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PPL 4

EROMANGA AND COOPER BASINS

BIG LAKE 11

TEST REPORTS

Submitted by

Delhi International Oil Corporation
1993

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MINES AND ENERGY
SOUTH AUSTRALIA



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ENVELOPE 2707

TENEMENT: PPL 4; Eromanga and Cooper Basins

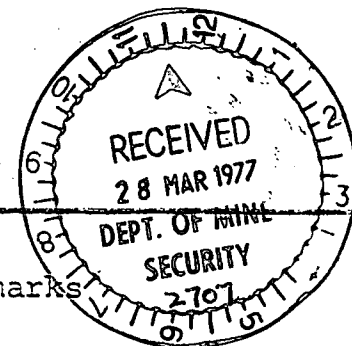
TENEMENT HOLDER: Delhi International Oil Corporation (operator), Santos Ltd and Vamgas NL

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REPORTS: Chronology [and average flow rates] of modified isochronal test [test interval not specified], conducted over the period 17-21/1/77.	2707 R 1 Pg. 3
Delhi International Oil Corporation, 1977. Results of 5-rate modified isochronal test plus static pressure gradient surveys of the commingled Toolachee, Daralingie and Epsilon Formations perforated intervals 7549-7753, 7778-7794 and 8188-8223 feet, conducted over the period 17-21/1/77.	2707 R 2 Pgs 4-16
Amdel Ltd, 1977. Results of gas and liquid analyses for production test fluid samples obtained on 17/1/77 and 19/1/77.	2707 R 3 Pgs 17-22
Results of 64¼ hour reservoir pressure buildup and static pressure gradient surveys of the Toolachee, Daralingie and Epsilon producing zones, conducted over the period 17-20/9/77.	2707 R 4 Pgs 23-26
Results of 52.5 hour buildup and static pressure gradient surveys of the Toolachee, Daralingie and Epsilon producing zones, conducted over the period 26-29/3/78.	2707 R 5 Pgs 27-29
Harris, A., 1979. Reservoir engineer's report on down hole production logging of the Toolachee, Daralingie and Epsilon producing zones, performed on 28/7/78 (Delhi Petroleum Pty Ltd, 12/9/79).	2707 R 6 Pgs 30-41
Buckland, R. and Hankinson, P., 1986. Results of 89 hour buildup, flowing BHP/BHT and static pressure gradient surveys of the Toolachee and Daralingie producing zones, conducted over the period 12-16/8/86 (Expertest Pty Ltd).	2707 R 7 Pgs 42-56
Moore, R. and Groom, A., 1989. Results of 96 hour buildup, BHP/BHT and static pressure gradient surveys of the Toolachee and Daralingie producing zones, conducted over the period 25-30/9/89 (Expertest Pty Ltd).	2707 R 8 Pgs 57-68
Hay, N., 1993. Results of static pressure gradient survey of the Toolachee interval 7549-8223 feet, conducted on 6/1/93 (Expertest Pty Ltd).	2707 R 9 Pgs 69-72
Larkin, R., 1993. Results of static pressure gradient survey of the Toolachee interval 7549-7814 feet, conducted on 13/1/93 (Expertest Pty Ltd).	2707 R 10 Pgs 73-76

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DELHI INTERNATIONAL OIL CORPORATION



CHRONOLOGY OF MODIFIED ISOCHRONAL BIG LAKE 11

Date	Time	BOPD	BWPD	* MCFPD	G.O.R. Bbls/ MMCF	Salin- ity (ppm)	Choke Size (ins)	Wellhead Pressure (psig)	Separator Press. (psig)	Remarks
Jan 17th	0819							2407		Run static pressure and temperature Gradient surveys
	1207									Gradient surveys complete
	1430									Opened well for 1st flow rate
	1630	5.40	-	3004	1.798		16/64	2048	380	Well shut-in
	1830							2434		Opened well for 2nd flow rate
	2030	24.00	16.80	4086	5.874		20/64	1829	475	Well shut-in
	2230							2431		Opened well for 3rd flow rate
Jan 18	0030	6.00	40.80	5086	1.180		24/64	1644	430	Well shut-in
	0230							2415		Opened well for 4th flow rate
	0430	2.40	52.80	5133	0.4676		28/64	1414	415	Well shut-in
Jan 18	0630							2412		Well opened for stabilised flow rate
Jan 19	0830	5.40	31.70	5194	1.0395		28/64	1474	465	End of flow testing
	1300									Well shut-in for build-up survey
Jan 21	0700							2405		Complete build-up survey
	0800							2405		Run static pressure and temperature Gradient surveys
	1100									Test completed
				*ASSUMED S.G. = 0.750						

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DELHI INTERNATIONAL OIL CORPORATION

WELL TEST SUMMARY PAGE 1

28° 12' 57" S Lat.

Well: BIG LAKE # 11 Location: 140° 18' 50" E Long. Date: 17th Jan 1977
 Field: BIG LAKE Pool: TOOLACHEE DARALINGIE & EPSILON Tested By: G.R.M. & A.
 Casing Size: 7.00" Weight: MIXED Grade: Producing Interval: 7549-7753
 Tubing Size: 3.50" Weight: 9.3 # Grade: J#55 Producing Through: 7778-7794
 Well Blown 145.75 HOURS Description of Blow: 8188-8223

Gas Gravity: Source: Mean Annual Surface Temp °F
 Liquid Gravity: Source: B.H. Temp: °F Source:
 INITIAL SHUT-IN PERIOD Date Shut-In: 9.1.77 Time: 1500 Tot. Shut-In 191.50 hrs.

Time of Observation			Observed Pressures				Wellhead Temp.-°F	Remarks
Date	Time	Shut-In Time Hrs.	Tubing		Casing			
			psig	psia	psig	psia		
Jan. 17 1977	0819	185.32	2407	2422				
	1430	191.50			1640	1655		

FLOW PERIODS

Run No. 1 Duration of Run 2 hrs. Orifice Size 1.5" Meter Run 3.068"
 High Pressure Separator - Operating Pressure psig Temp. °F
 Low Pressure Separator - Operating Pressure psig Temp. °F
 Flowed well on 16/64 choke

Date	Time	Flow Time Hours	Wellhead Readings			Meter or Prover Data			Condensate Prod.-Bbls	Water Prod.-Bbls
			Tubing psig	Casing psig	Temp. °F	Pf psia	Hw ins	Temp. °F		
Jan 17 1977	1500	0.5	2079		-					
	1530	1.0	2059		100	395	118	58		
	1600	1.5	2038		102	395	124	68		
	1630	2.0	2048	1700	102	395	127	73	0.3	NIL

2nd SHUT-IN PERIOD

Date	Time	Shut-In Time Hrs.	Tubing Pressure		Casing Pressure		Wellhead Temp. °F
			psig	psia	psig	psia	
Jan 17 1977	1700	0.5	2407	2422			
	1730	1.0	2441	2456			
	1800	1.5	2455	2470			
	1830	2.0	2434	2449	1625	1640	

Run No. 2 Duration of Run 2 Hrs. Orifice Size 1.75" Meter Run or Prover Size 3.068"
 High Pressure Separator - Operating Pressure psig Temp. °F
 Low Pressure Separator - Operating Pressure psig Temp. °F
 Flowed well on 20/64 choke

Date	Time	Flow Time Hours	Wellhead Readings			Meter or Prover Data			Condensate Prod.-Bbls	Water Prod.-Bbls
			Tubing psig	Casing psig	Temp. °F	Pf psia	Hw ins	Temp. °F		
Jan 17 1977	1900	0.5	1760		102	475	96	69		
	1930	1.0	1799		105	450	93	72		
	2000	1.5	1824		105.8	470	98	74		
	2030	2.0	1829	1775	105.0	475	98	73	2.0	1.4

SCANNED

WELL TEST SUMMARY PAGE 2

For Use with Isochronal Tests

Date	Time	Shut-In Time Hrs.	Tubing Pressure		Casing Pressure		Wellhead Temp. OF
			psig	psia	psig	psia	
Jan 17th	2100	0.5	2387				
1977	2130	1.0	2427				
	2200	1.5	2440				
	2230	2.0	2431				

Run No. 3 Duration of Run 2 hrs. Orifice Size 2.00" Meter Run: 3.068"

High Pressure Separator - Operating Pressure _____ psig Temp. _____ OF

Low Pressure Separator - Operating Pressure _____ psig Temp. _____ OF

Flowed Well on 24/64 choke

Date	Time	Flow Time Hours	Wellhead Readings			Meter or Prover Data			Condensate Prod-Bbls	Water Prod- Bbls
			Tubing psig	Casing psig	Temp. OF	Pf psia	Hw	Temp. OF		
Jan 17th	2300	0.5	1590		102.2	430	84	62		
1977	2330	1.0	1629		105	430	84	72		
	2400	1.5	1637		107	435	87	74		
Jan 18th	0030	2.0	1644	1825	109	430	88	74	0.5	3.4
1977										

For Use with Isochronal Type Tests

Date	Time	Shut-In Time Hrs.	Tubing Pressure		Casing Pressure		Wellhead Temp. OF
			psig	psia	psig	psia	
Jan 18th	0100	0.5	2375	2390			
1977	0130	1.0	2421	2436			
	0200	1.5	2417	2432			
	0230	2.0	2415	2430	1700	1715	

Run No. 4 Duration of Run 2 hrs. Orifice Size 2.25" Meter Run or Prover
Size: 3.068"

High Pressure Separator - Operating Pressure _____ psig Temp. _____ OF

Low Pressure Separator - Operating Pressure _____ psig Temp. _____ OF

Flowed well on 28/64 choke setting

Date	Time	Flow Time Hours	Wellhead Readings			Meter or Prover Data			Condensate Prod-Bbls	Water Prod- Bbls
			Tubing psig	Casing psig	Temp. OF	Pf psia	Hw	Temp. OF		
Jan 18th	0300	0.5	1403		104	415	50	73		
1977	0330	1.0	1403		109	418	51	79		
	0400	1.5	1408		113	416	52	82		
	0430	2.0	1414	1900	114	415	52	84	0.2	4.4

For Use with Isochronal Type Tests

Date	Time	Shut-In Time Hrs.	Tubing Pressure		Casing Pressure		Wellhead Temp. OF
			psig	psia	psig	psia	
Jan 18	0500	0.5	2367	2382			
1977	0530	1.0	2410	2425			
	0600	1.5	2411	2426			
	0630	2.0	2412	2427	1735	1750	

Remarks, :

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FINAL BUILD-UP PERIOD

[illegible]

WELL TEST SUMMARY PAGE 6

CALCULATION SHEET

CASE 1: FLOW THROUGH METER RUN

Run No.	HW(in wtr)	Pf (psia)	Size Orifice Plate (inches)	F _t of	b	$\frac{H_w}{P_f}$
1	127	395	1.50	73 ⁰	.0436	0.3215
2	98	490	1.75	73	.0524	0.2000
3	88	445	2.00	75	.0624	0.1978
4	52	415	2.25	84	.0706	0.1253
5	50	480	2.25	108	.0706	0.1041

CASE 2: FLOW THROUGH METER RUN 3.068" INTERNAL DIAMETER

Run No.	F _b	F _g	F _{tf}	F _{pv}	F _{pb}	F _{tb}
1	472.96	1.1547	.9877	1.0291	1.0055	1.0000
2	663.42	1.1547	.9877	1.0368	1.0055	1.0000
3	906.01	1.1547	.9859	1.0325	1.0055	1.0000
4	1223.2	1.1547	.9777	1.0291	1.0055	1.0000
5	1223.2	1.1547	.9568	1.0272	1.0055	1.0000

FLOW THROUGH METER RUN (Continued)

Run No.	F _r	Y	C'	$\sqrt{H_w P_f}$	$\frac{Q}{MCF/Hour}$	$\frac{Q}{MCFD}$
1	1.0002	1.0020	559.388	223.975	125.289	3006.932
2	1.0002	1.0011	789.813	219.135	173.076	4153.815
3	1.0003	1.0010	1072.189	197.889	212.174	5092.188
4	1.0005	1.0005	1430.410	146.901	210.128	5043.088
5	1.0005	1.0004	1397.062	154.919	216.431	5194.3548

28° 12' 57" S.

Well: BIG LAKE 11 Location: 140° 18' 50" E Field: BIG LAKE
 Pool: TOOLACHEE EPSILON Tested by: G R M & A Calculated by: C.D.S.
 Casing Size: 7.00" I.D. Tubing Size: 3.5" I.D. Produced Through: TUBING
 Perforations: _____ Length of Flow String: _____
 Properties of Well Effluent. Spec. Gravity _____ Pc _____ Tc _____

H₂S 18 p.p.m.A. FLOW TEST DATA

Run No.	Tubing psia	Casing psia	Calculated Sandface Press. psia	Gas Flow Rate MMCFD	Condensate Prod- Bbl/d	Total Flow Rate MMCFD	Water Prod. Bbl/d
1	2063	1715	MEASURED	3.006	5.40	3.009	NIL
2	1844	1790	MEASURED	4.154	24.00	4.168	16.80
3	1659	1840	MEASURED	5.092	6.00	5.096	40.80
4	1439	1914	MEASURED	5.043	2.40	5.044	52.80
5	1489	2115	MEASURED	5.194	5.40	5.197	31.70

B. BOMB MEASURED PRESSURES Datum from KB 7671'

Flow Rate No.	Date	Time	Depth	Corr. Press. @ Run Depth - psia	Corr. Press. @ Datum - psia	Remarks
1	Jan 17	1630	7375'	2551.7	2568.9	
2		2030	7375'	2275.5	2292.7	
3	18	0030	7375'	2065.3	2082.5	
4		0430	7375'	1855.4	1872.6	
5	19	0830	7671'	1873.2	1873.2	

C. SHUT-IN DATA

Shut-In No.	Pressure - psia		Shut-In Time-Hrs.	Shut-In No.	Pressure - psia		Shut-In Time-hr.
	Wellhead	Sandface			Wellhead	Sandface	
1	2407	2916.3	191.5				
2	2434	2964.7	2				
3	2431	2942.2	2				
4	2415	2909.4	2				
5	2412	2893.8	2				

D. PLOTTING DATA

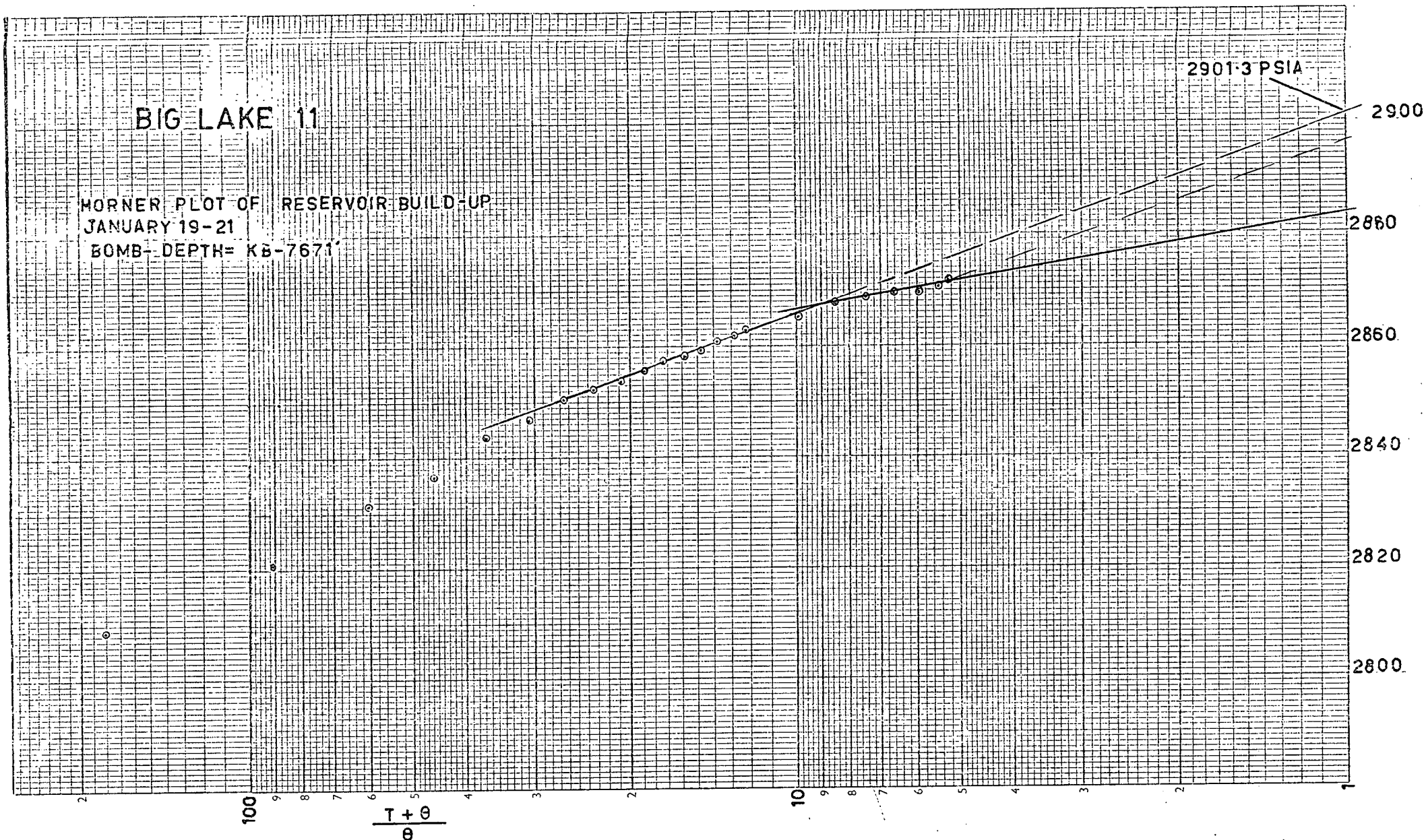
P_f	$P_f^2 \times 10^3$	P_s	$P_s^2 \times 10^3$	$P_f^2 - P_s^2 \times 10^3$	Q Total-MMCFD
2916.3	8505	2568.9	6599	1906	3.009
2964.7	8789	2292.7	5256	3533	4.168
2942.2	8657	2082.5	4337	4320	5.096
2909.4	8465	1872.6	3507	4958	5.044
2893.8	8374	1873.2	3509	4865	5.197

A.O.F. 7.1 MMCFD, n 0.5464Total Volume of Gas Produced During Test 7.069 MMCF/CONDENSATE 8.9 Bbls

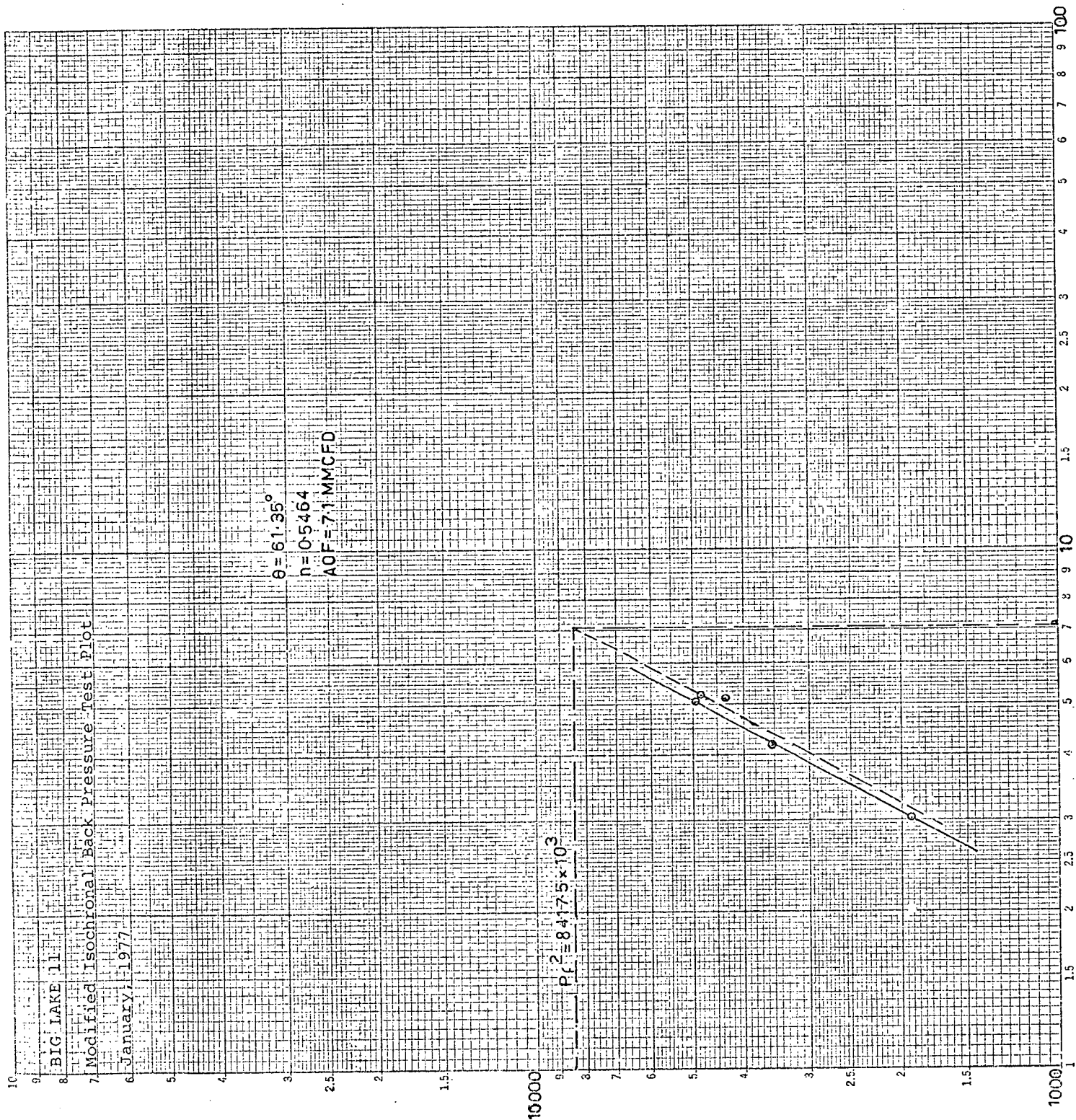
Remarks: _____

BIG LAKE 11

MORNER PLOT OF RESERVOIR BUILD-UP
JANUARY 19-21
BOMB-DEPTH= KB-7671'



PRESSURE (PSIA)



STATIC PRESSURE

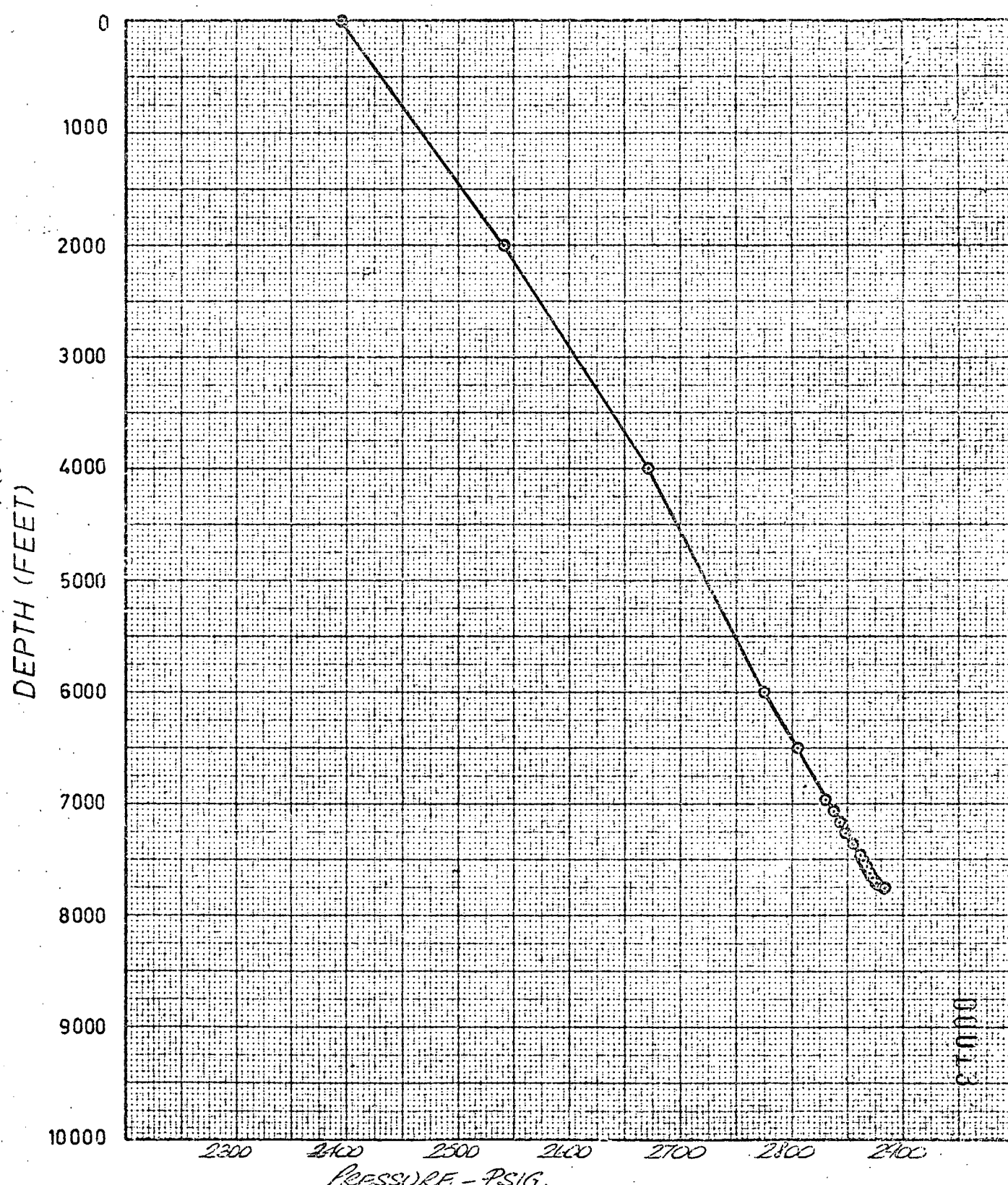
GRADIENT

WELL BIG LAKE #11

TEST DATE 17 JANUARY 1977

DEPTH (FEET)	PRESS PSIG	GRADIENT PSI/FT	DEPTH (METRES)	PRESS KPa	GRADIENT KPa/1M
* LUB.	2395.2	—	LUB.	16519	—
2000	2541.6	0.0732	609.6	17528	1.6552
4000	2671.2	0.0648	1219.2	18422	1.4665
6000	2774.8	0.0518	1828.8	19136	1.1713
6500	2804.7	0.0598	1981.2	19343	1.3583
6963	2830.1	0.0549	2122.3	19518	1.2403
7063	2837.4	0.0730	2152.8	19568	1.6393
7163	2843.5	0.0610	2183.3	19610	1.3770
7263	2848.7	0.0520	2213.8	19646	1.1803
7363	2854.8	0.0610	2244.2	19688	1.3816
7463	2860.9	0.0610	2274.7	19730	1.3770
7513	2864.2	0.0660	2289.9	19753	1.5132
7563	2866.5	0.0460	2305.2	19769	1.0458
7613	2870.1	0.0720	2320.4	19794	1.6447
7663	2873.3	0.0640	2335.7	19816	1.4379
7713	2876.2	0.0580	2350.9	19836	1.3158
7763	2883.2	0.1400	2366.2	19884	3.1373

* DW PRESSURE = 2407 PSIG
= 16600 KPa

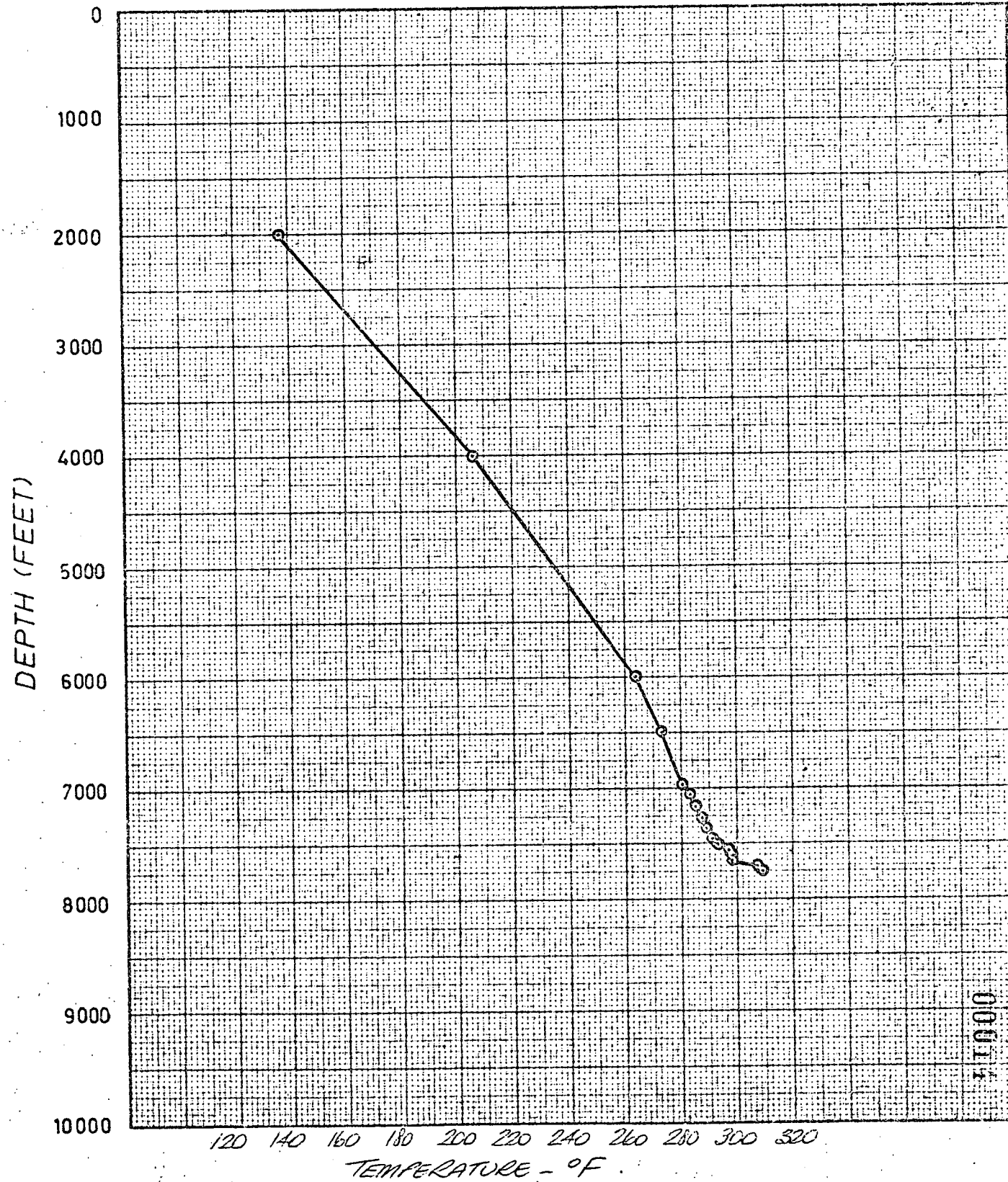


STATIC TEMPERATURE GRADIENT

WELL BIG LAKE #11

TEST DATE 17 JANUARY 1977

DEPTH (FEET)	TEMP. °F	GRADIENT /FT	DEPTH (METRES)	TEMP °C	GRADIENT /M
LUB.	BELOW RANGE		LUB	BELOW RANGE	
2000	137.3		609.6	58.5	
4000	206.6		1219.2	97.0	
6000	263.9		1828.8	128.8	
6500	273.1		1981.2	133.9	
6963	280.4		2122.3	138.0	
7063	283.0		2152.8	139.4	
7163	285.0		2183.3	140.6	
7263	287.4		2213.8	141.9	
7363	288.7		2244.2	142.6	
7463	291.4		2274.7	144.1	
7513	293.2		2289.9	145.1	
7563	297.3		2305.2	147.4	
7613	298.5		2320.4	148.1	
7663	298.6		2335.7	148.1	
7713	307.0		2350.9	152.8	
7763	309.0		2366.2	153.9	



STATIC PRESSURE

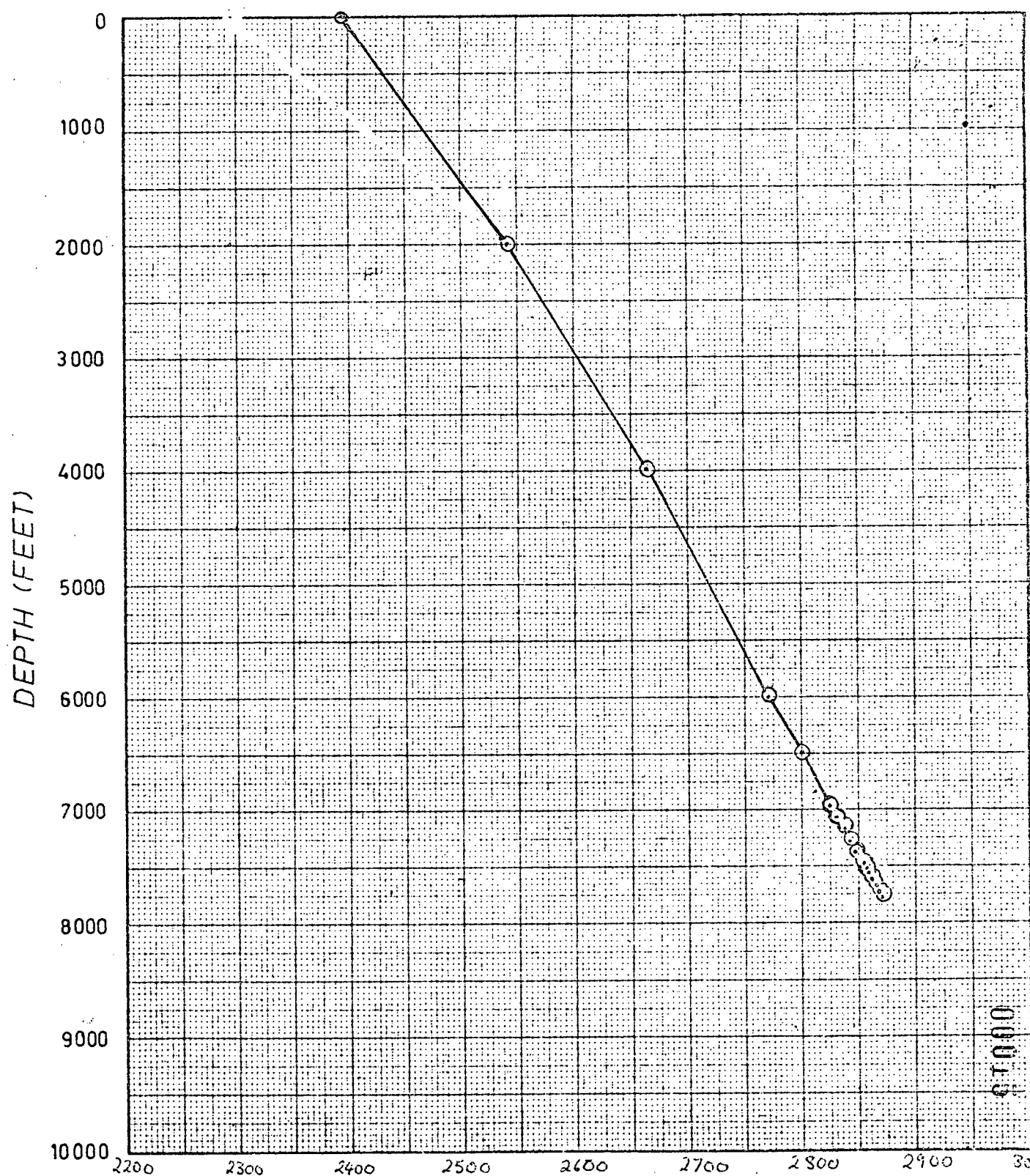
GRADIENT

WELL Big Lake II

TEST DATE 21 January 1977

DEPTH (FEET)	PRESSURE (PSIG)	GRADIENT PSIG/FT	DEPTH (METRES)	PRESSURE (kPa)	GRADIENT kPa/M
LUB	2395.9	—	LUB	16523	—
2000	2540.9	0.0725	609.6	17523	1.6404
4000	2663.8	0.0615	1219.2	18371	1.3911
6000	2771.4	0.0538	1828.8	19113	1.2172
6500	2800.9	0.0590	1981.2	19317	1.3386
6963	2825.3	0.0527	2122.3	19485	1.1906
7063	2830.5	0.0520	2152.8	19521	1.1803
7163	2837.4	0.0690	2183.3	19568	1.5410
7263	2842.6	0.0520	2213.8	19604	1.1803
7363	2847.9	0.0530	2244.2	19641	1.2171
7463	2854.8	0.0690	2274.7	19688	1.5410
7513	2856.6	0.0360	2289.9	19701	0.8552
7563	2858.3	0.0340	2305.2	19712	0.7190
7613	2861.8	0.0700	2320.4	19737	1.6447
7663	2865.3	0.0700	2335.7	19761	1.5686
7713	2867.0	0.0340	2350.9	19772	0.7237
7763	2870.0	0.0600	2366.2	19793	1.3725

DEADWEIGHT PRESSURE = 2405 psig
= 16586 kPa



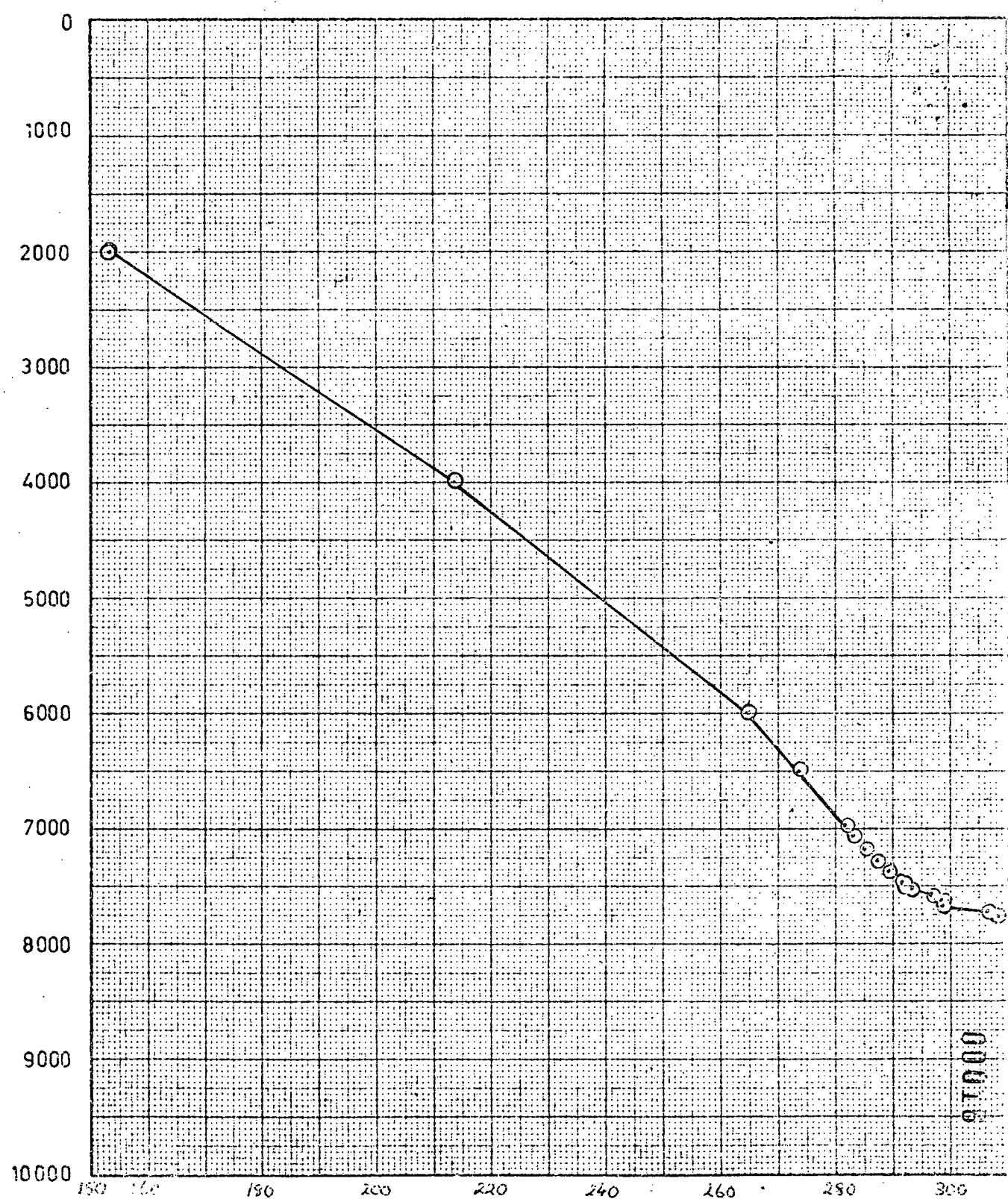
STATIC TEMPERATURE GRADIENT

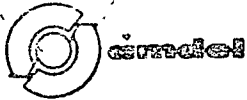
WELL Big Lake II

TEST DATE 21 January 1977

DEPTH (FEET)	TEMP °F	GRADIENT /FT	DEPTH (METRES)	TEMP °C	GRADIENT /M
LVB	BELOW RANGE		LVB	BELOW RANGE	
2000	153.0		609.6	67.2	
4000	213.6		1219.2	100.9	
6000	264.7		1828.8	129.3	
6500	273.6		1981.2	134.2	
6763	281.5		2212.3	138.6	
7063	283.1		2152.8	139.5	
7163	285.3		2183.3	140.7	
7263	287.6		2213.8	142.0	
7363	289.4		2244.2	143.0	
7463	291.6		2274.7	144.2	
7513	293.2		2289.9	145.1	
7563	296.9		2305.2	147.2	
7613	298.1		2320.4	147.8	
7663	298.5		2335.7	148.1	
7713	306.4		2350.7	152.4	
7763	308.1		2366.2	153.4	

DEPTH (FEET)





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AN 2788/77

Well tested: Big Lake 11 PD59
Date tested: 19/1/77 : 08.30 hrs
Type of test:
Type of sample: Gas
Source of sample: HP Separator
Field sampling conditions: Press. 465 psig : Temp 108°F
Reference: Order number A28371

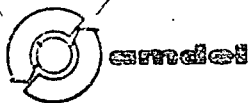
RESULTS OF ANALYSIS

Oxygen plus argon	<0.01	% mol vol
Nitrogen	0.19	
Hydrogen	-	
Helium	-	
Carbon dioxide	17.5	
Methane	77.6	
Ethane	3.65	
Propane	0.63	
i Butane	0.095	
n Butane	0.120	
i Pentane	0.033	
n Pentane	0.035	
Hexanes	0.015	
Heptanes	0.040 }	
	0.042 }	
Octanes and higher hydrocarbons	0.050	

Calculated Gas Density
(relative air = 1) 0.756

REMARKS: This sample was found to contain the odd hydrocarbon which occasionally appears in gas samples. It was not present in the Low Pressure sample, so must be considered foreign to the gas as it occurs.

SCANNED



AN 2788/77

Well tested: Big Lake 11 PD65
Date tested: 19/1/77 : 08.30 hrs
Type of test:
Type of sample: Gas
Source of sample: Low Pressure Separator
Field sampling conditions: Press 70 $\pm$ psig : Temp 88°F
Reference: Order number A28371

RESULTS OF ANALYSIS

	% mol vol
Oxygen plus argon	<0.01
Nitrogen	0.03
Hydrogen	-
Helium	-
Carbon dioxide	43.6
Methane	47.2
Ethane	6.1
Propane	1.67
i Butane	0.26
n Butane	0.33
i Pentane	0.125
n Pentane	0.110
Hexanes	0.115
Heptanes	0.235
Octanes and higher hydrocarbons	0.225
Calculated Gas Density (relative air = 1)	1.051

REMARKS:

AN 2788/77

Well tested: Big Lake 11 PD74
Date tested: 19/1/77 : 09.00 hrs
Type of test:
Type of sample: Hydrocarbon liquid
Source of sample: LP Separator
Field sampling conditions: Press 70 $\pm$ psig : Temp 9- $^{\circ}$ F
Reference: Order number A28371

RESULTS OF ANALYSIS

The sample was released to air pressure and temperature by displacement with saturated brine solution to yield gas and liquid. The relative volume of each was measured, both fractions were then analysed chromatographically and the results combined mathematically to give an analysis of the sample as submitted.

The sample yielded oil and gas in the ratio of 435 millilitres oil and 2.3 litres of gas at 26.5 $^{\circ}$ C and 763 mm pressure.

Flash Gas Analysis

Nitrogen	0.50	% mol vol
Carbon dioxide	40.7	
Methane	32.9	
Ethane	15.0	
Propane	6.25	
i Butane	1.05	
n Butane	1.45	
i Pentane	0.52	
n Pentane	0.47	
Hexanes	0.43	
Heptanes	0.32	
Octanes and higher hydrocarbons	0.41	



AN 2788/77

Calculated Composition of Sample as Received

		% by Weight
Nitrogen	<0.05	
Carbon dioxide	0.48	
Methane	0.15	
Ethane	0.15	
Propane	0.25	
Butanes	0.50	
Pentanes	0.62	
Hexanes	0.95	
Benzene	1.30	
Heptanes	3.05	
Toluene	5.20	
Octanes	7.45	
Xylenes plus ethyl benzene	7.50	
Nonanes	6.10	
C ₉ aromatics	4.30	
Decanes plus C ₁₀ aromatics	9.60	
Undecanes plus aromatics	8.50	
Dodecanes plus aromatics	9.20	
Tridecanes plus aromatics	8.60	
Tetradecanes plus aromatics	5.30	
Pentadecanes plus aromatics	4.50	
Hexadecanes plus aromatics	3.30	
Heptadecanes	2.60	
Octadecanes and higher hydrocarbons	10.4	

Specific Gravity of C₁₇ + (from A.S.T.M. Distillation)

= 0.811

REMARKS:



AN 2768/77

Well tested: Big Lakr 11
 Date tested:
 Type of test:
 Type of sample: Condenser
 Source of sample: Stock Tank
 Field sampling conditions
 Reference: Order number A29371

RESULTS OF ANALYSIS

Kinematic Viscosity	1.290	centistokes/gram at 37.8°C
Specific Gravity at 15.6°C (60°F)	0.818	(100°F)
A.P.I. Gravity at 15.6°C (60°F)	41.5	

A.S.T.M. Distillation

Initial Boiling Point	110	°C
10% recovery	138	
20	151	
30	167	
40	183	
50	199	
60	220	
70	241	
80	264	
90	300	
Weight distillate	73.55	grams
Weight residue	7.55	grams
Loss	0.10	grams
Recovery	99.9	%
Residue after distillation	0.811	
Specific Gravity at 15.6°C (60°F)		
Pour Point	<-5	°C
Flash Point	45	°C
Aniline Point	50	°C
Sulphur (X.R.F.)	0.015	% by weight

WATER ANALYSIS REPORT

AMDEL COMPUTER SERVICES

SAMPLE NO. BIG LAKE 11

JOB NO. 2748-77

CHEMICAL COMPOSITION

DERIVED AND OTHER DATA

REMARKS

		MILLIGRAMS PER LITRE MG/L	MILLIEQUIVS. PER LITRE ME/L	CONDUCTIVITY (E.C.) MICRO-S/CM AT 25 DEG. C 27342.	
CATIONS				TOTAL DISSOLVED SOLIDS	MILLIGRAMS PER LITRE MG/L
CALCIUM	(CA)	90	4.5	A. BASED ON E.C.	
MAGNESIUM	(MG)	8	.7	B. CALCULATED (HCO3=CO3)	27041.
SODIUM	(NA)	10400	452.4	C. RESIDUE ON EVAP. AT 180 DEG. C	
POTASSIUM	(K)	16	.4		
IRON	(FE)	1.80	.1		
ANIONS				TOTAL HARDNESS AS CaCO3	261.
HYDROXIDE	(OH)			CARBONATE HARDNESS AS CaCO3	261.
CARRONATE	(CO3)			NON-CARBONATE HARDNESS AS CaCO3	<1.
BICARBONATE	(HCO3)	378	6.2	TOTAL ALKALINITY AS CaCO3	310.
SULPHATE	(SO4)	158	3.3	FREE CARBON DIOXIDE (CO2)	
CHLORIDE	(CL)	16154	455.6	SUSPENDED SOLIDS	
BROMIDE	(BR)			SILICA (SiO2)	
FLUORIDE	(F)			BORON (B)	
NITRATE	(NO3)	28	.4		
PHOSPHATE	(PO4)				
TOTALS AND BALANCE					UNITS
CATIONS (ME/L)	458.0	DIFF =	7.4	REACTION - PH	5.6
ANIONS (ME/L)	465.5	SUM =	923.5	TURBIDITY (JACKSON)	
DIFF*100.				COLOUR (HAZEN)	
SUM	.8 %			SODIUM TO TOTAL CATION RATIO (ME/L)	98.8 %

NAME- 19-1-77
ADDRESS-HUNDRED-
SECTION-
HOLE NO-
SUPPLY-
SAMPLE COLLECTED BY-WATER CUT-
WATER LEVEL-
DEPTH HOLE-DATE COLLECTED
DATE RECEIVED

Env. 2707

00023

ELEMENT # 32350

PRESSURE BUILD UP SURVEYBIG LAKE #11

Date: September 17-20, 1977

Depth Tested: 7535' KB

Lubricator

Pressure: In Amerada = 1266 psig (8729 KPA)
Deadweight = 1278 psig (8812 KPA)
Out Amerada = 2234 psig (15403 KPA)
Deadweight = 2218 psig (15293 KPA)

SHUT IN
TIME HRS

PSIG

KPA

REMARKS

-3.0

1661.1

11453

Flow

Ø

1661.1

11453

S.W.I. 2100 Hrs. 17/9/77

1

2474.7

17063

2

2507.5

17289

3

2521.2

17384

4

2532.1

17459

5

2540.3

17515

6

2548.5

17572

7

2551.3

17591

8

2556.8

17629

9

2559.5

17648

10

2562.2

17666

12

2567.7

17704

14

2570.4

17723

16

2575.9

17761

18

2578.6

17779

20

2584.1

17817

24

2589.6

17855

28

2592.3

17874

32

2597.8

17912

36

2600.5

17930

40

2603.2

17949

48

2608.7

17987

56

2611.4

18006

64

2616.9

18044

64.75

2616.9

18044

POH 1345 Hrs 20/9/77

00024

ELEMENT # 39674

PRESSURE BUILD UP SURVEYBIG LAKE #11

Date: September 17-20, 1977

Depth Tested: 7535' KB

Lubricator

Pressure:

In Amerada = 1272 psig (8770 KPA)

Deadweight = 1278 psig (8819 KPA)

Out Amerada = 2221 psig (15314 KPA)

Deadweight = 2218 psig (15293 KPA)

SHUT IN
TIME HRS.

PSIG

KPA

REMARKS

-3.0

1671.8

11527

Flow

ø

1671.8

11527

S.W.I. 2100 Hrs. 17/9/77

1

2478.4

17088

2

2511.5

17316

3

2526.7

17422

4

2536.9

17992

5

2544.5

17544

6

2552.2

17597

7

2557.3

17633

8

2559.8

17650

9

2562.3

17667

10

2564.9

17685

12

2570.0

17720

14

2572.5

17737

16

2577.6

17773

18

2582.7

17808

20

2585.2

17825

24

2590.3

17680

28

2592.9

17878

32

2595.4

17895

36

2598.0

17913

40

2600.5

17930

48

2605.6

17966

56

2608.1

17983

64

2610.7

18001

64.75

2610.7

18001

POH 1345 Hrs. 20/9/77

STATIC PRESSURE

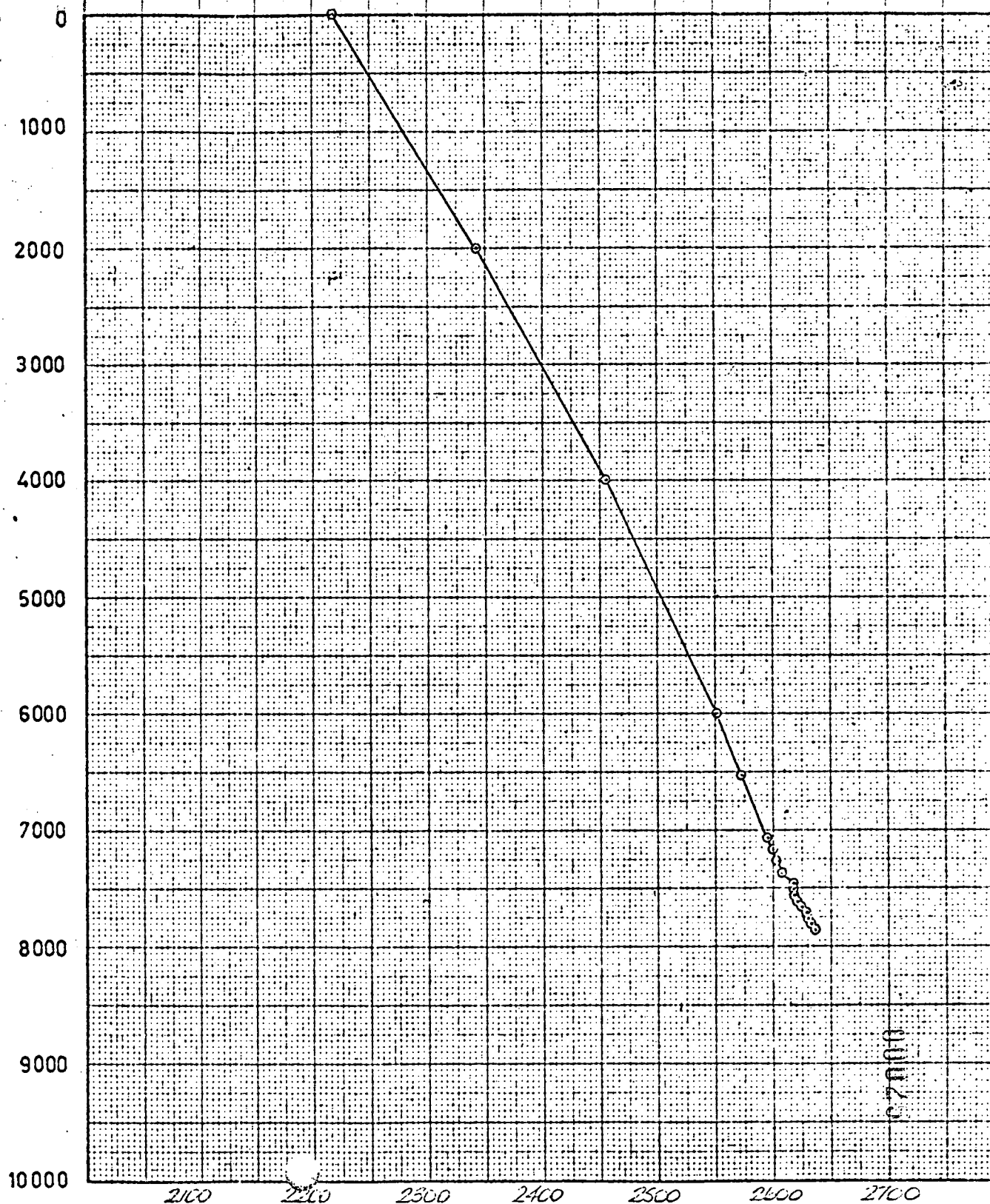
GRADIENT

WELL BIG LAKE 11

TEST DATE 20 SEPTEMBER 1977

DEPTH (FEET)	Press PSIG	GRADIENT PSI/FT	DEPTH (METRES)	Press kPa	GRADIENT kPa/1M
LUB.	2217.8	-	LUB	15295	-
2000	2343.5	.0629	609.6	16162	1.422
4000	2455.6	.0561	1219.2	16935	1.268
6000	2551.3	.0479	1828.8	17595	1.083
6530	2573.2	.0413	1990.3	17746	0.935
7060	2595.0	.0411	2151.9	17896	0.928
7160	2600.5	.0550	2182.3	17934	1.250
7260	2603.2	.0270	2212.8	17953	0.623
7360	2608.7	.0550	2243.3	17991	1.246
7460	2616.9	.0820	2273.8	18047	1.836
7510	2616.9	-	2289.0	18047	-
7560	2619.6	.0540	2304.3	18066	1.242
7610	2622.4	.0560	2319.5	18085	1.250
7660	2625.1	.0540	2334.8	18104	1.242
7710	2627.9	.0560	2350.0	18123	1.250
7760	2630.6	.0540	2365.2	18142	1.250
7810	2633.3	.0540	2380.5	18161	1.242
7860	2641.5	.1640	2395.7	18217	3.684

DEPTH (FEET)



STATIC TEMPERATURE

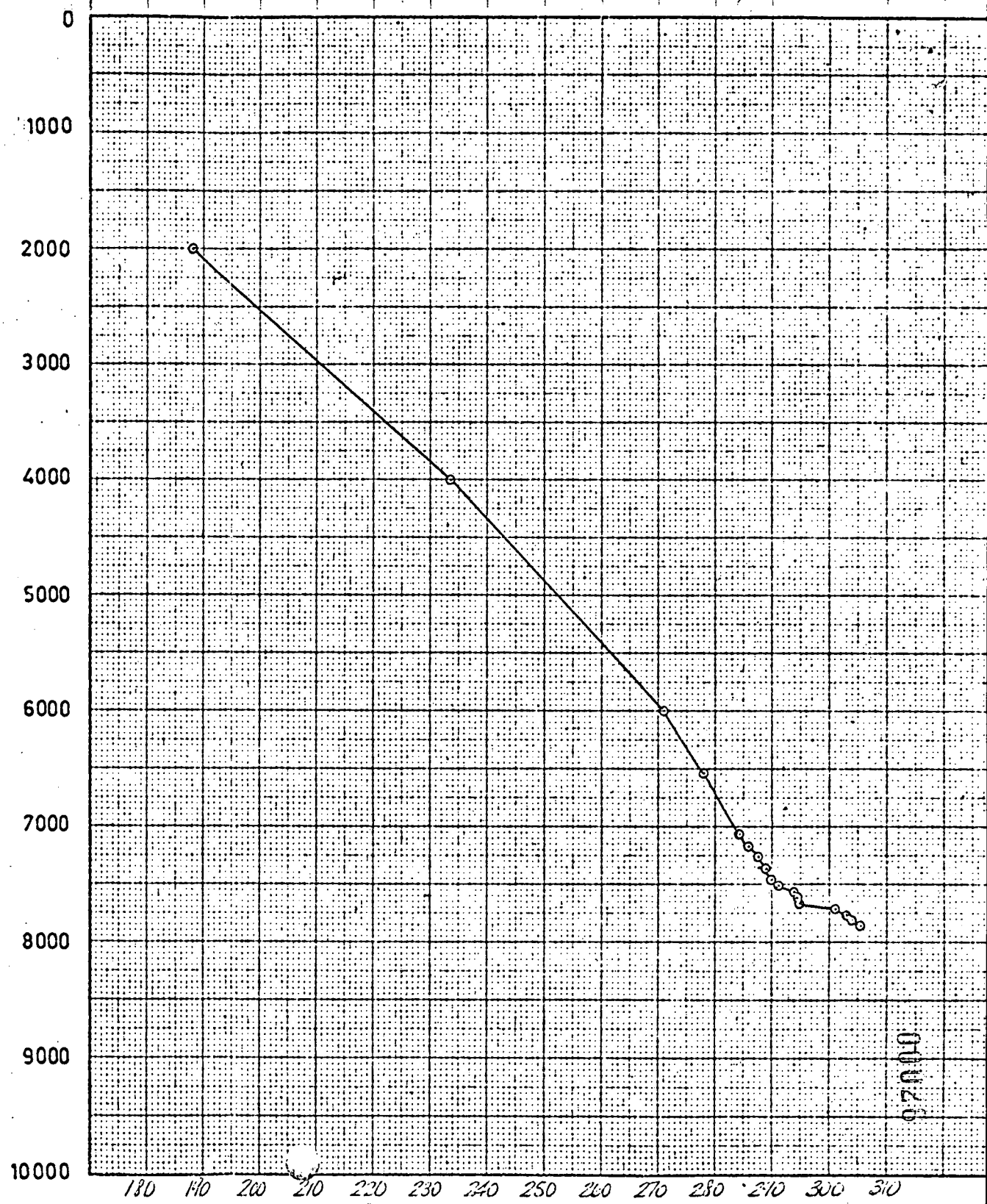
GRADIENT

WELL BIG LAKE 11

TEST DATE 20 SEPTEMBER 1977

DEPTH (FEET)	TEMP °F	GRADIENT 1FT	DEPTH (METRES)	TEMP °C	GRADIENT 1M
LUB.	BELOW	RANGE	LUB.	BELOW	RANGE
2000	188.2		609.6	86.8	
4000	233.7		1219.2	112.1	
6000	270.9		1828.8	132.7	
6530	278.3		1990.3	136.8	
7040	284.4		2151.9	140.2	
7160	285.9		2182.3	141.1	
7260	287.6		2212.8	142.0	
7360	288.9		2243.3	142.7	
7460	289.9		2273.8	143.3	
7510	291.1		2289.0	143.9	
7560	293.9		2304.3	145.5	
7610	294.5		2319.5	145.8	
7660	294.8		2334.8	146.0	
7710	301.0		2350.0	149.4	
7760	303.0		2365.2	150.6	
7810	304.0		2380.5	151.1	
7860	305.4		2395.7	151.9	

DEPTH (FEET)



00027

PRESSURE BUILD UP SURVEYBIG LAKE #11

Date: May 26-29, 1978
 Depth Tested: 7370' KB
 Lubricator In Amerada = 1243 psig (8571 KPA)
 Pressure: Deadweight = 1239 psig (8543 KPA)
 Element No. Out Amerada = 2069 psig (14266 KPA)
 3917 Deadweight = 2059 psig (14197 KPA)

SHUT IN TIME HRS.	PSIG	KPA	REMARKS
-17.0	1650.0	11377	Flow at 7370' KB
0	1650.0	11377	SWI 0810 Hrs. 27/5/78
1	2295.8	15830	
2	2316.6	15973	
3	2333.9	16092	
4	2342.5	16152	
5	2349.4	16199	
6	2352.9	16223	
7	2359.8	16271	
8	2363.3	16295	
9	2365.0	16307	
10	2368.5	16331	
12	2375.4	16378	
14	2380.6	16414	
16	2384.0	16438	
18	2387.5	16462	
20	2392.7	16494	
24	2399.6	16545	
28	2401.3	16557	
32	2404.8	16581	
36	2408.3	16605	
40	2411.7	16629	
48	2411.7	16629	
52.4	2413.5	16641	POH 1235 Hrs. 29/5/78

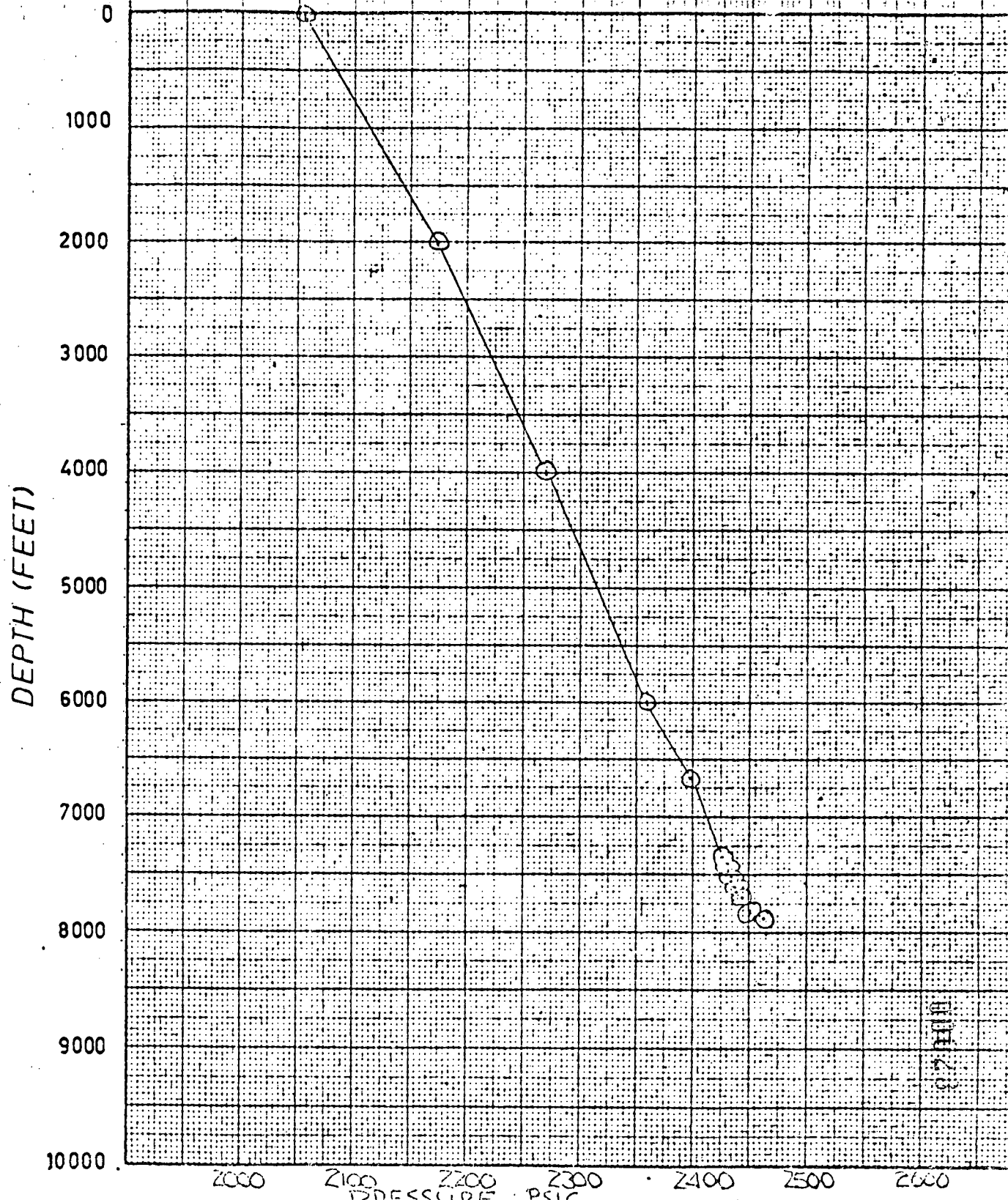
STATIC PRESSURE

GRADIENT

WELL BIG LAKE # 11

TEST DATE 29th May 78

DEPTH (FEET)	PRESSURE (PSIG)	GRADIENT PSI / FT	DEPTH (METRES)	PRESSURE (KPa)	GRADIENT KPa / M
LUBRICATOR	2054.1	—	—	14163.0	—
2000	2173.2	.060	609.6	14984.2	1.357
4000	2269.9	.048	1219.2	15651.0	1.086
6000	2359.8	.045	1828.8	16270.8	1.018
6674	2397.9	.056	2034.2	16533.5	1.267
7349	2427.3	.044	2239.9	16736.2	.995
7401	2430.8	.070	2255.8	16760.4	1.583
7454	2432.5	.034	2271.4	16772.1	.769
7507	2434.2	.034	2288.1	16783.8	.769
7559	2437.7	.070	2303.9	16807.9	1.584
7612	2439.4	.034	2320.1	16819.7	.769
7664	2442.9	.050	2335.9	16833.8	1.131
7717	2444.6	.034	2352.1	16855.5	.769
7770	2448.1	.070	2368.3	16879.6	1.584
7822	2453.3	.104	2384.1	16915.5	2.353
7875	2465.4	.242	2400.3	16998.9	5.474



STATIC TEMPERATURE

GRADIENT

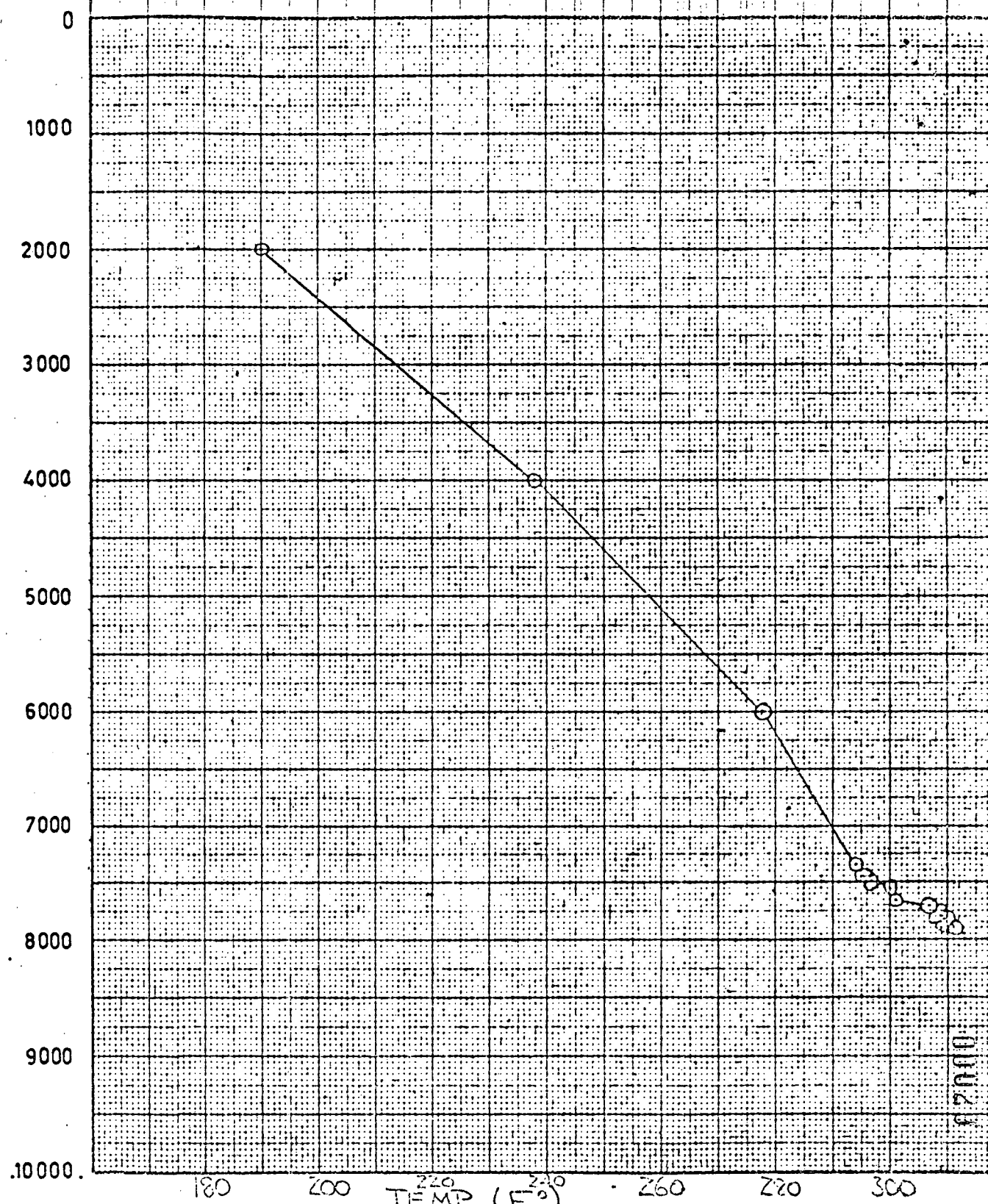
WELL BIG LAKE # 11

TEST DATE 20th MAY 78

DEPTH (FEET)	TEMP (F°)	GRADIENT /FT	DEPTH (METRES)	TEMP (C°)	GRADIENT /M
LUBRICATOR					
2000	190.3		609.6	87.9	
4000	238.0		1219.2	114.4	
6000	277.4		1828.8	136.3	
6674	286.5		2034.2	141.4	
7349	294.2		2239.9	145.6	
7401	294.2		2255.8	145.6	
7454	295.3		2271.4	146.3	
7507	296.8		2288.1	147.1	
7559	300.6		2303.9	149.2	
7612	300.9		2320.1	149.4	
7664	301.0		2335.9	149.4	
7717	307.4		2352.1	153.0	
7770	308.6		2368.3	153.7	
7822	309.6		2384.1	154.2	
7875	311.1		2400.3	155.0	

DEPTH (FEET)

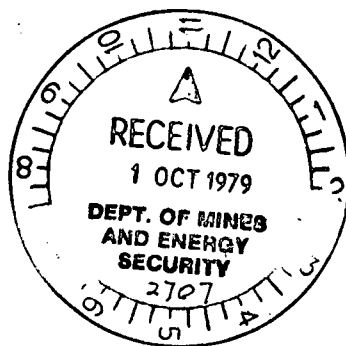
DEPTH (FEET)



BIG LAKE #11

PRODUCTION LOGGING

23 July 1978.



SCANNED

Andrew Harris
12 September 1979.

C O N T E N T S

INTRODUCTION

RESULTS

CONCLUSIONS

DISCUSSION

FIGURES

1. Spinner Response 6.72 MMCFD
2. Production Profile
3. Production Profile/Composite Log.

INTERPRETATION OF PRODUCTION LOGGING OF BIG LAKE #1123 JULY 1978INTRODUCTION

A PCT (Production Combination Tool) was run in Big Lake #11 on 23 July 1978 to determine the contribution of each perforated zone to the total flow from the well.

The tools run were:

1. Thermometer - to locate zones of gas entry and obtain bottomhole temperatures for the calculation of $1/B_g$.
2. Digital manometer - to measure FBHP's at "stations" for the calculation of $1/B_g$.
3. Gradiomanometer - to measure flowing gradients and locate zones of water entry.
4. Full-bore spinner - to measure fluid velocities in the wellbore.

RESULTS

The gradiomanometer indicated gas cut water below 7756'. Station readings were taken at depths where the spinner and gradio traces indicate no production from the formation. The spinner showed no measurable production from the Toolachee perforations 7730' - 7753', or the Daralingie perforations 7778' - 7794'. There is a second packer at 7879' between the Daralingie and Epsilon Formations, and so individual production from the Epsilon sands could not be determined.

The orifice plate was later found to be damaged so the flow reading could not be used. The choke was set to 100% 4 hours before the spinner was run. FWHP was 1350 psig, and the spinner indicated a surface flow rate of 6.72 MMCFD.

FORMATION	PERFORATED INTERVAL	PRODUCTION MMSCFD	% OF TOTAL FLOW
Toolachee	7549 - 7588	2.40	35.7
	7618 - 7638	0.71	10.6
	7643 - 7659)	2.33	34.7
	7667 - 7689)		
	7697 - 7710)	0.29	4.3
	7712 - 7722)		
	7730 - 7753	no indication of flow	0.0
Daralingie	7778 - 7794	no indication of flow	0.0
Epsilon	8037 - 8049)		
	8051 - 8057)		
	8062 - 8067)		
	8069 - 8074)	0.99	14.7
	8188 - 8192)		
	8200 - 8205)		
	8213 - 8223)		
		6.72	100.0

CONCLUSIONS

The main producing zones in this well are the perforated intervals 7549' - 7588', 7643' - 7659' and 7667' - 7689' in the Toolachee Formation Unit 'C'. The remaining production is from the intervals 7618' - 7638' and 7697' - 7722' in the Toolachee Formation, and from the Epsilon Formation (15%).

Total production from the Toolachee Formation is 85%. There is no measurable production from the Daralingie Formation.

		SPINNER RESPONSE					
		A	B	C	D	E	F
		7520	7600	7640	7695	7740	7800
fpm							
Down	68	13.1	9.2	8.0	4.6	4.0	5.1
	121	15.1	11.1	10.0	6.3	6.0	7.0
	186	17.7	13.7	12.5	9.2	8.4	10.0
	236	19.4	15.5	14.4	11.2	10.2	11.8
Station	0	10.7	6.8	5.6	1.7	1.1	3.3
Up	60.8	8.1	4.4	3.1	0.0	0.0	-2.0
	123	5.9	1.8	0.0	-2.0	-2.6	-0.5
	197	3.1	0.0	-1.5	-4.2	-5.1	-0.6
	262	0.0	-2.8	-4.1	-6.7	-7.3	-3.3

Slope of the flow response line = 3.79 rps/100 fpm.

Intercept on x - axis = 9.33 fpm

Tool velocity is

$$v = \frac{SR}{0.0379} + 9.33 \text{ fpm}$$

where SR is the station reading of the spinner.

Flow under downhole conditions is

$$q_{DH} = cv \frac{\pi d^2}{4 \times 144} \times 1.44 \times 10^{-3} \text{ MMCFD}$$

where c is the velocity correction factor.

As the orifice plate was damaged we assumed a standard value

$$c = 0.83.$$

The ID of 7", 26# casing is 6.276 in. Converting to standard conditions we find

$$q_{SC} = \left(\frac{SR}{0.0379} + 9.33 \right) \frac{1}{B_g} \times 2.568 \times 10^{-4} \text{ MMSCFD}$$

STATION	DEPTH	STATION READING	GRADIO	1/Bg	q _{SC}	% OF TOTAL FLOW
---------	-------	--------------------	--------	------	-----------------	-----------------

A	7520	10.55	0.16	90.9	6.72	100.0
B	7600	6.62	0.16	91.5	4.32	64.3
C	7640	5.47	0.16	91.6	3.61	53.7
D	7695	1.71	0.16	91.9	1.28	19.0
E	7740	1.25	0.16	91.4	0.99	14.7
F	7800	2.91	0.30	91.1	0.99	14.7

STATION	INTERVAL	PRODUCTION	% OF TOTAL
A - B	7520 - 7600	2.40	35.7
B - C	7600 - 7640	0.71	10.6
C - D	7640 - 7695	2.33	34.7
D - E	7695 - 7740	0.29	4.3
E - F	7740 - 7800	0.00	0.0
F -	7800 -	0.99	14.7

BL #11 PCT

Figure 1.

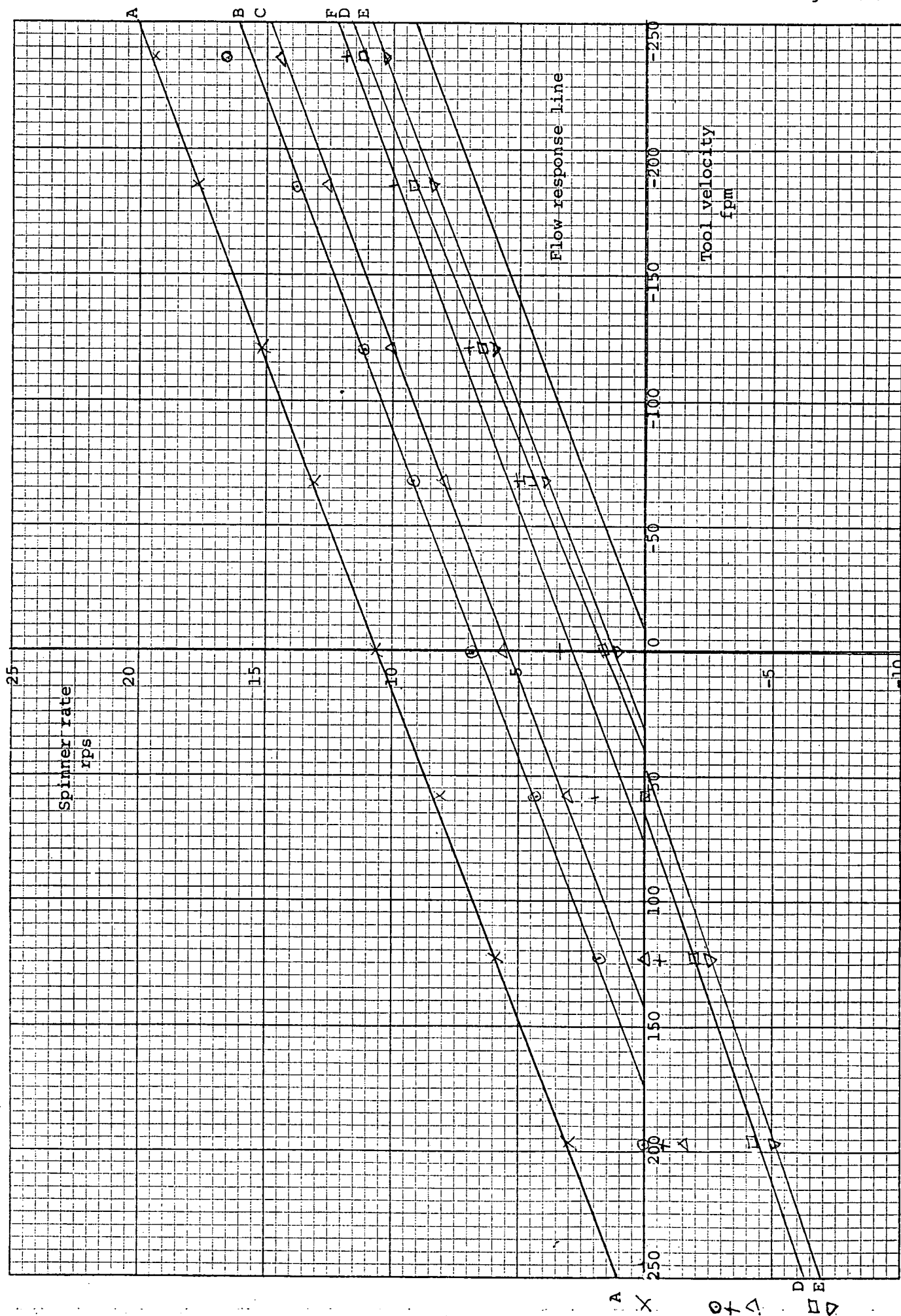


Figure 2.

BIG LAKE #11
PRODUCTION PROFILE
6.72 MMCFD 1350 psig FWHP

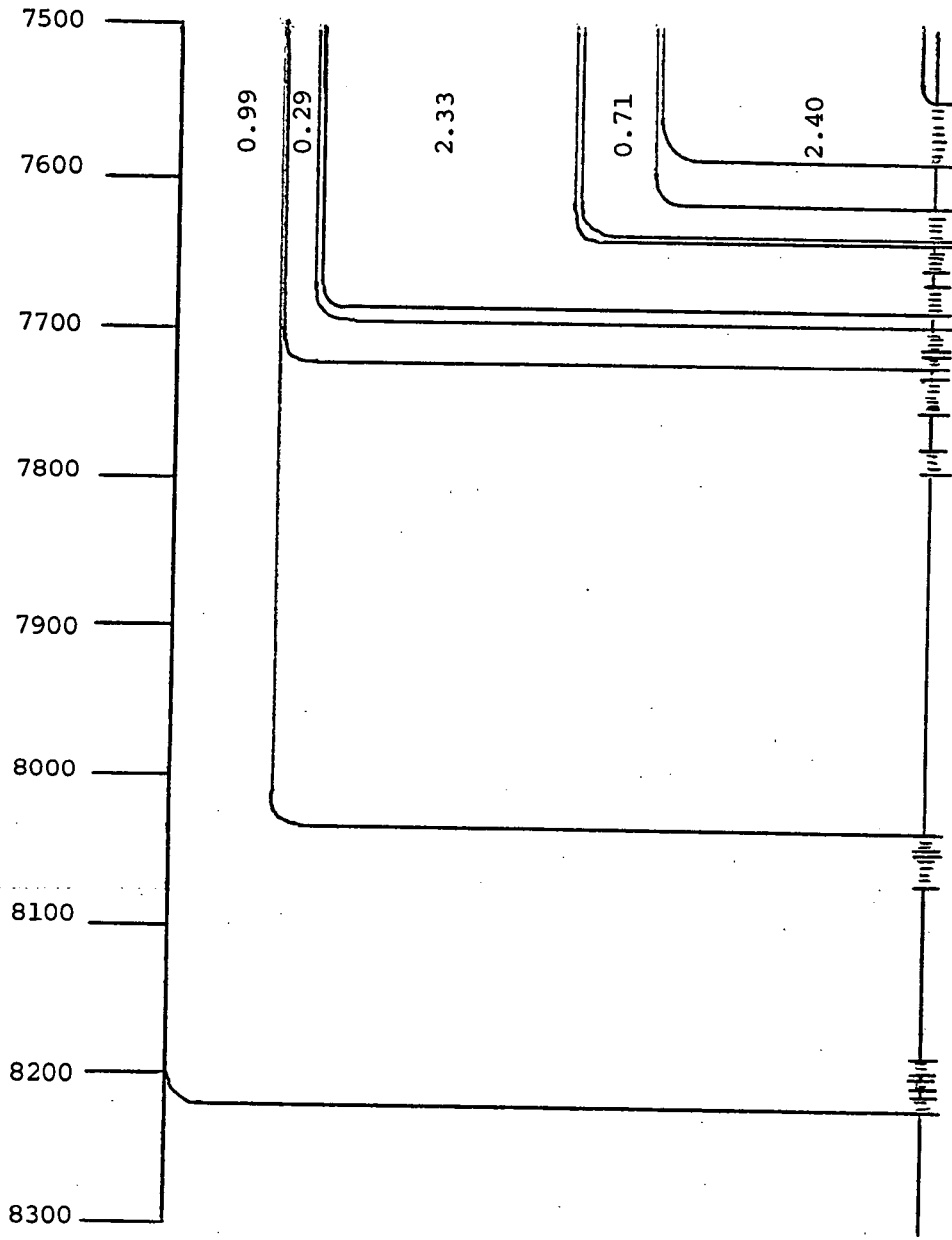
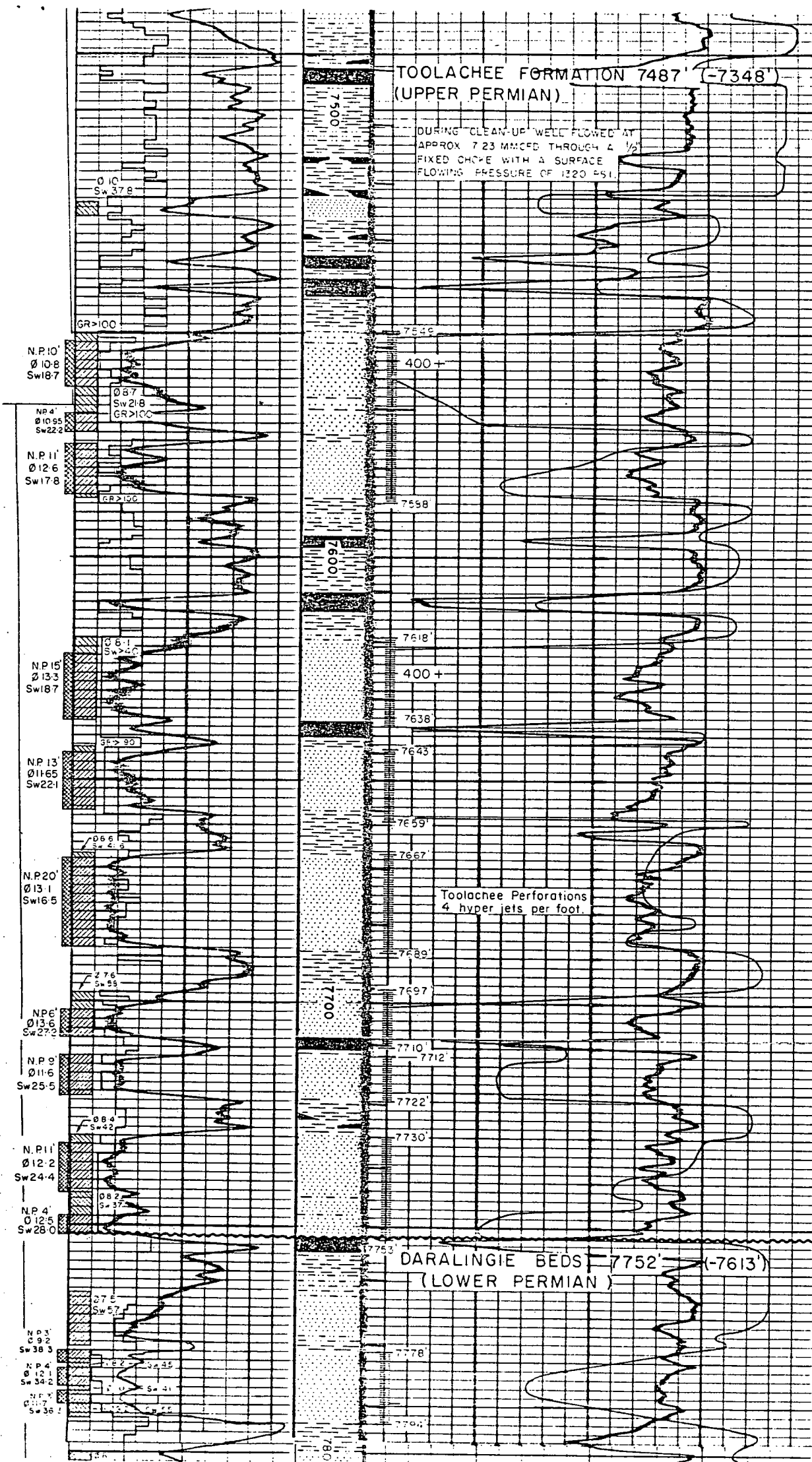
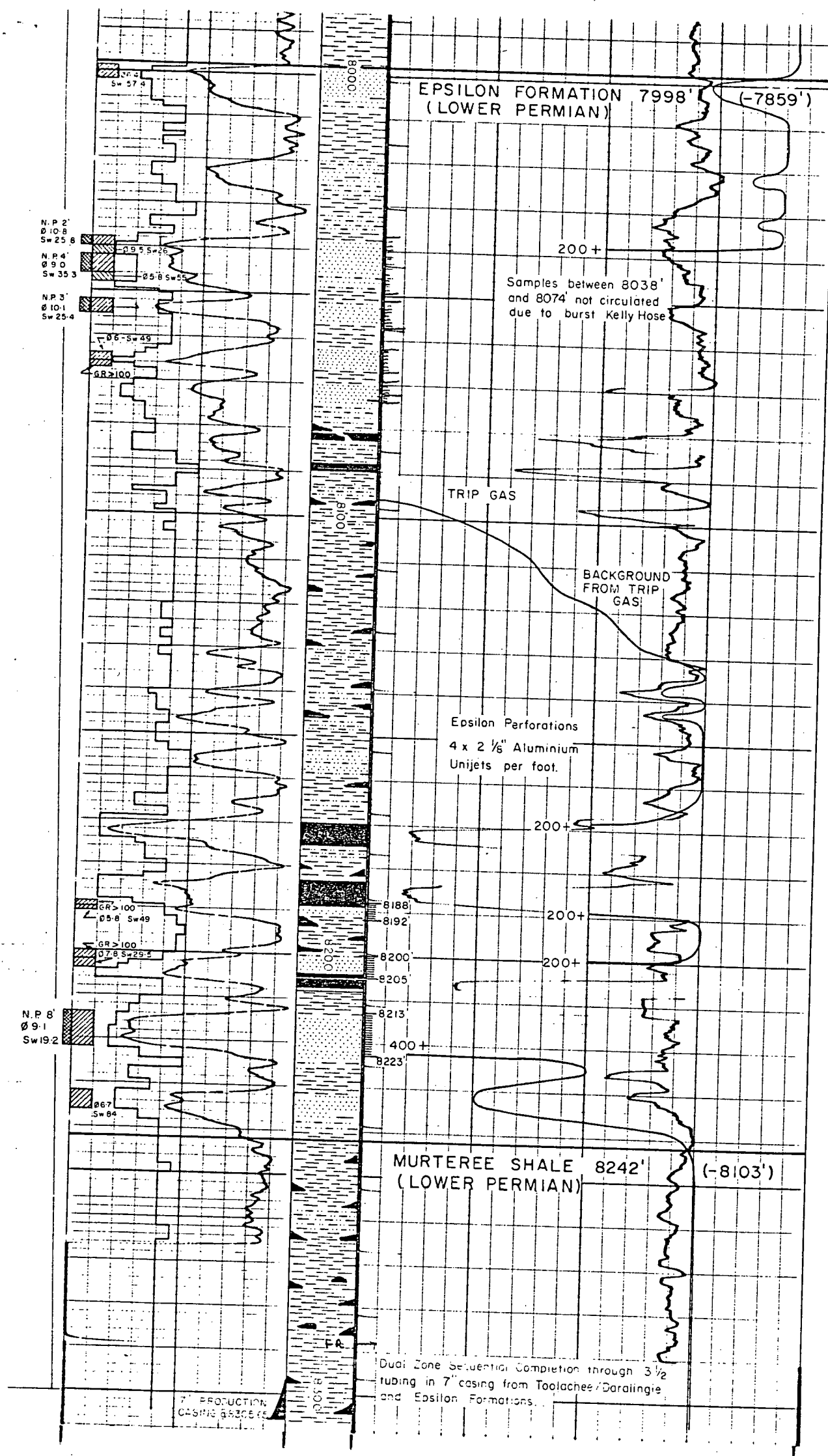


Figure 3.

FLOW

MMSCFD





WELL : Big Lake # 11

ORIFICE SIZE : 44.450 mm 1.750 "

LINE SIZE : 146.329 mm 5.761 "

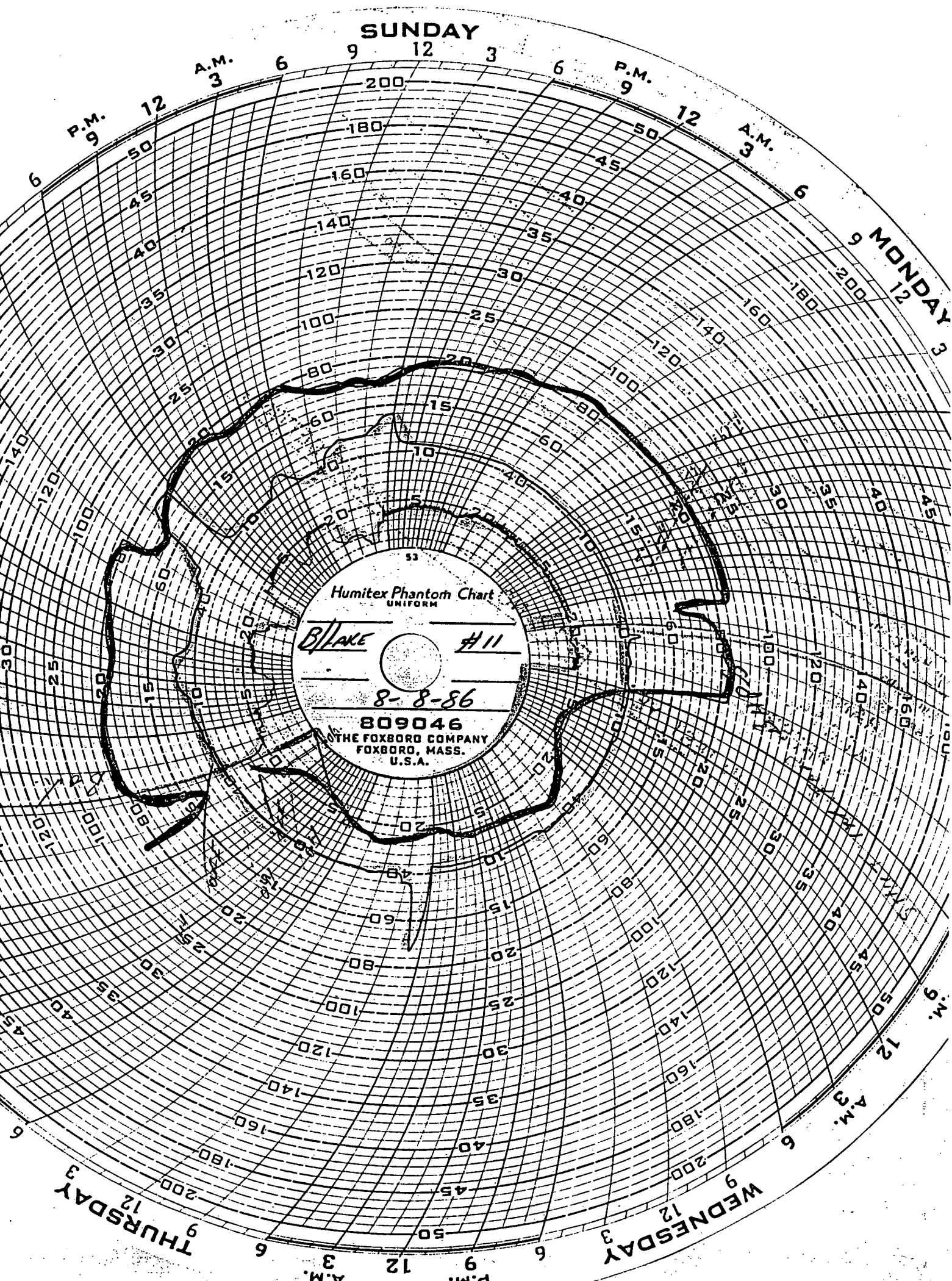
 $P_f = 4100$ Kpa $T = 62$ °C

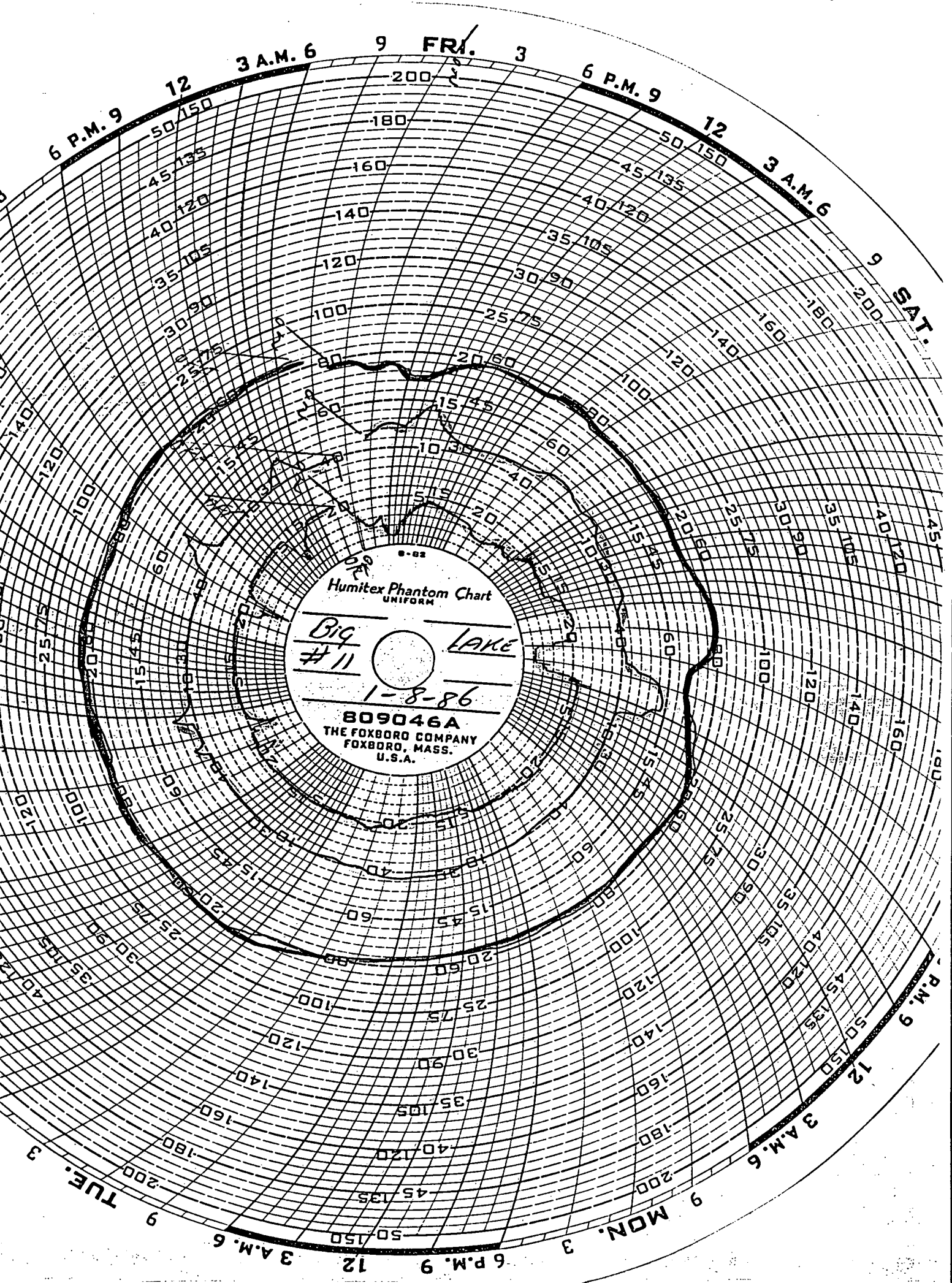
Diff = 4.5 Kpa

Cumulative Production to end of July = 307.297 $m^3 \times 10^6$

Number of hours online in July = 744

Production in July = 1.433 $m^3 \times 10^6$ $\therefore$ Average flow rate in July = $(1.433 / 744) \times 24 = 0.046$ $m^3 \times 10^6 / d$ Number of days online in August before Shut In 1700 hrs 12 / 8 / 86
= 11.708 days $\therefore$ Production upto 1700hrs 12 / 8 / 86 = $0.046 \times 11.708 = 0.539$ $m^3 \times 10^6$ $\Rightarrow$ Total cumulative Production = 307.297 + 0.539
= 307.836 $m^3 \times 10^6$
= 10926.316 mmscfFlow Rate just prior to Shut In = 0.049 $m^3 \times 10^6 / d$
= 1.727 mmscf / d





SANTOS LTD
39 GRENFELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO.		RUN 01 FIELD BIG LAKE	WELL 11
REF DEPTH		WELL STAT	TOOL HUNG 7848'
CASING 7"	-	CASING PRESS	ON BOTTOM 1308 12/8
LINER	-	TUBING PRESS	OFF BOTTOM 1000 16/8
DATE	860816	ELEMENT RANGE	0 - 3127
ELEVATION		ZONE	SHUT-IN 1700 12/8
MAX TEMP		PICK-UP	ON-PROD
REF	77451-82031	DAI PIR NO.	57413
TUBING 3-1/2"			7340'
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO.	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
	17:00	790.8	0.0	0.0	20:04	1438.2	647.4	3.1
	17:07	912.7	121.9	.1	20:43	1443.5	652.6	3.7
	17:18	1079.2	288.4	.3	21:42	1450.4	659.5	4.7
	17:36	1226.2	435.3	.6	23:52	1461.8	671.0	6.9
	17:53	1323.7	532.8	.9	2:04	1469.1	678.3	9.1
	18:05	1378.0	587.1	1.1	5:40	1480.0	689.2	12.7
	18:10	1391.2	600.3	1.2	10:00	1488.0	697.2	17.0
	18:12	1396.3	605.5	1.2	14:47	1492.3	701.5	21.8
	18:16	1401.4	610.6	1.3	23:37	1501.3	710.4	30.6
	18:22	1407.4	616.6	1.4	9:22	1509.7	718.8	40.4
	18:27	1410.9	620.1	1.5	19:22	1516.8	726.0	50.4
	18:32	1415.6	624.7	1.5	4:14	1522.3	731.5	59.2
	18:41	1419.8	629.0	1.7	18:16	1526.4	735.6	73.3
	18:50	1423.2	632.3	1.8	8:13	1531.6	740.7	87.2
	19:07	1428.3	637.5	2.1	10:00	1530.6	739.7	89.0
	19:27	1432.7	641.8	2.5	0:00	0.0	0.0	0.0

LUB IN DWT = 585 PSI / OUT = 1259 PSI
LUB IN AMERADA = 591 PSI / OUT = 1251 PSI

SANTOS LTD
39 GRENELL ST
ADELAIDE

SUB-SURFACE PRESSURE SURVEY

CO. SANTOS		RUN 02 FIELD BIG LAKE	WELL 11
EFF DEPTH		WELL STAT	TOOL HUNG 7854'
CASING 7"	-	CASING PRESS	ON BOTTOM 1308 12/8
LINER	-	TUBING PRESS	OFF BOTTOM 1000 12/8
DATE 860816		ELEMENT RANGE 0 - 3114	ZERO POINT
ELEVATION		ZONE	SHUT-IN 1700 12/8
MAX TEMP		PICK-UP	ON-PROD
PERF 7549' - 8223'		CAL SER NO. 57414	MPP 7852"
TUBING 3-1/2"	-		
UNITS ENGLISH		PURPOSE BUILD-UP	

SURVEY DATA

CO. SANTOS				RUN 02 FIELD BIG LAKE				WELL 11			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
17:00	795.3	0.0	0.0	19:28	1429.5	634.2	2.5				
17:04	858.3	63.0	.1	20:20	1437.4	642.1	3.3				
17:11	935.9	140.6	.2	21:16	1443.9	648.7	4.3				
17:19	1040.8	245.5	.3	23:07	1454.6	659.3	6.1				
17:27	1117.8	322.5	.4	0:56	1463.4	668.2	7.9				
17:35	1182.2	386.9	.6	5:27	1477.0	681.7	12.4				
17:43	1241.5	446.2	.7	11:16	1487.7	692.4	18.3				
17:54	1294.7	499.4	.9	20:48	1498.3	703.0	27.8				
18:02	1347.1	551.8	1.0	10:23	1508.2	712.9	41.4				
18:09	1376.9	581.6	1.1	17:08	1514.4	719.1	48.1				
18:16	1395.2	600.0	1.3	1:37	1520.5	725.2	56.6				
18:24	1404.9	609.7	1.4	15:07	1527.2	731.9	70.1				
18:34	1410.6	615.3	1.6	6:19	1532.1	736.8	85.3				
18:43	1416.4	621.1	1.7	10:00	1531.9	736.6	89.0				
18:54	1420.1	624.8	1.9	0:00	0.0	0.0	0.0				

LUB IN DWT = 585 PSI / OUT = 1259 PSI
LUB IN AMERADA = 580 PSI / OUT = 1264 PSI

02047

Date: 12.8.86

1261
1264

OUT: 1259 psc

Time Depressured..... 12.36 hrs. 16.8.86

Time off Bottom.....10.00 Hrs.....16.8.86

MIDDLE Bomb No. 2 Data

Remarks: TEMPERATURE ELEMENT RAN ALSO ELEMENT: 63256 X 150" X 400' F
REORDER: 61275
Max. S.L.B.H. Temperature = 308.2°F CLOCK F.15694 X 120HR

[illegible]

CLIENT SANTOS LTD

WELL

BIG LAKE #11

00048

DATE 12-8-86

PROGRAMME FLOW & BUILD UP SURVEY

PURPOSE OF WORK RUN GAUGE CUTTER

REPORT OF WORK PERFORMED

12-8-86 0820 SHUT IN WELL, INSTALL SWAB VALVE, RIG UP W/LINE
PRESSURE TEST LUBRICATOR & B.O.P's.

0930 R.L.H. WITH 1.75 GAUGE CUTTER AND TAGGED BOTTOM
AT 7876' KB. 1000HR PUT WELL BACK ON LINE. P.O.N.

0945 PREPARE 2 PRESURE AND 1 TEMPERATURE ELEMENT ON 12 O'CLOCK

1026 PRESSURE UP LUBRICATOR. 1230HR R.L.H. WITH BOMBS.

1308 HANG BOMBS ON WIRE AT 7860' KB. KEEP FLOWING WELL
FOR 4 HRS.

1700 SHUT IN WELL, OBSERVE BUILD UP.

Operator's Signature

WORKED PERFORMED BY R. BUCKLAND /

OF EXPERTEST

WELL DATA:

Tubing Size $3\frac{1}{2} + 2\frac{7}{8}$ FWHP 580 PSI SIWHP

Subsurface S.V./Landing Nipple @ - S.S.D. @ 7353'

'X' Nipple @ 7403' 'N'/XN' Nipple @ 7403' Other - @ -

Min. I.D. 2.205 @ No Go Nipple Packer @ 7388'

Perforated Interval: 7549' - 7753' (Toolachee) 7778' - 7794' (Daralingie) 8037' - 8223' (Epsilon)



**** BIG LAKE #11 ****

STATIC PRESSURE GRADIENT

TEST DATE: 16/8/86

TOP PRESSURE ELEMENT 57413/3000				BOTTOM PRESSURE ELEMENT 57414/3000		
DEPTH (FT.)	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)	DEFLECTION (INCHES)	PRESSURE (PSIG)	GRADIENT (PSI/FT)
LUB	0.8060	1254.0	----	0.8040	1245.7	----
1000	0.8300	1291.5	0.0375	0.8290	1284.5	0.0388
2000	0.8530	1327.5	0.0360	0.8530	1321.8	0.0373
3000	0.8750	1361.9	0.0344	0.8750	1356.0	0.0342
4000	0.8970	1396.3	0.0344	0.8990	1393.3	0.0373
5000	0.9160	1426.0	0.0297	0.9180	1422.8	0.0295
6000	0.9350	1455.7	0.0297	0.9370	1452.3	0.0295
7000	0.9550	1487.0	0.0313	0.9560	1481.8	0.0295
7500	0.9650	1502.6	0.0313	0.9660	1497.3	0.0310
7860	0.9840	1532.3	0.0825	0.9870	1529.9	0.0905
LUB	0.8110	1261.8	----	0.8120	1258.1	----

GENERAL REMARKS:

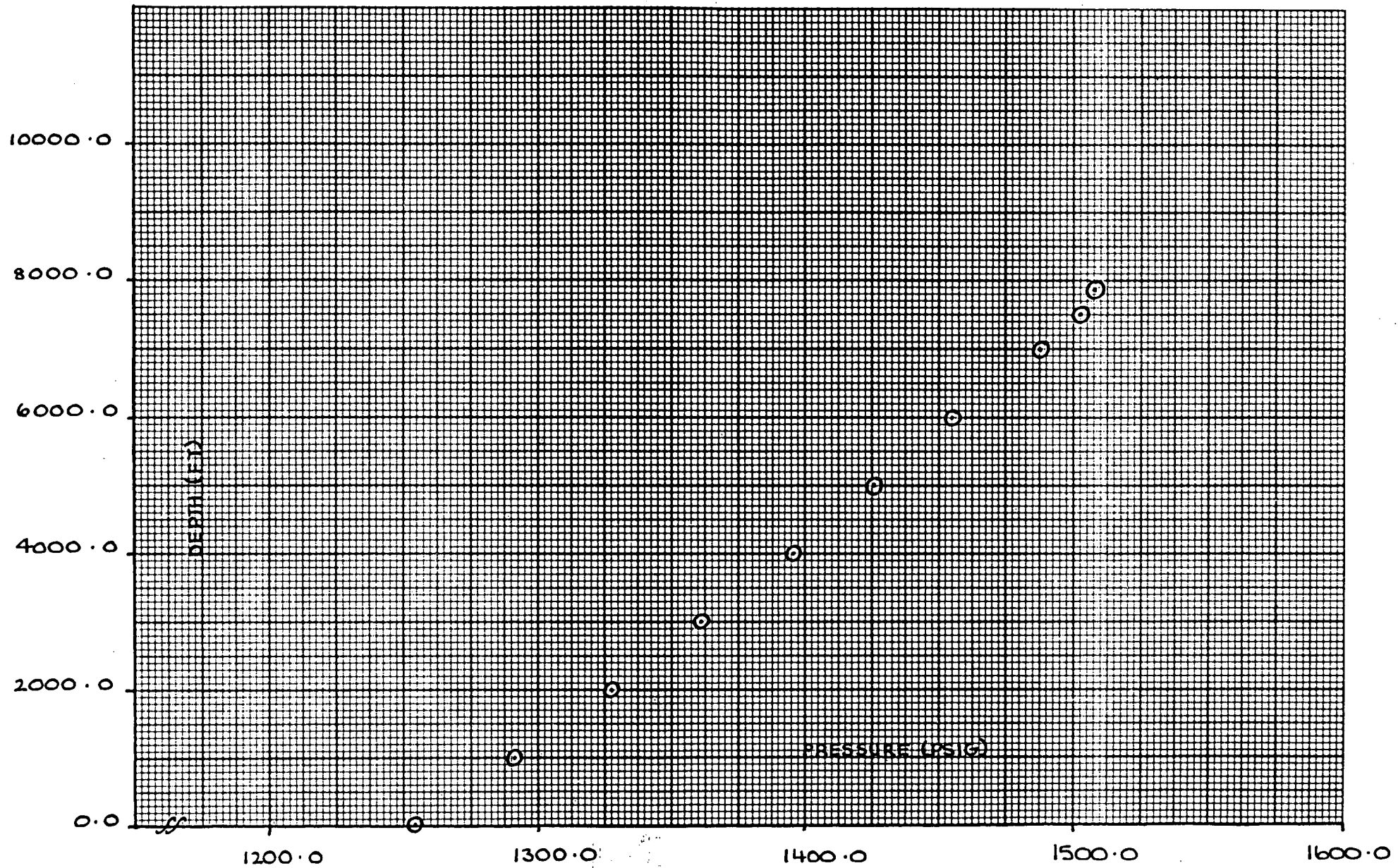
0

DWT IN: 1261
DWT OUT: 1263
MAX BHT: RAN TEMP EL 63256
307.8°F

ELEMENT 57413/3000 CALIBRATED 14-6-86
ELEMENT 57414/3000 CALIBRATED 14.6.86

BIG LAKE # 11 - STATIC PRESSURE GRADIENT - 16/8/86

ELEMENT # 57413 / 3000 (TOP)



WELL NAME:

STATIC GRADIENT SURVEY

DATE: 16.8.86

BOMB No. 1 DATA

BOMB No. 2 DATA

LUBRICATOR DATA

ELEMENT No. 5743 ELEMENT RANGE: 3000 PSI
RECORDER No. 61127 x 15725 CLOCK DATA: 2297 x 3HR
ENGAGE SYLUS: 13.22 DISENGAGE: 16.26

ELEMENT No. 57414 ELEMENT RANGE: 3000
RECORDER No. 12959 CLOCK DATA: 2402
ENGAGE SYLUS: 13.22 DISENGAGE: 16.26

PRESSURE WITH D.W.T.: 12 1261 Out 126:
TIME PRESSURED: 13.35
TIME DEPRESSURED: 16.15

[illegible]

RANTEMP EL 63256 x 150 - 90
 REC 61275 x 150
 CLOCK 2323 x 348

General Comments :

GOIO

1000

WELL:BIG LAKE #11.....

OPERATOR: R. BUCKLAND.....



SANTOS LTD WELL TEST DATA

METRIC SUMMARY SHEET

DATE: ...12.8.86.....

PAGE No: ...1.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
		12TH	AUGUST		1986									
1026	686	4729	585	4033	-		PRESSURE UP LUBRICATOR WITH BOMBS INSIDE, FOR FLOW & BUILD UP SURVEY							
1100	680	4688	586	4040										
1130	668	4605	588	4054	123	51								
1200	657	4530	593	4088	125	52								
1230	647	4461	596	4109	125	52	RUN IN HOLE WITH BOMBS.							
1308	634	4371	583	4019	127	53	ARRIVE AT HANGING DEPTH OF 7860' KB.							
1330	627	4323	582	4012	131	55								
1400	619	4268	586	4040	140	60								
1430	603	4157	585	4033	140	60								
1500	600	4137	596	4109	136	58								
1530	596	4109	599	4130	131	55								

CONVERSION FACTORS:

$$\bullet \text{BBL'S} \times 0.15899 = \text{M}^3$$

$$\bullet \text{MMSCF} \times 28.174 = 10^3 \text{M}^3$$

$$\bullet \text{Cu/FT PER BBL} \times 0.1773 = \text{M}^3/\text{M}^3$$

$$\bullet \text{PSI} \times 6.895 = \text{KPA}$$

$$\bullet ^\circ\text{C} \times 9 \div 5 + 32 = ^\circ\text{F}$$

WELL: ...BIG...LAKE...#11.....

OPERATOR: R. BUCKLAND.....



SANTOS LTD WELL TEST DATA

METRIC SUMMARY SHEET

DATE: ...12.8.86.....

PAGE No: ...2.....

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M ³ /D	FLOWRATE H ₂ O BBL'S/D	FLOWRATE H ₂ O M ³ /D	MMSCF/D	M ³ /D	G.O.R. Cu/FT BBL	G.O.R. M ³ /M ³
	12TH	AUGUST	1986	CON'T.										
1600	593	4088	601	4143	140	60								
1630	591	4074	601	4143	136	58								
1700	589	4061	602	4150	129	54	SHUT IN WELL, OBSERVE BUILD UP.							
1715	615	4240	919	4268										
1730	639	4405	1035	7136										
1745	648	4467	1125	7756										
1800	649	4474	1159	7991										
1815	652	4495	1170	8067										
1830	656	4523	1175	8101										
1845	660	4550	1179	8129										
1900	664	4578	1181	8142			END OF 15 MINUTE READINGS.							

CONVERSION FACTORS:

•BBL'S. x 0.15899 = M³

•MMSCF x 28.174 = 10³ M³

•Cu/FT PER BBL x 0.1773 = M³/M³

•PSI x 6.895 = KPA

•°C x 9 ÷ 5 + 32 = °F

0003

WELL: ...BIG LAKE #11

OPERATOR: R. BUCKLAND



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE: ...12.8.86

PAGE No: ...3

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
1930	672	4633	1185	8170										
2000	680	4688	1188	8191										
2030	688	4743	1191	8211										
2100	695	4792	1194	8232										
2130	702	4840	1196	8246										
	13 TH AUGUST 1986.													
0130	741	5109	1211	8349										
0530	756	5212	1218	8398										
0930	761	5247	1227	8460										
1330	757	5219	1229	8473										
1730	757	5219	1233	8501										
2130	751	5178	1235	8515										

CONVERSION FACTORS:

• BBL'S x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

WELL: ...BIG LAKE # 11
 OPERATOR: ...P. HANKINSON



SANTOS LTD
 WELL TEST DATA
 METRIC SUMMARY SHEET

DATE: 14 - 8 - 86
 PAGE No: 4

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	14TH	August		'86										
01:30	744	5129	1238	8536										
05:30	739	5095	1240	8550										
09:30	727	5012	1244	8577										
13:30	702	4840	1248	8605										
17:30	685	4723	1249	8612										
21:30	674	4647	1251	8627										
	15TH	August												
01:30	667	4599	1250	8619										
05:00	664	4578	1251	8627	EARLY READING DUE TO COMMITMENTS ON OTHER LOCATION									
09:30	662	4564	1253	8639										
13:30	662	4564	1255	8653										

CONVERSION FACTORS:

• BBL'S x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

00055

WELL: BIG LAKE #11
 OPERATOR: P. HANKINSON



SANTOS LTD
WELL TEST DATA
METRIC SUMMARY SHEET

DATE: 15.8.86
 PAGE No: 5

DATE TIME	WELLHEAD						FLUID PRODUCTION				GAS PRODUCTION			
	CASING PSI	CASING KPA	TUBING PSI	TUBING KPA	TEMP °F	TEMP °C	FLOWRATE OIL-COND BBL'S/D	FLOWRATE OIL-COND M3/D	FLOWRATE H2O BBL'S/D	FLOWRATE H2O M3/D	MMSCF/D	Mm3/D	G.O.R. Cu/FT BBL	G.O.R. M3/M3
	15 TH	August	'86											
17.30	661	4557	1256	8860										
21.30	663	4571	1256	8660										
	16 TH	August	'86											
01.30	662	4564	1256	8660										
05.30	659	4537	1257	8667										
09.30	658	4537	1259	8680										
10.00					Pull Bombs. END OF BUILD UP PERIOD									
12.36	657	4530	1261	8695	Dep Lugs.									
13.50	657	4530	1261	8695	Run In Hole FOR STATIC GRADIENT									
15.30					Pull Bombs.									
16.15	658	4537	1263	8708	Dep Lugs END OF SURVEY HAND OVER TO PRODUCTION									

CONVERSION FACTORS:

• BBL'S x 0.15899 = M³

• MMSCF x 28.174 = 10³ M³

• Cu/FT PER BBL x 0.1773 = M³/M³

• PSI x 6.895 = KPA

• °C x 9 ÷ 5 + 32 = °F

ROLLING BOTTOMHOLE PRESSURE SURVEY GAS CALCULATION SHEETWELL: Big Lake # 11

Pf = 4200 kPa

ORIFICE SIZE: 44.450 mm 1.750 "

T = 38 °C

LINE SIZE: 146.329 mm 5.761 "

Diff = 37 kPa

Cumulative Production to end of Sep = $320.222 \text{ m}^3 \times 10^6$ ✓

Number of hours online in Sep = 611

Production in Sep = $0.562 \text{ m}^3 \times 10^6$ ✓

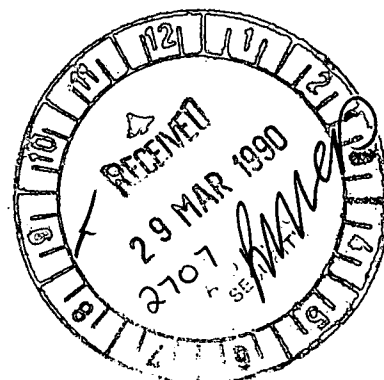
.. Average flow rate in Sep = $(0.562 / 611) \times 24 = 0.022 \text{ m}^3 \times 10^6 / \text{d}$ ✓

Number of days online in September ^{after} before Shut In 0800 hrs 26 / 9 / 89
= 1

.. Production up to 0800 hrs 26 / 9 / 89 = $0.022 \times 1 = 0.022 \text{ m}^3 \times 10^6$

Total cumulative production = $320.222 - 0.022$
= $320.200 \text{ m}^3 \times 10^6$
= 11365.179 mmscf ✓

Flow rate just prior to Shut In = $0.148 \text{ m}^3 \times 10^6$
= 5.248 mmscf/d ✓



SUB-SURFACE PRESSURE SURVEY

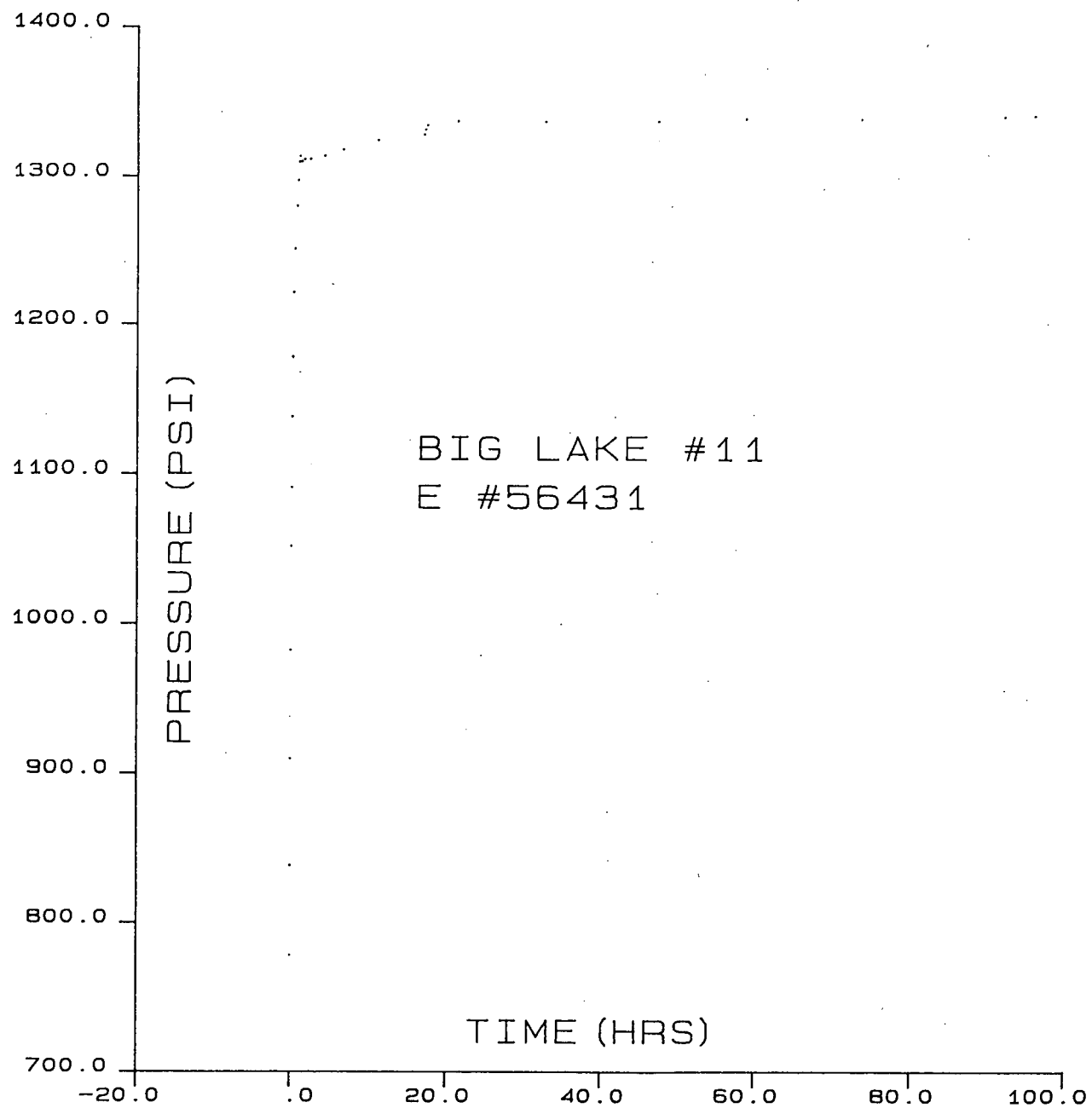
CO. SANTOS		RUN 01 FIELD BIG LAKE	WELL 11
EFF DEPTH		WELL STAT	TOOL HUNG 5494'
CASING	-	CASING PRESS	ON BOTTOM 2018 25/9
LINER	-	TUBING PRESS	OFF BOTTOM 0800 30/9
DATE	890930	ELEMENT RANGE 0 - 3115	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 26/9
MAX TEMP	280 F	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56431	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO. SANTOS			RUN 01 FIELD BIG LAKE			WELL 11		
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	
8:00	778.5	778.5	.0	9:42	1311.7	1311.7	1.7	
8:00	838.8	838.8	.0	10:30	1311.8	1311.8	2.5	
8:02	909.9	909.9	.0	12:17	1313.9	1313.9	4.3	
8:04	982.5	982.5	.1	14:43	1318.4	1318.4	6.7	
8:07	1051.9	1051.9	.1	19:10	1324.7	1324.7	11.2	
8:10	1091.2	1091.2	.2	1:03	1328.6	1328.6	17.1	
8:12	1138.2	1138.2	.2	1:13	1332.0	1332.0	17.2	
8:15	1178.1	1178.1	.3	1:27	1334.8	1334.8	17.5	
8:22	1221.4	1221.4	.4	5:20	1337.8	1337.8	21.3	
8:31	1250.7	1250.7	.5	16:39	1337.5	1337.5	32.6	
8:47	1279.6	1279.6	.8	7:20	1337.1	1337.1	47.3	
8:54	1297.2	1297.2	.9	18:49	1339.6	1339.6	58.8	
9:02	1309.8	1309.8	1.0	9:35	1339.3	1339.3	73.6	
9:07	1313.6	1313.6	1.1	4:06	1341.1	1341.1	92.1	
9:23	1310.1	1310.1	1.4	8:00	1341.8	1341.8	96.0	

LUB IN DWT = 616 PSI / OUT = 1192 PSI

LUB IN AMERADA = 607 PSI / OUT = 1179 PSI



00009
69000

SUB-SURFACE PRESSURE SURVEY

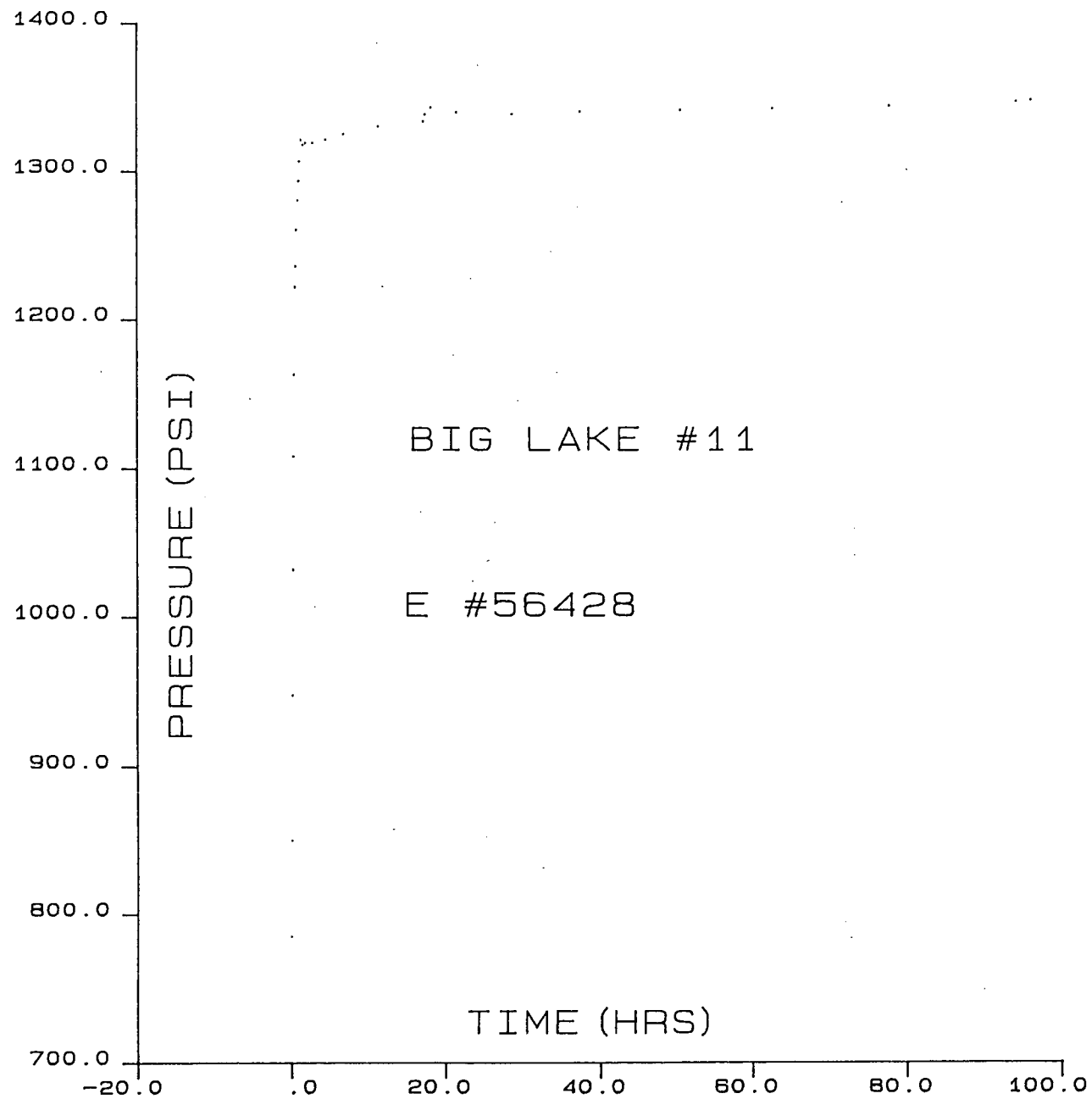
CO. SANTOS		RUN 02 FIELD BIG LAKE	WELL 11
EFF DEPTH		WELL STAT	TOOL HUNG 5500'
CASING	-	CASING PRESS	ON BOTTOM 2018 25/9
LINER	-	TUBING PRESS	OFF BOTTOM 0800 30/9
DATE	890930	ELEMENT RANGE 0 - 3122	ZERO POINT
ELEVATION		ZONE	SHUT-IN 0800 26/9
MAX TEMP	280 F	PICK-UP	ON-PROD
PERF	-	CAL SER NO. 56428	MPP
TUBING	-		
UNITS	ENGLISH	PURPOSE	BUILD-UP

SURVEY DATA

CO. SANTOS				RUN 02 FIELD BIG LAKE				WELL 11			
TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME	TIME	P-T	DP-DT	DTIME
8:00	784.9	784.9	.0	10:43	1319.1	1319.1	2.7				
8:03	850.3	850.3	.0	12:22	1321.3	1321.3	4.4				
8:07	947.9	947.9	.1	14:45	1325.1	1325.1	6.8				
8:11	1031.9	1031.9	.2	19:16	1330.3	1330.3	11.3				
8:15	1108.2	1108.2	.2	1:09	1333.6	1333.6	17.1				
8:19	1163.3	1163.3	.3	1:21	1338.1	1338.1	17.4				
8:25	1221.9	1221.9	.4	2:07	1342.7	1342.7	18.1				
8:30	1235.5	1235.5	.5	5:30	1339.4	1339.4	21.5				
8:35	1260.2	1260.2	.6	12:43	1338.3	1338.3	28.7				
8:46	1280.2	1280.2	.8	21:25	1340.5	1340.5	37.4				
8:53	1293.4	1293.4	.9	10:21	1341.2	1341.2	50.3				
9:00	1306.5	1306.5	1.0	22:33	1342.0	1342.0	62.5				
9:12	1321.1	1321.1	1.2	13:39	1343.6	1343.6	77.7				
9:29	1317.7	1317.7	1.5	6:06	1346.4	1346.4	94.1				
9:48	1319.2	1319.2	1.8	8:00	1347.4	1347.4	96.0				

LUB IN DWT = 616 PSI / OUT = 1192 PSI

LUB IN AMERADA = 603 PSI / OUT = 1176 PSI



00061

EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0486 TELEX AA87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON

SOUTH AUSTRALIA 5033

Tested Saturday, 30th September 1989.

CLIENT	LOCATION	FORMATION
Santos Ltd.	Big Lake #11	Toolachee

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	56431	3000	18/ 9/89
Bottom	56428	3000	18/ 9/89

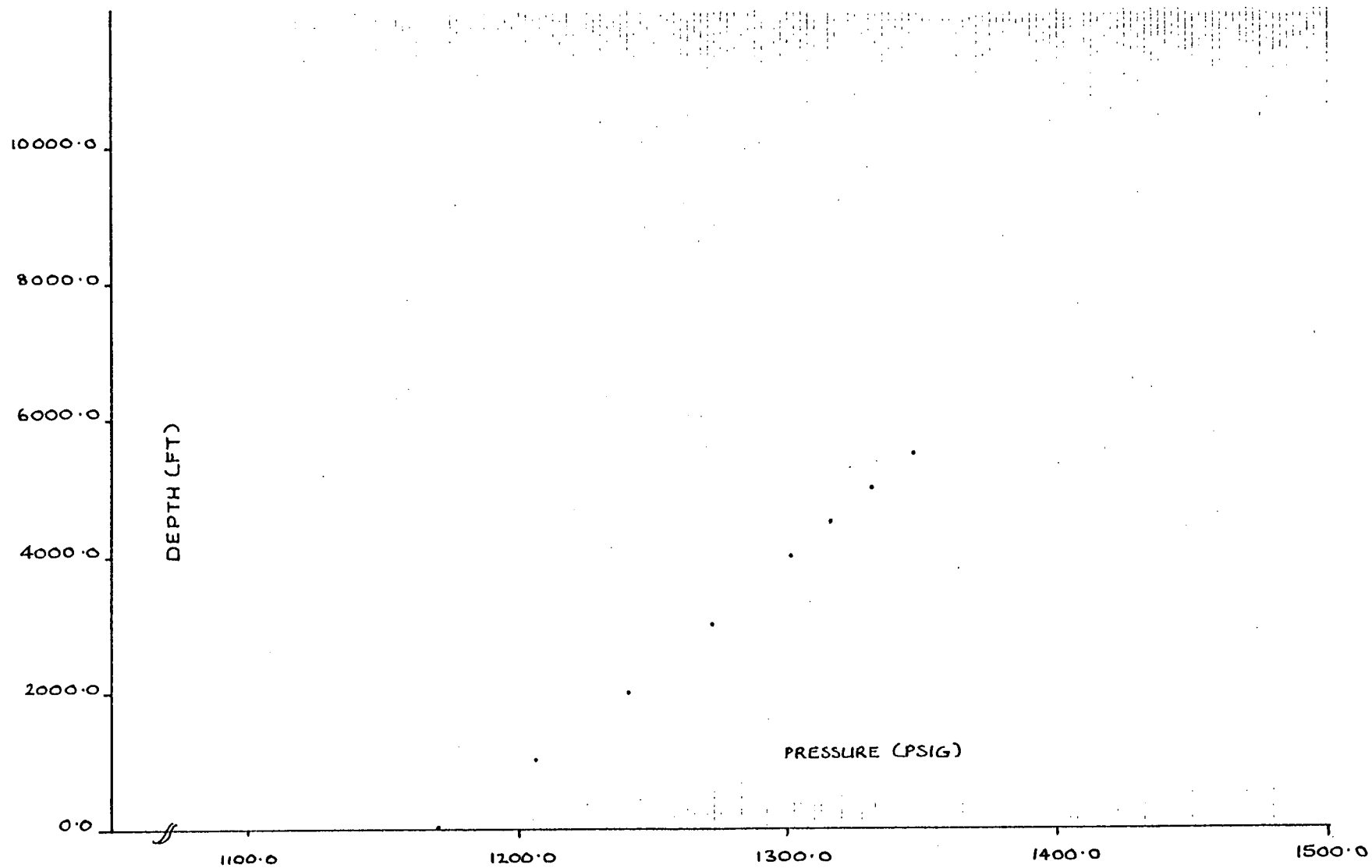
WELL DATA	
PARAMETER	VALUE
DWT In	8205 kPa
DWT Out	8219 kPa
Max BHT	276 o/F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.7525	1164.6	-----	0.7530	1170.2	-----
1000	0.7780	1204.4	0.040	0.7762	1206.4	0.036
2000	0.8002	1239.0	0.035	0.7978	1240.2	0.034
3000	0.8198	1269.5	0.031	0.8180	1271.8	0.032
4000	0.8388	1299.1	0.030	0.8370	1301.5	0.030
4500	0.8430	1305.7	0.013	0.8460	1315.6	0.028
5000	0.8585	1329.8	0.048	0.8560	1331.2	0.031
5500	0.8675	1343.9	0.028	0.8655	1346.1	0.030
LUB.	0.7555	1169.3	-----	0.7550	1173.3	-----

GENERAL REMARKS

Bottom stop @ 5500 ft. due to corkscrew tubing.

BIG LAKE # 11 — STATIC PRESSURE GRADIENT — 30/9/89
ELEMENT # 56428/3000(BOT)



Fm 5030

00063



WIRELINE REPORT

CLIENT SANTOS WELL BIG LAKE #11 DATE 25/9/89

PROGRAMME BOTTOMHOLE PRESSURE SURVEY
 PURPOSE OF WORK BLIND-BOX RUN - TO ENSURE TUBING IS CLEAR OF OBSTRUCTIONS PRIOR TO RUNNING AMERADAS

REPORT OF WORK PERFORMED

07:55 SWL RIG UP SWAB-VALVE + W/L UNIT.
 08:30 R/H WITH 1.75" BLIND-BOX.
 09:00 TAG OBSTRUCTION @ 7403' FB - POOH.
 NB: HEAVY PULLING REQUIRED TO PULL OUT OF HOLE.
 10:30 @ SURFACE, DEPRESSURE LUBRICATOR.
 11:00 R/H WITH 1.5 TOOLSTRING.
 11:20 @ 6700' FB - PULLING APPROX. 400 LBS ON PICK UP.
 STAND-BY ON DECISION FROM MOOMBA.
 12:30 POOH.
 13:30 @ SURFACE, DEPRESSURE LUBRICATOR.
 PREPARE GAUGES FOR BOTTOMHOLE PRESSURE SURVEY.
 17:00 PRESSURE LUBRICATOR.
 20:00 RUN IN HOLE WITH 2 PRESSURE ELEMENTS + 1 MBHT THERMOMETER.
 20:18 HANG GAUGES @ 5500' FB - DUE TO CORKSCREW TUBING.
 26TH SEPTEMBER 1989.
 08:00 SWL WELLS IN FOR 96" BUILD-UP.
 30TH SEPTEMBER 1989.
 08:00 PULL OUT OF HOLE.
 12:48 DEPRESSURE LUBRICATOR.
 PREPARE GAUGES FOR STATIC GRADIENT - SEE ATTACHED GRADIENT REPORT.
 12:00 RIG OUT W/L UNIT, HAND WELLS BACK TO PRODUCTION.

R. Moore
 Operator's Signature

WORKED PERFORMED BY R. MOORE + A. GROOM OF EXPERTEST

WELL DATA:

Tubing Size 2 3/8 FWHP 4247 KPA SIWHP 8219 KPA
 Subsurface S.V./Landing Nipple @ SSD @ 7352'
 'X' Nipple @ N/X Nipple @ 7403' Other @
 Min. I.D. 2.205" @ 7403' Packer @ 7388'
 Perforated Interval: TRAILHILL 7549' - 7753' DARLINGHILL 7778' - 7814'



WELL BIG LAKE #11

OPERATOR R. MOORE

DATE 30/9/89

GENERAL REMARKS: Max. BOTTOMHOLE TEMPERATURE 276°F.



Well: BIG LAKE #11 Date: 25/9/89

Lubricator Data: ① 607/1179 Operator R. MOORE

② 603/1176

Pressure with D.W.T. In 4247 KPA (616psi) Out 8219 KPA (1192psi)

Time Pressured 25/9/89 @ 17:00 Time Depressed 30/9/89 @ 10:20

Time Run in Hole — " — @ 20:00 Time off Bottom — " — @ 08:00

Bomb No. 1 Data

Bomb No. 2 Data

Element No. and Range	56431 x 3000 ^{PSI}	56428 x 3000 ^{PSI}
Recorder No.	14929 x 15 TUS	14620 x 15 TUS
Clock and Lead Screw Data	236 x 120 ^{H2}	24580 x 120 ^{H2}
Engage Stylus	Date: 25/9/89 Time: 16:39	Date: 25/9/89 Time: 16:39
Disengage	Date: 30/9/89 Time: 10:30	Date: 30/9/89 Time: 10:30

Remarks: MBHT THERMOMETER RUN

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
	17:00		4247	Ø		PRESSURE LUBRICATOR
	20:00		4227	↑	37	RUN IN HOLE
	20:18		4234		36	HANG GAUGES @ 5500' KB
	22:00		4213		35	
26 TH	SEPTEMBER 1989					
	02:00		4206		35	
	06:00		4199		37	
	07:00		4185		37	
	08:00		4206		35	SHUT WELL IN
	08:05		5978		34	
	08:10		6647		34	
	08:15		7240		31	
	08:30		7667		29	
	08:45		7902		25	
	09:00	1	8053		22	
	09:15		8053		20	
	09:30		8053		19	
	09:45		8060		18	
	10:00	2	8053		18	
	10:15		8046		18	
	10:30		↑		18	
	10:45		↓		18	
	11:00	3	↓		18	
	11:15		8046	Ø	18	

00067



Well: BIG LAKE #11 Date: 26/9/89

Lubricator Data: Operator R. MOORE

Pressure with D.W.T. In Out

Time Pressured Time Depressed

Time Run in Hole Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

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

Remarks: FOR ALL ELEMENT DATA REFER TO PAGE #1

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
	11:30		8046	Ø	18	
	11:45		8053	↑	18	
	12:00	4	8046		19	
	14:00		8081		21	
	18:00		8081		20	
	22:00		8095		14	
27 TH SEPTEMBER 1989						
	02:00		8109		12	
	06:00	2.2	8122		8	
	10:00		8143		20	
	14:00		8164		26	
	18:00		8157		25	
	22:00		8150		16	
28 TH SEPTEMBER 1989						
	02:00		8150		14	
	06:00	46	8143		10	
	10:00		8163		24	
	14:00		8177		31	
	18:00		8177		30	
	22:00		8163		21	
29 TH SEPTEMBER 1989						
	02:00		8157		12	
	06:00	70	8163	↓	14	
	10:00		8198	Ø	28	

00068


Well: BIG LAKE #11

Date: 29/9/89

Lubricator Data:

Operator R. MOORE

Pressure with D.W.T. In

Out

Time Pressured

Time Depressured

Time Run in Hole

Time off Bottom

Bomb No. 1 Data

Bomb No. 2 Data

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

Remarks: FOR ALL ELEMENT DATA REFER TO PAGE #1

Well-Head Data for Final Build-up

Date	Time	Hours shut-in Time	Wellhead KPA	Casing KPA	Wellhead Temp. °C	Remarks
	14:00		8212	Ø	37	
	13:00		8198	↑	35	
	22:00		8184		24	
30 TH	SEPTEMBER 1989					
	02:00		8184		19	
	06:00	94	8171		15	
	08:00	96	8177		20	PULL OUT OF HOLE
	08:20		8198		24	Ø SURFACE
	10:20		8219		32	DEPRESSURE LUB.
		RECOVER CHARTS - GOOD RESULTS				MBHT: 280°F
		PREPARE GAUGES FOR STATIC GRADIENT AS PER PROGRAMME.				
	11:00		8205		33	PRESSURE LUBRICATOR
	11:21		8212		34	RUN IN HOLE
	12:04		8219		35	Ø 5500' KB
	12:19		8212		35	PULL OUT OF HOLE
	12:33		8219	↓	36	Ø SURFACE
	12:48		8219	Ø	36	DEPRESSURE LUB.
		FOR DETAILS REFER TO ATTACHED GRADIENT REPORT.				

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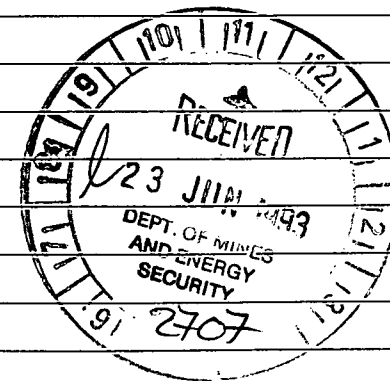
WELL NAME: BIG LAKE #11

FORMATION : TOOLACHEE / DORALINGIE

Tool / Par / Eps.

DATE: 6-1-93

OPR : N. HAY

[illegible]

900

EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0408 TELEX AAB7183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Wednesday, 6th January 1993.

CLIENT	LOCATION	FORMATION
SANTOS LTD.	BIG LAKE # 11	TOOLACHEE

*Tool/Dur/Eps.***STATIC PRESSURE GRADIENT REPORT**

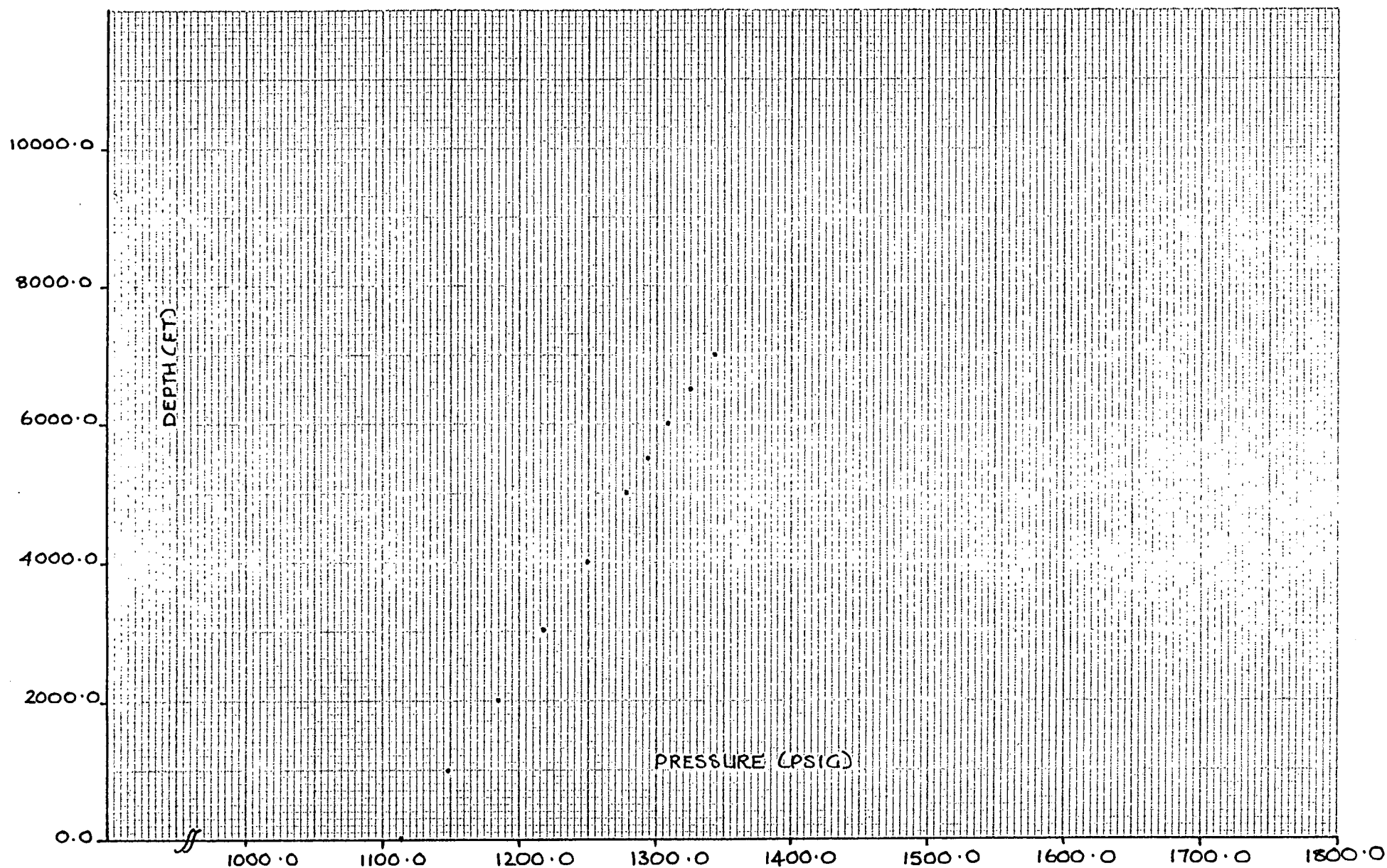
PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	850207	4075	6/ 3/92
Bottom	850208	4100	6/ 3/92

WELL DATA	
PARAMETER	VALUE
DWT In	1125 PSIG
DWT Out	1124 PSIG
Max BHT	288 F

TOP ELEMENT				BOTTOM ELEMENT		
DEPTH FT KB	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.5480	1110.7	----	0.5430	1113.6	----
1000	0.5650	1145.3	0.035	0.5600	1148.6	0.035
2000	0.5820	1179.9	0.035	0.5780	1185.6	0.037
3000	0.5990	1214.6	0.035	0.5940	1218.5	0.033
4000	0.6150	1247.1	0.033	0.6090	1249.3	0.031
5000	0.6270	1271.6	0.024	0.6230	1278.1	0.029
5500	0.6360	1289.9	0.037	0.6300	1292.5	0.029
6000	0.6420	1302.1	0.024	0.6380	1308.9	0.033
6500	0.6500	1318.4	0.033	0.6460	1325.4	0.033
7000	0.6590	1336.8	0.037	0.6540	1341.8	0.033
LUB.	0.5500	1114.8	----	0.5460	1119.8	----

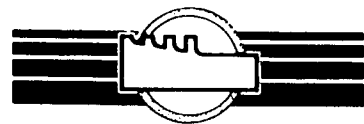
GENERAL REMARKS

BIG LAKE # 11 — STATIC PRESSURE GRADIENT — 6/1/93
ELEMENT # 850208/4100 (BOT)



00072

EXPERTEST PTY. LTD.



BHP/BHT GAUGE RUN DATA

CUSTOMER : SANTOS

PERFORATIONS: 7549' - 7814'

PAGE: 1 OF 1

WELL NAME: BIG LAKE # 11

FORMATION : TOOLACHEE/DARALINGIE

DATE: 13-1-93.

TEST TYPE : S.G.S

OPR : R. LARKIN

GAUGE DATA

UPPER
PRESSURE
GAUGELOWER
PRESSURE
GAUGETEMPERATURE
GAUGE

RUN DATA

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

ELEMENT SERIAL NO.

56429

56432

DATE : 13-1-93

ELEMENT RANGE

Psi

3000

3000

PRESSURE LUBRICATOR :

1310

7998

Ø

RECORDING SECTION SERIAL NO.

14628

70544

RUN IN HOLE :

1325

7998

Ø

DATE OF CALIBRATION:

6-1-93

6-1-93

ON DEPTH AT : 7000 FT/M

1430

8012

Ø

CLOCK SERIAL NO.

1850

3054

DATE : 13-1-93

CLOCK RANGE

3 HR

3 HR

PULL OUT OF HOLE :

1445

8012

Ø

LEAD SCREW TYPE

15 TKS

15 TKS

AT SURFACE :

1457

8012

Ø

DEPRESSURE LUBRICATOR :

1512

8012

Ø

ENGAGE STYLUS DATE 13-1-93 TIME

1301

1301

MAXIMUM BHT AT 7000 FT/M = 294 °F/E

DISENGAGE STYLUS DATE 13-1-93 TIME

1518

1518

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

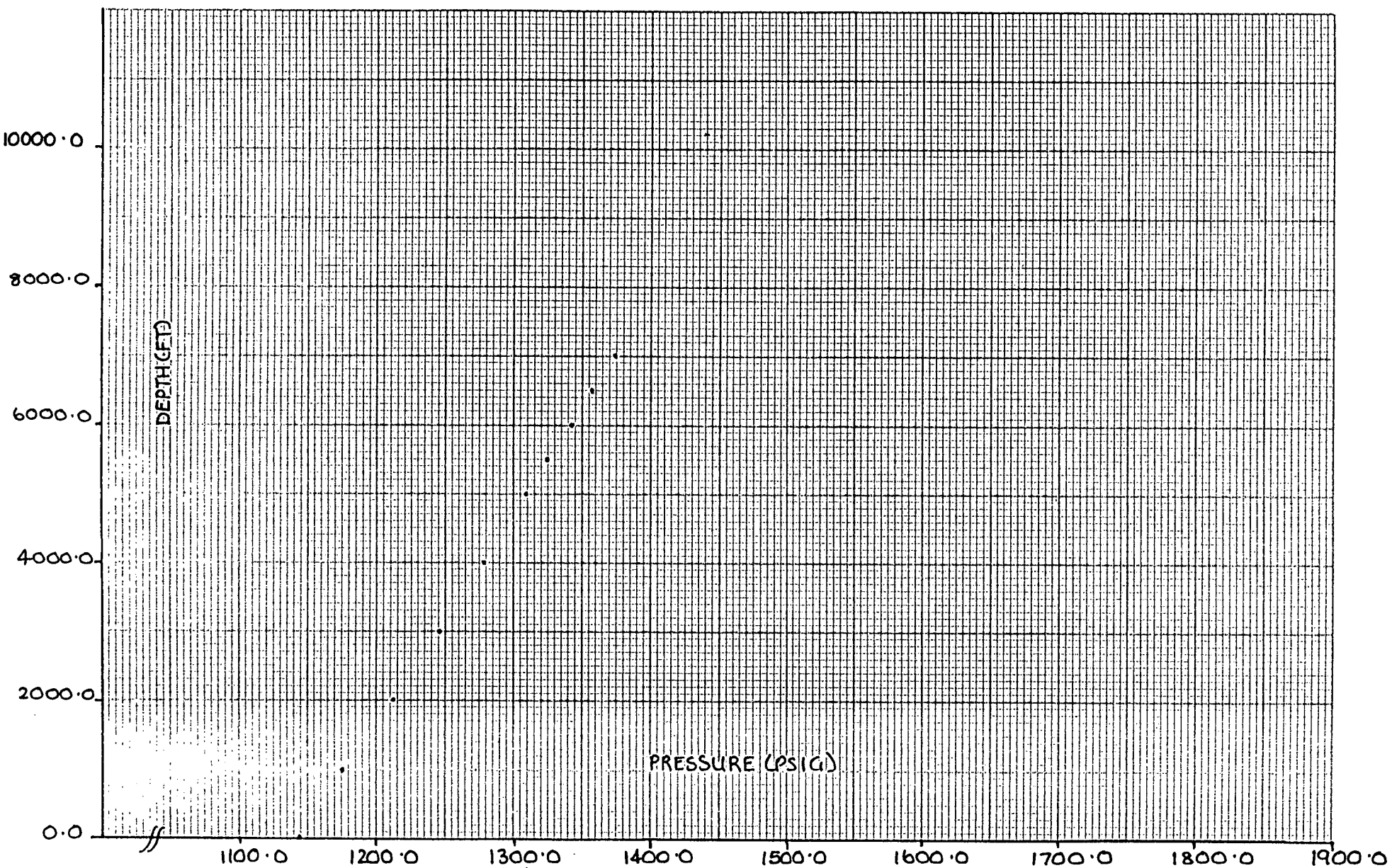
DATE

TIME

REMARKS

00074

BIG LAKE # 11 — STATIC PRESSURE GRADIENT — 13/1/93
ELEMENT # 56429 / 3000 (TOP)



00075

EXPERTEST

WIRELINE & WELL TESTING SERVICE

PO BOX 354 COWANDILLA 5033

PH. (08) 354 0488 TELEX AR87183

FAX (08) 43 7408

138 RICHMOND ROAD MARLESTON
SOUTH AUSTRALIA 5033

Tested Wednesday, 13th January 1993.

CLIENT	LOCATION	FORMATION
SANTOS LTD.	BIG LAKE # 11	TOOLACHEE/DARA

STATIC PRESSURE GRADIENT REPORT

PRESSURE ELEMENT DATA			
POSITION	SERIAL NO.	RANGE	CALIBRATED
Top	56429	3000	6/ 1/93
Bottom	56432	3000	6/ 1/93

WELL DATA	
PARAMETER	VALUE
DWT In	1160 PSIG
DWT Out	1162 PSIG
Max BHT	294 F

DEPTH FT KB	TOP ELEMENT			BOTTOM ELEMENT		
	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT	DEFLECTION INCHES	PRESSURE PSIG	GRADIENT PSI/FT
LUB.	0.7430	1144.0	----	0.7410	1137.1	----
1000	0.7640	1176.5	0.032	0.7620	1169.7	0.033
2000	0.7870	1212.0	0.036	0.7860	1206.9	0.037
3000	0.8090	1246.0	0.034	0.8090	1242.6	0.036
4000	0.8300	1278.4	0.032	0.8310	1276.7	0.034
5000	0.8500	1309.3	0.031	0.8520	1309.7	0.033
5500	0.8600	1324.7	0.031	0.8640	1327.8	0.037
6000	0.8710	1341.7	0.034	0.8740	1343.3	0.031
6500	0.8810	1357.2	0.031	0.8840	1358.8	0.031
7000	0.8920	1374.2	0.034	0.8960	1377.4	0.037
LUB.	0.7420	1142.5	----	0.7440	1141.7	----

GENERAL REMARKS