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NUMBER 7012/2

PPL 10

EROMANGA AND COOPER BASINS

DARALINGIE 16

TEST REPORTS

Submitted by

Delhi Petroleum Pty Ltd and Santos Ltd
1993

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MINES AND ENERGY
SOUTH AUSTRALIA

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ENVELOPE 7012/2

TENEMENT: PPL 10; Eromanga and Cooper Basins

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

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	Greaney, T.M. and Pedler, P.M., 1988. Operator's reservoir engineering interpretation of the results of the modified isochronal gas production test of the Patchawarra Formation gas reservoir perforated interval 7344-7399 feet depth KB, conducted over the period 9-13/4/87 (Santos Ltd Petroleum Development Department report no. RE:113/88, September 1988).	**7012/2 R 3** Pgs 27-38
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	McAllister, D.J., 1994. Field maintenance contractor's results of the static wellbore pressure gradient survey of the Patchawarra producing zone, performed on 9/5/94 (Expertest Pty Ltd).	**7012/2 R 8** Pgs 77-80

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DARALINGIE LEASE NAME	16 WELL NO.	1 TEST NO.	7200.0 - 7241.0 TESTED INTERVAL
			DELHI PETROLEUM P/L LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG. SEE REMARKS	FIELD AREA COOPER BASIN	COUNTY SOUTH AUSTRALIA	STATE AUSTRALIA SM

3.

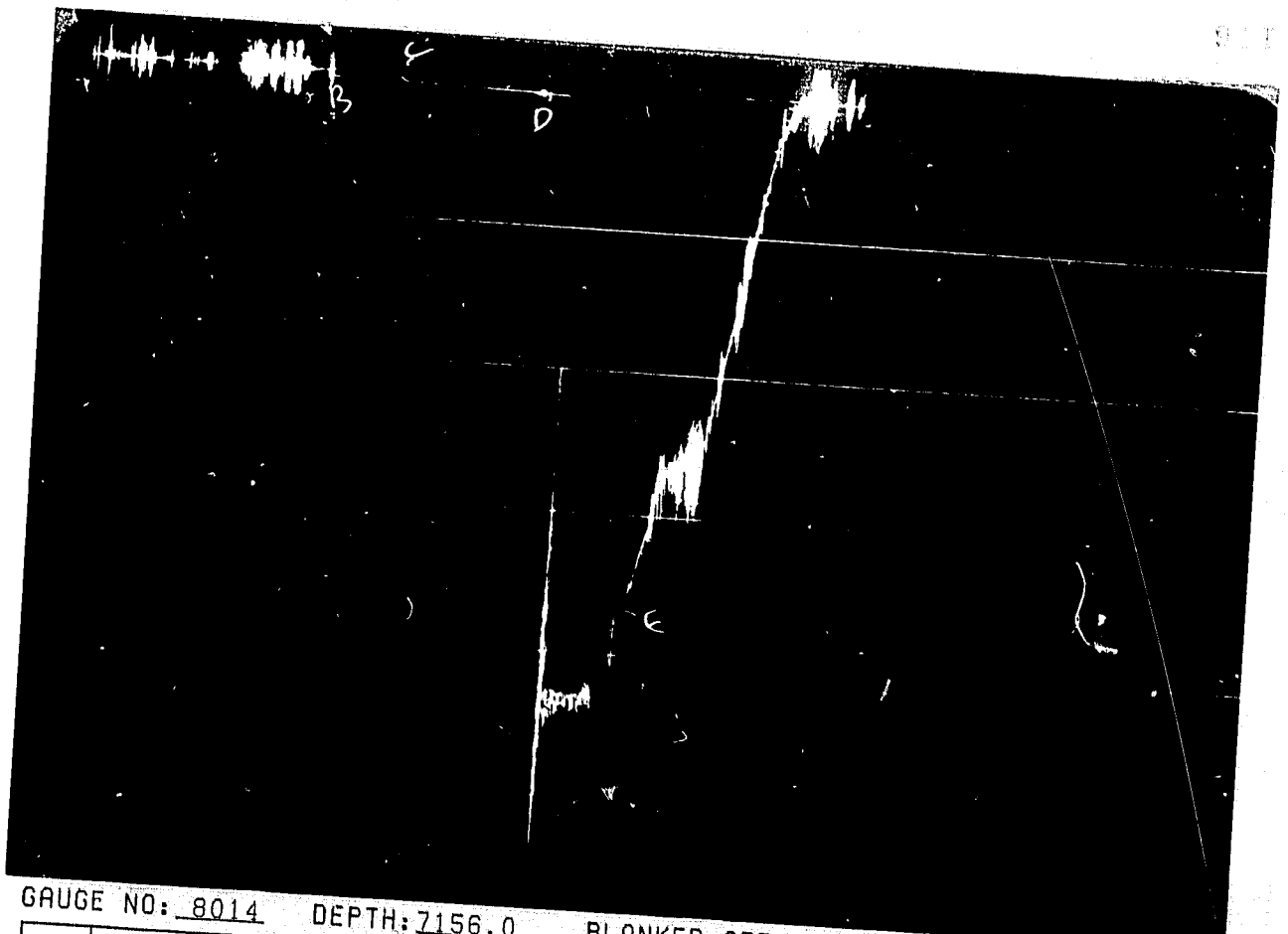
176

HALLIBURTON
SERVICES

TICKET NO. 25056900
26-AUG-86
MOOMBA

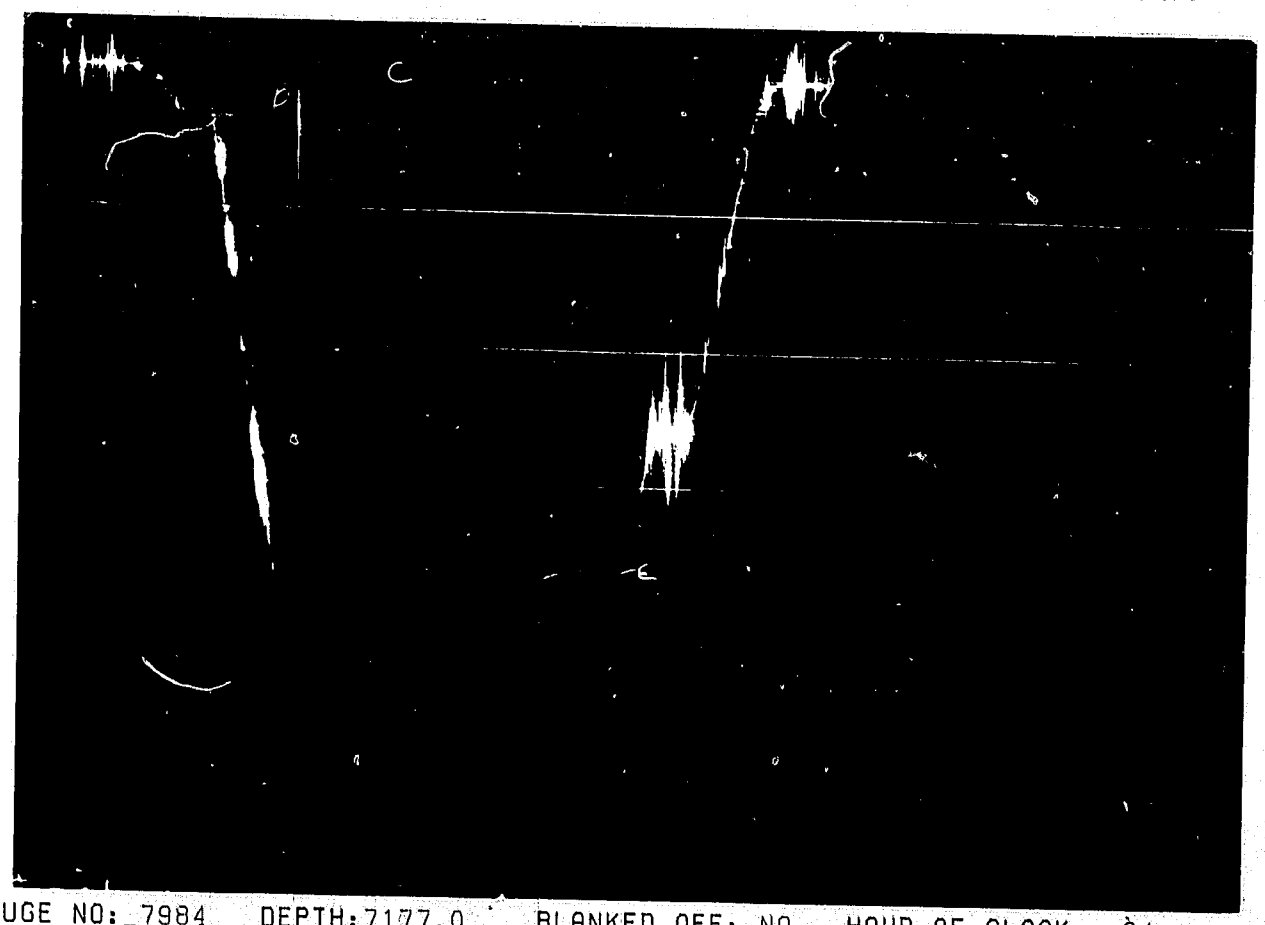
RECEIVED
-3 SEP 1986
DEPT. OF MINES AND ENERGY SECURITY
7012/2

FORMATION TESTING SERVICE REPORT



GAUGE NO: 8014 DEPTH: 7156.0 BLANKED OFF: NO HOUR OF CLOCK: 24

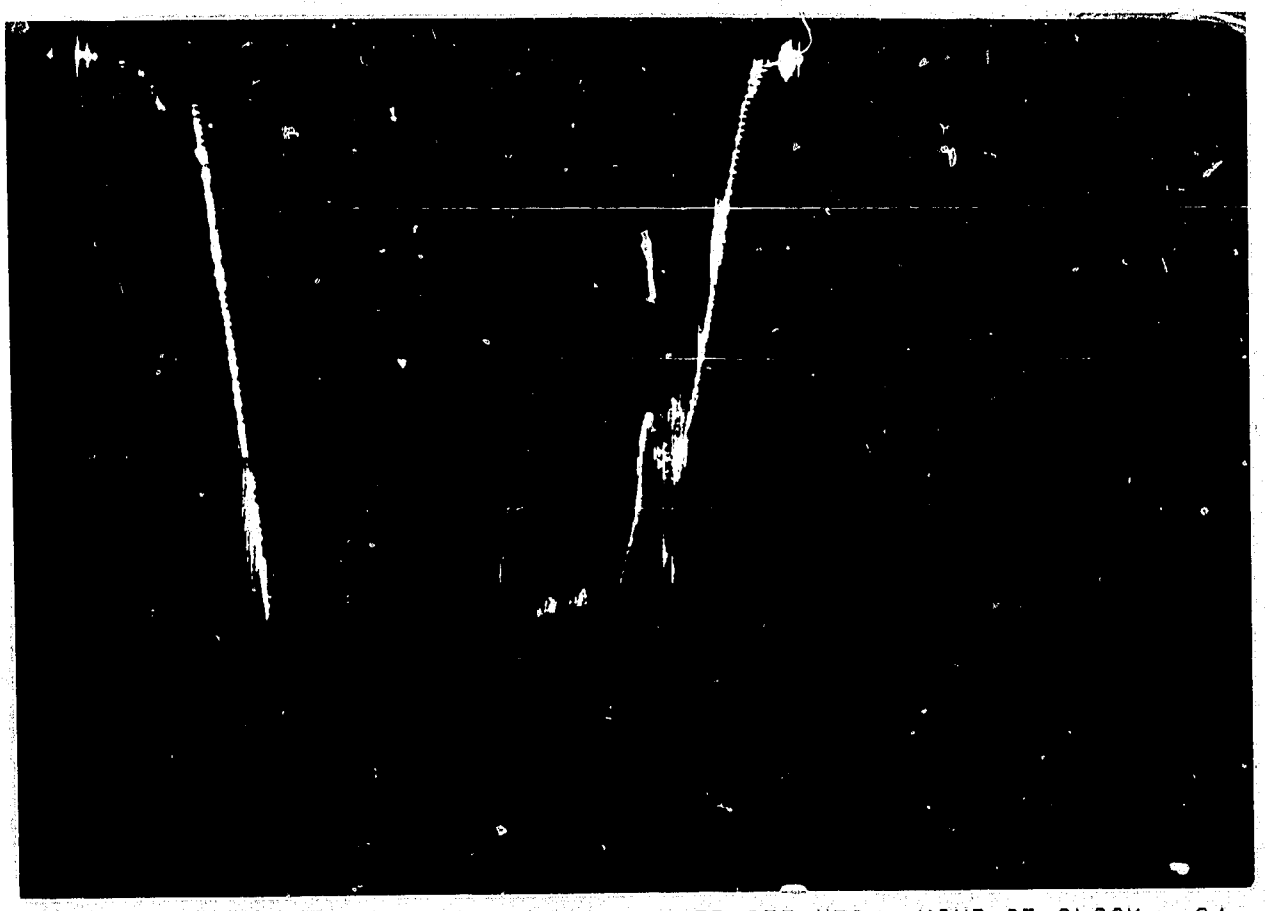
ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC					
B	INITIAL FIRST FLOW		35.6			
C	FINAL FIRST FLOW		19.6	90.0	89.9	F
C	INITIAL FIRST CLOSED-IN		19.6			
D	FINAL FIRST CLOSED-IN	67	58.9	180.0	180.1	C
E	FINAL HYDROSTATIC		3648.4			



GAUGE NO: 7984 DEPTH: 7177.0 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3621	3638.1			
B	INITIAL FIRST FLOW	52	55.3	90.0	89.9	F
C	FINAL FIRST FLOW	35	38.3			
C	INITIAL FIRST CLOSED-IN	35	38.3	180.0	180.1	C
D	FINAL FIRST CLOSED-IN	3157	3160.7			
E	FINAL HYDROSTATIC	3580	3621.5			

6



GAUGE NO: 1888 DEPTH: 7238.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3660	3654.7			
B	INITIAL FIRST FLOW	64	55.4	90.0	89.9	F
C	FINAL FIRST FLOW	48	30.7			
C	INITIAL FIRST CLOSED-IN	48	30.7	180.0	180.1	C
D	FINAL FIRST CLOSED-IN	3154	3160.1			
E	FINAL HYDROSTATIC	3612	3637.5			

EQUIPMENT & HOLE DATA

FORMATION TESTED: PATCHAWARRA
NET PAY (ft):
GROSS TESTED FOOTAGE: 41.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 8.500
ELEVATION (ft): 102.0
TOTAL DEPTH (ft): 7241.0
PACKER DEPTH(S) (ft): 7192, 7200
FINAL SURFACE CHOKE (in): 0.50000
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.30
MUD VISCOSITY (sec): 41
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 238 @ 7237.0 ft

TICKET NUMBER: 25056900
DATE: 5-15-86 TEST NO: 1
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: MOOMBA
TESTER: D. BURT
WITNESS:
DRILLING CONTRACTOR: RICHTER RIG #14

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

140 FEET OF GAS CUT MUD

MEASURED FROM TESTER VALVE

REMARKS:

LEGAL LOCATION: LAT. 28 DEGREES, 19', 57.1"S
LONG. 139 DEGREES, 57', 26.2" E.

THE DROP BAR HUNG UP IN THE STRING AND DID NOT SHEAR THE PIN. HAD TO PUMP DOWN THE DRILL PIPE AND BLOW THE PUMP OUT DISC.....COULD NOT GET A SAMPLE OF THE RECOVERY. BELIEVED THE BAR HAD HUNG UP ON THE CORROSION RING AT THE TOP OF THE HEAVY WEIGHT DRILL PIPE AND WAS DISLODGED WHILE PUMPING ON DISC.

TYPE & SIZE MEASURING DEVICE: 6" CERAMIC CHOKE | TICKET NO: 25056900

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
5-15-86					
1005					LOADED TOP BT 8014
1010					LOADED BT 7984
1030					LOADED BLANKED OFF BT 1888
1035					MADE UP TOOLS
1110					RAN IN THE HOLE CHECKING FOR
					LEAKS EVERY 10 STANDS
1430					HEAD UP AND RIGGED UP MANIFOLD
1440					SET 30,000# WEIGHT ON PACKERS
1445	.5				TOOL OPENED WITH A WEAK BLOW
1450	.5	1			STRONG BLOW
1455	.5	1			STRONG BLOW
1500	.5	1			GAS TO THE SURFACE
1515	.5	1			STRONG BLOW, GAS
					NO CHANGE UNTIL TOOL CLOSED
1615	.5	1			CLOSED TOOL
1915					OPENED BYPASS, PULLED FREE
1923					RELEASED DROP BAR
1940					PIN DID NOT SHEAR. RIGGED UP
					LINES TO STAND PIPE TO PUMP ON
					DISC.
2002					PUMP OUT DISC SHEARED. PRESSURE
					ROSE TO 1200 PSI THEN DROPPED
					OFF AFTER DISLODGING THE BAR
					THEN WENT UP TO 1600 PSI AND
					SHEARED DISC. BEGAN TO
					CIRCULATE.
2130					BROKE OFF LINES, LAID OUT HEAD
					AND PULLED OUT OF THE HOLE.
5-16-86					
0100					BROKE DOWN TOOLS
0130					OUT OF THE HOLE
					NOTE: WHEN THE RIG WAS RUNNING
					BACK IN CHECKED THE CORROSION
					RING IN THE TOP OF THE HEAVY
					WEIGHT AND FOUND IT TO

TYPE & SIZE MEASURING DEVICE: 6" CERAMIC CHOKE

TICKET NO: 25056900

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
					"EGGED" WHICH APPEARED TO BE
					REASON FOR THE BAR HANGING UP.

TICKET NO: 25056900	GAUGE NO: 8014
CLOCK NO: 32070 HOUR: 24	DEPTH: 7156.0

HALLIBURTON SERVICES

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	35.6			
2	10.0	40.5	4.8		
3	20.0	37.0	-3.5		
4	30.0	33.3	-3.7		
5	40.0	31.4	-1.8		
6	50.0	34.1	2.7		
7	60.0	29.8	-4.3		
8	70.0	28.3	-1.5		
9	80.0	26.4	-1.8		
C 10	89.9	19.6	-6.9		
		FIRST CLOSED-IN			
C 1	0.0	19.6			
D 2	180.1	58.9	39.3	60.0	0.176

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:

TICKET NO: 25056900

CLOCK NO: 30368 HOUR: 24

HALLIBURTON SERVICES

GAUGE NO: 7984

DEPTH: 7177.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	55.3			
2	10.0	53.4	-1.9		
3	20.0	53.4	0.0		
4	30.0	51.2	-2.1		
5	40.0	50.2	-1.1		
6	50.0	48.2	-1.9		
7	60.0	45.8	-2.5		
8	70.0	44.2	-1.6		
9	80.0	41.9	-2.3		
C 10	89.9	38.3	-3.5		
		FIRST CLOSED-IN			
C 1	0.0	38.3			
2	10.0	984.4	946.0	9.0	1.000
3	20.0	1674.3	1636.0	16.3	0.741
4	30.0	2153.0	2114.6	22.5	0.602
5	40.0	2470.3	2432.0	27.7	0.511
6	50.0	2669.2	2630.9	32.2	0.447
7	60.0	2798.3	2759.9	36.0	0.398
8	70.0	2889.4	2851.1	39.4	0.359
9	80.0	2953.5	2915.1	42.3	0.327
10	90.0	3004.5	2966.2	45.0	0.301
11	100.0	3043.4	3005.1	47.4	0.279
12	110.0	3072.1	3033.8	49.5	0.259
13	120.0	3095.0	3056.6	51.4	0.243
14	130.0	3112.6	3074.3	53.2	0.228
15	140.0	3126.1	3087.8	54.8	0.216
16	150.0	3138.8	3100.4	56.2	0.204
17	160.0	3146.7	3108.4	57.6	0.194
18	170.0	3155.0	3116.7	58.8	0.184
D 19	180.1	3160.7	3122.4	60.0	0.176

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:

TICKET NO: 25056900

CLOCK NO: 30347 HOUR: 24

HALLIBURTON SERVICES

GAUGE NO: 1888

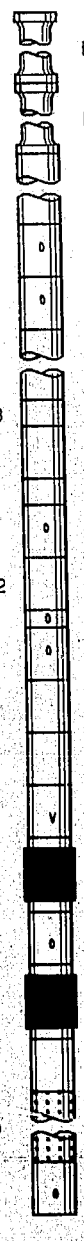
DEPTH: 7238.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	55.4			
2	10.0	58.9	3.5		
3	20.0	53.2	-5.7		
4	30.0	46.3	-6.8		
5	40.0	42.8	-3.5		
6	50.0	40.4	-2.4		
7	60.0	37.4	-3.0		
8	70.0	36.3	-1.1		
9	80.0	33.3	-3.0		
C 10	89.9	30.7	-2.5		
		FIRST CLOSED-IN			
C 1	0.0	30.7			
2	10.0	1054.1	1023.4	9.0	1.001
3	20.0	1769.6	1738.8	16.3	0.741
4	30.0	2228.8	2198.1	22.5	0.602
5	40.0	2498.7	2468.0	27.7	0.511
6	50.0	2679.0	2648.2	32.1	0.447
7	60.0	2807.8	2777.0	36.0	0.398
8	70.0	2896.0	2865.3	39.4	0.359
9	80.0	2957.9	2927.2	42.3	0.327
10	90.0	3005.5	2974.8	45.0	0.301
11	100.0	3042.4	3011.7	47.3	0.279
12	110.0	3069.0	3038.3	49.5	0.260
13	120.0	3091.6	3060.9	51.4	0.243
14	130.0	3109.0	3078.3	53.2	0.228
15	140.0	3122.8	3092.1	54.8	0.215
16	150.0	3134.7	3103.9	56.2	0.204
17	160.0	3143.7	3112.9	57.6	0.194
18	170.0	3151.9	3121.2	58.8	0.184
D 19	180.1	3160.1	3129.4	60.0	0.176

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:

TICKET NO. 25056900



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	6537.6	
4	FLEX WEIGHT.....	4.500	2.875	179.7	
3	DRILL COLLARS.....	6.250	2.875	405.9	
51	PUMP OUT REVERSING SUB.....	6.000	3.000	1.0	7123.6
50	IMPACT REVERSING SUB.....	6.000	3.000	1.0	7124.6
3	DRILL COLLARS.....	6.250	2.875	28.9	
258	BAR CATCHER SUB.....	5.750	1.000	1.0	7154.0
80	AP RUNNING CASE.....	5.000	2.250	4.1	7156.2
5	CROSSOVER.....	5.000	2.250	1.0	
12	DUAL CIP VALVE.....	5.000	0.870	4.9	
202	SAMPLE CHAMBER.....	5.000	2.500	4.9	
33	DRAIN VALVE.....	5.000	2.200	0.9	
60	HYDROSPRING TESTER.....	5.000	0.750	5.3	7175.1
80	AP RUNNING CASE.....	5.000	2.250	4.1	7177.2
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	2.8	
70	OPEN HOLE PACKER.....	6.000	1.530	5.8	7192.0
18	DISTRIBUTOR VALVE.....	5.000	1.680	2.0	
70	OPEN HOLE PACKER.....	6.000	1.530	5.8	7199.8
19	ANCHOR PIPE SAFETY JOINT.....	5.000	1.500	4.3	
20	FLUSH JOINT ANCHOR.....	5.000	2.370	31.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.1	7238.0
	TOTAL DEPTH				7241.0

EQUIPMENT DATA

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DARALINGIE	16	2	
LEASE NAME	WELL NO.	TEST NO.	
LEGAL LOCATION SEC. - TWP. - RNG.	SEE REMARKS	FIELD AREA	
COOPER BASIN	COUNTY SOUTH AUSTRALIA	STATE AUSTRALIA	OR

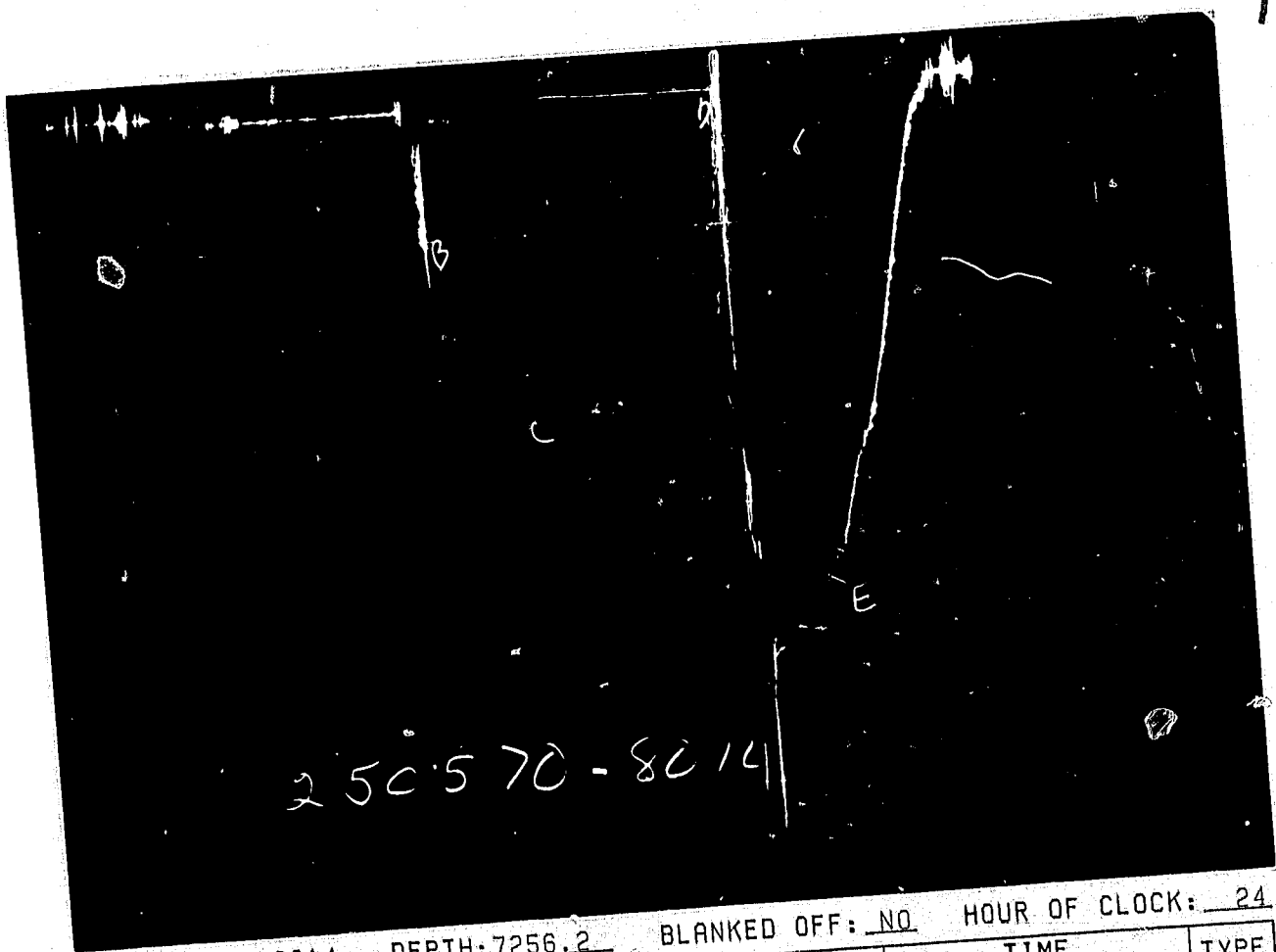
7300.0 - 7397.0	DELHI PETROLEUM P/L
TESTED INTERVAL	LEASE OWNER/COMPANY NAME

HALLIBURTON
SERVICES

TICKET NO. 25057000
26-AUG-86
MOOMBA

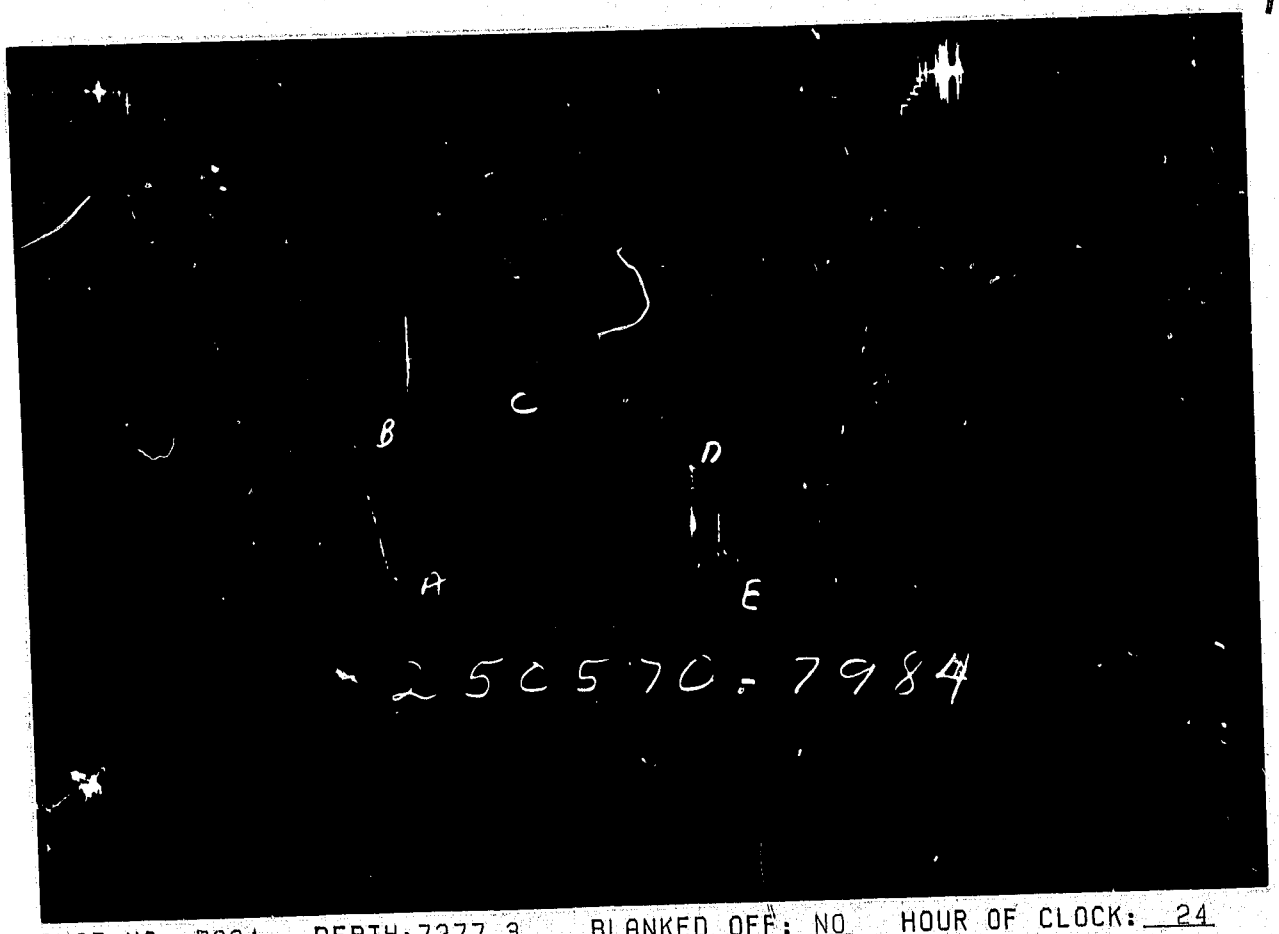
7012/2

FORMATION TESTING SERVICE REPORT



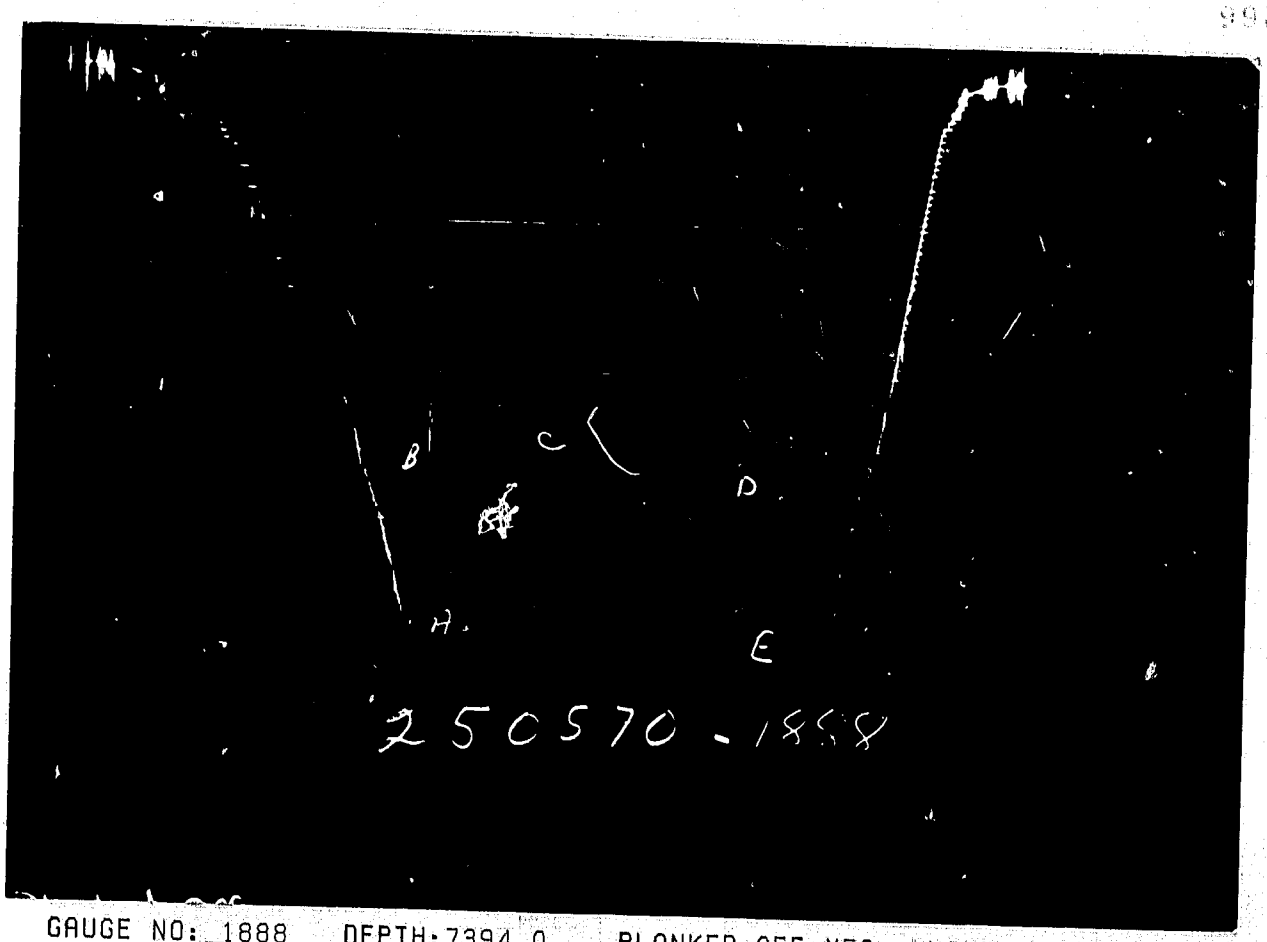
GAUGE NO: 8014 DEPTH: 7256.2 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC					
B	INITIAL FIRST FLOW	60	1079.3	120.0	121.5	F
C	FINAL FIRST FLOW		2243.4			
C	INITIAL FIRST CLOSED-IN		2243.4	240.0	238.5	C
D	FINAL FIRST CLOSED-IN	33	33.4			
E	FINAL HYDROSTATIC		3541.3			



GAUGE NO: 7984 DEPTH: 7277.3 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3600	3607.1			
B	INITIAL FIRST FLOW	1941	2016.1	120.0	121.5	F
C	FINAL FIRST FLOW	2438	2438.7			
C	INITIAL FIRST CLOSED-IN	2438	2438.7	240.0	238.5	C
D	FINAL FIRST CLOSED-IN	2766	2767.8			
E	FINAL HYDROSTATIC	3597	3598.8			



GAUGE NO: 1888 DEPTH: 7394.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE REPORTED	PRESSURE CALCULATED	TIME REPORTED	TIME CALCULATED	TYPE
A	INITIAL HYDROSTATIC	3692	3688.0			
B	INITIAL FIRST FLOW	2220	2508.2	120.0	121.5	F
C	FINAL FIRST FLOW	2536	2543.7			
C	INITIAL FIRST CLOSED-IN	2536	2543.7	240.0	238.5	C
D	FINAL FIRST CLOSED-IN	2790	2799.7			
E	FINAL HYDROSTATIC	3692	3653.3			

EQUIPMENT & HOLE DATA

FORMATION TESTED: PATCHAWARRA
NET PAY (ft): 65.0
GROSS TESTED FOOTAGE: 97.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 8.500
ELEVATION (ft): 102.0
TOTAL DEPTH (ft): 7397.0
PACKER DEPTH(S) (ft): 7292, 7300
FINAL SURFACE CHOKE (in): 0.50000
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.30
MUD VISCOSITY (sec): 38
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 258 @ 7393.0 ft

TICKET NUMBER: 25057000
DATE: 5-17-86 TEST NO: 2
TYPE DST: OPEN HOLE
HALLIBURTON CAMP: MOOMBA
TESTER: D.BURT
WITNESS: ?????
DRILLING CONTRACTOR: RICHTER #14

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
CONDENSATE	59.800 @ 60 °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm
	@ °F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): 59.8 @ 60 °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT
WATER (FT.)	100.0	8.40

RECOVERED:

55' OF CONDENSATE

MEASURED FROM TESTER VALVE

REMARKS:

LEGAL LOCATION: LAT. 28 DEGREES 19' 57.1" S., LONG. 139 DEGREES 57' 26.2" E.

TYPE & SIZE MEASURING DEVICE: 6" CERAMIC CHOKE | TICKET NO: 25057000

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
5-16-86					
2300					PICKED UP TOOLS
2315					LOADED BT #1888
2330					LOADED BT #8014
2340					LOADED BT #7984
5-17-86					
0000					RUN IN HOLE
0600					HEAD UP AND RIG MANIFOLD
0608					SET 30,000# ON PACKERS
0613	.5				OPENED TOOL WITH A WEAK BLOW
					INCREASING
0614					INCREASED TO STRONG BLOW
0615		80			GAS TO SURFACE
0617					GAS TO SURFACE-PLUGGED
0623		18			SAME
0626		200			UNPLUGGED, WATER CUSHION TO
					SURFACE. EXTINGUISHED FLARE.
0627		1000			GAS-NO FLARE
0629		1200			SAME
0635		1250			SAME
0641		1300			GAS-RELIT FLARE
0646		1350			
0651		1400			
0656		1400			
0700		1400			
0715		1450			53 DEGREES C. SURFACE LINE TEMP.
0730		1500			SAME
0745		1590			56 DEGREES C. SURFACE LINE TEMP.
0800		1600			SAME
0813		1600	7900	294	SAME-CLOSED TOOL
1213					OPENED BYPASS AND PULL FREE
1218					BROKE OFF HEAD, PULLED 3
					STANDS
1242					HEAD UP AND RIG MANIFOLD AGAIN
					TO CIRCULATE
1244					RELEASED DROP BAR
1245					PIN SHEARED IN REVERSING SUB.

TYPE & SIZE MEASURING DEVICE: 6" CERAMIC CHOKE | TICKET NO: 25057000

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
					LET ANNULUS EQUALIZE. SWITCH
					LINES AND CIRCULATE THE LONG
					WAY
1430					BROKE OFF HEAD AND PULLED OUT
					OF HOLE
1730					BROKE DOWN TOOLS
1830					OUT OF HOLE

TICKET NO: 25057000	GAUGE NO: 8014
CLOCK NO: 32070 HOUR: 24	DEPTH: 7256.2

HALLIBURTON SERVICES

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	1079.3			
2	10.0	2589.2	1510.0		
3	20.0	2317.1	-272.2		
4	30.0	2239.4	-77.6		
5	40.0	2227.0	-12.4		
6	50.0	2227.0	0.0		
7	60.0	2232.5	5.5		
8	70.0	2246.5	14.1		
9	80.0	2242.4	-4.1		
10	90.0	2253.6	11.3		
11	100.0	2239.2	-14.4		
12	110.0	2237.4	-1.8		
C 13	121.5	2243.4	6.0		
		FIRST CLOSED-IN			
C 1	0.0	2243.4			
D 2	238.5	33.4	-2209.9	80.5	0.179

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$

REMARKS:

TICKET NO: 25057000	GAUGE NO: 7984
CLOCK NO: 30368 HOUR: 24	DEPTH: 7277.3

HALLIBURTON SERVICES

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	2016.1			
2	10.0	2572.5	556.3		
3	20.0	2494.8	-77.7		
4	30.0	2435.9	-58.9		
5	40.0	2424.1	-11.8		
6	50.0	2425.5	1.4		
7	60.0	2430.0	4.5		
8	70.0	2432.8	2.8		
9	80.0	2435.6	2.8		
10	90.0	2435.9	0.3		
11	100.0	2431.1	-4.9		
12	110.0	2434.5	3.5		
C 13	121.5	2438.7	4.2		
		FIRST CLOSED-IN			
C 1	0.0	2438.7			
2	1.0	2746.5	307.8	1.0	2.076
3	2.0	2748.4	309.7	1.9	1.798
4	3.0	2750.5	311.8	2.9	1.619
5	4.0	2752.2	313.5	3.9	1.494
6	5.0	2753.3	314.6	4.8	1.402
7	6.0	2754.0	315.3	5.7	1.328
8	7.0	2754.8	316.1	6.6	1.267
9	8.0	2755.2	316.5	7.5	1.209
10	9.0	2755.7	317.0	8.4	1.161
11	10.0	2756.2	317.5	9.2	1.120
12	12.0	2756.7	318.0	10.9	1.045
13	14.0	2756.7	318.0	12.6	0.986
14	16.0	2758.0	319.2	14.2	0.934
15	18.0	2758.0	319.2	15.7	0.890
16	20.0	2758.3	319.6	17.2	0.850
17	22.0	2758.3	319.6	18.6	0.815
18	24.0	2758.7	319.9	20.1	0.782
19	26.0	2759.7	321.0	21.4	0.754
20	28.0	2759.7	321.0	22.8	0.728
21	30.0	2760.2	321.5	24.1	0.703
22	35.0	2760.2	321.5	27.2	0.650
23	40.0	2761.1	322.4	30.1	0.606
24	45.0	2761.4	322.7	32.9	0.568
25	50.0	2761.4	322.7	35.4	0.535
26	55.0	2761.4	322.7	37.9	0.506
27	60.0	2760.0	321.3	40.2	0.481
28	70.0	2755.4	316.6	44.4	0.437
29	80.0	2757.3	318.6	48.2	0.401
30	90.0	2760.2	321.5	51.7	0.371
31	100.0	2765.4	326.7	54.9	0.345
32	110.0	2765.4	326.7	57.7	0.323
33	120.0	2765.4	326.7	60.4	0.304
34	135.0	2765.4	326.7	63.9	0.279
35	150.0	2765.4	326.7	67.1	0.258

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST CLOSED-IN - CONTINUED			
36	165.0	2761.9	323.2	70.0	0.240
37	180.0	2761.9	323.2	72.5	0.224
38	195.0	2765.4	326.7	74.9	0.210
39	210.0	2767.6	328.9	77.0	0.198
40	225.0	2767.5	328.8	78.9	0.188
D 41	238.5	2767.8	329.1	80.5	0.179

REMARKS:

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TICKET NO: 25057000	HALLIBURTON SERVICES	GAUGE NO: 1888
CLOCK NO: 30347 HOUR: 24		DEPTH: 7394.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW			
B 1	0.0	2508.2			
2	10.0	2576.6	68.4		
3	20.0	2617.7	41.1		
4	30.0	2542.1	-75.6		
5	40.0	2535.9	-6.2		
6	50.0	2535.9	0.0		
7	60.0	2535.9	0.0		
8	70.0	2540.2	4.3		
9	80.0	2550.3	10.1		
10	90.0	2549.5	-0.8		
11	100.0	2551.7	2.2		
12	110.0	2551.1	-0.6		
C 13	121.5	2543.7	-7.4		
		FIRST CLOSED-IN			
C 1	0.0	2543.7			
2	1.0	2768.8	225.2	1.0	2.080
3	2.0	2776.1	232.4	2.0	1.783
4	3.0	2779.7	236.1	3.0	1.614
5	4.0	2781.6	238.0	3.9	1.498
6	5.0	2782.4	238.8	4.8	1.400
7	6.0	2784.2	240.5	5.7	1.328
8	7.0	2785.4	241.8	6.7	1.261
9	8.0	2786.2	242.6	7.5	1.208
10	9.0	2786.4	242.7	8.4	1.161
11	10.0	2786.4	242.7	9.2	1.119
12	12.0	2787.2	243.5	10.9	1.046
13	14.0	2789.1	245.4	12.6	0.985
14	16.0	2789.6	245.9	14.1	0.934
15	18.0	2790.2	246.5	15.7	0.890
16	20.0	2790.3	246.7	17.2	0.849
17	22.0	2791.0	247.3	18.6	0.814
18	24.0	2791.0	247.3	20.1	0.782
19	26.0	2791.6	247.9	21.4	0.754
20	28.0	2792.2	248.6	22.7	0.728
21	30.0	2793.2	249.5	24.1	0.703
22	35.0	2794.0	250.3	27.2	0.650
23	40.0	2794.8	251.1	30.1	0.606
24	45.0	2794.8	251.1	32.8	0.568
25	50.0	2795.7	252.1	35.4	0.535
26	55.0	2796.0	252.4	37.8	0.507
27	60.0	2796.0	252.4	40.2	0.481
28	70.0	2796.7	253.0	44.4	0.437
29	80.0	2797.3	253.6	48.2	0.401
30	90.0	2797.6	254.0	51.7	0.371
31	100.0	2798.1	254.4	54.8	0.345
32	110.0	2798.1	254.4	57.7	0.323
33	120.0	2798.4	254.7	60.4	0.304
34	135.0	2798.9	255.2	63.9	0.279
35	150.0	2798.9	255.2	67.1	0.258
		FIRST CLOSED-IN - CONTINUED			
36	165.0	2799.4	255.7	70.0	0.240
37	180.0	2799.7	256.0	72.5	0.224
38	195.0	2799.7	256.0	74.9	0.210
39	210.0	2799.7	256.0	77.0	0.198
40	225.0	2799.7	256.0	78.9	0.188
D 41	238.5	2799.7	256.0	80.5	0.179

REMARKS:

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TICKET NO. 25057000

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	6609.3	
4	FLEX WEIGHT.....	4.500	2.875	179.7	
3	DRILL COLLARS.....	6.250	2.875	434.8	
51	PUMP OUT REVERSING SUB.....	6.000	3.000	1.0	7224.2
50	IMPACT REVERSING SUB.....	6.000	3.000	1.0	7225.2
3	DRILL COLLARS.....	6.250	2.875	28.3	
258	BAR CATCHER SUB	5.750	1.000	1.0	7254.0
80	AP RUNNING CASE.....	5.000	2.250	4.1	7256.2
5	CROSSOVER.....	5.000	2.250	1.0	
12	DUAL CIP VALVE.....	5.000	0.870	4.9	
202	SAMPLE CHAMBER.....	5.000	2.500	4.9	
33	DRAIN VALVE.....	5.000	2.200	0.9	
60	HYDROSPRING TESTER.....	5.000	0.750	5.3	7275.1
80	AP RUNNING CASE.....	5.000	2.250	4.1	7277.3
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	2.8	
70	OPEN HOLE PACKER.....	6.000	1.530	5.8	7292.0
18	DISTRIBUTOR VALVE.....	5.000	1.680	2.0	
70	OPEN HOLE PACKER.....	6.000	1.530	5.8	7299.9
19	ANCHOR PIPE SAFETY JOINT.....	5.000	1.500	4.3	
5	CROSSOVER.....	6.250	2.250	1.0	
3	DRILL COLLARS.....	6.250	2.875	59.0	
5	CROSSOVER.....	6.250	2.250	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.370	26.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.1	7394.0
	TOTAL DEPTH				7397.0

EQUIPMENT DATA

NOMENCLATURE

B	= Formation Volume Factor	(Res Vol/Std Vol)
c_t	= System Total Compressibility	(Vol/Vol)/psi
DR	= Damage Ratio	
h	= Estimated Net Pay Thickness	Ft
k	= Permeability	md
m	= (Liquid) Slope Extrapolated Pressure Plot	psi/cycle
	(Gas) Slope Extrapolated m(P) Plot	MM psi^2/cp/cycle
m(P*)	= Real Gas Potential at P*	MM psi^2/cp
$m(P_f)$	= Real Gas Potential at P_f	MM psi^2/cp
AOF_1	= Maximum Indicated Absolute Open Flow at Test Conditions	MCFD
AOF_2	= Minimum Indicated Absolute Open Flow at Test Conditions	MCFD
P*	= Extrapolated Static Pressure	Psig
P_f	= Final Flow Pressure	Psig
Q	= Liquid Production Rate During Test	BPD
Q_1	= Theoretical Liquid Production w/Damage Removed	BPD
Q_g	= Measured Gas Production Rate	MCFD
r_i	= Approximate Radius of Investigation	Ft
r_w	= Radius of Well Bore	Ft
S	= Skin Factor	
t	= Total Flow Time Previous to Closed-in	Minutes
Δt	= Closed-in Time at Data Point	Minutes
T	= Temperature Rankine	°R
ϕ	= Porosity (fraction)	
μ	= Viscosity of Gas or Liquid	cp
Log	= Common Log	

EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility	$\frac{kh}{\mu} = \frac{162.6\ QB}{m}$	$\frac{\text{md-ft}}{\text{cp}}$
Indicated Flow Capacity	$kh = \frac{kh}{\mu}\mu$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151\left[\frac{P^*-P_i}{m} - LOG\left(\frac{k\,(t/60)}{\phi\,\mu\,c_t r_w^2}\right) + 3.23\right]$	
Damage Ratio	$DR = \frac{P^* - P_i}{P^* - P_i - 0.87\ mS}$	
Theoretical Potential w/Damage Removed	$Q_t = Q\ DR$	BPD
Approx. Radius of Investigation	$r_i = 0.032\sqrt{\frac{k\,(t/60)}{\phi\mu c_t}}$	ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity	$kh = \frac{.001637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151\left[\frac{m(P^*)-m(P_i)}{m} - LOG\left(\frac{k\,(t/60)}{\phi\,\mu\,c_t r_w^2}\right) + 3.23\right]$	
Damage Ratio	$DR = \frac{m(P^*) - m(P_i)}{m(P^*) - m(P_i) - 0.87\ mS}$	
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_i)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g\sqrt{\frac{m(P^*)}{m(P^*) - m(P_i)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032\sqrt{\frac{k\,(t/60)}{\phi\,\mu\,c_t}}$	ft

1296-R6

WP:5159N

000027

SANTOS LIMITED
PETROLEUM DEVELOPMENT DEPARTMENT
DARALINGIE #16 MODIFIED ISOCHRONAL
(PATCHAWARRA FORMATION)
TEST CONDUCTED 9-13 APRIL 1987

Report No: RE:113/88
Author: T.M. Greaney/P.M. Pedler
Date: September 1988

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2.	RESULTS	2
3.	DISCUSSION	3

APPENDICES

I Test Data

II Full Well Stream Recombination

1. INTRODUCTION

Daralingie #16 was drilled as a Patchawarra gas appraisal well in May 1986. The primary objectives were the Patchawarra 70-6 and 70-9 sands and the secondary objective was the Patchawarra 69-7 sand. The well was completed as a single gas producer from the Patchawarra 70-6 and 70-9 sands in March, 1987. The sand, pay thickness and perforated intervals are as follows:

Sand	Net Pay (ft)	Perforations (ft KB)
70-6	11	7344 - 7356
70-9	38	7356 - 7399
	49	

A modified isochronal test was conducted over the Patchawarra Formation from April 9 to April 13, 1987 to evaluate well deliverability and reservoir parameters. Results of this test are presented in this report.

2. RESULTS

The following results were obtained from the modifed isochronal using the Horner and LIT analyses.

Flow Capacity	2119 md-ft
Permeability	43.2 md
Turbulence coefficient	0.854 MMSCFD $^{-1}$
Apparent Skin	23.4
True skin	17.3
Reservoir pressure	2489 psia @ datum (7202'KB)
Flow rate	7.1 MMSCFD @ 860 psia FTHP
Condensate production	150 BPD
Water production	19 BPD
A.O.F.	20.4 MMSCFD

3. DISCUSSION

The results (Table 1) interpreted from the modified isochronal were in reasonable agreement with the results of DST #2 which was conducted over the 70-6 and 70-9 sands. A comparison between the results is as follows:

	MOD. ISOCHRONAL	DST #2
Kh(md-ft)	2119	2153 (middle bomb) 1635 (bottom bomb)
q(MMSCFD)	7.1 @ 860 psia FTHP	8.5 @ 1615 psia FTHP
P*(psia)	2489 @ 7207'KB	2787 @ 7277'KB (middle) 2818 @ 7394'KB (bottom)
S'	23.4	17.8 (middle bomb) 8.5 (bottom bomb)
S	17.3	N/A

The following points are noted:

(i) Flow capacity and permeability are similar to values observed during the DST.

(ii) The apparent skin is slightly higher than the DST measured value. The true skin factor was 17.3 indicating formation damage.

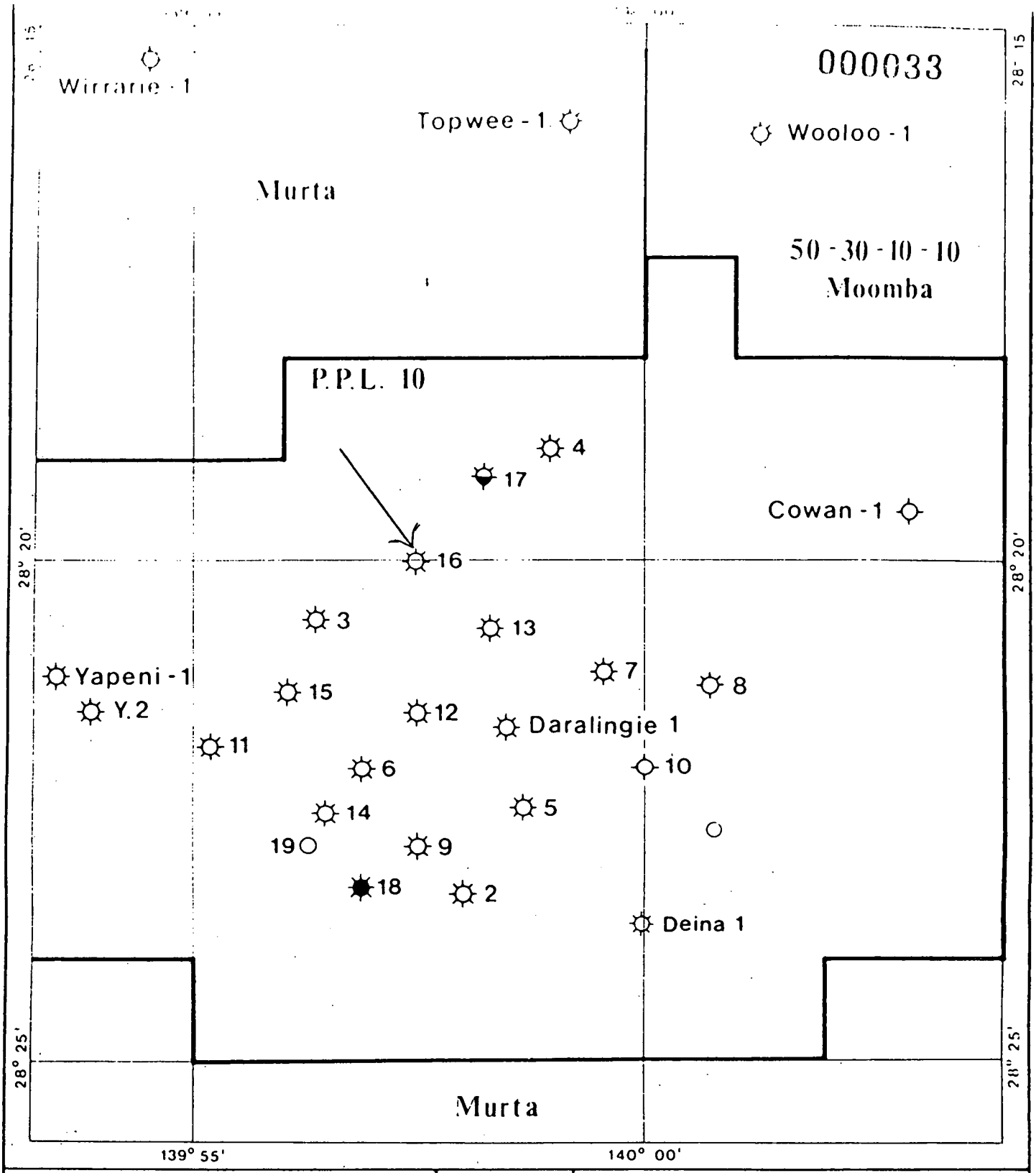
(iii) The reservoir pressure at the datum depth of 7207'KB was 2489 psia, indicating a 300 psi depletion from May 1986 to April 1987. The reservoir pressure measured at Daralingie 16 compares well with the reservoir pressures at Daralingie 12 and 13 (Figure 1) measured four months prior to the modified isochronal test. These pressures are shown below for comparison purposes.

Daralingie Patchawarra	May 1986 (psia)	December 1986 (psia)
13	N/A	2326 (calc)
12	2717	2475

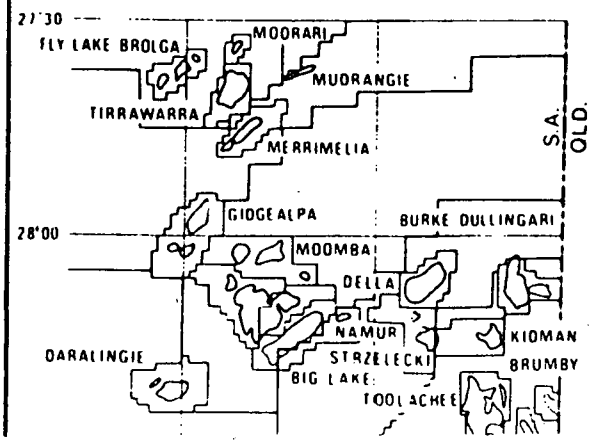
The Simplified Analysis (Figure 4) indicated an AOF of 20.4 MMSCFD. This compared well with the LIT Analysis (Figure 5) which yielded an AOF of 22.7 MMSCFD. The straight line of the LIT Analysis passes through only 3 of the 4 test points, hence, point 2 was discarded.

The test data are presented in Appendix I and the recombination of high pressure gas and condensate samples is documented in Appendix II.

The Daralingie Main composition was used to determine pseudo pressures rather than the calculated FWS which appears to be unrepresentative.



LOCATION MAP



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DARALINGIE FIELD

DARALINGIE

LOCATION MAP

FIGURE 1

SCALE 1:100000

0 1 2 3 4 5

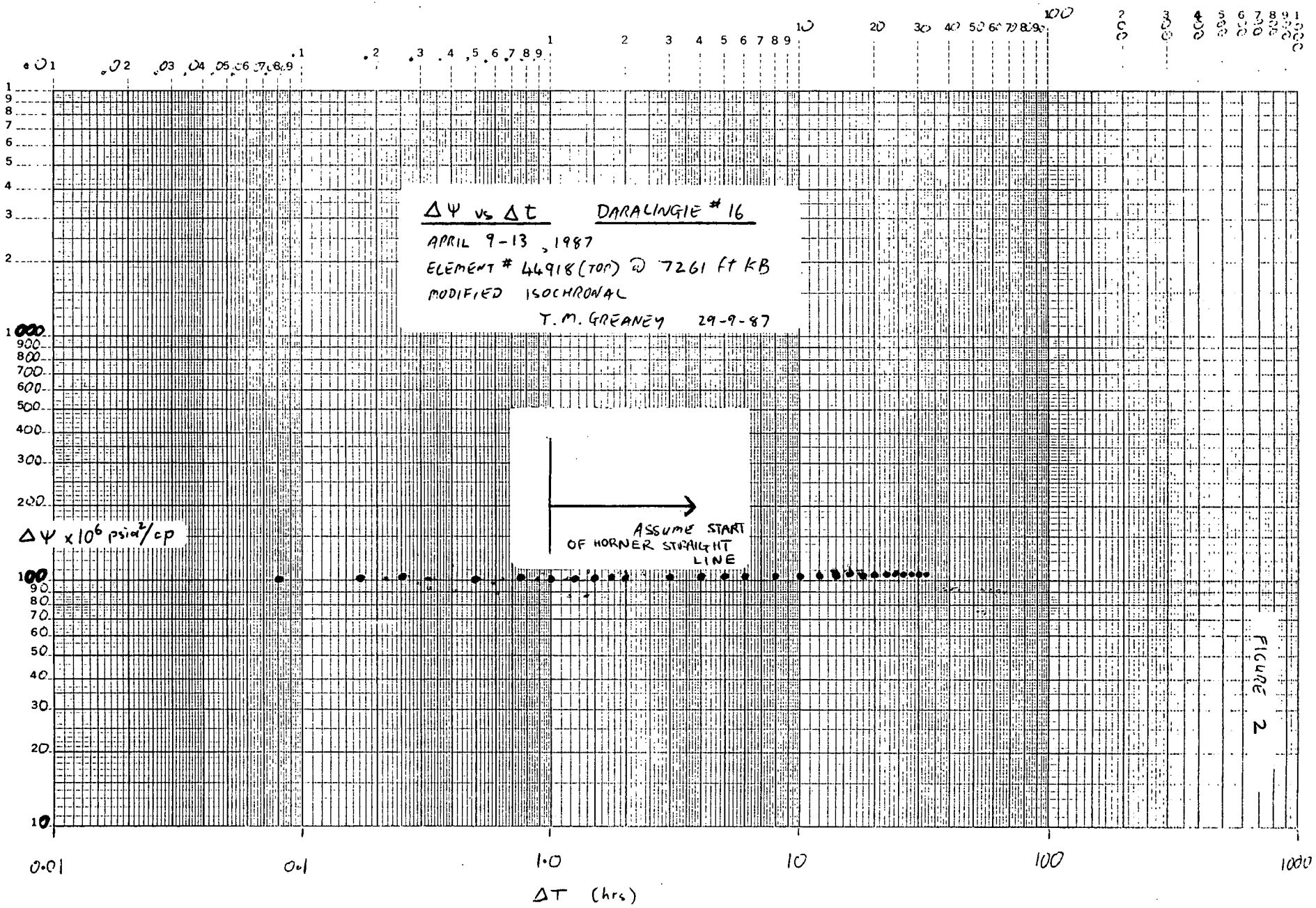

FIGURE 2

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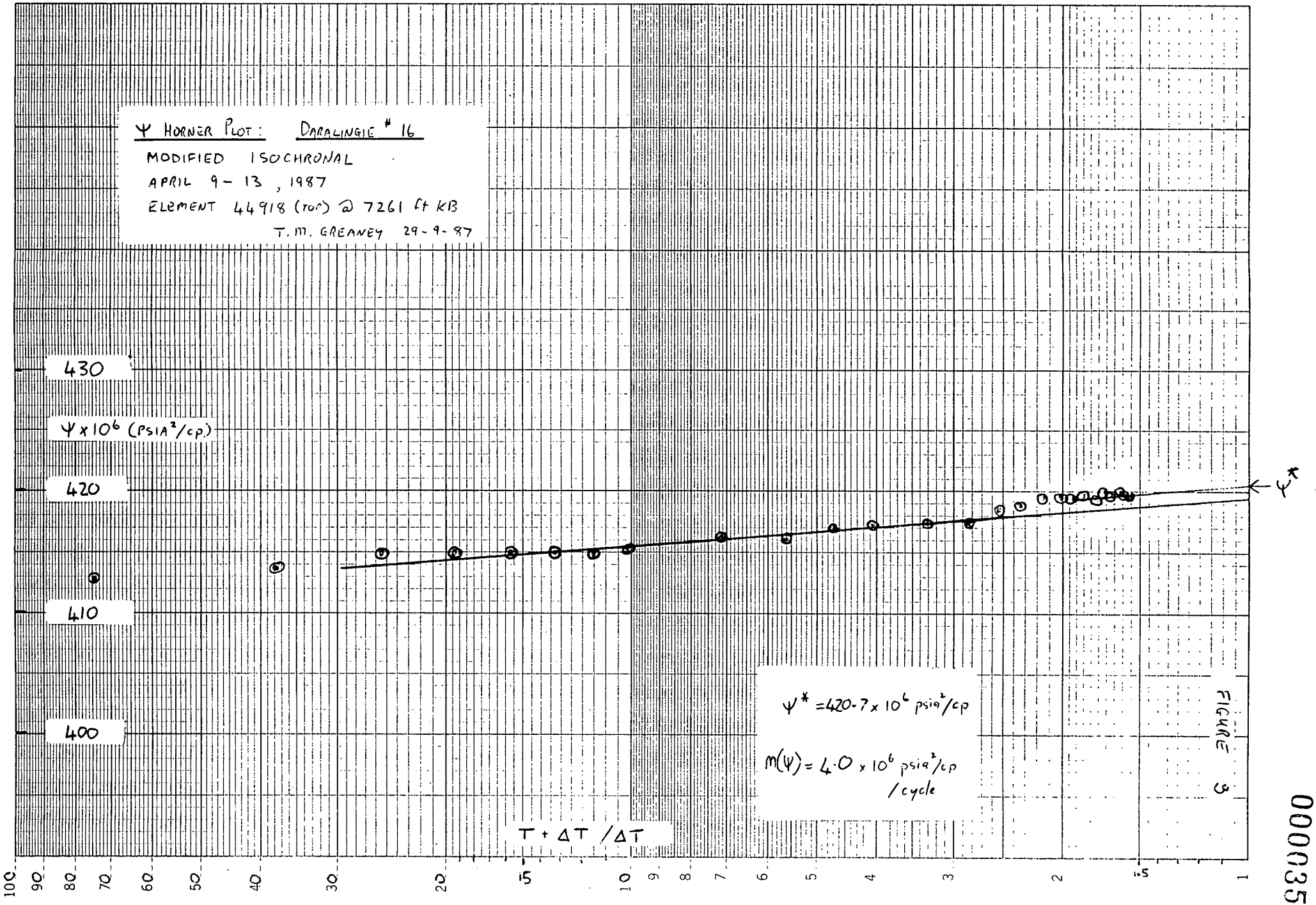

FIGURE 3

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K+E SEMI-LOGARITHMIC • 2 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 4970

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BACK PRESSURE PLOT

DARLINGIE #16

MODIFIED ISOCHRONAL

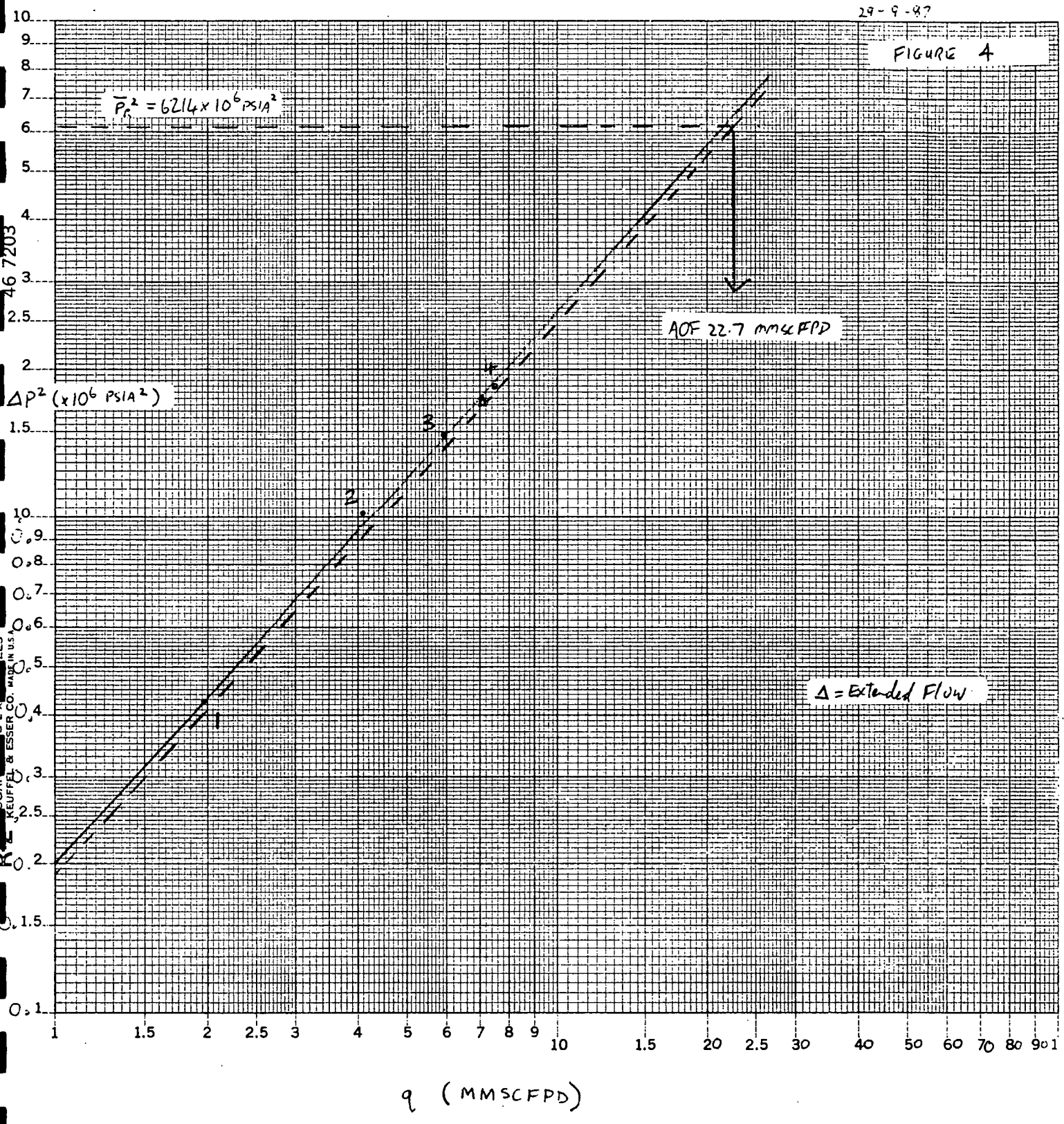
APRIL 9-13, 1987

ELEMENT 44918 (TOP) @ 7261 FT KB

T.M. BREANEY

29-9-87

SIMPLIFIED ANALYSIS



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DARALINGIE #

MODIFIED ISO

APRIL 9 - 13

ELEMENT 44918

LIT (Ψ) ANALYSIS

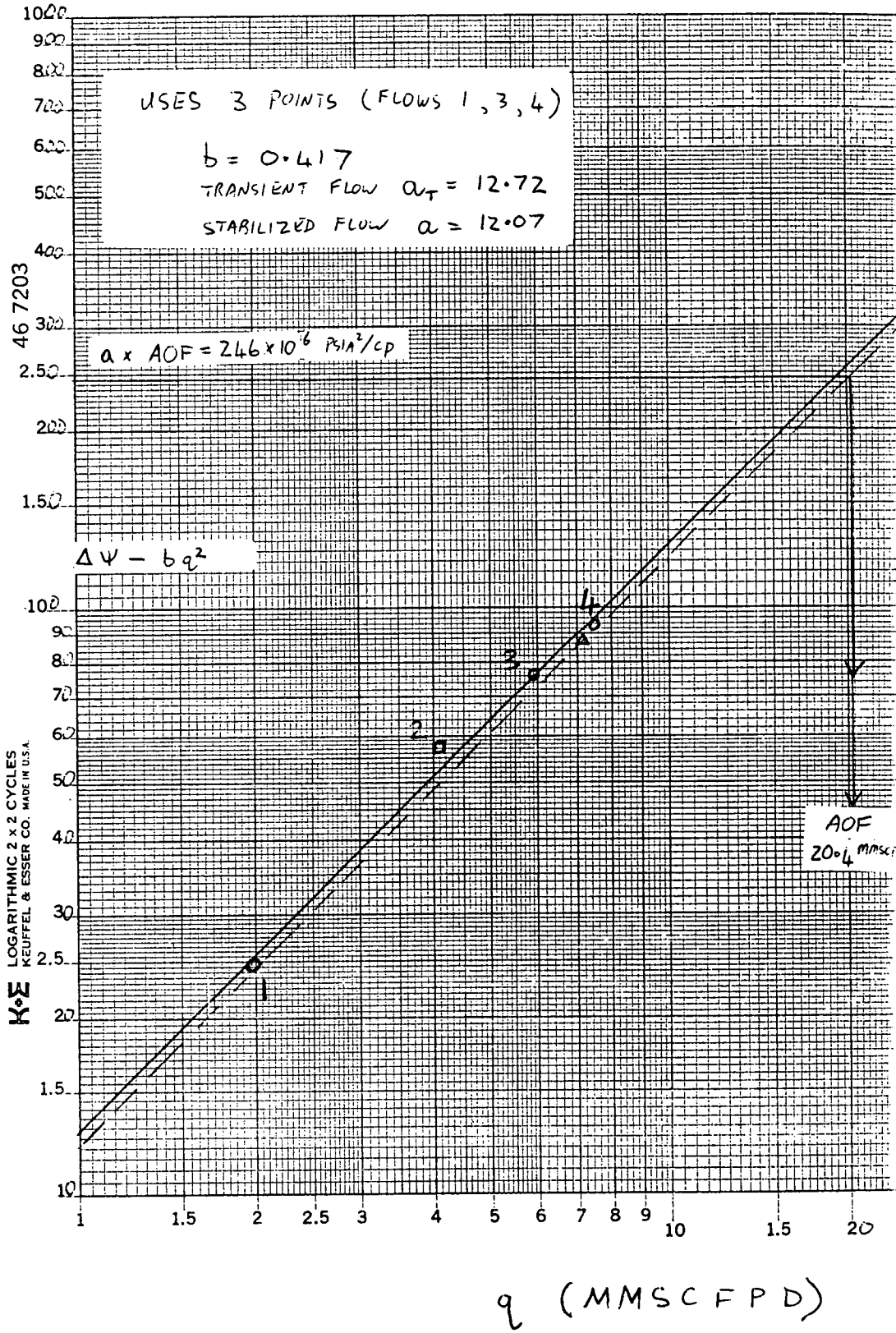

TABLE 1

GAS WELL DELIVERABILITY TEST

RESULTS OF ISOCHRONAL 'LIT' ANALYSIS

WELL NAME: DARALINGIE #16 FORMATION: Patchawarra DATE OF TEST 9-13/4/87

DATUM DEPTH: 7100 ftSS (7202 ftKB) DEPTH TESTED: 7261 ft K.B. (Bomb Depth)

PRESSURE BUILD-UP INFORMATION

EXTRAPOLATED PRESSURE p^{2*} = 6214 x 10^3 psia²

p^* = 2492.7 psia (2489.2 psia at Datum)

ψ^* = 420.7 x 10^6 psia²/cp

HORNER BUILD-UP SLOPE m = (59 – 70) x 10^3 psia²/cycle

m(ψ) = 4.0 x 10^6 psia²/cp/cycle

WELL AND TEST PARAMETERS (Assumes Main Area + 730°R)

Porosity ø = 14.3% Avg Viscosity μ = 0.0184 cp

Compressibility C_t = 3.918×10^{-4} psia⁻¹ well radius r_w = 0.354 ft.

Well drainage r_e = _____ thickness h = net 49 ft.

Final flow rate q = 7.114 MMcfd Temperature T = 730 °R

Sandface press. p_{wf} = 2116.2 psia Press 1 hr p_1 = 2471.3 psia

ψ_{wf} = 311.9 x 10^6 psia²/cp ψ_1 = 444.3 (interpolated) x10^6 psia²/cp

BACK PRESSURE COEFFICIENTS

$$\Delta\psi = a\,q + bq^2$$

a = 12.07 x 10^6 psia²/cp/MMcfd

b = 0.417 x 10^6 psia²/cp/MMcfd

FOR STABILIZED FLOW BASED ON POINTS FROM FLOWS 1, 3, 4.

FLOW CAPACITY

$$kh = \frac{1.632 \times 10^6}{m} qT = 2118.8 \text{ md-ft}$$

PERMEABILITY

$$k = \frac{kh}{h} = 43.2 \text{ md}$$

APPARENT SKIN

$$S' = 1.151\left[\frac{\psi_1 - \psi_{wf}}{m} - \log\left(\frac{k}{\phi\mu C_t r_w^2}\right) + 3.23\right] = 23.4$$

TURBULENCE COEFFICIENT

$$D = \frac{b\,kh}{1.417 \times 10^6 T} = 0.854 \text{ MMcfd}^{-1}$$

TRUE SKIN

$$S = S' - Dq = 17.3$$

APPENDIX I

TEST DATA

Well Name: DARALINGIE #16

Date Tested: 9 - 13 April 1987

Pressure Element: 44918 (TOP)

Depth Tested: 7261 ft KB

	Lubricator Pressure (psia) In	Out
Amerada	1997 PSIA	2000 PSIA
Deadweight	2005 PSIA	2010 PSIA

t = 18.410 hrs (= 5.457 MMSCF ÷ 7.114 MMSCF/D × 24 HRS/DAY)

Δt hours	PRESSURE psia	PSEUDO PRESSURE $psia^2/cp \times 10^6$ Main Area + 730°R	ΔΨ	$\frac{t + \Delta t}{\Delta t}$
0	2116.2	311.9	—	—
0.08	2464.2	412.2	100.3	231.1
0.17	2464.9	412.4	100.5	109.3
0.25	2466.4	412.8	100.9	74.6
0.50	2469.8	413.8	101.9	37.8
0.75	2473.2	414.9	103.0	25.5
1.00	2473.8	415.0	103.1	19.4
1.25	2473.7	415.0	103.1	15.7
1.50	2473.6	415.0	103.1	13.3
1.75	2473.4	414.9	103.0	11.5
2	2474.8	415.3	103.4	10.2
3	2478.0	416.3	104.4	7.14
4	2477.5	416.2	104.3	5.60
5	2480.2	417.0	105.1	4.68
6	2480.9	417.2	105.3	4.07
8	2481.6	417.4	105.5	3.30
10	2482.0	417.5	105.6	2.84
12	2485.7	418.6	106.7	2.53
14	2486.6	418.9	107.0	2.32
16	2488.5	419.5	107.6	2.15
18	2488.7	419.5	107.6	2.02
20	2488.6	419.5	107.6	1.92
22	2489.7	419.8	107.9	1.84
24	2488.6	419.5	107.6	1.77
26	2490.3	420.0	108.1	1.71
28	2489.2	419.7	107.8	1.66
30	2490.6	420.1	108.2	1.61
32	2489.5	419.8	107.9	1.58
32.83	2489.0	419.6	107.7	1.56

SANTOS LTD.

GAS WELL DELIVERABILITY TEST CALCULATIONS
(Base Conditions = 14.65 psia and 60°F)

WELL NAME: Daralingie # 16 DATE: 9-13/4/87

ELEMENT NO: 44918 (TOP)
DWT IN: 1990 PSI
LUB IN: 1982 PSI

DEPTH TESTED: 7261' KB
OUT: 1995 PSI
OUT: 1985 PSI

SIMPLIFIED ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Cal.	Meas.	Δp^2 ($\times 10^6$ psia²)	Flow Rate (Mmscfd)	H/Carbon Prod. (BBLS/D)	Water Prod. (BBLS/D)
Initial Shut In	22	2486.65		✓	-	-	-	-
Flow 1	2	2398.75		✓	0.429	1.972	57.363	3.774
Shut In	2	2484.25		✓	-	-	-	-
Flow 2	2	2268.45		✓	1.026	4.105	155.861	9.435
Shut In	2	2484.55		✓	-	-	-	-
Flow 3	2	2168.05		✓	1.473	5.936	169.447	18.492
Shut In	2	2486.35		✓	-	-	-	-
Flow 4	2	2081.25		✓	1.850	7.513	186.430	14.341
Extended Flow	12.92	2116.15		✓	1.717	7.114	149.852	19.218
Final Shut In	32.83	2488.95		✓	-	-	-	-

REMARKS

$q = C(\bar{p}_R^2 - p_{wf}^2)^n$

✓ slope n = 0.905

$\bar{p}_R$ = 2486.65 psia

✓ $C = \dfrac{q}{(\bar{p}_R^2 - p_{wf}^2)^n}$

✓ = 16.2×10^{-6}

AOF (MMscfd)

✓ = 22.7

✓

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✓ ✓ ✓

SANTOS LTD.

GAS WELL DELIVERABILITY TEST CALCULATIONS
(Base Conditions = 14.65 psia and 60°F)

*OMITS FLOW 2

LIT (Ψ) ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Ψ ($x10^6$ psia²/cp)	ΔΨ ($x10^6$ psia²/cp)	Flow Rate (q) (MMscfd)	ΔΨ/q	q²	ΔΨ - bq²
Initial Shut In	22	2486.65	418.9	—				
Flow 1	2	2398.75	392.5	26.4	1.972	13.39	3.89	24.8
Shut In	2	2484.25	418.2	—				
Flow 2	2	2268.45	354.6	(64.3)	(4.105)		(16.85)	(57.3)
Shut In	2	2484.55	418.3	—				
Flow 3	2	2168.05	325.9	93.0	5.936	15.67	35.24	78.3
Shut In	2	2486.35	418.8	—				
Flow 4	2	2081.25	302.4	116.5	7.513	15.51	56.45	93.0
Total=*	—	—	—	Σ235.9	Σ15.421	Σ44.57	Σ95.58	
Extended Flow	12.92	2116.15	311.9	107.0	7.114	15.04	50.61	85.9
Final Shut In	32.83	2488.95	419.6					

Main Area
730°R

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SANTOS LTD.

GAS WELL DELIVERABILITY TEST CALCULATIONS

L.I.T. (Ψ) ANALYSIS

DISCARDED POINT FLOW 2

N = 3 $\bar{\Psi}_R$ = 418.9 MMpsia²/cp

$$a, a_t = \frac{\Sigma \frac{\Delta\Psi}{q} \Sigma q^2 - \Sigma q \, \Sigma \Delta\Psi}{N \, \Sigma q^2 - \Sigma q \, \Sigma q} = 12.72$$

$$b = \frac{N \Sigma \Delta\Psi - \Sigma q \, \Sigma \frac{\Delta\Psi}{q}}{N \, \Sigma q^2 - \Sigma q \, \Sigma q} = 0.417$$

(EXTENDED FLOW)

$\Delta\Psi$ = 107.0 q = 7.114 b = 0.417

$$a = \frac{\Delta\Psi - bq^2}{q} = 12.07$$

SIMPLIFIED ANALYSIS

A.O.F. = 22.7 MMSCFD n = 0.905

Total Volume of Gas Produced During Test = 5.457 MMSCF

Condensate = 128.1 Bbls

Water = 14.2 Bbls

REMARKS

RESULTS

TRANSIENT FLOW: $\bar{\Psi}_R - \Psi_{wf} = a_t q + bq^2$

i.e. 418.9 $- \Psi_{wf}$ = 12.72 q + 0.417 q^2

STABLIZED FLOW: $\bar{\Psi}_R - \Psi_{wf} = aq + bq^2$

i.e. 418.9 $- \Psi_{wf}$ = 12.07 q + 0.417 q^2

DELIVERABILITY:

$$q = \frac{1}{2b} \left[-a + \sqrt{a^2 + 4b \, (\bar{\Psi}_R - \Psi_{wf})}\right]$$

FOR $\Psi_{wf} = 0$, q = AOF = 20.4 MMscfd

Interpreted by: T.A. FREANEY Date: 5-10-87

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SANTOS LTD.
WELL TEST SUMMARY

WELL: Daralingie # 16
TESTED BY: oilserv
CASING SIZE: 7 ins
TUBING SIZE: 2-3/8 ins

LOCATION: Lat.: 28° 19' 57.1" S
Long: 139° 57' 26.2" E
PERFORATIONS: 7344 - 7399 ft
WEIGHT: 23 & 26 lb/ft
WEIGHT: 4.7 lb/ft

DATE: 9-13 /4 /87
PRODUCING THROUGH: Tubing
GRADE: N80 & J55
GRADE: J55

FORMATION: Patchawarra

DESCRIPTION OF TEST

INITIAL SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing psig	Casing psig	Temp. °F	
9/4	0600	0	1629	525	138	Shut well in
9/4	1400	8				Ran Blind box - Stuck in hole
9/4	1845	12.75 B.O.L.				Opened well on 18/64" choke to try and work
9/4	2000	0 S.I.				wire free - unsuccessful.
10/4	1032					Shut well in.
10/4	1800	22				Successfully freed toolstring. Opened well for rate # 1.

Flow Period

Run No.: 1 Duration of Run: 2 Hours.
Flow Well On: 17/64" Choke.

Orifice Size: 1.750 ins
Meter Run: 4.026 ins

Date	Time	Flow Time (Hours)	Wellhead Readings Tubing psig	Casing psig	Temp. °F	Meter or Prover Data Pf psig	Hw inches	Temp. °F	Condensate Production Bbls/d	Water Production Bbls/d
10/4	1800	0	1988	0						
	1805	0.08	1870	0	99					
	1810	0.17	1872	0	100					
	1815	0.25	1871	0	100	295	36	43		
	1830	0.5	1865	0	102	300	35	37		
	1900	1	1864	0	102	300	34	32	86.044	4.529
	1930	1.5	1862	0	104	305	34	32		
	2000	2	1856	0	104	315	36	32	28.681	3.019

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SANTOS LTD.
WELL TEST SUMMARY

2ND SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing psig	Casing psig	Temp. °F	
10/4	2000	0	1856	0	104	Shut well in
	2005	0.08	1986	0		
	2010	0.17	1987	0		
	2015	0.25	1988	0		
	2030	0.5	1988	0		
	2045	0.75	1990	0		
	2100	1	1992	0		
	2115	1.25	1993	0		
	2130	1.5	1994	0		
	2145	1.75	1994	0		
	2200	2	1994	0		Opened well for rate #2

Flow Period

Run No.: 2 Duration of Run: 2 Hours. Orifice Size: 2.500 ins
Flow Well On: 22/64" Choke. Meter Run: 4.026 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover Data			Condensate Production	Water Production
			Tubing psig	Casing psig	Temp. °F	Pf psig	Hw inches	Temp. °F	Bbls/d	Bbls/d
10/4	2200	0	1994	0						
	2205	0.08	1581	0	102					
	2210	0.17	1577	0	104					
	2215	0.25	1587	0	104	305	36	43		
	2230	0.5	1585	0	106	305	36	41		
	2300	1	1587	0	109	305	36	43	241.528	13.586
	2330	1.5	1585	2	109	305	35	43		
	2400	2	1584	4	111	305	35	45	70.194	5.283

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3RD SHUT IN PERIOD

Time of Observations			Observed Pressures			
Date	Time	Shut In Time (Hours)	Tubing psig	Casing psig	Temp. °F	REMARKS
10/4	2400	0	1584	4	111	Shut well in
11/4	0005	0.08	1998	0		
	0010	0.17	1997	0		
	0015	0.25	1995	0		
	0030	0.5	1996	0		
	0045	0.75	1997	0		
	0100	1	1998	0		
	0115	1.25	1999	0		
	0130	1.5	1998	0		
	0145	1.75	1997	0		
	0200	2	1996	0		Opened well on rate # 3

Flow Period

Run No.: 3 Duration of Run: 2 Hours.
Flow Well On: 31/64" Choke.

Orifice Size: 2.500 ins
Meter Run: 4.026 ins

Date	Time	Flow Time (Hours)	Wellhead Readings Tubing psig	Casing psig	Temp. °F	Meter or Prover Data Pf psig	Hw inches	Temp. °F	Condensate Production Bbls/d	Water Production Bbls/D
11/4	0200	0	1996	0						
	0205	0.08	1180	0	108					
	0210	0.17	1188	0	109					
	0215	0.25	1198	0	109	295	73	55		
	0230	0.5	1215	0	111	295	77	57		
	0300	1.0	1221	3	115	292	79	61	195.487	12.831
	0330	1.5	1223	6	117	292	80	63		
	0400	2	1225	7	117	292	80	61	143.407	24.153

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SANTOS LTD.
WELL TEST SUMMARY

4TH SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing psig	Casing psig	Temp. °F	
11/4	0400	0	1225	7	117	Shut well in
	0405	0.08	1999	4		
	0410	0.17	2000	4		
	0415	0.25	2002	2		
	0430	0.5	2003	1		
	0445	0.75	2001	0		
	0500	1	2001	0		
	0515	1.25	2000	0		
	0530	1.5	2000	0		
	0545	1.75	2000	0		
	0600	2	2000	0		Open well on rate # 4

Flow Period

Run No.: 4 Duration of Run: 2 Hours.
Flow Well On: 56/64" Choke.

Orifice Size: 3.000 ins
Meter Run: 4.026 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover Data			Condensate Production Bbls/d	Water Production Bbls/d
			Tubing psig	Casing psig	Temp. °F	Pf psig	Hw inches	Temp. °F		
11/4	0600	0	2000	0						
	0605	0.08	566	0	99					
	0610	0.17	595	0	109					
	0615	0.25	603	0	109	290	52	82		
	0630	0.5	607	12	111	292	54	84		
	0700	1.0	607	48	113	290	55	90	191.713	21.134
	0730	1.5	608	80	117	288	56	93		
	0800	2	609	100	118	288	56	95	181.146	7.548

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SANTOS LTD.
WELL TEST SUMMARY
FINAL STABILIZATION FLOW PERIOD

Flow Period

Run No.: 5 Duration of Run: 12.92 Hours.
Flow Well On: 42/64" Choke.

Orifice Size: 3.000 ins
Meter Run: 4.026 ins

Date	Time	Flow Time (Hours)	Wellhead Readings Tubing psig	Casing psig	Temp. °F	Meter or Prover Data Pf psig	Hw inches	Temp. °F	Condensate Production Bbls/d	Water Production Bbls/d
11/4	0800		609	100	118	Cut choke to 45/64"				
	0803		766	100	118	Cut choke to 43/64"				
	0805	0	810	103	118	Cut choke to 42/64"				
	0810	0.08	835	105	120					
	0815	0.17	835	108	120	290	50	90		
	0830	0.42	835	136	122	290	50	88		
	0900	0.92	836	162	124	288	50	91	182.656	22.643
	1000	1.92	838	220	127	285	51	93	158.503	21.134
	1100	2.92	840	261	129	285	52	97	152.465	21.134
	1200	3.92	843	299	133	285	52	99	126.047	24.908
	1300	4.92	843	340	135	285	52	102	177.372	11.322
	1400	5.92	844	375	136	280	53	102	162.277	18.869
	1500	6.92	845	405	138	280	53	104	120.764	22.643
	1600	7.92	846	450	138	280	52	104	140.388	25.662
	1700	8.92	847	480	140	280	51	106	131.331	19.624
	1800	9.92	846	510	142	286	51	108	146.427	12.076
	1900	10.92	847	525	142	290	50	108	143.407	15.096
	1915	11.17	847	525	142	290	50	108		
	1930	11.42	846	530	142	297	50	108		
	1945	11.67	846	530	144	297	50	108		
	2000	11.92	846	535	144	297	50	108	147.936	18.115
	2100	12.92	846	555	144	297	50	108	158.503	16.605

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SA[redacted] LTD.
WELL TEST SUMMARY
FINAL BUILD-UP PERIOD

Date	Time	Shut in Period (Hours)	Tubing Pressure psig	Casing Pressure psig	Wellhead Temp. °F	REMARKS
11/4	2100	0	846	555	144	Shut well in
	2105	0.08	2004	555		
	2110	0.17	2007	550		
	2115	0.25	2009	500		
	2130	0.5	2010	325		
	2145	0.75	2011	225		
	2200	1	2012	125		
	2215	1.25	2012	75		
	2230	1.5	2010	50		
	2245	1.75	2010	25		
	2300	2	2010	10		
	2400	3	2007	0		
12/4	0100	4	2005	0		
	0200	5	2004	0		
	0300	6	2002	0		
	0500	8	2002	0		
	0700	10	2001	0		
	0900	12	2000	0		
	1100	14	2000	0		
	1300	16	1998	0		
	1500	18	1997	0		
	1700	20	1995	0		
	1900	22	1991	0		
	2100	24	1990	0		
	2300	26	1990	0		
13/4	0100	28	1988	0		
	0300	30	1988	0		
	0500	32	1985	0		
	0550	32.83	1985	0		P.O.O.H.

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SANTOS LTD.

WELL TEST SUMMARY

FINAL BUILD-UP, SUBSURFACE PRESSURES

ELEMENT NO. 44918 (TOP)

BOMB DEPTH 7261 'KB

DWT IN : 1990 / OUT: 1995 PSI

LUB.IN : 1982 / OUT: 1985 PSI

Date	Time	Shut In Time (Hours)	PRESSURE psig	PRESSURE psia² x10³	T + θ / θ	REMARKS
11/4	2100	0	2101.5	4478	–	Shut well in
	2105	0.08	2449.5	6072	231.1	
	2110	0.17	2450.2	6075	109.3	
	2115	0.25	2451.7	6083	74.6	
	2130	0.5	2455.1	6100	37.8	
	2145	0.75	2458.5	6116	25.5	
	2200	1	2459.1	6119	19.4	
	2215	1.25	2459.0	6119	15.7	
	2230	1.5	2458.9	6118	13.3	
	2245	1.75	2458.7	6117	11.5	
	2300	2	2460.1	6124	10.2	
	2400	3	2463.3	6140	7.1	
12/4	0100	4	2462.8	6138	5.6	
	0200	5	2465.5	6151	4.7	
	0300	6	2466.2	6155	4.1	T = Cumulative Production / Last Production Rate.
	0500	8	2466.9	6158	3.3	
	0700	10	2467.3	6160	2.8	= 18.410 hours
	0900	12	2471.0	6178	2.5	
	1100	14	2471.9	6183	2.3	
	1300	16	2473.8	6192	2.2	
	1500	18	2474.0	6193	2.0	
	1700	20	2473.9	6193	1.9	
	1900	22	2475.0	6198	1.8	
	2100	24	2473.9	6193	1.8	
	2300	26	2475.6	6201	1.7	
13/4	0100	28	2474.5	6196	1.7	
	0300	30	2475.9	6203	1.6	
	0500	32	2474.8	6197	1.6	
	0550	32.83	2474.3	6195	1.6	P.O.O.H.

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SANTOS LTD.
WELL TEST SUMMARY
CALCULATION SHEET

GAS RATES THROUGH SEPARATOR

Run No.	Hw (inches in water)	Pf (psig)	Size Orifice Plate (inches)	Ft (°F)
1	36	315	1.750	32
2	35	305	2.500	45
3	80	292	2.500	61
4	56	288	3.000	95
5	50	297	3.000	108

Separator Gas Properties

Specific Gravity = 0.826
TC = 415 °R
PC = 686 psia
CO2 CONTENT = 7.44 mole %

Meter Run = 4.026"

GAS RATES THROUGH SEPARATOR

Run No.	Q (Mmscfd)	PRODUCTION
1	1.972	1.627
2	4.105	
3	5.936	
4	7.513	
5	7.114	3.830

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APPENDIX II

FULL WELL STREAM RECOMBINATION

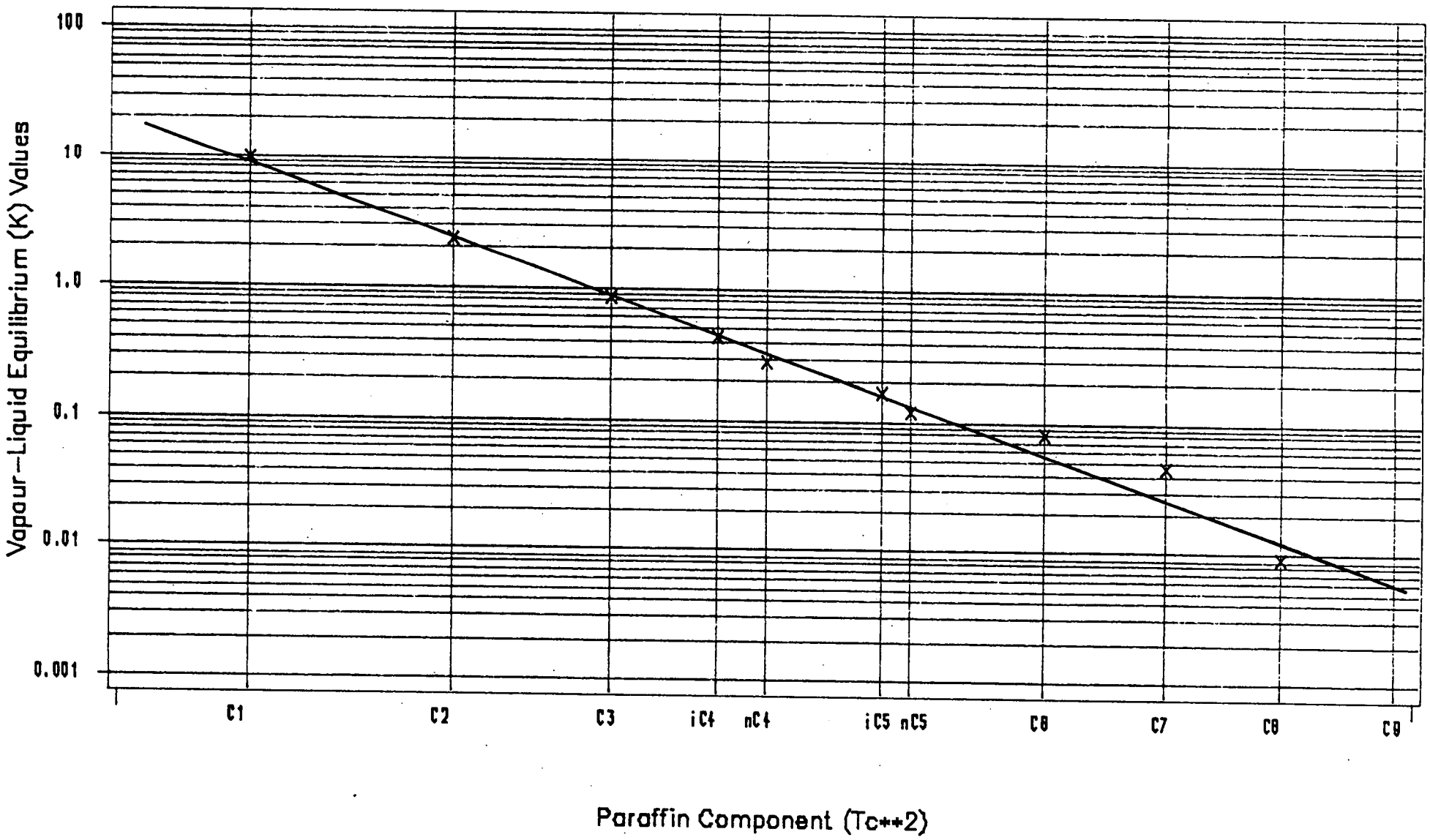
DARALINGIE #16 RECOMBINATION

Separator gas and liquid samples were taken from the subject well during the extended flow period of the modified isochronal test. The samples were analysed by AMDEL and mathematically recombined to yield the following FWS composition.

	MOLE %
CO_2	7.33
N_2	2.61
C_1	69.21
C_2	10.42
C_3	4.43
iC_4	0.68
nC_4	1.45
iC_5	0.58
nC_5	0.58
C_6	0.76
C_7/Benzene	0.67
C_8+	1.28
MW C_8+	147.0
SG C_8+	0.791

This composition is more liquids rich than the accepted Daralingie composition. The Daralingie field is known to be retrograde hence condensed liquids from the reservoir may have been collected with the separator gas and liquid samples. This would explain the high percentages of the C5+ components. The log K vs Tc^2 plot yields a relatively straight line indicating equilibrium conditions for the separator liquid and gas samples in the separator. The Daralingie Main FWS composition was used to generate the pseudo pressures due to the questionable results of the above recombination.

WELL=DARALINGIE # 16 Date of sample=10/04/87



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Data Generated AUG 26, 1988

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Please address all
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SA 5063
In reply quote:

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amdel

NATA CERTIFICATE

AMDEL GAS ANALYSIS SERVICE Method R1.1

Client: SANTOS Report # F5224/87

Sample: DARALINGIE No. 16
10/4/87, 1800 hrs
Patchawarra fmtn, 7344-7399 ft
ex test separator, 2048 kpa, 42 degrees C

GAS	MOL %
Oxygen plus Argon	<0.01
Nitrogen	2.65
Carbon Dioxide	7.44
Methane	70.30
Ethane	10.53
Propane	4.42
I-Butane	0.67
N-Butane	1.39
I-Pentane	0.53
N-Pentane	0.51
Hexane	0.63
Heptanes	0.49
Octanes & Higher	0.44
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.826

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1203 BTU/CU Ft	44.82 MJ/CU.M
Nett:	1093 BTU/CU Ft	40.71 MJ/CU.M
Gross calorific value of water-saturated gas		44.03 MJ/CU.M

Average Molecular Weight = 23.893

All results are based on an air and water free basis

This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the Batch.

Approved Signatory Brian Steve
28.4.87

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NATA
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In reply quote:

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NATA CERTIFICATE

AMDEL High Pressure Liquid Analysis R2.2

Client: SANTOS

Report # F5224/87

Sample: DARALINGIE No. 16
Patchawarra fmtn, 7344-7399 ft, 10/4/87, 1800
ex test separator, 2048 kpa, 42 degrees C

After compression to a pressure greater than that at which it was collected, the sample was flashed to atmosphere at 25°C.

The volume of each is then measured and the density of the oil determined. Both fractions are then analysed chromatographically. Mathematical recombination of the results gives an analysis of the sample as received.

The sample yielded 415 mls of liquid
and 17.7 litres of gas at 23.5 °C.

Flash Gas Analysis

Component Gas	Mol (%)
Nitrogen	2.96
Carbon Dioxide	6.52
Methane	33.12
Ethane	19.21
Propane	18.14
I-Butane	3.52
N-Butane	8.27
I-Pentane	2.48
N-Pentane	2.49
Hexanes	2.20
Heptanes	0.87
Octanes and Higher Hydrocarbons	0.22
Total	100.00
Calculated Gas Density (rel air =1)	1.257

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1884.38 BTU/CU Ft	70.19 MJ/CU.M
Nett:	1728.25 BTU/CU Ft	64.38 MJ/CU.M
Gross calorific value of water-satura		68.98 MJ/CU.M

Average Molecular Weight = 36.245

This report relates specifically to the sample tested; it also relates to the batch insofar as the sample is representative of the Batch.

Approved Signatory Brian J Stevens.

Date 21-Apr-87

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Queensland 4814
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NATA
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amdel

AMDEL High Pressure Liquid Analysis R2.2 NATA Certificate

Flash Liquid Analysis

Client: SANTOS

Report # F5224/87

Sample: DARALINGIE No. 16 21-Apr-87
Patchawarra fmtn, 7344-7399 ft, 10/4/87, 1800 hrs
ex test separator, 2048 kpa, 42 degrees C

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	Ethane	0.09	0.35
-42.1	Propane	0.64	1.71
-11.7	I-Butane	0.48	0.97
-0.5	N-Butane	1.94	3.93
27.9	I-Pentane	2.03	3.31
36.1	N-Pentane	2.90	4.73
36.1-68.9	C-6	6.92	9.45
80.0	Benzene	0.16	0.24
68.9-98.3	C-7	11.53	13.54
100.9	Methylcyclohexane	7.92	9.49
110.6	Toluene	2.18	2.78
98.3-125.6	C-8	11.28	11.62
136.1-144.4	Ethylbenz+Xylenes	5.32	5.90
125.6-150.6	C-9	7.06	6.50
150.6-173.9	C-10	9.22	7.63
173.9-196.1	C-11	5.96	4.49
196.1-215.0	C-12	4.85	3.35
215.0-235.0	C-13	3.56	2.27
235.0-252.2	C-14	3.50	2.08
252.2-270.6	C-15	2.57	1.42
270.6-287.8	C-16	1.53	0.80
287.8-302.8	C-17	1.18	0.58
302.8-317.2	C-18	1.30	0.60
317.2-330.0	C-19	0.99	0.43
[illegible]-344.4	C-20	1.14	0.47
344.4-357.2	C-21	0.95	0.38
357.2-369.4	C-22	0.75	0.28
369.4-380.0	C-23	0.68	0.25
380.0-391.1	C-24	0.40	0.14
391.1-401.7	C-25	0.36	0.12
401.7-412.2	C-26	0.26	0.08
412.2-422.2	C-27	0.09	0.03
>422.2	C-28+	0.26	0.08
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

The above boiling point ranges refer to the normal paraffin hydrocarbon boiling in that range. Aromatics, branched hydrocarbons, naphthenes and olefins may have higher or lower carbon numbers but are grouped and reported according to their boiling points.

Oil Parameters:

Specific Gravity	@ 23.5 °C	0.7410	
Specific Gravity	@ 15.6 °C	0.7479	
API Gravity		57.70	→.7476 @ 15°C
Specific Gravity of C8+ fraction		0.7907	(calc)
Average molecular weight of C-8+ fraction			147

amdel

AMDEL High Pressure Liquid Analysis R2.2 NATA Certificate

Calculated Composition of Total Sample as Received

Client: SANTOS Report # F5224/87

Sample: DARALINGIE No. 16 21-Apr-87
Patchawarra fmtn, 7344-7399 ft, 10/4/87, 1800 hrs
ex test separator, 2048 kpa, 42 degrees C

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-195.8	Nitrogen	0.19	0.67
-78.5	Carbon Dioxide	0.05	1.47
-164	Methane	1.21	7.48
-88.6	Ethane	1.40	4.61
-42.1	Propane	2.44	5.50
-11.7	I-Butane	0.91	1.55
-0.5	N-Butane	2.87	4.91
27.9	I-Pentane	2.27	3.12
36.1	N-Pentane	3.07	4.22
36.1-68.9	C-6	6.78	7.81
80.0	Benzene	0.15	0.19
68.9-98.3	C-7	10.77	10.67
100.9	Methylcyclohexane (C7	7.26	7.34
110.6	Toluene (C7	2.00	2.15
98.3-125.6	C-8	10.40	9.04
136.1-144.4	Ethylbenz+Xylenes	4.88	4.56
125.6-150.6	C-9	6.48	5.01
150.6-173.9	C-10	8.46	5.90
173.9-196.1	C-11	5.47	3.46
196.1-215.0	C-12	4.45	2.59
215.0-235.0	C-13	3.27	1.76
235.0-252.2	C-14	3.21	1.61
252.2-270.6	C-15	2.36	1.10
270.6-287.8	C-16	1.40	0.62
287.8-302.8	C-17	1.08	0.45
302.8-317.2	C-18	1.19	0.46
317.2-330.0	C-19	0.91	0.34
330.0-344.4	C-20	1.05	0.37
344.4-357.2	C-21	0.87	0.29
357.2-369.4	C-22	0.69	0.22
369.4-380.0	C-23	0.62	0.19
380.0-391.1	C-24	0.37	0.11
391.1-401.7	C-25	0.33	0.09
401.7-412.2	C-26	0.24	0.06
412.2-422.2	C-27	0.08	0.02
>422.2	C-28+	0.24	0.06
	Total	100.00	100.00

R4

000059

TELEPHONE (08) 354 0488 TELEX AA87183

EXPERTEST PTY LTD
WIRELINE & WELL TESTING SERVICE

138 RICHMOND ROAD MARLESTON SA 5033 POSTAL ADDRESS: PO BOX 354 COWANDILLA 5033

WIRELINE REPORT

CLIENT SANTOS WELL DARALINGIE #16

DATE 14.10.89

PROGRAMME STATIC GRADIENT.

PURPOSE OF WORK

REPORT OF WORK PERFORMED

0700 : RIG UP WIRELINE UNIT.

0730 : RUN IN HOLE WITH 1.5" TOOL STRING. DOING PICK UPS EVERY 500' BECAUSE OF CORK SCREW TUBING.

0750 : REACH DEPTH OF 5500' KB UNIT UNABLE TO PULL TOOL STRING OUT OF HOLE WITHOUT MANUAL ASSISTANCE.

0755 : PULL OUT OF HOLE.

0815 : IN LUB.

0930 : RUN STATIC GRADIENT SEE ATTACHED REPORT.

1107 : RIG DOWN END SURVEY.

M B Mueller
Operator's Signature

WORKED PERFORMED BY M. MUELLER OF EXPERTEST

RECEIVED 04 JAN 1990 MINERALS & ENERGY SECURITY 7012/2

WELL DATA:

Tubing Size FWHP SIWHP

Subsurface S.V./Landing Nipple @ S.S.D. @

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

Min. I.D. @ Packer @

Perforated Interval:

E1

EXPERTEST
WIRELINE & WELL TESTING SERVICE
PO BOX 354 COONDDILLA 5033
PH. (08) 354 0400 TELEX AA87183
FAX (08) 43 7408
139 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Saturday, 14th October 1989.

CLIENT	LOCATION	FORMATION
Santos Ltd.	DARALINGIE #16	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA

POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	29372	3950	12/10/89
Bottom	29371	4000	12/10/89

WELL DATA

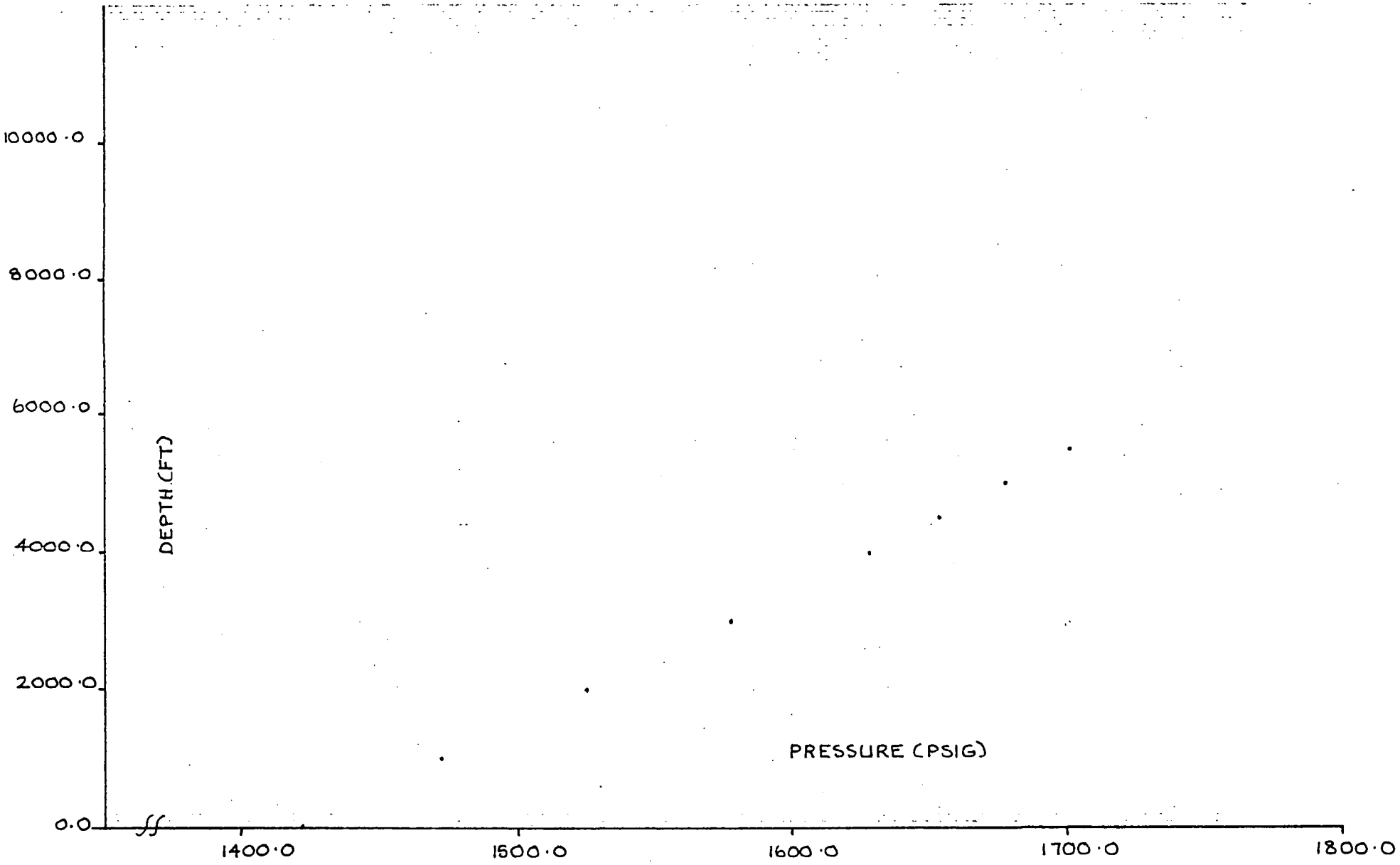
PARAMETER	VALUE
DWT In	9867 KPa
DWT Out	9915 KPa
Max BHT	110 C

	TOP ELEMENT			BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.7100	1414.4	-----	0.7060	1422.1	-----
1000	0.7380	1470.3	0.056	0.7310	1472.5	0.050
2000	0.7640	1522.2	0.052	0.7570	1524.9	0.052
3000	0.7890	1572.1	0.050	0.7830	1577.3	0.052
4000	0.8140	1622.1	0.050	0.8080	1627.6	0.050
4500	0.8270	1648.1	0.052	0.8210	1653.8	0.052
5000	0.8390	1672.1	0.048	0.8330	1678.0	0.048
5500	0.8510	1696.0	0.048	0.8450	1702.2	0.048
LUB.	0.7130	1420.4	-----	0.7100	1430.2	-----

GENERAL REMARKS

UNABLE TO GO HANG DEPTH ON PROGRAM DUE TO CORKSCREW TUBING.
DWT AT BOTTOM STOP 9915 KPa.

DARALINGIE # 16 — STATIC PRESSURE GRADIENT — 14/10/89
ELEMENT # 29321/4000 (BOT)



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Fm 6030

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EXPERTEST PTY LTD
WIRELINE & WELL TESTING SERVICE
138 RICHMOND ROAD MARLESTON SA 5033 POSTAL ADDRESS: PO BOX 354 COWANDILLA 5033

STATIC GRADIENT SURVEY

CLIENT SANTOS

WELL DARANNGIE #16

OPERATOR M. MELLER

DATE 14.10.89

BOMB No. 1 DATA		BOMB No 2 DATA		DWT IN
ELEMENT No. 29322	ELEMENT RANGE 3950 PSI	ELEMENT No. 29321	ELEMENT RANGE 4000 PSI	9567 KPA
RECORDER No 14632	CLOCK DATA A12047 - 3HR	RECORDER No 70547	CLOCK DATA 25512 - 3HR	DWT OUT
ENGAGE STYLUS 0905	DISENGAGE 1108	ENGAGE STYLUS 0905	DISENGAGE 1108	9915 KPA
PRESSURE LUBRICATOR 0915		BLEED LUBRICATOR 1105		

DATE	TIME	DEPTH'	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft	DEPTH'	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft	REMARKS
	0915	LUB								CASING : 331 KPA.
	0930	RIH								
	0933	1000								MBHT : 110 °C.
	0941	2000								
	0949	3000								* NOTE : UNABLE TO GO TO HANG.
	0957	4000								DEPTH ON PROGRAM DUE
	1004	4500								TO CORK SCREW TUBING.
	1011	5000								
	1018	5500								DWT @ BOTTOM STOP 9915 KPA
	1033	POOH								
	1048	LUB								

GENERAL REMARKS:

E4

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EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER : SANTOS.	PERFORATIONS: 7344' – 7399' KB.	PAGE: ONE OF ONE
WELL NAME: DARALINGIE #16.	FORMATION : PATCHAWARRA.	DATE: 21/3/91.
TEST TYPE : STATIC GRADIENT.		OPR : K. KEANE.

DATE/TIME	DESCRIPTION OF EVENTS
21ST MARCH 1991.	
09:30	ARRIVE LOCATION, RIG UP WIRELINE UNIT AND EQUIPMENT. PRESSURE TEST EQUIPMENT O.K.
10:21	R.I.H WITH 1.50" TOOL STRING.
10:35	TAG PROGRAMME DEPTH 5500' K.B. – CORKSCREW TUBING BEYOND THIS DEPTH.
10:50	Arrive Lub.
11:03	Press. Lub for S.G.S with Amerada's coupled to 3 HR clocks.
12:01	Arrive Hang Depth 5500' K.B.
12:16	P.O.O.H.
12:27	Arrive Lub
12:43	Depress Lub. Charts Good. Rig down. Secure well.

h

000063

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EXPERTEST
WIRELINE & WELL TESTING SERVICE
PO BOX 354 COWANDILLA 5033
PH. (08) 354 0488 TELEX AA87183
FAX (08) 43 7408
138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Thursday, 21st March 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	DARALINGIE #16	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

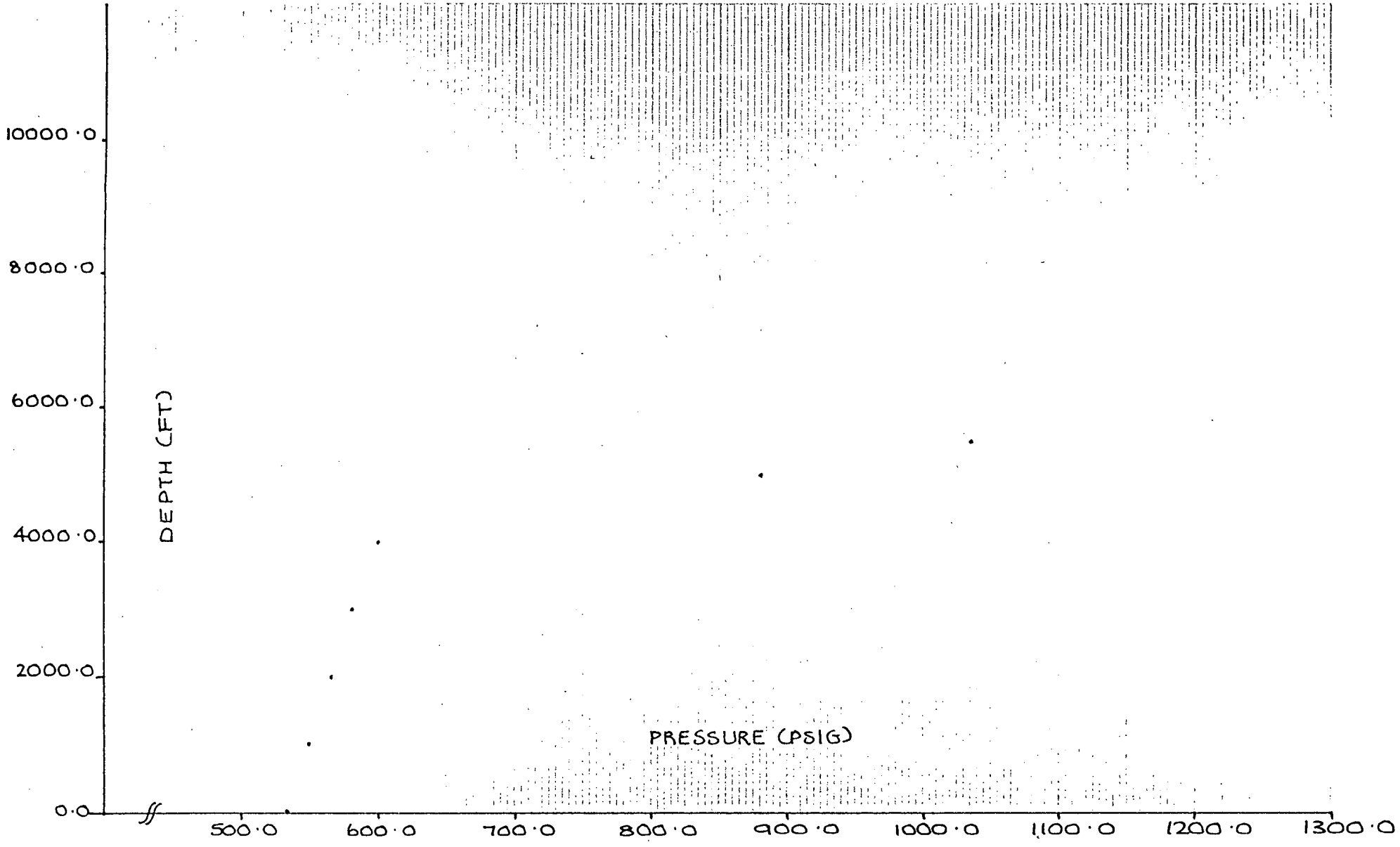
PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	21379	4825	10/ 1/91
Bottom	21821	4750	10/ 1/91

WELL DATA	
PARAMETER	VALUE
DWT In	538 PSIG
DWT Out	538 PSIG
Max BHT	232F

	TOP ELEMENT			BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.2120	524.3	-----	0.2140	533.8	-----
1000	0.2180	539.3	0.015	0.2200	548.8	0.015
2000	0.2250	556.7	0.017	0.2270	566.3	0.018
3000	0.2330	576.6	0.020	0.2330	581.4	0.015
4000	0.2400	594.0	0.017	0.2400	598.9	0.018
5000	0.3530	874.3	0.280	0.3520	879.7	0.281
5500	0.4170	1032.4	0.316	0.4140	1035.2	0.311
LUB.	0.2090	516.8	-----	0.2090	521.2	-----

GENERAL REMARKS

DARALINGIE # 16 — STATIC PRESSURE GRADIENT — 21/3/91
ELEMENT # 21821/4750 (BOT)



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BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS.	PERFORATIONS: 7344' - 7399' KB.	PAGE: ONE OF ONE
WELL NAME: DARALINGIE #16.	FORMATION : PATCHAWARRA	DATE: 21/3/91
TEST TYPE : STATIC GRADIENT.		OPR : K. KEANE.

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.	21379	21821	N/A.	DATE : 21/3/91.			
ELEMENT RANGE	4825 PSI	4750 PSI		PRESSURE LUBRICATOR :	11:03		
RECORDING SECTION SERIAL NO.	59288	14619		RUN IN HOLE :	11:19	3709	248
DATE OF CALIBRATION: @ 290°F	10/1/91	10/1/91.		ON DEPTH AT : 5500 FT/M	12:01	3709	248
CLOCK SERIAL NO.	A-15013	A-15014		DATE : 21/3/91.			
CLOCK RANGE	3hr	3hr		PULL OUT OF HOLE :	12:16		
LEAD SCREW TYPE	15TRS	15TRS.		AT SURFACE :	12:27		
				DEPRESSURE LUBRICATOR :	12:43	3709	248
ENGAGE STYLUS DATE 21.3.91 TIME	10:54	10:54		MAXIMUM BHT AT 5500 FT/M = 111 °F/C MAX. THERMOMETER.			
DISENGAGE STYLUS DATE 21.3.91 TIME	13:00	13:00		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

DATE	TIME	REMARKS
21.3.91.	11:03	
	↓	All depths and times as per Programme.
	12:43	

990006

ET 108

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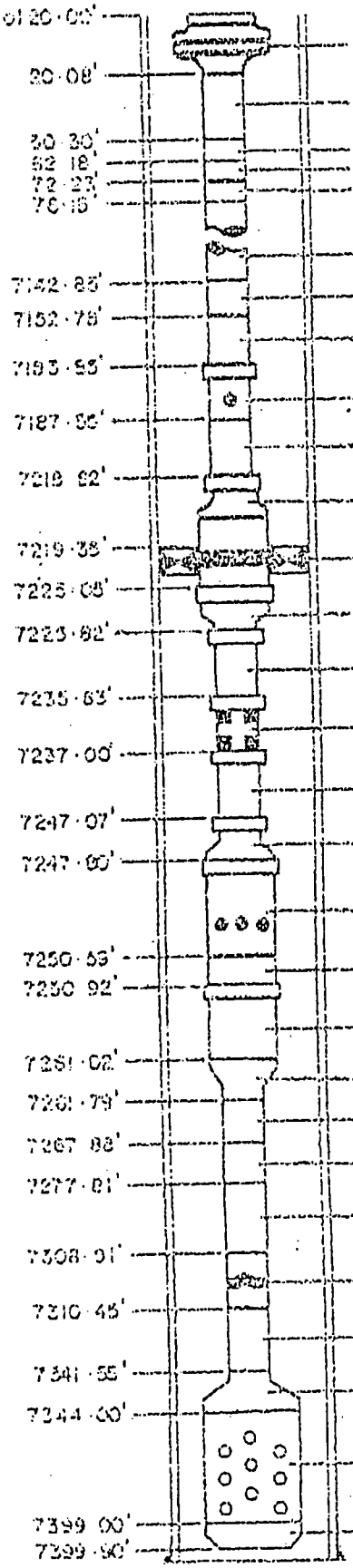
DOWNHOLE INSTALLATION

Well DARALINGIE 16

K.B. to top of tubinghead spool 20·00'



Depth	Item
20·00'	C.I.W. 2 5/8" F3D-CH tubing hanger (I.D. 1·995")
20·08'	1 jt. 2 5/8" 4·7# J55 EUE tubing
20·30'	12' x 2 5/8" 4·7# J55 EUE pup jt.
32·18'	10' x 2 5/8" 4·7# J55 EUE pup jt.
72·23'	4' x 2 5/8" 4·7# J55 EUE pup jt.
76·15'	227 jts. 2 5/8" 4·7# J55 EUE tubing (I.D. 1·995")
7152·23'	10' x 2 5/8" 4·7# J55 EUE pup jt.
7152·75'	1 jt. 2 5/8" 4·7# J55 EUE tubing
7183·55'	2 3/8" Otis 12IXOR 18700 550 (Open Down)(I.D. 1·875")
7187·55'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7218·62'	Swage 2 3/8" x 2 7/8" EUE (c/w 2 3/8" collar)
7219·38'	7" Otis 'PL' Packer model 12PL7017 (I.D. 2·480")
7225·05'	Swage 2 7/8" x 2 3/8" EUE (c/w 2 7/8" collar)
7225·82'	10' x 2 3/8" 4·7# J55 EUE pup jt.
7235·63'	1'X1' Nipple c/w 2 3/8" collar (I.D. 1·875")
7237·00'	10' x 2 3/8" 4·7# J55 EUE pup jt
7247·07'	Swage 2 3/8" x 2 7/8" EUE c/w 2 3/8" collar
7247·90'	2 7/8" Vent Sub (c/w 2 7/8" collar Box Down)(I.D. 2·437")
7250·53'	Nipple 2 3/8" x 2 3/8" (I.D. 2·441")
7250·92'	10' x 2 3/8" 6·5# J55 EUE pup jt. (I.D. 2·441")
7261·02'	Swage 2 7/8" x 2 3/8" c/w 2 7/8" collar
7261·79'	6' x 2 3/8" 4·7# J55 EUE pup jt.
7267·88'	10' x 2 3/8" 4·7# J55 EUE pup jt.
7277·81'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7308·91'	2 3/8" tubing release (Baker) (I.D. 1·920")
7310·45'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7341·55'	Firing head
7344·00'	5" O.D. Perforating gun (Top shot)
7399·00'	Bull Plug
7399·90'	

PBTD 7524' K.B.

PERFORATIONS

PATCHAWARRA

70-6 Sand 7344' - 7356' } 5" casing guns 6 shots / foot

70-9 Sand 7356' - 7399' }

REMARKS

1. Annulus fluid: 8.5 p.p.g. inhibited KCl brine.
2. Indicated string weight = 21,000 #
   Calculated string weight = 22,000 #
3. Slack-off weight = 11,000 #

PROPOSED RE-COMPLETION	
DESIGNED	W. Baer
DRAFTED	A. Shearer
DATE	17/3/1987

EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER : SANTOS	PERFORATIONS: 7344'-7399'	PAGE: 1 OF 1
WELL NAME: DARALINGIE 16	FORMATION : PATCHAWARRA	DATE: 5/12/91
TEST TYPE : DRIFT RUN + STATIC GRADIENT		OPR : D. POITRAS

DATE/TIME	DESCRIPTION OF EVENTS
5/12/91	
1430	ARRIVE LOCATION - SPOT UNIT
1435	RIG UP WIRELINE UNIT + TOOL STRING FOR DRIFT RUN
1547	RUN IN HOLE WITH 1.5" DRIFT.
1618	RUN DOWN TO 5500' K.B. - TBG. CLEAR TO 5500'. AS PER PROGRAM
1619	PULL OUT OF HOLE
1630	AT SURFACE WITH TOOL STRING.
1645	SECURE AREA - LEAVE LOCATION
6/12/91	
0805	ARRIVE LOCATION - PREPARE FOR STATIC GRADIENT
0859	R.I.H. WITH AMERADA PRESSURE GAUGES + TEMP. ELEMENT FOR STATIC GRADIENT
	SEE B.H.P. REPORT FOR DETAILS.
1050	GAUGES OUT OF HOLE CHARTS GOOD - RIG DOWN EQUIPMENT
1110	SECURE WELLHEAD AREA - END OF JOB - LEAVE LOCATION.

RECEIVED
SECURITY
7012/2
000068

ET 102

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER :	SANTOS	PERFORATIONS: 7344'- 7399'	PAGE: 1 OF 1
WELL NAME:	DARALINGIE #16	FORMATION : PATCHAWARRA	DATE: 6/12/91
TEST TYPE :	STATIC GRADIENT		OPR : D. POITRAS

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.	850207	850208	29216	DATE	: 6/12/91			
ELEMENT RANGE	4075 PSI	4100 PSI	156-366°F	PRESSURE LUBRICATOR	:	0844	1648	179
RECORDING SECTION SERIAL NO.	K3433	K3434	30929	RUN IN HOLE	:	0859	1648	179
DATE OF CALIBRATION:	4/12/91	4/12/91		ON DEPTH AT	: 5500 FT/M	0948	1648	179
CLOCK SERIAL NO.	25509	K1838	25512	DATE	: 6/12/91			
CLOCK RANGE	3 HR.	3 HR.	3 HR.	PULL OUT OF HOLE	:	0959	1648	179
LEAD SCREW TYPE	15 TLS	15 TLS.	15 TLS.	AT SURFACE	:	1010	1648	179
				DEPRESSURE LUBRICATOR	:	1025	1627	179
ENGAGE STYLUS DATE 6/12/91 TIME	0831	0831	0831	MAXIMUM BHT AT	FT/M = N/A °F/C			
DISENGAGE STYLUS DATE 6/12/91 TIME	1038	1038	1038	N.B. ALL DEPTHS ARE MEASURED FROM K.B.				

DATE	TIME	REMARKS
6/12/91	0839	GAUGES IN LUBE - ATMOSPHERE
"	0844	PRESSURE UP LUBE
"	0854	DEPRESSURE LUBE - ATMOSPHERE
"	1010	AT SURFACE - DEPRESSURE LUBE - ATMOSPHERE
"	1015	PRESSURE UP LUBE
"	1025	DEPRESSURE LUBE - ATMOSPHERE

000069

ET 108

EXPERTEST
WIRELINE & WELL TESTING SERVICE
PO BOX 354 COWANDILLA 5033
PH. (08) 354 0488 TELEX AA87183
FAX (08) 43 7408
138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

000070

Tested Friday, 6th December 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	DARALINGIE 16	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA

POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	850207	4075	4/12/91
Bottom	850208	4100	4/12/91

WELL DATA

PARAMETER	VALUE
DWT In	239 PSIG
DWT Out	236 PSIG
Max BHT	N/A

	TOP ELEMENT			BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.1148	233.1	----	0.1170	230.0	-----
1000	0.1169	237.4	0.004	0.1187	233.5	0.004
2000	0.1207	245.1	0.008	0.1223	240.9	0.007
3000	0.1247	253.3	0.008	0.1266	249.8	0.009
4000	0.2293	466.4	0.213	0.2306	464.1	0.214
4500	0.3095	629.5	0.326	0.3101	627.5	0.327
5000	0.3895	792.2	0.325	0.3877	786.7	0.319
5500	0.4672	950.0	0.316	0.4651	945.4	0.317
LUB.	0.1129	229.2	-----	0.1141	224.0	-----

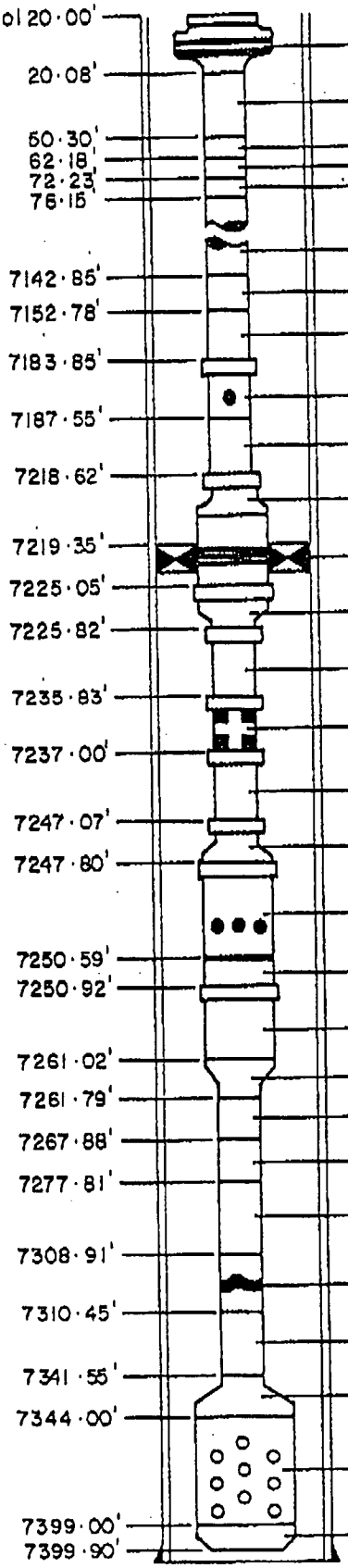
GENERAL REMARKS

000071

DOWNHOLE INSTALLATION

Well DARALINGIE 16

K.B. to top of tubinghead spool 20·00'



20·08'	C.I.W. 2 3/8" FBB-EN tubing hanger (I.D. 1·995")
50·30'	1 jt. 2 3/8" 4·7# J55 EUE tubing
62·18'	12' x 2 3/8" 4·7# J55 EUE pup jt.
72·23'	10' x 2 3/8" 4·7# J55 EUE pup jt.
76·15'	4' x 2 3/8" 4·7# J55 EUE pup jt.
7142·85'	227 jts. 2 3/8" 4·7# J55 EUE tubing (I.D. 1·995")
7152·78'	10' x 2 3/8" 4·7# J55 EUE pup jt.
7183·85'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7187·55'	2 3/8" Otis 121XDH 18700 SSD (Open Down)(I.D. 1·875")
7218·62'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7219·35'	Swage 2 3/8" x 2 7/8" EUE (c/w 2 3/8" collar)
7225·05'	7" Otis 'PL' Packer model 12PL7017 (I.D. 2·480")
7225·82'	Swage 2 7/8" x 2 3/8" EUE (c/w 2 7/8" collar)
7235·83'	10' x 2 3/8" 4·7# J55 EUE pup jt.
7237·00'	11X1 Nipple c/w 2 3/8" collar (I.D. 1·875")
7247·07'	10' x 2 3/8" 4·7# J55 EUE pup jt
7247·80'	Swage 2 3/8" x 2 7/8" EUE c/w 2 3/8" collar
7250·59'	2 7/8" Vent Sub (c/w 2 7/8" collar Box Down) (I.D. 2·437")
7250·92'	Nipple 2 7/8" x 2 7/8" (I.D. 2·441")
7261·02'	10' x 2 7/8" 6·5# J55 EUE pup jt. (I.D. 2·441")
7261·79'	Swage 2 7/8" x 2 3/8" c/w 2 7/8" collar
7267·88'	6' x 2 3/8" 4·7# J55 EUE pup jt.
7277·81'	10' x 2 3/8" 4·7# J55 EUE pup jt.
7308·91'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7310·45'	2 3/8" tubing release (Gearhart) (I.D. 1·920")
7341·55'	1 jt. 2 3/8" 4·7# J55 EUE tubing
7344·00'	Firing head
7399·00'	5" O.D. Perforating guns (Top shot)
7399·90'	Bull Plug

P.B.T.D 7524' K.B.

PERFORATIONS

PATCHAWARRA

70-6 Sand 7344'- 7356'
70-9 Sand 7356'- 7399'
5" casing guns 6 shots / foot

REMARKS

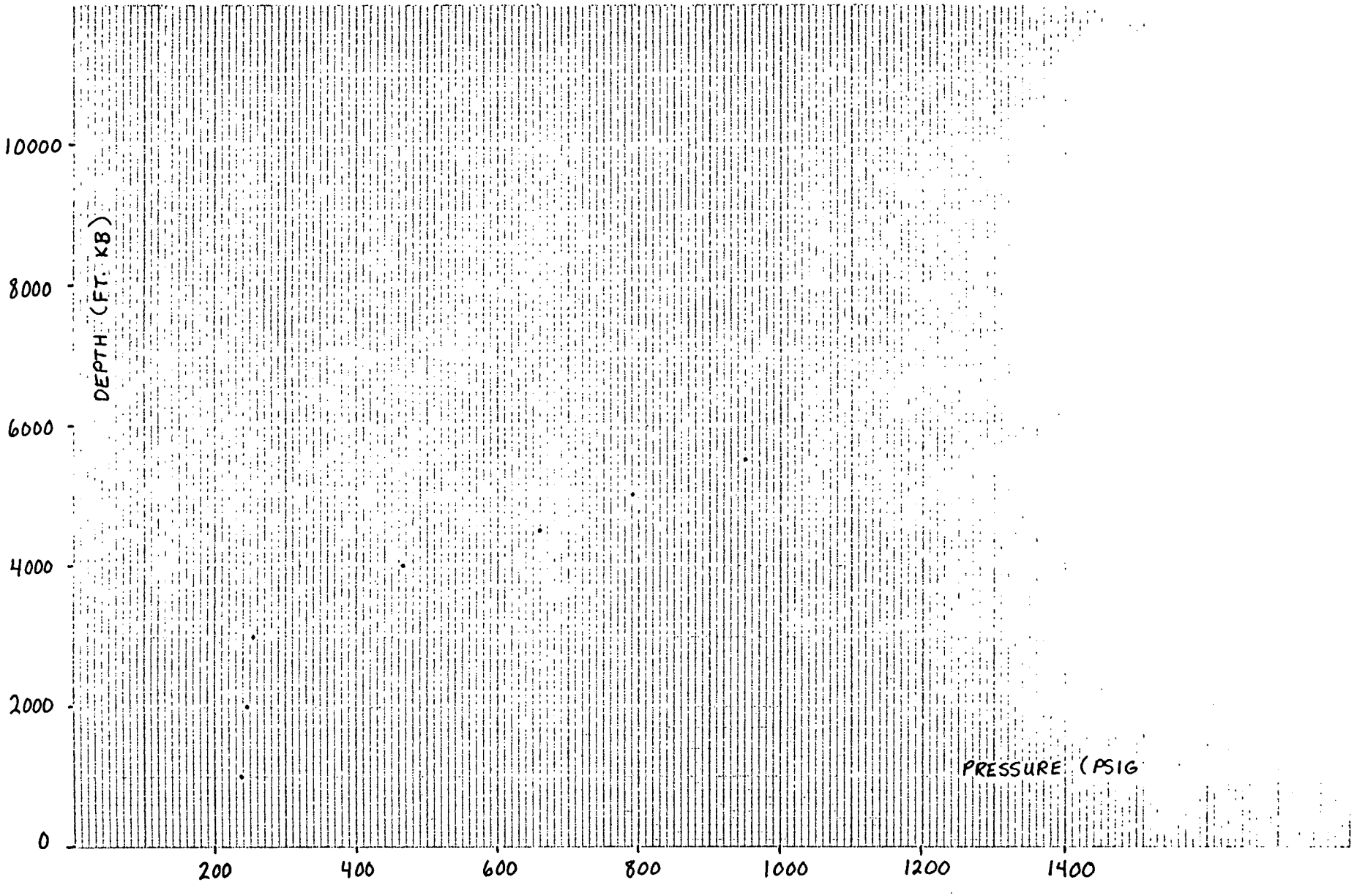
1. Annulus fluid: 8·5 p.p.g. inhibited KCl brine.
2. Indicated string weight = 21,000 #
   Calculated string weight = 22,000 #
3. Slack-off weight = 11,000 #

PROPOSED RE/COMPLETION	
COMPLETION AS RUN	X
NOT TO SCALE	

DESIGNED	W. Baer
DRAFTED	A. Shearer
DATE	17/3/1987
REVISED	

DARALINGIE # 16 - STATIC PRESSURE GRADIENT - 6/12/91

ELEMENT # 850207 (TOP)



000072

EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER :	Santos	PERFORATIONS:	7344' - 7399' KB	PAGE:	1 OF 1
WELL NAME:	Daralingie # 16	FORMATION :	Patchawarra	DATE:	6/6/93.
TEST TYPE :	Static Gradient			OPR :	P. Bowyer.

DATE/TIME	DESCRIPTION OF EVENTS
6/6/93	This well was shut in on the 18/7/89
1230	Arrive on location & rig up wire line unit.
1300	R.I.H with 1.25" toolstring & 1.5" B/Box as per program
1323	At 5500' KB as per program P.O.O.H
1338	At surface, depressure lub, remove toolstring & prepare ameradas
1355	Pressure lub for S.G.S (2 x pressure elements & 1 MBHT)
1410	Depressure lub
1415	Pressure lub & R.I.H to stops as per program.
1459	At 5500' KB, bottom stop.
1504	P.O.O.H
1515	At surface, depressure.
1520	Pressure lub
1535	Depressure lub, remove ameradas & check charts. (good charts)
1555	Rig down wire line unit
1630	Move off location.

RECEIVED 22 DEC DEPT OF MINES AND ENERGY SECURITY 7012/2

000073

ET 102

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos.	PERFORATIONS: 7344'-7399'KB	PAGE: 1 OF 1
WELL NAME: Daralingie #16	FORMATION : Patchawarra.	DATE: 6/6/93
TEST TYPE : Static Gradient		OPR : P. Bowyer

GAUGE DATA		UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE
ELEMENT SERIAL NO.		29386	29388	MBHT
ELEMENT RANGE	PSI	2975	3000	
RECORDING SECTION SERIAL NO.		61373	61001	
DATE OF CALIBRATION:	@ 290°F	1/5/93	1/5/93	
CLOCK SERIAL NO.		A16080	A14044	
CLOCK RANGE	HR	3	3	
LEAD SCREW TYPE	TLS	15	15	
ENGAGE STYLUS DATE 6/6/93	TIME	1349	1349	
DISENGAGE STYLUS DATE 6/6/93	TIME	1541	1541	

RUN DATA	TIME (HOURS)	TUBING PRESSURE (~~PSI~~/KPa)	ANNULUS PRESSURE (~~PSI~~/KPa)
DATE : 6/6/93			
PRESSURE LUBRICATOR :	1355	2890	0
RUN IN HOLE :	1415	2890	0
ON DEPTH AT bottom stop : 5500 FT/~~M~~	1459	2880	0
DATE : 6/6/93			
PULL OUT OF HOLE :	1504	2880	0
AT SURFACE :	1515	2880	0
DEPRESSURE LUBRICATOR :	1535	2860	0
MAXIMUM BHT AT 5500 FT/~~M~~ = 224 °F/~~C~~			
N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

DATE	TIME	REMARKS
		This well was shut in 18/7/89

000074

ET 108

EXPERTEST
WIRELINE & WELL TESTING SERVICE
PO BOX 354 COWANDILLA 5033
PH. (08) 354 0488 TELEX AA87183
FAX (08) 43 7408
138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

000075

Tested Sunday, 6th June 1993.

STATIC PRESSURE GRADIENT REPORT

CLIENT	LOCATION	FORMATION
SANTOS LTD.	DARALINGE#16	PATCHAWARRA

PRESSURE ELEMENT DATA

POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	29386	2975	1/ 5/93
Bottom	29388	3000	1/ 5/93

WELL DATA

PARAMETER	VALUE
DWT In	419 PSIG
DWT Out	418 PSIG
Max BHT	224 F

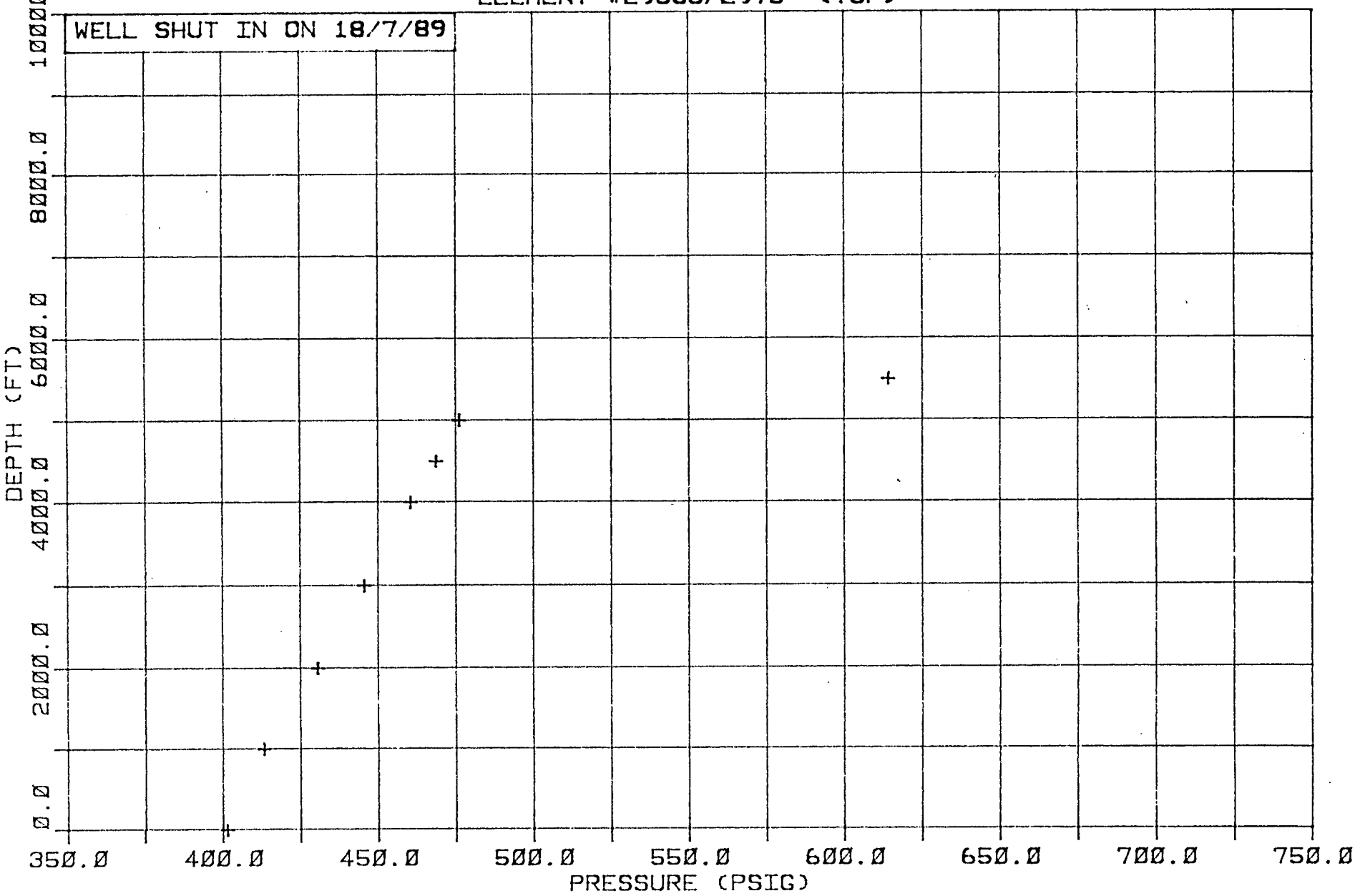
TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.2760	401.4	-	0.2670	390.3	-
1000	0.2840	413.3	0.012	0.2755	403.3	0.013
2000	0.2955	430.6	0.017	0.2860	419.3	0.016
3000	0.3055	445.5	0.015	0.2965	435.3	0.016
4000	0.3155	460.5	0.015	0.3075	452.0	0.017
4500	0.3210	468.7	0.017	0.3120	458.9	0.014
5000	0.3260	476.2	0.015	0.3190	469.5	0.021
5500	0.4180	614.1	0.276	0.4105	609.0	0.279
LUB.	0.2730	396.9	-	0.2630	384.2	-

GENERAL REMARKS

THIS WELL WAS SHUT IN 18/7/89

DARALINGIE #16 --- STATIC PRESSURE GRADIENT --- 06/06/93

ELEMENT #29386/2975 (TOP)



000076

EXPERTEST PTY. LTD.	SEQUENCE OF EVENTS		
	CUSTOMER : SANTOS LTD	PERFORATIONS: 7356' - 7399' KB	PAGE: 1 OF 1
	WELL NAME: DARALINGIE #16	FORMATION : PATCHAWARR	DATE: 9-5-94
	TEST TYPE : S.G.S.		OPR : D.J. McALLISTER

DATE/TIME	DESCRIPTION OF EVENTS
9-5-94	
0840	M.I.R.U.
0915	R.I.H 1.5" BLIND BOX "PERFORMING STATIC DRIFT RUN"
0940	BLIND BOX @ 5500' KB P.O.O.H.
0954	IN LUBRICATOR.
1239	ENGAGE STYLUS.
1245	ELEMENTS IN LUBRICATOR
1250	R.I.H. PERFORMING S.G.S "REFER BHP/BHT GAUGE RUN DATA.
1318	@ HANG DEPTH 5500' KB
1328	P.O.O.H.
1339	ELEMENTS IN LUBRICATOR.
1344	DISENGAGE STYLUS M.B.H.T. 222°F.
1430	R.D.M.O.
	RETURN TO MOOMBA "MECHANICAL REPAIRS TO W/L UNIT"

000077

ET 102

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD	PERFORATIONS: 7356' - 7399' KB	PAGE: 1 OF 1
WELL NAME: DARALINGIE #16	FORMATION : PATCHAWARRA	DATE: 9-5-94
TEST TYPE : S.G.S		OPR: D.J. McALLISTER

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.	29388	29386	N/A	DATE	: 9-5-94			
ELEMENT RANGE	3000 PSI	2975 PSI		PRESSURE LUBRICATOR	:	1245	ϕ	ϕ
RECORDING SECTION SERIAL NO.	61001	61373		RUN IN HOLE	:	1250	ϕ	ϕ
DATE OF CALIBRATION:	7-2-94	7-2-94		ON DEPTH AT	: 5500 FT/~~M~~	1318	ϕ	ϕ
CLOCK SERIAL NO.	A16085	A16081		DATE	: 9-5-94			
CLOCK RANGE	3HR	3HR		PULL OUT OF HOLE	:	1328	ϕ	ϕ
LEAD SCREW TYPE	15 TLS	15 TLS		AT SURFACE	:	1339	ϕ	ϕ
				DEPRESSURE LUBRICATOR	:			
ENGAGE STYLUS DATE 9-5-94 TIME	1239	1239		MAXIMUM BHT AT 5500 FT/~~M~~ = 222. °F/~~C~~				
DISENGAGE STYLUS DATE 9-5-94 TIME	1344	1344		N.B. ALL DEPTHS ARE MEASURED FROM K.B.				

DATE	TIME	REMARKS

000078

ET 108

EXPERTEST
WIRELINE & WELL TESTING SERVICE
PO BOX 354 COWANDILLA 5033
PH. (08) 354 0488 TELEX AA87183
FAX (08) 43 7408
138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

000079

Tested Monday, 9th May 1994.

STATIC PRESSURE GRADIENT REPORT

CLIENT	LOCATION	FORMATION
SANTOS LTD.	DARALINGIE 16	PATCHAWARRA

PRESSURE ELEMENT DATA

POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	29388	3000	7/ 2/94
Bottom	29386	2975	7/ 2/94

WELL DATA

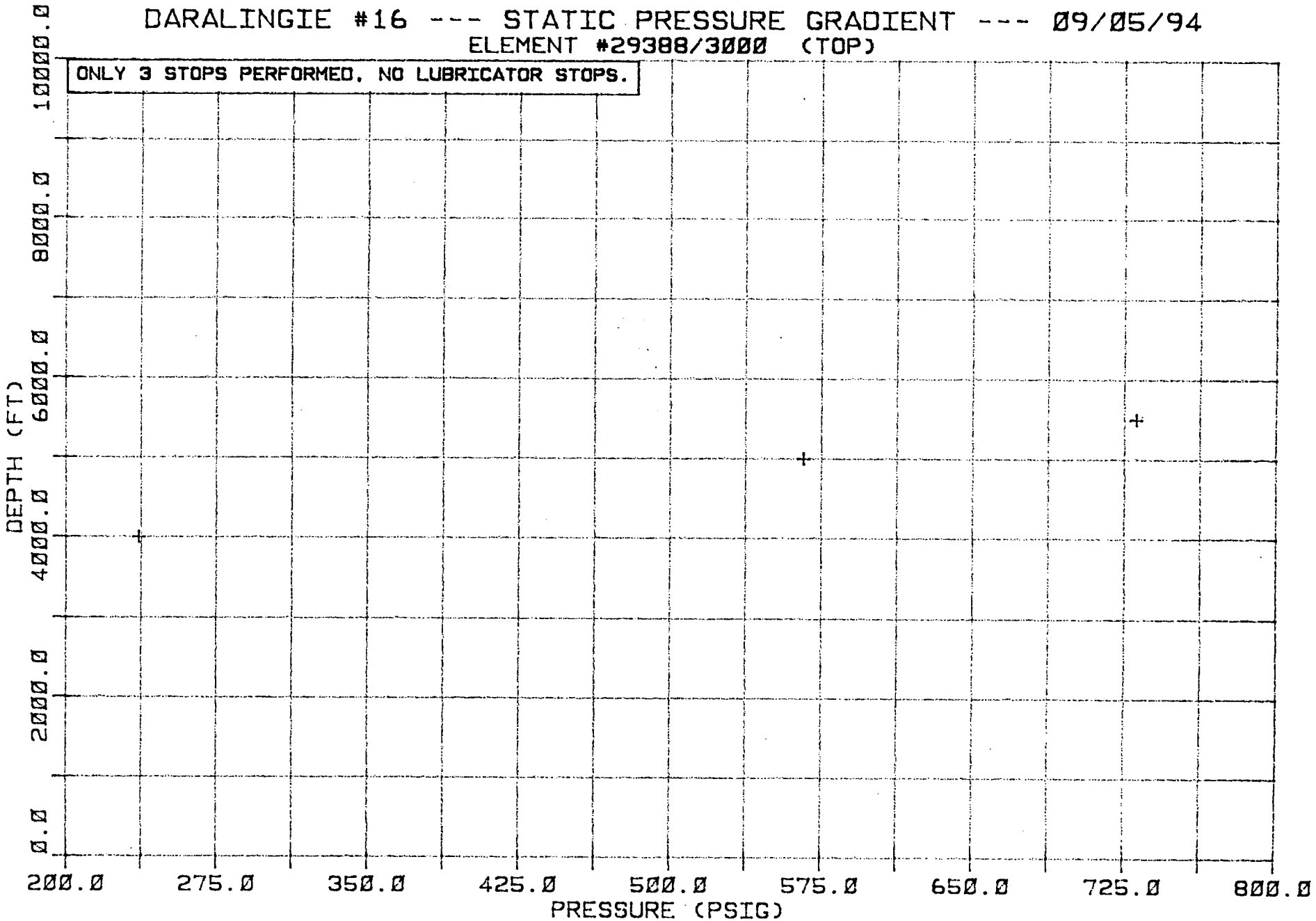
PARAMETER	VALUE
DWT In	0 PSIG
DWT Out	0 PSIG
Max BHT	222 F

	TOP ELEMENT			BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.						
1000						
2000						
3000						
4000	0.1640	236.3	0.059	0.1670	238.8	0.060
5000	0.3800	565.8	0.330	0.3870	569.4	0.331
5500	0.4880	730.6	0.330	0.4950	731.8	0.325
LUB.						

GENERAL REMARKS

DARALINGIE #16 --- STATIC PRESSURE GRADIENT --- 09/05/94

ELEMENT #29388/3000 (TOP)



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