

15 SEPT

0200 66 11997 0

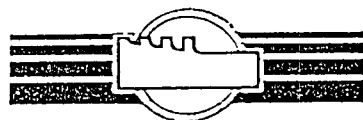
0600 70 11990 0

1000 74 11997 0

1400 78 12024 0

000109

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 1. OF

WELL NAME: KANOWANA # 3

FORMATION :

DATE: 9.9.90.

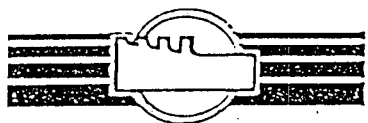
TEST TYPE : S.R.T.

OPR : RDM.

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP °C	TOTAL LIQUID (IN/GM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
9 SEPT.														
1200		DIVERT FLOW THRU SEPARATOR BYPASS.												
1400		565	107											
1445		DIVERT FLOW THRU VESSEL.												
1600		667	109	53	100		1.50	640	84	51				
1700		743	111	53	"		"	720	75	50				
1800		756	113	53	"		"	735	68	50				
1900		1292	127	51	5		"	790	6	42	5.25			1.00
		PRODUCTION CHOKES SHUTTING IN. LINE PRESSURE BUILDING. BY PASS SEPARATOR												
2000		1745	77	31	1.									
2100		1871	52	23	"									
2200		1836	32	19	"									
2400		752	24	48	65									
10 SEPT.														
0200		744	36	49	100		DIVERT FLOW THRU SEPARATOR VESSEL.							
0400		728	44	49	"									
0600	0.	710	51	49	"		1.50	690	58	45	11.50			1.75
0700		708	57	49	"		"	690	62	45	14.25			2.00
0800		708	60	50	"		"	690	63	46	16.50			2.50
0900		708	64	50	"		"	690	65	46	17.00			2.50
1000		707	67	51	"		"	690	66	47	17.50			2.50
1100		707	70	51	"		"	690	68	47	17.75			2.75

000111

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2. OF

WELL NAME: KANOWANA # 3

FORMATION :

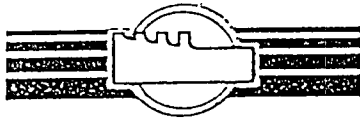
DATE: 10.9.90

TEST TYPE : S.R.T.

OPR : PDM.

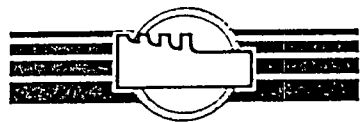
TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP °C	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
10 SEPT.														
1200		707	74	51	100		1.50	690	69	48	19.00			3.00
1300		708	78	51	"		"	695	70	49	20.50			3.25
1400		708	80	51	"		"	695	71	49	21.50			3.50
1500		696	84	51	"		"	695	72	49	22.50			3.50
1600		680	87	52	"		"	660	80	49	24.00			4.00
1700		668	89	52	"		"	660	80	49	25.00			4.25
1800		666	91	51	"		"	660	80	49	26.00			4.25
1900		671	91	51	"		"	655	80	49	27.50			4.50
2000		672	93	50	"		"	650	81	48	28.50			5.00
2100		672	93	50	"		"	650	81	47	29.75			5.25
2200		674	94	50	"		"	650	81	47	31.00			5.25
2300		674	94	50	"		"	650	81	47	32.25			5.50
2400		673	96	50	"		"	650	82	47	33.50			5.75
11 SEPT.														
0100		672	97	50	"		"	650	82	47	35.00			6.00
0200		669	98	50	"		"	645	83	47	36.25			6.00
0300		668	98	50	"		"	640	84	47	37.75			6.25
0400		667	99	50	"		"	640	84	47	38.75			6.50
0500		667	99	49	"		"	640	83	46	40.00			6.75
0600		667	99	50	"		"	640	83	46	41.25			6.75

000112

EXPERTEST PTY. LTD.		FIELD READINGS													
		CUSTOMER : SANTOS						PERFORATIONS:				PAGE: 3 OF			
		WELL NAME: KANOWANA #3						FORMATION :				DATE: 11.9.90			
		TEST TYPE : S.R.T.										OPR : RDM.			
TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP °C	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)	
11 SEPT.															
0700		667	101	51	100		1.50	640	83	47	42.50			7.00	
0800		668	101	51	"		"	650	84	46	44.00			7.00	
0900		671	102	51	"		"	650	83	46	45.00			7.25	
1000		674	103	52	"		"	650	83	47	46.50			7.50	
1100		674	103	52	"		"	660	83	47	47.75			7.50	
1200		677	105	52	"		"	660	83	48	49.25			8.00	
1300		677	104	52	"		"	660	84	49	50.25			8.25	
1400		669	105	52	"		"	660	88	49	51.50			8.50	
1405		669	105	R.I.H. WITH AMERADA				GAUGES							
1425		654	105	HANG AT 9050' KB.											
1500		653	103	52	"		"	635	92	49	52.75			8.75	
1600		652	103	52	"		"	630	90	49	53.75			9.00	
1700		651	101	52	"		"	630	88	49	54.75			9.50	
1800		652	100	52	"		"	630	88	49	56.25			9.75	
1900		652	100	51	"		"	630	88	48	57.25			9.75	
2000		650	98	50	"		"	630	86	45	58.25			10.00	
2100		649	98	49	"		"	630	87	45	59.50		52.7	10.00	
2200		643	96	49	"		"	620	88	44	60.75			10.25	
2300		639	97	49	"		"	615	89	44	62.00			10.50	
2400		636	97	49	"		"	610	90	44	63.25			10.50	

000113

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 1. OF

WELL NAME: KANOWANA # 3

FORMATION :

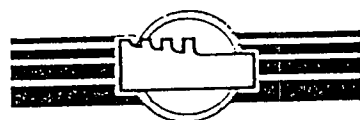
DATE: 10.9.90

TEST TYPE : S.R.T.

OPR: PDM

TANK NUMBER	#1 = 62	TANK CAPACITY	#1 = 56.6	bbls/m ³	TANK SCALE	#1 = 0.2666 m ³ /in	bbls/in - m ³ /cm	OIL API GRAVITY = @ 60°F			
	#2 =		#2 =	bbls/m ³		#2 =	bbls/in - m ³ /cm				
DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)
10 SEPT.											
0600		1.	11.50	9.75	INITIAL DIP.	0		1.75			0
0700		"	14.25	12.25	0.666	15.99	0.666	2.00	0.066	1.59	0.066
0800		"	16.50	14.00	0.466	11.19	1.132	2.50	0.133	3.19	0.199
0900		"	17.00	14.50	0.133	3.19	1.265	2.50	0	0	0.199
1000		"	17.50	15.00	0.133	3.19	1.398	2.50	0	0	0.199
1100		"	17.75	15.00	0	0	1.398	2.75	0.066	1.59	0.265
1200		"	19.00	16.00	0.266	6.39	1.664	3.00	0.066	1.59	0.331
1300		"	20.50	17.25	0.333	7.99	1.997	3.25	0.066	1.59	0.397
1400		"	21.50	18.00	0.199	4.79	2.196	3.50	0.066	1.59	0.463
1500		"	22.50	19.00	0.266	6.39	2.462	3.50	0	0	0.463
1600		"	24.00	20.00	0.266	6.39	2.728	4.00	0.133	3.19	0.596
1700		"	25.00	20.75	0.199	4.79	2.927	4.25	0.066	1.59	0.662
1800		"	26.00	21.75	0.266	6.39	3.193	4.25	0	0	0.662
1900		"	27.50	23.00	0.333	7.99	3.526	4.50	0.066	1.59	0.728
2000		"	28.50	23.50	0.133	3.19	3.659	5.00	0.133	3.19	0.861
2100		"	29.75	24.50	0.266	6.39	3.925	5.25	0.066	1.59	0.927
2200		"	31.00	25.75	0.333	7.99	4.258	5.25	0	0	0.927
2300		"	32.25	26.75	0.266	6.39	4.524	5.50	0.066	1.59	0.993
2400		"	33.50	27.75	0.266	6.39	4.790	5.75	0.066	1.59	1.059

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA # 3

FORMATION :

DATE: 11.9.90

TEST TYPE : S.R.T.

OPR : RDM.

OIL API GRAVITY = @ 60°F

TANK

#1 = 62

TANK

#1 = 56.6

bbls/m³

TANK

#1 = 0.2666 m³/in bbls/in - m³/cm

NUMBER

#2 =

CAPACITY

#2 =

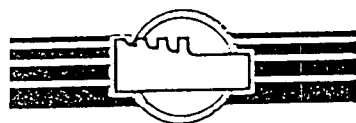
bbls/m³

SCALE

#2 = bbls/in - m³/cm

DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/GM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/GM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/GM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)
11 SEPT.							4.790				1.059
0100		1	35.00	29.00	0.333	7.99	5.123	6.00	0.066	1.59	1.125
0200		"	36.25	30.25	0.333	7.99	5.456	6.00	0	0	1.125
0300		"	37.75	31.50	0.333	7.99	5.789	6.25	0.066	1.59	1.191
0400		"	38.75	32.25	0.199	4.79	5.988	6.50	0.066	1.59	1.257
0500		"	40.00	33.25	0.266	6.39	6.254	6.75	0.066	1.59	1.323
0600		"	41.25	34.50	0.333	7.99	6.587	6.75	0	0	1.323
0700		"	42.50	35.50	0.266	6.39	6.853	7.00	0.066	1.59	1.389
0800		"	44.00	37.00	0.399	9.59	7.252	7.00	0	0	1.389
0900		"	45.00	37.75	0.199	4.79	7.451	7.25	0.066	1.59	1.455
1000		"	46.50	39.00	0.333	7.99	7.784	7.50	0.066	1.59	1.521
1100		"	47.75	40.25	0.333	7.99	8.117	7.50	0	0	1.521
1200		"	49.25	41.25	0.266	6.39	8.383	8.00	0.133	3.19	1.654
1300		"	50.25	42.00	0.199	4.79	8.582	8.25	0.066	1.59	1.720
1400		"	51.50	43.00	0.266	6.39	8.848	8.50	0.066	1.59	1.786
1500		"	52.75	44.00	0.266	6.39	9.114	8.75	0.066	1.59	1.852
1600		"	53.75	44.75	0.199	4.79	9.313	9.00	0.066	1.59	1.918
1700		"	54.75	45.25	0.133	3.19	9.446	9.50	0.133	3.19	2.050
1800		"	56.25	46.50	0.333	7.99	9.779	9.75	0.066	1.59	2.117
1900		"	57.25	47.50	0.266	6.39	10.045	9.75	0	0	2.117
2000		"	58.25	48.25	0.199	4.79	10.244	10.00	0.066	1.59	2.183

EXPERTEST PTY. LTD.



GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 1. OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 9.9.90

TEST TYPE : S.R.T.

OPR : RAM.

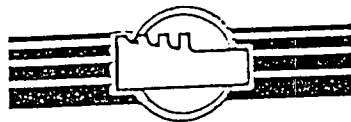
ORIFICE METER TYPE: DANIEL SENIOR. STATIC PRESSURE RANGE : 0-1500 PSIG GAS SPECIFIC GRAVITY (SG) = 1.1664.

METER RUN SIZE : 3.068" DIFFERENTIAL PRESS. RANGE: 0-200 IN WC FG $\sqrt{(I/SG)}$ = 0.9259.SEPARATOR NO : 459. STANDARD CONDITIONS : 14.73 PSI @ 60°F C₂ (FU x FG) = 22.2222

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	$C_1 = F_B \times F_{TF} \times F_{PV} \times Y_2$				C ₁	C (C = C ₁ x C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
9 SEPT.															
1600		100	655	84	123	1.50	234.5634	472.95	0.9444	1.2361	1.0007	552.568	12279.29	2.88	81.56
1700		"	735	75	122	"	234.7871	"	0.9452	1.2975	1.0006	580.443	12898.73	3.028	85.75
1800		"	750	68	122	"	225.8317	"	0.9452	1.3099	1.0005	585.937	13020.83	2.940	83.26
1900		5	805	6	107	"	69.4982	"	0.9576	1.4620	1.0000	662.226	14716.15	1.022	28.96
10 SEPT															
0600		100	705	58	113	"	202.2127	"	0.9526	1.3090	1.0005	590.075	13112.78	2.651	75.08
0700		"	705	62	113	"	209.0693	"	0.9526	1.3090	1.0005	590.095	13113.24	2.741	77.63
0800		"	705	63	114	"	210.7486	"	0.9518	1.3047	1.0005	587.652	13058.95	2.752	77.93
0900		"	705	65	114	"	214.0677	"	0.9518	1.3047	1.0005	587.663	13059.18	2.795	79.16
1000		"	705	66	116	"	215.7081	"	0.9501	1.2964	1.0005	582.938	12954.19	2.794	79.12
1100		"	705	68	116	"	218.9520	"	0.9501	1.2964	1.0005	582.948	12954.42	2.836	80.13
1200		"	705	69	118	"	220.5561	"	0.9485	1.2886	1.0005	578.432	12854.05	2.835	80.27
1300		"	710	70	120	"	222.9349	"	0.9468	1.2851	1.0006	575.875	12797.23	2.852	80.78
1400		"	710	71	120	"	224.5217	"	0.9468	1.2851	1.0006	575.880	12797.34	2.873	81.36
1500		"	710	72	120	"	226.0973	"	0.9468	1.2851	1.0006	575.885	12797.45	2.893	81.93
1600		"	675	80	120	"	232.3790	"	0.9468	1.2585	1.0007	564.024	12533.87	2.912	82.47
1700		"	675	80	120	"	232.3790	"	0.9468	1.2585	1.0007	564.024	12533.87	2.912	82.47
1800		"	675	80	120	"	232.3790	"	0.9468	1.2585	1.0007	564.024	12533.87	2.912	82.47
1900		"	670	80	120	"	231.5167	"	0.9468	1.2549	1.0007	562.411	12498.03	2.893	81.93

000118

EXPERTEST PTY. LTD.



GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA # 3

FORMATION :

DATE: 10.9.90

TEST TYPE : S.R.T.

OPR: RRM.

ORIFICE METER TYPE: DANIEL SENIOR

STATIC PRESSURE RANGE : 0 - 1500 PSIG

GAS SPECIFIC GRAVITY (SG) = 1.1664

METER RUN SIZE : 3.068"

DIFFERENTIAL PRESS. RANGE: 0 - 200 IN WC

FG $\sqrt{(1/SG)}$ = 0.9259

SEPARATOR NO : 459

STANDARD CONDITIONS : 14.73 PSI @ 60°F

C₂ (F_U × F_G) = 22.2222

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
10 SEPT.															
2000		100	665	81	118	1.50	232.0883	472.95	0.9845	1.2575	1.0007	564.551	12545.58	2.911	82.44
2100		"	665	81	116	"	232.0883	"	0.9501	1.2639	1.0007	568.423	12631.63	2.931	83.01
2200		"	665	81	116	"	232.0883	"	0.9501	1.2639	1.0007	568.423	12631.63	2.931	83.01
2300		"	665	81	116	"	232.0883	"	0.9501	1.2639	1.0007	568.423	12631.63	2.931	83.01
2400		"	665	82	116	"	233.5165	"	0.9501	1.2639	1.0067	568.428	12631.74	2.949	83.52
11 SEPT									0						
0100		"	665	82	116	"	233.5165	"	0.9501	1.2639	1.0007	568.428	12631.74	2.949	83.52
0200		"	660	83	116	"	234.0512	"	0.9501	1.2601	1.0007	566.722	12593.84	2.947	83.46
0300		"	655	84	116	"	234.5634	"	0.9501	1.2564	1.0007	565.041	12556.46	2.945	83.40
0400		"	655	84	116	"	234.5634	"	0.9501	1.2564	1.0007	565.041	12556.46	2.945	83.40
0500		"	655	83	114	"	233.1630	"	0.9518	1.2628	1.0007	568.911	12642.47	2.947	83.47
0600		"	655	83	114	"	233.1630	"	0.9518	1.2628	1.0007	568.911	12642.47	2.947	83.47
0700		"	655	83	116	"	233.1630	"	0.9501	1.2564	1.0007	565.035	12556.35	2.927	82.90
0800		"	665	84	114	"	236.3472	"	0.9518	1.2707	1.0007	572.469	12721.53	3.006	85.14
0900		"	665	83	114	"	234.9361	"	0.9518	1.2707	1.0007	572.463	12721.41	2.988	84.63
1000		"	665	83	116	"	234.9361	"	0.9501	1.2639	1.0007	568.433	12631.86	2.967	84.03
1100		"	675	83	116	"	236.6960	"	0.9501	1.2717	1.0007	571.929	12709.53	3.008	85.18
1200		"	675	83	118	"	236.6960	"	0.9485	1.2650	1.0007	567.906	12620.13	2.987	84.58
1300		"	675	84	120	"	238.1176	"	0.9468	1.2585	1.0007	564.044	12534.32	2.984	84.51

GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 3 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 11. 9. 90

TEST TYPE : S.R.T.

OPR : RDM.

ORIFICE METER TYPE: DANIEL	STATIC PRESSURE RANGE : 0 - 1500 PSIG	GAS SPECIFIC GRAVITY (SG) = 1.1664
METER RUN SIZE : 3.068 "	DIFFERENTIAL PRESS. RANGE: 0 - 200 IN WC	FG $\sqrt{(1/SG)}$ = 0.9259
SEPARATOR NO : 459	STANDARD CONDITIONS : 14.73 PSI @ 60°F	C ₂ (FU x FG) = 22.2222

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
11 SEPT.															
1400		100	675	88	120	1.50	243.7211	472.95	0.9468	1.2585	1.0007	564.065	12534.78	3.054	86.50
1500		"	650	92	120	"	244.5403	"	0.9468	1.2410	1.0008	556.231	12360.70	3.022	85.59
1600		"	645	90	120	"	240.9356	"	0.9468	1.2376	1.0008	554.711	12326.91	2.969	84.10
1700		"	645	88	120	"	238.2435	"	0.9468	1.2376	1.0008	554.700	12326.68	2.936	83.15
1800		"	645	88	120	"	238.2435	"	0.9468	1.2376	1.0008	554.700	12326.68	2.936	83.15
1900		"	645	88	118	"	238.2435	"	0.9485	1.2432	1.0008	558.165	12403.68	2.955	83.67
2000		"	645	86	113	"	235.5206	"	0.9526	1.2583	1.0008	567.396	12608.81	2.969	84.09
2100		"	645	87	113	"	236.8860	"	0.9526	1.2583	1.0008	567.401	12608.93	2.986	84.57
2200		"	635	88	111	"	236.3895	"	0.9542	1.2569	1.0008	567.782	12617.39	2.982	84.45
2300		"	630	89	111	"	236.7910	"	0.9542	1.2530	1.0008	566.038	12578.64	2.978	84.34
2400		"	625	90	111	"	237.1708	"	0.9542	1.2492	1.0008	564.321	12540.47	2.974	84.22
12 SEPT.															
0100		"	625	90	113	"	237.1708	"	0.9526	1.2433	1.0008	560.667	12459.27	2.954	83.67
0200		"	620	91	111	"	237.5289	"	0.9542	1.2454	1.0008	562.629	12502.88	2.969	84.09
0300		"	615	92	111	"	237.8655	"	0.9542	1.2417	1.0009	560.963	12465.85	2.965	83.96
0400		"	615	92	111	"	237.8655	"	0.9542	1.2417	1.0009	560.963	12465.85	2.965	83.96
0500		"	615	92	111	"	237.8655	"	0.9542	1.2417	1.0009	560.963	12465.85	2.965	83.96
0600		"	615	92	111	"	237.8655	"	0.9542	1.2417	1.0009	560.963	12465.85	2.965	83.96

000120



REPERATIONS:

WELL NAME: KANOWANA #3

FORMATION :

DATE: 12.9.90

OPR : RPW

METER RUN SIZE : 3.068"

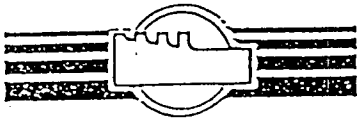
DIFFERENTIAL PRESS. RANGE: 0-200 IN WC

GAS SPECIFIC GRAVITY (SG) = 1.1664-

DATE	FLOW	CHOKE	STATIC
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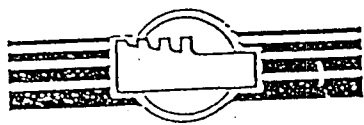
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$$C_2 \quad (FU \times FG) = 22.2222$$
000121

EXPERTEST PTY. LTD.		BHP/BHT GAUGE RUN DATA							
		CUSTOMER : SANTOS			PERFORATIONS: 9108 - 9217' KB.		PAGE: 1 OF		
		WELL NAME: KANOWANA # 3			FORMATION : PATCHA WARRA.		DATE: 11.9.90		
		TEST TYPE : S.R.T + BUILD-UP					OPR : PDM.		
GAUGE DATA		UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA		TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)
ELEMENT SERIAL NO.		15451	28904	22821	DATE	: 11.9.90			
ELEMENT RANGE	psi	5650	5200	139°-375°F	PRESSURE LUBRICATOR	:	1205	668	
RECORDING SECTION SERIAL NO.		12961	12979	70549	RUN IN HOLE	:	1405	4612	723
DATE OF CALIBRATION:	@ 290°F	28.8.90	28.8.90		ON DEPTH AT	: 9080 FT/M	1425	4509	723
CLOCK SERIAL NO.		F15295	F15693	24710	DATE	: 16.9.90.			
CLOCK RANGE	hr.	120	120	120	PULL OUT OF HOLE	:	0800	12024	0
LEAD SCREW TYPE	HS.	15	15	15	AT SURFACE	:	0820	12024	0
					DEPRESSURE LUBRICATOR	:	1020	12038	0
ENGAGE STYLUS	DATE 11.9.90 TIME	1155	1155	1155	MAXIMUM BHT AT	FT/M = °F/C	1746		
DISENGAGE STYLUS	DATE 16.9.90 TIME	1031	1031	1031	N.B. ALL DEPTHS ARE MEASURED FROM K.B.				
REMARKS									
DATE	TIME								
11.9.90	1425	WELL FLOWING ON 100% CHOKE.							
12.9.90	0800	S.I.W. AT WING VALVE FOR P.B.U.							
		IN / OUT ① 657 / 1747 ② 675 / 1769							
		SIBH Temp: 264 °F							

000122

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA #3.

FORMATION :

DATE: 16.9.90

TEST TYPE : S.G.S.

OPR : PDM

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)

ELEMENT SERIAL NO.

ELEMENT RANGE

RECORDING SECTION SERIAL NO.

DATE OF CALIBRATION:

CLOCK SERIAL NO.

CLOCK RANGE

LEAD SCREW TYPE

ENGAGE STYLUS

DATE

TIME

DISENGAGE STYLUS

DATE

TIME

DATE

PRESSURE LUBRICATOR

RUN IN HOLE

ON DEPTH AT

DATE

PULL OUT OF HOLE

AT SURFACE

DEPRESSURE LUBRICATOR

MAXIMUM BHT AT

FT/M =

°F/C

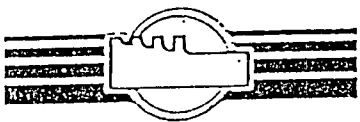
N.B. ALL DEPTHS ARE MEASURED FROM K.B.

REMARKS

DATE

TIME

000123



SEQUENCE OF EVENTS

CUSTOMER :	SANTOS.	PERFORATIONS:	9108 - 9217' KB.	PAGE:	1.	OF	
WELL NAME:	KANOWANA # 3.	FORMATION :	PATCHAWAKRA.	DATE:	8.9.90		
TEST TYPE :	S.R.T. (IN LINE)			OPR :	ARM.		

DATE/TIME	DESCRIPTION OF EVENTS
8 SEPT.	
1500	M.I.R.U. WIRELINE EQUIPMENT.
1515	SHUT IN WELL AND INSTALL SWAB VALVE
1525	WELL B.O.L. 100%.
1550	R.I.H. WITH 1.75" BLIND BOX.
1615	TAG P.B.T.D. AT 10229' KB. TUBING CLEAR.
	POOH.
1640	TOOLS AT SURFACE.
1700	SECURE EQUIPMENT OVERNIGHT RETURN TO MOOMBA.
9 SEPT.	
0900	ARRIVE ON LOCATION. RIG IN SEPARATOR TO TEST FLANGES.
1200	DIVERT FLOW THRU SEPARATOR BYPASS.
1445	DIVERT FLOW THRU VESSEL. GAS FLOWING IN LINE TO SATELLITE.
1900	AUTOMATIC PRODUCTION CHOKE SHUT DOWN TO 5%, LINE PRESSURE CONTINUES TO RISE. BYPASS SEPARATOR. MONITOR WELLHEAD.
10 SEPT	
0200	CHOKE ON 100%. DIVERT FLOW THRU SEPARATOR VESSEL. MONITOR W/H.
0600	WELLHEAD PRESSURE STABLE. COMMENCE FLOW RATE MEASUREMENTS.
11 SEPT.	
1205	PRESSURE LUBRICATOR
1405	R.I.H. 2 x 5000 PSI GAUGES AND 1 TEMP. GAUGE.
1425	HANG GAUGES AT 9080' KB.
2030	BEGIN 2 SETS OF H.P. SEPARATOR SAMPLES (SEE SAMPLING DATA).
2055	SAMPLE SET # 1 COMPLETE.

000124

CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE: 11.9.90

TEST TYPE : S.R.T.

OPR : R.M.

DATE/TIME

DESCRIPTION OF EVENTS

11 SEPT.

2110

BEGIN SAMPLE SET # 2.

2135

SAMPLE SET # 2 COMPLETE.

12 SEPT.

0800

S.I.W. AT WING VALVE. MONITOR BUILDUP.

16 SEPT.

0800

P.O.O.H. WITH B.H.P. GAUGES.

0820

GAUGES HANGING IN LUBRICATOR

1020

DEPRESSURE LUBRICATOR. RECOVER GOOD CHARTS.

1105

R.I.H. WITH 2 X 5000 PSI GAUGES AND 1 TEMP. GAUGE FOR S.G.S.

1215

HANG AT BOTTOM GRADIENT STOP, 9080' KB.

1220

P.O.O.H.

1240

GAUGES HANGING IN LUBRICATOR

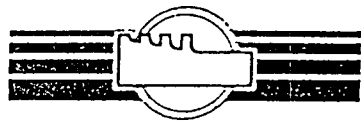
1250

DEPRESSURE LUBRICATOR. RECOVER GOOD CHARTS.

1400

R.D.M.O.

000125



CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217' KB.

PAGE: 1. OF

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA

DATE: 11.9.90

TEST TYPE : S.R.T.

OPR : PDM.

SAMPLE # ①

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH		OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
2030	026	500	OIL	25	ACID. BRINE		25	25		SEP. OIL LINE		4343	45		
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE	TEMPERATURE	
													(PSI/KPa)	(°F/°C)	
4474	49	100%		4343	45	1.2583	1.1664	52.7	84.57	7.99	0	94.56			

REMARKS:

SAMPLE # ②

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH		OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
2030	610	500	GAS	25	EVAC.		25	25		SEP. GAS LINE		4343	45		
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³		PRESSURE	TEMPERATURE
														(PSI/KPa)	(°F/°C)
4474	49	100%		4343	45	1.2583	1.1664	52.7	84.57	7.99	0	94.56.			

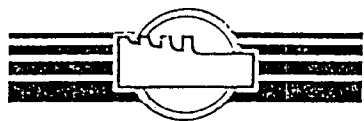
REMARKS:

SAMPLE # ③

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH		OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
2110	113	500	OIL	25	ACID. BRINE		25	25		SEP OIL LINE		4343	45		
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE	TEMPERATURE	
													(PSI/KPa)	(°F/°C)	
4474	49	100%		4343	45	1.2583	1.1664	52.7	84.57	7.99	0	94.56			

REMARKS:

000126



CUSTOMER : SANTOS

PERFORATIONS:

PAGE: 2 OF

WELL NAME: KANOWANA #3

FORMATION :

DATE:

TEST TYPE : S.R.T

OPR : RMM

SAMPLE # ④

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
2110	039	500	GAS	25	EVAC.	25	25	SEP GAS LINE	4343	45		

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	LGR m³/10⁶m³	PRESSURE	TEMPERATURE
													(PSI/KPa)	(°F/°C)
4474	49	100%		4343	45	1.2583	1.1664	52.7	84.57	7.99	0	94.56		

REMARKS:

SAMPLE # ⑤ and ⑥

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
2105	—	500	WATER	5	—	—	—	SEP. WATER	0	—		

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D		PRESSURE	TEMPERATURE
													(PSI/KPa)	(°F/°C)
4474	49	100%		4343	45						0			

REMARKS:

SAMPLE #

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)

WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @ 60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D		PRESSURE	TEMPERATURE
													(PSI/KPa)	(°F/°C)

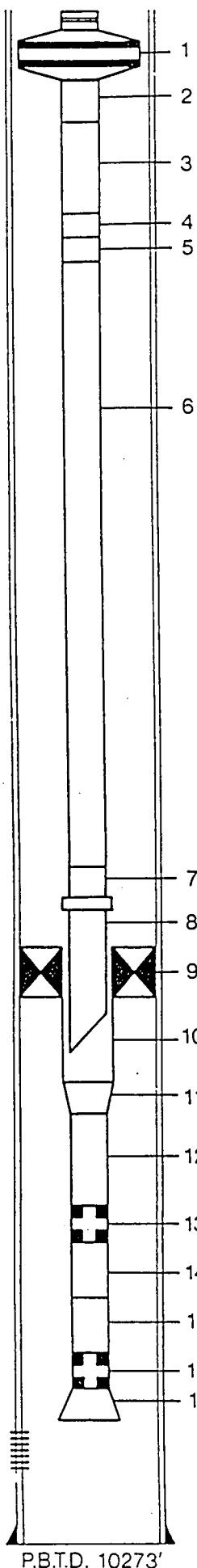
REMARKS:

000127

DOWNHOLE INSTALLATION

KANOWANA 3

000128



ITEM NO.	DESCRIPTION	LENGTH (ft)	DEPTH K.B. (ft)	MIN. I.D. (in)
	K.B. to top of tubinghead spool	20 · 00	0 · 00	
1	C.I.W. FBB-EN 7' 1/16" x 2 7/8" AB x 2 7/8" CS Hydril	. 79	20 · 00	2 · 347
2	2 7/8" L80 AB-IJ3SS pin x pin nipple	. 32	20 · 79	2 · 38
3	1 joint 2 7/8" AB-IJ3SS L80 6 · 5#	31 · 34	21 · 11	2 · 347
4	2' x 2 7/8" L80 AB-IJ3SS pup joints	1 · 75	52 · 45	2 · 347
5	X/over 2 7/8" AB-IJ3SS pin x NK3SBL80	1 · 50	54 · 20	2 · 401
6	279 joints 2 7/8" NK3SB L80 6 · 5#	8674 · 79	55 · 70	2 · 347
7	X/over 2 7/8" NK3SB box x AB-IJ3SS L80	1 · 73	8730 · 49	2 · 347
8	Baker E-22 80-32 anchor seal 2 7/8" AB-IJ3SS box	1 · 78	8732 · 22	2 · 406
			8733 · 00	
	<u>Permanent Downhole Equipment</u>			
9	7" Baker DB packer 84-32 4 1/2" AB-IJ3SS	4 · 08		3 · 25
10	4 1/2" AB-IJ3SS millout extension	5 · 39	8737 · 08	3 · 87
11	4 1/2" box swage x 2 7/8" pin AB-IJ3SS J55 pin	1 · 73	8742 · 47	2 · 35
12	10' x 2 7/8" AB-IJ3SS J55 6 · 5# pup joints	9 · 81	8744 · 20	2 · 35
13	Otis 2 7/8" nipple 711X23160A AB-IJ3SS	. 95	8754 · 01	2 · 313
14/ 15	2 pup joints 10' x 2 7/8" AB-IJ3SS J55 6 · 5#	19 · 61	8754 · 96	2 · 35
16	Otis 2 7/8" 711XN23117 AB-IJ3SS nipple	1 · 02	8774 · 57	2 · 205
17	2 7/8" AB-IJ3SS box x 3 1/2" J55 re-entry guide	1 · 00	8775 · 59	2 · 40
			-8776 · 59	

PERFORATED INTERVALS:		GUN:		CHARGES:		
FORMATION	INTERVAL	SIZE	TYPE	S.P.F.	TYPE	WT(g)
PATCHAWARRA	9108' - 9138'	5	Csg.	6	120°	22
	9148' - 9154'					
	9165' - 9175'					
	9190' - 9217'					

REMARKS:

ANNULUS FLUID : 2% KCl 9.4 brine treated w/205lts. 2100 inhibitor

INDICATED STRING WEIGHT : 42000 w/ 6000# block

CALCULATED STRING WEIGHT : 54000 w/ 6000# block

SLACK-OFF WEIGHT : 7000# compression

TENSION :

NOT TO SCALE		WELLSITE SUPERVISOR		B. Steel	
PROPOSED		DATE OF INSTALLATION		16/12/1989	
RE-COMPLETION		DRAFTED		H. Sulzmann	
COMPLETION		✓		DATE 22/1/1990	
		REVISED		DATE	

000129

WELL: Kanowana # 3

Pf = 3900 kPa

ORIFICE SIZE: 40.000 mm 1.575 " ✓

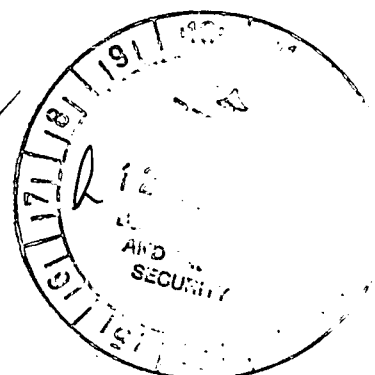
T = 62 °C

LINE SIZE: 73.660 mm 2.900 " ✓

Diff = 12 kPa

Cumulative Production to end of Feb '91 = 28.46 m³ x 10⁶ ✓

Number of hours online in Feb '91 = 650

Production in Feb '91 = 1.386 m³ x 10⁶. . Average flow rate in Feb = (1.386 / 650) x 24 = 0.051 m³ x 10⁶ / dNumber of days online in March before Shut In 1500 hrs 8 / 3 / 91
= 7.625 days.. . Production up to 1500hrs 8 / 3 / 91 = 7.625 x 0.051 = 0.389 m³ x 10⁶Total cumulative production = 28.46 + 0.389
= 28.849 m³ x 10⁶
= 1024 mmscf ✓Flow rate just prior to Shut In = 0.055 m³ x 10⁶
= 1.956 mmscf/d ✓

SUB-SURFACE PRESSURE SURVEY

000130

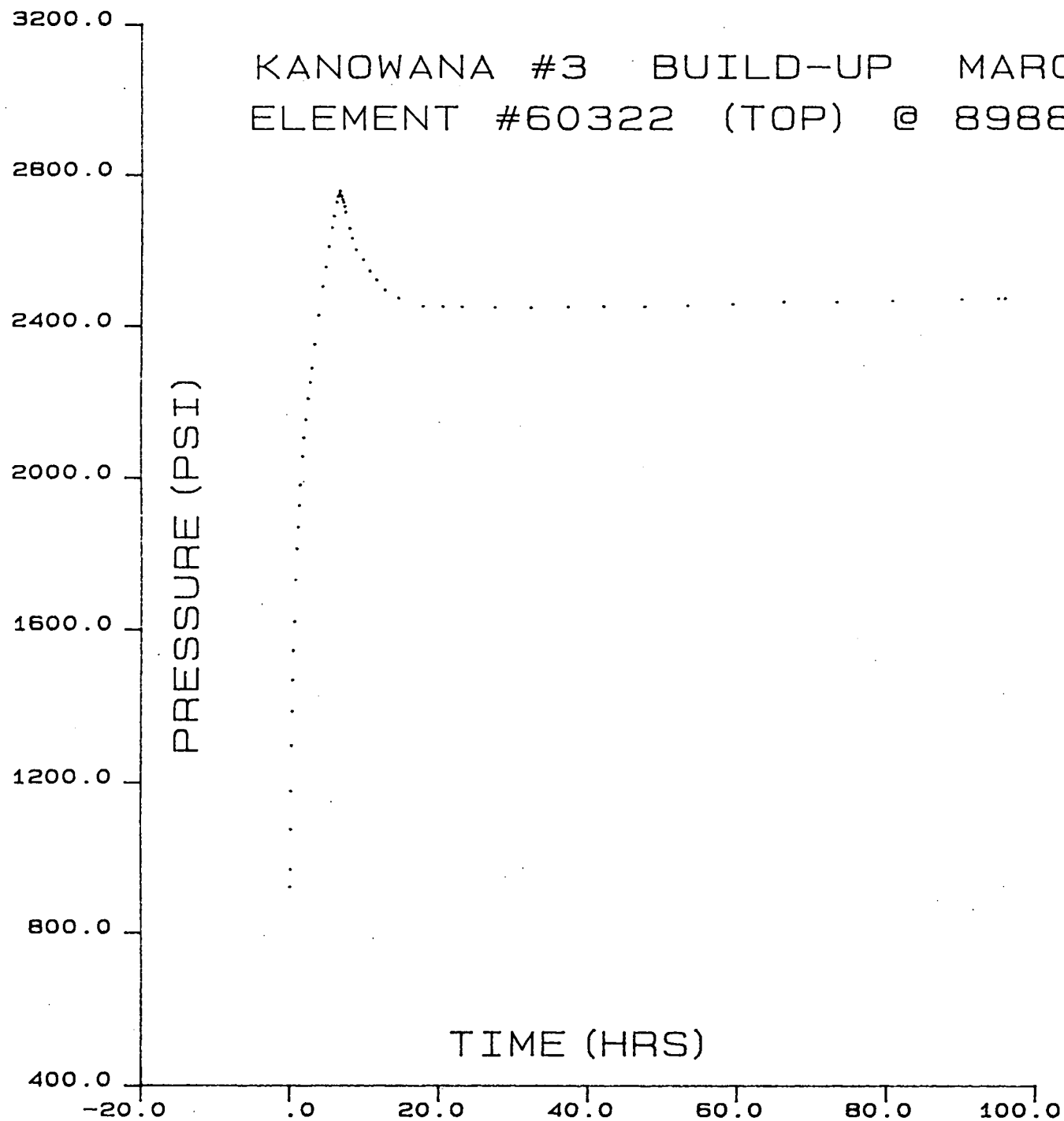
CO.		RUN 01 FIELD kanowana	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 8988'
CASING	-	CASING PRESS	ON BOTTOM 1050 8/3
LINER	-	TUBING PRESS	OFF BOTTOM 1500 12/3
DATE	910312	ELEMENT RANGE 0 - 5130	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1500 8/3
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 60322	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	15:00	923.2	923.2	.0	21:43	2757.3	2757.3	6.7
	15:05	969.5	969.5	.1	21:54	2743.4	2743.4	6.9
	15:08	1075.7	1075.7	.1	22:03	2735.0	2735.0	7.1
	15:10	1177.3	1177.3	.2	22:10	2726.4	2726.4	7.2
	15:14	1297.4	1297.4	.2	22:20	2714.6	2714.6	7.3
	15:20	1385.2	1385.2	.3	22:28	2701.2	2701.2	7.5
	15:23	1467.3	1467.3	.4	23:02	2657.2	2657.2	8.0
	15:27	1545.0	1545.0	.4	23:22	2632.5	2632.5	8.4
	15:37	1620.8	1620.8	.6	23:53	2602.6	2602.6	8.9
	15:47	1730.0	1730.0	.8	0:52	2576.2	2576.2	9.9
	15:57	1812.2	1812.2	.9	1:43	2547.2	2547.2	10.7
	16:07	1869.7	1869.7	1.1	2:38	2523.7	2523.7	11.6
	16:18	1927.0	1927.0	1.3	3:46	2497.3	2497.3	12.8
	16:25	1981.2	1981.2	1.4	5:35	2475.1	2475.1	14.6
	16:44	2056.5	2056.5	1.7	8:49	2451.0	2451.0	17.8
	16:53	2106.3	2106.3	1.9	11:33	2450.2	2450.2	20.6
	17:12	2155.2	2155.2	2.2	14:06	2449.4	2449.4	23.1
	17:28	2210.8	2210.8	2.5	18:31	2448.1	2448.1	27.5
	17:46	2252.6	2252.6	2.8	23:21	2446.6	2446.6	32.3
	17:58	2290.6	2290.6	3.0	4:21	2450.1	2450.1	37.3
	18:20	2353.9	2353.9	3.3	9:07	2451.5	2451.5	42.1
	18:51	2427.6	2427.6	3.9	14:37	2449.8	2449.8	47.6
	19:26	2506.8	2506.8	4.4	20:22	2453.8	2453.8	53.4
	19:51	2557.8	2557.8	4.8	2:26	2457.5	2457.5	59.4
	20:14	2610.5	2610.5	5.2	9:17	2464.0	2464.0	66.3
	20:40	2659.7	2659.7	5.7	16:28	2461.8	2461.8	73.5
	20:55	2690.5	2690.5	5.9	23:54	2466.1	2466.1	80.9
	21:15	2727.2	2727.2	6.3	9:11	2471.1	2471.1	90.2
	21:23	2742.3	2742.3	6.4	14:04	2473.0	2473.0	95.1
	21:38	2750.1	2750.1	6.6	15:00	2472.7	2472.7	96.0

LUB IN DWT = 532 PSI / OUT = 1605 PSI
 LUB IN AMERADA = 504 PSI / OUT = 1594 PSI

KANOWANA #3 BUILD-UP MARCH 1991
ELEMENT #60322 (TOP) @ 8988'KB



000131

SUB-SURFACE PRESSURE SURVEY

000132

CO.		RUN 02 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 8994'
CASING	-	CASING PRESS	ON BOTTOM 1050 8/3
LINER	-	TUBING PRESS	OFF BOTTOM 1500 12/3
DATE	910308	ELEMENT RANGE 0 - 5211	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1500 8/3
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 59451	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	15:00	923.8	923.8	.0	21:51	2763.1	2763.1	6.9
	15:04	973.4	973.4	.1	21:59	2754.4	2754.4	7.0
	15:05	1044.3	1044.3	.1	22:05	2746.0	2746.0	7.1
	15:07	1120.6	1120.6	.1	22:11	2736.1	2736.1	7.2
	15:11	1210.7	1210.7	.2	22:22	2720.1	2720.1	7.4
	15:13	1306.0	1306.0	.2	22:33	2707.2	2707.2	7.5
	15:17	1380.9	1380.9	.3	22:46	2685.3	2685.3	7.8
	15:21	1455.8	1455.8	.3	23:04	2664.3	2664.3	8.1
	15:27	1546.0	1546.0	.5	23:25	2640.2	2640.2	8.4
	15:32	1604.6	1604.6	.5	23:45	2617.9	2617.9	8.8
	15:41	1699.3	1699.3	.7	0:16	2600.5	2600.5	9.3
	15:53	1814.9	1814.9	.9	1:12	2577.1	2577.1	10.2
	16:05	1883.3	1883.3	1.1	1:55	2549.7	2549.7	10.9
	16:17	1946.3	1946.3	1.3	2:49	2528.3	2528.3	11.8
	16:27	2010.3	2010.3	1.5	4:12	2502.4	2502.4	13.2
	16:45	2090.3	2090.3	1.8	5:31	2488.8	2488.8	14.5
	17:05	2154.1	2154.1	2.1	7:20	2472.8	2472.8	16.3
	17:21	2200.0	2200.0	2.4	10:07	2461.9	2461.9	19.1
	17:38	2244.3	2244.3	2.6	13:23	2460.4	2460.4	22.4
	17:57	2300.8	2300.8	2.9	16:46	2458.8	2458.8	25.8
	18:21	2359.6	2359.6	3.4	20:28	2457.0	2457.0	29.5
	18:56	2443.0	2443.0	3.9	0:27	2456.2	2456.2	33.5
	19:17	2490.7	2490.7	4.3	3:13	2461.1	2461.1	36.2
	19:40	2543.3	2543.3	4.7	7:13	2459.3	2459.3	40.2
	20:03	2595.9	2595.9	5.1	11:17	2462.6	2462.6	44.3
	20:34	2656.1	2656.1	5.6	17:34	2459.6	2459.6	50.6
	21:07	2712.9	2712.9	6.1	23:07	2463.7	2463.7	56.1
	21:29	2743.9	2743.9	6.5	5:22	2466.0	2466.0	62.4
	21:38	2753.3	2753.3	6.6	9:43	2466.8	2466.8	66.7
	21:45	2761.0	2761.0	6.8	13:54	2464.9	2464.9	70.9

000133

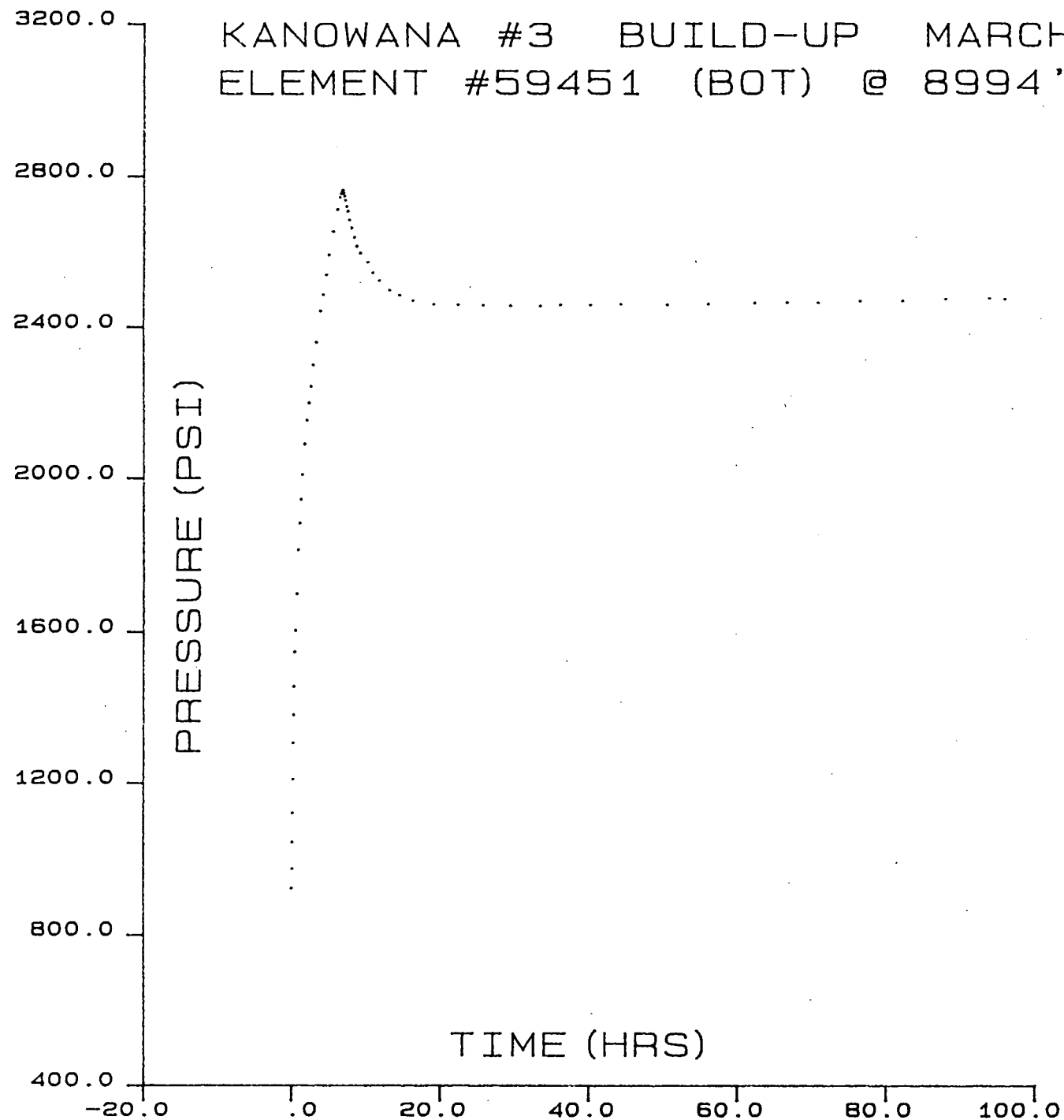
SURVEY DATA

CO.				RUN 02 FIELD KANOWANA				WELL 03			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
19:33	2471.3	2471.3	76.5	12:56	2478.5	2478.5	93.9				
1:17	2471.2	2471.2	82.3	15:00	2474.4	2474.4	96.0				
7:05	2476.8	2476.8	88.1	0:00	.0	.0	.0				

LUB IN DWT = 532 PSI / OUT = 1605 PSI

LUB IN AMERADA = 523 PSI / OUT = 1589 PSI

KANOWANA #3 BUILD-UP MARCH 1991
ELEMENT #59451 (BOT) @ 8994'KB



000134

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Wednesday, 13th March 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	Kanowana #3	Patchawarra

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	60322	5000	19/ 5/90
Bottom	59451	5000	19/ 5/90

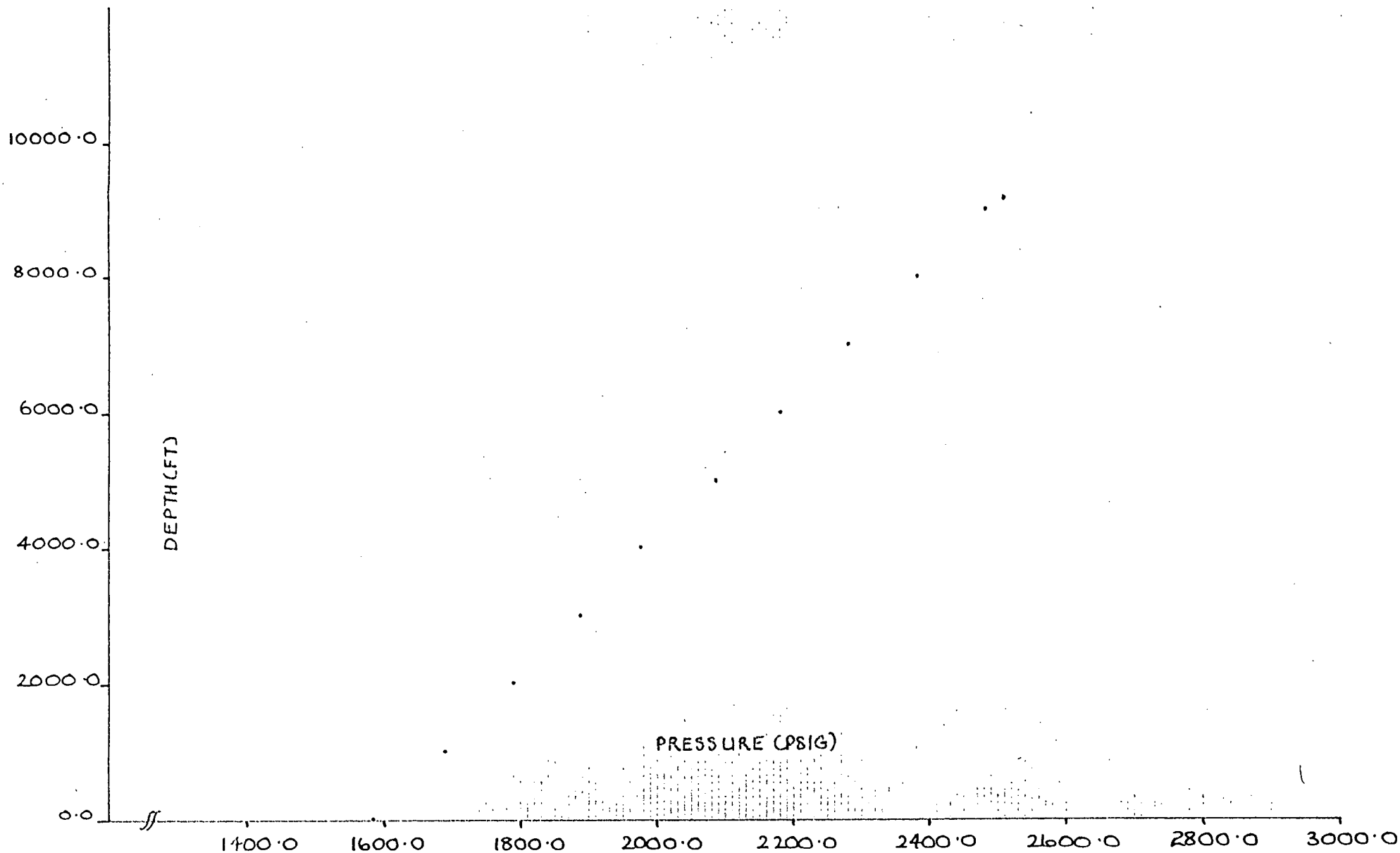
WELL DATA	
PARAMETER	VALUE
DWT In	1604 PSIG
DWT Out	1608 PSIG
Max BHT	Temp. E1 235°F

DEPTH FT. KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6210	1582.4	----	0.6130	1585.7	----
1000	0.6630	1689.8	0.107	0.6530	1690.0	0.104
2000	0.7010	1786.9	0.097	0.6910	1789.1	0.099
3000	0.7400	1886.6	0.100	0.7290	1888.1	0.099
4000	0.7780	1983.7	0.097	0.7620	1974.1	0.086
5000	0.8160	2080.9	0.097	0.8050	2086.2	0.112
6000	0.8540	2178.1	0.097	0.8410	2180.1	0.094
7000	0.8930	2277.9	0.100	0.8800	2281.7	0.102
8000	0.9310	2375.2	0.097	0.9190	2383.4	0.107
9000	0.9710	2477.7	0.103	0.9570	2482.5	0.099
9162	0.9800	2500.8	0.142	0.9670	2508.6	0.161
LUB.	0.6250	1592.6	----	0.6170	1596.1	----

GENERAL REMARKS

Casing Press. 1611 psig.

KANOWANA # 3 — STATIC PRESSURE GRADIENT — 13/3/91
ELEMENT # 59451/5000 (BOT)



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217'

PAGE: / OF /

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA.

DATE: 13.3.91

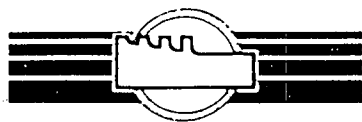
TEST TYPE : STATIC GRADIENT

OPR : M Mueller.

TEST TYPE		STATIC GRADIENT		TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)
GAUGE DATA				UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE			
ELEMENT SERIAL NO.				60322	59451	29217	DATE : 13.3.91	
ELEMENT RANGE				5000 PSI	5000 PSI	14.4-400 °F	PRESSURE LUBRICATOR :	0920 11073 11101
RECORDING SECTION SERIAL NO.				12952	13028	14633	RUN IN HOLE :	0945 11073 11101
DATE OF CALIBRATION:				19.5.90	19.5.90	N/A.	ON DEPTH AT : 9/62 FT/M	1047 11086 11115
CLOCK SERIAL NO.				A-15014	A15013	A15012	DATE : 13.3.91	
CLOCK RANGE				3HR	3HR	3HR.	PULL OUT OF HOLE :	1052 11080 11115
LEAD SCREW TYPE				15 TLS	15 TLS	15 TLS	AT SURFACE :	1109 11087 11129
							DEPRESSURE LUBRICATOR :	1124 11087 11129
ENGAGE STYLUS	DATE	13.3.91	TIME	0913	0913	0913	MAXIMUM BHT AT FT/M = 235 °F	
DISENGAGE STYLUS	DATE	13.3.91	TIME	1129	1129	1129	N.B. ALL DEPTHS ARE MEASURED FROM K.B.	

[illegible]

000137



BHP/BHT GAUGE RUN DATA

CUSTOMER :

SANTOS

PERFORATIONS:

9108 - 9217

PAGE:

1 OF 1

WELL NAME:

KANOWANA #3

FORMATION :

PATCHAWARRA

DATE:

8.3.91

TEST TYPE :

BHPS

OPR :

M. MUELLER

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)

ELEMENT SERIAL NO.

60322

59451

29217

DATE

8.3.91

ELEMENT RANGE

5000 PSI

5000 PSI

144 - 400 °F

PRESSURE LUBRICATOR

0830

3668

3923

RECORDING SECTION SERIAL NO.

12952

13028

14633

RUN IN HOLE

1030

3667

3916

DATE OF CALIBRATION:

19.5.90

19.5.90

N/A.

ON DEPTH AT

9000 FT/M

1050

3654

3937

CLOCK SERIAL NO.

#5

#4

F-15694

DATE

12.3.91

CLOCK RANGE

120 HR

120 HR

120 HR

PULL OUT OF HOLE

1500

11053

11094

LEAD SCREW TYPE

15 T/S

15 T/S

15 T/S

AT SURFACE

1518

11066

11108

DEPRESSURE LUBRICATOR

1818

11086

11108

ENGAGE STYLUS

DATE

8.3.91

TIME

0820

0820

0820

MAXIMUM BHT AT

FT/M = N/A

°F/C Temp clock malfunctioned

DISENGAGE STYLUS

DATE

13.3.91

TIME

0845

0845

0845

N.B. ALL DEPTHS ARE MEASURED FROM K.B.

DATE

TIME

REMARKS

8/3/91

1500

Shut well in

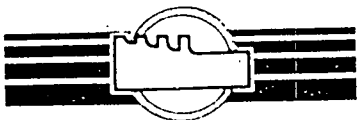
IN 104T

① 504/ 1594

② 523/ 1589

000138

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217'

PAGE: 1 OF 1

WELL NAME: KANOWANA #3

FORMATION : PATCHANARRA.

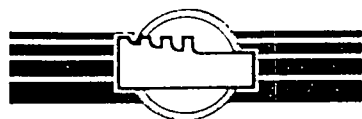
DATE: 7.3.91

TEST TYPE : B.H.P.S

OPR: M. MUELLER.

DATE/TIME	DESCRIPTION OF EVENTS
7.3.91	
1530	ARRIVE ON LOCATION & RIG IN WIRELINE UNIT
1640	CARAVAN ARRIVES LOCATION TRUCK GETS BOGGED ON LEASE (LEASE CONDITION POOR)
	DIG TRUCK OUT.
1730	LEAVE LOCATION
8.3.91	
0710	FIELD OPERATOR SHUT WELL IN FIT SWAB VALVE.
0730	RUN IN HOLE WITH 1.75" BLIND BOX
0752	TAG PSTD (2) 10260' KB NO OBSTRUCTIONS P.O.O.H.
0815	IN LUBRICATOR.
0830	PRESSURE LUBRICATOR WITH PRESSURE GAUGES & TEMP GAUGE. SEE GAUGE RUN DATA SHEET
1050	ON DEPTH (2) 9000' KB WELL FLOWING ON 100% CHOKE.
1500	SUI. START 96 HR BUILD UP.
12.3.91	
1500	PULL ELEMENTS OUT OF HOLE END BUILD UP.
1518	IN LUBRICATOR.
1818	DEPRESSURE. LUBRICATOR.
13.3.91	
0945	RUN STATIC GRADIENT SEE ATTACHED REPORT.
1130	RIG OUT END SURVEY. HAND WELL BACK TO PRODUCTION.

000189



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217'

PAGE: 1 OF 3

WELL NAME: KANGUWA # 3

FORMATION : PATCHAWARRA

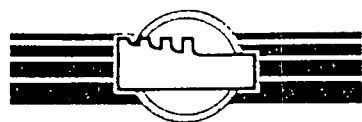
DATE: 8.3.91

TEST TYPE : B.H.P.S

OPR : J. J. L. L. L.

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³		
8.3.91															
0930		3668	3923	46	100%	PRESSURE LUBRICATOR HANG BOMBS FOR 1 HOUR.									
0930		3675	3930	48	"	DEPRESSURE LUBRICATOR FOR 1 HOUR.									
1030		3661	3916	47	"	PRESSURE LUBRICATOR & RUN IN HOLE									
1050		3654	3937	47	"	ON DEPTH (2) 9000' KB WELL FLOWING oil 100% CHOKED.									
1100		3654	3937	47	"										
1130		3654	3923	47	"										
1200	1	3661	3916	45	"										
1230		3668	3923	46	"										
1300	2	3668	3944	46	"										
1330		3668	3944	47	"										
1400	3	3682	3951	46	"										
1430		3682	3958	46	"										
1500	4	3668	3958	46	"	SWI FOR 96 HR BUILD UP.									
1515		6757	4909												
1530		7915	6137												
1545		8529	7198												
1600	1	8984	8150												
1615		9350	8881												
1630		9646	9405												
1645		9901	9763												
1700	2	10080	10012												

000140



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108 - 9217

PAGE: 2 OF 3

WELL NAME: KANDIJANA #3

FORMATION : PATCHAWARRA

DATE: 8.3.91

TEST TYPE : BHPS

OPR : M. MUELLER.

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (B81/KPa)	ANNULUS PRESSURE (B81/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³		
5.3.91															
1715		10274	10218												
1730		10446	10398												
1745		10632	10591												
1800	3	10791	10756												
1815		10963	10935												
1830		11108	11094												
1845		11266	11246												
1900	4	11404	11391												
2300	8	11839	11873												
9.3.91															
0300	12	11356	11391												
0700	16	11163	11197												
1100	20	11101	11135												
1500	24	11101	11135												
1900	28	11087	11129												
2300	32	11073	11108												
10.3.91															
0300	36	11060	11101												
0700	40	11053	11094												
1100	44	11060	11087												
1500	48	11066	11161												

000141



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217'

PAGE: 3 OF 3

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA.

DATE: 11.3.91

TEST TYPE : BHPS

OPR : M MUELLER.

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³		
10.3.91															
1900	52	11060	11101												
2300	56	11053	11094												
11.3.91															
0300	60	11046	11087												
0700	64	11046	11087												
1100	68	11046	11087												
1500	72	11060	11094												
1900	76	11046	11087												
2300	80	11046	11087												
12.3.91															
0300	84	11046	11094												
0700	88	11046	11094												
1100	92	11046	11094												
1500	96	11053	11094												
1518		11066	11108												
1618		11060	11094												
1818															
13.3.91															
0945															
1130															

PULL GAUGES OUT OF HOLE. END BUILD UP.

IN LUBRICATOR & DEPRESSURE.

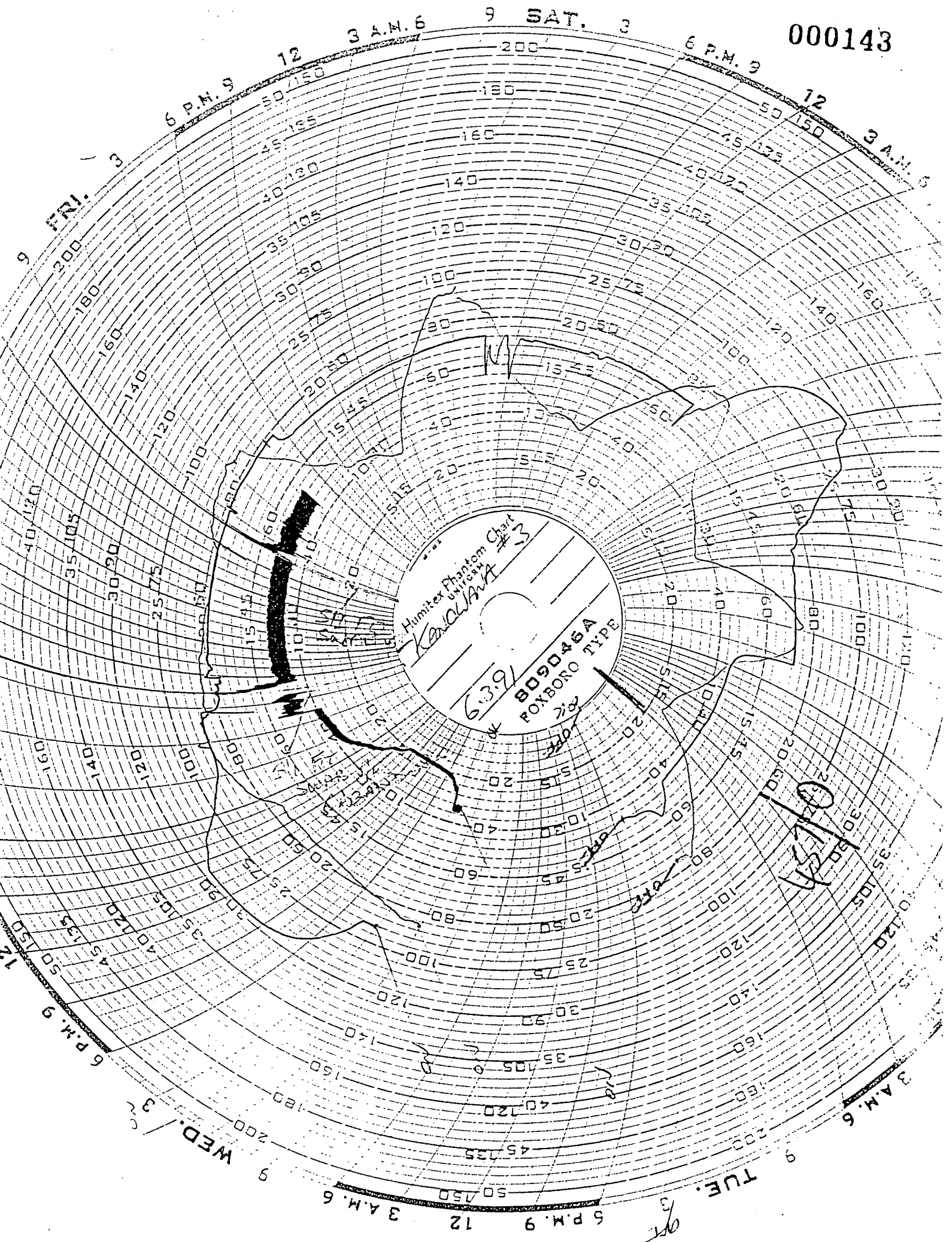
PRESSURE LUBRICATOR. * NOTE (LUBRICATOR NOT PRESSURED UP PROPERLY. SWAB VALVE DEPRESSURE. LUBRICATOR. WAS OPENED BUT NOT MASTER VALVE, EXTEND LUB STOP 1 HR.)

RUN STATIC GRADIENT. SEE ATTACHED REPORT.

RIG OUT. END SURVEY. HAND WELL BACK TO PRODUCTION.

000142

000143



SANTOS

Location <u>KANOLASA #3</u>				Meter Number <u>5461925</u>			
From Time <u>1325</u>		a.m. p.m. Date <u>6/3/91</u>		To Time <u>1440</u>		a.m. p.m. Date <u>12/3/91</u>	
Meter Run Diam. <u>73.66</u>		Orifice Plate Diam. <u>40.0</u>		Orifice Plate No.			
Chart on by: <u>T. Powell</u>				Chart off by: <u>REP</u>			
Remarks <u>0-10</u> 0-20 MPa BLUE 0-50 KPa RED 0-150 C GREEN							
WELL ON TEST YES ☐				NO ☐			
				CHOKE SETTING ☐			

000144

Kanowana #3

000146

L.E.T. Bottomhole Pressure Survey

22 - 30 August 1992

Liquids Evaluation Test

22-08-92 Commence L.E.T. - monitor flow rates from 1300 hours.

24-08-92 Ran in with amercadas and reached hang depth 9080' KB.
@ 1200 hours. Continued monitoring flow rates until 1600 hours.

$$Q_g = 2.588 \text{ MMSCFD} = 72.926 \text{ } 10^3 \text{ m}^3/\text{d}$$

$$Q_c = 5.214 \text{ m}^3/\text{d}$$

$$Q_w = 3.000 \text{ m}^3/\text{d}$$

Pressure Buildup

24-08-92 Shut well in @ 1600 hours for buildup. Monitored pressures until 0615 hours on 29-08-92 for a buildup time of 110 hours 15 min.

Element # 28904 @ 9068 ft. KB.

B.H.F.P. @ shut-in = 934.1 psig (6441 kPag)

S.I.B.H.P. final = 2267.2 psig (15632 kPag)

Element # 29216 @ 9080 ft. KB.

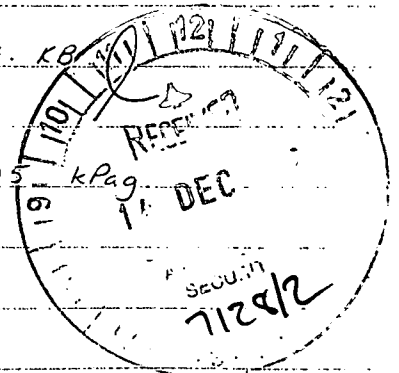
Max. B.H.T. = 253.6 °F

Static Gradient

30-08-92 A static gradient was run to 9162 ft. KB.

Element # 28904 @ 9162 ft. KB.

S.I.B.H.P. = 2324.2 psig = 16025 kPag



IDEAL BOSS

SUB-SURFACE PRESSURE SURVEY

000147

CO. SANTOS		RUN 01 FIELD KANOWANA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 9068 FT-KB
CASING	-	CASING PRESS	ON BOTTOM 1200 920824
LINER	-	TUBING PRESS	OFF BOTTOM 0615 920829
DATE	920824	ELEMENT RANGE 0 - 5182	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1600 920824
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 28904	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BOTTOMHOLE PRESSURE BUILDUP

SURVEY DATA

CO. SANTOS				RUN 01 FIELD KANOWANA				WELL 03			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
16:00	934.1	934.1	.0	21:35	2056.3	2056.3	5.6				
16:07	1030.2	1030.2	.1	22:10	2044.0	2044.0	6.2				
16:10	1100.8	1100.8	.2	23:57	2042.8	2042.8	8.0				
16:14	1173.8	1173.8	.2	2:22	2045.6	2045.6	10.4				
16:14	1281.5	1281.5	.2	4:47	2053.0	2053.0	12.8				
16:18	1365.0	1365.0	.3	7:56	2065.9	2065.9	15.9				
16:26	1409.1	1409.1	.4	11:28	2077.8	2077.8	19.5				
16:26	1473.7	1473.7	.4	14:56	2088.1	2088.1	22.9				
16:26	1512.8	1512.8	.4	18:37	2096.8	2096.8	26.6				
16:37	1553.1	1553.1	.6	23:32	2115.0	2115.0	31.5				
16:37	1606.8	1606.8	.6	4:32	2129.0	2129.0	36.5				
16:50	1656.4	1656.4	.8	9:15	2138.0	2138.0	41.2				
16:54	1695.9	1695.9	.9	13:59	2150.8	2150.8	46.0				
16:59	1730.0	1730.0	1.0	19:00	2164.0	2164.0	51.0				
17:05	1761.7	1761.7	1.1	0:13	2175.2	2175.2	56.2				
17:12	1796.5	1796.5	1.2	5:34	2189.8	2189.8	61.6				
17:19	1829.7	1829.7	1.3	11:05	2197.2	2197.2	67.1				
17:27	1850.7	1850.7	1.4	16:08	2208.5	2208.5	72.1				
17:39	1884.3	1884.3	1.6	21:29	2216.6	2216.6	77.5				
17:51	1910.2	1910.2	1.8	1:28	2222.9	2222.9	81.5				
17:59	1925.7	1925.7	2.0	5:19	2229.1	2229.1	85.3				
18:11	1943.2	1943.2	2.2	10:33	2238.5	2238.5	90.5				
18:25	1958.6	1958.6	2.4	17:03	2247.3	2247.3	97.1				
18:43	1973.2	1973.2	2.7	23:33	2257.5	2257.5	103.5				
19:00	1989.8	1989.8	3.0	4:43	2263.3	2263.3	108.7				
19:21	2009.8	2009.8	3.4	6:15	2267.2	2267.2	110.2				
19:47	2024.3	2024.3	3.8	11:56	920.1	920.1	-4.1				
20:13	2038.6	2038.6	4.2	12:08	937.2	937.2	-3.9				
20:43	2045.5	2045.5	4.7	12:27	920.8	920.8	-3.5				
21:13	2056.5	2056.5	5.2	12:48	934.9	934.9	-3.2				

SURVEY DATA

000148

CO. SANTOS

RUN 01 FIELD KANOWANA

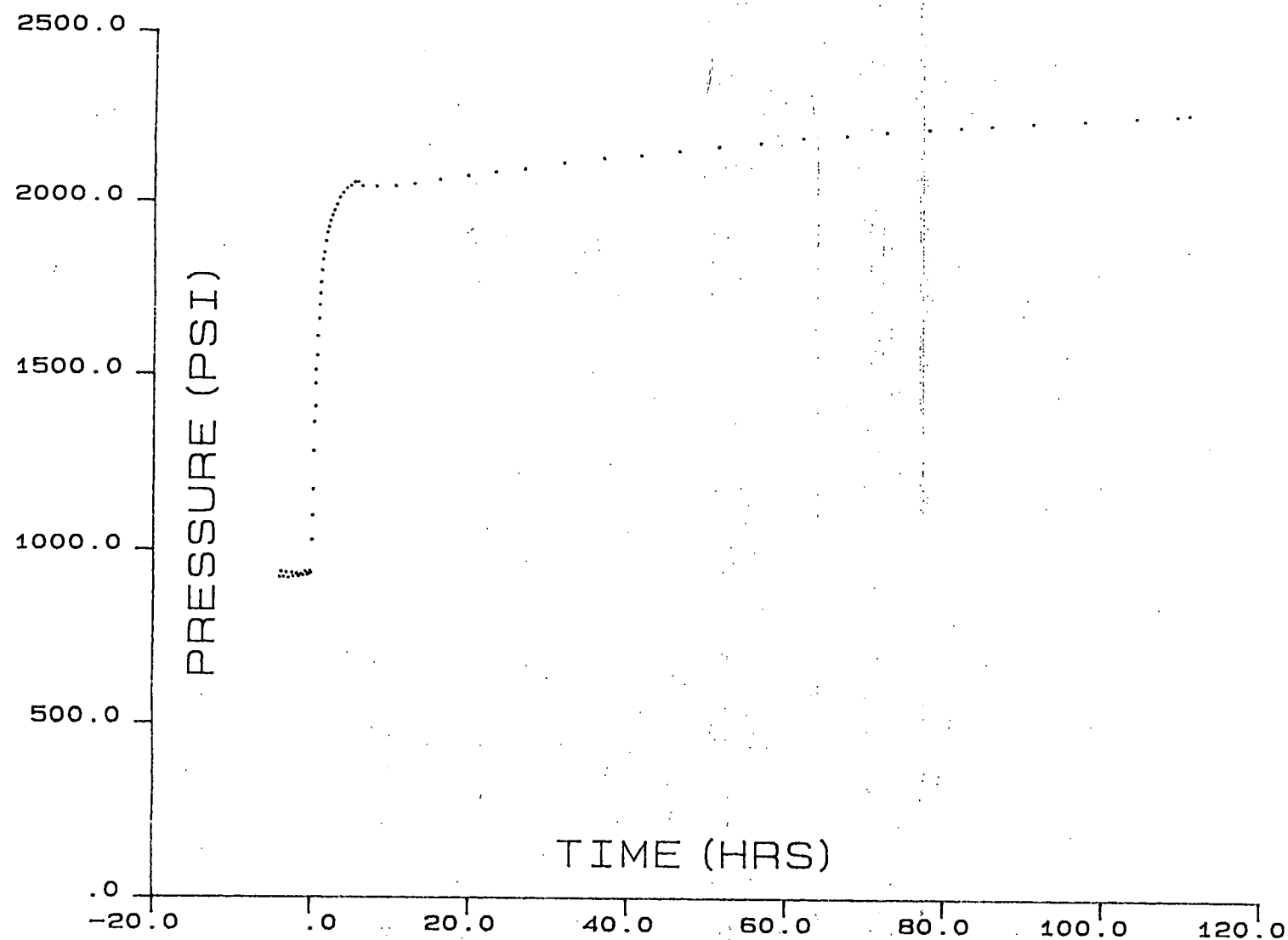
WELL 03

TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
13:03	918.8	918.8	-2.9	14:41	930.3	930.3	-1.3
13:29	934.5	934.5	-2.5	14:56	925.0	925.0	-1.1
13:40	921.0	921.0	-2.3	15:15	937.4	937.4	-.8
14:03	931.5	931.5	-1.9	15:31	927.5	927.5	-.5
14:20	922.3	922.3	-1.7	15:47	938.6	938.6	-.2

LUB IN DWT = 470 PSI / OUT = 1477 PSI

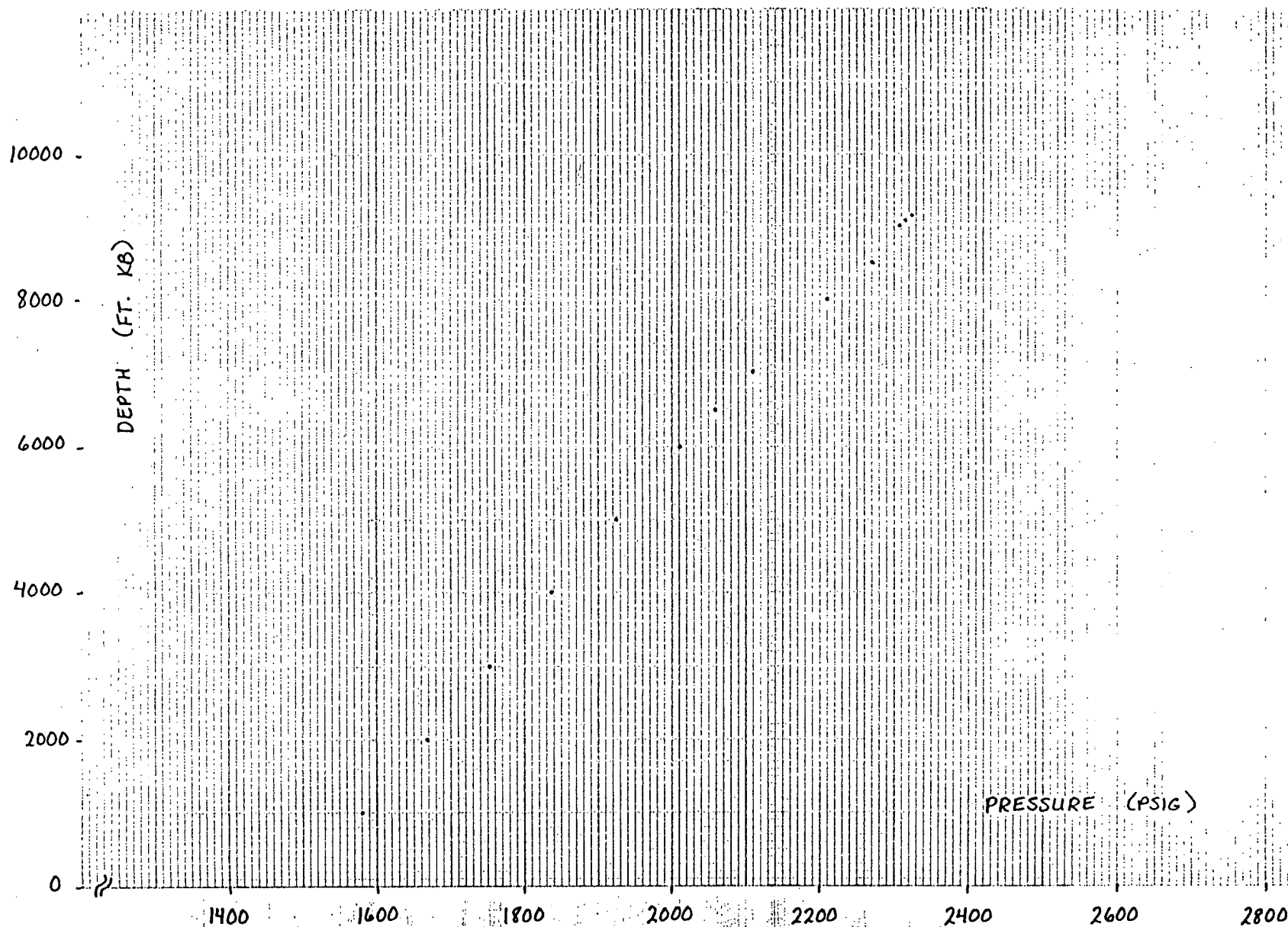
LUB IN AMERADA = 472 PSI / OUT = 1470 PSI

KANOWANA 3 BOTTOMHOLE PRESSURE SURVEY
24 - 29 AUGUST 1992.
ELEMENT #28904 @ 9068 FT KB

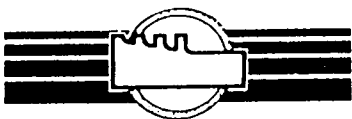


000149

KANOWANA # 3 - STATIC PRESSURE GRADIENT - 30/08/92.
ELEMENT #28904 (TOP)



000150



SEQUENCE OF EVENTS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 2

WELL NAME: Kanowana #3

FORMATION : Patchaworra

DATE: 22nd Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

DATE/TIME	DESCRIPTION OF EVENTS
22nd August 1992.	
0830	M.I.R.U. wireline unit and test equipment.
0945	R.I.H with 1.75" BB.
1030	P.B.T.D @ 10240' KB No obstructions.
	P.O.O.H.
1110	At surface with toolstring. Depressure Lub.
	Continue to rig in Test Equipment.
1230	Divert well flow through separator 100% choke
1300	Commence L.E.T monitor flow rates
23rd Aug 1992	
0600	Continue to monitor flow rates
24th Aug 1992	
0900	Prepare Gauges for B.H.P.S and collect 2 x 0.5 lt water samples.
0920	Engage stylus.
0930	Pressure Lubricator.
1030	Depressure Lub.
1130	Pressure Lub, R.I.H with tandem 5000psi pressure gauges and Temperature gauge
1200	At hang depth at 9080' KB.
	Monitor Rates and pressures as per program.
1600	L.E.T completed, Shut in well for 96 hr Build up
	Monitor Buildup pressures.
	Rig down test equipment.

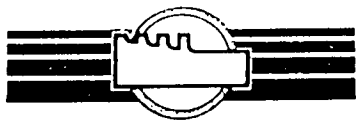
Note: Tubing - 470 psi

Annulus - 530 psi

surface Casing - 109 psi

000151

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 2 OF 2

WELL NAME: Kanowana #3

FORMATION : Patchowarra

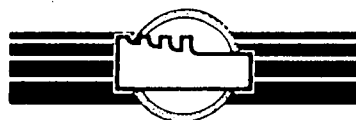
DATE: 24th Aug 1992

TEST TYPE : L.E.T & B.H.P.S

OPR: B. Potter

DATE/TIME	DESCRIPTION OF EVENTS
24 th Aug 1992	
1800	WELL SHUT IN FOR BUILD UP - SEE TEST SHEETS.
25-28/AUG/1992	
	WELL ON BUILD UP - SEE TEST SHEETS
29/AUG/1992	
0615	PULL GAUGES OUT OF HOLE
0640	AT SURFACE - DEPRESSURE LUBE
0710	PRESSURE UP LUBE
0730	S.I.W. - CREW TO MOOMISA, WEATHER RAINY. SHUT IN WELL IN CASE UNABLE TO RETURN.
30 AUG 1992	* NOTE * GAUGES REMAINED IN LUBRICATOR WITH WELL SHUT IN AT MASTER VALVE.
1344	ARRIVE ON LOCATION.
1350	DEPRESSURE LUBRICATOR.
1402	DISENGAGE STYLUS.
1405	PREPARE GAUGES FOR STATIC GRADIENT SURVEY.
1410	ENGAGE STYLUS.
1425	PRESSURE UP LUBRICATOR.
1440	PRESSURE UP LUBRICATOR & R.I.H.
1626	BOTTOM GRADIENT STOP AT 9162' KB.
1636	P.O.O. H.
1656	AT SURFACE.
1721	DISENGAGE STYLUS - RECOVER CHARTS - CHARTS OK.
1725	RIG DOWN WIRE LINE UNIT.
1755	SECURE LEASE - LEAVE LOCATION

000152



TEST RESULTS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 4

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 22nd Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION					
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³10³	OIL BBLs m³	WATER BBLs m³		L. G. R. m³ / 10m³	
22nd	Aug	1992														
1300	0	3296	3689	57	100	Commence L. E. T.										
1500		3289	3689	51		3020	53	71.84	3.20	1.60		267	133		67	
1700		3282	3710	47		3041	52	74.17	6.41	0.80		801	200		97	
1900	6	3261	3668	47		3035	52	74.68	6.41	0.80		1335	267		96	
2100		3234	3654	47		2999	52	71.66	6.41	3.20		1869	534		134	
23rd	Aug	1992														
0100		3206	3654	46		2965	51	73.86	5.21	3.60		2737	1135		119	
0500	16	3254	3682	47		3006	52	73.63	5.21	3.20	48.87	3605	1669		114	
0700		3268	3689	47		2999	51	74.40	5.61	3.20		4072	1936		118	
0900		3254	3689	48		3034	52	72.81	4.81	3.20		4472	2203		110	
1100		3275	3689	45		3034	51	71.80	4.81	3.20		4872	2470		112	
1300	24	3268	3682	50		3034	51	74.95	4.81	3.20		5272	2737		107	
1500		3241	3668	48		3020	51	72.54	4.81	3.20		5672	3004		110	
1700		3254	3675	45		3034	50	73.34	5.61	3.20		6139	3271		120	
1900	30	3254	3675	40		3020	49	74.65	5.61	3.20		6606	3538		118	
2100		3227	3675	40		2992	49	71.69	4.81	3.20		7006	3805		112	
24th	Aug	1992														
0100		3234	3654	38		2965	48	74.04	5.21	3.20		7874	4339		114	
0500	40	3240	3654	38		2992	48	71.63	4.81	3.60	122.05	8675	4940		117	
0700		3240	3654	38		3006	48	74.08	6.41	3.20		9209	5207		130	

000153

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 2 OF 4

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

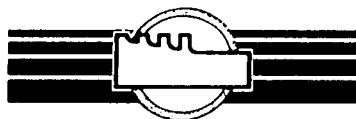
DATE: 24th Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

TIME		WELLHEAD DATA				separator		FLOW RATES			CUMULATIVE PRODUCTION			L.G.R. m ³ /km ³
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	
24 th Aug 1992														
0900	44	3240	3654	35	100	3034	48	75.47	5.61	3.20		9.676	5.474	117
		Prepare Gauges for B.H.P.S. & collect samples as per program												
1100		3240	3689	40		2999	48	71.41	3.20	3.20		9.943	5.741	90
1130		3240	3689	40	R.I.H with gauges.									
1200		3261	3689	40	At hang depth at 9080' KB.									
1230		3261	3689	42										
1300	48	3261	3689	45		3027	50	74.49	4.81	3.20		10.344	6.008	108
1330		3241	3689	44										
1400		3241	3689	43										
1430		3241	3689	43										
1500		3275	3689	41		3103	49	73.72	6.81	2.80		10.911	6.242	130
1530		3296	3723	41										
1600	51	3296	3723	41		3068	50	71.94	4.00	3.20	155.75	11.078	6.375	130
		Shut in well for 96 hr Build up.												
1615		6123	6123											
1630		7550	7550											
1645		8101	8101											
1700	1	8426	8426											
1715		8757	8757											
1730		8895	8895											
1745		8963	8963											

000154



CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 3 OF 4

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 24th Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

TIME		WELLHEAD DATA				FLOW RATES					CUMULATIVE PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³	
24 th Aug 1992														
1800	2	9032	9032											
1815		9101	9101											
1830		9170	9170											
1845		9226	9226											
1900		9281	9281											
1915		9329	9329											
1930		9377	9377											
1945		9419	9419											
2000	4	9446	9446											
2400		9605	9605											
25 th Aug 1992														
0400	12	9556	9556											
0800	16	9605	9605											
1200		9639												
1600	24	9687	} readings taken from wellhead recorder											
2000		9722												
2400		9750	9750											
26 th Aug 1992														
0400	36	9784	9784											
0800	40	9825	9825											
1200	44	9860	9860											

000155

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 9108' - 9217' K.B.

PAGE: 4 OF 4

WELL NAME: KANOWANA #3

FORMATION : PATCHAWARRA

DATE: 26/8/92

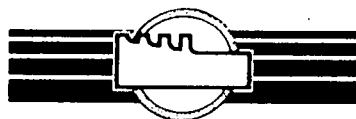
TEST TYPE : L.E.T. & B.H.P.

OPR : B. POTTER

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /D	OIL BBLS m ³	WATER BBLS m ³		
26/8/92															
1600	48	9894	9894												
2000	52	9922	9929												
2400	56	9949	9963												
27/8/92															
0400	60	9977	9990												
0800	64	10005	10012												
1200	68	10012	10018												
1600	72	10025	10032												
2000	76	10046	10053												
2400	80	10073	10080												
28/8/92															
0400	84	10087	10093												
0800	88	10108	10115												
1200	92	10122	10136												
1600	96	10136	10143												
2000	100	10149	10163												
2400	104	10163	10177												
29/8/92															
0400	108	10177	10191												
0615		10184	10198	PULL GAUGES OUT OF HOLE - SEE B.H.P. REPORT PAGE #1 FOR DETAILS.											

000156

EXPERTEST PTY. LTD.



FIELD READINGS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 3

WELL NAME: Kanowana #3

FORMATION : Patchawarra

DATE: 22nd August 1992

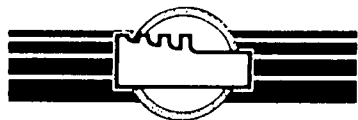
TEST TYPE : L. E. T & B. H. P. S.

OPR : B. Potter

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
22nd Aug 1992														
0830		M.I.R.V. wire line unit and test equipment.												
0945		R.I.H with 1.75" B.B.												
1030		P.B.T.D. @ 10240' KB, No obstructions, P.O.O.H.												
1110		At surface with Toolstring, Depress Lub.												
		Continue to rig in test equipment.												
1230		3268	3723	57	100									
1300	0	3296	3689	57	100									
1500		3289	3683	51		-	1.50"	438	114	127	1.5	1.0	50.5	0.5
1700		3282	3710	47				441	120	126	3.75	3.0		0.75
1900	6	3261	3668	47				440	122	126	6.0	5.0		1.0
2100		3234	3654	47				435	114	126	9.0	7.0		2.0
23rd Aug 1992														
0100		3206	3654	46				430	122	124	14.5	10.25		4.25
0500	16	3254	3682	47				436	120	126	19.75	13.5		6.25
0700		3268	3689	47				435	122	124	22.5	15.25		7.25
0900		3254	3689	48				440	116	126	25.0	16.75		8.25
1100		3275	3689	45				440	112	124	27.5	18.25		9.25
1300	24	3268	3682	50				440	122	124	30.0	19.75		10.25
1500		3241	3668	48				438	115	124	32.5	21.25		11.25
1700		3254	3675	45				440	116	122	35.25	23.0		12.25

000157

000157



FIELD READINGS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108'-9217' KB

PAGE: 2 OF 3

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 23rd Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
23rd August 1992														
1900	30	3254	3675	40	100	—	1.50"	438	120	120	38.0	24.75	50.5	13.25
2100		3227	3675	40				434	112	120	40.5	26.25		14.25
24th Aug 1992														
0100		3234	3654	38				430	120	118	45.75	29.5		16.25
0500	40	3240	3654	38				434	111	118	51.0	32.5		18.5
0700		3240	3654	38				436	118	118	54.0	34.5		19.5
0900		3240	3654	35				440	121	118	56.75	36.25		20.5
		Prepare Gauges for B.H.P.S. & collect samples as per program												
0930		3240	3654	35	Pressure lub.									
1030		3240	3654	36	Depressure lub.									
1100		3240	3689	40				435	110	118	58.75	37.25		21.5
1130		3240	3689	40	Pressure Lubricator									
		R.I.H Tandem 5000 psi pressure gauges and Temp Gauge.												
1200		3261	3689	40	At hang depth @ 9080' KB.									
1230		3261	3689	42										
1300	48	3261	3689	45				439	120	122	61.25	38.75		22.5
1330		3241	3689	44										
1400		3241	3689	43										
1430		3241	3689	43										
1500	50	3275	3689	41				450	113	120	64.25	40.875		23.375

000153

000158

FIELD READINGS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KR

PAGE: 3 OF 3

WELL NAME: Kano wana # 3

FORMATION : Patchawarra

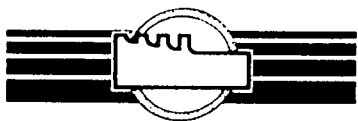
DATE: 24th Aug 1992

TEST TYPE : L. E. T & B. H. P. S.

OPR : B. Potter

[illegible]

EXPERTEST PTY. LTD.



LIQUID PRODUCTION

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 2

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 22nd Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

TANK NUMBER	#1 = # 56	TANK CAPACITY	#1 = 56.6	bbls/m ³	TANK SCALE	#1 = 1' = 0.267 m ³	bbls/in - m ³ /cm	OIL API GRAVITY = 50.5 @ 60°F			
	#2 =		#2 =	bbls/m ³		#2 =	bbls/in - m ³ /cm				
DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/CM)	TANK PRODUCTION (BBL/S/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBL/S/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBL/S/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBL/S/m ³)
22nd Aug 1992											
1300	0	# 56	0.0	0.0	Initial	oil dip		0.0	Initial	water dip	
1500			1.5	1.0	.267	3.20	.267	0.5	.133	1.60	.133
1700			3.75	3.0	.534	6.41	.801	0.75	.067	0.80	.200
1900	6		6.0	5.0	.534	6.41	1.335	1.0	.067	0.80	.267
2100			9.0	7.0	.534	6.41	1.869	2.0	.267	3.20	.534
23rd Aug 1992											
0100			14.5	10.25	.868	5.21	2.737	4.25	.601	3.60	1.135
0500	16		19.75	13.5	.868	5.21	3.605	6.25	.534	3.20	1.669
0700			22.5	15.25	.467	5.61	4.072	7.25	.267	3.20	1.936
0900			25.0	16.75	.400	4.81	4.472	8.25	.267	3.20	2.203
1100			27.5	18.25	.400	4.81	4.872	9.25	.267	3.20	2.470
1300	24		30.0	19.75	.400	4.81	5.272	10.25	.267	3.20	2.737
1500			32.5	21.25	.400	4.81	5.672	11.25	.267	3.20	3.004
1700			35.25	23.0	.467	5.61	6.139	12.25	.267	3.20	3.271
1900	30		38.0	24.75	.467	5.61	6.606	13.25	.267	3.20	3.538
2100			40.5	26.25	.400	4.81	7.006	14.25	.267	3.20	3.805
24th Aug 1992											
0100			45.75	29.5	.868	5.21	7.874	16.25	.534	3.20	4.339
0500			51.0	32.5	.801	4.81	8.675	18.5	.601	3.60	4.940

LIQUID PRODUCTION

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 2 OF 2

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 24th Aug 1992

TEST TYPE : L.E.T. & B.H.P.S

OPR : B. Potter

TANK	#1 = #56
NUMBER	#2 =

TANK	#1 =	56.6	bbls/m ³
------	------	------	---------------------

TANK #1 = 1" = 0.267 m³ @ 15/100 in - m³/cm

OIL API GRAVITY = 50.5 @ 60°F

CAPACITY #2 = bbls/m³

SCALE	#2 =	bbls/in - m ³ /cm
-------	------	------------------------------

[illegible]

EXPERTEST PTY. LTD.



GAS FLOW CALCULATIONS

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 2

WELL NAME: Kanawana #3

FORMATION : Patchawarra

DATE: 22nd Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

ORIFICE METER TYPE: Daniels Snc

STATIC PRESSURE RANGE : 0-1500 PSIG

GAS SPECIFIC GRAVITY (SG) = 1.1664

METER RUN SIZE : 3.068

DIFFERENTIAL PRESS. RANGE: 0-200 IN WC

FG $\sqrt{(1/SG)}$ = 0.9259

SEPARATOR NO : V 459

STANDARD CONDITIONS : 14.73 PSI @ 60°F

C₂ (FU x FG) = 22.222

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{pv} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{pv}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
22nd Aug 1992															
1300	0	100	Commence	L.E.T.			472.95								
1500	2		453	114	127	1.50"	227.18		.9412	1.1272	1.0015	502.552	11167.8	2.537	71.84
1700			456	120	126		233.85		.9420	1.1294	1.0016	504.010	11200.2	2.619	74.17
1900	6		455	122	126		235.54		.9420	1.1290	1.0016	503.847	11196.6	2.637	74.68
2100			450	114	126		226.43		.9420	1.1270	1.0015	502.915	11175.9	2.530	71.66
23rd Aug 1992															
0100			445	122	124		232.93		.9436	1.1271	1.0016	503.868	11197.1	2.608	73.86
0500	16		451	120	126		232.57		.9420	1.1274	1.0016	503.131	11180.7	2.600	73.63
0700			450	122	124		234.24		.9436	1.1291	1.0016	504.759	11216.9	2.627	74.40
0900			455	116	126		229.67		.9420	1.1290	1.0015	503.806	11195.7	2.571	72.81
1100			455	112	124		225.68		.9436	1.1311	1.0015	505.590	11235.4	2.535	71.80
1300	24		455	122	124		235.54		.9436	1.1311	1.0016	505.658	11236.9	2.646	74.95
1500			453	115	124		228.18		.9436	1.1303	1.0015	505.250	11227.8	2.561	72.54
1700			455	116	122		229.67		.9452	1.1333	1.0015	507.463	11276.9	2.589	73.34
1900	30		453	120	120		233.08		.9468	1.1347	1.0016	508.991	11310.9	2.636	74.65
2100			449	112	120		224.18		.9468	1.1330	1.0015	508.180	11292.9	2.531	71.69
24th August															
0100			445	120	118		231.01		.9485	1.1335	1.0016	509.354	11318.9	2.614	74.04
0500	40		449	111	118		223.18		.9485	1.1352	1.0015	510.060	11334.7	2.529	71.63

CUSTOMER :	Santos Ltd	PERFORATIONS:	9108' - 9217' KB	PAGE: 2	OF 2
WELL NAME:	Kanowana #3	FORMATION :	Patchawarra	DATE:	24 th Aug 1992
TEST TYPE :	L.F.T & B.H.P.S			OPR :	B. Potter

ORIFICE METER TYPE:	Daniels Snc	STATIC PRESSURE RANGE :	0-1500	PSIG	GAS SPECIFIC GRAVITY (SG) =	1.1664
METER RUN SIZE :	3.068"	DIFFERENTIAL PRESS. RANGE:	0-280	IN WC	FG $\sqrt{(1/SG)}$	= 0.9259
SEPARATOR NO :	V 459	STANDARD CONDITIONS :	14.73 PSI @ 60°F		C ₂ (FU x FG)	= 22.222

000163

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos Ltd

PERFORATIONS: 9108' - 9217' KB

PAGE: 1 OF 2

WELL NAME: Kanowana # 3

FORMATION : Patchawarra

DATE: 24th Aug 1992

TEST TYPE : L.E.T & B.H.P.S.

OPR : B. Potter

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)

ELEMENT SERIAL NO.

28904

15451

29216

DATE : 24.8.92

ELEMENT RANGE

(P.S.I)

5000

5650

156° - 366°F

PRESSURE LUBRICATOR

0930

470 psi
3240

3654

RECORDING SECTION SERIAL NO.

12979

12961

14926

RUN IN HOLE

1130

3240

3689

DATE OF CALIBRATION:

12-6-92

12-6-92

11-6-91

ON DEPTH AT

9080 FT/M

1200

3261

3689

CLOCK SERIAL NO.

F-15695

F-15694

F-15309

DATE

29/8/92

CLOCK RANGE

(hr)

120

120

120

PULL OUT OF HOLE

0615

10184

10198

LEAD SCREW TYPE

15 TLS

15 TLS

15 TLS

AT SURFACE

0640

10184

10198

DEPRESSURE LUBRICATOR

0758

10184

10198

ENGAGE STYLUS

DATE 24.8.92

TIME

0920

0920

0920

MAXIMUM BHT AT

9080 FT/M = 253.6 °F

1477 psi

DISENGAGE STYLUS

DATE 30-8-92

TIME

1402

1402

1402

N.B. ALL DEPTHS ARE MEASURED FROM K.B.

DATE

TIME

REMARKS

30.8.92

1350.

GAUGES REMAINED IN LUBRICATOR WITH WELL SHUT IN AT
 MASTER VALVE - LUBRICATOR DEPRESSURED. GAUGES RIGGED OUT ON
 30.8.92.

000164

BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD

PERFORATIONS: 9108' - 9217' KB.

PAGE: 2 OF 2

WELL NAME: KANAWONA #3

FORMATION : PATCHAWARRA.

DATE: 30-8-92.

TEST TYPE : STATIC GRADIENT SURVEY

OPR : I. KURASIAK.

GAUGE DATA	UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)
ELEMENT SERIAL NO.	28904	15451	29216	DATE : 30.8.92			
ELEMENT RANGE	5000	5650	156°-366°F	PRESSURE LUBRICATOR :	1425	10301	10315
RECORDING SECTION SERIAL NO.	12979	12961	14926	RUN IN HOLE :	1440	10287	10308
DATE OF CALIBRATION:	12-6-92	12-6-92	11-6-91	ON DEPTH AT : 9162 FT/M	1626	10308	10322
CLOCK/BATTERY SERIAL NO.	2489	2387	2180	DATE : 30.8.92			
CLOCK/BATTERY RANGE hrs.	3	3	3	PULL OUT OF HOLE :	1636	10308	10322
LEAD SCREW/BATTERY TYPE	15 TKS	15 TKS	15 TKS	AT SURFACE :	1656	10308	10322
				DEPRESSURE LUBRICATOR :	1711	10301	10315
ENGAGE STYLUS/BATTERY DATE 30.8.92 TIME	1410	1410	1410	MAXIMUM BHT AT FT/M = °F/C			
DISENGAGE STYLUS/BATTERY DATE 30.8.92 TIME	1721	1721	1721	N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

[illegible]

91000

**EXPERTEST**

WIRELINE & WELL TESTING SERVICE

A.C.N. 008 034 062 PO BOX 354 COWANDILLA 9000166

PH. (08) 354 0488 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Sunday, 30th August 1992.

CLIENT	LOCATION	FORMATION
Santos Ltd.	KANAWANA 3	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	28904	5200	12/ 6/92
Bottom	15451	5650	12/ 6/92

WELL DATA	
PARAMETER	VALUE
DWT In	1494 PSIG
DWT Out	1494 PSIG
Max BHT	Temp E1

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT. KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.5765	1493.0	----	0.5845	1486.4	----
1000	0.6105	1581.1	0.088	0.6195	1576.3	0.090
2000	0.6440	1667.8	0.087	0.6530	1662.4	0.086
3000	0.6765	1751.9	0.084	0.6860	1747.2	0.085
4000	0.7090	1836.1	0.084	0.7205	1835.8	0.089
5000	0.7430	1924.1	0.088	0.7540	1921.9	0.086
6000	0.7785	2010.9	0.087	0.7890	2011.8	0.090
6500	0.7950	2058.8	0.096	0.8080	2060.6	0.098
7000	0.8145	2109.3	0.101	0.8270	2109.4	0.098
8000	0.8530	2209.0	0.100	0.8656	2208.6	0.099
8500	0.8770	2271.1	0.124	0.8880	2266.2	0.115
9000	0.8910	2307.3	0.073	0.9055	2311.1	0.090
9080	0.8940	2315.1	0.097	0.9085	2318.8	0.096
9162	0.8975	2324.2	0.111	0.9120	2327.8	0.110
LUB.	0.5765	1493.0	----	0.5815	1478.7	----

GENERAL REMARKS

	SAMPLING DATA											
	CUSTOMER : Santos Ltd						PERFORATIONS: 9108' - 9217' KB				PAGE: 1 OF 1	
	WELL NAME: Kanowana # 3						FORMATION : Patchawarra				DATE: 24 th Aug 1992	
TEST TYPE : L. E. T & B. H. P. S.										OPR : B. Potter		

SAMPLE #															
TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)	
0900	# 1	500	water	1	-	-	-		sight glass		-	48	14.73	15	
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	L.G.R. m³ / 10⁶ m³	PRESSURE	TEMPERATURE	
													(PSI/KPa)	(°F/°C)	
3240	3654	100%	-	3034	48	1.1379	1.1664	50.5	75.47	5.61	3.20	117			

REMARKS:

SAMPLE #															
TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)	
0900	# 2	500	water	1	-	-	-		sight glass		-	48	14.73	15	
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	L.G.R. m³ / 10⁶ m³	PRESSURE	TEMPERATURE	
													(PSI/KPa)	(°F/°C)	
3240	3654	100%	-	3034	48	1.1379	1.1664	50.5	75.47	5.61	3.20	117			

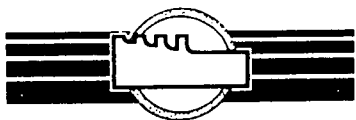
REMARKS:

SAMPLE #															
TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH		OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)		SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D			PRESSURE	TEMPERATURE
														(PSI/KPa)	(°F/°C)

000167

REMARKS:

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108 - 9217 ft KB.

PAGE: 1 OF 2

WELL NAME: Kanowana 3

FORMATION : Patchawana

DATE: 14-10-93

TEST TYPE : BHP

OPR : K. Comstock

DATE/TIME	DESCRIPTION OF EVENTS
14-10-93	
1020	Arrive on location / Santos operations rep. present / held safety meeting
1030	Shut in well / fit swab valve thq 4630 kPa csg 4794 kPa.
1045	Open well back on line (100% choke) thq 4620 ^{kPa} csg 4792 (kPa) / rig up wireline equipment
1130	Rig up complete
1140	Pressure up lubricator / run in hole w/ 1.75" drift thq. 4618 kPa csg. 4787 kPa.
1245	Jag PBTD @ 10235 ft KB / all clear.
1250	Pull out of hole.
1320	Arrive lubricator / depressure same / rig out tool string.
1350	Prepare tandem Amerada pressure elements coupled w/ temperature element for 96 hr. bottom hole pressure survey.
1420	Pressure up lubricator.
1520	Depressure lubricator
1620	Pressure up lubricator / run in hole.
1645	Arrive @ hang depth 9162 ft. KB. (MPP)
15-10-93	
0800	Shut in well / begin build-up survey.
16-10-93	
1215	Well head chart recorder failed.
18-10-93	
0800	Well head chart recorder repaired.
19-10-93	
0945	Pull out of hole w/ tandem pressure elements and temperature element.
1015	Arrive lubricator / depressure same.

000168

SEQUENCE OF EVENTS

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217 * KB

PAGE: 2 OF 2

WELL NAME: Kanowana 3

FORMATION : Patchawarra

DATE: 19-10-93

TEST TYPE : BHP

OPR : K. Comstock

[illegible]

TEST TYPE : SGS.

FORMATION : Patchawara

DATE: 19-10-93

OPR : K. Constock

[illegible]

TEST RESULTS

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217 ft KB.

PAGE: 1 OF 3

WELL NAME: Kanowana 3

FORMATION : Patchawana

DATE: 14-10-93

TEST TYPE : BHP

OPR : K. Comstock

TIME		WELLHEAD DATA				FLOW RATES					CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³		
14-10-93															
1350						Prepare tandem Amerada pressure elements coupled w/ temperature element for 96 hr. bottom hole pressure survey.									
1420		4606	4785			Pressure up lubricator									
1520	1.00	4610	4791			Depressure lubricator									
1620	2.00	4592	4792			Pressure up lubricator / run in hole.									
1645	2.25	4599	4792			Arrive @ hang depth 9162 ft. KB. (MPP)									
15-10-93															
0600	15.4	4558	4723			Shut in well / begin build up survey.									
0800	17.4	4571	4785												
0815		6123	6157												
0830		7136	7150												
0845		7778	7805												
0900	1.0	8232	8246												
0915		8515	8515												
0930		8632	8681												
0945		8757	8757												
1000	2.0	8818	8818												
1015		8881	8881												
1030		8929	8936												
1045		9026	9026												
1100	3.0	9101	9115												

000171

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217 ft. KB.

PAGE: 2 OF 3

WELL NAME: Kanowana 3

FORMATION : Patchawana

DATE: 15.10.93

TEST TYPE : BHP

OPR : K. Comstock

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE ./KPa)	ANNULUS PRESSURE ./KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³		
15.10.93															
1115		9177	9184												
1130		9260	9274												
1145		9315	9315												
1200	4.0	9315	9315												
1600	8.0	9323	9318												
2000	12.0	9348	9351												
16.10.93															
0600	22.0	9520	9520												
1000	26.0	9517	9517												
1400	30.0	9509	9512												
1800	34.0	9501	9508												
17.10.93															
0600	46.0	9540	9543												
1000		9545	9547												
1400		9567	9567												
1800		9580	9580												
18.10.93															
0600	70.0	9612	9618												
1000		9636	9640												
1400		9667	9694												
1800		9660	9660												

000172

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217. 1st KB.

PAGE: 3 OF 3

WELL NAME: Kanowana 3

FORMATION : Patchawarra

DATE: 19-10-93

TEST TYPE : BHP

OPR : K. Comstock

000173

BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217 μ KB.

PAGE: 1 OF 1

WELL NAME: Kanowana 3.

FORMATION : Patchawaria

DATE: 14-10-93

TEST TYPE : BHP

OPR : K. Comstock.

GAUGE DATA		UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)
ELEMENT SERIAL NO.		850207	850208	29217	DATE : 14-10-93			
ELEMENT RANGE PSIG / PSIG / °F		4075	4100	135 - 378	PRESSURE LUBRICATOR :	1420	4606	4785
RECORDING SECTION SERIAL NO.		K3433	K3434	12952	RUN IN HOLE :	1620	4592	4792
DATE OF CALIBRATION: @ 290°F		06-03-92	06-03-92		ON DEPTH AT : 9162. FT.	1645	4599	4792
CLOCK SERIAL NO.		5	6	1	DATE : 19-10-93			
CLOCK RANGE HRS.		120	120	120	PULL OUT OF HOLE :	0945	9694	9694
LEAD SCREW TYPE TURNS		15	15	15	AT SURFACE :	1015	9694	9722
					DEPRESSURE LUBRICATOR :	1215	9722	9722
ENGAGE STYLUS DATE 14-10-93 TIME		1415	1415	1415	MAXIMUM BHT AT 9162 FT. = Refer to temp element 29217			
DISENGAGE STYLUS DATE 19-10-93 TIME		1223	1223	1223	N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

DATE	TIME	REMARKS
19-10-93	1230	Clocks ran fast on top pressure element and temperature element ∴ final lub. stops not recorded.

000174

00017a

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD KANOWANA	WELL 3
EFF DEPTH		WELL STAT	TOOL HUNG 9156'KB
CASING	-	CASING PRESS	ON BOTTOM 1645 14/10
LINER	-	TUBING PRESS	OFF BOTTOM 0945 19/10
DATE	931015	ELEMENT RANGE 0 - 4110	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 15/10
MAX TEMP	257	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 850208	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BHP

SURVEY DATA

CO. SANTOS				RUN 01 FIELD KANOWANA				WELL 3			
	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME			
<u>START</u> <i>S/U</i>	8:00	1074.4	1074.4	.0	15:07	1978.0	1978.0	7.1			
	8:02	1085.3	1085.3	.0	16:36	1980.9	1980.9	8.6			
	8:04	1114.9	1114.9	.1	18:59	1988.0	1988.0	11.0			
	8:06	1151.8	1151.8	.1	20:32	1994.0	1994.0	12.5			
	8:10	1219.5	1219.5	.2	22:17	1999.0	1999.0	14.3			
	8:13	1256.6	1256.6	.2	0:32	2006.1	2006.1	16.5			
	8:17	1303.5	1303.5	.3	2:49	2014.3	2014.3	18.8			
	8:20	1352.1	1352.1	.3	4:20	2017.8	2017.8	20.3			
	8:24	1411.1	1411.1	.4	6:52	2023.9	2023.9	22.9			
	8:27	1461.5	1461.5	.5	9:46	2032.4	2032.4	25.8			
	8:30	1490.9	1490.9	.5	13:04	2041.0	2041.0	29.1			
	8:34	1528.4	1528.4	.6	17:06	2049.6	2049.6	33.1			
	8:40	1584.3	1584.3	.7	19:53	2056.9	2056.9	35.9			
	8:46	1639.6	1639.6	.8	23:43	2062.8	2062.8	39.7			
	8:54	1688.5	1688.5	.9	3:01	2067.7	2067.7	43.0			
	8:59	1725.4	1725.4	1.0	7:18	2075.6	2075.6	47.3			
	9:05	1762.0	1762.0	1.1	10:49	2081.2	2081.2	50.8			
	9:14	1795.8	1795.8	1.2	15:51	2087.4	2087.4	55.8			
	9:27	1841.4	1841.4	1.4	20:06	2092.5	2092.5	60.1			
	9:39	1870.7	1870.7	1.6	23:40	2097.2	2097.2	63.7			
	9:49	1885.8	1885.8	1.8	4:47	2104.2	2104.2	68.8			
	9:57	1897.1	1897.1	2.0	9:25	2109.1	2109.1	73.4			
	10:12	1907.1	1907.1	2.2	14:13	2114.4	2114.4	78.2			
	10:36	1925.4	1925.4	2.6	19:55	2119.1	2119.1	83.9			
	10:58	1949.3	1949.3	3.0	23:59	2124.1	2124.1	88.0			
	11:26	1969.2	1969.2	3.4	4:35	2125.3	2125.3	92.6			
	11:52	1982.2	1982.2	3.9	9:45	2132.3	2132.3	97.8			<i>End S/U</i>
	12:13	1984.1	1984.1	4.2	- 5:55	1081.2	1081.2	-13.9			
	12:54	1977.3	1977.3	4.9	- 3:52	1077.9	1077.9	-11.9			
	13:56	1975.2	1975.2	5.9	- 1:32	1080.5	1080.5	-9.5			

000176

SURVEY DATA

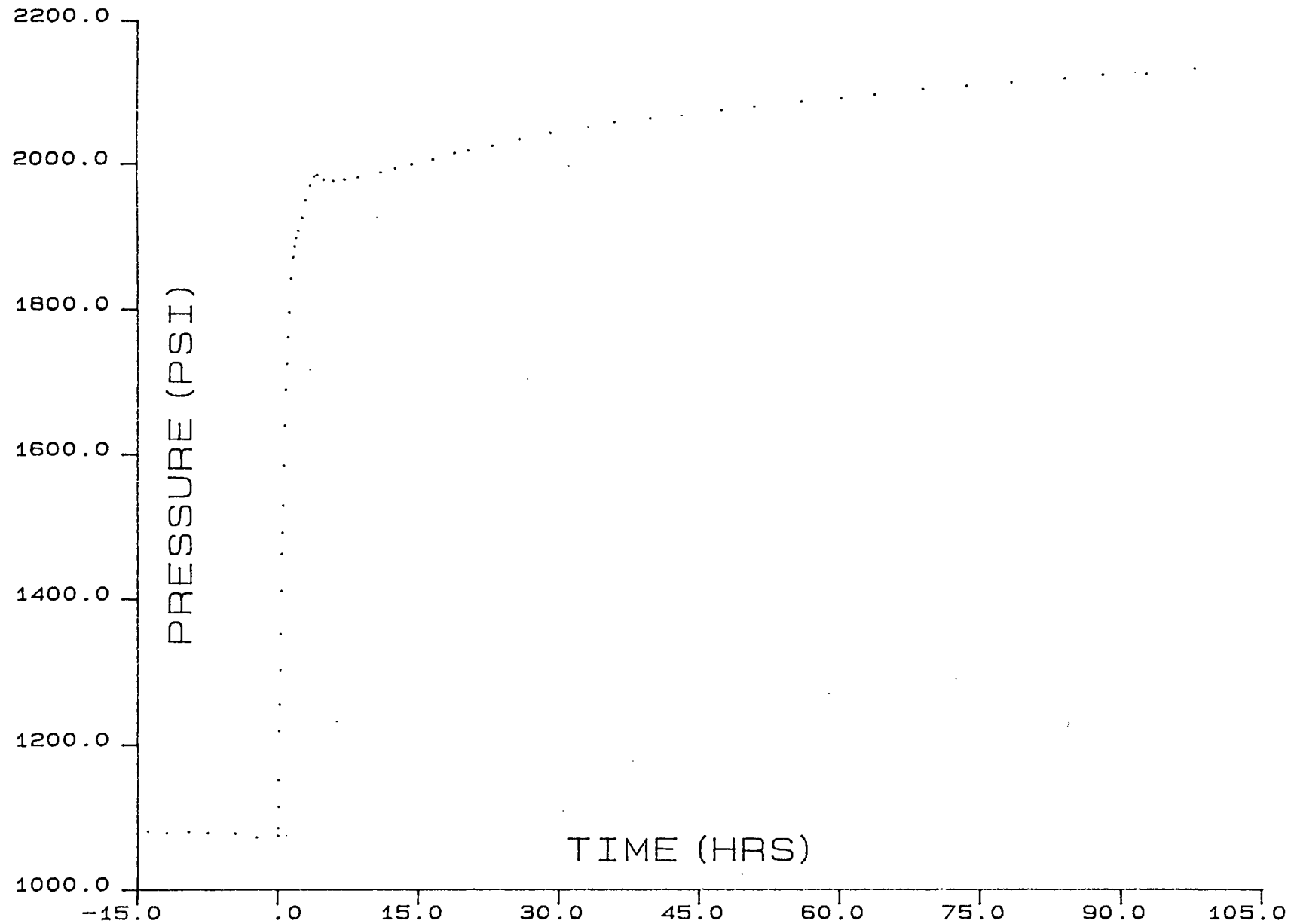
CO. SANTOS			RUN 01 FIELD KANOWANA			WELL 3	
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
0:32	1078.2	1078.2	-7.5	5:46	1071.8	1071.8	-2.2
3:29	1077.4	1077.4	-4.5	0:00	.0	.0	.0

LUBRICATOR; DWT: IN: 668 psig / OUT: 1410 psig
AMERADA: IN: 657 psig / OUT: 1403 psig

ELEMENT #850207 was also run but the clock ran fast and as a result no end lubricator stop was recorded.

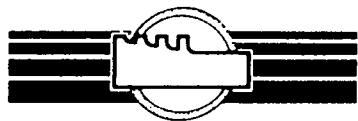
MAXIMUM TEMPERATURE was obtained from element #29217.

KANOWANA #3 BHP OCTOBER 1993
ELEMENT #850208 @ 9156'KB



000177

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos Petroleum Ltd.

PERFORATIONS: 9108-9217 ft. KB.

PAGE: 1 OF 1

WELL NAME: Kanowana 3.

FORMATION : Patchawana

DATE: 19-10-93

TEST TYPE : SGS

OPR : K. Camstock

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

TIME
(HOURS)TUBING
PRESSURE
(KPa)ANNULUS
PRESSURE
(KPa)

ELEMENT SERIAL NO.

850207

850208

DATE : 19-10-93

ELEMENT RANGE PSIG

4075

4100

PRESSURE LUBRICATOR

1248

9787

9787.

RECORDING SECTION SERIAL NO.

K3433

K3434

RUN IN HOLE

1303

9715

9701

DATE OF CALIBRATION: @ 290°F

06-03-92

06-03-92

ON DEPTH AT : 9162. FT.

1424

9681

9681

CLOCK SERIAL NO.

A14044

A16082

DATE : 19-10-93

CLOCK RANGE HRS

3

3

PULL OUT OF HOLE

1434

9681

9681

LEAD SCREW TYPE TURNS.

15

15

AT SURFACE

1504

9694

9694

DEPRESSURE LUBRICATOR

1520

9694

9694

ENGAGE STYLUS DATE 19-10-93 TIME

1243

1243

MAXIMUM BHT AT 9162 FT/ : = 243. °F.

DISENGAGE STYLUS DATE 19-10-93 TIME

1526

1526

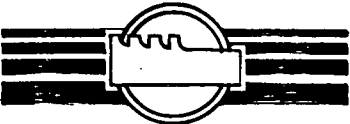
N.B. ALL DEPTHS ARE MEASURED FROM K.B.

DATE

TIME

REMARKS

000178

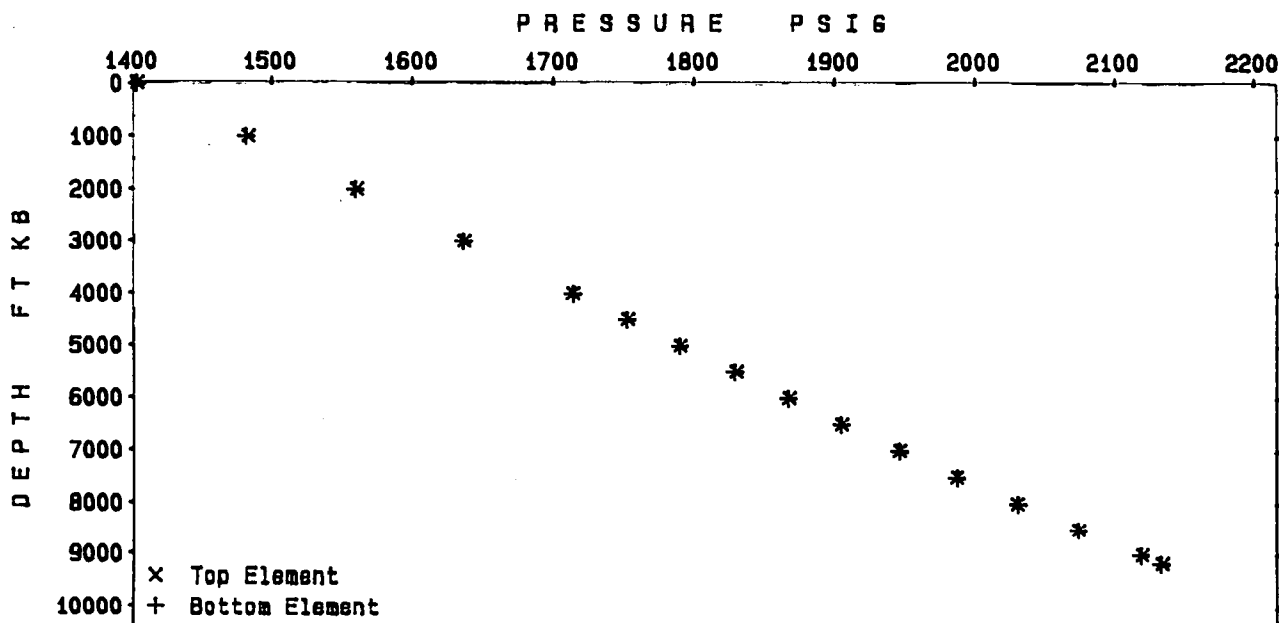
EXPERTEST PTY. LTD.	STATIC PRESSURE GRADIENT SURVEY	
	Location: KANOWANA 3	Tested: 19th October 1993.
	Formation: PATCHAWARRA	Client: SANTOS LTD.

PRESSURE ELEMENT DATA

Position	Serial No	Range	Calibrated
Top	850207	4075	6/ 3/92
Bottom	850208	4100	6/ 3/92

WELL DATA

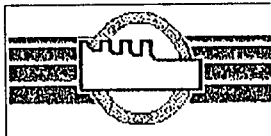
DWT In	1419 PSIG
DWT Out	1406 PSIG
Max BHT	243



TOP ELEMENT				BOTTOM ELEMENT		
Depth FT KB	Deflection Inches	Pressure PSIG	Gradient PSI/FT	Deflection Inches	Pressure PSIG	Gradient PSI/FT
LUB.	0.6915	1403.0	-	0.6835	1402.4	-
1000	0.7310	1483.5	0.080	0.7220	1481.6	0.079
2000	0.7690	1560.9	0.078	0.7600	1559.6	0.078
3000	0.8060	1636.4	0.075	0.7970	1635.7	0.076
4000	0.8440	1713.8	0.078	0.8350	1713.8	0.078
4500	0.8630	1752.6	0.078	0.8535	1751.8	0.076
5000	0.8815	1790.3	0.075	0.8720	1789.8	0.076
5500	0.9010	1830.1	0.079	0.8910	1828.8	0.078
6000	0.9195	1867.8	0.075	0.9095	1866.9	0.076
6500	0.9380	1905.5	0.075	0.9280	1904.9	0.076
7000	0.9580	1946.3	0.082	0.9480	1946.0	0.082
7500	0.9780	1987.2	0.082	0.9680	1987.1	0.082
8000	0.9990	2030.0	0.086	0.9890	2030.2	0.086
8500	1.0205	2073.9	0.088	1.0100	2073.4	0.086
9000	1.0430	2119.8	0.092	1.0320	2118.6	0.090
9162	1.0500	2134.1	0.088	1.0390	2133.0	0.089
LUB.	0.6920	1404.0	-	0.6830	1401.4	-

GENERAL REMARKS

09 JUN 1995

**EXPERTEST PTY. LTD.**

A.C.N. 008 034 062

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

Customer	SANTOS LTD.
Well Name	KANOWANA #3
Formation	PATCHAWARRA
Perforations	9108-9217' KB
Type Of Test	BHPS/SGS
Operator	S WILKIE
Date Of Test	16/03/95 to 22/03/95
Reference Date	17/03/95
Reference Time	1015
Control No.	110405

7128/002 l

000181

TEST RESULTS

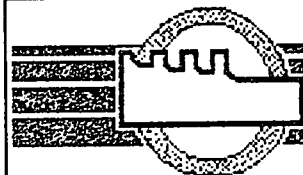


Customer:	SANTOS LTD.	Well Name:	KANOWANA #3	Formation:	PATCHAWARRA
Perforations:	9108-9217' KB	Type Of Test:	BHPS/SGS	Operator:	S WILKIE
Date Of Test:	16/03/95 to 22/03/95			Control No.:	110405

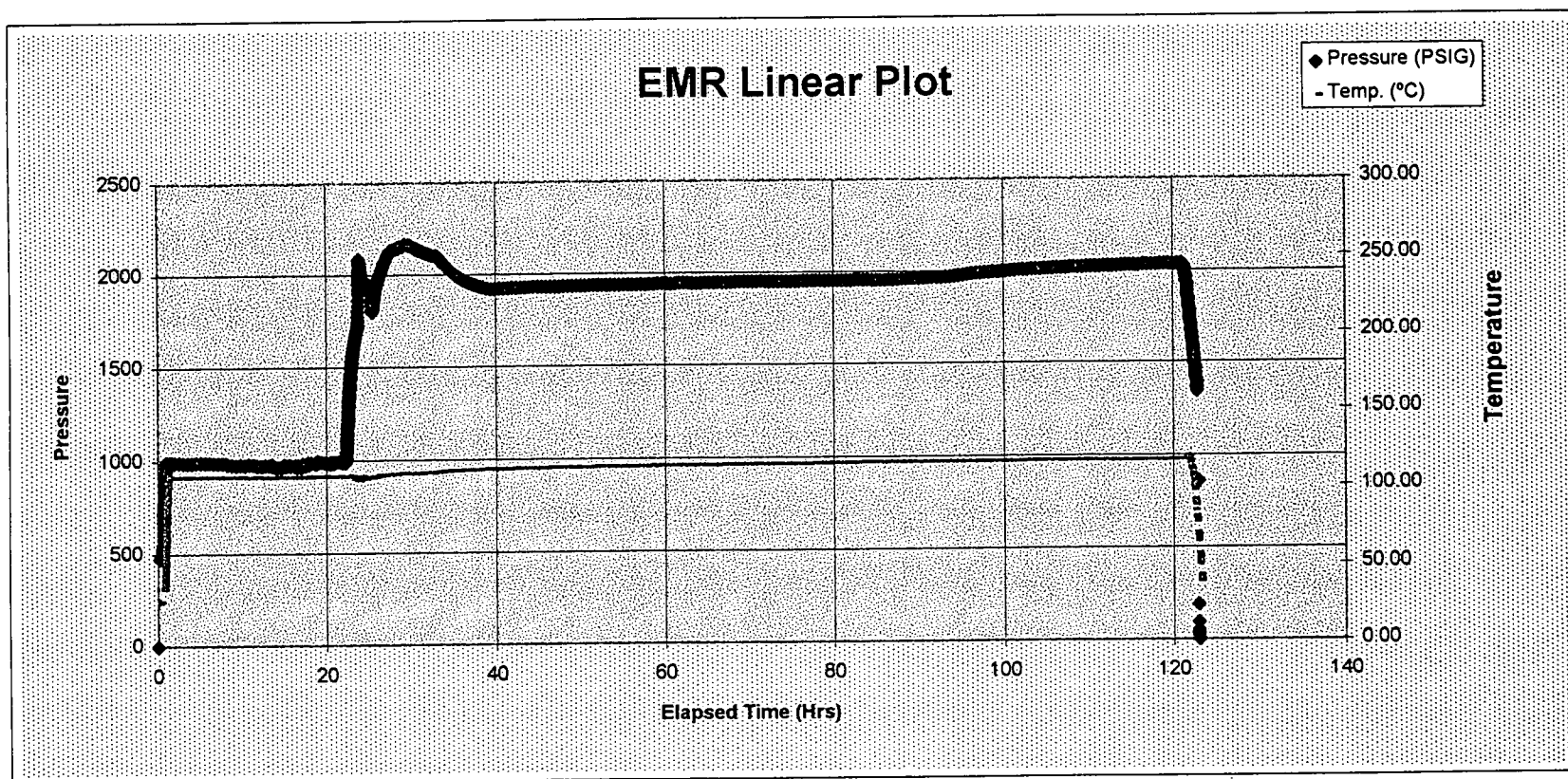
TIME			WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION			L.G.R.	
Date	Time	Elapsed Time	Tubing Pressure	Annulus Pressure	Wellhead Temp	Choke Size	Pressure	Temp	Gas Flow Rate	Oil Flow Rate	Water Flow Rate	Gas	Oil	Water	(m ³ /10 ⁶ m ³)	
		(Hours)	(PSI)	(PSI)	(°C)	(64ths)	(PSI)	(°C)	(m ³ 10 ³ /D)	(m ³ /D)	(m ³ /D)	(m ³ 10 ³)	(m ³)	(m ³)		
17/03/95	0905	-1.1667	482	104												
17/03/95	1006	-0.1500	480	86												
17/03/95	1028	0.2167	480	86												
17/03/95	1043	0.4667	479	86												
17/03/95	1118	1.0500	485	86												
18/03/95	0800	21.7500	480	478												
18/03/95	0833	22.3000	481	478												
18/03/95	0845	22.5000	711	711												
18/03/95	0900	22.7500	863	863												
18/03/95	0915	23.0000	956	956												
18/03/95	0930	23.2500	1014	1014												
18/03/95	0945	23.5000	1045	1045												
18/03/95	1000	23.7500	996	996												
18/03/95	1015	24.0000	866	866												
18/03/95	1030	24.2500	858	858												
19/03/95	1500	52.7500	1299	1299												
20/03/95	1600	77.7500	1302	1302												
21/03/95	1730	103.2500	1328	1328												
21/03/95	1730	103.2500	1328	1328												
22/03/95	1130	121.2500	1340	1340												
22/03/95	1130	121.2500	1340	1340												
22/03/95	1301	122.7667	1341	1341												
22/03/95	1301	122.7667	1341	1341												
22/03/95	1306	122.8500	1341	1341												

EXPERTEST PTY. LTD.

Electronic Memory Recorder - Linear Plot

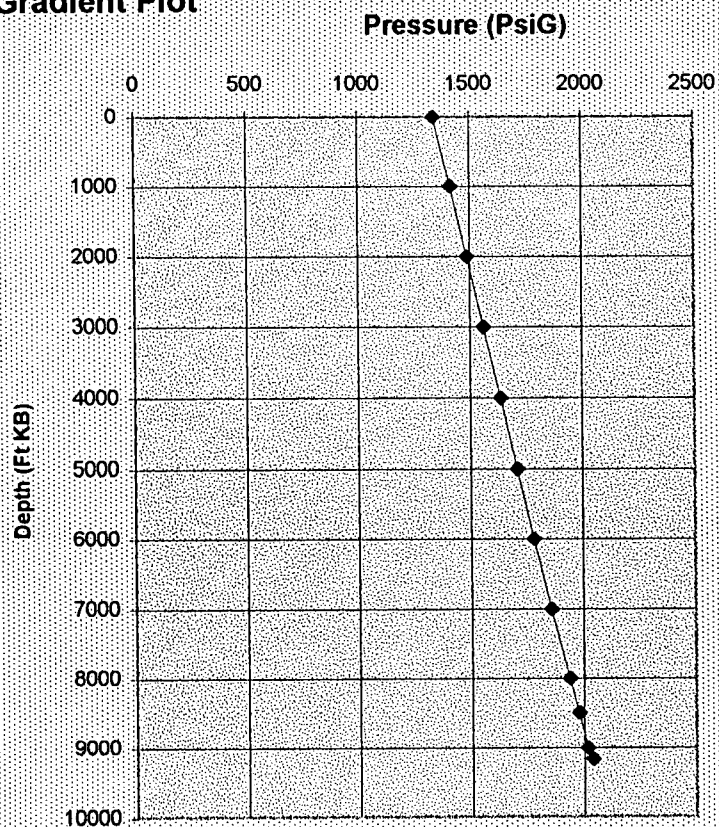


Customer:	SANTOS LTD.	Well Name:	KANOWANA #3	Formation:	PATCHAWARRA
Perforations:	9108-9217' KB	Type Of Test:	BHPS/SGS	Operator:	S WILKIE
Date Of Test:	16/03/95 to 22/03/95			Control No.:	110405
McAllister File Ref: KANO3.PRN			EMP Serial Number: 80-2017		
EMP Calibration I.D.: 2017-14005			Full Scale Pressure: 10000.0 PSIA		
Probe Started: 17/03/95 @ 10:15:00			Data Filter: 1800 Secs; 5 PSI Window		

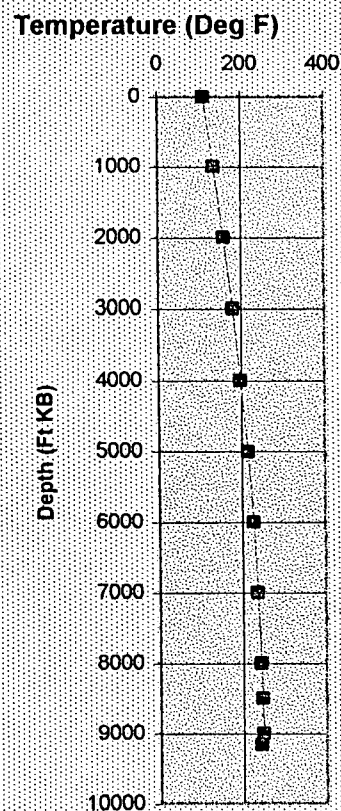


		Gradient Report				
		Well Name KANOWANA #3				
		Location PATCHAWARA				
Expertest Pty Ltd File Reference KANO3						
Representative N.DOVER			Recorder Depth (KB) 9162.00 ft			
Test Type B.H.P.S & S.G.S			Recorder Position TOP			
Date of Test 95/03/22			Serial # 2017			
Battery Connected 17/03/95 10:15:00						
Reading Time		Depth Ft KB	Pressure PsiG	Temp. Deg F	Gradient Psi/ft	Remarks
MM/DD	hh:mm:ss					
03/22	11:27:02	9162.00	2037.359	242.60		
03/22	11:35:02	9000.00	2014.181	246.42	0.143	
03/22	11:43:02	8500.00	1975.687	245.74	0.077	
03/22	11:51:02	8000.00	1934.585	241.83	0.082	
03/22	12:01:10	7000.00	1854.460	234.27	0.080	
03/22	12:09:42	6000.00	1779.580	226.00	0.075	
03/22	12:19:18	5000.00	1706.021	213.83	0.074	
03/22	12:28:22	4000.00	1632.945	197.33	0.073	
03/22	12:36:54	3000.00	1559.617	179.07	0.073	
03/22	12:46:30	2000.00	1486.727	158.00	0.073	
03/22	12:56:06	1000.00	1414.133	134.13	0.073	
03/22	13:04:38	0.00	1339.321	110.82	0.075	

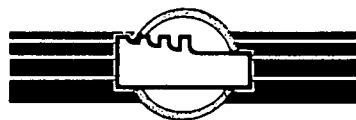
Gradient Plot



Gradient Plot



EXPERTEST PTY. LTD.



110405

GAUGE RUN SHEET

CUSTOMER: Santos Ltd.

PERFORATIONS: 9108' - 9217'

PAGE: 1 OF 1

WELL NAME: Kanawana #3.

FORMATIONS: Patchawarra

DATE: 17-3-95

TEST TYPE: B.H.P.S./S.G.S.

OPR: S. WILKIE

GAUGE DATA	TOP GAUGE	BOTTOM GAUGE
ELEMENT SERIAL NO.	2017	29836
ELEMENT RANGE PSI	8000	2975
ELEMENT TYPE	EMP-Q.	AMERADA
DATE OF CALIBRATION:	5-1-94	7-2-94.
CLOCK SERIAL NO.		F15306
CLOCK RANGE HOURS		120
ENGAGE BATTERY/STYLUS DATE: 17-3-95 TIME	10:15	10:18
DISENGAGE BATTERY/STYLUS DATE: 22/3/95 TIME	13:26	13:16
GAUGE RUN TIME AGGREGATE HOURS	1006	
TEST DURATION HOURS	123.	

RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI/1000)	GAUGE RESPONSE (PSI/1000)
DATE : 17-3-95			
PRESSURE LUBRICATOR :	10:28	480	480.510
RUN IN HOLE :	10:43	479	475.024
ON DEPTH AT 9162 FT/1000	11:18	485	
MAX. RECORDED BHP PSI			2169.21
MAX. RECORDED BHT G/F			247.34
DATE : 22/3/95			
PULL OUT OF HOLE :	11:30	1340	
DEPRESSURE LUBRICATOR :	13:06	1341.	1339.321

NB: ALL DEPTHS ARE MEASURED FROM KB.

GAUGE CHECKS	LAB	TOP GAUGE	LAB	BOTTOM GAUGE
DATE/PERFORMED BY 23.02.95	J. Collins			
PRE-JOB CHECK PRESS PSI A/G	0	-0.922.		
TEMP 'C/F	68	65.89		
DATE/PERFORMED BY 22.03.95	T. Shearing			
POST-JOB CHECK PRESS PSI A/G	0	-0.345		
TEMP 'C/F	79	84		
DATE/PERFORMED BY 08.08.94	T. Shearing			
CAL. CHECK PRESS PSI A/G	2987	2986		
TEMP 'C/F	270	271		

BATTERY DATA	TOP SERIAL NO.	BOTTOM SERIAL NO.	DATE
	4916		
PRE-JOB PBU/BHP CYCLES:	3		17-3-95
PRE-JOB SGS/FGS CYCLES:	0		17-3-95
PRE-JOB LOADED VOLTS:	10.85V		17-3-95.
POST-JOB LOADED VOLTS:	10.82		22/3/95

OPERATOR'S SIGNATURE

S. Wilkie

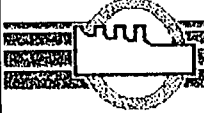
This sheet is submitted as 'Original' and is Not typed

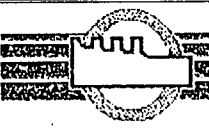
COMMENTS: WELL SHUT IN FOR BUILDUP, 08:30 18/3/95. - AMERADA CLOCK FAILED 25 HOURS INTO SURVEY

000186

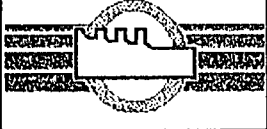
EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
17/03/95	10:15:00	0.0000	-1.36	28.38	
17/03/95	10:27:48	0.2133	478.78	29.16	
17/03/95	10:45:56	0.5156	489.20	37.06	
17/03/95	10:46:28	0.5244	495.39	38.24	
17/03/95	10:47:32	0.5422	505.34	40.61	
17/03/95	10:48:36	0.5600	515.53	43.06	
17/03/95	10:49:08	0.5689	521.31	44.33	
17/03/95	10:49:40	0.5778	527.03	45.62	
17/03/95	10:50:12	0.5867	532.92	46.93	
17/03/95	10:51:16	0.6044	541.03	49.59	
17/03/95	10:51:48	0.6133	555.23	50.96	
17/03/95	10:52:20	0.6222	587.58	52.43	
17/03/95	10:52:52	0.6311	618.38	54.02	
17/03/95	10:53:24	0.6400	648.56	55.64	
17/03/95	10:53:56	0.6489	672.21	57.31	
17/03/95	10:54:28	0.6578	694.03	59.01	
17/03/95	10:55:00	0.6667	713.10	60.69	
17/03/95	10:55:32	0.6756	722.44	62.46	
17/03/95	10:56:04	0.6844	730.17	64.29	
17/03/95	10:56:36	0.6933	736.32	66.12	
17/03/95	10:57:08	0.7022	743.77	67.95	
17/03/95	10:57:40	0.7111	750.70	69.78	
17/03/95	10:58:12	0.7200	756.14	71.61	
17/03/95	10:58:44	0.7289	763.18	73.44	
17/03/95	10:59:16	0.7378	770.18	75.27	
17/03/95	10:59:48	0.7467	776.70	77.09	
17/03/95	11:00:20	0.7556	783.81	78.88	
17/03/95	11:00:52	0.7644	792.47	80.64	
17/03/95	11:01:24	0.7733	803.21	82.37	
17/03/95	11:01:56	0.7822	812.34	84.07	
17/03/95	11:02:28	0.7911	821.94	85.72	
17/03/95	11:03:00	0.8000	832.41	87.32	
17/03/95	11:03:32	0.8089	842.97	88.87	
17/03/95	11:04:04	0.8178	853.26	90.37	
17/03/95	11:04:36	0.8267	861.30	91.82	
17/03/95	11:05:08	0.8356	869.43	93.22	
17/03/95	11:05:40	0.8444	876.26	94.57	
17/03/95	11:06:12	0.8533	882.81	95.87	
17/03/95	11:06:44	0.8622	888.41	97.11	
17/03/95	11:07:48	0.8800	897.08	99.42	
17/03/95	11:08:52	0.8978	904.19	101.50	

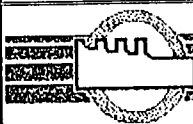
EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
17/03/95	11:09:56	0.9156	913.10	103.37	
17/03/95	11:10:28	0.9244	918.46	104.24	
17/03/95	11:11:00	0.9333	924.48	105.06	
17/03/95	11:11:32	0.9422	929.93	105.82	
17/03/95	11:12:36	0.9600	938.06	107.21	
17/03/95	11:13:40	0.9778	948.71	108.39	
17/03/95	11:14:12	0.9867	953.71	108.91	
17/03/95	11:14:44	0.9956	962.33	109.37	
17/03/95	11:15:16	1.0044	970.55	109.78	
17/03/95	11:15:48	1.0133	979.04	110.12	
17/03/95	11:16:20	1.0222	990.23	110.42	
17/03/95	11:17:24	1.0400	995.53	110.42	
17/03/95	11:47:48	1.5467	994.40	109.66	
17/03/95	12:18:12	2.0533	993.24	109.59	
17/03/95	12:48:36	2.5600	991.31	109.59	
17/03/95	13:19:00	3.0667	990.11	109.61	
17/03/95	13:49:24	3.5733	989.39	109.64	
17/03/95	14:19:48	4.0800	991.07	109.61	
17/03/95	14:50:12	4.5867	992.42	109.60	
17/03/95	15:20:36	5.0933	992.47	109.56	
17/03/95	15:51:00	5.6000	992.49	109.59	
17/03/95	16:21:24	6.1067	992.54	109.59	
17/03/95	16:51:48	6.6133	990.52	109.58	
17/03/95	17:22:12	7.1200	989.01	109.57	
17/03/95	17:52:36	7.6267	988.13	109.47	
17/03/95	18:23:00	8.1333	987.16	109.58	
17/03/95	18:27:16	8.2044	982.16	109.58	
17/03/95	18:57:40	8.7111	979.65	109.59	
17/03/95	19:28:04	9.2178	977.39	109.46	
17/03/95	19:58:28	9.7244	977.96	109.44	
17/03/95	20:28:52	10.2311	977.61	109.41	
17/03/95	20:59:16	10.7378	981.76	109.33	
17/03/95	21:29:40	11.2444	978.88	109.43	
17/03/95	21:55:16	11.6711	973.61	109.48	
17/03/95	22:25:40	12.1778	974.17	109.38	
17/03/95	22:56:04	12.6844	975.74	109.36	
17/03/95	23:26:28	13.1911	974.87	109.36	
17/03/95	23:50:28	13.5911	979.97	109.42	
17/03/95	23:55:48	13.6800	973.96	109.39	
18/03/95	0:11:48	13.9467	968.85	109.44	
18/03/95	0:26:12	14.1867	963.12	109.56	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp (°C)	Remarks
18/03/95	0:56:36	14.6933	967.88	109.38	
18/03/95	1:08:52	14.8978	972.93	109.29	
18/03/95	1:17:56	15.0489	977.97	109.26	
18/03/95	1:31:16	15.2711	972.51	109.27	
18/03/95	1:49:24	15.5733	978.33	109.36	
18/03/95	2:00:04	15.7511	973.24	109.33	
18/03/95	2:30:28	16.2578	971.92	109.47	
18/03/95	2:33:40	16.3111	977.32	109.47	
18/03/95	2:42:44	16.4622	970.21	109.38	
18/03/95	2:45:56	16.5156	964.92	109.41	
18/03/95	2:52:52	16.6311	971.53	109.51	
18/03/95	2:54:28	16.6578	977.01	109.51	
18/03/95	3:14:44	16.9956	970.75	109.43	
18/03/95	3:15:48	17.0133	965.05	109.51	
18/03/95	3:20:36	17.0933	971.16	109.76	
18/03/95	3:22:12	17.1200	977.75	109.75	
18/03/95	3:25:56	17.1822	982.77	109.68	
18/03/95	3:53:08	17.6356	977.06	109.39	
18/03/95	4:03:16	17.8044	983.94	109.57	
18/03/95	4:07:32	17.8756	989.03	109.56	
18/03/95	4:14:28	17.9911	984.00	109.53	
18/03/95	4:26:44	18.1956	989.93	109.56	
18/03/95	4:57:08	18.7022	989.50	109.49	
18/03/95	5:01:56	18.7822	983.58	109.71	
18/03/95	5:03:00	18.8000	991.58	109.75	
18/03/95	5:13:40	18.9778	997.04	109.72	
18/03/95	5:37:08	19.3689	991.70	109.62	
18/03/95	6:07:32	19.8756	987.01	109.66	
18/03/95	6:10:12	19.9200	994.02	109.74	
18/03/95	6:40:04	20.4178	987.36	109.53	
18/03/95	6:42:12	20.4533	981.71	109.62	
18/03/95	6:49:40	20.5778	991.31	109.74	
18/03/95	7:06:12	20.8533	985.34	109.51	
18/03/95	7:15:16	21.0044	992.62	109.52	
18/03/95	7:45:40	21.5111	994.85	109.57	
18/03/95	8:03:48	21.8133	989.77	109.64	
18/03/95	8:09:08	21.9022	995.12	109.71	
18/03/95	8:27:16	22.2044	989.64	109.63	
18/03/95	8:34:12	22.3200	1002.83	109.67	
18/03/95	8:34:44	22.3289	1011.96	109.67	
18/03/95	8:35:16	22.3378	1023.19	109.66	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	8:35:48	22.3467	1034.14	109.64	
18/03/95	8:36:20	22.3556	1045.18	109.63	
18/03/95	8:36:52	22.3644	1056.05	109.62	
18/03/95	8:37:24	22.3733	1067.14	109.61	
18/03/95	8:37:56	22.3822	1077.12	109.58	
18/03/95	8:38:28	22.3911	1086.95	109.57	
18/03/95	8:39:00	22.4000	1097.78	109.54	
18/03/95	8:39:32	22.4089	1108.86	109.53	
18/03/95	8:40:04	22.4178	1118.69	109.51	
18/03/95	8:40:36	22.4267	1128.62	109.49	
18/03/95	8:41:08	22.4356	1137.58	109.48	
18/03/95	8:41:40	22.4444	1146.27	109.47	
18/03/95	8:42:12	22.4533	1155.84	109.46	
18/03/95	8:42:44	22.4622	1164.82	109.44	
18/03/95	8:43:16	22.4711	1173.87	109.44	
18/03/95	8:43:48	22.4800	1182.52	109.44	
18/03/95	8:44:20	22.4889	1190.81	109.47	
18/03/95	8:44:52	22.4978	1199.27	109.52	
18/03/95	8:45:24	22.5067	1207.74	109.59	
18/03/95	8:45:56	22.5156	1215.75	109.66	
18/03/95	8:46:28	22.5244	1223.82	109.74	
18/03/95	8:47:00	22.5333	1231.91	109.82	
18/03/95	8:47:32	22.5422	1240.12	109.88	
18/03/95	8:48:04	22.5511	1248.42	109.94	
18/03/95	8:48:36	22.5600	1256.65	109.99	
18/03/95	8:49:08	22.5689	1264.87	110.02	
18/03/95	8:49:40	22.5778	1273.01	110.03	
18/03/95	8:50:12	22.5867	1280.87	110.03	
18/03/95	8:50:44	22.5956	1288.69	110.01	
18/03/95	8:51:16	22.6044	1296.54	109.98	
18/03/95	8:51:48	22.6133	1304.12	109.94	
18/03/95	8:52:20	22.6222	1311.40	109.91	
18/03/95	8:52:52	22.6311	1318.52	109.88	
18/03/95	8:53:24	22.6400	1325.61	109.85	
18/03/95	8:53:56	22.6489	1332.77	109.82	
18/03/95	8:54:28	22.6578	1339.52	109.79	
18/03/95	8:55:00	22.6667	1346.18	109.77	
18/03/95	8:55:32	22.6756	1352.86	109.74	
18/03/95	8:56:04	22.6844	1359.34	109.71	
18/03/95	8:56:36	22.6933	1365.69	109.69	
18/03/95	8:57:08	22.7022	1371.87	109.67	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	8:57:40	22.7111	1378.03	109.65	
18/03/95	8:58:12	22.7200	1383.97	109.64	
18/03/95	8:58:44	22.7289	1389.87	109.63	
18/03/95	8:59:16	22.7378	1395.76	109.62	
18/03/95	8:59:48	22.7467	1401.53	109.62	
18/03/95	9:00:20	22.7556	1407.11	109.61	
18/03/95	9:00:52	22.7644	1412.72	109.61	
18/03/95	9:01:24	22.7733	1418.25	109.61	
18/03/95	9:01:56	22.7822	1423.86	109.61	
18/03/95	9:02:28	22.7911	1429.26	109.60	
18/03/95	9:03:00	22.8000	1434.62	109.60	
18/03/95	9:03:32	22.8089	1439.90	109.59	
18/03/95	9:04:04	22.8178	1445.14	109.59	
18/03/95	9:04:36	22.8267	1450.35	109.58	
18/03/95	9:05:08	22.8356	1455.45	109.56	
18/03/95	9:05:40	22.8444	1460.52	109.54	
18/03/95	9:06:44	22.8622	1470.39	109.51	
18/03/95	9:07:48	22.8800	1480.02	109.45	
18/03/95	9:08:52	22.8978	1489.32	109.39	
18/03/95	9:09:56	22.9156	1498.23	109.33	
18/03/95	9:11:00	22.9333	1506.97	109.27	
18/03/95	9:12:04	22.9511	1515.26	109.21	
18/03/95	9:13:08	22.9689	1523.28	109.16	
18/03/95	9:14:12	22.9867	1531.01	109.09	
18/03/95	9:15:16	23.0044	1538.61	109.01	
18/03/95	9:16:20	23.0222	1546.04	108.88	
18/03/95	9:17:24	23.0400	1553.36	108.75	
18/03/95	9:18:28	23.0578	1560.19	108.62	
18/03/95	9:19:32	23.0756	1566.76	108.49	
18/03/95	9:20:36	23.0933	1573.54	108.37	
18/03/95	9:21:40	23.1111	1580.01	108.27	
18/03/95	9:22:44	23.1289	1586.25	108.17	
18/03/95	9:23:48	23.1467	1592.52	108.08	
18/03/95	9:24:52	23.1644	1598.71	108.01	
18/03/95	9:25:56	23.1822	1604.66	107.94	
18/03/95	9:27:00	23.2000	1610.53	107.89	
18/03/95	9:28:04	23.2178	1616.00	107.84	
18/03/95	9:29:08	23.2356	1621.42	107.81	
18/03/95	9:30:12	23.2533	1626.87	107.77	
18/03/95	9:31:16	23.2711	1631.93	107.75	
18/03/95	9:32:52	23.2978	1638.84	107.72	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN		EMP Serial Number: 80-2017			
EMP Calibration I.D.: 2017-14005		Full Scale Pressure: 10000.0 PSIA			
Probe Started: 17/03/95 @ 10:15:00		Data Filter: 1800 Secs; 5 PSI Window			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	9:34:28	23.3244	1645.73	107.70	
18/03/95	9:36:04	23.3511	1652.25	107.66	
18/03/95	9:37:40	23.3778	1658.59	107.57	
18/03/95	9:39:16	23.4044	1664.80	107.49	
18/03/95	9:40:52	23.4311	1670.45	107.43	
18/03/95	9:42:28	23.4578	1676.02	107.34	
18/03/95	9:44:04	23.4844	1681.67	107.25	
18/03/95	9:45:40	23.5111	1686.87	107.19	
18/03/95	9:47:16	23.5378	1692.04	107.16	
18/03/95	9:49:24	23.5733	1697.31	107.14	
18/03/95	9:51:32	23.6089	1703.69	107.14	
18/03/95	9:53:08	23.6356	1709.38	107.16	
18/03/95	9:55:16	23.6711	1716.39	107.20	
18/03/95	9:56:20	23.6889	1722.56	107.23	
18/03/95	9:56:52	23.6978	1732.74	107.25	
18/03/95	9:57:24	23.7067	1748.97	107.28	
18/03/95	9:57:56	23.7156	1774.46	107.32	
18/03/95	9:58:28	23.7244	1802.61	107.38	
18/03/95	9:59:00	23.7333	1832.96	107.46	
18/03/95	9:59:32	23.7422	1864.49	107.55	
18/03/95	10:00:04	23.7511	1895.04	107.67	
18/03/95	10:00:36	23.7600	1923.53	107.81	
18/03/95	10:01:08	23.7689	1949.87	107.94	
18/03/95	10:01:40	23.7778	1974.56	108.08	
18/03/95	10:02:12	23.7867	1997.01	108.22	
18/03/95	10:02:44	23.7956	2016.87	108.37	
18/03/95	10:03:16	23.8044	2034.19	108.51	
18/03/95	10:03:48	23.8133	2048.18	108.66	
18/03/95	10:04:20	23.8222	2058.97	108.81	
18/03/95	10:04:52	23.8311	2067.61	108.95	
18/03/95	10:05:24	23.8400	2074.54	109.07	
18/03/95	10:05:56	23.8489	2079.98	109.17	
18/03/95	10:07:00	23.8667	2086.71	109.34	
18/03/95	10:09:40	23.9111	2077.69	109.63	
18/03/95	10:10:44	23.9289	2068.82	109.67	
18/03/95	10:11:48	23.9467	2058.92	109.68	
18/03/95	10:12:52	23.9644	2050.25	109.66	
18/03/95	10:13:56	23.9822	2042.06	109.62	
18/03/95	10:15:00	24.0000	2034.42	109.56	
18/03/95	10:16:04	24.0178	2027.20	109.49	
18/03/95	10:17:08	24.0356	2020.33	109.42	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	10:18:12	24.0533	2013.92	109.34	
18/03/95	10:19:16	24.0711	2007.86	109.27	
18/03/95	10:20:20	24.0889	2002.50	109.19	
18/03/95	10:21:56	24.1156	1995.80	109.08	
18/03/95	10:23:32	24.1422	1988.95	108.98	
18/03/95	10:25:08	24.1689	1982.64	108.88	
18/03/95	10:26:44	24.1956	1976.72	108.78	
18/03/95	10:28:20	24.2222	1971.45	108.72	
18/03/95	10:29:56	24.2489	1966.37	108.68	
18/03/95	10:31:32	24.2756	1961.30	108.67	
18/03/95	10:33:40	24.3111	1955.12	108.65	
18/03/95	10:35:48	24.3467	1949.58	108.64	
18/03/95	10:38:28	24.3911	1944.29	108.53	
18/03/95	10:42:12	24.4533	1939.10	108.46	
18/03/95	11:12:36	24.9600	1940.79	108.73	
18/03/95	11:20:04	25.0844	1946.27	108.99	
18/03/95	11:28:36	25.2267	1938.44	109.19	
18/03/95	11:29:40	25.2444	1932.93	109.21	
18/03/95	11:30:44	25.2622	1926.96	109.22	
18/03/95	11:31:48	25.2800	1920.86	109.23	
18/03/95	11:32:52	25.2978	1914.96	109.24	
18/03/95	11:33:56	25.3156	1906.69	109.25	
18/03/95	11:34:28	25.3244	1899.35	109.26	
18/03/95	11:35:00	25.3333	1890.72	109.26	
18/03/95	11:35:32	25.3422	1879.32	109.26	
18/03/95	11:36:04	25.3511	1865.33	109.26	
18/03/95	11:36:36	25.3600	1848.76	109.27	
18/03/95	11:37:08	25.3689	1829.81	109.27	
18/03/95	11:37:40	25.3778	1815.38	109.27	
18/03/95	11:38:12	25.3867	1807.61	109.27	
18/03/95	11:39:16	25.4044	1801.94	109.28	
18/03/95	11:40:52	25.4311	1807.06	109.33	
18/03/95	11:42:28	25.4578	1812.84	109.39	
18/03/95	11:43:32	25.4756	1821.40	109.43	
18/03/95	11:44:36	25.4933	1826.67	109.47	
18/03/95	11:46:12	25.5200	1835.29	109.52	
18/03/95	11:47:16	25.5378	1840.50	109.56	
18/03/95	11:48:20	25.5556	1845.72	109.58	
18/03/95	11:49:24	25.5733	1851.72	109.61	
18/03/95	11:51:00	25.6000	1859.13	109.65	
18/03/95	11:52:04	25.6178	1865.06	109.67	

EXPERTEST PTY. LTD.		Electronic Memory Recorder	
		Customer: SANTOS LTD.	Well Name: KANOWANA #3
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS
		Operator: S WILKIE	Control No.: 110405

McAllister File Ref: KANO3.PRN	EMP Serial Number: 80-2017
EMP Calibration I.D.: 2017-14005	Full Scale Pressure: 10000.0 PSIA
Probe Started: 17/03/95 @ 10:15:00	Data Filter: 1800 Secs; 5 PSI Window

Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp (°C)	Remarks
18/03/95	11:53:40	25.6444	1872.05	109.69	
18/03/95	11:55:16	25.6711	1879.49	109.72	
18/03/95	11:56:52	25.6978	1886.92	109.74	
18/03/95	11:57:56	25.7156	1892.26	109.75	
18/03/95	11:59:00	25.7333	1897.32	109.76	
18/03/95	12:00:36	25.7600	1904.87	109.78	
18/03/95	12:02:12	25.7867	1911.92	109.79	
18/03/95	12:03:16	25.8044	1917.13	109.81	
18/03/95	12:04:52	25.8311	1923.01	109.83	
18/03/95	12:06:28	25.8578	1928.24	109.85	
18/03/95	12:08:04	25.8844	1933.39	109.87	
18/03/95	12:09:40	25.9111	1938.88	109.89	
18/03/95	12:11:48	25.9467	1944.76	109.92	
18/03/95	12:13:56	25.9822	1950.62	109.95	
18/03/95	12:16:04	26.0178	1955.97	109.98	
18/03/95	12:18:12	26.0533	1961.49	110.01	
18/03/95	12:20:52	26.0978	1967.56	110.04	
18/03/95	12:23:00	26.1333	1973.67	110.07	
18/03/95	12:25:40	26.1778	1980.35	110.11	
18/03/95	12:27:48	26.2133	1985.39	110.14	
18/03/95	12:29:56	26.2489	1991.22	110.17	
18/03/95	12:32:36	26.2933	1997.05	110.21	
18/03/95	12:35:16	26.3378	2002.95	110.23	
18/03/95	12:37:56	26.3822	2008.74	110.26	
18/03/95	12:41:40	26.4444	2014.33	110.31	
18/03/95	12:44:20	26.4889	2019.48	110.33	
18/03/95	12:47:00	26.5333	2025.69	110.36	
18/03/95	12:49:08	26.5689	2030.79	110.38	
18/03/95	12:51:48	26.6133	2036.60	110.40	
18/03/95	12:54:28	26.6578	2042.21	110.42	
18/03/95	12:57:08	26.7022	2047.53	110.44	
18/03/95	12:59:48	26.7467	2052.75	110.46	
18/03/95	13:02:28	26.7911	2057.79	110.47	
18/03/95	13:05:08	26.8356	2062.82	110.48	
18/03/95	13:07:48	26.8800	2067.84	110.49	
18/03/95	13:11:00	26.9333	2073.69	110.50	
18/03/95	13:14:12	26.9867	2079.24	110.51	
18/03/95	13:17:24	27.0400	2085.01	110.52	
18/03/95	13:20:36	27.0933	2090.68	110.52	
18/03/95	13:23:48	27.1467	2096.12	110.53	
18/03/95	13:27:00	27.2000	2101.56	110.54	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	13:30:12	27.2533	2106.93	110.56	
18/03/95	13:33:24	27.3067	2112.03	110.58	
18/03/95	13:36:36	27.3600	2117.12	110.61	
18/03/95	13:39:48	27.4133	2122.21	110.63	
18/03/95	13:43:00	27.4667	2127.25	110.66	
18/03/95	13:49:24	27.5733	2132.40	110.71	
18/03/95	14:07:00	27.8667	2137.50	110.83	
18/03/95	14:25:08	28.1689	2142.52	110.93	
18/03/95	14:41:08	28.4356	2147.53	111.02	
18/03/95	14:54:28	28.6578	2152.71	111.10	
18/03/95	15:16:20	29.0222	2157.73	111.21	
18/03/95	15:25:24	29.1733	2162.75	111.24	
18/03/95	15:31:16	29.2711	2167.82	111.26	
18/03/95	16:01:40	29.7778	2164.09	111.19	
18/03/95	16:13:56	29.9822	2158.94	111.08	
18/03/95	16:27:16	30.2044	2153.81	111.14	
18/03/95	16:39:00	30.4000	2148.59	111.22	
18/03/95	16:51:16	30.6044	2143.46	111.29	
18/03/95	17:05:08	30.8356	2138.33	111.31	
18/03/95	17:20:36	31.0933	2133.21	111.39	
18/03/95	17:35:00	31.3333	2128.16	111.45	
18/03/95	17:49:24	31.5733	2123.12	111.51	
18/03/95	18:05:24	31.8400	2118.02	111.57	
18/03/95	18:22:28	32.1244	2112.90	111.66	
18/03/95	18:40:36	32.4267	2107.86	111.75	
18/03/95	19:11:00	32.9333	2105.32	111.92	
18/03/95	19:23:16	33.1378	2100.13	111.98	
18/03/95	19:29:40	33.2444	2095.03	112.05	
18/03/95	19:35:32	33.3422	2089.83	112.11	
18/03/95	19:41:24	33.4400	2084.43	112.17	
18/03/95	19:47:16	33.5378	2078.95	112.23	
18/03/95	19:53:08	33.6356	2073.48	112.29	
18/03/95	19:59:00	33.7333	2068.07	112.34	
18/03/95	20:04:52	33.8311	2062.74	112.39	
18/03/95	20:10:44	33.9289	2057.49	112.45	
18/03/95	20:16:36	34.0267	2052.38	112.49	
18/03/95	20:23:00	34.1333	2046.95	112.54	
18/03/95	20:29:24	34.2400	2041.70	112.59	
18/03/95	20:35:48	34.3467	2036.61	112.63	
18/03/95	20:42:44	34.4622	2031.29	112.67	
18/03/95	20:49:40	34.5778	2026.14	112.71	

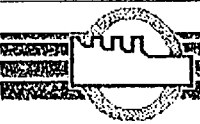
EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN					
EMP Serial Number: 80-2017					
EMP Calibration I.D.: 2017-14005					
Full Scale Pressure: 10000.0 PSIA					
Probe Started: 17/03/95 @ 10:15:00					
Data Filter: 1800 Secs; 5 PSI Window					
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
18/03/95	20:57:08	34.7022	2020.82	112.75	
18/03/95	21:04:36	34.8267	2015.69	112.79	
18/03/95	21:12:36	34.9600	2010.40	112.82	
18/03/95	21:20:36	35.0933	2005.33	112.86	
18/03/95	21:29:08	35.2356	2000.12	112.89	
18/03/95	21:38:12	35.3867	1994.85	112.93	
18/03/95	21:47:48	35.5467	1989.57	112.96	
18/03/95	21:57:56	35.7156	1984.31	112.99	
18/03/95	22:08:36	35.8933	1979.07	113.03	
18/03/95	22:19:48	36.0800	1973.86	113.07	
18/03/95	22:31:32	36.2756	1968.72	113.10	
18/03/95	22:43:48	36.4800	1963.65	113.14	
18/03/95	22:57:08	36.7022	1958.52	113.18	
18/03/95	23:11:32	36.9422	1953.45	113.23	
18/03/95	23:27:00	37.2000	1948.39	113.27	
18/03/95	23:43:32	37.4756	1943.38	113.32	
19/03/95	0:02:12	37.7867	1938.26	113.35	
19/03/95	0:22:28	38.1244	1933.26	113.39	
19/03/95	0:45:24	38.5067	1928.17	113.44	
19/03/95	1:11:32	38.9422	1923.11	113.50	
19/03/95	1:41:56	39.4489	1918.30	113.56	
19/03/95	2:12:20	39.9556	1919.25	113.62	
19/03/95	2:42:44	40.4622	1921.26	113.68	
19/03/95	3:13:08	40.9689	1923.21	113.73	
19/03/95	3:43:32	41.4756	1924.21	113.78	
19/03/95	4:13:56	41.9822	1925.41	113.84	
19/03/95	4:44:20	42.4889	1925.93	113.88	
19/03/95	5:14:44	42.9956	1926.80	113.94	
19/03/95	5:45:08	43.5022	1927.30	113.98	
19/03/95	6:15:32	44.0089	1927.86	114.02	
19/03/95	6:45:56	44.5156	1928.73	114.07	
19/03/95	7:16:20	45.0222	1929.99	114.12	
19/03/95	7:46:44	45.5289	1928.92	114.14	
19/03/95	8:17:08	46.0356	1930.08	114.20	
19/03/95	8:47:32	46.5422	1930.64	114.24	
19/03/95	9:17:56	47.0489	1929.97	114.27	
19/03/95	9:48:20	47.5556	1930.74	114.31	
19/03/95	10:18:44	48.0622	1932.06	114.37	
19/03/95	10:49:08	48.5689	1931.28	114.38	
19/03/95	11:19:32	49.0756	1932.97	114.44	
19/03/95	11:49:56	49.5822	1932.18	114.45	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
19/03/95	12:20:20	50.0889	1934.23	114.52	
19/03/95	12:50:44	50.5956	1933.29	114.52	
19/03/95	13:21:08	51.1022	1935.68	114.58	
19/03/95	13:51:32	51.6089	1936.10	114.61	
19/03/95	14:21:56	52.1156	1935.42	114.63	
19/03/95	14:52:20	52.6222	1936.36	114.67	
19/03/95	15:22:44	53.1289	1936.10	114.69	
19/03/95	15:53:08	53.6356	1936.07	114.72	
19/03/95	16:23:32	54.1422	1935.97	114.74	
19/03/95	16:53:56	54.6489	1936.45	114.78	
19/03/95	17:24:20	55.1556	1936.85	114.81	
19/03/95	17:54:44	55.6622	1937.01	114.83	
19/03/95	18:25:08	56.1689	1937.14	114.86	
19/03/95	18:55:32	56.6756	1937.04	114.88	
19/03/95	19:25:56	57.1822	1939.58	114.93	
19/03/95	19:56:20	57.6889	1934.56	114.92	
19/03/95	20:26:44	58.1956	1939.00	114.99	
19/03/95	20:57:08	58.7022	1940.27	114.97	
19/03/95	21:27:32	59.2089	1941.15	115.04	
19/03/95	21:57:56	59.7156	1941.96	115.03	
19/03/95	22:28:20	60.2222	1941.62	115.06	
19/03/95	22:58:44	60.7289	1939.83	115.14	
19/03/95	23:29:08	61.2356	1943.71	115.17	
19/03/95	23:59:32	61.7422	1945.69	115.15	
20/03/95	0:29:56	62.2489	1945.15	115.15	
20/03/95	1:00:20	62.7556	1946.17	115.18	
20/03/95	1:30:44	63.2622	1941.09	115.21	
20/03/95	2:01:08	63.7689	1943.28	115.29	
20/03/95	2:31:32	64.2756	1943.29	115.28	
20/03/95	3:01:56	64.7822	1945.38	115.31	
20/03/95	3:32:20	65.2889	1945.49	115.32	
20/03/95	4:02:44	65.7956	1946.84	115.34	
20/03/95	4:33:08	66.3022	1946.75	115.34	
20/03/95	5:03:32	66.8089	1946.87	115.37	
20/03/95	5:33:56	67.3156	1947.37	115.38	
20/03/95	6:04:20	67.8222	1947.42	115.40	
20/03/95	6:34:44	68.3289	1947.95	115.43	
20/03/95	7:05:08	68.8356	1948.38	115.46	
20/03/95	7:35:32	69.3422	1949.22	115.47	
20/03/95	8:05:56	69.8489	1949.50	115.49	
20/03/95	8:36:20	70.3556	1949.51	115.50	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN		EMP Serial Number: 80-2017			
EMP Calibration I.D.: 2017-14005		Full Scale Pressure: 10000.0 PSIA			
Probe Started: 17/03/95 @ 10:15:00		Data Filter: 1800 Secs; 5 PSI Window			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
20/03/95	9:06:44	70.8622	1949.82	115.52	
20/03/95	9:37:08	71.3689	1951.17	115.53	
20/03/95	10:07:32	71.8756	1950.82	115.52	
20/03/95	10:37:56	72.3822	1950.64	115.55	
20/03/95	11:08:20	72.8889	1950.42	115.58	
20/03/95	11:38:44	73.3956	1950.31	115.59	
20/03/95	12:09:08	73.9022	1950.13	115.62	
20/03/95	12:39:32	74.4089	1950.38	115.63	
20/03/95	13:09:56	74.9156	1950.44	115.66	
20/03/95	13:40:20	75.4222	1950.72	115.68	
20/03/95	14:10:44	75.9289	1950.73	115.70	
20/03/95	14:41:08	76.4356	1951.00	115.73	
20/03/95	15:11:32	76.9422	1951.27	115.76	
20/03/95	15:41:56	77.4489	1951.38	115.77	
20/03/95	16:12:20	77.9556	1951.46	115.79	
20/03/95	16:42:44	78.4622	1951.45	115.80	
20/03/95	17:13:08	78.9689	1951.93	115.88	
20/03/95	17:43:32	79.4756	1952.49	115.96	
20/03/95	18:13:56	79.9822	1952.90	115.96	
20/03/95	18:44:20	80.4889	1953.25	115.97	
20/03/95	19:14:44	80.9956	1953.11	115.98	
20/03/95	19:45:08	81.5022	1953.80	115.99	
20/03/95	20:15:32	82.0089	1954.08	116.03	
20/03/95	20:45:56	82.5156	1954.27	116.06	
20/03/95	21:16:20	83.0222	1954.57	116.17	
20/03/95	21:46:44	83.5289	1954.36	116.19	
20/03/95	22:17:08	84.0356	1954.48	116.19	
20/03/95	22:47:32	84.5422	1953.84	116.21	
20/03/95	23:17:56	85.0489	1953.31	116.17	
20/03/95	23:48:20	85.5556	1953.71	116.15	
21/03/95	0:18:44	86.0622	1954.12	116.17	
21/03/95	0:49:08	86.5689	1955.33	116.17	
21/03/95	1:19:32	87.0756	1956.69	116.18	
21/03/95	1:49:56	87.5822	1956.82	116.18	
21/03/95	2:20:20	88.0889	1958.24	116.18	
21/03/95	2:50:44	88.5956	1960.02	116.20	
21/03/95	3:21:08	89.1022	1961.01	116.20	
21/03/95	3:51:32	89.6089	1962.24	116.21	
21/03/95	4:21:56	90.1156	1962.87	116.21	
21/03/95	4:52:20	90.6222	1964.02	116.22	
21/03/95	5:22:44	91.1289	1964.56	116.23	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN		EMP Serial Number: 80-2017			
EMP Calibration I.D.: 2017-14005		Full Scale Pressure: 10000.0 PSIA			
Probe Started: 17/03/95 @ 10:15:00		Data Filter: 1800 Secs; 5 PSI Window			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
21/03/95	5:53:08	91.6356	1965.71	116.24	
21/03/95	6:23:32	92.1422	1966.62	116.26	
21/03/95	6:53:56	92.6489	1966.76	116.27	
21/03/95	7:24:20	93.1556	1967.76	116.28	
21/03/95	7:54:44	93.6622	1968.85	116.28	
21/03/95	8:25:08	94.1689	1972.44	116.28	
21/03/95	8:55:32	94.6756	1975.62	116.28	
21/03/95	9:25:56	95.1822	1979.43	116.28	
21/03/95	9:56:20	95.6889	1982.62	116.29	
21/03/95	10:26:44	96.1956	1985.11	116.29	
21/03/95	10:57:08	96.7022	1987.35	116.31	
21/03/95	11:27:32	97.2089	1989.31	116.32	
21/03/95	11:57:56	97.7156	1991.53	116.33	
21/03/95	12:28:20	98.2222	1993.49	116.34	
21/03/95	12:58:44	98.7289	1995.22	116.36	
21/03/95	13:29:08	99.2356	1996.96	116.39	
21/03/95	13:59:32	99.7422	1998.38	116.40	
21/03/95	14:29:56	100.2489	2000.01	116.42	
21/03/95	15:00:20	100.7556	2001.33	116.46	
21/03/95	15:30:44	101.2622	2002.50	116.49	
21/03/95	16:01:08	101.7689	2003.89	116.52	
21/03/95	16:31:32	102.2756	2005.69	116.58	
21/03/95	17:01:56	102.7822	2006.67	116.61	
21/03/95	17:32:20	103.2889	2007.50	116.61	
21/03/95	18:02:44	103.7956	2008.67	116.62	
21/03/95	18:33:08	104.3022	2009.73	116.62	
21/03/95	19:03:32	104.8089	2010.80	116.63	
21/03/95	19:33:56	105.3156	2011.62	116.66	
21/03/95	20:04:20	105.8222	2012.44	116.67	
21/03/95	20:34:44	106.3289	2013.56	116.69	
21/03/95	21:05:08	106.8356	2014.74	116.71	
21/03/95	21:35:32	107.3422	2015.85	116.72	
21/03/95	22:05:56	107.8489	2016.96	116.73	
21/03/95	22:36:20	108.3556	2018.05	116.74	
21/03/95	23:06:44	108.8622	2018.91	116.74	
21/03/95	23:37:08	109.3689	2019.95	116.76	
22/03/95	0:07:32	109.8756	2020.62	116.77	
22/03/95	0:37:56	110.3822	2021.48	116.78	
22/03/95	1:08:20	110.8889	2022.37	116.79	
22/03/95	1:38:44	111.3956	2023.08	116.81	
22/03/95	2:09:08	111.9022	2023.70	116.81	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN		EMP Serial Number: 80-2017			
EMP Calibration I.D.: 2017-14005		Full Scale Pressure: 10000.0 PSIA			
Probe Started: 17/03/95 @ 10:15:00		Data Filter: 1800 Secs; 5 PSI Window			
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
22/03/95	2:39:32	112.4089	2024.75	116.83	
22/03/95	3:09:56	112.9156	2025.53	116.83	
22/03/95	3:40:20	113.4222	2026.26	116.84	
22/03/95	4:10:44	113.9289	2026.82	116.86	
22/03/95	4:41:08	114.4356	2027.84	116.87	
22/03/95	5:11:32	114.9422	2028.48	116.87	
22/03/95	5:41:56	115.4489	2029.18	116.88	
22/03/95	6:12:20	115.9556	2029.92	116.90	
22/03/95	6:42:44	116.4622	2030.85	116.91	
22/03/95	7:13:08	116.9689	2031.41	116.91	
22/03/95	7:43:32	117.4756	2032.03	116.93	
22/03/95	8:13:56	117.9822	2032.92	116.94	
22/03/95	8:44:20	118.4889	2033.74	116.95	
22/03/95	9:14:44	118.9956	2034.24	116.94	
22/03/95	9:45:08	119.5022	2035.00	116.96	
22/03/95	10:15:32	120.0089	2035.58	116.98	
22/03/95	10:45:56	120.5156	2036.27	116.98	
22/03/95	11:16:20	121.0222	2037.12	117.00	
22/03/95	11:29:08	121.2356	2025.35	117.00	
22/03/95	11:29:40	121.2444	2019.03	117.12	
22/03/95	11:32:20	121.2889	2014.00	118.29	
22/03/95	11:36:36	121.3600	2004.87	119.49	
22/03/95	11:37:08	121.3689	1995.31	119.60	
22/03/95	11:37:40	121.3778	1985.52	119.63	
22/03/95	11:38:12	121.3867	1976.79	119.56	
22/03/95	11:44:36	121.4933	1969.62	118.57	
22/03/95	11:45:08	121.5022	1957.55	118.46	
22/03/95	11:45:40	121.5111	1946.77	118.28	
22/03/95	11:46:12	121.5200	1936.39	118.07	
22/03/95	11:52:36	121.6267	1926.43	116.27	
22/03/95	11:53:08	121.6356	1914.68	116.13	
22/03/95	11:53:40	121.6444	1902.71	115.94	
22/03/95	11:54:12	121.6533	1890.88	115.69	
22/03/95	11:54:44	121.6622	1879.18	115.39	
22/03/95	11:55:16	121.6711	1867.92	115.07	
22/03/95	11:55:48	121.6800	1856.87	114.72	
22/03/95	12:02:12	121.7867	1850.64	112.09	
22/03/95	12:02:44	121.7956	1840.27	111.92	
22/03/95	12:03:16	121.8044	1829.27	111.69	
22/03/95	12:03:48	121.8133	1818.35	111.40	
22/03/95	12:04:20	121.8222	1807.24	111.07	

EXPERTEST PTY. LTD.		Electronic Memory Recorder			
		Customer: SANTOS LTD.	Well Name: KANOWANA #3		
		Perforations: 9108-9217' KB	Formation: PATCHAWARRA		
		Date Of Test: 16/03/95 to 22/03/95	Type Of Test: BHPS/SGS		
		Operator: S WILKIE	Control No.: 110405		
McAllister File Ref: KANO3.PRN				EMP Serial Number: 80-2017	
EMP Calibration I.D.: 2017-14005				Full Scale Pressure: 10000.0 PSIA	
Probe Started: 17/03/95 @ 10:15:00				Data Filter: 1800 Secs; 5 PSI Window	
Date	Real Time	Elapsed Time (Hours)	Pressure (PSIG)	Temp. (°C)	Remarks
22/03/95	12:04:52	121.8311	1796.00	110.71	
22/03/95	12:05:24	121.8400	1784.38	110.31	
22/03/95	12:10:12	121.9200	1779.32	107.57	
22/03/95	12:11:48	121.9467	1764.94	106.97	
22/03/95	12:12:20	121.9556	1754.40	106.69	
22/03/95	12:12:52	121.9644	1744.49	106.36	
22/03/95	12:13:24	121.9733	1733.57	105.98	
22/03/95	12:13:56	121.9822	1722.45	105.52	
22/03/95	12:14:28	121.9911	1711.29	104.97	
22/03/95	12:19:16	122.0711	1706.02	101.02	
22/03/95	12:20:52	122.0978	1690.64	100.12	
22/03/95	12:21:24	122.1067	1679.43	99.68	
22/03/95	12:21:56	122.1156	1668.09	99.14	
22/03/95	12:22:28	122.1244	1656.22	98.52	
22/03/95	12:23:00	122.1333	1644.45	97.79	
22/03/95	12:23:32	122.1422	1635.75	96.95	
22/03/95	12:29:24	122.2400	1623.42	91.11	
22/03/95	12:29:56	122.2489	1612.37	90.59	
22/03/95	12:30:28	122.2578	1601.32	89.98	
22/03/95	12:31:00	122.2667	1590.13	89.28	
22/03/95	12:31:32	122.2756	1578.31	88.51	
22/03/95	12:32:04	122.2844	1566.63	87.64	
22/03/95	12:34:12	122.3200	1561.42	84.38	
22/03/95	12:38:28	122.3911	1548.30	80.44	
22/03/95	12:39:00	122.4000	1537.35	79.86	
22/03/95	12:39:32	122.4089	1525.71	79.15	
22/03/95	12:40:04	122.4178	1513.82	78.38	
22/03/95	12:40:36	122.4267	1501.71	77.54	
22/03/95	12:41:08	122.4356	1490.29	76.62	
22/03/95	12:47:32	122.5422	1481.60	69.20	
22/03/95	12:48:04	122.5511	1470.87	68.71	
22/03/95	12:48:36	122.5600	1459.74	68.06	
22/03/95	12:49:08	122.5689	1448.16	67.19	
22/03/95	12:49:40	122.5778	1435.76	66.22	
22/03/95	12:50:12	122.5867	1422.82	65.19	
22/03/95	12:50:44	122.5956	1416.05	64.09	
22/03/95	12:56:36	122.6933	1408.53	56.25	
22/03/95	12:57:08	122.7022	1396.33	55.66	
22/03/95	12:57:40	122.7111	1383.81	54.80	
22/03/95	12:58:12	122.7200	1371.29	53.90	
22/03/95	12:58:44	122.7289	1362.06	53.01	

30/05/95 **EMR Page 16** **2:18 PM**