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NUMBER 7237/2

PEL 5 AND PEL 6, TOOLACHEE BLOCK

COOPER BASIN

METTIKA 3

TEST REPORTS

Submitted by

Santos Ltd
1995

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MINES AND ENERGY
SOUTH AUSTRALIA



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ENVELOPE 7237/2

TENEMENT: PEL 5 and PEL 6, Toolachee Block; Cooper Basin

TENEMENT HOLDER: Santos Ltd (operator), Delhi Petroleum Pty Ltd, Vamgas Ltd and Sagasco Resources Ltd

CONTENTS

REPORTS:		MESA NO.
Coppock, S., Robertson, N. and Moore, T., 1990. Field well testing contractor's results of the post - completion cleanup flow and modified isochronal gas production test, 74.5 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra Formation reservoir producing interval 7792-8134 feet depth KB, conducted over the period 14/5 - 3/6/90 (Oilserv Australia Ltd).		7237/2 R 1 Pgs 3-53
Bon, J.G., 1990. Laboratory contractor's report on the results of a partial gas condensate PVT study of Patchawarra Formation reservoir fluid samples from the gas production test recovery obtained on 21/5/90 (Petrolab report no. S-90024 for Santos, 20/9/90).		7237/2 R 2 Pgs 54-74
Smith, A., 1991. Field maintenance contractor's results of the liquids evaluation test plus flowing bottomhole pressure, 96 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 2-11/5/91 (Expertest Pty Ltd).		7237/2 R 3 Pgs 75-101
Bowyer, P., 1991. Field maintenance contractor's results of the liquids evaluation test plus flowing wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 17-24/11/91 (Expertest Pty Ltd).		7237/2 R 4 Pgs 102-128
Wright, M., 1992. Field maintenance contractor's record of the flowing bottomhole pressure, buildup and static gradient surveys of the Patchawarra producing zone attempted over the period 24-26/1/92 - surveys were aborted due to unstable well conditions caused by gas gathering line compressor offtake effects (Expertest Pty Ltd).		7237/2 R 5 Pgs 129-132
Bowyer, P., 1992. Field maintenance contractor's results of the flowing bottomhole pressure, 96 hour reservoir pressure buildup and static wellbore pressure gradient surveys of the Patchawarra producing zone, conducted over the period 14-22/2/92 (Expertest Pty Ltd).		7237/2 R 6 Pgs 133-151
Hull, B., 1995. Field maintenance contractor's results of the flowing wellbore pressure gradient survey of the Patchawarra producing zone, conducted on 8/5/95 (Expertest Pty Ltd).		7237/2 R 7 Pgs 152-156

END OF CONTENTS

2nd SHUT IN PERIOD .

Flow Period

Orifice Size: 1.750 ins
Meter Run: 3.826 ins

[illegible]

0005

3RD SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing	Casing	Temp.	
			kPa	kPa	°C	
28/5/90	0730	0	16679	0	40	Shut well in
	0830	1	18458			
	0930	2	18499			
	1030	3	18513			
	1130	4	18513			
	1230	5	18527			Opened well on rate # 3
	1330	6	18527			

Flow Period

Run No.: 3 Duration of Run: 6 Hours.
Flow Well On: 27/64" Choke.

Orifice Size: 2.000 ins
Meter Run: 3.826 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover		Data	Condensate Production	Water Production
			Tubing	Casing	Temp.	Pf	Hw			
			kPa	kPa	°C	kPa	kPa	°C	m ³ /d	m ³ /d
28/5/90	1330	0	18527	0						
	1430	1	15100	0	38.5	1448	17.4	4.5	2.400	0.480
	1530	2	15321	0	40.5	1441	18.2	7	2.160	0.240
	1630	3	15328	0	42	1551	17.4	2	5.520	1.200
	1730	4	14976	0	43.5	1482	24.9	6	3.120	2.160
	1830	5	15076	0	44.5	1517	24.9	5.5	1.920	NIL
	1930	6	15086	100	45	1517	15.7	5	NIL	0.960

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WELL TEST SUMMARY

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4TH SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing	Casing	Temp.	
			KPa	KPa	°C	
28/5/90	1930	0	15086	100	45	Shut well in
	2030	1	18478			
	2130	2	18513			
	2230	3	18527			
	2330	4	18527			
29/5/90	0030	5	18534			Opened well on rate # 4
	0130	6	18541			

Flow Period

Run No.: 4 Duration of Run: 6 Hours.
Flow Well On: 38/64" Choke.

Orifice Size: 2.750 ins
Meter Run: 3.826 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover Data			Condensate Production m ³ /d	Water Production m ³ /d
			Tubing	Casing	Temp.	Pf	Hw	Temp.		
			KPa	KPa	°C	KPa	KPa	°C		
29/5/90	0130	0	18541	0						
	0230	1	3561	0	44	1620	25.4	23	3.360	24.960
	0330	2	4689	2500	47	1655	26.4	27	7.680	5.520
	0430	3	5275	4500	50	1724	26.9	29	1.920	12.480
	0530	4	8067	6000	52	1779	26.9	31	8.880	1.440
	0630	5	8088	7000	54	1779	26.9	32	6.000	6.000
	0730	6	8060	7800	56	1786	27.4	33	2.400	6.000

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WELL TEST SUMMARY
FINAL STABILIZATION FLOW PERIOD

0007

Flow Period

Run No.: 5 Duration of Run: 48 Hours.
 Flow Well On: 35/64" Choke.

Orifice Size: 2.750 ins
 Meter Run: 3.826 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover Data			Condensate Production m ³ /d	Water Production m ³ /d
			Tubing	Casing	Temp.	Pf	Hw	Temp.		
			kPa	kPa	°C	kPa	kPa	°C		
29/5/90	0730	0								
	0830	1	8791	8800	58.5	1793	26.4	35.5	3.840	5.280
	0930	2	8888	9400	60	1806	27.1	38	4.560	6.240
	1030	3	8888	9900	61	1841	27.1	39	4.320	5.280
	1130	4	8888	10000	62	1841	27.1	33	3.840	5.280
	1230	5	8908	0	63	1855	26.6	33	5.040	6.240
	1330	6	8908	1000	64	1855	26.6	33	3.600	5.520
	1430	7	8922	1400	65	1865	26.6	34.5	4.800	5.760
	1530	8	8922	1700	66	1855	26.6	36	2.880	6.240
	1630	9	8944	2100	67	1855	26.9	36	5.280	5.040
	1730	10	8944	2400	67	1855	26.9	36	4.800	3.600
	1830	11	9019	2500	67	1855	27.4	36	1.200	6.480
	1930	12	9019	2600	67	1855	27.4	37	5.520	6.240
	2030	13	9032	2900	67	1855	27.4	37	3.600	5.760
	2130	14	9053	3000	68	1855	27.4	38	4.080	3.120
	2230	15	9074	3300	68	1855	27.4	38	3.840	7.200
	2330	16	9074	3400	68	1862	27.4	38	2.400	5.520
30/5/90	0030	17	9088	3500	69	1862	27.4	39	5.520	4.320
	0130	18	9101	3600	69	1862	26.9	39	4.320	4.560
	0230	19	9115	3800	69	1862	27.4	39	5.280	4.800
	0330	20	9115	3900	70	1862	27.9	39	1.200	5.520
	0430	21	9129	4000	70	1862	27.9	40	4.560	5.280
	0530	22	9129	4100	70	1848	27.4	40	1.920	5.280
	0630	23	9150	4150	71	1834	27.9	40.5	3.600	5.040
	0730	24	9150	4150	71	1827	27.9	41	3.600	6.480
	0830	25	9150	4150	71	1827	27.9	41	4.320	4.800
	0930	26	9163	0	72	1827	27.9	41	4.080	5.520
	1030	27	9170	0	71.5	1862	27.6	41	2.400	5.280
	1130	28	9177	0	72	1862	27.6	42	3.120	6.000
	1230	29	9184	0	72	1902	27.9	42	1.920	5.280
	1330	30	9191	0	72.5	1903	27.9	42	3.360	6.240
	1430	31	9191	0	72	1931	27.6	41.5	4.800	3.600
	1530	32	9205	0	72	1931	27.6	41.5	4.320	5.280

WELL TEST SUMMARY
FINAL STABILIZATION FLOW PERIOD

0008

Flow Period

Run No.: 5 Duration of Run: 48 Hours.
Flow Well On: 35/64" Choke.

Orifice Size: 2.750 ins
Meter Run: 3.826 ins

[illegible]

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WELL TEST SUMMARY
FINAL BUILD-UP PERIOD

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0009

Date	Time	Shut in Period (Hours)	Tubing Pressure kPa	Casing Pressure kPa	Wellhead Temp. °C	REMARKS
31/5/90	0730	0	9253	1700	75	Shut well in
	0745	0.25	17996	1700		
	0800	0.5	18099	1000		
	0815	0.75	18168	600		
	0830	1	18189	0		
	0845	1.25	18203	0		
	0900	1.5	18210	0		
	0915	1.75	18272	0		
	0930	2	18339	0		
	1030	3	18354	0		
	1130	4	18382	0		
	1230	5	18389	0		
	1330	6	18389	0		
	1400	6.5	18389	0		
	1800	10.5	18389	0		
	2200	14.5	18389	0		
1/6/90	0200	18.5	18382	0		
	0600	22.5	18348	0		
	1000	26.5	18354	0		
	1400	30.5	18361	0		
	1800	34.5	18361	0		
	2200	38.5	18354	0		
2/6/90	0200	42.5	18354	0		
	0600	46.5	18354	0		
	1000	50.5	18354	0		
	1400	54.5	18354	0		
	1800	58.5	18354	0		
	2200	62.5	18354	0		
3/6/90	0200	66.5	18341	0		
	0600	70.5	18341	0		
	0800	72.5	18341	0		
	1000	74.5	18341	0		Begin SGS - P.O.O.H.
	1350					In Lubricator
	1400		18341	0		Rigged Down - End of test.

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WELL TEST SUMMARY
CALCULATION SHEET

0011

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GAS RATES THROUGH SEPARATOR

Run No.	Hw		Pf		Size Orifice Plate		Ft	
	(kPa)	("w.g.)	(kPa)	(psig)	(mm)	(inches)	(°C)	(°F)
1	20.4	82	1786	259	44.450	1.750	5	41.0 ✓
2	14.2	57	1882	273	44.450	1.750	9	48.2 ✓
3	15.7	63	1517	220	50.800	2.000	5	41.0 ✓
4	27.4	110	1786	259	69.850	2.750	33	91.4 ✓
5	27.9	112	1931	280	69.850	2.750	44	111.2 ✓

Separator Gas Properties

Specific Gravity = 0.867 ✓
 TC = 421.0 °R ✓
 PC = 757.4 psia ✓
 CO2 CONTENT = 22.67 mole % ✓

Meter Run = 3.826"

(Note: Well sampled during cleanup)

GAS RATES THROUGH SEPARATOR

Run No.	Q	
	E3 m ³ /d	mmscf/d
1	72.946	2.589
2	62.002	2.201
3	78.451	2.785
4	224.294	7.961
5	230.590	8.185

WP 2548G

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

0012

WELL NAME: Methika # 3 DATE: 14/5 - 3/6 / 1990 ELEMENT NO: Electric Line. DEPTH TESTED: _____
DWT IN: _____ OUT: _____
LUB IN: _____ OUT: _____

SIMPLIFIED ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Cal.	Bottom Hole Temp (°C)	Δp^2 ($\times 10^6$ psia ²)	Flow Rate E 3 m ³ /d	H/Carbon Prod. m ³ /d	Water Prod. m ³ /d	REMARKS
Initial Shut In	134.17	3507.5	✓	147.83	—	—	—	—	$q = C(\bar{p}_R^2 - p_{wf}^2)^n$ slope n = _____ $\bar{p}_R =$ _____ psia $C = \frac{q}{(\bar{p}_R^2 - p_{wf}^2)^n}$ = _____ AOF (MMscfd) = _____
Flow 1	6	3323.2	✓	147.84	1.259		2.400	NIL	
Shut In	6	3506.6	✓	147.84	—	—	—	—	
Flow 2	6	3226.9	✓	147.84	1.883		2.160	1.040	
Shut In	6	3511.4	✓	147.82	—	—	—	—	
Flow 3	6	2959.2	✓	147.79	3.573		2.520	0.840	
Shut In	6	3507.3	✓	147.25	—	—	—	—	
Flow 4	6	2132.1	✓	147.28	7.755		5.040	9.400	
Extended Flow	48	2257.2	✓	146.29	6.902		3.425	5.345	
Final Shut In	72.5 (upto P.O.G.H.)	3463.7	✓	146.67	—	—	—	—	

WP 2548G

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

0013

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	134.17	3507.5						
Flow 1	6	3323.2						
Shut In	6	3506.6						
Flow 2	6	3226.9						
Shut In	6	3511.4						
Flow 3	6	2959.2						
Shut In	6	3507.3						
Flow 4	6	2132.1						
Total=								
Extended Flow	48	2257.2						
Final Shut In	72.5	3463.7						

WP 2548G

GAS WELL DELIVERABILITY TEST CALCULATIONS

0014

L.I.T. (Ψ) ANALYSIS

DISCARDED POINT _____

RESULTS

$$N = \text{_____} \quad \bar{\Psi}_R = \text{_____} \text{ MMpsia}^2/\text{cp}$$

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

$$a, a_t = \frac{\sum \frac{\Delta \Psi}{q} \sum q^2 - \sum q \sum \Delta \Psi}{N \sum q^2 - \sum q \sum q} = \text{_____}$$

$$\text{i.e. } \text{_____} - \Psi_{wf} = \text{_____} q + \text{_____} q^2$$

$$b = \frac{N \sum \Delta \Psi - \sum q \sum \frac{\Delta \Psi}{q}}{N \sum q^2 - \sum q \sum q} = \text{_____}$$

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

$$\text{i.e. } \text{_____} - \Psi_{wf} = \text{_____} q + \text{_____} q^2$$

(EXTENDED FLOW)

$$\Delta \Psi = \text{_____} \quad q = \text{_____} \quad b = \text{_____}$$

$$a = \frac{\Delta \Psi - b q^2}{q} = \text{_____}$$

DELIVERABILITY:

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

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

$$\text{A.O.F.} = \text{_____} \text{ MMSCFD} \quad n = \text{_____}$$

$$\text{Total Volume of Gas Produced During Test} = \text{_____} \text{ MMSCF}$$

$$\text{Condensate} = \text{_____} \text{ Bbls}$$

$$\text{Water} = \text{_____} \text{ Bbls}$$

REMARKS

Interpreted by:

Date:

ISO - CHRONAL AND BUILD-UP SURVEY

Well: METTIKA #3Date: 14-5-90

Lubricator Data:

Pressure with D.W.T. 2692 PSITime Pressured 0915Time Depressed 0835Time Run in Hole 1005Time off Bottom 0730

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56508 - 0 - 4000 PSI</u>	
Recorder No.	<u>55387</u>	
Clock and Lead Screw Data	<u>H-7800 180 HRS. S.P.</u>	
Engage Stylus	Date: <u>14-5-90</u> Time: <u>0818</u>	Date: / Time:
Disengage	Date: <u>16-5-90</u> Time: <u>1139</u>	Date: / Time:

Remarks:

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G. KPA	Casing P.S.I.G. KPA	Wellhead Temp.	Remarks
<u>14-5-90</u>	<u>0915</u>		<u>18561</u>			<u>PRESS UP LUBRICATOR</u>
	<u>1005</u>		<u>18582</u>			<u>RIH</u>
	<u>1105</u>					<u>START CORRELATION</u>
	<u>1115</u>		<u>18582</u>	<u>0</u>		<u>AT DEPTH 7750' KB</u>
	<u>1300</u>		<u>18554</u>	<u>0</u>		<u>OPEN WELL TO FLARE.</u>
	<u>1400</u>		<u>15727</u>	<u>0</u>	<u>31</u>	
	<u>1500</u>		<u>16769</u>	<u>1724</u>	<u>33.5</u>	
	<u>1600</u>		<u>15769</u>	<u>3585</u>	<u>34</u>	
	<u>1800</u>		<u>15783</u>	<u>5600</u>	<u>35</u>	
	<u>2000</u>		<u>15548</u>	<u>9000</u>	<u>39</u>	
	<u>2200</u>		<u>15734</u>	<u>0</u>	<u>41</u>	
<u>15-5-90</u>	<u>0000</u>		<u>15865</u>	<u>2000</u>	<u>43</u>	
	<u>0200</u>		<u>15955</u>	<u>2250</u>	<u>43.5</u>	
	<u>0400</u>		<u>16203</u>	<u>3500</u>	<u>45.5</u>	
	<u>0600</u>		<u>16424</u>	<u>3550</u>	<u>45.5</u>	
	<u>0800</u>		<u>16492</u>	<u>3550</u>	<u>46.5</u>	
	<u>1000</u>		<u>16493</u>	<u>4500</u>	<u>47.5</u>	
	<u>1200</u>		<u>17672</u>	<u>4300</u>	<u>47.0</u>	
	<u>1400</u>		<u>17665</u>	<u>1500</u>	<u>46</u>	
	<u>1600</u>		<u>17541</u>	<u>0</u>	<u>44</u>	
	<u>1800</u>		<u>17472</u>	<u>0</u>	<u>43.5</u>	
	<u>2000</u>		<u>17444</u>	<u>0</u>	<u>42.5</u>	
	<u>2200</u>		<u>17389</u>	<u>0</u>	<u>42</u>	

ISO - CHRONAL AND BUILD-UP SURVEY

Yell:.....METTIKA #3

Date: 16-5-90

Pressure with D.W.T. 17113 KPA

Time Pressured..... ~~E~~ 1244

Time Depressured.....8.40

Time Run in Hole.....1305.

Time off Bottom.....7.30

Bomb No. 2 Data

Element No. and Range	56508	0-1000 PSI		
Recorder No.	55387			
Clock and Lead Screw Data	F 23707	120 H.R. S.P.		
Engage Stylus	Date: 16.5.90	Time: 1200	Date:	Time:
Disengage	Date: 17.5.90	Time: 11.27	Date:	Time:

Remarks:.....

[illegible]

Well: NETTIKA #3

Date: 16-5-90

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[illegible]

ISO - CHRONAL AND BUILD-UP SURVEY

Well: METTICA #3 Date: 17.5.90

Lubricator Data:

Pressure with D.W.T. 2522 PSI (17389 KPA)Time Pressured 12.05 Time DepressedTime Run in Hole 12.15 Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

/ OF

Element No. and Range	<u>56508</u>	<u>0-4000 PSI</u>
Recorder No.	<u>55387</u>	
Clock and Lead Screw Data	<u>F 23707</u>	<u>120 HR. S.P.</u>
Engage Stylus	Date: <u>17.5.90</u> Time: <u>11.38</u>	Date: Time:
Disengage	Date: <u>20.5.90</u> Time: <u>0800</u>	Date: Time:

Remarks:

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. C	Remarks
17.5.90	1200		17389	1800	46°	
	1400		17423	1400	46°	
	1600		17327	1400	46°	
	1800		17037	2000	46°	
	2000		17237	2500	47°	
	2200		17313	2600	47.5°	
	2400		17389	2600	47°	
18.5.90	0200		17375	2600	47°	
	0400		17403	2600	47°	
	0600		17403	2600	47°	
	0800		17079	2900	47°	
	1000		17237	3250	47.5°	
	1200		17237	3400	48°	
	1400		17231	3550	48°	
	1600		17231	3600	48°	
	1800		17231	3700	48°	
	2000		17231	3850	48°	
	2200		17044	4000	48.5°	
	2400		17196	4300	48.5°	
19.5.90	0200		17182	4500	48.5°	
	0400		17210	4500	48.5°	
	0600		17148	4520	49°	
	0800		17148	4650	49°	

Well: METTUKA #3 Date: 19.5.90

Lubricator Data:

Pressure with D.W.T. 2522 PSI (17389 KPA)

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

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

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	56508	0-4000 PSI	
Recorder No.	55387		
Clock and Lead Screw Data	F23707	120 HR. S.P.	
Engage Stylus	Date: 17.5.90	Time: 11.38	Date: Time:
Disengage	Date: 20.5.90	Time: 0855	Date: Time:

Remarks:.....

TIME OUT ON THE 22-5-1990 @ 11:38

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp.	Remarks
19.5.90	1000		17155	4800	49	
	1200		17162	4800	49	
	1400		17162	4800	49.5	
	1600		17182	4800	49	
	1800		17203	4800	49	
	2000		17217	4800	49	
	2200		17217	4800	49	
	2400		17203	4800	49	
20.5.90	0200		17203	4800	49	00030 E/LINE DOWN.
	0400		17196	4800	49	
	0600		17196	4800	49	
	0800		17858	4750	49	
	1000		17382	4750	49	
	1200		17816	4750	49	
	1400		17313	3175	47	
	1600		17354	3550	47.5	
	1800		17389	3550	47.5	
	2000		17458	3200	47.5	
	2200		17554	3400	47	
	2400		17285	3400	47	

SANTOS LTD.

0020

ISO - CHRONAL AND BUILD-UP SURVEY

Well: MATTIKA #3Date: 20-5-90

Lubricator Data:

Pressure with D.W.T. 17727 KPATime Pressured. 1130

Time Depressed.

Time Run in Hole. 1135

Time off Bottom.

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56508</u>	<u>0-4000 Psi</u>	
Recorder No.	<u>55387</u>		
Clock and Lead Screw Data	<u>F23707</u>	<u>120 HR</u> <u>SINGLE PITCH</u>	
Engage Stylus	Date: <u>20-5-90</u> Time: <u>1100</u>	Date:	Time:
Disengage	Date: <u>22-5-90</u> Time: <u>0945</u>	Date:	Time:

Remarks:

.....

.....

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead PSI KPA	Casing PSI KPA	Wellhead Temp. C	Remarks
<u>20-5-90</u>	<u>1130</u>		<u>17725</u>	<u>4750</u>	<u>49</u>	<u>PRESSURE UP LUBRICATOR.</u>
	<u>1200</u>		<u>17816</u>	<u>4750</u>	<u>49</u>	<u>F.R.I.F.</u>
	<u>1300</u>		<u>17762</u>	<u>3000</u>	<u>46</u>	
	<u>1330</u>					<u>ROCK CHOKER</u>
	<u>1400</u>		<u>17313</u>	<u>3175</u>	<u>47</u>	
	<u>1410</u>					<u>ROCK CHOKER</u>
	<u>1500</u>		<u>17271</u>	<u>3500</u>	<u>48</u>	
	<u>1600</u>		<u>17354</u>	<u>3550</u>	<u>47.5</u>	
	<u>1700</u>		<u>17389</u>	<u>3500</u>	<u>47.5</u>	
	<u>1800</u>		<u>17389</u>	<u>3550</u>	<u>47.5</u>	
	<u>1900</u>		<u>17382</u>	<u>3250</u>	<u>47.5</u>	
	<u>2000</u>		<u>17458</u>	<u>3200</u>	<u>47.5</u>	
	<u>2100</u>		<u>17444</u>	<u>3400</u>	<u>47.5</u>	
	<u>2200</u>		<u>17554</u>	<u>3400</u>	<u>47</u>	
	<u>2300</u>		<u>17554</u>	<u>3400</u>	<u>47</u>	
	<u>2400</u>		<u>17285</u>	<u>3400</u>	<u>47</u>	
<u>21-5-90</u>	<u>0200</u>		<u>17300</u>	<u>3400</u>	<u>47</u>	
	<u>0400</u>		<u>17313</u>	<u>3400</u>	<u>46.5</u>	
	<u>0600</u>		<u>17327</u>	<u>3400</u>	<u>46.5</u>	
	<u>0800</u>		<u>17320</u>	<u>3400</u>	<u>46.5</u>	
	<u>1000</u>		<u>17320</u>	<u>3300</u>	<u>46.5</u>	
	<u>1200</u>		<u>17327</u>	<u>3100</u>	<u>46.5</u>	
	<u>1400</u>		<u>17299</u>	<u>3100</u>	<u>46.5</u>	

Well: Date:

Pressure with D.W.T.

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:

CONTINUATION

Well-Head Data for Final Build-up

[illegible]

4

SANTOS LTD.

0022

ISO - CHRONAL AND BUILD-UP SURVEY

Well: MATTIKA #3 Date: 22-5-90

Lubricator Data:

Pressure with D.W.T. 18548 2PATime Pressured. 1217 Time Depressed. 1100 on 25-5-90Time Run in Hole. 1230 Time off Bottom. 0930

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	<u>56508</u>	<u>0 - 4000 Psi</u>	
Recorder No.	<u>55387</u>		
Clock and Lead Screw Data	<u>F23707</u>	<u>120 HR</u> <u>SINGLE PITCH</u>	
Engage Stylus	Date: <u>22-5-90</u> Time: <u>1100</u>	<u>115</u>	Date: Time:
Disengage	Date: Time:		Date: Time:

Remarks:

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead P.S.I.G. KPA	Casing P.S.I.G.	Wellhead Temp.	Remarks
22-5-90	1217		18548	Ø		PRESSURE UP LUB
	1230					RUN IN HOLE
	1400		18548			
	1800		18541			
	2200		18527			
23-5-90	0200		18513			
	0600		18506			
	1000		18499			
	1400		18499			
	1800		18492			
	2200		18492			
24-5-90	0200		18492			
	0600		18492			
	1000		18492			
	1400		18492			
	1800		18479			
	2200		18479			
25-5-90	0200		18479			
	0600		18479			
	0930		18479			PULL OUT OF HOLE
	1100		18479			SURFACE DEPRESSURE

ISO - CHRONAL AND BUILD-UP SURVEY

Date: 27, 5, 1990

0023

Vell: METTIKA #3

Lubricator Data:

Pressure with D.W.T. 18410 KPA

Time Pressured 27/5/90 0830

Time Depressured

Time Run in Hole 0930

Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	0-4000 PSI	
Recorder No.		
Clock and Lead Screw Data	120 HR CLOCK SINGLE PITCH	
Engage Stylus	Date: 27/5/90 Time: 0754	Date: Time:
Disengage	Date: 3/6/90 Time: 1400 OVERTIME	Date: Time:

Remarks:

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead	Casing	Wellhead Temp. C	Remarks
27/5/90	0700					RIG UP E/LINE
	0830		18410	Ø	20	PRESSURE UP LUB
	0930					RUN IN HOLE
	1130					HANG AT 8150' KB
	1330		18410	Ø	20	OPEN ON 13/6A 1ST RATE.
	1430		17582	Ø		
	1530		17465	Ø		
	1630		17189	Ø		
	1730		17217	Ø		
	1830		17217	Ø		
	1930		17217	Ø		SHUT IN FOR B/D.
	2000		18437	Ø		
	2030		18458	Ø		
	2100		18472	Ø		
	2130		18485	Ø		
	2200		18499	Ø		
	2230		18506	Ø		
	2300		18506	Ø		
	2330		18506	Ø		
	2400		18506	Ø		
28/5/90	0030		18506	Ø		
	0100		18506	Ø		
	0130		18506	Ø	7	OPEN FOR 2ND RATE 21/6A

ISO - CHRONAL AND BUILD-UP SURVEY CONTINUATION

Well: METTICA #3Date: 28/5/1990
Page 2 of

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. C	Remarks
28/5/90	0230		16224	Ø	35.5	
	0330		16403	Ø	37	
	0430		16527	Ø	38	
	0530		16548	Ø	39	
	0630		16679	Ø	39	
	0730		16679	Ø	40	SHUT IN FOR B/U.
	0800		18430	Ø		
	0830		18458	Ø		
	0900		18479	Ø		
	0930		18499	Ø		
	1000		18506	Ø		
	1030		18513	Ø		
	1100		18513	Ø		
	1130		18513	Ø		
	1200		18520	Ø		
	1230		18527	Ø		
	1300		18527	Ø		
	1330		18527	Ø		OPEN ON 27/64 FOR 31
	1430		15100	Ø	38.5	RATE
	1530		15321	Ø	40.5	
	1630		15328	Ø	42	
	1730		14976	Ø	43.5	
	1830		15079	Ø	44.5	
	1930		15086	100	45	SHUT IN FOR B/U
	2000		18389	100		
	2030		18478	Ø		
	2100		18485	Ø		
	2130		18513	Ø		
	2200		18527	Ø		
	2230		18527	Ø		
	2300		18527	Ø		
	2330		18527	Ø		
	2400		18534	Ø		
29/5/90	0030		18534	Ø		
	0100		18534	Ø		
	0130		18541	Ø		

SANTOS LTD.

ISO - CHRONAL AND BUILD-UP SURVEY CONTINUATION

Well: METTICA #3Date: 29/5/90

Page 3 of 4

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp.	Remarks
29/5/90	0130		18541	Ø		BEGIN 4TH RATE 38/64
	0230		3551	Ø	44	} SUSPECT FAULTY DWT SENSOR LINE
	0330		4689	2500	47	
	0430		5275	4500	50	
	0530		8067	6000	52	
	0630		8088	7000	54	
	0730		8060	7800	56	BEGIN EXTENDED RATE 35/64
	0830		8791	8800	58.5	
	0930		8888	9400	60	
	1030		8888	9900	61	
	1130		8888	10000	62	
	1230		8908	Ø	63	1215 BLEED OF ANNULUS
	1330		8908	1000	64	
	1430		8922	1400	65	
	1530		8922	1700	66	
	1630		8984	2100	67	
	1730		8984	2400	67	
	1830		9019	2500	67	
	1930		9019	2600	67	
	2030		9032	2900	67	
	2130		9053	3000	68	
	2230		9074	3300	68	
	2330		9074	3400	68	
30/5/90	0030		9088	3500	69	
	0130		9101	3600	69	
	0230		9115	3800	69	
	0330		9115	3900	70	
	0430		9129	4000	70	
	0530		9129	4100	70	
	0630		9150	4150	71	
	0730		9150	4150	71	
	0830		9150	4150	71	
	0930		9163	Ø	72	BLEED OFF ANNULUS
	1030		9170	Ø	71.5	
	1130		9177	Ø	72	
	1230		9184	Ø	72	

SANTOS LTD.

0026

ISO - CHRONAL AND BUILD-UP SURVEY CONTINUATION

Well: METTICA # 3Date: 30/5/90Page 4 of 4

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead	Casing	Wellhead Temp.	Remarks
30/5/90	1330		9191	Ø	72.5	
	1430		9191	Ø	72	
	1530		9205	Ø	72	
	1630		9212	600	72	
	1730		9219	1000	73	
	1830		9219	1100	74	
	1930		9232	1100	73	
	2030		9232	1100	73	
	2130		9232	1200	74	
	2230		9232	1300	73	
	2330		9246	1400	74	
31/5/90	00		9246	1400	74	
	0130		9239	1500	73	
	0230		9246	1600	73	
	0330		9246	1600	74	
	0430		9246	1600	74	
	0530		9246	1600	73	
	0630		9253	1700	75	
	0730					SHUT IN FOR FINAL B/UP
	0745		17996	1700		
	0800		18099	1000		
	0815		18168	600		
	0830		18189	0		
	0845		18203			
	0900		18210			
	0915		18272			
	0930		18334			
	1030		18354			
	1130		18382			
	1230		18389			
	1330		18389			
	1400		18389			
	1800		18389			
	2200		18389			
1-6-90	0200		18382			
	0600		183840			

ISO - CHRONAL AND BUILD-UP SURVEY

Well: Date:

Pressure with D.W.T.

Time Pressured.

~~Time Depressed~~

Time Run in Hole

~~Time off Bottom~~

Bomb No. 1 Data

Bomb No. 2 Data

Bomb No. 2 Data			
Element No. and Range			
Recorder No.			
Clock and Lead Screw Data			
Engage Stylus	Date:	Time:	
Disengage	Date:	Time:	

Remarks:

CONTINUATION

Well-Head Data for Final Build-up

[illegible]

0028

CLIENT: SANTOS LTD

WELL: METTIKA # 3

DATE: 13TH MAY, 1990

TEST: CLEAN UP/BUILD UP

SEQUENCE OF EVENTS:

PAGE NO: 1

DATE:	TIME:	REMARKS:
12/5/90	1900	Mobilise PT package to Mettika # 3. Stand down for night.
13/5/90	800	Start PT & E-Line rig up. Run dummy with 1.75" gauge cut 8264' KB. P.O.O.H. No obstructions. No problems.
14/5/90	800	Rig up electric line & HP gauge S/N 544.
	916	Open swab valve & pressure up lubricator.
	1000	R.I.H. to 7750'.
	1116	Hang off at 7750' KB. Monitor shut in BHP for 2 hrs prior to.
14/5/90	1300	Open well for clean up.
15/5/90	0	Monitor FBHP for clean up.
16/5/90	0	Monitor FBHP for clean up.
	231	Gauge failed. Wait on daylight to P.O.O.H.
16/5/90	730	P.O.O.H. to check gauge.
	830	In lubricator.
	840	Rig down Electric line & trouble shoot faulty gauge.
	1030	HP gauge failed. Rig up GRC gauge S/N 56027. Rehead rope & RPG-3 Amerada.
	1230	Stab lubricator on wellhead.
	1244	Open swab valve & pressure up lubricator.
	1305	R.I.H. for Gradient Survey.
	1319	Stop # 1 1000' KB.
	1610	R.I.H.
	1619	Stop # 2 2000' KB.
	1643	R.I.H.
	1651	Stop # 3 3000' KB.
	1712	R.I.H.
	1720	Stop # 4 4000' KB.

cont/2

SEQUENCE OF EVENTS:

PAGE NO: 2

DATE:	TIME:	REMARKS:
	1736	R.I.H.
	1745	Stop # 5 5000' KB.
	1756	R.I.H.
	1805	Stop # 6 6000' KB.
	1817	R.I.H.
	1827	Stop # 7 7000' KB.
	1836	R.I.H.
	1844	Stop # 8 7750' KB.
	1908	Gauge failed. Wait on daylight to retrieve gauge.
17/5/90	800	P.O.O.H.
	900	In lubricator. Trouble shoot gauge. Fault found in housing connection. Rehead rope socket & reload RPG-3.
	1150	Stab lubricator on wellhead.
	1205	Open swab valve & pressure up lubricator.
	1215	R.I.H.
	1324	Hang off at 8150' KB. Monitor FBHP for clean up.
18/5/90	0	Monitor FBHP for clean up.
19/5/90	0	Monitor FBHP for clean up.
20/5/90	10	Gauge failed. Wait on daylight to retrieve gauge.
	730	P.O.O.H.
	830	In lubricator.
	845	Trouble shoot gauge & tool string. Fault (broken connection found in cable head. Rehead rope socket & reload RPG-3.
	1126	Open swab valve & pressure up lubricator.
	1135	R.I.H.
	1255	Hang off at 8150' KB. Monitor FBHP for clean up.

cont/3

SEQUENCE OF EVENTS:

PAGE NO: 3

DATE:

TIME:

REMARKS:

DATE	TIME	REMARKS
21/5/90	0	Monitor FBHP for clean up.
	1804	Start choke setting determination. Rate # 1 ^{8.4th} ".
	1839	Rate # 2 ^{21.4th} ".
	2019	Rate # 3 ^{27.4th} ".
	2219	Rate # 4 ^{35.4th} ".
	2317	Rate # 5 ^{38.4th} ".
	2320	Sut in well for build up.
	2322	Gauge failed. Wait on daylight to P.O.O.H.
22/5/90	730	P.O.O.H.
	900	In lubricator. Trouble shoot gauge & tool string. Found wire in rope socket. Cut 150' wire & reheaded rope socket.
	1130	Redress gauge & RPG-3. Rig up GRC gauge S/N 56027.
	1217	Open swab valve & pressure up lubricator.
	1230	R.I.H.
	1405	Hang off at 8150' KB. Monitor SIBHP for build up.
23/5/90	0	Monitor SIBHP for build up.
	330	G.I.H. leak & reseal.
	520	G.I.H. leak & reseal.
24/5/90	0	Monitor SIBHP for build up.
25/5/90	0	Monitor SIBHP for build up.
	930	P.O.O.H.
	1030	In lubricator.
	1100	Rig down electric line & swab valve. Redress rope socket, & G.I.H. Wait on instructions from town. Well still shut in, build up.
26/5/90	0	Service electric line equipment.
27/5/90	700	Rig up electric line.
	800	Stab lubricator on wellhead.
	817	Power up GRC EPg-520 gauge S/N 56027.
	830	Open swab valve & pressure up lubricator.
	930	R.I.H.
	1130	Hang off at 8150' KB.
	1330	Start Isochronal test. Open well for Rate# 1 ^{13.4th} ".

cont/4

0031

SEQUENCE OF EVENTS: PAGE NO: 4

DATE:	TIME:	REMARKS:
28/5/90	130	Open well for Rate # 2 ²¹ °4th".
	730	Shut in well for build up.
	1330	Open well for Rate # 3 ²⁷ °4th".
	1930	Shut in well for build up.
29/5/90	130	Open well for Rate # 4 ³⁸ °4th".
	730	Decrease choke to ³⁵ °4th" for Extended flow.
30/5/90	0	Monitor extended flow.
31/5/90	730	FFBHP 15563 kPa. FFBHT 146.3 deg C.
	730	Shut in well at wing valve for build up.
1/6/90	0	Monitor SIBHP for build up.
2/6/90	0	Monitor SIBHP for build up.
3/6/90	0	Monitor SIBHP for build up.
	800	FSIBHP 23882 kPa. FSIHT 146.7 deg C.
	803	P.O.O.H. for Static Gradient Survey.
	807	Stop # 1 8100' KB.
	830	P.O.O.H.
	833	Stop # 2 8000' KB.
	851	P.O.O.H.
	853	Stop # 3 7963' KB.
	923	P.O.O.H.
	927	Stop # 4 7750' KB.
	1000	P.O.O.H.
	1005	Stop # 5 7500' KB.
	1023	P.O.O.H.
	1029	Stop # 6 7000' KB.
	1047	P.O.O.H.
	1052	Stop # 7 6500' KB.
	1110	P.O.O.H.
	1115	Stop # 8 6000' KB.
	1133	P.O.O.H.
	1143	Stop # 9 5000' KB.
	1157	P.O.O.H.
	1206	Stop # 10 4000' KB.
	1226	P.O.O.H.
	1234	Stop # 11 3000' KB.
	1252	P.O.O.H.
	1259	Stop # 12 2000' KB.
	1316	P.O.O.H.
	1322	Stop # 13 1000' KB.
	1339	P.O.O.H.
	1352	Stop # 14 2' KB. In lubricator.
	1432	Close swab valve 7 bleed down lubricator. Gauge to atmosphere.
	1450	End of test. Rig down package.

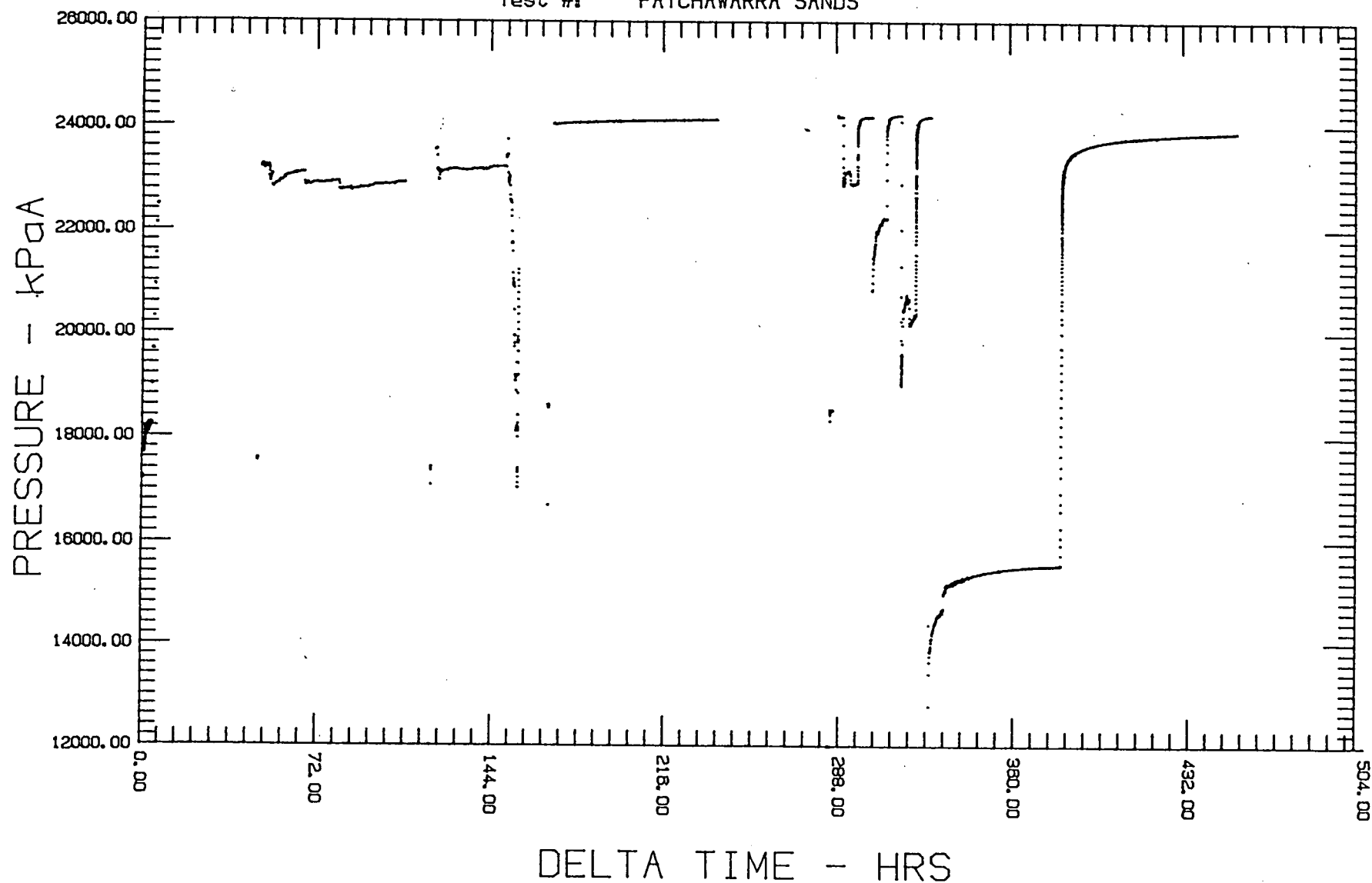
0032

Plot starting date: 5/15/90
time: 12:37:29

Gauge S/N

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
CLEANUP & MOD. ISOCHRONAL.



HEAD file contents

=====

Oil company name : SANTOS LTD.
 Well name : METTIKA #3
 Date : 14/5/90
 Calibration file name : A: HPC_544
 Test number : MOD. ISO. 1
 Perforation depth : SEVERAL
 Probe depth : 7750'
 Field name : METTIKA
 Area name : COOPER BASIN
 Country name : AUSTRALIA
 Oil company representative : A. POTTER
 Oilserv representative : N. ROBERTSON

Calibration file contents

=====

Instrument (probe) number : 554
 Instrument calibration date (mmddyy) : 11090

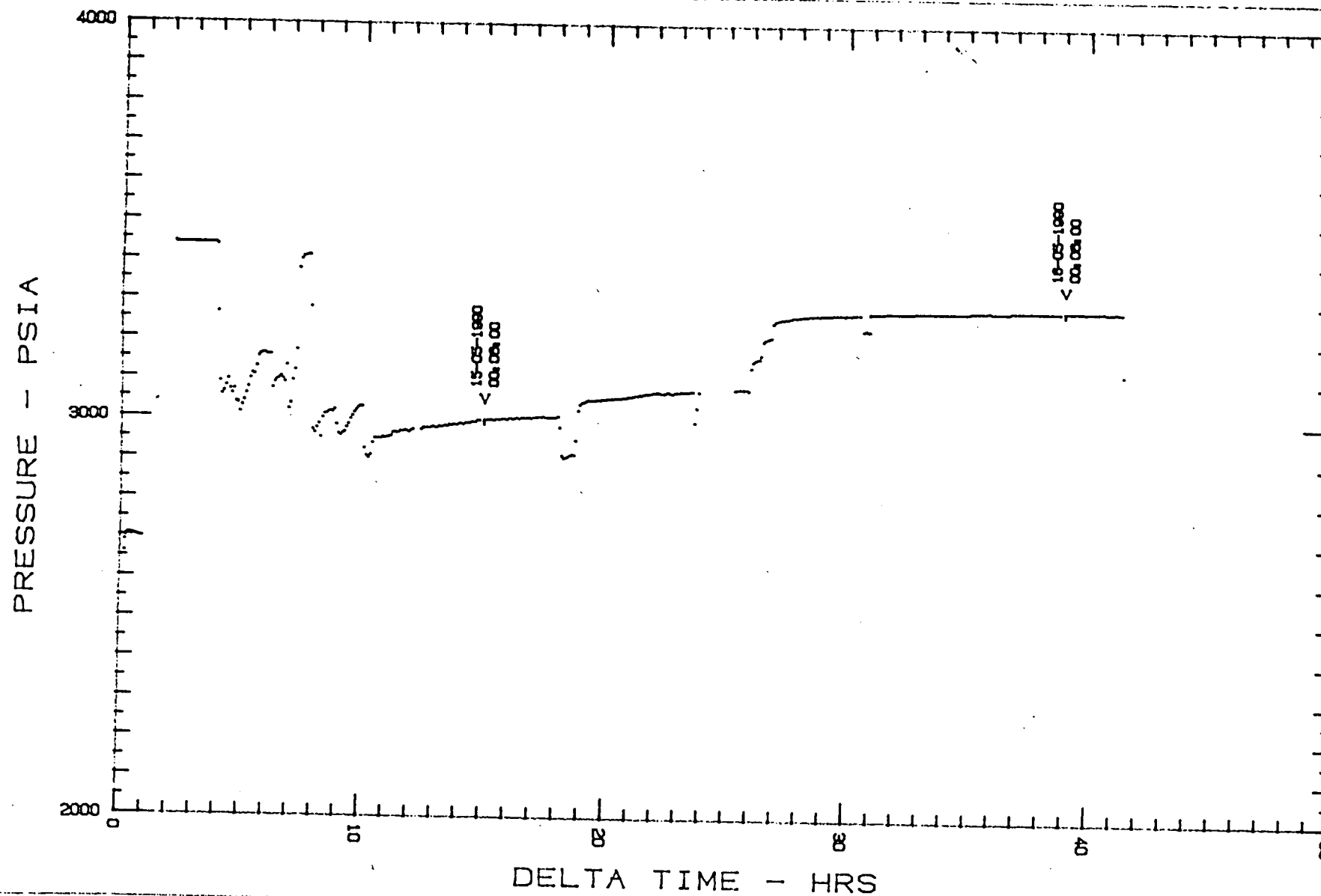
Temperature is calculated by $TEMP = FREQ * F + E \dots$

Origin (E) for tempature calculation : -441.9548
 Slope (F) for tempature calculation : 0.0008473844

Pressure calculation constants ...

G0:	-5477.823	G1:	0.1804365	G2:	0.0003775368	G3:	-4.219693e-06
H0:	0.009417736	H1:	-1.073872e-07	H2:	-9.768962e-10	H3:	8.237289e-12
I0:	1.894898e-10	I1:	-6.998412e-14	I2:	2.310298e-16	I3:	-7.355343e-19
J0:	5.366413e-18	J1:	3.591657e-21	J2:	-8.034135e-24	J3:	3.858583e-26

0034



OILSERV AUSTRALIA LIMITED - LINEAR PLOT
CLIENT: SANTOSLTD.
WELL: METTIKA #3 TEST: MOD. ISO 1

PLOT START DATE: 14-05-1990
TIME: 09:04:59

GRADIENT SURVEY REPORT

TIME	STOP	DEPTH (KB)	PRESSURE (PSIA)	GRADIENT PSI/FT
13.05	1	0	2498	—
16.10	2	1000	2648.	.15
16.43	3	2000	2754	.106
17.12	4	3000	2853	.099
17.36	5	4000	2945.	.092
17.55	6	5000	3035.	.090
18.16	7	6000	3121	.086
18.36	8	7000	3208	.087
19.00	9	7750	3262.	.054

WELL: NETTIKH #3DATE: 16/5/90.

GRADIENT CONDUCTED WHILE RUNNING IN HOLE

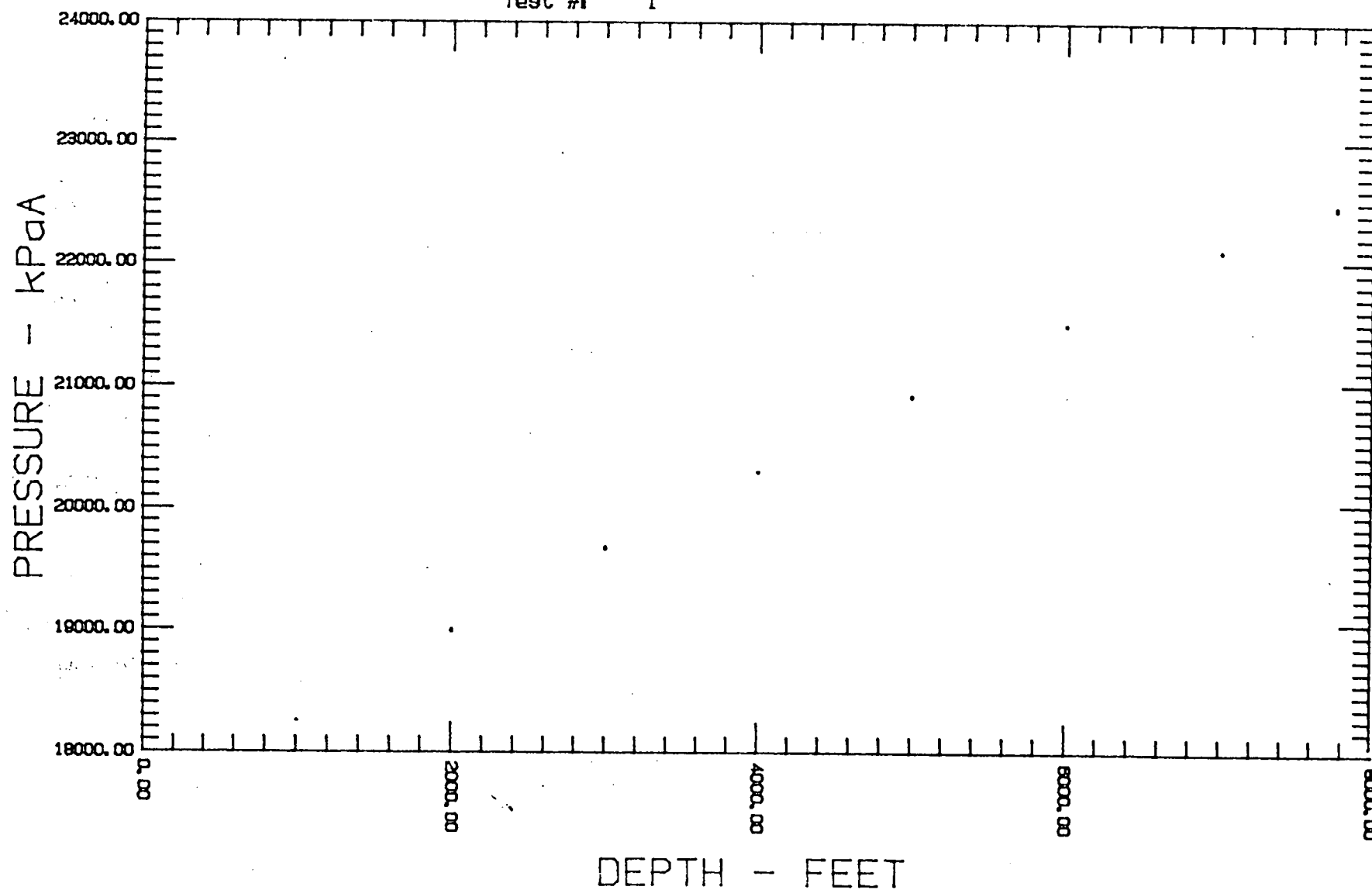
0036

Plot starting date: 5/15/90
time: 18: 4: 47

Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST



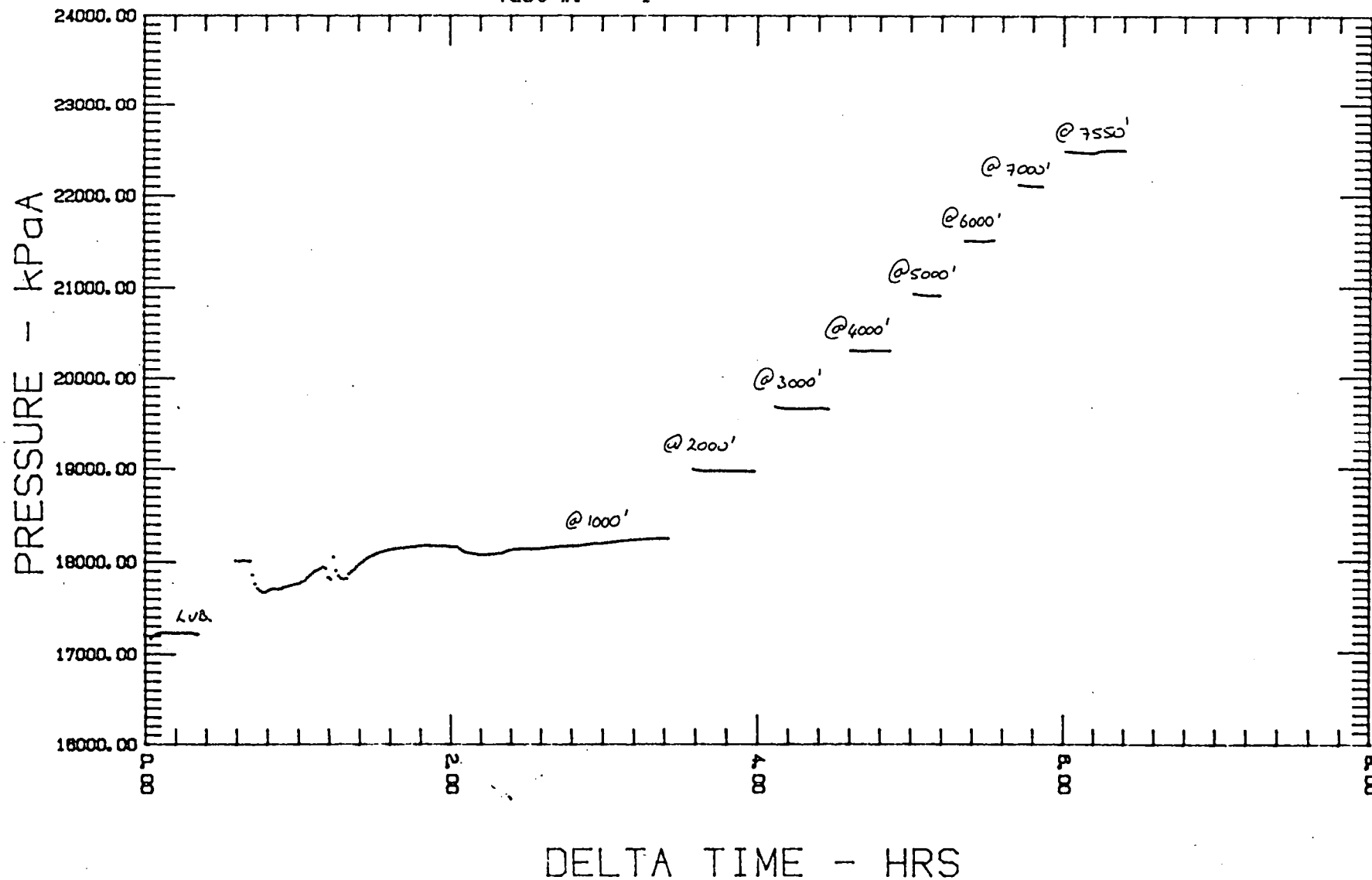
0037

Plot starting date: 5/15/90
time: 12:44:37

Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST



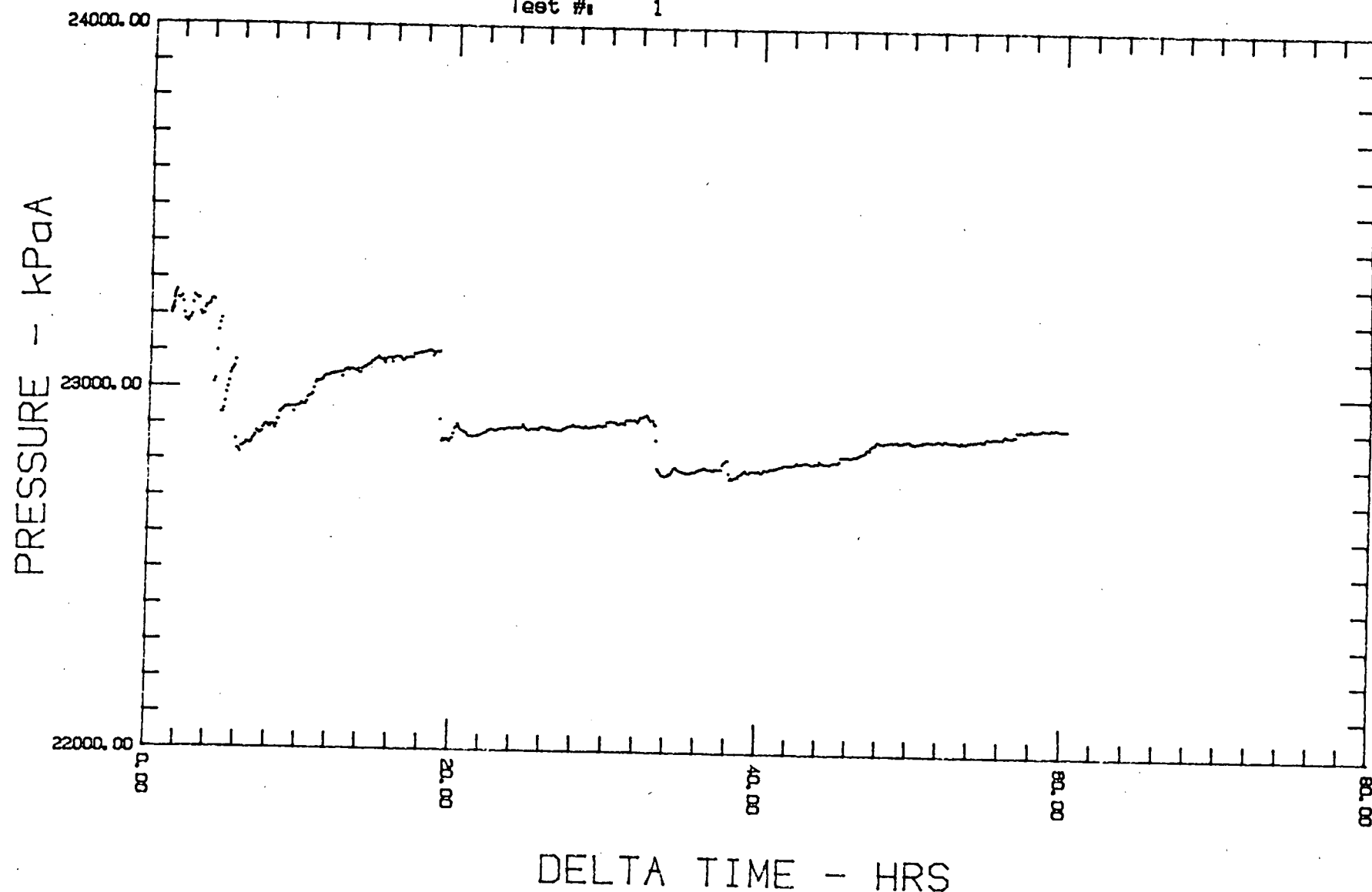
0038

Plot starting date: 5/17/90
time: 12: 2:36

Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST



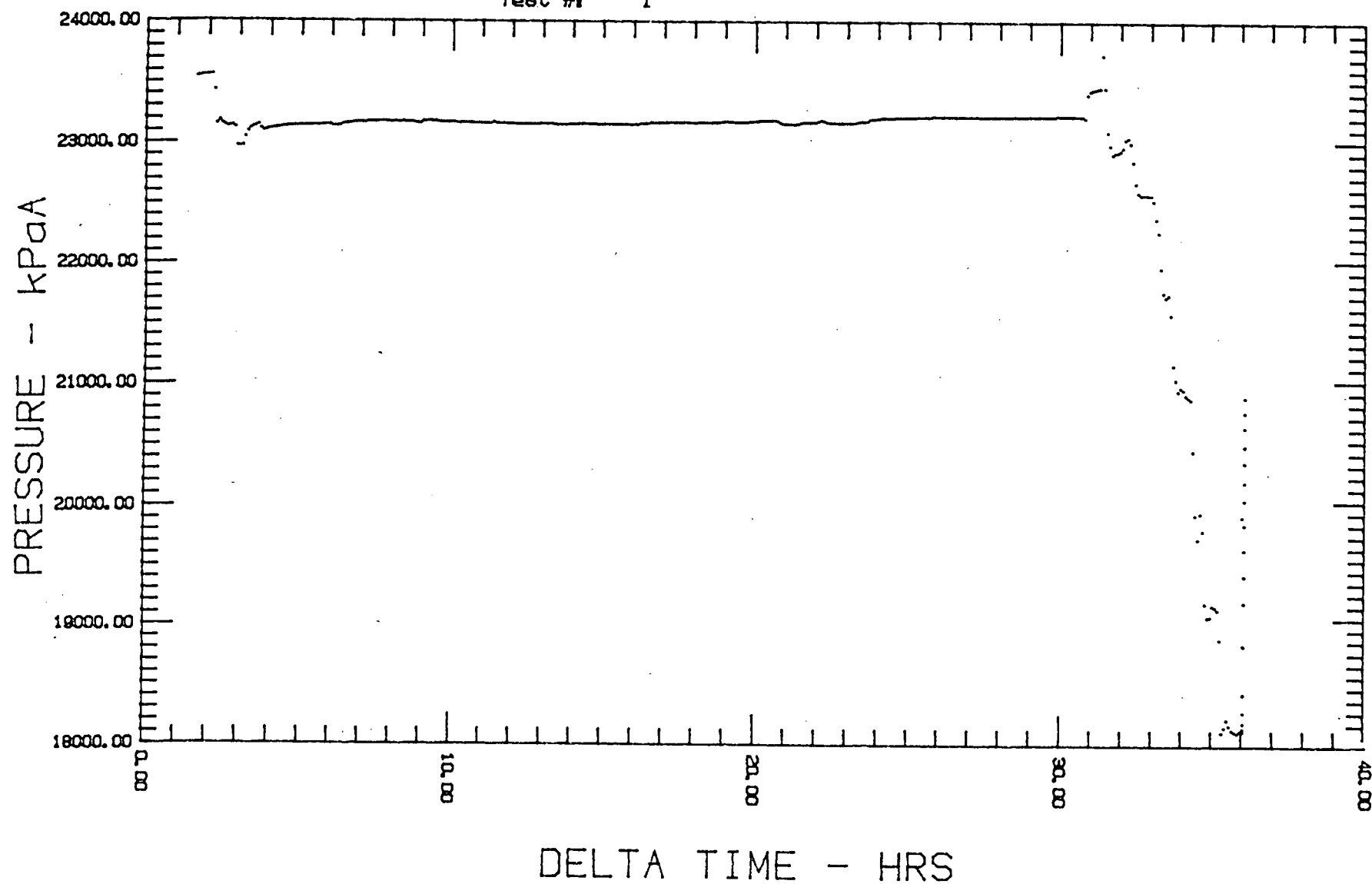
0039

Plot starting date: 5/20/90
time: 11:18:17

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST

Gauge S/N

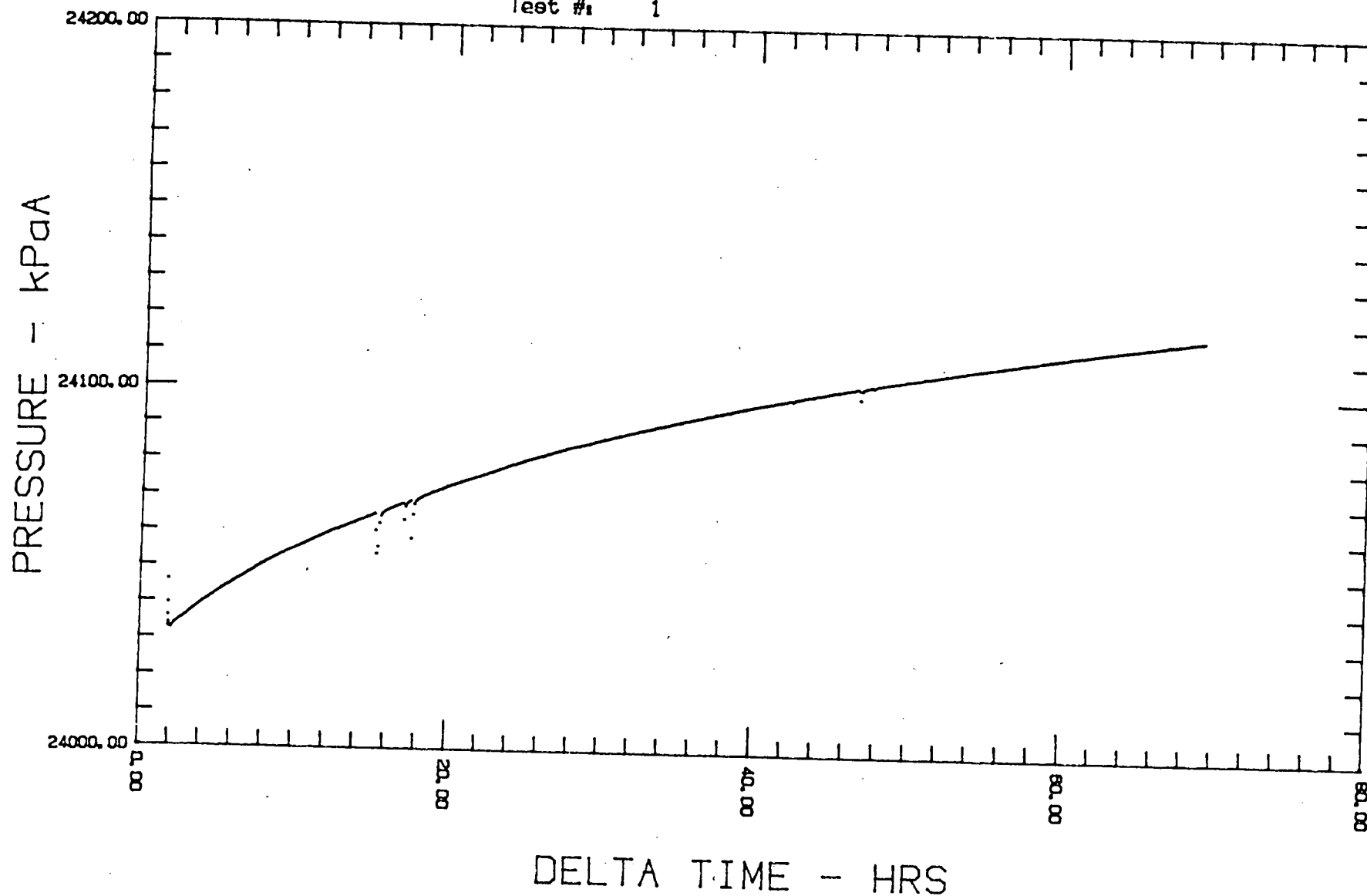


0040

Plot starting date: 5/22/90
time: 12:18: 1
Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST



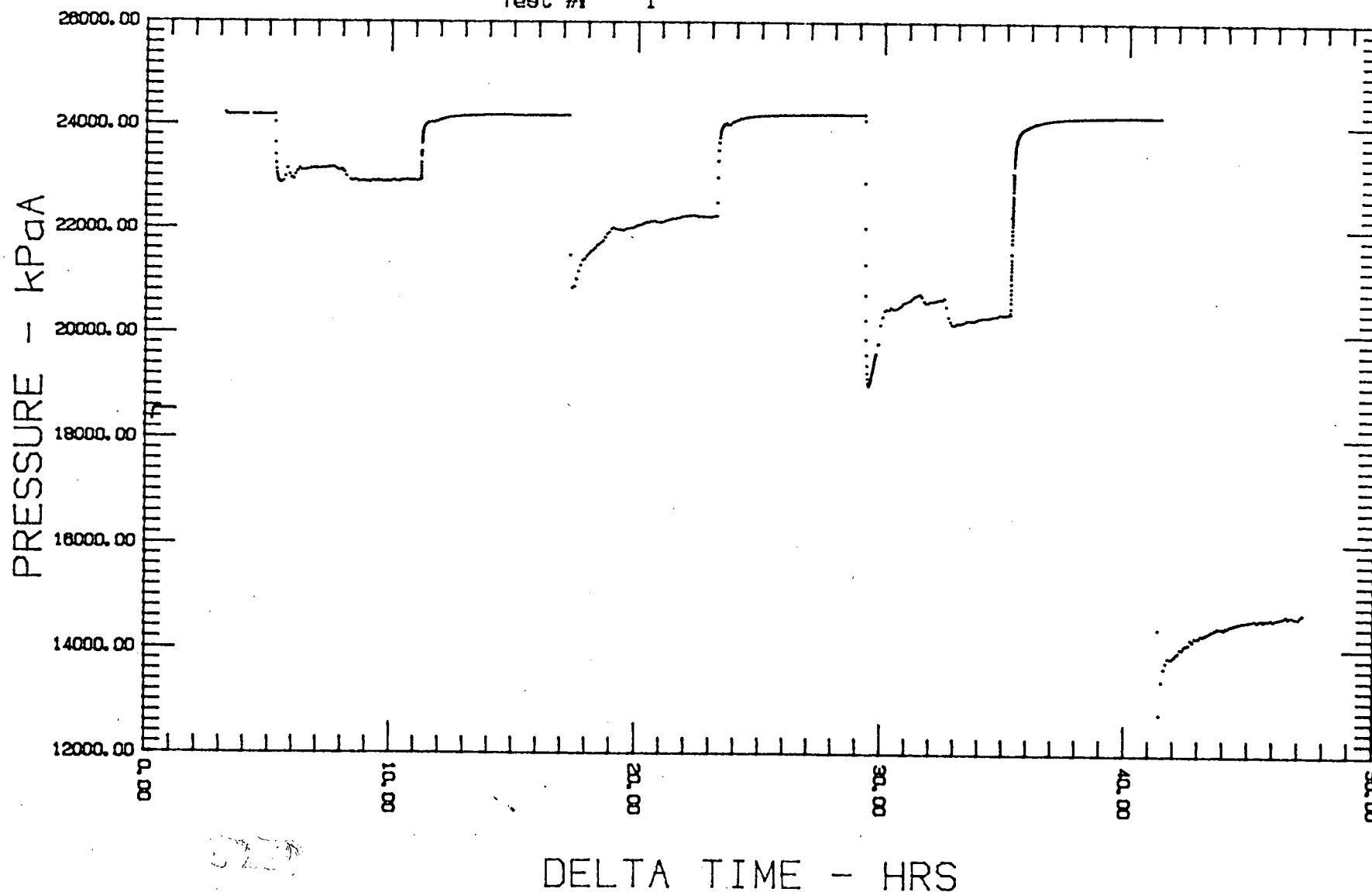
0041

Plot starting date: 5/27/90
time: 8:17: 7

Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: 1

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MOD. ISOCHRONAL TEST



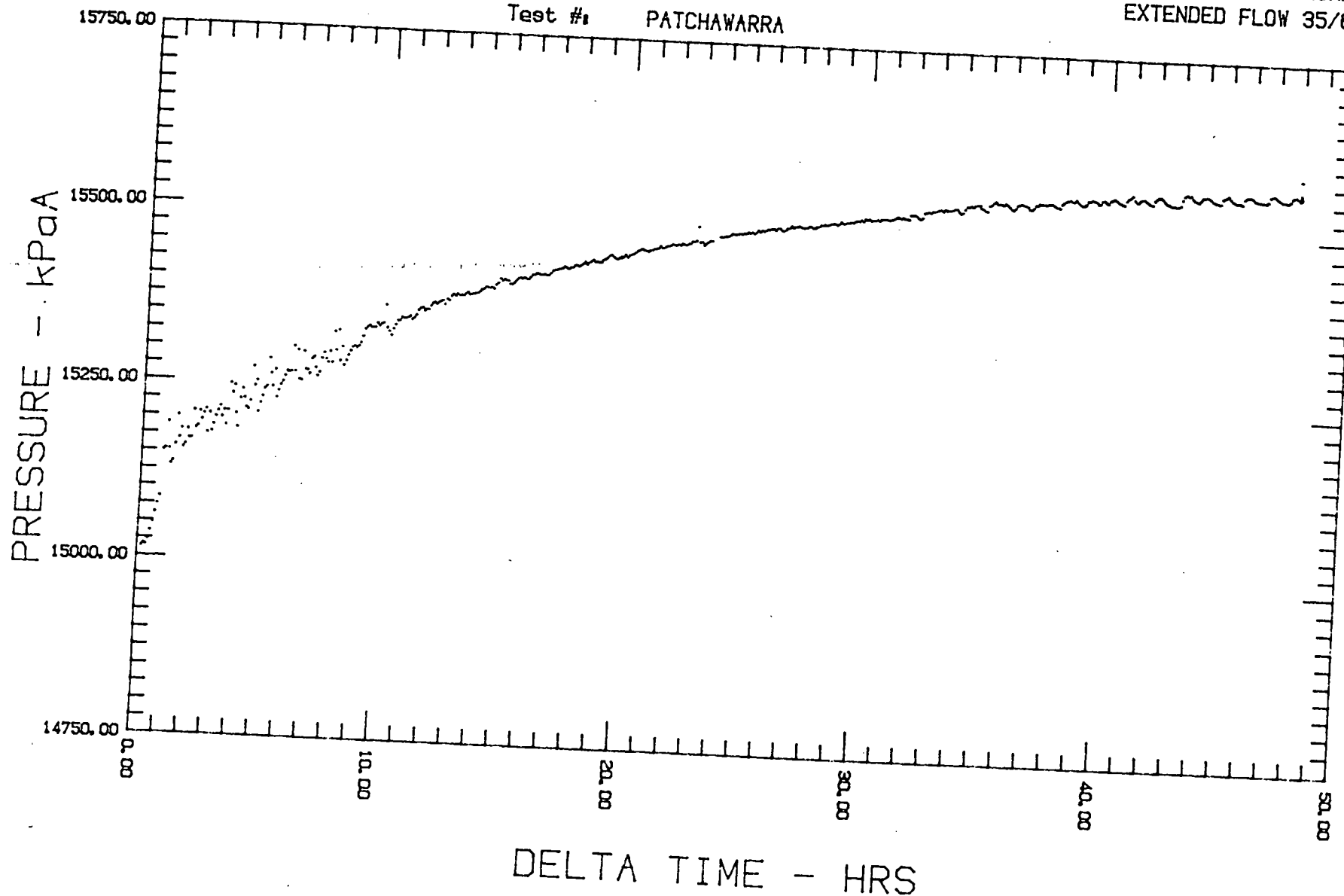
Plot starting date: 5/29/90
time: 7:31: 5

Gauge S/N

Company: OILSERV AUSTRALIA LTD.
Client: SANTOS LTD.
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA

Location: COOPER BASIN
Operator: N. ROBERTSON
Comments: MODIFIED ISOCHRONAL TEST
EXTENDED FLOW 35/64TH"

0042



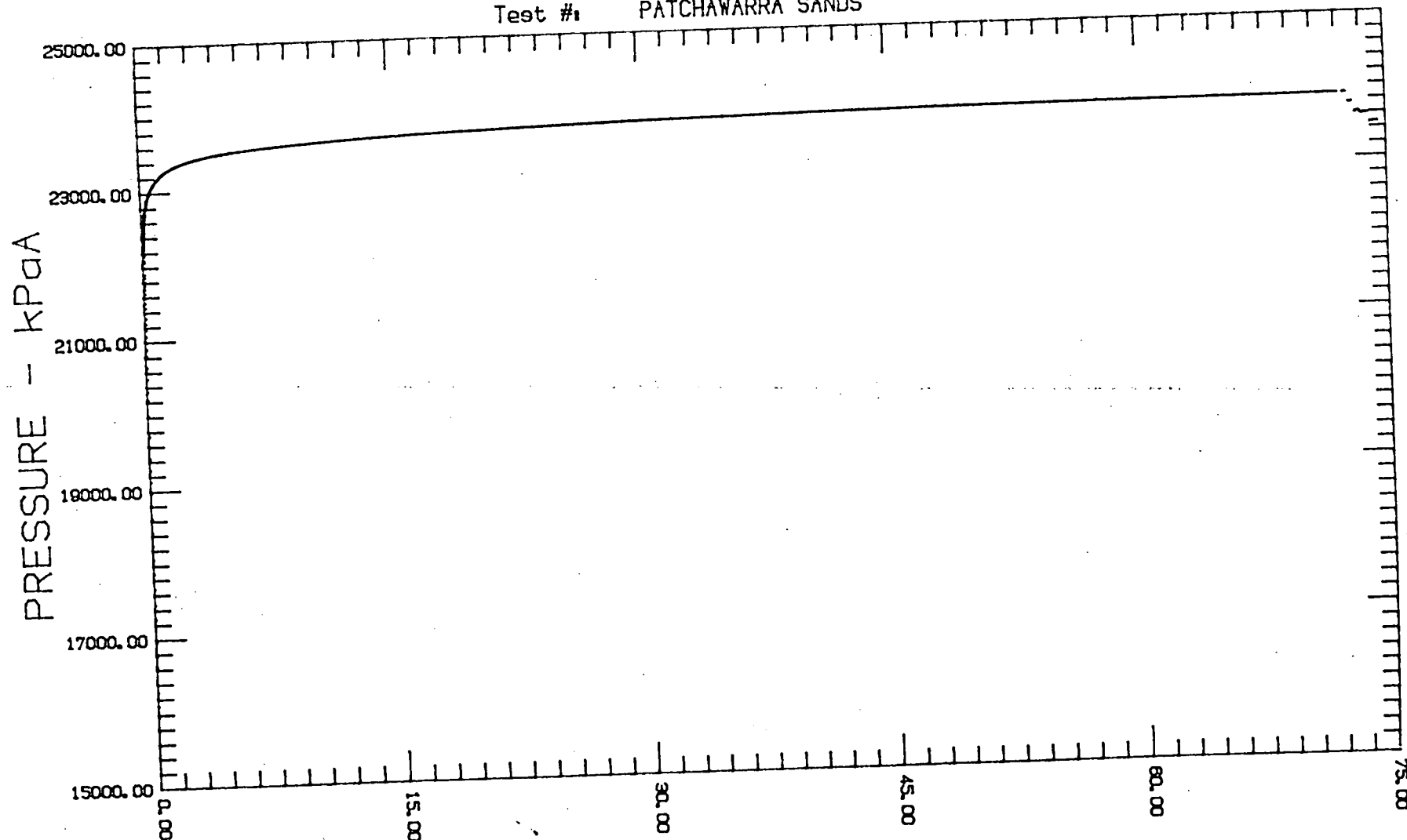
0043

Plot starting date: 5/31/90
time: 7:30:29

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
BUILDUP.

Gauge S/N



DELTA TIME - HRS

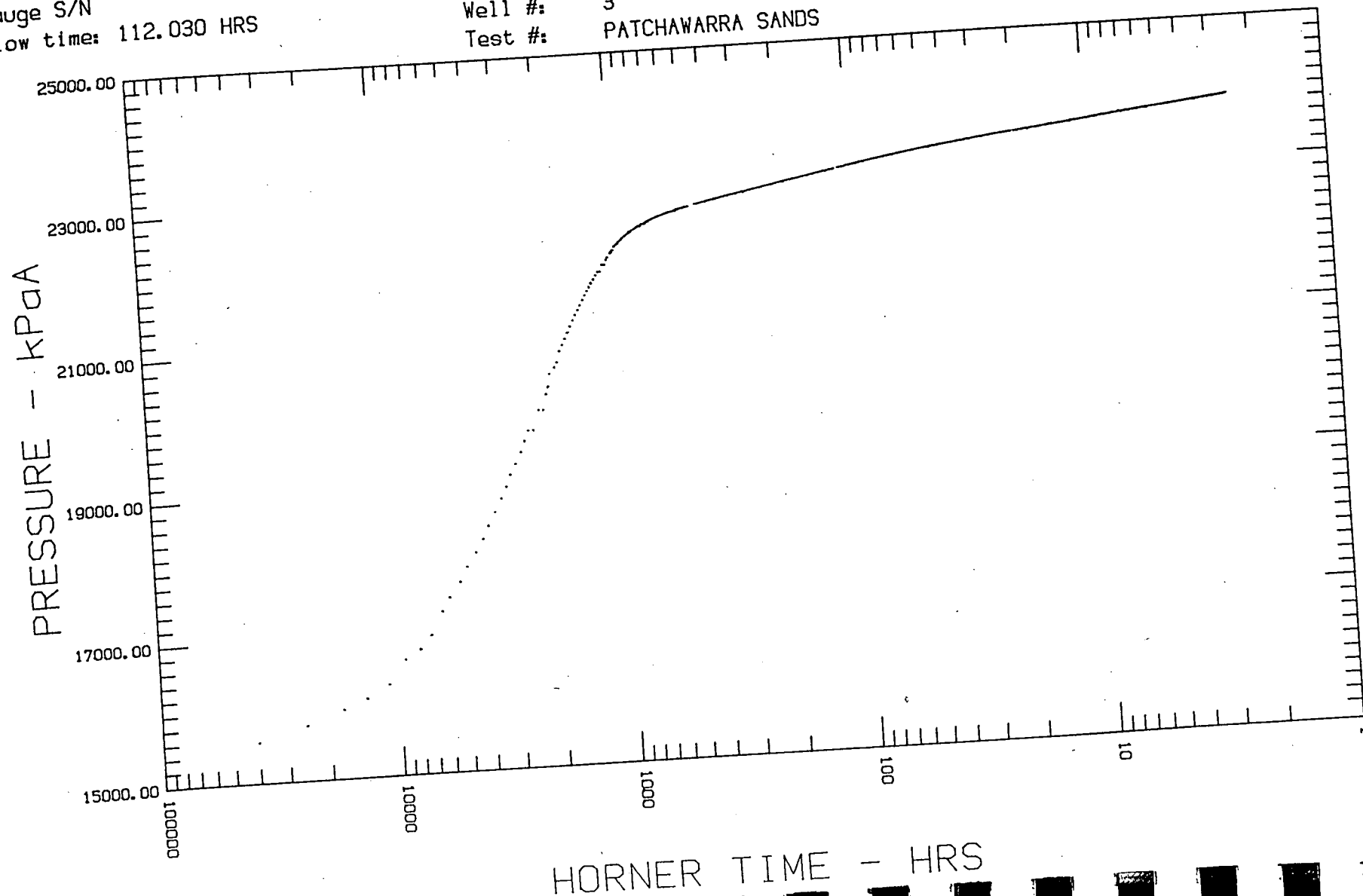
0044

Plot starting date: 5/31/90
time: 7:30:29

Gauge S/N
Flow time: 112.030 HRS

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
BUILDUP.



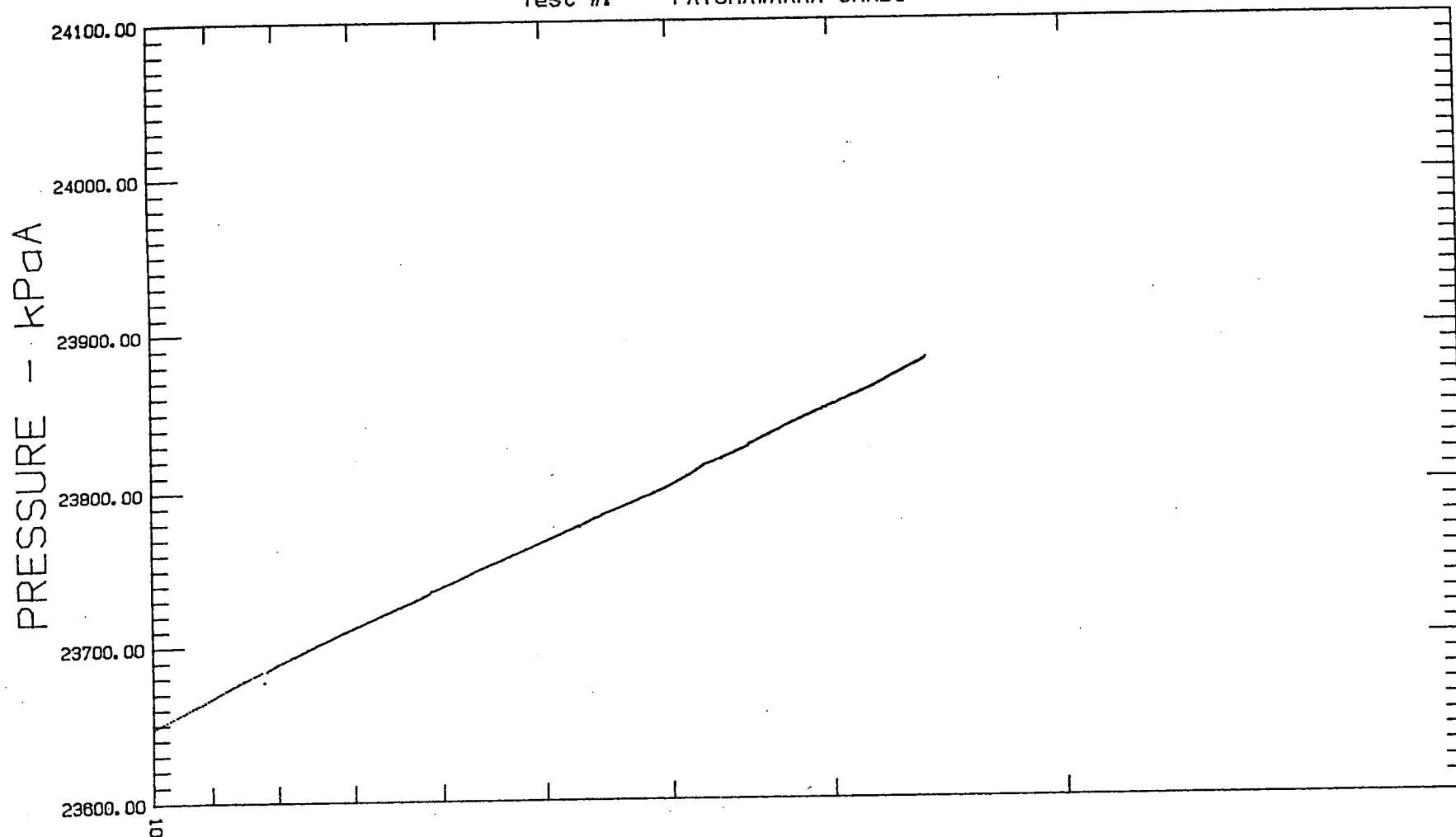
0045

Plot starting date: 5/31/90
time: 7:30:29

Gauge S/N
Flow time: 112.030 HRS

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
BUILDUP.



HORNER TIME - HRS

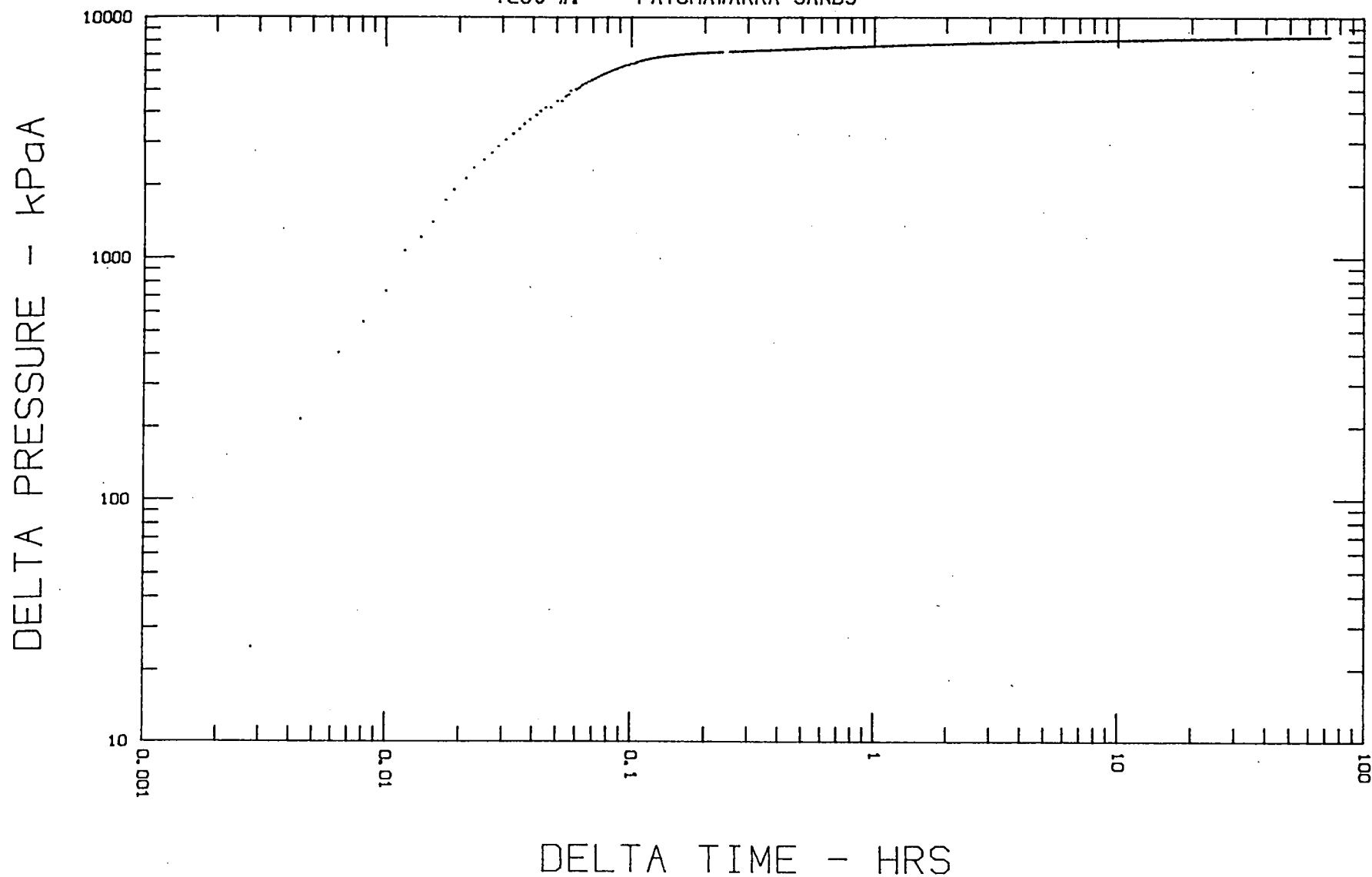
0046

Plot starting date: 5/31/90
time: 7:30:29

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
BUILDUP.

Gauge S/N
Reference pressure: 15563.320 kPaA

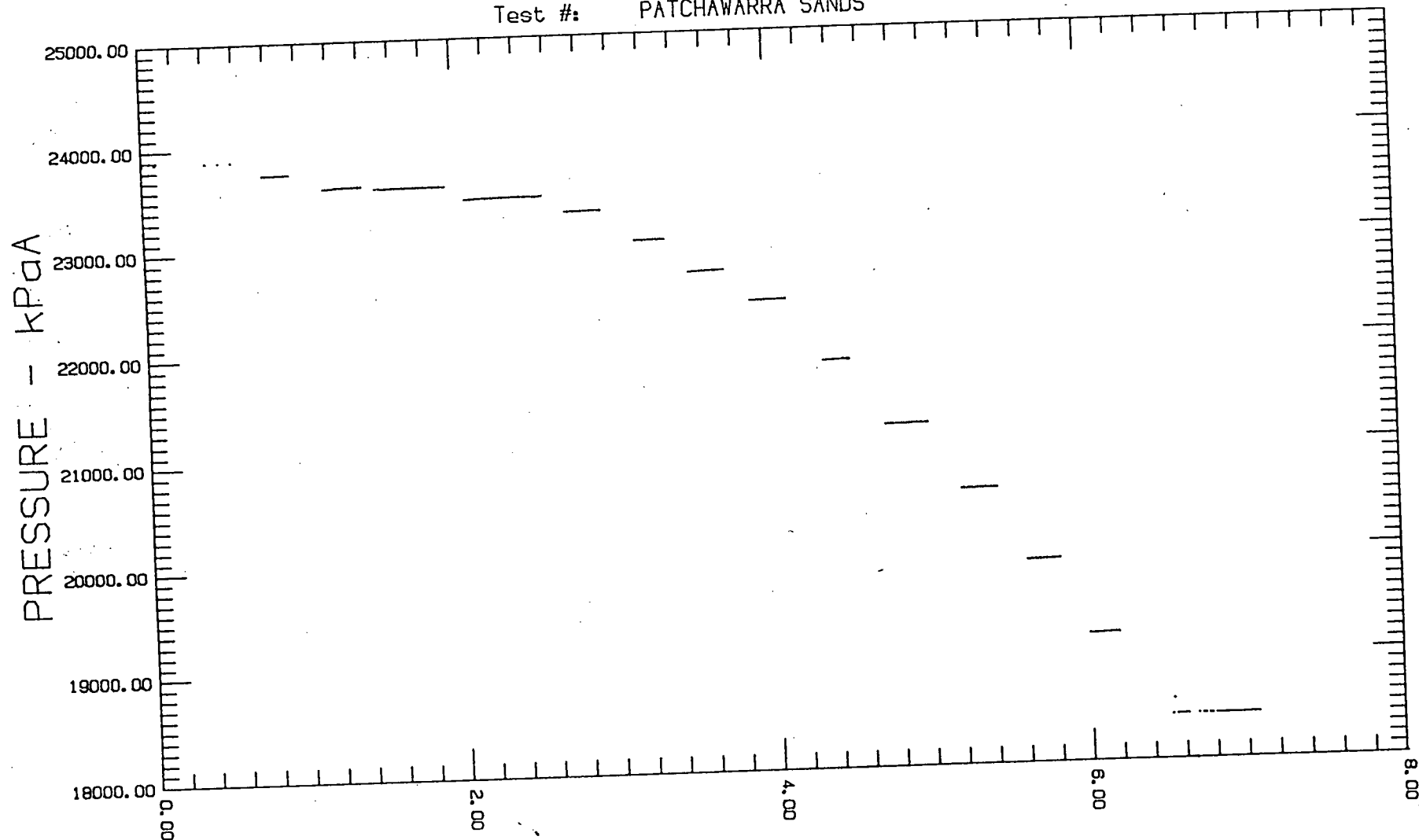


0047

Plot starting date: 6/ 3/90
time: 7:26:22
Gauge S/N

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
STATIC GRADIENT SURVEY.



DELTA TIME - HRS

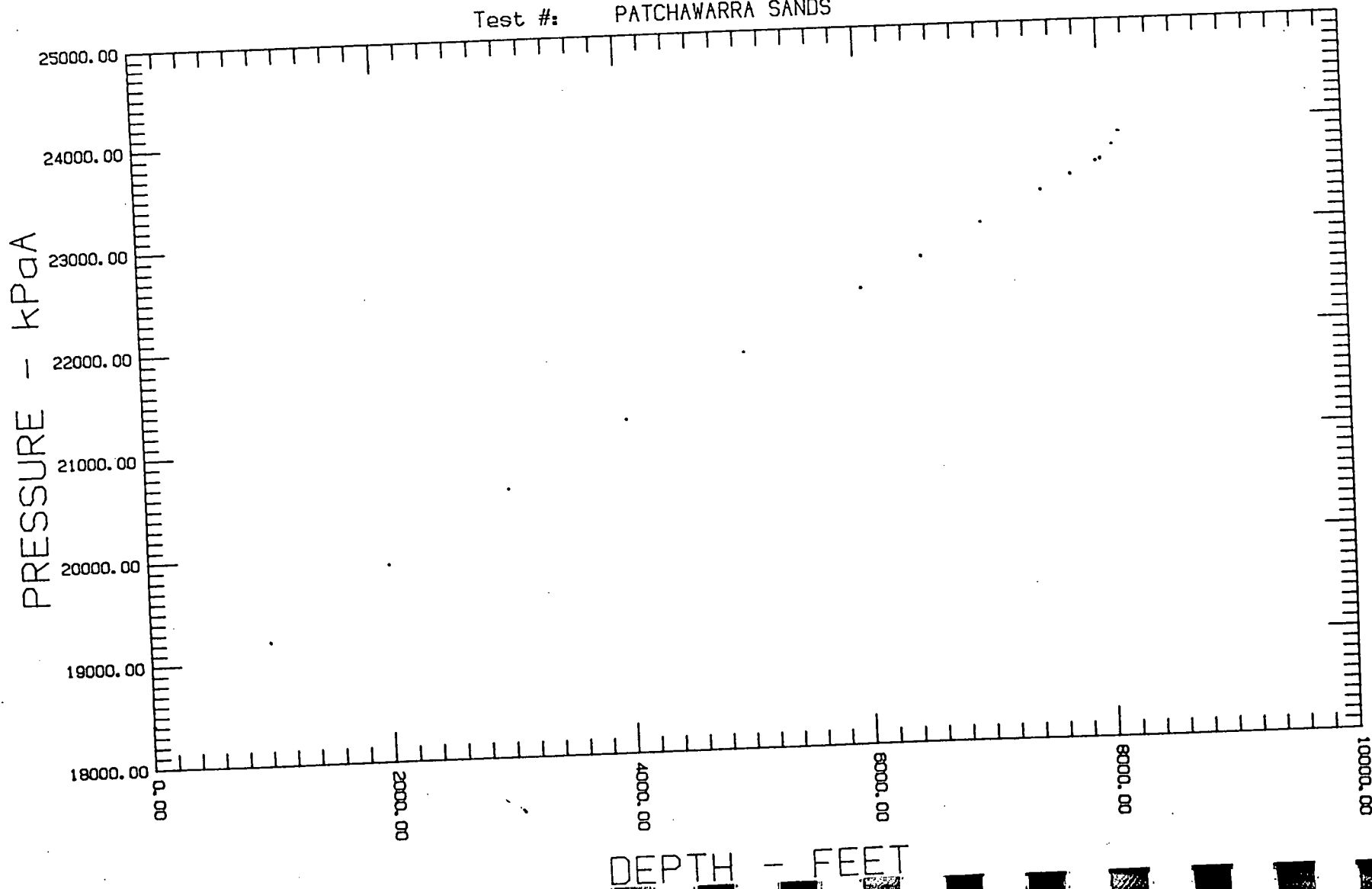
0048

Plot starting date: 6/ 3/90
time: 7:26:22

Company: OILSERV AUSTRALIA LTD
Client: SANTOS LTD
Well name: METTIKA
Well #: 3
Test #: PATCHAWARRA SANDS

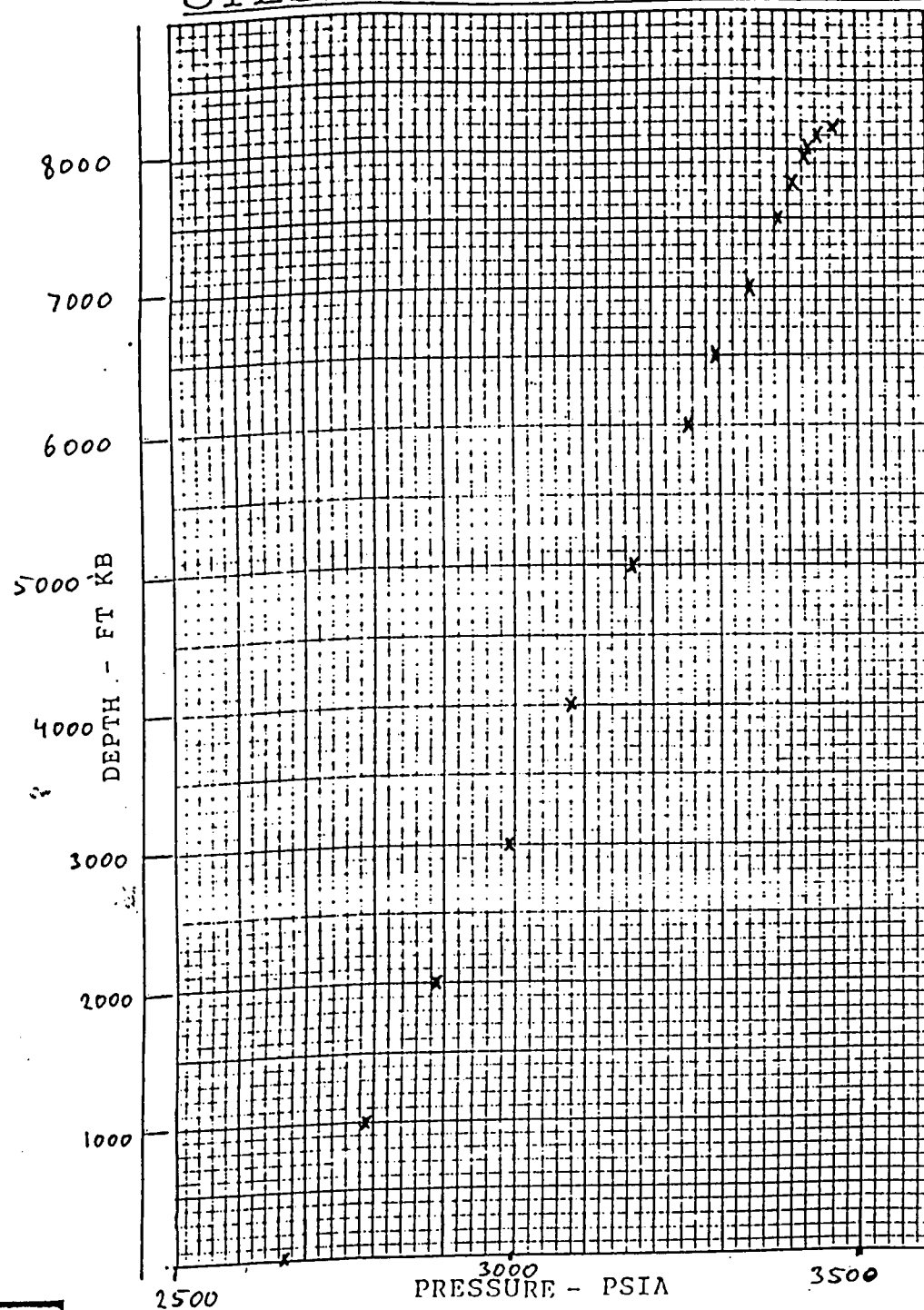
Location: COOPER BASIN
Operator: S. COPPOCK
Comments: MODIFIED ISOCHRONAL TEST
STATIC GRADIENT SURVEY.

Gauge S/N



OILSERV AUSTRALIA LTD

GRADIENT SURVEY REPORT



TIME	STOP	DEPTH (KB)	PRESSURE (PSIA)	GRADIENT PSI/FT
0803	-	8150	3464	-
0807 0830	1	8100	3445	0.380
0833 0851	2	8000	3425	0.200
0853 0923	3	7963	3422	0.071
0927 1000	4	7750	3404	0.083
1005 1023	5	7500	3383	0.084
1029 1047	6	7000	3341	0.086
1052 1110	7	6500	3296	0.090
1115 1133	8	6000	3254	0.083
1143 1157	9	5000	3169	0.085
1206 1226	10	4000	3080	0.089
1234 1252	11	3000	2988	0.091
1259 1316	12	2000	2889	0.099
1322 1339	13	1000	2786	0.104
1352	-	2	2671	0.115

WELL: METTIKA # 3DATE: 3/6/90

GRADIENT CONDUCTED WHILE PULLING OUT OF HOLE

0050

OILSERV AUSTRALIA LTDDOWNHOLE GAUGE REPORTCLIENT: SANTOS LTD WELL NAME/NUMBER: METTIKA NO 3GAUGE TYPE: HP 2813B SERIAL NUMBER: 544DATE OF CALIBRATION: 10/1/90 RANGE: 0-10,000 PSITYPE OF TEST: MOD.ISOCHRONAL TYPE OF WELL: Oil/GAS/COND/WATERWAS GAUGE CHECKED AGAINST DWT: YES/SEEIF YES, PRESSURE DIFFERENTIAL: -13 PSIDEPTH RUN TO: 7750 FT. MAX PRESSURE RECORDED: 3440 ~~PSI~~/KPAHOURS IN HOLE: 41 HRS. MAX TEMP. RECORDED: 287 °F/~~°C~~HOURS WELL FLOWING: 37 HRS. NEW ROPE SOCKET: YES/NOHOURS WELL SHUT IN: 4 HRS. CCL RUN: YES/NOPROBLEMS ENCOUNTERED

When bench testing gauge there was a problem in that it worked satisfactorily on the end of the cable without a CCl attached but would no change frequency with CCl attached. Yet it worked on the bench connected directly to the relay actuator with the CCl attached. This lead me to believe it was a problem with
with excess resistance. I increased the current slightly via the current adjust located inside the pressure signal processor. This solved the problem after approx. 40 hrs downhole erroneous temp. reading were obtained. Initially this could be corrected by switching the P.S.P off/on. the signal lamp slowly deteriorated until resetting.

COMMENTS: (FAILURE REPORT)

The P.S.P. did not help. All surface equipment was changed out apart from the Frequency Counter. At surface the cable checked out good. The gauge showed the same symptoms when bench tested. Unfortunately there was no "good gauge" available to check out the surface electronics but these seem to operate properly. The gauge may have been damaged due to excessive vibration, due to sitting above perfs while cleaning up a virein well after perforating even though the rate did not exceed 2 MMSCF/Day.

See attached printout of Erroneous readings.

DISTRIBUTION: 1. TO CLIENT 2. OAL BASE 3. RETAIN ON JOB.

0051

OILSERV AUSTRALIA LTD
DOWNHOLE GAUGE REPORT

CLIENT: SANTOS LTD WELL NAME/NUMBER: METTIKA NO 3.

GAUGE TYPE: GRC 520 SERIAL NUMBER: 56027

DATE OF CALIBRATION: _____ RANGE: 0-10,000 PSI

C/U &
TYPE OF TEST: Mod. Isochronal TYPE OF WELL: Oil/GAS/COND/WATER

WAS GAUGE CHECKED AGAINST DWT: YES/NO

IF YES, PRESSURE DIFFERENTIAL: _____

DEPTH RUN TO: 8150 FT. MAX PRESSURE RECORDED: 24219 ~~24219~~ KPA

HOURS IN HOLE: _____ HRS. MAX TEMP. RECORDED: 148.69 ~~148.69~~ °C

HOURS WELL FLOWING: _____ HRS. NEW ROPE SOCKET: YES/NO

HOURS WELL SHUT IN: _____ HRS. CCL RUN: YES/NO

PROBLEMS ENCOUNTERED

High CO₂ in well stream combined with high GHT causing insulation
cracking & shorting in rope socket as operating close to wires design
limit of 300°F.

COMMENTS: (FAILURE REPORT)

No tool failures but repeated electrical shorts in cable head due to
high temperature causing insulation to breakdown (crack) allowing the ingress
of water to short out electrical contact.

DISTRIBUTION: 1. TO CLIENT 2. OAL BASE 3. RETAIN ON JOB.

OILSERV

AUSTRALIA LIMITED
(INCORPORATED IN W.A.)

WIRELINE REPORT

0052

METTIKA NO 3

WELL:

DATE: 13-5-90

PROGRAM: MODIFIED ISOCHRONAL

PURPOSE OF WORK: PERFORM DUMMY RUN WITH 1.75" BLIND BOX.

REPORT OF WORK PERFORMED: R.I.H WITH 1.75" BLIND BOX. TAC - P.B.T.D.

@ 8246' NO TIGHT SPOTS ENCOUNTERED.

OPERATOR'S SIGNATURE

WORK PERFORMED BY: T. MOORE

OF OILSERV AUSTRALIA LTD

WELL DATA:

Tubing Size: 2⁷/₈" FWHP: SIWHP:

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

"X" Nipple @ 7660 "N"/"XN" Nipple @ 7689 other

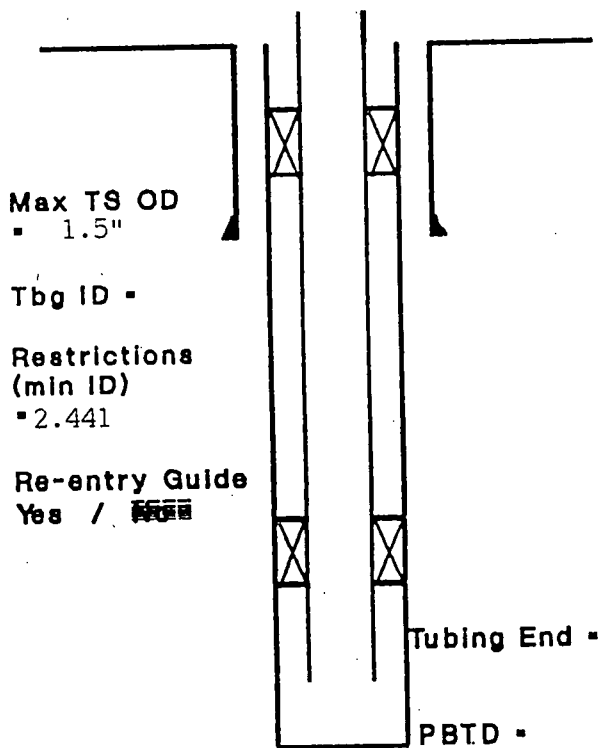
Min I.D. 2.205" @ 7689 Packer @ 7648

Perforated Interval: 7792- several - 8083.

CASED HOLE 'Z' CHART

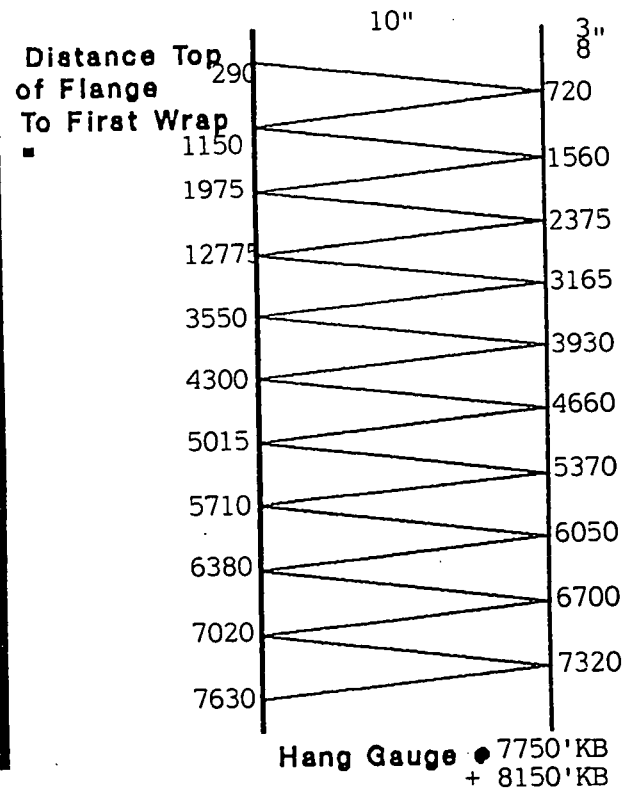
SAFE WINCH DRIVING WITH
SMALL DIAMETER CABLES

WELL SKETCH



DRUM

Mark Your Start Position of Cable



GAUGE HANG DEPTHS

COMMENTS +23' correction

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

COMING OUT OF HOLE

STOP

AT 200 FT

(CHECK TOOL TRAP IS SET)

47 Woodforde Road, Magill,
South Australia, 5072
P.O. Box 410,
Magill, South Australia, 5072

PETROLAB

Fax: 364 1500
Telex: AA88214
Tel: (08) 364 1500
(08) 333 0787

Reservoir Fluid and Core Services, Laboratory Consulting and Analysis

Adelaide, September 20 1990
P. O. Box 410
Magill
S. A. 5072

Santos Limited
101 Grenfell Street
Adelaide
S.A. 5001

Subject: Reservoir Fluid Study
Well : Mettika # 3
File : S - 90024

Attention: Mr. Bruce Richardson

Dear Sirs,

Please find enclosed results of a partial gas condensate PVT study performed on separator samples collected from subject well.

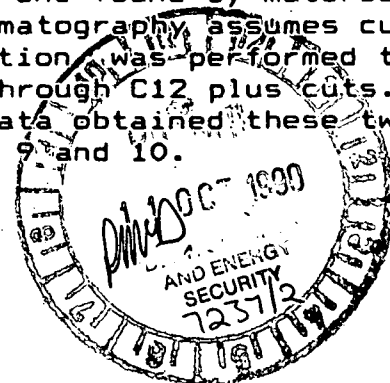
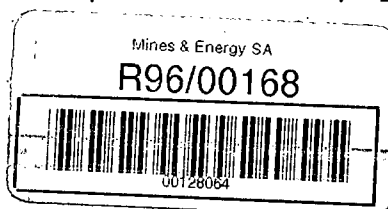
During standard quality checks we determined the single phase opening pressures of the gas samples, at approximately 10° C higher than the separator temperature, to see if any leakage had taken place during transportation. We then determined the compositions with the help of a gas chromatograph.

The validity of the separator liquid samples was checked by measuring their bubble point pressures at room temperature and correlate these pressures with gas opening pressures and field separator pressure.

The best set of samples was used for extended compositional analyses, mathematical and physical recombination.

Initially we extended the separator liquid composition, as usual, by means of capillary column gas chromatography of flashed stock tank liquid. Since the measured density of this stock tank liquid was very different as the one found by material balancing the chromatograph run (Gas Chromatography assumes cut properties) a high temperature distillation was performed to actually measure the properties of the C6 through C12 plus cuts. The differences in extended compositional data obtained these two different ways have been presented on pages 9 and 10.

SCANNED



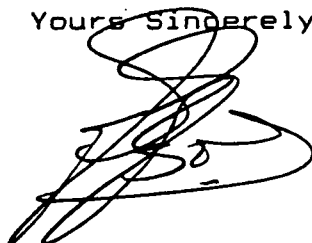
The corrected producing gas / liquid ratio was 228044 of cubic feet of separator gas at 14.696 psia and 60° F., for every barrel of produced stock tank liquid at 60° F. In the laboratory this ratio was determined to be equivalent to 209080 standard cubic feet of separator gas per barrel of separator liquid at 203 psig and 63° F. The compositions of the separator products were used with this ratio to calculate the wellstream composition.

We then continued with the actual physical recombination using this same ratio.

During a constant composition expansion at the reservoir temperature of 300 °F, this recombined reservoir fluid did not release any retrograde liquid and no dew point was found.

We thank Santos Limited for the opportunity to be of service. Please do not hesitate in contacting us should you require any further information or if we can assist you in any other way.

Yours Sincerely,

A handwritten signature in black ink, appearing to be 'Jan G. Bon', written over a horizontal line.

Jan G. Bon
Manager

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

File: S 90024

REPORT INDEX

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Validity Checks.....	2-4
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High Temperature Distillation.....	8
Separator Liquid Compositional Analyses.....	9-10
Calculated Wellstream.....	11
Constant Mass Study.....	12-13

PLOTS:

Relative Volume	14
Gas Formation Volume Factor	15
Gas Expansion Factor.....	16
Gas Deviation Factor.....	17
Specific Volume of Reservoir Fluid.....	18

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3
Field : Mettika

Page : 1 of 18
File : S 90024
State : S. A.

WELL CHARACTERISTICS

Formation Name	:	Patchawarra
Total depth (mKB)	:	
Perforated interval (m)	:	
Tubing size (inch)	:	
Tubing shoe (mMD)	:	
Reservoir temperature (deg F)	:	300
Last reservoir pressure (psig)	:	3445
date	:	
Status of well	:	

SURFACE SAMPLING CONDITIONS

Gas cylinders No.	:	ED-5590,ED-5591,ED-5594
Liquid cylinders No.	:	L-032,L-038,L-036
Time / date sampled	:	09.00-11.00 hrs, 21/5/90
Choke size (inch)	:	
Tubing head pressure (psig)	:	2500
Flowing bottom hole pressure (psig):	:	
Separator pressure (psig)	:	203
Separator temperature (deg F)	:	63
Condensate rate (STB/DAY)	:	8.5
Water rate (STB/DAY)	:	1.6
Gas rate (MMSCF/DAY)	:	1.97
Produced field GOR (SCF/STB)	:	231765
Sampled by	:	

SUMMARY OF RESULTS

Wellstream Produced @ 3445 psig:

Gas Formation Volume Factor (Bg)	:	0.00548
Gas Expansion Factor (E)	:	182.42
Gas Deviation Factor (Z)	:	0.883
Specific Volume (cft/lb)	:	0.08191
Density (gm/cc)	:	0.1956
Molecular Weight	:	25.41
Gas Gravity (Air = 1.000)	:	0.6358
Gross Heating Value (BTU/ft3)	:	1129

PETROLAB

Company : Santos Limited
Well : Mettika # 3
File : S-90024

Surface Samples Set # 1

Sampling Conditions

Date : May 21 1990
Pressure : 203 psig
Temperature : 63 deg F

Cylinder # : EO 5590 (gas)
Opening Pressure : 232 psig @ 117 deg F

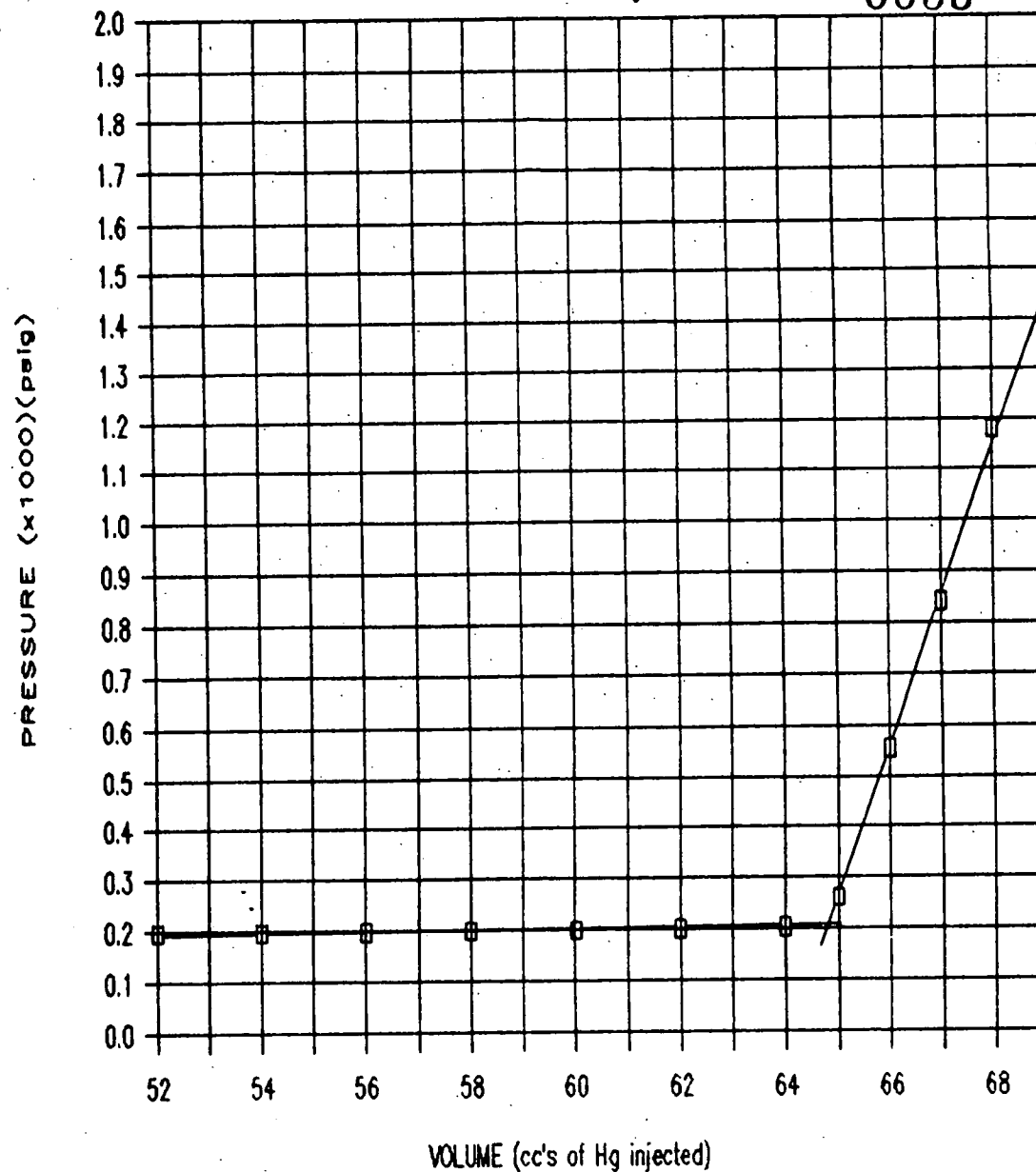
Cylinder # : L-32 (liquid)
Opening Pressure : 165 psig @ 64 deg F

Volume (cc's)	Pressure (psig)
52.00	195
54.00	196
56.00	197
58.00	198
60.00	199
62.00	200
64.00	202
65.00	260
66.00	555
67.00	840
68.00	1180
69.00	1440

Saturation Pressure : 205 psig @ 62 deg F

Page : 2 of 18

0058



PETROLAB

Company : Santos Limited
Well : Mettika # 3
File : S-90024

Surface Samples Set # 2

Sampling Conditions

Date : May 21 1990
Pressure : 203 psig
Temperature : 63 deg F

Cylinder # : ED 5591 (gas)
Opening Pressure : 221 psig @ 88 deg F

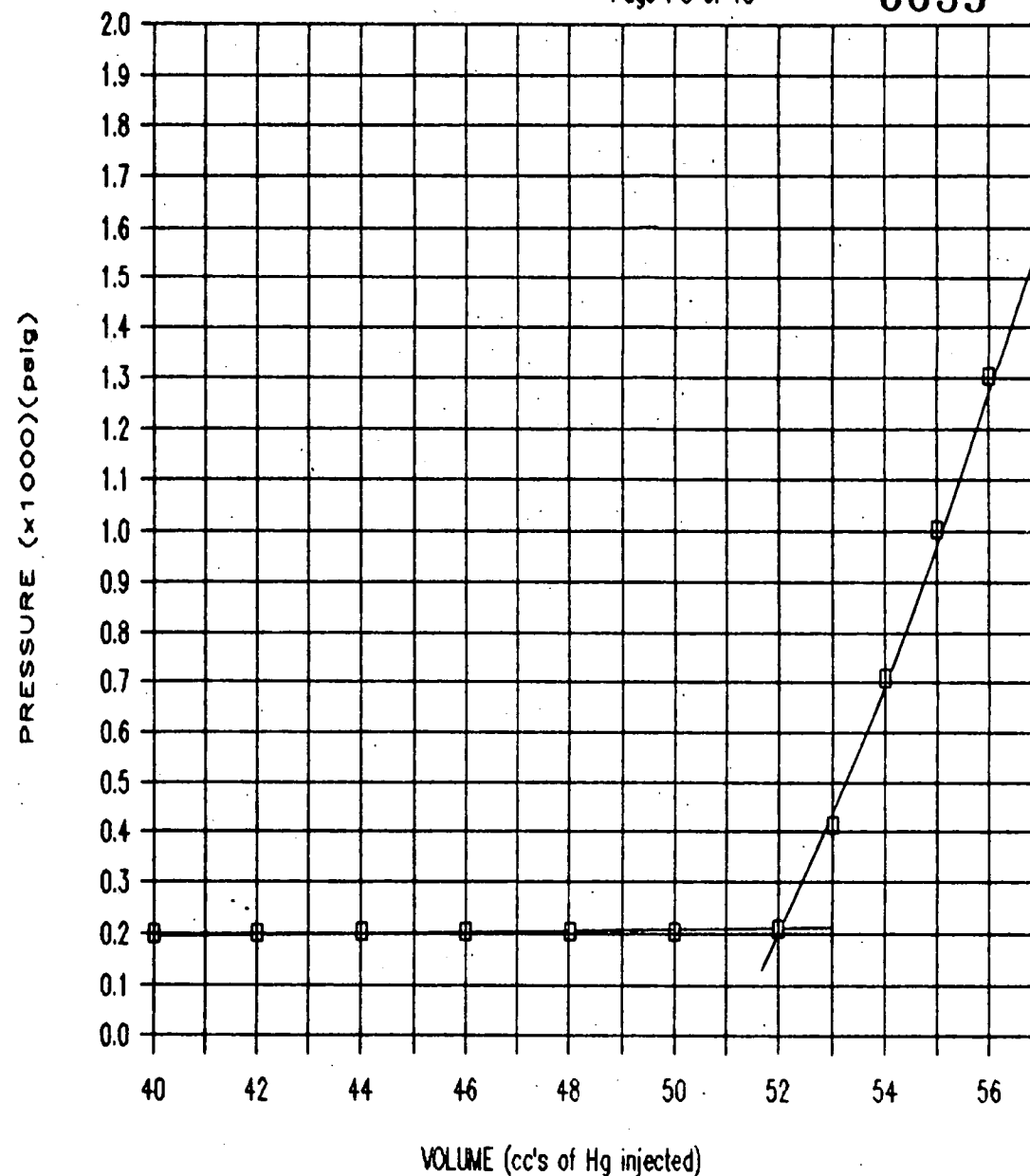
Cylinder # : L-38 (liquid)
Opening Pressure : 172 psig @ 63 deg F

Volume (cc's)	Pressure (psig)
40.00	200
42.00	201
44.00	203
46.00	204
48.00	205
50.00	205
52.00	210
53.00	415
54.00	710
55.00	1005
56.00	1305
57.00	1590

Saturation Pressure : 208 psig @ 62 deg F

Page : 3 of 18

0059



PETROLAB

Company : Santos Limited
Well : Mettika # 3
File : S-90024

Surface Samples Set # 3

Sampling Conditions

Date : May 21 1990
Pressure : 203 psig
Temperature : 63 deg F

Cylinder # : ED 5594 (gas)
Opening Pressure : 221 psig @ 97 deg F

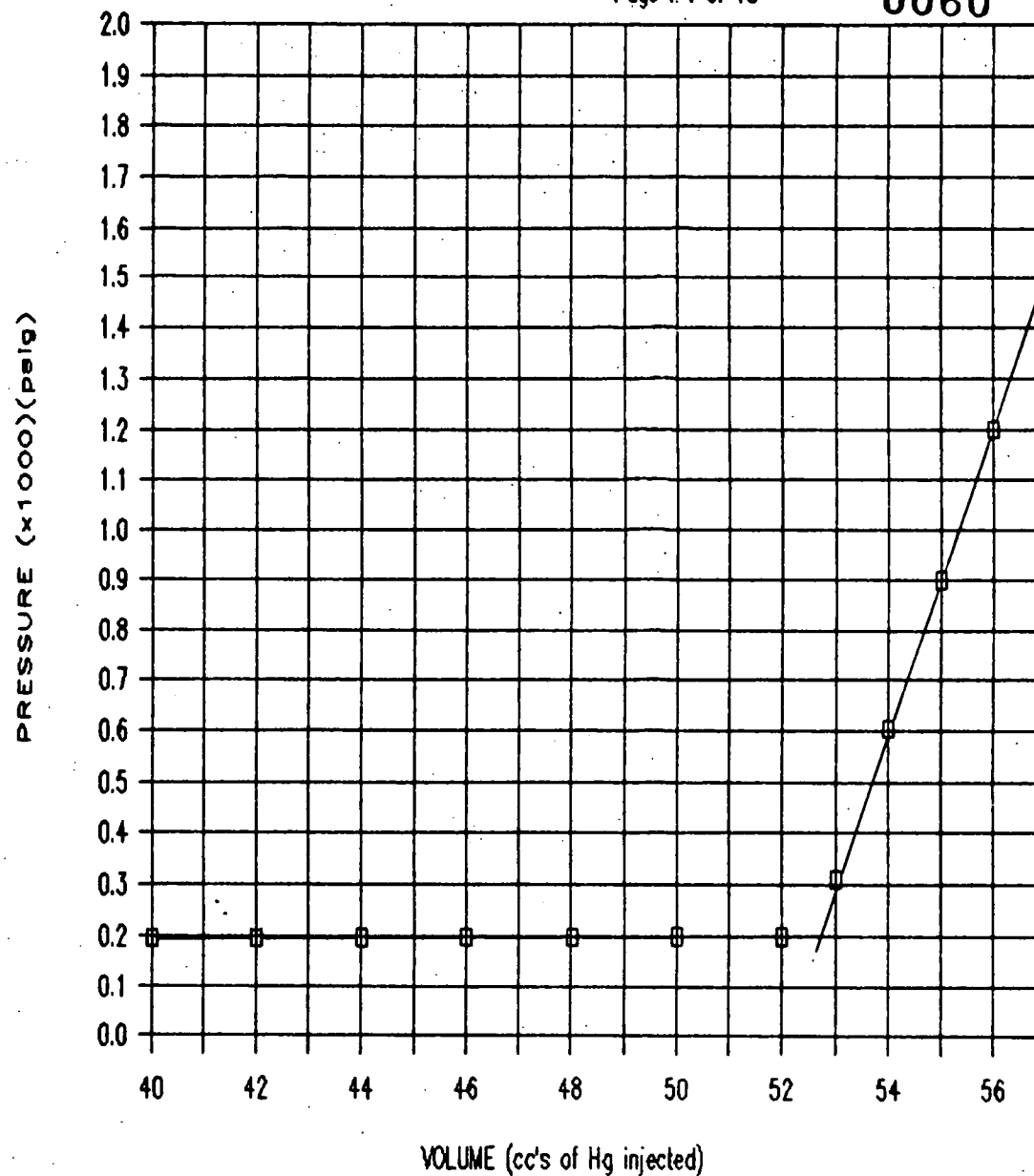
Cylinder # : L-36 (liquid)
Opening Pressure : 160 psig @ 64 deg F

Volume (cc's)	Pressure (psig)
40.00	195
42.00	196
44.00	197
46.00	198
48.00	198
50.00	200
52.00	200
53.00	310
54.00	605
55.00	900
56.00	1200
57.00	1510

Saturation Pressure : 200 psig @ 62 deg F

Page : 4 of 18

0060



P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

Page: 5 of 18
File: S 90024

COMPOSITIONAL ANALYSIS OF
SEPARATOR GAS

Cyl # ED-5590

Component	Mol %	GPM	
Hydrogen Sulphide	0.00		Pressure Base : 14.696
Carbon Dioxide	22.48		Zsc: 0.997
Nitrogen	0.13		Mol Weight : 24.93
Methane	65.46		Gas Gravity: 0.863
Ethane	8.36	2.237	Pc : 756.9
Propane	2.08	0.574	Tc : 420.4
Iso-Butane	0.31	0.102	Mol Weight C7+: 101.5
N-Butane	0.46	0.145	Density C7+: 0.6911
Iso-Pentane	0.14	0.051	Mol Weight C8+: 109.5
N-Pentane	0.15	0.054	Density C8+: 0.7012
Hexanes	0.16	0.062	Heating Value (BTU/ft3)
Heptanes	0.16	0.067	Gross: 926
Octanes	0.09	0.041	Nett: 838
Nonanes	0.02	0.010	Wobbe Index: 997
Decanes	0.00	0.000	Zpt: 0.957
Undecanes	0.00	0.000	Liquid Content
Dodecanes Plus	0.00	0.000	(Bbl/MMSCF of Raw Gas):
TOTAL	100.00	3.343	Ethane : 39.7
			L P G : 18.7
			Pentanes Plus: 7.0

Remarks: Laboratory Opening Pressure - 232 psig @ 117 deg F

Sampled at 203 psig and 63 deg F

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

Page: 6 of 18
File: S 90024

COMPOSITIONAL ANALYSIS OF
SEPARATOR GAS

Cyl # ED-5591

Component	Mol %	GPM	
Hydrogen Sulphide	0.00		Pressure Base : 14.696
Carbon Dioxide	22.67		Zsc: 0.997
Nitrogen	0.16		Mol Weight : 25.03
Methane	65.19		Gas Gravity: 0.867
Ethane	8.34	2.232	Pc : 757.4
Propane	2.11	0.582	Tc : 421.0
Iso-Butane	0.32	0.105	Mol Weight C7+: 102.7
N-Butane	0.46	0.145	Density C7+: 0.6927
Iso-Pentane	0.14	0.051	Mol Weight C8+: 109.5
N-Pentane	0.15	0.054	Density C8+: 0.7011
Hexanes	0.12	0.047	Heating Value (BTU/ft3)
Heptanes	0.17	0.072	Gross: 927
Octanes	0.14	0.064	Nett: 839
Nonanes	0.03	0.015	Wobbe Index: 995
Decanes	0.00	0.000	Zpt: 0.957
Undecanes	0.00	0.000	Liquid Content
Dodecanes Plus	0.00	0.000	(Bbl/MMSCF of Raw Gas):
TOTAL	100.00	3.367	Ethane : 39.6
			L P G : 19.0
			Pentanes Plus: 7.4

Remarks: Laboratory Opening Pressure - 221 psig @ 88 deg F
Sampled at 203 psig and 63 deg F

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

Page: 7 of 18
File: S 90024

COMPOSITIONAL ANALYSIS OF
SEPARATOR GAS

Cyl # ED-5594

Component	Mol %	GPM	
Hydrogen Sulphide	0.00		Pressure Base : 14.696
Carbon Dioxide	22.62		Zsc: 0.997
Nitrogen	0.10		Mol Weight : 25.13
Methane	65.18		Gas Gravity: 0.870
Ethane	8.34	2.232	Pc : 757.0
Propane	2.09	0.576	Tc : 421.9
Iso-Butane	0.31	0.102	
N-Butane	0.45	0.142	Mol Weight C7+: 102.9
Iso-Pentane	0.13	0.048	Density C7+: 0.6929
N-Pentane	0.14	0.051	Mol Weight C8+: 111.2
Hexanes	0.20	0.078	Density C8+: 0.7031
Heptanes	0.24	0.101	
Octanes	0.14	0.064	Heating Value (BTU/ft3)
Nonanes	0.06	0.030	Gross: 934
Decanes	0.00	0.000	Nett: 846
Undecanes	0.00	0.000	Wobbe Index: 1001
Dodecanes Plus	0.00	0.000	
TOTAL	100.00	3.424	Zpt: 0.956
			Liquid Content
			(Bbl/MMSCF of Raw Gas):
			Ethane : 39.6
			L P G : 18.7
			Pentanes Plus: 9.2

Remarks: Laboratory Opening Pressure - 221 psig @ 97 deg F
Sampled at 203 psig and 63 deg F

0064

P E T R O L A B

Company : Santos Limited
Well : Mettika # 3

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HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE
(Hexanes to Dodecanes Plus)
Flashed from Separator Liquid Cylinder # L-36

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
Hexanes	59 - 84	10.10	93	8.70	0.6965	9.96	71.5
Heptanes	85 - 112	23.52	95	20.68	0.7613	21.66	54.2
Octanes	113 - 138	26.46	98	24.16	0.7941	24.25	46.5
Nonanes	139 - 162	18.65	108	18.76	0.8167	18.31	41.6
Decanes	163 - 185	7.31	122	8.25	0.8213	8.01	40.6
Undecanes	186 - 206	3.59	129	4.29	0.8278	4.13	39.3
Dodecanes Plus	> 206	10.38	157	15.16	0.8826	13.69	28.7
		----- 100.00		----- 100.00		----- 100.00	

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COMPOSITIONAL ANALYSIS OF
RECOMBINED SEPARATOR LIQUID
EXTENDED BY CHROMATOGRAPHY

Cylinder # L-38

Component	Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Separator Liquid Mol %
Hydrogen Sulphide H2S	0.00	0.00	0.00
Carbon Dioxide CO2	0.37	24.87	4.38
Nitrogen N2	0.00	0.09	0.01
Methane C1	0.15	25.42	4.29
Ethane C2	0.68	19.47	3.76
Propane C3	1.56	12.46	3.35
Iso-Butane iC4	0.90	2.85	1.22
N-Butane nC4	2.10	4.63	2.52
Iso-Pentane iC5	1.86	1.55	1.81
N-Pentane nC5	2.66	1.72	2.50
Hexanes C6	7.21	1.93	6.35
Heptanes C7	25.78	3.03	22.05
Octanes C8	24.21	1.42	20.47
Nonanes C9	19.26	0.46	16.18
Decanes C10	6.44	0.08	5.39
Undecanes C11	2.40	0.02	2.01
Dodecanes Plus C12+	4.43	0.00	3.71
TOTAL	100.00	100.00	100.00
<u>Ratios</u>			
Molar Ratio :	0.8360	0.1640	1.0000
Mass Ratio :	0.9336	0.0664	1.0000
Liquid Ratio (bbl/bbl) :	1.0000 @ SC	--	1.0394 @ PT*
Gas Liquid Ratio :	1.0000 bbl @ SC	176 SCF	--
<u>Stream Properties</u>			
Molecular Weight :	109.8	39.85	98.4
Density obs. (gm/cc) :	0.7410 @ 60 F	--	0.7642 @ PT*
Gravity (AIR = 1.000) :	59.3 API @ 60 F	1.390	--
GHV (BTU/scf) :	--	1680.0	--
<u>Heptanes Plus Properties</u>			
Mol % :	82.52	5.01	69.81
Molecular Weight :	118.4	102.2	118.2
Density (gm/cc @ 60 F) :	0.7575	0.6920	0.7568
Gravity (API @ 60 F) :	55.1	72.8	55.3
<u>Octanes Plus Properties</u>			
Mol % :	56.74	1.98	47.76
Molecular Weight :	128.6	111.7	128.4
Density (gm/cc @ 60 F) :	0.7704	0.7038	0.7700
Gravity (API @ 60 F) :	52.0	69.4	52.1
<u>Decanes Plus Properties</u>			
Mol % :	13.27	0.10	11.11
Molecular Weight :	178.9	136.6	178.6
Density (gm/cc @ 60 F) :	0.8071	0.7303	0.8071
Gravity (API @ 60 F) :	43.6	62.1	43.6
<u>Undecanes Plus Properties</u>			
Mol % :	6.83	0.02	5.72
Molecular Weight :	221.1	147.0	221.0
Density (gm/cc @ 60 F) :	0.8247	0.7400	0.8247
Gravity (API @ 60 F) :	39.9	59.5	39.9
<u>Dodecanes Plus Properties</u>			
Mol % :	4.43	0.00	3.71
Molecular Weight :	261.3	170.0	261.3
Density (gm/cc @ 60 F) :	0.8363	0.7593	0.8363
Gravity (API @ 60 F) :	37.5	54.7	37.5

* (P)ressure 203 psig, (T)emperature 63 deg F

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

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COMPOSITIONAL ANALYSIS OF
RECOMBINED SEPARATOR LIQUID
EXTENDED BY DISTILLATION

Cylinder # L-38

Component	Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Separator Liquid Mol %
Hydrogen Sulphide H2S	0.00	0.00	0.00
Carbon Dioxide CO2	0.37	24.87	4.00
Nitrogen N2	0.00	0.09	0.01
Methane C1	0.15	25.42	3.90
Ethane C2	0.68	19.47	3.46
Propane C3	1.56	12.46	3.17
Iso-Butane iC4	0.90	2.85	1.19
N-Butane nC4	2.10	4.63	2.48
Iso-Pentane iC5	1.86	1.55	1.82
N-Pentane nC5	2.66	1.72	2.52
Hexanes C6	9.06	1.93	8.00
Heptanes C7	21.10	3.03	18.42
Octanes C8	23.74	1.42	20.43
Nonanes C9	16.73	0.46	14.32
Decanes C10	6.56	0.08	5.60
Undecanes C11	3.22	0.02	2.75
Dodecanes Plus C12+	9.31	0.00	7.93
TOTAL	100.00	100.00	100.00
<u>Ratios</u>			
Molar Ratio :	0.8517	0.1483	1.0000
Mass Ratio :	0.9367	0.0633	1.0000
Liquid Ratio (bbl/bbl):	1.0000 @ SC	--	1.0907 @ PT*
Gas Liquid Ratio :	1.0000 bbl @ SC	176 SCF	--
<u>Stream Properties</u>			
Molecular Weight :	102.6	39.85	93.4
Density obs. (gm/cc) :	0.7802 @ 60 F	--	0.7642 @ PT*
Gravity (AIR = 1.000) :	49.7 API @ 60F	1.390	--
GHV (BTU/scf) :	--	1680.0	--
<u>Heptanes Plus Properties</u>			
Mol % :	80.67	5.01	69.45
Molecular Weight :	109.3	102.2	109.2
Density (gm/cc @ 60 F):	0.8082	0.6920	0.8069
Gravity (API @ 60 F):	43.4	72.8	43.7
<u>Octanes Plus Properties</u>			
Mol % :	59.57	1.98	51.03
Molecular Weight :	114.5	111.7	114.5
Density (gm/cc @ 60 F):	0.8231	0.7038	0.8223
Gravity (API @ 60 F):	40.3	69.4	40.4
<u>Decanes Plus Properties</u>			
Mol % :	19.09	0.10	16.28
Molecular Weight :	140.1	136.6	139.9
Density (gm/cc @ 60 F):	0.8548	0.7303	0.8548
Gravity (API @ 60 F):	33.9	62.1	33.9
<u>Undecanes Plus Properties</u>			
Mol % :	12.53	0.02	10.68
Molecular Weight :	149.8	147.0	149.7
Density (gm/cc @ 60 F):	0.8699	0.7400	0.8699
Gravity (API @ 60 F):	31.0	59.5	31.0
<u>Dodecanes Plus Properties</u>			
Mol % :	9.31	0.00	7.93
Molecular Weight :	157.1	170.0	157.1
Density (gm/cc @ 60 F):	0.8826	0.7593	0.8826
Gravity (API @ 60 F):	28.7	54.7	28.7

* (P)ressure 203 psig, (T)emperature 63 deg F

Company: Santos Limited
Well : Mettika # 3

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COMPOSITIONAL ANALYSIS OF
RECOMBINED RESERVOIR FLUID

Cyl. # L-38 Cyl. # ED 5591

Component	Separator Liquid Mol %	Separator Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide H2S	0.00	0.00	0.00
Carbon Dioxide CO2	4.00	22.67	22.57
Nitrogen N2	0.01	0.16	0.16
Methane C1	3.90	65.19	64.87
Ethane C2	3.46	8.34	8.31
Propane C3	3.17	2.11	2.12
Iso-Butane iC4	1.19	0.32	0.32
N-Butane nC4	2.48	0.46	0.47
Iso-Pentane iC5	1.82	0.14	0.15
N-Pentane nC5	2.52	0.15	0.16
Hexanes C6	8.00	0.12	0.16
Heptanes C7	18.42	0.17	0.26
Octanes C8	20.43	0.14	0.25
Nonanes C9	14.32	0.03	0.10
Decanes C10	5.60	0.00	0.03
Undecanes C11	2.75	0.00	0.01
Dodecanes Plus C12+	7.93	0.00	0.06
TOTAL	100.00	100.00	100.00
<u>Ratios</u>			
Molar Ratio :	0.0052	0.9948	1.0000
Mass Ratio :	0.0191	0.9809	1.0000
Gas Liquid Ratio :	1.0000 bbl@PT*	209080 SCF**	--
<u>Stream Properties</u>			
Molecular Weight :	93.4	25.03	25.41
Density obs. (gm/cc) :	0.7642 @ PT*	--	--
Gravity (AIR = 1.000) :	53.5 API @60F	0.867	0.881
GHV (BTU/scf) :	--	927.0	950.0
<u>Heptanes Plus Properties</u>			
Mol % :	69.45	0.34	0.71
Molecular Weight :	109.2	102.7	106.1
Density (gm/cc @ 60 F):	0.8069	0.6927	0.7489
Gravity (API @ 60 F):	43.7	72.6	57.3
<u>Octanes Plus Properties</u>			
Mol % :	51.03	0.17	0.45
Molecular Weight :	114.5	113.3	114.0
Density (gm/cc @ 60 F):	0.8223	0.7056	0.7727
Gravity (API @ 60 F):	40.4	68.8	51.4
<u>Decanes Plus Properties</u>			
Mol % :	16.28	0.00	0.10
Molecular Weight :	139.9	--	139.9
Density (gm/cc @ 60 F):	0.8548	--	0.8548
Gravity (API @ 60 F):	33.9	--	33.9
<u>Undecanes Plus Properties</u>			
Mol % :	10.68	0.00	0.07
Molecular Weight :	149.7	--	149.7
Density (gm/cc @ 60 F):	0.8699	--	0.8699
Gravity (API @ 60 F):	31.0	--	31.0
<u>Dodecanes Plus Properties</u>			
Mol % :	7.93	0.00	0.06
Molecular Weight :	157.1	--	157.1
Density (gm/cc @ 60 F):	0.8826	--	0.8826
Gravity (API @ 60 F):	28.7	--	28.7

* (P)ressure 203 psi, (T)emperature 63 deg F

** 209080 SCF / SEP BBL @ PT = 228044 SCF / ST BBL
228044 = 231765 * (1.0740*1.0222) / (1.0746*1.0383)

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CONSTANT MASS STUDY
@ 300 deg F

Pressure (psig)	Relative Volume (V/Vsat) (1)	Formation Volume Factor (Bg) (2)	Gas Expansion Factor (E) (3)	Deviation Factor (Z)	Specific Volume (CFT/LB)
5000	0.7423	0.00407	245.76	0.950	0.06080
4750	0.7705	0.00422	236.75	0.937	0.06311
4500	0.8010	0.00439	227.73	0.923	0.06561
4250	0.8388	0.00460	217.47	0.913	0.06871
4000	0.8803	0.00483	207.22	0.902	0.07210
3750	0.9294	0.00509	196.28	0.893	0.07613
3445 *	1.0000	0.00548	182.42	0.883	0.08191
3235	1.0574	0.00580	172.52	0.877	0.08661
3020	1.1258	0.00617	162.03	0.872	0.09222
2760	1.2243	0.00671	149.00	0.867	0.10028
2525	1.3437	0.00737	135.75	0.871	0.11006
2260	1.5123	0.00829	120.62	0.878	0.12387
2020	1.7023	0.00933	107.16	0.884	0.13943
1810	1.9154	0.01050	95.24	0.892	0.15689
1625	2.1458	0.01176	85.01	0.898	0.17576

* Reservoir Pressure

!! NO DEW POINT FOUND RESERVOIR FLUID IS WET GAS !!

- (1) Cubic feet of gas at indicated pressure and temperature per cubic foot at reservoir pressure
- (2) Cubic feet of gas at indicated pressure and temperature per cubic foot at 14.696 psia and 60 deg F
- (3) Cubic feet of gas at 14.696 psia and 60 deg F per cubic foot at indicated pressure and temperature

P E T R O L A B

Company: Santos Limited
Well : Mettika # 3

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CONSTANT MASS STUDY
@ 300 deg F

Pressure (psig)	Relative Volume (V/Vsat) (1)	Retrograde Liquid Deposit (Bbl/MMSCF) (Volume%)	
		(2)	(3)
3445 *	1.0000	0.00	0.00
3235	1.0574	0.00	0.00
3020	1.1258	0.00	0.00
2760	1.2243	0.00	0.00
2525	1.3468	0.00	0.00
2260	1.5123	0.00	0.00
2020	1.7023	0.00	0.00
1810	1.9154	0.00	0.00
1625	2.1458	0.00	0.00

* Reservoir Pressure

(1) Cubic feet of gas at indicated pressure and temperature per cubic foot at reservoir pressure

(2) Barrels of liquid at indicated pressure and temperature per MMSCF of original reservoir fluid

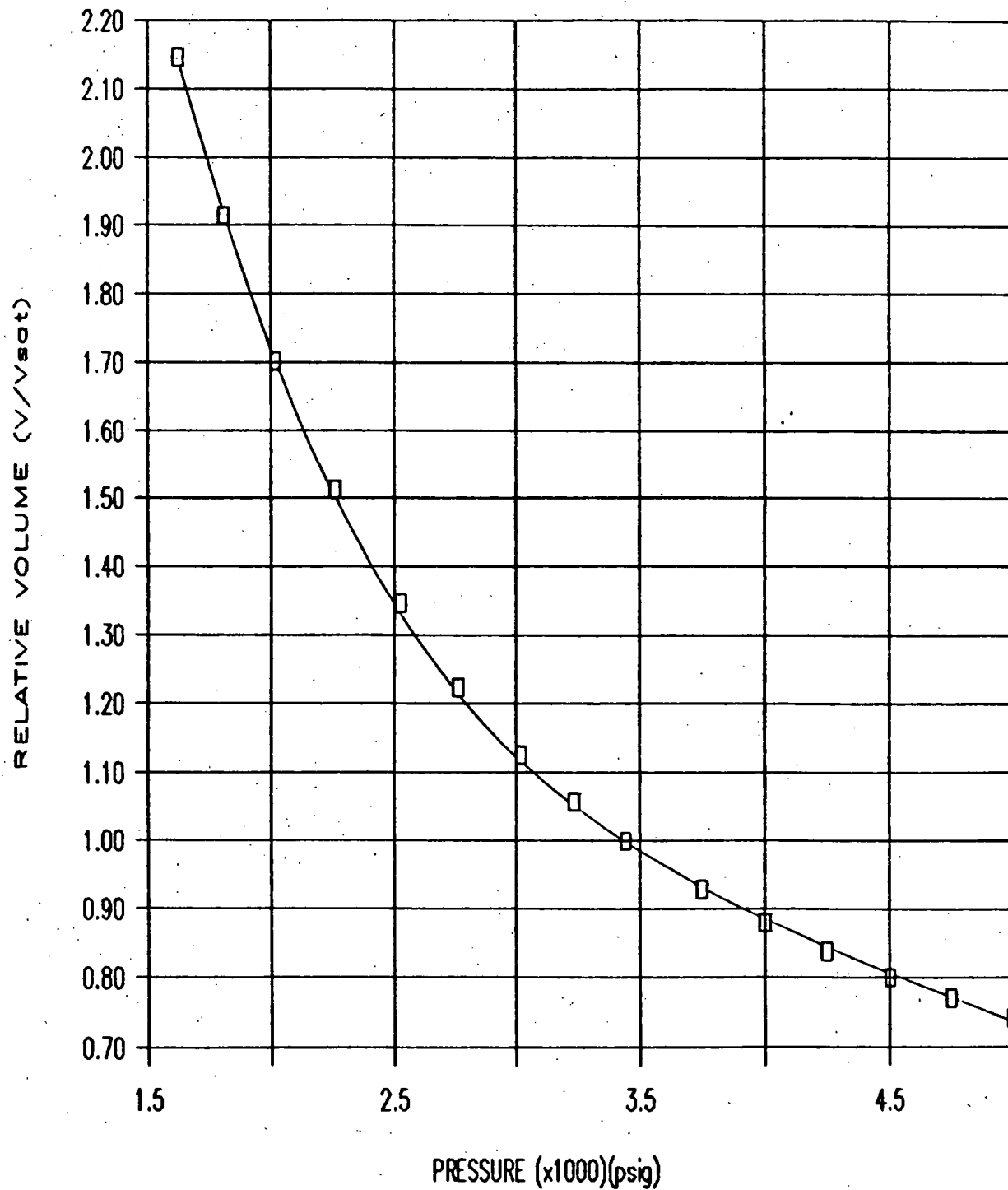
(3) Percent of reservoir hydrocarbon pore space at dew point

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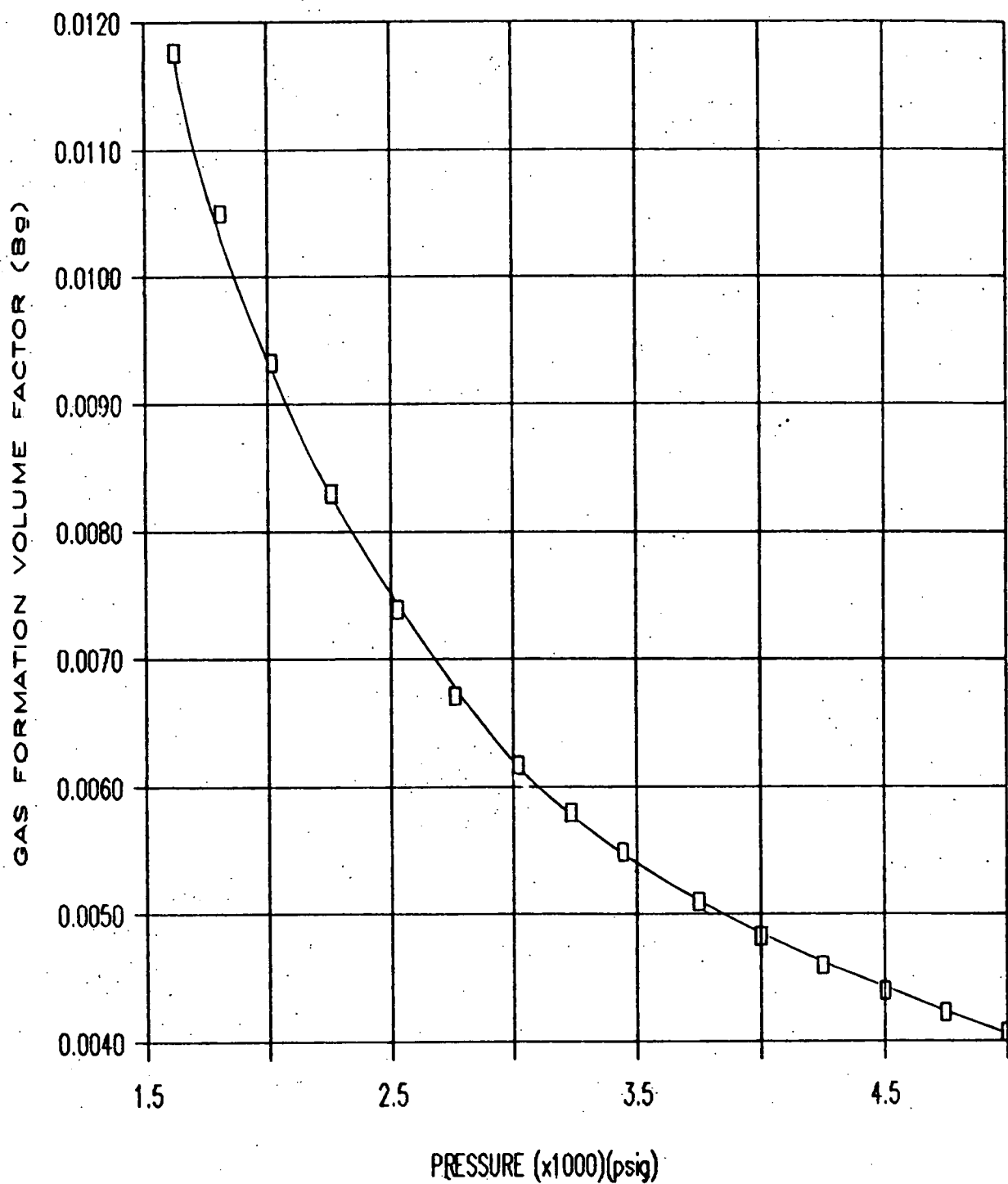
RELATIVE VOLUME



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GAS FORMATION VOLUME FACTOR

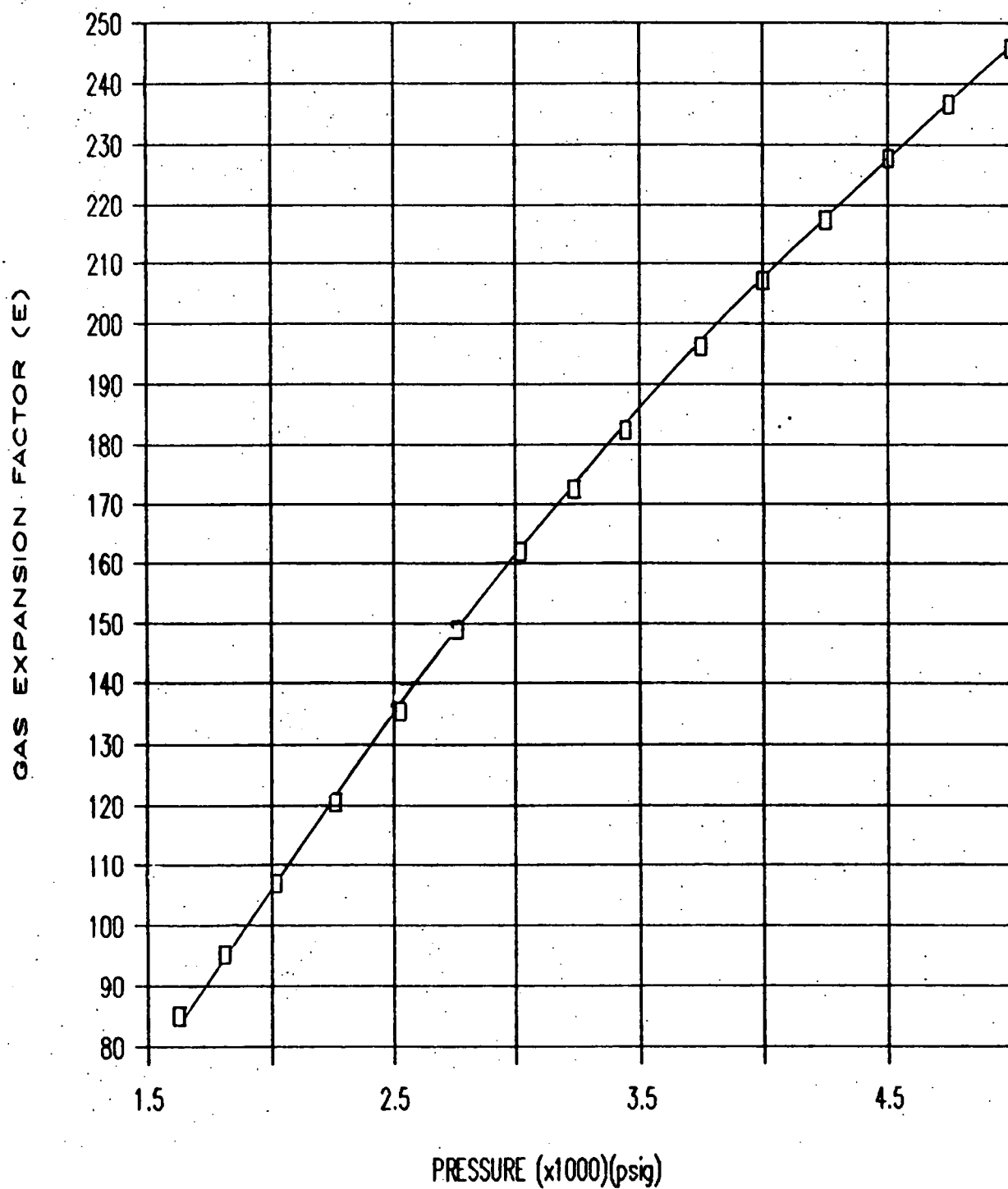


P E T R O L A B

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GAS EXPANSION FACTOR



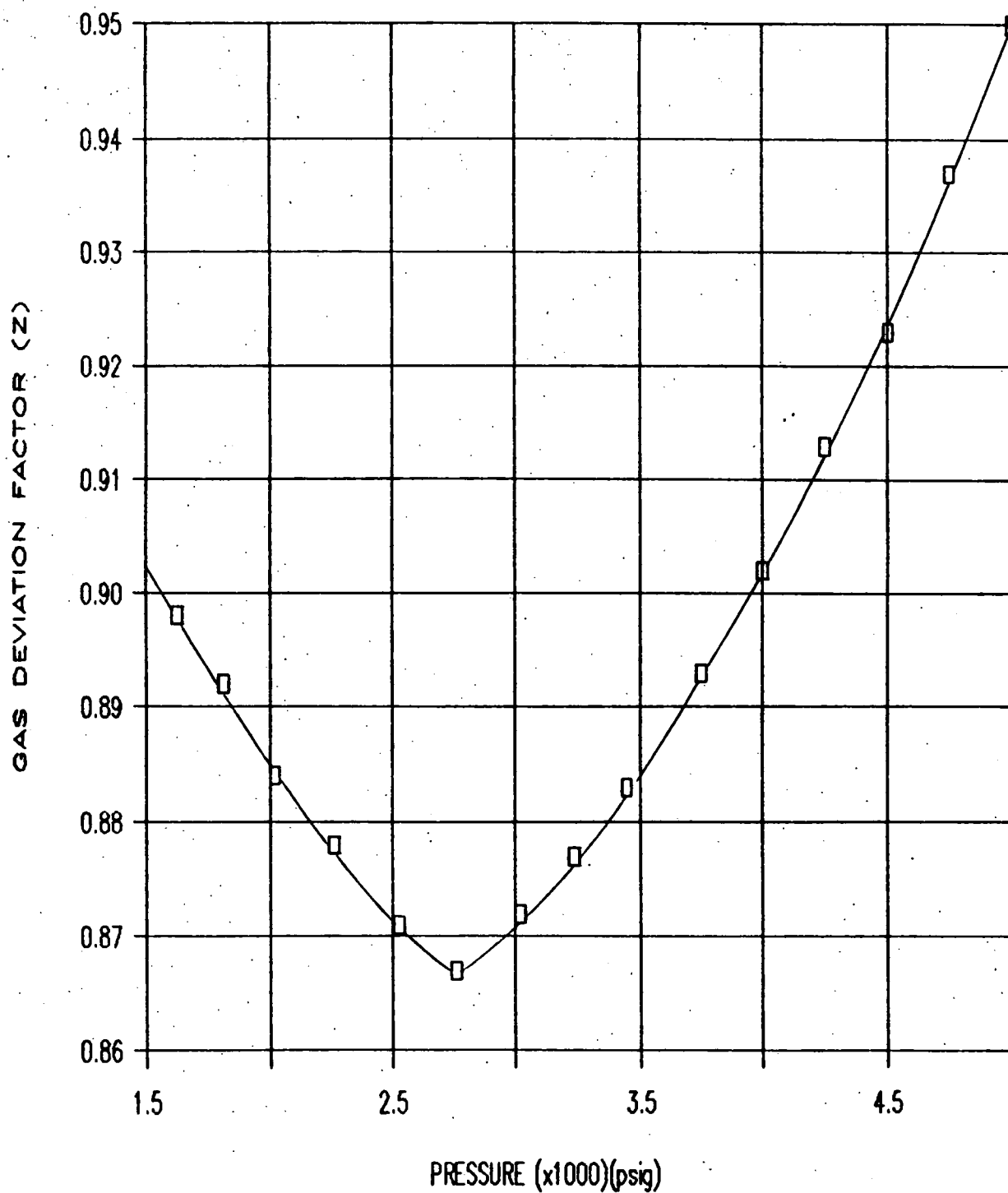
0073

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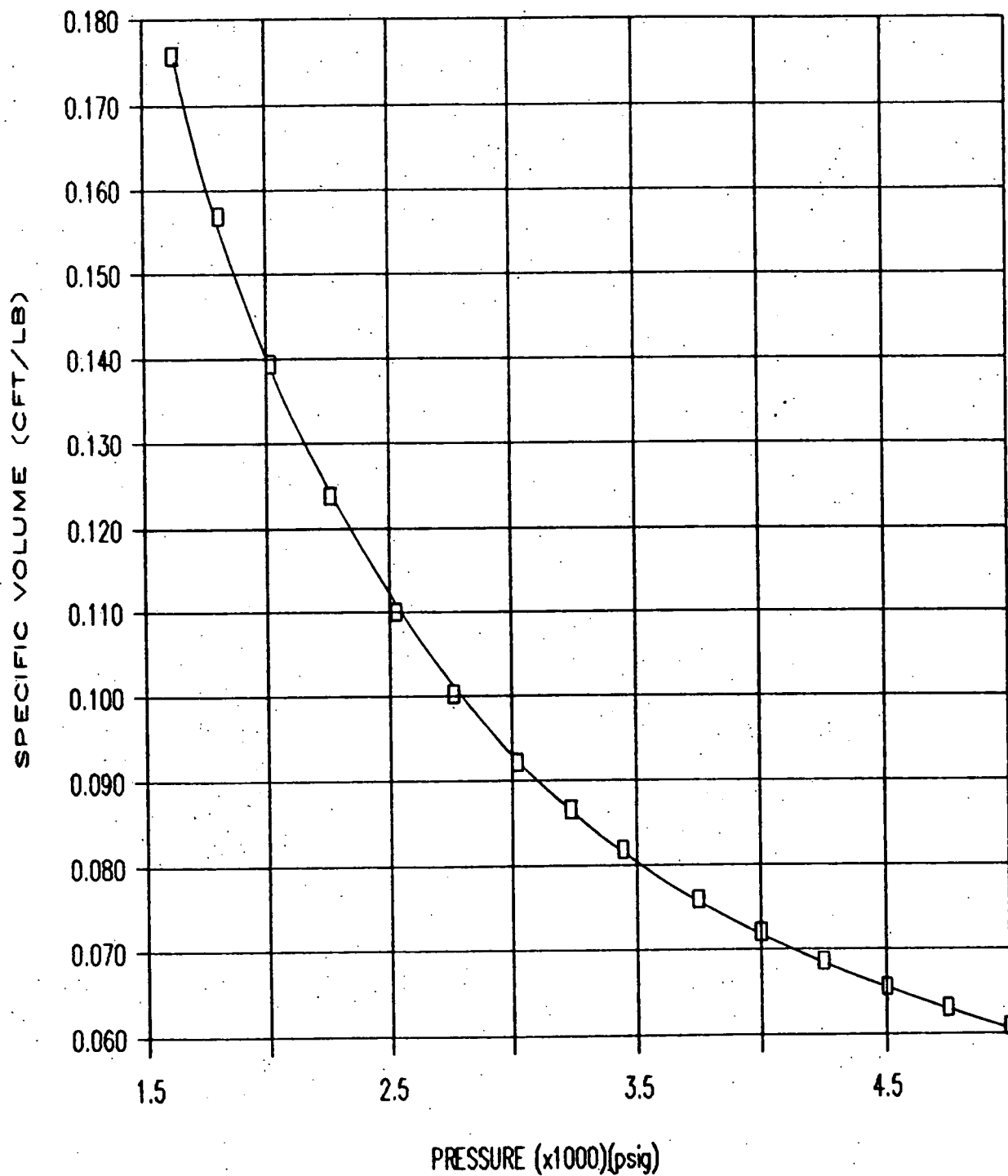
GAS DEVIATION FACTOR



Company: Santos Limited
Well : Mettika # 3

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RESERVOIR FLUID SPECIFIC VOLUME



WELL: Mettika #3

Pf = kPa

ORIFICE SIZE: mm " T = °C

LINE SIZE: mm " Diff = kPa

Cumulative Production to end of April '91 = $40.9 \text{ m}^3 \times 10^6$

Number of hours online in April '91 = 28.9 days

Production in April '91 = $1.5761 \text{ m}^3 \times 10^6$

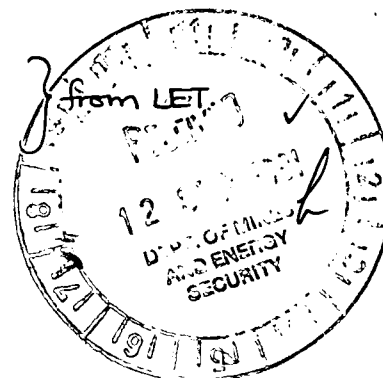
.. Average flow rate in April '91 = $(1.5761 / 28.9) \times 24 = 0.055 \text{ m}^3 \times 10^6 / \text{d}$

Number of days online in May '91 before Shut In 1800 hrs 7/5/91
= 5.063 days.

.. Production up to 1800hrs 7/5/91 = $5.063 \times 0.055 = 0.278 \text{ m}^3 \times 10^6$

Total cumulative production = $40.9 + 0.278$
= $41.178 \text{ m}^3 \times 10^6$
= 1461.6 mmscf ✓

Flow rate just prior to Shut In = $0.0586 \text{ m}^3 \times 10^6$
= 2.080 mmscf/d



SUB-SURFACE PRESSURE SURVEY

0076

CO.		RUN 20 FIELD METTIKA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 7762'
CASING	-	CASING PRESS	ON BOTTOM 1335 7/5
LINER	-	TUBING PRESS	OFF BOTTOM 1015 11/5
DATE	910511	ELEMENT RANGE 0 - 4035	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1800 7/5
MAX TEMP	139 C	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 29321	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	18:00	1720.2	1720.2	.0	20:45	2118.4	2118.4	2.7
	18:02	1762.3	1762.3	.0	21:45	2103.6	2103.6	3.7
	18:03	1843.1	1843.1	.0	22:49	2095.8	2095.8	4.8
	18:04	1933.8	1933.8	.1	0:13	2087.2	2087.2	6.2
	18:07	2035.0	2035.0	.1	1:58	2083.4	2083.4	8.0
	18:12	2141.9	2141.9	.2	5:00	2082.8	2082.8	11.0
	18:18	2247.6	2247.6	.3	9:19	2084.9	2084.9	15.3
	18:25	2334.3	2334.3	.4	13:29	2084.1	2084.1	19.5
	18:28	2402.1	2402.1	.5	18:17	2089.4	2089.4	24.3
	18:35	2456.7	2456.7	.6	23:00	2089.8	2089.8	29.0
	18:38	2491.8	2491.8	.6	4:05	2095.5	2095.5	34.1
	18:38	2501.3	2501.3	.6	9:50	2097.7	2097.7	39.8
	18:41	2458.5	2458.5	.7	16:00	2100.5	2100.5	46.0
	18:44	2403.7	2403.7	.7	23:00	2105.2	2105.2	53.0
	18:53	2338.0	2338.0	.9	5:40	2108.0	2108.0	59.7
	19:01	2296.8	2296.8	1.0	12:19	2111.5	2111.5	66.3
	19:13	2257.8	2257.8	1.2	18:56	2116.6	2116.6	72.9
	19:27	2222.2	2222.2	1.4	1:37	2116.7	2116.7	79.6
	19:50	2173.4	2173.4	1.8	10:15	2116.8	2116.8	88.2
	20:10	2143.9	2143.9	2.2	0:00	.0	.0	.0

LUB IN DWT = 1330 PSI / OUT = 1692 PSI
 LUB IN AMERADA = 1327 PSI / OUT = 1689 PSI

SUB-SURFACE PRESSURE SURVEY

0077

CO.		RUN 10 FIELD METTIKA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 7756'
CASING	-	CASING PRESS	ON BOTTOM 1335 7/5
LINER	-	TUBING PRESS	OFF BOTTOM 1015 11/5
DATE	910511	ELEMENT RANGE 0 - 4002	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1800 7/5
MAX TEMP	139 C	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 29323	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-IP

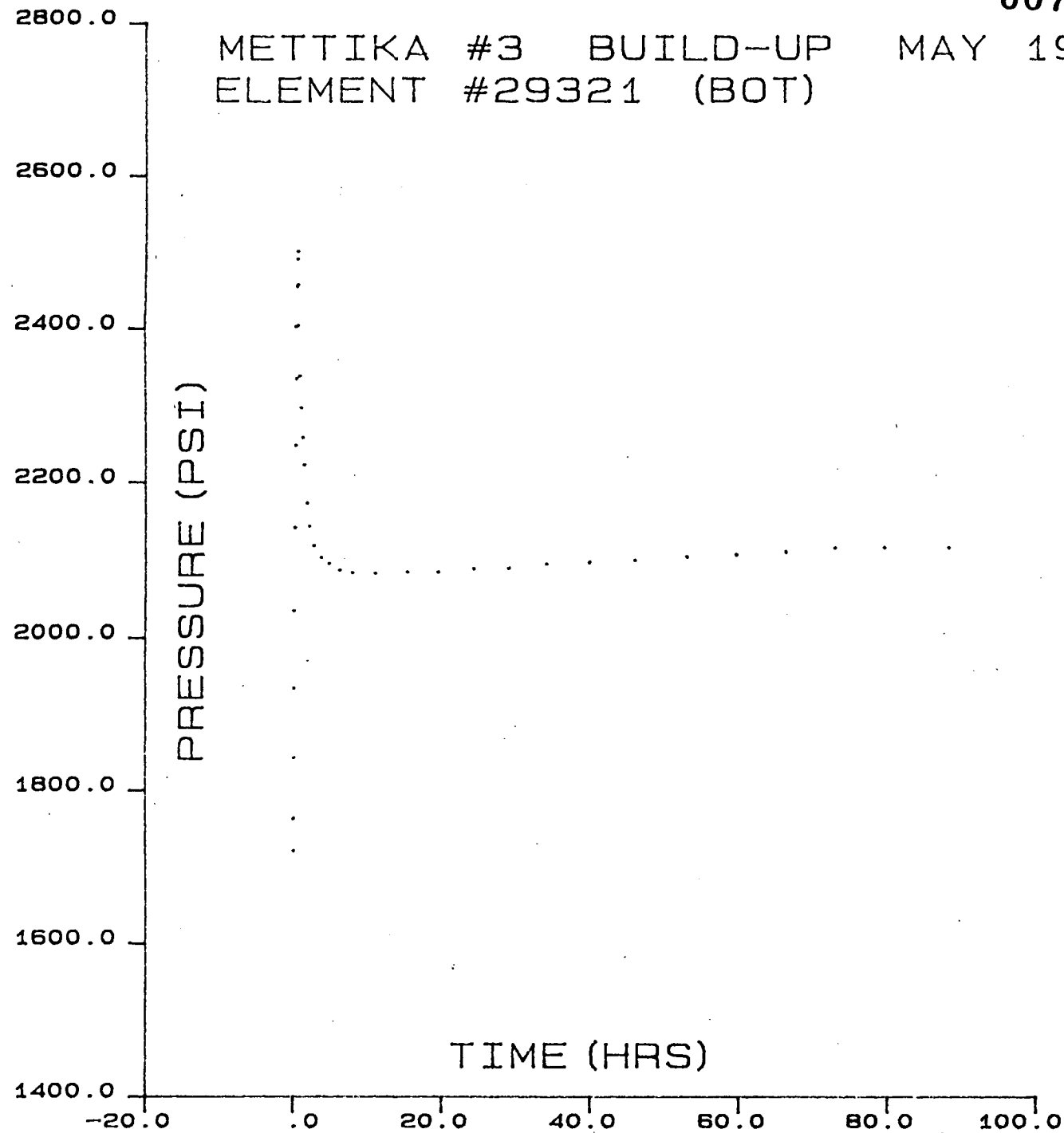
SURVEY DATA

CO.	RUN 10 FIELD METTIKA				WELL 03			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
18:00	1736.9	1736.9	.0	19:58	2174.4	2174.4	2.0	
18:03	1780.9	1780.9	.0	20:29	2141.2	2141.2	2.5	
18:04	1852.9	1852.9	.1	21:21	2124.2	2124.2	3.4	
18:05	1925.6	1925.6	.1	22:13	2116.1	2116.1	4.2	
18:10	1999.6	1999.6	.2	23:42	2108.9	2108.9	5.7	
18:11	2076.0	2076.0	.2	2:19	2100.6	2100.6	8.3	
18:13	2159.9	2159.9	.2	6:01	2099.1	2099.1	12.0	
18:19	2276.5	2276.5	.3	10:01	2100.4	2100.4	16.0	
18:23	2359.8	2359.8	.4	15:40	2102.3	2102.3	21.7	
18:29	2425.7	2425.7	.5	21:16	2104.0	2104.0	27.3	
18:33	2479.6	2479.6	.6	2:17	2107.1	2107.1	32.3	
18:37	2506.3	2506.3	.6	7:51	2112.7	2112.7	37.8	
18:41	2481.8	2481.8	.7	14:38	2114.9	2114.9	44.6	
18:44	2432.7	2432.7	.7	21:49	2118.5	2118.5	51.8	
18:48	2379.9	2379.9	.8	5:07	2122.6	2122.6	59.1	
18:52	2341.9	2341.9	.9	12:36	2124.7	2124.7	66.6	
19:01	2307.4	2307.4	1.0	20:41	2128.9	2128.9	74.7	
19:16	2261.6	2261.6	1.3	6:01	2134.8	2134.8	84.0	
19:37	2213.4	2213.4	1.6	10:15	2137.3	2137.3	88.2	

LUB IN DWT = 1330 PSI / OUT = 1692 PSI
 LUB IN AMERADA = 1340 PSI / OUT = 1704 PSI

0078

METTIKA #3 BUILD-UP MAY 1991
ELEMENT #29321 (BOT)



EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AA67183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Saturday, 11th May 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	METTIKA#3	PATCHAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	29323	3950	21/ 4/91
Bottom	29321	4000	21/ 4/91

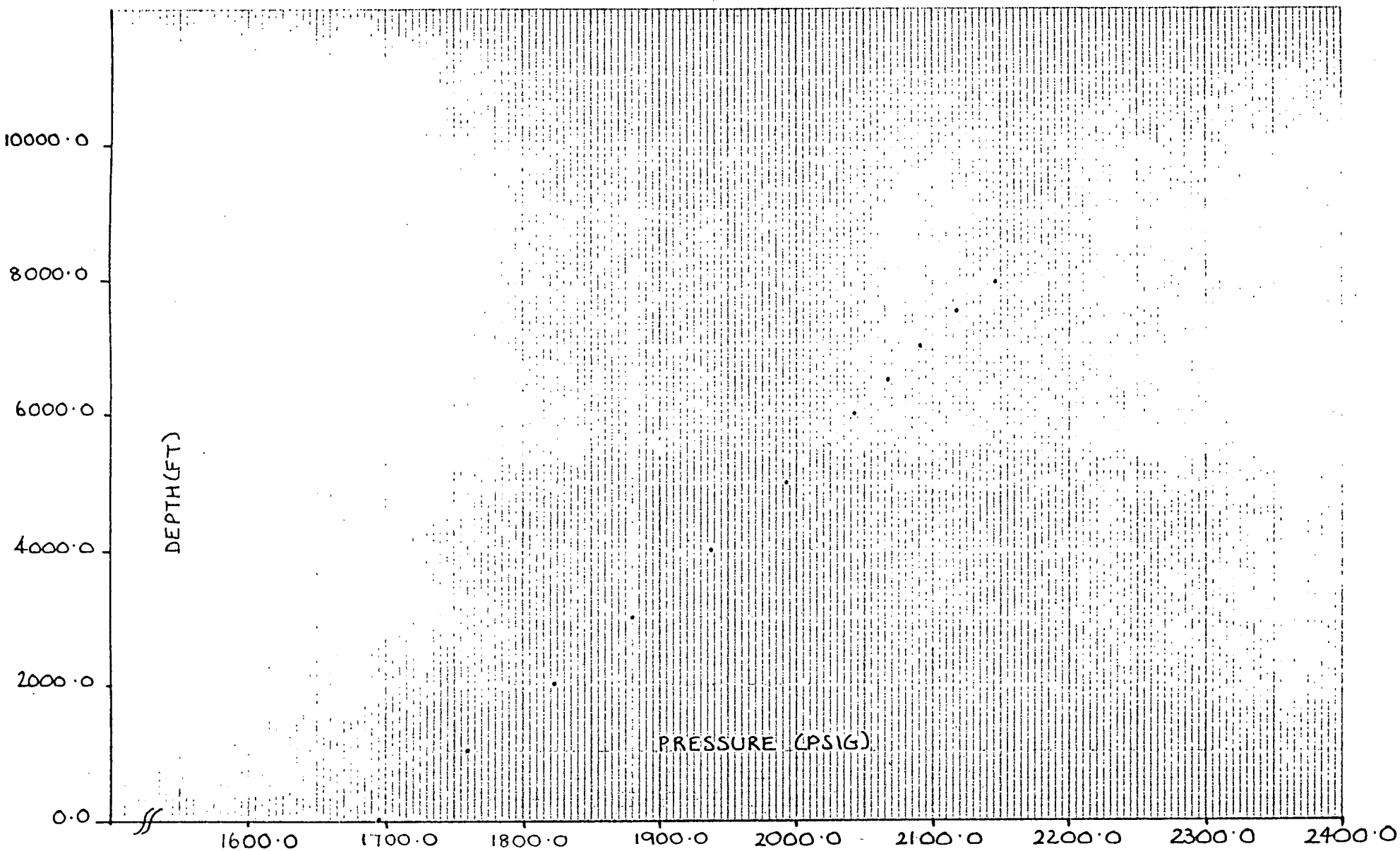
WELL DATA	
PARAMETER	VALUE
DWT In	1690 PSIG
DWT Out	1690 PSIG
Max BHT	278 F

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.8510	1703.1	-----	0.8430	1696.0	-----
1000	0.8840	1768.9	0.066	0.8750	1760.5	0.065
2000	0.9140	1828.7	0.060	0.9060	1823.0	0.063
3000	0.9440	1888.5	0.060	0.9340	1879.5	0.057
4000	0.9720	1944.4	0.056	0.9630	1938.0	0.059
5000	0.9990	1998.3	0.054	0.9900	1992.5	0.055
6000	1.0240	2048.1	0.050	1.0150	2042.9	0.050
6500	1.0360	2072.1	0.048	1.0270	2067.1	0.048
7000	1.0500	2100.0	0.056	1.0390	2091.3	0.048
7500	1.0640	2127.9	0.056	1.0520	2117.5	0.053
7963	1.0780	2155.8	0.060	1.0660	2145.8	0.061
LUB.	0.8530	1707.1	-----	0.8430	1696.0	-----

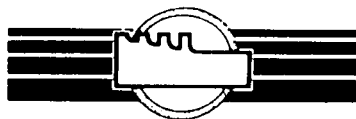
GENERAL REMARKS

METTIKA # 3 — STATIC PRESSURE GRADIENT — 11/5/91
ELEMENT # 29321/4000 (BOT)

0080



EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

WELL NAME : METTIKA #3

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

PERFORATIONS : 7792' → 8134' KB.

FORMATION : PATCHAWARRA

PAGE: 1. OF 5.

DATE: 4.5.91.

OPR : A.SMITH

Last 48
hours only.
 O₂ : 58.613 E3m³/d ✓
 H/C : 0.683 m³/d ✓
 H₂O : 1.500 m³/d ✓

0081

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION			L.G.R.	
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCFD m ³ 10 ³	OIL BBL m ³	WATER BBL m ³	m ³ /10 ⁶ m ³	
4 TH MAY 1991.															
10:00	0	9563	0	40	100	START TEST.									
12:00	2	9488		46		9446	46	38.71	0	0	3.226	0	0	0	
14:00	4	9377		47		9343	47	40.10	↓	↓	6.568	↓	↓	↓	
16:00	6	9350		45		9274	47	41.67	↓	↓	10.040	↓	↓	↓	
18:00	8	9336		50		9239	48	42.07	0	0	13.546	0	0	0	
20:00	10	9350		50		9205	48	41.96	.799	1.599	17.043	.066	.133	57	
22:00	12	9377		49		9308	49	41.61	0	1.599	20.510	.066	.266	38	
24:00	14	9405		45		9308	47	40.88	0	2.399	23.917	.066	.466	58	
5 TH MAY 1991.															
02:00	16	9398		45		9308	46	40.54	0	1.599	27.295	.066	.599	39	
04:00	18	9384		45		9274	45	40.62	0	2.399	30.680	.066	.799	59	
06:00	20	9363		48		9239	48	40.57	0	.799	34.061	.066	.866	20	
08:00	22	9481		44		9515	45	39.20	1.599	1.599	37.328	.199	.999	82	
10:00	24	9288		50		9239	48	43.04	0	.799	40.915	.199	1.066	19	
12:00	26	9177		52		9170	50	44.74	0	2.399	44.643	.199	1.266	54	
14:00	28	9260		54		9205	53	46.13	.799	.799	48.487	.266	1.333	35	
16:00	30	9391		53		9308	52	46.68	.799	1.599	52.377	.333	1.466	51	
18:00	32	9294		53		9205	53	47.81	1.199	1.599	56.361	.433	1.599	58	
20:00	34	9115		52		8998	54	56.43	.399	2.799	61.063	.466	1.832	56	
22:00	36	9170		53		9101	54	57.88	0	1.999	65.886	.466	1.999	34	
24:00	38	9115		54		8998	54	60.19	.799	1.199	70.902	.533	2.099	33	

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB.

PAGE: 2 OF 5

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 6-5-91

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

OPR : A. SMITH

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLS m ³	WATER BBLS m ³	L.G.R m ³ /10 ⁶ m ³	
6TH MAY 1991.															
02:00	40	9170	0	54	100%	9032	54	60.34	0	1.599	75.930	.533	2.232	26	
04:00	42	9232		54		9101	53	58.45	0	1.599	80.801	.533	2.365	27	
06:00	44	9363		52		9239	54	56.24	0	1.599	85.488	.533	2.498	28	
08:00	46	9412		55		9308	53	55.86	1.999	0	90.143	.699	2.498	36	
10:00	48	9439		53		9377	52	56.35	.399	1.999	94.755	.732	2.665	43	
12:00	50	9446		53		9412	52	56.41	.799	1.599	99.456	.799	2.798	42	
14:00	52	9446		53		9412	52	55.49	.399	1.599	104.08	.832	2.931	36	
16:00	54	9419		53		9377	52	56.26	.799	.799	108.77	.899	2.998	28	
18:00	56	9356		54		9308	54	57.40	.799	.799	113.55	.966	3.069	28	
20:00	58	9390		54		9239	55	56.01	.799	1.599	118.22	1.033	3.197	43	
22:00	60	9343		55		9274	55	57.02	.799	1.599	122.97	1.099	3.330	42	
24:00	62	9343		54		9239	54	57.11	.799	1.599	127.73	1.166	3.463	42	
7TH MAY 1991.															
02:00	64	9322		53		9170	53	57.05	.399	1.599	132.48	1.199	3.596	35	
04:00	66	9308		53		9170	53	58.75	.799	1.599	137.38	1.266	3.730	41	
06:00	68	9294		54		9136	53	58.60	.399	1.599	142.26	1.299	3.863	34	
08:00	70	9198		54		9032	53	61.38	.799	1.199	147.37	1.366	3.963	33	
10:00	72	9170		54		9101	53	62.49	0	1.599	152.58	1.366	4.096	26	
12:00	74	9170		54		9136	53	63.43	1.999	1.199	157.87	1.533	4.196	50	
14:00	76	9205		54		9136	52	62.78	.799	1.599	163.10	1.599	4.329	38	
14:30		9219	0	54	100%										

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 3 OF 5

WELL NAME: METTIKA #3.

FORMATION : PATCHANARRA

DATE: 7-5-91

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

OPR : A. SMITH

TIME		WELLHEAD DATA				SEPARATOR		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	L.G.R m ³ /10 ⁶ m ³	
7 TH MAY 1991.															
15:00	77	9219	Ø	54	100%	9170	52	61.35	1.599	1.599	165.66	1.666	4.396	52	
15:30		9226	↑	54	↑										
16:00	78	9212		54		9136	52	60.37	.799	2.399	168.17	1.699	4.496	53	
16:30															
17:00	79	9205		54		9136	52	60.37	1.599	.799	170.69	1.766	4.529	40	
17:30			↓		↓										
18:00	80	9205	Ø	54	100%	9101	52	61.03	.799	1.599	173.23	1.799	4.596	39	
18:00						S.W.1 FOR 9642 BUILD UP.									
18:15		12342	Ø												
18:30	.5	13755	↑												
18:45		13149													
19:00	1.	12701													
19:15		12432													
19:30	1.5	12266													
19:45		12094													
20:00	2	11942													
20:15		11859													
20:30	2.5	11797													
20:45		11756													
21:00	3	11735	↓												
21:15		11721	Ø												

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: A. OF 5

WELL NAME: METTIKA#3.

FORMATION : PATCHAWARRA

DATE: 7-5-91

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

OPR : A. Smith

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³	OIL BBLS m ³	WATER BBLS m ³		
7 TH MAY 1991.															
21:30	3.5	11701	0												
21:45		11673													
22:00	4.	11659													
8 TH MAY 1991.															
02:00		11611													
06:00	12.	11549													
10:00		11542													
14:00		11570													
18:00	24	11556													
22:00		11542													
9 TH MAY 1991.															
02:00		11535													
06:00	36	11549													
10:00		11556													
14:00		11563													
18:00	48	11570													
22:00		11570													
10 TH MAY 1991.															
02:00		11577													
06:00	60	11577													
10:00		11584	0												

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 5 OF 5

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 10-5-91

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

OPR : A SMITH.

TIME

WELLHEAD DATA

FLOW RATES

CUMULATIVE PRODUCTION

DATE

FLOW OR
SHUT IN
TIME
(HOURS)TUBING
PRESSURE
(PSI/KPa)ANNULUS
PRESSURE
(PSI/KPa)WELLHEAD
TEMP
(°F/°C)CHOKE
SIZEPRESSURE
(PSI/KPa)TEMP
(°F/°C)GAS
MMSCFD
m³/10³/DOIL
BPD
m³/DWATER
BPD
m³/DGAS
MMSCF
m³/10³OIL
BBLs
m³WATER
BBLs
m³10TH MAY 1991.

14:00

11597

0

18:00 72

11618

22:00

11625

11TH MAY 1991.

02:00

11632

06:00 84

11632

10:00

11639

10:15 8825

11639

0

BUILD UP COMPLETED & P.O.O.H. NOTE: REFER TO SEQUENCE OF EVENTS & -

- GAUGE RUN DATA SHEETS FOR MORE INFORMATION. (STATIC GRADIENT ETC).

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 1. OF 3

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 4-5-91

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

OPR : A.SMITH

OIL API GRAVITY = @ 60°F

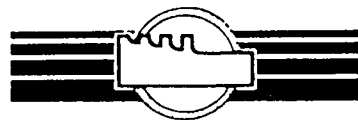
TANK
NUMBER

#1 = 55

#2 =

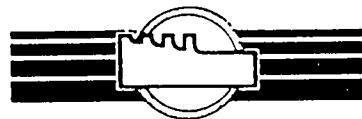
TANK
CAPACITY#1 = 56.6 bbls/m³#2 = bbls/m³TANK
SCALE#1 = 1" = 2666 m³ bbls/in - m³/cm#2 = bbls/in - m³/cm

DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)
4 TH MAY 1991.											
10:00	0	# 55	31	28	TARE DIP			3	START TEST.		
18:00	8		31	28	0	0	0	3	0	0	0
20:00	10		31.75	28.25	.066	.799	.066	3.5	.133	1.599	.133
22:00	12		32.25	28.25	0	0	.066	4	.133	1.599	.266
24:00	14		33	28.25	0	0	.066	4.75	.199	2.399	.466
5 TH MAY 1991.											
02:00	16		33.5	28.25	0	0	.066	5.25	.133	1.599	.599
04:00	18		34.25	28.25	0	0	.066	6	.199	2.399	.799
06:00	20		34.5	28.25	0	0	.066	6.25	.066	.799	.866
08:00	22		35.5	28.75	.133	1.599	.199	6.75	.133	1.599	.999
10:00	24		35.75	28.75	0	0	.199	7	.066	.799	1.066
12:00	26		36.5	28.75	0	0	.199	7.75	.199	2.399	1.266
14:00	28		37	29	.066	.799	.266	8	.066	.799	1.333
16:00	30		37.75	29.25	.066	.799	.333	8.5	.133	1.599	1.466
18:00	32	0	38.625	29.625	.099	1.199	.433	9	.133	1.599	1.599
20:00	34		39.625	29.75	.033	.399	.466	9.875	.233	2.799	1.832
22:00	36		40.25	29.75	0	0	.466	10.5	.166	1.999	1.999
24:00	38		40.875	30	.066	.799	.533	10.875	.099	1.199	2.099
6 TH MAY 1991.											
02:00	40		41.375	30	0	0	.533	11.375	.133	1.599	2.232



CUSTOMER : SANTOS				PERFORATIONS: 7792' → 8134' KB.				PAGE: 2 OF 3			
WELL NAME: METTIKA #3.				FORMATION : PATCHAWARRA				DATE: 6-5-91			
TEST TYPE : L.E.T & B.H.P								OPR : A.Smith			
TANK NUMBER	#1 = 55	TANK CAPACITY	#1 = 56.6	bbls/m ³	TANK SCALE	#1 = 1" = .2666 m ³	bbls/in - m ³ /cm	OIL API GRAVITY = @ 60°F			
	#2 =		#2 =	bbls/m ³		#2 =	bbls/in - m ³ /cm				

DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)
6 TH MAY 1991.											
04:00	42	#55	41.875	30	0	0	.533	11.875	.133	1.599	2.365
06:00	44		42.375	30	0	0	.533	12.375	.133	1.599	2.498
08:00	46		43	30.625	.166	1.999	.699	12.375	0	0	2.498
10:00	48		43.75	30.75	.033	.399	.732	13	.166	1.999	2.665
12:00	50		44.5	31	.066	.799	.799	13.5	.133	1.599	2.798
14:00	52		45.125	31.125	.033	.399	.832	14	.133	1.599	2.931
16:00	54		45.625	31.375	.066	.799	.899	14.25	.066	.799	2.998
18:00	56		46.125	31.625	.066	.799	.966	14.5	.066	.799	3.064
20:00	58		46.875	31.875	.066	.799	1.033	15	.133	1.599	3.197
22:00	60		47.625	32.125	.066	.799	1.099	15.5	.133	1.599	3.330
24:00	62		48.375	32.375	.066	.799	1.166	16	.133	1.599	3.463
7 TH MAY 1991.											
02:00	64		49	32.5	.033	.399	1.199	16.5	.133	1.599	3.596
04:00	66		49.75	32.75	.066	.799	1.266	17	.133	1.599	3.730
06:00	68		50.375	32.875	.033	.399	1.299	17.5	.133	1.599	3.863
08:00	70		51	33.125	.066	.799	1.366	17.875	.099	1.199	3.963
10:00	72		51.5	33.125	0	0	1.366	18.375	.133	1.599	4.096
12:00	74		52.5	33.75	.166	1.999	1.533	18.75	.099	1.199	4.196
14:00	76		53.25	34	.066	.799	1.599	19.25	.133	1.599	4.329
15:00	77	#55	53.75	34.25	.066	1.599	1.666	19.5	.066	1.599	4.396



CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 3 OF 3

WELL NAME: METTIKA #3

FORMATION : PATCHANARRA

DATE: 7-5-91

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

OPR : A.SMITH

TANK

#1 = #55

TANK

#1 = 56.6

bbls/m³

TANK

#1 = 1" = 2.666 m³ bbls/in - m³/cm

OIL API GRAVITY = @ 60°F

NUMBER

#2 =

CAPACITY

#2 =

bbls/m³

SCALE

#2 = bbls/in - m³/cm

DATE

FLOW

TANK

TOTAL

OIL/CONDENSATE PRODUCTION

WATER PRODUCTION

TIME

TIME
(HOURS)USED
(NUMBER)TANK DIP
(IN/CM)TANK
DIP
(IN/CM)TANK
PRODUCTION
(BBLT/m³)FLOW
RATE
(BPD/m³D)CUMULATIVE
PRODUCTION
(BBLT/m³)TANK
DIP
(IN/CM)TANK
PRODUCTION
(BBLT/m³)FLOW
RATE
(BPD/m³D)CUMULATIVE
PRODUCTION
(BBLT/m³)7TH MAY 1991.

16:00

78

#55

54.25

34.375

.033

.799

1.699

19.875

.099

2.399

4.496

17:00

79

54.625

34.625

.066

1.599

1.766

20

.033

.799

4.529

18:00

80.48

55

34.75

.033

.799

1.799

20.25

.066

1.599

4.596

18:00

L.E.T COMPLETED & S.W.1 FOR 96 HR BUILDUP.

EXPERTEST PTY. LTD.

GAS FLOW CALCULATIONS

CUSTOMER : GANTOS

PERFORATIONS: 7792' → 8134' KB.

PAGE: 1. OF 3

WELL NAME: METTIKA #3.

FORMATION : PATCHAWARRA

DATE: A-5-91.

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

OPR : A.SMITH.

ORIFICE METER TYPE: DANIELS SNR.	STATIC PRESSURE RANGE : 0 → 1500 PSIG	GAS SPECIFIC GRAVITY (SG) = 0.800
METER RUN SIZE : 2.90"	DIFFERENTIAL PRESS. RANGE: 0 → 100 IN WC	FG $\sqrt{(1/SG)}$ = 1.1180
SEPARATOR NO : #238	STANDARD CONDITIONS : 14.73 PSI @ 60°F	C ₂ (FU × FG) = 26.8328

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
4 TH MAY 1991.															
10:00	0														
12:00	2	100	1385	60	115	.875	288.271	155.41	.9510	1.2016	1.0003	177.632	4766.373	1.374	38.711
14:00	4		1370	66	117	— —	300.699	— —	.9493	1.1954	1.0003	176.415	4733.735	1.423	40.103
16:00	6		1360	72	117	— —	312.922	— —	.9493	1.1935	1.0003	176.143	4726.436	1.479	41.669
18:00	8		1355	43	118	1.00	241.381	204.04	.9485	1.1910	1.0002	230.542	6186.100	1.493	42.069
20:00	10		1350	43	118		240.936		.9485	1.1900	1.0002	230.362	6181.277	1.489	41.959
22:00	12		1365	42	120		239.437		.9469	1.1897	1.0002	229.889	6168.589	1.477	41.612
24:00	14		1365	40	117		233.666		.9493	1.1945	1.0002	231.412	6209.436	1.451	40.878
5 TH MAY 1991.															
02:00	16		1365	39	115		230.727		.9510	1.1977	1.0002	232.452	6237.349	1.439	40.545
04:00	18		1360	39	113		230.304		.9526	1.2001	1.0002	233.324	6260.755	1.442	40.623
06:00	20		1355	40	118		232.809		.9485	1.1910	1.0002	230.539	6186.011	1.440	40.575
08:00	22		1395	35	113		220.964		.9526	1.2070	1.0002	234.651	6296.347	1.391	39.197
10:00	24		1355	45	118		246.931		.9485	1.1910	1.0002	230.544	6186.160	1.527	43.037
12:00	26		1345	50	122		259.326		.9452	1.1830	1.0002	228.217	6123.705	1.588	44.741
14:00	28		1350	54	127		270.000		.9412	1.1766	1.0003	226.019	6064.740	1.637	46.134
16:00	30		1365	54	125		271.496		.9428	1.1821	1.0003	227.457	6103.313	1.657	46.685
18:00	32		1350	58	127		279.821		.9412	1.1766	1.0003	226.023	6064.857	1.697	47.813
20:00	34	100	1320	84	129	1.00	332.986	204.04	.9396	1.1688	1.0004	224.176	6015.283	2.003	56.432

0090

EXPERTEST PTY. LTD.

GAS FLOW CALCULATIONS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB.

PAGE: 2. OF 3

WELL NAME: METTIKA #3.

FORMATION : PATCHAWARRA

DATE: 5-5-91

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

OPR : A.SMITH

ORIFICE METER TYPE: DANIELS SNR.

STATIC PRESSURE RANGE : 0 → 1500 PSIG

GAS SPECIFIC GRAVITY (SG) = .800

METER RUN SIZE : 2.900"

DIFFERENTIAL PRESS. RANGE: 0 → 100 IN WC

FG $\sqrt{(1/SG)}$ = 1.1180

SEPARATOR NO : #238

STANDARD CONDITIONS : 14.73 PSI @ 60°F

C₂ (FU × FG) = 26.8928

DATE TIME		FLOW TIME (HOURS)	CHOKE SIZE %	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	√(P _F × H _W)	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = √(P _F × H _W) × C	
									F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
5 TH MAY 1991.																
2200	36	100	1335	37	129	1.00		340.400	204.04	.9396	1.1713	1.0004	224.657	6028.182	2.054	57.880
2400	38	100	1320	34	129	1.25		223.964	323.63	.9396	1.1688	1.0002	355.483	9538.621	2.136	60.188
6 TH MAY 1991.																
02:00	40	100	1325	38	129			224.388		.9396	1.1696	1.0002	355.735	9545.393	2.142	60.345
04:00	42		1335	35	127			216.159		.9412	1.1740	1.0002	357.678	9597.522	2.074	58.449
06:00	44		1355	32	129			208.230		.9396	1.1746	1.0001	357.245	9585.907	1.996	56.237
08:00	46		1365	31	127			205.706		.9412	1.1742	1.0001	359.226	9639.070	1.983	55.463
10:00	48		1375	30	126			203.101		.9420	1.1823	1.0001	360.498	9673.184	1.965	55.351
12:00	50		1380	31	126			206.833		.9420	1.1832	1.0001	360.763	9680.290	2.002	56.410
14:00	52		1380	30	126			203.469		.9420	1.1832	1.0001	360.761	9680.246	1.969	55.492
16:00	54		1375	31	126			206.458		.9420	1.1823	1.0001	360.499	9673.229	1.997	56.266
18:00	56		1365	33	129			212.238		.9396	1.1763	1.0002	357.756	9599.602	2.037	57.401
20:00	58		1355	32	131			208.231		.9380	1.1719	1.0001	355.808	9547.338	1.988	56.011
22:00	60		1360	33	131			211.849		.9380	1.1727	1.0002	356.059	9554.065	2.024	57.024
24:00	62		1355	33	129			211.459		.9396	1.1746	1.0002	357.247	9585.952	2.027	57.109
7 TH MAY 1991.																
02:00	64		1345	33	127			210.677		.9412	1.1757	1.0002	358.192	9611.314	2.025	57.449
04:00	66		1345	35	127			216.967		.9412	1.1757	1.0002	358.195	9611.404	2.085	58.753
06:00	68	100	1340	35	127	1.25		216.564	323.63	.9412	1.1749	1.0002	357.937	9604.459	2.079	58.601

0091

PAGE: 3. OF 3

DATE: 7-5-91

OPR : A.SMITH

GAS SPECIFIC GRAVITY (SG) = 0.800

$$FG \sqrt{(I/SG)} = 1.1180$$
$$C_2 \quad (FU \times FG) = 26.9328$$
ET 106

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 1. OF 4

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 2-5-91.

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

OPR : A. SMITH

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
2 ND MAY 1991.														
15:50	ARRIVE ON LOCATION & SPOT EQUIPMENT.													
17:00	SECURE LOCATION.													
3 RD MAY 1991.														
14:35	S.W.1 & RIG IN SWAB VALVE.													
14:50	WELL BACK ON LINE 100% & RIG UP WIRELINE UNIT.													
15:25	PRESSURE TEST WIRELINE EQUIPMENT, (O.K.) & PERFORM DRIFT RUN. / REFER TO SEQUENCE OF EVENTS.													
16:20	DRIFT RUN COMPLETED & RIG UP TESTING EQUIPMENT, TEST FLANGES, SEPARATOR, TANK, ETC..													
17:10	SECURE LOCATION.													
4 TH MAY 1991.														
09:00	RIG IN COMPLETED & PRESSURE TEST EQUIPMENT, O.K.													
09:30		9563	0	40	100%	TRIM FLOW THROUGH SEPARATOR & ENGAGE A .875" ORIFICE PLATE.								
10:00	0	9563	↑	40	↑	START TEST.					31	28	TARE OIP	3
12:00	2	9488	↓	46	↓		.875	1370	60	115	—	—		—
14:00	4	9377	↓	43	↓		—	1355	66	117	—	—		—
16:00	6	9350	0	45	100%		—	1345	72	117	—	—		—
16:00						CHANGE TO A 1.00" ORIFICE PLATE.								
18:00	8	9336	0	50	100%		1.00	1340	43	118	—	—		—
20:00	10	9350	↑	50	↑		↑	1335	43	118	31.75	28.25		3.5
22:00	12	9377	↓	49	↓		↓	1350	42	120	32.25	28.25		4
24:00	14	9405	0	45	100%		1.00	1350	40	117	33	28.25		4.75

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 813A' KB

PAGE: 2 OF 4

WELL NAME: METTIKA #3.

FORMATION : PATCHAWARRA

DATE: 5-5-91

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

OPR : A. SMITH

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPA)	ANNULUS PRESSURE (PSI/KPA)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
5 TH MAY 1991														
02:00	16	9398	0	45	100		1.00	1350	39	115	33.5	28.25		5.25
04:00	18	9384	↑	45	↑		↑	1345	39	113	34.25	28.25		6
06:00	20	9363	↑	48	↑		↑	1340	40	118	34.5	28.25		6.25
08:00	22	9481	↑	44	↑		↑	1380	35	113	35.5	28.75		6.75
10:00	24	9288	↑	50	↑		↑	1340	45	118	35.75	28.75		7
12:00	26	9177	↑	52	↑		↑	1330	50	122	36.5	28.75		7.75
14:00	28	9260	↑	54	↑		↑	1335	54	127	37	29		8
16:00	30	9391	↑	53	↑		↑	1350	54	125	37.75	29.25		8.5
18:00	32	9294	↑	53	↑		↑	1335	58	127	38.625	29.625		9
20:00	34	9115	↓	52	↓		↓	1305	84	129	39.625	29.75		9.875
22:00	36	9170	0	53	100		1.00	1320	87	129	40.25	29.75		10.5
22:00						CHANGE TO A		1.250"	ORIFICE PLATE,					
24:00	38	9115	0	54	100		1.250	1305	38	129	40.875	30		10.875
6 TH MAY 1991			↑		↑		↑							
02:00	40	9170	↑	54	↑		↑	1310	38	129	41.375	30		11.375
04:00	42	9232	↑	54	↑		↑	1320	35	127	41.875	30		11.875
06:00	44	9363	↑	52	↑		↑	1340	32	129	42.375	30		12.375
08:00	46	9412	↑	55	↑		↑	1350	31	127	43	30.625		12.375
10:00	48	9439	↑	53	↑		↑	1360	30	126	43.75	30.75		13
12:00	50	9446	↓	53	↓		↓	1365	31	126	44.5	31		13.5
14:00	52	9446	0	53	100		1.250	1365	30	126	45.125	31.125		14

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8139' KB.

PAGE: 3 OF 4

WELL NAME: METTIKA #3

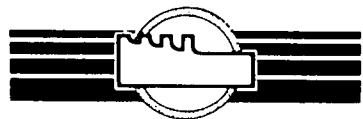
FORMATION : PATCHAWARRA

DATE: 6-5-91

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

OPR : A. SMITH

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
6 TH MAY 1991.														
16:00	54	9419	0	53	100%		1.250"	1360	31	126	45.625	31.375		14.25
18:00	56	9356		54				1350	33	129	46.125	31.625		14.5
20:00	58	9390		54				1340	32	131	46.875	31.875		15
22:00	60	9343		55				1345	33	131	47.625	32.125		15.5
24:00	62	9343		54				1340	33	129	48.375	32.375		16
7 TH MAY 1991.														
02:00	64	9322		53				1330	33	127	49	32.5		16.5
04:00	66	9308		53				1330	35	127	49.75	32.75		17
06:00	68	9294		54				1325	35	127	50.375	32.875		17.5
08:00	70	9198		54				1310	39	127	51	33.125		17.875
10:00	72	9170		54			1.250"	1320	40	127	51.5	33.125		18.375
10:17		9170		54		PRESSURE LUBRICATOR FOR B.H.P.S.								
12:00	74	9170		54			1.250"	1325	41	127	52.5	33.75		18.75
12:17		9170		54		DEPRESSURE LUBRICATOR.								
13:17		9170		54		PRESSURE LUBRICATOR & R.I.H WITH GAUGES FOR B.H.P.S.								
13:35		9177		54		ARRIVE @ HANG DEPTH 7762' KB.								
14:00	76	9205		54			1.250"	1325	40	126	53.25	34		19.25
14:30		9219		54										
15:00	77	9219		54			1.250"	1330	38	126	53.75	34.25		19.5
15:30		9226		54										
16:00	78	9212	0	54	100%		1.250"	1325	37	126	54.25	34.375		19.875



CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134 KB

PAGE: 1 OF 1

WELL NAME: METTIKA # 3

FORMATION : PATCHAWARRA

DATE: 7-5-91

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

OPR : A SMITH

SAMPLE

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)			SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
1800	1	500ml	H ₂ O							SEPARATOR		0	52	14.7	24
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	M³ / 10⁶ M³	M³ / 10⁶ M³	PRESSURE	TEMPERATURE
														(PSI/KPa)	(°F/°C)
9205	54	100%		9101	52	1.175	0.8		61.03	799	1.599	39			

REMARKS:

SAMPLE

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)	SAMPLE POINT	SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)		
1800	2	500ml	H ₂ O					SEPARATOR	0	52	14.7	24		
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS	BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	L.G.R. M³/10⁶ M³	PRESSURE (PSI/KPa)	TEMPERATURE (°F/°C)
9205	54	100%		9101	52	1.175	0.8		61.03	799	1.599	39		

REMARKS:

SAMPLE

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

REMARKS:

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

WELL NAME : METTIKA #3

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

PERFORATIONS: 7792' → 8134' KB

FORMATION : PATCHAWARRA

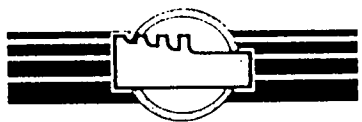
PAGE: 1 OF 2

DATE: 2-5-91

OPR: A. SMITH

DATE/TIME	DESCRIPTION OF EVENTS
2 ND MAY 1991.	
15:50	ARRIVE ON LOCATION & SPOT EQUIPMENT.
17:00	SECURE LOCATION
3 RD MAY 1991.	
14:35	ARRIVE ON LOCATION, S.W.I & R.I.G IN SWAB VALVE.
14:50	WELL BACK ON LINE 100% & RIG UP WIRELINE EQUIPMENT.
15:25	PRESSURE TEST EQUIPMENT & O.K.
15:30	R.I.H WITH 1.75" BLIND BOX TO P.B.T.D.
15:55	TAG P.B.T.D @ 8251' KB. (TUBING & PERFS CLEAR) & P.O.O.H.
16:20	@ SURFACE, SECURE UNIT & RIG UP TESTING EQUIPMENT.
17:10	SECURE LOCATION.
4 TH MAY 1991.	
09:00	RIG IN COMPLETED & PRESSURE TEST EQUIPMENT & O.K.
09:30	TRIM FLOW THROUGH SEPARATOR, ENGAGING A .875" ORIFICE PLATE.
10:00	START TEST
16:00	CHANGE TO A 1" ORIFICE PLATE.
5 TH MAY 1991.	
22:00	CHANGE TO A 1.250" ORIFICE PLATE.
7 TH MAY 1991.	
10:17	PRESSURE LUBRICATOR FOR B.H.P.
13:17	R.I.H WITH 2. PRESSURE ELEMENTS & M.B.H. THERMOMETER.
13:35	@ B.H.P HANG DEPTH. 7762' KB.
18:00	COLLECT 2x 500 ml L.P WATER SAMPLES FROM SEPARATOR.
18:00	S.W.I FOR 96 HR BUILD UP.

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB.

PAGE: 2. OF 2

WELL NAME: METTIKA #3.

FORMATION : PATCHAWARRA

DATE: 11-5-91

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

OPR : A. SMITH.

DATE/TIME

DESCRIPTION OF EVENTS

11TH MAY 1991.

10:15 BUILD UP COMPLETED & P.O.O.H

10:35 @ LUBRICATOR & BLEED.

11:35 PRESSURE LUBRICATOR.

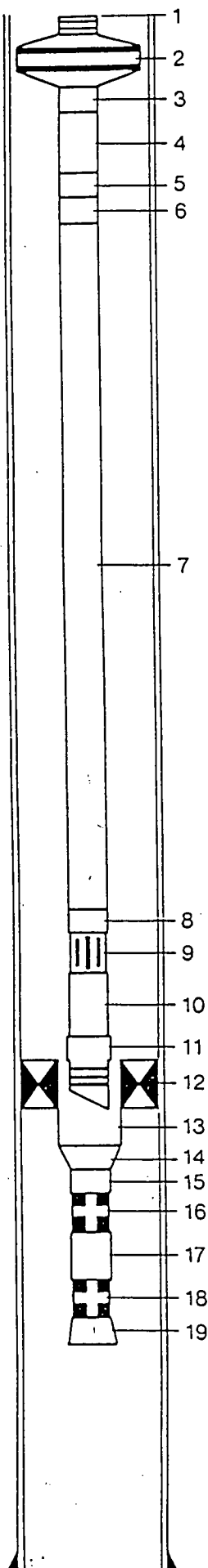
13:35 BLEED LUBRICATOR, RECOVER CHARTS (GOOD), RELOAD ELEMENTS WITH 3 1/2 CLOCKS & PERFORM STATIC GRADIENT SURVEY. NOTE: REFER TO GAUGE RUN DATA SHEET #2 FOR MORE INFORMATION.

16:07 GRADIENT SURVEY COMPLETED, CHARTS (GOOD), RIG DOWN WIRELINE EQUIPMENT & HAND WELL BACK TO PRODUCTION.



DOWNHOLE INSTALLATION

METTIKA 3



ITEM NO.	DESCRIPTION	LENGTH (ft)	DEPTH K.B. (ft)	MIN. I.D. (in)
1	K.B. to top of tubinghead spool	15.90	0.00	
2	C.I.W. FBB-EN 7 1/16" x 2 7/8" AB x 2 7/8" CS Hydril	0.70		
3	Nipple 2 7/8" J55 AB-IJ3SS pin x pin	0.32		
4	1 joint 2 7/8" 6.5# J55 AB-IJ3SS	31.20		
5	Pup joints 2 7/8" 6.5# J55 AB-IJ3SS (4' & 6')	9.49		
6	X-over 2 7/8" AB-IJ3SS box x NK3SB pin J55	1.72		
7	241 joints 2 7/8" 6.5# J55 NK3SB tubing	7551.72		
8	X-over 2 7/8" NK3SB box x AB-IJ3SS pin J55	2.20		
9	Otis 2 7/8" 121XDH23110 sliding sleeve	3.56	7613.25	2.313
10	1 joint 2 7/8" 6.5# J55 AB-IJ3SS	31.19		
11	Baker model E-22 anchor seal assembly	(3.30)	7648.00	2.406
	size 80-32, 2 7/8" AB-IJ3SS box			
	Permanent Downhole Equipment			
12	Baker DB packer size 84-32 4 1/2" AB-IJ3SS	4.10	7648.00	
13	Millout extension 4 1/2" AB-IJ3SS pin x pin	5.41		
14	Swage 4 1/2" box x 2 7/8" pin J55 AB-IJ3SS	1.73		
15	Pup joints 2 7/8" 6.5# J55 AB-IJ3SS (4' & 6')	9.45		
16	Otis 2 7/8" nipple 711X23103 AB-IJ3SS b x p	0.96	7668.69	2.313
17	Pup joints 2 7/8" 6.5# J55 AB-IJ3SS (12' & 8')	19.37		
18	Otis 2 7/8" nipple 711XN23117 AB-IJ3SS b x p	1.02	7689.02	2.205
19	Re-entry guide 2 7/8" AB-IJ3SS x 3 1/2" J55	1.00		
	End of tailpipe		7691.04	

PERFORATED INTERVALS:

GUN:

CHARGES:

FORMATION	INTERVAL	SIZE	TYPE	S.P.F.	TYPE	WT(g)
PATCHAWARRA 72-3	7792' - 7800'	2 7/8"	E/jets	4	0°	13.5
73-3/73-5	7879' - 7922'	"	"	"	"	"
73-7	7937' - 7951'	"	"	"	"	"
74-1	7966' - 7984'	"	"	"	"	"
74-1	7990' - 7994'	"	"	"	"	"
74-5	8012' - 8016'	"	"	"	"	"
74-6	8031' - 8058'	"	"	"	"	"
75-0	8073' - 8083'	"	"	"	"	"
75-3	8098' - 8111'	"	"	"	"	"
75-5	8126' - 8134'	"	"	"	"	"

REMARKS:

ANNULUS FLUID : 2% KCl 9-1 ppg inhibited filtered brine

INDICATED STRING WEIGHT : 44,000#

CALCULATED STRING WEIGHT : 42,797#

SLACK-OFF WEIGHT : 4,000#

TENSION :

NOT TO SCALE	WELLSITE SUPERVISOR	M. Dunne
PROPOSED	DATE OF INSTALLATION	21/3/1990
RE-COMPLETION	DRAFTED	E. Coppins
COMPLETION	REVISOR	DATE 1/6/1990

P.B.T.D.

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BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB.

PAGE: 1. OF 2

WELL NAME: METTIKA #3.

FORMATION : PATCHAWARRA

DATE: 7-5-91

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

OPR : A. SMITH

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

29323

29321

DATE : 7-5-91

ELEMENT RANGE

3950 PSI

4000 PSI

PRESSURE LUBRICATOR :

10:17

1330
9170

0

RECORDING SECTION SERIAL NO.

12963

70547

RUN IN HOLE :

13:17

9170

↑

DATE OF CALIBRATION:

@ 290°F

21-4-91

21-4-91

ON DEPTH AT :

7762

FT/M

13:35

9177

1331

↑

CLOCK SERIAL NO.

EXP #6

EXP #5

DATE :

11-5-91

CLOCK RANGE

120 HR

120 HR

PULL OUT OF HOLE :

10:15

1688
11639

LEAD SCREW TYPE

15 TLS

15 TLS

AT SURFACE :

10:35

11639

↓

DEPRESSURE LUBRICATOR :

13:35

11666

0

ENGAGE STYLUS DATE

7-5-91

TIME

10:10

10:10

MAXIMUM BHT AT 7762 FT/M = 139 °F/C

1692

DISENGAGE STYLUS DATE

11-5-91

TIME

13:40

13:40

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

DATE

TIME

REMARKS

7TH MAY 1991

10:17

PRESSURE LUB

IN / OUT RUN

12:17

DEPRESSURE LUB

Top : 1340 / 1704 10

13:17

PRESSURE LUB & R.I.H

Bot : 1327 / 1689 20

13:35

@ HANG DEPTH 7762' KB.

14:00

S.W.I FOR 96 HR BUILD UP.

11TH MAY 1991.

10:15

P.O.O.H

10:35

@ LUBRICATOR & BLEED.

11:35

PRESSURE LUBRICATOR.

13:35

DEPRESSURE LUBRICATOR.

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS: 7792' → 8134' KB

PAGE: 2 OF 2

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 11-5-91

TEST TYPE : STATIC GRADIENT

OPR : A. SMITH

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

29323

29321

DATE : 11-5-91

ELEMENT RANGE

3950PSI

4000PSI

PRESSURE LUBRICATOR :

14:02

11666

0

RECORDING SECTION SERIAL NO.

12963

70547

RUN IN HOLE :

14:17

11653

DATE OF CALIBRATION:

@ 290°F

21-4-91

21-4-91

ON DEPTH AT :

7963

FT/M

15:19

CLOCK SERIAL NO.

16085

25512

DATE : 11-5-91

CLOCK RANGE

3HR

3HR

PULL OUT OF HOLE :

15:29

LEAD SCREW TYPE

15TLS

15TLS

AT SURFACE :

15:45

DEPRESSURE LUBRICATOR :

16:00

11653

0

ENGAGE STYLUS DATE 11-5-91 TIME

13:53

13:53

MAXIMUM BHT AT 7963 FT/M = 136 °F/C

DISENGAGE STYLUS DATE 11- TIME

16:07

16:07

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

DATE

TIME

REMARKS

	SEQUENCE OF EVENTS		
	CUSTOMER : Santos	PERFORATIONS: 7792'-8134' KB	PAGE: 1 OF 3
	WELL NAME: Mettika #3	FORMATION : Patchawarra	DATE: 17/11/91
	TEST TYPE: L.E.T. / F.G.S Programme		OPR: P. Bowyer

liquids evaluation

flow

DATE/TIME	DESCRIPTION OF EVENTS
17/11/91	Test. (this is recorded elsewhere → we get the data directly from Santos → leave)
1315	Arrive on location, re-spot test equipment (Sep, Frac tank & test tank)
1400	spot variable choke manifold & caravan, gen set, commence rigging in
1630	To Moomba, secure lease overnight.
18/11/91	
1415	Arrive back on location, rig up wire line unit.
1500	S.W.I to install swab valve
1515	Unable to fit swab valve due to short nipple in swab valve, call Moomba longer nipple to be sent out.
1545	Receive word to proceed to Tau camp with equipment for crew in Queensland, secure lease.
19/11/91	
0610	fit swab valve & rig up wire line unit.
0640	function test B.O.P's, all OK.
0655	R.I.H with 1.75" B/Box.
0730	Taq P.B.T.D @ 8256' KB, no obstructions P.O.O.H.
0748	In Tub, depressure & secure unit
0820	Pressure test to separator, leaks found, depressure & tighten
0826	Pressure test to separator, all OK
0830	Open well to atmosphere, separator on by pass.
0845	25/64 to 30/64
0855	choke to 35/64
0900	choke to 40/64
0910	choke to 45/64



EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 2 OF 3

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 19/11/91

TEST TYPE : L.E.T / F.G.S

OPR: P. Bowyer

DATE/TIME

DESCRIPTION OF EVENTS

19/11/91

0925

Unable to obtain 200 PSI F.W.H.P (1st rate). Pressure 552 PSI

0930

Divert flow through separator.

1000

2.25" orifice plate in service, waiting on fluid levels.

Notify Moomba of well head pressure, OK to continue on this setting.

1200

levels up start test. (Rate #2)

20/11/91

2000

Change from frac tank to test tank, continue to flow well

21/11/91

0820

Prepare 2x pressure elements & 1 m.B.H.T for Flowing gradient, setting #2

0858

Pressure Lub.

0908

Depressure Lub. (NB 1 HR'ly readings taken while gradient is being run).

0913

Pressure Lub. & R.I.H to stops as per programme.

1031

At 7762' KB bottom stop (hang depths).

1046

P.O.O.H

1108

In Lub, depressure

1113

Pressure Lub.

1123

Depressure Lub, remove cameradas & check charts. charts OK.

1300

End of flow period (setting #2) reduce choke to 33/64 for setting #3.

1400

Choke to 32/64. continue to flow well.

22/11/91

0845

Prepare 2x pressure elements & 1 MBHT for flowing gradient, setting #3

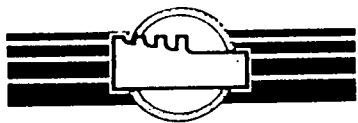
0915

Pressure Lub. (NB 1 Hourly readings taken while gradient is being run).

0925

Depressure Lub

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 3 OF 3

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 22/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

DATE/TIME

DESCRIPTION OF EVENTS

22/11/91	
0930	Pressure Lub & R.I.H to stops as per programme.
1048	At 7762' KB, bottom stop.
1103	P.O.O.H
1124	In Lub, depressure.
1129	Pressure Lub.
1139	Depressure Lub, remove ameradas & check charts. good charts
1155	Secure wire line unit untill required for next gradient
1300	choke well back to 24/64 to achieve 6890 KPA F.W.H.P. for setting #4.
1315	2.000" orifice plate in service. continue to flow well.
23/11/91	
0840	Prepare 2x pressure elements & 1 MBHT for F.G.S. setting #4.
0909	Pressure Lub.
0919	Depressure Lub.
0924	Pressure Lub & R.I.H to stops as per programme.
1040	At 7762' KB, bottom stop.
1055	P.O.O.H NB: @ 1100 HRS two x 1/2 LTR H2O samples taken from sep sight glass
1115	In Lub, depressure.
1120	Pressure Lub
1130	Depressure Lub, remove ameradas & check charts. (good charts).
	Rig down wire line unit.
1300	End of test, s.w.i.
1430	Secure lease, return 24/11/91 to complete rig out.

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : Santos.

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 5

WELL NAME: Mettika #3.

FORMATION : Patchawarra.

DATE: 17/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION				
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)	
17/11/91															
1315															
1400															
1630															
18/11/91															
1415															
1500		9184	76		100%										
1515															
1545															
19/11/91															
0610															
0640															
0655		11321	0		S/I										
0730															
0748															
0820		11335	0												
0826															
0830		11335	0		S/I										
0845		7350	0	47	25/64										
0855		5619	0	49	30/64										

Arrive on location, reposition test equipment.

Spot choke manifold, caravan & gen set, commence rig in
To Moomba, secure lease overnight

Arrive back on location

S.W.I to install swab valve

Unable to fit swab valve due to short nipple in valve, call
Moomba, a longer nipple is to be sent out.Receive word to proceed to Tau camp with equipment for
crew in Queensland, secure lease.

Fit swab valve & rig up wire line unit

Pressure test B.O.P's, all OK.

R.I.H with 1.75" B/Box

Tag P.B.T.D @ 8256' KB, no obstructions, P.O.O.H.

In lub, depressure, & secure unit

Pressure test to sep, leaks found, depressure & tighten

Pressure test to separator, all OK.

Open well to atmosphere, separator on by pass

Increase to 30/64

Increase to 35/64

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 2 OF 5

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 19/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE 1/64	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
19/11/91														
0900		4936	0	50	35/64			Increase to 40/64						
0910		4213		51	40/64			Increase to 45/64						
0925								Unable to obtain 1378 KPA (1 st rate)						
0930					45/64			Divert flow through separator.						
1000		3806		53	45/64			2.250"						
1200	0	3716		57			1	190	99	115	2.5	.5		2
1200								levels up start test						
1400	2	3654		59				190	96	120	3.75	.5		3.25
1600	4	3606		61				185	94	122	5.25			4.75
1800	6	3606		61				185	94	122	6.5			6
2000	8	3626		62				185	93	124	7.25			6.75
2200	10	3640		62				185	93	124	8.5			8
20/11/91														
0200	14	3647		57				190	93	115	10.5	↓		
0600	18	3668		55				185	93	115	12.5	.5		
0800	20	3668		52				185	94	115	16	3		13
1000	22	3682		61				185	96	116	17.5	3.5		14
1200	24	3702		61				180	98	118	18.5	3.75		14.75
1400	26	3709		61				185	99	124	19.75	3.75		16
1600	28	3716	↓	61	↓		↓	185	96	127	21	4		17
1800	30	3716	0	62	45/64		2.250"	185	95	127	22.5	4.5		18

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 3 OF 5

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 20/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION				
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE 1/64	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)	
20/11/91															
2000	32	3702	0	53	45/64		2.250	190	94	127	23.5	4.5		19	
2000					Change from frac tank to test tank						3	1.5		1.5	
2200	34	3702		60				185	95	129	6.75	2.5		4.25	
21/11/91															
0200	38	3716		64				180	98	127	14	4.75		9.25	
0600	42	3730		60				180	97	129	20.5	6		14.5	
0800	44	3730		51				180	99	125	24	6.75		17.25	
0820								Prepare 2x pressure elements & 1 MBHT for F.G.S.							
0900	45	3723		52				180	99	125	26	7		19	
0913								R.I.H for F.G.S as per program, refer to Test Results							
1000	46	3723		48				185	98	127	27.5	7.5		20	
1100	47	3723		57				185	98	129	29.25	7.75		21.5	
1123								Gradient completed, good charts, secure unit							
1200	48	3750		60	↓			180	100	131	30.75	8		22.75	
1300	49	3757		60	45/64			180	100	131	32.5	8.5		24	
1300								choke well back to achieve setting #3 of 5168 KPa							
1315		5019			33/64										
1330		5054													
1400	50	5054		63	33/64			210	74	125	34.5	9.5		25	
1400			↓				↓	choke back to 32/64							
1600	52	5205	0	61	32/64		2.250	210	71	125	37.5	10.25		27.25	

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 4 OF 5

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 21/11/91

TEST TYPE : L.E.T. / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE /64	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
21/11/91														
1800	54	5212	0	62	32/64		2.250	215	70	124	41	11		30
2000	56	5219		63				215	69	124	44.25	12		32.25
2200	58	5205		64				215	69	124	47.75	12.75		35
22/11/91														
0200	62	5205		64				215	68	124	54.75	15.25		39.5
0600	66	5198		58				215	67	120	61.75	17.25		44.5
0800	68	5205		55				215	69	120	65.25	18.5		46.75
0845								Prepare 2x pressure elements & 1 MBHT for F.G.S.						
0900	69	5205		54				215	70	120	67	18.75		48.25
0930		5205						R.I.H for F.G.S. as per programme, refer to test Results						
1000	70	5205		53				215	70	122	68.75	19.75		49
1100	71	5205		56				205	73	122	70.5	20.25		50.25
1139								Gradient completed (good charts)						
1200	72	5219		65	↓		↓	205	73	124	72.25	20.25		52
1300	73	5233		63	32/64		2.250	205	73	125	73.5	20.75		52.75
1300								Reduce choke to achieve 6890 KPA F.W.H.P Setting #4						
135		6964		65	24/64		2.000							
1400	74	6977		60	↓		↓	200	100	118	75.25	21.25		54
1600	76	6970		64	↓		↓	190	100	115	4	1.75		2.25
1800	78	6977	↓	64	↓		↓	190	100	115	6.75	2.25		4.5
2000	80	6943	0	63	24/64		2.000	190	98	111	10	3.25		6.75

EXPERTEST PTY. LTD.

FIELD READINGS

CUSTOMER : Santos

PERFORATIONS: 7792'-8134'KB

PAGE: 5 OF 5

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 22/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					SEPARATOR DATA				LIQUID PRODUCTION			
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE /64	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP (°F)	TOTAL LIQUID (IN/CM)	OIL (IN/CM)	OIL API GRAVITY @ 60°F	WATER (IN/CM)
22/11/91														
2200	82	6922	0	60	24/64		2.000	190	98	109	13.25	4.5		8.75
23/11/91														
0200	86	6957		60				190	97	107	19.75	6.75		13
0600	90	6950		64				195	95	109	26.25	9		17.25
0800	92	6936		66				190	97	109	29.25	9.75		19.5
0840								Prepare 2x pressure elements & 1 MBHT for F.G.S.						
0900	93	6929		66				195	98	107	30.75	10		20.75
0924		6929						R.I.H for F.G.S. as per programme, refer to test results.						
1000	94	6929		66				190	99	109	32.25	11.25		21
1100	95	6929		66				190	99	111	33.75	11.5	44.5	22.25
1100								Take 2x 1/2 LTR H ₂ O samples from sep sight glass						
1130								Gradient completed. (good charts).						
1200								Rig down wire line unit.						
1200	96	6964		66				185	102	113	35.25	12		23.25
1300	97	6964	0	66	24/64		2.000	185	102	113	37	12.5		24.5
1300		S.W.1 end of test.												
1430		Depart lease. for Moomba.												
		Return 24/11/91 to complete rig out.												

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : Santos.

PERFORATIONS: 7792' - 8134' KB.

PAGE: 1 OF 6

WELL NAME: Mettika # 3.

FORMATION : Patchawarra

DATE: 17/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA					Separator		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SPIN TIME	TUBING PRESSURE	ANNULUS PRESSURE	WELLHEAD TEMP	CHOKE SIZE	PRESSURE	TEMP	GAS	OIL	WATER	GAS	OIL	WATER	L.G.R.		
TIME	(HOURS)	(PSI/KPa)	(PSI/KPa)	(°F/°C)		(PSI/KPa)	(°F/°C)	MMSCF m ³ 10 ³ /D	BPD m ³ /D	BPD m ³ /D	MMSCF m ³ 10 ³	BBLs m ³	BBLs m ³	m ³ /10m ³		
17/11/91																
1315																
1400																
1630																
18/11/91																
1415																
1500		9184	76		100%											
1515																
1545																
19/11/91																
0610																
0640																
0655		11321	0		S/I											
0730																
0748																
0820		11335	0		S/I											
0826																
0830		11335	0		S/I											
0845		7350	0	47	25/64											
0855		5619	0	49	30/64											

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : Santos.

PERFORATIONS: 7792' - 8134' KB

PAGE: 2 OF 6

WELL NAME: Mettika #3.

FORMATION : Patchawarra

DATE: 19/11/91

TEST TYPE : L.E.T. / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION			L.C.R.	
DATE	TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCFD m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	m ³ /10 ⁶ m ³
		Separator.													
19/11/91		Unable to obtain				1 st Rate, start @ Rate #2.									
0900		4936	0	50	35/64	Increase to 40/64									
0910		4213		51	40/64	Increase to 45/64.									
0925						Unable to obtain 1378 KPa (1 st Rate)									
0930						Divert flow through separator (pressure test ok.)									
1000		3806		53	45/64	2.25" orifice plate in service, notify Moomba of well head pressure, continue at this setting									
1200	0	3716		57		1310	46	123.318	0	0	levels up start test				
1400	2	3654		59		1310	49	120.827	0	3.996	10.069	0	333	33	
1600	4	3606		61		1275	50	117.769		4.788	19.883		732	40	
1800	6	3606		61		1275	50	117.769		3.996	29.697		1.065	34	
2000	8	3626		62		1275	51	116.920		2.388	39.44		1.264	20	
2200	10	3640		62		1275	51	116.920		3.996	49.183		1.597	34	
20/11/91															
0200	14	3647		57		1310	46	119.524	↓	3.198	69.103	↓	2.13	27	
0600	18	3668		55		1275	46	117.967	0	3.198	88.764	0	2.663	27	
0800	20	3668		52		1275	46	118.619	7.992	3.192	98.649	666	2.929	94	
1000	22	3682		61		1275	47	119.751	1.596	3.192	108.628	799	3.195	40	
1200	24	3702		61		1241	48	119.156	0.792	2.400	118.557	865	3.395	26	
1400	26	3709		61		1275	51	120.629	0	3.996	128.609	865	3.728	33	
1600	28	3716	↓	61		1275	53	118.449	0.792	3.192	138.479	931	3.994	33	
1800	30	3716	0	62	45/64	1275	53	117.826	1.596	3.192	148.297	1.064	4.26	40	

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB.

PAGE: 3 OF 6

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 20/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION							
DATE	TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLs m ³	WATER BBLs m ³	L.G.R m ³ /10 ⁶ m ³			
20/11/91						1/64												
2000		32	3702	0	53	45/64	1310	53	118.732	0	3.192	158.191	1.064	4.526	27			
2000							change from frac tank to test tank.											
2200		34	3702		60		1275	54	117.600	1.224	3.372	167.991	1.166	4.807	39			
21/11/91																		
0200		38	3716		64		1241	53	118.109	1.374	3.066	187.675	1.395	5.318	37			
0600		42	3730		60		1241	54	117.260	.762	3.216	207.218	1.522	5.854	34			
0800		44	3730		51		1241	52	118.930	.912	3.372	217.128	1.598	6.135	36			
0820							Prepare 2x pressure elements & 1 MBHT for Flowing gradient.											
0858			3723		52		Pressure Lub for F.G.S.											
0900		45	3723		52		1241	52	118.930	.600	4.272	222.083	1.623	6.313	41			
0908			3723		52		Depressure Lub.											
0913			3723				Pressure Lub & R.I.H to stops as per programme.											
1000		46	3723		48		1275	53	119.666	1.224	2.448	227.069	1.674	6.415	31			
1031			3723		50		At 7762' KB bottom stop.											
1046			3723				P.O.H.											
1100		47	3723		57		1275	54	119.439	.600	3.672	232.045	1.699	6.568	36			
1108			3723				In Lub, depressure.											
1113			3723				Pressure Lub.											
1123			3737				Depressure Lub, remove amercados & check charts, all ok.											
1145							Secure wire line unit until required for next gradient.											
1200		48	3750	0	60	45/64	1241	55	118.845	.600	3.048	236.997	1.724	6.695	31			

EXPERTEST PTY. LTD.		TEST RESULTS													
		CUSTOMER : Santos						PERFORATIONS: 7792' - 8134' KB				PAGE: 4 OF 6			
		WELL NAME: Mettika #3						FORMATION : Patchawarra				DATE: 21/11/91			
		TEST TYPE : L.E.T / F.G.S.										OPR : P. Bowyer			
TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCFD m³10³	OIL BBLS m³	WATER BBLS m³	L.G.R. m³/10⁶ m³	
21/11/91					1/64										
1300	49	3757	0	60	45/64	1241	55	118.845	1.224	3.048	241.949	1.775	6.822	36	
1300						Choke well back to achieve setting #3 of 5168 KPa									
1315		5019			33/64										
1330		5054													
1400	50	5054		63	33/64	1448	52	110.805	2.448	2.448	246.565	1.877	6.924	44	
1400						choke to 32/64									
1600	52	5205		61	32/64	1448	52	108.512	.912	2.748	255.607	1.953	7.153	34	
1800	54	5212		62		1482	51	109.135	.912	3.372	264.701	2.029	7.434	39	
2000	56	5219		63		1482	51	108.342	1.224	2.748	273.729	2.131	7.663	36	
2200	58	5205		64		1482	51	108.342	.912	3.372	282.757	2.207	7.944	39	
22/11/91															
0200	62	5205		64		1482	51	107.549	1.530	2.760	300.681	2.462	8.404	40	
0600	66	5198		58		1482	49	107.181	1.224	3.066	318.544	2.666	8.915	40	
0800	68	5205		55		1482	49	108.795	1.524	2.748	327.61	2.793	9.144	39	
0845						Prepare 2x pressure elements & 1MBHT for FGS setting #3									
0900	69	5205		54		1482	49	109.559	.600	3.672	332.175	2.818	9.297	39	
0915		5205				Pressure Lub for F.G.S.									
0925		5205				Depressure Lub									
0930		5205				Pressure Lub & R.I.H to stops as per programme.									
1000	70	5205	✓	53	✓	1482	50	109.333	2.448	1.824	336.73	2.920	9.373	39	
1048		5205	0		32/64	At 7762' KB bottom stop.									

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 5 OF 6

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 22/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLs m ³	WATER BBLs m ³	L.G.R. m ³ /10 ⁶ m ³
22/11/91						64									
1100	71	5205	0	56	32/64	1413	50	109.078	1.224	3.048	341.275	2.971	9.500	39	
1103		5205													
1124		5205													
1129		5205													
1139		5205													
1155															
1200	72	5219		65	↓	1413	51	108.852	0	4.272	345.81	2.971	9.678	39	
1300	73	5233		63	32/64	1413	52	108.738	1.224	1.824	350.34	3.022	9.754	28	
1300															
1315		6964		65	24/64										
1400	74	6977		60		1379	48	93.904	1.224	3.048	354.252	3.073	9.881	45	
1600	76	6970		64		1310	46	91.866	2.136	2.748	361.907	3.251	10.11	53	
1800	78	6977		64		1310	46	91.866	0.612	2.748	369.562	3.302	10.339	36	
2000	80	6943		63		1310	44	91.299	1.224	2.748	377.17	3.404	10.568	43	
2200	82	6922		60		1310	43	91.498	1.524	2.448	384.794	3.531	10.72	43	
23/11/91															
0200	86	6957		60		1310	42	91.214	1.374	2.604	399.996	3.76	11.206	44	
0600	90	6950		64		1344	43	91.214	1.374	2.604	415.198	3.989	11.64	44	
0800	92	6936		66		1310	43	91.016	0.912	2.748	422.782	4.065	11.869	40	
0840			↓		↓										
0900	93	6929	0	66	24/64	1344	42	92.856	0.600	3.048	426.651	4.09	11.996	39	

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 6 OF 6

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 23/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ /10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BBLS m ³	WATER BBLS m ³	L.G.R. m ³ /10 ⁶ m ³
23/11/91						1/64									
0909		6929	0			24/64	Pressure Lub.								
0919		6929					Depressure Lub.								
0924		6929					Pressure Lub & R.I.H to stops as per programme.								
1000	94	6929		66			1310 43 91.951 3.048 .600 430.482 4.217 12.021 40								
1040		6929					At 7762' KB, bottom stop.								
1055		6929					P.O.O.H.								
1100	95	6929		66			1310 44 91.781 .600 3.048 434.306 4.242 12.148 40								
1100							Take 2 x 1/2 LTR H ₂ O samples from sep sight glass.								
1115		6929					In Lub, depressure.								
1120		6929					Pressure Lub.								
1130		6929					Depressure Lub, remove amercades & check charts (charts OK)								
							Rig out wire line unit.								
1200	96	6964	↓	66		↓	1275 45 91.752 1.224 2.448 438.129 4.293 12.250 40								
1300	97	6964	0	66		24/64	1275 45 91.752 1.224 3.048 441.952 4.344 12.377 46								
1300							S.W. 1 end of test.								
1430							Depart lease, to Moomba. return 24/11/91 to rig out.								

EXPERTEST PTY. LTD.			GAS FLOW CALCULATIONS												
			CUSTOMER : Santos						PERFORATIONS: 7792' - 8134' KB				PAGE: 1 OF 3		
			WELL NAME: Mettika # 3						FORMATION : Patchawarra				DATE: 19/11/91		
			TEST TYPE : L.E.T / F.G.S Programme										OPR : P. Bowyer		
ORIFICE METER TYPE: Daniels SSB			STATIC PRESSURE RANGE : 0 - 1500 PSIG				GAS SPECIFIC GRAVITY (SG) = .880								
METER RUN SIZE : 3.068"			DIFFERENTIAL PRESS. RANGE: 0 - 200 IN WC				FG $\sqrt{1/SG}$ = 1.0660								
SEPARATOR NO : V459			STANDARD CONDITIONS : 14.73 PSI @ 60°F				C ₂ (FU x FG) = 25.5840								
DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE /64	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B x F _{TF} x F _{PV} x Y ₂				C ₁	C (C = C ₁ x C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
19/11/91			1st Rate (unable to obtain)	commence @ Rate #2											
1200	0	45/64	204.73	99	115	2.25	142.3667	1223.184	.9510	1.0263	1.0019	1196.0158	30598.9713	4.356	123.318
1400	2		204.73	96	120		140.1930		.9469	1.0255	1.0018	1189.8952	30442.3820	4.268	120.827
1600	4		199.73	94	122		137.0205		.9452	1.0246	1.0018	1186.7625	30362.2347	4.160	117.769
1800	6		199.73	94	122		137.0205		.9452	1.0246	1.0018	1186.7625	30362.2347	4.160	117.769
2000	8		199.73	93	124		136.2897		.9436	1.0243	1.0018	1184.3767	30301.1963	4.130	116.920
2200	10		199.73	93	124		136.2897		.9436	1.0243	1.0018	1184.3767	30301.1963	4.130	116.920
20/11/91															
0200	14		204.73	93	115		137.9851		.9510	1.0263	1.0018	1195.8780	30595.4463	4.222	119.524
0600	18		199.73	93	115		136.2897		.9510	1.0256	1.0018	1195.1418	30576.6117	4.167	117.967
0800	20		199.73	94	115		137.0205		.9510	1.0256	1.0018	1195.1654	30577.2135	4.190	118.619
1000	22		199.73	96	116		138.4705		.9501	1.0254	1.0019	1193.9990	30547.3220	4.230	119.751
1200	24		194.73	98	118		138.1432		.9485	1.0245	1.0020	1190.9206	30468.6156	4.209	119.156
1400	26		199.73	99	124		140.6175		.9436	1.0243	1.0019	1184.5167	30304.7765	4.261	120.629
1600	28		199.73	96	127		138.4705		.9412	1.0239	1.0019	1180.9339	30213.1137	4.184	118.449
1800	30		199.73	95	127		137.7474		.9412	1.0239	1.0019	1180.9106	30212.5189	4.162	117.826
2000	32		204.73	94	127		138.7250		.9412	1.0245	1.0018	1181.5582	30229.0857	4.194	118.732
2200	34		199.73	95	129		137.7474		.9396	1.0236	1.0019	1178.5892	30153.1267	4.154	117.600
21/11/91															
0200	38	45/64	194.73	98	127	2.25	138.1432	1223.184	.9412	1.0232	1.0020	1180.3165	30197.3184	4.172	118.109

EXPERTEST PTY. LTD.



GAS FLOW CALCULATIONS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB.

PAGE: 2 OF 3

WELL NAME: Mettika # 3.

FORMATION : Patchawarra

DATE: 21/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

ORIFICE METER TYPE: Daniels SSB.	STATIC PRESSURE RANGE : 0 - 1500 PSIG	GAS SPECIFIC GRAVITY (SG) = .830
METER RUN SIZE : 3.068"	DIFFERENTIAL PRESS. RANGE: 0 - 200 IN WC	FG $\sqrt{(1/SG)}$ = 1.0660
SEPARATOR NO : V459	STANDARD CONDITIONS : 14.73 PSI @ 60°F	C ₂ (FU x FG) = 25.5840

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE /64	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W) \times C}$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
21/11/91															
0600	42	45/64	194.73	97	129	2.25	137.4366	1223.184	.9396	1.0230	1.0019	1177.9811	30137.5702	4.142	117.260
0800	44		194.73	99	125		138.8462		.9428	1.0235	1.0020	1182.6680	30257.4804	4.201	118.930
0900	45		194.73	99	125		138.8462		.9428	1.0235	1.0020	1182.6680	30257.4804	4.201	118.930
1000	46		199.73	98	127		139.9055		.9412	1.0239	1.0019	1180.9804	30214.3039	4.227	119.666
1100	47		199.73	98	129		139.9055		.9396	1.0236	1.0019	1178.6588	30154.9081	4.219	119.439
1200	48	↓	194.73	100	131		139.5457		.9380	1.0227	1.0020	1175.7568	30080.6625	4.198	118.845
1300	49	45/64	194.73	100	131		139.5457		.9380	1.0227	1.0020	1175.7568	30080.6625	4.198	118.845
1300			Adjust choke (setting # 3) as per program.												
1400	50	33/64	224.73	74	125		128.9574		.9428	1.0273	1.0013	1186.2591	30349.3554	3.914	110.805
1400			choke to 32/64.												
1600	52	32/64	224.73	71	125		126.3164		.9428	1.0273	1.0012	1186.1973	30347.7724	3.833	108.512
1800	54		229.73	70	124		126.8113		.9436	1.0281	1.0012	1188.0951	30396.3262	3.855	109.135
2000	56		229.73	69	124		125.9022		.9436	1.0281	1.0012	1188.0749	30395.8097	3.827	108.342
2200	58		229.73	69	124		125.9022		.9436	1.0281	1.0012	1188.0749	30395.8097	3.827	108.342
22/11/91															
0200	62		229.73	68	124		124.9866		.9436	1.0281	1.0011	1188.0547	30395.2932	3.799	107.549
0600	66	↓	229.73	67	120		124.0641		.9469	1.0288	1.0011	1192.9046	30519.3742	3.786	107.181
0800	68	↓	229.73	69	120	↓	125.9022	↓	.9469	1.0288	1.0012	1192.9451	30520.4112	3.843	108.795
0900	69	32/64	229.73	70	120	2.25	126.8113	1223.184	.9469	1.0288	1.0012	1192.9654	30520.9299	3.870	109.559

EXPERTEST PTY. LTD.

GAS FLOW CALCULATIONS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 3 OF 3

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 22/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

ORIFICE METER TYPE: Daniels SnR

STATIC PRESSURE RANGE : 0 - 1500 PSIG

GAS SPECIFIC GRAVITY (SG) = .880

METER RUN SIZE : 3.068"

DIFFERENTIAL PRESS. RANGE: 0 - 200 IN WC

FG $\sqrt{(1/SG)}$ = 1.0660

SEPARATOR NO : V459

STANDARD CONDITIONS : 14.73 PSI @ 60°F

C₂ (FU x FG) = 25.5840

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE /64	STATIC PRESS P _F (PSIA)	DIFF PRESS H _W (IN WC)	GAS FLOW TEMP (°F)	ORIF. PLATE SIZE (IN)	$\sqrt{(P_F \times H_W)}$	C ₁ = F _B × F _{TF} × F _{PV} × Y ₂				C ₁	C (C = C ₁ × C ₂)	GAS FLOW RATE Q = $\sqrt{(P_F \times H_W)} \times C$	
								F _B	F _{TF}	F _{PV}	Y ₂			(MMSCFD)	(m ³ 10 ³ /D)
22/11/91															
1000	70	32/64	229.73	70	122	2.25	126.8113	1223.184	.9452	1.0285	1.0012	1190.5212	30458.3967	3.862	109.333
1100	71	↓	219.73	73	122	↓	126.6503	↓	.9452	1.0272	1.0013	1189.1311	30422.8335	3.853	109.078
1200	72	↓	219.73	73	124	↓	126.6503	↓	.9436	1.0268	1.0013	1186.7268	30361.3194	3.845	108.852
1300	73	32/64	219.73	73	125	2.25	126.6503	1223.184	.9428	1.0267	1.0013	1185.5311	30330.7298	3.841	108.738
1300			Choke well back for setting #4												
1400	74	24/64	214.73	100	118	2.00	146.5367	906.005	.9485	1.0271	1.0023	884.7004	22634.2309	3.317	93.904
1600	76	↓	204.73	100	115	↓	143.0839	↓	.9510	1.0263	1.0024	886.3513	22676.4885	3.245	91.866
1800	78	↓	204.73	100	115	↓	143.0839	↓	.9510	1.0263	1.0024	886.3513	22676.4885	3.245	91.866
2000	80	↓	204.73	98	111	↓	141.6458	↓	.9543	1.0269	1.0024	889.9558	22768.7053	3.225	91.299
2200	82	↓	204.73	98	109	↓	141.6458	↓	.9560	1.0272	1.0024	891.7999	22815.8856	3.232	91.498
23/11/91															
0200	86	↓	204.73	97	107	↓	140.9213	↓	.9577	1.0276	1.0023	893.6362	22862.8661	3.222	91.214
0600	90	↓	204.73	95	109	↓	141.1536	↓	.9560	1.0279	1.0022	892.2994	22828.6657	3.222	91.214
0800	92	↓	204.73	97	109	↓	140.9213	↓	.9560	1.0272	1.0023	891.7783	22815.3322	3.215	91.016
0900	93	↓	204.73	98	107	↓	143.3651	↓	.9577	1.0283	1.0023	894.2299	22818.0556	3.280	92.856
1000	94	↓	204.73	99	109	↓	142.3667	↓	.9560	1.0272	1.0024	891.8215	22816.4391	3.248	91.951
1100	95	↓	204.73	99	111	↓	142.3667	↓	.9543	1.0269	1.0024	889.9774	22769.2576	3.242	91.781
1200	96	↓	199.73	102	113	↓	142.7321	↓	.9526	1.0259	1.0025	887.6726	22710.2932	3.241	91.752
1300	97	24/64	199.73	102	113	2.00	142.7321	906.005	.9526	1.0259	1.0025	887.6726	22710.2932	3.241	91.752

S.W.1 end of test.

EXPERTEST PTY. LTD.

SAMPLING DATA

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 1

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 23/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

SAMPLE #1 & #2.

TIME SAMPLE COLLECTED	CYLINDER SERIAL NO.	CYLINDER VOLUME (CC)	SAMPLE TYPE	SAMPLING DURATION (MINS)	CYLINDER INITIALLY FILLED WITH	OUTAGE (CC)	VOLUME OF FILL REMAINING WITH SAMPLE (CC)			SAMPLE POINT		SAMPLE PRESS (PSI/KPa)	SAMPLE TEMP (°F/°C)	AMBIENT PRESS (PSI/KPa)	AMBIENT TEMP (°F/°C)
1100	#1 & #2	500	H2O	2						Sep Sight glass		1310	44		20
WELLHEAD DATA				SEPARATOR DATA			GRAVITIES		FLOW RATES			RATIOS		BOTTOM HOLE	
TUBING PRESS (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	BS&W (%)	SEPARATOR PRESS (PSI/KPa)	SEPARATOR TEMP (°F/°C)	FPV	GAS SPECIFIC GRAVITY	OIL API GRAV @60°F	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	L.G.R m³/10⁶m³	PRESSURE (PSI/KPa)	TEMPERATURE (°F/°C)	
6929	66	24/64		1310	44	1.0269	880	44.5	91.781	600	3.048		40		

REMARKS:

SAMPLE #

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

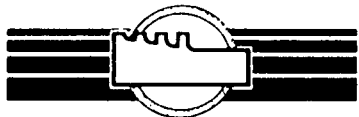
REMARKS:

SAMPLE #

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

REMARKS:

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 3

WELL NAME: Mettika #3.

FORMATION : Patchawarra

DATE: 21/11/91

TEST TYPE : Flowing Gradient during L.E.T. (setting #2).

OPR : P. Bowyer

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

27616

27617

MBHT.

DATE : 21/11/91

ELEMENT RANGE

PSI

5700

5100

PRESSURE LUBRICATOR

0858

3723

0

RECORDING SECTION SERIAL NO.

14629

13029

RUN IN HOLE

0913

3723

0

DATE OF CALIBRATION:

@ 290°F

15/3/91

15/3/91

ON DEPTH AT

7762' FT/M

1031

3723

0

CLOCK SERIAL NO.

2518

2530

DATE

21/11/91

CLOCK RANGE

HR

3

3

PULL OUT OF HOLE

1046

3723

0

LEAD SCREW TYPE

15T45

15T45

AT SURFACE

1108

3723

0

DEPRESSURE LUBRICATOR

1123

3737

0

ENGAGE STYLUS DATE

21/11/91

TIME

0843

0843

MAXIMUM BHT AT 7762' FT/M = 262 °F/G

DISENGAGE STYLUS DATE

21/11/91

TIME

1128

1128

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

DATE

TIME

REMARKS

Well flowing on 45/64 choke. setting #2. (unable to get first rate)
Refer to Test Results sheet for rates during gradient

??????????????

0121



EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

Tested Thursday, 21st November 1991.

PH. (08) 354 0488 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

CLIENT	LOCATION	FORMATION
Santos Ltd.	METTICA #3	PATCHAWARRA

FLOWING PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	27616	5700	15/ 3/91
Bottom	27617	5100	15/ 3/91

WELL DATA	
PARAMETER	VALUE
DWT In	540 PSIG
DWT Out	542 PSIG
Max BHT	262 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.1830	543.3	-----	0.2090	537.0	-----
1000	0.2160	639.1	0.096	0.2470	633.2	0.096
2000	0.2420	714.4	0.075	0.2760	706.6	0.073
3000	0.2650	781.0	0.067	0.3010	770.0	0.063
4000	0.2870	844.7	0.064	0.3260	833.4	0.063
5000	0.3090	908.3	0.064	0.3500	894.3	0.061
5500	0.3200	940.1	0.064	0.3630	927.3	0.066
6000	0.3290	966.1	0.052	0.3740	955.2	0.056
6500	0.3390	995.0	0.058	0.3850	983.2	0.056
7000	0.3490	1023.9	0.058	0.3960	1011.1	0.056
7500	0.3580	1049.9	0.052	0.4060	1036.5	0.051
7762	0.3640	1067.2	0.066	0.4130	1054.3	0.068
LUB.	0.1860	552.0	-----	0.2110	542.1	-----

GENERAL REMARKS

WELL FLOWING ON 45/64

BHP/BHT GAUGE RUN DATA



PAGE: 2 OF 3

DATE: 22/11/91

OPR : P. B. ...

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.		27616	27617	MBHT	DATE : 22/11/91			
ELEMENT RANGE	psi	5700	5100		PRESSURE LUBRICATOR :	0915	5205	Φ
RECORDING SECTION SERIAL NO.		14629	13029		RUN IN HOLE :	0930	5205	Φ
DATE OF CALIBRATION:	290°F	15/3/91	15/3/91		ON DEPTH AT : 7762' FT/	1048	5205	Φ
CLOCK SERIAL NO.		2518	2530		DATE : 22/11/91			
CLOCK RANGE	HR	3	3		PULL OUT OF HOLE :	1103	5205	Φ
LEAD SCREW TYPE		15 TLS	15 TLS		AT SURFACE :	1124	5205	Φ
					DEPRESSURE LUBRICATOR :	1139	5205	Φ
ENGAGE STYLUS	DATE 22/11/91	TIME 0908	0908		MAXIMUM BHT AT 7762' FT/ = 266 °F/			
DISENGAGE STYLUS	DATE 22/11/91	TIME 1144	1144		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

[illegible]

0123

**EXPERTEST**

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AA67183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Friday, 22nd November 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	METTAKA #3	PATCHAWARRA

FLOWING PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	27616	5700	15/ 3/91
Bottom	27617	5100	15/ 3/91

WELL DATA	
PARAMETER	VALUE
DWT In	755 PSIG
DWT Out	755 PSIG
Max BHT	266 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.2587	762.8	----	0.2982	757.8	----
1000	0.2831	833.4	0.071	0.3250	830.9	0.073
2000	0.3049	896.5	0.063	0.3498	893.8	0.063
3000	0.3238	951.1	0.055	0.3710	947.6	0.054
4000	0.3425	1005.1	0.054	0.3920	1000.9	0.053
5000	0.3630	1064.3	0.059	0.4139	1056.6	0.056
5500	0.3730	1093.2	0.058	0.4245	1083.5	0.054
6000	0.3821	1119.5	0.053	0.4353	1111.0	0.055
6500	0.3911	1145.5	0.052	0.4460	1138.2	0.054
7000	0.4000	1171.1	0.051	0.4560	1163.6	0.051
7500	0.4080	1194.2	0.046	0.4658	1188.5	0.050
7762	0.4137	1210.7	0.063	0.4707	1201.0	0.048
LUB.	0.2592	764.2	----	0.2975	761.1	----

GENERAL REMARKS

CHOKE 32/64

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 3 OF 3

WELL NAME: Mellika #3

FORMATION : Patchanassa

DATE: 23/11/91

TEST TYPE : Flowing gradient during L.E.T

OPR : P. Bowyer

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.		27616	27617	MBHT.	DATE	23/11/91			
ELEMENT RANGE		5700	5100		PRESSURE LUBRICATOR		0909	6929	0
RECORDING SECTION SERIAL NO.		14629	13029		RUN IN HOLE		0924	6929	0
DATE OF CALIBRATION:		15/3/91	15/3/91		ON DEPTH AT	7762' FT/M	1040	6929	0
CLOCK SERIAL NO.		2518	2530		DATE	23/11/91			
CLOCK RANGE		3	3		PULL OUT OF HOLE		1055	6929	0
LEAD SCREW TYPE		15 TLS	15 TLS		AT SURFACE		1115	6929	0
					DEPRESSURE LUBRICATOR		1130	6929	0
ENGAGE STYLUS	DATE 23/11/91	0904	0904		MAXIMUM BHT AT 7762' FT/M = 265 °F/°C				
DISENGAGE STYLUS	DATE 23/11/91	1134	1134		N.B. ALL DEPTHS ARE MEASURED FROM K.B.				

[illegible]

Tested Saturday, 23rd November 1991.

0125

CLIENT	LOCATION	FORMATION
Santos Ltd.	METLIKA #3	PATCHAWARRA

FLOWING PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	27616	5700	15/ 3/91
Bottom	27617	5100	15/ 3/91

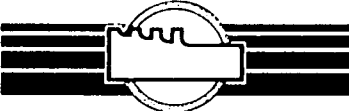
WELL DATA	
PARAMETER	VALUE
DWT In	1005 PSIG
DWT Out	1005 PSIG
Max BHT	265 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.3470	1018.1	----	0.3930	1003.5	----
1000	0.3670	1075.9	0.058	0.4150	1059.4	0.056
2000	0.3850	1127.9	0.052	0.4360	1112.8	0.053
3000	0.4020	1176.9	0.049	0.4560	1163.6	0.051
4000	0.4190	1226.0	0.049	0.4740	1209.4	0.046
5000	0.4350	1272.1	0.046	0.4920	1255.2	0.046
5500	0.4440	1298.0	0.052	0.5020	1280.6	0.051
6000	0.4520	1321.1	0.046	0.5110	1303.5	0.046
6500	0.4600	1344.2	0.046	0.5220	1331.5	0.056
7000	0.4680	1367.2	0.046	0.5300	1351.9	0.041
7500	0.4770	1393.2	0.052	0.5400	1377.4	0.051
7762	0.4820	1407.6	0.055	0.5450	1390.1	0.049
LUB.	0.3390	995.0	----	0.3960	1011.1	----

GENERAL REMARKS

CHOKE 24/64

EXPERTEST PTY. LTD.			LIQUID PRODUCTION								
			CUSTOMER : Santos				PERFORATIONS: 7792' - 8134' KB		PAGE: 3 OF 3		
			WELL NAME: Mettika #3				FORMATION : Patchawarra		DATE: 22/11/91		
			TEST TYPE : L.E.T / F.G.S.						OPR : P. Bowyer		
TANK NUMBER	#1 = 60 #2 = 129	TANK CAPACITY	#1 = 56.6 m ³ bbls/m ³ #2 = 51.7 BBLs bbls/m ³	TANK SCALE	#1 = 1" = .2666 m ³ bbls/in-m ³ /cm #2 = 1" = .1022 m ³ bbls/in-m ³ /cm	OIL API GRAVITY = 44.5 @ 60°F					
DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION			
				TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)
22/11/91											
1200	72	129	72.25	20.25	0	0	2.971	52	.178	4.272	9.678
1300	73	comp*1	73.5	20.75	.051	1.224	3.022	52.75	.076	1.824	9.754
1400	74	comp*1	75.25	21.25	.051	1.224	3.073	54	.127	3.048	9.881
1400		comp*2	0	0				0		opening dip.	
1600	76		4	1.75	.178	2.136	3.251	2.25	.229	2.748	10.11
1800	78		6.75	2.25	.051	.612	3.302	4.5	.229	2.748	10.339
2000	80		10	3.25	.102	1.224	3.404	6.75	.229	2.748	10.568
2200	82		13.25	4.5	.127	1.524	3.531	8.75	.204	2.448	10.772
23/11/91											
0200	86		19.75	6.75	.229	1.374	3.76	13	.434	2.604	11.206
0600	90		26.25	9	.229	1.374	3.989	17.25	.434	2.604	11.64
0800	92		29.25	9.75	.076	.912	4.065	19.5	.229	2.748	11.869
0900	93		30.75	10	.025	.600	4.09	20.75	.127	3.048	11.996
1000	94		32.25	11.25	.127	3.048	4.217	21	.025	.600	12.021
1100	95		33.75	11.5	.025	.600	4.242	22.25	.127	3.048	12.148
1200	96	↓	35.25	12	.051	1.224	4.293	23.25	.102	2.448	12.250
1300	97	comp*2	37	12.5	.051	1.224	4.344	24.5	.127	3.048	12.377
1300		S.W.1	end of test.								

EXPERTEST PTY. LTD.			LIQUID PRODUCTION									
			CUSTOMER : Santos				PERFORATIONS: 7792' - 8134' KB				PAGE: 3 OF 3	
			WELL NAME: Mettika #3				FORMATION : Patchawarra				DATE: 22/11/91	
			TEST TYPE : L.E.T / F.G.S.								OPR : P. Bowyer	
TANK NUMBER	#1 = 60 #2 = 129	TANK CAPACITY	#1 = 56.6 m ³ #2 = 51.7 BBLs	TANK SCALE	#1 = 1" = .2666 m ³ #2 = 1" = .1022 m ³	OIL API GRAVITY = 44.5 @ 60°F						
DATE TIME	FLOW TIME (HOURS)	TANK USED (NUMBER)	TOTAL TANK DIP (IN/CM)	OIL/CONDENSATE PRODUCTION				WATER PRODUCTION				
				TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	TANK DIP (IN/CM)	TANK PRODUCTION (BBLs/m ³)	FLOW RATE (BPD/m ³ D)	CUMULATIVE PRODUCTION (BBLs/m ³)	
22/11/91												
1200	72	129	72.25	20.25	0	0	2.971	52	.178	4.272	9.678	
1300	73	comp*1	73.5	20.75	.051	1.224	3.022	52.75	.076	1.824	9.754	
1400	74	comp*1	75.25	21.25	.051	1.224	3.073	54	.127	3.048	9.881	
1400		comp*2	0	0				0		opening dip.		
1600	76		4	1.75	.178	2.136	3.251	2.25	.229	2.748	10.11	
1800	78		6.75	2.25	.051	.612	3.302	4.5	.229	2.748	10.339	
2000	80		10	3.25	.102	1.224	3.404	6.75	.229	2.748	10.568	
2200	82		13.25	4.5	.127	1.524	3.531	8.75	.204	2.448	10.772	
23/11/91												
0200	86		19.75	6.75	.229	1.374	3.76	13	.434	2.604	11.206	
0600	90		26.25	9	.229	1.374	3.989	17.25	.434	2.604	11.64	
0800	92		29.25	9.75	.076	.912	4.065	19.5	.229	2.748	11.869	
0900	93		30.75	10	.025	.600	4.09	20.75	.127	3.048	11.996	
1000	94		32.25	11.25	.127	3.048	4.217	21	.025	.600	12.021	
1100	95		33.75	11.5	.025	.600	4.242	22.25	.127	3.048	12.148	
1200	96	↓	35.25	12	.051	1.224	4.293	23.25	.102	2.448	12.250	
1300	97	comp*2	37	12.5	.051	1.224	4.344	24.5	.127	3.048	12.377	
1300		S.W.1	end of test.									

EXPERTEST PTY. LTD.

LIQUID PRODUCTION

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 3 OF 3

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 22/11/91

TEST TYPE : L.E.T / F.G.S.

OPR : P. Bowyer

TANK
NUMBER

#1 = 60

TANK

#1 = 56.6 m³ bbls/m³

TANK

#1 = 1" = 2666 m³ bbls/in-m³/cm

OIL API GRAVITY = 44.5 @ 60°F

NUMBER

#2 = 129

CAPACITY

#2 = 51.7 BBLs bbls/m³

SCALE

#2 = 1" = 1022 m³ bbls/in-m³/cm

DATE

FLOW

TANK

TOTAL

OIL/CONDENSATE PRODUCTION

WATER PRODUCTION

TIME

TIME
(HOURS)USED
(NUMBER)TANK DIP
(IN/CM)TANK
DIP
(IN/CM)TANK
PRODUCTION
(BBLs/m³)FLOW
RATE
(BBL/m³D)CUMULATIVE
PRODUCTION
(BBLs/m³)TANK
DIP
(IN/CM)TANK
PRODUCTION
(BBLs/m³)FLOW
RATE
(BBL/m³D)CUMULATIVE
PRODUCTION
(BBLs/m³)

22/11/91

1200

72

129

72.25

20.25

0

0

2.971

52

.178

4.272

9.678

1300

73

comp #1

73.5

20.75

.051

1.224

3.022

52.75

.076

1.824

9.754

1400

74

comp #1

75.25

21.25

.051

1.224

3.073

54

.127

3.048

9.881

1400

comp #2

0

0

0

opening dip.

1600

76

4

1.75

.178

2.136

3.251

2.25

.229

2.748

10.11

1800

78

6.75

2.25

.051

.612

3.302

4.5

.229

2.748

10.339

2000

80

10

3.25

.102

1.224

3.404

6.75

.229

2.748

10.568

2200

82

13.25

4.5

.127

1.524

3.531

8.75

.204

2.448

10.772

23/11/91

0200

86

19.75

6.75

.229

1.374

3.76

13

.434

2.604

11.206

0600

90

26.25

9

.229

1.374

3.989

17.25

.434

2.604

11.64

0800

92

29.25

9.75

.076

.912

4.065

19.5

.229

2.748

11.869

0900

93

30.75

10

.025

.600

4.09

20.75

.127

3.048

11.996

1000

94

32.25

11.25

.127

3.048

4.217

21

.025

.600

12.021

1100

95

33.75

11.5

.025

.600

4.242

22.25

.127

3.048

12.148

1200

96

↓

35.25

12

.051

1.224

4.293

23.25

.102

2.448

12.250

1300

97

comp #2

37

12.5

.051

1.224

4.344

24.5

.127

3.048

12.377

1300

S.W.1

end of

test.

Mettika # 3

Bottomhole Pressure Survey

24-26 January 1992

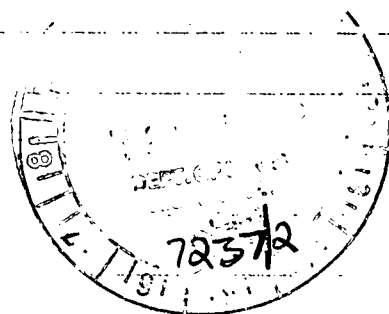
24-01-92 Ran in the hole with ameradas @ 1440 hours,
however gauges were pulled @ 1325 hours on

25-01-92 due to unstable well conditions
caused by compressors being off-line.

26-01-92 Well handed back to production.

Test aborted

MISRUN → ignore



EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD

PERFORATIONS: 7792' - 8134' KB.

PAGE: 1 OF 1

WELL NAME: MEETIKA #3

FORMATION : PATCHAGWARA.

DATE: 24.1.92

TEST TYPE : B.H.P.S.

OPR : M. WRIGHT

DATE/TIME

DESCRIPTION OF EVENTS

FRIDAY 24.1.92

0900 A.O.L. & COMMENCE RIG UP OF WIRELINE EQUIPMENT.

1000 S.W.I. & RIG UP SWAB VALVE & PRESSURE TEST TO S.I.T.H.P.

1020 PRESSURE TEST O.K. W.B.O.L. & COMPLETE RIG UP.

1055 R.I.H. FOR DUMMY RUN WITH 1.5" TOOLSTRING & 1.75" B/BOX - PERFORMING PICK-UPS EVERY 1000 FT.

1125 TAG SOFT RUN @ 8249' KB - NO OBSTRUCTIONS & PERFORATIONS ALL CLEAR & P.O.D.H.

1150 AT SURFACE & TOOLSTRING O.K. - SECURE LEASE & RETURN TO KIDMAN #7.

1410 A.O.L. & PREPARE SURVEY GAUGES

1440 PRESSURE WTB' WITH GAUGES

DEPRESSURE WTB'

PRESSURE WTB' & R.I.H.

AT HANG DEPTH OF 7762' KB - SECURE LEASE & RETURN TO KIDMAN #7

SATURDAY 25.1.92

1325 TEST ABORTED DUE TO UNSERVICEABLE WELL CONDITIONS CAUSED BY COMPRESSORS.

1353 AT SURFACE & DEPRESSURE WTB'

1455 PRESSURE WTB'

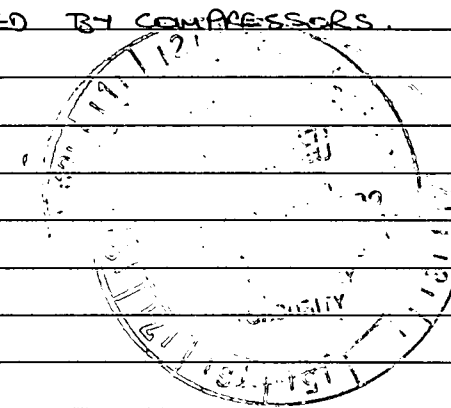
1555 DEPRESSURE WTB' & RIG OUT GAUGES.

1620 SECURE LEASE & LEAVE LOCATION.

SUNDAY 26.1.92

1421 A.O.L. & S.W.I. & RIG OUT WIRE-LINE EQUIPMENT

1545 W.B.O.L. & SECURE LEASE & LEAVE LOCATION.



EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD

PERFORATIONS: 7792' - 8134' KB.

PAGE: 1 OF 1

WELL NAME: METTICA #3

FORMATION : PATE HAWARRA

DATE: 24.1.92

TEST TYPE : B.H.P.S.

OPR : M. WRIGHT

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

21821

21379

DATE : 24.1.92

ELEMENT RANGE

4750 PSI

4825 PSI

M.B.H.T.

PRESSURE LUBRICATOR

1440

6867

7

RECORDING SECTION SERIAL NO.

14619

59288

RUN IN HOLE

1632

6867

7

DATE OF CALIBRATION:

@ 290°F

13.1.92

13.1.92

ON DEPTH AT : 7762' KB FT/M

1656

6902

7

CLOCK SERIAL NO.

F15695

F15690

DATE : 25.1.92

CLOCK RANGE

120 hrs

120 hrs

PULL OUT OF HOLE

1325

5743

0

LEAD SCREW TYPE

15 TWS

15 TWS

AT SURFACE

1353

5770

0

DEPRESSURE LUBRICATOR

1555

5805

0

ENGAGE STYLUS DATE 24.1.92 TIME

1431

1431

MAXIMUM BHT AT 7762' FT/M = 284 °F/M

DISENGAGE STYLUS DATE 25.1.92 TIME

1601

1601

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

DATE

TIME

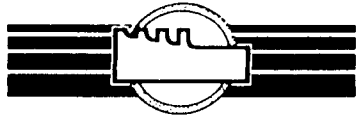
REMARKS

* N.B. M.B.H.T. WAS RUN.

1325

SURVEY GAUGES PULLED - DUE TO UNSTABLE WELL CONDITIONS CAUSED BY COMPLESSORS BEING OFF-LINE.

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS WPD

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 1

WELL NAME: MERRIKA #3

FORMATION : PARCHAWARRA

DATE: 24.1.92

TEST TYPE : B.H.P.S.

OPR : M. WRIGHT

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				
FRIDAY 24.1.92																	
1055						2.I.H. WITH 1.75" BEND BOX FOR DUMMY RUN											
1125		6957	83		70%	TAG SOFT FILL 8249' KB											
1150		6923	69			AT SURFACE - TOOL SPRNG O.K. NO OBSTRUCTIONS / PERFS CLEAR											
						RETURN TO KIDMAN #7											
1440		6867	7	61		PRESSURE WTB' WITH SURVEY GAUGES.											
1632		6867	7	60		2.I.H. WITH GAUGES											
1656		6902	7	60		AP MAX DEPTH OF 7762' KB											
2200		6861	7	60													
SATURDAY 25.1.92																	
0400		6805	7	61													
0500		6792	7	62													
0600		6785	7	64													
0800		7136	8	64													
1325		8743	8	68		P.O.O.H - DUE TO UNSTABLE WELL CONDITIONS											
1353		8770	8	64		AS SURFACE + DEPRESSURE WTB											
1555		8805	8	63		DEPRESSURE WTB' + RIG OUT GAUGES											
1620						SECURE LEASE + LEAVE LOCATION.											
SUNDAY 26.1.92																	
0600		9060	8	57		COMPRESSORS SPIN OFF WNE.											
1545						WELL HANDED BACK TO PRODUCTION + TEST ABORTED											
						DUE TO COMPRESSOR PROBLEMS.											

Metlika # 3

0133

Bottomhole Pressure Survey

17-22 February 1992

Pressure Buildup

17-02-92 Ran in the hole with ameradas and reached hang depth of 7762 ft. KB @ 1525 hours.
 Flowed well on 50% choke and monitored pressure.

18-02-92 Shut well in @ 0800 hours for buildup.
 Monitored pressure until 0740 hours on 22-02-92 for a buildup time of 95 hours 40 min.
 Element # 15451 @ 7762 ft. KB.

F.B.H.P. @ shut-in = 1367.0 psig = 9425 kPa
 S.I.B.H.P. final = 1981.0 psig = 13659 kPa

Static Gradient Survey

22-02-92 A static pressure gradient was run to m.p.p. depth 7963 ft. KB.
 Element # 15451 @ mpp S.I.B.H.P. = 1999.9 psig
 = 13789 kPa

Production Summary

Cumulative gas production to 31/1/92 = $53.3 \times 10^6 \text{ m}^3$
 Average daily production rate for January 1992 = $74.1 \times 10^3 \text{ m}^3/\text{d}$.
 assume: Production to test shut-in = 17.33 days $\times 74.1 \text{ m}^3/\text{d}$ = $1284 \times 10^3 \text{ m}^3$
 $\therefore$ New cumulative gas = $53,300 \times 10^3 \text{ m}^3 + 1284 \times 10^3 \text{ m}^3$ = $54,584 \times 10^3 \text{ m}^3$

$t = \frac{54,584 \times 10^3 \text{ m}^3}{74.1 \times 10^3 \text{ m}^3/\text{d}} \times 24$ $t = 17679$ hours.

SUB-SURFACE PRESSURE SURVEY

0134

CO. SANTOS		RUN 01 FIELD METTIKA		WELL 03
EFF DEPTH		WELL STAT		TOOL HUNG 7762 FT KB
CASING	-	CASING PRESS		ON BOTTOM 1525 920217
LINER	-	TUBING PRESS		OFF BOTTOM 0740 920222
DATE	920217	ELEMENT RANGE	0 - 5126	ZERO POINT
ELEVATION		ZONE		SHUT-IN 0800 920218
MAX TEMP		PICK-UP		ON-PROD
PERF	-	CAL SER NO.	15451	MPP
TUBING	-			
UNITS	ENGLISH	PURPOSE	BOTTOMHOLE PRESSURE BUILDUP	

SURVEY DATA

CO. SANTOS			RUN 01 FIELD METTIKA			WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
8:00	1367.0	1367.0	.0	21:16	1943.4	1943.4	37.3	
8:00	1439.3	1439.3	.0	1:31	1946.1	1946.1	41.5	
8:05	1562.9	1562.9	.1	6:15	1951.7	1951.7	46.2	
8:07	1667.2	1667.2	.1	10:46	1952.1	1952.1	50.8	
8:12	1751.4	1751.4	.2	16:25	1952.8	1952.8	56.4	
8:15	1849.7	1849.7	.3	21:22	1955.1	1955.1	61.4	
8:21	1987.6	1987.6	.4	3:11	1959.8	1959.8	67.2	
8:28	2075.4	2075.4	.5	9:24	1964.8	1964.8	73.4	
8:36	2163.4	2163.4	.6	15:01	1969.7	1969.7	79.0	
8:43	2124.4	2124.4	.7	20:34	1974.8	1974.8	84.6	
8:53	2074.5	2074.5	.9	2:16	1978.0	1978.0	90.3	
9:04	2045.1	2045.1	1.1	7:01	1981.6	1981.6	95.0	
9:28	2004.5	2004.5	1.5	7:40	1981.0	1981.0	95.7	
9:50	1974.7	1974.7	1.8	-	8:46	1649.2	-16.8	
10:09	1955.5	1955.5	2.2	-	8:10	1644.0	-16.2	
10:40	1941.2	1941.2	2.7	-	7:32	1643.5	-15.5	
11:09	1931.5	1931.5	3.2	-	6:53	1535.5	-14.9	
11:43	1925.9	1925.9	3.7	-	6:26	1472.3	-14.4	
12:35	1920.0	1920.0	4.6	-	5:53	1416.8	-13.9	
13:30	1915.8	1915.8	5.5	-	5:28	1364.4	-13.5	
14:23	1915.1	1915.1	6.4	-	4:59	1332.6	-13.0	
15:04	1914.5	1914.5	7.1	-	4:21	1319.7	-12.3	
16:43	1913.0	1913.0	8.7	-	4:00	1325.3	-12.0	
19:34	1915.2	1915.2	11.6	-	3:13	1348.3	-11.2	
22:24	1917.6	1917.6	14.4	-	2:11	1354.4	-10.2	
1:32	1919.2	1919.2	17.5	-	0:44	1357.5	-8.7	
4:52	1923.7	1923.7	20.9		0:46	1356.2	-7.2	
8:45	1930.0	1930.0	24.8		2:26	1362.9	-5.6	
12:29	1934.7	1934.7	28.5		4:57	1367.9	-3.0	
17:08	1940.4	1940.4	33.1		6:25	1370.2	-1.6	

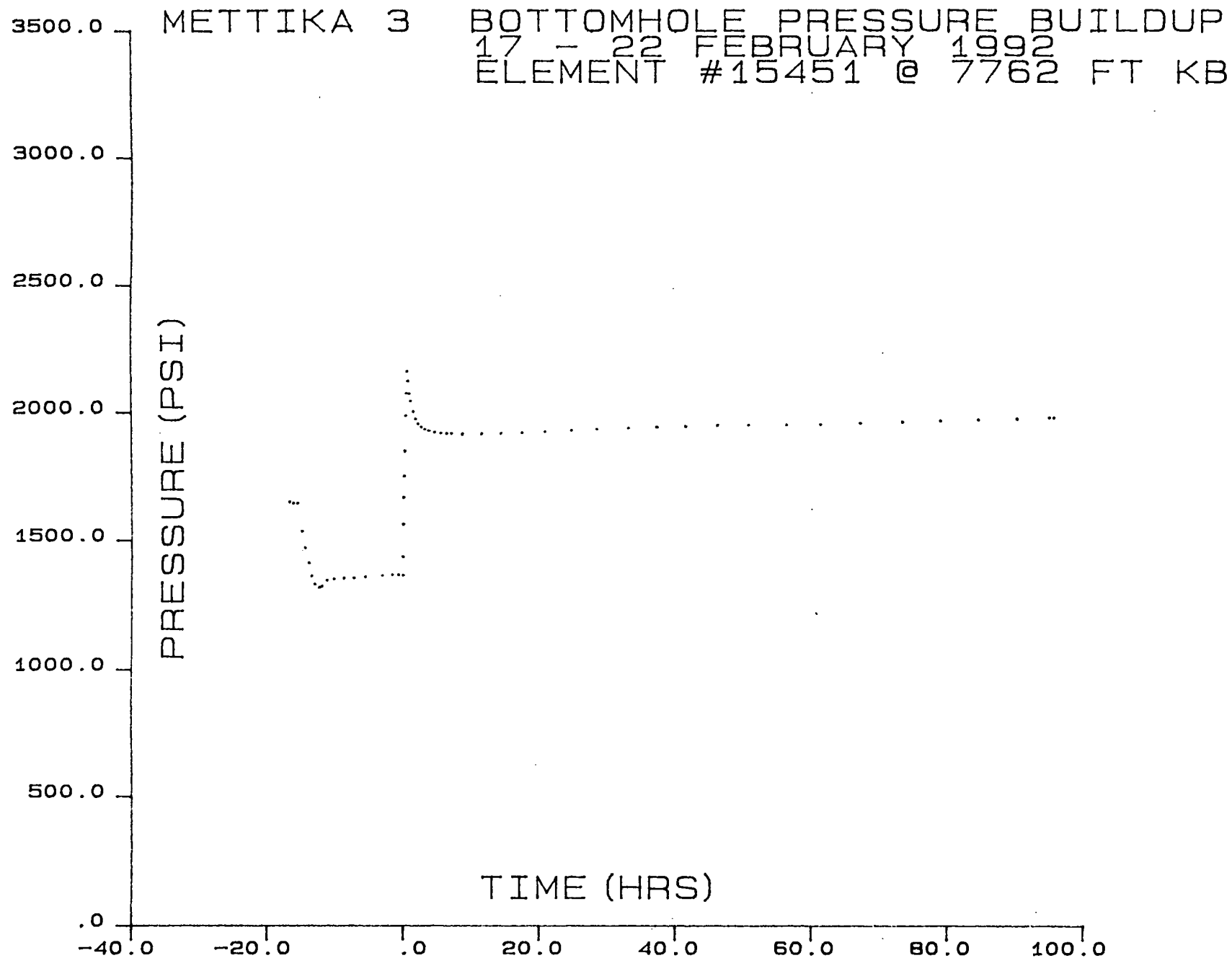


SURVEY DATA

CO. SANTOS				RUN 01 FIELD METTIKA		WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
7:20	1369.4	1369.4	-.7	0:00	.0	.0	.0	

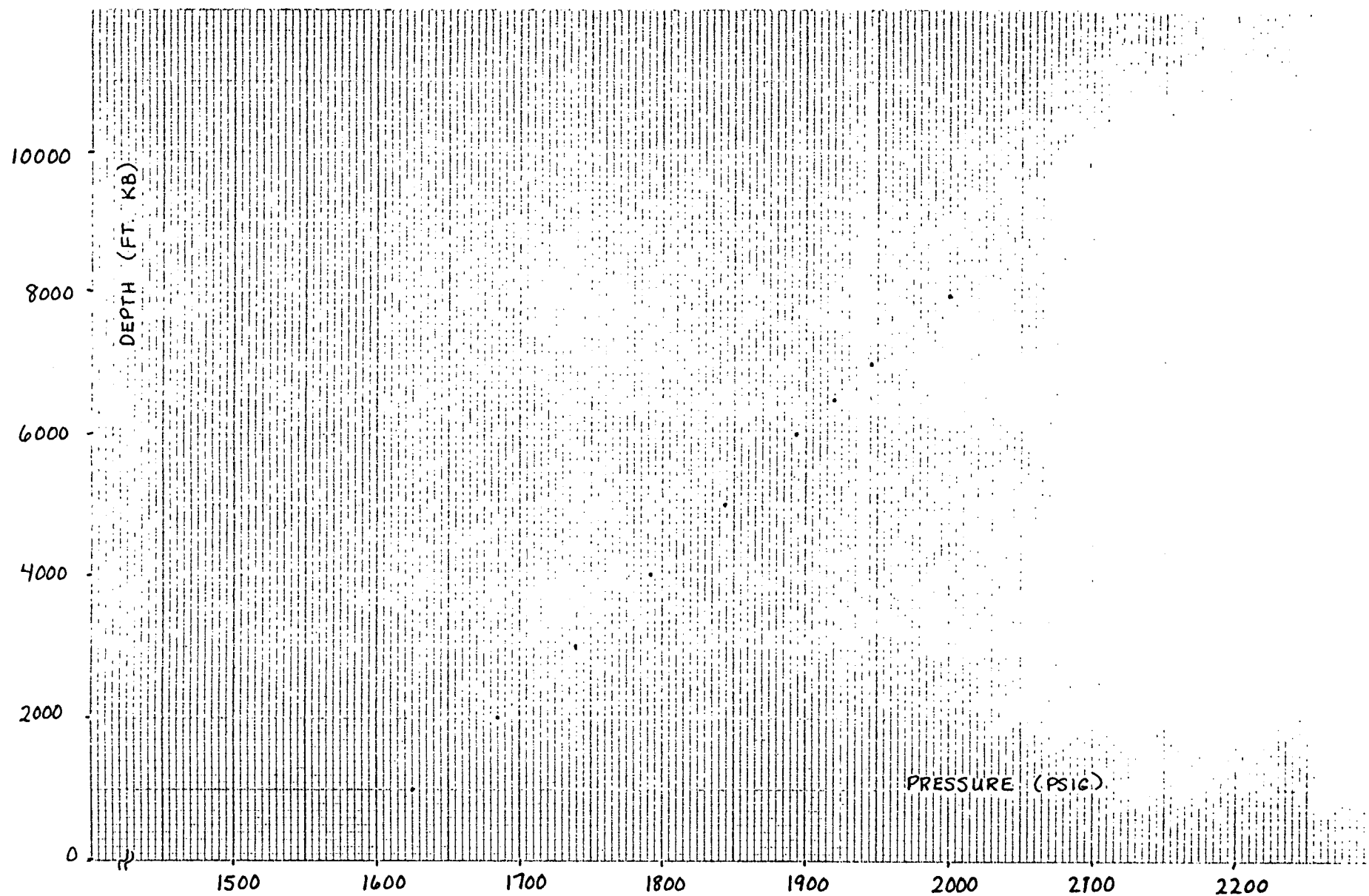
LUB IN DWT = 1320 PSI / OUT = 1575 PSI
LUB IN AMERADA = 1304 PSI / OUT = 1570 PSI

0136



0137

METTIKA # 3 - STATIC PRESSURE GRADIENT - 22 / 02 / 91.
ELEMENT # 15451 (BOT)



EXPERTEST PTY. LTD.

SEQUENCE OF EVENTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 2

WELL NAME: Mettika #3

FORMATION : Patchawarra

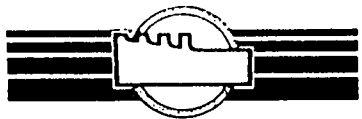
DATE: 14/2/92

TEST TYPE : B.H.P.s.

OPR : P. Bowyer

DATE/TIME	DESCRIPTION OF EVENTS
14/2/92	
1445	Arrive on location with gen set
1450	S.W.I to fit swab valve
1500	Well back on line, on proceed to Brumby & get wire line unit
1530	B.O.L spot wire line unit & c/wan, & repair jin pole
1600	Secure lease overnight, To Moomba
15/2/92	
1015	Arrive B.O.L rig up wire line unit, & pressure test.
1059	R.I.H with 1.75" B/Box
1155	Tag P.B.T.D @ 8240 KB & P.O.O.H, no obstructions (starter problems with unit)
1225	In lub, depressure, remove toolstring & prepare ameradas for survey
1258	Pressure lub for survey 2x pressure elements & 1 MB.H.T
1428	Depressure lub
1528	Pressure lub & R.I.H.
1558	At 7762' KB hang depth flow well overnight
1730	Problems in satellite caused line pressure to increase
16/2/92	
0820	P.O.O.H & abort B.H.P.s for now.
0840	At surface, depressure & secure lease, well is free flowing on 100%
17/2/92	
1200	Prepare ameradas for survey
1230	Pressure lub, well is still free flowing on 100%
1400	Depressure lub
1500	Pressure lub & R.I.H

EXPERTEST PTY. LTD.



SEQUENCE OF EVENTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 2 OF 2

WELL NAME: Mettika #3

FORMATION : Patchawarra

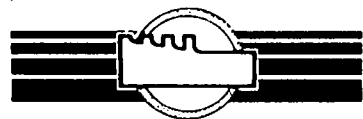
DATE: 17/2/92

TEST TYPE : B.H.P.S.

OPR :

DATE/TIME	DESCRIPTION OF EVENTS
17/2/92	
1525	At 7762' KB hang depth
1700	Mettika field B.O.L through the Toolachee compressor, flow well overnight
18/2/92	
0800	S.W.1 for 96 HR build up.
22-2-92	
07:40	P.O.O.H
08:00	ARRIVE IN LUB & DEPRESSURE
09:00	PRESSURE UP LUB
11:00	DEPRESSURE LUB & RECOVER CHARTS GOOD CHARTS
	RELOAD ELEMENTS WITH CHART & 3HR CLOCKS FOR STATIC GRADIENT
11:22	HANG IN LUB & PRESSURE UP
11:27	DEPRESSURE
11:38	PRESSURE UP & R.I.H.
12:46	P.O.O.H
13:01	ARRIVE IN LUB & DEPRESSURE
13:06	PRESSURE UP
13:16	DEPRESSURE LUB & RECOVER CHARTS GOOD CHARTS
	SURVEY COMPLETED RIG DOWN
	HAND WELL BACK TO PRODUCTION

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB.

PAGE: 1 OF 4

WELL NAME: Mettika #3

FORMATION : Patchawarra

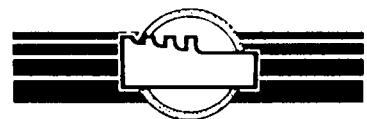
DATE: 14/2/92

TEST TYPE : B.H.P.s.

OPR : P. Bowyer

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLs m ³	WATER BBLs m ³		
14/2/92															
1445															
1450					25										
1500															
1530															
1600															
15/2/92															
1015															
1059		7019	21		25										
1155															
1225															
1258		7046	21												
1428		7039	21	49											
1528		7033	21	47											
1558		7053	21	46	25										
1730															
2300		9577	0	45											
16/2/92															
0200		8384	0	52	40										
0400		8625	0	52	50										

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : Santos.

PERFORATIONS: 7792' - 8134' KB.

PAGE: 2 OF 4

WELL NAME: Mettika*3.

FORMATION : Patchawarra.

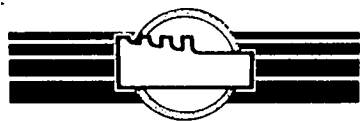
DATE: 16/2/92

TEST TYPE : B.H.P.S.

OPR : P. Bowyer

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION						
DATE TIME	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE %	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCF m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³				
16/2/92																	
0630		8653	0	52	90	2 compressors still down @ satellite											
0820		8639	0	53	90	P.O.O.H. abort B.H.P.s. wait until satellite is back on line.											
0840		8639	0	52	90	In lub. depressure, secure unit.											
17/2/92						Well is presently free flowing.											
1200						Prepare ameradas for survey.											
1230		9101	0	50	100	Pressure lub for B.H.P.S											
1400		9066	0	46	100	Depressure lub.											
1500		9053	0	45	100	Pressure lub & R.I.H.											
1525		9005	0	50	100	At 7762' KB, hang depth, well is still free flowing.											
1700						Mettika field B.O.C. through the Toobachee compressor.											
2200		7191	0	47	50												
18/2/92																	
0200		7191	0	48	50												
0600		7198	0	52	50												
0630		7191	0	52	50												
0700		7205	0	53	50												
0730		7191	0	54	50												
0800		7191	0	53	50	Shut well in for 96 Hr Build up											
0815		10846	0	49	5/1												
0830		11928	0	43													
0845		11487	0	43	5/1												

EXPERTEST PTY. LTD.



TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' - 8134' 1/13

PAGE: 3 OF 4

WELL NAME: Mettika # 3

FORMATION : Patchawarra

DATE: 18.2.92

TEST TYPE : B.H.P.S.

OPR : P Bawyer

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		
18/2/92															
0900	1	11349	0	39	s/l										
0915		11211	0	38											
0930		11060	0	37											
0945		10963	0	37											
1000	2	10901	0	38											
1015		10839	0	38											
1030		10798	0	39											
1045		10763	0	40											
1100	3	10736	0	40											
1115		10715	0	40											
1130		10694	0	41											
1145		10674	0	42											
1200	4	10674	0	42											
1300	5	10632	0												
1500	7	10618	0												
1900	11	10618	0												
2300	15	10618	0												
19/2/92															
0300	19	10639	0												
0700	23	10652	0												
1100	27	10673	0												

EXPERTEST PTY. LTD.

TEST RESULTS

CUSTOMER : SANTOS

PERFORATIONS: 7792' - 8134' M13

PAGE: 4 OF 4

WELL NAME: METTIKA #3

FORMATION : PATCHAWARRA

DATE: 19-2-92

TEST TYPE : B.H.P.

OPR : N.H.94

TIME		WELLHEAD DATA						FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 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		
19-2-92															
15:00	31	10680	0												
19:00	35	10715	0												
23:00	39	10721	0												
20-2-92															
03:00	43	10735	0												
07:00	47	10742	0												
11:00	51	10742	0												
15:00	55	10749	0												
19:00	59	10769	0												
23:00	63	10776	0												
21-2-92															
03:00	67	10769	0												
07:00	71	10776	0												
11:00	75	10790	0												
15:00	79	10790	0												
19:00	83	10818	0												
23:00	87	10832	0												
22-2-92															
03:00	92	10839	0												
07:00	96	10845	0												
07:40		10845	0												

P.O.O.H. & RUN STATIC GRADIENT AS PER PROGRAMME

SURVEY COMPLETED RIG DOWN HAND WELL BACK TO PRODUCTION

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : Santos

PERFORATIONS: 7792' - 8134' KB

PAGE: 1 OF 1

WELL NAME: Mettika #3

FORMATION : Patchawarra

DATE: 17/2/92

TEST TYPE : B.H.P.s.

OPR : P. Bowyer

GAUGE DATA	UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)
ELEMENT SERIAL NO.	28904	15451	M.B.H.T.	DATE : 17/2/92			
ELEMENT RANGE PSI	5200	5650		PRESSURE LUBRICATOR :	1230	1320 psig 9101	0
RECORDING SECTION SERIAL NO.	12979	12961		RUN IN HOLE :	1500	9053	0
DATE OF CALIBRATION: @290°F	14/2/92	14/2/92		ON DEPTH AT Hang depth 7762' FT/M	1525	9005	0
CLOCK SERIAL NO.	7	3		DATE : 22-2-92			
CLOCK RANGE HR	120	120		PULL OUT OF HOLE :	07:40	10845	0
LEAD SCREW TYPE	157LS	157LS		AT SURFACE :	08:00	10845	0
				DEPRESSURE LUBRICATOR :	11:00	10859	0
ENGAGE STYLUS DATE 17/2/92 TIME 1227	1227	1227		MAXIMUM BHT AT 7762 FT/M = 291 °F/1575 psig			
DISENGAGE STYLUS DATE 22-2-92 TIME 11:09	11:09	11:09		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

DATE	TIME	REMARKS
		NB. the well was free flowing on 100% while running in hole.
17/2/92	1700	Mettika field B.O.L. through the Toolachee compressor
18/2/92	0800	S.W.1 for 96 HR build up.
22-2-92		
	0:7:40	P.O.O.H.

[illegible]

**EXPERT**

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANVILLE 5033

PH. (08) 354 0488 TELEX AA87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Friday, 22nd February 1991.

CLIENT	LOCATION	FORMATION
Santos Ltd.	Mattika # 3	Patchawarra

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	28904	5200	14/ 2/92
Bottom	15451 ✓	5650	14/ 2/92

WELL DATA	
PARAMETER	VALUE
DWT In	1574 PSIG
DWT Out	1575 PSIG
Max BHT	291 F

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT. KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6040	1575.8	----	0.6150	1568.8	----
1000	0.6280	1638.0	0.062	0.6370	1625.2	0.057
2000	0.6490	1692.4	0.054	0.6600	1684.3	0.059
3000	0.6700	1746.7	0.054	0.6810	1738.1	0.054
4000	0.6890	1795.9	0.049	0.7020	1792.0	0.054
5000	0.7090	1847.7	0.052	0.7220	1843.3	0.051
6000	0.7275	1895.5	0.048	0.7415	1893.4	0.050
6500	0.7370	1920.1	0.049	0.7515	1919.0	0.051
7000	0.7460	1943.4	0.047	0.7620	1946.0	0.054
7963	0.7670	1997.8	0.056	0.7830	1999.9 ✓	0.056
LUB.	0.6090	1588.8	----	0.6180	1576.5	----

GENERAL REMARKS

Mettika # 3

0147

Bottomhole Pressure Survey

17-22 February 1992

Pressure Buildup

17-02-92 Ran in the hole with ameradas and reached hang depth of 7762 ft. KB @ 1525 hours.
Flowed well on 50% choke and monitored pressure.

18-02-92 Shut well in @ 0800 hours for buildup.
Monitored pressure until 0740 hours on 22-02-92 for a buildup time of 95 hours 40 min.
Element # 15451 @ 7762 ft KB.

F.B.H.P. @ shut-in = 1367.0 psig = 9425 kPa
S.I.B.H.P. final = 1981.0 psig = 13659 kPa

Static Gradient Survey

22-02-92 A static pressure gradient was run to m.p.p. depth 7963 ft. KB.
Element # 15451 @ mpp S.I.B.H.P. = 1999.9 psig
= 13789 kPa

Production Summary

Cumulative gas production to 31/1/92 = $53.3 \times 10^6 \text{ m}^3$
Average daily production rate for January 1992 = $74.1 \times 10^3 \text{ m}^3/\text{d}$.
assume: Production to test shut-in = 17.33 days $\times 74.1 \text{ m}^3/\text{d}$ = $1284 \times 10^3 \text{ m}^3$
 $\therefore$ New cumulative gas = $53,300 \times 10^3 \text{ m}^3 + 1284 \times 10^3 \text{ m}^3 = 54,584 \times 10^3 \text{ m}^3$

$$t = \frac{54,584 \times 10^3 \text{ m}^3}{74.1 \times 10^3 \text{ m}^3/\text{d}} \times 24 \quad t = 17679 \text{ hours.}$$

LEAD BOSS

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD METTIKA	WELL 03
EFF DEPTH		WELL STAT	TOOL HUNG 7762 FT KB
CASING	-	CASING PRESS	ON BOTTOM 1525 920217
LINER	-	TUBING PRESS	OFF BOTTOM 0740 920222
DATE 920217		ELEMENT RANGE 0 - 5126	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 920218
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 15451	MPP
TUBING	-		
UNITS ENGLISH		PURPOSE	BOTTOMHOLE PRESSURE BUILDUP

SURVEY DATA

CO. SANTOS			RUN 01 FIELD METTIKA			WELL 03		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
8:00	1367.0	1367.0	.0	21:16	1943.4	1943.4	37.3	
8:00	1439.3	1439.3	.0	1:31	1946.1	1946.1	41.5	
8:05	1562.9	1562.9	.1	6:15	1951.7	1951.7	46.2	
8:07	1667.2	1667.2	.1	10:46	1952.1	1952.1	50.8	
8:12	1751.4	1751.4	.2	16:25	1952.8	1952.8	56.4	
8:15	1849.7	1849.7	.3	21:22	1955.1	1955.1	61.4	
8:21	1987.6	1987.6	.4	3:11	1959.8	1959.8	67.2	
8:28	2075.4	2075.4	.5	9:24	1964.8	1964.8	73.4	
8:36	2163.4	2163.4	.6	15:01	1969.7	1969.7	79.0	
8:43	2124.4	2124.4	.7	20:34	1974.8	1974.8	84.6	
8:53	2074.5	2074.5	.9	2:16	1978.0	1978.0	90.3	
9:04	2045.1	2045.1	1.1	7:01	1981.6	1981.6	95.0	
9:28	2004.5	2004.5	1.5	7:40	1981.0	1981.0	95.7	
9:50	1974.7	1974.7	1.8	- 8:46	1649.2	1649.2	-16.8	
10:09	1955.5	1955.5	2.2	- 8:10	1644.0	1644.0	-16.2	
10:40	1941.2	1941.2	2.7	- 7:32	1643.5	1643.5	-15.5	
11:09	1931.5	1931.5	3.2	- 6:53	1535.5	1535.5	-14.9	
11:43	1925.9	1925.9	3.7	- 6:26	1472.3	1472.3	-14.4	
12:35	1920.0	1920.0	4.6	- 5:53	1416.8	1416.8	-13.9	
13:30	1915.8	1915.8	5.5	- 5:28	1364.4	1364.4	-13.5	
14:23	1915.1	1915.1	6.4	- 4:59	1332.6	1332.6	-13.0	
15:04	1914.5	1914.5	7.1	- 4:21	1319.7	1319.7	-12.3	
16:43	1913.0	1913.0	8.7	- 4:00	1325.3	1325.3	-12.0	
19:34	1915.2	1915.2	11.6	- 3:13	1348.3	1348.3	-11.2	
22:24	1917.6	1917.6	14.4	- 2:11	1354.4	1354.4	-10.2	
1:32	1919.2	1919.2	17.5	- 0:44	1357.5	1357.5	-8.7	
4:52	1923.7	1923.7	20.9	- 0:46	1356.2	1356.2	-7.2	
8:45	1930.0	1930.0	24.8	- 2:26	1362.9	1362.9	-5.6	
12:29	1934.7	1934.7	28.5	- 4:57	1367.9	1367.9	-3.0	
17:08	1940.4	1940.4	33.1	- 6:25	1370.2	1370.2	-1.6	

SURVEY DATA

CO. SANTOS

RUN 01 FIELD METTIKA

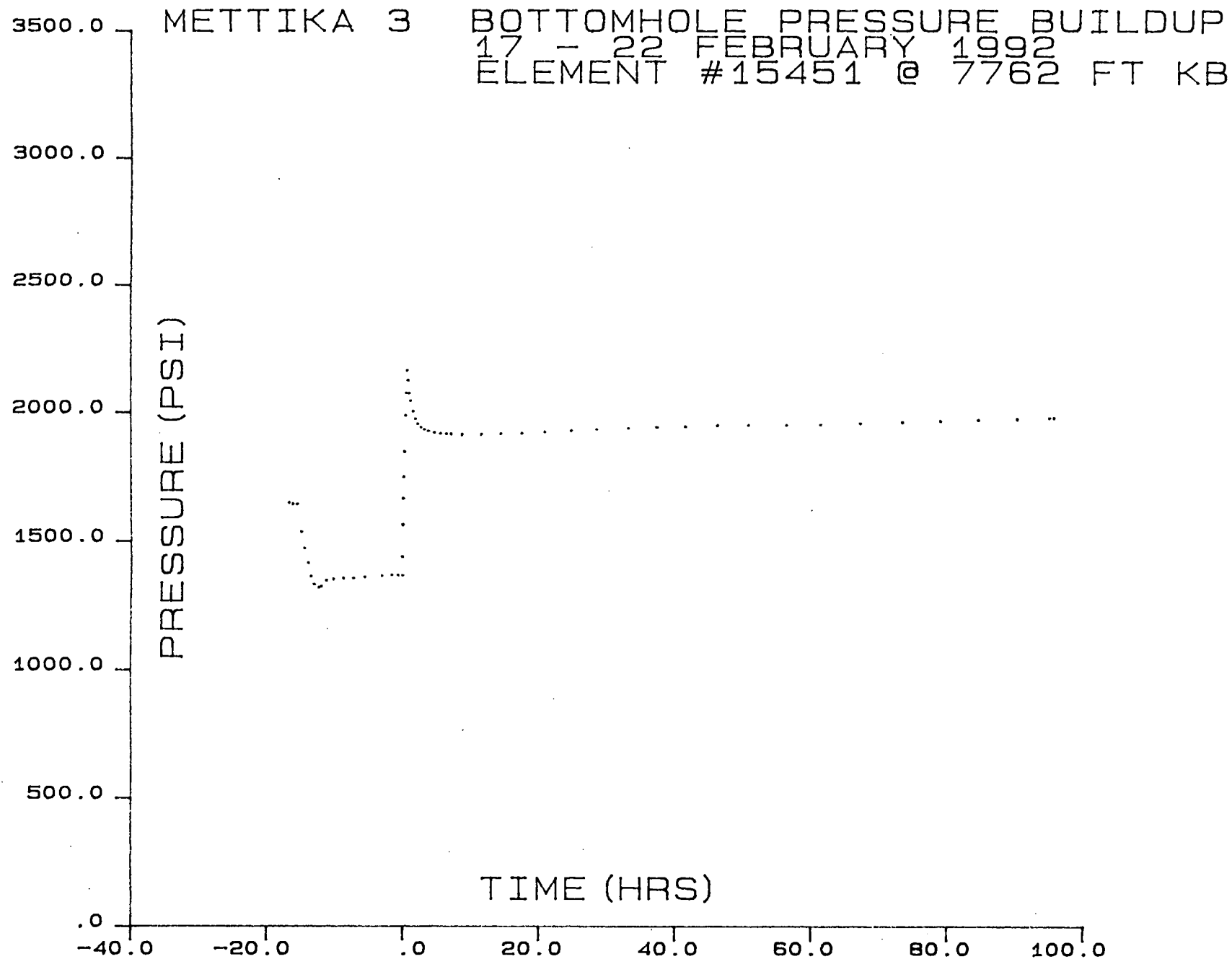
WELL 03

TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
7:20	1369.4	1369.4	-.7	0:00	.0	.0	.0

LUB IN DWT = 1320 PSI / OUT = 1575 PSI

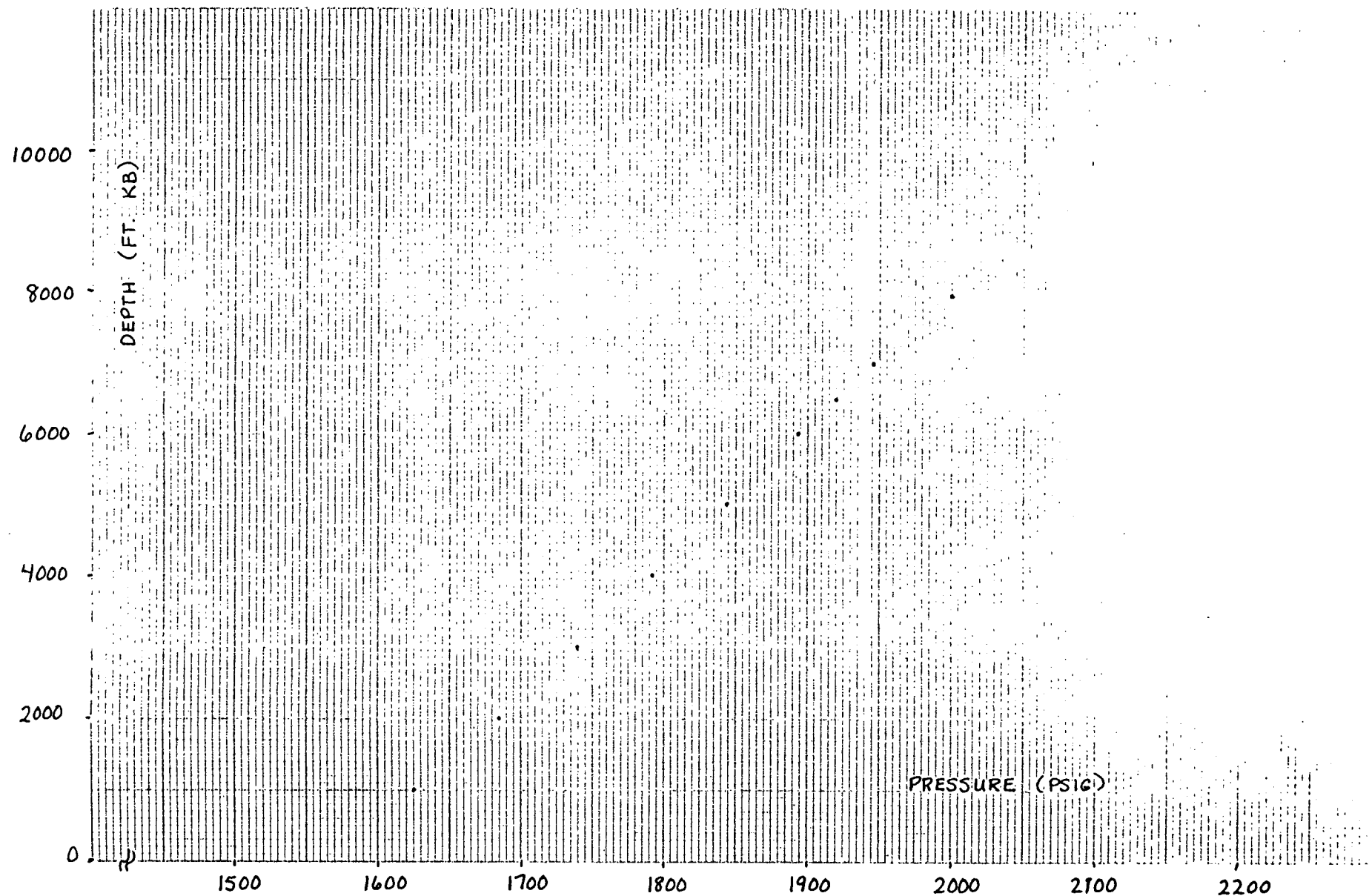
LUB IN AMERADA = 1304 PSI / OUT = 1570 PSI

0150



0151

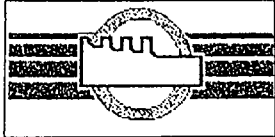
METTIKA # 3 - STATIC PRESSURE GRADIENT - 22 / 02 / 91.
ELEMENT # 15451 (BOT)



7237/2 R7

COPY C.

19 JUL 1995



EXPERTEST PTY. LTD.

A.C.N. 008 034 062

0152

Production Testing Report

Test Details

Customer	Santos Ltd
Well Name	Mettika 3
Formation	Patchawarra
Perforations	7792' - 8134' KB
Type Of Test	FGS
Operator	B. Hull
Date Of Test	8/05/95
Reference Date	8/05/95
Reference Time	1137
Control No.	50602
Program	

9

7237/002

0154

EXPERTEST PTY. LTD.		FIELD READINGS				
	Customer:	Santos Ltd	Well Name:	Mettika 3	Formation:	Patchawarra
	Perforations:	7792' - 8134' KB	Type Of Test:	FGS	Operator:	B. Hull
	Date Of Test:	8/05/95	Program:	0	Control No.:	50602

[illegible]

0155

EXPERTEST PTY. LTD.

GAUGE RUN SHEET

050602

CUSTOMER: SANTOS LTD
 WELL NAME: METTIKA #3
 TEST TYPE: FGS

PERFORATIONS: 7792' - 8134'
 FORMATIONS: PATCHAWARRA

PAGE: 1 OF 1
 DATE: 8-5-95
 OPR: B. HULL

GAUGE DATA	TOP GAUGE	BOTTOM GAUGE
ELEMENT SERIAL NO.	57413	56431
ELEMENT RANGE PSI	3000	3000
ELEMENT TYPE	AMERADA	AMERADA
DATE OF CALIBRATION:	22.8.94	20.12.94
CLOCK SERIAL NO.	A.16088	A.16085
CLOCK RANGE HOURS	3	3
ENGAGE BATTERY/STYLUS DATE: 8.5.95 TIME	11:37	11:37
DISENGAGE BATTERY/STYLUS DATE: 8.5.95 TIME	13:45	13:45
GAUGE RUN TIME AGGREGATE HOURS		
TEST DURATION HOURS		

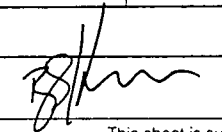
RUN DATA	TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	GAUGE RESPONSE (PSI/KPa)
DATE : 8.5.95			
PRESSURE LUBRICATOR :	11:42	362	
RUN IN HOLE :	11:57	362	
ON DEPTH AT 7963 FT/M	12:58	362	
MAX. RECORDED BHP PSI			
MAX. RECORDED BHT S/F			288
DATE : 8.5.95			
PULL OUT OF HOLE :	13:08	362	
DEPRESSURE LUBRICATOR :	13:40	366	

NB: ALL DEPTHS ARE MEASURED FROM KB.

GAUGE CHECKS	LAB	TOP GAUGE	LAB	BOTTOM GAUGE
DATE/PERFORMED BY				
PRE-JOB CHECK PRESS PSI A/G				
TEMP 'C/'F				
DATE/PERFORMED BY				
POST-JOB CHECK PRESS PSI A/G				
TEMP 'C/'F				
DATE/PERFORMED BY				
CAL. CHECK PRESS PSI A/G				
TEMP 'C/'F				

BATTERY DATA	TOP SERIAL NO.	BOTTOM SERIAL NO.	DATE
PRE-JOB PBU/BHP CYCLES:			
PRE-JOB SGS/FGS CYCLES:			
PRE-JOB LOADED VOLTS:			
POST-JOB LOADED VOLTS:			

OPERATOR'S SIGNATURE



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

COMMENTS:

EXPERTEST PTY. LTD.

FLOWING PRESSURE GRADIENT SURVEY

Location: METTIKA #3

Tested: 8th May 1995.

Formation: PATCHAWARRA

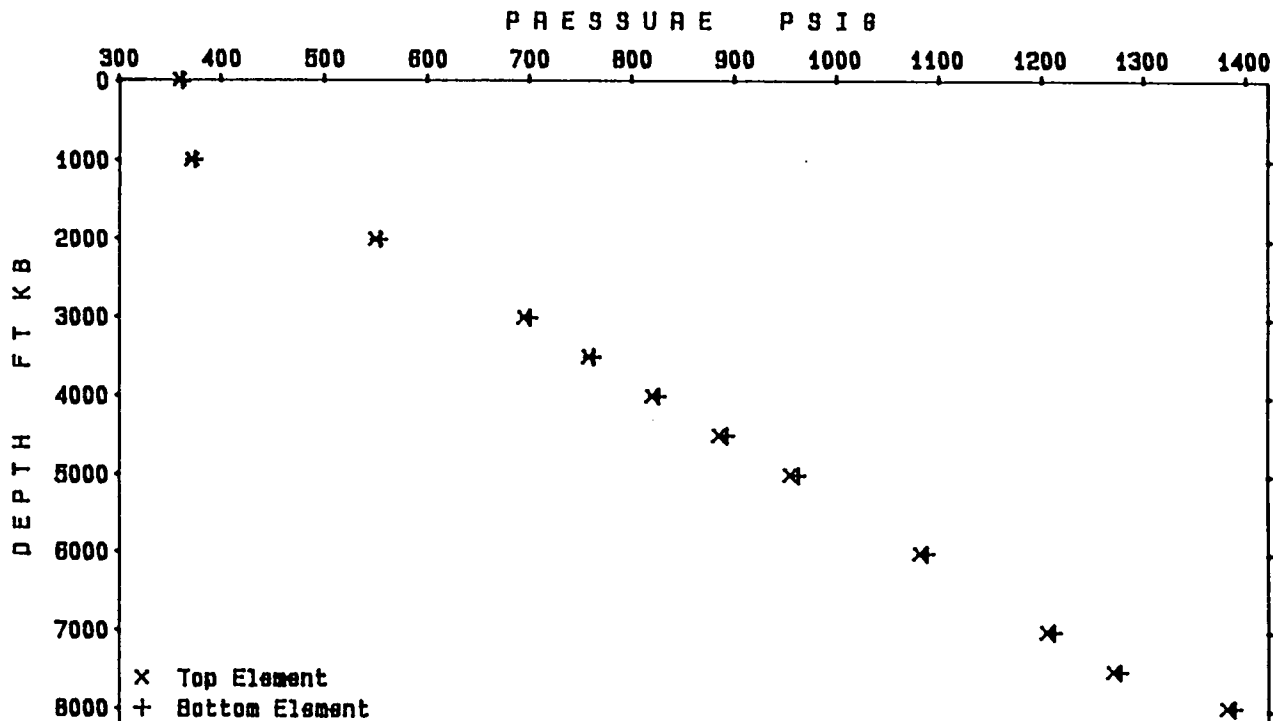
Client: SANTOS LTD.

PRESSURE ELEMENT DATA

Position	Serial No	Range	Calibrated
Top	87413	3000	22/ 8/94
Bottom	88431	3000	20/12/94

WELL DATA

DWT In	382 PSIG
DWT Out	388 PSIG
Max BHT	288 DEE F



TOP ELEMENT

BOTTOM ELEMENT

Depth FT KB	Deflection Inches	Pressure PSIG	Gradient PSI/FT	Deflection Inches	Pressure PSIG	Gradient PSI/FT
LUB.	0.2340	358.8	-	0.2350	380.9	-
1000	0.2420	371.2	0.012	0.2430	373.2	0.012
2000	0.3570	549.3	0.178	0.3590	552.8	0.179
3000	0.4510	694.8	0.145	0.4540	699.8	0.147
3500	0.4820	788.0	0.127	0.4840	781.7	0.124
4000	0.5320	819.9	0.124	0.5350	825.3	0.127
4500	0.5740	884.8	0.130	0.5780	891.9	0.133
5000	0.6190	954.3	0.138	0.6230	961.7	0.140
6000	0.7010	1081.1	0.127	0.7040	1087.2	0.125
7000	0.7810	1204.7	0.124	0.7840	1211.2	0.124
7500	0.8230	1289.8	0.130	0.8260	1276.3	0.130
7963	0.8950	1380.9	0.240	0.8980	1387.8	0.241
LUB.	0.2360	361.9	-	0.2380	365.5	-

GENERAL REMARKS