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NUMBER 7198/2

PPL 42

EROMANGA BASIN AND COOPER BASIN

BOOKABOURDIE 10

TEST REPORTS

Submitted by

Santos Ltd and SADME
1994

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MINES and ENERGY
RESOURCES SOUTH
AUSTRALIA



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TENEMENT: PPL 42; Eromanga and Cooper Basins

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

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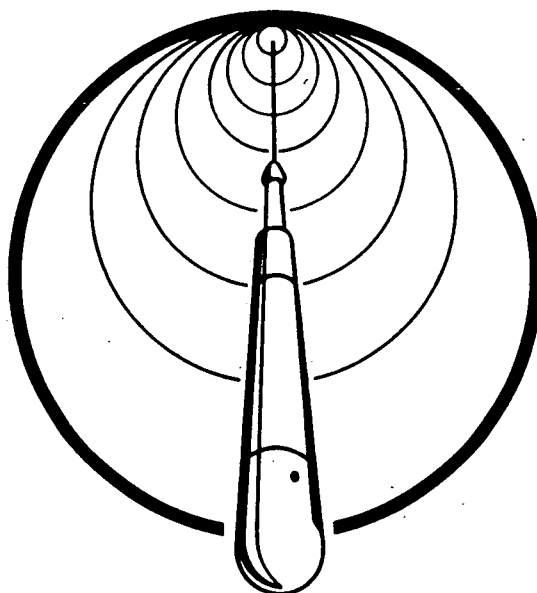
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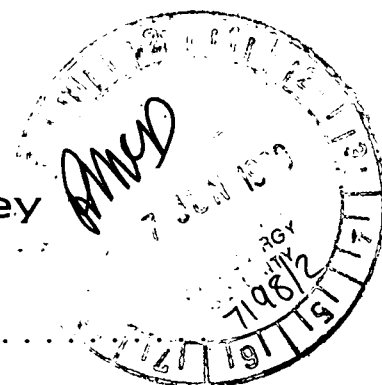
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EXPERTEST

ELECTRIC WIRELINE
SERVICE



Electronic BHP/BHT Survey



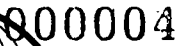
Customer: .. SANTOS Ltd.
Location: .. BOOKABOURDIE 10
Formation: Tirrawarra
Date: 20. 4. 89 - 24. 4. 89

Mines & Energy SA

R96/00126



ELECTRIC WIRELINE SERVICES



CUSTOMER: SANTOS Ltd.
LOCATION: BOOKABOURDIE 10
FORMATION: Tirrawarra
DATE: 20. 4. 89 - 24. 4. 89

TIME	DESCRIPTION OF EVENTS
20. 4. 89	
07:00	Rigged up E'line equipment and tested SRO system.
16:10	P.U.L.
16:35	R. I. H.
	Correlated with CCL on packer. X, N, EDT. Allowed 46' stretch.
17:11	Hang @ 9500' KB
	Monitored flowing well conditions, liquid and gas rates in conjunction with testing crew.
21. 4. 89	
	Monitored flowing conditions and rates.
22. 4. 89	
09:00	S. I. W. Monitored Build-Up.
23. 4. 89	
	Monitored Build-Up.
24. 4. 89	
10:15	R. I. H. to Static Gradient stops.
10:20	9585'
10:48	9000'
11:27	8000'
12:04	7000'
12:40	6000'
13:14	5000'. Gauge signal unstable, attempted other stops.
14:25	P. O. O. H.
14:37	Depressured at surface.
	Attempted to rectify problem without success.
16:15	Abandoned survey on advice of Santos P. E.
18:00	Secured lease for night.

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 20-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
20-04-89	17:13:00	3.950	1941.37	-52.86	275.22		START S.R.T.
20-04-89	17:14:00	3.967	1942.96	1.59	275.22		
20-04-89	17:15:00	3.983	1943.95	0.10	275.22	1235	Hang @ 9500'KB.
20-04-89	17:16:00	4.000	1943.90	-0.06	275.22		
20-04-89	17:17:00	4.017	1943.35	-0.54	275.22		Delta T from
20-04-89	17:18:00	4.033	1942.97	-0.39	275.22		power up.
20-04-89	17:19:00	4.050	1944.72	1.75	275.22		
20-04-89	17:20:00	4.067	1944.78	0.06	275.22		Delta P from
20-04-89	17:21:00	4.083	1945.41	0.63	275.22		previous sample.
20-04-89	17:22:00	4.100	1945.70	0.29	275.22		
20-04-89	17:23:00	4.117	1946.47	0.77	275.22		
20-04-89	17:24:00	4.133	1947.02	0.55	275.22		
20-04-89	17:25:00	4.150	1947.36	0.34	275.22		5 min sample rate.
20-04-89	17:30:00	4.233	1946.03	-1.34	275.22		
20-04-89	17:35:00	4.317	1948.54	2.52	275.22		
20-04-89	17:40:00	4.400	1949.41	0.87	275.22		
20-04-89	17:45:00	4.483	1950.99	1.58	275.22		
20-04-89	17:50:00	4.567	1950.44	-0.55	275.22		
20-04-89	17:55:00	4.650	1949.07	-1.36	275.22		
20-04-89	18:00:00	4.733	1949.80	0.73	275.22	1236	Csg=391psig.WHT=43'
20-04-89	18:05:00	4.817	1950.61	0.81	275.22		Flow rates:-
20-04-89	18:10:00	4.900	1951.02	0.41	275.22		Gas= 152.5 E3m3/d.
20-04-89	18:15:00	4.983	1952.12	1.10	275.22		Oil= 7.4 m3/d.
20-04-89	18:20:00	5.067	1952.63	0.51	275.27		Water= 3.7 m3/d.
20-04-89	18:25:00	5.150	1953.27	0.64	275.27		LGR= 72.79 m3/E6m3.
20-04-89	18:30:00	5.233	1953.96	0.69	275.27		
20-04-89	18:35:00	5.317	1954.45	0.49	275.27		
20-04-89	18:40:00	5.400	1954.38	-0.07	275.27		
20-04-89	18:45:00	5.483	1954.57	0.19	275.27		
20-04-89	18:50:00	5.567	1954.00	-0.57	275.27		
20-04-89	18:55:00	5.650	1954.67	0.67	275.27		
20-04-89	19:00:00	5.733	1955.19	0.51	275.94		
20-04-89	19:05:00	5.817	1954.88	-0.31	275.94		
20-04-89	19:10:00	5.900	1957.71	2.84	275.94		
20-04-89	19:15:00	5.983	1957.33	-0.38	275.94		
20-04-89	19:20:00	6.067	1959.03	1.69	275.94		
20-04-89	19:25:00	6.150	1958.53	-0.49	275.94		
20-04-89	19:30:00	6.233	1958.55	0.02	275.94		
20-04-89	19:35:00	6.317	1959.26	0.71	275.94		
20-04-89	19:40:00	6.400	1960.16	0.90	275.94		
20-04-89	19:45:00	6.483	1959.52	-0.64	275.94		
20-04-89	19:50:00	6.567	1959.42	-0.11	275.94		
20-04-89	19:55:00	6.650	1959.44	0.03	275.94		
20-04-89	20:00:00	6.733	1959.82	0.38	275.94	1237	Csg=457psig.WHT=47'
20-04-89	20:05:00	6.817	1960.43	0.61	275.72		Flow rates:-
20-04-89	20:10:00	6.900	1961.29	0.86	275.72		Gas= 151.7 E3m3/d.
20-04-89	20:15:00	6.983	1961.14	-0.15	275.72		Oil= 8.0 m3/d.
20-04-89	20:20:00	7.067	1960.33	-0.81	275.72		Water= 11.7 m3/d.
20-04-89	20:25:00	7.150	1960.59	0.26	275.72		LGR= 77.13 m3/E6m3.
20-04-89	20:30:00	7.233	1959.43	-1.16	275.72		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 20-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
20-04-89	20:35:00	7.317	1958.42	-35.81	275.72		
20-04-89	20:40:00	7.400	1959.25	0.82	275.72		
20-04-89	20:45:00	7.483	1958.66	-0.59	275.72		
20-04-89	20:50:00	7.567	1959.72	1.06	275.72		
20-04-89	20:55:00	7.650	1960.32	0.60	275.72		
20-04-89	21:00:00	7.733	1960.81	0.48	275.72		
20-04-89	21:05:00	7.817	1961.10	0.29	275.72		
20-04-89	21:10:00	7.900	1961.41	0.31	275.72		
20-04-89	21:15:00	7.983	1961.98	0.57	275.72		
20-04-89	21:20:00	8.067	1962.23	0.25	275.72		
20-04-89	21:25:00	8.150	1962.23	0.00	275.72		
20-04-89	21:30:00	8.233	1962.42	0.19	275.72		
20-04-89	21:35:00	8.317	1963.56	1.14	275.72		
20-04-89	21:40:00	8.400	1963.34	-0.22	275.72		
20-04-89	21:45:00	8.483	1963.92	0.58	275.72		
20-04-89	21:50:00	8.567	1965.12	1.20	275.72		
20-04-89	21:55:00	8.650	1964.63	-0.49	275.72		
20-04-89	22:00:00	8.733	1966.66	2.03	275.72	1243	Csg=498psig.WHT=46'
20-04-89	22:05:00	8.817	1966.37	-0.29	275.72		Flow rates:-
20-04-89	22:10:00	8.900	1966.33	-0.04	275.72		Gas= 152.4 E3m3/d.
20-04-89	22:15:00	8.983	1967.26	0.93	275.72		Oil= 6.1 m3/d.
20-04-89	22:20:00	9.067	1967.09	-0.17	275.72		Water= 4.9 m3/d.
20-04-89	22:25:00	9.150	1967.05	-0.04	275.72		LGR= 72.18 m3/E6m3.
20-04-89	22:30:00	9.233	1966.89	-0.15	275.72		
20-04-89	22:35:00	9.317	1966.29	-0.60	275.72		
20-04-89	22:40:00	9.400	1966.32	0.03	275.72		
20-04-89	22:45:00	9.483	1966.52	0.19	275.72		
20-04-89	22:50:00	9.567	1965.89	-0.63	275.72		
20-04-89	22:55:00	9.650	1965.84	-0.05	275.72		
20-04-89	23:00:00	9.733	1966.00	0.16	275.72		
20-04-89	23:05:00	9.817	1966.98	0.98	275.72		
20-04-89	23:10:00	9.900	1966.54	-0.45	275.72		
20-04-89	23:15:00	9.983	1968.73	2.20	275.72		
20-04-89	23:20:00	10.067	1968.97	0.23	275.72		
20-04-89	23:25:00	10.150	1969.64	0.68	275.72		
20-04-89	23:30:00	10.233	1969.58	-0.07	275.72		
20-04-89	23:35:00	10.317	1969.81	0.23	275.72		
20-04-89	23:40:00	10.400	1970.44	0.63	275.72		
20-04-89	23:45:00	10.483	1971.39	0.95	275.72		
20-04-89	23:50:00	10.567	1971.30	-0.09	275.72		
20-04-89	23:55:00	10.650	1971.28	-0.02	275.72		
21-04-89	00:00:00	10.733	1972.27	0.99	275.72	1245	Csg=534psig.WHT=46'
21-04-89	00:05:00	10.817	1972.36	0.10	275.72		Flow rates:-
21-04-89	00:10:00	10.900	1972.86	0.49	275.72		Gas= 151.7 E3m3/d.
21-04-89	00:15:00	10.983	1972.70	-0.15	275.72		Oil= 8.0 m3/d.
21-04-89	00:20:00	11.067	1972.45	-0.25	275.72		Water= 2.5 m3/d.
21-04-89	00:25:00	11.150	1972.30	-0.15	275.72		LGR= 69.22 m3/E6m3.
21-04-89	00:30:00	11.233	1972.80	0.50	275.72		
21-04-89	00:35:00	11.317	1972.92	0.12	275.72		
21-04-89	00:40:00	11.400	1973.00	0.09	275.72		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	00:45:00	11.483	1973.53	0.52	275.72		
21-04-89	00:50:00	11.567	1973.44	-0.09	275.72		
21-04-89	00:55:00	11.650	1974.15	0.72	275.72		
21-04-89	01:00:00	11.733	1974.33	0.17	275.72		
21-04-89	01:05:00	11.817	1974.59	0.26	275.72		
21-04-89	01:10:00	11.900	1975.13	0.54	275.72		
21-04-89	01:15:00	11.983	1976.18	1.05	275.72		
21-04-89	01:20:00	12.067	1976.19	0.01	275.72		
21-04-89	01:25:00	12.150	1976.15	-0.04	275.72		
21-04-89	01:30:00	12.233	1976.20	0.05	275.72		
21-04-89	01:35:00	12.317	1977.42	1.22	275.72		
21-04-89	01:40:00	12.400	1978.07	0.65	275.72		
21-04-89	01:45:00	12.483	1978.25	0.18	275.72		
21-04-89	01:50:00	12.567	1977.34	-0.91	275.72		
21-04-89	01:55:00	12.650	1977.76	0.42	275.72		
21-04-89	02:00:00	12.733	1977.64	-0.12	275.72	1260	Csg=568psig.WHT=46'
21-04-89	02:05:00	12.817	1978.05	0.41	275.72		Flow rates:-
21-04-89	02:10:00	12.900	1977.78	-0.26	275.72		Gas= 153.4 E3m3/d.
21-04-89	02:15:00	12.983	1978.12	0.34	275.72		Oil= 10.4 m3/d.
21-04-89	02:20:00	13.067	1978.31	0.18	275.72		Water= 1.8 m3/d.
21-04-89	02:25:00	13.150	1978.92	0.61	275.72		LGR= 79.53 m3/E6m3.
21-04-89	02:30:00	13.233	1981.03	2.11	275.72		
21-04-89	02:35:00	13.317	1981.24	0.21	275.72		
21-04-89	02:40:00	13.400	1981.92	0.68	275.72		
21-04-89	02:45:00	13.483	1981.72	-0.19	275.72		
21-04-89	02:50:00	13.567	1982.73	1.01	275.72		
21-04-89	02:55:00	13.650	1982.70	-0.03	275.72		
21-04-89	03:00:00	13.733	1983.36	0.66	275.72		
21-04-89	03:05:00	13.817	1982.59	-0.77	275.72		
21-04-89	03:10:00	13.900	1983.76	1.17	275.72		
21-04-89	03:15:00	13.983	1983.74	-0.02	275.72		
21-04-89	03:20:00	14.067	1984.95	1.21	275.72		
21-04-89	03:25:00	14.150	1984.67	-0.28	275.72		
21-04-89	03:30:00	14.233	1985.66	0.10	275.72		
21-04-89	03:35:00	14.317	1985.32	-0.35	275.72		
21-04-89	03:40:00	14.400	1986.20	0.88	275.72		
21-04-89	03:45:00	14.483	1986.16	-0.04	275.72		
21-04-89	03:50:00	14.567	1985.72	-0.44	275.72		
21-04-89	03:55:00	14.650	1986.76	1.04	275.72		
21-04-89	04:00:00	14.733	1987.38	0.62	275.72		
21-04-89	04:05:00	14.817	1987.47	0.09	275.72		
21-04-89	04:10:00	14.900	1987.29	-0.17	275.72		
21-04-89	04:15:00	14.983	1987.60	0.31	275.72		
21-04-89	04:20:00	15.067	1988.50	0.90	275.72		
21-04-89	04:25:00	15.150	1988.54	0.04	275.72		
21-04-89	04:30:00	15.233	1988.02	-0.52	275.72		
21-04-89	04:35:00	15.317	1988.99	0.98	275.72		
21-04-89	04:40:00	15.400	1989.32	0.33	275.72		
21-04-89	04:45:00	15.483	1989.62	0.30	275.72		
21-04-89	04:50:00	15.567	1989.61	-0.01	275.72		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	04:55:00	15.650	1989.94	16.94	275.72		
21-04-89	05:00:00	15.733	1990.94	0.10	275.72	1260	Csg=613psig.WHT=42'
21-04-89	05:05:00	15.817	1990.99	0.05	275.72		Flow rates:-
21-04-89	05:10:00	15.900	1991.62	0.63	275.72		Gas= 160.4 E3m3/d.
21-04-89	05:15:00	15.983	1991.98	0.36	275.72		Oil= 8.2 m3/d.
21-04-89	05:20:00	16.067	1991.10	0.02	275.72		Water= 3.3 m3/d.
21-04-89	05:25:00	16.150	1991.81	-0.18	275.72		LGR= 71.70 m3/E6m3.
21-04-89	05:30:00	16.233	1993.62	1.81	275.72		
21-04-89	05:35:00	16.317	1993.11	-0.51	275.72		
21-04-89	05:40:00	16.400	1993.44	0.33	275.72		
21-04-89	05:45:00	16.483	1993.46	0.02	275.72		
21-04-89	05:50:00	16.567	1992.88	-0.58	275.72		
21-04-89	05:55:00	16.650	1993.35	0.47	275.72		
21-04-89	06:00:00	16.733	1992.94	-0.41	275.72	1264	Csg=627psig.WHT=42'
21-04-89	06:05:00	16.817	1993.30	0.36	275.72		Flow rates:-
21-04-89	06:10:00	16.900	1993.18	-0.13	275.72		Gas= 160.4 E3m3/d.
21-04-89	06:15:00	16.983	1993.48	0.30	275.72		Oil= 8.6 m3/d.
21-04-89	06:20:00	17.067	1993.49	0.01	275.72		Water= 3.0 m3/d.
21-04-89	06:25:00	17.150	1994.16	0.68	275.72		LGR= 72.32 m3/E6m3.
21-04-89	06:30:00	17.233	1994.29	0.13	275.72		
21-04-89	06:35:00	17.317	1994.23	-0.06	275.72		
21-04-89	06:40:00	17.400	1994.59	0.36	275.72		
21-04-89	06:45:00	17.483	1994.80	0.21	275.72		
21-04-89	06:50:00	17.567	1995.26	0.46	275.72		
21-04-89	06:55:00	17.650	1995.01	-0.25	275.72		
21-04-89	07:00:00	17.733	1995.20	0.19	275.72		
21-04-89	07:05:00	17.817	1996.46	1.26	275.72		
21-04-89	07:10:00	17.900	1996.23	-0.23	275.72		
21-04-89	07:15:00	17.983	1996.18	-0.05	275.72		
21-04-89	07:20:00	18.067	1996.16	-0.02	275.72		
21-04-89	07:25:00	18.150	1996.77	0.61	275.72		
21-04-89	07:30:00	18.233	1997.21	0.45	275.72		
21-04-89	07:35:00	18.317	1997.64	0.43	275.72		
21-04-89	07:40:00	18.400	1998.41	0.77	275.72		
21-04-89	07:45:00	18.483	1998.60	0.18	275.72		
21-04-89	07:50:00	18.567	1997.98	-0.62	275.72		
21-04-89	07:55:00	18.650	1998.50	0.52	275.72		
21-04-89	08:00:00	18.733	1998.95	0.45	275.72	1269	Csg=655psig.WHT=45'
21-04-89	08:05:00	18.817	1999.35	0.41	275.72		Flow rates:-
21-04-89	08:10:00	18.900	1999.41	0.06	275.72		Gas= 160.7 E3m3/d.
21-04-89	08:15:00	18.983	1998.84	-0.57	275.72		Oil= 7.7 m3/d.
21-04-89	08:20:00	19.067	1999.64	0.80	275.55		Water= 4.0 m3/d.
21-04-89	08:25:00	19.150	2000.51	0.87	275.55		LGR= 70.96 m3/E6m3.
21-04-89	08:30:00	19.233	2000.14	-0.38	275.55		
21-04-89	08:35:00	19.317	2000.23	0.10	275.55		
21-04-89	08:40:00	19.400	2000.75	0.51	275.55		
21-04-89	08:45:00	19.483	2000.85	0.11	275.55		
21-04-89	08:50:00	19.567	2001.47	0.62	275.55		
21-04-89	08:55:00	19.650	2001.34	-0.14	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	09:00:00	19.733	2001.51	0.17	275.55		
21-04-89	09:05:00	19.817	2001.37	-0.15	275.55		
21-04-89	09:10:00	19.900	2002.05	0.69	275.55		
21-04-89	09:15:00	19.983	2002.64	0.59	275.55		
21-04-89	09:20:00	20.067	2002.84	0.19	275.55		
21-04-89	09:25:00	20.150	2003.56	0.73	275.55		
21-04-89	09:30:00	20.233	2004.19	0.63	275.55		
21-04-89	09:35:00	20.317	2004.49	0.30	275.55		
21-04-89	09:40:00	20.400	2004.86	0.37	275.55		
21-04-89	09:45:00	20.483	2005.26	0.40	275.55		
21-04-89	09:50:00	20.567	2005.22	-0.04	275.55		
21-04-89	09:55:00	20.650	2005.44	0.22	275.55		
21-04-89	10:00:00	20.733	2005.90	0.46	275.55	1276	Csg=679psig.WHT=48'
21-04-89	10:05:00	20.817	2005.03	-0.87	275.55		Flow rates:-
21-04-89	10:10:00	20.900	2004.63	-0.40	275.55		Gas= 160.8 E3m3/d.
21-04-89	10:15:00	20.983	2005.28	0.65	275.55		Oil= 8.3 m3/d.
21-04-89	10:20:00	21.067	2005.90	0.62	275.55		Water= 2.5 m3/d.
21-04-89	10:25:00	21.150	2005.94	0.04	275.55		LGR= 67.17 m3/E6m3.
21-04-89	10:30:00	21.233	2006.08	0.15	275.55		
21-04-89	10:35:00	21.317	2006.28	0.20	275.55		
21-04-89	10:40:00	21.400	2006.47	0.18	275.55		
21-04-89	10:45:00	21.483	2006.59	0.13	275.55		
21-04-89	10:50:00	21.567	2006.80	0.20	275.55		
21-04-89	10:55:00	21.650	2006.86	0.07	275.55		
21-04-89	11:00:00	21.733	2007.57	0.71	275.55		
21-04-89	11:05:00	21.817	2007.95	0.38	275.55		
21-04-89	11:10:00	21.900	2008.03	0.08	275.55		
21-04-89	11:15:00	21.983	2008.08	0.05	275.55		
21-04-89	11:20:00	22.067	2008.90	0.82	275.55		
21-04-89	11:25:00	22.150	2008.68	-0.22	275.55		
21-04-89	11:30:00	22.233	2008.57	-0.11	275.55		
21-04-89	11:35:00	22.317	2009.58	1.01	275.55		
21-04-89	11:40:00	22.400	2009.77	0.19	275.55		
21-04-89	11:45:00	22.483	2009.49	-0.28	275.55		
21-04-89	11:50:00	22.567	2009.86	0.37	275.55		
21-04-89	11:55:00	22.650	2010.19	0.33	275.55		
21-04-89	12:00:00	22.733	2010.24	0.06	275.55	1281	Csg=708psig.WHT=52'
21-04-89	12:05:00	22.817	2010.08	-0.16	275.55		Flow rates:-
21-04-89	12:10:00	22.900	2010.22	0.15	275.55		Gas= 160.3 E3m3/d.
21-04-89	12:15:00	22.983	2010.45	0.22	275.55		Oil= 6.4 m3/d.
21-04-89	12:20:00	23.067	2010.55	0.11	275.55		Water= 3.7 m3/d.
21-04-89	12:25:00	23.150	2011.35	0.79	275.55		LGR= 63.00 m3/E6m3.
21-04-89	12:30:00	23.233	2010.96	-0.39	275.55		
21-04-89	12:35:00	23.317	2011.27	0.31	275.55		
21-04-89	12:40:00	23.400	2011.72	0.46	275.55		
21-04-89	12:45:00	23.483	2012.36	0.64	275.55		
21-04-89	12:50:00	23.567	2012.84	0.47	275.55		
21-04-89	12:55:00	23.650	2012.44	-0.40	275.55		
21-04-89	13:00:00	23.733	2012.25	-0.19	275.55		
21-04-89	13:05:00	23.817	2012.95	0.71	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	13:10:00	23.900	2013.31	-8.29	275.55		
21-04-89	13:15:00	23.983	2013.44	0.13	275.55		
21-04-89	13:20:00	24.067	2013.55	0.12	275.55		
21-04-89	13:25:00	24.150	2013.65	0.10	275.55		
21-04-89	13:30:00	24.233	2014.10	0.45	275.55		
21-04-89	13:35:00	24.317	2014.06	-0.04	275.55		
21-04-89	13:40:00	24.400	2013.57	-0.48	275.55		
21-04-89	13:45:00	24.483	2013.50	-0.08	275.55		
21-04-89	13:50:00	24.567	2013.90	0.41	275.55		
21-04-89	13:55:00	24.650	2014.12	0.21	275.55		
21-04-89	14:00:00	24.733	2014.32	0.20	275.55	1281	Csg=730psig.WHT=52'
21-04-89	14:05:00	24.817	2014.45	0.13	275.55		Flow rates:-
21-04-89	14:10:00	24.900	2014.91	0.46	275.55		Gas= 160.3 E3m3/d.
21-04-89	14:15:00	24.983	2015.57	0.66	275.55		Oil= 6.7 m3/d.
21-04-89	14:25:00	25.150	2016.17	0.60	275.55		LGR= 64.87 m3/E6m3.
21-04-89	14:30:00	25.233	2016.34	0.17	275.55		
21-04-89	14:35:00	25.317	2016.49	0.15	275.55		
21-04-89	14:40:00	25.400	2016.37	-0.12	275.55		
21-04-89	14:45:00	25.483	2016.37	0.00	275.55		
21-04-89	14:50:00	25.567	2016.87	0.49	275.55		
21-04-89	14:55:00	25.650	2017.05	0.18	275.55		
21-04-89	15:00:00	25.733	2016.48	-0.57	275.55		
21-04-89	15:05:00	25.817	2016.62	0.15	275.55		
21-04-89	15:10:00	25.900	2016.82	0.19	275.55		
21-04-89	15:15:00	25.983	2016.77	-0.05	275.55		
21-04-89	15:20:00	26.067	2016.75	-0.02	275.55		
21-04-89	15:25:00	26.150	2016.92	0.17	275.55		
21-04-89	15:30:00	26.233	2017.42	0.49	275.55		
21-04-89	15:35:00	26.317	2017.31	-0.11	275.55		
21-04-89	15:40:00	26.400	2017.57	0.26	275.55		
21-04-89	15:45:00	26.483	2017.82	0.25	275.55		
21-04-89	15:50:00	26.567	2017.63	-0.19	275.55		
21-04-89	15:55:00	26.650	2018.11	0.47	275.55		
21-04-89	16:00:00	26.733	2018.31	0.20	275.55	1284	Csg=747psig.WHT=52'
21-04-89	16:05:00	26.817	2018.47	0.16	275.55		Flow rates:-
21-04-89	16:10:00	26.900	2018.81	0.34	275.55		Gas= 158.2 E3m3/d.
21-04-89	16:15:00	26.983	2019.30	0.48	275.55		Oil= 9.8 m3/d.
21-04-89	16:20:00	27.067	2019.49	0.19	275.55		Water= 3.1 m3/d.
21-04-89	16:25:00	27.150	2019.77	0.28	275.55		LGR= 81.55 m3/E6m3.
21-04-89	16:30:00	27.233	2020.14	0.37	275.55		
21-04-89	16:35:00	27.317	2020.19	0.05	275.55		
21-04-89	16:40:00	27.400	2020.10	-0.09	275.55		
21-04-89	16:45:00	27.483	2020.18	0.08	275.55		
21-04-89	16:50:00	27.567	2020.31	0.14	275.55		
21-04-89	16:55:00	27.650	2020.65	0.34	275.55		
21-04-89	17:00:00	27.733	2020.79	0.14	275.55		
21-04-89	17:05:00	27.817	2020.85	0.06	275.55		
21-04-89	17:10:00	27.900	2021.39	0.54	275.55		
21-04-89	17:15:00	27.983	2021.57	0.18	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	17:20:00	28.067	2021.47	-0.31	275.55	1287	Bleed annulus fluid at surface. Csg=744psig.WHT=52' Flow rates:- Gas= 157.0 E3m3/d. Oil= 5.0 m3/d. Water= 3.1 m3/d. LGR= 51.59 m3/E6m3.
21-04-89	17:25:00	28.150	2021.48	0.01	275.55		
21-04-89	17:30:00	28.233	2021.73	0.24	275.55		
21-04-89	17:35:00	28.317	2021.53	-0.19	275.55		
21-04-89	17:40:00	28.400	2021.37	-0.16	275.55		
21-04-89	17:45:00	28.483	2021.60	0.23	275.55		
21-04-89	17:50:00	28.567	2021.10	0.40	275.55		
21-04-89	17:55:00	28.650	2021.78	-0.21	275.55		
21-04-89	18:00:00	28.733	2021.99	0.20	275.55		
21-04-89	18:05:00	28.817	2022.09	0.11	275.55		
21-04-89	18:10:00	28.900	2022.01	-0.09	275.55		
21-04-89	18:15:00	28.983	2022.37	0.37	275.55		
21-04-89	18:20:00	29.067	2022.62	0.24	275.55		
21-04-89	18:25:00	29.150	2022.65	0.03	275.55		
21-04-89	18:30:00	29.233	2022.90	0.25	275.55		
21-04-89	18:35:00	29.317	2022.98	0.08	275.55		
21-04-89	18:40:00	29.400	2023.37	0.40	275.55		
21-04-89	18:45:00	29.483	2022.96	-0.42	275.55		
21-04-89	18:50:00	29.567	2023.22	0.26	275.55		
21-04-89	18:55:00	29.650	2023.48	0.26	275.55		
21-04-89	19:00:00	29.733	2023.46	-0.02	275.55		
21-04-89	19:05:00	29.817	2024.07	0.61	275.55		
21-04-89	19:10:00	29.900	2023.96	-0.11	275.55		
21-04-89	19:15:00	29.983	2023.79	-0.17	275.55		
21-04-89	19:20:00	30.067	2023.80	0.01	275.55		
21-04-89	19:25:00	30.150	2023.99	0.19	275.55		
21-04-89	19:30:00	30.233	2023.99	0.00	275.55		
21-04-89	19:35:00	30.317	2024.33	0.34	275.55		
21-04-89	19:40:00	30.400	2024.72	0.39	275.55		
21-04-89	19:45:00	30.483	2024.50	-0.21	275.55		
21-04-89	19:50:00	30.567	2025.05	0.54	275.55		
21-04-89	19:55:00	30.650	2025.14	0.10	275.55		
21-04-89	20:00:00	30.733	2025.46	0.32	275.55	1289	Csg=758psig.WHT=50' Flow rates:- Gas= 156.4 E3m3/d. Oil= 7.7 m3/d. Water= 3.1 m3/d. LGR= 69.05 m3/E6m3.
21-04-89	20:05:00	30.817	2025.99	0.52	275.55		
21-04-89	20:10:00	30.900	2026.06	0.08	275.55		
21-04-89	20:15:00	30.983	2026.03	-0.03	275.55		
21-04-89	20:20:00	31.067	2026.33	0.30	275.55		
21-04-89	20:25:00	31.150	2026.31	-0.03	275.55		
21-04-89	20:30:00	31.233	2026.62	0.31	275.55		
21-04-89	20:35:00	31.317	2027.10	0.48	275.55		
21-04-89	20:40:00	31.400	2027.02	-0.08	275.55		
21-04-89	20:45:00	31.483	2027.61	0.59	275.55		
21-04-89	20:50:00	31.567	2027.78	0.16	275.55		
21-04-89	20:55:00	31.650	2027.85	0.07	275.55		
21-04-89	21:00:00	31.733	2028.08	0.23	275.55		
21-04-89	21:05:00	31.817	2028.01	-0.07	275.55		
21-04-89	21:10:00	31.900	2028.34	0.33	275.55		
21-04-89	21:15:00	31.983	2028.09	-0.25	275.55		
21-04-89	21:20:00	32.067	2028.19	0.11	275.55		
21-04-89	21:25:00	32.150	2028.42	0.22	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 21-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
21-04-89	21:30:00	32.233	2028.65	0.23	275.55		
21-04-89	21:35:00	32.317	2028.71	0.06	275.55		
21-04-89	21:40:00	32.400	2029.08	0.38	275.55		
21-04-89	21:45:00	32.483	2029.15	0.07	275.55		
21-04-89	21:50:00	32.567	2029.28	0.13	275.55		
21-04-89	21:55:00	32.650	2028.97	-0.31	275.55		
21-04-89	22:00:00	32.733	2029.10	0.14	275.55	1292	Csg=780psig.WHT=50'
21-04-89	22:05:00	32.817	2029.18	0.08	275.55		Flow rates:-
21-04-89	22:10:00	32.900	2029.20	0.02	275.55		Gas= 157.0 E3m3/d.
21-04-89	22:15:00	32.983	2029.10	-0.10	275.55		Oil= 8.3 m3/d.
21-04-89	22:20:00	33.067	2029.02	-0.09	275.55		Water= 2.1 m3/d.
21-04-89	22:25:00	33.150	2029.27	0.25	275.55		LGR= 66.24 m3/E6m3.
21-04-89	22:30:00	33.233	2029.06	-0.21	275.55		
21-04-89	22:35:00	33.317	2029.66	0.60	275.55		
21-04-89	22:40:00	33.400	2029.86	0.20	275.55		
21-04-89	22:45:00	33.483	2029.67	-0.19	275.55		
21-04-89	22:50:00	33.567	2029.55	-0.12	275.55		
21-04-89	22:55:00	33.650	2029.82	0.27	275.55		
21-04-89	23:00:00	33.733	2029.75	-0.07	275.55		
21-04-89	23:05:00	33.817	2030.09	0.34	275.55		
21-04-89	23:10:00	33.900	2030.03	-0.06	275.55		
21-04-89	23:15:00	33.983	2029.83	-0.20	275.55		
21-04-89	23:20:00	34.067	2030.29	0.46	275.55		
21-04-89	23:25:00	34.150	2030.66	0.37	275.55		
21-04-89	23:30:00	34.233	2030.49	-0.17	275.55		
21-04-89	23:35:00	34.317	2030.68	0.19	275.55		
21-04-89	23:40:00	34.400	2030.87	0.18	275.55		
21-04-89	23:45:00	34.483	2030.86	-0.01	275.55		
21-04-89	23:50:00	34.567	2031.17	0.31	275.55		
21-04-89	23:55:00	34.650	2031.53	0.37	275.55		
22-04-89	00:00:00	34.733	2031.48	-0.06	275.55	1294	Csg=798psig.WHT=50'
22-04-89	00:05:00	34.817	2031.68	0.20	275.55		Flow rates:-
22-04-89	00:10:00	34.900	2031.58	-0.10	275.55		Gas= 158.6 E3m3/d.
22-04-89	00:15:00	34.983	2031.57	-0.01	275.55		Oil= 7.4 m3/d.
22-04-89	00:20:00	35.067	2032.03	0.46	275.55		Water= 3.1 m3/d.
22-04-89	00:25:00	35.150	2032.18	0.15	275.55		LGR= 66.20 m3/E6m3.
22-04-89	00:30:00	35.233	2032.21	0.03	275.55		
22-04-89	00:35:00	35.317	2032.52	0.31	275.55		
22-04-89	00:40:00	35.400	2032.38	-0.15	275.55		
22-04-89	00:45:00	35.483	2032.57	0.19	275.55		
22-04-89	00:50:00	35.567	2032.84	0.27	275.55		
22-04-89	00:55:00	35.650	2032.78	-0.06	275.55		
22-04-89	01:00:00	35.733	2032.94	0.15	275.55		
22-04-89	01:05:00	35.817	2033.17	0.23	275.55		
22-04-89	01:10:00	35.900	2033.32	0.15	275.55		
22-04-89	01:15:00	35.983	2033.87	0.55	275.55		
22-04-89	01:20:00	36.067	2034.05	0.18	275.55		
22-04-89	01:25:00	36.150	2034.24	0.18	275.55		
22-04-89	01:30:00	36.233	2034.00	-0.23	275.55		
22-04-89	01:35:00	36.317	2034.27	0.27	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	01:40:00	36.400	2034.46	0.18	275.55	1289	Csg=809psig.WHT=53' Flow rates:- Gas= 159.4 E3m3/d. Oil= 8.0 m3/d. Water= 2.1 m3/d. LGR= 63.36 m3/E6m3.
22-04-89	01:45:00	36.483	2034.56	0.11	275.55		
22-04-89	01:50:00	36.567	2034.67	0.11	275.55		
22-04-89	01:55:00	36.650	2034.97	0.30	275.55		
22-04-89	02:00:00	36.733	2035.35	0.38	275.55		
22-04-89	02:05:00	36.817	2035.39	0.04	275.55		
22-04-89	02:10:00	36.900	2035.66	0.27	275.55		
22-04-89	02:15:00	36.983	2035.36	-0.30	275.55		
22-04-89	02:20:00	37.067	2035.54	0.18	275.55		
22-04-89	02:25:00	37.150	2035.38	-0.16	275.55		
22-04-89	02:30:00	37.233	2035.62	0.24	275.55		
22-04-89	02:35:00	37.317	2035.74	0.12	275.55		
22-04-89	02:40:00	37.400	2036.11	0.38	275.55		
22-04-89	02:45:00	37.483	2036.18	0.07	275.55		
22-04-89	02:50:00	37.567	2036.42	0.24	275.55		
22-04-89	02:55:00	37.650	2036.89	0.46	275.55		
22-04-89	03:00:00	37.733	2037.00	0.12	275.55		
22-04-89	03:05:00	37.817	2037.00	0.00	275.55		
22-04-89	03:10:00	37.900	2037.18	0.17	275.55		
22-04-89	03:15:00	37.983	2037.73	0.55	275.55		
22-04-89	03:20:00	38.067	2038.04	0.31	275.55	1300	Csg=822psig.WHT=54' Flow rates:- Gas= 160.7 E3m3/d. Oil= 5.2 m3/d. Water= 3.1 m3/d. LGR= 51.65 m3/E6m3.
22-04-89	03:25:00	38.150	2038.13	0.09	275.55		
22-04-89	03:30:00	38.233	2038.11	-0.02	275.55		
22-04-89	03:35:00	38.317	2038.05	-0.06	275.55		
22-04-89	03:40:00	38.400	2038.13	0.08	275.55		
22-04-89	03:45:00	38.483	2038.40	0.27	275.55		
22-04-89	03:50:00	38.567	2038.30	-0.10	275.55		
22-04-89	03:55:00	38.650	2038.60	0.30	275.55		
22-04-89	04:00:00	38.733	2038.57	-0.03	275.55		
22-04-89	04:05:00	38.817	2038.61	0.04	275.55		
22-04-89	04:10:00	38.900	2038.39	-0.22	275.55		
22-04-89	04:15:00	38.983	2038.53	0.15	275.55		
22-04-89	04:20:00	39.067	2038.46	-0.08	275.55		
22-04-89	04:25:00	39.150	2038.82	0.37	275.55		
22-04-89	04:30:00	39.233	2039.05	0.22	275.55		
22-04-89	04:35:00	39.317	2039.14	0.10	275.55		
22-04-89	04:40:00	39.400	2039.11	-0.04	275.55		
22-04-89	04:45:00	39.483	2039.06	-0.05	275.55		
22-04-89	04:50:00	39.567	2039.32	0.26	275.55		
22-04-89	04:55:00	39.650	2039.42	0.10	275.55		
22-04-89	05:00:00	39.733	2039.35	-0.07	275.55		
22-04-89	05:05:00	39.817	2039.46	0.12	275.55		
22-04-89	05:10:00	39.900	2039.52	0.06	275.55		
22-04-89	05:15:00	39.983	2039.80	0.28	275.55		
22-04-89	05:20:00	40.067	2040.04	0.24	275.55		
22-04-89	05:25:00	40.150	2039.82	-0.22	275.55		
22-04-89	05:30:00	40.233	2039.70	-0.13	275.55		
22-04-89	05:35:00	40.317	2040.03	0.33	275.55		
22-04-89	05:40:00	40.400	2040.26	0.23	275.55		
22-04-89	05:45:00	40.483	2040.18	-0.08	275.55		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Flow Period. Choke 17/64".

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	05:50:00	40.567	2040.45	0.27	275.55		
22-04-89	05:55:00	40.650	2040.52	0.07	275.55		
22-04-89	06:00:00	40.733	2040.82	0.30	275.55	1302	Csg=840psig.WHT=54'
22-04-89	06:05:00	40.817	2041.07	0.25	275.55		Flow rates:-
22-04-89	06:10:00	40.900	2040.96	-0.11	275.55		Gas= 161.9 E3m3/d.
22-04-89	06:15:00	40.983	2041.22	0.25	275.55		Oil= 6.7 m3/d.
22-04-89	06:20:00	41.067	2041.12	-0.10	275.55		Water= 3.7 m3/d.
22-04-89	06:25:00	41.150	2041.10	-0.02	275.55		LGR= 64.24 m3/E6m3.
22-04-89	06:30:00	41.233	2041.09	-0.01	275.55		
22-04-89	06:35:00	41.317	2041.36	0.27	275.55		
22-04-89	06:40:00	41.400	2041.40	0.04	275.55		
22-04-89	06:45:00	41.483	2041.73	0.33	275.55		
22-04-89	06:50:00	41.567	2042.17	0.45	275.55		
22-04-89	06:55:00	41.650	2042.57	0.40	275.55		
22-04-89	07:00:00	41.733	2042.50	-0.07	275.55		
22-04-89	07:05:00	41.817	2042.54	0.04	275.55		
22-04-89	07:10:00	41.900	2042.65	0.11	275.55		
22-04-89	07:15:00	41.983	2043.02	0.37	275.55		
22-04-89	07:20:00	42.067	2043.18	0.16	275.55		
22-04-89	07:25:00	42.150	2043.17	-0.01	275.55		
22-04-89	07:30:00	42.233	2043.04	-0.14	275.55		
22-04-89	07:35:00	42.317	2043.21	0.17	275.55		
22-04-89	07:40:00	42.400	2043.31	0.10	275.55		
22-04-89	07:45:00	42.483	2043.45	0.15	275.55		
22-04-89	07:50:00	42.567	2043.31	-0.15	275.55		
22-04-89	07:55:00	42.650	2043.36	0.05	275.55		
22-04-89	08:00:00	42.733	2043.48	0.13	275.55	1307	Csg=856psig.WHT=49'
22-04-89	08:05:00	42.817	2043.30	-0.18	275.55		Flow rates:-
22-04-89	08:10:00	42.900	2043.50	0.20	275.55		Gas= 161.9 E3m3/d.
22-04-89	08:15:00	42.983	2043.72	0.22	275.55	1307	Oil= 6.1 m3/d.
22-04-89	08:20:00	43.067	2043.61	-0.12	275.55		Water= 4.3 m3/d.
22-04-89	08:25:00	43.150	2043.50	-0.11	275.55		LGR= 64.24 m3/E6m3.
22-04-89	08:30:00	43.233	2043.82	0.32	275.55	1307	Gas & liquid
22-04-89	08:35:00	43.317	2043.69	-0.14	275.55		samples taken.
22-04-89	08:40:00	43.400	2043.56	-0.13	275.55		0800-0845 hrs.
22-04-89	08:45:00	43.483	2043.70	0.15	275.55	1307	Csg=859psig.WHT=52'
22-04-89	08:50:00	43.567	2043.84	0.14	275.55		Flow as above.
22-04-89	08:51:00	43.583	2043.93	0.09	275.55		
22-04-89	08:52:00	43.600	2044.06	0.14	275.55		1 min sample rate.
22-04-89	08:53:00	43.617	2044.10	0.04	275.55		
22-04-89	08:54:00	43.633	2044.16	0.06	275.55		
22-04-89	08:55:00	43.650	2044.03	-0.13	275.55		
22-04-89	08:56:00	43.667	2043.84	-0.19	275.55		
22-04-89	08:57:00	43.683	2044.05	0.21	275.71		Flow as above.
22-04-89	08:58:00	43.700	2044.08	0.03	275.71	1309	Csg=859psig.WHT=53'
22-04-89	08:59:00	43.717	2044.15	0.07	275.71		END S.R.T.
22-04-89	09:00:00	0.000	2044.09	-0.06	275.71		SHUT IN WELL.

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	09:00:00	0.000	2044.09	0.00	275.71		SHUT IN WELL.
22-04-89	09:00:10	0.003	2044.09	0.00	275.71		Monitor BUILD-UP.
22-04-89	09:00:20	0.006	2044.15	0.06	275.71		
22-04-89	09:00:30	0.008	2048.17	4.08	275.71		10 sec sample rate.
22-04-89	09:00:40	0.011	2062.08	17.99	275.71		
22-04-89	09:00:50	0.014	2084.87	40.78	275.71		
22-04-89	09:01:00	0.017	2109.42	65.33	275.71	1309	Csg = 859 psig.
22-04-89	09:01:10	0.019	2138.40	94.31	275.71		Delta T from Shut In.
22-04-89	09:01:20	0.022	2171.13	127.04	275.71		
22-04-89	09:01:30	0.025	2200.96	156.87	275.71		
22-04-89	09:01:40	0.028	2227.85	183.76	275.71		Delta P from last flowing pressure. (2044.09 psia.)
22-04-89	09:01:50	0.031	2260.53	216.44	275.71		
22-04-89	09:02:00	0.033	2287.14	243.05	275.71		
22-04-89	09:02:10	0.036	2316.45	272.36	275.71		
22-04-89	09:02:20	0.039	2348.26	304.17	275.71		
22-04-89	09:02:30	0.042	2376.89	332.80	275.71		
22-04-89	09:02:40	0.044	2402.26	358.17	275.50		
22-04-89	09:02:50	0.047	2432.81	388.72	275.50		
22-04-89	09:03:00	0.050	2457.49	413.40	275.50		
22-04-89	09:03:10	0.053	2487.21	443.12	275.50		
22-04-89	09:03:20	0.056	2513.78	469.69	275.50		
22-04-89	09:03:30	0.058	2537.34	493.25	275.50		
22-04-89	09:03:40	0.061	2565.66	521.57	275.50		
22-04-89	09:03:50	0.064	2590.98	546.89	275.50		
22-04-89	09:04:00	0.067	2613.48	569.39	275.50		
22-04-89	09:04:10	0.069	2638.03	593.94	275.50		
22-04-89	09:04:20	0.072	2662.16	618.07	275.50		
22-04-89	09:04:30	0.075	2688.29	644.20	275.50		
22-04-89	09:04:40	0.078	2711.63	667.54	275.50		
22-04-89	09:04:50	0.081	2732.29	688.20	275.50		
22-04-89	09:05:00	0.083	2754.95	710.86	275.50		30 sec sample rate.
22-04-89	09:05:30	0.092	2833.17	789.08	275.50		
22-04-89	09:06:00	0.100	2894.85	850.76	275.50		
22-04-89	09:06:30	0.108	2953.44	909.35	275.50		
22-04-89	09:07:00	0.117	3010.74	966.65	275.50		
22-04-89	09:07:30	0.125	3061.50	1017.41	275.50		
22-04-89	09:08:00	0.133	3112.80	1068.71	275.50		
22-04-89	09:08:30	0.142	3159.06	1114.97	275.50		
22-04-89	09:09:00	0.150	3202.89	1158.80	275.50		
22-04-89	09:09:30	0.158	3244.79	1200.70	275.50		
22-04-89	09:10:00	0.167	3284.40	1240.31	275.50		
22-04-89	09:10:30	0.175	3320.33	1276.24	275.50		
22-04-89	09:11:00	0.183	3356.64	1312.55	275.50		
22-04-89	09:11:30	0.192	3388.85	1344.76	275.50		
22-04-89	09:12:00	0.200	3421.36	1377.27	275.50		
22-04-89	09:12:30	0.208	3450.01	1405.92	275.50		
22-04-89	09:13:00	0.217	3477.91	1433.82	275.50		
22-04-89	09:13:30	0.225	3504.90	1460.81	275.50		
22-04-89	09:14:00	0.233	3528.54	1484.45	275.50		
22-04-89	09:14:30	0.242	3552.33	1508.24	275.50		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	09:15:00	0.250	3573.08	1528.99	275.50	2768	Csg = 889 psig.
22-04-89	09:15:30	0.258	3593.18	1549.09	275.50		
22-04-89	09:16:00	0.267	3611.97	1567.88	275.50		
22-04-89	09:16:30	0.275	3629.58	1585.49	275.50		
22-04-89	09:17:00	0.283	3646.53	1602.44	275.50		
22-04-89	09:17:30	0.292	3661.28	1617.19	275.43		
22-04-89	09:18:00	0.300	3675.65	1631.56	275.43		
22-04-89	09:18:30	0.308	3689.07	1644.98	275.43		
22-04-89	09:19:00	0.317	3701.57	1657.48	275.43		
22-04-89	09:19:30	0.325	3713.21	1669.12	275.43		
22-04-89	09:20:00	0.333	3724.14	1680.05	275.43		
22-04-89	09:20:30	0.342	3734.46	1690.37	275.43		
22-04-89	09:21:00	0.350	3744.16	1700.07	275.43		
22-04-89	09:21:30	0.358	3753.22	1709.13	275.43		
22-04-89	09:22:00	0.367	3761.84	1717.75	275.43		
22-04-89	09:22:30	0.375	3770.01	1725.92	275.43		
22-04-89	09:23:00	0.383	3777.74	1733.65	275.43		
22-04-89	09:23:30	0.392	3785.10	1741.01	275.43		
22-04-89	09:24:00	0.400	3792.12	1748.03	275.43		
22-04-89	09:24:30	0.408	3798.79	1754.70	275.43		
22-04-89	09:25:00	0.417	3805.13	1761.04	275.43		
22-04-89	09:25:30	0.425	3811.19	1767.10	275.43		
22-04-89	09:26:00	0.433	3816.97	1772.88	275.43		
22-04-89	09:26:30	0.442	3822.51	1778.42	275.43		
22-04-89	09:27:00	0.450	3827.82	1783.73	275.43		
22-04-89	09:27:30	0.458	3832.88	1788.79	275.43		
22-04-89	09:28:00	0.467	3837.76	1793.67	275.43		
22-04-89	09:28:30	0.475	3842.40	1798.31	275.43		
22-04-89	09:29:00	0.483	3846.87	1802.78	275.43		
22-04-89	09:29:30	0.492	3851.13	1807.04	275.43		
22-04-89	09:30:00	0.500	3855.19	1811.10	275.43	2995	Csg = 788 psig.
22-04-89	09:31:00	0.517	3862.67	1818.58	275.43		
22-04-89	09:32:00	0.533	3869.82	1825.73	275.43		1 min sample rate.
22-04-89	09:33:00	0.550	3876.33	1832.24	275.43		
22-04-89	09:34:00	0.567	3882.38	1838.29	275.43		
22-04-89	09:35:00	0.583	3888.05	1843.96	275.43		
22-04-89	09:36:00	0.600	3893.33	1849.24	275.43		
22-04-89	09:37:00	0.617	3898.21	1854.12	275.43		
22-04-89	09:38:00	0.633	3902.83	1858.74	275.43		
22-04-89	09:39:00	0.650	3907.05	1862.96	275.43		
22-04-89	09:40:00	0.667	3911.17	1867.08	275.43		
22-04-89	09:41:00	0.683	3915.12	1871.03	275.43		
22-04-89	09:42:00	0.700	3918.67	1874.58	275.43		
22-04-89	09:43:00	0.717	3922.17	1878.08	275.43		
22-04-89	09:44:00	0.733	3925.49	1881.40	275.43		
22-04-89	09:45:00	0.750	3928.72	1884.63	275.43	3050	Csg = 693 psig.
22-04-89	09:46:00	0.767	3931.77	1887.68	275.43		
22-04-89	09:47:00	0.783	3934.63	1890.54	275.43		
22-04-89	09:48:00	0.800	3937.44	1893.35	275.43		
22-04-89	09:49:00	0.817	3940.15	1896.06	275.43		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE TEST: SRT / Build-Up OPERATOR: J.Metcalf
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up: S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	09:50:00	0.833	3942.71	1898.62	275.43		
22-04-89	09:51:00	0.850	3945.20	1901.11	275.43		
22-04-89	09:52:00	0.867	3947.56	1903.47	275.43		
22-04-89	09:53:00	0.883	3949.88	1905.79	275.43		
22-04-89	09:54:00	0.900	3952.14	1908.05	275.43		
22-04-89	09:55:00	0.917	3954.34	1910.25	275.43		
22-04-89	09:56:00	0.933	3956.45	1912.36	275.43		
22-04-89	09:57:00	0.950	3958.41	1914.32	275.43		
22-04-89	09:58:00	0.967	3960.39	1916.30	275.43		
22-04-89	09:59:00	0.983	3962.39	1918.30	275.43		
22-04-89	10:00:00	1.000	3964.18	1920.09	275.43	3077	Csg = 606 psig.
22-04-89	10:01:00	1.017	3966.03	1921.94	275.43		
22-04-89	10:02:00	1.033	3967.80	1923.71	275.43		
22-04-89	10:03:00	1.050	3969.55	1925.46	275.43		
22-04-89	10:04:00	1.067	3971.23	1927.14	275.43		
22-04-89	10:05:00	1.083	3972.92	1928.83	275.43		
22-04-89	10:06:00	1.100	3974.48	1930.39	275.43		
22-04-89	10:07:00	1.117	3976.05	1931.96	275.43		
22-04-89	10:08:00	1.133	3977.60	1933.51	275.43		
22-04-89	10:09:00	1.150	3979.07	1934.98	275.43		
22-04-89	10:10:00	1.167	3980.58	1936.49	275.43		
22-04-89	10:11:00	1.183	3982.01	1937.92	275.43		
22-04-89	10:12:00	1.200	3983.47	1939.38	275.43		
22-04-89	10:13:00	1.217	3984.86	1940.77	275.43		
22-04-89	10:14:00	1.233	3986.20	1942.11	275.43		
22-04-89	10:15:00	1.250	3987.51	1943.42	275.43	3096	Csg = 530 psig.
22-04-89	10:16:00	1.267	3988.78	1944.69	275.43		
22-04-89	10:17:00	1.283	3990.05	1945.96	275.12		
22-04-89	10:18:00	1.300	3991.27	1947.18	275.12		
22-04-89	10:19:00	1.317	3992.46	1948.37	275.12		
22-04-89	10:20:00	1.333	3993.66	1949.57	275.12		
22-04-89	10:21:00	1.350	3994.92	1950.83	275.12		
22-04-89	10:22:00	1.367	3996.03	1951.94	275.12		
22-04-89	10:23:00	1.383	3997.18	1953.09	275.12		
22-04-89	10:24:00	1.400	3998.32	1954.23	275.12		
22-04-89	10:25:00	1.417	3999.46	1955.37	275.12		
22-04-89	10:26:00	1.433	4000.53	1956.44	275.12		
22-04-89	10:27:00	1.450	4001.58	1957.49	275.12		
22-04-89	10:28:00	1.467	4002.66	1958.57	275.12		
22-04-89	10:29:00	1.483	4003.67	1959.58	275.12		
22-04-89	10:30:00	1.500	4004.73	1960.64	275.12	3110	Csg = 456 psig.
22-04-89	10:31:00	1.517	4005.77	1961.68	275.12		
22-04-89	10:32:00	1.533	4006.73	1962.64	275.12		
22-04-89	10:33:00	1.550	4007.73	1963.64	275.12		
22-04-89	10:34:00	1.567	4008.67	1964.58	275.02		
22-04-89	10:35:00	1.583	4009.60	1965.51	275.02		
22-04-89	10:36:00	1.600	4010.49	1966.40	275.02		
22-04-89	10:37:00	1.617	4011.42	1967.33	275.02		
22-04-89	10:38:00	1.633	4012.34	1968.25	275.02		
22-04-89	10:39:00	1.650	4013.27	1969.18	275.02		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	10:40:00	1.667	4014.21	1970.12	275.02		
22-04-89	10:41:00	1.683	4015.10	1971.01	275.02		
22-04-89	10:42:00	1.700	4015.92	1971.83	275.02		
22-04-89	10:43:00	1.717	4016.77	1972.68	275.02		
22-04-89	10:44:00	1.733	4017.62	1973.53	275.02		
22-04-89	10:45:00	1.750	4018.42	1974.32	275.02	3120	Csg = 393 psig.
22-04-89	10:46:00	1.767	4019.25	1975.16	275.02		
22-04-89	10:47:00	1.783	4020.07	1975.98	275.02		
22-04-89	10:48:00	1.800	4020.84	1976.75	275.02		
22-04-89	10:49:00	1.817	4021.72	1977.63	275.02		
22-04-89	10:50:00	1.833	4022.50	1978.41	275.02		
22-04-89	10:51:00	1.850	4023.24	1979.15	275.02		
22-04-89	10:52:00	1.867	4023.99	1979.90	275.02		
22-04-89	10:53:00	1.883	4024.80	1980.71	275.02		
22-04-89	10:54:00	1.900	4025.52	1981.43	275.02		
22-04-89	10:55:00	1.917	4026.24	1982.15	275.02		
22-04-89	10:56:00	1.933	4027.01	1982.92	275.02		
22-04-89	10:57:00	1.950	4027.76	1983.67	275.02		
22-04-89	10:58:00	1.967	4028.44	1984.35	275.02		
22-04-89	10:59:00	1.983	4029.18	1985.09	275.02		
22-04-89	11:00:00	2.000	4029.87	1985.78	275.02	3120	Csg = 350 psig.
22-04-89	11:05:00	2.083	4033.20	1989.11	275.02		5 min sample rate.
22-04-89	11:10:00	2.167	4036.44	1992.35	275.02		
22-04-89	11:15:00	2.250	4039.58	1995.49	275.02	3127	Csg = 305 psig.
22-04-89	11:20:00	2.333	4042.52	1998.43	275.02		
22-04-89	11:25:00	2.417	4045.32	2001.23	275.02		
22-04-89	11:30:00	2.500	4047.94	2003.85	275.02	3133	Csg = 265 psig.
22-04-89	11:35:00	2.583	4050.49	2006.40	274.97		
22-04-89	11:40:00	2.667	4053.00	2008.91	274.97		
22-04-89	11:45:00	2.750	4055.34	2011.25	274.97	3138	Csg = 261 psig.
22-04-89	11:50:00	2.833	4057.65	2013.56	274.97		
22-04-89	11:55:00	2.917	4059.87	2015.78	274.88		
22-04-89	12:00:00	3.000	4062.03	2017.94	274.88	3142	Csg = 256 psig.
22-04-89	12:05:00	3.083	4064.08	2019.99	274.88		
22-04-89	12:10:00	3.167	4066.11	2022.02	274.88		
22-04-89	12:15:00	3.250	4068.09	2024.00	274.88	3146	Csg = 250 psig.
22-04-89	12:20:00	3.333	4069.10	2025.91	274.88		
22-04-89	12:25:00	3.417	4071.81	2027.72	274.88		
22-04-89	12:30:00	3.500	4073.58	2029.49	274.88	3148	Csg = 238 psig.
22-04-89	12:35:00	3.583	4075.31	2031.22	274.88		
22-04-89	12:40:00	3.667	4077.01	2032.92	274.88		
22-04-89	12:45:00	3.750	4078.69	2034.60	274.88	3152	Csg = 224 psig.
22-04-89	12:50:00	3.833	4080.29	2036.20	274.88		
22-04-89	12:55:00	3.917	4081.86	2037.77	274.88		
22-04-89	13:00:00	4.000	4083.35	2039.26	274.88	3155	Csg = 215 psig.
22-04-89	13:05:00	4.083	4084.91	2040.82	274.88		
22-04-89	13:10:00	4.167	4086.30	2042.21	274.88		
22-04-89	13:15:00	4.250	4087.71	2043.62	274.88		
22-04-89	13:20:00	4.333	4089.09	2044.10	274.88		
22-04-89	13:25:00	4.417	4090.44	2046.35	274.88		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	13:30:00	4.500	4091.67	2047.58	274.88		
22-04-89	13:35:00	4.583	4092.91	2048.82	274.88		
22-04-89	13:40:00	4.667	4094.17	2050.08	274.88		
22-04-89	13:45:00	4.750	4095.43	2051.34	274.88		
22-04-89	13:50:00	4.833	4096.65	2052.56	274.88		
22-04-89	13:55:00	4.917	4097.89	2053.80	274.88		
22-04-89	14:00:00	5.000	4098.97	2054.88	274.88		
22-04-89	14:05:00	5.083	4100.06	2055.97	274.88		
22-04-89	14:10:00	5.167	4101.11	2057.02	274.88		
22-04-89	14:15:00	5.250	4102.21	2058.12	274.88		
22-04-89	14:20:00	5.333	4103.16	2059.07	274.88		
22-04-89	14:25:00	5.417	4104.11	2060.02	274.88		
22-04-89	14:30:00	5.500	4105.25	2061.16	274.88		
22-04-89	14:35:00	5.583	4106.15	2062.06	274.88		
22-04-89	14:40:00	5.667	4107.15	2063.06	274.88		
22-04-89	14:45:00	5.750	4108.10	2064.01	274.88		
22-04-89	14:50:00	5.833	4109.05	2064.96	274.88		
22-04-89	14:55:00	5.917	4109.36	2065.27	274.88		
22-04-89	15:00:00	6.000	4108.21	2064.12	274.88		
22-04-89	15:05:00	6.083	4106.85	2062.76	274.88		
22-04-89	15:10:00	6.167	4105.89	2061.80	274.88		
22-04-89	15:15:00	6.250	4109.49	2065.40	274.88		
22-04-89	15:20:00	6.333	4112.02	2067.93	274.88		
22-04-89	15:25:00	6.417	4113.60	2069.51	274.88		
22-04-89	15:30:00	6.500	4114.87	2070.78	274.88		
22-04-89	15:35:00	6.583	4115.85	2071.76	274.88		
22-04-89	15:40:00	6.667	4115.45	2071.36	274.88		
22-04-89	15:45:00	6.750	4115.05	2070.96	274.88		
22-04-89	15:50:00	6.833	4115.29	2071.20	274.88		
22-04-89	15:55:00	6.917	4115.89	2071.80	274.88		
22-04-89	16:00:00	7.000	4116.34	2072.25	274.88		
22-04-89	16:05:00	7.083	4116.98	2072.89	274.88		
22-04-89	16:10:00	7.167	4117.69	2073.60	274.88		
22-04-89	16:15:00	7.250	4118.37	2074.28	274.88		
22-04-89	16:20:00	7.333	4119.01	2074.92	274.88		
22-04-89	16:25:00	7.417	4119.60	2075.51	274.88		
22-04-89	16:30:00	7.500	4120.31	2076.22	274.88		
22-04-89	16:35:00	7.583	4120.99	2076.90	274.88		
22-04-89	16:40:00	7.667	4121.63	2077.54	274.88		
22-04-89	16:45:00	7.750	4122.44	2078.35	274.88		
22-04-89	16:50:00	7.833	4123.70	2079.61	274.88		
22-04-89	16:55:00	7.917	4125.46	2081.37	274.88		
22-04-89	17:00:00	8.000	4126.51	2082.42	274.88	3175	Csg = 148 psig.
22-04-89	17:05:00	8.083	4127.27	2083.18	274.88		
22-04-89	17:10:00	8.167	4128.08	2083.99	274.88		
22-04-89	17:15:00	8.250	4128.58	2084.49	274.63		
22-04-89	17:20:00	8.333	4129.38	2085.29	274.63		
22-04-89	17:25:00	8.417	4130.05	2085.96	274.63		
22-04-89	17:30:00	8.500	4130.64	2086.55	274.63		10 min sample rate.

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 22-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
22-04-89	17:40:00	8.667	4131.61	2087.52	274.63		
22-04-89	17:50:00	8.833	4132.65	2088.56	274.63		
22-04-89	18:00:00	9.000	4133.77	2089.68	274.63		
22-04-89	18:10:00	9.167	4134.77	2090.68	274.63		
22-04-89	18:20:00	9.333	4135.81	2091.72	274.63		
22-04-89	18:30:00	9.500	4136.74	2092.65	274.63		
22-04-89	18:40:00	9.667	4137.61	2093.52	274.63		
22-04-89	18:50:00	9.833	4138.50	2094.41	274.63		
22-04-89	19:00:00	10.000	4139.32	2095.23	274.63	3185	Csg = 133 psig.
22-04-89	19:10:00	10.167	4140.09	2096.00	274.63		
22-04-89	19:20:00	10.333	4140.85	2096.76	274.63		
22-04-89	19:30:00	10.500	4141.79	2097.70	274.63		
22-04-89	19:40:00	10.667	4142.61	2098.52	274.63		
22-04-89	19:50:00	10.833	4143.38	2099.29	274.63		
22-04-89	20:00:00	11.000	4144.10	2100.02	274.63		
22-04-89	20:10:00	11.167	4144.84	2100.75	274.63		
22-04-89	20:20:00	11.333	4145.52	2101.43	274.63		
22-04-89	20:30:00	11.500	4146.13	2102.04	274.63		
22-04-89	20:40:00	11.667	4146.91	2102.82	274.63		
22-04-89	20:50:00	11.833	4147.41	2103.32	274.63		
22-04-89	21:00:00	12.000	4148.04	2103.95	274.63	3187	Csg = 123 psig.
22-04-89	21:10:00	12.167	4148.75	2104.66	274.63		
22-04-89	21:20:00	12.333	4149.44	2105.35	274.63		
22-04-89	21:30:00	12.500	4149.94	2105.85	274.63		
22-04-89	21:40:00	12.667	4150.54	2106.45	274.63		
22-04-89	21:50:00	12.833	4151.08	2106.99	274.63		
22-04-89	22:00:00	13.000	4151.63	2107.54	274.63		
22-04-89	22:10:00	13.167	4152.18	2108.09	274.63		
22-04-89	22:20:00	13.333	4152.73	2108.64	274.63		
22-04-89	22:30:00	13.500	4153.31	2109.22	274.63		
22-04-89	22:40:00	13.667	4153.86	2109.77	274.63		
22-04-89	22:50:00	13.833	4154.34	2110.25	274.63		
22-04-89	23:00:00	14.000	4154.79	2110.70	274.63	3189	Csg = 115 psig.
22-04-89	23:10:00	14.167	4155.29	2111.20	274.63		
22-04-89	23:20:00	14.333	4155.75	2111.66	274.63		
22-04-89	23:30:00	14.500	4156.19	2112.10	274.63		
22-04-89	23:40:00	14.667	4156.74	2112.65	274.63		
22-04-89	23:50:00	14.833	4157.20	2113.11	274.63		
23-04-89	00:00:00	15.000	4157.62	2113.53	274.63		
23-04-89	00:10:00	15.167	4158.10	2114.01	274.63		
23-04-89	00:20:00	15.333	4158.56	2114.47	274.63		
23-04-89	00:30:00	15.500	4159.02	2114.93	274.63		
23-04-89	00:40:00	15.667	4159.49	2115.40	274.63		
23-04-89	00:50:00	15.833	4159.85	2115.76	274.63		
23-04-89	01:00:00	16.000	4160.13	2116.04	274.63	3190	Csg = 108 psig.
23-04-89	01:10:00	16.167	4160.62	2116.53	274.63		
23-04-89	01:20:00	16.333	4161.05	2116.96	274.63		
23-04-89	01:30:00	16.500	4161.43	2117.34	274.63		
23-04-89	01:40:00	16.667	4161.79	2117.70	274.63		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 23-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
23-04-89	01:50:00	16.833	4162.20	2118.11	274.63		
23-04-89	02:00:00	17.000	4162.58	2118.49	274.63		
23-04-89	02:10:00	17.167	4163.11	2119.02	274.63		
23-04-89	02:20:00	17.333	4163.45	2119.36	274.63		
23-04-89	02:30:00	17.500	4163.69	2119.60	274.63		
23-04-89	02:40:00	17.667	4164.06	2119.97	274.63		
23-04-89	02:50:00	17.833	4164.36	2120.27	274.63		
23-04-89	03:00:00	18.000	4164.64	2120.55	274.63	3190	Csg = 105 psig.
23-04-89	03:10:00	18.167	4165.05	2120.96	274.63		
23-04-89	03:20:00	18.333	4165.45	2121.36	274.63		
23-04-89	03:30:00	18.500	4165.76	2121.67	274.63		
23-04-89	03:40:00	18.667	4166.11	2122.02	274.63		
23-04-89	03:50:00	18.833	4166.39	2122.30	274.63		
23-04-89	04:00:00	19.000	4166.64	2122.55	274.63		
23-04-89	04:10:00	19.167	4166.96	2122.87	274.63		
23-04-89	04:20:00	19.333	4167.18	2123.09	274.63		
23-04-89	04:30:00	19.500	4167.42	2123.33	274.63		
23-04-89	04:40:00	19.667	4167.72	2123.63	274.63		
23-04-89	04:50:00	19.833	4167.97	2123.88	274.63		
23-04-89	05:00:00	20.000	4168.21	2124.12	274.63	3192	Csg = 101 psig.
23-04-89	05:10:00	20.167	4168.46	2124.37	274.63		
23-04-89	05:20:00	20.333	4168.60	2124.51	274.63		
23-04-89	05:30:00	20.500	4168.69	2124.60	274.63		
23-04-89	05:40:00	20.667	4168.78	2124.69	274.63		
23-04-89	05:50:00	20.833	4169.20	2125.11	274.63		
23-04-89	06:00:00	21.000	4173.81	2129.72	274.63		
23-04-89	06:10:00	21.167	4173.13	2129.04	274.63		
23-04-89	06:20:00	21.333	4171.61	2127.52	274.63		
23-04-89	06:30:00	21.500	4171.17	2127.08	274.63		
23-04-89	06:40:00	21.667	4171.21	2127.13	274.63		
23-04-89	06:50:00	21.833	4171.43	2127.34	274.63		
23-04-89	07:00:00	22.000	4171.61	2127.52	274.63	3193	Csg = 98 psig.
23-04-89	07:10:00	22.167	4171.78	2127.69	274.63		
23-04-89	07:20:00	22.333	4171.95	2127.86	274.63		
23-04-89	07:30:00	22.500	4172.06	2127.97	274.63		
23-04-89	07:40:00	22.667	4172.14	2128.05	274.63		
23-04-89	07:50:00	22.833	4172.18	2128.09	274.63		
23-04-89	08:00:00	23.000	4174.30	2130.21	274.63		
23-04-89	08:10:00	23.167	4175.56	2131.47	274.63		
23-04-89	08:20:00	23.333	4174.51	2130.42	274.63		
23-04-89	08:30:00	23.500	4173.94	2129.85	274.63		
23-04-89	08:40:00	23.667	4169.61	2125.52	274.63		
23-04-89	08:50:00	23.833	4173.92	2129.83	274.63		
23-04-89	09:00:00	24.000	4174.40	2130.31	274.63	3196	Csg = 96 psig.
23-04-89	09:10:00	24.167	4176.98	2132.89	274.63		
23-04-89	09:20:00	24.333	4176.75	2132.66	274.63		
23-04-89	09:30:00	24.500	4175.64	2131.55	274.63		
23-04-89	09:40:00	24.667	4175.26	2131.17	274.63		
23-04-89	09:50:00	24.833	4175.20	2131.11	274.63		
23-04-89	10:00:00	25.000	4175.40	2131.31	274.63		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 23-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
23-04-89	10:10:00	25.167	4178.23	2134.14	274.63		
23-04-89	10:20:00	25.333	4178.94	2134.85	274.63		
23-04-89	10:30:00	25.500	4177.45	2133.36	274.63		
23-04-89	10:40:00	25.667	4176.78	2132.69	274.63		
23-04-89	10:50:00	25.833	4176.58	2132.49	274.63		
23-04-89	11:00:00	26.000	4176.51	2132.42	274.63	3199	Csg = 94 psig.
23-04-89	11:10:00	26.167	4176.56	2132.47	274.63		
23-04-89	11:20:00	26.333	4177.87	2133.78	274.63		
23-04-89	11:30:00	26.500	4180.79	2136.70	274.63		
23-04-89	11:40:00	26.667	4179.64	2135.55	274.63		
23-04-89	11:50:00	26.833	4178.40	2134.31	274.63		
23-04-89	12:00:00	27.000	4178.05	2133.96	274.63		
23-04-89	12:10:00	27.167	4177.94	2133.85	274.63		
23-04-89	12:20:00	27.333	4177.97	2133.88	274.63		
23-04-89	12:30:00	27.500	4177.98	2133.89	274.49		
23-04-89	12:40:00	27.667	4178.15	2134.05	274.49		
23-04-89	12:50:00	27.833	4180.00	2135.91	274.49		
23-04-89	13:00:00	28.000	4179.67	2135.58	274.49	3198	Csg = 92 psig.
23-04-89	13:10:00	28.167	4179.08	2134.99	274.49		
23-04-89	13:20:00	28.333	4180.35	2136.26	274.49		
23-04-89	13:30:00	28.500	4180.68	2136.59	274.49		
23-04-89	13:40:00	28.667	4179.88	2135.79	274.49		
23-04-89	13:50:00	28.833	4179.84	2135.75	274.49		
23-04-89	14:00:00	29.000	4180.99	2136.90	274.49		
23-04-89	14:10:00	29.167	4180.66	2136.57	274.49		
23-04-89	14:20:00	29.333	4180.87	2136.78	274.49		
23-04-89	14:30:00	29.500	4181.96	2137.87	274.49		
23-04-89	14:40:00	29.667	4181.31	2137.22	274.49		
23-04-89	14:50:00	29.833	4180.81	2136.72	274.49		
23-04-89	15:00:00	30.000	4181.81	2137.72	274.49	3199	Csg = 89 psig.
23-04-89	15:10:00	30.167	4182.63	2138.54	274.49		
23-04-89	15:20:00	30.333	4181.83	2137.74	274.49		
23-04-89	15:30:00	30.500	4181.27	2137.18	274.49		
23-04-89	15:40:00	30.667	4181.62	2137.53	274.49		
23-04-89	15:50:00	30.833	4182.30	2138.21	274.49		
23-04-89	16:00:00	31.000	4182.46	2138.37	274.49		
23-04-89	16:10:00	31.167	4182.97	2138.88	274.49		
23-04-89	16:20:00	31.333	4182.48	2138.39	274.49		
23-04-89	16:30:00	31.500	4183.02	2138.93	274.49		
23-04-89	16:40:00	31.667	4183.06	2138.97	274.49		
23-04-89	16:50:00	31.833	4183.31	2139.22	274.49		
23-04-89	17:00:00	32.000	4183.47	2139.38	274.49	3198	Csg = 87 psig.
23-04-89	17:10:00	32.167	4183.67	2139.58	274.41		
23-04-89	17:20:00	32.333	4183.50	2139.41	274.41		
23-04-89	17:30:00	32.500	4183.85	2139.76	274.41		
23-04-89	17:40:00	32.667	4184.29	2140.20	274.41		
23-04-89	17:50:00	32.833	4184.43	2140.34	274.41		
23-04-89	18:00:00	33.000	4183.94	2139.85	274.41		
23-04-89	18:10:00	33.167	4184.35	2140.26	274.41		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 23-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
 COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
23-04-89	18:20:00	33.333	4184.35	2140.26	274.41		
23-04-89	18:30:00	33.500	4184.61	2140.52	274.41		
23-04-89	18:40:00	33.667	4184.80	2140.71	274.41		
23-04-89	18:50:00	33.833	4185.02	2140.93	274.41		
23-04-89	19:00:00	34.000	4185.17	2141.08	274.41	3197	Csg = 83 psig.
23-04-89	19:10:00	34.167	4184.99	2140.90	274.41		
23-04-89	19:20:00	34.333	4185.35	2141.26	274.41		
23-04-89	19:30:00	34.500	4185.42	2141.33	274.41		
23-04-89	19:40:00	34.667	4185.62	2141.53	274.41		
23-04-89	19:50:00	34.833	4185.87	2141.78	274.41		
23-04-89	20:00:00	35.000	4185.68	2141.59	274.41		
23-04-89	20:10:00	35.167	4186.02	2141.93	274.41		
23-04-89	20:20:00	35.333	4186.10	2142.01	274.41		
23-04-89	20:30:00	35.500	4186.15	2142.06	274.41		
23-04-89	20:40:00	35.667	4186.20	2142.11	274.41		
23-04-89	20:50:00	35.833	4186.40	2142.31	274.41		
23-04-89	21:00:00	36.000	4186.59	2142.50	274.41	3198	Csg = 84 psig.
23-04-89	21:10:00	36.167	4186.72	2142.63	274.41		
23-04-89	21:20:00	36.333	4186.85	2142.76	274.41		
23-04-89	21:30:00	36.500	4186.82	2142.73	274.41		
23-04-89	21:40:00	36.667	4186.91	2142.82	274.41		
23-04-89	21:50:00	36.833	4187.06	2142.96	274.41		
23-04-89	22:00:00	37.000	4187.10	2143.01	274.41		
23-04-89	22:10:00	37.167	4187.30	2143.21	274.41		
23-04-89	22:20:00	37.333	4187.40	2143.31	274.41		
23-04-89	22:30:00	37.500	4187.42	2143.33	274.41		
23-04-89	22:40:00	37.667	4187.60	2143.51	274.41		
23-04-89	22:50:00	37.833	4187.64	2143.55	274.41		
23-04-89	23:00:00	38.000	4187.82	2143.73	274.41	3198	Csg = 83 psig.
23-04-89	23:10:00	38.167	4187.88	2143.79	274.41		
23-04-89	23:20:00	38.333	4187.96	2143.87	274.41		
23-04-89	23:30:00	38.500	4188.14	2144.05	274.41		
23-04-89	23:40:00	38.667	4188.24	2144.15	274.41		
23-04-89	23:50:00	38.833	4188.29	2144.20	274.41		
24-04-89	00:00:00	39.000	4188.52	2144.43	274.41		
24-04-89	00:10:00	39.167	4188.54	2144.45	274.41		
24-04-89	00:20:00	39.333	4188.63	2144.54	274.41		
24-04-89	00:30:00	39.500	4188.81	2144.72	274.41		
24-04-89	00:40:00	39.667	4188.84	2144.75	274.41		
24-04-89	00:50:00	39.833	4188.97	2144.88	274.41		
24-04-89	01:00:00	40.000	4189.12	2145.03	274.41	3198	Csg = 82 psig.
24-04-89	01:10:00	40.167	4189.27	2145.18	274.41		
24-04-89	01:20:00	40.333	4189.28	2145.19	274.41		
24-04-89	01:30:00	40.500	4189.39	2145.30	274.41		
24-04-89	01:40:00	40.667	4189.46	2145.37	274.41		
24-04-89	01:50:00	40.833	4189.51	2145.42	274.41		
24-04-89	02:00:00	41.000	4189.70	2145.61	274.41		
24-04-89	02:10:00	41.167	4189.81	2145.72	274.41		
24-04-89	02:20:00	41.333	4189.84	2145.75	274.41		
24-04-89	02:30:00	41.500	4189.94	2145.84	274.41		

EXPERTEST PTY. LTD.

CUSTOMER : SANTOS Ltd. DATE: 24-04-89 HP GAUGE S/N: 795
LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
24-04-89	02:40:00	41.667	4190.10	2146.01	274.41	3198	Csg = 81 psig.
24-04-89	02:50:00	41.833	4190.14	2146.05	274.41		
24-04-89	03:00:00	42.000	4190.27	2146.18	274.41		
24-04-89	03:10:00	42.167	4190.37	2146.28	274.41		
24-04-89	03:20:00	42.333	4190.46	2146.37	274.41		
24-04-89	03:30:00	42.500	4190.52	2146.43	274.41		
24-04-89	03:40:00	42.667	4190.56	2146.47	274.41		
24-04-89	03:50:00	42.833	4190.73	2146.64	274.41		
24-04-89	04:00:00	43.000	4190.79	2146.70	274.41		
24-04-89	04:10:00	43.167	4190.97	2146.88	274.41		
24-04-89	04:20:00	43.333	4191.03	2146.94	274.41	3198	Csg = 80 psig.
24-04-89	04:30:00	43.500	4190.99	2146.90	274.41		
24-04-89	04:40:00	43.667	4191.14	2147.05	274.41		
24-04-89	04:50:00	43.833	4191.26	2147.17	274.41		
24-04-89	05:00:00	44.000	4191.34	2147.25	274.41		
24-04-89	05:10:00	44.167	4191.43	2147.34	274.41		
24-04-89	05:20:00	44.333	4191.52	2147.43	274.41		
24-04-89	05:30:00	44.500	4191.53	2147.44	274.41		
24-04-89	05:40:00	44.667	4191.44	2147.35	274.41		
24-04-89	05:50:00	44.833	4191.49	2147.40	274.41		
24-04-89	06:00:00	45.000	4191.57	2147.48	274.41	3198	Csg = 79 psig.
24-04-89	06:10:00	45.167	4191.64	2147.55	274.41		
24-04-89	06:20:00	45.333	4191.67	2147.58	274.41		
24-04-89	06:30:00	45.500	4191.76	2147.67	274.41		
24-04-89	06:40:00	45.667	4191.86	2147.77	274.41		
24-04-89	06:50:00	45.833	4192.04	2147.95	274.41		
24-04-89	07:00:00	46.000	4192.13	2148.04	274.41		
24-04-89	07:10:00	46.167	4192.13	2148.04	274.41		
24-04-89	07:20:00	46.333	4192.20	2148.11	274.41		
24-04-89	07:30:00	46.500	4192.29	2148.20	274.41		
24-04-89	07:40:00	46.667	4192.37	2148.28	274.41	3199	Csg = 80 psig. 1 min sample rate.
24-04-89	07:50:00	46.833	4192.39	2148.30	274.41		
24-04-89	08:00:00	47.000	4192.50	2148.41	274.41		
24-04-89	08:10:00	47.167	4192.64	2148.55	274.41		
24-04-89	08:20:00	47.333	4192.69	2148.60	274.39		
24-04-89	08:30:00	47.500	4192.78	2148.69	274.39		
24-04-89	08:40:00	47.667	4192.86	2148.77	274.39		
24-04-89	08:50:00	47.833	4192.91	2148.82	274.39		
24-04-89	09:00:00	48.000	4192.95	2148.86	274.39		
24-04-89	09:10:00	48.167	4192.10	2148.91	274.39		
24-04-89	09:20:00	48.333	4193.10	2149.01	274.39	3199	Csg = 80 psig. 1 min sample rate.
24-04-89	09:30:00	48.500	4193.24	2149.15	274.39		
24-04-89	09:40:00	48.667	4193.30	2149.21	274.39		
24-04-89	09:50:00	48.833	4193.36	2149.27	274.39		
24-04-89	10:00:00	49.000	4193.36	2149.27	274.39		
24-04-89	10:10:00	49.167	4193.47	2149.38	274.39		
24-04-89	10:11:00	49.183	4193.16	2149.07	274.39		
24-04-89	10:12:00	49.200	4191.47	2147.38	274.39	3199	Csg = 80 psig. 1 min sample rate.
24-04-89	10:13:00	49.217	4190.57	2146.48	274.39		

EXPERTEST PTY. LTD.

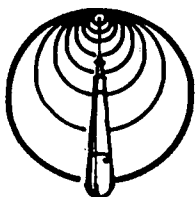
CUSTOMER : SANTOS Ltd. DATE: 24-04-89 HP GAUGE S/N: 795
LOCATION : BOOKABOURDIE 10 TEST: SRT / Build-Up OPERATOR: J.Metcalf
FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: 9500'KB
COMMENTS : Build Up. S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
24-04-89	10:14:00	49.233	4191.11	2147.02	274.39	3200	Csg = 79 psig.
24-04-89	10:15:00	49.250	4191.43	2147.34	274.39		End BUILD-UP.

EXPERTEST PTY. LTD.

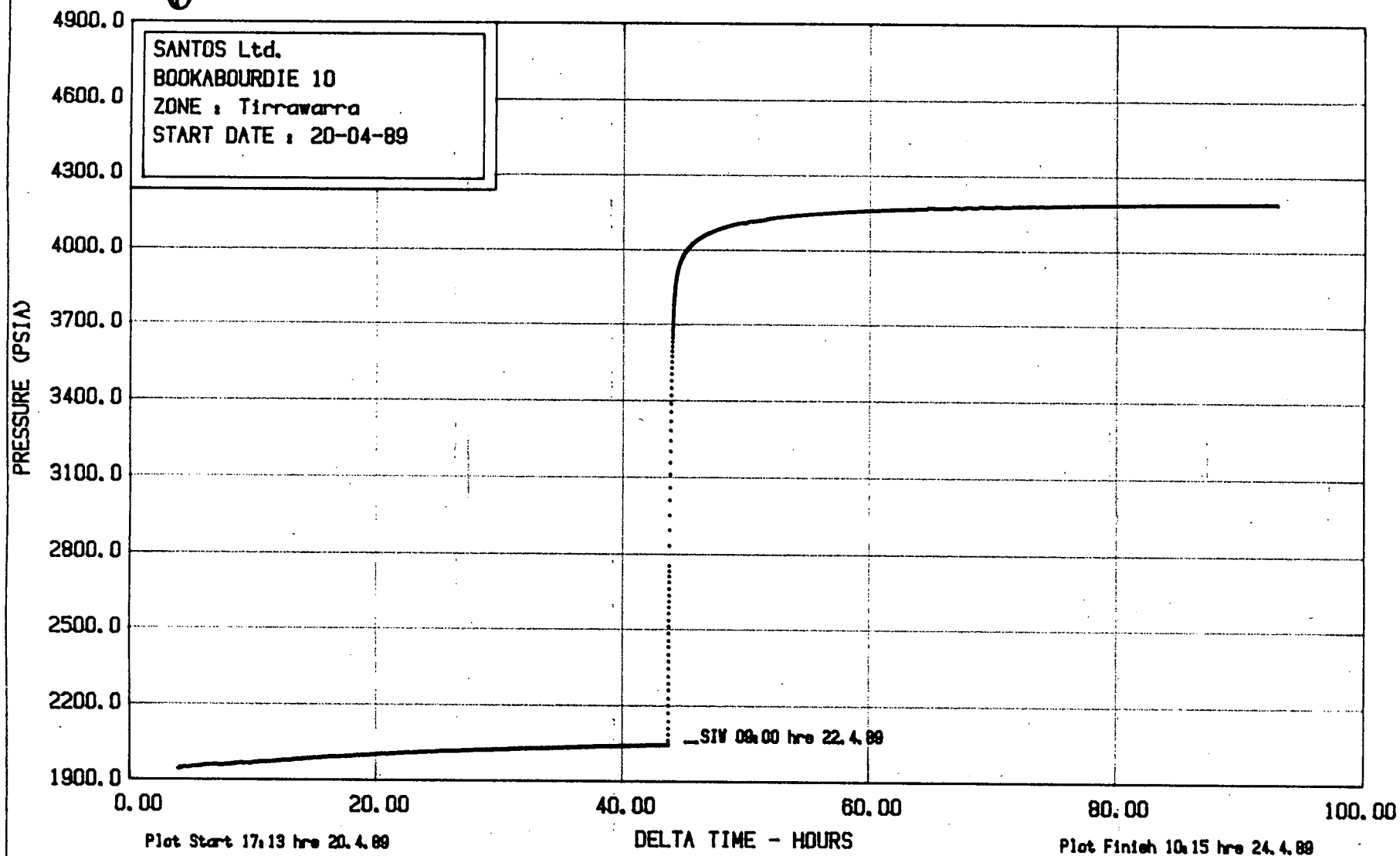
CUSTOMER : SANTOS Ltd. DATE: 24-04-89 HP GAUGE S/N: 795
 LOCATION : BOOKABOURDIE 10 TEST: Static Gradient OPERATOR: J. Metcalfe
 FORMATION: Tirrawarra PERFORATIONS: 9544'-9625'KB GAUGE DEPTH: gradient
 COMMENTS : S.I.W. 09:00 hrs 22-04-89.

DATE	REAL TIME	DELTA T (HRS)	B.H.P. (PSIA)	DELTA P (PSI)	TEMP (°F)	SURFACE (PSIG)	REMARKS
24-04-89	10:38:00	49.633	4204.70	4204.70	275.62		Start S.G.S.
24-04-89	10:39:00	49.650	4204.68	-0.02	275.62		
24-04-89	10:40:00	49.667	4204.64	-0.04	275.62	Stop 6	Hang @ 9585'KB
24-04-89	10:41:00	49.683	4204.63	-0.01	275.62	MPP	
24-04-89	10:42:00	49.700	4204.63	0.00	275.62		P.O.O.H.
24-04-89	10:11:00	49.183	4193.16	-11.47	274.39	Stop 5	Hang @ 9500'KB
24-04-89	10:12:00	49.200	4191.47	-1.69	274.39		
24-04-89	10:13:00	49.217	4190.57	-0.90	274.39		
24-04-89	10:14:00	49.233	4191.11	0.54	274.39	3200	Csg = 79 psig.
24-04-89	10:15:00	49.250	4191.43	0.32	274.39		End BUILD-UP.
24-04-89	11:18:00	50.300	4147.52	-43.92	264.88	Stop 4	Hang @ 9000'KB
24-04-89	11:19:00	50.317	4147.69	0.18	264.88		
24-04-89	11:20:00	50.333	4147.84	0.15	264.88		
24-04-89	11:21:00	50.350	4147.99	0.16	264.88		
24-04-89	11:22:00	50.367	4148.11	0.12	264.88		P.O.O.H.
24-04-89	11:56:00	50.933	4050.26	-97.85	246.56	Stop 3	Hang @ 8000'KB
24-04-89	11:57:00	50.950	4051.09	0.84	246.56		
24-04-89	11:58:00	50.967	4051.26	0.17	246.56		
24-04-89	11:59:00	50.983	4051.40	0.14	246.56		
24-04-89	12:00:00	51.000	4051.51	0.12	246.56		P.O.O.H.
24-04-89	12:31:00	51.517	3953.67	-97.85	228.24	Stop 2	Hang @ 7000'KB
24-04-89	12:32:00	51.533	3954.55	0.88	228.24		
24-04-89	12:33:00	51.550	3954.73	0.17	228.24		
24-04-89	12:34:00	51.567	3954.89	0.17	228.24		
24-04-89	12:35:00	51.583	3955.02	0.13	228.24		P.O.O.H.
24-04-89	13:02:00	52.033	3856.53	-98.48	209.92	Stop 1	Hang @ 6000'KB
24-04-89	13:03:00	52.050	3856.90	0.37	209.92		
24-04-89	13:04:00	52.067	3857.18	0.28	209.92		
24-04-89	13:05:00	52.083	3857.46	0.27	209.92		
24-04-89	13:06:00	52.100	3857.74	0.28	209.92		
24-04-89	13:07:00	52.117	3857.96	0.22	209.92		P.O.O.H.
24-04-89	13:39:00	52.650	3670.73	-187.23	191.60		Hang @ 5000'KB
24-04-89	13:40:00	52.667	3686.97	16.24	191.60		Gauge malfunction.
24-04-89	13:41:00	52.683	3682.21	-4.76	191.60		P.O.O.H.
24-04-89	13:42:00	52.700	3667.61	-14.60	191.60		Unable to fix at
24-04-89	13:43:00	52.717	3670.58	2.98	191.60		surface.
24-04-89	14:11:00	53.183	3502.63	-167.95	173.28		Abandon survey.

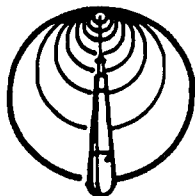


EXPERTEST PTY LTD - ELECTRIC WIRELINE SERVICE

LINEAR PLOT

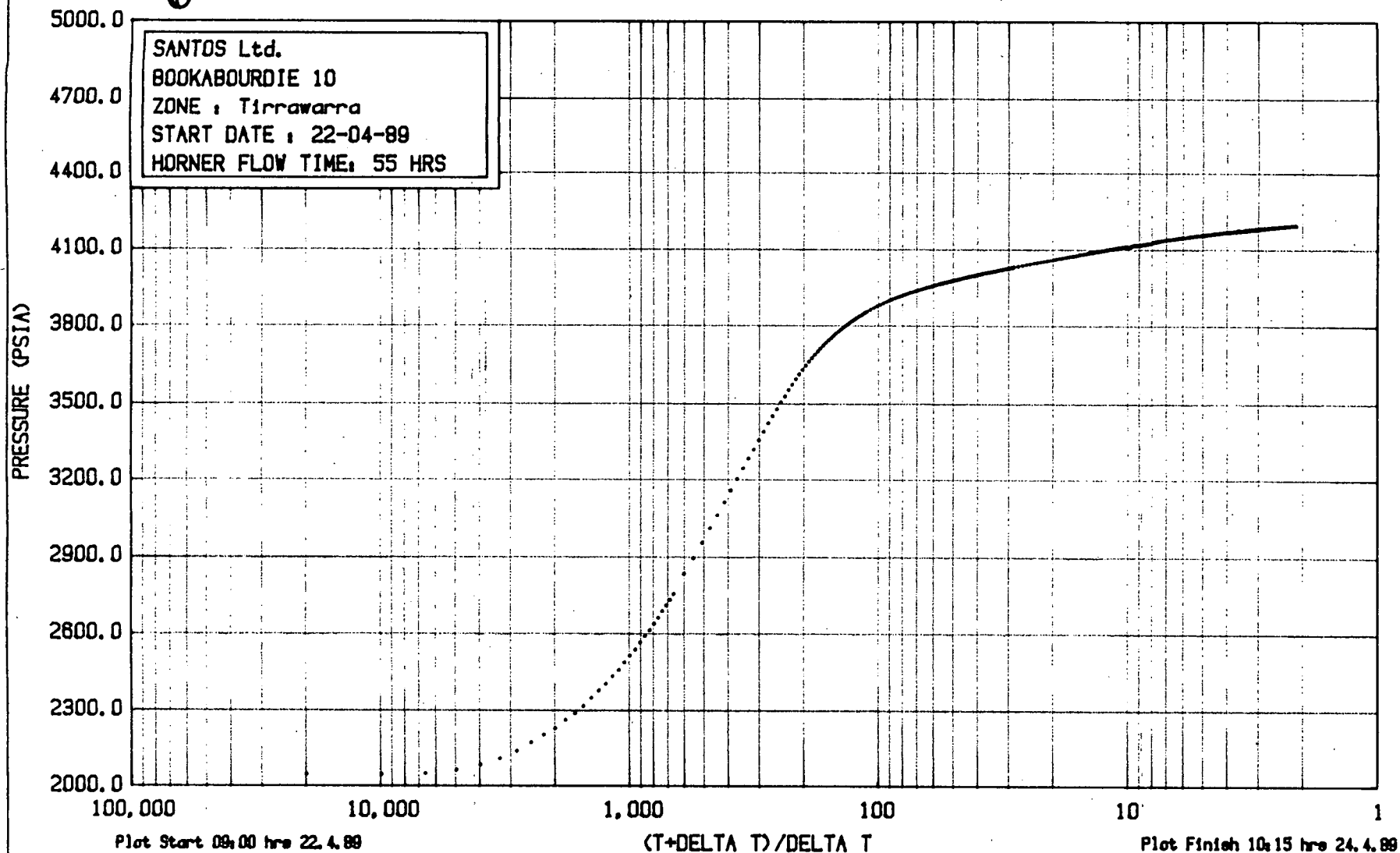


000027

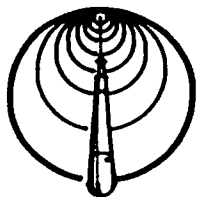


EXPERTEST PTY LTD - ELECTRIC WIRELINE SERVICE

HORNER PLOT

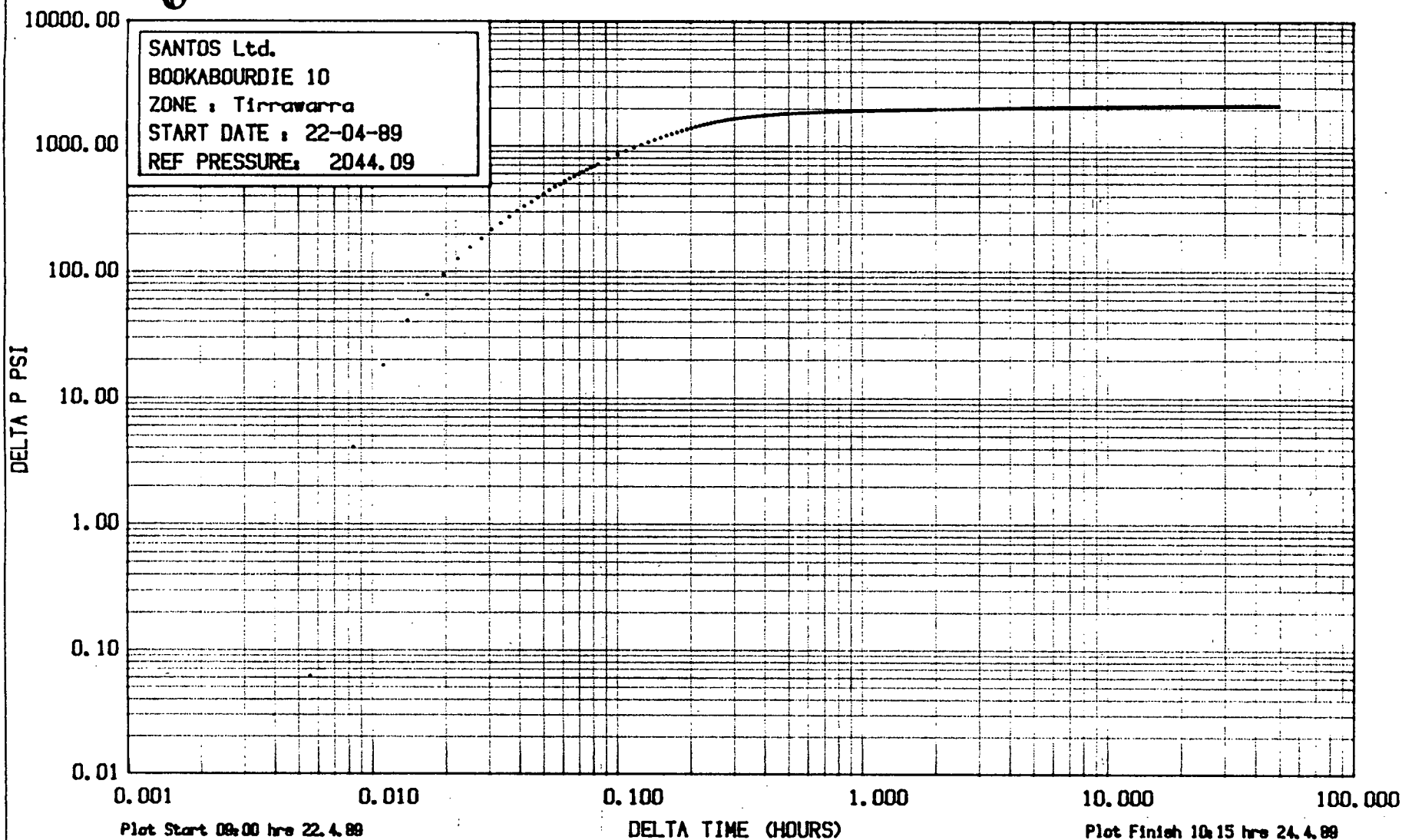


000028

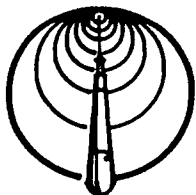


EXPERTEST PTY LTD - ELECTRIC WIRELINE SERVICE

LOG-LOG PLOT

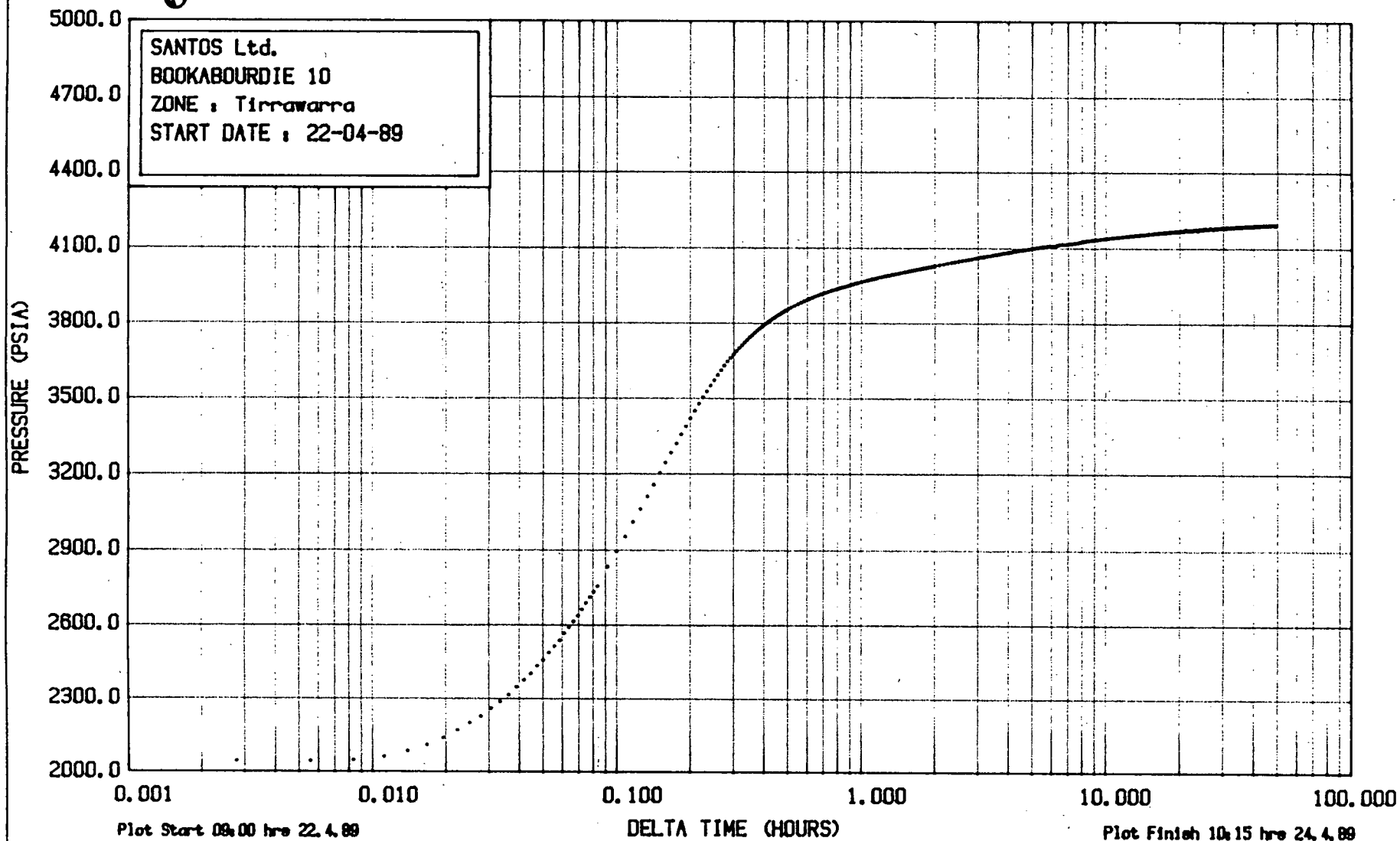


000029

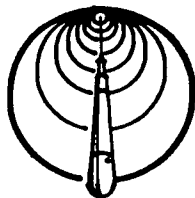


EXPERTEST PTY LTD - ELECTRIC WIRELINE SERVICE

SEMI-LOG PLOT

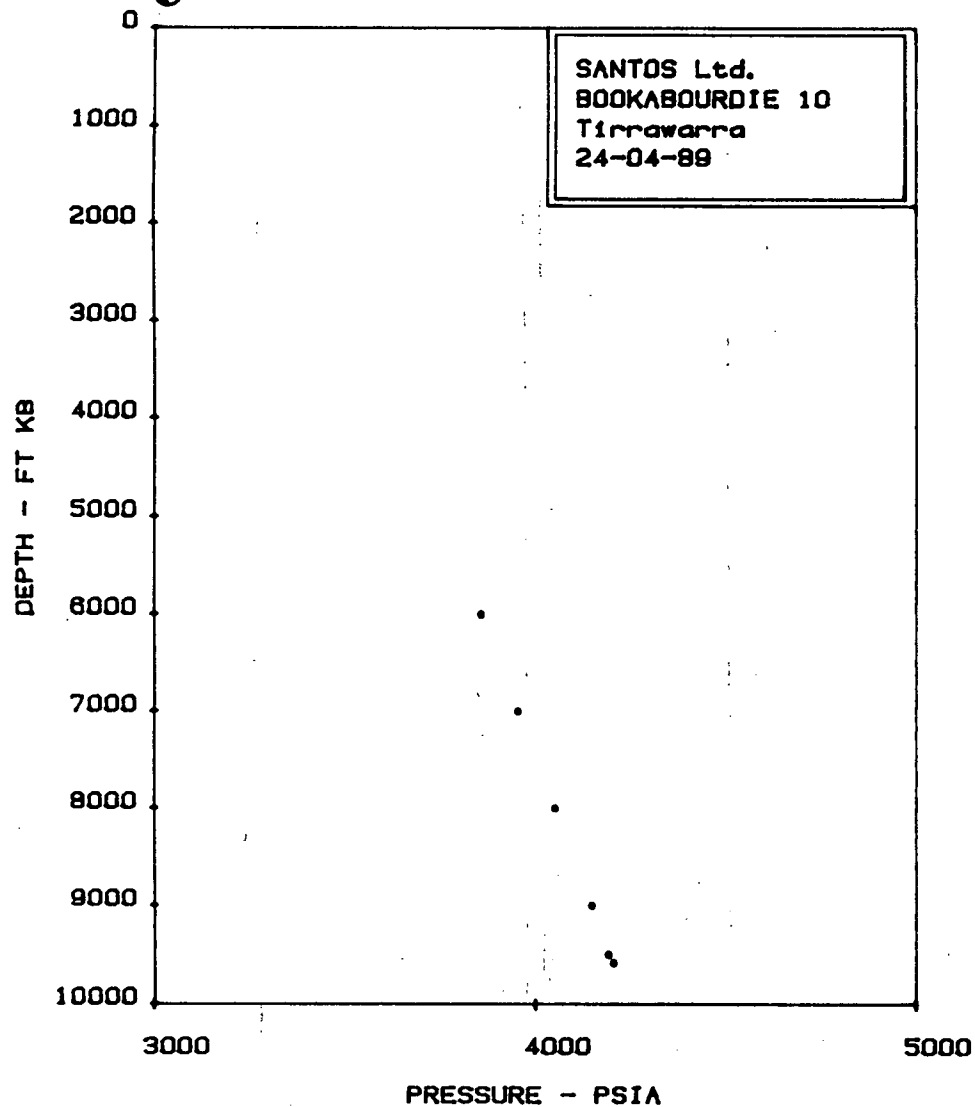


000030



EXPERTEST PTY LTD - ELECTRIC WIRELINE SERVICE

STATIC GRADIENT SURVEY

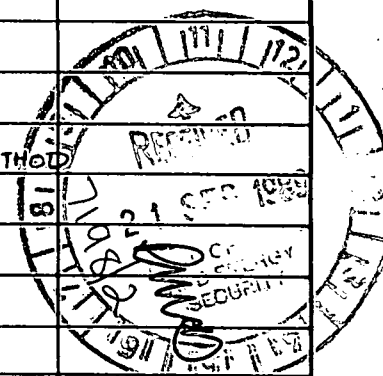


STOP	TIME	DEPTH (FT KB)	PRESSURE (PSIA)	GRADIENT (PSI/FT)
1	1307	6000	3857.96	---
2	1235	7000	3955.02	0.0971
3	1200	8000	4051.51	0.0965
4	1122	9000	4148.11	0.0966
5	1015	9500	4191.43	0.0866
6	1042	9585	4204.63	0.1553

Gauge failure at 5000'. Survey abandoned.
WHP = 3199 psig. Ceg = 79 psig.

000031

WELL: BOOKABOURDIE #10						 SANTOS LTD. WELL TEST DATA SHEET										DATE: 30:04:89				
TYPE OF TEST: POSTFRAC CLEAN UP																PAGE No: 1				
DATE TIME	WELLHEAD					GAS FLOW DATA					OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING KPA	TUBING KPA	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INS.H ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLS	API GRAVITY @60 °F	TANK DIP INS	TANK PROD BBLS	GAS FLOW RATE 10 ³ m ³ /D	OIL FLOW RATE BBLS/ DAY	WATER FLOW RATE BBLS/ DAY	TOTAL LIQUID FLOW RATE BBLS/ DAY	P.P.M SALT	
30:04:89																				
1340	124	4806				ARRIVE ON LOCATION: "WELL SHUT IN"														
						* GAS FLOWRATES CALCULATED FROM CHOKE COEFFICIENT METHOD														
1400						FLOW WELL TO PIT THROUGH 12/64" ADJUSTABLE CHOKE														
1415	1131	841	24	12/64"											2.71					
1420						WELL SLUGGING LIQUID INTERMITTENTLY														
1430	1682	1476	28	"		BLEED DOWN ANNULUS PRESSURE														
1445	0	1551	28	"											4.71					
1500	7	1613	29	"											4.88			7700		
1600	14	1903	30	"		CLEAN BURN @ FLARE "GAS ONLY"														
1800	7	3399	30	"		FLOWING GAS SLUGGING LIQUID														
2200	7	1358	30	"											4.15			21100		
01:05:89																				
0200	7	1455	28	"		INTERMITTENT LIQUID SLUGS EXTINGUISHING FLARE														
0600	7	2255	30	"											6.69			23100		
0800	28	2792	30	"											8.22			21100		
1000	34	3523	32	"											10.26			17300		
1200	34	4351	35	"											12.55			13470		
1400	55	5206	36	"											14.93			13470		



0000032

WELL: <u>BOOKABOURDIE #10</u>						 SANTOS LTD. WELL TEST DATA SHEET										DATE: <u>01/04/89</u>			
TYPE OF TEST: <u>POST-FRAC CLEAN UP</u>						PAGE No: <u>2</u>													
DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING KPA	TUBING KPA	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INS. H ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @60 °F	TANK DIP INS	TANK PROD BBLs	GAS FLOW RATE M ³ /D	OIL FLOW RATE BBLs/ DAY	WATER FLOW RATE BBLs/ DAY	TOTAL LIQUID FLOW RATE BBLs/ DAY	P.P.M SALT
01:05	89																		
1600	462	6268	35	1 1/2" / 64"											17.95				
					*	NO SAMPLING POINT @ WELL HEAD.													
						PREVIOUS SAMPLES TAKEN @ PIT FROM FLARE LINE FOR ANALYSIS.													
						FLARE NOW BURNING CONTINUOUSLY.													
1800	731	7516	34	1 1/2" / 64"		BLEED DOWN ANNULUS PRESSURE									21.50				
2200	986	10218	32	"		—"	—"	—"	—"						29.21	TRACE CONDENSATE IN FLARE			
02:05	89																		
0200	848	12501	30	"		20% OFF FLARE PIT BURNING									35.80				
0600	1055	14211	27	"											40.85				
0800	1345	14797	28	"		BLEED DOWN ANNULUS PRESSURE.									42.48				
1000	641	15562	28	"											44.66				
1200	490	16024	29	"											45.90				
					*	LEAK @ TREE CAP ADAPTER FLANGE R27 x 5000 PSI "RING SEAL LEAKING."													
					*	WING VALVE LEAKING @ CHOKE INLET FLANGE R24 5000 PSI "RING SEAL LEAKING"													
1310						SHUT IN WELL TO TIGHTEN FLANGES.													
1328						PRESSURE TEST WELL HEAD "A.O.K."													
1338						FLOW WELL TO PIT ON 1 1/2" / 64" ADJUSTABLE CHOKE													
1400	0	16693	27	1 1/2" / 64"											47.93				
1600	14	16720	29	"											47.88				

000033

WELL: BOOKABOURDIE #10



SANTOS LTD.

DATE: 02:05:89

TYPE OF TEST: POST FRAC CLEANUP

WELL TEST DATA SHEET

PAGE No: 3

DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING	TUBING	TEMP.	CHOKE	B.S.W.	PI	HW	TEMP.	ORIFICE	TANK	TANK	API	TANK	TANK	GAS	OIL	WATER	TOTAL	G.O.R.
	KPA	KPA	°C	SIZE INS.	%	PSI	INSH ₂ O	°F	SIZE INS.	DIP INS.	PROD BBLs	GRAVITY @60 °F	DIP INS.	PROD BBLs	FLOW RATE 10 ³ m ³ /D	FLOW RATE BBLs/ DAY	FLOW RATE BBLs/ DAY	FLOW RATE BBLs/ DAY	SCF/BBL
02:05:89																			
1800	7	17169	23	12/64"											49.66				
2200	0	17720	18	"											51.68				
03:05:89																			
0200	0	18092	15	"											53.02				
0600	0	18203	12	"											53.60				
0745						* VISUAL INSPECTION OF FLARE INDICATES WELL FLOWING GAS, H ₂ O & TRACE CONDENSATE													
0800	0	18396	17	"											53.69				
1000	7	18679	12	"											54.99				
1145						* WET GAS CAUSING FLARE TO EXTINGISH													
1200	28	18548	18	"											54.08				
1400	7	18686	11	"											55.12				
1615						* ROCK CHOKE TO CLEAR HYDRATES													
1630	48	19113	8	"											56.71				
1800	21	19099	13	"											56.17				
2200	48	19368	6	"		ROCK CHOKE TO CLEAR HYDRATES													
04:05:89															57.63				
0200	0	19637	8	"											58.25				
0600	41	19796	5	"		WET GAS SLUGS * EXTINGISHING FLARE													
0800	0	19720	4	"		ROCK CHOKE TO CLEAR HYDRATES													

000034

WELL: <u>BOOKABOORDIE #10</u>						 SANTOS LTD. WELL TEST DATA SHEET										DATE: <u>04.05.89</u>			
TYPE OF TEST: <u>Post fire... clean up</u>																PAGE No: <u>4</u>			
DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING PST KPS	TUBING PST KPS	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INS H ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @ 60 °F	TANK DIP INS	TANK PROD BBLs	GAS FLOW RATE MMSCFD	OIL FLOW RATE BBLs/DAY	WATER FLOW RATE BBLs/DAY	TOTAL LIQUID FLOW RATE BBLs/DAY	PPM SALT
			04. of May 1989																
1000	0	19871	5	12/64											59.24				
1030																			
1200	165	19506	8	14/64											80.55				
1400	117	19885	12	"											81.46				
1600	13	19954	365	"											78.47				
1800	21	20029	38	"											78.58				
2145			Sample of liquid from flare line indicate H ₂ O ≈ 80% and ≈ 20% of condensate													9620			
2200	55	20133	45	"											78.11				
			05 of May 1989																
0530	69	20175	41	"											78.76				
0600			Blow out in line down stem choke. Thread on 2" line damage in 2 points																
			Shut well in and report to Moomba.																
			Wait on decision from P.E. * Well is not clean properly.																
0930	0	21374																	
1230	0	21885																	
			Move to Moomba to prepare equipment for isochronal.																

000035

WELL: <u>BOOKABOURDIE #10</u>					 SANTOS LTD. WELL TEST DATA SHEET										DATE: <u>09.05.89</u>				
TYPE OF TEST: <u>Post Frac clean up</u>															PAGE No: <u>5</u>				
DATE TIME	WELLHEAD					GAS FLOW DATA					OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS			
	CASING kPa	TUBING kPa	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INS.H ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @ 60 °F	TANK DIP INS	TANK PROD BBLs	FLOW RATE 103 m ³ /d	FLOW RATE BBLs/DAY	FLOW RATE BBLs/DAY	TOTAL LIQUID FLOW RATE BBLs/DAY	
1100																			
1700																			
1715	0	22064																	
1730																			
0630																			
0755	0	21823	13																
0825	83	15485	36	32/64											341.94				
0847																			
1700																			
1810	0	22036																	
1813																			
1815																			
1818																			
1830																			

WELL: BOOKABOURDIE #10...

TYPE OF TEST: Post Flow Clean up



SANTOS LTD.

WELL TEST DATA SHEET

DATE: 10.05.89

PAGE No: 6

DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING kPa	TUBING kPa	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INSH ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @ 60 °F	TANK DIP INS	TANK PROD BBLs	GAS FLOW RATE 10 ⁶ m ³ /d	OIL FLOW RATE BBLs/ DAY	WATER FLOW RATE BBLs/ DAY	TOTAL LIQUID FLOW RATE BBLs/ DAY	PPM salt.
1830		17347																	
1845	69	16410	37	32/64											361.92				15400 PPM
1930	1379	16272		32/64															
2000	4626	16099	45	32/64											350.70				15400 PPM
2020		choke wash out																	
2044		Shut well in du to blow out on line down stream choke.																	
		All lines and T pieces washout body of the choke wash out.																	
		11 of May 1989.																	
0700		Report to Moomba and wait on decision from P.E.																	
1500		Rig in new nipples and T pieces																	
1600	0	22078																	
1630	27	20133		24/64															
1645																			
1648																			
1735	0	21643																	
1742																			
1745	0	15321	39	36/64											445.08				cut choke to 24/64 size.
1800	34	19319	41	24/64											236.51				

000037

WELL: <u>BOOKABOURDIE #10</u>						SANTOS LTD.										DATE: <u>11.05.89</u>				
TYPE OF TEST: <u>Post frac clean up</u>						WELL TEST DATA SHEET										PAGE No: <u>7</u>				
DATE TIME	WELLHEAD					GAS FLOW DATA					OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING kPa	TUBING kPa	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INSH ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @60 °F	TANK DIP INS	TANK PROD BBLs	GAS FLOW RATE 10 ³ m ³ /d	OIL FLOW RATE BBLs/ DAY	WATER FLOW RATE BBLs/ DAY	TOTAL LIQUID FLOW RATE BBLs/ DAY	G.O.R. SCF/BBL	
1830	96	19099	42	24/64											233.44					
1900	1999	19044	44	24/64											232.04					
2000	4799	18651	47	24/64											226.62					
2200	8826	18465	52	24/64											222.20					
0120																				
0700																				
1630																				
1720	0	22098	26	0																
1800	7	21202	31	16/64											111.0					
1900	52	21237	40	16/64											109					
2000	524	21237	42	16/64																
2030																				
2153																				

000038

WELL: <u>BORKABOURDIE #10</u>						SANTOS LTD.										DATE: <u>12.05.89</u>				
TYPE OF TEST: <u>Post Proc. Clean up</u>						WELL TEST DATA SHEET										PAGE No: <u>8</u>				
DATE TIME	WELLHEAD					GAS FLOW DATA					OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING kPa	TUBING kPa	TEMP. °C	CHOKE SIZE INS.	B.S.W. %	PI PSI	HW INS. H ₂ O	TEMP. °F	ORIFICE SIZE INS.	TANK DIP INS.	TANK PROD BBL/S	API GRAVITY @ 60 °F	TANK DIP INS.	TANK PROD BBL/S	FLOW RATE 10 ³ m ³ /d	FLOW RATE BBL/S DAY	FLOW RATE BBL/S DAY	TOTAL LIQUID PPM SALT	GAS FLOW RATE 10 ³ m ³ /d	
				12 of May 1989																
2200	1572	20747	43	16/64											106				106	
				13 of May 1989																
0200	3744	20823	45	16/64											106				106	
0600	5130	20802	47	16/64											106				106	
1000	5792	20816	50	16/64											105.7				105.7	
1400	6219	20809	51	16/64											105.5				105.5	
1800	6557	20809	50	16/64											105.6				105.6	
2200	6799	20802	50	16/64											105.6				105.6	
				14 of May 1989																
0200	6840	20802	50	16/64											105.6				105.6	
0600	7047	20802	50	16/64											105.6				105.6	
1000	7239	20816	52	16/64											105.3				105.3	
1000	Shut well in inspect choke - traces of fine sand up stream choke																			
	Rip in 20/64 fixed choke size																			
1005	6757	21574	32																	
1030	6688	19202	55	20/64															159.32	
1100	7715	18754	57	20/64															155.15	
1400	11239	18513	63	20/64														0 %	151.80	
1800	13231	18203	63	20/64															149.26	

0000339

WELL: <u>BROOKABOURDIE #10...</u>						 SANTOS LTD. WELL TEST DATA SHEET										DATE: <u>14.05.89</u>				
TYPE OF TEST: <u>Post Frac. Cleanup</u>						PAGE No: <u>9</u>														
DATE TIME	WELLHEAD					GAS FLOW DATA					OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING kPa	TUBING kPa	TEMP. °C	CHOKE SIZE INS	B.S.W. %	PI PSI	HW INS. H ₂ O	TEMP. °F	ORIFICE SIZE INS	TANK DIP INS	TANK PROD BBLs	API GRAVITY @ 60 °F	TANK DIP INS	TANK PROD BBLs	GAS FLOW RATE m ³ /d	OIL FLOW RATE BBLs/ DAY	WATER FLOW RATE BBLs/ DAY	TOTAL LIQUID FLOW RATE BBLs/ DAY	G.O.R. SCF/BBL	
				14 of May 1989																
2200	14024	18065	64	20/64											147.86					
				15 of May 1989																
0200	14473	18099	65	20/64											147.96					
0600	14755	18017	66	20/64											147.09					
1000	14907	17996	67	20/64											146.70					
1153	14990	17982	68	*											269.06					
1200																				
1204	14328	21168	52																	
1300	13873	19340	68	24/64											220.74					
1500	13466	19265	66	24/64											220.52					
1800	13252	19278	63	24/64											221.67					
2200	13204	19278	63	24/64											221.67					
				16 of May 1989																
0200	13245	19278	64	24/64											221.34					
0600	13528	19278	65	24/64											221.00					
0600																				

000040

WELL: <i>BROOKABOURDIE #10...</i>						 SANTOS LTD. WELL TEST DATA SHEET										DATE: <i>16.05.89</i>				
TYPE OF TEST: <i>Post Frac. Clean up.</i>						PAGE No: <i>10</i>														
DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS					
	CASING	TUBING	TEMP.	CHOKE SIZE INS.	B.S.W. %	PI PSI	HW INS. H ₂ O	TEMP. °F	ORIFICE SIZE INS.	TANK DIP INS.	TANK PROD BBLs	API GRAVITY @ 60 °F	TANK DIP INS.	TANK PROD BBLs	GAS FLOW RATE 10 ³ m ³ /d	OIL FLOW RATE BBLs/DAY	WATER FLOW RATE BBLs/DAY	TOTAL LIQUID FLOW RATE BBLs/DAY	G.O.R. SCF/BBL	
				<i>16 of May 1989</i>																
<i>0600</i>	<i>12838</i>	<i>21223</i>	<i>55</i>	<i>0</i>																
<i>1000</i>	<i>18349</i>	<i>19278</i>	<i>69</i>	<i>24/64</i>											<i>220.00</i>					
<i>1400</i>	<i>18425</i>	<i>19278</i>	<i>68</i>	<i>24/64</i>											<i>220.05</i>					
<i>1800</i>	<i>18459</i>	<i>19272</i>	<i>68</i>	<i>24/64</i>											<i>219.95</i>					
<i>2200</i>	<i>13583</i>	<i>19272</i>	<i>66</i>	<i>24/64</i>											<i>220.60</i>					
				<i>17 of May 1989</i>																
<i>0200</i>	<i>13638</i>	<i>19272</i>	<i>66</i>	<i>24/64</i>											<i>220.60</i>					
<i>0600</i>	<i>13700</i>	<i>19265</i>	<i>66</i>	<i>24/64</i>											<i>220.52</i>					
<i>0600</i>																				
<i>0605</i>	<i>13307</i>	<i>21181</i>	<i>58</i>	<i>0</i>																
<i>1000</i>	<i>13638</i>	<i>19244</i>	<i>70</i>	<i>24/64</i>											<i>219.00</i>					
<i>1145</i>	<i>13687</i>	<i>19237</i>	<i>71</i>	<i>24/64</i>											<i>218.60</i>					
<i>1150</i>	<i>3006</i>	<i>21375</i>	<i>55</i>	<i>0</i>																
<i>1230</i>	<i>4592</i>	<i>17099</i>	<i>72</i>	<i>32/64</i>											<i>357.56</i>					
<i>1300</i>	<i>5268</i>	<i>17113</i>	<i>71</i>	<i>32/64</i>											<i>358.34</i>					
<i>1400</i>	<i>6157</i>	<i>17099</i>	<i>70</i>	<i>32/64</i>											<i>358.60</i>					
<i>1500</i>	<i>6647</i>	<i>17044</i>	<i>71</i>	<i>32/64</i>											<i>356.94</i>					
<i>1600</i>	<i>6943</i>	<i>17003</i>	<i>70</i>	<i>32/64</i>											<i>356.60</i>					

Нормала.

000041

TYPE OF TEST: Post-Proc. Cleanup.



WELL TEST DATA SHEET

PAGE No:....《.....

DATE TIME	WELLHEAD					GAS FLOW DATA				OIL/CONDENSATE PRODUCTION			WATER PRODUCTION		WELL TEST RESULTS				
	CASING	TUBING	TEMP.	CHOKE	B.S.W.	PI	HW	TEMP.	ORIFICE	TANK	TANK	API	TANK	TANK	GAS	OIL	WATER	TOTAL	G.O.R.
	LPa	LPa	°C	SIZE INS	%	PSI	INS.H ₂ O	°F	SIZE INS	DIP INS	PROD BBLs	GRAVITY @ 60 °F	DIP INS	PROD BBLs	FLOW RATE 10 ³ m ³ /d	FLOW RATE BBLs/ DAY	FLOW RATE BBLs/ DAY	FLOW RATE BBLs/ DAY	SCF/BBL
				17 of May 1989															
1645	2572	21228	33	0	Open well on 32/64 choke size.														
1800	5454	17044	70	32/64											357.44				
2200	7309	16955	73	32/64											354.08				
				18 of May 1989															
0200	7798	16905	72	32/64											353.55				
0600	7908	16824	74	32/64											350.82				
0600	Shut well in inspect choke. Choke remain 32/64 - O.K																		
	No washout or evidence of free sand in line or choke detected																		
	Rig down all equipment and move out of location.																		
	* END *																		

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OPERATOR

SANTOS LTD.
WELL TEST SUMMARY

Page 1.

WELL: Bookabourdie # 10
TESTED BY: Expertest
CASING SIZE: 7 ins
TUBING SIZE: 2-7/8 ins

Lat.: 27° 30' 46" S
LOCATION: Long: 140° 26' 38" E
PERFORATIONS: 9544 - 9625 ft
WEIGHT: 23 # 26 lb/ft
WEIGHT: 6.5 lb/ft

DATE: 20/2 - 1/3/90
FORMATION: Tirrawarra
PRODUCING THROUGH: Tubing
GRADE: N80 & J55
GRADE: L80

DESCRIPTION OF TEST

INITIAL SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing	Casing	Temp.	
			kPa	kPa	°C	
20/2/90	1400	0	7474	8253	77	Commence LET on 100% choke
22/2/90	2200	56 (flow time)	7012	7888	76	Shut well in for buildup survey.
26/2/90	0722	81.4 (S/I time)	11549	11570		End of buildup. P.O.O.H. with gauges
	1700					Commenced setting rates for Isochronal test.
	1900	0				Shut well in on-buildup
27/2/90	1100	16 (S/I time)				Opened well on rate # 1

Flow Period

Run No.: 1 Duration of Run: 4 Hours.
Flow Well On: 18/64" Choke.

Orifice Size: 1.250 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		
27/2/90	1100	0	11666	11715						
	1130	0.5	11204	11349	53	3827	41.3	29		
	1200	1	11142	11308	55	3827	40.3	29	4.806	NIL
	1230	1.5	11115	11280	55	3827	39.8	30		
	1300	2	11087	11260	56	3861	39.6	31	3.204	NIL
	1330	2.5	11087	11246	55	3827	39.8	32		
	1400	3	11100	11253	56	3827	39.8	32	3.204	3.204
	1430	3.5	11094	11253	56	3827	39.8	33		
	1500	4	11094	11253	52	3827	39.8	33	3.204	1.602

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LL
6/3/91

env. 7198/2

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SANTOS LTD.
WELL TEST SUMMARY

Page 2.

2nd SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing	Casing	Temp.	
			kPa	kPa	kPa	
27/2/90	1500	0	11094	11253	52	Shut well in
	1530	0.5	11590	11639		
	1600	1	11639	11673		
	1630	1.5	11659	11687		
	1700	2	11666	11694		
	1730	2.5	11666	11694		
	1800	3	11673	11701		
	1830	3.5	11673	11701		
	1900	4	11673	11708		Opened well on rate #2

Flow Period

Run No.: 2 Duration of Run: 4 Hours.
Flow Well On: 23/64" Choke.

Orifice Size: 1.750 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		
27/2/90	1900	0	11673	11708						
	1930	0.5	10673	10942	54	3827	24.9	30		
	2000	1	10584	10860	56	3827	24.1	32	4.806	1.602
	2030	1.5	10570	10832	57	3827	24.1	33		
	2100	2	10566	10825	57	3827	24.1	34	8.010	3.204
	2130	2.5	10549	10798	57	3792	24.1	35		
	2200	3	10536	10811	57	3792	24.1	36	6.408	3.204
	2230	3.5	10556	10798	58	3792	24.1	36		
	2300	4	10542	10791	58	3792	24.1	36	6.408	NIL

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3RD SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing kPa	Casing kPa	Temp. °C	
27/2/90	2300	0	10542	10791	58	Shut well in
	2330	0.5	11556	11570		
	2400	1	11570	11604		
28/2/90	0030	1.5	11576	11639		
	0100	2	11597	11639		
	0130	2.5	11604	11639		
	0200	3	11611	11652		
	0230	3.5	11618	11659		
	0300	4	11625	11659		Opened well on rate #3

Flow Period

Run No.: 3 Duration of Run: 4 Hours.
Flow Well On: 32/64" Choke.

Orifice Size: 2.000 ins
Meter Run: 3.826 ins

Date	Time	Flow Time (Hours)	Wellhead Readings			Meter or Prover		Data	Condensate Production m ³ /d	Water Production m ³ /d
			Tubing	Casing	Temp.	Pf	Hw			
			kPa	kPa	°C	kPa	kPa	°C		
28/2/90	0300	0	11625	11659						
	0330	0.5	9163	9812	55	3827	34.8	37		
	0400	1	9067	9687	58	3827	34.6	41	6.408	6.408
	0430	1.5	9046	9653	59	3827	34.6	43		
	0500	2	9032	9646	59	3827	34.6	45	8.010	3.204
	0530	2.5	8984	9605	60	3827	34.6	45		
	0600	3	8964	9605	59	3827	34.6	46	6.408	4.806
	0630	3.5	8950	9570	61	3827	35.1	47		
	0700	4	8936	9556	61	3827	35.6	47	4.806	3.204

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SANTOS LTD.
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	
28/2/90	0700	0	8936	9556	61	Shut well in
	0730	0.5	11404	11453		
	0800	1	11466	11501		
	0830	1.5	11501	11528		
	0900	2	11528	11570		
	0930	2.5	11542	11584		
	1000	3	11549	11590		
	1030	3.5	11556	11604		
	1100	4	11570	11611		Opened well on rate # 4

Flow Period

Run No.: 4 Duration of Run: 4 Hours.
Flow Well On: 48/64" Choke.

Orifice Size: 2.500 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		
28/2/90	1100	0	11570	11611						
	1130	0.5	6771	8253	56	3310	28.4	46		
	1200	1	6640	8033	60	3206	27.9	51	9.612	4.806
	1230	1.5	6592	7964	61	3172	27.6	54		
	1300	2	6881	8288	61	3310	28.9	55	9.612	6.408
	1330	2.5	6667	8026	62	3206	27.9	55		
	1400	3	6709	8026	65	3172	27.9	57	6.408	6.408
	1430	3.5	6695	8060	68	3310	28.4	59		
	1500	4	6716	8053	68	3310	28.4	60	6.408	6.408

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SANTOS LTD.
WELL TEST SUMMARY

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5th SHUT IN PERIOD

Time of Observations			Observed Pressures			REMARKS
Date	Time	Shut In Time (Hours)	Tubing	Casing	Temp.	
			kPa	kPa	°C	
28/2/90	1500	0	6716	8053	68	Shut well in
	1530	0.5	11252	11294		
	1600	1	11363	11404		
	1630	1.5	11425	11473		
	1700	2	11453	11494		
	1730	2.5	11480	11515		
	1800	3	11494	11528		
	1830	3.5	11515	11549		
	1900	4	11542	11584		Initial B/up period completed/continue BHP overnight.
	2200	7	11577	11604		
1/3/90	0600	15	11673	11653		
	0805	17.08				P.O.O.H.
	0930	18.5	11715	11742		Depressure lubricator. End of Test.

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SANTOS LTD:
WELL TEST SUMMARY

Page 5. ✓

TRANSIENT FLOW PERIOD PRIOR TO BUILDUP SURVEY

Flow Period

Run No.: 5 Duration of Run: 56 Hours.
Flow Well On: 100% Choke.

Orifice Size: 2.000 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		
20/2/90	1400	0	7474	8253	77	6688	19.9	77		
	1600	2	7322	8095	80	6481	23.9	80	4.806	3.204
	1800	4	7295	8081	79	6378	25.4	79	3.204	4.806
	2000	6	7205	8026	77	6206	26.9	79	0.801	4.005
	2200	8	7157	7991	77	6137	28.1	79	8.010	NIL
	2400	10	7102	7943	74	6068	29.9	76	NIL	5.607
21/2/90	0200	12	7088	7936	76	6033	30.4	79	1.602	5.607
	0400	14	7095	7929	76	5999	31.4	79	3.204	3.204
	0600	16	7081	7915	77	5999	32.8	77	3.204	4.005
	0800	18	7040	7867	76	6033	33.3	79	0.801	4.806
	1000	20	7033	7874	76	6033	33.8	78	3.204	4.806
	1200	22	7060	7895	79	6068	27.4	79	2.403	3.204
	1400	24	7067	7874	80	6102	27.4	80	5.607	1.602
	1600	26	7047	7860	79	6137	27.1	79	NIL	6.408
	1800	28	7060	7888	79	6102	26.9	79	2.403	4.005
	2000	30	7067	7888	76	6068	26.9	78	3.204	4.005
	2200	32	7060	7874	73	6068	26.1	76	3.204	4.005
	2400	34	7053	7867	75	6033	26.1	78	2.403	4.005
22/2/90	0200	36	7047	7860	76	5999	26.4	78	3.204	3.204
	0400	38	7026	7860	76	5999	26.4	79	3.204	3.204
	0600	40	7033	7853	76	5964	26.6	78	4.806	6.408
	0800	42	6998	7847	76	5964	26.6	78	1.602	1.602
	1000	44	7005	7853	77	5999	26.9	79	1.602	3.204
	1200	46	7005	7888	79	6068	26.9	80	2.403	2.403
	1300	47	6998	7881	79	6102	27.1	80	4.806	1.602
	1400	48	7040	7888	80	6067	27.1	80	NIL	3.204
	1500	49	7020	7881	80	6137	27.1	80	3.204	3.204
	1600	50	7012	7902	80	6137	26.9	80	1.602	4.806
	1700	51	7019	7915	80	6137	26.9	80	3.204	4.806
	1800	52	6992	7867	79	6068	26.6	79	1.602	3.204
	1900	53	7054	7929	78	6102	26.4	78	NIL	6.408
	2000	54	7054	7943	76	6068	26.6	78	NIL	6.408
	2100	55	7033	7915	76	6068	26.6	78	3.204	3.204
	2200	56	7012	7888	76	6033	26.6	79	3.204	3.204

✓

✓

00000000

BUILD-UP PERIOD PRIOR TO MOD ISO RATES

Date	Time	Shut in Period	Tubing Pressure	Casing Pressure	Wellhead Temp.	REMARKS
		(Hours)	kPa	kPa	°C	
22/2/90	2200	0	7012	7888	76	Shut well in
	2215	0.25	10274	10267		
	2230	0.5	10212	10260		
	2245	0.75	10253	10287		
	2300	1	10301	10315		
	2315	1.25	10501	10522		
	2330	1.5	10556	10577		
	2345	1.75	10611	10632		
	2400	2	10653	10660		
23/2/90	0015	2.25	10673	10680		
	0030	2.5	10667	10701		
	0045	2.75	10680	10708		
	0100	3	10694	10708		
	0115	3.25	10701	10722		
	0130	3.5	10708	10736		
	0145	3.75	10715	10776		
	0200	4	10722	10763		
	0600	8	10887	10901		
	1000	12	10984	11011		
	1400	16	11053	11080		
	1800	20	11115	11135		
	2200	24	11163	11184		
24/2/90	0200	28	11177	11211		
	0600	32	11266	11287		
	1000	36	11315	11349		
	1400	40	11342	11363		
	1800	44	11363	11384		
	2200	48	11370	11397		
25/2/90	0200	52	11377	11411		
	0600	56	11425	11439		
	1000	60	11459	11473		
	1400	64	11480	11501		
	1800	68	11494	11508		
	2200	72	11515	11535		
26/2/90	0200	76	11535	11556		
	0600	80	11549	11570		
	0722	81.37	11556	11584		P.O.O.H.

SANTOS LTD.
WELL TEST SUMMARY
CALCULATION SHEET

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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	39.8	160	3827	555	31.750	1.250	33	91.4
2	24.1	97	3792	550	44.450	1.750	36	96.8
3	35.6	143	3827	555	50.800	2.000	47	116.6
4	28.4	114	3310	480	63.500	2.500	60	140.0
5	26.6	107	6033	875	50.800	2.000	79	174.2

Separator Gas Properties

Specific Gravity = 0.7986

TC = 406.9 °R

PC = 725.7 psia

CO2 CONTENT = 14.74 mole %

Meter Run = 3.826"

GAS RATES THROUGH SEPARATOR

Run No.	Q	
	E3 m ³ /d	mmscf/d
1	74.130	2.631
2	114.366	4.059
3	181.310	6.435
4	243.806	8.654
5	187.655	6.661

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

MOD ISO EXT FLOW & B/UP
↓ ↓

WELL NAME: Bookabourdie #10DATE: 20/2 - 1/3/90ELEMENT NO: 60322/59451DEPTH TESTED: 9500' KB/9494' K

DWT IN: _____

OUT: _____

LUB IN: _____

OUT: _____

Please note there was a clock stoppage on the bottom element in the Flow & Buildup section of the test and a clock failure of the Top element in the Modified Isochronal section.

SIMPLIFIED ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	Bottom- Hole Temp	Meas.	Δp^2_6 (x10 ⁶ psia ²)	Flow Rate E 3m ³ /d	H/Carbon Prod. m ³ /d	Water Prod. m ³ /d	REMARKS
Initial Shut In	16	2196.35	↑	✓	—	—	—	—	$q = C(\bar{p}_R^2 - p_{wf}^2)^n$ slope n = _____ $\bar{p}_R =$ _____ psia $C = \frac{q}{(\bar{p}_R^2 - p_{wf}^2)^n}$ = _____ AOF (MMscfd) = _____
Flow 1	4	2151.55		✓	0.195		3.605	1.202	
Shut In	4	2195.85		✓	—	—	—	—	
Flow 2	4	2119.15	4	✓	0.331		6.408	2.003	
Shut In	4	2184.85	10	✓	—	—	—	—	
Flow 3	4	2061.55	3	✓	0.524		6.408	4.406	
Shut In	4	2173.15		✓	—	—	—	—	
Flow 4	4	1990.05		✓	0.762		8.010	6.008	
Shut In	17.08	2199.95		✓	—	—	—	—	
Extended Flow	56	1831.25	305	✓	1.389		2.689	3.833	
Final Shut In	81.37	2177.75	305	✓	—	—	—	—	

PRE
MOD
ISO.

WP 2548G

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

LIT (ψ) ANALYSIS

	Duration (hours)	Sandface Pressure (psia)	ψ ($\times 10^6$ psia ² /cp)	$\Delta\psi$ ($\times 10^6$ psia ² /cp)	Flow Rate (q) (MMscfd)	$\Delta\psi/q$	q^2	$\Delta\psi - bq^2$
Initial Shut In	16	2196.35						
Flow 1	4	2151.55						
Shut In	4	2195.85						
Flow 2	4	2119.15						
Shut In	4	2184.85						
Flow 3	4	2061.55						
Shut In	4	2173.15						
Flow 4	4	1990.05						
Shut In	17.08	2199.95						
Total=								
Extended Flow	56	1831.25						
Final Shut In	81.37	2177.75						

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GAS WELL DELIVERABILITY TEST CALCULATIONSL.I.T. (Ψ) ANALYSIS

DISCARDED POINT _____

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

$$a, a_t = \frac{\sum \frac{\Delta \Psi}{q} \sum q^2 - \sum q \sum \Delta \Psi}{N \sum q^2 - \sum q \sum q} = \underline{\hspace{2cm}}$$

$$b = \frac{N \sum \Delta \Psi - \sum q \sum \frac{\Delta \Psi}{q}}{N \sum q^2 - \sum q \sum q} = \underline{\hspace{2cm}}$$

(EXTENDED FLOW)

$$\Delta \Psi = \underline{\hspace{2cm}} q = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}}$$

$$a = \frac{\Delta \Psi - bq^2}{q} = \underline{\hspace{2cm}}$$

A.O.F. = _____ MMSCFD

n = _____

Total Volume of Gas Produced During Test = _____ MMSCF

Condensate = _____ Bbls

Water = _____ Bbls

REMARKS

WP 2548G

RESULTSTRANSIENT FLOW: $\bar{\Psi}_R - \Psi_{wf} = a_t q + bq^2$ i.e. _____ - $\Psi_{wf} =$ _____ q + _____ q²STABILIZED FLOW: $\bar{\Psi}_R - \Psi_{wf} = aq + bq^2$ i.e. _____ - $\Psi_{wf} =$ _____ q + _____ q²

DELIVERABILITY:

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

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

Interpreted by:

Date:

000054

WELL: Bookabourdie # 10 Pf = kPa

ORIFICE SIZE: mm " T = °C

LINE SIZE: mm " Diff = kPa

Cumulative Production to end of Jan'90 = 59.5 m³ x 10⁶

Number of hours online in Jan'90 = 744

Production in Jan'90 = 6.466 m³ x 10⁶

.. Average flow rate in Jan'90 = (6.466 / 744) x 24 = 0.209 m³ x 10⁶/d

Number of days online in February before Shut In 2200 hrs 22 / 2 /90
= 21.67 days

.. Production up to 2200 hrs 22 / 2 /90 = 21.67 x 0.209 = 4.529 m³ x 10⁶

Total cumulative production = 4.529 + 59.5
= 64.029 m³ x 10⁶
= 2272.646 mmscf ✓

Flow rate just prior to Shut In = 0.188 m³ x 10⁶
= 6.661 mmscf/d ✓

SUB-SURFACE PRESSURE SURVEY

000056

CO.		RUN 03 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9494'
CASING	-	CASING PRESS	ON BOTTOM 1548 26/2
LINER	-	TUBING PRESS	OFF BOTTOM 0805 1/3
DATE	900226	ELEMENT RANGE	0 - 5118
ELEVATION		ZONE	ZERO POINT
MAX TEMP	310 F	PICK-UP	SHUT-IN
PERF	-	CAL SER NO.	60322
TUBING	-		MPP
UNITS	ENGLISH	PURPOSE	MOD ISO

SURVEY DATA

CO.		RUN 03 FIELD BOOKABOURDIE		WELL 10			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
15:48	2178.5	2178.5	.0	11:08	2167.6	2167.6	19.3
16:15	2179.5	2179.5	.4	11:22	2159.4	2159.4	19.6
16:43	2179.4	2179.4	.9	11:55	2151.6	2151.6	20.1
17:06	2175.8	2175.8	1.3	13:06	2143.3	2143.3	21.3
17:14	2175.8	2175.8	1.4	14:01	2141.1	2141.1	22.2
17:31	2145.3	2145.3	1.7	SI * 14:59	2136.9	2136.9	23.2
17:47	2132.5	2132.5	2.0	15:04	2147.3	2147.3	23.3
18:08	2098.0	2098.0	2.3	15:12	2157.0	2157.0	23.4
18:30	2060.7	2060.7	2.7	15:29	2161.6	2161.6	23.7
18:49	2040.8	2040.8	3.0	16:26	2169.6	2169.6	24.6
SI * 19:05	2033.1	2033.1	3.3	17:13	2173.8	2173.8	25.4
19:06	2055.0	2055.0	3.3	18:17	2175.2	2175.2	26.5
19:09	2074.6	2074.6	3.4	BOL * 19:00	2181.2	2181.2	27.2
19:13	2086.6	2086.6	3.4	19:06	2155.4	2155.4	27.3
19:17	2101.7	2101.7	3.5	19:15	2144.9	2144.9	27.4
19:22	2112.4	2112.4	3.6	19:26	2138.7	2138.7	27.6
19:30	2122.6	2122.6	3.7	20:06	2125.9	2125.9	28.3
19:43	2135.3	2135.3	3.9	21:01	2118.6	2118.6	29.2
20:00	2139.3	2139.3	4.2	22:20	2109.7	2109.7	30.5
20:16	2144.4	2144.4	4.5	SI * 22:57	2104.5	2104.5	31.2
20:50	2151.5	2151.5	5.0	23:01	2117.3	2117.3	31.2
21:34	2157.5	2157.5	5.8	23:05	2128.2	2128.2	31.3
22:20	2160.9	2160.9	6.5	23:13	2140.2	2140.2	31.4
23:14	2162.6	2162.6	7.4	23:31	2147.0	2147.0	31.7
1:07	2165.6	2165.6	9.3	23:48	2152.4	2152.4	32.0
3:07	2171.9	2171.9	11.3	0:42	2161.9	2161.9	32.9
4:49	2173.9	2173.9	13.0	1:36	2168.1	2168.1	33.8
6:53	2176.4	2176.4	15.1	BOL * 3:01	2170.2	2170.2	35.2
9:19	2178.4	2178.4	17.5	3:06	2137.3	2137.3	35.3
B.O.L. * 10:59	2181.7	2181.7	19.2	3:20	2112.2	2112.2	35.5

SURVEY DATA

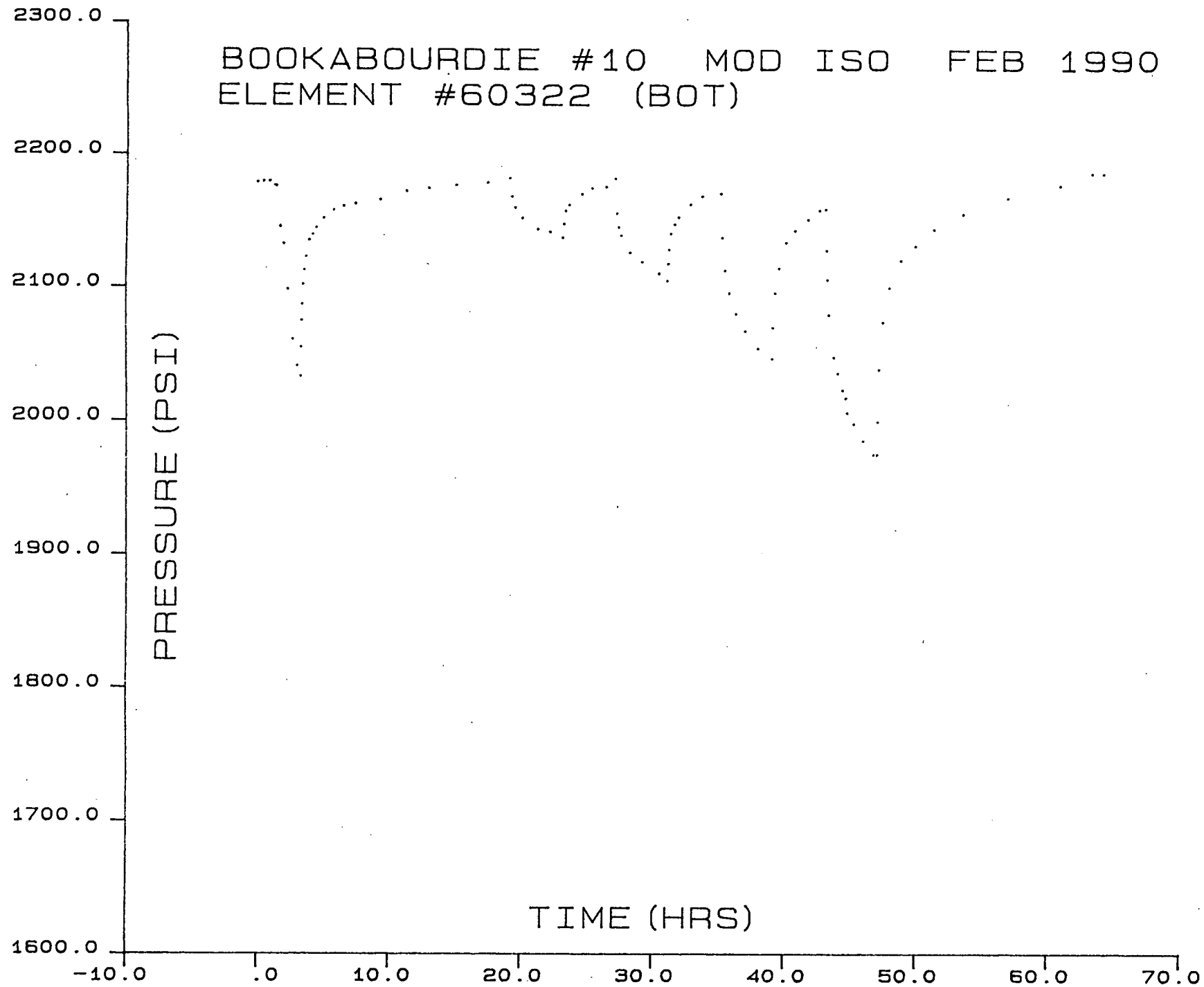
000057

CO.			RUN 03 FIELD BOOKABOURDIE				WELL 10		
	TIME	P-T	DP-DT	DTIME		TIME	P-T	DP-DT	DTIME
	3:40	2095.4	2095.4	35.9		12:31	2017.1	2017.1	44.7
	4:11	2080.2	2080.2	36.4		12:38	2006.2	2006.2	44.8
	4:53	2067.6	2067.6	37.1		13:07	1997.9	1997.9	45.3
	5:51	2054.4	2054.4	38.1		13:51	1985.3	1985.3	46.0
SI *	6:56	2046.9	2046.9	39.1		14:37	1975.5	1975.5	46.8
	6:58	2070.1	2070.1	39.2	SI *	14:54	1975.4	1975.4	47.1
	7:08	2095.3	2095.3	39.3		14:56	1999.7	1999.7	47.1
	7:26	2113.9	2113.9	39.6		15:02	2038.7	2038.7	47.2
	7:59	2133.7	2133.7	40.2		15:18	2074.1	2074.1	47.5
	8:39	2142.5	2142.5	40.9		15:48	2099.8	2099.8	48.0
	9:39	2150.8	2150.8	41.8		16:40	2120.1	2120.1	48.9
	10:31	2157.6	2157.6	42.7		17:49	2131.2	2131.2	50.0
BOL *	10:59	2158.5	2158.5	43.2		19:13	2143.4	2143.4	51.4
	11:02	2127.9	2127.9	43.2		21:25	2155.1	2155.1	53.6
	11:05	2105.4	2105.4	43.3		0:49	2167.1	2167.1	57.0
	11:12	2079.4	2079.4	43.4		4:49	2176.4	2176.4	61.0
	11:35	2047.9	2047.9	43.8		7:13	2185.5	2185.5	63.4
	11:54	2035.6	2035.6	44.1	POOH *	8:05	2185.3	2185.3	64.3
	12:17	2023.3	2023.3	44.5		0:00	.0	.0	.0

LUB IN DWT = 1684 PSI / OUT = 1699 PSI

LUB IN AMERADA = 1677 PSI / OUT = 1697 PSI

BOOKABOURDIE #10 MOD ISO FEB 1990
ELEMENT #60322 (BOT)



SUB-SURFACE PRESSURE SURVEY

000059

CO.		RUN 01 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9494'
CASING	-	CASING PRESS	ON BOTTOM 1133 22/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 26/2
DATE	900222	ELEMENT RANGE 0 - 5204	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2200 22/2
MAX TEMP	305 F	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 59451	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

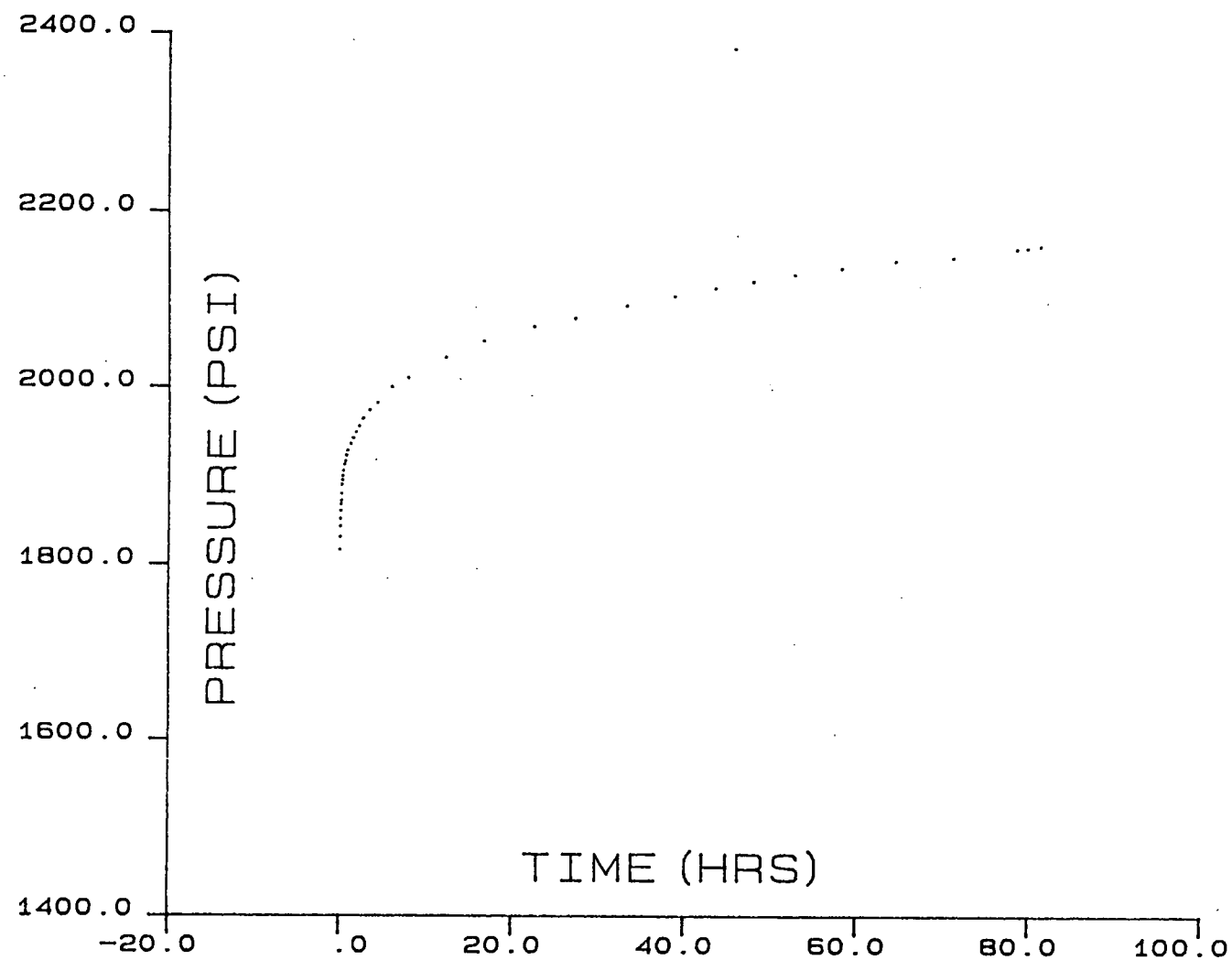
SURVEY DATA

CO.				RUN 01 FIELD BOOKABOURDIE				WELL 10			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
22:00	1816.6	1816.6	.0	0:38	1963.8	1963.8	2.6				
22:03	1831.4	1831.4	.1	1:25	1973.6	1973.6	3.4				
22:03	1843.6	1843.6	.1	2:19	1982.3	1982.3	4.3				
22:04	1852.2	1852.2	.1	4:02	2000.2	2000.2	6.0				
22:06	1860.5	1860.5	.1	5:56	2011.0	2011.0	7.9				
22:08	1867.8	1867.8	.1	10:17	2034.1	2034.1	12.3				
22:10	1871.9	1871.9	.2	14:41	2053.4	2053.4	16.7				
22:11	1879.2	1879.2	.2	20:31	2069.8	2069.8	22.5				
22:13	1889.8	1889.8	.2	1:18	2079.5	2079.5	27.3				
22:17	1894.7	1894.7	.3	7:18	2094.1	2094.1	33.3				
22:20	1899.7	1899.7	.3	12:51	2104.7	2104.7	38.8				
22:24	1905.3	1905.3	.4	17:35	2114.2	2114.2	43.6				
22:30	1912.6	1912.6	.5	22:00	2121.9	2121.9	48.0				
22:38	1916.4	1916.4	.6	2:48	2130.1	2130.1	52.8				
22:44	1922.9	1922.9	.7	8:17	2137.6	2137.6	58.3				
22:52	1928.3	1928.3	.9	14:31	2146.1	2146.1	64.5				
23:14	1935.4	1935.4	1.2	21:15	2150.2	2150.2	71.2				
23:32	1941.7	1941.7	1.5	4:40	2159.6	2159.6	78.7				
23:50	1948.1	1948.1	1.8	5:53	2161.1	2161.1	79.9				
0:14	1955.4	1955.4	2.2	7:22	2163.1	2163.1	81.4				

LUB IN DWT = 1016 PSI / OUT = 1676 PSI

LUB IN AMERADA = 994 PSI / OUT = 1669 PSI

BOOKABOURDIE #10 BUILD-UP FEB 1990
ELEMENT #59451 (TOP)



090000

SUB-SURFACE PRESSURE SURVEY

000061

CO.		RUN 02 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9500'
CASING	-	CASING PRESS	ON BOTTOM 1133 22/2
LINER	-	TUBING PRESS	OFF BOTTOM 0722 26/2
DATE	900222	ELEMENT RANGE 0 - 5118	ZERO POINT
ELEVATION		ZONE	SHUT-IN 2200 22/2
MAX TEMP	305 F	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 60322	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

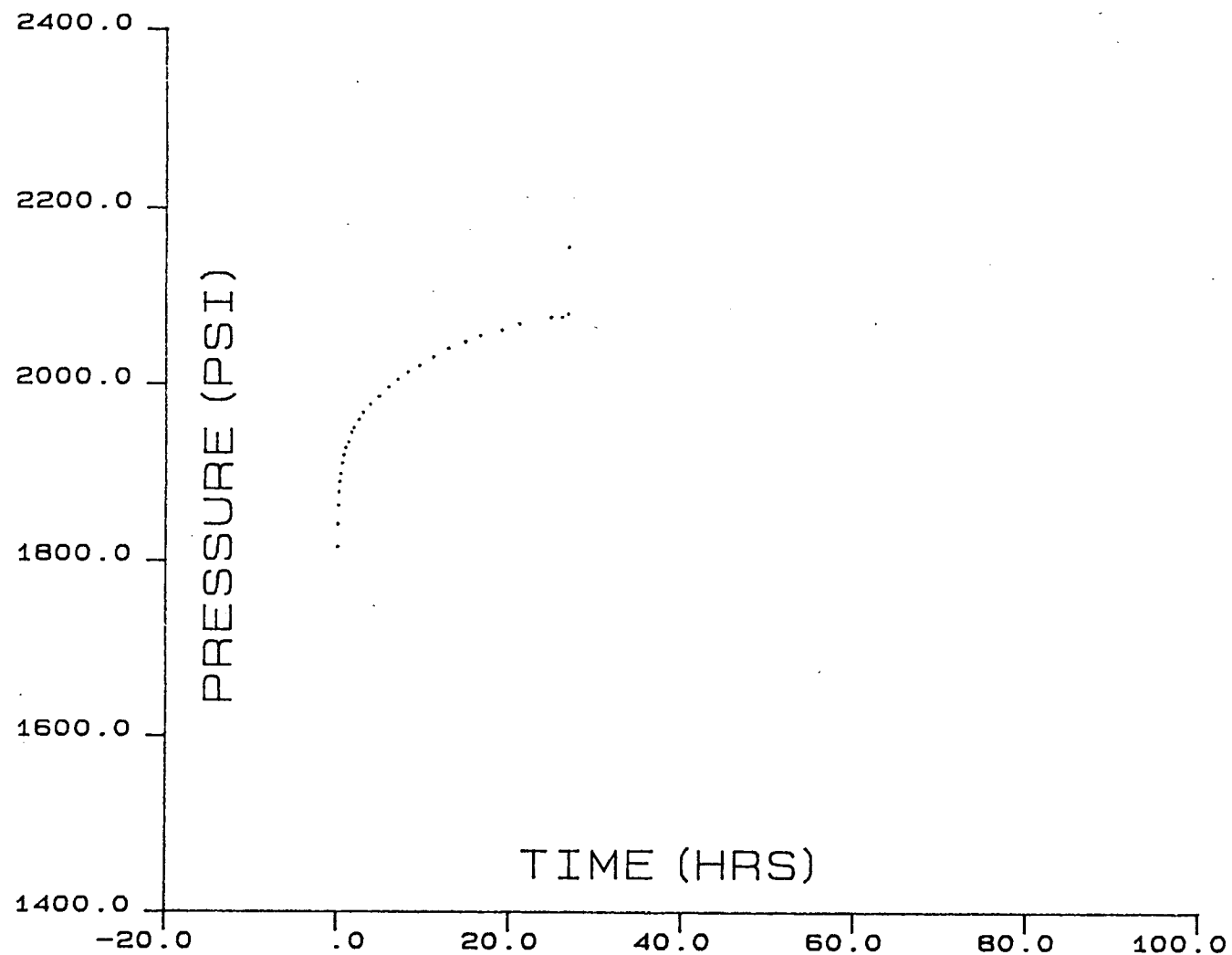
CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	22:00	1816.1	1816.1	.0	2:46	1985.4	1985.4	4.8
	22:02	1840.9	1840.9	.0	3:53	1996.7	1996.7	5.9
	22:06	1861.6	1861.6	.1	4:58	2005.1	2005.1	7.0
	22:09	1877.2	1877.2	.1	6:07	2014.0	2014.0	8.1
	22:14	1888.7	1888.7	.2	7:28	2021.4	2021.4	9.5
	22:19	1898.2	1898.2	.3	9:07	2031.4	2031.4	11.1
	22:30	1909.2	1909.2	.5	10:50	2041.3	2041.3	12.8
	22:40	1918.4	1918.4	.7	12:50	2049.1	2049.1	14.8
	22:54	1926.9	1926.9	.9	14:34	2056.3	2056.3	16.6
	23:14	1933.6	1933.6	1.2	17:02	2062.5	2062.5	19.0
	23:35	1944.2	1944.2	1.6	19:08	2069.5	2069.5	21.1
	23:51	1949.6	1949.6	1.8	22:44	2077.7	2077.7	24.7
	0:27	1959.7	1959.7	2.5	0:03	2078.0	2078.0	26.1
	0:57	1967.9	1967.9	3.0	0:45	2081.7	2081.7	26.7
	1:45	1976.8	1976.8	3.8	7:22 0:48	2157.5	2157.5	26.8 31.4

LUB IN DWT = 1016 PSI / OUT = 1676 PSI

LUB IN AMERADA = 999 PSI / OUT = 1675 PSI

PLEASE NOTE CLOCK STOPPED AFTER 27 HOURS.

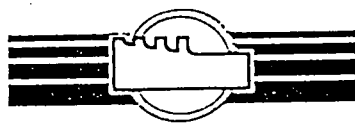
BOOKABOURDIE #10 BUILD-UP FEB 1990
ELEMENT #60322 (BOT)



000062

EXPERTEST PTY. LTD.

BHP/BHT GAUGE RUN DATA

CUSTOMER : *SANTOS*PERFORATIONS: *9544' - 9625' K.B.*PAGE: *1* OF *2*WELL NAME: *BOOKABOURDIE #10*FORMATION : *TIRRAWARRA*DATE: *FEB. 22 1990*TEST TYPE : *MODIFIED ISOCHRONAL*OPR : *P. POCIE*

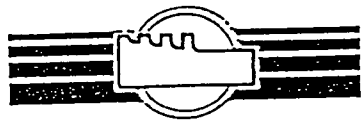
GAUGE DATA	UPPER PRESSURE GAUGE	LOWER PRESSURE GAUGE	TEMPERATURE GAUGE	RUN DATA	TIME (HOURS)	TUBING PRESSURE (KPa)	ANNULUS PRESSURE (KPa)
ELEMENT SERIAL NO.	<i>59451</i>	<i>60322</i>	<i>N/A</i>	DATE : <i>22.2.90</i>		<i>1016</i>	
ELEMENT RANGE <i>PSI</i>	<i>5000</i>	<i>5000</i>		PRESSURE LUBRICATOR :	<i>1007</i>	<i>7005</i>	<i>7853</i>
RECORDING SECTION SERIAL NO.	<i>13028</i>	<i>12952</i>		RUN IN HOLE :	<i>1107</i>	<i>7005</i>	<i>7833</i>
DATE OF CALIBRATION:				ON DEPTH AT : <i>9500</i> FT/	<i>1133</i>	<i>7033</i>	<i>7895</i>
						<i>1020</i>	
CLOCK SERIAL NO.	<i>24578</i>	<i>F 7761</i>		DATE : <i>26.2.90</i>			
CLOCK RANGE	<i>120 Hr.</i>	<i>120 Hr.</i>		PULL OUT OF HOLE :	<i>0722</i>	<i>11556</i>	<i>11584</i>
LEAD SCREW TYPE	<i>15 T.L.S.</i>	<i>15 T.L.S.</i>		AT SURFACE :	<i>0810</i>	<i>11556</i>	<i>11584</i>
				DEPRESSURE LUBRICATOR :	<i>0910</i>	<i>11556</i>	<i>11584</i>
ENGAGE STYLUS DATE <i>22.2.90</i> TIME	<i>0958</i>	<i>0958</i>		MAXIMUM BHT AT <i>9500</i> FT/ = <i>305</i> °F			<i>1676</i>
DISENGAGE STYLUS DATE TIME	<i>0923</i>	<i>0923</i>		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

IN / OUT

DATE	TIME	REMARKS	① 994/1669	② 999/1675
<i>22.2.90</i>		<i>No TEMPERATURE ELEMENT RUN. / MAX. THERMOMETER IN ITS PLACE</i>		<i>clock stop</i>
	<i>1030</i>	<i>A BLEED DOWN ON THE ANNULUS TO CHECK & COMMUNICATION TO TUBING WAS CONDUCTED WHILE PRESSURE ELEMENTS IN LABORATOR.</i>		
		<i>THIS 20 PSI DRAW DOWN & BUILD UP MAY BE NOTICABLE ON INITIAL LUID. STOP.</i>		
<i>26.2.90</i>	<i>0930</i>	<i>ONE CHART ONLY GOOD AS BOTTOM CHART FAILED TO TRAVEL ITS FULL DISTANCE DURING BUILD UP SURVEY</i>		
<i>22/2/90</i>	<i>2200</i>	<i>Shut Well In</i>		

000063

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD.

PERFORATIONS: 9544' - 9625'

PAGE: 2 OF 2

WELL NAME: BOCKABOURDIE #10

FORMATION : TIRRAWARRA

DATE: 26.2.90

TEST TYPE : MODIFIED ISOCHRONAL

OPR : P. POOLE

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

59451

60322

N/A

DATE

26.2.90

1684

ELEMENT RANGE

psi

5000

5000

PRESSURE LUBRICATOR

1910

11611

11604

RECORDING SECTION SERIAL NO.

13028

12952

RUN IN HOLE

1510

11611

11604

DATE OF CALIBRATION:

ON DEPTH AT

9500

FT/M

1548

11611

11604

CLOCK SERIAL NO.

24578

24724

DATE

1.3.90

CLOCK RANGE

120 Hr.

120 Hr.

PULL OUT OF HOLE

0805

11715

11743

LEAD SCREW TYPE

15 T.L.S.

15 T.L.S.

AT SURFACE

0840

11715

11743

DEPRESSURE LUBRICATOR

0930

11715

11743

ENGAGE STYLUS DATE

26.2.90

TIME

1356

1356

MAXIMUM BHT AT

9500 FT'

= 310 °F'

1699

DISENGAGE STYLUS DATE

TIME

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

REMARKS

IN / OUT

DATE

TIME

1.3.90

0945

ONLY ONE CHART GOOD AS CHART CARRIER FAILED TO TRAVEL.

① failed to run

② 1677/1697

28/2

1900

Shut In.

000064

**EXPERTEST**

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AA87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Monday, 26th February 1990.

CLIENT	LOCATION	FORMATION
Santos Ltd.	BOOKABOURDIE#10	TIRRAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	59451	5000	16/ 2/90
Bottom	60322	5000	16/ 2/90

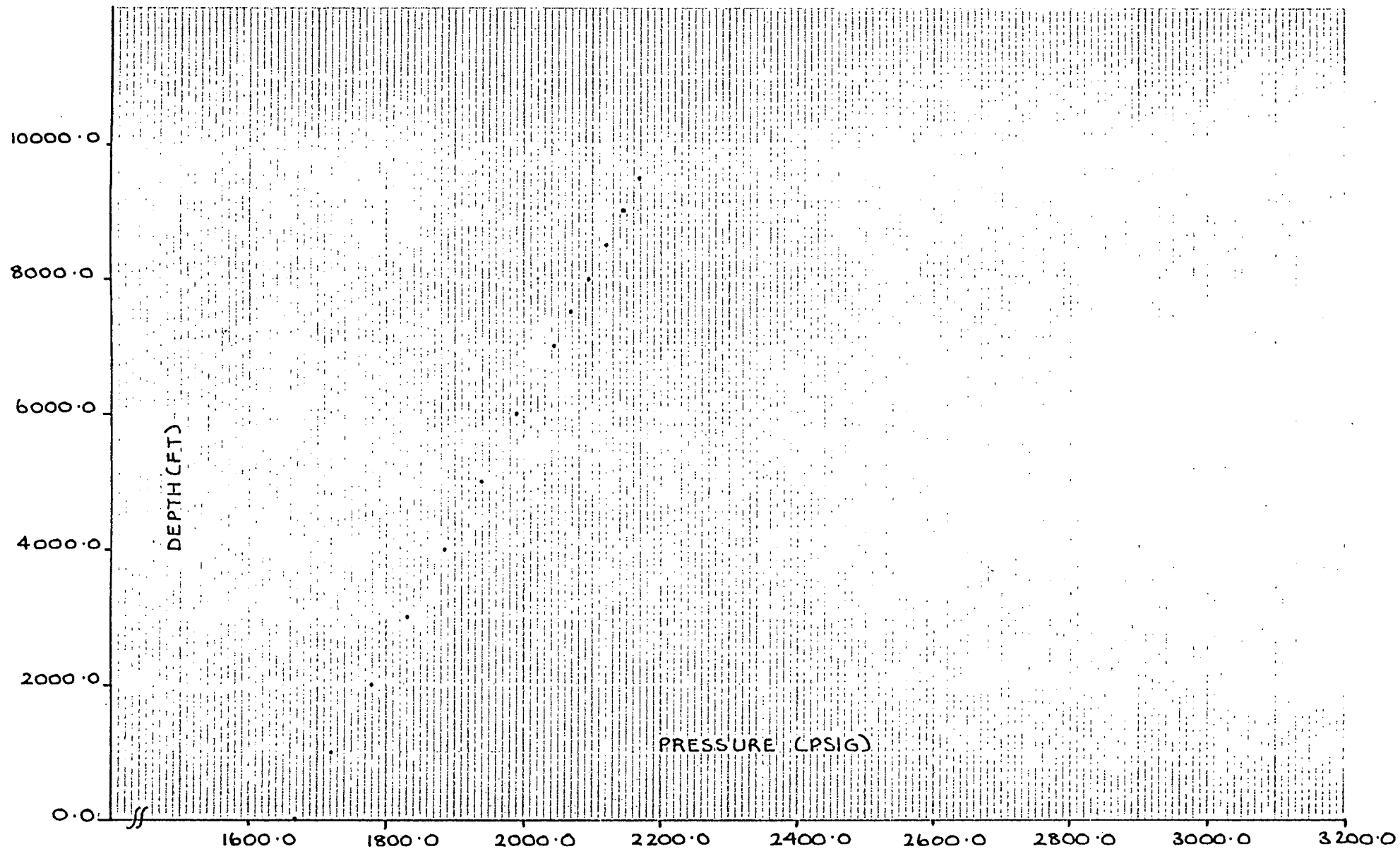
WELL DATA	
PARAMETER	VALUE
DWT In	1677 psig
DWT Out	1681 psig
Max DHT	305 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6430	1663.6	-----	0.6550	1667.2	-----
1000	0.6650	1720.9	0.057	0.6760	1720.9	0.054
2000	0.6860	1775.5	0.055	0.6980	1777.1	0.056
3000	0.7070	1830.2	0.055	0.7190	1830.8	0.054
4000	0.7270	1882.2	0.052	0.7400	1884.4	0.054
5000	0.7480	1936.9	0.055	0.7610	1938.1	0.054
6000	0.7690	1991.5	0.055	0.7810	1989.2	0.051
7000	0.7890	2043.6	0.052	0.8020	2042.9	0.054
7500	0.7990	2069.6	0.052	0.8120	2068.5	0.051
8000	0.8100	2098.3	0.057	0.8220	2094.1	0.051
8500	0.8190	2121.7	0.047	0.8320	2119.6	0.051
9000	0.8280	2145.1	0.047	0.8420	2145.2	0.051
9500	0.8380	2171.1	0.052	0.8510	2168.2	0.046
LUB.	0.6450	1668.8	-----	0.6560	1669.7	-----

GENERAL REMARKS

No Temperature Element Run

BOOKABOURDIE # 10 — STATIC PRESSURE GRADIENT — 26/2/90
ELEMENT # 60322/5000 (BOT)



000067

BOOKABOURDIE # 10
BOTTOMHOLE
PRESSURE
SURVEY

by David Mifsud
(student engineer)

February, 1991

SR 27/4/7198/0

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TABLES

GRAPHS & RESULTS

FIGURES

APPENDICES

TABLES

Table 1 - Bookabourdie Field Tirrawarra Sandstone Gas Composition.

Table 2 - Summary of results.

GRAPHS

Graph 1 - Log-Log.

Graph 2 - Horner.

Graph 3 - Dual Permeability.

Graph 4 - Dual Porosity Reservoir.

Graph 5 - Homogeneous Reservoir.

FIGURES

Figure 1 - Map of Field.

Figure 2 - Sonic Log.

APPENDICES

Appendix 1 - Reservoir constants.

BOOKABOURDIE # 10 BOTTOMHOLE PRESSURE SURVEY**1. SUMMARY**

A bottomhole pressure survey was performed on the Tirrawarra Sandstone in the Bookabourdie #10 well from the 20/4/89 to the 24/4/89. Test results for the pressure build-up test were analysed.

The test concluded that:

1. There was significant wellbore storage effects.
2. There was substantial skin damage at the wellbore.
3. The reservoir exhibits heterogeneous behaviour. This is due to the diminishing reservoir porosity and permeability with depth as indicated by the geology.

2. INTRODUCTION

Bookabourdie # 10 was drilled on 15/11/88 as a Block gas appraisal well in the Merrimelia-Innamincka Block. The well was found to be productive in the Tirrawarra Sandstone formation.

The well was cased and suspended as a Tirrawarra Gas Well. A drawdown and build-up test was performed in April 1989. This report details the analysis and the interpretation of the build-up test. No drawdown analysis was performed as inspection of the data showed that the well was still cleaning up during drawdown.

3. WELL TEST INTERPRETATION**3.1. RESERVOIR PARAMETERS****PAY THICKNESS**

The pay thickness obtained from the log analysis was 75ft.

WATER SATURATION

The average water saturation was 13%. This information came from the log analysis.

POROSITY

An average porosity of 10% was obtained from the log analysis.

GAS COMPOSITION

The composition of the Bookabourdie Field, Tirrawarra Sandstone gas is presented on Table 1.

3.2. BUILD-UP

The data used to interpret the build-up test proved to be useful in establishing a general understanding of the formation around the Bookabourdie #10 well. However, some of the results were difficult to interpret. The analysis of the results are discussed below:

3.2.1.

LOG-LOG PLOT ANALYSIS

(refer to graph 1)

The log-log plot is used to determine the flow regimes encountered during the test.

The first section of the curve is indicative of well-bore storage. Ideally this portion should follow the unit slope line. However, in this case, this part of the graph follows a steeper gradient for reasons not known. This phenomenon has not been investigated and it is assumed that it will not affect the test interpretation.

The derivative curve can be categorised into four sections of interest.

- The initial derivative values follow the unit slope line indicating well-bore storage effects.
- The hump indicates that there was skin damage at the well-bore.
- The slight levelling off of the curve after the hump displays an infinite acting radial flow behaviour at the well-bore.

- The dipping effect after this horizontal portion may be interpreted in a number of ways. In this particular instance, it likely indicates heterogeneous behaviour within the reservoir. This will be discussed later in the report.

The results from the type match curve are as follows,

Flow capacity (kh) = 115.28 md.ft

Permeability (k) = 1.54 md

skin (s) = 5.43

3.2.2.

HORNER PLOT ANALYSIS

(refer to graph 2)

Horner analysis can only be applied to the infinite acting radial flow regime. This regime was identified on the Log-Log plot. The numbers one and two identify this period on the Horner plot. A straight line was then made to pass through these points in order to obtain these results,

Flow capacity (kh) = 102.43 md.ft

Permeability (k) = 1.37 md

Skin damage (s) = 4.65

There is good agreement between these results and that obtained above from the type match curve. This indicates that the type match curve is reasonably accurate together with the results.

3.2.3.

DUAL PERMEABILITY ANALYSIS

(refer to graph 3)

An attempt was made to analyse the data using dual permeability analysis. However, there was insufficient data to identify the second radial flow regime on the graph making an interpretation impossible.

3.2.4.

DUAL POROSITY RESERVOIR ANALYSIS

(refer to graph 4)

The data was analysed using a dual porosity type curve. A good type match curve was obtained. Since the type curve does not account for well-bore storage and skin effects, only the later data can be matched.

The data was insufficient to conclude dual porosity behaviour.

The results obtained from the type match curve are similar to those obtained from the Horner and Log-Log analyses. These results are as follows,

Flow capacity (kh) = 73.35 md.ft

Permeability (k) = 0.9780 md

4. GEOLOGICAL VIEW OF THE RESERVOIR

The Tirrawarra reservoir has been identified as a clean sandstone having diminishing porosity and permeability with increasing depth. There is no evidence of naturally occurring fractures in this reservoir.

The sonic log verified the fact that porosity varied from 13% down to 7%. Core analysis from Bookabourdie # 1, 2 & 4 wells indicates that the permeability in the high porosity sand is of the order of 80-100 md, while in the low porosity sands the permeability varies from 1-10 md.

Faults are situated 1640 ft North West, 2300 ft South West, 3937 ft North East and 4593 ft South East from the well as shown on the map of the field (figure 1). However, the radius of investigation was calculated to be 1480 ft. Therefore, these faults have no effect on the test results.

5. DISCUSSION

The pressure response is most likely due to the following mechanism. Once the well-bore is opened the gas flows from the higher permeability sands. Once the gas in the sands have been sufficiently depleted, gas from the lower permeability sands flow into the well-bore and into higher permeability sands while maintaining a constant mass flowrate at the well-bore. This provides a pressure support which is noticable on the derivative curve. The rate of change of depletion decreases with this additional pressure support. Thus, a dipping of the derivative curve is noticed.

A conclusion can be drawn that the reservoir exhibits heterogeneous behaviour. This may be due to fractures or to a reservoir with layers of differing permeabilities! Geological analysis supports the latter interpretation.

6. CONCLUSIONS

1. The reservoir exhibits heterogeneous behaviour. The geological interpretation suggests that this is due to layering and not fractures.
2. The situation at the well-bore can be best described as being radial flow in nature.
3. The well exhibits significant skin damage.

7. NOMENCLATURE

h = height of pay, feet
k = permeability, md
L = distance to nearest boundary, feet
p = pressure, psia
s = skin
Sw = water saturation, frac
t = time
u = gas viscosity, cp

8. REFERENCES

Lee, J, 1982. Well Testing, Society of Petroleum Engineers of AIME, Dallas(1982).

TABLE 1: TIRRAWARRA GAS COMPOSITION

Component	% Composition
Nitrogen	1.34
Carbon Dioxide	11.08
Methane	68.36
Ethane	11.71
Propane	3.54
i_Butane	0.62
n_Butane	0.91
i_Pentane	0.35
n_Pentane	0.28
Hexane	0.36
Heptane	0.41
Octane	1.04
TOTAL	100

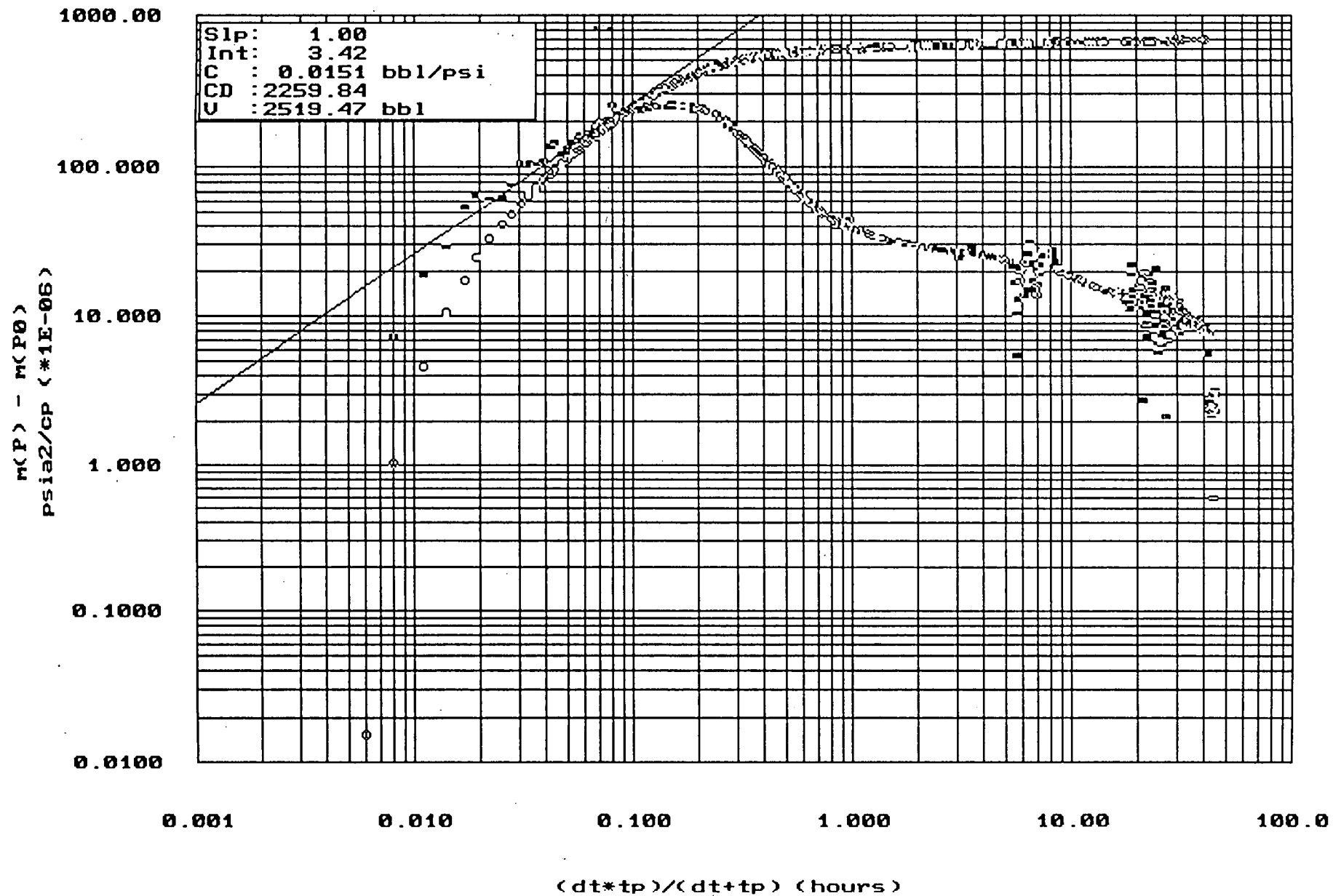
source : Bookabourdie #10 Isochronal Recomb. Aug 1988 RE
028/89,
Composition updated at April 1990.

TABLE 2: SUMMARY OF RESULTS

ANALYSIS	RESULT
LOG-LOG	flow capacity (kh) = 115.28 md.ft permeability (k) = 1.54 md. skin damage (s) = 5.43
HORNER	flow capacity (kh) = 102.43 md.ft permeability (k) = 1.37 md. skin damage (s) = 4.65
DUAL PERMEABILITY	no result
DUAL POROSITY	flow capacity (kh) = 73.35 md.ft permeability (k) = 0.9780 md.

10 - LOG-LOG

$T_p = 500.000$



GRAPH 1.

000077

E.P.S. Ltd.

PANSYSTEM ANALYSIS PROGRAM

000078

File: BOOKA#10.GAS,BOOKA#10.PRO

Test type: CRB

Date: 31/01/91 Time: 16:37

RESULTS FROM LOG-LOG ANALYSIS

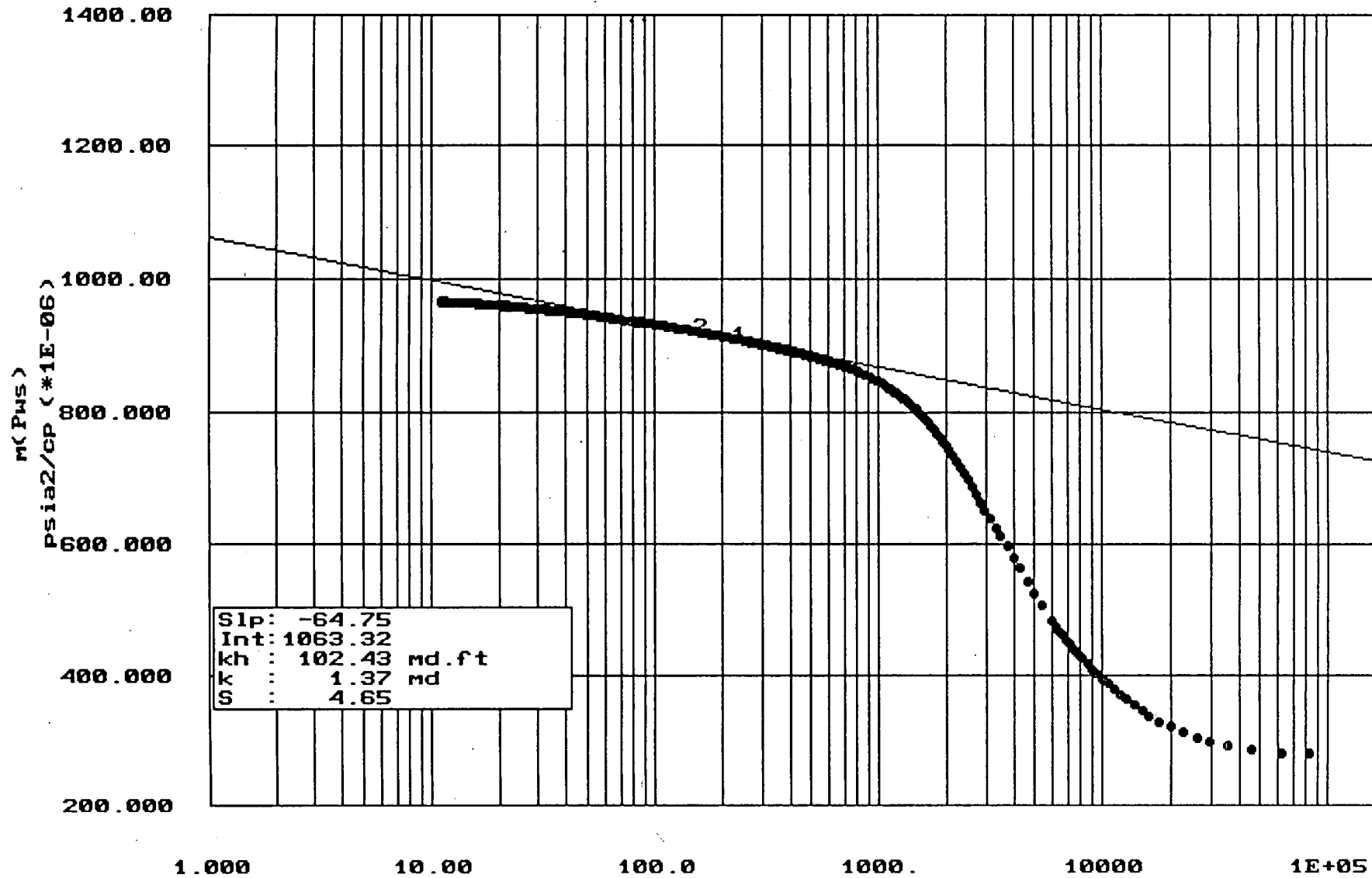
Line :

Intercept.....:	2628.174
Slope.....:	1.000
Storage coefficient (initial).....:	0.0151 bbl/psi
Dim. wellbore storage constant (Cd).....:	2259.844
Apparent wellbore volume.....:	2519.468 bbl

10 - HORNER

Tp =500.000

Time from start of test (hours)



GRAPH 2.

000079

File: BOOKA#10.GAS,BOOKA#10.PRO

Test type: CRB

Date: 31/01/91 Time: 10:54

RESULTS FROM HORNER ANALYSIS
using Pseudo-pressure and Real time

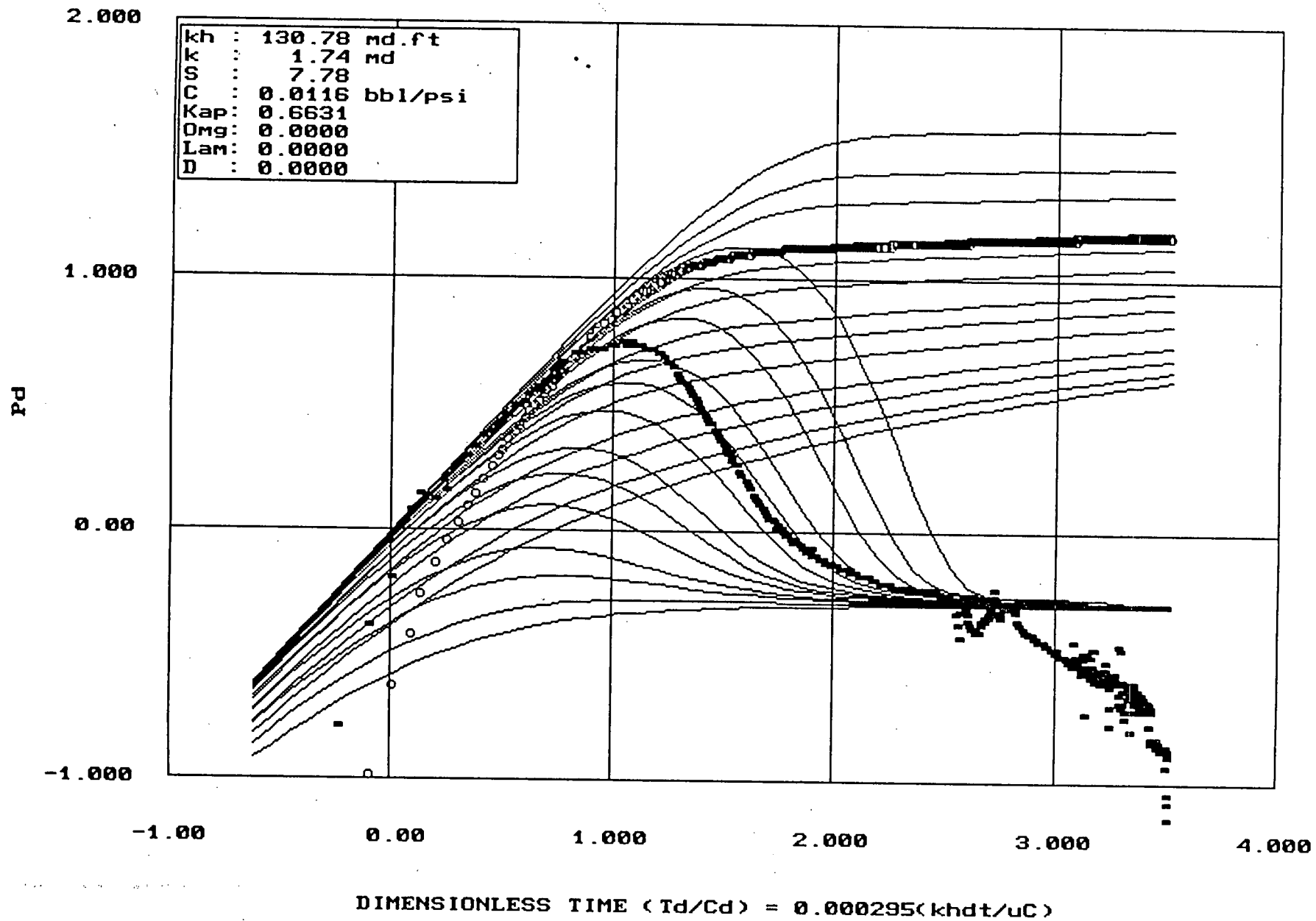
Line :

Intercept.....:	1063.317	
Slope.....:	-64.747	
Start of line.....:(	2.403 ,	907.627)
End of line.....:(	2.213 ,	919.965)
Coefficient of determination.....:	0.9998	
Number of points.....:	15	

m(p) at dt = 1 hr.....:	888.543	psia2/cp (*1E-06)
Extrapolated m(p).....:	1063.317	psia2/cp (*1E-06)
Permeability-thickness (kh).....:	102.430	md.ft
Permeability (k).....:	1.366	md
Total skin factor (s).....:	4.648	
dP skin (constant rate).....:	902.786	psi
Radius of investigation.....:	1397.217	ft
Extrapolated pressure.....:	4464.861	psia
Pressure at dt = 1 hour.....:	3975.055	psia
Flow efficiency.....:	0.6659	

10 - DUAL PERMEABILITY RESERVOIR

Data plotted using Real Elapsed Time and $m(p)$



0000081

File: BOOKA#10.GAS,BOOKA#10.PRO

Test type: CRB

Date: 31/01/91 Time: 12:27

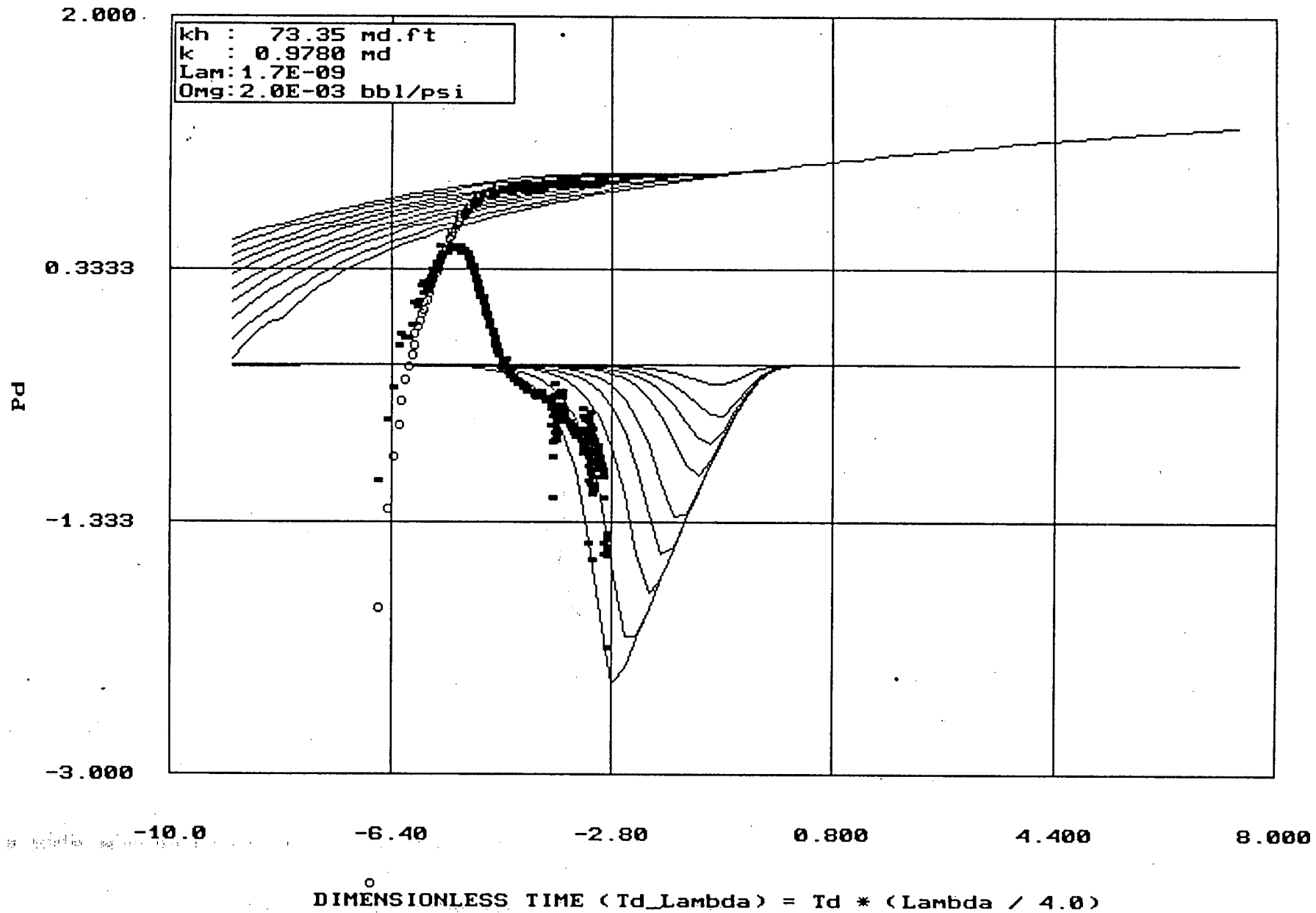
RESULTS FROM DUAL PERMEABILITY TYPE-CURVE MATCH

Data plotted using Real Elapsed Time and m(p)

Dim. pressure match point Pd(match).....	0.2271	
Dim. time match point Td/Cd(match).....	72.728	
Matched curve Cde2S(match).....	1.000E+10	
Pressure match point dP(match).....	10.000	
Time match point dt(match).....	1.000	
Permeability-thickness (kh).....	130.782	md.ft
Permeability (k).....	1.744	md
Apparent wellbore volume.....	1940.582	bb1
Dim. wellbore storage constant (Cd).....	1740.610	
Storage coefficient (initial).....	0.0116	bb1/psi
Radius of investigation.....	1578.787	ft
dP skin (constant rate).....	1154.928	psi
Skin factor (S).....	7.782	
Permeability-thickness ratio (Kappa).....	0.6631	

10 - DUAL POROSITY RESERVOIR (DERIVATIVE MATCH-PSS)

Data plotted using Real Elapsed Time and $m(p)$



GRAPH 4.

000083

File: BOOKA#10.GAS,BOOKA#10.PRO

Test type: CRB

Date: 31/01/91 Time: 13:12

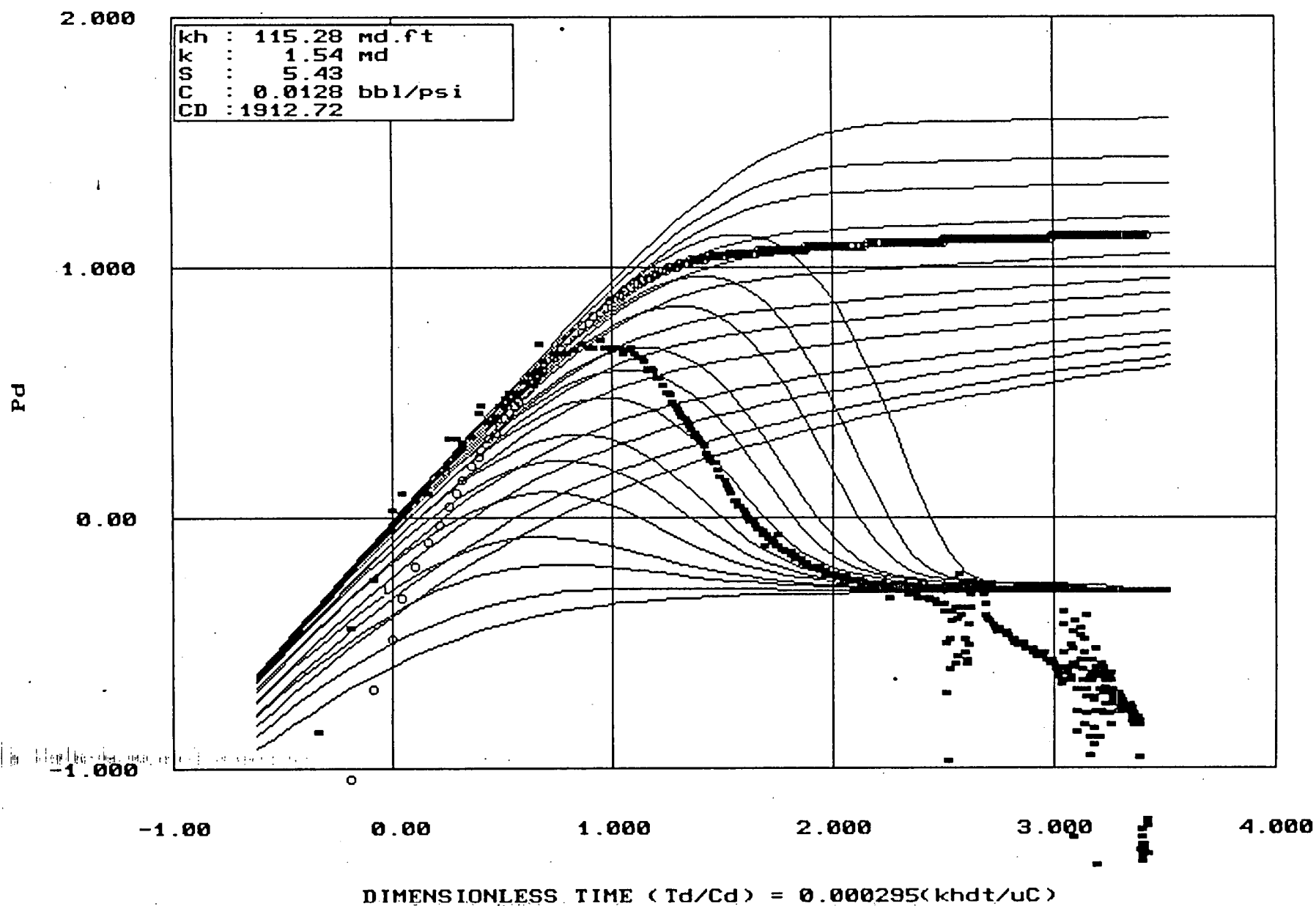
RESULTS FROM A DUAL POROSITY RESERVOIR TYPE-CURVE MATCH
(DERIVATIVE MATCH METHOD - PSS)

Data plotted using Real Elapsed Time and m(p)

Dim. pressure match point Pd(match).....:	0.0274
Dim. time match point TdLambda(match)....:	1.205E-11
Storativity Ratio (w).....:	2.000E-03
Pressure match point dP(match).....:	2.154
Time match point dt(match).....:	3.981E-07
Permeability-thickness (kh).....:	73.351 md.ft
Permeability (k).....:	0.9780 md
Interporosity flow coefficient (Lambda).....:	1.704E-09

10 - HOMOGENEOUS RESERVOIR

Data plotted using Real Elapsed Time and $m(p)$



GRAPH 5.

000085

File: BOOKA#10.GAS,BOOKA#10.PRO

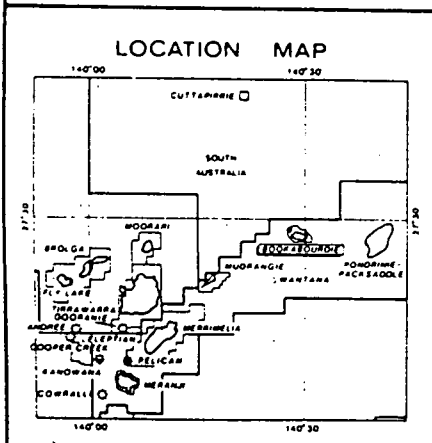
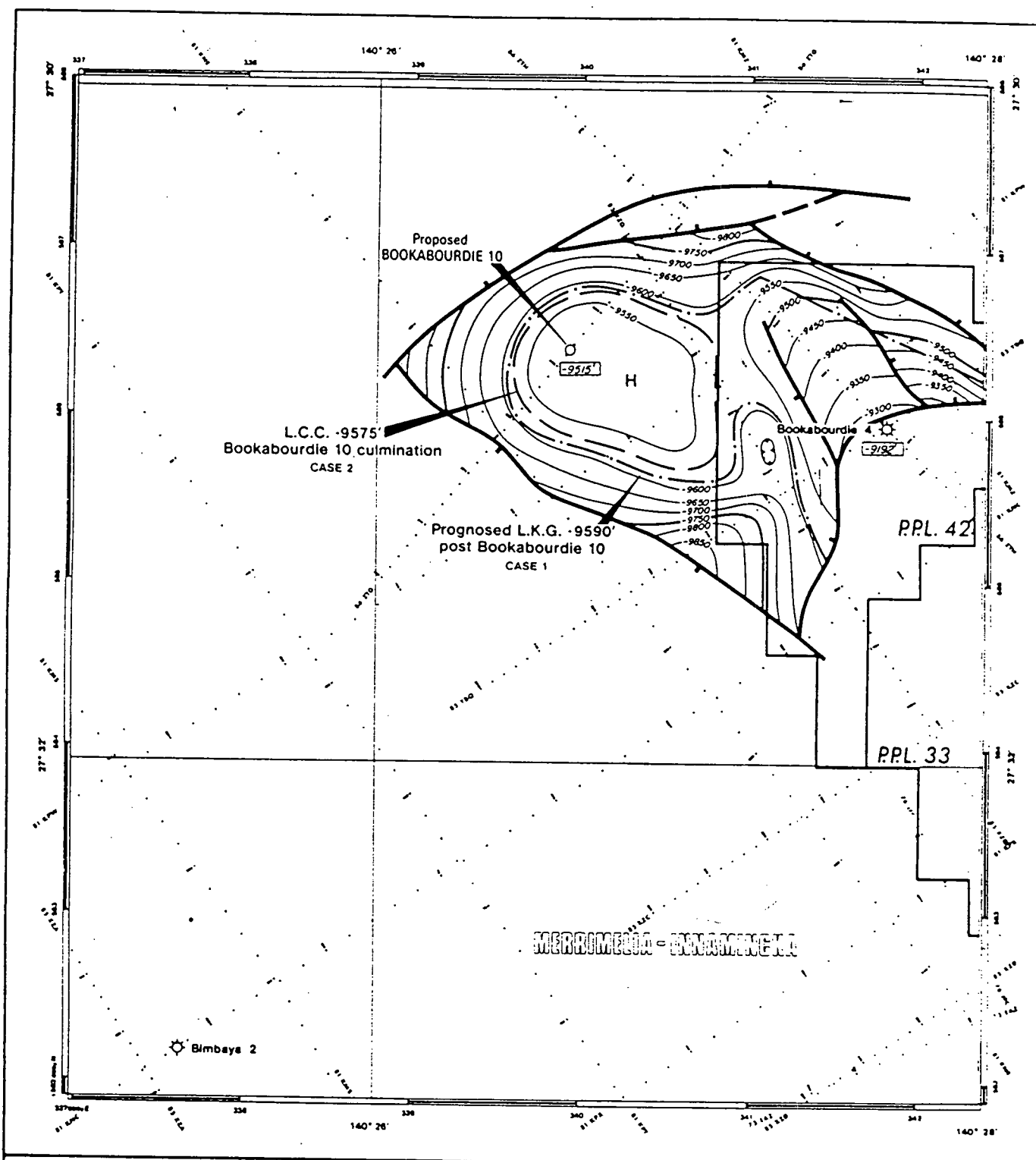
Test type: CRB

Date: 31/01/91 Time: 10:47

RESULTS FROM A HOMOGENEOUS RESERVOIR TYPE-CURVE MATCH
(WELLBORE STORAGE ANALYSIS)

Data plotted using Real Elapsed Time and m(p)

Dim. pressure match point Pd(match).....:	0.2002	
Dim. time match point Td/Cd(match).....:	58.339	
Matched curve Cde2S(match).....:	1.000E+08	
Pressure match point dP(match).....:	10.000	
Time match point dt(match).....:	1.000	
Permeability-thickness (kh).....:	115.280	md.ft
Permeability (k).....:	1.537	md
Apparent wellbore volume.....:	2132.465	bbl
Dim. wellbore storage constant (Cd).....:	1912.720	
Storage coefficient (initial).....:	0.0128	bbl/psi
Radius of investigation.....:	1482.266	ft
dP skin (constant rate).....:	934.339	psi
Skin factor (S).....:	5.432	



LEGEND

- Dry well
- Well with shows of gas
- Well with shows of oil
- Well with shows of oil and gas
- Gas well
- Gas well with shows of oil
- Oil well
- Oil and gas well

SANTOS LIMITED COOPER BASIN UNIT BOOKABOURDIE FIELD DEPTH STRUCTURE CONTOUR MAP TOP OF POROSITY TOP TIRRAWARRA Sst. (PROGNOSSED POST BOOKABOURDIE 10) SCALE	
Original Scale 1:10000	Author L. Burgess
Contour interval 50 feet	Drafted H. Rogers
Datum M.S.L.	Checked J. J. J.
Date October 1988	Project
Revised Date	File No. 80048 050

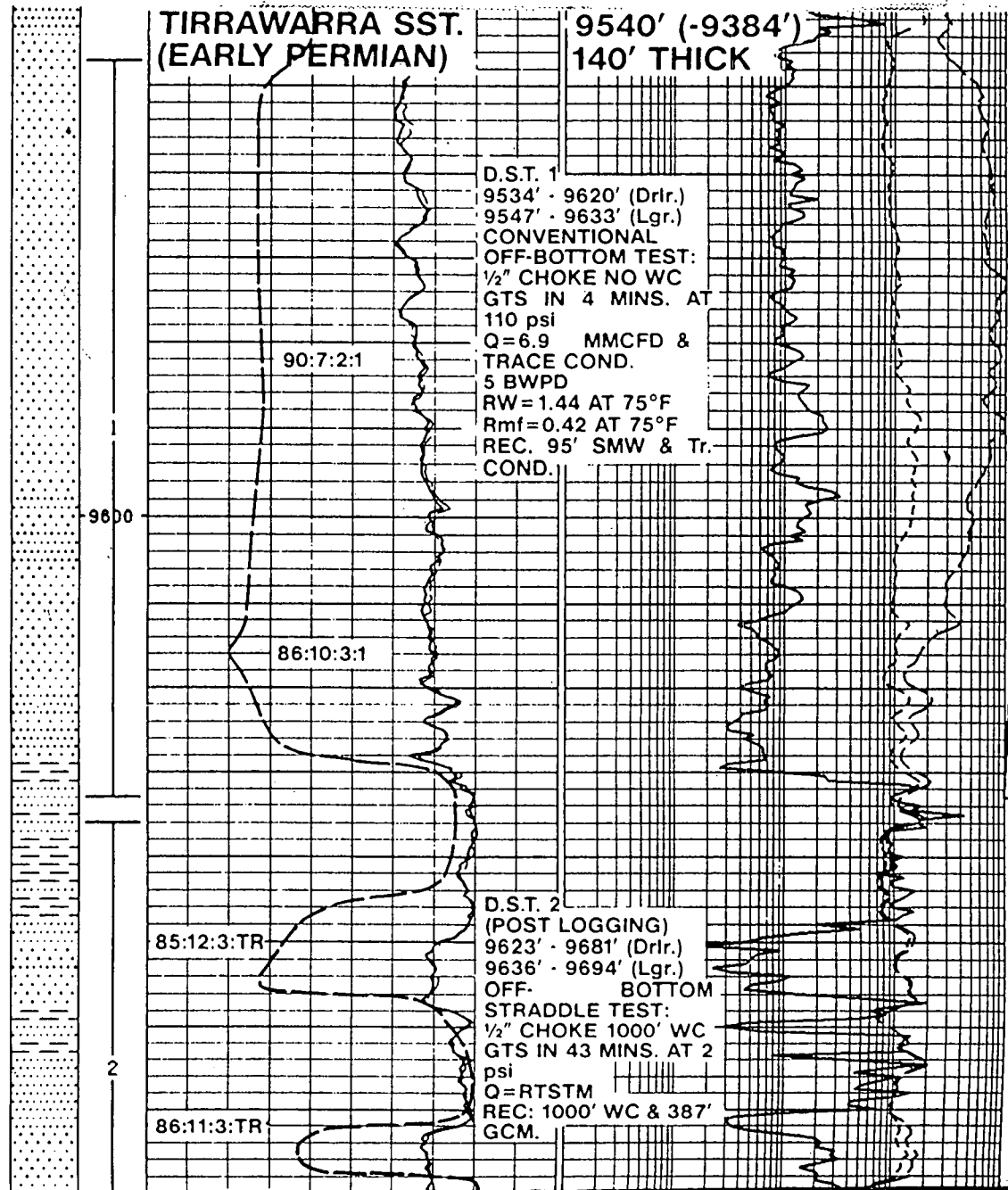
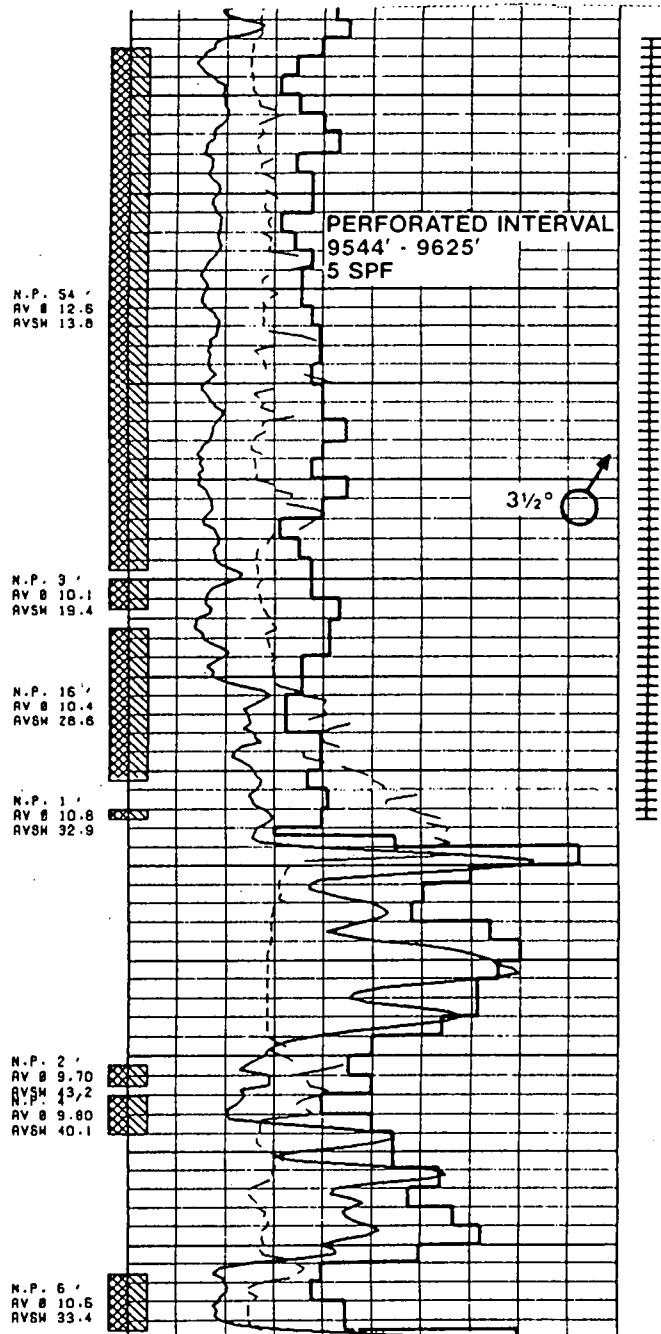


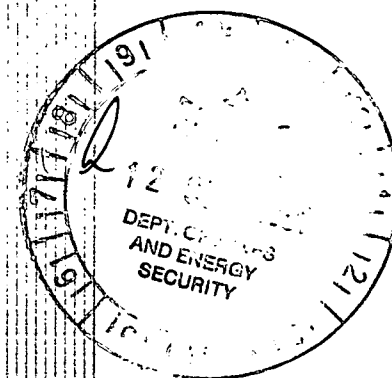
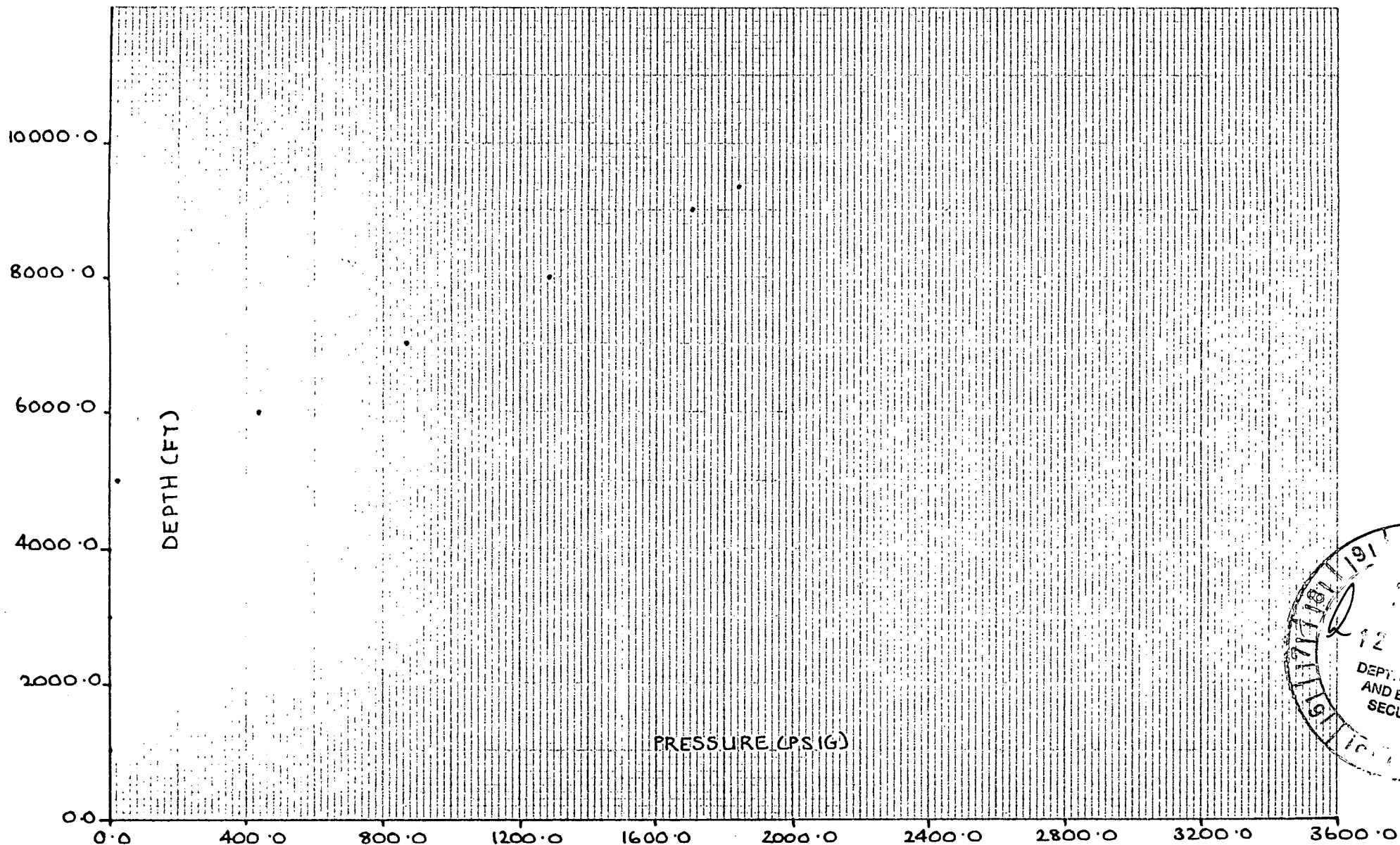
FIGURE 2.

000088

APPENDIX 1 : RESERVOIR CONSTANTS

Gas G	=	0.8477
Tc*	=	407.8589
Pc*	=	683.0106
z	=	0.9646
<u>u</u>	=	0.0268 cp
Cg	=	6 E-6
h.	=	75 ft. Net pay
porosity	=	10.6 %
Sw	=	13.0 %

BOOKABOURDIE # 10 — STATIC PRESSURE GRADIENT — 16/7/91
ELEMENT # 60322/5000 (TOP)



7198/2

Well Name Bookabourdie # 10

Date, 16 / 7 / 1991

1500

SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD

PERFORATIONS:

PAGE: 1 OF 1

WELL NAME: BOOKABOURDIE #10

FORMATION :

DATE: 11.7.91

TEST TYPE : RETRIEVE PLUG

OPR : D. DEIPARINE

DATE/TIME	DESCRIPTION OF EVENTS
11.7.91	
0600	Make up wireline equipment. Wait on Rig.
0900	RIH 2.34" GR stop @ 3061' KB. Jarred ↓↑ tool pass through. Continue RIH stop @ 3091' KB ↓↑ tool pass through, stop @ 3784' ↓↑ OK. Stop @ 4097' KB ↓↑ tool pass through, Stop @ 5037' KB ↓↑ No success. POOH.
1030	RIH 2.25" LIB tag Top of plug @ 9376' KB. POOH. Check IB mark of P prong. Rig down. Wait on Rig.
1035	Rig Nipple down BOP. Nipple up x-tree.
1315	RIH 2.32" GR tag SSD @ 9276' KB. POOH. Rig down.
1430	Rig to Swab.
1600	RIH 2" P.T. Retrieve P prong @ 9276' KB. POOH.
1700	RIH 2.5" GS. Latch on Plug @ 9376' KB. Attempt to retrieve plug. No Success. Unlatch GS. POOH.
1930	Toolstring @ surface. Rig down .092" line. Make up for .108" line.
2100	RIH 2.5" GS on .108" line. Latch on Plug @ 9376' KB. Workout on Hydraulic jar with 1350 lbs. tension. Hydraulic jar work O.K. Approximate jarring 2 hrs. no success. Unlatch GS. POOH.
2330	Toolstring @ surface. Rig down wireline.

SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD

PERFORATIONS:

PAGE: 1 OF 1

WELL NAME: BOOKABOURDIE # 10

FORMATION :

DATE: 12.7-91

TEST TYPE : RETRIEVE PLUG.

OPR : D. DEIPARINE

[illegible]

SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD.

PERFORATIONS:

PAGE: 1 OF 1

WELL NAME: BOOKABOURDIE # 10

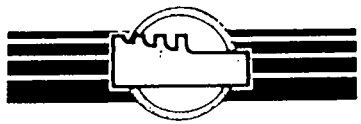
FORMATION :

DATE: 13.7.91

TEST TYPE : RETRIEVE PLUG

OPR : D. DEIPARINE

[illegible]



SEQUENCE OF EVENTS

CUSTOMER : SANTOS LTD

PERFORATIONS:

PAGE: 1 OF 1

WELL NAME: BOCKABOURDIE # 10

FORMATION :

DATE: 16.7.91

TEST TYPE : Static Gradient Survey

OPR : D. DEIPARINE

DATE/TIME

DESCRIPTION OF EVENTS

16.7.91

1000 Arrive on location. Spot on w/L unit. Make up wireline equipment.

1130 RIH sucker rod tag plug @ 9376' KB. Jar down plug no movement. POOH.

1215 Toolstring @ surface.

1228 Tandem Amerada @ Lub. Record 10 mins. DWT Pressure = 0 psi

1238 RIH Tandem Amerada record 5 mins. every stop @ 1000', 2000', 3000', 4000', 5000', 6000', 7000', 8000', 9000' KB.

1345 At bottom record 10 mins. @ 9350' KB.

1355 POOH.

1400 Amerada @ surface record for 10 mins. DWT Pressure = 0 psi

1410 Depressure lub. DWT = 0 psi

1419 Stylus off. check chart. OK. Bottom clock # A 12046 running too fast.

1430 Rig down lub.

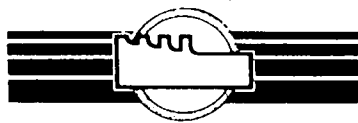
1500 Rig up .108" line.

1545 RIH 2.5" GS latch on plug @ 9376' KB. Work on Hydraulic jar tension 1400 lbs. Jarring up for one hour. No movement. Release GS. POOH.

1730 Toolstring @ surface. Secure well.

000095

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS LTD

PERFORATIONS :

PAGE: 1 OF 1

WELL NAME: BOOKABOU RDIE # 10

FORMATION :

DATE: 16.7.91

TEST TYPE : Static Gradient Survey

OPR : D. DEIPARINE

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

60322

59451

DATE : 16.7.91

ELEMENT RANGE

5000

5000

PRESSURE LUBRICATOR :

1228

0

0

RECORDING SECTION SERIAL NO.

12952

13028

RUN IN HOLE :

1238

DATE OF CALIBRATION:

ON DEPTH AT : 9350' FT/M

1345

CLOCK SERIAL NO.

25512

A12046

DATE : 16.7.91

CLOCK RANGE

3 HRS

3 HRS

PULL OUT OF HOLE :

1355

LEAD SCREW TYPE

S/P

S/P

AT SURFACE :

1400

DEPRESSURE LUBRICATOR :

1410

ENGAGE STYLUS DATE 16.7.91 TIME

1215

1215

MAXIMUM BHT AT 9350 FT/M = 298 °F/°C

DISENGAGE STYLUS DATE 16.7.91 TIME

1419

1419

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

DATE

TIME

REMARKS

16.7.91

Bottom clock # A12046 running fast.

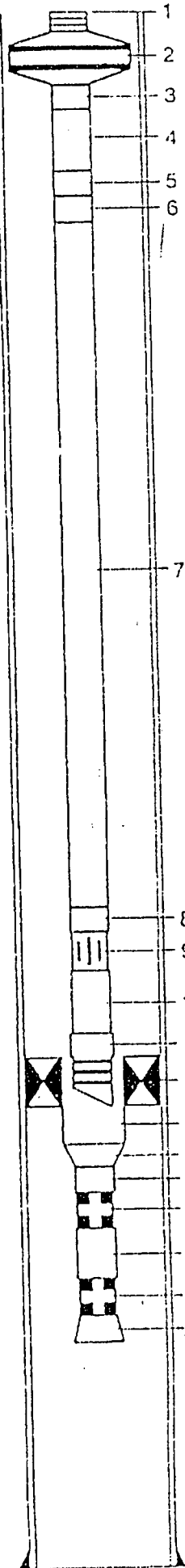
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PETROLEUM ENGINEERING DEPARTMENT

DOWNHOLE INSTALLATION

BOOKABOURDIE # 10



ITEM NO.	2 1/2" COMPLETION - 7" CSG	LENGTH (ft)	DEPTH K.B. (ft)	MIN. I.D. (in)
1	K.B. to top of tubinghead spool	18.95	0.00	
2	C.I.W. FBB-EN 7 1/4" x 2 1/2" AB x 2 1/2" CS Hydril	.75		
3	Nipple 2 1/2" J55 AB-IJ3SS pin x pin	.33		
4	1 joint 2 1/2" 6.5# J55 AB-IJ3SS	31.68		
5	Pup joints 2 1/2" 6.5# J55 AB-IJ3SS			
6	X-over 2 1/2" AB-IJ3SS box x NK35A pin J55	1.75		
7	joints 2 1/2" 6.5# J55 NK35A TBG			
8	X-over 2 1/2" NK35A box x AB-IJ3SS pin J55	1.72		
9	Olis 2 1/2" 121XDH23110 sliding sleeve	3.54		2.313
10	1 joint 2 1/2" 6.5# J55 AB-IJ3SS	31.62		
11	Baker model E-22 anchor seal assembly size 80-32, 2 1/2" AB-IJ3SS box	3.29		2.406
	Permanent Downhole Equipment			
12	Baker DB packer size 84-32 4 1/2" AB-IJ3SS	3.56	9348	
13	Millout extension 4 1/2" AB-IJ3SS pin x pin	5.39		
14	Swage 4 1/2" box x 2 1/2" pin J55 AB-IJ3SS	1.73		
15	Pup joint 10' x 2 1/2" 6.5# J55 AB-IJ3SS	9.80		
16	Olis 2 1/2" nipple 711X23103 AB-IJ3SS b x p	.95		2.313
17	2 pup joints 10' x 2 1/2" 6.5# J55 AB-IJ3SS	19.60		
18	Olis 2 1/2" nipple 711XN23117 AB-IJ3SS b x p	1.02		2.205
19	Re-entry guide 2 1/2" AB-IJ3SS x 3 1/2" J55	1.68		

PERFORATED INTERVALS:

GUN:

CHARGES:

FORMATION	INTERVAL	SIZE	TYPE	S.P.F.	TYPE	WT(g)
TIRANARRA	9544'-9625'	5"	TCR	5	HMX	32

REMARKS:

ANNULUS FLUID: 2% KCL + AR100 ENTERED 8.5 P.P.G.

INDICATED STRING WEIGHT:

CALCULATED STRING WEIGHT: 53000 lbs.

SLACK-OFF WEIGHT: 5000 lbs.

TENSION:

NOT TO SCALE

WELLSITE SUPERVISOR

I. FENDLEY

PROPOSED

DATE OF INSTALLATION

11-7-91

RE-COMPLETION

DRAFTED

DATE

COMPLETION

REVISED

DATE

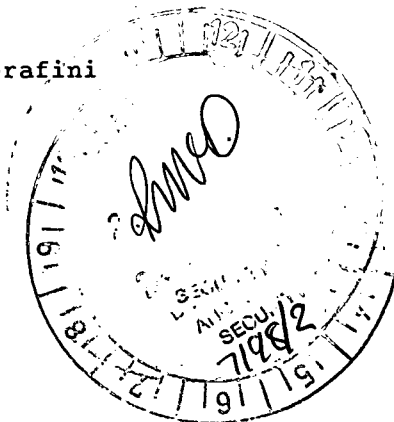
P.B.T.D. 9726

000098

SANTOS LTD.
PETROLEUM DEVELOPMENT DEPARTMENT
A.C.N. 007 550 923

BOOKABOURDIE 10 TIRRAWARRA SANDSTONE
PRE FRAC TEST - APRIL, 1989
POST FRAC MODIFIED ISOCHRONAL - FEBRUARY, 1990

Report No: RE:037/91
Author: J. Karageorgos/K.M. Serafini
Date: July, 1991



1. Introduction
2. Results
 - a) Pre-frac Single Rate and Build Up Test
 - b) Modified Isochronal
3. Conclusions
 - a) Pre-frac Single Rate and Build Up Test
 - b) Modified Isochronal
4. Recommendations
5. Discussion
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 - b) Pre-frac Single Rate and Build Up Test
 - c) Modified Isochronal
6. Tables
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7. Figures
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 2. Cumulative Production Plot
 3. Structure map
 4. Log section (DST 1 & DST 2)
 5. Well Summary
 6. Current Isopach Map
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 - A2. Pressure Build-up analysis
 - A3. Welltest Data
 - A4. Static Gradient
 - B. Modified Isochronal
 - B1. Modified Isochronal Model Results
 - B2. Modified Isochronal analysis
 - B3. Pressure Build up Analysis
 - B4. Iterations
 - B5. Welltest Data
 - B6. Static Gradient
 - C. Gaspac Data
 - D. Bookabourdie 10 Composition

Bookabourdie 10 was drilled in December 1988 to a total depth of 9770' KB as a Block gas appraisal well. DST 1 was conducted over the Tirrawarra Sandstone and flowed gas at a rate of 6.9 MMscf/d. It was completed in March 1989 as a single gas producer from the Tirrawarra sandstone. In April 1989 a single rate and build up test was performed on the Tirrawarra sandstone to determine initial reservoir pressure, kh, skin, well deliverability and preliminary reservoir geometry.

The single rate and build up test indicated that the apparent skin was high at 8.2 and it was decided to fracture stimulate the well in the near future.

During April 1989 the well was fracture stimulated (106,000 lbs of 20/40 bauxite and 30,000 lbs of 16/20 bauxite) and it was put online in June 1989.

In February 1990, after 2.3 Bcf of production, a Modified Isochronal test was run to determine the success of the fracture and to obtain values of reservoir pressure, kh, skin, well deliverability and reservoir geometry for the depleted reservoir.

This report presents the results and conclusions arising from the analysis of the testing of Bookabourdie 10, Tirrawarra Sandstone.

2. RESULTS

000101

Satisfactory results were obtained from the single rate and modified isochronal tests.

Outlined below are the reservoir parameters, geometry and pressure details.

a) Pre-frac Single Rate Test		b) Modified Isochronal Test
KB	156'	156'
date	April 1989	February 1990
SIMPLIFIED ANALYSIS		
AOF (MMscf/day)	N/A	13.8
C (MMscf/day/psia ²)	N/A	1E-5
n	N/A	0.89
LIT ANALYSIS		
AOF (MMscf/day)	N/A	15.3
a (psia ² /cp/Mscf/d)	N/A	2.381E4
b (psia ² /cp/Mscf ² /d ²)	N/A	0.14
D (day/Mscf)	N/A	1.547E-5
RESERVOIR PARAMETERS		
flow capacity (md-ft)	119	119
permeability (md)	1.6	1.6
apparent skin	8.18	-5.32
true skin	N/A	-5.42
flowrate (MMscf/day)	5.5	6.7
FTHP (psia)	1251	1026
condensate (bbls/MMscf)	8.7	2.5
water (bbls/MMscf)	3.9	3.6
gauge depth (KB)	9500'	9494'
depth MPP (KB)	9585'	9585'
datum (KB) (9370' SS)	9526'	9526'
extrapolated pressure (psia)	4210	2417
reservoir pressure MPP (psia)	4220	2421
*reservoir pressure datum (psia)	4214	2417
z factor	0.95745	0.9006
p/z (psia)	4401	2684
cummulative production (Bcf)	0	2.3
drainage area (acres)	N/A	81
P/Z OGIP (Bcf)	N/A	6

RESERVOIR GEOMETRY

model type	wellbore storage skin semi-infinite reservoir	hydraulic fracture semi-infinite reservoir
barrier (no flow) left	135 <i>constant pressure boundary *</i>	181'
well bore storage coefficient	60	N/A
fracture conductivity coefficient	N/A	1.64
fracture half length	N/A	259'

* The reservoir pressure calculated from the single rate test is lower than the DST pressure and lower than the pressure recorded in a static gradient survey run before the test, thus the DST pressure of 4260 psia, which is the same as the initial pressure used in the rest of the Bookabourdie Tirrawarra field is used as the initial reservoir pressure.

7977N(4)

* may also be interpreted as dual porosity / layered reservoir system (which is more likely).

a) Pre-frac Single Rate and Build Up Test

The single rate and build up test was successful in determining reservoir parameters.

The high skin factor of 8.2 suggests significant wellbore damage.

Initial reservoir pressure is indicated to be 4260 psia at 9526' KB datum. This shows that the gas in the Bookabourdie 10 fault block is not in communication with the rest of the field because 10.8 Bcf had been produced from the other wells at the time of this test.

b) Modified Isochronal Test

The modified isochronal test was successful in determining reservoir parameters.

The low skin factor of -5.32 suggests that the fracture stimulation was successful.

The true skin factor is -5.42 which is similar to the apparent skin factor suggesting negligible effects of turbulent flow.

The P/Z OGIP is approximately 6.0 Bcf which is consistent with the rate cumulative derived OGIP of 8 Bcf.

The volumetric OGIP (booked, HIP:89/109) which is 37 Bcf is inconsistent with these performance based estimates of OGIP. This indicates that the volumetric OGIP is either not being accessed or overstates the true OGIP.

4. RECOMMENDATIONS

A pressure of 2417 psia at 9526' KB (9370' SS) should be used as the current reservoir pressure (February 1990) for the Tirrawarra Sandstone.

The next survey should take place in 1991.

A review of the OGIP currently mapped should be performed and further appraisal/development in the Bookabourdie 10 area should be assessed since there may be a possibility of unaccessed gas.

The current volumetrics should be retained until a review of the OGIP mapped has been completed and further pressure data has been collected and interpreted.

a) General

The single rate buildup test and modified isochronal test were analysed using the ECL Weltest computer package.

The geological data of the tested interval is contained in Figure 4.

An average of Bookabourdie 3, 4 and 10 compositions was used in the pre-frac and post-frac analyses (Appendix C) rather than the composition of Bookabourdie 10 (Appendix D) because it is believed that an average provides a better representation of the gas composition.

The current volumetric OGIP is 37 Bcf (HIP:89/109) based on the current isopach for the Tirrawarra sandstone (Fig 6).

b) Pre-frac Single Rate and Build Up Test

This test was performed prior to production. The well was perforated in March 1989 and left shut-in. During April 1989 it was opened for a clean up flow, flowed for 27 hours at 5-6 MMscf/d and shut-in for 77 hours for the final build up.

The pressure data (bomb hung at 9500' KB) from the final shut in, in conjunction with previous flow history, was analysed for reservoir parameters (Appendix A). A good simulation was achieved and indicated a well bore storage, barrier bounded model. It was necessary to ignore points 1-7 as they were anomalous.

The average reservoir pressure of 4214 psia (9526' KB datum) extrapolated approximately 46 psi lower than was expected from the DST result (4260 psia at 9526' KB datum). The static gradient run prior to the test indicated that the pressure at 9526' KB datum was approximately 4245 psia which is higher than the extrapolated pressure. Thus the DST pressure of 4260 psia was used as the initial reservoir pressure.

000105

It is recommended that an initial temperature of 273 degrees F from the pre-frac test and 4260 psia (from DST data) at 9526' KB be used as the initial parameters for the Bookabourdie Tirrawarra Sandstone in the Bookabourdie 10 fault block. These are the same as those used for the rest of the field.

Due to a high apparent skin and low permeability a fracture stimulation was performed before the well came online. During the frac 106,000 lbs of 20/40 bauxite and 30,000 lbs of 16/20 bauxite was placed in the formation. The well came online in June 1989 at 10 MMscf/d at approximately 1500 psia at 15% choke.

A modified isochronal was carried out to determine the effectiveness of the stimulation.

c) Modified Isochronal Test

The modified isochronal began on 20th February, 1990 with an extended flow (56 hours at 6.7 MMscf/d at 1026 psia FTHP) and a 90.25 hour shut-in. This was followed by 4 cycles of flowing (4 hours) and shutin (4 hours) at 2.6, 4.1, 6.4 and 8.7 MMscf/d respectively.

The pressure data (bomb hung at 9494'KB) from the initial shut-in was analysed for reservoir parameters (Appendix B).

A good simulation was achieved using a hydraulic fracture, semi-infinite barrier bounded model, based on the pre-frac permeability of 1.6 md. Points 1, 2, 6, 7 and 8 were ignored as they were anomalous.

The test confirmed that the fracture stimulation was successful as the skin decreased from 8.2 to -5.3 and a fracture half length of 259 feet was determined.

The extrapolated average reservoir pressure of 2417 psia (9526' KB) shows a 1815 psi decrease in reservoir pressure in a time period of approximately 8 months where 2.3 Bcf of gas had been produced.

The material balance OGIP determined is 6 Bcf which is consistent with the rate versus cumulative production plot derived OGIP of 8 BCF (Figures 1 and 2).

This accessed gas-in-place is significantly less than the mapped OGIP of 37 Bcf (HIP:89/109) which is carried as the booked Proved and Probable OGIP. Further pressure data should be obtained and the mapping reviewed to resolve this discrepancy. Appraisal/development drilling may be required.

TABLES

Table 1.

COMPLETED:

ON-LINE: JUNE 89

[illegible]

NO - FIELD DATUM AT 9370' SS (9526' KB)

801000

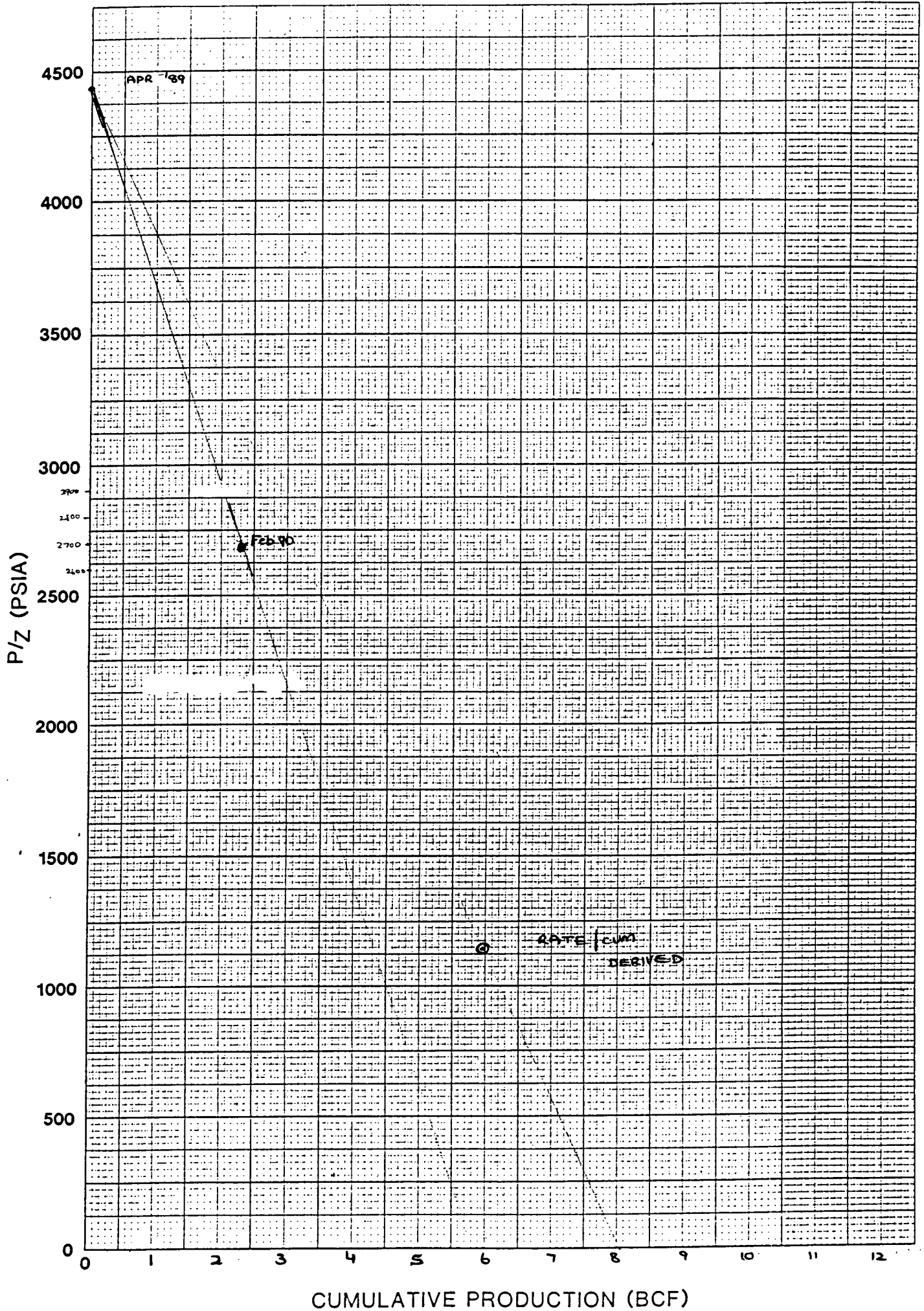
FIGURES

MATERIAL BALANCE

9526' KB

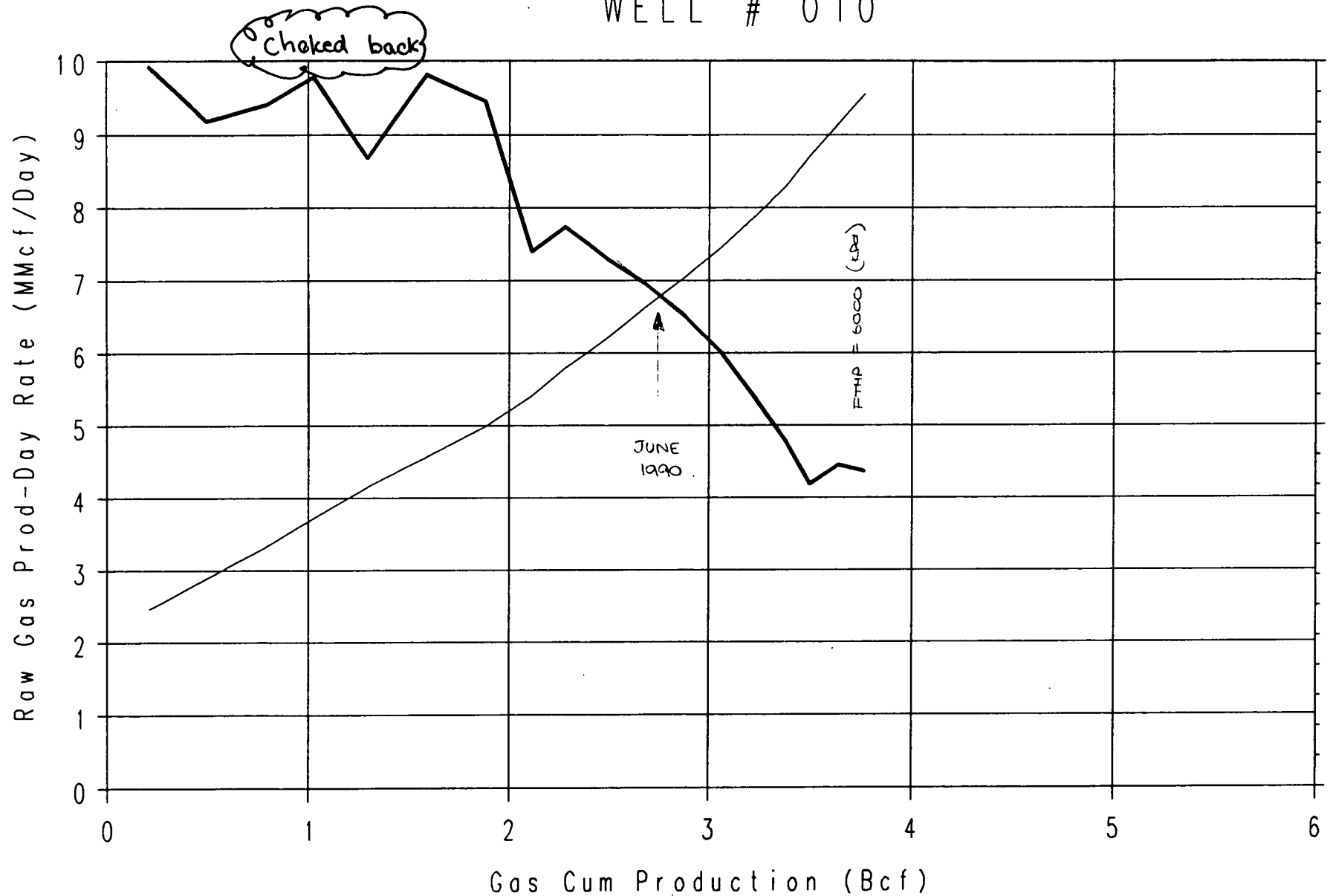
WELL : BOOKABOURDIE 10

000110



BOOKABOURDIE

WELL # 010



JAN 91

FTHD = 6000 tPa (87%₁₂)

press grad = 0.019'

FTHD = 1057 @ 9370

z = 0.9321

∴ p/z = 1134

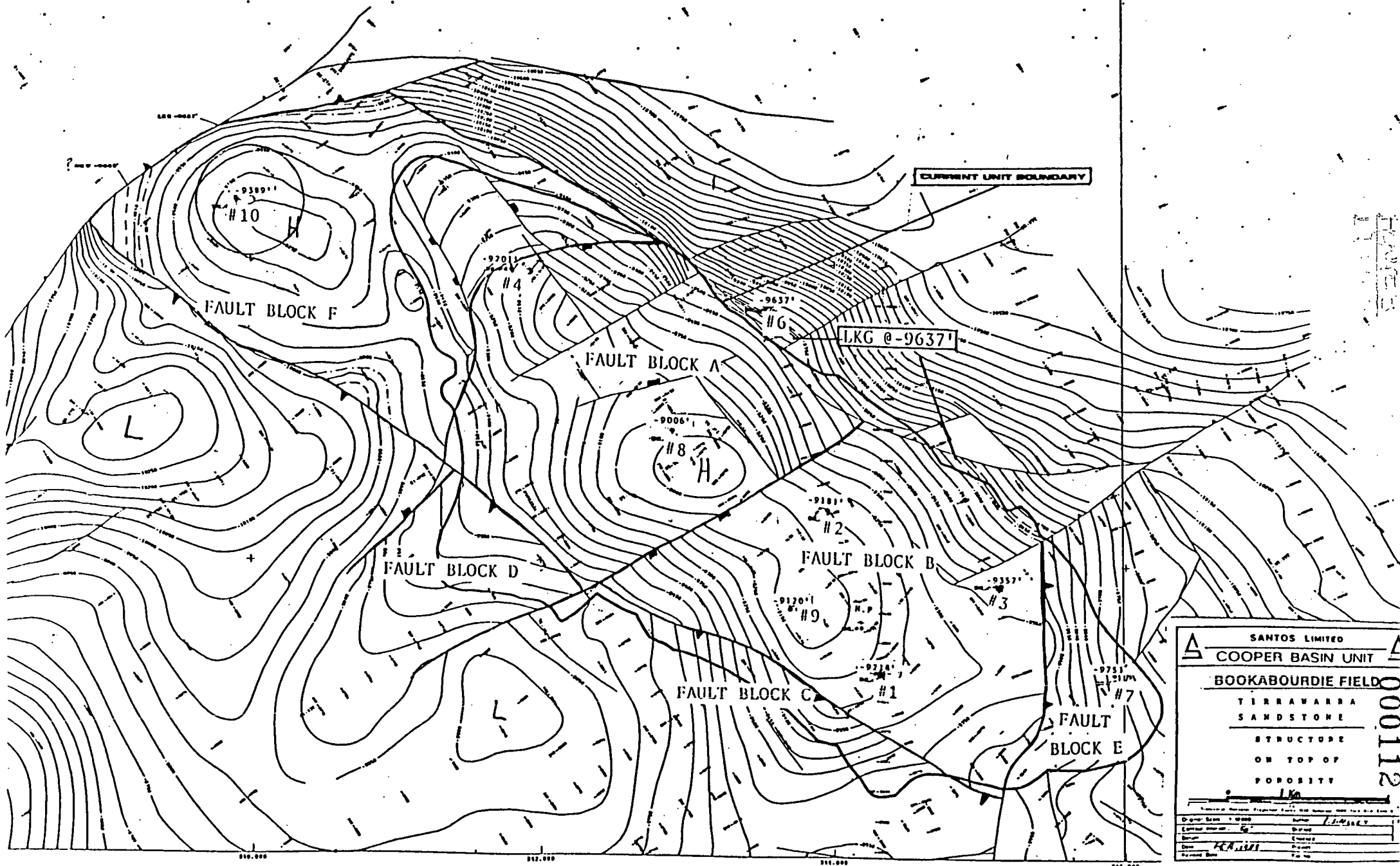
JAN 90

Time 000111

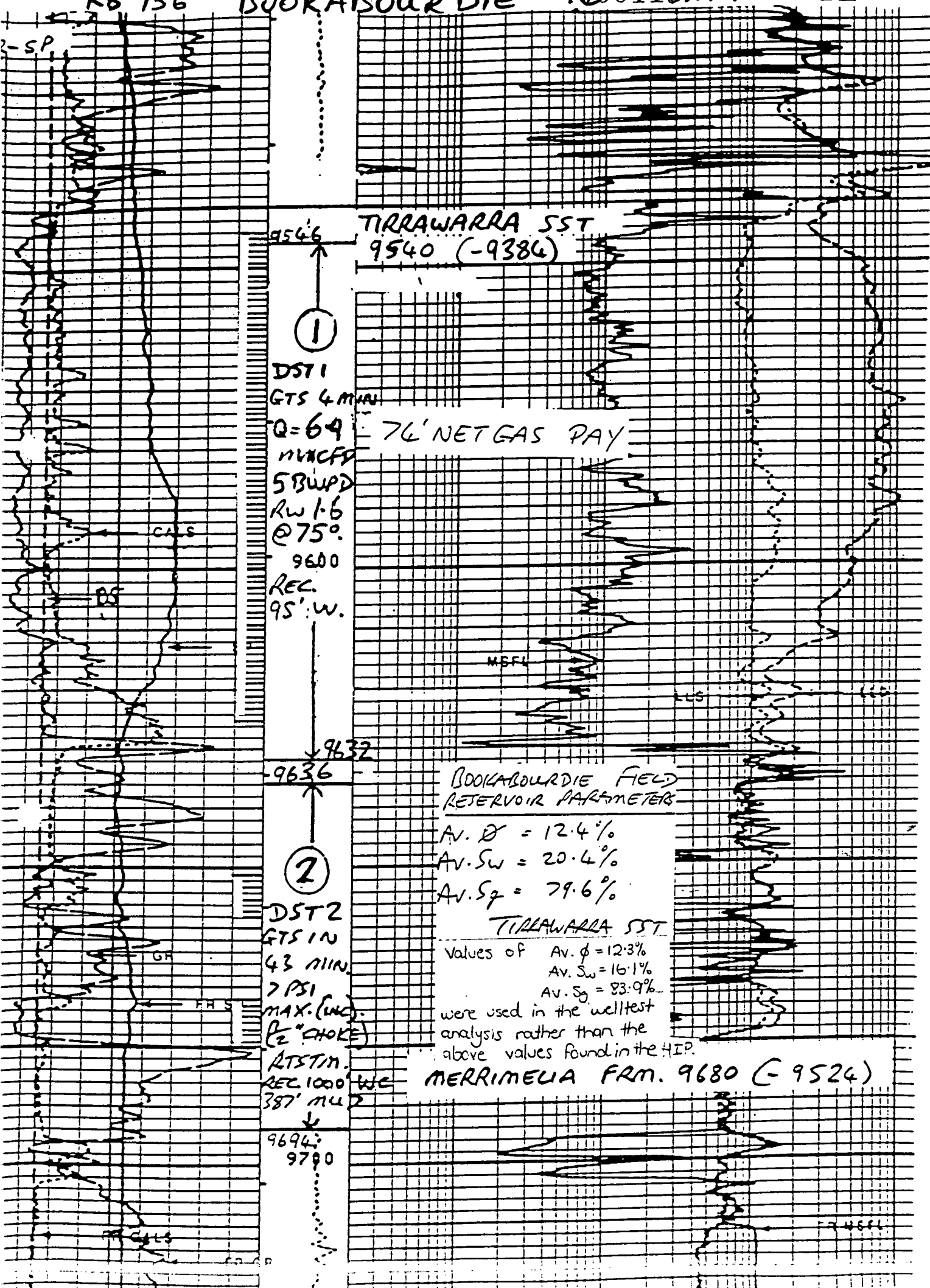
Extrapolation
⇒ 6 Bcf

JAN 89

Figure 2



SANTOS LIMITED	
COOPER BASIN UNIT	
BOOKABOURDIE FIELD	
TERRAVARRA SANDSTONE	
STRUCTURE ON TOP OF POROSITY	
Drawn By: <i>[Signature]</i> Checked By: <i>[Signature]</i> Date: <i>15/11/81</i> Project No: <i>1000112</i>	Scale: 1:5000 Contour Interval: 5' Elevation: 9100 Datum: <i>MSL</i> Projection: <i>UTM</i>



TIRRAWARRA SST
9540 (-9386)

①

DST1
GTS 4 MIN

Q=64

MINCFD

53 WPD

RW 1.6

@ 75°

9600

REC.

95' W.

76' NET GAS PAY

MSFL

LCS

LCS

9632

9636

②

DST2

GTS 1 MIN

43 MIN

7 PSI

MAX. (W.C.)

P₂ "CHOKE"

RTST IN

REC. 1000' WE

387' MIN

9694

9790

BOOKABOURDIE FIELD
RESERVOIR PARAMETERS

AV. ϕ = 12.4%

AV. S_w = 20.4%

AV. S_g = 79.6%

TIRRAWARRA SST

Values of AV. ϕ = 12.3%

AV. S_w = 16.1%

AV. S_g = 83.9%

were used in the well test
analysis rather than the
above values found in the HIP.

MERRIMELIA FRM. 9680 (-9524)

MSFL



WELL SUMMARY

BOOKABOURDIE 10 ⁰⁰⁰¹¹⁴

Figure 5

LATITUDE 27°30'46.0"S

LONGITUDE 140°26'38.0"E

S.P.243' LINE 86-ZTG

K.B. 156'

SPUDED 15/11/1988

RIG RELEASE 10/12/1988

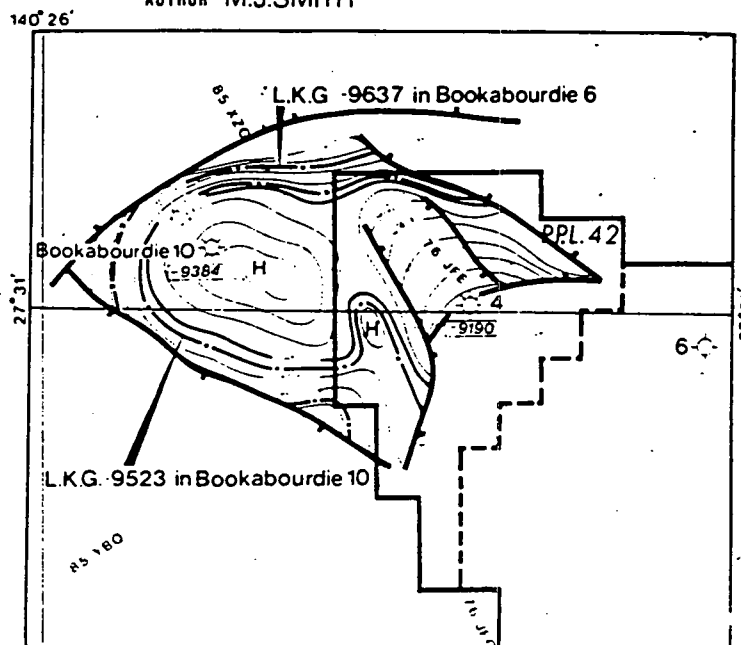
STATUS Cased and Suspended (Gas)

BLOCK ME-I

TYPE GAS APPRAISAL

AUTHOR M.J.SMITH

WELL SECTION	DEPTH	LITHOLOGY			
		FORMATION	PROGNOSSED TOP	ACTUAL TOP	DIFFERENCE
	0				
	2000				
	4000				
	6000	CADNA-OWIE	-5840'	-5834'	6'H
		MURTA	-6122'	-6048'	74'H
		NAMUR	-6262'	-6234'	28'H
			-6442'	-6498'	56'L
		WESTBOURNE			
		ADORI	-6825'	-6862'	37'L
			-6979'	-6961'	18'H
		BIRKHEAD			
			-7336'	-7260'	76'H
		HUTTON			
		POOLOWANNA	-7956'	-7877'	79'H
		UPPER TRIASSIC	-8156'	-8032'	76'H
	8000		-8448'	-8466'	18'L
		NAPPAMERRI			
		TOOLACHEE	-8924'	-9028'	104'L
			-9056'	-9098'	42'L
		PATCHAWARRA			
		TIRRAWARRA	-9515'	-9384'	131'H
	10000	MERRIMELIA	-9634'	-9524'	110'H



TIRRAWARRA SST

DEPTH STRUCTURE CONTOUR MAP

NET PAY SUMMARY		
Sand	Actual	Prognosed
TIRRAWARRA		CASE 1 75'
93-7	74'	CASE 2 60'

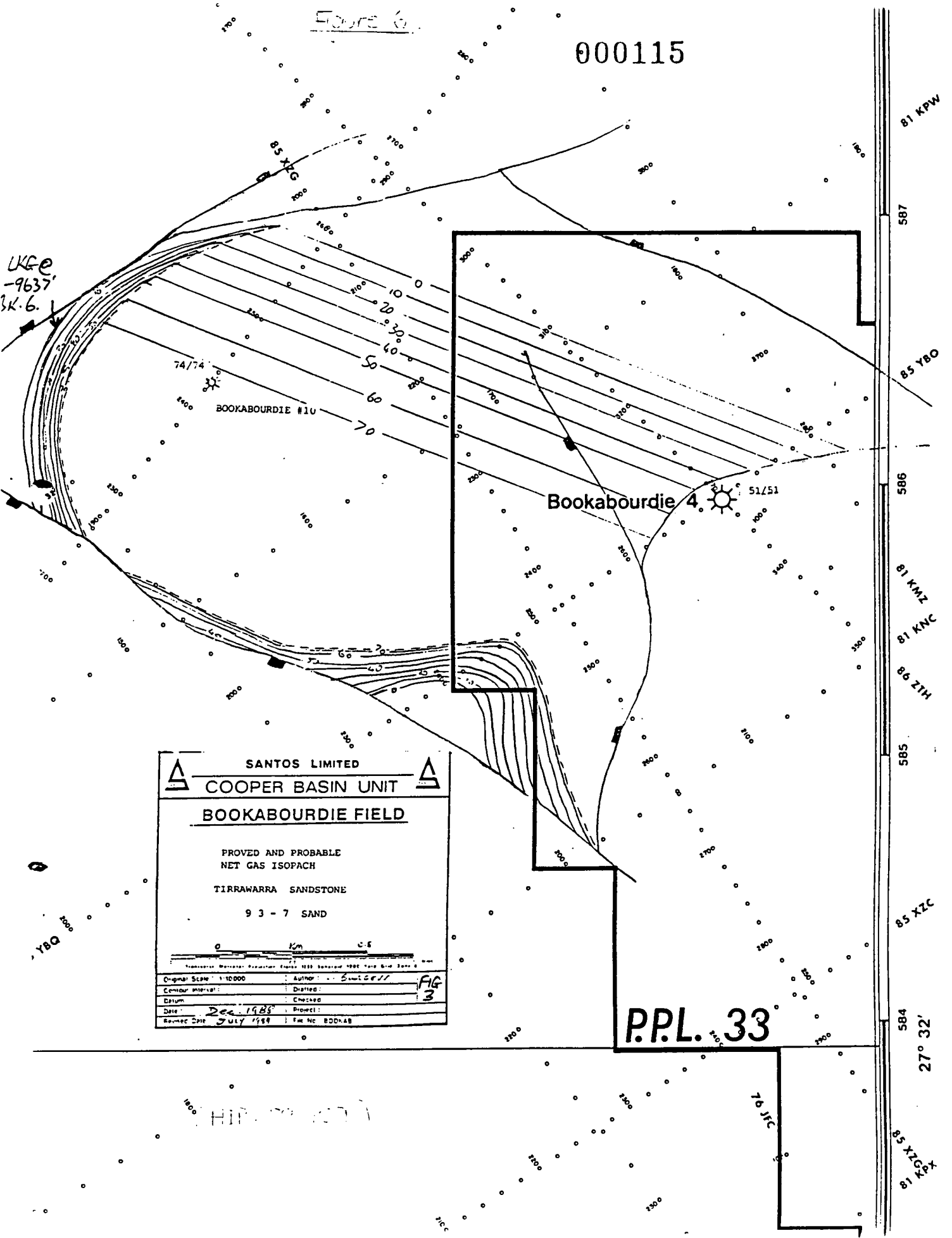
D.S.T.	INTERVAL	RESULTS
1	9534'-9620'(D) 9546'-9632'(L)	GTS IN 4mins at 6 - 9 MMCFD with 5 BWPD. Rec: 95' Formation Water.
2	9623'-9681'(D) 9636'-9694'(L)	GTS in 43mins at RTSTM max 7psi and building. Rec: 1000' WC. 387' RHM.
CORE	INTERVAL	RESULTS
		NO CORES WERE CUT

REMARKS

The significant variations between the actual and prognosed formation tops are primarily a result of an incorrect time-depth relationship being used. However, the results of this well are favourable for additional appraisal drilling in the area.

000115

UKG
-9637'
3K.6.



SANTOS LIMITED COOPER BASIN UNIT BOOKABOURDIE FIELD	
PROVED AND PROBABLE NET GAS ISOPACH TIRRAWARRA SANDSTONE 9 3 - 7 SAND	
0 Km 0.5 1:10000	
Original Scale	Author: <i>S. J. Gell</i>
Contour Interval	Drawn: <i>3</i>
Editor	Checked
Date: <i>Dec 1985</i>	Project
Revised Date: <i>3 JULY 1989</i>	File No: <i>80048</i>

P.P.L. 33

000116

APPENDICES

APPENDIX A

PRE FRAC SINGLE RATE AND BUILDUP TEST

A1 PRE FRAC MODEL RESULTS

OUTER BOUNDARY :
Semi-Infinite Reservoir

000119

Match Accuracy (RMS error) : 10.49 psi : Accuracy achieved

Initial Reservoir Pressure P_i	:	4210.3	psia	:	4100.0	to	4260.0
Reservoir Permeability k	:	1.61	mD	:	1.61	to	1.61
Total Skin Factor S	:	8.18		:	7.0	to	8.5

```

Cd exp(2S)                : 7.576E+08
Dim'less Wellbore Storage (Cd): 60.0          : 60.0 to 60.0
Wellbore Storage (C )      : 0.01 bbl/psi

```

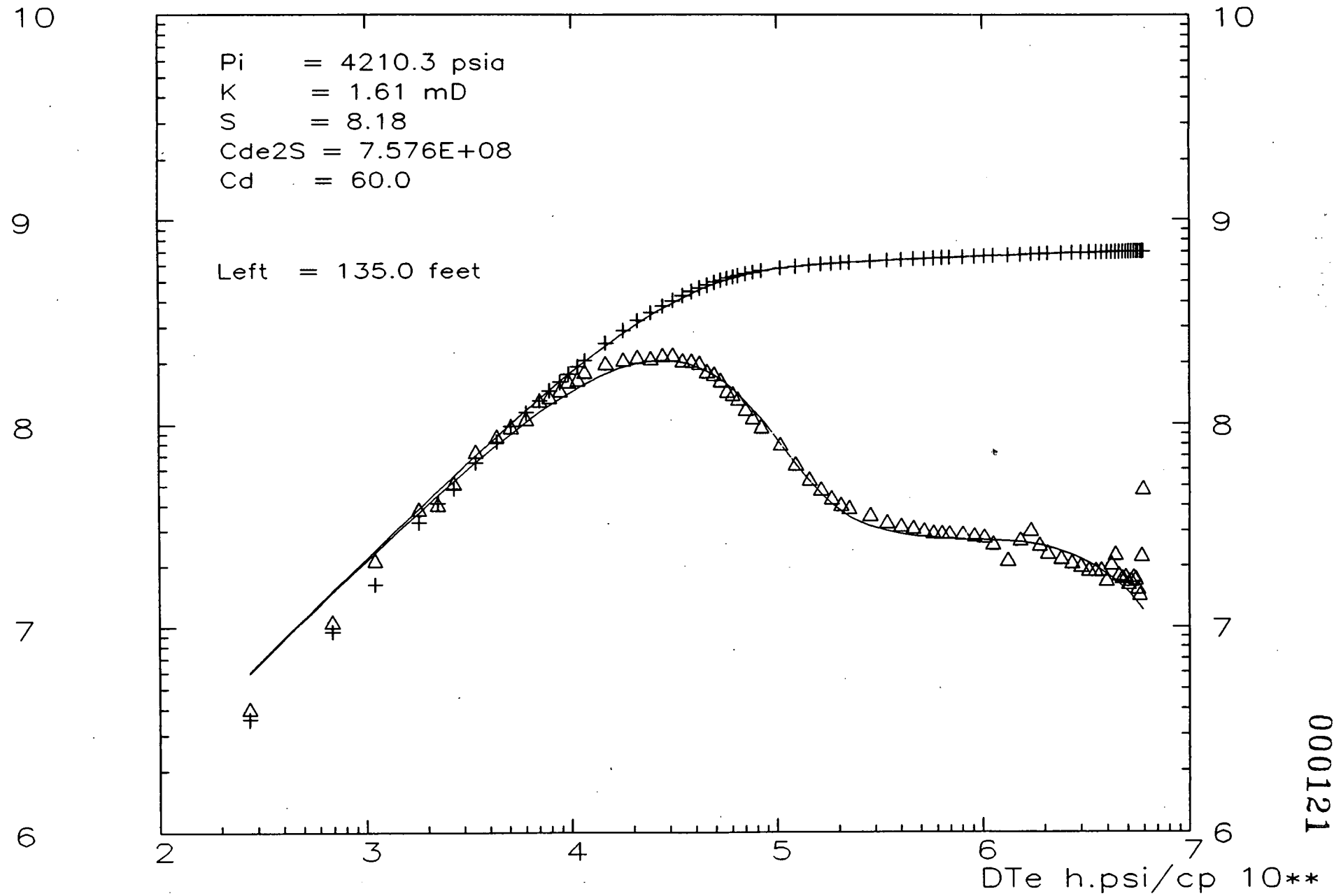
Dist: Cons Press Left Bound : 135.0 feet : 135.0 to 135.0

Points 1-7 were removed for the analysis.

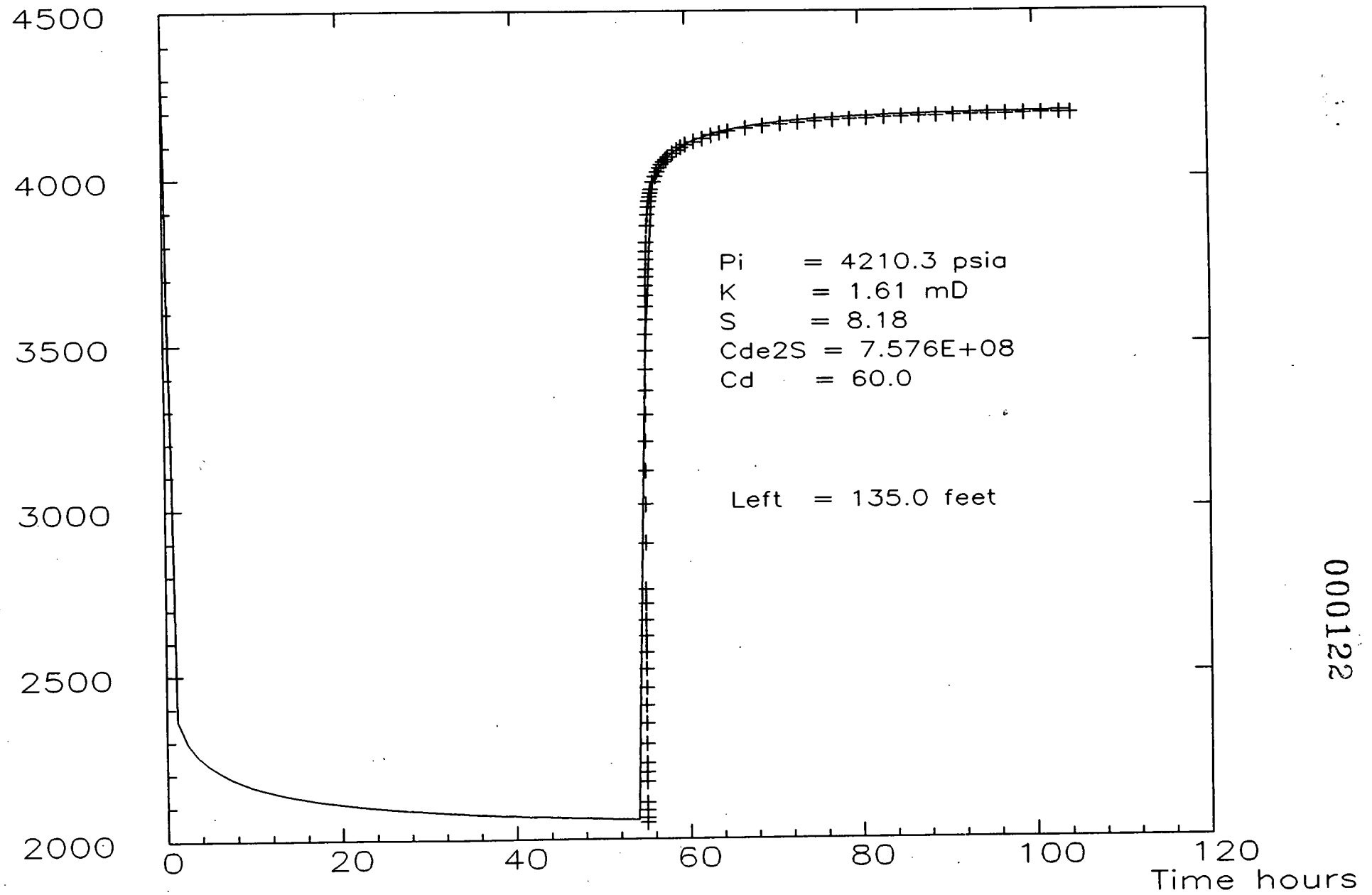
Calculations to use PSEUDO time

000120

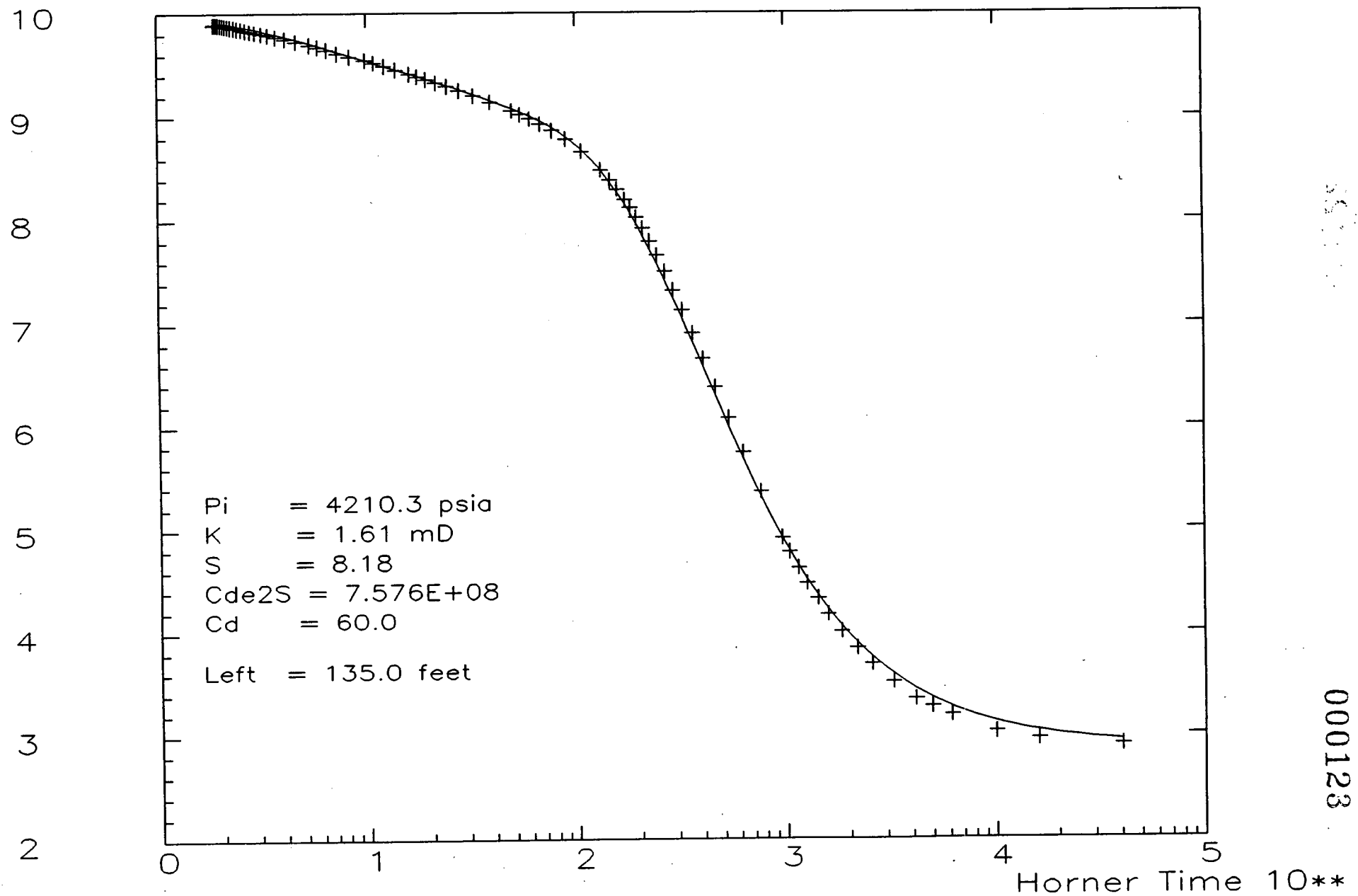
A2 PRESSURE BUILD-UP ANALYSIS

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

P psia



P psi2/cp *10**8



A3 WELLTEST DATA

COMMENTS

000125

PARAMS

'FIELDNAM' 'BOOKABOURDIE
 'WELLNAME' 'BOOKABOURDIE 10
 'TESTNUM' 1 /
 'TESTDATE' 20 4 1989 /
 'PHASE' 'GAS' /
 'ANALYSIS' /
 'UNITCONV' 'FIELD' /
 'NUMWELLS' 1 /
 'NUMLAYER' 1 /
 'NUMPOINT' 100 /

Well test Project:

MET - PBUS - RESKMS

File: BookabourdIE 10 - prefrac - Apr 89. dat

PVTGAS 'FIELD'

'TRES' 273.0000 /
 'TSTD' 60.00000 /
 'PSTD' 14.70000 /
 'TIMECALC' 'PSEUDO' /
 'TABLE'
 14.65000 0.998890 0.013740
 200.0000 0.985120 0.013850
 400.0000 0.977970 0.013960
 600.0000 0.957910 0.014400
 800.0000 0.945840 0.014830
 1000.000 0.934970 0.015240
 1200.000 0.925420 0.015550
 1400.000 0.917310 0.015920
 1600.000 0.910730 0.016350
 1800.000 0.905740 0.016780
 2000.000 0.902380 0.017220
 2200.000 0.900650 0.017700
 2400.000 0.900510 0.018280
 2600.000 0.901900 0.018870
 2800.000 0.904740 0.019450
 3000.000 0.908940 0.020070
 3200.000 0.914380 0.020710
 3400.000 0.920970 0.021340
 3600.000 0.928600 0.021970
 3800.000 0.937160 0.022610
 4000.000 0.946560 0.023240
 4200.000 0.956710 0.023880
 4400.000 0.967540 0.024500
 4600.000 0.978970 0.025120
 4800.000 0.990930 0.025740
 5000.000 1.003380 0.026360

WELPROP 'FIELD'

'RADIUS' 0.354000 /
 'THICKNES' 74.00000 /
 'PORO' 0.123000 /
 'ROCKCOMP' 0.450E-05 /
 'WATSAT' 0.161000 /
 'WATCOMP' 0.360E-05 /

PRESSURE 'FIELD'

— BOOKABOURDIE/BOOKABOURDIE 10

Test 1 (20 APR 1989)

'UNITS'
'DATA'

'Hours

'psia

'

000126

0.00000000	4258.000
55.0090000	2048.170
55.0110000	2062.080
55.0140000	2084.870
55.0170000	2109.420
55.0220000	2171.130
55.0250000	2200.960
55.0280000	2227.850
55.0330000	2287.140
55.0390000	2348.260
55.0440000	2402.260
55.0500000	2457.490
55.0560000	2513.780
55.0610000	2565.660
55.0670000	2613.480
55.0720000	2662.160
55.0780000	2711.630
55.0830000	2754.950
55.1000000	2894.850
55.1170000	3010.740
55.1330000	3112.800
55.1500000	3202.890
55.1670000	3284.400
55.1830000	3356.640
55.2000000	3421.360
55.2170000	3477.910
55.2330000	3528.540
55.2500000	3573.080
55.2670000	3611.970
55.2830000	3646.530
55.3000000	3675.650
55.3170000	3701.570
55.3330000	3724.140
55.3580000	3753.220
55.3830000	3777.740
55.4170000	3805.130
55.5000000	3855.190
55.5830000	3888.050
55.6670000	3911.170
55.7500000	3928.720
55.8330000	3942.710
55.9170000	3954.340
56.0000000	3964.180
56.2500000	3987.510
56.5000000	4004.730
56.7500000	4018.420
57.0000000	4029.870
57.2500000	4039.580
57.5000000	4047.940
57.7500000	4055.340
58.0000000	4062.030
58.5000000	4073.580
59.0000000	4083.350
59.5000000	4091.670
60.0000000	4098.970
61.0000000	4108.210
62.0000000	4116.340
63.0000000	4126.510
64.0000000	4133.770
65.0000000	4139.320
67.0000000	4148.040
69.0000000	4154.790
71.0000000	4160.130
73.0000000	4164.640

75.0000000	4168.210
77.0000000	4171.610
79.0000000	4174.400
81.0000000	4176.510
83.0000000	4179.670
85.0000000	4181.810
87.0000000	4183.470
89.0000000	4185.170
91.0000000	4186.590
93.0000000	4187.820
95.0000000	4189.120
97.0000000	4190.270
99.0000000	4191.340
101.0000000	4192.130
103.0000000	4192.950
104.2500000	4191.430

000127

RATE	'FIELD'	
'UNITS'	'Hours'	'Mscf/day' /
'DATA'		
	0.00000000	5540.000
	55.0090000	0.000000
	104.250000	0.000000

END

000128

A4 STATIC GRADIENT

000129

EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWARDILLA 5003

PH. (08) 354 0455 TELEX A957183

FAX (08) 43 7400

108 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5003

Tested Friday, 14th April 1989.

CLIENT	LOCATION	FORMATION
Santos Ltd.	Bockabourdie#1	Tirrawarra

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	28904	5200	7/ 4/89
Bottom	15451	5650	7/ 4/89

WELL DATA	
PARAMETER	VALUE
DWT In	3214 psi
DWT Out	3218 psi
Max BHT	286 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.0000	1.1	-----	1.2658	3213.4	-----
1000	0.0000	1.1	0.000	1.3148	3339.3	0.126
2000	0.0000	1.1	0.000	1.3627	3462.4	0.123
3000	0.0000	1.1	0.000	1.4084	3579.9	0.118
4000	0.0000	1.1	0.000	1.4518	3691.6	0.112
5000	0.0000	1.1	0.000	1.4937	3799.3	0.108
6000	0.0000	1.1	0.000	1.5325	3899.2	0.100
7000	0.0000	1.1	0.000	1.5702	3996.2	0.097
8000	0.0000	1.1	0.000	1.6071	4091.1	0.095
9000	0.0000	1.1	0.000	1.6427	4182.7	0.092
9500	0.0000	1.1	0.000	1.6602	4227.7	0.090
9585	0.0000	1.1	0.000	1.6631	4235.1	0.088
LUB.	0.0000	1.1	-----	1.2698	3223.7	-----

GENERAL REMARKS

Top Element Failed.

000130

APPENDIX B

MODIFIED ISOCHRONAL

000131

B1 MODIFIED ISOCHRONAL MODEL RESULTS

MODEL :
Homogeneous

INNER BOUNDARY :
Hydraulic Fracture

OUTER BOUNDARY :
Semi-Infinite Reservoir

Test Seq: Shut-in 1 len 41 : Fitted 1 to 41 : Total Superposition

Match Accuracy (RMS error) : 2.02 psi : Accuracy achieved

000132

					Range in Optimiser
Initial Reservoir Pressure	Pi	: 2416.64	psia	:	1500.0 to 3000.0
Reservoir Permeability	k	: 1.6	mD	:	1.6 to 1.6
Total Skin Factor	S	: -5.32			

Fracture type	:	Finite Conductivity			
Fracture Half-Length	:	258.82	feet	:	50.0 to 300.0
Fracture Pseudo-Skin	:	-5.23			
Mechanical Skin Factor	:	-0.09			
Dimen'less Fracture conduct'y	:	1.64		:	1.5 to 3.0
Actual Fracture conduct'y	:	677.74	mD-ft		

Dist: NoFlow Flt Left Bound : 181.4 feet : 100.0 to 250.0

Points 1,2,6,7 and 8 from the Pressure-Time data were ignored in this test.

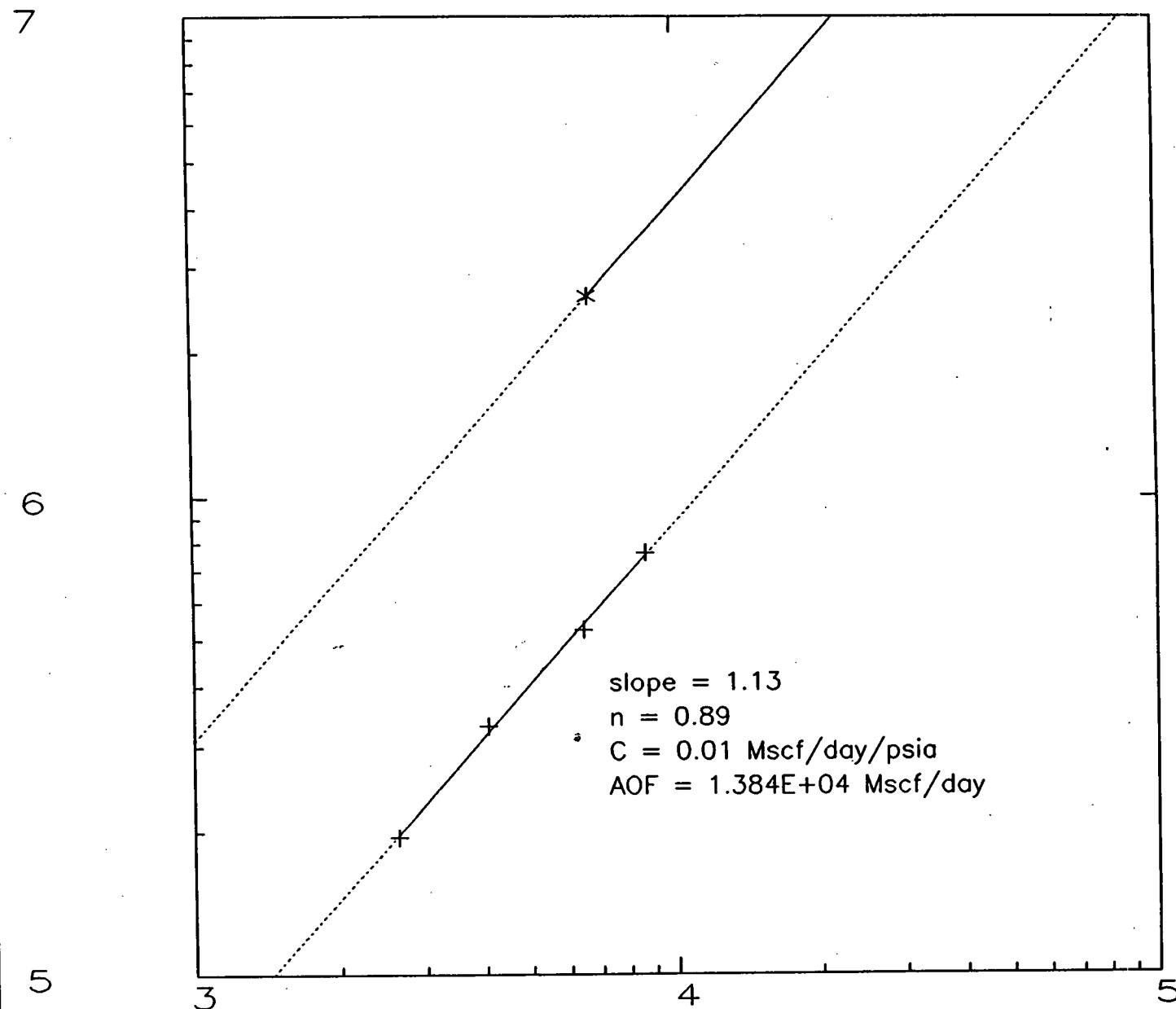
000133

B2 MODIFIED ISOCHRONAL ANALYSIS

SIMPLIFIED

AOF plot

dP**2 10**



RATE 10**

000134

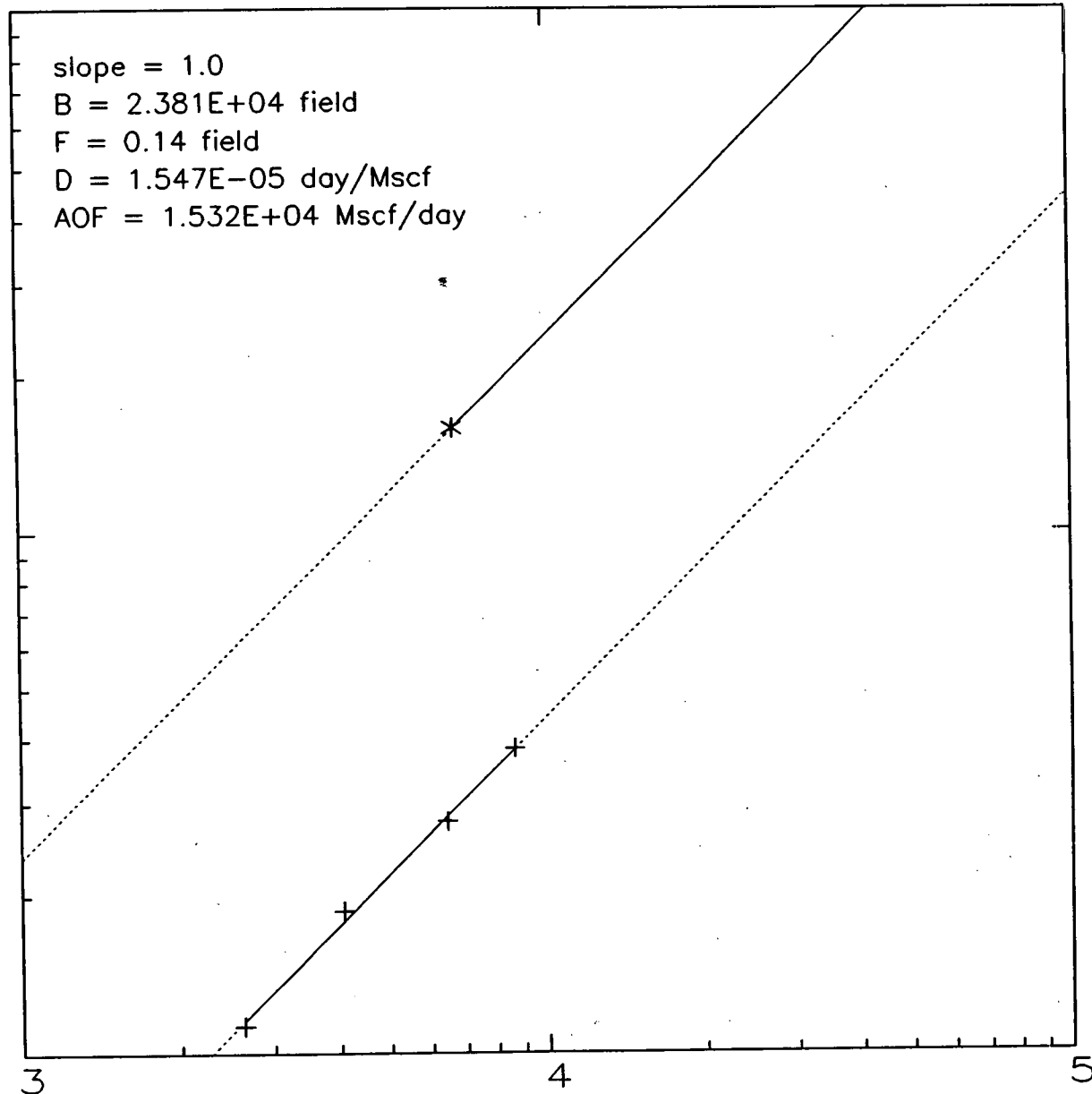
LIT - PSEUDO PRESSURE AOF plot

dm(P) - FQ**2 10**

9

8

7

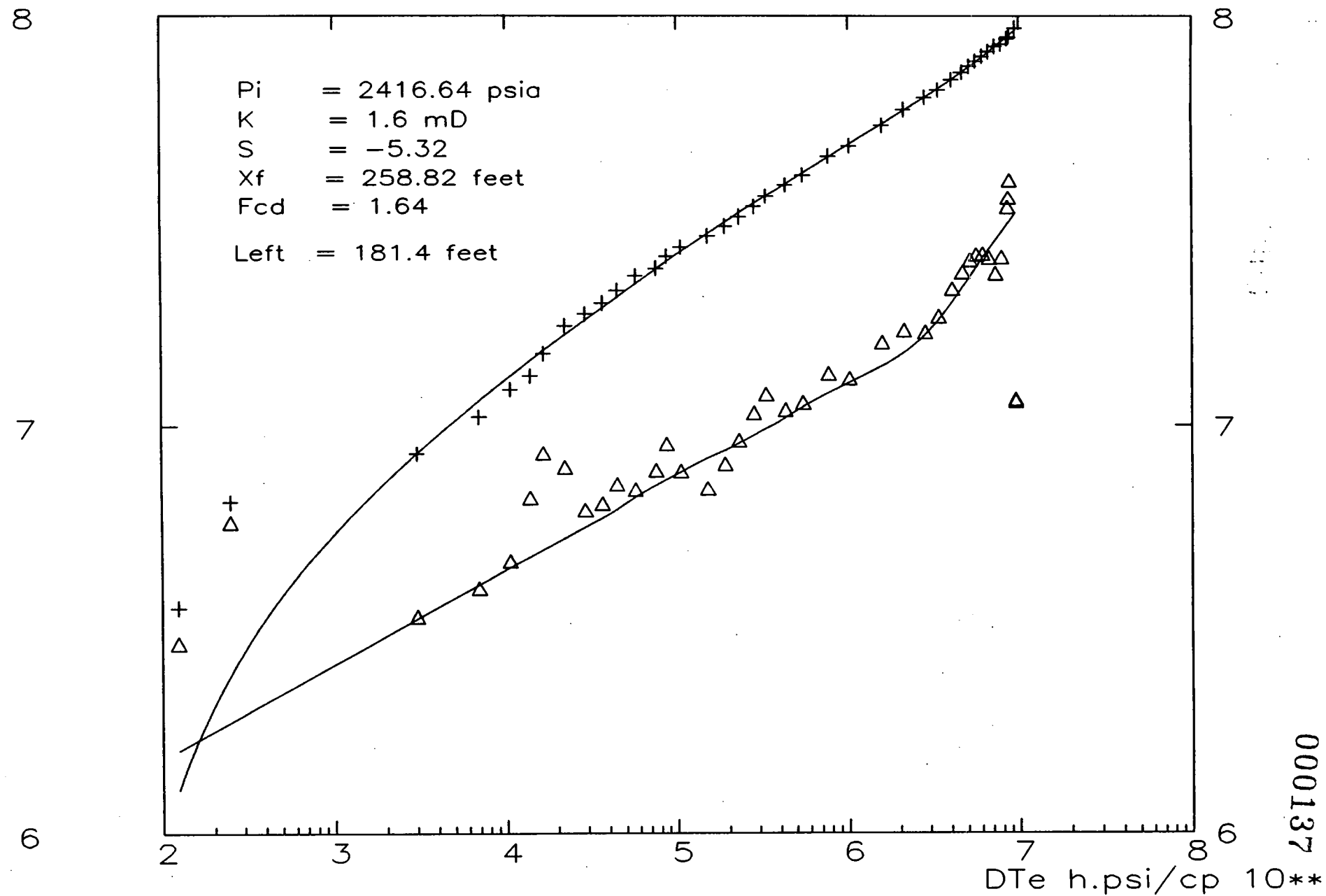


RATE 10**

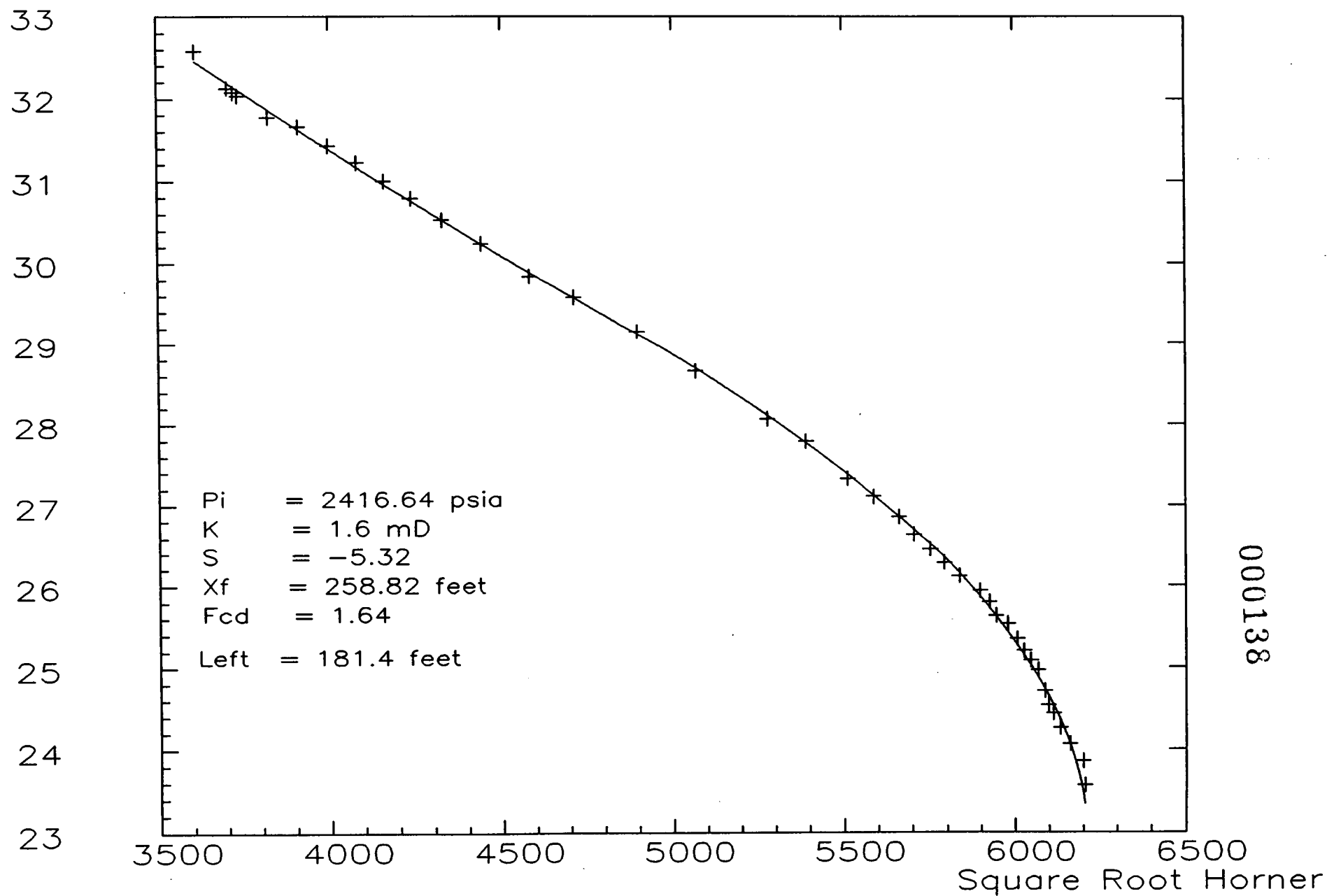
000135

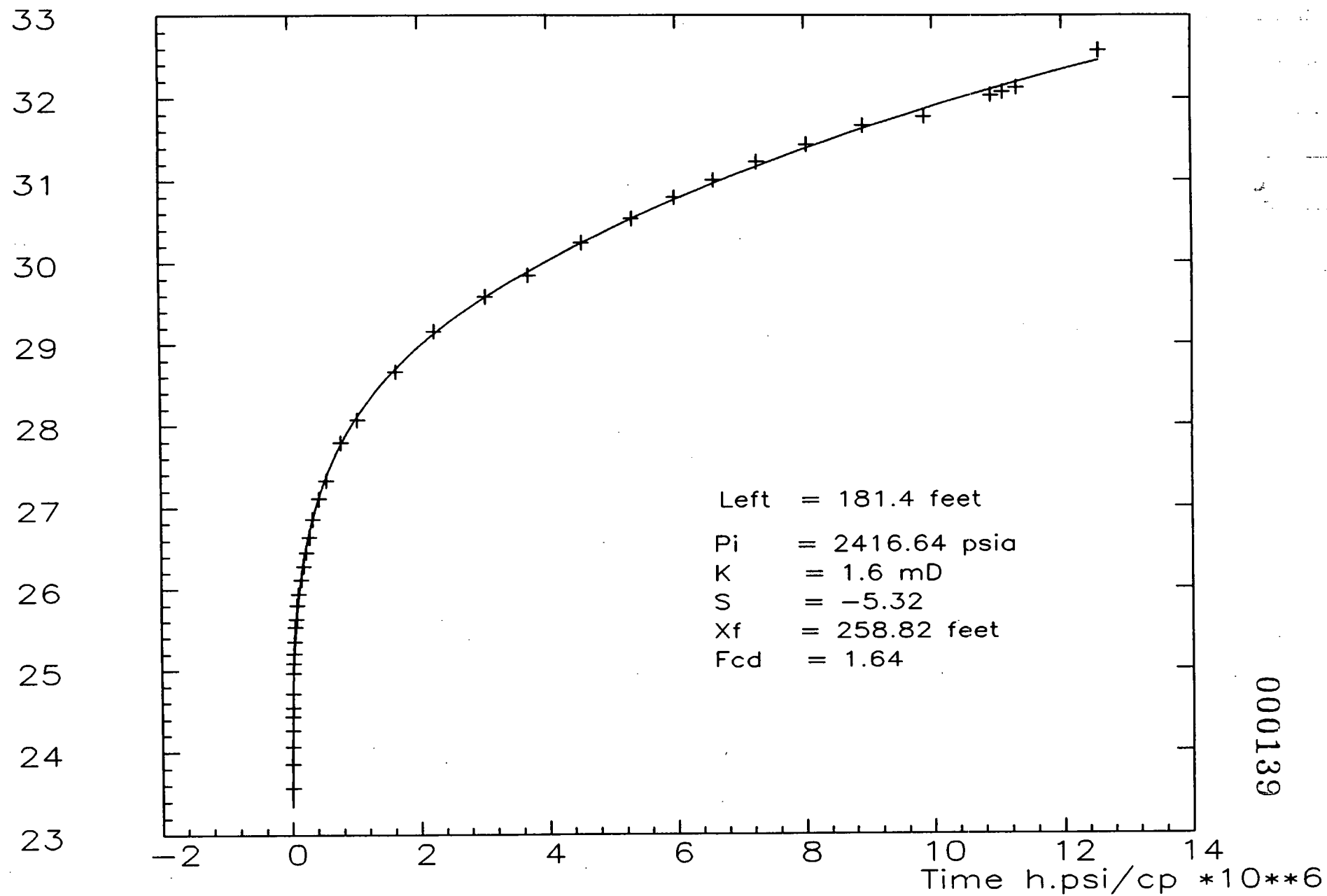
000136

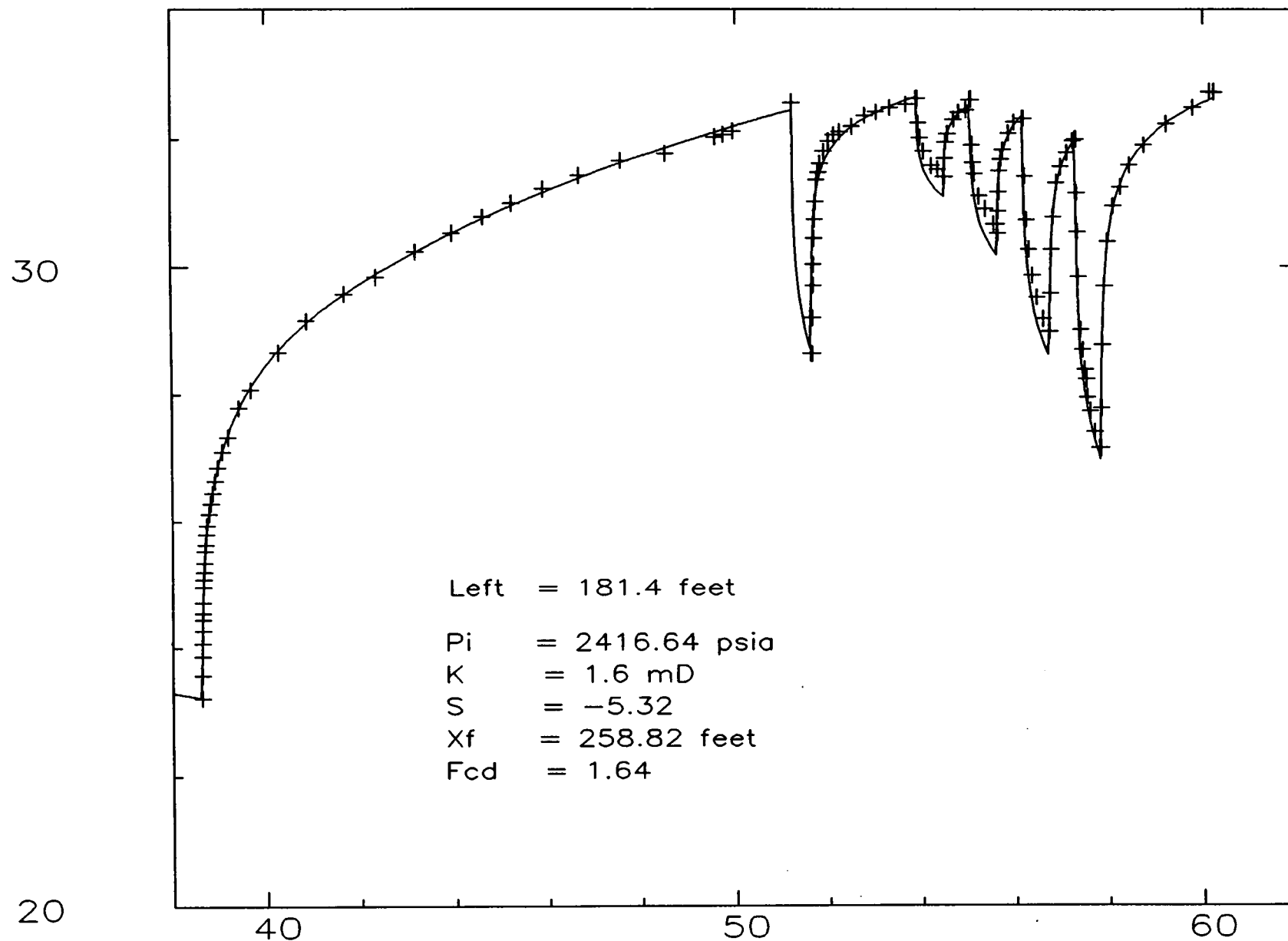
B3 PRESSURE BUILD-UP ANALYSIS

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

P psi2/cp *10**7



P psi²/cp *10**7

P psi²/cp *10**7

Time h.psi/cp *10**6

000140

000141

B4 ITERATIONS

Project: Bookabourdie 10
 Subject: Post Frac Mod Iso
 Date: May 22, 1991
 By: JJK
 Sheet 1 of 1

GASPAC RESULTS

P int (psia)	z	compr psia(-1 x10(-3)	visc cp	P grad psi/ft	P/Z psia
2400	0.90051	0.41313	0.01828	0.05745	2665.17
2500	0.90101	0.39226	0.01858	0.05981	2774.65

		KE =	156 '		
Pextrap =	2416.6 (psia)	d gauge =	9491 'KE		
Pmpp =	2420.8 (psia)	d mpp =	9585 'KE	grad stat =	0.046 psi/ft
DP =	4.2	d z =	91 '		
Pdatum =	2417.4 (psia)	d datum =	9526 'KE	grad gasp =	0.057941 psi/ft
DP =	-3.4	(d datum =	9370 'SS)		
		d z =	-59 '		

P/Z = 2684.2 (psia) Plot P/Z on graph to find OGIP.

Data

		P approx	2417.4 (psia)		
OGIP	5.8 (BCF)	porosity	0.123 (fraction)	Cg	4.09E-04 (1/psi)
Gp	2.3 (BCF)	Sw	0.161 (fraction)	Cw	3.60E-06 (1/psi)
RRG	3.5 (BCF)	Sg	0.839 (fraction)	Cf	4.50E-06 (1/psi)
z	0.90060	h	74.0 (feet)	Ct	2.49E-04 (1/psi)
T	733 (R)	viscosity	0.01833 (cp)	k	1.6 (mD)
P	2417 (psia)	Ca	31.6 Shape Fac		

Calculations

Area 3,529,417 sq ft

81 acres

t to pss 207.9 hours

B5 WELLTEST DATA

COMMENTS

PARAMS

000144

'FIELDNAM' 'BOOKABOURDIE'
'WELLNAME' 'BOOKABOURDIE 10'
'TESTNUM' 1 /
'TESTDATE' 20 2 1990 /
'PHASE' 'GAS' /
'ANALYSIS' /
'UNITCONV' 'FIELD' /
'NUMWELLS' 1 /
'NUMLAYER' 1 /
'NUMPOINT' 2000 /

PVTGAS 'FIELD'

'TRES' 273.0000 /
'TSTD' 60.00000 /
'PSTD' 14.70000 /
'TIMECALC' 'PSEUDO' /
'TABLE'
200.0000 0.985120 0.013850
400.0000 0.971040 0.014100
600.0000 0.957910 0.014400
800.0000 0.945840 0.014830
1000.000 0.934970 0.015240
1200.000 0.925420 0.015550
1400.000 0.917310 0.015920
1600.000 0.910730 0.016350
1800.000 0.905740 0.016780
2000.000 0.902380 0.017220
2200.000 0.900650 0.017700
2400.000 0.900510 0.018280
2600.000 0.901900 0.018870
2800.000 0.904740 0.019450
3000.000 0.908940 0.020070
3200.000 0.914380 0.020710
3400.000 0.920970 0.021340
3600.000 0.928600 0.021970
3800.000 0.937160 0.022610
4000.000 0.946560 0.023240
4200.000 0.956710 0.023880
4400.000 0.967540 0.024500
4600.000 0.978970 0.025120
4800.000 0.990930 0.025740
5000.000 1.003380 0.026360

WELPROP 'FIELD'

'RADIUS' 0.354000 /
'THICKNES' 74.00000 /
'PORO' 0.123000 /
'ROCKCOMP' 0.450E-05 /
'WATSAT' 0.161000 /
'WATCOMP' 0.360E-05 /

PRESSURE 'FIELD'

— BOOKABOURDIE

Test 1 (20EFEB 1990)

'UNITS' 'Hours' 'psia' /

'DATA'

0.00000000	4000.000
208.000000	1831.260
208.001000	1846.070
208.002000	1858.300
208.024000	1866.870
208.055000	1875.180
208.084000	1882.450
208.110000	1886.600
208.131000	1893.870
208.175000	1904.520
208.229000	1909.430
208.287000	1914.350
208.349000	1920.040
208.448000	1927.280
208.589000	1931.110
208.681000	1937.570
208.824000	1942.960
209.178000	1950.070
209.482000	1956.430
209.786000	1962.790
210.185000	1970.140
210.584000	1978.530
211.363000	1988.300
212.268000	1996.970
213.978000	2014.880
215.879000	2025.680
220.241000	2048.830
224.635000	2068.060
230.472000	2084.530
235.248000	2094.220
241.254000	2108.790
246.799000	2119.410
251.528000	2128.870
255.948000	2136.650
260.752000	2144.770
266.231000	2152.310
272.469000	2160.780
279.194000	2164.870
286.612000	2174.350
287.834000	2175.850
289.313000	2177.750
298.193000	2194.180
298.250000	2194.200
301.100000	2047.760
301.347000	2047.760
301.369000	2069.710
301.421000	2089.350
301.485000	2101.330
301.546000	2116.380
301.634000	2127.090
301.769000	2137.270
301.982000	2150.000
302.270000	2154.040
302.530000	2159.100
303.097000	2166.160
303.836000	2172.170
304.602000	2175.620
305.507000	2177.260
307.378000	2180.290
309.386000	2186.610
311.085000	2188.640
313.152000	2191.130
315.574000	2193.050
317.100000	2196.300
317.251000	2196.360

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317.397000	2182.300
317.633000	2174.090
318.188000	2166.350
319.358000	2158.000
320.289000	2155.820
321.100000	2151.580
321.255000	2151.580
321.338000	2162.030
321.468000	2171.710
321.746000	2176.260
322.699000	2184.280
323.481000	2188.490
324.556000	2189.860
325.100000	2195.870
325.257000	2195.870
325.363000	2170.080
325.510000	2159.590
325.703000	2153.440
326.358000	2140.580
327.286000	2133.290
328.595000	2124.410
329.100000	2124.410
329.216000	2119.200
329.280000	2131.950
329.346000	2142.920
329.474000	2154.890
329.774000	2161.740
330.062000	2167.050
330.970000	2176.600
331.858000	2182.850
333.100000	2184.920
333.278000	2184.920
333.372000	2151.990
333.594000	2126.940
333.924000	2110.050
334.441000	2094.910
335.148000	2082.290
336.119000	2069.130
337.100000	2061.560
337.191000	2061.560
337.236000	2084.770
337.400000	2110.010
337.705000	2128.600
338.246000	2148.420
338.919000	2157.240
339.914000	2165.510
340.786000	2172.260
341.100000	2173.210
341.256000	2173.210
341.300000	2142.580
341.357000	2120.120
341.458000	2094.070
341.847000	2062.620
342.173000	2050.310
342.544000	2038.000
342.780000	2031.840
342.905000	2020.850
343.389000	2012.600
344.108000	1999.980
344.889000	1990.160
345.100000	1990.120
345.163000	1990.120
345.206000	2014.360
345.296000	2053.400
345.569000	2088.830
346.060000	2114.530

346.932000	2134.810
348.076000	2145.860
349.484000	2158.150
351.679000	2169.800
355.084000	2181.770
359.079000	2191.100
361.486000	2200.160
362.180000	2200.030

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RATE

'FIELD'

'UNITS'

'Hours'

'Mscf/day'

'DATA'

0.00000000	6661.000
208.000000	0.000000
298.250000	6661.000
301.100000	0.000000
317.100000	2631.000
321.100000	0.000000
325.100000	4059.000
329.100000	0.000000
333.100000	6435.000
337.100000	0.000000
341.100000	8654.000
345.100000	0.000000
362.180000	0.000000

END

Analysis Type :SIMPLIFIED

Initial Pressure: 2443.8 psia

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Period	Duration hours	Pressure psia	P**2 psia2	Del P**2 psia2	Rate Mscf/day
Flowing 1	4.00	2151.58	0.463E+07	0.195E+06	2631.00
Shut-in	4.00	2195.87	0.482E+07		
Flowing 2	4.00	2119.20	0.449E+07	0.331E+06	4059.00
Shut-in	4.00	2184.92	0.477E+07		
Flowing 3	4.00	2061.56	0.425E+07	0.524E+06	6435.00
Shut-in	4.00	2173.21	0.472E+07		
Flowing 4	4.00	1990.12	0.396E+07	0.762E+06	8654.00
Extended 5	56.00	1831.26	0.335E+07	0.137E+07	6661.00

Analysis Type :LIT - PSEUDO PRESSURE Initial Pressure: 2443.8 psia

Period	Duration hours	Pressure psia	m(P) psi2/cp	Del m(P) psi2/cp	Rate Mscf/day
Flowing 1	4.00	2151.58	0.314E+09	0.122E+08	2631.00
Shut-in	4.00	2195.87	0.326E+09		
Flowing 2	4.00	2119.20	0.305E+09	0.210E+08	4059.00
Shut-in	4.00	2184.92	0.323E+09		
Flowing 3	4.00	2061.56	0.290E+09	0.333E+08	6435.00
Shut-in	4.00	2173.21	0.320E+09		
Flowing 4	4.00	1990.12	0.272E+09	0.485E+08	8654.00
Extended 5	56.00	1831.26	0.232E+09	0.879E+08	6661.00

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000150

B6 STATIC GRADIENT

**EXPERTEST**

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COVINGDALE 5000

PH. (08) 354 0488 TELEX 845133

FAX (08) 43 1438

138 RICHMOND ROAD MARLETON

SOUTH AUSTRALIA 5000

Tested Monday, 26th February 1990.

CLIENT	LOCATION	FORMATION
Santos Ltd.	BOOKABOURDIE#10	TIRRAWARRA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	59451	5000	16/ 2/90
Bottom	60322	5000	16/ 2/90

WELL DATA	
PARAMETER	VALUE
DWT In	1677 psig
DWT Out	1581 psig
Max BHT	305 F

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.6430	1663.6	-----	0.6550	1667.2	-----
1000	0.6650	1720.9	0.057	0.6760	1720.9	0.054
2000	0.6860	1775.5	0.055	0.6980	1777.1	0.056
3000	0.7070	1830.2	0.055	0.7190	1830.8	0.054
4000	0.7270	1882.2	0.052	0.7400	1894.4	0.054
5000	0.7480	1936.9	0.055	0.7610	1938.1	0.054
6000	0.7690	1991.5	0.055	0.7810	1989.2	0.051
7000	0.7890	2043.6	0.052	0.8020	2042.9	0.054
7500	0.7990	2059.6	0.052	0.8120	2058.5	0.051
8000	0.8100	2058.3	0.057	0.8220	2094.1	0.051
8500	0.8190	2121.7	0.047	0.8320	2119.6	0.051
9000	0.8280	2145.1	0.047	0.8420	2145.2	0.051
9500	0.8380	2171.1	0.052	0.8510	2168.2	0.048
LUB.	0.6450	1668.8	-----	0.6560	1669.7	-----

GENERAL REMARKS

No Temperature Element Run

APPENDIX C

C. GASPAC DATA

OPTIONS

CALCULATE SPECIFIC GRAVITY, PSEUDO-CRITICAL TEMPERATURE AND PRESSURE?
 USE DEFAULT VALUES FOR FINAL HYDROCARBON PROPERTIES?
 USE RESERVOIR TEMPERATURE FOR FIRST PVT TABLE?
 USE AVERAGE TUBING TEMPERATURE FOR SECOND PVT TABLE?
 USE GATH. SYSTEM TEMPERATURE FOR THIRD PVT TABLE?
 CALCULATE PVT TABLE(S)?
 PRINT PVT TABLE(S)?
 PLOT POTENTIAL?

YES
 NO
 YES
 YES
 NO
 YES
 YES
 NO

GAS PROPERTIES

CONSTITUENTS :	MOLE
:	PERCENT
NITROGEN :	1.020
CO2 :	13.010
H2S :	0.000
METHANE :	69.510
ETHANE :	10.630
PROPANE :	2.780
I-BUTANE :	0.470
N-BUTANE :	0.720
I-PENTANE :	0.230
N-PENTANE :	0.190
HEXANE :	0.250
HEPTANE :	0.280
OCTANE + :	0.910
TOTAL :	100.000

MOLECULAR WEIGHT OF OCTANE +	=	142.290
PSEUDO-CRITICAL TEMPERATURE OF OCTANE +	=	1111.30 DEG. R
PSEUDO-CRITICAL PRESSURE OF OCTANE +	=	304.5 PSIA
MOLECULAR WEIGHT	=	24.37
SPECIFIC GRAVITY	=	0.8414
PSEUDO-CRITICAL TEMPERATURE	=	416.5 DEG. R
PSEUDO-CRITICAL PRESSURE	=	714.4 PSIA
RESERVOIR TEMPERATURE	=	273.0 DEG. F
TUBING HEAD TEMPERATURE	=	100.0 DEG. F
MAXIMUM PRESSURE FOR PVT TABLES	=	5000. PSIA
PRESSURE INCREMENT FOR PVT TABLES	=	100. PSI

PVT TABLE AT RESERVOIR

TEMPERATURE = 273. DEG. F = 733. DEG. R

PRESSURE PSIA	Z	COMPRESS. PSIA(-1) X 10(-3)	VISCOSITY CP	POTENTIAL PSIA(2)/CP X 10(6)	PRESSURE GRADIENT PSI/FT	P/Z PSIA
14.65	0.99889	68.33543	0.01374			
100.00	0.99247	10.07500	0.01377	0.731	0.00217	100.76
200.00	0.98512	5.07359	0.01385	2.929	0.00438	203.02
300.00	0.97797	3.40531	0.01396	6.591	0.00661	306.76
400.00	0.97104	2.57017	0.01410	11.712	0.00888	411.93
500.00	0.96435	2.06815	0.01422	18.276	0.01118	518.48
600.00	0.95791	1.73257	0.01440	26.279	0.01350	626.37
700.00	0.95173	1.49201	0.01461	35.659	0.01585	735.50
800.00	0.94584	1.31075	0.01483	46.399	0.01823	845.81
900.00	0.94024	1.16895	0.01505	58.457	0.02063	957.20
1000.00	0.93497	1.05470	0.01524	71.837	0.02305	1069.56
1100.00	0.93002	0.96044	0.01538	86.547	0.02549	1182.77
1200.00	0.92542	0.88112	0.01555	102.588	0.02795	1296.71
1300.00	0.92118	0.81326	0.01574	119.900	0.03042	1411.23
1400.00	0.91731	0.75439	0.01592	138.456	0.03290	1526.20
1500.00	0.91382	0.70268	0.01613	158.222	0.03538	1641.45
1600.00	0.91073	0.65680	0.01635	179.145	0.03787	1756.83
1700.00	0.90804	0.61570	0.01657	201.194	0.04035	1872.17
1800.00	0.90574	0.57861	0.01678	224.337	0.04284	1987.32
1900.00	0.90386	0.54491	0.01700	248.543	0.04531	2102.10
2000.00	0.90238	0.51410	0.01722	273.780	0.04777	2216.35
2100.00	0.90131	0.48581	0.01744	300.014	0.05022	2329.93
2200.00	0.90065	0.45971	0.01770	327.197	0.05265	2442.69
2300.00	0.90038	0.43556	0.01799	355.201	0.05506	2554.48
2400.00	0.90051	0.41313	0.01828	383.980	0.05745	2665.17
2500.00	0.90101	0.39226	0.01858	413.498	0.05981	2774.65
2600.00	0.90190	0.37280	0.01887	443.718	0.06214	2882.81
2700.00	0.90314	0.35461	0.01916	474.604	0.06444	2989.56
2800.00	0.90474	0.33759	0.01945	506.120	0.06671	3094.81
2900.00	0.90668	0.32165	0.01975	538.230	0.06894	3198.50
3000.00	0.90894	0.30671	0.02007	570.867	0.07114	3300.56
3100.00	0.91151	0.29267	0.02039	603.993	0.07331	3400.95
3200.00	0.91438	0.27949	0.02071	637.578	0.07543	3499.62
3300.00	0.91754	0.26710	0.02102	671.589	0.07752	3596.56
3400.00	0.92097	0.25543	0.02134	705.998	0.07957	3691.74
3500.00	0.92466	0.24446	0.02166	740.777	0.08159	3785.16
3600.00	0.92860	0.23411	0.02197	775.898	0.08356	3876.80
3700.00	0.93277	0.22436	0.02229	811.337	0.08550	3966.68
3800.00	0.93716	0.21517	0.02261	847.068	0.08740	4054.80
3900.00	0.94176	0.20649	0.02293	883.068	0.08926	4141.18
4000.00	0.94656	0.19829	0.02324	919.314	0.09109	4225.83
4100.00	0.95155	0.19054	0.02356	955.785	0.09287	4308.77
4200.00	0.95671	0.18321	0.02388	992.461	0.09462	4390.03
4300.00	0.96205	0.17628	0.02419	1029.322	0.09634	4469.64
4400.00	0.96754	0.16972	0.02450	1066.358	0.09802	4547.63
4500.00	0.97318	0.16350	0.02481	1103.557	0.09967	4624.01
4600.00	0.97897	0.15760	0.02512	1140.901	0.10128	4698.84
4700.00	0.98488	0.15201	0.02543	1178.374	0.10286	4772.13
4800.00	0.99093	0.14670	0.02574	1215.963	0.10441	4843.93
4900.00	0.99710	0.14166	0.02605	1253.652	0.10592	4914.27
5000.00	1.00338	0.13687	0.02636	1291.428	0.10741	4983.17

APPENDIX D

000157

D. BOOKABOURDIE 10 COMPOSITION

OPTIONS

000158

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

GAS PROPERTIES

CONSTITUENTS :		C ₉₊ default		C ₁₀₊ default	
: MOLE					
: PERCENT					
NITROGEN	: 0.790	SF	0.7623		0.7623
CO2	: 14.720	LPG	20.57		20.57
H2S	: 0.000	Cond	8.89		8.89
METHANE	: 71.050				
ETHANE	: 9.510				
PROPANE	: 2.140				
I-BUTANE	: 0.320				
N-BUTANE	: 0.650				
I-PENTANE	: 0.140				
N-PENTANE	: 0.110				
HEXANE	: 0.190				
HEPTANE	: 0.140				
OCTANE +	: 0.240				
TOTAL	: 100.000				

MOLECULAR WEIGHT OF OCTANE +	=	128.300
PSEUDO-CRITICAL TEMPERATURE OF OCTANE +	=	1070.35 DEG. R
PSEUDO-CRITICAL PRESSURE OF OCTANE +	=	331.9 PSIA
MOLECULAR WEIGHT	=	23.26
SPECIFIC GRAVITY	=	0.8029
PSEUDO-CRITICAL TEMPERATURE	=	407.7 DEG. R
PSEUDO-CRITICAL PRESSURE	=	725.2 PSIA
RESERVOIR TEMPERATURE = 273.0 DEG. F	=	732.7 DEG. R
TUBING HEAD TEMPERATURE = 100.0 DEG. F	=	559.7 DEG. R
MAXIMUM PRESSURE FOR PVT TABLES	=	5000. PSIA
PRESSURE INCREMENT FOR PVT TABLES	=	100. PSI

Bookabouadie #10

Bottomhole Pressure Survey

30/11/91 - 11/12/91

SEQUENCE OF EVENTS

- 30/11/91 Ran in the hole with an electric line tool and amerada and on depth 9550' KB @ 2013 hours.
- 1/12/91 Shut well in @ 0100 hours and monitored buildup until 1321 hours on 6/12/91 for a buildup time of 132 hours 21 min.
- 6/12/91 Ran in hole with electric line tool and amerada and on depth 9550' KB to continue buildup @ 1855 hours. Monitored buildup until 0630 hrs on 11/12/91 for a total buildup time of 245 hours 30 min. (Additional time on Run 02 is 107 hours 35 min.)
- 11/12/91 End buildup, ran static gradient survey

PRESSURE BUILDUP

Run # 1. Element # 55993 @ 9550' KB after 132 hrs 21 min.

S.I.B.H.P. = 1150.7 psig = 7934 kPa

Run # 2. Element # 55993 @ 9550' KB

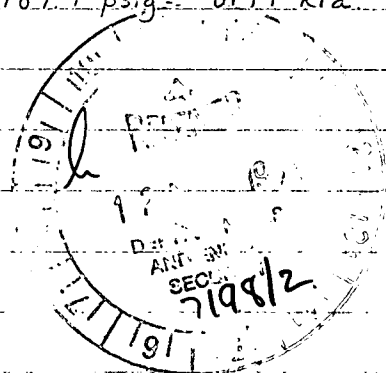
S.I.B.H.P. (final) = 1189.1 psig = 8199 kPa

Maximum B.H.T. = 282°F = 139.0°C

STATIC GRADIENT

11/12/91 Ran Static Gradient to mpp

Element # 55993 @ 9610 ft. KB S.I.B.H.P. = 1188.6 psig = 8195 kPa



LEGAL CROSS

Bookaboundie # 10

Bottomhole Pressure Survey

30/11/91 - 11/12/91

Production SummaryCumulative Production to end November 1991 = $132.5 \times 10^6 \text{ m}^3$ Average daily rate for November 1991 = $55.4 \times 10^3 \text{ m}^3/\text{d}$

$$t = \frac{132,500 \times 10^3 \text{ m}^3}{55.4 \times 10^3 \text{ m}^3/\text{d}} \times 24 \quad t = 57401 \text{ hours}$$

SUB-SURFACE PRESSURE SURVEY

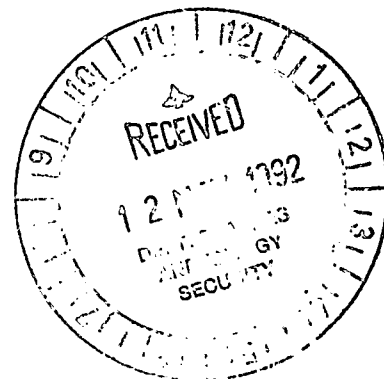
000161

CO. SANTOS		RUN 01 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9550 FT KB
CASING	-	CASING PRESS	ON BOTTOM 2013 911130
LINER	-	TUBING PRESS	OFF BOTTOM 1321 911206
DATE	911130	ELEMENT RANGE	0 - 5174
ELEVATION		ZONE	SHUT-IN 0100 911201
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO.	55993
TUBING	-		MPP
UNITS	ENGLISH	PURPOSE	BOTTOMHOLE PRESSURE BUILDUP

SURVEY DATA

CO. SANTOS				RUN 01 FIELD BOOKABOURDIE				WELL 10			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
1:00	1012.7	1012.7	.0	12:16	1111.9	1111.9	35.3				
1:02	1019.8	1019.8	.0	15:23	1112.2	1112.2	38.4				
1:03	1023.6	1023.6	.1	18:28	1112.8	1112.8	41.5				
1:05	1027.3	1027.3	.1	22:15	1115.3	1115.3	45.3				
1:08	1032.6	1032.6	.1	1:42	1118.1	1118.1	48.7				
1:12	1037.7	1037.7	.2	6:17	1121.2	1121.2	53.3				
1:19	1040.1	1040.1	.3	10:23	1123.0	1123.0	57.4				
1:26	1044.1	1044.1	.4	14:47	1123.5	1123.5	61.8				
1:38	1047.0	1047.0	.6	17:53	1125.5	1125.5	64.9				
1:50	1047.8	1047.8	.8	21:26	1128.0	1128.0	68.4				
2:09	1050.3	1050.3	1.2	1:52	1131.0	1131.0	72.9				
2:38	1054.3	1054.3	1.6	6:06	1129.9	1129.9	77.1				
3:04	1057.2	1057.2	2.1	11:08	1131.9	1131.9	82.1				
3:52	1061.4	1061.4	2.9	15:52	1133.4	1133.4	86.9				
4:58	1066.6	1066.6	4.0	20:38	1136.9	1136.9	91.6				
6:01	1068.5	1068.5	5.0	0:59	1139.2	1139.2	96.0				
7:20	1073.1	1073.1	6.3	4:27	1140.7	1140.7	99.4				
8:41	1076.1	1076.1	7.7	9:09	1142.5	1142.5	104.2				
10:41	1080.8	1080.8	9.7	13:31	1143.3	1143.3	108.5				
12:29	1084.7	1084.7	11.5	17:11	1144.6	1144.6	112.2				
14:06	1087.7	1087.7	13.1	20:49	1144.5	1144.5	115.8				
17:12	1092.3	1092.3	16.2	0:48	1146.6	1146.6	119.8				
19:50	1094.5	1094.5	18.8	4:44	1146.7	1146.7	123.7				
23:33	1099.6	1099.6	22.6	9:07	1147.2	1147.2	128.1				
2:41	1103.2	1103.2	25.7	11:24	1149.2	1149.2	130.4				
5:36	1105.6	1105.6	28.6	12:40	1148.1	1148.1	131.7				
8:38	1109.8	1109.8	31.6	13:21	1150.7	1150.7	132.4				

LUB IN DWT = 728 PSI / OUT = 905 PSI
 LUB IN AMERADA = 735 PSI / OUT = 912 PSI



SUB-SURFACE PRESSURE SURVEY

000162

CO. SANTOS		RUN 02 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9550 FT KB
CASING	-	CASING PRESS	ON BOTTOM 1855 911206
LINER	-	TUBING PRESS	OFF BOTTOM 0630 911211
DATE	911130	ELEMENT RANGE 0 - 5174	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0100 911201
MAX TEMP		PICK-UP	ON-PROD
PERF	-	CAL SER NO. 55993	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	PRESSURE BUILDUP continued

SURVEY DATA

CO. SANTOS			RUN 02 FIELD BOOKABOURDIE		WELL 10		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
18:55	1157.4	1157.4	.0	16:35	1170.2	1170.2	45.7
20:09	1156.4	1156.4	1.2	20:50	1171.4	1171.4	49.9
21:35	1158.2	1158.2	2.7	0:59	1173.5	1173.5	54.1
23:40	1158.8	1158.8	4.7	5:16	1174.5	1174.5	58.4
1:51	1160.5	1160.5	6.9	9:53	1175.5	1175.5	63.0
4:40	1160.9	1160.9	9.7	14:48	1179.3	1179.3	67.9
7:58	1160.7	1160.7	13.1	20:36	1177.7	1177.7	73.7
11:10	1161.8	1161.8	16.3	3:17	1180.2	1180.2	80.4
15:11	1163.0	1163.0	20.3	9:27	1183.7	1183.7	86.5
19:35	1164.9	1164.9	24.7	13:52	1182.7	1182.7	91.0
23:42	1166.0	1166.0	28.8	20:42	1183.9	1183.9	97.8
3:10	1168.2	1168.2	32.2	1:36	1186.6	1186.6	102.7
7:12	1169.2	1169.2	36.3	5:34	1189.9	1189.9	106.6
11:42	1168.9	1168.9	40.8	6:30	1189.1	1189.1	107.6

LUB IN DWT = 905 PSI / OUT = 924 PSI

LUB IN AMERADA = 968 PSI

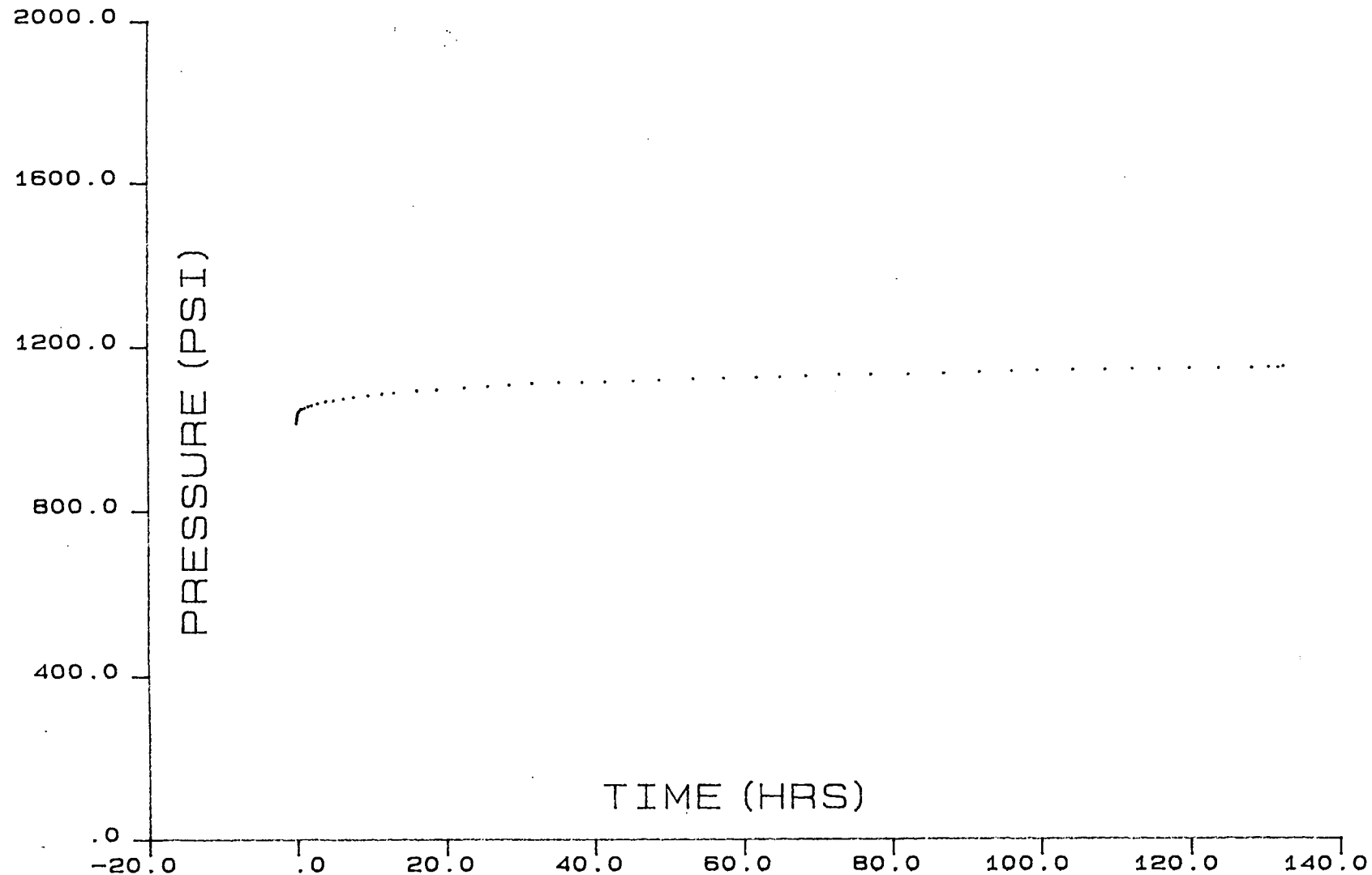
LUB OUT AMERADA = 959 PSI

BOOKABOURDIE 10

PRESSURE BUILDUP SURVEY

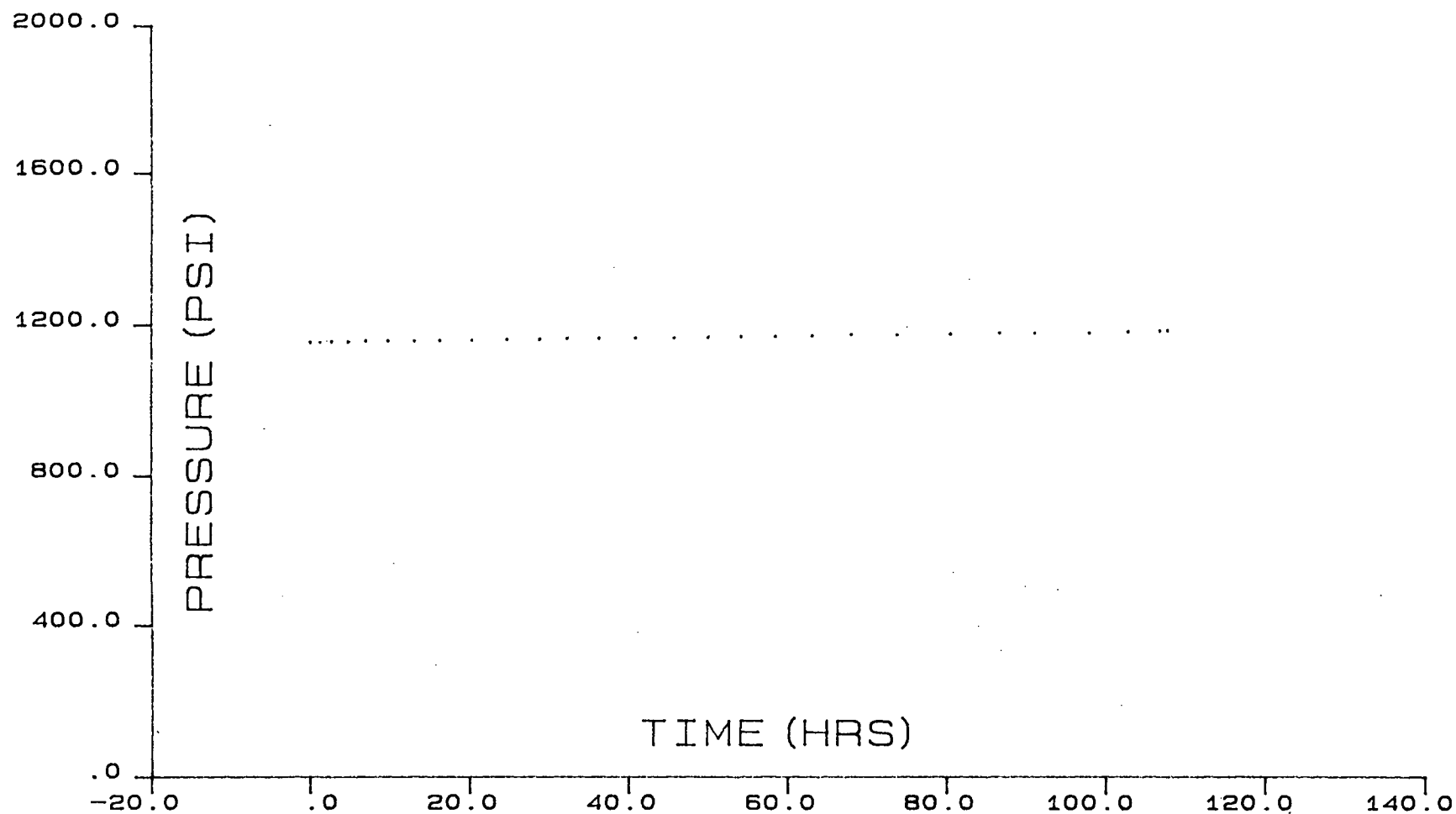
30 NOV - 11 DEC 1991

ELEMENT # 55993 @ 9550 FT KB



000163

BOOKABOURDIE 10. PRESSURE BUILDUP (continued)
30 NOV - 11 DEC 1991
ELEMENT #55993 @ 9550 FT KB



000164

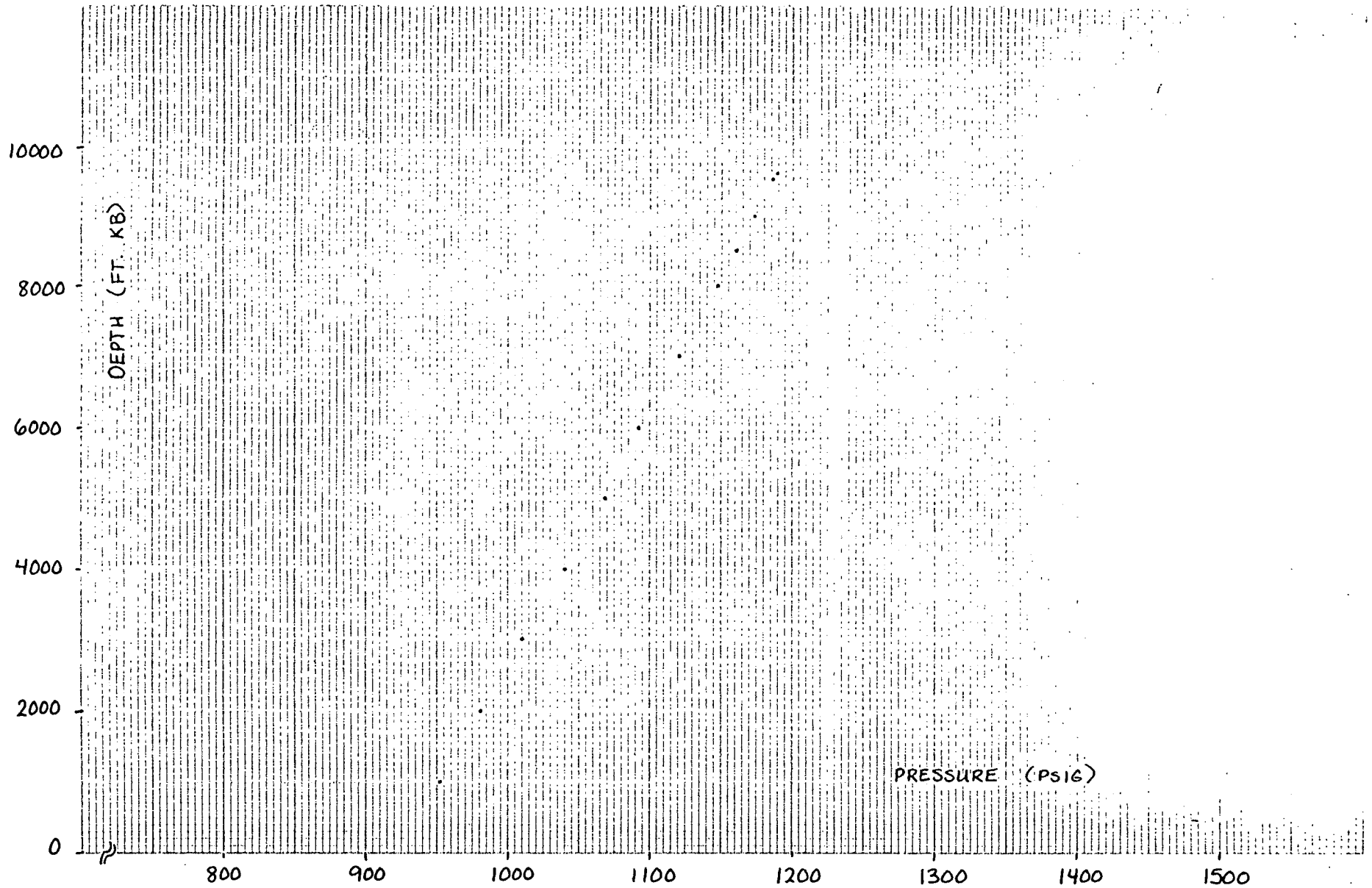
SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 03 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9610 FT KB
CASING	-	CASING PRESS	ON BOTTOM
LINER	-	TUBING PRESS	OFF BOTTOM
DATE	911211	ELEMENT RANGE	0 - 5174
ELEVATION		ZONE	ZERO POINT
MAX TEMP		PICK-UP	SHUT-IN
PERF	-	CAL SER NO.	55993
TUBING	-		MPP
UNITS	ENGLISH	PURPOSE	STATIC PRESSURE GRADIENT

SURVEY DATA

CO. SANTOS		RUN 03 FIELD BOOKABOURDIE		WELL 10			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
8:21	921.8	921.8	LUB .3	12:41	1120.9	1120.9	7000 4.7
9:04	926.9	926.9	LUB 1.0	13:16	1147.2	1147.2	8000 5.2
9:36	951.8	951.8	1000 1.6	13:48	1161.3	1161.3	8500 5.8
10:10	981.2	981.2	2000 2.1	14:13	1172.9	1172.9	9000 6.2
10:43	1010.2	1010.2	3000 2.7	15:27	1186.2	1186.2	9550 7.4
11:11	1039.2	1039.2	4000 3.1	16:08	1188.6	1188.6	9610 8.1
11:45	1067.7	1067.7	5000 3.7	18:26	920.3	920.3	LUB 10.4
12:13	1091.9	1091.9	6000 4.2	0:00	.0	.0	.0

BOOKABOURDIE #10 - STATIC PRESSURE GRADIENT - 11/12/91.
ELEMENT # 55493 (BOTTOM)



000167

S E C T I O N N O 1

TEST RESULTS

By: OILSERV AUSTRALIA LTD
6 BREDBO STREET
LONSDALE. S.A. 5160

TELEPHONE: (08) 326 1588
FACSIMILE: (08) 326 1593



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERV	PERFORATIONS: 9594' - 9625' K.B	PAGE: 1 OF 7
WELL NAME: BOOKABOURDIE #10	FORMATION: TIRRAWARRA	DATE: 29/11/91
TEST TYPE: B.H.P SURVEY		OPR: KUNAC, KAPPLER

TIME		WELLHEAD DATA				SEPARATOR 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 m³/10³D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³/10³	OIL BBLs m³	WATER BBLs m³	L.G.R. BBLs/MMSCF m³/10³m³
						B.H.P SURVEY								
29/11/91														
1430						MOVE FROM Bimbaya #3 TO BOOKABOURDIE #10								
1530						SPOT EQUIPMENT ON LEASE								
1630						FINISH SPOTTING EQUIPMENT ON LEASE								
1645						SERVICE EQUIPMENT BEFORE RUNNING DRIFT RUN								
						COMPLETE RIG UP FOLLOWING DAY								
30/11/91														
0600						RIGGING UP W/LINE UNIT								
0850						FINISH RIGGING UP W/LINE UNIT								
0926		5033	110		100%	PRESSURE UP LUB								
0928						R.I.H WITH 5' WEIGHT BAR, SPANG JARS & 1.750" GAUGE CUTTER								
						TO 9622' K.B ONLY BECAUSE OF OBSTRUCTION								
1101						P.O.O.H								
1209						IN LUB								
1211						DEPRESSURE LUB								
1300						PREPARE ELECTRIC LINE FOR C.C.L RUN								
1402		5026	103		100%	PRESSURE UP LUB								
1404						R.I.H FOR C.C.L RUN								
1536						P.O.O.H								
1639						IN LUB								
1641						DEPRESSURE LUB								
1645						PREPARE E/LINE TOOL & AMERADA								

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PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERV	PERFORATIONS: 9594'-9625' I.C.B	PAGE: 2 OF 7
WELL NAME: BOO/CABOURDIE #10	FORMATION: TIRRAWARRA	DATE: 30/11/91
TEST TYPE: B.H.P SURVEY		OPR: KUNAC, KAPLER

TIME		WELLHEAD DATA				SEPARATOR 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. BBLS/MMSCFD m³/10³m³	
30/11/91															
1709						IN LUB (ATMOSPHERE)									
1739		5026	76		100%	PRESSURE UP LUB									
1839						DEPRESSURE LUB (ATMOSPHERE)									
1909		5020	62		100%	PRESSURE UP LUB									
1910						R.T.H WITH ELECTRIC LINETOOL & AMERADA									
2013		5020	62		100%	ON HANG DEPTH 9550' I.C.B									
2030		5013	62	48	100%										
2100		5013	62	48	100%										
2130		5013	55	48	100%										
2200		5013	48	47.5	100%										
2230		5013	55	47	100%										
2300		5013	62	47	100%										
2330		5005	62	47.5	100%										
2400		5005	62	48	100%										
1/12/91															
0030		5005	55	47.5	100%										
0100	00.00	4999	48	47.5	100%	SHUT WELL IN FOR BUILDUP									
0115		5592	34												
0130		5633	41												
0145		5654	41												
0200	01.00	5681	34												
0215		5695	21												



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERV	PERFORATIONS: 9594'-9625' K.B	PAGE: 3 OF 7
WELL NAME: BOOKABOURDIE #10	FORMATION: TIRRAWARRA	DATE: 1/12/91
TEST TYPE: B.H.P SURVEY		OPR: KUNAG KAPLER

TIME		WELLHEAD DATA				SEPARATOR DATA		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 m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCF m³10³	OIL BBLs m³	WATER BBLs m³	BBLs MMSCF m³/10³m³		
1/12/91																
0230		5702	21													
0245		5709	28													
0300	02.00	5716	34													
0315		5723	34													
0330		5730	28													
0345		5730	28													
0400	03.00	5737	28													
0415		5744	28													
0430		5750	21													
0445		5750	21													
0500	04.00	5757	21													
0600	05.00	5778	21													
1000	09.00	5833	0													
1400	13.00	5875	0													
1800	17.00	5902	0													
2200	21.00	5923	0													
2/12/91																
0200	25.00	5937	0													
0600	29.00	5950	0													
1000	33.00	5978	0													
1400	37.00	6006	0													
1800	41.00	6026	0													

0001720



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERV	PERFORATIONS: 9594'-9625' I.C.B	PAGE: 4 OF 7
WELL NAME: BOOKABOURDIE #10	FORMATION: TIRRAWARRA	DATE: 2/12/91
TEST TYPE: B.H.P SURVEY		OPR: ICUNAC, ICADDER

TIME		WELLHEAD DATA				SEPARATOR 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. BBLS/MMSCFD m³/10³m³	
2/12/91															
2200	45.00	6040	0												
3/12/91															
0200	49.00	6054	0												
0600	53.00	6068	0												
1000	57.00	6081	0												
1400	61.00	6095	0												
1800	65.00	6109	0												
2200	69.00	6116	0												
4/12/91															
0200	73.00	6123	0												
0600	77.00	6137	0												
1000	81.00	6150	0												
1400	85.00	6157	0												
1800	89.00	6164	0												
2200	93.00	6171	0												
5/12/91															
0200	97.00	6178	0												
0600	101.00	6185	0												
1000	105.00	6192	0												
1400	109.00	6199	0												
1800	113.00	6206	0												
2200	117.00	6212	0												



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: <u>ALSERV</u>	PERFORATIONS: <u>9594'-9625' K.B</u>	PAGE: <u>5</u> OF <u>7</u>
WELL NAME: <u>BOULABOURDIE #10</u>	FORMATION: <u>TIRPAWARRA</u>	DATE: <u>6/12/91</u>
TEST TYPE: <u>B.H.P. SURVEY</u>		OPR: <u>KUNAC, KAPPLER</u>

TIME		WELLHEAD DATA				SEPARATOR 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 BD m ³ /D	WATER BD m ³ /D	GAS MMSCF m ³ /10 ³	OIL BDLS m ³	WATER BDLS m ³	L.G.R. BDLS/MMSCF m ³ /10 ³ m ³
5/12/91															
0200	121.00	6212	0												
0600	125.00	6219	0												
1000	129.00	6226	0												
1321							P.O.O.H WITH ELECTRIC LINE TOOL & AMERADA TO REHEAD CABLE HEAD & PREPARE AMERADA								
1400	133.00	6233	0												
1520							IN LUB								
1521		6240	0				DEPRESSURE LUB								
1530							REHEAD ELECTRIC LINE TOOL & PREPARE AMERADA								
1800	137.00	6240	0												
1808		6240	0				PRESSURE UP LUB								
1815							R.I.H WITH ELECTRIC LINE TOOL & AMERADA								
1855							ON HANG DEPTH 9550' K.B , CONTINUE BUILDUP								
2200	141.00	6240	0												
7/12/91															
0200	145.00	6247	0												
0600	149.00	6254	0												
1000	153.00	6261	0												
1400	157.00	6274	0												
1800	161.00	6281	0												
2200	165.00	6281	0												
8/12/91															



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERV	PERFORATIONS: 9594'-9625' K.B	PAGE: 6 OF 7
WELL NAME: BOO/CABOURDIF *10	FORMATION: TIRZAWARZA	DATE: 8/12/91
TEST TYPE: B.H.P SURVEY		OPR: KUNAC, KAPPLER

TIME		WELLHEAD DATA				SEPARATOR DATA		FLOW RATES			CUMULATIVE PRODUCTION				
DATE TIME	FLOW OR SHUT IN TIME (HOURS)	TUBING PRESSURE	ANNULUS PRESSURE	WELLHEAD TEMP	CHOKE SIZE	PRESSURE	TEMP	GAS	OIL	WATER	GAS	OIL	WATER	L.G.R.	
		(PSI/KPa)	(PSI/KPa)	(°F/°C)		(PSI/KPa)	(°F/°C)	MMSCFD m³10³/D	BPD m³/D	BPD m³/D	MMSCF m³10³	BBLS m³	BBLS m³	BBLS/MMSCF m³/10³m³	
8/12/91															
0200	169.00	6288	0												
0600	173.00	6295	0												
1000	177.00	6302	0												
1400	181.00	6302	0												
1800	185.00	6309	0												
2200	189.00	6316	0												
9/12/91															
0200	193.00	6323	0												
0600	197.00	6330	0												
1000	201.00	6337	0												
1400	205.00	6343	0												
1800	209.00	6350	0												
2200	213.00	6350	0												
10/12/91															
0200	217.00	6350	0												
0600	221.00	6357	0												
1000	225.00	6357	0												
1400	229.00	6364	0												
1800	233.00	6364	0												
2200	237.00	6364	0												
11/12/91															
0200	241.00	6371	0												



PETROLEUM ENGINEERING : TEST RESULTS

CONTRACTOR: OILSERU	PERFORATIONS: 9594'-9625' K.B	PAGE: 7 OF 7
WELL NAME: BOO/CABOURDIE # 10	FORMATION: TIRRAWARRA	DATE: 11/12/91
TEST TYPE: B.H.P SURVEY		OPR: KUNAC, KAPLER

TIME		WELLHEAD DATA				SEPARATOR 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 MMSCFD m³10³	OIL BBLS m³	WATER BBLS m³	L.G.R. BBLS/MMSCFD m³/10³m³
11/12/91															
0600	245.00	6371	0												
0630	245.30						P.O.O.H WITH ELECTRIC LINE TOOL & AMERADA TO REHEAD AND PREPARE AMERADA FOR STATIC GRADIENT SURVEY IN LUB								
0802							DEPRESSURE LUB, END OF BUILDUP								
0804		6371	0				REHEAD ELECTRIC LINE CABLE AND PREPARE AMERADA FOR STATIC GRADIENT SURVEY, PROBLEMS WITH ELECTRIC LINE TOOL, RIG UP TWO AMERADA'S AS WELL AS ELECTRIC LINE TOOL								
1443							LUB (ATMOSPHERE)								
1458		6385	0				LUB (S.I.W.H.P)								
1513							LUB (ATMOSPHERE)								
1529							R.I.H WITH AMERADA & ELECTRIC LINE TOOL FOR STATIC GRADIENT SURVEY								
1905							P.O.O.H WITH ELECTRIC LINE TOOL & AMERADA								
1958							LUB (ATMOSPHERE)								
2013		6378	0				LUB (S.I.W.H.P)								
2028							LUB (ATMOSPHERE)								
							END OF STATIC GRADIENT SURVEY, END OF TEST								
							RIG DOWN W/LINE EQUIPMENT FOLLOWING DAY.								

000174

S E C T I O N N O 2

SUBSURFACE PRESSURE GAUGE REPORT

By: OILSERV AUSTRALIA LTD
6 BREDBO STREET
LONSDALE. S.A 5160

TELEPHONE: (08) 326 1588
FACSIMILE: (08) 326 1593

OILSERV

AUSTRALIA LIMITED
INCORPORATED IN WACOMPANY SANTOSWELL NO. BOOKABOURDIE #10FIELD TIRRAWARRAINTERVAL TESTED TIRRAWARRA 9594'-9625' K.BCOUNTRY AUSTRALIATECHNICIAN I. McPHERSONDATE: 10/11/91CALIBRATION NO. 1DATE OF LAST CALIBRATION: —Subsurface
Pressure Gauge
Calibration
ReportPAGE 1 OF 1

P (PRESSURE) DWT	CALIBRATION STEPS								LEAST SQUARES CALCULATIONS	
	D (1)	Y (4)	ΔY (5)	Y'	Y P	Pc = KY + a	NON LINEARITY CORRECTION c = P - Pc	C'		
500	0.1921					501.08	-1.07106	1.16006	A = $\frac{\sum P}{n}$	= 2750
1000	0.3885					1000.04	-0.03507	0.00123	B = $\frac{\sum Y}{n}$	= 1.06380
1500	0.5790					1499.25	0.74893	0.56089	C = $\frac{\sum (Y)^2}{\sum Y}$	= 1.35509
2000	0.7728					1999.24	0.75895	0.57600	D = $\frac{\sum (YP)}{\sum Y}$	= 3501.49464
2500	0.9665					2498.97	1.02696	1.05465	K = $\frac{D - A}{C - B}$	= 2579.92766
3000	1.1601					2998.45	1.55297	2.41171	a = A - BK	= 5.47296
3500	1.3553					3502.05	-2.04891	4.19804	a = D - CK	=
4000	1.5488					4001.26	-1.26491	1.60000	o = $\frac{\sum C'}{n}$	= 2.63506
4500	1.7431					4502.54	-2.54486	6.47629		
5000	1.9348					4997.12	2.88301	8.31176		
Σ 27500		10.63800		14.41540	37248.9	Σ + = 6.97082 Σ - = 6.97081		26.35064		

OWNER OF GAUGE: OILSERV TYPE OF ELEMENT: RPG-3
 PRESSURE ELEMENT NO. 55993 RANGE: 0-5000 PSI RECORDING SECTION NO. 55387
 DEADWEIGHT TESTER TYPE AND RANGE: CHANDLER 55-1 SERIAL NO. 18731
 BASE LINE DRAWN AT ATMOSPHERIC PRESSURE READING D_0 = _____ TEMPERATURE = _____
 REFERENCE LINE READING D_R = _____ REFERENCE PRESSURE P_R = _____ TEMPERATURE = _____
 MAXIMUM TEMPERATURE EXPECTED = 270°F CALIBRATION TEMPERATURE = 270°F
 DRAWING ALL CALIBRATION STEPS ☐ WITH A CLOCK ☒ WITH A CRANK CRANK
 EQUIVALENT PRESSURE p OF LEVEL DIFFERENCE BETWEEN DWT AND THE BELLWS
 LEVEL DIFFERENCE H = 1.5
 SPECIFIC GRAVITY OF OIL D = 0.33 } p = 0.495 { ☐ PLUS IN CASE OF DWT ABOVE THE BELLWS
☐ MINUS IN CASE OF DWT BENEATH THE BELLWS

CALIBRATION RESULTS

K = 2579.92766a + p = 5.96796 $D_R - D_0 = Y_R =$ _____ $P_R =$ _____

REMARKS

RANDOM 2400 PSI = 0.9282

= 2400.16181

- (1) D = READING ON THE CHART SCANNER FOR THE PRESSURE p (5) Δ Y = FOR CHECKING
 (2) D₀ = READING FOR BASE LINE (6) n = NUMBER OF CALIBRATION STEPS
 (3) D_r = READING FOR REFERENCE LINE (7) Σ = SUM
 (4) Y = DEFLECTION { ☐ D - D₀ IF NO REFERENCE LINE (8) σ = STANDARD DEVIATION
☐ D - D_r IF REFERENCE LINE DRAWN

000176

COMPANY SANTOSWELL NO. BOOKABOURDIE #10FIELD BOOKABOURDIEINTERVAL TESTED TIRRAWARRA 9594' - 9625' K.B.COUNTRY AUSTRALIATECHNICIAN S. KAPPLERDATE: 6/12/91CALIBRATION NO. 1DATE OF LAST CALIBRATION: 5/11/91Subsurface
Pressure Gauge
Calibration
ReportPAGE 1 OF 1

P (PRESSURE) DWT	CALIBRATION STEPS								LEAST SQUARES CALCULATIONS	
	D (1)	Y (4)	ΔY (5)	Y'	Y P	Pc = KY + s	NON LINEARITY CORRECTION c = P · Pc	C'		
500		0.1913				500.97	-0.96869	0.93837	A = $\frac{\sum P}{n}$ = 2750	
1000		0.3839				997.82	2.17599	4.73495	B = $\frac{\sum Y}{n}$ = 1.06311	
1500		0.5788				1500.61	-0.61269	0.37539	C = $\frac{\sum (Y)^2}{\sum Y}$ = 1.35463	
2000		0.7720				1999.02	0.98416	0.96858	D = $\frac{\sum (YP)}{\sum Y}$ = 3502.04118	
2500		0.9662				2500.00	0.00129	0.00000	K = $\frac{D - A}{C - B}$ = 2579.72644	
3000		1.1602				3000.47	-0.46564	0.21682	a = A - BK = 7.46703	
3500		1.3544				3501.45	-1.44851	2.09819	a = D - CK =	
4000		1.5482				4001.40	-1.39950	1.95860	Q = $\frac{\sum C^2}{n}$ = 2.26262	
4500		1.7420				4501.35	-1.35048	1.82380		
5000		1.9341				4996.92	3.08407	9.51148		
Σ 27500		10.63110		14.40120	37230.55	Σ + = 6.24551 Σ - = 6.24551		22.62618		

OWNER OF GAUGE: OILSERV TYPE OF ELEMENT: RPG-3
PRESSURE ELEMENT NO. 55994 RANGE: 0-5000 PSI RECORDING SECTION NO. 12068
DEADWEIGHT TESTER TYPE AND RANGE: CHANDLER 55-1 SERIAL NO. 18731
BASE LINE DRAWN AT ATMOSPHERIC PRESSURE READING D_0 = _____ TEMPERATURE = _____
REFERENCE LINE READING D_R = _____ REFERENCE PRESSURE P_R = _____ TEMPERATURE = _____
MAXIMUM TEMPERATURE EXPECTED = 280°F CALIBRATION TEMPERATURE = 280°F
DRAWING ALL CALIBRATION STEPS ☐ WITH A CLOCK ☒ WITH A CRANK CRANK
EQUIVALENT PRESSURE p OF LEVEL DIFFERENCE BETWEEN DWT AND THE BELLOWS _____
LEVEL DIFFERENCE H = 1.5 } p = 0.495 ☐ PLUS IN CASE OF DWT ABOVE THE BELLOWS
SPECIFIC GRAVITY OF OIL D = 0.33 } ☐ MINUS IN CASE OF DWT BENEATH THE BELLOWS

CALIBRATION RESULTS	
K	= <u>2579.72644</u>
a + p	= <u>7.96203</u>
$D_R - D_0 = Y_R$	= _____ P_R = _____
REMARKS	
RANDOM - 2369 PSI = 0.9158	
= 2369.98	

- (1) D = READING ON THE CHART SCANNER FOR THE PRESSURE P (5) Δ Y = FOR CHECKING
(2) D_0 = READING FOR BASE LINE (6) n = NUMBER OF CALIBRATION STEPS
(3) D_r = READING FOR REFERENCE LINE (7) Σ = SUM
(4) Y = DEFLECTION { ☐ D - D_0 IF NO REFERENCE LINE (8) σ = STANDARD DEVIATION
 ☐ D - D_r IF REFERENCE LINE DRAWN

000177

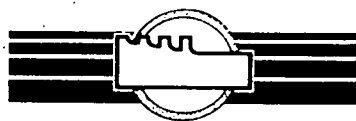
EXPERTTEST PTY. LTD.		SEQUENCE OF EVENTS			
	CUSTOMER :	Santos	PERFORATIONS:	9544' - 9625' KB	PAGE: 1 OF 3
	WELL NAME:	Bookabourdie#10	FORMATION :	Tirrawarra	DATE: 7/1/94
	TEST TYPE :	L.E.T / B.H.P.S to atmosphere			OPR : P. Bowyer

DATE/TIME	DESCRIPTION OF EVENTS
7/1/94	
1130	Arrive on location & spot separator, frac tank & clean rig in test equipment & wire line unit.
1445	S.W.I to fit a swab valve.
1525	Open well to flare on 15/64 choke, separator on by pass
1620	Traces of fluid @ surface (con / H ₂ O) increase choke to 24/64
1630	fluid to surface, mostly condensate; choke to 15/64
1800	Divert flow through separator.
1815	1.000" orifice plate in service.
2000	levels up start test
8/1/94	
0800	R.I.H with 1.5" toolstring & 1.75" B/Box
0829	Tag fill @ 9567' KB, no other obstructions, indicating 58' of perfs covered.
0830	P.O.O.H
0850	At surface, depressure lub & secure wire line unit.
1040	.750" orifice plate in service.
1115	Prepare ameradas for B.H.P.S
1200	Pressure lub for B.H.P.S (2x pressure elements & 1 MBHT)
1300	Depressure lub
1400	Pressure lub & R.I.H
1425	At 9350' KB, hang depth, continue to flow well
9/1/94	
0900	P.O.O.H with ameradas & blow well down (well loaded up overnight)
0924	At surface with gauges, by pass separator & open well to 30/64 choke

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CUSTOMER :	Santos.	PERFORATIONS:	9544'-9625' KB	PAGE:	2 OF 3
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra	DATE:	9/1/94
TEST TYPE :	L.E.T / BHPs to atmosphere.			OPR :	P. Bowyer

DATE/TIME	DESCRIPTION OF EVENTS
9/1/94.	Rig out ameradas.
0955	Condensate / H ₂ O to surface , choke to 25/64.
1030	Divert flow through separator & establish levels.
1100	1.500" orifice plate in service & start test.
1300	1.625' — " — — " —
1530	Prepare ameradas for B.H.P.s.
1600	Pressure Lub for BHPs (2x pressure elements & 1 MBHT)
1700	Depressure Lub.
1800	Pressure Lub & R.I.H.
1822	At 9350' KB, hang depth, continue to flow well overnight.
10/1/94	
0600	Take 2 x 1/2 LTR H ₂ O samples from separator sight glass.
1500	S.W.I for 96 HR build up & rig out test equipment.
15/1/94	
0710	P.O.C.H to end build up survey.
0730	At surface with gauges, due to clocks running out down hole no lub stop was done, remove gauges from lub.
1100	Re load ameradas for S.G.S.
1128	Pressure Lub for S.G.S. (10 min lub stop done).
1135	Depressure Lub.
1143	Pressure Lub & R.I.H to stops as per program.
1305	At 9552' KB, bottom stop MPP NB the bottom stop was adjusted from 9584' KB due to drift run results.
1320	P.O.C.H.



FIELD READINGS

CUSTOMER : Santos.

PERFORATIONS: 9544' - 9625' KB.

PAGE: 1 OF 3

WELL NAME: Bookabourdie #10

FORMATION : Tirrawarra

DATE: 7/1/94

TEST TYPE : L.E.T / B.H.P.s to atmosphere.

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 th	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP °C (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)	
7/1/94															
1130															
1445															
1525		683	0		0										
1550		457	0		15										
1620		436	4		15										
1625		412	4		24										
1630		413	4		24										
1730		462	4	40	16										
1800		454	4	39											
1815															
2000	0	442	4	35				150	58	33	0	0		0	
2000															
8/1/94															
0600	10	413	4	30				160	53	24	6.75	5.75		1	
0800	12	404	4	32				160	52	26	8	7		1	
0800															
0829															
0830															
0850															
1000	14	418	4	35	16		1.000	145	33	31	8 1/2	7.5		1	

Arrive on location & spot test equipment, commence rig in.

NB: the well was on line, but not flowing on arrival

S.W.I to install a swab valve & rig up wire line unit

open well to flare on 15/64 choke, separator on by pass

Increase choke to 24/64 (Traces of condensate @ surface)

Condensate to surface, trace of H₂O.— " — — — — — trace of H₂O, choke to 16/64

Divert flow through separator

1.000 orifice plate in service.

gas rate only, levels up commence test

R.I.H 1.5" toolstring & 1.75" B/Box

Tag fill @ 9567' KB, 58' of perfs are covered.

POOH

At surface, depressure lub & secure wireline unit.

000181

CUSTOMER : Santos

PERFORATIONS: 9544' - 9625' KB

PAGE: 2 OF 3

WELL NAME: Booka bourdie #10

FORMATION : Tirrawarra

DATE: 8/1/94

TEST TYPE : L.E.T / B.H.P.S to atmosphere

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 th	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF PRESS. (IN WC)	GAS TEMP °C (°F)	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
8/1/94														
1040					16		.750	orifice plate in service						
1115					↓		Prepare ameradas for BHPs							
1200	16	412	4	38	↓		.750	170	80	36	8.75	7.75		1
1200		412	4	38	↓		Pressure Lub for BHPs (2x pressure elements & 1 MBHT)							
1300		410	4	39	↓		Depressure Lub.							
1400	18	407	4	40	↓		160	87	37	9	8			1
1400		407	4	40	↓		Pressure Lub & R.I.H.							
1425		405	4	40	↓		At 9350' KB, hang depth, continue to flow well							
1600	20	402	4	39	↓		160	82	38	9.25	8.25			1
1800	22	396	4	36	↓		162	77	36	9.25	8.25			1
9/1/94							↓							
0600	34	337	4	27	↓		135	65	20	9.25	8.25			1
0800	36	329	4	28	↓		.750	135	65	20	9.25	8.25		1
0900		325	4		↓		POOH with ameradas & blow down well.							
0924		325			16		At surface, by pass separator & increase choke to 30/64.							
0926		270			30		Condensate to surface, rig out ameradas							
0955		255			30		Condensate / H2O to surface, choke to 25/64.							
1030		423	8	34	25		Divert flow through separator & establish levels.							
1100	0	450	11	34	↓		1.500				11.75	8.25		3.5
1200	1	490	20	38	↓		1.500	100	110	27	14	8.75		5.25
1300	2	527	30	37	25		1.500	100	136	27	16.25	9.5		6.75

000182

CUSTOMER : Santos.

PERFORATIONS: 9544' - 9625' KB

PAGE: 3 OF 3

WELL NAME: Bookabourdie #10

FORMATION : Tirrawarra.

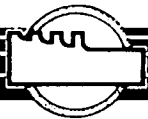
DATE: 9/1/94.

TEST TYPE : L.E.T / B.H.P.s to atmosphere.

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 64th	BS&W (%)	ORIFICE PLATE SIZE (IN)	STATIC PRESS. (PSIG)	DIFF. PRESS. (IN WC)	GAS TEMP °C °F	TOTAL LIQUID (IN/GM)	OIL (IN/GM)	OIL API GRAVITY @ 60°F	WATER (IN/GM)
9/1/94														
1300	2				25		1.625"	orifice plate in service.						
1400	3	523	44	38				100	94	26	18.25	9.75		8.5
1500	4	530	66	38				102	98	26	20.25	10.5		9.75
1540								Prepac ameradacs for BHPs.						
1600	5	526	93	38				102	98	26	22.75	11.25		11.5
1600		526	93	38				Pressure Lub for BHPs (2x pressure elements & 1MBHT)						
1700	6	530	114	38				Depressure Lub.						
1800	7	533	140	39				105	98	27	25.5	12.5		13
1800		533	140	39				Pressure Lub & R.I.H.						
1822		530		39				At 9350' KB, hang depth, flow well overnight.						
2000	9	544	180	35				105	89	25	28.5	13.5		15
10/1/94														
0600	19	531	356	33				120	84	22	42.5	18.25		24.25
0600								Take 2x 1/2 LTR H2O samples from separator sight glass						
0800	21	529	381	35				110	91	23	45.25	19.25		26
1000	23	534	404	37				105	96	26	48.25	20		28
1200	25	528	423	41				105	98	29	50.5	20.75		29.75
1400	27	526	441	43				105	98	30	53	21.5		31.5
1500	28	526	449	44	25		1.625	105	98	30	54	21.75		32.25
1500		S.W.I for 96 HR build up & rig test equipment												
		Refer to Test Results Sheet for build up data												

000183

EXPERTTEST PTY. LTD.		TEST RESULTS													
		CUSTOMER : Santos.						PERFORATIONS: 9544' - 9625' KB.				PAGE: 1 OF 6			
		WELL NAME: Bookabourdie #10						FORMATION : Tirrawarra.				DATE: 7/1/94.			
		TEST TYPE : L.E.T / B.H.P.S to atmosphere.										OPR : P. Bowyer			
TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m³10³/D	OIL BPD m³/D	WATER BPD m³/D	GAS MMSCFD m³10³	OIL BBLs m³	WATER BBLs m³	LGR m³/10⁶m³	
7/1/94					64 th										
1130						Arrive on location & spot test equipment, commence rig in (NB the well was on line but not flowing).									
1445						Sw.1 to install a swab valve.									
1525		4709	0		0	Open well to flare on 15/64 choke, separator on by pass									
1550		3151	0		15										
1620		3006	27		15	Increase choke to 24/64 (Traces of fluid to surface.)									
1625		2841	27		24	Condensate to surface.									
1630		2847	27		24	— " — — " — — , trace of H ₂ O, choke to 15/64									
1730		3185	27	40	16										
1800		3130	27	39		Divert flow through separator.									
1815						1.000" orifice plate in service.									
2000	0	3047	27	35		1034	33	14.887	gas rate only & levels up start test.						
8/1/94															
0600	10	2847	27	30		1103	24	14.920	3.684	.641	6.216	1.535	.267	290	
0800	12	2785	27	32		1103	26	14.715	3.996	0	7.442	1.868	.267	271	
0800						R.I.H with 1.5" toolstring & 1.75" B/Box.									
0829						Tag fill @ 9567' KB, indicating 58' of perms are covered									
0830						P.O.D.H									
0850						At surface, depressure Lub & secure wire line unit.									
1000	14	2882	27	35		1000	31	11.074	1.596	0	8.365	2.001	.267	144	
1040					16	.750" orifice plate in service.									

ET 104

000184

000184



TEST RESULTS

CUSTOMER :	Santos	PERFORATIONS:	9544' - 9625' KB.	PAGE:	2 OF 6
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra	DATE:	8/1/94
TEST TYPE :	L.E.T / B.H.P.S to atmosphere.			OPR :	P. Bowyer

TIME		WELLHEAD DATA				Separator		FLOW RATES			CUMULATIVE PRODUCTION				
DATE	FLOW OR SHUT-IN TIME (HOURS)	TUBING PRESSURE (PSI/KPa)	ANNULUS PRESSURE (PSI/KPa)	WELLHEAD TEMP (°F/°C)	CHOKE SIZE	PRESSURE (PSI/KPa)	TEMP (°F/°C)	GAS MMSCFD m ³ 10 ³ /D	OIL BPD m ³ /D	WATER BPD m ³ /D	GAS MMSCFD m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³	L.G.R m ³ /10 ⁶ m ³	
8/1/94					64 th										
1115					16	Prepare ameradas for survey.									
1200	16	2841	27	38		1172	36	10.274	.792	0	9.221	2.067	.267	77	
1200		2841	27	38		Pressure Lub for BHPs (2x pressure elements & 1 MBHT)									
1300		2827	27	39		Depressure Lub.									
1400	18	2806	27	40		1103	37	10.402	.792	0	10.088	2.133	.267	76	
1400						Pressure Lub & R.I.H.									
1425		2792	27	40		At 9350' KB, hang depth; continue to flow well									
1600	20	2772	27	39		1103	38	10.076	.792	0	10.927	2.199	.267	78	
1800	22	2730	27	36		1117	36	9.850	0	0	11.748	2.199	.267	—	
9/1/94															
0600	34	2323	27	27		931	20	8.556	0	0	16.026	2.199	.267	—	
0800	36	2268	27	28		931	20	8.556	0	0	16.739	2.199	.267	—	
0900		2241	27			Pull out of hole with ameradas & blow down well									
0924		2241			16	At surface, bypass separator & blow down on 30/64									
0926		1861				Condensate to surface (Rig out ameradas).									
0955		1758			30	Condensate / H ₂ O to surface choke to 25/64									
1030		2916	55	34	25	Divert flow through separator & establish levels									
1100	0	3103	76	34		1.500" orifice plate in service & start test									
1200	1	3378	138	38		689	27	40.287	3.192	11.208	1.678	.133	.467	357	
1300	2	3633	207	37		689	27	44.859	4.800	9.600	3.947	.333	.867	321	
1300					25	1.625" orifice plate in service.									

000185

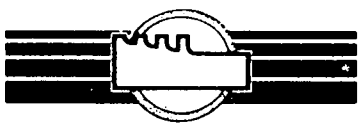


TEST RESULTS

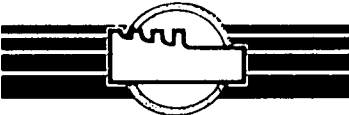
CUSTOMER : Santos
WELL NAME : Bookabourdie # 10
TEST TYPE : L.E.T / B.H.P.s to atmosphere
PERFORATIONS: 9544' - 9625' KB
FORMATION : Tirrawarra
PAGE: 3 OF 6
DATE: 9/1/94
OPR: P. Bowyer

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 MMSCFD m ³ 10 ³	OIL BBLS m ³	WATER BBLS m ³	L.G.R m ³ /10 ⁶ m ³
Separator.															
9/1/94						64th									
1400	3	3606	303	38	25		689	26	44.366	1.584	11.208	5.395	.399	1.334	288
1500	4	3654	455	38			703	26	45.711	4.800	7.992	7.299	.599	1.667	280
1540							Prepare amercadas for B.H.P.s.								
1600	5	3627	641	38			703	26	45.711	4.800	11.208	9.203	.799	2.134	350
1600		3627	641	38			Pressure Lub for B.H.P.s (2x pressure elements & 1 MBHT).								
1700	6	3654	786	38			Depressure Lub.								
1800	7	3675	965	39			724	27	46.213	3.996	4.800	13.054	1.132	2.534	190
1800		3675	965	39			Pressure Lub & R.I.H.								
1822		3654		39			At 9350' KB, hang depth, continue to flow well overnight								
2000	9	3751	1241	35			724	25	44.200	3.204	6.408	16.737	1.399	3.068	217
10/1/94															
0600	19	3661	2454	33			827	22	45.848	3.043	5.928	35.84	2.667	5.538	195
0600							Take 2 x 1/2 LTR H ₂ O samples								
0800	21	3647	2627	35			758	23	45.833	3.204	5.604	39.659	2.934	6.005	192
1000	23	3682	2785	37			724	26	45.827	2.400	6.408	43.478	3.134	6.539	192
1200	25	3640	2916	41			724	29	46.073	2.400	5.604	47.317	3.334	7.006	174
1400	27	3627	3041	43			724	30	45.980	2.400	5.604	51.148	3.534	7.473	174
1500	28	3627	3096	44	25		724	30	45.980	1.584	4.800	53.063	3.600	7.673	139
1500	0	Sw. 1 for 96 HR build up & rig out test equipment.													
1515	(3607)	4840	2627			S/I									
1530		4985	2144			S/I									

000186

EXPERTEST PTY. LTD.		TEST RESULTS														
		CUSTOMER : Santos						PERFORATIONS: 9544'-9625' KB				PAGE: 4 OF 6				
		WELL NAME: Bookabourdie #10						FORMATION : Tirrawarra				DATE: 10/1/94				
		TEST TYPE : L.E.T / BHPs to atmosphere.										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 MMSCF m³10³	OIL BBLS m³	WATER BBLS m³			
10/1/94					64 th											
1545		5012	1737		S/I	Build up con't										
1600	1	5054	1427													
1615		5075	1193													
1630		5081	896													
1645		5095	813													
1700	2	5109	710													
1715		5109	586													
1730		5109	503													
1745		5109	379													
1800	3	5116	275													
1815																
1830																
1845																
1900	4	5136														
2200	7	5171	0													
11/1/94																
0600	15	5219	0													
1000	19	5240	0													
1400	23	5240	0													
1800	27	5247	0		S/I											

000181



TEST RESULTS

CUSTOMER :	Santos.	PERFORATIONS:	9544' - 9625' KB.	PAGE:	5 OF 6
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra.	DATE:	12/1/94.
TEST TYPE :	L.E.T / B.H.P.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 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		
12/1/94					6 1/4"										
0600	39	5275	0		5/1	Build up con't									
1000	43	5281													
1400	47	5288													
1800	51	5302													
13/1/94															
0600	63	5302													
1000	67	5295													
1400	71	5295													
1800	75	5302													
14/1/94															
0600	87	5309													
1000	91	5316													
1400	95	5323				Amerada clock time ran out approx now, unable to pull gauges due to duties being performed @ Bimbaya #2									
1800	99	5323													
15/1/94															
0600	111	5316													
0710		5316				P.O.O.H with gauges to end BHPs.									
0730		5316				At surface, depressure lub & remove ameradas. chert charts good charts.									
1100						Reload ameradas for S.G.S.									
1128		5323				Pressure Lub for S.G.S (2x pressure elements & 1 MBHT)									

000188

TEST RESULTS

CUSTOMER : Santos.

PERFORATIONS: 9544'-9625' KB.

PAGE: 6 OF 6

WELL NAME: Bookaboundie #10

FORMATION : Tirrawarra.

DATE: 15/1/94

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

OPR: P. Bowyer

[illegible]



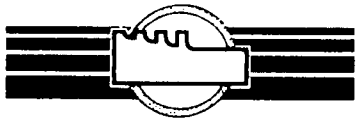
GAS FLOW CALCULATIONS

CUSTOMER : Santos
WELL NAME : Bookabourdie #10
TEST TYPE : L.E.T / B.H.Ps to atmosphere
PERFORATIONS : 9544' - 9625' KB.
FORMATION : Tirrawarra
PAGE: 1 OF 2
DATE: 7/1/94
OPR : P. Bowyer

ORIFICE METER TYPE: Daniels SNR
METER RUN SIZE : 3.068"
SEPARATOR NO : V459
STATIC PRESSURE RANGE : 0-1500 PSIG
DIFFERENTIAL PRESS. RANGE: 0-200 IN WC
STANDARD CONDITIONS : 14.73 PSI @ 60°F
GAS SPECIFIC GRAVITY (SG) = .8029
FG $\sqrt{(1/SG)}$ = 1.1160
C₂ (FU x FG) = 26.7843

DATE TIME	FLOW TIME (HOURS)	CHOKE SIZE 64 th	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)
7/1/94															
2000	0	16	165	58	91	1.000	97.7463	202.27	.9715	1.0199	1.0023	200.8610	5379.9247	.526	14.897
8/1/94															
0600	10		175	53	75		96.2325		.9859	1.0233	1.0020	204.4683	5476.5427	.527	14.920
0800	12		175	52	79		95.3203		.9822	1.0227	1.0020	203.5856	5452.8997	.520	14.715
1000	14		160	33	88	1.000	72.6023	202.27	.9741	1.0196	1.0014	201.1636	5388.0288	.391	11.074
1200	16		185	80	97	.750	121.5664	112.59	.9662	1.0216	1.0029	111.4568	2985.2933	.363	10.274
1400	18		175	87	98		123.2944		.9653	1.0202	1.0033	111.2587	2979.9891	.367	10.402
1600	20		175	82	100		119.6990		.9636	1.0200	1.0031	111.0125	2973.3940	.356	10.076
1800	22		177	77	97		116.6542		.9662	1.0206	1.0029	111.3524	2982.4966	.348	9.850
9/1/94															
0600	34		150	65	68		98.6532		.9924	1.0207	1.0029	114.3808	3063.6109	.302	8.556
0800	36	16	150	65	68	.750	98.6532	112.59	.9924	1.0207	1.0029	114.3808	3063.6109	.302	8.556
			By pass separator & blow down well.												
1200	1	25	115	110	81	1.500	112.3401	472.72	.9804	1.0145	1.0059	472.9493	12667.6233	1.423	40.287
1300	2		115	136	81	1.500	124.9131	472.72	.9804	1.0145	1.0073	473.6113	12685.3539	1.585	44.859
1400	3		115	94	79	1.625	103.8490	562.58	.9822	1.0147	1.0049	563.4177	15090.7866	1.567	44.366
1500	4		117	98	79		106.9558		.9822	1.0149	1.0050	563.6325	15096.5083	1.615	45.711
1600	5		117	98	79		106.9558		.9822	1.0149	1.0050	563.6325	15096.5083	1.615	45.711
1800	7	25	120	98	81	1.625	108.3215	562.58	.9804	1.0152	1.0049	562.6366	15069.8357	1.632	46.213

000190



LIQUID PRODUCTION

CUSTOMER :	Santos	PERFORATIONS:	9544' - 9625' KB.	PAGE:	1 OF 2
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra.	DATE:	7/1/94.
TEST TYPE :	L.E.T / B.H.P.s to atmosphere.	OPR :	P. Bowyer	OIL API GRAVITY =	@ 60°F
TANK NUMBER	#1 = 64 #2 =	TANK CAPACITY	#1 = 56.6 m ³ bbls/m ³ #2 = bbls/m ³	TANK SCALE	#1 = 1" = .267 m ³ bbls/in - m ³ /cm #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)
7/1/94.											
2000	0	64	0	0				0	opening dip		
8/1/94											
0600	10		6.75	5.75	1.535	3.684	1.535	1	.267	.641	.267
0800	12		8	7	.333	3.996	1.868	1	0	0	.267
1000	14		8.5	7.5	.133	1.596	2.001	1	0	0	.267
1200	16		8.75	7.75	.066	.792	2.067	1	0	0	.267
1400	18		9	8	.066	.792	2.133	1	0	0	.267
1600	20		9.25	8.25	.066	.792	2.199	1	0	0	.267
1800	22		9.25	8.25	0	0	2.199	1	0	0	.267
9/1/94.											
0600	34		9.25	8.25	0	0	2.199	1	0	0	.267
0800	36		9.25	8.25	0	0	2.199	1	0	0	.267
			By pass separator & blow down well.								
1100	0 ↓		11.75	8.25				3.5	Opening dip		
1200	1 ↓		14	8.75	.133	3.192	.133	5.25	.467	11.208	.467
1300	2		16.25	9.5	.200	4.800	.333	6.75	.400	9.600	.867
1400	3		18.25	9.75	.066	1.584	.399	8.5	.467	11.208	1.334
1500	4		20.25	10.5	.200	4.800	.599	9.75	.333	7.992	1.667
1600	5		22.75	11.25	.200	4.800	.799	11.5	.467	11.208	2.134
1800	7	64	25.5	12.5	.333	3.996	1.132	13	.400	4.800	2.534

000192

CUSTOMER :	Santos	PERFORATIONS:	9544'- 9625' KB	PAGE:	2 OF 2
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra	DATE:	9/1/94
TEST TYPE :	L.E.T / BHPS to atmosphere			OPR :	P. Bowyer

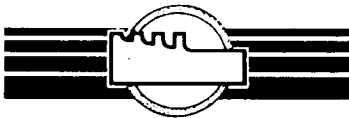
TEST TYPE : L.E.T / BHPS to atmosphere.	OPR : P. Bowyer
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CAPACITY	#2 =	bbbls/m ³	SCALE	#2 =	bbbls/in · m ³ /cm
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(NUMBER)	(IN/GM)	DIP (IN/GM)	PRODUCTION (BBLS/m ³)	RATE (BPD/m ³ D)	PRODUCTION (BBLS/m ³)	DIP (IN/GM)	PRODUCTION (BBLS/m ³)	RATE (BPD/m ³ D)	PRODUCTION (BBLS/m ³)
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[illegible]

000193



SAMPLING DATA

CUSTOMER :	Santos	PERFORATIONS:	9544' - 9625' KB.	PAGE:	1 OF 1
WELL NAME:	Bookabourdie #10	FORMATION :	Tirrawarra	DATE:	10/1/94.
TEST TYPE :	L.E.T / B.H.P.s to atmosphere.			OPR :	P. Bowyer.

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)	
0600	#1 & #2	500	H2O	2	/	/	/		separator Sight glass			22	14.73	22	
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)
3661	33	25/64		827	22	1.0181	.8029		45.848	3.043	5.928	195			

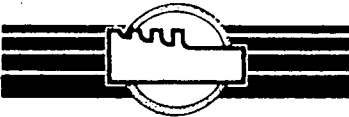
REMARKS:

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:



BHP/BHT GAUGE RUN DATA

CUSTOMER :	Santos.	PERFORATIONS:	9544' - 9625' KB	PAGE:	1	OF	1
WELL NAME:	Bookabourdie.#10	FORMATION :	Tirrawarra	DATE:	9/1/94		
TEST TYPE :	L.E.T B.H.P.S to atmosphere.			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.		29387	57414	MBHT.	DATE	: 9/1/94			
ELEMENT RANGE	PSI	2975	3000		PRESSURE LUBRICATOR	:	1600	3627	641
RECORDING SECTION SERIAL NO.		59791	12959		RUN IN HOLE	:	1800	3675	965
DATE OF CALIBRATION:	@290°F	25/9/93	25/9/93		ON DEPTH AT	hang depth 9350 FT/M	1822	3654	
CLOCK SERIAL NO.		A15309	24724		DATE	: 15/1/94.			
CLOCK RANGE	HR	120	120		PULL OUT OF HOLE	:	0710	5316	0
LEAD SCREW TYPE	TLS	15	15		AT SURFACE	:	0730	5316	0
					DEPRESSURE LUBRICATOR	:			0
ENGAGE STYLUS	DATE 9/1/94	TIME 1553	1553		MAXIMUM BHT AT 9350 FT/M = 274 °F/°C				
DISENGAGE STYLUS	DATE 15/1/94	TIME 1109	1109		N.B. ALL DEPTHS ARE MEASURED FROM K.B.				

DATE	TIME	REMARKS
9/1/94		Well flowing on 25/64 choke (Refer to Test Results sheet for flow rates)
10/1/94	1500	S.W.I for 96 HR build up.
		NB. Clock time ran out down hole so no Lub stop was done @ the end of the survey.

000195

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 01 FIELD BOOKABOURDIE	WELL 10
EFF DEPTH		WELL STAT	TOOL HUNG 9344'KB
CASING	-	CASING PRESS	ON BOTTOM 1822 9/1/94
LINER	-	TUBING PRESS	OFF BOTTOM 0710 15/1/9
DATE	940110	ELEMENT RANGE 0 - 3122	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1500 10/1/9
MAX TEMP	274	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 29387	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	LET/BHP

SURVEY DATA

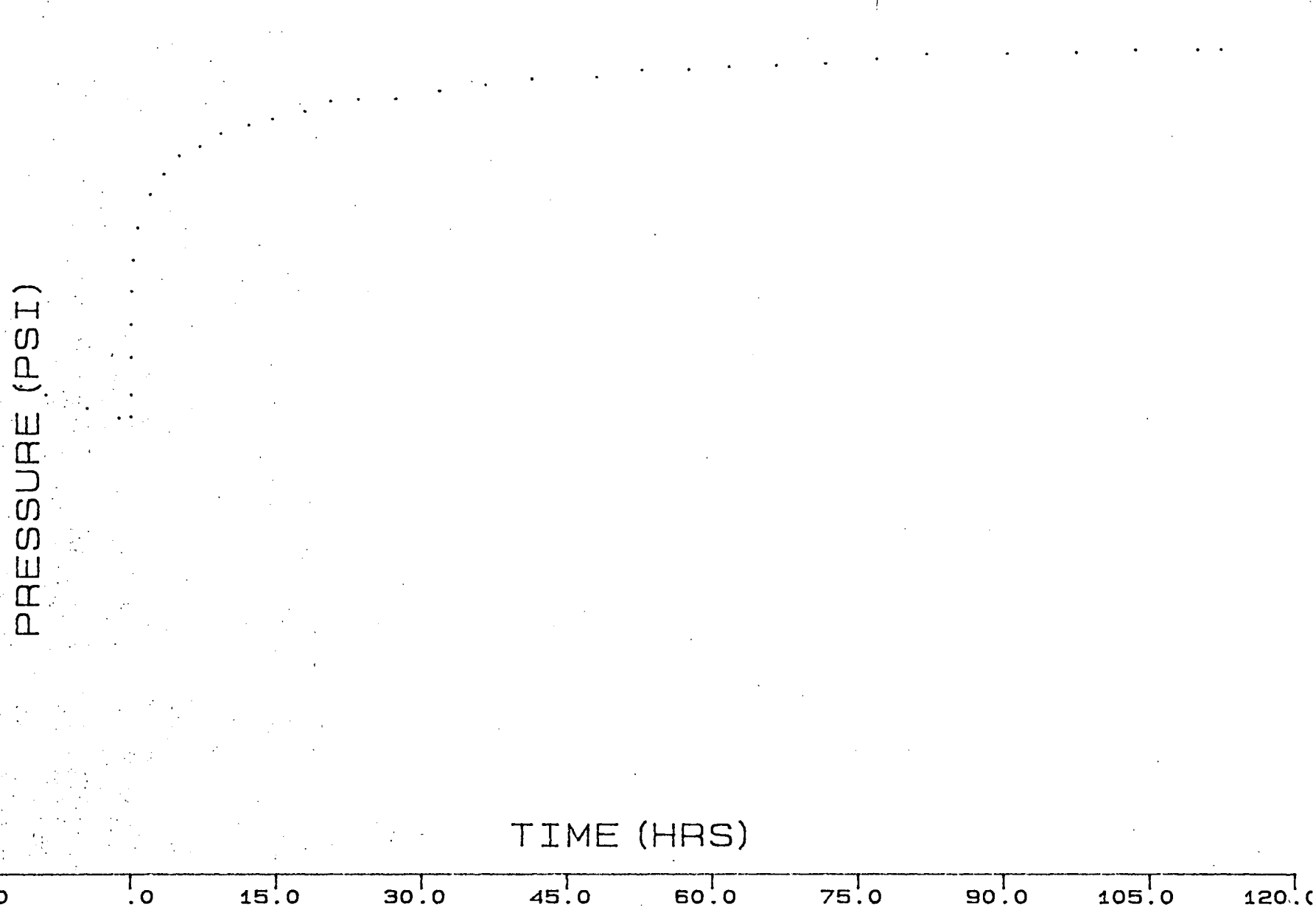
CO. SANTOS				RUN 01 FIELD BOOKABOURDIE				WELL 10			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
15:00	861.0	861.0	.0	8:15	980.5	980.5	41.3				
15:02	868.7	868.7	.0	14:58	981.2	981.2	48.0				
15:02	881.9	881.9	.0	19:36	983.6	983.6	52.6				
15:04	893.5	893.5	.1	0:27	983.8	983.8	57.5				
15:06	905.1	905.1	.1	4:35	984.8	984.8	61.6				
15:14	915.9	915.9	.2	9:26	985.2	985.2	66.4				
15:42	927.3	927.3	.7	14:30	985.9	985.9	71.5				
16:59	939.2	939.2	2.0	19:45	987.6	987.6	76.8				
18:23	946.1	946.1	3.4	0:56	989.3	989.3	81.9				
19:58	952.8	952.8	5.0	9:14	989.5	989.5	90.2				
22:06	956.1	956.1	7.1	16:20	989.8	989.8	97.3				
0:13	960.5	960.5	9.2	22:23	991.0	991.0	103.4				
3:07	963.5	963.5	12.1	4:46	990.9	990.9	109.8				
5:32	965.8	965.8	14.5	7:10	991.0	991.0	112.2				
8:51	968.8	968.8	17.9	0:52	875.9	875.9	-14.1				
11:31	972.5	972.5	20.5	3:40	871.6	871.6	-11.3				
14:23	973.5	973.5	23.4	6:17	868.6	868.6	-8.7				
18:15	973.3	973.3	27.3	10:29	863.9	863.9	-4.5				
22:44	976.2	976.2	31.7	13:46	860.3	860.3	-1.2				
3:31	978.5	978.5	36.5	0:00	.0	.0	.0				

LUBRICATOR; D.W.T.; IN: 526 psi
 AMERADA ; IN: 524 psi

* NOTE: No end/out lubricator stop preformed due to lack of clock time left on the ameradas.

ELEMENT #57414 WAS ALSO RUN.

BOOKABOURDIE #10 LET/BHP JANUARY '94
ELEMENT # 29387 @ 9344'KB



000197

BHP/BHT GAUGE RUN DATA		
CUSTOMER : Santos	PERFORATIONS: 9544' - 9625' KB	PAGE: 1 OF 1
WELL NAME: Bookabourdie # 10	FORMATION : Tirrawarra	DATE: 15/1/94
TEST TYPE : Static Gradient		OPR : P. Bowyer

PERFORATIONS: 9544' - 9625' KB

PAGE: 1 OF

FORMATION : Terra warra

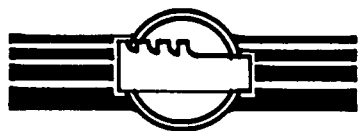
DATE: 15/1/94

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.		29387	57414	MBHT	DATE : 15/1/94			
ELEMENT RANGE	PSI	2975	3000		PRESSURE LUBRICATOR :	1128	5323	0
RECORDING SECTION SERIAL NO.		59791	12959		RUN IN HOLE :	1143	5323	0
DATE OF CALIBRATION:	@290°F	25/9/93	25/9/93		ON DEPTH AT mpp : 9552 FT/ft (Revised stop)	1305	5323	0
CLOCK SERIAL NO.		A16084	A16085		DATE : 15/1/94			
CLOCK RANGE	HR	3	3		PULL OUT OF HOLE :	1320	5323	0
LEAD SCREW TYPE	TLS	15	15		AT SURFACE :	1344	5323	0
					DEPRESSURE LUBRICATOR :	1359	5323	0
ENGAGE STYLUS	DATE 15/1/94 TIME	1121	1121		MAXIMUM BHT AT 9552 FT/ft = 274 °F/°C			
DISENGAGE STYLUS	DATE 15/1/94 TIME	1407	1407		N.B. ALL DEPTHS ARE MEASURED FROM K.B.			

[illegible]

EXPERTEST PTY. LTD.



STATIC PRESSURE GRADIENT SURVEY

Location: BOOKABOURDIE 10

Tested: 15th January 1994.

Formation: TIRRAWARRA

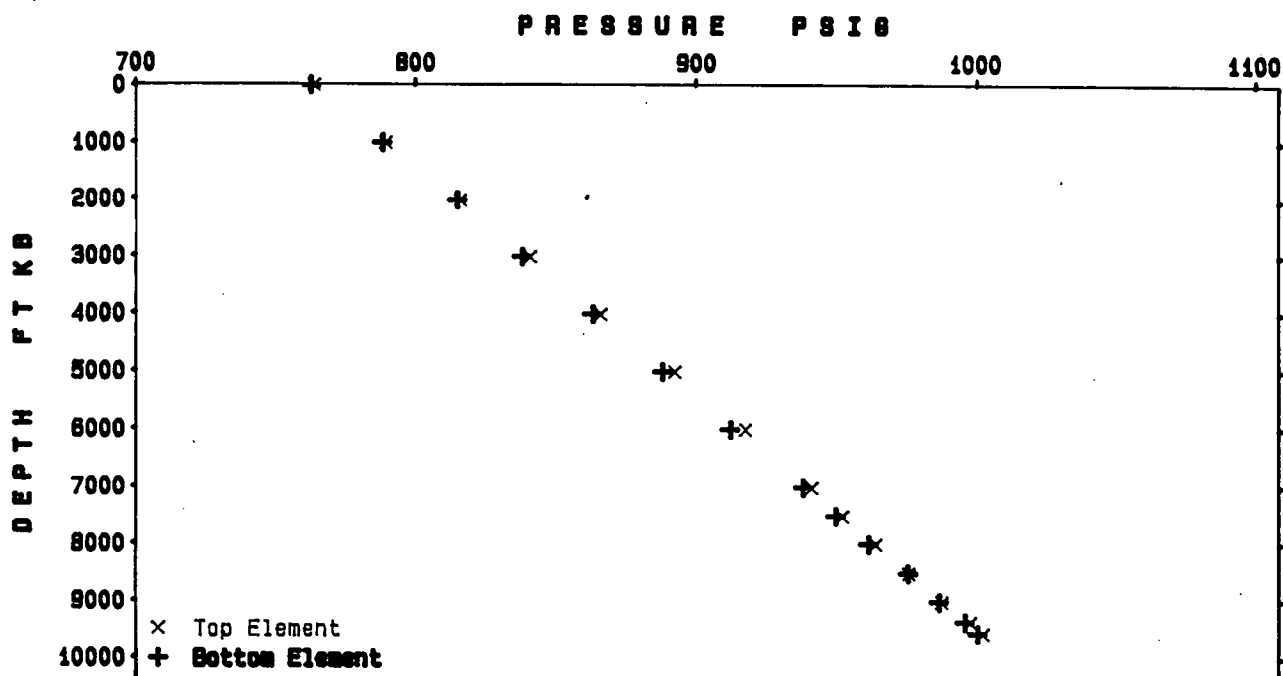
Client: SANTOS LTD.

PRESSURE ELEMENT DATA

Position	Serial No	Range	Calibrated
Top	29387	2975	25/ 9/93
Bottom	57414	3000	25/ 9/93

WELL DATA

DWT In	772 PSIG
DWT Out	772 PSIG
Max BHT	274 F



TOP ELEMENT

BOTTOM ELEMENT

Depth FT KB	Deflection Inches	Pressure PSIG	Gradient PSI/FT	Deflection Inches	Pressure PSIG	Gradient PSI/FT
LUB.	0.4985	763.9	-	0.4935	762.9	-
1000	0.5150	788.7	0.026	0.5100	788.6	0.026
2000	0.5320	818.2	0.026	0.5270	815.1	0.026
3000	0.5480	841.2	0.025	0.5420	838.4	0.023
4000	0.5640	868.1	0.025	0.5580	863.4	0.025
5000	0.5810	892.7	0.027	0.5740	888.3	0.025
6000	0.5970	917.7	0.025	0.5895	912.4	0.024
7000	0.6120	941.2	0.023	0.6060	938.1	0.026
7500	0.6190	952.1	0.022	0.6135	949.8	0.023
8000	0.6265	963.8	0.023	0.6210	961.4	0.023
8500	0.6340	975.6	0.023	0.6300	975.4	0.028
9000	0.6415	987.3	0.023	0.6370	986.3	0.022
9350	0.6480	997.5	0.029	0.6430	995.7	0.027
9552	0.6510	1002.2	0.023	0.6460	1000.3	0.023
LUB.	0.5000	766.3	-	0.4950	765.2	-

GENERAL REMARKS

SURVEY CONDUCTED AT THE CONCLUSION OF A PBU SURVEY
NO TEMPERATURE ELEMENT RUN