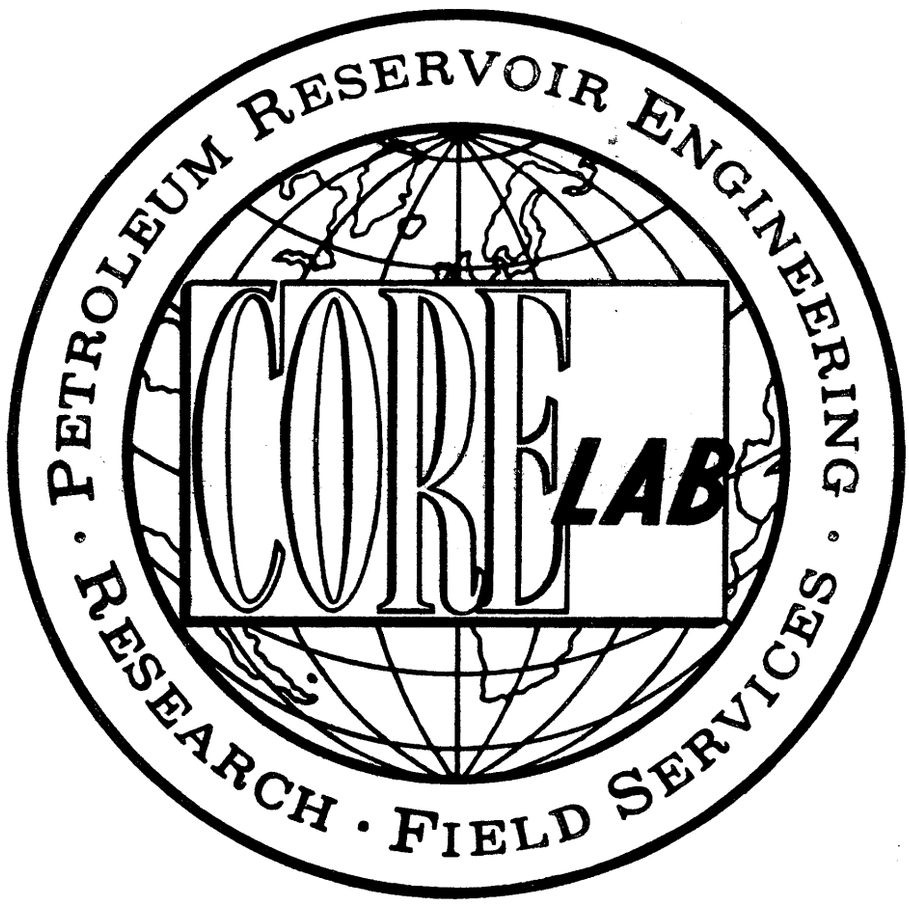
DEPT. NAT. RES & ENV
PE906169

W928

[redacted]

ATTACHMENT TO WCR VOL 1

LEATHERJACKET-1



FINAL WELL REPORT

ESSO AUSTRALIA LIMITED

LEATHERJACKET #1

07 MAY 1986

PETROLEUM DIVISION

INDEX

INTRODUCTION

LEATHERJACKET #1 was drilled by ESSO AUSTRALIA LIMITED, in the Bass Strait, Australia.

Well co-ordinates were :

Latitude : 38°05' 16.875"S
Longitude : 148°46' 41.825"E

The well was drilled by South Seas Drilling Company's semi-submersible rig "Southern Cross", and monitored by Core Laboratories Extended Service Field Laboratory 2007.

LEATHERJACKET #1 was spudded on 23rd February 1986 and reached a total depth of 951 metres on 27th February 1986, a total drilling time of 5 days. The main objectives of the well were to

1. Test the hydrocarbon potential of a high side, fault dependent closure at the top of Latrobe group; and

2. To further evaluate the hydrocarbon potential of the Strzelecki group.

Elevations were :

Kelly bushings to mean sea level	21 metres
Water depth	106 metres
Kelly bushings to mean sea bed	127 metres

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 LEATHERJACKET #1 were as follows :

T. Wyeth	-	Unit Supervisor
B. Giftson	-	Logging Crew Chief
M. Smith	-	Well Logger
S. Williamson	-	Well Logger
R. Poltorak	-	Tritium Operator
J. Bagnall	-	Tritium Operator
K. Krozian	-	Tritium Operator

2. RIG SPECIFICATIONS

RIG INFORMATION SHEET

COMPANY ESSO AUSTRALIA LIMITED

WELL LEATHERJACKET #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 CAPICITY 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 DCS-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 CAPAICTY OF 105 BBL. TWO MUD HOPPERS POWERED BY 2 MISSION 6 x 8" CENTRIFUGAL BY TW(100HP 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. 18 3/4" - 10,000 psi TWO HYDRIL G.L. 18 3/4" - 5,000 psi
WELL CONTROL EQUIP.	FOUR VALV CON ACCUMULATORS CHOKES:2 C.I.W. ABJ H2 2 1/16" - 10,000 psi, 1 SWACO SUPER CHOKE 2" - 10,000 psi
TUBULAR DRILLING EQUIPMENT	DC: 6¼" x 2 13/16" (4" IF TJ) 8" x 2 13/16" (6 5/8" H90 TJ) 9 3/4" x 3" (7 5/8" H90 YJ) HWDP: 5" 50lb/ft GRADE G (6½")) 4½" IF TJ) DP : 5" 19½lb/ft GRADE G & E (6 3/8" OO 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 13 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:3 x 1570cu ft. RISER TENSIONER: 6 WESTERN GEAR, 50' STROKE, 80,000 lbs.
MUD BULK TANKS: 3 x 1570 cu ft. GUIDE LINE TENSIONERS: 4 WESTERN GEAR 16,000 lbs, 40' STROKE

3. WELL INFORMATION, PROGRESS AND HISTORY

WELL INFORMATION SHEET

COMPANY Esso Australia Limited
WELL Leatherjacket #1

Sheet No. 1

WELL NAME Leatherjacket #1

OPERATOR Esso Australia Limited
PARTNERS Shell, BHP, News Corp, TNT, Crusader, Mincorp

RIG	OWNER	South Seas Drilling Company		
	NAME OR NUMBER	Southern Cross		
	TYPE	Semi-submersible		
LOCATION	LATITUDE (X)	38°05'1	LONGITUDE (Y)	148°46'4
	FIELD	Gippsland Basin	AREA	Bass Strait
	COUNTY	-	STATE	Victoria
	COUNTRY	Australia		
	DESCRIPTION	Wildcat		
DATUM	Mean Water Depth	106 metres	RKB to Water Level	21 metres
DATES	SPUD	23rd February 1986	TOTAL DEPTH	27th February 1986

HOLE SIZES	Depth From	Depth To	Bit Size (Inches)	No. of Bits	No. of Reamers	Date From	Date To	Cased	Logged
	127 m	267 m	26	1	0	23/2/86	23/2/86	Y	N
	267 m	641 m	17½	1	0	24/2/86	25/2/86	Y	N
	641 m	951 m	12¼	2	0	26/2/86	27/2/86	N	Y

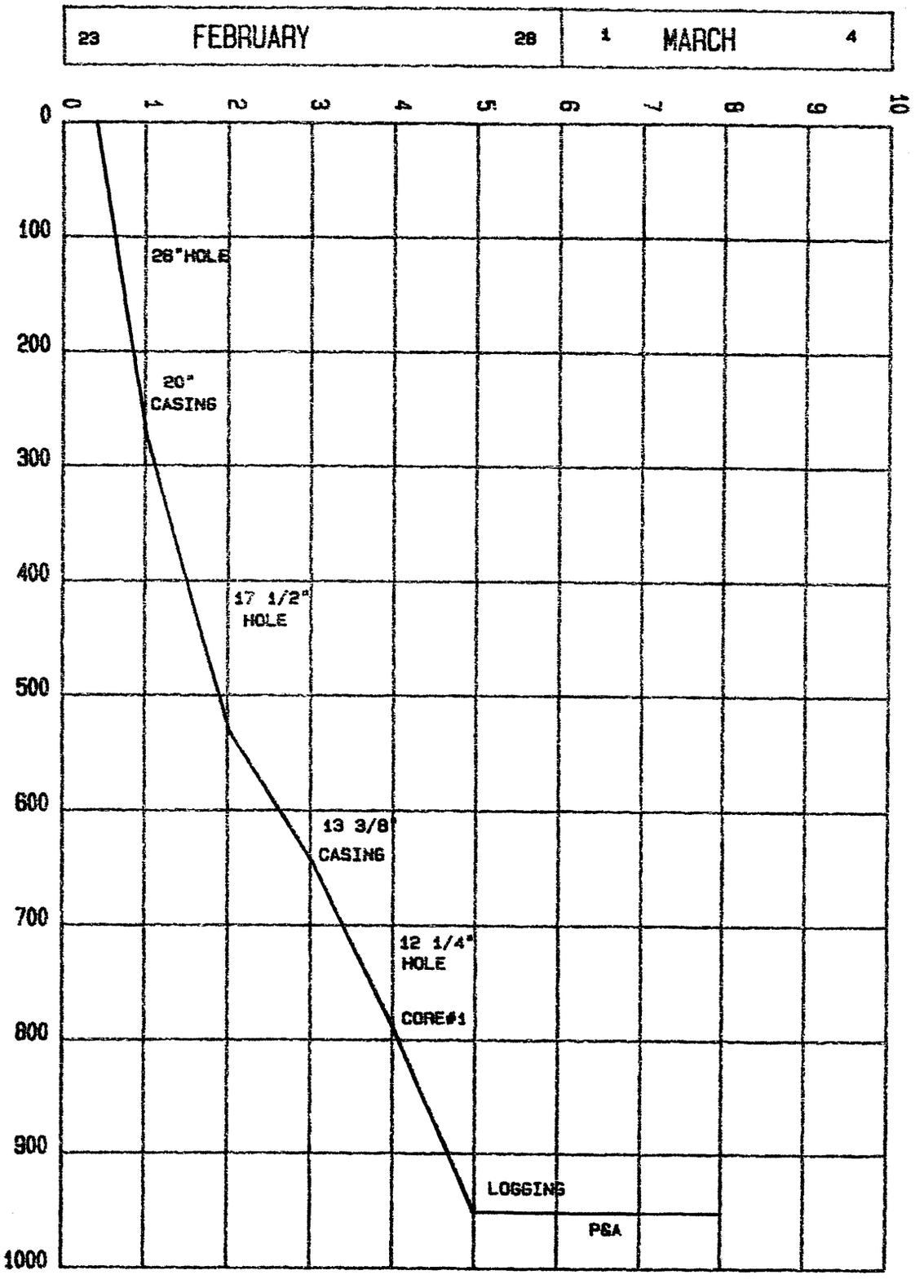
DRILLING FLUIDS	Depth From	Depth To	Weights			Type
	127 m	267 m	8.6	TO	8.8	Seawater
	267 m	641 m	8.6	TO	9.0	Seawater-Gel-Drill Solids
	641 m	951 m	10.5	TO	10.7	Seawater-Gel-Polymer

WIRELINE LOGGING	Depth From	Depth To	Hole Size	Date Run	Logs Run
	952.5 m	625 m	12¼"	28/2/86	HDT-GR
	953 m	626 m	12¼"	28/2/86	DLT-LDT-CNTH-MSFL-GR-SP-CAL
	-	-	12¼"	28/2/86	RFT's 1 to 33
	-	-	12¼"	1/3/86	RFT's 34 to 46
	952 m	626 m	12¼"	1/3/86	GR-CNTH-LDTD-DLTE-SP-CAL
	952 m	626 m	12¼"	1/3/86	WST 5 levels
	-	-	12¼"	1/3/86	CST 30 samples

RISER CASING & LINER	Depth From	Depth To	OD (Ins)	ID (Ins)	Weight	Grade	Thread	Date Run	Cement	Stages	Exces
	0 m	127 m	22	21	----------Riser----------						
	127 m	253.19 m	20	19.124	94	X52	JV Box	23/2/86	"G"	1	-
	127 m	626 m	13 3/8	12.615	54.5	K55	BUTT	25/2/86	"G"	1	-

PROGRESS LOG
ESSO AUSTRALIA LTD.

LEATHERJACKET No.1



WELL HISTORY
LEATHERJACKET #1

23RD FEB 1986	Spudded the well and drilled 26" hole from 127 m to 267 m. Ran and cemented 20" casing; ran riser and BOP's.
24TH FEB 1986	Ran riser and BOP's; tested casing, R.I.H. with NB1, tagged cement at 247.8 m. Drilled out cement and shoe; drilled 17½" hole to 528 m.
25TH FEB 1986	Drilled ahead to 641 m; wiper trip to shoe; W.T.G. 5-18-2 units. P.O.O.H. Ran 13 3/8" casing and cemented shoe at 626 m. Ran seal assembly.
26TH FEB 1986	Tested BOP's, R.I.H., NB3 (HTC J22) and drilled out cement shoe and formation to 647 m. Conducted phase II P.I.T. (15.2 ppg E.M.W., leak off.) Drilled 12¼" hole to 787 m. P.O.O.H. to cut core #1.
27TH FEB 1986	Cut core #1 from 787 m to 796.1 m, recovered 7.64 m (83.5%). Re-ran bit 3 and reamed core rat hole to 796 m. Drilled ahead to 951 m (Total depth). Ran wiper trip to shoe; wiper trip gas 2-3-2 units. P.O.O.H. to run electric logs.
28TH FEB 1986	Logged the hole.
1ST MAR 1986	Logged the hole.
2ND MAR 1986	Plugged and abandoned.

4. LITHOLOGY AND CORE-O-GRAPHS

LITHOLOGY SUMMARY

The main objectives of Leatherjacket #1 were:

1. To test the hydrocarbon potential of a top of fault-dependent closure, on the high side of a NE-SW trending reversed normal fault; and

2. To further evaluate the hydrocarbon potential of the Strzelecki Group.

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

Gippsland Limestone (280 metres - 745 metres)

280 metres - 360 metres	Calcarenite, skeletal and very fossiliferous, but decreasing with depth.
360 metres - 645 metres	Interbedded Calcarenite and Calcisiltite; fossiliferous, associated traces of pyrite and glauconite.
645 metres - 655 metres	Predominantly Calcisiltite interbedded with Sandstone, which is fine-grained and glauconitic.
655 metres - 710 metres	Predominantly Calcisiltite grading in part to a marl.
710 metres - 745 metres	Predominantly Calcisiltite with minor Sandstone interbedding (to 30%), which is very fine grained, calcareous, glauconitic and moderately fossififerous.

Latrobe Group (745 metres - 830 metres) TOP OF THE LATROBE

745 metres - 770 metres	Sandstone (fine grained) interbedded with Calcisiltite and minor Coal. The Sandstone was grey to iron-stained, glauconitic with silica cement. No shows.
770 metres - 836 metres	COARSE CLASTICS Loose, coarse (to very coarse) grained Sandstones with occasional interbeds of Siltstones and minor Coals. Common oil shows; fluorescence. Increasing Siltstone from 830-836 metres.

836 metres - 840 metres	Basal Conglomerate. Sandstone with minor Siltstone interbeds and basal, pebbly conglomerate which is pale green and chloritic.

Strzelecki Group (840 metres - 951 metres)

840 metres - 865 metres	Litharenite with major Siltstone interbedding and minor Coal. The Litharenite is pale green while the Siltstone is greyish-red.
865 metres - 910 metres	Litharenite - pale green or white coloured; occasionally variegated, buff, orange or grey-coloured, hard, abrasive, angular and coarse to very coarse grained. No shows.
910 metres - 951 metres T.D.	Litharenite continuing with minor Sandstone interbedding; the Sandstone is predominantly loose rounded quartz, white to translucent and poorly sorted; very fine to very coarse grained.

Indications of Hydrocarbons

Principally, two intervals are prominent.

770 metres - 792 metres	5-25% yellow-white fluorescence, no instant cut but with a slow streaming crush cut, a clear residue with faint yellow-white fluorescence, no oil staining (Sandstone); 80-100% (as above) between 790 metres and 792 metres. Note that core #1 was cut in the interval 787 metres - 796 metres (Sandstone). Maximum Gas readings in the interval occurred with 205 units being recorded at 773 metres and a second peak of 70 units was observed at 787 metres. Both peaks contained low ratios and amounts of heavy hydrocarbon gases which determined a higher likelihood of biodegraded oil encountered here. The background gas level was relatively high in the interval averaging about 35 units.

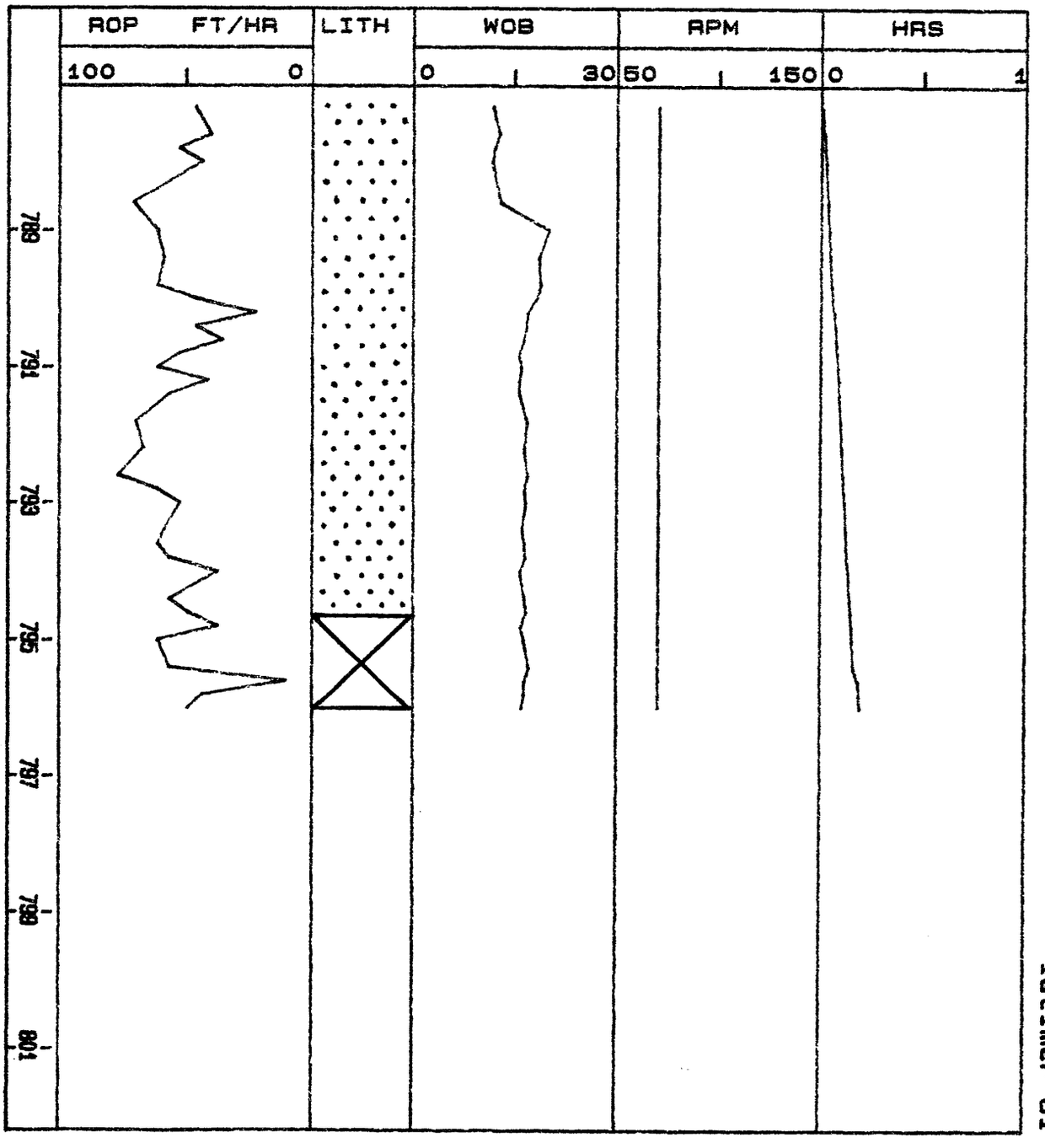
800 metres - 840 metres

Percentages of fluorescence observed from 800 metres - 810 metres vary from between 5 and 10%. From 810 metres - 820 metres sample fluorescence lies at 40%.

From 820 - 840 metres the evident fluorescence tapers from 20% at 830 metres to about 5% at 840 metres. The oil show is characterised by a bright, pale-yellow fluorescence, brown oil-staining and on instant blue-white crush cut (Sandstone). Excellent visual porosity. The Background Gas in the interval is quite high with an average reading of 80 units. A large and broad peak reaches 105 units at 820 metres. Again, heavier hydrocarbon gases are depleted with low C_2-C_3 readings to 60 ppm.

CORE-O-GRAPH

CLIENT:	ESSO AUSTRALIA LTD.
WELL:	LEATHERJACKET NO.1
CORE NO.:	1
INTERVAL CORED FROM	787.0m. TO 786.1m.
CUT: 0.1	RECOVERED: 7.6m. (83.6%)
FORMATION:	LATROBE GROUP
BIT MAKE & TYPE:	CHRIS RC47B
CORE BARREL SIZE:	8.00in.x 4.75in.x 10.60m.
BIT SIZE: 8.88	MUD WT.: 10.7



latimer'81

5. EXTENDED SERVICE PACKAGE

EXTENDED SERVICE INTRODUCTION

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

E.S. PRESSURE LOG

Information plotted on this log includes formation 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 the conclusion log, therefore the information may be modified by results from formation drill stem tests, data from adjacent wells, kicks, R.F.T.'s, 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 liquid density column.

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.

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.

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 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 ths 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 (%), may be 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 formation leak-off test data, R.F.T. and well test data where appropriate.

CORE LABORATORIES EQUIPMENT

Core Laboratories Field Laboratory 2007 monitoring equipment includes the following :

A. MUD LOGGING

1. T.H.M. total gas detector and recorder.
2. F.I.D. (Flame Ionization Detector) chromatograph and recorder.
3. Cuttings gas detector.
4. Gas trap and support equipment for the above.
5. Pit volume totalizer and recorder.
6. Digital depth counter.
7. Two integrated pump stroke counters.
8. Ultra-violet fluoroscope.
9. Binocular microscope.
10. Calcimeter.
11. Steam-still gas analyzer.

B. 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 sensor 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. Mud density sensors (in and out) and recorders.
12. Rotary torque sensor and recorder.
13. Shale density apparatus.
14. Hydrogen sulphide gas detector.
15. Carbon dioxide gas detector.
16. DATALOGGER computer, monitor and impact printer.
17. DIGITAL remote paging display (located in the client's office).
18. Casing pressure transducer and recorder.

All the above sensors and gas detectors have displays on the DATALOGGER monitors except the Cuttings gas detector and steam-still.

CORE LABORATORIES MONITORING EQUIPMENT

DEPTH

Depth registered every 0.1 metres and rate of penetration calculated each metre (or every 0.2m while coring); ROP displayed on the computer monitor and chart.

WEIGHT-ON-BIT

A DeLaval 0-5000 psi, solid state pressure transducer is connected to the rig's deadline anchor. The weight-on-bit is calculated in the Datalogger, and displayed (with hookload) on the computer monitor and recorder chart.

ROTARY SPEED

This is a proximity limit switch which pulses once for every revolution of the rotary drive shaft. The value is displayed on the computer monitor and a recorder chart.

PUMP PRESSURE

This is a DeLaval 0-5000 psi transducer mounted on the stand-pipe manifold. The pressure is displayed on the computer monitor and recorder chart.

CASING PRESSURE

This is a DeLaval 0-5000 psi transducer mounted on the choke manifold. The signal is displayed on the computer monitor and on a recorder chart.

PIT VOLUME

Four individual pits are displayed on the monitor. The pit volume total is calculated by the Datalogger and displayed on the monitor. The sensors are vertical floats triggering magnetic switches accurate to +/- 1 barrel.
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 pump rates per minute are displayed on the monitor.

ROTARY TORQUE

An American Aerospace Controls hi-directional current sensor is clamped over the power cable of the rotary table motor. Torque is displayed on the computer monitor and recorder chart.

MUD TEMPERATURE

This is a platinum probe resistance thermometer, and an electronics module calibrated 0-100 deg.C. Temperature in and out is displayed on the monitor and recorder.

MUD CONDUCTIVITY

A Balsbaugh electrode-less conductivity sensor contains two toroidally-wound coils and a thermistor enclosed in a donut-shaped housing. Current is induced into the mud by the primary coil and is sampled by the secondary coil, the amplitude of the current being directly proportional to the conductivity of the mud.

MUD DENSITY

Two density sensors (in and out) located in the possum belly and in the pit room, operate on a system of differential pressure. This function is displayed on both chart and monitor.

All the sensors are 12 to 36V DC powered with the exception of the air driven gas trap. Along with monitoring and maintaining the above equipment, Core Lab performed other duties...

CUTTINGS

Microscopic and ultra-violet inspection of cuttings samples at predetermined intervals. Samples were washed, dried, sacked and boxed where necessary. 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. Cuttings gas detector (Wheatstone Bridge type).
   An auxiliary system for total gas detection.

4. Hydrogen Sulphide detector.
   Two sensors are located at the shale-shakers and in the pit room, linked to a TAC 404B H2S monitor, to detect H2S emanating from the drilling fluid.

5. Carbon Dioxide detector.
   An Infra-red gas analyzer determines the percentage of CO2 present in gas samples broken out of the mud by the gas trap.

SHALE DENSITY

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

6. ESP PLOT DISCUSSIONS AND CONCLUSIONS

ESP PLOT DESCRIPTIONS AND CONCLUSIONS
(with particular reference to Pore Pressure)

A prime aim during the drilling of Leatherjacket #1 was utilization of data collected by Core Laboratories DL2007 to provide an estimation of formation pressures. This is described below.

The main pressure indicators that were used while drilling the well were those of rates of penetration, gas levels, 'd' c exponent, mud weight, flowline temperature and lithology.

The "Drill Data Plot" (see attached plots inside back cover), shows the rate of penetration, corrected 'd' exponent and mud density plotted against lithology. This plot indicates a normal pressure down to 550 metres, increasing with depth to 8.7 ppg at 951 metres. Any irregularities in rate of penetration, corrected 'd' exponent and gas levels were due to lithology changes. No connection gas was detected. Shale densities were not performed during the drilling of the well as no large beds of shale were encountered.

The "Temperature Plot" displays the flowline temperature in and out and their differential plotted against depth. The temperature plot of Leatherjacket #1 shows a temperature gradient of 4.7°C/100 m. It shows a normal trend with depth, only differing from the expected gradient at points where the mud system was being treated to maintain specifications. The bottom hole temperature was extrapolated to give 50.2°C at 951 metres from wireline logging data, using the Horner method.

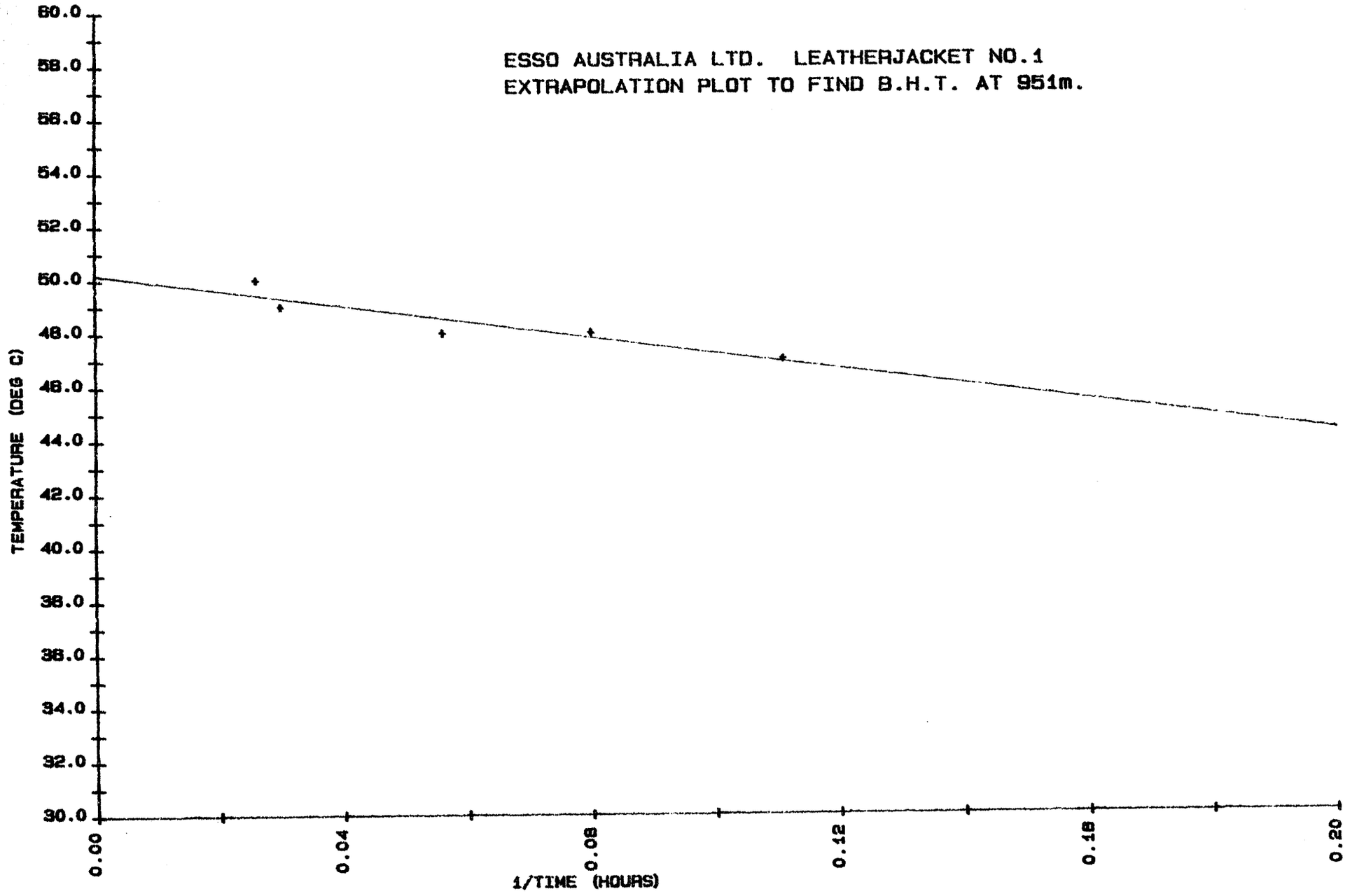
The "Pressure Plot" is a summary of the pressures found in the drilling of Leatherjacket #1. On this plot, estimated pore pressure is plotted along with mud weight and the fracture gradient in pounds per gallon. The pore pressure of the well is drawn from pressure observations made while drilling and information from R.F.T. pretests. The pore pressure profile of the well is set out below:

Depth Interval RKB-TVD (M)	Pore Pressure (PPG)
127 - 550	8.4
550 - 620	8.5
620 - 700	8.6
700 - 951	8.7

As shown by the mud density curve the well was drilled with an overbalance of 0.5 to 2.0 ppg throughout.

It was not possible to derive a true fracture gradient as insufficient leak-off data is available for this basin. A P.I.T. was conducted on Leatherjacket #1, at the 13 3/8" casing shoe (626 metres), yielding 15.2 ppg EMW with leak off. The fracture gradient curve is based on the U.S. Gulf Coast curve and offset to match local data.

7. B.H.T. ESTIMATION


ESSO AUSTRALIA LTD. LEATHERJACKET NO.1
EXTRAPOLATION PLOT TO FIND B.H.T. AT 951m.
TEMPERATURE (DEG C)
60.0
58.0
56.0
54.0
52.0
50.0
48.0
46.0
44.0
42.0
40.0
38.0
36.0
34.0
32.0
30.0
0.00
0.04
0.08
0.12
0.16
0.20
1/TIME (HOURS)

CORE LAB
========

STRAIGHT LINE LEAST SQUARES BEST FIT

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

ENTERED DATA:

DATA SET #	1/TIME	TEMP
1	0.111	47.00
2	0.080	48.00
3	0.056	48.00
4	0.030	49.00
5	0.026	50.00

COEFFICIENT & CONSTANT:

Y = m.X + c where m = -2.9618236E 01 and c = 5.0194865E 01

INTERPOLATED DATA:

1/TIME	TEMP
0.000	50.19

8. OVERBURDEN GRADIENT CALCULATIONS AND PLOT

OVERBURDEN GRADIENT

Due to the lack of wireline data the overburden gradient and plot could not be determined for Leatherjacket #1.

9. GAS ANALYSES

SIDEWALL CORE GAS ANALYSIS DATA SHEET

COMPANY Esso Australia Limited
WELL Leatherjacket #1

No.	DEPTH (M)	C1	C2	C3	C4	C5	C6	COMMENTS
		PPM	PPM	PPM	PPM	PPM	PPM	
11	820.7	57	2	1.2	Tr	-	-	
12	818.6	63	2	1.4	Tr	-	-	
13	813.1	23	1.5	3.5	3.6	3.5	1.4	
18	770.5	86	7.9	3.5	2.2	Tr	-	
19	765.0	107	7.0	0.5	Tr	2.7	Tr	
20	761.0	19	3.4	0.5	Tr	3.9	0.6	
17	775.9	Tr	-	-	-	-	-	

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.

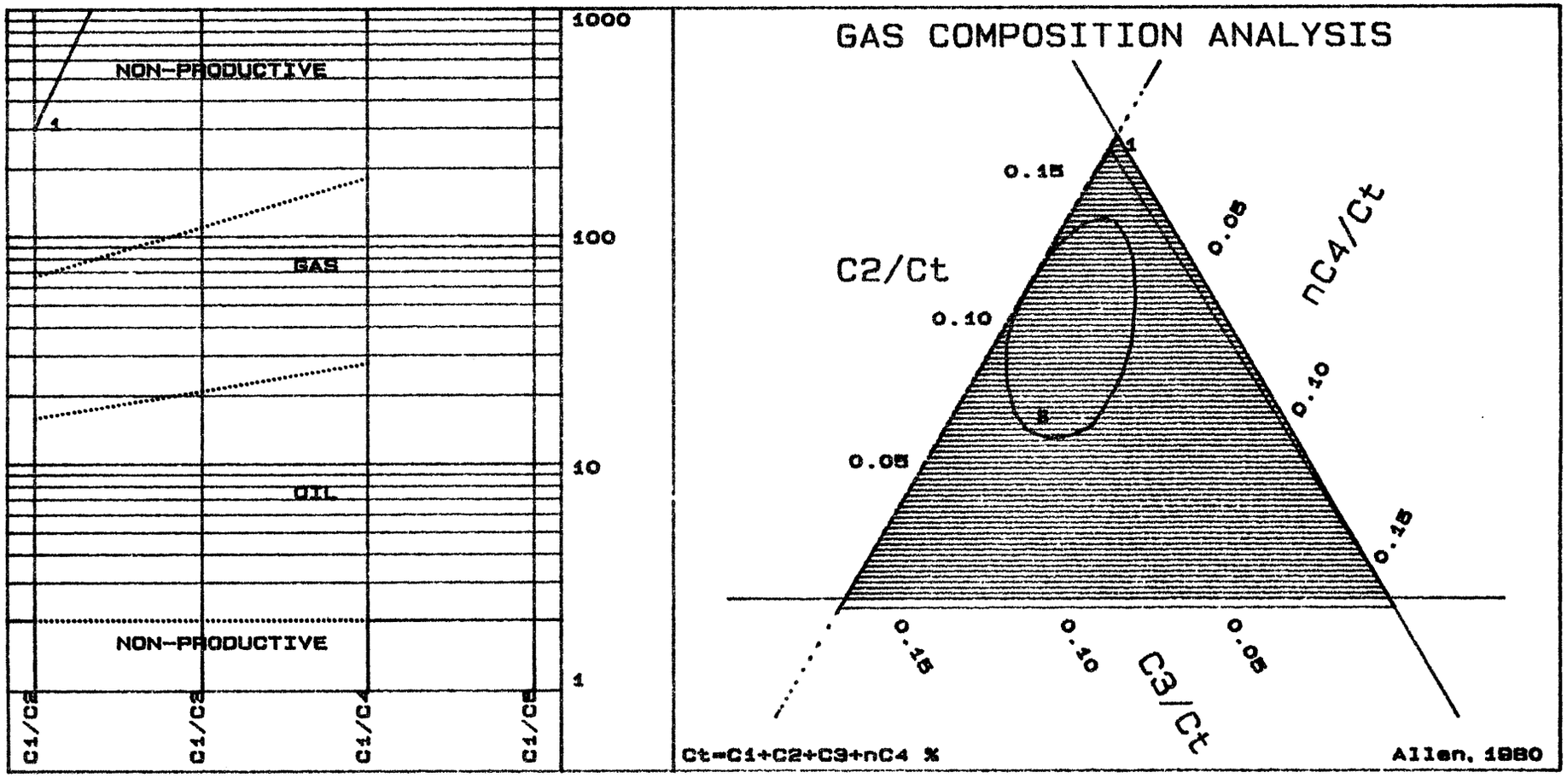
5. The ratios may not be definitive for low permeability zones; however, steep ratio plots may indicate a tight zone.

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).

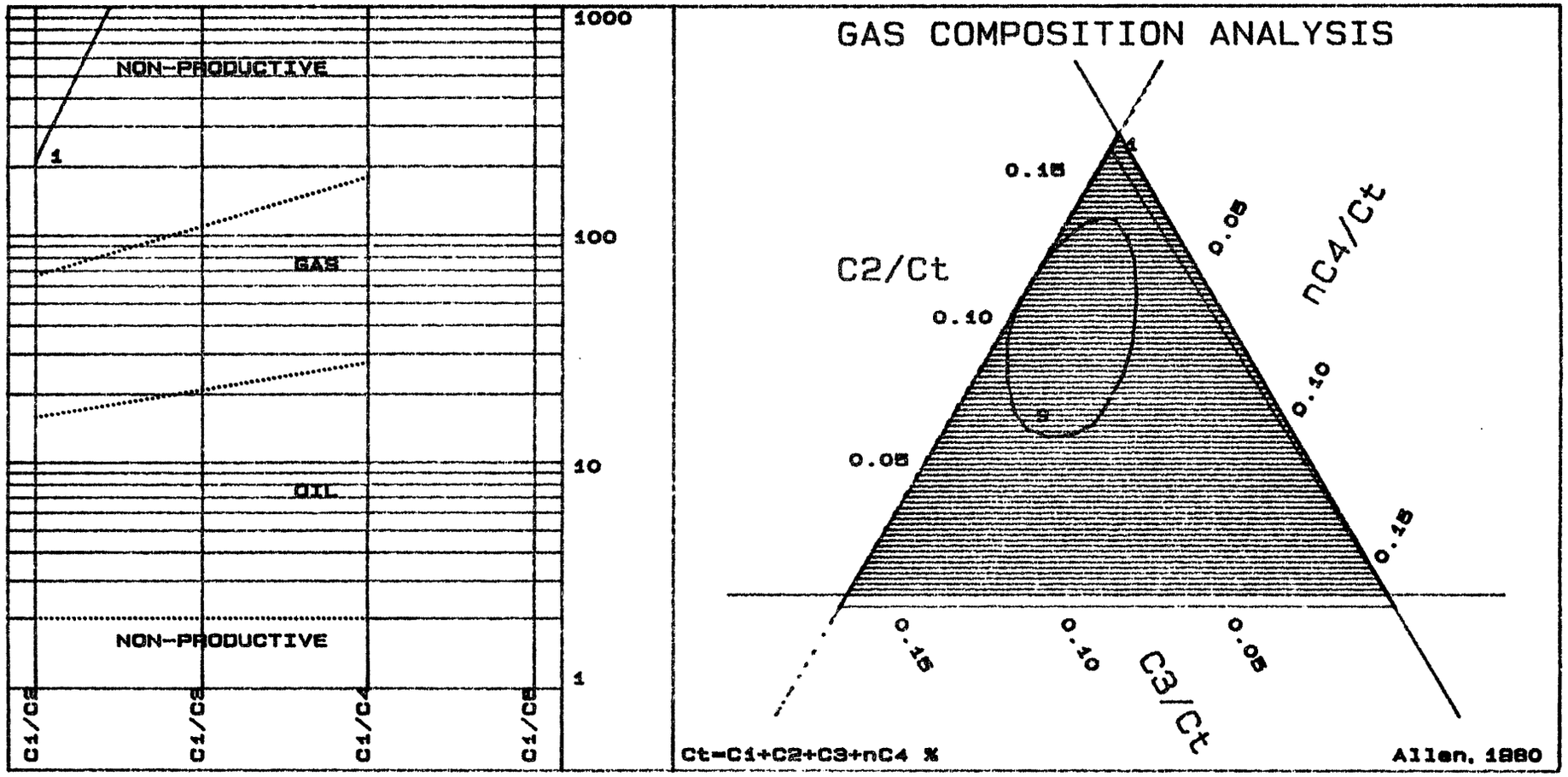
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: LEATHERJACKET No.1



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	773	4.680	0.018	0.000	0.000	0.000	0.000	0.000	4.698	288	10400	38000	

CONCLUSION: NON PRODUCTIVE GAS ZONE

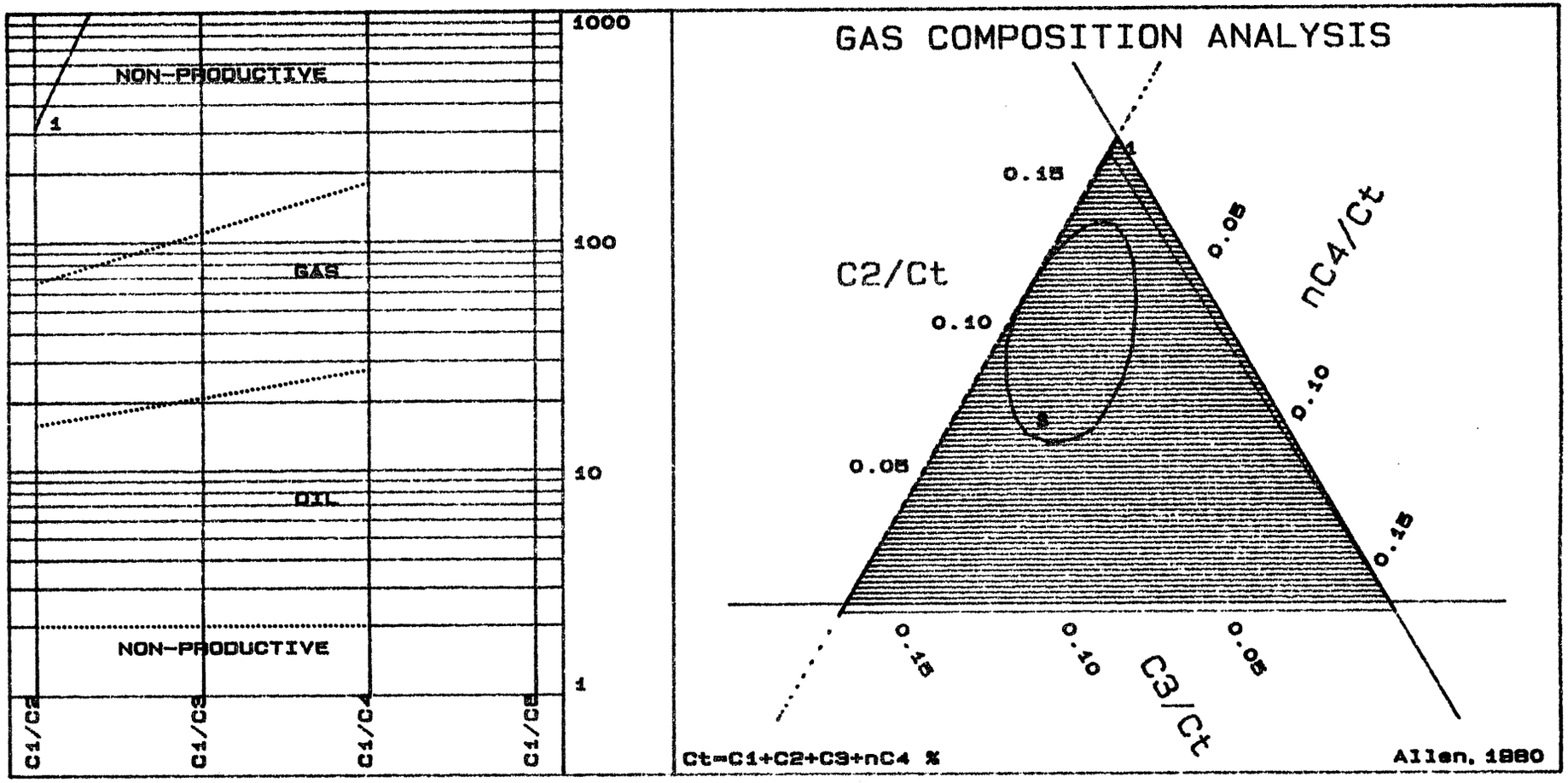
CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: LEATHERJACKET No.1



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	787	1.088	0.005	0.000	0.000	0.000	0.000	0.000	1.104	211	8864	38807	

CONCLUSION: NON PRODUCTIVE GAS ZONE

CORE LAB. INTL. LTD. Client: ESSO AUSTRALIA LTD. Well: LEATHERJACKET No.1



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	820	1.804	0.008	0.000	0.000	0.000	0.000	0.000	1.810	317	10018	31727	

CONCLUSION: NON PRODUCTIVE GAS ZONE

10. SAMPLES COLLECTED

SAMPLES COLLECTED ON LEATHERJACKET #1

1. Oven Dried Cuttings:
   3 sets of 2 boxes each over the interval 280-951 m

   1 set to Esso
   1 set to B.M.R.
   1 set to V.D.I.T.R.

2. Air Dried Cuttings:
   1 set over the interval 270-951 m

3. Geochemical Cans:
   1 set over the interval 270-951 m

4. Mud Samples:
   1 set over the interval 787-940 m

5. R.F.T. Samples:
   8 containers of fluid samples

6. Core #1:
   8 sections of plastic sleeve core over the interval 787-794.64 m

11. CORELAB DATA SHEETS

COMPANY Esso Australia Limited
WELL Leatherjacket #1

BIT RECORD

Sheet No. 1

Ser No.	Bit No.	Make	Type	IADC Code	Size (Inches)	Jets	Depth In Metres	Hole Made (m)	Drill Time	On Bottom Hours	On Bottom Turns K	Condition T B G	Remarks
LW 720	RR1	HTC	OSC 3AJ	111	26	20/20/20	127	140	4 3/4	3.62	21678	1-1-I	Pulled at 20" casing point.
117 SR	NB1	HTC	R1	111	17½	20/20/20	267	374	14 3/4	10.45	72699	2-1-I	Pulled at 13 3/8" casing point.
788 HS	NB2	HTC	J1	116	12¼	16/16/16	641	122	4	2.66	17674	3-4-I	Pulled at formation change.
549 PL	NB3	HTC	J22	517	12¼	16/16/16	763	24	1	0.90	3767	1-1-I	Pulled to cut Core #1.
1450678	CB1	CHRIS	RC476	4	9 7/8	Equivalent 14/14/14	787	9	½	0.20	819	20% worn	Pulled to retrieve core.
549PL	RR3	HTC	J22	517	12¼	16/16/16	796	155	8	6.65	28931	5-4-1/8	Pulled at Total Depth.

BIT RECORD

COMPANY Esso Australia Limited
WELL Leatherjacket #1

Sheet No. 1

Ser No.	Bit No.	Make	Type	IADC Code	Size (Inches)	Cost A$	Jets	Depth In (m)	Depth Out (m)	Hole Made m	Drill Time	On Bottom Hours	On Bottom TurnsK	Avg ROP	Avg Cost/m	Condition T B G
LW 720	RR1	HTC	OSC 3AJ	111	26	0	20/20/20	127	267	140	4 3/4	3.62	21678	38.7	154.43	1-1-I
117 SR	NB1	HTC	R1	111	17½	4978	20/20/20	267	641	374	14 3/4	10.45	72699	35.8	144.65	2-1-I
788 HS	NB2	HTC	J1	116	12¼	2566	16/16/16	641	763	122	4	2.66	17674	45.9	204.43	3-4-I
549 PL	NB3	HTC	J22	517	12¼	8520	16/16/16	763	787	24	1	0.90	3767	26.7	1054.97	1-1-I
1450678	CB1	CHRIS	RC476	4	9 7/8	17600	Equivalent 14/14/14	787	796	9	½	0.20	819	45.0	3538.09	20% worn
549 PL	RR3	HTC	J22	517	12¼	0	16/16/16	796	951	155	8	6.65	28931	25.3	213.20	5-4-1/8

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

MUD INFORMATION SHEET

COMPANY Esso Australia Limited
WELL Leatherjacket #1

Sheet No. 1

DEPTH	180	480	542	705	951	PIT
DATE	23/2/86	24/2/86	25/2/86	26/2/86	27/2/86	28/2/86
TIME	03:00	22:00	01:00	15:00	20:00	13:00
WEIGHT	8.8	9.0	9.0+	10.7	10.5	10.5
FUNNEL VISCOSITY	100+	31	32	38	44	41
PV/YP	3/47	3/15	4/15	12/20	11/20	11/20
N/K	-	0.22/4.50	0.28/3.41	0.46/1.83	0.44/2.02	0.44/2.02
GEL: INITIAL/10 MIN	43/58	10/12	11/13	23/32	18/34	17/31
pH	10.0	9.5	9.5	10.5	10.5	10.2
FILTRATE:API/API HTHP	-	-	-	14/27	10/20	10/20
CAKE	-	-	-	2	1	1
SALINITY (PPM)	-	-	-	17,000	17,000	17,000
SAND	-	-	-	0.5	Tr	Tr
SOLIDS	-	-	-	12	13	13
OIL	-	-	-	-	-	-
TRITIUM (DPM)	-	-	-	3413	3207	-
REMARKS:	Spud & Drill 26" hole	--Drill 17½" hole--		Drill 12¼" hole	Cut Core #1 Drill 12¼" to T.D.	Logging

DEPTH	PIT
DATE	29/2/86
TIME	13:00
WEIGHT	10.5
FUNNEL VISCOSITY	40
PV/YP	11/20
N/K	0.44/2.02
GEL: INITIAL/10 MIN	17/30
pH	9.8
FILTRATE:API/API HTHP	10/20
CAKE	1
SALINITY (PPM)	17,000
SAND	Tr
SOLIDS	13
OIL	-
TRITIUM (DPM)	-
REMARKS:	Logging

R.F.T. DATA

R.F.T. SAMPLING DATA SHEET

COMPANY Esso Australia Limited
WELL Leatherjacket #1

Sheet No. 1

RUN No.	1	2	3
SEAT No.	16	25	46
CHAMBER CAPACITY (L)	45.4	45.4	45.4
DEPTH (metres)	788.5	812.8	765
RECOVERY VOLUMES			
GAS (Cu Ft)	0.14	-	7.7
OIL (cc)	500	-	26,000
WATER/FILTRATE (cc)	8,000	12,000	17,000
OTHER (cc) Scum	-	250	-
SURFACE PRESSURE (PSI)	0.0	0.0	150
GAS COMPOSITION			
C1 (PPM)	-	-	143,503
C2 (PPM)	-	-	2,692
C3 (PPM)	-	-	356
C4 (PPM)	-	-	1,011
C5 (PPM)	-	-	725
C6 (PPM)	-	-	79
CO2 (%)	Nil	Nil	Tr
H2S (PPM)	Nil	Nil	Tr
OIL PROPERTIES			
DENSITY (°API at 15.6°C)	26.5	15.0	24.4
COLOUR	Brn	Dk Brn	Rust Brn
FLUORESCENCE	Yel-white	Pale yel white	Pale yel white
POUR POINT (°C)	10	<10	<10
WATER PROPERTIES			
RESISTIVITY (Ωm) at 20°C	1.30	0.369	0.313
Cl (frm resis) (PPM)	4,700	18,000	22,000
Cl (frm titrat) (PPM)	4,100	14,500	17,000
TRITIUM (DPM)	368	1,786	2,125
pH	6.5	7.0	7.5
TRITIUM (DPM) DRILLING	2,987	2,995	3,183

COMMENTS

PORE PRESSURE DATA SHEET

COMPANY : ESSO AUSTRALIA LTD. DATA FROM RFT'S

WELL : LEATHERJACKET No.1

DEPTH (FROM RKB)	DEPTH (FROM MSL)	PORE PRESS	PORE PRESS GRADIENT E.M.W.(MSL)	PORE PRESS GRADIENT
METRES	TVD. METRES	PSIA	PPG	PSI/M
758.0	737.0	1091.26	8.679	1.481
764.5	743.5	1101.65	8.685	1.482
765.5	744.5	1102.70	8.682	1.481
789.8	768.8	1135.59	8.658	1.477
793.7	772.7	1141.15	8.657	1.477
804.0	783.0	1156.20	8.655	1.477
846.8	825.8	1219.16	8.654	1.476

APPENDICES

COMPUTER DATA LISTINGS

Data is fed to the computer while drilling is in progress, using the RILL program and is stored on a tape at 10, 5, 1, or 0.2m intervals. This data is then available at a later date for use in other programs (for example KICK, SURGE, COST, OPTBIT, and HYDRL).

he data can also be accessed by the REPORT program, which allows the operator to list both raw and calculated data in various formats. Either detailed data or data averaged over any particular depth interval, may e listed.

In addition, the data may be plotted in various formats, at any scale he operator desires.

the following data lists have been made for this well :

(a). Bit record and bit initialization data

(b). Hydraulic analyses

(c). Data list A

(d). Data list B

(e). Data list C

(f). Data list D

COMPUTER PLOTS

sing the REPORT program, hte following plots have been drawn for this well :

GEOPLOT - 1:5000 SCALE - 2m averages

Since all the data is stored on tape, further data lists or plots are available at any time on request.

(a). BIT RECORD AND BIT INITIALIZATION DATA

BIT SIZE . . . . . Inches

BIT COST . . . . . Australian dollars

JET SIZE . . . . . Thirty-seconds of an inch

DEPTHS . . . . . Metres

HOLE MADE. . . . . Metres

DRILLING TIME. . . . . Hours

AVERAGE ROP. . . . . Metres/hour

AVERAGE COST/METRE . . Australian dollars

BIT CONDITION. . . . . Teeth

Bearings

Gauge . . . . Inches

WELL: LEATHERJACKET No.1

BIT RECORD

BIT No.	IADC CODE	MAKE & TYPE	SIZE	COST	NOZZLES	DEPTH IN	DEPTH OUT	BIT RUN	TOTAL HOURS	TRIP AROP	TRIP TIME	CCOST	TOTAL TURNS	CONDITION T	B	G
1	111	HTC OSC3AJ+26"HO	26.000	0.00	20 20 20	127.0	267.0	140.0	3.62	38.7	2.3	154.43	21678	1	1	0.000
1	111	HTC R1	17.500	4978.00	20 20 20	267.0	641.0	374.0	10.45	35.8	3.0	144.65	72699	2	1	0.000
2	116	HTC J1	12.250	2566.00	16 16 16	641.0	763.0	122.0	2.66	45.9	3.5	205.43	17674	3	4	0.000
3	517	HTC J22	12.250	8520.00	16 16 16	763.0	787.0	24.0	0.90	26.7	3.7	1054.97	3767	1	1	0.000
3	4	CHRIS RC476	9.875	17600.00	14 14 14	787.0	796.0	9.0	0.20	45.0	3.7	3538.09	819	0	2	0.000
3	517	HTC J22	12.250	0.00	16 16 16	796.0	951.0	155.0	6.65	25.3	3.8	213.20	28931	5	4	0.125

BIT NUMBER: 1 IADC CODE 111 HTC OSC3AJ+26"HO

STARTING DEPTH, TVD.....	127.0	127.0	
BIT COST, RIG COST/HOUR.....	0.00	3652.00	
TRIP TIME.....	2.3		
BIT DIAMETER.....	26.000		
NOZZLES.....	20	20	20
HW DRILL COLLAR LENGTH, OD, ID....	19.03	9.750	3.062
DRILL COLLAR LENGTH, OD, ID.....	93.03	8.000	2.813
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	0.00	0.000	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	4.0	2.00	
FINISHING DEPTH.....	267.0		
CUMULATIVE HOURS, TURNS.....	3.6	21678	
BIT CONDITION OUT.....	T 1	B 1	G 0.000

BIT NUMBER: 1 IADC CODE 111 HTC R1

STARTING DEPTH, TVD.....	267.0	267.0	
BIT COST, RIG COST/HOUR.....	4978.00	3652.00	
TRIP TIME.....	3.0		
BIT DIAMETER.....	17.500		
NOZZLES.....	20	20	20
HW DRILL COLLAR LENGTH, OD, ID....	21.91	9.750	3.062
DRILL COLLAR LENGTH, OD, ID.....	93.03	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	33.38	5.000	3.125
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	253.19	17.124	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	3.0	2.10	
FINISHING DEPTH.....	641.0		
CUMULATIVE HOURS, TURNS.....	10.5	72699	
BIT CONDITION OUT.....	T 2	B 1	G 0.000

BIT NUMBER: 2 IADC CODE 116 HTC J1

STARTING DEPTH, TVD.....	641.0	641.0	
BIT COST, RIG COST/HOUR.....	2566.00	3652.00	
TRIP TIME.....	3.5		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	16
DRILL COLLAR LENGTH, OD, ID.....	155.62	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	83.38	5.000	3.125
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	626.00	12.615	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.5	2.10	
FINISHING DEPTH.....	763.0		
CUMULATIVE HOURS, TURNS.....	2.7	17674	
BIT CONDITION OUT.....	T 3	B 4	G 0.000

BIT NUMBER: 3 IADC CODE 517 HTC J22

STARTING DEPTH, TVD.....	763.0	763.0	
BIT COST, RIG COST/HOUR.....	8520.00	3652.00	
TRIP TIME.....	3.7		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	16
DRILL COLLAR LENGTH, OD, ID.....	155.62	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	83.38	5.000	3.125
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	626.00	12.615	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.0	2.10	
FINISHING DEPTH.....	787.0		
CUMULATIVE HOURS, TURNS.....	0.9	3767	
BIT CONDITION OUT.....	T 1	B 1	G 0.000

BIT NUMBER: 3 IADC CODE 4 CHRIS RC476

STARTING DEPTH, TVD.....	787.0	787.0	
BIT COST, RIG COST/HOUR.....	17600.00	3652.00	
TRIP TIME.....	3.7		
BIT DIAMETER.....	9.875		
NOZZLES.....	14	14	14
DRILL COLLAR LENGTH, OD, ID.....	133.29	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	83.38	5.000	3.125
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	626.00	12.615	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	1.5	2.10	
FINISHING DEPTH.....	796.0		
CUMULATIVE HOURS, TURNS.....	0.2	819	
BIT CONDITION OUT.....	T 0	B 2	G 0.000

BIT NUMBER: 3 IADC CODE 517 HTC J22

STARTING DEPTH, TVD.....	796.0	796.0	
BIT COST, RIG COST/HOUR.....	0.00	3652.00	
TRIP TIME.....	3.8		
PREVIOUS HOURS, TURNS.....	0.53	2380	
PREVIOUS HOLE MADE.....	24.0		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	16
DRILL COLLAR LENGTH, OD, ID.....	155.62	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	83.38	5.000	3.125
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	626.00	12.615	
RISER LENGTH, ID.....	127.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.4		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.14		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.0	2.20	
FINISHING DEPTH.....	951.0		
CUMULATIVE HOURS, TURNS.....	6.7	29931	
BIT CONDITION OUT.....	T 5	B 4	G 0.125

(b). HYDRAULIC ANALYSIS

Data listed from the tape every 100m for each bit run.

DEPTH. . . . . Metres

FLOW RATE. . . . . Rate of mud flow into the well, in gallons per minute.

ANNULAR VOLUMES. . . . Barrels, Barrels/metre

ANNULAR VELOCITIES . . Metres/minute

CRITICAL VELOCITIES. . The annular velocity above which the flow becomes turbulent

SLIP VELOCITY. . . . . The rate of slip of cuttings in the annulus under laminar flow

ASCENT VELOCITY. . . . The rate of ascent of cuttings in the annulus under laminar flow

PRESSURE UNITS . . . . Pounds per square inch

IMPACT FORCE . . . . . The impact force at the bit, in foot-pounds per second squared.

H.H.P. . . . . Hydraulic horsepower at the bit

JET VELOCITY . . . . . The velocity of mud through the bit nozzles, in metres per second.

DENSITY UNITS. . . . . Pounds per gallon

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 200.0 AND TVD 200.0

SPM 1 96 SPM 2 100 FLOW RATE 976

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	1.851	35	13	54	LAMINAR	0	12	0.0
DC/OH	1.950	105	12	54	LAMINAR	0	12	0.1
DC/RIS	1.201	47	19	56	LAMINAR	0	19	0.1
DP/RIS	1.325	117	18	54	LAMINAR	0	17	0.1

TOTAL VOLUME 304 TOTAL PRESSURE DROP 0.3

LAG: 13.1 MINUTES 1251 STROKES #1 AND 1303 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	891.1	HHP	508	IMPACT FORCE	1479
SURFACE PRESSURE	66.0	HHP/sqin	0.76	JET VELOCITY	103

PRESSURE BREAKDOWN:

SURFACE	63.4		
STRING	320.2		
BIT	891.1		
ANNULUS	0.3		
TOTAL	1274.9	PUMP PRESSURE 1350.7	% DIFFERENCE 5.6

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	8.60	HYDROSTATIC PRESSURE	293.4
CIRCULATING:	ECD	8.61	CIRCULATING PRESSURE	293.7
PULLING OUT:	TRIP MARGIN	0.01	ESTIMATED SWAB	0.5
	EFFECTIVE MUD WEIGHT	8.59	BOTTOM HOLE PRESSURE	292.9

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 300.0 AND TVD 300.0

SPM 1 97 SPM 2 87 FLOW RATE 919

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	15	33	42	LAMINAR	1	32	0.1
DC/OH	0.772	19	28	40	LAMINAR	1	28	0.0
DC/CSG	0.961	65	23	38	LAMINAR	0	22	0.1
HWDP/CSG	1.085	63	20	36	LAMINAR	0	20	0.1
HWDP/RIS	1.325	34	17	35	LAMINAR	0	16	0.0
DP/RIS	1.325	135	17	35	LAMINAR	0	16	0.1
TOTAL VOLUME		331			TOTAL PRESSURE DROP			0.3

AG: 15.1 MINUTES 1459 STROKES #1 AND 1321 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	808.1	HHP	433	IMPACT FORCE	1342
% SURFACE PRESSURE	51.8	HHP/sqin	1.80	JET VELOCITY	97

PRESSURE BREAKDOWN:

URFACE	62.8
STRING	463.3
BIT	808.1
NNULUS	0.3
TOTAL	1334.6

PUMP PRESSURE 1558.7 % DIFFERENCE 14.4

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	8.80	HYDROSTATIC PRESSURE	450.4
CIRCULATING:	ECD	8.81	CIRCULATING PRESSURE	450.7
ULLING OUT:	TRIP MARGIN	0.01	ESTIMATED SWAB	0.7
	EFFECTIVE MUD WEIGHT	8.79	BOTTOM HOLE PRESSURE	449.7

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 400.0 AND TVD 400.0

SPM 1 97 SPM 2 98 FLOW RATE 976

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	15	35	42	LAMINAR	1	33	0.1
DC/OH	0.772	72	30	40	LAMINAR	1	29	0.2
HWDP/OH	0.896	29	26	37	LAMINAR	1	25	0.0
HWDP/CSG	1.085	56	21	36	LAMINAR	0	21	0.0
DP/CSG	1.085	81	21	36	LAMINAR	0	21	0.1
DP/RIS	1.325	168	18	35	LAMINAR	0	17	0.1
TOTAL VOLUME		420			TOTAL PRESSURE DROP			0.5

BAG: 18.1 MINUTES 1758 STROKES #1 AND 1774 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	911.1	HHP	519	IMPACT FORCE	1513
% SURFACE PRESSURE	52.3	HHP/sqin	2.16	JET VELOCITY	103

PRESSURE BREAKDOWN:

SURFACE	69.9				
STRING	556.5				
BIT	911.1				
ANNULUS	0.5				
TOTAL	1538.1	PUMP PRESSURE	1743.3	% DIFFERENCE	11.8

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	8.80	HYDROSTATIC PRESSURE	600.5
CIRCULATING:	ECD	8.81	CIRCULATING PRESSURE	601.0
PULLING OUT:	TRIP MARGIN	0.01	ESTIMATED SWAB	1.0
	EFFECTIVE MUD WEIGHT	8.79	BOTTOM HOLE PRESSURE	599.6

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 500.0 AND TVD 500.0

SPM 1 97 SPM 2 98 FLOW RATE 978

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	15	35	121	LAMINAR	0	34	0.4
DC/OH	0.772	72	30	121	LAMINAR	0	30	1.2
HWDP/OH	0.896	75	26	120	LAMINAR	0	26	0.7
DP/OH	0.896	43	26	120	LAMINAR	0	26	0.4
DP/CSG	1.085	137	21	120	LAMINAR	0	21	0.9
DP/RIS	1.325	168	18	120	LAMINAR	0	17	0.7
TOTAL VOLUME		510			TOTAL PRESSURE DROP			4.3

LAG: 21.9 MINUTES 2135 STROKES #1 AND 2151 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	935.2	HHP	533	IMPACT FORCE	1553
% SURFACE PRESSURE	51.9	HHP/sqin	2.22	JET VELOCITY	104

PRESSURE BREAKDOWN:

SURFACE	71.4				
STRING	609.6				
BIT	935.2				
ANNULUS	4.3				
TOTAL	1620.6	PUMP PRESSURE	1801.4	% DIFFERENCE	10.0

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	9.00	HYDROSTATIC PRESSURE	767.7
CIRCULATING:	ECD	9.05	CIRCULATING PRESSURE	772.1
PULLING OUT:	TRIP MARGIN	0.10	ESTIMATED SWAB	8.7
	EFFECTIVE MUD WEIGHT	8.90	BOTTOM HOLE PRESSURE	759.0

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 600.0 AND TVD 600.0

SPM 1 97 SPM 2 98 FLOW RATE 974

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	15	34	121	LAMINAR	0	34	0.4
DC/OH	0.772	72	30	121	LAMINAR	0	30	1.2
HWDP/OH	0.896	75	26	120	LAMINAR	0	26	0.7
DP/OH	0.896	133	26	120	LAMINAR	0	26	1.3
DP/CSG	1.085	137	21	120	LAMINAR	0	21	0.9
DP/RIS	1.325	168	17	120	LAMINAR	0	17	0.7
TOTAL VOLUME		600			TOTAL PRESSURE DROP			5.2

BAG: 25.9 MINUTES 2508 STROKES #1 AND 2530 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	927.5	HHP	527	IMPACT FORCE	1540
% SURFACE PRESSURE	49.9	HHP/sqin	2.19	JET VELOCITY	103

PRESSURE BREAKDOWN:

SURFACE	70.9
STRING	645.9
BIT	927.5
ANNULUS	5.2
TOTAL	1649.5

PUMP PRESSURE 1858.6 % DIFFERENCE 11.2

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	9.00	HYDROSTATIC PRESSURE	921.3
CIRCULATING:	ECD	9.05	CIRCULATING PRESSURE	926.5
PULLING OUT:	TRIP MARGIN	0.10	ESTIMATED SWAB	10.4
	EFFECTIVE MUD WEIGHT	8.90	BOTTOM HOLE PRESSURE	910.8

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 700.0 AND TVD 700.0

SPM 1 84 SPM 2 81 FLOW RATE 821

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	20	71	114	LAMINAR	0	71	3.6
DC/CSG	0.303	25	64	112	LAMINAR	0	64	3.4
HWDP/CSG	0.427	36	46	101	LAMINAR	0	46	1.4
DP/CSG	0.427	143	46	101	LAMINAR	0	46	5.6
DP/RIS	1.325	168	15	87	LAMINAR	0	15	0.4

TOTAL VOLUME 392 TOTAL PRESSURE DROP 14.4

LAG: 20.0 MINUTES 1675 STROKES #1 AND 1617 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1904.8	HHP	912	IMPACT FORCE	2024
% SURFACE PRESSURE	65.8	HHP/sqin	7.74	JET VELOCITY	136

PRESSURE BREAKDOWN:

SURFACE	78.7
STRING	906.9
BIT	1904.8
ANNULUS	-14.4
TOTAL	2904.9

PUMP PRESSURE 2895.6 % DIFFERENCE 0.3

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	10.65	HYDROSTATIC PRESSURE	1271.8
CIRCULATING:	ECD	10.77	CIRCULATING PRESSURE	1286.3
PULLING OUT:	TRIP MARGIN	0.24	ESTIMATED SWAB	28.9
	EFFECTIVE MUD WEIGHT	10.41	BOTTOM HOLE PRESSURE	1243.0

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 780.0 AND TVD 780.0

SPM 1 82 SPM 2 80 FLOW RATE 808

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	42	70	118	LAMINAR	0	70	7.9
DC/CSG	0.303	0	63	116	LAMINAR	0	63	0.1
HWDP/CSG	0.427	36	45	105	LAMINAR	0	45	1.5
DP/CSG	0.427	177	45	105	LAMINAR	0	45	7.4
DP/RIS	1.325	168	15	91	LAMINAR	0	15	0.5
TOTAL VOLUME		424				TOTAL PRESSURE DROP		17.3

LAG: 22.0 MINUTES 1797 STROKES #1 AND 1763 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1845.6	HHP	870	IMPACT FORCE	1961
% SURFACE PRESSURE	65.1	HHP/sqin	7.33	JET VELOCITY	134

PRESSURE BREAKDOWN:

SURFACE	76.5				
STRING	916.8				
BIT	1845.6				
ANNULUS	17.3				
TOTAL	2856.2	PUMP PRESSURE	2833.9	% DIFFERENCE	0.8

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	10.65	HYDROSTATIC PRESSURE	1417.2
CIRCULATING:	ECD	10.78	CIRCULATING PRESSURE	1434.5
PULLING OUT:	TRIP MARGIN	0.26	ESTIMATED SWAB	34.5
	EFFECTIVE MUD WEIGHT	10.39	BOTTOM HOLE PRESSURE	1382.7

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 720.0 AND TVD 790.0

SPM 1 90 SPM 2 0 FLOW RATE 452

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.107	14	101	138	LAMINAR	0	100	26.6
HWDP/OH	0.231	7	47	115	LAMINAR	0	46	1.1
HWDP/CSG	0.427	23	25	105	LAMINAR	0	25	0.7
DP/CSG	0.427	191	25	105	LAMINAR	0	25	6.1
DP/RIS	1.325	168	8	91	LAMINAR	0	8	0.3
TOTAL VOLUME		403			TOTAL PRESSURE DROP			34.8

LAG: 37.4 MINUTES 3385 STROKES #1 AND 0 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	985.0	HHP	260	IMPACT FORCE	801
% SURFACE PRESSURE	74.2	HHP/sqin	3.39	JET VELOCITY	98

PRESSURE BREAKDOWN:

SURFACE	26.9
STRING	301.3
BIT	985.8
ANNULUS	34.8
TOTAL	1348.0

PUMP PRESSUSE 1327.6 % DIFFERENCE 1.5

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	10.65	HYDROSTATIC PRESSURE	1435.4
CIRCULATING:	ECD	10.91	CIRCULATING PRESSURE	1470.2
PULLING OUT:	TRIP MARGIN	0.52	ESTIMATED SWAB	69.6
	EFFECTIVE MUD WEIGHT	10.13	BOTTOM HOLE PRESSURE	1365.8

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 300.0 AND TVD 300.0

SPM 1 82 SPM 2 80 FLOW RATE 810

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	43	70	118	LAMINAR	0	70	3.0
HWDP/OH	0.398	7	48	106	LAMINAR	0	48	0.4
HWDP/CSG	0.427	28	45	105	LAMINAR	0	45	1.2
DP/CSG	0.437	185	45	105	LAMINAR	0	45	7.7
DP/RIS	1.325	168	15	91	LAMINAR	0	15	0.5
TOTAL VOLUME		432				TOTAL PRESSURE DROP		12.7

LAG: 22.4 MINUTES 1841 STROKES #1 AND 1786 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1056.9	HP	878	IMPACT FORCE	1023
% SURFACE PRESSURE	64.9	HP/sqin	7.45	JET VELOCITY	384

PRESSURE BREAKDOWN:

SURFACE	77.0
STRING	930.7
BIT	1856.9
ANNULUS	17.7
TOTAL	2882.2

PUMP PRESSURE 2862.9 % DIFFERENCE 0.7

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	10.65	HYDROSTATIC PRESSURE	1453.5
CIRCULATING:	ECD	10.78	CIRCULATING PRESSURE	1471.2
PULLING OUT:	TRIP MARGIN	0.26	ESTIMATED SWAB	35.4
	EFFECTIVE MUD WEIGHT	10.39	BOTTOM HOLE PRESSURE	1418.2

CORE LAB

HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 900.0 AND TVD 900.0

SPM 1 0 SPM 2 88 FLOW RATE 440

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/ UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	43	38	118	LAMINAR	0	38	6.0
HWDP/OH	0.398	33	26	106	LAMINAR	0	26	1.2
DP/OH	0.398	14	26	106	LAMINAR	0	26	0.5
DP/CSG	0.427	213	25	105	LAMINAR	0	24	6.7
DP/RIS	1.325	168	8	91	LAMINAR	0	8	0.3

TOTAL VOLUME 471 TOTAL PRESSURE DROP 14.9

LAG: 45.0 MINUTES 0 STROKES #1 AND 3961 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	546.8	HHP	140	IMPACT FORCE	581
% SURFACE PRESSURE	35.7	HHP/sqin	1.19	JET VELOCITY	73

PRESSURE BREAKDOWN:

SURFACE	25.6				
STRING	324.5				
BIT	546.8				
ANNULUS	14.9				
TOTAL	911.8	PUMP PRESSURE	1531.5	% DIFFERENCE	40.5

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	10.65	HYDROSTATIC PRESSURE	1635.2
CIRCULATING:	ECD	10.75	CIRCULATING PRESSURE	1650.1
PULLING OUT:	TRIP MARGIN	0.19	ESTIMATED SWAB	29.7
	EFFECTIVE MUD WEIGHT	10.46	BOTTOM HOLE PRESSURE	1605.5

(c). COMPUTER DATA LISTING : LIST A

INTERVAL	All depth records (data not averaged)
DEPTH.	Well depth, in metres
ROP.	Rate of penetration, in metres/hour
WOB.	Weight-on-bit, in thousands of pounds
RPM.	Rotary speed, in revolutions per minute
MW	Mud weight in, in pounds per gallon
'dc'	Calculated 'd' exponent, corrected for variations in mud weight in, using a correction factor of 10 ppg.
HOURS.	Cumulative bit hours. The number of hours that the bit has actually been on bottom, recorded in decimal hours.
TURNS.	Cumulative bit turns. The number of turns made by the bit, while actually on bottom
ICOST.	Incremental cost per metre, calculated from the rate of penetration, in Australian dollars.
CCOST.	Cumulative cost per metre, calculated from the drilling time, in A dollars.
PP	Pore pressure gradient, in equivalent pounds per gallon. The pressure exerted by the fluid in the pore spaces of the formation.
FG	Fracture gradient, in equivalent pounds per gallon. The pressure required to fracture the formation, calculated by the DRILL program using Eaton's equation. It is dependent on the pore pressure, the overburden gradient and the matrix stress. this value may be modified by leak-off information.

BIT NUMBER	1	IADC CODE	111	INTERVAL	127.0- 267.0
HTC OSC3AJ+26"HO		SIZE	26.000	NOZZLES	20 20 20
COST	0.00	TRIP TIME	2.3	BIT RUN	140.0
TOTAL HOURS	3.62	TOTAL TURNS	21678	CONDITION	T1 B1 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
150.0	55.0	8.0	100	8.6	0.73	0.42	2509	66.40	431.60	8.4	13.5
151.0	60.0	8.0	100	8.6	0.71	0.43	2609	60.87	416.15	8.4	13.5
152.0	57.1	8.0	100	8.6	0.72	0.45	2714	63.91	402.06	8.4	13.5
153.0	31.0	8.0	100	8.6	0.85	0.48	2907	117.68	391.13	8.4	13.5
154.0	50.0	8.0	100	8.6	0.75	0.50	3027	73.04	379.34	8.4	13.5
155.0	83.7	8.0	100	8.6	0.64	0.52	3099	43.62	367.35	8.4	13.5
156.0	30.8	8.0	100	8.6	0.85	0.55	3294	118.69	358.78	8.4	13.5
157.0	29.5	8.0	100	8.6	0.86	0.58	3497	123.76	350.95	8.4	13.5
158.0	36.7	8.0	100	8.6	0.81	0.61	3661	99.42	342.83	8.4	13.5
159.0	41.9	8.0	100	8.6	0.78	0.63	3804	87.24	334.84	8.4	13.5
160.0	30.8	8.0	100	8.6	0.85	0.67	3999	118.69	328.29	8.4	13.5
161.0	26.7	8.0	100	8.6	0.88	0.70	4224	136.95	322.67	8.4	13.5
162.0	31.6	8.0	100	8.6	0.84	0.74	4414	115.65	316.75	8.4	13.5
163.0	34.6	8.0	100	8.6	0.82	0.76	4587	105.50	310.88	8.4	13.5
164.0	34.3	8.0	100	8.6	0.83	0.79	4762	106.52	305.36	8.4	13.5
165.0	50.0	12.6	100	8.6	0.81	0.81	4882	73.04	299.25	8.4	13.5
166.0	56.2	15.3	100	8.6	0.82	0.83	4989	64.92	293.24	8.4	13.5
167.0	120.0	14.1	100	8.6	0.63	0.84	5039	30.43	286.67	8.4	13.5
168.0	73.5	11.5	100	8.6	0.71	0.85	5121	49.71	280.89	8.4	13.5
169.0	43.4	10.3	100	8.6	0.81	0.88	5259	84.20	276.21	8.4	13.5
170.0	76.6	11.6	100	8.6	0.71	0.89	5337	47.68	270.89	8.4	13.5
171.0	70.6	12.7	100	8.6	0.74	0.90	5422	51.74	265.91	8.4	13.5
172.0	35.6	12.7	100	8.6	0.89	0.93	5591	102.46	262.28	8.4	13.5
173.0	40.9	10.8	100	8.6	0.83	0.96	5737	89.27	258.52	8.4	13.5
174.0	70.6	9.4	100	8.6	0.70	0.97	5822	51.74	254.12	8.4	13.6
175.0	76.6	9.2	100	8.6	0.68	0.98	5901	47.68	249.82	8.4	13.6
176.0	85.7	10.3	100	8.6	0.67	1.00	5971	42.61	245.59	8.4	13.6
177.0	41.4	8.8	100	8.6	0.80	1.02	6116	88.26	242.44	8.4	13.6
178.0	64.3	11.2	100	8.6	0.74	1.03	6209	56.81	238.80	8.4	13.6
179.0	75.0	12.1	100	8.6	0.72	1.05	6289	48.69	235.15	8.4	13.6
180.0	55.4	11.3	100	8.6	0.77	1.07	6397	65.94	231.95	8.4	13.6
181.0	43.9	10.8	100	8.6	0.82	1.09	6534	83.18	229.20	8.4	13.6
182.0	72.0	9.8	100	8.6	0.70	1.10	6617	50.72	225.95	8.4	13.6
183.0	78.3	9.2	100	8.6	0.67	1.12	6694	46.66	222.75	8.4	13.6
184.0	72.0	9.8	100	8.6	0.70	1.13	6777	50.72	219.73	8.4	13.6
185.0	60.0	10.2	100	8.6	0.74	1.15	6877	60.87	216.99	8.4	13.6
186.0	81.8	13.0	100	8.6	0.71	1.16	6951	44.64	214.07	8.4	13.6
187.0	76.6	12.9	100	8.6	0.72	1.17	7029	47.68	211.30	8.4	13.6
188.0	48.0	12.9	100	8.6	0.83	1.19	7154	76.08	209.08	8.4	13.6
189.0	53.7	12.5	100	8.6	0.80	1.21	7266	67.97	206.81	8.4	13.6
196.0	180.0	8.2	100	8.6	0.48	1.25	7499	20.29	187.88	8.4	13.6
197.0	36.4	10.4	100	8.6	0.85	1.28	7664	100.43	186.64	8.4	13.6
198.0	47.4	12.0	100	8.6	0.82	1.30	7791	77.10	185.09	8.4	13.6

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
199.0	40.0	12.4	100	8.6	0.86	1.32	7941	91.30	183.79	8.4	13.7
200.0	52.2	12.5	100	8.6	0.80	1.34	8056	70.00	182.23	8.4	13.7
201.0	53.7	11.7	100	8.6	0.79	1.36	8167	67.97	180.69	8.4	13.7
202.0	85.7	11.6	100	8.6	0.68	1.37	8237	42.61	178.85	8.4	13.7
203.0	85.7	11.2	100	8.6	0.68	1.38	8307	42.61	177.05	8.4	13.7
204.0	102.9	11.4	100	8.6	0.64	1.39	8366	35.51	175.22	8.4	13.7
205.0	85.7	10.7	100	8.6	0.67	1.41	8436	42.61	173.51	8.4	13.7
206.0	48.0	10.2	100	8.6	0.79	1.43	8561	76.08	172.28	8.4	13.7
207.0	62.1	14.6	100	8.6	0.79	1.44	8657	58.84	170.86	8.4	13.7
208.0	97.3	15.2	100	8.6	0.69	1.45	8719	37.53	169.22	8.4	13.7
209.0	64.3	16.1	100	8.6	0.79	1.47	8812	56.81	167.85	8.4	13.7
210.0	102.9	15.4	100	8.6	0.68	1.48	8871	35.51	166.25	8.4	13.7
211.0	37.5	17.5	100	8.6	0.94	1.51	9031	97.39	165.43	8.4	13.7
212.0	156.5	18.6	100	8.6	0.60	1.51	9069	23.33	163.76	8.4	13.7
213.0	100.0	14.1	100	8.6	0.67	1.52	9129	36.52	162.28	8.4	13.7
215.0	48.0	11.1	100	8.6	0.80	1.56	9379	76.08	160.32	8.4	13.7
216.0	56.2	12.3	100	8.6	0.78	1.58	9486	64.92	159.25	8.4	13.7
217.0	59.0	11.8	100	8.6	0.77	1.60	9587	61.88	158.17	8.4	13.7
218.0	24.8	13.5	100	8.6	0.99	1.64	9829	147.09	158.05	8.4	13.7
219.0	78.3	13.2	100	8.6	0.72	1.65	9906	46.66	156.84	8.4	13.7
220.0	59.0	13.0	100	8.6	0.78	1.67	10007	61.88	155.81	8.4	13.7
221.0	48.6	14.8	100	8.6	0.85	1.69	10131	75.07	154.96	8.4	13.7
222.0	56.2	14.8	100	8.6	0.81	1.71	10237	64.92	154.01	8.4	13.7
223.0	26.9	15.5	100	8.6	0.99	1.74	10461	135.94	153.82	8.4	13.8
225.0	62.6	13.6	100	8.6	0.77	1.78	10652	58.33	151.87	8.4	13.8
226.0	64.3	14.1	100	8.6	0.77	1.79	10746	56.81	150.91	8.4	13.8
227.0	32.7	17.0	100	8.6	0.97	1.82	10929	111.59	150.52	8.4	13.8
228.0	43.4	16.0	100	8.6	0.89	1.84	11067	84.20	149.86	8.4	13.8
229.0	92.3	16.2	100	8.6	0.71	1.86	11132	39.56	148.78	8.4	13.8
230.0	45.6	16.3	100	8.6	0.88	1.88	11264	80.14	148.11	8.4	13.8
231.0	70.6	16.1	100	8.6	0.77	1.89	11349	51.74	147.19	8.4	13.8
232.0	21.2	16.2	100	8.6	1.06	1.94	11632	172.46	147.43	8.4	13.8
233.0	61.0	17.5	100	8.6	0.82	1.96	11731	59.85	146.60	8.4	13.8
234.0	9.5	9.2	100	8.6	1.12	2.06	12364	385.49	148.83	8.4	13.8
235.0	62.1	15.2	100	8.6	0.79	2.08	12461	58.84	148.00	8.4	13.8
236.0	55.4	16.0	100	8.6	0.83	2.09	12569	65.94	147.25	8.4	13.8
237.0	66.7	16.1	100	8.6	0.79	2.11	12659	54.78	146.41	8.4	13.8
238.0	67.9	16.5	100	8.6	0.79	2.12	12747	53.77	145.57	8.4	13.8
239.0	50.0	17.8	100	8.6	0.87	2.14	12867	73.04	144.92	8.4	13.8
240.0	13.4	17.4	100	8.6	1.18	2.22	13314	271.87	146.05	8.4	13.8
242.0	13.7	17.4	100	8.6	1.18	2.37	14190	266.65	148.15	8.4	13.8
267.0	5.0	9.0	100	8.6	1.25	7.37	44190	730.40	252.12	8.4	13.9

BIT NUMBER	1	IADC CODE	111	INTERVAL	267.0- 641.0
TC R1		SIZE	17.500	NOZZLES	20 20 20
COST	4978.00	TRIP TIME	3.0	BIT RUN	374.0
TOTAL HOURS	10.45	TOTAL TURNS	72699	CONDITION	T2 B1 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
268.0	75.3	10.5	100	8.7	0.74	0.01	80	48	15982	8.4	13.9
269.0	57.1	10.8	100	8.7	0.81	0.03	185	64	8023	8.4	13.9
270.0	46.2	10.8	100	8.7	0.86	0.05	315	79	5375	8.4	13.9
271.0	67.9	14.7	100	8.8	0.82	0.07	403	54	4045	8.4	13.9
272.0	97.3	13.9	100	8.8	0.72	0.08	465	38	3243	8.4	13.9
273.0	83.7	14.5	100	8.8	0.76	0.09	536	44	2710	8.4	13.9
274.0	76.6	17.1	100	8.8	0.81	0.10	615	48	2330	8.4	14.0
275.0	83.7	15.8	100	8.8	0.77	0.11	686	44	2044	8.4	14.0
276.0	66.7	12.7	100	8.8	0.79	0.13	776	55	1823	8.4	14.0
277.0	43.9	11.0	100	8.8	0.87	0.15	913	83	1649	8.4	14.0
279.0	92.3	13.0	120	8.8	0.76	0.17	1069	40	1381	8.4	14.0
280.0	105.9	13.7	120	8.8	0.74	0.18	1137	34	1277	8.4	14.0
281.0	80.0	12.1	120	8.8	0.78	0.20	1227	46	1189	8.4	14.0
282.0	90.0	12.1	120	8.8	0.76	0.21	1307	41	1113	8.4	14.0
283.0	69.2	11.6	120	8.8	0.81	0.22	1411	53	1046	8.4	14.0
284.0	58.1	12.8	120	8.8	0.87	0.24	1535	62.90	988.54	8.4	14.0
285.0	102.9	11.5	120	8.8	0.72	0.25	1605	35.51	935.59	8.4	14.0
286.0	49.3	11.1	120	8.8	0.88	0.27	1751	74.05	890.25	8.4	14.0
288.0	90.0	13.6	120	8.8	0.78	0.29	1911	40.58	809.33	8.4	14.0
289.0	36.4	11.4	120	8.8	0.96	0.32	2109	100.43	777.11	8.4	14.0
290.0	124.1	12.1	120	8.8	0.68	0.33	2167	29.42	744.60	8.4	14.0
291.0	124.1	13.3	120	8.8	0.69	0.33	2225	29.42	714.80	8.4	14.0
292.0	64.3	12.6	120	8.8	0.84	0.35	2337	56.81	688.48	8.4	14.0
293.0	61.0	12.0	120	8.8	0.85	0.37	2455	59.85	664.30	8.4	14.0
294.0	72.0	12.8	120	8.8	0.82	0.38	2555	50.72	641.58	8.4	14.0
295.0	52.2	13.5	120	8.8	0.91	0.40	2693	70.00	621.16	8.4	14.0
296.0	40.9	9.7	120	8.8	0.90	0.42	2869	89.27	602.82	8.4	14.0
298.0	48.0	12.5	120	8.8	0.91	0.47	3169	76.08	568.84	8.4	14.0
299.0	57.1	14.3	120	8.8	0.90	0.48	3295	63.91	553.06	8.4	14.0
300.0	75.0	14.8	120	8.8	0.84	0.50	3391	48.69	537.78	8.4	14.1
301.0	80.0	15.6	120	8.8	0.83	0.51	3481	45.65	523.30	8.4	14.1
302.0	85.7	15.9	120	8.8	0.82	0.52	3565	42.61	509.57	8.4	14.1
303.0	83.7	13.5	120	8.8	0.79	0.53	3651	43.62	496.62	8.4	14.1
304.0	50.0	14.8	120	8.8	0.94	0.55	3795	73.04	485.18	8.4	14.1
305.0	100.0	15.0	120	8.8	0.77	0.56	3867	36.52	473.37	8.4	14.1
306.0	60.0	16.8	120	8.8	0.92	0.58	3987	60.87	462.79	8.4	14.1
309.0	78.9	13.7	120	8.8	0.81	0.62	4261	46.28	433.04	8.4	14.1
310.0	53.7	18.6	120	8.8	0.97	0.64	4395	67.97	424.55	8.4	14.1
311.0	81.8	14.5	120	8.8	0.81	0.65	4483	44.64	415.92	8.4	14.1
312.0	54.5	19.3	120	8.8	0.97	0.67	4615	66.95	408.16	8.4	14.1
313.0	97.3	17.9	120	8.8	0.80	0.68	4689	37.53	400.11	8.4	14.1
314.0	64.3	10.2	120	8.8	0.81	0.69	4801	56.81	392.80	8.4	14.1
315.0	50.7	11.6	120	8.8	0.89	0.71	4943	72.03	386.12	8.4	14.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	TCOST	CCOST	PP	FG
317.0	49.1	19.2	120	8.8	1.00	0.75	5236	74.39	373.65	8.4	14.1
318.0	116.1	15.9	120	8.8	0.74	0.76	5298	31.45	366.94	8.4	14.1
319.0	40.9	18.6	120	8.8	1.04	0.79	5474	89.27	361.60	8.4	14.1
320.0	87.8	13.5	120	8.8	0.78	0.80	5556	41.59	355.56	8.4	14.1
321.0	53.7	21.0	120	8.8	0.99	0.82	5690	67.97	350.24	8.4	14.1
322.0	94.7	19.4	120	8.8	0.83	0.83	5766	38.55	344.57	8.4	14.1
323.0	72.0	16.2	120	8.8	0.86	0.84	5866	50.72	339.32	8.4	14.1
324.0	55.4	18.5	120	8.8	0.96	0.86	5996	65.94	334.53	8.4	14.1
326.0	160.0	6.5	120	8.8	0.55	0.87	6086	22.83	323.96	8.4	14.1
327.0	75.0	10.6	120	8.8	0.78	0.88	6182	48.69	319.37	8.4	14.2
328.0	37.5	11.9	120	8.8	0.96	0.91	6374	97.39	315.73	8.4	14.2
329.0	44.4	12.2	120	8.8	0.93	0.93	6536	82.17	311.97	8.4	14.2
330.0	70.6	11.8	120	8.8	0.81	0.95	6638	51.74	307.83	8.4	14.2
331.0	44.4	13.4	120	8.8	0.95	0.97	6800	82.17	304.31	8.4	14.2
332.0	43.9	14.0	120	8.8	0.96	0.99	6964	83.18	300.91	8.4	14.2
333.0	52.2	12.0	120	8.8	0.89	1.01	7102	70.00	297.41	8.4	14.2
334.0	69.2	11.7	120	8.8	0.81	1.03	7206	52.75	293.76	8.4	14.2
335.0	27.7	11.8	120	8.8	1.03	1.06	7466	131.88	291.38	8.4	14.2
336.0	32.4	12.7	120	8.8	1.01	1.09	7688	112.60	288.78	8.4	14.2
337.0	62.1	15.1	120	8.8	0.89	1.11	7804	58.84	285.50	8.4	14.2
338.0	67.9	15.7	120	8.8	0.87	1.12	7910	53.77	282.24	8.4	14.2
339.0	43.4	15.9	120	8.8	0.99	1.15	8076	84.20	279.49	8.4	14.2
340.0	66.7	15.1	120	8.8	0.87	1.16	8184	54.78	276.41	8.4	14.2
341.0	69.2	15.8	120	8.8	0.87	1.18	8288	52.75	273.39	8.4	14.2
342.0	28.3	17.0	120	8.8	1.11	1.21	8542	128.83	271.46	8.4	14.2
343.0	46.8	15.7	120	8.8	0.97	1.23	8696	78.11	268.91	8.4	14.2
344.0	35.3	13.8	120	8.8	1.01	1.26	8900	103.47	266.77	8.4	14.2
346.0	60.0	16.8	120	8.8	0.92	1.29	9140	60.87	261.55	8.4	14.2
347.0	37.9	16.7	120	8.8	1.03	1.32	9330	96.37	259.49	8.4	14.2
348.0	30.5	16.9	120	8.8	1.09	1.35	9566	119.70	257.76	8.4	14.2
349.0	47.4	15.7	120	8.8	0.96	1.38	9718	77.10	255.56	8.4	14.2
350.0	40.0	15.5	120	8.8	1.00	1.40	9898	91.30	253.58	8.4	14.2
351.0	51.4	16.1	120	8.8	0.95	1.42	10038	71.01	251.41	8.4	14.2
352.0	37.1	17.4	120	8.8	1.05	1.45	10232	98.40	249.61	8.4	14.2
353.0	57.1	16.9	120	8.8	0.93	1.46	10358	63.91	247.45	8.4	14.3
355.0	53.3	17.0	120	8.8	0.95	1.50	10628	68.48	243.38	8.4	14.3
356.0	47.4	16.4	120	8.8	0.97	1.52	10780	77.10	241.51	8.4	14.3
357.0	49.3	15.9	120	8.8	0.95	1.54	10926	74.05	239.65	8.4	14.3
358.0	37.1	15.6	120	8.8	1.02	1.57	11120	98.40	238.10	8.4	14.3
359.0	51.4	15.8	120	8.8	0.94	1.59	11260	71.01	236.28	8.4	14.3
360.0	52.2	14.1	120	8.8	0.92	1.61	11398	70.00	234.49	8.4	14.3
361.0	56.2	13.3	120	8.8	0.89	1.63	11526	64.92	232.69	8.4	14.3
362.0	38.7	14.8	120	8.8	1.00	1.65	11712	94.34	231.23	8.4	14.3
363.0	45.6	15.4	120	8.8	0.97	1.67	11870	80.14	229.66	8.4	14.3
364.0	25.5	14.3	120	8.8	1.10	1.71	12152	143.04	228.77	8.4	14.3
365.0	67.5	18.9	120	8.8	0.91	1.73	12259	54.10	226.98	8.4	14.3
366.0	27.9	17.0	120	8.8	1.11	1.76	12517	130.86	226.01	8.4	14.3
367.0	52.2	16.7	120	8.8	0.95	1.78	12655	70.00	224.45	8.4	14.3
368.0	42.4	16.9	120	8.8	1.01	1.81	12825	86.23	223.09	8.4	14.3
369.0	34.3	16.5	120	8.8	1.05	1.84	13035	106.52	221.94	8.4	14.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
370.0	28.3	16.8	120	8.8	1.11	1.87	13289	128.83	221.04	8.4	14.3
371.0	34.6	15.4	120	8.8	1.04	1.90	13497	105.50	219.93	8.4	14.3
372.0	37.9	15.3	120	8.8	1.01	1.93	13687	96.37	218.75	8.4	14.3
375.0	32.1	16.6	120	8.8	1.07	2.02	14359	113.62	215.83	8.4	14.3
376.0	47.4	15.9	120	8.8	0.96	2.04	14511	77.10	214.56	8.4	14.3
377.0	39.1	16.2	120	8.8	1.02	2.07	14695	93.33	213.46	8.4	14.3
378.0	43.4	17.0	120	8.8	1.00	2.09	14861	84.20	212.29	8.4	14.3
379.0	26.9	18.0	120	8.8	1.14	2.13	15129	135.94	211.61	8.4	14.3
380.0	44.4	17.0	120	8.8	1.00	2.15	15291	82.17	210.46	8.4	14.3
381.0	43.9	16.9	120	8.8	1.00	2.17	15455	83.18	209.35	8.4	14.4
382.0	36.4	15.4	120	8.8	1.02	2.20	15653	100.43	208.40	8.4	14.4
383.0	43.9	16.4	120	8.8	0.99	2.22	15817	83.18	207.32	8.4	14.4
384.0	40.0	16.4	120	8.8	1.01	2.25	15997	91.30	206.33	8.4	14.4
385.0	48.0	16.2	120	8.8	0.97	2.27	16147	76.08	205.23	8.4	14.4
386.0	38.3	15.1	120	8.8	1.01	2.29	16335	95.36	204.30	8.4	14.4
387.0	45.0	16.1	120	8.8	0.98	2.32	16495	81.16	203.28	8.4	14.4
388.0	43.4	15.8	120	8.8	0.98	2.34	16661	84.20	202.29	8.4	14.4
389.0	30.0	15.8	120	8.8	1.08	2.37	16901	121.73	201.63	8.4	14.4
390.0	38.7	16.1	120	8.8	1.02	2.40	17087	94.34	200.76	8.4	14.4
391.0	21.2	16.3	120	8.8	1.17	2.45	17427	172.46	200.53	8.4	14.4
392.0	40.9	16.1	120	8.8	1.00	2.47	17603	89.27	199.64	8.4	14.4
394.0	67.5	18.1	120	8.8	0.90	2.50	17816	54.10	197.35	8.4	14.4
395.0	53.7	17.2	120	8.8	0.95	2.52	17950	67.97	196.34	8.4	14.4
396.0	40.4	16.0	120	8.8	1.01	2.54	18128	90.29	195.52	8.4	14.4
397.0	38.3	16.9	120	8.8	1.03	2.57	18316	95.36	194.75	8.4	14.4
398.0	40.9	17.1	120	8.8	1.02	2.59	18492	89.27	193.94	8.4	14.4
399.0	25.4	17.3	120	8.8	1.14	2.63	18776	144.05	193.56	8.4	14.4
400.0	57.1	16.5	120	8.8	0.92	2.65	18902	63.91	192.59	8.4	14.4
401.0	29.3	16.3	120	8.8	1.09	2.68	19148	124.78	192.08	8.4	14.4
402.0	29.3	16.6	120	8.8	1.10	2.72	19394	124.78	191.58	8.4	14.4
405.0	58.1	15.7	120	8.8	0.91	2.77	19766	62.90	188.79	8.4	14.4
406.0	39.6	16.8	120	8.8	1.02	2.80	19948	92.31	188.09	8.4	14.4
407.0	44.4	17.0	120	8.8	1.00	2.82	20110	82.17	187.33	8.4	14.4
408.0	39.6	18.0	120	8.8	1.04	2.84	20292	92.31	186.66	8.4	14.4
409.0	50.7	17.6	120	8.8	0.97	2.86	20434	72.03	185.85	8.4	14.5
410.0	45.6	17.3	120	8.8	0.99	2.89	20592	80.14	185.11	8.4	14.5
411.0	41.9	17.1	120	8.8	1.01	2.91	20764	87.24	184.43	8.4	14.5
412.0	39.6	16.9	120	8.8	1.02	2.93	20946	92.31	183.80	8.4	14.5
413.0	35.6	15.6	120	8.8	1.03	2.96	21148	102.46	183.24	8.4	14.5
414.0	34.6	16.2	120	8.8	1.05	2.99	21356	105.50	182.71	8.4	14.5
415.0	37.5	16.7	120	8.8	1.03	3.02	21548	97.39	182.14	8.4	14.5
416.0	43.4	18.2	120	8.8	1.02	3.04	21714	84.20	181.48	8.4	14.5
417.0	34.6	18.2	120	8.8	1.08	3.07	21922	105.50	180.97	8.4	14.5
418.0	31.9	16.5	120	8.8	1.07	3.10	22148	114.63	180.53	8.4	14.5
419.0	36.0	15.7	120	8.8	1.03	3.13	22348	101.44	180.01	8.4	14.5
420.0	35.6	15.9	120	8.8	1.04	3.16	22550	102.46	179.51	8.4	14.5
421.0	29.0	14.6	120	8.8	1.07	3.19	22798	125.79	179.16	8.4	14.5
423.0	37.9	13.2	120	8.8	0.98	3.24	23178	96.37	178.10	8.4	14.5
424.0	40.4	18.3	120	8.8	1.04	3.27	23356	90.29	177.54	8.4	14.5
425.0	36.0	16.1	120	8.8	1.04	3.30	23556	101.44	177.06	8.4	14.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
426.0	40.9	16.3	120	8.8	1.01	3.32	23732	89.27	176.50	8.4	14.5
427.0	39.1	15.8	120	8.8	1.01	3.35	23916	93.33	175.98	8.4	14.5
428.0	37.5	15.8	120	8.8	1.02	3.37	24108	97.39	175.50	8.4	14.5
429.0	43.9	15.8	120	8.9	0.97	3.40	24272	83.18	174.93	8.4	14.5
430.0	36.0	16.4	120	8.9	1.03	3.42	24472	101.44	174.47	8.4	14.5
433.0	48.5	16.5	110	8.9	0.93	3.49	24881	75.36	172.68	8.4	14.5
434.0	41.9	16.1	110	8.9	0.97	3.51	25038	87.24	172.17	8.4	14.5
435.0	40.9	16.6	110	8.9	0.98	3.53	25200	89.27	171.68	8.4	14.5
436.0	40.4	16.7	110	8.9	0.98	3.56	25363	90.29	171.20	8.4	14.5
437.0	39.6	16.6	110	8.9	0.99	3.58	25530	92.31	170.73	8.4	14.6
438.0	37.5	16.7	110	8.9	1.00	3.61	25706	97.39	170.30	8.4	14.6
439.0	46.8	18.3	110	8.9	0.97	3.63	25847	78.11	169.77	8.4	14.6
440.0	45.6	17.6	110	8.9	0.96	3.65	25992	80.14	169.25	8.4	14.6
441.0	35.3	17.8	110	8.9	1.03	3.68	26179	103.47	168.87	8.4	14.6
443.0	29.3	17.0	110	8.9	1.07	3.75	26630	124.78	168.37	8.4	14.6
444.0	36.7	17.5	110	8.9	1.02	3.78	26809	99.42	167.98	8.4	14.6
445.0	36.0	17.2	110	8.9	1.02	3.81	26993	101.44	167.61	8.4	14.6
446.0	29.8	16.2	110	8.9	1.05	3.84	27214	122.75	167.36	8.4	14.6
447.0	45.0	16.0	110	8.9	0.95	3.86	27361	81.16	166.88	8.4	14.6
448.0	38.7	15.2	110	8.9	0.97	3.89	27532	94.34	166.48	8.4	14.6
449.0	29.5	15.3	110	8.9	1.04	3.92	27755	123.76	166.24	8.4	14.6
450.0	30.3	16.5	110	8.9	1.05	3.95	27973	120.72	165.99	8.4	14.6
452.0	36.0	15.1	110	8.9	0.99	4.01	28340	101.44	165.30	8.4	14.6
453.0	41.9	15.9	110	8.9	0.96	4.03	28498	87.24	164.88	8.4	14.6
454.0	37.5	16.7	110	8.9	1.00	4.06	28674	97.39	164.52	8.4	14.6
455.0	45.0	15.8	110	8.9	0.94	4.08	28820	81.16	164.07	8.4	14.6
456.0	33.0	16.8	110	8.9	1.03	4.11	29020	110.57	163.79	8.4	14.6
457.0	12.1	18.1	110	8.9	1.31	4.20	29567	302.30	164.52	8.4	14.6
458.0	29.0	17.3	110	8.9	1.07	4.23	29794	125.79	164.32	8.4	14.6
459.0	39.1	18.2	110	8.9	1.01	4.26	29963	93.33	163.95	8.4	14.6
460.0	25.7	17.0	110	8.9	1.10	4.30	30219	142.02	163.83	8.4	14.6
462.0	35.5	17.1	110	8.9	1.02	4.35	30591	102.89	163.21	8.4	14.6
463.0	29.8	15.9	110	8.9	1.05	4.39	30813	122.75	163.00	8.4	14.6
464.0	42.9	17.4	110	8.9	0.98	4.41	30967	85.21	162.61	8.4	14.6
465.0	39.6	17.6	110	8.9	1.00	4.43	31134	92.31	162.25	8.4	14.6
466.0	36.7	16.8	110	8.9	1.01	4.46	31314	99.42	161.93	8.4	14.7
467.0	31.6	16.7	110	8.9	1.04	4.49	31523	115.65	161.70	8.4	14.7
468.0	45.0	17.0	110	8.9	0.96	4.51	31669	81.16	161.30	8.4	14.7
469.0	45.6	17.3	110	8.9	0.96	4.54	31814	80.14	160.90	8.4	14.7
470.0	41.9	17.2	110	8.9	0.98	4.56	31972	87.24	160.54	8.4	14.7
472.0	48.6	17.3	110	8.9	0.94	4.60	32243	75.07	159.70	8.4	14.7
473.0	35.6	15.0	110	8.9	0.99	4.63	32428	102.46	159.43	8.4	14.7
474.0	35.0	15.9	110	8.9	1.01	4.66	32617	104.49	159.16	8.4	14.7
475.0	31.9	15.7	110	8.9	1.03	4.69	32824	114.63	158.95	8.4	14.7
476.0	36.4	15.8	110	8.9	1.00	4.72	33006	100.43	158.67	8.4	14.7
477.0	28.6	15.3	110	8.9	1.05	4.75	33237	127.82	158.52	8.4	14.7
478.0	29.3	15.5	110	8.9	1.05	4.79	33462	124.78	158.36	8.4	14.7
479.0	29.8	15.1	110	8.9	1.04	4.82	33684	122.75	158.19	8.4	14.7
480.0	33.3	15.4	110	8.9	1.01	4.85	33882	109.56	157.96	8.4	14.7
481.0	24.0	11.7	110	8.9	1.03	4.89	34157	152.17	157.94	8.4	14.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	TCOST	CCOST	PP	FG
482.0	35.0	16.0	110	8.9	1.01	4.92	34346	104.49	157.69	8.4	14.7
483.0	31.9	15.5	110	8.9	1.03	4.95	34553	114.63	157.49	8.4	14.7
484.0	37.1	17.4	110	8.9	1.01	4.98	34731	98.40	157.22	8.4	14.7
485.0	31.3	16.5	110	9.0	1.03	5.01	34942	116.66	157.03	8.4	14.7
486.0	41.9	16.8	110	9.0	0.96	5.03	35099	87.24	156.71	8.4	14.7
487.0	32.1	16.6	110	9.0	1.03	5.07	35305	113.62	156.52	8.4	14.7
488.0	31.3	16.4	110	9.0	1.03	5.10	35516	116.66	156.34	8.4	14.7
489.0	27.9	16.2	110	9.0	1.06	5.13	35752	130.86	156.22	8.4	14.7
491.0	36.5	16.0	110	9.0	0.99	5.19	36113	100.00	155.72	8.4	14.7
492.0	28.3	17.7	110	9.0	1.07	5.22	36346	128.83	155.60	8.4	14.7
493.0	31.9	16.5	110	9.0	1.03	5.25	36553	114.63	155.42	8.4	14.7
494.0	27.7	15.9	110	9.0	1.05	5.29	36792	131.88	155.31	8.4	14.7
495.0	30.8	16.9	110	9.0	1.04	5.32	37006	118.69	155.15	8.4	14.8
496.0	32.4	16.3	110	9.0	1.02	5.35	37210	112.60	154.97	8.4	14.8
497.0	33.6	15.9	110	9.0	1.01	5.38	37406	108.55	154.77	8.4	14.8
498.0	30.5	16.6	110	9.0	1.04	5.42	37622	119.70	154.61	8.4	14.8
499.0	31.6	16.6	110	9.0	1.03	5.45	37831	115.65	154.45	8.4	14.8
500.0	34.3	16.7	110	9.0	1.01	5.48	38024	106.52	154.24	8.4	14.8
501.0	43.4	17.1	110	9.0	0.96	5.50	38176	84.20	153.94	8.4	14.8
502.0	26.9	17.4	110	9.0	1.08	5.54	38422	135.94	153.86	8.4	14.8
503.0	33.6	17.9	110	9.0	1.03	5.57	38618	108.55	153.67	8.4	14.8
504.0	37.9	18.2	110	9.0	1.01	5.59	38792	96.37	153.43	8.4	14.8
505.0	30.0	18.6	110	9.0	1.07	5.63	39012	121.73	153.30	8.4	14.8
506.0	30.5	18.0	110	9.0	1.06	5.66	39228	119.70	153.16	8.4	14.8
507.0	28.3	18.0	110	9.0	1.08	5.70	39461	128.83	153.06	8.4	14.8
508.0	34.0	18.6	110	9.0	1.04	5.72	39655	107.53	152.87	8.4	14.8
510.0	37.9	18.4	110	9.0	1.01	5.78	40004	96.37	152.40	8.4	14.8
511.0	19.6	18.1	110	9.0	1.17	5.83	40341	186.66	152.54	8.4	14.8
512.0	43.9	18.1	110	9.0	0.97	5.85	40491	83.18	152.26	8.4	14.8
513.0	36.4	18.4	110	9.0	1.02	5.88	40673	100.43	152.05	8.4	14.8
514.0	32.7	18.9	110	9.0	1.05	5.91	40875	111.59	151.88	8.4	14.8
515.0	34.6	18.3	110	9.0	1.03	5.94	41065	105.50	151.70	8.4	14.8
516.0	41.4	18.5	110	9.0	0.99	5.96	41225	88.26	151.44	8.4	14.8
517.0	36.0	18.4	110	9.0	1.02	5.99	41408	101.44	151.24	8.4	14.8
518.0	42.4	18.3	110	9.0	0.98	6.01	41564	86.23	150.98	8.4	14.8
520.0	28.0	14.1	110	9.0	1.02	6.09	42035	130.43	150.82	8.4	14.8
521.0	30.3	15.7	110	9.0	1.03	6.12	42254	120.72	150.70	8.4	14.8
522.0	30.5	15.1	110	9.0	1.02	6.15	42470	119.70	150.58	8.4	14.8
523.0	34.0	15.1	110	9.0	0.99	6.18	42664	107.53	150.41	8.4	14.8
524.0	29.0	15.8	110	9.0	1.04	6.22	42892	125.79	150.32	8.4	14.8
525.0	29.5	16.5	110	9.0	1.05	6.25	43115	123.76	150.21	8.4	14.9
526.0	29.8	16.4	110	9.0	1.04	6.28	43337	122.75	150.11	8.4	14.9
527.0	27.3	16.4	110	9.0	1.06	6.32	43579	133.91	150.05	8.4	14.9
528.0	30.5	17.4	110	9.0	1.05	6.35	43795	119.70	149.93	8.4	14.9
529.0	27.9	16.7	110	9.0	1.06	6.39	44032	130.86	149.86	8.4	14.9
530.0	41.4	16.0	110	9.0	0.96	6.41	44191	88.26	149.62	8.4	14.9
531.0	37.1	18.3	110	9.0	1.01	6.44	44369	98.40	149.43	8.4	14.9
532.0	40.9	18.4	110	9.0	0.99	6.46	44531	89.27	149.20	8.4	14.9
533.0	41.9	18.6	110	9.0	0.99	6.49	44688	87.24	148.97	8.4	14.9
534.0	35.6	18.8	110	9.0	1.03	6.52	44873	102.46	148.79	8.4	14.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
535.0	40.9	18.3	110	9.0	0.99	6.54	45035	89.27	148.57	8.4	14.9
536.0	36.4	18.9	110	9.0	1.03	6.57	45216	100.43	148.39	8.4	14.9
537.0	33.6	19.3	110	9.0	1.05	6.60	45412	108.55	148.25	8.4	14.9
538.0	24.5	16.8	110	9.0	1.10	6.64	45682	149.12	148.25	8.4	14.9
539.0	39.6	20.4	110	9.0	1.02	6.66	45849	92.31	148.04	8.4	14.9
540.0	37.9	19.9	110	9.0	1.03	6.69	46023	96.37	147.85	8.4	14.9
541.0	35.6	19.6	110	9.0	1.04	6.72	46208	102.46	147.69	8.4	14.9
542.0	37.1	20.0	110	9.0	1.03	6.74	46386	98.40	147.51	8.4	14.9
543.0	23.2	19.6	110	9.0	1.15	6.79	46670	157.24	147.54	8.4	14.9
544.0	22.1	18.6	110	9.0	1.15	6.83	46969	165.35	147.61	8.4	14.9
545.0	24.7	14.3	110	9.0	1.06	6.87	47237	148.11	147.61	8.4	14.9
546.0	18.1	14.2	110	9.0	1.13	6.93	47601	201.87	147.81	8.4	14.9
547.0	14.5	12.0	110	9.0	1.14	7.00	48056	251.58	148.18	8.4	14.9
549.0	39.4	20.5	110	9.0	1.03	7.05	48391	92.75	147.78	8.5	15.0
550.0	37.1	21.1	110	9.0	1.05	7.08	48569	98.40	147.61	8.5	15.0
551.0	47.4	19.8	110	9.0	0.97	7.10	48708	77.10	147.36	8.5	15.0
552.0	47.4	21.2	110	9.0	0.98	7.12	48848	77.10	147.11	8.5	15.0
553.0	42.9	20.7	110	9.0	1.00	7.14	49002	85.21	146.90	8.5	15.0
554.0	50.0	20.9	110	9.0	0.97	7.16	49134	73.04	146.64	8.5	15.0
555.0	45.6	20.3	110	9.0	0.98	7.18	49279	80.14	146.41	8.5	15.0
556.0	45.6	20.8	110	9.0	0.99	7.20	49423	80.14	146.18	8.5	15.0
557.0	45.6	20.9	110	9.0	0.99	7.23	49568	80.14	145.95	8.5	15.0
558.0	42.9	20.5	110	9.0	1.00	7.25	49722	85.21	145.74	8.5	15.0
559.0	34.0	23.6	110	9.0	1.10	7.28	49917	107.53	145.61	8.5	15.0
560.0	40.0	19.3	110	9.0	1.01	7.30	50082	91.30	145.43	8.5	15.0
561.0	31.0	15.6	110	9.0	1.02	7.34	50294	117.68	145.33	8.5	15.0
562.0	37.5	16.9	110	9.0	0.99	7.36	50470	97.39	145.17	8.5	15.0
563.0	29.5	17.3	114	9.0	1.07	7.40	50701	123.76	145.10	8.5	15.0
564.0	36.4	17.2	120	9.0	1.03	7.42	50899	100.43	144.95	8.5	15.0
565.0	37.9	17.1	120	9.0	1.01	7.45	51089	96.37	144.78	8.5	15.0
566.0	30.8	17.0	120	9.0	1.07	7.48	51323	118.69	144.70	8.5	15.0
567.0	31.6	17.0	120	9.0	1.06	7.52	51551	115.65	144.60	8.5	15.0
568.0	34.0	17.3	120	9.0	1.04	7.54	51763	107.53	144.48	8.5	15.0
569.0	26.5	16.8	120	9.0	1.10	7.58	52035	137.96	144.46	8.5	15.0
570.0	36.4	16.5	120	9.0	1.02	7.61	52233	100.43	144.31	8.5	15.0
571.0	35.6	16.2	120	9.0	1.02	7.64	52435	102.46	144.17	8.5	15.0
572.0	36.0	16.5	120	9.0	1.02	7.67	52635	101.44	144.03	8.5	15.0
573.0	43.4	16.8	120	9.0	0.98	7.69	52801	84.20	143.84	8.5	15.0
574.0	37.9	17.0	120	9.0	1.01	7.72	52991	96.37	143.68	8.5	15.0
575.0	39.1	18.2	120	9.0	1.02	7.74	53175	93.33	143.52	8.5	15.0
576.0	42.9	17.8	120	9.0	0.99	7.76	53343	85.21	143.33	8.5	15.0
578.0	34.3	21.4	120	9.0	1.10	7.82	53763	106.52	143.09	8.5	15.0
579.0	22.8	17.9	120	9.0	1.15	7.87	54079	160.28	143.15	8.5	15.0
580.0	23.2	16.3	120	9.0	1.13	7.91	54389	157.24	143.19	8.5	15.1
581.0	20.7	16.9	120	9.0	1.16	7.96	54737	176.51	143.30	8.5	15.1
582.0	21.3	17.0	120	9.0	1.16	8.00	55075	171.44	143.39	8.5	15.1
583.0	25.9	16.8	120	9.0	1.10	8.04	55353	141.01	143.38	8.5	15.1
584.0	23.2	17.7	120	9.0	1.14	8.09	55663	157.24	143.42	8.5	15.1
585.0	22.2	18.2	120	9.0	1.16	8.13	55987	164.34	143.49	8.5	15.1
586.0	18.2	18.1	120	9.0	1.21	8.19	56383	200.86	143.67	8.5	15.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
588.0	30.0	16.5	120	9.0	1.06	8.25	56863	121.73	143.53	8.5	15.1
589.0	29.0	16.5	120	9.0	1.07	8.29	57111	125.79	143.48	8.5	15.1
590.0	24.5	16.1	120	9.0	1.11	8.33	57405	149.12	143.50	8.5	15.1
591.0	26.7	16.1	120	9.0	1.09	8.37	57675	136.95	143.48	8.5	15.1
592.0	19.5	15.8	120	9.0	1.16	8.42	58045	187.67	143.61	8.5	15.1
593.0	30.0	15.5	120	9.0	1.05	8.45	58285	121.73	143.54	8.5	15.1
594.0	28.3	16.1	120	9.0	1.07	8.49	58539	128.83	143.50	8.5	15.1
595.0	18.5	16.2	120	9.0	1.18	8.54	58929	197.82	143.67	8.5	15.1
596.0	30.0	15.7	120	9.0	1.05	8.57	59169	121.73	143.60	8.5	15.1
597.0	23.5	14.0	120	9.0	1.09	8.62	59476	155.55	143.63	8.5	15.1
598.0	23.1	14.1	120	9.0	1.09	8.66	59788	158.25	143.68	8.5	15.1
599.0	14.3	14.8	120	9.0	1.22	8.73	60292	255.64	144.02	8.5	15.1
600.0	27.1	14.3	120	9.0	1.06	8.77	60558	134.92	143.99	8.5	15.1
601.0	16.1	15.4	120	9.0	1.20	8.83	61004	226.22	144.24	8.5	15.1
602.0	32.1	15.2	120	9.0	1.03	8.86	61228	113.62	144.14	8.5	15.1
603.0	21.3	15.9	120	9.0	1.14	8.91	61566	171.44	144.23	8.5	15.1
604.0	25.5	16.1	120	9.0	1.10	8.95	61848	143.04	144.22	8.5	15.1
605.0	24.8	16.7	120	9.0	1.11	8.99	62138	147.09	144.23	8.5	15.1
606.0	21.1	15.3	120	9.0	1.13	9.03	62480	173.47	144.32	8.5	15.1
607.0	27.1	14.6	120	9.0	1.06	9.07	62746	134.92	144.29	8.5	15.1
608.0	31.6	15.7	120	9.0	1.04	9.10	62974	115.65	144.20	8.5	15.1
609.0	32.1	15.7	120	9.0	1.04	9.13	63198	113.62	144.12	8.5	15.1
610.0	31.3	15.7	120	9.0	1.04	9.16	63428	116.66	144.04	8.5	15.1
611.0	27.5	15.6	120	9.0	1.07	9.20	63690	132.89	144.00	8.5	15.1
612.0	21.3	15.4	120	9.0	1.13	9.25	64028	171.44	144.08	8.5	15.2
613.0	21.7	16.3	120	9.0	1.14	9.29	64360	168.40	144.15	8.5	15.2
614.0	26.3	17.4	120	9.0	1.11	9.33	64634	138.98	144.14	8.5	15.2
616.0	13.2	19.5	120	9.0	1.32	9.48	65727	277.28	144.90	8.5	15.2
617.0	20.1	18.7	120	9.0	1.20	9.53	66085	181.59	145.01	8.5	15.2
618.0	32.7	19.5	120	9.0	1.08	9.56	66305	111.59	144.91	8.5	15.2
619.0	43.9	19.9	120	9.0	1.01	9.59	66469	83.18	144.73	8.5	15.2
620.0	34.6	19.4	120	9.0	1.07	9.62	66677	105.50	144.62	8.5	15.2
621.0	23.7	20.1	120	9.0	1.17	9.66	66981	154.20	144.65	8.5	15.2
622.0	23.5	19.8	120	9.0	1.17	9.70	67287	155.21	144.68	8.6	15.2
623.0	26.3	19.8	120	9.0	1.14	9.74	67561	138.98	144.66	8.6	15.2
624.0	29.8	19.8	120	9.0	1.11	9.77	67803	122.75	144.60	8.6	15.2
625.0	30.5	18.7	120	9.0	1.09	9.81	68039	119.70	144.53	8.6	15.2
626.0	23.4	20.1	120	9.0	1.18	9.85	68347	156.22	144.57	8.6	15.2
627.0	30.0	20.2	120	9.0	1.11	9.88	68587	121.73	144.50	8.6	15.2
628.0	39.1	20.1	120	9.0	1.04	9.91	68771	93.33	144.36	8.6	15.2
629.0	30.3	20.7	120	9.0	1.12	9.94	69009	120.72	144.30	8.6	15.2
630.0	37.1	20.1	120	9.0	1.06	9.97	69203	98.40	144.17	8.6	15.2
631.0	35.6	20.3	120	9.0	1.07	10.00	69405	102.46	144.05	8.6	15.2
632.0	33.0	19.7	120	9.0	1.08	10.03	69623	110.57	143.96	8.6	15.2
633.0	31.0	20.0	120	9.0	1.10	10.06	69855	117.68	143.89	8.6	15.2
634.0	26.5	18.9	120	9.0	1.13	10.10	70127	137.96	143.88	8.6	15.2
635.0	22.5	21.0	120	9.0	1.20	10.14	70447	162.31	143.93	8.6	15.2
636.0	20.9	20.8	120	9.0	1.22	10.19	70791	174.48	144.01	8.6	15.2
637.0	12.1	21.5	120	9.0	1.37	10.27	71385	301.29	144.43	8.6	15.2
638.0	16.6	21.8	120	9.0	1.29	10.33	71819	220.13	144.64	8.6	15.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
639.0	31.0	22.1	120	9.0	1.13	10.36	72051	117.68	144.56	8.6	15.3
640.0	21.2	20.6	120	9.0	1.21	10.41	72391	172.46	144.64	8.6	15.3
641.0	23.4	17.2	120	9.0	1.14	10.45	72699	156.22	144.67	8.6	15.3

BIT NUMBER	2	IADC CODE	116	INTERVAL	641.0- 763.0
STC J1		SIZE	12.250	NOZZLES	16 16 16
COST	2566.00	TRIP TIME	3.5	BIT RUN	122.0
TOTAL HOURS	2.66	TOTAL TURNS	17674	CONDITION	T3 B4 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
642.0	18.3	12.8	60	10.7	0.87	0.05	197	200	15548	8.6	15.3
645.0	32.7	21.2	60	10.7	0.85	0.15	527	112	3971	8.6	15.3
646.0	29.0	21.2	60	10.7	0.88	0.18	651	126	3202	8.6	15.3
647.0	31.0	21.4	60	10.7	0.86	0.21	767	118	2688	8.6	15.3
648.0	19.9	16.7	60	10.7	0.91	0.26	948	184	2330	8.6	15.3
649.0	30.0	24.9	60	10.7	0.91	0.30	1068	122	2054	8.6	15.3
650.0	16.7	24.3	60	10.7	1.05	0.36	1284	219	1850	8.6	15.3
651.0	21.2	24.6	60	10.7	0.99	0.40	1454	172	1682	8.6	15.3
652.0	31.6	29.5	113	10.7	1.10	0.44	1669	116	1540	8.6	15.3
653.0	33.0	28.8	120	10.7	1.10	0.47	1887	111	1421	8.6	15.3
654.0	39.1	28.7	120	10.7	1.05	0.49	2071	93	1319	8.6	15.3
655.0	30.5	26.6	120	10.7	1.10	0.52	2307	120	1233	8.6	15.3
656.0	40.9	26.7	120	10.7	1.03	0.55	2483	89	1157	8.6	15.3
657.0	40.9	26.2	120	10.7	1.02	0.57	2659	89	1090	8.6	15.3
658.0	46.8	27.1	120	10.7	1.00	0.59	2813	78	1031	8.6	15.3
659.0	40.9	26.9	120	10.7	1.03	0.62	2989	89.27	978.21	8.6	15.3
660.0	37.9	24.7	120	10.7	1.02	0.65	3179	96.37	931.80	8.6	15.3
661.0	37.9	23.8	120	10.7	1.01	0.67	3369	96.37	890.03	8.6	15.3
662.0	31.6	21.8	120	10.7	1.04	0.70	3597	115.65	853.15	8.6	15.3
663.0	32.4	21.4	120	10.7	1.02	0.73	3819	112.60	819.49	8.6	15.3
664.0	45.0	27.8	120	10.7	1.01	0.76	3979	81.16	787.39	8.6	15.3
665.0	46.8	29.0	120	10.7	1.01	0.78	4133	78.11	757.84	8.6	15.3
666.0	51.4	28.3	120	10.7	0.98	0.80	4273	71.01	730.36	8.6	15.3
667.0	42.4	26.0	120	10.7	1.01	0.82	4443	86.23	705.59	8.6	15.3
668.0	45.6	26.8	120	10.7	1.00	0.84	4601	80.14	682.43	8.6	15.3
669.0	37.1	23.7	120	10.7	1.02	0.87	4795	98.40	661.57	8.6	15.3
670.0	45.0	26.3	120	10.7	1.00	0.89	4955	81.16	641.55	8.6	15.3
671.0	45.6	27.1	120	10.7	1.00	0.91	5113	80.14	622.84	8.6	15.4
672.0	45.6	26.4	120	10.7	1.00	0.94	5271	80.14	605.33	8.6	15.4
673.0	41.9	24.9	120	10.7	1.00	0.96	5443	87.24	589.14	8.6	15.4
674.0	44.4	27.9	120	10.7	1.02	0.98	5605	82.17	573.78	8.6	15.4
675.0	45.6	30.0	120	10.7	1.03	1.00	5763	80.14	559.26	8.6	15.4
676.0	45.6	30.9	120	10.7	1.04	1.03	5921	80.14	545.57	8.6	15.4
677.0	50.0	33.0	120	10.7	1.03	1.05	6065	73.04	532.45	8.6	15.4
678.0	52.2	31.3	120	10.7	1.01	1.07	6203	70.00	519.95	8.6	15.4
679.0	57.1	32.4	120	10.7	0.99	1.08	6329	63.91	507.95	8.6	15.4
680.0	66.7	33.1	120	10.7	0.96	1.10	6437	54.78	496.33	8.6	15.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
681.0	54.5	32.3	120	10.7	1.00	1.12	6569	66.95	485.59	8.6	15.4
682.0	52.2	30.6	120	10.7	1.00	1.14	6707	70.00	475.46	8.6	15.4
684.0	55.9	32.0	120	10.7	1.00	1.17	6964	65.38	456.38	8.6	15.4
685.0	45.0	30.7	120	10.7	1.04	1.19	7124	81.16	447.85	8.6	15.4
686.0	54.5	32.5	120	10.7	1.01	1.21	7256	66.95	439.39	8.6	15.4
687.0	43.9	32.6	120	10.7	1.07	1.23	7420	83.18	431.65	8.6	15.4
688.0	52.9	34.1	120	10.7	1.03	1.25	7556	68.98	423.93	8.6	15.4
689.0	53.7	34.0	120	10.7	1.02	1.27	7690	67.97	416.51	8.6	15.4
690.0	53.7	33.8	120	10.7	1.02	1.29	7824	67.97	409.40	8.6	15.4
691.0	49.3	33.1	120	10.7	1.04	1.31	7970	74.05	402.69	8.6	15.4
692.0	37.1	31.2	120	10.7	1.10	1.34	8164	98.40	396.73	8.6	15.4
693.0	35.3	31.6	120	10.7	1.12	1.37	8368	103.47	391.09	8.6	15.4
694.0	53.7	32.2	120	10.7	1.01	1.38	8502	67.97	384.99	8.6	15.4
695.0	42.4	34.3	120	10.7	1.09	1.41	8672	86.23	379.46	8.6	15.4
696.0	52.2	36.4	120	10.7	1.05	1.43	8810	70.00	373.83	8.6	15.4
697.0	51.4	36.3	120	10.7	1.06	1.45	8950	71.01	368.42	8.6	15.4
698.0	51.4	35.0	120	10.7	1.04	1.47	9090	71.01	363.21	8.6	15.4
699.0	49.3	35.4	120	10.7	1.06	1.49	9236	74.05	358.22	8.6	15.4
700.0	55.4	35.2	120	10.7	1.03	1.50	9366	65.94	353.27	8.6	15.4
701.0	41.9	35.1	120	10.7	1.10	1.53	9538	87.24	348.83	8.7	15.5
703.0	49.1	33.6	120	10.7	1.04	1.57	9832	74.39	339.98	8.7	15.5
704.0	50.0	35.9	120	10.7	1.06	1.59	9976	73.04	335.74	8.7	15.5
705.0	47.4	35.5	120	10.7	1.07	1.61	10128	77.10	331.70	8.7	15.5
706.0	52.2	35.3	120	10.7	1.04	1.63	10266	70.00	327.68	8.7	15.5
707.0	55.4	36.2	120	10.7	1.03	1.65	10396	65.94	323.71	8.7	15.5
708.0	49.3	36.7	120	10.7	1.07	1.67	10542	74.05	319.98	8.7	15.5
709.0	48.6	35.2	120	10.7	1.06	1.69	10690	75.07	316.38	8.7	15.5
710.0	49.3	35.9	120	10.7	1.06	1.71	10836	74.05	312.87	8.7	15.5
711.0	76.6	35.1	120	10.7	0.94	1.72	10930	47.68	309.08	8.7	15.5
712.0	50.0	30.9	120	10.7	1.02	1.74	11074	73.04	305.76	8.7	15.5
713.0	66.7	37.2	120	10.7	0.99	1.76	11182	54.78	302.27	8.7	15.5
714.0	56.2	35.3	120	10.7	1.02	1.77	11310	64.92	299.02	8.7	15.5
715.0	44.4	34.1	120	10.7	1.08	1.80	11472	82.17	296.09	8.7	15.5
716.0	72.0	35.7	120	10.7	0.96	1.81	11572	50.72	292.82	8.7	15.5
717.0	53.7	36.6	120	10.7	1.05	1.83	11706	67.97	289.86	8.7	15.5
718.0	66.7	35.7	120	10.7	0.98	1.84	11814	54.78	286.81	8.7	15.5
719.0	54.5	35.5	120	10.7	1.03	1.86	11946	66.95	283.99	8.7	15.5
720.0	73.5	34.7	120	10.7	0.94	1.88	12044	49.71	281.02	8.7	15.5
721.0	52.2	35.9	120	10.7	1.05	1.90	12182	70.00	278.38	8.7	15.5
722.0	51.4	36.0	120	10.7	1.05	1.92	12322	71.01	275.82	8.7	15.5
723.0	25.0	33.9	120	10.7	1.23	1.96	12610	146.08	274.24	8.7	15.5
724.0	60.0	35.6	120	10.7	1.01	1.97	12730	60.87	271.67	8.7	15.5
725.0	63.2	35.1	120	10.7	0.99	1.99	12844	57.82	269.13	8.7	15.5
726.0	55.4	36.5	120	10.7	1.04	2.01	12974	65.94	266.74	8.7	15.5
727.0	40.9	32.8	120	10.7	1.09	2.03	13150	89.27	264.67	8.7	15.5
728.0	70.6	35.2	120	10.7	0.96	2.04	13252	51.74	262.22	8.7	15.5
729.0	70.6	35.3	120	10.7	0.96	2.06	13354	51.74	259.83	8.7	15.5
730.0	76.6	34.7	120	10.7	0.93	2.07	13448	47.68	257.45	8.7	15.5
731.0	52.9	33.4	120	10.7	1.02	2.09	13584	68.98	255.35	8.7	15.5
732.0	66.7	35.1	120	10.7	0.97	2.11	13692	54.78	253.15	8.7	15.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
733.0	64.3	34.4	120	10.7	0.98	2.12	13804	56.81	251.02	8.7	15.5
734.0	61.0	35.0	120	10.7	1.00	2.14	13922	59.85	248.96	8.7	15.5
735.0	43.4	35.3	120	10.7	1.10	2.16	14088	84.20	247.21	8.7	15.6
736.0	42.9	34.8	120	10.7	1.09	2.18	14256	85.21	245.50	8.7	15.6
737.0	31.6	33.0	120	10.7	1.16	2.22	14484	115.65	244.15	8.7	15.6
738.0	46.8	33.4	120	10.7	1.06	2.24	14638	78.11	242.44	8.7	15.6
739.0	39.6	35.5	120	10.7	1.12	2.26	14820	92.31	240.91	8.7	15.6
740.0	37.9	36.9	120	10.7	1.15	2.29	15010	96.37	239.45	8.7	15.6
742.0	51.4	38.0	120	10.7	1.07	2.33	15290	71.01	236.11	8.7	15.6
743.0	65.5	35.4	120	10.7	0.98	2.34	15400	55.79	234.34	8.7	15.6
744.0	47.4	35.6	120	10.7	1.07	2.36	15552	77.10	232.82	8.7	15.6
745.0	37.5	33.8	120	10.7	1.12	2.39	15744	97.39	231.51	8.7	15.6
746.0	40.0	36.6	120	10.7	1.13	2.42	15924	91.30	230.18	8.7	15.6
747.0	62.1	36.3	120	10.7	1.00	2.43	16040	58.84	228.56	8.7	15.6
748.0	28.6	34.9	120	10.7	1.21	2.47	16292	127.82	227.62	8.7	15.6
749.0	62.1	34.2	120	10.7	0.99	2.48	16408	58.84	226.06	8.7	15.6
750.0	102.9	20.0	120	10.7	0.73	2.49	16478	35.51	224.31	8.7	15.6
751.0	90.0	24.0	120	10.7	0.80	2.50	16558	40.58	222.64	8.7	15.6
752.0	105.0	28.0	120	10.7	0.79	2.51	16626	34.78	220.95	8.7	15.6
753.0	112.0	26.0	120	10.7	0.76	2.52	16691	32.61	219.27	8.7	15.6
754.0	120.0	31.1	120	10.7	0.78	2.53	16751	30.43	217.59	8.7	15.6
755.0	200.0	33.0	120	10.7	0.66	2.54	16787	18.26	215.85	8.7	15.6
756.0	45.6	31.5	120	10.7	1.05	2.56	16945	80.14	214.67	8.7	15.6
757.0	44.4	35.1	120	10.7	1.09	2.58	17107	82.17	213.52	8.7	15.6
758.0	257.1	33.6	120	10.7	0.59	2.58	17135	14.20	211.82	8.7	15.6
759.0	90.0	30.3	120	10.7	0.85	2.59	17215	40.58	210.37	8.7	15.6
760.0	120.0	31.0	120	10.7	0.78	2.60	17275	30.43	208.86	8.7	15.6
761.0	180.0	32.5	120	10.7	0.68	2.61	17315	20.29	207.29	8.7	15.6
762.0	249.2	34.8	120	10.7	0.60	2.61	17344	14.65	205.69	8.7	15.6
763.0	21.8	25.2	120	10.7	1.17	2.66	17674	167.38	205.38	8.7	15.6

BIT NUMBER	3	IADC CODE	517	INTERVAL	763.0- 787.0
STC J22		SIZE	12.250	NOZZLES	16 16 16
COST	8520.00	TRIP TIME	3.7	BIT RUN	24.0
TOTAL HOURS	0.90	TOTAL TURNS	3767	CONDITION	T1 B1 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
764.0	20.0	32.8	70	10.7	1.14	0.05	210	183	22215	8.7	15.6
766.0	47.4	34.0	70	10.7	0.91	0.09	387	77	7456	8.7	15.6
768.0	24.1	19.2	70	10.7	0.94	0.18	735	151	4534	8.7	15.6
770.0	8.4	1.9	70	10.7	0.75	0.41	1739	436	3363	8.7	15.7
771.0	62.1	8.9	70	10.7	0.60	0.43	1806	59	2950	8.7	15.7
772.0	225.0	13.1	70	10.7	0.37	0.43	1825	16	2624	8.7	15.7
773.0	26.5	23.7	70	10.7	0.97	0.47	1984	138	2376	8.7	15.7
774.0	17.8	32.6	70	10.7	1.17	0.53	2219	205	2178	8.7	15.7
775.0	10.3	32.4	70	10.7	1.31	0.63	2628	355	2026	8.7	15.7
776.0	28.3	36.5	70	10.7	1.07	0.66	2776	129	1880	8.7	15.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
777.0	67.9	31.1	70	10.7	0.79	0.68	2838	54	1750	8.7	15.7
780.0	23.1	34.2	70	10.7	1.11	0.81	3382	158	1469	8.7	15.7
781.0	14.1	32.8	70	10.7	1.23	0.88	3679	259	1402	8.7	15.7
785.0	360.0	24.2	70	10.7	0.32	0.89	3726	10	1149	8.7	15.7
787.0	205.7	16.0	70	10.7	0.41	0.90	3767	18	1054	8.7	15.7

BIT NUMBER	3	IADC CODE	4	INTERVAL	787.0- 796.0
CHRIS RC476		SIZE	9.875	NOZZLES	14 14 14
COST	17600.00	TRIP TIME	3.7	BIT RUN	9.0
TOTAL HOURS	0.20	TOTAL TURNS	819	CONDITION	T0 B2 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
787.2	45.0	12.1	70	10.7	0.75	0.00	19	81	155643	8.7	15.7
787.6	38.9	13.0	70	10.7	0.79	0.01	62	94	51944	8.7	15.7
787.8	51.4	12.3	70	10.7	0.72	0.02	78	71	38975	8.7	15.7
788.0	42.4	11.9	70	10.7	0.76	0.02	98	86	31198	8.7	15.7
788.6	69.7	13.2	70	10.7	0.66	0.03	134	52	19518	8.7	15.7
789.0	60.0	20.3	70	10.7	0.78	0.04	162	61	15627	8.7	15.7
789.4	57.6	18.8	70	10.7	0.77	0.05	191	63	13033	8.7	15.7
789.8	60.0	19.1	70	10.7	0.76	0.05	219	61	11180	8.7	15.7
790.0	45.0	18.5	70	10.7	0.83	0.06	238	81	10440	8.7	15.7
790.2	21.2	17.2	70	10.6	1.00	0.07	278	172	9798	8.7	15.7
790.4	45.0	17.0	70	10.7	0.81	0.07	296	81	9226	8.7	15.7
790.6	34.3	16.7	70	10.7	0.87	0.08	321	107	8720	8.7	15.7
790.8	51.4	16.0	70	10.7	0.77	0.08	337	71	8265	8.7	15.7
791.0	60.0	16.3	70	10.7	0.73	0.08	351	61	7854	8.7	15.7
791.2	40.0	16.0	70	10.7	0.83	0.09	372	91	7485	8.7	15.7
791.4	55.4	16.1	70	10.7	0.75	0.09	387	66	7148	8.7	15.7
791.8	68.6	17.1	70	10.7	0.71	0.10	412	53	6556	8.7	15.7
792.2	65.5	16.8	70	10.7	0.72	0.10	438	56	6056	8.7	15.7
792.6	75.8	17.2	70	10.7	0.69	0.11	460	48	5627	8.7	15.7
792.8	60.0	16.8	70	10.7	0.74	0.11	474	61	5435	8.7	15.7
793.0	51.4	16.9	70	10.7	0.78	0.12	490	71	5256	8.7	15.7
793.4	57.6	16.4	70	10.7	0.74	0.12	519	63	4932	8.7	15.7
793.6	60.0	16.8	70	10.7	0.74	0.13	533	61	4784	8.7	15.7
793.8	55.4	16.9	70	10.7	0.76	0.13	548	66	4645	8.7	15.7
794.0	36.0	16.1	70	10.7	0.85	0.14	572	101	4516	8.7	15.7
794.4	55.4	16.8	70	10.7	0.76	0.14	602	66	4275	8.7	15.7
794.6	48.0	17.0	70	10.7	0.79	0.15	620	76	4165	8.7	15.7
794.8	36.0	16.3	70	10.7	0.85	0.15	643	101	4060	8.7	15.7
795.0	60.0	16.7	70	10.7	0.74	0.16	657	61	3960	8.7	15.7
795.4	55.4	17.5	70	10.7	0.77	0.16	687	66	3775	8.7	15.7
795.6	8.9	16.8	70	10.7	1.20	0.19	782	411	3697	8.7	15.7
795.8	42.4	16.7	70	10.7	0.82	0.19	802	86	3615	8.7	15.7
796.0	48.0	16.4	70	10.7	0.79	0.20	819	76	3536	8.7	15.7

BIT NUMBER	3	IADC CODE	517	INTERVAL	796.0- 951.0
HTC J22		SIZE	12.250	NOZZLES	16 16 16
COST	0.00	TRIP TIME	3.8	BIT RUN	155.0
TOTAL HOURS	6.65	TOTAL TURNS	28931	CONDITION	T5 B4 G0.125

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
797.0	87.8	6.2	70	10.7	0.49	0.54	2428	41.59	634.19	8.7	15.7
798.0	163.6	30.2	70	10.7	0.55	0.55	2454	22.32	610.66	8.7	15.7
799.0	196.4	20.6	70	10.7	0.45	0.55	2475	18.60	588.73	8.7	15.7
800.0	138.5	25.5	70	10.7	0.57	0.56	2505	26.38	568.64	8.7	15.7
802.0	189.5	36.4	70	10.7	0.54	0.57	2550	19.27	532.02	8.7	15.7
803.0	171.4	38.3	70	10.7	0.58	0.58	2574	21.30	515.55	8.7	15.7
804.0	133.3	35.5	70	10.7	0.63	0.58	2606	27.39	500.29	8.7	15.7
805.0	116.1	21.7	70	10.7	0.59	0.59	2642	31.45	486.08	8.7	15.7
806.0	180.0	10.6	70	10.7	0.40	0.60	2665	20.29	472.38	8.7	15.7
807.0	163.6	15.2	70	10.7	0.46	0.60	2691	22.32	459.52	8.7	15.8
808.0	97.3	14.2	70	10.7	0.57	0.61	2734	37.53	447.80	8.7	15.8
809.0	85.7	12.6	70	10.7	0.58	0.63	2783	42.61	436.85	8.7	15.8
810.0	58.1	22.1	70	10.7	0.76	0.64	2855	62.90	427.01	8.7	15.8
811.0	51.4	27.9	70	10.7	0.84	0.66	2937	71.01	417.88	8.7	15.8
812.0	78.3	27.1	70	10.7	0.72	0.68	2991	46.66	408.60	8.7	15.8
813.0	180.0	26.5	70	10.7	0.50	0.68	3014	20.29	399.13	8.7	15.8
814.0	257.1	22.5	70	10.7	0.39	0.68	3030	14.20	389.97	8.7	15.8
815.0	138.5	14.3	70	10.7	0.49	0.69	3061	26.38	381.51	8.7	15.8
816.0	189.5	9.1	70	10.7	0.38	0.70	3083	19.27	373.28	8.7	15.8
817.0	85.7	7.3	70	10.7	0.51	0.71	3132	42.61	365.93	8.7	15.8
818.0	128.6	12.7	70	10.7	0.49	0.72	3164	28.40	358.59	8.7	15.8
819.0	54.5	16.4	70	10.7	0.72	0.74	3241	66.95	352.39	8.7	15.8
820.0	85.7	14.1	70	10.7	0.59	0.75	3290	42.61	345.93	8.7	15.8
821.0	76.6	15.6	70	10.7	0.63	0.76	3345	47.68	339.85	8.7	15.8
822.0	73.5	14.6	70	10.7	0.63	0.77	3402	49.71	334.04	8.7	15.8
823.0	102.9	12.2	70	10.7	0.53	0.78	3443	35.51	328.19	8.7	15.8
824.0	124.1	13.7	70	10.7	0.51	0.79	3477	29.42	322.44	8.7	15.8
825.0	97.3	16.4	70	10.7	0.59	0.80	3520	37.53	317.07	8.7	15.8
828.0	58.8	21.1	70	10.7	0.75	0.85	3735	62.13	303.41	8.7	15.8
829.0	59.0	20.6	70	10.7	0.74	0.87	3806	61.88	299.17	8.7	15.8
830.0	52.2	20.6	70	10.7	0.77	0.89	3886	70.00	295.22	8.7	15.8
831.0	65.5	20.3	70	10.7	0.71	0.90	3950	55.79	291.16	8.7	15.8
832.0	69.2	20.4	70	10.7	0.70	0.92	4011	52.75	287.19	8.7	15.8
833.0	52.9	19.9	70	10.7	0.76	0.94	4090	68.98	283.61	8.7	15.8
834.0	39.6	20.4	70	10.7	0.83	0.96	4197	92.31	280.53	8.7	15.8
835.0	49.3	19.7	70	10.7	0.77	0.98	4282	74.05	277.25	8.7	15.8
837.0	35.3	21.7	70	10.7	0.88	1.04	4520	103.47	271.90	8.7	15.8
838.0	29.5	22.1	70	10.7	0.92	1.07	4662	123.76	269.66	8.7	15.8
839.0	17.7	20.1	70	10.7	1.02	1.13	4899	205.93	268.71	8.7	15.8
840.0	51.4	22.4	70	10.7	0.79	1.15	4981	71.01	265.80	8.7	15.8
841.0	55.4	21.3	70	10.7	0.76	1.17	5056	65.94	262.90	8.7	15.8
842.0	70.6	27.5	70	10.7	0.75	1.18	5116	51.74	259.89	8.7	15.8
843.0	34.0	26.3	70	10.7	0.93	1.21	5240	107.53	257.74	8.7	15.8

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
844.0	70.6	29.1	70	10.7	0.77	1.23	5299	51.74	254.88	8.7	15.8
845.0	65.5	27.8	70	10.7	0.77	1.24	5363	55.79	252.15	8.7	15.9
846.0	64.3	31.6	70	10.7	0.81	1.26	5429	56.81	249.51	8.7	15.9
847.0	32.4	28.2	70	10.7	0.96	1.29	5558	112.60	247.69	8.7	15.9
848.0	49.3	27.8	70	10.7	0.85	1.31	5643	74.05	245.40	8.7	15.9
849.0	18.9	28.3	70	10.7	1.10	1.36	5865	192.74	244.72	8.7	15.9
850.0	22.5	29.1	70	10.7	1.07	1.40	6052	162.31	243.66	8.7	15.9
851.0	19.5	30.5	70	10.7	1.12	1.46	6267	187.67	242.95	8.7	15.9
852.0	24.7	30.6	70	10.7	1.06	1.50	6438	148.11	241.77	8.7	15.9
853.0	27.5	31.8	70	10.7	1.04	1.53	6591	132.89	240.42	8.7	15.9
854.0	16.6	31.6	70	10.7	1.17	1.59	6844	220.13	240.18	8.7	15.9
856.0	40.0	32.5	70	10.7	0.94	1.64	7054	91.30	236.63	8.7	15.9
857.0	35.6	31.4	70	10.7	0.97	1.67	7172	102.46	235.05	8.7	15.9
858.0	8.0	33.7	77	10.7	1.42	1.80	7748	456.50	237.63	8.7	15.9
859.0	20.9	33.9	80	10.7	1.17	1.84	7978	174.48	236.90	8.7	15.9
860.0	16.6	35.0	80	10.7	1.25	1.90	8267	220.13	236.71	8.7	15.9
861.0	15.9	33.4	80	10.7	1.24	1.97	8570	230.28	236.64	8.7	15.9
862.0	15.4	33.5	80	10.7	1.25	2.03	8882	237.38	236.65	8.7	15.9
863.0	56.2	31.4	80	10.7	0.88	2.05	8967	64.92	234.76	8.7	15.9
864.0	60.0	30.0	80	10.7	0.85	2.07	9047	60.87	232.87	8.7	15.9
865.0	63.2	28.7	80	10.7	0.83	2.08	9123	57.82	230.99	8.7	15.9
866.0	31.0	28.1	80	10.7	1.01	2.11	9278	117.68	229.78	8.7	15.9
867.0	60.0	31.1	80	10.7	0.86	2.13	9358	60.87	228.01	8.7	15.9
868.0	85.7	31.1	80	10.7	0.76	2.14	9414	42.61	226.07	8.7	15.9
870.0	60.0	31.0	80	10.7	0.86	2.18	9574	60.87	222.70	8.7	15.9
871.0	54.5	31.4	80	10.7	0.89	2.19	9662	66.95	221.13	8.7	15.9
872.0	31.3	31.7	80	10.7	1.04	2.23	9815	116.66	220.08	8.7	15.9
873.0	57.1	33.6	80	10.7	0.89	2.24	9899	63.91	218.54	8.7	15.9
874.0	45.6	34.0	80	10.7	0.96	2.27	10004	80.14	217.18	8.7	15.9
876.0	7.4	33.6	80	10.7	1.45	2.54	11303	494.18	222.51	8.7	15.9
877.0	11.9	35.1	80	10.7	1.34	2.62	11707	307.38	223.32	8.7	15.9
878.0	15.3	35.6	80	10.7	1.28	2.69	12021	238.39	223.46	8.7	15.9
879.0	18.4	33.1	80	10.7	1.20	2.74	12282	198.83	223.23	8.7	15.9
880.0	17.1	32.9	80	10.7	1.22	2.80	12563	214.05	223.14	8.7	15.9
881.0	16.6	32.3	80	10.7	1.22	2.86	12853	220.13	223.12	8.7	15.9
882.0	13.0	30.2	80	10.7	1.26	2.94	13221	279.99	223.63	8.7	15.9
883.0	18.0	25.2	80	10.7	1.12	2.99	13487	202.89	223.45	8.7	16.0
884.0	25.2	29.4	80	10.7	1.08	3.03	13678	145.07	222.75	8.7	16.0
885.0	10.4	31.8	78	10.7	1.33	3.13	14128	351.00	223.88	8.7	16.0
886.0	21.5	29.6	70	10.7	1.08	3.17	14324	169.92	223.41	8.7	16.0
887.0	10.8	22.8	70	10.7	1.18	3.27	14711	336.80	224.39	8.7	16.0
888.0	23.1	20.2	70	10.7	0.96	3.31	14893	158.25	223.82	8.7	16.0
889.0	24.2	21.7	70	10.7	0.97	3.35	15067	151.15	223.20	8.7	16.0
890.0	19.9	22.4	70	10.7	1.02	3.40	15278	183.61	222.87	8.7	16.0
891.0	29.0	21.7	70	10.7	0.92	3.44	15423	125.79	222.05	8.7	16.0
892.0	26.7	20.3	70	10.7	0.93	3.47	15580	136.95	221.34	8.7	16.0
893.0	26.1	17.8	70	10.7	0.90	3.51	15741	139.99	220.67	8.7	16.0
894.0	14.0	17.4	70	10.7	1.04	3.58	16042	261.73	221.01	8.7	16.0
895.0	18.3	18.9	70	10.7	1.00	3.64	16272	199.85	220.83	8.7	16.0
896.0	18.0	22.3	70	10.7	1.05	3.69	16505	202.89	220.69	8.7	16.0

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
899.0	11.6	16.2	70	10.7	1.07	3.95	17590	314.48	222.91	8.7	16.0
900.0	11.8	21.4	70	10.7	1.14	4.04	17947	310.42	223.59	8.7	16.0
901.0	17.5	20.5	70	10.7	1.03	4.09	18188	208.98	223.48	8.7	16.0
902.0	10.3	19.3	70	10.7	1.14	4.19	18594	353.03	224.47	8.7	16.0
903.0	9.9	25.4	70	10.7	1.23	4.29	19016	367.23	225.56	8.7	16.0
904.0	16.5	26.3	70	10.7	1.12	4.35	19270	221.15	225.53	8.7	16.0
905.0	10.8	24.2	70	10.7	1.20	4.44	19660	338.82	226.38	8.7	16.0
906.0	18.1	21.7	70	10.7	1.04	4.50	19892	201.87	226.20	8.7	16.0
907.0	8.4	23.9	70	10.7	1.26	4.62	20391	434.18	227.74	8.7	16.0
908.0	28.8	26.3	70	10.7	0.97	4.65	20537	126.81	227.00	8.7	16.0
909.0	24.3	23.9	70	10.7	0.99	4.69	20710	150.14	226.43	8.7	16.0
910.0	32.7	24.7	70	10.7	0.93	4.72	20838	111.59	225.60	8.7	16.0
911.0	24.5	24.3	70	10.7	0.99	4.77	21010	149.12	225.05	8.7	16.0
912.0	14.9	25.6	70	10.7	1.13	4.83	21292	245.50	225.20	8.7	16.0
913.0	26.3	24.6	70	10.7	0.98	4.87	21452	138.98	224.59	8.7	16.0
914.0	180.0	24.7	70	10.7	0.49	4.88	21475	20.29	223.15	8.7	16.0
915.0	36.7	26.2	70	10.7	0.91	4.90	21590	99.42	222.28	8.7	16.0
916.0	18.2	27.7	70	10.7	1.11	4.96	21821	200.86	222.13	8.7	16.0
917.0	17.1	26.8	70	10.7	1.11	5.02	22066	213.03	222.07	8.7	16.0
918.0	26.3	27.3	70	10.7	1.01	5.06	22225	138.98	221.50	8.7	16.0
919.0	10.3	27.9	70	10.7	1.26	5.15	22631	353.03	222.40	8.7	16.0
920.0	16.5	28.0	70	10.7	1.14	5.21	22886	221.15	222.39	8.7	16.0
921.0	11.4	28.5	70	10.7	1.24	5.30	23254	320.56	223.05	8.7	16.0
922.0	23.1	27.4	70	10.7	1.04	5.34	23436	158.25	222.62	8.7	16.1
923.0	20.0	28.0	70	10.7	1.09	5.39	23646	182.60	222.35	8.7	16.1
924.0	18.2	27.7	70	10.7	1.11	5.45	23877	200.35	222.21	8.7	16.1
925.0	17.8	27.3	70	10.7	1.11	5.50	24112	204.92	222.09	8.7	16.1
926.0	19.6	27.3	70	10.7	1.08	5.56	24327	186.66	221.86	8.7	16.1
927.0	27.9	26.7	70	10.7	0.99	5.59	24478	130.86	221.28	8.7	16.1
928.0	16.2	28.0	70	10.7	1.14	5.65	24737	225.21	221.30	8.7	16.1
929.0	16.4	27.6	70	10.7	1.13	5.71	24993	223.18	221.31	8.7	16.1
930.0	22.8	28.6	70	10.7	1.06	5.76	25178	160.28	220.93	8.7	16.1
931.0	35.0	26.5	70	10.7	0.93	5.79	25298	104.49	220.19	8.7	16.1
932.0	40.9	24.0	70	10.7	0.86	5.81	25400	89.27	219.38	8.7	16.1
934.0	45.0	28.3	70	10.7	0.88	5.86	25587	81.16	217.67	8.7	16.1
935.0	30.8	29.7	70	10.7	0.99	5.89	25724	118.69	217.06	8.7	16.1
936.0	43.4	29.4	70	10.7	0.90	5.91	25820	84.20	216.25	8.7	16.1
937.0	13.7	31.1	70	10.7	1.22	5.98	26126	265.78	216.55	8.7	16.1
938.0	22.8	31.9	70	10.7	1.09	6.03	26310	160.28	216.21	8.7	16.1
939.0	26.1	31.1	70	10.7	1.05	6.07	26471	139.99	215.76	8.7	16.1
940.0	18.8	31.1	70	10.7	1.13	6.12	26694	193.76	215.63	8.7	16.1
941.0	14.2	32.2	70	10.7	1.22	6.19	26989	256.65	215.87	8.7	16.1
942.0	27.1	32.1	70	10.7	1.05	6.23	27145	134.92	215.39	8.7	16.1
944.0	34.0	28.8	70	10.7	0.96	6.29	27392	107.53	214.14	8.7	16.1
945.0	18.9	29.4	70	10.7	1.11	6.34	27614	192.74	214.01	8.7	16.1
946.0	27.5	29.0	70	10.7	1.01	6.37	27766	132.89	213.55	8.7	16.1
947.0	29.3	28.1	70	10.7	0.99	6.41	27910	124.78	213.04	8.7	16.1
948.0	22.8	28.2	70	10.7	1.05	6.45	28094	160.28	212.74	8.7	16.1
949.0	14.9	29.5	70	10.7	1.18	6.52	28375	244.48	212.92	8.7	16.1
950.0	16.7	30.0	70	10.7	1.15	6.58	28626	218.11	212.95	8.7	16.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
951.0	13.8	31.1	70	10.7	1.22	6.65	28931	264.77	213.24	8.7	16.1

(d). COMPUTER DATA LISTING : LIST B

INTERVAL . . . . . 10m averages.

DEPTH. . . . . Well depth, in metres.

ROP. . . . . Rate of penetration, in metres per hour.

BIT RUN. . . . . Depth interval drilled by the bit, in metres.

HOURS. . . . . Cumulative bit hours. The number of hours that the bit has actually been 'on bottom', recorded in decimal hours.

TURNS. . . . . Cumulative bit turns. The number of turns made by the bit, while actually 'on bottom'.

TOTAL COST . . . . . Cumulative bit cost, in A dollars.

ICOST. . . . . Incremental cost per metre, calculated from the drilling time, in A dollars.

CCOST. . . . . Cumulative cost per metre, calculated from the drilling time, in A dollars.

IC . . . . . ICOST minus CCOST, expressed as a positive or negative sign. When the bit becomes worn, (and therefore uneconomic), this should change from negative to positive.

BIT NUMBER	1	IADC CODE	111	INTERVAL	127.0- 267.0
HTC OSC3AJ+26"HO		SIZE	26.000	NOZZLES	20 20 20
COST	0.00	TRIP TIME	2.3	BIT RUN	140.0
TOTAL HOURS	3.62	TOTAL TURNS	21678	CONDITION	T1 B1 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
150.0	55.0	23.0	0.42	2509	9926.80	66.40	431.60	-
160.0	40.3	33.0	0.67	3999	10833.71	90.69	328.29	-
170.0	44.8	43.0	0.89	5337	11648.31	81.46	270.89	-
180.0	56.6	53.0	1.07	6397	12293.50	64.52	231.95	-
200.0	72.4	73.0	1.34	8056	13302.87	50.47	182.23	-
210.0	73.6	83.0	1.48	8871	13798.93	49.61	166.25	-
220.0	52.8	93.0	1.67	10007	14490.79	69.19	155.81	-
230.0	47.7	103.0	1.88	11264	15255.68	76.49	148.11	-
240.0	29.3	113.0	2.22	13314	16503.44	124.78	146.05	-
267.0	5.2	140.0	7.37	44190	35296.75	696.05	252.12	+

BIT NUMBER	1	IADC CODE	111	INTERVAL	267.0- 641.0
HTC R1		SIZE	17.500	NOZZLES	20 20 20
COST	4978.00	TRIP TIME	3.0	BIT RUN	374.0
TOTAL HOURS	10.45	TOTAL TURNS	72699	CONDITION	T2 B1 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
270.0	57.2	3.0	0.05	315	16125.50	64	5375	-
280.0	76.4	13.0	0.18	1137	16603.31	48	1277	-
290.0	69.9	23.0	0.33	2167	17125.75	52.24	744.60	-
300.0	58.8	33.0	0.50	3391	17746.59	62.08	537.78	-
310.0	71.7	43.0	0.64	4395	18255.71	50.91	424.55	-
320.0	62.0	53.0	0.80	5556	18844.77	58.91	355.56	-
330.0	66.5	63.0	0.95	6638	19393.58	54.88	307.83	-
340.0	46.6	73.0	1.16	8104	20177.75	78.42	276.41	-
350.0	42.0	83.0	1.40	9898	21047.17	86.94	253.58	-
360.0	48.0	93.0	1.61	11398	21807.96	76.08	234.49	-
370.0	38.1	103.0	1.87	13289	22766.95	95.90	221.04	-
380.0	36.0	113.0	2.15	15291	23782.40	101.55	210.46	-
390.0	40.1	123.0	2.40	17087	24693.38	91.10	200.76	-
400.0	39.7	133.0	2.65	18902	25614.15	92.08	192.59	-
410.0	42.6	143.0	2.89	20592	26471.36	85.72	185.11	
420.0	36.8	153.0	3.16	22550	27464.50	99.31	179.51	-
430.0	37.5	163.0	3.42	24472	28439.38	97.49	174.47	-
440.0	43.4	173.0	3.65	25992	29280.21	84.08	169.25	-
450.0	33.3	183.0	3.95	27973	30376.82	109.66	165.99	-
460.0	29.4	193.0	4.30	30219	31619.52	124.27	163.83	-
470.0	37.7	203.0	4.56	31972	32589.18	96.97	160.54	-
480.0	34.5	213.0	4.85	33882	33646.23	105.71	157.96	-
500.0	31.9	233.0	5.48	38024	35938.01	114.59	154.24	-

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
510.0	33.3	243.0	5.78	40004	37033.61	109.56	152.40	-
520.0	32.5	253.0	6.09	42035	38157.74	112.41	150.82	-
530.0	30.6	263.0	6.41	44191	39350.75	119.30	149.62	-
540.0	36.0	273.0	6.69	46023	40364.18	101.34	147.85	-
550.0	25.9	283.0	7.08	48569	41773.09	140.89	147.61	-
560.0	43.6	293.0	7.30	50082	42610.01	83.69	145.43	-
570.0	32.7	303.0	7.61	52233	43725.90	111.59	144.31	-
580.0	33.4	313.0	7.91	54389	44819.47	109.36	143.19	-
590.0	23.9	323.0	8.33	57405	46349.25	152.98	143.50	+
600.0	22.8	333.0	8.77	60558	47948.36	159.91	143.99	+
610.0	25.1	343.0	9.16	63428	49404.08	145.57	144.04	+
620.0	22.2	353.0	9.62	66677	51052.22	164.81	144.62	+
630.0	28.5	363.0	9.97	69203	52333.46	128.12	144.17	-
640.0	22.6	373.0	10.41	72391	53950.48	161.70	144.64	+
641.0	23.4	374.0	10.45	72699	54106.71	156.22	144.67	+

BIT NUMBER	2	IADC CODE	116	INTERVAL	641.0- 763.0
HTC J1		SIZE	12.250	NOZZLES	16 16 16
COST	2566.00	TRIP TIME	3.5	BIT RUN	122.0
TOTAL HOURS	2.66	TOTAL TURNS	17674	CONDITION	T3 B4 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
650.0	25.2	9.0	0.36	1284	16650.21	145	1850	-
660.0	34.6	19.0	0.65	3179	17704.22	105.40	931.80	-
670.0	40.5	29.0	0.89	4955	18605.14	90.08	641.55	-
680.0	48.6	39.0	1.10	6437	19356.75	75.17	496.33	-
690.0	51.9	49.0	1.29	7824	20060.64	70.39	409.40	-
700.0	46.7	59.0	1.50	9366	20842.79	78.21	353.27	-
710.0	49.0	69.0	1.71	10836	21588.07	74.53	312.87	-
720.0	59.6	79.0	1.88	12044	22200.80	61.27	281.02	-
730.0	51.3	89.0	2.07	13448	22912.94	71.21	257.45	-
740.0	46.1	99.0	2.29	15010	23705.22	79.23	239.45	-
750.0	49.0	109.0	2.49	16478	24449.82	74.46	224.31	-
760.0	90.4	119.0	2.60	17275	24854.00	40.42	208.86	-
763.0	54.2	122.0	2.66	17674	25056.33	67.44	205.38	

BIT NUMBER	3	IADC CODE	517	INTERVAL	763.0- 787.0
HTC J22		SIZE	12.250	NOZZLES	16 16 16
COST	8520.00	TRIP TIME	3.7	BIT RUN	24.0
TOTAL HOURS	0.90	TOTAL TURNS	3767	CONDITION	T1 B1 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
770.0	16.9	7.0	0.41	1739	23544.11	216	3363	-
780.0	25.6	17.0	0.81	3382	24973.12	143	1469	-

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
787.0	76.4	24.0	0.90	3767	25307.89	48	1054	-

BIT NUMBER	3	IADC CODE	4	INTERVAL	787.0- 796.0
CHRIS RC476		SIZE	9.875	NOZZLES	14 14 14
COST	17600.00	TRIP TIME	3.7	BIT RUN	9.0
TOTAL HOURS	0.20	TOTAL TURNS	819	CONDITION	T0 B2 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
790.0	52.9	3.0	0.06	238	31319.35	69	10440	-
796.0	43.4	9.0	0.20	819	31824.54	84	3536	-

BIT NUMBER	3	IADC CODE	517	INTERVAL	796.0- 951.0
HTC J22		SIZE	12.250	NOZZLES	16 16 16
COST	0.00	TRIP TIME	3.8	BIT RUN	155.0
TOTAL HOURS	6.65	TOTAL TURNS	28931	CONDITION	T5 B4 G0.125

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	TCOST	CCOST	I-C
800.0	134.2	28.0	0.56	2505	15922.04	27.22	568.64	-
810.0	120.0	38.0	0.64	2855	16226.38	30.43	427.01	-
820.0	96.5	48.0	0.75	3290	16604.76	37.84	345.93	-
830.0	70.5	58.0	0.89	3896	17122.89	51.81	295.22	-
840.0	38.4	68.0	1.15	4981	18074.44	95.15	265.80	-
850.0	39.2	78.0	1.40	6052	19005.70	93.13	243.66	-
860.0	20.0	88.0	1.70	8267	20830.69	182.50	236.71	-
870.0	36.7	98.0	2.18	9574	21824.84	99.42	222.70	-
880.0	16.1	108.0	2.80	12563	24099.52	227.47	223.14	+
890.0	16.6	118.0	3.40	15278	26298.32	219.88	222.87	-
900.0	15.7	128.0	4.04	17947	28619.37	232.10	223.59	+
910.0	14.5	138.0	4.72	20838	31133.17	251.38	225.60	+
920.0	20.5	148.0	5.21	22886	32913.52	178.04	222.39	-
930.0	18.3	158.0	5.76	25178	34906.39	199.29	220.93	-
940.0	27.7	168.0	6.12	26694	36225.17	131.88	215.63	-
950.0	21.7	178.0	6.50	28626	37905.09	167.99	212.95	-
951.0	13.8	179.0	6.65	28931	38169.86	264.77	213.24	+

(e). COMPUTER DATA LISTING : LIST C

INTERVAL . . . . . 10m averages.

DEPTH. . . . . Well depth, in metres.

FLOW RATE. . . . . Mud flow into the well, in gallons per minute.

PSP. . . . . Pump pressure, in pounds per square inch.

PBIT . . . . . Bit pressure drop, in pounds per square inch.

%PSP . . . . . Percentage of surface pressure dropped at the bit.

H.H.P. . . . . Bit hydraulic horsepower.

HHP/SQ IN. . . . . Bit hydraulic horsepower per square inch of bit diameter.

IMPACT FORCE . . . . . Bit impact force, in foot-pounds per second squared.

JET VELOCITY . . . . . Mud velocity through the bit nozzles, in metres per second.

BIT NUMBER	1	IADC CODE	111	INTERVAL	127.0- 267.0
HTC OSC3AJ+26"HO		SIZE	26.000	NOZZLES	20 20 20
COST	0.00	TRIP TIME	2.3	BIT RUN	140.0
TOTAL HOURS	3.62	TOTAL TURNS	21678	CONDITION	T1 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	XPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
150.0	634	400.0	376.1	94.0	139	0.26	624	67
160.0	956	1043.5	854.3	81.9	476	0.90	1418	101
170.0	978	1378.2	893.8	67.3	510	0.96	1484	104
180.0	974	1743.8	886.5	66.0	504	0.95	1472	103
200.0	976	1350.7	891.1	66.0	508	0.96	1479	103
210.0	986	1363.6	908.9	66.7	523	0.98	1509	104
220.0	976	1356.0	891.2	65.7	508	0.96	1480	103
230.0	983	1373.9	903.2	65.7	518	0.98	1500	104
240.0	976	1376.0	890.4	64.7	507	0.95	1478	103
267.0	500	638.6	233.6	36.6	68	0.13	388	53

BIT NUMBER	1	IADC CODE	111	INTERVAL	267.0- 641.0
HTC R1		SIZE	17.500	NOZZLES	20 20 20
COST	4978.00	TRIP TIME	3.0	BIT RUN	374.0
TOTAL HOURS	10.45	TOTAL TURNS	72699	CONDITION	T2 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	XPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
270.0	908	1464.0	781.7	53.4	414	1.72	1298	96
280.0	920	1475.7	809.6	54.9	435	1.81	1344	97
290.0	915	1544.8	801.2	51.9	428	1.78	1330	97
300.0	919	1558.7	808.1	51.8	433	1.80	1342	97
310.0	913	1552.1	798.0	51.4	425	1.77	1325	97
320.0	909	1546.8	790.5	51.1	419	1.74	1312	96
330.0	916	1560.3	802.2	51.4	429	1.78	1332	97
340.0	926	1509.4	820.8	51.6	444	1.84	1363	98
350.0	920	1576.5	809.7	51.4	435	1.81	1344	97
360.0	931	1602.3	828.8	51.5	450	1.87	1376	99
370.0	926	1600.1	819.5	51.2	443	1.84	1361	98
380.0	978	1736.5	914.3	52.7	521	2.17	1518	104
390.0	974	1733.2	908.5	52.4	517	2.15	1508	103
400.0	976	1743.3	911.1	52.3	519	2.16	1513	103
410.0	975	1747.3	908.9	52.0	517	2.15	1509	103
420.0	980	1762.4	919.1	52.2	526	2.19	1526	104
430.0	976	1756.5	922.2	52.5	525	2.18	1531	103
440.0	978	1769.0	926.4	52.4	529	2.20	1538	104
450.0	970	1743.1	911.2	52.3	516	2.14	1513	103
460.0	977	1771.2	924.4	52.2	527	2.19	1535	104
470.0	975	1774.2	920.6	51.9	524	2.18	1528	103
480.0	966	1753.1	903.0	51.5	509	2.12	1499	102
500.0	978	1801.4	935.2	51.9	533	2.22	1553	104

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
510.0	976	1801.5	932.2	51.7	531	2.21	1548	103
520.0	972	1794.5	924.1	51.5	524	2.18	1534	103
530.0	973	1813.8	926.8	51.1	526	2.19	1539	103
540.0	968	1809.6	917.8	50.7	519	2.16	1524	103
550.0	970	1808.4	920.7	50.9	521	2.17	1528	103
560.0	975	1835.9	930.7	50.7	530	2.20	1545	103
570.0	980	1855.2	940.2	50.7	538	2.24	1561	104
580.0	976	1854.4	932.7	50.3	531	2.21	1548	103
590.0	967	1839.7	915.8	49.8	517	2.15	1520	103
600.0	974	1858.6	927.5	49.9	527	2.19	1540	103
610.0	981	1883.1	941.8	50.0	539	2.24	1563	104
620.0	979	1871.3	937.5	50.1	535	2.23	1556	104
630.0	972	1858.9	925.3	49.8	525	2.18	1536	103
640.0	976	1868.3	932.3	49.9	531	2.21	1548	103
641.0	976	1869.0	932.7	49.9	531	2.21	1548	103

BIT NUMBER	2	IADC CODE	116	INTERVAL	641.0- 763.0
STC J1		SIZE	12.250	NOZZLES	16 16 16
COST	2566.00	TRIP TIME	3.5	BIT RUN	122.0
TOTAL HOURS	2.66	TOTAL TURNS	17674	CONDITION	T3 B4 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
650.0	808	2164.4	1856.3	85.8	876	7.43	1972	134
660.0	813	2846.6	1866.4	65.6	885	7.51	1983	135
670.0	820	2849.7	1900.4	66.7	909	7.71	2019	136
680.0	813	2858.4	1870.1	65.4	887	7.53	1987	135
690.0	819	2857.7	1893.9	66.3	904	7.67	2012	136
700.0	821	2895.6	1904.8	65.8	912	7.74	2024	136
710.0	815	2867.7	1879.4	65.5	894	7.59	1997	135
720.0	818	2875.9	1893.8	65.9	904	7.67	2012	136
730.0	818	2855.4	1890.3	66.2	902	7.65	2008	135
740.0	820	2860.7	1901.8	66.5	910	7.72	2021	136
750.0	820	2854.7	1901.4	66.6	910	7.72	2020	136
760.0	820	2901.0	1908.2	65.8	913	7.74	2027	136
763.0	816	2877.3	1884.0	65.5	897	7.61	2002	135

BIT NUMBER	3	IADC CODE	517	INTERVAL	763.0- 787.0
STC J22		SIZE	12.250	NOZZLES	16 16 16
COST	8520.00	TRIP TIME	3.7	BIT RUN	24.0
TOTAL HOURS	0.90	TOTAL TURNS	3767	CONDITION	T1 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
770.0	821	2707.6	1906.2	70.4	913	7.75	2025	136
780.0	808	2833.9	1845.6	65.1	870	7.38	1961	134

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
787.0	756	2603.7	1615.1	62.0	712	6.04	1716	125

BIT NUMBER	3	IADC CODE	4	INTERVAL	787.0- 796.0
HRIS RC476		SIZE	9.875	NOZZLES	14 14 14
COST	17600.00	TRIP TIME	3.7	BIT RUN	9.0
TOTAL HOURS	0.20	TOTAL TURNS	819	CONDITION	T0 B2 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
790.0	452	1327.6	985.0	74.2	260	3.39	801	98
796.0	500	1437.3	1204.0	83.8	351	4.58	979	108

BIT NUMBER	3	IADC CODE	517	INTERVAL	796.0- 951.0
STC J22		SIZE	12.250	NOZZLES	16 16 16
COST	0.00	TRIP TIME	3.8	BIT RUN	155.0
TOTAL HOURS	6.65	TOTAL TURNS	28931	CONDITION	T5 B4 G0.125

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
800.0	810	2862.9	1856.9	64.9	878	7.45	1973	134
810.0	806	2844.6	1837.8	64.6	865	7.34	1953	134
820.0	816	2899.6	1882.9	64.9	897	7.61	2001	135
830.0	806	2838.4	1837.1	64.7	864	7.33	1952	133
840.0	815	2848.3	1878.2	65.9	893	7.58	1996	135
850.0	814	2839.7	1871.2	65.9	888	7.54	1988	135
860.0	820	2862.3	1899.0	66.3	908	7.70	2018	136
870.0	818	2853.2	1891.2	66.3	903	7.66	2009	135
880.0	350	1565.7	346.4	22.1	71	0.60	368	58
890.0	413	1548.7	481.8	31.1	116	0.98	512	68
900.0	440	1531.5	546.8	35.7	140	1.19	581	73
910.0	829	2862.0	1944.2	67.9	941	7.98	2066	137
920.0	834	2881.1	1964.8	68.2	956	8.11	2088	138
930.0	814	2744.2	1873.1	68.3	890	7.55	1990	135
940.0	823	2837.9	1913.0	67.4	918	7.79	2033	136
950.0	833	2860.5	1962.2	68.6	954	8.09	2085	138
951.0	833	2861.2	1961.2	68.5	953	8.09	2084	138

(f). COMPUTER DATA LISTING : LIST D

INTERVAL . . . . . 10m averages.

DEPTH . . . . . Well depth, in metres.

SPM1 . . . . . Stroke rate per minute, for Pump no.1

SPM2 . . . . . Stroke rate per minute, for Pump no.2.

FLOW RATE . . . . . Mud flow rate into the well, in gallons per minute.

ANNULAR VELOCITIES : (in metres per minute)

DC/OH - Between drill collars and the open hole.

DC/CSG - Between drill collars and casing.

HW/OH - Between heavyweight drill pipe and the open hole.

HW/CSG - Between heavyweight drill pipe and casing.

DP/OH - Between drill pipe and open hole.

DP/CSG - Between drill pipe and casing.

DP/RIS - Between drill pipe and riser.

BIT NUMBER	1	IADC CODE	111	INTERVAL	127.0- 267.0
TC OSC3AJ+26"HO		SIZE	26.000	NOZZLES	20 20 20
COST	0.00	TRIP TIME	2.3	BIT RUN	140.0
TOTAL HOURS	3.62	TOTAL TURNS	21678	CONDITION	T1 B1 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
150.0	67	60	634	8						11
160.0	97	94	956	12						17
170.0	96	100	978	12						18
180.0	95	99	974	12						17
200.0	96	100	976	12						18
210.0	96	101	986	12						18
220.0	95	100	976	12						18
230.0	96	101	983	12						18
240.0	95	100	976	12				11		18
267.0	50	50	500	6				6		9

BIT NUMBER	1	IADC CODE	111	INTERVAL	267.0- 641.0
TC R1		SIZE	17.500	NOZZLES	20 20 20
COST	4978.00	TRIP TIME	3.0	BIT RUN	374.0
TOTAL HOURS	10.45	TOTAL TURNS	72699	CONDITION	T2 B1 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
270.0	95	84	908		22		20			16
280.0	97	87	720	28	23		20			17
290.0	96	87	915	28	23		20			16
300.0	97	87	919	28	23		20			17
310.0	96	87	913	28	23		20			16
320.0	95	86	909	28	23		20			16
330.0	97	86	916	28	23		20		20	16
340.0	98	87	926	29	23		20		20	17
350.0	98	86	920	28	23		20		20	17
360.0	99	88	931	29	23		20		20	17
370.0	99	87	926	29		25	20		20	17
380.0	98	98	978	30		26	21		21	18
390.0	97	98	974	30		26	21		21	18
400.0	97	98	976	30		26	21		21	18
410.0	97	98	975	30		26	21		21	18
420.0	98	98	980	30		26	21		21	18
430.0	97	98	976	30		26	21		21	18
440.0	97	99	978	30		26	21		21	18
450.0	96	98	970	30		26	21		21	17
460.0	97	99	977	30		26		26	21	18
470.0	97	98	975	30		26		26	21	18
480.0	96	98	966	30		26		26	21	17
500.0	97	98	978	30		26		26	21	18

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
510.0	97	98	976	30		26		26	21	18
520.0	97	97	972	30		26		26	21	17
530.0	97	98	973	30		26		26	21	17
540.0	97	97	968	30		26		26	21	17
550.0	97	97	970	30		26		26	21	17
560.0	96	99	975	30		26		26	21	18
570.0	98	98	980	30		26		26	22	18
580.0	98	97	976	30		26		26	21	18
590.0	95	98	967	30		26		26	21	17
600.0	97	98	974	30		26		26	21	17
610.0	97	99	981	30		26		26	22	18
620.0	98	98	979	30		26		26	21	18
630.0	97	97	972	30		26		26	21	17
640.0	97	98	976	30		26		26	21	18
641.0	97	98	976	30		26		26	21	18

BIT NUMBER	2	IADC CODE	116	INTERVAL	641.0- 763.0
MTC J1		SIZE	12.250	NOZZLES	16 16 16
COST	2566.00	TRIP TIME	3.5	BIT RUN	122.0
TOTAL HOURS	2.66	TOTAL TURNS	17674	CONDITION	T3 B4 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
650.0	81	81	808	70	64		45		45	15
660.0	82	81	813	71	64		45		45	15
670.0	83	81	820	71	64		46		46	15
680.0	82	80	813	71	64		45		45	15
690.0	83	80	819	71	64		46		46	15
700.0	84	81	821	71	64		46		46	15
710.0	83	80	815	71	64		45		45	15
720.0	84	80	818	71	64		46		46	15
730.0	83	80	818	71	64		46		46	15
740.0	83	82	820	71	64		46		46	15
750.0	84	80	820	71	64		46		46	15
760.0	83	81	820	71	64		46		46	15
763.0	83	80	816	71	64		45		45	15

BIT NUMBER	3	IADC CODE	517	INTERVAL	763.0- 787.0
MTC J22		SIZE	12.250	NOZZLES	16 16 16
COST	8520.00	TRIP TIME	3.7	BIT RUN	24.0
TOTAL HOURS	0.90	TOTAL TURNS	3767	CONDITION	T1 B1 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
770.0	83	81	821	71	65		46		46	15
780.0	82	80	808	70	63		45		45	15

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
787.0	72	79	756	66		45	42		42	14

BIT NUMBER	3	IADC CODE	4	INTERVAL	787.0- 796.0
SHRIS RC476		SIZE	9.875	NOZZLES	14 14 14
COST	17600.00	TRIP TIME	3.7	BIT RUN	9.0
TOTAL HOURS	0.20	TOTAL TURNS	819	CONDITION	T0 B2 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
790.0	90	0	452	101		47	25		25	8
796.0	100	0	500	111		51	28		28	9

BIT NUMBER	3	IADC CODE	517	INTERVAL	796.0- 951.0
STC J22		SIZE	12.250	NOZZLES	16 16 16
COST	0.00	TRIP TIME	3.8	BIT RUN	155.0
TOTAL HOURS	6.65	TOTAL TURNS	28931	CONDITION	T5 B4 G0.125

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
800.0	82	80	810	70		48	45		45	15
810.0	81	80	806	70		48	45		45	14
820.0	83	81	816	71		49	45		45	15
830.0	81	81	806	70		48	45		45	14
840.0	82	81	815	71		49	45		45	15
850.0	83	80	814	71		49	45		45	15
860.0	83	81	820	71		49	46		46	15
870.0	83	80	818	71		49		49	46	15
880.0	0	70	350	30		21		21	20	6
890.0	0	83	413	36		25		25	23	7
900.0	0	88	440	38		26		26	25	8
910.0	82	84	829	72		50		50	46	15
920.0	82	84	834	72		50		50	46	15
930.0	83	80	814	71		49		49	45	15
940.0	83	82	823	71		49		49	46	15
950.0	83	84	833	72		50		50	46	15
951.0	83	84	833	72		50		50	46	15

PE603540

This is an enclosure indicator page.
The enclosure PE603540 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603540 has the following characteristics:

ITEM_BARCODE	= PE603540
CONTAINER_BARCODE	= PE906169
NAME	= Drill Data Plot
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Drill Data Plot for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603541

This is an enclosure indicator page.
The enclosure PE603541 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603541 has the following characteristics:

ITEM_BARCODE	= PE603541
CONTAINER_BARCODE	= PE906169
NAME	= Temperature Plot
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Temperature Plot for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603542

This is an enclosure indicator page.
The enclosure PE603542 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603542 has the following characteristics:

ITEM_BARCODE	= PE603542
CONTAINER_BARCODE	= PE906169
NAME	= Pressure Plot
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Pressure Plot for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603543

This is an enclosure indicator page.
The enclosure PE603543 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603543 has the following characteristics:

ITEM_BARCODE	= PE603543
CONTAINER_BARCODE	= PE906169
NAME	= Geoplot
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Geoplot for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603544

This is an enclosure indicator page.
The enclosure PE603544 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603544 has the following characteristics:

ITEM_BARCODE	= PE603544
CONTAINER_BARCODE	= PE906169
NAME	= Tritium Plot
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Tritium Plot for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603545

This is an enclosure indicator page.
The enclosure PE603545 is enclosed within the container PE906169 at this location in this document.

The enclosure PE603545 has the following characteristics:

ITEM_BARCODE	= PE603545
CONTAINER_BARCODE	= PE906169
NAME	= Grapholog (mud log)
BASIN	= GIPPSLAND
PERMIT	= VIC/P19
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Grapholog (mud log) for Leatherjacket-1
REMARKS	=
DATE_CREATED	= 27/02/1986
DATE_RECEIVED	= 07/05/1986
W_NO	= W928
WELL_NAME	= LEATHERJACKET-1
CONTRACTOR	= CORE LABORATORIES AUSTRALIA LTD
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE603540

DRILL DATA PLOT

PE603541

TEMPERATURE PLOT

PRESSURE PLOT

PE603542

PRESSURE PLOT

PE603543

GEOPLOT

GEOPLOT

PE603544

TRITIUM PLOT

TRITIUM PLOT

PE603545

GRAPHOLOG (MUD LOG)

GRAPHOLOG