OFINA EXPLORATION AUSTRALIA S. A.

FINA

ARCHER-1

WELL COMPLETION REPORT

VOLUME 1

(BASIC DATA)

PETROFINA EXPLORATION AUSTRALIA S.A.

WELL COMPLETION REPORT ARCHER-1

VOLUME I

BASIC DATA

GL/90/048
AH/JMQ/PhL/kl/EXP
30 July 1990

WELL COMPLETION REPORT ARCHER-1

BASIC DATA

CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

SUMMARY

Exploration well Archer-1 is located in Permit VIC/P20 in the Gippsland Basin, offshore Victoria, south-eastern Australia. The Joint Venture partners for the operation were:

Petrofina Exploration Australia S.A.	30%	(Operator)
Japex Gippsland Limited	30%	
Overseas Petroleum and Investment Corporation	30%	
Bridge Oil Limited	10%	

Archer-1 was spudded on 21 February 1990 and reached a total depth of 4050m (drillers) on 27 March 1990. The well was plugged and abandoned as a non-commercial oil and gas-condensate discovery on 9 April 1990.

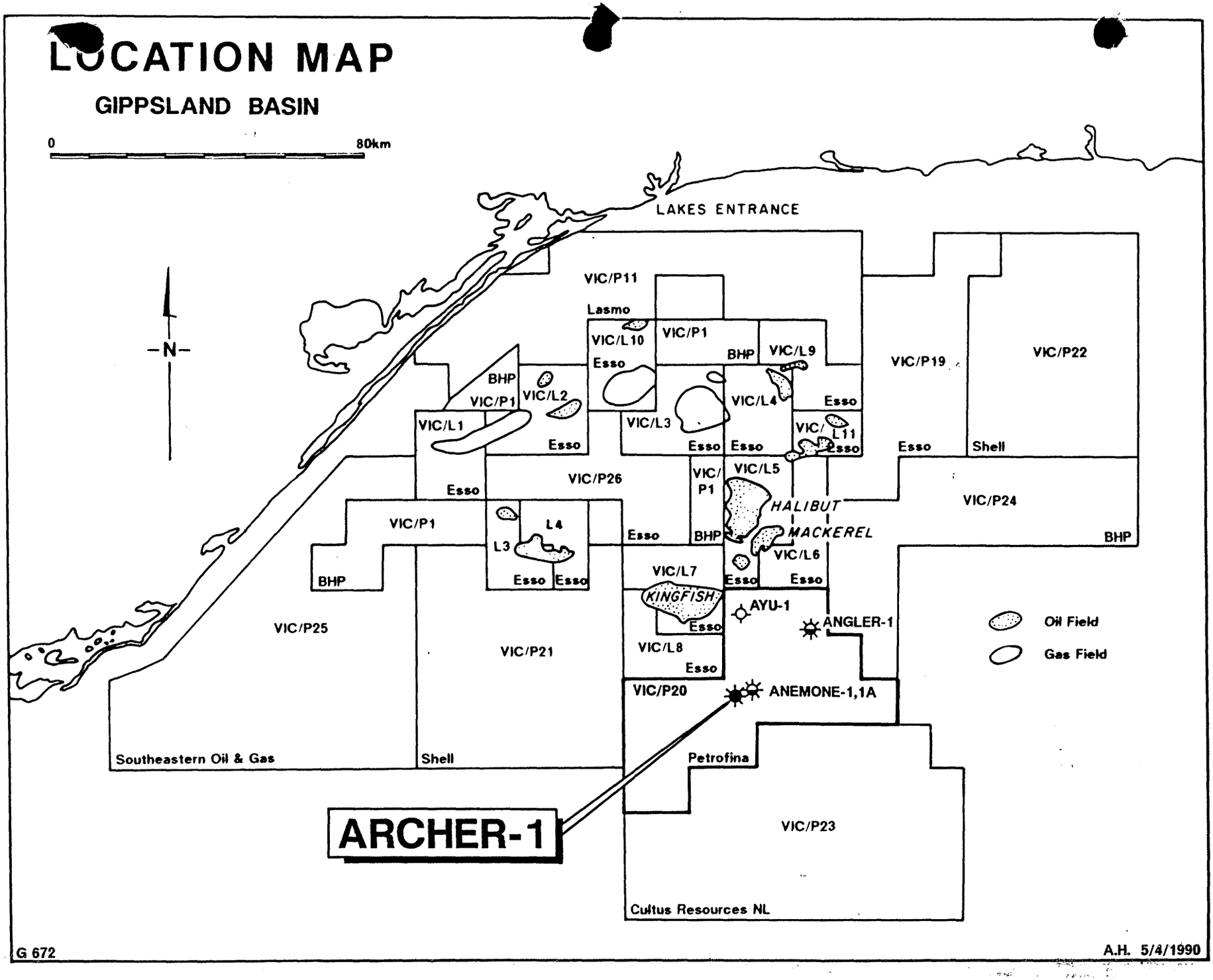

LOCATION MAP
GIPPSLAND BASIN
0
80km
LAKES ENTRANCE
N
VIC/P11
Lasmo
VIC/L10
VIC/P1
BHP
VIC/L9
VIC/P19
VIC/P22
Esso
BHP
VIC/P1
VIC/L2
VIC/L4
Esso
VIC/L1
VIC/L3
VIC/L11
Esso
Esso
Esso
Esso
Shell
VIC/P26
VIC/P1
VIC/L5
Esso
HALIBUT
VIC/P24
VIC/P1
L4
MACKEREL
Esso
BHP
BHP
L3
VIC/L6
VIC/L7
Esso
Esso
Esso
KINGFISH
AYU-1
ANGLER-1
Oil Field
Gas Field
VIC/P25
VIC/P21
Esso
VIC/L8
Esso
VIC/P20
ANEMONE-1,1A
Southeastern Oil & Gas
Shell
Petrofina
ARCHER-1
VIC/P23
Cultus Resources NL
G 672
A.H. 5/4/1990

FIGURE 1

WELL DATA SUMMARY: ARCHER-1

Well:			Archer-1
Permit:			VIC/P20, Gippsland Basin, Australia
Operator:			Petrofina Exploration Australia S.A.
Latitude:			38°46'07.1" S
Longitude:			148°18'36.9" E
UTM:	X	=	613,828.5 E
	Y	=	5,708,067.5 N
KBE:			28m
WD:			167m
Type of Rig:			Semi-Submersible
Name:			Zapata Arctic
Contractor:			Zapata Offshore Company
Spud Date:			21 February 1990
Date Reached TD:			27 March 1990
Date Plugged and Abandoned:			9 April 1990
Drilled Depth:			4050m (drillers) 4051.5m (loggers)
Well Status:			Plugged and abandoned. Non-commercial oil and gas-condensate discovery.

GEOLOGICAL SAMPLING

CUTTINGS SAMPLES

Sample Type	No. of Sets	Addressee	Sample Interval
Washed and dried	3	PEXAUS	10m and 5m*
	1	Japex, Tokyo	10m and 5m*
	1	OPIC, Taiwan	10m and 5m*
	1	Bridge Oil, Sydney	10m and 5m*
	1	DITR, Melbourne	10m and 5m*
	1	BMR, Canberra	10m and 5m*
Unwashed	2	PEXAUS	10m and 5m*
Canned Geochemical	1	Amdel	10m**
	1	PSA, Brussels	10m**

* 10m intervals from 495-2450m, 5m intervals from 2450-4050m

** from 2450-4050m

CUTTINGS DESCRIPTION

ARCHER-1

Seafloor-510m Drilled without riser. Drill cuttings returned to seafloor.

510-650m Massive CALCARENITE: off white to light grey, soft to moderately hard, friable, very fine to coarse, common fossil fragments, trace lithics, occasional trace glauconite, sucrosic.

650-700m Predominantly CALCARENITE: as above with minor interbedded: MARL: light grey, soft, sticky, amorphous.

700-900m Predominantly MARL: as above with minor interbedded: CALCARENITE: as above.

900-1302m Massive MARL: light grey, light olive grey, soft, sticky, silty in part, amorphous.

1302-1340m Massive MARL: light to medium grey, soft, sticky, becoming increasingly silty, amorphous.

1340-1440m Massive CLAYSTONE: medium grey, soft, sticky, silty in part, very calcareous, amorphous, with traces of:
MARL: as above.

1440-1690m Massive CLAYSTONE: light to medium grey, soft to firm, dispersive, silty in part, very calcareous, trace mica, trace carbonaceous material, amorphous to blocky.

1690-1950m Predominantly CLAYSTONE: as above with minor interbedded: SILTSTONE: medium grey, soft to firm, occasionally hard, calcareous, trace sparry calcite crystals, trace pyrite, blocky.

1950-2500m Massive CLAYSTONE: medium grey, soft, sticky, occasionally firm, silty, very calcareous, amorphous.

2500-2530m Predominantly CLAYSTONE: as above interbedded with: SILTSTONE: medium grey, medium grey brown, firm to hard, calcareous, argillaceous, trace very fine pyrite, trace glauconite, trace very fine carbonaceous material, blocky.

2530-2558m Massive CLAYSTONE: as above grading to: MARL: light grey to off white, soft to firm, trace silty, argillaceous, amorphous to blocky.

2558-2640m Massive SILTSTONE: medium to dark grey green, soft to firm, occasionally hard, very argillaceous, abundant glauconite, trace to common fine to medium quartz grains, trace pyrite, amorphous to blocky.

2640-2707m Massive SILTSTONE: clear, medium to dark green, subangular to subrounded, moderately sorted, argillaceous, abundant glauconite, sandy in part, loose, friable, no shows.

2707-2752m Predominantly SILTSTONE: light grey to off white, medium brown, soft to moderately hard, argillaceous, blocky. Interbedded with:
SANDSTONE: clear, translucent, light grey, medium to very coarse, subangular to subrounded, moderately to poorly sorted, argillaceous, loose, friable, no shows.

2752-2770m SANDSTONE: as above, interbedded with minor:
SILTSTONE: as above.

2770-2813m SILTSTONE: light grey to light grey brown, argillaceous, firm to moderately hard, becoming sandy in part, carbonaceous in part, blocky. Interbedded with minor:
SANDSTONE: as above and trace:
COAL: black to dark brown, firm to moderately hard, brittle, micromicaceous, subvitreous, blocky.

2813-2942m SANDSTONE: clear, translucent, light grey, fine to very coarse, angular to subangular, poorly sorted, predominantly loose, common coarse mica flakes, good porosity, no shows with interbedded:
SILTSTONE: as above and trace:
COAL: as above.

2942-3016m SILTSTONE: light olive grey, medium grey brown, soft to moderately hard, carbonaceous, argillaceous, micromicaceous, amorphous to blocky. Interbedded with minor:

SANDSTONE: clear, translucent, loose, fine to very coarse, poorly sorted, angular to subrounded, slightly argillaceous, fair porosity, no shows.
COAL: as above.

3016-3094m SANDSTONE: predominantly as above, fine to medium, occasionally very coarse, traces calcareous cement, moderate to good porosity, no shows. Interbedded with minor:
SILTSTONE: as above.

3094-3237m SILTSTONE: medium to dark brown, firm to moderately hard, argillaceous, carbonaceous, sandy in parts, blocky, grading to coal in parts. Interbedded with minor:
SANDSTONE: clear, translucent, fine to coarse, loose, angular to subangular, argillaceous in parts, moderate to poor porosity, no shows, with trace:
COAL: black to dark brown, vitreous to subvitreous, hard, brittle.

3237-3270m SANDSTONE: clear, translucent, loose, medium to very coarse, angular to subangular, moderately sorted, slightly argillaceous, common pyrite, common muscovite, common feldspars, good porosity, no shows. Interbedded with minor:
SILTSTONE: light grey, off white, soft to firm, very argillaceous, slightly carbonaceous, blocky.

3270-3330m SILTSTONE: light to medium grey, greyish brown, firm to moderately hard, very argillaceous, carbonaceous, laminated in parts, glauconitic in parts, dominantly subblocky.
Interbedded with minor:
SANDSTONE: light grey, clear, translucent, loose to friable, medium to very coarse, angular to subangular, slightly argillaceous, common glauconite, common biotite, moderate porosity, no shows.

3330-3345m SANDSTONE: clear, translucent, loose, fine to coarse, angular to subangular, clean, good porosity, no shows.
Interbedded with:
SILTSTONE: medium grey, medium brown, firm to moderately hard, very argillaceous, grading to claystone, carbonaceous, subblocky.

3345-3384m Massive CLAYSTONE: light to medium grey, light to medium brown, soft to moderately hard, silty, carbonaceous, micaceous, blocky to subblocky.

3384-3419m SANDSTONE: light grey, clear, translucent, loose to friable, rarely moderately hard, medium to very coarse, moderately sorted, angular to subangular, argillaceous matrix, some siliceous cement, fair to moderate porosity.
FLUORESCENCE: traces to 10% dull to moderately bright bluish white to pale yellow (some mineral?).
CUT: no direct cut; very faint bluish white crush cut and residual ring.
Interbedded with minor:
SILTSTONE: as above.

3419-3469m SANDSTONE: clear, translucent, dominantly loose, medium to very coarse, subangular to subrounded, clean, good porosity, poor shows, some mineral fluorescence.
Interbedded with minor:
SILTSTONE: medium grey, soft to moderately hard, very argillaceous, grading to claystone, carbonaceous, amorphous to subblocky.

3469-3516m SANDSTONE: clear to translucent, loose to hard, fine to medium, angular, moderately sorted, trace to common calcite cement, trace dolomite cement, trace mica, moderate to poor inferred visual porosity, tight, gas shows (up to C3).
Interbedded with minor:
SILTSTONE: medium to dark grey, medium grey brown, firm to hard, argillaceous, sandy in part, micromicaceous, blocky.

3516-3557m SILTSTONE: predominantly as above, carbonaceous in part.
Interbedded with minor:
SANDSTONE: predominantly as above, fine to very coarse, trace pyrite, no shows.

3557-3578m SANDSTONE: clear, translucent, medium to very coarse, loose, predominantly as above.
FLUORESCENCE: 5-10% patchy moderately bright yellow green fluorescence.
CUT: nil to very rare weak crush cut fluorescence.
Interbedded with minor:
SILTSTONE: as above.

3578-3599m SANDSTONE: predominantly as above, medium to coarse, loose to hard, tight:
FLUORESCENCE: trace to 5% fluorescence as above.
Interbedded with minor:
SILTSTONE: light to medium grey, firm to hard, carbonaceous in part, argillaceous, blocky.

3599-3651m SANDSTONE: clear, translucent, predominantly loose, hard where well cemented, fine to coarse, angular to subangular, moderately to poorly sorted, calcite/dolomite? cemented, common muscovite flakes, occasional smokey quartz, poor to good porosity, no oil fluorescence. Interbedded with minor:
SILTSTONE: as above.

3651-3782m SILTSTONE: predominantly as above, locally very carbonaceous, subblocky. Interbedded with minor:
SANDSTONE: predominantly as above, with abundant fractured grains, fine to very coarse, trace to common pyrite.
FLUORESCENCE: trace to 20% moderately bright pale yellow to white fluorescence.
CUT: nil to poor cut and nil to pale yellow residual ring.

3782-3836m SILTSTONE: as above. Interbedded with minor:
SANDSTONE: as above, with no to minor shows, with trace:
COAL: black to dark brown, firm to moderately hard, silty in part, micromicaceous, subvitreous to vitreous, blocky.

3836-3890m SANDSTONE: as above, with good gas shows (up to C5).
Interbedded with:
SILTSTONE: as above, traces of COAL.

3890-3933m CLAYSTONE: medium grey, blocky, variably silty, carbonaceous, soft to firm, locally hard, fissile where hard.
Interbedded with minor:
SILTSTONE: light to medium grey, occasionally brown grey, soft to moderately hard, very argillaceous, carbonaceous in part, amorphous to platy.

3933-3965m SANDSTONE: clear, translucent, loose, friable, medium to very coarse, fractured, moderately sorted, good to excellent inferred visual porosity.
FLUORESCENCE: nil to 10% moderately bright pale yellow white fluorescence.
CUT: nil to very slow cut with a pale yellow residual ring.
Interbedded with minor:
SILTSTONE: predominantly as above with trace disseminated pyrite.

3965-4050m CLAYSTONE: medium to dark grey, moderately hard, argillaceous, grading in part to siltstone, shaly in part, very finely sandy in part, micromicaceous, carbonaceous in part, predominantly subblocky to blocky, no shows.

SIDEWALL CORE DESCRIPTION

WELL: ARCHER-1	LOCATION: VIC/P20	GEOLOGIST: A.POMILIO/A.HODGSON
RUN NUMBER: 1	TYPE:	HOLE SIZE: 8½"

DEPTH (m)	RECOVERY (inches)	LITHOLOGICAL DESCRIPTION AND SHOWS	VISIBLE POROSITY
4035	0.4	CLAYSTONE: medium to dark grey, moderately hard, silty, dominantly blocky.	
4018	Empty		
4002	1.2	CLAYSTONE: medium to dark grey, moderately hard, silty in parts, as above.	
3977	0.6	CLAYSTONE: as above.	
3969	1.3	CLAYSTONE: medium to dark grey, moderately hard, as above.	
3962	1.5	CLAYSTONE: as above.	
3955	Lost		
3946	1.5	SANDSTONE: light grey, greyish/brown, firm to moderately hard, fine to very coarse, dominantly medium, angular to subrounded, moderately to poorly sorted, common argillaceous matrix, trace pyrite, dominantly quartz, some feldspar. Fluorescence: 10% pale blue. Cut: trace fast pale blue.	Fair
3940	0.6	SILTSTONE: dark grey, dark brownish grey, moderately hard, grading to claystone, rare very fine disseminated sand.	
3934	Lost		
3930	1.2	CLAYSTONE: dark grey, dark brownish grey, moderately hard, as above.	
3920	1	CLAYSTONE: as above.	
3911	0.5	SILTSTONE: medium grey, hard, micromicaceous, argillaceous, massive.	
3897	1	CLAYSTONE: medium to dark grey, hard, massive.	
3886.5	0.7	SANDSTONE: off white to dark grey, mottled, moderately hard to firm, very fine to very coarse, dominantly angular, poorly sorted, common calcite, argillaceous matrix. No Fluorescence No Cut	Poor
3884.5	Empty		
3869	1	SILTSTONE: medium grey, firm to moderately hard, very argillaceous, trace calcite, micromicaceous, massive.	
3859	0.7	SANDSTONE: off white to light grey, very fine to very coarse, moderately hard to hard, angular, dominantly quartz, common white feldspar. Fluorescence: trace to patchy yellow/green. Cut: trace crush cut.	Moderate

SIDEWALL CORE DESCRIPTION

WELL: ARCHER-1	LOCATION: VIC/P20	GEOLOGIST: A.POMILIO/A.HODGSON
RUN NUMBER: 1	TYPE:	HOLE SIZE: 8½"

DEPTH (m)	RECOVERY (inches)	LITHOLOGICAL DESCRIPTION AND SHOWS	VISIBLE POROSITY
3845.5	0.7	SANDSTONE: as above. Fluorescence: 60% moderately bright yellow/green. Cut: instant blooming cut yellow/green. Moderate residual ring.	Moderate
3841.5	1	CLAYSTONE: dark grey, moderately hard, micromicaceous, massive.	
3836.7	0.8	SANDSTONE: off white to dark grey, firm, medium to coarse, angular, moderately sorted, common dark grey argillaceous matrix, dominantly quartz, common white feldspar. No Shows.	Poor
3827	Empty		
3810	0.7	SILTSTONE: light to medium grey, firm to hard, argillaceous, trace calcite, massive.	
3789	Misfired		
3762	0.7	SILTSTONE: as above, carbonaceous in parts.	
3754	0.7	SANDSTONE: off white to dark grey, firm to moderately hard, fine to very coarse, poorly sorted, angular, very argillaceous, common pyrite. Fluorescence: 5% patchy, moderately bright yellow/green. Cut: instant pale bluish green cut. Trace residual ring.	Poor
3740.5	Misfired		
3732	1	SILTSTONE: light grey, light brown, firm to moderately hard, argillaceous, very fine sandy in parts, common carbonaceous material, slightly laminated.	
3704	0.5	SANDSTONE: light grey, off white, mottled, very fine granules, hard, angular, moderately sorted, very argillaceous, common mica, common white feldspar. No Fluorescence No Cut	Poor
3701	Lost		
3693.2	0.7	SANDSTONE: light grey, off white, hard, fine to very coarse, occasional granules, poorly sorted, angular, argillaceous matrix, common white feldspar. Fluorescence: 30% moderately bright bluish/green. Cut: instant blooming bluish/white. Moderate residual ring.	Fair
3686	1	SANDSTONE: as above. Fluorescence: 10% as above. Cut: as above.	Fair

SIDEWALL CORE DESCRIPTION

WELL: ARCHER-1	LOCATION: VIC/P20	GEOLOGIST: A.POMILIO/A.HODGSON
RUN NUMBER: 1	TYPE:	HOLE SIZE: 8½"

DEPTH (m)	RECOVERY (inches)	LITHOLOGICAL DESCRIPTION AND SHOWS	VISIBLE POROSITY
3683	0.7	SANDSTONE: as above, with abundant feldspar. Fluorescence: 60% moderately bright to bright bluish/green. Cut: good instant blooming. Moderate residual ring.	Moderate
3681	1	SANDSTONE: as above. Fluorescence: 80% as above. Cut: as above.	Moderate to Good
3674	1	SANDSTONE: off white to light grey, fine to very coarse, dominantly coarse, firm, angular to subangular, poorly sorted, dominantly quartz, common white feldspar, argillaceous matrix. Fluorescence: 20% moderately bright yellow/green. Cut: slow streaming yellow/green. Thin ring.	Moderate
3673	0.5	SANDSTONE: light grey, moderately hard, very fine, occasionally very coarse, silty, poorly sorted, angular to subangular, argillaceous, dominantly quartz. No shows.	Poor
3657	1	SANDSTONE: off white to medium grey, firm to moderately hard, medium to very coarse, angular to subangular, poorly sorted, common white feldspar, common argillaceous matrix. Fluorescence: trace patchy, bluish/green. Cut: traces.	Poor
3652	0.7	SILTSTONE: light grey to dark grey, banded, moderately hard, argillaceous, common carbonaceous laminations.	
3610	1	SILTSTONE: as above.	
3598	0.7	SANDSTONE: off white to light grey, medium to coarse, hard, poorly sorted, angular to subangular, very argillaceous, trace mica, quartz. Fluorescence: 80-90% moderately bright pale yellow/green. Cut: instant blooming, pale yellow. Thin residual ring.	Moderate HC Odour
3595	0.5	SILTSTONE: medium grey, moderately hard, argillaceous, micromicaceous, massive.	
3591	0.5	SANDSTONE: off white to light grey, moderately hard, fine to very coarse, granular in parts, poorly sorted, trace mica, trace argillaceous matrix, quartz, some white feldspar. Fluorescence: 70% bright blue/green. Cut: instant blooming cut. Moderately thin residual ring.	Moderate

SIDEWALL CORE DESCRIPTION

WELL: ARCHER-1	LOCATION: VIC/P20	GEOLOGIST: A.POMILIO/A.HODGSON
RUN NUMBER: 1	TYPE:	HOLE SIZE: 8½"

DEPTH (m)	RECOVERY (inches)	LITHOLOGICAL DESCRIPTION AND SHOWS	VISIBLE POROSITY
3588	0.5	SANDSTONE: as above. Fluorescence: 20% dull yellow/green. Cut: slow, yellow/green. Thin residual ring.	Moderate
3581	0.75	SANDSTONE: as above. Fluorescence: 50% as above. Cut: as above.	Moderate
3576	0.5	CLAYSTONE: dark grey to brown, moderately hard, silty in parts, micromicaceous, massive	
3543	0.7	SANDSTONE: off white to light grey, firm to moderately hard, fine to very coarse, angular, poorly sorted, trace lithics. No shows.	Moderate
3519	0.6	SILTSTONE: medium to dark grey, moderately hard, argillaceous, very fine laminations.	
3515	0.7	SANDSTONE: as above. Fluorescence: 90% bright blue green. Cut: strong, instant blooming cut. Thick residual ring.	Moderate
3511.5	0.5	SANDSTONE: off white, occasionally light to medium grey, moderately hard, fine to very coarse, poorly sorted, common white feldspar, common argillaceous matrix. Fluorescence: 30% moderately bright yellow/green. Cut: slow blooming cut. Thin residual ring.	Moderate
3508	Lost		
3497	0.7	CLAYSTONE: dark grey to brown, moderately hard, silty in parts, massive.	
3491	0.7	SANDSTONE: white to dark grey, firm, medium to very coarse, poorly sorted, argillaceous, trace feldspar. Fluorescence: 20% moderately bright yellow/green. Cut: slow yellow/green cut. Thin residual ring.	Poor
3488.5	0.7	SANDSTONE: as above. Fluorescence: 70% bright blue/green. Cut: moderately strong, instant, blooming blue/green. Thin/moderate residual ring.	Moderate
3481	0.7	SANDSTONE: as above with common granules. Fluorescence: 70% moderately bright yellow/green. Cut: Bluish/green, instant. Thin/moderate residual ring.	Fair

SIDEWALL CORE DESCRIPTION

WELL: ARCHER-1	LOCATION: VIC/P20	GEOLOGIST: A.POMILIO/A.HODGSON
RUN NUMBER: 1	TYPE:	HOLE SIZE: 8½"

DEPTH (m)	RECOVERY (inches)	LITHOLOGICAL DESCRIPTION AND SHOWS	VISIBLE POROSITY
3477	1	SANDSTONE: off white, light brown grey, hard, medium to very coarse, poorly sorted, abundant white feldspar, quartz, common argillaceous matrix, calcite cement. No shows.	Fair
3471.5	0.6	SANDSTONE: as above. Fluorescence: 30% bright blue/green. Cut: Moderately strong, instant blooming. Moderate residual ring.	Poor
3470	0.7	SILTSTONE: light grey, light grey brown, hard, argillaceous, common very fine sandy or very fine micaceous laminations.	
3460	0.6	ARGILLACEOUS SANDSTONE: medium grey, moderately hard, very fine to very coarse, dominantly very fine, silty, argillaceous, common feldspar. No shows.	Very Poor
3400	0.6	CLAYSTONE: medium grey to brown, moderately hard, trace siltstone, massive.	
3380	0.6	CLAYSTONE: as above.	

Shot 60 bullets
Recovered 51 cores
Lost 4 bullets
Misfired 2 bullets
3 empty

ARCHER-1 RFT DATA

RUN # 1, 2755m to 3452.1m

DEPTH BKB M	FORMATION PRESSURE PSIA	SURFACE GRADIENT PSI/FT	HYDROSTATIC PRESSURE PSIA	HYDROSTATIC GRADIENT PSI/FT	MUD WEIGHT OVERBALANCE PSI	PERMEABILITY	COMMENTS
2755.00	3885.56	0.434	4276.00	0.473	390	GOOD	GOOD TEST
2937.80	4167.40	0.437	4556.70	0.473	389	GOOD	GOOD TEST
3018.00	4289.20	0.437	4680.50	0.473	391	MOD/GOOD	GOOD TEST
3157.20	4475.95	0.436	4881.10	0.471	405	GOOD	GOOD TEST
3245.00	4606.14	0.436	5016.00	0.471	410	GOOD	GOOD TEST
3331.50	4734.80	0.437	5149.30	0.471	415	GOOD	GOOD TEST
3390.00	4833.40	0.438	5236.40	0.471	403	GOOD	GOOD TEST
3390.20							SEGR.SAMPLE 1
3393.00	4836.54	0.438	5240.80	0.471	404	GOOD	GOOD TEST
3396.50	4839.69	0.438	5245.80	0.471	406	GOOD	GOOD TEST
3398.60	4841.33	0.438	5249.00	0.471	408	GOOD	GOOD TEST
3403.50	4847.30	0.438	5256.00	0.471	409	VERY GOOD	SEGR.SAMPLE 2
3404.60			5257.30	0.471		TIGHT	DRY TEST
3405.00	4848.87	0.438	5258.10	0.471	409	MODERATE	GOOD TEST
3406.10	4849.40	0.438	5258.90	0.471	410	MODERATE	GOOD TEST
3407.00	4851.60	0.438	5261.10	0.471	410	MOD-POOR	GOOD TEST
3410.00	4852.80	0.437	5265.80	0.471	413	MODERATE	GOOD TEST
3412.80	4855.70	0.437	5270.00	0.471	414	MODERATE	GOOD TEST
3418.40			5278.60	0.471			SEAL FAILURE
3418.60			5279.00	0.471			DRY TEST
3419.00	4864.90	0.437	5278.80	0.471	414		SUPERCHARGED
3419.20	4864.90	0.437	5279.10	0.471	414		SUPERCHARGED
3422.00	4866.43	0.437	5283.80	0.471	417	GOOD	GOOD TEST
3424.30	4869.74	0.437	5287.30	0.471	418	GOOD	GOOD TEST
3424.50			5287.50	0.471			SEAL FAILURE
3426.00	4872.05	0.437	5289.80	0.471	418	POOR	GOOD TEST

RUN # 2, 3471.5m to 4026.0m

3471.50	4952.90	0.438	5273.50	0.463	321	15.60	GOOD TEST
3481.50	4960.84	0.438	5287.40	0.463	327	24.70	GOOD TEST
3489.00	4966.97	0.437	5300.00	0.463	333	34.00	SEG.SAMPLE 3
3491.00	4968.79	0.437	5301.80	0.463	333	14.80	GOOD TEST
3502.50	4979.30	0.437	5321.60	0.463	342	7.50	GOOD TEST
3506.60	4997.00	0.438	5325.60	0.463	329		SUPERCHARGED
3506.70	4993.30	0.438	5325.60	0.463	332		SUPERCHARGED
3513.50	5009.68	0.438	5337.10	0.463	327	6.00	GOOD TEST
3514.20							SEG.SAMPLE 4
3514.60	5010.40	0.438	5337.70	0.463	327	414.00	GOOD TEST
3526.00	5013.10	0.437	5353.80	0.463	341	24.00	GOOD TEST
3527.00	5014.70	0.437	5355.00	0.463	340	TIGHT	GOOD TEST

3527.00	5014.70	0.437	5355.00	0.463	340	TIGHT	GOOD TEST
3535.30	5026.21	0.437	5370.30	0.463	344	20.20	GOOD TEST
3548.20	5044.80	0.437	5388.90	0.463	344	179.90	GOOD TEST
3554.00	5059.88	0.437	5396.00	0.463	336	7.00	SUPERCHARGED
3563.50	5070.40	0.437	5410.90	0.463	341	154.50	GOOD TEST
3569.80	5078.90	0.437	5419.90	0.463	341	352.00	GOOD TEST
3573.80	5084.60	0.437	5425.60	0.463	341	31.00	GOOD TEST
3578.20	5109.30	0.439	5432.30	0.463	323	90.00	GOOD TEST
3581.00	5111.43	0.438	5435.50	0.463	324	82.00	GOOD TEST
3584.50	5112.56	0.438	5442.00	0.463	329	69.00	GOOD TEST
3588.00	5115.50	0.438	5446.10	0.463	331	2.44	GOOD TEST
3591.50	5117.68	0.438	5452.90	0.463	335	495.00	SEG.SAMPLE 5
3597.40	5124.08	0.438	5461.90	0.463	338	115.00	SUPERCHARGED
3599.10	5126.99	0.438	5462.10	0.463	335	38.00	SUPERCHARGED
3614.20	5141.55	0.437	5488.70	0.463	347	30.00	GOOD TEST
3617.00	5146.75	0.437	5489.20	0.463	342	160.00	GOOD TEST
3630.40	5165.38	0.437	5512.10	0.463	347	25.31	GOOD TEST
3637.50	5175.48	0.437	5520.50	0.463	345	50.00	GOOD TEST
3643.00	5183.72	0.437	5529.10	0.463	345	73.00	GOOD TEST
3650.80	5198.87	0.437	5541.50	0.463	343	7.80	GOOD TEST
3657.50	5210.33	0.438	5550.40	0.463	340	191.00	GOOD TEST
3674.60	5248.11	0.439	5576.00	0.463	328	67.00	GOOD TEST
3681.00	5250.20	0.438	5584.80	0.462	335	125.00	SEG.SAMPLE 6
3683.00	5252.40	0.438	5586.90	0.462	335	0.27	GOOD TEST
3686.00	5253.30	0.438	5594.10	0.463	341	18.70	GOOD TEST
3693.00	5262.90	0.438	5605.20	0.463	342	38.40	GOOD TEST
3700.80	5268.00	0.437	5613.50	0.462	346	52.00	GOOD TEST
3708.00	5297.20	0.439	5627.60	0.463	330	1.10	GOOD TEST
3719.20	5294.10	0.437	5644.50	0.463	350	122.00	GOOD TEST
3726.10	5305.29	0.437	5654.80	0.463	350	257.00	GOOD TEST
3740.50	5349.01	0.439	5676.60	0.463	328	123.00	GOOD TEST
3761.00			5705.10	0.462			TIGHT
3770.50	5381.80	0.438	5722.40	0.463	341	59.00	GOOD TEST
3824.00	5467.12	0.439	5797.50	0.462	330	0.70	GOOD TEST
3829.50	5477.91	0.439	5808.00	0.462	330	0.58	GOOD TEST
3836.70			5816.00	0.462		DRY	DRY
3837.00	5514.60	0.441	5817.20	0.462	303	18.00	GOOD TEST
3845.50	5544.09	0.443	5830.50	0.462	286	75.00	GOOD TEST
3858.80	5559.28	0.442	5848.70	0.462	289	0.76	TIGHT
3865.00	5562.40	0.442	5858.50	0.462	296	0.40	TIGHT
3883.70			5887.20	0.462			SEAL FAILURE
3883.90			5887.30	0.462			SEAL FAILURE
3933.90	5745.10	0.448	5963.20	0.462	218	18.00	GOOD TEST
3936.50	5746.70	0.448	5967.00	0.462	220	13.00	GOOD TEST
3945.60	5767.25	0.449	5980.10	0.462	213	1.00	GOOD TEST
3947.40	5768.22	0.449	5984.40	0.462	216	15.50	GOOD TEST
3947.50							SEG.SAMPLE 7
3954.50	5772.00	0.448	5995.10	0.462	223	15.00	GOOD TEST
3958.50	5775.36	0.448	6000.00	0.462	225	25.00	GOOD TEST
3962.00	5776.92	0.448	6006.20	0.462	229	8.80	GOOD TEST
4026.00							TIGHT

ARCHER-1 RFT FLUID RECOVERY IN PRE-TEST CHAMBERS

(All results are from wellsite measurements)

RFT RUN #1

RFT #1	3390.2m	**RFT #2**	3403.5m
Recovered:	22.9 cu/ft gas	Recovered:	48.5 cu/ft gas
	5 litres of oil		6.7 litres of oil
	3 litres of filtrate		oil gravity 52° API @ 14°C
	oil gravity 50° API @ 16°C		

RFT RUN #2

RFT #3	3489.0m	**RFT #4**	3514.2m
Recovered:	25.6 cu/ft gas	Recovered:	59.1 cu/ft gas
	4 litres of oil/condensate		3 litres of oil/condensate
	3 litres of filtrate		1.25 litres of filtrate
	oil gravity 52° API @ 17°C		oil gravity 52° API @ 15°C
RFT #5	3591.5m	**RFT #6**	3681.0m
Recovered:	51 cu/ft gas	Recovered:	81.5 cu/ft gas
	2.2 litres of oil/condensate		1.4 litres of oil/condensate
	3 litres of filtrate		0.8 litres of filtrate
	oil gravity 52° API @ 17°C		oil gravity 52° API @ 10°C
RFT #7	3947.5m		
Recovered:	84.1 cu/ft gas		
	0.7 litres of oil/condensate		
	1.3 litres of filtrate		
	oil gravity 48° API @ 17°C		

HYDROCARBON SHOWS
ARCHER-1

DEPTH (m)	LITHOLOGY	GAS (%)	OIL SHOWS
510-650	CALCARENITE	C1: nil-0.1	-
650-700	CALCARENITE	C1: 0.1-1.5	-
700-900	MARL	C1: 0.09-4.0	-
900-1302	MARL	C1: 0.3-4.5	-
1302-1340	MARL	C1: 0.6-1.0	-
1340-1440	CLAYSTONE	C1: 0.7-1.5	-
1440-1690	CLAYSTONE	C1: 0.2-2.1	-
1690-1950	CLAYSTONE	C1: 0.3-1.7	-
1950-2500	CLAYSTONE	C1: 0.25-1.6	-
2500-2530	CLAYSTONE/SILTSTONE	C1: 0.1-1.6	-
2530-2558	CLAYSTONE/MARL	C1: 0.06-0.3	-
2558-2640	SILTSTONE	C1: 0.1-1.5	-
2640-2660	SANDSTONE	C1: 0.5-1.0	-
2660-2707	SILTSTONE	C1: 0.07-0.12	-
2707-2752	SILTSTONE/SANDSTONE	C1: 0.02-0.09	-
2752-2770	SANDSTONE/SILTSTONE	C1: 0.06-Tr	-
2770-2813	SILTSTONE/SANDSTONE/COAL	C1: Tr	-
2813-2942	SANDSTONE/SILTSTONE/COAL	C1: Tr	-
2942-3016	SILTSTONE/SANDSTONE	C1: Tr-0.15	-
3016-3094	SANDSTONE/SILTSTONE	C1: 0.02-0.3	-
3094-3237	SILTSTONE/SANDSTONE/COAL	C1: 0.06-0.8	-
3237-3270	SANDSTONE/SILTSTONE	C1: 0.18-0.6	-
3270-3330	SILTSTONE/SANDSTONE/COAL	C1: 0.4-0.8	-
3330-3345	SANDSTONE/SILTSTONE	C1: 0.5-0.7	-
3345-3384	SILTSTONE	C1: 0.2-0.8	-

HYDROCARBON SHOWS
ARCHER-1 (cont'd)

DEPTH (m)	LITHOLOGY	GAS (%)	OIL SHOWS
3384-3419	SANDSTONE/SILTSTONE	C1: 0.8-1.75 C2: 0.01-0.4 C3: 0.01-0.4 IC4: Tr-0.04 NC4: Tr-0.06	Trace-10% dull to moderately bright bluish white-pale yellow. No cut, very faint bluish white crush cut and residual ring
3419-3469	SANDSTONE/SILTSTONE	C1: 0.3-0.9 C2: Tr-0.3 C3: Tr-0.3 IC4: Tr NC4: Tr-0.003	No fluorescence
3469-3516	SANDSTONE/SILTSTONE	C1: Tr-1.0 C2: Nil-0.27 C3: Nil-0.08	No fluorescence
3516-3557	SILTSTONE/SANDSTONE	C1: Nil-0.9	-
3557-3578	SANDSTONE/SILTSTONE	C1: Nil-0.15	5-10% patchy moderately bright yellow-green. Nil to very rare weak crush cut
3578-3599	SANDSTONE/SILTSTONE	C1: 0.5-3.3 C2: 0.02-0.6 C3: Nil-0.2	Trace-5% as above
3599-3651	SANDSTONE/SILTSTONE	C1: Tr-6.0 C2: Nil-0.7 C3: Nil-0.15	No fluorescence
3651-3782	SILTSTONE/SANDSTONE	C1: Tr-1.9 C2: Nil-0.25 C3: Nil-0.08	Trace-20% moderately bright pale yellow-white. Nil to poor cut with trace pale residual ring.

HYDROCARBON SHOWS

ARCHER-1 (cont'd)

DEPTH (m)	LITHOLOGY	GAS (%)	OIL SHOWS
3782-3890	SILTSTONE/SANDSTONE/COAL	C1: Tr-10.2 C2: Nil-0.97 C3: Nil-0.43 IC4: Nil-0.005 NC4: Nil-0.049	No fluorescence
3890-3933	CLAYSTONE/SILTSTONE/ SANDSTONE	C1: 0.03-4.0 C2: Nil-0.5 C3: Nil-0.17	No fluorescence
3933-3965	SANDSTONE/SILTSTONE	C1: 0.2-7.08 C2: Tr-0.88 C3: Nil-0.3 IC4: Nil-Tr NC4: Nil-0.12	Nil-10% moderately bright pale yellow-white. Nil to very slow cut with pale yellow residual ring
3965-4050	CLAYSTONE	C1: Nil-0.37 C2: Nil-Tr	No fluorescence

See SWC description sheet for further description of fluorescence and cut.

WIRELINE LOGS

SUITE NO.	LOG	INTERVAL
1	DLL-AS-GR-CAL-SP	1243-495m
2	DLL-AS-MSFL-GR	3431-1231m
	LDL-CNL-NGS	3432-2500m
	FMS-GR	3432-2500m
	RFT	
3	DLL-AS-MSFL-GR	4046.5-3365.5m
	LDL-CNL-NGS	4051.2-3365.5m
	SHDT	4051-3365.9m
	RFT	4025.5-3471.5m
	SAS	4050-500m
	CST	4034-3380m

MWD LOGS

HOLE SIZE	TOOLS (Teleco)	INTERVAL
17½"	Directional (D)	510-1247m
12¼"	Resistivity/Gamma Ray Directional (RGD)	1247-3445m
8½"	(RGD)	3445-4050m

APPENDIX 1

WELL COMPLETION REPORT

ARCHER-1

BASIC DATA

A P P E N D I X 1

MICROPALAEONTOLOGY

MICROPALAEONTOLOGICAL ANALYSIS, ARCHER-1, GIPPSLAND BASIN

J.P. Rexilius
INTERNATIONAL STRATIGRAPHIC CONSULTANTS PTY LTD
Unit 2, 10 Station Street
COTTESLOE 6012
WESTERN AUSTRALIA

July, 1990.

APPENDIX NO. 1: SUMMARY OF MICROPALAEONTOLOGICAL DATA, ARCHER-1

CUTTINGS SAMPLE	FORAM YIELD	FORAM PRESERV.	FORAM DIVERSITY
1000m	high	mod/poor	moderate
1200m	high	moderate	mod/high
1310m	high	mod/poor	moderate
1330m	high	moderate	moderate
1400m	high	moderate	mod/high
1560m	high	moderate	mod/high
1700m	high	moderate	mod/low
1900m	mod/high	poor	moderate
2000m	mod/high	moderate	mod/low
2140m	mod/high	moderate	mod/low
2160m	high	poor	mod/high
2300m	high	mod/poor	high
*2550m	mod/low	mod/poor	moderate
*2565m	low	poor	low
*2580m	low/very low	poor	low
*2600m	low/very low	poor	low
*2640m	low/very low	poor	low
*2650m	low/very low	poor	low
*2670m	very low	poor	very low
*2690m	moderate	poor	mod/low

* moderate to very high proportion of caved taxa.

PE902091

This is an enclosure indicator page.
The enclosure PE902091 is enclosed within the container PE902090 at this location in this document.

The enclosure PE902091 has the following characteristics:

ITEM_BARCODE	= PE902091
CONTAINER_BARCODE	= PE902090
NAME	= Micropaleontological Distribution Chart
BASIN	= GIPPSLAND
PERMIT	= VIC/P20
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Micropaleontological Distribution Chart (enclosure from WCR vol.1) for Archer-1
REMARKS	=
DATE_CREATED	= 31/07/90
DATE_RECEIVED	= 4/09/90
W_NO	= W1021
WELL_NAME	= Archer-1
CONTRACTOR	= International stratigraphic Consultants Pty Ltd
CLIENT_OP_CO	= Petrofina Exploration

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 2

WELL COMPLETION REPORT

ARCHER-1

BASIC DATA

A P P E N D I X 2

PALYNOLOGY

ARCHER #1

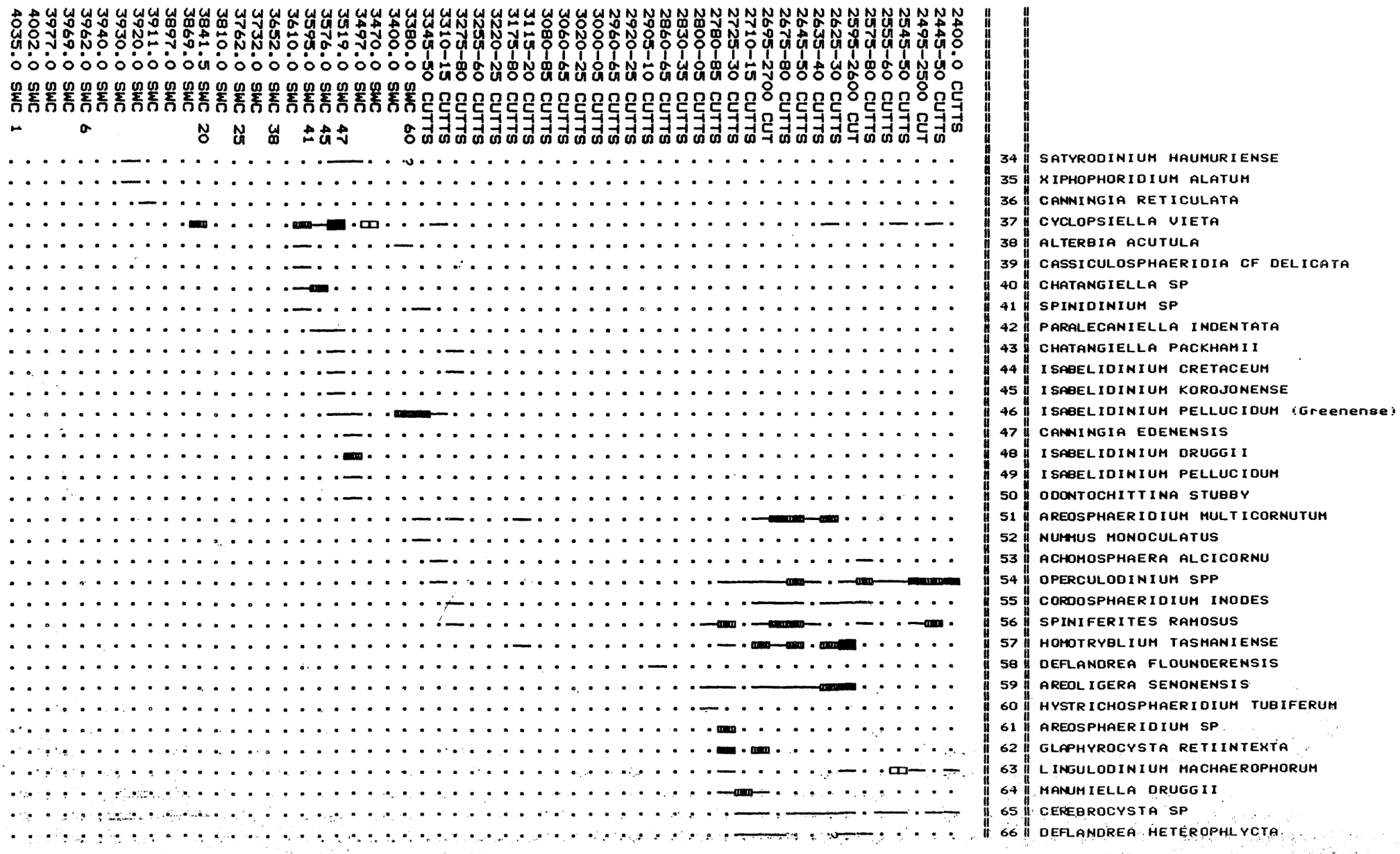
ROGER MORGAN : PALYNOLOGY CONSULTANT
BOX 161, MAITLAND, SOUTH AUSTRALIA, 5573
PHONE (088) 322795 FAX (088) 322658

CLIENT: _____
WELL: ARCHER #1
FIELD / AREA: _____
SECTION: _____ TOWNSHIP: _____ RANGE: _____
COUNTY: _____ STATE: _____
KB ELEVATION: _____ TOTAL DEPTH: _____
ANALYST: ROGER MORGAN DATE: JULY 1990
NOTES: ALL DEPTHS IN METRES

RANGE CHART OF GRAPHIC ABUNDANCES BY LOWEST APPEARANCE (by group)

Key to Symbols

	= Very Rare
	= Rare
	= Few
	= Common
	= Abundant
?	= Questionably Present
.	= Not Present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2635-40 CUTTS
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2695-2700 CUT
2710-15 CUTTS
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2780-85 CUTTS
2800-05 CUTTS
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2860-65 CUTTS
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2920-25 CUTTS
2960-65 CUTTS
3000-05 CUTTS
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3275-80 CUTTS
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3345-50 CUTTS
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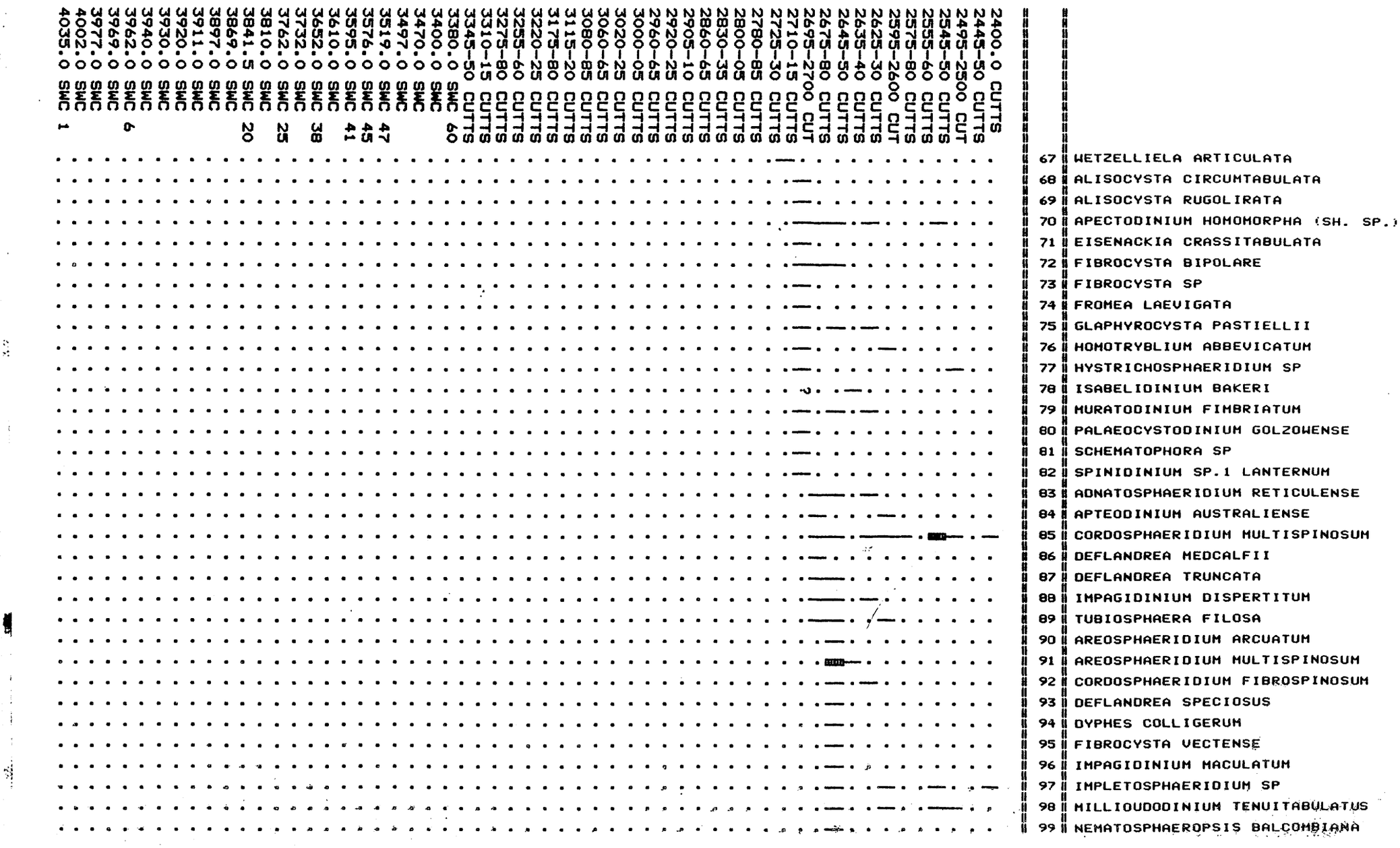
3470.0 SWC
3497.0 SWC
3519.0 SWC 47
3576.0 SWC 45
3595.0 SWC 41
3610.0 SWC
3652.0 SWC 38
3732.0 SWC
3762.0 SWC 25
3810.0 SWC
3841.5 SWC 20
3869.0 SWC
3897.0 SWC
3911.0 SWC
3920.0 SWC
3930.0 SWC
3940.0 SWC
3962.0 SWC 6
3969.0 SWC
3977.0 SWC
4002.0 SWC
4035.0 SWC 1
34 SATYRODINIUM HAUMURIENSE
35 XIPHOPHORIDIUM ALATUM
36 CANNINGIA RETICULATA
37 CYCLOPSIELLA VIETA
38 ALTERBIA ACUTULA
39 CASSICULOSPHAERIDIA CF DELICATA
40 CHATANGIELLA SP
41 SPINIDINIUM SP
42 PARALECANIELLA INDENTATA
43 CHATANGIELLA PACKHAMII
44 ISABELIDINIUM CRETACEUM
45 ISABELIDINIUM KOROJONENSE
46 ISABELIDINIUM PELLUCIDUM (Greenense)
47 CANNINGIA EDENENSIS
48 ISABELIDINIUM DRUGGII
49 ISABELIDINIUM PELLUCIDUM
50 ODONTOCHITTINA STUBBY
51 AREOSPHAERIDIUM MULTICORNUTUM
52 NUMMUS MONOCULATUS
53 ACHOMOSPHAERA ALCICORNU
54 OPERCULODINIUM SPP
55 CORDOSPHAERIDIUM INODES
56 SPINIFERITES RAMOSUS
57 HOMOTRYBLIUM TASMANIENSE
58 DEFLANDREA FLOUNDERENSIS
59 AREOLIGERA SENONENSIS
60 HYSTRICHOSPHAERIDIUM TUBIFERUM
61 AREOSPHAERIDIUM SP
62 GLAPHYROCYSTA RETIINTEXTA
63 LINGULODINIUM MACHAEROPHORUM
64 MANUMIELLA DRUGGII
65 CEREBROCYSTA SP
66 DEFLANDREA HETEROPHLYCTA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2675-80 CUTTS
2695-2700 CUT
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2725-30 CUTTS
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3345-50 CUTTS
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3470.0 SWC
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3519.0 SWC 47
3576.0 SWC 45
3595.0 SWC 41
3610.0 SWC
3652.0 SWC 38
3732.0 SWC
3762.0 SWC 25
3810.0 SWC
3841.5 SWC 20
3869.0 SWC
3897.0 SWC
3911.0 SWC
3920.0 SWC
3930.0 SWC
3940.0 SWC
3962.0 SWC 6
3969.0 SWC
3977.0 SWC
4002.0 SWC
4035.0 SWC 1
67 WETZELLIELA ARTICULATA
68 ALISOCYSTA CIRCUMTABULATA
69 ALISOCYSTA RUGOLIRATA
70 APECTODINIUM HOMOMORPHA (SH. SP.)
71 EISENACKIA CRASSITABULATA
72 FIBROCYSTA BIPOLARE
73 FIBROCYSTA SP
74 FROMEA LAEVIGATA
75 GLAPHYROCYSTA PASTIELLII
76 HOMOTRYBLIUM ABBEVICATUM
77 HYSTRICHOSPHAERIDIUM SP
78 ISABELIDINIUM BAKERI
79 MURATODINIUM FIMBRIATUM
80 PALAEOCYSTODINIUM GOLZOWENSE
81 SCHEMATOPHORA SP
82 SPINIDINIUM SP.1 LANTERNUM
83 ADNATOSPHAERIDIUM RETICULENSE
84 APTEODINIUM AUSTRALIENSE
85 CORDOSPHAERIDIUM MULTISPINOSUM
86 DEFLANDREA MEDCALFII
87 DEFLANDREA TRUNCATA
88 IMPAGIDINIUM DISPERTITUM
89 TUBIOSPHAERA FILOSA
90 AREOSPHAERIDIUM ARCUATUM
91 AREOSPHAERIDIUM MULTISPINOSUM
92 CORDOSPHAERIDIUM FIBROSPINOSUM
93 DEFLANDREA SPECIOSUS
94 DYPHES COLLIGERUM
95 FIBROCYSTA VECTENSE
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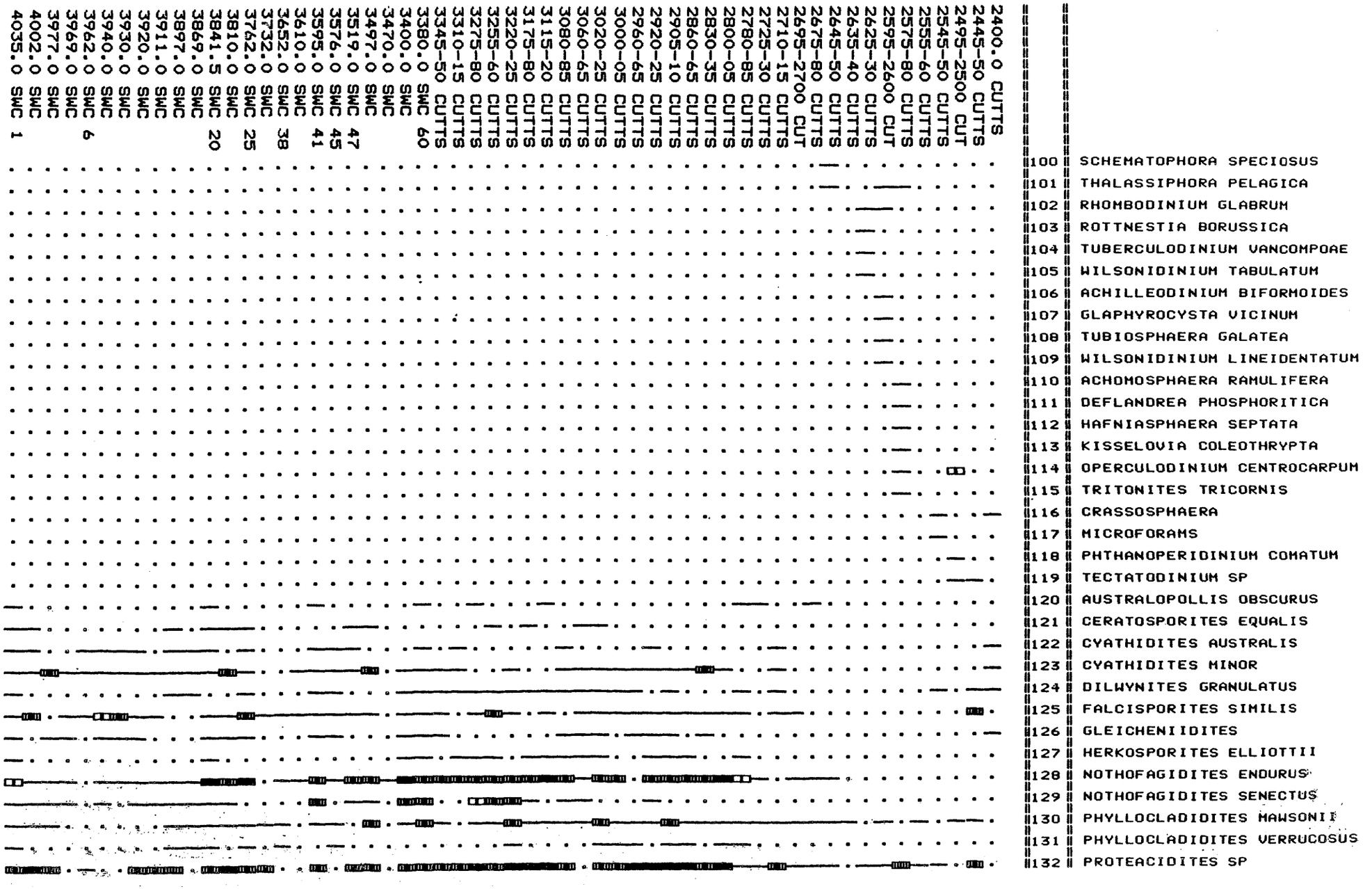
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102 RHOMBODINIUM GLABRUM
103 ROTTNESTIA BORUSSICA
104 TUBERCULODINIUM VANCOMPOAE
105 WILSONIDINIUM TABULATUM
106 ACHILLEODINIUM BIFORMOIDES
107 GLAPHYROCYSTA VICINUM
108 TUBIOSPHAERA GALATEA
109 WILSONIDINIUM LINEIDENTATUM
110 ACHOMOSPHAERA RAMULIFERA
111 DEFLANDREA PHOSPHORITICA
112 HAFNIASPHAERA SEPTATA
113 KISSELOVIA COLEOTHRYPTA
114 OPERCULODINIUM CENTROCARPUM
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116 CRASSOSPHAERA
117 MICROFORAMS
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119 TECTATODINIUM SP
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123 CYATHIDITES MINOR
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125 FALCISPORITES SIMILIS
126 GLEICHENIIDITES
127 HERKOSPORITES ELLIOTTII
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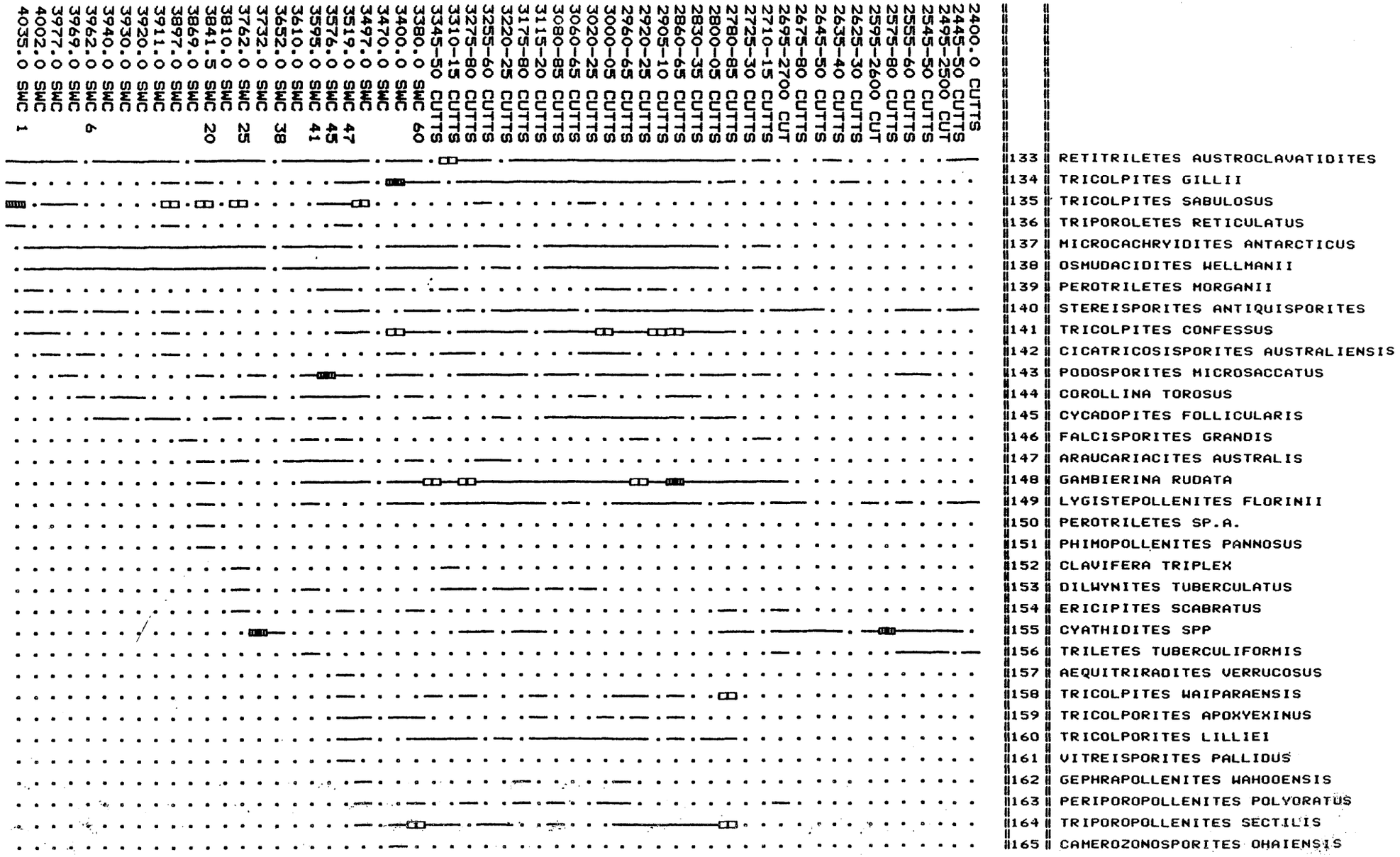
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2595-2600 CUT
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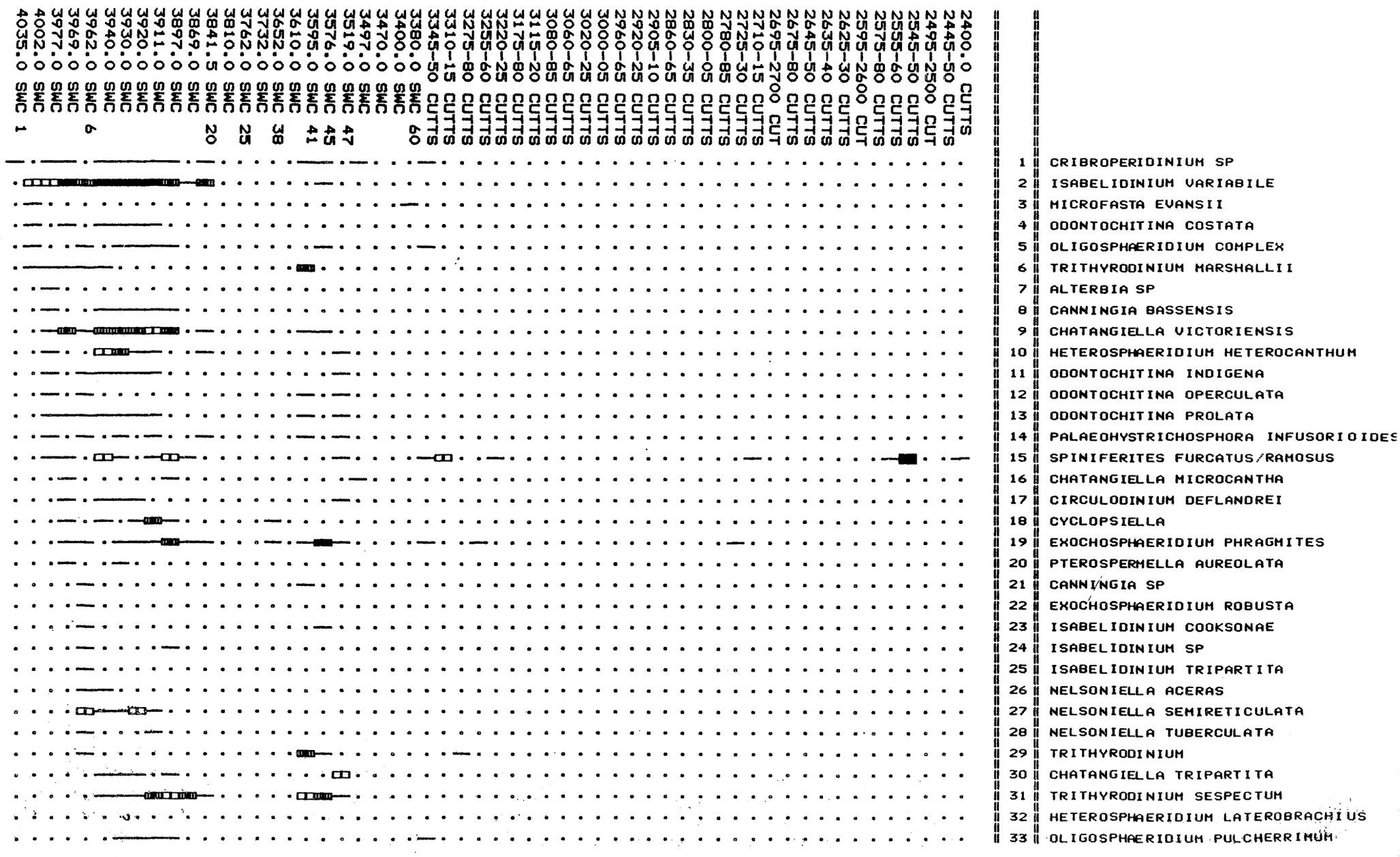
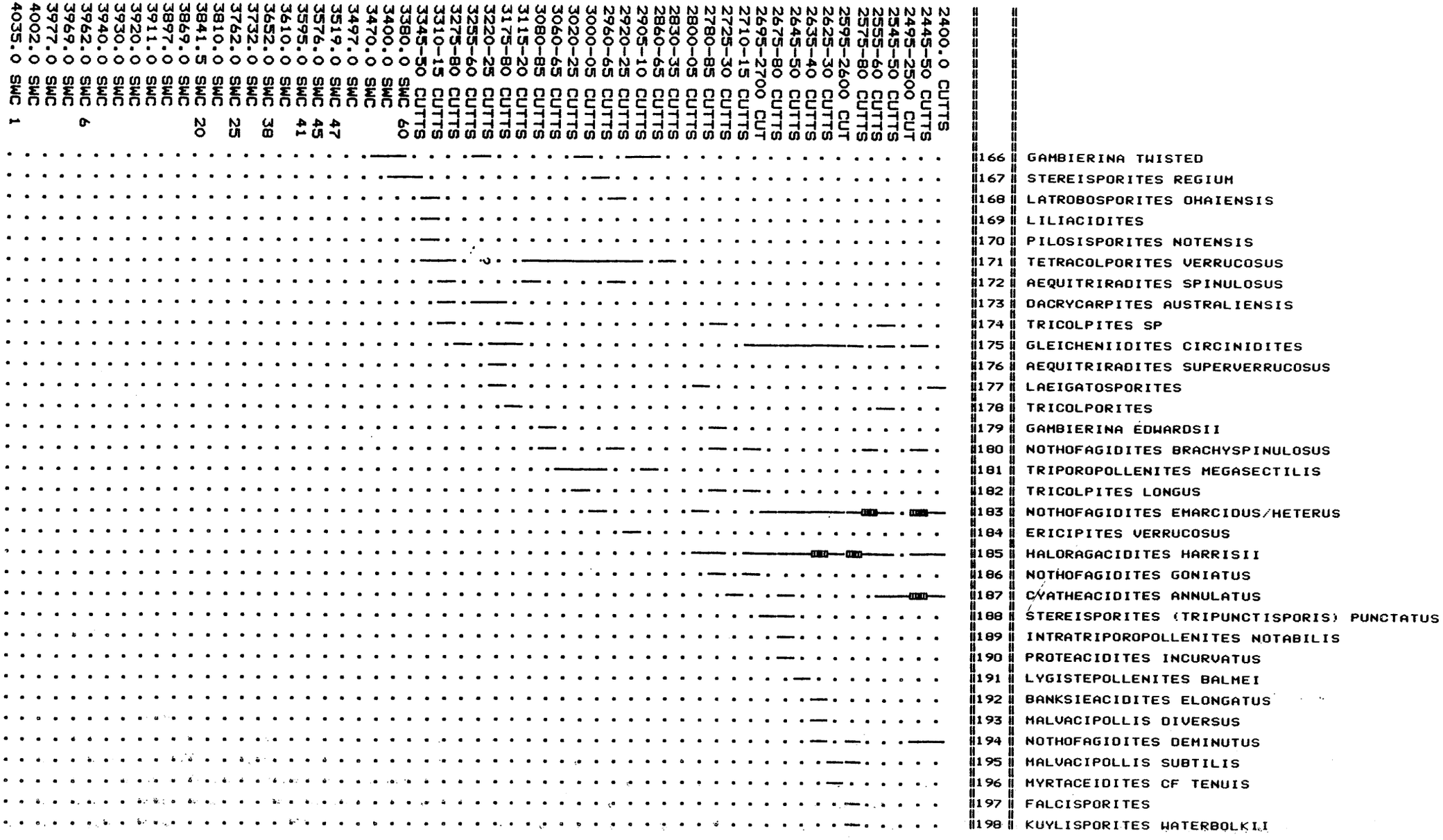
2555-60 CUTTS
2545-50 CUTTS
2495-2500 CUT
2445-50 CUTTS
2400.0 CUTTS
133 RETITRILETES AUSTROCLAVATIDITES
134 TRICOLPITES GILLII
135 TRICOLPITES SABULOSUS
136 TRIPOROLETES RETICULATUS
137 MICROCACHRYIDITES ANTARCTICUS
138 OSMUDACIDITES WELLMANII
139 PEROTRILETES MORGANII
140 STEREISPORITES ANTIQUISPORITES
141 TRICOLPITES CONFESSUS
142 CICATRICOSISPORITES AUSTRALIENSIS
143 PODOSPORITES MICROSACCATUS
144 COROLLINA TOROSUS
145 CYCADOPITES FOLLICULARIS
146 FALCISPORITES GRANDIS
147 ARAUCARIACITES AUSTRALIS
148 GAMBIERINA RUDATA
149 LYGISTEPOLLENITES FLORINII
150 PEROTRILETES SP.A.
151 PHIMOPOLLENITES PANNOSUS
152 CLAVIFERA TRIPLEX
153 DILWYNITES TUBERCULATUS
154 ERICIPITES SCABRATUS
155 CYATHIDITES SPP
156 TRILETES TUBERCULIFORMIS
157 AEQUITRIRADITES VERRUCOSUS
158 TRICOLPITES WAIPARAENSIS
159 TRICOLPORITES APOXYEXINUS
160 TRICOLPORITES LILLIEI
161 VITREISPORITES PALLIDUS
162 GEPHRAPOLLENITES WAHOOENSIS
163 PERIPOROPOLLENITES POLYORATUS
164 TRIPOROPOLLENITES SECTILIS
165 CAMEROZONOSPORITES OHAIENSIS



1 CRIBROPERIDINIUM SP
2 ISABELIDINIUM VARIABILE
3 MICROFASTA EVANSII
4 ODONTOCHITINA COSTATA
5 OLIGOSPHAERIDIUM COMPLEX
6 TRITHYRODINIUM MARSHALLII
7 ALTERBIA SP
8 CANNINGIA BASSENSIS
9 CHATANGIELLA VICTORIENSIS
10 HETEROSPHAERIDIUM HETEROCANTHUM
11 ODONTOCHITINA INDIGENA
12 ODONTOCHITINA OPERCULATA
13 ODONTOCHITINA PROLATA
14 PALAEOHYSTRICHOSPHORA INFUSORIOIDES
15 SPINIFERITES FURCATUS/RAMOSUS
16 CHATANGIELLA MICROCANTHA
17 CIRCULODINIUM DEFLANDREI
18 CYCLOPSIELLA
19 EXOCHOSPHAERIDIUM PHRAGMITES
20 PTEROSPERMELLA AUREOLATA
21 CANNINGIA SP
22 EXOCHOSPHAERIDIUM ROBUSTA
23 ISABELIDINIUM COOKSONAE
24 ISABELIDINIUM SP
25 ISABELIDINIUM TRIPARTITA
26 NELSONIELLA ACERAS
27 NELSONIELLA SEMIRETICULATA
28 NELSONIELLA TUBERCULATA
29 TRITHYRODINIUM
30 CHATANGIELLA TRIPARTITA
31 TRITHYRODINIUM SESPECTUM
32 HETEROSPHAERIDIUM LATEROBRACHIUS
33 OLIGOSPHAERIDIUM PULCHERRIMUM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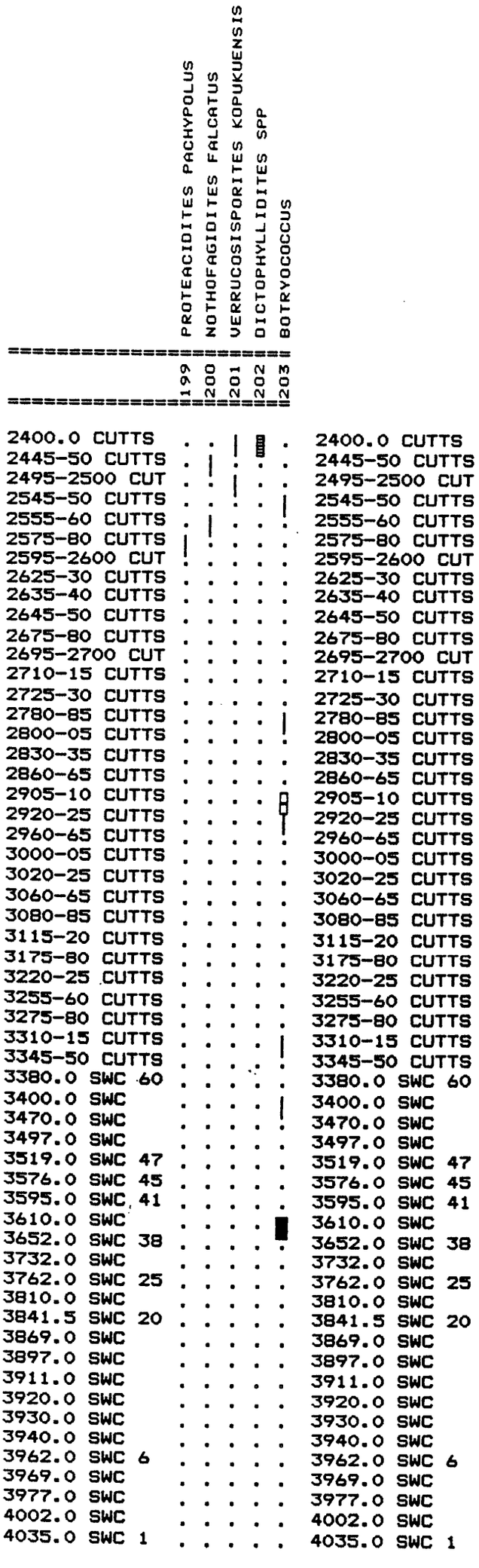
2555-60 CUTTS
2545-50 CUTTS
2495-2500 CUT
2445-50 CUTTS
2400.0 CUTTS
166 GAMBIERINA TWISTED
167 STEREISPORITES REGIUM
168 LATROBOSPORITES OHAIENSIS
169 LILIACIDITES
170 PILOSISPORITES NOTENSIS
171 TETRACOLPORITES VERRUCOSUS
172 AEQUITRIRADITES SPINULOSUS
173 DACRYCARPITES AUSTRALIENSIS
174 TRICOLPITES SP
175 GLEICHENIIDITES CIRCINIDITES
176 AEQUITRIRADITES SUPERVERRUCOSUS
177 LAEIGATOSPORITES
178 TRICOLPORITES
179 GAMBIERINA EDWARDSII
180 NOTHOFAGIDITES BRACHYSPINULOSUS
181 TRIPOROPOLLENITES MEGASECTILIS
182 TRICOLPITES LONGUS
183 NOTHOFAGIDITES EMARCIDUS/HETERUS
184 ERICIPITES VERRUCOSUS
185 HALORAGACIDITES HARRISII
186 NOTHOFAGIDITES GONIATUS
187 CYATHEACIDITES ANNULATUS
188 STEREISPORITES (TRIPUNCTISPORIS) PUNCTATUS
189 INTRATRIPOROPOLLENITES NOTABILIS
190 PROTEACIDITES INCURVATUS
191 LYGISTEPOLLENITES BALMEI
192 BANKSIEACIDITES ELONGATUS
193 MALVACIPOLLIS DIVERSUS
194 NOTHOFAGIDITES DEMINUTUS
195 MALVACIPOLLIS SUBTILIS
196 MYRTACEIDITES CF TENUIS
197 FALCISPORITES
198 KUYLISPORITES WATERBOLKII


PROTEACIDITES PACHYPOLUS
NOTHOFAGIDITES FALCATUS
VERRUCOSISPORITES KOPUKUENSIS
DICTOPHYLLIDITES SPP
BOTRYOCOCCUS
199
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2400.0 CUTTS
2445-50 CUTTS
2495-2500 CUT
2545-50 CUTTS
2555-60 CUTTS
2575-80 CUTTS
2595-2600 CUT
2625-30 CUTTS
2635-40 CUTTS
2645-50 CUTTS
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2725-30 CUTTS
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3497.0 SWC
3519.0 SWC 47
3576.0 SWC 45
3595.0 SWC 41
3610.0 SWC
3652.0 SWC 38
3732.0 SWC
3762.0 SWC 25
3810.0 SWC
3841.5 SWC 20
3869.0 SWC
3897.0 SWC
3911.0 SWC
3920.0 SWC
3930.0 SWC
3940.0 SWC
3962.0 SWC 6
3969.0 SWC
3977.0 SWC
4002.0 SWC
4035.0 SWC 1

SPECIES LOCATION INDEX

Index numbers are the columns in which species appear.

INDEX NUMBER	SPECIES
106	ACHILLEODINIUM BIFORMOIDES
53	ACHOMOSPHAERA ALCICORNU
110	ACHOMOSPHAERA RAMULIFERA
83	ADNATOSPHAERIDIUM RETICULENSE
172	AEQUITRIRADITES SPINULOSUS
176	AEQUITRIRADITES SUPERVERRUCOSUS
157	AEQUITRIRADITES VERRUCOSUS
68	ALISOCYSTA CIRCUMTABULATA
69	ALISOCYSTA RUGOLIRATA
38	ALTERBIA ACUTULA
7	ALTERBIA SP
70	APECTODINIUM HOMOMORPHA (SH. SP.)
84	APTEODINIUM AUSTRALIENSE
147	ARAUCARIACITES AUSTRALIS
59	AREOLIGERA SENONENSIS
90	AREOSPHAERIDIUM ARCUATUM
51	AREOSPHAERIDIUM MULTICORNUTUM
91	AREOSPHAERIDIUM MULTISPINOSUM
61	AREOSPHAERIDIUM SP
120	AUSTRALOPOLLIS OBSCURUS
192	BANKSIEACIDITES ELONGATUS
203	BOTRYOCOCCUS
165	CAMEROZONOSPORITES OHAIENSIS
8	CANNINGIA BASSENSIS
47	CANNINGIA EDENENSIS
36	CANNINGIA RETICULATA
21	CANNINGIA SP
39	CASSICULOSPHAERIDIA CF DELICATA
121	CERATOSPORITES EQUALIS
65	CEREBROCYSTA SP
16	CHATANGIELLA MICROCANTHA
43	CHATANGIELLA PACKHAMII
40	CHATANGIELLA SP
30	CHATANGIELLA TRIPARTITA
9	CHATANGIELLA VICTORIENSIS
142	CICATRICOSISPORITES AUSTRALIENSIS
17	CIRCULODINIUM DEFLANDREI
152	CLAVIFERA TRIPLEX
92	CORDOSPHAERIDIUM FIBROSPINOSUM
55	CORDOSPHAERIDIUM INODES
85	CORDOSPHAERIDIUM MULTISPINOSUM
144	COROLLINA TOROSUS
116	CRASSOSPHAERA
1	CRIBROPERIDINIUM SP
187	CYATHEACIDITES ANNULATUS
122	CYATHIDITES AUSTRALIS
123	CYATHIDITES MINOR
155	CYATHIDITES SPP
145	CYCADOPITES FOLLICULARIS
18	CYCLOPSIELLA
37	CYCLOPSIELLA VIETA
173	DACRYCARPITES AUSTRALIENSIS
58	DEFLANDREA FLOUNDERENSIS
66	DEFLANDREA HETEROPHLYCTA
86	DEFLANDREA MEDCALFII
111	DEFLANDREA PHOSPHORITICA
93	DEFLANDREA SPECIOSUS

87	DEFLANDREA TRUNCATA
202	DICTOPHYLLIDITES SPP
124	DILWYNITES GRANULATUS
153	DILWYNITES TUBERCULATUS
94	DYPHES COLLIGERUM
71	EISENACKIA CRASSITABULATA
154	ERICIPITES SCABRATUS
184	ERICIPITES VERRUCOSUS
19	EXOCHOSPHAERIDIUM PHRAGMITES
22	EXOCHOSPHAERIDIUM ROBUSTA
197	FALCISPORITES
146	FALCISPORITES GRANDIS
125	FALCISPORITES SIMILIS
72	FIBROCYSTA BIPOLARE
73	FIBROCYSTA SP
95	FIBROCYSTA VECTENSE
74	FROMEA LAEVIGATA
179	GAMBIERINA EDWARDSII
148	GAMBIERINA RUDATA
166	GAMBIERINA TWISTED
162	GEPHRAPOLLENITES WAHOOENSIS
75	GLAPHYROCYSTA PASTIELLII
62	GLAPHYROCYSTA RETIINTEXTA
107	GLAPHYROCYSTA VICINUM
126	GLEICHENIIDITES
175	GLEICHENIIDITES CIRCINIDITES
112	HAFNIASPHAERA SEPTATA
185	HALORAGACIDITES HARRISII
127	HERKOSPORITES ELLIOTTII
10	HETEROSPHAERIDIUM HETEROCANTHUM
32	HETEROSPHAERIDIUM LATEROBRACHIUS
76	HOMOTRYBLIUM ABBEVICATUM
57	HOMOTRYBLIUM TASMANIENSE
77	HYSTRICHOSPHAERIDIUM SP
60	HYSTRICHOSPHAERIDIUM TUBIFERUM
88	IMPAGIDINIUM DISPERTITUM
96	IMPAGIDINIUM MACULATUM
97	IMPLETOSPHAERIDIUM SP
189	INTRATRIPOROPOLLENITES NOTABILIS
78	ISABELIDINIUM BAKERI
23	ISABELIDINIUM COOKSONAE
44	ISABELIDINIUM CRETACEUM
48	ISABELIDINIUM DRUGGII
45	ISABELIDINIUM KOROJONENSE
49	ISABELIDINIUM PELLUCIDUM
46	ISABELIDINIUM PELLUCIDUM (Greenense)
24	ISABELIDINIUM SP
25	ISABELIDINIUM TRIPARTITA
2	ISABELIDINIUM VARIABILE
113	KISSELOVIA COLEOTHRYPTA
198	KUYLISPORITES WATERBOLKII
177	LAEIGATOSPORITES
168	LATROBOSPORITES OHAIENSIS
169	LILIACIDITES
63	LINGULODINIUM MACHAEROPHORUM
191	LYGISTEPOLLENITES BALMEI
149	LYGISTEPOLLENITES FLORINII
193	MALVACIPOLLIS DIVERSUS
195	MALVACIPOLLIS SUBTILIS
64	MANUMIELLA DRUGGII
137	MICROCACHRYIDITES ANTARCTICUS
3	MICROFASTA EVANSII
117	MICROFORAMS
98	MILLIOUDODINIUM TENUITABULATUS

79	MURATODINIUM FIMBRIATUM
196	MYRTACEIDITES CF TENUIS
26	NELSONIELLA ACERAS
27	NELSONIELLA SEMIRETICULATA
28	NELSONIELLA TUBERCULATA
99	NEMATOSPHAEROPSIS BALCOMBIANA
180	NOTHOFAGIDITES BRACHYSPINULOSUS
194	NOTHOFAGIDITES DEMINUTUS
183	NOTHOFAGIDITES EMARCIDUS/HETERUS
128	NOTHOFAGIDITES ENDURUS
200	NOTHOFAGIDITES FALCATUS
186	NOTHOFAGIDITES GONIATUS
129	NOTHOFAGIDITES SENECTUS
52	NUMMUS MONOCULATUS
4	ODONTOCHITINA COSTATA
11	ODONTOCHITINA INDIGENA
12	ODONTOCHITINA OPERCULATA
13	ODONTOCHITINA PROLATA
50	ODONTOCHITTINA STUBBY
5	OLIGOSPHAERIDIUM COMPLEX
33	OLIGOSPHAERIDIUM PULCHERRIMUM
114	OPERCULODINIUM CENTROCARPUM
54	OPERCULODINIUM SPP
138	OSMUDACIDITES WELLMANII
80	PALAEOCYSTODINIUM GOLZOWENSE
14	PALAEOHYSTRICHOSPHORA INFUSORIOIDES
42	PARALECANIELLA INDENTATA
163	PERIPOROPOLLENITES POLYORATUS
139	PEROTRILETES MORGANII
150	PEROTRILETES SP.A.
151	PHIMOPOLLENITES PANNOSUS
118	PHTHANOPERIDINIUM COMATUM
130	PHYLLOCLADIDITES MAWSONII
131	PHYLLOCLADIDITES VERRUCOSUS
170	PILOSISPORITES NOTENSIS
143	PODOSPORITES MICROSACCATUS
190	PROTEACIDITES INCURVATUS
199	PROTEACIDITES PACHYPOLUS
132	PROTEACIDITES SP
20	PTEROSPERMELLA AUREOLATA
133	RETITRILETES AUSTROCLAVATIDITES
102	RHOMBODINIUM GLABRUM
103	ROTTNESTIA BORUSSICA
34	SATYRODINIUM HAUMURIENSE
81	SCHEMATOPHORA SP
100	SCHEMATOPHORA SPECIOSUS
41	SPINIDINIUM SP
82	SPINIDINIUM SP.1 LANTERNUM
15	SPINIFERITES FURCATUS/RAMOSUS
56	SPINIFERITES RAMOSUS
188	STEREISPORITES (TRIPUNCTISPORIS) PUNCTATUS
140	STEREISPORITES ANTIQUISPORITES
167	STEREISPORITES REGIUM
119	TECTATODINIUM SP
171	TETRACOLPORITES VERRUCOSUS
101	THALASSIPHORA PELAGICA
141	TRICOLPITES CONFESSUS
134	TRICOLPITES GILLII
182	TRICOLPITES LONGUS
135	TRICOLPITES SABULOSUS
174	TRICOLPITES SP
158	TRICOLPITES WAIPARAENSIS
178	TRICOLPORITES

159	TRICOLPORITES APOXYEXINUS
160	TRICOLPORITES LILLIEI
156	TRILETES TUBERCULIFORMIS
136	TRIPOROLETES RETICULATUS
181	TRIPOROPOLLENITES MEGASECTILIS
164	TRIPOROPOLLENITES SECTILIS
29	TRITHYRODINIUM
6	TRITHYRODINIUM MARSHALLII
31	TRITHYRODINIUM SESPECTUM
115	TRITONITES TRICORNIS
104	TUBERCULODINIUM VANCOMPOAE
89	TUBIOSPHAERA FILOSA
108	TUBIOSPHAERA GALATEA
201	VERRUCOSISPORITES KOPUKUENSIS
161	VITREISPORITES PALLIDUS
67	WETZELLIELA ARTICULATA
109	WILSONIDINIUM LINEIDENTATUM
105	WILSONIDINIUM TABULATUM
35	XIPHOPHORIDIUM ALATUM

APPENDIX 3

WELL COMPLETION REPORT

ARCHER-1

BASIC DATA

A P P E N D I X 3

VELOCITY SURVEY VSP RESULTS

SCHLUMBERGER

VELOCITY REPORT

COMPANY : PETROFINA EXPLORATION AUSTRA
WELL : ARCHER #1
FIELD : EXPLORATION
COUNTRY : AUSTRALIA
REFERENCE: SYJ-56570

LONG DEFINITIONS

GLOBAL

KB - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB - ELEVATION OF KELLY BUSHING
GL - ELEVATION OF USERS REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
UNERTH - UNIFORM EARTH VELOCITY (GTRFRM)

ZONE

LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA

SAMPLED

SHOT - SHOT NUMBER
DKB - MEASURED DEPTH FROM KELLY-BUSHING
DSRD - DEPTH FROM SRD
DGL - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USERS REFERENCE)
SHTM - SHOT TIME (WST)
ADJS - ADJUSTED SONIC TRAVEL TIME
SHDR - DRIFT AT SHOT OR KNEE
REST - RESIDUAL TRAVEL TIME AT KNEE
INTV - INTERNAL VELOCITY, AVERAGE

(GLOBAL PARAMETERS)		(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	: 23.0000	M
ELEV OF SRD AB. MSL(WST)	SRD	: 0	M
ELEVATION OF KELLY BUSHI	EKB	: 23.0000	M
ELEV OF GL AB. SRD(WST)	GL	: -167.000	M
UNIFORM EARTH VELOCITY	UNERTH	: 1480.00	M/S

(ZONED PARAMETERS)		(VALUE)		(LIMITS)	
LAYER OPTION FLAG VELOC	LOFVEL	: 1.000000		30479.7	- 0
USER VELOC (WST)	LAYVEL	: 2127.000	M/S	500.000	- 195.000
		1480.000		195.000	0

COMPANY PETROFINA EXPLORATION AUSTRA WELL ARCHER #1 PAGE

LEVEL NUMBER	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL DEPTH FROM GL M	VERTICAL TRAVEL TIME SRD/GEOPH MS	INTEGRATED ADJUSTED SONIC TIME MS	DRIFT = SHOT TIME - RAW SON MS	RESIDUAL = SHOT TIME - ADJ SON MS	ADJUSTED INTERVAL VELOCITY M/S
1	195.00	167.00	0	112.84	112.84	0	0	1480
2	500.00	472.00	305.00	256.26	256.26	0	0	2127
3	700.00	672.00	505.00	328.18	327.48	-3.07	.70	2808
4	900.00	872.00	705.00	399.79	396.65	-3.36	3.15	2891
5	1100.00	1072.00	905.00	463.07	462.70	-7.39	.38	3029
6	1263.00	1235.00	1068.00	518.04	518.04	-9.59	0	2945
7	1500.00	1472.00	1305.00	603.18	603.17	-9.60	.01	2784
8	2400.00	2372.00	2205.00	943.08	944.88	9.18	-1.80	2634
9	2425.00	2397.00	2230.00	951.80	953.52	9.86	-1.72	2894
10	2450.00	2422.00	2255.00	960.79	962.51	10.47	-1.72	2782
11	2475.00	2447.00	2280.00	969.28	970.75	11.32	-1.48	3031
12	2500.00	2472.00	2305.00	979.25	979.64	13.01	-.39	2814
13	2525.00	2497.00	2330.00	987.49	988.18	13.31	-.69	2926
14	2550.00	2522.00	2355.00	994.73	995.11	14.20	-.39	3609
15	2575.00	2547.00	2380.00	1002.21	1002.78	14.63	-.57	3259
16	2600.00	2572.00	2405.00	1011.68	1011.20	16.29	.48	2971
17	2625.00	2597.00	2430.00	1020.08	1020.06	16.40	.02	2821
18	2650.00	2622.00	2455.00	1027.45	1027.46	16.14	0	3378
19	2675.00	2647.00	2480.00	1035.40	1034.99	16.30	.41	3321
20	2700.00	2672.00	2505.00	1043.46	1042.99	16.03	.47	3125
21	2725.00	2697.00	2530.00	1050.98	1050.62	15.64	.36	3275
22	2750.00	2722.00	2555.00	1058.57	1058.10	15.51	.47	3343
23	2775.00	2747.00	2580.00	1066.01	1065.09	15.78	.92	3577
24	2800.00	2772.00	2605.00	1072.54	1072.08	15.15	.45	3575

LEVEL NUMBER	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL DEPTH FROM GL M	VERTICAL TRAVEL TIME SRD/GEOPH MS	INTEGRATED ADJUSTED SONIC TIME MS	DRIFT = SHOT TIME - RAW SON MS	RESIDUAL = SHOT TIME - ADJ SON MS	ADJUSTED INTERVAL VELOCITY M/S
								3514
25	2825.00	2797.00	2630.00	1080.00	1079.20	15.30	.80	
								3541
26	2850.00	2822.00	2655.00	1086.82	1086.26	14.88	.56	
								3544
27	2875.00	2847.00	2680.00	1093.99	1093.31	14.82	.68	
								3534
28	2900.00	2872.00	2705.00	1101.83	1100.39	15.39	1.44	
								3491
29	2925.00	2897.00	2730.00	1108.88	1107.55	15.09	1.33	
								3496
30	2975.00	2947.00	2780.00	1123.54	1121.85	15.26	1.69	
								3435
31	3000.00	2972.00	2805.00	1130.89	1129.13	14.91	1.77	
								3648
32	3025.00	2997.00	2830.00	1138.29	1135.98	15.29	2.30	
								3582
33	3050.00	3022.00	2855.00	1144.94	1142.96	14.80	1.98	
								3665
34	3100.00	3072.00	2905.00	1158.42	1156.60	14.35	1.82	
								3719
35	3125.00	3097.00	2930.00	1165.33	1163.32	14.41	2.01	
								3699
36	3150.00	3122.00	2955.00	1172.22	1170.08	14.41	2.14	
								3710
37	3175.00	3147.00	2980.00	1178.82	1176.82	14.14	1.99	
								3540
38	3200.00	3172.00	3005.00	1185.84	1183.89	13.91	1.95	
								3494
39	3225.00	3197.00	3030.00	1193.11	1191.04	13.84	2.07	
								3782
40	3250.00	3222.00	3055.00	1199.58	1197.65	13.59	1.93	
								3874
41	3275.00	3247.00	3080.00	1205.79	1204.10	13.26	1.69	
								3782
42	3300.00	3272.00	3105.00	1212.40	1210.71	13.15	1.69	
								4051
43	3325.00	3297.00	3130.00	1218.85	1216.88	13.37	1.96	
								3913
44	3350.00	3322.00	3155.00	1224.71	1223.27	12.76	1.43	
								3814
45	3375.00	3347.00	3180.00	1231.54	1229.83	12.94	1.71	
								3830
46	3400.00	3372.00	3205.00	1238.42	1236.35	13.19	2.07	
								3823
47	3425.00	3397.00	3230.00	1245.19	1242.89	13.32	2.30	
								4187
48	3450.00	3422.00	3255.00	1251.25	1248.86	13.36	2.39	

PE600946

This is an enclosure indicator page.
The enclosure PE600946 is enclosed within the container PE902090 at this location in this document.

The enclosure PE600946 has the following characteristics:

ITEM_BARCODE	= PE600946
CONTAINER_BARCODE	= PE902090
NAME	= Seismic Calibration Log
BASIN	= GIPPSLAND
PERMIT	= VIC/P20
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Archer 1 Seismic Calibration Log. From appendix 3 of WCR volume 1.
REMARKS	=
DATE_CREATED	= 20/04/90
DATE_RECEIVED	= 4/09/90
W_NO	= W1021
WELL_NAME	= Archer-1
CONTRACTOR	= Schlumberger
CLIENT_OP_CO	= Petrofina Exploration Australia S.A.

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 4

WELL COMPLETION REPORT

ARCHER-1

BASIC DATA

A P P E N D I X 4

GEOCHEMISTRY

TABLE #1

AMDEL CORE SERVICES

Rock-Eval Pyrolysis

07/21/90

Client: PETROFINA EXPLORATION S.A.

Well: ARCHER-1

Depth (m)	T Max	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
2450 - 2460	420	0.03	0.31	0.28	0.34	0.09	1.10	0.02	0.40	77	70
2460 - 2470									0.31		
2470 - 2480									0.32		
2480 - 2490									0.37		
2490 - 2500	339	0.01	0.20	0.33	0.21	0.05	0.60	0.01	0.51	39	64
2500 - 2510	276	0.02	0.11	0.35	0.13	0.17	0.31	0.01	0.46	23	76
2510 - 2520									0.28		
2520 - 2530									0.31		
2530 - 2540									0.25		
2540 - 2550	336	0.05	0.50	0.60	0.55	0.09	0.83	0.04	0.46	108	130
2550 - 2560									0.29		
2560 - 2570									0.26		
2570 - 2580	430	0.05	0.06	0.78	0.11	0.50	0.07	0.00	0.43	13	18
2580 - 2590									0.37		
2590 - 2600	414	0.11	0.52	0.52	0.63	0.18	1.00	0.05	0.41	126	128
2600 - 2610									0.35		
2610 - 2620									0.37		
2620 - 2630	268	0.03	0.06	0.60	0.09	0.33	0.10	0.02	0.45	133	133
2630 - 2640	287	0.03	0.09	0.54	0.12	0.25	0.16	0.01	0.40	22	135
2640 - 2650									0.26		
2650 - 2660									0.28		
2660 - 2670									0.13		
2670 - 2680									0.14		
2680 - 2690									0.29		
2690 - 2700	282	0.02	0.08	0.40	0.10	0.20	0.20	0.00	0.40	20	100
2700 - 2710									0.15		
2710 - 2720	272	0.01	0.09	0.22	0.10	0.10	0.40	0.00	0.61	14	36
2720 - 2730	278	0.00	0.06	0.24	0.06	0.00	0.25	0.00	0.54	11	44
2730 - 2740	254	0.07	0.04	0.27	0.11	0.70	0.14	0.00	0.60	6	45
2740 - 2750									0.35		
2770 - 2780									0.05		
2780 - 2790	424	0.03	0.62	0.10	0.65	0.05	6.20	0.05	0.42	147	23
2790 - 2800	423	0.09	2.74	0.17	2.83	0.03	16.11	0.23	1.32	207	12
2800 - 2810	425	0.19	4.89	0.30	5.08	0.04	16.30	0.42	1.96	249	15
2810 - 2820	425	0.03	1.42	0.14	1.45	0.02	10.14	0.12	0.79	179	17
2820 - 2830	423	0.07	2.89	0.16	2.96	0.02	18.06	0.24	1.14	253	14
2830 - 2840	425	0.34	5.90	0.32	6.24	0.05	18.43	0.52	2.15	274	14
2840 - 2850	425	0.24	2.29	0.10	2.53	0.10	22.90	0.21	0.99	231	10
2850 - 2860	422	0.55	7.45	0.34	8.00	0.07	21.91	0.66	2.87	259	11
2860 - 2870	425	0.13	3.31	0.23	3.44	0.04	14.39	0.28	1.32	250	17
2880 - 2890	423	0.29	7.97	0.36	8.26	0.04	22.13	0.68	2.73	291	13

AMDEL CORE SERVICES

Rock-Eval Pyrolysis

07/21/90

Client: PETROFINA EXPLORATION S.A.

Well: ARCHER-1

Depth (m)	T Max	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
2890 - 2900	421	0.40	12.68	0.58	13.08	0.03	21.86	1.09	4.65	272	12
2910 - 2920	425	0.24	6.96	0.20	7.20	0.03	34.80	0.60	3.54	196	5
2920 - 2930	426	0.34	10.55	0.42	10.89	0.03	25.11	0.90	4.22	250	9
2930 - 2940	428	0.14	6.13	0.10	6.27	0.02	61.30	0.52	2.66	230	3
2940 - 2950	425	0.69	14.29	0.69	14.98	0.05	20.71	1.24	6.70	213	10
2950 - 2960	421	0.61	14.25	0.50	14.86	0.04	28.50	1.23	9.05	157	5
2960 - 2970	420	1.09	28.49	1.06	29.58	0.04	26.87	2.46	5.73	497	18
2970 - 2980	424	0.27	11.11	0.61	11.38	0.02	18.21	0.94	5.97	186	10
2980 - 2990	422	0.69	18.22	0.66	18.91	0.04	27.60	1.57	10.46	174	6
2990 - 3000	426	1.79	59.31	0.85	61.10	0.03	69.77	5.09	21.80	272	3
3000 - 3010	423	0.34	10.39	0.36	10.73	0.03	28.86	0.89	5.13	202	7
3010 - 3020	425	0.23	6.47	0.15	6.70	0.04	43.13	0.56	2.51	257	5
3020 - 3030	427	0.16	3.57	0.08	3.73	0.04	44.62	0.31	1.52	230	5
3030 - 3040	424	0.18	3.02	0.28	3.20	0.06	10.78	0.26	2.38	126	11
3040 - 3050	421	0.26	5.24	0.29	5.50	0.05	18.06	0.45	1.63	321	17
3050 - 3060	419	0.16	3.29	0.23	3.45	0.05	14.30	0.28	1.58	208	14
3060 - 3070	424	0.11	3.63	0.23	3.74	0.03	15.78	0.31	1.68	216	13
3080 - 3090	423	0.12	3.65	0.24	3.77	0.03	15.20	0.31	0.91	401	26
3090 - 3100	428	0.10	5.17	0.20	5.27	0.02	25.85	0.43	2.18	237	9
3100 - 3110	425	0.11	3.61	0.20	3.72	0.03	18.05	0.31	1.49	242	13
3110 - 3120	425	0.13	4.49	0.28	4.62	0.03	16.03	0.38	1.90	236	14
3120 - 3130	428	0.33	8.48	0.27	8.81	0.04	31.40	0.73	3.22	263	8
3130 - 3140	427	0.18	7.03	0.40	7.21	0.02	17.57	0.60	2.61	269	15
3140 - 3150	427	0.09	1.68	0.13	1.77	0.05	12.92	0.14	0.74	227	17
3150 - 3160	424	0.04	0.97	0.08	1.01	0.04	12.12	0.08	0.40	242	20
3160 - 3170	427	0.13	4.17	0.20	4.30	0.03	20.85	0.35	1.60	260	12
3170 - 3180	425	0.85	18.87	0.63	19.72	0.04	29.95	1.64	4.59	411	140
3180 - 3190	424	0.39	7.76	0.31	8.15	0.05	25.03	0.67	2.97	261	10
3190 - 3200	422	1.17	13.07	0.26	14.24	0.08	54.26	1.18	4.99	261	5
3200 - 3210	420	1.63	24.22	0.50	25.85	0.06	48.44	2.15	8.45	286	5
3210 - 3220	425	1.91	29.07	0.61	30.98	0.06	47.65	2.58	10.23	284	5
3220 - 3230	425	0.56	8.58	0.34	9.14	0.06	25.23	0.76	3.98	215	8
3230 - 3240	424	0.47	6.53	0.28	7.00	0.07	23.32	0.58	2.88	226	9
3240 - 3250	422	0.17	2.00	0.14	2.17	0.08	14.28	0.18	0.86	232	16
3250 - 3260	423	0.17	2.52	0.14	2.69	0.06	18.00	0.22	0.91	276	15
3260 - 3270									0.31		
3270 - 3280	422	0.08	1.14	0.21	1.22	0.07	5.42	0.10	0.74	154	28
3280 - 3290									0.23		
3290 - 3300	426	0.17	3.43	0.76	3.60	0.05	4.51	0.30	1.58	217	48
3300 - 3310	429	0.04	1.77	0.66	1.81	0.02	2.68	0.15	1.14	155	57
3310 - 3320	427	0.06	2.45	0.50	2.51	0.02	4.90	0.20	1.32	185	37
3320 - 3330	429	0.08	1.94	0.34	2.02	0.04	5.70	0.16	1.43	135	23
3330 - 3340	415	0.03	0.86	0.24	0.89	0.03	3.58	0.07	0.49	175	48

AMDEL CORE SERVICES

Rock-Eval Pyrolysis

07/21/90

Client: PETROFINA EXPLORATION S.A.

Well: ARCHER-1

Depth (m)	T Max	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
3340 - 3350									0.32		
3350 - 3360	427	0.03	1.85	0.46	1.88	0.02	4.02	0.15	1.20	154	38
3360 - 3370	428	0.05	2.08	0.46	2.13	0.02	4.52	0.17	1.38	150	33
3370 - 3380	427	0.25	4.63	0.53	4.88	0.05	8.73	0.40	2.02	229	26
3380 *	429	0.52	5.73	0.26	6.25	0.08	22.03	0.52	1.79	320	14
3380 - 3390	424	0.05	0.54	0.24	0.59	0.09	2.25	0.04	0.55	98	43
3390 - 3400									0.32		
3400 *	422	0.52	1.17	0.21	1.69	0.31	5.57	0.14	1.22	95	17
3400 - 3410									0.16		
3410 - 3420	423	0.11	0.65	0.14	0.76	0.14	4.64	0.06	0.52	125	26
3440 - 3450	410	0.45	1.16	3.59	1.61	0.28	0.32	0.13	0.41	282	875
3460 - 3470									0.23		
3470 - 3480									0.29		
3480 - 3490									0.16		
3490 - 3500									0.24		
3500 - 3510									0.21		
3510 - 3520									0.15		
3520 - 3530									0.18		
3519 *	417	0.17	0.72	0.14	0.89	0.19	5.14	0.07	0.84	85	16
3530 - 3540									0.11		
3570 - 3580									0.09		
3576 *	420	0.34	0.63	0.10	0.97	0.35	6.30	0.08	0.89	70	21
3600 - 3610									0.07		
3652 *	353	0.39	0.49	0.26	0.88	0.44	1.88	0.07	0.58	84	44
3660 - 3670									0.06		
3680 - 3690									0.06		
3710 - 3720									0.11		
3720 - 3730	365	0.08	0.31	0.21	0.39	0.21	1.47	0.03	0.42	73	50
3730 - 3740	428	0.14	0.97	0.25	1.11	0.13	3.88	0.09	0.94	103	26
3732 *	431	0.53	1.86	0.35	2.39	0.22	5.31	0.19	1.78	104	19
3740 - 3750	429	0.21	0.56	0.30	0.77	0.28	1.86	0.06	0.71	78	42
3750 - 3760	386	0.12	0.16	0.21	0.28	0.43	0.76	0.02	0.42	38	50
3760 - 3770	430	0.27	1.65	0.13	1.92	0.14	12.69	0.16	0.91	181	14
3770 - 3780	429	0.26	1.39	0.08	1.65	0.16	17.37	0.13	0.88	157	9
3780 - 3790	426	0.39	3.90	0.26	4.29	0.09	15.00	0.35	1.64	237	15
3790 - 3800									0.37		
3800 - 3810	430	0.38	1.88	0.39	2.26	0.17	4.82	0.18	0.96	195	40
3810 - 3820	430	0.30	1.46	0.24	1.76	0.17	6.08	0.14	0.88	165	27
3820 - 3830									0.27		
3830 - 3840	430	0.19	0.28	0.18	0.47	0.41	1.55	0.03	0.53	52	33
3840 - 3850	430	0.20	0.44	0.20	0.64	0.31	2.20	0.05	0.66	66	30
3841 *	433	0.58	2.33	0.43	2.91	0.20	5.41	0.24	1.91	121	22
3850 - 3860									0.27		
3869 *	435	0.67	2.33	0.24	3.00	0.22	9.70	0.25	2.17	107	11

AMDEL CORE SERVICES

Rock-Eval Pyrolysis 07/21/90

Client: PETROFINA EXPLORATION S.A.

Well: ARCHER-1

Depth (m)	T Max	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
3870 - 3880	428	0.17	0.40	0.45	0.57	0.30	0.88	0.04	0.60	66	75
3890 - 3900	430	0.30	1.08	1.79	1.38	0.22	0.60	0.11	0.99	109	180
3897 *	431	0.43	2.15	0.72	2.58	0.17	2.98	0.21	1.97	109	36
3900 - 3910	432	0.36	1.70	1.67	2.06	0.17	1.01	0.17	1.41	120	118
3910 - 3920	433	0.42	2.37	1.19	2.79	0.15	1.99	0.23	1.85	128	64
3911 *	431	0.39	1.45	0.74	1.84	0.21	1.95	0.15	1.85	78	40
3920 *	430	0.73	3.11	0.72	3.84	0.19	4.31	0.32	1.67	186	43
3920 - 3930	431	0.36	2.73	0.79	3.09	0.12	3.45	0.25	1.93	141	40
3930 - 3940	427	0.52	2.14	0.33	2.66	0.20	6.48	0.22	1.58	135	20
3930 *	426	0.72	2.92	0.42	3.64	0.20	6.95	0.30	1.58	184	26
3940 - 3950	426	0.19	0.54	0.13	0.73	0.26	4.15	0.06	0.57	94	22
3940 *	424	0.63	2.46	0.31	3.09	0.20	7.93	0.25	1.54	159	20
3947 *	431	0.83	2.79	0.37	3.62	0.23	7.54	0.30	2.07	134	17
3960 - 3970	421	0.15	0.31	0.73	0.46	0.33	0.42	0.03	0.45	68	162
3969 *	430	0.67	2.67	0.58	3.34	0.20	4.60	0.27	2.07	128	28
3970 - 3980	431	0.26	1.06	0.99	1.32	0.20	1.07	0.11	0.74	143	133
3977 *	433	0.42	2.14	0.96	2.56	0.16	2.22	0.21	1.61	132	59
3980 - 3990	430	0.22	0.57	0.45	0.79	0.28	1.26	0.06	0.66	86	68
3990 - 4000	428	0.20	0.65	0.30	0.85	0.24	2.16	0.07	0.72	90	41
4000 - 4010	431	0.27	1.83	0.35	2.10	0.13	5.22	0.17	1.46	125	23
4002 *	431	0.57	1.97	0.68	2.54	0.22	2.89	0.21	2.10	93	32
4010 - 4020	432	0.35	2.11	0.58	2.46	0.14	3.63	0.20	2.04	103	28
4020 - 4030	431	0.38	1.91	0.53	2.29	0.17	3.60	0.19	1.70	112	31
4030 - 4040	431	0.26	1.44	0.81	1.70	0.15	1.77	0.14	1.47	97	55
4035 *	431	0.44	1.03	0.89	1.47	0.30	1.15	0.12	1.87	55	47
4040 - 4050	432	0.19	1.55	0.53	1.74	0.11	2.92	0.14	1.48	104	35

TABLE 2

SUMMARY OF VITRINITE REFLECTANCE MEASUREMENTS

Depth (m)	Mean Maximum Reflectance (%)	Standard Deviation	Range	Number of Determinations
2450				
2500	.37	.03	.33 - .41	4
2560	.44	.01	.43 - .44	2
2600	.44	.01	.42 - .46	4
2650				
2700				
2740	.47	.03	.44 - .50	2
2790	.44	.04	.36 - .54	16
2850	.45	.05	.34 - .55	22
2900	.47	.05	.47 - .55	26
2950	.48	.05	.37 - .55	26
3000	.45	.03	.38 - .50	24
3040	.47	.04	.39 - .54	22
3100	.48	.04	.41 - .56	18
3140	.48	.04	.43 - .54	4
3190-3200	.45	.04	.36 - .51	28
3240-3250	.47	.04	.42 - .53	10
3290-3300*	.45	.03	.41 - .50	14
3340-3350	.48	.03	.44 - .55	2
3390-3400				
3440*	.44	.02	.41 - .48	8
3490-3500				
3519	.47	.01	.46 - .48	2
3530				
3600				
3652	.49	.01	.48 - .50	2
3710				
3750				
3810	.50	.04	.46 - .58	8
3869	.59		.59	2
3911				
3940*	.50	.01	.49 - .51	2
4002	.63	.03	.58 - .65	4
4035	.67		.67	2

* Influenced by caved cuttings

TABLE 3

PERCENTAGE OF VITRINITE, INERTINITE AND EXINITE IN DISPERSED ORGANIC MATTER, ARCHER -1

Depth (m)	Percentage of Vitrinite	Inertinite	Exinite
2450	5-10	85	5-10
2500	5	90	5
2560	5	90	5
2600	<5	90	5
2650	5	90	5
2700	5	90	5
2740	5	90	5
2790	<5	90	5-10
2850	5-10	90	5
2900	20	70-75	5-10
2950	40	45-50	10-15
3000	20	70-75	5-10
3040	10	80-85	5-10
3100	25	65	10
3140	20	70	10
3190	10-15	80	5-10
3240	10	80-85	5-10
3290	5-10	85	5-10
3340	<5	90	<5
3390	<5	90	<5
3440	<5	90	5
3490	<5	90	5
3519	5-10	85-90	5
3530	-	100	<5
3600	-	95	<5
3652	10	85	<5
3710	<5	90	<5
3750	10	85	5
3810	5-10	85	5-10
3869	10	80	10
3911	5	90	5
3940	10	80-85	5-10
4002	5	90	5
4035	5	90	5

TABLE 4

ORGANIC MATTER TYPE AND ABUNDANCE, ARCHER -1

Depth (m)	Estimated Volume of DOM	Estimated Volume of Exinites	Exinite Macerals
2450	<0.5	Ra-Vr	phyto, lipto
2500	<0.5	Ra-Vr	lipto, phyto
2560	<0.5	Tr	spo, phyto, lipto
2600	<0.5	Ra-Vr	bmite, phyto, lipto
2650	<0.5	Ra-Vr	bmite, phyto, lipto
2700	<0.5	Vr	lipto
2740	<0.5	Vr	bmite
2790	1 - 2	Ra	spo, lama, cut, res, lipto, tela
2850	1 - 2	Ra	lipto, spo, cut, lama, bmite
2900	3 - 5	Ra	spo, cut, lipto, res, sub
2950	1 - 2	Ra	cut, spo, res, lama, lipto
3000	1 - 2	Ra	lipto, spo, res, sub, cut, exs
3040	0.5-1	Ra	cut, lipto, spo, res
3100	0.5-1	Ra	cut, lipto, lama
3140	0.5-1	Ra	cut, lipto, lama
3190	2 - 3	Ra	cut, lipto, spo, bmite, res
3240	~0.5	Ra-Vr	cut, lipto
3290	0.5-1	Ra	cut, res, lipto, spo
3340	<0.5	Ra-Vr	lipto, cut
3390	<0.5	Vr	bmite, lipto
3440	~0.5	Vr	phyto, lipto, cut
3490	<0.5	Vr	cut, lipto, spo, res
3519	~1	Ra	lipto, cut, spo
3530	<0.5	Tr	lipto
3600	<0.5	Tr	lipto
3652	0.5-1	Vr	lipto, cut
3710	<0.5	Vr	lipto
3750	~0.5	Vr	lipto, cut
3810	0.5-1	Ra	cut, lipto, spo, res
3869	~1	Ra	lipto, cut, res, oil
3911	1 - 2	Ra	lipto, cut, ?lama, res, ?tela, oil
3940	~1	Ra	spo, lipto, cut
4002	1 - 2	Ra	lipto, cut, res, lama
4035	1 - 2	Ra	lipto, cut, lama, res

TABLE 5

EXINITE MACERAL ABUNDANCE AND FLUORESCENCE CHARACTERISTICS, ARCHER -1

Depth (m)	Exinite Macerals	Lithology/Comments
2450	phyto (Ra-Vr; mY-d0), lipto	Shale
2500	lipto (Ra;mY-m0), (Ra-Vr;m0), phyto, (Vr;m0)	Shale
2560	spo (Tr;m0), phyto (Tr;m0), lipto (Tr;m0)	Chiefly shale, 20-30% sandstone
2600	bmite(Ra-Vr;d0), lipto(Vr;m0-dB)	Sandy shale; some exinite is oxidised
2650	bmite(Ra-Vr;d0), phyto(Vr;m0) lipto(Vr;m0-d0)	Sandy siltstone; some exinite as above
2700	lipto (Vr;mY-m0)	Chiefly silty sandstone ~10% shale
2740	bmite(Vr;d0-dB)	Sandstone with minor shale
2790	spo(Ra;mY-m0), lama(Ra;m0) cut (Ra-Vr;m0-d0), res(Ra-Vr; m0-d0), lipto(Vr;mY-m0), tela (Tr;i0)	Chiefly sandstone, 5-10% carbonaceous shale
2850	lipto(Ra;mY-m0), spo(Ra-Vr;m0) cut(Vr;m0), lama(Vr;m0), bmite (Vr;m0-d0)	Chiefly shale, ~10% carbonaceous shale
2900	spo(Ra;mY-m0), cut(Ra;mY-m0), lipto(Ra-Vr;mY-m0), res (Vr;mY-m0), sub(Vr;d0-dB)	Chiefly silty shale, 5-10% coal
2950	cut(Ra;m0), spo(Vr;mY-m0), res (Vr;mY-m0), lama(Vr;m0), lipto (Vr;m0)	Silty shale with minor coal
3000	lipto(Ra;mY-dB),spo(Vr;m0) res(Vr;iY-m0),sub(Vr;d0) cut(Tr;d0-dB),exs(Tr;d0)	Sandy siltstone with minor coal and shale. Exsudatinite is primary oil exsuding from some coal fragments
3040	cut(Ra;iY-d0),lipto(Ra;mY-m0) spo(Vr;m0), res(Vr;mY)	Silty sandstone

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Depth (m)	Exinite Macerals	Lithology/Comments
3100	cut(Ra;mY-m0),lipto(Ra;mY-m0) lama(Tr;m0)	Chiefly sandstone, ~10% shale
3140	cut(Ra;mY-m0),lipto(Ra;m0), lama(Vr;m0)	Chiefly sandstone, ~10% silty shale
3190	cut(Ra;m0),lipto(Ra;m0), spo (Ra-Vr;mY-m0), bmite(Ra-Vr;d0), res(Vr;mY-m0), sub(Tr;d0)	Silty shale
3240	cut(Ra-Vr;m0), lipto(Ra-Vr; mY-m0)	Chiefly sandstone, ~5% shale (?cavings)
3340	lipto(Ra-Vr;mY-m0), cut(Vr;m0)	Chiefly sandstone, ~5% shale
3390	bmite(Vr;d0), lipto(Vr;mY-m0) (Vr;iY-m0)	Chiefly sandstone, <5% siltstone (?cavings)
3440	phyto (Vr;iY-mY),lipto(Vr;m0-d0), cut (Tr; m0-d0)	Silty shale
3490	cut(Vr;mY-m0), lipto(Vr;mY-m0), spo(Tr;m0), res(Tr;iY)	Chiefly sandstone, ~5% siltstone
3519	lipto(Ra;mY-m0), cut(Vr;mY-m0) spo(Tr;m0)	Siltstone
3530	lipto (Tr;m0-d0)	Chiefly sandstone, <5% siltstone (cavings). Organic matter occurs mainly in the caved cuttings
3600	lipto (Tr;m0)	Chiefly sandstone, <5% shale (?cavings)
3652	lipto(Vr;m0), cut(Tr;m0)	Siltstone
3710	lipto(Vr;mY-m0)	Chiefly sandstone, 5-10% siltstone
3750	lipto(Vr;m0), cut(Tr;m0)	Chiefly sandstone, <5% sandstone
3810	cut(Ra;mY-m0), lipto(mY-m0), spo(Vr;m0), res(Vr;mY-m0)	Siltstone
3869	lipto(Ra;m0), cut(Ra;m0), res (Vr;m0-d0), oil(Tr;m0)	Siltstone; oil occurs in the interstices of the quartz grains

Depth (m)	Exinite Macerals	Lithology/Comments
3911	lipto(Ra;m0), cut(Vr;m0), ?lama (Vr;m0), res(Tr;m0), ?tela (Tr;iY), oil(Tr;iYG)	Shale, oil as above
3940	spo(Ra;iY-mY), lipto(Ra; mY-m0), cut(Vr;mY-m0)	Siltstone
4002	lipto(Ra;m0-d0), cut(Tr;m0), res(Tr;mY-m0), lama(Tr;m0)	Silty shale; some exinite is oxidised
4035	lipto(Ra;m0), cut(Ra-Vr;m0-d0) res(mY-m0), lama(Vr;m0)	Siltstone; some exinite as above

TABLE 6

STABLE GAS ISOTOPES

δ^{13} C$^{0}/_{00}$ PDB ARCHER -1

RFS	1131	1118	1114	1120	1123	1129	1286
Methane	-40.6	-40.6	-41.3	-40.8	-41.4	-41.2	-41.0
Ethane	-28.2	-28.1	-27.7	-27.8	-27.7	-27.8	-27.8
Propane	-26.3	-26.2	-25.6	-25.7	-25.6	-25.8	-25.7
n-Butane	-25.9	-25.9	-25.6	-25.6	-25.6	-25.7	-25.8
n-Pentane	-25.5	-25.6	-22.7	-24.1	-23.1	-22.5	-23.0

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TABLE #7

AMDEL CORE SERVICES

Physical Properties — Report # 009/260

Client: PETROFINA EXPLORATION AUSTRALIA

Sample: ARCHER-1
Depth: 3390.2m, RFT: AD-1131
Depth: 3403.5m, RFT: AD-1118

Method		Description		Units	3390.2m	3403.5m
IP2	ASTM D611	Aniline Point		°C		
	ASTM D4176	Appearance, Free Water and Particulate Matter				
IP364	ASTM D976	Calculated Cetane Index				
IP219	ASTM D2500	Cloud Point		C		
IP17		Colour by Lovibond Tintometer				
IP274	ASTM D2624	Conductivity of Fuels		pS		
IP13	ASTM D189	Conradson Carbon Residue		%wt		
IP154	ASTM D130	Copper Corrosion				
IP160	ASTM D1298	Density @ 15°C		gm/ml	0.7906	0.7883
IP21		Diesel Index				
IP123	ASTM D86	Distillation				
			IBP	°C		
			10%	°C		
			20%	°C		
			50%	°C		
			90%	°C		
			FBP	°C		
			Residue	%vol		
			Loss	%vol		
		Evaporated @ 75°C, 105°C, 135°C		%vol		
IP131	ASTM D381	Existent Gum by Evaporation		mg/100ml		
IP170		Flash Point Abel Closed Cup		°C		
IP34	ASTM D93	Flash Point Pensky Martens Closed Cup		°C		
IP156	ASTM D1319	Fluorescent Indicator Absorption Aromatics		%		
IP16	ASTM D2386	Freezing Point of Aviation Fuels		°C		
IP71	ASTM D445	Kinematic Viscosity	@ 40°C	cSt		
IP71	ASTM D445	Kinematic Viscosity	@100°C	cSt		
IP15	ASTM D97	Pour Point		°C	17	14
	ASTM D323	Reid Vapour Pressure		kPa		
IP277		Silver Corrosion				
IP57		Smoke Point		mm		
IP160	ASTM D1298	Specific Gravity @ 60/60°F			0.7907	0.7886
IP354	ASTM D3242	Total Acidity in Aviation Fuel		mgKOH/gm		
IP270		Total Lead in Gasoline by Iodine Monochloride		gm/l		
	ASTM D2270	Viscosity Index				
IP289	ASTM D1094	Water Reaction	Interface Rating			
			Separation			
	ASTM D96	Water and Sediment		%vol		
IP74	ASTM D95	Water in Petroleum Products by Distillation		%vol		
IP160		API Gravity			47.41	47.93

Approved Signatory: Brian Watson

Date 27-Jul-89

TABLE #8

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AMDEL CORE SERVICES

Physical Properties — Report # 009/260

Client: PETROFINA EXPLORATION AUSTRALIA

Sample: ARCHER-1
Depth: 3489.0m, RFT: 128
Depth: 3514.2m, RFT: 1129

Method		Description		Units	3489.0m	3514.2m
IP2	ASTM D611	Aniline Point		°C		
	ASTM D4176	Appearance, Free Water and Particulate Matter				
IP364	ASTM D976	Calculated Cetane Index				
IP219	ASTM D2500	Cloud Point		C		
IP17		Colour by Lovibond Tintometer				
IP274	ASTM D2624	Conductivity of Fuels		pS		
IP13	ASTM D189	Conradson Carbon Residue		%wt		
IP154	ASTM D130	Copper Corrosion				
IP160	ASTM D1298	Density @ 15°C		gm/ml	0.7927	0.8017
IP21		Diesel Index				
IP123	ASTM D86	Distillation				
			IBP	°C		
			10%	°C		
			20%	°C		
			50%	°C		
			90%	°C		
			FBP	°C		
			Residue	%vol		
			Loss	%vol		
		Evaporated @ 75°C, 105°C, 135°C		%vol		
IP131	ASTM D381	Existent Gum by Evaporation		mg/100ml		
IP170		Flash Point Abel Closed Cup		°C		
IP34	ASTM D93	Flash Point Pensky Martens Closed Cup		°C		
IP156	ASTM D1319	Fluorescent Indicator Adsorption Aromatics		%		
IP16	ASTM D2386	Freezing Point of Aviation Fuels		°C		
IP71	ASTM D445	Kinematic Viscosity	@ 40°C	cSt		
IP71	ASTM D445	Kinematic Viscosity	@100°C	cSt		
IP15	ASTM D97	Pour Point		°C	14	14
	ASTM D323	Reid Vapour Pressure		kPa		
IP277		Silver Corrosion				
IP57		Smoke Point		mm		
IP160	ASTM D1298	Specific Gravity @ 60/60°F			0.7930	0.8021
IP354	ASTM D3242	Total Acidity in Aviation Fuel		mgKOH/gm		
IP270		Total Lead in Gasoline by Iodine Monochloride		gm/l		
	ASTM D2270	Viscosity Index				
IP299	ASTM D1094	Water Reaction	Interface Rating			
			Separation			
	ASTM D96	Water and Sediment		%vol		
IP74	ASTM D95	Water in Petroleum Products by Distillation		%vol		
IP160		API Gravity			46.94	44.91

Approved Signatory: Brian Watson

Date 23-Jul-90

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TABLE #9

AMDEL CORE SERVICES

Physical Properties — Report # 009/260

Client: PETROFINA EXPLORATION AUSTRALIA

Sample: ARCHER-1
Depth: 3591.5m, RFT: 1120
Depth: 3681.0m, RFT: 1123

Method		Description		Units	3591.5m	3681.0m
IP2	ASTM D611	Aniline Point		°C		
	ASTM D4176	Appearance, Free Water and Particulate Matter				
IP364	ASTM D976	Calculated Cetane Index				
IP219	ASTM D2500	Cloud Point		°C		
IP17		Colour by Lovibond Tintometer				
IP274	ASTM D2624	Conductivity of Fuels		pS		
IP13	ASTM D189	Conradson Carbon Residue		%wt		
IP154	ASTM D130	Copper Corrosion				
IP160	ASTM D1298	Density @ 15°C		gm/ml	0.8059	0.8196
IP21		Diesel Index				
IP123	ASTM D86	Distillation				
			IBP	°C		
			10%	°C		
			20%	°C		
			50%	°C		
			90%	°C		
			FBP	°C		
			Residue	%vol		
			Loss	%vol		
		Evaporated @ 75°C, 105°C, 135°C		%vol		
IP131	ASTM D381	Existent Gum by Evaporation		mg/100ml		
IP170		Flash Point Abel Closed Cup		°C		
IP34	ASTM D93	Flash Point Pensky Martens Closed Cup		°C		
IP156	ASTM D1319	Fluorescent Indicator Absorption Aromatics		%		
IP16	ASTM D2386	Freezing Point of Aviation Fuels		°C		
IP71	ASTM D445	Kinematic Viscosity	@ 40°C	cSt		
IP71	ASTM D445	Kinematic Viscosity	@100°C	cSt		
IP15	ASTM D97	Pour Point		°C	14	14
	ASTM D323	Reid Vapour Pressure		kPa		
IP277		Silver Corrosion				
IP57		Smoke Point		mm		
IP160	ASTM D1298	Specific Gravity @ 60/60°F			0.8063	0.8200
IP354	ASTM D3242	Total Acidity in Aviation Fuel		mgKOH/gm		
IP270		Total Lead in Gasoline by Iodine Monochloride		gm/l		
	ASTM D2270	Viscosity Index				
IP289	ASTM D1094	Water Reaction	Interface Rating			
			Separation			
	ASTM D96	Water and Sediment		%vol		
IP74	ASTM D95	Water in Petroleum Products by Distillation		%vol		
IP160		API Gravity			43.99	41.06

Approved Signatory: Brian Watts

Date 23-Jul-91

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TABLE #10

AMDEL CORE SERVICES

Physical Properties — Report # 009/260

Client: PETROFINA EXPLORATION AUSTRALIA

Sample: ARCHER-1
Depth: 3947.5m, RFT: 1114

Method		Description		Units	3947.5m
IP2	ASTM D611	Aniline Point		°C	
	ASTM D4176	Appearance, Free Water and Particulate Matter			
IP364	ASTM D976	Calculated Cetane Index			
IP219	ASTM D2500	Cloud Point		°C	
IP17		Colour by Lovibond Tintometer			
IP274	ASTM D2624	Conductivity of Fuels		pS	
IP13	ASTM D189	Conradson Carbon Residue		%wt	
IP154	ASTM D130	Copper Corrosion			
IP160	ASTM D1298	Density @ 15°C		gm/ml	0.8597
IP21		Diesel Index			
IP123	ASTM D86	Distillation			
			IBP	°C	
			10%	°C	
			20%	°C	
			50%	°C	
			90%	°C	
			FBP	°C	
			Residue	%vol	
			Loss	%vol	
		Evaporated @ 75°C, 105°C, 135°C		%vol	
IP131	ASTM D381	Existent Gum by Evaporation		mg/100ml	
IP170		Flash Point Abel Closed Cup		°C	
IP34	ASTM D93	Flash Point Pensky Martens Closed Cup		°C	
IP156	ASTM D1319	Fluorescent Indicator Absorption Aromatics		%	
IP16	ASTM D2386	Freezing Point of Aviation Fuels		°C	
IP71	ASTM D445	Kinematic Viscosity	@ 40°C	cSt	
IP71	ASTM D445	Kinematic Viscosity	@100°C	cSt	
IP15	ASTM D97	Pour Point		°C	21
	ASTM D323	Reid Vapour Pressure		kPa	
IP277		Silver Corrosion			
IP57		Smoke Point		mm	
IP160	ASTM D1298	Specific Gravity @ 60/60°F			0.8601
IP354	ASTM D3242	Total Acidity in Aviation Fuel		mgKOH/gm	
IP270		Total Lead in Gasoline by Iodine Monochloride		gm/l	
	ASTM D2270	Viscosity Index			
IP289	ASTM D1094	Water Reaction	Interface Rating		
			Separation		
	ASTM D96	Water and Sediment		%vol	
IP74	ASTM D95	Water in Petroleum Products by Distillation		%vol	
IP160		API Gravity			33.02

Approved Signatory: Brian Watson

Date 27-Jul-90

TABLE 11

SULPHUR CONTENT OF CONDENSATES

Depth (m)	Sulphur (%)
3390.2	0.03
3403.5	0.04
3489.0	0.04
3514.2	0.04
3591.5	0.04
3681.0	0.05
3947.5	0.05

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TABLE #12

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3390.2M
RFT: AD-1131

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.03	0.13
-42.1	PROPANE	0.54	1.57
-11.7	I-BUTANE	0.52	1.15
-0.5	N-BUTANE	1.72	3.79
27.9	I-PENTANE	2.02	3.59
36.1	N-PENTANE	2.59	4.60
36.1-68.9	C-6	6.51	9.68
80.0	BENZENE	0.02	0.03
68.9-98.3	C-7	11.77	15.05
100.9	METHYLCYCHX	5.19	6.77
110.6	TOLUENE	0.16	0.22
98.3-125.6	C-8	10.23	11.47
136.1-144.4	ETHYLBZ+XYL	2.86	3.45
125.6-150.6	C-9	7.39	7.35
150.6-173.9	C-10	8.07	7.27
173.9-196.1	C-11	5.55	4.55
196.1-215.0	C-12	4.33	3.26
215.0-235.0	C-13	4.31	3.00
235.0-252.2	C-14	3.68	2.38
252.2-270.6	C-15	3.65	2.20
270.6-287.8	C-16	2.85	1.61
287.8-302.8	C-17	2.02	1.08
302.8-317.2	C-18	2.22	1.12
317.2-330.0	C-19	1.52	0.73
330.0-344.4	C-20	1.36	0.62
344.4-357.2	C-21	1.28	0.55
357.2-369.4	C-22	1.24	0.51
369.4-380.0	C-23	1.06	0.42
380.0-391.1	C-24	0.98	0.37
391.1-401.7	C-25	0.96	0.35
401.7-412.2	C-26	0.80	0.28
412.2-422.2	C-27	0.76	0.26
>422.2	C-28+	1.81	0.59
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 165 g/mol

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

Approved Signatory R Hamlet

Date 23-Jul-90

TABLE #13

National Association of Testing Authorities, Australia

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AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3403.5m
RFT: AD-1118

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.03	0.13
-42.1	PROPANE	0.52	1.50
-11.7	I-BUTANE	0.54	1.18
-0.5	N-BUTANE	1.85	4.04
27.9	I-PENTANE	2.28	4.01
36.1	N-PENTANE	2.37	4.17
36.1-68.9	C-6	6.82	10.05
80.0	BENZENE	0.01	0.02
68.9-98.3	C-7	12.13	15.38
100.9	METHYLCYCHX	5.78	7.48
110.6	TOLUENE	0.17	0.23
98.3-125.6	C-8	10.38	11.54
136.1-144.4	ETHYLBZ+XYL	3.27	3.91
125.6-150.6	C-9	6.90	6.83
150.6-173.9	C-10	7.87	7.03
173.9-196.1	C-11	5.15	4.19
196.1-215.0	C-12	3.95	2.95
215.0-235.0	C-13	3.94	2.71
235.0-252.2	C-14	3.43	2.20
252.2-270.6	C-15	3.32	1.99
270.6-287.8	C-16	2.78	1.56
287.8-302.8	C-17	1.78	0.94
302.8-317.2	C-18	2.03	1.01
317.2-330.0	C-19	1.72	0.81
330.0-344.4	C-20	1.32	0.59
344.4-357.2	C-21	1.21	0.52
357.2-369.4	C-22	1.18	0.48
369.4-380.0	C-23	1.05	0.41
380.0-391.1	C-24	1.06	0.40
391.1-401.7	C-25	1.10	0.40
401.7-412.2	C-26	0.95	0.33
412.2-422.2	C-27	0.91	0.30
>422.2	C-28+	2.20	0.71
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 165 g/mol

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

Approved Signatory B Tamke.

Date 23-Jul-90

National Association of Testing Authorities, Australia

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TABLE #14

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3489.0m
RFT: 1286

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.21	0.88
-42.1	PROPANE	0.38	1.09
-11.7	I-BUTANE	1.22	2.65
-0.5	N-BUTANE	1.90	4.12
27.9	I-PENTANE	2.31	4.04
36.1	N-PENTANE	3.16	5.52
36.1-68.9	C-6	3.52	5.15
80.0	BENZENE	0.06	0.10
68.9-98.3	C-7	12.97	16.33
100.9	METHYLCYCHX	6.33	8.13
110.6	TOLUENE	0.15	0.21
98.3-125.6	C-8	9.66	10.67
136.1-144.4	ETHYLBZ+XYL	4.16	4.94
125.6-150.6	C-9	6.02	5.91
150.6-173.9	C-10	7.82	6.93
173.9-196.1	C-11	5.08	4.10
196.1-215.0	C-12	4.21	3.12
215.0-235.0	C-13	4.19	2.87
235.0-252.2	C-14	3.35	2.13
252.2-270.6	C-15	3.98	2.36
270.6-287.8	C-16	2.96	1.65
287.8-302.8	C-17	2.24	1.18
302.8-317.2	C-18	2.43	1.20
317.2-330.0	C-19	2.30	1.08
330.0-344.4	C-20	1.49	0.67
344.4-357.2	C-21	1.61	0.68
357.2-369.4	C-22	1.44	0.58
369.4-380.0	C-23	1.11	0.43
380.0-391.1	C-24	0.88	0.33
391.1-401.7	C-25	0.74	0.26
401.7-412.2	C-26	0.01	0.00
412.2-422.2	C-27	0.56	0.19
>422.2	C-28+	1.55	0.50
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 165 g/mol

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

Approved Signatory R Lamble.

Date 23-Jul-90

National Association of Testing Authorities, Australia

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TABLE #15

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3514.2m
RFT: 1129

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.15	0.64
-42.1	PROPANE	0.22	0.64
-11.7	I-BUTANE	0.88	1.95
-0.5	N-BUTANE	1.38	3.06
27.9	I-PENTANE	1.63	2.91
36.1	N-PENTANE	2.15	3.83
36.1-68.9	C-6	5.34	7.97
80.0	BENZENE	0.01	0.02
68.9-98.3	C-7	9.97	12.80
100.9	METHYLCYCHX	6.69	8.77
110.6	TOLUENE	0.18	0.25
98.3-125.6	C-8	12.88	14.51
136.1-144.4	ETHYLBZ+XYL	5.42	6.57
125.6-150.6	C-9	4.14	4.16
150.6-173.9	C-10	8.66	7.83
173.9-196.1	C-11	5.44	4.48
196.1-215.0	C-12	4.51	3.41
215.0-235.0	C-13	4.38	3.06
235.0-252.2	C-14	3.43	2.22
252.2-270.6	C-15	3.93	2.38
270.6-287.8	C-16	3.14	1.78
287.8-302.8	C-17	2.15	1.15
302.8-317.2	C-18	2.20	1.11
317.2-330.0	C-19	2.02	0.97
330.0-344.4	C-20	1.25	0.57
344.4-357.2	C-21	1.39	0.60
357.2-369.4	C-22	0.95	0.39
369.4-380.0	C-23	1.08	0.43
380.0-391.1	C-24	0.71	0.27
391.1-401.7	C-25	0.70	0.26
401.7-412.2	C-26	0.64	0.22
412.2-422.2	C-27	0.58	0.20
>422.2	C-28+	1.80	0.59
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 160 g/mol

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

Approved Signatory R Tamke.

Date 23-Jul-90

National Association of Testing Authorities, Australia

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TABLE #16

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3591.5m
RFT: 1120

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.00	0.00
-42.1	PROPANE	0.06	0.18
-11.7	I-BUTANE	0.38	0.87
-0.5	N-BUTANE	1.12	2.57
27.9	I-PENTANE	1.40	2.59
36.1	N-PENTANE	2.01	3.72
36.1-68.9	C-6	4.74	7.34
80.0	BENZENE	0.07	0.12
68.9-98.3	C-7	9.38	12.50
100.9	METHYLCYCHX	6.34	8.62
110.6	TOLUENE	0.16	0.23
98.3-125.6	C-8	10.84	12.67
136.1-144.4	ETHYLBZ+XYL	5.51	6.93
125.6-150.6	C-9	6.28	6.53
150.6-173.9	C-10	8.89	8.34
173.9-196.1	C-11	5.93	5.06
196.1-215.0	C-12	5.02	3.93
215.0-235.0	C-13	4.87	3.53
235.0-252.2	C-14	3.70	2.49
252.2-270.6	C-15	4.22	2.65
270.6-287.8	C-16	3.26	1.92
287.8-302.8	C-17	2.26	1.25
302.8-317.2	C-18	2.32	1.22
317.2-330.0	C-19	2.11	1.05
330.0-344.4	C-20	1.33	0.63
344.4-357.2	C-21	1.35	0.61
357.2-369.4	C-22	1.13	0.49
369.4-380.0	C-23	0.88	0.36
380.0-391.1	C-24	0.73	0.29
391.1-401.7	C-25	0.77	0.29
401.7-412.2	C-26	0.63	0.23
412.2-422.2	C-27	0.59	0.21
>422.2	C-28+	1.72	0.58
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 162 g/mol

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

Approved Signatory R Lamb.

Date 23-Jul-90

National Association of Testing Authorities, Australia

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TABLE #17

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3681.0m
RFT: 1123

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.00	0.00
-42.1	PROPANE	0.03	0.10
-11.7	I-BUTANE	0.05	0.12
-0.5	N-BUTANE	0.20	0.48
27.9	I-PENTANE	0.38	0.74
36.1	N-PENTANE	0.59	1.15
36.1-68.9	C-6	2.66	4.35
80.0	BENZENE	0.01	0.02
68.9-98.3	C-7	8.68	12.21
100.9	METHYLCYCHX	5.70	8.18
110.6	TOLUENE	0.15	0.23
98.3-125.6	C-8	11.77	14.52
136.1-144.4	ETHYLBZ+XYL	7.14	9.48
125.6-150.6	C-9	6.80	7.47
150.6-173.9	C-10	10.39	10.29
173.9-196.1	C-11	6.61	5.96
196.1-215.0	C-12	5.64	4.67
215.0-235.0	C-13	5.47	4.18
235.0-252.2	C-14	4.13	2.93
252.2-270.6	C-15	4.74	3.14
270.6-287.8	C-16	3.51	2.18
287.8-302.8	C-17	2.55	1.49
302.8-317.2	C-18	2.54	1.41
317.2-330.0	C-19	2.06	1.08
330.0-344.4	C-20	1.79	0.89
344.4-357.2	C-21	1.63	0.77
357.2-369.4	C-22	1.03	0.47
369.4-380.0	C-23	1.15	0.50
380.0-391.1	C-24	0.70	0.29
391.1-401.7	C-25	0.50	0.20
401.7-412.2	C-26	0.35	0.13
412.2-422.2	C-27	0.31	0.11
>422.2	C-28+	0.74	0.26
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 158 g/mol

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

Approved Signatory R Clarke.

Date 23-Jul-90

National Association of Testing Authorities, Australia

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TABLE #18

AMDEL CORE SERVICES

AMDEL CORE SERVICES LIQUID ANALYSIS Method GL-02-01

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER-1
Depth: 3947.5m
RFT: 1114

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.00	0.00
-42.1	PROPANE	0.01	0.05
-11.7	I-BUTANE	0.01	0.04
-0.5	N-BUTANE	0.04	0.14
27.9	I-PENTANE	0.07	0.20
36.1	N-PENTANE	0.11	0.32
36.1-68.9	C-6	0.46	1.11
80.0	BENZENE	0.01	0.03
68.9-98.3	C-7	1.46	3.03
100.9	METHYLCYCHX	0.94	1.99
110.6	TOLUENE	0.04	0.09
98.3-125.6	C-8	2.05	3.73
136.1-144.4	ETHYLBZ+XYL	1.03	2.01
125.6-150.6	C-9	1.50	2.41
150.6-173.9	C-10	2.10	3.06
173.9-196.1	C-11	4.39	5.83
196.1-215.0	C-12	9.13	11.13
215.0-235.0	C-13	10.54	11.87
235.0-252.2	C-14	8.52	8.92
252.2-270.6	C-15	9.44	9.23
270.6-287.8	C-16	7.22	6.62
287.8-302.8	C-17	5.10	4.40
302.8-317.2	C-18	5.21	4.25
317.2-330.0	C-19	4.19	3.24
330.0-344.4	C-20	3.57	2.62
344.4-357.2	C-21	3.29	2.30
357.2-369.4	C-22	2.33	1.56
369.4-380.0	C-23	2.59	1.66
380.0-391.1	C-24	2.24	1.37
391.1-401.7	C-25	2.22	1.31
401.7-412.2	C-26	2.11	1.19
412.2-422.2	C-27	2.05	1.12
>422.2	C-28+	6.03	3.17
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

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

Average molecular weight of C-8 plus 216 g/mol

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

Approved Signatory R Tamke.

Date 23-Jul-90

TABLE #19

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3390.2m

COMPOUND	NORMAL %	BRANCHED %	CYCLIC %	AROMATIC %
2-METHYLBUTANE		9.39		
N-PENTANE	1.04			
2,2-DIMETHYLBUTANE		0.37		
CYCLOPENTANE			0.76	
2,3-DIMETHYLBUTANE		0.93		
2-METHYLPENTANE		6.34		
3-METHYLPENTANE		3.58		
N-HEXANE	10.31			
2,2-DIMETHYLPENTANE		0.28		
METHYLCYCLOPENTANE			5.92	
2,4-DIMETHYLPENTANE		0.46		
2,2,3-TRIMETHYLBUTANE		0.15		
BENZENE				0.41
3,3-DIMETHYLPENTANE		0.14		
CYCLOHEXANE			8.91	
2-METHYLHEXANE		3.26		
2,3-DIMETHYLPENTANE		0.77		
1,1-DIMETHYLCYCLOPENTANE			0.59	
3-METHYLHEXANE		3.17		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.20	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.11	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			2.08	
N-HEPTANE	9.34			
METHYLCYCLOHEXANE			23.31	
ETHYLCYCLOPENTANE			1.27	
TOLUENE				4.90
TOTAL PERCENTAGES	20.69	28.84	45.16	5.31

TABLE #20

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3403.5m

COMPOUND	NORMAL %	BRANCHED %	CYCLIC %	AROMATIC %
2-METHYLBUTANE		8.29		
N-PENTANE	9.36			
2,2-DIMETHYLBUTANE		0.34		
CYCLOPENTANE			0.81	
2,3-DIMETHYLBUTANE		0.79		
2-METHYLPENTANE		5.66		
3-METHYLPENTANE		3.24		
N-HEXANE	9.01			
2,2-DIMETHYLPENTANE		0.24		
METHYLCYCLOPENTANE			5.71	
2,4-DIMETHYLPENTANE		0.39		
2,2,3-TRIMETHYLBUTANE		0.07		
BENZENE				0.48
3,3-DIMETHYLPENTANE		0.12		
CYCLOHEXANE			8.73	
2-METHYLHEXANE		2.77		
2,3-DIMETHYLPENTANE		0.66		
1,1-DIMETHYLCYCLOPENTANE			0.55	
3-METHYLHEXANE		2.72		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.09	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.01	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			1.88	
N-HEPTANE	7.68			
METHYLCYCLOHEXANE			21.41	
ETHYLCYCLOPENTANE			1.30	
TOLUENE				5.70
TOTAL PERCENTAGES	26.05	25.30	42.47	6.18

TABLE #21

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3489.0m

COMPOUND	NORMAL %	BRANCHED %	CYCLIC %	AROMATIC %
2-METHYLBUTANE		8.45		
N-PENTANE	10.10			
2,2-DIMETHYLBUTANE		0.33		
CYCLOPENTANE			0.84	
2,3-DIMETHYLBUTANE		0.82		
2-METHYLPENTANE		5.78		
3-METHYLPENTANE		0.33		
N-HEXANE	9.48			
2,2-DIMETHYLPENTANE		0.24		
METHYLCYCLOPENTANE			5.99	
2,4-DIMETHYLPENTANE		0.38		
2,2,3-TRIMETHYLBUTANE		0.06		
BENZENE				0.67
3,3-DIMETHYLPENTANE		0.12		
CYCLOHEXANE			9.18	
2-METHYLHEXANE		2.76		
2,3-DIMETHYLPENTANE		0.68		
1,1-DIMETHYLCYCLOPENTANE			0.55	
3-METHYLHEXANE		2.74		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.10	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.02	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			1.89	
N-HEPTANE	7.71			
METHYLCYCLOHEXANE			21.51	
ETHYLCYCLOPENTANE			0.52	
TOLUENE				6.73
TOTAL PERCENTAGES	27.30	22.69	42.61	7.41

TABLE #22

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3514.2m

COMPOUND	NORMAL	BRANCHED	CYCLIC	AROMATIC
	%	%	%	%
2-METHYLBUTANE		6.53		
N-PENTANE	8.33			
2,2-DIMETHYLBUTANE		0.31		
CYCLOPENTANE			0.79	
2,3-DIMETHYLBUTANE		0.81		
2-METHYLPENTANE		5.66		
3-METHYLPENTANE		3.36		
N-HEXANE	1.00			
2,2-DIMETHYLPENTANE		0.27		
METHYLCYCLOPENTANE			6.82	
2,4-DIMETHYLPENTANE		0.43		
2,2,3-TRIMETHYLBUTANE		0.08		
BENZENE				1.38
3,3-DIMETHYLPENTANE		0.14		
CYCLOHEXANE			1.09	
2-METHYLHEXANE		3.24		
2,3-DIMETHYLPENTANE		0.78		
1,1-DIMETHYLCYCLOPENTANE			0.66	
3-METHYLHEXANE		3.23		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.30	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.22	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			2.27	
N-HEPTANE	9.25			
METHYLCYCLOHEXANE			27.29	
ETHYLCYCLOPENTANE			1.68	
TOLUENE				12.11
TOTAL PERCENTAGES	18.57	24.82	43.12	13.48

TABLE #23

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3591.5m

COMPOUND	NORMAL %	BRANCHED %	CYCLIC %	AROMATIC %
2-METHYLBUTANE		5.33		
N-PENTANE	6.99			
2,2-DIMETHYLBUTANE		0.27		
CYCLOPENTANE			0.71	
2,3-DIMETHYLBUTANE		0.66		
2-METHYLPENTANE		4.75		
3-METHYLPENTANE		2.83		
N-HEXANE	8.15			
2,2-DIMETHYLPENTANE		0.25		
METHYLCYCLOPENTANE			5.74	
2,4-DIMETHYLPENTANE		0.37		
2,2,3-TRIMETHYLBUTANE		0.20		
BENZENE				1.30
3,3-DIMETHYLPENTANE		0.12		
CYCLOHEXANE			9.27	
2-METHYLHEXANE		2.70		
2,3-DIMETHYLPENTANE		0.66		
1,1-DIMETHYLCYCLOPENTANE			0.57	
3-METHYLHEXANE		2.69		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.11	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.04	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			1.93	
N-HEPTANE	7.68			
METHYLCYCLOHEXANE			22.90	
ETHYLCYCLOPENTANE			0.55	
TOLUENE				11.25
TOTAL PERCENTAGES	22.82	20.82	43.81	12.55

TABLE #24

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3681.0m

COMPOUND	NORMAL	BRANCHED	CYCLIC	AROMATIC
	%	%	%	%
2-METHYLBUTANE		2.02		
N-PENTANE	2.78			
2,2-DIMETHYLBUTANE		0.13		
CYCLOPENTANE			0.47	
2,3-DIMETHYLBUTANE		0.40		
2-METHYLPENTANE		2.82		
3-METHYLPENTANE		1.84		
N-HEXANE	5.94			
2,2-DIMETHYLPENTANE		0.20		
METHYLCYCLOPENTANE			4.67	
2,4-DIMETHYLPENTANE		0.31		
2,2,3-TRIMETHYLBUTANE		0.06		
BENZENE				2.09
3,3-DIMETHYLPENTANE		0.12		
CYCLOHEXANE			8.88	
2-METHYLHEXANE		2.76		
2,3-DIMETHYLPENTANE		0.67		
1,1-DIMETHYLCYCLOPENTANE			0.58	
3-METHYLHEXANE		2.84		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.17	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.10	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			2.04	
N-HEPTANE	8.89			
METHYLCYCLOHEXANE			27.08	
ETHYLCYCLOPENTANE			0.65	
TOLUENE				19.48
TOTAL PERCENTAGES	17.61	14.19	46.63	21.57

TABLE #25

AMDEL CORE SERVICES
GASOLINE-RANGE ANALYSIS

ARCHER-1
3947.5

COMPOUND	NORMAL %	BRANCHED %	CYCLIC %	AROMATIC %
2-METHYLBUTANE		1.96		
N-PENTANE	2.70			
2,2-DIMETHYLBUTANE		0.14		
CYCLOPENTANE			0.36	
2,3-DIMETHYLBUTANE		0.40		
2-METHYLPENTANE		2.78		
3-METHYLPENTANE		1.80		
N-HEXANE	5.85			
2,2-DIMETHYLPENTANE		0.19		
METHYLCYCLOPENTANE			4.56	
2,4-DIMETHYLPENTANE		0.32		
2,2,3-TRIMETHYLBUTANE		0.06		
BENZENE				2.13
3,3-DIMETHYLPENTANE		0.12		
CYCLOHEXANE			8.57	
2-METHYLHEXANE		2.74		
2,3-DIMETHYLPENTANE		0.66		
1,1-DIMETHYLCYCLOPENTANE			0.56	
3-METHYLHEXANE		2.85		
TRANS-1,3-DIMETHYLCYCLOPENTANE			1.15	
CIS-1,3-DIMETHYLCYCLOPENTANE			1.09	
3-ETHYLPENTANE		0.00		
TRANS-1,2-DIMETHYLCYCLOPENTANE			2.04	
N-HEPTANE	8.92			
METHYLCYCLOHEXANE			27.32	
ETHYLCYCLOPENTANE			0.65	
TOLUENE				20.09
TOTAL PERCENTAGES	17.47	14.02	46.29	22.22

TABLE #26

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3390.2m

PARAMETER	
1	1.74
2	0.40
3	8.68
4	21.59
5	4.76
6	9.07
7	0.35
8	1.46
9	17.38

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #27

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3403.5m

PARAMETER	
1	1.58
2	0.36
3	6.83
4	18.38
5	3.76
6	0.89
7	0.36
8	1.38
9	15.84

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #28

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3489.0m

PARAMETER	
1	1.58
2	0.36
3	0.49
4	13.69
5	3.19
6	0.84
7	0.03
8	1.37
9	15.69

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #29

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3514.2m

PARAMETER	
1	0.15
2	0.34
3	2.44
4	0.80
5	2.25
6	0.78
7	3.37
8	1.35
9	18.37

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #30

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3591.5m

PARAMETER	
1	1.42
2	0.34
3	2.18
4	7.13
5	2.04
6	0.76
7	0.35
8	1.32
9	15.20

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #31

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3681.0m

PARAMETER	
1	1.27
2	0.33
3	0.88
4	4.26
5	1.39
6	0.73
7	0.31
8	1.30
9	15.87

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #32

AMDEL CORE SERVICES
GASOLINE-RANGE PARAMETERS

ARCHER-1
3947.5

PARAMETER	
1	1.28
2	0.33
3	0.84
4	4.02
5	1.36
6	0.73
7	0.31
8	1.31
9	15.96

KEY TO PARAMETERS

Parameter	Derivation
1	n-hexane/methylcyclopentane
2	n-heptane/methylcyclohexane
3	3-methylpentane/benzene
4	cyclohexane/benzene
5	methylcyclohexane/toluene
6	isopentane/normal pentane
7	3-methylpentane/n-hexane
8	isoheptane value *
9	heptane value *

(* from Thompson, 1983)

TABLE #33

National Association of Testing Authorities, Australia

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AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/360

Sample: ARCHER 1
Pressure: 50 psi, Temp:25 deg C
RFS-AD-1118, Bottle #L-115
Date: 27/3/90, Cylinder: Amdel #151

GAS	MOL %
Nitrogen	0.46
Carbon Dioxide	0.07
Methane	56.86
Ethane	15.18
Propane	15.31
I-Butane	2.71
N-Butane	6.23
I-Pentane	1.35
N-Pentane	1.09
Hexanes	1.07
Heptanes	0.43
Octanes and higher h'c	0.24
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.992

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1678 BTU/CU Ft	62.49 MJ/CU.M
Nett:	1532 BTU/CU Ft	57.08 MJ/CU.M
Gross calorific value of water-saturated gas		61.41 MJ/CU.M

Average Molecular Weight = 28.600

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory RTample.

Date 30-Mar-90

NATA CERTIFICATE: This laboratory is registered by NATA. The tests have been performed in accordance with its terms of registration.

National Association of Testing Authorities, Australia

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AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA EXPLORATION AUSTRALIA Report # 009/260

Sample: ARCHER 1
Pressure: 50 psi, Temp:25 deg C
RFS-AD-1131, Bottle #L-113
Date: 27/3/90, Cylinder: Amdel #114

GAS	MOL %
Nitrogen	0.36
Carbon Dioxide	0.08
Methane	51.76
Ethane	16.68
Propane	17.23
I-Butane	3.17
N-Butane	5.79
I-Pentane	1.58
N-Pentane	1.29
Hexanes	1.26
Heptanes	0.57
Octanes and higher h'c	0.24
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 1.050

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1768 BTU/CU Ft	65.87 MJ/CU.M
Nett:	1617 BTU/CU Ft	60.23 MJ/CU.M

Gross calorific value of water-saturated gas 64.73 MJ/CU.M
Average Molecular Weight = 30.359

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory R Tamke.

Date 30-Mar-90

NATA CERTIFICATE: This laboratory is registered by NATA. The tests have been performed in accordance with its terms of registration.

TABLE #34

AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA AUSTRALIA — Report # 009/260

Sample: ARCHER 1
RFS-AD-1114
Sample 1.

GAS	MOL %
Nitrogen	1.45
Carbon Dioxide	2.25
Methane	75.45
Ethane	10.65
Propane	5.45
I-Butane	0.93
N-Butane	1.80
I-Pentane	0.58
N-Pentane	0.52
Hexanes	0.63
Heptanes	0.22
Octanes and higher h'c	0.07
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.773

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1270 BTU/CU Ft	47.30 MJ/CU.M
Nett:	1153 BTU/CU Ft	42.94 MJ/CU.M

Gross calorific value of water-saturated gas 46.47 MJ/CU.M
Average Molecular Weight = 22.330

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory R Tamblin.

Date 14-May-90

National Association of Testing Authorities, Australia

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TABLE #35

AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA AUSTRALIA — Report # 009/260

Sample: ARCHER 1
RFS-AD-1120
Sample 1, Bottle L-108

GAS	MOL %
Nitrogen	1.13
Carbon Dioxide	0.71
Methane	63.25
Ethane	18.56
Propane	8.11
I-Butane	1.76
N-Butane	3.29
I-Pentane	0.95
N-Pentane	0.81
Hexanes	0.91
Heptanes	0.36
Octanes and higher h'c	0.16
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.882

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1482 BTU/CU Ft	55.21 MJ/CU.M
Nett:	1351 BTU/CU Ft	50.31 MJ/CU.M

Gross calorific value of water-saturated gas 54.26 MJ/CU.M
Average Molecular Weight = 25.462

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory P L Tamke

Date 14-May-90

National Association of Testing Authorities, Australia

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TABLE #36

AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA AUSTRALIA — Report # 009/260

Sample: ARCHER 1
RFS-AD-1123
Sample 1, Bottle L-092

GAS	MOL %
Nitrogen	0.59
Carbon Dioxide	1.19
Methane	74.91
Ethane	11.59
Propane	6.24
I-Butane	1.01
N-Butane	1.90
I-Pentane	0.60
N-Pentane	0.53
Hexanes	0.80
Heptanes	0.42
Octanes and higher h'c	0.22
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.789

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1336 BTU/CU Ft	49.78 MJ/CU.M
Nett:	1214 BTU/CU Ft	45.24 MJ/CU.M

Gross calorific value of water-saturated gas 48.91 MJ/CU.M
Average Molecular Weight = 22.810

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory R Tamke.

Date 14-May-90

National Association of Testing Authorities, Australia

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TABLE #37

AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA AUSTRALIA — Report # 009/260

Sample: ARCHER 1
RFS-AD-1129
Sample 1, Bottle L-112

GAS	MOL %
Nitrogen	0.73
Carbon Dioxide	0.52
Methane	58.58
Ethane	16.36
Propane	12.07
I-Butane	2.33
N-Butane	4.55
I-Pentane	1.52
N-Pentane	1.34
Hexanes	1.44
Heptanes	0.45
Octanes and higher h'c	0.11
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.969

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1627 BTU/CU Ft	60.61 MJ/CU.M
Nett:	1485 BTU/CU Ft	55.33 MJ/CU.M

Gross calorific value of water-saturated gas 59.56 MJ/CU.M
Average Molecular Weight = 27.953

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory R Tamble.

Date 14-May-90

National Association of Testing Authorities, Australia

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TABLE #38

AMDEL CORE SERVICES

AMDEL CORE SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: PETROFINA AUSTRALIA — Report # 009/260

Sample: ARCHER 1
RFS-AD-1286
Sample 1, Bottle L-118

GAS	MOL %
Nitrogen	1.07
Carbon Dioxide	0.79
Methane	47.50
Ethane	18.99
Propane	17.46
I-Butane	3.44
N-Butane	6.00
I-Pentane	1.61
N-Pentane	1.32
Hexanes	1.29
Heptanes	0.41
Octanes and higher h'c	0.12
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 1.073

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1775 BTU/CU Ft	66.12 MJ/CU.M
Nett:	1624 BTU/CU Ft	60.49 MJ/CU.M

Gross calorific value of water-saturated gas 64.98 MJ/CU.M
Average Molecular Weight = 30.937

All results are calculated on the basis that only the measured constituents are present. This report relates specifically to the sample tested; it also relates to the entire batch insofar as the sample is truly representative of the batch.

Approved Signatory R Tamble.

Date 14-May-90

National Association of Testing Authorities, Australia

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TABLE 39

C_{12+} BULK COMPOSITION AND ALKANE RATIOS OF OILS, ANGLER -1

Sample/Test	C_{12+} Composition				Alkane Ratios					
	N+ iso para %	Naph %	Arom %	Res+Asph %	n-C_{10} a	n-C_{15} b	Np/Pr	Pr/Ph	Pr/n-C_{17}	Ph/n-C_{18}
Archer -1										
3390.2	42.57	21.44	10.87	25.12	5.0	0.46	0.43	3.51	0.77	0.22
3403.5	41.27	22.64	14.96	20.95	5.3	0.47	0.43	3.23	0.74	0.23
3489.0	- 65.45	-	12.96	21.59	3.3	0.46	0.49	2.63	0.93	0.32
3514.2	- 67.57	-	17.43	15.00	2.8	0.48	0.51	2.49	0.96	0.36
3591.5	- 69.30	-	19.30	11.40	2.6	0.48	0.47	2.77	0.83	0.28
3681.0	- 69.72	-	20.24	10.04	3.1	0.48	0.48	2.05	1.01	0.41
3947.5	- 67.67	-	21.75	10.58	3.6	0.46	0.47	2.71	0.88	0.31
Angler -1										
RFT Pre-Test 4226 m	58.5	20.9	12.6	8.0	8.05	3.66	0.37	6.22	0.50	0.08
Wirrah -1*										
2195.3 m					6.8	3.8	nd	9.5	nd	0.05
Anemone -1A										
RFT	24.0	16.5	8.78	50.7	3.0	3.3	0.50	4.03	0.54	0.15
DST	17.2	12.3	24.1	46.3	3.2	2.7	0.64	2.72	0.64	0.24

* From Burns (1987)

N+ iso para = normal + isoparaffins
Naph = naphthenes
Arom = aromatic hydrocarbons

Res = resins + polar compounds
Asph = asphaltenes

a,b = isoalkanes (after Burns et al 1987)
Np = norpristane
Pr = pristane

Ph = phytane
n-C_{17} = n-heptadecane
n-C_{18} = n-octadecane

TABLE #40

TABLE 1: AROMATIC MATURITY DATA

SAMPLE	MPI	MPR	MPDF	VR CALC A	VR CALC B	VR CALC C	VR CALC E	VR CALC F
ARCHER-1								
3390.2	1.229	1.394	0.516	1.14	1.56	1.08	1.08	0.99
3403.5	1.256	1.245	0.520	1.15	1.55	1.03	1.10	1.00
3489.0	1.153	1.054	0.523	1.09	1.61	0.96	1.03	1.01
3514.2	1.110	0.948	0.525	1.07	1.63	0.92	1.00	1.01
3591.5	1.041	0.853	0.508	1.02	1.68	0.87	0.95	0.97
3681.0	1.149	0.938	0.525	1.09	1.61	0.91	1.02	1.01
3947.5	1.003	0.888	0.493	1.00	1.70	0.89	0.92	0.94

FIGURE #7

3390.2m, RFT-AD-1131

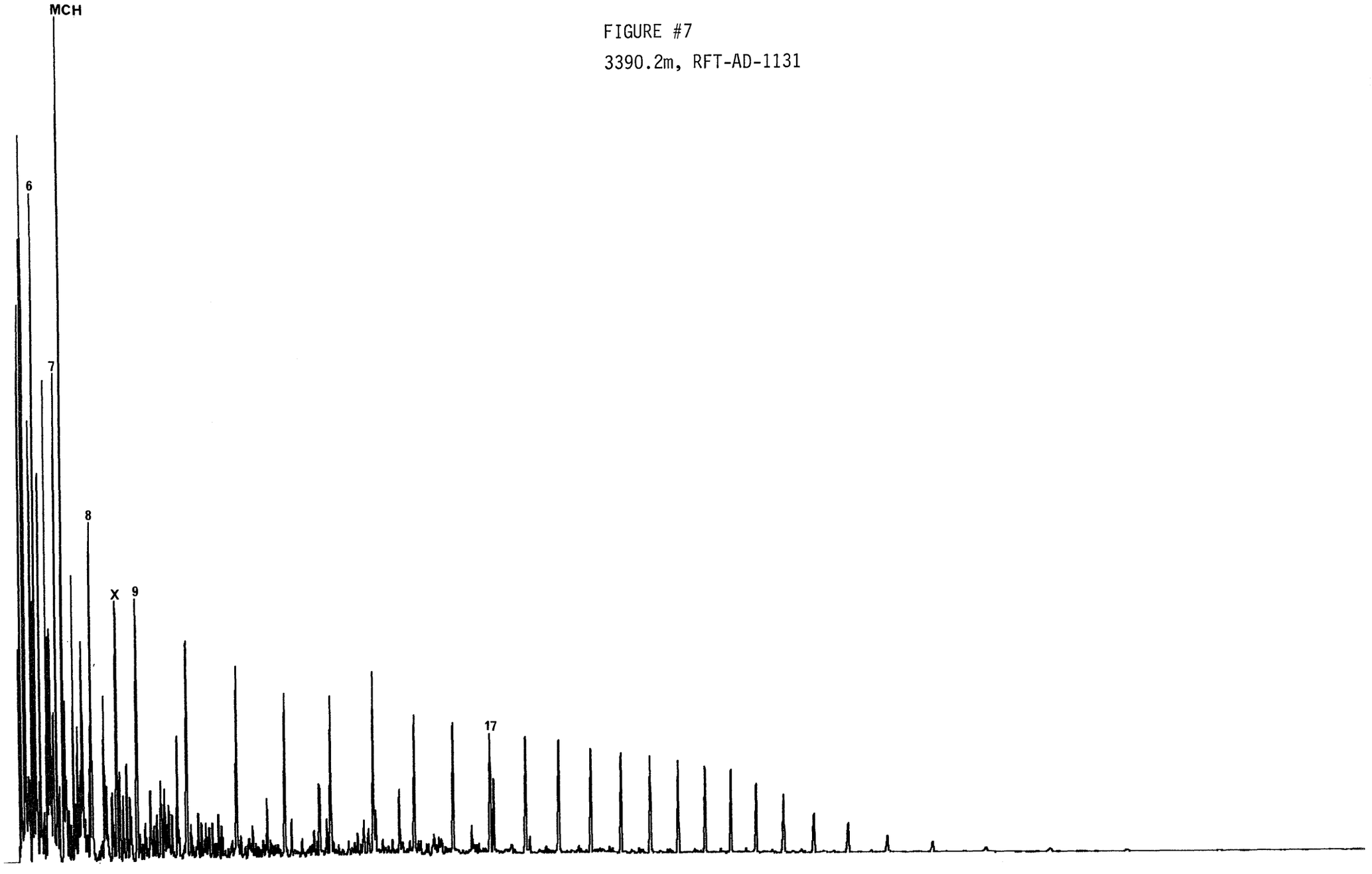


FIGURE #8

3403.5m, RFT-AD-1118

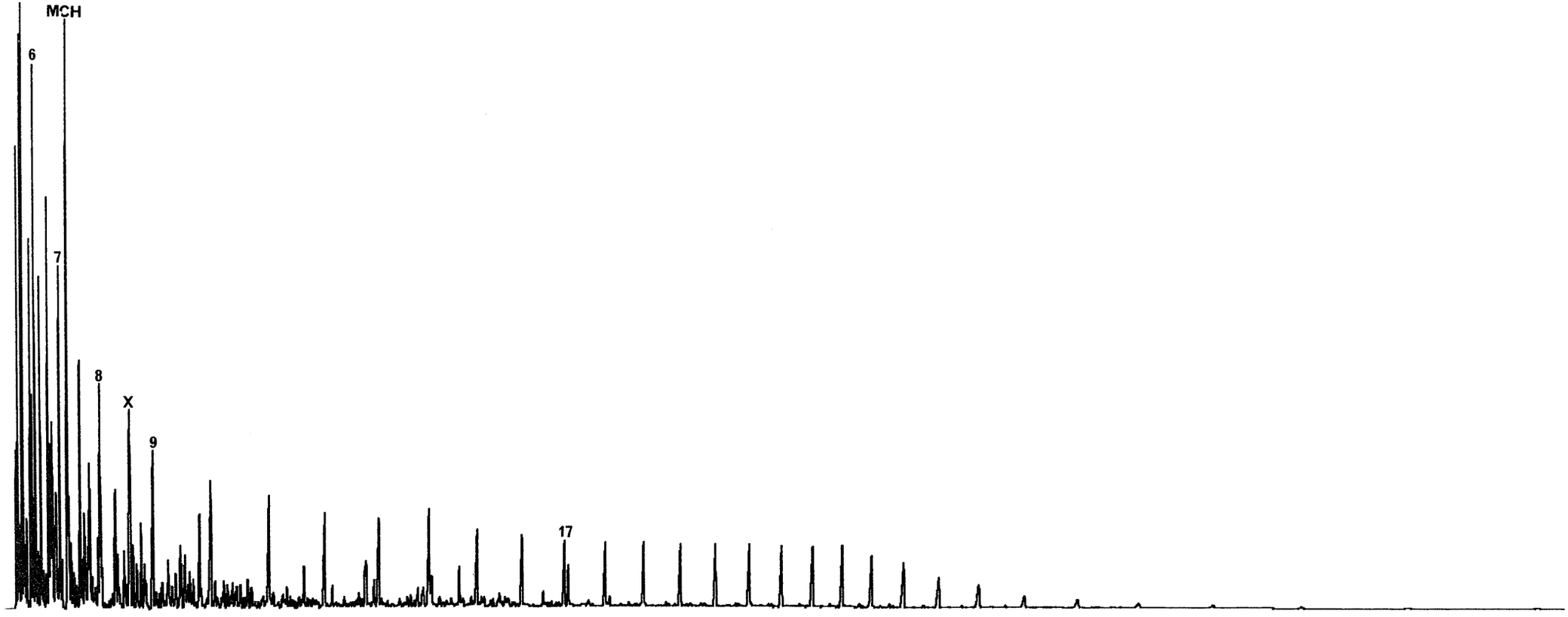


FIGURE #9

3489.0m, RFT-1286

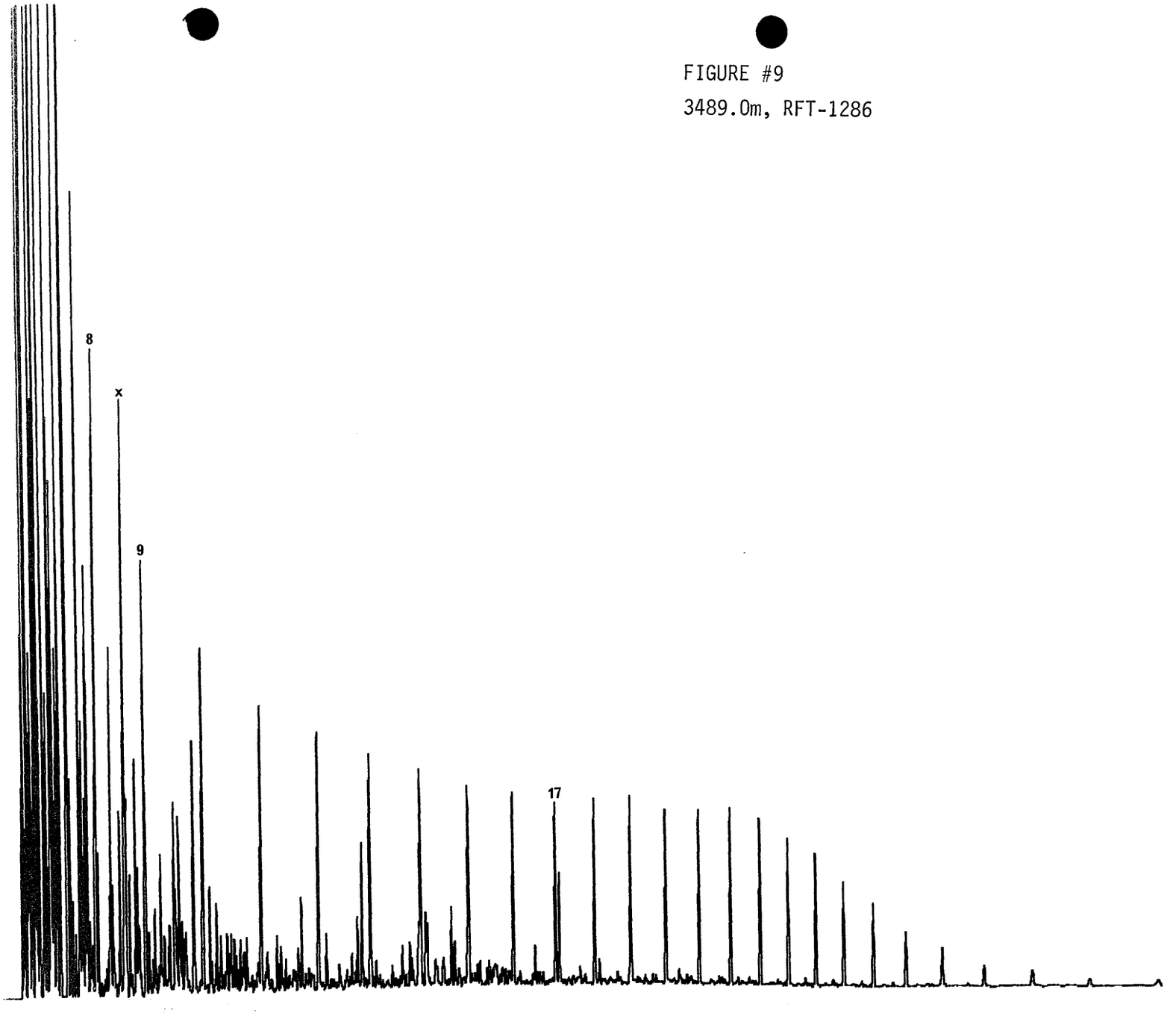


FIGURE #10

3514.2m, RFT-1129

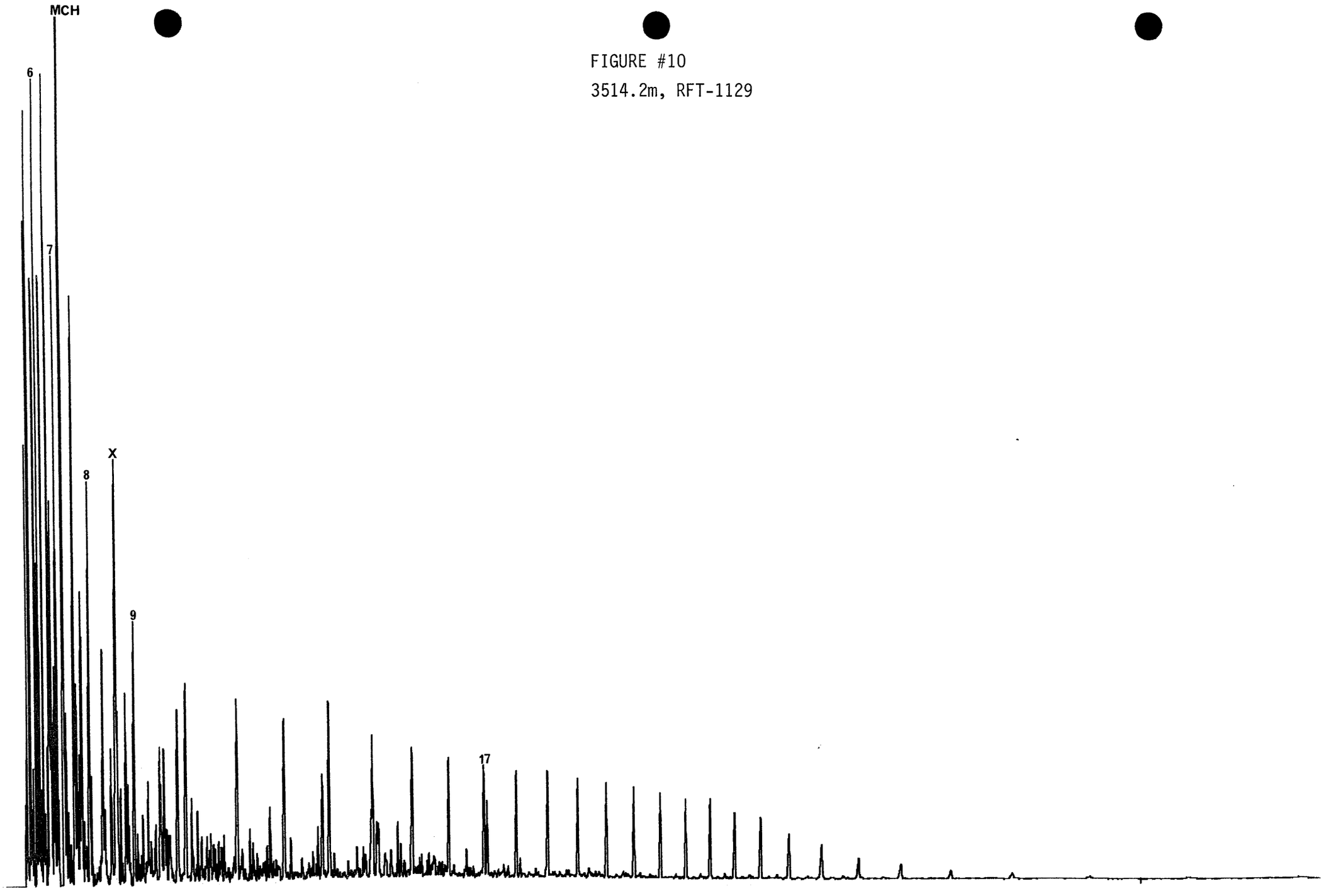


FIGURE #11

3591.5m, RFT-1120

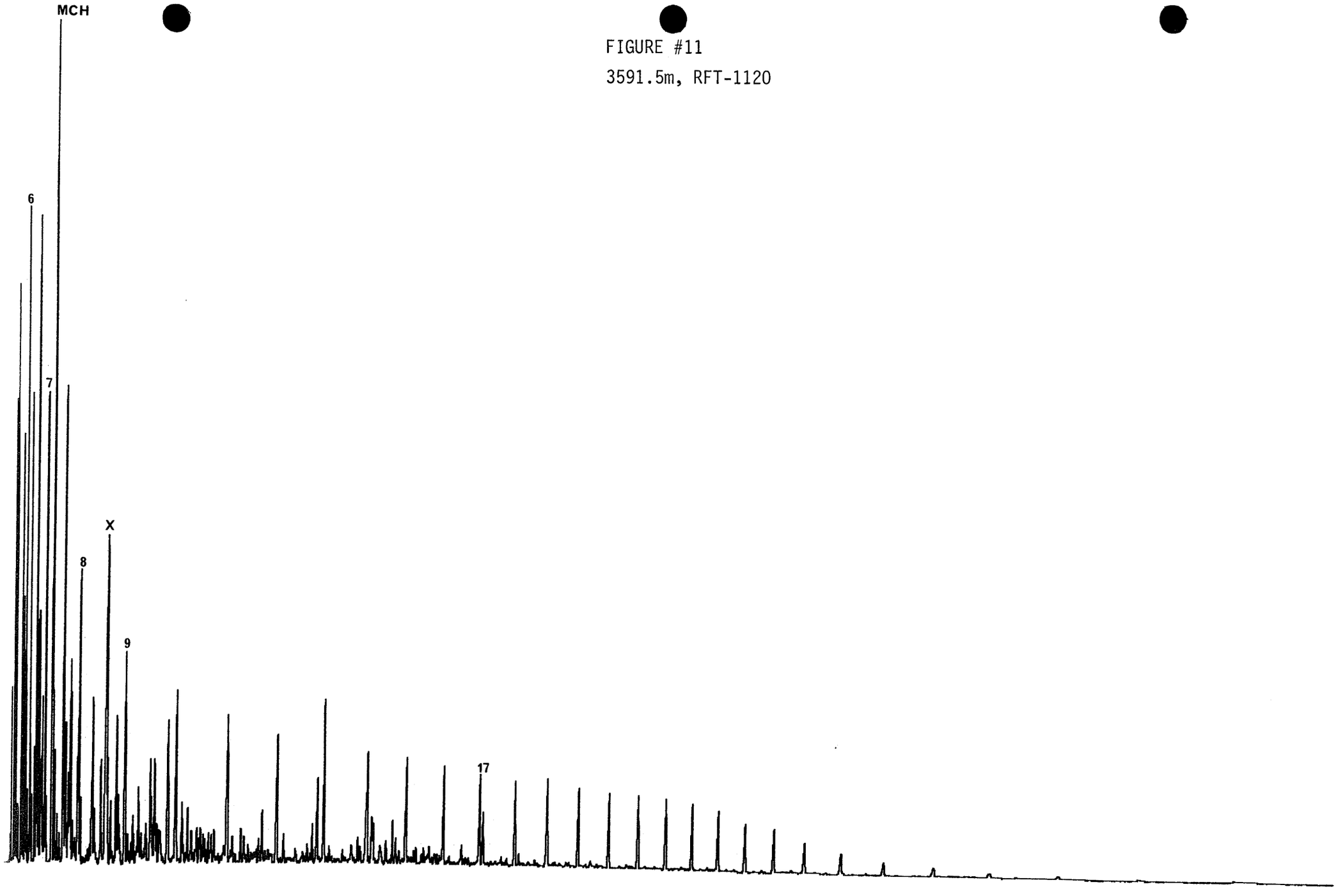


FIGURE #12

3681.0m, RFT-1123

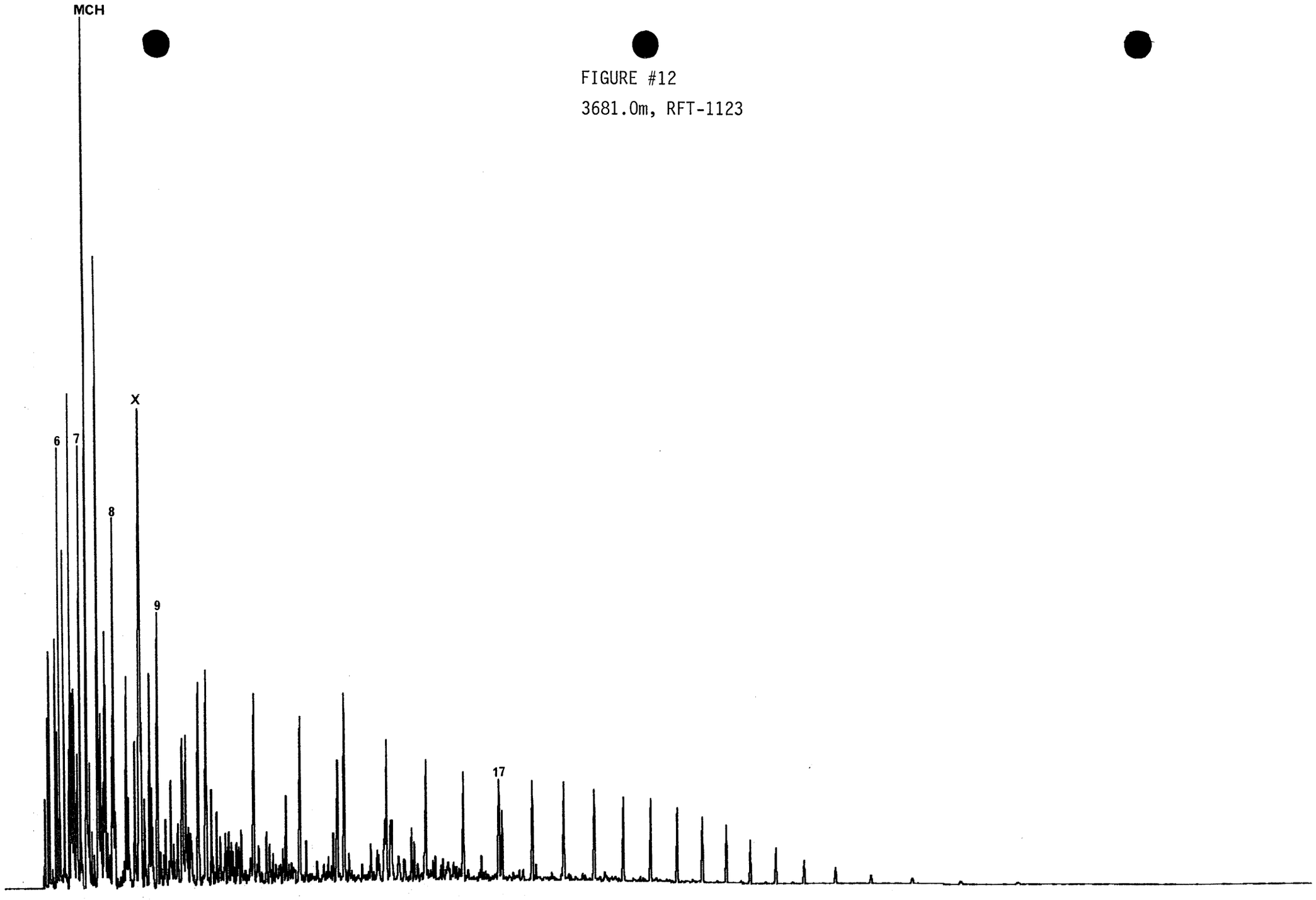
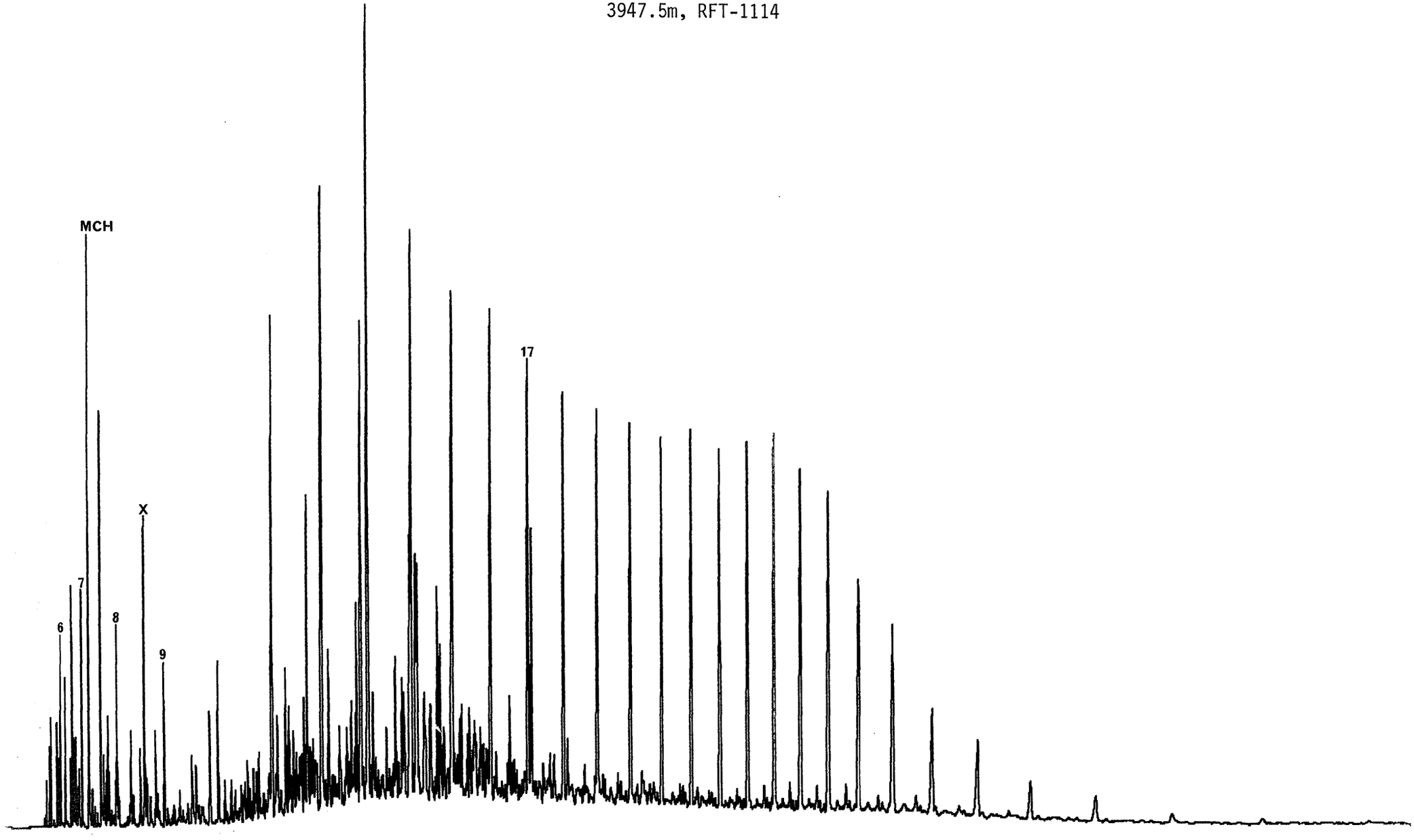


FIGURE #13

3947.5m, RFT-1114



KEY TO GASOLINE-RANGE CHROMATOGRAM

1. 2-Methylbutane (Isopentane)
2. *n*-Pentane
3. 2,2-Dimethylbutane
4. Cyclopentane
5. 2,3-Dimethylbutane
6. 2-Methylpentane
7. 3-Methylpentane
8. *n*-Hexane
9. 2,2-Dimethylpentane
10. Methylcyclopentane
11. 2,4-Dimethylpentane
12. 2,2,3-Trimethylbutane
13. Benzene
14. 3,3-Dimethylpentane
15. Cyclohexane
16. 2-Methylhexane
17. 2,3-Dimethylpentane
18. 1,1-Dimethylcyclopentane
19. 3-Methylhexane
20. *cis*-1,3-Dimethylcyclopentane
21. *trans*-1,3-Dimethylcyclopentane
22. 3-Ethylpentane and *trans*-1,2-Dimethylcyclopentane
23. *n*-Heptane
24. Methylcyclohexane
25. Ethylcyclopentane
26. Toluene

FIGURE #14 3390.2m

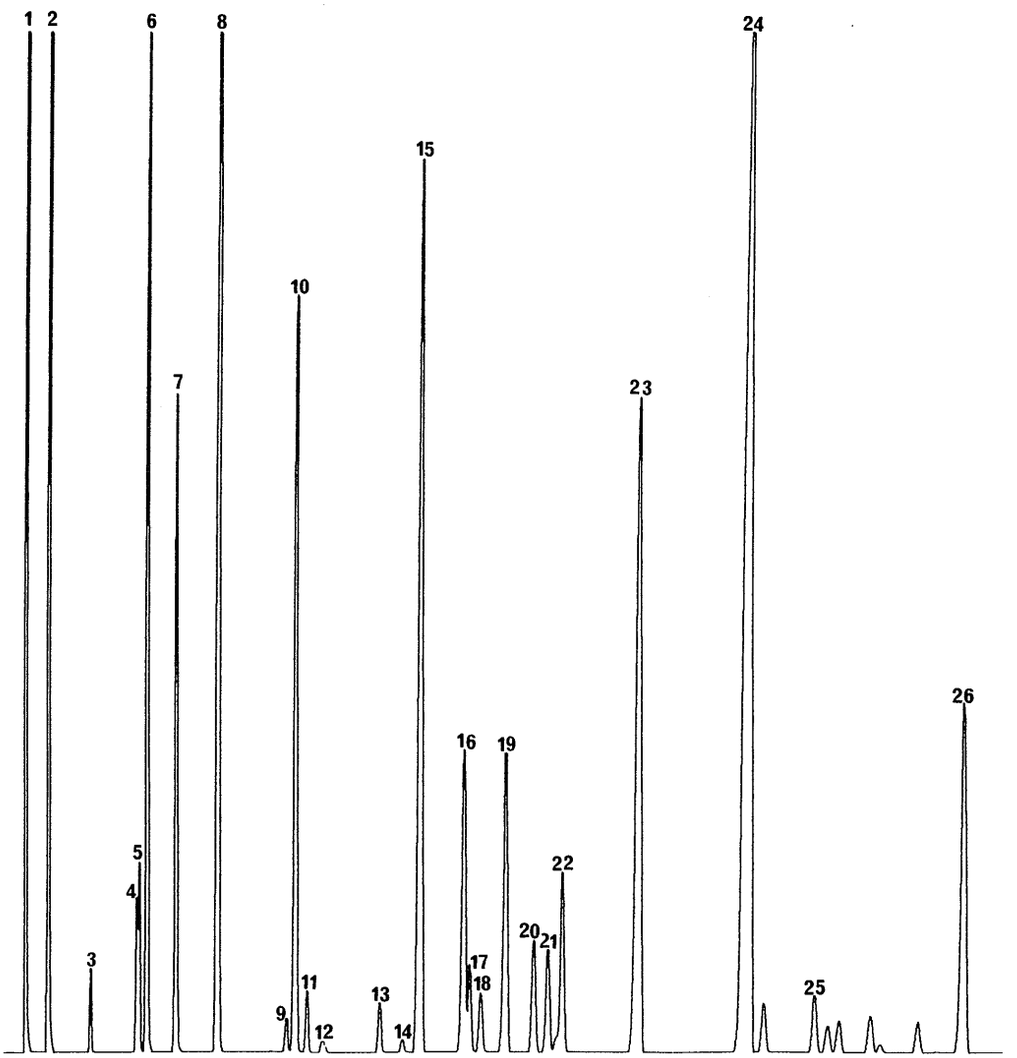


FIGURE #15 - 3403.5m

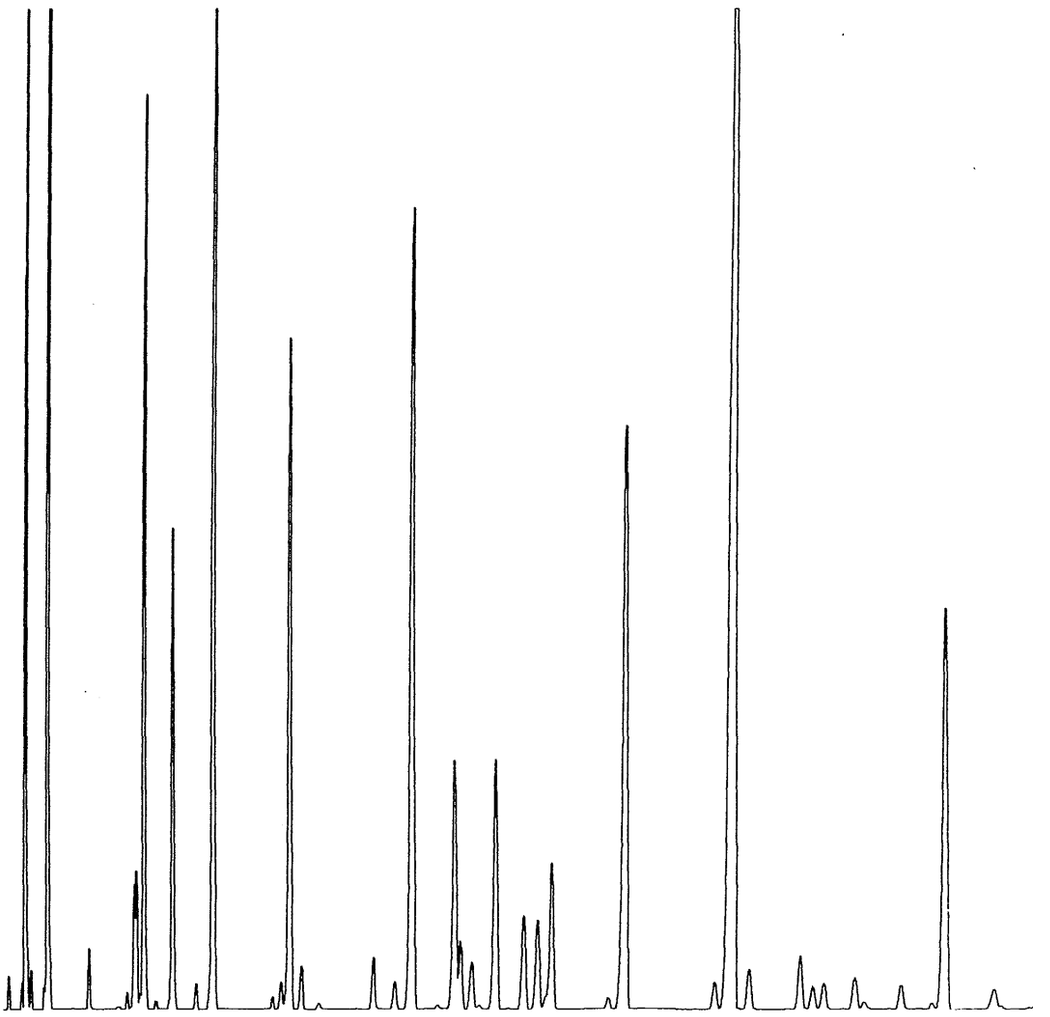


FIGURE #16 3489.0m

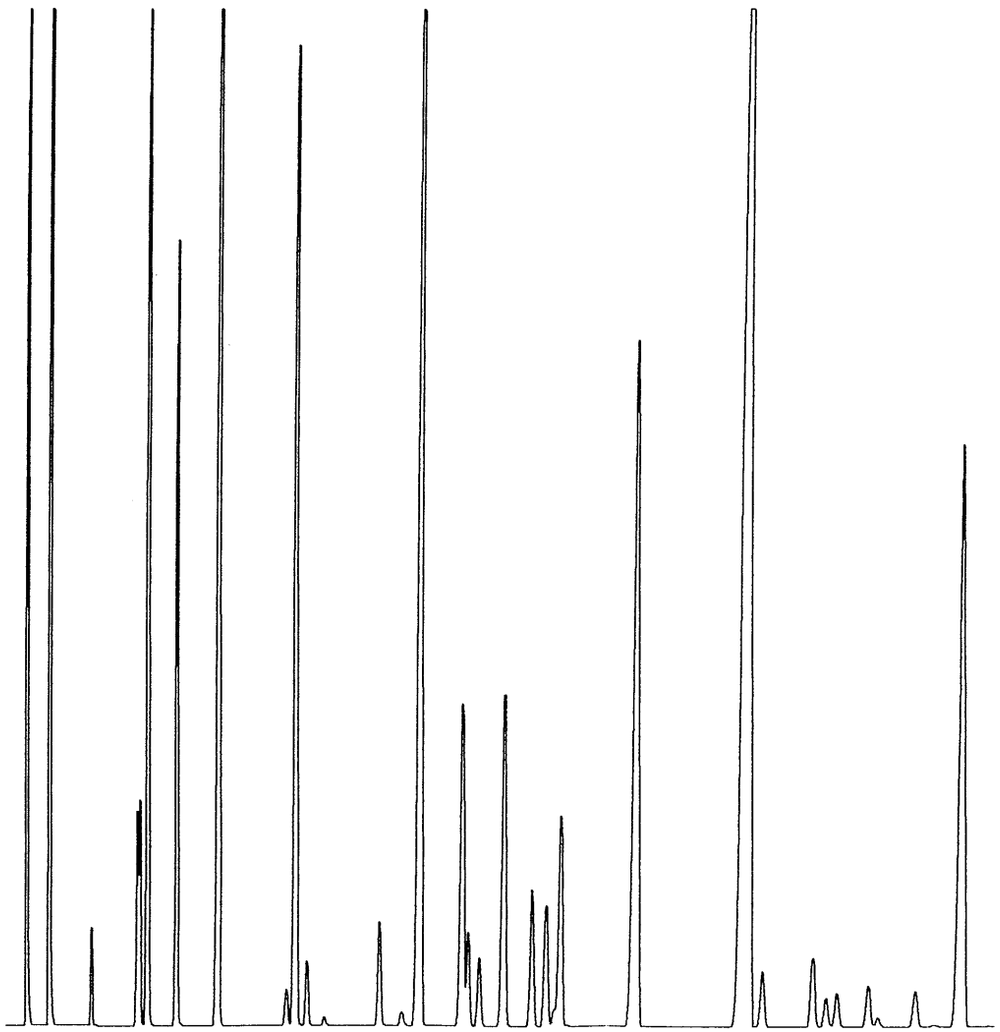


FIGURE #17 3514.2m

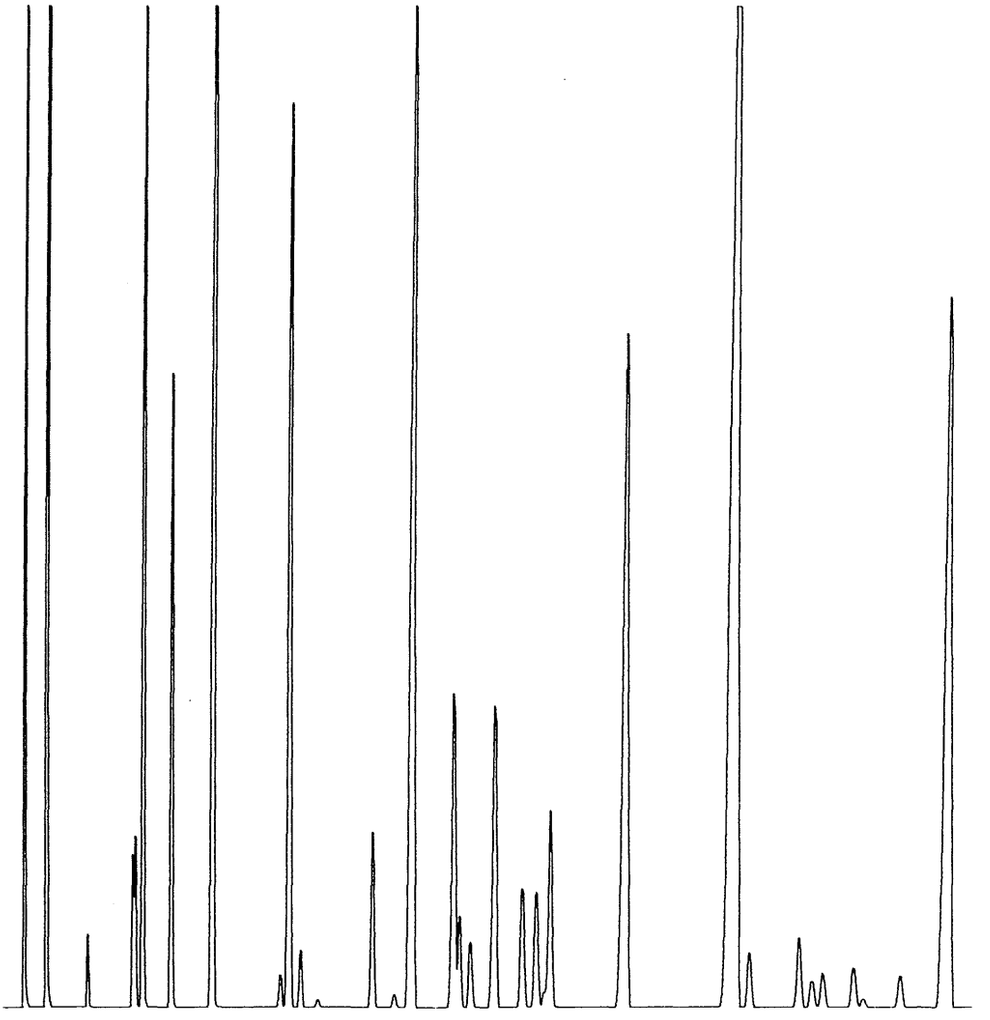


FIGURE #18 3591.5m

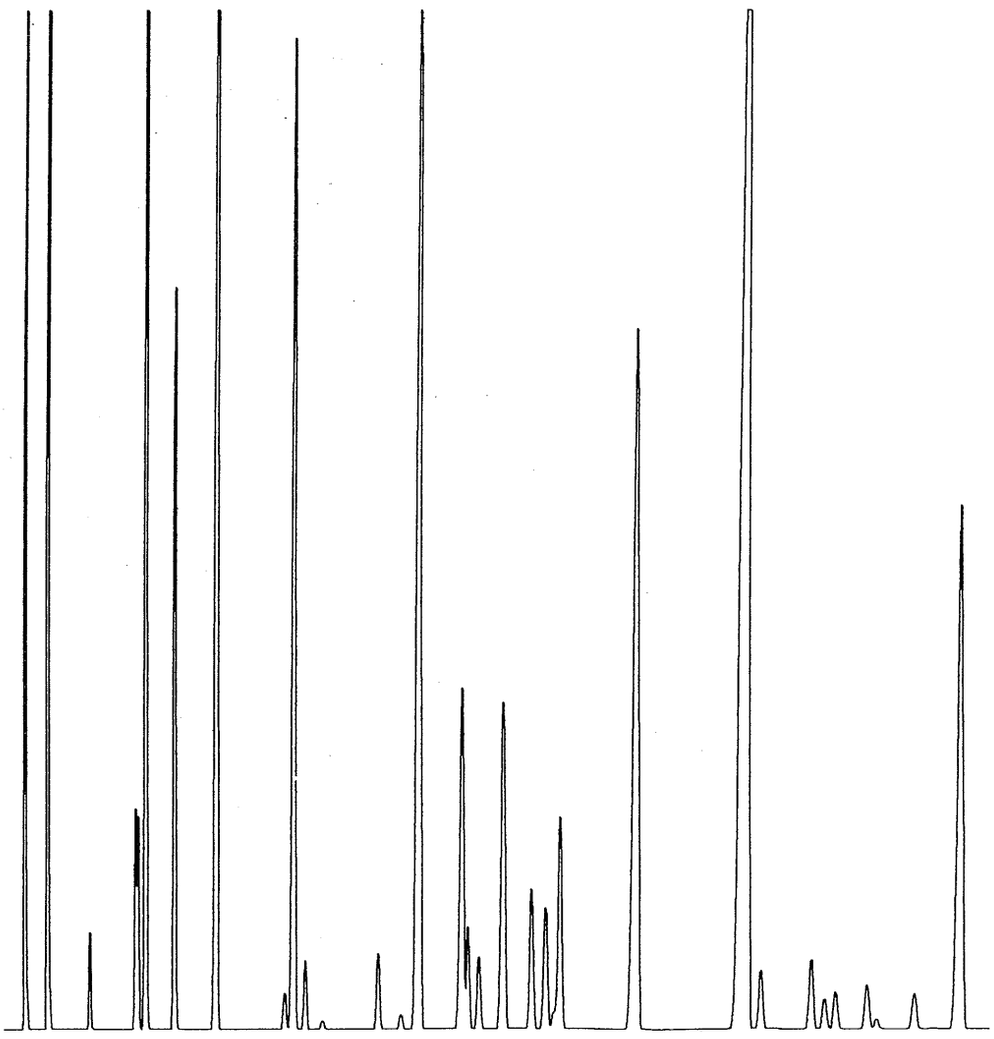


FIGURE #19 3681.0m

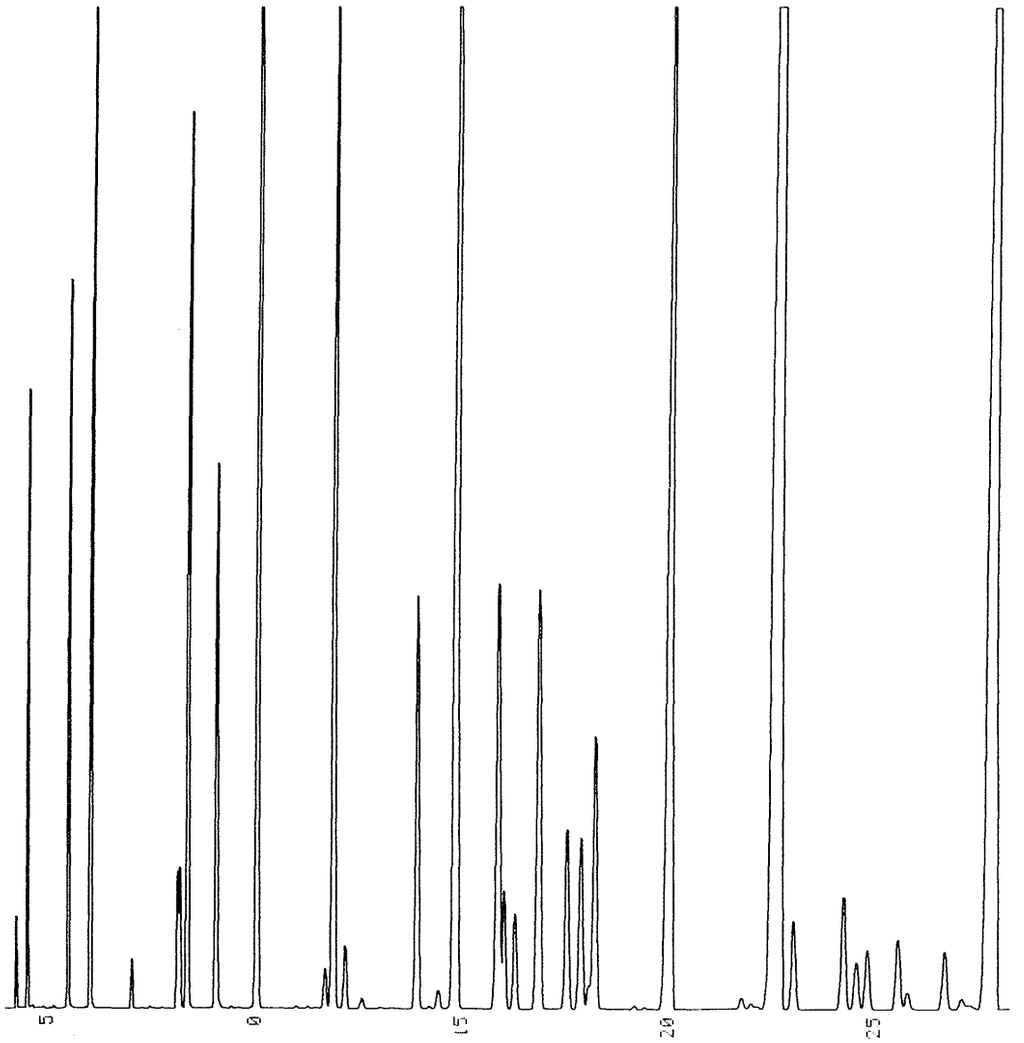


FIGURE #20 3947.5m

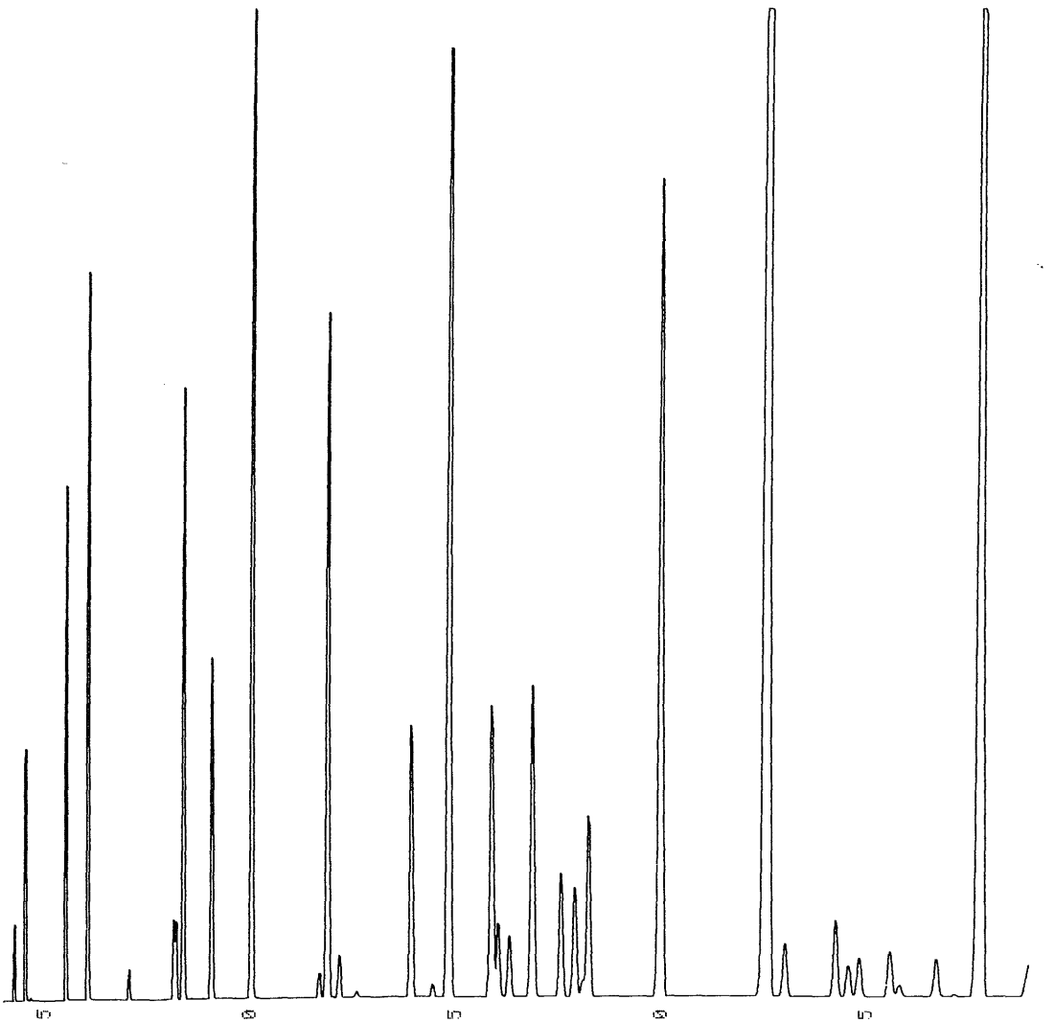


FIGURE #24

3390.2m, RFT-AD-1131

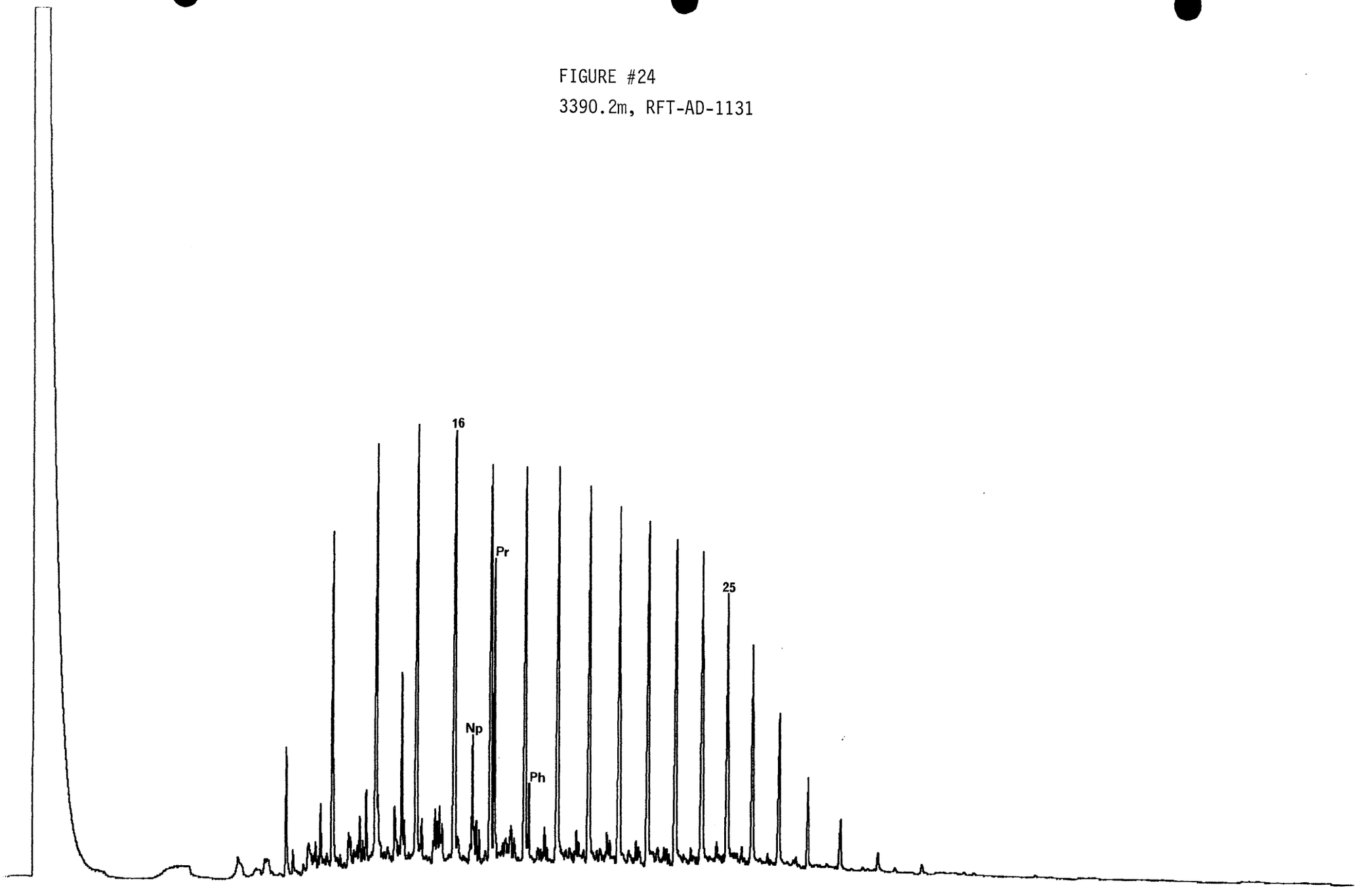


FIGURE #25
3403.5m, RFT-AD-1118

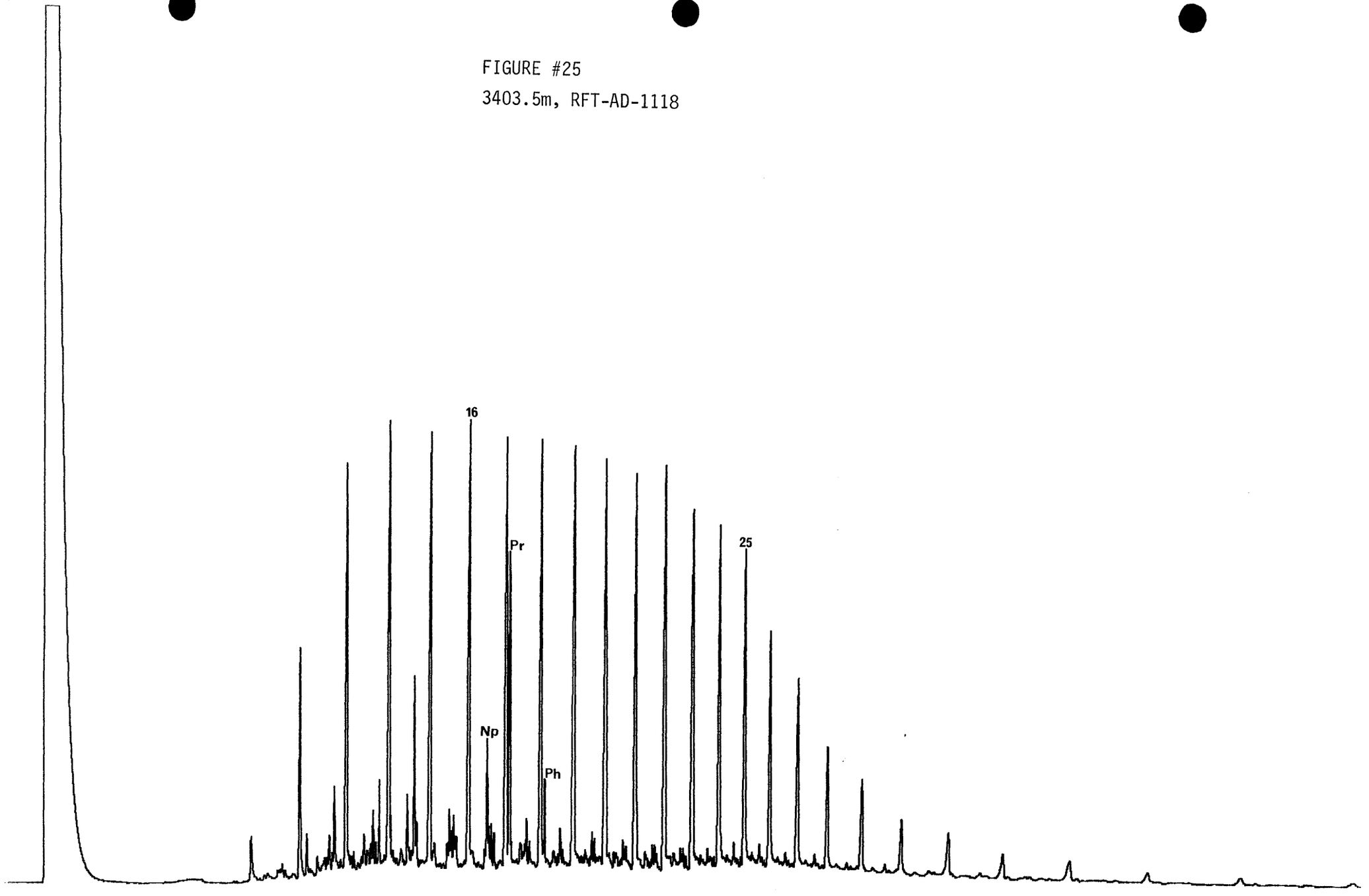


FIGURE #26
3489.0m, RFT-1286

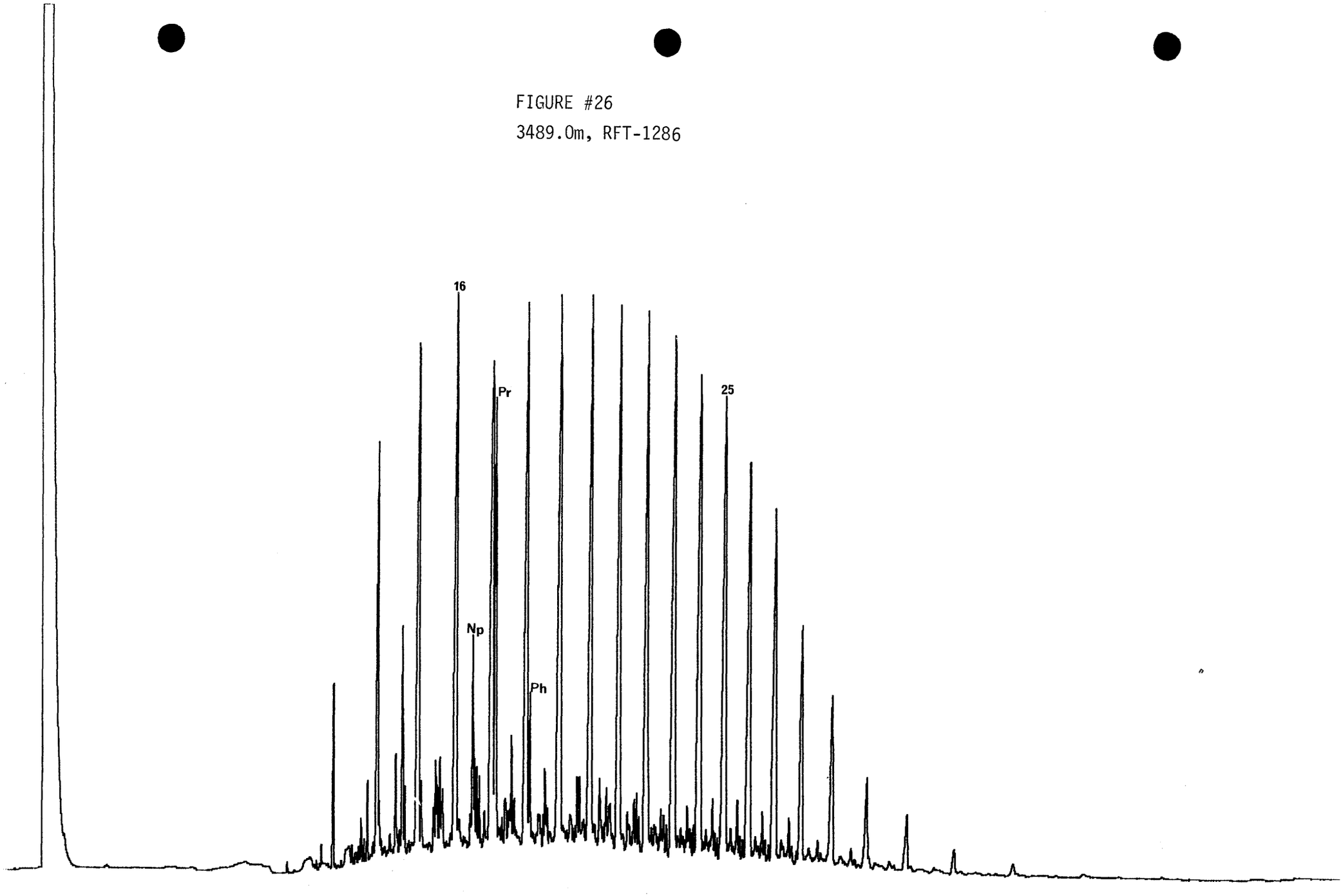


FIGURE #27

3514.2m, RFT-1129

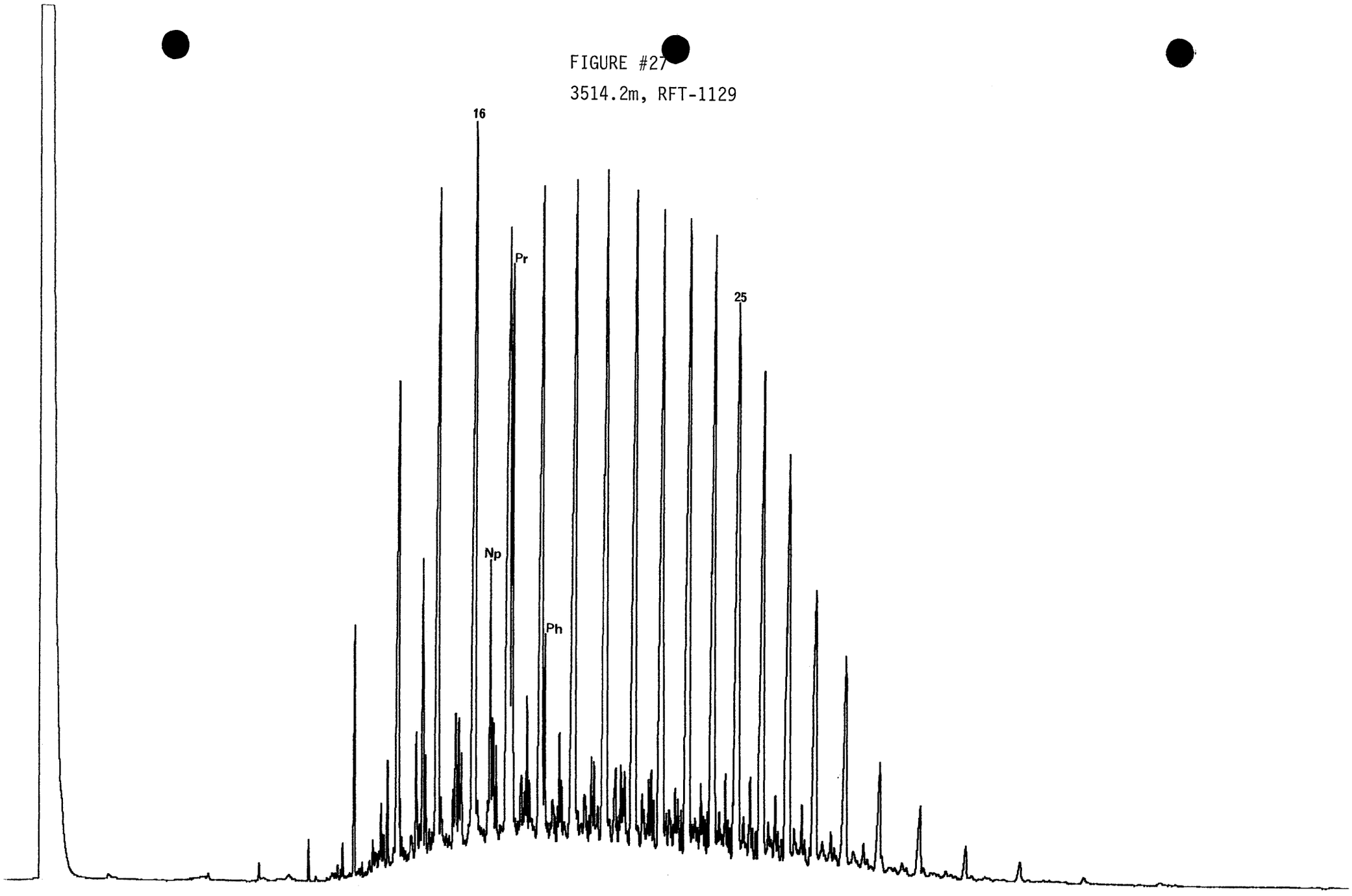


FIGURE #28

3591.5m, RFT-1120

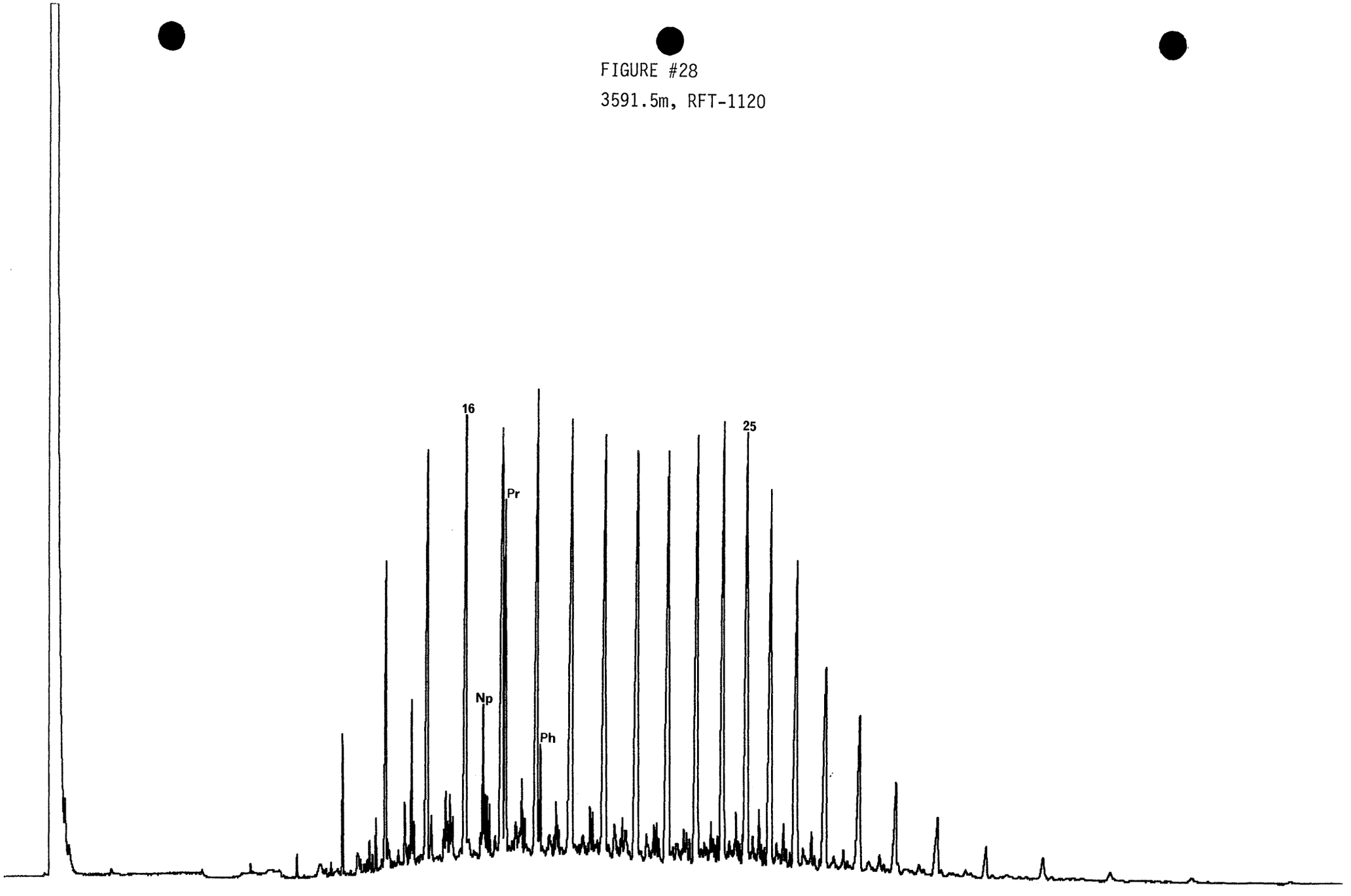


FIGURE #29
3681.0m, RFT-1123

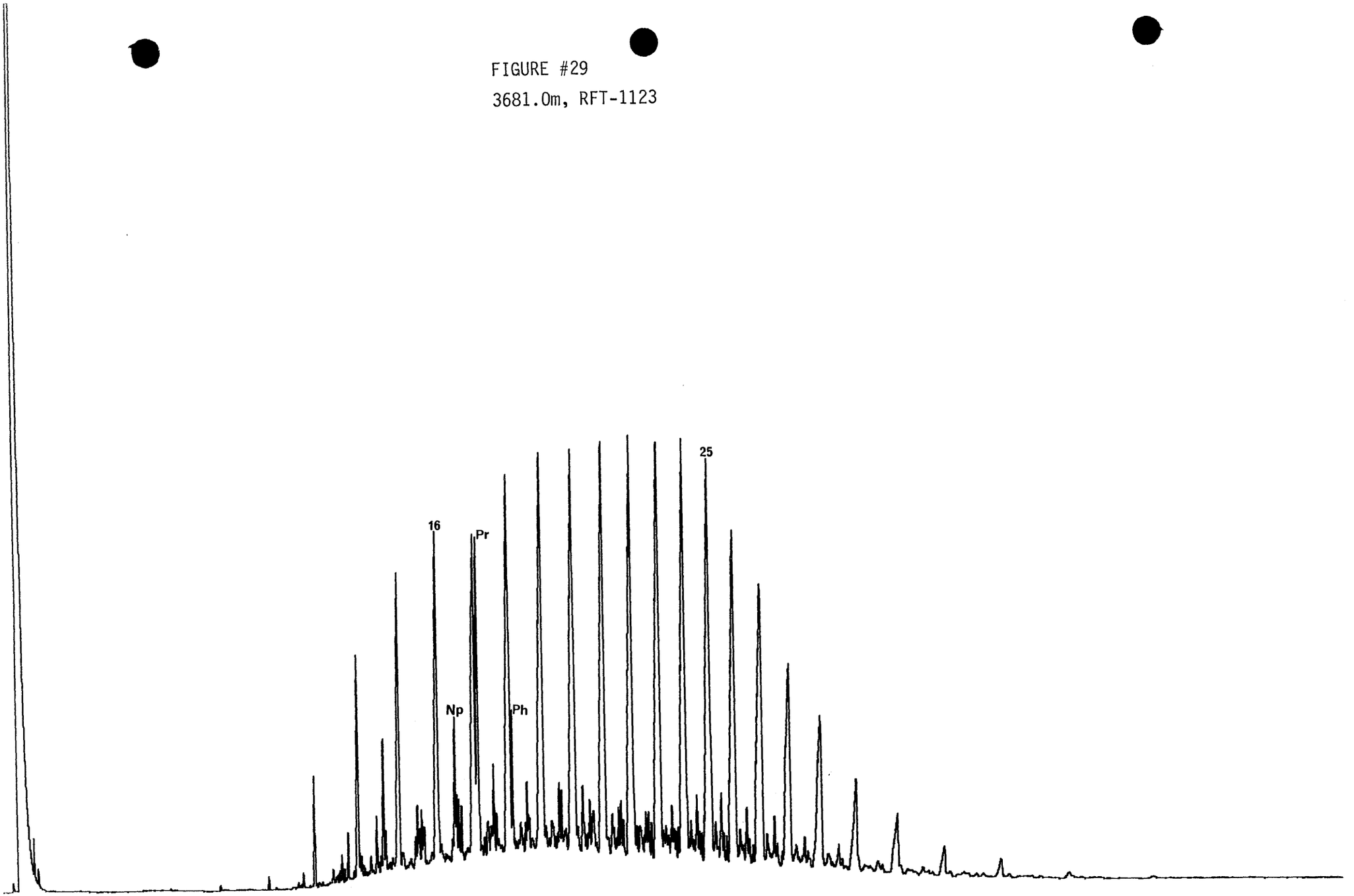
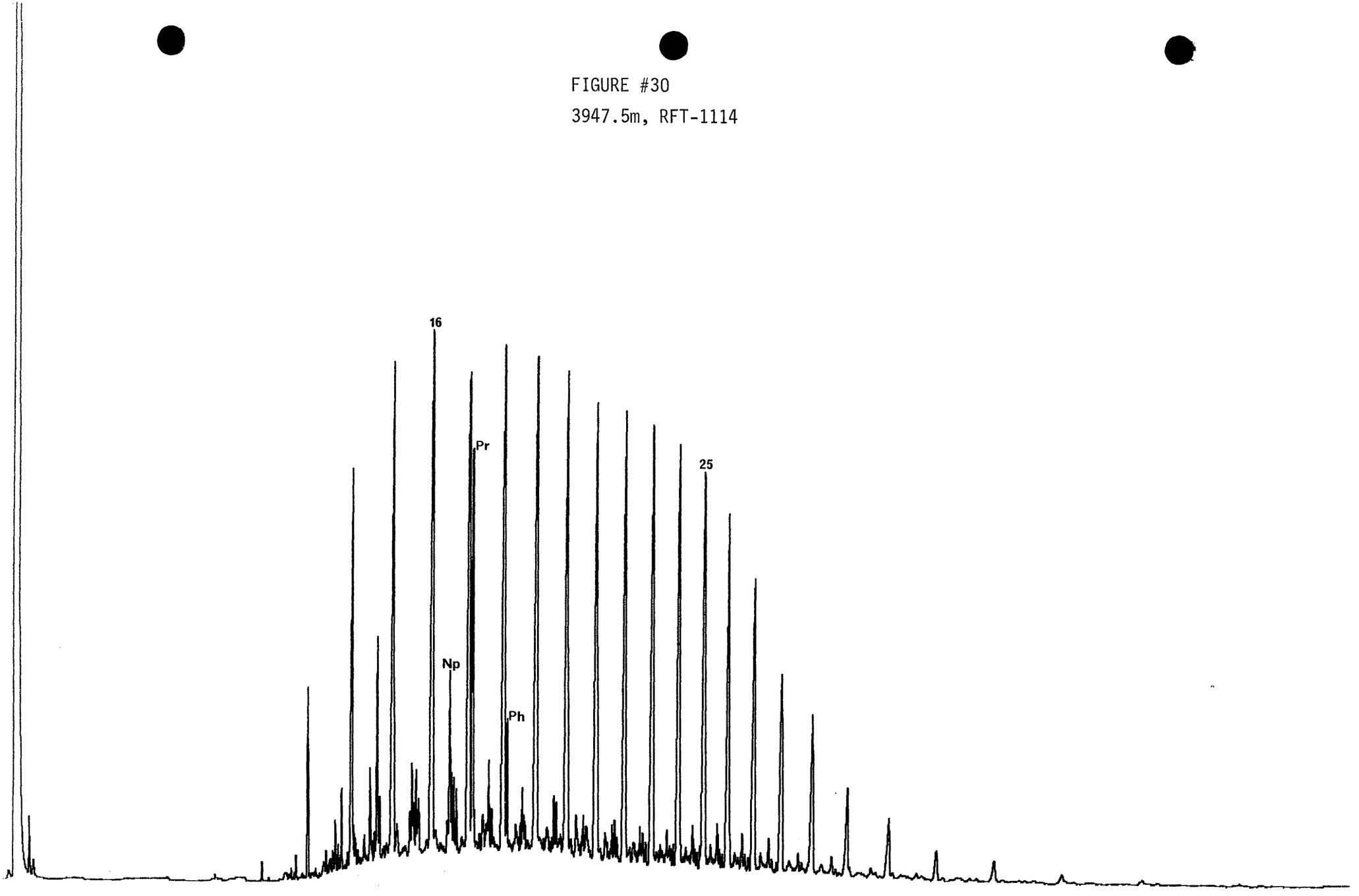


FIGURE #30

3947.5m, RFT-1114



APPENDIX 1

HISTOGRAM PLOTS OF VITRINITE REFLECTANCE VALUES,

ARCHER -1

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2500m

Sorted List

0.33
0.35
0.39
0.41

Number of values= 4

Mean of values 0.37
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

33-35 **
36-38
39-41 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2560m

Sorted List

0.43
0.44

Number of values= 2

Mean of values 0.44
Standard Deviation 0.01

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

43-45 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2600m

Sorted List

0.42
0.43
0.44
0.46

Number of values= 4

Mean of values 0.44
Standard Deviation 0.01

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

42-44 ***
45-47 *

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2740m

Sorted List

0.44
0.50

Number of values= 2

Mean of values 0.47
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

44-46 *
47-49
50-52 *

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2790m

Sorted List

0.36	0.45
0.39	0.46
0.39	0.46
0.40	0.48
0.40	0.49
0.41	0.54
0.43	
0.43	
0.43	
0.45	

Number of values= 16

Mean of values 0.44
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

36-38	*
39-41	*****
42-44	***
45-47	****
48-50	**
51-53	
54-56	*

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2850m

Sorted List

0.34	0.45	0.54
0.38	0.47	0.55
0.38	0.48	
0.38	0.48	
0.39	0.49	
0.42	0.49	
0.42	0.49	
0.43	0.49	
0.43	0.50	
0.43	0.51	

Number of values= 22

Mean of values 0.45
Standard Deviation 0.05

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

34-36	*
37-39	****
40-42	**
43-45	****
46-48	***
49-51	******
52-54	
55-57	**

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2900m

Sorted List

0.33	0.46	0.51
0.40	0.46	0.51
0.40	0.47	0.51
0.41	0.47	0.52
0.41	0.47	0.53
0.43	0.48	0.55
0.44	0.48	0.55
0.44	0.50	0.55
0.45	0.50	
0.46	0.50	

Number of values= 28

Mean of values 0.47
Standard Deviation 0.05

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

33-35	*
36-38	
39-41	****
42-44	***
45-47	*******
48-50	*****
51-53	*****
54-56	***

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 2950m

Sorted List

0.37	0.48	0.51
0.40	0.49	0.53
0.41	0.49	0.54
0.42	0.50	0.54
0.42	0.51	0.55
0.42	0.51	0.55
0.45	0.51	
0.45	0.51	
0.46	0.51	
0.46	0.51	

Number of values= 26

Mean of values 0.48
Standard Deviation 0.05

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

37-39	*
40-42	*****
43-45	**
46-48	***
49-51	**********
52-54	*
55-57	****

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3000m

Sorted List

0.38	0.44	0.49
0.40	0.44	0.50
0.41	0.45	0.50
0.42	0.46	0.50
0.43	0.46	
0.43	0.46	
0.43	0.46	
0.43	0.46	
0.43	0.48	
0.44	0.48	

Number of values= 24

Mean of values 0.45
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

38-40	**
41-43	*******
44-46	*********
47-49	***
50-52	***

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3040m

Sorted List

0.39	0.46	0.52
0.41	0.46	0.54
0.42	0.47	
0.43	0.48	
0.44	0.48	
0.44	0.50	
0.44	0.51	
0.44	0.51	
0.45	0.51	
0.45	0.52	

Number of values= 22

Mean of values 0.47
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

39-41	**
42-44	******
45-47	*****
48-50	***
51-53	*****
54-56	*

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3100m

Sorted List

0.41	0.48
0.41	0.49
0.42	0.50
0.43	0.51
0.43	0.53
0.45	0.53
0.46	0.54
0.47	0.56
0.47	
0.48	

Number of values= 18

Mean of values 0.48
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

41-43	*****
44-46	**
47-49	*****
50-52	**
53-55	***
56-58	*

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3140m

Sorted List

0.43
0.45
0.49
0.54

Number of values= 4

Mean of values 0.48
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

43-45 **
46-48
49-51 *
52-54

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3190-3200m

Sorted List

0.36	0.44	0.47
0.37	0.44	0.48
0.37	0.44	0.48
0.38	0.45	0.49
0.39	0.45	0.50
0.43	0.45	0.50
0.43	0.45	0.51
0.43	0.46	0.51
0.44	0.46	
0.44	0.47	

Number of values= 28

Mean of values 0.45
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

36-38	****
39-41	*
42-44	********
45-47	********
48-50	*****
51-53	**

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3240-3250m

Sorted List

0.42
0.44
0.44
0.45
0.46
0.46
0.48
0.51
0.52
0.53

Number of values= 10

Mean of values 0.47
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

42-44	***
45-47	***
48-50	*
51-53	***

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3290-3300m

Sorted List

0.41	0.47
0.41	0.48
0.42	0.49
0.43	0.50
0.44	
0.45	
0.45	
0.45	
0.46	
0.46	

Number of values= 14

Mean of values 0.45
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

41-43	****
44-46	******
47-49	***
50-52	*

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3340-3350m

Sorted List

0.44
0.51

Number of values= 2

Mean of values 0.48
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

44-46 *
47-49
50-52 *

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3440m

Sorted List

0.41
0.42
0.43
0.43
0.44
0.45
0.46
0.48

Number of values= 8

Mean of values 0.44
Standard Deviation 0.02

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

41-43 ****
44-46 ***
47-49 *

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3519m

Sorted List

0.46
0.48

Number of values= 2

Mean of values 0.47
Standard Deviation 0.01

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

46-48 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3625m

Sorted List

0.48
0.50

Number of values= 2

Mean of values 0.49
Standard Deviation 0.01

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

48-50 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3810m

Sorted List

0.46
0.47
0.47
0.48
0.48
0.52
0.54
0.58

Number of values= 8

Mean of values 0.50
Standard Deviation 0.04

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

46-48	*****
49-51	
52-54	*
55-57	*
58-60	*

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3869m

Sorted List

0.59
0.59

Number of values= 2

Mean of values 0.59
Standard Deviation 0.00

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

59-61 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 3940m

Sorted List

0.49
0.51

Number of values= 2

Mean of values 0.50
Standard Deviation 0.01

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

49-51 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 4002m

Sorted List

0.58
0.63
0.64
0.65

Number of values= 4

Mean of values 0.63
Standard Deviation 0.03

HISTOGRAM OF VALUES
Reflectance values multiplied by 100

58-60 *
61-63 *
64-66 **

VITRINITE REFLECTANCE VALUES

Well Name: ARCHER-1
Depth: 4035m

Sorted List

0.67
0.67

Number of values= 2

Mean of values 0.67
Standard Deviation 0.00

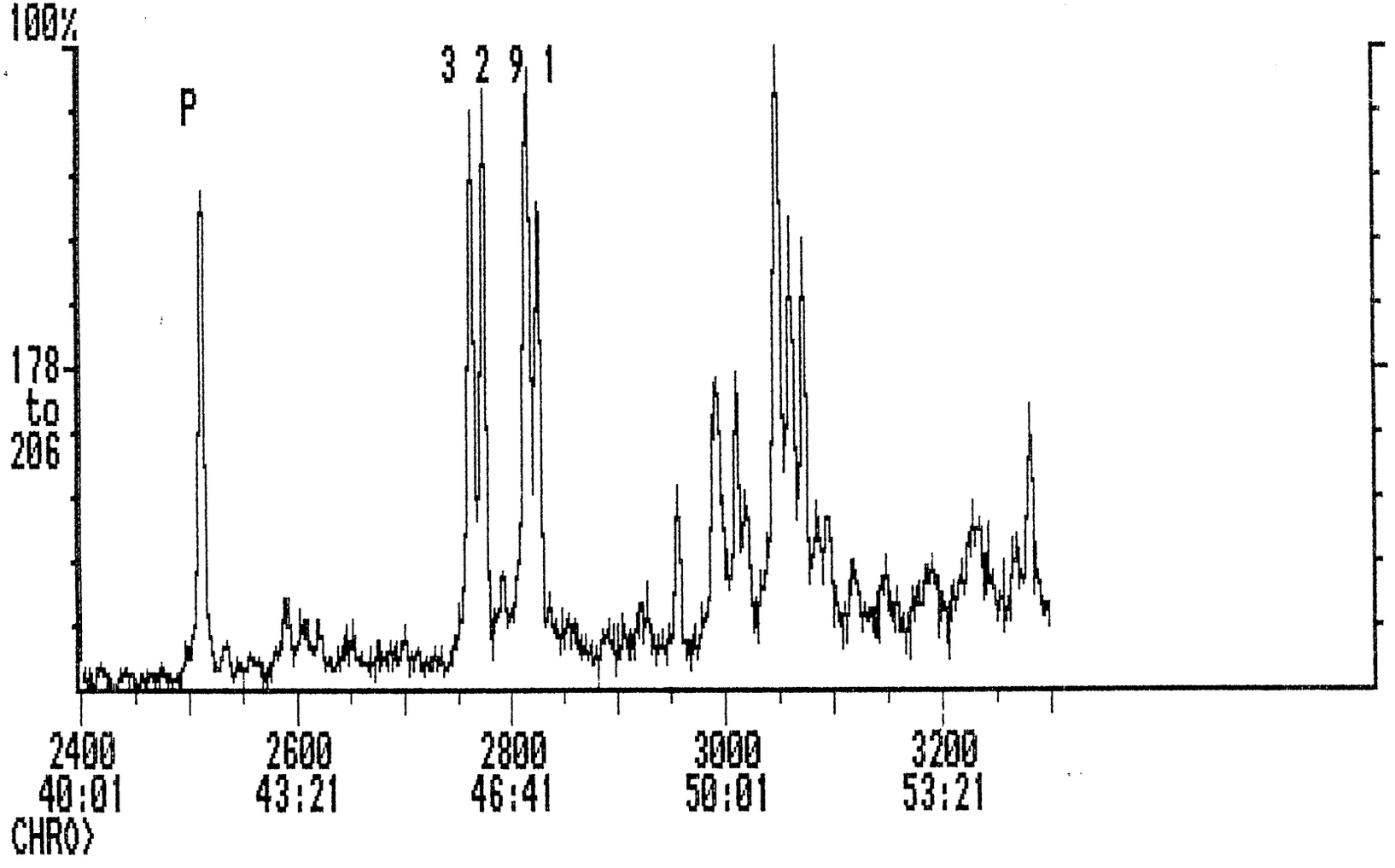
HISTOGRAM OF VALUES
Reflectance values multiplied by 100

67-69 **

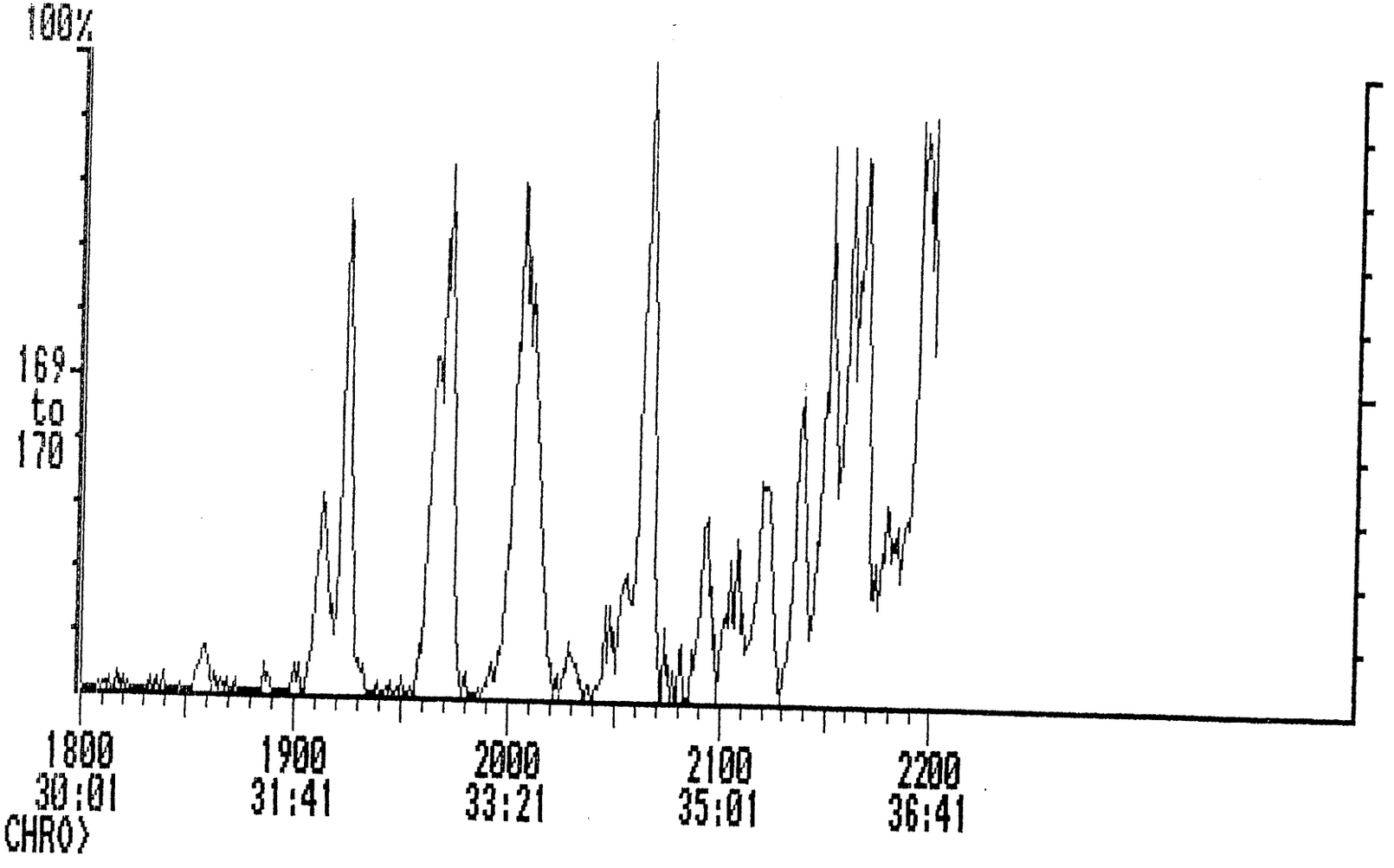
APPENDIX 2

GC-MS OF AROMATIC HYDROCARBONS, ARCHER -1

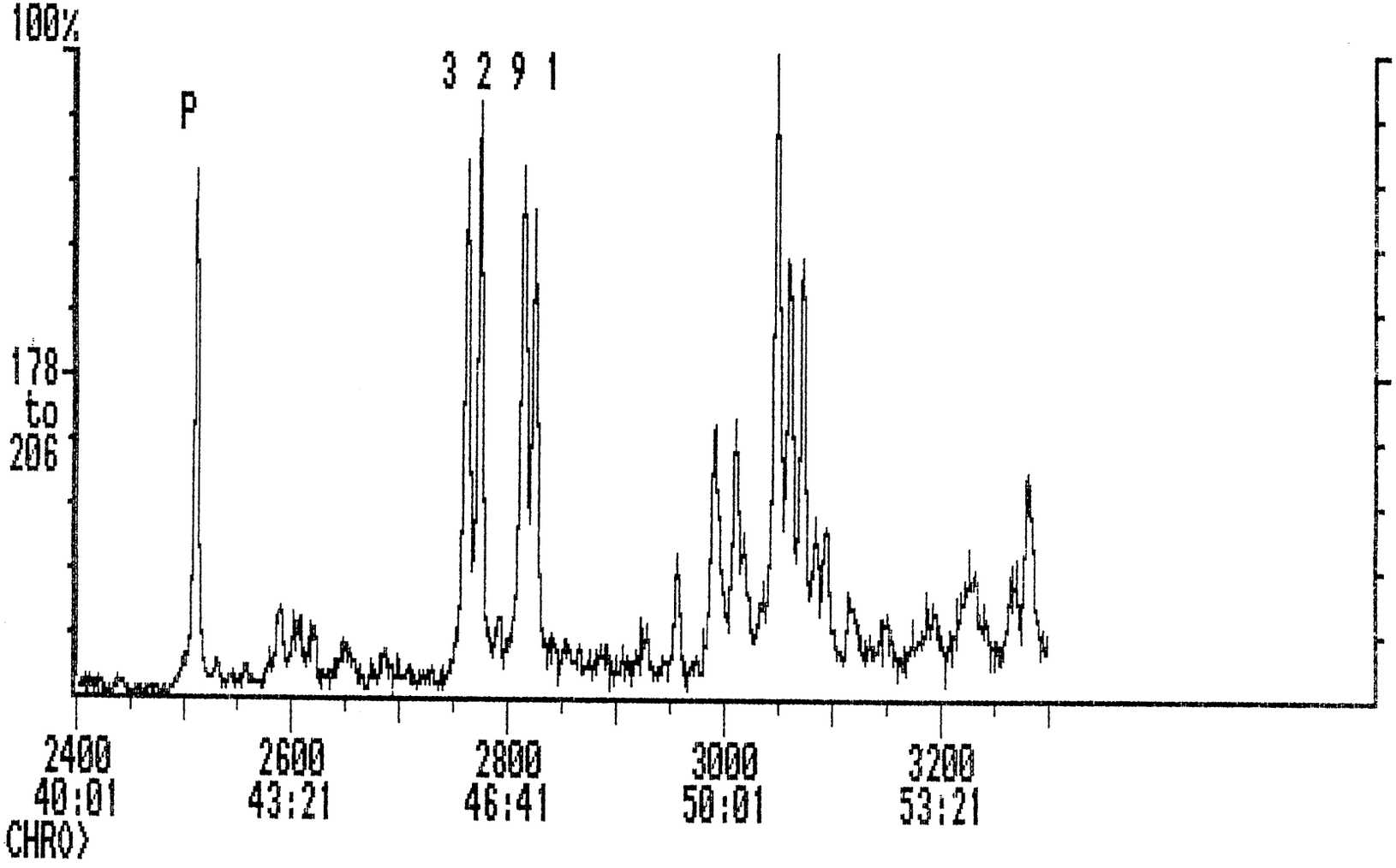
Chromatogram A:MPI123 Acquired: Jun-12-1990 03:55:58
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 1458 @ 40:01 100% = 8650



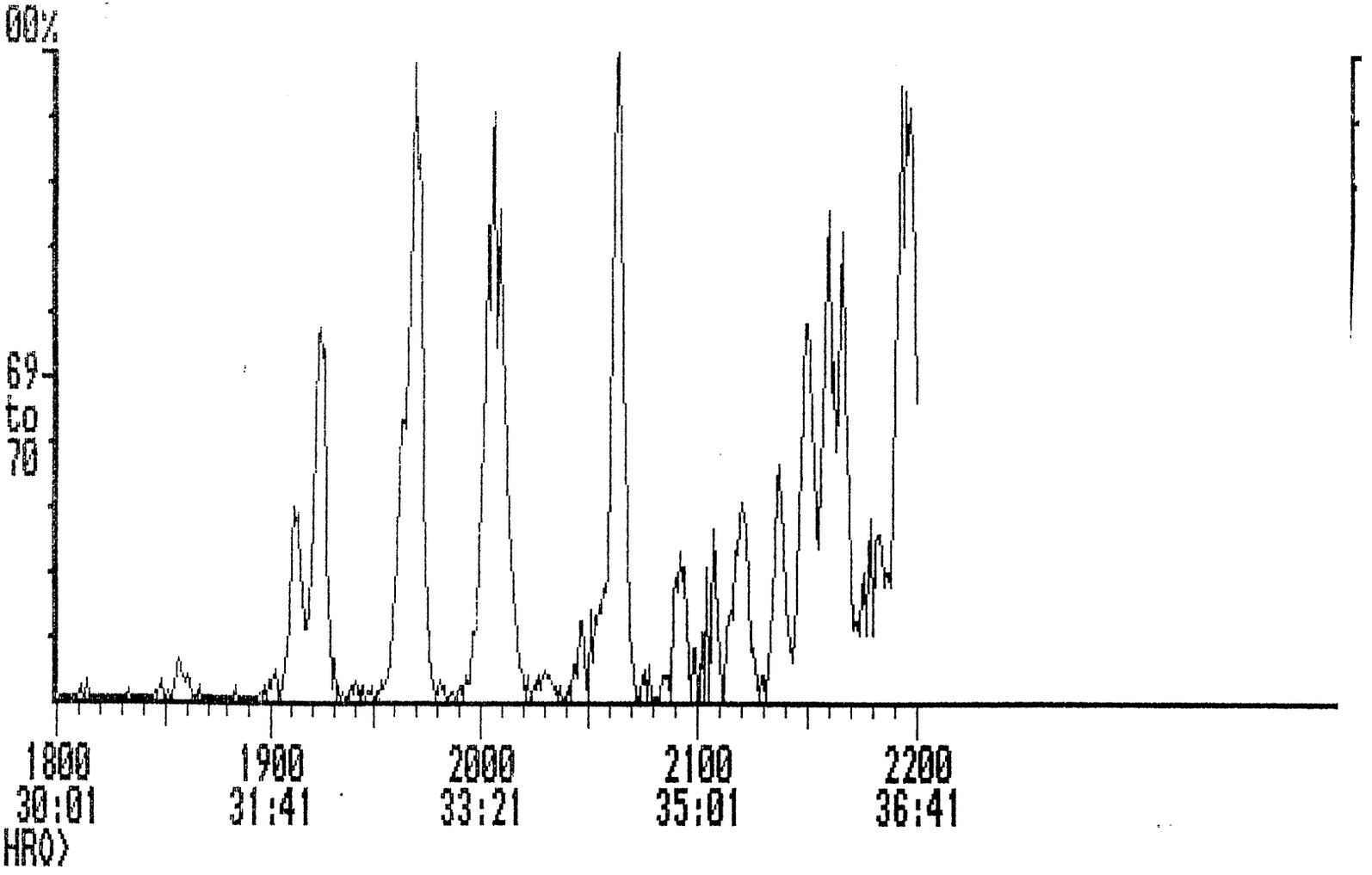
Chromatogram A:MPI123 Acquired: Jun-12-1990 03:55:58
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 0 @ 30:01 100% = 1167



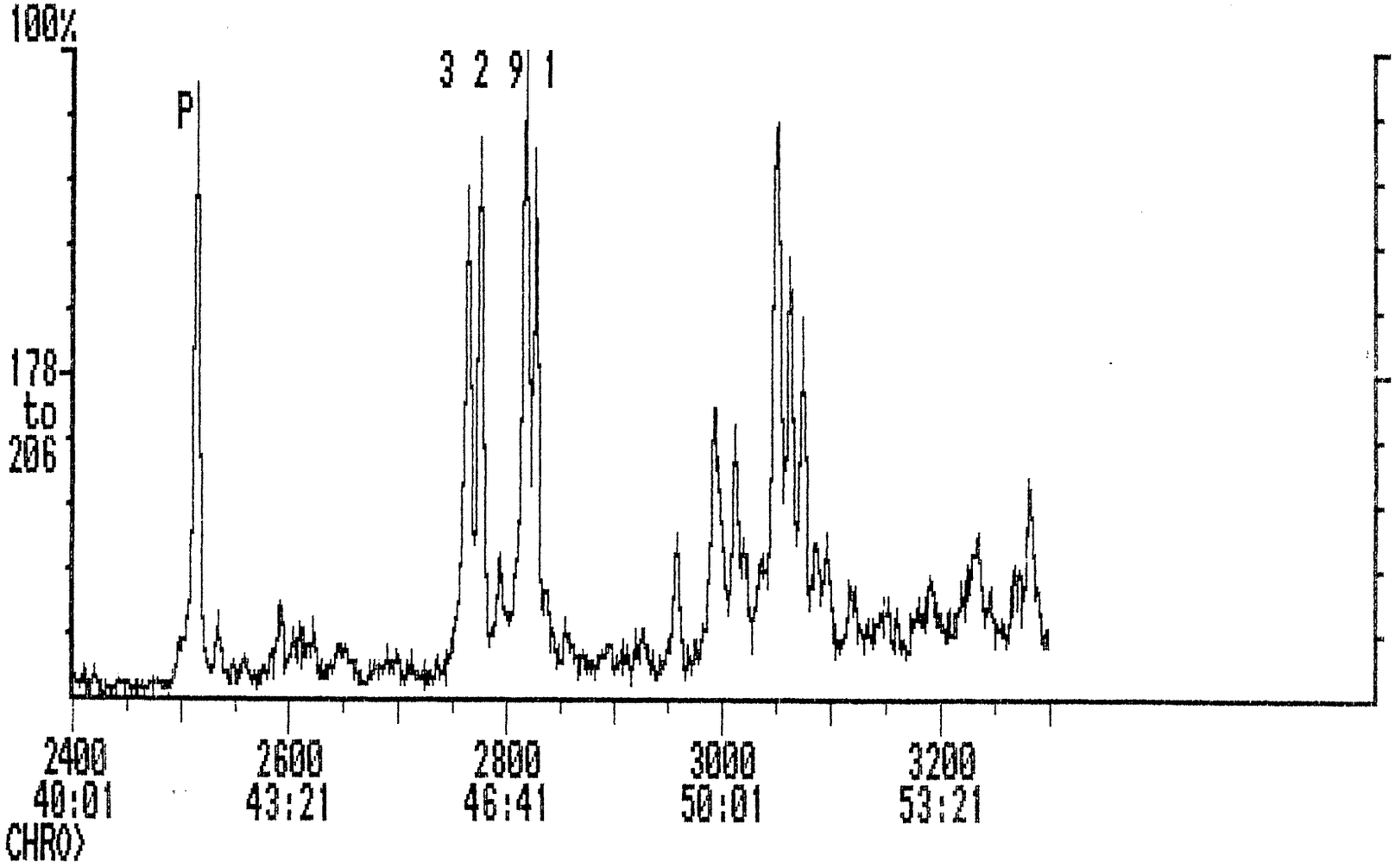
Chromatogram A:MPI124 Acquired: Jun-12-1990 05:09:48
Comment: ARCHER-1 3403.5 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 905 @ 40:01 100% = 11571



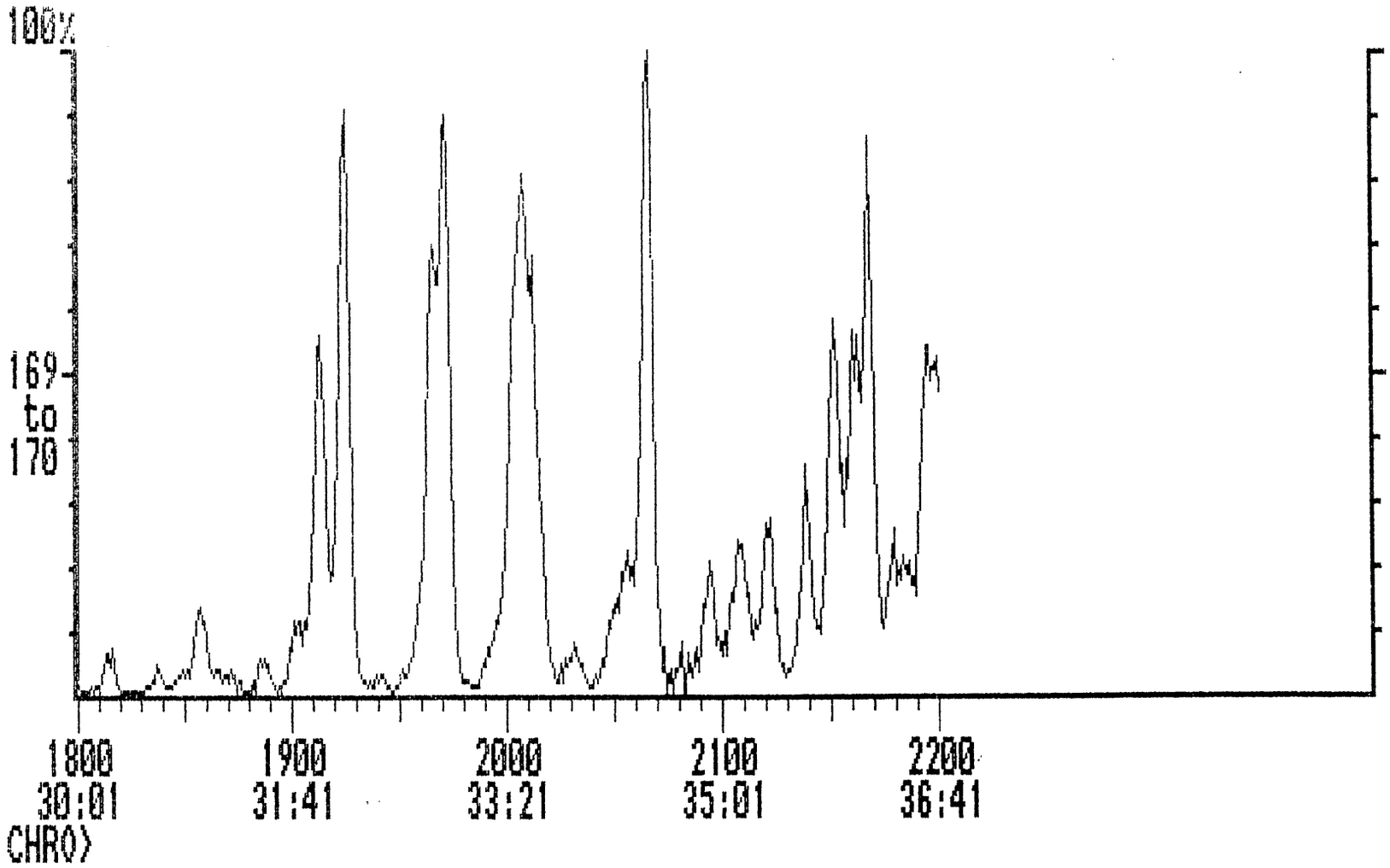
hromatogram A:MPI124 Acquired: Jun-12-1990 05:09:48
omment: ARCHER-1 3403.5 m AMDEL CORE SERVICES
can Range: 1800 - 2200 Scan: 1800 Int = 14 @ 30:01 100% = 1130



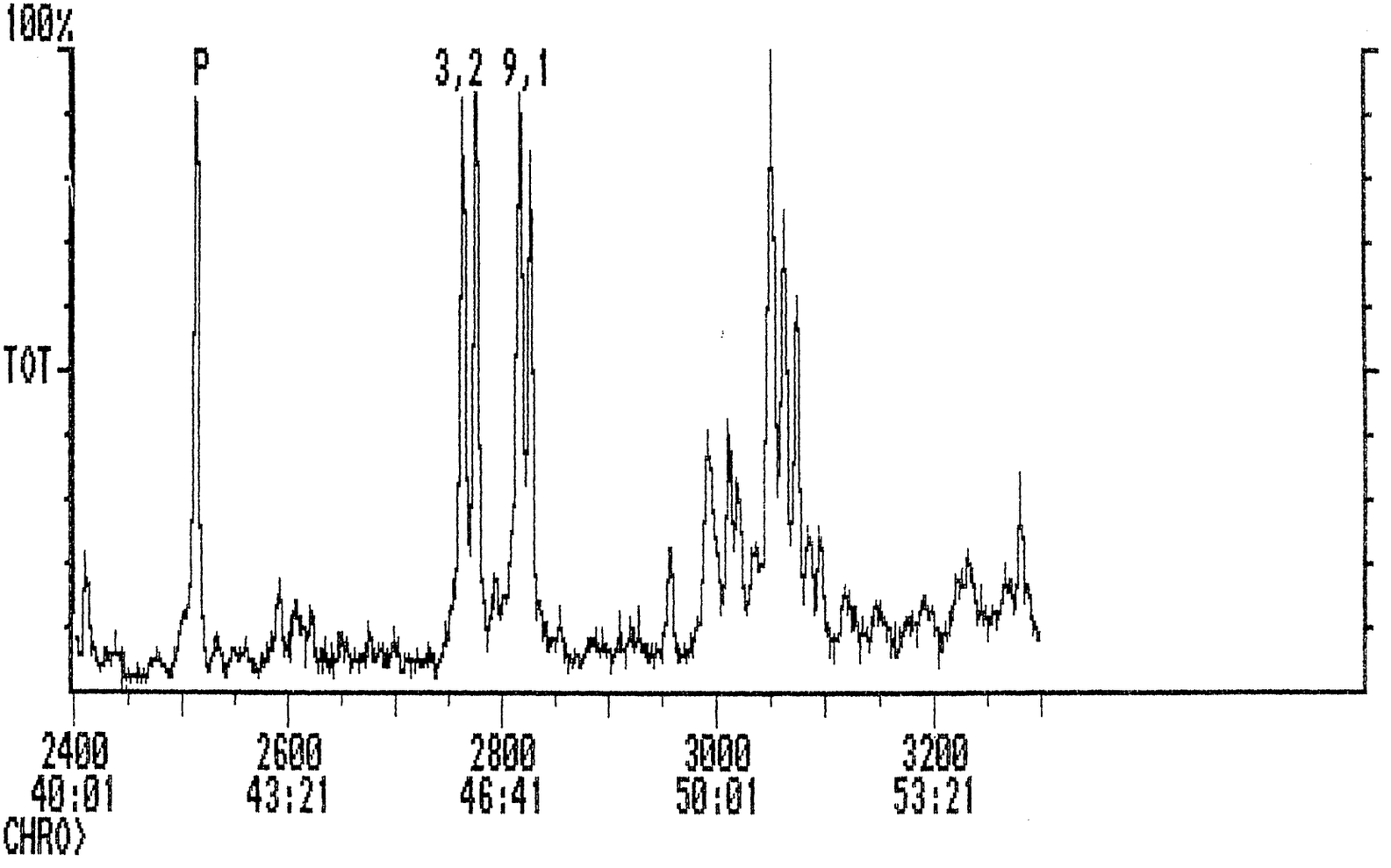
Chromatogram A:MPI125 Acquired: Jun-12-1990 06:23:44
Comment: ARCHER-1 3489.0 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 3031 @ 40:01 100% = 17314



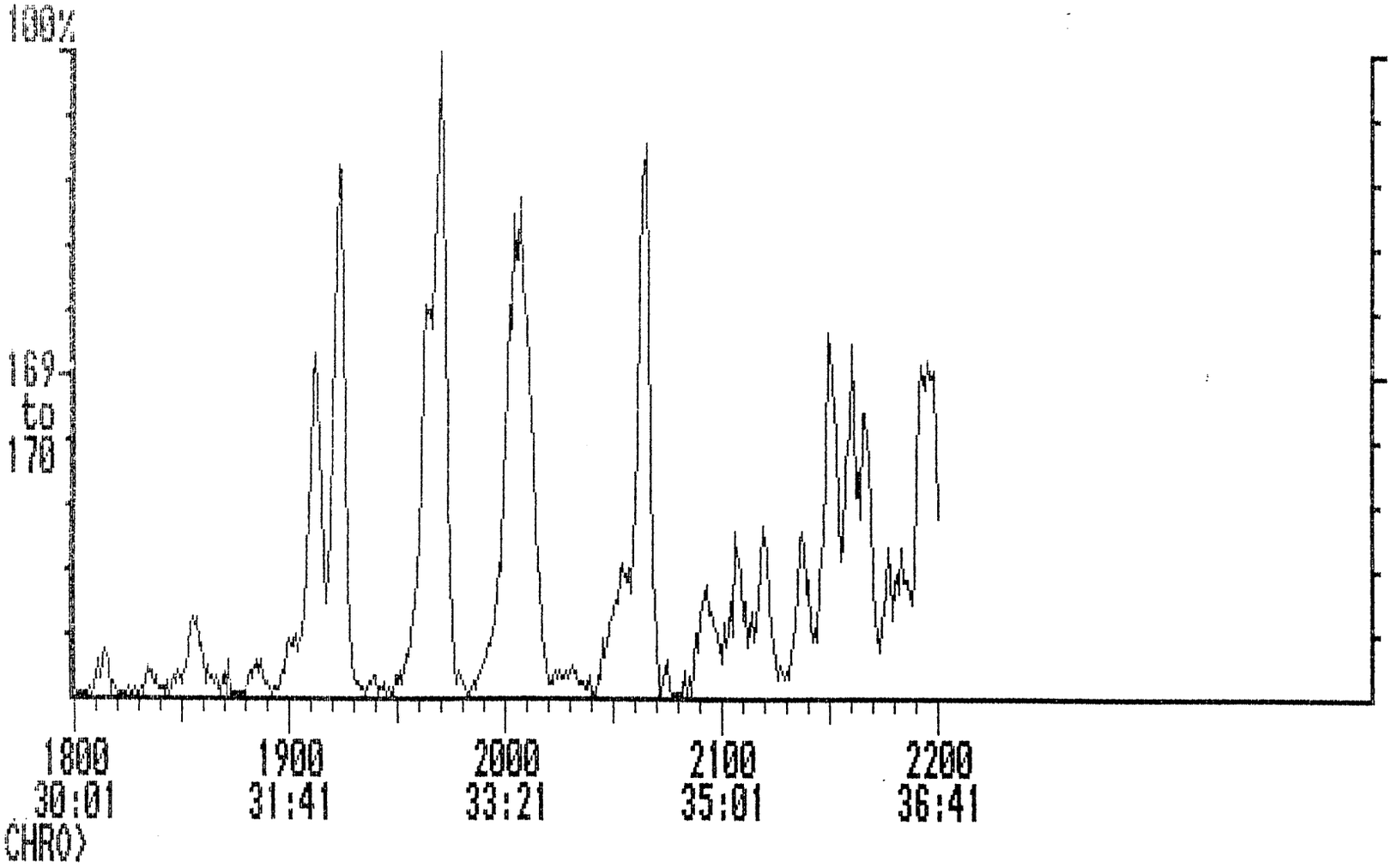
Chromatogram A:MPI125 Acquired: Jun-12-1990 06:23:44
Comment: ARCHER-1 3489.0 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 33 @ 30:01 100% = 4743



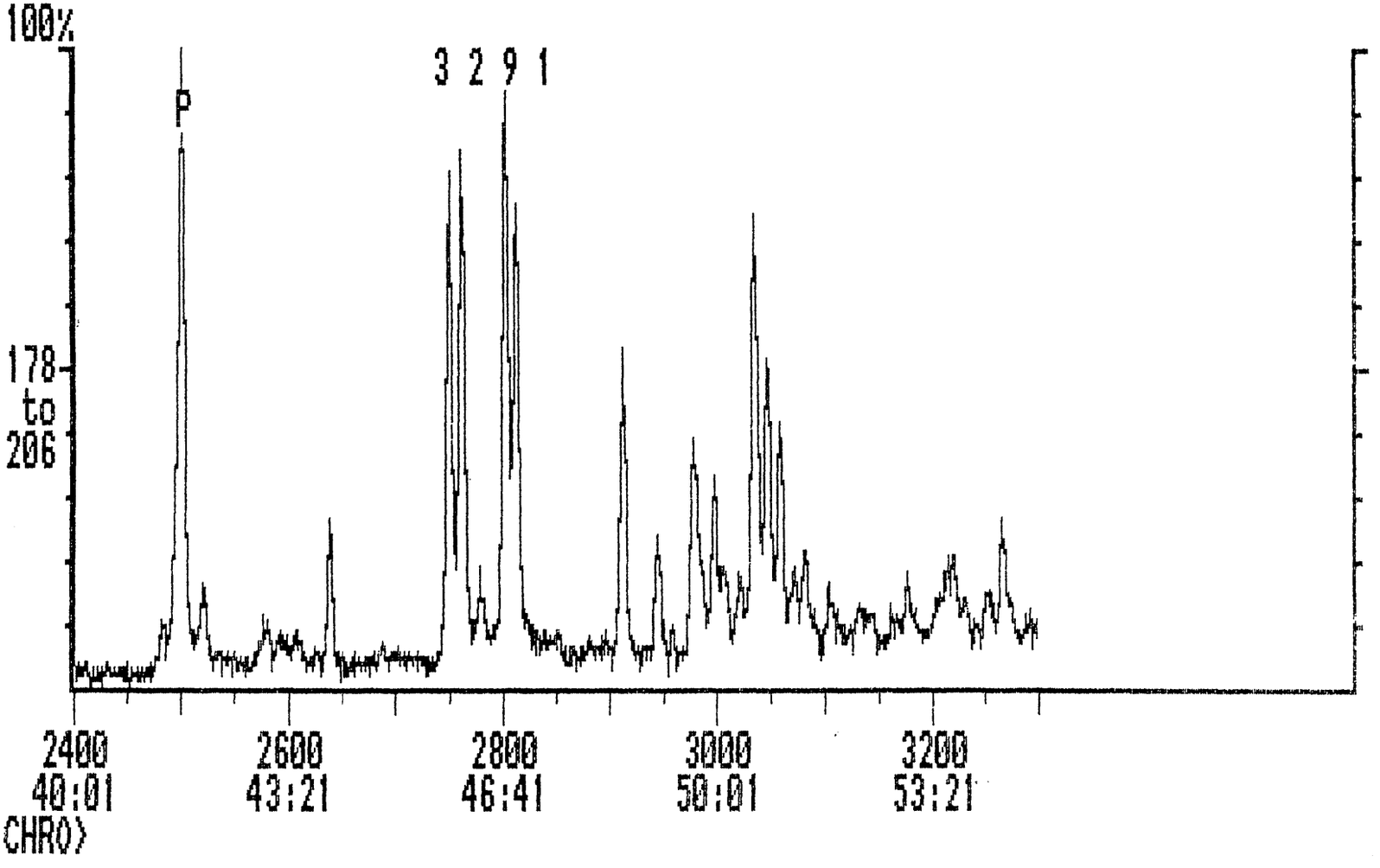
Chromatogram A:MPI122 Acquired: Jun-12-1990 02:42:06
Comment: ARCHER-1 3514.2 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 2576 @ 40:01 100% = 22325



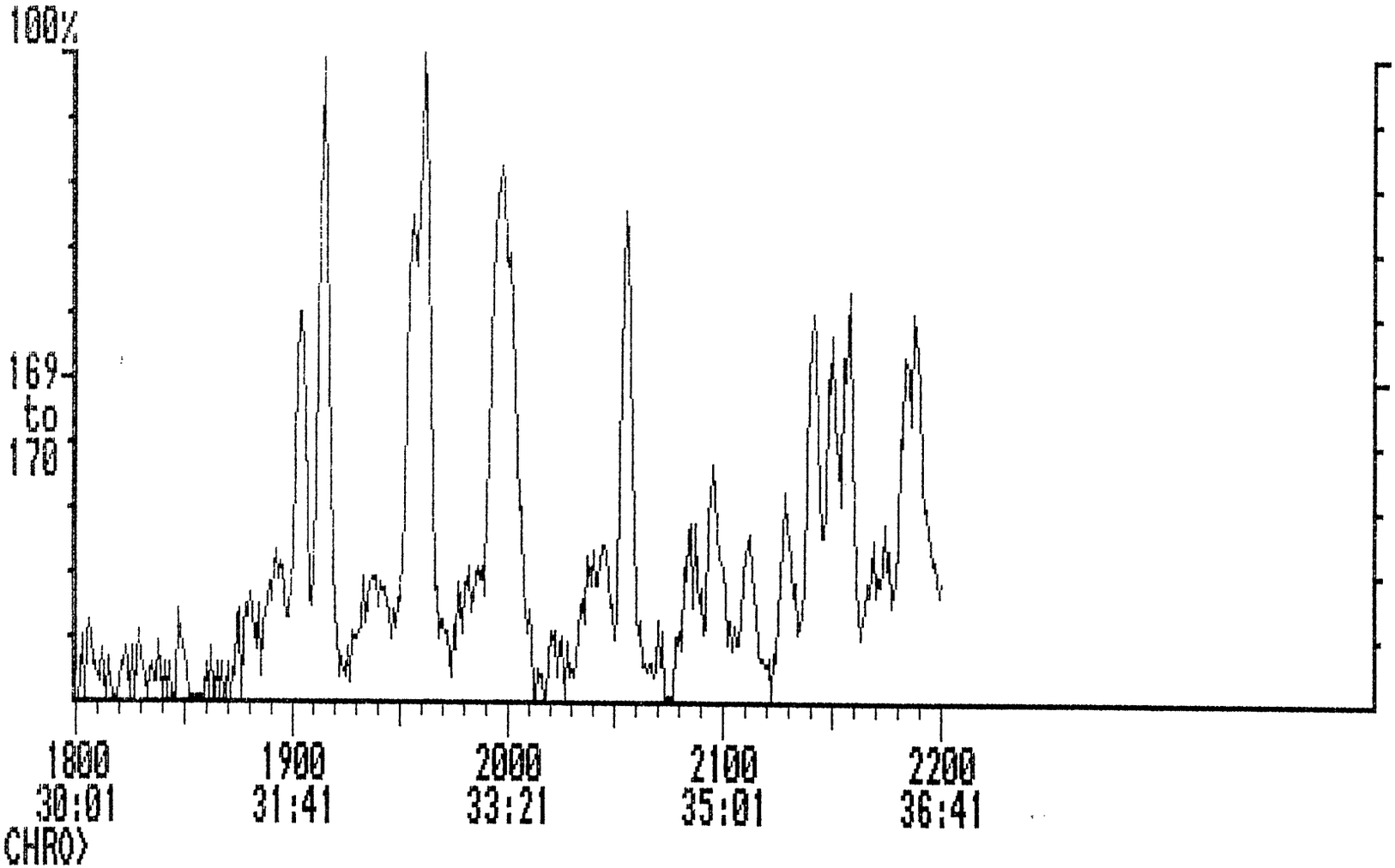
Chromatogram A:MPI122 Acquired: Jun-12-1990 02:42:06
Comment: ARCHER-1 3514.2 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 19 @ 30:01 100% = 3928



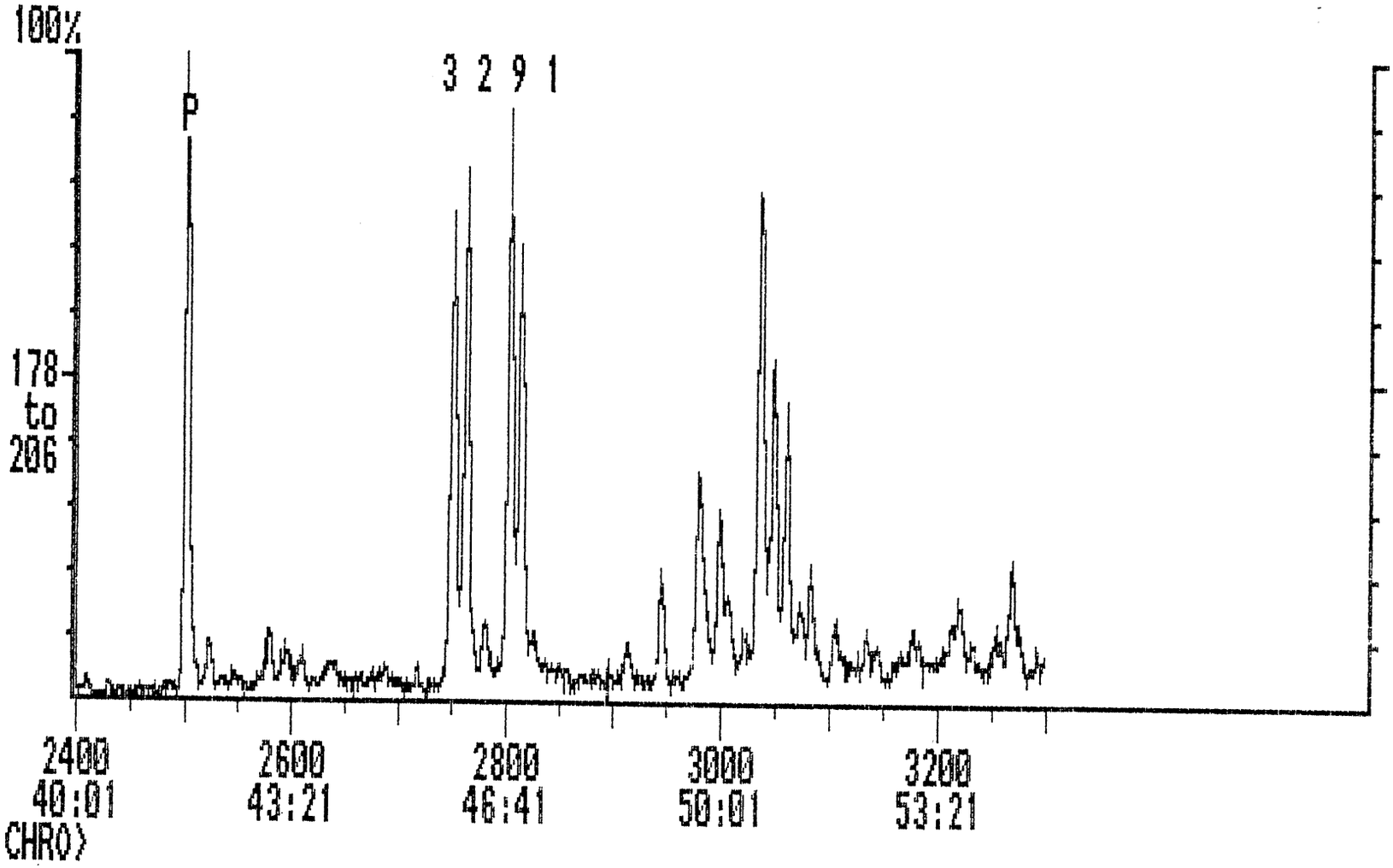
Chromatogram A:MPI126 Acquired: Jun-13-1990 18:59:59
Comment: ARCHER-1 3591.5 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 792 @ 40:01 100% = 2635



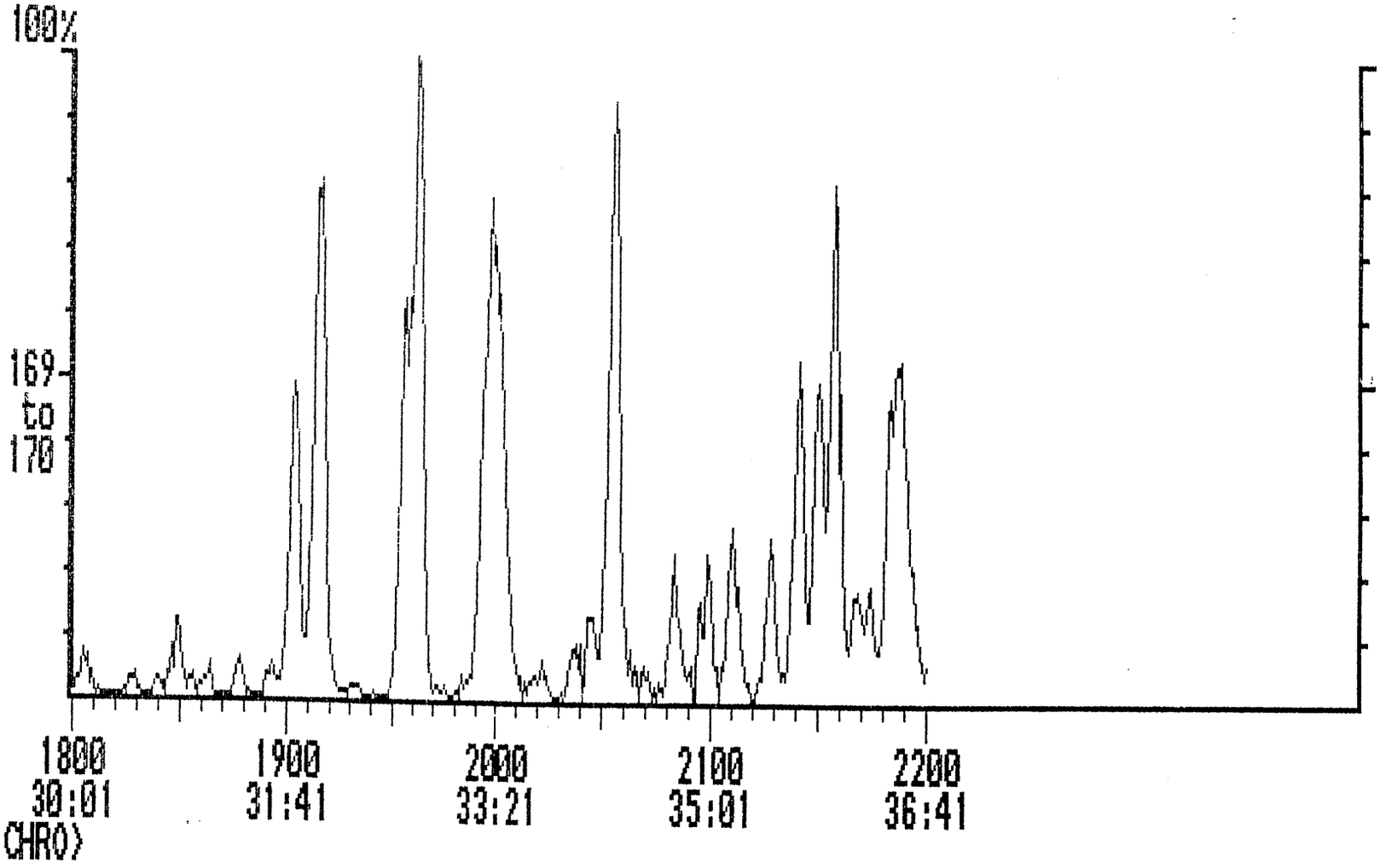
Chromatogram A:MPI126 Acquired: Jun-13-1990 18:59:59
Comment: ARCHER-1 3591.5 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 40 @ 30:01 100% = 485



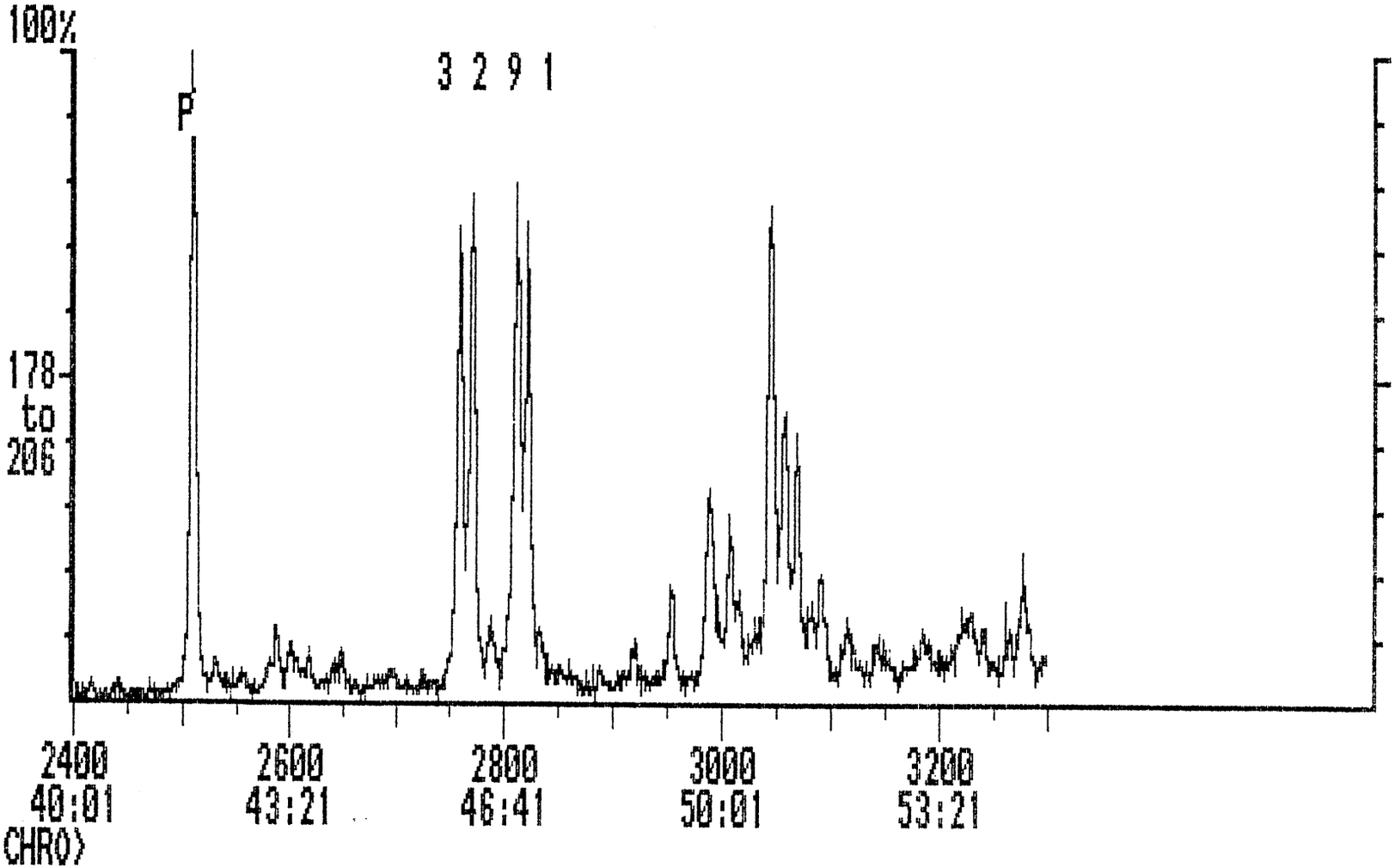
Chromatogram A:MPI127 Acquired: Jun-14-1990 10:44:45
Comment: ARCHER-1 3681.0 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 1416 @ 40:01 100% = 7184



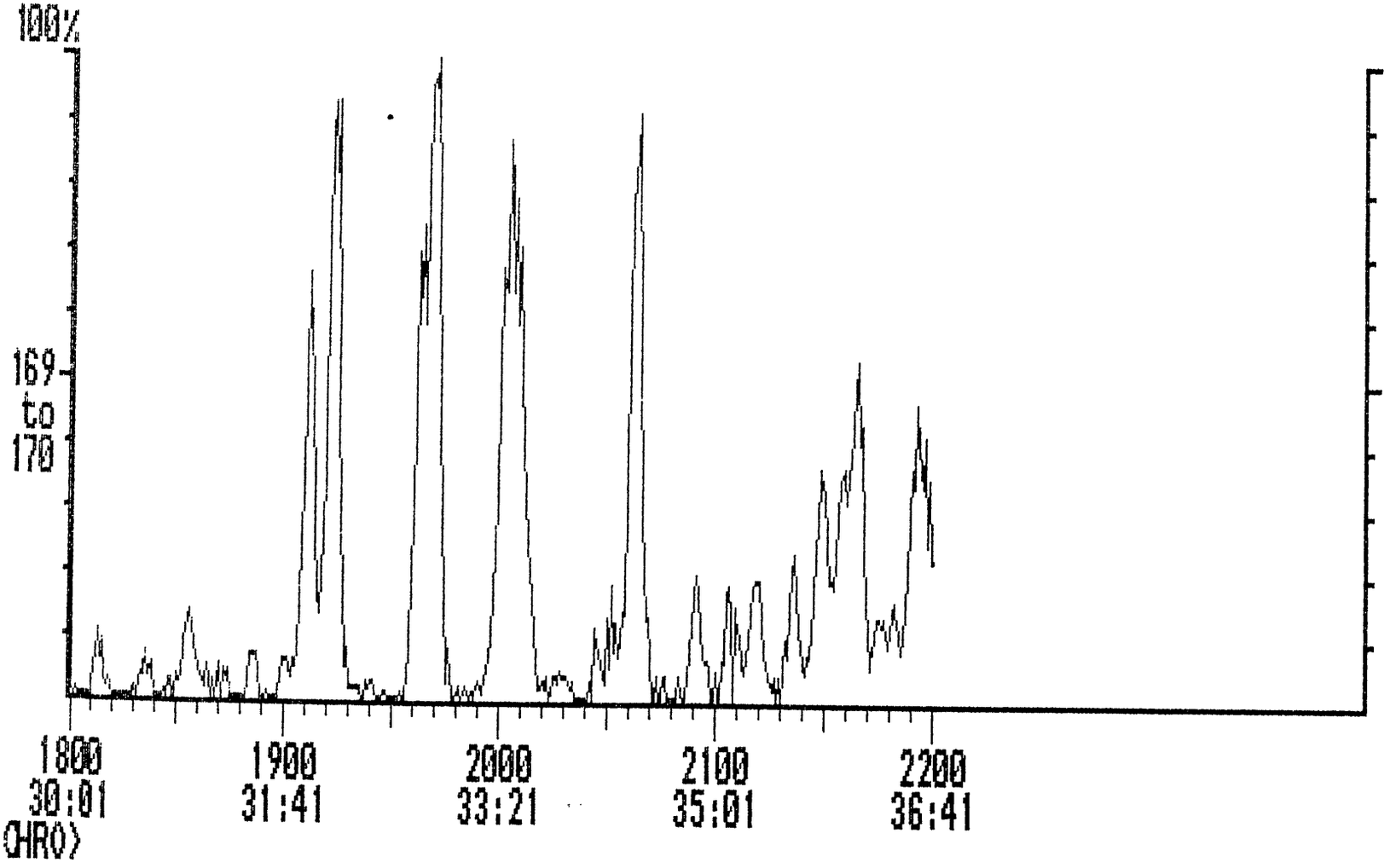
Chromatogram A:MPI127 Acquired: Jun-14-1990 10:44:45
Comment: ARCHER-1 3681.0 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 13 @ 30:01 100% = 1033



Chromatogram A:MPI128 Acquired: Jun-12-1990 10:03:05
Comment: ARCHER-1 3947.5 m AMDEL CORE SERVICES
Scan Range: 2400 - 3300 Scan: 2400 Int = 341 @ 40:01 100% = 5246



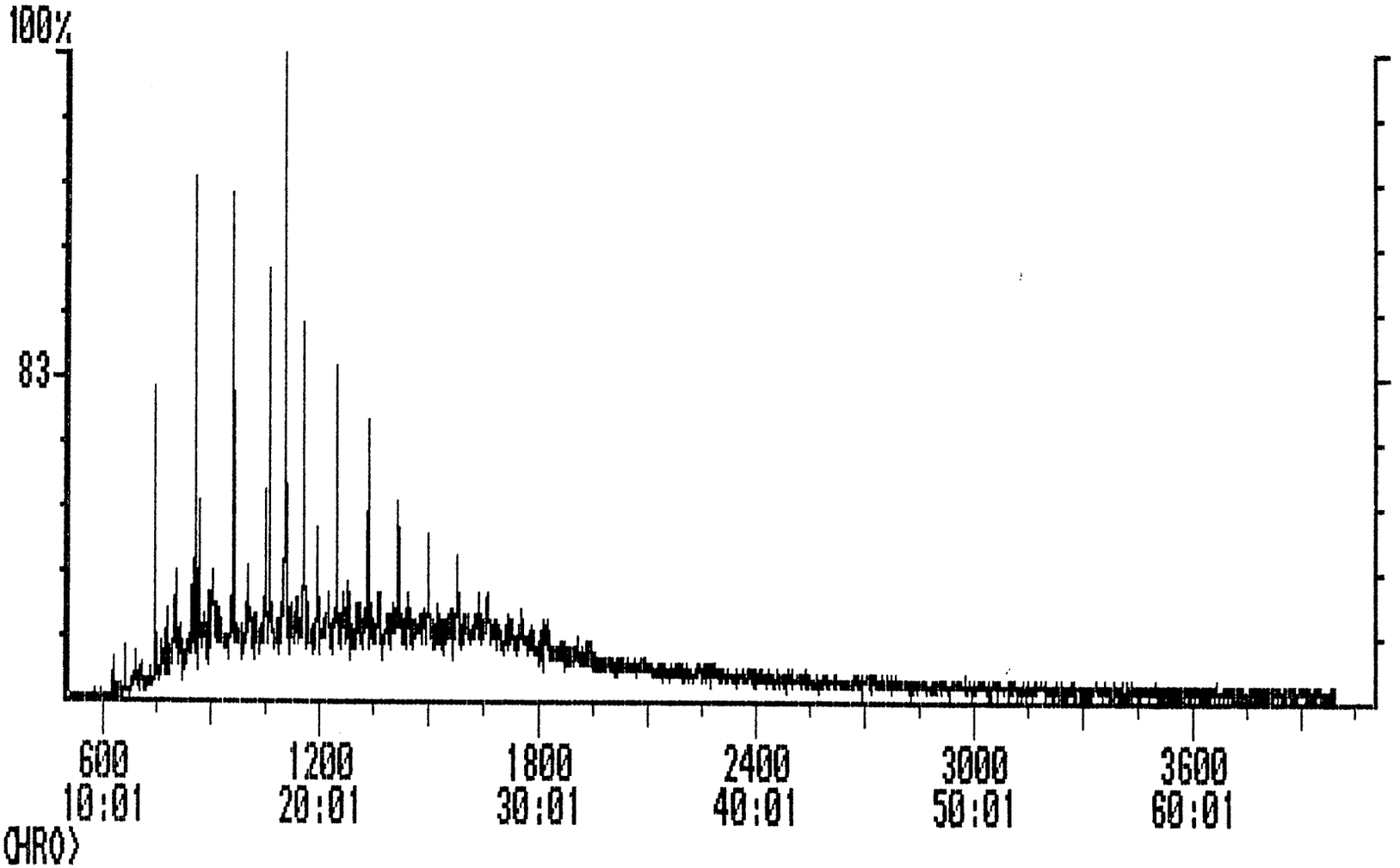
Chromatogram A:MPI128 Acquired: Jun-12-1990 10:03:05
Comment: ARCHER-1 3947.5 m AMDEL CORE SERVICES
Scan Range: 1800 - 2200 Scan: 1800 Int = 11 @ 30:01 100% = 1299



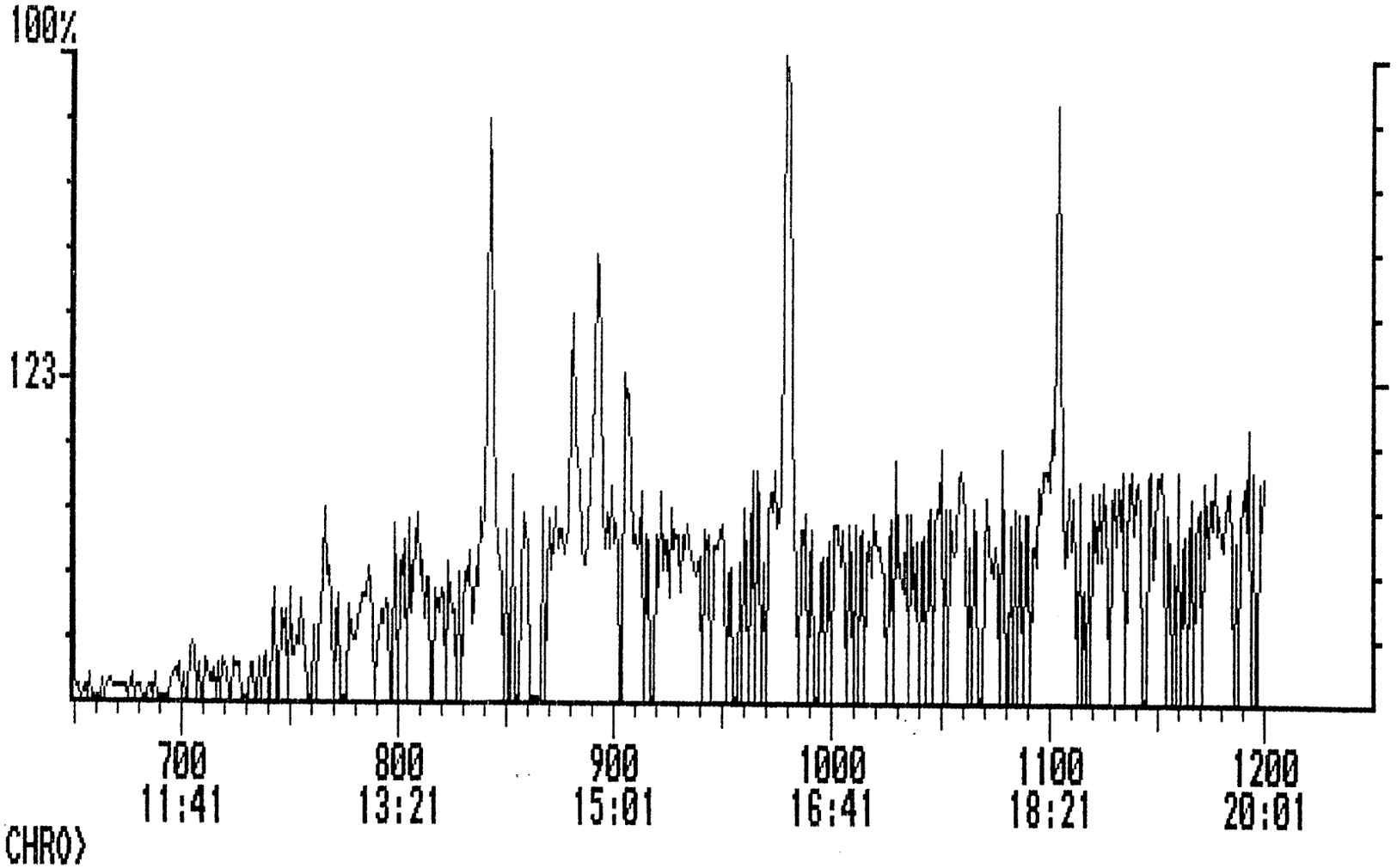
APPENDIX 3

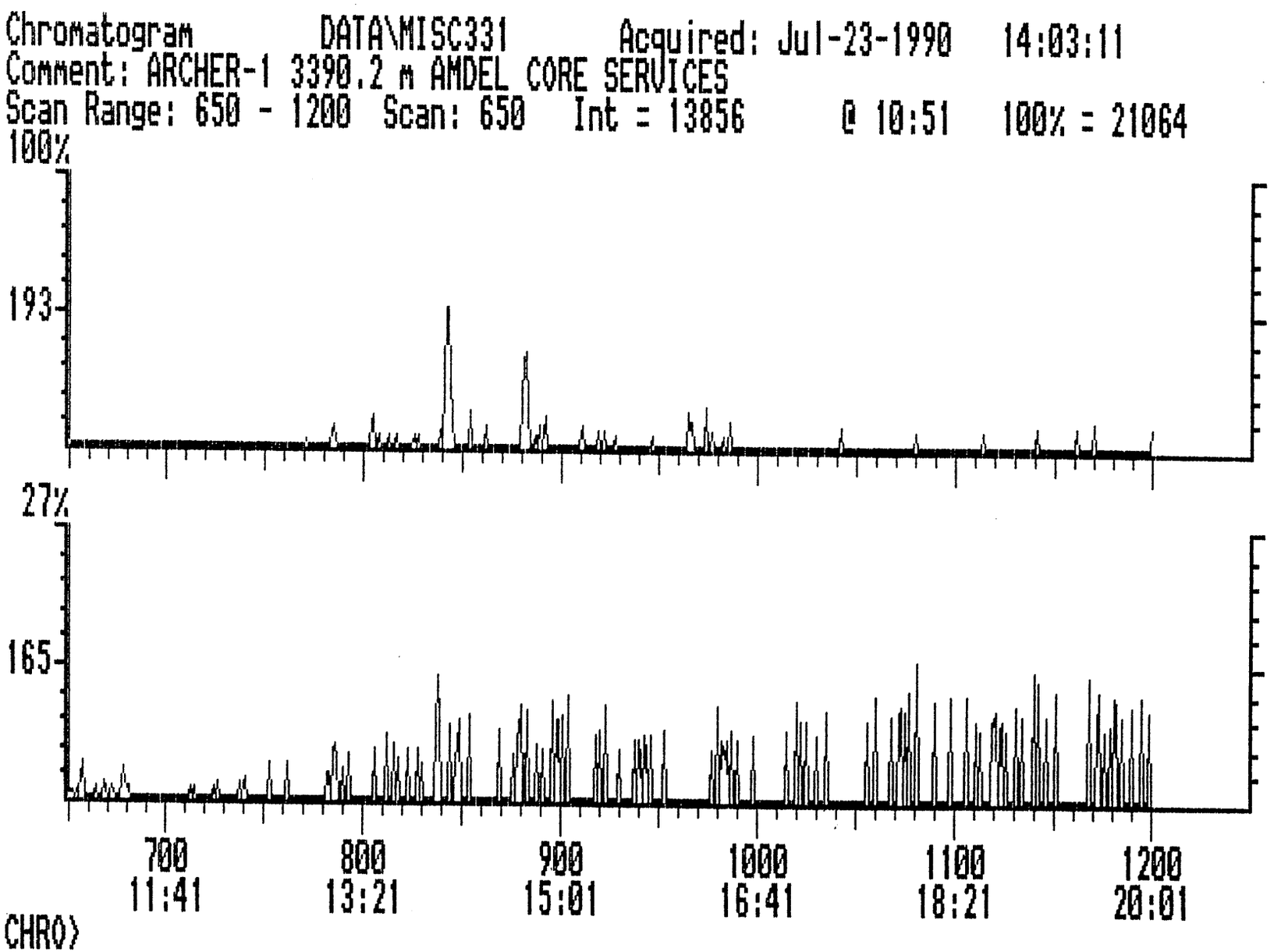
GC-MS OF NAPHTHENES, ARCHER -1

Chromatogram DATA\MISC331 Acquired: Jul-23-1990 14:03:11
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 500 - 4000 Scan: 500 Int = 926 @ 8:21 100% = 80400

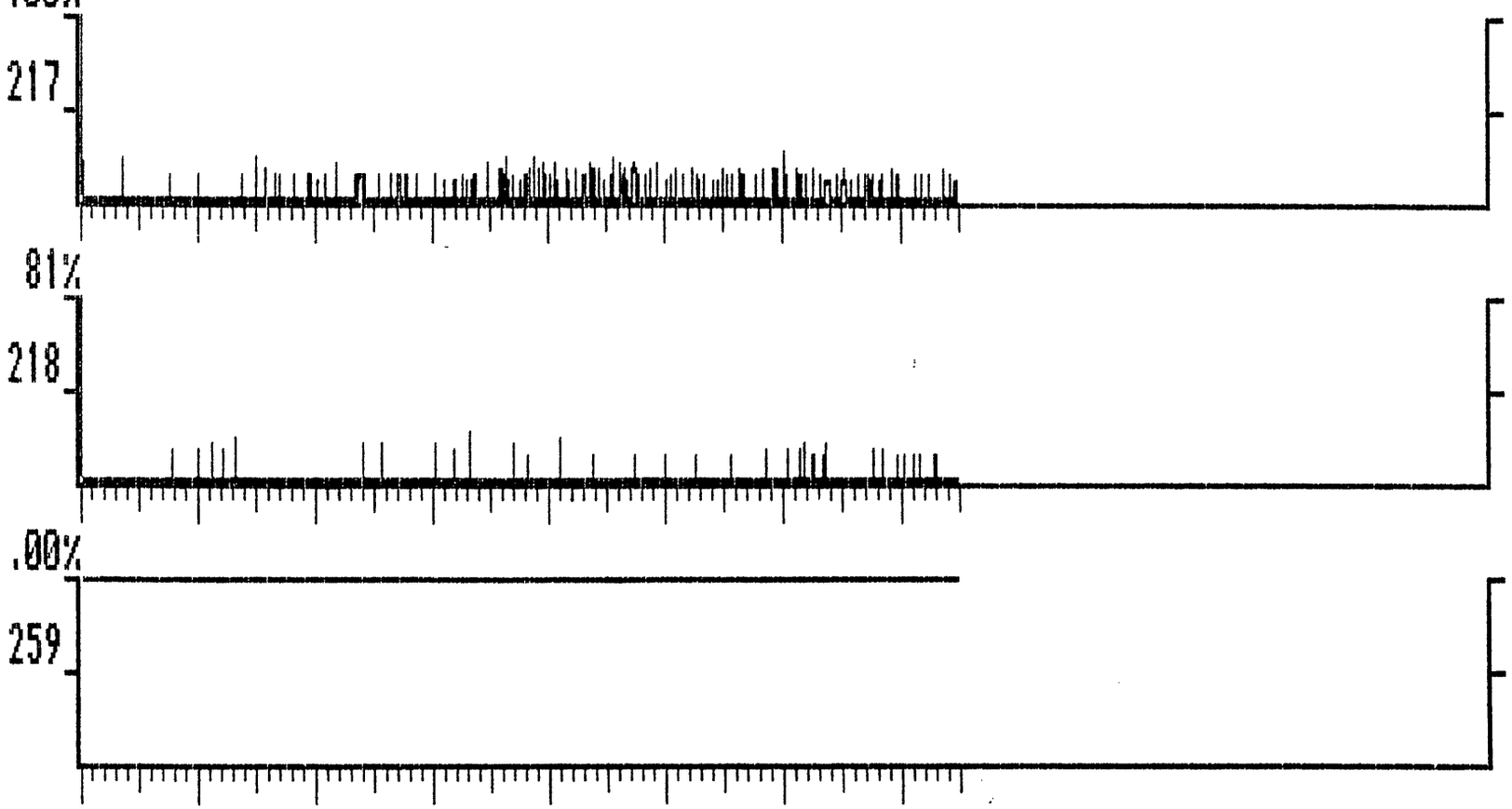


Chromatogram DATA\MISC331 Acquired: Jul-23-1990 14:03:11
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 650 - 1200 Scan: 650 Int = 13856 @ 10:51 100% = 11786



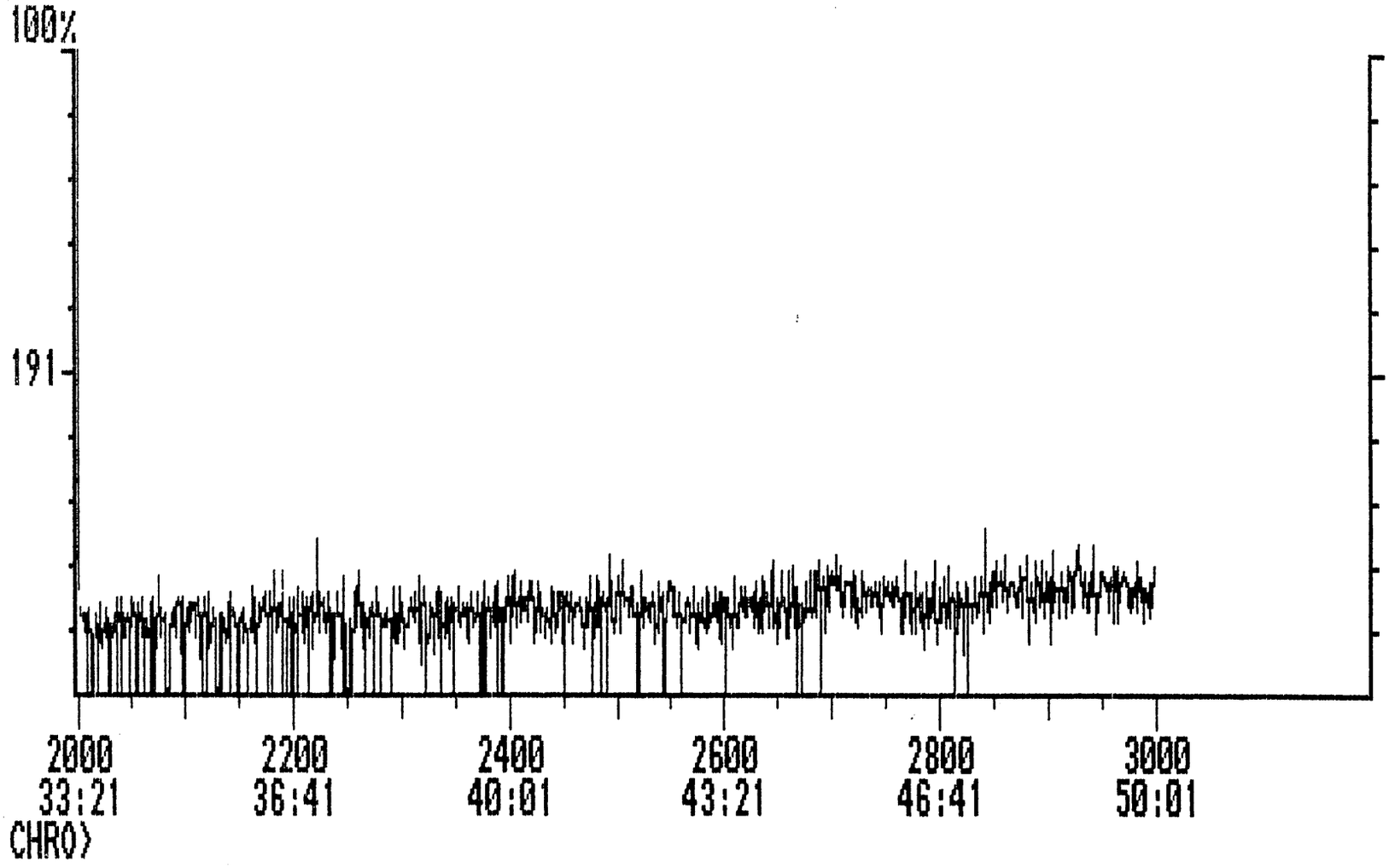

Chromatogram DATA\MISC331 Acquired: Jul-23-1990 14:03:11
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 650 - 1200 Scan: 650 Int = 13856 @ 10:51 100% = 21064
100%
193
27%
165
700
11:41
800
13:21
900
15:01
1000
16:41
1100
18:21
1200
20:01
CHRO>

Chromatogram DATA\MISC331 Acquired: Jul-23-1990 14:03:11
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 1800 - 2550 Scan: 1800 Int = 92312 @ 30:01 100% = 5504



CHRO>

Chromatogram DATA\MISC331 Acquired: Jul-23-1990 14:03:11
Comment: ARCHER-1 3390.2 m AMDEL CORE SERVICES
Scan Range: 2000 - 3000 Scan: 2000 Int = 67037 @ 33:21 100% = 13840



APPENDIX 5

WELL COMPLETION REPORT

ARCHER-1

BASIC DATA

A P P E N D I X 5

FLUID ANALYSIS

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

PETROLAB

Fax: 364 150(
Telex: AA8821
Tel: (08) 364 150(
(08) 333 078

Reservoir Fluid and Core Services, Laboratory Consulting and Analysis

Adelaide, May 4 1990
P. O. Box 410
Magill
S. A. 5072

Petrofina Exploration
(Australia S. A.)
Level 2, # 476 St. Kilda Road
Melbourne, Vic. 3004

Subject: Reservoir Fluid Study
Well : Archer # 1
File : P - 90015

Attention: Mr. Nick Grollman

Dear Sirs,

Please find enclosed results of reservoir fluid analyses performed on samples transferred from R F T tools ran in subject well.

The validity of the samples was checked by determining the room temperature bubble points of the transferred samples.

We then proceeded with compositional analyses of the bottom hole samples by flashing a small portion at atmospheric conditions and analysing the flashed products for composition, by means of chromatography, density and molecular weight.

A mathematical recombination into their produced ratios resulted in the reservoir fluid composition. All reservoir fluid compositions were extended to C12+, by means of high temperature distillations.

Another portion of each bottom hole sample was introduced into a visual P V T cell where at the reservoir temperature a constant mass study was performed.

We then proceeded with viscosity measurements of the reservoir oil samples at reservoir temperature.

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

Sincerely Yours,

Jan G. Bon
Manager

P E T R O L A B

Company: Petrofina Exploration Australia S. A.
Well : Archer # 1 File: P 90015

REPORT INDEX

P E T R O L A B

Company: Petrofina Exploration Australia S. A.
Well : Archer # 1 File: P 90015

REPORT INDEX

(CONTINUED)

R F T SAMPLE # 4 EX RFS AD 1129 Page

R F T SAMPLE # 5 EX RFS AD 1120 Page

P E T R O L A B

Company: Petrofina Exploration Australia S. A.
Well : Archer # 1 File: P 90015

REPORT INDEX

(CONTINUED)

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

File: P 90015

SUMMARY OF RESULTS

R F T Sample # 1

RFT Chamber #	:	RFS 1131
Depth	:	3390.2 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	600 psig @ 28 deg C
Reservoir Pressure (psig)	:	4819.1
Reservoir Temperature (°F)	:	194

Warmed up RFT chamber
Injected 95 cc's of mercury into chamber to stir up sample.
Compressed to 6000 psig with 350 cc's of water behind piston.
Transferred 1800 cc's into Petrolab cylinders # 113,120 and 116 @ 6000 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury, an additional 720 cc's of oil and approximately 430 cc's of mud / water mixture.

CONSTANT MASS DATA:

Saturation Pressure (psig)	:	925 @ 194 °F
Thermal Expansion @ 5000 psig (1/°C)	:	0.0012692
(1/°F)	:	0.0007051
Compressibility of saturated oil	@	194 °F
	&	925 psig
(1/psi) * 10^-6		26.25

ATMOSPHERIC FLASH DATA OF SATURATED OIL:

1) From P V T storage cylinder for compositional purposes.

Solution GOR (scf/bbl)	:	831
Formation Volume Factor (rbbl/stbbl)	:	1.6929
Molecular Weight	:	86.2

RESIDUAL OIL:

API Gravity @ 60 °F	:	51.2
Density @ 60 °F (gm/cc)	:	0.7739
Molecular Weight	:	132.1

1) From P V T cell after constant mass study.

GOR (scf/bbl)	:	872
Formation Volume Factor (rbbl/stbbl)	:	1.7089
Shrinkage (stbbl/rbbl)	:	0.585
Oil Density (gm/cc @ PT)	:	0.619 *
Specific Volume (ft3/lb @ PT)	:	0.02588 *

RESIDUAL OIL:

API Gravity @ 60 °F	:	43.8
Density @ 60 °F (gm/cc)	:	0.8062

* P(ressure) 925 psig, T(emperature) 194 °F

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 1.

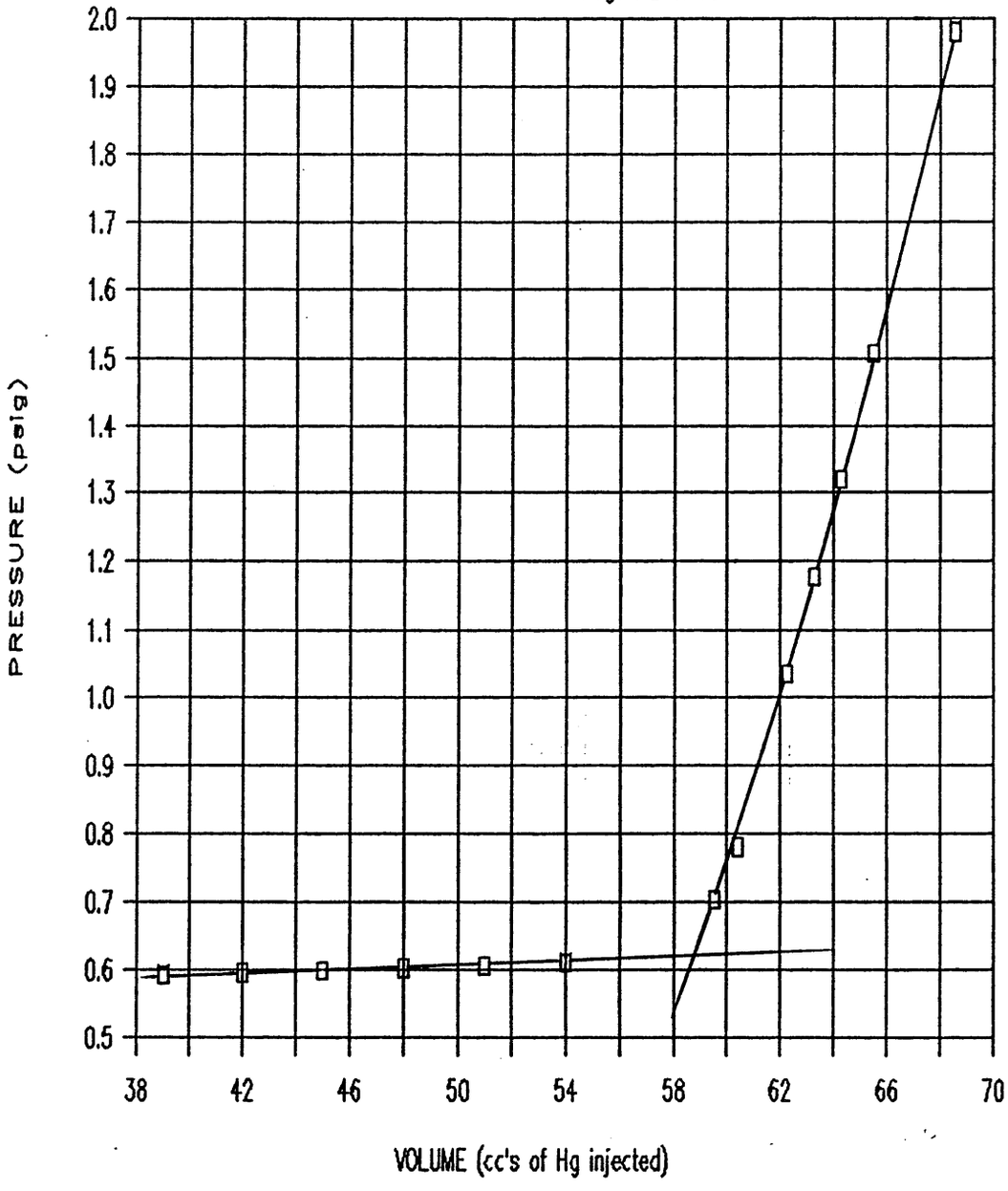
Sampling Conditions

Depth : 3390.2 m
KB : 28 m
R F T Chamber No : RFS AD 1131
Capacity : 1 Gallon
Res. Pressure : 4819.1 psig
Res. Temperature : 194 deg F

Opening Pressure : 600 psig
Temperature : 28 deg C
Transferred to : Cylinder #.L - 113

Volume (cc's)	Pressure (psig)
39.00	593
42.00	596
45.00	600
48.00	603
51.00	607
54.00	611
59.50	705
60.40	781
62.25	1035
63.25	1178
64.25	1321
65.50	1507
68.55	1980

Saturation Pressure : 620 psig @ 31 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 2

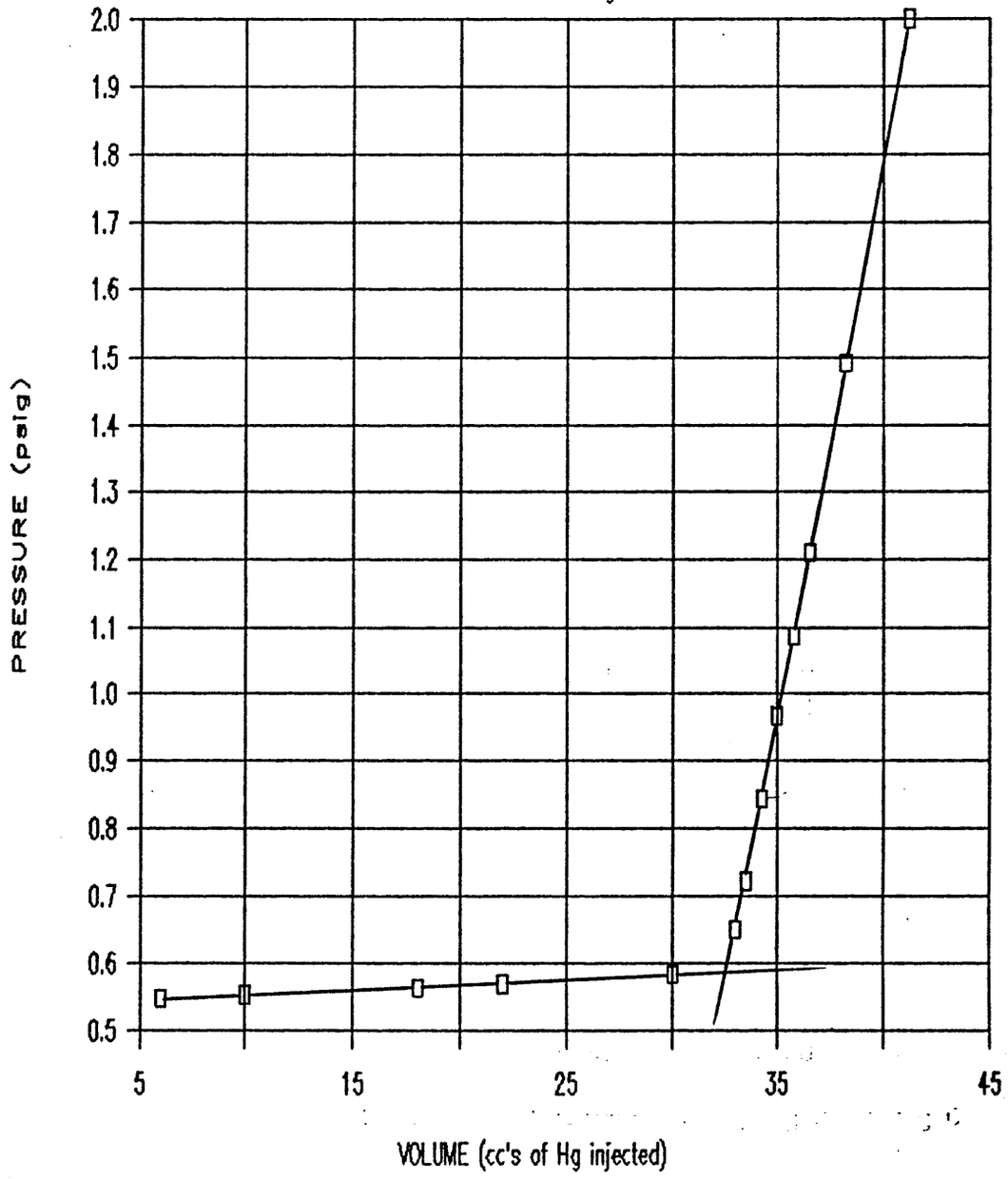
Sampling Conditions

Depth : 3390.2 m
KB : 28 m
R F T Chamber No : RFS AD 1131
Capacity : 1 Gallon
Res. Pressure : 4819.1 psig
Res. Temperature : 194 deg F

Opening Pressure : 600 psig
Temperature : 28 deg C
Transferred to : Cylinder # L - 120

Volume (cc's)	Pressure (psig)
6.00	549
10.00	554
18.00	564
22.00	570
30.00	584
33.00	651
33.50	723
34.25	845
35.00	966
35.75	1087
36.50	1211
38.20	1491
41.22	2000

Saturation Pressure : 592 psig @ 30 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 3

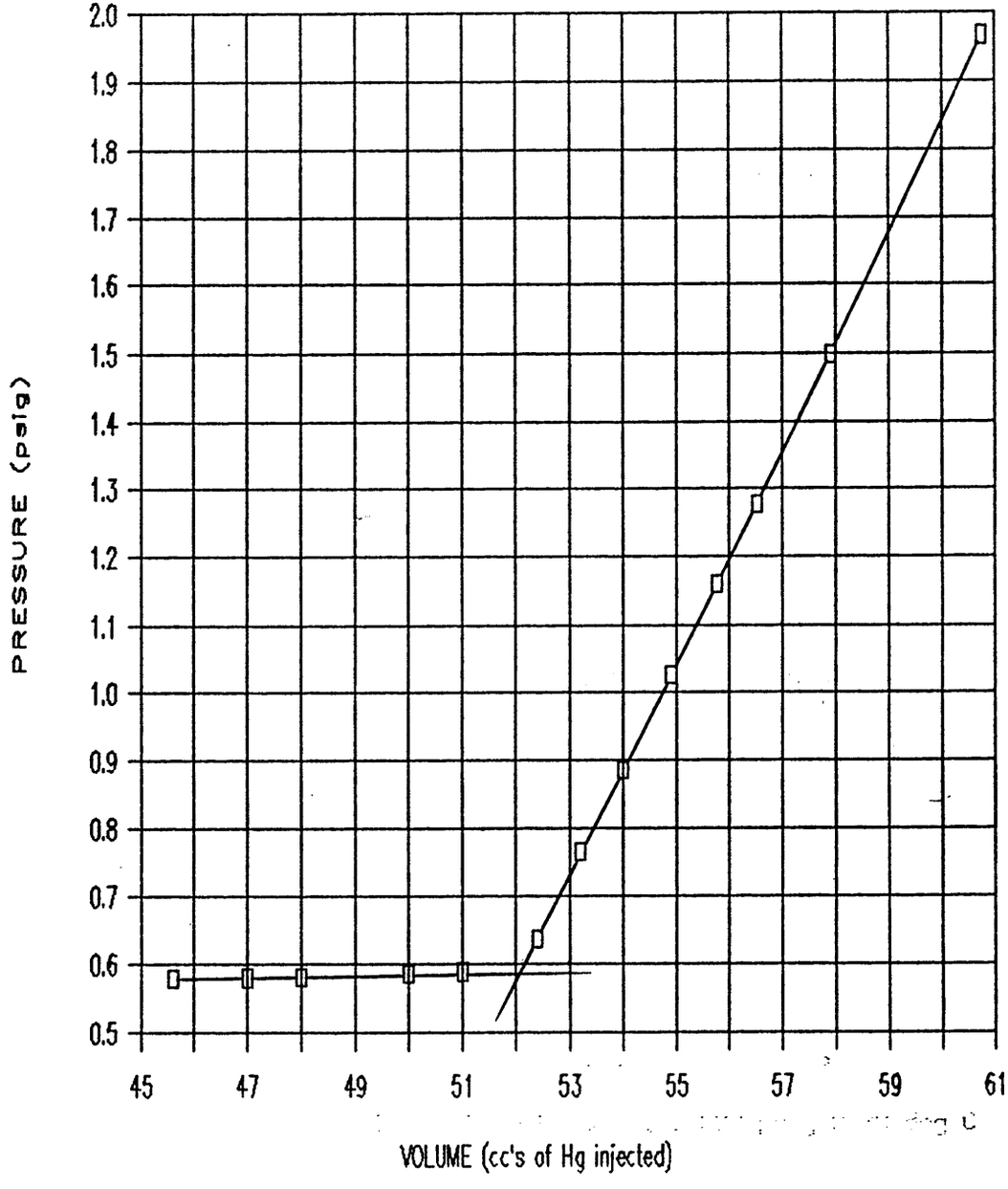
Sampling Conditions

Depth : 3390.2 m
KB : 28 m
R F T Chamber No : RFS AD 1131
Capacity : 1 Gallon
Res. Pressure : 4819.1 psig
Res. Temperature : 194 deg F

Opening Pressure : 600 psig
Temperature : 28 deg C
Transferred to : Cylinder # L - 116

Volume (cc's)	Pressure (psig)
45.60	580
47.00	581
48.00	583
50.00	586
51.00	589
52.40	637
53.20	766
54.00	887
54.90	1027
55.75	1160
56.50	1278
57.90	1499
60.75	1966

Saturation Pressure : 592 psig @ 30 deg C



Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1131

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	11.42	85	6.49	0.6776	7.65	77.1
Heptanes	85 - 112	20.56	95	13.15	0.7353	14.28	60.8
Octanes	113 - 138	11.32	109	8.32	0.7539	8.81	56.0
Nonanes	139 - 162	9.33	118	7.42	0.7747	7.65	51.0
Decanes	163 - 185	7.16	133	6.41	0.7845	6.53	48.7
Undecanes	186 - 206	4.34	147	4.28	0.7931	4.31	46.7
Dodecanes Plus	> 206	35.87	224	53.93	0.8485	50.77	35.1
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1131

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.01	0.75	0.39
Nitrogen	N2	0.00	0.30	0.15
Methane	C1	0.14	23.83	12.36
Ethane	C2	0.65	19.12	10.18
Propane	C3	2.98	24.31	13.99
Iso-Butane	iC4	1.87	6.08	4.04
N-Butane	nC4	4.68	10.57	7.72
Iso-Pentane	iC5	4.17	3.57	3.86
N-Pentane	nC5	4.63	3.09	3.84
Hexanes	C6	9.23	3.57	6.31
Heptanes	C7	16.62	3.28	9.74
Octanes	C8	9.15	0.96	4.93
Nonanes	C9	7.54	0.47	3.89
Decanes	C10	5.79	0.08	2.84
Undecanes	C11	3.51	0.02	1.71
Dodecanes Plus	C12+	29.01	0.00	14.05
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.4840	0.5160	1.0000
Mass Ratio	:	0.7421	0.2579	1.0000
Liquid Ratio (bbl/bbl)	:	1.0000 @ SC	--	1.6929 @ PT*
Gas Liquid Ratio	:	1.0000 bbl @ SC	831 SCF	--
Stream Properties				
Molecular Weight	:	132.1	43.04	86.2
Density obs. (gm/cc)	:	0.7739 @ 60 F	--	0.6190 @ PT*
Gravity (AIR = 1.000)	:	51.2 API @60F	1.512	--
GHV (BTU/scf)	:	--	2479.0	--
Hexanes Plus Properties				
Mol %	:	80.86	8.38	43.47
Molecular Weight	:	148.8	93.7	143.4
Density (gm/cc @ 60 F)	:	0.7987	0.6805	0.7898
Gravity (API @ 60 F)	:	45.5	76.2	47.5
Heptanes Plus Properties				
Mol %	:	71.63	4.81	37.16
Molecular Weight	:	157.1	100.9	153.3
Density (gm/cc @ 60 F)	:	0.8088	0.6903	0.8027
Gravity (API @ 60 F)	:	43.3	73.3	44.6
Decanes Plus Properties				
Mol %	:	38.31	0.10	18.60
Molecular Weight	:	203.2	135.8	202.6
Density (gm/cc @ 60 F)	:	0.8378	0.7296	0.8378
Gravity (API @ 60 F)	:	37.2	62.3	37.2
Undecanes Plus Properties				
Mol %	:	32.52	0.02	15.76
Molecular Weight	:	215.7	147.0	215.5
Density (gm/cc @ 60 F)	:	0.8441	0.7400	0.8441
Gravity (API @ 60 F)	:	36.0	59.5	36.0
Dodecanes Plus Properties				
Mol %	:	29.01	--	14.05
Molecular Weight	:	224.0	--	224.0
Density (gm/cc @ 60 F)	:	0.8485	--	0.8485
Gravity (API @ 60 F)	:	35.1	--	35.1

* P(ressure) 925 psig, T(emperature) 194 °F

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 194 deg F

ON BOTTOM HOLE SAMPLE EX RFS AD 1131

Thermal Expansion of reservoir fluid at 5000 psig:
= Volume at 194 deg F / Volume at 75 deg F = 1.086805

Pressure (psig)		Relative Volume (V/Vsat) (1)	Oil Compressibility (x 10^-6) (psig^-1) (2)	Y Function (3)	Oil Viscosity
5000		0.9263	13.25		0.452
4833	*	0.9285	13.57		0.449
4000		0.9401	14.92		0.431
3500		0.9477	15.97		0.420
3000		0.9558	17.01		0.409
2500		0.9647	18.48		0.398
2000		0.9745	19.95		0.387
1500		0.9853	22.05		0.377
1000		0.9980	25.45		0.366
925	**	1.0000	26.25		0.365
895		1.0280		1.197	0.366
850		1.0812		1.086	0.367
785		1.1748		1.020	0.371
720		1.2920		0.975	0.376
655		1.4428		0.931	0.381
580		1.6767		0.879	0.386
520		1.9294		0.838	0.394
460		2.2683		0.797	0.402
385		2.8751		0.748	0.414
310		3.8962		0.685	0.429
240		5.3843		0.651	0.446
0					0.674

* Reservoir pressure
** Saturation pressure

(1) Barrels at indicated pressure per barrel at saturation pressure.

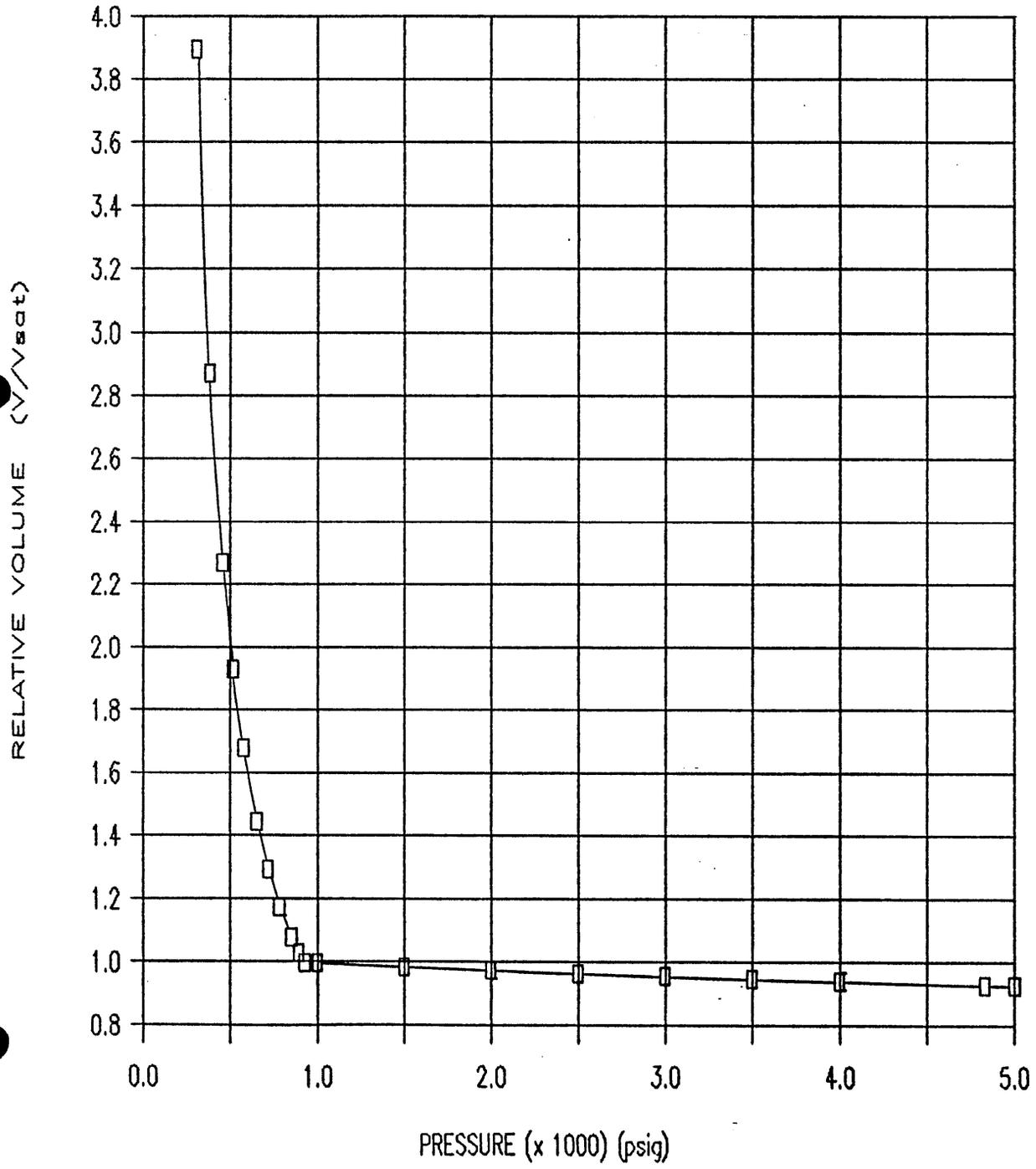
(2) Oil Compressibility = - (1/V) * (dV/dP)

(3) Y Function = (Psat - P) / (P)*(V/Vsat-1)

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

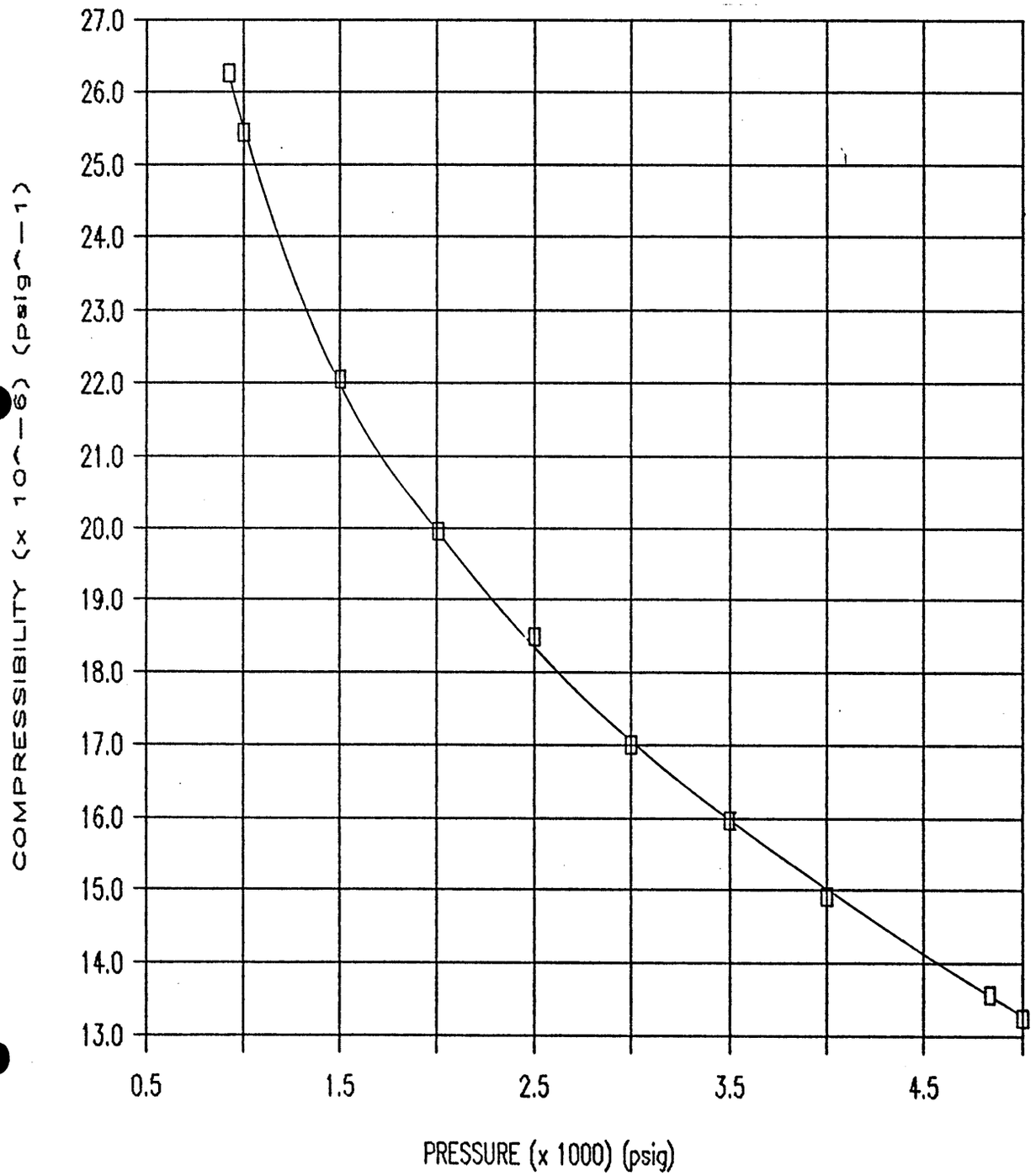
File: 90015

RELATIVE VOLUME
RFS: AD-1131



Company: Petrofina Exploration Australia Ltd. Page: 9 of 78
Well : Archer # 1 File: 90015

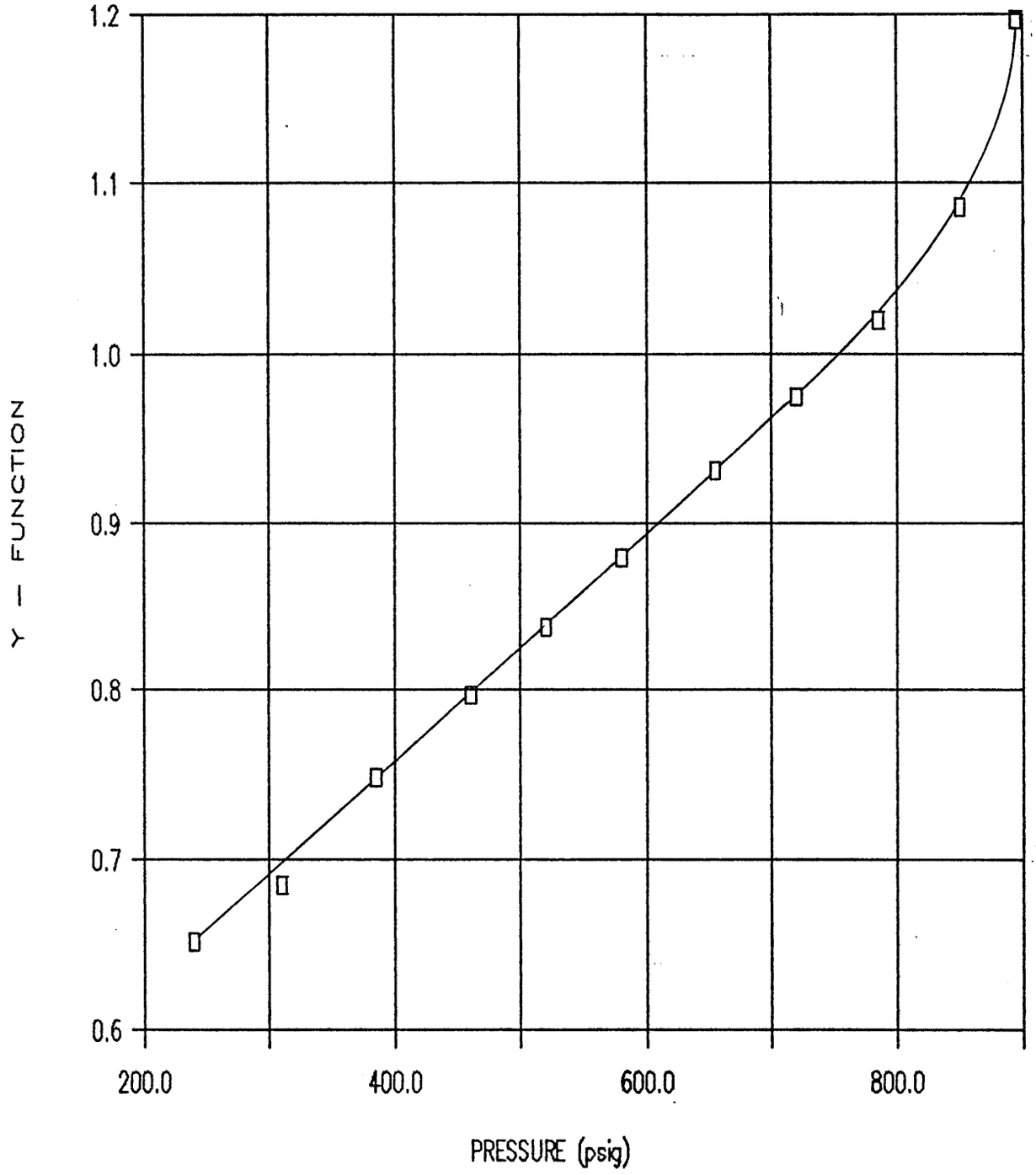
OIL COMPRESSIBILITY
RFS: AD-1131



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

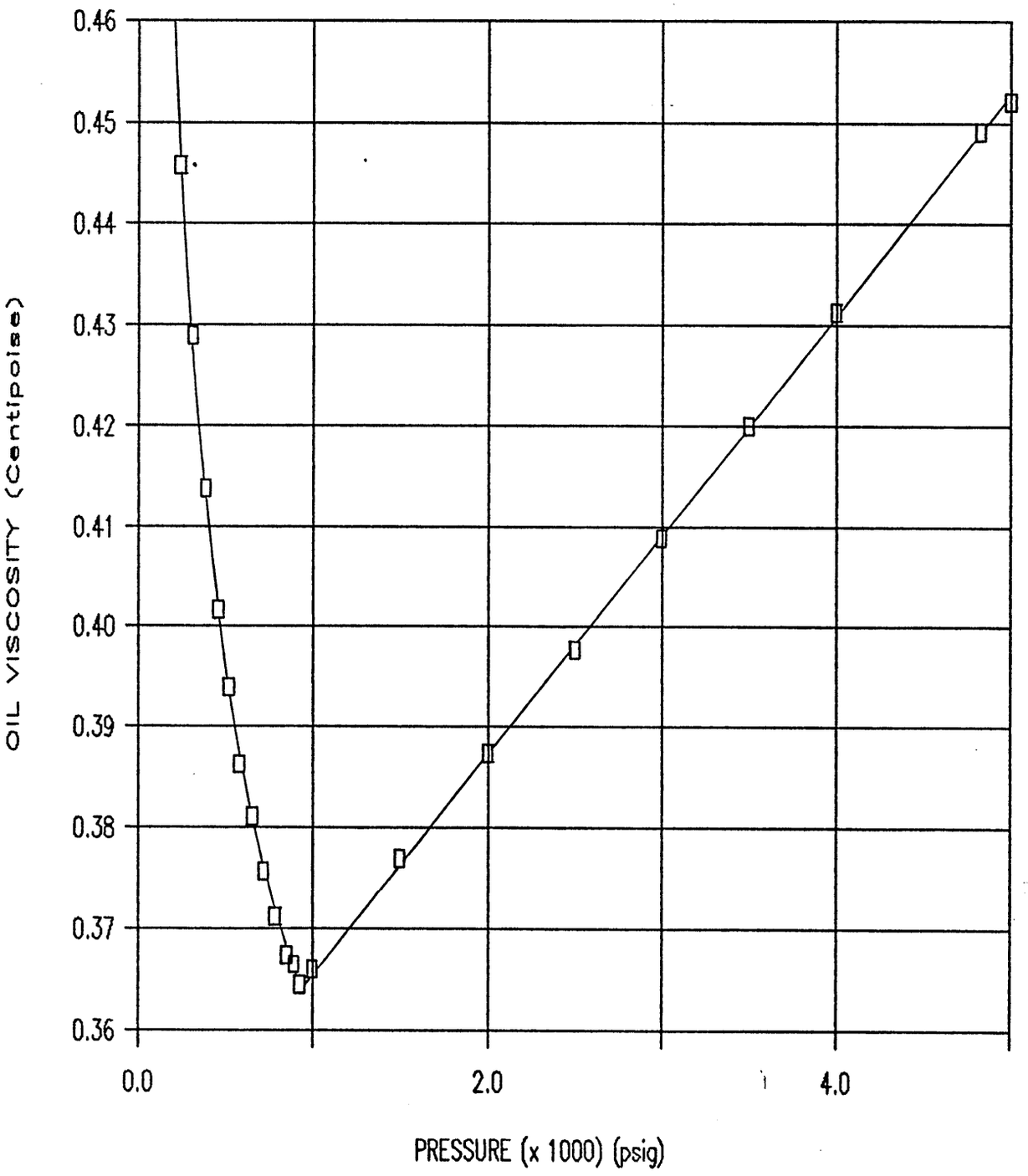
File: 90015

Y - FUNCTION
RFS: AD-1131



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

OIL VISCOSITY
RFS: AD-1131



SUMMARY OF RESULTS

R F T Sample # 2

RFT Chamber #	:	RFS 1118
Depth	:	3403.5 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	1000 psig @ 25 deg C
Reservoir Pressure (psig)	:	4832.6
Reservoir Temperature (°F)	:	194

Warmed up RFT chamber
Injected 100 cc's of mercury into chamber to stir up sample.
Compressed to 6000 psig with 245 cc's of water behind piston.
Transferred 1800 cc's into Petrolab cylinders # 115,101 and 100 @ 6000 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury, an additional 870 cc's of oil and approximately 120 cc's of mud / water mixture.

CONSTANT MASS DATA:

Saturation Pressure (psig)	:	1310 @	194 °F
Thermal Expansion @ 5000 psig (1/°C)	:	0.0013253	
(1/°F)	:	0.0007363	
Compressibility of saturated oil	@	194	°F
	&	1310	psig
(1/psi) * 10^-6		28.89	

ATMOSPHERIC FLASH DATA OF SATURATED OIL:

1) From P V T storage cylinder for compositional purposes.

Solution GOR (scf/bbl)	:	1441
Formation Volume Factor (rbbl/stbbl)	:	2.037
Molecular Weight	:	71.9

RESIDUAL OIL:

API Gravity @ 60 °F	:	50.7
Density @ 60 °F (gm/cc)	:	0.7758
Molecular Weight	:	129.8

1) From P V T cell after constant mass study.

GOR (scf/bbl)	:	1549
Formation Volume Factor (rbbl/stbbl)	:	2.1619
Shrinkage (stbbl/rbbl)	:	0.463
Oil Density (gm/cc @ PT)	:	0.5971 *
Specific Volume (ft3/lb @ PT)	:	0.02683 *

RESIDUAL OIL:

API Gravity @ 60 °F	:	46.4
Density @ 60 °F (gm/cc)	:	0.7945

* P(ressure) 1310 psig, T(emperature) 194 °F

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 4

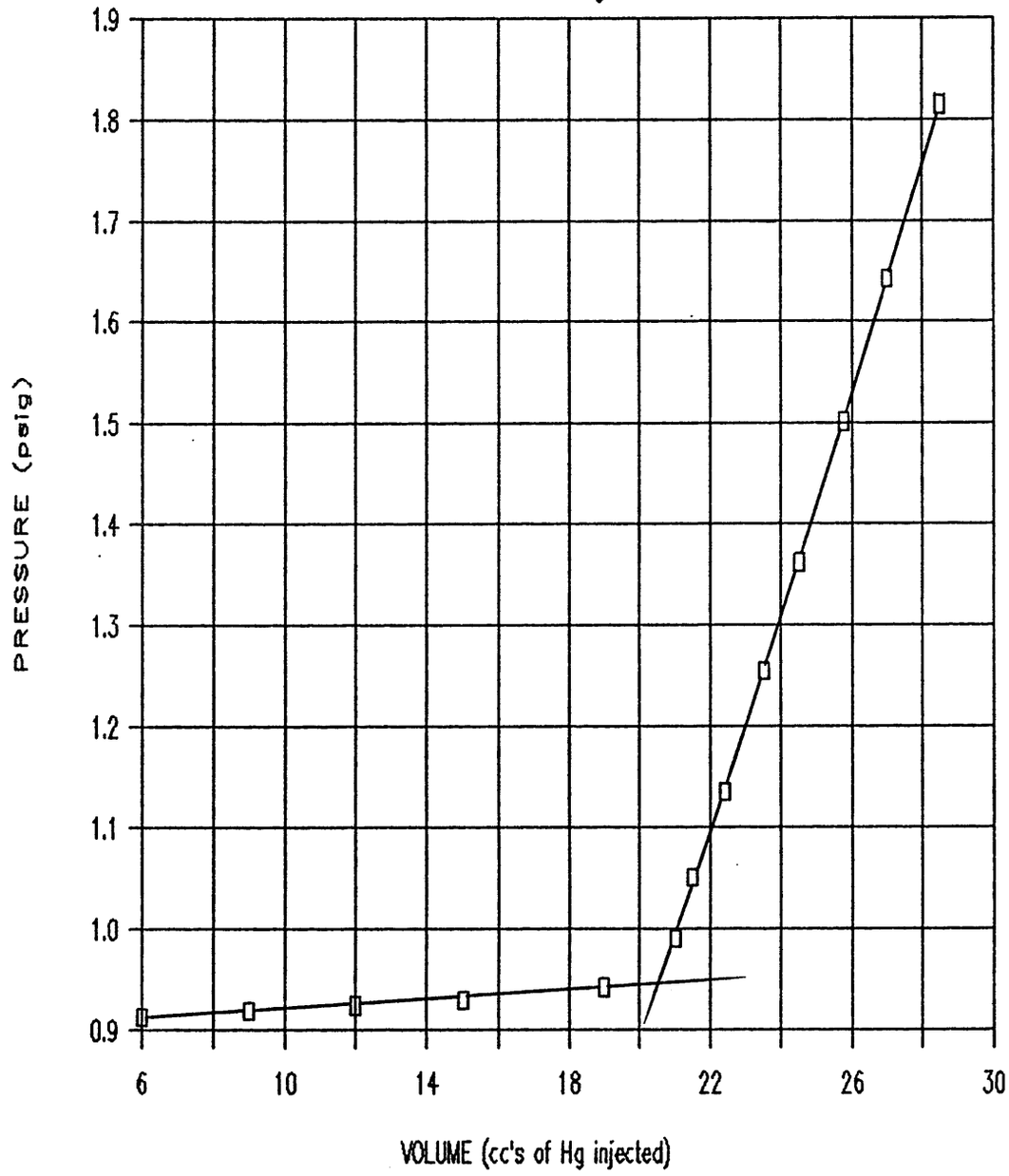
Sampling Conditions

Depth : 3403.5 m
KB : 28 m
R F T Chamber No : RFS AD 1118
Capacity : 1 Gallon
Res. Pressure : 4832.6 psig
Res. Temperature : 194 deg F

Opening Pressure : 1000 psig
Temperature : 25 deg C
Transferred to : Cylinder # L - 115

Volume (cc's)	Pressure (psig)
6.00	913
9.00	919
12.00	924
15.00	930
19.00	942
21.00	990
21.50	1051
22.40	1136
23.50	1254
24.50	1362
25.75	1501
27.00	1642
28.50	1815

Saturation Pressure : 946 psig @ 31 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 5

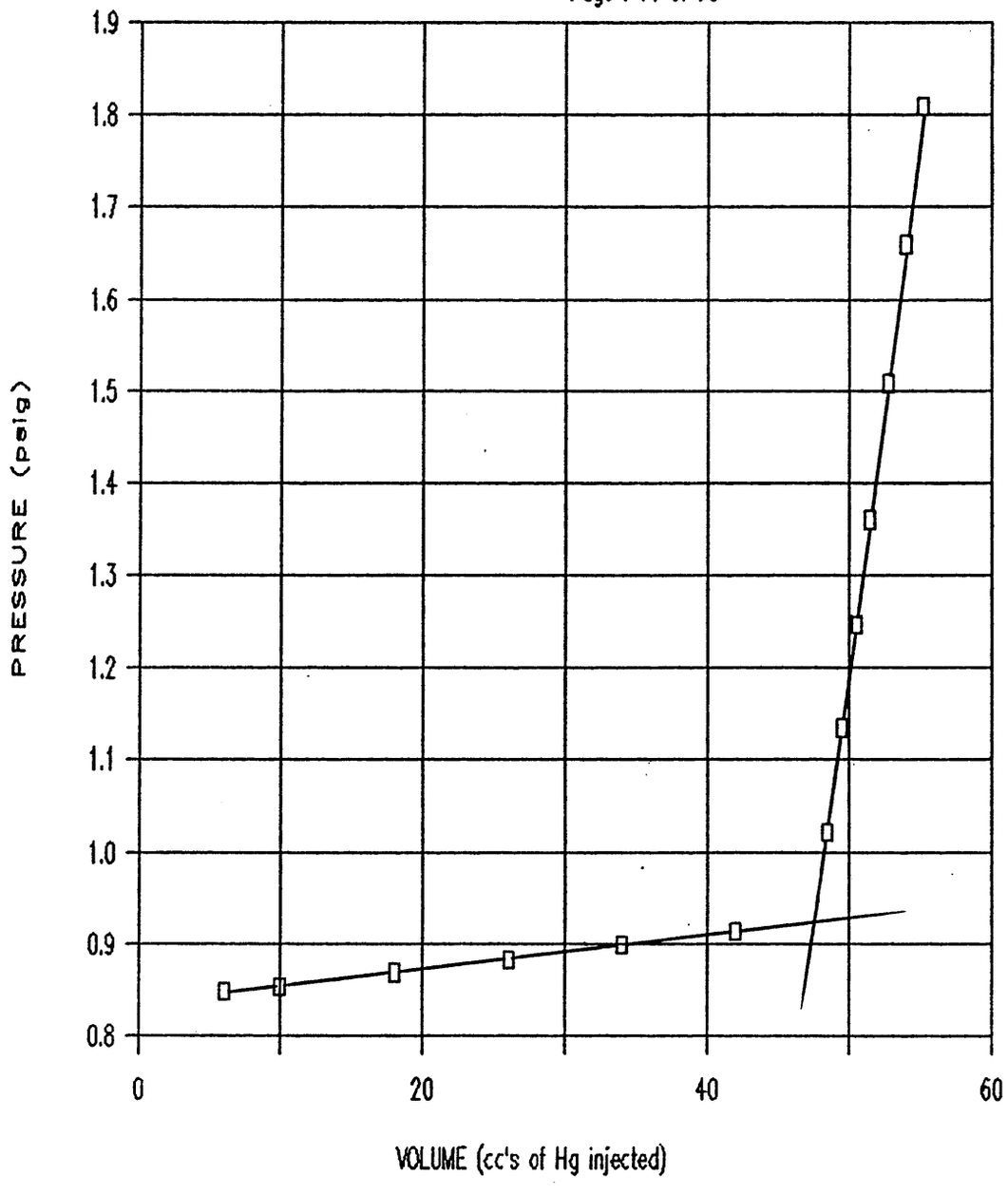
Sampling Conditions

Depth : 3403.5 m
KB : 28 m
R F T Chamber No : RFS AD 1118
Capacity : 1 Gallon
Res. Pressure : 4832.6 psig
Res. Temperature : 194 deg F

Opening Pressure : 1000 psig
Temperature : 25 deg C
Transferred to : Cylinder # L - 101

Volume (cc's)	Pressure (psig)
6.00	848
10.00	854
18.00	869
26.00	883
34.00	899
42.00	914
48.50	1022
49.50	1135
50.50	1247
51.50	1362
52.75	1508
54.00	1660
55.20	1809

Saturation Pressure : 928 psig @ 31 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 6

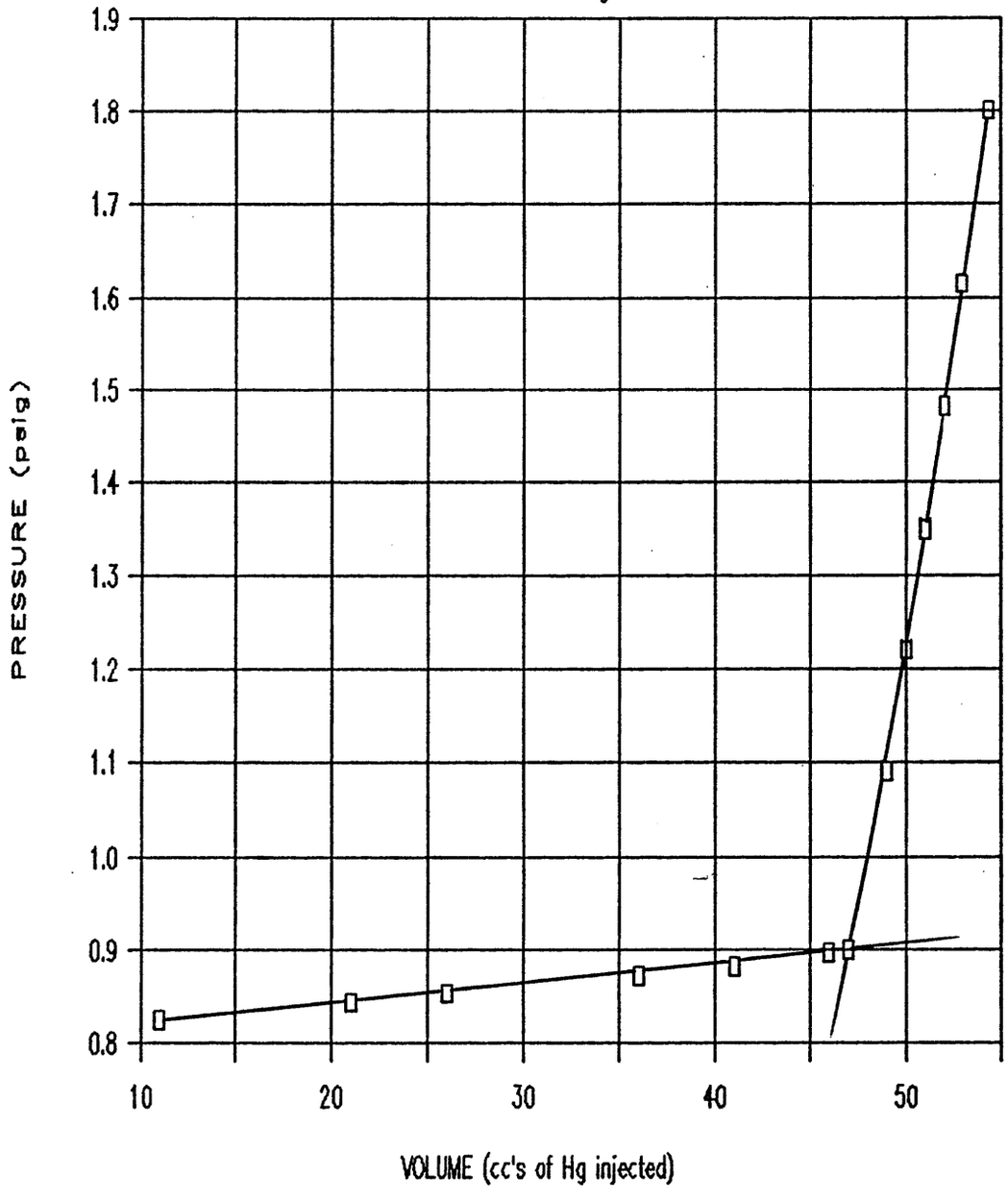
Sampling Conditions

Depth : 3403.5 m
KB : 28 m
R F T Chamber No : RFS AD 1118
Capacity : 1 Gallon
Res. Pressure : 4832.6 psig
Res. Temperature : 194 deg F

Opening Pressure : 1000 psig
Temperature : 25 deg C
Transferred to : Cylinder # L - 100

Volume (cc's)	Pressure (psig)
11.00	825
21.00	843
26.00	853
36.00	872
41.00	882
46.00	897
47.00	900
49.00	1091
50.00	1221
51.00	1350
52.00	1482
53.00	1615
54.40	1801

Saturation Pressure : 901 psig @ 31 deg C



Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1118

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	13.00	84	7.58	0.6754	8.95	77.8
Heptanes	85 - 112	22.60	95	15.02	0.7359	16.28	60.6
Octanes	113 - 138	11.43	108	8.58	0.7571	9.04	55.2
Nonanes	139 - 162	11.63	117	9.47	0.7787	9.70	50.0
Decanes	163 - 185	6.52	133	6.05	0.7903	6.11	47.4
Undecanes	186 - 206	4.09	147	4.19	0.7975	4.19	45.8
Dodecanes Plus	> 206	30.73	229	49.11	0.8567	45.73	33.5
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1118

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.01	0.73	0.47
Nitrogen	N2	0.00	0.55	0.35
Methane	C1	0.17	29.86	19.31
Ethane	C2	0.65	19.26	12.64
Propane	C3	2.67	22.26	15.29
Iso-Butane	iC4	1.56	5.22	3.92
N-Butane	nC4	3.95	9.20	7.33
Iso-Pentane	iC5	3.52	3.12	3.26
N-Pentane	nC5	3.99	2.76	3.20
Hexanes	C6	10.85	3.32	6.00
Heptanes	C7	18.87	2.87	8.56
Octanes	C8	9.54	0.50	3.71
Nonanes	C9	9.71	0.25	3.61
Decanes	C10	5.44	0.08	1.99
Undecanes	C11	3.41	0.02	1.23
Dodecanes Plus	C12+	25.65	0.00	9.13
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.3555	0.6445	1.0000
Mass Ratio	:	0.6416	0.3584	1.0000
Liquid Ratio (bbl/bbl)	:	1.0000 @ SC	--	2.0370 @ PT*
Gas Liquid Ratio	:	1.0000 bbl @ SC	1441 SCF	--
Stream Properties				
Molecular Weight	:	129.8	40.00	71.9
Density obs. (gm/cc)	:	0.7758 @ 60 F	--	0.5971 @ PT*
Gravity (AIR = 1.000)	:	50.7 API @60F	1.402	--
GHV (BTU/scf)	:	--	2305.0	--
Hexanes Plus Properties				
Mol %	:	83.48	7.04	34.23
Molecular Weight	:	143.5	92.1	136.7
Density (gm/cc @ 60 F)	:	0.7977	0.6782	0.7853
Gravity (API @ 60 F)	:	45.7	76.9	48.5
Heptanes Plus Properties				
Mol %	:	72.63	3.72	28.23
Molecular Weight	:	152.4	99.3	147.9
Density (gm/cc @ 60 F)	:	0.8097	0.6882	0.8017
Gravity (API @ 60 F)	:	43.1	73.9	44.8
Decanes Plus Properties				
Mol %	:	34.51	0.10	12.35
Molecular Weight	:	206.0	135.8	204.9
Density (gm/cc @ 60 F)	:	0.8450	0.7296	0.8450
Gravity (API @ 60 F)	:	35.8	62.3	35.8
Undecanes Plus Properties				
Mol %	:	29.07	0.02	10.36
Molecular Weight	:	219.6	147.0	219.4
Density (gm/cc @ 60 F)	:	0.8517	0.7400	0.8517
Gravity (API @ 60 F)	:	34.5	59.5	34.5
Dodecanes Plus Properties				
Mol %	:	25.65	--	9.13
Molecular Weight	:	229.3	--	229.3
Density (gm/cc @ 60 F)	:	0.8567	--	0.8567
Gravity (API @ 60 F)	:	33.5	--	33.5

* P(ressure) 1310 psig, T(emperature) 194 °F

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 194 deg F

ON BOTTOM HOLE SAMPLE EX RFS AD 1118

Thermal Expansion of reservoir fluid at 5000 psig:
= Volume at 194 deg F / Volume at 85 deg F = 1.080257

Pressure (psig)		Relative Volume (V/Vsat) (1)	Oil Compressibility (x 10^-6)(psig^-1) (2)	Y Function (3)	Oil Viscosity
5000		0.9299	12.95		0.301
4833	*	0.9320	13.31		0.298
4500		0.9364	14.04		0.294
4000		0.9437	15.51		0.286
3500		0.9517	16.76		0.280
3000		0.9605	18.33		0.272
2500		0.9703	20.27		0.266
2000		0.9814	22.54		0.257
1500		0.9945	26.39		0.250
1310	**	1.0000	28.89		0.247
1285		1.0145		1.341	0.248
1230		1.0499		1.304	0.249
1180		1.0865		1.273	0.251
1125		1.1329		1.237	0.254
1030		1.2275		1.195	0.258
920		1.3709		1.143	0.264
815		1.5567		1.091	0.270
685		1.8884		1.027	0.278
550		2.4349		0.963	0.288
400		3.5591		0.889	0.304
275		5.5400		0.829	0.336
0					0.632

* Reservoir pressure
** Saturation pressure

(1) Barrels at indicated pressure per barrel at saturation pressure.

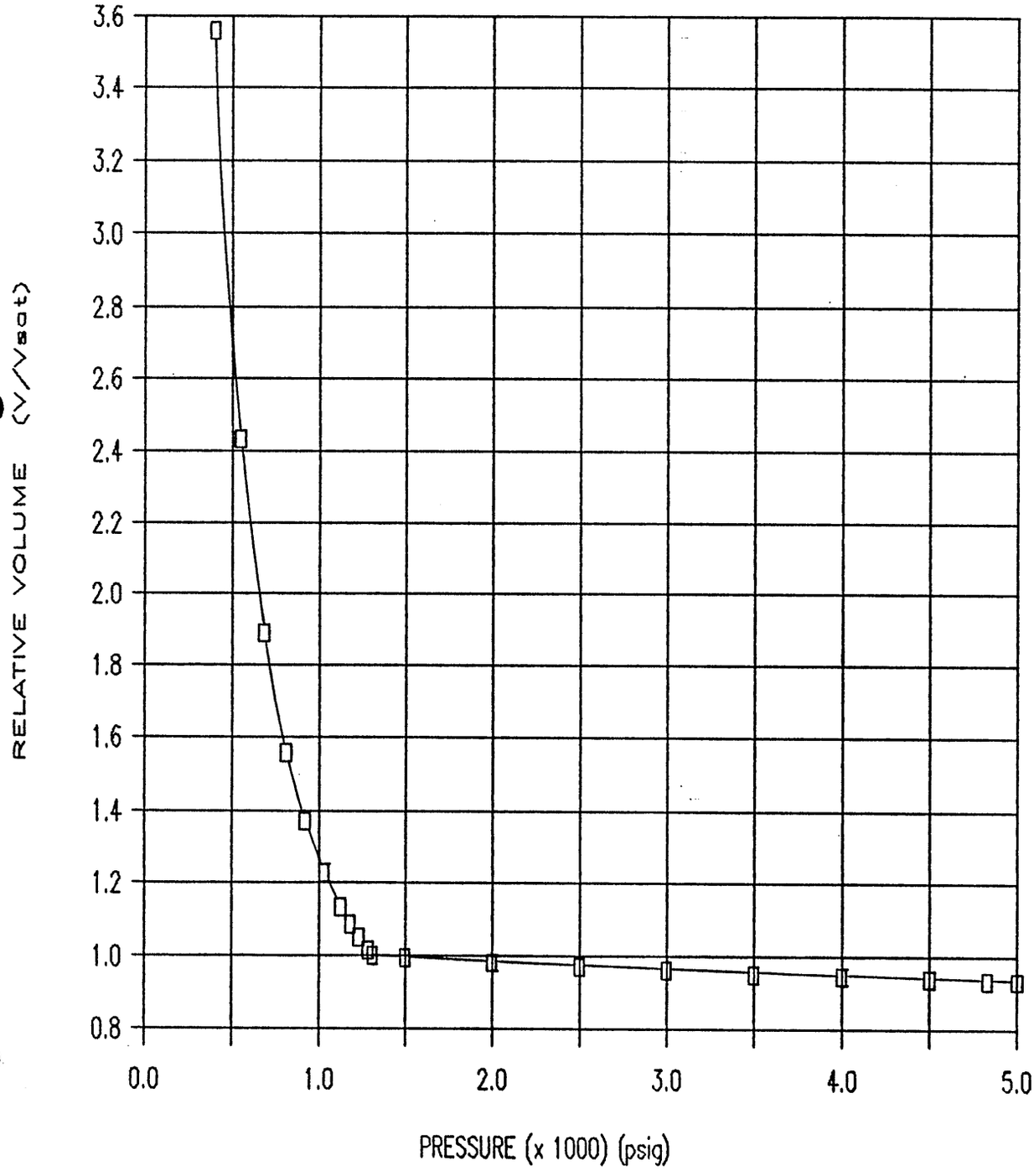
(2) Oil Compressibility = - (1/V) * (dV/dP)

(3) Y Function = (Psat - P) / (P)*(V/Vsat-1)

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

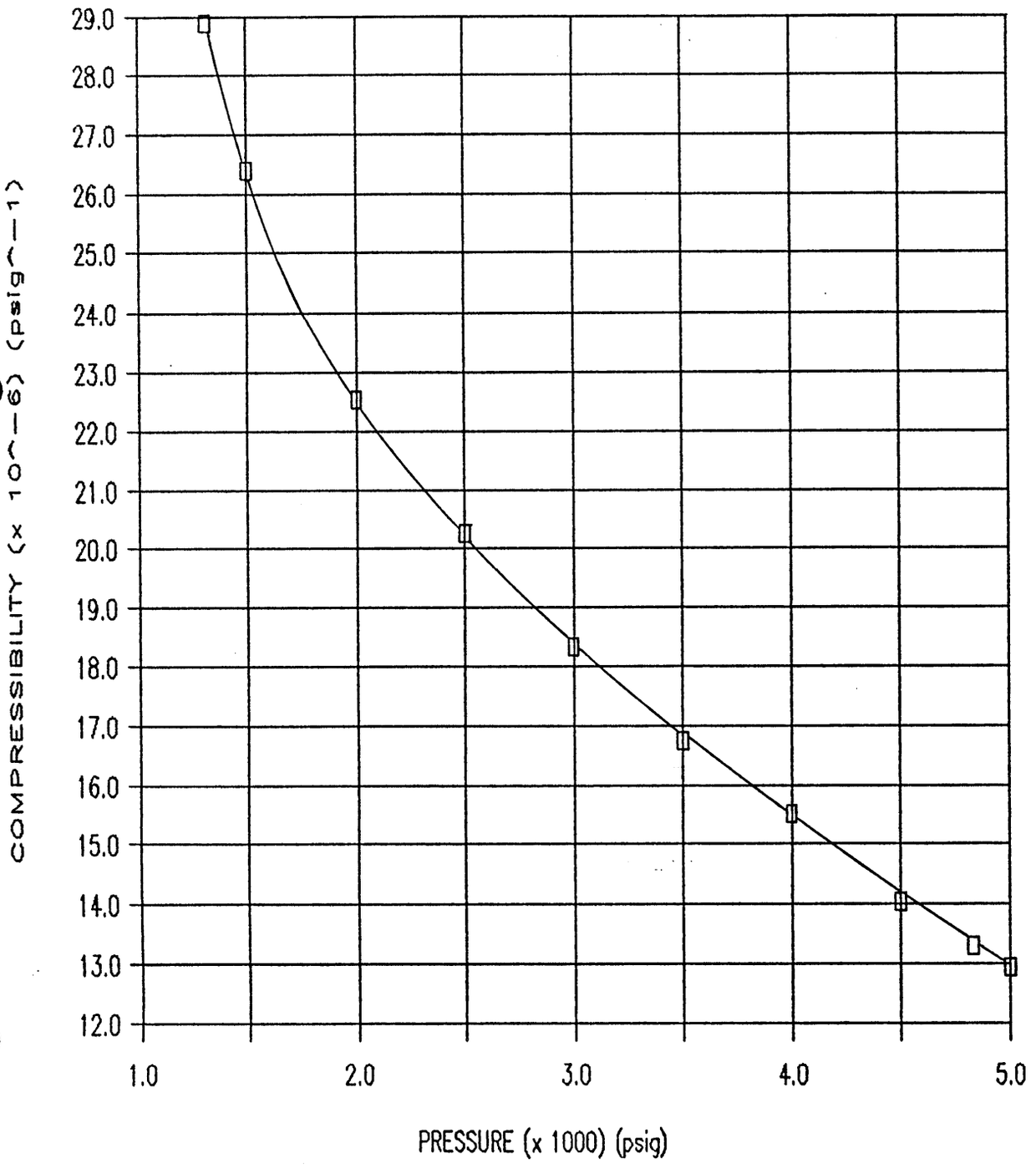
File: 90015

RELATIVE VOLUME
RFS: AD-1118



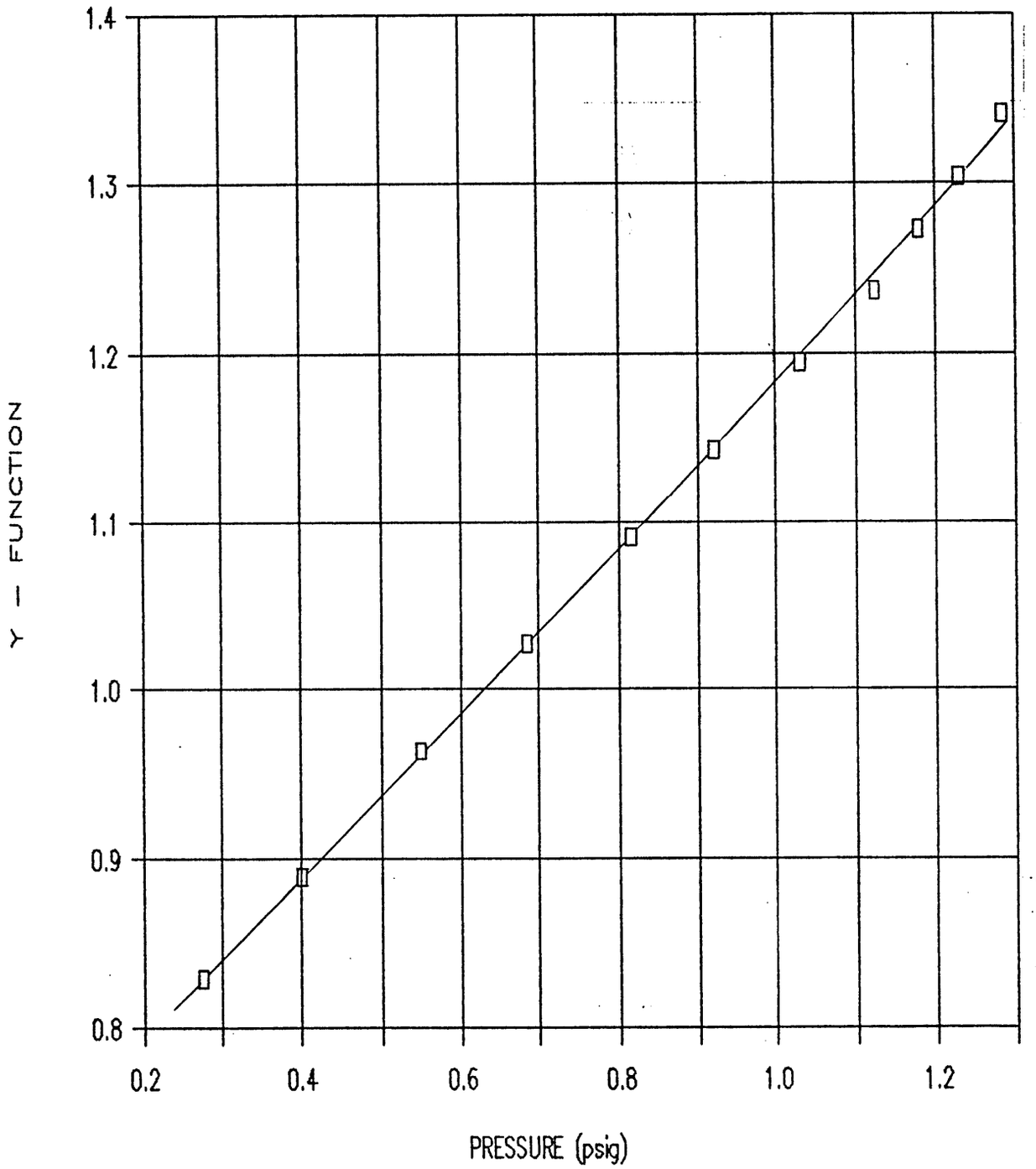
Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

OIL COMPRESSIBILITY
RFS: AD-1118



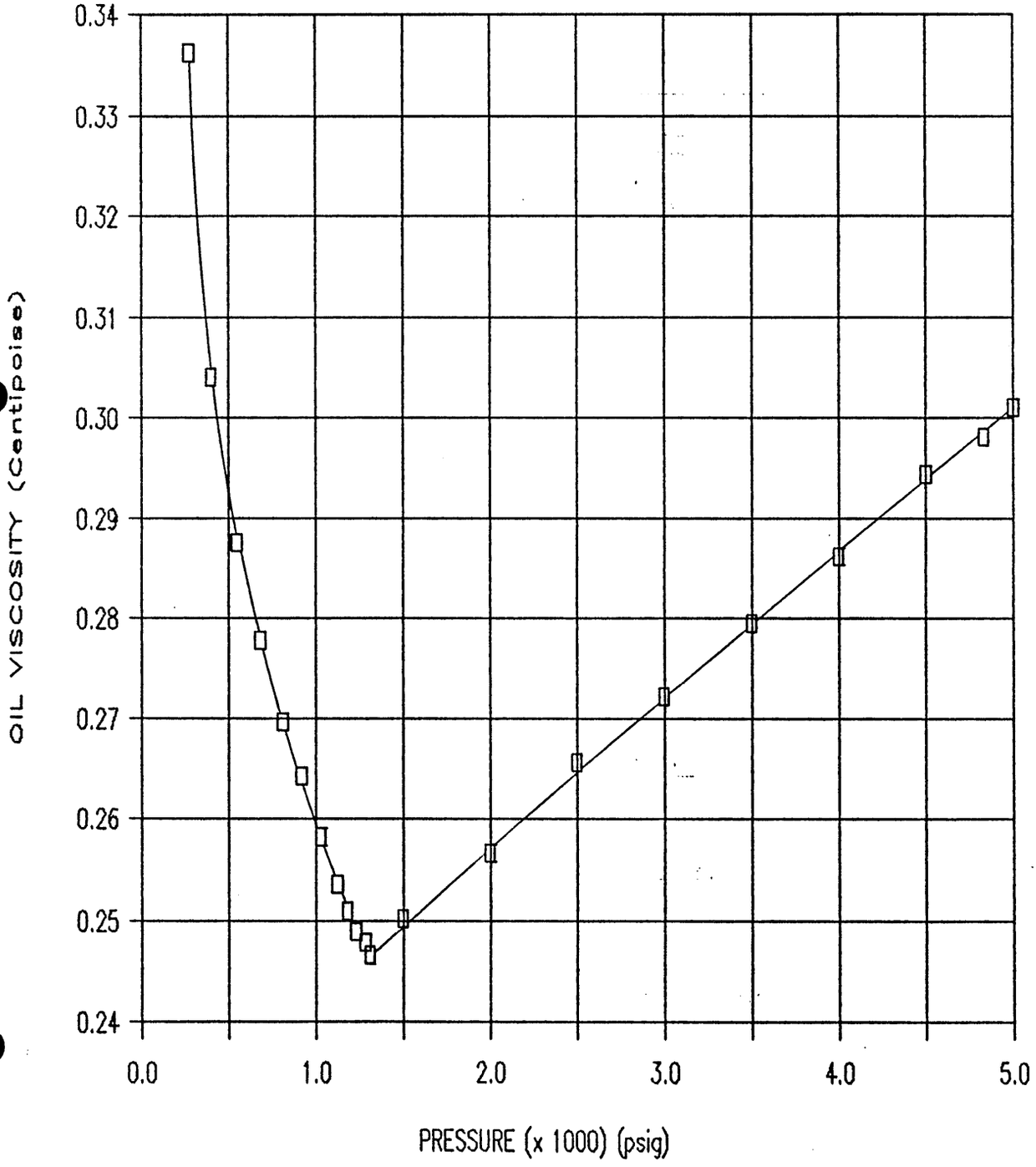
Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

Y - FUNCTION
RFS: AD-1118



Company: Petrofina Exploration Australia Ltd. Page: 22 of 78
Well : Archer # 1 File: 90015

OIL VISCOSITY
RFS: AD-1118



Company: Petrofina Exploration Australia S.A
Well : Archer # 1

SUMMARY OF RESULTS

R F T Sample # 3

RFT Chamber #	:	RFS 1286
Depth	:	3489 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	1420 psig @ 26 deg C
Reservoir Pressure (psig)	:	4866.9
Reservoir Temperature (°F)	:	199

Warmed up RFT chamber.
Injected 100 cc's of mercury into chamber to stir up sample.
Compressed to 6000 psig with 330 cc's of water behind piston.
Transferred 1800 cc's into Petrolab cylinders # 118,098 and 041 @ 6000 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury, an additional 480 cc's of oil and approximately 450 cc's of mud / water mixture.

CONSTANT MASS DATA:

Saturation Pressure (psig)	:	1992 @ 199 °F
Thermal Expansion @ 5000 psig (1/°C)	:	0.0014508
(1/°F)	:	0.0008060
Compressibility of saturated oil	@	199 °F
	&	1992 psig
(1/psi) * 10^-6		42.00

ATMOSPHERIC FLASH DATA OF SATURATED OIL:

1) From P V T storage cylinder for compositional purposes.

Solution GOR (scf/bbl)	:	2130
Formation Volume Factor (rbbl/stbbl)	:	2.5733
Molecular Weight	:	60.8

RESIDUAL OIL:

API Gravity @ 60 °F	:	49.8
Density @ 60 °F (gm/cc)	:	0.7797
Molecular Weight	:	129.5

1) From P V T cell after constant mass study.

GOR (scf/bbl)	:	2233
Formation Volume Factor (rbbl/stbbl)	:	2.8669
Shrinkage (stbbl/rbbl)	:	0.349
Oil Density (gm/cc @ PT)	:	0.5233 *
Specific Volume (ft3/lb @ PT)	:	0.03061 *

RESIDUAL OIL:

API Gravity @ 60 °F	:	45.9
Density @ 60 °F (gm/cc)	:	0.7968

* P(ressure) 1992 psig, T(emperature) 199 °F

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 7

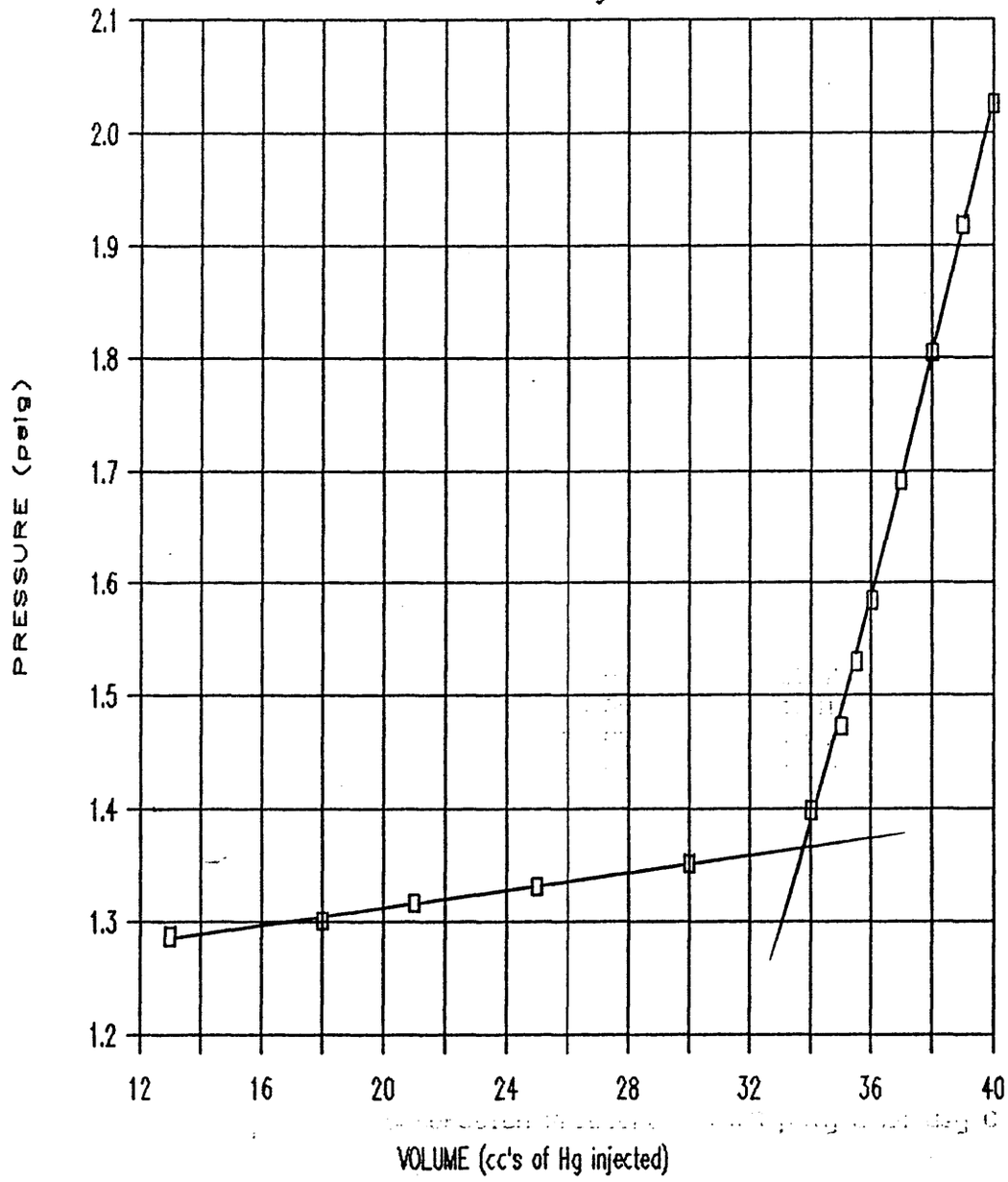
Sampling Conditions

Depth : 3489 m
KB : 28 m
R F T Chamber No : RFS AD 1286
Capacity : 1 Gallon
Res. Pressure : 4966.9 psig
Res. Temperature : 199 deg F

Opening Pressure : 1420 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 118

Volume (cc's)	Pressure (psig)
13.00	1287
18.00	1301
21.00	1317
25.00	1332
30.00	1352
34.00	1399
35.00	1473
35.50	1530
36.00	1585
37.00	1691
38.00	1804
39.00	1918
40.00	2025

Saturation Pressure : 1370 psig @ 24 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 8

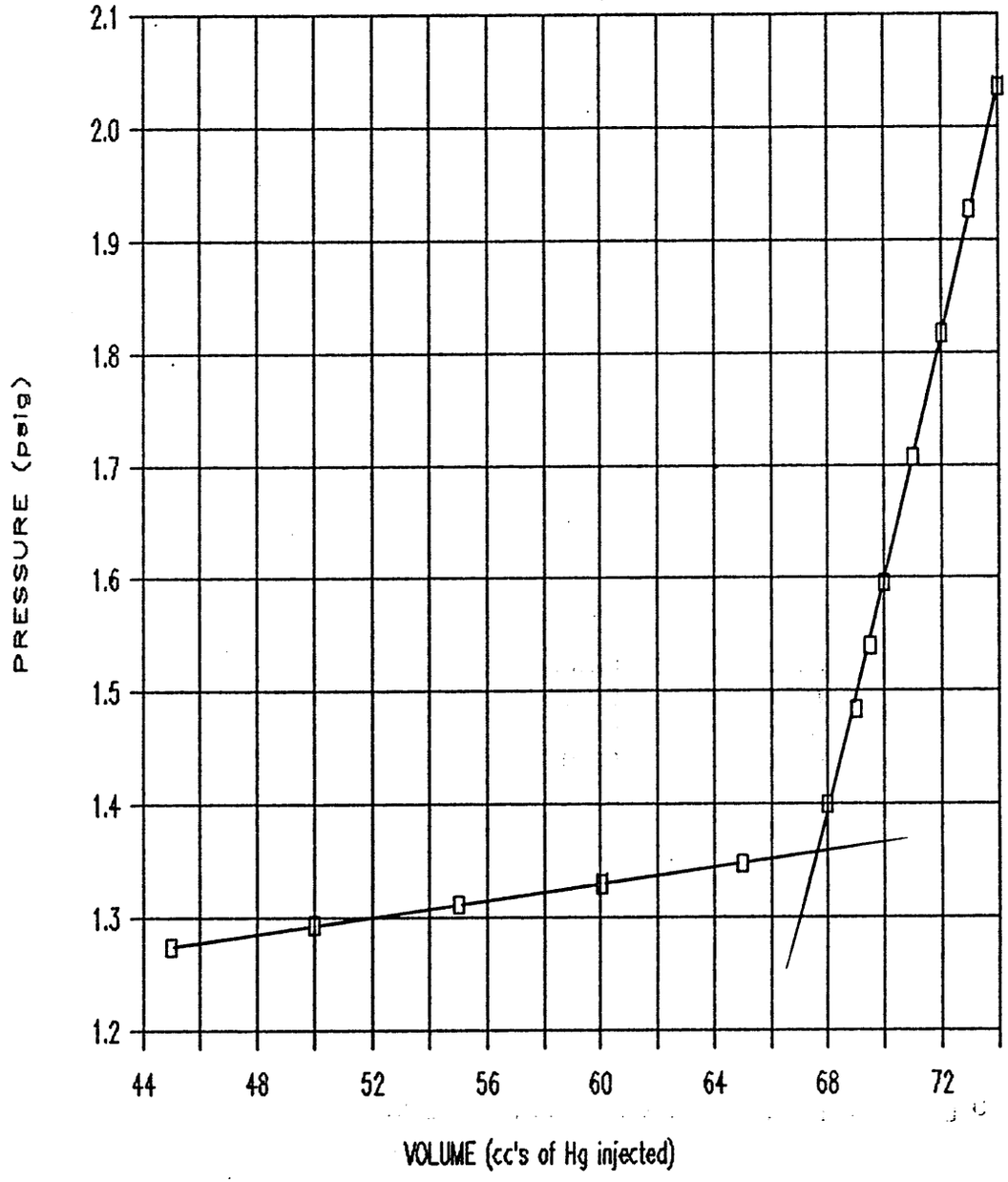
Sampling Conditions

Depth : 3489 m
KB : 28 m
R F T Chamber No : RFS AD 1286
Capacity : 1 Gallon
Res. Pressure : 4966.9 psig
Res. Temperature : 199 deg F

Opening Pressure : 1420 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 098

Volume (cc's)	Pressure (psig)
45.00	1275
50.00	1294
55.00	1312
60.00	1330
65.00	1348
68.00	1400
69.00	1484
69.50	1540
70.00	1596
71.00	1707
72.00	1817
73.00	1927
74.00	2035

Saturation Pressure : 1360 psig @ 24 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample # 9

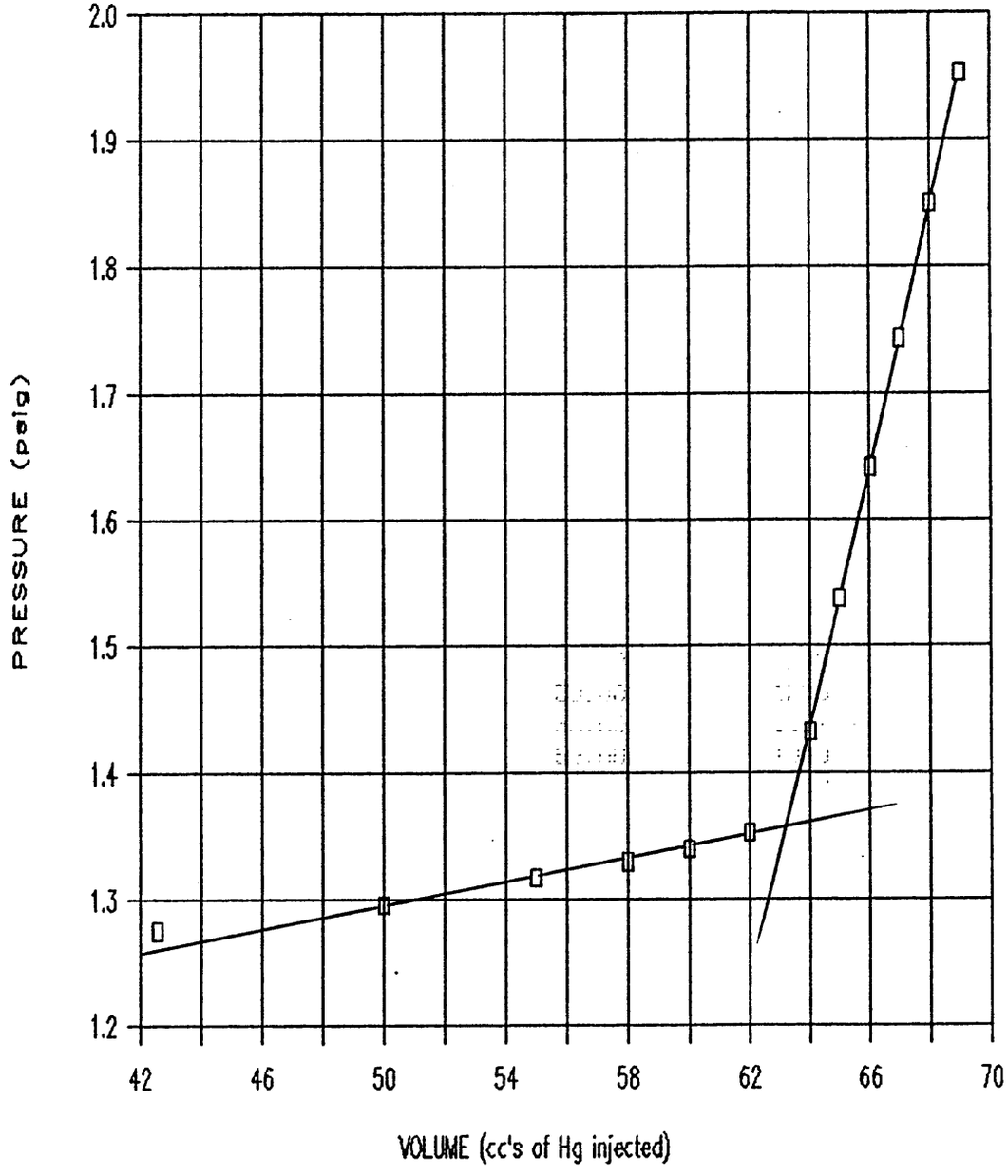
Sampling Conditions

Depth : 3489 m
KB : 28 m
R F T Chamber No : RFS AD 1286
Capacity : 1 Gallon
Res. Pressure : 4966.9 psig
Res. Temperature : 199 deg F

Opening Pressure : 1420 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 041

Volume (cc's)	Pressure (psig)
42.58	1275
50.00	1296
55.00	1317
58.00	1330
60.00	1340
62.00	1353
64.00	1432
65.00	1538
66.00	1642
67.00	1744
68.00	1850
69.00	1953

Saturation Pressure : 1357 psig @ 24 deg C



P E T R O L A B

Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1286

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	14.36	84	8.56	0.6757	10.13	77.7
Heptanes	85 - 112	22.82	95	15.24	0.7393	16.49	59.7
Octanes	113 - 138	11.55	107	8.77	0.7590	9.24	54.8
Nonanes	139 - 162	11.03	118	9.20	0.7815	9.42	49.4
Decanes	163 - 185	6.90	131	6.41	0.7919	6.47	47.0
Undecanes	186 - 206	4.08	149	4.29	0.8059	4.25	43.9
Dodecanes Plus	> 206	29.26	230	47.53	0.8639	44.00	32.1
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

File: P 90015

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1286

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.01	0.59	0.43
Nitrogen	N2	0.00	0.57	0.41
Methane	C1	0.25	42.84	31.20
Ethane	C2	0.65	17.75	13.08
Propane	C3	2.35	17.57	13.41
Iso-Butane	iC4	1.33	3.88	3.18
N-Butane	nC4	3.37	6.79	5.86
Iso-Pentane	iC5	3.21	2.41	2.63
N-Pentane	nC5	3.69	2.14	2.56
Hexanes	C6	12.22	2.44	5.11
Heptanes	C7	19.43	2.14	6.86
Octanes	C8	9.83	0.51	3.06
Nonanes	C9	9.39	0.30	2.78
Decanes	C10	5.87	0.05	1.64
Undecanes	C11	3.47	0.02	0.96
Dodecanes Plus	C12+	24.91	0.00	6.83
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.2732	0.7268	1.0000
Mass Ratio	:	0.5820	0.4180	1.0000
Liquid Ratio (bbl/bbl)	:	1.0000 @ SC	--	2.5733 @ PT*
Gas Liquid Ratio	:	1.0000 bbl @ SC	2130 SCF	--
Stream Properties				
Molecular Weight	:	129.5	34.97	60.8
Density obs. (gm/cc)	:	0.7797 @ 60 F	--	0.5233 @ PT*
Gravity (AIR = 1.000)	:	49.8 API @60F	1.221	--
GHV (BTU/scf)	:	--	2026.0	--
Hexanes Plus Properties				
Mol %	:	85.13	5.46	27.24
Molecular Weight	:	141.6	93.2	134.5
Density (gm/cc @ 60 F)	:	0.7997	0.6798	0.7857
Gravity (API @ 60 F)	:	45.3	76.5	48.4
Heptanes Plus Properties				
Mol %	:	72.90	3.02	22.13
Molecular Weight	:	151.1	100.6	146.1
Density (gm/cc @ 60 F)	:	0.8137	0.6899	0.8038
Gravity (API @ 60 F)	:	42.2	73.4	44.4
Decanes Plus Properties				
Mol %	:	34.26	0.07	9.43
Molecular Weight	:	204.8	137.0	203.7
Density (gm/cc @ 60 F)	:	0.8509	0.7307	0.8473
Gravity (API @ 60 F)	:	34.6	62.0	35.3
Undecanes Plus Properties				
Mol %	:	28.38	0.02	7.79
Molecular Weight	:	220.1	147.0	219.6
Density (gm/cc @ 60 F)	:	0.8588	0.7400	0.8575
Gravity (API @ 60 F)	:	33.1	59.5	33.4
Dodecanes Plus Properties				
Mol %	:	24.91	--	6.83
Molecular Weight	:	230.0	--	230.0
Density (gm/cc @ 60 F)	:	0.8639	--	0.8639
Gravity (API @ 60 F)	:	32.1	--	32.1

* P(ressure) 1992 psig, T(emperature) 199 °F

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 199 deg F

ON BOTTOM HOLE SAMPLE EX RFS AD 1286

Thermal Expansion of reservoir fluid at 5000 psig:
= Volume at 199 deg F / Volume at 73 deg F = 1.101008

Pressure (psig)	Relative Volume (V/Vsat) (1)	Oil Compressibility (x 10^-6)(psig^-1) (2)	Y Function (3)	Oil Viscosity
5000	0.9169	16.85		0.243
4967 *	0.9174	16.99		0.242
4500	0.9259	19.61		0.238
4000	0.9363	22.35		0.232
3500	0.9483	25.28		0.224
3000	0.9623	28.93		0.216
2500	0.9787	33.54		0.206
1992 **	1.0000	42.00		0.197
1950	1.0129		1.676	0.200
1900	1.0302		1.603	0.204
1840	1.0534		1.547	0.209
1785	1.0773		1.500	0.214
1660	1.1409		1.419	0.223
1420	1.3103		1.298	0.242
1200	1.5491		1.202	0.260
1005	1.8683		1.131	0.277
845	2.2603		1.077	0.292
630	3.1342		1.013	0.313
420	4.9607		0.945	0.337
0				0.686

* Reservoir pressure
** Saturation pressure

(1) Barrels at indicated pressure per barrel at saturation pressure.

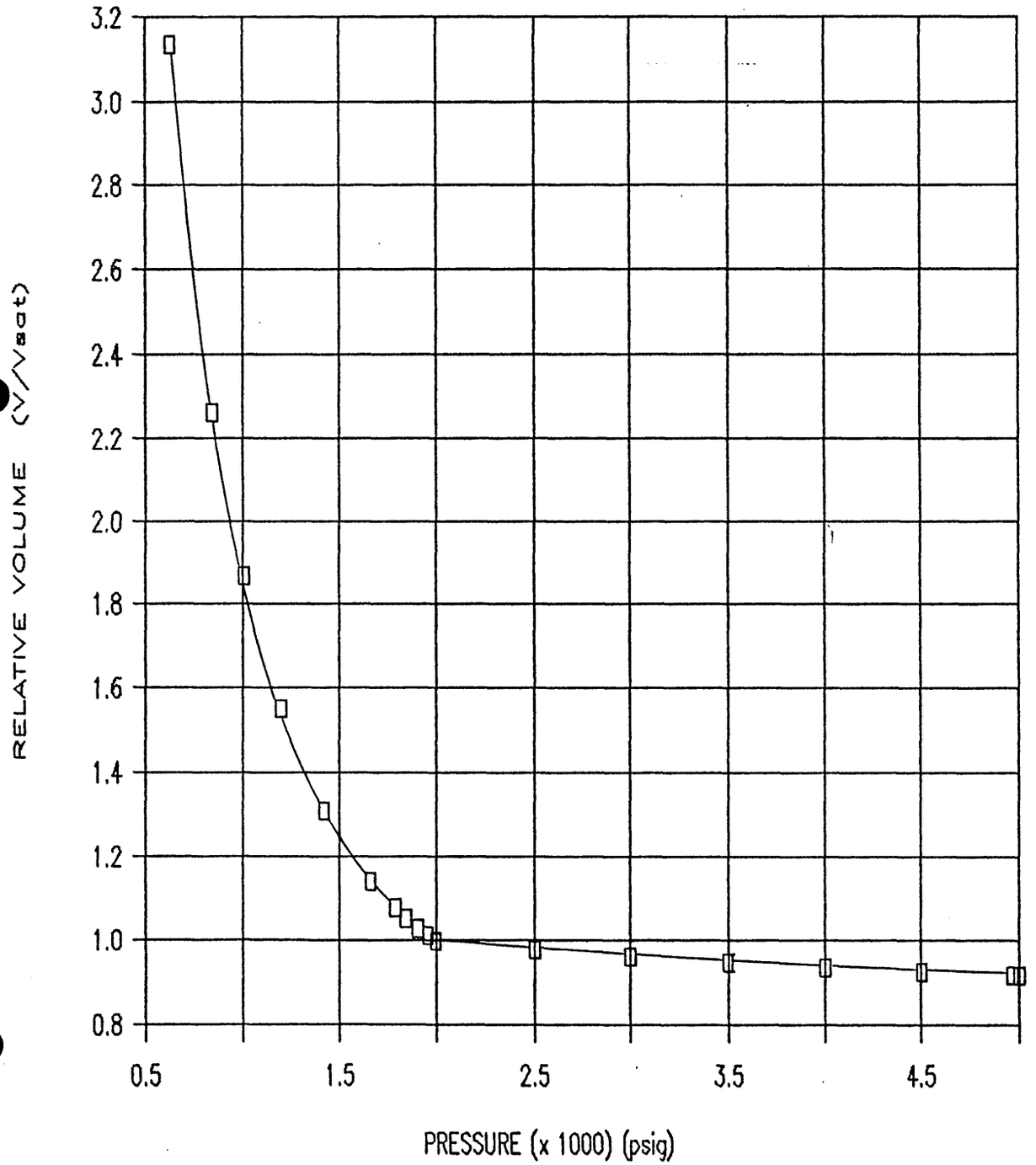
(2) Oil Compressibility = - (1/V) * (dV/dP)

(3) Y Function = (Psat - P) / (P)*(V/Vsat-1)

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

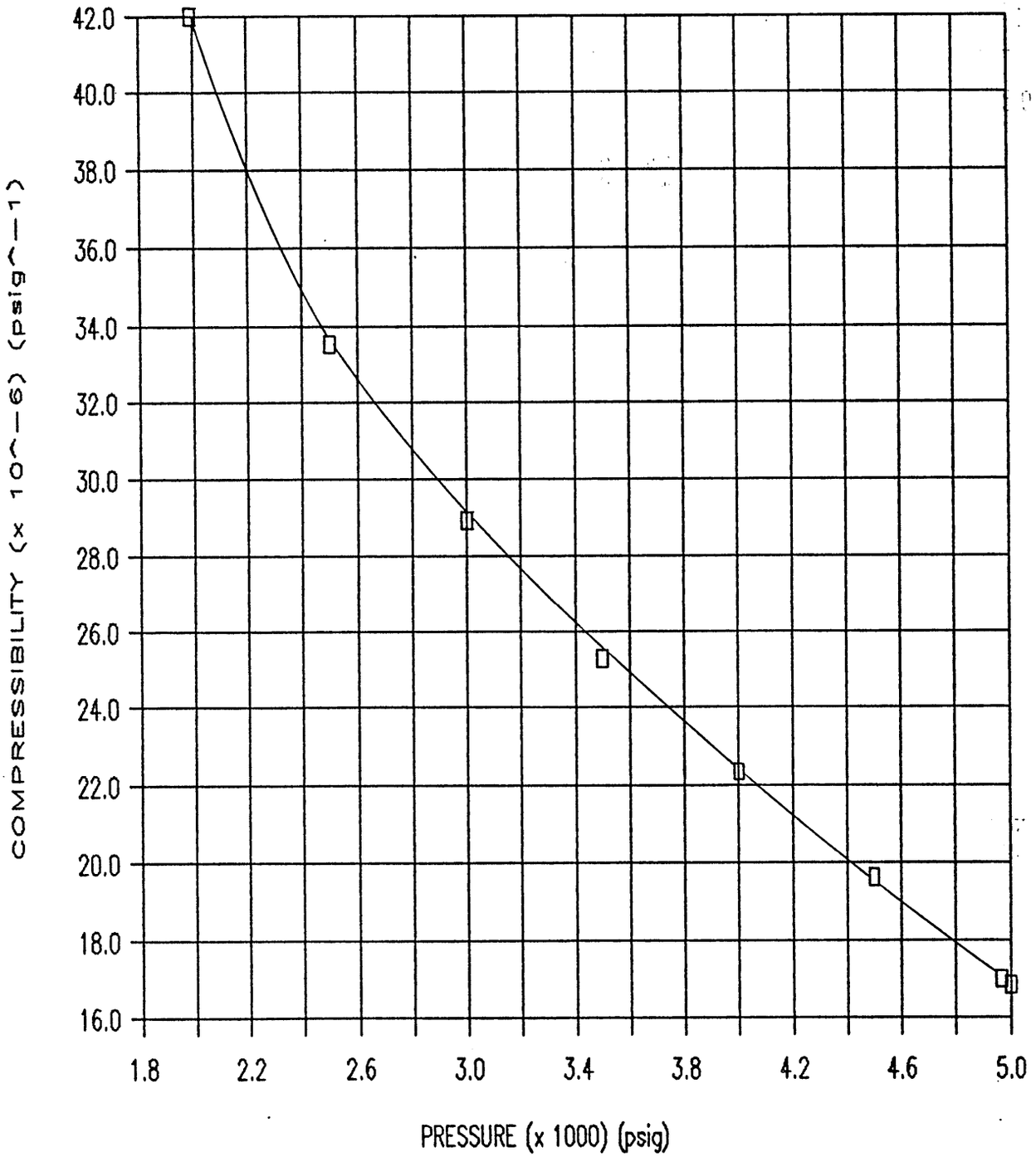
RELATIVE VOLUME
RFS: AD-1286



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

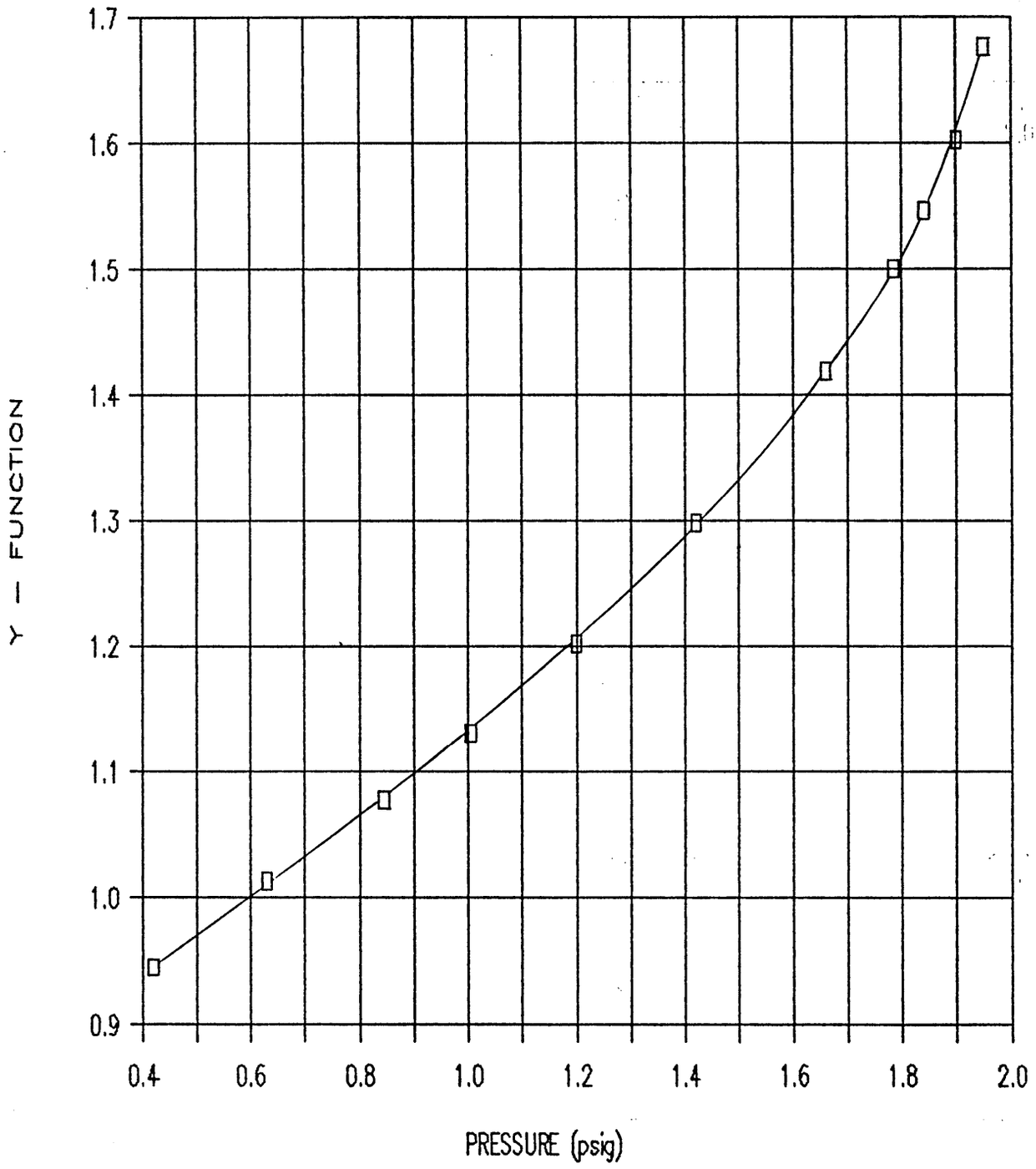
OIL COMPRESSIBILITY
RFS: AD-1286



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

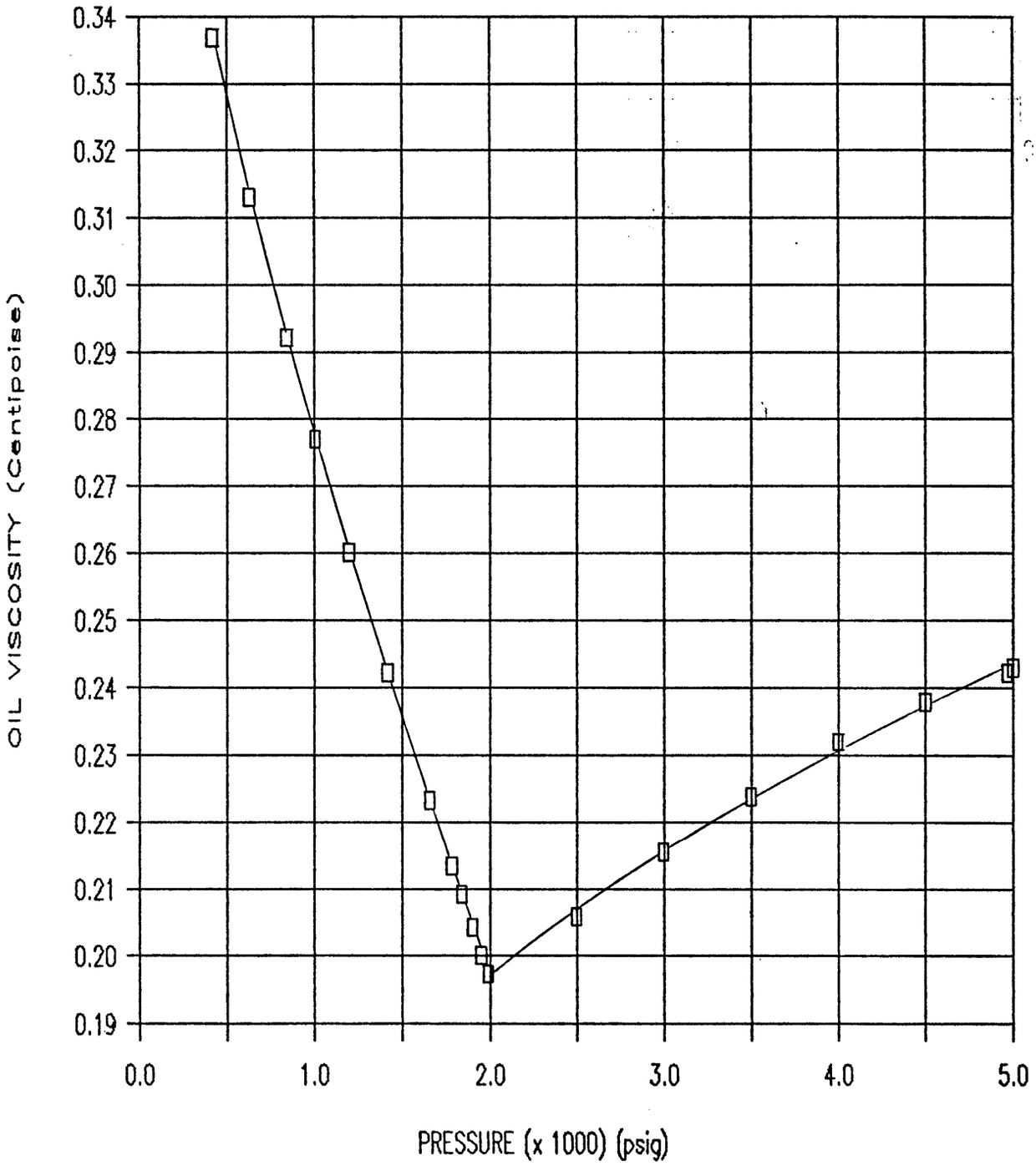
Y - FUNCTION
RFS: AD-1286



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

OIL VISCOSITY
RFS: AD-1286



SUMMARY OF RESULTS

R F T Sample # 4

RFT Chamber #	:	RFS 1129
Depth	:	3514.2 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	2050 psig @ 25 deg C
Reservoir Pressure (psig)	:	5009.8
Reservoir Temperature (°F)	:	200

Warmed up RFT chamber
Injected 100 cc's of mercury into chamber to stir up sample.
Compressed to 6000 psig with 620 cc's of water behind piston.
Transferred 1700 cc's into Petrolab cylinders # 112,078 and 200 @ 6000 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury, an additional 270 cc's of oil and approximately 280 cc's of mud / water mixture.

CONSTANT MASS DATA:

Saturation Pressure (psig)	:	3040 @ 200 °F
Thermal Expansion @ 5000 psig (1/°C)	:	0.0019548
(1/°F)	:	0.0010860
Compressibility of saturated oil	@	200 °F
	&	3040 psig
(1/psi) * 10^-6		78.77

ATMOSPHERIC FLASH DATA OF SATURATED OIL:

1) From P V T storage cylinder for compositional purposes.

Solution GOR (scf/bbl)	:	4728
Formation Volume Factor (rbbl/stbbl)	:	4.1711
Molecular Weight	:	45.1

RESIDUAL OIL:

API Gravity @ 60 °F	:	49.3
Density @ 60 °F (gm/cc)	:	0.7819
Molecular Weight	:	129.7

1) From P V T cell after constant mass study.

GOR (scf/bbl)	:	5103
Formation Volume Factor (rbbl/stbbl)	:	4.6294
Shrinkage (stbbl/rbbl)	:	0.216
Oil Density (gm/cc @ PT)	:	0.4521 *
Specific Volume (ft3/lb @ PT)	:	0.03543 *

RESIDUAL OIL:

API Gravity @ 60 °F	:	46.2
Density @ 60 °F (gm/cc)	:	0.7956

* P(ressure) 3040 psig, T(emperature) 200 °F

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #10

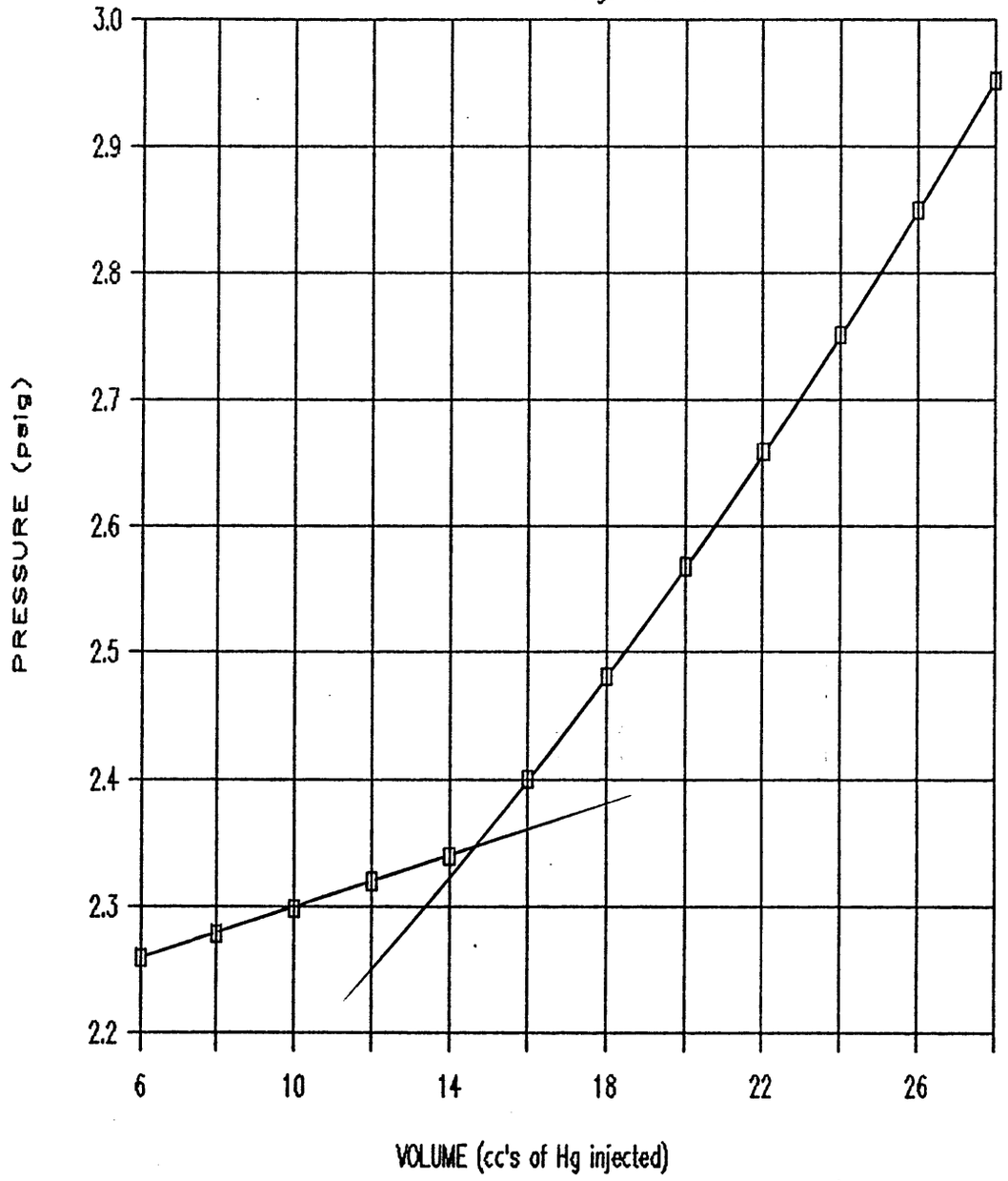
Sampling Conditions

Depth : 3514.2 m
KB : 28 m
R F T Chamber No : RFS AD 1129
Capacity : 1 Gallon
Res. Pressure : 5009.8 psig
Res. Temperature : 200 deg F

Opening Pressure : 2050 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 112

Volume (cc's)	Pressure (psig)
6.00	2259
8.00	2278
10.00	2298
12.00	2320
14.00	2340
16.00	2400
18.00	2481
20.00	2568
22.00	2659
24.00	2751
26.00	2850
28.00	2952

Saturation Pressure : 2348 psig @ 26 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #11

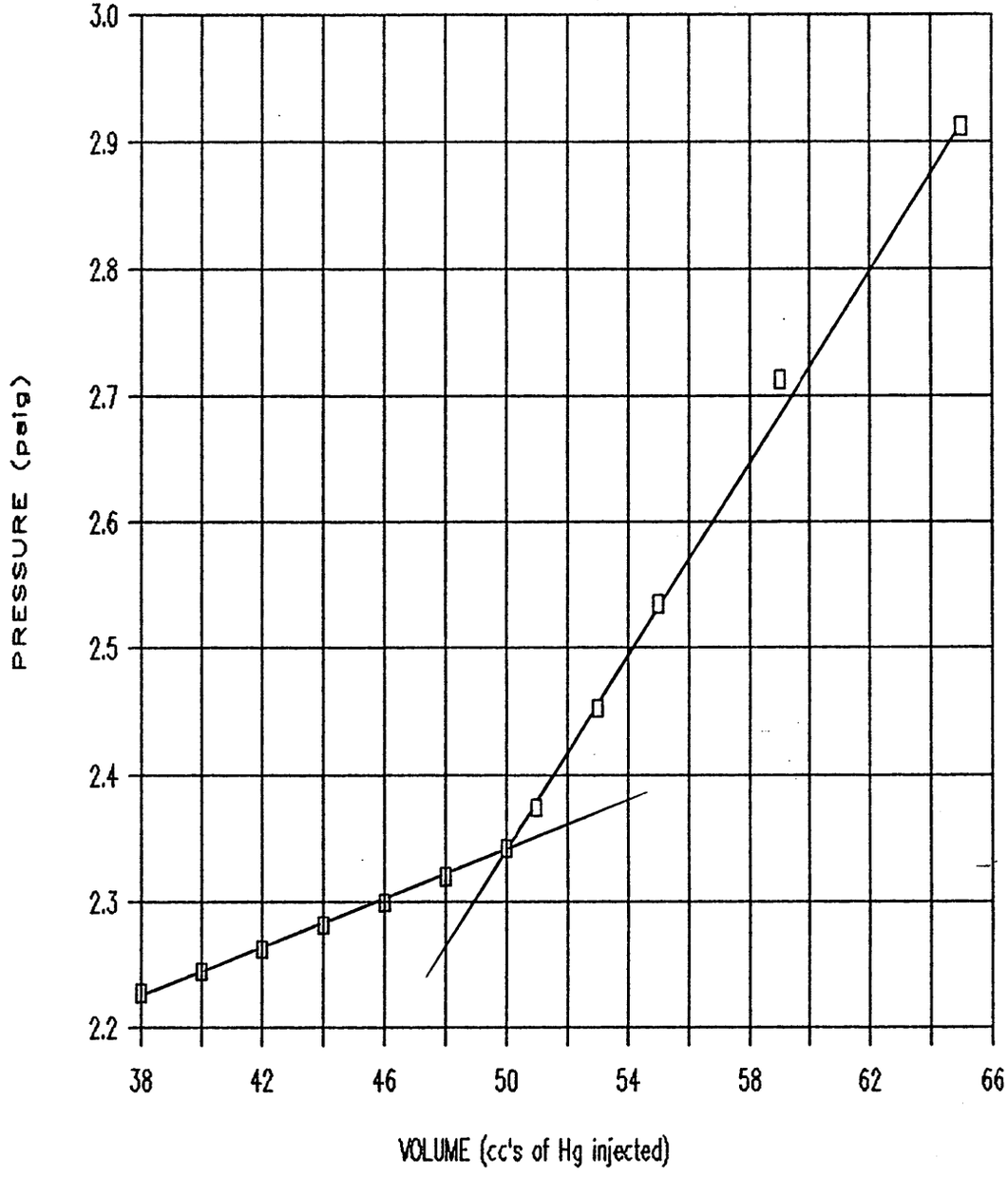
Sampling Conditions

Depth : 3514.2 m
KB : 28 m
R F T Chamber No : RFS AD 1129
Capacity : 1 Gallon
Res. Pressure : 5009.8 psig
Res. Temperature : 200 deg F

Opening Pressure : 2050 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 078

Volume (cc's)	Pressure (psig)
38.00	2228
40.00	2245
42.00	2263
44.00	2282
46.00	2300
48.00	2320
50.00	2342
51.00	2374
53.00	2452
55.00	2535
59.00	2713
65.00	2912

Saturation Pressure : 2345 psig @ 26 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #12

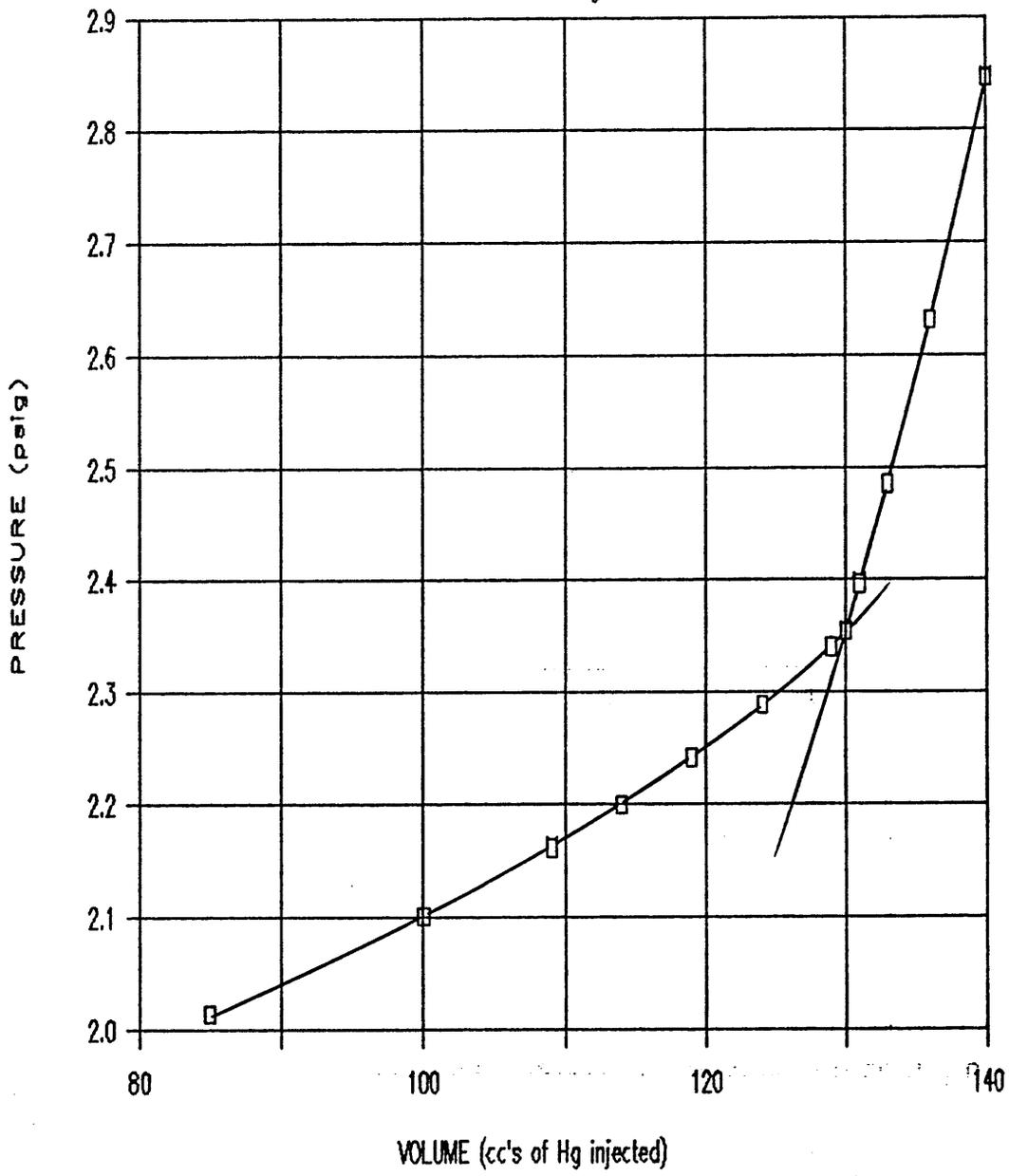
Sampling Conditions

Depth : 3514.2 m
KB : 28 m
R F T Chamber No : RFS AD 1129
Capacity : 1 Gallon
Res. Pressure : 5009.8 psig
Res. Temperature : 200 deg F

Opening Pressure : 2050 psig
Temperature : 26 deg C
Transferred to : Cylinder # L - 200

Volume (cc's)	Pressure (psig)
85.00	2014
100.00	2101
109.00	2162
114.00	2200
119.00	2242
124.00	2289
129.00	2341
130.00	2355
131.00	2397
133.00	2485
136.00	2631
140.00	2846

Saturation Pressure : 2355 psig @ 26 deg C



Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1129

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	12.50	85	7.72	0.6790	9.13	76.7
Heptanes	85 - 112	21.30	96	14.83	0.7420	16.04	59.0
Octanes	113 - 138	12.41	105	9.48	0.7664	9.93	53.0
Nonanes	139 - 162	12.18	114	10.12	0.7860	10.33	48.4
Decanes	163 - 185	7.57	125	6.88	0.7965	6.93	46.0
Undecanes	186 - 206	4.48	140	4.55	0.8037	4.55	44.4
Dodecanes Plus	> 206	29.56	216	46.42	0.8640	43.09	32.1
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1129

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.01	0.46	0.39
Nitrogen	N2	0.00	0.63	0.54
Methane	C1	0.33	56.11	48.02
Ethane	C2	0.58	15.78	13.58
Propane	C3	1.57	11.72	10.25
Iso-Butane	iC4	0.80	2.32	2.10
N-Butane	nC4	2.10	4.22	3.91
Iso-Pentane	iC5	2.15	1.61	1.69
N-Pentane	nC5	2.57	1.49	1.65
Hexanes	C6	11.24	2.12	3.44
Heptanes	C7	19.15	2.32	4.76
Octanes	C8	11.16	0.67	2.19
Nonanes	C9	10.95	0.41	1.94
Decanes	C10	6.81	0.05	1.03
Undecanes	C11	4.03	0.04	0.62
Dodecanes Plus	C12+	26.58	0.05	3.89
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.1450	0.8550	1.0000
Mass Ratio	:	0.4168	0.5832	1.0000
Liquid Ratio (bbl/bbl)	:	1.0000 @ SC	--	4.1711 @ PT*
Gas Liquid Ratio	:	1.0000 bbl @ SC	4728 SCF	--
Stream Properties				
Molecular Weight	:	129.7	30.78	45.1
Density obs. (gm/cc)	:	0.7819 @ 60 F	--	0.4521 @ PT*
Gravity (AIR = 1.000)	:	49.3 API @60F	1.071	--
GHV (BTU/scf)	:	--	1795.0	--
Hexanes Plus Properties				
Mol %	:	89.90	5.66	17.87
Molecular Weight	:	137.6	95.9	126.3
Density (gm/cc @ 60 F)	:	0.7954	0.6836	0.7695
Gravity (API @ 60 F)	:	46.2	75.3	52.2
Heptanes Plus Properties				
Mol %	:	78.67	3.54	14.43
Molecular Weight	:	145.1	103.1	136.3
Density (gm/cc @ 60 F)	:	0.8069	0.6931	0.7865
Gravity (API @ 60 F)	:	43.7	72.5	48.2
Decanes Plus Properties				
Mol %	:	37.41	0.14	5.54
Molecular Weight	:	191.2	149.4	190.3
Density (gm/cc @ 60 F)	:	0.8369	0.7421	0.8351
Gravity (API @ 60 F)	:	37.4	59.0	37.8
Undecanes Plus Properties				
Mol %	:	30.60	0.09	4.51
Molecular Weight	:	205.9	157.9	205.1
Density (gm/cc @ 60 F)	:	0.8583	0.7495	0.8566
Gravity (API @ 60 F)	:	33.2	57.1	33.5
Dodecanes Plus Properties				
Mol %	:	26.58	0.05	3.89
Molecular Weight	:	215.9	166.6	215.4
Density (gm/cc @ 60 F)	:	0.8640	0.7566	0.8630
Gravity (API @ 60 F)	:	32.1	55.3	32.3

* P(ressure) 3040 psig, T(emperature) 200 °F

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 200 deg F

ON BOTTOM HOLE SAMPLE EX RFS AD 1129

Thermal Expansion of reservoir fluid at 5000 psig:
= Volume at 200 deg F / Volume at 71 deg F = 1.140753

Pressure (psig)	Relative Volume (V/Vsat) (1)	Oil Compressibility (x 10^-6) (psig^-1) (2)	Y Function (3)	Oil Viscosity
5010 *	0.9016	34.45		0.171
4500	0.9208	40.91		0.161
4000	0.9434	47.90		0.153
3800	0.9531	51.24		0.149
3600	0.9638	55.16		0.144
3400	0.9751	58.25		0.140
3200	0.9874	62.11		0.136
3040 **	1.0000	78.77		0.131
2960	1.0134		2.016	0.137
2885	1.0277		1.940	0.140
2800	1.0458		1.871	0.145
2610	1.0947		1.739	0.154
2385	1.1697		1.618	0.166
2050	1.3303		1.462	0.184
1710	1.6173		1.260	0.207
1400	2.0169		1.152	0.231
1015	2.9220		1.038	0.269
665	4.6039		0.991	0.327
0				0.530

* Reservoir pressure
** Saturation pressure

(1) Barrels at indicated pressure per barrel at saturation pressure.

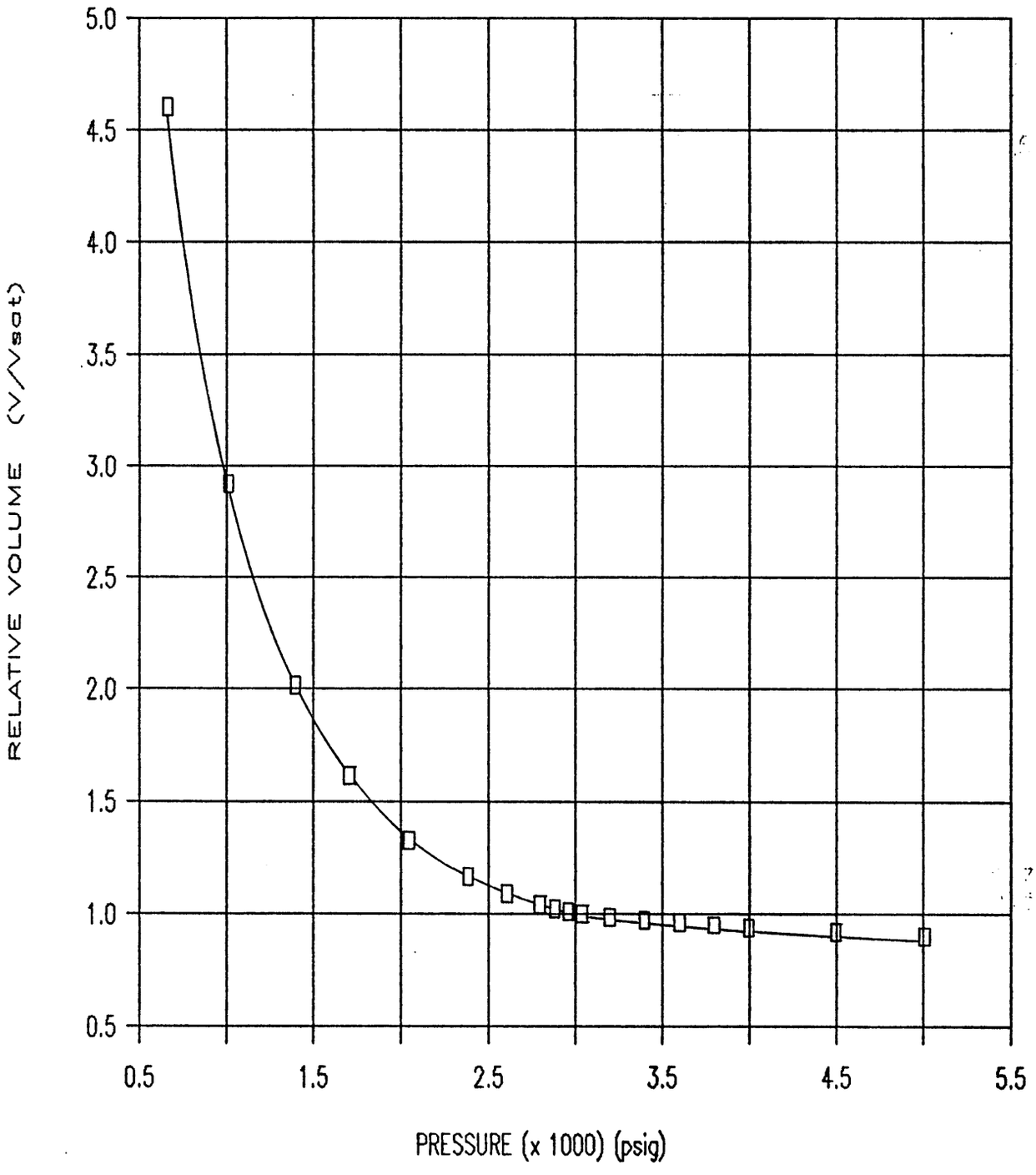
(2) Oil Compressibility = - (1/V) * (dV/dP)

(3) Y Function = (Psat - P) / (P)*(V/Vsat-1)

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

RELATIVE VOLUME
RFS: AD-1129

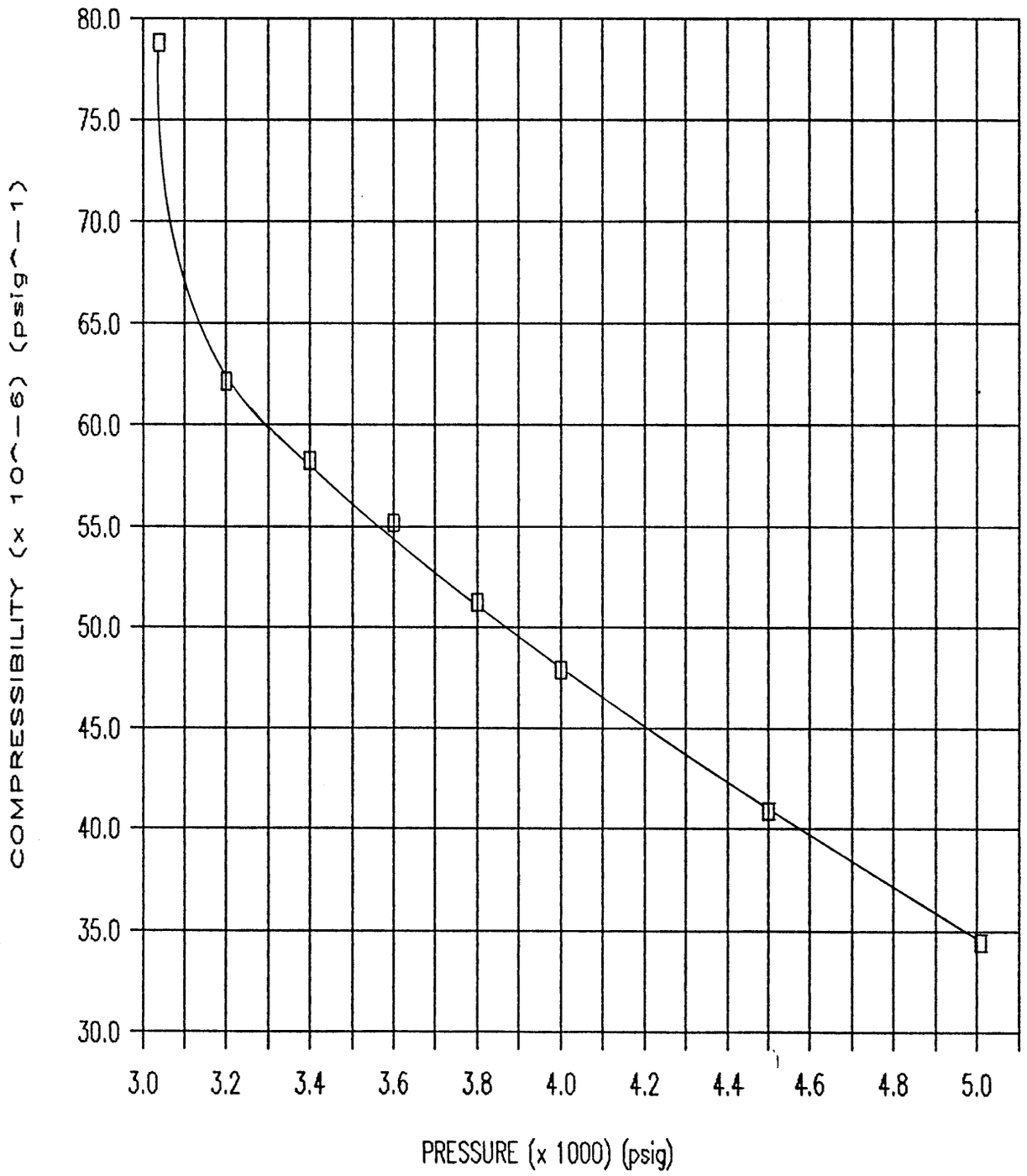


P E T R O L A B

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

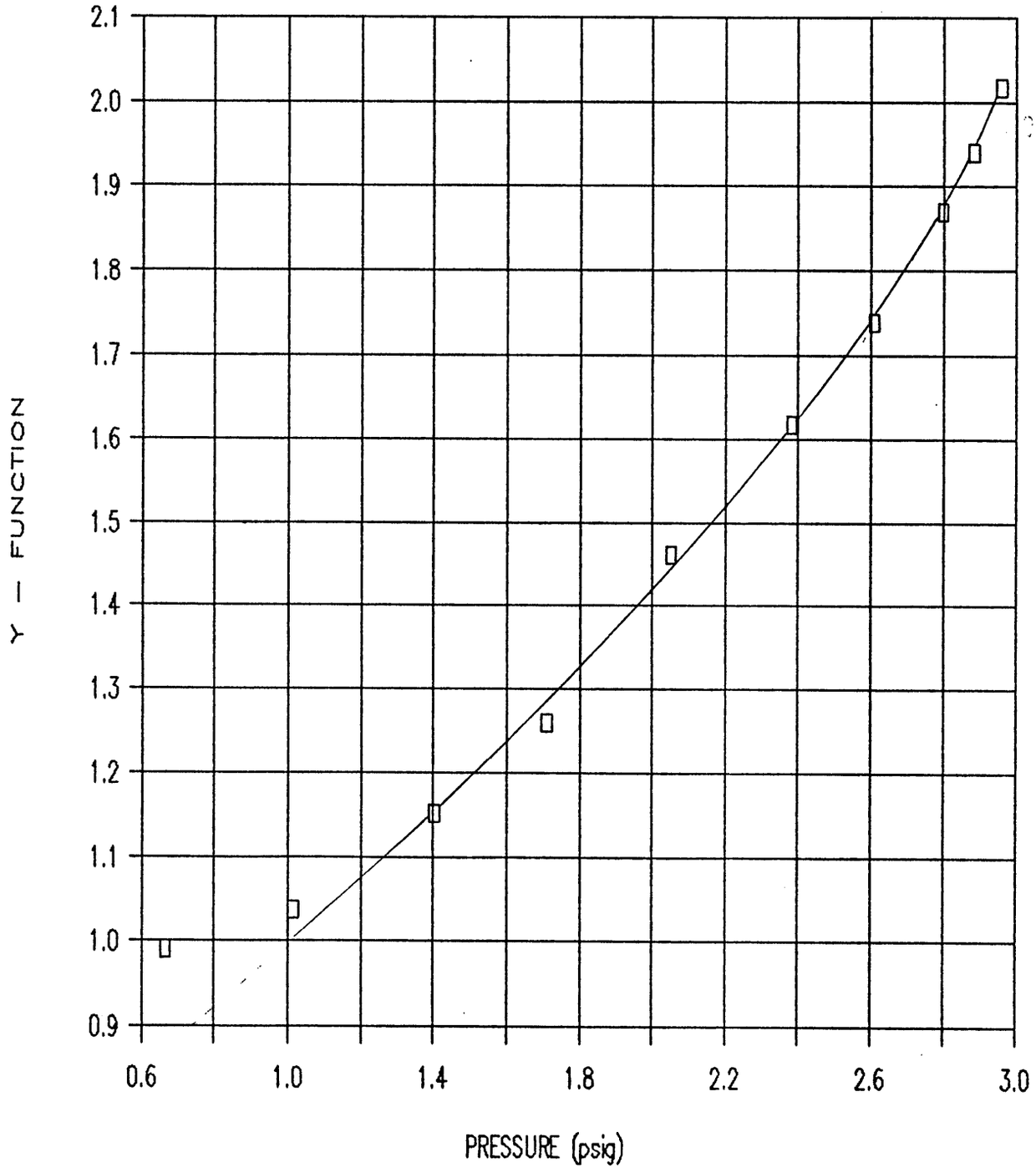
File: 90015

OIL COMPRESSIBILITY
RFS: AD-1129



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

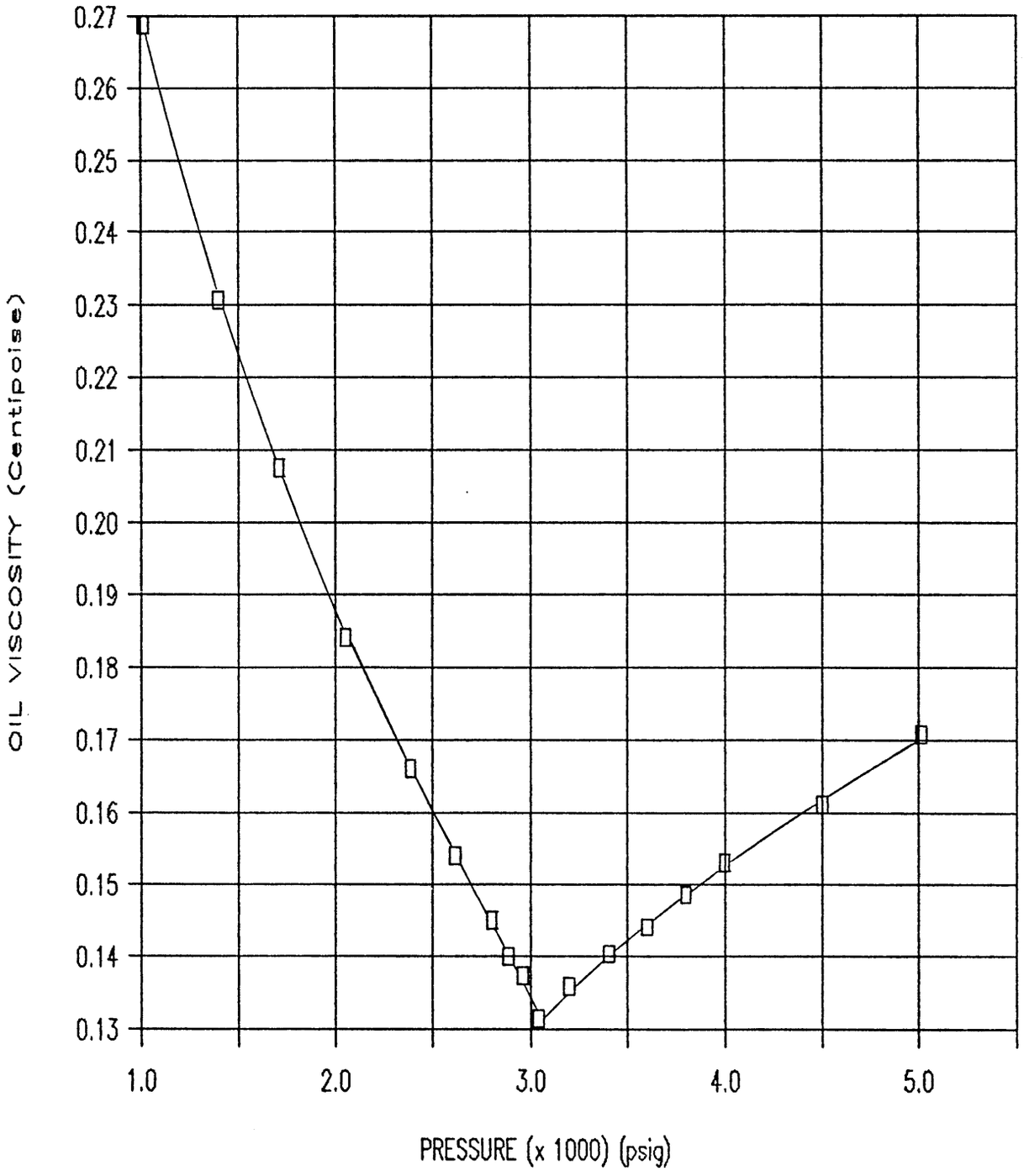
Y - FUNCTION
RFS: AD-1129



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

OIL VISCOSITY
RFS: AD-1129



Company: Petrofina Exploration Australia S.A
Well : Archer # 1

SUMMARY OF RESULTS

R F T Sample # 5

RFT Chamber #	:	RFS 1120
Depth	:	3591.5 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	950 psig @ 20 deg C
Reservoir Pressure (psig)	:	5117.7
Reservoir Temperature (°F)	:	205

Warmed up RFT chamber.
Injected 100 cc's of mercury into chamber to stir up sample.
Compressed to 6000 psig with 2250 cc's of water behind piston.
Transferred 1150 cc's into Petrolab cylinders # 108 and 077 @ 6000 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury and approximately 450 cc' s of mud / water mixture.

CONSTANT MASS DATA:

Saturation Pressure (psig)	:	3455 @	205 °F
Thermal Expansion @ 5000 psig (1/°C)	:	0.0021114	
(1/°F)	:	0.0011730	
Compressibility of saturated oil	@	205	°F
	&	3455	psig
(1/psi) * 10^-6		93.61	

ATMOSPHERIC FLASH DATA OF SATURATED OIL:

1) From P V T storage cylinder for compositional purposes.

Solution GOR (scf/bbl)	:	5436
Formation Volume Factor (rbbl/stbbl)	:	4.7166
Molecular Weight	:	42.4

RESIDUAL OIL:

API Gravity @ 60 °F	:	45.6
Density @ 60 °F (gm/cc)	:	0.7980
Molecular Weight	:	135.3

1) From P V T cell after constant mass study.

GOR (scf/bbl)	:	5740
Formation Volume Factor (rbbl/stbbl)	:	5.1209
Shrinkage (stbbl/rbbl)	:	0.195
Oil Density (gm/cc @ PT)	:	0.4227 *
Specific Volume (ft3/lb @ PT)	:	0.03790 *

RESIDUAL OIL:

API Gravity @ 60 °F	:	42.6
Density @ 60 °F (gm/cc)	:	0.8119

* P(ressure) 3455 psig, T(emperature) 205 °F

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #13

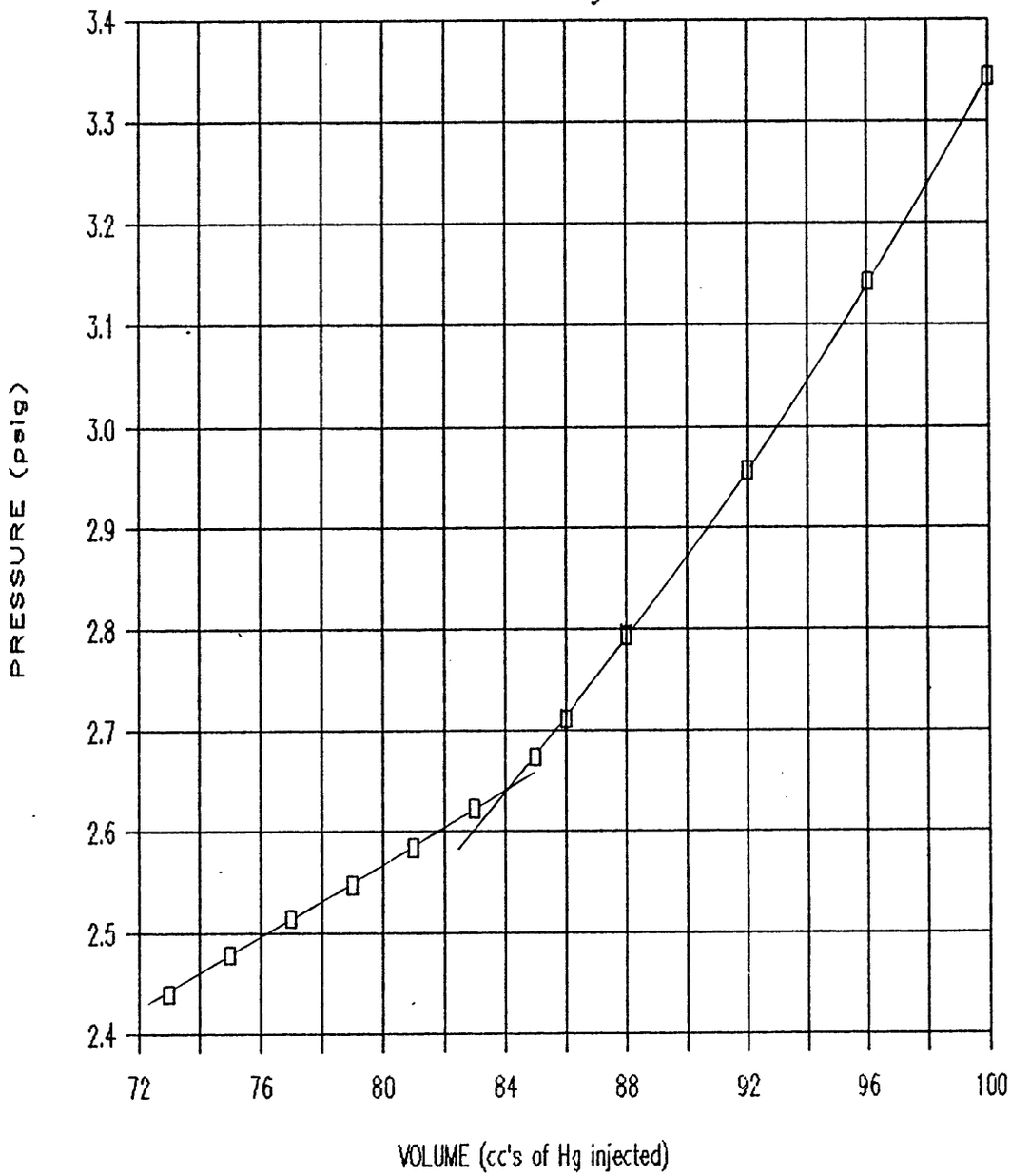
Sampling Conditions

Depth : 3591.5 m
KB : 28 m
R F T Chamber No : RFS AD 1120
Capacity : 1 Gallon
Res. Pressure : 5117.7 psig
Res. Temperature : 205 deg F

Opening Pressure : 950 psig
Temperature : 20 deg C
Transferred to : Cylinder # L - 108

Volume (cc's)	Pressure (psig)
73.00	2440
75.00	2478
77.00	2514
79.00	2547
81.00	2584
83.00	2623
85.00	2674
86.00	2711
88.00	2793
92.00	2957
96.00	3142
100.00	3345

Saturation Pressure : 2640 psig @ 20 deg C



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #14

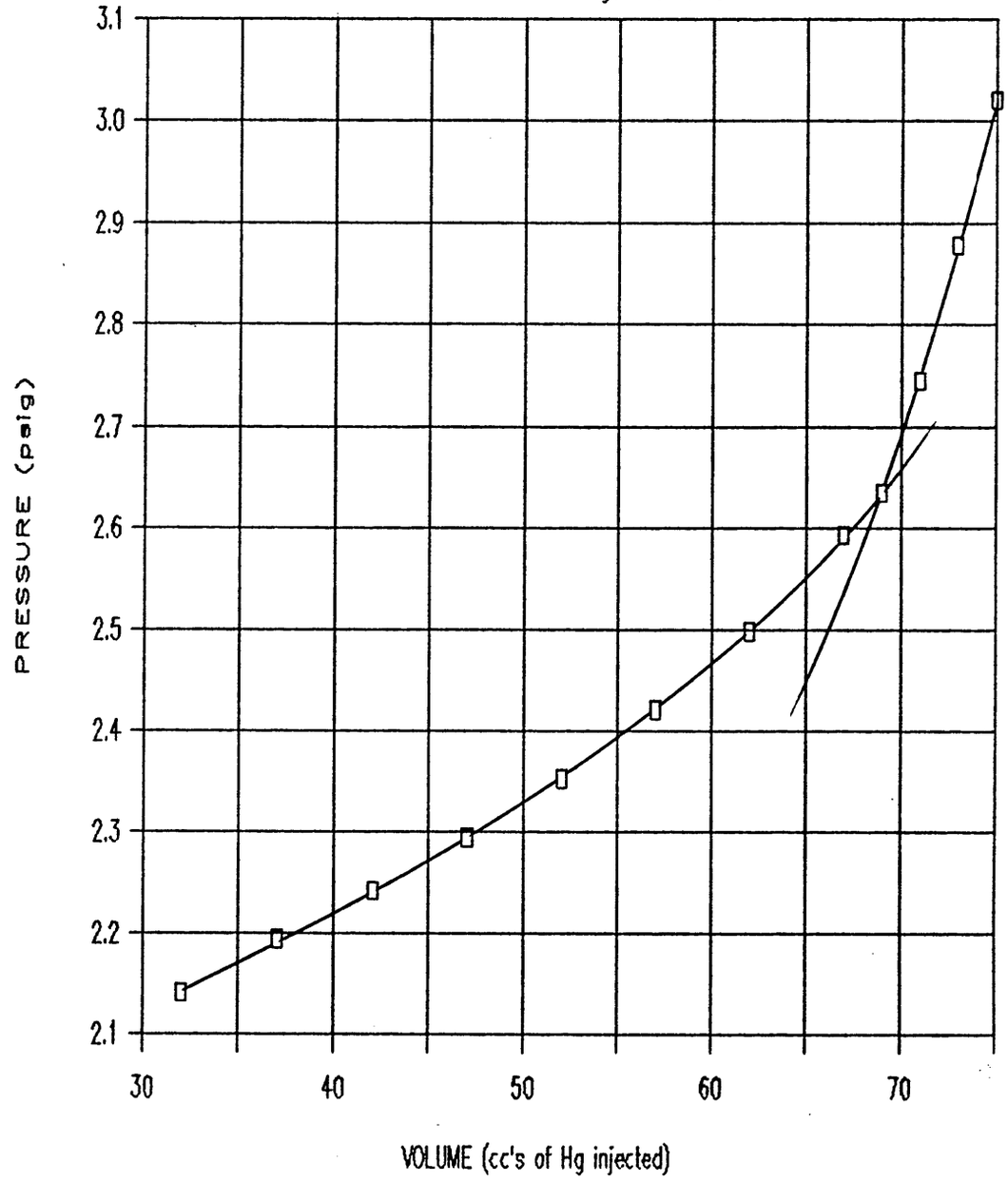
Sampling Conditions

Depth : 3591.5 m
KB : 28 m
R F T Chamber No : RFS AD 1120
Capacity : 1 Gallon
Res. Pressure : 5117.7 psig
Res. Temperature : 205 deg F

Opening Pressure : 950 psig
Temperature : 20 deg C
Transferred to : Cylinder # L - 077

Volume (cc's)	Pressure (psig)
32.00	2141
37.00	2194
42.00	2242
47.00	2295
52.00	2353
57.00	2421
62.00	2498
67.00	2593
69.00	2635
71.00	2745
73.00	2878
75.00	3021

Saturation Pressure : 2630 psig @ 20 deg C



Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1120

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	10.62	85	6.39	0.6798	7.60	76.5
Heptanes	85 - 112	20.05	96	13.51	0.7432	14.71	58.7
Octanes	113 - 138	14.81	104	10.89	0.7701	11.43	52.1
Nonanes	139 - 162	11.07	115	8.95	0.7929	9.13	46.8
Decanes	163 - 185	7.79	129	7.08	0.8013	7.15	44.9
Undecanes	186 - 206	4.58	141	4.57	0.8089	4.57	43.3
Dodecanes Plus	> 206	31.08	222	48.61	0.8659	45.41	31.8
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1120

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.01	0.40	0.35
Nitrogen	N2	0.00	0.67	0.59
Methane	C1	0.35	60.78	53.16
Ethane	C2	0.50	14.80	13.00
Propane	C3	1.20	10.02	8.91
Iso-Butane	iC4	0.61	2.02	1.84
N-Butane	nC4	1.60	3.73	3.46
Iso-Pentane	iC5	1.60	1.42	1.44
N-Pentane	nC5	1.89	1.31	1.38
Hexanes	C6	9.80	1.77	2.78
Heptanes	C7	18.49	1.91	4.00
Octanes	C8	13.66	0.63	2.27
Nonanes	C9	10.21	0.31	1.56
Decanes	C10	7.19	0.07	0.97
Undecanes	C11	4.22	0.11	0.63
Dodecanes Plus	C12+	28.68	0.05	3.66
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.1262	0.8738	1.0000
Mass Ratio	:	0.4024	0.5976	1.0000
Liquid Ratio (bbl/bbl)	:	1.0000 @ SC	--	4.7166 @ PT*
Gas Liquid Ratio	:	1.0000 bbl @ SC	5436 SCF	--
Stream Properties				
Molecular Weight	:	135.3	29.00	42.4
Density obs. (gm/cc)	:	0.7980 @ 60 F	--	0.4227 @ PT*
Gravity (AIR = 1.000)	:	45.6 API @60F	1.009	--
GHV (BTU/scf)	:	--	1699.0	--
Hexanes Plus Properties				
Mol %	:	92.24	4.85	15.87
Molecular Weight	:	141.7	97.1	129.8
Density (gm/cc @ 60 F)	:	0.8089	0.6852	0.7807
Gravity (API @ 60 F)	:	43.3	74.8	49.6
Heptanes Plus Properties				
Mol %	:	82.45	3.08	13.09
Molecular Weight	:	148.4	104.6	139.4
Density (gm/cc @ 60 F)	:	0.8195	0.6950	0.7975
Gravity (API @ 60 F)	:	41.0	71.9	45.8
Decanes Plus Properties				
Mol %	:	40.09	0.23	5.26
Molecular Weight	:	196.5	147.3	194.6
Density (gm/cc @ 60 F)	:	0.8533	0.7403	0.8495
Gravity (API @ 60 F)	:	34.2	59.5	34.9
Undecanes Plus Properties				
Mol %	:	32.90	0.16	4.29
Molecular Weight	:	211.3	153.1	209.4
Density (gm/cc @ 60 F)	:	0.8607	0.7454	0.8576
Gravity (API @ 60 F)	:	32.7	58.1	33.3
Dodecanes Plus Properties				
Mol %	:	28.68	0.05	3.66
Molecular Weight	:	221.6	166.6	220.9
Density (gm/cc @ 60 F)	:	0.8659	0.7566	0.8648
Gravity (API @ 60 F)	:	31.7	55.3	32.0

* P(ressure) 3455 psig, T(emperature) 205 °F

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 205 deg F

ON BOTTOM HOLE SAMPLE EX RFS AD 1120

Thermal Expansion of reservoir fluid at 5000 psig:
= Volume at 205 deg F / Volume at 72 deg F = 1.156511

Pressure (psig)	Relative Volume (V/Vsat) (1)	Oil Compressibility (x 10^-6)(psig^-1) (2)	Y Function (3)	Oil Viscosity
5118 *	0.9036	41.61		0.171
4900	0.9123	43.62		0.167
4600	0.9254	47.15		0.161
4300	0.9400	51.62		0.155
4000	0.9572	60.00		0.150
3800	0.9705	68.57		0.145
3600	0.9864	80.75		0.142
3455 **	1.0000	93.60		0.139
3350	1.0149		2.101	0.145
3200	1.0406		1.962	0.153
3005	1.0819		1.829	0.167
2710	1.1644		1.672	0.186
2475	1.2522		1.570	0.201
2155	1.4169		1.447	0.223
1820	1.6749		1.331	0.247
1510	2.0981		1.173	0.272
1120	2.9650		1.061	0.309
800	4.4249		0.969	0.344
0				0.503

* Reservoir pressure
** Saturation pressure

(1) Barrels at indicated pressure per barrel at saturation pressure.

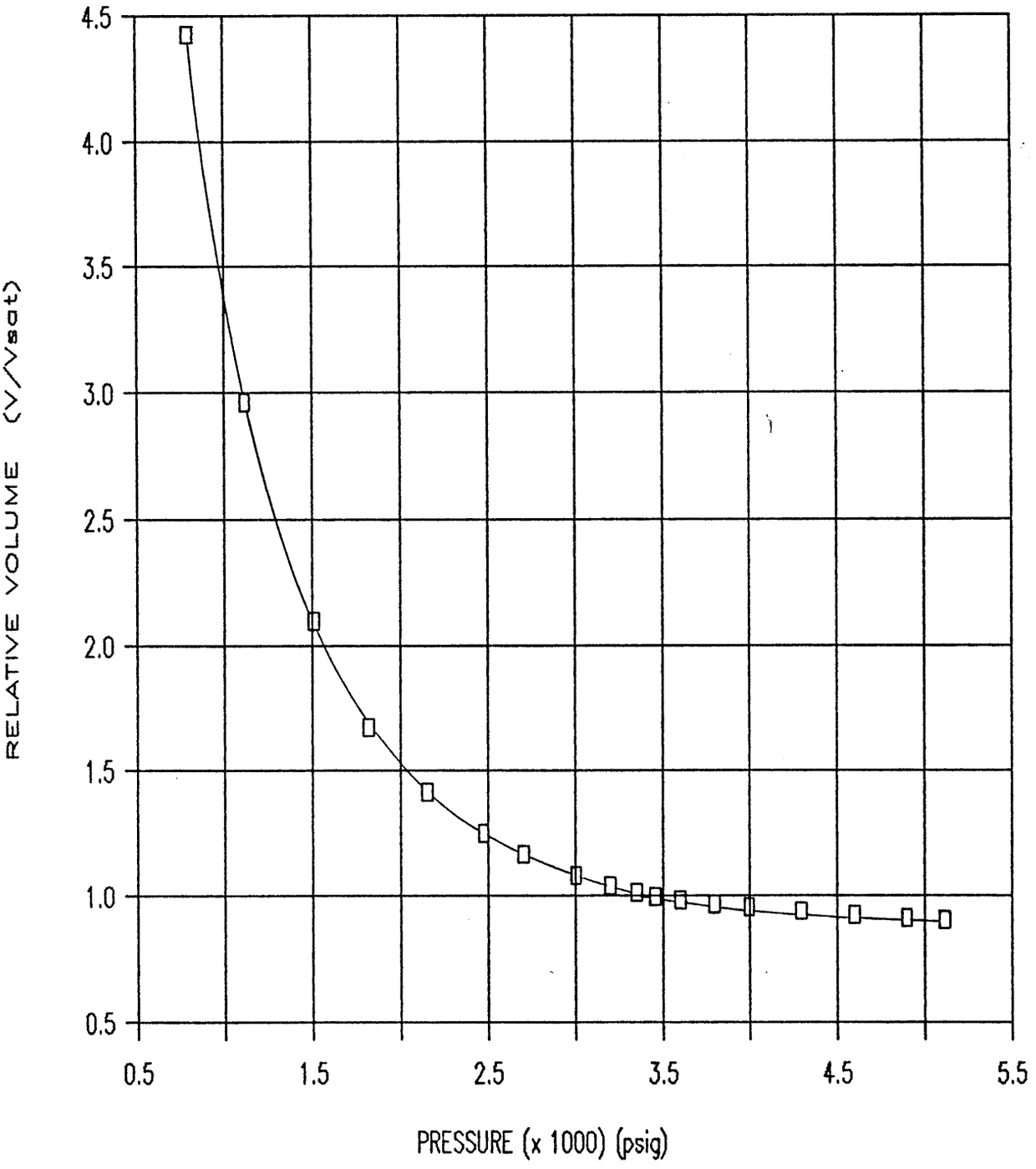
(2) Oil Compressibility = - (1/V) * (dV/dP)

(3) Y Function = (Psat - P) / (P)*(V/Vsat-1)

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

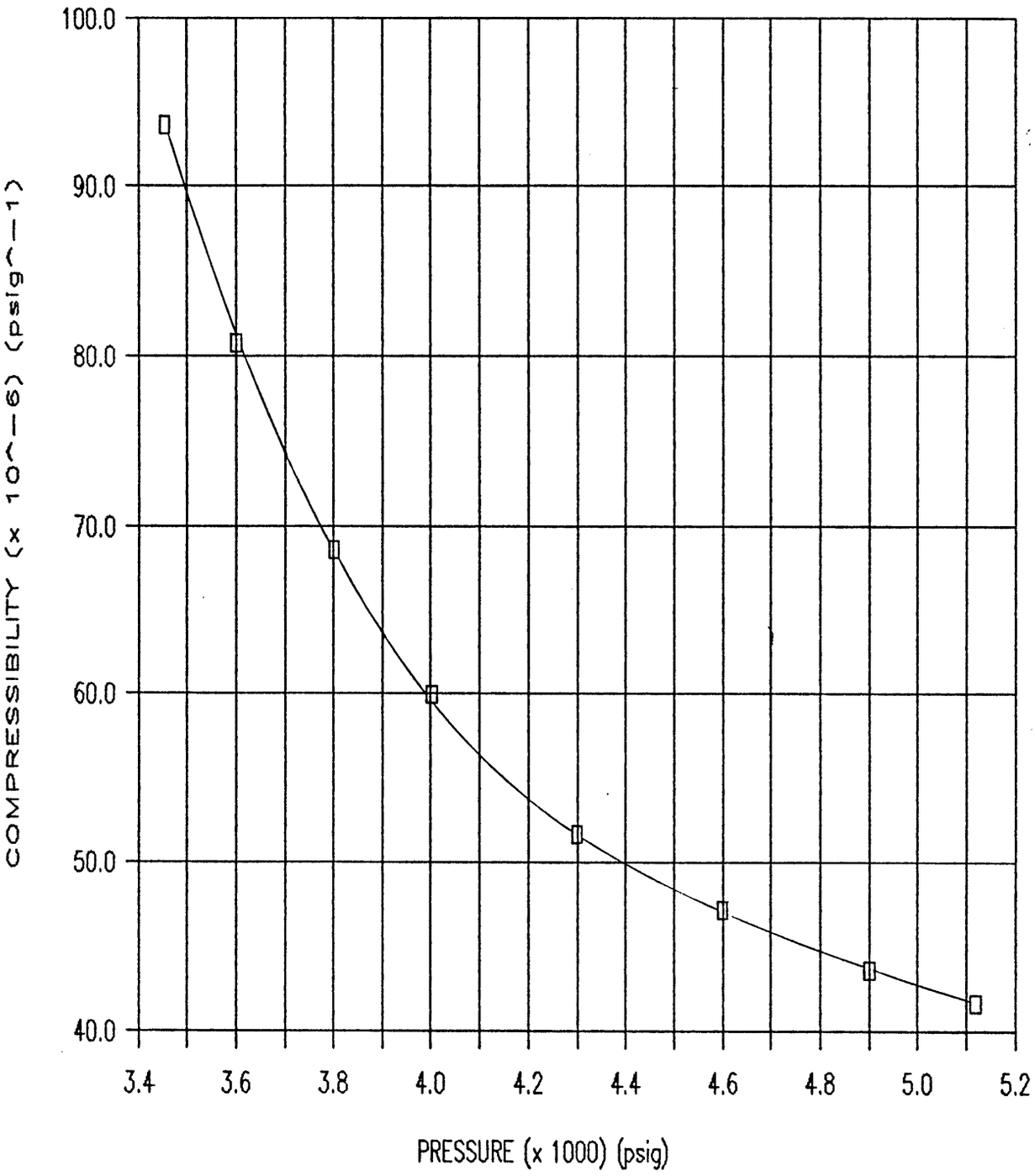
File: 90015

RELATIVE VOLUME
RFS: AD-1120



Company: Petrofina Exploration Australia Ltd. Page: 52 of 78
Well : Archer # 1 File: 90015

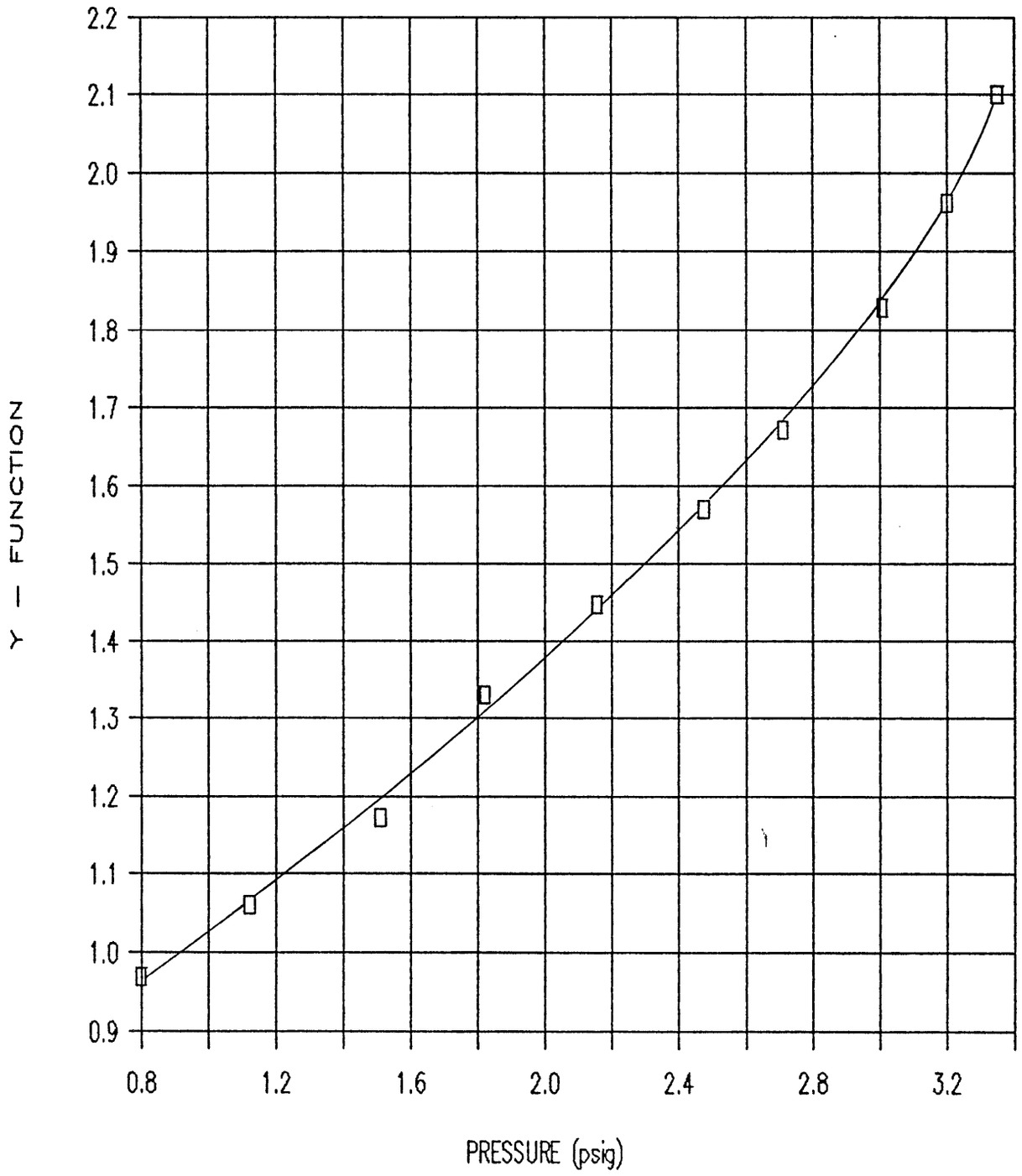
OIL COMPRESSIBILITY
RFS: AD-1120



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

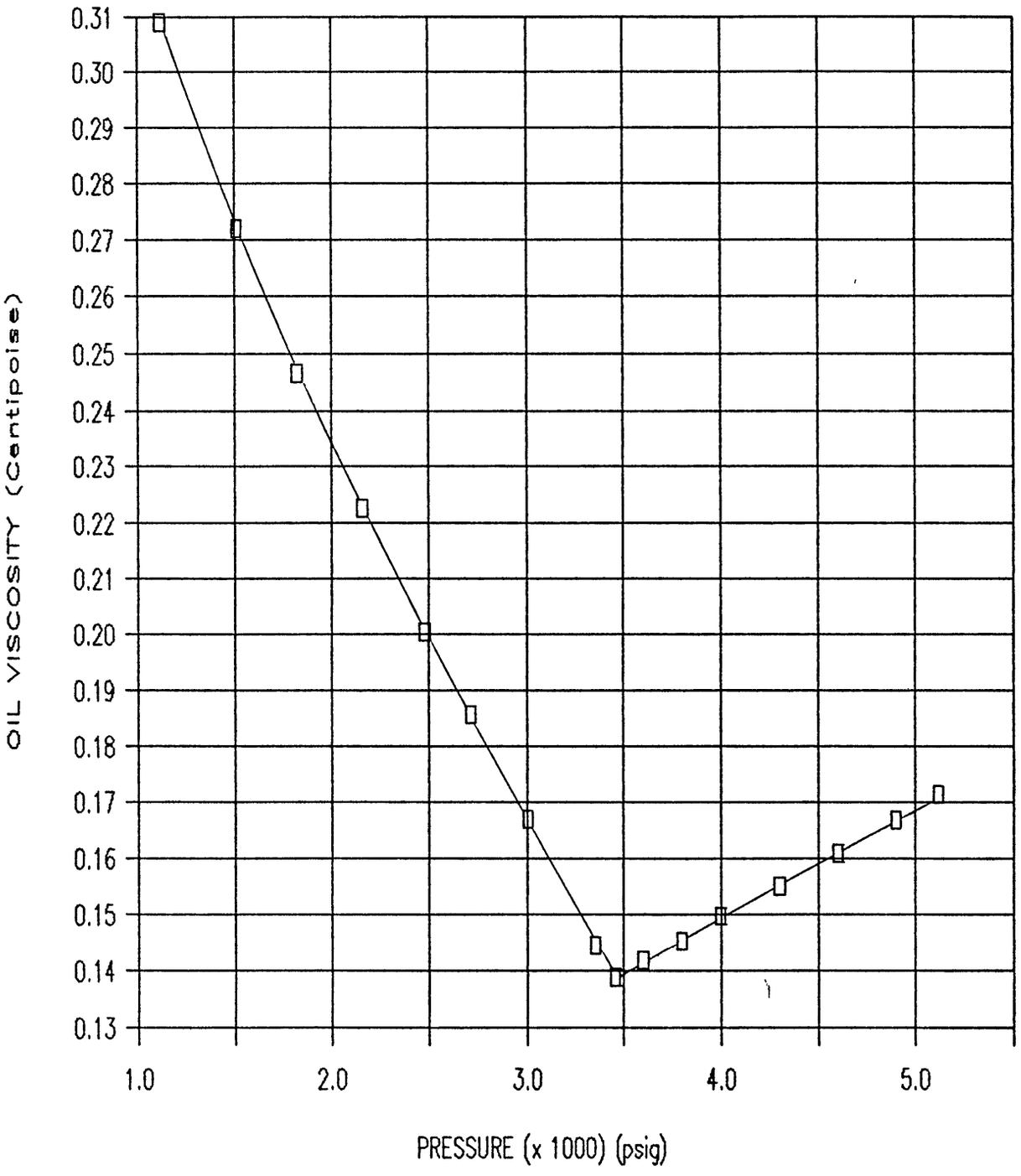
Y - FUNCTION
RFS: AD-1120



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

OIL VISCOSITY
RFS: AD-1120



P E T R O L A B

Company: Petrofina Exploration Australia S.A Page: 55 of 78
Well : Archer # 1 File: P 90015

SUMMARY OF RESULTS

R F T Sample # 6

RFT Chamber #	:	RFS 1123
Depth	:	3681.0 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	2500 psig @ 18 deg C
Reservoir Pressure (psig)	:	5250.0
Reservoir Temperature (°F)	:	210

Warmed up RFT chamber.

Injected 100 cc's of mercury into chamber to stir up sample.
Compressed to 6300 psig with 910 cc's of water behind piston.
Transferred 1600 cc's into Petrolab cylinders # 092 , 090 and 201 @ 6300 psig. Flashed rest of sample to atmosphere.
Recovered back almost all mercury and approximately 113 cc's of oil and 50 cc's of mud / water mixture.

CONSTANT MASS DATA:

Dew Point Pressure (psig)	:	5175 @ 210 °F

PRODUCED WELLSTREAM:

Gas Formation Volume Factor (Bg)	:	0.00360
Gas Expansion Factor (E)	:	277.97
Gas Deviation Factor (Z)	:	0.986
Specific Volume (cft/lb)	:	0.04443
Density (gm/cc)	:	0.36053
Molecular Weight	:	30.74
Gas Gravity (Air = 1.000)	:	1.069
Gross Heating Value (BTU/ft3)	:	1777

PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #15

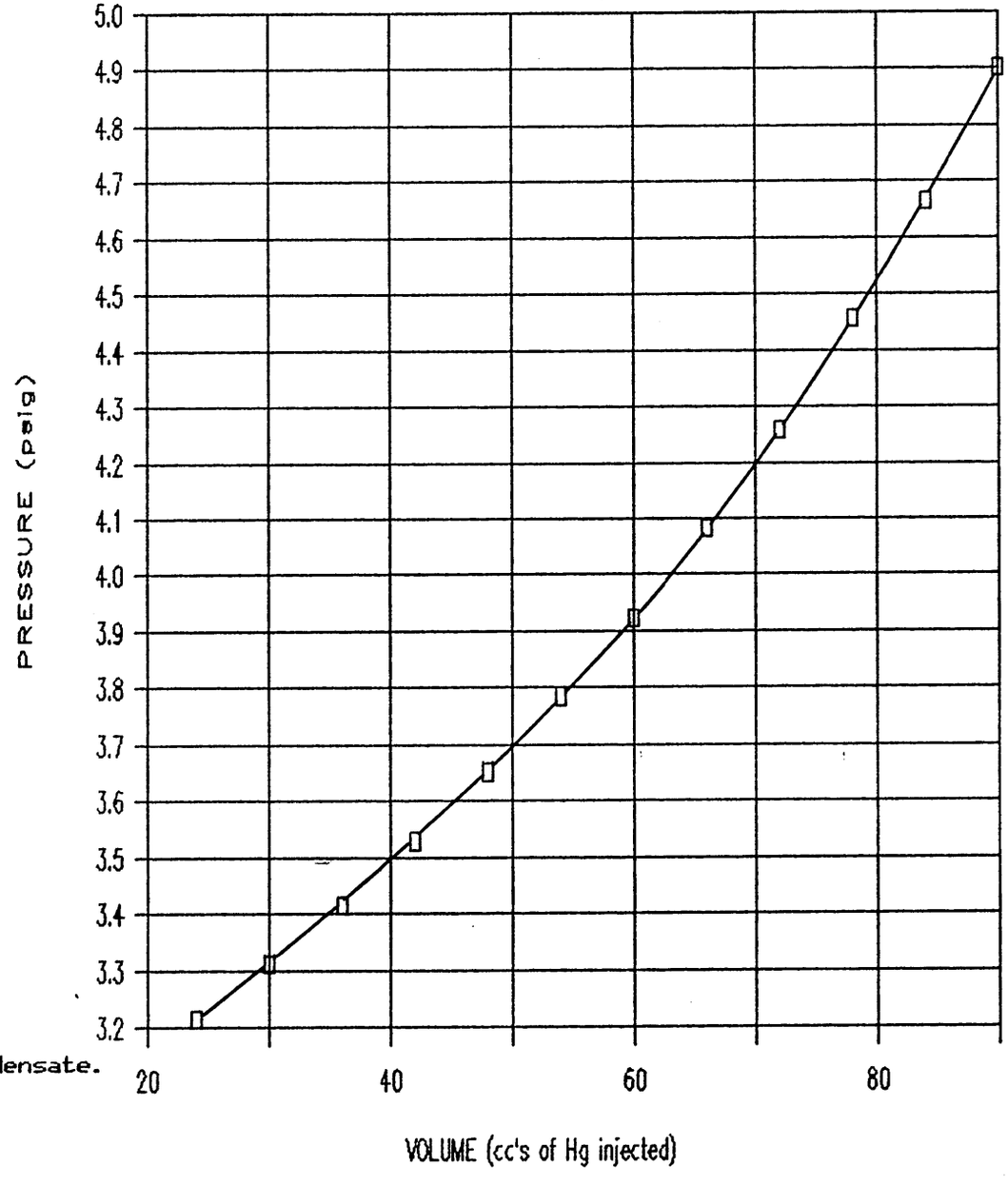
Sampling Conditions

Depth : 3681.0 m
KB : 28 m
R F T Chamber No : RFS AD 1123
Capacity : 1 Gallon
Res. Pressure : 5250.0 psig
Res. Temperature : 210 deg F

Opening Pressure : 2500 psig
Temperature : 18 deg C
Transferred to : Cylinder # L - 092

Volume (cc's)	Pressure (psig)
24.00	3215
30.00	3312
36.00	3416
42.00	3529
48.00	3652
54.00	3785
60.00	3923
66.00	4083
72.00	4260
78.00	4456
84.00	4665
90.00	4903

Saturation Pressure : Not Found. Sample gas condensate.



PETROLAB

Company : Petrofina Exploration Australia S.A
Well : Archer # 1
File : P-90015

Sample #16

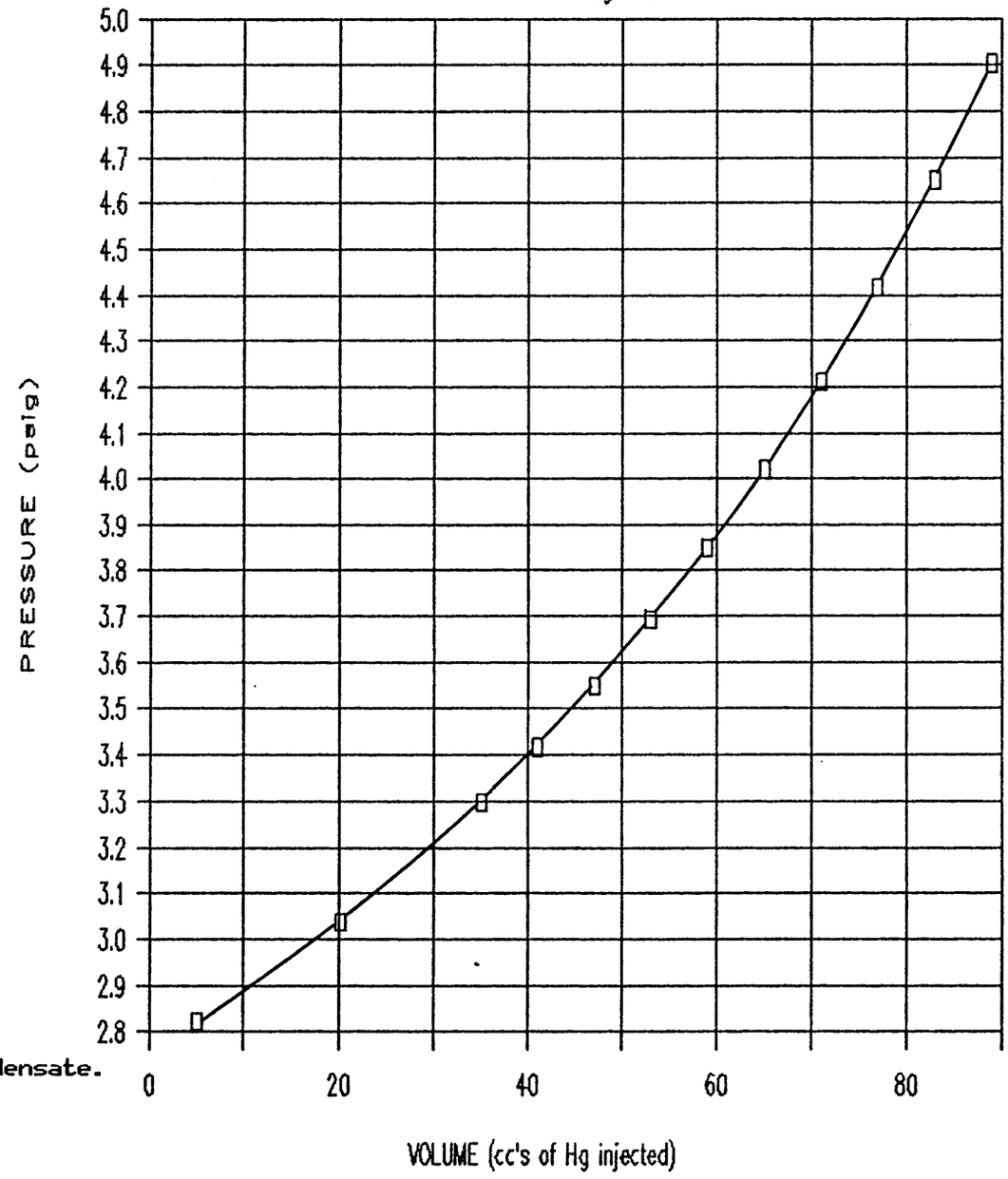
Sampling Conditions

Depth : 3681.0 m
KB : 28 m
R F T Chamber No : RFS AD 1123
Capacity : 1 Gallon
Res. Pressure : 5250.0 psig
Res. Temperature : 210 deg F

Opening Pressure : 2500 psig
Temperature : 18 deg C
Transferred to : Cylinder # L - 090

Volume (cc's)	Pressure (psig)
5.00	2822
20.00	3039
35.00	3299
41.00	3418
47.00	3550
53.00	3694
59.00	3849
65.00	4021
71.00	4211
77.00	4418
83.00	4650
89.00	4905

Saturation Pressure : Not Found. Sample gas condensate.



Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1123

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 28						
Hexanes	59 - 84	5.80	91	3.77	0.6941	4.42	72.2
Heptanes	85 - 112	18.90	95	12.87	0.7436	14.09	58.6
Octanes	113 - 138	16.02	104	11.92	0.7724	12.56	51.5
Nonanes	139 - 162	14.87	113	12.04	0.7911	12.38	47.2
Decanes	163 - 185	8.21	128	7.51	0.8040	7.60	44.3
Undecanes	186 - 206	5.61	140	5.62	0.8115	5.64	42.7
Dodecanes Plus	> 206	30.59	212	46.27	0.8696	43.31	31.1
		100.00		100.00		100.00	

P E T R O L A B

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1123

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.02	1.09	1.04
Nitrogen	N2	0.00	0.45	0.43
Methane	C1	0.42	72.32	69.14
Ethane	C2	0.36	10.66	10.20
Propane	C3	0.73	6.02	5.79
Iso-Butane	iC4	0.33	1.08	1.05
N-Butane	nC4	0.87	2.00	1.95
Iso-Pentane	iC5	0.90	0.79	0.79
N-Pentane	nC5	1.11	0.76	0.78
Hexanes	C6	5.53	1.28	1.47
Heptanes	C7	18.01	1.99	2.70
Octanes	C8	15.26	0.82	1.46
Nonanes	C9	14.17	0.52	1.12
Decanes	C10	7.82	0.11	0.45
Undecanes	C11	5.34	0.07	0.30
Dodecanes Plus	C12+	29.14	0.04	1.33
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.0442	0.9558	1.0000
Mass Ratio	:	0.1959	0.8041	1.0000
Gas Liquid Ratio	:	1.0000 bbl @ SC	17088 SCF	--
Stream Properties				
Molecular Weight	:	135.9	25.79	30.74
Density obs. (gm/cc)	:	0.8071 @ 60 F	--	--
Gravity (AIR = 1.000)	:	43.7 API @60F	0.895	1.069
GHV (BTU/scf)	:	--	1508.0	1777.0
Hexanes Plus Properties				
Mol %	:	95.28	4.83	8.83
Molecular Weight	:	139.9	99.6	118.8
Density (gm/cc @ 60 F)	:	0.8140	0.6885	0.7538
Gravity (API @ 60 F)	:	42.2	73.8	56.0
Heptanes Plus Properties				
Mol %	:	89.75	3.55	7.36
Molecular Weight	:	142.9	105.2	125.5
Density (gm/cc @ 60 F)	:	0.8195	0.6958	0.7668
Gravity (API @ 60 F)	:	41.0	71.7	52.8
Decanes Plus Properties				
Mol %	:	42.31	0.22	2.08
Molecular Weight	:	187.1	137.0	182.0
Density (gm/cc @ 60 F)	:	0.8552	0.7307	0.8442
Gravity (API @ 60 F)	:	33.8	62.0	35.9
Undecanes Plus Properties				
Mol %	:	34.49	0.11	1.63
Molecular Weight	:	200.5	154.6	197.6
Density (gm/cc @ 60 F)	:	0.8631	0.7467	0.8564
Gravity (API @ 60 F)	:	32.3	57.8	33.6
Dodecanes Plus Properties				
Mol %	:	29.14	0.04	1.33
Molecular Weight	:	211.6	168.0	210.3
Density (gm/cc @ 60 F)	:	0.8698	0.7577	0.8669
Gravity (API @ 60 F)	:	31.0	55.1	31.6

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY @ 210 deg F

ON SAMPLE EX RFT CHAMBER RFS AD - 1123

Pressure (psig)	Relative Volume (V/Vsat) (1)	Formation Volume Factor (Bg) (2)	Gas Expansion Factor (E) (3)	Deviation Factor (Z)	Specific Volume (CFT/LB)
6500	0.9340	0.00336	297.62	1.156	0.04150
6250	0.9452	0.00340	294.09	1.125	0.04200
6000	0.9538	0.00343	291.42	1.090	0.04238
5750	0.9660	0.00348	287.75	1.058	0.04292
5500	0.9792	0.00352	283.86	1.026	0.04351
5250 *	0.9968	0.00359	278.87	0.997	0.04429
5175 **	1.0000	0.00360	277.97	0.986	0.04443

* Reservoir Pressure
** Dew Point Pressure

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

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

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

Company: Petrofina Exploration Australia
Well : Archer # 1

CONSTANT MASS STUDY
@ 210 deg F

ON SAMPLE EX RFT CHAMBER RFS AD - 1123

Pressure (psig)	Relative Volume (V/Vsat) (1)	Retrograde Liquid Deposit (Bbl/MMSCF) (2)	(Volume%) (3)
5175 *	1.0000	0.00	0.00
4840	1.0246	12.30	1.92
4560	1.0516	24.60	3.84
4195	1.1015	43.12	6.73
3800	1.1700	66.00	10.30
3520	1.2285	83.43	13.02
3210	1.3041	98.93	15.44
2900	1.4103	108.22	16.89
2620	1.5442	110.91	17.31
2340	1.7212	110.91	17.31
2035	1.9747	108.93	17.00

* Dew Point Pressure

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

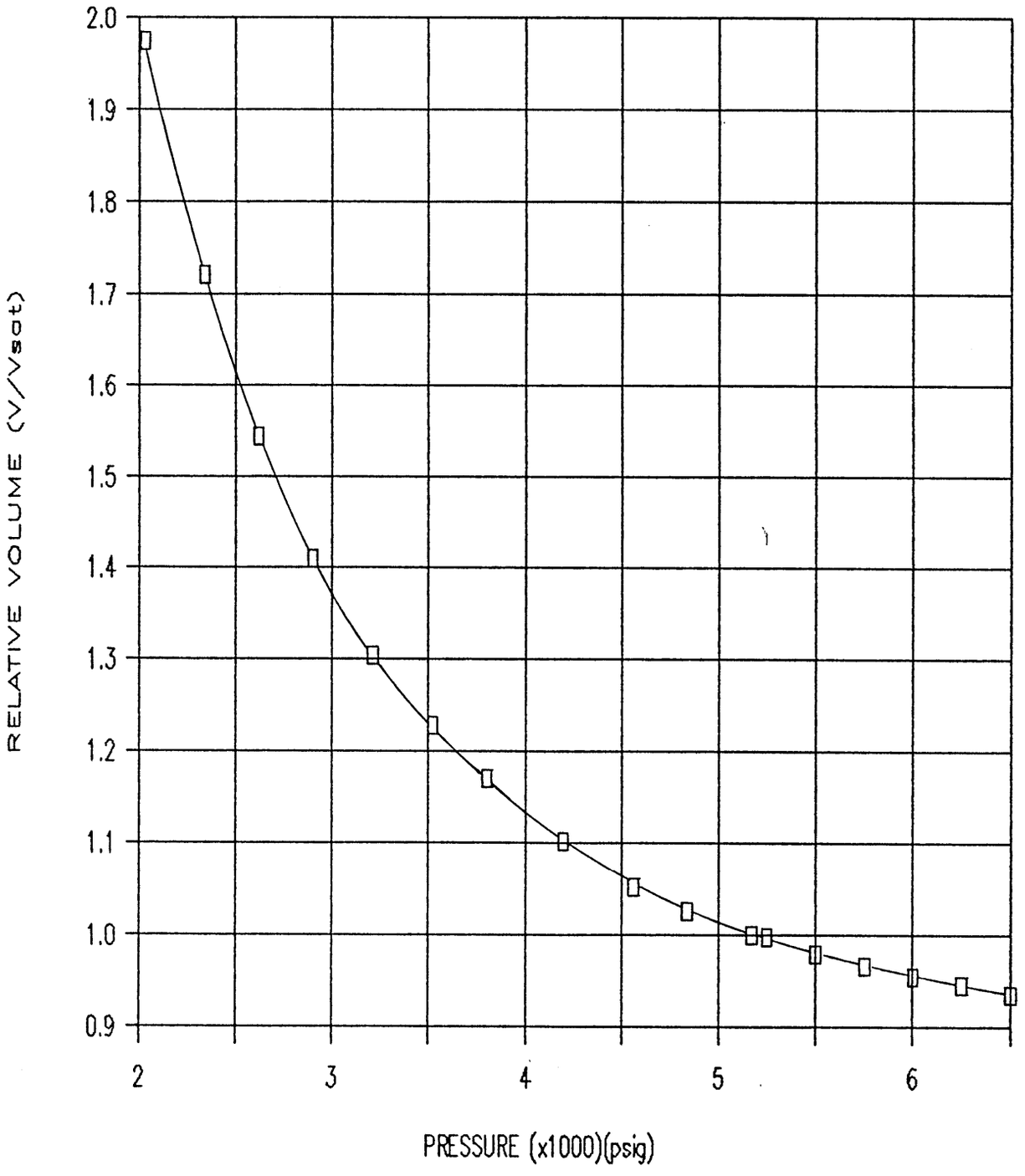
(2) Barrels of liquid at indicated pressure and temperature per MMSCF of original reservoir fluid.

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

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

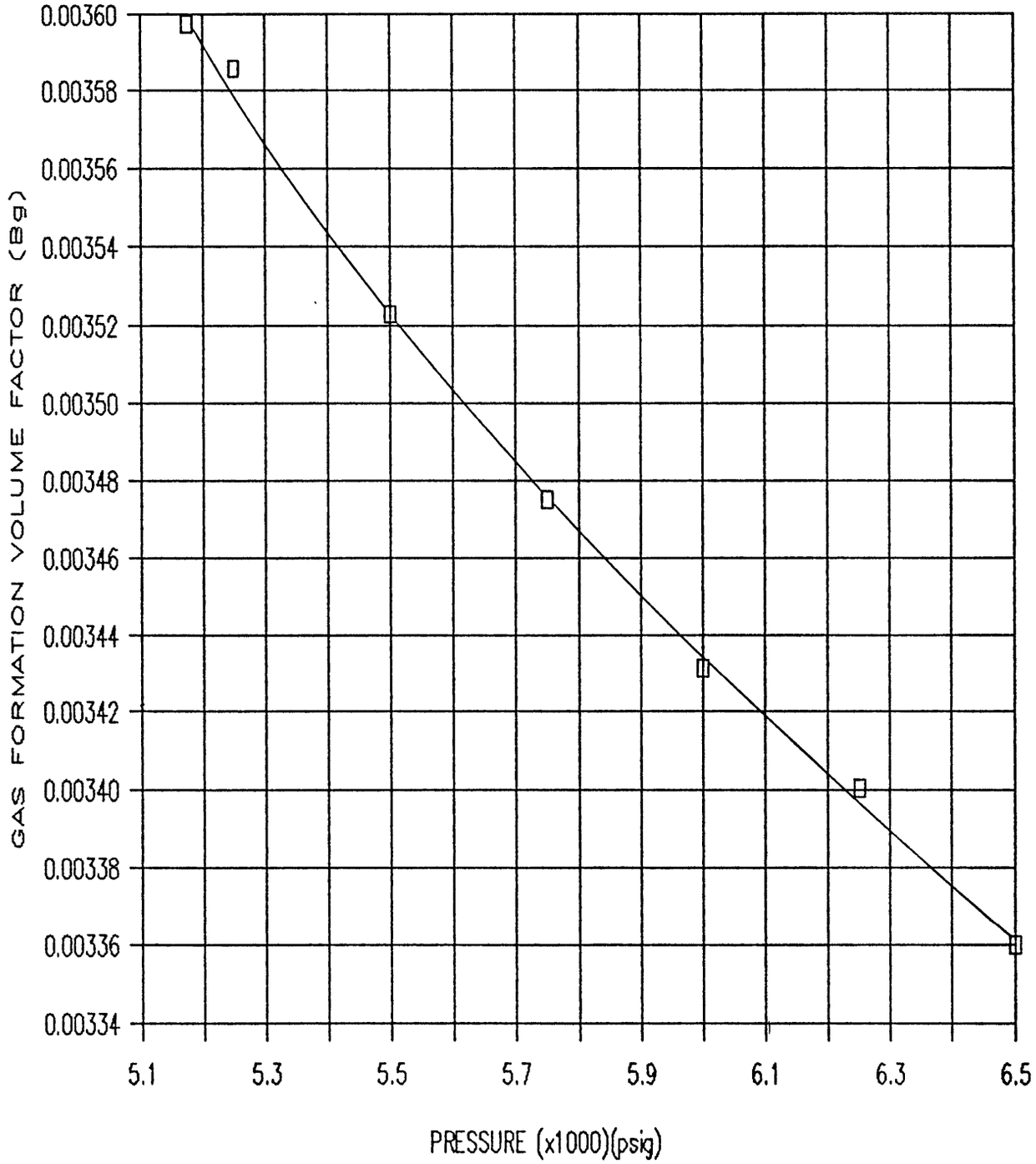
RELATIVE VOLUME
RFS: AD-1123



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

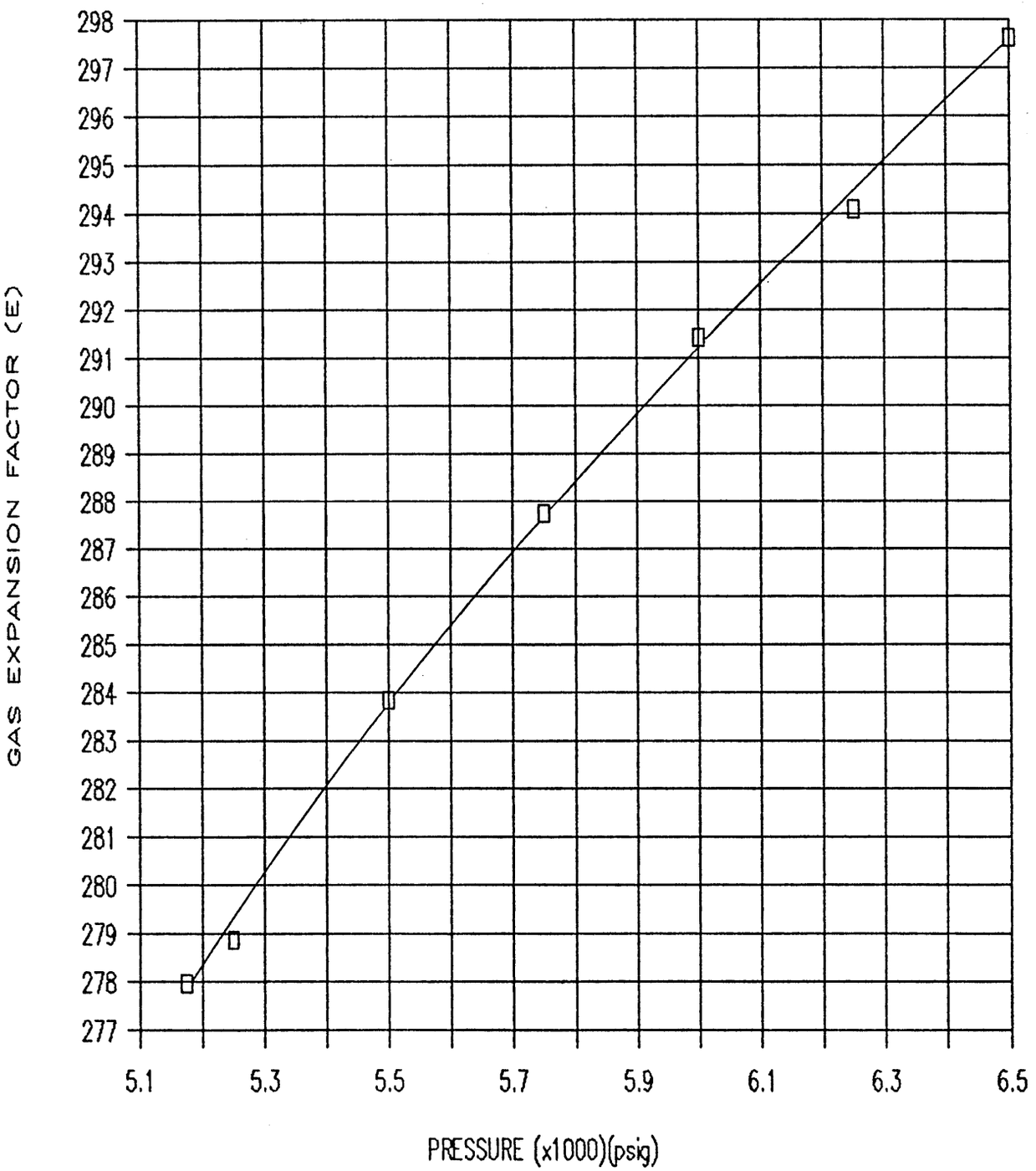
GAS FORMATION VOLUME FACTOR
RFS: AD-1123



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

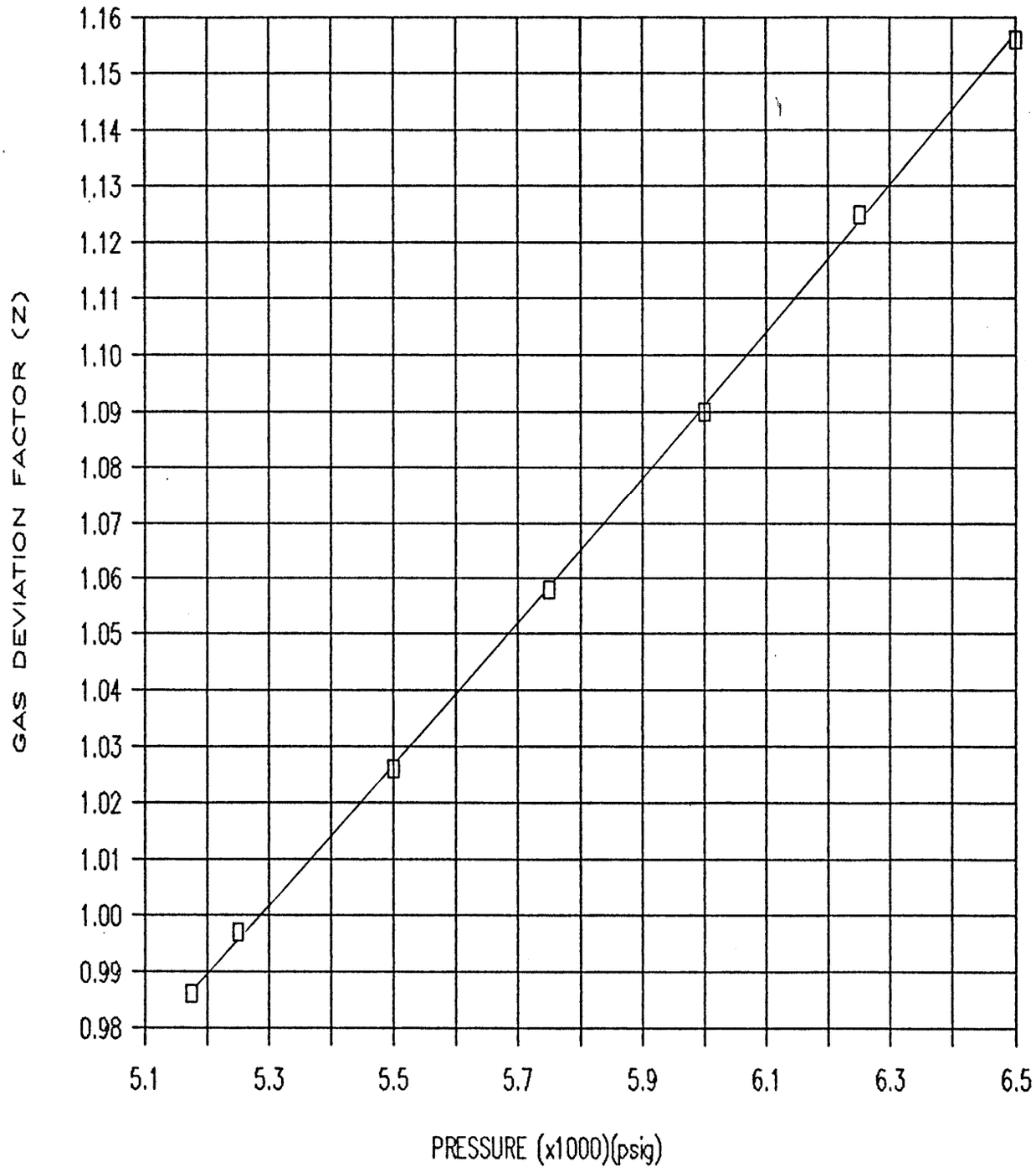
GAS EXPANSION FACTOR
RFS: AD-1123



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

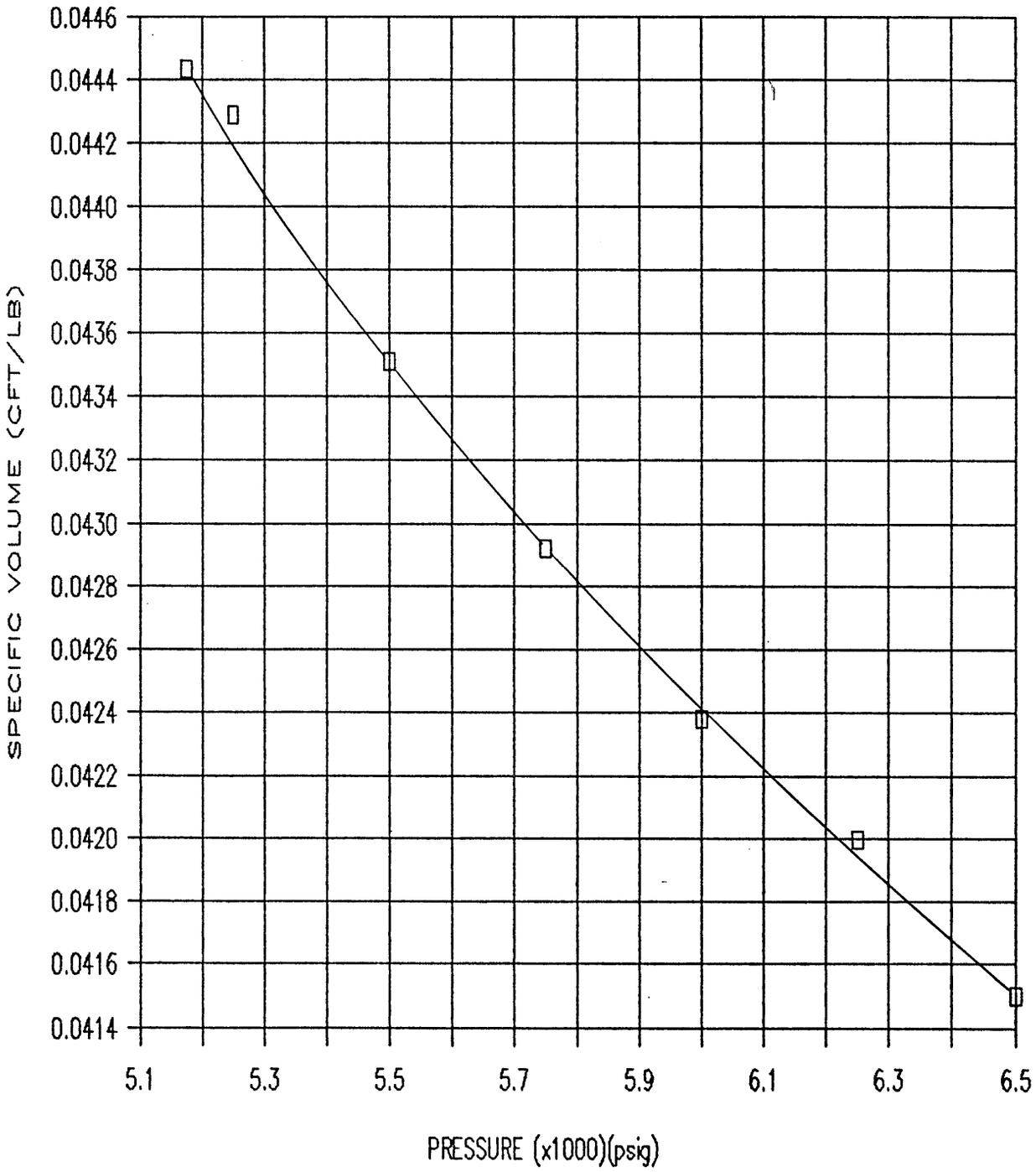
File: 90015

GAS DEVIATION FACTOR
RFS: AD-1123



Company: Petrofina Exploration Australia Ltd. Page: 66 of 78
Well : Archer # 1 File: 90015

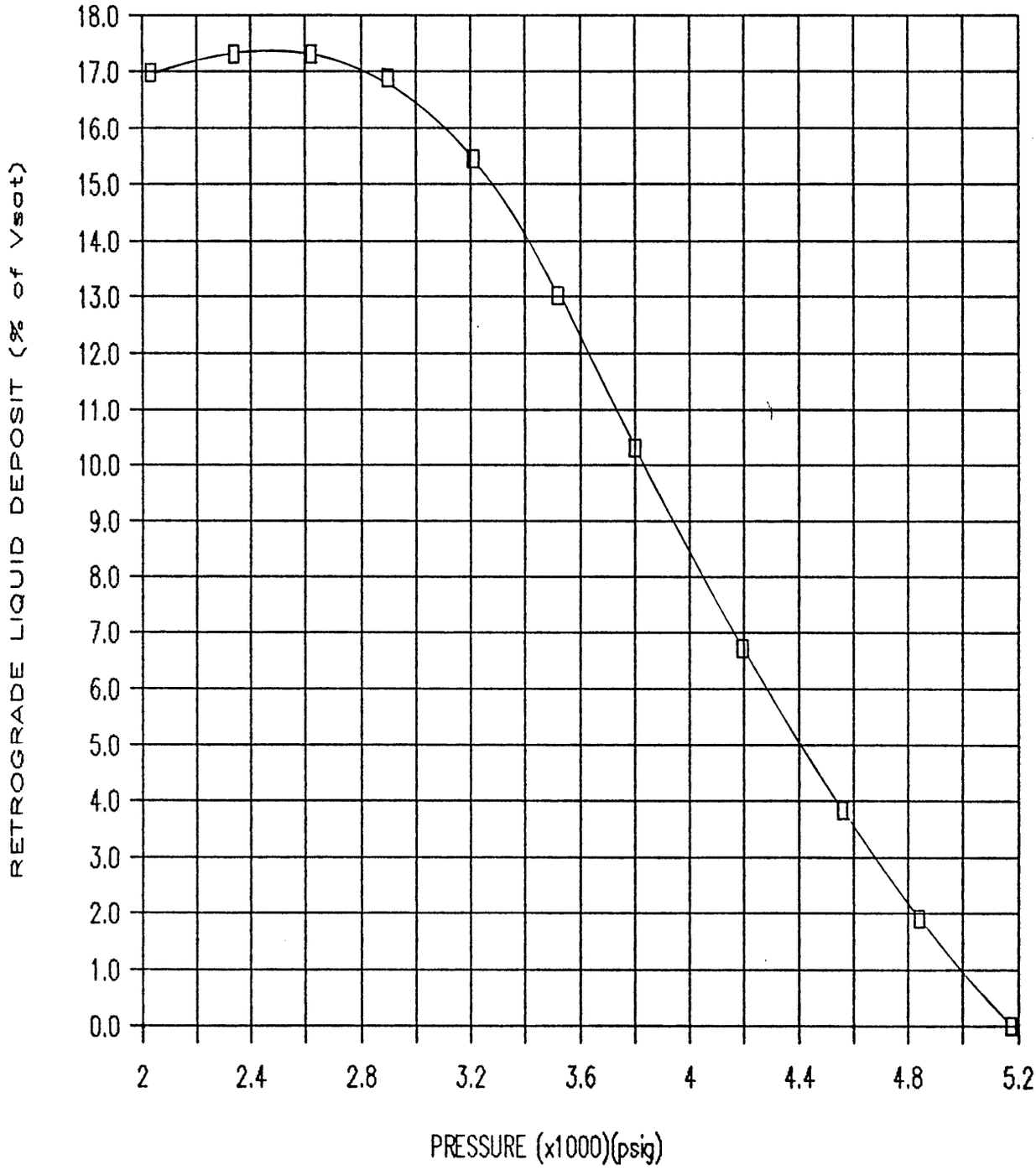
RESERVOIR FLUID SPECIFIC VOLUME
RFS: AD-1123



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

RETROGRADE CONDENSATION
RFS: AD-1123



P E T R O L A B

Company: Petrofina Exploration Australia S.A Page: 68 of 78
Well : Archer # 1 File: P 90015

SUMMARY OF RESULTS

R F T Sample # 7

RFT Chamber #	:	RFS 1114
Depth	:	3947.5 m
KB (m)	:	28
Capacity	:	1 Gallon
Opening Pressure	:	2500 psig @ 19 deg C
Reservoir Pressure (psig)	:	5768.3
Reservoir Temperature (°F)	:	226

Warmed up RFT chamber.

Injected 100 cc's of mercury into chamber to stir up sample. Compressed to 6500 psig with 900 cc's of water behind piston. Transferred 1550 cc's into Petrolab cylinders # 040 , 202 and 028 @ 6500 psig. Flashed rest of sample to atmosphere. Recovered back almost all mercury and approximately 100 cc' s of condensate and 140 cc' s of mud / water mixture.

CONSTANT MASS DATA:

Dew Point Pressure (psig)	:	5835 @ 226 °F

PRODUCED WELLSTREAM:

Gas Formation Volume Factor (Bg)	:	0.00350
Gas Expansion Factor (E)	:	285.86
Gas Deviation Factor (Z)	:	1.056
Specific Volume (cft/lb)	:	0.04600
Density (gm/cc)	:	0.34823
Molecular Weight	:	28.87
Gas Gravity (Air = 1.000)	:	1.003
Gross Heating Value (BTU/ft3)	:	1650

P E T R O L A B

Company : Petrofina Exploration Australia S.A
Well : Archer # 1

HIGH TEMPERATURE DISTILLATION OF STOCK TANK LIQUID SAMPLE

(Hexanes to Dodecanes Plus)
Flashed from RFS - AD - 1114

	Cut (Deg C)	Mol %	Mol Weight	Weight %	Density (gm/cc)	Volume %	API Gravity
	IBP 23						
Hexanes	59 - 84	6.15	90	4.13	0.6917	4.82	72.9
Heptanes	85 - 112	21.64	96	15.51	0.7450	16.78	58.3
Octanes	113 - 138	16.22	104	12.65	0.7718	13.21	51.7
Nonanes	139 - 162	15.84	114	13.53	0.7926	13.76	46.9
Decanes	163 - 185	8.31	129	8.01	0.8028	8.04	44.6
Undecanes	186 - 206	5.38	139	5.59	0.8081	5.58	43.4
Dodecanes Plus	> 206	26.46	205	40.58	0.8649	37.81	31.9
		100.00		100.00		100.00	

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

COMPOSITIONAL ANALYSIS

BOTTOM HOLE SAMPLE

From RFT chamber # RFS AD - 1114

Component		Stock Tank Liquid Mol %	Stock Tank Gas Mol %	Reservoir Fluid Mol %
Hydrogen Sulphide	H2S	0.00	0.00	0.00
Carbon Dioxide	CO2	0.03	2.12	2.04
Nitrogen	N2	0.00	0.40	0.39
Methane	C1	0.44	73.69	71.00
Ethane	C2	0.38	10.12	9.76
Propane	C3	0.73	5.27	5.10
Iso-Butane	iC4	0.34	0.94	0.92
N-Butane	nC4	0.94	1.80	1.77
Iso-Pentane	iC5	1.04	0.73	0.74
N-Pentane	nC5	1.29	0.70	0.72
Hexanes	C6	5.83	1.30	1.47
Heptanes	C7	20.52	1.87	2.56
Octanes	C8	15.38	0.67	1.21
Nonanes	C9	15.02	0.24	0.78
Decanes	C10	7.88	0.13	0.41
Undecanes	C11	5.10	0.02	0.21
Dodecanes Plus	C12+	25.07	0.00	0.92
TOTAL		100.00	100.00	100.00
Ratios				
Molar Ratio	:	0.0368	0.9632	1.0000
Mass Ratio	:	0.1654	0.8346	1.0000
Gas Liquid Ratio	:	1.0000 bbl @ SC	21474 SCF	--
Stream Properties				
Molecular Weight	:	129.6	24.96	28.87
Density obs. (gm/cc)	:	0.7985 @ 60 F	--	--
Gravity (AIR = 1.000)	:	45.5 API @60F	0.866	1.003
GHV (BTU/scf)	:	--	1438.0	1650.0
Hexanes Plus Properties				
Mol %	:	94.80	4.23	7.56
Molecular Weight	:	133.6	96.9	113.8
Density (gm/cc @ 60 F)	:	0.8061	0.6849	0.7456
Gravity (API @ 60 F)	:	43.9	74.9	58.1
Heptanes Plus Properties				
Mol %	:	88.97	2.93	6.09
Molecular Weight	:	136.5	102.6	120.8
Density (gm/cc @ 60 F)	:	0.8118	0.6925	0.7603
Gravity (API @ 60 F)	:	42.6	72.6	54.4
Decanes Plus Properties				
Mol %	:	38.05	0.15	1.54
Molecular Weight	:	180.3	135.7	176.1
Density (gm/cc @ 60 F)	:	0.8491	0.7295	0.8392
Gravity (API @ 60 F)	:	35.0	62.3	37.0
Undecanes Plus Properties				
Mol %	:	30.17	0.02	1.13
Molecular Weight	:	193.8	147.0	193.0
Density (gm/cc @ 60 F)	:	0.8577	0.7400	0.8559
Gravity (API @ 60 F)	:	33.3	59.5	33.7
Dodecanes Plus Properties				
Mol %	:	25.07	0.00	0.92
Molecular Weight	:	205.0	--	205.0
Density (gm/cc @ 60 F)	:	0.8650	--	0.8649
Gravity (API @ 60 F)	:	31.9	--	31.9

Company: Petrofina Exploration Australia S.A
Well : Archer # 1

CONSTANT MASS STUDY
@ 226 deg F

ON SAMPLE EX RFT CHAMBER RFS AD - 1114

Pressure (psig)		Relative Volume (V/Vsat) (1)	Formation Volume Factor (Bg) (2)	Gas Expansion Factor (E) (3)	Deviation Factor (Z)	Specific Volume (CFT/LB)
6500		0.9617	0.00336	297.24	1.131	0.04424
6400		0.9674	0.00338	295.50	1.120	0.04450
6300		0.9731	0.00340	293.75	1.109	0.04477
6200		0.9792	0.00343	291.94	1.098	0.04505
6100		0.9840	0.00344	290.50	1.086	0.04527
6000		0.9902	0.00346	288.70	1.075	0.04555
5900		0.9969	0.00349	286.76	1.064	0.04586
5835	*	1.0000	0.00350	285.86	1.056	0.04600

* Dew Point Pressure

Reservoir Pressure = 5768.3 psig.

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

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

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

Company: Petrofina Exploration Australia Page: 72 of 78
Well : Archer # 1 File: P 90015

CONSTANT MASS STUDY
@ 226 deg F

ON SAMPLE EX RFT CHAMBER RFS AD - 1114

Pressure (psig)	Relative Volume (V/Vsat) (1)	Retrograde Liquid Deposit (Bbl/MMSCF) (2)	(Volume%) (3)
5835 *	1.0000	0.00	0.00
5615	1.0136	6.94	1.11
5340	1.0320	14.70	2.36
4810	1.0797	32.46	5.21
4545	1.1090	41.99	6.74
4175	1.1604	55.39	8.89
3520	1.2978	77.20	12.39
3060	1.4440	93.58	15.02
2455	1.7593	108.66	17.44
2170	1.9850	108.90	17.48
1655	2.6229	105.39	16.91

* Dew Point Pressure

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

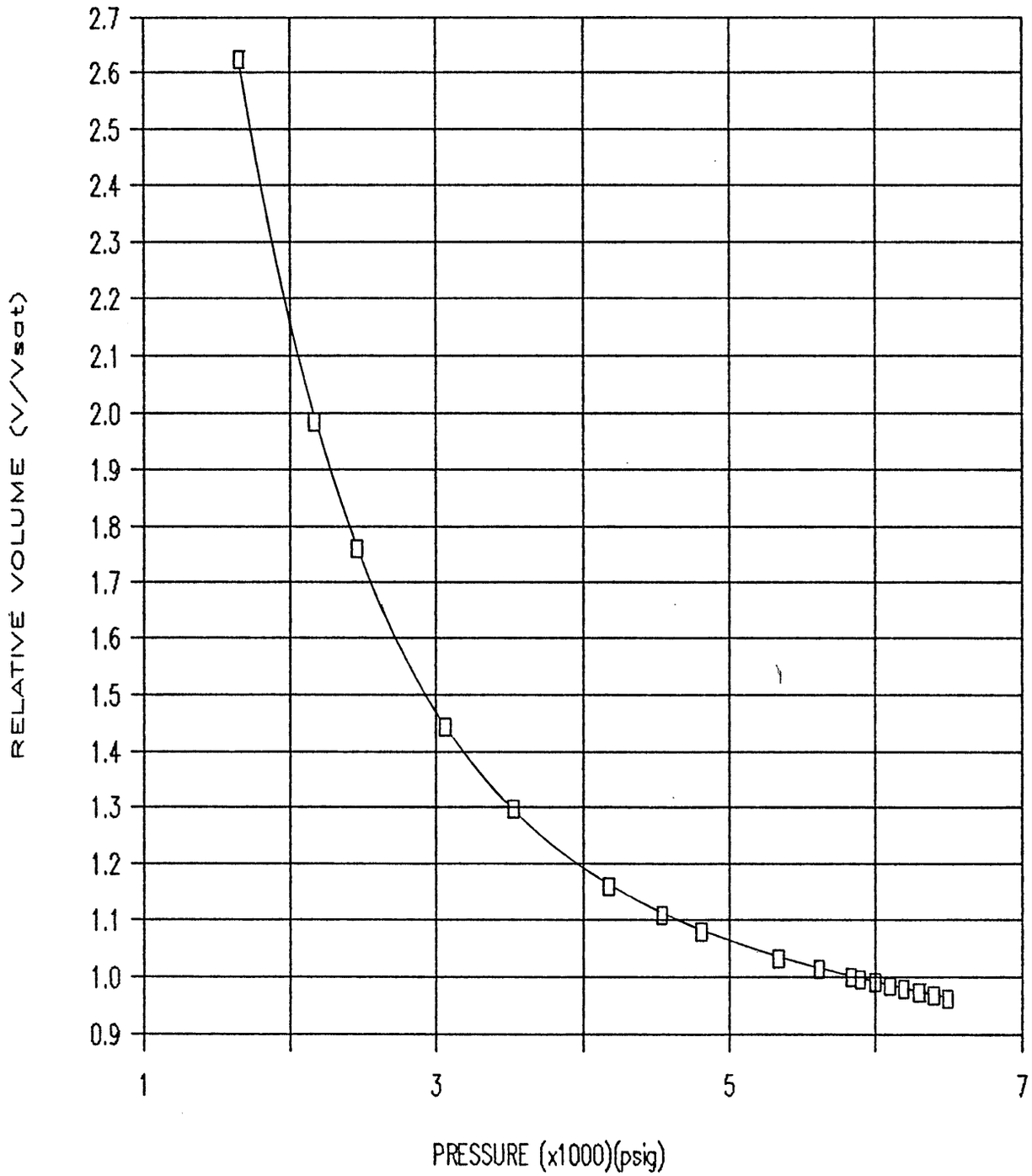
(2) Barrels of liquid at indicated pressure and temperature per MMSCF of original reservoir fluid.

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

Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

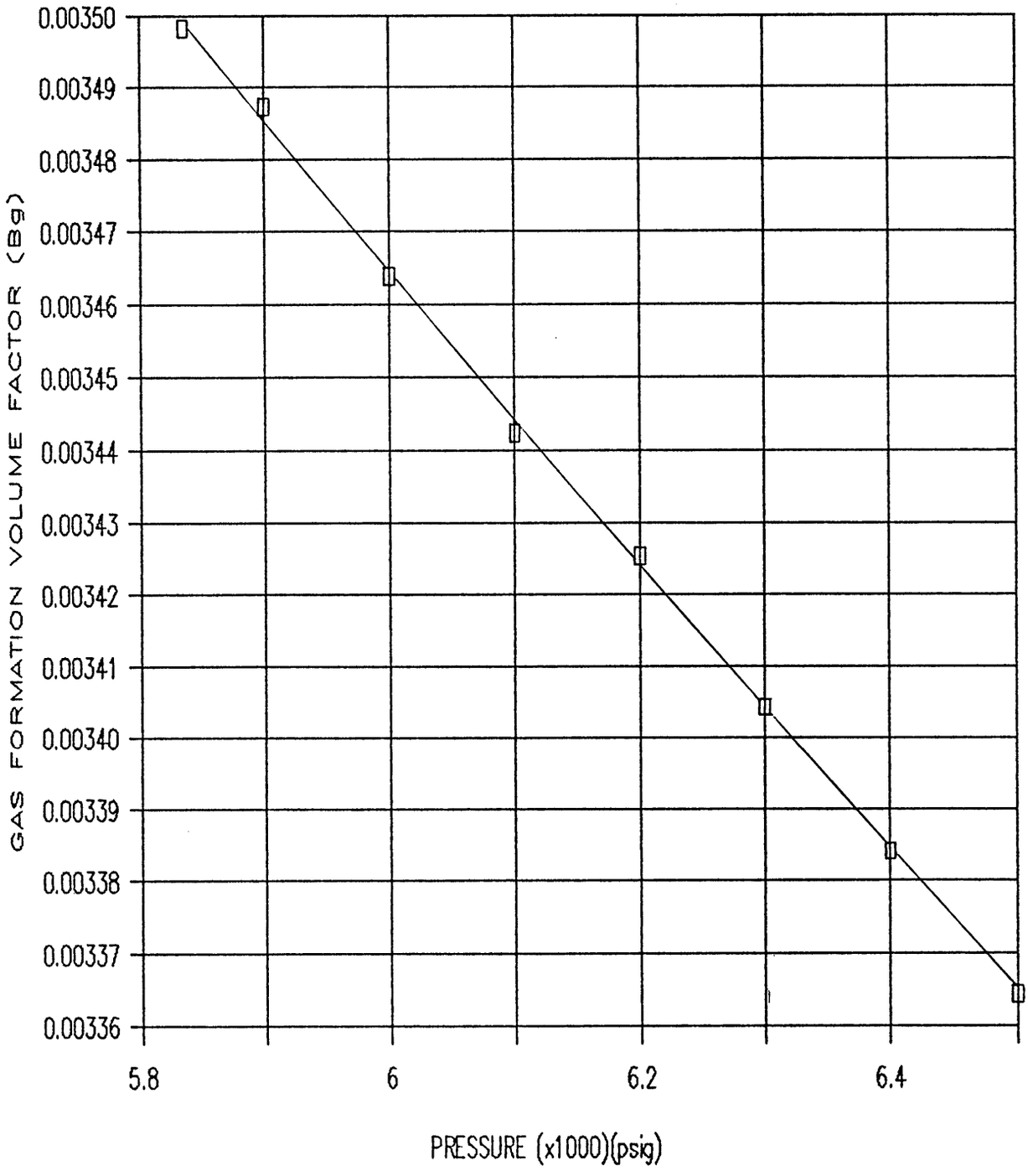
File: 90015

RELATIVE VOLUME
RFS: AD-1114



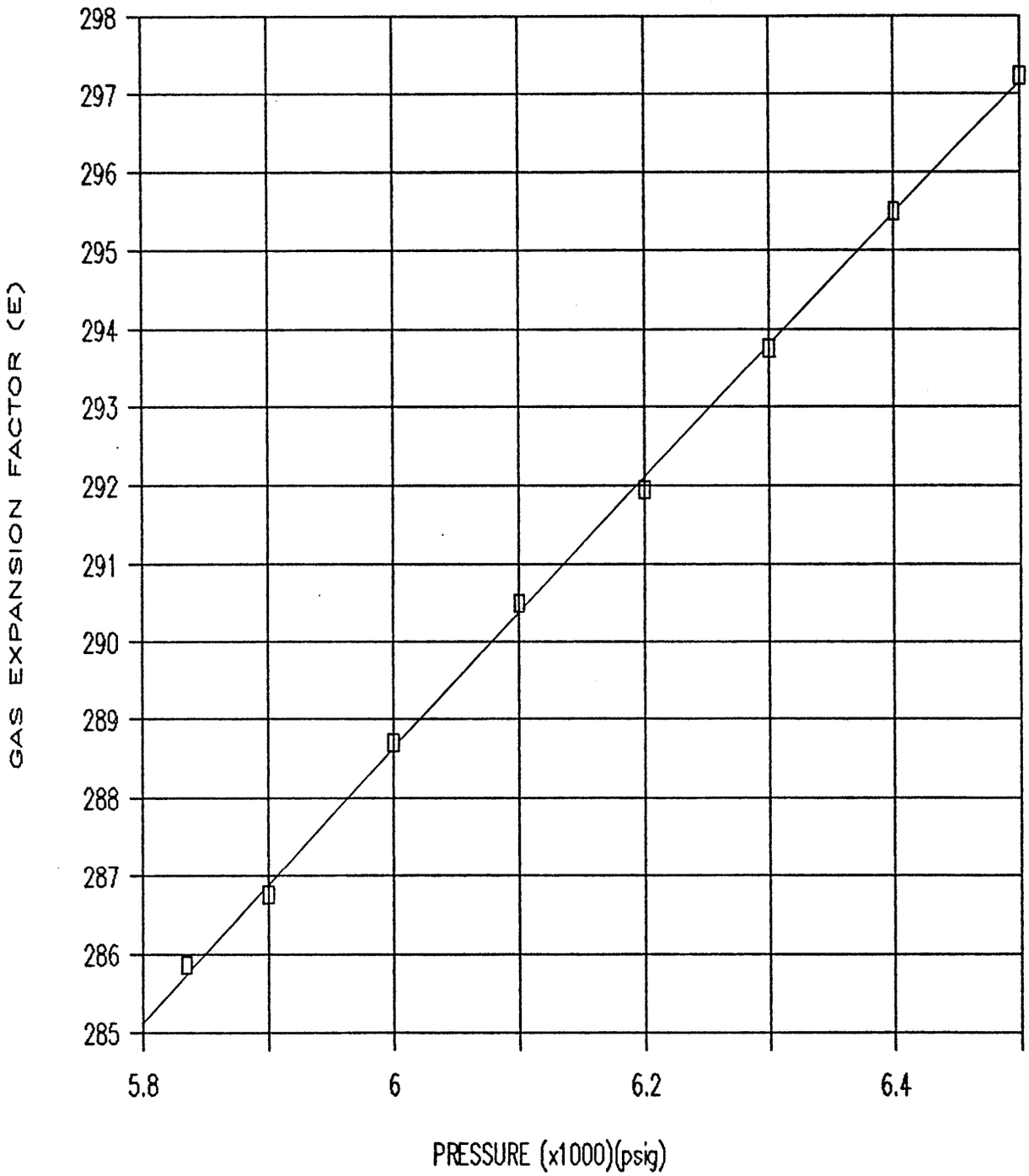
Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

GAS FORMATION VOLUME FACTOR
RFS: AD-1114



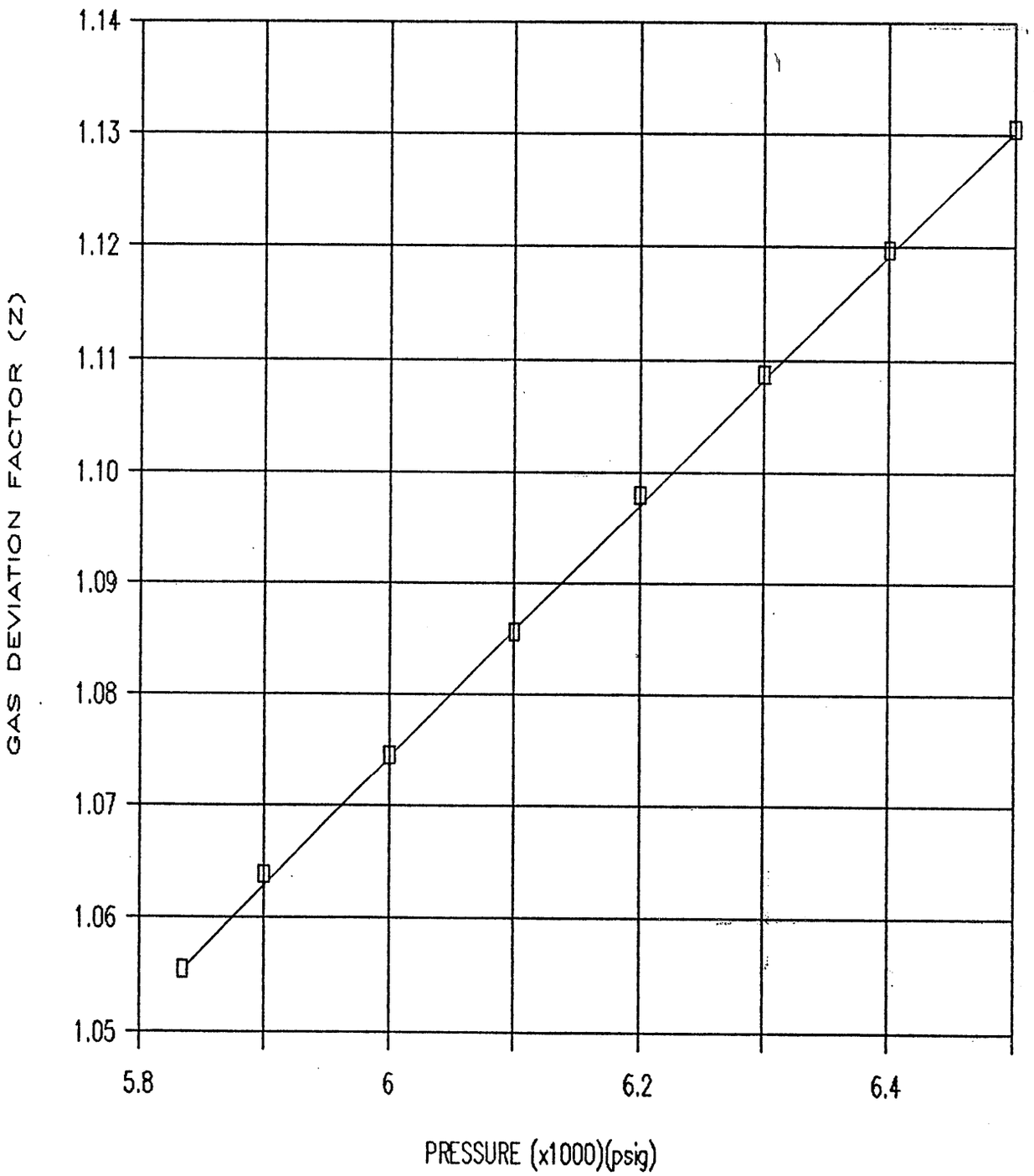
Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

GAS EXPANSION FACTOR
RFS: AD-1114



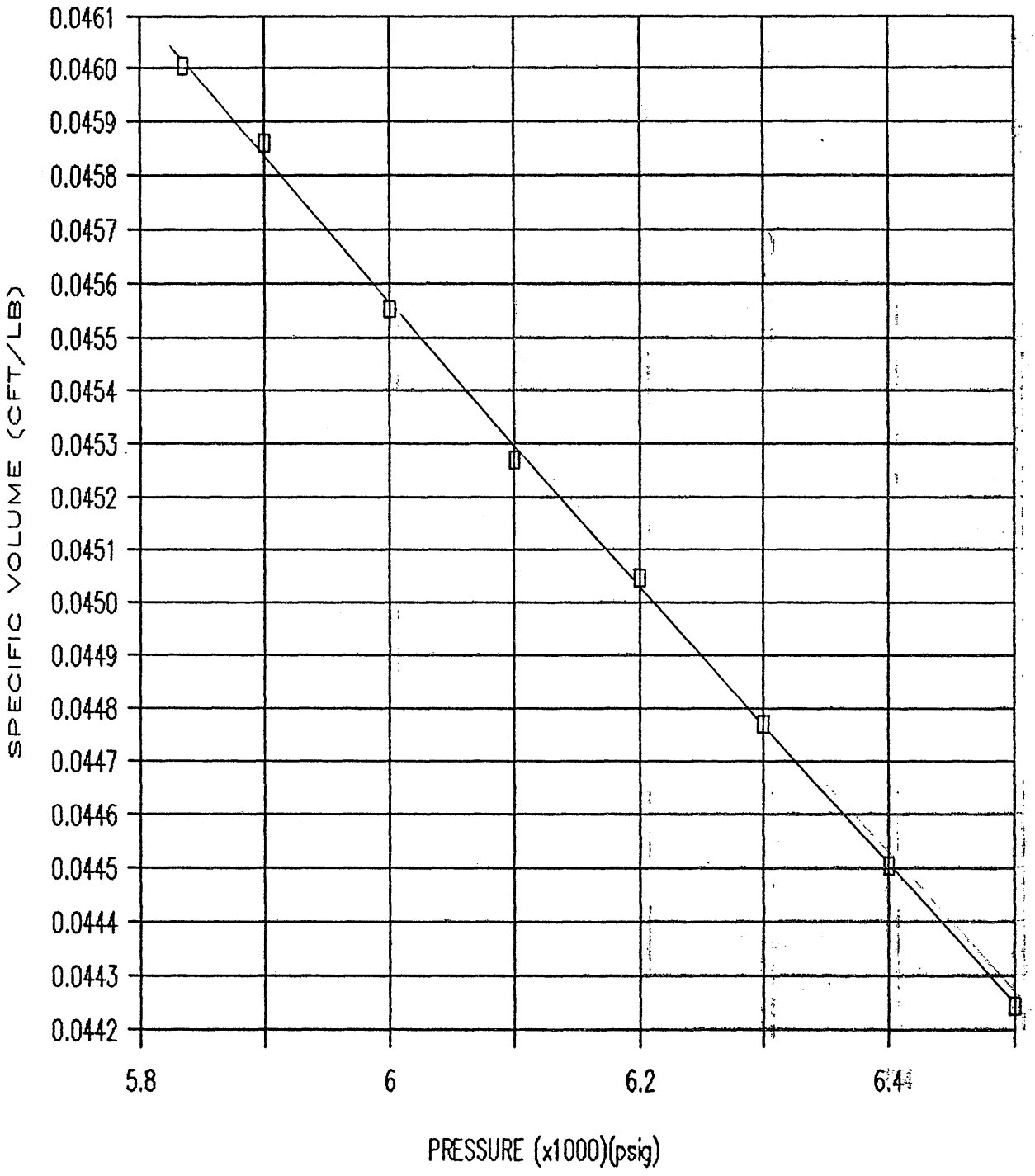
Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

GAS DEVIATION FACTOR
RFS: AD-1114



Company: Petrofina Exploration Australia Ltd. Page: 77 of 78
Well : Archer # 1 File: 90015

RESERVOIR FLUID SPECIFIC VOLUME
RFS: AD-1114



Company: Petrofina Exploration Australia Ltd.
Well : Archer # 1

File: 90015

RETROGRADE CONDENSATION
RFS: AD-1114