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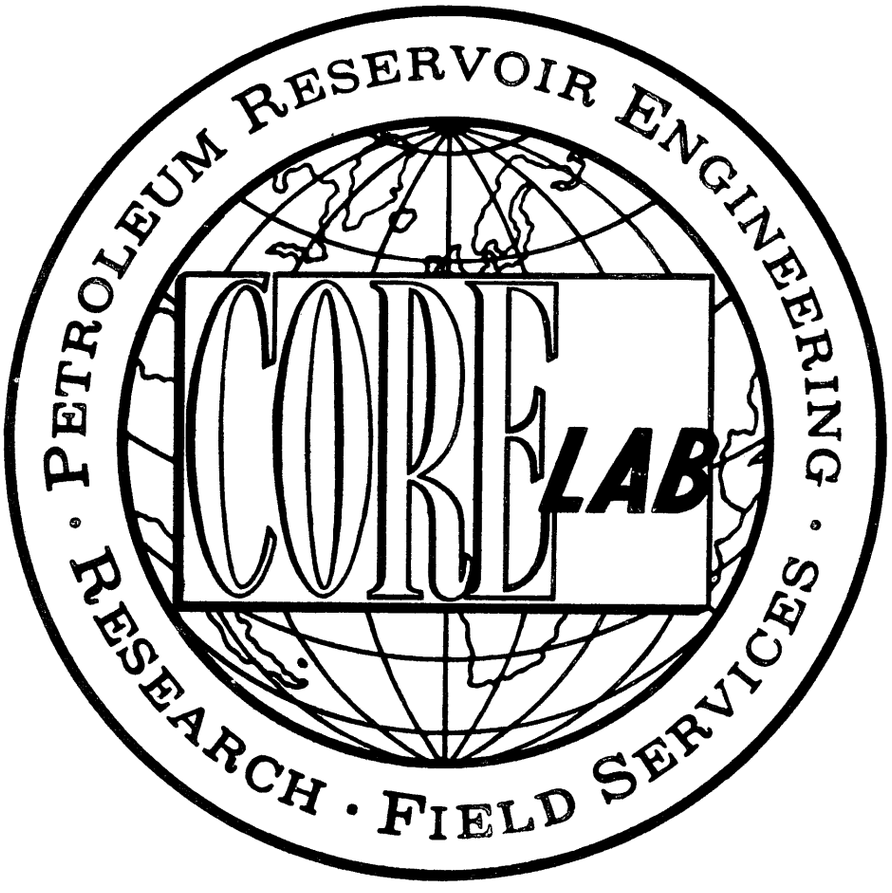
W782
WIRRAH - 1
(MUDLOG REPORT) Vol 1
ATTACHMENT TO WCR



WIRRAH NO.1

ESSO AUSTRALIA LTD

IES WELL REPORT

PART 1 OF 2

CORE LABORATORIES AUSTRALIA (QLD.) LTD.

Petroleum Reservoir Engineering
AUSTRALIA

BRISBANE OFFICE:
1173 KINGSFORD SMITH DRIVE
PINKENBA, Q. 4008.
P.O. BOX 456
HAMILTON CENTRAL, Q. 4007
AUSTRALIA.

CABLE ADDRESS: CORELAB BRISBANE
TELEX No.: COREBN AA42513
TELEPHONE: 260 1722
260 1723

21st January 1983

Esso Australia Ltd.
Esso House
127, Kent Street
Sydney
New South Wales 2001

Attention: MR. K. KUTTAN

Dear Mr. Kuttan,

Please find enclosed five (5) copies plus the original well report for WIRRAH NO. 1. It has been bound in 2 sections.

If you have any enquiries concerning WIRRAH NO. 1, please do not hesitate to contact us.

Yours very truly,
CORE LABORATORIES INTERNATIONAL LTD.

Tony Charles

for A. Dodson
Unit Supervisor

MM/ARC/GCM:pc

INDEX

1. INTRODUCTION

WIRRAH NO. 1 was drilled by Esso Australia Ltd. in the Bass Strait, Australia.

Well co-ordinates were:

Latitude : 38° 11' 22.33" S

Longitude : 147° 48' 57.12" E

The well was drilled by South Seas Drilling Company's semi-submersible rig 'Southern Cross', and monitored by Core Laboratories Intermediate Extended Service Field Laboratory 802.

WIRRAH NO. 1 was spudded on 15th September 1982 and reached a total depth of 3026 metres on 18th November 1982, a total drilling time of 65 days, including the first production test. The main objective of the well was to assess the Top Latrobe and Intra Latrobe hydrocarbon potential of the Wirrah structure. The well was production tested in the Lower Latrobe.

Elevations were:

Kelly bushings to mean sea level 21m

Water depth 49m

Kelly bushings to mean sea bed 70m

All depths used in this report and accompanying logs refer to depth below rotary kelly bushings (RKB).

Core Laboratories personnel involved in the logging of were as follows:

M. Mowatt	.....	Unit Supervisor
T. Charles	.....	Pressure Engineer
G. Munn	.....	Pressure Engineer
B. Giftson	.....	Logging Crew Chief
R. Martin	.....	Well Logger
B. Paulet	.....	Well Logger
P. Denton	.....	Well Logger
T. Green	.....	Sample Catcher
M. Robinson	.....	Sample Catcher
A. Bock	.....	Sample Catcher
E. Karp	.....	Sample Catcher

2. CORE LABORATORIES EQUIPMENT

Core Laboratories Field Laboratory 802 monitoring equipment includes the following :

A. MUD LOGGING

1. T.H.M. total gas detector and recorder.
2. Hot Wire total gas detector and recorder.
3. F.I.D. (Flame Ionization Detector) chromatograph and recorder.
4. Gas trap and support equipment fot the above.
5. Rate of Penetration, recorder and digital display.
6. Pit volume totalizer, recorder and digital display.
7. Digital depth counter.
8. Two integrated pump stroke counters, with digital display.
9. Ultra-violet fluoroscope.
10. Binocular microscope.

B. INTERMEDIATE EXTENDED SERVICE PACKAGE

1. Hewlett Packard 9825B desktop computer.
2. Hewlett Packard 9872B plotter.
3. Hewlett Packard 2631A printer.
4. Two Hewlett Packard 2621P visual display units, (one located in the client's office).
5. Hookload/weight-on-bit transducer and recorder.
6. Rotary speed tacho-generator and recorder.
7. Stand-pipe pump pressure transducer and recorder.
8. Mud flow out sensor and recorder.
9. Mud temperature sensors and recorders (in and out).
10. Mud conductivity sensors and recorders (in and out).
11. Rotary torque sensor and recorder.
12. Shale density apparatus.
13. Hydrogen sulphide gas detector.
14. Carbon dioxide gas detector.

3. CORE LABORATORIES MONITORING EQUIPMENT

DEPTH

Depth registered every 0.2 metres and rate of penetration calculated each metre (or every 0.2m while coring), ROP displayed on digital panel and chart.

WEIGHT ON BIT

A Tyco 0-1000 psi, solid state pressure transducer is connected to the rig's deadline anchor. The weight-on-bit is calculated in the Rig Functions Panel, and displayed (with hookload) on a digital meter and recorder chart.

ROTARY SPEED

This is a DC generator for which 1 volt = 100 rpm, and which is belt-driven from the rotary drive shaft. The value is displayed on a digital meter and recorder chart.

PUMP PRESSURE

This is a Tyco 0-5000 psi transducer mounted on the stand-pipe manifold. The pressure is displayed on a digital panel meter and recorder chart.

PIT VOLUME

Six individual pits can be displayed on the meter. The pit volume total is calculated in the PVT panel and displayed on a digital meter. The sensors are vertical floats driving potentiometers accurate to +/- 1 barrel. Each sensor is equipped with a wave compensating device. In addition, a sensor is fitted to the rig's trip tank, so that hole fill-up during trips may be closely monitored. A recorder chart displays the levels of the active pits, the pit volume total, and the trip tank.

PUMP STROKES

These are the limit switch type, counting individual strokes. The Pulse Data Box can monitor one or two pumps individually or integrate the total number of strokes from both pumps. The pump rate per minute is displayed on a recorder chart.

ROTARY TORQUE

An American Aerospace Controls bi-directional current sensor is clamped over the power cable of the rotary table motor. Torque is displayed on a digital panel meter and recorder chart.

MUD TEMPERATURE

This is a platinum probe resistance thermometer, calibrated 0-100 deg. C. Temperature in and out is displayed on a digital panel meter and chart recorder.

MUD CONDUCTIVITY

A Balsbaugh electrode-less conductivity sensor measures the current in a closed loop of solution coupling a pair of toroidal transformer coils. The conductivity in and out is displayed on analog and digital meters, and recorder chart.

All the sensors are 5 to 24V DC powered with the exception of the air driven gas trap. Along with monitoring and maintaining the above equipment, Core Lab furnished and operated certain other items...

CUTTINGS

Microscopic and ultra-violet inspection of cuttings samples at predetermined intervals. Dry samples were washed, dried and boxed. Wet samples were washed, sacked and boxed. Geochemical samples were canned and boxed.

GAS

1. Flame Ionization Total Hydrocarbon gas detector.
   The T.H.M. accurately determines hydrocarbon concentrations up to 100% saturation.

2. Flame Ionization Detector chromatograph.
   The F.I.D. is capable of accurate determination of hydrocarbon concentration from C1 to C6+.

3. Hot Wire gas detector (Wheatstone Bridge type).
   A back-up system for total gas detection.

SHALE DENSITY

Manual determination of shale density in an accurately calibrated variable density column.

4. INTERMEDIATE EXTENDED SERVICE INTRODUCTION

The Core Laboratories Intermediate Extended Service Package includes sensors, recorders and computer facilities useful in the drilling operation, for the detection of abnormal formation pressure, and the optimization of drilling.

Presented graphically on Core Laboratories I.E.S. logs (discussed individually in the following section of this report) are the various functions necessary for well control, abnormal formation pressure detection and drilling optimization.

Other available services include electric log interpretation programs for the wellsite geologist, hydraulics (synthesis and analysis), well kill, cost per foot, bit nozzle selection, swab and surge created by pipe movement, and bit performance programs for the drilling engineer.

Core Laboratories I.E.S. logs include the following :

I.E.S. PRESSURE LOG

Information plotted on this log includes fomation pore pressure, mud weight in and formation fracture pressure. This is plotted on linear graph paper at a vertical scale of 1:5000. The formation pore pressure and fracture pressure gradients are based on all available information. This is a conclusion log, therefore the information may be modified by results from formation drill stem tests, data from adjacent wells, kicks, and formation breakdown tests.

CORE LAB DRILL DATA PLOT

This plot, which is drawn while drilling is in progress, is the primary tool by which formation overpressure is detected. Drawn on a 1:5000 scale it is particularly useful in that five plots are drawn side by side, and thus any trend can be readily recognised.

The main plot is that of the corrected 'd' exponent, which is presented on a logarithmic scale. The 'd' exponent was first developed by Jorden and Shirley in 1966 to assist in interpreting rate of penetration data by normalizing for rotary speed and weight-on-bit per inch of bit diameter.

The modified 'dc' exponent was proposed by Rhem and McClendon to compensate for increases in mud weight. This involves multiplying the standard 'd' exponent value by the inverse ratio of the mud weight. A multiple of 9 ppg was used for convenience to return the magnitude of the 'dc' to a comparable value of it's uncorrected state. In this case, a multiplier of 10 ppg was used. The equation for 'dc' is therefore :

$$'dc' = \frac{\text{Log}\left(\frac{ROP}{RPM \times 60}\right)}{\text{Log}\left(\frac{WOB \times 12}{\text{Bit diam} \times 1000}\right)} \times \frac{10}{MDI}$$

Deviations from the normal 'dc's trend may be interpreted as being due to a change in formation pore pressure. An equation derived by Eaton is used in an attempt to evaluate pore pressure from deviations in the 'dc's plot. This method of overpressure detection can be fairly accurate for homogeneous shales, but where the sand/silt/shale ratio varies a great deal, inaccuracies often occur.

The other main plots are a logarithmic rate of penetration, which complements the 'dc's plot and a linear plot of total mud gas.

Shale densities are also plotted on a linear scale in order to show up a decreasing density trend, and hence a possible transition into abnormally pressured shales. The points are determined by measuring the density of air dried shale samples in an accurately calibrated density solution.

An interpreted lithology column is also included on the log, as is a plot of mud density in, to assist in interpretation. All relevant information, such as casing points, bit runs, etc. are also included.

I.E.S. GEO-PLOT LOG

This is plotted by the computer while drilling is in progress. At a later date this plot can be re-run on different scales to suit the client. The data is stored on magnetic tape during the drilling operations. Functions plotted on this log are : rate of penetration, corrected 'd' exponent, break-even analysis, formation pore pressure, mud density in and formation fracture pressure.
A Geo-plot is included in this report, at a scale of 1:5000.

I.E.S. FLOWLINE TEMPERATURE, FLOWLINE TEMPERATURE END-TO-END PLOTS

Flowline temperature and end-to-end plot of flowline temperature are the two main plots relating to the temperature of the returning drilling fluid. These are plotted on a vertical scale of 1:5000. The use of these plots as an indicator of the presence of over-pressure takes secondary role to the I.E.S. drill log. Continuous observation of flowline temperature may indicate an increase in geothermal gradient. Factors affecting temperature are noted on the log, such as new bit runs, changes in the circulation rates, circulating cuttings out and the addition of water and chemicals to the active mud system. Since the goal of the end-to-end plot is to provide a representation of the geothermal gradient, all surface changes which would cause artificial changes in the flowline temperature are disregarded.

ELECTRIC LOG PLOT

A plot of shale resistivity (ohm-metres squared/metre), sonic travel time (microseconds per foot), bulk density (gm/cc) and neutron porosity (%), is made using data supplied by Schlumberger. Two-cycle semi-log paper is used, with a vertical scale of 1:10000. As far as possible only clean shale points are selected and plotted. The relatively compressed vertical scale makes deviations from the normal compaction trend easier to identify.

PROGRESS LOG

This is the traditional presentation of footage against elapsed time in days. It shows actual drilling time from spud to total depth.

DATA RECORDING

Data is recorded on tape while drilling both as raw input numbers and computer calculated numbers. This data can be accessed later for use in interpretative programs or to review data. Comprehensive data lists are included in this report.

MUD DATA SHEETS

These are a record of the mud properties while drilling, and are derived from the mud engineer's daily report.

DRILLING PARAMETER PLOT

The drilling parameter plot shows : rate of penetration, weight-on-bit, rotary speed, pump pressure, hydraulic horsepower, impact force and jet velocity. This plot is drawn by the computer and is designed to aid the drilling engineer in drilling optimization. The scale chosen here is 1:5000.

HYDRAULIC ANALYSES

During drilling, routine hydraulic analyses are calculated by the computer, and these are made available to the drilling engineer. This report includes a sample hydraulics for each 100 metres.

GAS COMPOSITION ANALYSIS

For each significant gas show the chromatograph results are analysed using two techniques :-

1. Log plot

2. Triangulation plot

Both plots are included in this report.

GRAPHOLOG

This is plotted on the industry-standard form on a vertical scale of 1:500. Rate of penetration is plotted in metres per hour, together with mud gas chromatography results. Total gas is also plotted, and a percentage lithology log is drawn. A lithology description is presented in an abbreviated form. All relevant drilling data is included, as is bit and mud data.

MISCELLANEOUS

Various data collected from this well are also included in this report for reference. These include fomation leak-off test data, and R.F.T. and well test data where appropriate.

5. RIG INFORMATION SHEET

CORE LAB

RIG INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

OWNER	SOUTH SEAS DRILLING COMPANY
NAME AND NUMBER	SOUTHERN CROSS (N° 107)
TYPE	SEMI-SUBMERSIBLE , TWIN HULLED.
DERRICK, DRILL FLOOR & SUBSTRUCTURE	DERRICK: LEE C MOORE, 152' HIGH X 40' AT BASE. LOAD CAPACITY OF 1 000 000 lbs
DRAWWORKS	OILWELL E-2000 DRIVEN BY 2 GE 752 ELECTRIC MOTORS.
CROWN BLOCK	LEE C MOORE 27458 C. CAPACITY 500 SHORT TONS.
TRAVELING BLOCK	OILWELL A 500
SWIVEL	OILWELL PC 425
ELEVATORS	BYRON JACKSON MODEL GG CAPACITY 350 TON
KELLY & KELLY SPINNER	DRILLCO 5¼" x 50' HEX KELLY
ROTARY TABLE	OILWELL A 37½ SINGLE ELECTRIC MOTOR
ROTARY SLIPS	VARCO OCS-L
MUD PUMPS	TWO OILWELL A 1700PT. RATED AT 1600HP
MUD SYSTEM	FOUR MUD TANKS HAVING A TOTAL CAPACITY OF 1200 BBL, AND ONE PILL TANK HAVING A CAPACITY OF 105 BBL. TWO MUD HOPPERS POWERED BY 2 MISSION 6x8" CENTRIFUGAL BY TWO 100 HP ELECTRIC MOTORS. DESANDER : 1 DEMCO 4 CONE 12" MODEL N° 124 DESILTER : 1 DEMCO 4"-16H 16 CONE DEGASSER : 1 SWACO MODEL N° 36 SHALE SHAKERS : 2 BRANDT DUAL UNIT TANDEM - GHI DUAL UNIT.
BLOW OUT PREVENTORS	THREE SHAFFER L.W.S. 18¾" - 10 000 psi TWO HYDRIL G.L. 18¾" - 5000 psi
WELL CONTROL EQUIP.	FOUR VALVCON ACCUMULATORS. 2" - 10 000psi CHOKES: 2 C.I.W. ABJ H2 2 1/16" - 10 000 psi, 1 SWACO SUPER CHOKE
TUBULAR DRILLING EQUIPMENT	DC : 6¼" x 2 13/16" (4" IF TJ) 8 " x 2 13/16" (6 5/8" H90 TJ) 9¾" x 3" (7 5/8" H90 YJ) HWDP : 5" 50lb/ft GRADE G (6½" OD 4½" IF TJ) DP : 5" 19½lb/ft GRADE G&E (6 3/8" OD 4½" IF TJ)
CEMENTING UNIT	HALLIBURTON HT-400 UNIT
MONITORING EQUIPMENT	MARTIN DECKER : MUD VOLUME TOTALIZER 6 CHANNEL DRILLING RECORDER 4 PRESSURE GAUGES FLOWSHOW INDICATOR
POWER SUPPLY	2 EMD MD 18 DIESEL ENGINES RATED AT 1950 HP EACH 1 EMD MD 12 DIESEL ENGINE RATED AT 1500 HP
DIRECTIONAL EQUIP.	-

MISCELLANEOUS (E.G. RISER, COMPENSATION SYSTEM, PIPE RACKER, DP EQUIPMENT)

RISER: REGAN FC-7 TELESCOPIC 21" ID. PLUS FLOW DIVERTOR.
CASING POWER TONGS: ECKEL 13 3/8" (20 000 ft lbs), 20" (35 000 ft lbs)
CMT BULK TANKS: 3x1570cu ft. RISER TENSIONER: 6WESTERN GEAR, 50'STROKE, 80 000lbs.
MUD BULK TANKS: 3x1570cu ft. GUIDE LINE TENSIONERS : 4 WESTERN GEAR 16 000 lbs, 40'STROKE

7520-485 (CL 1161)

6. WELL INFORMATION SHEET

WELL INFORMATION SHEET

CORE LAB

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

Sheet No. 1

WELL NAME	WIRRAH NO. 1			
OPERATOR	ESSO AUSTRALIA LTD.			
PARTNERS	B.H.P.			
RIG	OWNER	SOUTH SEAS DRILLING COMPANY		
	NAME OR NUMBER	SOUTHERN CROSS		
	TYPE	SEMI-SUBMERSIBLE		
LOCATION	LATITUDE (X)	38° 11' 22.33" S	LONGITUDE (Y)	147° 48' 57.12" E
	FIELD	-	AREA	BASS STRAIT
	COUNTY	-	STATE	-
	COUNTRY	AUSTRALIA		
	DESCRIPTION	-		
DATUM POINTS	Ground Elevation	-	RKB to Ground Level	-
	Mean Water Depth	49 METRES	RKB to Water Level	21 METRES
DATES	SPUD	15TH SEPTEMBER 1982	TOTAL DEPTH	18TH NOVEMBER 1982

HOLE SIZES

Depth From	Depth To	Bit Size "	No. Of Bits	No. of Reamers	Date From	Date To	Cased	Logged
70	206	26	1	-	15/9/82	15/9/82	20"	NO
206	845	17½	2	-	16/9/82	18/9/82	13-3/8"	YES
845	2797	12¼	12	-	1-/9/82	15/10/82	9-5/8"	YES
2797	3026	8½	6	4 MILLS	12/11/82	18/11/82	NO	YES

DRILLING FLUID

Depth From	Depth To	Weights		Type
70	206	8.6	TO 8.6	SEAWATER
206	845	8.6	TO 9.4	SEAWATER GEL
845	3026	8.b	TO 11.2	SEAWATER GEL
			TO	
			TO	
			TO	
			TO	
			TO	

WIRELINE LOGGING

Depth From	Depth To	Hole Size"	Date Run	Logs Run
799	206	17½	18/9/82	BHC-GR-CAL
1770	830	12¼	26/9/82	DLL-MSFL-SP-CAL
1770	830	12¼	26/9/82	LDT-CNL-GR
-	-	12¼	27/9/82	RFT'S: PRETEST 2, 3, 4, 5
-	-	12¼	28/9/82	RFT'S: 6, 7, 8, 9
2304	1710	12¼	4/10/82	LDT-CNL-GR
2318	1700	12¼	4/10/82	DLL-MSFL-GR
-	-	12¼	5/10/82	VELOCITY SURVEY

RISER, CASING & LINER

Depth From	Depth To	OD "	ID "	Weight	Grade	Threads	Date Run	Cement	Stages	Excess
2	70	2	21.0	----------		R I	S E R	----------		
70	190	20	19.124	94	X-52	JV BOX	15/9/82	"N"	1	-
70	830.4	13.375	12.615	54.50	K-55	BUTT	19/9/82	"N"	1	-
70	2788	9.625	8.681	47	N-80	BUTT	23-24/10/82	"N"	2	-

CORE LAB

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

WELL INFORMATION SHEET
(SUPPLEMENTARY)

Sheet No. 2

WIRELINE LOGGING (continued)

Depth from	Depth to	Hole size	Date run	Logs run
-	-	12¼	6/10/82	RFT'S: 12, 13, 14, 15, 16
-	-	12¼	7/10/82	RFT 17
2801	2254	12¼	15/10/82	MSFL-DLL-SP-CAL-GR
2803	830	12¼	15/10/82	BHC-GR-CAL
2804	2243	12¼	16/10/82	LDL-CNL-GR
-	-	12¼	16/10/82	HDT
-	-	12¼	16/10/82	RFT'S: 18, 19
-	-	12¼	17/10/82	RFT 20
-	-	12¼	18/10/82	RFT'S: 21, 22, 23, 24
-	-	12¼	18/10/82	CST'S: 1, 2
-	-	12¼	19/10/82	CST 3
-	-	8.681	26/10/82	CBL-VDL-GR-CCL
3031	2788	8.5	18/11/82	DLL-MSFL-GR
3031	2788	8.5	18/11/82	LDL-CNL-GR
3031	2788	8.5	19/11/82	BHC-GR
3033	2788	8.5	19/11/82	DIPMETER
-	-	8.5	20/11/82	RFT 25
-	-	8.5	20/11/82	CST 1
-	-	8.5	20/11/82	CST 2
-	-	8.5	21/11/82	VELOCITY SURVEY

7. WELL HISTORY

WELL HISTORY

14th September 1982. Towed to the new location. Set anchors. Ballasted down the rig.

15th September 1982. Spudded in at 0645 hours, and drilled down to 206m with a 17½" bit (HTC OSC 3AJ, 3 x 20) and 26" hole opener. Cleaned out the hole and ran the 20" casing, setting the shoe with cement at 186m.

16th September 1982. POOH. Ran the stack and riser. RIH, pressure tested the casing and function tested the BOP stack. Bit 2 (HTC OSC 3AJ) was RIH. Cement was drilled from 186m to 206m and new hole was drilled to 272m.

17th September 1982. Drilled 17½" hole from 272m to 799m. Mud conditioned with occasional Hi-Vis pills. Drill breaks at 704m and 717m, these were flow-checked but proved negative. Ran carbide lag at 755m, result of carbide gave hole equivalent diameter of 17.6". Dropped spinning-chain into hole, at 770m, drilled on to T.D. at 799m.

18th September 1982. Circulated out, dropped a survey, pumped slug and P.O.O.H. Trip gas on circulation was zero. Made up junk-sub and R.I.H. Worked junk sub, circulated and P.O.O.H. Rigged up Schlumberger, ran I.S.F.-SONIC-G.R. log. Made up BHA, R.I.H., drilled 17½" hole from 799m to 845m. Circulated B.U. - no gas recorded. P.O.O.H. to shoe - no drag. R.I.H. - no fill, then P.O.O.H. to run 13-3/8" casing.

19th September 1982. P.O.O.H. to run 13-3/8" casing. Made up cement-head, pulled wear bushing. Ran 13-3/8" casing, R.I.H. with cement head, circulated B.U. (no gas) then cemented and displaced. Ran seal assembly and tested. Tested B.O.P., rams, and choke and kill lines. P.O.O.H. to set wear bushing. Made up BHA. Ran into hole, tagged cement at 767m. Tested casing to 1500 psi. Drilled plug and cement to 803m.

20th September 1982. Drilled cement and plug to shoe at 830m. Drilled ahead from 830-845m - no cement was encountered. Drilled to 851m, circulated B.U. commenced leak-off test, no leak-off (equiv 13.5ppg). Drilled 12¼" hole from 851m to -150m. Ran carbide at 1105m: carbide gave equivalent hole diameter of 13.2".

21st September 1982. Drilled ahead 12¼" hole from 1150m. The hole packed off at 1368m and 1444m. In both cases, the pipe was worked and circulation regained. Flow checks were carried out at 1207m, 1221m and 1487m; no flow was observed. A drilling break was encountered at 1484m with an increase in

ROP from 22-56m/hr. The break was circulated out and the maximum gas observed was 115 units (SANDSTONE). Drilled ahead to 1488m, circulated B/U and P.O.O.H. to cut Core No. 1. Dropped survey tool.

22nd September 1982. Recovered survey tool (survey: $1\frac{1}{4}^{o}$). BCO was 5-4-I. Made up core barrel and R.I.H. Core No. 1 was cut from 1488.2m to 1500.6m. The maximum gas observed whilst coring was 23 units. P.O.O.H. and recovered 11.6m (93.5%). The core barrel was serviced and R.I.H. Core No. 2 was cut from 1500.6m to 1513.4m. The maximum gas observed whilst coring was 11.5 units. P.O.O.H. and recovered 9.8m (76.6%). R.I.H. with the core barrel again. Core No. 3 was cut from 1513.4m - 1527m. The maximum gas observed whilst coring was 9 units. P.O.O.H. to recover Core No. 3.

23rd September 1982. P.O.O.H. to recover Core No. 3. Recovered 2.5m (18.7%) The core barrel was stood in the derrick, a new BHA was made up and R.I.H., with NB No. 4. The circulation was broken and the rat hole reamed from 1488m to 1527m. Drilled $12\frac{1}{4}$" hole from 1527m. A flow check was carried out at 1528m and no flow was observed. B/U was circulated at 1528m and the maximum gas observed was 48 units. Drilled ahead and a gas peak of 10-101-2 units was encountered at 1538m. A drill break occurred at 1571-1572m of 15-44m/hr. A flow check was carried out but no flow was observed. B/U was circulated and maximum gas was 1-28-1 units. Drilling was resumed for 1m and B/U circulated out; the gas observed was 0.3-20-0.2 units. P.O.O.H. for Core No. 4. The core barrel was made up and R.I.H. Circulated, dropped the ball and cut Core No. 4 from 1573.4m to 1585.6m. Maximum gas observed whilst coring was 2.6 units. P.O.O.H. to recover Core No. 4 (7.9m, 64.8%).

24th September 1982. R.I.H. for Core No. 5. Circulated B/U (1.0-2.6-1.0 units gas) cored from 1585.6m-1596.6m. P.O.O.H. and recovered core (2.6m 23.6%). Made up NB 5 (HTC J11) and R.I.H. The rat hole was reamed (maximum gas 15 units) new hole drilled to 1598m where a flow check was made (no flow) and B/U circulated (0.1-4-0.1 units gas). Drilling was resumed to 1607.2m where a flow check was made following a drilling break from 1606m with ROP's of 43 - 49m/hr. B/U was circulated (0.2-0.2-0.2 units gas). Drilling then continued to 1624m. The ROP's slowed down at 1612m to 2-5m/hr with a few faster metres which were related to lithological changes.

25th September 1982. Drilling continued to 1628m when it was decided to pull the bit after drilling on junk. (BCO was 8-2-I). Making up the new BHA, Bit No. 6 (HTC J22) was RIH and the junk sub worked for 15 minutes prior to drilling ahead. (TG was 4 units.) The well was flow checked at 1633.6m (no flow and B/U circulated at 1634m (maximum gas 0.2/1.2/0.2 units). Drilling ahead, gas peaks of 16/35.6/13.3 and 13.1/35.1/18.8 from coal were observed at 1658m and 1662m respectively. A drill break (39-78m/hr) at 1681m was flow checked (no flow) and circulating B/U, maximum gas was 2.0/3.5/2.1 units from coal. A break at 1707m (5-43m/hr) was flow checked (no flow) and B/U yielded maximum gas 0.4 units from a sandstone. Again at 1728m, a break of 3-33m/hr was flow checked (no flow) and B/U maximum gas was 0.4 units from a sandstone. Drilled ahead, midnight depth was 1761m.

26th September 1982. Drilling continued to 1770m where the bit was pulled to run Schlumberger logs. First a survey (2^{o}) and a wiper trip were made. Schlumberger logs run were DLL-MSFL-GR. Then some RFT pretests were made in run No. 1.

27th September 1982. RFT's were continued with samples taken from RFT No. 2 (1595m), No. 3 (1575m), No. 4 (1613m), No. 5 (1584m) and No. 6 (1678m). Oil was recovered from runs 2, 3 and 5.

28th September 1982. RFT's continued with samples taken from No. 7 (1532m), No. 8 (1605m) and No. 9 (1529.5). Oil was recovered from run No. 7. The BOP's were then tested. NB 7 was RIH, the hole being tight at 1527m where the pipe was worked. The hole was reamed out from 1517m to 1531m.

29th September 1982. Reaming continued with a maximum gas (Trip Gas) of 35 units, 10% Co_2. New hole was drilled to 1782m where a flow check (negative) was made and B/U circulated, (gas 0.2 units), following a drill break at 1779m with ROP's of 19-50m/hr increasing from 4-6m/hr. Drilling continued, the sample circulated up having no show. At 1800m a flow check was made (no flow) and B/U were circulated following a drill break from 1799m where ROP's increased from 3m/hr to 23-27m/hr. The sample had no show (gas was 0.1 unit) and drilling resumed. At 1816m and 1860m flow checks were made (no flow) and B/U circulated. In both cases no show was observed with a minimal rise in gas (maximum 1.4 units) and drilling continued to 1880m.

30th September 1982. Drilling continued from 1880m to 2032m. The well was flow checked at 2032m (no flow) and B/U circulated (maximum gas 1.0/31/0.7 units). Drilled ahead to 2046m, B/U were again circulated after

a drilling break. (6.6-20m/hr) Maximum gas was 1.5/9/1.5 units and the well was flow checked (no flow).

1st October 1982. With the decision to cut a core, a survey was dropped and P.O.O.H. commenced. (Survey recovered was $2\frac{1}{4}^{o}$.) Made up the core barrel and R.I.H.; no fill was found. Circulating B/U (Trip Gas was 2.5 units), Core No. 6 was cut from 2046m to 2061.2m and recovered to yield 15.12m of 15.2 cut (99.5%). Maximum gas while coring was 1.2 units. Made up BHA and R.I.H. The rat hole was reamed from 2046m to 2056m (T.G. was 0.2/6.8/0.2 units).

2nd October 1982. Reamed to 2061m, then drilled ahead with a $12\frac{1}{4}$" HTC J22 (Bit No. 8) to 2215m. Flow checks were conducted at 2080m and 2154m (both negative).

3rd October 1982. Drilled ahead from 2215m to 2310m; a flow check was conducted at 2266m but no flow was observed. Gas peaks were observed at 2226m (50 units), 2241m (35 units) and 2269m (17 units).

4th October 1982. A depth of 2321m, the original proposed T.D. for the well, was reached at 0300 hours, and after circulating for 15 minutes a survey was dropped and a wiper trip to the casing shoe conducted. Bottoms up were then circulated (maximum gas observed was 10.3 units). P.O.O.H. commenced after pumping a slug and flushing the riser (Survey - $3\frac{1}{4}^{o}$). Schlumberger ran the following logs:

DLL-MSFL-GR (2318-1700m)

LDL-CNL-GR (2304-1710m)

A velocity survey was then run.

5th October 1982. R.I.H. to 2315m and washed to 2321m. Bottoms up were then circulated (maximum gas was 7 units) and after pumping a slug and flushing the riser, P.O.O.H. Schlumberger ran RFT No. 10 (pretests).

6th October 1982. Schlumberger ran RFT's No. 11, No. 12, No. 13 with 6 gallon and 1 gallon segregator chambers and in all three cases the 1 gallon chamber was preserved with:

RFT No. 11 set at 2249m,

RFT No. 12 set at 2205m,

RFT No. 13 set at 2032m

RFT No. 14 was then run with 6 and 1 gallon chambers and set at 2280m. (Both chambers opened.) RFT No. 15 with 6 and $2\frac{3}{4}$ gallon chambers was set at 2046m (both chambers opened).

7th October 1982. Attempting to run RFT No. 16, Schlumberger were unable to reach desired depths and retrieving the tool a wiper trip was commenced. Stopped to break circulation at the casing shoe, R.I.H. and washed from 2317m to 2321m. Circulated B/U; trip gas was 10.1 units. P.O.O.H.; Schlumberger ran RFT No. 17, (No. 16 declared a misrun) with 6 and 2¾ gallon chambers and setting the tool at 2195.3m. Rigged down Schlumberger and the wear bushing was pulled. RIH and tested the BOP stack. RIH with Bit No. 9 (HTC J22).

8th October 1982. Washed from 2316m to 2321m, then drilled ahead to 2403m. Trip gas was 2.5 units and maximum gas observed for the interval was 0.9/3.6/0.2 units from a drilling break of 4-14m/hr at 2359m (sandstone). A flow check conducted at 2341.2m indicated no flow.

9th October 1982. Drilled 12¼" hole from 2403m to 2497m; maximum gas observed in the interval was 0.1/2.3/0.2 units from a sandstone at 2448m associated with a drilling break of 5.1-12.8m/hr. Other increases in ROP for the interval yielded no increase in gas above a background of 0.1-0.5 units and flow checks made at 2436m and 2447m indicated no flow.

10th October 1982. Drilled 12¼" hole from 2497m to 2585m; maximum gas was 0.6/3.8/0.5 units from a sandstone at 2577m (Drilling break 4-16m/hr). BG remained at 0.1-0.6 units. A flow check conducted at 2578m indicated no flow.

11th October 1982. Drilled 12¼" hole from 2583-2601m where B.U. were circulated and Bit No. 9 pulled having made 28m hole with 66.7 on bottom hours. Maximum gas was associated with a drilling break (15-31m/hr) and lithology change to predominantly loose quartz, coarse grained sandstone from a finer grained aggregate sandstone. Both types yielded a bright white fluoresence and strong instant crush cut. Flow checks were conducted at 2593m, 2587m and 2598m, all with no flow. NB No. 10 (HTC J22) was RIH to 2592m, washing/reaming to T.D. Drilling resumed to 2643m.

12th October 1982. Drilling continued at a slow rate with ROP's between 1.5-2.0m/hr (B.G. was 0.1 unit). Tight hole was encountered from 2655m to 2662m, high torque resulted necessitating the pipe to be worked on occasions. The slow drilling was attributed to the hard lithology, thought to be a volcanic sill.

13th October 1982. The hole was reamed from 2668-2671m due to tight hole. Drilling continued to 2676m where a survey was dropped and a bit

trip was made due to low ROP's. Bit No. 10 made 75m in 29.2 on bottom hours. B.G. had been 0.1-0.4 units with a maximum of 1.1 units. Swab gas of 1.7 units was detected from the reamed section at 2671m. Bit No. 11 (HTC J33) was RIH to the shoe. The rig was then shut down temporarily due to an industrial dispute. RIH to 2638m and the hole reamed to 2676m where drilling continued to 2684m at which point B/U were circulated following an ROP increase from 3-12m/hr. The samples indicated a return to sedimentary siltstones and sandstones. Continued drilling ahead to 2689m.

14th October 1982. Drilled ahead from 2689 to 2785m at ROP's between 3 and 10m/hr in an interbedded sandstone/siltstone sequence with occasional volcanics.

15th October 1982. Drilled ahead to 2797m where the bit was pulled due to slow ROP's and excessive torque after 28.28 hours on bottom, having made 121m. Circulated B/U, dropped a survey (2^{o}) and P.O.O.H. The bit had lost 3 cones during drilling, probably due to drilling on junk (the previous bit had lost a lot of its buttons). Due to the proximity of the re-schduled T.D. of 2821m it was decided to T.D. at 2797m and log. Schlumberger ran the following logs:

MSFL-DLL-GR

LDT-CNL-GR

The hole was very washed out in the section 2635-2680m (the volcanic zone). Schlumberger recorded a T.D. of 2804m.

16th October 1982. Continued running Schlumberger logs:

LDT-CNL-GR

ISF-SONIC

HDT

RFT No. 18 (2633m),

RFT No. 19 (pretests).

17th October 1982. Ran a velocity survey prior to RIH for a wiper trip. Circulated and conditioned mud (0.1-3.5-0.1 units T.G.) and P.O.O.H. Schlumberger then ran RFT No. 20 (pretests).

18th October 1982. RFT's were continued with run numbers 21 (2604.5), 22 (2461.5m), 23 (2633m) and 24 (2461.5m). Due to the washed out nature of the hole there were many problems in finding good seats. Sidewall cores were then run.

19th October 1982. Made two more sidewall core runs. RIH and reamed to bottom from 2528m. Circulated out - maximum gas of 3.5 units (T.G.), B.G. was 0.1 units.

20th October 1982. Circulated out then made a wiper trip to the shoe. Ran in to T.D., and circulated again (0.1-0.4-0.2 units gas). P.O.O.H. to shoe, then had to wait on weather for the delivery of the casing.

21st October 1982. W.O.W. for casing to arrive. R.I.H. and circulated (gas was 0.1-0.6-0.1 units). P.O.O.H. to the shoe.

22nd - 23rd October 1982. W.O.W.

24th October 1982. Ran and cemented the 9-5/8" casing.

25th October 1982. Had difficulties testing the seal assembly. Ran the wear bushing, and R.I.H. after laying down the 8" and 9¾" drill collars.

26th October 1982. Tagged cement at 2312m. Drilled out cement and plug. R.I.H. to 2748m, circulated then P.O.O.H. Ran one Schlumberger log: CBL-VDL-GR-CCL. Retrieved the wear bushing, made up the seal assembly, and tested the B.O.P.'s. Set the wear bushing, made up the circulating head, and reverse-circulating at 2742m.

27th October 1982. P.O.O.H., the Schlumberger ran a tool (tight hole was encountered at 2313m). R.I.H., and worked the casing craper at 2300 - 2328m. Reverse circulated, pumped a slug, and P.O.O.H. Schlumberger ran a tool again.

28th October 1982. Set a Baker Model "D" packer at 2603m. Ran and stung tubing into the packer. Spaced out and made up the sub-sea Christmas Tree and chick-sans.

29th October 1982. Perforated the casing from 2624 - 2633.5m. The well was opened for 2 hours (30 bbls of diesel flowed). The well was opened a further two times but had to be closed prematurely due to a ruptured burner, and unfavourable weather. There were no H_2S or CO_2 detected during the flow.

30th October 1982. Waited on weather and monitored the well pressure. Well was opened at 03:59 and 5 bbls of diesel burnt off. Shut in well briefly from 05:36 to 05:47 and again from 0630 to 0631 hours, burning off through the boomers when well was opened. Well shut in at 0733 hours. Sampling carried out as required by Esso production engineers. Well was opened at 0756 hours and shut in again at 0940 hours with flow to the Otis tanks while open. Opened again at 1139 hours with flow to Otis tanks the well

was shut in at 1225 hours to await Flopetrol heater, facilitating flow to the flare. Schlumberger P.O.O.H. with HP and Amerada gauge.

31st October 1982. Ran pressure survey and rigged down Schlumberger and Otis Ameradas. Rigged up and R.I.H. with Otis bottom hole sampler, took sample at 1900m (oil of 37.5° API at 60°F and pour-point 87°F) and P.O.O.H. Still waiting for Flopetrol heater to re-open well.

1st November 1982. Well shut in and still waiting on Flopetrol heater. R/U Schlumberger with HP and Amerada; reparied and tested Schlumberger lubricator; and ran a pressure test.

2nd November 1982. Opened well to separator from 0600 to 0715 hours. Then reopened well to burners at 0910 hours. Half hourly gas and fluid samples were caught until the well was shut in at 1141 hours. The well was opened to the burners for the final flow period from 1603 to 0533 hours on the 3rd November 1982. Sampling was carried out as required by Esso production engineers.

3rd November 1982. The well was shut in to end PWT No. 1 at 0533 hours, but burn off from the separator and Otis tanks continued until 0730 hours. No H2S had been observed during the test and CO2 concentration remained at 13-15% throughout the final flow period.

4th November 1982. Well shut in and monitored pressured buildup. Schlumberger P.O.O.H. with H.P. and Ameradas - took 6 gradient readings on the way out. Killed the well by pumping 10 bbls water and 92 bbls of 9.7 ppg mud. The injection rate for the last 12 bbls was 1/3 BPM at 3500 psi. Observed well for flow, but the well was dead. Established circulation eventually (maximum gas detected was 0-120-8 units). Large quantities of wax appeared over the shakers while circulating.

5th November 1982. Pulled 39 joints of tubing out of the hole, laying down the sub-sea test tree. R.I.H. with drill-pipe. Circulated and conditioned the mud (Bottoms-up gas was 3 units). Stung into the packer, closed the annulars, and established an injection rate of 0.49 BPM at 3500 psi. Unstung, circulated and pulled the remainder of the tubing out of the hole. The hole did not take the correct amount of fluid (12 bbls less than expected Pulled the wear bushing. Tested the BOP stack, and the choke and kill lines. Ran the wear bushing, then made up the packer retrieving tool and BHA prior to R.I.H.

6th November 1982. R.I.H. Circulated and conditioned the mud. Stung into the packer and milled same. Slugged the pipe and P.O.O.H. R.I.H. to 2597m, where the packer was tagged, so the but had to be pulled, for another mill run. R.I.H.

7th November 1982. R.I.H. and milled on the packer after tagging it at 2597m. Pushed the packer down to the top of the cement, and milled on the packer, making one foot of cement as well. Pumped a slug, and P.O.O.H. R.I.H. with open-ended drill-pipe to 2640m. The first attempt at cementing the perforations was aborted. Reversed out, then pumped the second mix of cement. Pulled 4 stands, hung-off on the Upper Pipe Rams and then squeezed 14 bbls of mud into the hole. Opened the rams and P.O.O.H. R.I.H. with a bit and a junk-sub, tagging cement at 2606m. Drilled 5 metres of cement. Laid down 12 joints of drill-pipe.

8th November 1982. R.I.H. to 2611m and drilled cement to 2632m. Tested the cement squeeze job - O.K. R.I.H. to 2698m, washed fill down to 2717m, then worked the junk-sub. Drilled cement from 2717 - 2725m. Lost 1300 psi pump pressure, so P.O.O.H. looking for washout. The pressure drop turned out to be a missing jet. R.I.H. with a bit, and fished with a junk-basket. Drilled through the remaining cement, baffle, float collar and shoe. Cleaned out the 12¼" hole to 2797m. Fished for junk. Pumped a slug and P.O.O.H. R.I.H. with a milling-tool.

9th November 1982. R.I.H. with a junk basket. Milled from 2797m to 2798m, pumped a slug, and P.O.O.H. One bit core was recovered. R.I.H. again, with a new junk basket and milled from 2798 - 2799m. Slugged the pipe, and P.O.O.H., recovering one core and part of a shank. R.I.H. with a 7" magnet inside a burn shoe.

10th November 1982. Fished for junk, pumped slug, and P.O.O.H. R.I.H. again with a junk-basket, and milled from 2799 - 2800m. A core sample, 0.52 metres in length, was recovered. Then R.I.H. with a flat bottom mill. Milled the junk and worked the junk basket. Hanging-off in the upper pipe rams, a P.I.T. was performed (16.5 ppg E.M.W. at 2800m).

11th November 1982. Pumped a slug, and P.O.O.H., retrieving small pieces of core and abundant metal shavings. R.I.H. and milled junk again. Pulled the pipe and recovered 2½ lbs of metal pieces. Made another milling run, but did not recover any metal in the junk basket.

12th November 1982. R.I.H. with new bit no. 12 (HTC J7, 8½"), drilled 3 metres of new hole, and worked the junk subs. P.O.O.H. retrieving 5 lbs of metal (including bearings and teeth). R.I.H. with new bit no. 13 (HTC J7, 8½"), and repeated the operation, drilling 3 new metres of hole. Then a core was cut by Christensen from 2805 - 2807.8m, pulling out early due to fluctuating pump pressure.

13th November 1982. Recovered the core (8%), then R.I.H. with another new bit (HTC J33, 8½"). Reamed the rat-hole, then drilled ahead from 2807.8 - 2860m. The bit was pulled at 2860m due to very low ROP's. (Maximum gas detected was 5 units, and the background was 0-1 units).

14th November 1982. P.O.O.H. (the survey was a misrun). R.I.H. with new bit no. 15 (HTC J33, 8½"). No fill was encountered , but as a precaution the hole was reamed from 2859 - 2860m. Drilled from 2860 - 2914m (maximum gas was 27 units, and the background was 0-1 units). It was then decided to cut a core so "bottoms" were circulated up a survey was dropped (3^{o}), a slug was pumped, and the bit pulled.

15th November 1982. R.I.H. with the core barrel, washing from 2893 - 2914m. Cut core no. 8 from 2914 - 2916m. Pressure increased and penetration ceased, so the barrel was pulled (only 4 pebbles were recovered). Tested the stack, then ran in the hole with bit no. 16 (HTC J44, 8½"), reaming the rathole, then drilling 8½" hole from 2916 - 2925m.

16th November 1982. Drilled from 2925m to 2964m, where a drilling break was flow-checked and circulated up. The gas rose to 560 units so the mud weight -as increased to 10.0 ppg. The gas dropped to less than 10 units. A "10-10-10" test was run (6-452-11 units), and the mud was further weighted up to 10.4 ppg. Another "10-10-10" test yielded 0.3-1.4-0.6 units, so the mud weight was raised to 10.6 ppg.

17th November 1982. Circulated and raised the mud weight to 10.7 ppg to counter the overpressure. P.O.O.H. to the shoe and ran back in. Circulated bottoms-up (maximum gas was 0.2 units), and decided to drill ahead as a result of the low gas readings. Drilled 8½" hole from 2964 to 2972m, and then pulled the bit due to low ROP's. No fill was detected as the new bit (No. 17, HTC-J44, 8½") was being run in the hole. Drilled from 2972 to 2992m (trip gas was 0.1-0.4-0.1 units). Flow-checked 2 drilling breaks (50 units gas from 2977m; and 310 units from 2985m) - no flow in both cases. AT 2984m, 12 units of gas were detected from a 3-minute shut-down, and 526 units of connection gas came from kelly-down at 2986m. Core Lab concluded that the pore pressure had risen to an estimated 10.5/10.6 ppg, so the mud was weighted up to 11.2 ppg.

18th November 1982. Worked pipe and circulated bottoms up with the 11.2 ppg mud (0.3-0.3-0.3 units gas - indicating no influx and hence it was safe to drill ahead). Drilled from 2992 - 3026m. Flow-checked at 3009, 3015, and 3024m (all O.K.). A decision was made to P.O.O.H. to log, so "bottoms"

were circulated up (2 units gas), and a short wiper trip was performed (trip gas 0.2-28-0.6 units). P.O.O.H. (survey $3\frac{1}{4}^{o}$). Schlumberger ran the following logs:

DLL-MSFL-GR

19th November 1982. Continued running Schlumberger Logs:

LDL-CNL-GR,

BHC-GR

A wiper trip was then made and bottoms up circulated with gas levels of 0.2-216-0.8 units, an earlier peak was detected of 230m which was probably caused by gas migration from a higher pressure sand. P.O.O.H. to the casing shoe and W.O.W. R.I.H. to 3026m and circulated bottoms up (0-2.8-0.6 units gas, again an early peak, of 5 units was dtected). Schlumberger then prepared to run RFT No. 25.

20th November 1982. Due to adverse hole conditions the only successful pretest from RFT No. 25 was 2973.8m and a sample was taken from this depth. The pore pressure calculated from this RFT gave an E.M.W. of 10.61 ppg. Two CST runs were then run prior to a Velocity Survey.

21st November 1982. Continued ru-ning Velocity Data Tests. Open-ended drill-pipe was then R.I.H. and bottoms up circulated (0-256-0.4 units gas). A cement was then pumped to set a plug at 3026m and fill the open hole. Fire stands were pulled and the pipe was cleaned by Reverse Circulation (max gas 0.2 units). P.O.O.H. to 2745m, where the second cement plug was set. Fire stands were P.O.O.H. and reverse circulation commenced with a maximum gas of 0.2 units. P.O.O.H. The B.O.P. stack was then tested. R.I.H. to dress the plug to 2750m.

22nd November 1982. Continued R.I.H. and tagged cement at 2743m. Cement was drilled to 2743m and bottoms up circulated (0-0.5-0 units gas). A pressure test of the casing and plug revealed a leak of 1 bbl mud and 100 psi. Circulation proceeded to condition the mud to 9.7 ppg from 11.2 ppg with a maximum gas of 2.5 units. P.O.O.H. A RTTS tool was then run and set at 2730m and a pressure test of the casing and plug was successfully concluded indicating the previous leak to be at the perforations made for PWT No. 1. P.O.O.H.

23rd November 1982. Schlumberger ran the CCL/GR log and then two Baker model 'D' packers were set; one without a flapper at 2668m and one with a flapper at 2612m. The seal and test assembly was then R.I.H. on tubing. The tubing and seal assembly were then successfully pressure tested.

24th November 1982. The test christmas tree and B.O.P.'s were rigged up and tested. Schlumberger then R.I.H. and perforated at 13 shots per metre

between 2736 and 2725m. When Schlumberger were out of the tubing the hole was opened. No flow was observed.

25th November 1982. Schlumberger R.I.H. and made another set of perforations between 2736m and 2747m. Again there was no flow. Otis then R.I.H. and swabbed the test zone. The well was then shut-in and the pressure built-up to 20 psi. Due to this low pressure Schlumberger R.I.H. and perforated between 2702m and 2691m. The shut in pressure rose to 428 psi in 21 minutes before the choke (3-2/64") was opened and flow allowed to the Test Tanks. The flowing pressure was 11 psi. After 30 minutes the well was shut in for pressure build up.

26th November 1982. The pressure build up was observed and monitored reaching 1132 psi before stabilising at 735 psi after 11¼ hours, when the well was opened on 32" choke. The flow pressure was 11 psi but dropped to 2 psi when the choke was opened further to 48/64" after one hour's flow. The flow pressure dropped again after 9 hours to 1 psi, then to 0 psi. 14½ hours after the well was opened the choke was shut in having displaced 14 barrels of diesel into the test tanks. Schlumberger R.I.H. with HP and Amerada tool.

27th November 1982. Schlumberger R.I.H. with HP and Amerada tools to monitor down hole pressures and temperatures. Pressure continued to build up to a maximum of 561 psi after 23½ hours. Schlumberger then started to P.O.O.H. making gradient stops.

28th November 1982. Schlumberger continued making gradient stops and then P.O.O.H. Otis R.I.H. to take samples, set for 2450m. The samples were recovered, they were water with salinities of 24000 ppm. An injection rate was then established into the perforated formation of 500 psi in 2 minutes from 4500 psi. The well was then opened to the test tank but there was no flow. After some difficulty, overpull of 60,000 lbs was required, the tubing was pulled from the packers. The diesel and fluid in the tubing was then reverse circulated initially into the test tanks. After the first displacement flow was returned to the shakers, gas levels were 29-29-4 units. Circulation continued down the tubing, after the second displacement of the tubing, with gas levels of 0-5.5-2.6 units (C1 to C4 breakdown). The tubing was then P.O.O.H.

29th November 1982. Continued P.O.O.H. then R.I.H. with drill pipe and cement stinger to 2750m. Mud was circulated with a B.U. gas of 0.8-50-2 units to condition the mud. Cement slurry was then pumped to set a plug up to 2668m. Five stands were P.O.O.H. and mud was reverse circulated with gas levels of 1 unit, until the pipe volume had been displaced two times.

Circulation then continued down the drill pipe to condition the mud, with gas levels dropping to 0 unit. P.O.O.H.

30th November 1982. Continued to P.O.O.H. Pressure tested the cement. Schlumberger set a bridge plug at 2605m. A test on the plug failed. Attempted to pull the seal assembly unsuccessfully. Tested the casing to 3100 psi.

1st December 1982. Pulled the seal assembly with a back-out tool. Cut the casing at 224.84m (R.K.B.). Attempted to spear the casing, but failed. Cut the casing a second time (252.14m R.K.B.), and managed to spear the casing free (with 70K overpull).

2nd December 1982. Laid down the 9-5/8" casing and the tubing.

3rd December 1982. Set a cement retainer at 242m. R.I.H. wiyh stinger, and pressure tested the annulus. Set a balance plug on top of the retainer. Reversed out, then P.O.O.H. Perforated the 13-3/8" casing from 151 - 151.5m, and set a cement retainer at 141m.

4th December 1982. Squeezed 299 sacks of cement below the retainer, and dumped 87 sacks on top. Circulated hole and riser, with seawater. Tested the cement - O.K. Washed the wellhead and laid down drill-pipe. Pulled the stack and riser. Deballasted the rig. Blew the well-head.

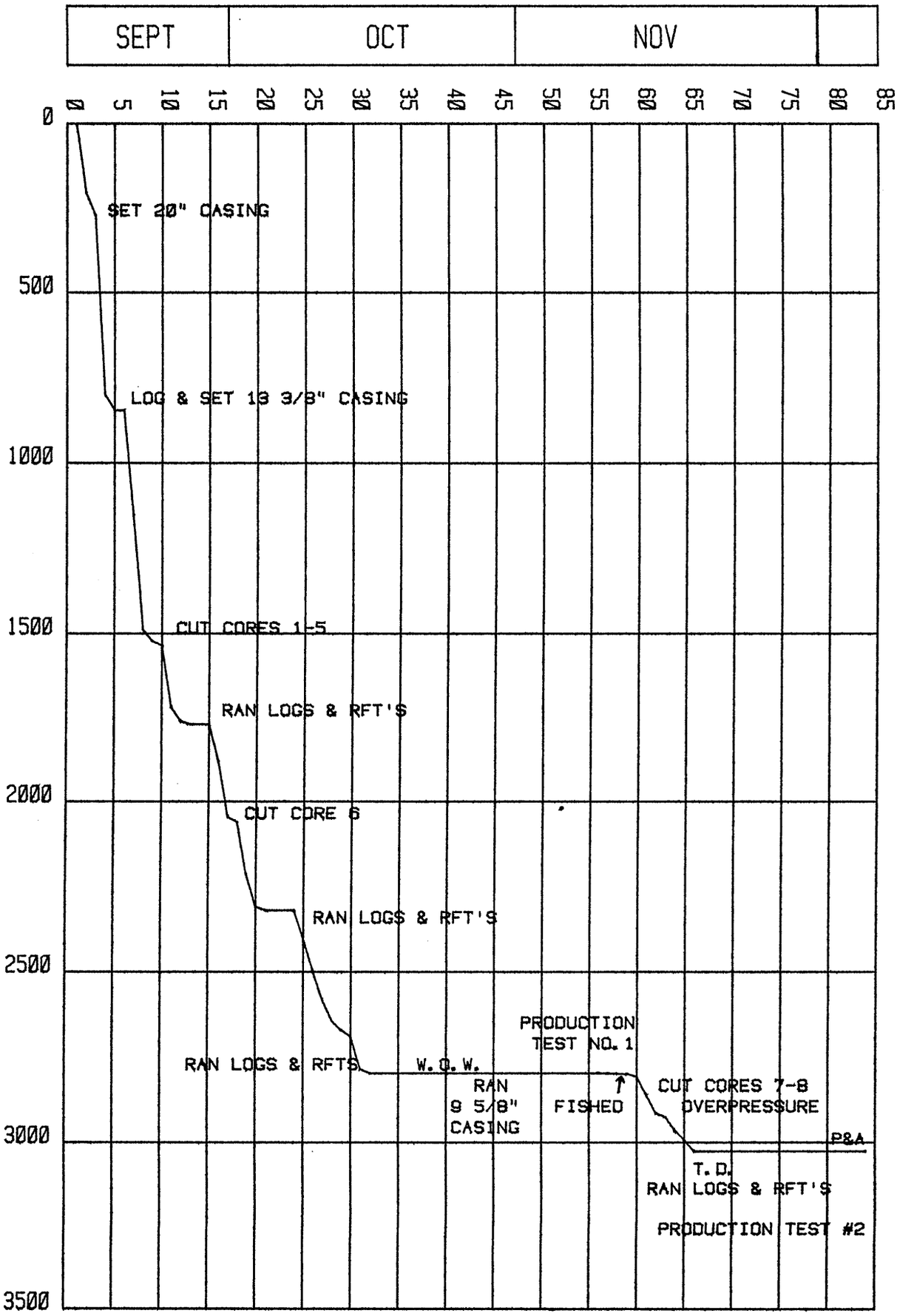
5th December 1982. Waited on work-boats. Handled the anchors. Waited on weather.

6th December 1982. Waited on weather. Handled the anchors. Began towing to the new location at 1900 hours.

8. PROGRESS LOG

PROGRESS LOG
ESSO AUSTRALIA LTD

WIRRAH NO. 1



9. BIT RECORD SHEETS

CORE LAB

BIT RECORD

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

Sheet No. 1

S/NO.	Bit No.	Make	Type	IADC Code	Size	Jets	Depth In m	Hole Made m	Drilling Time	On Bottom Hours	KTurns	Condition T B G	Remarks
294 SR	RR 1	– HTC	26" HO +OSC 3AJ	– 111	26 17½	28/28/28 20/20/20	70.0	136.0	6¾	4.05	19	2-4-I	OUT FOR 20" CSG.
KX 481	2	HTC	OSC 3AJ	111	17½	20/20/20	207.0	593.0	26	16.15	132	2-2-I	DRULLED CMT, PLUGGED JET.
KX 481	RR 2	HTC	OSC 3AJ	111	17½	20/20/20	799.0	46.0	5¼	4.06	34	2-2-I	OUT FOR 13-3/8" CSG.
291 KK	3	HTC	X3A	114	12¼	18/18/18	845.0	643.2	41½	31.23	257	5-4-I	OUT FOR CORE NO. 1.
IW 5994	3	CHRIS	RC4	4	8½	EQUIVALENT 15/15/14	1488.2	12.4	1	0.77	4	45%	OUT FOR CORE NO. 2.
1W 5994	3	CHRIS	RC4	4	8½	EQUIVALENT 15/15/14	1500.6	12.8	1¾	1.24	7	50%	OUT FOR CORE NO. 3.
1W 5994	3	CHRIS	RC4	4	8½	EQUIVALENT 15/15/14	1513.4	13.6	2	1.43	9	60%	RECOVER CORE NO. 3.
951UA	4	HTC	X3A	114	12¼	18/18/18	1527.0	46.4	3¾	2.60	22	4-2-I	OUT FOR CORE NO. 4.
2W 6901	4	CHRIS	RC3	4	8½	EQUIVALENT 15/15/14	1573.4	12.2	4½	4.48	27	5%	OUT FOR CORE NO. 5.
2W 6901	4	CHRIS	RC 3	4	8½	EQUIVALENT 15/15/14	1585.6	11.0	3	2.92	19	20%	RECOVER CORE NO. 5.
5X 456	5	HTC	J11	437	12¼	18/18/18	1596.6	31.8	9½	7.37	28	8-2-I	DRILLED ON JUNK.
FR 646	6	HTC	J22	517	12¼	18/18/18	1628.4	142.0	17¼	11.42	41	1-2-1/8	POOH TO LOG, BROKEN INSERTS.
796 NL	7	HTC	J22	517	12¼	18/18/18	1770.4	275.6	34¼	28.35	94	2-2-I	OUT FOR CORE NO. 6.
2W 6901	7	CHRIS	RC3	4	8½	EQUIVALENT 15/15/14	2046.0	15.2	4¾	4.02	26	20%	RECOVER CORE NO. 6.
694 FL	8	HTC	J22	517	12¼	18/18/18	2061.2	259.8	49¾	43.41	129	1-2-I	POOH TO LOG.
690 FL	9	HTC	J22	517	12¼	18/18/18	2321.0	280.0	74¼	66.68	216	3-4-1/8	OUT DUE TO LOW R.O.P.'S.
801 NL	10	HTC	J22	517	12¼	18/18/18	2601.0	75.0	36¼	29.22	103	8-2-1/8	LOW R.O.P.'S IN VOLCANIC PLUG.
768 BL	11	HTC	J33	537	12¼	18/18/18	2676.0	121.0	35	28.28	97	8-8-	OUT @ T.D., 3 CONES LOST.
FD 737	12	HTC	J7	316	8½	12/12/12	2801.0	3.0	1½	0.54	2	7-2-I	OUT TO RETRIEVE JUNK MILLED TO 2801M.
FK 594	13	HTC	J7	316	8½	12/12/12	2804.0	3.0	1½	0.46	1	3-2-I	OUT TO CUT CORE NO. 7.
81A 0647	RR13	CHRIS	C-20	4	8 15/32	EQUIVALENT 13/13/13	2805.0	2.8	3	2.62	13	100%	OUT DUE TO FLUCTATING PUMP PRESSURE.
546 MS	14	HTC	J33	537	8½	12/12/12	2807.8	52.2	13	11.73	40	4-4-1/8	OUT DUE TO LOW ROP'S.
541 MS	15	HTC	J33	537	8½	12/12/12	2860.0	54.0	12½	11.17	39	5-4-1/8	OUT AT CORE POINT.
81E 0636	15	CHRIS	C-20	4	8 15/32	EQUIVALENT 13/13/13	2914.0	2.0	2½	1.89	9	90%	OUT DUE TO FLUCTUATING PUMP PRESSURE.

CORE LAB

BIT RECORD

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

Sheet No. 2

S/NO.	Bit No.	Make	Type	IADC Code	Size "	Jets	Depth In m	Hole Made	Drilling Time	On Bottom Hours	K_{Turns}	Condition T B G	Remarks
MB 523	16	HTC	J44	617	8½	12/12/12	2916.0	56.0	17½	16.84	60	2-4-I	PULLED DUE TO LOW ROP'S.
TL 381	17	HTC	J44	617	8½	12/12/12	2972.0	54.0	12¼	10.43	36	2-2-I	PULLED AT T.D., TO RUN LOGS.

7520-487 (CL 1153)

CORE LAB

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

BIT RECORD

Sheet No. 1

S/NOS.	Bit No.	Make	Type	IADC Code	Size	Cost	Jets	Depth In m	Depth Out m	Hole Made m	Drilling Time	On Bottom Hours	Turns K	Average ROP	Average Cost/ m	Condition T B G
294 SR	RR 1	HTC	26" HO +OSC 3AJ	– 111	26 17½	6350	28/28/28 20/20/20	70.0	206.0	136.0	6¾	4.05	19	33.6	257.68	2-4-I
KX 481	2	HTC	OSC 3AJ	111	17½	4442	20/20/20	206.0	799.0	593.0	26	16.15	132	36.7	156.42	2-2-I
KX 481	RR 2	HTC	OSC 3AJ	111	17½	4442	20/20/20	799.0	845.0	46.0	5¼	4.06	34	11.2	861.60	2-2-I
291 KK	3	HTC	X3A	114	12¼	2201	18/18/18	845.0	1488.2	632.2	41½	31.23	257	20.6	255.41	5-4-I
IN 5994	3	CHRIS	RC4	4	8½	13000	EQUIVALENT 15/15/14	1488.2	1500.6	12.4	1	0.77	4	16.1	3190.37	45%
1W 5994	3	CHRIS	RC4	4	8½	13000	EQUIVALENT 15/15/14	1500.6	1513.4	12.8	1¾	1.24	7	10.3	3254.03	50%
1W 5994	3	CHRIS	RC4	4	8½	13000	EQUIVALENT 15/15/14	1513.4	1527.0	13.6	2	1.43	9	9.5	3124.77	60%
951 UA	4	HTC	X3A	114	12¼	2201	18/18/18	1527.0	1573.4	46.4	3¾	2.60	22	17.8	804.92	4-2-I
2W 6901	4	CHRIS	RC3	4	8½	13000	EQUIVALENT 15/15/14	1573.4	1585.6	12.2	4½	4.48	27	2.7	4668.53	5%
2W 6901	4	CHRIS	RC3	4	8½	13000	EQUIVALENT 15/15/14	1585.6	1596.6	11.0	3	2.92	19	3.8	4546.88	20%
SX 456	5	HTC	J11	437	12¼	6788	18/18/18	1596.6	1628.4	31.8	9½	7.37	28	4.3	2014.04	8-2-I
FR 646	6	HTC	J22	517	12¼	6788	18/18/18	1628.4	1770.4	142.0	17¼	11.42	41	12.4	587.32	1-2-1/8
796 NL	7	HTC	J22	517	12¼	6788	18/18/18	1770.4	2046.0	275.6	34¼	28.35	94	9.7	583.98	2-2-I
2W 6901	7	CHRIS	RC3	4	8½	13000	EQUIVALENT 15/15/14	2046.0	2061.2	15.2	4¾	4.02	26	3.8	3905.17	20%
694 FL	8	HTC	J22	517	12¼	6788	18/18/18	2061.2	2321.0	259.8	49¾	43.41	129	6.0	887.67	1-2-I
690 FL	9	HTC	J22	517	12¼	6788	18/18/18	2321.0	2601.0	280.0	74¼	66.68	216	4.2	1202.91	3-4-1/8
801 NL	10	HTC	J22	517	12¼	6788	18/18/18	2601.0	2676.0	75.0	36¼	29.22	103	2.6	2298.40	8-2-1/8
768 BL	11	HTC	J33	537	12¼	6637	18/18/18	2676.0	2797.0	121.0	35	28.28	97	4.3	1385.14	8-8-
FD 737	12	HTC	J7	316	8½	1260	12/12/12	2799.0	2802.0	3.0	1½	0.54	2	5.6	12936.0	7-2-I
FK 594	13	HTC	J7	316	8½	1260	12/12/12	2802.0	2805.0	3.0	1½	0.46	1	6.5	12818.0	3-2-I
81A 0647	RR13	CHRIS	C-20	4	8 15/32	13000	EQUIVALENT 13/13/13	2805.0	2807.8	2.8	3	2.61	13	1.1	21501.0	100%
546 MS	14	HTC	J33	537	8½	3703	12/12/12	2807.8	2860.0	52.2	13	11.73	40	4.5	1761.05	4-4-1/8
541 MS	15	HTC	J33	537	8½	3703	12/12/12	2860.0	2914.0	54.0	12½	11.17	39	4.8	1664.45	5-4-1/8
81E 0636	15	CHRIS	C-20	4	8 15/32	13000	EQUIVALENT 13/13/13	2914.0	2916.0	2.0	2½	1.89	9	1.1	228945.0	90%

CORE LAB

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

BIT RECORD

Sheet No. 2

Bit No.	Make	Type	IADC Code	Size	Cost	Jets	Depth In	Depth Out	Hole Made	Drilling Time	On Bottom Hours	Turns	Average ROP	Average Cost/	Condition T B G
MB 523 16	HTC	J44	617	8½	3304	12/12/12	2916.0	2972.0	56	17½	16.84	60	3.3	2056.28	2-4-I
TL 381 17	HTC	J44	617	8½	3304	12/12/12	2972.0	3026.0	54	12¼	10.43	36	5.2	1612.57	2-2-I

7520-486 (CL 1152)

10. MUD INFORMATION SHEETS

DEPTH . . . . . Metres

MUD WEIGHT . . . . . Pounds per gallon

FUNNEL VISCOSITY . . . A.P.I seconds

PLASTIC VISCOSITY. . . Centipoise

YIELD POINT. . . . . Pounds/100 square feet

GEL : INITIAL/10 min . Pounds/100 square feet

FILTRATE . . . . . A.P.I. c.c.

CAKE THICKNESS . . . . Thirty-seconds of an inch

SALINITY : Ca/Cl . . . ppm

SOLIDS/SAND/OIL. . . . Percentage .

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.
WELL WIRRAH NO. 1

Sheet No. 1

DEPTH (m)	SPUD	272	799	806	845	813	1040
DATE	15/9/82	16/9/82	17/9/82	18/9/82	18/9/82	19/9/82	20/9/82
TIME		24:00	24:00	21:00	23:00	24:30	15:00
WEIGHT		8.6	9.2	9.3	9.4+	9.4	9.1
FUNNEL VISCOSITY	S	29	31	32	34	38	29
PV/YP	E	2/8	4/17	4/17	5/18	6/29	5/18
N/K	A	.26/1.94	.25/4.38	.25/4.38	.28/3.92	.23/8.44	.28/3.92
GEL: INITIAL/10 MIN	W	3/5	-	6/21	6/24	4/22	5/17
pH	A	8.5	8.5	9	9	12.2	9.6
FILTRATE: API/API HTHP	T	-	-	-	-	-	
CAKE	E	3	3	3	3	4	5
SALINITY	R	-	20K	20K	20K	20K	24K
SAND % Vol.		.25	.25	TR	TR	.25	TR
SOLIDS % Vol.		-	-	4	5	5	4
OIL		-	-	-	-	-	-

REMARKS:

SEAWATER GEL →

SEAWATER (SPUD MUD)

← DRILLED 17½" HOLE →

RUN 13-3/8" CASING

DRILLED 12¼" HOLE

DEPTH (m)	1145	1488	1512	1585	1622	1766	1770
DATE	20/9/82	21/9/82	22/9/82	23/9/82	24/9/82	25/9/82	26/9/82
TIME	23:30	23:00	21:30	24:00	23:30	0:30	23:15
WEIGHT	9.2	9.8	9.8	9.8	9.7+	9.8	9.7+
FUNNEL VISCOSITY	41	46	47	42	50	56	48
PV/YP	4/16	5/19	8/14	7/15	10/11	14/14	9/9
N/K	.26/3.88	.27/4.38	.45/1.35	.4/1.83	.56/.63	.58/.73	.58/.47
GEL: INITIAL/10 MIN	5/18	11/26	7/16	4/15	3/13	3/13	2/8
pH	10.6	11.2	10.3	11.1	11.9	9.7	9.7
FILTRATE: API/API HTHP	24	8/17	7.4/16.2	5/15.4	5.2/14.8	5.0/14.2	4.6/14.0
CAKE	4	3	3	3	2	2	2
SALINITY	24K	21K	20K	20K	20K	16.5K	16.0K
SAND	TR	TR	TR	TR	.25	TR	TR
SOLIDS	4	8	10	10	10	11	10.5
OIL	-	-	-	-	-	-	-
NITRATES	60	40	70	70	70	120	160

REMARKS:

DRILLED 12¼" HOLE — CUT CORES 1-3 — CUT CORE 4 — CUT CORE 5 — DRILLED 12¼" HOLE

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.
WELL WIRRAH NO. 1

Sheet No. 2

DEPTH (m)	1770	1770	1860	2034	2055	2210	2301
DATE	27/9/82	28/9/82	29/9/82	30/9/82	1/10/82	2/10/82	3/10/82
TIME	22:45	3:15	23:00	22:45	22:10	22:05	22:01
WEIGHT	9.7+	9.8	9.7	9.7	9.6+	9.8	9.8
FUNNEL VISCOSITY	49	47	43	48	48	57	59
PV/YP	9/8	11/10	10/9	16/14	16/11	19/4	22/18
N/K	.61/.37	.61/.48	.61/.42	.62/.64	.67/.41	.66/.58	.66/.55
GEL: INITIAL/10 MIN	2/8	2/8	2/9	4/9	3/7	5/20	6/24
pH	9.5	4.6	11.4	10.0	11.4	10.9	10.4
FILTRATE: API/API HTHP	4.6/13.8	11.0/13.2	5.0/14.2	5.2/14.0	4.6/13.6	5.4/14.4	5.5/14.8
CAKE	2	2	2	2	2	2	2
SALINITY K (ppm)	16.0	16.0	15.5	15.5	15.0	12500	12200
SAND % by Vol	TR	TR	TR	TR	0.25	TR	TR
SOLIDS % by Vol	10	11	9.5	9.5	9.5	9.5	10.5
OIL % by Vol	0	TR	TR	TR	TR	TR	TR
NITRATES (mg/l)	140	220	220	190	170	100	140

REMARKS:

← LOGGING ——→ DRILLED 12¼" HOLE | CUT CORE 6 | DRILLED 12¼" HOLE

DEPTH (m)	2321	2321	2321	2321	2340	2486	2574
DATE	4/10/82	5/10/82	6/10/82	7/10/82	8/10/82	9/10/82	10/10/82
TIME	08:00	09:00	17:00	07:15	21:30	22:00	21:30
WEIGHT	9.8	9.8+	9.7	9.7+	9.7+	9.7	9.7
FUNNEL VISCOSITY	69	71	53	62	47	50	56
PV/YP	25/19	23/18	15/11	19/15	16/15	13/15	11/20
N/K	.65/.77	.65/.75	.66/.43	.64/.63	.60/.73	.55/.91	.44/2.02
GEL: INITIAL/10 MIN	6/29	9/33	3/17	6/22	5/22	6/20	8/22
pH	10.3	10.5	10.1	10.2	10.1	10.5	10.7
FILTRATE: API/API HTHP	5/14.8	5.8/16.6	5.8/17.6	6.8/15.8	6.2/16.4	6.2/14.8	5.8/15.0
CAKE	2	2	2	2	2	2	2
SALINITY K (ppm)	12.2	12.5	12.2	12.2	12.2	13.0	14.5
SAND % by Vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by Vol	10.5	10.5	9	9.5	10	9	9
OIL % by Vol	TR	TR	TR	TR	TR	TR	TR
NITRATES (mg/l)	110	220	220	220	220	220	220

REMARKS:

←——LOGGING ——→ WIPER TRIP; RFT'S ← DRILLED 12¼" HOLE ——→

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.
WELL WIRRAH NO. 1

Sheet No. 3

DEPTH (m)	2640	2670	2681	2752	2797	2797	2797
DATE	11/10/82	12/10/82	13/10/82	14/10/82	15/10/82	16/10/82	17/10/82
TIME	21:30	21:30	21:30	13:30	13:30	21:30	09:30
WEIGHT	9.7	9.7	9.7	9.7	9.7	9.7	9.7
FUNNEL VISCOSITY	54	53	58	51	45	46	55
PV/YP	10/81	12/20	13/19	13/16	12/16	14/15	15/17
N/K	0.44/1.80	0.46/1.83	0.49/1.49	0.53/1.04	0.51/1.04	0.57/0.84	0.55/1.01
GEL: INITIAL/10 MIN	8/19	8/18	8/20	8/20	6/18	4/12	8/20
pH	10.5	10.3	10.6	10.4	10.5	10.3	10.1
FILTRATE: API/API HTHP	6.2/15.4	5.2/14.6	5.2/14.8	5.0/15.0	5.0/14.8	5.0/14.6	5.2/15.2
CAKE	2	2	2	2	2	2	2
SALINITY K ppm	15	16	18	19	20	18	19
SAND % by vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	9	9	9	9	9	9	9
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	220	180	130	200	220	180	180

REMARKS:

DRILLED 12¼" HOLE

T.D. FOR TESTING

LOGGING

DEPTH (m)	2797	2797	2797	2797	2797	2797	2797
DATE	18/10/82	19/10/82	20/10/82	21/10/82	22/10/82	23/10/82	24/10/82
TIME	23:00		11:30	13:30	24:00	10:15	04:00
WEIGHT	9.6	9.6+	9.7	9.7	9.6	9.7	9.7
FUNNEL VISCOSITY	41	45	48	43	45	46	43
PV/YP	12/14	14/17	16/18	14/11	14/12	15/12	14/12
N/K	0.55/0.86	0.54/1.09	0.56/1.06	0.64/0.46	0.62/0.54	0.64/0.51	0.62/0.54
GEL: INITIAL/10 MIN	2/8	4/15	4/15	3/8	4/9	3/9	4/9
pH	10.3	10.7	10.6	10.1	10.1	10.3	10.3
FILTRATE: API/API HTHP	5.0/14.8	5.4/15.2	5.6/15.4	5.6/15.6	5.6/15.6	5.1/15.2	6/15.8
CAKE	2	2	2	2	2	2	2
SALINITY K ppm	18	19	19	18.5	18	18	18
SAND % by vol	0	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	8	9	9	9	9	9	9
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	220	180	140	140	140	130	130

REMARKS:

LOGGING ←——→ W. O. W. ←——→ RAN & CEMENTED 9-5/8" CASING.

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

Sheet No. 4

DEPTH (m)	2797	2797	2797	2797	2797	2797	2797
DATE	25/10/82	26/10/82	27/10/82	28/10/82	29/10/82	30/10/82	31/10/82
TIME	23:00	23:20	12:30	23:00	21:00	23:00	23:00
WEIGHT	9.5	9.7	9.6	9.6	9.6	9.5	9.6
FUNNEL VISCOSITY	41	39	37	35	35	41	37
PV/YP	14/12	15/12	14/11	12/9	12/9	10/4	10/7
N/K	0.62/0.54	0.64/0.51	0.64/0.46	0.65/0.36	0.65/0.36	0.78/0.11	0.67/0.27
GEL: INITIAL/10 MIN	4/9	3/7	3/8	2/7	3/8	3/6	4/7
pH	10.1	9.8	10.3	10.3	10.3	10.1	11.5
FILTRATE: API/API HTHP	6/15.5	8.5/16.7	5.8/-	5.9/-	5.8/-	6/-	6.4/-
CAKE	2	2	2	2	2	2	3
SALINITY K ppm	18	18	18.5	19	19	19	18
SAND % by vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	9	9	9	9	9	9	9
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	130	140	130	120	130	120	110

REMARKS:

CEMENTING

LOGGED

TESTED

STACK

PRODUCTION TESTING

DEPTH (m)	2797	2797	2797	2797	2797	2797	2797
DATE	1/11/82	2/11/82	3/11/82	4/11/82	5/11/82	6/11/82	7/11/82
TIME	21:00	23:00	24:00	16:30	20:00	07:00	23:00
WEIGHT	9.5	9.6	9.7	9.5	9.6	9.5	9.5
FUNNEL VISCOSITY	39	52	42	38	40	45	38
PV/YP	11/7	15/17	13/11	6/9	7/11	9/14	7/12
N/K	0.69/0.25	0.55/0.1	0.62/0.49	0.49/0.73	0.47/0.94	0.48/1.18	0.45/1.13
GEL: INITIAL/10 MIN	3/6	7/11	5/7	3/7	3/4	3/7	3/6
pH	11.1	10.8	10.7	11.3	9.5	10.6	10.8
FILTRATE: API/API HTHP	5/-	5.4/-	6.4/-	8.6/-	5.8/-	6.2/-	7.2/-
CAKE	2	2	2	2	2	2	2
SALINITY K ppm	18	18	18	15	19	19	19
SAND % by vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	9	9	9	7	9	9	9
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	130	120	110	90	100	80	80

REMARKS:

PRODUCTION TESTING

RIGGED DOWN PWT EQUIPMENT AND PREPARED TO DRILL AHEAD. CEMENTED PERFORATIONS.

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD

WELL WIRRAH NO. 1

Sheet No. 5

DEPTH (m)	2797	2800	2800	2800	2807	2710	2867
DATE	8/11/82	9/11/82	10/11/82	11/11/82	12/11/82	13/11/82	14/11/82
TIME	15:30	03:00	23:00	09:00	22:00	10:00	09:00
WEIGHT	9.3	9.2	9.2	9.2	9.2	9.2	9.2
FUNNEL VISCOSITY	38	38	45	42	39	44	43
PV/YP	6/9	7/8	8/13	7/9	7/8	8/12	10/10
N/K	0.49/0.73	0.55/0.48	0.47/1.16	0.52/0.61	0.55/0.48	0.49/0.97	0.58/0.52
GEL: INITIAL/10 MIN	3/8	3/6	4/8	3/6	3/6	4/9	6/13
pH	11.0	11.1	10.6	10.5	10.8	10.4	10.5
FILTRATE: API/API HTHP	8.4/-	8.4/-	8.0/-	7.8/-	60./17.4	6.0/17.2	6.0/15.4
CAKE	2	2	2	2	2	2	2
SALINITY K ppm	16	15	13	13	12	10	10
SAND % by vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	7	7	7	7	7	8	8
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	40	40	30	10	TR	TR	200

REMARKS:

DRILLED CEMENT — FISHED — P.I.T. FISHED — DRILLED 8½" HOLE CUT CORE NO. 7 — DRILLED 8½" HOLE

DEPTH (m)	2915	2964	2992	3026	3026	3026	3026
DATE	15/11/82	16/11/82	17/11/82	18/11/82	19/11/82	20/11/82	21/11/82
TIME	06:00	23:00	23:00	21:00	15:00	23:00	23:00
WEIGHT	9.2	10.5	11.2	11.2	11.2	11.2	10.8
FUNNEL VISCOSITY	46	44	50	52	51	48	40
PV/YP	10/13	15/15	19/16	17/15	17/15	17/15	13/11
N/K	0.52/0.90	0.58/0.78	0.63/0.71	0.60/0.79	0.61/0.69	0.61/0.69	0.62/0.49
GEL: INITIAL/10 MIN	6/13	8/16	10/23	11/23	13/22	10/19	6/9
pH	10.6	10.7	10.5	10.7	10.6	10.5	10.8
FILTRATE: API/API HTHP	5.6/15.0	5.4/15.2	5.9/15.0	5.6/15.0	5.6/15.0	5.6/15.2	7.8/-
CAKE	2	2	2	2	2	2	3
SALINITY K ppm	11	13	12	12	12	12	12.5
SAND % by vol	TR	TR	0.5	0.5	0.5	0.25	0.25
SOLIDS % by vol	8	14	13	14	14	14	13
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	200	200	220	220	220	210	200

REMARKS:

CUT CORE NO. 8 — ENCOUNTERED OVERPRESSURED — T.D.' ED — SET CEMENT PLUG

DRILLED 8½" HOLE — LOGGING

CORE LAB

MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.

WELL WIRRAH NO. 1

Sheet No. 6

DEPTH (m)	3026	3026	3026	3026	3026	3026	3026
DATE	22/11/82	23/11/82	24/11/82	25/11/82	26/11/82	27/11/82	28/11/82
TIME	23:00	23:00	23:30	24:00	22:00	01:00	00:30
WEIGHT	9.7	9.6	9.7	9.7	9.7	9.8	9.7
FUNNEL VISCOSITY	36	38	41	42	42	42	38
PV/YP	7/9	7/11	10/10	10/11	11/11	11/12	10/9
N/K	0.52/0.61	0.47/0.94	0.58/0.52	0.56/0.63	0.58/0.57	0.56/0.68	0.61/0.42
GEL: INITIAL/10 MIN	5/11	5/12	6/13	6/13	6/13	6/12	4/10
pH	10.8	10.6	11.1	11.1	11.0	11.1	11.0
FILTRATE: API/API HTHP	8.2/-	8.2/-	7/-	7/-	7/-	7.1/-	7.2/-
CAKE	2	2	2	2	2	2	2
SALINITY K ppm	14	14	14	14	14	14	14
SAND % by vol	TR	TR	TR	TR	TR	TR	TR
SOLIDS % by vol	9	9	9	9	9	9	9
OIL % by vol	0	0	0	0	0	0	0
NITRATES (mg/l)	200	210	220	210	200	210	220

REMARKS: TAGGED AND DRESSED CEMENT TO 2750M

PRODUCTION WELL TEST NO. 2

REVERSE OUT AND CIRCULATE AND CONDITION MUD

DEPTH (m)	3026	3026	3026	3026			
DATE	29/11/82	30/11/82	1/12/82	2/12/82			
TIME	23:00	00:30	24:00	23:30			
WEIGHT	9.7	9.7	9.7	9.7			
FUNNEL VISCOSITY	51	47	48	45			
PV/YP	12/23	9/16	10/16	10/15			
N/K	0.43/2.47	0.44/1.57	0.47/1.39	0.49/1.21			
GEL: INITIAL/10 MIN	10/19	9/17	9/17	9/15			
pH	12.3	12.2	12.1	12.0			
FILTRATE: API/API HTHP	8.4/-	5.5/-	8.5/-	8.5/-			
CAKE	4	4	4	4			
SALINITY K ppm	12	12	12	12			
SAND % by vol	TR	TR	TR	TR			
SOLIDS % by vol	9	9	9	9			
OIL % by vol	0	0	0	0			
NITRATES (mg/l)	190	200	200	200			

REMARKS: PLUG PERFORATIONS CIRCULATE AND CONDITION MUD

RECOVER SEAL ASSEMBLY

LAY DOWN PIPE AND TUBING

11. LITHOLOGICAL SUMMARY

LITHOLOGICAL SUMMARY

WIRRAH NO. 1 was drilled to evaluate the hydrocarbon potential of the Top Latrobe and Intra-Latrobe sandstones. The proposed T.D. was 2321m (KB), however, this was extended to 3026m (KB) to further evaluate the Lower Latrobe formation.

(NB: The formation tops are open to speculation and are based entirely on examination of cuttings. All depths from RKB).

Gippsland Limestone. The Gippsland Limestone consisted of a white to grey, calcarenite/calcilutite, very fine to medium grained, fossiliferous limestone. The fossils encountered were shell fragments, foraminifera, bryozoa, echinoids. These were more abundant higher up in the formation. Within this section, a sandstone bed was encountered between 760m-830m (KB). The sandstone was of predominantly fine-medium loose quartz grains, clear to very lt gy, subangular to subrounded, well sorted with a calcareous cement.

Lakes Entrance Formation. This formation consisted entirely of siltstone. This was light to medium grey, firm becoming occasionally soft, argillaceous, calcareous, bulky becoming sub fissile in part towards the lower part of the formation. Occasional foraminifera fossils were encountered at varying depths. Traces of glauconite and pyrite were also encountered.

Latrobe Formation. This formation consisted of siltstone interbedded predominantly with sandstones and to a lesser extent coal. The siltstone ranged in colour from a light brown-grey to dark brown in some beds, hardness ranged from soft to hard. In the upper formation, the siltstone is non calcareous and becomes progressively more calcareous in the lower levels but appears to grade into a non-calcareous, carbonaceous lithology close to T.D. Associated pyrite is found also. The sandstone is predominantly clear to buff-white, and occasionally brown; they range from between fine to medium grained and, in general, poorly sorted, to coarser, well sorted beds. In the upper levels dolomitic cement was found grading to a siliceous cement in the deeper beds, and to a number of loose beds with little or no cement. Porosity varied from poor to good depending on cement and grain size. Fluorescence was encountered and ranged from poor to 80-100% fluorescence at 2570m. The coal encountered was a black vitreous blocky to firm texture with a conchoidal fracture. Between 2635m and 2680m there was a volcanic sill which was medium-light grey, very hard, massive and crystalline.

There were 6 cores cut and 24 RFT's run.

Gas levels were generally low but with frequent peaks associated with sandstone and coals. Heavies (C_1-C_6) were present throughout most of the Upper Latrobe to 2245m, below which there were fewer peaks, and heavies above C_2 were rarely seen.

From 2680 - 2740m, a sandstone/siltstone sequence was encountered. The sandstone was white, clear, medium to granule size, angular to well rounded, frequently dolomitic, and occasionally pyritic. The siltstone was grey to reddish brown, firm to soft, occasionally calcareous and pyritic. From 2740m the first indications of a conglomerate were encountered. The conglomerate was a mixture of sandstone, chert and basalt. The sandstone was clear, sub angular to sub rounded, fine to coarse grained. The chert was milky white to medium grey, very hard, with angular fragments. From 2850m a sandstone/siltstone interbedded sequence was re-encountered. The sandstone was of two types:

a. clear, subangular, very fine to medium grained, occasionally argillaceous and

b. loose angular to sub angular fine to very coarse grained.

The siltstone was buff to grey/brown carbonaceous, moderately hard to friable. The conglomerate tended to fade out around 2850m.

12. R.F.T. DATA SHEETS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 2 PRESSURE GAUGE TYPE : HP

CHAMBER No.		1.	2.
CHAMBER CAPACITY (GALL)		6	1
CHOKE SIZE (SQ.IN.)		0.03	0.03
SEAT No.		34	34
DEPTH (M) (from RKB)		1595	1595
A RECORDING TIMES		HH:MM:SS	HH:MM:SS
	TOOL SET	4:41:00	
	PRETEST OPEN	4:41:30	
	TIME OPEN	:00:30	
	CHAMBER OPEN	4:42:00	4:52:30
	CHAMBER FULL	4:51:00	4:56:00
	FILL TIME	4:07:00	:03:00
	START BUILD UP	4:51:00	4:56:00
	FINISH BUILD UP	4:52:00	4:57:00
	BUILD UP TIME	:01:00	:01:00
	SEAL CHAMBER	4:51:00	4:56:00
	TOOL RETRACT		4:59:00
	TOTAL TIME		:18:00
B SAMPLE PRESSURES			
	IHP (psig)	2681.1	
	ISIP (psia)	2371.6	2247.74
	IFP (psia)	2225.2	2256.00
	FFP (psia)	2256.13	2256.22
	FSIP (psia)	2256.3	2256.23
	FHP (psia)		2681.00
	TEMP. CORR. ( )		
	COMMENTS		
C TEMPERATURE			
	DEPTH TOOL REACHED( )	1985	1985
	MAX.REC.TEMP.(°)	148.5	148.5
	TIME CIRC. STOPPED	:05:15	:05:15
	TIME SINCE CIRC.	24 HRS.	24 HRS.
D SAMPLE RECOVERY			
	SURFACE PRESSURE(psig)	600	
	VOL. GAS (cuft)	31.7	
	VOL. OIL (ml)	23500	
	VOL. WATER ( )	-	
	VOL. FILTRATE ( )	-	
	VOL. CONDENSATE ( )	-	
	VOL. OTHER ( )	-	
E SAMPLE PROPERTIES			
(a) GAS	c1 (ppm)	552960	
	c2 (ppm)	45056	
	c3 (ppm)	15232	
	c4 (ppm)	5084	
	c5 (ppm)	4365	
	c6+ (ppm)	1134	
	CO_2 (%)	Tr	
	H_2S (ppm)	40	
(b)OIL PROPERTIES			
DENSITY: (API)	HYDROMETER		
	REFRACTOMETER	34@60°F	
REFRACTIVE INDEX			
COLOUR		DK BN/GLD	
FLUORESCENCE		BRT BLU/WH	
G.O.R. ($cu.ft./ml$)		214	

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	DIESEL	
POUR POINT (°)	-	
COMMENTS	GAS CUT	
(c)WATER PROPERTIES		
RESISTIVITY ( )	@ °	@ °
Cl (frm. resis.)( )		
Cl (frm. titrat)( )		
NO_3 ( )		
pH		
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (M)	0.33 @	
Cl (frm.resis.)(PPM)	33K	
Cl (frm.titrat)(PPM)	16.5	16.5
NO_3 Drld/1st.circ( )	120	120
pH	9.7	
OTHER TRACERS ( )		
DENSITY ( )	9.8	9.8

G GENERAL COMMENTS

1 GALLON CHAMBER WAS PRESERVED.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 3 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY		
CHOKE SIZE	0.03"	0.03"
SEAT No.	37	37
DEPTH (M) (from RKB)	1573	1575
A RECORDING TIMES	HH:MM	HH:MM
TOOL SET	9:40	
PRETEST OPEN	9:40	
TIME OPEN	0:02	
CHAMBER OPEN	9:42	9:52
CHAMBER FULL	9:51	9:57
FILL TIME	0:09	0:05
START BUILD UP	9:51	9:57
FINISH BUILD UP	9:52	9:58
BUILD UP TIME	0:01	0:01
SEAL CHAMBER	9:51	9:57
TOOL RETRACT		9:58
TOTAL TIME		0:18
B SAMPLE PRESSURES		
IHP (psig)	2647.2	
ISIP (psia)	790.6	2177.1
IFP (psia)	1633.6	2173.5
FFP (psia)	2230.7	2230.6
FSIP (psia)		2647.0
FHP ( )		
TEMP. CORR. ( )		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED( )	1592	1592
MAX.REC.TEMP.(°)	152.5	152
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1300m	
VOL. GAS (cuft)	50.8cfg	
VOL. OIL (ml)	23000	
VOL. WATER ( )		
VOL. FILTRATE ( )		
VOL. CONDENSATE ( )		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) G c1 (ppm)	752025	
A c2 (ppm)	55869	
S c3 (ppm)	20608	
c4 (ppm)	4345	
C c5 (ppm)	1146	
O c6+ (ppm)	325	
M CO_2 (%)	0.5	
P H_2S (ppm)	50	
(b)OIL PROPERTIES		
DENSITY: HYDROMETER		
( ) REFRACTOMETER	34@60°F	
REFRACTIVE INDEX		
COLOUR	Gld Bn	
FLUORESCENCE	BtBlWhIrel	
G.O.R. ($cu.ft.^3/ml$)	351	

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY ( )		
Cl (frm. resis.)( )		
Cl (frm. titrat)( )		
NO_3 ( )		
pH		
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE		
RESISTIVITY ( )	0.33 @ 21°	
Cl (frm.resis.)( )	22K	
Cl (frm.titrat)( )	16.K	16.K
NO_3 Drld/1st.circ( )	120	120
pH	97	
OTHER TRACERS ( )		
DENSITY. ( )	9.8	9.8

G GENERAL COMMENTS

FROTHY OIL SETTLES OUT TO DARK BROWN WAXY OIL.

CHAMBER PRESERVED

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 4 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (GALL)	6	2¾
CHOKE SIZE (SQ.IN.)	0.03	0.03
SEAT No.	44	44
DEPTH (M) (from RKB)	1613.0	1613.0
A RECORDING TIMES	HH:MM	HH:MM
TOOL SET	2:08	
PRETEST OPEN	2:09	
TIME OPEN		
CHAMBER OPEN	2:11	2:20
CHAMBER FULL	2:18	2:24
FILL TIME	0:07	0:04
START BUILD UP	2:18	2:24
FINISH BUILD UP	2:20	2:25
BUILD UP TIME	0:01	0:01
SEAL CHAMBER	2:20	2:26
TOOL RETRACT		2:27
TOTAL TIME		19:00
B SAMPLE PRESSURES		
IHP (psig)	2711.1	
ISIP (psia)	2280.9	
IFP (psia)	1867.4	1991.0
FFP (psia)	2281.0	1982.3
FSIP (psia)	2281.0	2280.9
FHP (psia)		2710.5
TEMP. CORR. ( )		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	1638	1638
MAX.REC.TEMP.(°C)	154.0	154.0
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	0	0
VOL. GAS ( )		
VOL. OIL ( )		
VOL. WATER (ml)	22200	9000
VOL. FILTRATE ( )		
VOL. CONDENSATE ( )		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS c1 ( )		
GAS c2 ( )		
GAS c3 ( )		
GAS c4 ( )	NO GAS	NO GAS
GAS c5 ( )		
GAS c6+ ( )		
GAS CO_2 ( )		
GAS H_2S ( )		
(b)OIL PROPERTIES		
DENSITY: HYDROMETER ( )		
DENSITY: REFRACTOMETER ( )		
REFRACTIVE INDEX		
COLOUR		
FLUORESCENCE		
G.O.R. (		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (M)	1.09@20°C	1.75@20°C
Cl (frm. resis.)(ppm)	6K	6K
Cl (frm. titrat)(ppm)	4.2K	4.2K
NO_3 (mg/l)	40	40
pH	8.4	7.5
OTHER TRACERS Ca ( )	80	60
DENSITY ( )		
FLUORESCENCE		
COLOUR	Lt Brn	Grn/Brn
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	SW/LINO/POLY/DGN
RESISTIVITY (m)	0.33 @ 21°C
Cl (frm.resis.)(ppm)	22K
Cl (frm.titrat)(ppm)	16.5K
NO_3 Drld/1st.circ(mg/l)	120
pH	97
OTHER TRACERS ( )	
DENSITY, (PPG)	9.8

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 5 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (GALL)	6	2¾
CHOKE SIZE (SQ.IN.)	0.03	0.02
SEAT No.	47	49
DEPTH (M) (from RKB)	1584	1583.5
A RECORDING TIMES	HH:MM	HH:MM
TOOL SET	5:40	7:00
PRETEST OPEN	5:44	7:01
TIME OPEN	0:03	1:04
CHAMBER OPEN	5:47	7:05
CHAMBER FULL	6:47	7:35
FILL TIME	0:60	0:30
START BUILD UP	6:47	7:35
FINISH BUILD UP		7:40
BUILD UP TIME		5:05
SEAL CHAMBER	6:47	7:35
TOOL RETRACT	6:50	7:40
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	2662.3	2661.7
ISIP (psia)	2245.7	2661.7
IFP (psia)	51.39	80.0
FFP (psia)	2064.98	244.7
FSIP (psia)	2262.4	2239.8
FHP (psig)	2262.4	2661.8
TEMP. CORR. (°)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	1602	1602
MAX.REC.TEMP.(°C)	150.3	150.3
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	800	100
VOL. GAS (ft^3)	4.9	0.3
VOL. OIL (ml)	600	SCUM
VOL. WATER (ml)	1400	6500
VOL. FILTRATE ( )		
VOL. CONDENSATE ( )		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C c1 (ppm)	199065	586137
GAS C c2 (ppm)	108503	180838
GAS C c3 (ppm)	86192	134676
GAS C c4 (ppm)	26977	47771
GAS C c5 (ppm)	5728	13094
GAS C c6+ (ppm)	835	1740
GAS COM CO_2 (%)	0.5	1.1
GAS COM H_2S (ppm)	20	60
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER		
DENSITY: ( ) REFRACTOMETER	41@60°F	39@60°F
REFRACTIVE INDEX	1.4594	1.4708
COLOUR	TAN	GLDN BRN
FLUORESCENCE	BLU/WH	BRT WH-WT
G.O.R. (cu.ft./ml)	1298	-

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°C)	6.5	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.32@21°C	0.30@21°C
Cl (frm. resis.)(ppm)	22K	23K
Cl (frm. titrat)(ppm)	14K	14K
NO_3 (mg/l)	40	186
pH	8.2	8.4
OTHER TRACERS Ca ( )	170	160
DENSITY (ppg)	8.0	7.7
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	SW/LIGNO/POLY/PGH
RESISTIVITY (m)	0.33 @ 21°C
Cl (frm.resis.)(ppm)	22K
Cl (frm.titrat)(ppm)	16.5K
NO_3 Drld/1st.circ(mg/l)	120
pH	9.7
OTHER TRACERS ( )	
DENSITY (ppg)	9.8

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 6 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (GALL)	6	2¾
CHOKE SIZE (SQ.IN.)		
SEAT No.		
DEPTH (m) (from RKB)	1678	1678
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	23:15:00	
PRETEST OPEN	23:17:00	
TIME OPEN	:02:00	
CHAMBER OPEN	23:19:00	23:30:00
CHAMBER FULL	23:27:30	23:33:30
FILL TIME	:08:00	:03:30
START BUILD UP	23:27:30	23:33:30
FINISH BUILD UP	23:29:00	23:35:00
BUILD UP TIME	:01:30	:01:30
SEAL CHAMBER	23:29:00	23:34:00
TOOL RETRACT		23:35:30
TOTAL TIME		:20:30
B SAMPLE PRESSURES		
IHP (psig)	2816.5	
ISIP (psia)	2372.2	
IFP (psia)	112.9	1785.1
FFP (psia)	2372.1	2372.2
FSIP (psia)	2372.2	2372.3
FHP (psig)		2816.5
TEMP. CORR. (°)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	1716	1716
MAX.REC.TEMP.(°C)	169	169
TIME CIRC. STOPPED	05:15	05:15
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	400	350
VOL. GAS (ft^3)	111cfg	0.5cfg
VOL. OIL (ml)	scum	-
VOL. WATER (ml)	21	91
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS c1 (ppm)	265421	331776
GAS c2 (ppm)	32440	8110
GAS c3 (ppm)	14336	3584
GAS c4 (ppm)	3924	1402
GAS c5 (ppm)	982	928
GAS c6+ (ppm)	186	557
GAS CO_2 (%)	0.5	1.5
GAS H_2S (ppm)	60	160
(b)OIL PROPERTIES		
DENSITY: HYDROMETER ( )		
DENSITY: REFRACTOMETER ( )		
REFRACTIVE INDEX		
COLOUR		
FLUORESCENCE		
G.O.R. ( )		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	.88@15°C	1.7@15°C
Cl (frm. resis.)(ppm)	8K	4K
Cl (frm. titrat)(ppm)	5000	4500
NO_3 (mg/l)	75	75
pH	7.2	7.2
OTHER TRACERS Ca^{++} ( )	160	120
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE		
RESISTIVITY (m)	0.33@21°C	
Cl (frm.resis.)(ppm)	22K	
Cl (frm.titrat)(ppm)	16.5K	
NO_3 Drld/1st.circ(mg/l)	120	
pH	9.7	
OTHER TRACERS ( )		
DENSITY (ppg)		

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 7 PRESSURE GAUGE TYPE : HP

		1.	2.
CHAMBER No.			
CHAMBER CAPACITY (GALL)		6	2¾
CHOKE SIZE (SQ.IN.)		0.03	0.03
SEAT No.		52	52
DEPTH (m) (from RKB)		1532	1532
A RECORDING TIMES		HH:MM:SS	HH:MM:SS
	TOOL SET	3:27:30	
	PRETEST OPEN	3:27:00	
	TIME OPEN	:03:00	
	CHAMBER OPEN	3:40:00	3:51:00
	CHAMBER FULL	3:47:00	3:54:00
	FILL TIME	:07:00	:03:00
	START BUILD UP	3:47:00	3:54:00
	FINISH BUILD UP	3:50:00	3:55:30
	BUILD UP TIME	:03:00	:01:30
	SEAL CHAMBER	3:50:00	3:55:30
	TOOL RETRACT		3:57:00
	TOTAL TIME		:30:00
B SAMPLE PRESSURES			
	IHP (psig)	2567.6	
	ISIP (psia)	2166.0	
	IFP (psia)	924.4	2133.12
	FFP (psia)	2164.4	2165.1
	FSIP (psia)	2165.2	2165.2
	FHP (psig)		2575.6
	TEMP. CORR. (°C)		
	COMMENTS		
C TEMPERATURE			
	DEPTH TOOL REACHED(m)	1532	1532
	MAX.REC.TEMP.(°C)	156.5	156.5
	TIME CIRC. STOPPED	5:15/26/9	
	TIME SINCE CIRC.	46:15 hrs	
D SAMPLE RECOVERY			
	SURFACE PRESSURE(psig)	1350	
	VOL. GAS (ft^3)	60.7cfg	
	VOL. OIL (ml)	20	
	VOL. WATER ( )		
	VOL. FILTRATE ( )		
	VOL. CONDENSATE ( )		
	VOL. OTHER ( )		
E SAMPLE PROPERTIES			
(a) GAS CHROMATOGRAPHY	c1 (ppm)	309657	
	c2 (ppm)	14500	
	c3 (ppm)	5376	
	c4 (ppm)	1686	
	c5 (ppm)	600	
	c6+ (ppm)	278	
	CO_2 (%)	0.5	
	H_2S (ppm)	80	
(b)OIL PROPERTIES			
DENSITY: ( )	HYDROMETER		
	REFRACTOMETER	34@60°F	
REFRACTIVE INDEX			
COLOUR		Gld Brn	
FLUORESCENCE		Brt Wh Bl	
G.O.R. ($cu.ft./ml$)		481565	

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY ( )		
Cl (frm. resis.)( )		
Cl (frm. titrat)( )		
NO_3 ( )		
pH		
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	
RESISTIVITY (m)	0.33 @ 21 °C
Cl (frm.resis.)(ppm)	22K
Cl (frm.titrat)(ppm)	16.5K
NO_3 Drld/1st.circ(mg/l)	120
pH	9.7
OTHER TRACERS ( )	
DENSITY, (ppg)	9.8

G GENERAL COMMENTS

PRESERVED SAMPLE.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 8 PRESSURE GAUGE TYPE : HP

CHAMBER No.		1.	2.
CHAMBER CAPACITY (GALL)		6	2¾
CHOKE SIZE			
SEAT No.		55	55
DEPTH (m) (from RKB)		1605	1605
A RECORDING TIMES		HH:MM:SS	HH:MM:SS
	TOOL SET	8:08:00	
	PRETEST OPEN	8:09:00	
	TIME OPEN		
	CHAMBER OPEN	8:11:00	8:20:00
	CHAMBER FULL	8:17:30	8:23:30
	FILL TIME	06:30	03:30
	START BUILD UP	8:17:30	8:23:30
	FINISH BUILD UP	8:19:00	8:25:00
	BUILD UP TIME	01:30	01:30
	SEAL CHAMBER	8:19:00	8:25:00
	TOOL RETRACT		8:26:00
	TOTAL TIME (hrs)		18:00
B SAMPLE PRESSURES			
	IHP (psig)	2696.9	
	ISIP (psia)	2269.3	
	IFP (psia)	853.9	2171.72
	FFP (psia)	2269.4	2269.3
	FSIP (psia)	2269.4	2269.3
	FHP ( )		
	TEMP. CORR. ( )		
	COMMENTS		
C TEMPERATURE			
	DEPTH TOOL REACHED(m)	1641	1641
	MAX.REC.TEMP.(°C)	159.2	159.2
	TIME CIRC. STOPPED	5:15 hrs	
	TIME SINCE CIRC.	51 hrs	
D SAMPLE RECOVERY			
	SURFACE PRESSURE( )		
	VOL. GAS ( )		
	VOL. OIL ( )		
	VOL. WATER (lit.)	22	9
	VOL. FILTRATE ( )		
	VOL. CONDENSATE ( )		
	VOL. OTHER ( )		
E SAMPLE PROPERTIES			
(a) GAS	c1 ( )		
	c2 ( )		
	c3 ( )		
	c4 ( )		
COMPONENTS	c5 ( )	NO GAS	NO GAS
	c6+ ( )		
	CO_2 ( )		
	H_2S ( )		
(b)OIL PROPERTIES			
DENSITY: ( )	HYDROMETER		
	REFRACTOMETER		
REFRACTIVE INDEX			
COLOUR			
FLUORESCENCE			
G.O.R. ( )			

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY ( )	0.95@20°C	1.65@17°C
Cl (frm. resis.)(ppm)	6500	4000
Cl (frm. titrat)(ppm)	5500	3000
NO_3 (ppm)	110	66
pH		
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE		
RESISTIVITY ( )	0.33@21°C	
Cl (frm.resis.)(ppm)	22K	
Cl (frm.titrat)(ppm)	16.5K	
NO_3 Drld/1st.circ( )		
pH		
OTHER TRACERS ( )		
DENSITY, ( )		
G GENERAL COMMENTS		

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 9 PRESSURE GAUGE TYPE : HP

	1.	2.
CHAMBER No.		
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)	0.03	0.02
SEAT No.	58	58
DEPTH (m) (from RKB)	1529.5	1529.5
A RECORDING TIMES	HH:MM	HH:MM
TOOL SET	11:47	
PRETEST OPEN	11:51	
TIME OPEN	:02	
CHAMBER OPEN	11:53	12:02
CHAMBER FULL	12:00	12:02
FILL TIME	:07	:1sec.
START BUILD UP	12:00	12:02
FINISH BUILD UP	12:02	12:02
BUILD UP TIME	:02	
SEAL CHAMBER	12:01	12:09
TOOL RETRACT		
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	2571.5	
ISIP (psia)	2166.0	
IFP (psia)	2158.6	2164.2
FFP (psia)	2165.5	2165.3
FSIP (psia)	2165.5	2165.3
FHP (psig)		2570.9
TEMP. CORR. (o)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	1601.9	1601.9
MAX.REC.TEMP.(°C)	156.5	156.5
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1500	
VOL. GAS (ft^3)	119	
VOL. OIL (ml)		
VOL. WATER (ml)	430	
VOL. FILTRATE ( )		
VOL. CONDENSATE (ml)	100	
VOL. OTHER ( )		

CHAMBER PRESERVED

E SAMPLE PROPERTIES			
(a) GAS	c1 (ppm)	331776	
	c2 (ppm)	36045	
	c3 (ppm)	22400	
	c4 (ppm)	5606	
	c5 (ppm)	680	
	c6+ (ppm)	120	
	CO_2 (%)	0.6	
	H_2S (ppm)	30	
(b)OIL PROPERTIES			
DENSITY: ( )	HYDROMETER		
	REFRACTOMETER		
REFRACTIVE INDEX			
COLOUR			
FLUORESCENCE			
G.O.R. ( )			

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	1.5@18°C	
Cl (frm. resis.)(ppm)	45K	
Cl (frm. titrat)(ppm)	5.5K	
NO_3 (mg/1)	88	
pH	7.5	
OTHER TRACERS (Ca^{++})	170	
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE	SW/RGH/LIGNO/POLY	
RESISTIVITY (m)	0.33@21°C	
Cl (frm.resis.)(ppm)	.22K	
Cl (frm.titrat)(ppm)	16.5K	
NO_3 Drld/1st.circ(mg/1)	120	
pH	97	
OTHER TRACERS ( )		
DENSITY (ppg)	9.8	

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 11 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	1
CHOKE SIZE (sq.in.)	0.03	0.02
SEAT No.	88	88
DEPTH (m) (from RKB)	2249	2249
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	23:21:10	
PRETEST OPEN	23:21:30	
TIME OPEN	:20	
CHAMBER OPEN	23:24:30	23:34:30
CHAMBER FULL	23:30:20	23:36:50
FILL TIME	05:50	02:20
START BUILD UP	23:30:20	23:36:50
FINISH BUILD UP	23:32:20	23:37:30
BUILD UP TIME	02:00	:40
SEAL CHAMBER	23:33:00	23:38:30
TOOL RETRACT		23:39:00
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	3816	
ISIP (psia)	3221	3219.9
IFP (psia)	3186	3207.8
FFP (psia)	3175	3207.4
FSIP (psia)	3219.9	3219.7
FHP (psig)		3813.5
TEMP. CORR. (o)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2252	
MAX.REC.TEMP.(^{o}C)	88.2	
TIME CIRC. STOPPED	9.00	
TIME SINCE CIRC.	14HRS20MINS	
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1600	
VOL. GAS (ft^3)	60.1	
VOL. OIL (ml)	18000	
VOL. WATER (ml)	TR	
VOL. FILTRATE ( )		
VOL. CONDENSATE ( )		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) G c1 (ppm)	849668	
A c2 (ppm)	51718	
S c3 (ppm)	13629	
c4 (ppm)	3864	
C c5 (ppm)	477	
O c6+ (ppm)		
M CO_2 (%)	8	
P H_2S (ppm)	0	
(b)OIL PROPERTIES		
DENSITY: HYDROMETER	39.7@27.5^{o}C	
( ) REFRACTOMETER	37.6@60^{o}F	
REFRACTIVE INDEX		
COLOUR LQN PHASE	DK BRN	
FLUORESCENCE	MILKY WH	
G.O.R. (ft^3/ml)	531	

BLU WH
CUT FLU

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	AROMATIC	
POUR POINT (^{o}C)	27.5	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY ( )		
Cl (frm. resis.)( )		
Cl (frm. titrat)( )		
NO_3 ( )		
pH		
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	SW/GEL/POLYMER
RESISTIVITY (m)	0.41@17.3^{o}C
Cl (frm.resis.)(ppm)	19.5K
Cl (frm.titrat)(ppm)	12.5K
NO_3 Drld/1st.circ(mg/l)	100 220
pH	10.9
OTHER TRACERS ( )	
DENSITY ( )	

G GENERAL COMMENTS

1 GALLON CHAMBER PRESERVED.
RUN NO. 10 WAS PRETESTS ONLY.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 12 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	1
CHOKE SIZE (sq.in.)	0.03 m	0.03
SEAT No.	89	89
DEPTH (m) (from RKB)	2205	2205
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	4:01:40	
PRETEST OPEN	4:02:00	
TIME OPEN		
CHAMBER OPEN	4:05:00	4:15:40
CHAMBER FULL	4:10:20	4:17:50
FILL TIME	05:20	02:10
START BUILD UP	4:10:20	4:17:50
FINISH BUILD UP	4:14:30	4:20:10
BUILD UP TIME	04:10	02:20
SEAL CHAMBER	4:14:40	4:20:40
TOOL RETRACT		4:21:00
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	3737	
ISIP (psia)	3153.4	3153
IFP (psia)	3044	3115
FFP (psia)	3041	3113
FSIP (psia)	3153	3152.9
FHP (psig)		3735
TEMP. CORR. (^{o})		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2224	2224
MAX.REC.TEMP.(^{o}C)	191.2^{o}F	
TIME CIRC. STOPPED	0900 hrs	
TIME SINCE CIRC.	19	
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1550	
VOL. GAS (ft^3)	51	
VOL. OIL (ml)	13100	
VOL. WATER ( )		
VOL. FILTRATE ( )		
VOL. CONDENSATE ( )		
VOL. OTHER-MUD (ml)	3000	
E SAMPLE PROPERTIES		
(a) GAS C c1 (ppm)	863364	
GAS C c2 (ppm)	66084	
GAS C c3 (ppm)	19080	
GAS C c4 (ppm)	4401	
GAS C c5 (ppm)	1074	
GAS C c6+ (ppm)	205	
GAS C CO_2 (%)	0	
GAS C H_2S (ppm)	0	
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER		
DENSITY: ( ) REFRACTOMETER	36.9@60^{o}F	
REFRACTIVE INDEX		
COLOUR LIQUID	DK BRN	
FLUORESCENCE	MILKY WH	
G.O.R. (ft^3/ml)	624	

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	AROMATIC	
POUR POINT (^{o}C)	27.5	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.37@26^{o}C	
Cl (frm. resis.)(ppm)	15.5K	
Cl (frm. titrat)(ppm)	9K	
NO_3 (mg/l)	120	
pH	7.8	
OTHER TRACERS (Ca^{++})	180	
DENSITY (ppg)	8.9	
FLUORESCENCE		
COLOUR		
COMMENTS	MUD AND FILTRATE	
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (m)	0.41@17.3^{o}C	
Cl (frm.resis.)(ppm)	19.5K	
Cl (frm.titrat)(ppm)	12.5K	
NO_3 Drld/1st.circ(mg/l)	100	220
pH	10.9	
OTHER TRACERS ( )		
DENSITY ( )		

G GENERAL COMMENTS

1 GALLON PRESERVED.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 13 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY	6	1
CHOKE SIZE (gall)	0.03	0.03
SEAT No. (sq.in.)	98	98
DEPTH (m) (from RKB)	2032	2032
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	8:38:40	
PRETEST OPEN	8:39:00	
TIME OPEN	05:00	
CHAMBER OPEN	8:44:20	9:01:25
CHAMBER FULL	8:51:20	9:03:50
FILL TIME	07:00	02:25
START BUILD UP	8:51:20	9:05:50
FINISH BUILD UP	9:00:45	9:05:50
BUILD UP TIME	09:25	
SEAL CHAMBER	9:00:50	9:06:00
TOOL RETRACT		
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	2450	
ISIP (psia)	2887.5	2286.1
IFP (psia)	2235	2800
FFP (psia)	1877	2455
FSIP (psia)	2286.1	2886.9
FHP (psig)		
TEMP. CORR. (°C)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)		
MAX.REC.TEMP.(°C)		
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1200	
VOL. GAS (ft^3)	27.2	
VOL. OIL (ml)	6500	
VOL. WATER (ml)		
VOL. FILTRATE (ml)	11000	
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) G c1 (ppm)	779200	
A c2 (ppm)	45870	
S c3 (ppm)	12210	
c4 (ppm)	2570	
C c5 (ppm)	390	
O c6+ (ppm)		
M CO_2 (%)	5	
P H_2S (ppm)	0	
(b)OIL PROPERTIES		
DENSITY: HYDROMETER	37@60°F	
( ) REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR LIQUID PHASE	DK BRN	
FLUORESCENCE	MILKY WH	
G.O.R. (ft^3/ml)	665	

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	AROMATIC	
POUR POINT (°C)	27.5	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.38@32.5°C	
Cl (frm. resis.)(ppm)	13K	
Cl (frm. titrat)(ppm)	9K	
NO_3 (mg/l)	120	
pH	7.7	
OTHER TRACERS (Ca^{++})	180	
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (m)	0.41@17.3°C	
Cl (frm.resis.)(ppm)	19.5K	
Cl (frm.titrat)(ppm)	12.5K	
NO_3 Drld/1st.circ(mg/l)	220	
pH		
OTHER TRACERS ( )		
DENSITY. ( )		

G GENERAL COMMENTS

1 GALLON CHAMBER PRESERVED.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 14 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	1
CHOKE SIZE (sq.in.)	0.03	0.03
SEAT No.	101	101
DEPTH (m) (from RKB)	2280	2280
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	14:30:00	
PRETEST OPEN	14:30:00	
TIME OPEN		
CHAMBER OPEN	14:33:00	14:52:00
CHAMBER FULL	14:39:00	14:54:00
FILL TIME	05:40	02:20
START BUILD UP	14:39:00	14:54:00
FINISH BUILD UP	14:50:00	15:06:00
BUILD UP TIME	11:00	
SEAL CHAMBER	14:51:00	15:06:00
TOOL RETRACT		15:07:00
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	3850	
ISIP (psia)	3254.4	3238
IFP (psia)	2764	3131
FFP (psia)	2684	3117
FSIP (psia)	3237	3239
FHP (psig)		3848
TEMP. CORR. (°C)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2284	2284
MAX.REC.TEMP.(°C)	211.5	
TIME CIRC. STOPPED	900	
TIME SINCE CIRC.	30 HRS	
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	375	375
VOL. GAS (ft^3)	2.9	0.3
VOL. OIL (ml)		
VOL. WATER (ml)		
VOL. FILTRATE (ml)	20500	3250
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	246675	280936
GAS C2 (ppm)	43673	13648
GAS C3 (ppm)	15264	3066
GAS C4 (ppm)	3434	537
GAS C5 (ppm)	700	159
GAS C6+ (ppm)	48	102
GAS CO_2 (%)	12	
GAS H_2S (ppm)	0	
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER		
DENSITY: ( ) REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR		
FLUORESCENCE		
G.O.R. (ft^3/ml)		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°C)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.36@18°C	0.38@18°C
Cl (frm. resis.)(ppm)	20K	18K
Cl (frm. titrat)(ppm)	10200	9200
NO_3 (mg/l)	40	40
pH	6.6	6.6
OTHER TRACERS (Ca^{++})	120	140
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (m)	0.41@17.3°C	
Cl (frm.resis.)(ppm)	19.5K	
Cl (frm.titrat)(ppm)	12.5K	
NO_3 Drld/1st.circ(mg/l)	100	200
pH	10.5	
OTHER TRACERS ( )		
DENSITY ( )		

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 15 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)	0.03	0.03
SEAT No.	103	103
DEPTH (m) (from RKB)	2046	2046
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET		
PRETEST OPEN		
TIME OPEN		
CHAMBER OPEN	19:39:00	19:57:00
CHAMBER FULL	19:46:00	20:00:00
FILL TIME	06:36	03:00
START BUILD UP	19:46:00	20:00:00
FINISH BUILD UP	19:55:00	20:08:00
BUILD UP TIME	09:00	08:00
SEAL CHAMBER	19:56:00	20:09:00
TOOL RETRACT		20:14:00
TOTAL TIME	17:00	18:00
B SAMPLE PRESSURES		
IHP (psig)	3467	3467
ISIP (psia)	2906.8	
IFP (psia)	2500	2030
FFP (psia)	2800	1934
FSIP (psia)	2901	2901
FHP (psig)	3466	3466
TEMP. CORR. (°C)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2065	2065
MAX.REC.TEMP.(°C)	91.6	91.6
TIME CIRC. STOPPED		
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	500	700
VOL. GAS (ft^3)	5.4	8.6
VOL. OIL (ml)	2750	4750
VOL. WATER (ml)	17250	2750
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	382771	328090
GAS C2 (ppm)	20644	27525
GAS C3 (ppm)	6543	13087
GAS C4 (ppm)	2744	4460
GAS C5 (ppm)	270	716
GAS C6+ (ppm)	27	627
GAS CO_2 (%)	4	3
GAS H_2S (ppm)	0	0
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER	37.1	38.6
DENSITY: ( ) REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR	yel/bn/blk	yel/bn/blk
FLUORESCENCE	milky wh	
G.O.R. (ft^3/ml)	312	288

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	DIESEL	DIESEL
POUR POINT (°C)	25	24
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.36@29°C	0.34@29°C
C1 (frm. resis.)(ppm)	16K	17K
C1 (frm. titrat)(ppm)	9.1K	11K
NO_3 (mg/l)	90	55
pH	7.7	7.7
OTHER TRACERS (Ca^{++})	160	220
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (m)	0.4@17.3°C	
C1 (frm.resis.)(ppm)	19.5K	
C1 (frm.titrat)(ppm)	15.5K	
NO_3 Drld/1st.circ(mg/l)	190	220
pH	10.5	
OTHER TRACERS ( )		
DENSITY, ( )		
G GENERAL COMMENTS		

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 17 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)	0.03	0.03
SEAT No.		
DEPTH (m) (from RKB)	2195.3	2195.3
A RECORDING TIMES	HH:MM	HH:MM
TOOL SET	14:25	
PRETEST OPEN	14:26	
TIME OPEN	:05	
CHAMBER OPEN	14:31	15:00
CHAMBER FULL	14:41	15:04
FILL TIME	:10	:04
START BUILD UP	---	---
FINISH BUILD UP	DID NOT	FINISH
BUILD UP TIME		
SEAL CHAMBER	14:58	15:11
TOOL RETRACT		15:17
TOTAL TIME	:33	:16
B SAMPLE PRESSURES		
IHP (psig)	3711	3711
ISIP (psia)	3152.6	3147.6
IFP (psia)	76	1100
FFP (psia)	2092	2130
FSIP (psia)	3147.6	3151.1
FHP (psig)	3701	3701
TEMP. CORR. ( )		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2264	2264
MAX.REC.TEMP.(°C)	171.6	171.6
TIME CIRC. STOPPED	7:30	7:30
TIME SINCE CIRC.	5 HRS	5 HRS
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	1380	1400
VOL. GAS (ft^3)	89	44.1
VOL. OIL (ml)	100	55
VOL. WATER (ml)		
VOL. FILTRATE (ml)	2000	120
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS CHROMATOGRAPHY c1 (ppm)	382771	793883
c2 (ppm)	30966	57344
c3 (ppm)	11996	19630
c4 (ppm)	4460	6174
c5 (ppm)	1751	1910
c6+ (ppm)	655	750
CO_2 (%)	5	6
H_2S (ppm)	0	0
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER	47	47
REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR	DK BN	DK BN
FLUORESCENCE	MILKY	WHITE
G.O.R. (ft^3/ml)	141510	127489

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.42@61°F	0.42@61°F
Cl (frm. resis.)(ppm)	17K	16K
Cl (frm. titrat)(ppm)	10.5K	9K
NO_3 (mg/l)	110	60
pH	7.7	7.7
OTHER TRACERS (Ca^{++})	80	140
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES		
TYPE	SW/GEL/POLYMER	
RESISTIVITY (m)	0.41@17.3°C	
Cl (frm.resis.)(ppm)	79.5K	
Cl (frm.titrat)(ppm)	15K	
NO_3 Drld/1st.circ(mg/l)	170	220
pH	10.5	
OTHER TRACERS ( )		
DENSITY ( )		

G GENERAL COMMENTS

RFT NO. 16 WAS A MISRUN.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 18 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1. .	2.
CHAMBER CAPACITY (gall)	6	1
CHOKE SIZE (sq.in.)	0.03	0.02
SEAT No.	112	112
DEPTH (m) (from RKB)	2633	2633
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	14:06:05	
PRETEST OPEN	14:06:40	
TIME OPEN	:05:50	
CHAMBER OPEN	14:10:30	14:28:30
CHAMBER FULL	14:19:00	14:31:00
FILL TIME	:08:30	02:30
START BUILD UP	14:19:00	14:31:00
FINISH BUILD UP		
BUILD UP TIME		
SEAL CHAMBER	14:27:30	14:37:10
TOOL RETRACT		
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	4383.2	
ISIP (psia)	3790.1	3738
IFP (psia)	176-1120	1490-2690
FFP (psia)	1160	2600
FSIP (psia)	3739.40	3744.3
FHP (psig)		4379.9
TEMP. CORR. (^{o})		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)		
MAX.REC.TEMP.(^{o}C)	2153^{o}F	101.8^{o}C
TIME CIRC. STOPPED	0700	
TIME SINCE CIRC.	17	
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	480	310
VOL. GAS (ft^3)	2.9	0.5
VOL. OIL (ml)	SCUM	
VOL. WATER (ml)		
VOL. FILTRATE (ml)	19600	3400
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	66125	325380
GAS C2 (ppm)	5425	49290
GAS C3 (ppm)	2579	26780
GAS C4 (ppm)	595	8480
GAS C5 (ppm)	173	2490
GAS C6+ (ppm)	74	620
GAS CO_2 (%)	3	5
GAS H_2S (ppm)	TR	TR
(b)OIL PROPERTIES		
DENSITY: HYDROMETER ( )		
REFRACTOMETER	32@60^{o}F	
REFRACTIVE INDEX		
COLOUR	STRAW YELL	
FLUORESCENCE	YELL GOLD	
G.O.R. (ft^3/ml)		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (^{o}C)	28	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.25@27.5^{o}C	0.3@20.5^{o}C
C1 (frm. resis.)(ppm)	24000	24000
C1 (frm. titrat)(ppm)	14000	16000
NO_3 (mg/1)	10	20
pH	6.4	6.4
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	SW/GEL/POLYMER
RESISTIVITY (m)	0.238@22.7
C1 (frm.resis.)(ppm)	26000
C1 (frm.titrat)(ppm)	20000
NO_3 Drld/1st.circ(mg/1)	220
pH	10.5
OTHER TRACERS ( )	32.5
DENSITY (ppg)	9.7

G GENERAL COMMENTS

WATER CUT: 0.193

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 21 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)		
SEAT No.	163	163
DEPTH (m) (from RKB)	2604.5	2604.5
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	2:24:00	
PRETEST OPEN	2:24:30	
TIME OPEN	03:00	
CHAMBER OPEN	2:27:30	2:41:20
CHAMBER FULL	2:32:10	2:44:10
FILL TIME	04:40	02:50
START BUILD UP	2:32:10	2:44:10
FINISH BUILD UP	2:38:50	
BUILD UP TIME	06:40	
SEAL CHAMBER		2:48:30
TOOL RETRACT		2:50:00
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	4358	
ISIP (psia)	3723.1	3721
IFP (psia)	2930	3130
FFP (psia)	2820	3040
FSIP (psia)	3721	3719.2
FHP (psig)		
TEMP. CORR. (o)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2604.5	
MAX.REC.TEMP.(^{o}C)	205.3	
TIME CIRC. STOPPED	0900	
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	200	320
VOL. GAS (ft^3)	0.5	0.5
VOL. OIL (ml)		
VOL. WATER (ml)	20.5	9
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	157624	180142
GAS C2 (ppm)	12235	17797
GAS C3 (ppm)	3920	4126
GAS C4 (ppm)	872	810
GAS C5 (ppm)	170	96
GAS C6+ (ppm)	19	19
GAS CO_2 (%)		
GAS H_2S (ppm)		
(b)OIL PROPERTIES		
DENSITY: HYDROMETER ( )		
DENSITY: REFRACTOMETER ( )		
REFRACTIVE INDEX		
COLOUR	DIRTY MUDDY BROWN	
FLUORESCENCE	BRT YELL	BRT YELL
G.O.R. (ft^3/ml)		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (^{o})		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.24@27^{o}C	0.26@20^{o}C
C1 (frm. resis.)(ppm)	25K	25K
C1 (frm. titrat)(ppm)	16K	16K
NO_3 (mg/l)	180	50
pH	7.9	6.6
OTHER TRACERS ( )	TR SAND	
DENSITY (ppg)	8.8	8.8
FLUORESCENCE		
COLOUR	LT BRN	STRAW BRN
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	SEAWATER GEL
RESISTIVITY (m)	0.41@17.3^{o}C
C1 (frm.resis.)(ppm)	19500
C1 (frm.titrat)(ppm)	12500
NO_3 Drld/1st.circ( )	
pH	
OTHER TRACERS ( )	
DENSITY, ( )	

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 22 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)	0.03	
SEAT No.	164	167
DEPTH (m) (from RKB)	2461.5	2461
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	5:40:00	6:05:20
PRETEST OPEN	5:40:30	6:06:00
TIME OPEN		
CHAMBER OPEN	5:45:20	6:10:00
CHAMBER FULL	5:57:00	
FILL TIME	11:40	
START BUILD UP		
FINISH BUILD UP		
BUILD UP TIME		
SEAL CHAMBER	5:58:45	6:11:30
TOOL RETRACT		
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	4124	4129
ISIP (psia)	3514.6	3311.2
IFP (psia)	130	2160
FFP (psia)	113	
FSIP (psia)	17	SF
FHP (psig)	3931	
TEMP. CORR. (°C)	4128	4127
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2461.5	
MAX.REC.TEMP.(°C)	202.7	
TIME CIRC. STOPPED	0.9	
TIME SINCE CIRC.	21 HRS	
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	220	100
VOL. GAS (ft^3)	0.17	
VOL. OIL (ml)	TR	TR
VOL. WATER (ml)		
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER- MUD ( )	20.25	5.0
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	216170	
GAS C2 (ppm)	24915	
GAS C3 (ppm)	6190	
GAS C4 (ppm)	1120	
GAS C5 (ppm)	170	NO GAS
GAS C6+ (ppm)	19	NO GAS
GAS CO_2 (%)		
GAS H_2S ( )		
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER		
DENSITY: ( ) REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR		
FLUORESCENCE		
G.O.R. (FT^3/ml)		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR	BRT YELL	BRT YELL
POUR POINT (°C)	FLOWN	FLOWN
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.26@26°C	0.25 @27°C
C1 (frm. resis.)(ppm)	22K	22K
C1 (frm. titrat)(ppm)		17K
NO_3 (mg/l)		220
pH		8.7
OTHER TRACERS ( )		
DENSITY (ppg)	9.7	9.5
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	
RESISTIVITY (m)	
C1 (frm.resis.)(ppm)	
C1 (frm.titrat)(ppm)	
NO_3 Drld/1st.circ(mg/l)	
pH	
OTHER TRACERS ( )	
DENSITY. ( )	

G GENERAL COMMENTS

APPARENT SEAL FAILURE ON 6 GAL CHAMBER, HIGH OVERPULL.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 23 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (lt)	22.7	9.75
CHOKE SIZE (sq.in.)	0.03	
SEAT No.	169	169
DEPTH (m) (from RKB)	2633	2633
A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	10:37:40	
PRETEST OPEN	10:38:00	
TIME OPEN		
CHAMBER OPEN	10:41:00	11:00:30
CHAMBER FULL	10:47:25	11:03:40
FILL TIME	06:25	03:10
START BUILD UP	10:47:25	11:03:40
FINISH BUILD UP	10:57:10	11:09:50
BUILD UP TIME	09:45	05:50
SEAL CHAMBER	10:57:10	11:09:30
TOOL RETRACT		11:11:05
TOTAL TIME		
B SAMPLE PRESSURES		
IHP (psig)	4408	
ISIP (psia)	37845	3744
IFP (psia)	1810	2170
FFP (psia)	1730	2080
FSIP (psia)	80	90
FHP (psig)	3736	4410
TEMP. CORR. (°C)		
COMMENTS		
C TEMPERATURE		
DEPTH TOOL REACHED(m)	2637	
MAX.REC.TEMP.(°C)	214	
TIME CIRC. STOPPED	12:17:10	
TIME SINCE CIRC.		
D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	410	400
VOL. GAS (ft^3)	2.5	1.1
VOL. OIL (ml)	SCUM	SCUM
VOL. WATER (ml)	20.1	9.1
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER ( )		
E SAMPLE PROPERTIES		
(a) GAS C1 (ppm)	122440	247695
GAS C2 (ppm)	9316	16407
GAS C3 (ppm)	3804	6512
GAS C4 (ppm)	1071	2260
GAS C5 (ppm)	313	767
GAS C6+ (ppm)	97	290
GAS CO_2 (%)	5	10
GAS H_2S (ppm)	TR	NONE
(b)OIL PROPERTIES		
DENSITY: ( ) HYDROMETER		
DENSITY: ( ) REFRACTOMETER		
REFRACTIVE INDEX		
COLOUR	DK RDISH BRN	DRK RDISH BRN
FLUORESCENCE	YELL	YELL
G.O.R. (ft^3/ml)		

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°C)	28	
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.30@24°C	0.34@22°C
Cl (frm. resis.)(ppm)	20K	19.5K
Cl (frm. titrat)(ppm)	13000	12000
NO_3 (mg/l)	50	90
pH	6.2	6.1
OTHER TRACERS ( )		
DENSITY ( )		
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE		
RESISTIVITY (m)	0.41@17.3°C	
Cl (frm.resis.)(ppm)	19500	
Cl (frm.titrat)(ppm)	12500	
NO_3 Drld/1st.circ(mg/l)	220	
pH		
OTHER TRACERS ( )		
DENSITY ( )		

G GENERAL COMMENTS

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA WELL : WIRRAH NO. 1

RUN No. : 24 PRESSURE GAUGE TYPE : HP

CHAMBER No.	1.	2.
CHAMBER CAPACITY (gall)	6	2¾
CHOKE SIZE (sq.in.)	0.03	0.03
SEAT No.	170	
DEPTH (m) (from RKB)	2461.5	

A RECORDING TIMES	HH:MM:SS	HH:MM:SS
TOOL SET	13:56:40	
PRETEST OPEN	13:57:25	
TIME OPEN	:45	
CHAMBER OPEN	14:00:20	
CHAMBER FULL	14:15:00	
FILL TIME	14:40:00	
START BUILD UP	14:15:00	
FINISH BUILD UP		
BUILD UP TIME		
SEAL CHAMBER		
TOOL RETRACT		
TOTAL TIME		

B SAMPLE PRESSURES		
IHP (psig)	4121	
ISIP (psia)	3513.4	
IFP (psia)	145-500	
FFP (psia)	3000	
FSIP (psia)	3509	
FHP (psig)	3059.9	
TEMP. CORR. (o)		
COMMENTS		

C TEMPERATURE		
DEPTH TOOL REACHED(m)	2164	
MAX.REC.TEMP.(°F)	210	
TIME CIRC. STOPPED	1200	
TIME SINCE CIRC.		

D SAMPLE RECOVERY		
SURFACE PRESSURE(psig)	480	220
VOL. GAS (ft^3)	1.4	0.3
VOL. OIL (ml)	LT SCUM	TR
VOL. WATER (ml)	1960	
VOL. FILTRATE (ml)		
VOL. CONDENSATE (ml)		
VOL. OTHER - MUD ( )		923

E SAMPLE PROPERTIES				
(a) GAS CHROMATOGRAPHY	c1	(ppm)	60798	382802
	c2	(ppm)	4672	30033
	c3	(ppm)	1960	13928
	c4	(ppm)	592	4987
	c5	(ppm)	188	1478
	c6+	(ppm)	86	338
	CO_2	(%)	4	3
	H_2S	(ppm)	NONE	NONE

(b)OIL PROPERTIES			
DENSITY: ( )	HYDROMETER		
	REFRACTOMETER		
REFRACTIVE INDEX			
COLOUR		BROWN	
FLUORESCENCE		BL/WH	
G.O.R. (ft^3/ml)			

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.24@22°C	0.25@22°C
Cl (frm. resis.)(ppm)	26500	26000
Cl (frm. titrat)(ppm)	16000	15000
NO_3 (mg/l)	130	200
pH	6.6	8.3
OTHER TRACERS ( )		
DENSITY (ppg)		9.1
FLUORESCENCE		
COLOUR		
COMMENTS		
(d)OTHER SAMPLE PROPERTIES		

F MUD PROPERTIES	
TYPE	
RESISTIVITY (m)	0.41@17.3 °C
Cl (frm.resis.)(ppm)	19500
Cl (frm.titrat)(ppm)	12500
NO_3 Drld/1st.circ(mg/l)	200
pH	
OTHER TRACERS ( )	
DENSITY ( )	

G GENERAL COMMENTS

SEAL FAILURE ON 2¾" CHAMBER
@ SEAT 170 + 173; 2461.5 + 2461.

CORE LABORATORIES R.F.T. DATA SHEET - SAMPLING DATA

COMPANY : ESSO AUSTRALIA LTD WELL : WIRRAH NO. 1

RUN No. : 25 PRESSURE GAUGE TYPE : HP

		1.	2.
CHAMBER No.			
CHAMBER CAPACITY (gal)		6	1
CHOKE SIZE (ins)		.030	.020
SEAT No.		184	184
DEPTH (m) (from RKB)		2973.8	2973.8
A RECORDING TIMES		HH:MM	HH:MM
	TOOL SET		
	PRETEST OPEN		
	TIME OPEN		
	CHAMBER OPEN	01:50	91:44
	CHAMBER FULL	NOT FILLED	
	FILL TIME		
	START BUILD UP		
	FINISH BUILD UP		
	BUILD UP TIME		
	SEAL CHAMBER	01:44	02:04
	TOOL RETRACT	~~NOT FULL~~ 02:10	
	TOTAL TIME	:39	:20
B SAMPLE PRESSURES			
	IHP ( )	5604	
	ISIP ( )	5360	
	IFP ( )	51	160
	FFP ( )	160	195
	FSIP ( )		
	FHP ( )		5651
	TEMP. CORR. ( )		
	COMMENTS		
C TEMPERATURE			
	DEPTH TOOL REACHED( )		
	MAX.REC.TEMP.(°C)	109	
	TIME CIRC. STOPPED	13:45/19/11	
	TIME SINCE CIRC.		
D SAMPLE RECOVERY			
	SURFACE PRESSURE( )	0	
	VOL. GAS ( )		
	VOL. OIL ( )		
	VOL. WATER (L)	2	0.9
	VOL. FILTRATE ( )		
	VOL. CONDENSATE ( )		
	VOL. OTHER ( )		
E SAMPLE PROPERTIES			
(a) GAS COMPOSITION	c1 ( )		
	c2 ( )		
	c3 ( )		
	c4 ( )		
	c5 ( )		
	c6+ ( )		
	CO_2 ( )		
	H_2S ( )		
(b)OIL PROPERTIES			
DENSITY: ( )	HYDROMETER		
	REFRACTOMETER		
REFRACTIVE INDEX			
COLOUR			
FLUORESCENCE			
G.O.R. ( )			

	CHAMB. 1	CHAMB. 2
OIL PROPERTIES CONT.		
ODOUR		
POUR POINT (°)		
COMMENTS		
(c)WATER PROPERTIES		
RESISTIVITY (m)	0.37@69°F	0.41@68°F
Cl (frm. resis.)(ppm)	18,000	17,000
Cl (frm. titrat)( )	14,000	12,000
NO_3 ( )	150	120
pH		
OTHER TRACERS ( )		
DENSITY (ppg)	8.7	8.2
FLUORESCENCE	DULL	DULL
COLOUR		
COMMENTS	FILTRATE	FILTRATE
(d)OTHER SAMPLE PROPERTIES		
F MUD PROPERTIES		
TYPE		
RESISTIVITY ( )		
Cl (frm.resis.)( )		
Cl (frm.titrat)( )	12,000	
NO_3 Drld/1st.circ( )	220	
pH	10.6	
OTHER TRACERS ( )		
DENSITY, (ppg)	11.2	

G GENERAL COMMENTS

STRAIN GAUGE SUSPECT

PORE PRESSURE 10.61 ppg

CORE LAB

PORE PRESSURE DATA SHEET

DATA FROM: RFT'S

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 1

DEPTH (FROM RKB) IN METERS	DEPTH (FROM MSL) TOTAL VERTICAL DEPTH IN METERS	PORE PRESSURE (PSIA)	PORE PRESSURE GRADIENT EMW (MSL) (PPG)	PORE PRESSURE GRADIENT (PSI/M)
1757	1736	2481.1	8.38	1.429
1740	1719	2457.2	8.38	1.429
1717	1696	2425.1	8.38	1.430
1710	1689	2415.6	8.38	1.430
1689.5	1668.5	2390.5	8.40	1.433
1683	1662	2379.4	8.39	1.432
1678	1657	2372.5	8.39	1.432
1671	1650	2363.6	8.40	1.432
1649.5	1628.5	2333.9	8.40	1.433
1635	1614	2317.3	8.41	1.436
1624.5	1603.5	2297.0	8.40	1.432
1619	1598	2289.6	8.40	1.433
1610	1589	2277.3	8.40	1.433
1605	1584	2270.1	8.40	1.433
1598	1577	2260.9	8.40	1.434
1595	1574	2264.2	8.43	1.438
1583.5	1562.5	2247.4	8.43	1.438
1575	1554	2232.0	8.42	1.436
1565	1544	2212.5	8.40	1.433
1550	1529	2191.5	8.40	1.433

CORE LAB

PORE PRESSURE DATA SHEET

DATA FROM: RFT'S

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 1

DEPTH (FROM RKB) IN METERS	DEPTH (FROM MSL) TOTAL VERTICAL DEPTH IN METERS	PORE PRESSURE (PSIA)	PORE PRESSURE GRADIENT EMW (MSL) (PPG)	PORE PRESSURE GRADIENT (PSI/M)
1535	1514	2170.6	8.40	1.434
1530	1509	2165.2	8.41	1.435
1509	1488	2162.5	8.53*	1.455
1491	1470	2158.5	8.61*	1.468
1574	1553	2232.2	8.42	1.437
1594	1573	2255.5	8.40	1.434
1574	1553	2230.8	8.42	1.436
1595	1574	2256.3	8.40	1.433
1592	1571	2255.0	8.41	1.435
1549.5	1528.5	2282.2	8.75*	1.493
1575	1554	2231.1	8.42	1.436
1595	1574	2256.3	8.40	1.433
1575	1554	2230.7	8.41	1.435
1575	1554	2230.6	8.41	1.435
1613	1592	2281.0	8.40	1.433
1613	1592	2280.9	8.40	1.433
1584	1563	2262.4	8.48*	1.447
1583.5	1562.5	2239.8	8.40	1.433
1678	1647	2372.2	8.40	1.432
1678	1657	2372.3	8.40	1.432

* INDICATES PROBABLE SUPERCHARGED FORMATIONS.

CORE LAB

PORE PRESSURE DATA SHEET

DATA FROM: RFT'S

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 1

DEPTH (FROM RKB) IN METERS	DEPTH (FROM MSL) TOTAL VERTICAL DEPTH IN METERS	PORE PRESSURE (PSIA)	PORE PRESSURE GRADIENT EMW (MSL) (PPG)	PORE PRESSURE GRADIENT (PSI/M)
1532	1511	2165.2	8.40	1.433
1605	1584	2269.4	8.40	1.433
1605	1584	2269.3	8.40	1.433
1529.5	1508.5	2165.5	8.41	1.435
1529.5	1508.5	2165.3	8.41	1.435
2302	2281	3280.4	8.43	1.438
2280	2259	3252.4	8.44	1.440
2285	2264	3356.4	8.69*	1.482
2258.5	2237.5	3356.0	8.79*	1.500
2249	2228	3226	8.49	1.448
2244	2223	3215.5	8.48	1.446
2237	2216	3220.4	8.52	1.453
2239	2218	3214.5	8.49	1.449
2236	2215	3214.7	8.51	1.451
2205	2184	3151.9	8.46	1.443
2196	2175	3150.6	8.49	1.449
2167	2146	3082.8	8.42	1.436
2155	2134	3062.3	8.41	1.435
2113	2092	3007.7	8.43	1.438
2086	2065	2961.1	8.40	1.434

* INDICATES PROBABLE SUPERCHARGED FORMATIONS.

CORE LAB

PORE PRESSURE DATA SHEET

DATA FROM: RFT'S

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 1

DEPTH (FROM RKB) IN METERS	DEPTH (FROM MSL) TOTAL VERTICAL DEPTH IN METERS	PORE PRESSURE (PSIA)	PORE PRESSURE GRADIENT EMW (MSL) (PPG)	PORE PRESSURE GRADIENT (PSI/M)
2053.5	2032.5	2914.6	8.40	1.434
2046.2	2025.2	2905.7	8.41	1.435
2034.5	2013.5	2889.4	8.41	1.435
2027.5	2006.5	2878.8	8.41	1.435
2004	1983	2847.3	8.42	1.436
1926	1905	2728.5	8.39	1.432
2249	2228	3221.0	8.47	1.446
2249	2228	3219.9	8.47	1.445
2249	2228	3219.7	8.47	1.445
2205	2184	3153.0	8.46	1.444
2205	2184	3152.9	8.46	1.444
2032	2011	2886.1	8.41	1.435
2032	2011	2886.9	8.42	1.437
2280	2259	3237	8.40	1.433
2280	2259	3239	8.40	1.434
2046	2025	2906.8	8.40	1.433
2633	2612	3737.0	8.38	1.431
2633	2612	3744.3	8.40	1.433
2195.5	2174.3	3152.6	8.50	1.450
2548	2527	3626.0	8.41	1.435

CORE LAB

PORE PRESSURE DATA SHEET

DATA FROM: RFT'S

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 1

DEPTH (FROM RKB) IN METERS	DEPTH (FROM MSL) TOTAL VERTICAL DEPTH IN METERS	PORE PRESSURE (PSIA)	PORE PRESSURE GRADIENT EMW (MSL) (PPG)	PORE PRESSURE GRADIENT (PSI/M)
2633	2612	3790.1	8.51	1.451
2693	2672	3902.6	8.56	1.461
2604.5	2583.5	3721.2	8.44	1.440
2557	2536	3637.6	8.41	1.434
2624.5	2603.5	3767.6	8.48	1.447
2478	2457	3556.0	8.46	1.444
2446	2425	3494.6	8.45	1.441
2402.5	2381.5	3425.4	8.43	1.438
2314	2293	3298.9	8.43	1.439
2301	2280	3281.5	8.44	1.439
2604.5	2583.5	3723.1	8.45	1.441
2461.5	2440.5	3514.6	8.44	1.440
2633	2612	3784.5	8.49	1.449
2461.5	2440.5	3513.4	8.44	1.440
2633	2612	3784.5	8.49	1.449
2461.5	2440.5	3513.4	8.44	1.440
2973.8	2952.8	5344	10.61	1.810

13, B.H.T. ESTIMATION

CORE LAB
========

STRAIGHT LINE LEAST SQUARES BEST FIT TO FIND B.H.T. AT 2804 metres

1/TIME ON A LINEAR SCALE AGAINST
TEMPERATURE ON A LINEAR SCALE

ENTERED DATA:

DATA SET #	1/TIME	TEMPERATURE
1	0.108	97.7
2	0.069	102.2
3	0.054	104.4
4	0.043	107.7

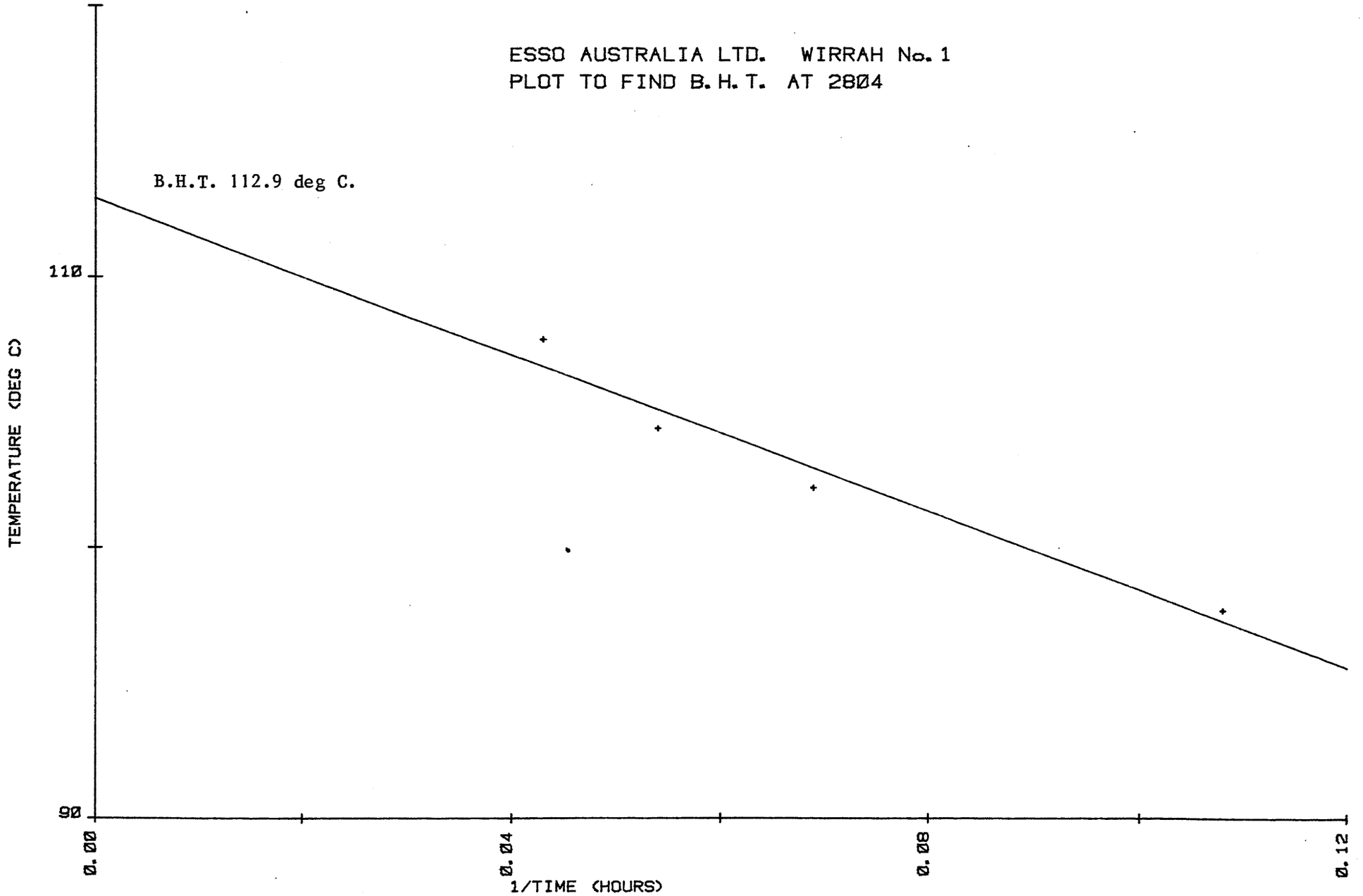
COEFFICIENT & CONSTANT:

Y = m.X + c where m = -1.4452705E 02 and c = 1.1290010E 02

INTERPOLATED DATA:

1/TIME	TEMPERATURE
0.000	112.9

ESSO AUSTRALIA LTD. WIRRAH No. 1
PLOT TO FIND B.H.T. AT 2804



CORE LAB
========

STRAIGHT LINE LEAST SQUARES BEST FIT TO FIND B.H.T. AT 3026 metres.

1/TIME ON A LINEAR SCALE AGAINST
TEMPERATURE ON A LINEAR SCALE

ENTERED DATA:

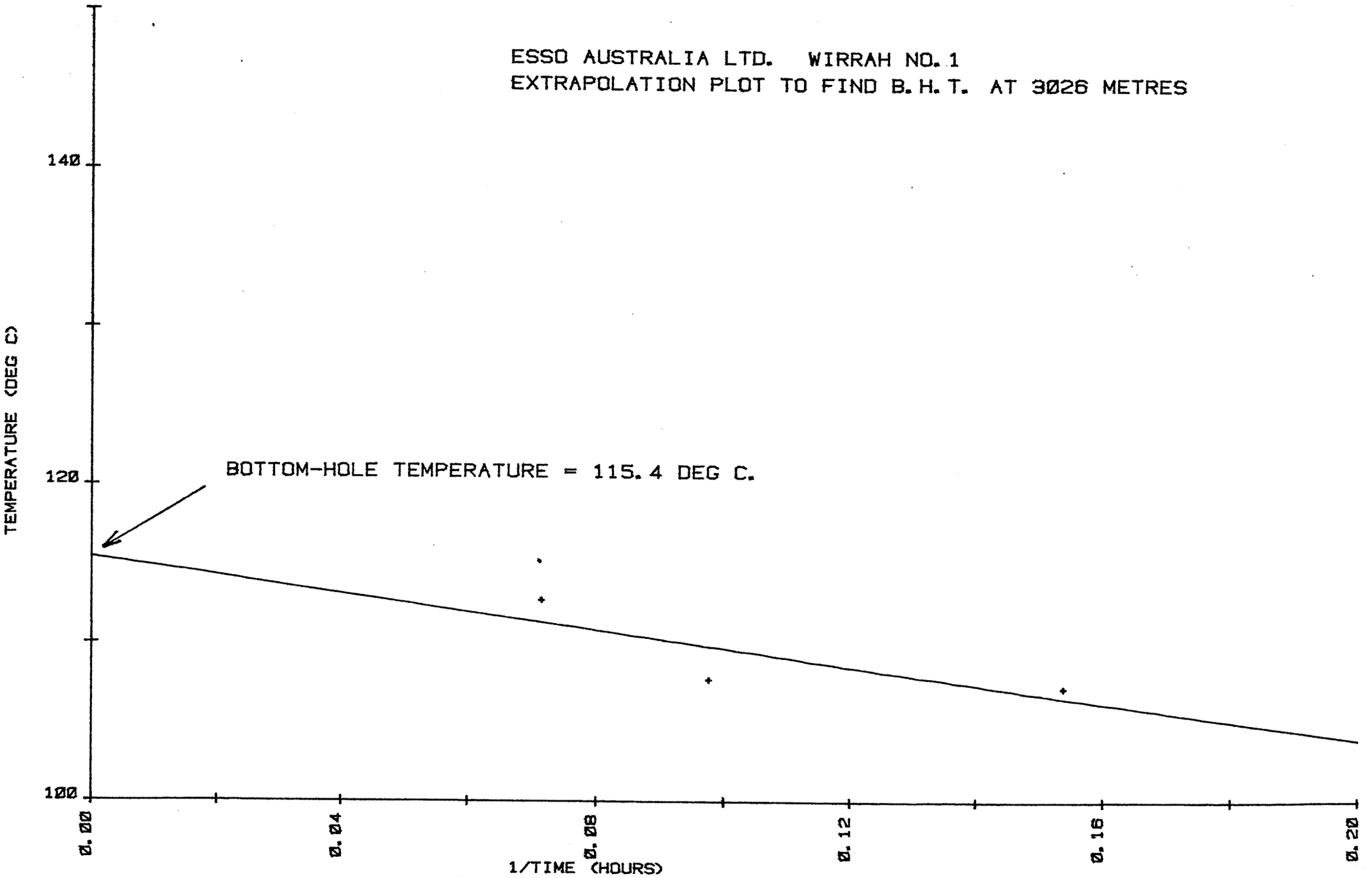
DATA SET #	1/TIME	TEMPERATURE
1	0.1538	107.2
2	0.0976	107.7
3	0.0714	112.7

COEFFICIENT & CONSTANT:

Y = m.X + c where m = -5.7575997E 01 and c = 1.1539518E 02

INTERPOLATED DATA:

1/TIME	TEMPERATURE
0.0000	115.4


ESSO AUSTRALIA LTD. WIRRAH NO. 1
EXTRAPOLATION PLOT TO FIND B. H. T. AT 3026 METRES
TEMPERATURE (DEG C)
140
120
100
BOTTOM-HOLE TEMPERATURE = 115.4 DEG C.
0.00
0.04
0.08
0.12
0.16
0.20
1/TIME (HOURS)

14. PORE PRESSURE SUMMARY AND P.I.T./L.O.T. DATA

PORE PRESSURE SUMMARY

WIRRAH NO. 1 was drilled in the Gippsland Basin. The area has previously been found to be normally pressured and this premise was substantiated by continuous on-line monitoring of various pressure detection parameters by Core Laboratories Field Laboratory 802. The primary detection parameters are plotted on the "Drill Data Plot" (see plots at end of report). The d'c exponent is primarily a tool associated with shales and due to the absence of these in this well any pressure interpretation based on this data is rudimentary in this case.

The corrected drilling exponent (d'c) on the drill data plot has a scattered trend down to 400m. This is due to the unconsolidated nature of the limestone formation. From 400m to 830m a steadily increasing trend is seen, with still quite a wide degree of scattering, the lower values relating to the more unconsolidated formation and sandstone.

At 830m, a lateral shift is noted which corresponds to the change in hole size to 12¼" from 17½" following the setting of the 13-3/8" casing. The original T.D. for this casing was 799m, however due to the formation being sandstone which would have been a poor casing seat, so a revised T.D. of 845m was approved. Having run and set the 13.5 ppg EMW was conducted with no leak off. A leak off test was considered unnecessary in this well as abnormal pressures were not expected to arise.

From 830m to 1000m a fairly scattered increasing trend is noted; the formation here is a calcilutite, which being a fine grained detrital limestone gives the trend expected of slowly increasing formation hardness associated with rock compaction. Due to aerated mud problems the mud weight dropped off considerably at 890m to 8.1 ppg. No increase in mud gas was seen associated with this drop and consequently the formation at this depth must be normally pressured.

At 1000m a decreasing d'c trend is noted but this is thought to correspond to the gradational formation change from a calcilutite to a calcarenite. Calcarenite is a medium to coarse grained detrital limestone and as would be expected the coarser formation drilled more rapidly. This trend continued to 1480m despite the increase in mud weight at 1330m due to formational change to siltstone at 1320m.

A gradual increase in gas levels from 1370m is associated with increasing ROP's and the lithology becoming sandier. At 1385m the formation changes to the Latrobe Group. This is predominantly sandstone with interbeds of

siltstone and coal. This varied lithology is reflected in the d'c exponent trend which becomes scattered, although this plot is also affected by the numerous bit changes and cores cut during the top interval of this section. Despite this lack of continuity in these factors i.e. lithology and bit type, a predominantly increasing d'c trend manifests itself down to 2590m.

There is a decreasing trend apparent at 2590m to 2635m which is attributed to a sandstone unit. Following this is a volcanic section which proved to be very hard to drill hence the lateral shift from 2635m to 2680m.

Below the volcanic section, a normal trend can be seen down to 2962m, with a lateral shift below 2797m caused by a reduction in the mud weight from 9.7 ppg to 9.2 ppg.

However, at 2963m, a significant drill-off trend, plus the simultaneous appearance of connection gas and increase in background gas heralded the presence of overpressured formations. The first 2 metres of the over-pressured zone (for which the ROP's were 13.2m/hr at 2963m, and 83.7m/hr at 2964m) were circulated up and 580 units of gas were detected. The gas did not return to background levels, so the mud was weighted up to 9.8 ppg. A short 10-10-10 test was then performed yielding 6-452-11 units of gas. Hence the mud weight was increased still further, to 10.4 ppg, which reduced the gas levels to less than 1 unit. At this point the pore pressure was assessed to be 9.8 ppg E.M.W. Short trip gas of 0.1-0.2-0.1 units from 2964m substantiated this assessment.

At 2977m, a second "drill-off" occurred, and it was immediately flow-checked. There was no flow but when the "flow-check" gas was circulated to surface, 242 units of gas were detected, so the mud weight was increased again, this time up to 10.7 ppg.

At 2983m, a 10-10-10 test was conducted, which produced 0.7-12.6-1.0 units of gas. A flow check of the drill-break at 2985m yielded 1-440-2 units of gas, and connection gas of 1-526-2 units was detected from kelly-down at 2986m. Due to the massive increase in connection gas over the back-ground gas, pore pressure was estimated to be very close to the mud weight (10.7 ppg) from 2977m to 2992m. Pore pressure increased notably with depth. Core Lab estimated the formation pressure to be 10.5 ppg at 2983m, and 10.6 ppg at 2985m. As a result the mud was weighted up to 11.2 ppg at 2992m. A connection was simulated at this depth with the 11.2 ppg mud, and the circulated gas was 0.3-0.3-0.3 units.

Flow-check gas from a drill-break at 3024m was 0.3-2.0-0.2 units. With

connection gas detected from the Kelly-down at 3025m, the pore pressure was thought to be as high as 10.7-10.8 ppg E.M.W. between 3024m and T.D. (3026m).

Schlumberger's Repeat Formation Tests indicated pressures of 8.4 ppg down to 2200m, and 8.5 ppg dpwn as far as the overpressured zone. Only one R.F.T. yielded reliable information about formation pressures in the overpressured section unfortunately, and that gave a pore pressure of 10.6 ppg at 2973.8m, which is in close agreement with the Core Lab estimates given above.

Returning to the "Drill Data Plot", the overpressured zone (Sandstones) can be seen clearly just below 2960m, in three regards: firstly, in the "drill-off" trend, i.e. increasing ROP's with increasing depth, instead of decreasing ROP's; secondly, in the general increase in background gas; and thirdly, in the reversed trend of the d'c' exponents. (No shale density measurements were taken as there were no beds of true shale encountered. For this reason a wireline plot was not drawn.)

It is impossible to draw any reliable conclusions from the "Temperature Plot" regarding formation pressures, due to the frequent treatment of the mud system. The "Flowline" temperature end-to-end curve" in fact indicates a normal trend in the overpressured section, so no inferences from the curve concerning pore pressure can be made objectively. The thermal gradient obtained from the "End-to-End" curve was 4-14^{o}C/100m (1.97^{o}F/100 feet).

The "Pressure Plot" is the pressure conclusion log for the well, and as can be seen, it represents visually both the normally pressured section from surface down to 2962m, and the overpressured sands from 2963m down to T.D. (3026m). It was not possible to derive a true fracture gradient as no leak-off tests were performed. Two P.I.T.'s were made: firstly, 13.5 ppg E.M.W. just below the 13-3/8" casing shoe at 851m; and secondly, 16.5 ppg E.M.W. at 2800m, just below the 9-5/8" casing shoe. The fracture gradient shown on the "Pressure Plot" was derived using the above data and the U.S. Gulf Coast Basin Model, which was offset to match the local data. However, until abundant "leak-off" data are available for the Gippsland Basin, a true fracture gradient for the area cannot be drawn.

Overburden gradient calculations and a plot of the gradient are included in this report. The information obtained for this was procurred from Schlumberger's LDT logs.

15. OVERBURDEN GRADIENT CALCULATIONS AND PLOT

OVERBURDEN GRADIENT CALCULATIONS

DEPTH . . . . . .metres

BULK DENSITY . . . . . .gm/cc

OVERBURDEN PRESSURE INCREMENT. .psi

CUMULATIVE OVERBURDEN PRESSURE .psi

OVERBURDEN PRESSURE GRADIENT . .psi/m

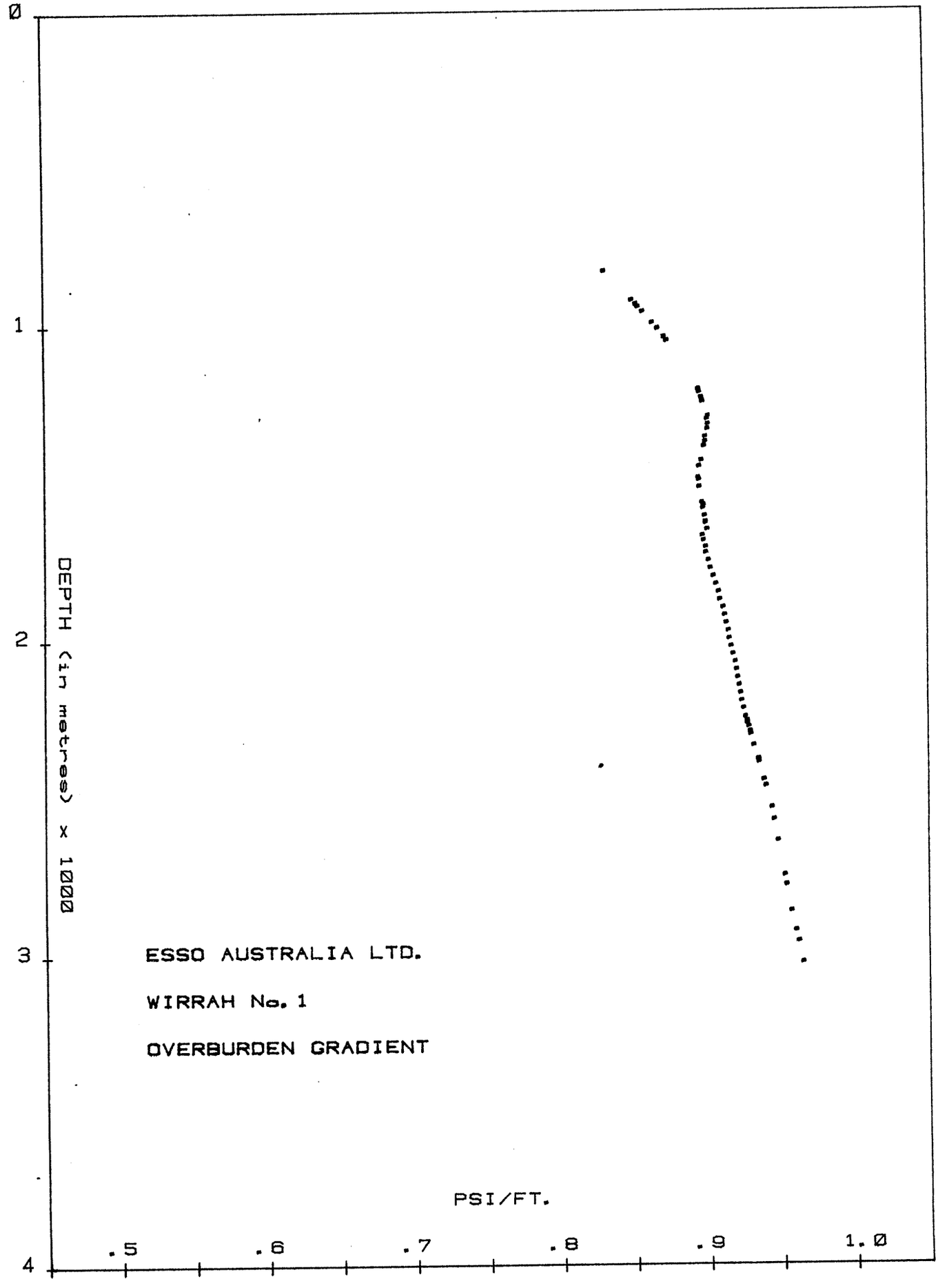
OVERBURDEN EQUIVALENT DENSITY. .Pounds per gallon

BULK DENSITY TAKEN FROM AVERAGED F.D.C. LOG, OR FROM SONIC LOG FOR SECTIONS WHERE THE F.D.C. LOG IS NOT AVAILABLE.

OVERBURDEN GRADIENT CALCULATIONS

DEPTH from	DEPTH to	AVR.BULK DENSITY	O/BURDEN INCR.	O/BURDEN CUMM.	O/BURDEN GRAD.	O/BURDEN GRAD.
metres	metres	gm/cc	psi	psi	psi/ft	ppg
0	70	1.02	30.92	30.92	0.442	8.49
70	830	2.00	658.16	689.08	0.830	15.97
830	923	2.35	94.63	783.71	0.849	16.33
923	936	2.40	13.51	797.22	0.852	16.38
936	945	2.30	8.96	806.18	0.853	16.41
945	960	2.45	15.91	822.09	0.856	16.47
960	995	2.40	36.37	858.47	0.863	16.59
995	1013	2.45	19.10	877.56	0.866	16.66
1013	1040	2.40	28.06	905.62	0.871	16.75
1040	1052	2.35	12.21	917.83	0.872	16.78
1052	1206	2.40	160.04	1077.87	0.894	17.19
1206	1216	2.20	9.53	1087.39	0.894	17.20
1216	1233	2.30	16.93	1104.32	0.896	17.22
1233	1245	2.23	11.59	1115.91	0.896	17.24
1245	1291	2.32	46.21	1162.12	0.900	17.31
1291	1301	1.85	8.01	1170.13	0.899	17.30
1301	1317	2.20	15.24	1185.37	0.900	17.31
1317	1332	2.00	12.99	1198.36	0.900	17.30
1332	1357	1.90	20.57	1218.93	0.898	17.27
1357	1372	2.07	13.44	1232.37	0.898	17.27
1372	1386	1.85	11.21	1243.59	0.897	17.25
1386	1430	1.95	37.15	1280.74	0.896	17.22
1430	1449	1.80	14.81	1295.55	0.894	17.19
1449	1485	2.00	31.18	1326.72	0.893	17.18
1485	1491	2.30	5.98	1332.70	0.894	17.19
1491	1514	2.10	20.91	1353.61	0.894	17.19
1514	1565	2.20	48.58	1402.20	0.896	17.23
1565	1572	2.55	7.73	1409.93	0.897	17.25
1572	1582	1.95	8.44	1418.37	0.897	17.24
1582	1607	2.25	24.36	1442.73	0.898	17.26
1607	1626	2.20	18.10	1460.83	0.898	17.28
1626	1631	2.00	4.33	1465.16	0.898	17.28
1631	1651	2.25	19.49	1484.64	0.899	17.29
1651	1670	1.45	11.93	1496.57	0.896	17.23
1670	1686	2.25	15.59	1512.16	0.897	17.25
1686	1707	2.35	21.37	1533.53	0.898	17.28
1707	1725	2.07	16.13	1549.66	0.898	17.28
1725	1750	2.35	25.44	1575.10	0.900	17.31
1750	1775	2.30	24.90	1600.00	0.901	17.33
1775	1800	2.41	26.09	1626.08	0.903	17.37
1800	1825	2.36	25.55	1651.63	0.905	17.40
1825	1850	2.40	25.98	1677.61	0.907	17.44
1850	1875	2.25	24.36	1701.97	0.908	17.46
1875	1900	2.48	26.85	1728.81	0.910	17.50
1900	1925	2.31	25.01	1753.82	0.911	17.52
1925	1950	2.29	24.79	1778.61	0.912	17.54
1950	1975	2.35	25.44	1804.05	0.913	17.57
1975	2000	2.24	24.25	1828.29	0.914	17.58
2000	2025	2.33	25.22	1853.52	0.915	17.60
2025	2050	2.37	25.66	1879.17	0.917	17.63

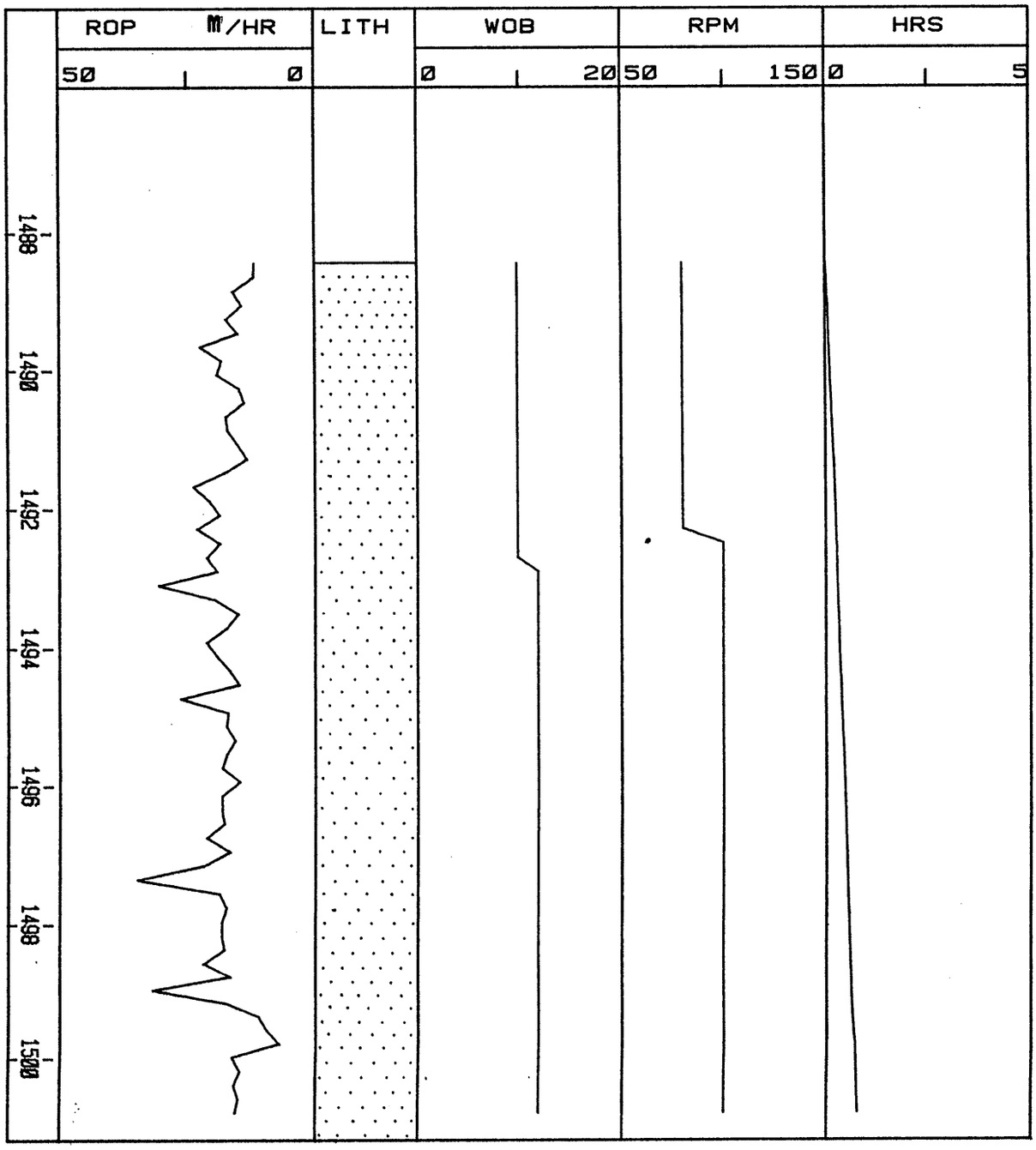
DEPTH from	DEPTH to	AVR.BULK DENSITY	O/BURDEN INCR.	O/BURDEN CUMM.	O/BURDEN GRAD.	O/BURDEN GRAD.
metres	metres	gms/cc	psi	psi	psi/ft	ppg
2050	2075	2.39	25.87	1905.04	0.918	17.66
2075	2100	2.29	24.79	1929.83	0.919	17.67
2100	2125	2.27	24.57	1954.41	0.920	17.69
2125	2150	2.33	25.22	1979.63	0.921	17.71
2150	2175	2.32	25.11	2004.74	0.922	17.73
2175	2200	2.27	24.57	2029.32	0.922	17.74
2200	2225	2.37	25.66	2054.97	0.924	17.76
2225	2252	2.39	27.94	2082.91	0.925	17.79
2252	2265	2.60	14.64	2097.55	0.926	17.81
2265	2272	2.25	6.82	2104.37	0.926	17.81
2272	2284	2.55	13.25	2117.62	0.927	17.83
2284	2299	2.45	15.91	2133.53	0.928	17.85
2299	2307	2.32	8.04	2141.57	0.928	17.85
2307	2343	2.45	38.19	2179.76	0.930	17.89
2343	2386	2.55	47.48	2227.24	0.933	17.95
2386	2395	2.30	8.96	2236.20	0.934	17.96
2395	2451	2.50	60.62	2296.82	0.937	18.02
2451	2470	2.55	20.98	2317.80	0.938	18.05
2470	2538	2.52	74.20	2392.00	0.942	18.12
2538	2575	2.40	38.45	2430.45	0.944	18.15
2575	2641	2.43	69.44	2499.89	0.947	18.20
2641	2750	2.45	115.63	2615.52	0.951	18.29
2750	2780	2.42	31.44	2646.96	0.952	18.31
2780	2865	2.45	90.17	2737.13	0.955	18.37
2865	2926	2.55	67.35	2804.48	0.958	18.43
2926	2960	2.57	37.84	2842.32	0.960	18.47
2960	3026	2.50	71.45	2913.77	0.963	18.52


0
1
2
3
4
DEPTH (in metres) x 1000
ESSO AUSTRALIA LTD.
WIRRAH No. 1
OVERBURDEN GRADIENT
PSI/FT.
.5
.6
.7
.8
.9
1.0

16. CORE-O-GRAPHS

CORE-O-GRAPH

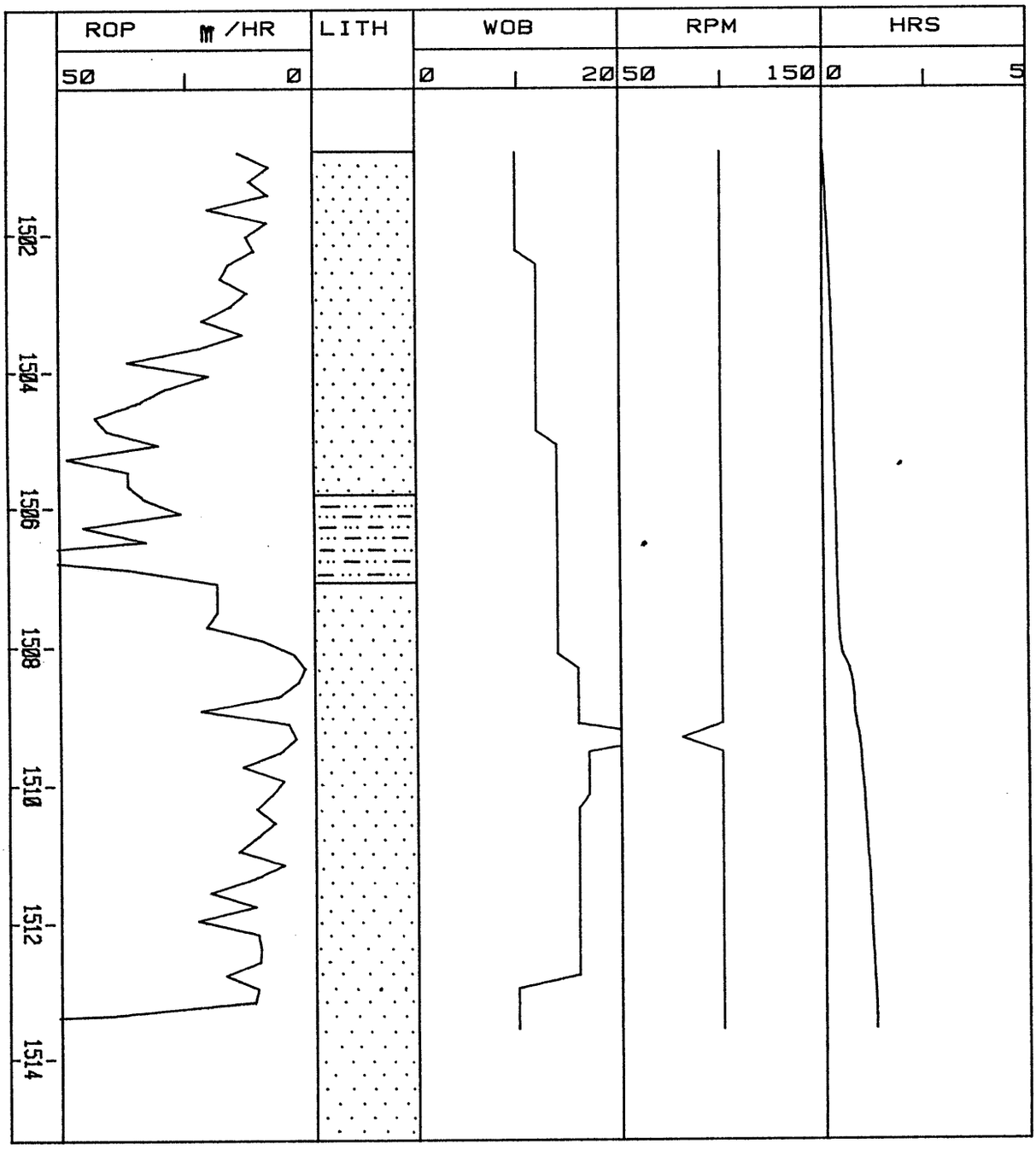
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	1
INTERVAL CORED FROM	1488.2m. TO 1500.6m.
CUT: 12.4 m	RECOVERED: 11.6m. (93.5%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC4
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer '81

CORE-O-GRAPH

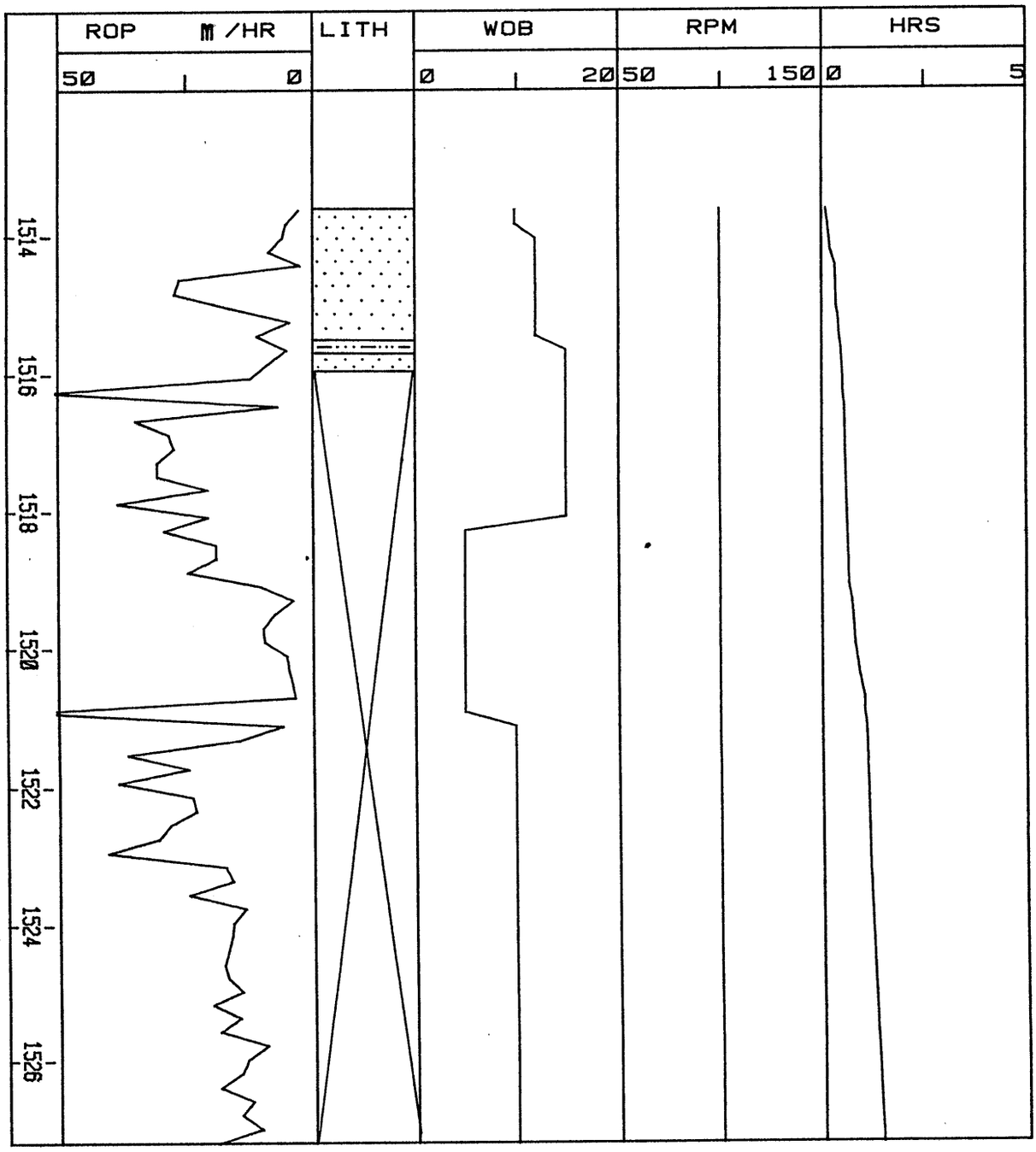
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	2
INTERVAL CORED FROM	1500.6m. TO 1513.4m.
CUT: 12.8m	RECOVERED: 9.8m. (76.6%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC4
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer'81

CORE-O-GRAPH

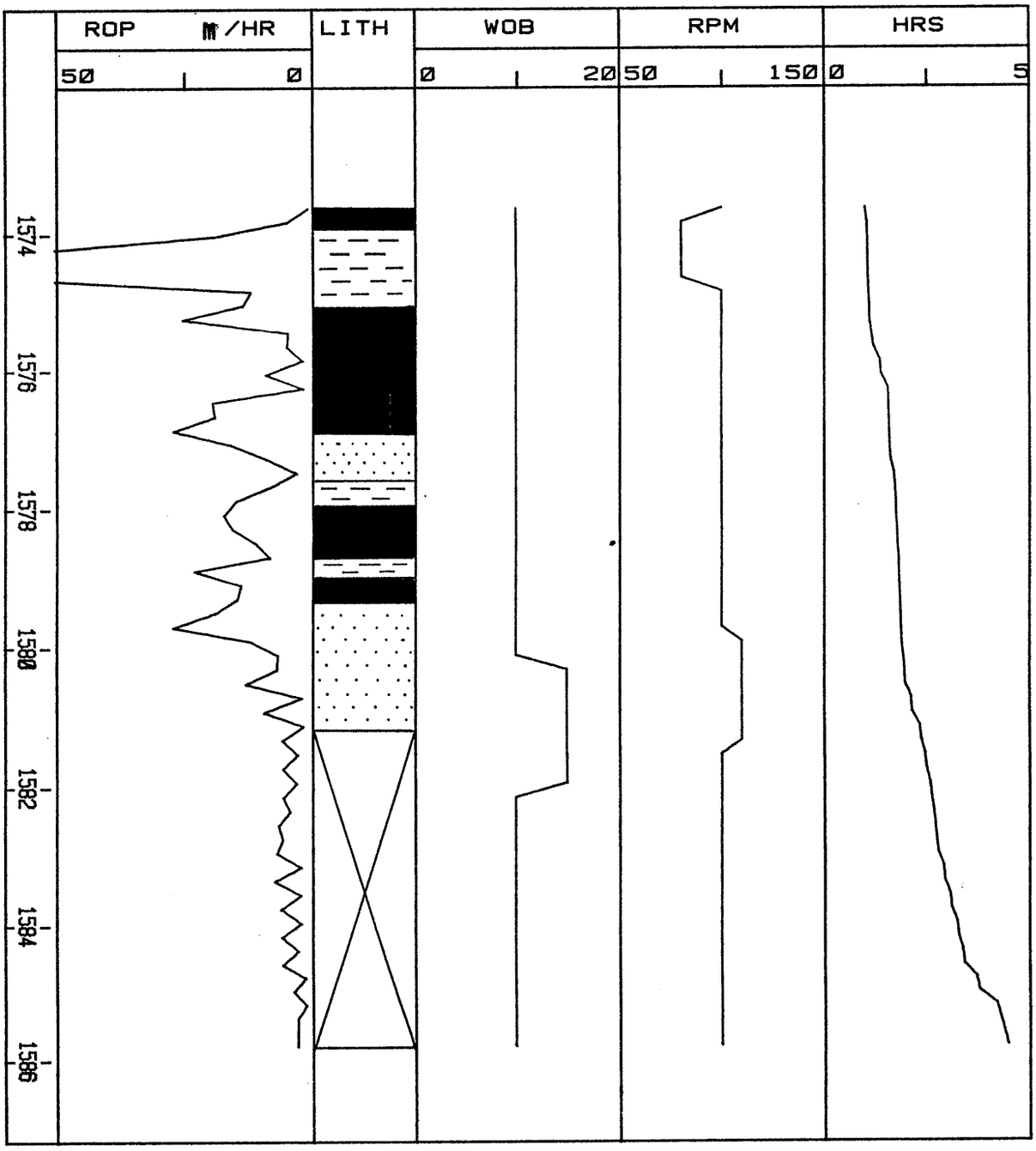
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	3
INTERVAL CORED FROM	1513.4m. TO 1527.0m.
CUT: 13.6m	RECOVERED: 2.5m. (18.7%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC4
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer '81

CORE-O-GRAPH

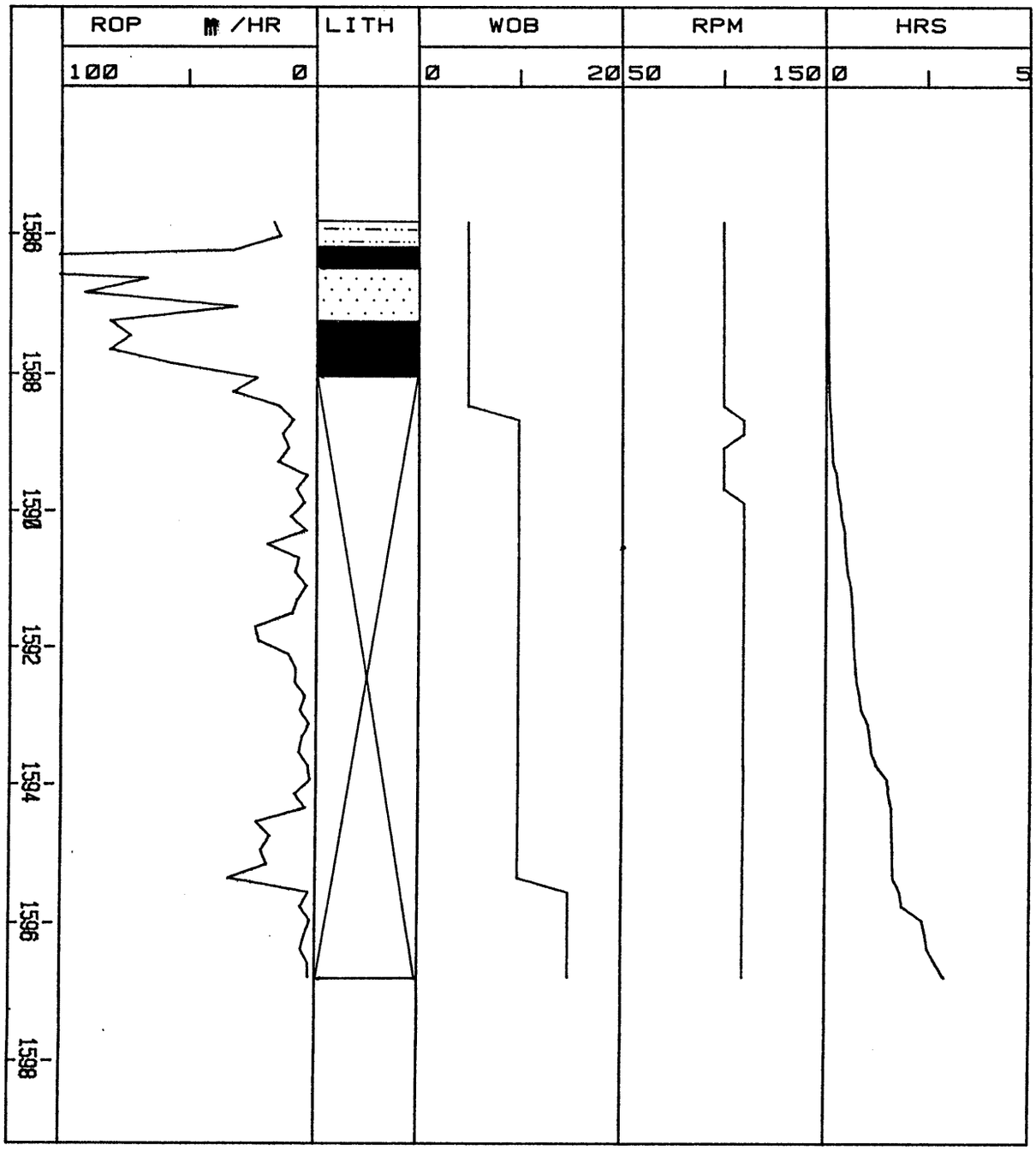
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	4
INTERVAL CORED FROM	1573.4m. TO 1585.6m.
CUT: 12.2m	RECOVERED: 7.9m. (64.8%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC4
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer '81

CORE-O-GRAPH

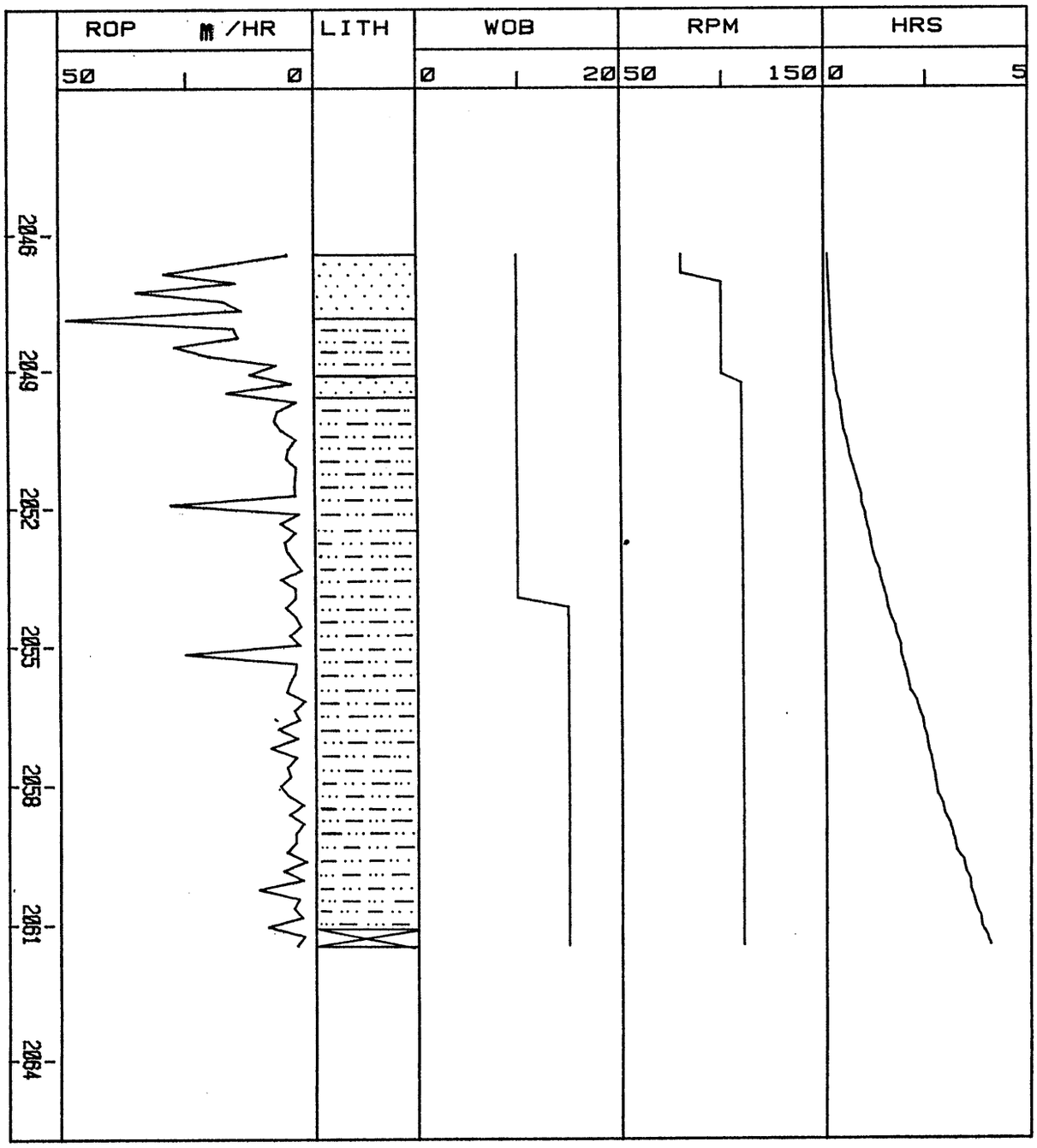
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	5
INTERVAL CORED FROM	1585.6m. TO 1596.6m.
CUT: 11.0m	RECOVERED: 2.6m. (23.6%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC3
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer '81

CORE-O-GRAPH

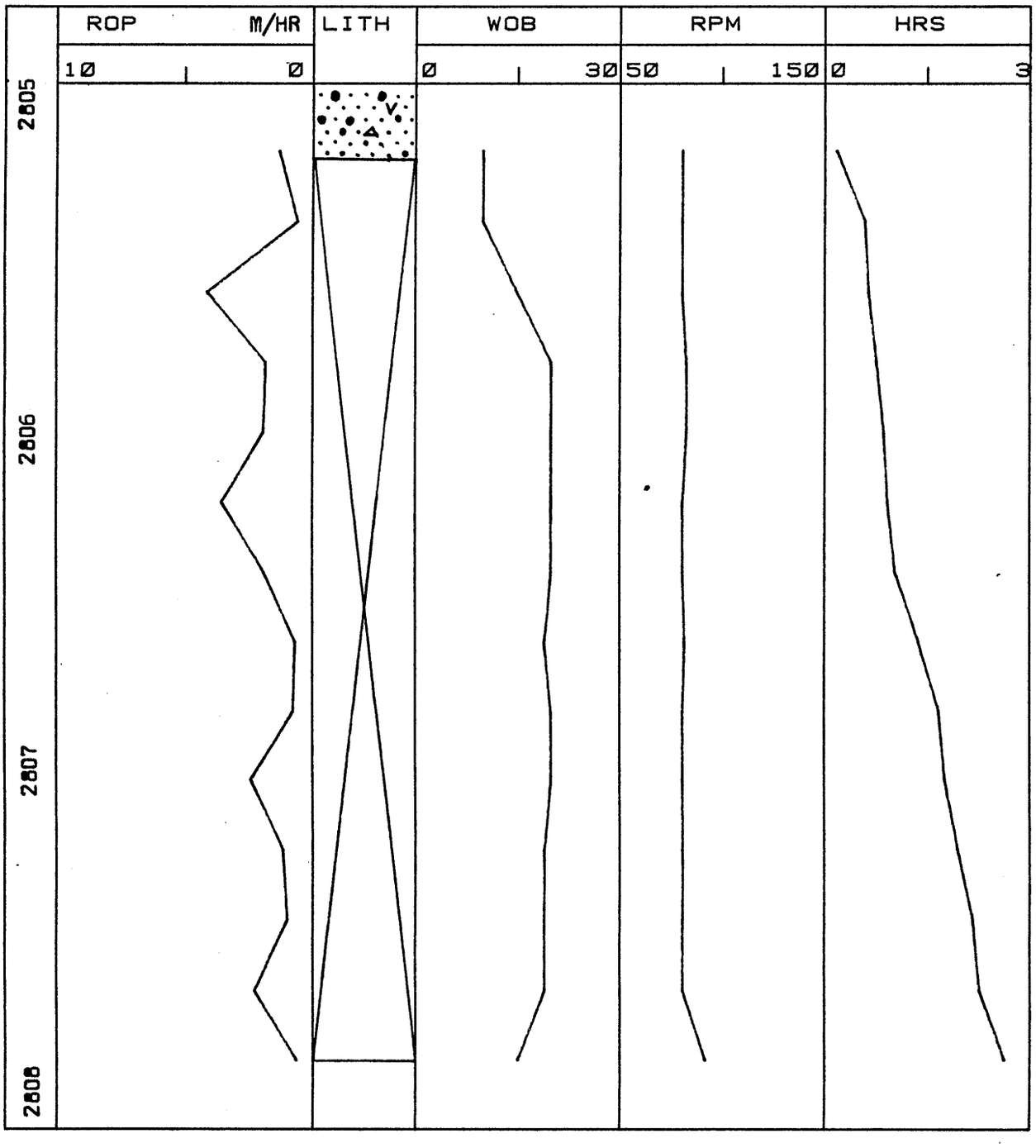
CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH # 1
CORE NO.:	6
INTERVAL CORED FROM	2046.0m. TO 2061.2m.
CUT: 15.2m	RECOVERED: 15.1m. (99.5%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRISTENSEN RC3
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.66m.
BIT SIZE: 8.50	MUD WT.: 9.8



latimer'81

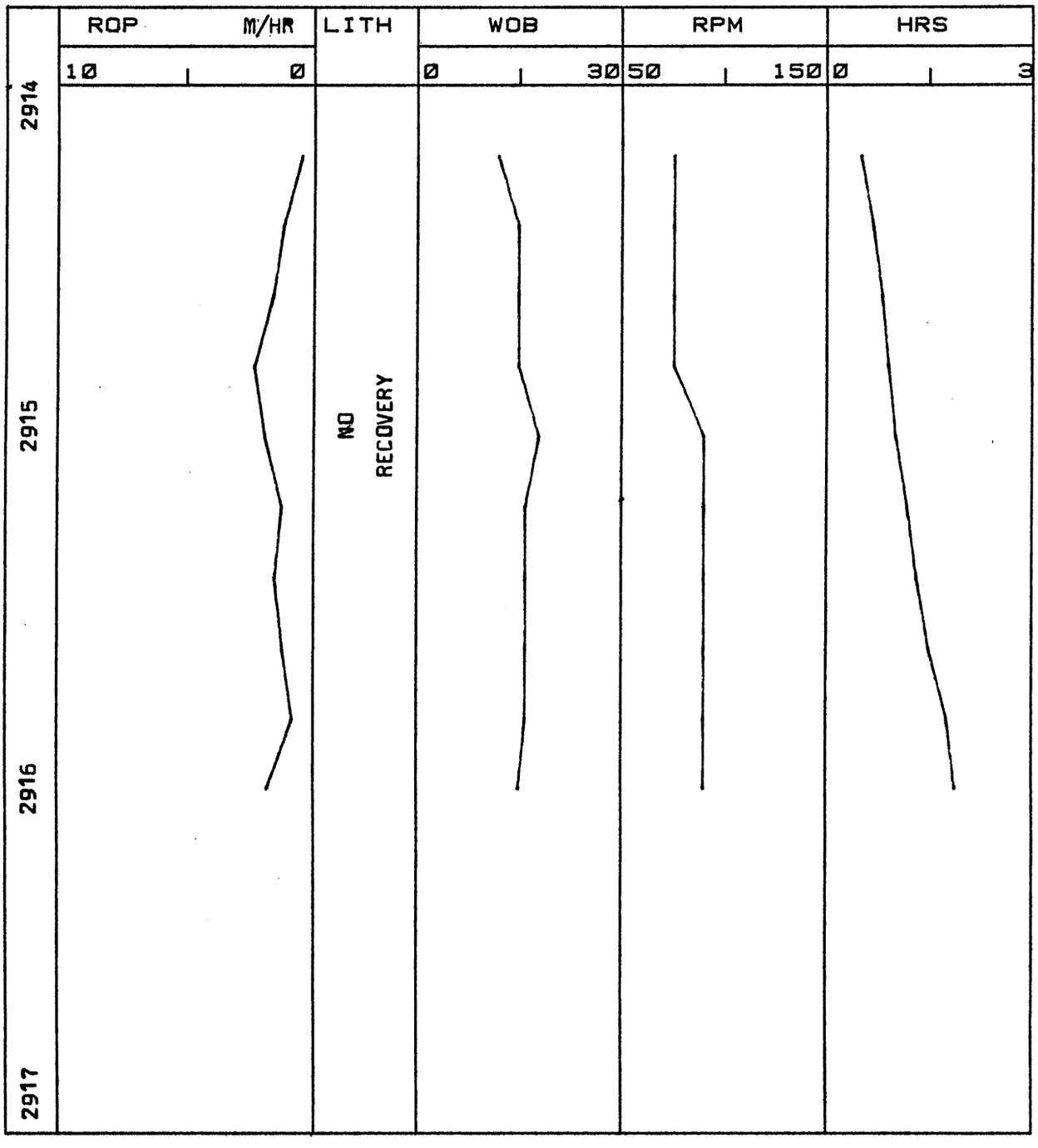
CORE-O-GRAPH

CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH No. 1
CORE NO.:	7
INTERVAL CORED FROM	2805.0m. TO 2807.8m.
CUT: 2.8 m.	RECOVERED: 0.2m. (7.9%)
FORMATION:	INTRA-LATROBE
BIT MAKE & TYPE:	CHRIS C-20
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.61m.
BIT SIZE: 8.47"	MUD WT.: 9.2 ppg



CORE-O-GRAPH

CLIENT:	ESSO AUSTRALIA LTD.
WELL:	WIRRAH No. 1
CORE NO.:	8
INTERVAL CORED FROM	2914.0m. TO 2916.0m.
CUT: 2.0m.	RECOVERED: 0.0m. (0.0%)
FORMATION:	INTRA-LATROBE
BIT MAKE & TYPE:	CHRIS C-20
CORE BARREL SIZE:	6.75in. x 4.00in. x 19.81m.
BIT SIZE: 8.47"	MUD WT.: 9.2 ppg.



17. SIDEWALL CORE GAS ANALYSES

CORE LAB

SIDEWALL CORE GAS ANALYSIS DATA SHEET

COMPANY ESSO AUSTRALIA LTD.

LOGGING SUITE NO. 4

WELL WIRRAH NO. 1

NO	DEPTH	C1	C2	C3	C4	C5	C6	COMMENTS
		PPM	PPM	PPM	PPM	PPM	PPM	
1	2800.0	330	108	48	23	11	7	
2	2788.0	112	28	26	23	13	10	
4	2778.5	112	42	61	56	26	10	
5	2760.5	128	82	129	97	43	19	
7	2731.0	112	122	242	140	54	19	
14	2677.0	4	7	23	31	20	10	
19	2634.2	1	7	48	47	28	17	
20	2633.0	141	132	258	1309	932	841	
21	2625.0	66	156	490	1138	773	464	
24	2604.5	158	195	1057	2400	1637	928	
25	2598.0	106	83	413	873	773	464	
26	2593.5	208	181	180	810	1091	619	
29	2567.0	9	3	16	842	216	159	
31	2567.7	43909	6229	1444	374	132	154	
37	2478.0	5	10	3	3	6	10	
38	2455.0	12	15	5	6	6	10	
41	2433.0	87	104	83	19	9	17	
42	2413.5	18	17	3	8	6	10	
44	2401.0	12	15	3	6	5	8	
56	2219.5	30	6	2	2	3	5	
61	2164.0	160	86	50	19	8	5	
64	2094.0	26	10	3	3	3	5	
69	2030.0	17	8	11	175	250	213	
70	2029.0	13	14	135	311	273	193	
71	2025.9	3	2	5	4	8	19	
73	2006.5	26	26	34	15	6	9	
77	1922.0	31	12	58	202	261	271	
81	1840.0	37	12	18	6	6	9	
87	1726.0	492	528	622	358	227	193	
88	1685.5	44	52	85	74	59	63	
89	1678.0	11	3	3	8	31	53	
90	1671.0	68	222	1392	1371	727	386	
91	1652.8	109	139	361	498	295	96	
92	1627.0	70	111	154	218	113	58	
93	1612.0	26	3	3	8	5	10	

CORE LAB

SIDEWALL CORE GAS ANALYSIS DATA SHEET

COMPANY ESSO AUSTRALIA LTD.

LOGGING SUITE NO. 4

WELL WIRRAH NO. 1

N2	DEPTH	C1	C2	C3	C4	C5	C6	COMMENTS
		PPM	PPM	PPM	PPM	PPM	PPM	
94	1608.0	55	8	-	-	-	-	
98	1543.0	131	31	12	4		-	
99	1491.0	118	45	90	136	182	232	
100	1488.0	13	7	13	136	227	164	
101	1482.5	17	59	228	202	91	38	
102	1478.0	4	5	8	4			
103	2781.0	61	14	12	6	6	5	
104	2693.0	152	26	17	4	2		
105	2640.0	17	7	8	7	28	58	
106	2621.0	43	47	158	467	386	290	
107	2583.0	4	3	40	105	71	48	
110	2377.0	12	3	3	3	6	4	
111	1604.0	83	26	42	29	14	9	

CORE LAB — SIDEWALL CORE GAS ANALYSIS DATA SHEET — SHEET # 1

COMPANY ESSO AUSTRALIA LTD. — LOGGING SUITE NO. 5

WELL WIRRAH NO. 1

No	DEPTH	C1	C2	C3	C4	C5	C6	COMMENTS
		PPM	PPM	PPM	PPM	PPM	PPM	
1	3032	129	9	2	2	–	–	
2	3030	35	12	2	2	–	–	
4	3026	123	5	2	TR	–	–	
5	3021.5	3002	56	55	TR	–	–	
7	3018	58	11	7	3	–	–	
8	3016.5	35	12	2	2	–	–	
10	3013.5	57	27	3	3	–	–	
11	3010	363	155	36	4	–	–	
13	3006	340	75	14	3	–	–	
31	2940	18	7	TR	–	–	–	
33	2922	TR	TR	–	–	–	–	
34	2917.5	2	TR	–	–	–	–	
35	2916.5	52	9	7	TR	–	–	
39	2866.5	238	89	91	28	8	14	
40	2865	398	234	137	43	25	43	
44	2843	6	5	6	3	–	–	
46	2820	128	173	73	23	5	7	
47	2815	9	9	2	1	–	–	
48	2806.5	–	–	–	3	4	7	LOOSE TRIP NO GAS
50	2800.5	123	37	5	3	–	–	
51	2798.5	8	9	6	3	5	28	
184	3028.5	287	93	32	11	8	7	
185	3024	2251	187	91	86	68	65	
186	3020	52	8	2	3	TR	TR	
187	3015	52	9	6	TR	–	–	
188	3008.5	1255	299	82	17	12	7	
189	3007	105	28	13	3	8	–	
190	3004.5	1102	206	89	6	9	TR	
191	3001	610	187	146	253	238	217	
192	3000	93	49	59	34	17	29	
194	2944.5	94	28	27	58	158	196	

18. GAS COMPOSITION ANALYSIS

The composition of entrained reservoir gas in the mud is significant in determining the origin and the value of a show. Two graphical methods are employed for processing the mud gas chromatography results. These techniques however are empirical and by no means definitive.

LOG PLOT

The ratios of C1/C2, C1/C3, C1/C4, C1/C5, and C1/C6 are plotted on three-cycle log paper for each hydrocarbon show. The plots can be evaluated by the following criteria :

1. Productive dry gas zones may show only C1, but abnormally high shows of C1 are usually indicative of saltwater.

2. A ratio of C1/C2 between approximately 2 and 15 indicates oil and between 15 and 65, gas. If the C1/C2 ratio is below about 2, or above about 65, the zone is probably non-productive.

   The actual values of the gas/oil/water limits will vary from area to area.

3. If the C1/C2 ratio is low in the oil section and the C1/C4 ratio is high in the gas section, the zone is probably non-productive.

4. If any ratio (with the exception of C1/C5, if oil is used in the mud) is lower than the preceding ratio, the zone is probably non-productive.

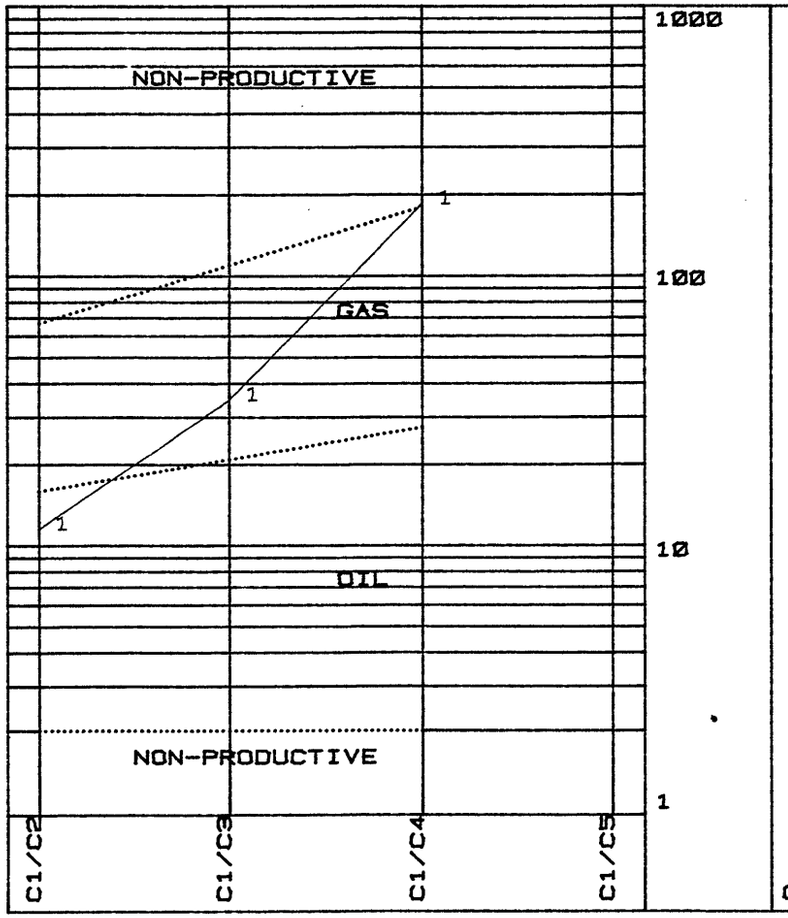
5. The ratios may not be definitive for low permeability zones; however, steep ratio plots may indicate a tight zone.

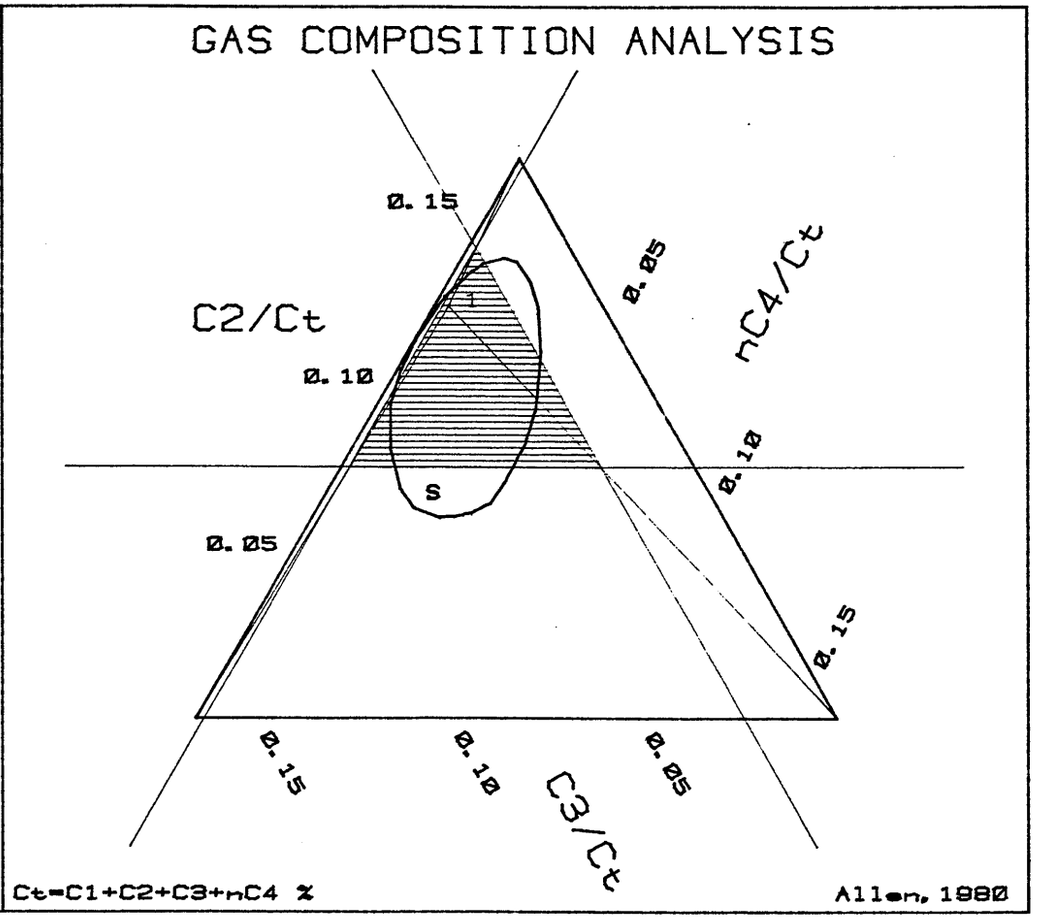
TRIANGULATION PLOT

The triangulation diagram is obtained by tracing lines on three scales at 120 degrees to each other, corresponding respectively to the ratios of C2, C3 and normal C4 to the total gas (C1 to C4). The scales are arranged in such a way that if the apex of the triangle is upward, a gas zone is indicated, while if the apex points downward, an oil zone is suggested.

A large triangle plot represents dry gas or low GOR oil, while small triangles represent wet gases or high GOR oils. The homothetic centre of the plot should fall inside the top part of the triangle, otherwise the heavier hydrocarbon is abnormal and may indicate a dead show, (or coal gas).

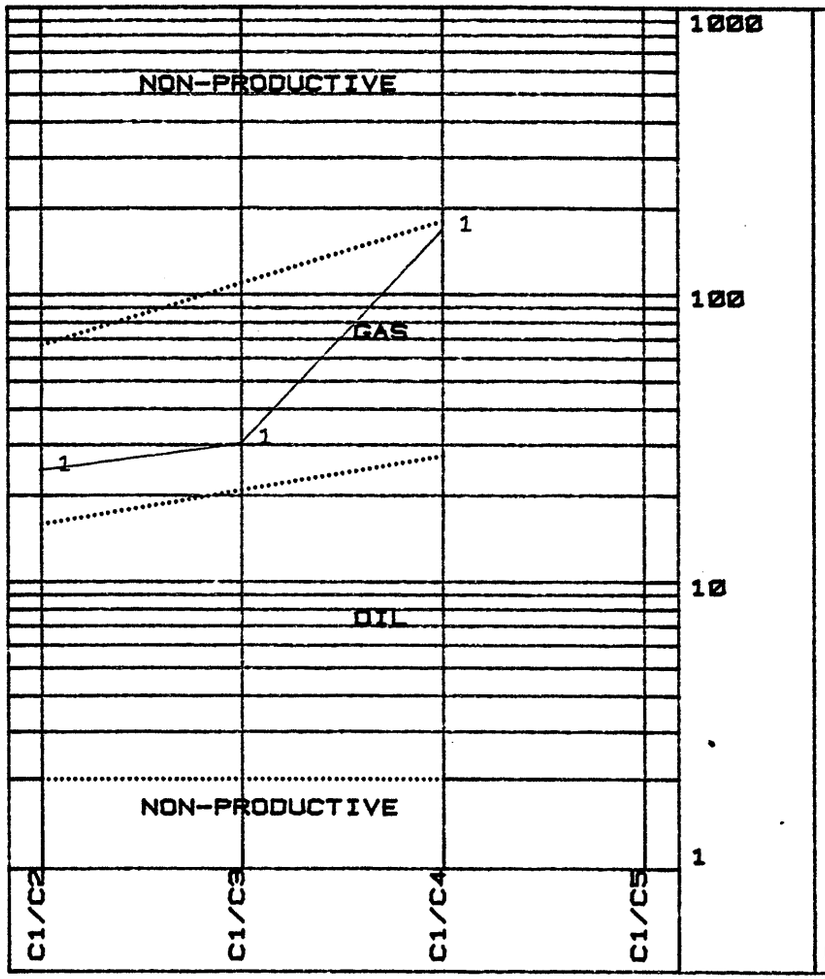
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

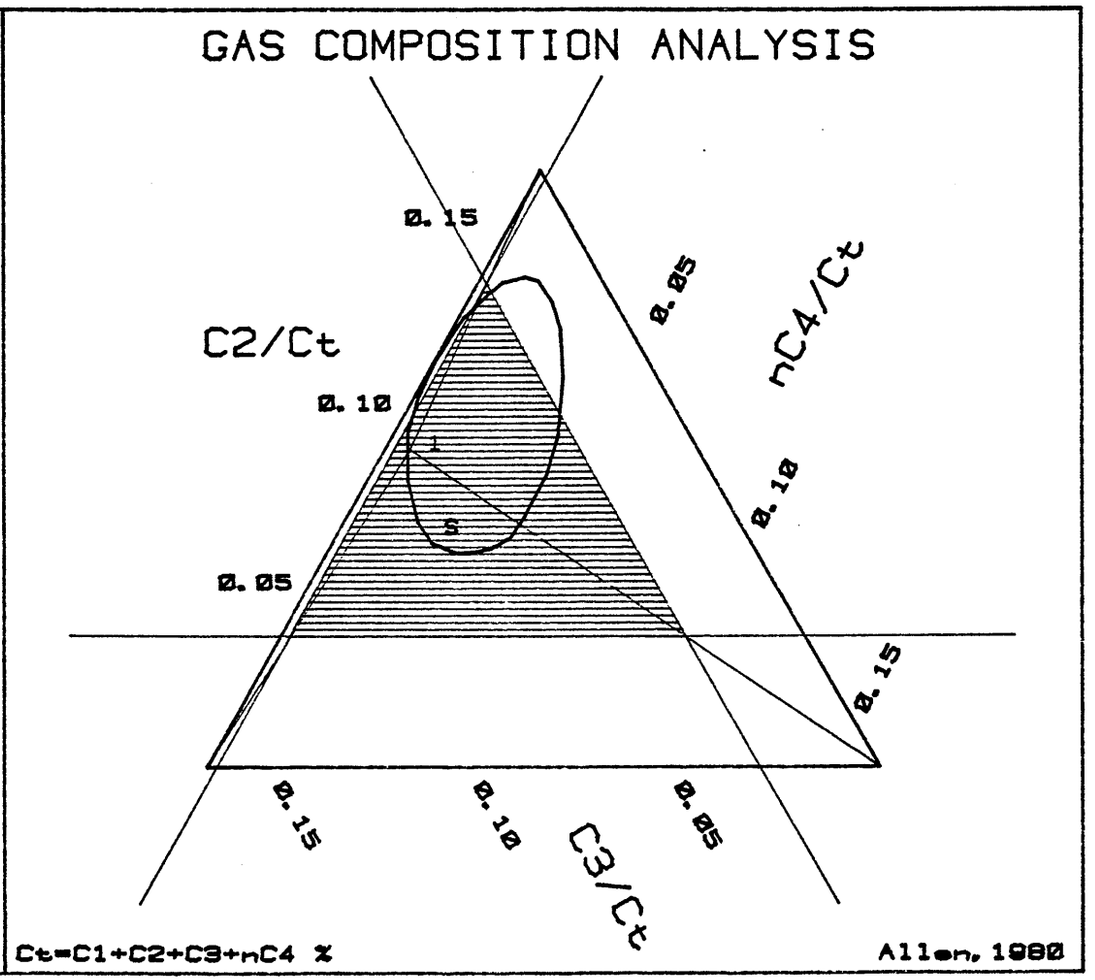




NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1485	6.193	0.543	0.180	0.017	0.017	0.000	0.000	6.932	11	35	184	

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

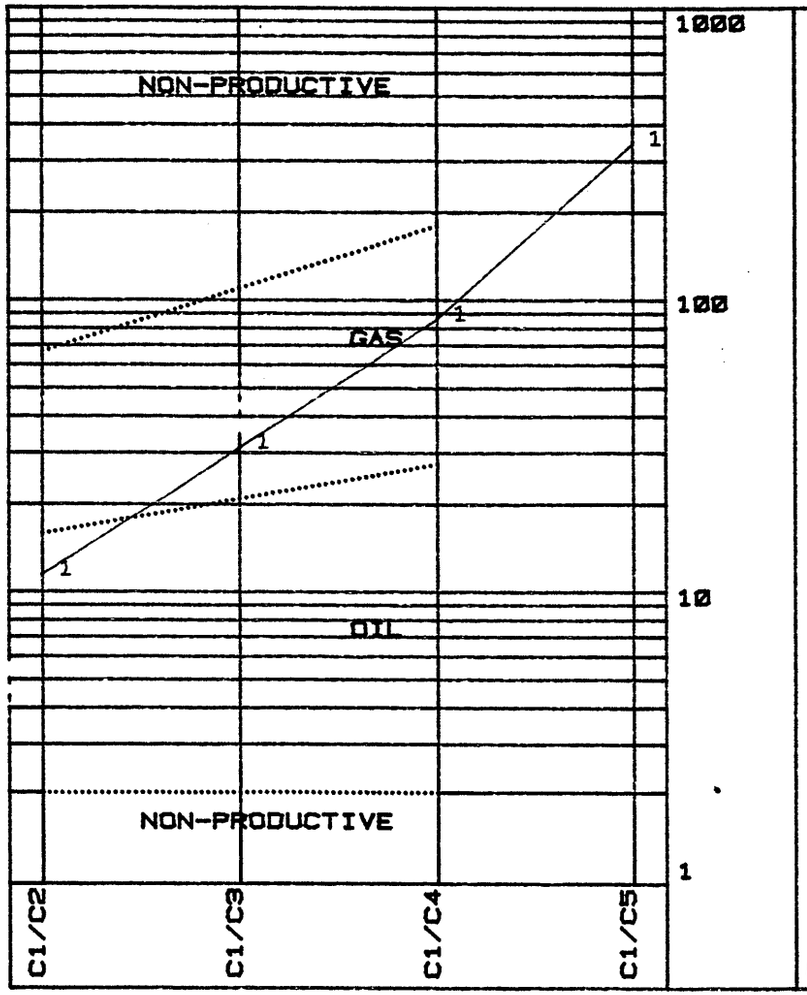


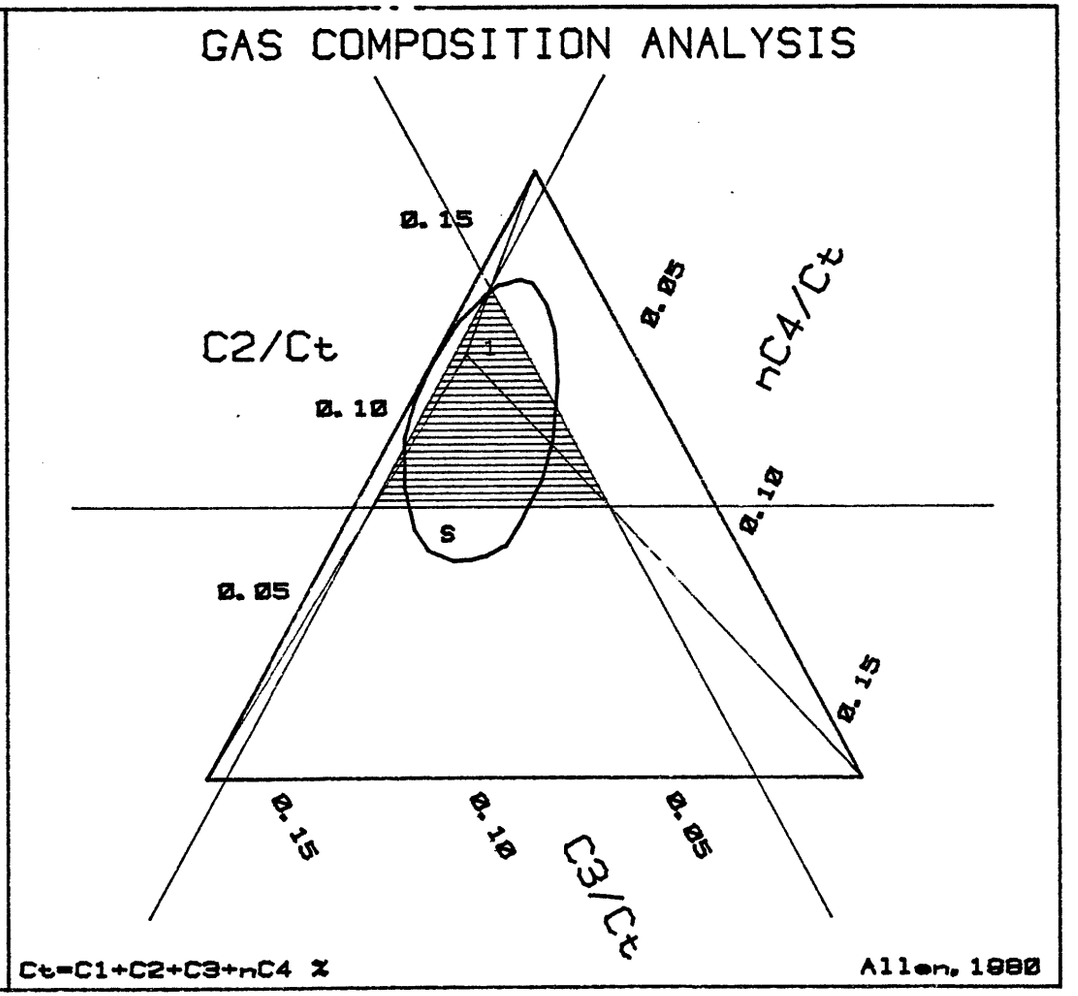


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1493	0.998	0.041	0.033	0.003	0.003	0.000	0.000	1.075	24	30	166	

CONCLUSION: PROBABLE GAS PRODUCER

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

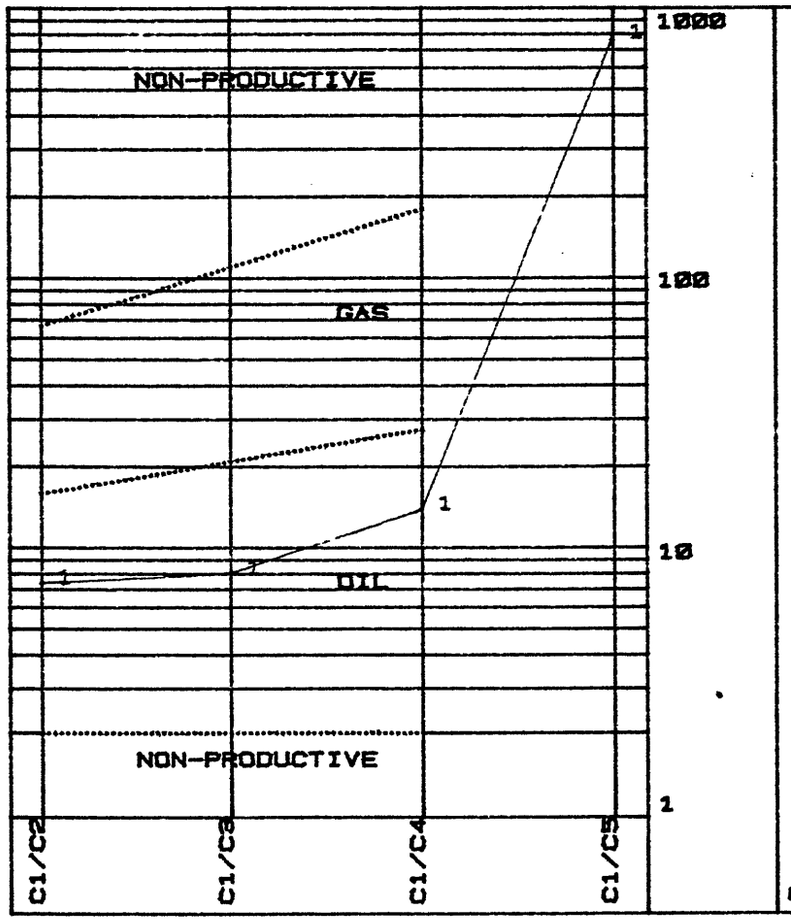


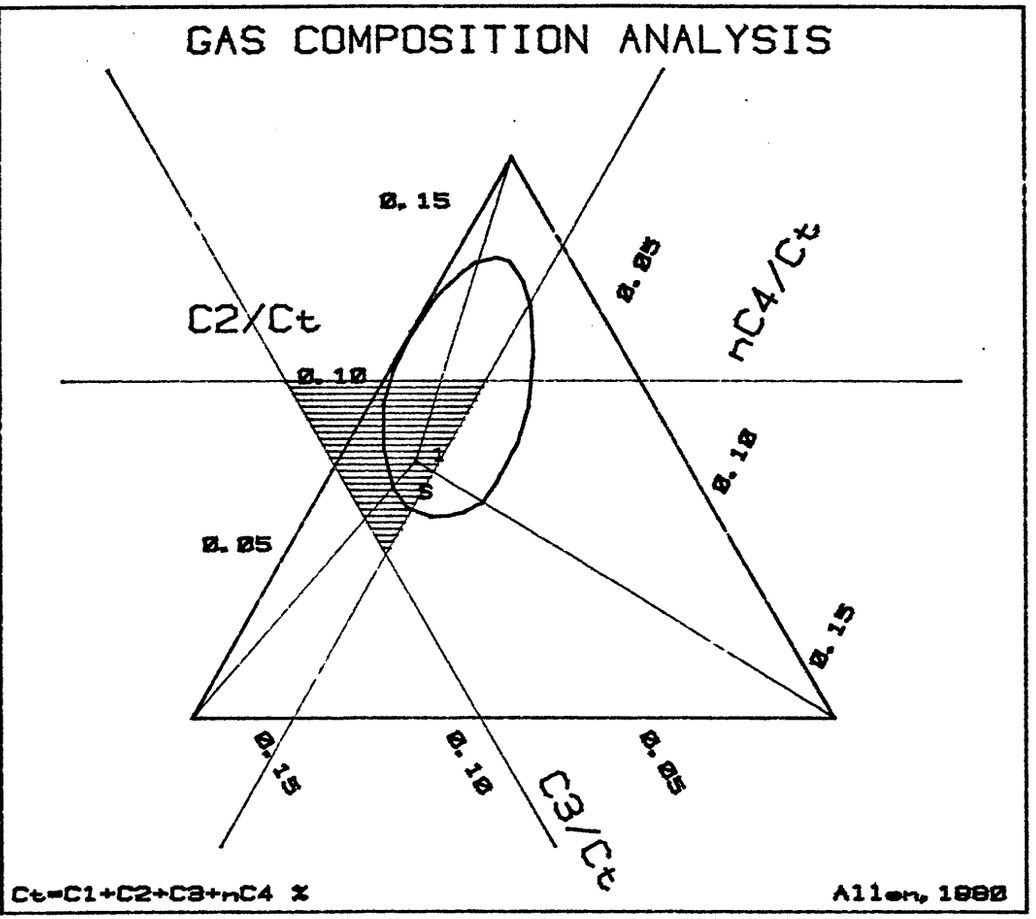


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1571	1.023	0.090	0.033	0.006	0.006	0.003	0.000	1.152	11	31	85	341

CONCLUSION: POSSIBLE HIGH GOR OIL PRODUCER

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

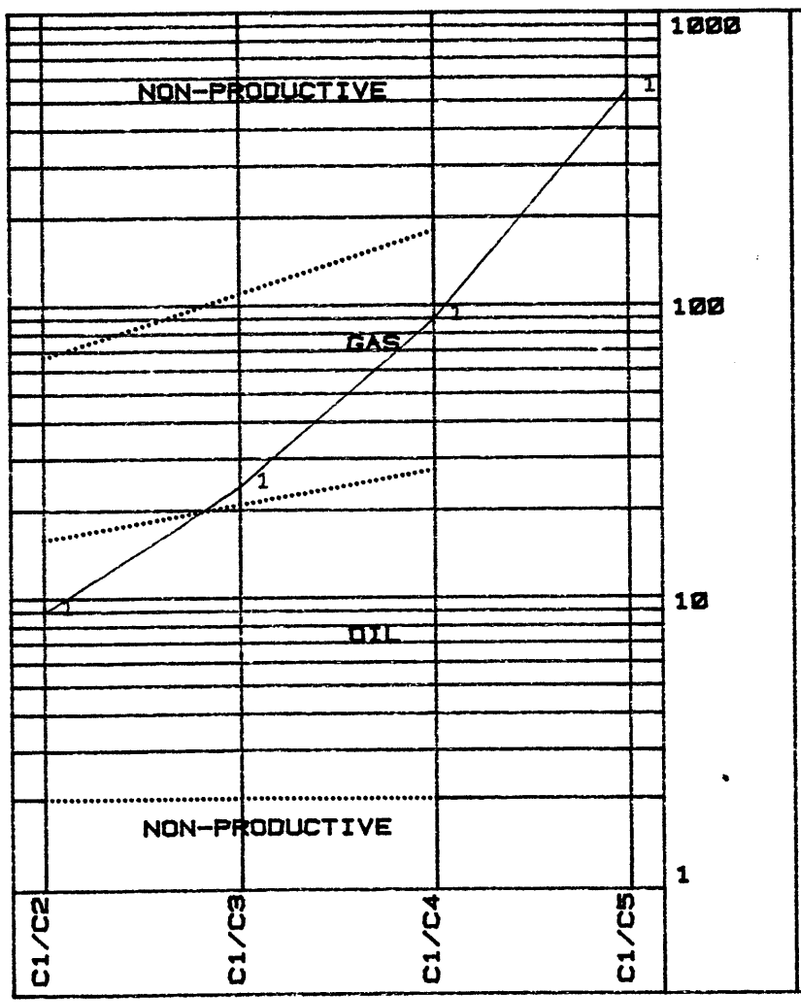


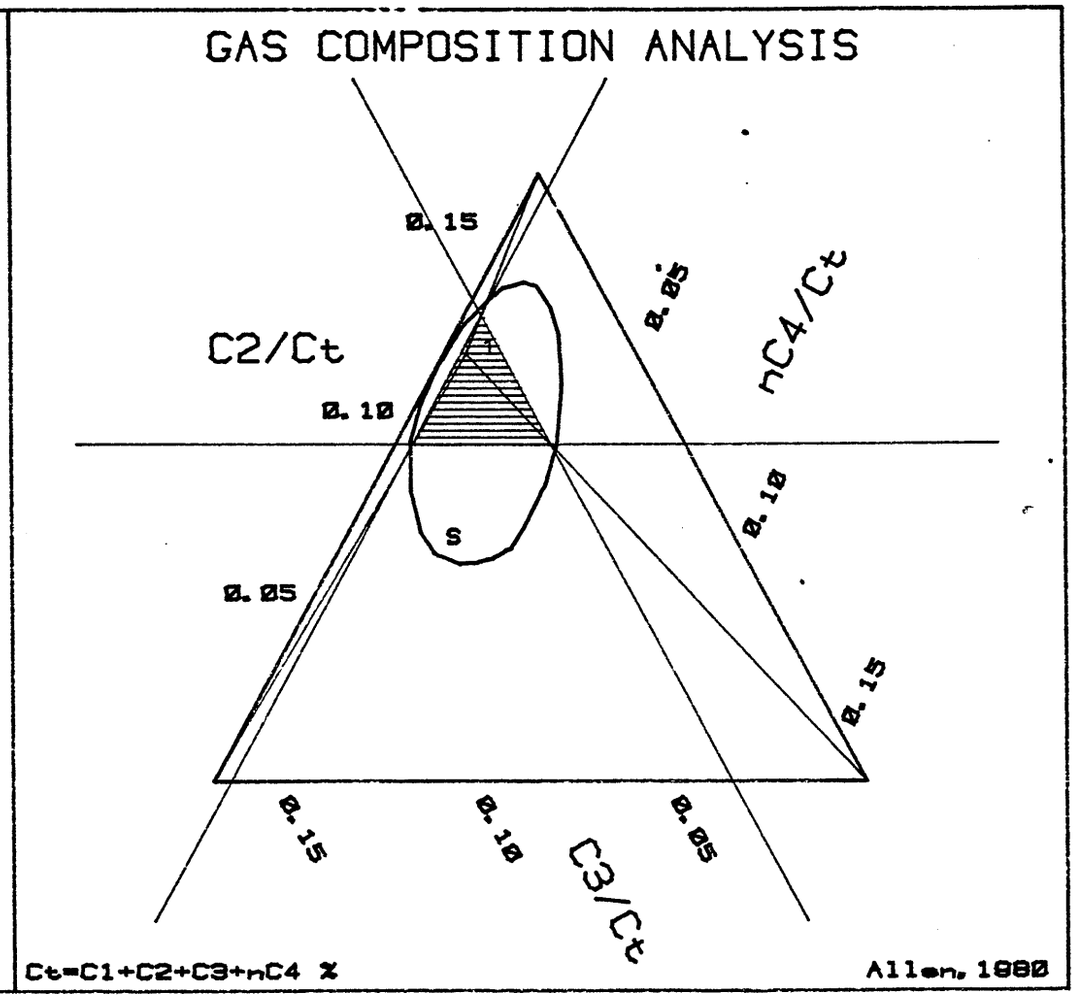


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1577	1.078	0.147	0.135	0.039	0.039	0.001	0.000	1.399	7	8	14	770

CONCLUSION: PROBABLE OIL PRODUCING ZONE.

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

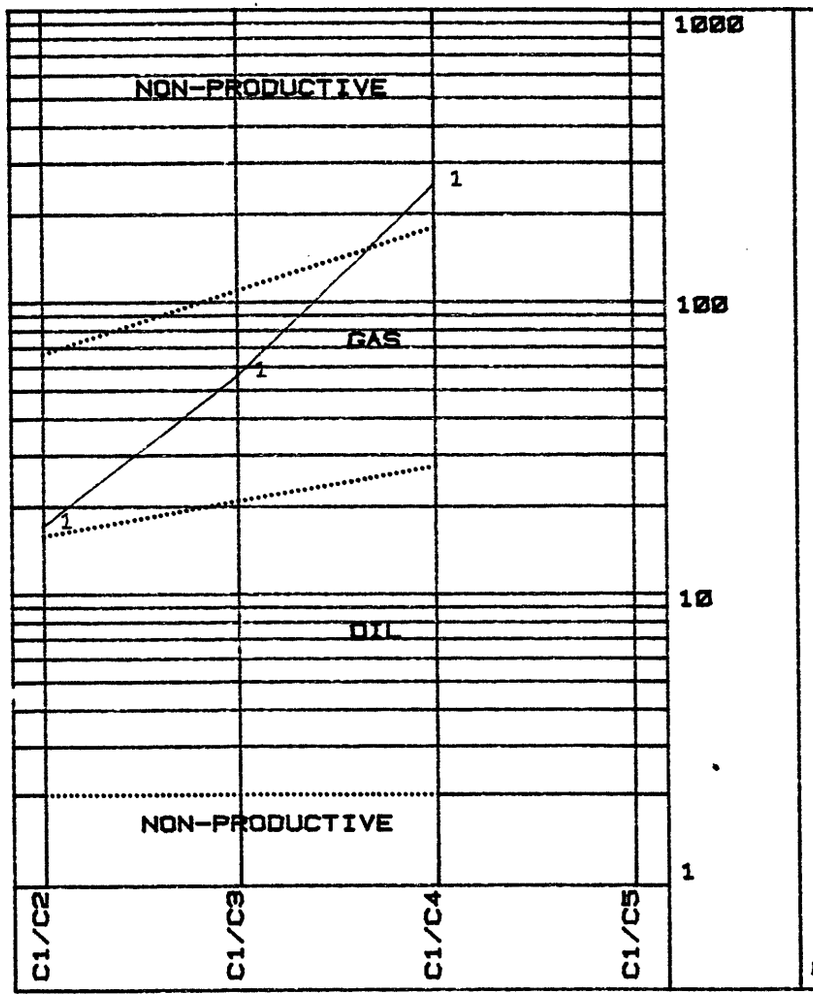


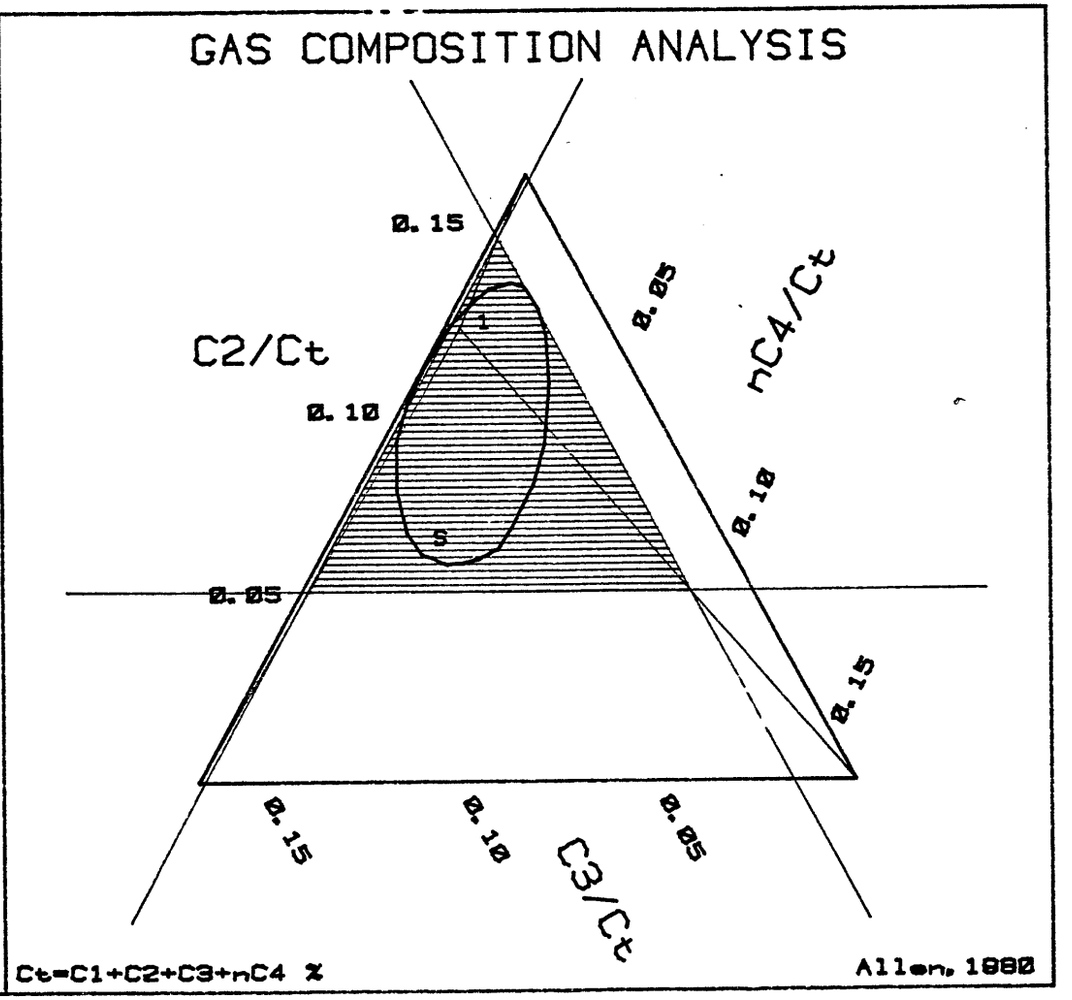


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1580	1.600	0.180	0.067	0.009	0.009	0.003	0.002	1.856	9	24	89	533

CONCLUSION: POSSIBLE HIGH GOR OIL ZONE.

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

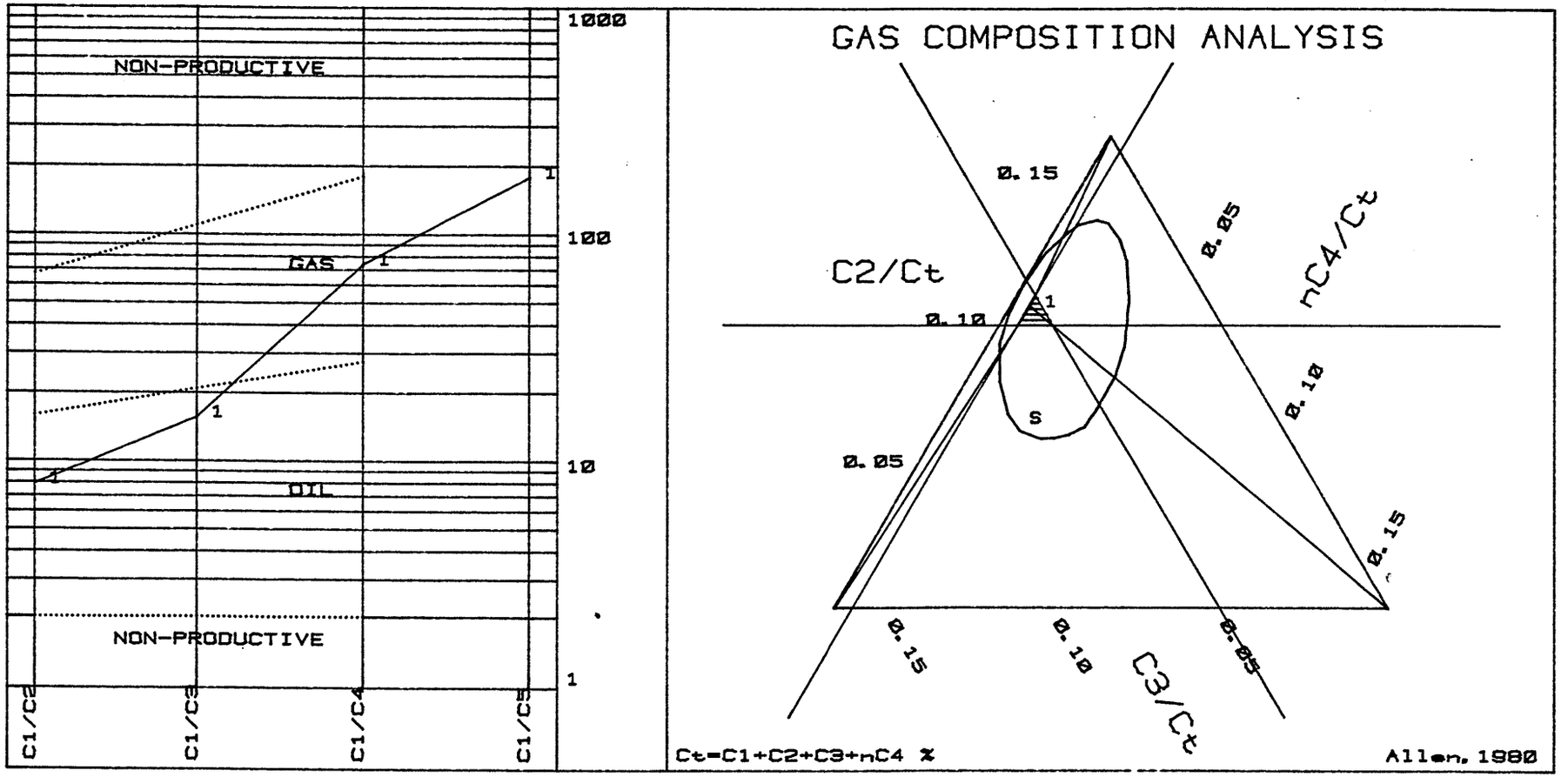




NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1878	1.001	0.059	0.018	0.002	0.002	0.000	0.000	1.080	17	56	250	

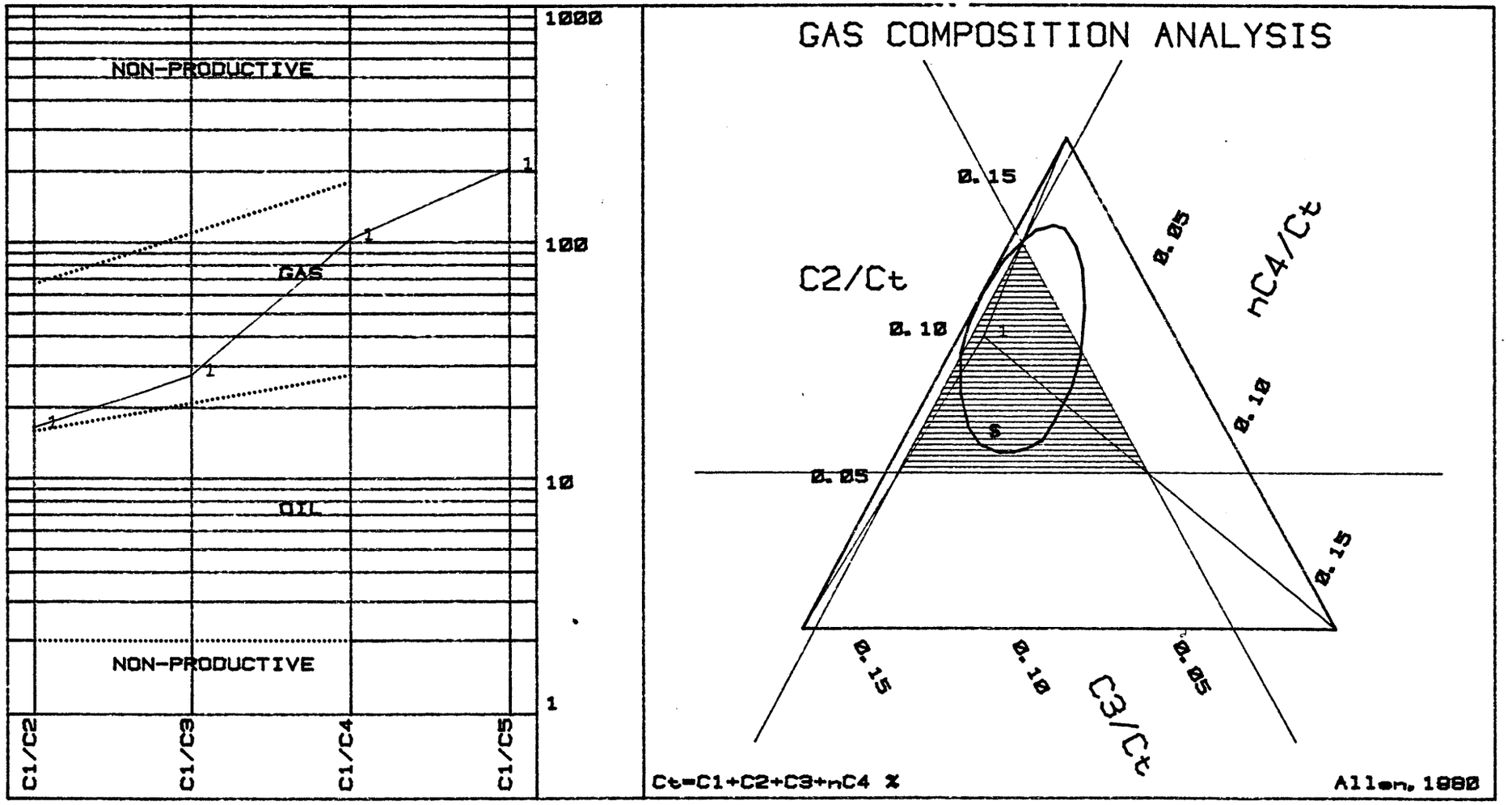
CONCLUSION: DRY GAS ZONE

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2026	1.028	0.129	0.065	0.007	0.007	0.006	0.005	1.229	8	16	74	180

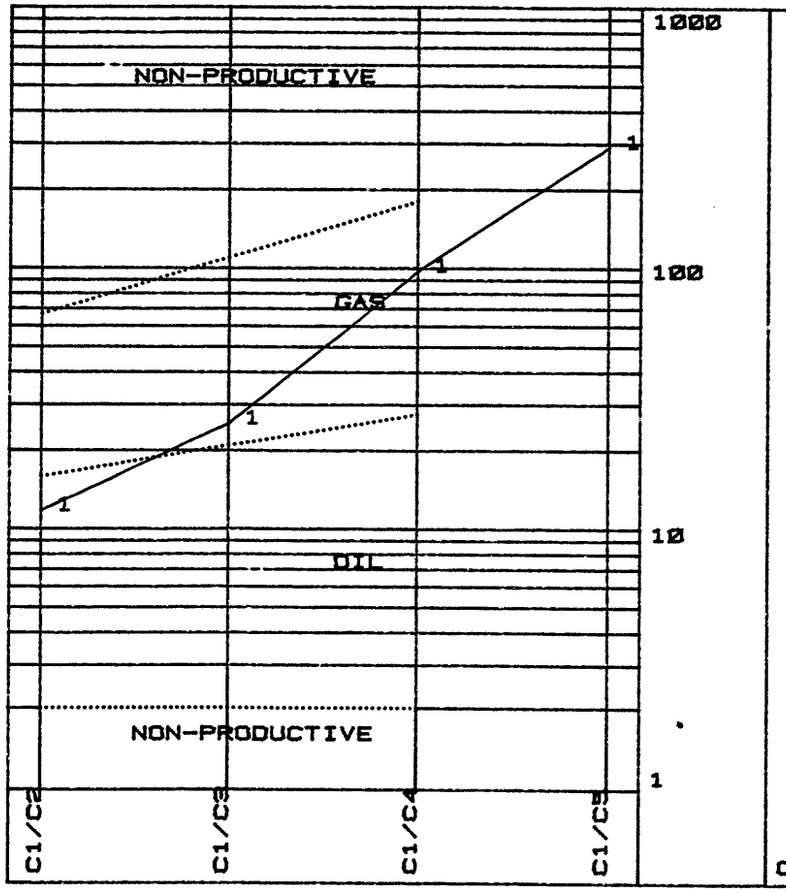
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1

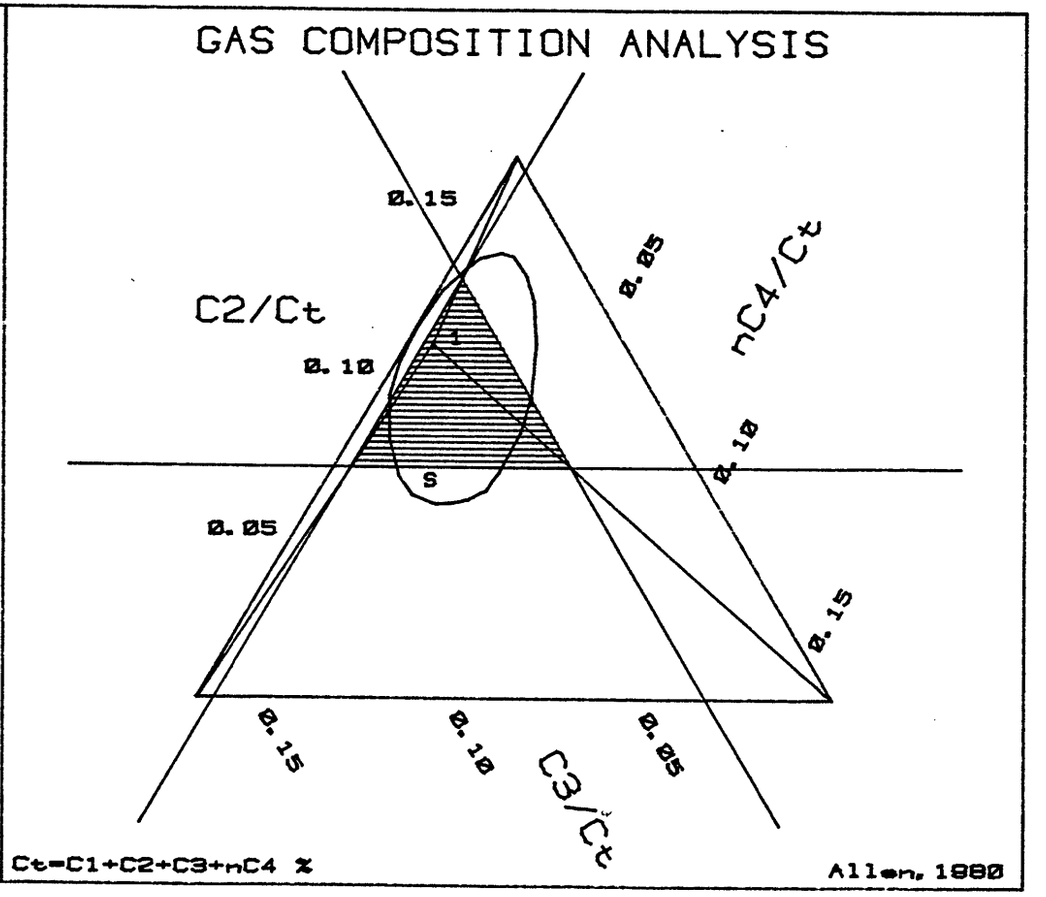


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2140	0.409	0.025	0.015	0.002	0.002	0.002	0.001	0.451	16	27	102	205

CONCLUSION: DRY GAS ZONE

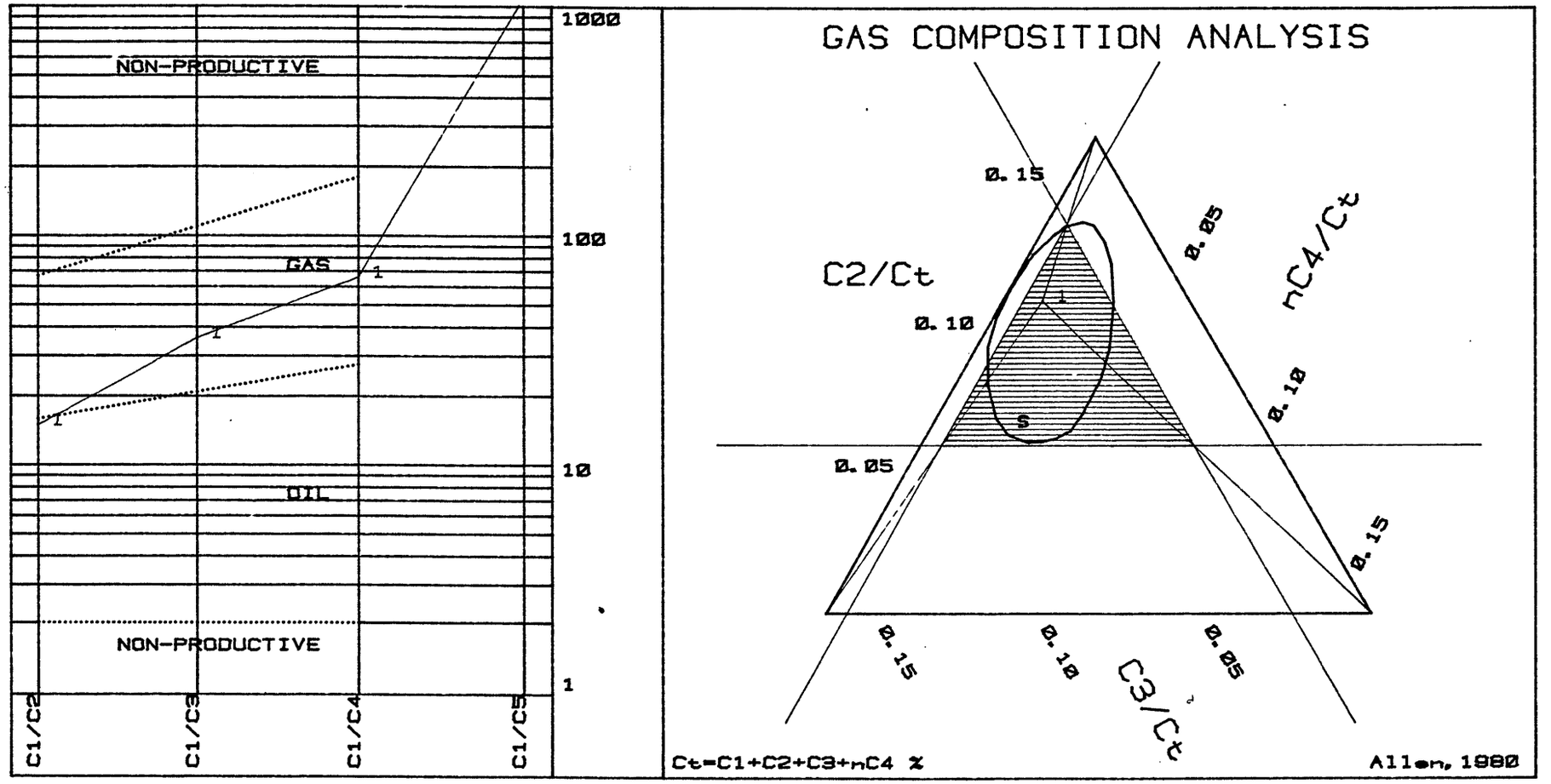
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1





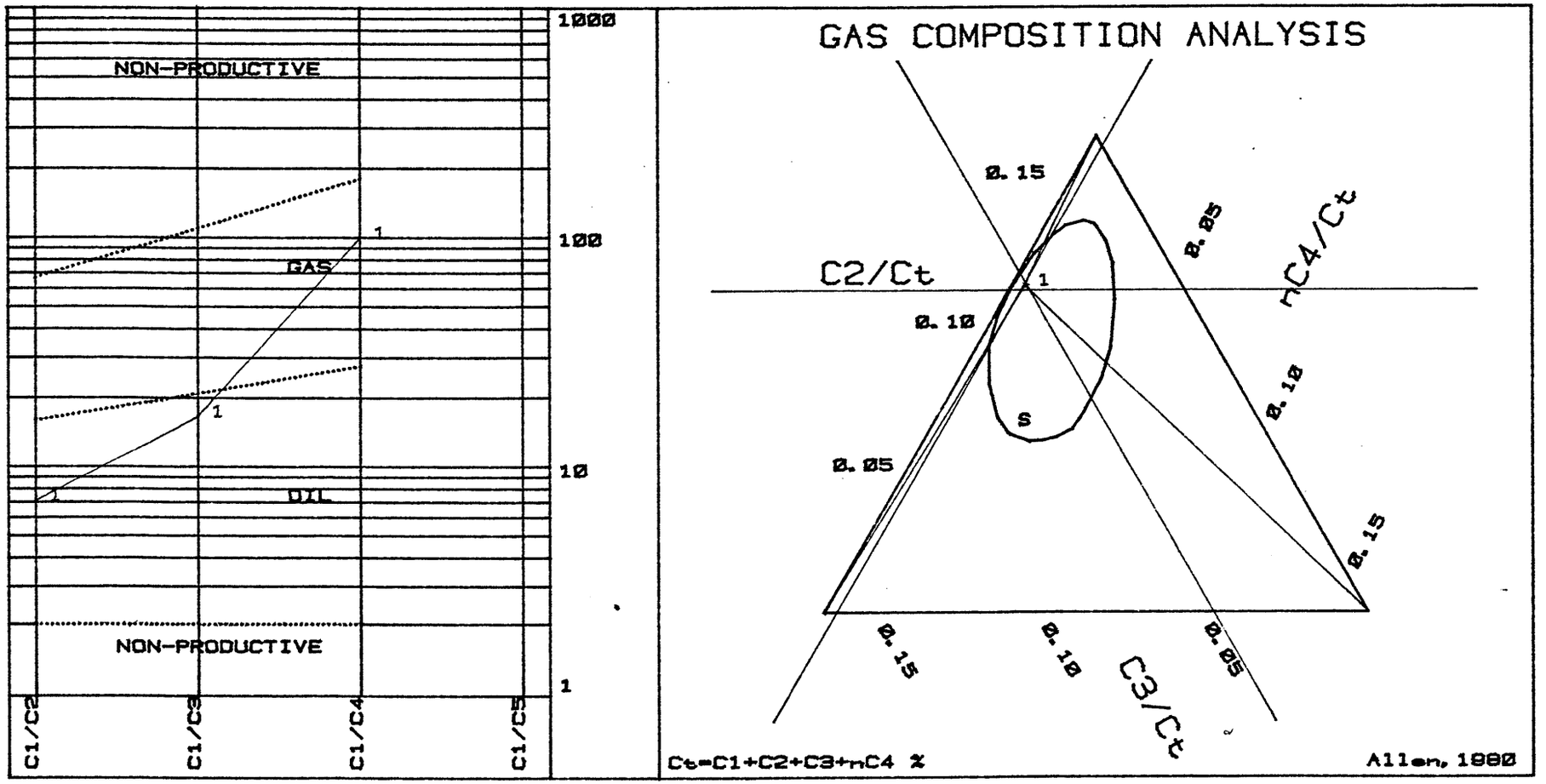
NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2199	1.057	0.089	0.041	0.005	0.005	0.004	0.000	1.193	12	26	98	294

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1



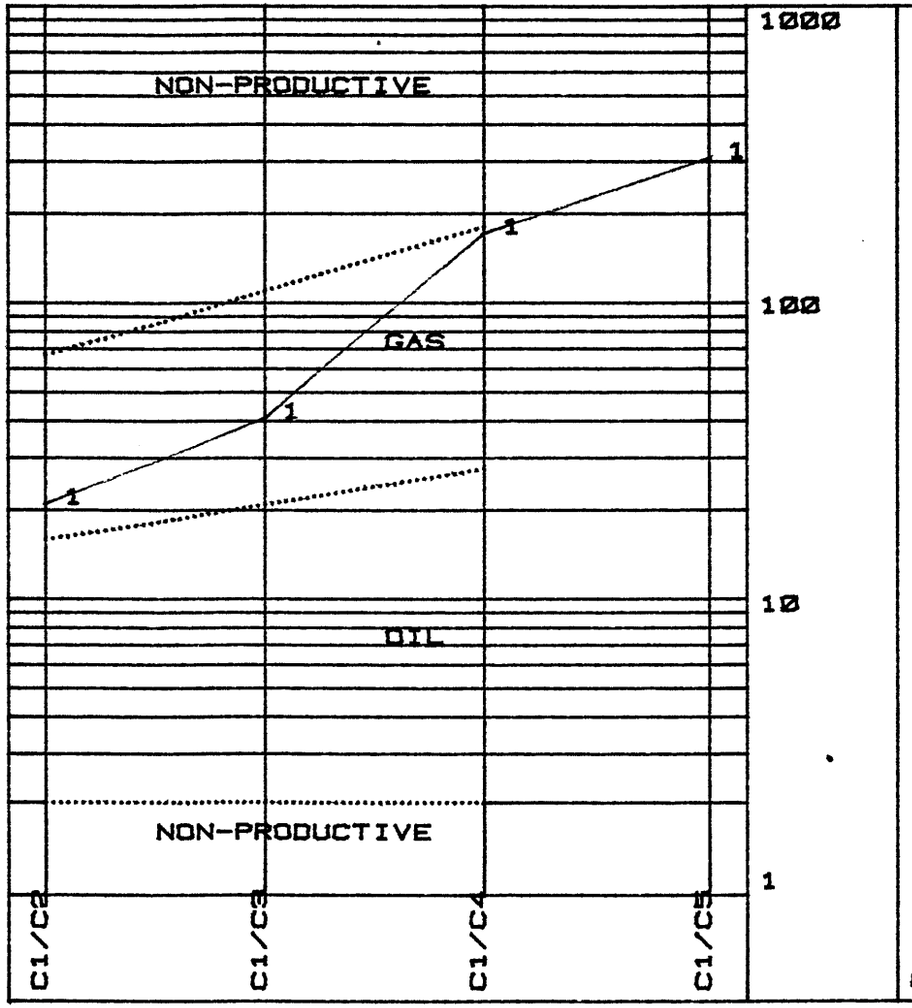
NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2226	2.030	0.138	0.057	0.016	0.016	0.002	0.000	2.240	15	36	65	1068

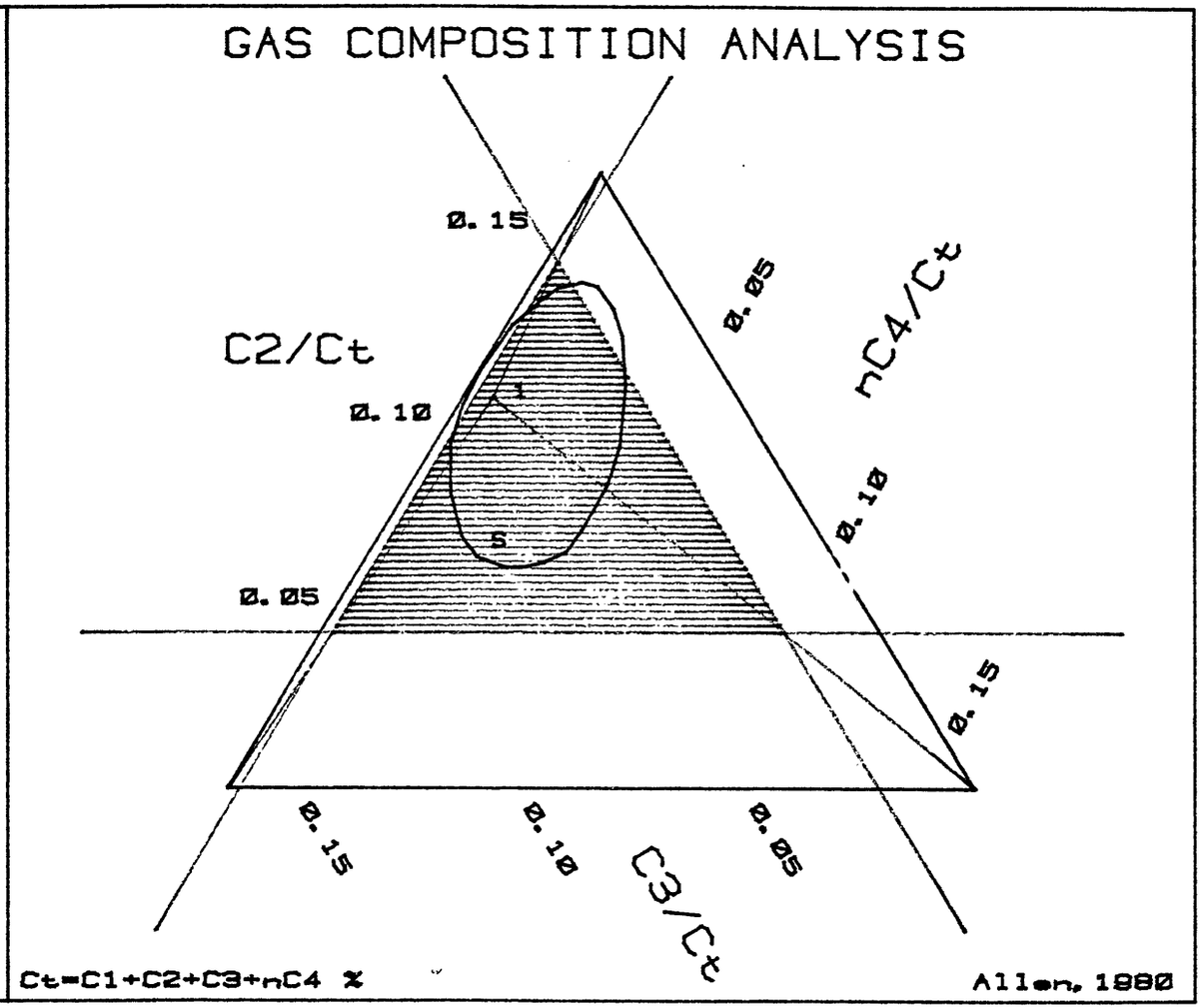
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: WIRRAH # 1



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2240	0.989	0.141	0.060	0.005	0.005	0.000	0.000	1.195	7	16	99	

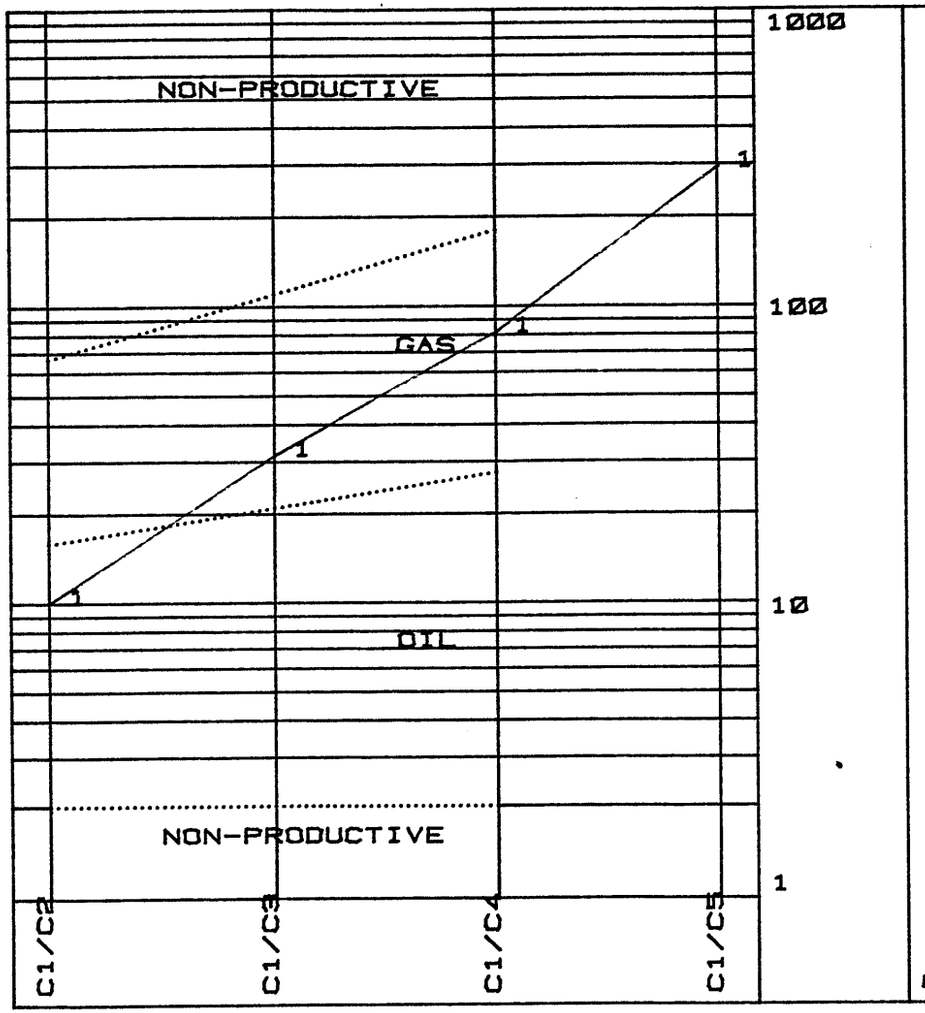
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD Well: WIRRAH NO. 1

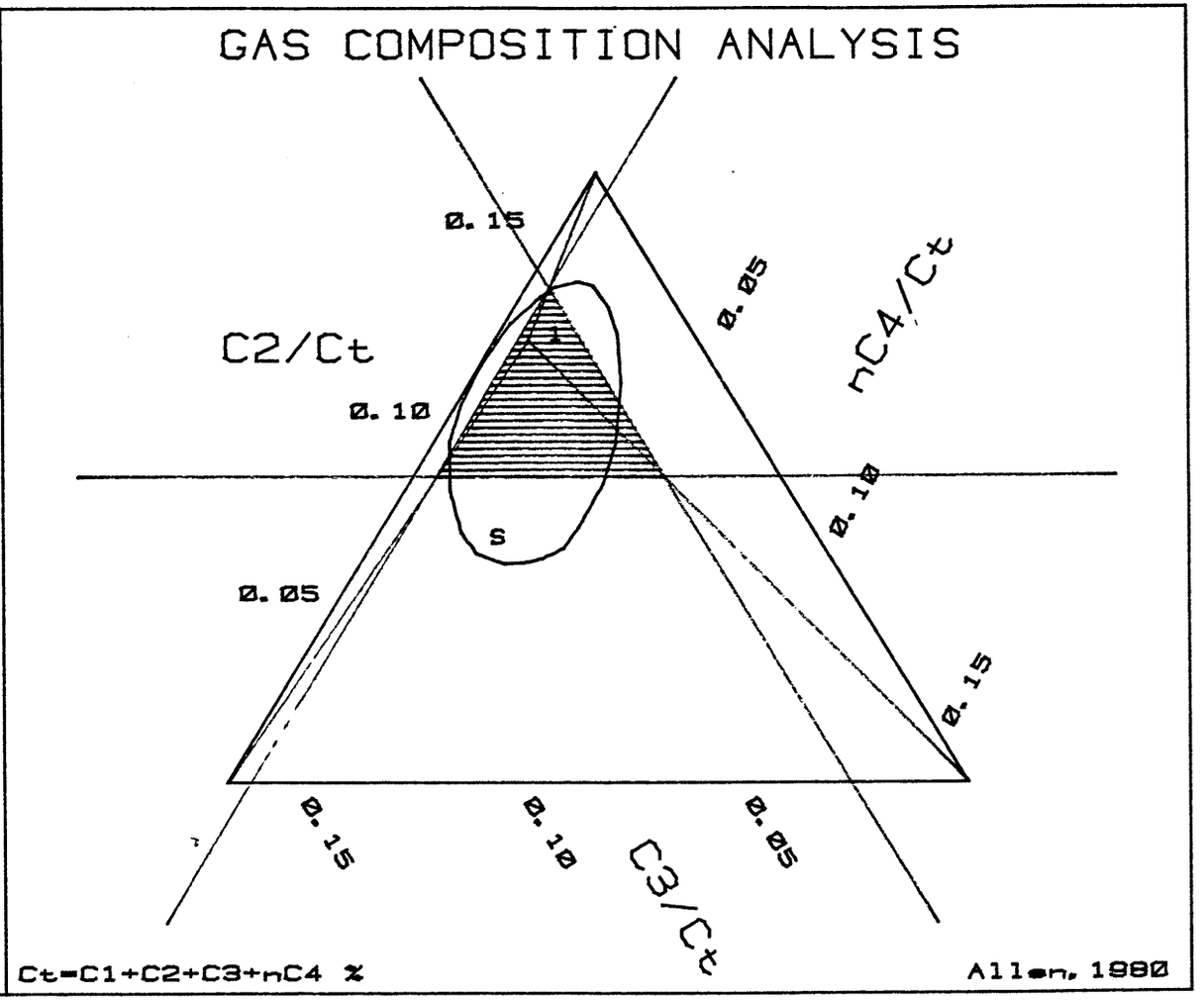




NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2964	126.088	5.985	3.081	Ø.368	Ø.368	Ø.408	Ø.232	135.543	21	41	171	308

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD Well: WIRRAH NO. 1





NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	2985	75.080	7.494	2.385	0.460	0.460	0.256	0.127	85.389	10	31	82	293

GAS ANALYSES

1485m. This was plotted from gas just prior to Core No. 1 from a coarse to very coarse angular to sub-angular, well sorted sandstone.

1493m. This was plotted from gas lagged after a trip from Core No. 1.

1571m. The sandstone from which this gas show was plotted was quartsoze: a clear coarse-grained, sub-rounded-rounded, and well sorted with 20% bright yellow-white fluoresence and slow yellow streaming crush cut.

1577m and 1580m. These plots are from gas L.A.T. from Core No. 4. The lithology was coarse-grained, sub-round-rounded, well sorted sandstone with 20% bright yellow-white fluoresence, yellow cut and slow streaming crush cut.

1878m. The sandstone from which the gas came for this plot was clear-white, coarse-grained quartz, which was sub-angular to angular, loose and dolomitic in part. No fluoresence was seen.

2026m. The formation gas from which this analysis was made comprised of 70% sandstone and 30% siltstone. The sandstone was light brown, fine to medium grained with an argillaceous matrix: it exhibited a blue-white fluoresence with a streaming crush cut. The siltstone was light grey to dark brown and very carbonaceous.

2140m. The sandstone from which this gas analysis was made was white-grey, fine to medium grained, well sorted and moderately hard. It had 15% blue-white fluoresence and a moderate crush cut.

2199m. This formation comprised of 70% siltstone and 30% sandstone. The sandstone was white-light grey, fine grained, sub-angular to sub-rounded, well sorted with an argillaceous matrix. The siltstone was white to medium grey, and occasionally brown dark grey.

2226m. This plot was made from gas from a 70% siltstone, 30% sandstone formation. The sandstone was white-clear, medium to coarse grained occasionally fine grained, moderately well sorted with 5% blue white fluoresence and foot streaming cut. The siltstone was light brown and carbonaceous.

2240m. The gas peak used for this analyses was similar to the one at 2226m.

2964m. This plot was made from gas swabbed from a medium-grained sandstone. A productive dry gas zone is indicated with moderate permeability.

2985m. This plot was made from gas swabbed from a coarse-grained sandstone, and it represents a wet gas zone with moderate permeability. The low C_1/C_2 ratio would suggest quite a rich gas.

19. PRODUCTION TEST DATA

CORE LAB

PRODUCTION WELL TEST DATA SHEET

SHEET # 1

COMPANY ESSO AUSTRALIA LTD

WELL WIRRAH NO. 1 PWT # 1 (INITIAL FLOW)

PERFORATIONS 2624 - 2633.5M (FM, RKB)

DATE

TIME	SAMPLING POINT	C1	C2	C3	C4	C5	C6	CO2	H2S	
HH:MM		PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	
11:39		WELL OPENED								
12:00	CHOKE MANIFOLD	480050	59900	43430	14160	3670	500			30/10/82
12:15	"	465050	74880	59155	25960	6610	1244			
12:25		WELL SHUT IN								

CORE LAB — PRODUCTION WELL TEST DATA SHEET — SHEET # 2

COMPANY ESSO AUSTRALIA LTD

WELL WIRRAH NO. 1 PWT # 1 (FINAL FLOW)

PERFORATIONS 2624 - 2633.5M (FM, RKB) DATE

SAMPLING AS DIRECTED BY ESSO PRODUCTION ENGINEERS

TIME	SAMPLING POINT	C1	C2	C3	C4	C5	C6	CO2	H2S	DATE
HH:MM	GAS SEPARATOR	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	
06:06		WELL OPENED								
06:30	SEPARATOR	680800	61568	23340	6269	1613	290	15.0	-	
07:19		WELL SHUT IN								
09:10		WELL OPENED								2/11/82
09:33	"	693440	78807	30741	7955	2000	464	12.0	-	
09:55	"	668224	69956	33018	9658	2645	696	14.5	-	GAS GRAVITY
10:30	"	655616	88658	42696	10675	2581	522	15.0	-	= 0.889
11:00	"	655600	66490	29030	8133	2129	520	14.6	-	
11:30	"	643008	78807	36434	8641	1936	290	13.8	-	
11:41		WELL SHUT IN								
16:00		WELL OPENED (SEPARATOR BYPASSED)								
16:42		COMMENCE FLOW THROUGH SEPARATOR								
17:00	GAS SEPARATOR	567360	93583	54651	15250	4129	725	15.3	-	
17:30	"	605184	73882	37572	9828	2452	406	15.0	-	
18:00	"	605184	73882	37572	10844	2839	580	15.1	-	
18:30	"	630400	78807	39850	11522	3097	696	14.3	-	
19:00	"	643008	76344	36434	9150	1936	232	12.4	-	
20:00	"	655616	83732	39850	11522	2968	696	14.3	-	
21:00	"	630400	81270	39850	11183	2968	580	15.5	-	
22:00	"	655616	78807	40988	10844	2839	580	13.8	-	
23:00	"	643008	81270	42127	12539	3613	928	14.5	-	
24:00	"	655616	83732	43265	12200	3355	696	14.3	-	2/11/82
01:00	"	656019	83963	43609	12560	2998	696	14.5	-	3/11/82
02:00	"	552916	93486	54701	15250	4129	725	14.8	-	
03:00	"	66754	7864	4096	2086	1096	396	14.6	-	GAS GRAVITY
04:00	"	65495	7880	3624	1084	412	35	14.6	-	CHANGE AT 02:00
05:00	"	30228	3940	2049	1354	155	26	16.0	-	= 0.848
05:33		WELL SHUT IN								
06:00	GAS SEPARATOR	40968	4196	3106	1896	289	36	15.2	-	
07:00	"	51260	5106	4906	1960	396	47	14.7	-	

CORE LAB. **PRODUCTION WELL TEST DATA SHEET** SHEET# 1

COMPANY ESSO AUSTRALIA LTD. DATE 30 OCTOBER 1982

WELL WIRRAH NO. 1 PWT# 1 (INITIAL FLOWS)

PERFORATIONS 2624 - 2633.5M (FM, RKB)

SAMPLING AS DIRECTED BY ESSO PRODUCTION ENGINEERS

RATHOLE FLUID: TYPE SEAWATER/GEL/POLY RES. Ω m _____ @ _____ PH _____ Cl (TITRAT) _____ PPM
NO3 _____ PPM DENSITY _____

CUSHION FLUID: TYPE DIESEL RES. Ω m _____ @ _____ PH _____
Cl (TITRAT) _____ PPM DENSITY _____

TIME HH:MM	SAMPLING POINT	NO	SHAKE OUT % OIL	SHAKE OUT % H2O	SHAKE OUT % SLDS	API @ TEMP —	API @ TEMP °F	COLOUR OIL	POUR POINT °F	WATER RES & TEMP Ω-m	WATER RES & TEMP °F	Cl PPM	NO3 PPM	PH	COMMENTS
															30/10/82
03:59	WELL OPENED														
04:30	CHOKE MANIFOLD					39.74	60		74						OIL
05:00	"					41.26	60		72						OIL
06:00	"					31.07	60		69						OIL
06:15	CENTRIFUGE SAMPLE									9.2	69	13	20	7	WATER
06:45	MANIFOLD					39.14	60		68						OIL
07:00	CENTRIFUGE	-	99.05	0.05						9.0	68	13	20	7	WATER
07:30	OIL/MANIFOLD H2O/CENT.	-	99.05	0.05		40.24	60		66	8.0	68	11	TR	8	OIL/WATER
08:00	SEPARATOR									0.84	68	10	0	7	WATER
08:30	"									0.60	67	13	0	7	WATER
09:00	"									0.56	71	13	0	7	WATER
	NO SAMPLES REQUIRED/CORE LAB ON STANDBY														
09:40	WELL SHUT IN														
	BOTTOM HOLE SAMPLE FROM 1900M														
14:00	SCHLUM. SAMPLER					37.46	60		87						1/11/82
	SAMPLE FROM OTIS TANK:														
18:00						35.5	60		85						1/11/82
	OIL API CHECK														
06:30	MANIFOLD					36.9	60		87						2/11/82

CORE LAB. **PRODUCTION WELL TEST DATA SHEET** SHEET# 2

COMPANY ESSO AUSTRALIA LTD. DATE 2 NOVEMBER 1982

WELL WIRRAH NO. 1 PWT# 1 (FINAL FLOW)

PERFORATIONS 2624 - 2633.5M (FM, RKB)

SAMPLING AS DIRECTED BY ESSO PRODUCTION ENGINEERS

RATHOLE FLUID: TYPE SEAWATER/GEL/POLY RES. Ω m _____ ° _____ PH _____ Cl (TITRAT) _____ PPM

NO3 _____ PPM DENSITY _____

CUSHION FLUID: TYPE DIESEL RES. Ω m _____ ° _____ PH _____

Cl (TITRAT) _____ PPM DENSITY _____

TIME HH:MM	SAMPLING POINT GAS SEPARATOR	OIL GRAVITY	SHAKE OUT % OIL	SHAKE OUT % H2O	SHAKE OUT % SLDS	API & TEMP —	API & TEMP °F	COLOUR OIL	POUR POINT °F	WATER RES & TEMP Ω-m	WATER RES & TEMP °F	Cl K PPM	NO3 PPM	PH	COMMENTS
09:10	WELL OPENED														
09:45	FIRST WATER UP														
10:00	"									0.40	73	12	0	7	
10:30	"									0.34	77	12	20	7	
10:42			92	7.7	0.3	37.1	60		89.6						OIL FROM MANIFOLD
11:00	"									0.38	74	10	20	7	
11:30	"		55	45	TR					0.48	74	12	TR	6.5	
11:41	WELL SHUT IN														
16:00	WELL OPENED (SEPARATOR BYPASSED)														
16:42	COMMENCE FLOW THROUGH SEPARATOR														
17:00	"									0.47	71	11	TR	7	
17:30	"									0.36	92	11	TR	7	
18:00	"									0.33	85	12	TR	7	
18:30	"					37.0	60		86	0.34	86	11.5	TR	7	OIL FROM FLOPETROL HEATER
19:00	"									0.36	84	11.5	TR	7	
20:00	"									0.35	87	12	TR	7.2	
21:00	"									0.38	80	12	20	7	
	NO MORE FLUID SAMPLES REQUIRED														2/11/82
05:33	WELL SHUT IN														3/11 /82

DATA FOR PRODUCTION WELL TEST NO. 2

Perforations for this test were made between 2725 - 2736m on 24th November 1982. When no flow or pressure build-up resulted further perforations were made between 2736 - 2747m. Again no flow or pressure build-up was evident. Otis then R.I.H. and swabbed the test zone, but resulted in a pressure build-up of only 20 psi. More perforations were made between 2691m and 2702m.

Shut in pressure stabilised at 428 psi in 21 minutes.
Flow pressure on 32/64" choke was 11 psi for 30 minutes.
Shut in pressure reached 1132 psi.
Shut in pressure stabilised at 735 psi after 11½ hours.
Flow pressure on 32/64" choke was 11 psi.
Flow pressure on 48/64" choke was 2 psi.
Flow pressure dropped to 0 psi after 14½ hours.
Shut in pressure reached 561 psi after 23½ hours.
14 bbls of diesel were displaced out of the tubing.
Bottom hole samples were water.