

381001

IES WELL REPORT

HEMATITE PETROLEUM PTY. LTD.

PIPIPA NO. 1

OR-349C

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1. INTRODUCTION

Pipipa No.1 was drilled by Hematite Petroleum in the Bass Strait, Australia.

Well co-ordinates were:

Latitude : 40° 23' 11.26" S
Longitude : 145° 41' 44.96" 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.

Pipipa No.1 was spudded on 4th May 1982 and reached a total depth of 2115 metres on 16th May 1982, a total drilling time of 13 days. The main objective of the well was to investigate the hydrocarbon potential of sands at the top of the Eastern View Coal Measures.

Elevations were :

21 metres....Kelly bushings to mean sea level
73 metres....Water depth
94 metres....Kelly bushings to mud line

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

Core Laboratory personnel involved in the logging of Pipipa No.1 were as follows :

A. Dodson.....Unit Supervisor
T. Charles.....Pressure Engineer
B. Giftson.....Logging Crew Chief
J. Woods.....Well Logger
R. Martin.....Well Logger
G. Munn.....Well Logger
A. Bock.....Samplecatcher
A. McCausland.....Samplecatcher
J. Tobin.....Samplecatcher
M. Robinson.....Samplecatcher

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

DEPTH

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

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

ROTARY SPEED

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

PUMP PRESSURE

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

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

PUMP STROKES

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

ROTARY TORQUE

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

MUD TEMPERATURE

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

MUD CONDUCTIVITY

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

All the sensors are 5 to 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

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

GAS

1. Flame Ionization Total Hydrocarbon gas detector.
The T.H.M. accurately determines hydrocarbon concentrations up to 100% saturation.
2. Flame Ionization Detector chromatograph.
The F.I.D. is capable of accurate determination of hydrocarbon concentration from C1 to C6+.
3. Hot wire gas detector (Wheatstone Bridge type)
A back up system for total gas detection.

SHALE DENSITY

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

4. INTERMEDIATE EXTENDED SERVICE INTRODUCTION

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

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

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

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

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.

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 1:600. 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.

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5. RIG INFORMATION SHEET

RIG INFORMATION SHEET



COMPANY HEMATITE PETROLEUM PTY. LTD.
WELL PIPIPA No. 1

OWNER	SOUTH SEAS DRILLING COMPANY
NAME AND NUMBER	SOUTHERN CROSS (N ^o 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 $\frac{1}{2}$ " 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 ^o 124 DESILTER : 1 DEMCO 4"-16H 16 CONE DEGASSER : 1 SWACO MODEL N ^o 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 VALV CON 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 $\frac{1}{2}$ " 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'SROKE, 80 000lbs. MUD BULK TANKS: 3x1570cu ft. GUIDE LINE TENSIONERS : 4 WESTERN GEAR 16 000 lbs, 40'SROKE	

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6. WELL INFORMATION SHEET

WELL INFORMATION SHEET

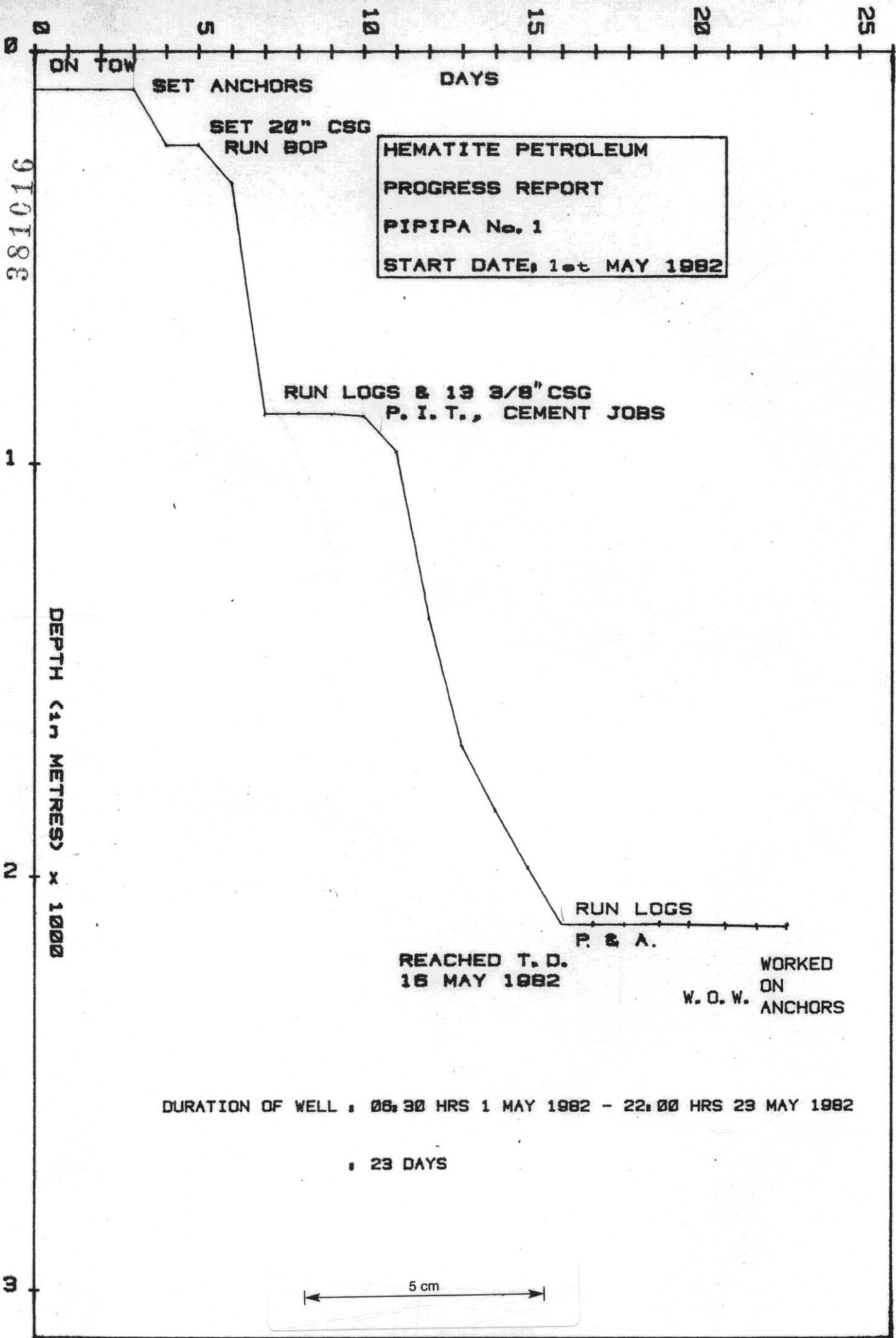


COMPANY HEMATITE PETROLEUM LTD.
WELL PIPIPA No. 1

Sheet No. 1

WELL NAME	PIPIPA No. 1										
OPERATOR	ESSO AUSTRALIA LTD.										
PARTNERS	-										
RIG	OWNER	SOUTH SEAS DRILLING COMPANY									
	NAME OR NUMBER	SOUTHERN CROSS									
	TYPE	SEMI-SUBMERSIBLE									
LOCATION	LATITUDE (X)	40° 23' 11.26" S				LONGITUDE (Y)	145° 41' 44.96" E				
	FIELD	BASS BASIN				AREA					
	COUNTY					STATE	TASMANIA				
	COUNTRY	AUSTRALIA									
	DESCRIPTION										
DATUM POINTS	Ground Elevation	-				RKB to Ground Level	-				
	Mean Water Depth	73.0 m				RKB to Water Level	21.0 m				
DATES	SPUD	4/MAY/1982				TOTAL DEPTH	16/MAY/1982				
HOLE SIZES	Depth From	Depth To	Bit Size	No. of Bits	No. of Reamers	Date From	Date To	Cased	Logged		
	94	229	26	1	-	4/MAY/82	4/MAY/82	20"	N		
	229	880	17 1/2	1	-	6/MAY/82	7/MAY/82	13.375	Y		
	880	2115	12 1/4	5	-	10/MAY/82	16/MAY/82	N	Y		
DRILLING FLUID	Depth From	Depth To	Weights		Type						
	94	229	8.6 TO 8.6		SEAWATER, RETURNS TO SEA BED						
	229	2115	8.6 TO 10.2		SEAWATER GEL						
			TO								
			TO								
			TO								
			TO								
WIRELINE LOGGING	Depth From	Depth To	Hole Size	Date Run	Logs Run						
	873	94	17 1/2	8/MAY/82	DIL-BHC-CAL-GR						
	2114	866	12 1/2	17/MAY/82	DIL-MSFL-BHC-CAL-GR						
	2113	866	12 1/4	17/MAY/82	LDL-CNL-CAL-GR						
	2113	866	12 1/4	17/MAY/82	HDT						
	-	-	12 1/4	17/MAY/82	VELOCITY SURVEY						
	-	-	12 1/4	18/MAY/82	CST						
RISER, CASING & LINER	Depth From	Depth To	OD	ID	Weight	Grade	Threads	Date Run	Cement	Stages	Excess
	2	94	23	21.000	-	-	-	RISER	-	-	-
	94	213	20	19.124	94	X-52	JV	4/MAY/82	N	1	300
	94	866	13.375	12.615	54.5	K-55	BUTT	8/MAY/82	N	1	

7. PROGRESS REPORT



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8. WELL HISTORY

WELL HISTORY

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- 1/MAY/1982 Under tow to Pipipa No. 1 location.
- 2/MAY/1982 Under tow to location. Reached location and dropped No. 8 anchor to the bottom at 17:40 hrs. Commenced setting anchors.
- 3/MAY/1982 Set anchors and pretensioned No. 2,5, and 6 anchors to 200 Klbs. Attempted to pretension anchors No. 1,3,4 and 7 with no success. Inspected bouys No. 1,7 and 8. Inspected anchors No. 7 and 1.
- 4/MAY/1982 Fixed the location at: Latitude $40^{\circ} 23' 11.26''$ South
Longitude $145^{\circ} 41' 44.96''$ East
Ran and landed the T.G.B. Spudded in at 08:30 hrs., and drilled with a 26" hole opener from the seabed at 94m to 229m. Circulated and displaced the hole with high viscosity mud. Took a survey; 1° at 229m. Made a wiper trip to the seabed and found no fill on bottom. Displaced the hole with high viscosity mud, P.O.O.H. with no drag and ran the 20" casing.
- 5/MAY/1982 Set the casing shoe at 213m, with 62.7 sacks of Australian N cement mixed with 3.33% GEL, 2% CaCO_2 and 194 bbls of water, followed by 315 sacks of Australian N cement mixed with 39 bbls of seawater. The cement was displaced with 15 bbls of seawater. Waited on cement. Function tested both BOP pods and repaired one kill valve. Waited on weather (70 knot gusts). Ran the BOP stack and riser.
- 6/MAY/1982 Nippled up the slip joint and flow line. Ran in the hole with the new BHA. Tagged the cement at 209m. Drilled out the cement and shoe and washed down to 229m. Drilled from 229 to 322m (using a HTC OSC 3AJ, $17\frac{1}{2}''$, 3x20). No gas was detected. Pumped a 50 bbl hi-vis pill and circulated bottoms up.
- 7/MAY/1982 P.O.O.H. to free 2 plugged jets. Ran back in the hole (no fill was detected). Drilled $17\frac{1}{2}''$ hole from 322 to 880 m (the ROP was controlled due to gumbo between 322 and 528 m). Circulated 30 bbl pills at 575, 622, 669, 726, and 773 m. Only trace gas was detected. Circulated bottoms up, dropped a survey, pumped a slug, and P.O.O.H. having reached the intermediate casing point.

- 8/MAY/1982 P.O.O.H. to the 20" casing shoe at 213m, and retrieved the survey ($\frac{1}{4}^0$). Ran in hole (wiper trip) to the bottom at 880m. No fill was encountered. Circulated the hole clean and flushed the riser. Pumped a slug and P.O.O.H. chaining out to the shoe. Schlumberger made one logging run: DIL-BHC-CAL-GR. Ran in hole with no fill. Circulated the hole clean and flushed the riser. Pumped a slug and P.O.O.H. Ran the 13.375" casing.
- 9/MAY/1982 Continued to run the casing. Set the casing shoe at 866m with a lead slurry of 816 sacks of class N cement mixed with 101 bbls of fresh water (average slurry weight of 15.6 ppg) followed by a tail slurry of 250 sacks of class N cement mixed with 31 bbls of seawater and displaced with 373 bbls of mud. Attempted to test casing against the shear rams (pressured up to 1350 psi but broke down to 500 psi in 5 minutes). Tested BOP stack. R.I.H. with bit no. 3 (HTC X3A, 12 $\frac{1}{4}$ ", 16x16x15) and tagged bottom at 842m. Circulated. Performed a leak-off test (pressured up to 1,000 psi but decreased to 375 psi in 15 minutes). Circulated. Drilled out the float collar, shoe, and washed down to 880m.
- 10/MAY/1982 Circulated hole clean, pumped a slug, and P.O.O.H. Ran in the hole with an open ended drill pipe. Set a cement plug by pumping 15 bbls seawater, mixing 138 sacks of cement with 17 bbls of seawater, and displacing with 2 bbls of seawater and 45 bbls of mud. Pulled 5 stands of drill pipe. Closed upper pipe rams, pumped 7.5 bbls of mud down the drill pipe (pressured to 250 psi at 7 bbls, then broke down to 150 psi). Circulated out, pumped a slug, and P.O.O.H. Ran in hole with the same bit and tagged bottom at 847m. Circulated out. Performed a leak-off test by hanging-off on the top pipe rams. Tested the casing to 1500 psi. Drilled the cement and 6m of new hole to 886m. Circulated bottoms up and pulled out to the shoe. Performed a P.I.T., which only gave 10.6 ppg E.M.W. Circulated and conditioned the mud, then P.O.O.H. T.I.H. to 886m, then pulled out to the shoe. Circulated bottoms up, followed by a cement job at 864m. P.O.O.H. to 664m and hung-off.

- 11/MAY/1982 Pressure tested the Halliburton lines to 2000 psi. Squeezed cement to 1200 psi. Waited on cement. Tested the casing to 1500 psi and circulated out (no cement in returns). P.O.O.H., then R.I.H. with bit no. 4 (HTC X3A, 12 $\frac{1}{4}$ " , 16x16x15), tagging bottom at 636m. Drilled cement, washed and cleaned to bottom, then drilled 1 new metre of hole (887m). P.O.O.H. to shoe, then circulated and conditioned mud for a P.I.T. The test yielded a 11.6 ppg E.M.W. which was considered high enough to drill ahead. T.I.H. to 882m (cement fragments). Drilled and washed to bottom, then drilled from 887 to 972m. The maximum gas was 0.5 units over a trace of background gas.
- 12/MAY/1982 Drilled from 972 to 1333m. Maximum gas detected was 26 units over a background of 10 to 14 units. At 1333m the bit locked up. The driller attempted to regain rotation by moving the pipe, but the string became stuck at 1320m and circulation was blocked. The stuck pipe was worked free, and the bit was pulled to the casing shoe. The maximum drag was 150,000 lbs. Circulation was not regained until the shoe. Circulated down hole and flushed the riser. Washed the hole from the shoe to 896m. Pumped a slug and P.O.O.H. R.I.H. with bit no. 5 (HTC X3A, 12 $\frac{1}{4}$ " , 16x16x15). Tagged at 897m and washed to 953m by singles. Hole was clear at 953m. R.I.H. to 1281m and washed/reamed down to 1333m. Drilled 1m and circulated out swabbed gas until the gas dropped to background values (maximum gas was 472 units). Drilled from 1334 to 1376m. The maximum gas recorded was 3 units with a background of 1 unit.
- 13/MAY/1982 Drilled from 1376 to 1687m drilling through the primary target (maximum gas was 36 units from 1599m over a background of 1 to 2 units) circulating drill breaks up from 1392 and 1522m (no shows). The hole packed off at 1449m but the pipe was worked to regain circulation.
- 14/MAY/1982 Drilled 12 $\frac{1}{4}$ " hole from 1687 to 1742m, circulated bottoms up, dropped a survey and P.O.O.H. to change the dulled bit (the well took the correct amount of mud). The bit condition was 7-8-1/8. Retrieved the survey (1⁰). R.I.H. with bit no. 6 (HTC X16, 12 $\frac{1}{4}$ " , 15x15x15), washing the last

- 3 singles to the bottom. Drilled from 1742 to 1840m. Maximum gas was 21 units, from 1742m, over a background of 1 to 3 units.
- 15/MAY/1982 Drilled from 1840 to 1913m, circulating a drill break up from 1910m (no show). Circulated out and P.O.O.H. due to the bits slow penetration rates (condition 7-4- $\frac{1}{4}$). R.I.H. with bit no. 7 (HTC J22, 12 $\frac{1}{4}$ ", 15x15x15) and washed the last 20m to bottom. No fill was encountered. Drilled ahead from 1913 to 1981m, through the secondary target zone. Circulated a drill break up from 1963m (no show). The maximum gas for the interval 1840 to 1981 was 44 units (from a coal) over a background of 6 to 7 units.
- 16/MAY/1982 Drilled from 1981 to 2115m, circulating drill breaks up from 2015m (9 units) and 2043m (7 units). The maximum drilled gas was 32 units (from a coal seam at 2108m). It was decided to T.D. at 2115m, so bottoms were circulated up, a survey was dropped, a slug pumped, and the bit was pulled to the shoe. The survey was recovered (1⁰) and the string was tripped back into the hole to T.D. Circulated bottoms up.
- 17/MAY/1982 Chained out of the hole. Ran the following Schlumberger logs:
- (1) DIL-MSFL-BHC-CAL-GR
 - (2) LDL-CNL-CAL-GR
 - (3) HDT
- Ran a velocity survey.
- 18/MAY/1982 Schlumberger shot 30 sidewall cores and recovered 29 bullets, in the interval 2105 to 1383m. R.I.H. to 1575m and circulated the hole clean. Rigged up and pressure tested the cement lines to 2,000 psi. Spot balanced a cement plug from 1575 to 1495m. Pumped 9 $\frac{1}{2}$ bbls of water ahead of 238 sacks of Australian class N cement mixed with 29 $\frac{1}{2}$ bbls of fresh water and 12 $\frac{1}{2}$ gallons of HR6L (slurry weight 15.6 ppg); followed by 1 bbl of water and 84 bbls of mud. Full returns were obtained. A second plug was set between 905 and 795m by pumping 7 $\frac{1}{2}$ bbls of seawater ahead of 300 sacks Australian class N cement mixed with 37 bbls seawater, and tailed with 1 bbl of seawater (slurry weight 15.6 ppg). The plug was displaced with 43 bbls of

- mud. Reverse circulated; no contamination was found.
- 19/MAY/1982 Pressure tested plug no. 2. Set a 13.375 EZSV Bridge plug at 375m. Perforated the casing between 363.6 and 362.4m with 16 shots. Mixed and pumped 430 sacks of Australian class N cement with 53 bbls seawater. Squeezed 76.5 bbls of cement slurry below the retainer, and spotted 12.5 bbls of cement slurry on top of retainer (slurry weight 15.6 ppg). Circulated the hole clean. Pressure tested the plug and P.O.O.H. laying down drill pipe. W.O.W.
- 20/MAY/1982 Pulled riser and stack. W.O.W.
- 21/MAY/1982 W.O.W.
- 22/MAY/1982 De-ballasted and jumped divers to inspect the wellhead. Ballasted the rig. Ran the shot can. Stabbed in and shot the charge and pulled the P.G.B. and T.G.B. free with lbs 160 000. Set the wellhead on the spider beams. Commenced work on the anchors.
- 23/MAY/1982 Worked on the anchors. Commenced tow to KAHAWAI No. 1 location at 22:00 hrs.

Duration of well : 06:30 HRS 1 MAY 1982 - 22:00 HRS 23 MAY 1982 - 23 Days

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

10. MUD INFORMATION SHEETS

DEPTH Metres

MUD WEIGHT Pounds per gallon

FUNNEL VISCOSITY . . . A.P.I. seconds

PLASTIC VISCOSITY. . . Centipoise

YIELD POINT. Pounds/100 square feet

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

FILTRATE A.P.I. cc

CAKE THICKNESS Thirty seconds of an inch

SALINITY : Ca/Cl . . . ppm

SOLIDS/SAND/OIL. . . . Percentage

381027


 COMPANY HEMATITE PETROLEUM LTD.
 WELL PIPPA No. 1

MUD INFORMATION SHEET

Sheet No. 1

DEPTH	-	-	312	880	880	866	886
DATE	4 MAY 82	5 MAY 82	6 MAY 82	7 MAY 82	8 MAY 82	9 MAY 82	10 MAY 82
TIME	-	24:00	23:00	23:30	15:00	22:00	17:30
WEIGHT	8.6	8.7	8.8	9.0	9.2	9.2	9.2
FUNNEL VISCOSITY	100	44	36	35	36	36	66
PV/YP		8/10	6/9	6/16	8/20	8/18	10/46
N/K		0.53/0.66	0.49/0.73	0.35/2.52	0.36/2.92	0.39/2.33	0.24/12.78
GEL: INITIAL/10 MIN		5/10	3.8	3/8	4.10	4/10	12/42
pH							
FILTRATE: API/API HTHP							
CAKE							
SALINITY							
SAND							
SOLIDS							
OIL							
SALINITY Ca PPM							1000

REMARKS: DRILL WITH S/W & SPOT PILLS LOWERED LMR & BOP DRILL 17½" HOLE RUN LOGS " RUN 13 3/8 CEMENT & PRESSURE TEST

DEPTH	955	1360	1640	1805	1960	2112	2115
DATE	11 MAY 82	12 MAY 82	13 MAY 82	14 MAY 82	15 MAY 82	16 MAY 82	17 MAY 82
TIME	11:45	23:00	20:00	21:45	20:30	19:00	24:00
WEIGHT	9.1	10.0	9.9	9.9	9.9	10.0	10.0
FUNNEL VISCOSITY	38	60	54	41	45	44	44
PV/YP	6/35	19/16	10/17	11/15	10/14	11/16	11/16
N/K	0.20/12.01	0.63/0.73	0.45/1.59	0.51/1.09	0.50/1.05	0.49/1.25	0.49/1.25
GEL: INITIAL/10 MIN	6/30	5/15	4/14	4/15	4/14	4/14	4/14
pH	9.5	10.8	10.4	10.6	10.4	10.5	10.5
FILTRATE: API/API HTHP	16.6	16.6	14.6	14.0	11.6	15.0	15.0
CAKE	2	2	2	2	2	2	2
SALINITY	19000	19600	19800	17800	17000	17500	17500
SAND	0.75	0.75	0.25	0.25	0.25	0.25	0.25
SOLIDS	7	7	8	9	9	9	9
OIL	-	0	0	0	0	0	0
SALINITY Ca ppm	1200	200	120	80	80	80	20
NITRATES ppm	-	55	94	110	135	132	132

REMARKS:

← DRILLED 12¼" HOLE →

 RUN LOGS
 AT T.D.
 P. & A.

12. OVERBURDEN GRADIENT CALCULATIONS

DEPTHmetres

BULK DENSITYgm/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

381029

DEPTH from	DEPTH to	AVR. BULK DENSITY	O/BURDEN INCR.	O/BURDEN CUMM.	O/BURDEN GRAD.	O/BURDEN GRAD.
metres	metres	gms/cc	psi	psi	psi/ft	ppg
0	94	1.02	41.52	41.52	0.442	8.49
94	875	2.00	676.35	717.86	0.820	15.78
875	900	2.06	22.30	740.16	0.822	15.82
900	925	2.16	23.38	763.54	0.825	15.87
925	950	2.20	23.82	787.36	0.829	15.94
950	975	2.24	24.25	811.61	0.832	16.01
975	1000	2.19	23.71	835.31	0.835	16.06
1000	1025	2.15	23.27	858.59	0.838	16.11
1025	1050	2.15	23.27	881.86	0.840	16.15
1050	1075	2.15	23.27	905.13	0.842	16.19
1075	1100	2.09	22.62	927.76	0.843	16.22
1100	1125	2.17	23.49	951.25	0.846	16.26
1125	1150	2.16	23.38	974.63	0.848	16.30
1150	1175	2.15	23.27	997.90	0.849	16.33
1175	1200	2.09	22.62	1020.53	0.850	16.35
1200	1225	2.15	23.27	1043.80	0.852	16.39
1225	1250	2.22	24.03	1067.83	0.854	16.43
1250	1275	2.17	23.49	1091.32	0.856	16.46
1275	1300	2.18	23.60	1114.92	0.858	16.49
1300	1325	2.22	24.03	1138.95	0.860	16.53
1325	1350	2.28	24.68	1163.64	0.862	16.58
1350	1375	2.27	24.57	1188.21	0.864	16.62
1375	1400	2.26	24.46	1212.67	0.866	16.66
1400	1425	2.25	24.36	1237.03	0.868	16.69
1425	1450	2.17	23.49	1260.52	0.869	16.72
1450	1475	2.14	23.17	1283.68	0.870	16.74
1475	1500	2.13	23.06	1306.74	0.871	16.75
1500	1525	2.18	23.60	1330.34	0.872	16.78
1525	1550	2.30	24.90	1355.24	0.874	16.81
1550	1575	2.25	24.36	1379.59	0.876	16.84
1575	1600	2.22	24.03	1403.63	0.877	16.87
1600	1625	2.20	23.82	1427.44	0.878	16.89
1625	1650	2.23	24.14	1451.58	0.880	16.92
1650	1675	2.31	25.01	1476.59	0.882	16.95
1675	1700	2.21	23.92	1500.51	0.883	16.97
1700	1725	2.25	24.36	1524.87	0.884	17.00
1725	1750	2.03	21.97	1546.84	0.884	17.00
1750	1775	2.25	24.36	1571.20	0.885	17.02
1775	1800	2.32	25.11	1596.31	0.887	17.05
1800	1825	2.26	24.46	1620.78	0.888	17.08
1825	1850	2.27	24.57	1645.35	0.889	17.10
1850	1875	2.32	25.11	1670.46	0.891	17.13
1875	1900	2.26	24.46	1694.93	0.892	17.16
1900	1925	2.30	24.90	1719.82	0.893	17.18
1925	1950	2.20	23.82	1743.64	0.894	17.20
1950	1975	2.12	22.95	1766.59	0.894	17.20
1975	2000	2.36	25.55	1792.14	0.896	17.23
2000	2025	2.32	25.11	1817.25	0.897	17.26
2025	2050	2.32	25.11	1842.36	0.899	17.28
2050	2075	2.37	25.66	1868.02	0.900	17.31

381030

DEPTH from	DEPTH to	AVR. BULK DENSITY	O/BURDEN INCR.	O/BURDEN CUMM.	O/BURDEN GRAD.	O/BURDEN GRAD.
metres	metres	gms/cc	psi	psi	psi/ft	ppg
2075	2100	2.36	25.55	1893.57	0.902	17.34
2100	2115	2.19	14.22	1907.79	0.902	17.35

381031

0

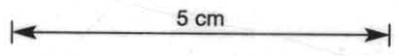
1

2

3

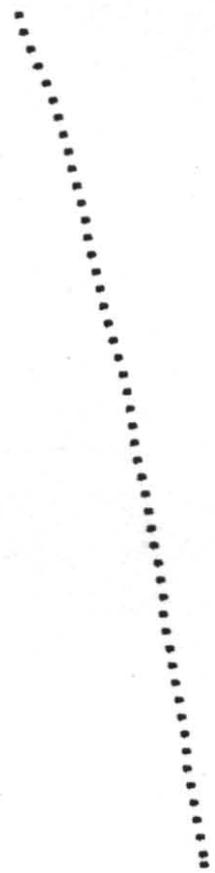
DEPTH (in METRES) x 1000

HEMATITE PETROLEUM
PIPIPA No. 1
OVERBURDEN GRADIENT



PSI/FT.

.5 .6 .7 .8 .9 1.0



381032

13. PORE PRESSURE SUMMARY AND LOT/PIT DATA

PORE PRESSURE SUMMARY AND L.O.T./ P.I.T. DATA.....PIPIPA No.1

Pipipa No.1 was drilled in the Bass Basin region of the Bass Strait. It was correctly thought that this basin is normally pressured and abnormal pressure was therefore 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 Plbt". (See plots at end of report).

The "Drill Data Plot" shows, amongst other information, the d'c exponent trend. As can be seen from the plot a good trend does not develop until around 1390 metres, below the calcareous section, but just above the top of the Demon's Bluff formation between the depths 900 metres and 1390 metres no significant or steady trend can be established due to the interbedded nature of the siltstones and shales, and the marls in part. An excellent normal trend is established though from 1390 metres all the way to total depth at 2115 metres.

The mud gas plot raises three points of interest. Firstly, the decrease in background gas between 1400 metres and 1520 metres results from the lithological nature of that interval being interbedded siltstones and claystones. Secondly, the increase in background gas below 1850 metres from 1 unit to 5 units was caused also by a change in lithology, rather than by any abnormality in formation pressure. Thirdly, the high trip gas from 1333 metres (472 units) was a result of the swabbing action when the stuck drill pipe was worked free after a cave-in from 1320 metres, rather than overpressure. No connection gas was observed during the drilling of the entire well.

No shale density measurements were taken since only isolated thin interbeds of true shales were encountered.

As may be expected from the above discussions, the temperature plot does not show any deviations away from the normal. The geothermal gradient was $3.19^{\circ}\text{C}/100$ metres ($7.44^{\circ}\text{F}/100$ metres). A graph showing an estimation of bottom-hole temperature is appended below.

A "Wireline Plot" was not drawn as this log plots shale parameters and the shale points encountered in the well were insufficient to facilitate an objective plot.

The "Pressure Plot" is the pressure conclusion log for the well. An inspection of the plot shows that the formations encountered in the drilling of Pipipa No.1 are believed to be normally pressured throughout. Unfortunately this could not be substantiated quantitatively since no R.F.T. tests were run.

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.'s were taken. The P.I.T. that was carried out at 887 metres (just below the 13 3/8" casing shoe) gave a value of 11.6 p.p.g. E.M.W. which, though being rather low, was considered safe since high mud weights were not anticipated. Based on this P.I.T. 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 Bass Basin cannot be drawn until further
leak-off data is available.

PIPIPA No.1

Graph to extrapolate
bottom-hole temperature
at T.D. (2115 metres)

5 cm

BOTTOM-HOLE
TEMPERATURE...97.6 °C

MAXIMUM
TEMPERATURE
WHILE
"LOGGING",
(°C)

Time after circulation (hours), T	$\frac{1}{T}$	Maximum recorded temperature, °C
12.5	0.08	83.3
8.5	0.1176	76.6

150

100

50

0

0.05

0.10

0.15

0.20

TIME AFTER CIRCULATION HAS STOPPED, (IN RECIPROCAL HOURS)

381035

14. GAS COMPOSITION ANALYSIS

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

LOG PLOT

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

1. Productive dry gas zones may show only C1, but abnormally high shows of C1 are usually indicative of saltwater.
2. A ratio of C1/C2 between approximately 2 and 15 indicates oil and between 15 and 65, gas. If the C1/C2 ratio is below about 2, or above about 65, the zone is probably non-productive.

The actual values of the gas/oil/water limits will vary from area to area.
3. If the C1/C2 ratio is low in the oil section and the C1/C4 ratio is high in the gas section, the zone is probably non-productive.
4. If any ratio (with the exception of C1/C5, if oil is used in the mud) is lower than the preceding ratio, the zone is probably non-productive.
5. The ratios may not be definitive for low permeability zones; however, steep ratio plots may indicate a tight zone.

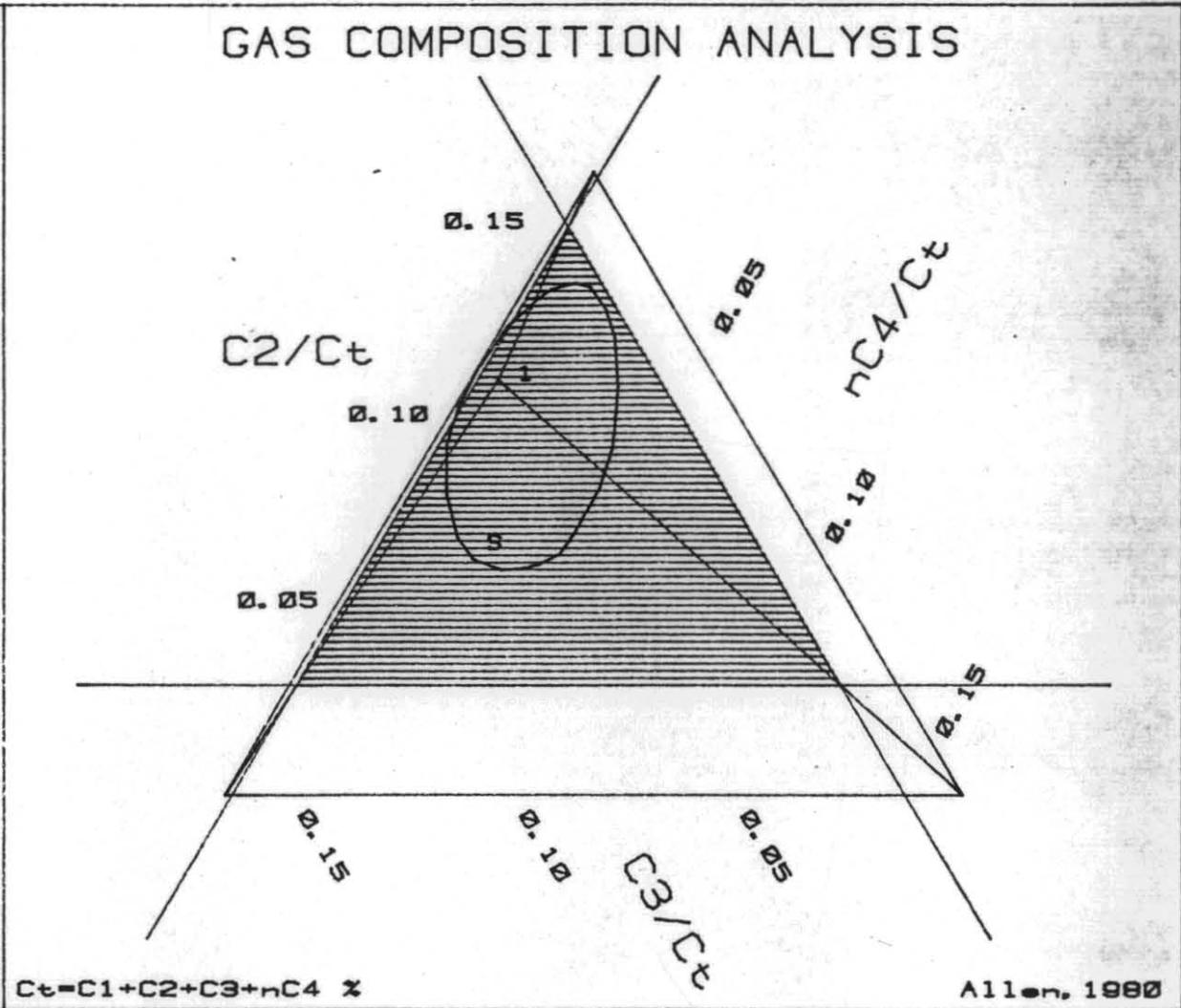
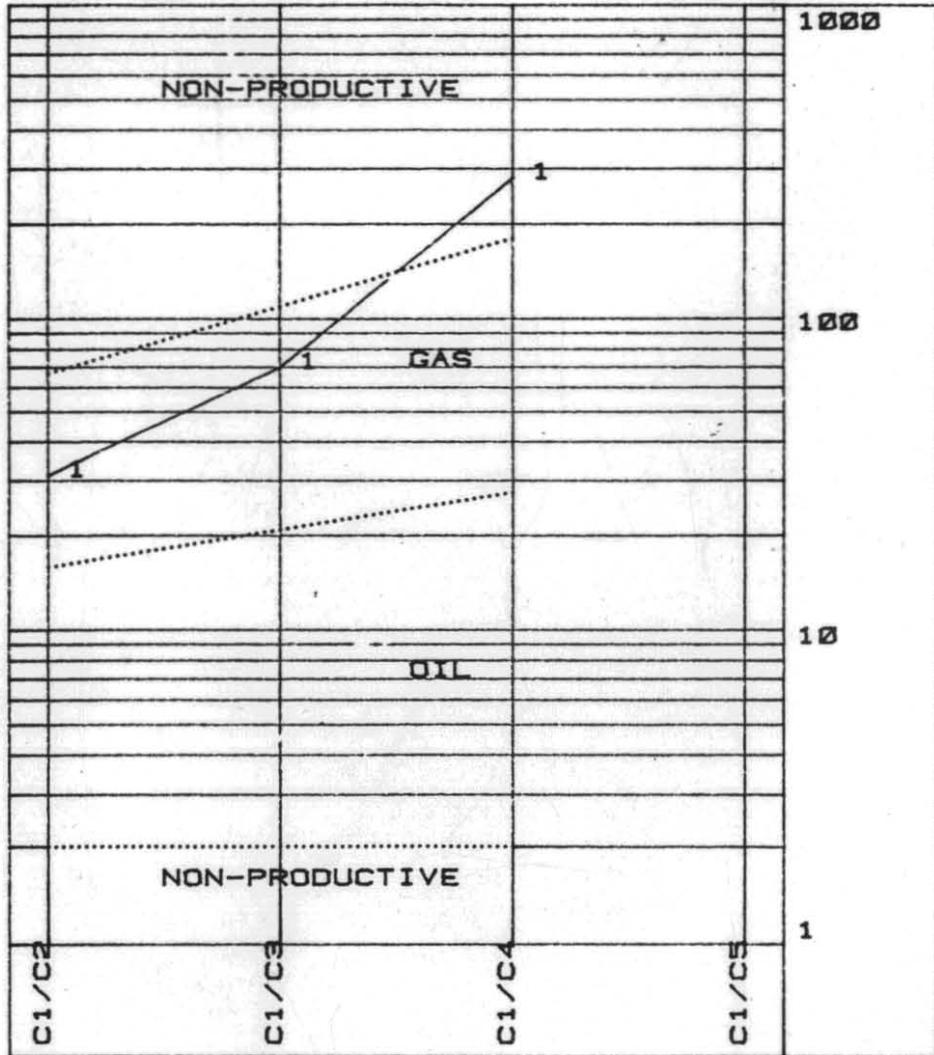
TRIANGULATION PLOT

The 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.

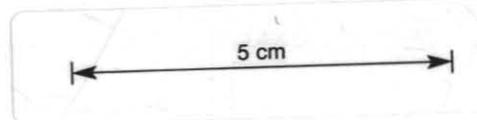
A large triangle plot represents dry gas or low GOR oil, while small triangles represent wet gases or high GOR oils. The homothetic centre of the plot should fall inside the top part of the triangle, otherwise the heavier hydrocarbon is abnormal and may indicate a dead show, (or coal gas).

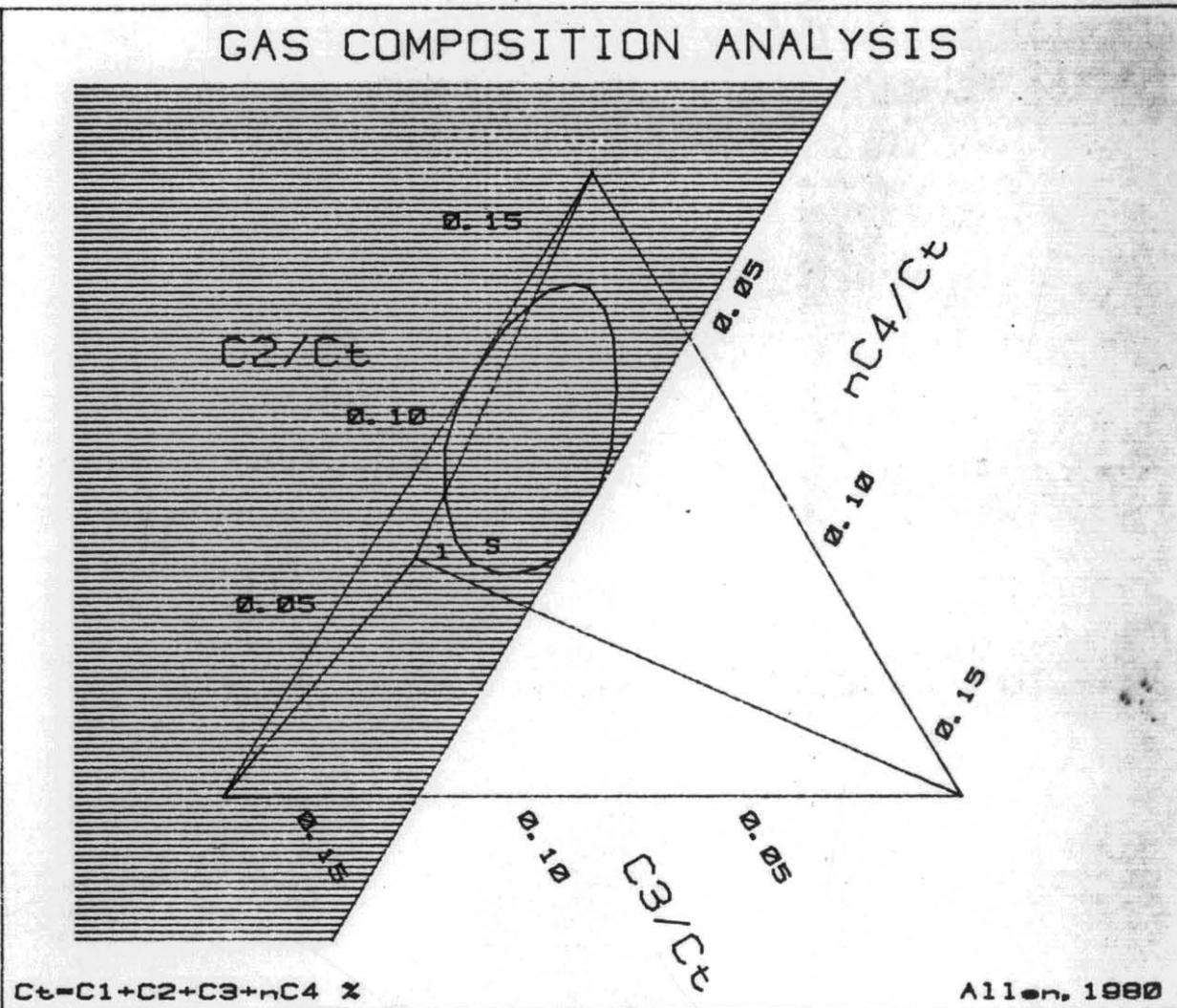
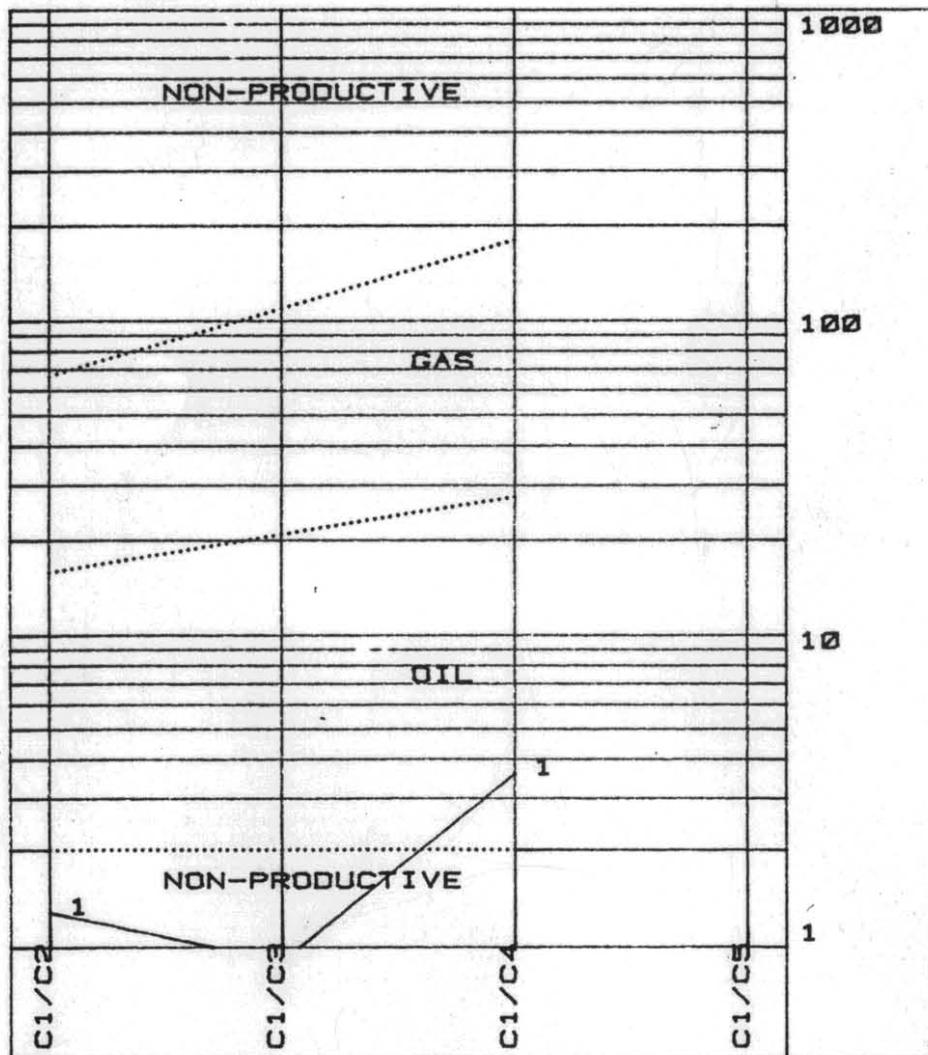
14. GAS COMPOSITION ANALYSIS DATA

- (a) 1900m : This plot comes from a fine to medium grained sandstone which showed no fluorescence. The plot indicates dry gas. This sand is the unit above the show sand.
- (b) 1950m : This plot comes from the very fine to medium grained sandstone which displayed fluorescence and a flash cut. The plot indicates a false show or anomalous gas readings.
- (c) 1972m : This plot comes from the sandstone unit below the show sandstone. The plot indicates a possible oil zone .
- (d) 2050m : This plot again indicates a possible oil zone, though the Homothetic centre of the plot is on the boundary of the 'S' zone. This gas composition is typical of the gas composition of the sandstone units from around 2050m to 2115m.

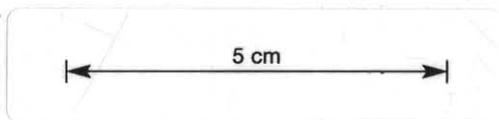


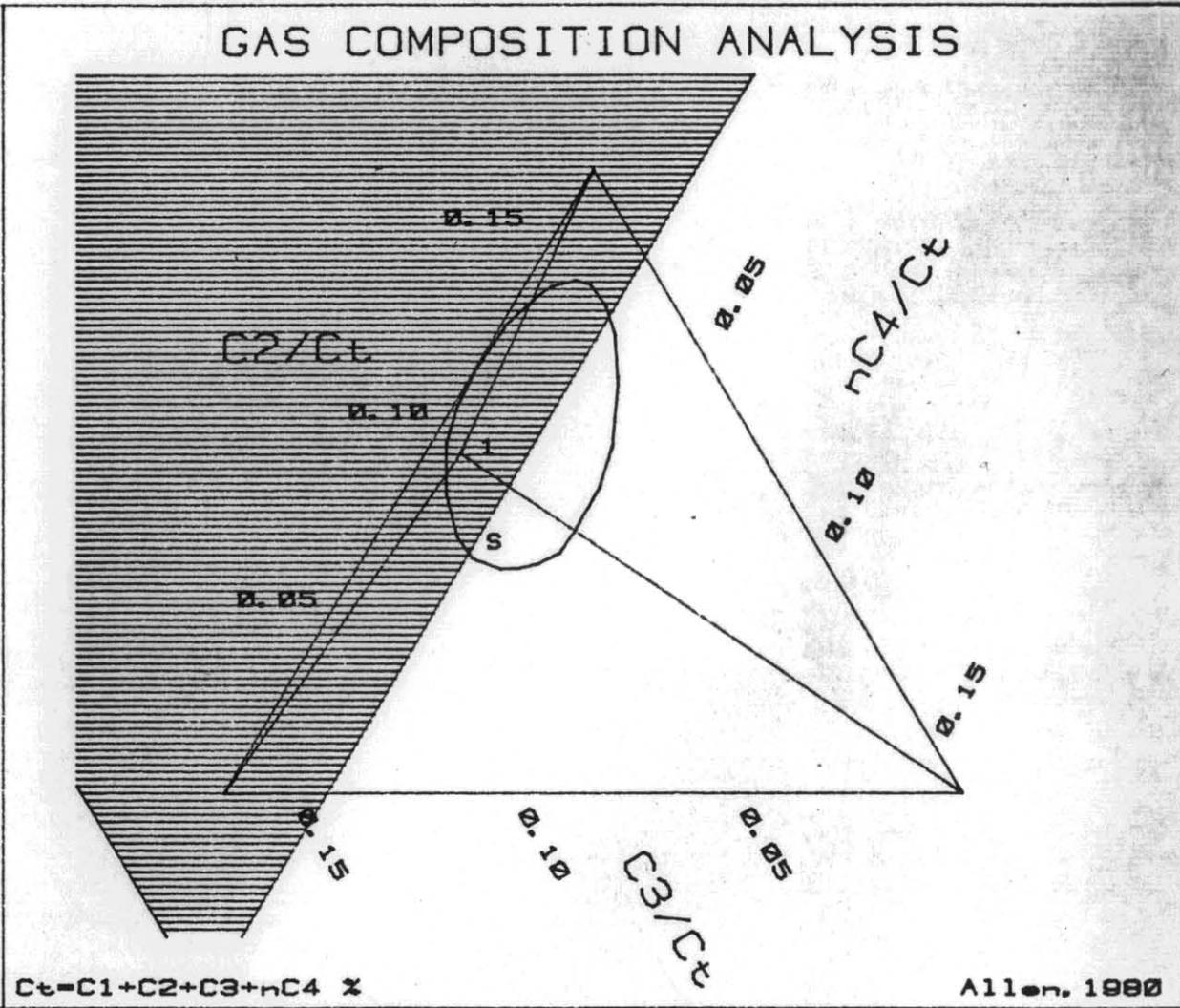
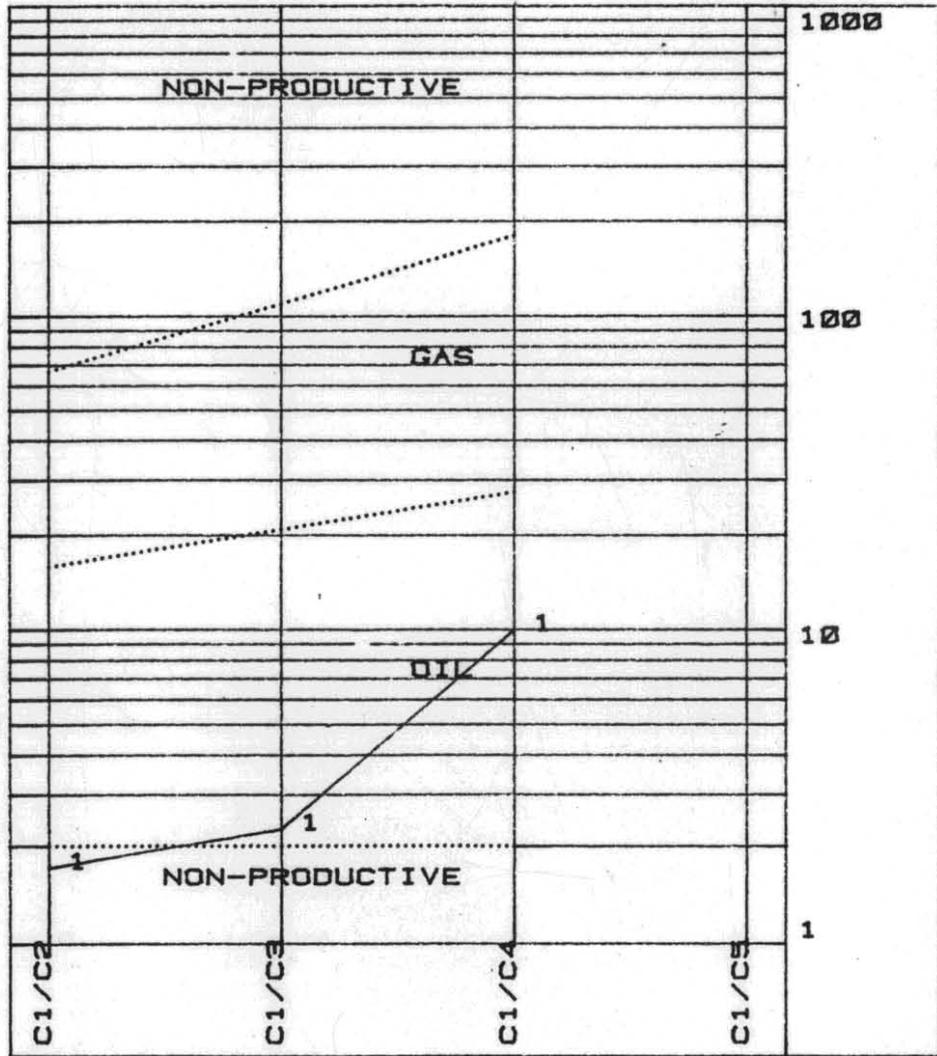
NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1900	0.280	0.009	0.004	0.001	0.001	0.000	0.000	0.294	31	70	280	



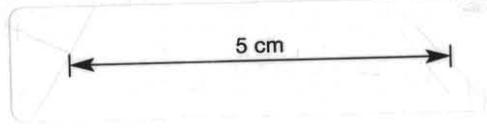


NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1950	0.180	0.140	0.200	0.025	0.025	0.000	0.000	0.545	1	1	4	





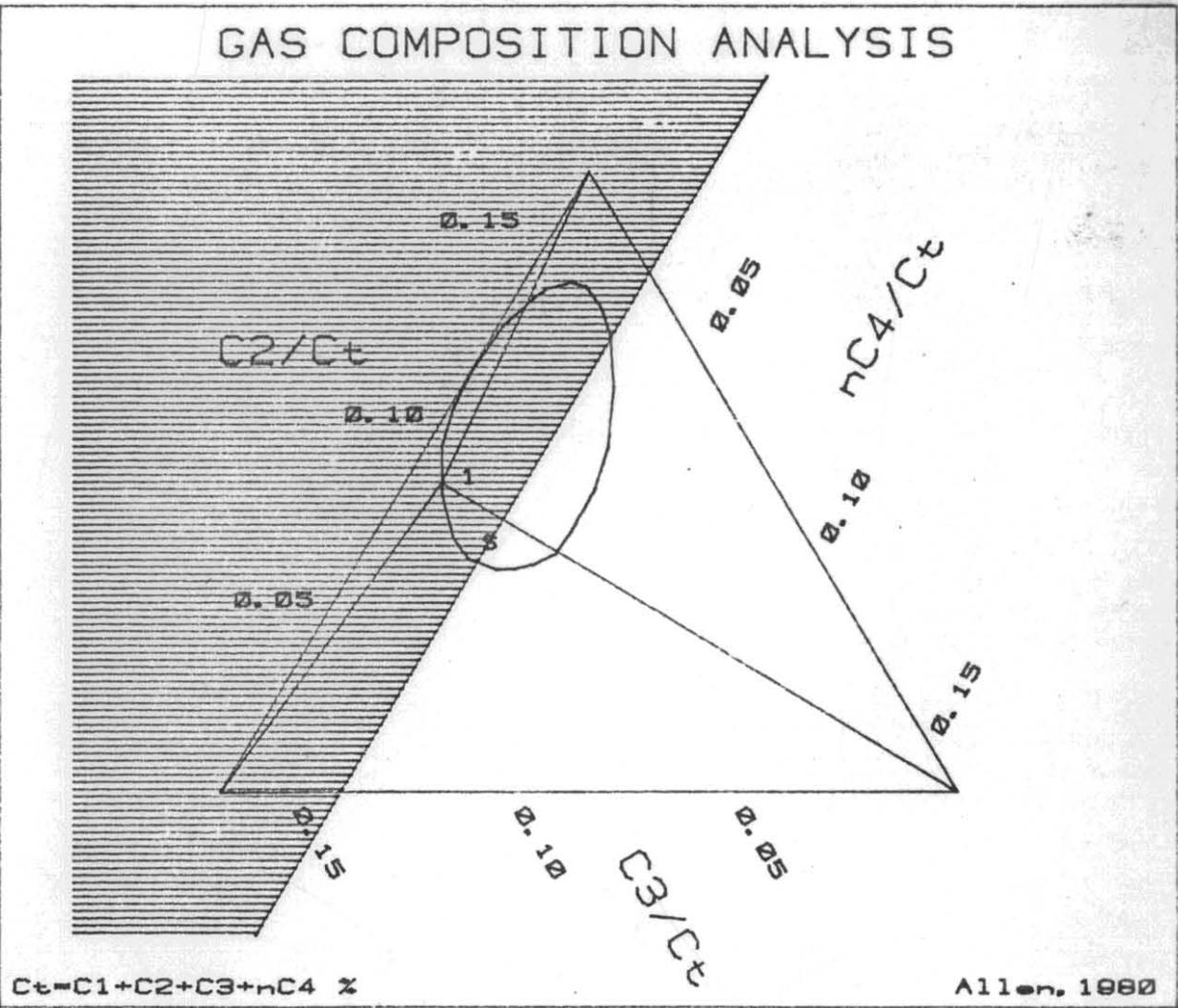
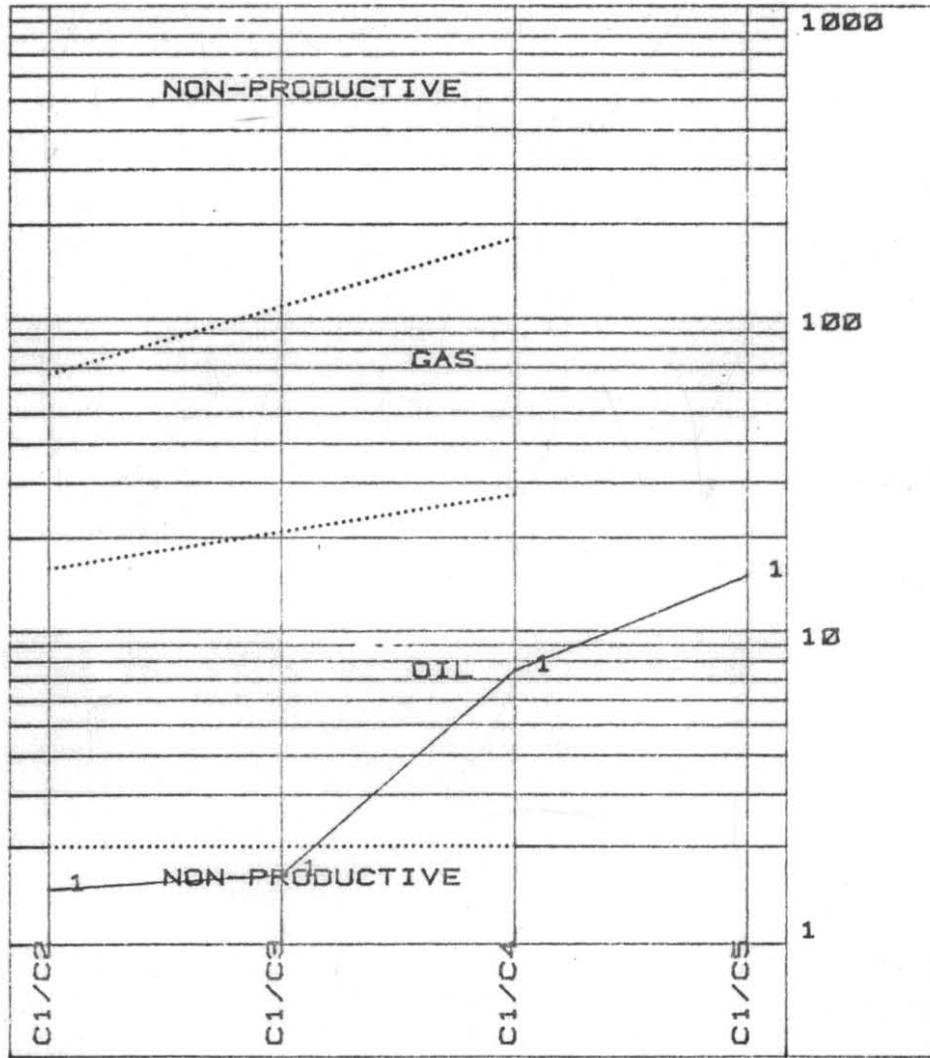
NO.	DEPTH	C1	C2	C3	iC4	nC4	C5	C6 x	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1	1972	0.700	0.400	0.300	0.035	0.035	0.000	0.000	1.435	2	2	10	



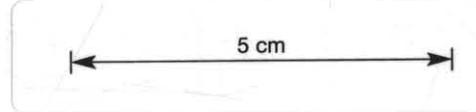
CORE LAB. INTL. LTD.

Client: HEMATITE PETROLEUM LTD.

Well: PIPIPA # 1



NO. DEPTH	C1	C2	C3	iC4	nC4	C5	C6 %	Ct	C1/C2	C1/C3	C1/C4	C1/C5
1 2050	0.150	0.100	0.090	0.010	0.010	0.010	0.002	0.350	2	2	8	15



15. 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 & Bit initialization data
- 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

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

(a) 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

381044

WELL: PIPPA # 1

BIT RECORD

BIT IADC No. CODE MAKE & TYPE	SIZE	COST	NOZZLES	DEPTH IN	DEPTH OUT	BIT RUN	TOTAL HOURS	TRIP AROP TIME	CCOST	TOTAL TURNS	CONDITION T B G
1 111 HTC OSC 3AJ	26.000	7000.00	20 20 20	94.0	229.0	135.0	1.41	95.7 1.8	156.18	6963	2 2 0.000
2 111 HTC OSC 3AJ	17.500	1850.00	20 20 20	229.0	322.0	93.0	1.45	64.3 2.2	191.87	12459	1 1 0.000
2 111 HTC OSC 3AJ	17.500	1850.00	20 20 20	322.0	880.0	558.0	8.44	79.8 4.2	88.02	77605	1 3 0.000
3 114 HTC X3A	12.250	1388.00	16 16 15	880.0	886.0	6.0	0.07	85.7 4.2	3353.42	400	1 1 0.000
4 114 HTC X3A	12.250	1388.00	16 16 15	886.0	1333.0	447.0	6.63	67.4 5.8	125.10	64955	4 2 0.000
5 114 HTC X3A	12.250	1388.00	16 16 15	1333.0	1742.0	409.0	19.41	21.1 7.3	289.89	184180	7 8 0.125
6 134 HTC X1G	12.250	1388.00	15 15 15	1742.0	1913.0	171.0	10.69	16.0 8.0	487.61	96168	7 4 0.250
7 517 HTC J22	12.250	6788.00	15 15 15	1913.0	2115.0	202.0	20.49	9.9 8.7	667.55	86778	2 3 0.000

BIT NUMBER: 1 IADC CODE 111 HTC OSC 3AJ

STARTING DEPTH.....	94.0		
BIT COST, RIG COST/HOUR.....	7000.00	4387.00	
TRIP TIME.....	1.8		
BIT DIAMETER.....	26.000		
NOZZLES.....	20	20	20
HW DRILL COLLAR LENGTH, OD, ID....	28.87	9.750	3.000
DRILL COLLAR LENGTH, OD, ID.....	33.75	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	73.25	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	0.00	0.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	4.0	1.90	
FINISHING DEPTH.....	229.0		
CUMULATIVE HOURS, TURNS.....	1.41	6963	
BIT CONDITION OUT.....	T 2	B 2	G 0.000

BIT NUMBER: 2 IADC CODE 111 HTC OSC 3AJ

STARTING DEPTH.....	229.0		
BIT COST, RIG COST/HOUR.....	1850.00	4387.00	
TRIP TIME.....	2.2		
BIT DIAMETER.....	17.500		
NOZZLES.....	20	20	20
HW DRILL COLLAR LENGTH, OD, ID....	28.87	9.750	3.000
DRILL COLLAR LENGTH, OD, ID.....	89.69	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	213.00	19.124	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	3.0	2.20	
FINISHING DEPTH.....	322.0		
CUMULATIVE HOURS, TURNS.....	1.45	12459	
BIT CONDITION OUT.....	T 1	B 1	G 0.000

BIT NUMBER: 2 IADC CODE 111 HTC OSC 3AJ

STARTING DEPTH.....	322.0		
BIT COST, RIG COST/HOUR.....	1850.00	4387.00	
TRIP TIME.....	4.2		
PREVIOUS HOLE MADE.....	93.0		
PREVIOUS HOURS, TURNS.....	1.45	12459	
BIT DIAMETER.....	17.500		
NOZZLES.....	20	20	20
HW DRILL COLLAR LENGTH, OD, ID....	28.87	9.750	3.000
DRILL COLLAR LENGTH, OD, ID.....	89.69	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	213.00	19.124	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	3.0	2.20	
FINISHING DEPTH.....	880.0		
CUMULATIVE HOURS, TURNS.....	8.44	77605	
BIT CONDITION OUT.....	T 1	B 3	G 0.000

BIT NUMBER: 3 IADC CODE 114 HTC X3A

STARTING DEPTH.....	880.0		
BIT COST, RIG COST/HOUR.....	1388.00	4387.00	
TRIP TIME.....	4.2		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	15
DRILL COLLAR LENGTH, OD, ID.....	118.67	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	866.00	12.615	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	3.0	2.20	
FINISHING DEPTH.....	886.0		
CUMULATIVE HOURS, TURNS.....	0.07	400	
BIT CONDITION OUT.....	T 1	B 1	G 0.000

BIT NUMBER: 4 IADC CODE 114 HTC X3A

STARTING DEPTH.....	886.0		
BIT COST, RIG COST/HOUR.....	1388.00	4387.00	
TRIP TIME.....	5.8		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	15
DRILL COLLAR LENGTH, OD, ID.....	118.67	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	866.00	12.615	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	3.0	2.20	
FINISHING DEPTH.....	1333.0		
CUMULATIVE HOURS, TURNS.....	6.63	64955	
BIT CONDITION OUT.....	T 4	B 2	G 0.000

BIT NUMBER: 5 IADC CODE 114 HTC X3A

STARTING DEPTH.....	1333.0		
BIT COST, RIG COST/HOUR.....	1388.00	4387.00	
TRIP TIME.....	7.3		
BIT DIAMETER.....	12.250		
NOZZLES.....	16	16	15
DRILL COLLAR LENGTH, OD, ID.....	118.67	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	866.00	12.615	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.8	2.20	
FINISHING DEPTH.....	1742.0		
CUMULATIVE HOURS, TURNS.....	19.41	184180	
BIT CONDITION OUT.....	T 7	B 8	G 0.125

BIT NUMBER: 6 IADC CODE 134 HTC X1G

STARTING DEPTH.....	1742.0		
BIT COST, RIG COST/HOUR.....	1388.00	4387.00	
TRIP TIME.....	8.0		
BIT DIAMETER.....	12.250		
NOZZLES.....	15	15	15
DRILL COLLAR LENGTH, OD, ID.....	127.30	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	866.00	12.615	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.5	2.30	
FINISHING DEPTH.....	1913.0		
CUMULATIVE HOURS, TURNS.....	10.69	96168	
BIT CONDITION OUT.....	T 7	B 4	G 0.250

BIT NUMBER: 7 IADC CODE 517 HTC J22

STARTING DEPTH.....	1913.0		
BIT COST, RIG COST/HOUR.....	6788.00	4387.00	
TRIP TIME.....	8.7		
BIT DIAMETER.....	12.250		
NOZZLES.....	15	15	15
DRILL COLLAR LENGTH, OD, ID.....	127.30	8.000	2.813
HW DRILL PIPE LENGTH, OD, ID.....	82.09	5.000	3.000
DRILL PIPE OD, ID.....		5.000	4.276
CASING DEPTH, ID.....	866.00	12.615	
RISER LENGTH, ID.....	94.00	21.000	
PUMP VOLUMES 1 AND 2.....	0.119	0.119	
PORE PRESSURE CALC EXPONENT.....	1.20		
NORMAL PORE PRESSURE.....	8.5		
OVERBURDEN GRADIENT MODIFIER.....	0.00		
STRESS RATIO MODIFIER.....	0.00		
"d" EXPONENT CORRECTION FACTOR....	10.0		
CUTTINGS DIAMETER, DENSITY.....	2.5	2.40	
FINISHING DEPTH.....	2115.0		
CUMULATIVE HOURS, TURNS.....	20.49	86778	
BIT CONDITION OUT.....	T 2,	B 3	G 0.000

(b) HYDRAULIC ANALYSIS

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 100.0 AND TVD 100.0

SPM 1 88 SPM 2 116 FLOW RATE 1020

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	1.851	53	13	12	TURBULENT			0.0
DC/OH	1.950	66	12	12	TURBULENT			0.0
HWDP/OH	2.074	78	12	11	TURBULENT			0.0
TOTAL VOLUME		197			TOTAL PRESSURE DROP		0.0	

LAG: 8.1 MINUTES 713 STROKES #1 AND 940 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	972.0	HHP	578	IMPACT FORCE	1614
% SURFACE PRESSURE	108.0	HHP/sqin	1.09	JET VELOCITY	108

PRESSURE BREAKDOWN:

SURFACE	59.6		
STRING	211.4		
BIT	972.0		
ANNULUS	0.0		
TOTAL	1243.0	PUMP PRESSURE	900.0
		% DIFFERENCE	38.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.60	HYDROSTATIC PRESSURE 146.7
CIRCULATING:	ECD 8.60	CIRCULATING PRESSURE 146.7
PULLING OUT:	TRIP MARGIN 0.00	ESTIMATED SWAB 0.0
	EFFECTIVE MUD WEIGHT 8.60	BOTTOM HOLE PRESSURE 146.7

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 200.0 AND TVD 200.0

SPM 1 82 SPM 2 106 FLOW RATE 940

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	1.851	53	12	12	LAMINAR	1	11	0.0
DC/OH	1.950	66	11	12	LAMINAR	1	11	0.0
HWDP/OH	2.074	152	11	11	LAMINAR	1	10	0.0
DP/OH	2.074	133	11	11	LAMINAR	1	10	0.0
TOTAL VOLUME		404			TOTAL PRESSURE DROP		0.0	

LAG: 18.1 MINUTES 1481 STROKES #1 AND 1915 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	825.5	HHP	453	IMPACT FORCE	1370
% SURFACE PRESSURE	55.0	HHP/sqin	0.85	JET VELOCITY	100

PRESSURE BREAKDOWN:

SURFACE	51.5		
STRING	259.9		
BIT	825.5		
ANNULUS	0.0		
TOTAL	1136.9	PUMP PRESSURE	1500.0
		% DIFFERENCE	24.2

BOTTOM HOLE PRESSURES:

		DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	8.60	HYDROSTATIC PRESSURE 293.4
CIRCULATING:	ECD	8.60	CIRCULATING PRESSURE 293.5
PULLING OUT:	TRIP MARGIN	0.00	ESTIMATED SWAB 0.0
	EFFECTIVE MUD WEIGHT	8.60	BOTTOM HOLE PRESSURE 293.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 300.0 AND TVD 300.0

SPM 1 58 SPM 2 62 FLOW RATE 600

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	21	65	LAMINAR	0	21	0.1
DC/OH	0.772	45	19	61	LAMINAR	0	18	0.2
DC/CSG	0.961	30	15	59	LAMINAR	0	15	0.1
HWDP/CSG	1.085	89	13	56	LAMINAR	0	13	0.1
DP/CSG	1.085	6	13	56	LAMINAR	0	13	0.0
DP/RIS	1.325	125	11	54	LAMINAR	0	11	0.1
TOTAL VOLUME		314			TOTAL PRESSURE DROP			0.6

LAG: 22.0 MINUTES 1276 STROKES #1 AND 1364 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	340.2	HHP	119	IMPACT FORCE	565
% SURFACE PRESSURE	12.2	HHP/sqin	0.49	JET VELOCITY	64

PRESSURE BREAKDOWN:

SURFACE	33.1		
STRING	263.0		
BIT	340.2		
ANNULUS	0.6		
TOTAL	637.0	PUMP PRESSURE	2800.0
		% DIFFERENCE	77.3

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.70	HYDROSTATIC PRESSURE 445.3
CIRCULATING:	ECD 8.71	CIRCULATING PRESSURE 445.9
PULLING OUT:	TRIP MARGIN 0.02	ESTIMATED SWAB 1.2
	EFFECTIVE MUD WEIGHT 8.68	BOTTOM HOLE PRESSURE 444.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 400.0 AND TVD 400.0

SPM 1 122 SPM 2 128 FLOW RATE 1250

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	44	71	LAMINAR	1	43	0.2
DC/OH	0.772	69	39	68	LAMINAR	1	38	0.5
HWDP/OH	0.896	61	33	65	LAMINAR	0	33	0.2
HWDP/CSG	1.085	15	27	64	LAMINAR	0	27	0.0
DP/CSG	1.085	114	27	64	LAMINAR	0	27	0.3
DP/RIS	1.325	125	22	63	LAMINAR	0	22	0.2
TOTAL VOLUME		404			TOTAL PRESSURE DROP		1.4	

LAG: 13.6 MINUTES 1656 STROKES #1 AND 1737 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1527.6	HHP	1114	IMPACT FORCE	2536
% SURFACE PRESSURE	56.6	HHP/sqin	4.63	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	117.7		
STRING	1001.8		
BIT	1527.6		
ANNULUS	1.4		
TOTAL	2648.5	PUMP PRESSURE	2700.0
		% DIFFERENCE	1.9

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 614.2
CIRCULATING:	ECD 9.02	CIRCULATING PRESSURE 615.6
PULLING OUT:	TRIP MARGIN 0.04	ESTIMATED SWAB 2.8
	EFFECTIVE MUD WEIGHT 8.96	BOTTOM HOLE PRESSURE 611.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 500.0 AND TVD 500.0

SPM 1 122 SPM 2 128 FLOW RATE 1250

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	44	71	LAMINAR	1	43	0.2
DC/OH	0.772	69	39	68	LAMINAR	1	38	0.5
HWDP/OH	0.896	74	33	65	LAMINAR	0	33	0.3
DP/OH	0.896	77	33	65	LAMINAR	0	33	0.3
DP/CSG	1.085	129	27	64	LAMINAR	0	27	0.3
DP/RIS	1.325	125	22	63	LAMINAR	0	22	0.2
TOTAL VOLUME		493			TOTAL PRESSURE DROP		1.7	

LAG: 16.6 MINUTES 2023 STROKES #1 AND 2122 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1527.6	HHP	1114	IMPACT FORCE	2536
% SURFACE PRESSURE	56.6	HHP/sqin	4.63	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	117.7		
STRING	1069.6		
BIT	1527.6		
ANNULUS	1.7		
TOTAL	2716.6	PUMP PRESSURE	2700.0
		% DIFFERENCE	0.6

BOTTOM HOLE PRESSURES:

		DENSITY UNITS		PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT	9.00	HYDROSTATIC PRESSURE	767.7
CIRCULATING:	ECD	9.02	CIRCULATING PRESSURE	769.4
PULLING OUT:	TRIP MARGIN	0.04	ESTIMATED SWAB	3.4
	EFFECTIVE MUD WEIGHT	8.96	BOTTOM HOLE PRESSURE	764.3

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 600.0 AND TVD 600.0

SPM 1 122 SPM 2 128 FLOW RATE 1250

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	44	70	LAMINAR	1	44	0.2
DC/OH	0.772	69	39	67	LAMINAR	1	38	0.5
HWDP/OH	0.896	74	33	65	LAMINAR	0	33	0.3
DP/OH	0.896	167	33	65	LAMINAR	0	33	0.6
DP/CSG	1.085	129	27	63	LAMINAR	0	27	0.3
DP/RIS	1.325	125	22	62	LAMINAR	0	22	0.2
TOTAL VOLUME		583				TOTAL PRESSURE DROP		2.0

LAG: 19.6 MINUTES 2390 STROKES #1 AND 2508 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1561.6	HHP	1138	IMPACT FORCE	2592
% SURFACE PRESSURE	57.8	HHP/sqin	4.73	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	119.8		
STRING	1157.6		
BIT	1561.6		
ANNULUS	2.0		
TOTAL	2841.0	PUMP PRESSURE	2700.0
		% DIFFERENCE	5.2

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.20	HYDROSTATIC PRESSURE 941.7
CIRCULATING:	ECD 9.22	CIRCULATING PRESSURE 943.8
PULLING OUT:	TRIP MARGIN 0.04	ESTIMATED SWAB 4.1
	EFFECTIVE MUD WEIGHT 9.16	BOTTOM HOLE PRESSURE 937.7

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 700.0 AND TVD 700.0

SPM 1 122 SPM 2 127 FLOW RATE 1245

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	44	71	LAMINAR	1	43	0.2
DC/OH	0.772	69	38	68	LAMINAR	1	38	0.5
HWDP/OH	0.896	74	33	65	LAMINAR	0	33	0.3
DP/OH	0.896	257	33	65	LAMINAR	0	33	0.9
DP/CSG	1.085	129	27	64	LAMINAR	0	27	0.3
DP/RIS	1.325	125	22	63	LAMINAR	0	22	0.2
TOTAL VOLUME		672			TOTAL PRESSURE DROP		2.4	

LAG: 22.7 MINUTES 2769 STROKES #1 AND 2882 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1515.5	HHP	1100	IMPACT FORCE	2516
% SURFACE PRESSURE	54.1	HHP/sqin	4.57	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	116.8		
STRING	1196.6		
BIT	1515.5		
ANNULUS	2.4		
TOTAL	2831.2	PUMP PRESSURE	2800.0
		% DIFFERENCE	1.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1074.8
CIRCULATING:	ECD 9.02	CIRCULATING PRESSURE 1077.2
PULLING OUT:	TRIP MARGIN 0.04	ESTIMATED SWAB 4.7
	EFFECTIVE MUD WEIGHT 8.96	BOTTOM HOLE PRESSURE 1070.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 800.0 AND TVD 800.0

SPM 1 120 SPM 2 116 FLOW RATE 1180

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
HWDC/OH	0.673	19	42	108	LAMINAR	0	41	0.4
DC/OH	0.772	69	36	105	LAMINAR	0	36	0.9
HWDP/OH	0.896	74	31	102	LAMINAR	0	31	0.6
DP/OH	0.896	346	31	102	LAMINAR	0	31	2.6
DP/CSG	1.085	129	26	100	LAMINAR	0	26	0.6
DP/RIS	1.325	125	21	98	LAMINAR	0	21	0.4
TOTAL VOLUME		762			TOTAL PRESSURE DROP		5.6	

LAG: 27.1 MINUTES 3256 STROKES #1 AND 3148 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1361.3	HHP	937	IMPACT FORCE	2260
% SURFACE PRESSURE	48.6	HHP/sqin	3.89	JET VELOCITY	125

PRESSURE BREAKDOWN:

SURFACE	118.7		
STRING	1283.6		
BIT	1361.3		
ANNULUS	5.6		
TOTAL	2769.2	PUMP PRESSURE	2800.0
		% DIFFERENCE	1.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1228.3
CIRCULATING:	ECD 9.04	CIRCULATING PRESSURE 1233.9
PULLING OUT:	TRIP MARGIN 0.08	ESTIMATED SWAB 11.2
	EFFECTIVE MUD WEIGHT 8.92	BOTTOM HOLE PRESSURE 1217.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 885.0 AND TVD 885.0

SPM 1 84 SPM 2 75 FLOW RATE 795

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	5	69	108	LAMINAR	1	68	0.7
DC/CSG	0.303	30	62	107	LAMINAR	1	61	3.1
HWDP/CSG	0.427	35	44	100	LAMINAR	0	44	1.1
DP/CSG	0.427	252	44	100	LAMINAR	0	44	8.0
DP/RIS	1.325	125	14	91	LAMINAR	0	14	0.3
TOTAL VOLUME		447	TOTAL PRESSURE DROP			13.2		

LAG: 23.6 MINUTES 1986 STROKES #1 AND 1773 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1656.4	HHP	768	IMPACT FORCE	1689
% SURFACE PRESSURE	63.7	HHP/sqin	6.52	JET VELOCITY	137

PRESSURE BREAKDOWN:

SURFACE	57.0		
STRING	663.8		
BIT	1656.4		
ANNULUS	13.2		
TOTAL	2390.4	PUMP PRESSURE	2600.0
		% DIFFERENCE	8.1

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.10	HYDROSTATIC PRESSURE 1374.0
CIRCULATING:	ECD 9.19	CIRCULATING PRESSURE 1387.2
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 26.4
	EFFECTIVE MUD WEIGHT 8.93	BOTTOM HOLE PRESSURE 1347.5

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 900.0 AND TVD 900.0

SPM 1 90 SPM 2 79 FLOW RATE 845

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	9	73	136	LAMINAR	1	72	1.8
DC/CSG	0.303	26	66	135	LAMINAR	1	66	3.9
HWDP/CSG	0.427	35	47	129	LAMINAR	0	47	1.7
DP/CSG	0.427	259	47	129	LAMINAR	0	47	12.7
DP/RIS	1.325	125	15	120	LAMINAR	0	15	0.5
TOTAL VOLUME		453	TOTAL PRESSURE DROP					20.7

LAG: 22.5 MINUTES 2028 STROKES #1 AND 1781 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1830.2	HHP	902	IMPACT FORCE	1866
% SURFACE PRESSURE	66.6	HHP/sqin	7.65	JET VELOCITY	146

PRESSURE BREAKDOWN:

SURFACE	64.5		
STRING	756.1		
BIT	1830.2		
ANNULUS	20.7		
TOTAL	2671.4	PUMP PRESSURE	2750.0
		% DIFFERENCE	2.9

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.90	HYDROSTATIC PRESSURE 1366.5
CIRCULATING:	ECD 9.03	CIRCULATING PRESSURE 1387.2
PULLING OUT:	TRIP MARGIN 0.27	ESTIMATED SWAB 41.3
	EFFECTIVE MUD WEIGHT 8.63	BOTTOM HOLE PRESSURE 1325.2

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1000.0 AND TVD 1000.0

SPM 1 86 SPM 2 84 FLOW RATE 850

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	74	170	LAMINAR	1	73	9.1
HWDP/OH	0.398	6	51	170	LAMINAR	0	51	0.6
HWDP/CSG	0.427	29	47	170	LAMINAR	0	47	2.3
DP/CSG	0.427	301	47	170	LAMINAR	0	47	24.6
DP/RIS	1.325	125	15	169	LAMINAR	0	15	1.1
TOTAL VOLUME		493				TOTAL PRESSURE DROP		37.7

LAG: 24.4 MINUTES 2096 STROKES #1 AND 2048 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1851.9	HHP	918	IMPACT FORCE	1888
% SURFACE PRESSURE	66.1	HHP/sqin	7.79	JET VELOCITY	147

PRESSURE BREAKDOWN:

SURFACE	60.9		
STRING	749.6		
BIT	1851.9		
ANNULUS	37.7		
TOTAL	2700.1	PUMP PRESSURE	2800.0
		% DIFFERENCE	3.6

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.90	HYDROSTATIC PRESSURE 1518.4
CIRCULATING:	ECD 9.12	CIRCULATING PRESSURE 1556.1
PULLING OUT:	TRIP MARGIN 0.44	ESTIMATED SWAB 75.4
	EFFECTIVE MUD WEIGHT 8.46	BOTTOM HOLE PRESSURE 1443.0

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1100.0 AND TVD 1100.0

SPM 1 86 SPM 2 84 FLOW RATE 850

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	74	170	LAMINAR	1	73	9.1
HWDP/OH	0.398	33	51	170	LAMINAR	0	51	3.1
DP/OH	0.398	13	51	170	LAMINAR	0	51	1.2
DP/CSG	0.427	330	47	170	LAMINAR	0	47	26.9
DP/RIS	1.325	125	15	169	LAMINAR	0	15	1.1
TOTAL VOLUME		533			TOTAL PRESSURE DROP		41.4	

LAG: 26.3 MINUTES 2266 STROKES #1 AND 2213 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1851.9	HHP	918	IMPACT FORCE	1888
% SURFACE PRESSURE	66.1	HHP/sqin	7.79	JET VELOCITY	147

PRESSURE BREAKDOWN:

SURFACE	60.9		
STRING	784.7		
BIT	1851.9		
ANNULUS	41.4		
TOTAL	2738.9	PUMP PRESSURE	2800.0
		% DIFFERENCE	2.2

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 8.90	HYDROSTATIC PRESSURE 1670.2
CIRCULATING:	ECD 9.12	CIRCULATING PRESSURE 1711.6
PULLING OUT:	TRIP MARGIN 0.44	ESTIMATED SWAB 82.9
	EFFECTIVE MUD WEIGHT 8.46	BOTTOM HOLE PRESSURE 1587.3

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1200.0 AND TVD 1200.0

SPM 1 80 SPM 2 90 FLOW RATE 850

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	74	169	LAMINAR	1	73	9.1
HWDP/OH	0.398	33	51	169	LAMINAR	0	51	3.1
DP/OH	0.398	53	51	169	LAMINAR	0	51	5.0
DP/CSG	0.427	330	47	169	LAMINAR	0	47	26.9
DP/RIS	1.325	125	15	168	LAMINAR	0	15	1.1
TOTAL VOLUME		573			TOTAL PRESSURE DROP		45.2	

LAG: 28.3 MINUTES 2265 STROKES #1 AND 2548 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1872.7	HHP	928	IMPACT FORCE	1909
% SURFACE PRESSURE	65.7	HHP/sqin	7.88	JET VELOCITY	147

PRESSURE BREAKDOWN:

SURFACE	61.5		
STRING	827.1		
BIT	1872.7		
ANNULUS	45.2		
TOTAL	2806.5	PUMP PRESSURE	2850.0
		% DIFFERENCE	1.5

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1842.5
CIRCULATING:	ECD 9.22	CIRCULATING PRESSURE 1887.7
PULLING OUT:	TRIP MARGIN 0.44	ESTIMATED SWAB 90.4
	EFFECTIVE MUD WEIGHT 8.56	BOTTOM HOLE PRESSURE 1752.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1300.0 AND TVD 1300.0

SPM 1 84 SPM 2 86 FLOW RATE 850

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	74	169	LAMINAR	1	73	9.1
HWDP/OH	0.398	33	51	169	LAMINAR	0	51	3.1
DP/OH	0.398	93	51	169	LAMINAR	0	51	8.7
DP/CSG	0.427	330	47	169	LAMINAR	0	47	26.9
DP/RIS	1.325	125	15	168	LAMINAR	0	15	1.1
TOTAL VOLUME		613			TOTAL PRESSURE DROP		48.9	

LAG: 30.3 MINUTES 2544 STROKES #1 AND 2604 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1872.7	HHP	928	IMPACT FORCE	1909
% SURFACE PRESSURE	66.9	HHP/sqin	7.88	JET VELOCITY	147

PRESSURE BREAKDOWN:

SURFACE	61.5		
STRING	862.6		
BIT	1872.7		
ANNULUS	48.9		
TOTAL	2845.7	PUMP PRESSURE	2800.0
		% DIFFERENCE	1.6

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.00	HYDROSTATIC PRESSURE 1996.1
CIRCULATING:	ECD 9.22	CIRCULATING PRESSURE 2045.0
PULLING OUT:	TRIP MARGIN 0.44	ESTIMATED SWAB 97.9
	EFFECTIVE MUD WEIGHT 8.56	BOTTOM HOLE PRESSURE 1898.2

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1400.0 AND TVD 1400.0

SPM 1 78 SPM 2 78 FLOW RATE 780

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	68	105	LAMINAR	1	67	5.0
HWDP/OH	0.398	33	47	87	LAMINAR	0	46	1.1
DP/OH	0.398	133	47	87	LAMINAR	0	46	4.6
DP/CSG	0.427	330	43	85	LAMINAR	0	43	9.5
DP/RIS	1.325	125	14	65	LAMINAR	0	14	0.2
TOTAL VOLUME		652			TOTAL PRESSURE DROP		20.4	

LAG: 35.1 MINUTES 2741 STROKES #1 AND 2741 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1752.2	HHP	797	IMPACT FORCE	1787
% SURFACE PRESSURE	62.6	HHP/sqin	6.76	JET VELOCITY	135

PRESSURE BREAKDOWN:

SURFACE	74.8		
STRING	1093.1		
BIT	1752.2		
ANNULUS	20.4		
TOTAL	2940.5	PUMP PRESSURE	2800.0
		% DIFFERENCE	5.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 10.00	HYDROSTATIC PRESSURE 2388.4
CIRCULATING:	ECD 10.09	CIRCULATING PRESSURE 2408.9
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 40.9
	EFFECTIVE MUD WEIGHT 9.83	BOTTOM HOLE PRESSURE 2347.6

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1500.0 AND TVD 1500.0

SPM 1 77 SPM 2 76 FLOW RATE 765

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	66	110	LAMINAR	1	66	5.0
HWDP/OH	0.398	33	46	97	LAMINAR	0	45	1.3
DP/OH	0.398	173	46	97	LAMINAR	0	45	6.8
DP/CSG	0.427	330	43	96	LAMINAR	0	42	10.9
DP/RIS	1.325	125	14	81	LAMINAR	0	14	0.2
TOTAL VOLUME		692			TOTAL PRESSURE DROP		24.3	

LAG: 38.0 MINUTES 2928 STROKES #1 AND 2890 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1685.4	HHP	752	IMPACT FORCE	1718
% SURFACE PRESSURE	61.3	HHP/sqin	6.38	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	65.9		
STRING	1000.8		
BIT	1685.4		
ANNULUS	24.3		
TOTAL	2776.5	PUMP PRESSURE	2750.0
		% DIFFERENCE	1.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 10.00	HYDROSTATIC PRESSURE 2559.0
CIRCULATING:	ECD 10.10	CIRCULATING PRESSURE 2583.4
PULLING OUT:	TRIP MARGIN 0.19	ESTIMATED SWAB 48.6
	EFFECTIVE MUD WEIGHT 9.81	BOTTOM HOLE PRESSURE 2510.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1600.0 AND TVD 1600.0

SPM 1 76 SPM 2 72 FLOW RATE 740

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	64	110	LAMINAR	1	64	4.9
HWDP/OH	0.398	33	44	98	LAMINAR	0	44	1.3
DP/OH	0.398	212	44	98	LAMINAR	0	44	8.3
DP/CSG	0.427	330	41	97	LAMINAR	0	41	10.7
DP/RIS	1.325	125	13	81	LAMINAR	0	13	0.2
TOTAL VOLUME		732			TOTAL PRESSURE DROP		25.5	

LAG: 41.6 MINUTES 3159 STROKES #1 AND 2993 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1561.3	HHP	674	IMPACT FORCE	1592
% SURFACE PRESSURE	57.8	HHP/sqin	5.72	JET VELOCITY	128

PRESSURE BREAKDOWN:

SURFACE	61.6		
STRING	970.7		
BIT	1561.3		
ANNULUS	25.5		
TOTAL	2619.0	PUMP PRESSURE	2700.0
		% DIFFERENCE	3.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.90	HYDROSTATIC PRESSURE 2702.4
CIRCULATING:	ECD 9.99	CIRCULATING PRESSURE 2727.8
PULLING OUT:	TRIP MARGIN 0.19	ESTIMATED SWAB 50.9
	EFFECTIVE MUD WEIGHT 9.71	BOTTOM HOLE PRESSURE 2651.4

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1700.0 AND TVD 1700.0

SPM 1 78 SPM 2 71 FLOW RATE 745

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	65	111	LAMINAR	1	64	5.0
HWDP/OH	0.398	33	45	99	LAMINAR	0	44	1.3
DP/OH	0.398	252	45	99	LAMINAR	0	44	10.1
DP/CSG	0.427	330	41	98	LAMINAR	0	41	11.0
DP/RIS	1.325	125	13	84	LAMINAR	0	13	0.3
TOTAL VOLUME		772			TOTAL PRESSURE DROP		27.6	

LAG: 43.5 MINUTES 3396 STROKES #1 AND 3091 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1582.5	HHP	688	IMPACT FORCE	1613
% SURFACE PRESSURE	58.6	HHP/sgin	5.83	JET VELOCITY	128

PRESSURE BREAKDOWN:

SURFACE	61.3		
STRING	1000.9		
BIT	1582.5		
ANNULUS	27.6		
TOTAL	2672.2	PUMP PRESSURE	2700.0
		% DIFFERENCE	1.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.90	HYDROSTATIC PRESSURE 2871.3
CIRCULATING:	ECD 10.00	CIRCULATING PRESSURE 2898.9
PULLING OUT:	TRIP MARGIN 0.19	ESTIMATED SWAB 55.2
	EFFECTIVE MUD WEIGHT 9.71	BOTTOM HOLE PRESSURE 2816.0

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1800.0 AND TVD 1800.0

SPM 1 75 SPM 2 66 FLOW RATE 700

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	35	61	106	LAMINAR	1	60	4.8
HWDP/OH	0.398	33	42	93	LAMINAR	0	42	1.1
DP/OH	0.398	289	42	93	LAMINAR	0	42	10.1
DP/CSG	0.427	330	39	92	LAMINAR	0	39	9.7
DP/RIS	1.325	125	13	77	LAMINAR	0	13	0.2
TOTAL VOLUME		811	TOTAL PRESSURE DROP			26.0		

LAG: 48.7 MINUTES 3626 STROKES #1 AND 3188 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1665.5 HHP 680 IMPACT FORCE 1555
 % SURFACE PRESSURE 60.6 HHP/sqin 5.77 JET VELOCITY 132

PRESSURE BREAKDOWN:

SURFACE 55.7
 STRING 960.4
 BIT 1665.5
 ANNULUS 26.0
 TOTAL 2707.7 PUMP PRESSURE 2750.0 % DIFFERENCE 1.5

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.90	HYDROSTATIC PRESSURE 3040.1
CIRCULATING:	ECD 9.98	CIRCULATING PRESSURE 3066.2
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 52.1
	EFFECTIVE MUD WEIGHT 9.73	BOTTOM HOLE PRESSURE 2988.1

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1900.0 AND TVD 1900.0

SPM 1 78 SPM 2 70 FLOW RATE 738

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	35	64	107	LAMINAR	1	63	5.0
HWDP/OH	0.398	33	44	95	LAMINAR	0	44	1.2
DP/OH	0.398	329	44	95	LAMINAR	0	44	12.1
DP/CSG	0.427	330	41	94	LAMINAR	0	41	10.2
DP/RIS	1.325	125	13	79	LAMINAR	0	13	0.2

TOTAL VOLUME	851	TOTAL PRESSURE DROP	28.7
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LAG: 48.4 MINUTES 3754 STROKES #1 AND 3394 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1850.6	HHP	796	IMPACT FORCE	1728
% SURFACE PRESSURE	64.9	HHP/sqin	6.76	JET VELOCITY	139

PRESSURE BREAKDOWN:

SURFACE	60.2		
STRING	1072.5		
BIT	1850.6		
ANNULUS	28.7		
TOTAL	3012.0	PUMP PRESSURE	2850.0
		% DIFFERENCE	5.7

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.90	HYDROSTATIC PRESSURE 3209.0
CIRCULATING:	ECD 9.99	CIRCULATING PRESSURE 3237.7
PULLING OUT:	TRIP MARGIN 0.18	ESTIMATED SWAB 57.4
	EFFECTIVE MUD WEIGHT 9.72	BOTTOM HOLE PRESSURE 3151.7

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2000.0 AND TVD 2000.0

SPM 1 70 SPM 2 64 FLOW RATE 670

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	35	58	97	LAMINAR	1	57	4.1
HWDP/OH	0.398	33	40	84	LAMINAR	0	40	1.0
DP/OH	0.398	368	40	84	LAMINAR	0	40	11.0
DP/CSG	0.427	330	37	83	LAMINAR	0	37	8.2
DP/RIS	1.325	125	12	69	LAMINAR	0	12	0.2
TOTAL VOLUME		890			TOTAL PRESSURE DROP		24.4	

LAG: 55.8 MINUTES 3897 STROKES #1 AND 3586 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1542.9	HHP	603	IMPACT FORCE	1441
% SURFACE PRESSURE	56.1	HHP/sqin	5.12	JET VELOCITY	126

PRESSURE BREAKDOWN:

SURFACE	51.1		
STRING	939.1		
BIT	1542.9		
ANNULUS	24.4		
TOTAL	2557.5	PUMP PRESSURE	2750.0
		% DIFFERENCE	7.0

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 10.00	HYDROSTATIC PRESSURE 3412.1
CIRCULATING:	ECD 10.07	CIRCULATING PRESSURE 3436.5
PULLING OUT:	TRIP MARGIN 0.14	ESTIMATED SWAB 48.9
	EFFECTIVE MUD WEIGHT 9.86	BOTTOM HOLE PRESSURE 3363.2

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2100.0 AND TVD 2100.0

SPM 1 70 SPM 2 70 FLOW RATE 700

ANNULAR HYDRAULICS:

ANNULUS TYPE	VOL/UNIT	VOL	ANN VEL	CRIT VEL	TYPE OF FLOW	SLIP VEL	ASCEND VEL	PRESSURE DROP
DC/OH	0.274	35	61	107	LAMINAR	1	60	4.9
HWDP/OH	0.398	33	42	95	LAMINAR	0	42	1.2
DP/OH	0.398	408	42	95	LAMINAR	0	42	14.6
DP/CSG	0.427	330	39	94	LAMINAR	0	39	9.9
DP/RIS	1.325	125	13	79	LAMINAR	0	13	0.2
TOTAL VOLUME		930				TOTAL PRESSURE DROP		30.8

LAG: 55.8 MINUTES 3909 STROKES #1 AND 3909 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP	1665.5	HHP	680	IMPACT FORCE	1555
% SURFACE PRESSURE	59.5	HHP/sqin	5.77	JET VELOCITY	132

PRESSURE BREAKDOWN:

SURFACE	54.8		
STRING	1038.5		
BIT	1665.5		
ANNULUS	30.8		
TOTAL	2789.6	PUMP PRESSURE	2800.0
		% DIFFERENCE	0.4

BOTTOM HOLE PRESSURES:

	DENSITY UNITS	PRESSURE UNITS
NOT CIRCULATING:	MUD WEIGHT 9.90	HYDROSTATIC PRESSURE 3546.8
CIRCULATING:	ECD 9.99	CIRCULATING PRESSURE 3577.6
PULLING OUT:	TRIP MARGIN 0.17	ESTIMATED SWAB 61.6
	EFFECTIVE MUD WEIGHT 9.73	BOTTOM HOLE PRESSURE 3485.2

(c) COMPUTER DATA LISTING : LIST A

INTERVAL All depth records (data not averaged)

DEPTH. Well depth, in metres

ROP. Rate of penetration; in metres/hour

WOB. Weight on bit, in thousands of pounds

RPM. Rotary speed, in revolutions per minute

MW Mud weight in, in pounds per gallon

"dc" Calculated "d" exponent, corrected
for variations in mud weight in,
using a correction factor of 10 ppg

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

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	1	IADC CODE	111	INTERVAL	94.0- 229.0
HTC OSC 3AJ		SIZE	26.000	NOZZLES	20 20 20
COST	7000.00	TRIP TIME	1.8	BIT RUN	135.0
TOTAL HOURS	1.41	TOTAL TURNS	6963	CONDITION	T2 B2 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
100.0	180.0	10.0	86	8.6	0.47	0.03	172	24	2507	8.5	10.9
105.0	155.0	11.0	90	8.6	0.52	0.07	346	28	1380	8.5	10.9
110.0	160.0	9.0	86	8.6	0.48	0.10	507	27.42	957.59	8.5	11.0
115.0	165.0	9.0	86	8.6	0.48	0.13	664	26.59	735.92	8.5	11.0
120.0	165.0	9.0	86	8.6	0.48	0.16	820	26.59	599.51	8.5	11.0
125.0	180.0	10.0	86	8.6	0.47	0.19	964	24.37	506.75	8.5	11.0
130.0	242.0	10.0	90	8.6	0.41	0.21	1075	18.13	438.88	8.5	11.0
135.0	222.0	13.0	90	8.6	0.46	0.23	1197	19.76	387.77	8.5	11.1
140.0	160.0	14.0	86	8.6	0.53	0.26	1358	27.42	348.60	8.5	11.1
145.0	155.0	11.0	86	8.6	0.51	0.29	1524	28.30	317.20	8.5	11.1
150.0	130.0	12.0	86	8.6	0.56	0.33	1723	33.75	291.89	8.5	11.1
155.0	37.0	3.0	83	8.6	0.66	0.47	2396	118.57	277.69	8.5	11.1
160.0	34.0	2.0	84	8.6	0.63	0.61	3137	129.03	266.42	8.5	11.2
165.0	87.0	3.0	82	8.6	0.50	0.67	3420	50.43	251.21	8.5	11.2
170.0	160.0	6.0	82	8.6	0.44	0.70	3574	27.42	236.49	8.5	11.2
175.0	220.0	6.0	82	8.6	0.38	0.72	3685	19.94	223.12	8.5	11.2
180.0	180.0	6.0	82	8.6	0.42	0.75	3822	24.37	211.57	8.5	11.2
185.0	220.0	6.0	82	8.6	0.38	0.77	3934	19.94	201.04	8.5	11.3
190.0	185.0	6.0	82	8.6	0.41	0.80	4067	23.71	191.80	8.5	11.3
195.0	50.0	6.0	82	8.6	0.67	0.90	4559	87.74	186.65	8.5	11.3
200.0	99.0	5.0	82	8.6	0.52	0.95	4807	44.31	179.94	8.5	11.3
205.0	67.0	5.0	82	8.6	0.60	1.03	5174	65.48	174.78	8.5	11.3
210.0	100.0	5.0	82	8.6	0.52	1.08	5420	43.87	169.14	8.5	11.3
215.0	60.0	5.0	77	8.6	0.60	1.16	5805	73.12	165.17	8.5	11.4
220.0	76.0	5.0	77	8.6	0.56	1.23	6109	57.72	160.91	8.5	11.4
225.0	59.0	5.0	77	8.6	0.61	1.31	6501	74.36	157.60	8.5	11.4
229.0	40.0	5.0	77	8.6	0.68	1.41	6963	109.68	156.18	8.5	11.4

381074

BIT NUMBER	2	IADC CODE	111	INTERVAL	229.0- 322.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20 20 20
COST	1850.00	TRIP TIME	2.2	BIT RUN	93.0
TOTAL HOURS	1.45	TOTAL TURNS	12459	CONDITION	T1 B1 G0.000

DEPTH	ROP	WOB	RPM	MW "d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
240.0	75.0	5.0	140	8.7 0.71	0.15	1232	58	1104	8.5	11.5
250.0	84.0	7.0	150	8.7 0.75	0.27	2303	52.23	603.19	8.5	11.5
260.0	58.0	7.0	150	8.7 0.83	0.44	3855	75.64	433.02	8.5	11.5
270.0	79.0	7.0	148	8.7 0.76	0.56	4979	55.53	340.95	8.5	11.6
280.0	65.0	6.0	145	8.7 0.78	0.72	6318	67.49	287.33	8.5	11.6
290.0	53.0	7.0	145	8.7 0.84	0.91	7959	82.77	253.79	8.5	11.6
300.0	65.0	7.0	140	8.7 0.79	1.06	9251	67.49	227.55	8.5	11.7
312.0	65.0	8.0	139	8.7 0.81	1.25	10791	67.49	204.41	8.5	11.7
322.0	50.0	7.0	139	8.7 0.85	1.45	12459	87.74	191.87	8.5	11.7

381075

BIT NUMBER	2	IADC CODE	111	INTERVAL	322.0- 880.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20.20 20
COST	1850.00	TRIP TIME	4.2	BIT RUN	558.0
TOTAL HOURS	8.44	TOTAL TURNS	77605	CONDITION	T1 B3 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
323.0	48.0	4.0	150	8.7	0.79	1.47	12647	91.40	284.34	8.5	11.8
328.0	48.0	4.0	150	8.7	0.79	1.58	13584	91.40	274.60	8.5	11.8
337.0	112.0	5.0	155	8.7	0.65	1.66	14331	39.17	254.98	8.5	11.8
347.0	127.0	7.0	154	8.7	0.67	1.73	15059	34.54	236.30	8.5	11.8
355.0	112.0	5.0	152	8.7	0.65	1.81	15710	39.17	223.78	8.5	11.9
365.0	37.0	5.0	155	8.7	0.88	2.08	18224	118.57	216.04	8.5	11.9
375.0	71.0	2.0	144	8.8	0.62	2.22	19441	61.79	205.48	8.5	11.9
385.0	22.0	2.0	145	8.9	0.82	2.67	23395	199.41	205.09	8.5	12.0
395.0	56.0	4.0	145	9.0	0.73	2.85	24949	78.34	197.45	8.5	12.0
405.0	118.0	9.0	144	9.0	0.68	2.93	25681	37.18	188.35	8.5	12.0
415.0	91.0	8.0	147	9.0	0.72	3.04	26650	48.21	180.81	8.5	12.1
425.0	109.0	9.0	140	9.0	0.69	3.14	27421	40.25	173.64	8.5	12.1
435.0	62.0	8.0	140	9.0	0.79	3.30	28776	70.76	168.65	8.5	12.1
445.0	41.0	8.0	140	9.0	0.88	3.54	30825	107.00	165.79	8.5	12.2
455.0	123.0	9.0	140	9.0	0.66	3.62	31507	35.67	160.03	8.5	12.2
460.0	112.0	10.0	140	9.0	0.70	3.67	31882	39.17	157.42	8.5	12.2
470.0	94.0	10.0	142	9.0	0.74	3.77	32789	46.67	152.82	8.5	12.2
480.0	93.0	10.0	145	9.0	0.75	3.88	33724	47.17	148.61	8.5	12.3
490.0	159.0	8.0	145	9.0	0.60	3.94	34271	27.59	143.98	8.5	12.3
500.0	103.0	10.0	145	9.0	0.72	4.04	35116	42.59	140.24	8.5	12.3
510.0	47.0	15.0	145	9.0	0.98	4.25	36967	93.34	138.57	8.5	12.4
520.0	127.0	20.0	145	9.0	0.79	4.33	37652	34.54	134.99	8.5	12.4
530.0	95.0	20.0	145	9.0	0.86	4.44	38568	46.18	132.04	8.5	12.4
540.0	161.0	20.0	145	9.1	0.72	4.50	39108	27.25	128.67	8.5	12.5
550.0	146.0	20.0	145	9.2	0.73	4.57	39704	30.05	125.60	8.5	12.5
560.0	156.0	20.0	145	9.2	0.72	4.63	40262	28.12	122.65	8.5	12.5
565.0	150.0	20.0	145	9.2	0.73	4.67	40552	29.25	121.26	8.5	12.5
575.0	108.0	20.0	140	9.2	0.80	4.76	41330	40.62	118.93	8.5	12.6
585.0	135.0	25.0	140	9.2	0.79	4.83	41952	32.50	116.51	8.5	12.6
590.0	145.0	25.0	140	9.2	0.77	4.87	42242	30.26	115.31	8.5	12.6
600.0	108.0	25.0	140	9.2	0.85	4.96	43019	40.62	113.30	8.5	12.6
610.0	135.0	25.0	140	9.2	0.79	5.03	43642	32.50	111.18	8.5	12.7
620.0	180.0	25.0	140	9.2	0.71	5.09	44108	24.37	108.96	8.5	12.7
630.0	60.0	20.0	145	9.2	0.96	5.26	45558	73.12	108.06	8.5	12.7
640.0	41.0	20.0	145	9.2	1.06	5.50	47680	107.00	108.04	8.5	12.7
650.0	47.0	20.0	170	9.2	1.06	5.71	49850	93.34	107.69	8.5	12.8
660.0	91.0	20.0	180	9.2	0.91	5.82	51037	48.21	106.31	8.5	12.8
670.0	94.0	20.0	190	9.2	0.91	5.93	52250	46.67	104.96	8.5	12.8
680.0	80.0	25.0	170	9.1	0.99	6.05	53525	54.84	103.85	8.5	12.9
690.0	108.0	25.0	178	9.0	0.93	6.15	54514	40.62	102.47	8.5	12.9
700.0	82.0	25.0	160	9.0	0.98	6.27	55685	53.50	101.43	8.5	12.9
710.0	92.0	25.0	160	9.0	0.95	6.38	56728	47.68	100.32	8.5	12.9
720.0	90.0	25.0	169	9.0	0.97	6.49	57855	48.74	99.27	8.5	13.0

381076

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
730.0	82.0	25.0	170	9.0	0.99	6.61	59099	53.50	98.35	8.5	13.0
735.0	73.0	25.0	170	9.0	1.03	6.68	59797	60.10	97.97	8.5	13.0
745.0	68.0	25.0	170	9.0	1.04	6.83	61297	64.51	97.33	8.5	13.0
755.0	113.0	25.0	164	9.0	0.90	6.91	62168	38.82	96.21	8.5	13.1
765.0	43.0	25.0	165	9.0	1.16	7.15	64470	102.02	96.32	8.5	13.1
775.0	71.0	25.0	165	9.0	1.02	7.29	65865	61.79	95.69	8.5	13.1
785.0	84.0	25.0	165	9.0	0.98	7.41	67043	52.23	94.91	8.5	13.1
790.0	84.0	30.0	165	9.0	1.02	7.47	67633	52.23	94.53	8.5	13.1
800.0	71.0	25.0	170	9.0	1.03	7.61	69069	61.79	93.95	8.5	13.2
810.0	95.0	25.0	164	9.0	0.94	7.71	70105	46.18	93.13	8.5	13.2
820.0	120.0	25.0	170	9.0	0.89	7.80	70955	36.56	92.17	8.5	13.2
830.0	102.0	25.0	175	9.0	0.94	7.89	71985	43.01	91.36	8.5	13.2
840.0	104.0	25.0	175	9.0	0.94	7.99	72994	42.18	90.55	8.5	13.3
850.0	145.0	25.0	175	9.0	0.85	8.06	73718	30.26	89.58	8.5	13.3
860.0	71.0	25.0	175	9.0	1.04	8.20	75197	61.79	89.14	8.5	13.3
870.0	57.0	25.0	170	9.0	1.09	8.38	76987	76.96	88.95	8.5	13.3
880.0	165.0	30.0	170	9.0	0.84	8.44	77605	26.59	87.99	8.5	13.4

381077

BIT NUMBER	3	IADC CODE	114	INTERVAL	880.0- 886.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	4.2	BIT RUN	6.0
TOTAL HOURS	0.07	TOTAL TURNS	400	CONDITION	T1 B1 G0.000

DEPTH	ROP	WOB	RPM	MW "d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
886.0	90.0	10.0	100	9.1 0.72	0.07	400	49	3351	8.5	13.4

381078

BIT NUMBER	4	IADC CODE	114	INTERVAL	886.0- 1333.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	5.8	BIT RUN	447.0
TOTAL HOURS	6.63	TOTAL TURNS	64955	CONDITION	T4 B2 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
887.0	120.0	15.0	65	9.0	0.60	0.01	33	37	26869	8.5	13.4
890.0	63.0	15.0	140	9.0	0.98	0.06	433	70	6770	8.5	13.4
895.0	84.0	20.0	140	9.0	0.97	0.12	933	52	3038	8.5	13.4
900.0	85.0	30.0	145	8.9	1.10	0.17	1444	52	1971	8.5	13.4
905.0	95.0	30.0	150	8.9	1.07	0.23	1918	46	1465	8.5	13.4
910.0	69.0	30.0	145	8.9	1.16	0.30	2548	64	1173	8.5	13.4
915.0	90.0	30.0	142	8.9	1.07	0.35	3022	48.74	978.96	8.5	13.5
920.0	53.0	30.0	145	8.9	1.25	0.45	3842	82.77	847.17	8.5	13.5
925.0	79.0	30.0	150	8.9	1.13	0.51	4412	55.53	745.67	8.5	13.5
930.0	63.0	30.0	160	8.9	1.22	0.59	5174	69.63	668.85	8.5	13.5
935.0	56.0	30.0	160	8.9	1.26	0.68	6031	78.34	608.60	8.5	13.5
940.0	81.0	30.0	160	8.9	1.14	0.74	6624	54.16	557.26	8.5	13.5
945.0	73.0	30.0	160	8.9	1.18	0.81	7281	60.10	515.13	8.5	13.5
950.0	33.0	35.0	160	8.9	1.49	0.96	8736	132.94	485.27	8.5	13.5
955.0	46.0	40.0	160	9.0	1.42	1.07	9779	95.37	457.01	8.5	13.5
960.0	40.0	40.0	165	9.0	1.48	1.20	11017	109.68	433.55	8.5	13.6
965.0	82.0	45.0	170	9.0	1.29	1.26	11639	53.50	409.49	8.5	13.6
970.0	50.0	45.0	171	9.0	1.47	1.36	12665	87.74	390.34	8.5	13.6
975.0	68.0	45.0	164	9.0	1.35	1.43	13388	64.51	372.04	8.5	13.6
980.0	65.0	45.0	164	9.0	1.36	1.51	14145	67.49	355.84	8.5	13.6
985.0	54.0	45.0	170	9.0	1.44	1.60	15090	81.24	341.97	8.5	13.6
990.0	45.0	46.0	170	9.0	1.52	1.71	16223	97.49	330.21	8.5	13.6
995.0	90.0	46.0	170	8.9	1.28	1.77	16790	48.74	317.30	8.5	13.6
1000.0	91.0	46.0	171	8.9	1.28	1.82	17353	48.21	305.50	8.5	13.6
1005.0	68.0	44.0	170	8.9	1.37	1.90	18103	64.51	295.37	8.5	13.7
1010.0	86.0	44.0	171	8.9	1.28	1.95	18700	51.01	285.52	8.5	13.7
1015.0	90.0	45.0	171	8.9	1.28	2.01	19270	48.74	276.34	8.5	13.7
1020.0	95.0	44.0	170	8.9	1.25	2.06	19807	46.18	267.76	8.5	13.7
1025.0	90.0	45.0	170	8.9	1.27	2.12	20373	48.74	259.88	8.5	13.7
1030.0	128.0	46.0	171	8.9	1.16	2.16	20774	34.27	252.04	8.5	13.7
1035.0	92.0	45.0	170	8.9	1.27	2.21	21329	47.68	245.19	8.5	13.7
1040.0	45.0	45.0	170	8.9	1.52	2.32	22462	97.49	240.39	8.5	13.7
1045.0	68.0	45.0	170	8.9	1.38	2.40	23212	64.51	234.86	8.5	13.7
1050.0	90.0	45.0	170	8.9	1.27	2.45	23779	48.74	229.19	8.5	13.8
1055.0	130.0	41.0	169	8.9	1.11	2.49	24169	33.75	223.40	8.5	13.8
1060.0	125.0	42.0	170	8.9	1.13	2.53	24577	35.10	217.99	8.5	13.8
1065.0	47.0	45.0	170	8.9	1.51	2.64	25662	93.34	214.51	8.5	13.8
1070.0	270.0	46.0	170	8.9	0.89	2.65	25851	16.25	209.12	8.5	13.8
1075.0	90.0	45.0	170	8.9	1.27	2.71	26417	48.74	204.88	8.5	13.8
1080.0	250.0	45.0	170	8.9	0.91	2.73	26621	17.55	200.05	8.5	13.8
1085.0	135.0	44.0	170	8.9	1.12	2.77	26999	32.50	195.84	8.5	13.8
1090.0	90.0	42.0	168	8.9	1.24	2.82	27559	48.74	192.24	8.5	13.8
1095.0	97.0	46.0	168	8.9	1.25	2.87	28079	45.23	188.72	8.5	13.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1100.0	84.0	43.0	170	8.9	1.28	2.93	28686	52.23	185.53	8.5	13.9
1105.0	130.0	44.0	169	8.9	1.13	2.97	29076	33.75	182.07	8.5	13.9
1110.0	96.0	46.0	170	8.9	1.26	3.02	29607	45.70	179.02	8.5	13.9
1115.0	135.0	45.0	170	8.9	1.13	3.06	29985	32.50	175.82	8.5	13.9
1120.0	89.0	45.0	166	8.9	1.27	3.12	30544	49.29	173.12	8.5	13.9
1125.0	138.0	44.0	168	8.9	1.11	3.15	30909	31.79	170.16	8.5	13.9
1130.0	79.0	46.0	165	8.9	1.32	3.22	31536	55.53	167.81	8.5	13.9
1135.0	82.0	45.0	160	8.9	1.29	3.28	32121	53.50	165.52	8.5	13.9
1140.0	89.0	45.0	155	8.9	1.25	3.33	32644	49.29	163.23	8.5	13.9
1145.0	91.0	44.0	155	8.9	1.23	3.39	33155	48.21	161.01	8.5	14.0
1150.0	126.0	48.0	155	8.9	1.14	3.43	33524	34.82	158.62	8.5	14.0
1155.0	135.0	45.0	160	8.9	1.11	3.47	33880	32.50	156.27	8.5	14.0
1160.0	86.0	45.0	160	8.9	1.27	3.52	34438	51.01	154.35	8.5	14.0
1165.0	90.0	45.0	160	8.9	1.25	3.58	34971	48.74	152.46	8.5	14.0
1170.0	96.0	45.0	164	8.9	1.24	3.63	35483	45.70	150.58	8.5	14.0
1175.0	89.0	45.0	164	9.0	1.25	3.69	36036	49.29	148.83	8.5	14.0
1180.0	68.0	45.0	165	9.0	1.35	3.76	36764	64.51	147.40	8.5	14.0
1185.0	130.0	45.0	165	9.0	1.12	3.80	37145	33.75	145.49	8.5	14.0
1190.0	126.0	45.0	166	9.0	1.13	3.84	37540	34.82	143.67	8.5	14.0
1195.0	65.0	45.0	166	9.0	1.37	3.92	38306	67.49	142.44	8.5	14.1
1200.0	89.0	45.0	165	9.0	1.25	3.97	38863	49.29	140.96	8.5	14.1
1205.0	65.0	45.0	165	9.0	1.37	4.05	39624	67.49	139.81	8.5	14.1
1210.0	60.0	45.0	166	9.0	1.40	4.13	40454	73.12	138.78	8.5	14.1
1215.0	66.0	45.0	166	9.0	1.36	4.21	41209	66.47	137.68	8.5	14.1
1220.0	61.0	45.0	165	9.0	1.39	4.29	42020	71.92	136.69	8.5	14.1
1225.0	56.0	45.0	165	9.0	1.42	4.38	42904	78.34	135.83	8.5	14.1
1230.0	54.0	45.0	165	9.0	1.43	4.47	43821	81.24	135.04	8.5	14.1
1235.0	52.0	45.0	165	9.0	1.45	4.57	44773	84.37	134.31	8.5	14.1
1240.0	30.0	45.0	164	9.0	1.64	4.74	46413	146.23	134.48	8.5	14.1
1245.0	43.0	45.0	170	9.0	1.52	4.85	47599	102.02	134.03	8.5	14.1
1250.0	68.0	45.0	170	9.0	1.36	4.93	48349	64.51	133.08	8.5	14.2
1255.0	39.0	45.0	160	9.0	1.54	5.05	49579	112.49	132.80	8.5	14.2
1260.0	45.0	45.0	165	9.0	1.50	5.16	50679	97.49	132.32	8.5	14.2
1265.0	60.0	45.0	165	9.0	1.39	5.25	51504	73.12	131.54	8.5	14.2
1270.0	45.0	45.0	166	9.0	1.50	5.36	52611	97.49	131.10	8.5	14.2
1275.0	63.0	45.0	166	9.0	1.38	5.44	53402	69.63	130.31	8.5	14.2
1280.0	42.0	45.0	166	9.0	1.52	5.56	54587	104.45	129.98	8.5	14.2
1285.0	65.0	45.0	166	9.0	1.37	5.63	55353	67.49	129.20	8.5	14.2
1290.0	52.0	47.0	166	9.0	1.47	5.73	56311	84.37	128.64	8.5	14.2
1295.0	45.0	47.0	166	9.0	1.52	5.84	57418	97.49	128.26	8.5	14.2
1300.0	65.0	45.0	160	9.0	1.36	5.92	58156	67.49	127.53	8.5	14.3
1305.0	54.0	45.0	160	9.0	1.42	6.01	59045	81.24	126.98	8.5	14.3
1310.0	50.0	45.0	160	9.0	1.45	6.11	60005	87.74	126.51	8.5	14.3
1315.0	26.0	45.0	160	9.0	1.68	6.30	61851	168.73	127.01	8.5	14.3
1320.0	64.0	45.0	160	9.0	1.36	6.38	62601	68.55	126.33	8.5	14.3
1325.0	61.0	45.0	160	9.0	1.38	6.46	63388	71.92	125.71	8.5	14.3
1330.0	42.0	45.0	160	9.0	1.51	6.58	64531	104.45	125.47	8.5	14.3
1333.0	68.0	45.0	160	9.0	1.34	6.63	64955	64.51	125.06	8.5	14.3

381080

BIT NUMBER	5	IADC CODE	114	INTERVAL	1333.0- 1742.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	7.3	BIT RUN	409.0
TOTAL HOURS	19.41	TOTAL TURNS	184180	CONDITION	T7 B8 G0.i25

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1335.0	32.0	20.0	155	9.9	1.15	0.06	581	137	16844	8.5	14.3
1340.0	28.0	22.0	155	9.9	1.22	0.24	2242	157	4924	8.5	14.3
1345.0	27.0	21.0	152	9.9	1.21	0.43	3931	162	2940	8.5	14.3
1350.0	27.0	22.0	155	9.9	1.23	0.61	5653	162	2123	8.5	14.3
1355.0	23.0	24.0	160	9.7	1.33	0.83	7740	191	1684	8.5	14.4
1360.0	24.0	25.0	155	9.8	1.31	1.04	9678	183	1406	8.5	14.4
1365.0	27.0	25.0	155	10.0	1.25	1.22	11400	162	1212	8.5	14.4
1370.0	27.0	25.0	155	10.1	1.24	1.41	13122	162	1070	8.5	14.4
1375.0	27.0	25.0	155	10.1	1.24	1.59	14844	162.48	961.91	8.5	14.4
1380.0	30.0	25.0	162	10.0	1.24	1.76	16464	146.23	875.14	8.5	14.4
1385.0	26.0	25.0	160	10.0	1.27	1.95	18310	168.73	807.22	8.5	14.4
1390.0	40.0	25.0	160	10.0	1.16	2.08	19510	109.68	746.03	8.5	14.4
1391.0	35.0	25.0	160	10.0	1.19	2.11	19785	125.34	735.33	8.5	14.4
1392.0	27.0	25.0	160	10.0	1.26	2.14	20140	162.48	725.62	8.5	14.4
1393.0	30.0	25.0	160	10.0	1.23	2.18	20460	146.23	715.96	8.5	14.4
1394.0	60.0	25.0	160	10.0	1.05	2.19	20620	73.12	705.42	8.5	14.4
1395.0	60.0	25.0	160	10.0	1.05	2.21	20780	73.12	695.22	8.5	14.4
1396.0	65.0	25.0	160	10.0	1.03	2.22	20928	67.49	685.26	8.5	14.4
1397.0	80.0	25.0	160	10.0	0.97	2.24	21048	54.84	675.41	8.5	14.4
1398.0	19.0	25.0	160	10.0	1.36	2.29	21553	230.89	668.57	8.5	14.4
1399.0	80.0	25.0	160	10.0	0.97	2.30	21673	54.84	659.27	8.5	14.4
1400.0	60.0	25.0	160	10.0	1.05	2.32	21833	73.12	650.52	8.5	14.4
1401.0	65.0	25.0	158	10.0	1.02	2.33	21979	67.49	641.95	8.5	14.4
1402.0	89.0	25.0	158	10.0	0.94	2.35	22086	49.29	633.36	8.5	14.4
1403.0	110.0	25.0	158	10.0	0.88	2.35	22172	39.88	624.88	8.5	14.4
1404.0	130.0	25.0	160	10.0	0.84	2.36	22246	33.75	616.56	8.5	14.4
1405.0	165.0	25.0	160	10.0	0.78	2.37	22304	26.59	608.36	8.5	14.4
1406.0	190.0	25.0	160	10.0	0.74	2.37	22354	23.09	600.34	8.5	14.4
1407.0	285.0	25.0	160	10.0	0.63	2.38	22388	15.39	592.44	8.5	14.4
1408.0	260.0	25.0	160	10.0	0.65	2.38	22425	16.87	584.77	8.5	14.4
1409.0	48.0	25.0	160	10.0	1.11	2.40	22625	91.40	578.27	8.5	14.4
1410.0	60.0	25.0	160	10.0	1.05	2.42	22785	73.12	571.71	8.5	14.4
1411.0	46.0	25.0	160	10.0	1.12	2.44	22994	95.37	565.61	8.5	14.4
1412.0	48.0	25.0	160	10.0	1.11	2.46	23194	91.40	559.60	8.5	14.4
1413.0	43.0	25.0	160	10.0	1.14	2.48	23417	102.02	553.88	8.5	14.5
1414.0	25.0	25.0	160	10.0	1.28	2.52	23801	175.48	549.21	8.5	14.5
1415.0	53.0	25.0	163	10.0	1.09	2.54	23985	82.77	543.52	8.5	14.5
1416.0	17.0	25.0	163	10.0	1.39	2.60	24561	258.06	540.08	8.5	14.5
1417.0	104.0	25.0	163	10.0	0.90	2.61	24655	42.18	534.16	8.5	14.5
1418.0	30.0	25.0	163	10.0	1.24	2.64	24981	146.23	529.59	8.5	14.5
1419.0	45.0	25.0	163	10.0	1.13	2.67	25198	97.49	524.57	8.5	14.5
1420.0	54.0	26.0	163	10.0	1.09	2.69	25379	81.24	519.47	8.5	14.5
1421.0	47.0	25.0	164	10.0	1.12	2.71	25588	93.34	514.63	8.5	14.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1422.0	51.0	25.0	164	10.0	1.10	2.73	25781	86.02	509.81	8.5	14.5
1423.0	51.0	25.0	164	10.0	1.10	2.75	25974	86.02	505.11	8.5	14.5
1424.0	25.0	25.0	164	10.0	1.29	2.79	26368	175.48	501.48	8.5	14.5
1425.0	48.0	25.0	164	10.0	1.11	2.81	26573	91.40	497.03	8.5	14.5
1426.0	36.0	25.0	164	10.0	1.19	2.83	26846	121.86	492.99	8.5	14.5
1427.0	51.0	25.0	155	10.0	1.08	2.85	27029	86.02	488.66	8.5	14.5
1428.0	31.0	25.0	155	10.0	1.22	2.89	27329	141.52	485.01	8.5	14.5
1429.0	29.0	25.0	155	10.0	1.24	2.92	27649	151.28	481.53	8.5	14.5
1430.0	30.0	25.0	153	10.0	1.22	2.95	27955	146.23	478.08	8.5	14.5
1431.0	62.0	25.0	153	10.0	1.03	2.97	28103	70.76	473.92	8.5	14.5
1432.0	27.0	25.0	153	10.0	1.25	3.01	28443	162.48	470.77	8.5	14.5
1433.0	23.0	25.0	153	10.0	1.29	3.05	28843	190.74	467.97	8.5	14.5
1434.0	32.0	25.0	153	10.0	1.21	3.08	29129	137.09	464.70	8.5	14.5
1435.0	43.0	25.0	152	10.0	1.12	3.11	29341	102.02	461.14	8.5	14.5
1436.0	44.0	25.0	152	10.0	1.12	3.13	29549	99.70	457.63	8.5	14.5
1437.0	29.0	25.0	152	10.0	1.23	3.16	29863	151.28	454.69	8.5	14.5
1438.0	37.0	25.0	152	10.0	1.16	3.19	30110	118.57	451.49	8.5	14.5
1439.0	38.0	25.0	152	10.0	1.16	3.22	30350	115.45	448.32	8.5	14.5
1440.0	28.0	25.0	154	10.0	1.24	3.25	30680	156.68	445.59	8.5	14.5
1441.0	50.0	25.0	154	10.0	1.09	3.27	30865	87.74	442.28	8.5	14.5
1442.0	29.0	25.0	154	10.0	1.23	3.31	31183	151.28	439.61	8.5	14.5
1443.0	60.0	25.0	154	10.0	1.04	3.32	31337	73.12	436.27	8.5	14.5
1444.0	56.0	25.0	154	10.0	1.06	3.34	31502	78.34	433.05	8.5	14.5
1445.0	44.0	25.0	150	10.0	1.11	3.36	31707	99.70	430.07	8.5	14.5
1446.0	53.0	25.0	150	10.0	1.06	3.38	31877	82.77	427.00	8.5	14.5
1447.0	41.0	25.0	150	10.0	1.13	3.41	32096	107.00	424.19	8.5	14.5
1448.0	28.0	25.0	150	10.0	1.24	3.44	32417	156.68	421.87	8.5	14.5
1449.0	29.0	25.0	150	10.0	1.23	3.48	32728	151.28	419.53	8.5	14.5
1450.0	34.0	25.0	150	10.0	1.18	3.51	32993	129.03	417.05	8.5	14.5
1451.0	64.0	25.0	150	10.0	1.01	3.52	33133	68.55	414.10	8.5	14.5
1452.0	20.0	25.0	150	10.0	1.33	3.57	33583	219.35	412.46	8.5	14.5
1453.0	53.0	25.0	150	10.0	1.06	3.59	33753	82.77	409.71	8.5	14.5
1454.0	50.0	25.0	150	10.0	1.08	3.61	33933	87.74	407.05	8.5	14.5
1455.0	53.0	25.0	150	10.0	1.06	3.63	34103	82.77	404.40	8.5	14.5
1456.0	29.0	25.0	150	10.0	1.23	3.66	34413	151.28	402.34	8.5	14.5
1457.0	50.0	27.0	163	10.0	1.13	3.68	34609	87.74	399.80	8.5	14.5
1458.0	51.0	27.0	163	10.0	1.12	3.70	34800	86.02	397.29	8.5	14.5
1459.0	48.0	27.0	163	10.0	1.14	3.72	35004	91.40	394.86	8.5	14.5
1460.0	48.0	27.0	163	10.0	1.14	3.75	35208	91.40	392.47	8.5	14.5
1461.0	28.0	27.0	163	10.0	1.28	3.78	35557	156.68	390.63	8.5	14.5
1462.0	60.0	27.0	163	10.0	1.08	3.80	35720	73.12	388.17	8.5	14.5
1463.0	51.0	27.0	163	10.0	1.12	3.82	35912	86.02	385.84	8.5	14.5
1464.0	49.0	27.0	163	10.0	1.13	3.84	36112	89.53	383.58	8.5	14.5
1465.0	38.0	27.0	163	10.0	1.20	3.86	36369	115.45	381.55	8.5	14.5
1466.0	49.0	27.0	163	10.0	1.13	3.88	36569	89.53	379.36	8.5	14.5
1467.0	40.0	27.0	163	10.0	1.19	3.91	36813	109.68	377.34	8.5	14.5
1468.0	45.0	27.0	163	10.0	1.15	3.93	37030	97.49	375.27	8.5	14.5
1469.0	45.0	27.0	163	10.0	1.15	3.95	37248	97.49	373.23	8.5	14.5
1470.0	38.0	26.0	164	10.0	1.19	3.98	37507	115.45	371.35	8.5	14.5
1471.0	41.0	26.0	164	10.0	1.17	4.00	37747	107.00	369.43	8.5	14.5

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1472.0	40.0	26.0	164	10.0	1.18	4.03	37993	109.68	367.56	8.5	14.5
1473.0	40.0	26.0	164	10.0	1.18	4.05	38239	109.68	365.72	8.5	14.6
1474.0	39.0	26.0	164	10.0	1.18	4.08	38491	112.49	363.92	8.5	14.6
1475.0	50.0	26.0	164	10.0	1.12	4.10	38688	87.74	361.98	8.5	14.6
1476.0	47.0	26.0	164	10.0	1.13	4.12	38897	93.34	360.10	8.5	14.6
1477.0	50.0	26.0	164	10.0	1.12	4.14	39094	87.74	358.21	8.5	14.6
1478.0	40.0	26.0	164	10.0	1.18	4.17	39340	109.68	356.50	8.5	14.6
1479.0	47.0	26.0	164	10.0	1.13	4.19	39549	93.34	354.69	8.5	14.6
1480.0	41.0	28.0	165	10.0	1.20	4.21	39791	107.00	353.01	8.5	14.6
1481.0	30.0	28.0	165	10.0	1.28	4.25	40121	146.23	351.61	8.5	14.6
1482.0	56.0	28.0	165	10.0	1.11	4.26	40298	78.34	349.78	8.5	14.6
1483.0	48.0	28.0	165	10.0	1.15	4.28	40504	91.40	348.05	8.5	14.6
1484.0	38.0	28.0	165	10.0	1.22	4.31	40764	115.45	346.51	8.5	14.6
1485.0	40.0	30.0	164	10.0	1.22	4.34	41010	109.68	344.96	8.5	14.6
1486.0	41.0	30.0	164	10.0	1.22	4.36	41250	107.00	343.40	8.5	14.6
1487.0	40.0	30.0	164	10.0	1.22	4.38	41496	109.68	341.88	8.5	14.6
1488.0	19.0	25.0	165	10.0	1.37	4.44	42017	230.89	341.17	8.5	14.6
1489.0	20.0	25.0	165	10.0	1.35	4.49	42512	219.35	340.39	8.5	14.6
1490.0	28.0	25.0	165	10.0	1.26	4.52	42866	156.68	339.22	8.5	14.6
1491.0	57.0	25.0	165	10.0	1.07	4.54	43040	76.96	337.56	8.5	14.6
1492.0	54.0	25.0	165	10.0	1.08	4.56	43223	81.24	335.94	8.5	14.6
1493.0	19.0	25.0	165	10.0	1.37	4.61	43744	230.89	335.29	8.5	14.6
1494.0	40.0	25.0	165	10.0	1.17	4.64	43992	109.68	333.89	8.5	14.6
1495.0	45.0	25.0	165	10.0	1.13	4.66	44212	97.49	332.43	8.5	14.6
1496.0	48.0	25.0	165	10.0	1.12	4.68	44418	91.40	330.95	8.5	14.6
1497.0	43.0	25.0	165	10.0	1.15	4.70	44648	102.02	329.55	8.5	14.6
1498.0	39.0	25.0	165	10.0	1.17	4.73	44902	112.49	328.24	8.5	14.6
1499.0	51.0	25.0	165	10.0	1.10	4.75	45096	86.02	326.78	8.5	14.6
1500.0	42.0	20.0	168	10.0	1.09	4.77	45336	104.45	325.45	8.5	14.6
1501.0	40.0	20.0	168	10.0	1.10	4.80	45588	109.68	324.16	8.5	14.6
1502.0	40.0	20.0	168	10.0	1.10	4.82	45840	109.68	322.89	8.5	14.6
1503.0	23.0	20.0	168	10.0	1.24	4.87	46278	190.74	322.11	8.5	14.6
1504.0	24.0	15.0	168	10.0	1.15	4.91	46698	182.79	321.30	8.5	14.6
1505.0	14.0	15.0	168	10.0	1.28	4.98	47418	313.36	321.25	8.5	14.6
1506.0	29.0	15.0	168	10.0	1.10	5.01	47766	151.28	320.27	8.5	14.6
1507.0	26.0	15.0	168	10.0	1.13	5.05	48154	168.73	319.40	8.5	14.6
1508.0	26.0	15.0	168	10.0	1.13	5.09	48541	168.73	318.54	8.5	14.6
1509.0	19.0	15.0	168	10.0	1.21	5.14	49072	230.89	318.04	8.5	14.6
1510.0	25.0	15.0	168	10.0	1.14	5.18	49475	175.48	317.24	8.5	14.6
1511.0	15.0	15.0	168	10.0	1.26	5.25	50147	292.47	317.10	8.5	14.6
1512.0	17.0	15.0	168	10.0	1.23	5.31	50740	258.06	316.77	8.5	14.6
1513.0	19.0	15.0	168	10.0	1.21	5.36	51270	230.89	316.29	8.5	14.6
1514.0	19.0	15.0	168	10.0	1.21	5.41	51801	230.89	315.82	8.5	14.6
1515.0	19.0	15.0	165	10.0	1.20	5.47	52322	230.89	315.35	8.5	14.6
1516.0	23.0	15.0	165	10.0	1.16	5.51	52752	190.74	314.67	8.5	14.6
1517.0	30.0	15.0	165	10.0	1.09	5.54	53082	146.23	313.76	8.5	14.6
1518.0	26.0	15.0	165	10.0	1.13	5.58	53463	168.73	312.97	8.5	14.6
1519.0	27.0	15.0	165	10.0	1.12	5.62	53830	162.48	312.16	8.5	14.6
1520.0	15.0	15.0	165	10.0	1.26	5.69	54490	292.47	312.06	8.5	14.6
1521.0	29.0	15.0	165	10.0	1.10	5.72	54831	151.28	311.20	8.5	14.6

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1522.0	50.0	15.0	165	10.0	0.97	5.74	55029	87.74	310.02	8.5	14.6
1523.0	80.0	15.0	165	10.0	0.86	5.75	55153	54.84	308.68	8.5	14.6
1524.0	120.0	15.0	165	10.0	0.76	5.76	55235	36.56	307.25	8.5	14.6
1525.0	30.0	15.0	165	10.0	1.09	5.79	55565	146.23	306.41	8.5	14.6
1526.0	42.0	15.0	165	10.0	1.01	5.82	55801	104.45	305.37	8.5	14.6
1527.0	45.0	15.0	165	10.0	1.00	5.84	56021	97.49	304.30	8.5	14.6
1528.0	49.0	15.0	165	10.0	0.98	5.86	56223	89.53	303.19	8.5	14.6
1529.0	49.0	15.0	165	10.0	0.98	5.88	56425	89.53	302.10	8.5	14.6
1530.0	44.0	15.0	165	10.0	1.00	5.90	56650	99.70	301.08	8.5	14.6
1531.0	53.0	15.0	165	10.0	0.96	5.92	56837	82.77	299.97	8.5	14.6
1532.0	40.0	15.0	165	10.0	1.02	5.95	57085	109.68	299.02	8.5	14.6
1533.0	39.0	15.0	165	10.0	1.03	5.97	57338	112.49	298.08	8.5	14.6
1534.0	45.0	15.0	165	10.0	1.00	6.00	57558	97.49	297.09	8.5	14.6
1535.0	38.0	15.0	165	10.0	1.04	6.02	57819	115.45	296.19	8.5	14.7
1536.0	120.0	15.0	165	10.0	0.76	6.03	57901	36.56	294.91	8.5	14.7
1537.0	40.0	15.0	165	10.0	1.02	6.05	58149	109.68	294.00	8.5	14.7
1538.0	27.0	15.0	165	10.0	1.12	6.09	58516	162.48	293.36	8.5	14.7
1539.0	38.0	15.0	165	10.0	1.04	6.12	58776	115.45	292.50	8.5	14.7
1540.0	40.0	15.0	166	10.0	1.03	6.14	59025	109.68	291.61	8.5	14.7
1541.0	41.0	15.0	166	10.0	1.02	6.17	59268	107.00	290.72	8.5	14.7
1542.0	40.0	15.0	166	10.0	1.03	6.19	59517	109.68	289.86	8.5	14.7
1543.0	55.0	15.0	166	10.0	0.95	6.21	59698	79.76	288.86	8.5	14.7
1544.0	13.0	15.0	166	10.0	1.29	6.29	60464	337.46	289.09	8.5	14.7
1545.0	24.0	15.0	160	9.9	1.15	6.33	60864	182.79	288.59	8.5	14.7
1546.0	19.0	60.0	160	9.9	1.80	6.38	61370	230.89	288.32	8.5	14.7
1547.0	60.0	15.0	160	9.9	0.93	6.40	61530	73.12	287.31	8.5	14.7
1548.0	40.0	15.0	160	9.9	1.03	6.42	61770	109.68	286.48	8.5	14.7
1549.0	50.0	15.0	160	9.9	0.97	6.44	61962	87.74	285.56	8.5	14.7
1550.0	40.0	15.0	160	9.9	1.03	6.47	62202	109.68	284.75	8.5	14.7
1551.0	40.0	15.0	160	9.9	1.03	6.49	62442	109.68	283.95	8.5	14.7
1552.0	50.0	15.0	160	9.9	0.97	6.51	62634	87.74	283.05	8.5	14.7
1553.0	22.0	15.0	160	9.9	1.17	6.56	63070	199.41	282.67	8.5	14.7
1554.0	27.0	15.0	160	9.9	1.12	6.60	63425	162.48	282.13	8.5	14.7
1555.0	30.0	15.0	160	9.9	1.10	6.63	63745	146.23	281.52	8.5	14.7
1556.0	32.0	15.0	160	9.9	1.08	6.66	64045	137.09	280.87	8.5	14.7
1557.0	24.0	15.0	160	9.9	1.15	6.70	64445	182.79	280.43	8.5	14.7
1558.0	25.0	15.0	160	9.9	1.14	6.74	64829	175.48	279.97	8.5	14.7
1559.0	23.0	15.0	160	9.9	1.16	6.79	65247	190.74	279.57	8.5	14.7
1560.0	27.0	15.0	160	9.9	1.12	6.82	65602	162.48	279.06	8.5	14.7
1561.0	35.0	15.0	160	9.9	1.06	6.85	65877	125.34	278.38	8.5	14.7
1562.0	33.0	15.0	160	9.9	1.07	6.88	66168	132.94	277.75	8.5	14.7
1563.0	40.0	15.0	160	9.9	1.03	6.91	66408	109.68	277.02	8.5	14.7
1564.0	40.0	15.0	160	9.9	1.03	6.93	66648	109.68	276.29	8.5	14.7
1565.0	34.0	15.0	155	9.9	1.06	6.96	66921	129.03	275.66	8.5	14.7
1566.0	48.0	15.0	155	9.9	0.98	6.98	67115	91.40	274.87	8.5	14.7
1567.0	40.0	15.0	155	9.9	1.02	7.01	67347	109.68	274.16	8.5	14.7
1568.0	34.0	15.0	155	9.9	1.06	7.04	67621	129.03	273.54	8.5	14.7
1569.0	71.0	15.0	155	9.9	0.88	7.05	67752	61.79	272.64	8.5	14.7
1570.0	40.0	15.0	155	9.9	1.02	7.08	67984	109.68	271.96	8.5	14.7
1571.0	45.0	15.0	155	9.9	0.99	7.10	68191	97.49	271.22	8.5	14.7

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1572.0	43.0	15.0	155	9.9	1.00	7.12	68407	102.02	270.52	8.5	14.7
1573.0	34.0	15.0	155	9.9	1.06	7.15	68681	129.03	269.93	8.5	14.7
1574.0	32.0	15.0	155	9.9	1.07	7.18	68972	137.09	269.38	8.5	14.7
1575.0	38.0	15.0	160	9.9	1.04	7.21	69224	115.45	268.74	8.5	14.7
1576.0	27.0	15.0	160	9.9	1.12	7.25	69580	162.48	268.30	8.5	14.7
1577.0	24.0	15.0	160	9.9	1.15	7.29	69980	182.79	267.95	8.5	14.7
1578.0	17.0	15.0	160	9.9	1.23	7.35	70544	258.06	267.91	8.5	14.7
1579.0	21.0	15.0	160	9.9	1.18	7.39	71002	208.90	267.67	8.5	14.7
1580.0	26.0	15.0	160	9.9	1.13	7.43	71371	168.73	267.27	8.5	14.7
1581.0	25.0	15.0	160	9.9	1.14	7.47	71755	175.48	266.90	8.5	14.7
1582.0	18.0	15.0	160	9.9	1.22	7.53	72288	243.72	266.81	8.5	14.7
1583.0	13.0	15.0	160	9.9	1.30	7.60	73027	337.46	267.09	8.5	14.7
1584.0	13.0	15.0	160	9.9	1.22	7.66	73560	243.72	267.00	8.5	14.7
1585.0	27.0	15.0	160	9.9	1.12	7.70	73915	162.48	266.58	8.5	14.7
1586.0	18.0	15.0	160	9.9	1.22	7.75	74449	243.72	266.49	8.5	14.7
1587.0	16.0	15.0	160	9.9	1.25	7.81	75049	274.19	266.52	8.5	14.7
1588.0	24.0	15.0	160	9.9	1.15	7.86	75449	182.79	266.19	8.5	14.7
1589.0	26.0	15.0	160	9.9	1.13	7.89	75818	168.73	265.81	8.5	14.7
1590.0	27.0	15.0	160	9.9	1.12	7.93	76174	162.48	265.41	8.5	14.7
1591.0	35.0	15.0	160	9.9	1.06	7.96	76448	125.34	264.87	8.5	14.7
1592.0	35.0	16.0	160	9.9	1.08	7.99	76722	125.34	264.33	8.5	14.7
1593.0	32.0	16.0	160	9.9	1.10	8.02	77022	137.09	263.84	8.5	14.7
1594.0	55.0	18.0	160	9.9	0.99	8.04	77197	79.76	263.14	8.5	14.7
1595.0	27.0	18.0	160	9.9	1.17	8.08	77552	162.48	262.75	8.5	14.7
1596.0	21.0	18.0	158	9.9	1.23	8.12	78004	208.90	262.55	8.5	14.7
1597.0	15.0	18.0	158	9.9	1.32	8.19	78636	292.47	262.66	8.5	14.7
1598.0	17.0	18.0	160	9.9	1.29	8.25	79200	258.06	262.64	8.5	14.7
1599.0	13.0	18.0	160	9.9	1.35	8.33	79939	337.46	262.92	8.5	14.7
1600.0	15.0	18.0	160	9.9	1.32	8.39	80579	292.47	263.03	8.5	14.8
1601.0	16.0	18.0	160	9.9	1.30	8.45	81179	274.19	263.08	8.5	14.8
1602.0	24.0	18.0	160	9.9	1.20	8.50	81579	182.79	262.78	8.5	14.8
1603.0	22.0	18.0	160	9.9	1.22	8.54	82015	199.41	262.54	8.5	14.8
1604.0	30.0	18.0	160	9.9	1.15	8.58	82335	146.23	262.11	8.5	14.8
1605.0	27.0	18.0	158	9.9	1.17	8.61	82686	162.48	261.75	8.5	14.8
1606.0	27.0	18.0	158	9.9	1.17	8.65	83037	162.48	261.38	8.5	14.8
1607.0	17.0	18.0	160	9.9	1.29	8.71	83602	258.06	261.37	8.5	14.8
1608.0	6.0	18.0	160	9.9	1.55	8.87	85202	731.17	263.08	8.5	14.8
1609.0	4.5	18.0	160	9.9	1.62	9.10	87335	974.89	265.66	8.5	14.8
1610.0	19.0	18.0	155	9.9	1.25	9.15	87825	230.89	265.53	8.5	14.8
1611.0	20.0	18.0	155	9.9	1.24	9.20	88290	219.35	265.37	8.5	14.8
1612.0	14.0	18.0	153	9.9	1.33	9.27	88946	313.36	265.54	8.5	14.8
1613.0	29.0	18.0	153	9.9	1.14	9.31	89262	151.28	265.13	8.5	14.8
1614.0	22.0	18.0	153	9.9	1.21	9.35	89680	199.41	264.90	8.5	14.8
1615.0	6.0	18.0	153	9.9	1.54	9.52	91210	731.17	266.55	8.5	14.8
1616.0	5.0	18.0	153	9.9	1.58	9.72	93046	877.40	268.71	8.5	14.8
1617.0	12.0	18.0	153	9.9	1.36	9.80	93811	365.58	269.05	8.5	14.8
1618.0	15.0	18.0	153	9.9	1.31	9.87	94423	292.47	269.13	8.5	14.8
1619.0	17.0	18.0	153	9.9	1.28	9.93	94963	258.06	269.09	8.5	14.8
1620.0	25.0	18.0	150	9.9	1.18	9.97	95323	175.48	268.77	8.5	14.8
1621.0	33.0	18.0	150	9.9	1.11	10.00	95595	132.94	268.30	8.5	14.8

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1622.0	34.0	18.0	150	9.9	1.10	10.03	95860	129.03	267.81	8.5	14.8
1623.0	34.0	18.0	150	9.9	1.10	10.06	96125	129.03	267.34	8.5	14.8
1624.0	24.0	18.0	150	9.9	1.19	10.10	96500	182.79	267.04	8.5	14.8
1625.0	17.0	18.0	140	9.9	1.25	10.16	96994	258.06	267.01	8.5	14.8
1626.0	30.0	18.0	140	9.9	1.11	10.19	97274	146.23	266.60	8.5	14.8
1627.0	24.0	18.0	140	9.9	1.17	10.23	97624	182.79	266.32	8.5	14.8
1628.0	24.0	18.0	140	9.9	1.17	10.27	97974	182.79	266.03	8.5	14.8
1629.0	24.0	18.0	140	9.9	1.17	10.31	98324	182.79	265.75	8.5	14.8
1630.0	17.0	18.0	160	9.9	1.29	10.37	98888	258.06	265.73	8.5	14.8
1631.0	30.0	18.0	160	9.9	1.15	10.41	99208	146.23	265.33	8.5	14.8
1632.0	20.0	18.0	160	9.9	1.25	10.46	99688	219.35	265.17	8.5	14.8
1633.0	17.0	18.0	160	9.9	1.29	10.52	100253	258.06	265.15	8.5	14.8
1634.0	30.0	18.0	160	9.9	1.15	10.55	100573	146.23	264.75	8.5	14.8
1635.0	27.0	18.0	155	9.9	1.16	10.59	100918	162.48	264.41	8.5	14.8
1636.0	22.0	18.0	155	9.9	1.22	10.63	101340	199.41	264.20	8.5	14.8
1637.0	27.0	18.0	155	9.9	1.16	10.67	101685	162.48	263.87	8.5	14.8
1638.0	24.0	18.0	155	9.9	1.19	10.71	102072	182.79	263.60	8.5	14.8
1639.0	27.0	18.0	155	9.9	1.16	10.75	102417	162.48	263.27	8.5	14.8
1640.0	21.0	18.0	155	9.9	1.23	10.79	102860	208.90	263.09	8.5	14.8
1641.0	15.0	18.0	155	9.9	1.31	10.86	103480	292.47	263.19	8.5	14.8
1642.0	24.0	18.0	155	9.9	1.19	10.90	103867	182.79	262.93	8.5	14.8
1643.0	20.0	18.0	155	9.9	1.24	10.95	104332	219.35	262.79	8.5	14.8
1644.0	7.0	18.0	155	9.9	1.50	11.10	105661	626.71	263.96	8.5	14.8
1645.0	4.0	18.0	155	9.9	1.64	11.35	107986	1097	267	8.5	14.8
1646.0	6.0	18.0	155	9.9	1.54	11.51	109536	731.17	268.11	8.5	14.8
1647.0	4.0	18.0	155	9.9	1.64	11.76	111861	1097	271	8.5	14.8
1648.0	6.0	18.0	155	9.9	1.54	11.93	113411	731.17	272.21	8.5	14.8
1649.0	4.0	18.0	155	9.9	1.64	12.18	115736	1097	275	8.5	14.8
1650.0	10.0	18.0	155	9.9	1.41	12.28	116666	438.70	275.34	8.5	14.8
1651.0	18.0	18.0	155	9.9	1.27	12.33	117182	243.72	275.24	8.5	14.8
1652.0	34.0	18.0	155	9.9	1.11	12.36	117456	129.03	274.78	8.5	14.8
1653.0	31.0	18.0	155	9.9	1.13	12.40	117756	141.52	274.36	8.5	14.8
1654.0	6.0	18.0	155	9.9	1.54	12.56	119306	731.17	275.79	8.5	14.8
1655.0	27.0	18.0	155	9.9	1.16	12.60	119650	162.48	275.43	8.5	14.8
1656.0	32.0	18.0	155	9.9	1.12	12.63	119941	137.09	275.01	8.5	14.8
1657.0	24.0	18.0	155	9.9	1.19	12.67	120328	182.79	274.72	8.5	14.8
1658.0	14.0	18.0	155	9.9	1.33	12.74	120993	313.36	274.84	8.5	14.8
1659.0	10.0	18.0	155	9.9	1.41	12.84	121923	438.70	275.34	8.5	14.8
1660.0	24.0	18.0	155	9.9	1.19	12.89	122310	182.79	275.06	8.5	14.8
1661.0	13.0	18.0	155	9.9	1.35	12.96	123026	337.46	275.25	8.5	14.8
1662.0	3.0	18.0	154	9.9	1.71	13.30	126106	1462	279	8.5	14.8
1663.0	2.9	18.0	154	9.9	1.72	13.64	129292	1513	283	8.5	14.8
1664.0	7.0	18.0	154	9.9	1.50	13.78	130612	626.71	283.64	8.5	14.8
1665.0	11.0	25.0	154	9.9	1.51	13.87	131452	398.82	283.98	8.5	14.8
1666.0	23.0	25.0	154	9.9	1.31	13.92	131854	190.74	283.70	8.5	14.8
1667.0	24.0	25.0	154	9.9	1.30	13.96	132239	182.79	283.40	8.5	14.9
1668.0	23.0	25.0	154	9.9	1.31	14.00	132640	190.74	283.12	8.5	14.9
1669.0	24.0	25.0	154	9.9	1.30	14.05	133025	182.79	282.83	8.5	14.9
1670.0	26.0	25.0	150	9.9	1.27	14.08	133371	168.73	282.49	8.5	14.9
1671.0	30.0	25.0	150	9.9	1.23	14.12	133671	146.23	282.08	8.5	14.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1672.0	24.0	25.0	150	9.9	1.29	14.16	134046	182.79	281.79	8.5	14.9
1673.0	25.0	25.0	150	9.9	1.28	14.20	134406	175.48	281.48	8.5	14.9
1674.0	48.0	25.0	150	9.9	1.10	14.22	134594	91.40	280.92	8.5	14.9
1675.0	34.0	25.0	150	9.9	1.20	14.25	134859	129.03	280.48	8.5	14.9
1676.0	36.0	25.0	150	9.9	1.18	14.28	135109	121.86	280.01	8.5	14.9
1677.0	11.0	25.0	150	9.9	1.50	14.37	135927	398.82	280.36	8.5	14.9
1678.0	40.0	25.0	150	9.9	1.15	14.39	136152	109.68	279.87	8.5	14.9
1679.0	34.0	25.0	153	9.9	1.20	14.42	136422	129.03	279.43	8.5	14.9
1680.0	29.0	25.0	153	9.9	1.24	14.46	136738	151.28	279.06	8.5	14.9
1681.0	17.0	25.0	153	9.9	1.39	14.52	137278	258.06	279.00	8.5	14.9
1682.0	34.0	25.0	153	9.9	1.20	14.54	137548	129.03	278.57	8.5	14.9
1683.0	35.0	25.0	153	9.9	1.19	14.57	137811	125.34	278.13	8.5	14.9
1684.0	36.0	25.0	153	9.9	1.19	14.60	138066	121.86	277.69	8.5	14.9
1685.0	37.0	25.0	153	9.9	1.18	14.63	138314	118.57	277.24	8.5	14.9
1686.0	40.0	25.0	155	9.9	1.16	14.65	138546	109.68	276.76	8.5	14.9
1687.0	28.0	25.0	162	9.9	1.27	14.69	138893	156.68	276.42	8.5	14.9
1688.0	24.0	25.0	162	9.9	1.31	14.73	139298	182.79	276.16	8.5	14.9
1689.0	47.0	25.0	162	9.9	1.13	14.75	139505	93.34	275.64	8.5	14.9
1690.0	50.0	25.0	162	9.9	1.11	14.77	139700	87.74	275.12	8.5	14.9
1691.0	49.0	25.0	163	9.9	1.12	14.79	139899	89.53	274.60	8.5	14.9
1692.0	42.0	25.0	163	9.9	1.16	14.82	140132	104.45	274.13	8.5	14.9
1693.0	42.0	25.0	163	9.9	1.16	14.84	140365	104.45	273.65	8.5	14.9
1694.0	65.0	25.0	163	9.9	1.04	14.86	140515	67.49	273.08	8.5	14.9
1695.0	80.0	25.0	163	9.9	0.99	14.87	140638	54.84	272.48	8.5	14.9
1696.0	47.0	25.0	163	9.9	1.13	14.89	140846	93.34	271.99	8.5	14.9
1697.0	40.0	25.0	163	9.9	1.17	14.91	141090	109.68	271.54	8.5	14.9
1698.0	50.0	25.0	163	9.9	1.11	14.93	141286	87.74	271.04	8.5	14.9
1699.0	24.0	20.0	165	9.9	1.24	14.98	141698	182.79	270.80	8.5	14.9
1700.0	24.0	20.0	165	9.9	1.24	15.02	142111	182.79	270.56	8.5	14.9
1701.0	9.0	20.0	165	9.9	1.49	15.13	143211	487.44	271.15	8.5	14.9
1702.0	24.0	20.0	165	9.9	1.24	15.17	143623	182.79	270.91	8.5	14.9
1703.0	38.0	20.0	165	9.9	1.12	15.20	143884	115.45	270.49	8.5	14.9
1704.0	19.0	20.0	165	9.9	1.30	15.25	144405	230.89	270.38	8.5	14.9
1705.0	17.0	20.0	162	9.9	1.33	15.31	144977	258.06	270.35	8.5	14.9
1706.0	29.0	20.0	162	9.9	1.19	15.34	145312	151.28	270.03	8.5	14.9
1707.0	27.0	20.0	162	9.9	1.21	15.38	145672	162.48	269.74	8.5	14.9
1708.0	23.0	20.0	162	9.9	1.25	15.42	146094	190.74	269.53	8.5	14.9
1709.0	19.0	20.0	162	9.9	1.30	15.48	146606	230.89	269.43	8.5	14.9
1710.0	23.0	20.0	160	9.9	1.24	15.52	147023	190.74	269.22	8.5	14.9
1711.0	18.0	20.0	160	9.9	1.31	15.57	147557	243.72	269.15	8.5	14.9
1712.0	8.0	20.0	160	9.9	1.52	15.70	148757	548.38	269.89	8.5	14.9
1713.0	16.0	20.0	160	9.9	1.34	15.76	149357	274.19	269.90	8.5	14.9
1714.0	17.0	20.0	160	9.9	1.32	15.82	149921	258.06	269.87	8.5	14.9
1715.0	7.0	20.0	163	9.9	1.55	15.96	151319	626.71	270.80	8.5	14.9
1716.0	5.0	20.0	163	9.9	1.64	16.16	153275	877.40	272.38	8.5	14.9
1717.0	7.0	20.0	163	9.9	1.55	16.31	154672	626.71	273.31	8.5	14.9
1718.0	4.0	20.0	163	9.9	1.70	16.56	157117	1097	275	8.5	14.9
1719.0	4.0	20.0	163	9.9	1.70	16.81	159562	1097	278	8.5	14.9
1720.0	3.0	25.0	163	9.9	1.88	17.14	162822	1462	281	8.5	14.9
1721.0	10.0	30.0	163	9.9	1.63	17.24	163800	438.70	281.04	8.5	14.9

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1722.0	28.0	30.0	163	9.9	1.34	17.28	164149	156.68	280.72	8.5	14.9
1723.0	21.0	30.0	163	9.9	1.42	17.32	164615	208.90	280.54	8.5	14.9
1724.0	28.0	30.0	160	9.9	1.33	17.36	164958	156.68	280.22	8.5	14.9
1725.0	28.0	30.0	155	9.9	1.32	17.39	165290	156.68	279.91	8.5	14.9
1726.0	44.0	30.0	155	9.9	1.19	17.42	165501	99.70	279.45	8.5	14.9
1727.0	40.0	30.0	155	9.9	1.22	17.44	165734	109.68	279.02	8.5	14.9
1728.0	15.0	25.0	155	9.9	1.43	17.51	166354	292.47	279.05	8.5	14.9
1729.0	18.0	25.0	155	9.9	1.38	17.56	166870	243.72	278.96	8.5	14.9
1730.0	18.0	25.0	155	9.9	1.38	17.62	167387	243.72	278.87	8.5	14.9
1731.0	17.0	25.0	155	9.9	1.39	17.68	167934	258.06	278.82	8.5	14.9
1732.0	2.0	25.0	155	9.9	1.98	18.18	172584	2194	284	8.5	14.9
1733.0	4.0	25.0	155	9.9	1.79	18.43	174909	1097	286	8.5	14.9
1734.0	19.0	25.0	155	9.9	1.36	18.48	175398	230.89	285.52	8.5	14.9
1735.0	26.0	30.0	158	9.9	1.35	18.52	175763	168.73	285.23	8.5	14.9
1736.0	7.0	30.0	158	9.9	1.72	18.66	177117	626.71	286.07	8.5	15.0
1737.0	10.0	30.0	158	9.9	1.62	18.76	178065	438.70	286.45	8.5	15.0
1738.0	4.2	30.0	158	9.9	1.87	19.00	180323	1045	288	8.5	15.0
1739.0	11.0	30.0	158	9.9	1.60	19.09	181184	398.82	288.59	8.5	15.0
1740.0	7.0	30.0	158	9.9	1.72	19.23	182539	626.71	289.43	8.5	15.0
1741.0	12.0	30.0	157	9.9	1.57	19.32	183324	365.58	289.61	8.5	15.0
1742.0	11.0	30.0	157	9.9	1.59	19.41	184180	398.82	289.88	8.5	15.0

381088

BIT NUMBER	6	IADC CODE	134	INTERVAL	1742.0- 1913.0
HTC X1G		SIZE	12.250	NOZZLES	15.15 15
COST	1388.00	TRIP TIME	8.0	BIT RUN	171.0
TOTAL HOURS	10.69	TOTAL TURNS	96168	CONDITION	T7 B4 G0.250

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1743.0	13.0	25.0	160	9.9	1.47	0.08	738	337	36821	8.5	15.0
1744.0	23.0	25.0	158	9.9	1.32	0.12	1151	191	18506	8.5	15.0
1745.0	28.0	25.0	158	9.9	1.26	0.16	1489	157	12390	8.5	15.0
1746.0	17.0	25.0	158	9.9	1.40	0.21	2047	258	9357	8.5	15.0
1747.0	17.0	25.0	158	9.9	1.40	0.27	2605	258	7537	8.5	15.0
1748.0	4.0	25.0	158	9.9	1.79	0.52	4975	1097	6464	8.5	15.0
1749.0	3.1	25.0	158	9.9	1.86	0.85	8033	1415	5742	8.5	15.0
1750.0	3.8	25.0	156	9.9	1.80	1.11	10496	1154	5169	8.5	15.0
1751.0	4.6	25.0	158	9.9	1.75	1.33	12557	954	4701	8.5	15.0
1752.0	6.0	25.0	158	9.9	1.68	1.49	14137	731	4304	8.5	15.0
1753.0	8.0	30.0	145	9.9	1.66	1.62	15224	548	3962	8.5	15.0
1754.0	8.5	35.0	115	9.9	1.65	1.74	16036	516	3675	8.5	15.0
1755.0	9.6	37.0	115	9.9	1.64	1.84	16755	457	3428	8.5	15.0
1756.0	13.0	37.0	114	9.9	1.55	1.92	17281	337	3207	8.5	15.0
1757.0	25.0	37.0	113	9.9	1.34	1.96	17552	175	3005	8.5	15.0
1758.0	18.0	38.0	113	9.9	1.46	2.01	17929	244	2832	8.5	15.0
1759.0	8.5	38.0	113	9.9	1.69	2.13	18726	516	2696	8.5	15.0
1760.0	17.6	38.0	113	9.9	1.46	2.19	19112	250	2560	8.5	15.0
1761.0	34.6	38.0	113	9.9	1.26	2.22	19308	127	2432	8.5	15.0
1762.0	29.5	38.0	113	9.9	1.30	2.25	19538	149	2318	8.5	15.0
1763.0	48.0	38.0	115	9.9	1.16	2.27	19682	91	2212	8.5	15.0
1764.0	42.9	38.0	115	9.9	1.20	2.29	19843	102	2116	8.5	15.0
1765.0	61.0	38.0	160	9.9	1.19	2.31	20000	72	2027	8.5	15.0
1766.0	33.0	30.0	160	9.9	1.28	2.34	20291	133	1948	8.5	15.0
1767.0	97.3	30.0	160	9.9	0.97	2.35	20389	45	1872	8.5	15.0
1768.0	69.2	30.0	160	9.9	1.07	2.37	20528	63	1802	8.5	15.0
1769.0	81.8	30.0	160	9.9	1.02	2.38	20645	54	1738	8.5	15.0
1770.0	94.7	30.0	160	9.9	0.98	2.39	20747	46	1677	8.5	15.0
1771.0	48.0	30.0	167	9.9	1.19	2.41	20955	91	1623	8.5	15.0
1772.0	30.0	30.0	166	9.9	1.32	2.44	21286	146	1573	8.5	15.0
1773.0	35.3	30.0	157	9.9	1.26	2.47	21553	124	1527	8.5	15.0
1774.0	32.1	30.0	155	9.9	1.28	2.50	21842	136	1483	8.5	15.0
1775.0	13.8	30.0	160	9.9	1.53	2.57	22535	317	1448	8.5	15.0
1776.0	18.2	30.0	162	9.9	1.46	2.63	23069	241	1412	8.5	15.0
1777.0	5.8	35.0	133	9.9	1.81	2.80	24456	760	1394	8.5	15.0
1778.0	27.7	35.0	126	9.9	1.32	2.84	24729	158	1359	8.5	15.0
1779.0	17.8	35.0	160	9.9	1.53	2.89	25269	246	1329	8.5	15.0
1780.0	24.8	35.0	160	9.9	1.43	2.94	25656	177	1299	8.5	15.0
1781.0	37.9	35.0	159	9.9	1.30	2.96	25908	116	1269	8.5	15.0
1782.0	45.6	35.0	157	9.9	1.24	2.98	26115	96	1239	8.5	15.0
1783.0	31.3	35.0	159	9.9	1.36	3.02	26420	140	1213	8.5	15.0
1784.0	37.5	35.0	158	9.9	1.30	3.04	26673	117	1186	8.5	15.0
1785.0	18.8	35.0	158	9.9	1.51	3.10	27176	233	1164	8.5	15.0

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1786.0	37.1	35.0	158	9.9	1.30	3.12	27432	118	1140	8.5	15.0
1787.0	45.6	35.0	159	9.9	1.24	3.14	27641	96	1117	8.5	15.0
1788.0	42.9	35.0	159	9.9	1.26	3.17	27863	102	1095	8.5	15.0
1789.0	33.0	35.0	158	9.9	1.34	3.20	28151	133	1075	8.5	15.0
1790.0	28.3	35.0	158	9.9	1.39	3.23	28487	155	1056	8.5	15.0
1791.0	47.2	35.0	163	9.9	1.24	3.25	28693	93	1036	8.5	15.0
1792.0	18.2	35.0	163	9.9	1.53	3.31	29232	241	1020	8.5	15.0
1793.0	26.3	35.0	163	9.9	1.42	3.35	29605	167	1003	8.5	15.0
1794.0	45.0	35.0	161	9.9	1.25	3.37	29821	97.49	985.88	8.5	15.0
1795.0	48.6	35.0	163	9.9	1.23	3.39	30021	90.18	968.98	8.5	15.0
1796.0	23.7	35.0	163	9.9	1.45	3.43	30434	185.23	954.47	8.5	15.0
1797.0	43.4	35.0	163	9.9	1.27	3.46	30659	101.14	938.95	8.5	15.0
1798.0	50.0	35.0	163	9.9	1.22	3.48	30854	87.74	923.75	8.5	15.0
1799.0	46.2	35.0	163	9.9	1.25	3.50	31067	95.05	909.21	8.5	15.0
1800.0	56.8	35.0	159	9.9	1.18	3.51	31234	77.18	894.87	8.5	15.0
1801.0	50.0	35.0	159	9.9	1.22	3.53	31425	87.74	881.19	8.5	15.0
1802.0	49.3	35.0	159	9.9	1.22	3.55	31619	88.96	867.98	8.5	15.0
1803.0	52.2	35.0	159	9.9	1.20	3.57	31802	84.08	855.13	8.5	15.0
1804.0	33.6	35.0	160	9.9	1.34	3.60	32086	130.39	843.44	8.5	15.0
1805.0	50.7	35.0	159	9.9	1.21	3.62	32275	86.52	831.43	8.5	15.0
1806.0	46.2	35.0	158	9.9	1.24	3.65	32480	95.05	819.92	8.5	15.0
1807.0	34.3	35.0	159	9.9	1.33	3.67	32759	127.95	809.28	8.5	15.0
1808.0	31.3	35.0	158	9.9	1.36	3.71	33061	140.14	799.14	8.5	15.1
1809.0	35.0	35.0	160	9.9	1.33	3.73	33336	125.52	789.08	8.5	15.1
1810.0	16.7	35.0	158	9.9	1.54	3.79	33904	263.22	781.35	8.5	15.1
1811.0	10.8	35.0	161	9.9	1.68	3.89	34802	407.02	775.93	8.5	15.1
1812.0	9.5	35.0	162	9.9	1.72	3.99	35823	460.64	771.42	8.5	15.1
1813.0	21.3	35.0	131	9.9	1.41	4.04	36190	205.95	763.46	8.5	15.1
1814.0	23.8	35.0	114	9.9	1.34	4.08	36477	184.01	755.41	8.5	15.1
1815.0	9.3	35.0	141	9.9	1.68	4.19	37386	471.60	751.52	8.5	15.1
1816.0	35.0	35.0	162	9.9	1.33	4.22	37665	125.52	743.06	8.5	15.1
1817.0	42.9	35.0	162	9.9	1.27	4.24	37891	102.36	734.52	8.5	15.1
1818.0	33.6	35.0	162	9.9	1.34	4.27	38180	130.39	726.57	8.5	15.1
1819.0	37.5	35.0	162	9.9	1.31	4.30	38440	116.99	718.65	8.5	15.1
1820.0	20.2	35.0	125	9.9	1.42	4.35	38811	216.91	712.22	8.5	15.1
1821.0	20.5	35.0	156	9.9	1.48	4.40	39270	214.48	705.92	8.5	15.1
1822.0	35.0	35.0	156	9.9	1.32	4.42	39538	125.52	698.67	8.5	15.1
1823.0	20.5	35.0	157	9.9	1.48	4.47	39997	214.48	692.69	8.5	15.1
1824.0	16.3	35.0	157	9.9	1.55	4.53	40576	269.31	687.53	8.5	15.1
1825.0	12.8	35.0	157	9.9	1.62	4.61	41309	342.43	683.37	8.5	15.1
1826.0	20.1	35.0	156	9.9	1.48	4.66	41776	218.13	677.83	8.5	15.1
1827.0	22.8	35.0	157	9.9	1.45	4.71	42188	192.54	672.12	8.5	15.1
1828.0	19.6	35.0	149	9.9	1.48	4.76	42646	224.22	666.91	8.5	15.1
1829.0	24.7	35.0	155	9.9	1.42	4.80	43023	177.92	661.29	8.5	15.1
1830.0	32.4	35.0	162	9.9	1.35	4.83	43323	135.27	655.31	8.5	15.1
1831.0	46.2	35.0	161	9.9	1.25	4.85	43532	95.05	649.02	8.5	15.1
1832.0	31.6	35.0	158	9.9	1.35	4.88	43833	138.92	643.35	8.5	15.1
1833.0	30.5	35.0	162	9.9	1.37	4.91	44153	143.80	637.86	8.5	15.1
1834.0	33.0	35.0	163	9.9	1.35	4.95	44448	132.83	632.37	8.5	15.1
1835.0	35.3	35.0	162	9.9	1.33	4.97	44723	124.30	626.91	8.5	15.1

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1836.0	22.6	35.0	163	9.9	1.46	5.02	45155	193.76	622.30	8.5	15.1
1837.0	24.8	35.0	161	9.9	1.43	5.06	45543	176.70	617.61	8.5	15.1
1838.0	84.7	35.0	159	9.9	1.06	5.07	45656	51.79	611.72	8.5	15.1
1839.0	23.1	35.0	158	9.9	1.45	5.11	46066	190.10	607.37	8.5	15.1
1840.0	42.4	35.0	156	9.9	1.26	5.14	46287	103.58	602.23	8.5	15.1
1841.0	38.7	35.0	161	9.9	1.30	5.16	46537	113.33	597.29	8.5	15.1
1842.0	4.2	35.0	162	9.9	1.96	5.40	48840	1039	602	8.5	15.1
1843.0	10.1	35.0	160	9.9	1.70	5.50	49789	433.83	600.05	8.5	15.1
1844.0	30.8	35.0	162	9.9	1.37	5.53	50105	142.58	595.56	8.5	15.1
1845.0	30.3	35.0	162	9.9	1.37	5.56	50428	145.01	591.19	8.5	15.1
1846.0	27.9	35.0	160	9.9	1.39	5.60	50773	157.20	587.02	8.5	15.1
1847.0	29.0	35.0	160	9.9	1.38	5.63	51104	151.28	582.87	8.5	15.1
1848.0	20.3	35.0	161	9.9	1.49	5.68	51579	215.69	579.40	8.5	15.1
1849.0	11.2	35.0	163	9.9	1.67	5.77	52449	391.17	577.64	8.5	15.1
1850.0	5.8	35.0	159	9.9	1.86	5.94	54090	754.32	579.28	8.5	15.1
1851.0	14.0	35.0	159	9.9	1.60	6.02	54772	314.40	576.85	8.5	15.1
1852.0	19.5	35.0	166	9.9	1.51	6.07	55284	225.44	573.66	8.5	15.1
1853.0	28.8	35.0	159	9.9	1.38	6.10	55615	152.33	569.86	8.5	15.1
1854.0	25.7	35.0	159	9.9	1.42	6.14	55986	170.61	566.30	8.5	15.1
1855.0	28.6	35.0	163	9.9	1.39	6.18	56328	153.55	562.64	8.5	15.1
1856.0	14.8	35.0	166	9.9	1.59	6.24	57000	296.12	560.30	8.5	15.1
1857.0	36.7	35.0	156	9.9	1.30	6.27	57255	119.42	556.47	8.5	15.1
1858.0	37.9	35.0	159	9.9	1.30	6.30	57506	115.77	552.67	8.5	15.1
1859.0	37.1	35.0	158	9.9	1.30	6.32	57762	118.21	548.96	8.5	15.1
1860.0	23.8	35.0	149	9.9	1.42	6.37	58138	184.01	545.87	8.5	15.1
1861.0	5.5	35.0	164	9.9	1.89	6.55	59917	793.32	547.95	8.5	15.1
1862.0	5.9	35.0	144	9.9	1.83	6.72	61388	747.01	549.60	8.5	15.1
1863.0	6.8	35.0	161	9.9	1.82	6.86	62813	647.08	550.41	8.5	15.1
1864.0	17.1	45.0	147	9.9	1.63	6.92	63326	255.91	548.00	8.5	15.1
1865.0	16.1	45.0	128	9.9	1.61	6.99	63803	272.97	545.76	8.5	15.1
1866.0	16.0	45.0	122	9.9	1.60	7.05	64261	274.19	543.57	8.5	15.1
1867.0	18.8	45.0	123	9.9	1.55	7.10	64653	232.75	541.08	8.5	15.1
1868.0	24.3	45.0	123	9.9	1.47	7.14	64957	180.35	538.22	8.5	15.1
1869.0	28.1	45.0	123	9.9	1.42	7.18	65219	155.98	535.21	8.5	15.1
1870.0	26.7	45.0	123	9.9	1.44	7.22	65497	164.51	532.31	8.5	15.1
1871.0	27.3	45.0	124	9.9	1.43	7.25	65769	160.86	529.43	8.5	15.1
1872.0	28.1	45.0	123	9.9	1.42	7.29	66032	155.98	526.56	8.5	15.1
1873.0	27.1	45.0	122	9.9	1.43	7.32	66301	162.08	523.78	8.5	15.1
1874.0	30.3	45.0	122	9.9	1.39	7.36	66543	145.01	520.91	8.5	15.1
1875.0	22.8	45.0	122	9.9	1.48	7.40	66865	192.54	518.44	8.5	15.1
1876.0	32.4	45.0	123	9.9	1.37	7.43	67092	135.27	515.58	8.5	15.1
1877.0	13.3	45.0	122	9.9	1.66	7.51	67640	329.03	514.20	8.5	15.1
1878.0	8.1	45.0	127	9.9	1.83	7.63	68576	539.84	514.39	8.5	15.1
1879.0	14.9	45.0	126	9.9	1.63	7.70	69082	293.69	512.78	8.5	15.1
1880.0	8.8	45.0	126	9.9	1.80	7.81	69940	497.19	512.66	8.5	15.1
1881.0	28.3	45.0	125	9.9	1.42	7.85	70205	154.76	510.09	8.5	15.1
1882.0	16.1	45.0	127	9.9	1.61	7.91	70676	271.75	508.39	8.5	15.1
1883.0	18.8	45.0	126	9.9	1.56	7.96	71078	232.75	506.43	8.5	15.2
1884.0	21.6	45.0	126	9.9	1.51	8.01	71429	203.51	504.30	8.5	15.2
1885.0	31.3	45.0	121	9.9	1.38	8.04	71662	140.14	501.75	8.5	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1886.0	43.4	45.0	135	9.9	1.31	8.06	71848	101.14	498.97	8.5	15.2
1887.0	28.8	35.0	160	9.9	1.38	8.10	72182	152.33	496.58	8.5	15.2
1888.0	13.1	35.0	147	9.9	1.59	8.17	72855	335.12	495.47	8.5	15.2
1889.0	36.4	35.0	161	9.9	1.32	8.20	73121	120.64	492.92	8.5	15.2
1890.0	27.7	35.0	162	9.9	1.40	8.24	73471	158.42	490.66	8.5	15.2
1891.0	30.8	35.0	161	9.9	1.37	8.27	73786	142.58	488.33	8.5	15.2
1892.0	6.2	35.0	150	9.9	1.82	8.43	75234	706.79	489.78	8.5	15.2
1893.0	28.6	35.0	158	9.9	1.38	8.47	75566	153.55	487.56	8.5	15.2
1894.0	37.5	35.0	158	9.9	1.30	8.49	75818	116.99	485.12	8.5	15.2
1895.0	34.0	35.0	144	9.9	1.30	8.52	76073	129.03	482.79	8.5	15.2
1896.0	12.0	35.0	151	9.9	1.63	8.60	76829	365.58	482.03	8.5	15.2
1897.0	5.6	35.0	146	9.9	1.85	8.78	78386	781.13	483.96	8.5	15.2
1898.0	27.5	45.0	133	9.9	1.45	8.82	78677	159.64	481.88	8.5	15.2
1899.0	22.8	45.0	135	9.9	1.52	8.86	79032	192.54	480.04	8.5	15.2
1900.0	19.4	45.0	110	9.9	1.50	8.91	79374	226.66	478.44	8.5	15.2
1901.0	26.9	45.0	156	9.9	1.51	8.95	79722	163.29	476.45	8.5	15.2
1902.0	22.8	45.0	160	9.9	1.57	9.00	80142	192.54	474.68	8.5	15.2
1903.0	16.1	45.0	161	9.9	1.69	9.06	80742	272.97	473.43	8.5	15.2
1904.0	20.2	45.0	160	9.9	1.61	9.11	81217	216.91	471.84	8.5	15.2
1905.0	18.4	45.0	160	9.9	1.64	9.16	81740	238.85	470.41	8.5	15.2
1906.0	17.9	45.0	159	9.9	1.65	9.22	82273	244.94	469.04	8.5	15.2
1907.0	27.7	45.0	159	9.9	1.51	9.25	82617	158.42	467.16	8.5	15.2
1908.0	7.5	45.0	160	9.9	1.93	9.39	83889	581.28	467.84	8.5	15.2
1909.0	3.3	35.0	159	9.9	2.03	9.69	86795	1334	473	8.5	15.2
1910.0	30.3	35.0	157	9.9	1.36	9.72	87105	145.01	471.08	8.5	15.2
1911.0	11.5	35.0	109	9.9	1.54	9.81	87676	381.43	470.55	8.5	15.2
1912.0	2.8	35.0	159	9.9	2.08	10.17	91092	1567	477	8.5	15.2
1913.0	1.9	35.0	161	9.9	2.20	10.69	96168	2309	488	8.5	15.2

BIT NUMBER	7	IADC CODE	517	INTERVAL	1913.0- 2115.0
HTC J22		SIZE	12.250	NOZZLES	15 15 15
COST	6788.00	TRIP TIME	8.7	BIT RUN	202.0
TOTAL HOURS	20.49	TOTAL TURNS	86778	CONDITION	T2 B3 G0.000

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
1914.0	12.0	35.0	60	9.9	1.35	0.08	300	366	45320	8.5	15.2
1915.0	7.0	35.0	60	9.9	1.51	0.23	814	627	22974	8.5	15.2
1916.0	3.5	40.0	60	10.0	1.77	0.51	1843	1253	15734	8.5	15.2
1917.0	7.7	40.0	60	10.0	1.53	0.64	2311	570	11943	8.5	15.2
1918.0	7.8	30.0	60	10.0	1.40	0.77	2774	564	9667	8.5	15.2
1919.0	4.2	30.0	80	10.0	1.66	1.01	3922	1049	8231	8.5	15.2
1920.0	5.8	30.0	80	10.0	1.57	1.18	4757	763	7164	8.5	15.2
1921.0	9.6	30.0	80	10.0	1.42	1.29	5255	456	6325	8.5	15.2
1922.0	14.2	30.0	80	9.9	1.33	1.36	5593	308	5657	8.5	15.2
1923.0	7.5	35.0	65	9.9	1.52	1.49	6109	581	5149	8.5	15.2
1924.0	9.0	35.0	65	9.9	1.46	1.60	6543	487	4725	8.5	15.2
1925.0	8.6	35.0	65	9.9	1.48	1.72	6996	510	4374	8.5	15.2
1926.0	7.8	35.0	65	9.9	1.51	1.85	7499	565	4081	8.5	15.2
1927.0	12.5	35.0	65	9.9	1.36	1.93	7810	350	3815	8.5	15.2
1928.0	15.3	35.0	65	9.9	1.30	1.99	8065	288	3580	8.5	15.2
1929.0	7.2	35.0	65	9.9	1.53	2.13	8607	609	3394	8.5	15.2
1930.0	6.2	35.0	65	9.9	1.57	2.29	9235	707	3236	8.5	15.2
1931.0	9.6	35.0	65	9.9	1.44	2.40	9642	457	3081	8.5	15.2
1932.0	15.8	35.0	65	9.9	1.29	2.46	9889	278	2934	8.5	15.2
1933.0	15.0	35.0	65	9.9	1.31	2.53	10149	292	2802	8.5	15.2
1934.0	11.3	35.0	65	9.9	1.40	2.61	10495	390	2687	8.5	15.2
1935.0	11.7	35.0	65	9.9	1.39	2.70	10830	377	2582	8.5	15.2
1936.0	6.4	35.0	65	9.9	1.56	2.86	11437	682	2499	8.5	15.2
1937.0	7.0	35.0	65	9.9	1.54	3.00	11996	629	2421	8.5	15.2
1938.0	15.9	30.0	70	9.9	1.26	3.06	12259	275	2336	8.5	15.2
1939.0	9.0	30.0	70	9.9	1.42	3.17	12725	486	2264	8.5	15.2
1940.0	14.5	30.0	70	9.9	1.28	3.24	13014	302	2192	8.5	15.2
1941.0	12.3	30.0	70	9.9	1.33	3.32	13355	356	2126	8.5	15.2
1942.0	23.4	30.0	70	9.9	1.15	3.37	13535	188	2059	8.5	15.2
1943.0	19.9	30.0	70	9.9	1.19	3.42	13746	221	1998	8.5	15.2
1944.0	18.4	30.0	75	9.9	1.24	3.47	13991	239	1941	8.5	15.2
1945.0	37.9	30.0	75	9.9	1.03	3.50	14109	116	1884	8.5	15.2
1946.0	13.5	30.0	75	9.9	1.32	3.57	14442	324	1837	8.5	15.2
1947.0	33.0	30.0	75	9.9	1.07	3.60	14578	133	1787	8.5	15.2
1948.0	32.7	30.0	75	9.9	1.07	3.63	14716	134	1740	8.5	15.2
1949.0	30.3	30.0	75	9.9	1.09	3.66	14864	145	1695	8.5	15.2
1950.0	32.4	30.0	75	9.9	1.07	3.70	15003	135	1653	8.5	15.2
1951.0	29.5	30.0	75	9.9	1.10	3.73	15156	149	1614	8.5	15.2
1952.0	10.1	30.0	75	9.9	1.41	3.83	15599	433	1583	8.5	15.2
1953.0	6.7	30.0	70	9.9	1.50	3.98	16227	656	1560	8.5	15.2
1954.0	8.6	30.0	70	9.9	1.43	4.09	16714	508	1534	8.5	15.2
1955.0	23.8	30.0	70	9.9	1.14	4.14	16890	184	1502	8.5	15.2
1956.0	18.7	30.0	70	9.9	1.21	4.19	17115	235	1473	8.5	15.2

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
1957.0	18.3	30.0	70	9.9	1.22	4.24	17345	240	1445	8.5	15.2
1958.0	13.7	30.0	70	9.9	1.30	4.32	17652	320	1420	8.5	15.2
1959.0	12.2	30.0	70	9.9	1.33	4.40	17997	361	1397	8.5	15.2
1960.0	14.7	30.0	70	9.9	1.28	4.47	18283	299	1373	8.5	15.2
1961.0	14.6	30.0	70	9.9	1.28	4.54	18571	301	1351	8.5	15.3
1962.0	13.0	30.0	70	9.9	1.32	4.61	18895	338	1330	8.5	15.3
1963.0	12.2	30.0	70	9.9	1.33	4.69	19238	358	1311	8.5	15.3
1964.0	9.2	30.0	70	9.9	1.41	4.80	19693	475	1295	8.5	15.3
1965.0	12.0	30.0	70	9.9	1.34	4.89	20044	367	1277	8.5	15.3
1966.0	14.3	30.0	70	9.9	1.29	4.96	20337	306	1258	8.5	15.3
1967.0	11.3	30.0	70	9.9	1.35	5.04	20709	389	1242	8.5	15.3
1968.0	15.7	30.0	70	9.9	1.26	5.11	20977	280	1225	8.5	15.3
1969.0	40.4	30.0	70	9.9	0.99	5.13	21081	108	1205	8.5	15.3
1970.0	22.6	30.0	70	9.9	1.16	5.18	21267	194	1187	8.5	15.3
1971.0	10.5	30.0	70	9.9	1.37	5.27	21666	417	1174	8.5	15.3
1972.0	27.7	35.0	70	9.9	1.15	5.31	21817	158	1157	8.5	15.3
1973.0	7.6	35.0	70	9.9	1.54	5.44	22370	577	1147	8.5	15.3
1974.0	8.5	35.0	70	9.9	1.50	5.56	22864	516	1137	8.5	15.3
1975.0	10.8	35.0	70	9.9	1.43	5.65	23253	406	1125	8.5	15.3
1976.0	6.8	35.0	70	9.9	1.57	5.80	23871	646	1117	8.5	15.3
1977.0	10.1	35.0	70	9.9	1.45	5.90	24289	436	1107	8.5	15.3
1978.0	12.8	35.0	70	9.9	1.38	5.98	24618	344	1095	8.5	15.3
1979.0	8.8	35.0	70	9.9	1.49	6.09	25096	500	1086	8.5	15.3
1980.0	11.8	35.0	70	9.9	1.40	6.17	25451	370	1075	8.5	15.3
1981.0	10.3	35.0	70	9.9	1.44	6.27	25858	425	1066	8.5	15.3
1982.0	8.4	40.0	70	10.0	1.55	6.39	26360	524	1058	8.5	15.3
1983.0	6.7	40.0	70	10.0	1.62	6.54	26988	657	1052	8.5	15.3
1984.0	6.4	40.0	70	10.0	1.64	6.70	27644	685	1047	8.5	15.3
1985.0	6.4	40.0	85	10.0	1.70	6.85	28440	685	1042	8.5	15.3
1986.0	6.3	40.0	85	10.0	1.70	7.01	29251	697	1037	8.5	15.3
1987.0	5.7	40.0	85	10.0	1.73	7.19	30139	764	1033	8.5	15.3
1988.0	6.4	40.0	80	10.0	1.68	7.34	30887	684	1029	8.5	15.3
1989.0	9.8	40.0	80	10.0	1.55	7.44	31378	448	1021	8.5	15.3
1990.0	11.8	40.0	80	10.0	1.49	7.53	31784	372	1013	8.5	15.3
1991.0	35.6	40.0	80	10.0	1.15	7.56	31919	123	1001	8.5	15.3
1992.0	11.4	40.0	80	10.0	1.50	7.64	32339	383.86	993.50	8.5	15.3
1993.0	14.8	40.0	80	10.0	1.42	7.71	32663	296.12	984.79	8.5	15.3
1994.0	10.3	40.0	80	10.0	1.53	7.81	33128	425.30	977.88	8.5	15.3
1995.0	18.5	40.0	70	10.0	1.31	7.86	33356	237.63	968.85	8.5	15.3
1996.0	9.4	40.0	70	10.0	1.52	7.97	33805	469.17	962.83	8.5	15.3
1997.0	8.3	45.0	70	10.0	1.61	8.09	34312	530.10	957.68	8.5	15.3
1998.0	5.6	40.0	70	10.0	1.68	8.27	35059	779.91	955.59	8.5	15.3
1999.0	5.6	45.0	70	10.0	1.74	8.45	35813	787.22	953.63	8.5	15.3
2000.0	4.6	45.0	70	10.0	1.80	8.66	36719	946.86	953.55	8.5	15.3
2001.0	6.2	45.0	70	10.0	1.71	8.83	37402	712.89	950.82	8.5	15.3
2002.0	4.5	40.0	75	10.0	1.76	9.05	38393	966.36	950.99	8.5	15.3
2003.0	5.9	40.0	75	10.0	1.68	9.21	39153	740.92	948.66	8.5	15.3
2004.0	10.7	40.0	75	10.0	1.50	9.31	39573	409.45	942.73	8.5	15.3
2005.0	7.9	40.0	75	10.0	1.59	9.43	40139	552.03	938.49	8.5	15.3
2006.0	6.0	40.0	75	10.0	1.68	9.60	40885	727.51	936.22	8.5	15.3

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2007.0	4.5	40.0	75	10.0	1.76	9.82	41877	966.36	936.54	8.5	15.3
2008.0	7.3	40.0	75	10.0	1.62	9.96	42493	600.96	933.01	8.5	15.3
2009.0	7.4	40.0	75	10.0	1.61	10.09	43099	591.03	929.44	8.5	15.3
2010.0	9.4	45.0	75	10.0	1.60	10.20	43577	465.51	924.66	8.5	15.3
2011.0	8.8	45.0	75	10.0	1.62	10.31	44088	498.41	920.31	8.5	15.3
2012.0	10.3	45.0	75	10.0	1.57	10.41	44527	427.73	915.34	8.5	15.3
2013.0	8.7	45.0	75	10.0	1.62	10.52	45044	504.51	911.23	8.5	15.3
2014.0	11.5	45.0	75	10.0	1.53	10.61	45434	380.21	905.97	8.5	15.3
2015.0	27.9	45.0	75	10.0	1.25	10.65	45596	157.20	898.63	8.5	15.3
2016.0	29.8	45.0	75	10.0	1.23	10.68	45747	147.45	891.34	8.5	15.3
2017.0	24.5	45.0	75	10.0	1.29	10.72	45931	179.14	884.49	8.5	15.3
2018.0	18.3	45.0	75	10.0	1.38	10.78	46177	240.07	878.35	8.5	15.3
2019.0	7.2	45.0	75	10.0	1.68	10.91	46802	609.31	875.81	8.5	15.3
2020.0	9.4	45.0	75	10.0	1.60	11.02	47283	469.17	872.01	8.5	15.3
2021.0	7.0	45.0	75	10.0	1.69	11.16	47927	627.58	869.75	8.5	15.3
2022.0	7.0	45.0	75	10.0	1.69	11.31	48572	628.80	867.54	8.5	15.3
2023.0	6.5	45.0	75	10.0	1.71	11.46	49264	675.11	865.79	8.5	15.3
2024.0	7.0	45.0	75	10.0	1.69	11.61	49911	630.02	863.67	8.5	15.3
2025.0	8.4	45.0	65	10.0	1.59	11.72	50373	520.35	860.60	8.5	15.3
2026.0	8.4	45.0	65	10.0	1.59	11.84	50837	521.57	857.60	8.5	15.3
2027.0	6.4	45.0	65	10.0	1.67	12.00	51443	681.20	856.05	8.5	15.3
2028.0	7.7	45.0	65	10.0	1.61	12.13	51948	569.09	853.56	8.5	15.3
2029.0	11.5	45.0	65	10.0	1.48	12.21	52286	380.21	849.48	8.5	15.3
2030.0	10.7	45.0	65	10.0	1.51	12.31	52650	409.45	845.72	8.5	15.3
2031.0	5.5	45.0	65	10.0	1.72	12.49	53363	801.24	845.34	8.5	15.3
2032.0	5.2	45.0	65	10.0	1.74	12.68	54110	840.84	845.30	8.5	15.3
2033.0	8.2	45.0	65	10.0	1.59	12.80	54587	536.19	842.72	8.5	15.3
2034.0	9.7	45.0	65	10.0	1.54	12.91	54988	450.89	839.49	8.5	15.3
2035.0	12.6	45.0	65	10.0	1.46	12.99	55296	347.30	835.45	8.5	15.3
2036.0	13.0	45.0	65	10.0	1.45	13.06	55597	337.56	831.40	8.5	15.3
2037.0	24.8	45.0	65	10.0	1.24	13.10	55754	176.70	826.12	8.5	15.3
2038.0	29.8	45.0	65	10.0	1.18	13.14	55885	147.45	820.69	8.5	15.3
2039.0	29.8	45.0	65	10.0	1.18	13.17	56016	147.45	815.35	8.5	15.3
2040.0	12.9	45.0	70	10.0	1.47	13.25	56341	339.99	811.61	8.5	15.3
2041.0	28.3	45.0	70	10.0	1.22	13.28	56489	154.76	806.48	8.5	15.3
2042.0	29.5	45.0	70	10.0	1.21	13.32	56632	148.67	801.38	8.5	15.4
2043.0	41.4	45.0	70	10.0	1.10	13.34	56733	106.02	796.03	8.5	15.4
2044.0	15.7	45.0	70	10.0	1.41	13.41	57002	280.28	792.09	8.5	15.4
2045.0	13.8	45.0	70	10.0	1.45	13.48	57305	316.84	788.49	8.5	15.4
2046.0	10.7	45.0	70	10.0	1.53	13.57	57696	408.23	785.63	8.5	15.4
2047.0	8.3	45.0	70	10.0	1.61	13.69	58203	530.10	783.73	8.5	15.4
2048.0	45.0	45.0	70	10.0	1.07	13.71	58297	97.49	778.64	8.5	15.4
2049.0	10.7	45.0	70	10.0	1.53	13.81	58687	408.23	775.92	8.5	15.4
2050.0	8.3	45.0	70	10.0	1.61	13.93	59193	527.66	774.11	8.5	15.4
2051.0	8.3	45.0	70	10.0	1.61	14.05	59698	527.66	772.32	8.5	15.4
2052.0	22.9	45.0	70	10.0	1.29	14.09	59881	191.32	768.14	8.5	15.4
2053.0	28.8	45.0	70	10.0	1.22	14.13	60027	152.33	763.74	8.5	15.4
2054.0	24.0	45.0	70	10.0	1.27	14.17	60202	182.79	759.62	8.5	15.4
2055.0	24.2	45.0	70	10.0	1.27	14.21	60376	181.57	755.55	8.5	15.4
2056.0	24.2	45.0	70	10.0	1.27	14.25	60549	181.57	751.54	8.5	15.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	URNS	ICOST	CCOST	PP	FG
2057.0	21.1	45.0	70	10.0	1.32	14.30	60749	208.38	747.77	8.5	15.4
2058.0	13.2	45.0	70	10.0	1.47	14.37	61067	332.68	744.90	8.5	15.4
2059.0	18.8	45.0	70	10.0	1.35	14.43	61291	233.97	741.40	8.5	15.4
2060.0	17.0	45.0	70	10.0	1.38	14.49	61539	258.35	738.12	8.5	15.4
2061.0	8.8	45.0	70	10.0	1.59	14.60	62014	495.97	736.48	8.5	15.4
2062.0	8.7	45.0	70	10.0	1.60	14.71	62497	504.51	734.92	8.5	15.4
2063.0	8.6	45.0	70	10.0	1.60	14.83	62984	509.38	733.42	8.5	15.4
2064.0	6.6	45.0	70	10.0	1.69	14.98	63620	664.14	732.96	8.5	15.4
2065.0	6.5	45.0	70	10.0	1.69	15.14	64271	679.99	732.61	8.5	15.4
2066.0	6.9	45.0	70	10.0	1.68	15.28	64884	639.77	732.01	8.5	15.4
2067.0	6.4	45.0	70	10.0	1.70	15.44	65543	688.52	731.72	8.5	15.4
2068.0	7.2	45.0	70	9.9	1.68	15.58	66125	608.09	730.93	8.5	15.4
2069.0	6.6	45.0	70	9.9	1.70	15.73	66760	662.92	730.49	8.5	15.4
2070.0	7.5	45.0	70	9.9	1.66	15.86	67321	586.15	729.57	8.5	15.4
2071.0	6.6	45.0	70	9.9	1.71	16.01	67959	666.58	729.17	8.5	15.4
2072.0	6.6	45.0	70	9.9	1.70	16.17	68595	664.14	728.76	8.5	15.4
2073.0	7.0	45.0	70	9.9	1.69	16.31	69197	628.80	728.14	8.5	15.4
2074.0	6.7	45.0	70	9.9	1.70	16.46	69822	653.18	727.67	8.5	15.4
2075.0	5.6	45.0	70	9.9	1.76	16.64	70578	789.66	728.06	8.5	15.4
2076.0	5.8	45.0	70	9.9	1.75	16.81	71304	757.98	728.24	8.5	15.4
2077.0	11.0	45.0	70	9.9	1.54	16.90	71686	398.82	726.23	8.5	15.4
2078.0	13.6	45.0	70	9.9	1.47	16.97	71993	321.41	723.78	8.5	15.4
2079.0	9.4	45.0	70	9.9	1.59	17.08	72439	465.51	722.22	8.5	15.4
2080.0	15.4	45.0	70	9.9	1.43	17.15	72712	285.16	719.60	8.5	15.4
2081.0	13.7	45.0	70	9.9	1.47	17.22	73019	320.49	717.23	8.5	15.4
2082.0	10.5	45.0	70	9.9	1.55	17.31	73418	416.76	715.45	8.5	15.4
2083.0	8.3	45.0	70	9.9	1.63	17.43	73924	528.88	714.35	8.5	15.4
2084.0	18.2	45.0	70	9.9	1.38	17.49	74155	241.29	711.59	8.5	15.4
2085.0	19.8	45.0	70	9.9	1.35	17.54	74367	221.79	708.74	8.5	15.4
2086.0	18.7	45.0	70	9.9	1.37	17.59	74593	235.19	706.00	8.5	15.4
2087.0	22.5	45.0	70	9.9	1.31	17.64	74779	194.98	703.06	8.5	15.4
2088.0	23.4	45.0	70	9.9	1.30	17.68	74959	187.67	700.12	8.5	15.4
2089.0	23.5	45.0	70	9.9	1.29	17.72	75137	186.45	697.20	8.5	15.4
2090.0	22.0	45.0	70	9.9	1.32	17.77	75329	199.85	694.39	8.5	15.4
2091.0	8.3	45.0	70	9.9	1.63	17.89	75834	527.66	693.45	8.5	15.4
2092.0	16.1	45.0	70	9.9	1.42	17.95	76095	272.97	691.11	8.5	15.4
2093.0	16.1	45.0	70	9.9	1.42	18.01	76357	272.97	688.78	8.5	15.4
2094.0	11.4	45.0	70	9.9	1.53	18.10	76725	385.08	687.10	8.5	15.4
2095.0	6.3	45.0	70	9.9	1.72	18.26	77388	692.17	687.13	8.5	15.4
2096.0	4.5	45.0	70	9.9	1.83	18.48	78328	982.20	688.74	8.5	15.4
2097.0	6.6	45.0	70	9.9	1.70	18.63	78961	660.49	688.59	8.5	15.4
2098.0	20.1	45.0	70	9.9	1.34	18.68	79169	218.13	686.05	8.5	15.4
2099.0	12.6	45.0	70	9.9	1.50	18.76	79503	348.52	684.23	8.5	15.4
2100.0	12.7	45.0	70	9.9	1.49	18.84	79834	346.09	682.43	8.5	15.4
2101.0	28.1	45.0	70	9.9	1.24	18.88	79984	155.98	679.62	8.5	15.4
2102.0	11.7	45.0	70	9.9	1.52	18.96	80344	376.55	678.02	8.5	15.4
2103.0	6.8	45.0	70	9.9	1.69	19.11	80959	642.21	677.83	8.5	15.4
2104.0	6.1	45.0	70	9.9	1.73	19.27	81646	717.76	678.04	8.5	15.4
2105.0	9.1	45.0	70	9.9	1.60	19.38	82108	482.09	677.02	8.5	15.4
2106.0	9.1	45.0	70	9.9	1.60	19.49	82569	481.35	676.01	8.5	15.4

DEPTH	ROP	WOB	RPM	MW	"d"c	HOURS	TURNS	ICOST	CCOST	PP	FG
2107.0	5.0	45.0	70	9.9	1.79	19.69	83401	868.87	677.00	8.5	15.4
2108.0	18.7	45.0	70	9.9	1.37	19.74	83626	235.19	674.74	8.5	15.4
2109.0	6.3	45.0	70	9.9	1.72	19.90	84295	699.48	674.86	8.5	15.4
2110.0	16.2	45.0	70	9.9	1.41	19.97	84554	270.53	672.81	8.5	15.4
2111.0	18.0	45.0	70	9.9	1.38	20.02	84788	243.72	670.64	8.5	15.4
2112.0	9.9	45.0	70	9.9	1.57	20.12	85210	441.14	669.49	8.5	15.4
2113.0	6.4	45.0	70	9.9	1.71	20.28	85865	683.64	669.56	8.5	15.4
2114.0	6.3	45.0	70	9.9	1.72	20.44	86531	695.83	669.69	8.5	15.4
2115.0	17.0	45.0	70	9.9	1.40	20.49	86778	258.35	667.65	8.5	15.4

(d) COMPUTER DATA LISTING : LIST B

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

URNS. 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

S

381098

BIT NUMBER	1	IADC CODE	111	INTERVAL	94.0- 229.0
HTC OSC 3AJ		SIZE	26.000	NOZZLES	20 20 20
COST	7000.00	TRIP TIME	1.8	BIT RUN	135.0
TOTAL HOURS	1.41	TOTAL TURNS	6963	CONDITION	T2 B2 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
100.0	180.0	6.0	0.03	172	15042.83	24	2507	-
110.0	157.5	16.0	0.10	507	15321.44	27.86	957.59	-
120.0	165.0	26.0	0.16	820	15587.32	26.59	599.51	-
130.0	206.4	36.0	0.21	1075	15799.82	21.25	438.88	-
140.0	186.0	46.0	0.26	1358	16035.72	23.59	348.60	-
150.0	141.4	56.0	0.33	1723	16345.97	31.02	291.89	-
160.0	35.4	66.0	0.61	3137	17583.96	123.80	266.42	-
170.0	112.7	76.0	0.70	3574	17973.18	38.92	236.49	-
180.0	198.0	86.0	0.75	3822	18194.74	22.16	211.57	-
190.0	201.0	96.0	0.80	4067	18413.01	21.83	191.80	-
200.0	66.4	106.0	0.95	4807	19073.28	66.03	179.94	-
210.0	80.2	116.0	1.08	5420	19620.02	54.67	169.14	-
220.0	67.1	126.0	1.23	6109	20274.22	65.42	160.91	-
229.0	48.7	135.0	1.41	6963	21084.70	90.05	156.18	-

381099

BIT NUMBER	2	IADC CODE	111	INTERVAL	229.0-	322.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20	20 20
COST	1850.00	TRIP TIME	2.2	BIT RUN		93.0
TOTAL HOURS	1.45	TOTAL TURNS	12459	CONDITION	T1	B1 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
240.0	75.0	11.0	0.15	1232	12144.83	58	1104	-
250.0	84.0	21.0	0.27	2303	12667.09	52.23	603.19	-
260.0	58.0	31.0	0.44	3855	13423.47	75.64	433.02	-
270.0	79.0	41.0	0.56	4979	13978.78	55.53	340.95	-
280.0	65.0	51.0	0.72	6318	14653.71	67.49	287.33	-
290.0	53.0	61.0	0.91	7959	15481.44	82.77	253.79	-
300.0	65.0	71.0	1.06	9251	16156.37	67.49	227.55	-
322.0	57.2	93.0	1.45	12459	17843.67	76.70	191.87	-

381100

BIT NUMBER	2	IADC CODE	111	INTERVAL	322.0-	880.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20	20 20
COST	1850.00	TRIP TIME	4.2	BIT RUN		558.0
TOTAL HOURS	8.44	TOTAL TURNS	77605	CONDITION	T1	B3 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
323.0	48.0	94.0	1.47	12647	26727.95	91.40	284.34	-
328.0	48.0	99.0	1.58	13584	27184.93	91.40	274.60	-
337.0	112.0	108.0	1.66	14331	27537.45	39.17	254.98	-
347.0	127.0	118.0	1.73	15059	27882.88	34.54	236.30	-
355.0	112.0	126.0	1.81	15710	28196.24	39.17	223.78	-
365.0	37.0	136.0	2.08	18224	29381.92	118.57	216.04	-
375.0	71.0	146.0	2.22	19441	29999.80	61.79	205.48	-
385.0	22.0	156.0	2.67	23395	31993.90	199.41	205.09	-
395.0	56.0	166.0	2.85	24949	32777.29	78.34	197.45	-
405.0	118.0	176.0	2.93	25681	33149.07	37.18	188.35	-
415.0	91.0	186.0	3.04	26650	33631.16	48.21	180.81	-
425.0	109.0	196.0	3.14	27421	34033.63	40.25	173.64	-
435.0	62.0	206.0	3.30	28776	34741.21	70.76	168.65	-
445.0	41.0	216.0	3.54	30825	35811.21	107.00	165.79	-
455.0	123.0	226.0	3.62	31507	36167.88	35.67	160.03	-
460.0	112.0	231.0	3.67	31882	36363.73	39.17	157.42	-
470.0	94.0	241.0	3.77	32789	36830.43	46.67	152.82	-
480.0	93.0	251.0	3.88	33724	37302.15	47.17	148.61	-
490.0	159.0	261.0	3.94	34271	37578.06	27.59	143.98	-
500.0	103.0	271.0	4.04	35116	38003.99	42.59	140.24	-
510.0	47.0	281.0	4.25	36967	38937.39	93.34	138.57	-
520.0	127.0	291.0	4.33	37652	39282.82	34.54	134.99	-
530.0	95.0	301.0	4.44	38568	39744.61	46.18	132.04	-
540.0	161.0	311.0	4.50	39108	40017.10	27.25	128.67	-
550.0	146.0	321.0	4.57	39704	40317.58	30.05	125.60	-
560.0	156.0	331.0	4.63	40262	40598.79	28.12	122.65	-
565.0	150.0	336.0	4.67	40552	40745.03	29.25	121.26	-
575.0	108.0	346.0	4.76	41330	41151.23	40.62	118.93	-
585.0	135.0	356.0	4.83	41952	41476.19	32.50	116.51	-
590.0	145.0	361.0	4.87	42242	41627.47	30.26	115.31	-
600.0	108.0	371.0	4.96	43019	42033.67	40.62	113.30	-
610.0	135.0	381.0	5.03	43642	42358.64	32.50	111.18	-
620.0	180.0	391.0	5.09	44108	42602.36	24.37	108.96	-
630.0	60.0	401.0	5.26	45558	43333.53	73.12	108.06	-
640.0	41.0	411.0	5.50	47680	44403.53	107.00	108.04	-
650.0	47.0	421.0	5.71	49850	45336.93	93.34	107.69	-
660.0	91.0	431.0	5.82	51037	45819.02	48.21	106.31	-
670.0	94.0	441.0	5.93	52250	46285.72	46.67	104.96	-
680.0	80.0	451.0	6.05	53525	46834.10	54.84	103.85	-
690.0	108.0	461.0	6.15	54514	47240.30	40.62	102.47	-
700.0	82.0	471.0	6.27	55685	47775.30	53.50	101.43	-
710.0	92.0	481.0	6.38	56728	48252.15	47.68	100.32	-
720.0	90.0	491.0	6.49	57855	48739.59	48.74	99.27	-

381101

DEPTH	ROP	BIT RUN	HOURS	URNS	TOTAL COST	ICOST	CCOST	I-C
730.0	82.0	501.0	6.61	59099	49274.59	53.50	98.35	-
735.0	73.0	506.0	6.68	59797	49575.07	60.10	97.97	-
745.0	68.0	516.0	6.83	61297	50220.22	64.51	97.33	-
755.0	113.0	526.0	6.91	62168	50608.45	38.82	96.21	-
765.0	43.0	536.0	7.15	64470	51628.68	102.02	96.32	+
775.0	71.0	546.0	7.29	65865	52246.57	61.79	95.69	-
785.0	84.0	556.0	7.41	67043	52768.83	52.23	94.91	-
790.0	84.0	561.0	7.47	67633	53029.96	52.23	94.53	-
800.0	71.0	571.0	7.61	69069	53647.85	61.79	93.95	-
810.0	95.0	581.0	7.71	70105	54109.64	46.18	93.13	-
820.0	120.0	591.0	7.80	70955	54475.22	36.56	92.17	-
830.0	102.0	601.0	7.89	71985	54905.32	43.01	91.36	-
840.0	104.0	611.0	7.99	72994	55327.15	42.18	90.55	-
850.0	145.0	621.0	8.06	73718	55629.70	30.26	89.58	-
860.0	71.0	631.0	8.20	75197	56247.58	61.79	89.14	-
870.0	57.0	641.0	8.38	76987	57017.23	76.96	88.95	-
880.0	165.0	651.0	8.44	77605	57283.11	26.59	87.99	-

381102

BIT NUMBER	3	IADC CODE	114	INTERVAL	880.0- 886.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	4.2	BIT RUN	6.0
TOTAL HOURS	0.07	TOTAL TURNS	400	CONDITION	T1 B1 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
886.0	90.0	6.0	0.07	400	20105.87	49	3351	-

381103

BIT NUMBER	4	IADC CODE	114	INTERVAL	886.0- 1333.0
HTC X3A		SIZE	12.250	NOZZLES	16.16 15
COST	1388.00	TRIP TIME	5.8	BIT RUN	447.0
TOTAL HOURS	6.63	TOTAL TURNS	64955	CONDITION	T4 B2 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
890.0	71.5	4.0	0.06	433	27078.06	61	6770	-
900.0	84.5	14.0	0.17	1444	27597.25	52	1971	-
910.0	79.9	24.0	0.30	2548	28146.05	55	1173	-
920.0	66.7	34.0	0.45	3842	28803.64	65.76	847.17	-
930.0	70.1	44.0	0.59	5174	29429.47	62.58	668.85	-
940.0	66.2	54.0	0.74	6624	30091.97	66.25	557.26	-
950.0	45.5	64.0	0.96	8736	31057.14	96.52	485.27	-
960.0	42.8	74.0	1.20	11017	32082.37	102.52	433.55	-
970.0	62.1	84.0	1.36	12665	32788.57	70.62	390.34	-
980.0	66.5	94.0	1.51	14145	33448.60	66.00	355.84	-
990.0	49.1	104.0	1.71	16223	34342.25	89.36	330.21	-
1000.0	90.5	114.0	1.82	17353	34827.02	48.48	305.50	-
1010.0	75.9	124.0	1.95	18700	35404.65	57.76	285.52	-
1020.0	92.4	134.0	2.06	19807	35879.27	47.46	267.76	-
1030.0	105.7	144.0	2.16	20774	36294.35	41.51	252.04	-
1040.0	60.4	154.0	2.32	22462	37020.22	72.59	240.39	-
1050.0	77.5	164.0	2.45	23779	37586.52	56.63	229.19	-
1060.0	127.5	174.0	2.53	24577	37930.73	34.42	217.99	-
1070.0	80.1	184.0	2.65	25851	38478.67	54.79	209.12	-
1080.0	132.4	194.0	2.73	26621	38810.13	33.15	200.05	-
1090.0	108.0	204.0	2.82	27559	39216.34	40.62	192.24	-
1100.0	90.0	214.0	2.93	28686	39703.60	48.73	185.53	-
1110.0	110.4	224.0	3.02	29607	40100.82	39.72	179.02	-
1120.0	107.3	234.0	3.12	30544	40509.77	40.89	173.12	-
1130.0	100.5	244.0	3.22	31536	40946.37	43.66	167.81	-
1140.0	85.4	254.0	3.33	32644	41460.33	51.40	163.23	-
1150.0	105.7	264.0	3.43	33524	41875.47	41.51	158.62	-
1160.0	105.1	274.0	3.52	34438	42293.00	41.75	154.35	-
1170.0	92.9	284.0	3.63	35483	42765.22	47.22	150.58	-
1180.0	77.1	294.0	3.76	36764	43334.25	56.90	147.40	-
1190.0	128.0	304.0	3.84	37540	43677.07	34.28	143.67	-
1200.0	75.1	314.0	3.97	38863	44260.99	58.39	140.96	-
1210.0	62.4	324.0	4.13	40454	44964.04	70.30	138.78	-
1220.0	63.4	334.0	4.29	42020	45655.97	69.19	136.69	-
1230.0	55.0	344.0	4.47	43821	46453.87	79.79	135.04	-
1240.0	38.0	354.0	4.74	46413	47606.87	115.30	134.48	-
1250.0	52.7	364.0	4.93	48349	48439.56	83.27	133.08	-
1260.0	41.8	374.0	5.16	50679	49489.44	104.99	132.32	-
1270.0	51.4	384.0	5.36	52611	50342.47	85.30	131.10	-
1280.0	50.4	394.0	5.56	54587	51212.90	87.04	129.98	-
1290.0	57.8	404.0	5.73	56311	51972.19	75.93	128.64	-
1300.0	53.2	414.0	5.92	58156	52797.10	82.49	127.53	-
1310.0	51.9	424.0	6.11	60005	53642.00	84.49	126.51	-

381104

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C.
1320.0	37.0	434.0	6.38	62601	54828.39	118.64	126.33	-
1330.0	49.7	444.0	6.58	64531	55710.24	88.19	125.47	-
1333.0	68.0	447.0	6.63	64955	55903.79	64.51	125.06	-

381105

BIT NUMBER	5	IADC CODE	114	INTERVAL	1333.0- 1742.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	7.3	BIT RUN	409.0
TOTAL HOURS	19.41	TOTAL TURNS	184180	CONDITION	T7 B8 G0.125

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1340.0	29.0	7.0	0.24	2242	34470.68	151	4924	-
1350.0	27.0	17.0	0.61	5653	36095.50	162	2123	-
1360.0	23.5	27.0	1.04	9678	37963.15	187	1406	-
1370.0	27.0	37.0	1.41	13122	39587.96	162	1070	-
1380.0	28.4	47.0	1.76	16464	41131.54	154.36	875.14	-
1390.0	31.5	57.0	2.08	19510	42523.57	139.20	746.03	-
1400.0	41.3	67.0	2.32	21833	43585.04	106.15	650.52	-
1410.0	100.4	77.0	2.42	22785	44021.90	43.69	571.71	-
1420.0	37.4	87.0	2.69	25379	45194.15	117.22	519.47	-
1430.0	37.2	97.0	2.95	27955	46373.31	117.92	478.08	-
1440.0	33.6	107.0	3.25	30680	47678.08	130.48	445.59	-
1450.0	39.3	117.0	3.51	32993	48795.02	111.69	417.05	-
1460.0	41.8	127.0	3.75	35208	49844.03	104.90	392.47	-
1470.0	42.6	137.0	3.98	37507	50874.45	103.04	371.35	-
1480.0	43.1	147.0	4.21	39791	51892.12	101.77	353.01	-
1490.0	32.1	157.0	4.52	42866	53256.81	136.47	339.22	-
1500.0	40.2	167.0	4.77	45336	54349.46	109.26	325.45	-
1510.0	24.4	177.0	5.18	49475	56150.81	180.14	317.24	-
1520.0	19.9	187.0	5.69	54490	58354.67	220.39	312.06	-
1530.0	45.8	197.0	5.90	56650	59312.02	95.74	301.08	-
1540.0	41.7	207.0	6.14	59025	60363.73	105.17	291.61	-
1550.0	30.7	217.0	6.47	62202	61791.52	142.78	284.75	-
1560.0	28.2	227.0	6.82	65602	63345.65	155.41	279.06	-
1570.0	39.6	237.0	7.08	67984	64453.87	110.82	271.96	-
1580.0	28.1	247.0	7.43	71371	66015.92	156.21	267.27	-
1590.0	20.0	257.0	7.93	76174	68210.70	219.48	265.41	-
1600.0	21.7	267.0	8.39	80579	70230.09	201.94	263.03	-
1610.0	13.2	277.0	9.15	87825	73552.68	332.26	265.53	+
1620.0	12.2	287.0	9.97	95323	77136.23	358.35	268.77	+
1630.0	24.6	297.0	10.37	98888	78920.74	178.45	265.73	-
1640.0	23.7	307.0	10.79	102860	80769.17	184.84	263.09	-
1650.0	6.7	317.0	12.28	116666	87281.78	651.26	275.34	+
1660.0	16.5	327.0	12.89	122310	89944.43	266.27	275.06	-
1670.0	8.4	337.0	14.08	133371	95198.30	525.39	282.49	+
1680.0	26.8	347.0	14.46	136738	96833.89	163.56	279.06	-
1690.0	31.7	357.0	14.77	139700	98216.98	138.31	275.12	-
1700.0	40.7	367.0	15.02	142111	99294.08	107.71	270.56	-
1710.0	19.9	377.0	15.52	147023	101494.85	220.08	269.22	-
1720.0	6.2	387.0	17.14	162822	108605.86	711.10	280.64	+
1730.0	20.8	397.0	17.62	167387	110712.79	210.69	278.87	-
1740.0	6.2	407.0	19.23	182539	117796.19	708.34	289.43	+
1742.0	11.5	409.0	19.41	184180	118560.59	382.20	289.88	+

381106

BIT NUMBER	6	IADC CODE	134	INTERVAL	1742.0- 1913.0
HTC X1G		SIZE	12.250	NOZZLES	15.15 15
COST	1388.00	TRIP TIME	8.0	BIT RUN	171.0
TOTAL HOURS	10.69	TOTAL TURNS	96168	CONDITION	T7 B4 G0.250

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1750.0	7.2	8.0	1.11	10496	41351.38	608	5169	-
1760.0	9.3	18.0	2.19	19112	46080.31	473	2560	-
1770.0	49.7	28.0	2.39	20747	46962.59	88	1677	-
1780.0	18.3	38.0	2.94	25656	49360.81	240	1299	-
1790.0	33.6	48.0	3.23	28487	50667.16	131	1056	-
1800.0	35.5	58.0	3.51	31234	51902.33	123.52	894.87	-
1810.0	35.7	68.0	3.79	33904	53131.91	122.96	781.35	-
1820.0	18.1	78.0	4.35	38811	55553.29	242.14	712.22	-
1830.0	20.7	88.0	4.83	43323	57667.58	211.43	655.31	-
1840.0	32.5	98.0	5.14	46287	59018.41	135.08	602.23	-
1850.0	12.4	108.0	5.94	54090	62562.30	354.39	579.28	-
1860.0	23.7	118.0	6.37	58138	64412.15	184.99	545.87	-
1870.0	11.8	128.0	7.22	65497	68136.22	372.41	532.31	-
1880.0	16.8	138.0	7.81	69940	70747.71	261.15	512.66	-
1890.0	23.5	148.0	8.24	73471	72618.28	187.06	490.66	-
1900.0	14.7	158.0	8.91	79374	75592.76	297.45	478.44	-
1910.0	12.4	168.0	9.72	87105	79141.36	354.86	471.08	-
1913.0	3.1	171.0	10.69	96168	83398.52	1419	488	+

381107

BIT NUMBER	7	IADC CODE	517	INTERVAL	1913.0- 2115.0
HTC J22		SIZE	12.250	NOZZLES	15 15 15
COST	6788.00	TRIP TIME	8.7	BIT RUN	202.0
TOTAL HOURS	20.49	TOTAL TURNS	86778	CONDITION	T2 B3 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
1920.0	5.9	7.0	1.18	4757	50147.23	742	7164	-
1930.0	9.0	17.0	2.29	9235	55009.00	486	3236	-
1940.0	10.5	27.0	3.24	13014	59177.87	417	2192	-
1950.0	22.0	37.0	3.70	15003	61167.86	199	1653	-
1960.0	13.0	47.0	4.47	18283	64551.95	338	1373	-
1970.0	14.1	57.0	5.18	21267	67668.55	312	1187	-
1980.0	10.0	67.0	6.17	25451	72039.15	437	1075	-
1990.0	7.4	77.0	7.53	31784	77979.88	594	1013	-
2000.0	8.8	87.0	8.66	36719	82959.13	497.92	953.55	-
2010.0	6.5	97.0	10.20	43577	89692.14	673.30	924.66	-
2020.0	12.1	107.0	11.02	47283	93305.32	361.32	872.01	-
2030.0	7.8	117.0	12.31	52650	98948.71	564.34	845.72	-
2040.0	10.6	127.0	13.25	56341	103074.31	412.56	811.61	-
2050.0	14.7	137.0	13.93	59193	106052.60	297.83	774.11	-
2060.0	17.9	147.0	14.49	61539	108503.23	245.06	738.12	-
2070.0	7.3	157.0	15.86	67321	114542.66	603.94	729.57	-
2080.0	7.8	167.0	17.15	72712	120173.89	563.12	719.60	-
2090.0	16.0	177.0	17.77	75329	122907.24	273.33	694.39	-
2100.0	9.3	187.0	18.84	79834	127613.51	470.63	682.43	-
2110.0	8.9	197.0	19.97	84554	132543.53	493.00	672.81	-
2115.0	9.4	202.0	20.49	86778	134866.20	464.53	667.65	-

(e) COMPUTER DATA LISTING : LIST C

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

381109

BIT NUMBER	1	IADC CODE	111	INTERVAL	94.0- 229.0
HTC OSC 3AJ		SIZE	26.000	NOZZLES	20 20 20
COST	7000.00	TRIP TIME	1.8	BIT RUN	135.0
TOTAL HOURS	1.41	TOTAL TURNS	6963	CONDITION	T2 B2 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
100.0	1020	900.0	972.0	108.0	578	1.09	1614	108
110.0	1020	900.0	972.0	108.0	578	1.09	1614	108
120.0	1020	900.0	972.0	108.0	578	1.09	1614	108
130.0	1020	900.0	972.0	108.0	578	1.09	1614	108
140.0	1020	900.0	972.0	108.0	578	1.09	1614	108
150.0	950	1200.0	843.2	70.3	467	0.88	1400	101
160.0	1040	1300.0	1010.5	77.7	613	1.15	1678	110
170.0	1040	1300.0	1010.5	77.7	613	1.15	1678	110
180.0	1040	1300.0	1010.5	77.7	613	1.15	1678	110
190.0	820	1500.0	628.2	41.9	300	0.57	1043	87
200.0	940	1500.0	825.5	55.0	453	0.85	1370	100
210.0	1030	1600.0	991.1	61.9	595	1.12	1645	109
220.0	1030	1600.0	991.1	61.9	595	1.12	1645	109
229.0	1050	1700.0	1030.0	60.6	631	1.19	1710	111

381110

BIT NUMBER	2	IADC CODE	111	INTERVAL	229.0- 322.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20 20 20
COST	1850.00	TRIP TIME	2.2	BIT RUN	93.0
TOTAL HOURS	1.45	TOTAL TURNS	12459	CONDITION	T1 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
240.0	1050	2900.0	1042.0	35.9	638	2.65	1730	111
250.0	1050	2900.0	1042.0	35.9	638	2.65	1730	111
260.0	600	2750.0	340.2	12.4	119	0.49	565	64
270.0	625	2800.0	369.2	13.2	135	0.56	613	66
280.0	600	2800.0	340.2	12.2	119	0.49	565	64
290.0	600	2800.0	340.2	12.2	119	0.49	565	64
300.0	600	2800.0	340.2	12.2	119	0.49	565	64
322.0	600	2800.0	340.2	12.2	119	0.49	565	64

381111

BIT NUMBER	2	IADC CODE	111	INTERVAL	322.0- 880.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20 20 20
COST	1850.00	TRIP TIME	4.2	BIT RUN	558.0
TOTAL HOURS	8.44	TOTAL TURNS	77605	CONDITION	T1 R3 G0.000

DEPTH	FLOW RATE	PSP	PBIT	ZPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
323.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
328.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
337.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
347.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
355.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
365.0	1250	2700.0	1476.7	54.7	1077	4.48	2452	132
375.0	1250	2700.0	1493.7	55.3	1089	4.53	2480	132
385.0	1250	2700.0	1510.7	56.0	1101	4.58	2508	132
395.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
405.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
415.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
425.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
435.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
445.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
455.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
460.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
470.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
480.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
490.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
500.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
510.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
520.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
530.0	1250	2700.0	1527.6	56.6	1114	4.63	2536	132
540.0	1250	2700.0	1544.6	57.2	1126	4.68	2564	132
550.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
560.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
565.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
575.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
585.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
590.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
600.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
610.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
620.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
630.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
640.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
650.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
660.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
670.0	1250	2700.0	1561.6	57.8	1138	4.73	2592	132
680.0	1245	2800.0	1532.3	54.7	1113	4.63	2544	132
690.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
700.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
710.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
720.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132

381112

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMF FORCE	VELOCITY
730.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
735.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
745.0	1245	2800.0	1515.5	54.1	1100	4.57	2516	132
755.0	1020	2500.0	1017.2	40.7	605	2.52	1689	108
765.0	1020	2500.0	1017.2	40.7	605	2.52	1689	108
775.0	1020	2500.0	1017.2	40.7	605	2.52	1689	108
785.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
790.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
800.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
810.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
820.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
830.0	1180	2800.0	1361.3	48.6	937	3.89	2260	125
840.0	1120	2500.0	1226.4	49.1	801	3.33	2036	119
850.0	1050	2450.0	1077.9	44.0	660	2.74	1789	111
860.0	1120	2500.0	1226.4	49.1	801	3.33	2036	119
870.0	1180	2900.0	1361.3	46.9	937	3.89	2260	125
880.0	1180	2900.0	1361.3	46.9	937	3.89	2260	125

381113

BIT NUMBER	3	IADC CODE	114	INTERVAL	880.0- 886.0
HTC X3A		SIZE	12.250	NOZZLES	16.16 15
COST	1388.00	TRIP TIME	4.2	BIT RUN	6.0
TOTAL HOURS	0.07	TOTAL TURNS	400	CONDITION	T1 B1 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
886.0	795	2600.0	1656.4	63.7	768	6.52	1689	137

381114

BIT NUMBER	4	IADC CODE	114	INTERVAL	886.0- 1333.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	5.8	BIT RUN	447.0
TOTAL HOURS	6.63	TOTAL TURNS	64955	CONDITION	T4 B2 G0.000

DEPTH	ROP	BIT RUN	HOURS	TURNS	TOTAL COST	ICOST	CCOST	I-C
890.0	71.5	4.0	0.06	433	27078.06	61	6770	-
900.0	84.5	14.0	0.17	1444	27597.25	52	1971	-
910.0	79.9	24.0	0.30	2548	28146.05	55	1173	-
920.0	66.7	34.0	0.45	3842	28803.64	65.76	847.17	-
930.0	70.1	44.0	0.59	5174	29429.47	62.58	668.85	-
940.0	66.2	54.0	0.74	6624	30091.97	66.25	557.26	-
950.0	45.5	64.0	0.96	8736	31057.14	96.52	485.27	-
960.0	42.8	74.0	1.20	11017	32082.37	102.52	433.55	-
970.0	62.1	84.0	1.36	12665	32788.57	70.62	390.34	-
980.0	66.5	94.0	1.51	14145	33448.60	66.00	355.84	-
990.0	49.1	104.0	1.71	16223	34342.25	89.36	330.21	-
1000.0	90.5	114.0	1.82	17353	34827.02	48.48	305.50	-
1010.0	75.9	124.0	1.95	18700	35404.65	57.76	285.52	-
1020.0	92.4	134.0	2.06	19807	35879.27	47.46	267.76	-
1030.0	105.7	144.0	2.16	20774	36294.35	41.51	252.04	-
1040.0	60.4	154.0	2.32	22462	37020.22	72.59	240.39	-
1050.0	77.5	164.0	2.45	23779	37586.52	56.63	229.19	-
1060.0	127.5	174.0	2.53	24577	37930.73	34.42	217.99	-
1070.0	80.1	184.0	2.65	25851	38478.67	54.79	209.12	-
1080.0	132.4	194.0	2.73	26621	38810.13	33.15	200.05	-
1090.0	108.0	204.0	2.82	27559	39216.34	40.62	192.24	-
1100.0	90.0	214.0	2.93	28686	39703.60	48.73	185.53	-
1110.0	110.4	224.0	3.02	29607	40100.82	39.72	179.02	-
1120.0	107.3	234.0	3.12	30544	40509.77	40.89	173.12	-
1130.0	100.5	244.0	3.22	31536	40946.37	43.66	167.81	-
1140.0	85.4	254.0	3.33	32644	41460.33	51.40	163.23	-
1150.0	105.7	264.0	3.43	33524	41875.47	41.51	158.62	-
1160.0	105.1	274.0	3.52	34438	42293.00	41.75	154.35	-
1170.0	92.9	284.0	3.63	35483	42765.22	47.22	150.58	-
1180.0	77.1	294.0	3.76	36764	43334.25	56.90	147.40	-
1190.0	128.0	304.0	3.84	37540	43677.07	34.28	143.67	-
1200.0	75.1	314.0	3.97	38863	44260.99	58.39	140.96	-
1210.0	62.4	324.0	4.13	40454	44964.04	70.30	138.78	-
1220.0	63.4	334.0	4.29	42020	45655.97	69.19	136.69	-
1230.0	55.0	344.0	4.47	43821	46453.87	79.79	135.04	-
1240.0	38.0	354.0	4.74	46413	47606.87	115.30	134.48	-
1250.0	52.7	364.0	4.93	48349	48439.56	83.27	133.08	-
1260.0	41.8	374.0	5.16	50679	49489.44	104.99	132.32	-
1270.0	51.4	384.0	5.36	52611	50342.47	85.30	131.10	-
1280.0	50.4	394.0	5.56	54587	51212.90	87.04	129.98	-
1290.0	57.8	404.0	5.73	56311	51972.19	75.93	128.64	-
1300.0	53.2	414.0	5.92	58156	52797.10	82.49	127.53	-
1310.0	51.9	424.0	6.11	60005	53642.00	84.49	126.51	-

381115

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1320.0	850	2800.0	1872.7	66.9	928	7.88	1909	147
1330.0	850	2800.0	1872.7	66.9	928	7.88	1909	147
1333.0	850	2800.0	1872.7	66.9	928	7.88	1909	147

381116

BIT NUMBER	5	IADC CODE	114	INTERVAL	1333.0- 1742.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	7.3	BIT RUN	409.0
TOTAL HOURS	19.41	TOTAL TURNS	184180	CONDITION	T7 B8 G0.125

DEPTH	FLOW RATE	PSP	PBIT	XPSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1340.0	735	2700.0	1540.3	57.0	660	5.60	1570	127
1350.0	755	2900.0	1625.2	56.0	716	6.07	1657	130
1360.0	750	2900.0	1587.6	54.7	694	5.89	1619	129
1370.0	750	2900.0	1636.2	56.4	716	6.07	1668	129
1380.0	750	2850.0	1620.0	56.8	709	6.01	1652	129
1390.0	750	2850.0	1620.0	56.8	709	6.01	1652	129
1400.0	780	2800.0	1752.2	62.6	797	6.76	1787	135
1410.0	780	2800.0	1752.2	62.6	797	6.76	1787	135
1420.0	780	2800.0	1752.2	62.6	797	6.76	1787	135
1430.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1440.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1450.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1460.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1470.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1480.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1490.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1500.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1510.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1520.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1530.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1540.0	765	2750.0	1685.4	61.3	752	6.38	1718	132
1550.0	765	2750.0	1668.6	60.7	744	6.32	1701	132
1560.0	765	2750.0	1668.6	60.7	744	6.32	1701	132
1570.0	765	2750.0	1668.6	60.7	744	6.32	1701	132
1580.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1590.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1600.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1610.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1620.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1630.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1640.0	740	2700.0	1561.3	57.8	674	5.72	1592	128
1650.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1660.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1670.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1680.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1690.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1700.0	745	2700.0	1582.5	58.6	688	5.83	1613	128
1710.0	750	2800.0	1603.8	57.3	701	5.95	1635	129
1720.0	750	2800.0	1603.8	57.3	701	5.95	1635	129
1730.0	750	2800.0	1603.8	57.3	701	5.95	1635	129
1740.0	750	2800.0	1603.8	57.3	701	5.95	1635	129
1742.0	750	2800.0	1603.8	57.3	701	5.95	1635	129

381117

BIT NUMBER	6	IADC CODE	134	INTERVAL	1742.0- 1913.0
HTC X1G		SIZE	12.250	NOZZLES	15 15 15
COST	1388.00	TRIP TIME	8.0	BIT RUN	171.0
TOTAL HOURS	10.69	TOTAL TURNS	96168	CONDITION	T7 B4 G0.250

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1750.0	525	1550.0	936.8	60.4	287	2.43	875	99
1760.0	705	2700.0	1689.5	62.6	695	5.89	1578	133
1770.0	709	2750.0	1708.4	62.1	706	5.99	1595	134
1780.0	702	2750.0	1678.7	61.0	688	5.84	1568	132
1790.0	702	2750.0	1677.1	61.0	687	5.83	1566	132
1800.0	700	2750.0	1665.5	60.6	680	5.77	1555	132
1810.0	705	2750.0	1689.3	61.4	695	5.89	1577	133
1820.0	714	2750.0	1733.2	63.0	722	6.12	1618	134
1830.0	714	2850.0	1732.0	60.8	721	6.12	1617	134
1840.0	705	2850.0	1692.2	59.4	696	5.91	1580	133
1850.0	706	2850.0	1697.8	59.6	700	5.94	1585	133
1860.0	706	2850.0	1695.1	59.5	698	5.92	1583	133
1870.0	709	2850.0	1712.4	60.1	709	6.01	1599	134
1880.0	717	2850.0	1747.7	61.3	731	6.20	1632	135
1890.0	711	2850.0	1718.3	60.3	712	6.05	1605	134
1900.0	738	2850.0	1850.6	64.9	796	6.76	1728	139
1910.0	690	2800.0	1621.6	57.9	653	5.54	1514	130
1913.0	649	2650.0	1430.8	54.0	541	4.59	1336	122

381118

BIT NUMBER	7	IADC CODE	517	INTERVAL	1913.0- 2115.0
HTC J22		SIZE	12.250	NOZZLES	15 15 15
COST	6788.00	TRIP TIME	8.7	BIT RUN	202.0
TOTAL HOURS	20.49	TOTAL TURNS	86778	CONDITION	T2 B3 G0.000

DEPTH	FLOW RATE	PSP	PBIT	%PSP	HHP	HHP/ sqin	IMPACT FORCE	JET VELOCITY
1920.0	677	2800.0	1576.8	56.3	623	5.29	1472	128
1930.0	665	2750.0	1504.2	54.7	584	4.95	1405	125
1940.0	674	2750.0	1546.4	56.2	608	5.16	1444	127
1950.0	671	2750.0	1532.2	55.7	600	5.09	1431	126
1960.0	679	2750.0	1568.4	57.0	621	5.27	1465	128
1970.0	688	2750.0	1609.7	58.5	646	5.48	1503	130
1980.0	682	2750.0	1583.0	57.6	630	5.35	1478	129
1990.0	670	2750.0	1543.9	56.1	604	5.12	1442	126
2000.0	670	2750.0	1542.9	56.1	603	5.12	1441	126
2010.0	675	2750.0	1566.0	56.9	617	5.23	1462	127
2020.0	677	2750.0	1574.7	57.3	622	5.28	1470	128
2030.0	684	2750.0	1609.4	58.5	643	5.45	1503	129
2040.0	676	2750.0	1570.4	57.1	619	5.26	1466	127
2050.0	700	2800.0	1682.3	60.1	687	5.83	1571	132
2060.0	700	2800.0	1682.3	60.1	687	5.83	1571	132
2070.0	700	2800.0	1665.5	59.5	680	5.77	1555	132
2080.0	700	2800.0	1665.5	59.5	680	5.77	1555	132
2090.0	700	2800.0	1665.5	59.5	680	5.77	1555	132
2100.0	700	2800.0	1665.5	59.5	680	5.77	1555	132
2110.0	700	2800.0	1665.5	59.5	680	5.77	1555	132
2115.0	700	2800.0	1665.5	59.5	680	5.77	1555	132

(f) COMPUTER DATA LISTING : LIST D

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

381120

BIT NUMBER	1	IADC CODE	111	INTERVAL	94.0- 229.0
HTC OSC 3AJ		SIZE	26.000	NOZZLES	20 20 20
COST	7000.00	TRIP TIME	1.8	BIT RUN	135.0
TOTAL HOURS	1.41	TOTAL TURNS	6963	CONDITION	T2 B2 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
100.0	88	116	1020	12		12				
110.0	88	116	1020	12		12				
120.0	88	116	1020	12		12				
130.0	88	116	1020	12		12				
140.0	88	116	1020	12		12		12		
150.0	94	96	950	12		11		11		
160.0	100	108	1040	13		12		12		
170.0	100	108	1040	13		12		12		
180.0	100	108	1040	13		12		12		
190.0	82	82	820	10		9		9		
200.0	82	106	940	11		11		11		
210.0	100	106	1030	13		12		12		
220.0	100	106	1030	13		12		12		
229.0	102	108	1050	13		12		12		

381121

BIT NUMBER	2	IADC CODE	111	INTERVAL	229.0- 322.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20 20 20
COST	1850.00	TRIP TIME	2.2	BIT RUN	93.0
TOTAL HOURS	1.45	TOTAL TURNS	12459	CONDITION	T1 B1 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
240.0	100	110	1050		26		23			19
250.0	104	106	1050	32	26		23			19
260.0	60	60	600	19	15		13			11
270.0	55	70	625	19	15		14			11
280.0	58	62	600	19	15		13			11
290.0	58	62	600	19	15		13			11
300.0	58	62	600	19	15		13		13	11
322.0	58	62	600	19	15		13		13	11

BIT NUMBER	2	IADC CODE	111	INTERVAL	322.0- 880.0
HTC OSC 3AJ		SIZE	17.500	NOZZLES	20 20 20
COST	1850.00	TRIP TIME	4.2	BIT RUN	558.0
TOTAL HOURS	8.44	TOTAL TURNS	77605	CONDITION	T1 B3 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
323.0	122	128	1250	39	31		27		27	22
328.0	122	128	1250	39	31		27		27	22
337.0	122	128	1250	39		33	27		27	22
347.0	122	128	1250	39		33	27		27	22
355.0	122	128	1250	39		33	27		27	22
365.0	122	128	1250	39		33	27		27	22
375.0	122	128	1250	39		33	27		27	22
385.0	122	128	1250	39		33	27		27	22
395.0	122	128	1250	39		33	27		27	22
405.0	122	128	1250	39		33	27		27	22
415.0	122	128	1250	39		33		33	27	22
425.0	122	128	1250	39		33		33	27	22
435.0	122	128	1250	39		33		33	27	22
445.0	122	128	1250	39		33		33	27	22
455.0	122	128	1250	39		33		33	27	22
460.0	122	128	1250	39		33		33	27	22
470.0	122	128	1250	39		33		33	27	22
480.0	122	128	1250	39		33		33	27	22
490.0	122	128	1250	39		33		33	27	22
500.0	122	128	1250	39		33		33	27	22
510.0	122	128	1250	39		33		33	27	22
520.0	122	128	1250	39		33		33	27	22
530.0	122	128	1250	39		33		33	27	22
540.0	122	128	1250	39		33		33	27	22
550.0	122	128	1250	39		33		33	27	22
560.0	122	128	1250	39		33		33	27	22
565.0	122	128	1250	39		33		33	27	22
575.0	122	128	1250	39		33		33	27	22
585.0	122	128	1250	39		33		33	27	22
590.0	122	128	1250	39		33		33	27	22
600.0	122	128	1250	39		33		33	27	22
610.0	122	128	1250	39		33		33	27	22
620.0	122	128	1250	39		33		33	27	22
630.0	122	128	1250	39		33		33	27	22
640.0	122	128	1250	39		33		33	27	22
650.0	122	128	1250	39		33		33	27	22
660.0	122	128	1250	39		33		33	27	22
670.0	122	128	1250	39		33		33	27	22
680.0	122	127	1245	38		33		33	27	22
690.0	122	127	1245	38		33		33	27	22
700.0	122	127	1245	38		33		33	27	22
710.0	122	127	1245	38		33		33	27	22
720.0	122	127	1245	38		33		33	27	22

381123

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
730.0	122	127	1245	38		33		33	27	22
735.0	122	127	1245	38		33		33	27	22
745.0	122	127	1245	38		33		33	27	22
755.0	84	120	1020	31		27		27	22	18
765.0	84	120	1020	31		27		27	22	18
775.0	84	120	1020	31		27		27	22	18
785.0	120	116	1180	36		31		31	26	21
790.0	120	116	1180	36		31		31	26	21
800.0	120	116	1180	36		31		31	26	21
810.0	120	116	1180	36		31		31	26	21
820.0	120	116	1180	36		31		31	26	21
830.0	120	116	1180	36		31		31	26	21
840.0	108	116	1120	35		30		30	25	20
850.0	108	102	1050	32		28		28	23	19
860.0	108	116	1120	35		30		30	25	20
870.0	120	116	1180	36		31		31	26	21
880.0	120	116	1180	36		31		31	26	21

381124

BIT NUMBER	3	IADC CODE	114	INTERVAL	880.0- 886.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	4.2	BIT RUN	6.0
TOTAL HOURS	0.07	TOTAL TURNS	400	CONDITION	T1 B1 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
886.0	84	75	795	69	62		44		44	14

BIT NUMBER	4	IADC CODE	114	INTERVAL	886.0- 1333.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	5.8	BIT RUN	447.0
TOTAL HOURS	6.63	TOTAL TURNS	64955	CONDITION	T4 B2 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
890.0	90	79	845	73	66		47		47	15
900.0	90	79	845	73	66		47		47	15
910.0	90	79	845	73	66		47		47	15
920.0	94	80	870	76	68		48		48	16
930.0	94	80	870	76	68		48		48	16
940.0	94	80	870	76	68		48		48	16
950.0	94	80	870	76	68		48		48	16
960.0	90	80	850	74	67		47		47	15
970.0	86	84	850	74	67		47		47	15
980.0	86	84	850	74	67		47		47	15
990.0	86	84	850	74		51	47		47	15
1000.0	86	84	850	74		51	47		47	15
1010.0	86	84	850	74		51	47		47	15
1020.0	86	84	850	74		51	47		47	15
1030.0	86	84	850	74		51	47		47	15
1040.0	86	84	850	74		51	47		47	15
1050.0	86	84	850	74		51	47		47	15
1060.0	86	84	850	74		51	47		47	15
1070.0	86	84	850	74		51		51	47	15
1080.0	86	84	850	74		51		51	47	15
1090.0	86	84	850	74		51		51	47	15
1100.0	86	84	850	74		51		51	47	15
1110.0	86	84	850	74		51		51	47	15
1120.0	86	84	850	74		51		51	47	15
1130.0	86	84	850	74		51		51	47	15
1140.0	86	84	850	74		51		51	47	15
1150.0	86	84	850	74		51		51	47	15
1160.0	86	84	850	74		51		51	47	15
1170.0	86	84	850	74		51		51	47	15
1180.0	80	90	850	74		51		51	47	15
1190.0	80	90	850	74		51		51	47	15
1200.0	80	90	850	74		51		51	47	15
1210.0	80	90	850	74		51		51	47	15
1220.0	80	90	850	74		51		51	47	15
1230.0	80	90	850	74		51		51	47	15
1240.0	80	90	850	74		51		51	47	15
1250.0	88	84	860	75		51		51	48	15
1260.0	84	86	850	74		51		51	47	15
1270.0	84	86	850	74		51		51	47	15
1280.0	84	86	850	74		51		51	47	15
1290.0	84	86	850	74		51		51	47	15
1300.0	84	86	850	74		51		51	47	15
1310.0	84	86	850	74		51		51	47	15

381126

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1320.0	84	86	850	74		51		51	47	15
1330.0	84	86	850	74		51		51	47	15
1333.0	84	86	850	74		51		51	47	15

381127

BIT NUMBER	5	IADC CODE	114	INTERVAL	1333.0- 1742.0
HTC X3A		SIZE	12.250	NOZZLES	16 16 15
COST	1388.00	TRIP TIME	7.3	BIT RUN	409.0
TOTAL HOURS	19.41	TOTAL TURNS	184180	CONDITION	T7 B8 G0.125

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1340.0	77	70	735	64		44		44	41	13
1350.0	83	68	755	66		45		45	42	14
1360.0	82	68	750	65		45		45	42	13
1370.0	82	68	750	65		45		45	42	13
1380.0	78	72	750	65		45		45	42	13
1390.0	78	72	750	65		45		45	42	13
1400.0	78	78	780	68		47		47	43	14
1410.0	78	78	780	68		47		47	43	14
1420.0	76	80	780	68		47		47	43	14
1430.0	77	76	765	66		46		46	43	14
1440.0	77	76	765	66		46		46	43	14
1450.0	77	76	765	66		46		46	43	14
1460.0	77	76	765	66		46		46	43	14
1470.0	77	76	765	66		46		46	43	14
1480.0	77	76	765	66		46		46	43	14
1490.0	77	76	765	66		46		46	43	14
1500.0	77	76	765	66		46		46	43	14
1510.0	77	76	765	66		46		46	43	14
1520.0	77	76	765	66		46		46	43	14
1530.0	77	76	765	66		46		46	43	14
1540.0	77	76	765	66		46		46	43	14
1550.0	77	76	765	66		46		46	43	14
1560.0	77	76	765	66		46		46	43	14
1570.0	77	76	765	66		46		46	43	14
1580.0	76	72	740	64		44		44	41	13
1590.0	76	72	740	64		44		44	41	13
1600.0	76	72	740	64		44		44	41	13
1610.0	76	72	740	64		44		44	41	13
1620.0	76	72	740	64		44		44	41	13
1630.0	76	72	740	64		44		44	41	13
1640.0	76	72	740	64		44		44	41	13
1650.0	78	71	745	65		45		45	41	13
1660.0	78	71	745	65		45		45	41	13
1670.0	78	71	745	65		45		45	41	13
1680.0	78	71	745	65		45		45	41	13
1690.0	78	71	745	65		45		45	41	13
1700.0	78	71	745	65		45		45	41	13
1710.0	74	76	750	65		45		45	42	13
1720.0	74	76	750	65		45		45	42	13
1730.0	74	76	750	65		45		45	42	13
1740.0	74	76	750	65		45		45	42	13
1742.0	74	76	750	65		45		45	42	13

381128

BIT NUMBER	6	IADC CODE	134	INTERVAL	1742.0- 1913.0
HTC X1G		SIZE	12.250	NOZZLES	15 15 15
COST	1388.00	TRIP TIME	8.0	BIT RUN	171.0
TOTAL HOURS	10.69	TOTAL TURNS	96168	CONDITION	T7 B4 G0.250

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1750.0	0	105	525	46		31		31	29	9
1760.0	75	66	705	61		42		42	39	13
1770.0	75	67	709	62		42		42	39	13
1780.0	76	64	702	61		42		42	39	13
1790.0	75	65	702	61		42		42	39	13
1800.0	75	66	700	61		42		42	39	13
1810.0	75	66	705	61		42		42	39	13
1820.0	76	66	714	62		43		43	40	13
1830.0	77	66	714	62		43		43	40	13
1840.0	74	68	705	61		42		42	39	13
1850.0	75	67	706	61		42		42	39	13
1860.0	74	67	706	61		42		42	39	13
1870.0	76	66	709	62		42		42	40	13
1880.0	76	68	717	62		43		43	40	13
1890.0	74	68	711	62		42		42	40	13
1900.0	78	70	738	64		44		44	41	13
1910.0	71	67	690	60		41		41	38	12
1913.0	68	61	649	56		39		39	36	12

381129

BIT NUMBER	7	IADC CODE	517	INTERVAL	1913.0- 2115.0
HTC J22		SIZE	12.250	NOZZLES	15 15 15
COST	6788.00	TRIP TIME	8.7	BIT RUN	202.0
TOTAL HOURS	20.49	TOTAL TURNS	86778	CONDITION	T2 B3 G0.000

DEPTH	SPM1	SPM2	FLOW RATE	DC/ OH	DC/ CSG	HW/ OH	HW/ CSG	DP/ OH	DP/ CSG	DP/ RIS
1920.0	73	63	677	59		40		40	38	12
1930.0	66	67	665	58		40		40	37	12
1940.0	72	63	674	59		40		40	38	12
1950.0	70	64	671	58		40		40	37	12
1960.0	72	63	679	59		41		41	38	12
1970.0	74	64	688	60		41		41	38	12
1980.0	73	63	682	59		41		41	38	12
1990.0	72	62	670	58		40		40	37	12
2000.0	70	64	670	58		40		40	37	12
2010.0	72	63	675	59		40		40	38	12
2020.0	71	64	677	59		40		40	38	12
2030.0	72	65	684	59		41		41	38	12
2040.0	70	65	676	59		40		40	38	12
2050.0	70	70	700	61		42		42	39	13
2060.0	70	70	700	61		42		42	39	13
2070.0	70	70	700	61		42		42	39	13
2080.0	70	70	700	61		42		42	39	13
2090.0	70	70	700	61		42		42	39	13
2100.0	70	70	700	61		42		42	39	13
2110.0	70	70	700	61		42		42	39	13
2115.0	70	70	700	61		42		42	39	13

381130

APPENDIX A
DRILL DATA PLOT



DRILL DATA PLOT

EXTENDED SERVICE PACKAGE - ESP

COMPANY B.H.P. HEMATITE PETROLEUM PTY. LTD.
 WELL PIPPA No. 1
 FIELD OR AREA BASS BASIN
 COUNTY BASS STRAIT
 COUNTRY AUSTRALIA
 LAT(X) 40° 23' 11.26" S
 LONG(Y) 145° 41' 44.96" E

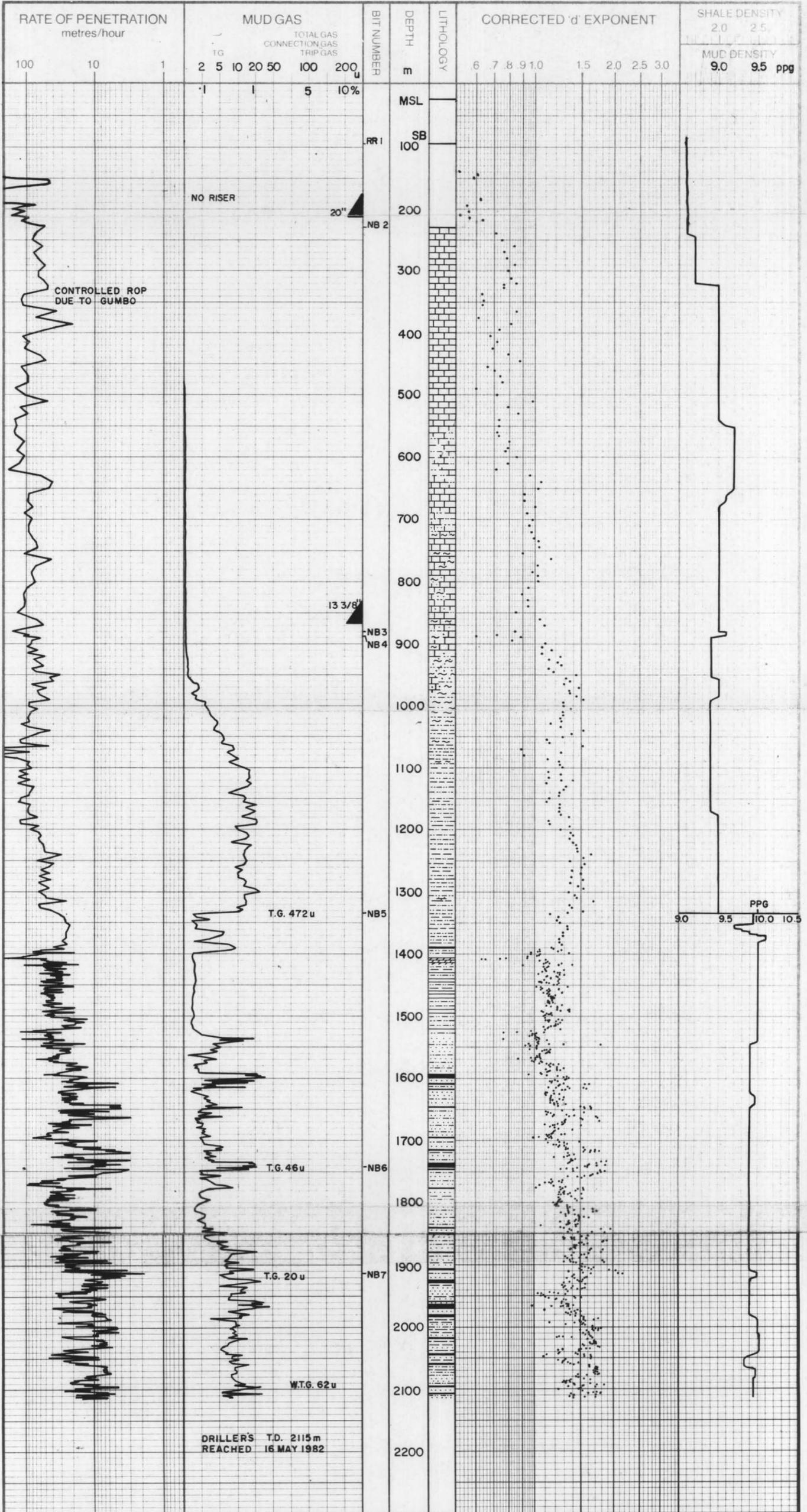
STATE
 ELEVATION 21m
 GROUND LEVEL
 WATER DEPTH 73m

DEPTHS LOGGED 94 m to 2115m
 DATE LOGGED 4 MAY 1982 to 16 MAY 1982
 CREW DODSON, CHARLES
 DRILLING FLUID SEAWATER 94 to 229 m
 SEAWATER-GEL 229 to 2115 m

802
 229 m
 2115 m

381131

SCALE 1:5000



5 cm

381132

APPENDIX B
TEMPERATURE PLOT

APPENDIX (b)



TEMPERATURE PLOT

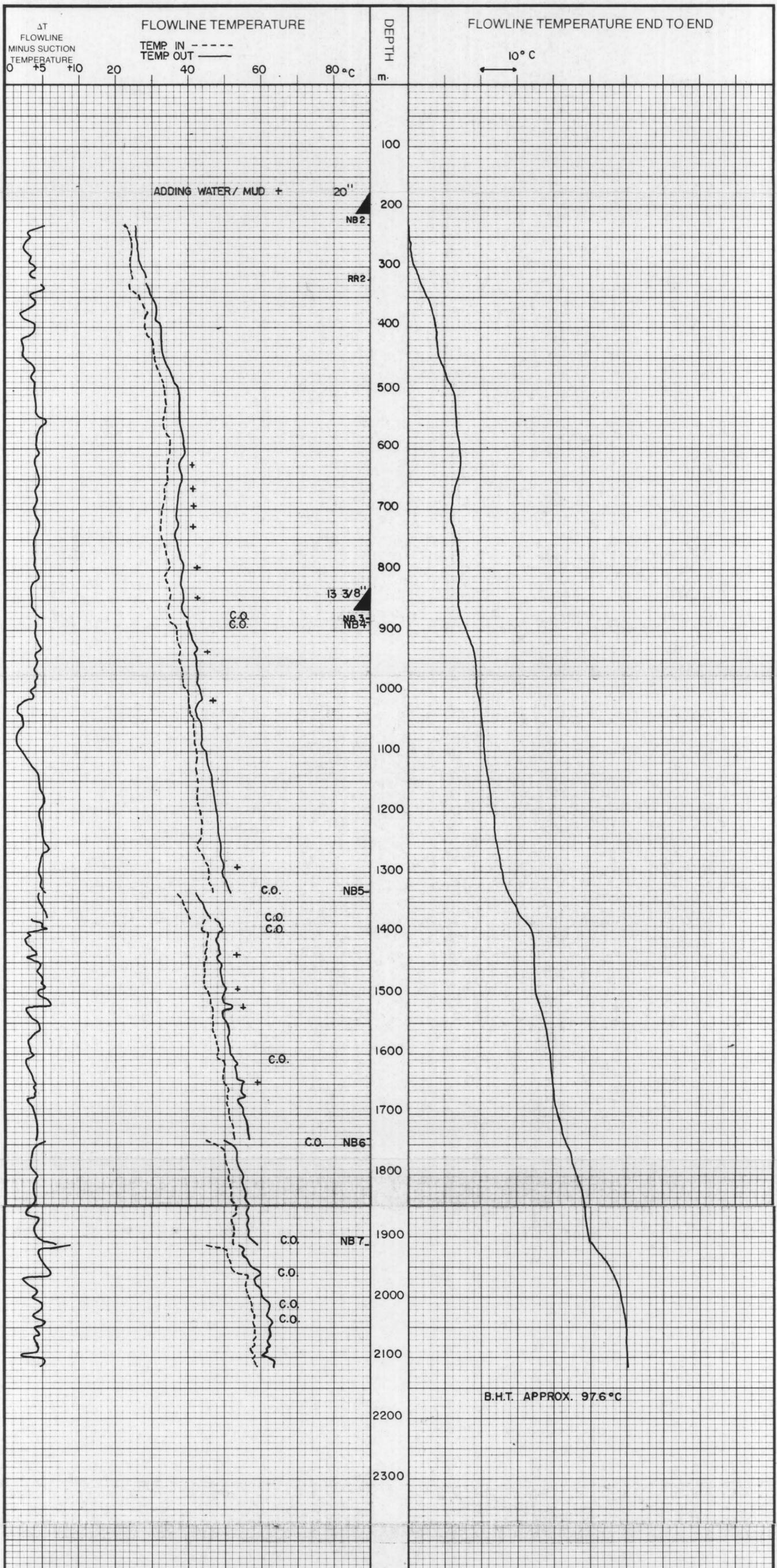
EXTENDED SERVICE PACKAGE - ESP

COMPANY **HEMATITE PETROLEUM PTY. LTD.**
 WELL **PIPIA No. 1**
 FIELD OR AREA **BASS BASIN**
 COUNTY **BASS STRAIT** STATE
 COUNTRY **AUSTRALIA** RKB ELEVATION **21 m**
 LAT(X) **40° 23' 11.26" S** GROUND ELEVATION
 LONG(Y) **145° 41' 44.96" E** WATER DEPTH **73 m**

DEPTHS LOGGED **94 m to 2115 m**
 DATES LOGGED **4 MAY 1982 to 16 MAY 1982**
 CREW **DODSON, CHARLES** FL **802**
 DRILLING FLUID **SEAWATER** **94** TO **229 m**
SEAWATER-GEL **229** TO **2115 m**

These observations and interpretations are based on observations and material supplied to the client to whom, unless otherwise stated, all responsibility for the accuracy of the information is assumed. The information is not to be used for any other purpose without the prior written consent of the company. The company is not responsible for any loss or damage arising from the use of this information.

SCALE 1:5000



5 cm

381134

APPENDIX C
PRESSURE PLOT



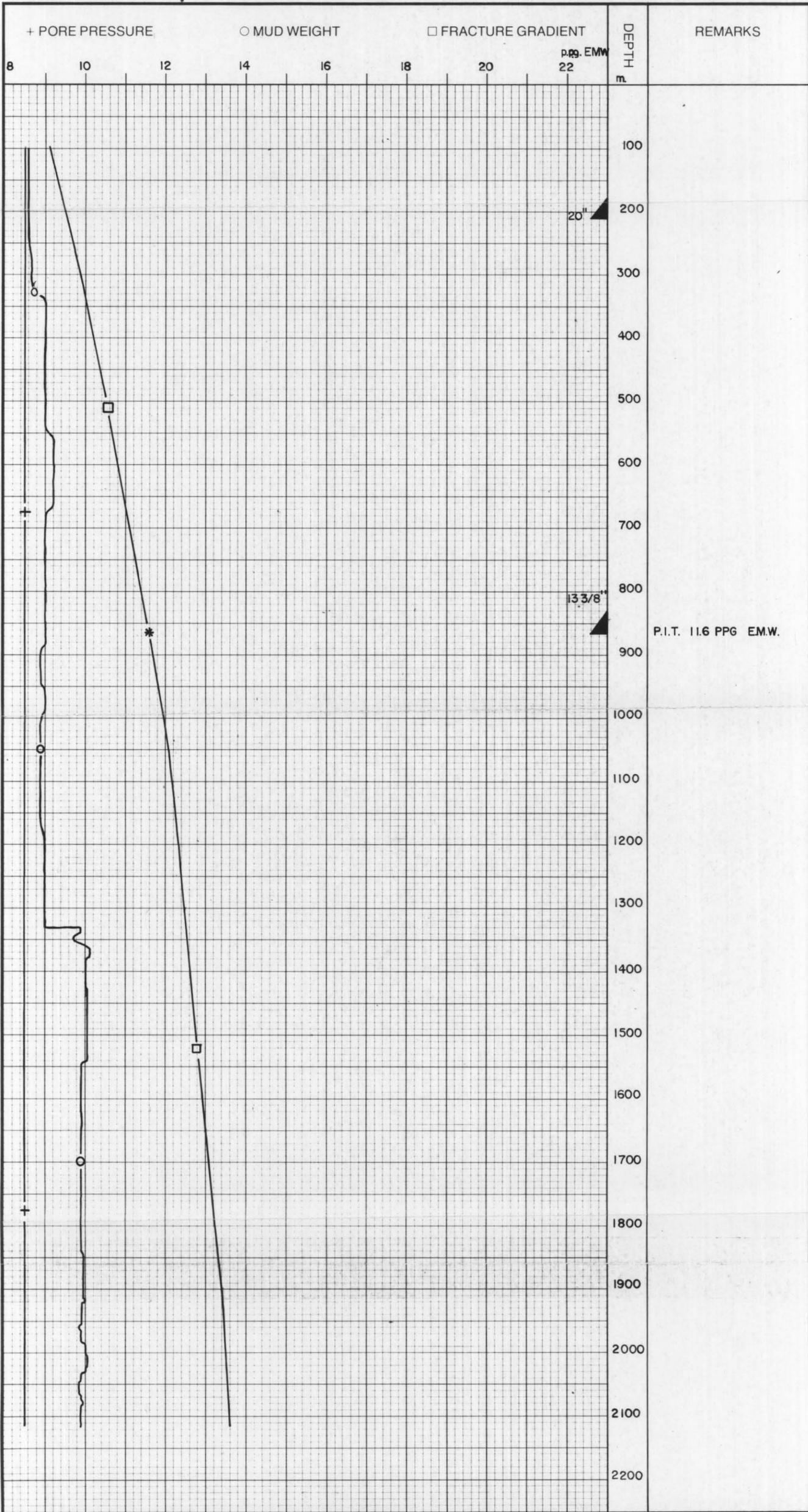
PRESSURE PLOT

EXTENDED SERVICE PACKAGE - ESP

COMPANY **HEMATITE PETROLEUM PTY. LTD.**
 WELL **PIPIA NO.1**
 FIELD OR AREA **BASS BASIN**
 COUNTY **BASS STRAIT** STATE
 COUNTRY **AUSTRALIA** RKB ELEVATION **21m**
 LAT(X) **40°23'11.26" S** GROUND ELEVATION
 LONG(Y) **145°41'44.96" E** WATER DEPTH **73m**

DEPTHS LOGGED **94m to 2115m**
 DATES LOGGED **4 MAY 1982 to 16 MAY 1982**
 CREW **DODSON, CHARLES** FL **802**
 DRILLING FLUID **SEAWATER** 94m TO **229m**
SEAWATER - GEL 229m TO **2115m**

SCALE 1:5000



5 cm

381136

APPENDIX D

GEOPLOT

APPENDIX (d)

381137

OR-0349 C



GEO-PLOT

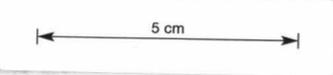
EXTENDED SERVICE PACKAGE - ESP

COMPANY **HEMATITE PETROLEUM PTY. LTD.**
 WELL **PIPIA No. 1**
 FIELD OR AREA **BASS BASIN**
 COUNTY **BASS STRAIT** STATE _____
 COUNTRY **AUSTRALIA** RKB ELEVATION **21 m**
 LAT(X) **40° 23' 11.26" S** GROUND ELEVATION _____
 LONG(Y) **145° 41' 44.96" E** WATER DEPTH **73 m**

DEPTHS LOGGED **94 m** to **2115 m**
 DATES LOGGED **4 MAY 1982** to **16 MAY 1982**
 CREW **DODSON, CHARLES** FL **802**
 DRILLING FLUID **SEAWATER** **94** TO **229 m**
SEAWATER-GEL **229** TO **2115 m**

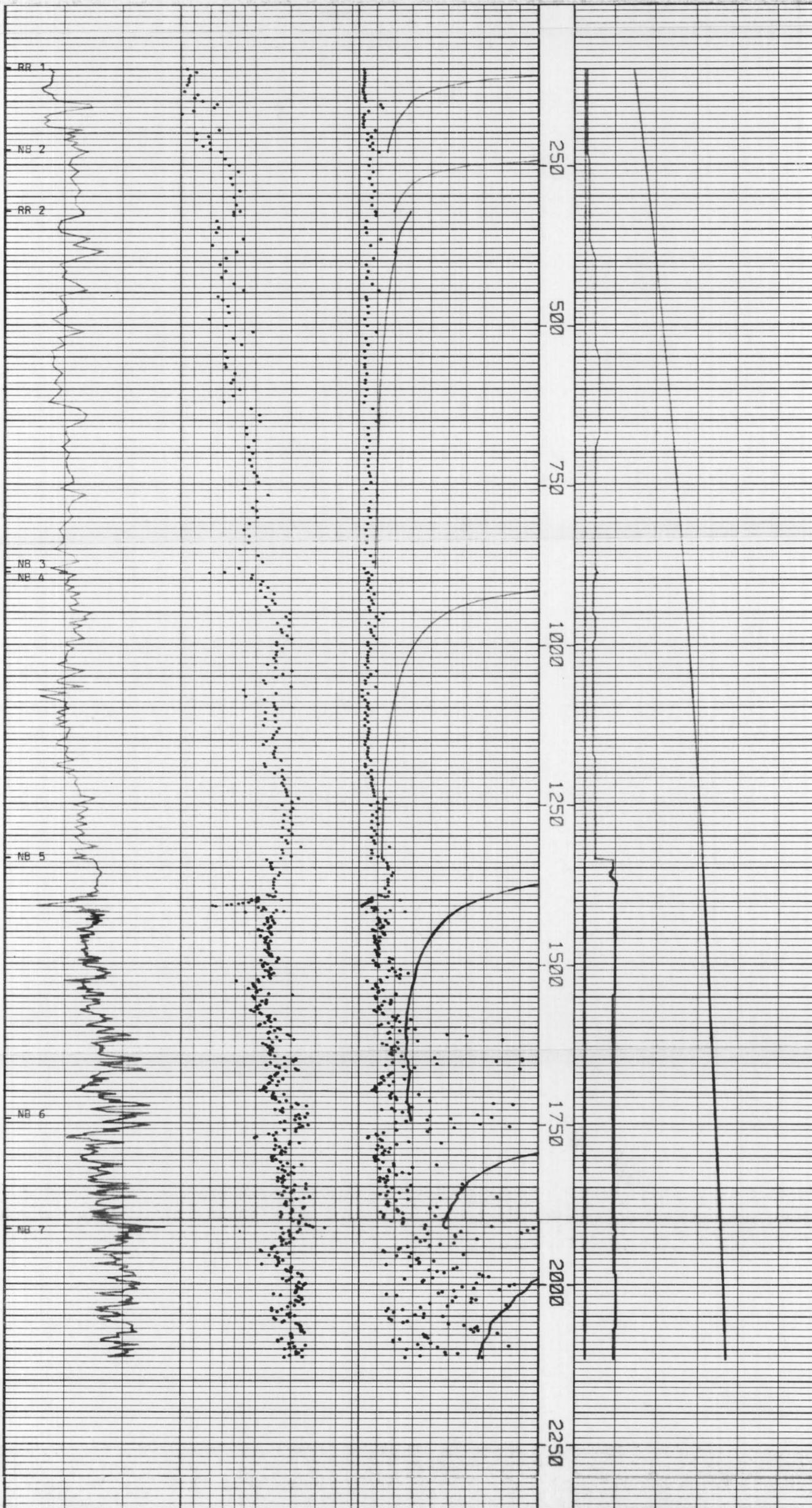
These analyses, opinions or interpretations are based on observations and material supplied by the client to whom and for whose exclusive use they are made. The interpretations or opinions expressed are those of Core Laboratories, Inc. or its agents and employees and are not to be construed as a warranty or representation as to the productivity, proper operation or performance of any or gas in other material well or sand in connection with which such well is used or used upon.

7500-422 (CL 1102)



SCALE 1:5000

RATE OF PENETRATION m/hr.	CORRECTED 'd' EXPONENT	INCREMENTAL COST/m + A\$ CUMULATIVE COST/m - A\$	DEPTH m	PORE PRESSURE P MUD WEIGHT D FRACTURE GRADIENT F	ppg ppg ppg
1000 100 10 1	0.5 1.0 1.5 2.0 2.5 3.0	1000	1000	10 12 14 16 18	



CL 1102 (METRES)

381138

APPENDIX E
GRAPHOLOG

COMPANY: B.H.P. SEMARITZ PETROLEUM PTY. LTD.
 WELL: 2222
 FIELD: BASS BASIN
 COUNTY: BASS STRAIT, AUSTRALIA
 LOCATION: 6 1/2 S 11 E 1/2 S 1/4 S
 ELEVATION: 218 METERS TO MSL

DEPTH LOGGED FROM: 94 TO 2121 METERS
 DATE LOGGED: 4 TH MAY 1982 FILE NO. FL 802
 CORE CHUCK: G.M.B.G.M. W.W. SCHEMATIC: 34 - 5 1/2" FV 50
 DRILL FLUID: SEAWATER 222 TO 2121 METERS



LEGEND

ABBREVIATIONS
 NB = NEW BIT
 CO = CALCULATED OUT
 LET = LOGGING TRIP
 IS = TOP GAS
 DS = DIRECTIONAL SURVEY
 CC = CORRECTION
 BS = CORRECTION TO DRILL PIPE MEASUREMENTS FROM LOGGING BUSINESS

RESISTIVITY OHM METERS
 Ra = MID
 Rm = MID CAP
 Rhl = MID FILTRATE

MUD DATA
 CA = CAKE THICKNESS 32hrs
 V = VISCOSITY AP 3000SS
 F = FILTRATE API CCS
 W = WEIGHT SOLIDITY GPM OI

LITHOLOGY
 SAND, SALT, COAL, CLAY, DOLOMITE, CHERT, SHALE, CHALK, SILTSTONE

DRILLING RATE	ASPHALTUM	WATER	HYDROCARBON ANALYSIS	REMARKS
MIN/HR			CHROMATOGRAPHIC Drilling Mud Gas Methods: 1, 2, 3, 4, 5 Columns: 1, 2, 3, 4, 5 Prepares: 1, 2, 3, 4, 5 CALCULATION: PPM Concentration: 1, 2, 3, 4, 5 Methane: 20 Ethane: 20 Propane: 20 N-Butane: 20	FORMATION DESCRIPTION MUD DATA DRILL STEPS, etc. MUD DATA SEAWATER spotted with H-Vis Gel

