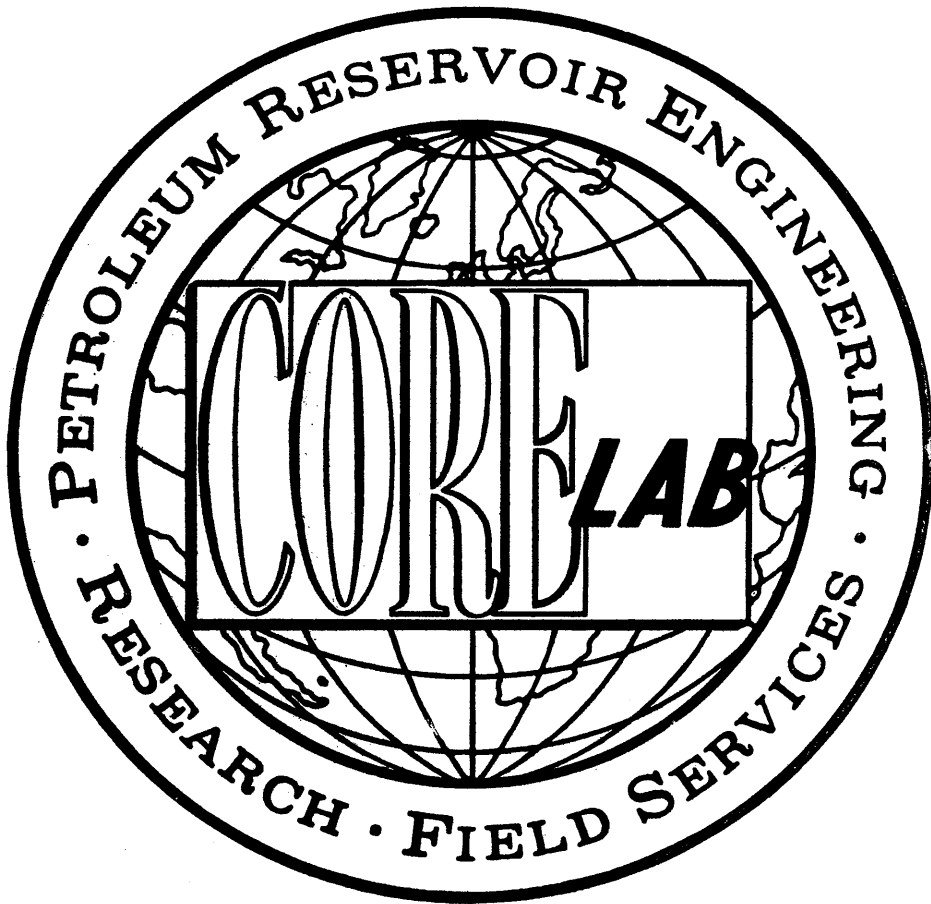


DEPT. NAT. RES & ENV



PE903952



IES WELL REPORT  
BREAM No4A  
ESSO AUSTRALIA LTD.

29 APR 1982

OIL and GAS DIVISION

# CORE LABORATORIES AUSTRALIA (QLD.) LTD.

*Petroleum Reservoir Engineering*  
AUSTRALIA

BRISBANE OFFICE:

1173 KINGSFORD SMITH DRIVE  
MEEANDAH, Q. 4008.  
P.O. BOX 293  
HAMILTON CENTRAL, Q. 4007.  
AUSTRALIA.

CABLE ADD: CORELAB BRISBANE  
TELEX NO: COREBN AA42513  
TELEPHONE: 260 1722  
260 1723

AD:JM

1st December, 1981

ATTN: K. Kuttan,  
Esso Australia Ltd.,  
127 Kent Street,  
SYDNEY, N.S.W. 2001.

Dear Sir,

Core Laboratories Intermediate Extended Service Well Logging Unit FL802 was in use during the drilling of BREAM # 4A from surface to a total depth of 2421 metres.

Please find enclosed the IES well report, appended drilling parameter logs and the Corelab grapholog for your reference.

We appreciated being of assistance during the drilling operations and look forward to continuing our association on future wells.

If you require clarification of this report, please do not hesitate to contact us.

Yours very truly,  
CORE LABORATORIES INTERNATIONAL LTD.



A. DODSON  
Unit Supervisor

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1 INTRODUCTION

BREAM 4A was drilled by ESSO Australia Ltd. in the Bass Strait, Australia.

Well co-ordinates were: - Latitude : 38<sup>0</sup> 30' 26.928"S  
Longtitude : 147<sup>0</sup> 44' 50.240"E

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

BREAM 4A was spudded on 23rd July, 1981 and reached a total depth of 2421 metres on 18th September, 1981, a total drilling time of 26 days. The main objective of the well was to establish the western most extent of the Bream Field, and to confirm and evaluate the dimensions of the oil column.

Elevations were: - 21.0m Kelly bushings to mean sea level  
58.6m Water depth  
79.6m Kelly bushings to mud line

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

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

A. DODSON - UNIT SUPERVISOR  
N. DANKER - LOGGING CREW CHIEF  
B. GIFTSON - WELL LOGGER  
A. McCONVILLE - WELL LOGGER  
J. LANG - WELL LOGGER

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## 2 CORE LABORATORIES EQUIPMENT

Core Laboratories Field Laboratory 802 monitoring equipment includes the following :

### A. MUD LOGGING

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

### B. INTERMEDIATE EXTENDED SERVICE PACKAGE

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

### 3 CORE LABORATORIES MONITORING EQUIPMENT

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#### DEPTH

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

#### WEIGHT ON BIT

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

#### ROTARY SPEED

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

#### PUMP PRESSURE

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

#### PIT VOLUME

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

#### PUMP STROKES

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

## ROTARY TORQUE

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

## MUD TEMPERATURE

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

## MUD CONDUCTIVITY

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A Balsbaugh electrode-less conductivity sensor measures the current in a closed loop of solution coupling a pair of toroidal transformer coils.

The conductivity in and out is displayed on analog and digital meters, and recorder chart.

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

## CUTTINGS

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

## GAS

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1. Flame Ionization Total Hydrocarbon gas detector.

The T.H.M. accurately determines hydrocarbon concentrations up to 100% saturation.

2. Flame Ionization Detector chromatograph.

The F.I.D. is capable of accurate determination of hydrocarbon concentration from C1 to C6+.

3. Hot wire gas detector (Wheatstone Bridge type)

A back up system for total gas detection.

## SHALE DENSITY

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



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

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

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

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

**I.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 a conclusion log, therefore the information may be modified by results from formation drill stem tests, data from adjacent wells, kicks, and formation breakdown tests.

**CORELAB 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 Jordan 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 :

$$\begin{aligned}
 \text{"dc"} = & \frac{\text{Log } \left( \frac{\text{ROP}}{\text{RPM} \times 60} \right) \times 10}{\text{Log } \left( \frac{\text{WOR} \times 12}{\text{Bit diam} \times 1000} \right) \text{MDI}}
 \end{aligned}$$

Deviations from the normal "dcs" 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 "dcs" 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 "dcs" plot and a linear plot of total mud gas.

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

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

#### I.E.S. GEO-PLOT LOG

This is plotted by the computer while drilling is in progress. At a later date this plot can be re-run on different scales to suit the client. The data is stored on magnetic tape during the drilling operations. Functions plotted on this log are: rate of penetration, corrected "d" exponent, breakeven analysis, formation pore pressure, mud density in and formation fracture pressure. Two Geo-plots are included in this report, at scales of 1:2000 and 1:5000.

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

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

#### ELECTRIC LOG PLOT

A plot of shale resistivity (ohm-metres squared/metre), sonic travel time (microseconds per foot), bulk density (gm./cc) and neutron porosity (%), is made, using data supplied by Schlumberger. Two-cycle semilog paper is used, with a vertical scale of 1:10,000. 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.

The wireline log plot was omitted from this report as no suitable lithologies were drilled in Bream N<sup>o</sup> 4A.

## 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 m.

## 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, and R.F.T. and well test data where appropriate.

5

RIG INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.WELL BREAM NO. 4A

OWNER	SOUTH SEAS DRILLING COMPANY
NAME AND NUMBER	SOUTHERN CROSS ( N <sup>o</sup> 107 )
TYPE	SEMI-SUBMERSIBLE , TWIN HULLED.
DERRICK, DRILL FLOOR & SUBSTRUCTURE	DERRICK: LEE C MOORE, 152' HIGH X 40' AT BASE. LOAD CAPACITY OF 1 000 000 lbs
DRAWWORKS	OILWELL E-2000 DRIVEN BY 2 GE 752 ELECTRIC MOTORS.
CROWN BLOCK	LEE C MOORE 27458 C. CAPACITY 500 SHORT TONS.
TRAVELING BLOCK	OILWELL A 500
SWIVEL	OILWELL PC 425
ELEVATORS	BYRON JACKSON MODEL GG CAPACITY 350 TON
KELLY & KELLY SPINNER	DRILLCO 5 $\frac{1}{4}$ " x 50' HEX KELLY
ROTARY TABLE	OILWELL A 37 $\frac{1}{2}$ 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 CAPACITY OF 105 BBL. TWO MUD HOPPERS POWERED BY 2 MISSION 6x8" CENTRIFUGAL BY TWO 100 HP ELECTRIC MOTORS. DESANDER : 1 DEMCO 4 CONE 12" MODEL N <sup>o</sup> 124 DESILTER : 1 DEMCO 4"-16H 16 CONE DEGASSER : 1 SWACO MODEL N <sup>o</sup> 36 SHALE SHAKERS : 2 BRANDT DUAL UNIT TANDEM - GHI DUAL UNIT.
BLOW OUT PREVENTORS	THREE SHAFFER L.W.S. 18 $\frac{3}{4}$ " - 10 000 psi TWO HYDRIL G.L. 18 $\frac{3}{4}$ " - 5000 psi
WELL CONTROL EQUIP.	FOUR VALCRON ACCUMULATORS. 2" - 10 000psi CHOKES: 2 C.I.W. ABJ H2 2 1/16" - 10 000 psi, 1 SWACO SUPER CHOKE
TUBULAR DRILLING EQUIPMENT	DC : 6 $\frac{1}{4}$ " x 2 13/16" (4" IF TJ) 8 " x 2 13/16" (6 5/8" H90 TJ) 9 $\frac{3}{4}$ " x 3" (7 5/8" H90 YJ) HWDP : 5" 50lb/ft GRADE G (6 $\frac{1}{2}$ " OD 4 $\frac{1}{2}$ " IF TJ) DP : 5" 19 $\frac{1}{2}$ lb/ft GRADE G&E (6 3/8" OD 4 $\frac{1}{2}$ " IF TJ)
CEMENTING UNIT	HALLIBURTON HT-400 UNIT
MONITORING EQUIPMENT	MARTIN DECKER : MUD VOLUME TOTALIZER 6 CHANNEL DRILLING RECORDER 4 PRESSURE GAUGES FLOWSHOW INDICATOR
POWER SUPPLY	2 EMD MD 18 DIESEL ENGINES RATED AT 1950 HP EACH 1 EMD MD 12 DIESEL ENGINE RATED AT 1500 HP
DIRECTIONAL EQUIP.	-
MISCELLANEOUS (E.G. RISER, COMPENSATION SYSTEM, PIPE RACKER, DP EQUIPMENT)	RISER: REGAN FC-7 TELESCOPIC 21" ID. PLUS FLOW DIVERTOR. CASING POWER TONGS: ECKEL 13 3/8" (20 000 ft lbs), 20" (35 000 ft lbs) CMT BULK TANKS: 3x1570cu ft. RISER TENSIONER: 6 WESTERN GEAR, 50" STROKE, 80 000 lbs. MUD BULK TANKS: 3x1570cu ft. GUIDE LINE TENSIONERS : 4 WESTERN GEAR 16 000 lbs, 40" STROKE

6 WELL INFORMATION SHEET



WELL INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD  
 WELL BREAM 4A

Sheet No. 1

WELL NAME	BREAM 4A										
OPERATOR	ESSO AUSTRALIA LTD.										
PARTNERS	B.H.P.										
RIG	OWNER	SOUTH SEAS DRILLING COMPANY									
	NAME OR NUMBER	SOUTHERN CROSS									
	TYPE	SEMI-SUBMERSIBLE									
LOCATION	LATITUDE (X)	38° 30' 26.928" S.				LONGITUDE (Y)	147° 44' 50.240" E.				
	FIELD	GIPPSLAND BASIN				AREA					
	COUNTY	BASS STRAIT				STATE	VICTORIA.				
	COUNTRY	AUSTRALIA									
	DESCRIPTION	EVALUATION									
DATUM POINTS	Ground Elevation	-				RKB to Ground Level	-				
	Mean Water Depth	58.6 m				RKB to Water Level	21.0m				
DATES	SPUD	18/8/81				TOTAL DEPTH	2421.0m				
HOLE SIZES	Depth From	Depth To	Bit Size	No. Of Bits	No. of Reamers	Date From	Date To	Cased	Logged		
	79	220	26	1	0	18/8/81	18/8/81	20"	-		
	220	225	17½	1	0	23/8/81	23/8/81	-	-		
	225	804	12¼/17½	1	1	23/8/81	27/8/81	13¾	*		
	804	2421	12¼	10	0	4/9/81	17/9/81	-	*		
DRILLING FLUID	Depth From	Depth To	Weights		Type						
	79	220	8.6	TO 8.6	SEAWATER						
	220	804	9.0	TO 9.1	SEAWATER GEL						
	804	1400	8.9	TO 9.0	SEAWATER GEL						
	1400	2421	8.9	TO 9.8	FRESHWATER GEL						
				TO							
WIRELINE LOGGING	Depth From	Depth To	Hole Size	Date Run	Logs Run						
	801	203	12¼	25/8/81	ISF/BHS/GR/CAL						
	2421	789	12¼	17/9/81	ISF/BHC/SONIC/MSFL/GR						
	2420.8	789	12¼	17/9/81	LDT/CNL/GR						
	2420	1850	12¼	18/9/81	DLL/GR						
	2420	1850	12¼	18/9/81	HDT						
	2419	475	12¼	18/9/81	VELOCITY SURVEY						
	2279	1917	12¼	19/9/81	RFT PRESSURES						
RISER, CASING & LINER	Depth From	Depth To	OD	ID	Weight	Grade	Threads	Date Run	Cement	Stages	Excess
	2	76	22	21			RISER				
	76	204	20	19.124	94.4	X52	JV BOX	19/8/81	"N"	1	-
	76	789	13¾	12.415	54.5	K55	BUTT	27/8/81	"N"	1	-



7 WELL HISTORY

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## WELL HISTORY

Bream 4 was drilled from 19-7-81 to 10-8-81. A 26" hole was drilled to 220m and 20" casing was run, however the riser parted whilst being run, and the B.O.P. fell to the seabed. The riser and B.O.P. stack were then recovered and dismantled, and the rig towed to the next location while the B.O.P. stack was being repaired.

Bream 4 A

- 18/8/81 Stabbed into the T.G.B. and drilled 3m of 26" hole. Moved the rig to centralise the hole opener in the T.G.B. Drilled a 26" hole to 172.9m and ran a deviation survey. (172.9m,  $\frac{1}{2}^{\circ}$ ). Drilled to 220m spotting hi-vis pills each connection. Pumped 150 bbl. of hi-vis mud and ran a deviation survey. (220m, misrun). Flushed the hole with sea water and started to P.O.O.H. but found tight hole at 220m-210m, 100,000 lbs drag. Made a wiper trip and reamed the tight hole. Flushed the hole with mud and retrieved the survey tool at the B.H.A. Continued to P.O.O.H. and layed out the 17 $\frac{1}{2}$ " bit and 26" hole opener. Moved the T.G.B. and prepared to run the 20" casing.
- 19/8/81 Ran the 20" casing, installing centralisers on the first five joints and filling with sea water. Landed the 10 joints (length 127m) at 203.5m. On landing the slope indicator showed 2 $\frac{1}{2}^{\circ}$ ; after picking up and relanding the indicator showed 1 $\frac{1}{4}^{\circ}$ . Rigged up the cement lines and pumped 150 bbl. of sea water. Pressure tested the cement lines to 5000 p.s.i. and set the casing at 203.5m using 627 sx class "N" cement mixed with 194 bbl. of 12% equivalent dry blend gelwater and 2% calcium chloride. Average slurry weight was 12.3 p.p.g. Tailed with 350 sx of class "N" cement mixed with 43 bbl. of 2% calcium chloride water. Average slurry weight was 15.6 p.p.g. Displaced with 15 $\frac{1}{2}$  bbl. of sea water, the float equipment holding O.K. Backed out the running tool and P.O.O.H.
- 20/8/81 Waited on the riser adaptor; - required to connect the well head and riser, the B.O.P. stack still being under repair.
- 21/8/81 Received the riser adaptor and commenced making it up.
- 22/8/81 Continued to make up the adaptor.
- 23/8/81 R.I.H. with wear bushing, installed and P.O.O.H. Made up the 17 $\frac{1}{2}$ " B.H.A. and R.I.H. Tagged the cement at 184.04m. Drilled out the cement and shoe, finding 5m of cement below the shoe. Reamed to the bottom and drilled a 17 $\frac{1}{2}$ " hole from 220m to 225m. Circulated out and brought the mud weight up to 9.0 p.p.g. P.O.O.H. and broke out the 17 $\frac{1}{2}$ " bit. Ran the TV and observed the well. Layed down the excess drill pipe. R.I.H. and drilled a 12 $\frac{1}{4}$ " hole from 225m to 498m. C.O. and ran a deviation survey. (498m,  $\frac{1}{2}^{\circ}$ )
- 24/8/81 Retrieved the survey tool and drilled a 12 $\frac{1}{4}$ " hole from 498m to 554m where the drill string was lost and dropped 14m when making a connection. Tagged and retrieved the string. P.O.O.H. and layed down DC and DP. Made up the bottom hole assembly for NB #3 and R.I.H. to 553m - found 1m fill. Drilled a 12 $\frac{1}{4}$ " hole from 554m to 678m. No T.G. was detected from 554m.

- 25/8/81 Drilled a 12 $\frac{1}{4}$ " hole from 678m to 804m. Circulated for 3/4 hr at 804m, pumped a slug and P.O.O.H. to the 20" casing shoe at 203m. R.I.H. to bottom; - found no fill. Circulated out and found 25u W.T.G. from 804m. Took a deviation survey (804m, 3/4<sup>o</sup>). Pumped a slug and P.O.O.H. finding no drag. Broke down the B.H.A. and ran ISF-BHS-GR-CAL wireline logs. Made up the cement head and 13 3/8" casing hanger and running tool and stood back. R.I.H. with drill pipe and layed down to ream the hole from 12 $\frac{1}{4}$ " to 17 $\frac{1}{2}$ ". Made up the B.H.A. for RR # 3 and 17 $\frac{1}{2}$ " H.O.
- 26/8/81 Made up the bottom hole assembly and R.I.H. finding no trip gas as drilling was started at the 20" casing shoe. Reamed the hole from 184m to 789m.
- 27/8/81 Reamed from 789m to 804m. C.O. and took a deviation survey (804m, 3/4<sup>o</sup>), pumped a slug and P.O.O.H. to the shoe, finding tight hole at 794m to 646m; - 165,000 lbs drag. R.I.H. to 804m and found no fill. Circulated out and detected 29u W.T.G., pumped a slug and P.O.O.H. to the shoe, finding no drag. Retrieved the wear bushing and ran the 13 3/8" casing. (61 joints of K55, 54.5 # Ft, 711m length, set at 789m). Installed centralizers on the float shoe and collar, and the first four joints and between joints 48 and 54. Filled the casing every five joints. Picked up and ran the landing string. Landed the hanger, and circulated 400 bbl of mud at 76 S.P.M. Changed a leaking chicksan and pressure tested the cement lines to 5000 p.s.i. and cemented with 10 bbl of freshwater followed by 692 sx grade "N" cement mixed with 85 bbl of fresh water. Average slurry weight was 15.6 p.p.g. Tailed with 250 sx class "N" cement mixed with 31 bbl of seawater. Average slurry weight was 15.6 p.p.g. Displaced with 2 bbl of water and 352 bbl of mud. Plug did not lump. Float equipment held OK. Rigged down the cement head and washed the hanger assembly using the chicksans.
- 28/8/81 Ran in with the jetting tool and washed the well head. P.O.O.H. set sea assembly, unlatched the riser and recovered the riser.
- 29/8/81 Unloaded the B.O.P. stack parts from the workboat.
- 30/8/81 Continued unloading the B.O.P. parts and started assembly of the stack.
- 31/8/81 Continued to assemble the B.O.P. stack and tested the stack.  
to  
2/9/81
- 3/9/81 Continued to test the B.O.P. stack and stabbed the riser into the stack. Ran the marine riser and connected the tensioner lines and choke and kill lines. Tested the casing rams, connector and shear rams. Tested the choke and kill lines to 5000 p.s.i. P.O.O.H. and layed down the test tool.
- 4/9/81 Made up the B.H.A. and R.I.H. with N.B.# 4, H.T.C. - X3A, 12 $\frac{1}{4}$ " and tagged the cement at 760m. Drilled out the cement, float and shoe, and cleaned out the rathole. Maximum rathole gas was 13u. Drilled from 804m to 810m (gas 4u), circulated out and pulled back to the shoe. Performed a P.I.T. to 600 p.s.i., with 9.0 p.p.g. mud, giving a P.I.T. of 13.5 + p.p.g. Drilled from 810m to 903m spotting hi-vis pills as required.

- 5/9/81 Drilled from 903m to 1150m where the hole packed off and 40 bbl of mud was lost. Drilled from 1150m to 1196m where due to the possibility of connection gas at 1164m, 1174m and 1183m (10-15-9 u) a '10-10-10' was performed. This was negative at 7-2-4u. It is possible that the cause of the connection gas was that more cuttings were coming over the shakers when the connection gas was due, as hi-vis pills were being pumped each connection. Drilled from 1196m to 1400m, circulated out and took a deviation survey. (1400m, 3<sup>o</sup>). Maximum gas throughout this zone was 27u at 1196m; - due to the repeated movement of the pipe while performing the 10-10-10. Background gas throughout this interval was 5u from 1100m to 1150m; 12u from 1150m to 1195m, and from 7 to 2u from 1195m to 1400m. Pulled out of the hole to the shoe finding drag of 10 to 50,000 lbs on the first seven stands.
- 6/9/81 R.I.H. and circulated out (W.T.G. 1-41-1u) and P.O.O.H. to 1100m and took a deviation survey (changed to 8<sup>o</sup> instrument) (1100m, 3/4<sup>o</sup>). Continued to P.O.O.H. R.I.H. with N.B.#5, H.T.C. - X3A, 12 1/4" with the top stabiliser layed down.
- Started changing to a freshwater mud at 1400m and had a fully freshwater mud system at 1437m. Took a deviation survey at 1437m (1437m, 2 1/4<sup>o</sup>). Trip gas from 1400m was 68u. The hole packed off at 1503m. Gas from this depth was 20u, this was probably caused by the repeated swabbing action when the annulus was blocked and the pipe worked at this depth. Drilled from 1503m to 1540m where the flowline plugged. Changed the shaker screens and drilled to 1559m where the flowline plugged again and the riser was flushed. Drilled to 1578m where the riser was flushed.
- 7/9/81 Drilled to 1620m where the flowline plugged and the riser was flushed. The riser was flushed every second single and the flowline jettted every single to prevent the gumbo blocking the annulus. Drilled to 1778m. The average background gas while drilling this section was 1 to 2u.
- 8/9/81 Drilled to 1778m, circulated out and took a deviation survey (1778m, 1 1/4<sup>o</sup>) before pulling out of hole for a bit change. R.I.H. with N.B.#6, HTC-X3A, 12 1/4" found no fill running in. Trip gas from 1778m was 6u. Drilled to 1866m with 0.3u background gas. The lithology was claystone and siltstone with occasional traces of loose sand. The gas composition at this depth started to become 'heavier' with C1 to C4 and occasionally C5 present. No drilling breaks were encountered.
- 9/9/81 Drilled to 1903m and circulated out, maximum gas was 77u, C1 to C6 however the lithology remained 90% siltstone and 10% sandstone. Drilled to 1915m and circulated out again. A drilling break occurred from 1912m to 1916m; the R.O.P. changing from a uniform 10 m/hr to 34 m/hr. Maximum gas from the drilling break was 58u, C1 to C6, the lithology remained the same. Drilled to 1920m and circulated out, maximum gas was 170u, C1 to C6 with a lithology change to 60% loose sand. It was decided to cut a core at this point. The riser was flushed and a deviation survey taken. (1920m, 3/4<sup>o</sup>). Pulled out of the hole. R.I.H. with a Christensen C-22 core head and core barrel to cut core#1. Ran to bottom and circulated out. Trip gas was 62u. Cut core #1, 1920m to 1929.5m - cut 9.5m, recovered 9.5m (100%). Maximum gas while coring was 9u at 1921m. (The flowrate was 265 gpm). The core was cut in 6.0 hrs. P.O.O.H. and recovered the core and ran in the hole with a new C-22 core head as the first core head was found to be 80% worn when recovered.

- 10/9/81 It was not possible to get into the rathole with the core barrel so the head was run to 1920m and washed and reamed to 1929.5m. Circulated out and found 25u T.G. from 1929.5m. Flushed the riser and cut core #2; 1929.5m to 1939.4m, cut 9.9m, recovered 9.2m. (93%) P.O.O.H. and recovered the core, and R.I.H. with the same head to cut core # 3. Found fill at 1923.9m, so washed and reamed to 1939.4m. Circulated out and found 25u T.G. from 1939.4m. (no gas was detected from the cored zones of core # 2,3, and 4 due to the low flowrates while coring). Cut core # 3 from 1939.4m to 1948.9m; cut 9.5m, recovered 9.1m (96%).
- 11/9/81 P.O.O.H. and recovered # 3. R.I.H. with the jetting tool. P.O.O.H. with the jetting tool and recovered the wear bushing. Ran the B.O.P. test tool and tested the B.O.P. stack. R.I.H. with R.R. # 6, HTC - X3A, 12 $\frac{1}{4}$ " to ream the core rathole. Reamed the 8 15/32" rathole from 1920m to 1948m, circulated out (5u T.G. from 1948m) and flushed the riser.
- 12/9/81 P.O.O.H. and ran in the hole with a new Christensen C-22 core head and 30' barrel to cut core # 4. R.I.H. to 1935m and circulated out, went to bottom and took weight at 1948m. The pump pressure did not increase until 1951m. Flushed the riser and cut core # 4 from 1951.0m to 1960.1m, cut 9.1m, recovered 4.6m. (50.5%) P.O.O.H. and recovered core # 4. While recovering core # 4 Core Lab detected 30 p.p.m. hydrogen sulphide gas in the atmosphere when the detector was placed immediately above the core trays with the recovered core. R.I.H. with N.B. # 10, H.T.C. - X.D.G., 12 $\frac{1}{4}$ ". Found tight hole at 1945m, reamed from 1945m to 1950m with high torque. It was probable that the fill and torque were due to the unrecovered core of core #4 (4.6m unrecovered).
- 13/9/81 Reamed from 1950m to 1961m, and drilled from 1961m to 2030m where it was decided to pull the bit due to the low R.O.P. below 2026m (see computer data list A) and the high cumulative cost (see computer data list B). Flushed the riser at 2030m, took a deviation survey (2030m, 3/4<sup>o</sup>) and P.O.O.H. Although N.B. # 10 had a drilling time of 9.0 hrs. (8.5 hrs on bottom) the teeth were very badly worn (graded 7-3-3/16") and it was decided to run an insert bit next. R.I.H. with N.B. # 11, H.T.C.-J22, 12 $\frac{1}{4}$ ". Detected 6u trip gas from 2030m and drilled from 2030m to 2064m, with a background gas of 2u.
- 14/9/81 Drilled from 2064m to 2213m, with an average R.O.P. of 6 m/hr. Background gas was 2u, and the maximum gas detected was 32u at 2202m (sandstone). The riser was flushed at 2204m and a flow check made at 2208m. The coals in this section drilled with a high torque.
- 15/9/81 Drilled from 2213m to 2231.6m, the R.O.P. decreasing to around 2.2 m/hr. (See computer data list A). It was decided to change the bit at this time. Took a deviation survey, (2231m, 3/4<sup>o</sup>) flushed the riser and P.O.O.H.

When the bit was examined it was found that it was not as worn as was expected, (graded 2-4-In). R.I.H. with N.B. # 12, H.T.C. - XDV, 12 $\frac{1}{4}$ " found no fill and drilled from 2231.6m to 2317m. The lithology was interbedded sandstone and siltstone with occasional coals, the background gas was 3u. Trip gas from 2231m was 9u and the maximum gas recorded was 30u at 2224m in coal. Flushed the riser at 2317m.

16/9/81 Drilled from 2317m to 2336m, the R.O.P. decreasing to around 2.6 m/hr. (See computer data list A). The increasing cumulative cost also indicated that the bit should be changed at this time. (See computer data list B and the cost analysis log). Due to the low R.O.P. it was decided to change the bit. A deviation survey was attempted but gave a misrun. Started to P.O.O.H. and found shiny spots at 66.5m indicating wear at the ball joint. The alignment tool was run, but the ball joint alignment was found to be alright; the riser angle was  $1\frac{3}{4}^{\circ}$ . Bit # 12 was graded at 6-4-1/8, however it was expected that T.D. was to be around 2421m; - only 80m deeper, so the same bit type was chosen. R.I.H. with NB # 13; - H.T.C. - XDV,  $12\frac{1}{4}$ ". Found no fill on bottom and found 9u T.G. from 2336m. Drilled from 2336m to 2358m. Drilling breaks occurred at 2340m to 2341m, the break was not circulated out, it was found to be coal giving 23u gas. A further drilling break occurred at 2356m to 2358m, the R.O.P. increasing from 6 to 15 m/hr; drilling was stopped and the break circulated out, no shows were found. Circulation gas from circulating the break was 2u and the shakers were reasonably clean. Drilled on to 2394m with 3u background gas.

17/9/81 Drilled to 2421m, circulated out and took a deviation survey. (2421m,  $3\frac{3}{4}^{\circ}$ ) P.O.O.H. to the shoe and ran back to bottom and found no fill, there was very little drag while P.O.O.H. and no swabbing. Circulated out at T.D. and found 4u W.T.G., P.O.O.H. with no swab and very little drag. Flushed the riser and rigged up to run wireline logs.

Run #1: ISF-BHC-MSFL-GR, 2421 - 789m, Max B.H.T.  $171.5^{\circ}\text{F}$

18/9/81 Continue to run wireline logs: -

Run #2: LDT-CNL-GR , 2421 - 789m, Max B.H.T.  $178^{\circ}\text{F}$   
Run #3: DLL-GR , 2420 - 1850m, Max B.H.T.  $183^{\circ}\text{F}$   
Run #4: HDT , 2420 - 1850m, Max B.H.T.  $195^{\circ}\text{F}$

Ran velocity survey tool, took readings between 2419m and 475m and ran the R.F.T. taking 9 pretest from 1917 to 1990m.

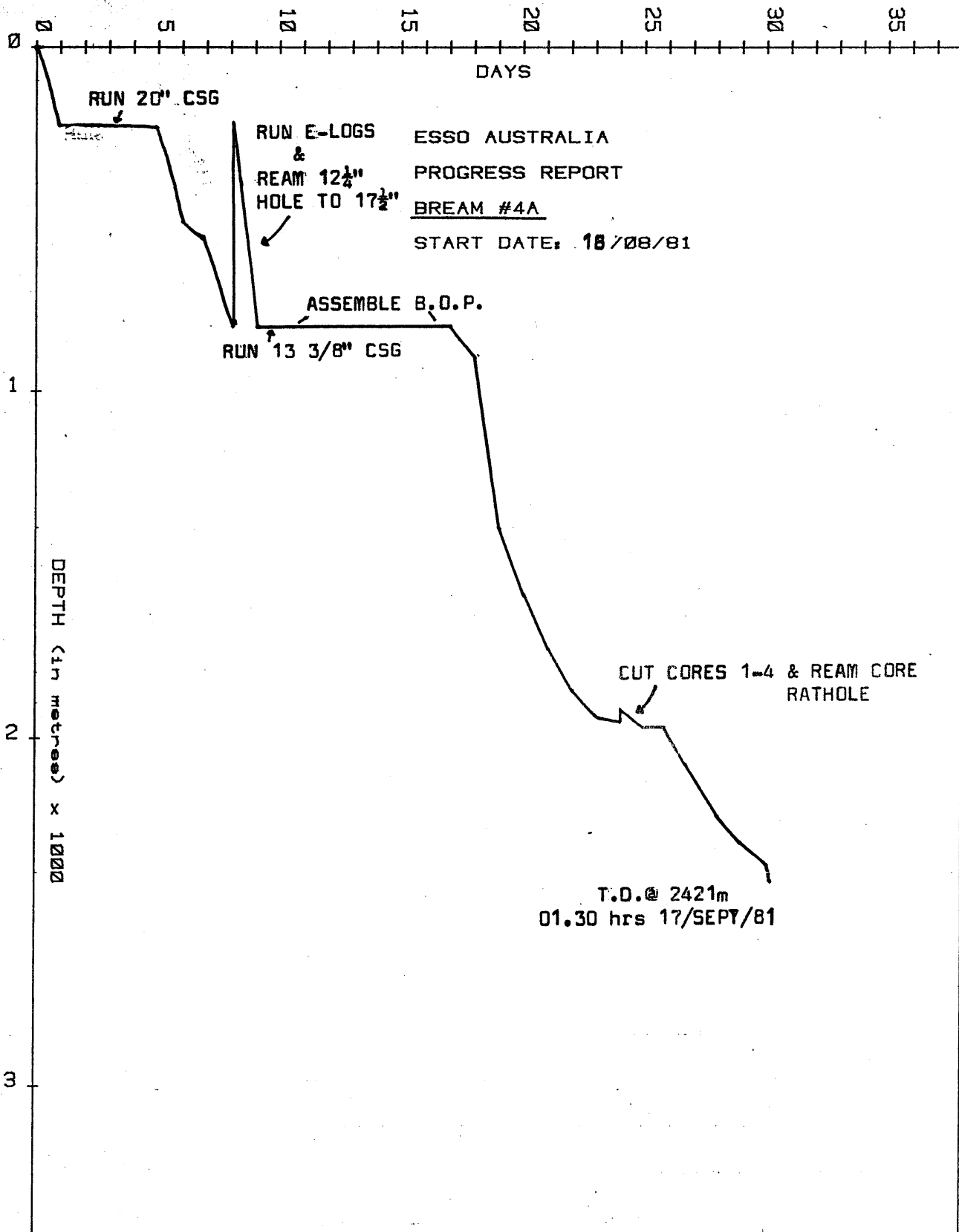
19/9/81 Continued to run the R.F.T., took 5 presets from 2013 to 2279m. After pretesting at 2279m the tool would not pull free, this was the first indication of hole problems. Worked on the tool, the pressure readings indicated that the tool was moving down but the tool would not pull above 2279m. Stretching indicated that the wire was free and only the tool was stuck. Worked the tool with 4500 lbs of overpull but would not come free. Stripped into the hole with an overshot and drill pipe, circulated the pipe volume and flushed the overshot and engaged the fish at 2267m. Broke the Schlumberger line with 6000 lbs pull and retrieved the line.

20/9/81 Recovered the R.F.T. and R.I.H. to make a wiper trip. Found very little drag and no fill. Circulated and conditioned the mud at 2421m, on circulating 12%  $\text{CO}_2$  was detected and 8u T.G. Flushed the riser and P.O.O.H. Made R.F.T. run #2 and took a sample at 1944.5m came out of hole with the R.F.T.

- 21/9/81 Made R.F.T. run #3 taking a sample at 1934.5m and recovered the sample. Made R.F.T. run #4 taking a sample at 1938.5m with the 2 3/4 gall. chamber and at 1935.5m with the 1 gall. chamber. Recovered the sample and made R.F.T. run #5 taking a sample at 1949.5m with the 1 gall. chamber and at 1935.5m with the 6 gall. chamber. Recovered the sample. Tested the B.O.P. and made a wiper trip.
- 22/9/81 R.I.H., found no fill and circulated and flushed the riser. Detected 18u T.G. P.O.O.H. Made R.F.T. run #6, took a segregated sample with the six and one gallon chambers at 1951m. Recovered the sample and ran CST # 1 taking 51 shoes with 100% recovery between 2407.5 and 1935.5m. Layed down CST # 1 and run CST # 2 taking 51 shoes between 1929.8 and 808.5m.
- 23/9/81 Recovered CST # 2 (recovered 50, lost 1). R.I.H. with O.E.D.P. to 1890m and circulated, maximum gas was 16u from 1890m. Pumped 7 bbls of water and tested the cement lines to 2000 p.s.i. Set plug # 1 from 1980 to 1836m with 305 sx of class "N" cement using 1% HR-6L in 38 bbls of mix water. Slurry weight was 15.6 p.p.g. P.O.O.H. ten stands and circulated out and found around 40 bbls. of contaminated mud. Layed down the excess drill pipe and R.I.H. slowly and broke circulation at 1781m. Continued to R.I.H. slowly and tagged the cement at 1836m with 30,000 lbs weight. P.O.O.H. to 820m laying down D.P. and circulated, the returns going via the choke and kill lines the flowline connector being unlatched. Pressure tested the cement lines to 3000 p.s.i. Pumped 14 bbls of water followed by plug # 2 from 820m to 720m. Cemented with 282 sx of class "N" cement used neat with 35 bbls of seawater, average slurry weight was 15.6 p.p.g. This was followed by 2 bbls of water and 40 bbls of mud. P.O.O.H. 10 stands and reverse circulated out, dumping around 10 bbls of contaminated returns. P.O.O.H. and layed down 15 joints of drill pipe.
- 24/9/81 Rigged up Schlumberger and ran 13 3/8" GR-JB-CCL to 360m. Tested cement plug # 2 and shear rams to 1000 p.s.i. Ran a 13 3/8" EZSV bridge plug and set at 350m. Made up and ran the perforating gun between 150 and 152m. Made up and ran the cement retainer at 135m. Run in with stinger and sting into retainer. Pumped 390 sx of class "N" cement in saltwater. Squeezed 390 sx below the retainer and dumped 81 on top of the retainer, slurry weight was 15.2 p.p.g. P.O.O.H. to 85m and circulated with seawater. P.O.O.H. and layed down drill pipe. Retrieved the wear bushing and rigged up to retrieve the B.O:P. Had to wait on weather.

8 PROGRESS REPORT





9 BIT RECORD

BIT SIZE . . . . . inches

BIT COST . . . . . A dollars

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

DEPTHS . . . . . Metres

HOLE MADE. . . . . Metres

DRILLING TIME. . . . . Hours

AVERAGE ROP. . . . . Metres/hour

AVERAGE COST/METRE . . A dollars

BIT CONDITION. . . . . Teeth

Bearings

Gauge . . . . . inches



COMPANY ESSO AUSTRALIA LTD  
WELL BREAM 4A

BIT RECORD

Sheet No. 1

S/N

CL 556  
CL 556  
KL 413  
KL 957  
KL 957  
KK 876  
KL 729  
KL 731  
80E 1072  
81E 0675  
81E 0675  
KL 731  
806 1134  
KZ 331  
S88 FL  
ST 429  
ST 520

Bit No.	Make	Type	IADC Code	Size"	Jets	Depth m	Hole Made m	Drilling Time	On Bottom Hours	Turns	Condition T B G	Remarks
1	HTC	OSC/3AJ W HO	111	17 1/2	20,20,20	79.63	140.3	14.0	-	-	1,1,I	Drilled to 220m for 20" csg.
RR 1	HTC	OSC 3AJ	111	17 1/2	20,20,20	220	5	2.5	-	-	1,1,I	Drilled cmt & 5m new hole
2	HTC	X3A	114	12 1/4	20,20,20	225	329	12.7	5.2	34	2,1,I	Bent shanks. String was dropped 14m.
3	HTC	X3A	114	12 1/4	20,20,20	554	250	12.5	7.9	57	2,2,I	POOH to ream
RR 3	HTC/SEC	X3A/S	114	12 1/4/17 1/2	20,20,20	225	579	24.0	21.7	169	4,4,I	Hole reamed to 804m for 13 3/8" csg.
4	HTC	X3A	114	12 1/4	14,14,16	804	596	28.3	21.3	157	6,4,I	
5	HTC	X3A	114	12 1/4	14,14,16	1400	378	32.5	26.5	238	2,5,I	
6	HTC	X3A	114	12 1/4	16,16,16	1778	142	13.75	11.6	99	3,3,I	POOH for Core "1.
7	CHRIST	C22	4	8 15/32		1920	9	6.0	6.0	37	80% worn	Total Flow Area 0.42 <sup>2</sup> "
8	CHRIST	C22	4	8 15/32		1929	10	1.5	1.5	9	15% worn	Total Flow Area 0.42 <sup>2</sup> "
RR 8	CHRIST	C22	4	8 15/32		1939	10	3.3	5.7	36	80% worn	Total Flow Area 0.42 <sup>2</sup> "
RR 6	HTC	X3A	114	12 1/4	16,16,16	1920	28	17.7	13.8	112	5,4, 1/4	Ream Rathole.
9	CHRIST	C22	4	8 15/32		1951	9	3.2	3.2	18	40% worn	Total Flow Area 0.42 <sup>2</sup> "
10	HTC	XDG	135	12 1/4	13,13,14	1960	70	9.0	8.5	72	7,3,3/16	
11	HTC	J22	517	12 1/4	13,13,14	2030	201	33.75	32.2	221	2,4,I	
12	HTC	XDV	214	12 1/4	13,13,14	2231	105	16.0	13.0	94	6,3,1/8	
13	HTC	XDV	214	12 1/4	13,13,14	2336	85	11.5	11.0	90	5,4, 1/4	POOH for wireline logs.
						2421						

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. cc

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

SALINITY : Ca/Cl . . . . . ppm

SOLIDS/SAND/OIL. . . . . Percentage



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD  
 WELL BREAM 4A

Sheet No. 1

DEPTH	220	220	220	220	220	220	498
DATE	17/8/81	18/8/81	19/8/81	20/8/81	21/8/81	22/8/81	23/8/81
TIME	2200	1730					2300
WEIGHT	8.8	8.8	NO	BUILDING	WAITING	ON	9.0
FUNNEL VISCOSITY	100+	120+	MUD	MUD	RISER CONNECTOR		34
PV/YP							5/13
N/K							-
GEL: INITIAL/10 MIN							10/14
pH							
FILTRATE: API/API HTHP							
CAKE							
SALINITY							
SAND							
SOLIDS							
OIL							

REMARKS: Drill to 220m with seawater and high visc pills on connections.

DEPTH	670	804	675	804	804	804	804
DATE	24/8/81	25/8/81	26/8/81	27/8/81	28/8/81	29/8/81	30/8/81
TIME	2330	2200	1300	-			
WEIGHT	9.0	9.0	9.2	9.1	WORKING	ON BOP STACK	
FUNNEL VISCOSITY	35	34	30	31			
PV/YP	5/17	5/14	5/10	5/14			
N/K	-	-	-	-			
GEL: INITIAL/10 MIN	10/17	8/18	7/14	7/14			
pH							
FILTRATE: API/API HTHP							
CAKE							
SALINITY							
SAND							
SOLIDS							
OIL							

REMARKS: Drill from 220m to 804m using seawater gel.



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD  
 WELL BREAM 4A

Sheet No. 2

DEPTH	804	804	804	784	903	1400	1530
DATE	31/8/81	1/9/81	2/9/81	3/9/81	4/9/81	5/9/81	6/9/81
TIME				2400	0200	2030	2100
WEIGHT	Waiting on BOP stack.			9.1	8.9	9.2	9.0
FUNNEL VISCOSITY				31	30	31	45
PV/YP				5/13	5/9	6/16	11/17
N/K				-	-	-	-
GEL: INITIAL/10 MIN				6/14	8/10	6/16	9/32
pH							11.8
FILTRATE: API/API HTHP							8.2/17.2
CAKE							1
SALINITY							4000
SAND							TR
SOLIDS							4
OIL							-
Ca.							TR
MB CAP. ml/ml mud							22.5

REMARKS: 3/9/81 : Drilling out 13<sup>3</sup>/<sub>8</sub> shoe.  
 5/9/81 : Drilled to 1196m. Increase in background gas. Increase MW to 9.2

DEPTH	1721	1867	1927	1946	1947	1942	2060
DATE	7/9/81	8/9/81	9/9/81	10/9/81	11/9/81	12/9/81	13/9/81
TIME	2130	2350	2100	2300	2215	2200	2315
WEIGHT	9.4	9.6	9.7	9.5+	9.6	9.7	9.6+
FUNNEL VISCOSITY	62	51	60	43	45	47	47
PV/YP	17/18	15/19	15/17	14/16	13/15	17/18	17/17
N/K	-	-	-	-	-	-	-
GEL: INITIAL/10 MIN	3/27	8/42	5/32	4/36	5/30	6/30	7/30
pH	10.4	10.2	10.8	10.5	10.5	10.5	10.5
FILTRATE: API/API HTHP	6.2/13.0	8.1/15.8	6.6/14.0	7.4/14.4	7.6/15.4	8.0/16.5	6.8/16.2
CAKE	1	2	2	2	2	2	2
SALINITY	3600	3600	4600	5200	6800	6800	7000
SAND	1/4	1/4	1/2	TR	TR	TR	TR
SOLIDS	6	9	8	6	6	7	6
OIL	0	0	0	0	0	0	0
Ca.	40	40	40	40	80	80	80
MB CAP. ml/ml mud	22.5	20.0	17.5	0	0	17.5	17.5

REMARKS: Changed from seawater gel to freshwater gel at 1400m.  
 From 9/9/81 to 12/9/81 coring.  
 Reaming rathole on 12/9/81.  
 High Chloride content thought to be due to a leak on the cooling system at the surface.



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.  
 WELL BREAM 4A

Sheet No. 3

DEPTH	2208	2315	2385	2421		
DATE	14/9/81	15/9/81	16/9/81	17/9/81		
TIME	2315	2300	2245	1100		
WEIGHT	9.6	9.9	9.8	9.8		
FUNNEL VISCOSITY	48	51	50	51		
PV/YP	19/16	17/16	17/17	17/15		
N/K						
GEL: INITIAL/10 MIN	6/28	6/25	6/23	6/20		
pH	10.5	10.5	10.5	10.5		
FILTRATE: API/API HTHP	6.8/15.6	6.2/15.0	6.5/15.0	6.4/15.4		
CAKE	2	2	2	2		
SALINITY	6600	6500	5300	5800		
SAND	TR	1/4	1/4	1/4		
SOLIDS	7	8	8	8		
OIL	0	0	0	0		
Ca.	80	80	80	80		
MB CAP. ml/ml mud	15.0	15.0	17.5	17.5		

REMARKS:

DEPTH						
DATE						
TIME						
WEIGHT						
FUNNEL VISCOSITY						
PV/YP						
N/K						
GEL: INITIAL/10 MIN						
pH						
FILTRATE: API/API HTHP						
CAKE						
SALINITY						
SAND						
SOLIDS						
OIL						

REMARKS:

11 GEOLOGICAL SUMMARY



WELL: - BREAM 4A

GEOLOGICAL PROFILE

The primary object of Bream 4A was to establish the western most extent of the Bream field and evaluate the dimensions of the oil column. A brief summary of lithologies encountered while drilling Bream 4A is given below:-

All depths from RKB

GIPPSLAND LIMESTONE DEPTH 80m-1005m

As predicted in this zone, Limestone was the most predominant lithology encountered. The limestone being calcarenitic, light grey to grey, firm to medium grained, occasionally sandy to silty and carbonaceous in part and with traces of fossils, shell fragments, grading to marl, and with minor traces of dolomite and glauconite. Occasionally cuttings displayed mineral fluorescence. The other major lithology encountered in this section was sandstone. From 250 mtrs sandstone was encountered as minor stringers but increasing with depth until 500 mtrs. The sandstone was found to be white, very fine to fine grained, sub-rounded, very consolidated to occasionally unconsolidated quartz grains grading to calcarenite, silty to very silty, friable, and with traces of forams and shell fragments. Background gas in this zone was averaging about 2-5 units the maximum gas was about 11 units from 784 metres.

LAKES ENTRANCES DEPTH 1005m-1859m

The upper portion of this zone was found to be limestone which was very similar to those described above. Siltstone was first encountered as thin seams and gradually increasing in thickness with depth. The siltstone was light grey to grey occasionally dark grey, sticky, blocky, very calcareous, sandy in part and with a carbonaceous matrix. Traces of pyrite and glauconite were present throughout this section, and to a lesser extent traces of forams. Towards the middle of this section a very calcareous shale was encountered, the shale being light grey to grey, soft-firm, occasionally blocky to splintery and brittle, laminated, fissile to sub-fissile. With increasing depth the shale was found to be less laminated, hard to moderately hard and becoming more silty and sandy in part. Sandstone was present in minor stringers, and found to be clear to grey occasionally yellowish, loose, soft to friable, very fine to fine grains, poorly sorted to moderately sorted, sub-rounded, sub spherical, very calcareous and carbonaceous with traces of glauconite, forams, fossils and very to occasionally pyritic. The other lithology found to a lesser extent was claystone, which was light grey to grey, soft with a carbonaceous matrix, and very calcareous. Background gas was averaging about 2-8 units and the highest gas reading was about 27 units from 1148 meters, and from 1820 meters onwards c1-c6 were recorded from the chromatograph.

TOP OF GURNARD FORMATION 1859m to 1916m

As predicted siltstone was dominant in this portion and was found to be quite similar to those described in the above section, claystone was light grey to grey, soft, sticky, silty in part and with a carbonaceous matrix. Sandstone occurring as minor stringers and gradually increasing in volume with depth was described as light grey to grey, soft to friable, very fine to fine grains, poorly to moderately well sorted, sub angular

to sub rounded, calcareous with a carbonaceous matrix. Traces of glauconite were present throughout this section. The average background gas was about 9-11 units and the highest peak was about 143 units from 1916 metres, C1-C6 was present throughout this section.

TOP OF "COARSE CLASTIC" 1916m-1960m

This section was predominantly sandstone with minor coal interbeds. The sandstone was similar to those of the above section but displayed bright yellow fluorescence, and a fast streaming cut present. Four cores were cut in this section with primary objectives of confirming the dimensions of the oil column. Recoveries from the cores were fairer.

TOP OF P. ASPEROPOLUS TO T.D. 1960m to 2421m

Coal was predominant in the upper portion of this section, occurring in thick interbeds. The coal was found as black to brown, shiney, moderately hard to very hard and blocky to platy. From the middle section of this zone sandstone was present. The sandstone was found to be clear to white to milky, medium coarse to coarse grained, loose, sub-angular to sub-rounded and occasionally traces of yellow fluorescence were, but did not cut. Traces of pyrite, calcite and glauconite were occasionally present. Siltstone was also present to a lesser. The siltstone being light brown to reddish brown, hard to very hard, fissile, blocky to platy, calcareous to non calcareous with a carbonaceous matrix and sandy in part. Traces of glauconite and pyrite were observed. The average background gas was 4 to 8 units and the highest recorded was 30 units from 2155 metres, C1 was present throughout this zone with traces of C2.

12 OVERBURDEN GRADIENT CALCULATIONS

DEPTH . . . . .metres

BULK DENSITY . . . . .gm/cc

OVERBURDEN PRESSURE INCREMENT .psi

CUMULATIVE OVERBURDEN PRESSURE .psi

OVERBURDEN PRESSURE GRADIENT . .psi/ft

OVERBURDEN EQUIVILANT DENSITY .Pounds per gallon

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

OVERBURDEN GRADIENT CALCULATIONS  
 =====

DEPTH from	DEPTH to	AVR. BULK DENSITY	O/BURDEN INCR.	O/BURDEN CUMM.	O/BURDEN GRAD.	O/BURDEN GRAD.
m	m	gms/cc	psi	psi	psi/ft	ppg
0	76	1.02	33.57	33.57	0.442	8.49
76	350	2.00	237.28	270.85	0.774	14.88
350	500	2.15	139.64	410.49	0.821	15.79
500	600	2.18	94.39	504.89	0.841	16.18
600	700	2.21	95.69	600.58	0.858	16.50
700	800	2.25	97.43	698.00	0.873	16.78
800	1075	2.30	273.87	971.88	0.904	17.39
1075	1150	2.25	73.07	1044.95	0.909	17.47
1150	1250	2.30	99.59	1144.54	0.916	17.61
1250	1480	2.27	226.07	1370.61	0.926	17.81
1480	1600	2.35	122.11	1492.71	0.933	17.94
1600	1795	2.40	202.64	1695.36	0.944	18.16
1795	1835	2.42	41.91	1737.27	0.947	18.21
1835	1875	2.40	41.57	1778.84	0.949	18.24
1875	1903	2.15	26.07	1804.90	0.948	18.24
1903	1917	2.45	14.85	1819.76	0.949	18.26
1917	1940	2.30	22.91	1842.66	0.950	18.27
1940	1955	2.27	14.74	1857.41	0.950	18.27
1955	1975	2.15	18.62	1876.02	0.950	18.27
1975	2080	2.25	102.30	1978.32	0.951	18.29
2080	2142	2.10	56.38	2034.70	0.950	18.27
2142	2355	2.25	207.52	2242.21	0.952	18.31
2355	2421	2.40	68.59	2310.80	0.954	18.36

DEPTH (IN MD) x 1000

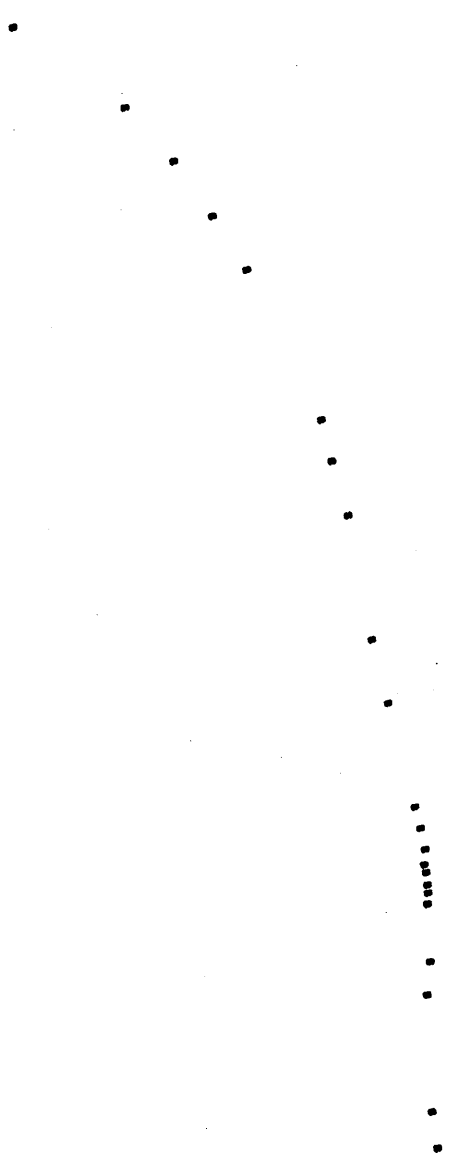
ESSO AUSTRALIA LTD.

BREAM # 4A

OVERBURDEN GRADIENT

PSI/FT.

.5 .6 .7 .8 .9 1.0



13 R.F.T. DATA

BREAM 4A, R.F.T. DATA

R.F.T. PRE-TEST PRESSURE DATA

TEST No	DEPTH (FM.RKB) (m)	DEPTH (FM.MSL) (m)	I.S.I.P. (p.s.i.g.)	HYDROSTATIC (p.s.i.g.)	PORE PRESS (FM.MSL) p.p.g. EMW	PORE PRESS (FM.MSL) p.s.i./m
1	1917.0	1896.0	2788.6	3221.0	8.62	1.471
2	1924.0	1903.0	2790.7	3232.8	8.60	1.466
3	1927.5	1906.5	2791.0	3237.0	8.58	1.464
4	1932.5	1911.5	2792.3	3245.3	8.56	1.461
5	1942.5	1921.5	2799.6	3262.4	8.54	1.457
6	1947.5	1926.5	2804.3	3270.9	8.53	1.456
7	1954.0	1933.0	2812.6	3281.7	8.53	1.455
8a	1979.5	1958.5	2848.5	3323.2	8.43	1.439
9	1990.0	1969.0	2864.9	3340.6	8.53	1.455
10	2013.5	1992.5	2898.1	3378.1	8.53	1.454
11	2048.0	2027.0	2948.3	3434.2	8.53	1.455
12	2138.0	2117.0	3078.0	3579.0	8.52	1.454
13	2254.0	2233.0	3250.2	3763.5	8.53	1.455
14	2279.0	2258.0	3289.7	3805.0	8.54	1.457

Average M.W. while running R.F.T. 9.85 p.p.g.

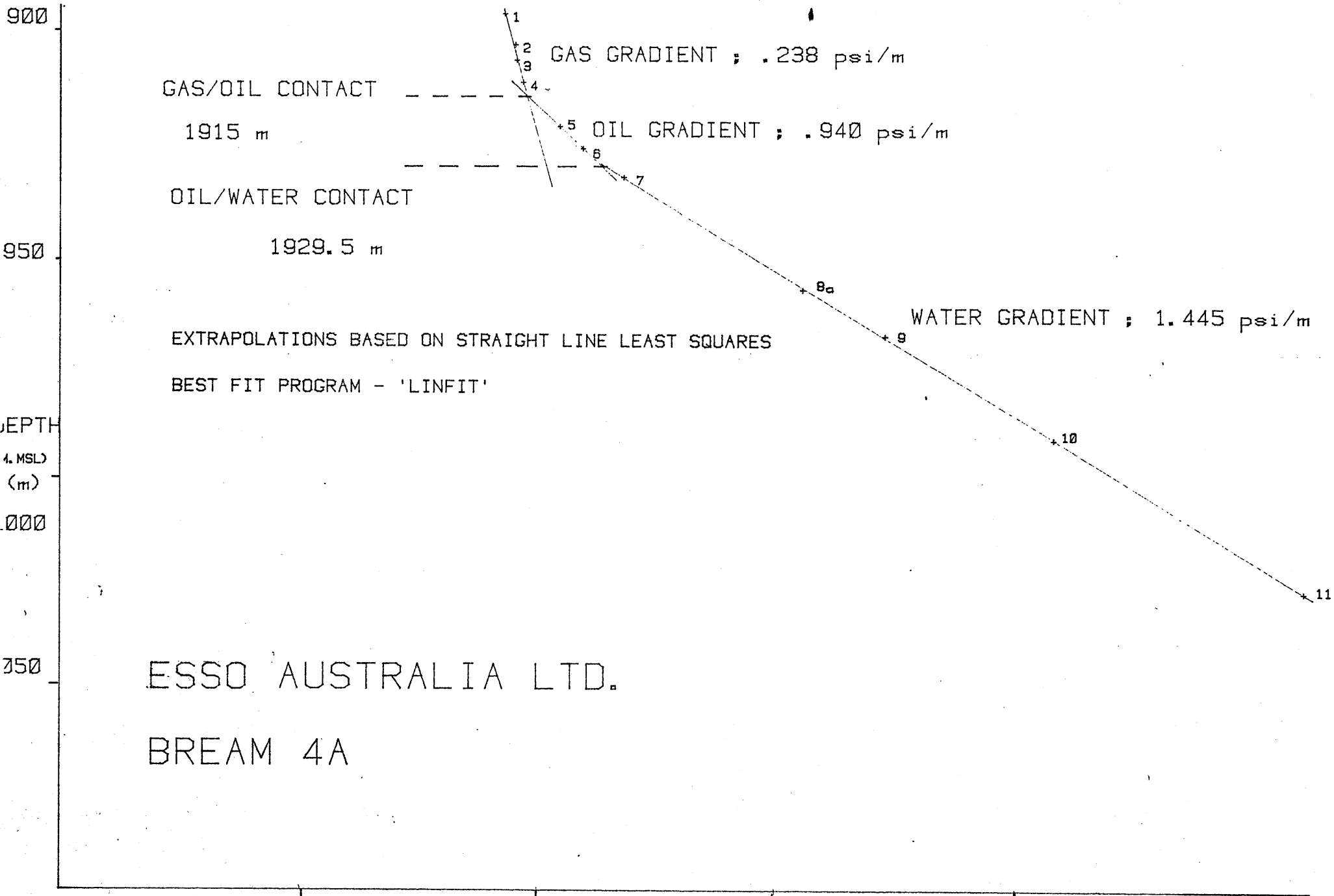
BREAM 4A , R.F.T. SAMPLES

R.F.T. RUN No	2		3		4	
	2 3/4	2 3/4	1	2 3/4	1	2 3/4
CHAMBER SIZE (GAL)						
DEPTH (m)	1944.5	1944.5	1934.5	1934.5	1935.5	1938.5
FILL TIME (Min)	20	17	5	5	4	7
BUILD UP TIME (Min)	12	9	2	2	2	3
I.H.P. (p.s.i.)	-	3236	-	3221	3225	3231
I.S.I.P. (p.s.i.)	-	2639	-	2755	2750	2759
I.F.P. (p.s.i.)	580	60	2736	1964	2687	1484
F.F.P. (p.s.i.)	1129	-	2737	2492	2669	1437
F.S.I.P. (p.s.i.)	2720	2757	2760	-	2755	2757
F.H.P. (p.s.i.)	3244	-	3228	-	3226	3236
TEMPS: - DEPTH TOOL REACHED (m)	1944	1944	1934.5	1934.5	1935.5	1938.5
MAX. REC. TEMP (°F)	171.7	182.0	172.7	172.7	178.0	-
TIME SINCE CIRC (Hrs)	9.5	9.5	13.75	13.75	15.0	15.0
SAMPLE RECOVERY: - SURF. PRESS. (p.s.i.)		1450		1750	420	1450
GAS VOL. (c.f.)		19.25		49	0.38	22.24
OIL VOL. (L)		5.25		-	-	4.60
WATER VOL. (L)	SEALED	-	SEALED	0	-	-
FILTRATE VOL. (L)		2.75		1.2	2.22	2.99
CONDENSATE VOL. (L)		-		0.5	-	-
OIL-COLOUR FLU.		yell/ brn		-	-	-
CONDENSATE DESCRIP.		-		Dk Brn	-	-
GAS COMPOSITION: - C1 (ppm)		241660		132915		129894
C2 (ppm)		1123		14515	NOT	11289
C3 (ppm)		8448		3978	MEASUR-	2699
C4 (ppm)		355		1421	ABLE	639
C5 (ppm)		108		627	(SEE VOL)	118
C6+ (ppm)		58		157		39
CO2 (%)		0.5		1.0		2.0
H <sub>2</sub> S (ppm)		100		NIL		14
FILTRATE - CHLORIDES		6000		4100	4200	3100
- pH		7.2		-	9.4	7.2
- NO <sub>3</sub> (ppm)		418		147	99	82
- RESISTIVITY $\Omega$ m		1.3		-	-	1.0
- TEMP; - RESISTIVITY MEAS. (°F)		54		-	-	60
COMMENTS:						



BREAM 4A , R.F.T. SAMPLES

R.F.T. RUN No	5		6	
	1	6	1	6
CHAMBER SIZE (Gal)				
DEPTH (m)	1949.5	1935.6	1951.0	1951.0
FILL TIME (Min)	4	15	-	1
BUILD UP TIME (Min)	-	11	2	15
I.H.P. (p.s.i.)	3246	3227	-	3251
I.S.I.P. (p.s.i.)	2764	2756	-	2755
I.F.P. (p.s.i.)	2662	2451	2711	2595
F.F.P. (p.s.i.)	-	varied	2714	2592
F.S.I.P. (p.s.i.)	2765	2760	2768	2764
F.H.P. (p.s.i.)	3246	3233	3252	-
TEMPS: - DEPTH TOOL REACHED (m)	1949.5	1935.6	1951	-
MAX. REC. TEMP. (°F)	182.4	182.4	169.0	-
TIME SINCE CIRC. (Hrs)	25.0	25.0	5	-
SAMPLE RECOVERY: - SURF. PRESS (p.s.i.)	950	1600	400	500
GAS VOL. (c.f.)	1.45	25.4	0.15	1.17
OIL VOL. (L)	0.25	-	-	-
WATER VOL. (L)	-	-	3	3
FILTRATE VOL. (L)	1.75	1.70	-	-
CONDENSATE VOL. (L)	-	-	-	-
OIL-COLOUR FLU.	bright white	-	-	-
CONDENSATE DESCRIP.	-	-	-	-
GAS COMPOSITION: - C1 (ppm)	102702	144988		60416
C2 (ppm)	18432	14745	NOT	374
C3 (ppm)	8110	3379	MEASUR-	84
C4 (ppm)	390	568	ABLE	27
C5 (ppm)	216	162	(SEE VOL)	14
C6+ (ppm)	117	98		TR
CO <sub>2</sub> (%)	2.0	1.5		TR
H <sub>2</sub> S (ppm)	4	NIL		NIL
FILTRATE - CHLORIDES	4500	5800	6900	5400
- pH	-	-	-	-
- NO <sub>3</sub> <sup>-</sup> (ppm)	410	225	284	110
- RESISTIVITY $\Omega$ m	1.2	0.78	2.2	0.7
- TEMP; - RESISTIVITY MEAS. (°F)	72	68.5	72	74
COMMENTS :	Oil-waxy			



2700 2750 2800 2850 2900 2950

ORE LAB  
=====

STRAIGHT LINE LEAST SQUARES BEST FIT

ISIP (psi) ON A LINEAR SCALE AGAINST DEPTH (m) ON A LINEAR SCALE

ENTERED DATA:

DATA SET #	PRESET No	ISIP (psi)	DEPTH (m)	
1	1	2788.6	1896.0	DATA POINTS FOR GAS GRADIENT
2	2	2790.7	1903.0	
3	3	2791.0	1906.5	
4	4	2792.3	1911.5	

COEFFICIENT & CONSTANT:

$Y = m.X + c$  where  $m = 4.1985816E-00$  and  $c = -9.9125177E-03$

CORE LAB

STRAIGHT LINE LEAST SQUARES BEST FIT

ISIP(psi) ON A LINEAR SCALE AGAINST DEPTH(m) ON A LINEAR SCALE

ENTERED DATA:

DATA SET #	PRESET No	ISIP(psi)	DEPTH(m)	
1	5	2799.6	1921.5	DATA POINTS FOR OIL
2	6	2804.3	1926.5	GRADIENT

COEFFICIENT & CONSTANT:

$Y = m.X + c$  where  $m = 1.0638298E 00$  and  $c = -1.0567995E 03$

CORE LAB  
-----

STRAIGHT LINE LEAST SQUARES BEST FIT

ISIP(psi) ON A LINEAR SCALE AGAINST DEPTH(m) ON A LINEAR SCALE

ENTERED DATA:

DATA SET #	PRESET No	ISIP(psi)	DEPTH(m)	
1	7	2812.6	1933.0	DATA POINTS FOR WATER GRADIENT
2	8	2848.5	1958.5	
3	9	2864.9	1969.0	
4	10	2898.1	1992.5	
5	11	2948.3	2027.0	

COEFFICIENT & CONSTANT:

$Y = m.X + c$  where  $m = 6.9197244E-01$  and  $c = -1.3060927E 01$

## 14 GAS COMPOSITION ANALYSIS

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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 triangular 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 nC4). 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).

## DISCUSSION OF GAS COMPOSITION ANALYSIS PLOTS

Gas analysis plots could not be made for the cored zone due to the low flow rate whilst coring. The gas from the cored zone was not circulated to the surface while drilling.

Gas analysis plots were made from chromatograph results at the following depths: -

(a) 1916m (RKB)

This plot indicates that the reservoir fluid at this depth is dry gas and the formation probably having medium to good permeability.

(b) 1918m (RKB)

This plot again indicates that the reservoir fluid is gas, and the formation probably having medium to good permeability. However it can be seen that the plots indicate that the gas is wetter than at 1916m.

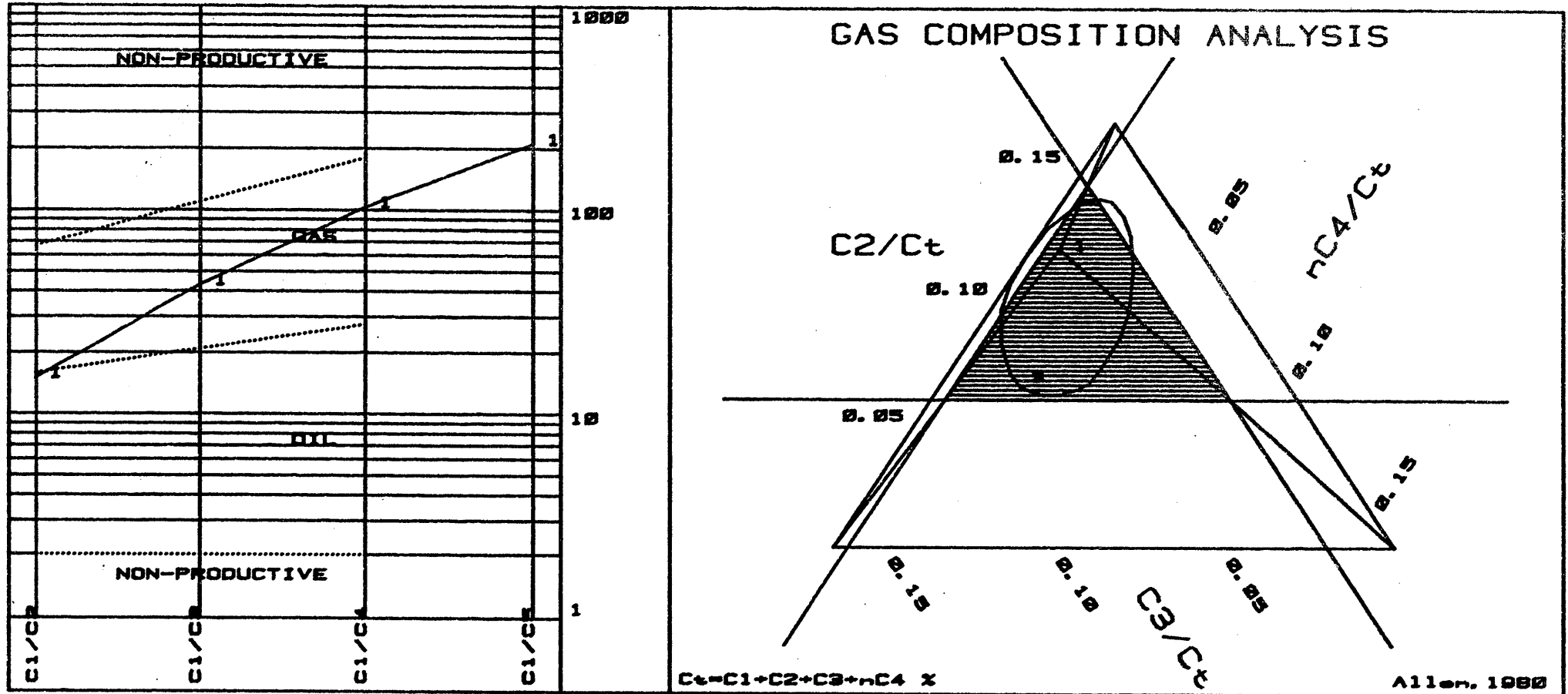
(c) 1919m (RKB)

This plot is in agreement with the analysis made for the reservoir fluid at 1918m. The plot again indicates a dry to wet gas. At 1920m the first core was taken and further analyses could not be carried out.

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Client: ESSO AUSTRALIA LTD.

Well: BREAM # 4A



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 X	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1918	4.834	0.300	0.100	0.022	0.022	0.022	0.000	5.073	15	49	103	212

CONCLUSION: DRY GAS

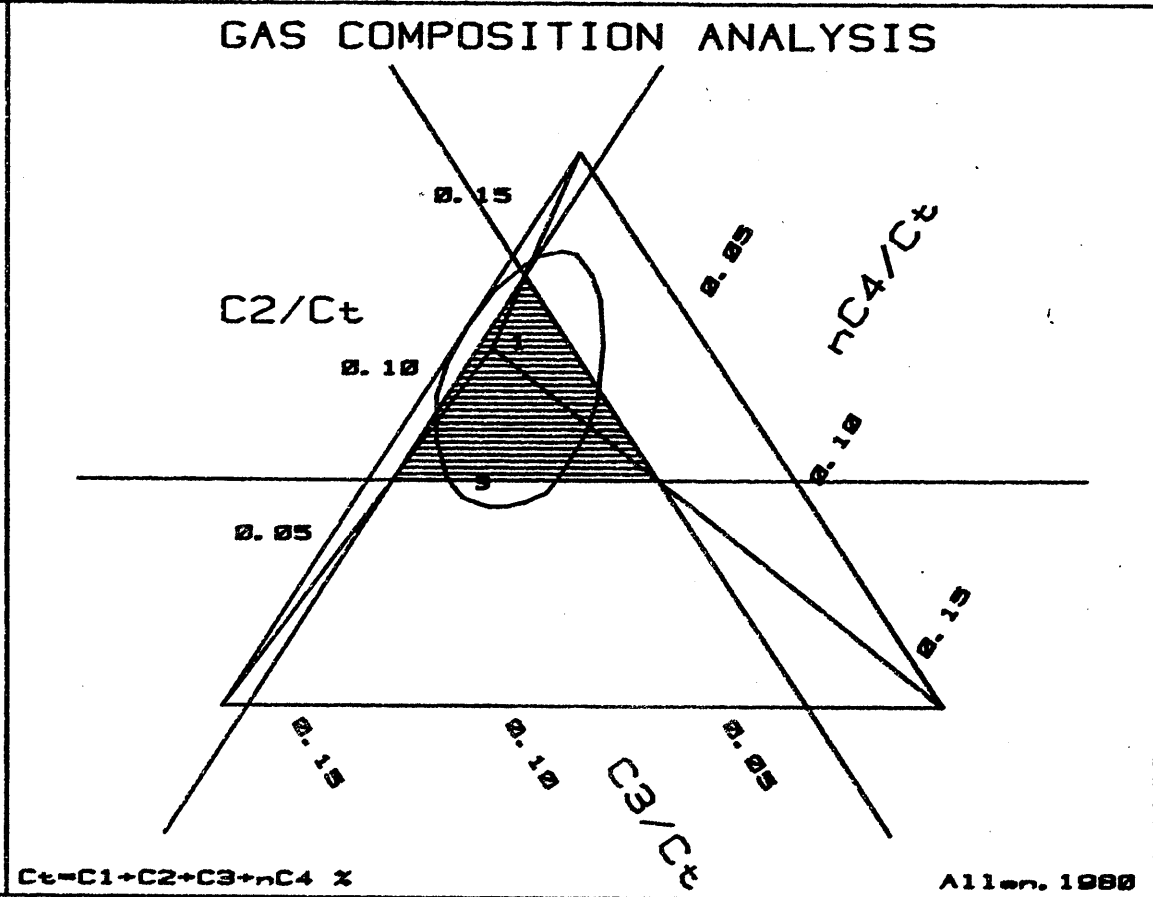
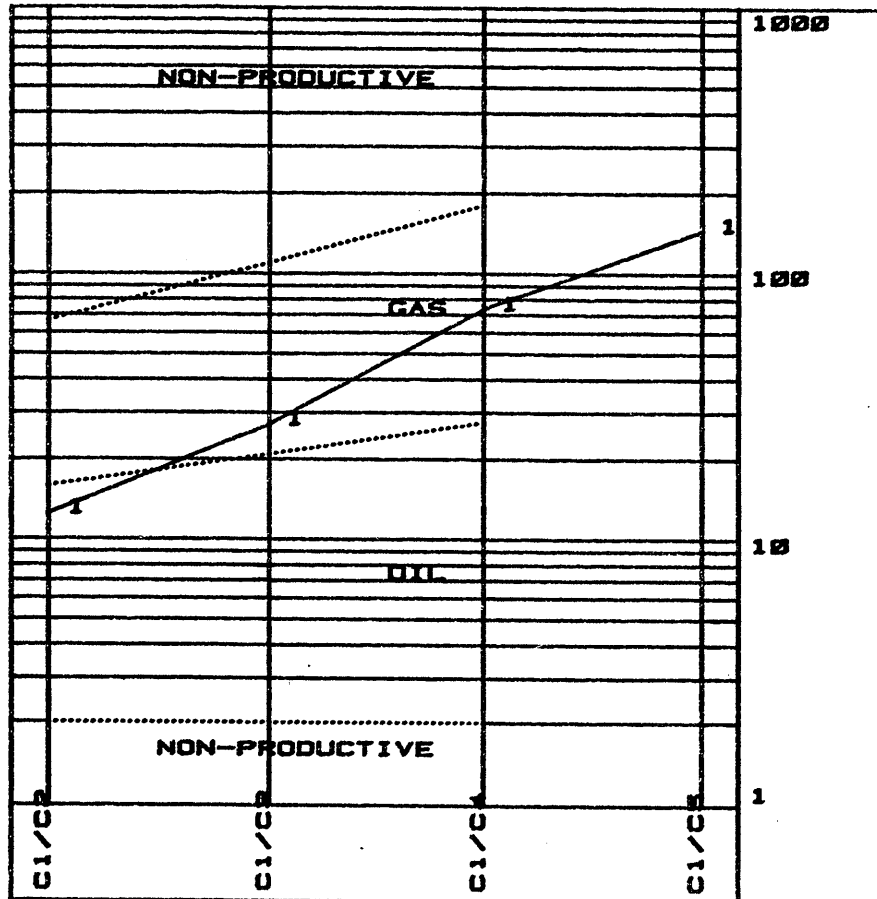
LITH : - SAND: -slr-wh, lss, speque, lss, qtz, p erld, eng-sub rdd. . No flu/out.



CORE LAB. INTL. LTD.

Client: ESSO AUSTRALIA LTD.

Well: BREAM # 4A



$C_t = C_1 + C_2 + C_3 + nC_4 \times$

NO. DEPTH	C1	C2	C3	iC4	nC4	C5	C6 x	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1 1010	7.042	0.013	0.202	0.052	0.052	0.053	0.021	9.589	12	27	74	145

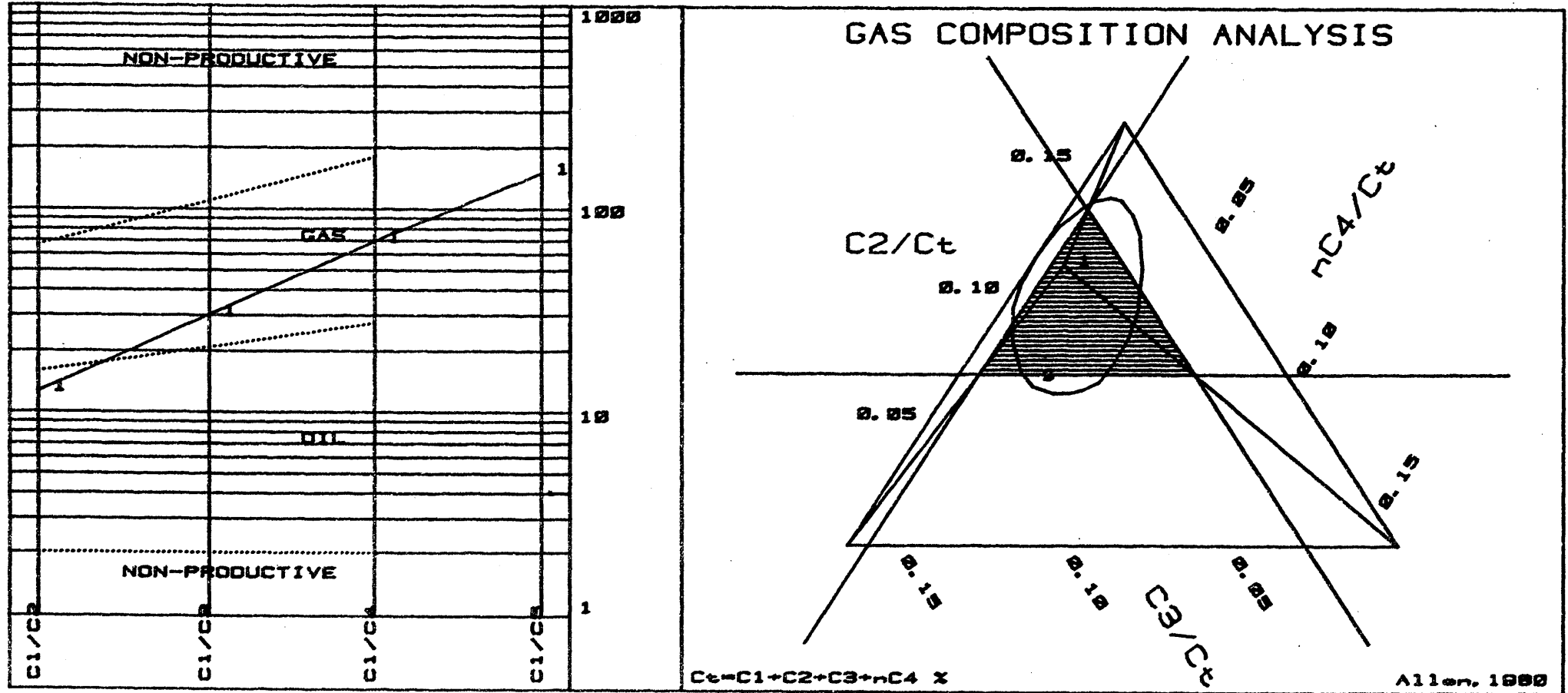
CONCLUSION: DRY/WET GAS

SANDSTONE: - lt gry-gry, f-to g, fri-med hd, sub eng-sub rdd, p erld, calc emt, carb matx, glaue.

CORE LAB. INTL. LTD.

Client: ESSO AUSTRALIA LTD.

Well: BREAM # 4A



NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 x	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1919	6.399	0.507	0.212	0.046	0.046	0.043	0.019	7.164	13	30	69	151

CONCLUSION: DRY/WET GAS

LITH: - SAND: - CKR-WH, LSE, QTZ, V P SRTD, ANG-SUB RDD. No flu/out.

15 CORE-O-GRAPHS

# CORE-O-GRAPH

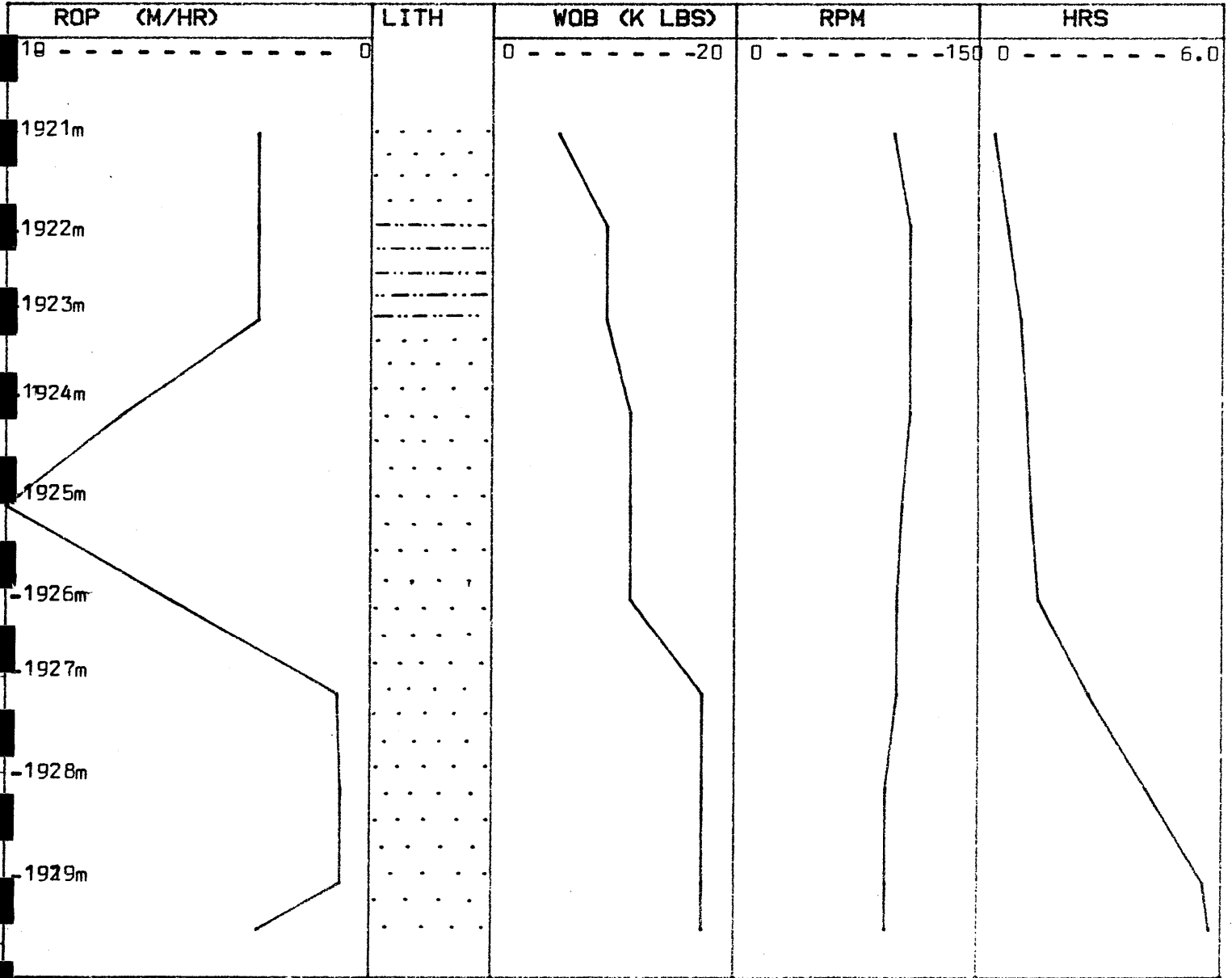
**CLIENT:** ESSO AUSTRALIA LTD.  
**CORE NO.:** 1  
**WELL:** BREAM No 4A  
**INTERVAL CORED:** 1920.0 - 1929.5 m  
**CUT :** 9.5m  
**RECOVERED :** 9.5 m (100%)

**FORMATION GROUP :** LATROBE

**BIT MAKE & TYPE :** CHRISTENSEN C 22

**BIT SIZE :** 8 15/32"

**MUD WT.:** 9.5ppg



# CORE-O-GRAPH

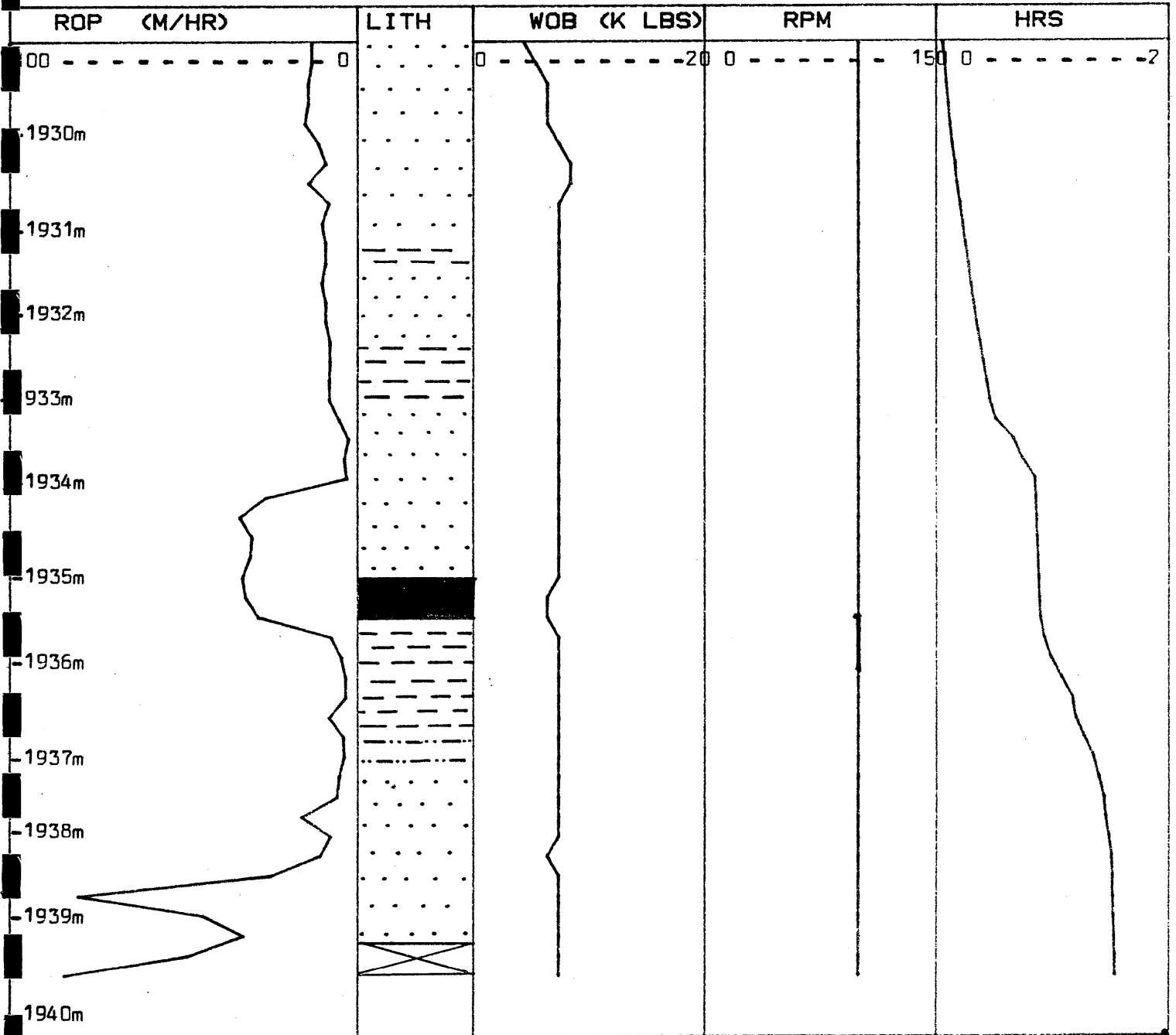
CLIENT: ESSO AUSTRALIA LTD.  
 CORE NO. 2  
 WELL: BREAM No 4A  
 INTERVAL CORED: 1929.5 - 1939.4m  
 CUT : 9.9 m  
 RECOVERED : 9.2 m (93%)

FORMATION GROUP : LATROBE

BIT MAKE & TYPE : CHRISTENSEN C- 22

BIT SIZE : 8 15/32"

MUD WT. 9.5 ppg



# CORE-O-GRAPH

CLIENT: ESSO AUSTRALIA LTD.

CORE NO. 3

WELL: BREAM No 4A

INTERVAL CORED: 1939.4 - 1948.9m

CUT : 9.5m

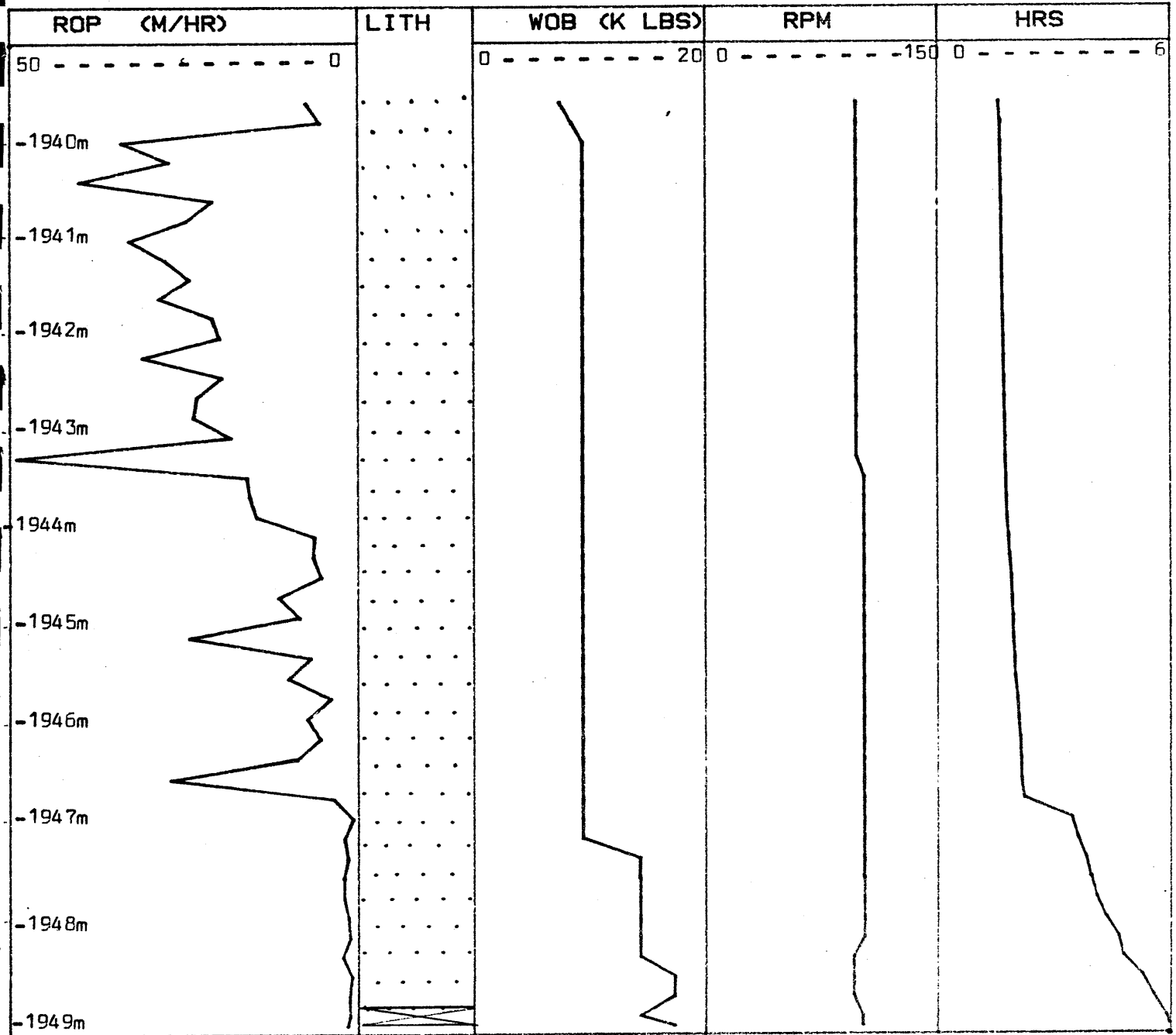
RECOVERED : 9.1 m (96%)

FORMATION GROUP : LATROBE

BIT MAKE & TYPE : CHRISTENSEN C-22

BIT SIZE : 8 15/32 "

MUD WT. 9.5 ppg



# CORE-O-GRAPH

CLIENT: ESSO AUSTRALIA LTD.

CORE NO. 4

WELL: BREAM No 4A

INTERVAL CORED: 1951.0 - 1960.1m

CUT: 9.1m

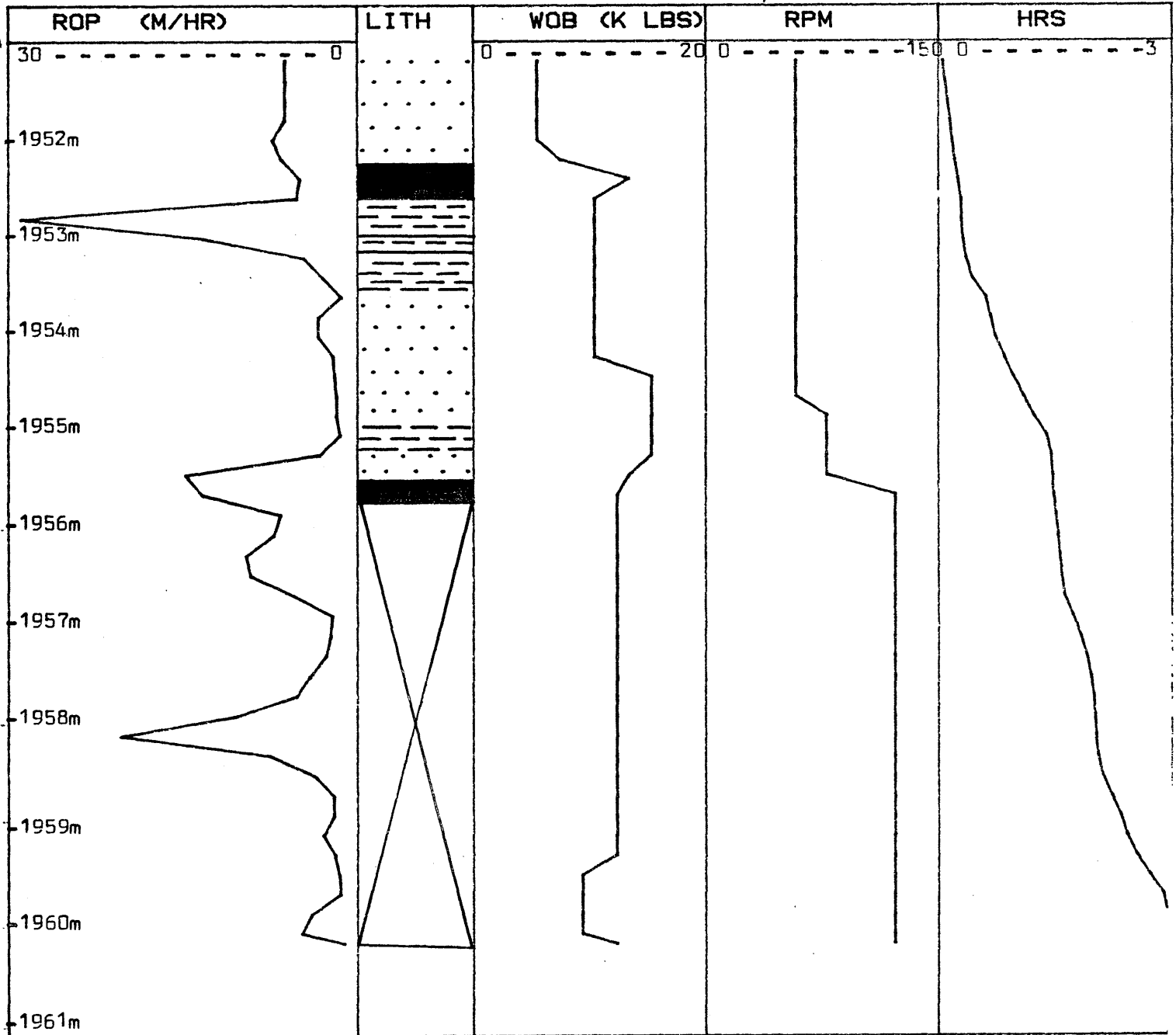
RECOVERED: 4.6 m (50%)

FORMATION GROUP: LATROBE

BIT MAKE & TYPE: CHRISTENSEN C-22

BIT SIZE: 8 15/32"

MUD WT. 9.5 ppg



16. PORE PRESSURE INTERPRETATION & LOT / PIT DATA



BREAM # 4A, PORE PRESSURE AND L.O.T. SUMMARY

Bream # 4A was drilled in the Gippsland basin, it is thought that this basin is normally pressured and abnormal pressure was not expected. Core Laboratories unit FL 802 monitored and calculated various parameters associated with pressure detection, the primary means of detection being the Drill Data Plot. (see plots at end of report)

The "Drill Data Plot" shows the dc exponent trend. As can be seen from the plot a good trend does not develop until around 670m. There is a lateral shift in the trend at 864m where the bit size was changed after running casing. A normal trend is followed to 1070m where there is a reversal; this was due to a slight change in lithology, the calcarenite becoming more silty. From this point there is a very gradual increase in the silt content and this shows up as a reversal in the trend.

At 1400m the bit was pulled and the mud changed, the shift here is due to the increased rate of penetration of the new bit. From 1400m to 1550m the dc exponent shows an exaggerated trend with the rate of penetration being controlled due to the 'gumbo' problems encountered here. A good normal trend is established between 1710m and 1860m. From 1916m where the top of the 'coarse clastics' formation is located until total depth at 2421m. The dc exponent points are completely scattered due to the unfavourable lithologies; - interbedded sandstones and coal beds. No trend can be established in this section.

In summary the dc exponent shows a normal trend to 1916m, from which point a trend cannot be established. The only abnormality in the mud gas plot is the slight increase in background gas around 1150m from five to ten units. It is possible that this and the possible connection gas shown at 1164m and 1178m are due to the increased swabbing action of the high yield mud, and because at this point hi-vis pills were slugged resulting in a greater volume of cuttings going over the shakers.

No shale density measurements were taken as no true shales were encountered. Silty sub-fissile shales occurred around 1450m but these cuttings disintegrating too easily in the density column.

As may be expected the temperature plot does not show any deviations away from normal. The geothermal gradient was 3.50°C/100m (6.32°F/100m).

As previously mentioned it was not possible to draw a 'Wireline Plot' as this log plots shale parameters and the few shale points encountered in the well were insufficient to draw a plot from, and were from poor quality shales.

The 'Pressure Plot' is the conclusion log for the well. As can be seen it shows that the formations encountered in the drilling of Bream # 4A are believed to be normally pressured throughout. The quantitative data for this log is from the R.F.T. tests run in the sands around 1917m to 2279m (from R.K.B.). As can be seen the pressure pre-tests in the water saturated sands had a pressure gradient of 1.445 p.s.i./m, this is equivalent to a pore pressure of 8.5 p.p.g. (FM. M.S.L.) or 8.6 p.p.g. (FM R.K.B.). It is believed that this pore pressure of 8.5 p.p.g. E.M.W. is representative of the pressure gradient for the formations above the Latrobe.

Overburden gradient calculations and a plot of the gradient are included in the report. It was not possible to derive a true fracture gradient as insufficient L.O.T. were taken; in fact only one P.I.T. was taken below the 13 3/8" casing. There was no need to carry out L.O.T. as high mud weights were not anticipated. The P.I.T. that was carried out gave a value of 13.5 + p.p.g. E.M.W. (See Well History section). Based on this information the fracture gradient on the "Pressure Plot" was drawn. The shape of the curve is based on data from wells in the U.S. Gulf Coast basin, and offset to match local data. A true fracture gradient for the Gippsland Basin cannot be drawn until further leak-off data is available.

## 17 COMPUTER DATA LISTINGS

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

The 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 be listed.

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

The following data lists have been made for this well :

- a. Bit record
- b. Hydraulic analyses
- c. Data list A
- d. Data list B
- e. Data list C
- f. Data list D

### COMPUTER PLOTS

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

GEOPLOT - 1:5000 SCALE - 2m average

GEOPLOT 1:2000 SCALE - 2m average

DRILLING PARAMETER PLOT - 1:5000 SCALE - 2m average

COST ANALYSIS PLOT - 1:2000 SCALE - 2m average

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

BIT RECORD

BIT SIZE . . . . . Inches

BIT COST . . . . . A dollars

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

DEPTHS . . . . . Metres

BIT RUN (HOLE MADE). . Metres

TOTAL HOURS. . . . . Hours (the time the bit was actually drilling)

AVERAGE ROP. . . . . Metres/hour

CUMULATIVE COST/METRE. A dollars

BIT CONDITION : Teeth

Bearings

Gauge . . . Inches

BIT IADC		SIZE	COST	NOZZLES			DEPTH	DEPTH	BIT RUN	TOTAL HOURS	TRIP		CCOST	TOTAL TURNS	CONDITION		
No.	CODE MAKE & TYPE			IN	OUT			AROP			TIME	T			R	G	
2	114 HTC X3A	12.250	1400.00	20	20	20	225.0	554.4	329.4	5.28	62.4	2.8	91.10	33815	2	1	0.000
3	114 HTC X3A	12.250	1400.00	20	20	20	554.4	804.0	249.6	7.94	31.4	3.9	173.56	57049	2	2	0.000
3	114 HTC X3A&SEC U/R	17.500	1400.00	20	20	20	203.0	804.3	601.3	21.71	43.7	4.0	108.59	169385	4	4	0.000
4	114 HTC X3A	12.250	1400.00	14	14	16	804.0	1400.0	596.0	21.31	28.0	6.1	165.17	157037	6	4	0.000
5	114 HTC X3A	12.250	1400.00	14	14	16	1400.0	1778.0	378.0	26.59	14.2	6.2	310.83	238000	2	5	0.000
6	114 HTC X3A	12.250	1400.00	16	16	16	1778.0	1920.0	142.0	11.63	12.2	6.4	459.56	99500	3	3	0.000
7	4 CHRISTENSEN C-22	8.469	15000.00	23	0	0	1920.0	1929.5	9.5	6.00	1.6	6.4	6202.19	37032	0	0	0.000
8	4 CHRISTENSEN C-22	8.469	15000.00	23	0	0	1929.5	1939.4	9.9	1.54	6.4	6.4	4354.77	9365	0	0	0.000
8	4 CHRISTENSEN C-22	8.469	15000.00	23	0	0	1939.4	1948.9	9.5	5.78	2.2	7.0	3105.90	35602	0	0	0.000
6	114 HTC X3A	12.250	1400.00	16	16	16	1920.0	1948.0	28.0	13.82	12.8	7.1	444.10	112259	5	4	0.250
9	4 CHRISTENSEN C-22	8.469	15000.00	23	0	0	1951.0	1960.1	9.1	3.14	2.9	7.1	5632.88	18248	0	0	0.000
10	135 HTC XDG	12.250	1400.00	13	13	14	1960.1	2030.1	70.0	8.53	8.2	8.3	871.36	71815	7	3	0.183
11	517 HTC J22	12.250	5300.00	13	13	14	2030.1	2231.6	201.5	36.59	5.5	9.0	827.63	220725	2	4	0.000
12	214 HTC XDV	12.250	1500.00	13	13	14	2231.6	2336.4	104.8	13.16	8.0	9.4	776.70	94531	6	4	0.125
13	214 HTC XDV	12.250	1500.00	13	13	14	2336.4	2421.0	84.6	12.45	6.8	9.7	945.09	89585	5	4	0.250

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BIT PERFORMANCE ANALYSIS

DATA FROM WELL: BREAM # 4A

BIT NUMBER		BIT COST	HOLE MADE	BIT LIFE	TRIP TIME	AVERAGE ROP	CCOST
2	HTC X3A	1400.00	329.4	5.3	2.8	62.4	91.10
3	HTC X3A	1400.00	249.6	7.9	3.9	31.4	173.61
3	HTC X3A&SEC U/R	1400.00	851.3	21.7	4.0	39.2	108.62
4	HTC X3A	1400.00	596.0	21.3	6.1	28.0	165.22
5	HTC X3A	1400.00	378.0	26.6	6.2	14.2	310.92
6	HTC X3A	1400.00	142.0	11.6	6.4	12.2	459.69
7	CHRISTENSEN C-22	15000.00	9.5	6.0	6.4	1.6	6202.19
8	CHRISTENSEN C-22	15000.00	9.9	1.5	6.4	6.4	4354.77
8	CHRISTENSEN C-22	15000.00	19.4	5.8	7.0	3.4	3105.90
6	HTC X3A	1400.00	170.0	13.8	7.1	12.3	444.10
9	CHRISTENSEN C-22	15000.00	9.1	3.1	7.1	2.9	5632.88
10	HTC XDG	1400.00	70.0	8.5	8.3	8.2	871.36
11	HTC J22	5300.00	201.5	36.6	9.0	5.5	827.63
12	HTC XDV	1500.00	104.8	13.2	9.4	8.0	776.70
13	HTC XDV	1500.00	86.6	12.5	9.7	6.9	924.90
TOTAL		79500.00	3227.1	195.5	99.8	16.5	348.73

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HYDRAULIC ANALYSIS

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Data listed from data 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

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

PRESSURE UNITS . . . . Pounds per square inch

HHP. . . . . Hydraulic horsepower at the bit

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

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

DENSITY UNITS. . . . . Pounds per gallon

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 300.0 AND TVD 300.0

SPM 1 160 SPM 2 0 FLOW RATE 827

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	26	72	92	LAMINAR	1	71	3.3
DC/CSG	0.961	20	20	57	LAMINAR	0	20	0.1
HWDP/CSG	1.085	90	18	50	LAMINAR	0	18	0.1
DP/CSG	1.085	25	18	50	LAMINAR	0	18	0.0
DP/RIS	1.325	101	15	47	LAMINAR	0	15	0.1
TOTAL VOLUME		263	TOTAL PRESSURE DROP					3.6

LAG: 13.4 MINUTES 2139 STROKES #1 AND 0 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	668.5	HHP	322	IMPACT FORCE	1110
% SURFACE PRESSURE	44.6	HHP/sqin	2.74	JET VELOCITY	88

PRESSURE BREAKDOWN:

SURFACE	78.7		
STRING	648.2		
BIT	668.5		
ANNULUS	3.6		
TOTAL	1398.9	PUMP PRESSURE	1500.0
		% DIFFERENCE	6.7

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 460.6
CIRCULATING:	ECD 9.07	CIRCULATING PRESSURE 464.2
PULLING OUT:	TRIP MARGIN 0.14	ESTIMATED SWAB 7.2
	EFFECTIVE MUD WEIGHT 8.86	BOTTOM HOLE PRESSURE 453.4



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 400.0 AND TVD 400.0

SPM 1 160 SPM 2 0 FLOW RATE 827

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	32	72	105	LAMINAR	1	71	4.0
HWDP/OH	0.398	32	49	99	LAMINAR	1	49	1.2
HWDP/CSG	1.085	4	18	92	LAMINAR	0	18	0.0
DP/CSG	1.085	134	18	92	LAMINAR	0	18	0.5
DP/RIS	1.325	101	15	91	LAMINAR	0	15	0.2
TOTAL VOLUME		303	TOTAL PRESSURE DROP			5.9		

LAG: 15.4 MINUTES 2463 STROKES #1 AND 0 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	675.9	HHP	326	IMPACT FORCE	1122
% SURFACE PRESSURE	45.1	HHP/sqin	2.77	JET VELOCITY	88

PRESSURE BREAKDOWN:

SURFACE	59.0		
STRING	520.2		
BIT	675.9		
ANNULUS	5.9		
TOTAL	1261.1	PUMP PRESSURE	1500.0
		% DIFFERENCE	15.9

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.10	HYDROSTATIC PRESSURE 621.0
CIRCULATING:	ECD 9.19	CIRCULATING PRESSURE 626.9
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 11.8
EFFECTIVE MUD WEIGHT	8.93	BOTTOM HOLE PRESSURE 609.2

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 510.0 AND TVD 510.0

SPM 1 95 SPM 2 106 FLOW RATE 1038

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	32	90	105	LAMINAR	2	89	4.3
HWDP/OH	0.398	33	62	99	LAMINAR	1	61	1.3
DP/OH	0.398	42	62	99	LAMINAR	1	61	1.7
DP/CSG	1.085	138	23	92	LAMINAR	0	23	0.6
DP/RIS	1.325	101	19	91	LAMINAR	0	19	0.3
TOTAL VOLUME		347			TOTAL PRESSURE DROP		8.1	

LAG: 14.0 MINUTES 1333 STROKES #1 AND 1487 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1066.7 HHP 646 IMPACT FORCE 1771  
% SURFACE PRESSURE 46.4 HHP/sqin 5.48 JET VELOCITY 110

PRESSURE BREAKDOWN:

SURFACE 89.0  
STRING 840.8  
BIT 1066.7  
ANNULUS 8.1  
TOTAL 2004.6 PUMP PRESSURE 2300.0 % DIFFERENCE 12.8

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.10	HYDROSTATIC PRESSURE 791.8
CIRCULATING:	ECD 9.19	CIRCULATING PRESSURE 799.9
PULLING OUT:	TRIP MARGIN 0.19	ESTIMATED SWAB 16.3
	EFFECTIVE MUD WEIGHT 8.91	BOTTOM HOLE PRESSURE 775.5

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 600.0 AND TVD 600.0

SPM 1 100          SPM 2 105          FLOW RATE 1059

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	32	92	111	LAMINAR	3	89	4.7
HWDP/OH	0.398	33	63	105	LAMINAR	1	62	1.4
DP/OH	0.398	78	63	105	LAMINAR	1	62	3.4
DP/CSG	1.085	138	23	99	LAMINAR	0	23	0.6
DP/RIS	1.325	101	19	98	LAMINAR	0	19	0.3
TOTAL VOLUME		383				TOTAL PRESSURE DROP		10.5

LAG: 15.2 MINUTES          1517 STROKES #1 AND 1593 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1097.4	HHP	678	IMPACT FORCE	1822
% SURFACE PRESSURE	42.2	HHP/sqin	5.75	JET VELOCITY	112

PRESSURE BREAKDOWN:

SURFACE	91.4		
STRING	913.7		
BIT	1097.4		
ANNULUS	10.5		
TOTAL	2113.0	PUMP PRESSURE	2600.0
		% DIFFERENCE	18.7

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 921.2
CIRCULATING:	ECD 9.10	CIRCULATING PRESSURE 931.7
PULLING OUT:	TRIP MARGIN 0.20	ESTIMATED SWAB 21.0
	EFFECTIVE MUD WEIGHT 8.80	BOTTOM HOLE PRESSURE 900.3

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 700.0 AND TVD 700.0

SPM 1 98 SPM 2 104 FLOW RATE 1044

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	32	91	125	LAMINAR	3	88	5.7
HWDP/OH	0.398	33	62	121	LAMINAR	1	61	1.8
DP/OH	0.398	118	62	121	LAMINAR	1	61	6.4
DP/CSG	1.085	138	23	116	LAMINAR	0	23	0.9
DP/RIS	1.325	101	19	115	LAMINAR	0	19	0.4

TOTAL VOLUME 422 TOTAL PRESSURE DROP 15.2

LAG: 17.0 MINUTES 1666 STROKES #1 AND 1768 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1065.5 HHP 649 IMPACT FORCE 1769  
% SURFACE PRESSURE 41.5 HHP/sqin 5.50 JET VELOCITY 111

PRESSURE BREAKDOWN:

SURFACE 89.0  
STRING 941.1  
BIT 1065.5  
ANNULUS 15.2  
TOTAL 2110.8 PUMP PRESSURE 2570.0 % DIFFERENCE 17.9

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1074.8
CIRCULATING:	ECD 9.13	CIRCULATING PRESSURE 1090.0
PULLING OUT:	TRIP MARGIN 0.25	ESTIMATED SWAB 30.4
	EFFECTIVE MUD WEIGHT 8.75	BOTTOM HOLE PRESSURE 1044.3



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 900.0 AND TVD 900.0

SPM 1 B1 SPM 2 B2 FLOW RATE 842

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	30	73	94	LAMINAR	3	70	3.2
DC/CSG	0.287	11	70	94	LAMINAR	3	67	1.0
HWDP/CSG	0.411	34	49	87	LAMINAR	1	47	0.9
DP/CSG	0.411	242	49	87	LAMINAR	1	47	6.7
DP/RIS	1.325	105	15	79	LAMINAR	0	15	0.2
TOTAL VOLUME		422			TOTAL PRESSURE DROP		12.0	

LAG: 21.1 MINUTES 1707 STROKES #1 AND 1728 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2379.3 HHP 1169 IMPACT FORCE 2133  
% SURFACE PRESSURE 83.5 HHP/sqin 9.92 JET VELOCITY 165

PRESSURE BREAKDOWN:

SURFACE 60.5  
STRING 779.2  
BIT 2379.3  
ANNULUS 12.0  
TOTAL 3230.9 PUMP PRESSURE 2850.0 % DIFFERENCE 13.4

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1381.9
CIRCULATING:	ECD 9.08	CIRCULATING PRESSURE 1393.9
PULLING OUT:	TRIP MARGIN 0.16	ESTIMATED SWAB 24.0
	EFFECTIVE MUD WEIGHT 8.84	BOTTOM HOLE PRESSURE 1357.8

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1000.0 AND TVD 1000.0

SPM 1 79 SPM 2 80 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	41	71	96	LAMINAR	3	68	4.3
HWDP/OH	0.398	25	49	89	LAMINAR	1	48	0.7
HWDP/CSG	0.411	9	48	89	LAMINAR	1	46	0.2
DP/CSG	0.411	283	48	89	LAMINAR	1	46	7.7
DP/RIS	1.325	105	15	80	LAMINAR	0	15	0.2

TOTAL VOLUME 462 TOTAL PRESSURE DROP 13.1

LAG: 23.6 MINUTES 1867 STROKES #1 AND 1891 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2188.5 HHP 1049 IMPACT FORCE 1962  
 % SURFACE PRESSURE 73.4 HHP/sqin 8.90 JET VELOCITY 161

PRESSURE BREAKDOWN:

SURFACE 56.3  
 STRING 757.6  
 BIT 2188.5  
 ANNULUS 13.1  
 TOTAL 3015.5 PUMP PRESSURE 2980.0 % DIFFERENCE 1.2

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.70	HYDROSTATIC PRESSURE 1484.2
CIRCULATING:	ECD 8.78	CIRCULATING PRESSURE 1497.4
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 26.3
	EFFECTIVE MUD WEIGHT 8.55	BOTTOM HOLE PRESSURE 1458.0

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1100.0 AND TVD 1100.0

SPM 1 80 SPM 2 84 FLOW RATE 847

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	41	74	95	LAMINAR	3	70	4.3
HWDP/OH	0.398	33	51	88	LAMINAR	1	49	1.0
DP/OH	0.398	31	51	88	LAMINAR	1	49	0.9
DP/CSG	0.411	292	49	88	LAMINAR	1	48	8.1
DP/RIS	1.325	105	15	79	LAMINAR	0	15	0.2

TOTAL VOLUME 502 TOTAL PRESSURE DROP 14.5

LAG: 24.9 MINUTES 1991 STROKES #1 AND 2091 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2381.8 HHP 1177 IMPACT FORCE 2135  
 % SURFACE PRESSURE 78.1 HHP/sqin 9.99 JET VELOCITY 166

PRESSURE BREAKDOWN:

SURFACE 60.6  
 STRING 850.6  
 BIT 2381.8  
 ANNULUS 14.5  
 TOTAL 3307.5 PUMP PRESSURE 3050.0 % DIFFERENCE 8.4

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.90	HYDROSTATIC PRESSURE 1670.2
CIRCULATING:	ECD 8.98	CIRCULATING PRESSURE 1684.7
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 29.0
	EFFECTIVE MUD WEIGHT 8.75	BOTTOM HOLE PRESSURE 1641.2



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1200.0 AND TVD 1200.0

SPM 1 78 SPM 2 82 FLOW RATE 827

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	41	72	94	LAMINAR	3	69	4.3
HWDP/OH	0.398	33	49	87	LAMINAR	1	48	1.0
DP/OH	0.398	71	49	87	LAMINAR	1	48	2.1
DP/CSG	0.411	292	48	87	LAMINAR	1	47	8.0
DP/RIS	1.325	105	15	79	LAMINAR	0	15	0.2
TOTAL VOLUME		542	TOTAL PRESSURE DROP					15.5

LAG: 27.5 MINUTES 2148 STROKES #1 AND 2258 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2292.5 HHP 1106 IMPACT FORCE 2055  
% SURFACE PRESSURE 76.7 HHP/sqin 9.38 JET VELOCITY 162

PRESSURE BREAKDOWN:

SURFACE 58.5  
STRING 854.7  
BIT 2292.5  
ANNULUS 15.5  
TOTAL 3221.2 PUMP PRESSURE 2990.0 % DIFFERENCE 7.7

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1842.5
CIRCULATING:	ECD 9.08	CIRCULATING PRESSURE 1858.0
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 31.0
	EFFECTIVE MUD WEIGHT 8.85	BOTTOM HOLE PRESSURE 1811.5

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1300.0 AND TVD 1300.0

SPM 1 82 SPM 2 77 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	41	71	94	LAMINAR	3	68	4.3
HWDP/OH	0.398	33	49	87	LAMINAR	1	48	1.0
DP/OH	0.398	111	49	87	LAMINAR	1	48	3.3
DP/CSG	0.411	292	48	87	LAMINAR	1	46	8.0
DP/RIS	1.325	105	15	79	LAMINAR	0	15	0.2

TOTAL VOLUME 582 TOTAL PRESSURE DROP 16.6

LAG: 29.8 MINUTES 2440 STROKES #1 AND 2291 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2263.9 HHP 1085 IMPACT FORCE 2030  
% SURFACE PRESSURE 70.7 HHP/sqin 9.21 JET VELOCITY 161

PRESSURE BREAKDOWN:

SURFACE 57.8  
STRING 878.4  
BIT 2263.9  
ANNULUS 16.6  
TOTAL 3216.8 PUMP PRESSURE 3200.0 % DIFFERENCE 0.5

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1996.0
CIRCULATING:	ECD 9.08	CIRCULATING PRESSURE 2012.7
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 33.3
	EFFECTIVE MUD WEIGHT 8.85	BOTTOM HOLE PRESSURE 1962.8

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1400.0 AND TVD 1400.0

SPM 1 76 SPM 2 82 FLOW RATE 816

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	41	71	94	LAMINAR	3	68	4.2
HWDP/OH	0.398	33	49	87	LAMINAR	1	47	1.0
DP/OH	0.398	151	49	87	LAMINAR	1	47	4.4
DP/CSG	0.411	292	47	87	LAMINAR	1	46	7.9
DP/RIS	1.325	105	15	79	LAMINAR	0	14	0.2

TOTAL VOLUME 622 TOTAL PRESSURE DROP 17.8

LAG: 32.0 MINUTES 2431 STROKES #1 AND 2623 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2235.6 HHP 1065 IMPACT FORCE 2004  
 % SURFACE PRESSURE 74.5 HHP/sq.in 9.03 JET VELOCITY 160

PRESSURE BREAKDOWN:

SURFACE 57.2  
 STRING 901.4  
 BIT 2235.6  
 ANNULUS 17.8  
 TOTAL 3212.0 PUMP PRESSURE 3000.0 % DIFFERENCE 7.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 2149.6
CIRCULATING:	ECD 9.07	CIRCULATING PRESSURE 2167.4
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 35.5
	EFFECTIVE MUD WEIGHT 8.85	BOTTOM HOLE PRESSURE 2114.0

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1700.0 AND TVD 1700.0

SPM 1 80 SPM 2 67 FLOW RATE 735

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	64	106	LAMINAR	1	63	6.6
HWDP/OH	0.398	33	44	88	LAMINAR	0	43	1.1
DP/OH	0.398	260	44	88	LAMINAR	0	43	8.2
DP/CSG	0.411	292	43	87	LAMINAR	0	42	8.5
DP/RIS	1.325	105	13	66	LAMINAR	0	13	0.1
TOTAL VOLUME		738	TOTAL PRESSURE DROP					24.5

LAG: 42.2 MINUTES 3374 STROKES #1 AND 2826 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1871.7	HHP	802	IMPACT FORCE	1678
% SURFACE PRESSURE	63.4	HHP/sqin	6.81	JET VELOCITY	144

PRESSURE BREAKDOWN:

SURFACE	62.0		
STRING	1148.4		
BIT	1871.7		
ANNULUS	24.5		
TOTAL	3106.7	PUMP PRESSURE	2950.0
		% DIFFERENCE	5.3

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.30	HYDROSTATIC PRESSURE 2697.2
CIRCULATING:	ECD 9.38	CIRCULATING PRESSURE 2721.7
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 49.1
	EFFECTIVE MUD WEIGHT 9.13	BOTTOM HOLE PRESSURE 2648.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1500.0 AND TVD 1500.0

SPM 1 80 SPM 2 77 FLOW RATE 785

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	68	111	LAMINAR	1	67	6.7
HWDP/OH	0.398	33	47	99	LAMINAR	1	46	1.2
DP/OH	0.398	180	47	99	LAMINAR	1	46	6.4
DP/CSG	0.411	292	45	98	LAMINAR	0	45	9.6
DP/RIS	1.325	105	14	83	LAMINAR	0	14	0.2

TOTAL VOLUME 658 TOTAL PRESSURE DROP 24.1

LAG: 35.2 MINUTES 2818 STROKES #1 AND 2712 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2011.0 HHP 921 IMPACT FORCE 1803  
 % SURFACE PRESSURE 66.6 HHP/sqin 7.81 JET VELOCITY 154

PRESSURE BREAKDOWN:

SURFACE 59.9  
 STRING 1039.3  
 BIT 2011.0  
 ANNULUS 24.1  
 TOTAL 3134.4 PUMP PRESSURE 3020.0 % DIFFERENCE 3.8

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.76	HYDROSTATIC PRESSURE 2241.7
CIRCULATING:	ECD 8.85	CIRCULATING PRESSURE 2265.8
PULLING OUT:	TRIP MARGIN 0.19	ESTIMATED SWAB 48.3
	EFFECTIVE MUD WEIGHT 8.57	BOTTOM HOLE PRESSURE 2193.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1800.0 AND TVD 1800.0

SPM 1 80 SPM 2 82 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	48	70	112	LAMINAR	1	69	7.8
HWDP/OH	0.398	33	48	96	LAMINAR	0	48	1.3
DP/OH	0.398	299	48	96	LAMINAR	0	48	11.7
DP/CSG	0.411	292	47	96	LAMINAR	0	46	10.5
DP/RIS	1.325	105	15	77	LAMINAR	0	14	0.2
TOTAL VOLUME		778			TOTAL PRESSURE DROP		31.5	

LAG: 40.3 MINUTES 3227 STROKES #1 AND 3308 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1670.5 HHP 789 IMPACT FORCE 1775  
 % SURFACE PRESSURE 56.6 HHP/sq.in 6.70 JET VELOCITY 134

PRESSURE BREAKDOWN:

SURFACE 73.9  
 STRING 1411.0  
 BIT 1670.5  
 ANNULUS 31.5  
 TOTAL 3186.9 PUMP PRESSURE 2950.0 % DIFFERENCE 8.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.60	HYDROSTATIC PRESSURE 2948.0
CIRCULATING:	ECD 9.70	CIRCULATING PRESSURE 2979.5
PULLING OUT:	TRIP MARGIN 0.21	ESTIMATED SWAB 63.0
	EFFECTIVE MUD WEIGHT 9.39	BOTTOM HOLE PRESSURE 2885.0

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1900.0 AND TVD 1900.0

SPM 1 78 SPM 2 80 FLOW RATE 790

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	69	99	LAMINAR	1	68	6.3
HWDP/OH	0.398	33	47	84	LAMINAR	0	47	1.0
DP/OH	0.398	339	47	84	LAMINAR	0	47	10.7
DP/CSG	0.411	292	46	84	LAMINAR	0	45	8.5
DP/RIS	1.325	105	14	67	LAMINAR	0	14	0.1

TOTAL VOLUME 818 TOTAL PRESSURE DROP 26.7

LAG: 43.5 MINUTES 3391 STROKES #1 AND 3478 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1589.0 HHP 732 IMPACT FORCE 1688  
% SURFACE PRESSURE 53.9 HHP/sqin 6.21 JET VELOCITY 131

PRESSURE BREAKDOWN:

SURFACE 68.7  
STRING 1350.4  
BIT 1589.0  
ANNULUS 26.7  
TOTAL 3034.8 PUMP PRESSURE 2950.0 % DIFFERENCE 2.9

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.60	HYDROSTATIC PRESSURE 3111.8
CIRCULATING:	ECD 9.68	CIRCULATING PRESSURE 3138.5
PULLING OUT:	TRIP MARGIN 0.16	ESTIMATED SWAB 53.4
	EFFECTIVE MUD WEIGHT 9.44	BOTTOM HOLE PRESSURE 3058.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1930.0 AND TVD 1930.0

SPM 1 60 SPM 2 55 FLOW RATE 575

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	33	50	108	LAMINAR	1	49	4.1
HWDP/OH	0.398	33	34	93	LAMINAR	0	34	1.0
DP/OH	0.398	374	34	93	LAMINAR	0	34	11.4
DP/CSG	0.411	292	33	92	LAMINAR	0	33	8.2
DP/RIS	1.325	105	10	74	LAMINAR	0	10	0.1
TOTAL VOLUME		837			TOTAL PRESSURE DROP		24.9	

LAG: 61.1 MINUTES 3668 STROKES #1 AND 3362 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	841.8	HHP	282	IMPACT FORCE	894
% SURFACE PRESSURE	49.5	HHP/sq in	2.40	JET VELOCITY	95

PRESSURE BREAKDOWN:

SURFACE	39.3		
STRING	696.9		
BIT	841.8		
ANNULUS	24.9		
TOTAL	1602.9	PUMP PRESSURE	1700.0
		% DIFFERENCE	5.7

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.60	HYDROSTATIC PRESSURE 3160.9
CIRCULATING:	ECD 9.68	CIRCULATING PRESSURE 3185.8
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 49.7
EFFECTIVE MUD WEIGHT	9.45	BOTTOM HOLE PRESSURE 3111.2



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2000.0 AND TVD 2000.0

SPM 1 55 SPM 2 59 FLOW RATE 570

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	49	103	LAMINAR	1	49	5.6
HWDP/OH	0.398	33	34	89	LAMINAR	0	34	0.9
DP/OH	0.398	379	34	89	LAMINAR	0	34	10.8
DP/CSG	0.411	292	33	88	LAMINAR	0	33	7.7
DP/RIS	1.325	105	10	71	LAMINAR	0	10	0.1
TOTAL VOLUME		857			TOTAL PRESSURE DROP		25.2	

LAG: 63.2 MINUTES 3476 STROKES #1 AND 3729 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1711.0 HHP 569 IMPACT FORCE 1264  
 % SURFACE PRESSURE 59.6 HHP/sq.in 4.83 JET VELOCITY 136

PRESSURE BREAKDOWN:

SURFACE 38.2  
 STRING 772.4  
 BIT 1711.0  
 ANNULUS 25.2  
 TOTAL 2546.9 PUMP PRESSURE 2870.0 % DIFFERENCE 11.3

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.60	HYDROSTATIC PRESSURE 3275.6
CIRCULATING:	ECD 9.67	CIRCULATING PRESSURE 3300.8
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 50.4
	EFFECTIVE MUD WEIGHT 9.45	BOTTOM HOLE PRESSURE 3225.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2100.0 AND TVD 2100.0

SPM 1 60 SPM 2 66 FLOW RATE 630

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	55	103	LAMINAR	1	54	6.0
HWDP/OH	0.398	33	38	86	LAMINAR	0	37	1.0
DP/OH	0.398	419	38	86	LAMINAR	0	37	12.2
DP/CSG	0.411	292	36	86	LAMINAR	0	36	7.8
DP/RIS	1.325	105	11	66	LAMINAR	0	11	0.1
TOTAL VOLUME		897			TOTAL PRESSURE DROP		27.1	

LAG: 59.8 MINUTES 3590 STROKES #1 AND 3949 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 2090.2 HHP 768 IMPACT FORCE 1544  
 % SURFACE PRESSURE 70.4 HHP/sqin 6.52 JET VELOCITY 150

PRESSURE BREAKDOWN:

SURFACE 47.6  
 STRING 991.6  
 BIT 2090.2  
 ANNULUS 27.1  
 TOTAL 3156.5 PUMP PRESSURE 2970.0 % DIFFERENCE 6.3

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.60	HYDROSTATIC PRESSURE 3439.3
CIRCULATING:	ECD 9.68	CIRCULATING PRESSURE 3466.4
PULLING OUT:	TRIP MARGIN 0.15	ESTIMATED SWAB 54.1
	EFFECTIVE MUD WEIGHT 9.45	BOTTOM HOLE PRESSURE 3385.2

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2200.0 AND TVD 2200.0

SPM 1 76 SPM 2 40 FLOW RATE 580

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	50	103	LAMINAR	1	50	5.7
HWDP/OH	0.398	33	35	85	LAMINAR	0	34	0.9
DP/OH	0.398	459	35	85	LAMINAR	0	34	12.6
DP/CSG	0.411	292	34	84	LAMINAR	0	33	7.3
DP/RIS	1.325	105	10	65	LAMINAR	0	10	0.1
TOTAL VOLUME		937			TOTAL PRESSURE DROP		26.7	

LAG: 67.9 MINUTES 5159 STROKES #1 AND 2715 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1790.1 HHP 605 IMPACT FORCE 1322  
 % SURFACE PRESSURE 71.3 HHP/sqin 5.14 JET VELOCITY 138

PRESSURE BREAKDOWN:

SURFACE 41.9  
 STRING 896.2  
 BIT 1790.1  
 ANNULUS 26.7  
 TOTAL 2754.9 PUMP PRESSURE 2510.0 % DIFFERENCE 9.8

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.70	HYDROSTATIC PRESSURE 3640.6
CIRCULATING:	ECD 9.77	CIRCULATING PRESSURE 3667.3
PULLING OUT:	TRIP MARGIN 0.14	ESTIMATED SWAB 53.3
	EFFECTIVE MUD WEIGHT 9.56	BOTTOM HOLE PRESSURE 3587.3

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2300.0 AND TVD 2300.0

SPM 1 64            SPM 2 56            FLOW RATE 600

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	48	52	112	LAMINAR	0	52	6.6
HWDP/OH	0.398	33	36	93	LAMINAR	0	36	1.1
DP/OH	0.398	499	36	93	LAMINAR	0	36	15.9
DP/CSG	0.411	292	35	92	LAMINAR	0	35	8.5
DP/RIS	1.325	105	11	71	LAMINAR	0	11	0.1
TOTAL VOLUME		977			TOTAL PRESSURE DROP		32.2	

LAG: 68.4 MINUTES            4378 STROKES #1 AND 3831 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP            1915.6            HHP            670            IMPACT FORCE    1415  
 % SURFACE PRESSURE    70.4            HHP/sqin    5.69            JET VELOCITY    143

PRESSURE BREAKDOWN:

SURFACE            45.5  
 STRING            1000.3  
 BIT                1915.6  
 ANNULUS            32.2  
 TOTAL            2993.6            PUMP PRESSURE    2720.0            % DIFFERENCE    10.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.70	HYDROSTATIC PRESSURE 3806.1
CIRCULATING:	ECD 9.78	CIRCULATING PRESSURE 3838.3
PULLING OUT:	TRIP MARGIN 0.16	ESTIMATED SWAB 64.3
	EFFECTIVE MUD WEIGHT 9.54	BOTTOM HOLE PRESSURE 3741.8

COMPUTER DATA LISTING : LIST A

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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

URNS. . . . . 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 A 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 dependant on the pore pressure, the  
overburden gradient and the matrix stress.  
This value may be modified by leak-off  
information

BIT NUMBER	2	IADC CODE	114	INTERVAL	225.0- 554.4
HTC X3A		SIZE	12.250	NOZZLES	20 20 20
COST	1400.00	TRIP TIME	2.8	BIT RUN	329.4
TOTAL HOURS	5.28	TOTAL TURNS	33815	CONDITION	T2 B1 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
230.0	112.0	5.0	80	9.0	0.54	0.04	214	32	2295	8.4	11.4
240.0	180.0	10.0	80	9.0	0.50	0.10	481	19.68	778.17	8.4	11.4
250.0	200.0	10.0	85	9.0	0.49	0.15	736	17.71	473.98	8.4	11.4
260.0	225.0	12.0	88	9.0	0.49	0.19	971	15.74	343.06	8.4	11.5
270.0	450.0	14.0	100	9.0	0.36	0.22	1104	7.87	268.57	8.4	11.5
280.0	170.0	12.0	100	9.0	0.59	0.28	1457	20.84	223.53	8.4	11.5
290.0	71.0	12.0	100	9.0	0.81	0.42	2302	49.89	196.81	8.4	11.6
300.0	160.0	10.0	100	9.0	0.59	0.48	2677	22.14	173.52	8.4	11.6
310.0	162.0	10.0	100	9.0	0.58	0.54	3047	21.86	155.68	8.4	11.6
320.0	165.0	9.0	105	9.1	0.57	0.60	3429	21.47	141.55	8.4	11.7
330.0	108.0	11.0	105	9.1	0.70	0.69	4012	32.80	131.20	8.4	11.7
340.0	70.0	9.0	105	9.1	0.77	0.84	4912	50.60	124.19	8.4	11.8
350.0	82.0	10.0	98	9.1	0.73	0.96	5630	43.20	117.71	8.4	11.8
360.0	41.0	13.0	100	9.1	0.96	1.20	7093	86.39	115.39	8.4	11.8
370.0	83.0	12.0	100	9.1	0.76	1.32	7816	42.67	110.37	8.4	11.9
380.0	71.0	11.0	102	9.1	0.79	1.46	8678	49.89	106.47	8.4	11.9
390.0	92.0	12.0	100	9.1	0.74	1.57	9330	38.50	102.35	8.4	11.9
400.0	79.0	10.0	98	9.1	0.74	1.70	10074	44.84	99.07	8.4	12.0
410.0	95.0	11.0	105	9.1	0.73	1.80	10737	37.28	95.73	8.4	12.0
420.0	79.0	12.0	79	9.1	0.72	1.93	11337	44.84	93.12	8.4	12.0
430.0	82.0	14.0	115	9.1	0.83	2.05	12179	43.20	90.68	8.4	12.1
440.0	47.0	14.0	110	9.1	0.96	2.27	13583	75.36	89.97	8.4	12.1
450.0	83.0	13.0	120	9.1	0.82	2.39	14451	42.67	87.87	8.4	12.1
460.0	64.0	14.0	122	9.1	0.91	2.54	15594	55.34	86.48	8.4	12.2
470.0	55.0	12.0	119	9.1	0.91	2.72	16893	64.40	85.58	8.4	12.2
480.0	103.0	14.0	120	9.1	0.78	2.82	17592	34.39	83.57	8.4	12.2
490.0	52.0	13.0	125	9.1	0.95	3.01	19034	68.12	82.99	8.4	12.2
498.0	57.0	14.0	120	9.1	0.94	3.15	20044	62.14	82.38	8.4	12.3
510.0	51.0	10.0	90	9.1	0.83	3.39	21315	69.45	81.83	8.4	12.3
520.0	36.0	13.0	95	9.1	0.98	3.67	22898	98.39	82.40	8.4	12.3
530.0	29.0	16.0	118	9.1	1.14	4.01	25340	122.14	83.70	8.4	12.4
540.0	32.0	16.0	116	9.1	1.11	4.32	27515	110.69	84.56	8.4	12.4
550.0	18.0	14.0	116	9.1	1.22	4.88	31381	196.78	88.01	8.4	12.4
554.4	18.0	14.0	116	9.1	1.22	5.13	33087	196.78	89.47	8.4	12.4

BIT NUMBER	3	IADC CODE	114	INTERVAL	554.4- 804.0
HTC X3A		SIZE	12.250	NOZZLES	20 20 20
COST	1400.00	TRIP TIME	3.9	BIT RUN	249.6
TOTAL HOURS	7.94	TOTAL TURNS	57049	CONDITION	T2 B2 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
560.0	31.0	19.0	116	9.0	1.18	0.18	1255	114	2835	8.4	12.5
570.0	31.0	17.0	118	9.0	1.15	0.50	3539	114	1090	8.4	12.5
580.0	59.0	16.0	116	9.0	0.96	0.67	4719	60.02	687.41	8.4	12.5
590.0	52.0	17.0	118	9.0	1.01	0.86	6080	68.10	513.40	8.4	12.6
600.0	28.0	17.0	118	9.0	1.18	1.22	8609	126.46	428.52	8.4	12.6
610.0	23.0	20.0	120	9.0	1.29	1.66	11739	153.96	379.13	8.4	12.6
620.0	23.0	19.0	121	9.0	1.27	2.09	14896	153.96	344.80	8.4	12.6
630.0	37.0	19.0	120	9.0	1.14	2.36	16842	95.70	311.85	8.4	12.7
640.0	28.0	17.0	118	9.0	1.18	2.72	19370	126.46	290.19	8.4	12.7
650.0	28.0	18.0	120	9.0	1.20	3.08	21942	126.46	273.06	8.4	12.7
660.0	24.0	18.0	120	9.0	1.24	3.49	24942	147.54	261.17	8.4	12.8
670.0	17.0	20.0	120	9.0	1.37	4.08	29177	208.29	256.60	8.4	12.8
680.0	32.0	24.0	122	9.0	1.26	4.39	31464	110.66	244.98	8.4	12.8
690.0	40.0	24.0	120	9.0	1.19	4.64	33264	88.53	233.44	8.4	12.8
700.0	41.0	23.0	120	9.0	1.17	4.89	35020	86.37	223.34	8.4	12.9
710.0	41.0	24.0	122	9.1	1.17	5.13	36806	86.37	214.53	8.4	12.9
715.0	42.0	23.0	118	9.1	1.14	5.25	37649	84.31	210.48	8.4	12.9
725.0	39.0	23.0	119	9.1	1.17	5.51	39479	90.79	203.46	8.4	12.9
735.0	28.0	23.0	120	9.1	1.26	5.86	42051	126.46	199.20	8.4	13.0
745.0	31.0	24.0	120	9.1	1.25	6.19	44373	114.23	194.74	8.4	13.0
755.0	38.0	24.0	120	9.0	1.20	6.45	46268	93.18	189.68	8.4	13.0
765.0	41.0	25.0	121	9.0	1.19	6.69	48039	86.37	184.77	8.4	13.0
775.0	36.0	25.0	121	9.1	1.22	6.97	50056	98.36	180.86	8.4	13.1
780.0	42.0	24.0	122	9.1	1.16	7.09	50927	84.31	178.72	8.4	13.1
790.0	34.0	25.0	120	9.1	1.23	7.38	53045	104.15	175.55	8.4	13.1
800.0	34.0	24.0	120	9.1	1.22	7.68	55162	104.15	172.64	8.4	13.1
804.0	34.0	24.0	120	9.1	1.22	7.80	56009	104.15	171.55	8.4	13.1

BIT NUMBER	3	IADC CODE	114	INTERVAL	203.0-	804.3
HTC X3A&SEC U/R		SIZE	17.500	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	4.0	BIT RUN		601.3
TOTAL HOURS	21.71	TOTAL TURNS	169385	CONDITION	T4 B4 G0.000	

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
220.0	115.0	2.0	120	9.2	0.49	8.09	58113	30.79	165.55	8.4	11.3
230.0	92.0	2.0	120	9.2	0.52	8.20	58896	38.49	160.97	8.4	11.4
240.0	84.0	4.0	121	9.2	0.60	8.32	59760	42.15	156.83	8.4	11.4
250.0	135.0	4.0	121	9.2	0.52	8.39	60298	26.23	152.43	8.4	11.4
260.0	122.0	4.0	121	9.2	0.53	8.47	60893	29.02	148.41	8.4	11.5
270.0	65.0	1.0	121	9.2	0.53	8.63	62010	54.48	145.45	8.4	11.5
280.0	120.0	1.0	121	9.2	0.43	8.71	62615	29.51	141.90	8.4	11.5
290.0	122.0	4.0	120	9.2	0.53	8.79	63205	29.02	138.55	8.4	11.6
300.0	114.0	4.0	120	9.2	0.54	8.88	63837	31.06	135.45	8.4	11.6
310.0	101.0	3.0	120	9.2	0.54	8.98	64550	35.06	132.64	8.4	11.6
320.0	214.0	3.0	120	9.2	0.41	9.02	64886	16.55	129.48	8.4	11.7
330.0	182.0	4.0	119	9.2	0.46	9.08	65278	19.46	126.56	8.4	11.7
340.0	179.0	3.0	120	9.2	0.44	9.14	65681	19.78	123.80	8.4	11.8
350.0	135.0	3.5	120	9.2	0.50	9.21	66214	26.23	121.34	8.4	11.8
360.0	257.0	4.0	120	9.2	0.40	9.25	66494	13.78	118.70	8.4	11.8
370.0	160.0	3.0	122	9.2	0.46	9.31	66952	22.13	116.38	8.4	11.9
380.0	81.0	4.0	122	9.2	0.61	9.43	67855	43.72	114.68	8.4	11.9
390.0	79.0	4.0	120	9.2	0.61	9.56	68767	44.82	113.08	8.4	11.9
400.0	59.0	6.0	140	9.2	0.75	9.73	70190	60.02	111.90	8.4	12.0
410.0	84.0	5.0	145	9.2	0.66	9.85	71226	42.15	110.37	8.4	12.0
420.0	83.0	5.0	125	9.2	0.64	9.97	72130	42.66	108.92	8.4	12.0
430.0	147.0	7.0	118	9.2	0.55	10.04	72611	24.09	107.14	8.4	12.1
440.0	181.0	6.0	118	9.2	0.49	10.09	73003	19.56	105.34	8.4	12.1
450.0	170.0	6.0	120	9.2	0.51	10.15	73426	20.83	103.64	8.4	12.1
460.0	193.0	6.0	122	9.2	0.48	10.20	73805	18.35	101.96	8.4	12.2
470.0	200.0	5.0	110	9.2	0.44	10.25	74135	17.71	100.33	8.4	12.2
480.0	116.0	6.0	110	9.2	0.56	10.34	74704	30.53	99.01	8.4	12.2
490.0	81.0	6.0	128	9.2	0.67	10.46	75652	43.72	97.98	8.4	12.2
500.0	79.0	5.0	125	9.1	0.65	10.59	76602	44.82	97.01	8.4	12.3
510.0	109.0	5.0	126	9.1	0.59	10.68	77295	32.49	95.85	8.4	12.3
520.0	46.5	12.0	140	9.1	0.92	10.90	79102	76.15	95.50	8.4	12.3
530.0	37.7	18.0	145	9.1	1.06	11.16	81410	93.93	95.47	8.4	12.4
540.0	37.6	16.0	140	9.1	1.03	11.43	83644	94.18	95.45	8.4	12.4
550.0	47.0	17.0	140	9.1	0.99	11.64	85431	75.34	95.11	8.4	12.4
560.0	59.0	14.0	143	9.1	0.90	11.81	86885	60.02	94.54	8.4	12.5
570.0	44.0	20.0	142	9.1	1.04	12.04	88821	80.48	94.31	8.4	12.5
580.0	38.0	14.0	145	9.1	1.00	12.30	91111	93.18	94.29	8.4	12.5
590.0	41.0	15.0	140	9.1	0.99	12.54	93160	86.37	94.17	8.4	12.6
600.0	51.0	15.0	140	9.1	0.94	12.74	94807	69.43	93.78	8.4	12.6
610.0	33.0	16.0	142	9.1	1.06	13.04	97389	107.30	93.99	8.4	12.6
620.0	57.0	15.0	145	9.1	0.92	13.22	98915	62.12	93.51	8.4	12.6
630.0	29.0	15.0	142	9.2	1.07	13.56	101853	122.10	93.93	8.4	12.7
640.0	20.0	16.0	140	9.2	1.17	14.06	106053	177.05	95.14	8.4	12.7



DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
646.0	32.0	16.0	140	9.2	1.06	14.25	107628	110.66	95.28	8.4	12.7
656.0	24.0	13.0	145	9.2	1.08	14.67	111253	147.54	96.02	8.4	12.7
665.0	19.0	18.0	125	9.2	1.18	15.14	114805	186.37	97.16	8.4	12.8
675.0	17.0	19.0	128	9.2	1.23	15.73	119323	208.29	98.70	8.4	12.8
684.0	19.0	18.0	130	9.1	1.21	16.20	123018	186.37	99.78	8.4	12.8
694.0	24.0	19.0	133	9.1	1.17	16.62	126343	147.54	100.43	8.4	12.8
704.0	27.0	25.0	140	9.1	1.23	16.99	129454	131.15	100.84	8.4	12.9
714.0	25.0	26.0	135	9.1	1.25	17.39	132694	141.64	101.37	8.4	12.9
723.0	23.0	26.0	135	9.1	1.28	17.78	135864	153.96	101.99	8.4	12.9
733.0	25.0	26.0	140	9.1	1.26	18.18	139224	141.64	102.49	8.4	13.0
741.0	23.0	26.0	140	9.1	1.29	18.53	142145	153.96	103.02	8.4	13.0
751.0	29.0	26.0	140	9.1	1.22	18.87	145042	122.10	103.26	8.4	13.0
761.0	24.0	28.0	140	9.1	1.30	19.29	148542	147.54	103.80	8.4	13.0
770.0	23.0	27.0	142	9.1	1.30	19.68	151876	153.96	104.36	8.4	13.1
779.0	23.0	28.0	140	9.1	1.31	20.07	155163	153.96	104.90	8.4	13.1
789.0	21.0	27.0	142	9.1	1.33	20.55	159220	168.62	105.66	8.4	13.1
799.0	19.5	27.0	146	9.1	1.36	21.06	163712	181.59	106.56	8.4	13.1
804.3	8.2	27.0	146	9.1	1.59	21.71	169385	431.83	108.59	8.4	13.1

BIT NUMBER	4	IADC CODE	114	INTERVAL	804.0- 1400.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.1	BIT RUN	596.0
TOTAL HOURS	21.31	TOTAL TURNS	157037	CONDITION	T6 B4 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
806.0	5.0	7.0	78	9.0	1.26	0.40	1872	708	12208	8.4	13.1
807.0	5.0	12.0	77	9.0	1.40	0.60	2796	708	8375	8.4	13.1
808.0	4.2	12.0	81	9.0	1.46	0.84	3953	843	6492	8.4	13.1
810.0	8.5	24.0	80	9.0	1.52	1.07	5083	417	4467	8.4	13.2
812.0	10.4	26.0	82	9.0	1.50	1.27	6029	340	3435	8.4	13.2
813.0	13.1	26.0	82	9.0	1.44	1.34	6404	270	3084	8.4	13.2
814.0	6.0	25.0	81	9.0	1.65	1.51	7214	590	2834	8.4	13.2
815.0	8.9	25.0	81	9.0	1.53	1.62	7760	398	2613	8.4	13.2
816.0	12.6	25.0	81	9.0	1.43	1.70	8146	281	2418	8.4	13.2
817.0	11.6	27.0	82	9.0	1.49	1.79	8570	305	2256	8.4	13.2
818.0	17.6	27.0	82	9.0	1.36	1.84	8850	201	2109	8.4	13.2
819.0	10.1	27.0	82	9.0	1.53	1.94	9337	351	1992	8.4	13.2
820.0	11.6	26.0	80	9.0	1.46	2.03	9751	305	1886	8.4	13.2
821.0	11.0	26.0	80	9.0	1.48	2.12	10187	322	1794	8.4	13.2
822.0	13.6	26.0	80	9.0	1.42	2.19	10540	260	1709	8.4	13.2
823.0	7.2	23.0	74	8.9	1.55	2.33	11157	492	1645	8.4	13.2
824.0	9.6	22.0	75	8.9	1.45	2.44	11625	369	1581	8.4	13.2
825.0	10.2	21.0	74	8.9	1.41	2.53	12061	347	1523	8.4	13.2
826.0	9.6	21.0	76	9.0	1.42	2.64	12536	369	1470	8.4	13.2
827.0	11.2	21.0	76	9.0	1.38	2.73	12943	316	1420	8.4	13.2
828.0	8.5	22.0	78	9.0	1.48	2.85	13493	417	1378	8.4	13.2
829.0	28.4	22.0	78	9.0	1.13	2.88	13658	125	1328	8.4	13.2
830.0	9.6	22.0	78	9.0	1.45	2.98	14146	369	1291	8.4	13.2
831.0	9.6	22.0	78	9.0	1.45	3.09	14633	369	1257	8.4	13.2
832.0	16.5	21.0	76	9.0	1.27	3.15	14910	215	1220	8.4	13.2
833.0	14.5	21.0	76	9.0	1.31	3.22	15224	244	1186	8.4	13.2
834.0	13.9	20.0	76	9.0	1.30	3.29	15552	255	1155	8.4	13.2
835.0	10.2	20.0	77	9.0	1.39	3.39	16005	347	1129	8.4	13.2
836.0	22.9	19.0	80	9.0	1.16	3.43	16215	155	1099	8.4	13.2
837.0	11.4	19.0	80	9.0	1.35	3.52	16636	311	1075	8.4	13.2
838.0	14.9	24.0	130	9.0	1.50	3.59	17159	238	1050	8.4	13.2
839.0	18.6	24.0	130	9.0	1.44	3.64	17579	190	1025	8.4	13.2
840.0	29.0	25.0	134	9.0	1.33	3.68	17856	122	1000	8.4	13.2
841.0	26.0	25.0	134	9.0	1.36	3.71	18165	136.19	977.03	8.4	13.2
842.0	23.8	25.0	135	8.9	1.41	3.76	18505	148.78	955.23	8.4	13.2
843.0	28.7	25.0	135	8.9	1.35	3.79	18788	123.38	933.90	8.4	13.2
844.0	28.7	25.0	135	8.9	1.35	3.83	19070	123.38	913.64	8.4	13.2
845.0	11.7	26.0	138	8.9	1.65	3.91	19778	302.65	898.74	8.4	13.2
846.0	45.2	29.0	140	8.9	1.27	3.93	19963	78.34	879.20	8.4	13.2
847.0	24.3	29.0	140	8.9	1.47	3.97	20309	145.72	862.14	8.4	13.2
848.0	22.3	30.0	140	8.9	1.51	4.02	20686	158.79	846.16	8.4	13.2
849.0	28.4	30.0	140	8.9	1.43	4.05	20981	124.68	830.13	8.4	13.3
850.0	29.1	32.0	140	8.9	1.45	4.09	21270	121.68	814.73	8.4	13.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
851.0	28.4	31.0	139	8.9	1.45	4.12	21564	124.68	800.04	8.4	13.3
852.0	22.9	31.0	139	8.9	1.51	4.17	21928	154.63	786.60	8.4	13.3
853.0	27.0	30.0	139	9.0	1.43	4.20	22237	131.15	773.22	8.4	13.3
854.0	36.7	29.0	139	9.0	1.32	4.23	22464	96.49	759.69	8.4	13.3
855.0	37.9	30.0	139	9.0	1.32	4.26	22684	93.43	746.62	8.4	13.3
856.0	30.3	30.0	139	9.0	1.40	4.29	22959	116.86	734.51	8.4	13.3
857.0	34.5	30.0	140	9.0	1.36	4.32	23203	102.64	722.59	8.4	13.3
858.0	27.0	30.0	140	9.0	1.43	4.36	23514	131.15	711.64	8.4	13.3
859.0	29.7	31.0	140	9.0	1.42	4.39	23797	119.23	700.87	8.4	13.3
860.0	40.2	33.0	141	9.0	1.35	4.42	24007	88.08	689.92	8.4	13.3
861.0	24.3	33.0	141	9.0	1.51	4.46	24355	145.72	680.38	8.4	13.3
862.0	29.5	35.0	141	9.0	1.47	4.49	24642	120.03	670.72	8.4	13.3
863.0	42.7	35.0	141	9.0	1.35	4.51	24840	82.93	660.75	8.4	13.3
864.0	31.7	33.0	141	9.0	1.42	4.55	25107	111.70	651.60	8.4	13.3
865.0	21.7	33.0	141	9.0	1.55	4.59	25497	163.18	643.59	8.4	13.3
866.0	27.0	32.0	140	9.0	1.46	4.63	25808	131.15	635.33	8.4	13.3
867.0	22.9	32.0	140	9.0	1.51	4.67	26175	154.63	627.70	8.4	13.3
868.0	30.3	35.0	140	9.0	1.46	4.71	26452	116.86	619.72	8.4	13.3
869.0	28.7	35.0	140	9.0	1.48	4.74	26745	123.38	612.08	8.4	13.3
870.0	31.7	35.0	140	9.0	1.45	4.77	27010	111.70	604.50	8.4	13.3
871.0	36.7	34.0	141	9.0	1.39	4.80	27240	96.49	596.92	8.4	13.3
872.0	55.9	34.0	141	9.0	1.25	4.82	27392	63.35	589.07	8.4	13.3
873.0	36.7	34.0	141	9.0	1.39	4.84	27622	96.49	581.93	8.4	13.3
874.0	23.5	34.0	141	9.0	1.53	4.89	27982	150.68	575.77	8.4	13.3
875.0	36.0	34.0	141	9.0	1.40	4.91	28217	98.36	569.05	8.4	13.3
876.0	33.5	32.0	141	9.0	1.39	4.94	28470	105.70	562.61	8.4	13.3
877.0	33.0	32.0	141	9.0	1.40	4.97	28726	107.30	556.37	8.4	13.3
878.0	46.1	32.0	141	9.0	1.29	5.00	28910	76.81	549.89	8.4	13.3
879.0	38.4	32.0	141	9.0	1.35	5.02	29130	92.21	543.79	8.4	13.3
880.0	39.6	32.0	141	9.0	1.34	5.05	29344	89.42	537.81	8.4	13.3
881.0	40.1	32.0	141	9.0	1.34	5.07	29555	88.30	531.98	8.4	13.3
882.0	40.5	32.0	140	9.0	1.33	5.10	29762	87.43	526.28	8.4	13.3
883.0	40.0	32.0	140	9.0	1.33	5.12	29972	88.53	520.74	8.4	13.3
884.0	40.5	37.0	130	9.0	1.36	5.15	30165	87.43	515.32	8.4	13.3
885.0	47.0	40.0	126	9.0	1.34	5.17	30325	75.34	509.89	8.4	13.3
886.0	38.1	41.0	125	9.0	1.42	5.19	30522	92.94	504.80	8.4	13.3
887.0	38.1	41.0	125	9.0	1.42	5.22	30719	92.94	499.84	8.4	13.3
888.0	35.6	40.0	125	9.0	1.43	5.25	30930	99.47	495.07	8.4	13.3
889.0	30.0	40.0	125	9.0	1.49	5.28	31180	118.03	490.64	8.4	13.4
890.0	33.0	40.0	125	9.0	1.45	5.31	31407	107.30	486.18	8.4	13.4
891.0	36.7	40.0	125	9.0	1.42	5.34	31611	96.49	481.70	8.4	13.4
892.0	32.1	41.0	124	9.0	1.47	5.37	31843	110.31	477.48	8.4	13.4
893.0	40.0	41.0	124	9.0	1.40	5.40	32029	88.53	473.11	8.4	13.4
894.0	32.0	41.0	124	9.0	1.47	5.43	32262	110.66	469.08	8.4	13.4
895.0	32.0	41.0	124	9.0	1.47	5.46	32494	110.66	465.14	8.4	13.4
896.0	43.5	41.0	124	9.0	1.37	5.48	32665	81.40	460.97	8.4	13.4
897.0	26.3	41.0	124	9.0	1.54	5.52	32948	134.64	457.46	8.4	13.4
898.0	38.1	41.0	124	9.0	1.41	5.55	33143	92.94	453.59	8.4	13.4
899.0	31.7	41.0	124	9.0	1.48	5.58	33378	111.70	449.99	8.4	13.4
900.0	32.0	41.0	124	9.0	1.47	5.61	33611	110.66	446.45	8.4	13.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
901.0	34.0	41.0	124	9.0	1.45	5.64	33829	104.15	442.92	8.4	13.4
902.0	31.7	35.0	125	9.0	1.41	5.67	34066	111.70	439.54	8.4	13.4
903.0	11.4	35.0	125	9.0	1.75	5.76	34724	310.61	438.24	8.4	13.4
904.0	34.0	35.0	125	9.0	1.39	5.79	34945	104.15	434.90	8.4	13.4
905.0	31.2	35.0	125	9.0	1.41	5.82	35185	113.49	431.72	8.4	13.4
906.0	29.7	30.0	128	9.0	1.38	5.85	35444	119.23	428.66	8.4	13.4
907.0	34.5	30.0	128	9.0	1.33	5.88	35666	102.64	425.49	8.4	13.4
908.0	30.0	30.0	128	9.0	1.37	5.91	35922	118.03	422.53	8.4	13.4
909.0	45.2	30.0	128	9.0	1.24	5.94	36092	78.34	419.26	8.4	13.4
910.0	30.3	29.0	128	9.0	1.36	5.97	36346	116.86	416.40	8.4	13.4
911.0	31.0	29.0	128	9.0	1.35	6.00	36593	114.23	413.58	8.4	13.4
912.0	30.0	29.0	128	9.0	1.36	6.04	36849	118.03	410.84	8.4	13.4
913.0	35.0	29.0	128	9.0	1.31	6.06	37069	101.17	408.00	8.4	13.4
914.0	35.1	30.0	130	9.0	1.33	6.09	37291	100.88	405.21	8.4	13.4
915.0	41.9	28.0	127	9.0	1.24	6.12	37473	84.51	402.32	8.4	13.4
916.0	35.0	28.0	127	9.0	1.30	6.14	37690	101.17	399.63	8.4	13.4
917.0	35.0	28.0	127	9.0	1.30	6.17	37908	101.17	396.99	8.4	13.4
918.0	32.6	28.0	127	9.0	1.32	6.20	38142	108.62	394.46	8.4	13.4
919.0	28.0	28.0	127	9.0	1.37	6.24	38414	126.46	392.13	8.4	13.4
920.0	28.4	28.0	127	9.0	1.36	6.27	38682	124.68	389.82	8.4	13.4
921.0	40.2	28.0	127	9.0	1.25	6.30	38872	88.08	387.25	8.4	13.4
922.0	17.9	30.0	130	9.0	1.54	6.36	39308	197.82	385.64	8.4	13.4
923.0	23.0	30.0	130	9.0	1.46	6.40	39647	153.96	383.69	8.4	13.4
924.0	21.7	30.0	130	8.9	1.50	6.45	40006	163.18	381.86	8.4	13.4
925.0	26.0	30.0	130	8.8	1.45	6.48	40306	136.19	379.83	8.4	13.4
926.0	28.7	30.0	130	8.8	1.42	6.52	40578	123.38	377.72	8.4	13.4
927.0	28.7	29.0	115	8.8	1.37	6.55	40818	123.38	375.66	8.4	13.4
928.0	32.6	29.0	115	8.8	1.33	6.58	41030	108.62	373.50	8.4	13.4
929.0	36.0	29.0	115	8.8	1.30	6.61	41222	98.36	371.30	8.4	13.4
930.0	29.7	30.0	118	8.8	1.38	6.65	41460	119.23	369.30	8.4	13.4
931.0	14.0	30.0	118	8.8	1.62	6.72	41966	252.93	368.38	8.4	13.4
932.0	26.0	30.0	97	8.8	1.36	6.76	42190	136.19	366.57	8.4	13.5
933.0	32.6	30.0	97	8.8	1.29	6.79	42368	108.62	364.57	8.4	13.5
934.0	41.9	31.0	125	8.8	1.30	6.81	42547	84.51	362.42	8.4	13.5
935.0	31.2	31.0	125	8.8	1.40	6.84	42788	113.49	360.52	8.4	13.5
936.0	22.6	30.0	129	8.8	1.50	6.89	43130	156.68	358.97	8.4	13.5
937.0	25.3	29.0	126	8.8	1.44	6.93	43429	139.96	357.33	8.4	13.5
938.0	23.5	25.0	126	8.8	1.40	6.97	43751	150.68	355.78	8.4	13.5
939.0	25.0	29.0	127	8.8	1.45	7.01	44055	141.64	354.20	8.4	13.5
940.0	26.0	29.0	127	8.8	1.43	7.05	44349	136.19	352.59	8.4	13.5
941.0	33.3	31.0	130	8.8	1.39	7.08	44583	106.34	350.80	8.4	13.5
942.0	41.9	32.0	130	8.8	1.33	7.10	44769	84.51	348.87	8.4	13.5
943.0	39.8	32.0	130	8.8	1.34	7.13	44965	88.97	347.00	8.4	13.5
944.0	30.3	32.0	130	8.8	1.43	7.16	45222	116.86	345.35	8.4	13.5
945.0	37.9	32.0	130	8.8	1.36	7.19	45428	93.43	343.57	8.4	13.5
946.0	40.5	32.0	130	8.8	1.34	7.21	45621	87.43	341.76	8.4	13.5
947.0	30.9	32.0	130	8.8	1.43	7.24	45873	114.60	340.17	8.4	13.5
948.0	25.9	32.0	130	8.8	1.48	7.28	46174	136.72	338.76	8.4	13.5
949.0	24.3	31.0	130	8.8	1.49	7.32	46495	145.72	337.43	8.4	13.5
950.0	47.0	30.0	130	8.8	1.26	7.34	46661	75.34	335.63	8.4	13.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
951.0	28.7	30.0	130	8.8	1.42	7.38	46933	123.38	334.19	8.4	13.5
952.0	48.0	30.0	130	8.8	1.26	7.40	47096	73.77	332.43	8.4	13.5
953.0	28.7	30.0	130	8.8	1.42	7.43	47367	123.38	331.03	8.4	13.5
954.0	42.7	30.0	130	8.8	1.30	7.46	47550	82.93	329.37	8.4	13.5
955.0	36.2	30.0	130	8.8	1.35	7.48	47765	97.82	327.84	8.4	13.5
956.0	48.0	30.0	130	8.8	1.26	7.51	47928	73.77	326.17	8.4	13.5
957.0	41.9	30.0	130	8.8	1.30	7.53	48114	84.51	324.59	8.4	13.5
958.0	48.0	32.0	130	8.8	1.28	7.55	48277	73.77	322.96	8.4	13.5
959.0	10.5	32.0	130	8.8	1.78	7.65	49019	337.24	323.05	8.4	13.5
960.0	44.3	34.0	130	8.8	1.33	7.67	49196	79.93	321.49	8.4	13.5
961.0	33.3	35.0	130	8.8	1.44	7.70	49430	106.34	320.12	8.4	13.5
962.0	26.7	35.0	130	8.8	1.51	7.74	49722	132.62	318.94	8.4	13.5
963.0	32.6	36.0	130	8.8	1.46	7.77	49961	108.62	317.61	8.4	13.5
964.0	37.9	40.0	130	8.8	1.45	7.79	50167	93.43	316.21	8.4	13.5
965.0	42.7	40.0	145	8.8	1.45	7.82	50371	82.93	314.76	8.4	13.5
966.0	33.5	35.0	145	8.8	1.47	7.85	50630	105.70	313.47	8.4	13.5
967.0	31.2	35.0	145	8.8	1.50	7.88	50909	113.49	312.25	8.4	13.5
968.0	28.5	36.0	145	8.8	1.54	7.91	51215	124.25	311.10	8.4	13.5
969.0	14.8	36.0	145	8.8	1.76	7.98	51802	239.26	310.67	8.4	13.5
970.0	32.1	33.0	145	8.8	1.46	8.01	52073	110.31	309.46	8.4	13.5
971.0	47.0	33.0	145	8.8	1.34	8.03	52258	75.34	308.06	8.4	13.5
972.0	25.4	32.0	145	8.8	1.53	8.07	52601	139.41	307.05	8.4	13.5
973.0	35.1	32.0	145	8.8	1.42	8.10	52849	100.88	305.83	8.4	13.5
974.0	44.3	33.0	145	8.8	1.35	8.12	53045	79.93	304.50	8.4	13.5
975.0	31.5	33.0	145	8.8	1.47	8.16	53321	112.41	303.38	8.4	13.6
976.0	36.2	36.0	145	8.8	1.46	8.18	53562	97.82	302.19	8.4	13.6
977.0	44.3	36.0	145	8.8	1.39	8.21	53758	79.93	300.90	8.4	13.6
978.0	23.0	35.0	145	8.8	1.60	8.25	54136	153.96	300.06	8.4	13.6
979.0	56.2	35.0	145	8.8	1.30	8.27	54291	63.01	298.70	8.4	13.6
980.0	49.0	35.0	145	8.8	1.34	8.29	54469	72.27	297.42	8.4	13.6
981.0	49.0	36.0	145	8.8	1.36	8.31	54646	72.27	296.14	8.4	13.6
982.0	44.3	36.0	145	8.8	1.39	8.33	54843	79.93	294.93	8.4	13.6
983.0	40.0	36.0	145	8.8	1.42	8.36	55060	88.53	293.78	8.4	13.6
984.0	58.6	35.0	145	8.8	1.28	8.37	55209	60.43	292.48	8.4	13.6
985.0	43.5	35.0	145	8.8	1.38	8.40	55409	81.40	291.31	8.4	13.6
986.0	30.3	35.0	145	8.8	1.51	8.43	55696	116.86	290.35	8.4	13.6
987.0	18.0	35.0	145	8.8	1.68	8.48	56179	196.72	289.84	8.4	13.6
988.0	52.4	35.0	145	8.8	1.32	8.50	56345	67.58	288.63	8.4	13.6
989.0	42.7	35.0	145	8.8	1.39	8.53	56549	82.93	287.52	8.4	13.6
990.0	49.0	36.0	145	8.8	1.36	8.55	56726	72.27	286.37	8.4	13.6
991.0	42.7	36.0	145	8.8	1.40	8.57	56930	82.93	285.28	8.4	13.6
992.0	48.0	36.0	145	8.8	1.36	8.59	57111	73.77	284.15	8.4	13.6
993.0	52.4	36.0	145	8.8	1.33	8.61	57278	67.58	283.01	8.4	13.6
994.0	56.2	36.0	145	8.8	1.31	8.63	57432	63.01	281.85	8.4	13.6
995.0	44.3	36.0	145	8.8	1.39	8.65	57629	79.93	280.79	8.4	13.6
996.0	47.0	36.0	145	8.8	1.37	8.67	57814	75.34	279.72	8.4	13.6
997.0	22.1	36.0	145	8.7	1.65	8.72	58207	160.23	279.10	8.4	13.6
998.0	44.3	36.0	145	8.7	1.41	8.74	58404	79.93	278.08	8.4	13.6
999.0	48.0	37.0	145	8.7	1.39	8.76	58585	73.77	277.03	8.4	13.6
1000.0	50.1	37.0	145	8.7	1.38	8.78	58759	70.68	275.98	8.4	13.6

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FC
1001.0	35.1	37.0	145	8.7	1.50	8.81	59007	100.88	275.09	8.4	13.6
1002.0	41.9	37.0	145	8.7	1.44	8.83	59214	84.51	274.12	8.4	13.6
1003.0	36.2	37.0	145	8.7	1.49	8.86	59455	97.82	273.24	8.4	13.6
1004.0	39.8	37.0	145	8.7	1.45	8.89	59673	88.97	272.32	8.4	13.6
1005.0	48.0	37.0	145	8.7	1.39	8.91	59854	73.77	271.33	8.4	13.6
1006.0	36.7	38.0	145	8.7	1.50	8.93	60092	96.49	270.46	8.4	13.6
1007.0	47.0	38.0	145	8.7	1.41	8.95	60277	75.34	269.50	8.4	13.6
1008.0	43.5	38.0	145	8.7	1.44	8.98	60477	81.40	268.58	8.4	13.6
1009.0	35.1	38.0	145	8.7	1.51	9.01	60724	100.88	267.76	8.4	13.6
1010.0	31.2	38.0	149	8.7	1.56	9.04	61011	113.49	267.01	8.4	13.6
1011.0	35.4	38.0	149	8.7	1.52	9.07	61264	100.03	266.21	8.4	13.6
1012.0	41.9	38.0	149	8.7	1.46	9.09	61477	84.51	265.33	8.4	13.6
1013.0	37.9	37.0	149	8.7	1.48	9.12	61713	93.43	264.51	8.4	13.6
1014.0	38.2	37.0	149	8.7	1.48	9.14	61947	92.70	263.69	8.4	13.6
1015.0	51.9	37.0	149	8.7	1.37	9.16	62119	68.23	262.77	8.4	13.6
1016.0	33.0	37.0	149	8.7	1.53	9.19	62390	107.30	262.03	8.4	13.6
1017.0	35.1	37.0	149	8.7	1.51	9.22	62645	100.88	261.28	8.4	13.6
1018.0	41.9	37.0	149	8.7	1.45	9.24	62858	84.51	260.45	8.4	13.6
1019.0	35.1	37.0	149	8.7	1.51	9.27	63113	100.88	259.71	8.4	13.7
1020.0	43.5	34.0	150	8.7	1.40	9.30	63320	81.40	258.88	8.4	13.7
1021.0	36.7	34.0	150	8.7	1.46	9.32	63565	96.49	258.13	8.4	13.7
1022.0	37.9	31.0	150	8.7	1.41	9.35	63802	93.43	257.38	8.4	13.7
1023.0	40.5	36.0	150	8.7	1.45	9.37	64025	87.43	256.60	8.4	13.7
1024.0	38.5	36.0	150	8.7	1.47	9.40	64258	91.97	255.85	8.4	13.7
1025.0	23.0	36.0	150	8.7	1.64	9.44	64650	153.96	255.39	8.4	13.7
1026.0	41.9	36.0	150	8.7	1.44	9.47	64864	84.51	254.62	8.4	13.7
1027.0	47.0	36.0	150	8.7	1.40	9.49	65056	75.34	253.82	8.4	13.7
1028.0	46.1	30.0	150	8.7	1.33	9.51	65251	76.81	253.03	8.4	13.7
1029.0	47.0	30.0	150	8.7	1.33	9.53	65443	75.34	252.24	8.4	13.7
1030.0	38.5	32.0	150	8.7	1.42	9.56	65676	91.97	251.53	8.4	13.7
1031.0	39.8	32.0	150	8.7	1.41	9.58	65903	88.97	250.81	8.4	13.7
1032.0	26.0	30.0	150	8.7	1.52	9.62	66249	136.19	250.31	8.4	13.7
1033.0	48.0	30.0	150	8.7	1.32	9.64	66436	73.77	249.54	8.4	13.7
1034.0	48.0	30.0	150	8.7	1.32	9.66	66624	73.77	248.78	8.4	13.7
1035.0	38.1	30.0	150	8.7	1.39	9.69	66860	92.94	248.10	8.4	13.7
1036.0	55.9	30.0	150	8.7	1.27	9.71	67021	63.35	247.31	8.4	13.7
1037.0	43.5	30.0	150	8.7	1.35	9.73	67228	81.40	246.59	8.4	13.7
1038.0	45.2	29.0	150	8.7	1.33	9.75	67427	78.34	245.87	8.4	13.7
1039.0	52.4	29.0	150	8.7	1.28	9.77	67599	67.58	245.12	8.4	13.7
1040.0	40.2	30.0	150	8.7	1.38	9.80	67823	88.08	244.45	8.4	13.7
1041.0	43.5	30.0	150	8.7	1.35	9.82	68029	81.40	243.76	8.4	13.7
1042.0	40.2	32.0	150	8.7	1.40	9.84	68253	88.08	243.11	8.4	13.7
1043.0	41.9	32.0	150	8.7	1.39	9.87	68468	84.51	242.44	8.4	13.7
1044.0	14.9	31.0	150	8.7	1.72	9.94	69072	237.65	242.42	8.4	13.7
1045.0	56.0	31.0	150	8.7	1.28	9.95	69233	63.23	241.68	8.4	13.7
1046.0	48.0	31.0	150	8.7	1.33	9.97	69420	73.77	240.99	8.4	13.7
1047.0	59.0	33.0	150	8.7	1.29	9.99	69573	60.02	240.24	8.4	13.7
1048.0	48.0	33.0	150	8.7	1.36	10.01	69760	73.77	239.56	8.4	13.7
1049.0	42.7	35.0	150	8.7	1.42	10.04	69971	82.93	238.92	8.4	13.7
1050.0	33.5	30.0	150	8.7	1.44	10.07	70240	105.70	238.38	8.4	13.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1051.0	33.5	30.0	150	8.7	1.44	10.10	70509	105.70	237.84	8.4	13.7
1052.0	38.1	26.0	150	8.7	1.34	10.12	70745	92.94	237.26	8.4	13.7
1053.0	18.0	29.0	150	8.7	1.62	10.18	71245	196.72	237.09	8.4	13.7
1054.0	52.4	33.0	147	8.7	1.32	10.20	71413	67.58	236.42	8.4	13.7
1055.0	42.7	34.0	144	8.7	1.39	10.22	71615	82.93	235.81	8.4	13.7
1056.0	36.7	34.0	145	8.7	1.45	10.25	71852	96.49	235.25	8.4	13.7
1057.0	38.1	34.0	145	8.7	1.43	10.27	72081	92.94	234.69	8.4	13.7
1058.0	41.9	34.0	145	8.8	1.39	10.30	72288	84.51	234.10	8.4	13.7
1059.0	38.5	34.0	145	8.8	1.41	10.32	72514	91.97	233.54	8.4	13.7
1060.0	40.2	33.0	144	8.8	1.38	10.35	72729	88.08	232.97	8.4	13.7
1061.0	39.8	33.0	144	8.8	1.39	10.37	72946	88.97	232.41	8.4	13.7
1062.0	39.0	33.0	144	8.8	1.39	10.40	73168	90.79	231.86	8.4	13.7
1063.0	32.6	33.0	144	8.8	1.45	10.43	73433	108.62	231.39	8.4	13.7
1064.0	53.6	33.0	144	8.8	1.29	10.45	73594	66.06	230.75	8.4	13.7
1065.0	49.0	33.0	144	8.8	1.32	10.47	73771	72.27	230.15	8.4	13.8
1066.0	48.2	34.0	145	8.7	1.35	10.49	73951	73.46	229.55	8.4	13.8
1067.0	46.1	34.0	145	8.7	1.37	10.51	74140	76.81	228.97	8.4	13.8
1068.0	36.2	34.0	145	8.7	1.45	10.54	74380	97.82	228.47	8.4	13.8
1069.0	50.1	34.0	145	8.7	1.34	10.56	74554	70.68	227.87	8.4	13.8
1070.0	48.0	34.0	145	8.7	1.36	10.58	74735	73.77	227.29	8.4	13.8
1071.0	23.0	34.0	145	8.7	1.60	10.62	75113	153.96	227.02	8.4	13.8
1072.0	36.5	26.0	145	8.9	1.31	10.65	75352	97.01	226.53	8.4	13.8
1073.0	37.8	26.0	145	8.9	1.30	10.68	75582	93.68	226.04	8.4	13.8
1074.0	50.1	28.0	145	8.9	1.24	10.70	75755	70.68	225.47	8.4	13.8
1075.0	48.0	28.0	145	8.9	1.25	10.72	75937	73.77	224.91	8.4	13.8
1076.0	50.1	28.0	145	8.9	1.24	10.74	76110	70.68	224.34	8.4	13.8
1077.0	42.7	28.0	145	8.9	1.29	10.76	76314	82.93	223.82	8.4	13.8
1078.0	49.0	25.0	145	8.9	1.21	10.78	76492	72.27	223.27	8.4	13.8
1079.0	56.2	32.0	145	8.9	1.25	10.80	76646	63.01	222.69	8.4	13.8
1080.0	43.5	35.0	145	8.9	1.37	10.82	76846	81.40	222.17	8.4	13.8
1081.0	52.4	33.0	145	8.9	1.28	10.84	77012	67.58	221.62	8.4	13.8
1082.0	44.3	30.0	145	8.9	1.30	10.86	77209	79.93	221.11	8.4	13.8
1083.0	53.6	30.0	145	8.9	1.24	10.88	77371	66.06	220.55	8.4	13.8
1084.0	49.0	29.0	145	8.9	1.26	10.90	77549	72.27	220.02	8.4	13.8
1085.0	45.2	29.0	145	8.9	1.28	10.92	77741	78.34	219.52	8.4	13.8
1086.0	50.1	28.0	145	8.9	1.24	10.94	77915	70.68	218.99	8.4	13.8
1087.0	48.0	28.0	145	8.9	1.25	10.97	78096	73.77	218.47	8.4	13.8
1088.0	48.0	30.0	145	8.9	1.28	10.99	78277	73.77	217.97	8.4	13.8
1089.0	45.2	30.0	145	8.9	1.30	11.01	78470	78.34	217.48	8.4	13.8
1090.0	50.1	30.0	145	8.9	1.26	11.03	78643	70.68	216.96	8.4	13.8
1091.0	35.6	30.0	145	8.9	1.37	11.06	78888	99.47	216.55	8.4	13.8
1092.0	51.2	32.0	145	8.9	1.28	11.08	79058	69.16	216.04	8.4	13.8
1093.0	49.0	32.0	145	8.9	1.30	11.10	79235	72.27	215.54	8.4	13.8
1094.0	48.0	29.0	125	8.9	1.22	11.12	79392	73.77	215.05	8.4	13.8
1095.0	40.2	29.0	125	8.9	1.27	11.14	79578	88.08	214.62	8.4	13.8
1096.0	34.5	29.0	125	8.9	1.32	11.17	79796	102.64	214.23	8.4	13.8
1097.0	30.3	29.0	125	8.9	1.36	11.20	80043	116.86	213.90	8.4	13.8
1098.0	46.1	29.0	126	8.9	1.23	11.23	80207	76.81	213.44	8.4	13.8
1099.0	36.7	29.0	126	8.9	1.31	11.25	80413	96.49	213.04	8.4	13.8
1100.0	43.5	35.0	125	8.9	1.32	11.28	80585	81.40	212.60	8.4	13.8

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1101.0	58.6	32.0	125	8.9	1.19	11.29	80713	60.43	212.08	8.4	13.8
1102.0	38.1	32.0	125	8.9	1.33	11.32	80910	92.94	211.68	8.4	13.8
1103.0	36.2	32.0	125	8.9	1.35	11.35	81117	97.82	211.30	8.4	13.8
1104.0	36.2	32.0	125	8.9	1.35	11.37	81325	97.82	210.92	8.4	13.8
1105.0	45.2	32.0	125	8.9	1.27	11.40	81491	78.34	210.48	8.4	13.8
1106.0	43.5	32.0	125	8.9	1.29	11.42	81663	81.40	210.06	8.4	13.8
1107.0	40.5	30.0	125	8.9	1.28	11.44	81848	87.43	209.65	8.4	13.8
1108.0	52.4	30.0	125	8.9	1.20	11.46	81991	67.58	209.18	8.4	13.8
1109.0	37.9	30.0	125	8.9	1.31	11.49	82189	93.43	208.80	8.4	13.8
1110.0	32.6	30.0	125	8.9	1.35	11.52	82419	108.62	208.48	8.4	13.8
1111.0	34.5	30.0	125	8.9	1.34	11.55	82637	102.64	208.13	8.4	13.8
1112.0	40.2	30.0	125	8.9	1.29	11.57	82823	88.08	207.74	8.4	13.8
1113.0	43.5	30.0	125	8.9	1.26	11.60	82996	81.40	207.33	8.4	13.9
1114.0	37.9	30.0	125	8.9	1.31	11.62	83194	93.43	206.97	8.4	13.9
1115.0	42.7	30.0	125	8.9	1.27	11.65	83369	82.93	206.57	8.4	13.9
1116.0	42.7	30.0	125	8.9	1.27	11.67	83545	82.93	206.17	8.4	13.9
1117.0	49.0	30.0	125	8.9	1.22	11.69	83698	72.27	205.74	8.4	13.9
1118.0	27.3	30.0	124	8.9	1.41	11.73	83970	129.71	205.50	8.4	13.9
1119.0	43.5	30.0	124	8.9	1.26	11.75	84141	81.40	205.11	8.4	13.9
1120.0	43.9	30.0	140	8.9	1.30	11.77	84333	80.66	204.71	8.4	13.9
1121.0	48.0	30.0	140	8.9	1.27	11.79	84508	73.77	204.30	8.4	13.9
1122.0	39.8	40.2	140	8.9	1.45	11.82	84719	88.97	203.94	8.4	13.9
1123.0	49.0	40.2	140	8.9	1.37	11.84	84890	72.27	203.52	8.4	13.9
1124.0	49.0	40.2	140	8.9	1.37	11.86	85062	72.27	203.11	8.4	13.9
1125.0	48.0	32.0	142	8.9	1.30	11.88	85239	73.77	202.71	8.4	13.9
1126.0	53.6	30.0	144	8.9	1.24	11.90	85400	66.06	202.29	8.4	13.9
1127.0	61.7	30.0	144	8.9	1.20	11.92	85540	57.39	201.84	8.4	13.9
1128.0	49.0	32.0	140	8.9	1.28	11.94	85712	72.27	201.44	8.4	13.9
1129.0	37.9	32.0	140	8.9	1.37	11.96	85933	93.43	201.11	8.4	13.9
1130.0	49.0	32.0	140	8.9	1.28	11.98	86105	72.27	200.71	8.4	13.9
1131.0	41.9	32.0	140	8.9	1.33	12.01	86305	84.51	200.36	8.4	13.9
1132.0	46.1	32.0	140	8.9	1.30	12.03	86488	76.81	199.98	8.4	13.9
1133.0	41.9	30.0	140	8.9	1.31	12.05	86688	84.51	199.63	8.4	13.9
1134.0	52.4	37.0	130	8.9	1.29	12.07	86837	67.58	199.23	8.4	13.9
1135.0	53.0	37.0	130	8.9	1.29	12.09	86984	66.81	198.83	8.4	13.9
1136.0	40.2	37.0	130	8.9	1.38	12.12	87178	88.08	198.49	8.4	13.9
1137.0	43.5	37.0	130	8.9	1.36	12.14	87357	81.40	198.14	8.4	13.9
1138.0	42.7	36.0	130	8.9	1.35	12.16	87540	82.93	197.80	8.4	13.9
1139.0	51.2	36.0	130	8.9	1.29	12.18	87692	69.16	197.41	8.4	13.9
1140.0	47.0	36.0	130	8.9	1.32	12.20	87858	75.34	197.05	8.4	13.9
1141.0	41.9	36.0	130	8.9	1.36	12.23	88045	84.51	196.72	8.4	13.9
1142.0	43.5	38.0	130	8.9	1.37	12.25	88224	81.40	196.38	8.4	13.9
1143.0	46.1	38.0	130	8.9	1.35	12.27	88393	76.81	196.02	8.4	13.9
1144.0	47.0	38.0	130	8.9	1.34	12.29	88559	75.34	195.67	8.4	13.9
1145.0	42.7	37.0	130	8.9	1.36	12.32	88742	82.93	195.34	8.4	13.9
1146.0	34.0	37.0	130	8.9	1.44	12.35	88971	104.15	195.07	8.4	13.9
1147.0	40.5	37.0	130	8.9	1.38	12.37	89164	87.43	194.76	8.4	13.9
1148.0	18.1	36.0	130	8.9	1.64	12.43	89595	195.64	194.76	8.4	13.9
1149.0	21.7	35.0	140	8.9	1.59	12.47	89982	163.18	194.67	8.4	13.9
1150.0	49.0	35.0	140	8.9	1.32	12.49	90153	72.27	194.31	8.4	13.9



DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1151.0	40.2	35.0	140	8.9	1.38	12.52	90362	88.08	194.01	8.4	13.9
1152.0	38.2	35.0	140	8.9	1.40	12.54	90582	92.70	193.72	8.4	13.9
1153.0	36.2	35.0	140	8.9	1.42	12.57	90814	97.82	193.44	8.4	13.9
1154.0	39.2	35.0	140	8.9	1.39	12.60	91028	90.33	193.15	8.4	13.9
1155.0	38.4	35.0	140	8.9	1.40	12.62	91247	92.21	192.86	8.4	13.9
1156.0	22.3	35.0	140	8.9	1.58	12.67	91624	158.79	192.76	8.4	13.9
1157.0	24.5	33.0	140	8.9	1.52	12.71	91967	144.53	192.63	8.4	13.9
1158.0	38.5	33.0	140	8.9	1.37	12.73	92185	91.97	192.34	8.4	13.9
1159.0	45.2	33.0	140	8.9	1.32	12.76	92371	78.34	192.02	8.4	13.9
1160.0	43.5	36.0	145	8.9	1.38	12.78	92571	81.40	191.71	8.4	13.9
1161.0	47.0	36.0	145	8.9	1.35	12.80	92756	75.34	191.38	8.4	13.9
1162.0	46.1	36.0	145	8.9	1.36	12.82	92944	76.81	191.06	8.4	14.0
1163.0	47.0	36.0	145	8.9	1.35	12.84	93130	75.34	190.74	8.4	14.0
1164.0	43.5	36.0	145	8.9	1.38	12.87	93330	81.40	190.44	8.4	14.0
1165.0	45.0	36.0	145	8.9	1.37	12.89	93523	78.69	190.13	8.4	14.0
1166.0	47.0	36.0	145	8.9	1.35	12.91	93708	75.34	189.81	8.4	14.0
1167.0	46.0	36.0	145	8.9	1.36	12.93	93897	76.98	189.50	8.4	14.0
1168.0	47.0	36.0	145	8.9	1.35	12.95	94082	75.34	189.19	8.4	14.0
1169.0	42.7	36.0	145	8.9	1.39	12.98	94286	82.93	188.90	8.4	14.0
1170.0	47.0	36.0	145	8.9	1.35	13.00	94471	75.34	188.59	8.4	14.0
1171.0	47.0	36.0	145	8.9	1.35	13.02	94656	75.34	188.28	8.4	14.0
1172.0	42.7	36.0	145	8.9	1.39	13.04	94860	82.93	187.99	8.4	14.0
1173.0	32.0	31.0	145	8.9	1.42	13.07	95132	110.66	187.78	8.4	14.0
1174.0	52.4	30.0	145	8.9	1.25	13.09	95298	67.58	187.46	8.4	14.0
1175.0	21.3	30.0	145	8.9	1.54	13.14	95706	166.24	187.40	8.4	14.0
1176.0	31.7	31.0	148	8.9	1.43	13.17	95986	111.70	187.20	8.4	14.0
1177.0	38.5	31.0	148	8.9	1.37	13.20	96217	91.97	186.94	8.4	14.0
1178.0	35.0	31.0	155	8.9	1.41	13.23	96483	101.17	186.71	8.4	14.0
1179.0	51.2	31.0	155	8.9	1.29	13.24	96664	69.16	186.40	8.4	14.0
1180.0	44.3	31.0	150	8.9	1.33	13.27	96868	79.93	186.11	8.4	14.0
1181.0	44.0	31.0	150	8.9	1.33	13.29	97072	80.48	185.83	8.4	14.0
1182.0	43.5	34.0	152	8.9	1.37	13.31	97282	81.40	185.56	8.4	14.0
1183.0	35.0	34.0	152	9.0	1.43	13.34	97542	101.17	185.34	8.4	14.0
1184.0	35.0	34.0	152	9.0	1.43	13.37	97803	101.17	185.11	8.4	14.0
1185.0	39.0	32.0	152	9.0	1.37	13.40	98037	90.79	184.87	8.4	14.0
1186.0	34.0	32.0	152	9.0	1.41	13.43	98305	104.15	184.65	8.4	14.0
1187.0	39.8	32.0	152	9.0	1.36	13.45	98534	88.97	184.41	8.4	14.0
1188.0	48.1	32.0	152	9.0	1.30	13.47	98724	73.62	184.12	8.4	14.0
1189.0	39.8	32.0	152	9.0	1.36	13.50	98953	88.97	183.87	8.4	14.0
1190.0	42.0	32.0	152	9.0	1.35	13.52	99170	84.31	183.61	8.4	14.0
1191.0	39.8	32.0	152	9.0	1.36	13.55	99399	88.97	183.37	8.4	14.0
1192.0	27.0	32.0	152	9.0	1.49	13.58	99737	131.15	183.23	8.4	14.0
1193.0	39.8	32.0	152	9.0	1.36	13.61	99966	88.97	182.99	8.4	14.0
1194.0	40.0	32.0	152	9.0	1.36	13.63	100194	88.53	182.75	8.4	14.0
1195.0	51.2	28.0	155	9.0	1.24	13.65	100376	69.16	182.46	8.4	14.0
1196.0	38.1	29.0	152	9.0	1.34	13.68	100615	92.94	182.23	8.4	14.0
1197.0	40.2	29.0	152	9.0	1.32	13.70	100842	88.08	181.99	8.4	14.0
1198.0	39.8	33.0	152	9.0	1.37	13.73	101071	88.97	181.75	8.4	14.0
1199.0	48.0	33.0	152	9.0	1.31	13.75	101261	73.77	181.48	8.4	14.0
1200.0	49.0	33.0	152	9.0	1.31	13.77	101447	72.27	181.20	8.4	14.0

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1201.0	48.0	33.0	152	9.0	1.31	13.79	101637	73.77	180.93	8.4	14.0
1202.0	52.0	33.0	152	9.0	1.29	13.81	101813	68.10	180.65	8.4	14.0
1203.0	38.0	32.0	152	9.0	1.38	13.84	102053	93.18	180.43	8.4	14.0
1204.0	32.0	32.0	152	9.0	1.43	13.87	102338	110.66	180.26	8.4	14.0
1205.0	29.0	35.0	145	9.0	1.49	13.90	102638	122.10	180.11	8.4	14.0
1206.0	48.0	35.0	145	9.0	1.32	13.92	102819	73.77	179.85	8.4	14.0
1207.0	45.0	35.0	145	9.0	1.34	13.94	103012	78.69	179.60	8.4	14.0
1208.0	42.0	31.0	150	9.0	1.33	13.97	103227	84.31	179.36	8.4	14.0
1209.0	44.0	31.0	150	9.0	1.31	13.99	103431	80.48	179.12	8.4	14.0
1210.0	46.0	34.0	152	9.0	1.34	14.01	103629	76.98	178.86	8.4	14.0
1211.0	38.0	36.0	155	9.0	1.43	14.04	103874	93.18	178.65	8.4	14.0
1212.0	30.0	32.0	152	9.0	1.45	14.07	104178	118.03	178.51	8.4	14.1
1213.0	44.0	32.0	152	9.0	1.33	14.10	104385	80.48	178.27	8.4	14.1
1214.0	25.0	32.0	154	9.0	1.52	14.14	104755	141.64	178.18	8.4	14.1
1215.0	46.1	32.0	154	9.0	1.32	14.16	104955	76.81	177.93	8.4	14.1
1216.0	56.2	31.0	150	9.0	1.24	14.17	105116	63.01	177.65	8.4	14.1
1217.0	37.9	31.0	150	9.0	1.36	14.20	105353	93.43	177.45	8.4	14.1
1218.0	47.0	33.0	152	9.0	1.32	14.22	105547	75.34	177.20	8.4	14.1
1219.0	50.1	35.0	149	9.0	1.32	14.24	105725	70.68	176.94	8.4	14.1
1220.0	40.0	34.0	149	9.0	1.38	14.27	105949	88.53	176.73	8.4	14.1
1221.0	40.0	34.0	149	9.0	1.38	14.29	106172	88.53	176.52	8.4	14.1
1222.0	40.0	34.0	149	9.0	1.38	14.32	106396	88.53	176.31	8.4	14.1
1223.0	47.0	34.0	149	9.0	1.33	14.34	106586	75.34	176.07	8.4	14.1
1224.0	45.0	35.0	149	9.0	1.35	14.36	106785	78.69	175.84	8.4	14.1
1225.0	44.0	33.0	150	9.0	1.34	14.38	106989	80.48	175.61	8.4	14.1
1226.0	52.0	33.0	150	9.0	1.28	14.40	107162	68.10	175.35	8.4	14.1
1227.0	36.0	33.0	150	9.0	1.40	14.43	107412	98.36	175.17	8.4	14.1
1228.0	56.0	33.0	150	9.0	1.26	14.45	107573	63.23	174.91	8.4	14.1
1229.0	36.0	33.0	150	9.0	1.40	14.48	107823	98.36	174.73	8.4	14.1
1230.0	42.0	36.0	150	9.0	1.39	14.50	108037	84.31	174.52	8.4	14.1
1231.0	27.0	36.0	150	9.0	1.54	14.54	108371	131.15	174.41	8.4	14.1
1232.0	38.0	36.0	150	9.0	1.42	14.56	108608	93.18	174.22	8.4	14.1
1233.0	38.0	36.0	150	9.0	1.42	14.59	108845	93.18	174.04	8.4	14.1
1234.0	44.0	33.0	145	9.0	1.33	14.61	109042	80.48	173.82	8.4	14.1
1235.0	51.2	33.0	145	9.0	1.28	14.63	109212	69.16	173.58	8.4	14.1
1236.0	45.0	33.0	145	9.0	1.32	14.65	109405	78.69	173.36	8.4	14.1
1237.0	45.0	33.0	145	9.0	1.32	14.68	109599	78.69	173.14	8.4	14.1
1238.0	46.0	33.0	145	9.0	1.31	14.70	109788	76.98	172.92	8.4	14.1
1239.0	45.0	33.0	145	9.0	1.32	14.72	109981	78.69	172.70	8.4	14.1
1240.0	45.0	33.0	145	9.0	1.32	14.74	110175	78.69	172.48	8.4	14.1
1241.0	41.0	33.0	145	9.0	1.35	14.77	110387	86.37	172.29	8.4	14.1
1242.0	41.0	33.0	145	9.0	1.35	14.79	110599	86.37	172.09	8.4	14.1
1243.0	43.0	35.0	150	9.0	1.37	14.81	110808	82.35	171.89	8.4	14.1
1244.0	49.0	32.0	148	9.0	1.29	14.83	110990	72.27	171.66	8.4	14.1
1245.0	44.0	32.0	148	9.0	1.32	14.86	111191	80.48	171.45	8.4	14.1
1246.0	40.0	32.0	154	9.0	1.37	14.88	111422	88.53	171.27	8.4	14.1
1247.0	52.0	32.0	154	9.0	1.28	14.90	111600	68.10	171.03	8.4	14.1
1248.0	46.0	32.0	154	9.0	1.32	14.92	111801	76.98	170.82	8.4	14.1
1249.0	40.0	32.0	154	9.0	1.37	14.95	112032	88.53	170.64	8.4	14.1
1250.0	34.0	32.0	154	9.0	1.42	14.98	112304	104.15	170.49	8.4	14.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1251.0	42.0	35.0	145	9.0	1.37	15.00	112511	84.31	170.29	8.4	14.1
1252.0	38.0	35.0	145	9.0	1.40	15.03	112740	93.18	170.12	8.4	14.1
1253.0	42.0	35.0	145	9.0	1.37	15.05	112947	84.31	169.93	8.4	14.1
1254.0	40.0	33.0	150	9.0	1.37	15.08	113172	88.53	169.75	8.4	14.1
1255.0	47.0	33.0	150	9.0	1.32	15.10	113363	75.34	169.54	8.4	14.1
1256.0	49.0	34.0	152	9.0	1.32	15.12	113550	72.27	169.32	8.4	14.1
1257.0	49.0	34.0	152	9.0	1.32	15.14	113736	72.27	169.11	8.4	14.1
1258.0	46.0	34.0	152	9.0	1.34	15.16	113934	76.98	168.91	8.4	14.1
1259.0	46.0	34.0	152	9.0	1.34	15.18	114132	76.98	168.71	8.4	14.1
1260.0	47.0	34.0	150	9.0	1.33	15.20	114324	75.34	168.50	8.4	14.1
1261.0	47.0	34.0	150	9.0	1.33	15.22	114515	75.34	168.30	8.4	14.1
1262.0	49.0	34.0	150	9.0	1.31	15.25	114699	72.27	168.09	8.4	14.1
1263.0	45.0	34.0	150	9.0	1.34	15.27	114899	78.69	167.89	8.4	14.1
1264.0	52.0	34.0	150	9.0	1.30	15.29	115072	68.10	167.68	8.4	14.2
1265.0	38.0	34.0	150	9.0	1.40	15.31	115309	93.18	167.51	8.4	14.2
1266.0	45.0	34.0	150	9.0	1.34	15.34	115509	78.69	167.32	8.4	14.2
1267.0	50.0	34.0	150	9.0	1.31	15.36	115689	70.82	167.11	8.4	14.2
1268.0	40.0	32.0	152	9.0	1.36	15.38	115917	88.53	166.94	8.4	14.2
1269.0	27.0	32.0	152	9.0	1.49	15.42	116255	131.15	166.87	8.4	14.2
1270.0	45.0	33.0	153	9.0	1.34	15.44	116459	78.69	166.68	8.4	14.2
1271.0	34.5	33.0	153	9.0	1.42	15.47	116725	102.64	166.54	8.4	14.2
1272.0	43.5	33.0	152	9.0	1.35	15.49	116934	81.40	166.36	8.4	14.2
1273.0	35.1	33.0	152	9.0	1.42	15.52	117194	100.88	166.22	8.4	14.2
1274.0	36.0	33.0	152	9.0	1.41	15.55	117447	98.36	166.07	8.4	14.2
1275.0	44.0	32.0	150	9.0	1.33	15.57	117652	80.48	165.89	8.4	14.2
1276.0	43.0	32.0	150	9.0	1.33	15.59	117861	82.35	165.72	8.4	14.2
1277.0	40.0	32.0	150	9.0	1.36	15.62	118086	88.53	165.55	8.4	14.2
1278.0	43.0	32.0	150	9.0	1.33	15.64	118296	82.35	165.38	8.4	14.2
1279.0	40.0	32.0	150	9.0	1.36	15.67	118521	88.53	165.22	8.4	14.2
1280.0	40.0	32.0	150	9.0	1.36	15.69	118746	88.53	165.05	8.4	14.2
1281.0	44.0	32.0	150	9.0	1.33	15.71	118950	80.48	164.88	8.4	14.2
1282.0	41.0	32.0	150	9.0	1.35	15.74	119170	86.37	164.71	8.4	14.2
1283.0	42.0	32.0	152	9.0	1.35	15.76	119387	84.31	164.54	8.4	14.2
1284.0	46.0	32.0	152	9.0	1.32	15.78	119585	76.98	164.36	8.4	14.2
1285.0	38.0	33.0	150	9.0	1.39	15.81	119822	93.18	164.21	8.4	14.2
1286.0	38.0	33.0	150	9.0	1.39	15.84	120059	93.18	164.07	8.4	14.2
1287.0	38.0	33.0	150	9.0	1.39	15.86	120296	93.18	163.92	8.4	14.2
1288.0	38.0	33.0	150	9.0	1.39	15.89	120532	93.18	163.77	8.4	14.2
1289.0	44.0	33.0	150	9.0	1.34	15.91	120737	80.48	163.60	8.4	14.2
1290.0	36.7	33.0	150	9.0	1.40	15.94	120982	96.49	163.46	8.4	14.2
1291.0	33.0	33.0	150	9.0	1.43	15.97	121255	107.30	163.35	8.4	14.2
1292.0	40.0	33.0	150	9.0	1.37	16.00	121480	88.53	163.20	8.4	14.2
1293.0	27.0	30.0	155	9.0	1.47	16.03	121824	131.15	163.13	8.4	14.2
1294.0	34.0	30.0	155	9.0	1.39	16.06	122098	104.15	163.01	8.4	14.2
1295.0	33.0	30.0	155	9.0	1.40	16.09	122380	107.30	162.90	8.4	14.2
1296.0	43.0	30.0	155	9.0	1.32	16.12	122596	82.35	162.73	8.4	14.2
1297.0	32.0	30.0	155	9.0	1.41	16.15	122887	110.66	162.63	8.4	14.2
1298.0	40.0	30.0	155	9.0	1.34	16.17	123119	88.53	162.48	8.4	14.2
1299.0	46.0	30.0	155	9.0	1.30	16.19	123321	76.98	162.30	8.4	14.2
1300.0	43.0	30.0	155	9.0	1.32	16.22	123538	82.35	162.14	8.4	14.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1301.0	52.0	30.0	155	9.0	1.26	16.24	123716	68.10	161.95	8.4	14.2
1302.0	36.0	30.0	155	9.0	1.38	16.26	123975	98.36	161.83	8.4	14.2
1303.0	48.0	30.0	155	9.0	1.28	16.28	124168	73.77	161.65	8.4	14.2
1304.0	49.0	30.0	155	9.0	1.28	16.30	124358	72.27	161.47	8.4	14.2
1305.0	49.0	30.0	155	9.0	1.28	16.33	124548	72.27	161.29	8.4	14.2
1306.0	59.0	30.0	155	9.0	1.22	16.34	124706	60.02	161.09	8.4	14.2
1307.0	32.0	30.0	155	9.0	1.41	16.37	124996	110.66	160.99	8.4	14.2
1308.0	46.0	28.0	160	9.0	1.28	16.40	125205	76.98	160.82	8.4	14.2
1309.0	51.0	28.0	160	9.0	1.25	16.41	125393	69.43	160.64	8.4	14.2
1310.0	49.0	28.0	150	9.0	1.24	16.44	125577	72.27	160.47	8.4	14.2
1311.0	40.0	30.0	150	9.0	1.33	16.46	125802	88.53	160.33	8.4	14.2
1312.0	40.0	30.0	150	9.0	1.33	16.49	126027	88.53	160.19	8.4	14.2
1313.0	56.0	30.0	150	9.0	1.23	16.50	126188	63.23	159.99	8.4	14.2
1314.0	53.0	30.0	150	9.0	1.24	16.52	126357	66.81	159.81	8.4	14.2
1315.0	48.0	30.0	150	9.0	1.27	16.54	126545	73.77	159.64	8.4	14.2
1316.0	45.0	30.0	150	9.0	1.29	16.56	126745	78.69	159.49	8.4	14.2
1317.0	49.0	30.0	150	9.0	1.27	16.59	126929	72.27	159.32	8.4	14.2
1318.0	47.0	30.0	150	9.0	1.28	16.61	127120	75.34	159.15	8.4	14.2
1319.0	47.0	30.0	150	9.0	1.28	16.63	127312	75.34	158.99	8.4	14.3
1320.0	49.0	30.0	150	9.0	1.27	16.65	127495	72.27	158.82	8.4	14.3
1321.0	45.0	30.0	150	9.0	1.29	16.67	127695	78.69	158.67	8.4	14.3
1322.0	44.0	30.0	150	9.0	1.30	16.69	127900	80.48	158.52	8.4	14.3
1323.0	47.0	30.0	150	9.0	1.28	16.71	128091	75.34	158.36	8.4	14.3
1324.0	32.0	30.0	155	9.0	1.41	16.75	128382	110.66	158.26	8.4	14.3
1325.0	45.0	30.0	155	9.0	1.31	16.77	128589	78.69	158.11	8.4	14.3
1326.0	50.0	30.0	160	9.0	1.28	16.79	128781	70.82	157.94	8.4	14.3
1327.0	50.0	30.0	160	9.0	1.28	16.81	128973	70.82	157.78	8.4	14.3
1328.0	36.7	30.0	160	9.0	1.38	16.84	129234	96.49	157.66	8.4	14.3
1329.0	59.0	30.0	160	9.0	1.23	16.85	129397	60.02	157.47	8.4	14.3
1330.0	49.0	30.0	160	9.0	1.29	16.87	129593	72.27	157.31	8.4	14.3
1331.0	35.0	30.0	160	9.0	1.39	16.90	129867	101.17	157.21	8.4	14.3
1332.0	73.0	30.0	160	9.0	1.16	16.91	129999	48.51	157.00	8.4	14.3
1333.0	29.0	30.0	160	9.0	1.45	16.95	130330	122.10	156.93	8.4	14.3
1334.0	51.0	30.0	150	9.0	1.26	16.97	130506	69.43	156.77	8.4	14.3
1335.0	31.0	30.0	150	9.0	1.41	17.00	130796	114.23	156.69	8.4	14.3
1336.0	43.5	30.0	150	9.0	1.31	17.02	131003	81.40	156.55	8.4	14.3
1337.0	50.0	30.0	150	9.0	1.26	17.04	131183	70.82	156.39	8.4	14.3
1338.0	42.0	30.0	150	9.0	1.32	17.07	131398	84.31	156.25	8.4	14.3
1339.0	40.0	30.0	150	9.0	1.33	17.09	131623	88.53	156.12	8.4	14.3
1340.0	48.0	30.0	150	9.0	1.27	17.11	131810	73.77	155.97	8.4	14.3
1341.0	52.0	30.0	150	9.0	1.25	17.13	131983	68.10	155.81	8.4	14.3
1342.0	52.0	30.0	150	9.0	1.25	17.15	132156	68.10	155.64	8.4	14.3
1343.0	51.0	30.0	150	9.0	1.26	17.17	132333	69.43	155.48	8.4	14.3
1344.0	51.0	30.0	150	9.0	1.26	17.19	132509	69.43	155.32	8.4	14.3
1345.0	45.0	30.0	150	9.0	1.29	17.21	132709	78.69	155.18	8.4	14.3
1346.0	50.0	30.0	150	9.0	1.26	17.23	132889	70.82	155.03	8.4	14.3
1347.0	51.0	30.0	150	9.0	1.26	17.25	133066	69.43	154.87	8.4	14.3
1348.0	50.0	30.0	150	9.0	1.26	17.27	133246	70.82	154.72	8.4	14.3
1349.0	48.0	30.0	150	9.0	1.27	17.29	133433	73.77	154.57	8.4	14.3
1350.0	46.0	30.0	150	9.0	1.29	17.32	133629	76.98	154.42	8.4	14.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1351.0	46.0	30.0	150	9.0	1.29	17.34	133825	76.98	154.28	8.4	14.3
1352.0	46.0	30.0	150	9.0	1.29	17.36	134020	76.98	154.14	8.4	14.3
1353.0	23.3	30.0	150	9.0	1.50	17.40	134406	151.97	154.14	8.4	14.3
1354.0	38.1	30.0	150	9.0	1.35	17.43	134643	92.94	154.03	8.4	14.3
1355.0	59.0	30.0	150	9.0	1.21	17.45	134795	60.02	153.86	8.4	14.3
1356.0	47.0	30.0	150	9.0	1.28	17.47	134987	75.34	153.71	8.4	14.3
1357.0	50.0	30.0	150	9.0	1.26	17.49	135167	70.82	153.56	8.4	14.3
1358.0	49.0	30.0	150	9.0	1.27	17.51	135350	72.27	153.42	8.4	14.3
1359.0	49.0	30.0	150	9.0	1.27	17.53	135534	72.27	153.27	8.4	14.3
1360.0	49.0	30.0	155	9.0	1.28	17.55	135724	72.27	153.13	8.4	14.3
1361.0	59.0	30.0	155	9.0	1.22	17.57	135881	60.02	152.96	8.4	14.3
1362.0	47.0	30.0	155	9.0	1.29	17.59	136079	75.34	152.82	8.4	14.3
1363.0	47.0	30.0	155	9.0	1.29	17.61	136277	75.34	152.68	8.4	14.3
1364.0	40.0	30.0	145	9.0	1.32	17.63	136495	88.53	152.57	8.4	14.3
1365.0	44.0	30.0	145	9.0	1.29	17.66	136692	80.48	152.44	8.4	14.3
1366.0	48.0	30.0	150	9.0	1.27	17.68	136880	73.77	152.30	8.4	14.3
1367.0	52.0	30.0	150	9.0	1.25	17.70	137053	68.10	152.15	8.4	14.3
1368.0	62.0	30.0	150	9.0	1.19	17.71	137198	57.11	151.98	8.4	14.3
1369.0	38.0	30.0	150	9.0	1.35	17.74	137435	93.18	151.88	8.4	14.3
1370.0	37.0	30.0	150	9.0	1.36	17.76	137678	95.70	151.78	8.4	14.3
1371.0	35.0	30.0	150	9.0	1.37	17.79	137935	101.17	151.69	8.4	14.3
1372.0	35.0	30.0	150	9.0	1.37	17.82	138193	101.17	151.60	8.4	14.3
1373.0	36.0	30.0	150	9.0	1.37	17.85	138443	98.36	151.50	8.4	14.3
1374.0	45.0	30.0	150	9.0	1.29	17.87	138643	78.69	151.38	8.4	14.4
1375.0	43.0	30.0	150	9.0	1.31	17.90	138852	82.35	151.26	8.4	14.4
1376.0	54.0	30.0	150	9.0	1.24	17.91	139018	65.57	151.11	8.4	14.4
1377.0	54.0	30.0	150	9.0	1.24	17.93	139185	65.57	150.96	8.4	14.4
1378.0	45.0	30.0	150	9.0	1.29	17.95	139385	78.69	150.83	8.4	14.4
1379.0	38.0	30.0	150	9.0	1.35	17.98	139622	93.18	150.73	8.4	14.4
1380.0	50.0	30.0	150	9.0	1.26	18.00	139802	70.82	150.59	8.4	14.4
1381.0	58.0	30.0	150	9.0	1.21	18.02	139957	61.05	150.44	8.4	14.4
1382.0	28.0	30.0	155	9.0	1.45	18.05	140289	126.46	150.40	8.4	14.4
1383.0	35.0	30.0	155	9.0	1.38	18.08	140555	101.17	150.31	8.4	14.4
1384.0	42.0	30.0	155	9.0	1.33	18.11	140776	84.31	150.20	8.4	14.4
1385.0	45.0	30.0	155	9.0	1.31	18.13	140983	78.69	150.07	8.4	14.4
1386.0	31.0	30.0	155	9.0	1.42	18.16	141283	114.23	150.01	8.4	14.4
1387.0	34.0	30.0	155	9.0	1.39	18.19	141557	104.15	149.93	8.4	14.4
1388.0	40.0	30.0	155	9.0	1.34	18.22	141789	88.53	149.83	8.4	14.4
1389.0	42.0	30.0	155	9.0	1.33	18.24	142011	84.31	149.72	8.4	14.4
1390.0	42.0	30.0	155	9.0	1.33	18.26	142232	84.31	149.60	8.4	14.4
1391.0	44.0	30.0	155	9.0	1.31	18.29	142443	80.48	149.49	8.4	14.4
1392.0	44.0	30.0	155	9.0	1.31	18.31	142655	80.48	149.37	8.4	14.4
1393.0	44.0	30.0	155	9.0	1.31	18.33	142866	80.48	149.25	8.4	14.4
1394.0	36.0	30.0	155	9.0	1.38	18.36	143124	98.36	149.17	8.4	14.4
1395.0	42.0	30.0	155	9.0	1.33	18.38	143346	84.31	149.06	8.4	14.4
1396.0	32.0	30.0	155	9.0	1.41	18.41	143636	110.66	148.99	8.4	14.4
1397.0	51.0	30.0	155	9.0	1.27	18.43	143819	69.43	148.86	8.4	14.4
1398.0	42.0	30.0	155	9.0	1.33	18.46	144040	84.31	148.75	8.4	14.4
1399.0	42.0	30.0	155	9.0	1.33	18.48	144262	84.31	148.64	8.4	14.4
1400.0	41.0	30.0	155	9.0	1.33	18.51	144489	86.37	148.54	8.4	14.4

BIT NUMBER	5	IADC CODE	114	INTERVAL	1400.0- 1778.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.2	BIT RUN	378.0
TOTAL HOURS	26.59	TOTAL TURNS	238000	CONDITION	T2 B5 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1401.0	20.0	15.0	80	9.0	1.13	0.05	240	177	23531	8.4	14.4
1402.0	28.0	12.0	80	9.0	0.99	0.09	411	126	11829	8.4	14.4
1403.0	29.0	12.0	80	8.9	0.99	0.12	577	122	7927	8.4	14.4
1404.0	38.0	14.0	85	8.9	0.97	0.15	711	93	5968	8.4	14.4
1405.0	33.0	15.0	85	8.9	1.03	0.18	866	107	4796	8.4	14.4
1406.0	36.0	15.0	85	8.9	1.00	0.20	1007	98	4013	8.4	14.4
1407.0	33.0	15.0	85	8.9	1.03	0.23	1162	107	3455	8.4	14.4
1408.0	31.0	14.0	84	8.9	1.02	0.27	1324	114	3038	8.4	14.4
1409.0	33.0	19.0	145	8.9	1.24	0.30	1588	107	2712	8.4	14.4
1410.0	59.0	24.0	145	8.9	1.14	0.31	1736	60	2447	8.4	14.4
1411.0	63.0	24.0	145	8.9	1.12	0.33	1874	56	2229	8.4	14.4
1412.0	68.0	25.0	150	8.9	1.12	0.34	2006	52	2048	8.4	14.4
1413.0	63.0	25.0	150	8.9	1.14	0.36	2149	56	1895	8.4	14.4
1414.0	78.0	25.0	150	8.9	1.08	0.37	2264	45	1763	8.4	14.4
1415.0	61.0	25.0	150	8.9	1.15	0.39	2412	58	1649	8.4	14.4
1416.0	61.0	25.0	150	8.9	1.15	0.41	2559	58	1550	8.4	14.4
1417.0	73.0	24.0	150	8.9	1.09	0.42	2683	49	1461	8.4	14.4
1418.0	73.0	28.0	150	8.9	1.13	0.43	2806	49	1383	8.4	14.4
1419.0	32.0	24.0	150	8.9	1.33	0.47	3087	111	1316	8.4	14.4
1420.0	51.0	17.0	140	8.8	1.09	0.48	3252	69	1254	8.4	14.4
1421.0	50.0	17.0	140	8.8	1.09	0.50	3420	71	1197	8.4	14.4
1422.0	73.0	20.0	140	8.8	1.03	0.52	3535	49	1145	8.4	14.4
1423.0	55.0	20.0	140	8.8	1.11	0.54	3688	64	1098	8.4	14.4
1424.0	52.0	24.0	140	8.8	1.18	0.56	3849	68	1055	8.4	14.4
1425.0	54.0	23.0	140	8.8	1.16	0.57	4005	66	1016	8.4	14.4
1426.0	59.0	26.0	150	8.8	1.19	0.59	4157	60.02	978.77	8.4	14.4
1427.0	36.0	26.0	150	8.8	1.34	0.62	4407	98.36	946.16	8.4	14.4
1428.0	48.0	26.0	150	8.8	1.25	0.64	4595	73.77	915.00	8.4	14.4
1429.0	72.0	26.0	150	8.8	1.13	0.65	4720	49.18	885.15	8.4	14.4
1430.0	56.0	26.0	150	8.8	1.20	0.67	4881	63.23	857.75	8.4	14.4
1431.0	55.0	25.0	145	8.9	1.17	0.69	5039	64.38	832.16	8.4	14.4
1432.0	60.0	25.0	145	8.9	1.15	0.71	5184	59.02	808.00	8.4	14.5
1433.0	44.0	25.0	145	8.9	1.24	0.73	5381	80.48	785.95	8.4	14.5
1434.0	54.0	25.0	145	8.9	1.18	0.75	5543	65.57	764.76	8.4	14.5
1435.0	64.0	25.0	145	8.9	1.13	0.76	5678	55.33	744.49	8.4	14.5
1436.0	56.0	25.0	145	8.9	1.17	0.78	5834	63.23	725.57	8.4	14.5
1437.0	56.0	25.0	145	8.9	1.17	0.80	5989	63.23	707.67	8.4	14.5
1438.0	45.0	26.0	160	8.9	1.28	0.82	6203	78.69	691.12	8.4	14.5
1439.0	43.0	26.0	160	8.9	1.29	0.84	6426	82.35	675.51	8.4	14.5
1440.0	47.0	28.0	155	8.9	1.28	0.87	6624	75.34	660.50	8.4	14.5
1441.0	51.0	28.0	155	8.8	1.28	0.89	6806	69.43	646.09	8.4	14.5
1442.0	52.0	28.0	155	8.8	1.27	0.90	6985	68.10	632.33	8.4	14.5
1443.0	42.0	28.0	155	8.8	1.34	0.93	7206	84.31	619.58	8.4	14.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1444.0	48.0	28.0	155	8.8	1.29	0.95	7400	73.77	607.18	8.4	14.5
1445.0	52.0	28.0	155	8.8	1.27	0.97	7579	68.10	595.20	8.4	14.5
1446.0	56.0	27.0	156	8.8	1.24	0.99	7746	63.23	583.63	8.4	14.5
1447.0	42.0	27.0	156	8.8	1.33	1.01	7969	84.31	573.01	8.4	14.5
1448.0	34.0	27.0	156	8.8	1.39	1.04	8244	104.15	563.24	8.4	14.5
1449.0	63.0	27.0	150	8.8	1.19	1.06	8387	56.21	552.89	8.4	14.5
1450.0	56.0	27.0	152	8.8	1.23	1.07	8550	63.23	543.10	8.4	14.5
1451.0	56.0	27.0	152	8.8	1.23	1.09	8713	63.23	533.69	8.4	14.5
1452.0	48.0	27.0	140	8.8	1.25	1.11	8888	73.77	524.85	8.4	14.5
1453.0	48.0	27.0	140	8.8	1.25	1.13	9063	73.77	516.34	8.4	14.5
1454.0	54.0	27.0	140	8.8	1.21	1.15	9218	65.57	507.99	8.4	14.5
1455.0	29.0	27.0	140	8.8	1.41	1.19	9508	122.10	500.97	8.4	14.5
1456.0	50.0	29.0	140	8.8	1.26	1.21	9676	70.82	493.29	8.4	14.5
1457.0	63.0	29.0	140	8.8	1.19	1.22	9809	56.21	485.62	8.4	14.5
1458.0	48.0	28.0	140	8.8	1.26	1.24	9984	73.77	478.52	8.4	14.5
1459.0	37.0	28.0	140	8.8	1.34	1.27	10211	95.70	472.03	8.4	14.5
1460.0	43.0	28.0	155	8.8	1.33	1.29	10428	82.35	465.54	8.4	14.5
1461.0	50.0	28.0	155	8.8	1.28	1.31	10614	70.82	459.07	8.4	14.5
1462.0	49.0	28.0	150	8.8	1.28	1.33	10797	72.27	452.83	8.4	14.5
1463.0	64.0	28.0	150	8.8	1.19	1.35	10938	55.33	446.52	8.4	14.5
1464.0	44.0	28.0	148	8.8	1.31	1.37	11140	80.48	440.80	8.4	14.5
1465.0	48.0	28.0	148	8.8	1.28	1.39	11325	73.77	435.15	8.4	14.5
1466.0	38.0	30.0	160	8.8	1.41	1.42	11577	93.18	429.97	8.4	14.5
1467.0	39.0	30.0	160	8.8	1.40	1.44	11824	90.79	424.91	8.4	14.5
1468.0	48.0	31.0	150	8.8	1.32	1.47	12011	73.77	419.75	8.4	14.5
1469.0	48.0	31.0	150	8.8	1.32	1.49	12199	73.77	414.73	8.4	14.5
1470.0	48.0	31.0	162	8.8	1.35	1.51	12401	73.77	409.86	8.4	14.5
1471.0	36.0	31.0	162	8.8	1.44	1.53	12671	98.36	405.47	8.4	14.5
1472.0	28.0	32.0	158	8.8	1.53	1.57	13010	126.46	401.60	8.4	14.5
1473.0	38.0	32.0	158	8.8	1.43	1.60	13259	93.18	397.37	8.4	14.5
1474.0	38.0	32.0	158	8.8	1.43	1.62	13509	93.18	393.26	8.4	14.5
1475.0	43.0	30.0	140	8.8	1.32	1.65	13704	82.35	389.12	8.4	14.5
1476.0	43.0	30.0	140	8.8	1.32	1.67	13899	82.35	385.08	8.4	14.5
1477.0	53.0	30.0	140	8.8	1.25	1.69	14058	66.81	380.95	8.4	14.5
1478.0	54.0	30.0	140	8.8	1.25	1.71	14213	65.57	376.90	8.4	14.5
1479.0	48.0	30.0	140	8.8	1.29	1.73	14388	73.77	373.07	8.4	14.5
1480.0	42.0	31.0	145	8.8	1.35	1.75	14595	84.31	369.46	8.4	14.5
1481.0	51.0	31.0	145	8.8	1.29	1.77	14766	69.43	365.75	8.4	14.5
1482.0	45.0	31.0	155	8.8	1.35	1.79	14973	78.69	362.25	8.4	14.5
1483.0	51.0	31.0	155	8.8	1.31	1.81	15155	69.43	358.72	8.4	14.5
1484.0	51.0	31.0	155	8.8	1.31	1.83	15337	69.43	355.28	8.4	14.5
1485.0	40.0	31.0	155	8.8	1.39	1.86	15570	88.53	352.14	8.4	14.5
1486.0	40.0	31.0	155	8.8	1.39	1.88	15802	88.53	349.08	8.4	14.5
1487.0	41.0	31.0	155	8.8	1.38	1.91	16029	86.37	346.06	8.4	14.5
1488.0	42.0	31.0	155	8.8	1.38	1.93	16251	84.31	343.08	8.4	14.5
1489.0	36.0	30.0	152	8.8	1.41	1.96	16504	98.36	340.33	8.4	14.5
1490.0	42.0	30.0	145	8.8	1.34	1.98	16711	84.31	337.49	8.4	14.5
1491.0	51.0	30.0	145	8.8	1.28	2.00	16882	69.43	334.54	8.4	14.5
1492.0	33.0	32.0	156	8.8	1.47	2.03	17165	107.30	332.07	8.4	14.5
1493.0	33.0	32.0	150	8.8	1.46	2.06	17438	107.30	329.66	8.4	14.6

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1494.0	33.0	32.0	150	8.8	1.46	2.09	17711	107.30	327.29	8.4	14.6
1495.0	33.0	32.0	150	8.8	1.46	2.12	17984	107.30	324.97	8.4	14.6
1496.0	31.0	32.0	140	8.8	1.46	2.16	18254	114.23	322.78	8.4	14.6
1497.0	30.0	32.0	140	8.8	1.47	2.19	18534	118.03	320.67	8.4	14.6
1498.0	37.0	32.0	180	8.8	1.48	2.22	18826	95.70	318.37	8.4	14.6
1499.0	32.0	32.0	180	8.8	1.53	2.25	19164	110.66	316.28	8.4	14.6
1500.0	36.0	32.0	170	8.8	1.47	2.27	19447	98.36	314.10	8.4	14.6
1501.0	34.0	32.0	170	8.8	1.49	2.30	19747	104.15	312.02	8.4	14.6
1502.0	34.0	32.0	170	8.8	1.49	2.33	20047	104.15	309.98	8.4	14.6
1503.0	31.0	32.0	170	8.8	1.52	2.37	20376	114.23	308.08	8.4	14.6
1504.0	36.0	36.0	175	8.8	1.53	2.39	20668	98.36	306.06	8.4	14.6
1505.0	24.0	36.0	175	8.8	1.67	2.44	21105	147.54	304.55	8.4	14.6
1506.0	25.0	22.0	155	8.8	1.41	2.48	21477	141.64	303.02	8.4	14.6
1507.0	39.0	22.0	155	8.8	1.28	2.50	21716	90.79	301.03	8.4	14.6
1508.0	30.0	22.0	160	8.8	1.36	2.53	22036	118.03	299.34	8.4	14.6
1509.0	36.0	22.0	160	8.8	1.31	2.56	22303	98.36	297.49	8.4	14.6
1510.0	30.0	22.0	162	8.8	1.37	2.60	22627	118.03	295.86	8.4	14.6
1511.0	31.0	22.0	162	8.8	1.36	2.63	22940	114.23	294.23	8.4	14.6
1512.0	24.0	22.0	164	8.8	1.44	2.67	23350	147.54	292.92	8.4	14.6
1513.0	37.0	22.0	164	8.8	1.31	2.70	23616	95.70	291.17	8.4	14.6
1514.0	21.0	22.0	164	8.8	1.48	2.74	24085	168.62	290.10	8.4	14.6
1515.0	19.0	15.0	110	8.8	1.26	2.80	24432	186.37	289.19	8.4	14.6
1516.0	18.0	15.0	110	8.8	1.28	2.85	24799	196.72	288.40	8.4	14.6
1517.0	15.0	15.0	110	8.8	1.33	2.92	25239	236.07	287.95	8.4	14.6
1518.0	13.0	15.0	80	8.8	1.28	3.00	25608	272.38	287.82	8.4	14.6
1519.0	8.0	15.0	80	8.8	1.41	3.12	26208	442.63	289.12	8.4	14.6
1520.0	9.1	15.0	80	8.8	1.37	3.23	26735	389.12	289.95	8.4	14.6
1521.0	10.0	15.0	80	8.8	1.35	3.33	27215	354.10	290.48	8.4	14.6
1522.0	7.0	15.0	80	8.8	1.45	3.47	27901	505.86	292.25	8.4	14.6
1523.0	7.0	15.0	80	8.8	1.45	3.62	28587	505.86	293.98	8.4	14.6
1524.0	34.0	30.0	150	8.8	1.42	3.65	28851	104.15	292.45	8.4	14.6
1525.0	29.0	30.0	150	8.8	1.47	3.68	29162	122.10	291.09	8.4	14.6
1526.0	30.0	30.0	150	8.8	1.46	3.71	29462	118.03	289.72	8.4	14.6
1527.0	32.0	30.0	155	8.8	1.45	3.74	29752	110.66	288.31	8.4	14.6
1528.0	32.0	30.0	155	8.8	1.45	3.78	30043	110.66	286.92	8.4	14.6
1529.0	24.0	30.0	155	8.8	1.54	3.82	30431	147.54	285.84	8.4	14.6
1530.0	28.0	30.0	155	8.8	1.49	3.85	30763	126.46	284.61	8.4	14.6
1531.0	21.0	30.0	155	8.8	1.59	3.90	31206	168.62	283.73	8.4	14.6
1532.0	32.0	31.0	135	8.8	1.42	3.93	31459	110.66	282.42	8.4	14.6
1533.0	28.0	31.0	135	8.8	1.46	3.97	31748	126.46	281.24	8.4	14.6
1534.0	31.0	30.0	140	8.8	1.42	4.00	32019	114.23	280.00	8.4	14.6
1535.0	22.0	30.0	135	8.8	1.52	4.05	32387	160.95	279.12	8.4	14.6
1536.0	23.0	29.0	138	8.8	1.50	4.09	32747	153.96	278.20	8.4	14.6
1537.0	31.0	29.0	138	8.8	1.40	4.12	33014	114.23	277.00	8.4	14.6
1538.0	26.0	29.0	138	8.8	1.46	4.16	33333	136.19	275.98	8.4	14.6
1539.0	33.0	30.0	138	8.8	1.40	4.19	33584	107.30	274.76	8.4	14.6
1540.0	34.0	30.0	135	8.8	1.38	4.22	33822	104.15	273.55	8.4	14.6
1541.0	26.0	28.0	170	8.8	1.51	4.26	34214	136.19	272.57	8.4	14.6
1542.0	26.0	29.0	170	8.8	1.53	4.30	34606	136.19	271.61	8.4	14.6
1543.0	46.0	29.0	170	8.8	1.34	4.32	34828	76.98	270.25	8.4	14.6



DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1544.0	22.0	29.0	165	8.8	1.57	4.36	35278	160.95	269.49	8.4	14.6
1545.0	32.0	29.0	165	8.9	1.43	4.40	35588	110.66	268.40	8.4	14.6
1546.0	23.0	29.0	162	8.9	1.53	4.44	36010	153.96	267.61	8.4	14.6
1547.0	23.0	29.0	162	8.9	1.53	4.48	36433	153.96	266.84	8.4	14.6
1548.0	21.0	29.0	162	8.9	1.56	4.53	36896	168.62	266.18	8.4	14.6
1549.0	23.0	30.0	165	8.9	1.55	4.57	37326	153.96	265.42	8.4	14.6
1550.0	29.0	30.0	165	8.9	1.48	4.61	37667	122.10	264.47	8.4	14.6
1551.0	30.0	28.0	170	8.9	1.45	4.64	38007	118.03	263.50	8.4	14.6
1552.0	22.0	28.0	175	8.9	1.56	4.69	38485	160.95	262.82	8.4	14.6
1553.0	20.0	28.0	175	8.9	1.59	4.74	39010	177.05	262.26	8.4	14.6
1554.0	29.0	30.0	175	8.9	1.50	4.77	39372	122.10	261.35	8.4	14.6
1555.0	31.0	30.0	175	8.9	1.48	4.80	39711	114.23	260.40	8.4	14.7
1556.0	25.0	30.0	175	8.9	1.55	4.84	40131	141.64	259.64	8.4	14.7
1557.0	30.0	21.0	183	8.9	1.36	4.88	40497	118.03	258.74	8.4	14.7
1558.0	21.0	20.0	190	8.9	1.46	4.92	41039	168.62	258.17	8.4	14.7
1559.0	23.0	20.0	190	8.9	1.43	4.97	41535	153.96	257.51	8.4	14.7
1560.0	32.0	20.0	180	8.9	1.32	5.00	41873	110.66	256.60	8.4	14.7
1561.0	30.0	20.0	180	8.9	1.34	5.03	42233	118.03	255.73	8.4	14.7
1562.0	29.0	22.0	185	8.9	1.39	5.07	42615	122.10	254.91	8.4	14.7
1563.0	29.0	22.0	185	8.9	1.39	5.10	42998	122.10	254.10	8.4	14.7
1564.0	19.0	22.0	175	8.9	1.50	5.15	43551	186.37	253.68	8.4	14.7
1565.0	31.0	22.0	175	8.9	1.36	5.19	43889	114.23	252.84	8.4	14.7
1566.0	34.0	22.0	175	8.9	1.33	5.22	44198	104.15	251.94	8.4	14.7
1567.0	33.0	22.0	175	8.9	1.34	5.25	44516	107.30	251.08	8.4	14.7
1568.0	21.0	22.0	175	8.9	1.47	5.29	45016	168.62	250.58	8.4	14.7
1569.0	23.0	22.0	175	8.9	1.45	5.34	45473	153.96	250.01	8.4	14.7
1570.0	23.0	22.0	175	8.8	1.46	5.38	45929	153.96	249.45	8.4	14.7
1571.0	29.0	22.0	175	8.8	1.39	5.41	46292	122.10	248.70	8.4	14.7
1572.0	38.0	22.0	180	8.8	1.32	5.44	46576	93.18	247.80	8.4	14.7
1573.0	35.0	22.0	180	8.8	1.35	5.47	46884	101.17	246.95	8.4	14.7
1574.0	28.0	20.0	185	8.8	1.39	5.51	47281	126.46	246.26	8.4	14.7
1575.0	40.0	20.0	185	8.8	1.28	5.53	47558	88.53	245.36	8.4	14.7
1576.0	22.0	20.0	185	8.8	1.46	5.58	48063	160.95	244.88	8.4	14.7
1577.0	28.0	20.0	185	9.1	1.34	5.61	48459	126.46	244.21	8.4	14.7
1578.0	16.0	20.0	185	9.1	1.50	5.67	49153	221.31	244.08	8.4	14.7
1579.0	28.0	20.0	185	9.1	1.34	5.71	49549	126.46	243.42	8.4	14.7
1580.0	25.0	22.0	185	9.1	1.41	5.75	49993	141.64	242.86	8.4	14.7
1581.0	24.0	22.0	185	9.1	1.42	5.79	50456	147.54	242.33	8.4	14.7
1582.0	31.0	22.0	185	9.1	1.34	5.82	50814	114.23	241.63	8.4	14.7
1583.0	20.0	18.0	180	9.1	1.39	5.87	51354	177.05	241.27	8.4	14.7
1584.0	24.0	20.0	180	9.1	1.38	5.92	51804	147.54	240.76	8.4	14.7
1585.0	14.0	20.0	180	9.1	1.53	5.99	52575	252.93	240.83	8.4	14.7
1586.0	15.0	21.0	184	9.1	1.53	6.05	53311	236.07	240.80	8.4	14.7
1587.0	17.0	21.0	184	9.1	1.50	6.11	53961	208.29	240.63	8.4	14.7
1588.0	25.0	21.0	184	9.1	1.39	6.15	54402	141.64	240.10	8.4	14.7
1589.0	16.0	21.0	184	9.1	1.51	6.21	55092	221.31	240.01	8.4	14.7
1590.0	15.0	20.0	185	9.1	1.51	6.28	55832	236.07	239.98	8.4	14.7
1591.0	12.0	21.0	185	9.1	1.60	6.36	56757	295.08	240.27	8.4	14.7
1592.0	12.0	21.0	185	9.1	1.60	6.45	57682	295.08	240.56	8.4	14.7
1593.0	18.0	21.0	185	9.1	1.48	6.50	58299	196.72	240.33	8.4	14.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1594.0	18.0	22.0	185	9.1	1.50	6.56	58916	196.72	240.11	8.4	14.7
1595.0	24.0	22.0	185	9.1	1.42	6.60	59378	147.54	239.63	8.4	14.7
1596.0	21.0	22.0	185	9.1	1.46	6.65	59907	168.62	239.27	8.4	14.7
1597.0	12.0	20.0	185	9.1	1.58	6.73	60832	295.08	239.55	8.4	14.7
1598.0	17.0	22.0	185	9.1	1.52	6.79	61485	208.29	239.39	8.4	14.7
1599.0	23.0	22.0	185	9.1	1.43	6.83	61967	153.96	238.97	8.4	14.7
1600.0	17.0	23.0	185	9.1	1.53	6.89	62620	208.29	238.81	8.4	14.7
1601.0	24.0	23.0	185	9.1	1.43	6.93	63083	147.54	238.36	8.4	14.7
1602.0	17.0	23.0	185	9.1	1.53	6.99	63736	208.29	238.21	8.4	14.7
1603.0	21.0	23.0	185	9.1	1.47	7.04	64264	168.62	237.87	8.4	14.7
1604.0	17.0	23.0	185	9.1	1.53	7.10	64917	208.29	237.72	8.4	14.7
1605.0	20.0	23.0	185	9.1	1.49	7.15	65472	177.05	237.43	8.4	14.7
1606.0	18.0	20.0	185	9.1	1.46	7.21	66089	196.72	237.23	8.4	14.7
1607.0	17.0	21.0	185	9.1	1.50	7.26	66742	208.29	237.09	8.4	14.7
1608.0	4.0	20.0	145	9.1	1.82	7.51	68917	885.25	240.20	8.4	14.7
1609.0	15.0	20.0	145	9.1	1.45	7.58	69497	236.07	240.18	8.4	14.7
1610.0	16.0	21.0	140	9.1	1.44	7.64	70022	221.31	240.09	8.4	14.7
1611.0	13.0	22.0	145	9.1	1.52	7.72	70691	272.38	240.25	8.4	14.7
1612.0	17.0	22.0	145	9.1	1.45	7.78	71203	208.29	240.10	8.4	14.7
1613.0	13.0	22.0	145	9.1	1.52	7.86	71872	272.38	240.25	8.4	14.7
1614.0	12.0	22.0	145	9.1	1.55	7.94	72597	295.08	240.50	8.4	14.7
1615.0	15.0	22.0	145	9.1	1.48	8.01	73177	236.07	240.48	8.4	14.7
1616.0	14.0	22.0	145	9.1	1.50	8.08	73798	252.93	240.54	8.4	14.7
1617.0	20.0	22.0	145	9.1	1.40	8.13	74233	177.05	240.25	8.4	14.7
1618.0	12.0	23.0	150	9.1	1.57	8.21	74983	295.08	240.50	8.4	14.7
1619.0	18.0	23.0	150	9.1	1.46	8.27	75483	196.72	240.30	8.4	14.7
1620.0	16.0	23.0	150	9.1	1.49	8.33	76046	221.31	240.21	8.4	14.8
1621.0	5.0	6.0	145	9.1	1.34	8.53	77786	708.20	242.33	8.4	14.8
1622.0	5.0	6.0	145	9.1	1.34	8.73	79526	708.20	244.43	8.4	14.8
1623.0	4.0	6.0	145	9.1	1.39	8.98	81701	885.25	247.30	8.4	14.8
1624.0	4.0	7.0	145	9.1	1.43	9.23	83876	885.25	250.15	8.4	14.8
1625.0	4.0	7.0	145	9.1	1.43	9.48	86051	885.25	252.97	8.4	14.8
1626.0	4.0	6.0	150	9.1	1.40	9.73	88301	885.25	255.77	8.4	14.8
1627.0	8.0	6.0	150	9.1	1.25	9.85	89426	442.63	256.60	8.4	14.8
1628.0	6.0	7.0	150	9.1	1.35	10.02	90926	590.17	258.06	8.4	14.8
1629.0	6.0	7.0	150	9.1	1.35	10.19	92426	590.17	259.51	8.4	14.8
1630.0	7.0	10.0	150	9.1	1.42	10.33	93712	505.86	260.58	8.4	14.8
1631.0	8.0	10.0	150	9.1	1.39	10.46	94837	442.63	261.37	8.4	14.8
1632.0	8.0	10.0	150	9.1	1.39	10.58	95962	442.63	262.15	8.4	14.8
1633.0	10.0	10.0	150	9.1	1.33	10.68	96862	354.10	262.54	8.4	14.8
1634.0	10.0	9.0	154	9.1	1.31	10.78	97786	354.10	262.94	8.4	14.8
1635.0	13.0	9.0	154	9.1	1.25	10.86	98496	272.38	262.98	8.4	14.8
1636.0	12.0	10.0	150	9.1	1.29	10.94	99246	295.08	263.11	8.4	14.8
1637.0	14.0	10.0	150	9.1	1.25	11.01	99889	252.93	263.07	8.4	14.8
1638.0	12.0	13.0	150	9.1	1.37	11.10	100639	295.08	263.20	8.4	14.8
1639.0	12.0	13.0	150	9.1	1.37	11.18	101389	295.08	263.34	8.4	14.8
1640.0	15.0	15.0	150	9.1	1.36	11.25	101989	236.07	263.22	8.4	14.8
1641.0	18.0	15.0	150	9.1	1.31	11.30	102489	196.72	262.95	8.4	14.8
1642.0	14.0	16.0	150	9.1	1.40	11.37	103132	252.93	262.91	8.4	14.8
1643.0	13.0	18.0	150	9.1	1.46	11.45	103824	272.38	262.94	8.4	14.8

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1644.0	14.0	20.0	150	9.1	1.47	11.52	104467	252.93	262.90	8.4	14.8
1645.0	12.0	20.0	150	9.1	1.52	11.60	105217	295.08	263.03	8.4	14.8
1646.0	11.0	20.0	150	9.1	1.54	11.69	106035	321.91	263.27	8.4	14.8
1647.0	15.0	20.0	150	9.1	1.46	11.76	106635	236.07	263.16	8.4	14.8
1648.0	9.0	15.0	150	9.1	1.49	11.87	107635	393.44	263.69	8.4	14.8
1649.0	14.0	15.0	150	9.1	1.37	11.94	108278	252.93	263.65	8.4	14.8
1650.0	9.0	14.0	150	9.1	1.47	12.06	109278	393.44	264.17	8.4	14.8
1651.0	9.0	14.0	150	9.1	1.47	12.17	110278	393.44	264.68	8.4	14.8
1652.0	11.0	14.0	150	9.1	1.41	12.26	111097	321.91	264.91	8.4	14.8
1653.0	11.0	12.0	145	9.1	1.36	12.35	111887	321.91	265.13	8.4	14.8
1654.0	6.0	12.0	150	9.2	1.50	12.51	113387	590.17	266.41	8.4	14.8
1655.0	13.0	14.0	145	9.3	1.33	12.59	114057	272.38	266.44	8.4	14.8
1656.0	5.6	12.0	150	9.3	1.50	12.77	115664	632.32	267.87	8.4	14.8
1657.0	9.0	12.0	150	9.3	1.38	12.88	116664	393.44	268.35	8.4	14.8
1658.0	5.9	13.0	155	9.3	1.52	13.05	118240	600.17	269.64	8.4	14.8
1659.0	6.2	13.0	155	9.3	1.51	13.21	119740	571.13	270.80	8.4	14.8
1660.0	5.2	8.0	155	9.3	1.40	13.40	121529	680.96	272.38	8.4	14.8
1661.0	8.2	8.0	155	9.3	1.30	13.53	122663	431.83	272.99	8.4	14.8
1662.0	6.3	7.0	155	9.3	1.32	13.69	124139	562.06	274.10	8.4	14.8
1663.0	6.2	7.0	155	9.3	1.32	13.85	125639	571.13	275.22	8.4	14.8
1664.0	8.9	9.0	155	9.3	1.31	13.96	126684	397.87	275.69	8.4	14.8
1665.0	6.2	10.0	155	9.3	1.42	14.12	128184	571.13	276.80	8.4	14.8
1666.0	10.6	9.0	155	9.3	1.27	14.21	129061	334.06	277.02	8.4	14.8
1667.0	10.6	11.0	155	9.3	1.33	14.31	129939	334.06	277.23	8.4	14.8
1668.0	14.0	12.0	150	9.3	1.28	14.38	130581	252.93	277.14	8.4	14.8
1669.0	8.1	14.0	150	9.3	1.46	14.50	131693	437.16	277.74	8.4	14.8
1670.0	7.2	13.0	158	9.3	1.48	14.64	133009	491.81	278.53	8.4	14.8
1671.0	4.0	12.0	158	9.3	1.59	14.89	135379	885.25	280.77	8.4	14.8
1672.0	5.4	12.0	158	9.3	1.52	15.08	137135	655.74	282.15	8.4	14.8
1673.0	5.4	12.0	158	9.3	1.52	15.26	138890	655.74	283.52	8.4	14.8
1674.0	3.2	13.0	155	9.3	1.67	15.58	141797	1107	287	8.4	14.8
1675.0	6.7	13.0	155	9.3	1.49	15.72	143185	528.51	287.40	8.4	14.8
1676.0	12.0	13.0	155	9.3	1.35	15.81	143960	295.08	287.43	8.4	14.8
1677.0	6.4	13.0	155	9.3	1.50	15.96	145413	553.28	288.39	8.4	14.8
1678.0	6.9	15.0	155	9.3	1.53	16.11	146761	513.19	289.20	8.4	14.8
1679.0	5.6	15.0	155	9.3	1.59	16.29	148421	632.32	290.43	8.4	14.8
1680.0	10.0	15.0	155	9.3	1.44	16.39	149351	354.10	290.65	8.4	14.8
1681.0	11.6	15.0	155	9.3	1.40	16.47	150153	305.26	290.71	8.4	14.8
1682.0	10.0	15.0	155	9.3	1.44	16.57	151083	354.10	290.93	8.4	14.8
1683.0	11.7	15.0	155	9.3	1.40	16.66	151878	302.65	290.97	8.4	14.8
1684.0	11.2	15.0	155	9.3	1.41	16.75	152708	316.16	291.06	8.4	14.8
1685.0	9.1	12.0	155	9.3	1.39	16.86	153730	389.12	291.40	8.4	14.8
1686.0	7.7	12.0	155	9.3	1.43	16.99	154938	459.87	291.99	8.4	14.8
1687.0	9.6	12.0	155	9.3	1.38	17.09	155907	368.85	292.26	8.4	14.9
1688.0	9.6	12.0	152	9.3	1.37	17.20	156857	368.85	292.53	8.4	14.9
1689.0	8.5	14.0	155	9.3	1.46	17.31	157951	416.59	292.96	8.4	14.9
1690.0	9.0	14.0	152	9.3	1.44	17.43	158964	393.44	293.30	8.4	14.9
1691.0	7.8	14.0	152	9.3	1.47	17.55	160133	453.97	293.86	8.4	14.9
1692.0	6.7	14.0	150	9.3	1.51	17.70	161477	528.51	294.66	8.4	14.9
1693.0	7.6	14.0	150	9.3	1.48	17.83	162661	465.92	295.24	8.4	14.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1694.0	8.5	14.0	124	9.3	1.40	17.95	163536	416.59	295.66	8.4	14.9
1695.0	11.6	14.0	124	9.3	1.32	18.04	164178	305.26	295.69	8.4	14.9
1696.0	10.6	14.0	122	9.3	1.34	18.13	164868	334.06	295.82	8.4	14.9
1697.0	14.5	14.0	122	9.3	1.26	18.20	165373	244.21	295.64	8.4	14.9
1698.0	11.0	14.0	122	9.3	1.33	18.29	166038	321.91	295.73	8.4	14.9
1699.0	12.8	14.0	122	9.3	1.29	18.37	166610	276.64	295.67	8.4	14.9
1700.0	7.6	15.0	122	9.3	1.45	18.50	167573	465.92	296.24	8.4	14.9
1701.0	10.0	15.0	122	9.3	1.38	18.60	168305	354.10	296.43	8.4	14.9
1702.0	7.0	16.0	122	9.3	1.49	18.75	169351	505.86	297.12	8.4	14.9
1703.0	12.0	16.0	122	9.3	1.35	18.83	169961	295.08	297.12	8.4	14.9
1704.0	7.3	10.0	150	9.3	1.38	18.97	171194	485.07	297.73	8.4	14.9
1705.0	12.0	12.0	150	9.3	1.31	19.05	171944	295.08	297.72	8.4	14.9
1706.0	9.6	12.0	150	9.3	1.37	19.15	172882	368.85	297.96	8.4	14.9
1707.0	11.0	12.0	150	9.3	1.34	19.24	173700	321.91	298.04	8.4	14.9
1708.0	10.0	12.0	150	9.3	1.36	19.34	174600	354.10	298.22	8.4	14.9
1709.0	13.0	12.0	150	9.3	1.30	19.42	175292	272.38	298.13	8.4	14.9
1710.0	7.7	12.0	142	9.3	1.41	19.55	176399	459.87	298.66	8.4	14.9
1711.0	11.0	12.0	142	9.3	1.32	19.64	177173	321.91	298.73	8.4	14.9
1712.0	18.0	12.0	115	9.3	1.15	19.70	177556	196.72	298.40	8.4	14.9
1713.0	5.6	12.0	115	9.3	1.43	19.88	178789	632.32	299.47	8.4	14.9
1714.0	4.4	13.0	130	9.3	1.55	20.10	180561	804.77	301.08	8.4	14.9
1715.0	5.6	13.0	130	9.4	1.48	20.28	181954	632.32	302.13	8.4	14.9
1716.0	7.2	13.0	130	9.4	1.42	20.42	183037	491.81	302.73	8.4	14.9
1717.0	6.9	12.0	135	9.4	1.41	20.57	184211	513.19	303.39	8.4	14.9
1718.0	5.6	12.0	130	9.4	1.45	20.74	185604	632.32	304.43	8.4	14.9
1719.0	8.9	12.0	130	9.4	1.34	20.86	186481	397.87	304.72	8.4	14.9
1720.0	7.8	12.0	130	9.4	1.38	20.98	187481	453.97	305.19	8.4	14.9
1721.0	7.8	12.0	150	9.3	1.42	21.11	188634	453.97	305.65	8.4	14.9
1722.0	10.0	20.0	150	9.3	1.54	21.21	189534	354.10	305.80	8.4	14.9
1723.0	12.0	20.0	150	9.3	1.49	21.30	190284	295.08	305.77	8.4	14.9
1724.0	10.0	17.0	155	9.3	1.48	21.40	191214	354.10	305.92	8.4	14.9
1725.0	12.0	17.0	155	9.3	1.43	21.48	191989	295.08	305.89	8.4	14.9
1726.0	11.0	20.0	155	9.3	1.52	21.57	192835	321.91	305.93	8.4	14.9
1727.0	8.2	20.0	155	9.3	1.60	21.69	193969	431.83	306.32	8.4	14.9
1728.0	11.0	20.0	150	9.3	1.51	21.78	194787	321.91	306.37	8.4	14.9
1729.0	10.4	20.0	150	9.3	1.52	21.88	195653	340.48	306.47	8.4	14.9
1730.0	9.6	20.0	150	9.3	1.55	21.98	196590	368.85	306.66	8.4	14.9
1731.0	8.9	21.0	145	9.3	1.58	22.10	197568	397.87	306.94	8.4	14.9
1732.0	8.9	21.0	145	9.3	1.58	22.21	198545	397.87	307.21	8.4	14.9
1733.0	8.5	21.0	145	9.3	1.59	22.33	199569	416.59	307.54	8.4	14.9
1734.0	11.0	11.0	152	9.3	1.31	22.42	200398	321.91	307.58	8.4	14.9
1735.0	9.0	11.0	152	9.3	1.36	22.53	201411	393.44	307.84	8.4	14.9
1736.0	10.0	12.0	152	9.3	1.36	22.63	202323	354.10	307.97	8.4	14.9
1737.0	12.0	15.0	152	9.4	1.37	22.71	203083	295.08	307.94	8.4	14.9
1738.0	9.0	15.0	152	9.4	1.45	22.82	204097	393.44	308.19	8.4	14.9
1739.0	18.0	24.0	152	9.4	1.43	22.88	204603	196.72	307.86	8.4	14.9
1740.0	14.0	25.0	152	9.4	1.52	22.95	205255	252.93	307.70	8.4	14.9
1741.0	12.0	25.0	152	9.4	1.56	23.03	206015	295.08	307.66	8.4	14.9
1742.0	12.0	25.0	152	9.5	1.55	23.12	206775	295.08	307.63	8.4	14.9
1743.0	12.0	26.0	150	9.5	1.56	23.20	207525	295.08	307.59	8.4	14.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1744.0	16.0	25.0	150	9.5	1.46	23.26	208087	221.31	307.34	8.4	14.9
1745.0	14.0	25.0	150	9.5	1.50	23.33	208730	252.93	307.18	8.4	14.9
1746.0	14.0	25.0	150	9.5	1.50	23.40	209373	252.93	307.02	8.4	14.9
1747.0	16.0	25.0	150	9.5	1.46	23.47	209935	221.31	306.78	8.4	14.9
1748.0	11.0	25.0	150	9.5	1.57	23.56	210753	321.91	306.82	8.4	14.9
1749.0	18.0	24.0	150	9.5	1.41	23.61	211253	196.72	306.50	8.4	14.9
1750.0	17.0	24.0	150	9.5	1.43	23.67	211783	208.29	306.22	8.4	14.9
1751.0	14.0	24.0	150	9.5	1.48	23.74	212426	252.93	306.07	8.4	14.9
1752.0	15.0	26.0	150	9.5	1.49	23.81	213026	236.07	305.87	8.4	14.9
1753.0	12.0	26.0	150	9.5	1.56	23.89	213776	295.08	305.84	8.4	14.9
1754.0	15.0	26.0	150	9.5	1.49	23.96	214376	236.07	305.65	8.4	14.9
1755.0	13.0	26.0	150	9.5	1.53	24.04	215068	272.38	305.55	8.4	14.9
1756.0	14.0	25.0	150	9.5	1.50	24.11	215711	252.93	305.40	8.4	15.0
1757.0	9.0	25.0	150	9.5	1.62	24.22	216711	393.44	305.65	8.4	15.0
1758.0	15.0	26.0	150	9.5	1.49	24.29	217311	236.07	305.46	8.4	15.0
1759.0	11.0	26.0	150	9.5	1.58	24.38	218129	321.91	305.50	8.4	15.0
1760.0	11.0	24.0	150	9.5	1.55	24.47	218947	321.91	305.55	8.4	15.0
1761.0	11.0	24.0	150	9.5	1.55	24.56	219765	321.91	305.59	8.4	15.0
1762.0	11.0	24.0	150	9.5	1.55	24.65	220584	321.91	305.64	8.4	15.0
1763.0	11.0	24.0	150	9.5	1.55	24.74	221402	321.91	305.68	8.4	15.0
1764.0	13.0	21.0	150	9.5	1.45	24.82	222094	272.38	305.59	8.4	15.0
1765.0	10.0	21.0	150	9.5	1.52	24.92	222994	354.10	305.72	8.4	15.0
1766.0	9.0	22.0	150	9.5	1.57	25.03	223994	393.44	305.96	8.4	15.0
1767.0	9.0	22.0	150	9.5	1.57	25.14	224994	393.44	306.20	8.4	15.0
1768.0	9.0	22.0	150	9.5	1.57	25.25	225994	393.44	306.44	8.4	15.0
1769.0	11.0	22.0	150	9.5	1.51	25.34	226812	321.91	306.48	8.4	15.0
1770.0	11.0	24.0	150	9.5	1.55	25.43	227631	321.91	306.52	8.4	15.0
1771.0	11.0	24.0	150	9.5	1.55	25.52	228449	321.91	306.56	8.4	15.0
1772.0	5.0	22.0	150	9.5	1.73	25.72	230249	708.20	307.64	8.4	15.0
1773.0	6.0	22.0	150	9.5	1.68	25.89	231749	590.17	308.40	8.4	15.0
1774.0	6.0	24.0	150	9.5	1.72	26.06	233249	590.17	309.15	8.4	15.0
1775.0	9.0	24.0	150	9.5	1.61	26.17	234249	393.44	309.38	8.4	15.0
1776.0	7.0	26.0	150	9.5	1.71	26.31	235534	505.86	309.90	8.4	15.0
1777.0	7.3	26.0	150	9.5	1.70	26.45	236767	485.07	310.37	8.4	15.0
1778.0	7.3	26.0	150	9.5	1.70	26.59	238000	485.07	310.83	8.4	15.0

BIT NUMBER	6	IADC CODE	114	INTERVAL	1778.0- 1920.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	6.4	BIT RUN	142.0
TOTAL HOURS	11.63	TOTAL TURNS	99500	CONDITION	T3 B3 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1779.0	7.0	12.0	145	9.5	1.41	0.14	1243	506	24568	8.4	15.0
1780.0	7.8	15.0	145	9.5	1.45	0.27	2358	454	12511	8.4	15.0
1781.0	9.1	15.0	145	9.5	1.42	0.38	3314	389	8470	8.4	15.0
1782.0	12.0	17.0	145	9.5	1.39	0.46	4039	295	6427	8.4	15.0
1783.0	4.6	16.0	145	9.5	1.61	0.68	5931	770	5295	8.4	15.0
1784.0	10.7	16.0	145	9.5	1.40	0.78	6744	331	4468	8.4	15.0
1785.0	11.0	17.0	145	9.5	1.41	0.87	7535	322	3876	8.4	15.0
1786.0	8.6	24.0	145	9.5	1.61	0.98	8546	412	3443	8.4	15.0
1787.0	12.2	26.0	145	9.5	1.54	1.06	9259	290	3092	8.4	15.0
1788.0	12.0	26.0	145	9.5	1.55	1.15	9984	295	2813	8.4	15.0
1789.0	13.6	26.0	145	9.5	1.51	1.22	10624	260	2581	8.4	15.0
1790.0	13.4	26.0	145	9.5	1.52	1.30	11273	264	2388	8.4	15.0
1791.0	17.3	27.0	145	9.5	1.46	1.35	11776	205	2220	8.4	15.0
1792.0	16.0	27.0	145	9.5	1.48	1.42	12320	221	2077	8.4	15.0
1793.0	12.4	27.0	145	9.5	1.55	1.50	13022	286	1957	8.4	15.0
1794.0	13.9	25.0	135	9.5	1.47	1.57	13604	255	1851	8.4	15.0
1795.0	12.3	25.0	130	9.5	1.49	1.65	14238	288	1759	8.4	15.0
1796.0	12.0	25.0	130	9.5	1.50	1.73	14888	295	1678	8.4	15.0
1797.0	10.2	25.0	130	9.5	1.55	1.83	15653	347	1608	8.4	15.0
1798.0	12.6	25.0	130	9.5	1.49	1.91	16272	281	1541	8.4	15.0
1799.0	17.7	35.0	130	9.5	1.53	1.97	16713	200	1478	8.4	15.0
1800.0	14.9	26.0	143	9.6	1.47	2.03	17289	238	1421	8.4	15.0
1801.0	15.9	31.0	148	9.6	1.53	2.10	17847	223	1369	8.4	15.0
1802.0	15.9	30.0	148	9.6	1.52	2.16	18406	223	1321	8.4	15.0
1803.0	12.3	30.0	148	9.6	1.59	2.24	19128	288	1280	8.4	15.0
1804.0	13.1	30.0	150	9.6	1.58	2.32	19815	270	1241	8.4	15.0
1805.0	13.0	30.0	135	9.6	1.55	2.39	20438	272	1205	8.4	15.0
1806.0	11.9	30.0	125	9.6	1.55	2.48	21068	298	1173	8.4	15.0
1807.0	17.9	30.0	130	9.6	1.44	2.53	21504	198	1139	8.4	15.0
1808.0	13.0	26.0	130	9.6	1.48	2.61	22104	272	1110	8.4	15.0
1809.0	11.9	28.0	140	9.6	1.56	2.70	22810	298	1084	8.4	15.0
1810.0	14.0	30.0	135	9.6	1.53	2.77	23388	253	1058	8.4	15.0
1811.0	17.7	30.0	140	9.6	1.47	2.82	23863	200	1032	8.4	15.0
1812.0	17.0	30.0	135	9.6	1.47	2.88	24339	208	1008	8.4	15.0
1813.0	16.0	30.0	135	9.6	1.49	2.94	24845	221.31	985.42	8.4	15.0
1814.0	16.0	29.0	135	9.6	1.47	3.01	25352	221.31	964.20	8.4	15.0
1815.0	11.0	29.0	135	9.6	1.58	3.10	26088	321.91	946.84	8.4	15.0
1816.0	13.0	30.0	145	9.6	1.57	3.18	26757	272.38	929.09	8.4	15.0
1817.0	18.0	30.0	145	9.6	1.47	3.23	27241	196.72	910.31	8.4	15.0
1818.0	16.0	30.0	145	9.6	1.51	3.29	27784	221.31	893.09	8.4	15.0
1819.0	15.5	30.0	145	9.6	1.52	3.36	28346	228.45	876.88	8.4	15.0
1820.0	13.0	30.0	130	9.6	1.54	3.43	28946	272.38	862.48	8.4	15.0
1821.0	11.0	30.0	130	9.6	1.59	3.53	29655	321.91	849.91	8.4	15.0

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1822.0	19.4	30.0	133	9.6	1.43	3.58	30066	182.53	834.74	8.4	15.0
1823.0	13.1	30.0	135	9.6	1.55	3.65	30684	270.31	822.20	8.4	15.0
1824.0	13.1	30.0	135	9.6	1.55	3.73	31303	270.31	810.20	8.4	15.0
1825.0	14.2	28.0	130	9.6	1.48	3.80	31852	249.37	798.27	8.4	15.0
1826.0	15.0	28.0	135	9.6	1.48	3.87	32392	236.07	786.56	8.4	15.0
1827.0	13.0	28.0	135	9.6	1.52	3.94	33015	272.38	776.06	8.4	15.0
1828.0	13.0	25.0	135	9.6	1.47	4.02	33638	272.38	765.99	8.4	15.0
1829.0	12.5	25.0	135	9.6	1.48	4.10	34286	283.28	756.53	8.4	15.1
1830.0	12.3	32.0	155	9.6	1.64	4.18	35042	287.89	747.51	8.4	15.1
1831.0	12.1	30.0	155	9.6	1.61	4.26	35811	292.64	738.93	8.4	15.1
1832.0	14.8	32.0	145	9.6	1.56	4.33	36399	239.26	729.68	8.4	15.1
1833.0	13.4	32.0	145	9.6	1.59	4.41	37048	264.25	721.22	8.4	15.1
1834.0	13.4	32.0	145	9.6	1.59	4.48	37697	264.25	713.06	8.4	15.1
1835.0	15.0	32.0	145	9.6	1.56	4.55	38277	236.07	704.69	8.4	15.1
1836.0	15.0	30.0	145	9.6	1.53	4.61	38857	236.07	696.61	8.4	15.1
1837.0	14.0	30.0	145	9.6	1.55	4.69	39479	252.93	689.09	8.4	15.1
1838.0	13.0	31.0	145	9.6	1.59	4.76	40148	272.38	682.14	8.4	15.1
1839.0	13.0	31.0	142	9.6	1.58	4.84	40803	272.38	675.43	8.4	15.1
1840.0	13.0	31.0	142	9.6	1.58	4.92	41459	272.38	668.93	8.4	15.1
1841.0	15.0	31.0	145	9.6	1.54	4.98	42039	236.07	662.05	8.4	15.1
1842.0	12.4	31.0	145	9.6	1.60	5.06	42740	285.56	656.17	8.4	15.1
1843.0	13.0	31.0	145	9.6	1.59	5.14	43410	272.38	650.27	8.4	15.1
1844.0	10.6	31.0	145	9.6	1.65	5.24	44230	334.06	645.48	8.4	15.1
1845.0	14.9	30.0	145	9.6	1.53	5.30	44814	237.65	639.39	8.4	15.1
1846.0	14.2	30.0	145	9.6	1.54	5.37	45427	249.37	633.65	8.4	15.1
1847.0	12.7	31.0	145	9.6	1.59	5.45	46112	278.82	628.51	8.4	15.1
1848.0	14.3	31.0	145	9.6	1.56	5.52	46720	247.62	623.07	8.4	15.1
1849.0	12.4	32.0	145	9.6	1.61	5.60	47422	285.56	618.32	8.4	15.1
1850.0	12.5	32.0	145	9.6	1.61	5.68	48118	283.28	613.66	8.4	15.1
1851.0	11.6	32.0	145	9.6	1.63	5.77	48868	305.26	609.44	8.4	15.1
1852.0	9.6	32.0	170	9.6	1.74	5.87	49930	368.85	606.19	8.4	15.1
1853.0	11.0	32.0	170	9.6	1.70	5.96	50858	321.91	602.40	8.4	15.1
1854.0	20.0	32.0	160	9.6	1.50	6.01	51338	177.05	596.80	8.4	15.1
1855.0	15.8	30.0	150	9.6	1.52	6.08	51907	224.11	591.96	8.4	15.1
1856.0	10.0	30.0	150	9.6	1.66	6.18	52807	354.10	588.91	8.4	15.1
1857.0	10.1	30.0	150	9.6	1.66	6.28	53698	350.59	585.89	8.4	15.1
1858.0	10.6	30.0	150	9.6	1.64	6.37	54547	334.06	582.75	8.4	15.1
1859.0	10.3	30.0	150	9.6	1.65	6.47	55421	343.79	579.80	8.4	15.1
1860.0	10.1	28.0	145	9.6	1.61	6.57	56283	350.59	577.00	8.4	15.1
1861.0	11.0	28.0	145	9.6	1.59	6.66	57074	321.91	573.93	8.4	15.1
1862.0	10.6	27.0	155	9.6	1.60	6.75	57951	334.06	571.07	8.4	15.1
1863.0	13.7	27.0	155	9.6	1.53	6.82	58630	258.47	567.39	8.4	15.1
1864.0	10.6	27.0	145	9.6	1.58	6.92	59450	334.06	564.68	8.4	15.1
1865.0	11.8	27.0	145	9.6	1.55	7.00	60188	300.08	561.64	8.4	15.1
1866.0	11.6	25.0	145	9.6	1.53	7.09	60938	305.26	558.73	8.4	15.1
1867.0	10.9	26.0	145	9.6	1.56	7.18	61736	324.86	556.10	8.4	15.1
1868.0	10.0	26.0	145	9.6	1.58	7.28	62606	354.10	553.85	8.4	15.1
1869.0	10.0	26.0	145	9.6	1.58	7.38	63476	354.10	551.66	8.4	15.1
1870.0	10.0	30.0	145	9.6	1.65	7.48	64346	354.10	549.51	8.4	15.1
1871.0	11.4	30.0	145	9.6	1.61	7.57	65109	310.61	546.94	8.4	15.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1872.0	11.0	30.0	145	9.6	1.62	7.66	65900	321.91	544.55	8.4	15.1
1873.0	11.0	30.0	145	9.6	1.62	7.75	66691	321.91	542.20	8.4	15.1
1874.0	16.0	30.0	145	9.6	1.51	7.81	67235	221.31	538.86	8.4	15.1
1875.0	13.0	30.0	145	9.6	1.57	7.89	67904	272.38	536.12	8.4	15.1
1876.0	13.0	30.0	145	9.6	1.57	7.97	68573	272.38	533.42	8.4	15.1
1877.0	12.0	30.0	145	9.6	1.59	8.05	69298	295.08	531.02	8.4	15.1
1878.0	12.0	30.0	145	9.6	1.59	8.13	70023	295.08	528.66	8.4	15.1
1879.0	12.0	30.0	145	9.6	1.59	8.22	70748	295.08	526.34	8.4	15.1
1880.0	10.0	28.0	145	9.6	1.62	8.32	71618	354.10	524.66	8.4	15.1
1881.0	12.0	28.0	145	9.6	1.56	8.40	72343	295.08	522.43	8.4	15.1
1882.0	11.0	30.0	145	9.6	1.62	8.49	73134	321.91	520.50	8.4	15.1
1883.0	11.0	30.0	145	9.6	1.62	8.58	73925	321.91	518.61	8.4	15.1
1884.0	12.0	30.0	140	9.6	1.58	8.67	74625	295.08	516.50	8.4	15.1
1885.0	12.0	30.0	140	9.6	1.58	8.75	75325	295.08	514.43	8.4	15.1
1886.0	12.0	30.0	140	9.6	1.58	8.83	76025	295.08	512.40	8.4	15.1
1887.0	10.0	30.0	140	9.6	1.64	8.93	76865	354.10	510.95	8.4	15.1
1888.0	10.0	29.0	140	9.6	1.62	9.03	77705	354.10	509.52	8.4	15.1
1889.0	10.0	29.0	140	9.6	1.62	9.13	78545	354.10	508.12	8.4	15.1
1890.0	11.0	28.0	142	9.6	1.58	9.22	79319	321.91	506.46	8.4	15.1
1891.0	10.0	28.0	142	9.6	1.61	9.32	80171	354.10	505.11	8.4	15.1
1892.0	14.0	28.0	140	9.6	1.51	9.40	80771	252.93	502.90	8.4	15.1
1893.0	18.1	28.0	140	9.6	1.43	9.45	81236	195.64	500.23	8.4	15.1
1894.0	17.0	30.0	140	9.6	1.48	9.51	81730	208.29	497.71	8.4	15.1
1895.0	12.0	30.0	140	9.6	1.58	9.59	82430	295.08	495.98	8.4	15.1
1896.0	10.0	30.0	145	9.6	1.65	9.69	83300	354.10	494.77	8.4	15.1
1897.0	13.0	30.0	145	9.6	1.57	9.77	83969	272.38	492.91	8.4	15.1
1898.0	11.0	30.0	145	9.6	1.62	9.86	84760	321.91	491.48	8.4	15.1
1899.0	12.0	27.0	145	9.6	1.55	9.94	85485	295.08	489.86	8.4	15.1
1900.0	13.0	26.0	145	9.6	1.51	10.02	86154	272.38	488.08	8.4	15.1
1901.0	13.0	26.0	145	9.6	1.51	10.10	86823	272.38	486.32	8.4	15.1
1902.0	13.0	26.0	145	9.6	1.51	10.17	87493	272.38	484.60	8.4	15.1
1903.0	12.0	26.0	145	9.6	1.53	10.26	88218	295.08	483.08	8.4	15.1
1904.0	4.0	29.0	140	9.6	1.89	10.51	90318	885.25	486.27	8.4	15.2
1905.0	20.0	29.0	140	9.6	1.42	10.56	90738	177.05	483.84	8.4	15.2
1906.0	15.0	29.0	140	9.6	1.50	10.62	91298	236.07	481.90	8.4	15.2
1907.0	13.0	29.0	140	9.6	1.55	10.70	91944	272.38	480.28	8.4	15.2
1908.0	12.0	27.0	140	9.6	1.54	10.78	92644	295.08	478.85	8.4	15.2
1909.0	12.0	27.0	140	9.6	1.54	10.87	93344	295.08	477.45	8.4	15.2
1910.0	10.0	27.0	140	9.6	1.59	10.97	94184	354.10	476.52	8.4	15.2
1911.0	11.0	27.0	140	9.6	1.56	11.06	94947	321.91	475.35	8.4	15.2
1912.0	32.0	30.0	150	9.6	1.31	11.09	95229	110.66	472.63	8.4	15.2
1913.0	7.0	30.0	150	9.6	1.76	11.23	96514	505.86	472.88	8.4	15.2
1914.0	33.0	30.0	120	9.6	1.24	11.26	96732	107.30	470.19	8.4	15.2
1915.0	36.0	30.0	120	9.6	1.21	11.29	96932	98.36	467.43	8.4	15.2
1916.0	12.0	20.0	120	9.6	1.38	11.37	97532	295.08	466.23	8.4	15.2
1917.0	14.0	20.0	120	9.6	1.34	11.45	98047	252.93	464.69	8.4	15.2
1918.0	17.0	30.0	120	9.6	1.44	11.50	98470	208.29	462.86	8.4	15.2
1919.0	16.0	30.0	120	9.6	1.45	11.57	98920	221.31	461.15	8.4	15.2
1920.0	15.0	30.0	145	9.6	1.53	11.63	99500	236.07	459.56	8.4	15.2



BIT NUMBER	7	IADC CODE	4	INTERVAL	1920.0- 1929.5
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.5
TOTAL HOURS	6.00	TOTAL TURNS	37032	CONDITION	T0 B0 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1921.0	3.0	6.0	100	9.5	1.42	0.33	2000	1181	38849	8.4	15.2
1922.0	3.0	10.0	110	9.5	1.61	0.67	4200	1181	20015	8.4	15.2
1923.0	3.0	10.0	110	9.5	1.61	1.00	6400	1181	13737	8.4	15.2
1924.0	6.7	12.0	110	9.5	1.47	1.15	7385	529	10435	8.4	15.2
1925.0	10.0	12.0	105	9.5	1.36	1.25	8015	354	8419	8.4	15.2
1926.0	5.5	12.0	102	9.5	1.51	1.43	9138	650	7124	8.4	15.2
1927.0	0.8	18.0	102	9.5	2.22	2.68	16788	4428	6739	8.4	15.2
1928.0	0.7	18.0	95	9.5	2.24	4.11	24931	5060	6529	8.4	15.2
1929.0	0.7	18.0	95	9.6	2.22	5.54	33074	5060	6366	8.4	15.2
1929.5	3.0	18.0	95	9.6	1.81	5.71	34024	1181	6093	8.4	15.2

BIT NUMBER	8	IADC CODE	4	INTERVAL	1929.5- 1939.4
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.9
TOTAL HOURS	1.54	TOTAL TURNS	9365	CONDITION	T0 B0 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1929.6	11.0	4.0	76	9.5	0.98	0.01	41	322	377010	8.4	15.2
1929.8	12.0	4.0	76	9.5	0.97	0.03	117	295	125867	8.4	15.2
1930.0	12.0	5.0	102	9.5	1.07	0.04	219	295	75638	8.4	15.2
1930.2	12.0	6.0	102	9.5	1.11	0.06	321	295	54112	8.4	15.2
1930.4	13.0	7.0	102	9.5	1.13	0.07	416	272	42147	8.4	15.2
1930.6	13.0	7.0	102	9.5	1.13	0.09	510	272	34534	8.4	15.2
1930.8	14.0	7.0	102	9.5	1.12	0.10	597	253	29260	8.4	15.2
1931.0	10.0	8.0	102	9.5	1.23	0.12	720	354	25406	8.4	15.2
1931.2	7.9	9.0	102	9.5	1.32	0.15	875	448	22470	8.4	15.2
1931.4	13.0	9.0	102	9.5	1.20	0.16	969	272	20133	8.4	15.2
1931.6	7.0	8.0	102	9.5	1.31	0.19	1144	506	18264	8.4	15.2
1931.8	9.0	8.0	102	9.5	1.25	0.22	1280	394	16710	8.4	15.2
1932.0	8.0	8.0	102	9.5	1.28	0.24	1433	443	15408	8.4	15.2
1932.2	8.0	8.0	102	9.5	1.28	0.27	1586	443	14300	8.4	15.2
1932.4	9.1	8.0	102	9.5	1.25	0.29	1720	389	13341	8.4	15.2
1932.6	8.0	8.0	102	9.5	1.28	0.31	1873	443	12508	8.4	15.2
1932.8	8.0	8.0	102	9.5	1.28	0.34	2026	443	11777	8.4	15.2
1933.0	6.7	8.0	102	9.5	1.32	0.37	2209	529	11134	8.4	15.2
1933.2	6.7	8.0	102	9.5	1.32	0.40	2391	529	10561	8.4	15.2
1933.4	6.9	8.0	102	9.5	1.32	0.43	2569	513	10046	8.4	15.2
1933.6	6.9	8.0	102	9.5	1.32	0.46	2746	513	9581	8.4	15.2
1933.8	4.1	8.0	102	9.5	1.44	0.50	3045	864	9175	8.4	15.2
1934.0	1.3	8.0	102	9.5	1.71	0.66	3986	2725	8889	8.4	15.2
1934.2	2.6	8.0	102	9.5	1.55	0.73	4457	1362	8568	8.4	15.2
1934.4	1.8	8.0	102	9.5	1.63	0.85	5137	1968	8299	8.4	15.2
1934.6	25.5	8.0	102	9.5	1.01	0.85	5185	139	7979	8.4	15.2
1934.8	33.0	8.0	102	9.5	0.95	0.86	5222	107	7682	8.4	15.2
1935.0	29.5	8.0	102	9.5	0.97	0.87	5264	120	7407	8.4	15.2
1935.2	30.0	8.0	102	9.5	0.97	0.87	5304	118	7151	8.4	15.2
1935.4	32.3	8.0	102	9.5	0.95	0.88	5342	110	6913	8.4	15.2
1935.6	31.3	7.0	102	9.5	0.93	0.89	5381	113	6690	8.4	15.2
1935.8	27.6	7.0	102	9.5	0.96	0.89	5426	128	6481	8.4	15.2
1936.0	6.4	8.0	102	9.5	1.33	0.92	5617	553	6299	8.4	15.2
1936.2	3.4	8.0	102	9.5	1.48	0.98	5977	1042	6142	8.4	15.2
1936.4	2.1	8.0	102	9.5	1.60	1.08	6560	1687	6013	8.4	15.2
1936.6	2.1	8.0	102	9.5	1.60	1.17	7143	1687	5891	8.4	15.2
1936.8	6.9	8.0	102	9.5	1.32	1.20	7320	513	5744	8.4	15.2
1937.0	2.7	8.0	102	9.5	1.54	1.28	7773	1312	5625	8.4	15.2
1937.2	2.5	8.0	102	9.5	1.55	1.36	8263	1417	5516	8.4	15.2
1937.4	4.0	8.0	102	9.5	1.44	1.41	8569	886	5399	8.4	15.2
1937.6	4.6	8.0	102	9.5	1.41	1.45	8835	770	5285	8.4	15.2
1937.8	15.0	8.0	102	9.5	1.13	1.46	8917	236	5163	8.4	15.2
1938.0	6.5	8.0	102	9.5	1.33	1.49	9105	545	5054	8.4	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1938.2	9.6	7.0	102	9.5	1.20	1.52	9233	369	4947	8.4	15.2
1938.4	24.0	8.0	102	9.5	1.02	1.52	9284	148	4839	8.4	15.2
1938.6	80.0	8.0	102	9.5	0.74	1.53	9299	44	4733	8.4	15.2
1938.8	43.6	8.0	102	9.5	0.88	1.53	9327	81	4633	8.4	15.2
1939.0	32.0	8.0	102	9.5	0.96	1.54	9365	111	4538	8.4	15.2
1939.2	48.0	8.0	102	9.5	0.86	1.54	9391	74	4446	8.4	15.2
1939.4	84.0	8.0	102	9.5	0.73	1.54	9405	42	4357	8.4	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1938.2	9.6	7.0	102	9.5	1.20	1.52	9233	369	4947	8.4	15.2
1938.4	24.0	8.0	102	9.5	1.02	1.52	9284	148	4839	8.4	15.2
1938.6	80.0	8.0	102	9.5	0.74	1.53	9299	44	4733	8.4	15.2
1938.8	43.6	8.0	102	9.5	0.88	1.53	9327	81	4633	8.4	15.2
1939.0	32.0	8.0	102	9.5	0.96	1.54	9365	111	4538	8.4	15.2
1939.2	48.0	8.0	102	9.5	0.86	1.54	9391	74	4446	8.4	15.2
1939.4	84.0	8.0	102	9.5	0.73	1.54	9405	42	4357	8.4	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	
1948.2	1.7	15.0	98	9.5	1.90	4.79	29723	2084	3035	8.4	15.2
1948.4	0.4	18.0	98	9.5	2.41	5.29	32663	8855	3097	8.4	15.2
1948.6	0.7	18.0	98	9.5	2.25	5.57	34343	5060	3117	8.4	15.2
1948.8	0.6	15.0	104	9.5	2.20	5.91	36423	5903	3146	8.4	15.2
1948.9	1.0	18.0	104	9.5	2.17	6.01	37047	3542	3148	8.4	15.2

BIT NUMBER	6	IADC CODE	114	INTERVAL	1920.0- 1948.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	7.1	BIT RUN	28.0
TOTAL HOURS	13.82	TOTAL TURNS	112259	CONDITION	T5 B4 G0.250

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1921.0	55.0	10.0	60	9.6	0.67	11.65	99565	64.40	474.17	8.4	15.2
1922.0	38.0	10.0	60	9.6	0.76	11.67	99660	93.21	471.52	8.4	15.2
1923.0	5.0	10.0	100	9.6	1.33	11.87	100860	708.40	473.16	8.4	15.2
1924.0	48.0	10.0	100	9.6	0.82	11.90	100985	73.79	470.42	8.4	15.2
1925.0	42.0	10.0	100	9.6	0.85	11.92	101128	84.33	467.79	8.4	15.2
1926.0	38.0	10.0	100	9.6	0.87	11.95	101286	93.21	465.26	8.4	15.2
1927.0	37.0	10.0	100	9.6	0.88	11.97	101448	95.73	462.78	8.4	15.2
1928.0	59.0	10.0	100	9.6	0.77	11.99	101550	60.03	460.10	8.4	15.2
1929.0	15.0	10.0	88	9.6	1.05	12.06	101902	236.13	458.62	8.4	15.2
1930.0	14.0	10.0	84	9.6	1.06	12.13	102262	253.00	457.26	8.4	15.2
1931.0	25.0	10.0	84	9.6	0.93	12.17	102463	141.68	455.20	8.4	15.2
1932.0	28.0	10.0	84	9.6	0.90	12.20	102643	126.50	453.07	8.4	15.2
1933.0	23.0	10.0	84	9.6	0.95	12.25	102863	154.00	451.14	8.4	15.2
1934.0	28.0	10.0	84	9.6	0.90	12.28	103043	126.50	449.06	8.4	15.2
1935.0	32.0	10.0	84	9.6	0.87	12.31	103200	110.69	446.90	8.4	15.2
1936.0	26.0	10.0	84	9.6	0.92	12.35	103394	136.23	444.93	8.4	15.2
1937.0	35.0	10.0	90	9.6	0.87	12.38	103548	101.20	442.77	8.4	15.2
1938.0	12.0	10.0	90	9.6	1.11	12.46	103998	295.17	441.85	8.4	15.2
1939.0	16.0	10.0	90	9.6	1.04	12.53	104336	221.38	440.48	8.4	15.2
1940.0	30.0	10.0	94	9.6	0.91	12.56	104524	118.07	438.49	8.4	15.2
1941.0	11.0	11.0	90	9.6	1.15	12.65	105015	322.00	437.77	8.4	15.2
1942.0	3.0	11.0	104	9.6	1.48	12.98	107095	1181	442	8.4	15.2
1943.0	3.0	7.0	106	9.6	1.35	13.32	109215	1181	447	8.4	15.2
1944.0	5.0	7.0	100	9.6	1.23	13.52	110415	708.40	448.36	8.4	15.2
1945.0	13.0	7.0	100	9.6	1.03	13.59	110876	272.46	447.30	8.4	15.2
1946.0	19.0	7.0	100	9.6	0.95	13.65	111192	186.42	445.75	8.4	15.2
1947.0	16.0	7.0	100	9.6	0.99	13.71	111567	221.38	444.42	8.4	15.2
1948.0	9.1	6.0	105	9.6	1.09	13.82	112259	389.23	444.10	8.4	15.2

BIT NUMBER	9	IADC CODE	4	INTERVAL	1951.0- 1960.1
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.1	BIT RUN	9.1
TOTAL HOURS	3.14	TOTAL TURNS	18248	CONDITION	T0 B0 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1951.2	6.0	6.0	60	9.6	1.14	0.03	120	590	201331	8.4	15.2
1951.4	6.0	6.0	60	9.6	1.14	0.07	240	590	100961	8.4	15.2
1951.6	6.0	6.0	60	9.6	1.14	0.10	360	590	67504	8.4	15.2
1951.8	6.0	6.0	60	9.6	1.14	0.13	480	590	50776	8.4	15.2
1952.0	7.1	6.0	60	9.6	1.10	0.16	581	499	40720	8.4	15.2
1952.2	6.3	8.0	60	9.6	1.20	0.19	696	562	34027	8.4	15.2
1952.4	4.7	14.0	60	9.6	1.45	0.24	849	754	29274	8.4	15.2
1952.6	5.0	11.0	60	9.6	1.35	0.28	993	708	25703	8.4	15.2
1952.8	29.0	11.0	60	9.6	0.91	0.28	1018	122	22861	8.4	15.2
1953.0	13.2	11.0	60	9.6	1.11	0.30	1072	268	20602	8.4	15.2
1953.2	4.4	11.0	60	9.6	1.38	0.34	1236	805	18802	8.4	15.2
1953.4	2.7	11.0	60	9.6	1.50	0.42	1503	1312	17344	8.4	15.2
1953.6	1.1	11.0	60	9.6	1.73	0.60	2157	3220	16258	8.4	15.2
1953.8	3.1	11.0	60	9.6	1.47	0.66	2389	1143	15178	8.4	15.2
1954.0	3.1	11.0	60	9.6	1.47	0.73	2622	1143	14243	8.4	15.2
1954.2	1.8	11.0	60	9.6	1.61	0.84	3022	1968	13475	8.4	15.2
1954.4	1.7	16.0	60	9.6	1.78	0.96	3445	2084	12805	8.4	15.2
1954.6	1.5	16.0	60	9.6	1.81	1.09	3925	2361	12225	8.4	15.2
1954.8	1.5	16.0	80	9.6	1.89	1.22	4565	2361	11706	8.4	15.2
1955.0	1.2	16.0	80	9.6	1.95	1.39	5365	2952	11268	8.4	15.2
1955.2	3.0	16.0	80	9.6	1.70	1.46	5685	1181	10788	8.4	15.2
1955.4	14.7	14.0	80	9.6	1.22	1.47	5750	241	10308	8.4	15.2
1955.6	13.2	13.0	125	9.6	1.34	1.49	5864	268	9872	8.4	15.2
1955.8	6.4	13.0	125	9.6	1.53	1.52	6098	553	9484	8.4	15.2
1956.0	7.0	13.0	125	9.6	1.51	1.55	6313	506	9125	8.4	15.2
1956.2	9.4	13.0	125	9.6	1.43	1.57	6472	377	8788	8.4	15.2
1956.4	9.0	13.0	125	9.6	1.44	1.59	6639	394	8477	8.4	15.2
1956.6	5.2	13.0	125	9.6	1.59	1.63	6927	681	8199	8.4	15.2
1956.8	1.9	13.0	125	9.6	1.85	1.73	7717	1864	7980	8.4	15.2
1957.0	2.0	13.0	125	9.6	1.84	1.83	8467	1771	7773	8.4	15.2
1957.2	2.4	13.0	125	9.6	1.79	1.92	9092	1476	7570	8.4	15.2
1957.4	3.8	13.0	125	9.6	1.67	1.97	9487	932	7363	8.4	15.2
1957.6	5.0	13.0	125	9.6	1.60	2.01	9787	708	7161	8.4	15.2
1957.8	10.2	13.0	125	9.6	1.41	2.03	9934	347	6961	8.4	15.2
1958.0	20.3	13.0	125	9.6	1.23	2.04	10008	174	6767	8.4	15.2
1958.2	7.3	13.0	125	9.6	1.50	2.07	10213	485	6592	8.4	15.2
1958.4	3.3	13.0	125	9.6	1.71	2.13	10668	1073	6443	8.4	15.2
1958.6	1.7	13.0	125	9.6	1.88	2.24	11550	2084	6328	8.4	15.2
1958.8	1.7	13.0	125	9.6	1.88	2.36	12432	2084	6220	8.4	15.2
1959.0	2.6	13.0	125	9.6	1.77	2.44	13009	1362	6098	8.4	15.2
1959.2	1.6	13.0	125	9.6	1.89	2.56	13947	2214	6003	8.4	15.2
1959.4	1.2	10.0	125	9.6	1.85	2.73	15197	2952	5931	8.4	15.2
1959.6	1.1	10.0	125	9.6	1.87	2.91	16560	3220	5868	8.4	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1959.8	3.6	10.0	125	9.6	1.58	2.97	16977	984	5757	8.4	15.2
1960.0	4.5	10.0	125	9.6	1.52	3.01	17310	787	5646	8.4	15.2
1960.1	0.8	13.0	125	9.6	2.08	3.14	18248	4428	5633	8.4	15.2



BIT NUMBER	10	IADC CODE	135	INTERVAL	1960.1- 2030.1
HTC XDG		SIZE	12.250	NOZZLES	13 13 14
COST	1400.00	TRIP TIME	8.3	BIT RUN	70.0
TOTAL HOURS	8.53	TOTAL TURNS	71815	CONDITION	T7 B3 G0.183

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1961.0	3.0	19.0	113	9.6	1.71	0.30	2034	1181	35401	8.4	15.2
1962.0	41.0	20.0	140	9.6	1.10	0.32	2239	86	16815	8.4	15.2
1963.0	2.4	20.0	140	9.6	1.85	0.74	5739	1476	11525	8.4	15.2
1964.0	5.0	23.0	144	9.6	1.72	0.94	7467	708	8752	8.4	15.2
1965.0	12.8	20.0	143	9.6	1.41	1.02	8137	277	7022	8.4	15.2
1966.0	39.8	20.0	140	9.6	1.10	1.04	8348	89	5847	8.4	15.2
1967.0	51.2	26.0	147	9.6	1.12	1.06	8521	69	5010	8.4	15.2
1968.0	12.1	29.0	140	9.6	1.57	1.15	9215	293	4413	8.4	15.2
1969.0	16.6	28.0	140	9.6	1.46	1.21	9721	213	3941	8.4	15.2
1970.0	15.0	27.0	132	9.6	1.46	1.27	10249	236	3567	8.4	15.2
1971.0	23.8	27.0	120	9.6	1.30	1.32	10551	149	3253	8.4	15.2
1972.0	53.6	27.0	143	9.6	1.11	1.33	10711	66	2985	8.4	15.2
1973.0	62.0	27.0	143	9.6	1.07	1.35	10850	57	2758	8.4	15.2
1974.0	40.0	27.0	141	9.6	1.19	1.38	11061	89	2566	8.4	15.2
1975.0	49.0	27.0	141	9.6	1.14	1.40	11234	72	2399	8.4	15.2
1976.0	50.0	27.0	141	9.6	1.13	1.42	11403	71	2252	8.4	15.2
1977.0	44.0	27.0	140	9.6	1.17	1.44	11594	81	2124	8.4	15.2
1978.0	69.0	27.0	140	9.6	1.04	1.45	11716	51	2008	8.4	15.2
1979.0	73.0	24.0	135	9.6	0.98	1.47	11827	49	1904	8.4	15.2
1980.0	44.0	24.0	130	9.6	1.11	1.49	12004	81	1813	8.4	15.2
1981.0	19.0	28.0	150	9.6	1.44	1.54	12478	186	1735	8.4	15.2
1982.0	13.0	28.0	148	9.6	1.55	1.62	13161	272	1668	8.4	15.3
1983.0	15.7	28.0	148	9.6	1.49	1.68	13726	226	1605	8.4	15.3
1984.0	40.0	28.0	141	9.6	1.21	1.71	13938	89	1542	8.4	15.3
1985.0	119.0	22.0	141	9.6	0.83	1.72	14009	30	1481	8.4	15.3
1986.0	95.0	22.0	141	9.6	0.90	1.73	14098	37	1425	8.4	15.3
1987.0	73.0	22.0	146	9.6	0.98	1.74	14218	49	1374	8.4	15.3
1988.0	89.0	22.0	140	9.6	0.91	1.75	14312	40	1326	8.4	15.3
1989.0	43.0	22.0	145	9.6	1.12	1.77	14515	82	1283	8.4	15.3
1990.0	63.0	25.0	146	9.6	1.05	1.79	14654	56	1242	8.4	15.3
1991.0	61.0	26.0	146	9.6	1.07	1.81	14797	58	1204	8.4	15.3
1992.0	4.6	25.0	150	9.6	1.79	2.02	16754	770	1190	8.4	15.3
1993.0	5.9	27.0	115	9.6	1.69	2.19	17923	600	1172	8.4	15.3
1994.0	21.0	27.0	115	9.6	1.32	2.24	18252	169	1143	8.4	15.3
1995.0	5.1	27.0	118	9.6	1.73	2.44	19640	695	1130	8.4	15.3
1996.0	18.0	27.0	118	9.6	1.37	2.49	20033	197	1104	8.4	15.3
1997.0	3.1	25.0	135	9.6	1.88	2.82	22646	1143	1105	8.4	15.3
1998.0	21.0	25.0	135	9.6	1.34	2.86	23032	169	1080	8.4	15.3
1999.0	13.7	25.0	135	9.6	1.46	2.94	23623	259	1059	8.4	15.3
2000.0	8.0	25.0	144	9.6	1.63	3.06	24703	443	1044	8.4	15.3
2001.0	1.0	25.0	145	9.6	2.21	4.06	33403	3542	1105	8.4	15.3
2002.0	4.4	26.0	145	9.6	1.82	4.29	35381	805	1098	8.4	15.3
2003.0	11.5	25.0	120	9.6	1.47	4.38	36007	308	1079	8.4	15.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2004.0	12.0	25.0	120	9.6	1.46	4.46	36607	295	1061	8.4	15.3
2005.0	15.0	26.0	140	9.6	1.46	4.53	37167	236	1043	8.4	15.3
2006.0	51.0	27.0	135	9.6	1.11	4.55	37326	69	1022	8.4	15.3
2007.0	11.1	28.0	143	9.6	1.58	4.64	38099	319	1007	8.4	15.3
2008.0	15.8	28.0	145	9.6	1.48	4.70	38649	224.18	990.41	8.4	15.3
2009.0	27.0	29.0	143	9.6	1.34	4.74	38967	131.19	972.83	8.4	15.3
2010.0	42.0	30.0	140	9.6	1.21	4.76	39167	84.33	955.03	8.4	15.3
2011.0	4.0	30.0	145	9.6	1.92	5.01	41342	885.50	953.66	8.4	15.3
2012.0	7.7	29.0	140	9.6	1.70	5.14	42433	460.00	944.15	8.4	15.3
2013.0	13.9	29.0	140	9.6	1.53	5.21	43037	254.82	931.12	8.4	15.3
2014.0	2.0	30.0	100	9.6	2.01	5.71	46037	1771	947	8.4	15.3
2015.0	10.0	21.0	140	9.6	1.49	5.81	46877	354.20	935.91	8.4	15.3
2016.0	11.7	21.0	145	9.6	1.45	5.90	47621	302.74	924.58	8.4	15.3
2017.0	15.3	21.0	144	9.6	1.38	5.96	48185	231.50	912.40	8.4	15.3
2018.0	20.1	22.0	145	9.6	1.33	6.01	48618	176.22	899.69	8.4	15.3
2019.0	10.7	22.0	144	9.6	1.49	6.11	49426	331.03	890.03	8.4	15.3
2020.0	10.3	28.0	144	9.6	1.61	6.20	50265	343.88	880.92	8.4	15.3
2021.0	19.0	30.0	144	9.6	1.46	6.25	50719	186.42	869.51	8.4	15.3
2022.0	19.4	30.0	144	9.6	1.45	6.31	51165	182.58	858.41	8.4	15.3
2023.0	21.1	30.0	142	9.6	1.42	6.35	51568	167.87	847.44	8.4	15.3
2024.0	5.6	32.0	142	9.6	1.85	6.53	53090	632.50	844.07	8.4	15.3
2025.0	17.1	30.0	143	9.6	1.49	6.59	53592	207.13	834.26	8.4	15.3
2026.0	5.1	33.0	149	9.6	1.91	6.79	55345	694.51	832.14	8.4	15.3
2027.0	2.1	33.0	148	9.6	2.17	7.26	59573	1687	845	8.4	15.3
2028.0	2.4	32.0	145	9.6	2.11	7.68	63198	1476	854	8.4	15.3
2029.0	1.6	32.0	145	9.6	2.23	8.30	68636	2214	874	8.4	15.3
2030.0	1.6	32.0	145	9.6	2.23	8.93	74073	2214	893	8.4	15.3
2030.1	1.6	32.0	145	9.6	2.23	8.99	74617	2214	895	8.4	15.3

BIT NUMBER	11	IADC CODE	517	INTERVAL	2030.1- 2231.6
HTC J22		SIZE	12.250	NOZZLES	13 13 14
COST	5300.00	TRIP TIME	9.0	BIT RUN	201.5
TOTAL HOURS	36.59	TOTAL TURNS	220725	CONDITION	T2 R4 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2031.0	4.3	15.0	100	9.6	1.49	0.21	1256	824	42133	8.4	15.3
2032.0	7.9	26.0	108	9.6	1.57	0.34	2076	448	20194	8.4	15.3
2033.0	4.2	35.0	114	9.6	1.92	0.57	3705	843	13521	8.4	15.3
2034.0	6.5	35.0	108	9.6	1.77	0.73	4702	545	10194	8.4	15.3
2035.0	6.0	17.0	110	9.6	1.48	0.89	5802	590	8234	8.4	15.3
2036.0	4.5	17.0	110	9.6	1.55	1.12	7268	787	6972	8.4	15.3
2037.0	3.0	24.0	90	9.6	1.75	1.45	9068	1181	6132	8.4	15.3
2038.0	4.5	25.0	88	9.6	1.65	1.67	10242	787	5456	8.4	15.3
2039.0	3.5	25.0	88	9.6	1.72	1.96	11750	1012	4957	8.4	15.3
2040.0	2.8	16.0	100	9.6	1.62	2.32	13893	1265	4584	8.4	15.3
2041.0	4.0	16.0	100	9.6	1.54	2.57	15393	886	4244	8.4	15.3
2042.0	12.3	16.0	100	9.6	1.25	2.65	15881	288	3912	8.4	15.3
2043.0	5.3	25.0	100	9.6	1.64	2.84	17013	668	3660	8.4	15.3
2044.0	10.2	25.0	100	9.6	1.46	2.93	17601	347	3422	8.4	15.3
2045.0	2.0	25.0	100	9.6	1.91	3.43	20601	1771	3311	8.4	15.3
2046.0	4.0	25.0	100	9.6	1.72	3.68	22101	886	3159	8.4	15.3
2047.0	12.0	25.0	100	9.6	1.41	3.77	22601	295	2989	8.4	15.3
2048.0	3.3	25.0	100	9.6	1.77	4.07	24419	1073	2882	8.4	15.3
2049.0	4.0	25.0	100	9.6	1.72	4.32	25919	886	2777	8.4	15.3
2050.0	2.3	25.0	100	9.6	1.88	4.75	28528	1540	2714	8.4	15.3
2051.0	2.0	25.0	100	9.6	1.91	5.25	31528	1771	2669	8.4	15.3
2052.0	4.3	25.0	100	9.6	1.70	5.49	32923	824	2585	8.4	15.3
2053.0	3.5	25.0	100	9.6	1.76	5.77	34638	1012	2516	8.4	15.3
2054.0	27.0	27.0	100	9.6	1.21	5.81	34860	131	2417	8.4	15.3
2055.0	6.3	27.0	100	9.6	1.63	5.97	35812	562	2342	8.4	15.3
2056.0	4.0	27.0	100	9.6	1.76	6.22	37312	886	2286	8.4	15.3
2057.0	4.0	27.0	100	9.6	1.76	6.47	38812	886	2234	8.4	15.3
2058.0	6.0	27.0	100	9.6	1.64	6.63	39812	590	2175	8.4	15.3
2059.0	9.2	27.0	100	9.6	1.52	6.74	40464	385	2113	8.4	15.3
2060.0	5.3	27.0	100	9.6	1.68	6.93	41596	668	2065	8.4	15.3
2061.0	5.4	27.0	100	9.6	1.67	7.12	42708	656	2019	8.4	15.3
2062.0	5.0	27.0	100	9.6	1.69	7.32	43908	708	1978	8.4	15.3
2063.0	4.0	27.0	100	9.6	1.76	7.57	45408	886	1945	8.4	15.4
2064.0	5.0	27.0	100	9.6	1.69	7.77	46608	708	1908	8.4	15.4
2065.0	6.0	27.0	100	9.6	1.64	7.93	47608	590	1871	8.4	15.4
2066.0	7.7	22.0	100	9.6	1.48	8.06	48387	460	1831	8.4	15.4
2067.0	6.9	22.0	100	9.6	1.51	8.21	49256	513	1796	8.4	15.4
2068.0	6.4	20.0	100	9.6	1.50	8.37	50194	553	1763	8.4	15.4
2069.0	7.7	20.0	100	9.6	1.45	8.50	50973	460	1729	8.4	15.4
2070.0	8.2	20.0	100	9.6	1.43	8.62	51705	432	1697	8.4	15.4
2071.0	20.0	20.0	100	9.6	1.20	8.67	52005	177	1660	8.4	15.4
2072.0	2.8	29.0	100	9.6	1.90	9.02	54148	1265	1650	8.4	15.4
2073.0	6.3	29.0	92	9.6	1.63	9.18	55024	562	1625	8.4	15.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2074.0	10.4	29.0	90	9.6	1.48	9.28	55543	341	1596	8.4	15.4
2075.0	17.4	26.0	100	9.6	1.32	9.34	55888	204	1565	8.4	15.4
2076.0	11.0	25.0	95	9.6	1.42	9.43	56406	322	1537	8.4	15.4
2077.0	17.0	25.0	95	9.6	1.30	9.49	56741	208	1509	8.4	15.4
2078.0	9.6	26.0	95	9.6	1.48	9.59	57335	369	1485	8.4	15.4
2079.0	23.0	25.0	92	9.6	1.21	9.63	57575	154	1458	8.4	15.4
2080.0	8.0	25.0	90	9.6	1.50	9.76	58250	443	1438	8.4	15.4
2081.0	3.1	25.0	90	9.6	1.76	10.08	59992	1143	1432	8.4	15.4
2082.0	4.7	25.0	100	9.6	1.67	10.29	61269	754	1419	8.4	15.4
2083.0	7.3	25.0	95	9.6	1.54	10.43	62049	485	1401	8.4	15.4
2084.0	5.6	26.0	95	9.6	1.63	10.61	63067	633	1387	8.4	15.4
2085.0	9.1	26.0	98	9.6	1.50	10.72	63713	389	1369	8.4	15.4
2086.0	7.7	30.0	98	9.6	1.61	10.85	64477	460	1353	8.4	15.4
2087.0	7.2	34.0	98	9.6	1.69	10.99	65294	492	1337	8.4	15.4
2088.0	7.2	32.0	95	9.6	1.65	11.13	66087	493	1323	8.4	15.4
2089.0	2.3	34.0	95	9.6	2.03	11.56	68565	1540	1327	8.4	15.4
2090.0	2.2	28.0	99	9.6	1.94	12.02	71265	1610	1331	8.4	15.4
2091.0	8.9	28.0	99	9.6	1.54	12.13	71932	398	1316	8.4	15.4
2092.0	11.6	27.0	100	9.6	1.45	12.22	72449	305	1300	8.4	15.4
2093.0	5.4	27.0	100	9.6	1.67	12.40	73561	656	1289	8.4	15.4
2094.0	6.4	30.0	100	9.6	1.67	12.56	74498	553	1278	8.4	15.4
2095.0	6.0	30.0	100	9.6	1.69	12.72	75498	590	1267	8.4	15.4
2096.0	8.0	30.0	100	9.6	1.60	12.85	76248	443	1255	8.4	15.4
2097.0	4.3	28.0	100	9.6	1.75	13.08	77643	824	1248	8.4	15.4
2098.0	5.7	28.0	100	9.6	1.67	13.26	78696	621	1239	8.4	15.4
2099.0	7.2	29.0	100	9.6	1.62	13.40	79529	492	1228	8.4	15.4
2100.0	5.9	29.0	100	9.6	1.68	13.56	80546	600	1219	8.4	15.4
2101.0	10.1	28.0	100	9.6	1.51	13.66	81140	351	1207	8.4	15.4
2102.0	8.4	28.0	100	9.6	1.56	13.78	81855	422	1196	8.4	15.4
2103.0	6.7	28.0	116	9.6	1.67	13.93	82894	529	1187	8.4	15.4
2104.0	3.3	28.0	116	9.6	1.87	14.24	85003	1073	1185	8.4	15.4
2105.0	4.8	29.0	115	9.6	1.78	14.44	86440	738	1179	8.4	15.4
2106.0	11.1	29.0	115	9.6	1.53	14.53	87062	319	1168	8.4	15.4
2107.0	10.2	29.0	115	9.6	1.56	14.63	87738	347	1157	8.4	15.4
2108.0	7.6	28.0	115	9.6	1.63	14.76	88646	466	1149	8.4	15.4
2109.0	9.0	25.0	100	9.6	1.49	14.87	89313	394	1139	8.4	15.4
2110.0	14.0	25.0	100	9.6	1.37	14.95	89741	253	1128	8.4	15.4
2111.0	13.0	26.0	100	9.6	1.40	15.02	90203	272	1117	8.4	15.4
2112.0	12.0	27.0	100	9.6	1.44	15.11	90703	295	1107	8.4	15.4
2113.0	7.2	27.0	100	9.6	1.59	15.25	91536	492	1100	8.4	15.4
2114.0	12.0	32.0	100	9.6	1.51	15.33	92036	295	1090	8.4	15.4
2115.0	30.0	30.0	100	9.6	1.21	15.36	92236	118	1079	8.4	15.4
2116.0	34.0	30.0	100	9.6	1.18	15.39	92413	104	1067	8.4	15.4
2117.0	36.0	31.0	100	9.6	1.17	15.42	92579	98	1056	8.4	15.4
2118.0	4.2	29.0	100	9.6	1.78	15.66	94008	843	1054	8.4	15.4
2119.0	6.9	29.0	100	9.6	1.63	15.80	94877	513	1048	8.4	15.4
2120.0	35.0	20.0	100	9.6	1.05	15.83	95049	101	1037	8.4	15.4
2121.0	28.0	20.0	100	9.6	1.11	15.87	95263	127	1027	8.4	15.4
2122.0	8.5	28.0	100	9.6	1.56	15.98	95969	417	1021	8.4	15.4
2123.0	8.6	29.0	110	9.6	1.60	16.10	96737	412	1014	8.4	15.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2124.0	13.0	29.0	110	9.6	1.47	16.18	97244	272	1006	8.4	15.4
2125.0	6.8	29.0	110	9.6	1.66	16.32	98215	521	1001	8.4	15.4
2126.0	7.8	29.0	100	9.6	1.60	16.45	98984	454.10	995.33	8.4	15.4
2127.0	8.0	29.0	110	9.6	1.62	16.58	99809	442.75	989.63	8.4	15.4
2128.0	3.0	23.0	109	9.6	1.78	16.91	101989	1181	992	8.4	15.4
2129.0	3.4	24.0	110	9.6	1.77	17.20	103930	1042	992	8.4	15.4
2130.0	7.7	25.0	100	9.6	1.54	17.33	104709	460.00	986.76	8.4	15.4
2131.0	27.0	22.0	100	9.6	1.14	17.37	104932	131.19	978.28	8.4	15.4
2132.0	26.0	22.0	100	9.6	1.15	17.41	105162	136.23	970.02	8.4	15.4
2133.0	25.0	23.0	100	9.6	1.18	17.45	105402	141.68	961.97	8.4	15.4
2134.0	31.0	23.0	100	9.6	1.12	17.48	105596	114.26	953.81	8.4	15.4
2135.0	8.0	23.0	100	9.6	1.49	17.61	106346	442.75	948.94	8.4	15.4
2136.0	8.9	23.0	100	9.6	1.46	17.72	107020	397.98	943.73	8.4	15.4
2137.0	9.6	20.0	100	9.6	1.39	17.82	107645	368.96	938.36	8.4	15.4
2138.0	5.9	20.0	95	9.7	1.49	17.99	108611	600.34	935.22	8.4	15.4
2139.0	11.0	20.0	95	9.7	1.33	18.08	109129	322.00	929.59	8.4	15.4
2140.0	7.8	20.0	99	9.7	1.43	18.21	109891	454.10	925.27	8.4	15.4
2141.0	4.4	20.0	99	9.7	1.58	18.44	111241	805.00	924.18	8.4	15.4
2142.0	8.2	19.0	100	9.7	1.40	18.56	111973	431.95	919.78	8.4	15.4
2143.0	8.4	19.0	100	9.7	1.39	18.68	112687	421.67	915.37	8.4	15.4
2144.0	26.0	17.0	100	9.7	1.07	18.72	112918	136.23	908.53	8.4	15.4
2145.0	7.9	17.0	100	9.7	1.37	18.85	113677	448.35	904.53	8.4	15.4
2146.0	12.0	19.0	100	9.7	1.30	18.93	114177	295.17	899.27	8.4	15.4
2147.0	4.3	19.0	100	9.7	1.57	19.16	115573	823.72	898.62	8.4	15.5
2148.0	16.0	19.0	95	9.7	1.21	19.22	115929	221.38	892.88	8.4	15.5
2149.0	21.0	18.0	104	9.7	1.15	19.27	116226	168.67	886.79	8.4	15.5
2150.0	5.0	19.0	102	9.7	1.53	19.47	117450	708.40	885.30	8.4	15.5
2151.0	9.1	19.0	102	9.7	1.38	19.58	118122	389.23	881.20	8.4	15.5
2152.0	8.9	19.0	99	9.7	1.38	19.69	118790	397.98	877.23	8.4	15.5
2153.0	4.9	19.0	99	9.7	1.53	19.90	120002	722.86	875.98	8.4	15.5
2154.0	6.7	19.0	99	9.7	1.45	20.05	120889	528.66	873.17	8.4	15.5
2155.0	11.6	19.0	99	9.7	1.31	20.13	121401	305.34	868.63	8.4	15.5
2156.0	4.3	19.0	99	9.7	1.56	20.37	122782	823.72	868.27	8.4	15.5
2157.0	7.0	22.0	99	9.7	1.49	20.51	123631	506.00	865.41	8.4	15.5
2158.0	5.3	23.0	99	9.7	1.59	20.70	124751	668.30	863.87	8.4	15.5
2159.0	7.0	23.0	99	9.7	1.51	20.84	125600	506.00	861.10	8.4	15.5
2160.0	14.3	21.0	100	9.7	1.29	20.91	126020	247.69	856.38	8.4	15.5
2161.0	15.0	21.0	100	9.7	1.28	20.98	126420	236.13	851.64	8.4	15.5
2162.0	9.1	23.0	85	9.7	1.40	21.09	126980	389.23	848.13	8.4	15.5
2163.0	6.2	23.0	85	9.7	1.50	21.25	127803	571.29	846.05	8.4	15.5
2164.0	4.0	26.0	97	9.7	1.71	21.50	129258	885.50	846.34	8.4	15.5
2165.0	4.7	26.0	96	9.7	1.66	21.71	130483	753.62	845.66	8.4	15.5
2166.0	2.8	30.0	97	9.7	1.89	22.07	132562	1265	849	8.4	15.5
2167.0	3.3	29.0	97	9.7	1.82	22.37	134325	1073	850	8.4	15.5
2168.0	9.1	29.0	97	9.7	1.53	22.48	134965	389.23	847.04	8.4	15.5
2169.0	12.6	28.0	100	9.7	1.43	22.56	135441	281.11	842.96	8.4	15.5
2170.0	11.3	28.0	100	9.7	1.46	22.65	135972	313.45	839.18	8.4	15.5
2171.0	6.9	27.0	100	9.7	1.58	22.79	136842	513.33	836.87	8.4	15.5
2172.0	6.0	27.0	100	9.7	1.62	22.96	137842	590.33	835.13	8.4	15.5
2173.0	6.3	27.0	100	9.7	1.61	23.12	138794	562.22	833.22	8.4	15.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2174.0	6.8	27.0	100	9.7	1.59	23.27	139676	520.88	831.05	8.4	15.5
2175.0	2.0	28.0	100	9.7	1.95	23.77	142676	1771	838	8.4	15.5
2176.0	4.6	28.0	100	9.7	1.72	23.98	143981	770.00	837.07	8.4	15.5
2177.0	14.2	28.0	109	9.7	1.42	24.05	144441	249.44	833.07	8.4	15.5
2178.0	25.4	28.0	109	9.7	1.25	24.09	144699	139.45	828.38	8.4	15.5
2179.0	4.0	28.0	109	9.7	1.78	24.34	146334	885.50	828.77	8.4	15.5
2180.0	12.6	28.0	109	9.7	1.45	24.42	146853	281.11	825.11	8.4	15.5
2181.0	7.3	24.0	100	9.7	1.52	24.56	147675	485.21	822.86	8.4	15.5
2182.0	5.6	21.0	100	9.7	1.54	24.74	148746	632.50	821.61	8.4	15.5
2183.0	5.6	21.0	100	9.7	1.54	24.92	149818	632.50	820.37	8.4	15.5
2184.0	3.2	25.0	87	9.7	1.73	25.23	151449	1107	822	8.4	15.5
2185.0	3.2	25.0	87	9.7	1.73	25.54	153080	1107	824	8.4	15.5
2186.0	6.4	23.0	109	9.7	1.56	25.70	154102	553.44	822.33	8.4	15.5
2187.0	4.4	23.0	109	9.7	1.66	25.93	155588	805.00	822.22	8.4	15.5
2188.0	5.9	18.0	105	9.7	1.48	26.10	156656	600.34	820.82	8.4	15.5
2189.0	3.4	31.0	89	9.7	1.82	26.39	158227	1042	822	8.4	15.5
2190.0	4.5	29.0	88	9.7	1.70	26.61	159400	787.11	821.99	8.4	15.5
2191.0	3.0	29.0	100	9.7	1.86	26.94	161400	1181	824	8.4	15.5
2192.0	5.6	25.0	103	9.7	1.62	27.12	162504	632.50	823.03	8.4	15.5
2193.0	4.2	25.0	103	9.7	1.70	27.36	163975	843.33	823.16	8.4	15.5
2194.0	2.3	25.0	102	9.7	1.86	27.80	166636	1540	828	8.4	15.5
2195.0	6.0	25.0	102	9.7	1.60	27.96	167656	590.33	826.09	8.4	15.5
2196.0	11.0	25.0	102	9.7	1.43	28.05	168212	322.00	823.05	8.4	15.5
2197.0	5.0	25.0	102	9.7	1.65	28.25	169436	708.40	822.37	8.4	15.5
2198.0	7.6	27.0	102	9.7	1.56	28.39	170242	466.05	820.25	8.4	15.5
2199.0	5.3	28.0	105	9.7	1.69	28.57	171430	668.30	819.35	8.4	15.5
2200.0	3.2	27.0	94	9.7	1.78	28.89	173193	1107	821	8.4	15.5
2201.0	2.1	28.0	96	9.7	1.93	29.36	175936	1687	826	8.4	15.5
2202.0	7.2	28.0	102	9.7	1.59	29.50	176786	491.94	824.16	8.4	15.5
2203.0	2.0	28.0	102	9.7	1.96	30.00	179846	1771	830	8.4	15.5
2204.0	6.1	27.0	102	9.7	1.62	30.17	180849	580.66	828.20	8.4	15.5
2205.0	3.5	27.0	102	9.7	1.78	30.45	182597	1012	829	8.4	15.5
2206.0	4.7	27.0	102	9.7	1.70	30.66	183900	753.62	828.82	8.4	15.5
2207.0	2.5	27.0	102	9.7	1.88	31.06	186348	1417	832	8.4	15.5
2208.0	4.7	26.0	103	9.7	1.68	31.28	187662	753.62	831.71	8.4	15.5
2209.0	13.1	27.0	100	9.7	1.40	31.35	188121	270.38	828.57	8.4	15.5
2210.0	13.1	27.0	100	9.7	1.40	31.43	188579	270.38	825.47	8.4	15.5
2211.0	5.6	27.0	100	9.7	1.64	31.61	189650	632.50	824.40	8.4	15.5
2212.0	10.8	28.0	98	9.7	1.47	31.70	190194	327.96	821.67	8.4	15.5
2213.0	2.2	28.0	98	9.7	1.92	32.16	192867	1610	826	8.4	15.5
2214.0	2.3	28.0	104	9.7	1.93	32.59	195580	1540	830	8.4	15.5
2215.0	2.4	28.0	104	9.7	1.91	33.01	198180	1476	833	8.4	15.5
2216.0	8.1	25.0	107	9.7	1.52	33.13	198973	437.28	831.23	8.4	15.5
2217.0	13.0	24.0	107	9.7	1.38	33.21	199467	272.46	828.24	8.4	15.5
2218.0	8.9	25.0	107	9.7	1.50	33.32	200188	397.98	825.95	8.4	15.5
2219.0	4.2	25.0	107	9.7	1.71	33.56	201717	843.33	826.04	8.4	15.5
2220.0	14.0	24.0	97	9.7	1.33	33.63	202132	253.00	823.02	8.4	15.5
2221.0	7.8	24.0	97	9.7	1.49	33.76	202878	454.10	821.09	8.4	15.5
2222.0	5.2	24.0	97	9.7	1.60	33.95	203998	681.15	820.36	8.4	15.5
2223.0	16.4	26.0	97	9.7	1.32	34.01	204352	215.98	817.23	8.4	15.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2224.0	11.0	27.0	82	9.7	1.39	34.10	204800	322.00	814.67	8.4	15.5
2225.0	8.5	27.0	92	9.7	1.50	34.22	205449	416.71	812.63	8.4	15.5
2226.0	5.3	28.0	110	9.7	1.70	34.41	206694	668.30	811.89	8.4	15.5
2227.0	3.8	30.0	109	9.7	1.83	34.67	208416	932.11	812.50	8.4	15.5
2228.0	3.9	30.0	100	9.7	1.80	34.93	209954	908.21	812.99	8.4	15.5
2229.0	3.0	32.0	109	9.7	1.93	35.26	212134	1181	815	8.4	15.5
2230.0	2.2	31.0	108	9.7	2.01	35.72	215079	1610	819	8.4	15.5
2231.0	2.4	29.0	108	9.7	1.94	36.13	217779	1476	822	8.4	15.5
2231.6	2.2	29.0	108	9.7	1.97	36.40	219547	1610	824	8.4	15.5

BIT NUMBER	12	IADC CODE	214	INTERVAL	2231.6- 2336.4
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.4	BIT RUN	104.8
TOTAL HOURS	13.16	TOTAL TURNS	94531	CONDITION	T6 B4 G0.125

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2232.0	4.0	25.0	120	9.7	1.75	0.10	720	886	87873	8.4	15.5
2233.0	5.9	27.0	120	9.7	1.68	0.27	1940	600	25535	8.4	15.5
2234.0	8.2	29.0	120	9.7	1.62	0.39	2818	432	15076	8.4	15.6
2235.0	8.1	29.0	120	9.7	1.62	0.51	3707	437	10770	8.4	15.6
2236.0	4.0	30.0	96	9.7	1.78	0.76	5147	886	8524	8.4	15.6
2237.0	10.7	31.0	96	9.7	1.50	0.86	5686	331	7007	8.4	15.6
2238.0	6.0	30.0	114	9.7	1.71	1.03	6826	590	6004	8.4	15.6
2239.0	10.6	31.0	114	9.7	1.56	1.12	7471	334	5238	8.4	15.6
2240.0	31.2	31.0	119	9.7	1.25	1.15	7700	114	4628	8.4	15.6
2241.0	33.5	31.0	119	9.7	1.23	1.18	7913	106	4147	8.4	15.6
2242.0	19.4	33.0	106	9.7	1.38	1.23	8241	183	3766	8.4	15.6
2243.0	20.5	33.0	106	9.7	1.37	1.28	8551	173	3450	8.4	15.6
2244.0	9.6	33.0	140	9.7	1.68	1.39	9426	369	3202	8.4	15.6
2245.0	8.9	33.0	140	9.7	1.70	1.50	10370	398	2993	8.4	15.6
2246.0	23.0	26.0	124	9.7	1.29	1.54	10693	154	2795	8.4	15.6
2247.0	25.6	26.0	124	9.7	1.26	1.58	10984	138	2623	8.4	15.6
2248.0	32.6	26.0	124	9.7	1.19	1.61	11212	109	2470	8.4	15.6
2249.0	19.0	30.0	128	9.7	1.41	1.66	11616	186	2338	8.4	15.6
2250.0	6.7	29.0	128	9.7	1.70	1.81	12763	529	2240	8.4	15.6
2251.0	20.5	31.0	120	9.7	1.38	1.86	13114	173	2134	8.4	15.6
2252.0	20.5	31.0	120	9.7	1.38	1.91	13465	173	2037	8.4	15.6
2253.0	20.5	31.0	120	9.7	1.38	1.96	13816	173	1950	8.4	15.6
2254.0	20.5	31.0	120	9.7	1.38	2.01	14167	173	1871	8.4	15.6
2255.0	20.5	31.0	120	9.7	1.38	2.06	14519	173	1798	8.4	15.6
2256.0	20.5	31.0	120	9.7	1.38	2.11	14870	173	1732	8.4	15.6
2257.0	20.5	31.0	120	9.7	1.38	2.15	15221	173	1670	8.4	15.6
2258.0	20.5	31.0	120	9.7	1.38	2.20	15572	173	1614	8.4	15.6
2259.0	20.5	31.0	120	9.7	1.38	2.25	15924	173	1561	8.4	15.6
2260.0	6.1	30.0	126	9.7	1.73	2.42	17163	581	1527	8.4	15.6
2261.0	20.3	30.0	126	9.7	1.38	2.47	17535	174	1481	8.4	15.6
2262.0	17.2	32.0	120	9.7	1.44	2.52	17954	206	1439	8.4	15.6
2263.0	10.7	32.0	120	9.7	1.58	2.62	18627	331	1403	8.4	15.6
2264.0	7.8	33.0	120	9.7	1.69	2.75	19550	454	1374	8.4	15.6
2265.0	18.8	33.0	120	9.7	1.43	2.80	19933	188	1339	8.4	15.6
2266.0	12.5	33.0	120	9.7	1.55	2.88	20509	283	1308	8.4	15.6
2267.0	13.2	33.0	120	9.7	1.54	2.95	21054	268	1278	8.4	15.6
2268.0	11.2	32.0	124	9.7	1.58	3.04	21719	316	1252	8.4	15.6
2269.0	32.0	30.0	125	9.7	1.25	3.07	21953	111	1222	8.4	15.6
2270.0	15.0	35.0	125	9.7	1.54	3.14	22453	236	1196	8.4	15.6
2271.0	13.8	35.0	125	9.7	1.56	3.21	22996	257	1172	8.4	15.6
2272.0	4.5	33.0	125	9.7	1.87	3.44	24663	787	1163	8.4	15.6
2273.0	5.9	32.0	124	9.7	1.77	3.61	25924	600	1149	8.4	15.6
2274.0	11.8	31.0	124	9.7	1.55	3.69	26555	300	1129	8.4	15.6



DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2275.0	16.6	31.0	124	9.7	1.45	3.75	27003	213	1108	8.4	15.6
2276.0	14.4	32.0	125	9.7	1.51	3.82	27524	246	1088	8.4	15.6
2277.0	9.6	32.0	125	9.7	1.63	3.92	28305	369	1073	8.4	15.6
2278.0	12.6	31.0	125	9.7	1.53	4.00	28900	281	1056	8.4	15.6
2279.0	13.8	31.0	125	9.7	1.51	4.08	29444	257	1039	8.4	15.6
2280.0	9.1	28.0	119	9.7	1.57	4.19	30228	389	1025	8.4	15.6
2281.0	5.1	28.0	119	9.7	1.74	4.38	31628	695	1019	8.4	15.6
2282.0	17.1	30.0	118	9.7	1.41	4.44	32042	207	1002	8.4	15.6
2283.0	21.9	30.0	118	9.7	1.34	4.49	32366	161.74	986.08	8.4	15.6
2284.0	16.1	32.0	125	9.7	1.48	4.55	32831	220.00	971.46	8.4	15.6
2285.0	18.1	32.0	125	9.7	1.44	4.60	33246	195.69	956.93	8.4	15.6
2286.0	10.3	32.0	125	9.7	1.61	4.70	33974	343.88	945.66	8.4	15.6
2287.0	7.3	32.0	125	9.7	1.71	4.84	35001	485.21	937.35	8.4	15.6
2288.0	9.2	31.0	122	9.7	1.62	4.95	35797	385.00	927.56	8.4	15.6
2289.0	10.4	31.0	122	9.7	1.58	5.04	36501	340.58	917.33	8.4	15.6
2290.0	13.1	32.0	120	9.7	1.52	5.12	37050	270.38	906.26	8.4	15.6
2291.0	14.2	32.0	120	9.7	1.50	5.19	37557	249.44	895.20	8.4	15.6
2292.0	6.9	32.0	120	9.7	1.72	5.33	38601	513.33	888.88	8.4	15.6
2293.0	6.4	29.0	123	9.7	1.70	5.49	39754	553.44	883.41	8.4	15.6
2294.0	6.4	29.0	123	9.7	1.70	5.65	40907	553.44	878.12	8.4	15.6
2295.0	6.9	27.0	123	9.7	1.64	5.79	41977	513.33	872.37	8.4	15.6
2296.0	29.0	27.0	123	9.7	1.23	5.83	42231	122.14	860.72	8.4	15.6
2297.0	10.5	28.0	123	9.7	1.54	5.92	42934	337.33	852.72	8.4	15.6
2298.0	3.9	27.0	123	9.7	1.80	6.18	44826	908.21	853.55	8.4	15.6
2299.0	9.6	27.0	123	9.7	1.55	6.28	45595	368.96	846.36	8.4	15.6
2300.0	6.2	26.0	119	9.7	1.65	6.44	46747	571.29	842.34	8.4	15.6
2301.0	9.1	26.0	119	9.7	1.54	6.55	47531	389.23	835.81	8.4	15.6
2302.0	9.1	26.0	119	9.7	1.54	6.66	48316	389.23	829.47	8.4	15.6
2303.0	11.3	26.0	119	9.7	1.48	6.75	48948	313.45	822.24	8.4	15.6
2304.0	12.2	28.0	125	9.7	1.50	6.83	49563	290.33	814.90	8.4	15.6
2305.0	7.2	28.0	125	9.7	1.65	6.97	50604	491.94	810.50	8.4	15.6
2306.0	6.4	26.0	129	9.7	1.66	7.13	51814	553.44	807.04	8.4	15.6
2307.0	16.8	27.0	129	9.7	1.40	7.19	52274	210.83	799.13	8.4	15.6
2308.0	20.1	26.0	125	9.7	1.33	7.24	52648	176.22	790.98	8.4	15.6
2309.0	13.6	26.0	123	9.7	1.43	7.31	53190	260.44	784.13	8.4	15.6
2310.0	8.5	27.0	126	9.7	1.59	7.43	54080	416.71	779.44	8.4	15.6
2311.0	14.9	27.0	126	9.7	1.43	7.50	54587	237.72	772.62	8.4	15.6
2312.0	13.2	27.0	133	9.7	1.48	7.57	55192	268.33	766.34	8.4	15.6
2313.0	9.6	27.0	133	9.7	1.57	7.68	56023	368.96	761.46	8.4	15.6
2314.0	17.3	28.0	132	9.7	1.42	7.73	56481	204.74	754.71	8.4	15.6
2315.0	10.7	28.0	120	9.7	1.53	7.83	57153	331.03	749.63	8.4	15.6
2316.0	15.7	36.0	120	9.7	1.52	7.89	57612	225.61	743.42	8.4	15.6
2317.0	2.8	36.0	120	9.7	2.05	8.25	60183	1265	750	8.4	15.6
2318.0	5.9	36.0	120	9.7	1.82	8.42	61404	600.34	747.80	8.4	15.6
2319.0	8.9	26.0	120	9.7	1.55	8.53	62213	397.98	743.80	8.4	15.6
2320.0	6.9	22.0	138	9.7	1.59	8.67	63413	513.33	741.19	8.4	15.6
2321.0	9.1	22.0	138	9.7	1.51	8.78	64323	389.23	737.25	8.4	15.6
2322.0	4.8	23.0	120	9.7	1.66	8.99	65823	737.92	737.26	8.4	15.6
2323.0	9.6	24.0	115	9.7	1.48	9.10	66541	368.96	733.23	8.4	15.7
2324.0	8.5	25.0	115	9.7	1.53	9.21	67353	416.71	729.80	8.4	15.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2325.0	3.6	25.0	115	9.7	1.77	9.49	69270	983.89	732.52	8.4	15.7
2326.0	3.6	25.0	115	9.7	1.77	9.77	71187	983.89	735.19	8.4	15.7
2327.0	1.8	25.0	115	9.7	1.96	10.33	75020	1968	748	8.4	15.7
2328.0	11.8	33.0	115	9.7	1.56	10.41	75605	300.17	743.46	8.4	15.7
2329.0	7.8	27.0	115	9.7	1.59	10.54	76489	454.10	740.49	8.4	15.7
2330.0	4.4	28.0	102	9.7	1.73	10.77	77880	805.00	741.15	8.4	15.7
2331.0	2.0	29.0	110	9.7	2.00	11.27	81180	1771	752	8.4	15.7
2332.0	5.6	29.0	110	9.7	1.70	11.44	82359	632.50	750.32	8.4	15.7
2333.0	3.8	30.0	110	9.7	1.83	11.71	84096	932.11	752.11	8.4	15.7
2334.0	2.1	34.0	120	9.7	2.11	12.18	87524	1687	761	8.4	15.7
2335.0	2.3	34.0	120	9.7	2.08	12.62	90655	1540	769	8.4	15.7
2336.0	2.6	34.0	120	9.7	2.04	13.00	93424	1362	774	8.4	15.7
2336.4	2.6	34.0	120	9.7	2.04	13.16	94531	1362	777	8.4	15.7

BIT NUMBER	13	IADC CODE	214	INTERVAL	2336.4- 2421.0
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.7	BIT RUN	84.6
TOTAL HOURS	12.45	TOTAL TURNS	89585	CONDITION	T5 B4 G0.250

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2337.0	1.6	25.0	114	9.6	2.01	0.38	2565	2214	61976	8.4	15.7
2338.0	3.5	32.0	112	9.6	1.92	0.66	4485	1012	23874	8.4	15.7
2339.0	2.8	33.0	112	9.6	2.00	1.02	6885	1265	15178	8.4	15.7
2340.0	10.7	42.0	109	9.6	1.71	1.11	7496	331	11054	8.4	15.7
2341.0	11.6	42.0	109	9.6	1.68	1.20	8060	305	8717	8.4	15.7
2342.0	8.5	39.0	116	9.6	1.76	1.32	8879	417	7235	8.4	15.7
2343.0	11.6	39.0	116	9.6	1.66	1.40	9479	305	6185	8.4	15.7
2344.0	5.0	47.0	112	9.6	2.04	1.60	10823	708	5464	8.4	15.7
2345.0	2.8	46.0	112	9.6	2.22	1.96	13223	1265	4976	8.4	15.7
2346.0	4.3	38.0	120	9.6	1.97	2.19	14897	824	4544	8.4	15.7
2347.0	8.8	40.0	120	9.6	1.77	2.30	15715	403	4153	8.4	15.7
2348.0	12.9	42.0	127	9.6	1.70	2.38	16306	275	3819	8.4	15.7
2349.0	4.1	39.0	125	9.6	2.02	2.63	18135	864	3584	8.4	15.7
2350.0	3.4	41.0	120	9.6	2.10	2.92	20253	1042	3397	8.4	15.7
2351.0	4.9	40.0	124	9.6	1.97	3.12	21771	723	3214	8.4	15.7
2352.0	6.4	40.0	124	9.6	1.89	3.28	22934	553	3043	8.4	15.7
2353.0	5.3	40.0	126	9.6	1.95	3.47	24360	668	2900	8.4	15.7
2354.0	6.0	40.0	124	9.6	1.91	3.64	25600	590	2769	8.4	15.7
2355.0	3.5	40.0	124	9.6	2.08	3.92	27726	1012	2675	8.4	15.7
2356.0	19.6	40.0	130	9.6	1.54	3.97	28124	181	2547	8.4	15.7
2357.0	15.1	40.0	130	9.6	1.63	4.04	28641	235	2435	8.4	15.7
2358.0	14.7	40.0	123	9.6	1.62	4.11	29143	241	2334	8.4	15.7
2359.0	16.3	40.0	120	9.6	1.58	4.17	29584	217	2240	8.4	15.7
2360.0	18.3	40.0	120	9.6	1.54	4.22	29978	194	2153	8.4	15.7
2361.0	3.8	40.0	120	9.6	2.04	4.49	31872	932	2104	8.4	15.7
2362.0	3.7	38.0	120	9.6	2.02	4.76	33818	957	2059	8.4	15.7
2363.0	4.0	38.0	120	9.6	2.00	5.01	35618	886	2015	8.4	15.7
2364.0	3.7	38.0	120	9.6	2.02	5.28	37564	957	1976	8.4	15.7
2365.0	3.6	38.0	120	9.6	2.03	5.55	39564	984	1942	8.4	15.7
2366.0	9.6	38.0	120	9.6	1.72	5.66	40314	369	1889	8.4	15.7
2367.0	5.9	38.0	110	9.6	1.85	5.83	41433	600	1846	8.4	15.7
2368.0	13.2	38.0	110	9.6	1.59	5.90	41933	268	1796	8.4	15.7
2369.0	18.1	36.0	115	9.6	1.48	5.96	42314	196	1747	8.4	15.7
2370.0	14.0	37.0	115	9.6	1.57	6.03	42807	253	1703	8.4	15.7
2371.0	13.8	37.0	127	9.6	1.61	6.10	43359	257	1661	8.4	15.7
2372.0	15.7	37.0	127	9.6	1.57	6.17	43845	226	1621	8.4	15.7
2373.0	3.1	36.0	125	9.6	2.06	6.49	46264	1143	1608	8.4	15.7
2374.0	10.1	37.0	120	9.6	1.69	6.59	46977	351	1574	8.4	15.7
2375.0	8.9	37.0	120	9.6	1.73	6.70	47786	398	1544	8.4	15.7
2376.0	10.2	37.0	112	9.6	1.66	6.80	48445	347	1514	8.4	15.7
2377.0	11.6	37.0	112	9.6	1.62	6.88	49024	305	1484	8.4	15.7
2378.0	11.6	37.0	113	9.6	1.63	6.97	49608	305	1456	8.4	15.7
2379.0	13.1	37.0	113	9.6	1.59	7.05	50126	270	1428	8.4	15.7

COMPUTER DATA LISTING : LIST B

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INTERVAL . . . . . 10 m average

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,  
this should change from negative to positive

BIT NUMBER	2	IADC CODE	114	INTERVAL	225.0-	554.4
HTC X3A		SIZE	12.250	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	2.8	BIT RUN		329.4
TOTAL HOURS	5.28	TOTAL TURNS	33815	CONDITION	T2 B1	G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
230.0	112.0	5.0	0.04	214	11475.73	32	2295	-
240.0	180.0	15.0	0.10	481	11672.50	19.68	778.17	-
250.0	200.0	25.0	0.15	736	11849.60	17.71	473.98	-
260.0	225.0	35.0	0.19	971	12007.03	15.74	343.06	-
270.0	450.0	45.0	0.22	1104	12085.74	7.87	268.57	-
280.0	170.0	55.0	0.28	1457	12294.09	20.84	223.53	-
290.0	71.0	65.0	0.42	2302	12792.96	49.89	196.81	-
300.0	160.0	75.0	0.48	2677	13014.34	22.14	173.52	-
310.0	162.0	85.0	0.54	3047	13232.98	21.86	155.68	-
320.0	165.0	95.0	0.60	3429	13447.65	21.47	141.55	-
330.0	108.0	105.0	0.69	4012	13775.61	32.80	131.20	-
340.0	70.0	115.0	0.84	4912	14281.61	50.60	124.19	-
350.0	82.0	125.0	0.96	5630	14713.56	43.20	117.71	-
360.0	41.0	135.0	1.20	7093	15577.46	86.39	115.39	-
370.0	83.0	145.0	1.32	7816	16004.21	42.67	110.37	-
380.0	71.0	155.0	1.46	8678	16503.08	49.89	106.47	-
390.0	92.0	165.0	1.57	9330	16888.08	38.50	102.35	-
400.0	79.0	175.0	1.70	10074	17336.44	44.84	99.07	-
410.0	95.0	185.0	1.80	10737	17709.28	37.28	95.73	-
420.0	79.0	195.0	1.93	11337	18157.63	44.84	93.12	-
430.0	82.0	205.0	2.05	12179	18589.58	43.20	90.68	-
440.0	47.0	215.0	2.27	13583	19343.20	75.36	89.97	-
450.0	83.0	225.0	2.39	14451	19769.95	42.67	87.87	-
460.0	64.0	235.0	2.54	15594	20323.39	55.34	86.48	-
470.0	55.0	245.0	2.72	16893	20967.39	64.40	85.58	-
480.0	103.0	255.0	2.82	17592	21311.27	34.39	83.57	-
490.0	52.0	265.0	3.01	19034	21992.42	68.12	82.99	-
510.0	53.2	285.0	3.39	21315	23322.96	66.53	81.83	-
520.0	36.0	295.0	3.67	22898	24306.85	98.39	82.40	+
530.0	29.0	305.0	4.01	25340	25528.23	122.14	83.70	+
540.0	32.0	315.0	4.32	27515	26635.10	110.69	84.56	+
550.0	18.0	325.0	4.88	31381	28602.88	196.78	88.01	+
554.4	18.0	329.4	5.13	33087	29470.67	196.78	89.47	+

BIT NUMBER	3	IADC CODE	114	INTERVAL	554.4-	804.0
HTC X3A		SIZE	12.250	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	3.9	BIT RUN		249.6
TOTAL HOURS	7.94	TOTAL TURNS	57049	CONDITION	T2 B2	G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
560.0	31.0	5.6	0.18	1255	15848.42	114	2835	-
570.0	31.0	15.6	0.50	3539	16990.68	114	1090	-
580.0	59.0	25.6	0.67	4719	17590.85	60.02	687.41	-
590.0	52.0	35.6	0.86	6080	18271.81	68.10	513.40	-
600.0	28.0	45.6	1.22	8609	19536.45	126.46	428.52	-
610.0	23.0	55.6	1.66	11739	21076.02	153.96	379.13	-
620.0	23.0	65.6	2.09	14896	22615.58	153.96	344.80	-
630.0	37.0	75.6	2.36	16842	23572.61	95.70	311.85	-
640.0	28.0	85.6	2.72	19370	24837.25	126.46	290.19	-
650.0	28.0	95.6	3.08	21942	26101.90	126.46	273.06	-
660.0	24.0	105.6	3.49	24942	27577.31	147.54	261.17	-
670.0	17.0	115.6	4.08	29177	29660.26	208.29	256.60	-
680.0	32.0	125.6	4.39	31464	30766.82	110.66	244.98	-
690.0	40.0	135.6	4.64	33264	31652.07	88.53	233.44	-
700.0	41.0	145.6	4.89	35020	32515.73	86.37	223.34	-
710.0	41.0	155.6	5.13	36806	33379.38	86.37	214.53	-
780.0	35.7	225.6	7.09	50927	40316.44	99.10	178.72	-
790.0	34.0	235.6	7.38	53045	41357.91	104.15	175.55	-
800.0	34.0	245.6	7.68	55162	42399.38	104.15	172.64	-
804.0	34.0	249.6	7.80	56009	42815.97	104.15	171.55	-

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2380.0	13.5	37.0	113	9.5	1.60	7.12	50628	262	1401	8.4	15.7
2381.0	12.2	37.0	113	9.5	1.63	7.20	51184	290	1376	8.4	15.7
2382.0	11.0	37.0	113	9.5	1.66	7.29	51800	322	1353	8.4	15.7
2383.0	10.0	37.0	113	9.5	1.69	7.39	52478	354	1332	8.4	15.7
2384.0	12.2	37.0	113	9.5	1.63	7.48	53034	290	1310	8.4	15.7
2385.0	5.0	37.0	113	9.5	1.91	7.68	54390	708	1297	8.4	15.7
2386.0	15.0	37.0	119	9.5	1.58	7.74	54866	236	1276	8.4	15.7
2387.0	14.5	37.0	119	9.5	1.59	7.81	55358	244	1255	8.4	15.7
2388.0	14.8	35.0	116	9.5	1.55	7.88	55829	239	1236	8.4	15.7
2389.0	12.0	35.0	116	9.5	1.61	7.96	56409	295	1218	8.4	15.7
2390.0	14.4	36.0	115	9.5	1.57	8.03	56888	246	1200	8.4	15.7
2391.0	8.5	36.0	118	9.5	1.74	8.15	57721	417	1185	8.4	15.7
2392.0	7.3	38.0	123	9.5	1.83	8.29	58732	485	1173	8.4	15.7
2393.0	8.9	38.0	124	9.5	1.77	8.40	59568	398	1159	8.4	15.7
2394.0	3.7	38.0	125	9.5	2.06	8.67	61595	957	1156	8.4	15.7
2395.0	8.2	38.0	125	9.5	1.80	8.79	62509	432	1143	8.4	15.7
2396.0	6.3	38.0	125	9.5	1.89	8.95	63700	562	1134	8.4	15.7
2397.0	12.0	38.0	110	9.5	1.64	9.03	64250	295	1120	8.4	15.7
2398.0	13.0	37.0	127	9.5	1.65	9.11	64836	272	1106	8.4	15.7
2399.0	11.5	37.0	127	9.5	1.68	9.20	65499	308	1093	8.4	15.7
2400.0	12.6	34.0	120	9.5	1.60	9.28	66070	281	1080	8.4	15.7
2401.0	7.2	34.0	120	9.5	1.77	9.42	67070	492	1071	8.4	15.7
2402.0	3.8	36.0	131	9.5	2.03	9.68	69139	932	1069	8.4	15.7
2403.0	3.0	36.0	131	9.5	2.10	10.01	71759	1181	1071	8.4	15.7
2404.0	7.2	35.0	120	9.5	1.78	10.15	72759	492	1062	8.4	15.7
2405.0	13.0	35.0	120	9.5	1.60	10.23	73312	272	1051	8.4	15.7
2406.0	12.1	36.0	116	9.5	1.63	10.31	73888	293	1040	8.4	15.7
2407.0	12.5	36.0	116	9.5	1.62	10.39	74444	283	1029	8.4	15.7
2408.0	13.1	36.0	122	9.5	1.62	10.47	75003	270	1019	8.4	15.7
2409.0	8.5	35.0	120	9.5	1.73	10.58	75850	417	1010	8.4	15.7
2410.0	15.9	35.0	125	9.5	1.55	10.65	76322	222.77	999.60	8.4	15.7
2411.0	12.7	35.0	125	9.5	1.62	10.73	76912	278.90	989.94	8.4	15.7
2412.0	8.9	35.0	120	9.5	1.72	10.84	77721	397.98	982.11	8.4	15.7
2413.0	12.0	35.0	120	9.5	1.63	10.92	78321	295.17	973.15	8.4	15.7
2414.0	11.0	34.0	120	9.5	1.64	11.01	78976	322.00	964.75	8.4	15.7
2415.0	10.4	34.0	120	9.5	1.66	11.11	79668	340.58	956.81	8.4	15.7
2416.0	10.2	36.0	115	9.6	1.66	11.21	80345	347.25	949.16	8.4	15.8
2417.0	11.3	36.0	115	9.6	1.63	11.30	80955	313.45	941.27	8.4	15.8
2418.0	10.8	33.0	140	9.5	1.68	11.39	81733	327.96	933.75	8.4	15.8
2419.0	5.8	33.0	140	9.5	1.87	11.56	83181	610.69	929.84	8.4	15.8
2420.0	2.2	33.0	120	9.5	2.12	12.02	86454	1610	938	8.4	15.8
2421.0	2.3	33.0	120	9.5	2.10	12.45	89585	1540	945	8.4	15.8

BIT NUMBER	3	IADC CODE	114	INTERVAL	203.0-	804.3
HTC X3A&SEC U/R		SIZE	17.500	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	4.0	BIT RUN		601.3
TOTAL HOURS	21.71	TOTAL TURNS	169385	CONDITION	T4 B4 G0.000	

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
220.0	115.0	267.0	8.09	58113	44202.99	30.79	165.55	-
230.0	92.0	277.0	8.20	58896	44587.88	38.49	160.97	-
240.0	84.0	287.0	8.32	59760	45009.43	42.15	156.83	-
250.0	135.0	297.0	8.39	60298	45271.73	26.23	152.43	-
260.0	122.0	307.0	8.47	60893	45561.97	29.02	148.41	-
270.0	65.0	317.0	8.63	62010	46106.74	54.48	145.45	-
280.0	120.0	327.0	8.71	62615	46401.83	29.51	141.90	-
290.0	122.0	337.0	8.79	63205	46692.07	29.02	138.55	-
300.0	114.0	347.0	8.88	63837	47002.69	31.06	135.45	-
310.0	101.0	357.0	8.98	64550	47353.28	35.06	132.64	-
320.0	214.0	367.0	9.02	64886	47518.75	16.55	129.48	-
330.0	182.0	377.0	9.08	65278	47713.31	19.46	126.56	-
340.0	179.0	387.0	9.14	65681	47911.13	19.78	123.80	-
350.0	135.0	397.0	9.21	66214	48173.43	26.23	121.34	-
360.0	257.0	407.0	9.25	66494	48311.21	13.78	118.70	-
370.0	160.0	417.0	9.31	66952	48532.52	22.13	116.38	-
380.0	81.0	427.0	9.43	67855	48969.68	43.72	114.68	-
390.0	79.0	437.0	9.56	68767	49417.91	44.82	113.08	-
400.0	59.0	447.0	9.73	70190	50018.08	60.02	111.90	-
410.0	84.0	457.0	9.85	71226	50439.63	42.15	110.37	-
420.0	83.0	467.0	9.97	72130	50866.25	42.66	108.92	-
430.0	147.0	477.0	10.04	72611	51107.14	24.09	107.14	-
440.0	181.0	487.0	10.09	73003	51302.77	19.56	105.34	-
450.0	170.0	497.0	10.15	73426	51511.07	20.83	103.64	-
460.0	193.0	507.0	10.20	73805	51694.54	18.35	101.96	-
470.0	200.0	517.0	10.25	74135	51871.59	17.71	100.33	-
480.0	116.0	527.0	10.34	74704	52176.85	30.53	99.01	-
490.0	81.0	537.0	10.46	75652	52614.01	43.72	97.98	-
500.0	79.0	547.0	10.59	76602	53062.23	44.82	97.01	-
510.0	109.0	557.0	10.68	77295	53387.10	32.49	95.85	-
520.0	46.5	567.0	10.90	79102	54148.60	76.15	95.50	-
530.0	37.7	577.0	11.16	81410	55087.86	93.93	95.47	-
540.0	37.6	587.0	11.43	83644	56029.61	94.18	95.45	-
550.0	47.0	597.0	11.64	85431	56783.02	75.34	95.11	-
560.0	59.0	607.0	11.81	86885	57383.19	60.02	94.54	-
570.0	44.0	617.0	12.04	88821	58187.96	80.48	94.31	-
580.0	38.0	627.0	12.30	91111	59119.80	93.18	94.29	-
590.0	41.0	637.0	12.54	93160	59983.46	86.37	94.17	-
600.0	51.0	647.0	12.74	94807	60677.78	69.43	93.78	-
610.0	33.0	657.0	13.04	97389	61750.81	107.30	93.99	+
620.0	57.0	667.0	13.22	98915	62372.03	62.12	93.51	-
630.0	29.0	677.0	13.56	101853	63593.07	122.10	93.93	+
640.0	20.0	687.0	14.06	106053	65363.57	177.05	95.14	+



DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
770.0	23.1	817.0	19.68	151876	85259.51	153.05	104.36	+
804.3	16.9	851.3	21.71	169385	92440.22	209.29	108.59	+

BIT NUMBER	4	IADC CODE	114	INTERVAL	804.0- 1400.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.1	BIT RUN	596.0
TOTAL HOURS	21.31	TOTAL TURNS	157037	CONDITION	T6 B4 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
810.0	5.6	6.0	1.07	5083	26800.97	633	4467	-
820.0	10.5	16.0	2.03	9751	30183.61	338	1886	-
830.0	10.5	26.0	2.98	14146	33568.84	339	1291	-
840.0	14.5	36.0	3.68	17856	36013.79	244	1000	-
850.0	24.2	46.0	4.09	21270	37477.39	146.36	814.73	-
860.0	30.6	56.0	4.42	24007	38635.72	115.83	689.92	-
870.0	28.1	66.0	4.77	27010	39897.01	126.13	604.50	-
880.0	36.3	76.0	5.05	29344	40873.82	97.68	537.81	-
890.0	37.8	86.0	5.31	31407	41811.53	93.77	486.18	-
900.0	33.8	96.0	5.61	33611	42859.51	104.80	446.45	-
910.0	27.7	106.0	5.97	36346	44138.71	127.92	416.40	-
920.0	32.8	116.0	6.27	38682	45219.65	108.09	389.82	-
930.0	27.0	126.0	6.65	41460	46531.85	131.22	369.30	-
940.0	24.9	136.0	7.05	44349	47952.75	142.09	352.59	-
950.0	33.7	146.0	7.34	46661	49002.67	104.99	335.63	-
960.0	30.8	156.0	7.67	49196	50153.17	115.05	321.49	-
970.0	29.1	166.0	8.01	52073	51370.11	121.69	309.46	-
980.0	36.3	176.0	8.29	54469	52345.07	97.50	297.42	-
990.0	38.5	186.0	8.55	56726	53263.97	91.89	286.37	-
1000.0	42.8	196.0	8.78	58759	54091.14	82.72	275.98	-
1010.0	38.8	206.0	9.04	61011	55004.69	91.36	267.01	-
1020.0	38.7	216.0	9.30	63320	55918.57	91.39	258.88	-
1030.0	38.2	226.0	9.56	65676	56845.82	92.73	251.53	-
1040.0	41.9	236.0	9.80	67823	57690.22	84.44	244.45	-
1050.0	37.2	246.0	10.07	70240	58641.28	95.11	238.38	-
1060.0	35.4	256.0	10.35	72729	59641.15	99.99	232.97	-
1070.0	43.2	266.0	10.58	74735	60460.40	81.93	227.29	-
1080.0	41.2	276.0	10.82	76846	61319.78	85.94	222.17	-
1090.0	48.4	286.0	11.03	78643	62051.20	73.14	216.96	-
1100.0	40.4	296.0	11.28	80585	62928.15	87.69	212.60	-
1110.0	40.9	306.0	11.52	82419	63793.95	86.58	208.48	-
1120.0	39.5	316.0	11.77	84333	64689.39	89.54	204.71	-
1130.0	47.7	326.0	11.98	86105	65431.85	74.25	200.71	-
1140.0	45.6	336.0	12.20	87858	66208.98	77.71	197.05	-
1150.0	34.6	346.0	12.49	90153	67232.64	102.37	194.31	-
1160.0	34.8	356.0	12.78	92571	68248.82	101.62	191.71	-
1170.0	45.8	366.0	13.00	94471	69022.33	77.35	188.59	-
1180.0	37.0	376.0	13.27	96868	69979.01	95.67	186.11	-
1190.0	39.6	386.0	13.52	99170	70874.04	89.50	183.61	-
1200.0	40.1	396.0	13.77	101447	71756.85	88.28	181.20	-
1210.0	41.1	406.0	14.01	103629	72618.88	86.20	178.86	-
1220.0	39.3	416.0	14.27	105949	73520.01	90.11	176.73	-
1230.0	43.0	426.0	14.50	108037	74343.93	82.39	174.52	-

DEPTH	ROP	BIT RUN	HOURS	URNS	TOTAL COST	ICOST	CCOST	I-C
1240.0	41.2	436.0	14.74	110175	75202.81	85.89	172.48	-
1250.0	42.5	446.0	14.98	112304	76036.91	83.41	170.49	-
1260.0	44.3	456.0	15.20	114324	76836.41	79.95	168.50	-
1270.0	42.4	466.0	15.44	116459	77671.85	83.54	166.68	-
1280.0	39.6	476.0	15.69	118746	78565.89	89.40	165.05	-
1290.0	40.3	486.0	15.94	120982	79443.72	87.78	163.46	-
1300.0	36.2	496.0	16.22	123538	80423.00	97.93	162.14	-
1310.0	45.7	506.0	16.44	125577	81197.11	77.41	160.47	-
1320.0	46.9	516.0	16.65	127495	81951.87	75.48	158.82	-
1330.0	44.6	526.0	16.87	129593	82746.13	79.43	157.31	-
1340.0	41.5	536.0	17.11	131810	83600.40	85.43	155.97	-
1350.0	49.5	546.0	17.32	133629	84315.96	71.56	154.42	-
1360.0	43.1	556.0	17.55	135724	85137.80	82.18	153.13	-
1370.0	46.1	566.0	17.76	137678	85905.37	76.76	151.78	-
1380.0	42.4	576.0	18.00	139802	86740.95	83.56	150.59	-
1390.0	38.2	586.0	18.26	142232	87668.16	92.72	149.60	-
1400.0	41.2	596.0	18.51	144489	88527.33	85.92	148.54	-

BIT NUMBER	5	IADC CODE	114	INTERVAL	1400.0- 1778.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.2	BIT RUN	378.0
TOTAL HOURS	26.59	TOTAL TURNS	238000	CONDITION	T2 E5 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1410.0	31.8	10.0	0.31	1736	24467.51	111	2447	-
1420.0	58.7	20.0	0.48	3252	25070.60	60	1254	-
1430.0	53.5	30.0	0.67	4881	25732.54	66.19	857.75	-
1440.0	51.5	40.0	0.87	6624	26420.16	68.76	660.50	-
1450.0	48.2	50.0	1.07	8550	27154.99	73.48	543.10	-
1460.0	45.6	60.0	1.29	10428	27932.29	77.73	465.54	-
1470.0	46.7	70.0	1.51	12401	28690.24	75.80	409.86	-
1480.0	40.9	80.0	1.75	14595	29556.60	86.64	369.46	-
1490.0	43.3	90.0	1.98	16711	30373.98	81.74	337.49	-
1500.0	34.2	100.0	2.27	19447	31409.60	103.56	314.10	-
1510.0	31.2	110.0	2.60	22627	32544.89	113.53	295.86	-
1520.0	15.7	120.0	3.23	26735	34794.26	224.94	289.95	-
1530.0	16.1	130.0	3.85	30763	36999.68	220.54	284.61	-
1540.0	27.3	140.0	4.22	33822	38296.43	129.67	273.55	-
1550.0	25.8	150.0	4.61	37667	39669.99	137.36	264.47	-
1620.0	18.8	220.0	8.33	76046	52847.17	188.25	240.21	-
1630.0	5.0	230.0	10.33	93712	59933.39	708.62	260.58	+
1640.0	10.9	240.0	11.25	101989	63173.47	324.01	263.22	+
1650.0	12.3	250.0	12.06	109278	66041.31	286.78	264.17	+
1660.0	7.4	260.0	13.40	121529	70819.15	477.78	272.38	+
1670.0	8.1	270.0	14.64	133009	75203.17	438.40	278.53	+
1680.0	5.7	280.0	16.39	149351	81382.95	617.98	290.65	+
1690.0	9.6	290.0	17.43	158964	85057.85	367.49	293.30	+
1700.0	9.3	300.0	18.50	167573	88870.83	381.30	296.24	+
1710.0	9.5	310.0	19.55	176399	92583.14	371.23	298.66	+
1720.0	7.0	320.0	20.98	187481	97660.34	507.72	305.19	+
1730.0	10.0	330.0	21.98	196590	101197.67	353.73	306.66	+
1740.0	10.4	340.0	22.95	205255	104617.62	342.00	307.70	+
1750.0	13.8	350.0	23.67	211783	107178.28	256.07	306.22	-
1760.0	12.6	360.0	24.47	218947	109997.06	281.88	305.55	-
1770.0	10.4	370.0	25.43	227631	113413.43	341.64	306.52	+
1778.0	6.9	378.0	26.59	238000	117493.31	509.99	310.83	+

BIT NUMBER	6	IADC CODE	114	INTERVAL	1778.0- 1920.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	6.4	BIT RUN	142.0
TOTAL HOURS	11.63	TOTAL TURNS	99500	CONDITION	T3 B3 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1780.0	7.4	2.0	0.27	2358	25022.23	480	12511	-
1790.0	9.8	12.0	1.30	11273	28650.76	363	2388	-
1800.0	13.5	22.0	2.03	17289	31265.93	262	1421	-
1810.0	13.6	32.0	2.77	23388	33860.18	259	1058	-
1820.0	15.0	42.0	3.43	28946	36224.32	236.41	862.48	-
1830.0	13.4	52.0	4.18	35042	38870.73	264.64	747.51	-
1840.0	13.6	62.0	4.92	41459	41473.35	260.26	668.93	-
1850.0	13.1	72.0	5.68	48118	44183.73	271.04	613.66	-
1860.0	11.3	82.0	6.57	56283	47314.05	313.03	577.00	-
1870.0	10.9	92.0	7.48	64346	50555.04	324.10	549.51	-
1880.0	12.0	102.0	8.32	71618	53514.91	295.99	524.66	-
1890.0	11.0	112.0	9.22	79319	56723.27	320.84	506.46	-
1900.0	12.5	122.0	10.02	86154	59545.17	282.19	488.08	-
1910.0	10.6	132.0	10.97	94184	62900.04	335.49	476.52	-
1920.0	15.0	142.0	11.63	99500	65257.81	235.78	459.56	-

BIT NUMBER	7	IADC CODE	4	INTERVAL	1920.0- 1929.5
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.5
TOTAL HOURS	6.00	TOTAL TURNS	37032	CONDITION	TO B0 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1929.5	1.7	9.5	5.71	34024	57881.40	2128	6093	-

BIT NUMBER	8	IADC CODE	4	INTERVAL	1929.5- 1939.4
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.9
TOTAL HOURS	1.54	TOTAL TURNS	9365	CONDITION	TO B0 G0.000

DEPTH	ROP	BIT RUN	HOURS	URNS	TOTAL COST	ICOST	CCOST	I-C
1930.0	11.8	0.5	0.04	219	37819.07	301	75638	-
1939.4	6.3	9.9	1.54	9405	43135.42	566	4357	-

BIT NUMBER	8	IADC CODE	4	INTERVAL	1939.4- 1948.9
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.0	BIT RUN	9.5
TOTAL HOURS	5.78	TOTAL TURNS	35602	CONDITION	T0 B0 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1940.0	8.1	10.5	1.61	9812	45512.52	440	4335	-
1948.9	2.0	19.4	6.01	37047	61074.10	1748	3148	-



BIT NUMBER	6	IADC CODE	114	INTERVAL	1920.0- 1948.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	7.1	BIT RUN	28.0
TOTAL HOURS	13.82	TOTAL TURNS	112259	CONDITION	T5 B4 G0.250

DEPTH	ROP	BIT RUN	HOURS	URNS	TOTAL COST	ICOST	CCOST	I-C
1930.0	20.1	152.0	12.13	102262	69503.90	176.22	457.26	-
1940.0	23.1	162.0	12.56	104524	71035.31	153.14	438.49	-
1948.0	6.4	170.0	13.82	112259	75496.53	557.65	444.10	+

BIT NUMBER	9	IADC CODE	4	INTERVAL	1951.0- 1960.1
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.1	BIT RUN	9.1
TOTAL HOURS	3.14	TOTAL TURNS	18248	CONDITION	TO B0 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1960.0	3.0	9.0	3.01	17310	50816.42	1185	5646	-
1960.1	0.8	9.1	3.14	18248	51259.17	4428	5633	-

BIT NUMBER	10	IADC CODE	135	INTERVAL	1960.1- 2030.1
HTC XDG		SIZE	12.250	NOZZLES	13 13 14
COST	1400.00	TRIP TIME	8.3	BIT RUN	70.0
TOTAL HOURS	8.53	TOTAL TURNS	71815	CONDITION	T7 B3 G0.183

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1970.0	7.8	9.9	1.27	10249	35308.95	456	3567	-
1980.0	46.3	19.9	1.49	12004	36073.52	76	1813	-
1990.0	33.2	29.9	1.79	14654	37140.51	107	1242	-
2000.0	7.9	39.9	3.06	24703	41641.41	450	1044	-
2010.0	5.9	49.9	4.76	39167	47655.96	601.45	955.03	-
2020.0	6.9	59.9	6.20	50265	52766.85	511.09	880.92	-
2030.0	3.7	69.9	8.93	74073	62427.86	966.10	893.10	+
2030.1	1.6	70.0	8.99	74617	62649.23	2214	895	+

BIT NUMBER	11	IADC CODE	517	INTERVAL	2030.1- 2231.6
HTC J22		SIZE	12.250	NOZZLES	13 13 14
COST	5300.00	TRIP TIME	9.0	BIT RUN	201.5
TOTAL HOURS	36.59	TOTAL TURNS	220725	CONDITION	T2 B4 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
2040.0	4.3	9.9	2.32	13893	45378.18	828	4584	-
2050.0	4.1	19.9	4.75	28528	54017.71	864	2714	-
2060.0	4.6	29.9	6.93	41596	61732.47	771	2065	-
2070.0	5.9	39.9	8.62	51705	67699.75	597	1697	-
2080.0	8.8	49.9	9.76	58250	71744.27	404	1438	-
2090.0	4.4	59.9	12.02	71265	79741.98	800	1331	-
2100.0	6.5	69.9	13.56	80546	85225.16	548	1219	-
2110.0	7.2	79.9	14.95	89741	90116.39	489	1128	-
2120.0	11.3	89.9	15.83	95049	93249.63	313	1037	-
2130.0	6.6	99.9	17.33	104709	98577.32	532.77	986.76	-
2140.0	11.4	109.9	18.21	109891	101686.80	310.95	925.27	-
2150.0	7.9	119.9	19.47	117450	106147.33	446.05	885.30	-
2160.0	7.0	129.9	20.91	126020	111243.12	509.58	856.38	-
2170.0	5.8	139.9	22.65	135972	117401.01	615.79	839.18	-
2180.0	5.6	149.9	24.42	146853	123684.28	628.33	825.11	-
2190.0	4.6	159.9	26.61	159400	131435.89	775.16	821.99	-
2200.0	4.4	169.9	28.89	173193	139494.35	805.85	821.04	-
2210.0	3.9	179.9	31.43	188579	148501.42	900.71	825.47	+
2220.0	4.5	189.9	33.63	202132	156291.77	779.04	823.02	-
2230.0	4.8	199.9	35.72	215079	163680.99	738.92	818.81	-
2231.6	2.3	201.5	36.40	219547	166122.82	1526	824	+

BIT NUMBER	12	IADC CODE	214	INTERVAL	2231.6- 2336.4
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.4	BIT RUN	104.8
TOTAL HOURS	13.16	TOTAL TURNS	94531	CONDITION	T6 B4 G0.125

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
2240.0	7.3	8.4	1.15	7700	38873.11	486	4628	-
2250.0	15.1	18.4	1.81	12763	41217.22	234	2240	-
2260.0	16.6	28.4	2.42	17163	43352.90	214	1527	-
2270.0	13.8	38.4	3.14	22453	45921.62	257	1196	-
2280.0	9.6	48.4	4.19	30228	49621.22	370	1025	-
2290.0	10.7	58.4	5.12	37050	52925.33	330.41	906.26	-
2300.0	7.6	68.4	6.44	46747	57616.24	469.09	842.34	-
2310.0	10.1	78.4	7.43	54080	61108.06	349.18	779.44	-
2320.0	8.0	88.4	8.67	63413	65521.09	441.30	741.19	-
2330.0	4.8	98.4	10.77	77880	72928.73	740.76	741.15	-
2336.4	2.7	104.8	13.16	94531	81398.23	1323	777	+

BIT NUMBER	13	IADC CODE	214	INTERVAL	2336.4- 2421.0
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.7	BIT RUN	84.6
TOTAL HOURS	12.45	TOTAL TURNS	89585	CONDITION	T5 B4 G0.250

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
2340.0	3.2	3.6	1.11	7496	39793.68	1093	11054	-
2350.0	5.5	13.6	2.92	20253	46200.94	641	3397	-
2360.0	7.7	23.6	4.22	29978	50814.95	461	2153	-
2370.0	5.5	33.6	6.03	42807	57217.36	640	1703	-
2380.0	9.2	43.6	7.12	50628	61081.58	386	1401	-
2390.0	11.0	53.6	8.03	56888	64307.71	323	1200	-
2400.0	8.0	63.6	9.28	66070	68715.81	441	1080	-
2410.0	7.3	73.6	10.65	76322	73570.88	485.51	999.60	-
2420.0	7.3	83.6	12.02	86454	78414.85	484.40	937.98	-
2421.0	2.3	84.6	12.45	89585	79954.85	1540	945	+

COMPUTER DATA LISTING : LIST C

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INTERVAL . . . . . 10 m average

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

HHP . . . . . Bit hydraulic horsepower

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

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

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

BIT NUMBER	2	IADC CODE	114	INTERVAL	225.0- 554.4
HTC X3A		SIZE	12.250	NOZZLES	20 20 20
COST	1400.00	TRIP TIME	2.8	BIT RUN	329.4
TOTAL HOURS	5.28	TOTAL TURNS	33815	CONDITION	T2 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
230.0	827	1500.0	668.5	44.6	322	2.74	1110	88
240.0	827	1500.0	668.5	44.6	322	2.74	1110	88
250.0	827	1500.0	668.5	44.6	322	2.74	1110	88
260.0	827	1500.0	668.5	44.6	322	2.74	1110	88
270.0	827	1500.0	668.5	44.6	322	2.74	1110	88
280.0	827	1500.0	668.5	44.6	322	2.74	1110	88
290.0	827	1500.0	668.5	44.6	322	2.74	1110	88
300.0	827	1500.0	668.5	44.6	322	2.74	1110	88
310.0	827	1500.0	668.5	44.6	322	2.74	1110	88
320.0	827	1500.0	675.9	45.1	326	2.77	1122	88
330.0	827	1500.0	675.9	45.1	326	2.77	1122	88
340.0	827	1500.0	675.9	45.1	326	2.77	1122	88
350.0	827	1500.0	675.9	45.1	326	2.77	1122	88
360.0	827	1500.0	675.9	45.1	326	2.77	1122	88
370.0	827	1500.0	675.9	45.1	326	2.77	1122	88
380.0	827	1500.0	675.9	45.1	326	2.77	1122	88
390.0	827	1500.0	675.9	45.1	326	2.77	1122	88
400.0	827	1500.0	675.9	45.1	326	2.77	1122	88
410.0	827	1500.0	675.9	45.1	326	2.77	1122	88
420.0	827	1500.0	675.9	45.1	326	2.77	1122	88
430.0	827	1500.0	675.9	45.1	326	2.77	1122	88
440.0	827	1500.0	675.9	45.1	326	2.77	1122	88
450.0	827	1500.0	675.9	45.1	326	2.77	1122	88
460.0	827	1500.0	675.9	45.1	326	2.77	1122	88
470.0	827	1500.0	675.9	45.1	326	2.77	1122	88
480.0	827	1500.0	675.9	45.1	326	2.77	1122	88
490.0	1038	2550.0	1066.7	41.8	646	5.48	1771	110
510.0	1038	2300.0	1066.7	46.4	646	5.48	1771	110
520.0	920	1750.0	836.6	47.8	449	3.81	1389	97
530.0	920	1750.0	836.6	47.8	449	3.81	1389	97
540.0	1085	2600.0	1164.4	44.8	737	6.25	1933	115
550.0	1085	2600.0	1164.4	44.8	737	6.25	1933	115
554.4	1085	2600.0	1164.4	44.8	737	6.25	1933	115



BIT NUMBER	3	IADC CODE	114	INTERVAL	554.4- 804.0
HTC X3A		SIZE	12.250	NOZZLES	20 20 20
COST	1400.00	TRIP TIME	3.9	BIT RUN	249.6
TOTAL HOURS	7.94	TOTAL TURNS	57049	CONDITION	T2 B2 G0.000

DEPTH	FLOW RATE	PSP	PBIT	ZPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
560.0	1059	2600.0	1097.4	42.2	678	5.75	1822	112
570.0	1059	2600.0	1097.4	42.2	678	5.75	1822	112
580.0	1059	2600.0	1097.4	42.2	678	5.75	1822	112
590.0	1059	2600.0	1097.4	42.2	678	5.75	1822	112
600.0	1059	2600.0	1097.4	42.2	678	5.75	1822	112
610.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
620.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
630.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
640.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
650.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
660.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
670.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
680.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
690.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
700.0	1044	2570.0	1065.5	41.5	649	5.50	1769	111
710.0	1033	2570.0	1056.1	41.1	637	5.40	1753	109
780.0	1038	2570.0	1066.7	41.5	646	5.48	1771	110
790.0	1038	2570.0	1066.7	41.5	646	5.48	1771	110
800.0	1075	2570.0	1142.3	44.4	716	6.08	1896	114
804.0	1075	2570.0	1142.3	44.4	716	6.08	1896	114

BIT NUMBER	3	IADC CODE	114	INTERVAL	203.0-	804.3
HTC X3A&SEC	U/R	SIZE	17.500	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	4.0	BIT RUN		601.3
TOTAL HOURS	21.71	TOTAL TURNS	169385	CONDITION	T4 B4 G0.000	

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
220.0	1054	2570.0	1110.9	43.2	683	2.84	1844	112
230.0	1054	2570.0	1110.9	43.2	683	2.84	1844	112
240.0	1054	2570.0	1110.9	43.2	683	2.84	1844	112
250.0	1054	2570.0	1110.9	43.2	683	2.84	1844	112
260.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
270.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
280.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
290.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
300.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
310.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
320.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
330.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
340.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
350.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
360.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
370.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
380.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
390.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
400.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
410.0	1028	2570.0	1057.1	41.1	634	2.64	1755	109
420.0	1044	2570.0	1089.2	42.4	663	2.76	1808	111
430.0	1044	2570.0	1089.2	42.4	663	2.76	1808	111
440.0	1044	2570.0	1089.2	42.4	663	2.76	1808	111
450.0	1033	2570.0	1067.7	41.5	644	2.68	1773	109
460.0	1033	2570.0	1067.7	41.5	644	2.68	1773	109
470.0	1033	2570.0	1067.7	41.5	644	2.68	1773	109
480.0	1033	2570.0	1067.7	41.5	644	2.68	1773	109
490.0	1033	2570.0	1067.7	41.5	644	2.68	1773	109
500.0	1049	2570.0	1088.1	42.3	666	2.77	1806	111
510.0	1049	2570.0	1088.1	42.3	666	2.77	1806	111
520.0	1049	2570.0	1088.1	42.3	666	2.77	1806	111
530.0	1049	2570.0	1088.1	42.3	666	2.77	1806	111
540.0	982	2570.0	953.2	37.1	546	2.27	1582	104
550.0	982	2570.0	953.2	37.1	546	2.27	1582	104
560.0	982	2570.0	953.2	37.1	546	2.27	1582	104
570.0	982	2570.0	953.2	37.1	546	2.27	1582	104
580.0	982	2570.0	953.2	37.1	546	2.27	1582	104
590.0	982	2570.0	953.2	37.1	546	2.27	1582	104
600.0	982	2570.0	953.2	37.1	546	2.27	1582	104
610.0	982	2570.0	953.2	37.1	546	2.27	1582	104
620.0	982	2570.0	953.2	37.1	546	2.27	1582	104
630.0	723	2570.0	523.2	20.4	221	0.92	869	77
640.0	723	2570.0	523.2	20.4	221	0.92	869	77

DEPTH	FLOW RATE	PSP	PRIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
770.0	1033	2570.0	1056.1	41.1	637	2.65	1753	109
804.3	1033	2570.0	1056.1	41.1	637	2.65	1753	109

BIT NUMBER	4	IADC CODE	114	INTERVAL	804.0- 1400.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.1	BIT RUN	596.0
TOTAL HOURS	21.31	TOTAL TURNS	157037	CONDITION	T6 B4 G0.000

DEPTH	FLOW RATE	PSP	PBIT	XPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
810.0	703	2800.0	1665.2	59.5	683	5.79	1493	138
820.0	651	2800.0	1421.7	50.8	540	4.58	1275	128
830.0	677	2800.0	1536.8	54.9	607	5.15	1378	133
840.0	635	2800.0	1354.8	48.4	502	4.26	1215	125
850.0	837	3000.0	2324.1	77.5	1135	9.63	2083	164
860.0	837	3000.0	2350.2	78.3	1148	9.74	2107	164
870.0	842	3000.0	2379.3	79.3	1169	9.92	2133	165
880.0	842	3000.0	2379.3	79.3	1169	9.92	2133	165
890.0	842	2850.0	2379.3	83.5	1169	9.92	2133	165
900.0	842	2850.0	2379.3	83.5	1169	9.92	2133	165
910.0	827	2780.0	2292.5	82.5	1106	9.38	2055	162
920.0	827	2780.0	2292.5	82.5	1106	9.38	2055	162
930.0	821	2800.0	2213.6	79.1	1061	9.00	1984	161
940.0	821	2700.0	2213.6	82.0	1061	9.00	1984	161
950.0	821	2700.0	2213.6	82.0	1061	9.00	1984	161
960.0	821	2700.0	2213.6	82.0	1061	9.00	1984	161
970.0	821	2950.0	2213.6	75.0	1061	9.00	1984	161
980.0	821	2950.0	2213.6	75.0	1061	9.00	1984	161
990.0	821	2980.0	2213.6	74.3	1061	9.00	1984	161
1000.0	821	2980.0	2188.5	73.4	1049	8.90	1962	161
1010.0	821	2980.0	2188.5	73.4	1049	8.90	1962	161
1020.0	821	2980.0	2188.5	73.4	1049	8.90	1962	161
1030.0	827	3000.0	2216.1	73.9	1069	9.07	1987	162
1040.0	827	3000.0	2216.1	73.9	1069	9.07	1987	162
1050.0	827	3000.0	2216.1	73.9	1069	9.07	1987	162
1060.0	827	3000.0	2241.6	74.7	1081	9.17	2010	162
1070.0	827	3000.0	2216.1	73.9	1069	9.07	1987	162
1080.0	827	3000.0	2267.0	75.6	1093	9.28	2032	162
1090.0	827	3000.0	2267.0	75.6	1093	9.28	2032	162
1100.0	847	3050.0	2381.8	78.1	1177	9.99	2135	166
1110.0	847	3050.0	2381.8	78.1	1177	9.99	2135	166
1120.0	847	3050.0	2381.8	78.1	1177	9.99	2135	166
1130.0	847	3050.0	2381.8	78.1	1177	9.99	2135	166
1140.0	847	2890.0	2381.8	82.4	1177	9.99	2135	166
1150.0	847	2890.0	2381.8	82.4	1177	9.99	2135	166
1160.0	847	2890.0	2381.8	82.4	1177	9.99	2135	166
1170.0	847	2890.0	2381.8	82.4	1177	9.99	2135	166
1180.0	847	2890.0	2381.8	82.4	1177	9.99	2135	166
1190.0	847	2890.0	2408.6	83.3	1191	10.10	2159	166
1200.0	827	2990.0	2292.5	76.7	1106	9.38	2055	162
1210.0	827	2990.0	2292.5	76.7	1106	9.38	2055	162
1220.0	827	2850.0	2292.5	80.4	1106	9.38	2055	162
1230.0	827	2850.0	2292.5	80.4	1106	9.38	2055	162

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1240.0	827	2850.0	2292.5	80.4	1106	9.38	2055	162
1250.0	832	3250.0	2321.3	71.4	1126	9.56	2081	163
1260.0	832	3250.0	2321.3	71.4	1126	9.56	2081	163
1270.0	832	3250.0	2321.3	71.4	1126	9.56	2081	163
1280.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1290.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1300.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1310.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1320.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1330.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1340.0	821	3200.0	2263.9	70.7	1085	9.21	2030	161
1350.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160
1360.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160
1370.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160
1380.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160
1390.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160
1400.0	816	3000.0	2235.6	74.5	1065	9.03	2004	160

BIT NUMBER	5	IADC CODE	114	INTERVAL	1400.0- 1778.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
CDST	1400.00	TRIP TIME	6.2	BIT RUN	378.0
TOTAL HOURS	26.59	TOTAL TURNS	238000	CONDITION	T2 B5 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1410.0	745	3000.0	1840.2	61.3	800	6.78	1650	146
1420.0	745	3000.0	1819.6	60.7	791	6.71	1631	146
1430.0	745	3000.0	1819.6	60.7	791	6.71	1631	146
1440.0	745	3000.0	1840.2	61.3	800	6.78	1650	146
1450.0	780	3010.0	1985.5	66.0	903	7.66	1780	153
1460.0	780	3010.0	1985.5	66.0	903	7.66	1780	153
1470.0	780	3010.0	1985.5	66.0	903	7.66	1780	153
1480.0	780	3010.0	1985.5	66.0	903	7.66	1780	153
1490.0	785	3020.0	2011.0	66.6	921	7.81	1803	154
1500.0	785	3020.0	2011.0	66.6	921	7.81	1803	154
1510.0	785	3020.0	2011.0	66.6	921	7.81	1803	154
1520.0	785	3020.0	2011.0	66.6	921	7.81	1803	154
1530.0	785	3020.0	2011.0	66.6	921	7.81	1803	154
1540.0	755	2950.0	1868.7	63.3	823	6.98	1675	148
1550.0	750	3000.0	1865.0	62.2	816	6.92	1672	147
1620.0	730	2950.0	1806.6	61.2	769	6.53	1620	143
1630.0	730	2950.0	1806.6	61.2	769	6.53	1620	143
1640.0	730	2950.0	1806.6	61.2	769	6.53	1620	143
1650.0	730	3000.0	1806.6	60.2	769	6.53	1620	143
1660.0	730	3000.0	1846.3	61.5	786	6.67	1655	143
1670.0	600	2500.0	1247.3	49.9	436	3.70	1118	118
1680.0	730	2900.0	1846.3	63.7	786	6.67	1655	143
1690.0	735	2950.0	1871.7	63.4	802	6.81	1678	144
1700.0	735	2950.0	1871.7	63.4	802	6.81	1678	144
1710.0	735	2950.0	1871.7	63.4	802	6.81	1678	144
1720.0	550	1720.0	1054.8	61.3	338	2.87	946	108
1730.0	710	2900.0	1746.5	60.2	723	6.14	1566	139
1740.0	710	2900.0	1765.3	60.9	731	6.20	1583	139
1750.0	710	2900.0	1784.1	61.5	739	6.27	1599	139
1760.0	710	2950.0	1784.1	60.5	739	6.27	1599	139
1770.0	710	2950.0	1784.1	60.5	739	6.27	1599	139
1778.0	710	2950.0	1784.1	60.5	739	6.27	1599	139

BIT NUMBER	6	IADC CODE	114	INTERVAL	1778.0- 1920.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	6.4	BIT RUN	142.0
TOTAL HOURS	11.63	TOTAL TURNS	99500	CONDITION	T3 B3 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1780.0	750	2650.0	1417.3	53.5	620	5.26	1506	124
1790.0	810	2950.0	1653.1	56.0	781	6.63	1756	134
1800.0	810	2950.0	1670.5	56.6	789	6.70	1775	134
1810.0	810	2950.0	1670.5	56.6	789	6.70	1775	134
1820.0	810	2950.0	1670.5	56.6	789	6.70	1775	134
1830.0	810	2950.0	1670.5	56.6	789	6.70	1775	134
1840.0	800	2960.0	1629.5	55.1	760	6.45	1731	132
1850.0	800	3020.0	1629.5	54.0	760	6.45	1731	132
1860.0	800	3020.0	1629.5	54.0	760	6.45	1731	132
1870.0	800	2900.0	1629.5	56.2	760	6.45	1731	132
1880.0	800	2900.0	1629.5	56.2	760	6.45	1731	132
1890.0	800	2900.0	1629.5	56.2	760	6.45	1731	132
1900.0	790	2950.0	1589.0	53.9	732	6.21	1688	131
1910.0	790	2950.0	1589.0	53.9	732	6.21	1688	131
1920.0	790	2920.0	1589.0	54.4	732	6.21	1688	131

BIT NUMBER	7	IADC CODE	4	INTERVAL	1920.0- 1929.5
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.5
TOTAL HOURS	6.00	TOTAL TURNS	37032	CONDITION	TO B0 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sq in	IMPACT FORCE	JET VELOCITY
1929.5	265	550.0	376.9	68.5	58	1.03	276	64



BIT NUMBER	8	IADC CODE	4	INTERVAL	1929.5- 1939.4
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.9
TOTAL HOURS	1.54	TOTAL TURNS	9365	CONDITION	TO B0 G0.000

DEPTH	FLOW RATE	PSP	PBIT	ZPSP	HHP	HHP/ sq in	IMPACT FORCE	JET VELOCITY
1930.0	200	360.0	212.4	59.0	25	0.44	155	48
1939.4	200	440.0	212.4	48.3	25	0.44	155	48

BIT NUMBER	8	IADC CODE	4	INTERVAL	1939.4-1948.9
CHRISTENSEN	C-22	SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.0	BIT RUN	9.5
TOTAL HOURS	5.78	TOTAL TURNS	35602	CONDITION	TO B0 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1940.0	220	520.0	257.0	49.4	33	0.59	188	53
1948.9	220	520.0	257.0	49.4	33	0.59	188	53

BIT NUMBER	6	IADC CODE	114	INTERVAL	1920.0- 1948.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	7.1	BIT RUN	28.0
TOTAL HOURS	13.82	TOTAL TURNS	112259	CONDITION	T5 B4 G0.250

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sq in	IMPACT FORCE	JET VELOCITY
1930.0	575	1700.0	841.8	49.5	282	2.40	894	95
1940.0	575	1700.0	841.8	49.5	282	2.40	894	95
1948.0	600	1750.0	916.6	52.4	321	2.72	974	99

BIT NUMBER	9	IADC CODE	4	INTERVAL	1951.0- 1960.1
CHRISTENSEN	C-22	SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.1	BIT RUN	9.1
TOTAL HOURS	3.14	TOTAL TURNS	18248	CONDITION	TO B0 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sq in	IMPACT FORCE	JET VELOCITY
1960.0	280	430.0	420.7	97.8	69	1.22	308	67
1960.1	280	430.0	420.7	97.8	69	1.22	308	67

BIT NUMBER	10	IADC CODE	135	INTERVAL	1960.1- 2030.1
HTC XDG		SIZE	12.250	NOZZLES	13 13 14
COST	1400.00	TRIP TIME	8.3	BIT RUN	70.0
TOTAL HOURS	8.53	TOTAL TURNS	71815	CONDITION	T7 B3 G0.183

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1970.0	585	2930.0	1802.3	61.5	615	5.22	1331	139
1980.0	585	2860.0	1802.3	63.0	615	5.22	1331	139
1990.0	585	2860.0	1802.3	63.0	615	5.22	1331	139
2000.0	570	2870.0	1711.0	59.6	569	4.83	1264	136
2010.0	570	2870.0	1711.0	59.6	569	4.83	1264	136
2020.0	585	2950.0	1802.3	61.1	615	5.22	1331	139
2030.0	585	2950.0	1802.3	61.1	615	5.22	1331	139
2030.1	585	2950.0	1802.3	61.1	615	5.22	1331	139

BIT NUMBER	11	IADC CODE	517	INTERVAL	2030.1- 2231.6
HTC J22		SIZE	12.250	NOZZLES	13 13 14
COST	5300.00	TRIP TIME	9.0	BIT RUN	201.5
TOTAL HOURS	36.59	TOTAL TURNS	220725	CONDITION	T2 B4 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
2040.0	600	2940.0	1895.9	64.5	663	5.63	1401	143
2050.0	600	2940.0	1895.9	64.5	663	5.63	1401	143
2060.0	610	3000.0	1959.6	65.3	697	5.92	1448	145
2070.0	605	2960.0	1927.6	65.1	680	5.77	1424	144
2080.0	610	3000.0	1959.6	65.3	697	5.92	1448	145
2090.0	630	2950.0	2090.2	70.9	768	6.52	1544	150
2100.0	630	2970.0	2090.2	70.4	768	6.52	1544	150
2110.0	630	2970.0	2090.2	70.4	768	6.52	1544	150
2120.0	630	2970.0	2090.2	70.4	768	6.52	1544	150
2130.0	630	2970.0	2090.2	70.4	768	6.52	1544	150
2140.0	570	2550.0	1728.9	67.8	575	4.88	1277	136
2150.0	600	2940.0	1915.6	65.2	670	5.69	1415	143
2160.0	600	2830.0	1915.6	67.7	670	5.69	1415	143
2170.0	620	2920.0	2045.5	70.1	740	6.28	1511	148
2180.0	600	2640.0	1915.6	72.6	670	5.69	1415	143
2190.0	620	2650.0	2045.5	77.2	740	6.28	1511	148
2200.0	580	2510.0	1790.1	71.3	605	5.14	1322	138
2210.0	580	2610.0	1790.1	68.6	605	5.14	1322	138
2220.0	590	2680.0	1852.3	69.1	637	5.41	1368	140
2230.0	600	2800.0	1915.6	68.4	670	5.69	1415	143
2231.6	600	2800.0	1915.6	68.4	670	5.69	1415	143

BIT NUMBER	12	IADC CODE	214	INTERVAL	2231.6- 2336.4
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.4	BIT RUN	104.8
TOTAL HOURS	13.16	TOTAL TURNS	94531	CONDITION	T6 B4 G0.125

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sq in	IMPACT FORCE	JET VELOCITY
2240.0	600	2740.0	1915.6	69.9	670	5.69	1415	143
2250.0	600	2750.0	1915.6	69.7	670	5.69	1415	143
2260.0	600	2750.0	1915.6	69.7	670	5.69	1415	143
2270.0	570	2480.0	1728.9	69.7	575	4.88	1277	136
2280.0	600	2510.0	1915.6	76.3	670	5.69	1415	143
2290.0	600	2510.0	1915.6	76.3	670	5.69	1415	143
2300.0	600	2720.0	1915.6	70.4	670	5.69	1415	143
2310.0	575	2720.0	1759.3	64.7	590	5.01	1300	137
2320.0	550	2680.0	1609.7	60.1	516	4.38	1189	131
2330.0	575	2800.0	1759.3	62.8	590	5.01	1300	137
2336.4	575	2800.0	1759.3	62.8	590	5.01	1300	137

BIT NUMBER	13	IADC CODE	214	INTERVAL	2336.4- 2421.0
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.7	BIT RUN	84.6
TOTAL HOURS	12.45	TOTAL TURNS	89585	CONDITION	T5 B4 G0.250

DEPTH	FLOW RATE	PSP	PBIT	ZPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
2340.0	600	2880.0	1895.9	65.8	663	5.63	1401	143
2350.0	600	2880.0	1895.9	65.8	663	5.63	1401	143
2360.0	600	2880.0	1895.9	65.8	663	5.63	1401	143
2370.0	600	2880.0	1895.9	65.8	663	5.63	1401	143
2380.0	600	2850.0	1876.1	65.8	656	5.57	1386	143
2390.0	600	2880.0	1876.1	65.1	656	5.57	1386	143
2400.0	600	2880.0	1876.1	65.1	656	5.57	1386	143
2410.0	600	2880.0	1876.1	65.1	656	5.57	1386	143
2420.0	610	2820.0	1939.2	68.8	690	5.85	1433	145
2421.0	610	2820.0	1939.2	68.8	690	5.85	1433	145



COMPUTER DATA LISTING : LIST D

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INTERVAL . . . . . 10 m average

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	2	IADC CODE	114	INTERVAL	225.0-	554.4
HTC X3A		SIZE	12.250	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	2.8	BIT RUN		329.4
TOTAL HOURS	5.28	TOTAL TURNS	33815	CONDITION	T2 B1	G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
230.0	160	0	827	72	20		18			15
240.0	160	0	827	72	20		18			15
250.0	160	0	827	72	20		18			15
260.0	160	0	827	72	20		18			15
270.0	160	0	827	72	20		18			15
280.0	160	0	827	72	20		18		18	15
290.0	160	0	827	72	20		18		18	15
300.0	160	0	827	72	20		18		18	15
310.0	160	0	827	72	20		18		18	15
320.0	160	0	827	72	20		18		18	15
330.0	160	0	827	72		49	18		18	15
340.0	160	0	827	72		49	18		18	15
350.0	160	0	827	72		49	18		18	15
360.0	160	0	827	72		49	18		18	15
370.0	160	0	827	72		49	18		18	15
380.0	160	0	827	72		49	18		18	15
390.0	160	0	827	72		49	18		18	15
400.0	160	0	827	72		49	18		18	15
410.0	160	0	827	72		49		49	18	15
420.0	160	0	827	72		49		49	18	15
430.0	160	0	827	72		49		49	18	15
440.0	160	0	827	72		49		49	18	15
450.0	160	0	827	72		49		49	18	15
460.0	160	0	827	72		49		49	18	15
470.0	160	0	827	72		49		49	18	15
480.0	160	0	827	72		49		49	18	15
490.0	95	106	1038	90		62		62	23	19
510.0	95	106	1038	90		62		62	23	19
520.0	90	88	920	80		55		55	20	17
530.0	90	88	920	80		55		55	20	17
540.0	104	106	1085	94		65		65	24	19
550.0	104	106	1085	94		65		65	24	19
554.4	104	106	1085	94		65		65	24	19

BIT NUMBER	3	IADC CODE	114	INTERVAL	554.4-	804.0
HTC X3A		SIZE	12.250	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	3.9	BIT RUN		249.6
TOTAL HOURS	7.94	TOTAL TURNS	57049	CONDITION	T2 B2 G0.000	

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
560.0	100	105	1059	92		63		63	23	19
570.0	100	105	1059	92		63		63	23	19
580.0	100	105	1059	92		63		63	23	19
590.0	100	105	1059	92		63		63	23	19
600.0	100	105	1059	92		63		63	23	19
610.0	98	104	1044	91		62		62	23	19
620.0	98	104	1044	91		62		62	23	19
630.0	98	104	1044	91		62		62	23	19
640.0	98	104	1044	91		62		62	23	19
650.0	98	104	1044	91		62		62	23	19
660.0	98	104	1044	91		62		62	23	19
670.0	98	104	1044	91		62		62	23	19
680.0	98	104	1044	91		62		62	23	19
690.0	98	104	1044	91		62		62	23	19
700.0	98	104	1044	91		62		62	23	19
710.0	99	101	1033	90		62		62	23	19
780.0	100	101	1038	90		62		62	23	19
790.0	100	101	1038	90		62		62	23	19
800.0	105	103	1075	93		64		64	24	19
804.0	105	103	1075	93		64		64	24	19

BIT NUMBER	3	IADC CODE	114	INTERVAL	203.0-	804.3
HTC X3A&SEC U/R		SIZE	17.500	NOZZLES	20	20 20
COST	1400.00	TRIP TIME	4.0	BIT RUN		601.3
TOTAL HOURS	21.71	TOTAL TURNS	169385	CONDITION	T4 B4 G0.000	

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
220.0	102	102	1054		26		23			23
230.0	102	102	1054	33	26		23		23	23
240.0	102	102	1054	33	26		23		23	23
250.0	102	102	1054	33	26		23		23	23
260.0	95	104	1028	32	25		23		23	23
270.0	95	104	1028	32	25		23		23	23
280.0	95	104	1028	32	25		23		23	23
290.0	95	104	1028	32	25		23		23	23
300.0	95	104	1028	32	25		23		23	23
310.0	95	104	1028	32	25		23		23	23
320.0	95	104	1028	32	25		23		23	23
330.0	95	104	1028	32		27	23		23	23
340.0	95	104	1028	32		27	23		23	23
350.0	95	104	1028	32		27	23		23	23
360.0	95	104	1028	32		27		27	23	23
370.0	95	104	1028	32		27		27	23	23
380.0	95	104	1028	32		27		27	23	23
390.0	95	104	1028	32		27		27	23	23
400.0	95	104	1028	32		27		27	23	23
410.0	95	104	1028	32		27		27	23	23
420.0	100	102	1044	32		28		28	23	23
430.0	100	102	1044	32		28		28	23	23
440.0	100	102	1044	32		28		28	23	23
450.0	102	98	1033	32		27		27	23	23
460.0	102	98	1033	32		27		27	23	23
470.0	102	98	1033	32		27		27	23	23
480.0	102	98	1033	32		27		27	23	23
490.0	102	98	1033	32		27		27	23	23
500.0	100	103	1049	32		28		28	23	23
510.0	100	103	1049	32		28		28	23	23
520.0	100	103	1049	32		28		28	23	23
530.0	100	103	1049	32		28		28	23	23
540.0	95	95	982	30		26		26	22	22
550.0	95	95	982	30		26		26	22	22
560.0	95	95	982	30		26		26	22	22
570.0	95	95	982	30		26		26	22	22
580.0	95	95	982	30		26		26	22	22
590.0	95	95	982	30		26		26	22	22
600.0	95	95	982	30		26		26	22	22
610.0	95	95	982	30		26		26	22	22
620.0	95	95	982	30		26		26	22	22
630.0	70	70	723	22		19		19	16	16
640.0	70	70	723	22		19		19	16	16

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
770.0	100	100	1033	32		27		27	23	23
804.3	100	100	1033	32		27		27	23	23

BIT NUMBER	4	IADC CODE	114	INTERVAL	804.0- 1400.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.1	BIT RUN	596.0
TOTAL HOURS	21.31	TOTAL TURNS	157037	CONDITION	T6 B4 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
810.0	76	60	703	61	58		41		41	13
820.0	66	60	651	57	54		38		38	12
830.0	65	66	677	59	56		39		39	12
840.0	60	63	635	55	53		37		37	11
850.0	80	82	837	73	69		48		48	15
860.0	80	82	837	73	69		48		48	15
870.0	81	82	842	73	70		49		49	15
880.0	81	82	842	73	70		49		49	15
890.0	81	82	842	73	70		49		49	15
900.0	81	82	842	73	70		49		49	15
910.0	79	81	827	72	69		48		48	15
920.0	79	81	827	72	69		48		48	15
930.0	79	80	821	71	68		48		48	15
940.0	79	80	821	71		49	48		48	15
950.0	79	80	821	71		49	48		48	15
960.0	79	80	821	71		49	48		48	15
970.0	79	80	821	71		49	48		48	15
980.0	79	80	821	71		49	48		48	15
990.0	79	80	821	71		49	48		48	15
1000.0	79	80	821	71		49	48		48	15
1010.0	79	80	821	71		49	48		48	15
1020.0	79	80	821	71		49	48		48	15
1030.0	80	80	827	72		49		49	48	15
1040.0	80	80	827	72		49		49	48	15
1050.0	80	80	827	72		49		49	48	15
1060.0	80	80	827	72		49		49	48	15
1070.0	80	80	827	72		49		49	48	15
1080.0	80	80	827	72		49		49	48	15
1090.0	80	80	827	72		49		49	48	15
1100.0	80	84	847	74		51		51	49	15
1110.0	80	84	847	74		51		51	49	15
1120.0	80	84	847	74		51		51	49	15
1130.0	80	84	847	74		51		51	49	15
1140.0	80	84	847	74		51		51	49	15
1150.0	80	84	847	74		51		51	49	15
1160.0	80	84	847	74		51		51	49	15
1170.0	80	84	847	74		51		51	49	15
1180.0	80	84	847	74		51		51	49	15
1190.0	80	84	847	74		51		51	49	15
1200.0	78	82	827	72		49		49	48	15
1210.0	78	82	827	72		49		49	48	15
1220.0	79	81	827	72		49		49	48	15
1230.0	79	81	827	72		49		49	48	15

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1240.0	79	81	827	72		49		49	48	15
1250.0	84	77	832	72		50		50	48	15
1260.0	84	77	832	72		50		50	48	15
1270.0	84	77	832	72		50		50	48	15
1280.0	82	77	821	71		49		49	48	15
1290.0	82	77	821	71		49		49	48	15
1300.0	82	77	821	71		49		49	48	15
1310.0	82	77	821	71		49		49	48	15
1320.0	82	77	821	71		49		49	48	15
1330.0	82	77	821	71		49		49	48	15
1340.0	82	77	821	71		49		49	48	15
1350.0	76	82	816	71		49		49	47	15
1360.0	76	82	816	71		49		49	47	15
1370.0	76	82	816	71		49		49	47	15
1380.0	76	82	816	71		49		49	47	15
1390.0	76	82	816	71		49		49	47	15
1400.0	76	82	816	71		49		49	47	15

BIT NUMBER	5	IADC CODE	114	INTERVAL	1400.0- 1778.0
HTC X3A		SIZE	12.250	NOZZLES	14 14 16
COST	1400.00	TRIP TIME	6.2	BIT RUN	378.0
TOTAL HOURS	26.59	TOTAL TURNS	238000	CONDITION	T2 B5 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1410.0	78	71	745	65		45		45	43	13
1420.0	78	71	745	65		45		45	43	13
1430.0	78	71	745	65		45		45	43	13
1440.0	78	71	745	65		45		45	43	13
1450.0	80	76	780	68		47		47	45	14
1460.0	80	76	780	68		47		47	45	14
1470.0	80	76	780	68		47		47	45	14
1480.0	80	76	780	68		47		47	45	14
1490.0	80	77	785	68		47		47	45	14
1500.0	80	77	785	68		47		47	45	14
1510.0	80	77	785	68		47		47	45	14
1520.0	80	77	785	68		47		47	45	14
1530.0	80	77	785	68		47		47	45	14
1540.0	80	71	755	66		45		45	44	14
1550.0	80	70	750	65		45		45	43	13
1620.0	78	68	730	63		44		44	42	13
1630.0	78	68	730	63		44		44	42	13
1640.0	78	68	730	63		44		44	42	13
1650.0	78	68	730	63		44		44	42	13
1660.0	78	68	730	63		44		44	42	13
1670.0	0	120	600	52		36		36	35	11
1680.0	80	66	730	63		44		44	42	13
1690.0	80	67	735	64		44		44	43	13
1700.0	80	67	735	64		44		44	43	13
1710.0	80	67	735	64		44		44	43	13
1720.0	110	0	550	48		33		33	32	10
1730.0	62	80	710	62		42		42	41	13
1740.0	62	80	710	62		42		42	41	13
1750.0	62	80	710	62		42		42	41	13
1760.0	62	80	710	62		42		42	41	13
1770.0	62	80	710	62		42		42	41	13
1778.0	62	80	710	62		42		42	41	13



BIT NUMBER	6	IADC CODE	114	INTERVAL	1778.0- 1920.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	6.4	BIT RUN	142.0
TOTAL HOURS	11.63	TOTAL TURNS	99500	CONDITION	T3 B3 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1780.0	75	75	750	65		45		45	43	13
1790.0	80	82	810	70		48		48	47	15
1800.0	80	82	810	70		48		48	47	15
1810.0	80	82	810	70		48		48	47	15
1820.0	80	82	810	70		48		48	47	15
1830.0	80	82	810	70		48		48	47	15
1840.0	79	81	800	69		48		48	46	14
1850.0	79	81	800	69		48		48	46	14
1860.0	79	81	800	69		48		48	46	14
1870.0	80	80	800	69		48		48	46	14
1880.0	80	80	800	69		48		48	46	14
1890.0	80	80	800	69		48		48	46	14
1900.0	78	80	790	69		47		47	46	14
1910.0	78	80	790	69		47		47	46	14
1920.0	78	80	790	69		47		47	46	14

BIT NUMBER	7	IADC CODE	4	INTERVAL	1920.0- 1929.5
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.5
TOTAL HOURS	6.00	TOTAL TURNS	37032	CONDITION	T0 B0 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1929.5	53	0	265	256		42		42	15	5

BIT NUMBER	8	IADC CODE	4	INTERVAL	1929.5- 1939.4
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	6.4	BIT RUN	9.9
TOTAL HOURS	1.54	TOTAL TURNS	9365	CONDITION	T0 B0 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1930.0	40	0	200						12	4
1939.4	40	0	200						12	4

BIT NUMBER	8	IADC CODE	4	INTERVAL	1937.4- 1948.9
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.0	BIT RUN	9.5
TOTAL HOURS	5.78	TOTAL TURNS	35602	CONDITION	TO RO GO.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1940.0	44	0	220						13	4
1948.9	44	0	220						13	4

BIT NUMBER	6	IADC CODE	114	INTERVAL	1920.0- 1948.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 16
COST	1400.00	TRIP TIME	7.1	BIT RUN	28.0
TOTAL HOURS	13.82	TOTAL TURNS	112259	CONDITION	T5 R4 G0.250

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIG
1930.0	60	55	575	50		34		34	33	10
1940.0	60	55	575	50		34		34	33	10
1948.0	60	60	600	52		36		36	35	11

BIT NUMBER	9	IADC CODE	4	INTERVAL	1951.0-1960.1
CHRISTENSEN C-22		SIZE	8.469	NOZZLES	23 0 0
COST	15000.00	TRIP TIME	7.1	BIT RUN	9.1
TOTAL HOURS	3.14	TOTAL TURNS	18248	CONDITION	TO B0 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1960.0	56	0	280	271					16	5
1960.1	56	0	280	271					16	5

BIT NUMBER	10	IADC CODE	135	INTERVAL	1960.1- 2030.1
HTC XDG		SIZE	12.250	NOZZLES	13 13 14
COST	1400.00	TRIP TIME	8.3	BIT RUN	70.0
TOTAL HOURS	8.53	TOTAL TURNS	71815	CONDITION	T7 B3 G0.183

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1970.0	57	60	585	51		35		35	34	11
1980.0	57	60	585	51		35		35	34	11
1990.0	57	60	585	51		35		35	34	11
2000.0	55	59	570	49		34		34	33	10
2010.0	55	59	570	49		34		34	33	10
2020.0	58	59	585	51		35		35	34	11
2030.0	58	59	585	51		35		35	34	11
2030.1	58	59	585	51		35		35	34	11

BIT NUMBER	11	IADC CODE	517	INTERVAL	2030.1- 2231.6
HTC J22		SIZE	12.250	NOZZLES	13 13 14
COST	5300.00	TRIP TIME	9.0	BIT RUN	201.5
TOTAL HOURS	36.59	TOTAL TURNS	220725	CONDITION	T2 R4 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
2040.0	58	62	600	52		36		36	35	11
2050.0	58	62	600	52		36		36	35	11
2060.0	60	62	610	53		36		36	35	11
2070.0	59	62	605	53		36		36	35	11
2080.0	60	62	610	53		36		36	35	11
2090.0	60	66	630	55		38		38	36	11
2100.0	60	66	630	55		38		38	36	11
2110.0	60	66	630	55		38		38	36	11
2120.0	60	66	630	55		38		38	36	11
2130.0	60	66	630	55		38		38	36	11
2140.0	44	70	570	49		34		34	33	10
2150.0	40	80	600	52		36		36	35	11
2160.0	80	40	600	52		36		36	35	11
2170.0	72	52	620	54		37		37	36	11
2180.0	100	20	600	52		36		36	35	11
2190.0	84	40	620	54		37		37	36	11
2200.0	76	40	580	50		35		35	34	10
2210.0	60	56	580	50		35		35	34	10
2220.0	60	58	590	51		35		35	34	11
2230.0	40	80	600	52		36		36	35	11
2231.6	40	80	600	52		36		36	35	11



BIT NUMBER	12	IADC CODE	214	INTERVAL	2231.6- 2336.4
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.4	BIT RUN	104.8
TOTAL HOURS	13.16	TOTAL TURNS	94531	CONDITION	T6 B4 G0.125

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
2240.0	120	0	600	52		36		36	35	11
2250.0	120	0	600	52		36		36	35	11
2260.0	120	0	600	52		36		36	35	11
2270.0	60	54	570	49		34		34	33	10
2280.0	64	56	600	52		36		36	35	11
2290.0	64	56	600	52		36		36	35	11
2300.0	64	56	600	52		36		36	35	11
2310.0	58	57	575	50		34		34	33	10
2320.0	56	54	550	48		33		33	32	10
2330.0	50	65	575	50		34		34	33	10
2336.4	50	65	575	50		34		34	33	10

BIT NUMBER	13	IADC CODE	214	INTERVAL	2336.4- 2421.0
HTC XDV		SIZE	12.250	NOZZLES	13 13 14
COST	1500.00	TRIP TIME	9.7	BIT RUN	84.6
TOTAL HOURS	12.45	TOTAL TURNS	89585	CONDITION	T5 R4 G0.250

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
2340.0	64	56	600	52		36		36	35	11
2350.0	64	56	600	52		36		36	35	11
2360.0	64	56	600	52		36		36	35	11
2370.0	64	56	600	52		36		36	35	11
2380.0	64	56	600	52		36		36	35	11
2390.0	64	56	600	52		36		36	35	11
2400.0	64	56	600	52		36		36	35	11
2410.0	64	56	600	52		36		36	35	11
2420.0	66	56	610	53		36		36	35	11
2421.0	66	56	610	53		36		36	35	11

PE603673

This is an enclosure indicator page.  
The enclosure PE603673 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603673 has the following characteristics:

ITEM\_BARCODE = PE603673  
CONTAINER\_BARCODE = PE903952  
    NAME = Bream 4A Drill Data Plot  
    BASIN = GIPPSLAND  
    PERMIT = VIC/P1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Drill Data Plot. From  
                Attachment 1 of WCR.  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
    W\_NO = W752  
    WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE603674

This is an enclosure indicator page.  
The enclosure PE603674 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603674 has the following characteristics:

ITEM\_BARCODE = PE603674  
CONTAINER\_BARCODE = PE903952  
NAME = Bream 4A Geoplot Log  
BASIN = GIPPSLAND  
PERMIT = VIC/P1  
TYPE = WELL  
SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Geoplot Log from Attachment 1  
of WCR  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
W\_NO = W752  
WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE603675

This is an enclosure indicator page.  
The enclosure PE603675 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603675 has the following characteristics:

ITEM\_BARCODE = PE603675  
CONTAINER\_BARCODE = PE903952  
    NAME = Bream 4A Temperature Log  
    BASIN = GIPPSLAND  
    PERMIT = VIC/P1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Temperature Plot from  
                Attachment 1 of WCR.  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
    W\_NO = W752  
    WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE603676

This is an enclosure indicator page.  
The enclosure PE603676 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603676 has the following characteristics:

ITEM\_BARCODE = PE603676  
CONTAINER\_BARCODE = PE903952  
    NAME = Bream 4A Pressure Plot Log  
    BASIN = GIPPSLAND  
    PERMIT = VIC/P1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Pressure Plot from Attachment  
              1 of WCR.  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
    W\_NO = W752  
    WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

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PE603677

This is an enclosure indicator page.  
The enclosure PE603677 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603677 has the following characteristics:

ITEM\_BARCODE = PE603677  
CONTAINER\_BARCODE = PE903952  
    NAME = Bream 4A Cost Analysis Plot  
    BASIN = GIPPSLAND  
    PERMIT = VIC/P1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Cost Analysis Plot from  
                Attachment 1 of WCR.  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
    W\_NO = W752  
    WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

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PE603678

This is an enclosure indicator page.  
The enclosure PE603678 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603678 has the following characteristics:

ITEM\_BARCODE = PE603678  
CONTAINER\_BARCODE = PE903952  
NAME = Bream 4A Drilling Parameter plot  
BASIN = GIPPSLAND  
PERMIT = VIC/P1  
TYPE = WELL  
SUBTYPE = WELL\_LOG  
DESCRIPTION = Bream 4A Drilling Parameter plot from  
Attachment 1 of WCR  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
W\_NO = W752  
WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

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PE603679

This is an enclosure indicator page.  
The enclosure PE603679 is enclosed within the  
container PE903952 at this location in this  
document.

The enclosure PE603679 has the following characteristics:

ITEM\_BARCODE = PE603679  
CONTAINER\_BARCODE = PE903952  
NAME = Bream 4A Grapholog Plot  
BASIN = GIPPSLAND  
PERMIT = VIC/P1  
TYPE = WELL  
SUBTYPE = MUD\_LOG  
DESCRIPTION = Bream 4A Grapholog (Mud Log) from  
Attachment 1 of WCR  
REMARKS =  
DATE\_CREATED = 17/09/81  
DATE\_RECEIVED = 29/04/82  
W\_NO = W752  
WELL\_NAME = Bream-4A  
CONTRACTOR = Core Laboratories Australia (QLD) Ltd.  
CLIENT\_OP\_CO = Esso Australia Ltd

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