

Open File Envelope

NUMBER 4208

PPL 12

EROMANGA AND COOPER BASINS

DULLINGARI 17

TEST REPORTS

Submitted by

**Santos Ltd
1994**

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MINES AND ENERGY
SOUTH AUSTRALIA



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REPORTS:

Chapman, T., 1985. Field maintenance contractor's results of the flowing BHP, 168 hour reservoir pressure buildup and static pressure gradient surveys of the Lower producing zone perforated interval 7907-8313 feet depth KB, conducted over the period 27/11 - 4/12/85 (Expertest Pty Ltd).

MESA NO.
4208 R 12
Pgs 85-103

Kessling, A. and Peterson, G.R., 1987. Field maintenance contractor's results of the flowing BHP, 168 hour reservoir pressure buildup and static pressure gradient surveys of the Upper producing zone perforated interval 7157-7205 feet depth KB, conducted over the period 8-21/2/87 (Expertest Pty Ltd).

4208 R 13
Pgs 104-124

Giancaspro, G., 1987. Field maintenance contractor's results of the flowing BHP, 168 hour reservoir pressure buildup and static pressure gradient surveys of the Upper producing zone, conducted over the period 23/2 - 3/3/87 (Expertest Pty Ltd).

4208 R 14
Pgs 125-143

Moore, R. and Smith, A., 1989. Field maintenance contractor's results of the flowing BHP, 168 hour reservoir pressure buildup and static pressure gradient surveys of the Upper producing zone, conducted over the period 2-9/3/89 (Expertest Pty Ltd).

4208 R 15
Pgs 144-157

Smith, A., 1989. Field maintenance contractor's results of the flowing BHP, 168 hour reservoir pressure buildup and static pressure gradient surveys of the Lower producing zone, conducted over the period 9-18/3/89 (Expertest Pty Ltd).

4208 R 16
Pgs 158-171

Black, P., 1992. Field maintenance contractor's results of the flowing BHP, 99.1 hour reservoir pressure buildup and static pressure gradient surveys of the Upper producing zone, conducted over the period 16-21/7/92 (Expertest Pty Ltd).

4208 R 17
Pgs 172-185

Wood, G.R., 1993. Brief palynological report on the examination of 5 Permian drill core samples from the depth interval 7280-8437 feet KB (Santos Ltd).

4208 R 18
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Taylor, S., 1994. Field maintenance contractor's results of the flowing BHP, 96 hour reservoir pressure buildup and static pressure gradient surveys of the Upper producing zone, conducted over the period 9-14/1/94 (Expertest Pty Ltd).

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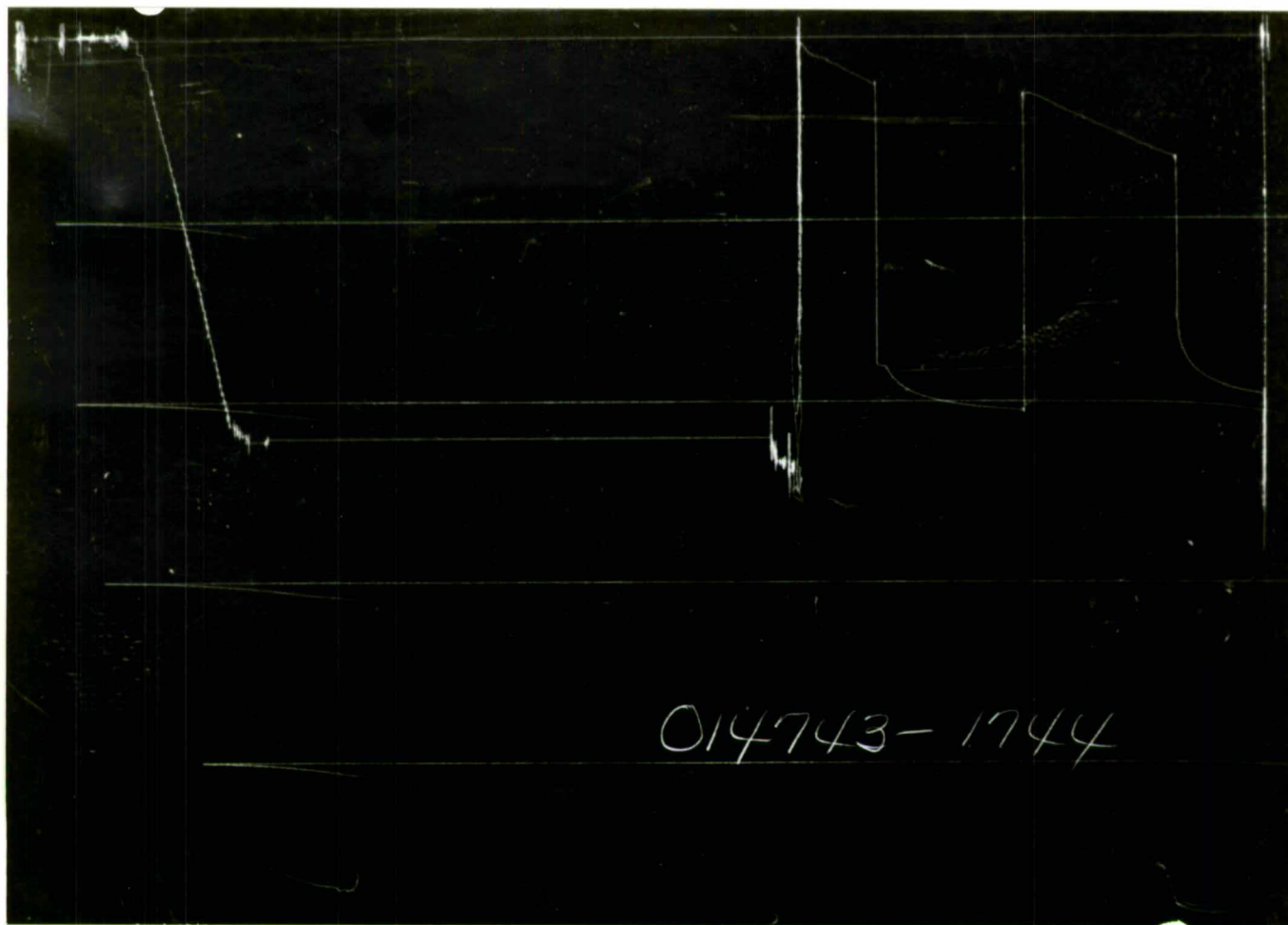
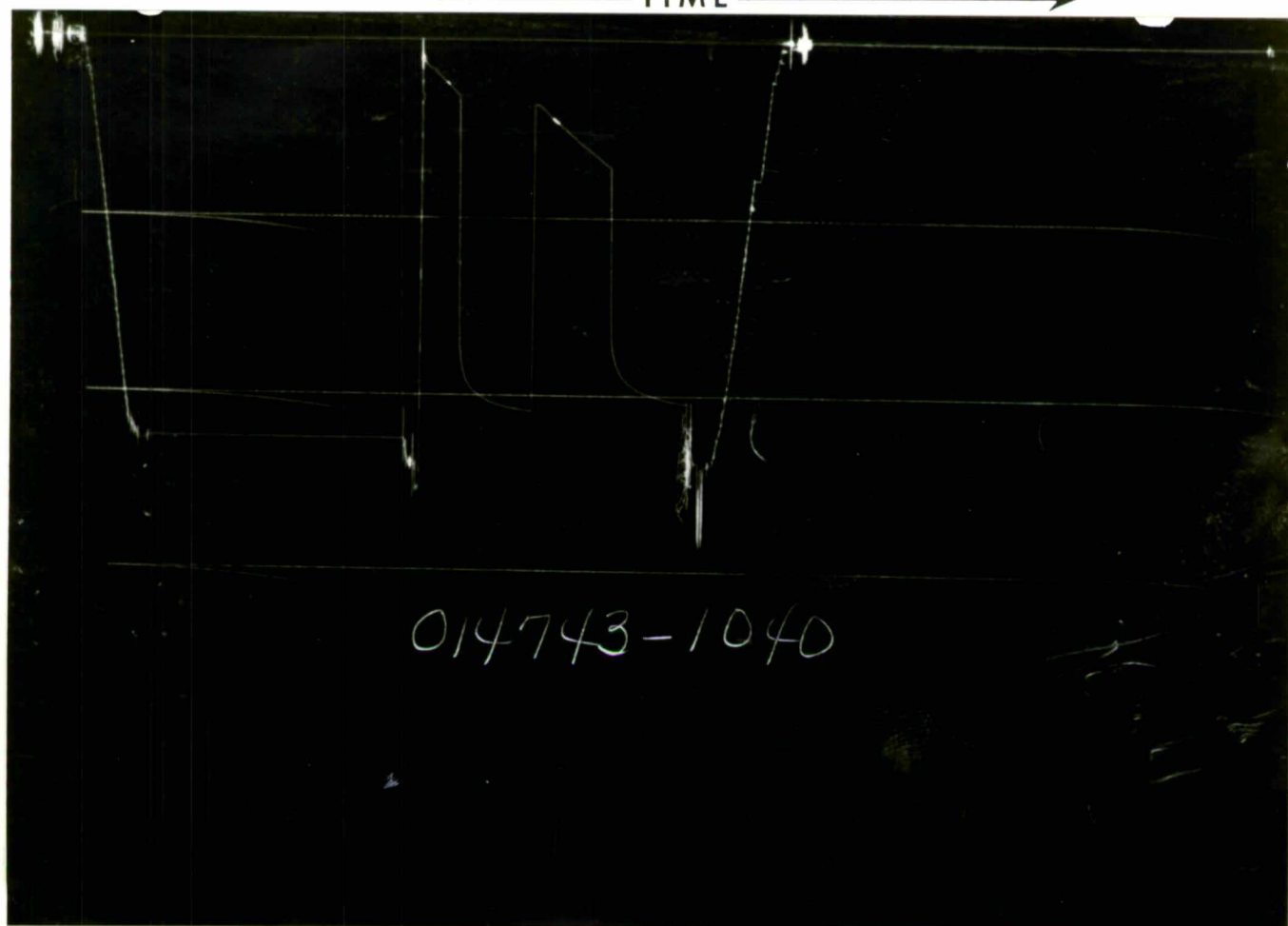
ENVELOPE 4208

TENEMENT: PPL 12; Eromanga and Cooper Basins

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

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Halliburton Services, 1981. Formation testing service report (open hole), DST 2A (2/11/81).	4208 R 3 Pgs 14-18
Halliburton Services, 1981. Formation testing service report (open hole), DST 3 (3/11/81).	4208 R 4 Pgs 19-22
Halliburton Services, 1981. Formation testing service report (open hole), DST 4 (5/11/81).	4208 R 5 Pgs 23-28
Halliburton Services, 1981. Formation testing service report (open hole), DST 5 (10/11/81).	4208 R 6 Pgs 29-34
Halliburton Services, 1981. Formation testing service report (open hole), DST 6 (12/11/81).	4208 R 7 Pgs 35-40
Halliburton Services, 1981. Formation testing service report (open hole), DST 7 (16/11/81).	4208 R 8 Pgs 41-44
Halliburton Services, 1981. Formation testing service report (cased hole), DST 8 (26/11/81).	4208 R 9 Pgs 45-50
Evans, M.D., 1983. Interpretation and results of Upper (Toolachee Formation) gas producing zone modified isochronal test conducted over the period 21-28 January 1983 (Santos Ltd. Petroleum Engineering Department report no. RE: 035/83, March 1983).	4208 R 10 Pgs 51-67
Evans, M.D., 1983. Interpretation and results of Lower (Patchawarra Formation) gas producing zone modified isochronal test conducted over the period 8-10 March 1983 (Santos Ltd. Petroleum Engineering Department report no. RE: 036/83, April 1983).	4208 R 11 Pgs 68-84

PRESSURE
↓TIME
→

Each Horizontal Line Equal to 1000 p.s.i.

DULLINGARI

Lease Name

Well No. 17

Test No. 1

4881.49' - 4970'

Tested Interval

DELHI/SANTOS

Lease Owner/Company Name

FLUID SAMPLE DATA				Date 10-21-81		Ticket Number 014743	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester R. SKINNER		Witness _____	
cc. Oil _____				Drilling Contractor O.D.E. RIG #6 BJ /pw /sm			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Moaga			
Tot. Liquid cc. _____				Elevation 289' Ft.			
Gravity _____ ° API @ _____ ° F.				Net Productive Interval _____ Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 4970' Ft.			
Recovery Water _____ @ _____ ° F. _____ ppm				Main Hole/Casing Size 8.5"			
Recovery Mud _____ @ _____ ° F. _____ ppm				Drill Collar Length 411.81' I.D. 2.875"			
Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm				Drill Pipe Length 4411.24' I.D. 3.826"			
Mud Pit Sample _____ @ _____ ° F. _____ ppm				Packer Depth(s) 4881.49' Ft.			
Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm				Depth Tester Valve 4863.54' Ft.			
Mud Weight _____ vis 93 sec.							
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke .5" Bottom Choke .75"	
Cushion				Ft.			
Recovered		1900 Feet of oil.					
Recovered		350 Feet of mud.					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks - SEE PRODUCTION TEST DATA SHEET -							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No. _____	
Depth:		4864.57' Ft.		4965.94' Ft.		Ft.	
24 Hour Clock		48 Hour Clock		Hour Clock		TIME (00:00-24:00 hrs.)	
Est. ° F.		Blanked Off NO		Blanked Off YES		Blanked Off	
Actual 210 ° F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		2350.8 2343.3		2386.9 2401.7			
First Period Flow Initial		28.3 32.3		71.6 92.6			
Final		254.2 264.5		315.2 313.3			
Closed in		2038.3 2043.0		2097.0 2092.0			
Second Period Flow Initial		296.6 310.2		358.2 360.3			
Final		650.1 663.2		717.6 714.0			
Closed in		CHART 1957.2		2039.1 2047.1			
Third Period Flow Initial		TIME					
Final		EXPIRED...					
Closed in							
Final Hydrostatic		CTE		2372.4 2383.9			
		CTE = Chart time expired					

Casing perms. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 014743
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
 INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

PAGE 1

Date Time	10-20-81 a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1450						Loaded clocks.
1630						Made up tools - started in hole.
						Waited on daylight.
0530						Made up head.
0536						Set Packer.
0544						Opened tool.
0548						Closed valve - bubble to surface - weak to moderate.
0549						Strong blow.
0550						"
0555						Opened valve - strong.
0608						Blow decreased to moderate.
0610						Gas to the surface.
0618						Moderate to strong blow.
0633						Slight decrease - moderate to strong.
0636						Strong blow.
0642						Moderate strong blow.
0646						Strong blow.
0653						Moderate to strong blow.
0655						Strong blow.
0658						Moderate to strong blow.
0714						Closed tool.
1010						Reopened tool with a weak blow.
1020						Blow increasing slightly.
1040						"
1110						"

[illegible]

Lease Owner/Company Name

Ticket Number

B.T. 1744

B.T. 1040

B.T. _____

Depth 4864.57'

Depth 4965.94'

Depth _____

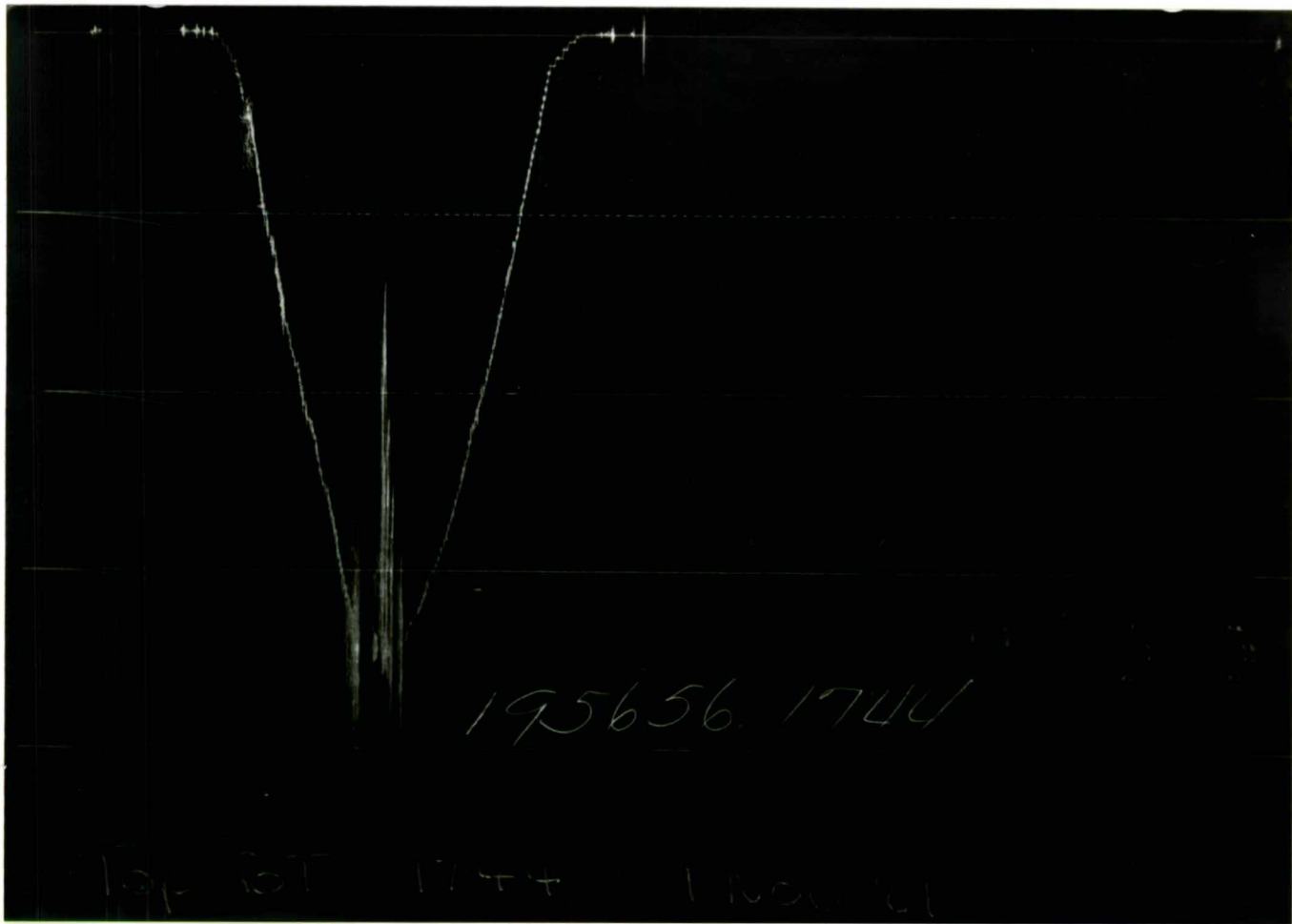
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Remarks: _____

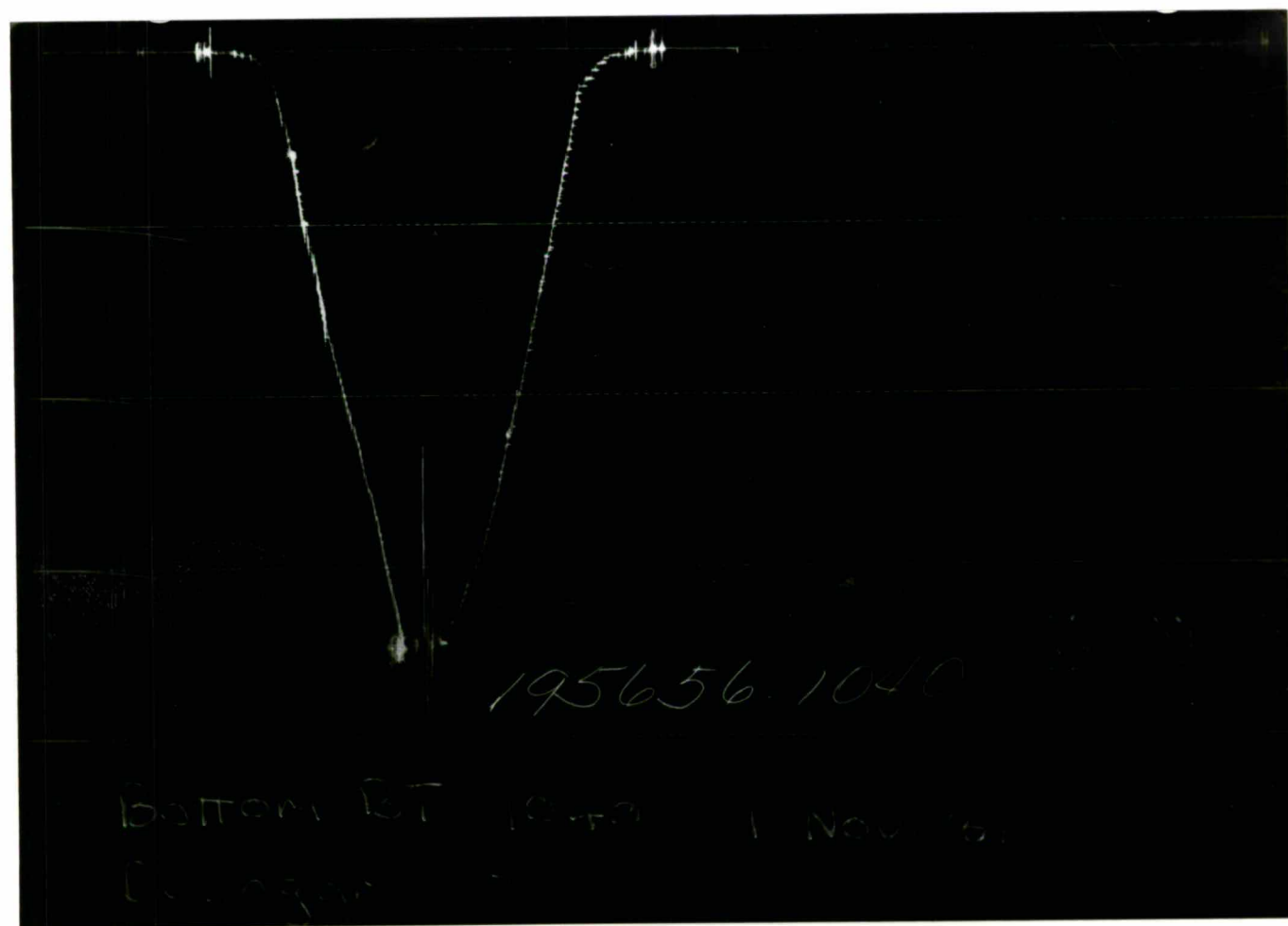
13

Tool Description	O.D.	I.D.	Length	Depth
Drill Pipe	4.5"	3.826"	4411.24'	
Drill Collars	6.25"	2.875"	411.81'	
Reversing Sub	6.00"	3.00"	1.0'	4822'
Drill Collars	6.25"	2.875"	29.29'	
X-Over	5.75"	2.75"	1.0'	
Dual CIP Valve	5"	.87"	4.92'	
Hydropsring Tester	5"	.75"	5.313'	4863.57'
AP Running Case	5"	2.25"	4.14'	4864.57'
Hydraulic Jar	5"	1.75"	5'	
V.R. Safety Jt.	5"	1.0"	2.78'	
Packer Assembly	7.75"	1.75"	6.0'	4881.49'
Anchor Pipe Safety Jt.	5"	1.5"	4.3'	
X-Over	6"	2.5"	1.0'	
Drill Collar	6.25"	2.875"	57.46'	
X-Over	5.875"	2.25"	.69'	
Flush Jt. Anchor	5"	2.25"	20'	
Blanked-off B.T. Running Case	5"	2.44"	4.06'	4965.94'
TOTAL DEPTH				4970'

PRESSURE
↓



TIME →



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA				Date 11-1-81		Ticket Number 195656	
Sampler Pressure _____ P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Tot. Liquid cc. _____ Gravity _____ ° API @ _____ °F. Gas/Oil Ratio _____ cu. ft./bbl.				Kind of D.S.T. OPEN HOLE Halliburton Location ADELAIDE			
				Tester BATES		Witness _____	
				Drilling Contractor O D & E RIG # 6		SM/sm	
EQUIPMENT & HOLE DATA							
				Formation Tested Daralingie			
				Elevation 289' Ft.			
				Net Productive Interval _____ Ft.			
				All Depths Measured From Kelly bushing			
				Total Depth 7313' Ft.			
				Main Hole/Casing Size 8 1/2"			
				Drill Collar Length 353.78' I.D. 2.87"			
				Drill Pipe Length 6906.90' I.D. 3.826"			
				Packer Depth(s) 7273.94' Ft.			
				Depth Tester Valve 7257.21' Ft.			
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke	
Cushion						.5" .75"	
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks Tried unsuccessfully to seat packer 3 times.							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
		Depth: 7258.25 Ft.		Depth: 7310 Ft.		Depth: _____ Ft.	
		24 Hour Clock		24 Hour Clock		Hour Clock	
Est. °F.		Blanked Off NO		Blanked Off YES		Blanked Off	
Actual 238 °F.		Pressures		Pressures		Pressures	
		Field	Office	Field	Office	Field	Office
Initial Hydrostatic		3421.0	3445.4	3453.1	3469.2		
First Period	Flow Initial					Reported	Computed
	Flow Final					Minutes	Minutes
	Closed in						
Second Period	Flow Initial						
	Flow Final						
	Closed in						
Third Period	Flow Initial						
	Flow Final						
	Closed in						
Final Hydrostatic		3421.0	3444.1	3453.1	3463.1		

0011

DULLINGARI

17

2

7273.94 - 7313'

DELHI/SANTOS

Legal Location Sec. - Twp. - Rng. LONG. 140° 08' 46.99" SOUTH 54° 07.06" EAST

Lease Name

Well No.

Test No.

Tested Interval

County

State SOUTH AUSTRALIA

Lease Owner/Company Name

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED.

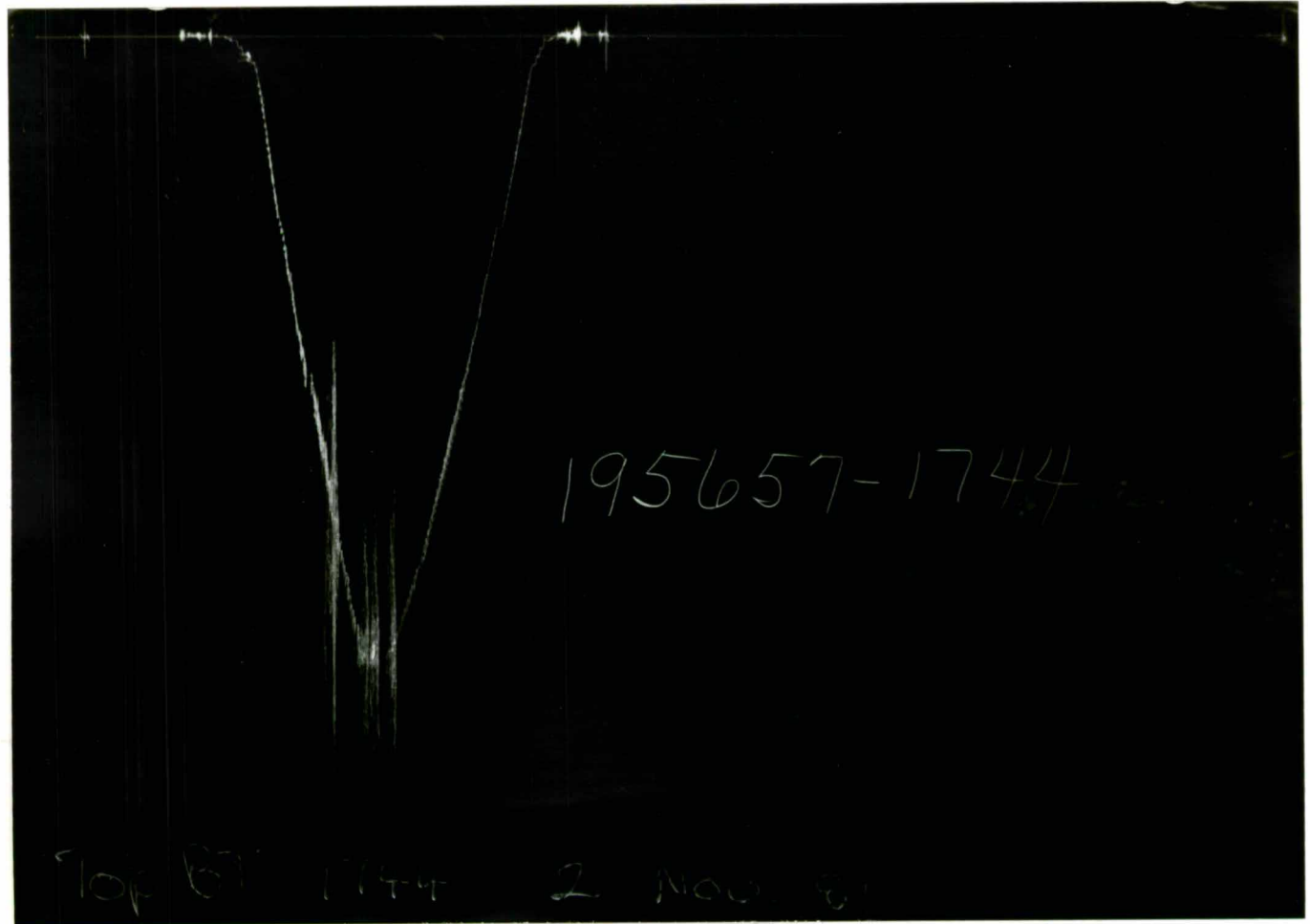
FORM 182-R1—PRINTED IN U.S.A.

TICKET NO. 195656

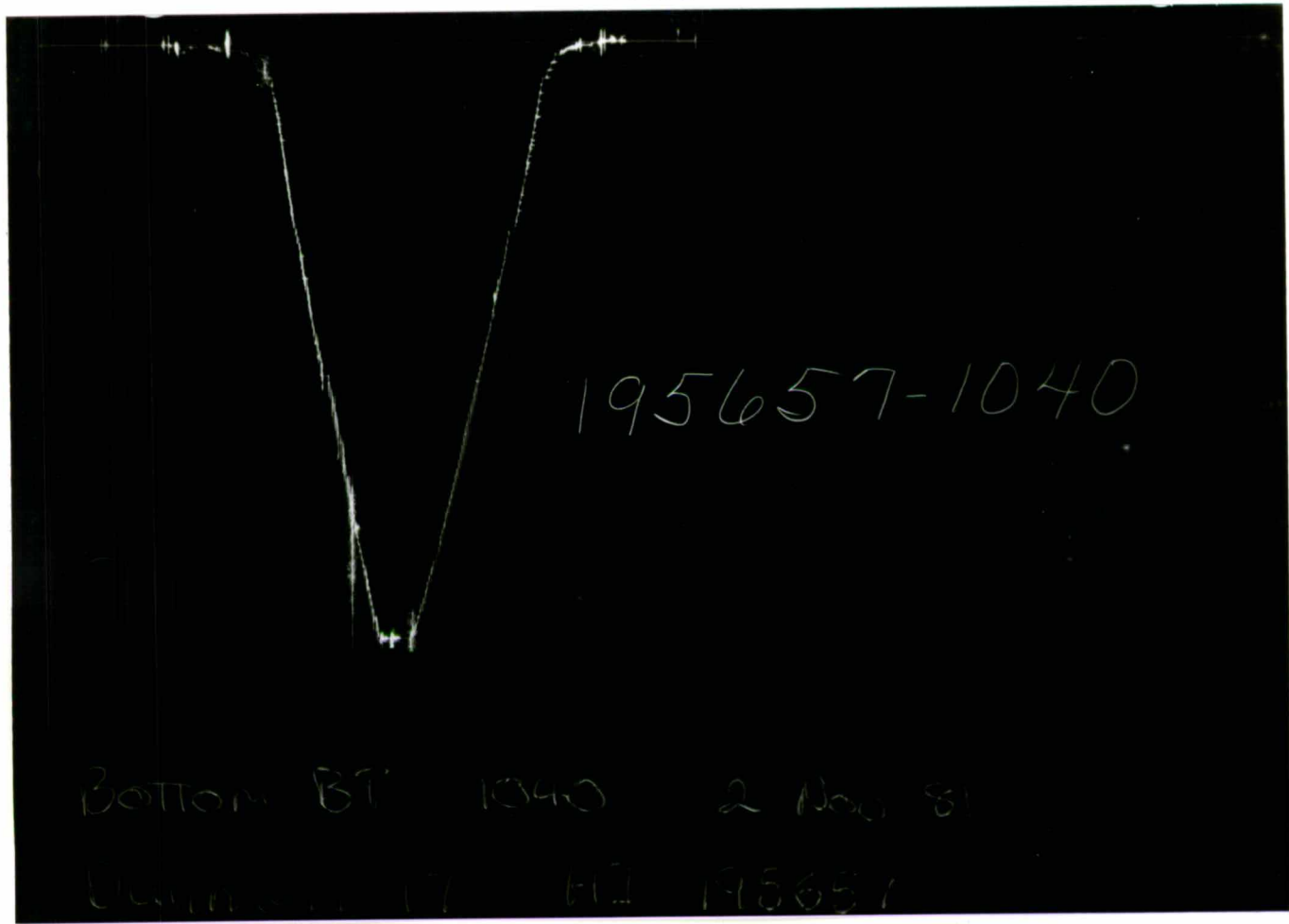
0013

Tool Description	O.D.	I.D.	Length	Depth
Reversing sub	6"	3"	1'	
Drill pipe	4.5"	3.826"	6906.90'	
Drill collars	6.25"	2.87"	353.78'	
X over	5.75"	2.68"	1'	
Dual CIP valve	5"	.87"	4.87'	
Hydrospring tester	5"	.75"	5.40'	7257.21'
AP Running case	5"	3.06"	4.04'	7258.25'
Hydraulic Jar	5"	1.75"	5'	
VR Safety joint	5"	1"	2.79'	
Packer assembly	7.75"	1.53"	5.9'	7273.94'
Anchor pipe safety joint	5"	2.25"	4'	
Flush joint anchor	5"	3"	30'	
Blanked off running case	5"	2.75"	4.06'	7310'
Total depth				7313'

↓ PRESSURE



→ TIME



Each Horizontal Line Equal to 1000 p.s.i.

15

DULLINGARI

Lease Name

Well No.

2-A

Test No.

Tested Interval

DELHI/SANTOS

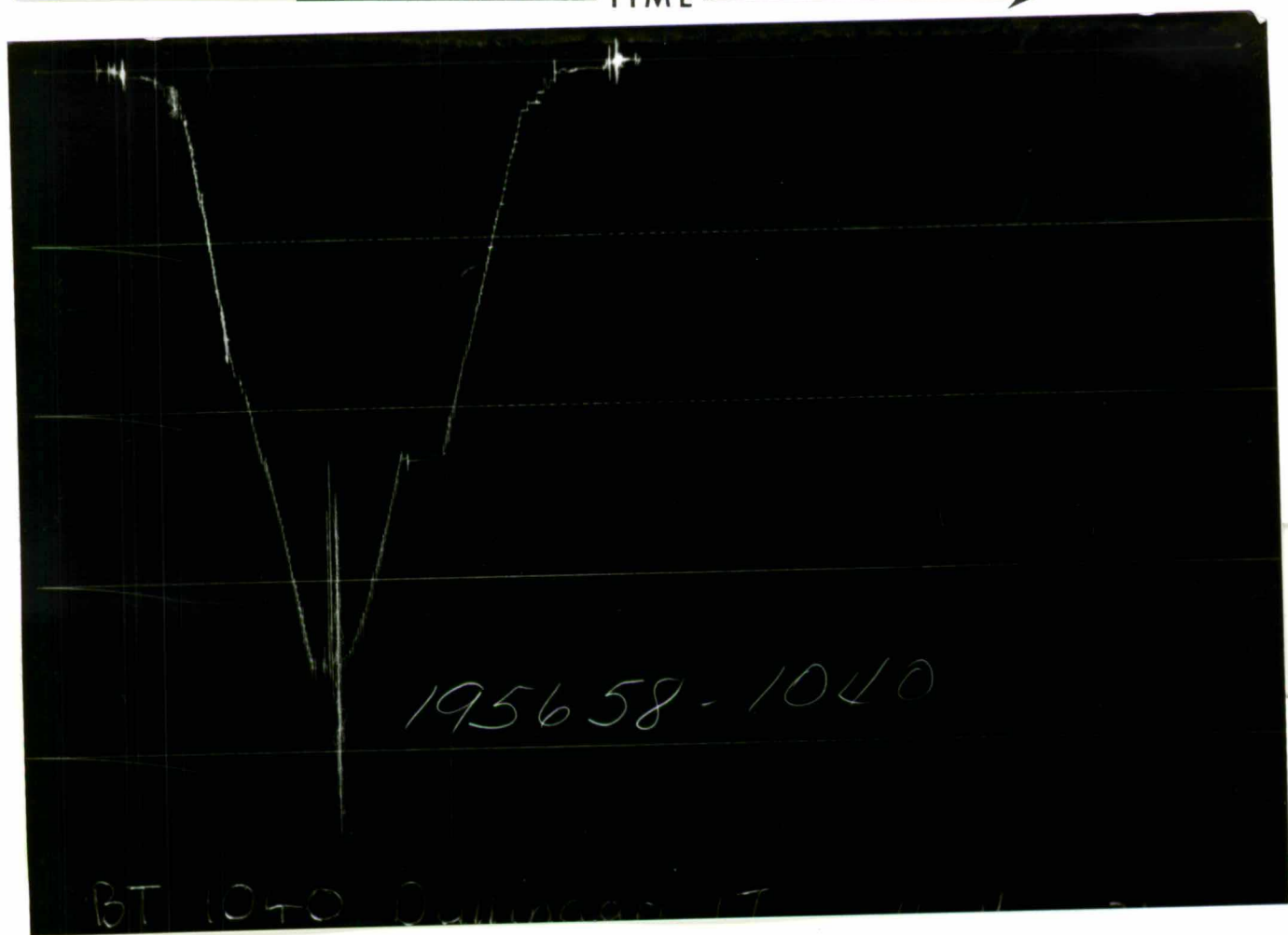
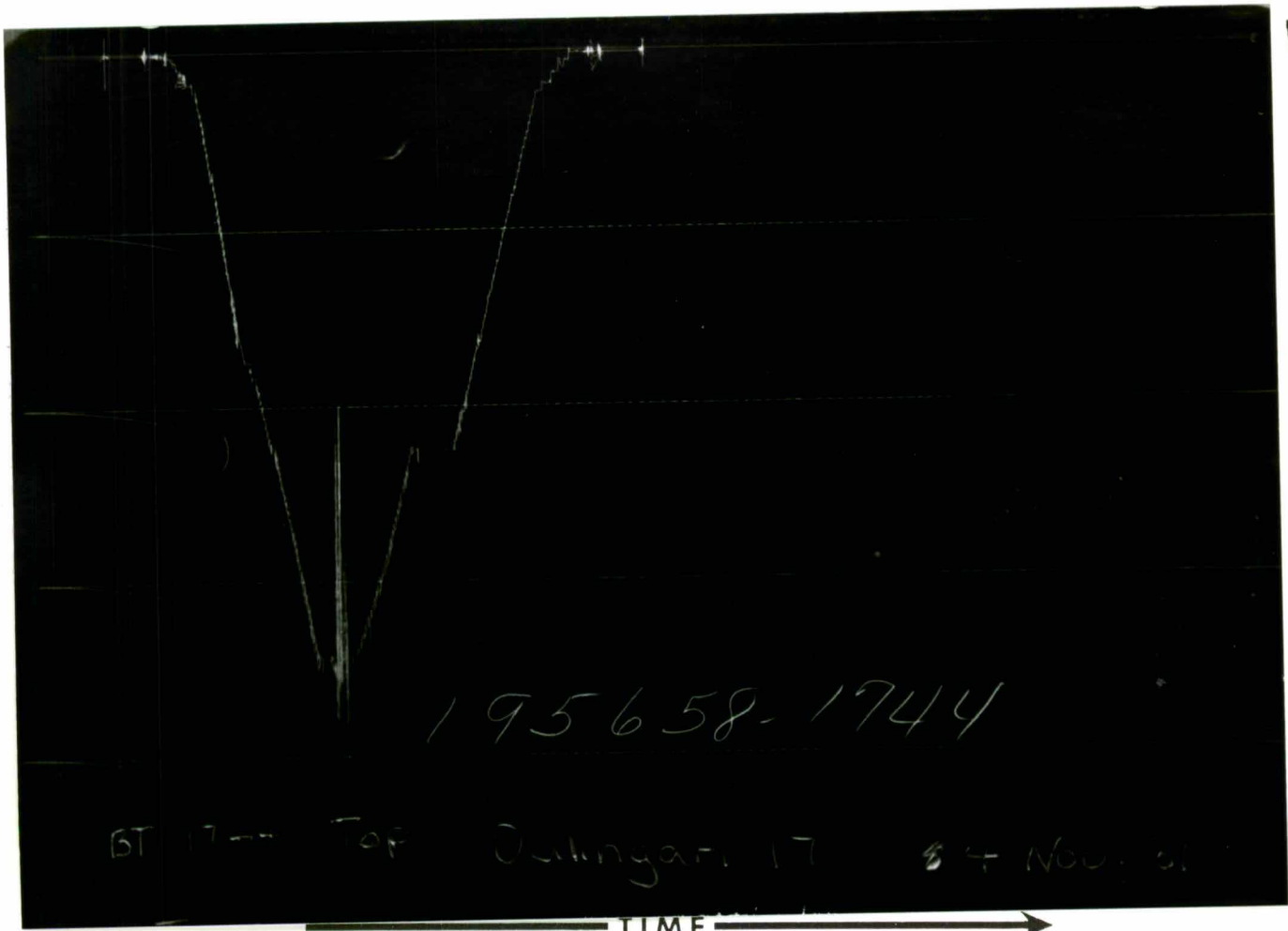
Lease Owner/Company Name

FLUID SAMPLE DATA				Date 11-2-81		Ticket Number 195657	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester P. BATES		Witness	
cc. Oil _____				Drilling Contractor OD & E RIG #6 vf			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Daralingie			
Tot. Liquid cc. _____				Elevation 289' Ft.			
Gravity _____ ° API @ _____ °F.				Net Productive Interval 61.94' Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY _____ °F. _____ ppm				Total Depth 7336' Ft.			
CHLORIDE CONTENT _____ ppm				Main Hole/Casing Size 8.5"			
Recovery Water _____ @ _____ °F. _____ ppm				Drill Collar Length 324.58' I.D. 2.87"			
Recovery Mud _____ @ _____ °F. _____ ppm				Drill Pipe Length - I.D. 3.826"			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Packer Depth(s) - Ft.			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Depth Tester Valve - Ft.			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm							
Mud Weight 9.1 vis 37 sec.							
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke .5" Bottom Choke .75"	
Cushion				Ft.			
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks Mis-run -Unable to get to bottom-struck bridge 61' from bottom.							
ATTEMPTED TO TEST FROM 7274.06'-7336'							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
Depth: - Ft.		Depth: - Ft.		Depth: - Ft.		TIME (00:00-24:00 hrs.)	
24 Hour Clock		24 Hour Clock		Hour Clock		Tool	
Blanked Off NO		Blanked Off YES		Blanked Off		Opened	
Actual °F.		Pressures		Pressures		Opened	
		Field Office		Field Office		Bypass	
Initial Hydrostatic						Reported Minutes	
Flow Initial						Computed Minutes	
Flow Final							
Closed in							
Flow Initial							
Flow Final							
Closed in							
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic							

13

Tool Description	O.D.	I.D.	Length	Depth
REVERSING SUB	6"	3"	1'	
DRILL PIPE	4.5"	3.826"	-	
DRILL COLLARS	6.25"	2.87"	324.58'	
X/O	5.75"	2.68"	1'	
DUAL CIP VALVE	5"	.87"	4.87'	
HYDROSPRING TESTER	5"	.75"	5.40'	
AP RUNNING CASE	5"	3.06"	4.04'	
HYDRAULIC JAR	5"	1.75"	5'	
VR SAFETY JOINT	5"	1"	2.79'	
PACKER	7.75"	1.53"	5.9'	
DISTRIBUTOR VALVE	5"	1.68"	2.16'	
PACKER	7.75"	1.53"	5.9'	
ANCHOR PIPE SAFETY JOINT	5"	2.25"	4'	
X/O	6"	2.5"	1'	
DRILL COLLAR	6.25"	2.87"	29.20'	
X/O	5.75"	2.43"	.68'	
FLUSH JOINT ANCHOR	5"	3"	22'	
BLANKED OFF BT RUNNING CASE	5"	2.75"	4.06'	7336'
TOTAL DEPTH				

PRESSURE
↓

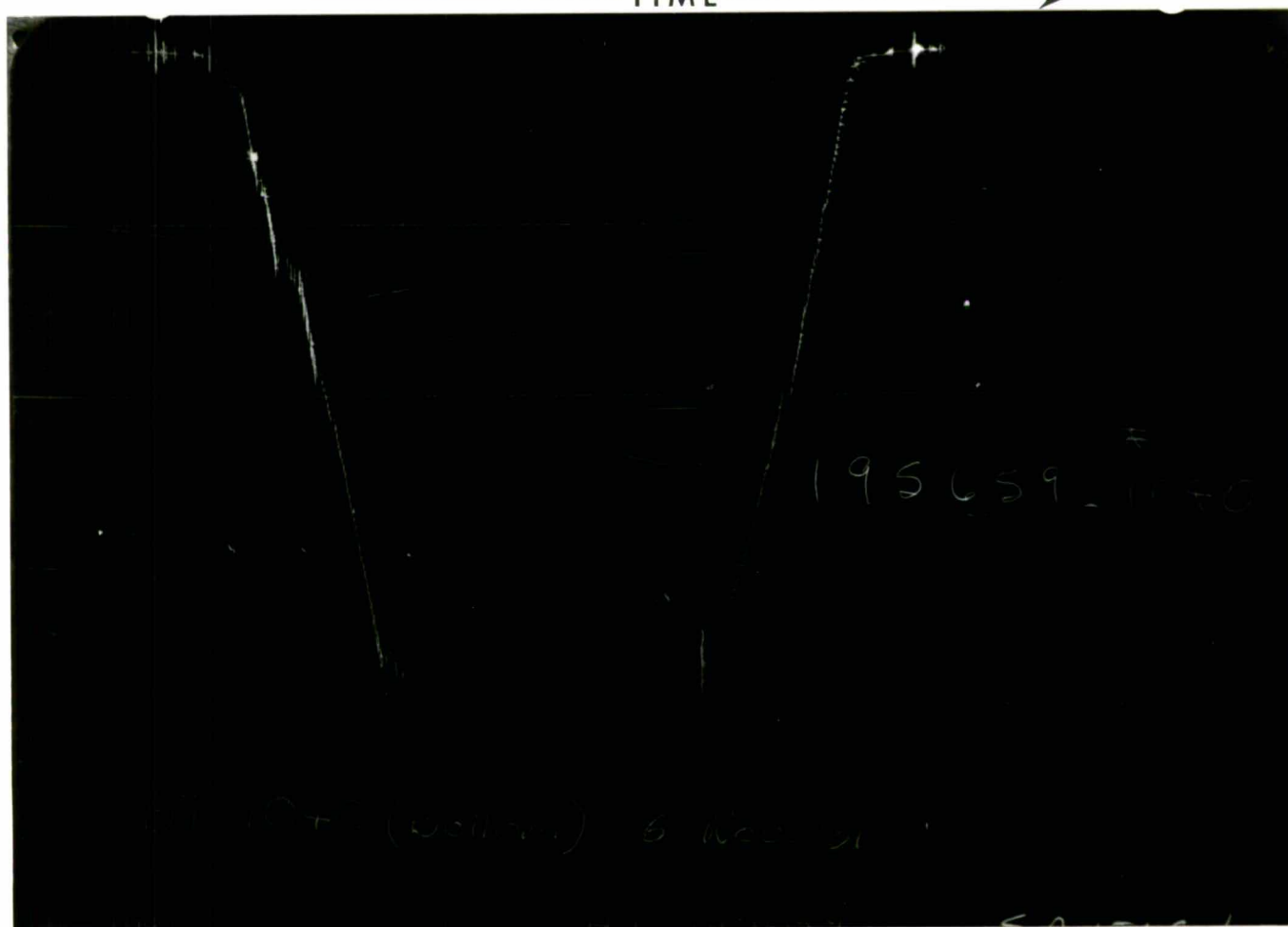
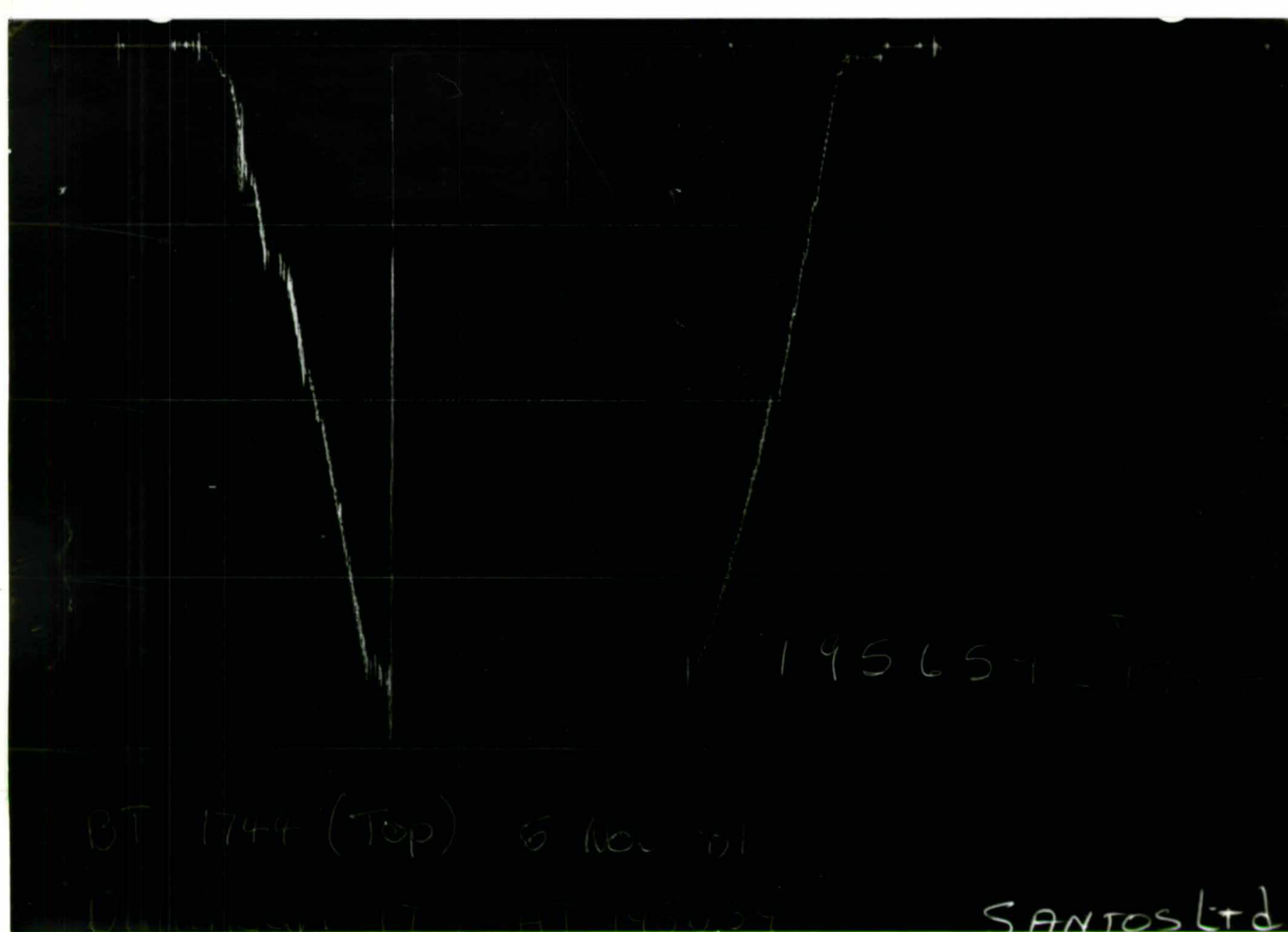


Each Horizontal Line Equal to 1000 p.s.i.

FORM 102-R1—PRINTED IN U.S.A.

Tool Description	O.D.	I.D.	Length	Depth
Reversing Sub	6"	3.00"	1.00'	
Drill Pipe	4.5"	3.826"	6859.48'	
Drill Collars	6.25"	2.87"	353.85'	
XO	5.75"	2.68"	1.00'	
Dual CIP Valve	5"	.87"	4.87'	
Hydrospring Tester	5"	.75"	5.40'	7216.88'
AP Running Case	5"	3.06"	4.04'	7217.92'
Hydraulic Jar	5"	1.75"	5.00'	
VR Safety Joint	5"	1.00"	2.79'	
Packer	7.75"	1.53"	5.9'	7233.61'
Anchor Pipe Safety Joint	5"	2.25"	4.00'	
XO	6"	2.5"	1.00'	
Drill Collars	6.25"	2.87"	59.65'	
XO	5.75"	2.43"	.68'	
Flush Joint Anchor	5"	3.00"	32'	
Blanked Off BT Case	5"	2.75"	4.06'	7333'
TOTAL DEPTH				7336'

PRESSURE
↓



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA				Date 11-5-81		Ticket Number 195659	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester P. BATES		Witness _____	
cc. Oil _____				Drilling Contractor O.D. & E. RIG #6 NM/pw			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Epsilon			
Tot. Liquid cc. _____				Elevation 289' Ft.			
Gravity _____ ° API @ _____ ° F.				Net Productive Interval _____ Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 7543' Ft.			
Recovery Water _____ @ _____ ° F. _____ ppm				Main Hole/Casing Size 8 1/2"			
Recovery Mud _____ @ _____ ° F. _____ ppm				Drill Collar Length 355.12' I.D. 2.87"			
Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm				Drill Pipe Length 7122.28' I.D. 3.826"			
Mud Pit Sample _____ @ _____ ° F. _____ ppm				Packer Depth(s) 7498.94' Ft.			
Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm				Depth Tester Valve 7482.21' Ft.			
Mud Weight 9.4 vis 41 sec.							
TYPE		AMOUNT		Depth Back		Surface	
Cushion				Ft. Pres. Valve		Choke .5" Bottom Choke .75"	
Recovered		100 Feet of drilling mud.					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks - SEE PRODUCTION TEST DATA SHEET -							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
Depth:		7483.25 Ft.		7540 Ft.		Ft.	
24 Hour Clock		24 Hour Clock		24 Hour Clock		TIME (00:00-24:00 hrs.)	
Est. ° F.		Blanked Off No		Blanked Off Yes		Blanked Off	
Actual 248 ° F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		3607.3 3589.4		3629.6 3605.9			
Flow Initial		42.4 65.4		57.3 86.8			
Flow Final		28.3 32.9		43.0 44.0			
Closed in		1344.2 1347.2		1339.1 1358.0			
First Period						Reported Minutes	
Flow Initial						182	
Flow Final						183.3	
Closed in						180	
Second Period						Computed Minutes	
Flow Initial							
Flow Final							
Closed in							
Third Period							
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		3578.6 3585.2		3570.6 3578.3			

Legal Location LAT. 28° - 08' - 46.99" South
 Sec. - Twp. - Rng LONG. 140° - 54' - 07.06" EAST

Field Area COOPER BASIN

County

State SOUTH AUSTRALIA

Lease Name DULLINGARI

Well No. 17

Test No. 4

7498.94' - 7543'

DELHI/SANTOS

Lease Owner/Company Name

12

Casing perms. _____ Bottom choke .75" Surf. temp _____ °F Ticket No. 195659
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F

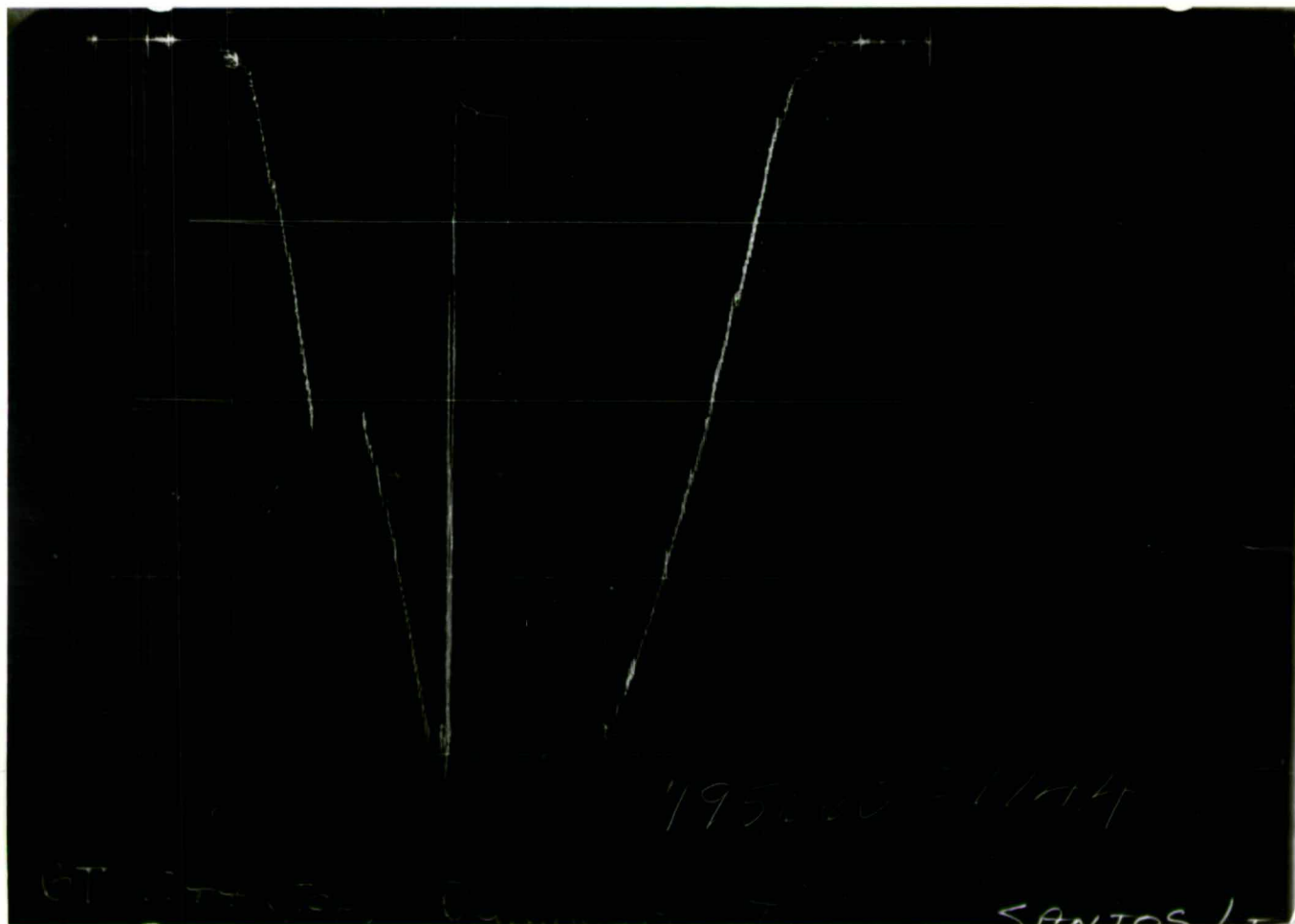
INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
11-5-81 a.m. p.m.					
1300					Loaded B.T. pressure gauges.
1320					Picked up tools.
1430					Started into hole.
1810					Made up head.
1830					Set packer.
1832	.5"				Opened tool to a weak blow.
1833	"				Strong blow.
1834	"				" "
1836	"				" "
1838	"				" "
1840	"				" "
1845	"				" "
1848	"				" " and gas to the surface.
1850	"				" "
1855	"				Blow slowly weakening - moderate.
1900	"				Moderate - weak blow.
1915	"				Moderate weak and slowly weakening.
1930	"				" " " "
1945	"				" " " "
2000	"				Weak blow and slowly decreasing.
2015	"				Very weak blow.
2030	"				" " "
2100	"				" " "
2130	"				" " "
2134					Closed tool at a very weak blow.

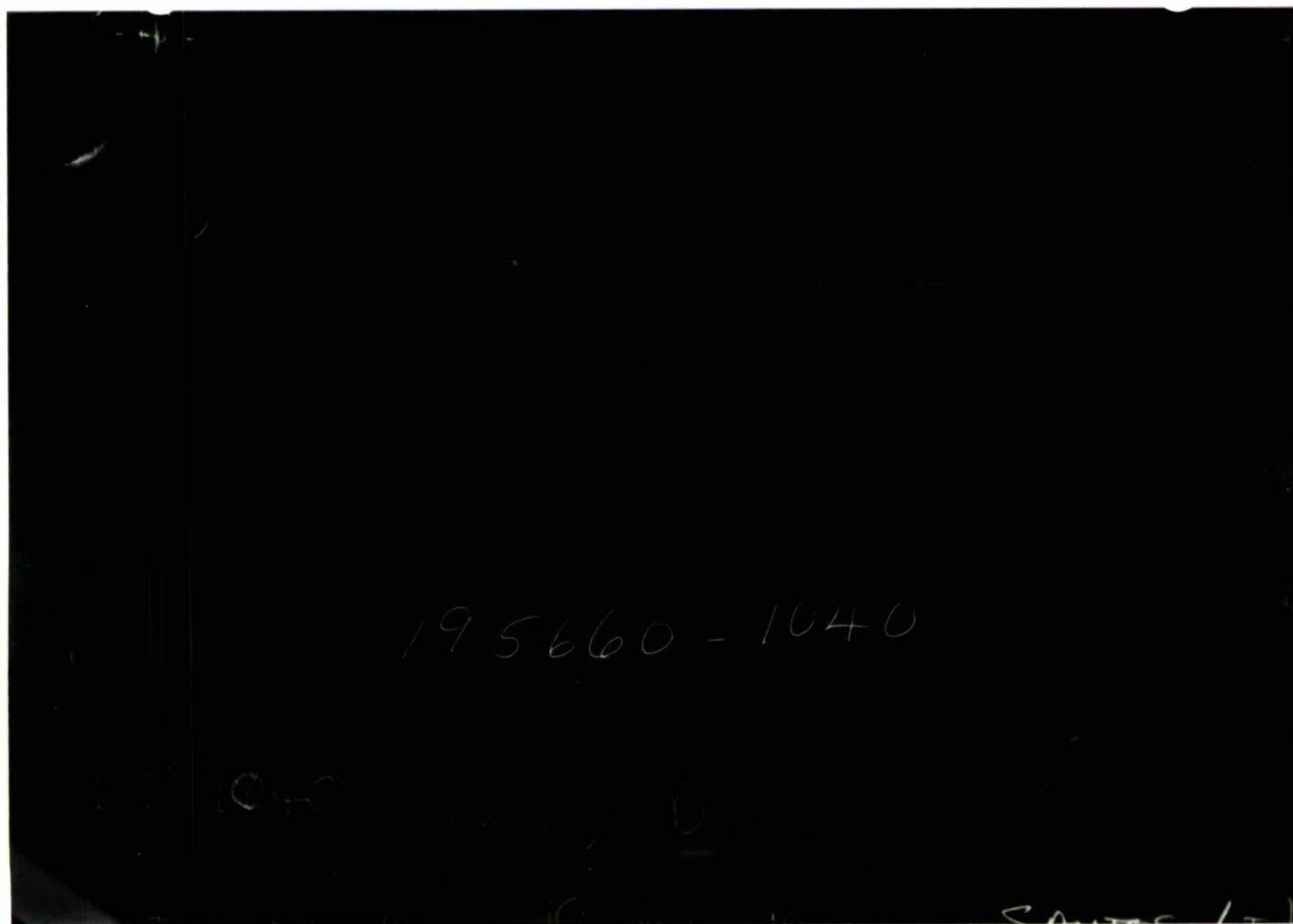
FORM 102-R1—PRINTED IN U.S.A.

Tool Description	O.D.	I.D.	Length	Depth
Reversing Sub	6"	3.00"	1.00'	
Drill Pipe	4.5"	3.826"	7122.28'	
Drill Collars	6.25"	2.87"	355.12'	
X-Over	5.75"	2.68"	1.00'	
Dual CIP Valve	5"	.87"	4.87'	
Hydrospring Tester	5"	.75"	5.40'	7482.21'
AP Running Case	5"	3.06"	4.04'	7483.25'
Hydraulic Jar	5"	1.75"	5.00'	
V.R. Safety Jt.	5"	1.00"	2.79'	
Packer Assembly	7.75"	1.53"	5.90'	7498.94'
Anchor Pipe Safety Jt.	5"	2.25"	4.00'	
Flush Jt. Anchor	5"	3.00"	35.00'	
Blanked-off B.T. Running Case	5"	2.75"	4.06'	7540'
TOTAL DEPTH				7543'

PRESSURE
 ↓



TIME →



Each Horizontal Line Equal to 1000 p.s.i.

0030

DULLINGARI

Lease Name

17

Well No.

5

Test No.

8066.19' - 8139'

Tested Interval

DELHI/SANTOS

Lease Owner/Company Name

Legal Location
Sec. - Twp. - Rng. LONG. 140° - 08' - 54" - 07.06" EAST
LAT. 28° - 08' - 46.99" SOUTHField Area
COOPER BASIN

County

State
SOUTH AUSTRALIA

FLUID SAMPLE DATA				Date 11-10-81		Ticket Number 195660	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Holliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester P. BATES		Witness _____	
cc. Oil _____				Drilling Contractor O.D. & E. RIG #6 DR/pw			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Patchawarra			
Tot. Liquid cc. _____				Elevation 289' _____ Ft.			
Gravity _____ ° API @ _____ °F.				Net Productive Interval _____ Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY _____				Total Depth 8139' _____ Ft.			
CHLORIDE CONTENT _____				Main Hole/Casing Size 8 1/2"			
Recovery Water _____ @ _____ °F. _____ ppm				Drill Collar Length 413.50' I.D. 2.87"			
Recovery Mud _____ @ _____ °F. _____ ppm				Drill Pipe Length 7652.81' I.D. 3.826"			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Packer Depth(s) 8058.13' - 8066.19' _____ Ft.			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Depth Tester Valve 8041.40' _____ Ft.			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm							
Mud Weight 9.3 vis 40 sec.							
TYPE		AMOUNT		Depth Back		Surface	
Cushion				Ft. Pres. Valve		Choke .5" Bottom Choke .75"	
Recovered		980 Feet of gas cut mud.					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks							
- SEE PRODUCTION TEST DATA SHEET -							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
Depth:		8042.44 Ft.		8136 Ft.		Ft.	
24 Hour Clock		24 Hour Clock		24 Hour Clock		Hour Clock	
Est. °F.		Blanked Off NO		Blanked Off YES		Blanked Off	
Actual 269 °F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		3836.5 3857.0					
Flow Initial		324.9 353.8		NO READINGS		Reported Minutes	
Flow Final		409.6 422.4		AVAILABLE:		Minutes	
Flow Closed in		3277.8 3306.5		STYLUS		63 59.1	
Flow Initial				DISENGAGED.....		121 116.0	
Flow Final							
Flow Closed in							
Flow Initial							
Flow Final							
Flow Closed in							
Final Hydrostatic		3822.2 3847.2					

G-13

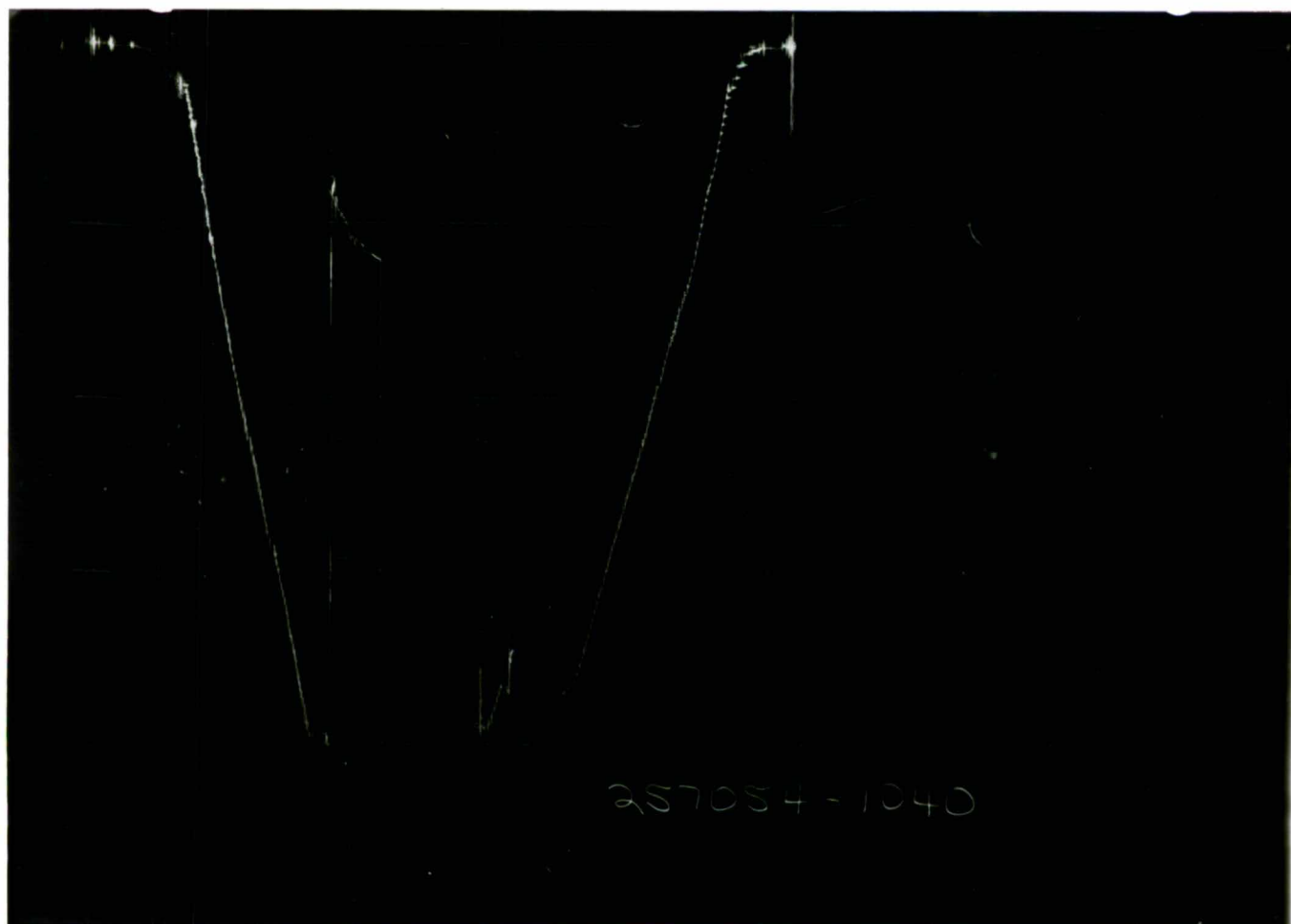
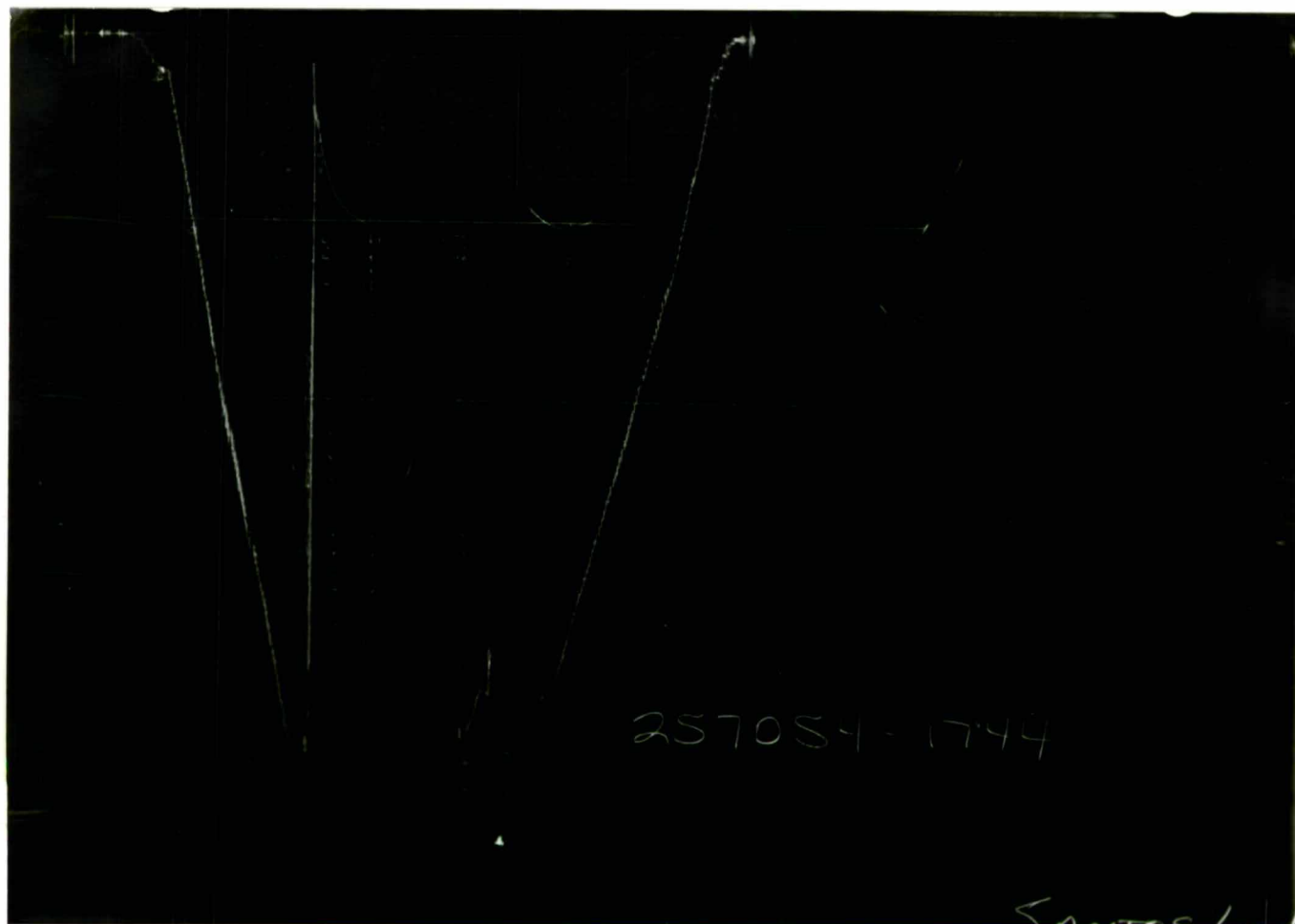
Casing perms. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 195660
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
 INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time	11-10-81 a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
0415						Loaded B.T. pressure gauge.
0445						Started picking up tools.
0615						Started into hole.
1120						Tagged bottom.
1122						Made up head.
1128						Set packers.
1130		.5"				Opened tool to a weak blow.
1134						Lost packer seat - pulled up.
1135						Set packers again.
1137		.5"				Tool opened to a very weak blow.
1140		"				Very weak blow - closed choke.
1142		"				Opened choke - strong blow.
1143		"	8			Strong and increasing blow.
1144		"	10			
1145		"	15			Gas to the surface.
1146		"	20			
1148		"	25			
1150		"	30			
1152		"	34			
1154		"	36			
1156		"	39			
1158		"	39			
1200		"	40			
1205		"	40			
1210		"	42.5			

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED.

[illegible]

Tool Description	O.D.	I.D.	Length	Depth
Reversing Sub	6"	3.00"	1.00'	
Drill Pipe	4.5"	3.826"	7652.81'	
Drill Collars	6.25"	2.87"	413.50'	
X-Over	5.75"	2.68"	1.00'	
Dual CIP Valve	5"	.87"	4.87'	
Hydro-spring Tester	5"	.75"	5.40'	8041.40'
AP Running Case	5"	3.06"	4.04'	8042.44'
Hydraulic Jar	5"	1.75"	5.00'	
V.R. Safety Jt.	5"	1.00"	2.79'	
Packer Assembly	7.75"	1.53"	5.90'	8058.13'
Distributor	5"	2.31"	2.16'	
Packer Assembly	7.75"	1.53"	5.90'	8066.19'
Anchor Pipe Safety Jt.	5"	2.25"	4.00'	
X-Over	6"	2.50"	1.00'	
Drill Collar	6.25"	2.87"	30.07'	
X-Over	5.62"	2.43"	.68'	
Flush Jt. Anchor	5"	3.00"	32.00'	
Blanked-off B.T. Running Case	5"	2.75"	4.06'	8136'
TOTAL DEPTH				8139'



Each Horizontal Line Equal to 1000 p.s.i.

DULLINGARI

Lease Name

17

6

8225.97' to 8282'

DELHI/SANTOS

Lease Owner/Company Name

Legal Location LAT. 28° 08' 46.99"S
Sec. - Twp. - Rng. LONG 140° 54' 07.06"E

Field Area

COOPER BASIN

County

State SOUTH AUSTRALIA

FLUID SAMPLE DATA				Date 11-12-81		Ticket Number 257054	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester TREVOR BURKE		Witness KEN CADU	
cc. Oil _____				Drilling Contractor O.D. & E. RIG #6 pw bj			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Patchawarra			
Tot. Liquid cc. _____				Elevation 289 Ft.			
Gravity _____ ° API @ _____ ° F.				Net Productive Interval - Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Rotary Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 8282 Ft.			
Recovery Water _____ @ _____ ° F. _____ ppm				Main Hole/Casing Size 8.5"			
Recovery Mud _____ @ _____ ° F. _____ ppm				Drill Collar Length 413.50' I.D. 2.87"			
Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm				Drill Pipe Length 7782.54' I.D. 3.826"			
Mud Pit Sample _____ @ _____ ° F. _____ ppm				Packer Depth(s) 8217.91' 8225.97' Ft.			
Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm				Depth Tester Valve 8195.78' Ft.			
Mud Weight 9.3 vis 38 sec.							
TYPE		AMOUNT		Depth Back		Surface	
Cushion				Ft. Pres. Valve		Choke .50" Bottom Choke .75"	
Recovered 700		Feet of gas cut mud....					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks Charts indicate partial plugging of anchor perforations during flow period.							
SEE PRODUCTION TEST DATA SHEET FOR THE REMAINDER OF THE REMARKS....							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
Depth: 8202.22' Ft.		Depth: 8279.0' Ft.		Depth: _____ Ft.		TIME (00:00-24:00 hrs.)	
Est. 258 ° F.		24 Hour Clock		24 Hour Clock		Hour Clock	
Blanked Off NO		Blanked Off YES		Blanked Off		Tool	
Actual ° F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		3908.1 3931.0		3924.6 3950.3		Reported Minutes	
Flow Initial		452 148.1		760.8 1095.8		Computed Minutes	
Flow Final		1018.4 1029.7		1208.7 1218.8		60 59.8	
Closed in		3507 3519.1		3496.9 3522.9		120 120.2	
Second Period							
Flow Initial							
Flow Final							
Closed in							
Third Period							
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		3908.1 3915.9		3924.6 3948.2			

Casing perms. _____ Bottom choke _____ Surf. temp. _____ °F Ticket No. 257054
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time	a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
11-12-81						
1150						Loaded BT's.
1200						Made up tools and went in hole.
1642		.50"				Tool opened with a weak bubble.
1643		"	20			Strong blow.
1644		"	40			Gas to surface.
1645		"	60			"
1646		"	100			"
1647		"	125			"
1648		"	150			"
1649		"	200			"
1650		"	250			" Flare went out -
						closed manifold to relight.
1653		"	300			Opened manifold -flare relit.
1655		"	350			Gas to surface.
1658		"	400			"
1700		"	425			"
1702		"	450			"
1705		"	475			"
1707		"	500			"
1710		"	525			"
1715		"	550			"
1720		"	590			"
1730		"	600			"
1740		"	615			"
(Continued)						

257054

Ticket Number

B.T. _____

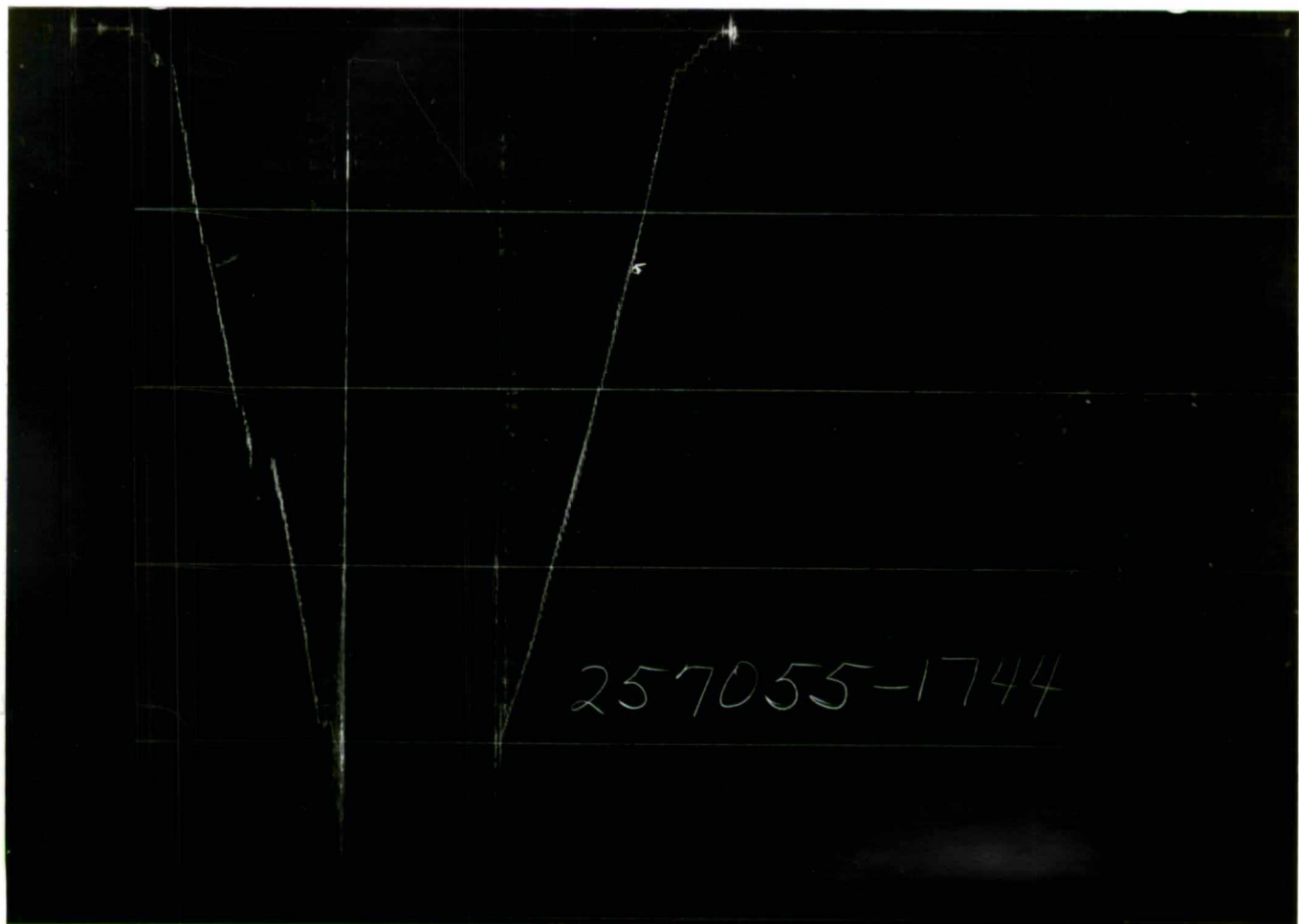
Depth _____

[illegible]

Remarks: _____

13

Tool Description	O.D.	I.D.	Length	Depth
REVERSING SUB	6.25"	3.00"	1.00'	
DRILL PIPE	4.50"	3.826"	7782.54'	
DRILL COLLARS	6.25"	2.87"	413.50'	
X OVER	5.75"	2.68"	1.00'	
DUAL CIP VALVE	5.00"	.87"	4.87'	
HYDROSPRING TESTER	5.00"	.75"	5.40'	8195.78'
AP RUNNING CASE	5.00"	3.06"	4.04'	8202.22'
HYDRAULIC JAR	5.00"	1.75"	5.00'	
VR SAFETY JOINT	5.00"	1.00"	2.79'	
PACKER ASSEMBLY	7.75"	1.53"	5.90'	8217.91'
DISTRIBUTOR	5.00"	2.31"	2.16'	
PACKER ASSEMBLY	7.75"	1.53"	5.90'	8225.97'
ANCHOR PIPE SAFETY JOINT	5.00"	2.25"	4.00'	
X OVER	6.00"	2.87"	1.00'	
DRILL COLLARS	6.25"	2.87"	29.29'	
X OVER	5.62"	2.43"	.68'	
FLUSH JOINT ANCHOR	5.00"	3.00"	16'	
BLANKED OFF BT RUNNING CASE	5.00"	2.75"	4.06'	8279.0'
TOTAL DEPTH				8282.0'

PRESSURE
↓

Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA				Date 11-16-81		Ticket Number 257055	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester MR. BURKE		Witness MR. MADU	
cc. Oil _____				Drilling RIG #6			
cc. Water _____				Contractor OCEAN DRILLING & EXPLORATION BC/ic			
cc. Mud _____				EQUIPMENT & HOLE DATA			
Tot. Liquid cc. _____				Formation Tested Patchawarra			
Gravity _____ ° API @ _____ °F.				Elevation 289' Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				Net Productive Interval 32' Ft.			
RESISTIVITY _____				All Depths Measured From Rotary Kelly Bushing			
CHLORIDE CONTENT _____				Total Depth 8440' Ft.			
Recovery Water _____ @ _____ °F. _____ ppm				Main Hole/Casing Size 8 1/2"			
Recovery Mud _____ @ _____ °F. _____ ppm				Drill Collar Length 413.5' I.D. 2.87"			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Drill Pipe Length 7927.28' I.D. 3.826"			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Packer Depth(s) 8356.91' - 8364.97' Ft.			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm				Depth Tester Valve 8334.78' Ft.			
Mud Weight 9.3 vis 38 sec.							
TYPE		AMOUNT		Depth Back		Surface	
Cushion				Ft. Pres. Valve		Choke .5" Bottom Choke .75"	
Recovered	420	Feet of	Gas cut mud				
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks SEE PRODUCTION TEST DATA SHEET.							
CHARTS INDICATE PARTIAL PLUGGING OF ANCHOR PERFORATIONS DURING FLOW							
PERIOD.							
TEMPERATURE		Gauge No. 1744		Gauge No. 1040		Gauge No.	
Depth: 8341.22' Ft.		Depth: 8437' Ft.		Depth: _____ Ft.		TIME (00:00-24:00 hrs.)	
24 Hour Clock		24 Hour Clock		Hour Clock		Tool	
Est. 280 °F.		Blanked Off NO		Blanked Off YES		Blanked Off	
Actual °F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		3850.8 3884.1		3880.3 3909.2		Reported Computed	
Flow Initial		141.2 174.8		214.9 220.5		Minutes Minutes	
Flow Final		169.5 184.1		272.2 278.7		62	
Closed in		1089.2 1113.7		1179.7 1167.4		120	
Second Period Flow Initial							
Flow Final							
Closed in							
Third Period Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		3922.4 3884.1		3954.1 3909.2			

Legal Location
Sec. - Twp. - Rng.LAT. 28° - 08' - 46.99" SOUTH
LONG. 140° - 54' - 07.06" EAST

Lease Name

Well No.

Test No.

8364.97' - 8440'

DELHI/SANTOS

Lease Owner/Company Name

Field Area COOPER BASIN

County

State

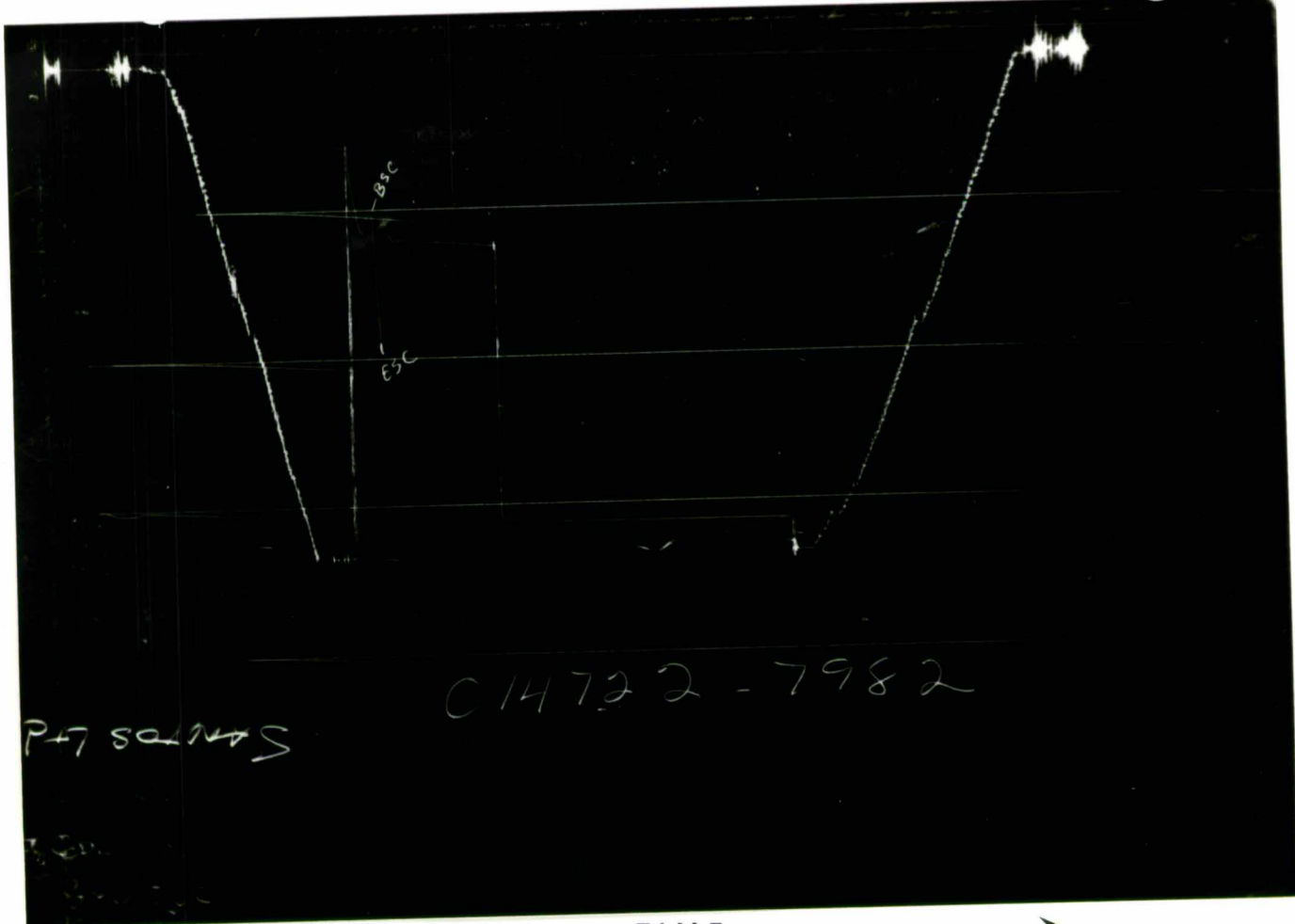
SOUTH AUSTRALIA

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED.

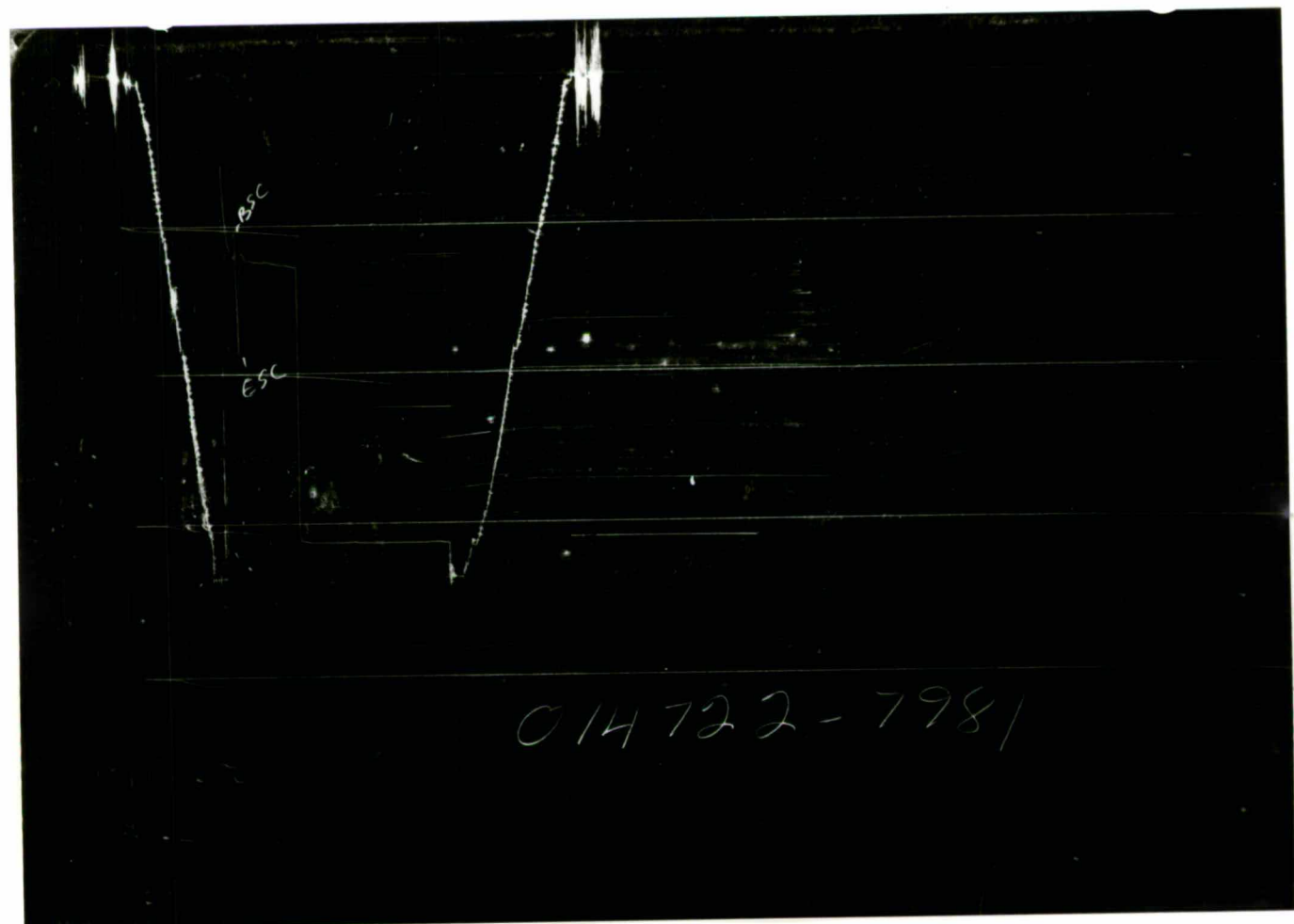
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Tool Description	O.D.	I.D.	Length	Depth
Reversing Sub	6.25"	3.00"	1.00'	
Drill Pipe	4.5"	3.826"	7927.28'	
Drill Collars	6.25"	2.87"	413.5'	
XO	5.75"	2.68"	1.00'	
Dual CIP Valve	5"	.87"	4.87'	
Hydrospring Tester	5"	.75"	5.40'	8334.78'
AP Running Case	5"	3.06"	4.04'	8341.22'
Hydraulic Jar	5"	1.75"	5.00'	
VR Safety Joint	5"	1.75"	5.00'	
Packer	7.75"	1.53"	5.90'	8356.91'
Distributor	5"	2.31"	2.16'	
Packer	7.75"	1.53"	5.90'	8364.97'
Anchor Pipe Safety Joint	5"	2.25"	4.00'	
XO	6"	2.87"	1.00'	
Drill Collars	6.25"	2.87"	29.29'	
Sub	5.62"	2.43"	.68'	
Flush Joint Anchor	5"	3.00"	35'	
Blanked Off BT Case	5"	2.75"	4.06'	8437'
TOTAL DEPTH				8440'

— PRESSURE —
↓



— TIME —→



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA				Date 11-26-81		Ticket Number 014722	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. CASED HOLE		Halliburton Location ADELAIDE	
Recovery: Cu. Ft. Gas _____				Tester MR. PARSONS		Witness MR. MADU	
cc. Oil _____				Drilling Contractor O D & E RIG #6		DRbc	
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested _____			
Tot. Liquid cc. _____				Elevation _____ Ft.			
Gravity _____ ° API @ _____ °F.				Net Productive Interval 48' perforations Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Rotary Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 8827' Ft.			
Recovery Water _____ @ _____ °F. _____ ppm				Main Hole/Casing Size 7"			
Recovery Mud _____ @ _____ °F. _____ ppm				Drill Collar Length 59' I.D. 2"			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Drill Pipe Length 7043' I.D. 2.125"			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Packer Depth(s) 7117' Ft.			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm				Depth Tester Valve 7110.17' Ft.			
Mud Weight _____ vis _____ sec.							
TYPE		AMOUNT		Depth Back Ft. Pres. Valve		Surface Choke .5" Bottom Choke .62"	
Cushion							
Recovered		3 Feet of		Condensate and water mixed			
Recovered		56 Feet of		Salty water			
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks Tool shut in at master valve for 7 minutes to unblock manifold and gauges from rust out of the drill pipe.							
SEE PRODUCTION TEST DATA SHEET.							
TEMPERATURE		Gauge No. 7982		Gauge No. 7981		Gauge No.	
Depth: 7112.08' Ft.		Depth: 7134' Ft.		Depth: _____ Ft.		TIME (00:00-24:00 hrs.)	
24 Hour Clock		48 Hour Clock		Hour Clock		Tool 11-26-81	
Est. °F. Blanked Off NO		Blanked Off YES		Blanked Off		Opened 1830	
Actual 236 °F.		Pressures		Pressures		Opened 1-27-81	
		Pressures		Pressures		Bypass 0329	
		Field Office		Field Office		Reported Computed	
		Field Office		Field Office		Minutes Minutes	
Initial Hydrostatic		3414.8 3351.6		3425.5 3357.1			
Flow Initial		561.7 557.5		575.3 591.3			
Flow Final		1245.0 1254.3		1277.6 1275.3		181 178.5	
Closed in		3119.7 3128.0		3127.5 3130.1		358 360.5	
Second Period Flow Initial							
Flow Final							
Closed in							
Third Period Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		3332.8 3346.9		3342.8 3354.3			

Legal Location
Sec. - Twp. - Rng.LAT. 28° 08' 54" N
LONG. 140° 07' 06" E

Lease Name

Well No.

Test No.

Field Area

County

State

Lease Owner/Company Name

DULLINGARI

17

8

7117' - 8827'

DELHI/SANTOS

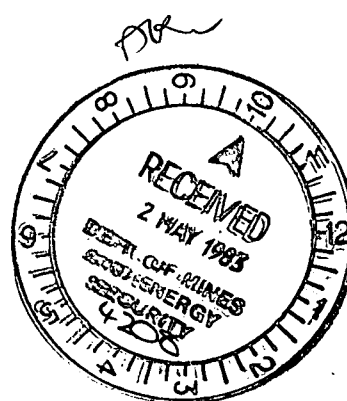
SOUTH AUSTRALIA

014722

Casing perms. _____ Bottom choke .62" Surf. temp _____ °F Ticket No. _____
 Gas gravity _____ Oil gravity _____ GOR _____ Page 1
 Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
 INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
11-26-81 a.m. p.m.					
1230					Loaded BT #7981 with 48 hr. clock
					Loaded BT #7982 with 24 hr. clock
1250					3 7/8" tools made up on catwalk
1802	(working on specific gravity of .75 &				Head up
1828	temperature of 115°F)				Set packer
1830	1/2"				Tool opened with a weak blow in bubble
					bucket, increasing to a strong blow in
					30 seconds
1831	"	20			Pressure increasing
1833	"	80	.43		Gas to surface, pressure still increasing
1834	"	150	.80		"
1835	"	170	.91		"
1836	"	215	1.15		"
1837	"	235	1.25		"
1838	"	265	1.45		"
1839	"	300	1.60		"
1841	"	200	1.07		Misty vapour around flare, gauges
					blocking and flare going out
1849	"				Opened manifold right up to unblock
					flare lines
1900	"				Shut master valve to washout manifold
1907	"				Opened valve with no choke. Washed
					out rust, etc., blocking the manifold.
					Rust was from drill pipe
1912	"	510	2.74		Gas going through 1/2" choke

Tool Description	O.D.	I.D.	Length	Depth
REVERSING SUB	4.25"	1.75"	4.04'	
DRILL PIPE	3"	2.125"	7043'	
DRILL COLLARS	4"	2"	59'	
XO SUB	4.25"	2.25"	.83'	
DUAL CIP VALVE	3.88"	.87"	5.13'	
HYDROSPRING TESTER	3.90"	.62"	5.69'	7110.17'
AP RUNNING CASE	3.87"	3"	4.91'	7112.08'
PACKER ASSEMBLY	6.875"	2.25"	4.17'	7117'
FLUSH JOINT ANCHOR	3.75"	1.75"	10'	
BLANKED OFF B.T. RUNNING CASE	3.87"	3"	4.14'	7134'
TOTAL DEPTH				8827'



SANTOS LTD.
PETROLEUM ENGINEERING DEPARTMENT
DULLINGARI #17 UPPER
ISOCHRONAL TEST ANALYSIS
TEST PERFORMED 21ST - 28TH JANUARY 1983

Report No: RE 035/83
Date: MARCH

Author: M.D. Evans

WP: 2807N

DULLINGARI #17 UPPER
ISOCHRONAL TEST

INTRODUCTION

Dullingari #17 was drilled as a development well in the south eastern portion of the field in November 1981. The well was then completed in both the Toolachee and Patchawarra formations as a dual producer and placed on stream 1st April 1982. This isochronal test was run in between the 21st and 28th January, 1983 for the purpose of determining the flow potential of the Toolachee Formation.

RESULTS

Attached are the data summary sheets giving the data obtained during the test. This data has been interpreted using the Laminar Inertial Turbulence (L.I.T.) analysis yielding the following results:

absolute open flow potential	8 MMcfd
flow capacity	1423 md-ft.
permeability	30 md.
turbulence factor	8.633 MMcfd ⁻¹
true skin	15.37
reservoir pressure	2820 psia @ 7000' KB

CONCLUSIONS

The test indicates that the Toolachee Formation has very high skin and turbulence factors thus causing a substantial decrease in the well's productivity potential.

This well is an ideal candidate for a stimulation treatment to remove the high skin and turbulence factors most likely caused by movement of fines into the formation pore throats around the wellbore. A successful stimulation would more than double this well's present productivity and as such this suggestion should be further investigated. ??

GAS WELL DELIVERABILITY TEST
RESULTS OF ISOCHRONAL 'LIT' ANALYSIS

WELL NAME: DULLINGARI #17 FORMATION: TOOLACHEE DATE OF TEST 21-28/1/83
 DEPTH TESTED: 7000' K.B.

PRESSURE BUILD-UP INFORMATION

EXTRAPOLATED PRESSURE $P^* = \frac{7952}{2820} \times 10^3 \text{ psia}^2$
 $\psi^* = 510.166 \times 10^6 \text{ psia}^2/\text{cp}$
 HORNER BUILD-UP SLOPE $m = 7.6 \times 10^2 \text{ psia}^2/\text{cycle}$
 $m(\psi) = 4.180 \times 10^6 \text{ psia}^2/\text{cp/cycle}$

WELL AND TEST PARAMETERS

Porosity $\phi = 0.0955$ Viscosity $\mu = 0.019 \text{ cp}$
 Compressibility $C_t = 0.00035$ well radius $r_w = 0.354 \text{ ft}$
 Well drainage $r_e = 2000$ thickness $h = 48 \text{ ft}$
 Final flow rate $q = 4.994 \text{ MMcfd}$ Temperature $T = 730 \text{ }^\circ\text{R}$
 Sandface press. $P_o = 1989 \text{ psia}$ Press 1 hr $P_1 = 2803.2 \text{ psia}$
 $\psi_o = 268.611 \times 10^6 \text{ psia}^2/\text{cp}$ $\psi_1 = 504.62 \times 10^6 \text{ psia}^2/\text{cp}$

BACK PRESSURE COEFFICIENTS

$$\Delta\psi = a q + b q^2$$

$$a = \frac{16.899}{10^6} \text{ psia}^2/\text{cp/MMcfd}$$

$$b = \frac{6.2736}{10^6} \text{ psia}^2/\text{cp/MMcfd}$$

FLOW CAPACITY

$$kh = \frac{1.632 \times 10^6}{m} \quad qT = 1423 \text{ md-ft}$$

PERMEABILITY

$$k = \frac{kh}{h} = 30 \text{ md}$$

APPARENT SKIN

$$S' = 1.151 \left[\frac{\psi_1 - \psi_o}{m} - \log \left(\frac{k}{\phi \mu C_t r_w^2} \right) + 3.23 \right] = 56.48$$

TURBULENCE COEFFICIENT

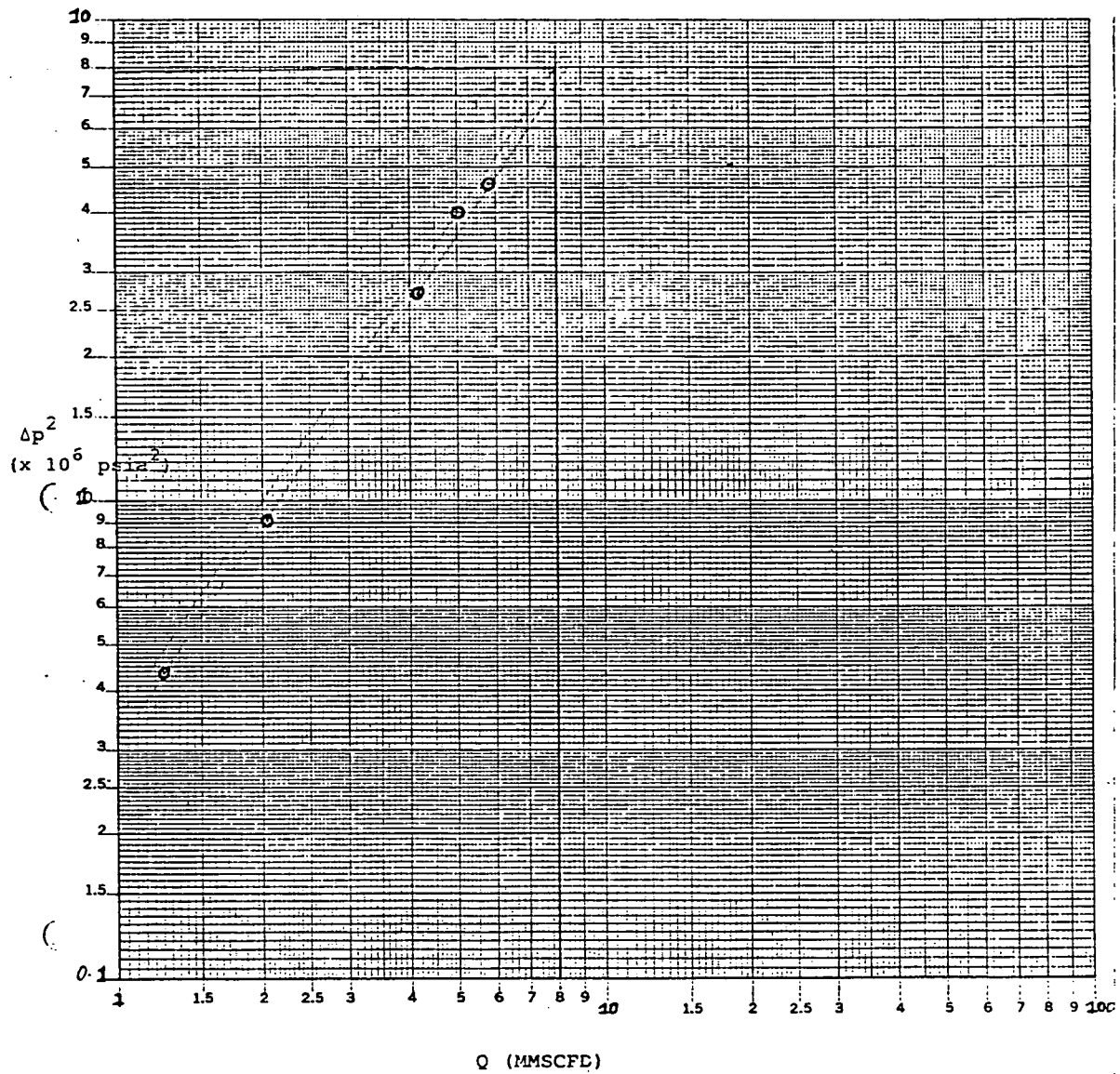
$$D = \frac{b kh}{1.417 \times 10^6 T} = 8.633 \text{ MMcfd}^{-1}$$

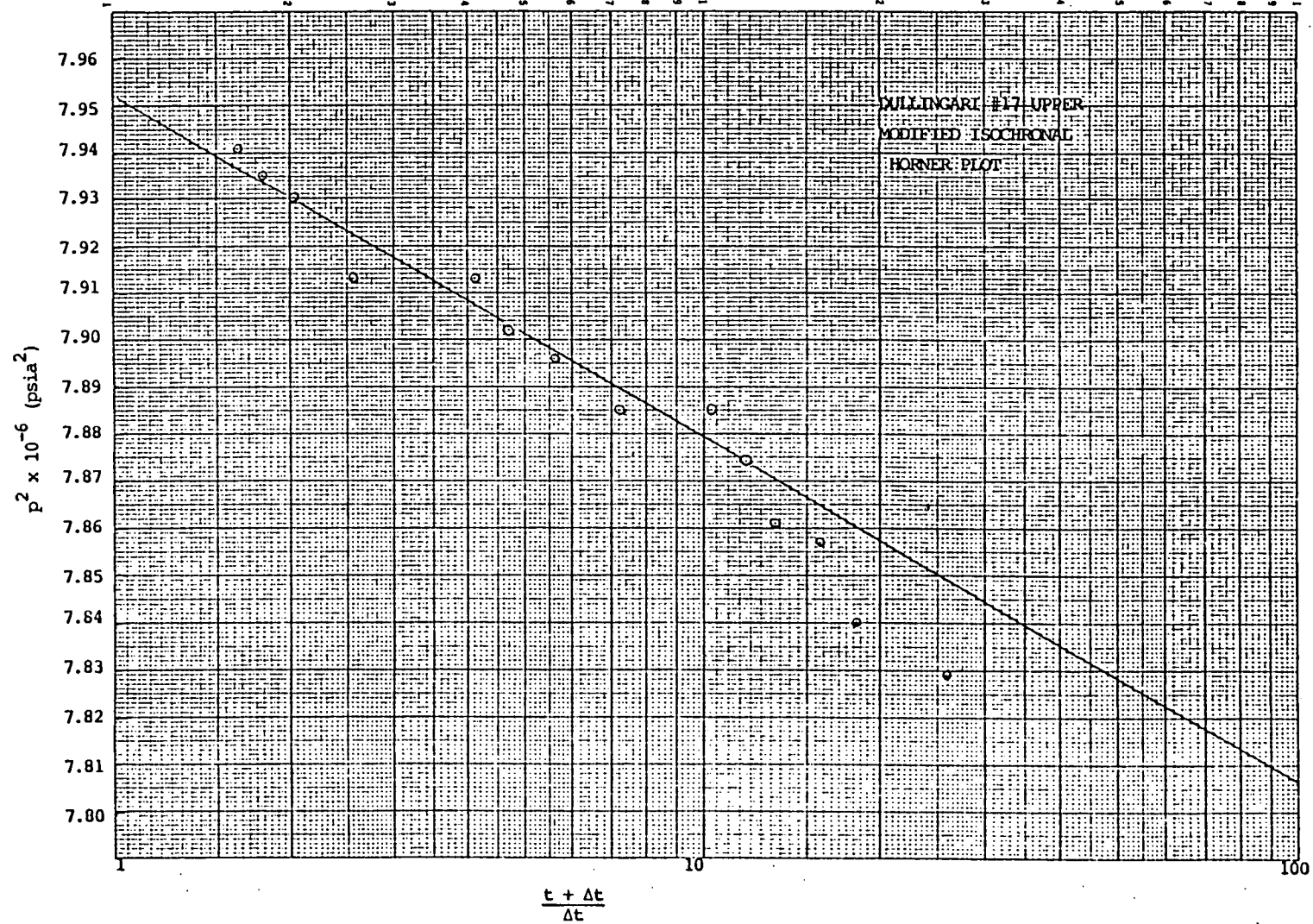
TRUE SKIN

$$S = S' - Dq = 15.37$$

Interpreted by: M.D. EVANS 24/03/83

DULLINGARI #17 UPPER
MODIFIED ISOCHRONAL TEST
21st - 28th JANUARY 1983





PAGE 1.

DESCRIPTION OF TEST

FLOW PERIOD

FLOW PERIOD		Duration of Run:		Hours.	Orifice Size:	ins/	31.75	min
Run No.:	1	4.0						
Flowed Well On:		Choke.			Meter Run:	3.068	ins/	77.93 min
Avg. G.O.R.:					Avg. Water Cut:			
Remarks: Adjusted choke @ 1420 hrs. from 12/64" to 11/64", adjusted choke again @ 1445 hrs. from 11/64" to 10/64"								

[illegible]

9501

PAGE 2.

2ND. SHUT IN PERIOD									
Time of Observation			Observed		Pressures				REMARKS
Date	Time	Shut In Time	Tubing		Casing		Wellhead Temp.		
		(Hours)	psig	kPa	psig	kPa	OF	OC	
25/1/83	1800	0	2250	15517	0	0	137	56.7	Shut well in
	1815	0.25	2345	16172	0	0			
	1830	0.5	2345	16172	0	0			
	1845	0.75	2350	16207	0	0			
	1900	1	2350	16207	0	0			
	1930	1.5	2360	16276	0	0			
	2000	2	2364	16303	0	0			
	2100	3	2364	16303	0	0			
	2200	4	2365	16310	0	0			Flowed well on 2nd rate

[illegible]

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SANTOS LTD.
WELL TEST SUMMARY

PAGE 5.

5TH. SHUT IN PERIOD			Observed Pressures						REMARKS
Time of Observation		Shut In Time (Hours)	Tubing		Casing		Wellhead Temp.		
Date	Time		psig	kPa	psig	kPa	°F	°C	
26/1/83	1800	0	965	6655	0	0	149	65.0	Shut well in
	1815	0.25	2340	16138	0	0			
	1830	0.5	2349	16200	0	0			
	1845	0.75	2349	16200	0	0			
	1900	1	2354	16234	0	0			
	1930	1.5	2355	16241	0	0			
	2000	2	2355	16241	0	0			
	2100	3	2357	16255	0	0			
	2200	4	2359	16269	0	0			Open well on 5th Rate

0900

PAGE 7.

0062

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WELL TEST SUMMARY
CALCULATION SHEET

PAGE 9.

CASE 1: FLOW THROUGH METER RUN

Run No.	Hw (inches in water)	Pf (psia)	Size Orifice Plate (inches)	Ft (°F)	b	Hw Pf
1	70	290	1.250	98		
2	120	420	1.250	73		
3	103	265	2.000	86		
4	138	410	2.000	120		
5	105	390	2.000	106		

Specific Gravity = 0.7833

TC = 401.4°R

PC = 720.3 psia

CO₂ Content = 13.610 mole percent

CASE 2: FLOW THROUGH METER RUN

Run No.	Fb	Fg	Ftf	Fpv	Fpb	Ftb
1						
2						
3						
4						
5						

Meter Run = 3.068 ins/
77.93 mm

FLOW THROUGH METER RUN (Continued)

Run No.	Fr	Y	C'	$\sqrt{HWPf}$	O		O	
					MCF/HOUR	10 ³ m ³ /HOUR	MCFD	10 ³ m ³ /d
1					52.5	1.5	1260	35.5
2					85.4	2.4	2049	57.7
3					173.0	4.9	4152	117.0
4					240.9	6.8	5782	162.9
5					208.1	5.9	4994	140.7

0064

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Page 10.

GAS WELL DELIVERABILITY TEST CALCULATIONS

(Base Conditions = 14.65 psia and 60°F)

WELL NAME: DULLINGARI #17 UPPER DATE: 21- 28/1/83 ELEMENT NO: 22422 DEPTH TESTED: 6964' KB
DWT IN: 2362 psig OUT: 2350 psig
LUB IN: 2361 psig OUT: 2352 psig

SIMPLIFIED ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Cal.	Meas.	Δp^2 (x10 ⁶ psia ²)	Flow Rate (Mmscfd)	H/carbon Prod. (BBLS/D)	Water Prod. (BBLS/D)	RESULTS
Initial Shut In	99.42	2818		X	-	-	-	-	$q = C(\bar{p}_R^2 - p_{wf}^2)^n$ slope n = <u>0.668</u> $\bar{p}_R =$ <u>2820</u> psia $C = \frac{q}{(\bar{p}_R^2 - p_{wf}^2)^n}$ = <u>1.96×10^{-4}</u> AOF (Mmscfd) = <u>8</u>
Flow 1	4.0	2740		X	0.434	1.260	1.3	0	
Shut In	4.0	2821		X	-	-	-	-	
Flow 2	4.0	2654		X	0.914	2.049	12.2	5.8	
Shut In	4.0	2821		X	-	-	-	-	
Flow 3	4.0	2291		X	2.709	4.152	17.4	8.2	
Shut In	4.0	2821		X	-	-	-	-	
Flow 4	4.0	1836		X	4.587	5.782	13.4	20.0	
Extended Flow	8.0	1989		X	3.985	4.994	31.2	12.1	
Final Shut In	30.02	2818		X	-	-	-	-	

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GAS WELL DELIVERABILITY TEST CALCULATIONS

(Base Conditions = 14.65 psia and 60°F)

LIT(Ψ) ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Ψ ($\times 10^6$ psia ² /cp)	$\Delta\Psi$ ($\times 10^6$ psia ² /cp)	Flow Rate(q) (Mscfd)	$\Delta\Psi/q$	q^2	$\Delta\Psi-bq^2$
Initial Shut In	99.42	2818	509.469	-	-	-	-	
Flow 1	4.0	2740	484.642	24.827	1.260	19.704	1.588	
Shut In	4.0	2821	510.439	-	-	-	-	
Flow 2	4.0	2654	457.712	52.727	2.049	25.733	4.198	
Shut In	4.0	2821	510.439	-	-	-	-	
Flow 3	4.0	2291	349.917	160.522	4.152	38.661	17.239	
Shut In	4.0	2821	510.439	-	-	-	-	
Flow 4	4.0	1836	230.896	279.543	5.782	48.347	33.432	
Total=Σ	-	-	-	517.619	13.243	132.445	56.457	
Extended Flow	8.0	1989	268.611	240.858	4.994	48.229	24.940	
Final Shut In	30.02	2818	509.469	-	-	-	-	

GAS WELL DELIVERABILITY TEST CALCULATIONSDISCARDED POINT NONEL.I.T. (P) ANALYSISRESULTS

$$N = \underline{4} \quad \bar{P}_R = \underline{510.116} \text{ MMpsia}^2/\text{cp}$$

$$a, a_t = \frac{\Delta P}{N} \frac{\Sigma q^2 - \Sigma q \Sigma q}{\Sigma q^2 - \Sigma q \Sigma q} = \underline{12.341}$$

$$b = \frac{N \Sigma \Delta P - \Sigma q \frac{\Delta P}{q}}{N \Sigma q^2 - \Sigma q \Sigma q} = \underline{6.2736}$$

(EXTENDED FLOW)

$$\Delta P = \underline{240.858} \quad q = \underline{4.994} \quad b = \underline{6.2736}$$

$$a = \frac{\Delta P - bq^2}{q} = \underline{16.899}$$

$$\text{TRANSIENT FLOW: } \bar{P}_R - P_{wf} = a_t q + bq^2$$

$$\text{i.e. } \underline{510.116} - P_{wf} = \underline{12.341} q + \underline{6.2736} q^2$$

$$\text{STABILIZED FLOW: } \bar{P}_R - P_{wf} = a q + bq^2$$

$$\text{i.e. } \underline{510.116} - P_{wf} = \underline{16.899} q + \underline{6.2736} q^2$$

DELIVERABILITY:

$$q = \frac{1}{2b} \{-a + \sqrt{a^2 + 4b(\bar{P}_R - P_{wf})}\}$$

$$\text{FOR } P_{wf} = 0, q = \text{AOF} = \underline{8} \text{ MMscfd}$$

$$\text{A.O.F.} = \underline{8} \text{ Mmcf/d} / \underline{0.225} \text{ } 10^6 \text{ m}^3 \text{d} \quad n = \underline{0.668}$$

$$\text{Total Volume of Gas Produced During Test} = \underline{3.873} \text{ Mmcf} / \underline{0.109} \text{ } 10^6 \text{ m}^3$$

$$\text{Condensate} = \underline{6.30} \text{ Bbls} / \underline{1.001} \text{ m}^3$$

$$\text{Water} = \underline{3.84} \text{ Bbls} / \underline{0.610} \text{ m}^3$$

Remarks:

Interpreted by: MDI Sam Date: 30-03-83



SANTOS LTD.
PETROLEUM ENGINEERING DEPARTMENT
DULLINGARI #17 LOWER
ISOCHRONAL TEST ANALYSIS
TEST PERFORMED 8TH - 10TH MARCH 1983

Report No: RE 036/83
Date: APRIL

Author: M.D. Evans

WP: 2845N

DULLINGARI #17 LOWER
ISOCHRONAL TEST

INTRODUCTION

Dullingari #17 was drilled as a development well in the South Eastern portion of the field in November 1981. The well was then completed in both the Toolachee and Patchawarra Formations as a dual producer and placed on stream 1st April 1982. This Isochronal test was run between the 8th and 10th of March 1983 for the purpose of determining the reservoir characteristics of the Patchawarra Formation.

RESULTS

Attached are the data summary sheets giving the data obtained during the test. These results have been interpreted using the Laminar Inertial Turbulence (L.I.T.) analysis yielding the following results:

absolute open flow potential	18	MMcfd
flow capacity	309	md-ft.
permeability	1.5	md.
turbulence factor	0.177	MMcfd ⁻¹
true skin	-1.126	
reservoir pressure	3190	psia @ 7880'KB

CONCLUSIONS

The test indicates that the Patchawarra Formation is in good producing condition and that no remedial work is required at this time.

GAS WELL DELIVERABILITY TEST
RESULTS OF ISOCHRONAL 'LIT' ANALYSIS

WELL NAME: DULLINGARI #17 FORMATION: PATCHAWARRA DATE OF TEST 22/1/83
 LOWER DEPTH TESTED: 7880' K.B. to 12/3/83

PRESSURE BUILD-UP INFORMATION

EXTRAPOLATED PRESSURE $P^* = \underline{10112.5} \times 10^3 \text{ psia}^2$
 $= \underline{3190} \text{ psia}$
 $\psi^* = \underline{608} \times 10^6 \text{ psia}^2/\text{cp}$
 HORNER BUILD-UP SLOPE $m = \underline{810} \times 10^6 \text{ psia}^2/\text{cycle}$
 $m(\psi) = \underline{30} \times 10^6 \text{ psia}^2/\text{cp/cycle}$

WELL AND TEST PARAMETERS

Porosity $\phi = \underline{0.11}$ Viscosity $\mu = \underline{0.020} \text{ cp}$
 Compressibility $C_t = \underline{.000215}$ well radius $r_w = \underline{0.354'}$
 Well drainage $r_e = \underline{2000}$ thickness $h = \underline{211} \text{ ft.}$
 Final flow rate $q = \underline{7.458} \text{ MMcfd}$ Temperature $T = \underline{760} \text{ }^\circ\text{R}$
 Sandface press. $P_o = \underline{2495} \text{ psia}$ Press 1 hr $P_1 = \underline{3004} \text{ psia}$
 $\psi_o = \underline{390} \times 10^6 \text{ psia}^2/\text{cp}$ $\psi_1 = \underline{546} \times 10^6 \text{ psia}^2/\text{cp}$

BACK PRESSURE COEFFICIENTS

$$\Delta\psi = a q + b q^2$$

$$a = \underline{23.540} \times 10^6 \text{ psia}^2/\text{cp/MMcfd}$$

$$b = \underline{0.5772} \times 10^6 \text{ psia}^2/\text{cp/MMcfd}$$

FLOW CAPACITY

$$kh = \frac{1.632 \times 10^6}{m} \quad qT = \underline{309} \text{ md-ft}$$

PERMEABILITY

$$k = \frac{kh}{h} = \underline{1.5} \text{ md}$$

APPARENT SKIN

$$S' = 1.151 \left[\frac{\psi_1 - \psi_o}{m} - \log \left(\frac{k}{\phi \mu C_t r_w^2} \right) + 3.23 \right] = \underline{0.20}$$

TURBULENCE COEFFICIENT

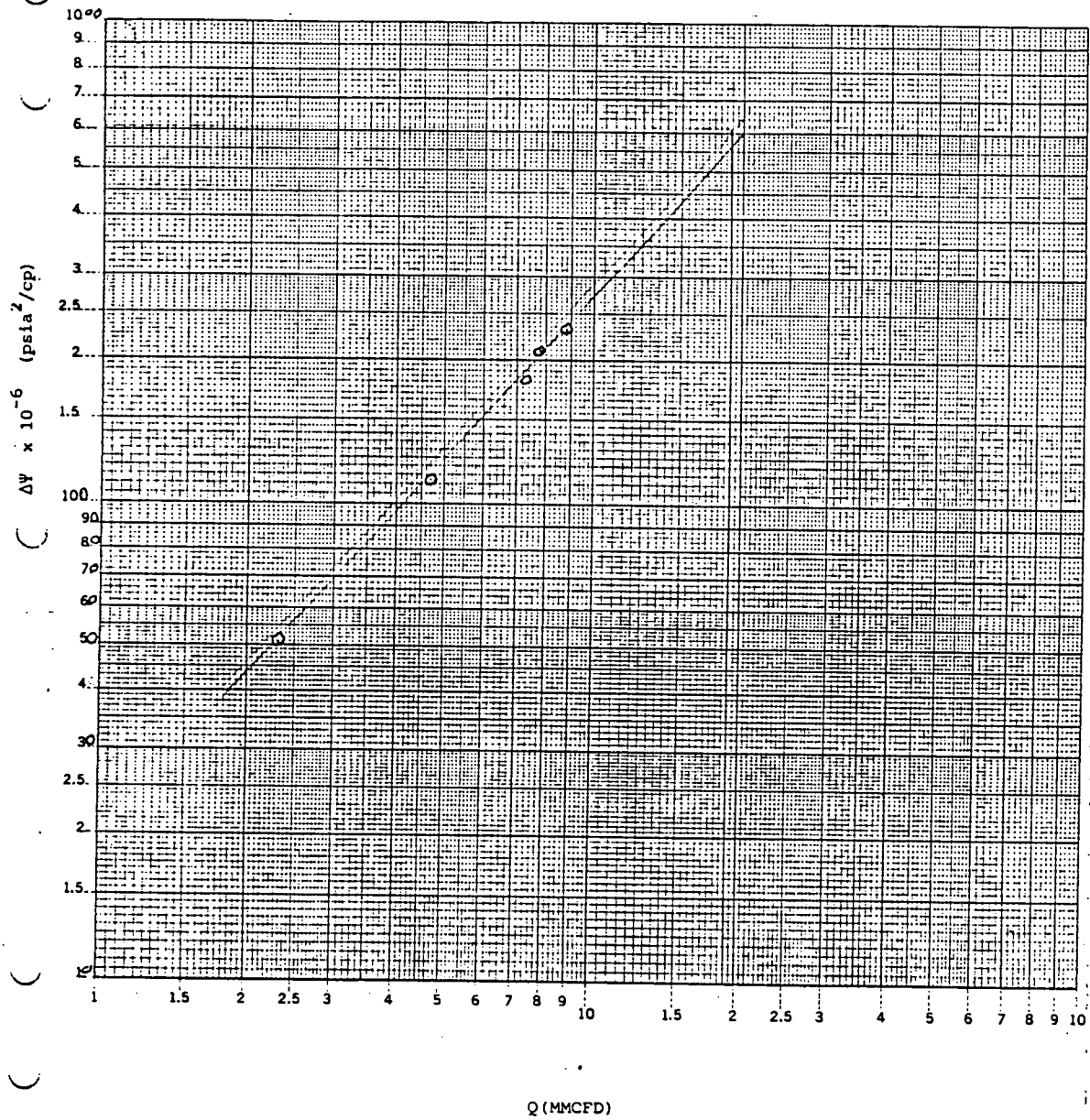
$$D = \frac{b kh}{1.417 \times 10^6 T} = \underline{0.177} \text{ MMcfd}^{-1}$$

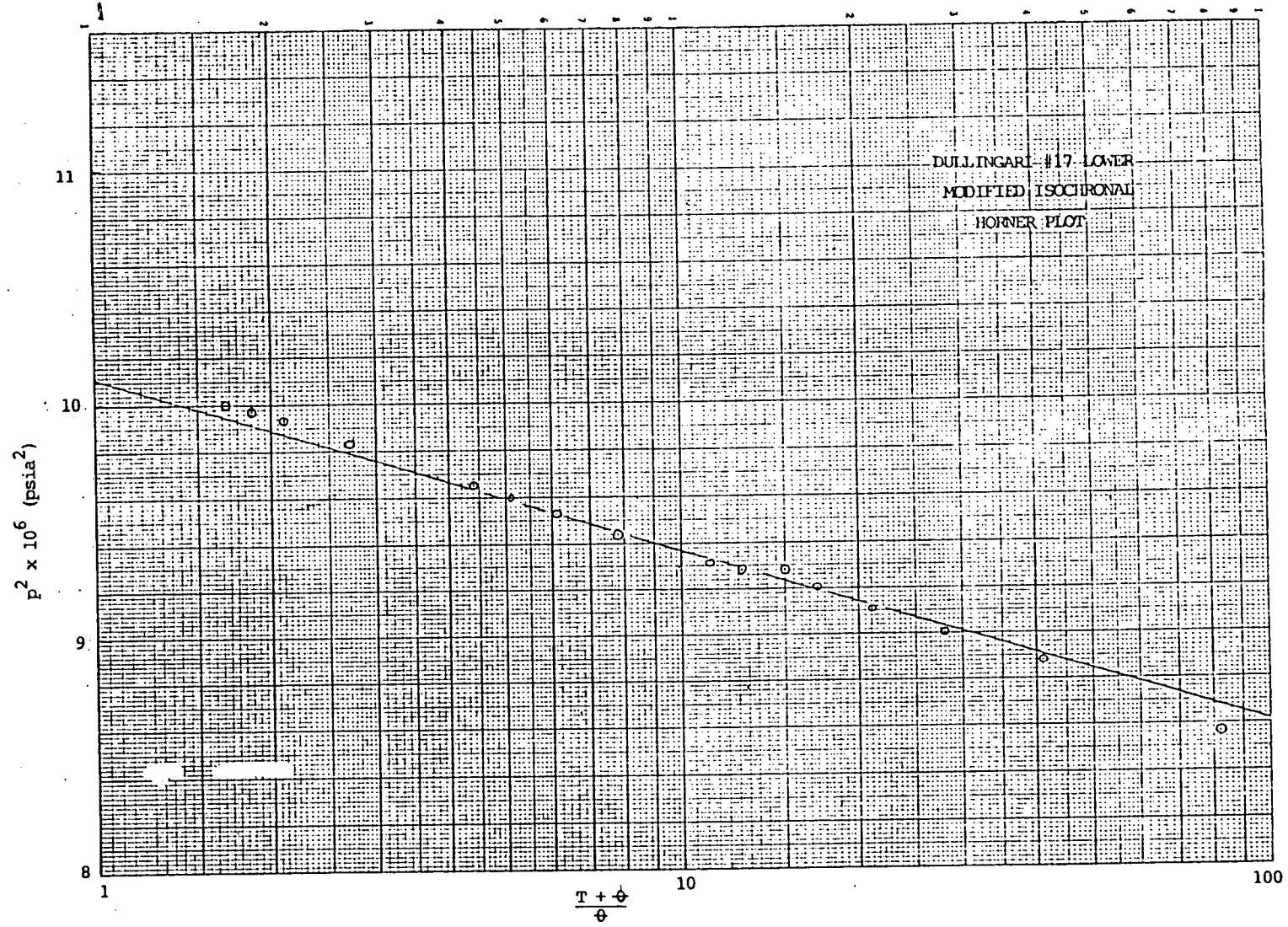
TRUE SKIN

$$S = S' - Dq = \underline{-1.126}$$

Interpreted by: M.D. Evans Date: 7/4/83

DULLINGARI #17 LOWER





PAGE 3.

Time of Observation			Observed		Pressures				REMARKS
Date	Time	Shut In Time	Tubing		Casing		Wellhead Temp.		
		(Hours)	psig	kPa	psig	kPa	OF	OC	
10/3/83	0130	Ø	2233	15400	0	0	122	50.0	Shut well in
	0145	0.25	2539	17510	0	0	116	46.7	
	0200	0.5	2556	17628	0	0	109	42.8	
	0215	0.75	2566	17697	0	0	102	38.9	
	0230	1	2572	17738	0	0	98	36.7	
	0300	1.5	2580	17793	0	0	95	35.0	
	0330	2	2584	17821	0	0	93	33.9	
	0430	3	2589	17855	0	0	86	30.0	
	0530	4	2593	17883	0	0	84	28.9	Opened well on 3rd Rate

[illegible]

0075

SANTOS LTD.
WELL TEST SUMMARY

PAGE 5.

5TH. SHUT IN PERIOD

Time of Observation			Observed Pressures						REMARKS
Date	Time	Shut In Time	Tubing		Casing		Wellhead Temp.		
		(Hours)	psig	kPa	psig	kPa	°F	°C	
10/3/83	1730	0	1499	10338	0	0	156	68.9	Shut well in
	1745	0.25	2450	16897	0	0	151	66.1	
	1800	0.5	2483	17124	0	0	145	62.8	
	1815	0.75	2503	17262	0	0	138	58.9	
	1830	1	2515	17345	0	0	133	56.1	
	1900	1.5	2532	17462	0	0	125	51.7	
	1930	2	2541	17524	0	0	118	47.8	
	2030	3	2552	17600	0	0	104	43.9	
	2130	4	2560	17655	0	0	104	40.0	Opened well on 5th Rate

0077

PAGE 6.

[illegible]

0078

PAGE 8.

'K.B. DWT IN = 2614 psig/OUT = 2595 psig
LUB IN = 2599 psig/OUT = 2591 psig

11111

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WELL TEST SUMMARY
CALCULATION SHEET

PAGE 9.

CASE 1: FLOW THROUGH METER RUN

Run No.	Hw (inches in water)	Pf (psig)	Size Orifice Plate (inches)	Ft (°F)	b	$\frac{Hw}{Pf}$
1	146	240	1.500	84		
2	108	400	2.000	75		
3	101	440	2.500	109		
4	76	420	3.000	138		
5	76	420	2.750	120		

Specific Gravity = 0.8116

TC = 403.2°R

PC = 750.2 psia
CO₂ CONTENT = 20.840 mole
percent

CASE 2: FLOW THROUGH METER RUN

Run No.	Fb	Fg	Ftf	Fpv	Fpb	Ftb
1						
2						
3						
4						
5						

Meter Run = 5.761

146.3

ins

mm

FLOW THROUGH METER RUN (Continued)

Run No.	Fr	Y	C'	$\sqrt{HwPf}$	Q		Q	
					MCF/HOUR	10 ³ m ³ /HOUR	MCFD	10 ³ m ³ /d
1					97.0	2.7	2327	65.6
2					195.9	5.5	4702	132.5
3					303.5	8.6	7283	205.2
4					367.9	10.4	8830	248.8
5					310.7	8.8	7458	210.1

0081

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Page 10.

GAS WELL DELIVERABILITY TEST CALCULATIONS

(Base Conditions = 14.65 psia and 60°F)

WELL NAME: DULLINGARI #17L DATE: 22/1/83 - 12/3/83 ELEMENT NO: 21374 DEPTH TESTED: 7874' KB
 DWT IN: 2614 psig OUT: 2595 psig
 LUB IN: 2599 psig OUT: 2591 psig

SIMPLIFIED ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Cal.	Meas.	Δp_6^2 (x10 ⁶ psia ²)	Flow Rate (Mmscfd)	H/carbon Prod. (BBL/D)	Water Prod. (BBL/D)	RESULTS
Initial Shut In	1108.45	3209		X	-	-	-	-	$q = C(\bar{p}_R^2 - p_{wf}^2)^n$ slope n = <u>0.851</u> $\bar{p}_R = \underline{3190}$ psia $C = \underline{q}$ $(\bar{p}_R^2 - p_{wf}^2)^n$ $= \underline{1.81 \times 10^{-5}}$ AOF (MMscfd) $= \underline{140}$
Flow 1	4.0	3054		X	0.971	2.327	-	-	
Shut In	4.0	3182		X	-	-	-	-	
Flow 2	4.0	2837		X	2.077	4.702	-	21.60	
Shut In	4.0	3149		X	-	-	-	-	
Flow 3	4.0	2571		X	3.306	7.283	8.88	28.08	
Shut In	4.0	3130		X	-	-	-	-	
Flow 4	4.0	2373		X	4.166	8.830	0.60	33.36	
Extended Flow	8.0	2495		X	3.811	7.458	4.80	26.88	
Final Shut In	30.0	3168		X	-	-	-	-	

0082

GAS WELL DELIVERABILITY TEST CALCULATIONS

(Base Conditions = 14.65 psia and 60°F)

LIT(Ψ) ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Ψ ($\times 10^6$ psia ² /cp)	$\Delta\Psi$ ($\times 10^6$ psia ² /cp)	Flow Rate(q) (MMscfd)	$\Delta\Psi/q$	q^2	$\Delta\Psi-bq^2$
Initial Shut In	1108.45	3209	613.581	-	-	-	-	
Flow 1	4.0	3054	562.290	51.291	2.327	22.042	5.415	
Shut In	4.0	3182	604.561	-	-	-	-	
Flow 2	4.0	2837	492.838	111.723	4.702	23.761	22.109	
Shut In	4.0	3149	593.597	-	-	-	-	
Flow 3	4.0	2571	412.151	181.446	7.283	24.914	53.042	
Shut In	4.0	3130	587.284	-	-	-	-	
Flow 4	4.0	2373	355.582	231.702	8.830	25.240	77.969	
Total=I	-	-	-	576.162	23.142	96.957	158.535	
Extended Flow	8.0	2495	390.010	209.900	7.458	28.144	55.622	
Final Shut In	30.0	3168	599.910	-	-	-	-	

SANTOS LTD.

PAGE 12.

GAS WELL DELIVERABILITY TEST CALCULATIONS

DISCARDED POINT -

L.I.T. (V) ANALYSIS

RESULTS

N = 4 $\bar{\Psi}_R =$ 608.00 MMpsia²/cp

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

$$a, a_t = \frac{\Delta \Psi}{N} \frac{\Sigma q^2 - \Sigma q \Sigma q}{\Sigma q^2 - \Sigma q \Sigma q} = \underline{20.667}$$

i.e. 608.00 - $\Psi_{wf} =$ 20.667 q + 0.617 q²

$$b = \frac{N \Sigma \Delta \Psi - \Sigma q \Sigma \frac{\Delta \Psi}{q}}{N \Sigma q^2 - \Sigma q \Sigma q} = \underline{0.617}$$

STABILIZED FLOW: $\bar{\Psi}_R - \Psi_{wf} = a q + b q^2$

i.e. 608.00 - $\Psi_{wf} =$ 23.540 q + 0.167 q²

(EXTENDED FLOW)

$$\Delta \Psi = \underline{209.900} \quad q = \underline{7.458} \quad b = \underline{0.617}$$

DELIVERABILITY:

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

$$a = \frac{\Delta \Psi - b q^2}{q} = \underline{23.540}$$

FOR $\Psi_{wf} = 0$, q = AOF = 18 MMscfd

A.O.F. = 18 Mmcfd / .508 10⁶m³d n = 0.851

Total Volume of Gas Produced During Test = 6.344 Mmcf / 178.710 10⁶m³

Condensate = 3.59 Bbls / 0.570 m³

Water = 23.08 Bbls / 3.667 m³

Remarks:

0084

Interpreted by on 10/8/83



WIRELINE REPORT

WELL: DOLLINGARI * 17 LOWER.

DATE: 26TH 3 27TH NOV 1985

PROGRAM: BOTTOM HOLE PRESSURE SURVEY.

PURPOSE OF WORK: DUMMY RUN 3 FLOW / BUILD UP.

REPORT OF WORK PERFORMED:

26/11/85 07:00 ARRIVE ON LOCATION.

08:40 RIG UP 082 WIRELINE UNIT 3 LUBRICATOR.

08:40 RUN IN HOLE WITH 1.5" BUND BOX AND TAG.

09:00 BOTTOM @ 8370' KB.

09:00 PULL OUT OF HOLE SECURE WELL.

27/11/85 06:00 ARRIVE ON LOCATION PREPARE ELEMENTS.

06:20 PRESSURE UP LUBRICATOR.

08:20 RUN IN HOLE WITH TANDUM 3000 PSI PRESSURE

08:45 ELEMENTS - HANG OFF @ 8110' KB

08:45 SECURE WELL FOR 160 HR BUILD UP.

Te Chap
OPERATOR'S SIGNATURE

WORK PERFORMED BY: Tim CHAPMAN OF EXPERTEST

WELL DATA:

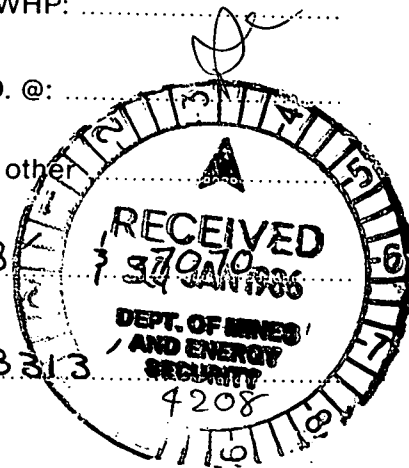
Tubing Size: 2 7/8" FWHP: 1148 PSI SIWHP:

Sub Surface S.V./Landing Nipple @ S.S.D. @:

"X" Nipple @ "N"/"X" Nipple @ 7832' other

Min I.D. 1.791" @ 7832' Packer @ 7818

Perforated Interval: PATCHAWARRA ZONE 7907' - 8313'

Forward to: Petroleum Engineering - Adelaide
Production Department - Moomba



WIRELINE REPORT

0086

WELL: DULLINGARI # 17 LOWER

DATE: 4TH DECEMBER 1985

PROGRAM: BOTTOM HOLE PRESSURE SURVEY

PURPOSE OF WORK: PULL BUILD UP RECORDERS & STATIC GRADIENT.

REPORT OF WORK PERFORMED:

5:15 ARRIVE ON LOCATION
05:30 OFF BOTTOM - PULL OUT OF HOLE (2x 3000 BOMB X 2 180 HR CLOCKS.)
5:50 IN LUBRICATOR
07:50 DEP. LUBRICATOR 2x 6000 CHARTS.
PREPARE TO RUN STATIC GRADIENT
8:45 RUN IN HOLE WITH TANDEM 3000 PSI PRESSURE ELEMENTS TO A
MAXIMUM DEPTH OF 8313' KB AS PER PROGRAM
9:18 OFF BOTTOM - PULL OUT OF HOLE
10:57 DEPRESSURE LUBRICATOR
11:20 RIG DOWN OBI WIRELINE UNIT & LUBRICATOR
MOVE TO NEXT LOCATION.

Tim Chapman
OPERATOR'S SIGNATURE

WORK PERFORMED BY: TIM CHAPMAN OF EXPERTEST

WELL DATA:

Tubing Size: 2 7/8" FWHP: SIWHP: 1859 PSI

Sub Surface S.V./Landing Nipple @ S.S.D. @:

"X" Nipple @ "N"/"AT" Nipple @ 7832' other

Min I.D. 1.791" @ 7832' Packer @ 7818' & 7070'

Perforated Interval: DATUAWARRA ZONE 7907' - 8313'

Forward to: Petroleum Engineering - Adelaide
Production Department - Moomba

ISO - CHRONAL AND BUILD-UP SURVEY

Well: DULLINGARI # 17 LOWER Date: 27TH NOVEMBER 85
 ① 1186 PSI 1898 PSI
 Lubricator Data: ② 1178 " 1883 "

Pressure with D.W.T. (IN) 1148 PSI

Time Pressured 27/11/85 @ 06:20

Time Depressed 4/12/85 @ 07:50

Time Run in Hole 27/11/85 @ 08:20

Time off Bottom 4/12/85 @ 05:30

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	29388 x 3000 PSI	29385 x 3000 PSI
Recorder No.	61001 x 15 TLS.	13034 x 15 TLS.
Clock and Lead Screw Data	2871 x 180 HR.	2874 x 180 HR.
Engage Stylus	Date: 27/11/85 Time: 06:10	Date: 27/11/85 Time: 06:10
Disengage	Date: 4/12/85 Time: 08:00	Date: 4/12/85 Time: 08:00

Remarks: BOTTOM HOLE PRESSURE SURVEY

MBHT - 286 °F

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G.	Casing P.S.I.G.	Wellhead Temp. °F	Remarks
27 TH	NOVEMBER		1985	WELL	ON LINE.	(FLOWING)
	06:20		1148	0		PRESSURE UP LUB.
	08:20		1148	0		RUN IN HOLE.
	08:45					HANG OFF @ 8110' KB.
	09:15		1137	0	153	
	09:45		1133	0	154	
	10:15		1138	0	156	
	10:45		1143	0	160	
	11:00		1145	0	158	WELL SHUT IN BY
	11:15		1622	0		SANTOS FIELD
	11:30		1657	0		OPERATOR - COMMENCE
	11:45		1683	0		BUILD UP SURVEY.
	12:00	1	1702	0		
	12:15		1711	0		
	12:30		1718	0		
	12:45		1724	0		
	13:00	2	1728	0		
	13:15		1733	0		
	13:30		1737	0		
	13:45		1742	0		
	14:00	3	1745	0		
	14:15		1747	0		
	14:30		1751	0		
	14:45		1753	0		

ISO - CHRONAL AND BUILD-UP SURVEY

Well: DULLINGARI * 17 LOWER Date: 27TH NOVEMBER 85

Lubricator Data:

Pressure with D.W.T. (IN) 1148 PSI

Time Pressured 27/11/85 @ 06:20 Time Depressed 4/12/85 @ 07:50

Time Run in Hole 27/11/85 @ 08:20 Time off Bottom 4/12/85 @ 05:30

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	29388 x 3000 PSI	29385 x 3000 PSI
Recorder No.	61001 x 15 TLS	13034 x 15 TLS
Clock and Lead Screw Data	2871 x 180 HR.	2874 x 180 HR.
Engage Stylus	Date: 27/11/85 Time: 06:10	Date: 27/11/85 Time: 06:10
Disengage	Date: 4/12/85 Time: 08:00	Date: 4/12/85 Time: 08:00

Remarks: BOTTOM HOLE PRESSURE SURVEY

M.B.H.T. → 286 °F

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G.	Casing P.S.I.G.	Wellhead Temp.	Remarks
27 TH	NOVEMBER 1985					BUILD UP
	15:00	4	1756	0		START 4 HR. READINGS
	19:00	8	1778	0		
	23:00	12	1794	0		
28 TH	NOVEMBER 1985					
	03:00	16	1805	0		
	07:00	20	1813	0		
	11:00	24	1819	0		
	15:00	28	1825	0		
	19:00	32	1827	0		
	23:00	36	1830	0		
29 TH	NOVEMBER 1985					
	03:00	40	1832	0		
	07:00	44	1836	0		
	11:00	48	1839	0		
	15:00	52	1840	0		
	19:00	56	1841	0		
	23:00	60	1844	0		
30 TH	NOVEMBER 1985					
	03:00	64	1846	0		
	07:00	68	1847	0		
	11:00	72	1850	0		
	15:00	76	1853	0		
	19:00	80	1851	0		

ISO - CHRONAL AND BUILD-UP SURVEY

Well: DULLINGARI #17 LOWERDate: 30TH NOVEMBER 1985

Lubricator Data:

Pressure with D.W.T. (IN) 1448 psiTime Pressured 27/11/85 @ 06:20Time Depressed 4/12/85 @ 07:50Time Run In Hole 27/11/85 @ 08:20Time off Bottom 4/12/85 @ 05:30

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>29388 x 3000 psi</u>	<u>29385 x 3000 psi</u>
Recorder No.	<u>61001 x 15 r/s</u>	<u>13034 x 15 r/s</u>
Clock and Lead Screw Data	<u>2871 x 180 hr.</u>	<u>2874 x 180 hr.</u>
Engage Stylus	Date: <u>27/11/85</u> Time: <u>06:10</u>	Date: <u>27/11/85</u> Time: <u>06:10</u>
Disengage	Date: <u>4/12/85</u> Time: <u>08:00</u>	Date: <u>4/12/85</u> Time: <u>08:00</u>

Remarks: BOTTOM HOLE PRESSURE SURVEYM.B.H.T. - 286 °F

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G.	Casing P.S.I.G.	Wellhead Temp.	Remarks
30 TH	NOVEMBER 1985					BUILD UP.
	23:00	84	1850	0		
1 ST	DECEMBER 1985					
	03:00	88	1849	0		
	07:00	92	1850	0		
	11:00	96	1853	0		
	15:00	100	1853	0		
	19:00	104	1853	0		
	23:00	108	1851	0		
2 ND	DECEMBER 1985					
	03:00	112	1851	0		
	07:00	116	1852	0		
	11:00	120	1854	0		
	15:00	124	1857	0		
	19:00	128	1857	0		
	23:00	132	1856	0		
3 RD	DECEMBER 1985					
	03:00	136	1854	0		
	07:00	140	1857	0		
	11:00	144	1858	0		
	15:00	148	1858	0		
	19:00	152	1859	0		
	23:00	156	1859	0		

Date: 4TH DECEMBER 85

Pressure with D.W.T. (IN) 1448 PSI

Time Pressured... 27/11/85 @ 06:20

Time Depressured... 4/12/85 @ 07:50

Time Run in Hole. 27/11/85 @ 08:20

Time off Bottom.....4/12/85 @ 05:30

Bomb No. 2 Data

Remarks:.....BOTTOM HOLE PRESSURE SURVEY.....

M.B.H.T $\rightarrow 286^{\circ}\text{F}$

[illegible]

WELL DULLINGARI #17 LOWER.



SANTOS LTD

WELL TEST DATA SHEET

DATE 27TH NOVEMBER 1985

OPERATOR Tim CHAPMAN

PAGE No. ONE

DATE TIME	WELLHEAD					H.P. SEPARATOR					L.P. SEPARATOR					TOTAL GAS RATE MMSCF/D	TOTAL LIQUID RATE BBLSD	G.O.R. SCF/BBL	REMARKS
	CASING PSI	TUBING PSI	TEMP °F	CHOKE SIZE INS	B.S.W. %	H.P. METER RUN I.D. =					L.P. METER RUN I.D. =								
						PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D	PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D				
27 TH	NOVEMBER 1985																		
0600			PREPARE TO RUN TANDUM 3000 PSI ELEMENTS 3 180 HR CLOCKS FOR FLOW / BUILD UP.																
0620	0	1148		100%				PRESSURE UP LUBRICATOR.											
0820	0	1148		100%				RUN IN HOLE											
0845	0							HANG OFF @ 8110' KB COMMENCE FLOW / BUILD UP SURVEY.											
0915	0	1137	153	100%															
0945	0	1133	154	100%															
1015	0	1138	156	100%															
1045	0	1143	160	100%															
1100	0	1145	158	100%		WELL SHUT IN EARLY BY FIELD OPERATOR / FORCED TO START BUILD UP READINGS EARLY.													
1115	0	1622																	
1130	0	1657																	
1145	0	1683																	
1200	0	1702																	
1215	0	1711																	
1230	0	1718																	
1245	0	1724																	
1300	0	1728																	
1315	0	1733																	
1330	0	1737																	

G006

0091

WELL DULLEGARI #17 LOWER.

OPERATOR Tim Chapman.



SANTOS LTD

WELL TEST DATA SHEET

DATE 27TH November 1985

PAGE No. TWO.

DATE TIME	WELLHEAD					H.P. SEPARATOR					L.P. SEPARATOR					TOTAL GAS RATE MMSCF/D	TOTAL LIQUID RATE BBLSD	G.O.R. SCF/BBL	REMARKS
	CASING PSI	TUBING PSI	TEMP °F	CHOKE SIZE INS	B.S.W. %	H.P. METER RUN I.D. =					L.P. METER RUN I.D. =								
						PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D	PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D				
27 TH	NOVEMBER 1985																		
1345	0	1742																	
1400	0	1745																	
1415	0	1747																	
1430	0	1751																	
1445	0	1753																	
1500	0	1756																	
1900	0	1778																	
2300	0	1794																	
28 TH	NOVEMBER 1985																		
0300	0	1805																	
0700	0	1813																	
1100	0	1819																	
1500	0	1825																	
1900	0	1827																	
2300	0	1830																	
29 TH	NOVEMBER 1985																		
0300	0	1832																	
0700	0	1836																	
1100	0	1839																	

COMMENCE 4 HOURLY BUILD UP READINGS.

WELL DULLINGARI #17 LOWER.

SANTOS LTD

DATE 29TH November 1985

OPERATOR Tim Chapman



WELL TEST DATA SHEET

PAGE No. THREE

DATE TIME	WELLHEAD					H.P. SEPARATOR					L.P. SEPARATOR					TOTAL GAS RATE MMSCF/D	TOTAL LIQUID RATE BBLSD	G.O.R. SCF/BBL	REMARKS
	CASING PSI	TUBING PSI	TEMP °F	CHOKE SIZE INS	B.S.W. %	H.P. METER RUN I.D. =					L.P. METER RUN I.D. =								
						PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D	PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D				
29 TH	NOVEMBER 1985																		
1500	0	1840																	
1900	0	1841																	
2300	0	1844																	
30 TH	NOVEMBER 1985																		
0300	0	1846																	
0700	0	1847																	
1100	0	1850																	
1500	0	1853																	
1900	0	1851																	
2300	0	1850																	
1 ST	DECEMBER 1985																		
0300	0	1849																	
0700	0	1850																	
1100	0	1853																	
1500	0	1853																	
1900	0	1853																	
2300	0	1851																	

G006

0093

WELL DULLINGARI # 17 LOWER

OPERATOR Tim Chapman



SANTOS LTD

WELL TEST DATA SHEET

DATE 2ND DECEMBER 1985

PAGE No. FOUR

DATE TIME	WELLHEAD					H.P. SEPARATOR					L.P. SEPARATOR					TOTAL GAS RATE MMSCF/D	TOTAL LIQUID RATE BBL/D	G.O.R. SCF/BBL	REMARKS			
	CASING PSI	TUBING PSI	TEMP °F	CHOKE SIZE INS	B.S.W. %	H.P. METER RUN I.D. =					L.P. METER RUN I.D. =											
						PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D	PI PSI	HW INS. H ₂ O	TEMP °F	ORIFICE SIZE INS	FLOW RATE MMSCF/D							
2 ND	DECEMBER																		BUILD UP.			
0300	0	1851			1985																	
0700	0	1852																				
1100	0	1854																				
1500	0	1857																				
1900	0	1857																				
2300	0	1856																				
3 RD	DECEMBER																					
0300	0	1854			1985																	
0700	0	1857																				
1100	0	1858																				
1500	0	1858																				
1900	0	1859																				
2300	0	1859																				
4 TH	DECEMBER																					
0300	0	1859			1985																	
0530	0	1858				OFF BOTTOM — PULL OUT OF HOLE.																
0550	0	1857				IN LUBRICATOR																
0750	0	1858				DEPRESSURE LUBRICATOR.																
						END OF FLOW / BUILD UP SURVEY																

 6006
 6006
 6006



**** DULLINGARI 17 LOWER ****
STATIC PRESSURE GRADIENT

TEST DATE: 4-12-85

DEPTH (FT.)	TOP PRESSURE ELEMENT 29388/3000			BOTTOM PRESSURE ELEMENT 29385/3000		
	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)
LUB	1.2370	1877.5	----	1.2420	1880.2	----
1000	1.2740	1934.0	0.0565	1.2790	1936.5	0.0563
2000	1.3080	1985.9	0.0519	1.3130	1988.2	0.0517
3000	1.3410	2036.3	0.0504	1.3480	2041.5	0.0533
4000	1.3750	2088.3	0.0520	1.3810	2091.7	0.0502
5000	1.4060	2135.7	0.0474	1.4130	2140.4	0.0487
6000	1.4360	2181.5	0.0458	1.4440	2187.6	0.0472
7000	1.4660	2227.4	0.0459	1.4750	2234.9	0.0472
7600	1.4860	2257.9	0.0509	1.4910	2259.3	0.0407
8110	1.5020	2282.4	0.0480	1.5060	2282.1	0.0448
8313	1.5240	2316.0	0.1656	1.5280	2315.7	0.1653
LUB	1.2430	1886.6	----	1.2430	1881.8	----

GENERAL REMARKS:

DWT IN: 1859
 DWT OUT: 0
 MAX BHT: 292 F

ELEMENT 29388/3000 CALIBRATED 8-11-85
 ELEMENT 29385/3000 CALIBRATED 8-11-85

WELL NAME: DULLINGARI # 17 LOWER.

STATIC GRADIENT SURVEY

DATE: 4TH DECEMBER 85

BOMB No. 1 DATA

ELEMENT No. 29388 ELEMENT RANGE: 3000 PSI
RECORDER No. 10019 x 15 CLOCK DATA: 2530 x 3 HR.
ENGAGE SYLUS: 08:20 DISENGAGE: 11:20

BOMB No. 2 DATA

ELEMENT No. 29385 ELEMENT RANGE: 3000
RECORDER No. 13034 CLOCK DATA: 2387 x 3
ENGAGE SYLUS: 08:20 DISENGAGE: 11:20

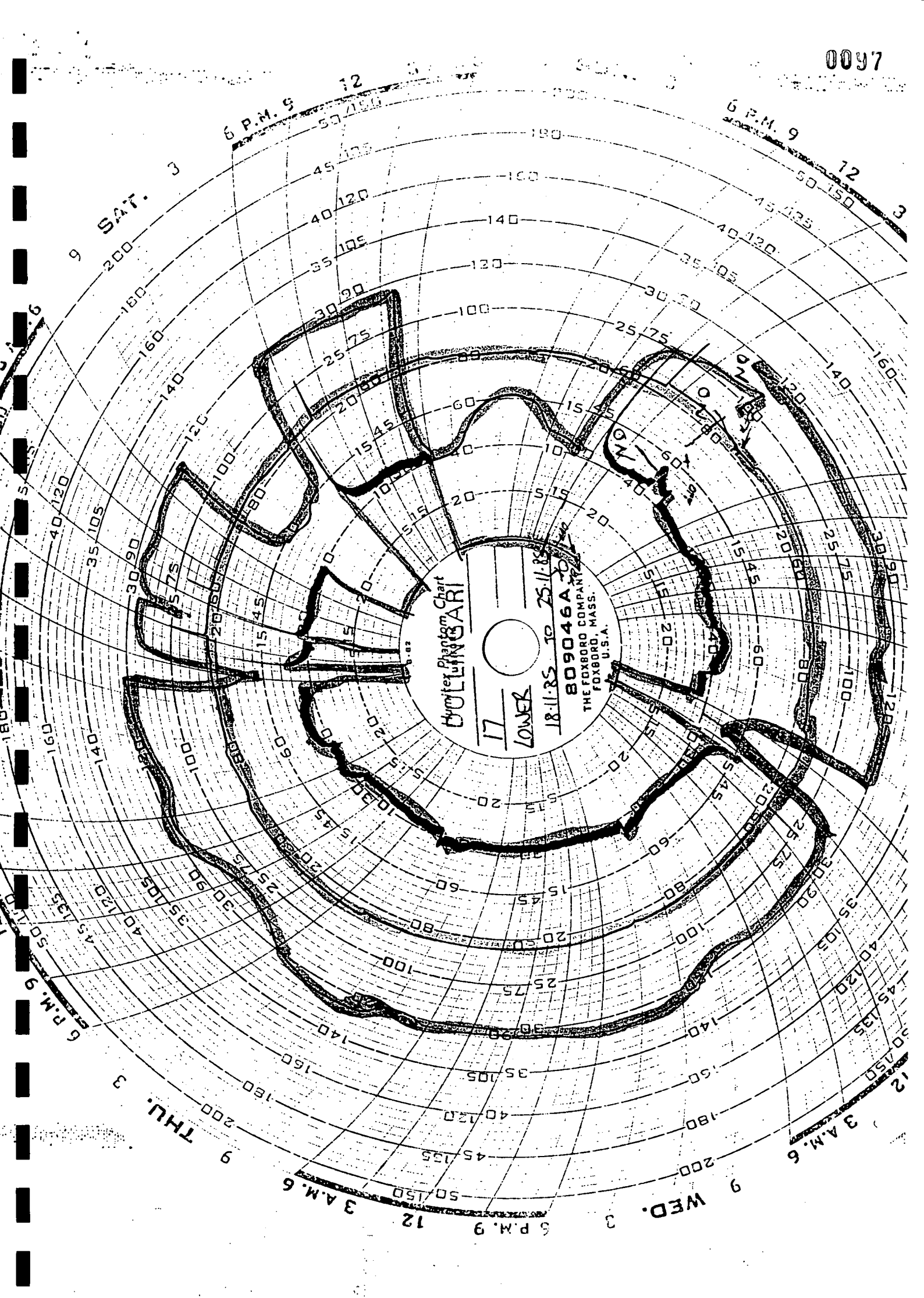
LUBRICATOR DATA

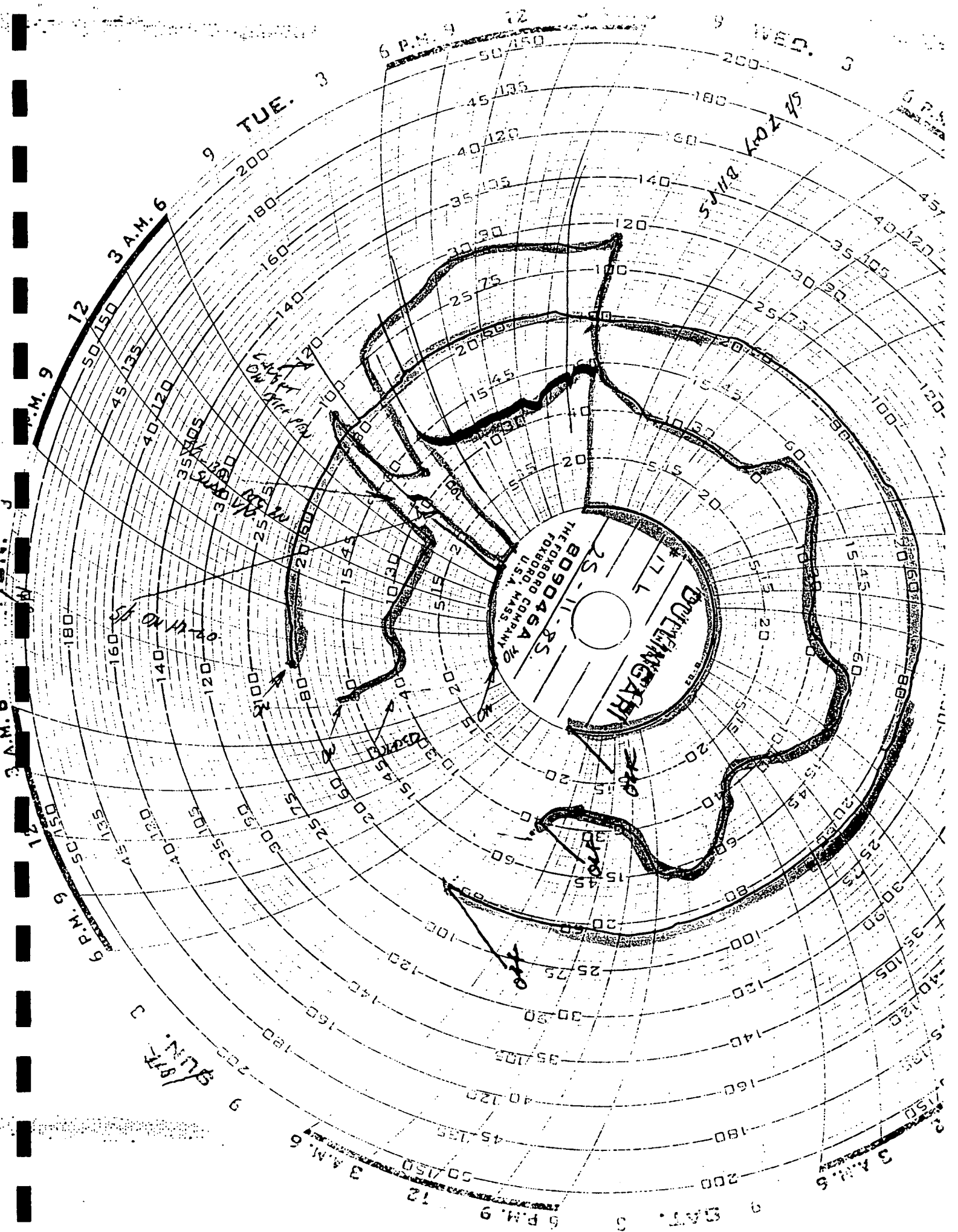
PRESSURE WITH D.W.T.: (IN) 1059
TIME PRESSURED: 08:30
TIME DEPRESSURED: 10:57

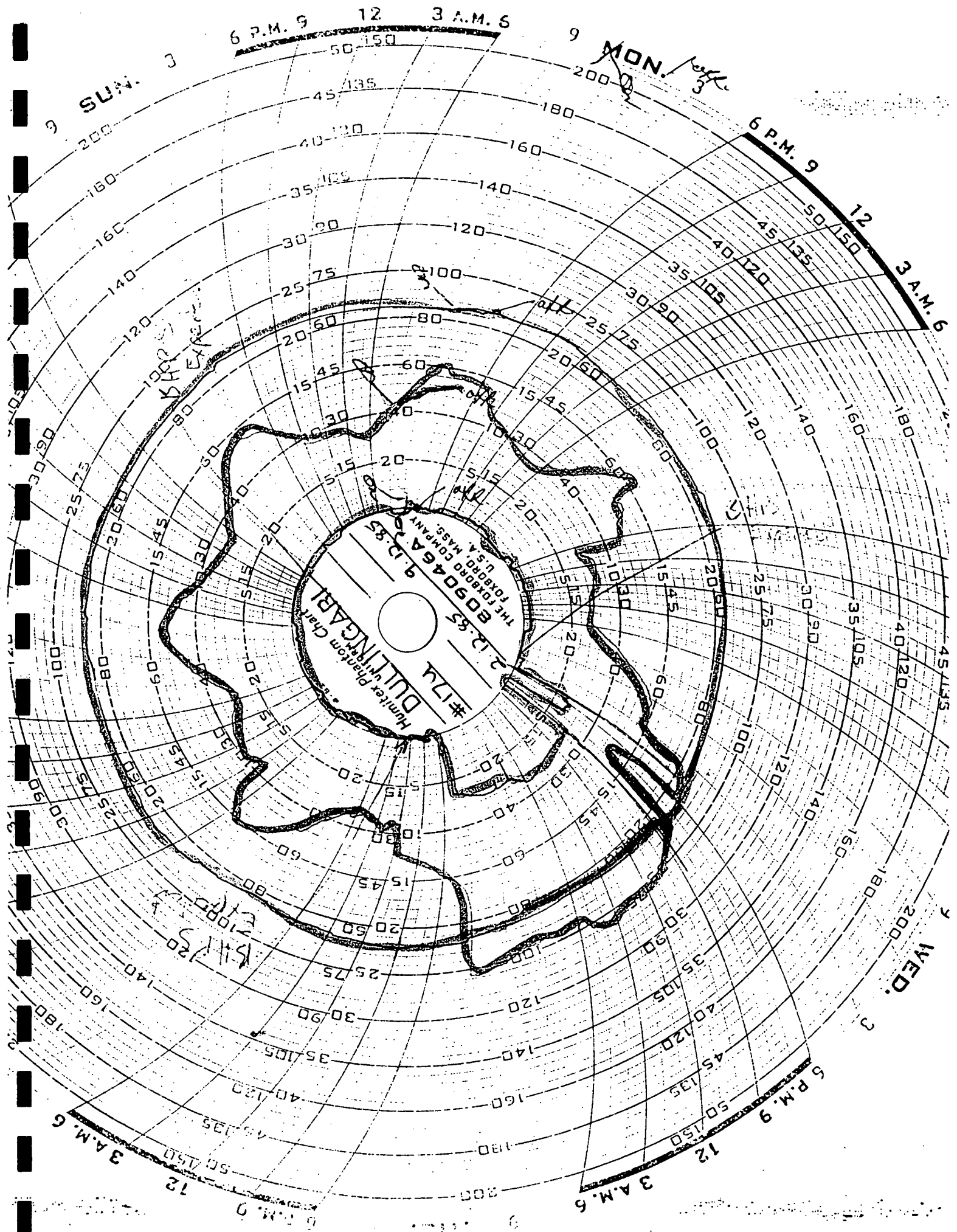
DATE	TIME	DEPTH	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft	DEPTH	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft	STOP LENGTH	REMARKS
1/12/85	08:30	0	1.237	1877.5	—	0	1.242	1880.2	—	15 min	
	08:49	1000	2.274	1934.0	0.0565	1000	1.279	1936.5	0.0563	5 min	
	08:58	2000	1.308	1985.9	0.0519	2000	1.313	1988.2	0.0517	5 min	
	09:07	3000	1.341	2036.3	0.0504	3000	1.348	2041.5	0.0533	5 min	
	09:16	4000	1.375	2088.3	0.0520	4000	1.381	2091.7	0.0502	5 min	
	09:25	5000	1.406	2135.7	0.0474	5000	1.413	2140.4	0.0487	5 min	
	09:34	6000	1.436	2181.5	0.0458	6000	1.444	2187.6	0.0472	5 min	
	09:43	7000	1.466	2227.4	0.0459	7000	1.475	2234.9	0.0473	5 min	
	09:50	7600	1.486	2257.9	0.0508	7600	1.491	2259.3	0.0406	5 min	
(MPP)	09:57	8110	1.502	2282.4	0.0480	8110	1.506	2282.1	0.0447	15 min	
	10:13	8313	1.524	2316.0	0.1655	8313	1.528	2315.7	0.1655	5 min	
	10:42	0	1.243	1886.6	—	0	1.243	1881.8	—	15 min	
											MAXIMUM BOTTOM HOLE TEMP → 292°F
											PERFORATED INTERVAL
											PATCHALAKA :- 7907' → 8313'

General Comments:

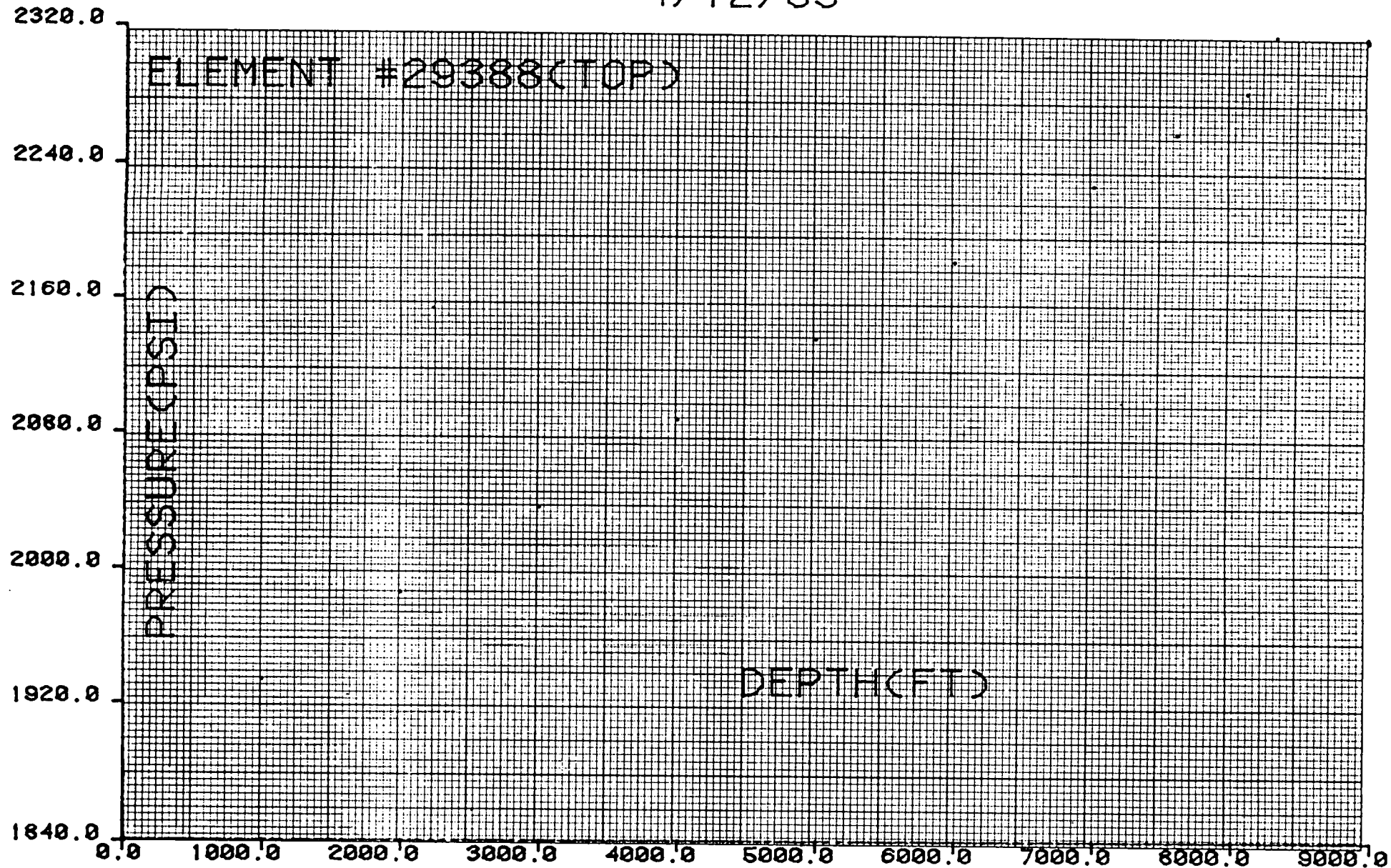
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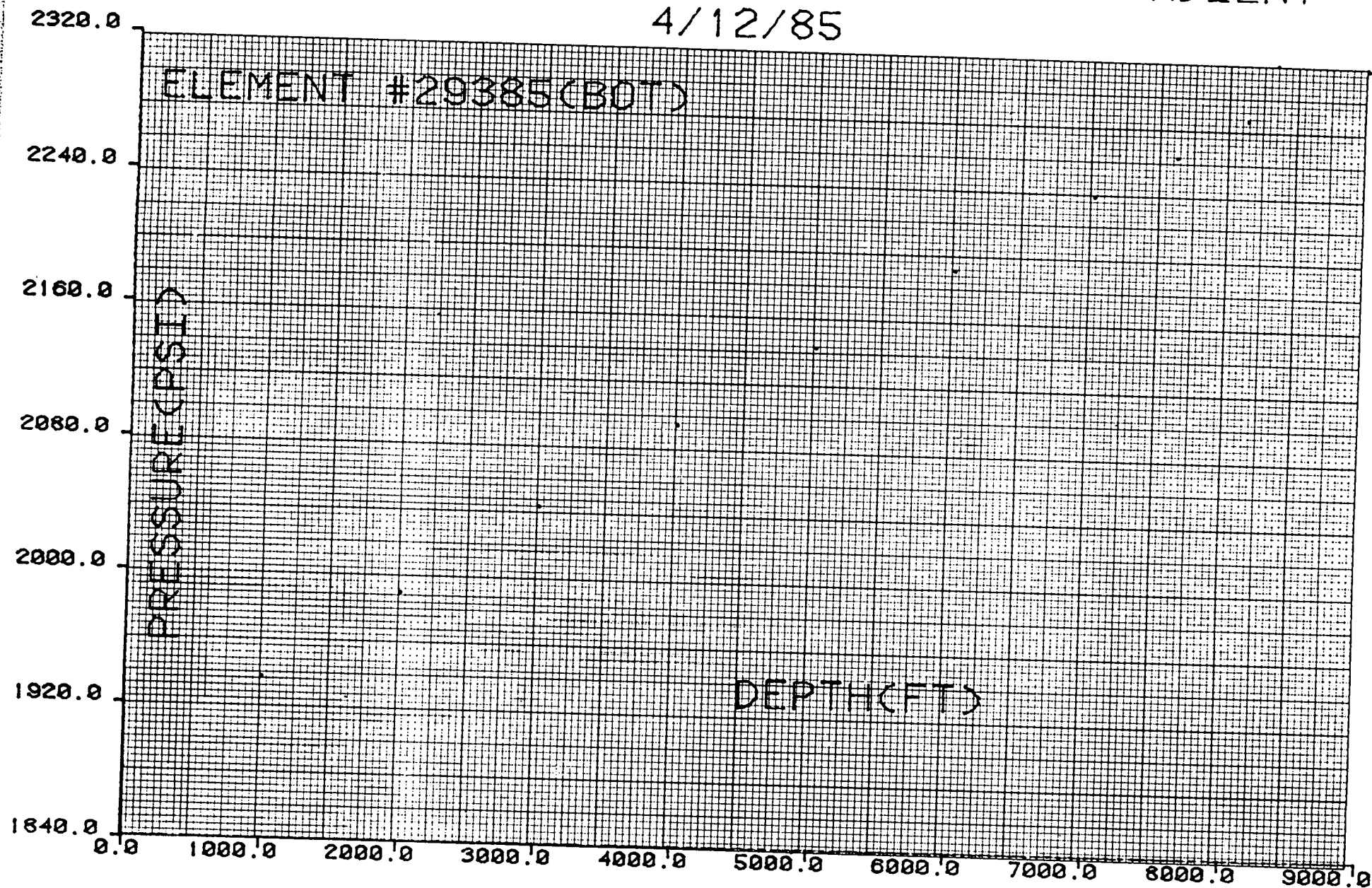




DULLINGARI #17L - STATIC PRESSURE GRADIENT
4/12/85



DULLINGARI #17L - STATIC PRESSURE GRADIENT
4/12/85



SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG
CASING 7"	-	CASING PRESS	ON BOTTOM 4/12
LINER	-	TUBING PRESS	OFF BOTTOM 4/12
DATE	851204	ELEMENT RANGE	0 - 3045
ELEVATION		ZONE	PATCHAWARRA
MAX TEMP		PICK-UP	SHUT-IN
PERF	7909' - 8313'	CAL SER NO.	29388
TUBING 2-7/8"	-		MPP
UNITS	ENGLISH		8110'
		PURPOSE	STATIC PRESS. GRAD.

SURVEY DATA

CO. SANTOS				RUN 02 FIELD DULLINGARI				WELL 17L			
TIME	DEPTH	P/T	GRAD	TIME	DEPTH	P/T	GRAD	TIME	DEPTH	P/T	GRAD
8:30	0	1877.4	0.000	8:30	6000	2182.0	.046				
8:30	1000	1934.0	.057	8:30	7000	2227.9	.046				
8:30	2000	1986.1	.052	8:30	7600	2258.4	.051				
8:30	3000	2036.6	.051	8:30	8110	2282.9	.048				
8:30	4000	2088.6	.052	8:30	8313	2316.5	.166				
8:30	5000	2136.1	.047	0:00	0	0.0	0.000				

SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG 8104'
CASING 7"	-	CASING PRESS	ON BOTTOM 27/11 0845
LINER	-	TUBING PRESS	OFF BOTTOM 4/12 0530
DATE 851204		ELEMENT RANGE 0 - 3045	ZERO POINT
ELEVATION		ZONE PATCHAWARRA	SHUT-IN 27/11 1100
MAX TEMP 286		PICK-UP	ON-PROD
PERF 7907'-8313'		CAL SER NO. 29386	MPP 8110'
TUBING 2-7/8"	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17L			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
11:00	1669.8	0.0	0.0	19:45	2180.6	510.7	8.7				
11:01	1709.5	39.7	1.0	22:58	2195.1	525.3	12.0				
11:04	1872.3	202.5	.1	2:56	2208.1	538.3	15.9				
11:12	2020.3	350.5	.2	10:19	2221.5	551.6	23.3				
11:40	2057.3	387.5	.7	3:55	2240.6	570.7	40.9				
12:01	2082.9	413.0	1.0	11:46	2247.5	577.6	48.8				
12:31	2101.8	431.9	1.5	18:23	2264.1	594.3	79.4				
13:12	2116.0	446.2	2.2	21:01	2273.2	603.4	106.0				
14:24	2135.4	465.6	3.4	2:12	2289.1	619.2	159.2				
15:40	2150.2	480.3	4.7	5:30	2287.7	617.8	162.5				
17:32	2166.1	496.2	6.5	0:00	0.0	0.0	0.0				

LUB IN DWT = 1148 PSI

LUB IN AMERADA = 1186 PSI / OUT = 1898 PSI

FLOW RATE = 2.881 MMSCF/D

CUMULATIVE PRODUCTION = 5358.626 MMSCF

WELL: Dullingari # 17 Upper

Pf = 4600 kPa

ORIFICE SIZE: 38.100 mm 1.500 " ✓

T = 86 °C

LINE SIZE: 97.180 mm 3.826 " ✓

Diff = 24 kPa

Cumulative Production to end of January = 129.513 $\text{m}^3 \times 10^6$

Number of hours online in January = 396

Production in January = 0.823 $\text{m}^3 \times 10^6$

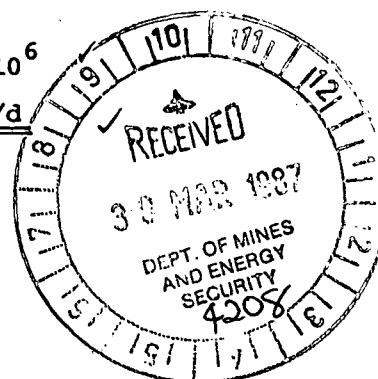
.. Average flow rate in January = $(0.823 / 396) \times 24 = 0.050 \text{ m}^3 \times 10^6 / \text{d}$
 $= 1.770 \text{ mmscf/d}$

Number of days online in February before Shut In 1130 hrs 9 / 2 / 87
 $= 8.188 \text{ days}$

.. Production up to 1130 hrs 9 / 2 / 87 = $0.050 \times 8.188 = 0.409 \text{ m}^3 \times 10^6$

Total cumulative production = $129.513 + 0.409$
 $= 129.922 \text{ m}^3 \times 10^6$
 $= 4611.465 \text{ mmscf}$ ✓

Flow rate just prior to Shut In = $0.084 \text{ m}^3 \times 10^6$
 $= 2.976 \text{ mmscf/d}$



SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7069'
CASING 7"	-	CASING PRESS	ON BOTTOM 0530 9/2
LINER	-	TUBING PRESS	OFF BOTTOM 0805 20/2
DATE	870220	ELEMENT RANGE 0 - 3123	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1130 9/2
MAX TEMP		PICK-UP	ON-PROD
PERF	7157'-7205'	CAL SER NO. 57413	MPP
TUBING 2-3/8"	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
11:30	1107.5	0.0	0.0	13:29	1720.0	612.5	2.0				
11:31	1162.2	54.7	.0	17:08	1723.4	615.9	5.6				
11:31	1261.3	153.8	.0	0:46	1723.5	616.0	13.3				
11:32	1368.7	261.2	.0	13:14	1725.6	618.1	25.7				
11:37	1487.9	380.4	.1	4:44	1727.1	619.6	41.2				
11:40	1635.3	527.8	.2	20:29	1728.7	621.1	57.0				
11:41	1699.1	591.6	.2	14:02	1729.2	621.7	74.5				
11:42	1713.7	606.1	.2	8:52	1731.5	624.0	93.4				
11:43	1715.7	608.2	.2	15:29	1735.8	628.3	124.0				
11:57	1715.6	608.1	.4	16:55	1737.0	629.5	149.4				
12:22	1716.6	609.1	.9	12:56	1736.2	628.7	169.4				

LUB IN DWT = 688 PSI / OUT = 1451 PSI
LUB IN AMERADA = 682 PSI / OUT = 1457 PSI
NOTE: CLOCK STOPPED BEFORE P.O.O.H.

SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

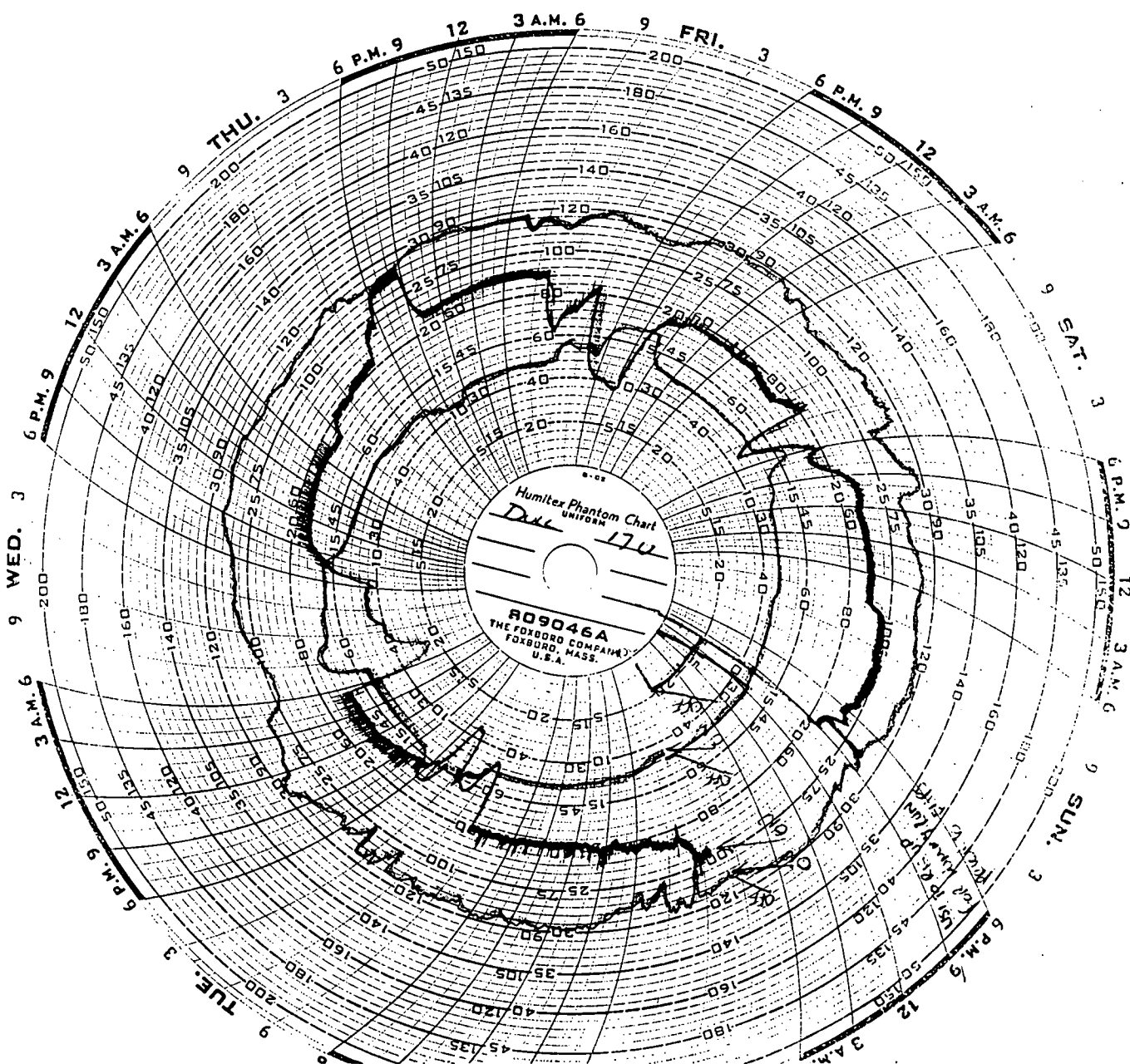
CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7075'
CASING 7"	-	CASING PRESS	ON BOTTOM 0530 9/2
LINER	-	TUBING PRESS	OFF BOTTOM 0805 20/2
DATE 870220		ELEMENT RANGE 0 - 3114	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1130 9/2
MAX TEMP		PICK-UP	ON-PROD
PERF 7157' - 7205'		CAL SER NO. 57414	MPP
TUBING 2-3/8"	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

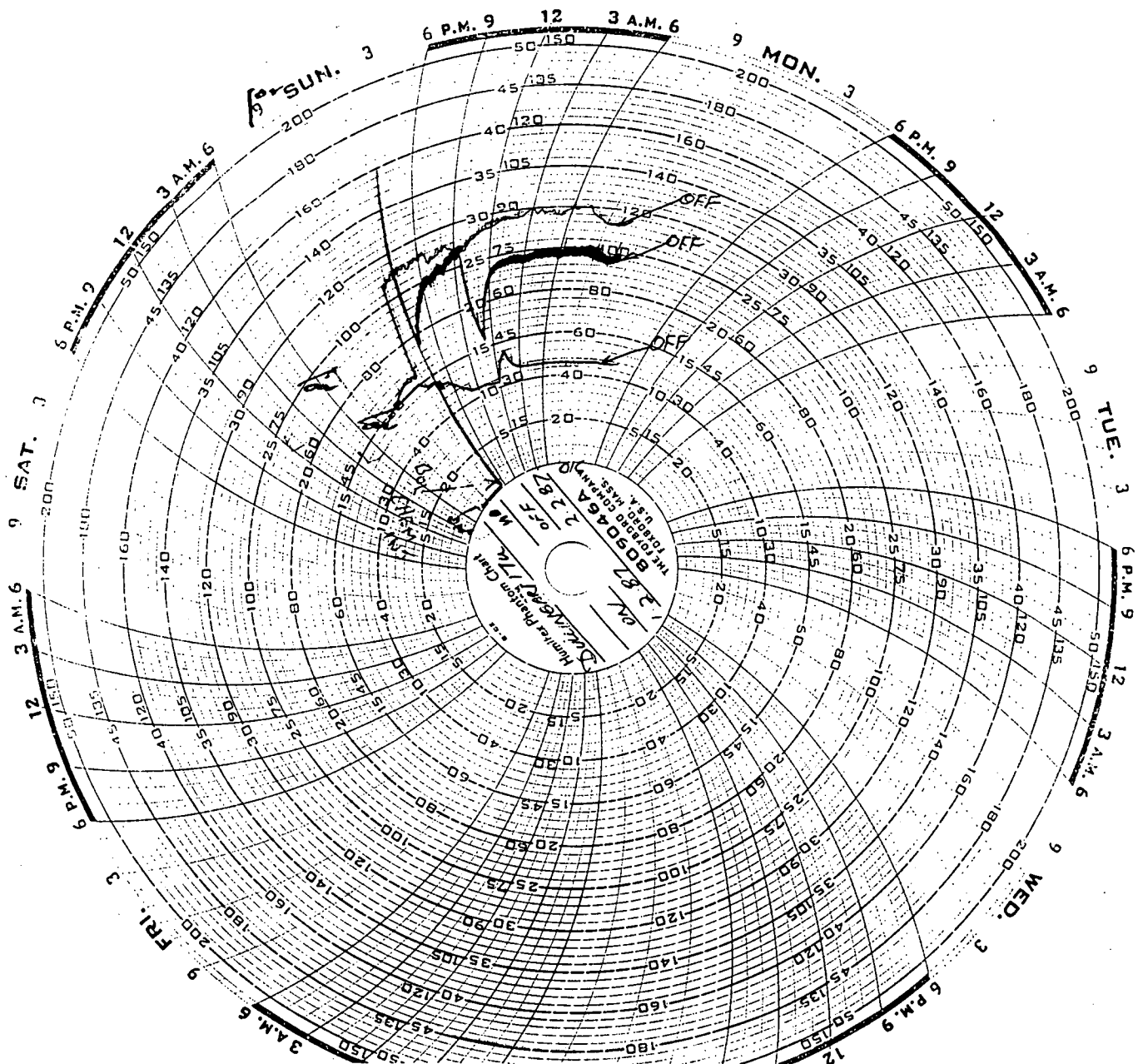
CO. SANTOS				RUN 02 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
11:30	1110.9	0.0	0.0	12:40	1713.6	602.7	1.2				
11:32	1211.4	100.5	.0	13:03	1718.1	607.2	1.5				
11:37	1349.9	239.0	.1	13:50	1720.4	609.5	2.3				
11:41	1508.6	397.7	.2	15:51	1722.1	611.3	4.3				
11:46	1621.5	510.6	.3	19:45	1723.4	612.5	8.2				
11:49	1657.3	546.4	.3	0:59	1723.6	612.7	13.5				
11:52	1680.1	569.2	.4	8:01	1724.1	613.2	20.5				
11:54	1686.9	576.0	.4	19:30	1723.9	613.0	32.0				
11:56	1692.8	581.9	.4	8:12	1724.6	613.7	44.7				
11:59	1696.8	585.9	.5	0:12	1725.0	614.1	60.7				
12:02	1699.4	588.5	.5	15:53	1725.7	614.8	76.4				
12:07	1703.1	592.2	.6	9:03	1724.7	613.9	93.6				
12:14	1705.3	594.4	.7	4:06	1725.5	614.6	112.6				
12:25	1709.9	599.0	.9	0:00	0.0	0.0	0.0				

LUB IN DWT = 688 PSI / OUT = 1451 PSI
 LUB IN AMERADA = 681 PSI / OUT = 1456 PSI
 NOTE: CLOCK STOPPED BEFORE P.O.O.H.

FROM 2.2.87 1025 hrs
TO 9.2.87 0956 hrs



FROM 12.87 0805 hrs.
 TO 22.87 1020 hrs
 Meter run diam 97.180 mm
 On file plate diam 38.100 mm



Well: Dallingari #17 Upper Date: 09th February 1987

Lubricator Data: ① 682 1457
 ② 681 1456

Pressure with D.W.T. 1N 688 0.4T 145/psi 20.2.87.

Time Pressured. 03.00 Time Depressed. 08.30 20.2.87.

Time Run in Hole 05.00 Time off Bottom 08.05 20.2.87

Bomb No. 2 Data

Element No. and Range	57413 X 3000 PSI	57414 X 3000 PSI
Recorder No.	61127	12959
Clock and Lead Screw Data	180HR 2884 15 T L S	120HR F15682. 15 T L S
Engage Stylus	Date: 09.02.57 Time: 02.56	Date: 09.02.57 Time: 02.56
Disengage	Date: 20.2.87 Time: 08.37	Date: 20.2.87 Time: 08.37

Remarks: Temp Element N° 27793 132° - 445°F
Recorder N° 61374 180 HR clock 15 TLS N° 2890
Max. SIGHT Temp = 284.4°F

Well-Head Data for Final Build-up

Wellhead Data for Final Build-up						
Date	Time	Hours shut-in Time	Wellhead P.S.I.G.	Casing P.S.I.G.	Wellhead Temp. °F	Remarks
	0914	February	1987			
	03:00		691	0	186°	Element in Lub
	05:00		688	0	188	Elements R.I.H
	05:30		686	0	188	Elements at 7081'
	11:30		695	0	188	Well shut in
20 TH FEBRUARY 1987						
	08:05	260.5	1451	0		Bombs off Bottom - END OF BUILD UP
21 ST FEBRUARY 1987						
	13:06		1470 *	0		R.I.H FOR STATIC GRADIENT AS PER PROGRAM.
	1446		1470	0		DEPRESS LUB - END OF SURVEY
						* NEW VAPORIX USED.



WIRELINE REPORT

0110

WELL: Dallingari #17 Upper

DATE: 08th February 1987

PROGRAM: B.H.P. Survey

PURPOSE OF WORK: Well evaluation.

REPORT OF WORK PERFORMED:

20.05 Well shut in to fit swab valve
20.22 Well back on line 100% choke
20.27 R.I.H. with a 1.5" Tool string.
20.48 Tools at 7100' KB no pick up
made with stop bar at 7081'
Did not travel any further
P.O.H.

21.02 Depressured Lubricator and
riggered for B.H.P. Survey.

20th FEBRUARY 1987 - 08.05 - BOMBS OFF BOTTOM - END OF BUILD UP

21st FEBRUARY 1987 - 13.06 - R.I.H. FOR STATIC GRADIENT AS PER PROGRAM

14.46 - DEPRESSURE LUB - END OF SURVEY

OPERATOR'S SIGNATURE

WORK PERFORMED BY: A. Kessling G. Petersen OF Expertest

WELL DATA:

Tubing Size: 2 3/8 FWHP: 700 Psi SIWHP: 1451 Psi 20.2.87.

Sub Surface S.V./Landing Nipple @ S.S.D. @

"X" Nipple @ "N"/"X" Nipple @ 7073' other

Min I.D. 1.85" @ 7073' Packer @ 7068'

Perforated Interval: 7157' - 7205' Toolachee

Forward to: Petroleum Engineering - Adelaide
Production Department - Moomba

WELL: Dullangani #17 Upper.
 OPERATOR: G. Peterson



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: 09th February 1987
 PAGE No: 1

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	09 th	February	1987				Bottom	Hole Pressure	Survey					
03:00	0	0	691	4764	186	86	Pressured up	Lubricator.	choke	100%				
05:00	0	0	688	4743	188	87	R/H with	the element						
05:30	0	0	686	4729	188	87	Elements at	7081' KB.						
06:00	0	0	688	4743	188	87								
06:30	0	0	688	4743	188	87								
07:00	0	0	688	4743	186	86								
07:30	0	0	688	4743	186	86								
08:00	0	0	690	4757	186	86								
08:30	0	0	691	4764	186	86								
09:00	0	0	693	4778	185	85								

CONVERSION FACTORS:

- BBL'S x 0.15899 = M³
- MMSCF x 28.174 = 10³ M³
- Cu/FT PER BBL x 0.1773 = M³/M³
- PSI x 6.895 = KPA
- °C x 9 ÷ 5 + 32 = °F

WELL: ...Dullingari...#17 Upper
 OPERATOR: ...G. Peterson...



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: ...09th February 1987
 PAGE No: ...2...

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	09 th	February	19	87										
09:30	0	0	690	4757	186	86								
10:00	0	0	692	4771	186	86								
10:30	0	0	693	4778	186	86								
11:00	0	0	694	4785	186	86								
11:30	0	0	695	6653	188	87								
11:30	0	0					Well shut in for 168 HR Build up Surrey.							
11:45	0	0	1435	9894	161	72								
12:00	0	0	1442	9942	149	65°								
12:15	0	0	1447	9977	136	58°								
12:30	0	0	1450	9997	127	53°								

CONVERSION FACTORS:

- BBL'S x 0.15899 = M³
- MMSCF x 28.174 = 10³ M³
- Cu/FT PER BBL x 0.1773 = M³/M³
- PSI x 6.895 = KPA
- °C x 9 ÷ 5 + 32 = °F

WELL: Dulligari...17...Upper
 OPERATOR: G. Peterson.....



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: 09th February 1987
 PAGE No: 3.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
		09th	February	1987							Hours	shut	IN.	
12.45	0	0	1452	10011	122	50°								
13.00	0	0	1453	10018	120	49°								
13.15	0	0	1453	10018	118	48°								
13.30	0	0	1454	10025	116	47°							2.	
13.45	0	0	1452	10011	116	47°								
14.00	0	0	1453	10018	116	47°								
14.15	0	0	1453	10018	114	46°								
14.30	0	0	1453	10018	114	46°							3	
14.45	0	0	1454	10025	114	46°								
15.00	0	0	1454	10025	114	46°								

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...Dulligari...17...Upper...
 OPERATOR: ...G. Petersen...



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: ...09th February 1987...
 PAGE No: ...4...

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING FSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	09th	February	1987								Hours	shut	in.	
15.15	0	0	1454	10025	114	46								
15.30	0	0	1455	10032	114	46							4	
19.30	0	0	1453	10018	104	40							8	
23.30	0	0	1453	10018	91	33							12	
	10th	February	1987											
03.30	0	0	1454	10025	84	29							16	
07.30	0	0	1457	10046	82	28							20	
11.30	0	0	1456	10039	105	41							24	
15.30	0	0	1457	10046	113	45							28	
19.30	0	0	1457	10046	100	38							32	

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: Dulligari 17 Upper.
 OPERATOR: G. Peterson



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: 10th February 1987
 PAGE No: 5

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	10 th	February	19	87							Hours	shut	in	
23:30	0	0	1460	10066	89	32.							36	
	11 th	February	19	87										
03:30	0	0	1458	10052	86	30							40	
07:30	0	0	1458	10052	77	25							44	
11:30	0	0	1458	10052									48	
15:30	0	0	1459	10060									52	
19:30	0	0	1460	10067									56	
23:30	0	0	1458	10052									60	
	12 th	February	19	87										
03:30	0	0	1458	10052									64	
07:30	0	0	1458	10052									68	

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL:DULHNGARI...#17 UPPER.....
 OPERATOR: ..G. GIANCASPRO.....



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: ...12TH FEBRUARY 1987.....
 PAGE No: ...Six.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
12 TH FEBRUARY 1987								CONTINUE BUILD UP.					HAS SHUT IN	
11:30	0	0	1458	10053										72
15:30	↓	↓	1458	10053										76
19:30	↓	↓	1459	10060										80
23:30	⚡	⚡	⚡	⚡			READING NOT TAKEN -- IN MOOMBA.							84
13 TH FEBRUARY 1987														
03:30	0	0	1459	10060										88
07:30	↓	↓	1460	10067										92
11:30			1463	10067										96
15:30			1463	10067										100
19:30			1463	10067										104
23:30	↓	↓	1463	10067										108

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL:DUMINGARI...#17 UPPER.....

OPERATOR: ..G. GIANCASARD.....



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE: ...14TH FEBRUARY 1987.....

PAGE No: ...SEVEN.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. CU/FT BBL	G.O.R. M ³ /M ³
14 TH FEBRUARY 1987								CONTINUE BUILD UP.						HRS START IN
03:30	0	0	1461	10074										112
07:30	↓	↓	1457	10046										116
11:30	↓	↓	1453	10053										120
15:30	↓	↓	1454	10025										124
19:30	↓	↓					READING NOT TAKEN — ROADS CLOSED DUE TO RAIN.							128
23:30	↓	↓												132
15 TH FEBRUARY 1987														
03:30	↓	↓												136
07:30	↓	↓												140
11:30	↓	↓												144
15:30	↓	↓					↓	↓		↓				148

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

0117

WELL: ...DULLNGORI...#17 UPPER.....
 OPERATOR: ..G. GIANCASPRO.....



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: ...15TH FEBRUARY 1987.....
 PAGE No: ..EIGHT.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
15 TH FEBRUARY 1987							CONTINUE BUILD UP						HRS SHUT IN	
19:30	0	0					READING NOT TAKEN — ROADS CLOSED DUE TO RAIN							152
23:30	↓	↓					↓	↓		↓				156
16 TH FEBRUARY 1987														
03:30	↓	↓					↓	↓		↓				160
07:30	↓	↓					↓	↓		↓				164
11:30	↓	↓					↓	↓		↓				168
15:30	↓	↓					CLOCKS OUT OF TIME — DOWN HOLE							172
19:30	↓	↓					↓	↓		↓				176
23:30	↓	↓					↓	↓		↓				180
17 TH FEBRUARY 1987.														
03:30	↓	↓					↓	↓		↓				184.

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL:DULUNGARI #1 UPPER.....

OPERATOR: ..G. GIANCASPRO.....



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE:17TH FEBRUARY 1987.....

PAGE No: NINE.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
17 TH FEBRUARY 1987 - CLOCKS OUT OF TIME DOWN HOLE - UNABLE TO PULL BONES DUE TO WET WEATHER CONDITIONS.														
07.30														188
11.30														192
15.30														196
19.30														200
23.30														204
18 TH FEBRUARY 1987														
03.30														208
07.30														212
11.30														216
15.30														220
19.30														224

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...DULLINGARI... *17 UPPER.....

OPERATOR: G. GIANCASPINO.....



SANTOS LTD WELL TEST DATA METRIC SUMMARY SHEET

DATE: ...18TH FEBRUARY 1987.....

PAGE No.: TEN.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
18 TH FEBRUARY 1987	- CLOCKS OUT OF TIME DOWN HOLE -						UNABLE TO PULL BOMBS DUE TO WET WEATHER CONDITIONS.						HRS SHUT IN.	
23.30					↓			↓		↓				228
19 TH FEBRUARY 1987														
03.30					↓			↓		↓				232
07.30					↓			↓		↓				236
11.30					↓			↓		↓				240
15.30					↓			↓		↓				244
19.30					↓			↓		↓				248
23.30					↓			↓		↓				252
20 TH FEBRUARY 1987														
03.30					↓			↓		↓				256
07.30					↓			↓		↓				260

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...DULLINGARI...#17, UPPER.....

OPERATOR: ...G. GRANCA SPR.....



SANTOS LTD WELL TEST DATA METRIC SUMMARY SHEET

DATE: ...20TH FEBRUARY 1987.....

PAGE No: ...ELEVEN.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
20 TH FEBRUARY 1987.								CONTINUE BUILD UP.						HRS SHUT IN
08.05	0	0	1451	10005			BOMBS OFF BOTTOM - END OF BUILD UP. (CLOCK STOPPED DOWN HOLE)							260.5
08.30	0	0	1451	10005			ARRIVE LUB AND DEPRESSURE LUBRICATOR. - SECURE LEASE.							
21 ST FEBRUARY 1987.														
13.06	0	0	1470	10136			R.I.H WITH B.H.P/B.H.T GAGES FOR STATIC GRADIENT AS PER PROGRAM.							
14.46	0	0	1470	10136			DEPRESSURE LUB - END OF SURVEY.							

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F



**** DULLINGARI #17U ****
STATIC PRESSURE GRADIENT

TEST DATE: 21.02.87

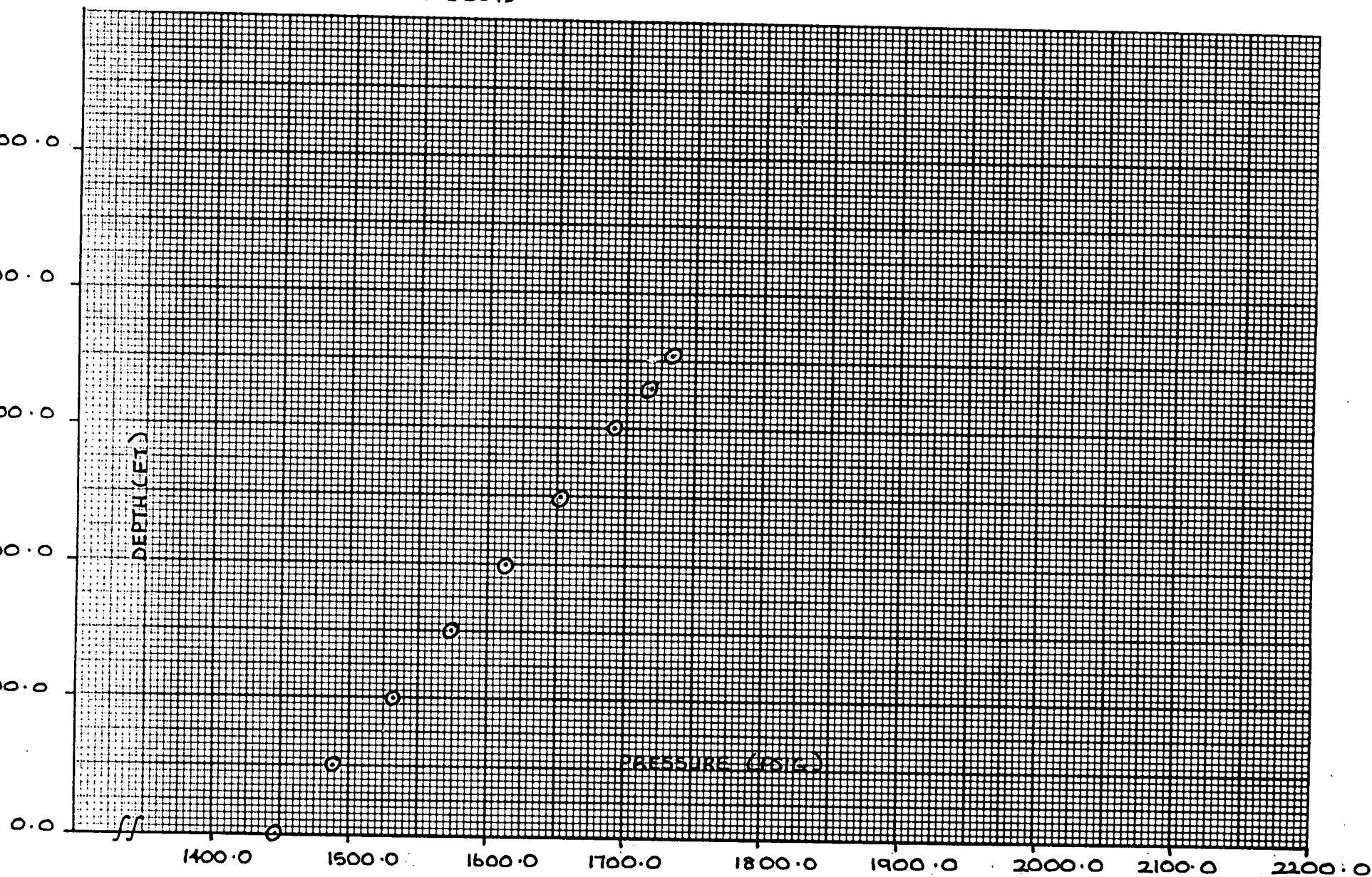
DEPTH (FT.)	TOP PRESSURE ELEMENT 57413/3000			BOTTOM PRESSURE ELEMENT 57414/3000		
	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)
LUB	0.9295	1448.8	----	0.9305	1446.9	----
1000	0.9570	1491.9	0.0430	0.9580	1489.7	0.0428
2000	0.9835	1533.3	0.0415	0.9850	1531.7	0.0420
3000	1.0095	1574.0	0.0407	1.0120	1573.7	0.0420
4000	1.0350	1613.9	0.0399	1.0375	1613.4	0.0397
5000	1.0600	1653.0	0.0391	1.0625	1652.3	0.0389
6000	1.0850	1692.2	0.0391	1.0875	1691.2	0.0389
6600	1.1000	1715.6	0.0391	1.1045	1717.6	0.0441
7081	1.1115	1733.6	0.0374	1.1150	1734.0	0.0340
LUB	0.9295	1448.8	----	0.9320	1449.2	----

GENERAL REMARKS:

DWT IN: 1470
 DWT OUT: 1470
 MAX BHT: RAN TEMP ELEMENT.
 274.7°F

ELEMENT 57413/3000 CALIBRATED 2.12.86
 ELEMENT 57414/3000 CALIBRATED 2.12.86

DULLINGARI # 17 UPPER - STATIC PRESSURE GRADIENT - 21/2/87
ELEMENT # 57414/3000 (BOT)



DATE: 21ST FEBRUARY 1987.

LUBRICATOR DATA

PRESSURE WITH D.W.T.: IN 1470 PSI OUT 1470 PSI
TIME PRESSURED: 12.56
TIME DEPRESSURED: 14.46

0124

G O I O

ROLLING BOTTOMHOLE PRESSURE SURVEY GAS CALCULATION SHEETWELL: Dulligan # 17 Lower

Pf = 4400 kPa ✓

ORIFICE SIZE: 53.975 mm 2.125 " ✓

T = 87 °C ✓

LINE SIZE: 146.329 mm 5.761 " ✓

Diff = 20.0 kPa ✓

Cumulative Production to end of February = $186.637 \text{ m}^3 \times 10^6$

Number of hours online in February = 422

Production in February = $2.039 \text{ m}^3 \times 10^6$

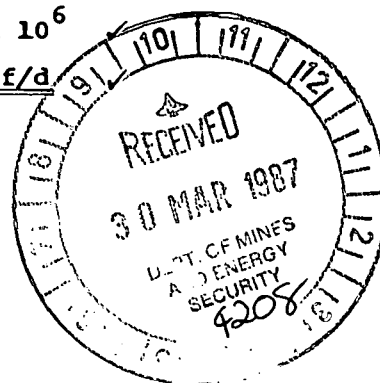
. . . Average flow rate in February = $(2.039/422) \times 24 = 0.116 \text{ m}^3 \times 10^6/\text{d}$
 4.116 mmscf/d

Number of days online in February after Shut In 1615 hrs 23/ 2 /87
 = NIL

. . . Production up to 1615 hrs 23/ 2 /87 = Total February Production.

Total cumulative production = Cumulative Production to end of February
 = $186.637 \text{ m}^3 \times 10^6$
 = 6624.494 mmscf ✓

Flow rate just prior to Shut In = $0.149 \text{ m}^3 \times 10^6$
 = 5.298 mmscf/d



SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG 8098'
CASING 7"	-	CASING PRESS	ON BOTTOM 1013 23/2
LINER	-	TUBING PRESS	OFF BOTTOM 0415 3/3
DATE 870303		ELEMENT RANGE 0 - 3123	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1615 23/2
MAX TEMP		PICK-UP	ON-PROD
PERF 7907'-8313'		CAL SER NO. 57413	MPP 8110'
TUBING 2-7/8"	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS			RUN 01 FIELD DULLINGARI			WELL 17L		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
16:15	1313.5	0.0	0.0	19:57	1901.0	587.5	3.7	
16:16	1369.3	55.8	.0	20:13	1900.9	587.4	4.0	
16:16	1476.0	162.5	.0	20:18	1909.0	595.5	4.1	
16:18	1600.8	287.3	.1	20:35	1908.9	595.4	4.3	
16:20	1652.3	338.8	.1	20:50	1911.2	597.7	4.6	
16:41	1652.6	339.1	.4	20:52	1918.1	604.6	4.6	
16:42	1700.7	387.2	.4	21:10	1919.4	605.9	4.9	
16:44	1779.7	466.2	.5	21:29	1919.3	605.8	5.2	
17:08	1779.5	466.0	.9	21:29	1926.4	612.9	5.2	
17:08	1811.0	497.5	.9	21:49	1926.2	612.7	5.6	
17:08	1828.8	515.3	.9	22:05	1926.2	612.7	5.8	
17:34	1826.6	513.1	1.3	22:07	1933.1	619.6	5.9	
17:34	1846.3	532.8	1.3	22:41	1935.4	621.9	6.4	
18:02	1847.3	533.8	1.8	1:44	1960.7	647.2	9.5	
18:04	1864.8	551.3	1.8	9:52	1997.5	684.0	17.6	
18:36	1864.7	551.2	2.3	17:53	2017.7	704.2	25.6	
18:36	1878.7	565.2	2.3	5:43	2034.0	720.5	37.5	
19:03	1878.6	565.1	2.8	17:56	2044.2	730.7	49.7	
19:03	1888.8	575.3	2.8	12:29	2052.9	739.4	68.2	
19:19	1888.7	575.2	3.1	7:51	2058.7	745.2	87.6	
19:38	1888.6	575.1	3.4	0:21	2063.4	749.9	104.1	
19:38	1893.6	580.1	3.4	8:50	2063.1	749.6	112.6	
19:38	1901.1	587.6	3.4					

LUB IN DWT = 677 PSI / OUT = 1745 PSI
LUB IN AMERADA = 671 PSI / OUT = 1717 PSI
NOTE: CLOCK STOPPED BEFORE P.O.O.H.

SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG 8104'
CASING 7"	-	CASING PRESS	ON BOTTOM 1013 23/2
LINER	-	TUBING PRESS	OFF BOTTOM 0415 3/3
DATE 870303		ELEMENT RANGE 0 - 3114	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1615 23/2
MAX TEMP		PICK-UP	ON-PROD
PERF 7907'-8313'		CAL SER NO. 57414	MPP 8110'
TUBING 2-7/8"	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 02 FIELD DULLINGARI				WELL 17L			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
16:15	1306.4	0.0	0.0	19:49	1888.3	581.9	3.6				
16:16	1377.9	71.5	.0	21:15	1909.6	603.2	5.0				
16:17	1463.5	157.1	.0	23:25	1934.1	627.8	7.2				
16:20	1599.0	292.6	.1	1:37	1951.9	645.6	9.4				
16:29	1681.7	375.3	.2	4:54	1969.7	663.3	12.6				
16:36	1715.6	409.2	.3	8:52	1985.5	679.1	16.6				
16:42	1739.1	432.7	.4	14:32	2000.4	694.0	22.3				
16:52	1761.7	455.3	.6	21:32	2013.3	706.9	29.3				
17:00	1782.6	476.3	.8	10:46	2026.2	719.8	42.5				
17:08	1796.1	489.7	.9	9:36	2040.1	733.8	65.3				
17:23	1817.5	511.1	1.1	12:46	2048.1	741.7	92.5				
17:34	1829.3	522.9	1.3	15:15	2054.7	748.3	119.0				
17:48	1837.6	531.2	1.5	6:58	2059.1	752.7	134.7				
18:09	1851.8	545.4	1.9	4:12	1739.7	433.3	155.9				
18:52	1871.3	565.0	2.6	0:00	0.0	0.0	0.0				

LUB IN DWT = 677 PSI / OUT = 1745 PSI

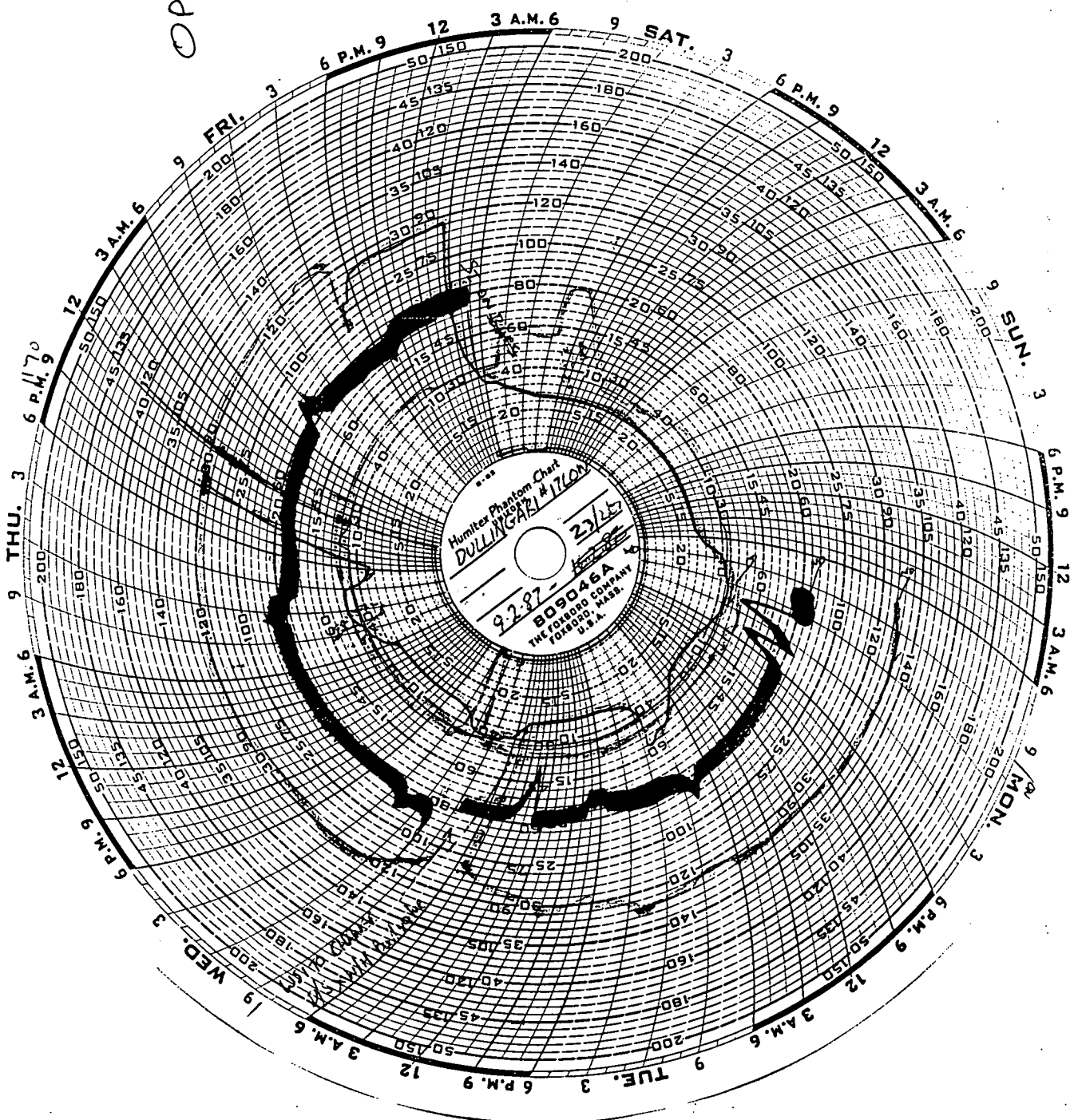
LUB IN AMERADA = 670 PSI / OUT = N/A

NOTE: 1) CLOCK STOPPED BEFORE P.O.O.H.

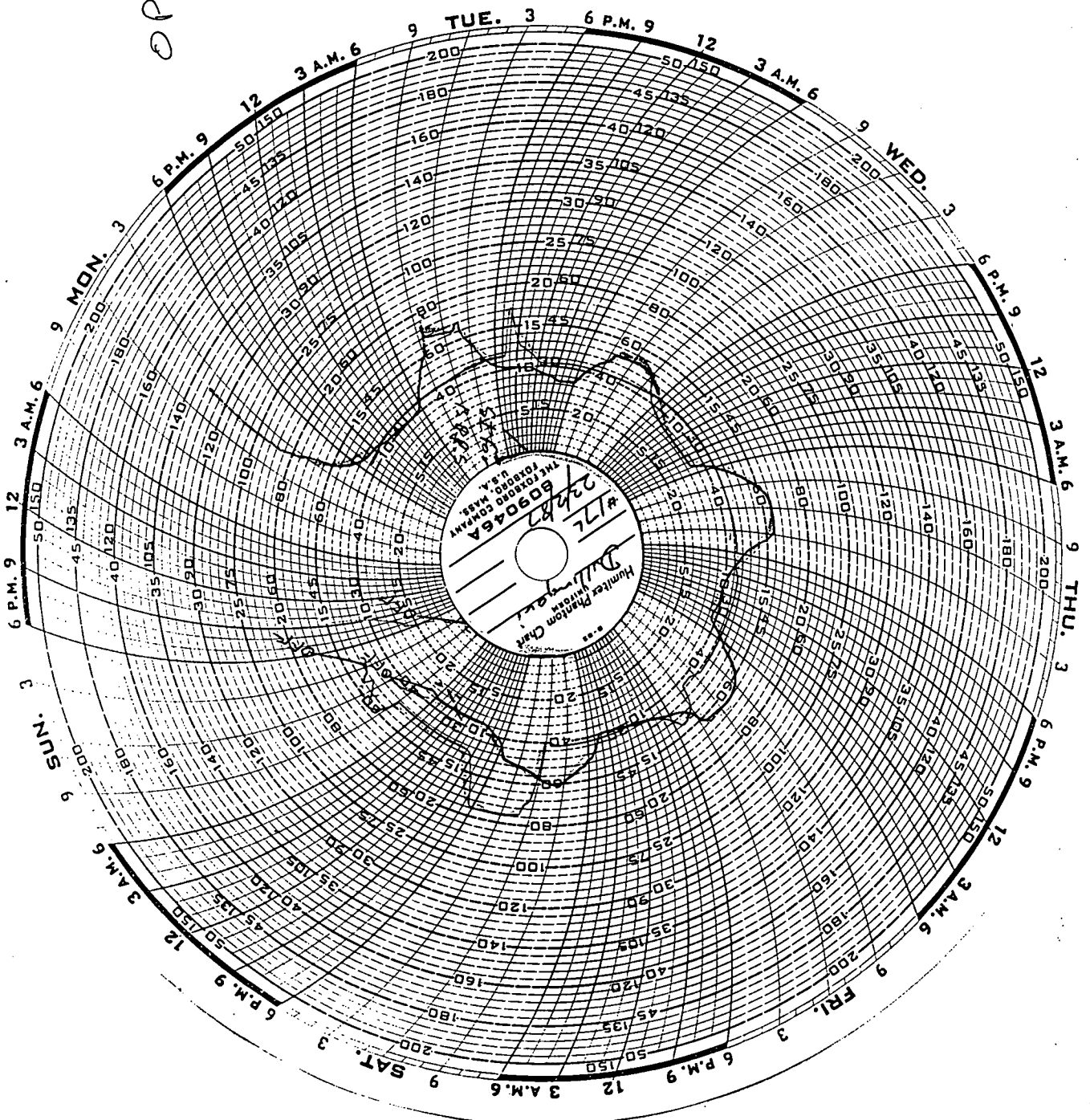
2) PRESSURE DROP OF LAST READING DUE TO FAILURE OF
"O" RING.

Dollinger 17L
Feb 21-25

OP @ 53.975



OP 53.975



ISO - CHRONAL AND BUILD-UP SURVEY

Well: DULLINGARI #17 LOWER Date: 23RD FEBRUARY 1957

Lubricator Data: ① 671 1717
② 670 N/A

Pressure with D.W.T. IN : 677 PSI 23-2-87 OUT : 1745 PSI 3-3-87

Time Pressured 07:40 23-2-87 Time Depressed 08:15 3-3-87

Time Run in Hole 09:45 23-2-87 Time off Bottom 04:15 3-3-87

Top Bomb No. 1 Data

Mid Bomb No. 2 Data

Element No. and Range	57413 x 3000 PSI	57414 x 3000 PSI
Recorder No.	61127	12959
Clock and Lead Screw Data	F-15685 x 120/hr 15713.	2883 x 180/hr 15713.
Engage Stylus	Date: 23.2.87 Time: 07.33	Date: 23.2.87 Time: 07.33
Disengage	Date: 3.3.87 Time: 08.26	Date: 3.3.87 Time: 08.26

Remarks: Bottom Bomb: ELE 22793 x 132 - 445 F STYLUS ON 23.2.87 07.33
REC 61374 x 15 T.S. STYLUS OFF 3.3.87 08.26
Clock 1103 x 120 hr *NOTE TEMPERATURE FAILED.
MID ELEMENT PRESSURED UP DUE TO O'RING
Max: S.I.B.H. Temp = 303.1 °F Well-Head Data for Final Build-up

Max: S.I.B.H. Temp = 303.1°F

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G.	Casing P.S.I.G.	Wellhead Temp. °F	Remarks
23 RD	FEBRUARY 1987					
	07:40		1598	0		PRESSURE UP LUB - NOTE THAT WELL HAS BEEN S/I BY TELEMETRY -
	07:45					NOTIFY PRODUCTION DEPT.
	08:00		1598			OPEN WELL TO 100% CHOKE
	08:15		670			WELL ON 100% CHOKE TO LINE
	09:45		677		145	R.I.H TO SURVEY DEPTH OF 810' KB.
	10:13		675		153	BOMBS ON BOTTOM @ 8110' KB - FROM
	10:45		READING MISSED - RIGGING OUT W/L UNIT.			WELL FOR 6 HRS PRIOR COMMENCING
	11:15		703		158	168 HR BUILD UP.
	11:45		708		162	
	12:15		685		165	
	12:45		678		167	
	13:15		680		167	
	13:45		681		163	
	14:15		683		171	
	14:45		684		176	
	15:15		682		174	
	15:45		682		174	
	16:15		680	↓	176	S.W.I - COMMENCE BUILD UP.
3/3	0415					BOMBS OFF BOTTOM - END OF BUILD UP.
						RUN STATIC GRADIENT AS PER PROGRAM
						DEP LUB - END OF SURVEY.

WELL: ...DULLINGARI #1 LOWER.....
 OPERATOR: G. GIANCISPRO.....



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: 23RD FEBRUARY 1987.....
 PAGE No.: ONE.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. CU/FT BBL	G.O.R. M3/M3
23 RD FEBRUARY 1987							BOTTOM HOLE PRESSURE SURVEY							
07.40	0	0	1598	11018			PRESSURE UP LUBRICATOR - NOTE THAT WELL HAS BEEN S/D BY TELEMETRY - NOTIFY PRODUCTION DEPT.							
08.00			1598	11018			OPEN WELL TO 100% CHOKE							
08.15			670	4620			WELL FLOWING TO LINE ON 100% CHOKE.							
09.45			677	4668	145	63	R.I.H WITH B.H.P/B.H.T GAUGES TO SURVEY DEPTH OF 8110'RB.							
10.13	↓	↓	675	4654	153	67	Bombs ON BOTTOM @ 8110'RB - FLOW WELL ON 100% CHOKE FOR 6 HRS PRIOR TO COMMENCING 168HR BUILD UP							
10.45							READING NOT TAKEN - RIGGING OUT W/LINE UNIT FROM #24L.							
11.15			703	4847	158	70								
11.45			708	4882	162	72								
12.15			685	4723	165	74								
12.45			678	4675	167	75								
13.15	↓	↓	680	4689	167	75								

CONVERSION FACTORS:

• BBL'S x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• CU/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...DULLINGARI #7 LOWER.....

OPERATOR: ..G. GIANCASSO.....



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE: ..23RD FEBRUARY 1987.....

PAGE No: ..Two.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
23 RD FEBRUARY 1987														
13:45	0	0	681	4695	163	73								
14:15			683	4709	171	77								
14:45			684	4716	176	80								
15:15			682	4702	174	79								
15:45			682	4702	174	79								
16:15			680	4689	176	80	S.W.I. - COMMENCE 168HR BUILD UP.							
16:20			1378	9501										
16:25			1437	9908										
16:30			1459	10060										
16:45			1496	10315										
17:00	Y	Y	1524	10508										

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...DULUNGARI...#17HOWER.....

OPERATOR: ..G. GIANCASPINO.....



SANTOS LTD WELL TEST DATA

METRIC SUMMARY SHEET

DATE: ..23RD FEBRUARY 1987.....

PAGE No: ..THREE.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. CU/FT BBL	G.O.R. M ³ /M ³
23 RD FEBRUARY 1987.								CONTINUE BUILD UP					HRS SHUT IN	
17.15	0	0	1545	10653										1
17.30			1552	10701										
17.45			1558	10742										
18.00			1565	10791										
18.15			1871	10832										2.
18.30			1575	10860										
18.45			1580	10894										
19.00			1585	10929										
19.15			1589	10956										3
19.30			1593	10984										
19.45	↓	↓	1595	10998										

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• CU/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...DULLINGARI... #1 LOWER...

OPERATOR: ...G. GIANCASPRO.....



SANTOS LTD WELL TEST DATA

METRIC SUMMARY SHEET

DATE: ...23RD FEBRUARY 1987.....

PAGE No: ...FOUR.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
23 RD FEBRUARY 1987								CONTINUE BUILD UP					HRS SHUT IN	
20.00	0	0	1598	11018										
20.15	↓	↓	1601	11039										4
24 TH FEBRUARY 1987														
00.15			1633	11260										8
04.15			1653	11397										12
08.15			1668	11501										16
12.15			1679	11577										20
16.15			1686	11625										24
20.15	↓	↓	1692	11666										28
25 TH FEBRUARY 1987														
00.15	↓	↓	1696	11694										32.

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...*DULINGARI*... #17 ARNER.....
 OPERATOR: ...*G. Giancaspro*.....



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE: ...*25TH FEBRUARY 1987*....
 PAGE No: ...*FIVE*.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	Mm ³ /D	G.O.R. CU/FT BBL	G.O.R. M ³ /M ³
<i>25TH FEBRUARY 1987</i>														
								<i>CONTINUE BUILD UP.</i>						
<i>04.15</i>	<i>0</i>	<i>0</i>	<i>1700</i>	<i>11722</i>										
<i>08.15</i>			<i>1703</i>	<i>11742</i>										<i>36</i>
<i>12.15</i>			<i>1707</i>	<i>11769</i>										<i>40</i>
<i>16.15</i>			<i>1711</i>	<i>11797</i>										<i>44</i>
<i>20.15</i>	↓	↓	<i>1713</i>	<i>11811</i>										<i>48</i>
<i>26TH FEBRUARY 1987</i>														<i>52</i>
<i>00.15</i>			<i>1714</i>	<i>11818</i>										
<i>04.15</i>			<i>1716</i>	<i>11831</i>										<i>56</i>
<i>08.15</i>			<i>1716</i>	<i>11831</i>										<i>60</i>
<i>12.15</i>			<i>1719</i>	<i>11853</i>										<i>64</i>
<i>16.15</i>	↓	↓	<i>1723</i>	<i>11880</i>										<i>68</i>
														<i>72</i>

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ..DULLINGARI#..1710VER.
 OPERATOR: ..G. PETERSON.....



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: ...26TH FEBRUARY 1987.
 PAGE No: ...SIX.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
26 TH FEBRUARY 1987														
20.15	0	0	1726	11901										76
27 TH FEBRUARY 1987														
02.15			1726	11901										80
04.15			1726	11901										84
08.15			1727	11908										88
12.15			1730	11928										92
16.15			1730	11928										96
20.15			1731	11935										100
28 TH FEBRUARY 1987														
00.15			1732	11942										104
04.15			1733	11949										108

CONVERSION FACTORS:

- BBL'S. x 0.15899 = M³
- MMSCF x 28.174 = 10³ M³
- Cu/FT PER BBL x 0.1773 = M³/M³
- PSI x 6.895 = KPA
- °C x 9 ÷ 5 + 32 = °F

WELL: *DULLIN PART. # 17 LOWER*
 OPERATOR: *G. PETERSON.....*



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: *28TH FEBRUARY 1987*
 PAGE No: *SEVEN.....*

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
<i>28TH FEBRUARY 1987</i>														
<i>09:15</i>	<i>0</i>	<i>0</i>	<i>1734</i>	<i>11956</i>										<i>112</i>
<i>12:15</i>			<i>1735</i>	<i>11963</i>										<i>116</i>
<i>16:15</i>			<i>1735</i>	<i>11963</i>										<i>120</i>
<i>20:15</i>			<i>1737</i>	<i>11977</i>										<i>124</i>
<i>1ST MARCH 1987</i>														
<i>00:15</i>			<i>1739</i>	<i>11990</i>										<i>128</i>
<i>04:15</i>			<i>1740</i>	<i>11997</i>										<i>132</i>
<i>08:15</i>			<i>1739</i>	<i>11990</i>										<i>136</i>
<i>12:15</i>			<i>1739</i>	<i>11990</i>										<i>140</i>
<i>16:15</i>			<i>1739</i>	<i>11990</i>										<i>144</i>
<i>20:15</i>			<i>1739</i>	<i>11990</i>										<i>148</i>

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: *DULLINGART #1.7 HOLE*
 OPERATOR: *G. PETERSON.....*



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: *2nd MARCH 1987...*
 PAGE No: *Eight.....*

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
<i>2nd MARCH 1987</i>														
<i>00:15</i>	<i>0</i>	<i>0</i>	<i>1138</i>	<i>11984</i>										<i>152</i>
<i>04:15</i>			<i>1138</i>	<i>11984</i>										<i>156</i>
<i>08:15</i>			<i>1140</i>	<i>11997</i>										<i>160</i>
<i>12:15</i>			<i>1143</i>	<i>12018</i>										<i>164</i>
<i>16:15</i>			<i>1142</i>	<i>12011</i>										<i>168</i>
<i>20:15</i>			<i>1143</i>	<i>12018</i>										<i>172</i>
<i>3rd MARCH</i>														
<i>00:15</i>			<i>1145</i>	<i>12032</i>										<i>176</i>
<i>04:15</i>			<i>1145</i>	<i>12032</i>	<i>P.O.H</i>									<i>180</i>
<i>08:43</i>			<i>1145</i>	<i>12032</i>	<i>In Lub</i>									
<i>08:15</i>	<i>↓</i>	<i>↓</i>	<i>1145</i>	<i>12032</i>	<i>Dep Lub</i>									

CONVERSION FACTORS:

• BBL'S. x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F



WIRELINE REPORT

0139

WELL: DULLINGARI #17 LOWER

DATE: 21st FEBRUARY 1987

PROGRAM: BOTTOM HOLE PRESSURE SURVEY

PURPOSE OF WORK: BUND BOX RUN, FLOW & BUILD UP SURVEY AND STATIC GRADIENT

REPORT OF WORK PERFORMED:

21st FEBRUARY 1987

15:00 - S.W.I. AND RIG IN SWAB VALVE AND W/LINE UNIT FROM UPPER ZONE - PRESSURE TEST EQUIPMENT - O.K. - PUT WELL B.O.L. 100% CHOKE

23 FEBRUARY 1987

07:40 - PREPARE TO RUN B.H.P./B.H.T. GAUGES FOR B.H.P. SURVEY - PRESSURE UP LUBRICATOR

07:45 - NOTE THAT WELL SHUT IN BY TELEMETRY - NOTIFY PRODUCTION DEPARTMENT

08:00 - OPEN WELL UP TO 100% CHOKE

08:15 - WELL FLOWING TO LINE ON 100% CHOKE

09:45 - R.I.H. WITH B.H.P./B.H.T. GAUGES TO SURVEY DEPTH OF 8110' AS PER PROGRAM

10:13 - BONDS ON BOTTOM @ 8110' - FLOW WELL FOR 6 HRS PRIOR TO COMMENCING 168 HR BUILD UP

16:15 - S.W.I. - COMMENCE 168 HR BUILD UP


OPERATOR'S SIGNATURE

WORK PERFORMED BY: G. GIANCASPRO / A. SMITH OF EXPERTEST

WELL DATA:

Tubing Size: 2 7/8" A.C. FWHP: 680 PSI 23.2.87 SIWHP:

Sub Surface S.V./Landing Nipple @ S.S.D. @:

"X" Nipple @ "N"/"X" Nipple @ 7832' other

Min I.D. 1.791" @ 7832' Packer @ 7816'

Perforated Interval: 7907' - 8313' PATCHAWARRA

Forward to: Petroleum Engineering - Adelaide
Production Department - Moomba



WIRELINE REPORT

0140

WELL: Dallingari #17 Lower

DATE: 08th February 1987

PROGRAM: B.H.P. Survey

PURPOSE OF WORK: Well evaluation

REPORT OF WORK PERFORMED:

Well shut in previously by production operator.
18.00 On location.
18.55 RIH with 1.5" Tool string.
19.21 Pick up made at 8369' KB.
POH
19.40 Depressured Lubricator and rigged up
on the upper zone.
19.55 Well back on line.

OPERATOR'S SIGNATURE

WORK PERFORMED BY: A. Kessling G. Petersen OF Expertest

WELL DATA:

Tubing Size: 2 7/8" FWHP: SIWHP: 1537

Sub Surface S.V./Landing Nipple @ S.S.D. @:

"X" Nipple @ "N"/"X" Nipple @ 7832' other

Min I.D. 1.85" @ 7832' Packer @ 7059' & 7818'

Perforated Interval: 7907' - 8313' Patchowarra.

Forward to: Petroleum Engineering - Adelaide
Production Department - Moomba



**** DULLINGARI #17 LOWER ****
STATIC PRESSURE GRADIENT

TEST DATE: 03.03.87

DEPTH (FT.)	TOP PRESSURE ELEMENT 57413/3000			BOTTOM PRESSURE ELEMENT 57414/3000		
	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)
LUB	1.1008	1716.9	----	1.1004	1711.3	----
1000	1.1314	1764.8	0.0479	1.1302	1757.6	0.0464
2000	1.1610	1811.1	0.0463	1.1604	1804.7	0.0470
3000	1.1900	1856.5	0.0454	1.1909	1852.2	0.0475
4000	1.2192	1902.2	0.0457	1.2169	1892.6	0.0405
5000	1.2475	1946.5	0.0443	1.2465	1938.8	0.0461
6000	1.2762	1991.4	0.0449	1.2752	1983.5	0.0447
7000	1.3050	2036.5	0.0451	1.3058	2031.1	0.0477
7600	1.3224	2063.7	0.0454	1.3207	2054.3	0.0387
8110	1.3365	2085.8	0.0433	1.3345	2075.8	0.0422
8313	1.3561	2116.5	0.1511	1.3552	2108.1	0.1589
LUB	1.1030	1720.3	----	1.1062	1720.3	----

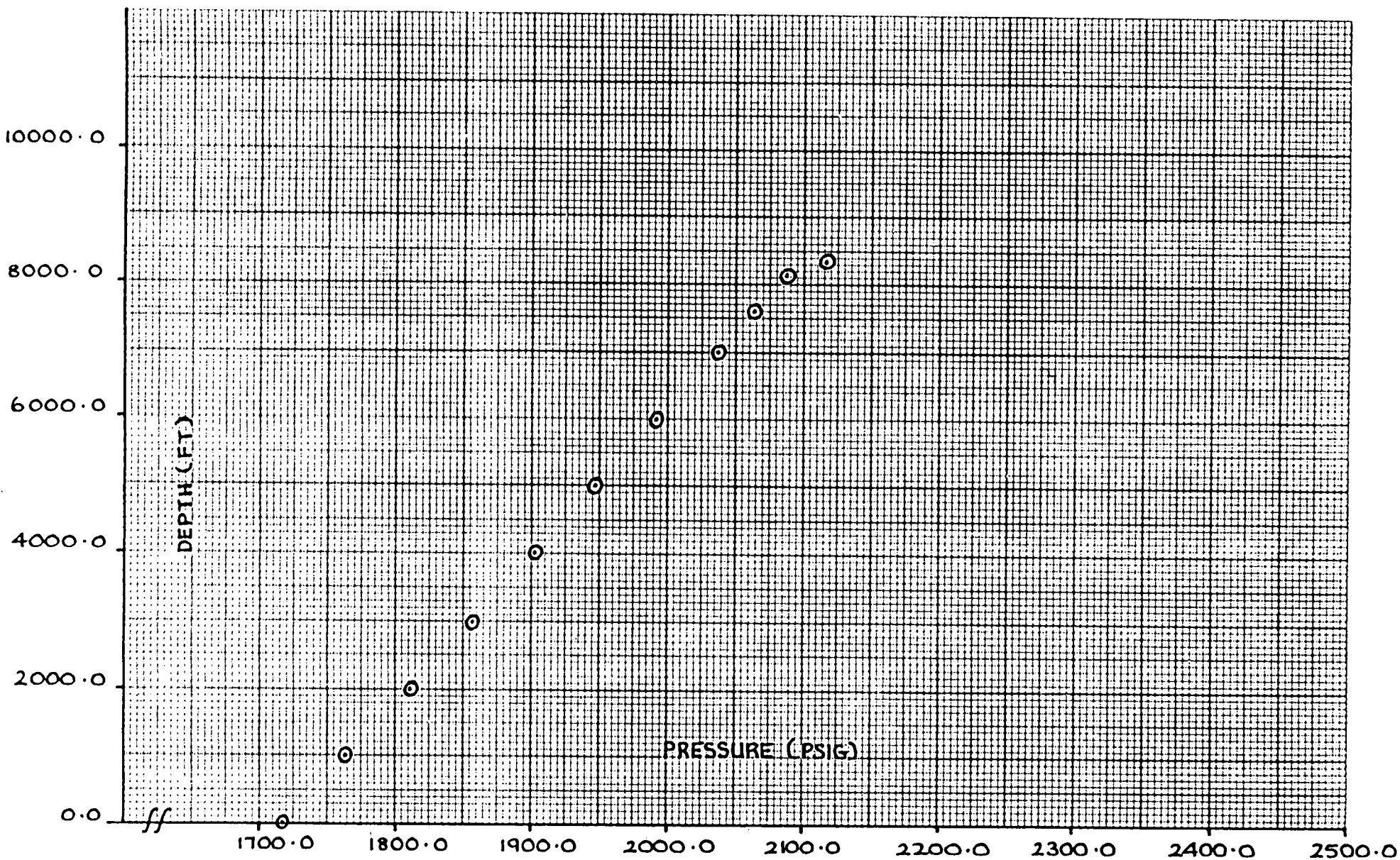
GENERAL REMARKS:

DWT IN: 1745
 DWT OUT: 1748
 MAX BHT: REF TEMP ELEMENT
 307.7 °F

ELEMENT 57413/3000 CALIBRATED 2.12.86
 ELEMENT 57414/3000 CALIBRATED 2.12.86

DULLINGARI # 17 LOWER - STATIC PRESSURE GRADIENT - 3/3/87

ELEMENT # 57413/3000 (TOP)



0142

WELL NAME: DULLIGARI #17 LOWER

STATIC GRADIENT SURVEY

DATE: 3RD MARCH 1987

BOMB No. 1 DATA

ELEMENT No. 57413 ELEMENT RANGE: 3000 PSI
RECORDER No: 61127 CLOCK DATA: 2387.3 HRS. * 15 HRS
ENGAGE SYLUS: 0909 DISENGAGE: 1239

BOMB No. 2 DATA

ELEMENT No: 57414 ELEMENT RANGE: 3000PSI
RECORDER No: 12959 CLOCK DATA: 2519/345/1545
ENGAGE SYLUS: 09.09 DISENGAGE: 12.39

LUBRICATOR DATA

PRESSURE WITH D.W.T.: *In 1745 ft out 1748 fms.*
TIME PRESSURED: *0919*
TIME DEPRESSURED: *1200*

DATE	TIME	DEPTH'	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft.	DEPTH'	DEFLECTION	PRESSURE TEMP.	GRADIENT psi/ft.	REMARKS
3RD	MARCH	1987								
	09:19	LVB				LVB				15 min
	09:38	1000				1000				5 min
	09:47	2000				2000				5 min
	09:56	3000				3000				5 min
	10:05	4000				4000				5 min
	10:14	5000				5000				5 min
	10:23	6000				6000				5 min
	10:32	7000				7000				5 min
	10:39	7600				7600				5 min
	10:46	8110				8110				15 min M.P.P.
	11:02	8318				8318				5 min
	11:30	LVB				LVB				70 min

GENERAL REMARKS: TEMP ELE- 22793 * 132° - 445°F
REC- 61374
CLOCK- A15013 * 3hr * 15715

Cocumcino Ave

0143

ROLLING BOTTOMHOLE PRESSURE SURVEY GAS CALCULATION SHEETWELL: Dullingari # 17 upper

Pf = 3300 kPa

ORIFICE SIZE: 28.000 mm 1.102 "

T = 75 °C

LINE SIZE: 97.180 mm 3.826 "

Diff = 50 kPa

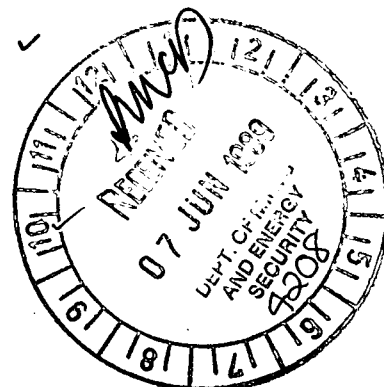
Cumulative Production to end of February = 171.690 m³ x 10⁶

Number of hours online in February = 669

Production in February = 1.265 m³ x 10⁶.. Average flow rate in February = (1.265 / 669) x 24 = 0.045 m³ x 10⁶/dNumber of days online in March before Shut In 1730 hrs 2 / 3 / 89
= 1.729 days.. Production up to 1730 hrs 2 / 3 / 89 = 0.045 x 1.729 = 0.078 m³ x 10⁶

Total cumulative production = 171.690 + 0.078
 = 171.768 m³ x 10⁶
 = 6096.727 mmscf

Flow rate just prior to Shut In = 0.055 m³ x 10⁶
 = 1.964 mmscf/d



SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7064'
CASING	-	CASING PRESS	ON BOTTOM 1330 2/3
LINER	-	TUBING PRESS	OFF BOTTOM 1230 6/3
DATE 890302		ELEMENT RANGE 0 - 3132	ZERO POINT
ELEVATION		ZONE	SHUT-IN 173002/3
MAX TEMP 270 F		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56431	MPP
TUBING	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
17:30	632.7	0.0	0.0	20:08	1225.7	593.0	2.6				
17:31	740.8	108.1	.0	20:50	1223.8	591.2	3.3				
17:34	811.1	178.5	.1	22:31	1223.6	591.0	5.0				
17:36	871.0	238.3	.1	1:22	1225.3	592.6	7.9				
17:35	941.8	309.2	.1	4:26	1226.3	593.6	10.9				
17:38	1017.8	385.2	.1	9:11	1227.2	594.5	15.7				
17:41	1094.9	462.3	.2	15:42	1228.8	596.2	22.2				
17:43	1148.4	515.7	.2	22:47	1229.4	596.8	29.3				
17:53	1199.0	566.3	.4	6:20	1231.4	598.7	36.8				
17:58	1207.9	575.3	.5	14:26	1232.7	600.0	44.9				
18:08	1213.4	580.7	.6	23:18	1234.6	601.9	53.8				
18:22	1216.5	583.8	.9	9:26	1236.7	604.0	63.9				
18:34	1221.5	588.8	1.1	17:25	1238.7	606.1	71.9				
18:50	1225.7	593.0	1.3	2:30	1241.3	608.6	81.0				
19:05	1230.5	597.9	1.6	12:30	1248.4	615.7	91.0				
19:34	1230.4	597.8	2.1	0:00	0.0	0.0	0.0				

LUB IN DWT = 395 PSI / OUT = 1083 PSI
LUB IN SAMERADA = 348 PSI / OUT = 1046 PSI

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SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7058'
CASING	-	CASING PRESS	ON BOTTOM 1815 6/3
LINER	-	TUBING PRESS	OFF BOTTOM 1200 9/3
DATE 890306		ELEMENT RANGE 0 - 3132	ZERO POINT
ELEVATION		ZONE	SHUT-IN 173002/3
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56431	MPP
TUBING	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME				
18:15	1268.5	0.0	0.0	8:27	1266.8	-1.7	38.2				
22:20	1264.6	-3.9	4.1	21:00	1267.3	-1.2	50.7				
8:13	1264.6	-3.9	14.0	9:17	1269.4	.9	63.0				
19:04	1266.2	-2.3	24.8	12:00	1269.8	1.3	65.7				

LUB IN DWT = 1080 PSI / OUT = 1086 PSI
LUB IN AMERADA = 1076 PSI / OUT = 1086 PSI

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SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7070'
CASING	-	CASING PRESS	ON BOTTOM 1330 2/3
LINER	-	TUBING PRESS	OFF BOTTOM 1230 6/3
DATE	890302	ELEMENT RANGE	0 - 3127
ELEVATION		ZONE	ZERO POINT
MAX TEMP	270 F	PICK-UP	SHUT-IN 173002/3
PERF	-	CAL SER NO.	56428
TUBING	-		MPP
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO. SANTOS				RUN 02 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
17:30	671.7	0.0	0.0	19:05	1272.8	601.2	1.6				
17:31	730.8	59.1	.0	19:17	1274.4	602.7	1.8				
17:32	792.8	121.1	.0	19:36	1271.5	599.8	2.1				
17:35	884.7	213.1	.1	20:40	1266.9	595.3	3.2				
17:38	983.3	311.7	.1	22:56	1265.2	593.5	5.4				
17:43	1095.9	424.3	.2	2:41	1266.1	594.5	9.2				
17:47	1172.0	500.3	.3	7:54	1266.7	595.0	14.4				
17:54	1222.1	550.4	.4	15:03	1267.4	595.8	21.5				
17:58	1235.5	563.9	.5	0:25	1268.6	596.9	30.9				
18:01	1244.5	572.8	.5	11:01	1269.0	597.3	41.5				
18:05	1249.0	577.3	.6	23:13	1270.1	598.5	53.7				
18:10	1252.3	580.6	.7	10:16	1271.2	599.5	64.8				
18:19	1255.7	584.0	.8	23:14	1271.6	600.0	77.7				
18:29	1256.8	585.1	1.0	11:07	1279.3	607.6	89.6				
18:37	1260.5	588.8	1.1	12:30	1280.7	609.0	91.0				
18:50	1266.8	595.1	1.3	0:00	0.0	0.0	0.0				

LUB IN DWT = 395 PSI / OUT = 1083 PSI
LUB IN AMERADA = 387 PSI / OUT = 1079 PSI

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SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7064'
CASING	-	CASING PRESS	ON BOTTOM 1815 6/3
LINER	-	TUBING PRESS	OFF BOTTOM 1200 9/3
DATE 890306		ELEMENT RANGE 0 - 3127	ZERO POINT
ELEVATION		ZONE	SHUT-IN 173002/3
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56428	MPP
TUBING	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 02 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
18:15	1262.6	0.0	0.0	7:02	1263.6	1.0	36.8				
3:20	1262.3	- .3	9.1	17:36	1263.9	1.3	47.3				
11:48	1261.9	- .7	17.5	12:00	1266.9	4.3	65.7				
19:40	1263.7	1.1	25.4	0:00	0.0	0.0	0.0				

LUB IN DWT = 1080 PSI / OUT = 1086 PSI
LUB IN AMERADA = 1076 PSI / OUT = 1082 PSI

Well: DULLINGARI # 17 UPPER Date: 2/3/89

Lubricator Data: 348/1046 Operator R. MOORE
387/1079

Pressure with D.W.T. In 2723 KPA Out 7467 KPA (1083)

Time Pressured 2/3/89 @ 10:58 Time Depressed 1455 6-3-89

Time Run in Hole — — @ 13:00 Time off Bottom 1230 — —

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	56431 x 3000 PSI	56428 x 3000 PSI
Recorder No.	14929 x 15 TUS	14620 x 15 TUS
Clock and Lead Screw Data	24711 x 120 HR	24724 x 120 HR
Engage Stylus	Date: 2/3/89 Time: 10:50	Date: 2/3/89 Time: 10:50
Disengage	Date: 6-3-89 Time: 1501	Date: 6-3-89 Time: 1501

Remarks: MAX. BOTTOMHOLE THERMOMETER RUN.

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
2 ND	MARCH	1989				
	10:50					ENGAGE STYLUS
	10:58		2723	Ø	66	PRESSURE LUBRICATOR
	13:00		2758	↑	66	RUN IN HOLE (100% CHOKED)
	13:30		2758		68	HANG GAUGES @ 7070' KB
	14:00		2758		69	
	14:30		2765		70	
	15:00		2772		71	
	15:30		2779		70	
	16:00		2786		72	
	16:30		2799		72	
	17:00		2806		71	
	17:30		2813		73	SHUT WELL IN
	17:35		6412		69	
	17:40		7164		63	
	17:45		7309		59	
	18:00		7357		55	
	18:15		7371		53	
	18:30	1	7405		50	
	18:45		7447		49	
	19:00		7481		47	
	19:15		7467		46	
	19:30	2	7447	↓	43	
	19:45		7447	Ø	42	



Well: DULLINGARI # 17 UPPER. Date: 2/3/89

Lubricator Data: Operator _____
 Pressure with D.W.T. In _____ Out _____
 Time Pressured _____ Time Depressed _____
 Time Run in Hole _____ Time off Bottom _____

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range					
Recorder No.					
Clock and Lead Screw Data					
Engage Stylus	Date:	Time:	Date:	Time:	
Disengage	Date:	Time:	Date:	Time:	

Remarks: FOR ALL ELEMENT DATA: SEE PAGE #1

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
2 ND	MARCH 1989					
	20:00		7447	Ø	41	
	20:15		7440	↑	41	
	20:30	3	7433		40	
	20:45		7433		40	
	21:00		7433		40	
	21:15		7426		40	
	21:30	4	7419		40	
3 RD	MARCH 1989					
	00:30		7419		40	
	04:30	11	7426		38	
	08:30		7426		38	
	12:30		7433			READING TAKEN FROM WELLHEAD CHART.
	16:30		7433		50	
	20:30		7440		40	
4 TH	MARCH 1989					
	00:30		7433		35	
	04:30	35	7440		37	
	08:30		7440		36	
	12:30		7447		47	
	16:30	47	7447		52	
5 TH	MARCH 1989					
	00:30		7447	Ø	40	



Date: 5/3/89

Operator

Out

Time Depressed

Time off Bottom

Bomb No. 2 Data

Remarks: FOR ALL ELEMENT DATA SEE PAGE 1

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
5 TH	MARCH	1989				
	04:30	59	7447	Ø	37	
	08:30		7447	↑	35	
	12:30		7453		49	
	16:30	71	7460		54	
	20:30		7453		39	
6 TH	MARCH	1989				
	00:30		7453		41	
	04:30	83	7453		39	
"	08:30		7453		37	
	12:30		7474		46	PULL OUT OF HOLE.
	12:55		7474	↓	47	HANG IN LUBRICATOR
	14:55		7467	Ø	45	DEPRESSURE LUBRICATOR
	15:01					DISENGAGE SYLUS.
			RECOVER CHARTS (GOOD) AND RELOAD TO CONTINUE 168" ^{HR} BUILD-UP.			
						MBHT 270°F.



Well: DULLINGARI #17 UPPER. Date: 6/3/89
 Lubricator Data: ① 1076 / 1086 Operator R. MOORE
② 1076 / 1082
 Pressure with D.W.T. In 7447 KPA (1080) Out 7448 KPA (1086)
 Time Pressured 6/3/89 @ 15:50 Time Depressed 14:14 9-3-89
 Time Run in Hole — — @ 17:50 Time off Bottom 12:00 — —

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56431 x 3000^{PSI}</u>	<u>56428 x 2975^{PSI}</u>
Recorder No.	<u>14929 x 15^{TL5}</u>	<u>14620 x 15^{TL5}</u>
Clock and Lead Screw Data	<u>24711 x 120^{HR}</u>	<u>24724 x 120^{HR}</u>
Engage Stylus	Date: <u>6/3/89</u> Time: <u>15:40</u>	Date: <u>6/3/89</u> Time: <u>15:36</u>
Disengage	Date: <u>9-3-89</u> Time: <u>14:22</u>	Date: <u>9-3-89</u> Time: <u>14:22</u>

Remarks: TEMPERATURE ELEMENT RUN: EL 29217 x 145 → 378 °F
REL 12977 x 15^{TL5}
SIBH Temp: 245 °F CLOCK F-15685 x 120^{HR}

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
6 TH	MARCH 1989					
	15:36					ENGAGE STYLUS
	15:50		7447	Ø	38	PRESSURE LUBRICATOR
	17:50		7453	4	46	RUN IN HOLE
	18:15		7453		48	HANG GAUGES @ 7070 ^{HR}
	20:30		7453		41	CONTINUE BUILD-UP.
7 TH	MARCH 1989					
	00:30		7453		40	
	04:30	107	7460		37	
	08:30		7460		37	
	12:30		7474		49	
	16:30		7467		33	
	20:30		7467			
8 TH	MARCH 1989					READINGS TAKEN FROM WELLHEAD CHART - ROADS CLOSED DUE TO RAIN.
	00:30		7474			
	04:30	131	7467			
	06:30	133	7474		29	
	10:00		7474		30	
	14:30		7474		35	
	18:30	145	7474		35	
	22:30		7474		34	
9 TH	MARCH 1989					
	02:30		7481	↓	33	
	06:30	157	7481	Ø	32	



Date: 9-3-89

Operator A. SMITH

Out

Time Depressed

Time off Bottom

Bomb No. 2 Data

Element No. and Range				
Recorder No.				
Clock and Lead Screw Data				
Engage Stylus	Date:	Time:	Date:	Time:
Disengage	Date:	Time:	Date:	Time:

Remarks: REFER TO BOMB DATA SHEET #1. FOR ELEMENT INFORMATION

Well-Head Data for Final Build-up

[illegible]

WIRELINE REPORT

CLIENT SANTOS WELL DULLINGARI #17 UPPER

DATE 2/3/89

PROGRAMME DULLINGARI BOTTOMHOLE PRESSURE SURVEYS

PURPOSE OF WORK BLIND-BOX RUN - TO ENSURE TUBING IS CLEAR PRIOR TO RUNNING AMERADA'S FOR 168^{HR} BUILD-UP.

REPORT OF WORK PERFORMED 2ND MARCH 1989

08:00 SWI RIG UP SWAB-VALVE + W/L UNIT

08:55 RIH WITH 1.75 BLIND-BOX

09:35 TAG COLLAR STOP-BAR @ 7085' KB.
POOH

10:00 @ SURFACE, DEPRESSURE LUBRICATOR

PREPARE GAUGES FOR 168^{HR} BUILD-UP SURVEY

10:58 PRESSURE LUBRICATOR

13:00 RIH WITH 2 PRESSURE ELEMENTS + 1 MBH THERMOMETER

13:30 HANG GAUGES @ 7070' KB. - WELL ON LINE 100% CHOKE
6TH MARCH 1989

12:30 POOH (TO RECOVER AND RELOAD CHARTS)

12:55 @ SURFACE, 2ND LUBRICATOR STOP, RECOVER CHARTS (GOOD) - RELOAD

17:50 RIH WITH 2 PRESSURE ELEMENTS AND 1 TEMP. ELEMENT.

9TH MARCH 1989

1200 : P.O.H (BUILD UP COMPLETED)

1214 : @ LUBRICATOR

1414 : DEPRESSURE LUBRICATOR, DISENGAGE STYLUS, RECOVER CHARTS (GOOD), RELOAD WITH 3H CHOCKS & PERFORM STATIC GRADIENT.

1730 : STATIC GRADIENT COMPLETED, RIG DOWN & HAND WELL BACK TO PRODUCTION

R. Moore
Operator's Signature

WORKED PERFORMED BY R. MOORE OF EXPERTEST

WELL DATA:

Tubing Size 2 3/8 FWHP _____ SIWHP _____

Subsurface S.V./Landing Nipple @ 7073' S.S.D. @ _____

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

Min. I.D. 1.85 @ 7073' Packer @ 7059'

Perforated Interval: TOOLAGNEE 7157' - 7205'

EXPERIMENTAL

WIRELINE & WELL TESTING SERVICE

PO BOX 254 COMANDILLA 5022

PH. (08) 254 0400 TELEY M07100

FAX (08) 42 7400

120 STUBBINS ROAD MADRIDTON

SOUTH AUSTRALIA 5022

Tested Thursday, 9th March 1999.

CLIENT	LOCATION	FORMATION
Santos Ltd.	DULLINCART#17U	TOOLACHEE

STATIC PRESSURE GRADIENT REPORT**PRESSURE ELEMENT DATA**

POSITION	SERIAL NO	RANGE	CALIBRATED
Top	56431	3000	19/11/99
Bottom	56429	3000	19/11/99

WELL DATA

PARAMETER	VALUE
DWT In	1086 PSI
DWT Out	1086 PSI
Max RHT	249 °F

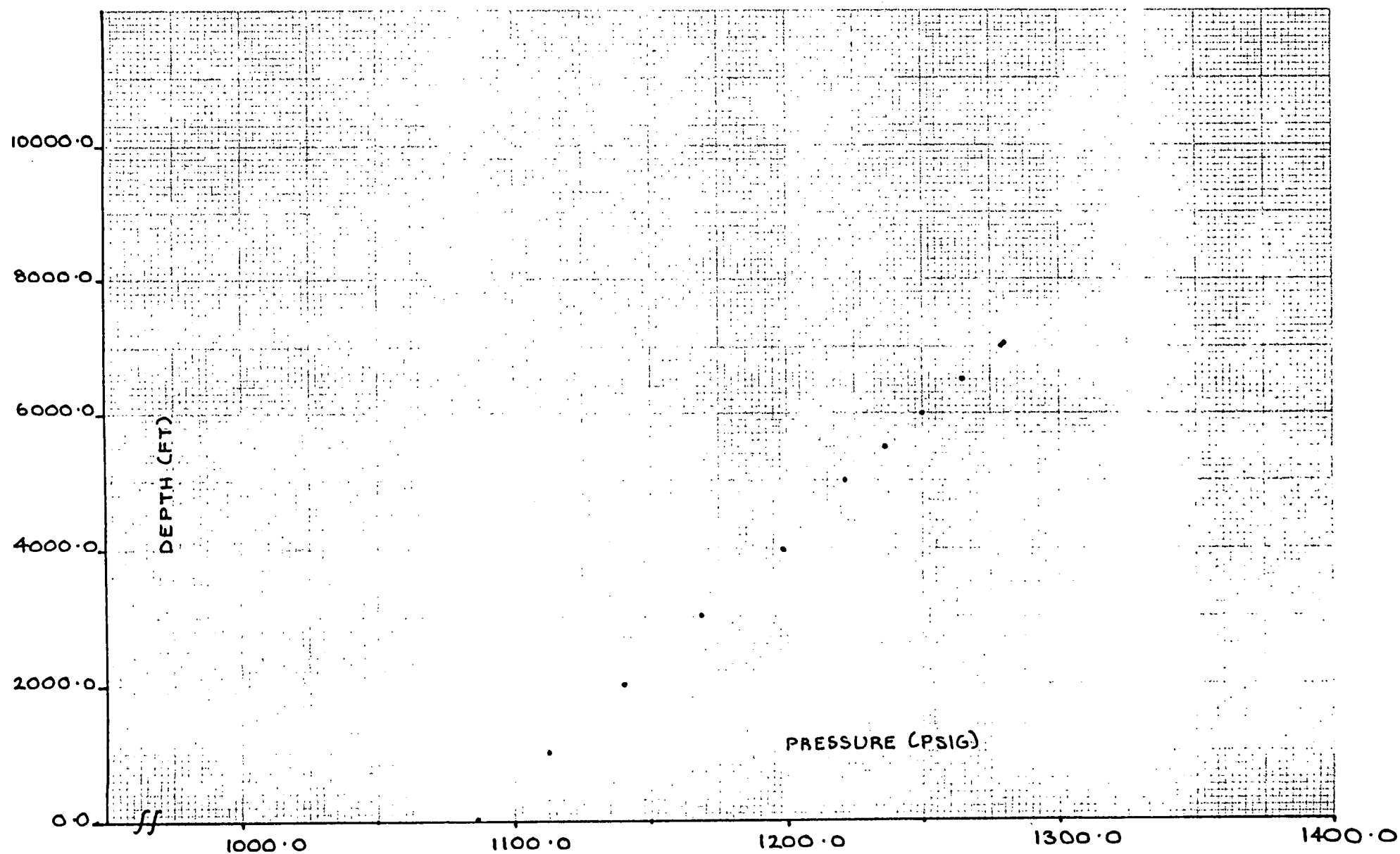
DEPTH FT	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6940	1095.6		0 6920	1090.1	
1000	0.7110	1112.3	0.027	0 7000	1105.2	0.025
2000	0.7290	1140.5	0.028	0 7280	1135.0	0.030
3000	0.7470	1168.8	0.028	0 7440	1160.1	0.025
4000	0.7660	1198.6	0.030	0 7620	1189.4	0.028
5000	0.7810	1222.1	0.024	0 7790	1215.0	0.027
5500	0.7900	1236.2	0.029	0 7880	1229.2	0.028
6000	0.7990	1250.3	0.029	0 7970	1243.3	0.028
6500	0.8080	1264.4	0.029	0 8060	1257.4	0.028
7000	0.8170	1278.6	0.029	0 8140	1270.0	0.025
7070	0.8180	1280.1	0.022	0 8160	1273.1	0.045
LUB.	0.6970	1090.3		0 6950	1083.3	

GENERAL REMARKS

RAN TEMP ELEMENT

DULLINGARI # 17 UPPER - STATIC PRESSURE GRADIENT - 9/3/89

ELEMENT # 56431/3000 (TOP)



0156



CLIENT SANTOS

WELL DULINGARI #17 UPPER

STATIC GRADIENT SURVEY

OPERATOR A. SMITH

DATE 9-3-89

BOMB No. 1 DATA						BOMB No 2 DATA				DWT IN 7488 KPA			
ELEMENT No. <u>56431</u>		ELEMENT RANGE <u>3000 PSI</u>		RECORDER No <u>14929</u>		CLOCK DATA <u>2518 x 3HR</u>		ENGAGE SYLUS <u>1434</u>		DISENGAGE <u>1647</u>		DWT OUT 7488 KPA	
PRESSURE LUBRICATOR <u>1442</u>													
DATE	TIME	DEPTH'	DEFLEC- TION	PRESSURE TEMP.	GRADIENT psi/ft	DEPTH'	DEFLEC- TION	PRESSURE TEMP.	GRADIENT psi/ft	REMARKS			
9 TH MARCH 1989													
	1442	LUB	·694			LUB	·693			PRESSURE LUBRICATOR.			
	1457	R.I.H				R.I.H				RUN IN HOLE.			
	1459	1000	·711			1000	·709						
	1505	2000	·729			2000	·728						
	1512	3000	·747			3000	·744						
	1519	4000	·766			4000	·762						
	1527	5000	·781			5000	·779						
	1533	5500	·790			5500	·788						
	1539	6000	·799			6000	·797						
	1545	6500	·808			6500	·806						
	1552	7000	·817			7000	·814						
	1557	7070	·818	8826		7070	·816	8778		M.P.P.			
	1612	P.O.O.H				P.O.O.H				PULL OUT OF HOLE.			
	1625	LUB	·697			LUB	·695			© LUBRICATOR.			
	1640	BLEED				BLEED				DEPRESSURE LUBRICATOR.			

GENERAL REMARKS: ALSO RAN TEMPERATURE ELEMENT 29217 x 145° → 378°F
 RECORDER 12977 x 15TUS
 CLOCK 2180 x 3HR

E4

0157

ROLLING BOTTOMHOLE PRESSURE SURVEY GAS CALCULATION SHEET

WELL: Dullingari # 17 Lower Pf = 2800 kPa
 ORIFICE SIZE: 46.000 mm 1.811 " ✓ T = 80 °C
 LINE SIZE: 146.329 mm 5.761 " ✓ Diff = 24 kPa

Cumulative Production to end of February = 260.155 m³ x 10⁶

Number of hours online in February = 661

Production in February = 2.488 m³ x 10⁶

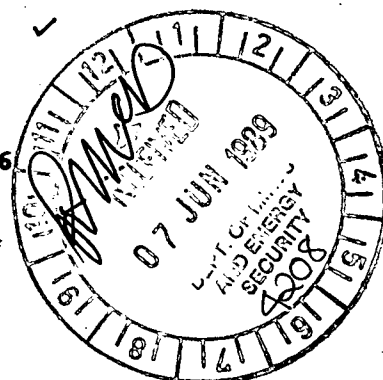
.. Average flow rate in February = (2.488/661) x 24 = 0.090 m³ x 10⁶/d

Number of days online in March before Shut In 1530 hrs 10 / 3 /89
 = 9.646 days

.. Production up to 1530 hrs 10 / 3 /89 = 0.090 x 9.646 = 0.868 m³ x 10⁶

Total cumulative production = 0.868 + 260.155
 = 261.023 m³ x 10⁶
 = 9264.755 mmscf ✓

Flow rate just prior to Shut In = 0.095 m³ x 10⁶
 = 3.368 mmscf/d



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PAGE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS

EFF. DEPTH

CASING

LINER

DATE 890315

ELEVATION

MAX TEMP

PERF

TUBING

UNITS ENGLISH

RUN 01 FIELD DULLINGARI

WELL STAT

CASING PRESS

TUBING PRESS

ELEMENT RANGE 0 - 3132

ZONE

PICK-UP

CAL SER NO. 56431

WELL 17L

TOOL HUNG 7868'

ON BOTTOM 1115 10/3

OFF BOTTOM 0730 15/3

ZERO POINT

SHUT-IN 1530 10/3

ON-PROD

MPP

PURPOSE

BUILD-UP

SURVEY DATA

CO. SANTOS

TIME

P-T

DP-DT

DTIME

RUN 01 FIELD DULLINGARI

TIME

P-T

WELL 17L

DP-DT

DTIME

15:30	789.6	0.0	0.0	17:26	1264.6	474.9	1.9
15:32	850.0	60.3	.0	17:43	1271.6	481.9	2.2
15:33	922.5	132.9	.1	18:01	1277.3	487.7	2.5
15:35	989.4	199.8	.1	18:25	1285.0	495.4	2.9
15:38	1048.5	258.9	.1	18:54	1292.6	503.0	3.4
15:42	1087.4	297.7	.2	19:35	1303.7	514.1	4.1
15:45	1113.1	323.4	.3	21:30	1325.4	535.7	6.0
15:47	1129.3	339.7	.3	0:01	1345.9	556.3	8.5
15:51	1142.8	353.2	.3	3:35	1368.3	578.7	12.1
15:56	1156.6	366.9	.4	7:55	1387.9	598.3	16.4
16:04	1174.1	384.5	.6	13:35	1407.6	617.9	22.1
16:13	1196.3	406.7	.7	21:37	1426.3	636.7	30.1
16:20	1213.9	424.2	.8	5:56	1441.4	651.8	38.4
16:26	1225.9	436.3	.9	14:08	1452.3	662.6	46.6
16:32	1232.2	442.5	1.0	0:38	1463.2	673.6	57.1
16:38	1237.2	447.5	1.1	15:17	1475.7	686.0	71.8
16:44	1241.4	451.7	1.2	7:00	1486.4	696.8	87.5
16:54	1247.6	458.0	1.4	22:47	1494.2	704.5	103.3
17:05	1253.4	463.7	1.6	7:31	1498.9	709.3	112.0
17:14	1259.3	469.7	1.7	0:00	0.0	0.0	0.0

LUB IN DWT = 419 PSI / OUT = 1248 PSI
LUB IN AMERADA = 416 PSI / OUT = 1255 PSI

NOTE: Clock ran out. Times listed are not accurate.

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PAGE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	
CASING	-	CASING PRESS	TOOL HUNG 7868'
LINER	-	TUBING PRESS	ON BOTTOM 1130 15/3
DATE 890318		ELEMENT RANGE 0 - 3132	OFF BOTTOM 0530 18/3
ELEVATION		ZONE	ZERO POINT
MAX TEMP		PICK-UP	SHUT-IN 1530 10/3
PERF	-	CAL SER NO. 56431	ON-PROD
TUBING	-		MPP
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17L			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
11:30	1507.6	0.0	0.0	5:34	1521.4	13.8	42.1				
17:26	1507.4	-1.1	5.9	20:04	1525.7	18.1	56.6				
2:47	1510.8	3.2	15.3	5:30	1529.2	21.6	66.0				
15:23	1516.5	8.9	27.9	0:00	0.0	0.0	0.0				

LUB IN DWT = 1248 PSI / OUT = 1270 PSI
LUB IN AMERADA = 1244 PSI / OUT = 1268 PSI

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SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	
CASING	-	CASING PRESS	TOOL HUNG 7874'
LINER	-	TUBING PRESS	ON BOTTOM 1115 10/3
DATE	890315	ELEMENT RANGE 0 - 3127	OFF BOTTOM 0730 15/3
ELEVATION		ZONE	ZERO POINT
MAX TEMP		PICK-UP	SHUT-IN 1530 10/3
PERF	-	CAL SER NO. 56428	ON-PROD
TUBING	-		MPP
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO. SANTOS			RUN 02 FIELD DULLINGARI			WELL 17L		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
15:30	774.8	0.0	0.0	15:44	1272.5	497.7	3.2	
15:31	852.0	77.2	.0	19:29	1283.4	508.6	4.0	
15:34	939.9	165.0	.1	20:11	1293.0	518.1	4.7	
15:38	1030.7	255.9	.1	21:04	1303.1	528.2	5.6	
15:44	1082.7	307.9	.2	22:34	1317.1	542.2	7.1	
15:53	1122.0	347.2	.4	0:25	1331.0	556.1	8.9	
16:00	1144.6	369.8	.5	2:31	1345.3	570.4	11.0	
16:11	1169.6	394.7	.7	5:24	1361.4	586.6	13.9	
16:17	1183.9	409.1	.8	8:42	1374.4	599.6	17.2	
16:22	1197.1	422.2	.9	14:30	1394.7	619.9	23.0	
16:29	1210.3	435.5	1.0	20:35	1410.2	635.3	29.1	
16:36	1217.2	442.3	1.1	7:25	1429.9	655.0	39.9	
16:44	1223.1	448.2	1.2	19:34	1446.2	671.4	52.1	
16:55	1229.2	454.3	1.4	7:40	1459.4	684.6	64.2	
17:10	1238.0	463.2	1.7	21:41	1470.3	695.4	78.2	
17:27	1246.4	471.5	2.0	10:29	1479.7	704.9	91.0	
17:46	1254.9	480.1	2.3	23:23	1488.6	713.7	104.0	
18:08	1263.0	488.1	2.5	7:23	1493.2	718.4	112.0	

LUB IN DWT = 419 PSI / OUT = 1246 PSI
LUB IN AMERADA = 409 PSI / OUT = 1246 PSI

Note: Clock ran out; Times listed are not accurate

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SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG 7874'
CASING	-	CASING PRESS	ON BOTTOM 1130 15/3
LINER	-	TUBING PRESS	OFF BOTTOM 2530 18/3
DATE 090318		ELEMENT RANGE 0 - 3127	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1530 12/3
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56428	MPP
TUBING	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS			RUN 02 FIELD DULLINGARI			WELL 17L		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
11:30	1500.6	0.0	0.0	19:37	1510.7	10.1	32.1	
17:47	1501.1	.5	6.3	11:54	1517.0	16.4	49.4	
6:11	1505.7	5.1	18.7	5:30	1523.1	22.5	66.2	

LUB IN DWT = 1248 PSI / OUT = 1270 PSI
LUB IN AMERADA = 1241 PSI / OUT = 1264 PSI



0163

Well: DULLINGARI #17 LOWER Date: 10-3-89
 Lubricator Data: 416/1255 Operator: A. SMITH
409/1246
 Pressure with D.W.T. In 2889 KPA (419) Out 8605 KPA (1248)
 Time Pressured 0900 10-3-89 Time Depressed 0850 15-3-89
 Time Run in Hole 1100 —11— Time off Bottom 0730 —11—

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56431 x 3000 PSI</u>	<u>56428 x 3000 PSI</u>
Recorder No.	<u>14929 x 15TLS</u>	<u>14620 x 15TLS</u>
Clock and Lead Screw Data	<u>24724 x 120 HR</u>	<u>24711 x 120 HR</u>
Engage Stylus	Date: <u>10-3-89</u> Time: <u>0854</u>	Date: <u>10-3-89</u> Time: <u>0854</u>
Disengage	Date: <u>15-3-89</u> Time: <u>0858</u>	Date: <u>15-3-89</u> Time: <u>0858</u>

Remarks: ALSO RAN TEMPERATURE ELEMENT 29217 x 145° → 378°F
RECORDER 12977 x 15TLS
CLOCK F-15685 x 120 HR

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	KPA Wellhead	KPA Casing	°C Wellhead Temp.	Remarks
10 TH	MARCH	1989				
	0854					ENGAGE STYLUS.
	0900		2841	0	63	PRESSURE LUBRICATOR.
	1100		2889	0	70	R.I.H
	1115		2895		73	@ HANG DEPTH 7880' KB
	1130		2903		74	(WELL FLOWING 100%)
	1200		2903		74	
	1230		2903		74	
	1300		2903		74	
	1330		2910		76	
	1400		2917		76	
	1430		2923		75	
	1500		2923		75	
	1530		2923		75	S.W.1 FOR 168 HR BUILDUP
	1535		5895		73	
	1540		6268		70	
	1545	.25	6440		65	
	1600	.5	6736		52	
	1615		6964		51	
	1630	1	7081		47	
	1645		7136		45	
	1700		7191		40	
	1715		7233		38	
	1730	2	7254	0	35	



Well: DULINGARI #17 LOWER

Date: 10.3.89

Lubricator Data:

Operator A. SMITH

Pressure with D.W.T. In

Out

Time Pressured

Time Depressured

Time Run in Hole

Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range					
Recorder No.					
Clock and Lead Screw Data					
Engage Stylus	Date:	Time:	Date:	Time:	
Disengage	Date:	Time:	Date:	Time:	

Remarks: REFER TO BOMB DATA SHEET #1. FOR ELEMENT INFORMATION.

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	KPA Wellhead	KPA Casing	°C Wellhead Temp.	Remarks
10 TH	MARCH	1989				
	1745		7288	0	35	
	1800		7316		34	
	1815		7350		33	
	1830	3	7385		33	
	1845		7412		32	
	1900		7433		32	
	1915		7453		32	
	1930	4	7481		32	
	2330		7688		31	
11 TH	MARCH	1989.				
	0530	12	7826		29	
	0730		7915		28	
	1130		7991		37	
	1530	24	8067		45	
	1930		8083		48	
	2330		8136		39	
12 TH	MARCH	1989.				
	0330	36	8191		29	
	0730		8233		30	
	1130		8262		39	
	1530	48	8302		50	
	1930		8336		39	
	2330		8371	0	30	



Well: DULLINGARI # 17 LOWER

Date: 13-3-89

Lubricator Data:

Operator A. SMITH

Pressure with D.W.T. In

Out

Time Pressured

Time Depressured

Time Run in Hole

Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range					
Recorder No.					
Clock and Lead Screw Data					
Engage Stylus	Date:	Time:	Date:	Time:	
Disengage	Date:	Time:	Date:	Time:	

Remarks: REFER TO BOMB DATA SHEET #1 FOR ELEMENT INFORMATION.

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	KPA Wellhead	KPA Casing	°C Wellhead Temp.	Remarks
13 TH	MARCH	1989.				
	0330	60	8384	0	27	
	0730		8391		24	
	1130		8412		30	
	1530	72	8432		34	
	1930		8453		38	
	2330		8474		31	
14 TH	MARCH	1989.				
	0330	84	8502		25	
	0730		8536		30	
	1130		8557		35	
	1530	96	8570		38	
	1930		8577		35	
	2330		8584		30	
15 TH	MARCH	1989.				
	0330	108	8591		26	
	0730		8598		16	P.O.O.H (TO RETRIP).
	0750		8605		15	@ LUBRICATOR.
	0850		8605	0	16	DEPRESSURE LUBRICATOR.
	0858					DISENGAGE STYLUS. -
			RECOVER CHARTS (GOOD)	RELOAD ELEMENTS		& RETRIP.



Well: DULLINGARI #17 LOWER Date: 15-3-89
 Lubricator Data: 1244 / 1268
1241 / 1264 Operator A. SMITH
 Pressure with D.W.T. In 8605 KPA (1248) Out 8757 KPA (1270)
 Time Pressured 0915 15-3-89 Time Depressed 0753 18-3-89
 Time Run in Hole 1115 —||— Time off Bottom 0530 —||—

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56431 x 3000 PSI</u>	<u>56428 x 3000 PSI</u>
Recorder No.	<u>14929 x 15 TLS</u>	<u>14620 x 15 TLS</u>
Clock and Lead Screw Data	<u>24724 x 120 HR</u>	<u>24711 x 120 HR</u>
Engage Stylus	Date: <u>15-3-89</u> Time: <u>0907</u>	Date: <u>15-3-89</u> Time: <u>0907</u>
Disengage	Date: <u>18-3-89</u> Time: <u>0806</u>	Date: <u>18-3-89</u> Time: <u>0806</u>

Remarks: ALSO RAN TEMPERATURE ELEMENT 19217 x 145° → 378°F

RECORDER 12977 x 15 TLS

BH Temp = 258°F CHUCK F15685 x 120 HR

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	KPA Wellhead	KPA Casing	°C Wellhead Temp.	Remarks
15 TH	MARCH	1988				
	0907					ENGAGE STYLUS.
	0915		8605	0	17	PRESSURE LUBRICATOR.
	1115		8605		22	RUN. IN. HOLE.
	1130		8612		22	@ HANG DEPTH 7880 KB
	1530	120	8626		31	& CONTINUE BUILD UP.
	1930		8639		33	
	2330		8653		28	
16 TH	MARCH	1989.				
	0330	132	8660		17	
	0730		8667		14	
	1130		8681		26	
	1530	144	8688		32	
	1930		8695		31	
	2330		8701		27	
17 TH	MARCH	1989.				
	0330	156	8708		18	
	0730		8722		16	
	1130		8736		28	
	1530	168	8743		36	
	1930		8750		30	
	2330		8750	0	27	

0167

Well: DULLINGARI # 17 LOWER Date: 10.3.89

Lubricator Data: Operator A. SMITH

Pressure with D.W.T. In Out

Time Pressured..... Time Depressed.....

Time Run in Hole..... Time off Bottom.....

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range				
Recorder No.				
Clock and Lead Screw Data				
Engage Stylus	Date:	Time:	Date:	Time:
Disengage	Date:	Time:	Date:	Time:

Remarks: REFER TO BOMB DATA SHEET #4 FOR ELEMENT INFORMATION.

Well-Head Data for Final Build-up

[illegible]



WIRELINE REPORT

CLIENT SANTOSWELL DULLINGARI #17 LOWERDATE 9-3-89PROGRAMME BLIND BOX RUN.PURPOSE OF WORK TO ENSURE TUBING IS FREE OF ANY OBSTRUCTION FOR P.B.U SURVEYREPORT OF WORK PERFORMED 9TH MARCH 19891710 : UPPER ZONE COMPLETED, SHUT LOWER ZONE & RIG UP SWAB VALVE & WIRE LINE EQUIPMENT.1720 : WELL BACKON LINE 100%10TH MARCH 19890755 : R.I.H WITH 1.5" TOOLSTRING AS PER PROGRAMME, PERFORMING PICK UPS EVERY 1000'.0819 : TAG P.B.T.D @ 8300' K.B. (TUBING CLEAR) & P.O.O.H.0838 : @ LUBRICATOR, RIG OUT TOOLSTRING & PREPARE ELEMENTS FOR P.B.U. SURVEY.1100 : R.I.H WITH 2 PRESSURE ELEMENTS & 1 TEMPERATURE ELEMENT.1115 : @ P.B.U. HANG DEPTH 7880' K.B. (WELL FLOWING 100%)1530 : S.W.I FOR 168 HR BUILD UP.15TH MARCH 19890730 : P.O.O.H (TO RECOVER CHARTS, RELOAD & TO RETRIP THEM).1115 : R.I.H WITH 2 PRESSURE ELEMENTS & 1 TEMPERATURE ELEMENT.1130 : @ P.B.U. SURVEY HANG DEPTH 7880' K.B. & CONTINUE BUILD UP.18TH MARCH 19890530 : P.O.O.H (BUILD UP COMPLETED).0553 : @ LUBRICATOR, 2 HR LUB STOP, DEPRESSURE, DISENCLAGE STYLUS, RECOVER CHARTS (GOOD), RELOAD WITH 3 HR CHECKS & PERFORM STATIC GRADIENT.

Operator's Signature

WORKED PERFORMED BY A. SMITHOF EXPERTEST

WELL DATA:

Tubing Size 2 7/8" FWHP 3200 KPA SIWHP -

Subsurface S.V./Landing Nipple @ 7832' K.B. S.S.D. @

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

Min. I.D. @ Packer @ 7816' K.B.

Perforated Interval: PATCHAWARRA F.M 7907' K.B. → 8313' K.B.

0169

EXPERTEST PTM LTD.

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0498 TELEX AA87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Saturday, 18th March 1989.

CLIENT	LOCATION	FORMATION
Santos Ltd.	dullingari#171	patchawarra

STATIC PRESSURE GRADIENT REPORT**PRESSURE ELEMENT DATA**

POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	56431	3000	18/11/88
Bottom	56428	3000	18/11/88

WELL DATA

PARAMETER	VALUE
DWT In	1270psi
DWT Out	1270psi
Max BHT	260°F

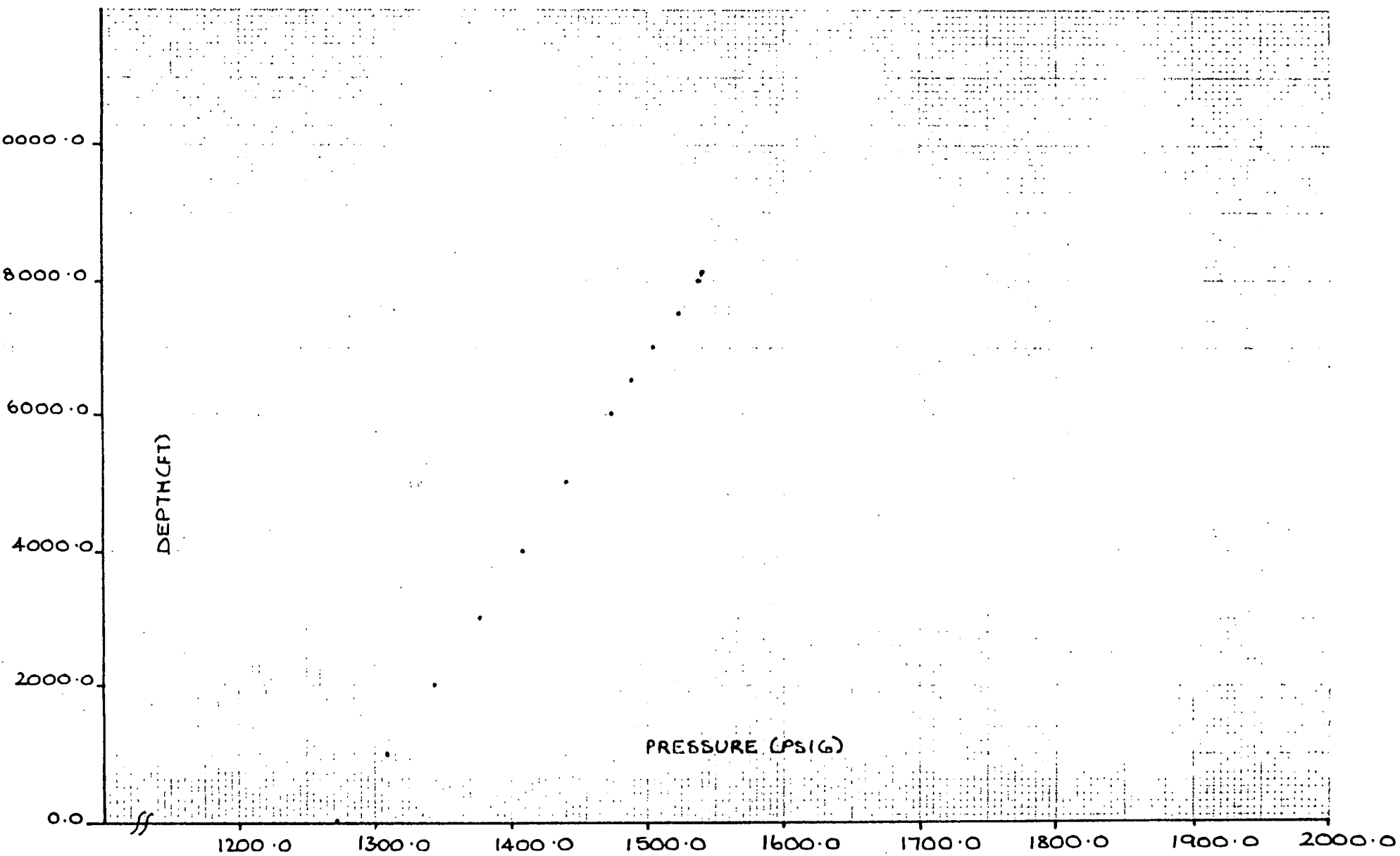
TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.8140	1273.9	-----	0.8150	1271.5	-----
1000	0.8340	1305.2	0.031	0.8390	1309.2	0.038
2000	0.8570	1341.3	0.036	0.8610	1343.7	0.035
3000	0.8780	1374.3	0.033	0.8820	1376.7	0.033
4000	0.9010	1410.4	0.036	0.9020	1408.1	0.031
5000	0.9230	1444.9	0.035	0.9220	1439.5	0.031
6000	0.9430	1476.3	0.031	0.9430	1472.4	0.033
6500	0.9530	1491.9	0.031	0.9530	1488.1	0.031
7000	0.9640	1509.2	0.035	0.9640	1505.4	0.035
7500	0.9750	1526.5	0.035	0.9750	1522.6	0.035
8000	0.9820	1537.5	0.022	0.9840	1536.8	0.028
8110	0.9850	1542.2	0.043	0.9850	1538.3	0.014
LUB.	0.8120	1270.7	-----	0.8140	1270.0	-----

GENERAL REMARKS

temp element ran

DULLINGARI # 17 LOWER - STATIC PRESSURE GRADIENT - 18/3/89

ELEMENT # 56428/3000 (BOT)



0170



CLIENT SANTOS

STATIC GRADIENT SURVEY

WELL OULLINGARI #17 LOWER

OPERATOR A. SMITH

DATE 18-3-89

BOMB No. 1 DATA						BOMB No 2 DATA						DWT IN 8757 KPA	
ELEMENT No. 56431		ELEMENT RANGE 3000PSI				ELEMENT No. 56428		ELEMENT RANGE 3000PSI				DWT OUT 8757 KPA	
RECORDER No 14929		CLOCK DATA 2533 x 3HR				RECORDER No 14620		CLOCK DATA 2387 x 3HR					
ENGAGE STYLUS 0816		DISENGAGE 1033				ENGAGE STYLUS 0816		DISENGAGE 1033					
PRESSURE LUBRICATOR 0825						BLEED LUBRICATOR 1027							
DATE	TIME	DEPTH'	DEFLEC- TION	PRESSURE TEMP.	GRADIENT psi/ft	DEPTH'	DEFLEC- TION	PRESSURE TEMP.	GRADIENT psi/ft	REMARKS			
18 TH MARCH	1989			KPA				KPA					
	0825	LUB	·814			LUB	·815			PRESSURE LUBRICATOR.			
	0840	R.I.H				R.I.H				RUN IN HOLE.			
	0842	1000	·834			1000	·839						
	0849	2000	·857			2000	·861						
	0855	3000	·878			3000	·882						
	0902	4000	·901			4000	·902						
	0908	5000	·923			5000	·922						
	0914	6000	·943			6000	·943						
	0920	6500	·953			6500	·953						
	0925	7000	·964			7000	·964						
	0930	7500	·975			7500	·975						
	0936	8000	·982			8000	·984						
	0941	8110	·985	10633		8110	·985	10607		M.P.P.			
	0956	P.O.O.H				P.O.O.H				PULL OUT OF HOLE.			
	1012	LUB	·812			LUB	·814			@ LUBRICATOR.			
	1027	BLEED				BLEED				DEPRESSURE LUBRICATOR.			

GENERAL REMARKS: KAN TEMPERATURE ELEMENT 29217 $\times 145^{\circ} \rightarrow 378^{\circ}F$
 RECORDER 12977 $\times 157LS$
 CLOCK 2180 $\times 3HR$

E4

0171

Dullingari 17U
Bottomhole Pressure Survey
16 - 21 July, 1992.

PRESSURE BUILDUP

16 - 07 - 92 Ran in the hole with ameradas and reached run depth
7070 ft KB @ 1627 hours. Flow well on 100 % choke.

17 - 07 - 92 Shut well in @ 0800 hours and monitored pressures
until 1108 hours on 21 - 07 - 92 for a buildup time of
99.1 hours.

Element #56432 @ 7058 ft KB

Final B.H.F.P. = 883 psig (6088 kpag)
Final S.I.B.H.P. = 979 psig (6750 kpag)

Element #22945 @ 7070 ft KB

Max. B.H.T. = 263.0 F (128.3 C)

STATIC GRADIENT

21 - 07 - 92 A static gradient was run to 7070 ft KB.

Element #56432 S.I.B.H.P. = 983 psig (6778 kpag)

PRODUCTION SUMMARY

Cumulative production to end of June 1992 = 200.4 E6M3

Average gas production rate for June 1992 = 7.6 E3M3/D

Assume gas production to well shut in for July 1992 = 16.3 days X 7.6 E3M3/D
p = 124 E3M3

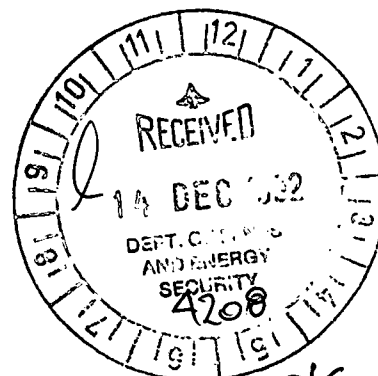
New cumulative = 200,400 E3M3 + 124 E3M3

C = 200,524 E3M3

$$t = \frac{200,524 \text{ E3M3}}{7.6 \text{ E3M3/D}} \times \frac{24 \text{ HOURS}}{\text{DAY}}$$

$$t = 633,233 \text{ hours}$$

RM/ attachment



0/F

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17U
EFF DEPTH		WELL STAT	TOOL HUNG 7058 FT KB
CASING	-	CASING PRESS	ON BOTTOM 1627 920716
LINER	-	TUBING PRESS	OFF BOTTOM 1108 920721
DATE	920716	ELEMENT RANGE 0 - 3108	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 920717
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56432	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BOTTOMHOLE PRESSURE SURVEY

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17U			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
8:00	883.3	883.3	.0	13:00	1107.6	1107.6	5.0				
8:04	931.2	931.2	.1	13:20	1098.4	1098.4	5.3				
8:06	972.4	972.4	.1	13:52	1087.5	1087.5	5.9				
8:09	1004.8	1004.8	.2	14:34	1076.6	1076.6	6.6				
8:13	1044.1	1044.1	.2	15:16	1069.8	1069.8	7.3				
8:17	1073.2	1073.2	.3	15:58	1061.5	1061.5	8.0				
8:19	1085.3	1085.3	.3	17:34	1048.2	1048.2	9.6				
8:19	1094.7	1094.7	.3	19:29	1038.9	1038.9	11.5				
8:23	1102.6	1102.6	.4	21:18	1031.9	1031.9	13.3				
8:25	1107.7	1107.7	.4	23:38	1024.5	1024.5	15.6				
8:28	1112.5	1112.5	.5	1:49	1020.3	1020.3	17.8				
8:32	1113.7	1113.7	.5	4:37	1015.6	1015.6	20.6				
8:38	1111.1	1111.1	.6	8:12	1011.0	1011.0	24.2				
8:45	1105.8	1105.8	.8	11:26	1006.6	1006.6	27.4				
8:52	1101.7	1101.7	.9	15:22	1004.4	1004.4	31.4				
9:02	1100.0	1100.0	1.0	18:14	1002.8	1002.8	34.2				
9:17	1096.7	1096.7	1.3	21:04	1001.2	1001.2	37.1				
9:33	1096.5	1096.5	1.5	0:20	999.3	999.3	40.3				
10:13	1092.7	1092.7	2.2	4:42	996.8	996.8	44.7				
10:41	1092.4	1092.4	2.7	8:19	996.8	996.8	48.3				
10:59	1092.3	1092.3	3.0	12:37	994.3	994.3	52.6				
11:03	1104.3	1104.3	3.1	16:56	992.8	992.8	56.9				
11:10	1116.7	1116.7	3.2	21:07	990.4	990.4	61.1				
11:24	1127.1	1127.1	3.4	1:24	989.7	989.7	65.4				
11:42	1135.4	1135.4	3.7	5:37	989.0	989.0	69.6				
11:57	1142.2	1142.2	4.0	10:03	987.0	987.0	74.1				
12:16	1149.5	1149.5	4.3	14:31	985.7	985.7	78.5				
12:25	1149.4	1149.4	4.4	19:10	984.4	984.4	83.2				
12:35	1133.4	1133.4	4.6	0:38	982.3	982.3	88.6				
12:47	1119.0	1119.0	4.8	5:29	980.4	980.4	93.5				

00174

SURVEY DATA

CO. SANTOS

RUN 01 FIELD DULLINGARI

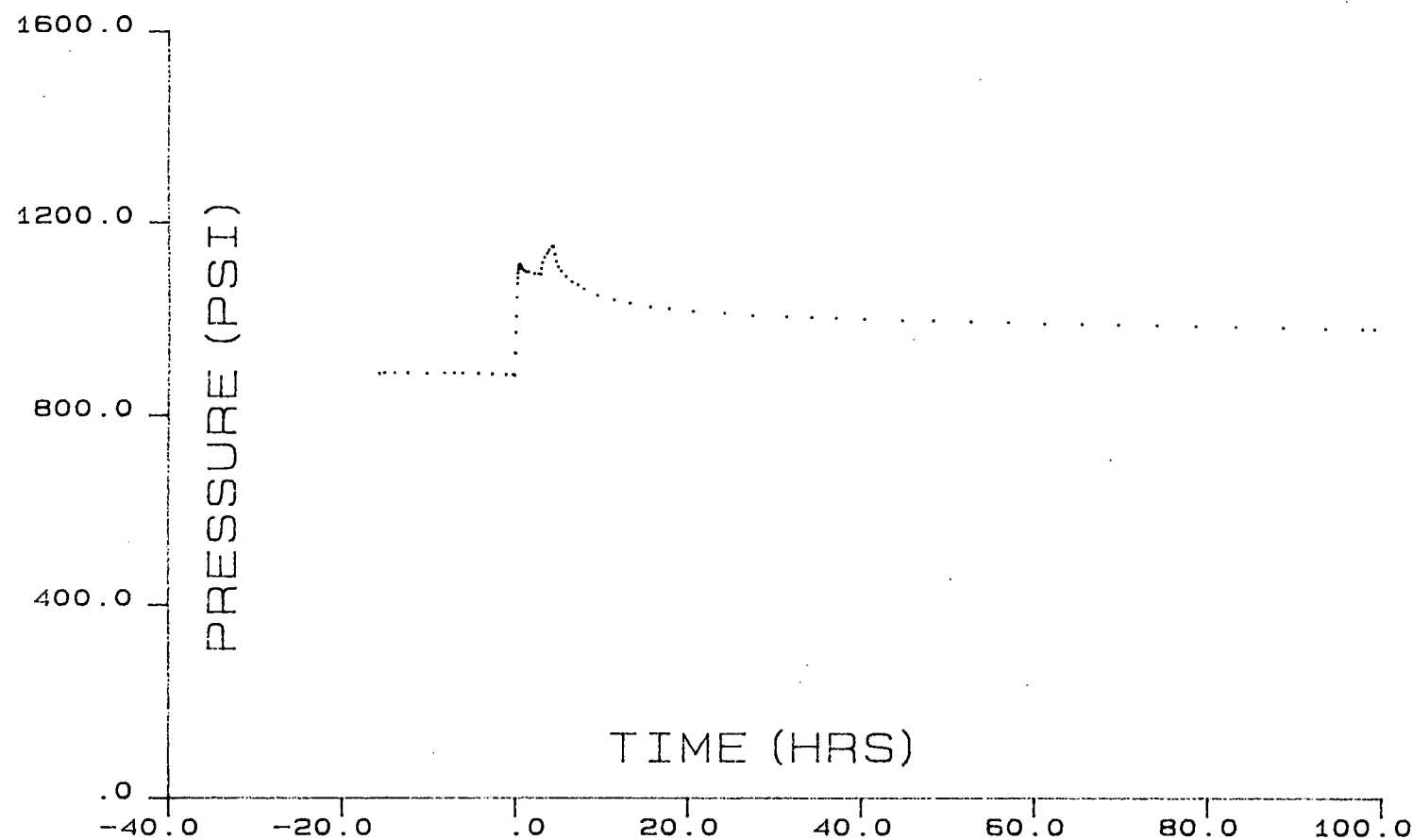
WELL 17U

	TIME	P-T	DP-DT	DTIME		TIME	P-T	DP-DT	DTIME
	9:46	978.8	978.8	97.8	-	0:05	888.6	888.6	-8.1
	11:08	979.2	979.2	99.1		1:02	888.0	888.0	-7.0
-	7:44	887.2	887.2	-15.7		2:01	887.4	887.4	-6.0
-	7:06	887.7	887.7	-15.1		3:50	886.4	886.4	-4.2
-	5:54	889.1	889.1	-13.9		5:25	885.5	885.5	-2.6
-	4:22	888.3	888.3	-12.4		7:01	884.6	884.6	-1.0
-	2:06	887.0	887.0	-10.1		7:49	884.1	884.1	-.2

LUB IN DWT = 224 PSI / OUT = 833 PSI

LUB IN AMERADA = 225 PSI / OUT = 824 PSI

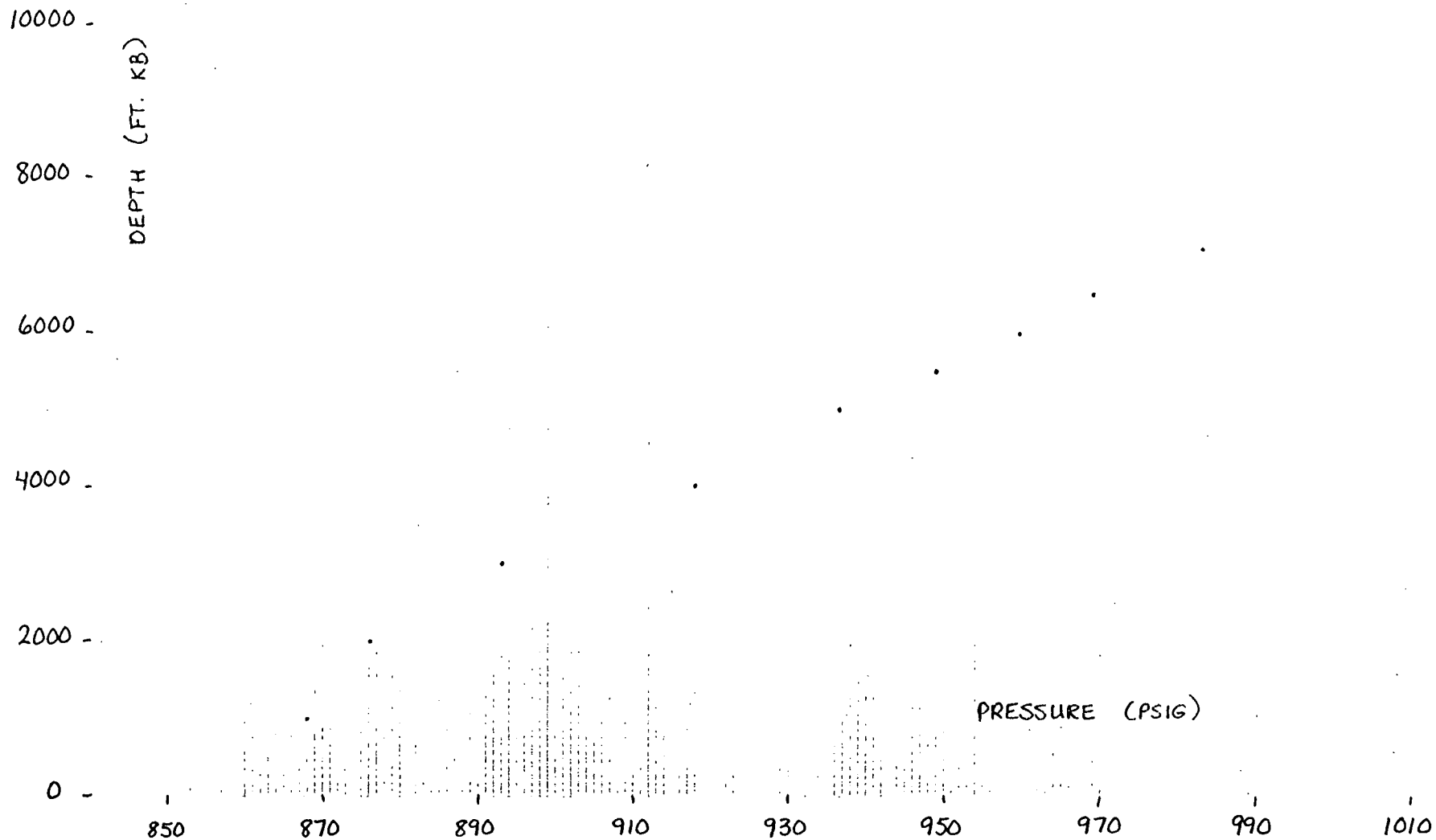
DULLINGARI 17U BOTTOMHOLE PRESSURE SURVEY
16 - 21 JULY 1992
ELEMENT #56432 @ 7058 FT KB



00175

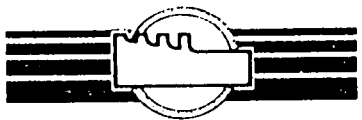
DULLINGARI # 174 - STATIC PRESSURE GRADIENT - 21/07/92.

ELEMENT # 56432 (TOP)



00176

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD

PERFORATIONS: 7157' - 7205' KB

PAGE: 1 OF 2

WELL NAME: DULLINGARI #17 u

FORMATION : TOOLACHEE

DATE: 16.7.92

TEST TYPE : FLOW-BUILD UP

OPR: P. BLACK

DATE/TIME

DESCRIPTION OF EVENTS

16.7.92

1223 ARRIVE ON LOCATION AND RIG UP WIRELINE EQUIPMENT.

1305 R.I.H. WITH 1.75" BLIND BOX

1333 AT 7082' KB AND P.O.O.H.

1400 AT SURFACE WITH TOOL STRING.

1410 PRESSURE LUB

1510 DEPRESSURE LUB

1610 PRESSURE LUB AND R.I.H. WITH B.H.P/B.H.T. GAUGES

1627 AT HANG DEPTH OF 7070' KB

CONTINUE FLOWING WELL OVERNIGHT ON 100% CHOKE.

17.7.92

0800 SHUT WELL IN FOR 96 HRS BUILD UP AND MONITOR PRESSURES

21.7.92

0800 MECHANICAL PROBLEM WITH WIRELINE UNIT

1108 P.O.O.H. WITH GAUGES

1125 AT SURFACE WITH GAUGES AND DEPRESSUR LUB

1225 PRESSURE LUB

1325 DEPRESSURE LUB

1330 PREPARE GAUGES FOR S.G.S.

1342 PRESSURE LUB

1357 DEPRESSURE LUB

1402 PRESSURE LUB AND R.I.H WITH GAUGES

1450 AT BOTTOM GRADIENT STOP OF 7070' KB

1505 P.O.O.H.

open file env #208
Received 14/11/92

00177

CUSTOMER : SANTOS LTD	PERFORATIONS: 7157'-7205' KB	PAGE: 2 OF 2
WELL NAME: DULLINGARI #17 u	FORMATION : TOOLACHEE	DATE: 21-7-92
TEST TYPE : FLOW-BUILD UP		OPR : P. BLACK

[illegible]

CUSTOMER: SANTOS LTD

PERFORATIONS: 7157' - 7205' K13

PAGE: 1 OF 3

WELL NAME: DULLINGARI 417 u

FORMATION: TOOLACHEE

DATE: 16.7.92

TEST TYPE: FLOW-BUILD UP

OPR: P. BLACK

TIME		WELLHEAD DATA						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 MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³10³	OIL BBLS m³	WATER BBLS m³		
16.7.92															
1410		1544	Ø	45	100	PRESSURE LUB									
1510		1516	"	"	"	DEPRESSURE LUB.									
1610		1516	"	"	"	PRESSURE LUB AND R.I.H.									
1627		1516	"	"	"	AT HANG DEPTH OF 7070' K13									
1800		1523	"	"	"										
2200		1523	"	"	"										
17.7.92															
0200		1503	"	"	"										
0600		1503	"	"	"										
0800	0	1523	"	"	"	SHUT WELL IN FOR 96 HRS BUILD UP.									
0815		2668													
0830		3481													
0845		3943													
0900	1	4412													
0915		4709													
0930		5040													
0945		5281													
1000	2	5495													
1015		5722													
1030		5991													
1045		6150													

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : SANTOS LTD

PERFORATIONS: 7157' - 7205' K13

PAGE: 2 OF 3

WELL NAME: DULLINGARI # 17u

FORMATION : TOOLACHEE

DATE: 17-7-92

TEST TYPE : FLOW-BUILD UP

OPR : P. BLACK

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		
17-7-92															
1100	3	6308	0												
1115		6439													
1130		6584													
1145		6626													
1200	4	6681													
1400	6	6763													
1800	10	6129													
2200	14	5948													
18-7-92															
0200	18	5943													
0600	22	5902													
1000	26	4833													
1400	30	5860													
1800	34	5860													
2200	38	5846													
19-7-92															
0200	42	5833													
0600	46	5826													
1000	50	5819													
1400	54	5819													
1800	58	5819													

BLOCKAGE IN RECORDER LINE TO MATRIX NIPPLE.

00180

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER: SANTOS LTD

PERFORATIONS: 7157'-7205' KD

PAGE: 3 OF 3

WELL NAME: DULLINGARI #174

FORMATION: TOOLACHEE

DATE: 19-7-92

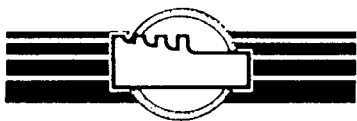
TEST TYPE: FLOW-BUILD UP

OPR: P. BLACK

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 m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³10³	OIL BBLS m³	WATER BBLS m³		
19-7-92															
2200	62	5819	Ø			READING FROM CHART									
20-7-92															
0200	66	5819				READING FROM CHART									
0600	70	5791													
1000	74	5785				} READINGS FROM CHART									
1400	78	5785													
1800	82	5785													
2200	86	5771													
21-7-92															
0200	90	5771				READING FROM CHART									
0600	94	5771													
0800	96	5743				MECHANICAL PROBLEM WITH WIRELINE UNIT									
1108		5743				P.O.O.H WITH GAUGES									
1125		5743				AT SURFACE AND DEPRESSURE LUB.									
1225		5743				PRESSURE LUB									
1325		5743				DEPRESSURE LUB									
						PERFORM S.G.S. SEE ATTACHED DATA									
1615						R.D.M.O.									
1630						HAND WELL BACK TO PRODUCTION									

00181

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD

PERFORATIONS: 7157' - 7205' K13

PAGE: 1 OF

WELL NAME: DULLINGARI #17u

FORMATION : TOOLACHEE

DATE: 16.7.92

TEST TYPE : FLOW-BUILD UP

OPR : P. BLACK

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

56432

56429

22945

DATE

16.7.92

ELEMENT RANGE

PSI

3000

3000

169°-420°F

PRESSURE LUBRICATOR

1410

1544

0

RECORDING SECTION SERIAL NO.

70544

14628

70545

RUN IN HOLE

1610

1516

11

DATE OF CALIBRATION:

@ 290°F

5.6.91

5.6.91

ON DEPTH AT

7070 FT/±

1627

1516

11

CLOCK SERIAL NO.

1103

3

3604

DATE

21.7.92

CLOCK RANGE

120 HRS

120 HRS

120 HRS

PULL OUT OF HOLE

1108

5743

11

LEAD SCREW TYPE

15 TLS

15 TLS

15 TLS

AT SURFACE

1125

5743

11

DEPRESSURE LUBRICATOR

1325

5743

11

ENGAGE SYLUS

DATE

16.7.92

TIME

1403

1403

1403

MAXIMUM BHT AT

FT/M =

°F/C

DISENGAGE SYLUS

DATE

21.7.92

TIME

1331

1331

1331

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

DATE

TIME

REMARKS

92-07-17

0800

SHUT WELL IN FOR BUILDUP.

00182

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD

PERFORATIONS: 7157' - 7205' KB

PAGE: 2 OF 2

WELL NAME: DULLINGARI #17u

FORMATION : TOOLACHEE

DATE: 21.7.92

TEST TYPE : FLOW-BUILD UP 0.5 G.S.

OPR : P. BLACK

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

56432

56429

22945

DATE : 21.7.92

ELEMENT RANGE

3000

3000

169-420°F

PRESSURE LUBRICATOR :

1342

5743

0

RECORDING SECTION SERIAL NO.

70544

14628

70545

RUN IN HOLE :

1402

5743

u

DATE OF CALIBRATION:

D 290°F

56.91

56.91

ON DEPTH AT :

7070 FT/M

1450

5743

u

CLOCK/BATTERY SERIAL NO.

2180

2489

2297

DATE : 21.7.92

CLOCK/BATTERY RANGE

3 HRS

3 HRS

3 HRS

PULL OUT OF HOLE :

1505

5743

u

LEAD SCREW/BATTERY TYPE

15 TCS

15 TCS

15 TCS

AT SURFACE :

1517

5743

u

DEPRESSURE LUBRICATOR :

1542

5743

u

ENGAGE STYLUS/BATTERY DATE 21.7.92 TIME

1336

1336

1336

MAXIMUM BHT AT 7070 FT/M = 263.0 °F/°C

DISENGAGE STYLUS/BATTERY DATE 21.7.92 TIME

1542

1542

1542

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

DATE

TIME

REMARKS

00183

EXPERTEST

WIRELINE & WELL TESTING SERVICE

R.C.N. 008 034 062 PD BOX 354 COWARDILLA 5033

Tested Tuesday, 21st July 1992.

PH. (08) 354 0408 TELEX AAB7183

FAX (08) 43 7408

139 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

CLIENT	LOCATION	FORMATION
Santos Ltd.	DULLINGARI #17u	TOOLACHEE

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	56432	3000	5/ 6/91
Bottom	56429	3000	5/ 6/91

WELL DATA	
PARAMETER	VALUE
DWT In	833 PSIG
DWT Out	833 PSIG
Max BHT	

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.5370	831.3	----	0.5360	833.6	----
1000	0.5610	868.4	0.037	0.5600	870.6	0.037
2000	0.5660	876.2	0.008	0.5660	879.9	0.009
3000	0.5770	893.2	0.017	0.5780	898.4	0.019
4000	0.5930	917.9	0.025	0.5925	920.8	0.022
5000	0.6050	936.5	0.019	0.6060	941.6	0.021
5500	0.6130	948.9	0.025	0.6130	952.4	0.022
6000	0.6200	959.7	0.022	0.6200	963.2	0.022
6500	0.6260	969.0	0.019	0.6260	972.4	0.019
7070	0.6350	992.9	0.024	0.6350	986.3	0.024
LUB.	0.5370	831.3	----	0.5375	835.9	----

GENERAL REMARKS



DOWNHOLE INSTALLATION

Page 1 of 2

Well: Dullingari - 17

K.B to top of tubinghead spool 12.70'

44.08'

PERFORATIONS

Toolachee

7157' - 7162'

7173' - 7187'

7192' - 7205'

Patchawarra

7907' - 7924'

8010' - 8024'

8030' - 8052'

8063' - 8076'

8080' - 8096'

8101' - 8118'

8126' - 8152'

8201' - 8209'

8219' - 8239'

8242' - 8270'

8277' - 8295'

8301' - 8313'

7055.00'

7056.85'

7059.47'

7068.64'

7069.03'

7072.73'

7073.13'

7073.75'

7074.10'

7074.51'

7078.15'

7078.57'

7081.99'

227 Joints 2 3/8" AB 4.7" J55 Tubing

2 3/8" AB x 2 3/8" EU Crossover

Guibersor Stinger Seal Assembly
Refer Remark No. 4.

Packer Guibersor Dual Type RH2 7"

2 3/8" Nu 10rd x 2 3/8" EU 8rd
Crossover Collar

2 3/8" 4.7" J55 EU Pup Joint

2 3/8" EU Collar

2 3/8" EU Landing Nipple

2 3/8" EU 4.7" J55 Pup Joint

2 3/8" EU Collar

2 3/8" EU 4.7" J55 Pup Joint

2 3/8" EU Collar

2 3/8" Perforated Pup Joint with
blanked off bottom

REMARKS

1. Ran 2.25" Blind Box in Long String on April 2nd, 1984 - Hung up at 1020' Cleared with 2.435" swaging tool 14th. April 1984.
2. Ran 2.435" Blind Box in Long String on April 14th, 1984. - Tight spots at 3041', 6565', 6620' and 6830'. (Restrictions at 6565', 6620' and 6830' cleared with 2.435" swaging tool on same date.)
3. 2 'Amerada' bombs were lost during Isochronal Test on 31-1-1983. Not retrieved, but appear to be in fill on bottom.
4. Ran 1.75" Blind Box in Long String on 19th. May 1984 - Hung up at 7064' K.B. Ran in with 1.90" swaging tool but did not clear obstruction 22-5-1984.

P.B.I.D. 8365'

PROPOSED RE/COMPLETION

RE/COMPLETION AS RUN

NOT TO SCALE

DESIGNED

P.E. Dept./ D. Hahn.

DRAFTED

N. Mullane.

DATE

SANTOS LIMITED
A.C.N. 007 550 923

BRIEF PALYNOLOGICAL REPORT

WELL: DULLINGARI NO.17

G.R. WOOD
TNM STUDY - 1993

SAMPLE	DEPTH (LOGGERS)	AGE	STRATIGRAPHY		REMARKS
			BIOSTRATIGRAPHICAL UNIT	INFERRED STRATIGRAPHICAL LIMIT	
FHC 1	7280'6"	EARLY PERMIAN	PP4.2	DARALINGIE FM OR UPPERMOST ROSENEATH SHALE	Bisaccate pollen abundant, <u>M. triradiatus</u> and <u>Q. horridus</u> frequent. <u>P. sinuosus</u> , <u>Didecitriletes</u> spp and ? <u>D. granulata</u> present.
FHC 2	8074'4"	EARLY PERMIAN	PP2.2	PATCHAWARRA FM	Sparse, poorly preserved assemblage. <u>M. tentula</u> prominent, <u>G. trisinus</u> present.
FHC 4	8267	PERMIAN	-	-	Extremely sparse assemblage. Few long ranging species including <u>M. triradiatus</u> and <u>G. micronodosus</u> noted.
FHC 6	8422	EARLY PERMIAN	PP2	PATCHAWARRA FM	Extremely sparse assemblage. Few robust spores noted including <u>P. pseudoreticulata</u> and <u>M. tentula</u> .
FHC 6	8436'6"	PERMIAN	-	-	Almost barren - Few carbonised spores including <u>M. tentula</u> noted.

000186

CUSTOMER : Santos L.T.D.

PERFORATIONS: 7157'-7205'KB

PAGE: 1 OF 2

WELL NAME: Dulligari #17L

FORMATION : Toolachee

DATE: 9.1.94

TEST TYPE : B.H.P.

OPR : S.TAYLOR

DATE/TIME	DESCRIPTION OF EVENTS
9.1.94	
12:30	Arrive on location rig up wire line unit.
13:15	S.W.I. fit sub valve
13:30	Well back on line, 100% choke.
14:00	R.I.H. 1.5" Tool string as per programme.
14:23	Tag P.B.T.D. @ 8328' KB
14:24	P.O.O.H.
14:45	At surface
	Prepare gauges for B.H.P. survey.
15:00	Hang gauges in lubricator pressure up.
16:00	Depressure lubricator.
17:00	Pressure lubricator R.I.H.
17:30	Arrive at hang depth 8110' KB
	Flow well overnight on 100% choke.
10.1.94	
08:00	S.W.I. for 96 HR build up.
14.1.94	
08:00	P.O.O.H. with B.H.P. survey.
08:20	At surface depressure lubricator
09:20	Pressure lubricator
10:20	Depressure lubricator retrieve gauges
	Prepare gauges for S.G.S.

000187

SEQUENCE OF EVENTS

CUSTOMER : Scribes L.T.D

PERFORATIONS:

71,57' - 7205' KB

PAGE: 2 OF 2

WELL NAME: Dullingeri = 17 C

FORMATION :

Toolachee

DATE: 14.1.94

TEST TYPE : B.H.P.

OPR : S. TAYLOR

[illegible]

CUSTOMER : Santos L.T.O.

PERFORATIONS:

7157' - 7205' KB

PAGE: 1 OF 4

WELL NAME: Dulligori * 17 L

FORMATION :

Todachee

DATE: 9.1.94

TEST TYPE : B.H.P.

OPR : S. Taylor

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION						
DATE TIME	SHUT IN TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)	WELLHEAD TEMP (°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				
9.1.94																	
12:30						Arrive on location rig up wire line unit.											
13:15						S.W.I. Fit swab valve											
13:30						Well back on line 100% choke											
14:00						R.I.H 1.5 tool string as per programme											
14:23						Tag P.B.T.D @ 8328' kb											
14:45						At surface											
						Prepare gauges for B.H.P. survey.											
15:00		2468	N/A	70	100	Hang gauges in lubricator pressure up.											
17:00		2468	"	69	100	R.I.H. with B.H.P. survey.											
17:30		2468	"	69	100	Arrive at hang depth 8110' kb											
						Flow well overnight on 100% choke.											
20:30		2468	N/A		100	Note: kill lines installed to both Intermediate & production casings											
10.1.94																	
00:30		2468	N/A		100												
04:30		2468	"		100												
06:30		2468	"	65	100												
08:00	0	2461	"	65	100	S.W.I for 96HR build up.											
08:01		3206	"														
08:02		3434	"														
08:03		3841	"														
08:04		4412	N/A														

000139

000139

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos L.P.

PERFORATIONS: 7157' - 7205' KB

PAGE: 2 OF 4

WELL NAME: Dulligari #17 L

FORMATION : Toobachee

DATE: 10.1.94

TEST TYPE : B.H.P.

OPR : S. Taylor

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	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		
10.1.94															
08:05		4551	N/A												
08:10		4937	"												
08:15		5130	"												
08:30		5371	"												
08:45		5537	"												
09:00	1	5585	"												
09:15		5633	"												
09:30		5675	"												
09:45		5683	"												
10:00	2	5702	"												
10:15		5702	"												
10:30		5750	"												
10:45		5764	"												
11:00	3	5764	"												
11:15		5764	"												
11:30		5771	"												
11:45		5792	"												
12:00	4	5812	"												
14:00	6	5902	"												
18:00	10	5957	"												
22:00	14	5998	N/A												

000190

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos L.T.O.

PERFORATIONS:

7157'-7205'KB

PAGE: 3 OF 4

WELL NAME: Dullingeri #17L

FORMATION :

Toolachee

DATE: 11.1.94

TEST TYPE : B.H.P.

OPR : S.TAYLOR

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	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		
11.1.94															
02:00	18	6033													
06:00	22	6074	N/A												
10:00	26	6088	"												
14:00	30	6102	"												
18:00	34	6102	"												
22:00	38	6116	"												
12.1.94															
02:00	42	6130	N/A												
06:00	46	6219	"												
10:00	50	6226	"												
14:00	54	6240	"												
18:00	58	6247	"												
22:00	62	6261	"												
13.1.94															
02:00	66	6267	N/A												
06:00	70	6274	"												
10:00	74	6281	"												
14:00	78	6281	"												
18:00	82	6295	"												
22:00	86	6316	N/A												

000191

CUSTOMER : Santos L.T.D.	PERFORATIONS: 7157' - 7205' KB	PAGE: 4 OF 4
WELL NAME: Dullingeri #17C	FORMATION : Todachee	DATE: 14.1.94
TEST TYPE : B.H.P. / S.G.S.		OPR : S. Taylor

[illegible]

000169

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos L.T.O.

PERFORATIONS: 7157' - 7205' k3

PAGE: 1 OF 2

WELL NAME: Dulligari #17 L

FORMATION : Toolachee

DATE: 9.1.94

TEST TYPE : B.H.P.

OPR : S. Taylor

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

21379

21821

N/A

DATE : 9.1.94

ELEMENT RANGE

psi

4825

4750

PRESSURE LUBRICATOR :

15:00

2468

N/A

RECORDING SECTION SERIAL NO.

70545

14619

RUN IN HOLE :

17:00

2468

N/A

DATE OF CALIBRATION:

2290°F.

12.7.93

12.7.93

ON DEPTH AT :

8110

FT/

17:30

2468

N/A

CLOCK SERIAL NO.

5

3604

DATE : 14.1.94

CLOCK RANGE

HR

120

120

PULL OUT OF HOLE :

08:00

6343

N/A

LEAD SCREW TYPE

TUS

15

15

AT SURFACE :

08:20

6343

N/A

DEPRESSURE LUBRICATOR :

10:20

6343

N/A

ENGAGE STYLUS

DATE

9.1.94

TIME

14:55

14:55

MAXIMUM BHT AT 8110 FT/ = 285 °F/

DISENGAGE STYLUS

DATE

14.1.94

TIME

10:27

10:27

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

DATE

TIME

REMARKS

000193

SUB-SURFACE PRESSURE SURVEY

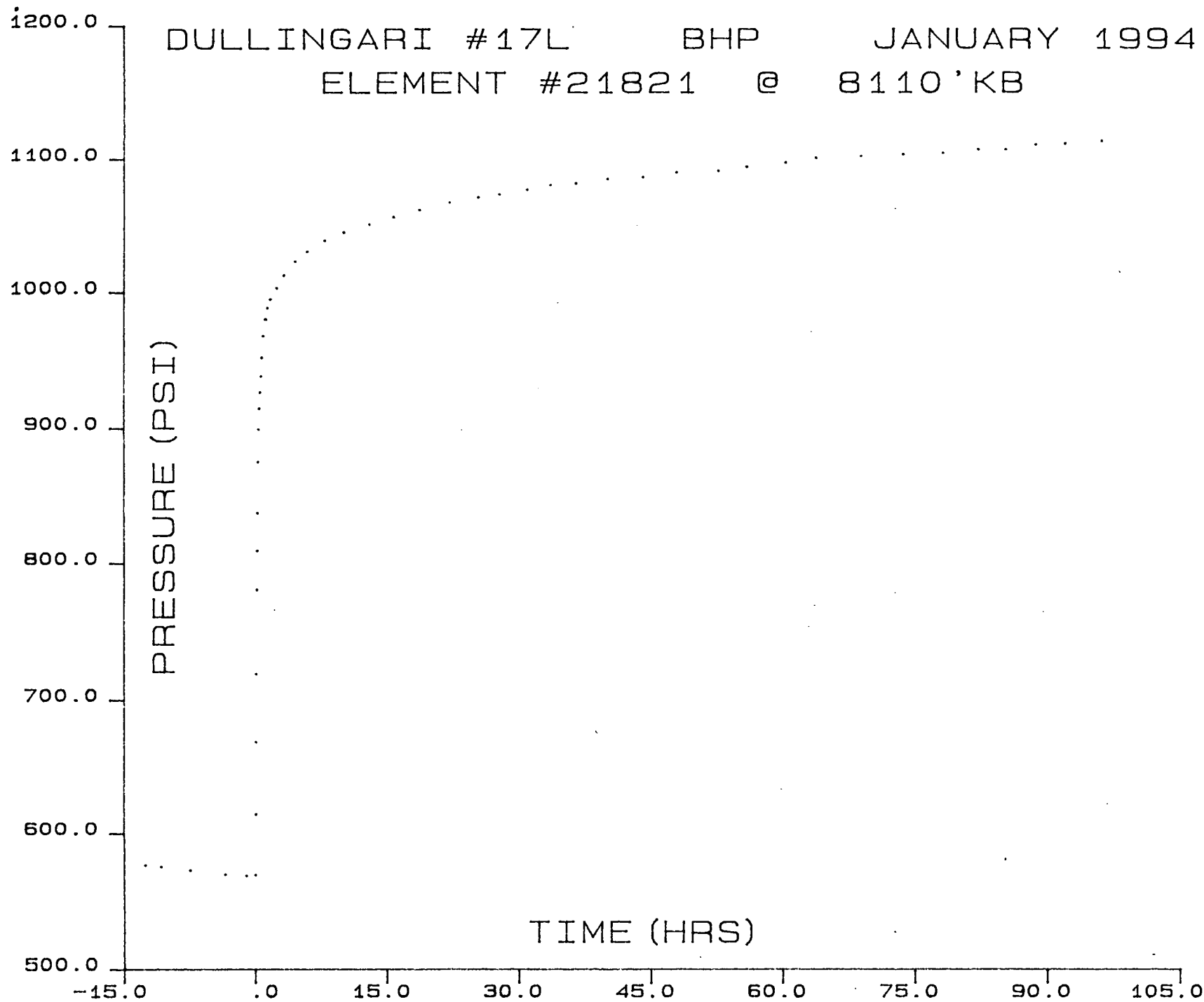
CO. SANTOS		RUN 01 FIELD DULLINGARI	WELL 17L
EFF DEPTH		WELL STAT	TOOL HUNG 8110'KB
CASING	-	CASING PRESS	ON BOTTOM 1730 9/1
LINER	-	TUBING PRESS	OFF BOTTOM 0800 14/1
DATE	940110	ELEMENT RANGE 0 - 5050	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 10/1
MAX TEMP	285	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 21821	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BHP

SURVEY DATA

CO. SANTOS				RUN 01 FIELD DULLINGARI				WELL 17L			
	TIME	P-T	DP-DT	DTIME		TIME	P-T	DP-DT	DTIME		
START BU	8:00	569.8	569.8	.0		6:03	1067.8	1067.8	22.0		
	8:04	614.5	614.5	.1		9:18	1071.6	1071.6	25.3		
	8:04	668.6	668.6	.1		11:42	1073.8	1073.8	27.7		
	8:06	719.2	719.2	.1		14:51	1077.2	1077.2	30.8		
	8:08	781.3	781.3	.1		17:30	1080.8	1080.8	33.5		
	8:10	809.8	809.8	.2		20:22	1082.1	1082.1	36.4		
	8:12	837.3	837.3	.2		23:59	1085.2	1085.2	40.0		
	8:16	875.5	875.5	.3		4:00	1086.6	1086.6	44.0		
	8:20	899.5	899.5	.3		7:47	1090.1	1090.1	47.8		
	8:24	915.0	915.0	.4		12:33	1091.2	1091.2	52.6		
	8:30	926.7	926.7	.5		15:49	1094.3	1094.3	55.8		
	8:35	938.6	938.6	.6		20:12	1097.5	1097.5	60.2		
	8:42	952.3	952.3	.7		23:38	1101.2	1101.2	63.6		
	8:52	968.2	968.2	.9		4:43	1102.2	1102.2	68.7		
	9:07	980.6	980.6	1.1		9:30	1103.6	1103.6	73.5		
	9:20	988.7	988.7	1.3		14:02	1104.4	1104.4	78.0		
	9:42	995.2	995.2	1.7		18:02	1107.2	1107.2	82.0		
	10:24	1003.4	1003.4	2.4		21:10	1106.8	1106.8	85.2		
	11:14	1012.8	1012.8	3.2		0:34	1110.8	1110.8	88.6		
	12:32	1022.6	1022.6	4.5		3:53	1111.6	1111.6	91.9		
	13:53	1030.1	1030.1	5.9		8:00	1113.5	1113.5	96.0	END BU	
	15:53	1039.6	1039.6	7.9	-	4:38	576.8	576.8	-12.6		
	18:02	1046.0	1046.0	10.0	-	2:46	575.4	575.4	-10.8		
	20:56	1051.8	1051.8	12.9		0:35	572.9	572.9	-7.4		
	23:40	1057.3	1057.3	15.7		4:34	569.9	569.9	-3.4		
	2:36	1062.4	1062.4	18.6		6:59	568.8	568.8	-1.0		

LUBRICATOR; DWT: IN: 358 psig / OUT: 920 psig
 AMERADA: IN: 360 psig / OUT: 920 psig

ELEMENT #21379 was also run.



000195

BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos L.T.D.

PERFORATIONS: 7157'-7205' KB

PAGE: 2 OF 2

WELL NAME: Dullingeri #17 L

FORMATION : Toolachee

DATE: 14.1.94

TEST TYPE : B.H.P. / 565

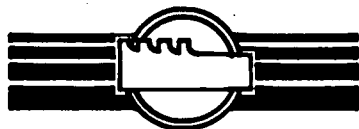
OPR : S. Taylor

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 : 14.1.94			
ELEMENT RANGE	PSI	4825	4750		PRESSURE LUBRICATOR :	10:39	6343	N/A
RECORDING SECTION SERIAL NO.		70545	14619		RUN IN HOLE :	10:59	6343	N/A
DATE OF CALIBRATION:	@ 270°F	12.7.93	12.7.93		ON DEPTH AT : 8110 FT/	12:15	6343	N/A
CLOCK SERIAL NO.		2395	2489		DATE : 14.1.94			
CLOCK RANGE	HR	3	3		PULL OUT OF HOLE :	12:30	6343	N/A
LEAD SCREW TYPE	TLS	15	15		AT SURFACE :	12:48	6343	N/A
					DEPRESSURE LUBRICATOR :	13:08	6343	N/A
ENGAGE STYLUS	DATE 14.1.94 TIME	10:32	10:32		MAXIMUM BHT AT 8110 FT/ = 285 °F/			
DISENGAGE STYLUS	DATE 14.1.94 TIME	13:17	13:17		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

[illegible]

00196

EXPERTEST PTY. LTD.



STATIC PRESSURE GRADIENT SURVEY

Location: DULLINGARI 17 L

Tested: 14th January 1994.

Formation: TOOLACHEE

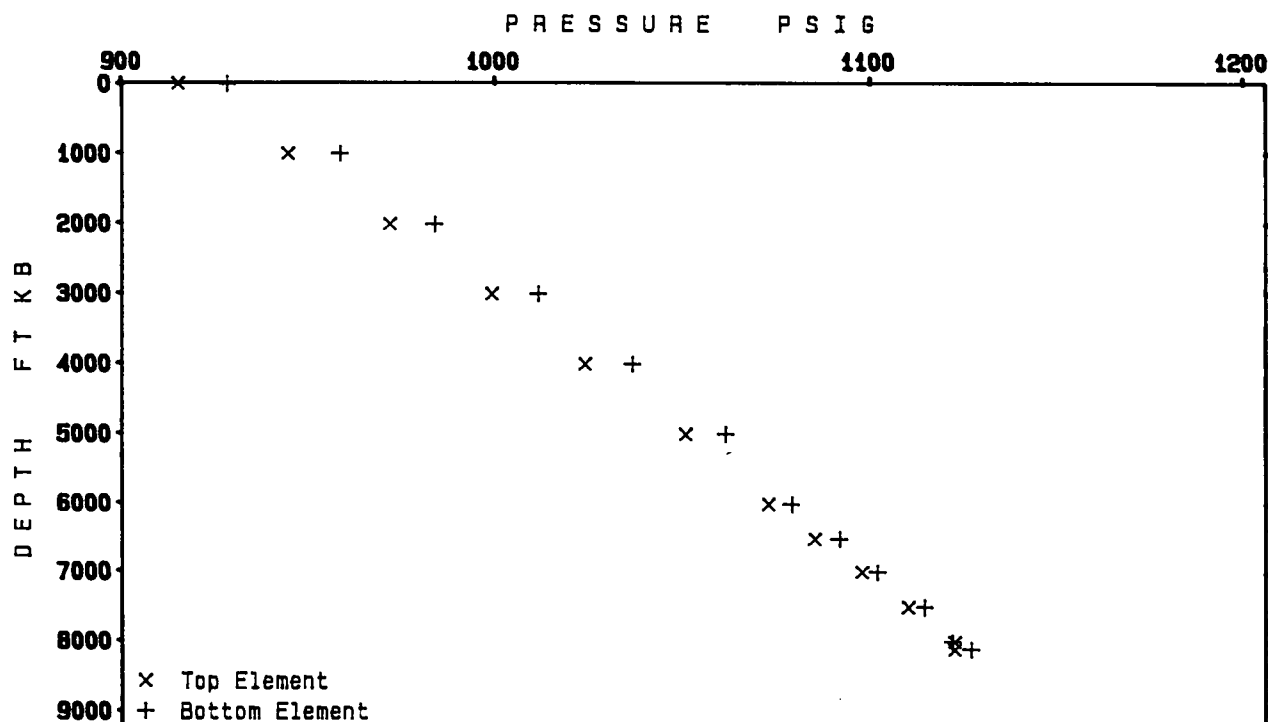
Client: SANTOS LTD.

PRESSURE ELEMENT DATA

Position	Serial No	Range	Calibrated
Top	21379	4825	12/ 7/93
Bottom	21821	4750	12/ 7/93

WELL DATA

DMT In	920 PSIG
DMT Out	920 PSIG
Max BHT	285 F



TOP ELEMENT

BOTTOM ELEMENT

Depth FT KB	Deflection Inches	Pressure PSIG	Gradient PSI/FT	Deflection Inches	Pressure PSIG	Gradient PSI/FT
LUB.	0.3720	915.1	-	0.3660	928.5	-
1000	0.3840	944.7	0.030	0.3780	958.7	0.030
2000	0.3950	971.9	0.027	0.3880	983.8	0.025
3000	0.4060	999.0	0.027	0.3990	1011.4	0.028
4000	0.4160	1023.7	0.025	0.4090	1036.5	0.025
5000	0.4270	1050.8	0.027	0.4190	1061.6	0.025
6000	0.4360	1073.0	0.022	0.4260	1079.2	0.018
6500	0.4410	1085.4	0.025	0.4310	1091.8	0.025
7000	0.4460	1097.7	0.025	0.4350	1101.8	0.020
7500	0.4510	1110.0	0.025	0.4400	1114.4	0.025
8000	0.4560	1122.4	0.025	0.4430	1121.9	0.015
8110	0.4560	1122.4	0.000	0.4450	1126.9	0.046
LUB.	0.3740	920.1	-	0.3680	933.6	-

GENERAL REMARKS