ATTACHMENT TO WCR
FORTESCUE - 3
LOGGING WELL REPORT
(W 712)

Psla 78/1277

EXPLORATION LOGGING OF AUSTRALIA, INC.
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GEOLOGICAL - ENGINEERING WELL REPORT

ESSO AUSTRALIA LIMITED

FORTESCUE No. 3

DECEMBER 1978

CONFIDENTIAL

by

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CONTENTS

I. INTRODUCTION

The Fortescue No 3 delineation well was drilled in the offshore Gippsland Basin, Bass Strait, Victoria at geographical coordinates 38^{o} 23' 22.876" S and 148^{o} 16' 02.533" E. The location is 3km S.E. of Fortescue No 1 and 2 km NW of West Halibut No 1.

The well was spudded on the 26th November 1978 in 68M of water and drilled to a T.D. of 2625M on the 18th December 1978. The primary objective was further evaluation of the stratigraphy and hydrocarbon potential of the Fortescue Reservoir Unit. The objective zone was cored and tested using the wireline RFT tool and then the well plugged and abandoned on the 23rd December 1978.

Drilling was contracted to the Odeco semi-submersible rig "Ocean Digger". Exploration Logging of Australia, Inc. provided a full data acquisition and formation evaluation service using the GEMDAS Level VI system. (Geological Engineering and Data Acquisition System).

II. WELL HISTORY

a) 26" hole section, -: 99m (seabed) - 244m (20" casing point), 26th November, 1978.

N.B. # 1 HTC OSC3AJ 17½" W/26" hole opener 99-244m

The well was spudded with seawater and no returns to surface using a 17½" bit in tandem with a 26" hole opener. The 26" hole was drilled to 244m and a survey run indicating hole deviation of 1^{o}. 700bbls of pre-hydrated gel mud were spotted in the open hole before pulling out to run the 20" casing. The 20" casing was then run and cemented with the shoe at 225m.

b) 17½" hole section, 244 - 878m (13 3/8" casing point) 27-29th November 1978.

N.B. #2 HTC OSC3AJ 17½" 244-878m

After setting the 20" casing the shoe was drilled out and a 17½" hole drilled to 260m using sea-water. At 260m the sea-water was displaced by a sea-water-gel system and drilling of the 17½" hole continued with 8.9 ppg mud in the hole. Initially drill rates were as high as 300-400 m/hr but these rapidly decreased such that an average drill rate of 100m/hr was apparent over the first 300m of the section.

The samples over this section were initially calcarenites with abundant shell fragments and microfossils.With a change from 550m the samples showed a change to a more argillaceous marl/calcilutite with occasional calisiltite. With this lithology change the average drill rate also dropped to an average 60m/hr and then further decreased to about 20m/hr when approaching casing point below 800 metres. The gas readings whilst drilling this section remained around an average background of 5-10 units with occasional peaks up to 24 units. C_1 and C_2 only were recorded on the chromatographic analysis.

At 878m a wiper trip was made and the bit pulled to run wireline logs. FDC-GR (from TD - Sea bed), ISF - SONIC (from TD - 20" casing shoe). After running wireline logs the 13 3/8" casing was run and cemented with the shoe at 867m.

c) 12¼" hole section, 878-1536m, 1-4 December 1978

NB	#3	HTC	X1G	12¼"	878 - 1271m
NB	#4	HTC	X3A	12¼"	1271 - 1508m
NB	#5	HTC	X3A	12¼"	1508 - 1536m

After cementing the 13 3/8" casing a 12¼" BHA was picked up with Bit No.3, a HTC X1G with 18,18,18 jets and drilling of the 12¼" hole continued with a lightly treated seawater-gel mud system with mud wt running about 9.1 ppg. After drilling out the 13 3/8" shoe, 15m of fresh formation was cut and drilling was halted at 893m to conduct a Formation Integrity Test (leak off test). The formation was pressured up to an equivalent mud weight of 13.7 ppg and no leak off was induced. Thus the fracture pressure at 893m is in excess of 13.7 ppg E.M.W. After the test, drilling continued in a sequence of calcisiltites, at rates varying from 8m - 100m/hr with an average rate of 37m/hr for the interval 878 - 1271m, the higher drill rates occuring from between 893m - 1271m.

No.4 bit, an HTC X3A 12¼" bit with 18,18,18 jets was run in at 1271m and drilling proceeded to 1508m with the only problems arising from pump breakdowns. The average drill rate for this bit was 12 m/hr on a sequence of marls and calcareous mudstones.

On making a trip at 1508m, tight hole was encountered up to 1050m, and the hole did not take any mud during the trip out. Possibly the low circulation rates during the pump breakdown had reduced the "carrying capacity" of the circulatory system leading to a build up of cuttings around the drill string. After running the pipe back to bottom and circulating with high viscosity mud, the hole was circulated clean and the trip out was made without any further problems.

Drilling was resumed with Bit No.5, another HTC X3A 12¼" bit with 18,18,18 jets when 2000 units of gas were yielded from a drill break at 1526m (Increase from 13m/hr to 21m/hr). Chromatographic analysis of the ditch gas indicated C_1 with traces of other hydrocarbons through to C_4. As a result of the high gas the mud weight was raised to 9.6 ppg and the hole conditioned prior to tripping out to run a core barrel.

d) 8 15/32" hole section, 1536 - 1548.6m, 4 December 1978.

CB	#1	CHRIS	C20	8 15/32	1536 - 1548.6m

Core barrel No 1 was run in and core cut from 1536 - 1548.6m. Core recovery was 100% with no hydrocarbon shows in an overall lithology of marl.

e) 12¼" hole section, 1548.6 -2409.5m, 4 - 12 December 1978

NB #6	HTC	X3A	12¼"	1548.6 - 1600m
NB #7	HTC	X3A	12¼"	1600 - 2052m
NB #8	HTC	X3A	12¼"	2052 - 2409.5m

Bit No.6, a HTC X3A 12¼" bit with 18,18,18 jets was then run and after reaming the core rat hole drilling continued normally with a background gas level of about 10 units at an average drill rate of 20 m/hr in a calcareous mudstone section. At 1600m problems with the BOP stack arose and drilling was temporarily suspended from the 6 - 8 December to make repairs.

Bit No.7, an HTC X3A 12¼" bit with 18,18,20 jets was run after repairs to the stack. Trip gas at 1600m was 180 units (after being out of the hole 3 days) and drilling of the 12¼" hole continued till 2052m at an average rate of 20 m/hr. Over this interval the lithology consisted of typical "Lakes Entrance Formation" calcareous mudstones with interbeds of calcisiltites. Between 1759 - 1762m and 1766 -1767m, salt water sensitive clays were encountered which produced high volumes of cavings and gave rise to viscosity problems with the mud. From 2000m the mud system was converted over to a polymer system to counter this problem.

Bit No 8, a HTC X3A 12¼" bit with 20,20,20 jets resumed drilling in a predominantly calcareous mudstone lithology with an average drill rate of 19 m/hr until pulled at 2409.5m due to high torque readings. Returns were then circulated with the flowline temporarily blocking.

f) 8 15/32" hole section, 2409.5 - 2417m, coring 12 - 15 December 1978.

CB #2	CHRIS	RRC20	8 15/32	2409.5 - 2410.5m
CB #3	CHRIS	RRC20	8 15/32	2410.5 - 2416m
CB #4	CHRIS	RRC20	8 15/32	2416m
CB #5	CHRIS	RRC20	8 15/32	2416 - 2417m

From 2409.5 - 2417m, another four cores were attempted with varying success, the problems encountered being a jammed core barrel for CB #2 (cut 1m, 40% recovery), loss of 200 psi pump pressure coupled with severe sea conditions for CB #3, (cut 5.5m, 27% recovery), inability to drill for CB #4, no recovery and jammed barrel for CB #5, (10% recovery.) The nature of the encountered lithology, a calcareous mudstone, no doubt hindered successful coring to a large extent.

g) 12¼" hole section, 2409.5 - 2440m, 15 - 16 December 1978.

NB #9	HTC	XDG	12¼"	2409.5 - 2440m

At 2417m, Bit No 9, an HTC XDG 12¼" bit with 15,15,14 jets was run in and the core rat hole reamed with drilling proceeding to 2440m at an average rate of 12 m/hr until a drilling break and gas peak of 30 units indicated the top of the "payzone".

h) 8 15/32" hole section, 2440 - 2480m; coring 16 - 18 December 1978.

CB	#6	CHRIS	C22	8 15/32	2440-2456m
CB	#7	CHRIS	RRC22	8 15/32	2456 - 2470m
CB	#8	CHRIS	RRC22	8 15/32	2470 - 2480m

Core Barrel No.6 was run in and bottom up circulated prior to coring. Core No.6 was cut at an average penetration rate of 4.7 m/hr with 24000lbs and 84 RPM. Recovery was 71 % - 11.4 metres of hydrocarbon bearing sandstone core.

Core Barrel No. 7 was run and drilled at an average rate of 5.0 m/hr with 22,000 lbs and 102 RPM. 9.0m of hydrocarbon bearing sandstone were recovered down to 2465m, the lowest depth recovered, for a recovery of 64%.

Core Barrel No.8 was run in and drilled at an average rate of 3.3 m/hr with 25000lbs and 85 RPM from 2470 to 2480m with zero core recovered.

i) 12¼" hole section, 2440 - 2625m (TD), 18 - 19 December 1978.

RRNB	#9	HTC	XDG	12¼"	2440-2625m

Following coring, Bit No.9 a HTC XDG 12¼" bit was rerun and after reaming the core rathole, drilling continued normally to TD at 2625m. The section encountered consisted mainly of sandstone with frequent coal seams and shaley intervals. Average rate of penetration was initially 30 m/hr gradually dropping off to around 10 m/hr near TD. At 2625m. a full suite of wireline logs was run consisting of the following:-

ISF - BHC Sonic - MSFL; FDC - CNL - GR, HDT, Velocity Survey, RFT's and CST's.

Fortescue No. 3 was plugged and abandoned on the 23rd December 1978.

III. GEOPRESSURE ENGINEERING

A. PORE PRESSURE.

Fortescue No. 3 was found to have a normal hydrostatic pore pressure regime throughout the entire section drilled. No pressure related problems were encountered. Refer to Appendix C (iii) for a graphical presentation of the pore pressure regimes in Fortescue No 3.

The following parameters, drill rate, drilling exponent, flowline mud temperature, gas and hole behaviour were all continuously monitored and plotted in order to evaluate the formation pore pressure and detect any abnormal pressure during drilling. Refer to Appendix C (i) and (ii).

Pressure points plotted from the RFT runs give a water pressure gradient of about 8. 55 ppg. Formation water RW values from wireline logs give water salinities of around 35,000 ppm which converts to a hydrostatic pressure gradient of 8.5 ppg. It is, therefore, safe to assume that the normal hydrostatic pressure gradient for Fortescue No. 3 to be 8.55 ppg.

LITHOLOGY -

Because of the absence of clean shales throughout the well, very little in the way of quantitative analysis could be performed. However, general compaction trends modified locally by lithological variations are readily observable in both the drill rate and drilling exponent plots.

DRILL RATE -

The top hole section of the well drilled at rates of up to 400 m/hr. These decreased with depth to 8 m/hr. Apart from minor fluctuations the decrease was uniform. Eight cores were cut between 1536 - 1548m, 2409 - 2417 and 2440 - 2480 metres. Drill rates below 2400m during coring varied from 1 m/hr in siltstone to a maximum of 11.6 m/hr in sandstone. The remainder of the well was drilled in a sequence of interbedded sandstones, siltstones and coal which were erratic in behaviour as regards drill rate and drilling exponents.

The use of bumper subs in the drill string was an obstacle to the accurate determination of drill rates and subsequent drilling exponent analysis. Wherever possible these inaccuracies have been removed.

DRILLING EXPONENTS -

As a result of the absence of clean shales it was not possible to establish a normal trend line for corrected 'd' exponent which was suitable for quantitative use. However, for the lithologies encountered normal compaction trends were readily apparent. A shift in trend does occur below 1750 metres, however, this was not considered to be an indication of abnormal pressure but a reflection of the change in the nature of the lithology in the interval below the base of xtalline limestone at 1750 metres. The 'd' exponent, being a compaction indicator might prove useful in the area for correlating and detecting seismic marker horizons as it has on the N.W. Shelf of W.A.

GAS -

Background gas ranged from a low of ½ unit to 20 units. The maximum gas reading recorded was 2000 units at 1526 metres over a one metre interval. Below 1325 metres average background gas showed a steady decrease to 2 units to TD. Hydrocarbons were indicated in sands in cores #6, #7 and #8.

No connection gases were recorded and trip gas values were consistent with influencing factors such as length of time spent out of the hole, maximum trip gas of 180 units being recorded at 1600 metres after 3 days out of the hole to repair the stack and 100 units at 2052 metres. These were taken to be an indication that the pressure regime of the area was normal.

TEMPERATURE -

Continuous monitoring of the flowline temperature was carried out in an attempt to locate transition zones in the geothermal gradient due to changes in the thermal conductivitity of the formations due to the presence of excess pore fluids. On all occasions when sudden decreases or increases in the flowline temperature occurred, either the addition of water or chemicals to the mud system was the apparent cause.

Calculations based on the flow line temperature data collected indicate that a normal regional trend of 1.12^{o}C was in effect for Fortescue with the maximum temperature recorded in the flowline being 47.4^{o}C at 2406 metres prior to the disruption of the mud system by coring at 2409.5 metres.

B. FRACTURE PRESSURE

The values of overburden pressure gradient (OBG) and estimated formation fracture gradient (FFG) are presented in Appendix C (iii). The overburden gradient curve was calculated by taking averaged formation density readings from the FDC log and summing the values for the whole well section. An averaged density from surface to any point is used to calculate the overburden pressure at that point. The kelly bushing was used as the zero datum level.

After establishing the OBG curve for the well the values were used to calculate theoretical fracture pressures using the "Mathews and Kelly" and "Eaton" methods which are derived from Gulf Coast data. These methods are explained more fully in Appendix A.

These theoretical values were compared with the one leak off test or formation integrity test (F.I.T.) of 13. 7 ppg (without leak off) conducted on the 13 3/8" casing shoe at 867m. Assuming a true leak off of 14.0 ppg at the shoe then the methods give low theoretical results using coefficients derived from the Gulf Coast. Mathews and Kelly's method gave 12.78 ppg and Eatons method gave 11.47 ppg. In order to correct the coefficients a revised poissons ratio was back calculated from the FIT at the shoe and an acceptable fracture gradient curve produced for the whole well using Eatons method.

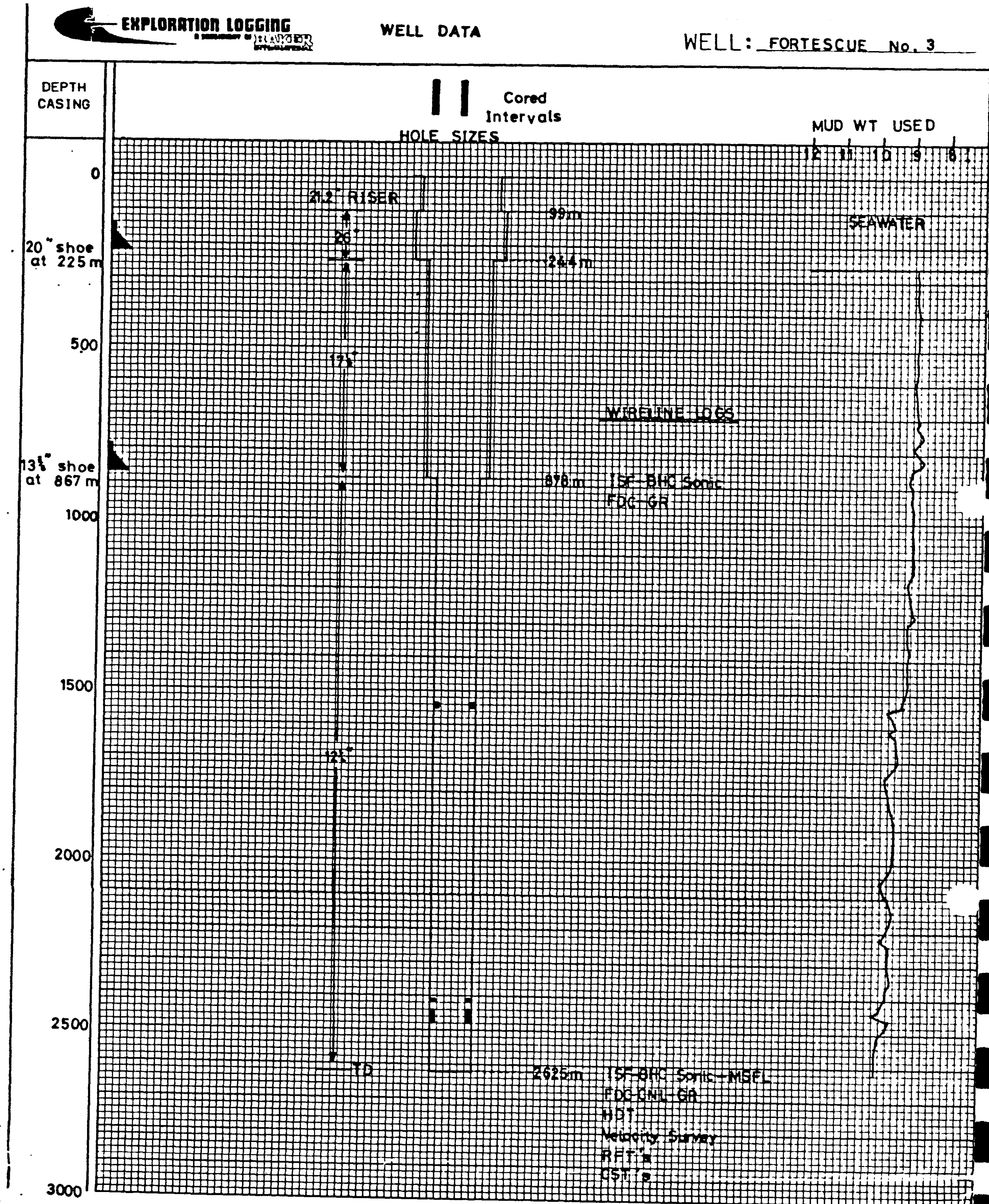
Due to the absence of abnormal pore pressure in the well, mud weights were low and no lost circulation problems encountered. Kick tolerance at 2625m, assuming 14.0ppg breakdown at the shoe and a 10ppg mud in the hole, is however only 1.3ppg EMW.

IV. DRILLING ENGINEERING

Monitoring and analysis of the Drilling Engineering at the wellsite was centred on the Bit Analysis, Hydraulics, Hole Condition and Hole Deviation.

The pertinent data for each engineering aspect covered is presented in a tabular format, in this section.

More detailed analysis of all the engineering parameters relevant to the drilling of the well, such as weight on bit, rate of penetration, torque, mud characteristics, detailed hydraulics and flow regime analysis, are presented in Appendix D as hard copy computer printouts and plots reduced to size for this Report or reference to the original listings in the Esso files.


EXPLORATION LOGGING
WELL DATA
WELL: FORTESCUE No. 3
DEPTH
CASING
Cored Intervals
HOLE SIZES
MUD WT USED
12 11 10 9 8
0
500
1000
1500
2000
2500
3000
20" shoe at 225 m
13⅜" shoe at 867 m
RISER
26"
17½"
12¼"
TD
99m
244m
878m
2625m
SEAWATER
WIRELINE LOGS
ISF-BHC Sonic
FDC-GR
ISF-BHC Sonic-MSFL
FDC-CNL GR
HDT
Velocity Survey
RFT's
CST's

A. WELL DATA

B.

BIT SUMMARY - COST ANALYSIS FORTESCUE No.3

BIT NO.	SIZE	MAKE	TYPE	IADC CODE	JET SIZES	DRILLED INTERVAL	DISTANCE DRILLED (m)	HOURS	AV ROP (m/hr)	FINAL COST/ METER	WOB	ACTUAL RPM	AVERAGE TORQUE	TOTAL BIT REVOLUTIONS	IADC BIT CONDITION	REASON FOR PULLING BIT
1	Spud in with 17½ HTC OSC 3AJ W/ 26" Hole opener and 20,20,20 jets. Drill to 244m and set 20" casing at 225m															
2	17½	HTC	OSC 3AJ	1111	20,20,20	244-878	634	12.6	50	53	30	120	5000	93499	2 3 0	Run wireline logs set 13 3/8 csg at 867
3	12¼	HTC	XIG	1341	18,18,18	878-1271	393	10.6	37	78	40	120	5000	82753	3 8 1/16	
4	12¼	HTC	X3A	1141	18,18,18	1271-1508	237	19.6	12	215	50	120	5000	134715	3 7 1/16	Slow drill rate, pump problems
5	12¼	HTC	X3A	1141	18,18,18	1508-1536	28	1.6	17.5	538	50	120	5000	10964	3 1 0	pull to core
Core No.1	8 15/32	CHRIS	C20	9999	-	1536-1548.6	12.6	0.6	21	1001	35	80	3000	9090		coring
6	12¼	HTC	X3A	1141	18,18,18	1548 6-1600	51.4	2.5	20	323	51	120	5500	24412	1 1 0	defect in BOP
7	12¼	HTC	X3A	1141	18,18,20	1600-2052	452	22.5	20	129	50	135	5500	180569	3 8 0	
8	12¼	HTC	X3A	1141	20,20,20	2052-2409.5	357.5	19.1	19	150	48	150	6000	146366	4 7 0	High torque - seized cone slow drill rate
Core No 2	8 15/32	CHRIS	C20	9999	-	2409.5-2410.5	1.0	1.0	1.0	9032	20	85	3500	5837	-	barrel jammed
Core No.3	8 15/32	CHRIS	C20	9999	-	2410.5-2416	5.5	5.2	1.0	5660	20	80	4000	28042	-	Severe sea conditions
Core No.4	8 15/32	CHRIS	C20	9999	-	-	-	-	-	-	-	-	-	-	-	barrel jammed
Core No.5	8 15/32	CHRIS	C20	9999	-	2416-2417	1.0	2.2	0.45	14400	28	50	3000	4965	-	barrel jammed.
9	12¼	HTC	XDG	1351	15,15,14	2409.5-2440	23	1.9	12.1	1015	47	112	7000	18790	1 1 0	hit payzone pull to core
Core No.6	8 15/32	CHRIS	C22	9999	-	2440-2456	16	3.4	4.7	2075	24	85	6000	16688	-	Coring Rec 11.4m
Core No.7	8 15/32	CHRIS	C22	9999	-	2456-2470	14	2.8	5.0	1223	22	102	3800	34013	-	Coring Rec 9m
Core No.8	8 15/32	CHRIS	C22	9999	-	2470-2480	10	3.0	3.3	1026	25	85	3000	48576	-	Coring Rec 0m
RR 9	12¼	HTC	XDG	1351	15,15,14	2480-2625	145	11.6	12.5	310	35	110	5000	97208	-	T.D. at 2625m.

C. HYDRAULICS ANALYSIS   FORTESCUE No.3

DEPTH INTERVAL (M)	Hole Size (in)	Nozzles (/32)	Av Drill Rate (m/hr)	Mud Flow (GPM)	Mud Flow (SPM)	Pump Pressure (PSI)	ANNULAR VELOCITIES Ft/Min Collars	Pipe	Riser	Critical (adj.Collars)	Mud Wt in PPG	PV/YP	Jet Velocity ft/sec	Jet Pressure Drop (PSI)	%Pressure Drop at Bit	Impact Force (lb)	Bit Hydraulic HP
244-878	17½	20,20,20	50	950	110	1800	95	83	56	-	8.9	4/9	331	883	49	1465	489
878-1600	12¼	18,18,18	21	900	105	2700	245	176	52	284	9.1	8/13	387	1221	45	1642	641
1600-2052	12¼	18,18,20	20	840	97	2905	219	164	48	309	9.5	10/16	335	956	33	1385	468
2052-2410	12¼	20,20,20	19	850	98	2800	222	166	49	330	9.5	12/18	296	746	27	1238	370
2410-2417	8 15/32	Coring	3	290	34	1550	76	59	Boost	-	9.6	14/20	-	-	-	-	-
2410-2440	12¼	15,15,14	12	660	76	3000	180	129	38	350	9.6	15/20	427	1577	53	1409	607
2440-2480	8 15/32	Coring	4	280	32	1550	76	54	Boost	-	9.6	16/20	-	-	-	-	-
2440-2625	12¼	15,15,14	12	640	74	2860	174	125	37	356	9.8	17/21	414	1521	53	1359	568

D. HOLE CONDITION

The borehole condition was monitored during the drilling of the well by observing the differential lag time, the type, percentage, size and shape of the cavings, the hole deviation, the estimated differential pressure, the percentage of swelling clays, and the differential annular velocity adjacent to the drill collars. During trips hole drag and fillup were monitored and recorded.

Hole problems were encountered in the section of the hole above 2409 metres and manifested themselves as either tight hole, blocked flowline or excessive cavings.

Tight hole was encountered during trips at 878, 1271 and 1508 metres. Tight hole caused most problems with the trip at 1508 metres, being present over the interval 1508 - 1050 metres. The same problem to a lesser extent was detected at 1111m. on the trip out at 1271 metres Both problems were resolved without major changes to the mud system.

Blocked flowline and excessive cavings are attributed to a large extent to the reaction of the clays at 1759 metres with the salt water/gel mud. Change over of the mud system to a polymer one resolved this problem.

Excessive cavings were only encountered during 1759 - 1767 metre interval with estimates of percentage cavings rarely exceeding 5% during normal drilling. Comparison of calculated versus actual carbide log times also indicated a stable in-gauge hole condition.

V. HYDROCARBON EVALUATION

INTRODUCTION -

Hydrocarbon evaluation at the wellsite was performed while drilling by use of standard mud logging techniques. These included "hot wire" gas detection which indicated the relative amount of combustible gas in the drill returns. Both total gas and petroleum vapours (all combustible gases less methane) were monitored and recorded.

Gas held in cuttings was assessed by pulverising 100 cc's of cuttings in a blendor with water and measuring the amount of gas liberated. A comparison of the cuttings' gas magnitude with that of the ditch gas was used to give a qualitative indication of formation permeability.

Ditch gas was analysed continuously and automatically by three chromatographs, standard catalytic, hydrogen flame ionization and thermo conductivity. The catalytic detector can become saturated at high gas levels and the flame ionization detector is used as a back-up in this event. The thermoconductivity chromatograph was used to detect inert gases, nitrogen and helium and also for carbon dioxide.

Samples of mud and pulverised cuttings gas were manually entered into the standard chromatograph directly from the blendor.

Oil evaluation was undertaken by observing the mud and unwashed cuttings for oil. Cuttings samples were observed under the ultraviolet light for all fluorescence and solvent cut.

RESULTS -

Gas readings from Fortescue No. 3. were very low from 244m to 440m at less than 1 unit composed of C_1 methane only. From 440m to 2437m the background gas varies from 2 to 24 units with no prominent peaks and it is composed of C_1 and C_2 with occasional traces of C_3. There is one notable exception at 2526m were a 2000+ unit gas peak was detected composed of the gas C_1 through C_4. The peak was associated with a thin sandy interval which displayed a good trace of very light yellow fluorescence and white cut.

The main zone of interest was penetrated at 2437m to 2440m where 30 units of gas was produced from a sandstone. C_1 methane to C_5 pentane were detected and good fluorescence and cut was observed in the cuttings along with traces of oil in the mud. The section 2440m to 2480m was cored and few readings were obtained due to slow circulation rates. The few results that were obtained were less than 2 units, but C_1 through to C_5 were present. The cores from 2440m showed good fluorescence, cut and oil staining.

In the interval 2480m to 2625m, the background gas was relatively low at 2 to 3 units with C_1 to C_4 present, the heavier gases decreasing in percentage with depth.

After drilling to TD at 2625m,wire line logs were run and the following RFT results obtained.

RFT No 1 - Depth 2440.0m

Recovery

16,100 cc oil - 45 API at 60°F
1000 cc Filtrate - 3900 Cl^-
1750 cc oil/filtrate emulsion
7.3 ft^3 gas

Chromatograph Analysis

C_1	640,000	ppm
C_2	109,350	"
C_3	109,575	"
IC_4	35,325	"
nC_4	30,150	"
C_5	11,925	"
He?	1,000	"
Co2	-	
H_2S	-	

RFT No 2 - Depth 2448.5m

Recovery

500 c.c oil - 41 api at 77° F.
19900 c.c. Filtrate - 6000 Cl^-
0.3 ft^3 gas

Chromatograph Analysis

Not enough gas to analyse

RFT No 3 - Depth 2462m

Recovery

19000 c.c formation water - 12,000 Cl^-

Chromatograph Analysis

No gas

RFT No 4 - Depth 2457.5m

Recovery

19000 c.c filtrate 6,000 Cl^-
0.2 ft^3 gas

Chromatograph Analysis

Not enough gas to analyse

RFT No 5 - Depth 2454.5m

Recovery	Chromatograph Analysis.		
	C_1	103,360	ppm
	C_2	59,230	"
3000 c.c oil 45 APi at 68^{O}F	C_3	96,220	"
17000 c.c filtrate - 5800 Cl^-	IC_4	28,910	"
0.4 ft^3 gas	NC_4	26,360	"
	C_5	7,950	"

Not enough gas for He, Co_2 and H2S analysis.

GAS RATIOS

A gas ratio analysis of the chromatograph readings from 2110m to 2620m plus the RFT readings from runs 1 and 5 are presented in the table in figure 1.

Analysis of the plot of the C_1 / C_2 ratio from 2110m to 2620m (figure 2) shows a decrease in the C_1 / C_2 ratio at 2300m coinciding with the increase in formation shaliness at this depth. The hydrocarbon zone at 2437m is clearly evident on the plot with a further sharp drop in the C_1/C_2 ratio. Unfortunately the oil/water contact is not discernable due to the paucity of readings in the interval 2440 to 2480m.

Figure 3 is a gas ratio plot of the chromatograph readings at 2440m (mud stream) which attempts to determine the hydrocarbon phase and possible productivity by using the inverse methane ratios. In this case an oil zone is indicated which is probably non-productive due to the lower C_1/C_3 ratio compared to C_1/C_2 .

Figure 4 is a triangular gas plot of the chromatograph readings from the RFT at 2440m. From experiment, a hydrocarbon coefficient (HC) of $<$ 0.003 indicates an unproductive zone, $0.003<HC<0.175$ indicates gas and $HC>1.175$ indicates oil. In this case the plot indicates a marginally productive oil zone.

In conclusion, the analysis suggests an oil bearing zone from 2437m to at least 2465m, and a probably productive zone at 2440m, the only interval with enough data to analyse. The oil/water contact could not be determined.

FORTESCUE NO 3

GAS RATIOS ANALYSIS

OFF-LINE PRINT-OUT

FILE NO	DEPTH FEET	PPM C1	C2	C3	iC4	nC4	C5	TOTAL	% OF TOTAL GAS C1	C2	C3	iC4	nC4	C5	METHANE RATIOS C2	C3	iC4	nC4	C5	ETHANE RATIOS C3	iC4	nC4	C5	PROPANE iC4	nC4	C5	iC4 nC4	DELTA C's
2	2110	745	15	0	0	0	0	760	98.03	1.97	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.03
3	2120	548	10	0	0	0	0	558	98.21	1.79	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.21
4	2130	460	10	0	0	0	0	470	97.87	2.13	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.87
5	2140	700	10	0	0	0	0	710	98.59	1.41	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.59
6	2150	1360	20	0	0	0	0	1380	98.55	1.45	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.55
7	2160	591	28	0	0	0	0	619	95.48	4.52	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.48
8	2170	1752	28	0	0	0	0	1780	98.43	1.57	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.43
9	2180	1971	25	0	0	0	0	1996	98.75	1.25	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.75
10	2190	1117	35	0	0	0	0	1152	96.96	3.04	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.96
11	2200	919	10	0	0	0	0	929	98.92	1.08	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.92
12	2210	1270	20	0	0	0	0	1290	98.45	1.55	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.45
13	2220	1007	20	0	0	0	0	1027	98.05	1.95	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.05
14	2230	1095	15	0	0	0	0	1110	98.65	1.35	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.65
15	2240	1226	28	0	0	0	0	1254	97.77	2.23	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.77
16	2250	701	10	0	0	0	0	711	98.59	1.41	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.59
17	2260	1007	15	0	0	0	0	1022	98.53	1.47	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.53
18	2270	1095	15	0	0	0	0	1110	98.65	1.35	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.65
19	2280	1358	10	0	0	0	0	1368	99.27	.73	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.27
20	2290	1226	10	0	0	0	0	1236	99.19	.81	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.19
21	2300	1139	36	0	0	0	0	1175	96.94	3.06	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.94
22	2310	438	21	0	0	0	0	459	95.42	4.58	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.42
23	2320	964	35	0	0	0	0	999	96.50	3.50	0.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.50
24	2330	1051	20	0	0	0	0	1071	98.13	1.87	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.13
25	2340	963	40	0	0	0	0	1003	96.01	3.99	0.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.01
26	2350	745	10	0	0	0	0	755	98.68	1.32	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.68
27	2360	767	28	0	0	0	0	795	96.48	3.52	0.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.48
28	2370	1051	35	0	0	0	0	1086	96.78	3.22	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.78
29	2380	547	10	0	0	0	0	557	98.20	1.80	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.20
30	2390	306	8	0	0	0	0	314	97.45	2.55	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.45
31	2400	481	21	0	0	0	0	502	95.82	4.18	0.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.82
32	2410	1200	25	0	0	0	0	1225	97.96	2.04	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.96
33	2420	420	12	0	0	0	0	432	97.22	2.78	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.22
34	2430	440	26	15	0	0	0	481	91.48	5.41	3.12	0.00	0.00	0.00	.06	.03	0.00	0.00	0.00	.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.36
35	2435	363	20	12	0	0	0	395	91.90	5.06	3.04	0.00	0.00	0.00	.06	.03	0.00	0.00	0.00	.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.86
36	2440	7272	1622	3090	718	998	500	14200	51.21	11.42	21.76	5.06	7.03	3.52	.22	.42	.10	.14	.07	1.91	.44	.62	.31	.23	.32	.16	.72	13.85
37	2445	252	39	63	18	26	5	403	62.53	9.68	15.63	4.47	6.45	1.24	.15	.25	.07	.10	.02	1.62	.46	.67	.13	.29	.41	.08	.69	34.74
38	2450	268	41	67	17	26	5	424	63.21	9.67	15.80	4.01	6.13	1.18	.15	.25	.06	.10	.02	1.63	.41	.63	.12	.25	.39	.07	.65	36.08
39	2480	336	50	78	30	43	5	542	61.99	9.23	14.39	5.54	7.93	.92	.15	.23	.09	.13	.01	1.56	.60	.86	.10	.38	.55	.06	.70	33.21
40	2485	316	38	44	35	30	5	468	67.52	8.12	9.40	7.48	6.41	1.07	.12	.14	.11	.09	.02	1.16	.92	.79	.13	.80	.68	.11	1.17	43.16
41	2480	420	50	47	32	58	0	607	69.19	8.24	7.74	5.27	9.56	0.00	.12	.11	.08	.14	0.00	.94	.64	1.16	0.00	.68	1.23	0.00	.55	46.62
42	2490	420	50	47	32	58	0	607	69.19	8.24	7.74	5.27	9.56	0.00	.12	.11	.08	.14	0.00	.94	.64	1.16	0.00	.68	1.23	0.00	.55	46.62
43	2495	374	43	29	24	40	0	510	73.33	8.43	5.69	4.71	7.84	0.00	.11	.08	.06	.11	0.00	.67	.56	.93	0.00	.83	1.38	0.00	.60	55.10
44	2500	380	40	32	30	32	0	514	73.93	7.78	6.23	5.84	6.23	0.00	.11	.08	.08	.08	0.00	.80	.75	.80	0.00	.94	1.00	0.00	.94	55.64
45	2505	373	55	20	15	18	0	481	77.55	11.43	4.16	3.12	3.74	0.00	.15	.05	.04	.05	0.00	.36	.27	.33	0.00	.75	.90	0.00	.83	66.53
46	2515	261	28	15	15	14	0	333	78.38	8.41	4.50	4.50	4.20	0.00	.11	.06	.06	.05	0.00	.54	.54	.50	0.00	1.00	.93	0.00	1.07	65.17
47	2520	252	23	11	7	9	0	302	83.44	7.62	3.64	2.32	2.98	0.00	.09	.04	.03	.04	0.00	.48	.30	.39	0.00	.64	.82	0.00	.78	74.50
48	2525	355	24	10	4	4	0	397	89.42	6.05	2.52	1.01	1.01	0.00	.07	.03	.01	.01	0.00	.42	.17	.17	0.00	.40	.40	0.00	1.00	84.89
49	2530	313	20	4	2	4	0	343	91.25	5.83	1.17	.58	1.17	0.00	.05	.01	.01	.01	0.00	.20	.10	.20	0.00	.50	1.00	0.00	.50	88.34
50	2540	468	70	7	0	0	0	545	85.87	12.84	1.28	0.00	0.00	0.00	.15	.01	0.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.59
51	2545	373	51	19	0	0	0	443	84.20	11.51	4.29	0.00	0.00	0.00	.14	.05	0.00	0.00	0.00	.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.91
52	2555	429	45	30	0	0	0	504	85.12	8.93	5.95	0.00	0.00	0.00	.10	.07	0.00	0.00	0.00	.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.17
53	2560	550	60	27	0	0	0	637	86.34	9.42	4.24	0.00	0.00	0.00	.11	.05	0.00	0.00	0.00	.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.10
54	2570	467	80	20	0	0	0	567	82.36	14.11	3.53	0.00	0.00	0.00	.17	.04	0.00	0.00	0.00	.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.84
55	2580	710	120	20	0	0	0	850	83.53	14.12	2.35	0.00	0.00	0.00	.17	.03	0.00	0.00	0.00	.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.18
56	2590	355	40	25	0	0	0	420	84.52	9.52	5.95	0.00	0.00	0.00	.11	.07	0.00	0.00	0.00	.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.57
57	2600	580	45	30	0	0	0	655	88.55	6.87	4.58	0.00	0.00	0.00	.08	.05	0.00	0.00	0.00	.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.97
58	2610	318	20	14	0	0	0	352	90.34	5.68	3.98	0.00	0.00	0.00	.06	.04	0.00	0.00	0.00	.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.36
59	2620	300	30	25	0	0	0	355	84.51	8.45	7.04	0.00	0.00	0.00	.10	.08	0.00	0.00	0.00	.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.45

RFT #1 & 5, RATIOS

GAS RATIOS ANALYSIS

OFF-LINE PRINT-OUT

FILE NO	DEPTH FEET	PPM C1	C2	C3	iC4	nC4	C5	TOTAL	% OF TOTAL GAS C1	C2	C3	iC4	nC4	C5	METHANE RATIOS C2	C3	iC4	nC4	C5	ETHANE RATIOS C3	iC4	nC4	C5	PROPANE iC4	nC4	C5	iC4 nC4	DELTA C's
60	2440	6400	1093	1096	353	301	119	9362	68.36	11.67	11.71	3.77	3.22	1.27	.17	.17	.06	.05	.02	1.00	.32	.28	.11	.32	.27	.11	1.17	48.40
61	2455	1033	592	962	289	264	79	3219	32.09	18.39	29.89	8.98	8.20	2.45	.57	.93	.28	.26	.08	1.63	.49	.45	.13	.30	.27	.08	1.09	-17.43

Figure 1

OFFLINE PLOT OF DEPTH AGAINST HYDROCARBON COEFFICIENT (HC) AND C1/C2 FORTESCUE NO 3 FROM 2110 TO 2620

HC = (%C2+%C3+%NC4)*0.01 PLOT CHARACTERS :- HC (.) C1/C2 (*)

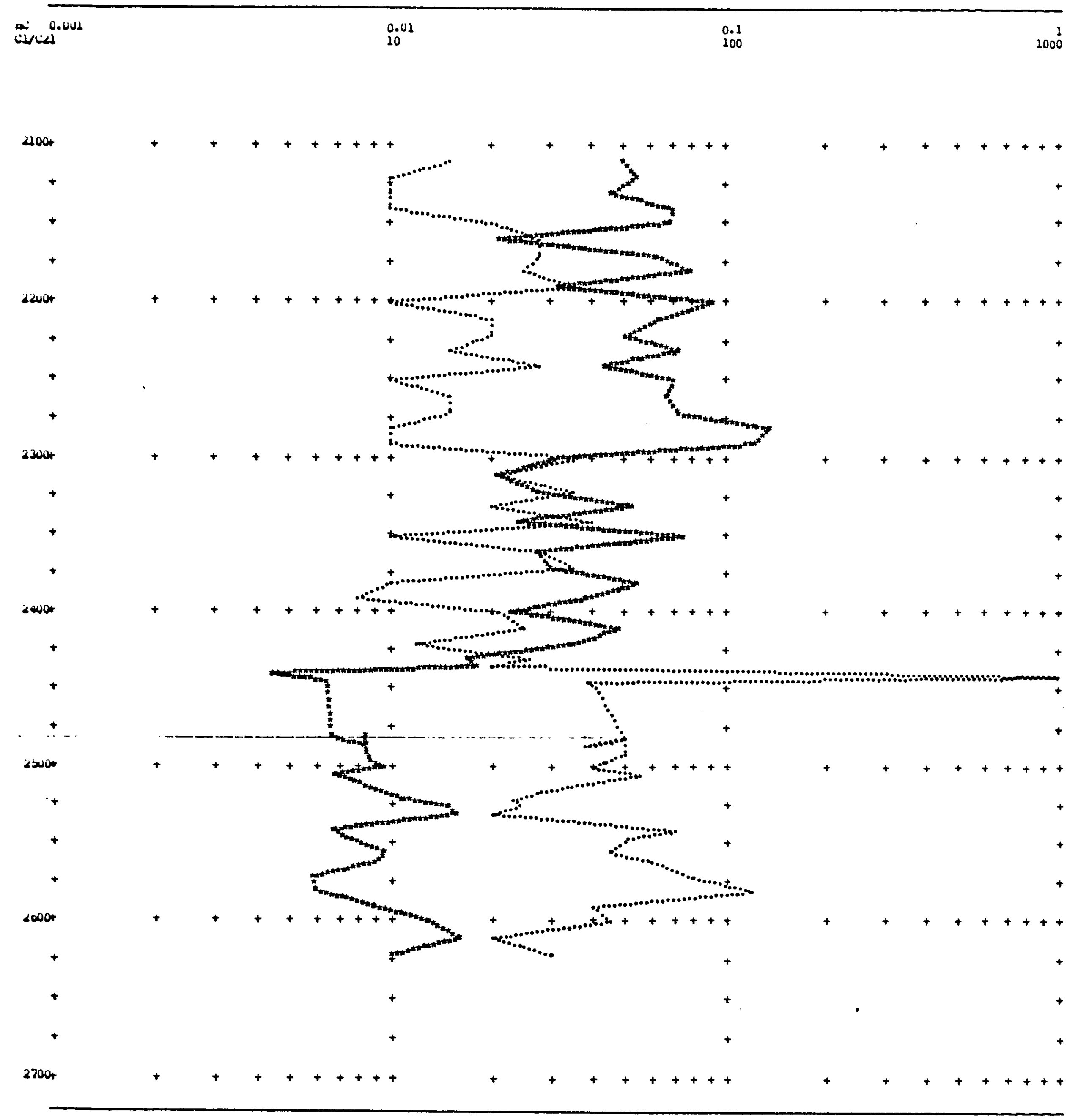


Figure 2

GAS RATIO PLOT TO DETERMINE POSSIBLE PRODUCTIVITY AND HYDROCARBON PHASE FORTESCUE NO 3 INTERVAL FROM 2440 TO 2440

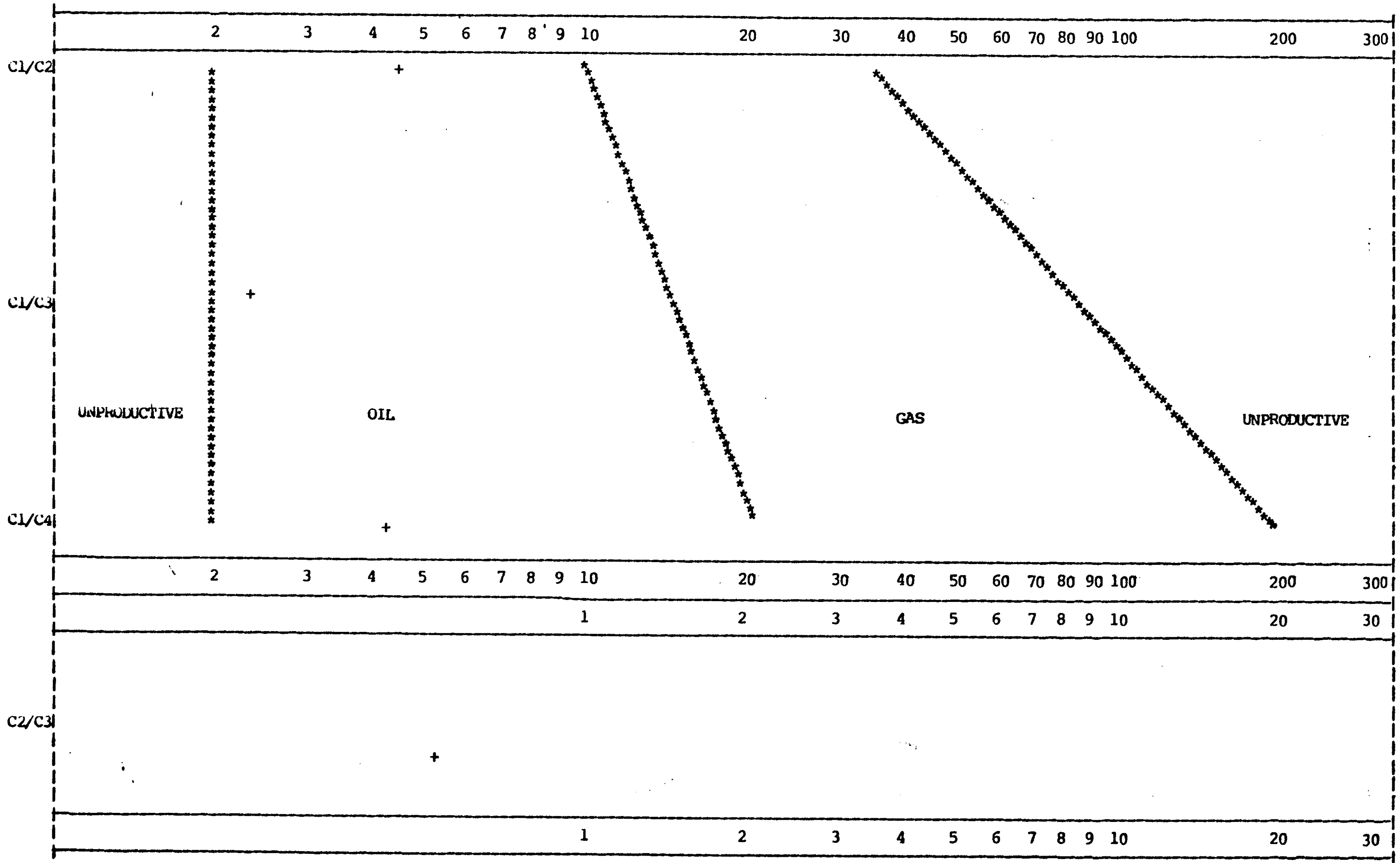


Figure 3

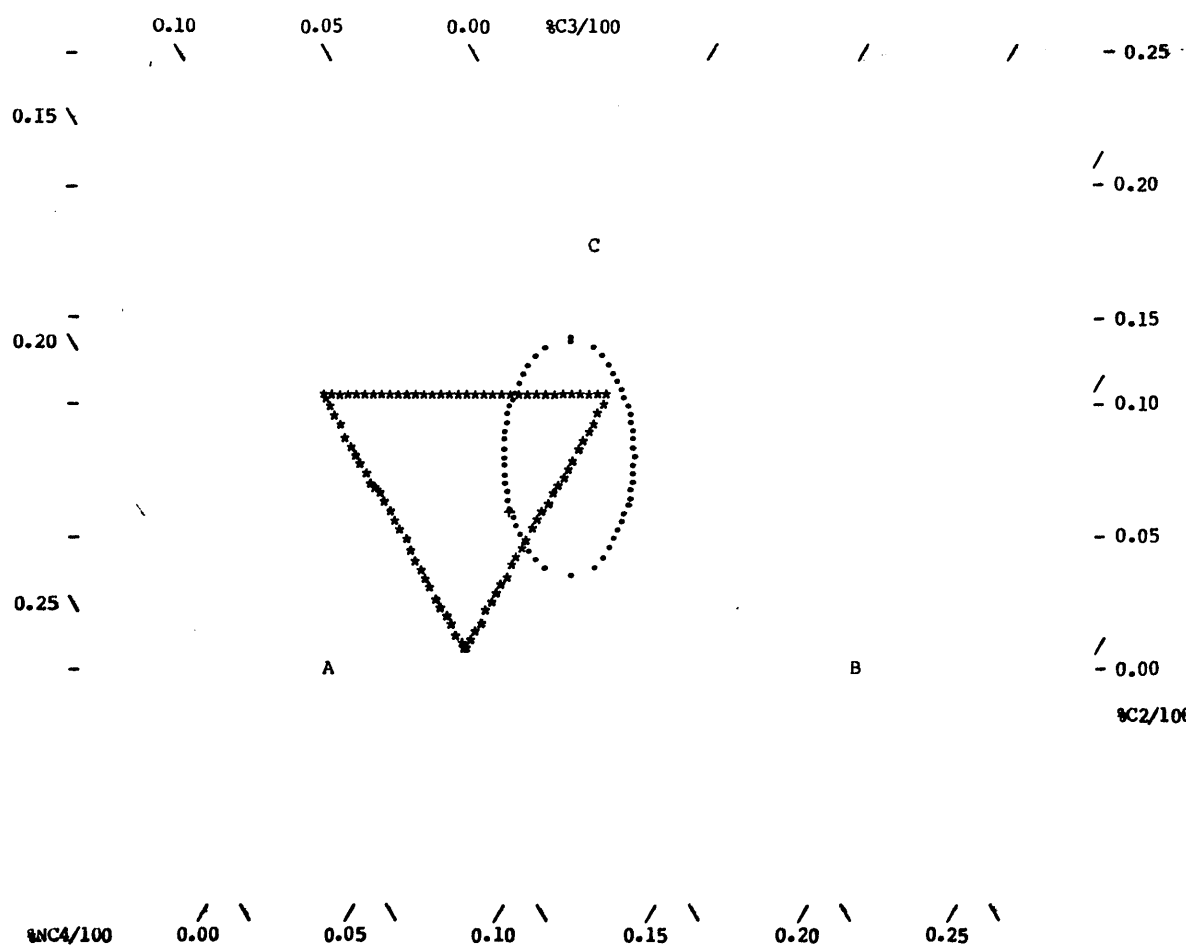
NOTES

1) PRODUCTIVE DRY GAS ZONES MAY SHOW ONLY C1 BUT ABNORMALLY HIGH C1 ONLY SHOWS ARE INDICATIVE OF SALT WATER
2) IF THE C1/C2 RATIO FALLS LOW IN THE OIL SECTION & THE C1/C4 FALLS HIGH IN THE GAS SECTION THE ZONE IS PROBABLY UNPRODUCTIVE
3) IF ANY RATIO IS LOWER THAN THE PRECEDING RATIO THE ZONE IS PROBABLY NON-PRODUCTIVE
4) THE RATIOS MAY NOT BE DEFINITIVE FOR TIGHT LOW PERMEABILITY ZONES

Figure 4

GAS RATIO PLOT TO DETERMINE POSSIBLE PRODUCTIVITY AND HYDROCARBON PHASE   RFT #1 & 5, RATIOS   INTERVAL FROM 2440 TO 2440

IF THE APEX OF THE TRIANGLE IS ABOVE THE BASE,GAS IS INDICATED.THE OPPOSITE INDICATES OIL
IF THE DATA POINT PLOTS WITHIN THE ELLIPSE IT IS CONSIDERED PRODUCTIVE.THE SMALLER THE GAS TRIANGLE THEN THE WETTER IT IS.THE LARGER THE OIL TRIANGLE THE THE HEAVIER THE OIL.
THE HYDROCARBON COEFFICIENT (HC) IS PROPORTIONAL TO THE SIZE OF THE TRIANGLE.UNPRODUCTIVE - HC<.003,
GAS .003<HC<.175;OIL HC>.175.



DEPTH	HC	DEPTH	HC	DEPTH	HC
2440	.266				

VI CONCLUSIONS AND RECOMMENDATIONS

Fortescue No. 3 was drilled to 2625 metres in 24 days. The increase in drilling time compared to Fortescue No. 2 (2653 metres - 16 days), was mainly a result of increased coring requirements, weather and rig downtime.

For future wells in the Fortescue Field, it is recommended that correlation with the salt water sensitive clays found in Fortescue No. 3. at 1767 metres may prove useful as a marker for the changeover from a saltwater/gel mud to a polymer system to avoid problems in this section of the hole.

The anomalous "gas sand" encountered at 1526 metres bears further watching should it reoccur in other wells in the Fortescue Field area, for reasons of both safety, hydrocarbon potential and stratigraphic continuity.

Appendix A

Geopressure & Engineering Methods

Appendix A

A P P E N D I X A

GEOPRESSURE AND ENGINEERING METHODS

Appendix A | Page

DATA ACQUISITION AND ANALYSIS METHODS

Appendix A

Data Acquisition and Methods of Analysis

The methods used to obtain data, and the calculations employed to predict and quantify pore and fracture pressures are explained below.

A. Pore Pressure Prediction and Detection

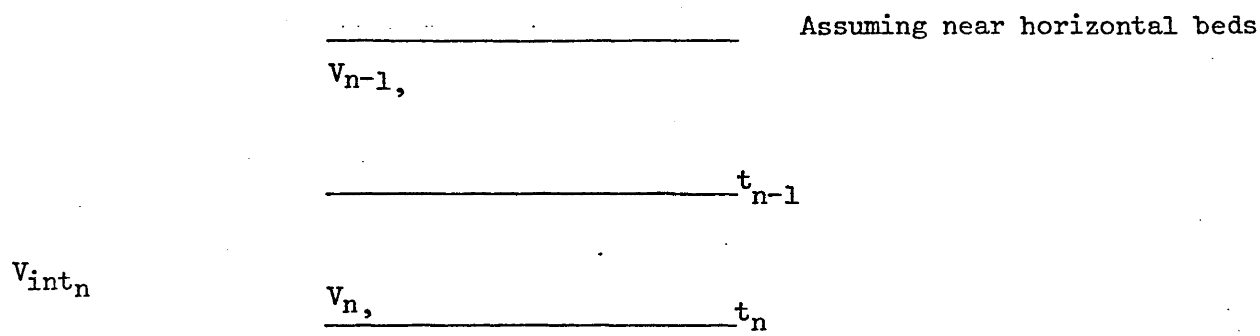
I. Before Drilling

(1) Seismic Information

Field data from the reflection seismograph may be used to predict both the depth to abnormally pressured formations and the approximate pressure magnitude. The degree of accuracy depends upon the quality of the velocity spectrum. Where common depth point stacking is performed and scanned using RMS velocity increments of 50 feet/sec., areas of greatest semblance are enhanced. Therefore interval velocity calculations are more accurate and trends can be placed within closer limits.

From the velocity spectrum of RMS velocity versus two-way time, the interval transit time of the seismic energy (Eq. 2) (reciprocal of interval velocity x 10^6) can be derived using Dix's formula (Eq. 1). A near exponential decrease of interval transit time with depth is usually seen in normally compacted sediments. Departures from this curve are usually caused by abnormal pressures, formation changes and poor resolution in the velocity analysis. With Interval Transit Time plotted on the semilogrithmic X axis (abscissa) and depth on the linear axis (ordinate), a "sonic log" type plot is produced. Therefore the compaction trend can be readily compared with that derived from shale interval transit time from the sonic wireline logging tool. Decreases in the rate of decrease of interval time (i.e. increase interval velocity) with depth within shale section is usually indicative of undercompaction and geopressures.

Screening of raw data during drilling of the well consists of selecting shale points and utilizing velocity survey data at casing points. This can help to reduce the log intervals over which data is averaged and so narrow down the range of possible normal trends. The greater the velocity data available in an area the more accurate the pore pressure predictions.



EQ. (1) $V^2{}_{int_n} = (V_n{}^2 t_n - V_{n-1}{}^2\, t_{n-1})/(t_n \; t_{n-1})$

where	V_{int_n}	= interval transit velocity for reflecting horizon n, ft/sec.
	V_n	= Rms velocity ft/sec for layer n
	V_{n-1}	= Rms velocity ft/sec for layer (n-1)
	t_n	= Two way time to layer n, secs
	t_{n-1}	= Two way time to layer (n-1), secs

EQ. (2) $1/V_{int_n} \times 10^6$ = interval transit time in micro secs

(2) Well Histories

Data from other wells drilled in the vicinity are very useful prespud information. Information from seismic profiles, wireline logs (FDC, sonic and conductivity/resistivity), FIT and DST data, lithology and mud logs, and completion and pressure reports is of great asset in evaluating the pore pressure prospects in a new well.

II. Drilling Parameters

(1) Rate of Penetration

The rate of penetration is calculated from a kelly height versus time recorder.

With constant drilling conditions (i.e. bit size, weight on bit, rotary rpm, hydraulics and mud weight) in a uniform lithology, the rate of penetration will be determined by formation compaction characteristics. As the formations become more compacted with depth, the rate of penetration will decrease. The lithology used for determining the compaction rate is clean shale. On entering an overpressured shale there will be an increase in drill rate concomitant with the increase in porosity, and the decrease in differential pressure between mud weight and pore pressure.

It is not always possible to maintain constant parameters when drilling, and bit wear is usually an unknown factor.

To normalise the parameters and remove the effect of all non-lithological variations, the corrected drilling exponent was devised.

(2) Dxc (Drilling Exponent Corrected)

Various formulae have been proposed to allow control of the major drilling variables. The Jorden and Shirley formulation allows control of most of the drilling variables and has proved very successful in most areas.

$$Dx = \frac{\text{Log } \frac{R}{60N}}{\text{Log } \frac{12W}{10^6 D}}$$

where D = drilling exponent
R = rate of penetration (ft/hour)
N = rotary speed (rpm)
W = weight on bit (lbs)
D = bit diameter (in)

The drilling exponent will increase with depth, compaction and differential pressure in a homogenous shale. On entering an overpressured zone, the compaction and differential pressure will decrease, which is reflected by a decrease in the D exponent.

Rehm and McClendon proposed the following correction to allow for mud weight.

$$Dxc = Dx \times \frac{Weq}{ECD}$$

where Dxc = corrected D
Dx = D exponent
Weq = normal pore pressure gradient (Equivalent mud weight, ppg)
ECD = effective circulating density

Any negative deviation of the Dxc from a normal trend (based on clean shale points) may be indicative of an increase in pore pressure.

(3) Mud Temperature

Heatflow is generated radially from the Earth's core and is usually constant in any given area across any given increment. This may be true for the average temperature gradient across normally pressured formations, but abnormally pressured formations have been shown to exhibit abnormally high geothermal gradients. The top of an overpressured zone will be marked by a sharp increase in geothermal gradient due to the higher than normal porosity of the formation which reduces thermal conductivity (insulates). The seal above zones of overpressure may exhibit a decrease in the geothermal gradient due to the insulating effect of the geopressured zone below and/or due to the greater thermal conductivity of the abnormally compacted seal rock.

The temperature of the drilling fluid at the flowline will be proportional to the geotemperature, but many variables must be taken into account. These variables include the mixing, treatment and addition of new, cooler mud into the circulatory system, pump rate, lag time, ambient temperature, lithology, casing size and length of riser.

Two other methods are also used to obtain geotemperature data whilst drilling. The first is the circulate returns temperature. Returns are usually circulated prior to pulling each bit, and after significant drilling breaks. A plot of these circulated returns temperatures usually provides a better approximation of the geothermal gradient than that obtained from the flowline temperature over the bit run. As with the standard method, recent mud additions can have a serious effect upon the circulated returns temperature.

A further method of obtaining geotemperature data is a survey Temp-Plate. This is a small, heat sensitised strip which is attached to the survey tool. A record of downhole survey temperature can therefore be kept. It has been found that this latter method more closely reflects the true geothermal gradient, although recorded temperature values are lower than true values.

Wireline log runs present an opportunity to calculate true bottom hole temperatures. By use of a Horner Plot, a method adapted from Horner's bottom hole pressure plots, reasonably accurate true bottom hole temperatures can be obtained. In most cases, the circulation time prior to running wireline logs is recorded. For each log run, time (in hours) since circulation stopped and the maximum bottom hole temperatures are recorded.

The recorded data may then be plotted on semilogrithmic paper, with temperature on the linear ordinate and the dimensionless time factor, $\frac{\Delta t}{t+\Delta t}$ on the semilog abscissa (where t = circulation hours and Δt = time since circulation stopped, hours). A straight line joining the plotted points is extrapolated to the temperature axis and true bottom hole static temperature is read off. (See Figure 1).

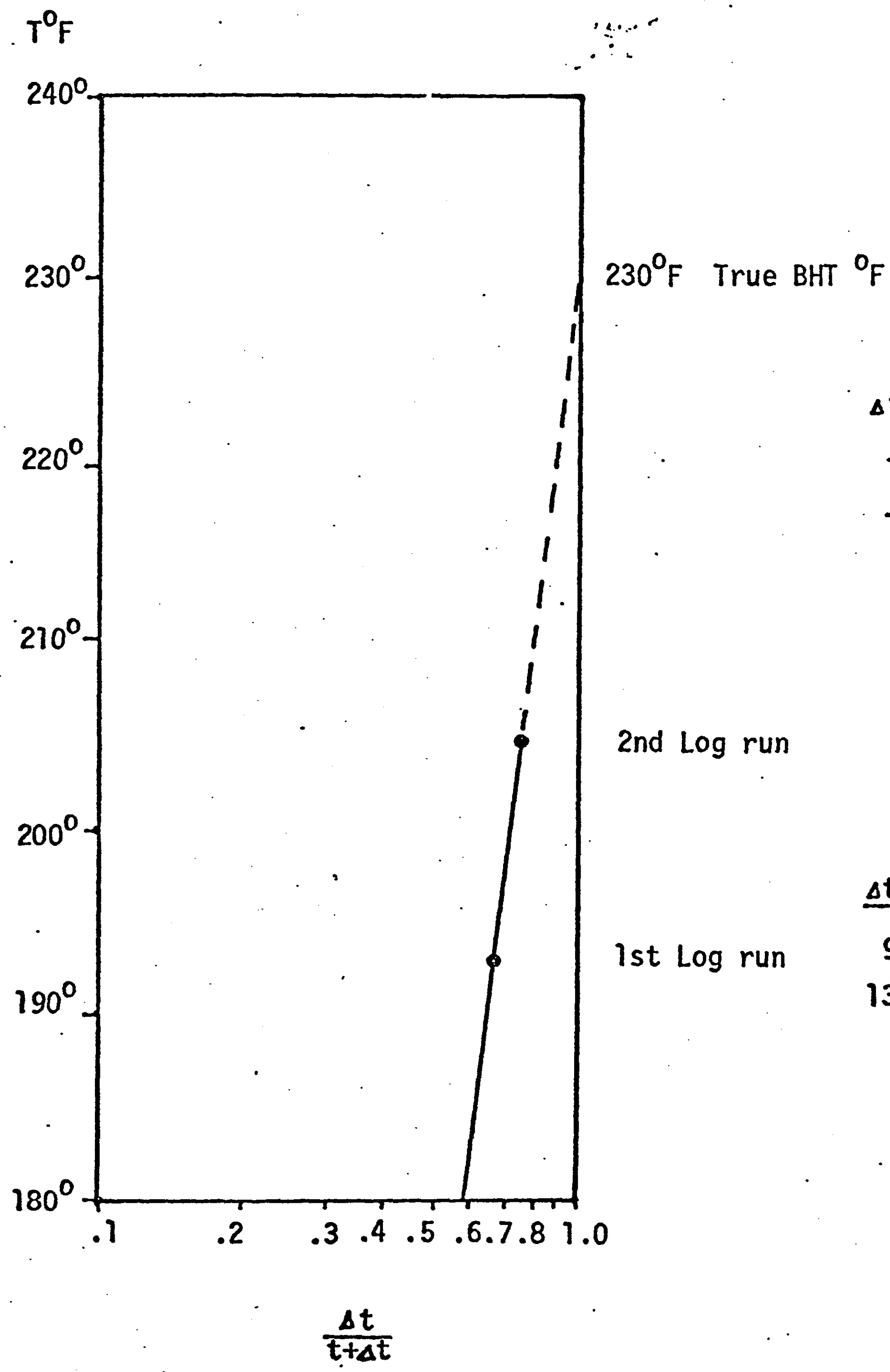
The method fails if circulation and the addition of new, cool mud into the system occurs between log runs.

(4) Gas

The amount of gas detected within the drilling mud at the flowline can be very useful indicator of differential pressure. Background gas values are very important. If the background gas increases with depth in a formation of constant lithology, permeability, and gas saturation with a fixed mud weight, then an increase in pore pressure may be indicated.

Gas magnitude is relative when gas is being used as a measure of differential pressure. Formation permeability and gas saturation must be considered in determining the amount of background gas to be expected while drilling. Low permeability formations are likely to yeild only small amounts of background gas even with high gas saturation. This is also the case for a formation with high permeability and low gas saturation. Refer to Figure 2.

HORNER TEMPERATURE PLOT



Δt = Hours since circulati

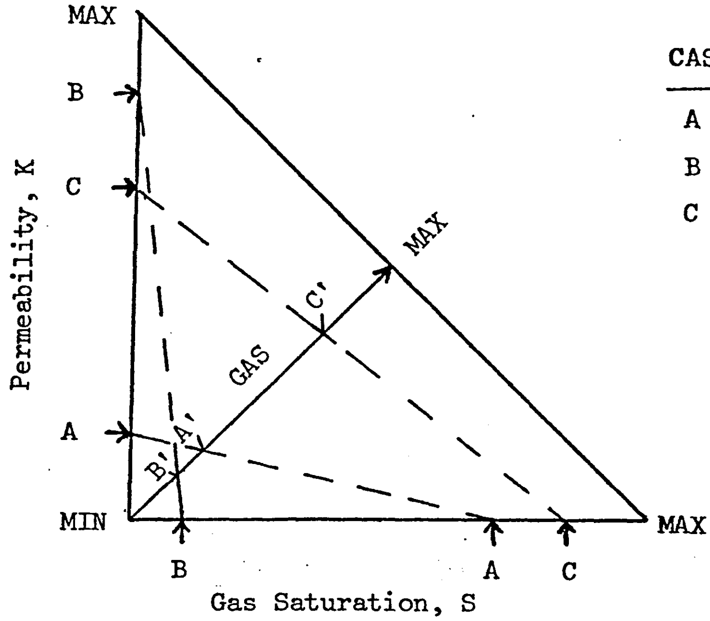
t = Circulation Time, Hours

T = Max. Recorded BHT, °F

$t = 4.5$

Δt	T	$\frac{\Delta t}{t+\Delta t}$
9	193	.67
13	205	.74

GAS MAGNITUDE AS A FUNCTION OF SATURATION AND PERMEABILITY



CASE	K	S	GAS
A	LOW	HIGH	LOW
B	HIGH	LOW	LOW
C	HIGH	HIGH	HIGH

FIGURE 2

In a low gas saturated formation a slight increase in background gas may be significant while in a high gas saturated formation high background gas may not be significant. Thus, low background gas in low gas saturated or low permeability formations can be expected, even when drilling underbalanced. Disregard of this factor can lead to sloughing, bridging, stuck pipe, or a well kick if gas alone is used for determining an underbalanced hole condition.

The background gas after a gas peak should be compared with the background gas prior to the peak. A higher background gas after a peak than that before the peak may suggest an underbalanced hole condition.

Pore pressures cannot be quantified by gas readings alone, but they can be quantified (provided the above mentioned permeability and saturation factors are taken into account) by a comparison of changes in gas readings with changes in mud weight in hydrocarbon bearing formations.

Produced gas (e.g. connection gas, swab gas and trip gas) are also important factors to consider in pore pressure analysis. Their presence indicates a near balanced hole condition for permeable hydrocarbon bearing formations or even a slightly underbalanced condition for low permeability hydrocarbon bearing formations.

Connection gas is due to the reduction in differential pressure caused in part by ceasing circulation and in part by swabbing, such that hydrocarbons (or other fluids) are produced (flow into the hole) from the formation.

Swab gas is that gas produced by a formation due to underbalance caused by the upward movement at the drill string. This may be accompanied by pump shutdown (e.g. during connections and trips) or not. There are two types of swabbing, one being the piston type (some part of the drill string acting as a plunger in the bore hole) and the other being the frictional type (friction between moving drill string and annular mud inducing a slight lifting force in annular mud column).

Trip gas is produced gas caused by pump shutdown, pulling the drill string, and lowering of the hydrostatic head (if the hole is not kept full) during a trip.

(5) Shale Density

Shale density in a homogeneous claystone/shale section which has a hydropressure gradient will increase with depth as compaction increases and porosity decreases. Values typically range from 1.7 to 2.7 gm/cc and show a steady rate of increase with depth. Anomalies from this normal compaction trend may be due to mineralogy, e.g., sideritic, dolomitic and calcareous shales exhibit higher than normal values. Sandy, silty shales and soft wet clay will produce further variations.

Geopressure is indicated by a constant or decrease in density with depth reflecting the increased porosity and fluid content. Cap rocks of higher than normal density may be present above this zone of abnormal pressure.

(6) Shale Factor (Refer Figure 3)

During normal deposition of clays, the principle component is montmorillonite. This is a flocculated sheet silicate which has a large capacity to absorb and retain water between the individual molecular sheets and between the flocculate particles. After deposition, montmorillonite undergoes compaction through gravity loading which flushes the intraparticle water into the pore spaces. Providing that the hydraulic conductivity is sufficiently high to remove this water, compaction will continue. The outer layers of water bonded to the clay particles may next be removed as montmorillonite alters diagenetically with depth to mixed-layer clays and finally to illite. This alteration involves compaction of pore spaces, orientation of particles and reduction in inter-layer and intraparticle area, thereby reducing the total area available for chemical absorption. Note that if the hydraulic conductivity is insufficient to remove the liberated water as it is flushed, then at depth the clays will be abnormally pressured and of a "younger" diagenetic age.

Illite or kaolinite may be deposited as the primary clays. As non-swelling clays they have very little intraparticle water. These clays dewater by loss of interparticle water through compaction. Again, if the hydraulic conductivity of the clays is lower than that required to efficiently flush the water, then these clays will be overpressured. Non-swelling clays, as stated above, are geometrically more compact than their swellable counterparts and therefore originally contain less sites for chemical absorption of free ions.

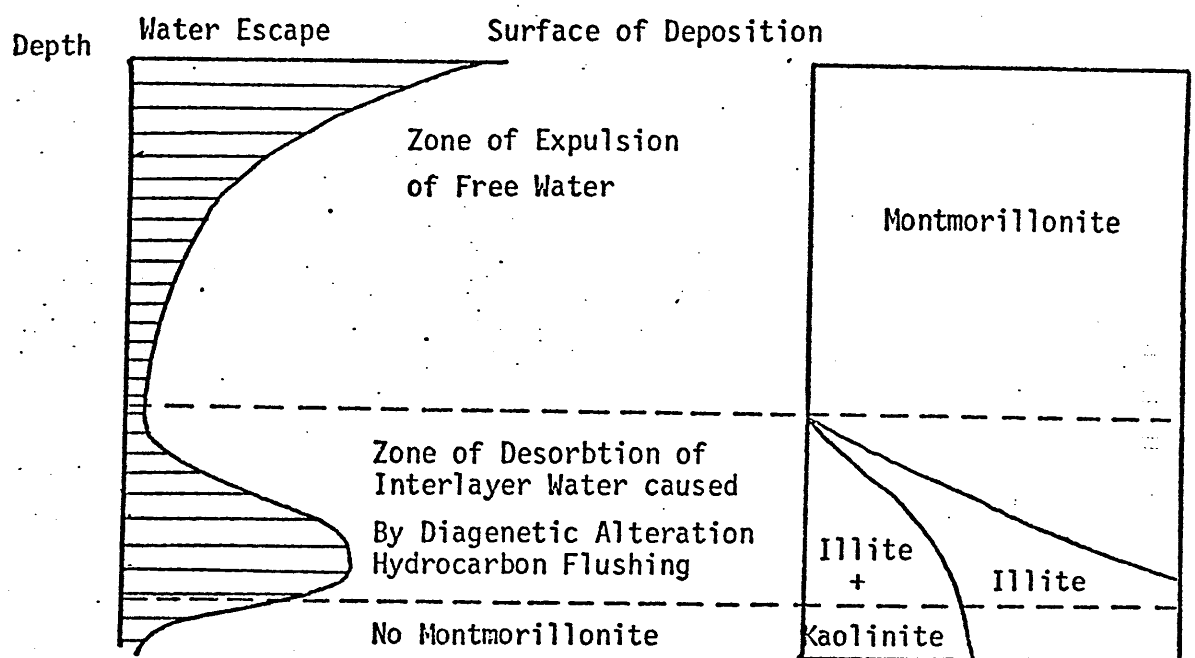
It is the diagenetic state (% montmorillonite) of the clays that shale factor reveals. If a crushed slurry of the shale is titrated with methylene blue solution, the dye will be absorbed onto the available sites by cation exchange mechanisms. The amount of dye required to saturate the cation exchange capacity of the shale will depend upon the latter's geologic maturity.

TYPICAL CLAY DIAGENESIS (AFTER MC POWERS (1967) FIGURE 3

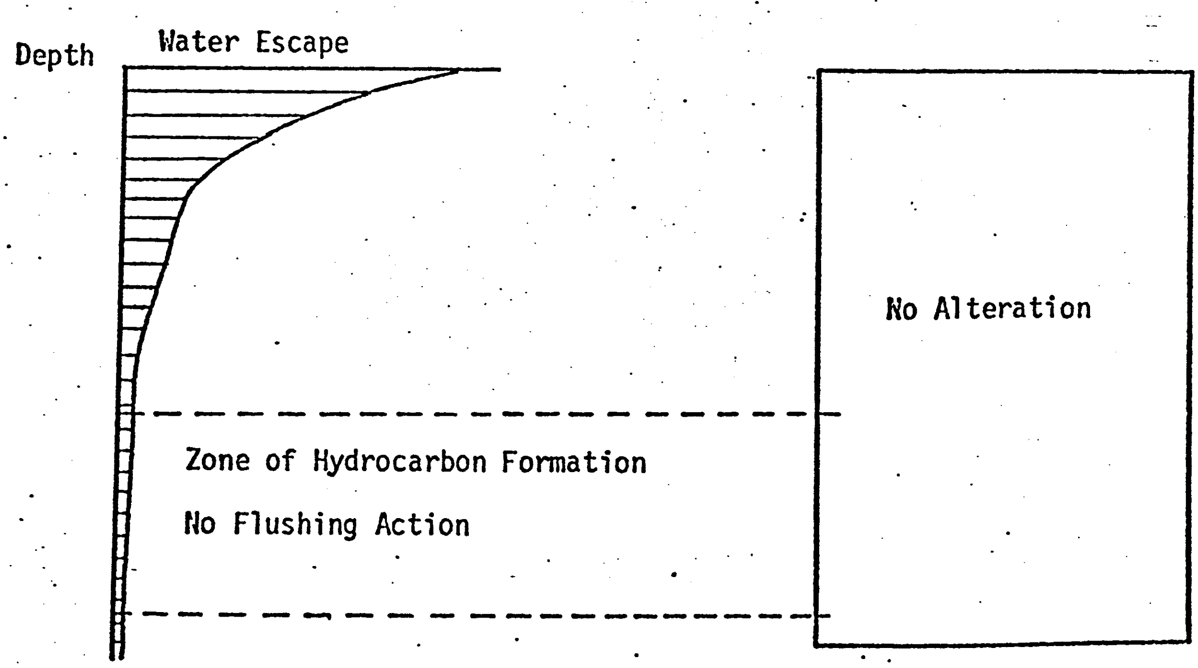
1. MONTMORILLONITE

WATER LOSS vs DEPTH OF BURIAL

DIAGENETIC HISTORY



2. ILLITE/KAOLINITE



If the principle primary clay is montmorillonite, which undergoes compaction to "mixed-layer" clays and then illite, the shale factor values would initially be high, and would show a steady decline with diagenesis. Overpressured, undercompacted sections would theoretically show an increase of the shale factor due to the increased porosity and hence larger surface areas for cation exchange. Were illite and kaolinite the primary clays, the shale factor would be low initially. In the case of an overpressured section of such clays, the shale factor may show no increase whatsoever. Hence in sections of mature, reworked clays, shale factor may be of little use in the detection of geopressures.

If the geopressures is generated by tectonic forces rather than by abnormal compaction through gravity loading, shale factor ceases to be useful as a pressure indicator.

(7) Hole Condition (Carbide Results, Hole Behaviour, Cuttings Size)

Hole condition has to be used in conjunction with all other data. Tight hole on connections and trips, increased rotary torque, connection gases, swab gases, % and size of cuttings, texture of cuttings (i.e. gumbo or splintery), carbide lag time versus theoretical lag time are all indicators of hole condition and will tend to indicate the presence of abnormal pressure.

B. Pore Pressure Quantification

Pore pressure quantification can be made from either empirical data such as tight hole or kick information, or from pressure parameter data such as seismic data (ITT), drilling data including Dxc and cuttings $Sh\,\rho$, and wireline log data including Δt, R_{SH}, $Sh\,\rho$. The quantification of pore pressure from pressure parameter data requires knowledge of the normal pore pressure for the area, the establishment of a normal shale compaction trend line on a plot of the pressure parameter data, and a quantitative relationship between the pressure parameter deviation from normal and the abnormal pore pressure which causes such deviation.

The normal pore pressure for the area can either be assumed to be 8.3 - 9 ppg EMW on a rank wildcat well, estimated from area pressure data, or calculated from wireline log formation salinity data.

All the above mentioned pressure parameters usually increase (Dxc, $Sh\,\rho$, R_{SH}) or decrease (ITT, Δt) exponentially with depth in clean normally pressured shales. Thus a best fit line drawn through the normally compacted clean shale points will generally be straight when the pressure parameter scale is log and the depth scale is linear. After a normal trend line has been established, and knowing the pore pressure that this trend line represents, quantification of the pore pressure for abnormally pressured shale points may be made.

It should be emphasised that the above mentioned pressure parameters reflect changes in porosity, and hence compaction only, and do not reflect changes in pore pressure from other causes.

The degree of deviation of a pressure parameter value in shale from the normal trend is usually directly proportional to the amount of pore pressure increase. Several methods have been derived for relating the pressure parameter deviation from normal and the pore pressure change, with each method's reliability being questionable in a new geographical area until supported by empirical data.

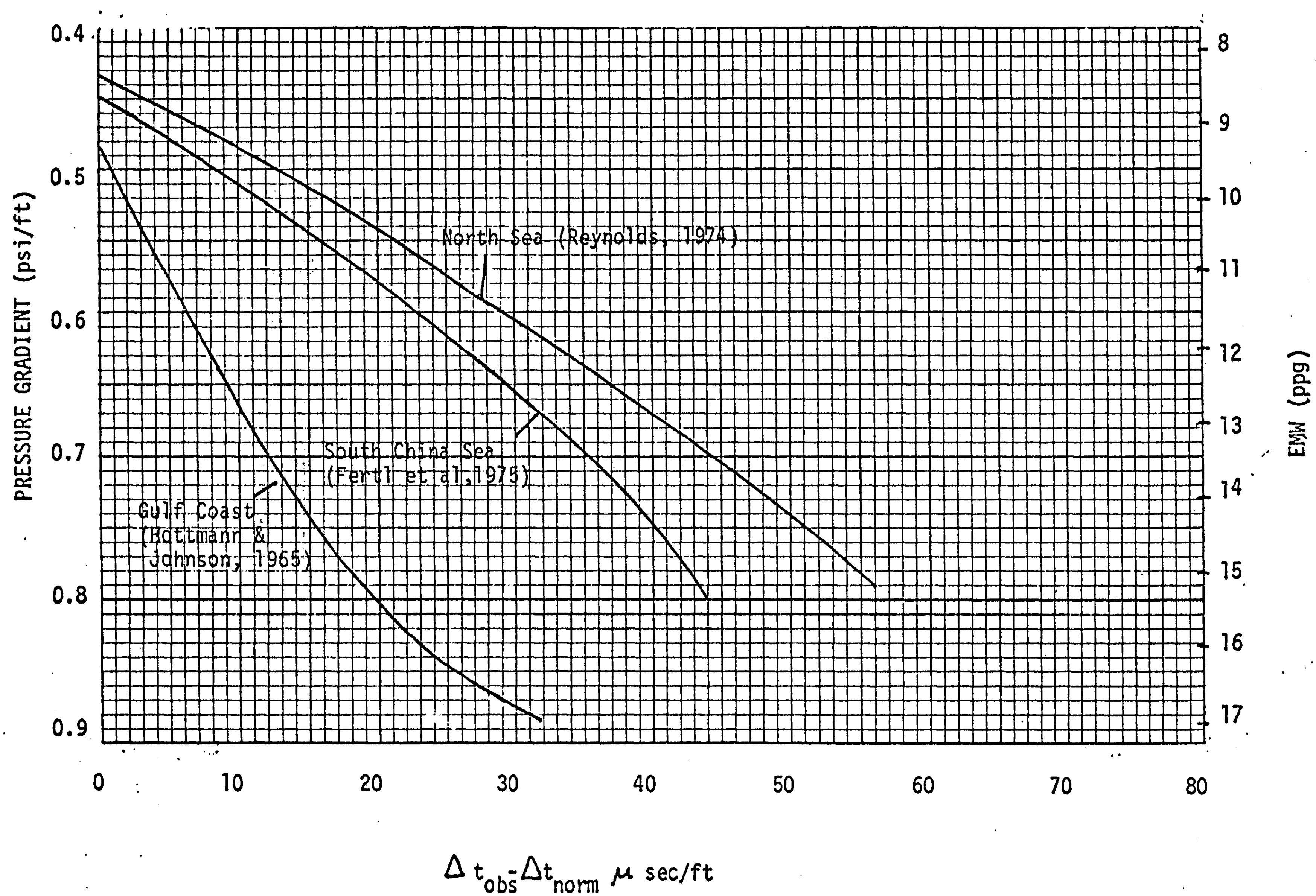
These methods are:-

(1) Empirical pore pressure/pressure parameter deviation composite reference curves from various geographical areas in the world. Refer to the Sonic Log Departure vs Pore Pressure and Shale Resistivity Ratio vs Pore Pressure Graphs on pages xv and xvi of this Appendix.

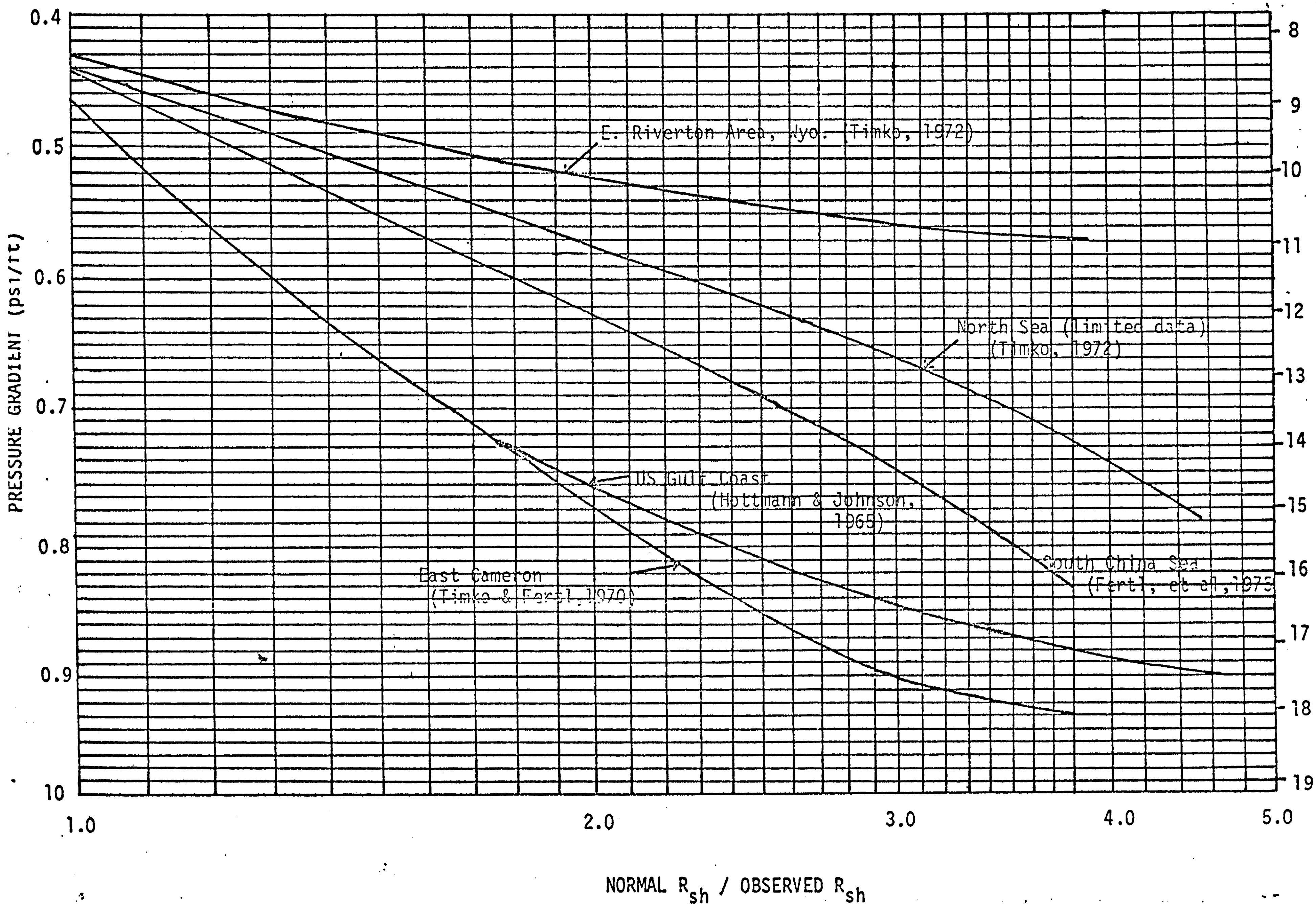
(2) Theoretical equivalent depth or matrix stress method. Refer to page xvii of this Appendix for an explanation of this method.

(3) Eaton's empirical variable overburden pressure method. Refer to page xviii of this Appendix for equations and graphs.

SONIC LOG DEPARTURE vs PORE PRESSURE

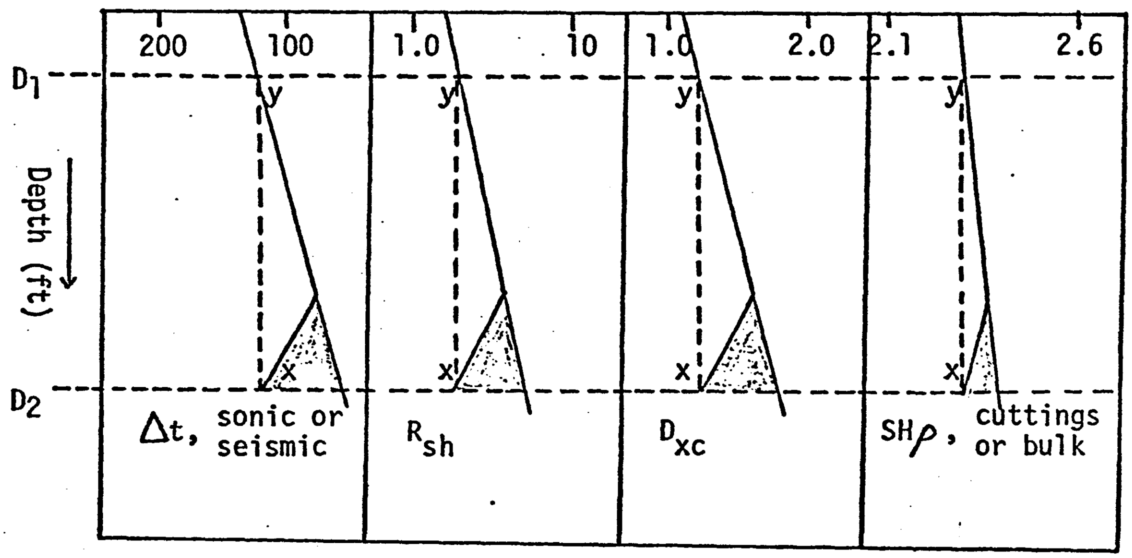


SHALE RESISTIVITY RATIO vs PORE PRESSURE



Matrix Stress or Equivalent Depth Method

The matrix stress or equivalent depth method assumes that the part of the overburden supported by the clay matrix will be constant for clays with the same porosity. More precisely it assumes that the rock matrix stress at a particular depth in an overpressured zone is equal to the rock matrix stress at a shallower depth point where the pressure parameter value on the parameter normal trend is equal to the pressure parameter value at the depth of interest in the overpressured zone. In the diagram below point X at the point of interest has the same pressure parameter value as point Y on the normal pressure parameter trend line. With the overburden gradient and normal pore pressure known, the pore pressure at the depth of interest may be calculated as shown.



$P_2 = D_2 Po_2 - D_1 (Po_1 - P_1)$

P_2 = Pore pressure at D_2, psi

D_2 = Depth of interest, feet

Po_2 = Overburden gradient at D_2, psi/ft

D_1 = Equivalent Depth

P_1 = Pore pressure at D_1, a normal gradient, psi/ft

Po_1 = Overburden gradient at D_1, psi/ft

Eaton's Variable Overburden Method

Geopressure magnitude may be calculated from pressure parameter data using the following equations or charts.

1. $$P/D = S/D - [S/D - (P/D)n] \times \left(\frac{Ro}{Rn}\right)^{1.2}$$

2. $$P/D = S/D - [S/D - (P/D)n] \times \left(\frac{\Delta tn}{\Delta to}\right)^{3.0}$$

3. $$P/D = S/D - [S/D - (P/D)n] \times \left(\frac{dc_o}{dc_n}\right)^{1.2}$$

P/D = Formation pressure gradient either normal or geopressured, psi per foot

(P/D)n = Normal water gradient in the area such as 0.465 in and along the Gulf of Mexico, or 0.433 in West Texas, psi per foot

Rn = Shale resistivity from normal line, ohm-meters

Ro = Shale resistivity from well log, ohm-meters

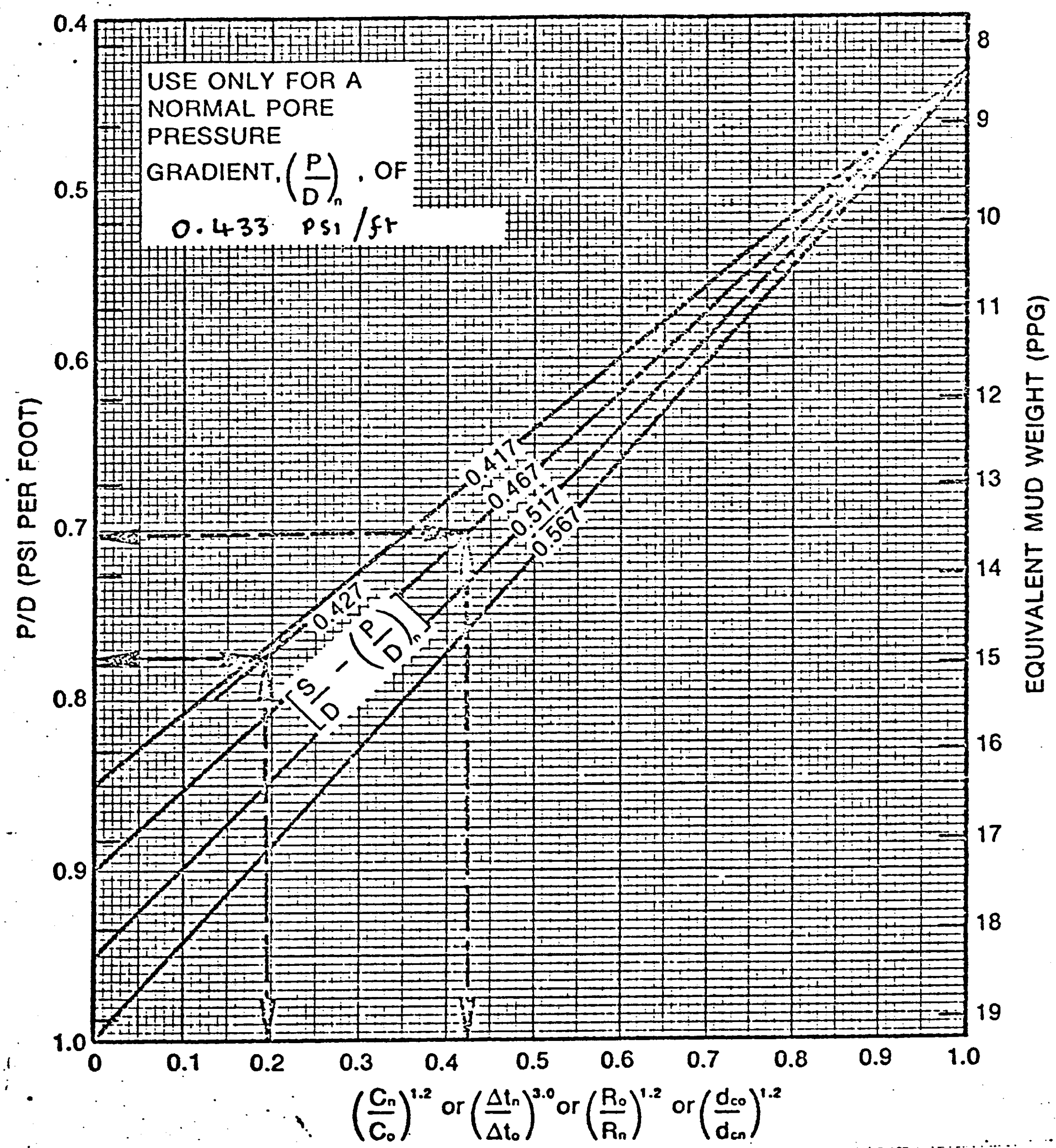
S/D = Overburden stress gradient, psi per foot

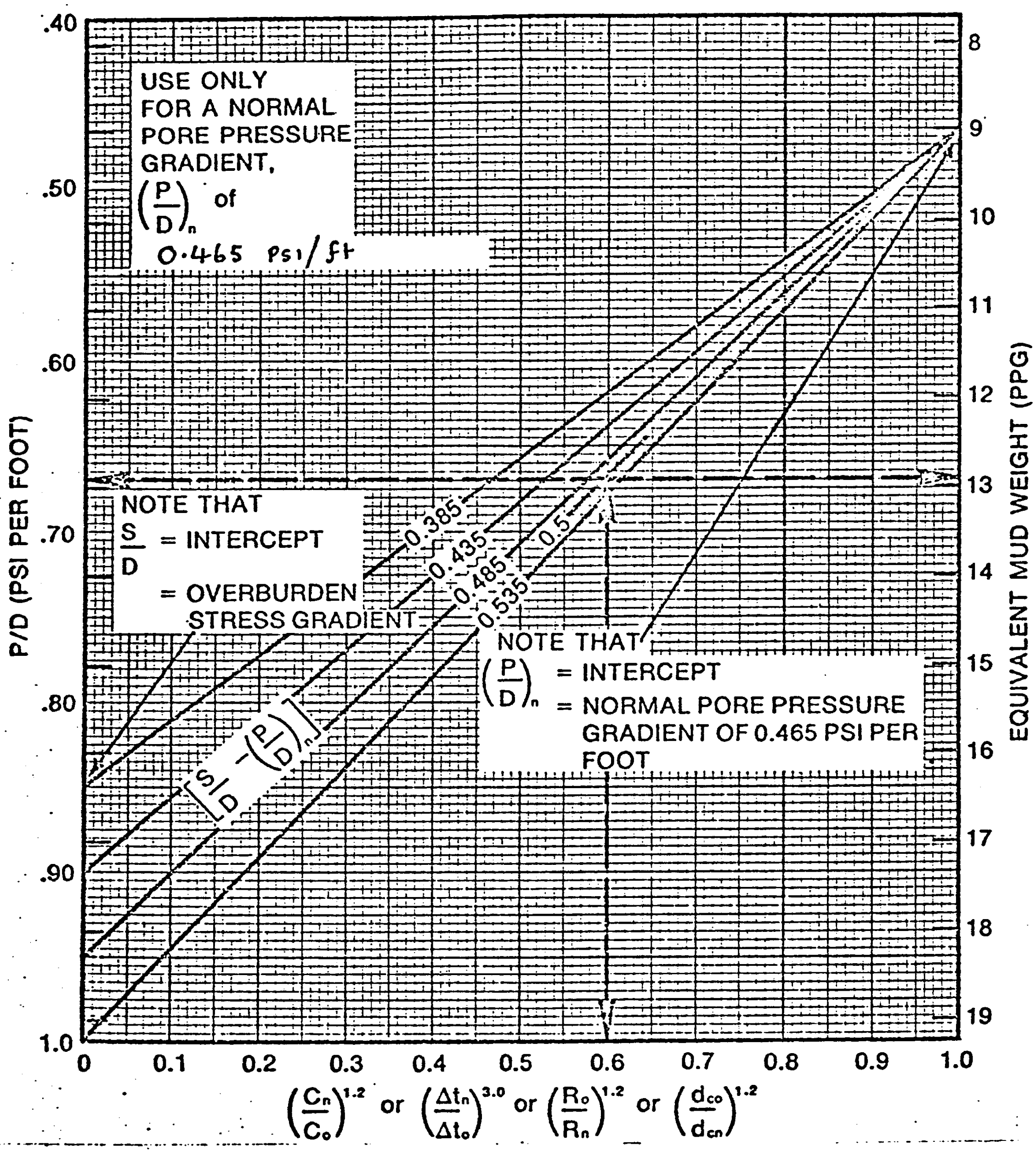
Δtn = Normal shale travel time, micro-seconds per foot

Δto = Shale travel time value, micro-seconds per foot

dc_n = Actual d_c from trend line

dc_o = Actual d_c calculated


USE ONLY FOR A NORMAL PORE PRESSURE GRADIENT, $\left(\frac{P}{D}\right)_n$, OF
0.433 psi/ft
P/D (PSI PER FOOT)
EQUIVALENT MUD WEIGHT (PPG)
0.417
0.467
0.517
0.567
0.427
$\left[\frac{S}{D} - \left(\frac{P}{D}\right)_n\right]$
$\left(\frac{C_n}{C_o}\right)^{1.2}$ or $\left(\frac{\Delta t_n}{\Delta t_o}\right)^{3.0}$ or $\left(\frac{R_o}{R_n}\right)^{1.2}$ or $\left(\frac{d_{co}}{d_{cn}}\right)^{1.2}$



USE ONLY FOR A NORMAL PORE PRESSURE GRADIENT, $\left(\frac{P}{D}\right)_n$ of 0.465 psi/ft
NOTE THAT $\frac{S}{D}$ = INTERCEPT = OVERBURDEN STRESS GRADIENT
NOTE THAT $\left(\frac{P}{D}\right)_n$ = INTERCEPT = NORMAL PORE PRESSURE GRADIENT OF 0.465 PSI PER FOOT
$\left[\frac{S}{D} - \left(\frac{P}{D}\right)_n\right]$
0.385
0.435
0.485
0.535
0.5
P/D (PSI PER FOOT)
.40
.50
.60
.70
.80
.90
1.0
EQUIVALENT MUD WEIGHT (PPG)
8
9
10
11
12
13
14
15
16
17
18
19
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
$\left(\frac{C_n}{C_o}\right)^{1.2}$ or $\left(\frac{\Delta t_n}{\Delta t_o}\right)^{3.0}$ or $\left(\frac{R_o}{R_n}\right)^{1.2}$ or $\left(\frac{d_{co}}{d_{cn}}\right)^{1.2}$

The Dxc compaction trend line is in general parallel to a line joining 1.4 and 1.7 (values of Dxc) 5,000 ft. apart. The quantification of pore pressure from Dxc is most usually effected by using the following equation.

$$Po = Pn \times \frac{Dxc^n}{Dxc^o}$$

Po	=	Pore pressure at depth of interest (ppg)
Pn	=	Normal Pore Pressure (ppg)
Dxc^o	=	Observed Dxc at depth of interest
Dxc^n	=	The Dxc value on the trend line at the depth of interest

From this equation overlays can be constructed.

Shale density data is sometimes plotted on a linear-linear plot and sometimes on a linear (depth) log (Sh ρ) plot. The matrix stress or equivalent depth technique is most usually utilised to quantify pore pressure from this pressure parameter.

C. Overburden Pressure Determination

The average density for each successive 50 feet interval from surface to total depth is obtained from cuttings or, preferably, from the FDC log. The bulk density data are converted from gm/cc to psi/ft to give overburden pressure.

D. Fracture Pressure Determination

Both empirical and theoretical methods are utilised to determine the fracture pressure of the formation. Empirical data from loss circulation and formation integrity tests are the most reliable. Fracture data from well histories can be very beneficial. The following theoretical methods are currently accepted:

a) HUBBERT AND WILLIS

$$\frac{Fp}{D} = \frac{Pp}{D} + \frac{1}{3}\left(\frac{Po - Pp}{D}\right) \quad \text{..... min}$$

$$= \frac{Pp}{D} + \frac{1}{2}\left(\frac{Po - Pp}{D}\right) \quad \text{..... max}$$

Where Po is unknown an approximation of Fp can be derived making Po = 1.0 thus:

$$\frac{Fp}{D} = \left(1 + \frac{2Pp}{D}\right)\frac{1}{3} \quad \ldots\ldots \text{ min}$$

$$= \left(1 + \frac{Pp}{D}\right)\frac{1}{2} \quad \ldots\ldots \text{ max}$$

b) MATHEWS AND KELLY

$$\frac{Fp}{D} = \frac{Pp}{D} + \frac{Ki(Po-Pp)}{Di}$$

Where Di = D in normally pressured sections. If the formation pressure is greater than normal then:

$$Di = \left(\frac{\frac{Po}{D} - \frac{Pp}{D}}{\frac{Po}{D} - Pn}\right) D$$

Ki is a variable matrix stress coefficient i.e. A variable horizontal to vertical stress ratio back calculated or using Gulf Coast and West Texas Data represented as a curve of Di versus Ki.

c) EATON

$$\frac{Fp}{D} = \frac{Pp}{D} + \left(\frac{v}{1-v}\right)\left(\frac{Po - Pp}{D}\right)$$

Where v is Poisson's ratio, either back calculated or using original Gulf Coast Data, a curve of $\frac{Po}{D}$ versus v.

d) ANDERSON, INGRAM AND ZANIER

$$\frac{Fp}{D} = \frac{Pp}{D}\left(\frac{1-3v}{1-v}\right) + \frac{Po}{D}\left(\frac{2v}{-1v}\right)$$

Where v is Poisson's ratio , either back calculated for a given area or using original Gulf Coast data of v versus a formation shaliness index.

Symbols used

Fp	=	Fracture Pressure, psi
Po	=	Overburden Pressure, psi
Pp	=	Formation Pressure, psi
Pn	=	Normal or Hydropressure Graident, psi/ft
D	=	Depth, ft

Appendix B

Instrumentation & Data Collection Methods

A P P E N D I X   B

INSTRUMENTATION AND DATA COLLECTION METHODS

INSTRUMENTATION AND DATA COLLECTION METHODS

INSTRUMENTATION -

The Gemdas Level VI system consists of the following equipment packages:

a) Two Hewlett Packard 21MX, 36K memory computer systems with associated link tape drives, operator consols, printer-plotter outputs and remote video display units. One system is online and the other is used for offline work and as a backup in the event of breakdown.

b) Drill Monitor System (DMS Mk II) which monitors the drilling variables hook load, weight on bit, rotary RPM, total bit revolution, depth, kelly height, drill rate, torque, pump and casing pressures. The system monitors displays and records these variables and feeds them to the online computer system for analysis and final tape storage.

c) Mud Monitoring System for recording total and individual pit volumes, mud weights in and out, mud temperatures in and out and pump flow in and out. These variables are also linked to the online computer.

d) Gas detection system for the analysis of mud stream and blendor gases which includes the standard hot wire detectors for total gas and petrol vapours; standard chromatograph for hydrocarbons C_1 through C_5; FID-flame ionization detectors for total gas and C_1-C_5 for high percentage of these gases which would saturate a normal system; a thermoconductivity chromatograph for the detection of non combustible gases; and a H_2S detection system.

SOFTWARE CAPABILITIES -

The Gemdas System incorporates software capabilities that have been developed to monitor drilling operations, aid in drilling control and pressure detection and provide a permanent easy-recall record of all pertinent drilling data. The following basic units are involved:

a) The drill monitor program which reads the various DMS equipment during drilling to provide a continuous readout of drilling variables. The program also computes such parameters as cost per foot, estimated tooth wear, Dxc and estimated pore pressure over a fixed depth or time interval.

b) The trip monitor program which provides a critical monitoring of all necessary parameters during trips on a continuous real time basis. By monitoring the number of stands the program computes expected hookload and pit level and compares these with the actual values. Pipe running speed, surge pressures and estimated completion time are also computed and displayed.

c) The kick and kill monitor program provides a valuable method of analysing a kick situation. The program can be run prior to killing the well to compute the results of various kill mud weights and pump rates. The program also monitors and records the actual kill procedure.

d) Data Collection:

The complete drilling data for Fortescue No 3 is stored on data tapes 1 to 3

Tape 1	244m	to	1600m
Tape 2	1600m	to	2410m
Tape 3	2410m	to	2625m

A complete printout of this data is presented in Appendix D (i) and selected parameters have been plotted on a 1:1000 scale and presented in Appendix D (ii) Handplots on a 1:2500 scale of drill rate, Dxc, background gas, shale density and mud temperature are presented in Appendix C.

Appendix C

Manual Plots & Charts

A P P E N D I X   C

MANUAL PLOTS AND CHARTS -

(refer back pocket)

(i) Drilling Data Pressure Log

(ii) Temperature Data Log

(iii) Pressure Analysis Log

PE604498

This is an enclosure indicator page.
The enclosure PE604698 is enclosed within the container PE906835 at this location in this document.

The enclosure PE604698 has the following characteristics:

ITEM_BARCODE = PE604498
CONTAINER_BARCODE = PE906835
NAME = Pressure Log
BASIN = GIPPSLAND
PERMIT = VIC/L5
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Pressure log (enclosure from Geological Engineering Well Report--attachment to WCR) for Fortescue-3
REMARKS =
DATE_CREATED = 23/12/78
DATE_RECEIVED =
W_NO = W712
WELL_NAME = FORTESCUE-3
CONTRACTOR = EXPLORATION LOGGING
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE604499

This is an enclosure indicator page.
The enclosure PE604499 is enclosed within the container PE906835 at this location in this document.

The enclosure PE604499 has the following characteristics:

ITEM_BARCODE =	PE604499
CONTAINER_BARCODE =	PE906835
NAME =	Temperature Data Log
BASIN =	GIPPSLAND
PERMIT =	VIC/L5
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Temperature Data Log (enclosure from Geological Engineering Well Report--attachment to WCR) for Fortescue-3
REMARKS =	
DATE_CREATED =	31/07/77
DATE_RECEIVED =	
W_NO =	W712
WELL_NAME =	FORTESCUE-3
CONTRACTOR =	EXPLORATION LOGGING
CLIENT_OP_CO =	ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE604500

This is an enclosure indicator page.
The enclosure PE604500 is enclosed within the container PE906835 at this location in this document.

The enclosure PE604500 has the following characteristics:

ITEM_BARCODE =	PE604500
CONTAINER_BARCODE =	PE906835
NAME =	Pressure Analysis Log
BASIN =	GIPPSLAND
PERMIT =	VIC/L5
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Pressure Analysis Log (enclosure from Geological Engineering Well Report--attachment to WCR) for Fortescue-3
REMARKS =	
DATE_CREATED =	31/07/77
DATE_RECEIVED =	
W_NO =	W712
WELL_NAME =	FORTESCUE-3
CONTRACTOR =	EXPLORATION LOGGING
CLIENT_OP_CO =	ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

Appendix D

Computer Prints & Plots

Appendix D

APPENDIX D

COMPUTER PRINTS (+) AND PLOTS (X) -

+ (i) Drilling Data Printout
X (ii) Drilling Data Plot 1:1000
ROP, Dxc, Torque, Flowline Temp, Pore Pressure (FBG), ECD.

(i) DRILLING DATA PRINTOUT

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 6:32 12/20/78

WELL COORDINATES 38 23'22.876"S 148 16'02.533"E
DRILL 26" HOLE TO 244 METRES — 17 1/2" OSC 3AJ +26" HOLE OPENER
NB#2 HTC OSC 3AJ 17 1/2" 20,20,20. — START DEPTH 244 METRES
WELL SPUDDED 26/11/78
RUN AND CEMENT 20"CASING AT 225 METRES

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
254	244	31.6	.8	.9	46	5.9	1156	244	8.9	1.3	839	717	14.1	18.9	18.8	452	2281	0	.0	61.91	69953	.00	.76	.95	14.1	8.5	8.4
257	245	18.3	1.0	1.3	49	5.4	1158	244	8.9	9.0	839	810	14.1	18.6	18.8	440	2412	1	.1	108.3	8404	.00	.71	.95	15.3	8.5	8.4
[illegible]	246	43.0	1.3	2.0	50	5.2	1155	244	8.9	9.0	831	674	14.1	18.1	18.8	429	2486	2	.1	49.96	2490	.00	.59	.95	20.3	8.5	8.4↑
259	247	79.6	1.3	1.4	50	8.2	1126	244	8.9	9.0	844	681	14.1	18.0	18.8	424	2503	3	.1	29.54	1857	.00	.48	.95	24.3	8.5	8.4
260	247	108	1.8	1.8	49	10.8	1135	244	8.9	9.0	828	680	14.1	17.8	18.8	429	2527	3	.1	18.55	1361	.00	.40	.95	27.1	8.5	8.4
313	251	249	2.0	2.6	63	6.8	1150	244	8.9	9.0	857	695	14.1	17.3	18.8	445	2853	7	.1	7.84	679.1	.00	.26	.95	30.8	8.4	8.4↑
313	252	184	1.4	1.9	63	9.6	1169	244	8.9	9.0	860	724	14.1	17.2	18.8	443	2878	8	.1	10.61	574.1	.00	.33	.96	29.3	8.4	8.4
313	252	180	1.8	1.8	60	11.2	1139	244	8.9	9.0	868	722	14.2	17.2	18.8	440	2881	8	.1	11.46	557.4	.00	.35	.96	29.3	8.4	8.4
313	252	153	1.4	1.5	63	10.0	1193	244	8.9	9.0	866	718	14.1	17.2	18.8	443	2890	8	.1	12.30	547.7	.00	.36	.95	28.3	8.4	8.4
313	253	196	1.8	2.0	62	14.6	1159	244	8.9	9.0	860	713	14.1	17.2	18.8	445	2905	9	.1	10.87	499.8	.00	.34	.96	29.1	8.4	8.4
314	255	285	2.4	2.4	61	17.2	1142	244	8.9	9.0	850	719	14.2	17.1	18.8	438	2918	10	.1	6.93	439.8	.00	.27	.98	30.9	8.4	8.4
314	255	229	1.8	2.3	63	8.8	1171	244	8.9	9.0	856	714	14.2	17.1	18.8	434	2934	11	.1	8.38	408.8	.00	.31	.96	29.8	8.3	8.4
314	256	214	2.5	2.6	63	14.9	1152	244	8.9	9.0	858	707	14.1	17.0	18.8	438	2944	12	.1	9.67	389.5	.00	.35	.96	29.2	8.3	8.4
314	256	220	2.5	2.6	60	22.2	1183	244	8.9	9.0	867	707	14.1	17.0	18.8	438	2950	12	.1	9.42	379.2	.00	.35	.96	29.2	8.3	8.4
327	261	65.9	1.8	2.5	63	14.9	1160	244	8.9	9.0	828	710	14.2	16.1	18.8	467	3258	17	.2	38.02	281.2	.01	.60	.95	20.1	8.4	8.4↑
329	267	224	1.7	3.4	64	9.9	1126	244	8.9	9.0	844	718	14.2	16.2	18.8	419	3366	22	.2	8.85	219.3	.01	.35	.95	29.1	8.4	8.4
330	272	173	1.3	3.7	65	10.4	1155	244	8.9	9.0	817	724	14.2	15.6	18.8	393	3455	27	.3	11.57	190.7	.01	.44	.94	25.4	8.3	8.4
340	277	403	2.3	3.0	65	19.2	1171	248	8.9	9.0	834	974	14.2	16.9	12.6	205	3671	33	.3	4.75	158.9	.01	.20	.93	32.3	8.5	8.4↑
341	282	295	1.8	3.0	66	15.2	1131	248	8.9	9.0	836	1077	14.2	16.8	13.2	174	3737	38	.3	6.61	139.3	.01	.29	.93	30.5	8.4	8.4
350	288	64.9	1.5	2.9	65	11.1	1182	257	8.9	9.0	855	1130	15.1	17.3	14.0	207	4013	44	.4	24.31	123.1	.02	.53	.92	22.9	8.6	8.4↑
351	292	151	2.6	3.1	68	25.1	1123	260	8.9	9.0	842	1086	15.3	17.5	14.0	205	4110	48	.4	13.06	113.9	.02	.47	.91	25.3	8.6	8.4
352	297	294	2.6	4.8	68	20.8	1225	261	8.9	9.0	886	892	15.5	17.5	14.0	203	4227	53	.4	6.81	104.5	.02	.38	.89	28.4	8.6	8.4
401	302	230	2.4	3.2	76	19.8	1265	264	8.9	9.0	881	820	16.3	17.5	14.0	169	4478	58	.5	9.75	97.69	.02	.38	.89	28.9	8.6	8.4↑
402	307	375	2.9	3.0	65	23.3	1242	268	8.9	9.0	889	811	16.4	17.4	14.0	155	4567	63	.5	5.31	91.45	.02	.29	.88	30.8	8.6	8.4
403	312	216	2.1	2.9	65	14.8	1271	271	8.9	9.0	889	813	16.5	17.6	14.0	159	4655	68	.5	9.26	85.25	.03	.42	.88	27.3	8.6	8.4
411	317	363	3.2	3.6	60	29.2	1256	274	8.9	9.0	883	885	16.9	17.7	14.1	128	4894	73	.6	5.76	31.25	.03	.31	.87	30.4	8.6	8.4↑
412	322	428	3.5	4.2	60	30.3	1266	274	8.9	9.0	879	835	17.0	17.7	14.1	130	4951	78	.6	4.67	76.49	.03	.29	.86	31.0	8.6	8.4
421	327	41.8	3.6	4.5	65	28.8	1087	287	8.9	9.0	800	776	17.3	17.8	14.1	110	5233	83	.7	47.83	73.44	.03	.71	.85	16.8	8.7	8.4↑
422	332	295	4.2	4.7	65	39.3	1065	287	8.9	9.0	791	712	17.3	17.8	14.1	111	5299	88	.7	6.56	70.20	.03	.37	.82	28.8	8.7	8.4
423	337	266	3.6	4.5	65	37.4	1403	288	8.9	9.0	929	619	17.3	17.7	14.1	104	5431	93	.7	7.36	67.37	.04	.42	.80	27.8	8.7	8.4
434	342	202	3.8	4.0	79	26.6	1227	300	8.9	9.0	880	917	17.4	18.2	14.1	71	5842	98	.8	10.78	65.86	.04	.45	.78	26.5	8.7	8.4↑
435	347	193	2.6	4.1	93	17.8	1262	302	8.9	9.0	888	889	17.5	18.1	14.1	68	5969	103	.8	10.39	63.04	.04	.50	.74	24.9	8.7	8.4
439	352	136	3.5	3.6	91	35.0	1206	312	8.9	9.0	883	891	17.6	13.5	14.2	68	6261	108	.8	14.72	61.54	.05	.54	.71	21.7	8.8	8.4
447	357	261	3.2	3.6	65	33.8	1304	324	8.9	9.0	910	929	17.2	19.1	14.7	166	6590	113	.9	7.43	60.27	.05	.39	.65	28.3	8.8	8.4↑
449	362	154	2.1	4.1	68	18.4	1314	327	8.9	9.0	924	946	17.4	19.1	15.1	169	6710	118	.9	13.28	58.31	.05	.52	.61	24.0	8.8	8.4
500	367	114	1.9	3.3	84	9.9	1244	335	8.9	9.0	900	953	17.4	19.6	15.9	184	7230	123	1.0	23.00	57.74	.06	.57	.61	21.7	8.8	8.4↑
502	372	134	2.6	3.4	84	21.3	1280	339	8.9	9.0	900	924	17.4	19.6	15.9	187	7421	128	1.1	15.24	56.32	.07	.53	.50	23.8	8.8	8.4
505	377	127	2.2	3.2	82	15.0	1229	340	8.9	9.0	900	872	17.4	19.5	16.2	198	7617	133	1.1	16.14	55.01	.07	.53	.47	23.6	8.8	8.4
515	382	142	2.6	3.3	79	18.4	1322	350	8.9	9.0	900	892	17.4	19.8	16.9	197	8030	138	1.2	14.09	54.43	.08	.48	.46	25.5	8.9	8.4↑
517	387	132	2.5	3.4	82	25.9	1235	353	8.9	9.0	900	907	17.4	19.6	17.0	216	8205	143	1.2	15.30	53.27	.08	.52	.42	24.0	8.9	8.4
529	393	36.0	2.7	3.3	64	19.2	1229	365	8.9	9.0	890	900	17.5	20.0	17.3	230	8593	149	1.3	55.51	52.93	.08	.69	.52	17.5	8.9	8.4↑
531	397	139	2.3	4.0	85	9.7	1204	366	8.9	9.0	890	900	17.5	20.4	17.3	230	8874	153	1.4	14.62	51.85	.09	.52	.43	24.1	8.9	8.4
534	402	122	2.3	4.3	86	19.8	1275	368	8.9	9.0	890	937	17.5	20.2	17.3	230	9079	158	1.4	16.38	50.94	.09	.57	.43	21.8	8.9	8.4
545	407	161	4.0	4.4	95	33.0	1344	380	8.9	9.0	940	927	17.6	20.7	17.3	244	9568	163	1.5	12.11	50.74	.10	.47	.48	25.9	8.9	8.4↑
547	412	154	3.4	4.3	95	29.6	1368	380	8.9	9.0	940	939	17.6	20.6	17.4	247	9772	168	1.5	13.71	49.87	.10	.56	.43	23.2	8.9	8.4
549	417	125	3.6	4.7	96	27.6	1322	384	8.9	9.0	940	951	17.3	20.4	17.4	247	9977	173	1.6	15.49	49.00	.11	.57	.45	22.3	8.9	8.4
600	422	164	2.6	4.5	60	21.9	1296	393	8.9	9.0	940	940	17.6	20.8	14.1	255	10355	178	1.6	12.71	43.36	.11	.52	.43	24.2	8.9	8.4↑

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 6:56 12/20/78

TIME	DEPTH	ROP M/h	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
602	427	135	3.5	4.2	94	32.7	1271	393	8.9	9.0	940	931	17.6	21.1	14.1	271	10535	183	1.6	14.77	47.54	.11	.58	.43	22.0	8.9	8.4
612	433	64.3	4.1	4.1	80	42.8	1343	406	8.9	9.0	940	889	17.6	20.8	16.7	284	10945	188	1.7	23.71	46.98	.12	.66	.47	19.4	8.9	8.4 ↑
614	437	161	3.8	4.8	93	20.9	1368	406	8.9	9.0	940	904	17.6	20.5	16.9	283	11128	193	1.7	12.39	46.29	.12	.56	.45	23.3	8.9	8.4
616	443	152	3.1	4.5	102	22.1	1348	406	8.9	9.0	940	942	17.6	21.4	17.1	292	11319	199	1.8	13.02	45.61	.13	.57	.46	22.9	8.9	8.4
625	448	182	3.3	4.6	86	38.7	1482	418	8.9	9.0	940	952	17.6	21.2	17.4	302	11663	204	1.8	10.93	45.07	.13	.51	.46	24.9	9.0	8.4 ↑
627	453	192	4.1	4.8	87	32.7	1398	419	8.9	9.0	940	939	17.6	21.1	17.4	298	11798	209	1.8	9.74	44.38	.13	.51	.41	25.1	9.0	8.4
629	458	142	4.8	5.1	88	44.9	1465	419	8.9	9.0	940	964	17.6	21.2	17.4	312	11962	214	1.9	14.60	43.77	.14	.63	.41	21.3	9.0	8.4
640	463	125	4.5	5.4	81	40.1	1429	431	8.9	9.0	950	934	17.8	21.5	17.4	319	12361	219	1.9	15.98	43.54	.14	.61	.44	21.5	9.0	8.4 ↑
642	468	128	4.3	5.2	119	39.8	1353	432	8.9	9.0	950	912	17.8	20.9	17.5	319	12596	224	2.0	16.37	43.06	.15	.69	.47	18.9	9.0	8.4
653	472	127	4.4	5.3	113	33.6	1452	443	8.9	9.0	950	932	17.8	21.8	17.5	336	13178	229	2.0	16.68	42.89	.16	.68	.54	19.1	9.0	8.4 ↑
656	478	129	4.4	5.3	123	32.4	1480	445	8.9	9.0	950	943	17.8	21.4	17.5	338	13448	234	2.1	15.80	42.43	.16	.72	.53	18.1	9.0	8.4
659	483	62.6	3.3	5.1	123	19.5	1454	446	8.9	9.0	950	942	17.8	22.1	17.5	348	13829	239	2.1	32.04	42.11	.17	.88	.57	12.4	9.0	8.4
711	488	137	4.1	5.0	128	35.4	1353	459	8.9	9.0	950	878	17.8	22.3	17.5	360	14411	244	2.2	14.74	41.76	.18	.67	.58	19.8	9.0	8.4 ↑
713	493	135	4.5	4.9	126	39.8	1398	460	8.9	9.0	950	771	17.8	22.0	17.5	326	14696	249	2.2	14.85	41.34	.19	.69	.57	18.9	9.0	8.4
727	498	63.5	4.6	4.8	87	38.3	1407	473	8.9	9.0	950	908	17.8	22.4	17.6	288	15447	254	2.3	31.38	41.01	.19	.78	.60	15.4	9.0	8.4 ↑
730	503	131	3.8	4.9	88	31.5	1371	474	8.9	9.0	950	912	17.8	22.5	17.6	292	15628	259	2.3	15.02	40.64	.20	.61	.54	21.4	9.0	8.4
732	508	94.6	2.5	5.1	117	21.1	1427	479	8.9	9.0	950	918	17.9	22.4	17.7	290	15895	264	2.3	21.14	40.35	.20	.72	.54	17.7	9.0	8.4
748	513	129	4.0	5.2	118	28.8	1371	490	8.9	9.0	950	903	17.9	22.7	17.7	333	16608	269	2.4	15.67	40.09	.21	.66	.57	20.0	9.0	8.4 ↑
751	518	112	3.5	5.3	121	19.8	1359	495	8.9	9.0	950	899	17.9	22.5	17.7	335	16910	274	2.4	17.97	39.77	.22	.71	.57	18.2	9.0	8.4
754	523	111	3.0	4.8	123	19.6	1382	499	8.9	9.0	950	923	17.9	22.5	17.7	341	17287	279	2.5	18.16	39.54	.23	.71	.59	18.3	9.0	8.4
806	528	104	3.2	5.0	119	29.1	1401	503	8.9	9.0	950	563	17.9	22.8	17.7	360	17845	284	2.5	19.38	39.36	.23	.70	.58	18.7	9.0	8.4 ↑
809	533	144	4.8	4.6	120	41.5	1368	507	8.9	9.0	950	918	17.9	22.7	17.7	369	18143	289	2.6	14.07	39.08	.24	.62	.58	21.7	9.0	8.4
821	538	51.1	3.8	4.9	94	30.4	1426	512	8.9	9.0	950	843	18.0	22.4	17.7	377	18767	294	2.6	39.12	38.92	.25	.77	.59	15.8	9.0	8.4 ↑
822	543	199	4.6	5.4	121	42.2	1363	512	8.9	9.0	950	922	18.0	22.7	17.7	362	19932	299	2.7	10.70	38.59	.25	.58	.50	23.5	9.0	8.4
824	548	162	4.3	5.6	122	31.9	1359	513	8.9	9.0	950	878	18.0	22.8	17.7	346	19139	304	2.7	12.50	38.22	.26	.65	.48	20.9	9.0	8.4
838	553	135	4.1	5.7	88	30.2	1429	525	8.9	9.0	950	746	18.0	22.7	17.8	350	19899	309	2.8	14.86	38.19	.27	.63	.50	20.7	9.0	8.4 ↑
844	558	44.4	4.5	5.4	87	37.5	1416	529	8.9	9.0	950	881	18.0	23.2	17.8	358	20441	314	2.9	45.35	38.32	.28	.89	.52	12.2	9.0	8.4
848	563	97.9	4.0	5.1	118	36.1	1450	536	8.9	9.0	950	886	18.0	23.2	17.8	361	20876	319	2.9	20.43	38.24	.29	.75	.56	17.2	9.0	8.4
907	568	49.3	1.8	5.0	119	8.3	1468	552	8.9	9.0	950	830	18.0	23.3	17.8	348	22191	324	3.1	40.61	38.75	.31	.88	.57	12.3	9.0	8.4
911	573	74.7	3.3	4.9	123	11.6	1435	552	8.9	9.0	950	911	18.0	23.6	17.8	343	22749	329	3.2	25.77	38.73	.32	.80	.62	15.1	9.0	8.4
924	578	120	4.6	5.0	120	41.8	1439	561	8.9	9.0	950	930	18.0	23.7	17.9	355	23508	334	3.3	17.36	38.70	.33	.67	.65	20.3	9.0	8.4 ↑
929	583	64.6	3.2	6.3	117	30.7	1461	564	8.9	9.0	950	876	18.0	23.4	17.9	359	24009	339	3.3	25.07	38.65	.34	.79	.61	16.1	9.0	8.4
931	588	104	4.8	5.4	120	40.2	1442	565	8.9	9.0	950	835	18.0	23.6	17.9	362	24324	344	3.4	19.17	38.44	.35	.74	.60	17.6	9.0	8.4
945	593	97.1	4.3	5.5	120	40.2	1371	569	8.9	9.0	950	931	18.0	23.9	17.9	362	25142	349	3.5	21.10	38.48	.36	.75	.62	17.6	9.0	8.4 ↑
951	598	77.4	4.5	4.9	114	33.2	1354	574	8.9	9.0	950	901	18.0	23.8	17.9	348	25844	354	3.6	26.81	38.59	.37	.78	.66	16.5	9.0	8.4
1011	603	35.7	3.6	5.7	115	36.9	1417	584	8.9	9.0	950	930	18.1	24.2	17.9	362	27094	359	3.7	57.46	38.95	.40	.95	.69	10.2	9.0	8.4 ↑
1018	609	48.4	4.0	4.6	122	39.1	1401	591	8.9	9.0	950	535	18.1	24.0	17.9	377	28056	354	3.8	41.54	39.23	.42	.93	.71	11.6	9.0	8.4
1024	614	49.9	3.4	4.5	124	35.7	1365	593	8.9	9.0	950	912	18.1	24.2	17.9	395	28771	369	3.9	41.12	39.31	.43	.93	.74	11.5	9.0	8.4
1038	619	51.8	4.3	5.3	123	36.3	1393	603	8.9	9.0	950	911	18.1	24.4	17.9	394	29600	375	4.0	37.77	39.35	.44	.93	.73	11.6	9.0	8.4
1044	624	45.5	2.9	4.5	123	20.2	1397	604	8.9	9.0	950	869	18.1	24.2	17.9	401	30407	380	4.1	44.69	39.50	.46	.94	.77	11.2	9.0	8.4
1049	629	72.2	3.4	4.5	123	32.9	1413	606	8.9	9.0	950	891	18.1	24.4	17.9	415	30959	385	4.2	28.55	39.45	.47	.83	.74	15.0	9.1	8.4
1100	634	117	3.3	4.8	120	32.0	1439	611	8.9	9.0	950	886	18.1	24.5	18.0	434	31572	390	4.3	17.34	39.36	.48	.71	.70	18.9	9.1	8.4 ↑
1105	639	87.3	4.0	5.7	123	35.8	1446	615	8.9	9.0	950	893	18.1	24.3	18.0	441	32099	395	4.3	29.51	39.29	.49	.86	.68	13.9	9.1	8.4
1113	644	102	4.2	4.7	119	31.8	1338	619	8.9	9.0	950	860	18.1	24.5	18.0	440	32900	400	4.4	19.97	39.35	.50	.73	.70	18.2	9.1	8.4
1122	649	57.2	3.6	5.6	118	30.9	1357	622	8.9	9.0	950	906	18.2	24.5	18.0	433	33294	405	4.5	34.90	39.22	.51	.89	.66	12.9	9.1	8.4
1125	654	102	4.1	5.4	118	37.3	1372	625	8.9	9.0	950	938	18.2	24.6	18.0	449	33749	410	4.6	20.00	39.14	.52	.76	.65	17.5	9.1	8.4
1140	659	80.9	4.1	5.2	114	37.8	1359	632	8.9	9.0	950	938	18.2	24.8	18.0	463	34507	415	4.6	24.29	39.19	.53	.79	.66	16.4	9.1	8.4
1144	664	130	3.3	4.3	114	31.7	1352	636	8.9	9.0	950	935	18.2	24.6	18.0	470	35053	420	4.7	15.39	39.10	.54	.59	.65	19.9	9.1	8.4
1157	669	55.4	4.0	4.9	87	31.4	1428	644	8.9	9.0	950	755	18.2	24.7	18.0	437	35720	425	4.8	55.29	39.09	.55	.94	.55	11.2	9.1	8.4 ↑
1201	674	73.1	4.5	5.9	116	42.0	1409	648	8.9	9.0	950	936	18.2	24.9	18.0	501	36133	430	4.9	27.75	39.00	.56	.83	.64	15.1	9.1	8.4

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:02 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW	
1209	679	44.2	2.7	5.2	115	16.1	1462	656	8.9	9.0	950	878	18.2	25.0	18.0	516	37072	435	5.0	46.01	39.22	.57	.88	.70	13.3	9.1	8.4	
1222	684	72.0	3.0	4.3	115	11.6	1466	659	8.9	9.0	950	966	18.2	25.1	18.0	520	37843	440	5.1	27.79	39.26	.58	.72	.71	18.2	9.1	8.4	↑
1226	689	80.8	4.2	4.5	117	34.1	1468	663	8.9	9.0	950	890	18.3	25.0	18.0	500	38292	445	5.1	25.50	39.18	.59	.76	.65	17.7	9.1	8.4	
1230	694	57.9	4.0	4.7	118	32.4	1467	670	8.9	9.0	950	921	18.3	25.0	18.1	499	38794	450	5.2	36.37	39.13	.60	.87	.65	13.9	9.1	8.4	
1244	699	55.7	4.0	6.4	122	32.0	1428	675	8.9	9.0	950	920	18.3	24.8	18.1	478	39686	455	5.3	37.16	39.15	.61	.91	.64	12.8	9.1	8.4	
1249	704	51.7	4.4	6.1	122	34.6	1465	679	8.9	9.0	950	933	18.7	24.8	18.1	471	40280	460	5.4	39.84	39.14	.62	.91	.65	12.5	9.1	8.4	
1300	709	47.3	3.7	4.8	119	34.3	1460	684	8.9	9.0	950	956	18.8	25.2	18.1	469	40998	465	5.5	42.27	39.13	.63	.89	.67	12.7	9.1	8.4	↑
1305	714	42.2	4.3	5.6	120	37.5	1478	686	8.9	9.0	950	962	18.8	25.1	18.1	453	41538	470	5.5	47.67	39.11	.64	.95	.63	11.4	9.1	8.4	
1309	719	86.9	4.0	5.6	123	35.0	1485	691	8.9	9.0	950	968	18.9	25.3	18.1	460	42086	475	5.6	22.81	39.07	.65	.78	.67	16.9	9.1	8.4	
1324	724	74.4	4.0	6.0	106	36.8	1566	697	8.8	9.1	950	969	19.0	25.6	18.1	486	43084	480	5.7	26.80	39.24	.67	.78	.67	16.8	9.1	8.4	↑
1334	729	44.0	3.7	6.4	117	36.8	1550	707	8.9	9.0	950	972	19.2	25.5	18.2	514	44153	485	5.9	49.37	39.57	.68	.94	.70	5.6	9.1	8.4	
1336	731	43.3	4.0	4.6	113	37.3	1574	709	8.8	9.0	950	964	19.2	25.4	18.2	512	44381	487	5.9	46.21	39.61	.69	.93	.71	5.9	9.1	8.4	
1338	732	51.1	4.0	4.7	118	28.2	1573	710	9.0	8.9	950	968	19.4	25.6	18.2	517	44649	488	6.0	40.54	39.64	.69	.88	.73	7.6	9.1	8.4	
1350	735	48.9	4.5	4.9	117	36.1	1447	716	8.7	9.0	950	868	19.4	25.8	18.2	536	45226	491	6.0	43.58	39.68	.70	.86	.74	8.2	9.1	8.4	↑
1351	737	128	5.6	5.6	117	56.8	1474	717	8.7	9.0	950	924	19.4	25.5	18.2	517	45361	493	6.0	15.67	39.59	.70	.67	.69	15.8	9.1	8.4	
1353	740	105	3.6	6.5	119	35.8	1462	720	8.7	9.0	950	960	19.4	25.4	18.2	483	45609	496	6.1	19.56	39.57	.71	.72	.68	13.3	9.1	8.4	
1356	742	46.0	5.7	5.7	119	54.1	1429	722	8.9	9.0	950	938	19.4	25.6	18.3	488	45917	498	6.1	42.82	39.57	.71	.91	.67	6.3	9.1	8.4	
1400	745	53.6	4.2	5.1	113	37.9	1473	723	8.7	9.0	950	986	19.4	25.7	18.5	483	46346	501	6.2	39.53	39.64	.72	.88	.69	7.4	9.1	8.4	
1414	748	34.7	3.7	5.5	123	34.2	1463	729	8.8	9.0	950	950	19.4	26.0	18.7	471	47269	504	6.3	57.61	39.88	.73	.93	.72	5.2	9.0	8.4	↑
1415	750	140	4.3	4.6	122	39.2	1458	729	8.8	9.0	950	944	19.4	26.0	18.8	469	47363	506	6.3	14.62	39.82	.73	.64	.70	16.3	9.1	8.4	
1419	752	50.7	4.5	5.3	121	32.3	1440	730	8.7	9.0	950	938	19.6	24.1	18.8	455	47829	508	6.4	40.75	39.90	.74	.90	.71	6.8	9.1	8.4	
1423	755	31.0	4.6	5.3	123	47.9	1408	734	8.7	9.0	950	961	19.6	22.5	18.8	342	48380	511	6.4	64.65	40.04	.75	1.03	.72	3.6	9.0	8.4	
1428	757	31.4	4.1	6.0	124	37.3	1466	736	8.8	9.0	950	955	19.6	25.9	18.8	239	48910	513	6.5	64.20	40.15	.76	1.01	.74	4.0	9.0	8.4	
1432	760	54.7	3.5	5.1	121	33.7	1401	736	8.8	9.0	950	936	19.7	26.1	18.9	239	49397	516	6.6	36.55	40.25	.77	.85	.77	6.6	9.0	8.4	
1443	762	97.2	4.6	5.1	118	49.8	1486	745	8.8	9.0	950	945	19.8	26.2	19.1	237	50045	518	6.6	21.44	40.36	.78	.73	.77	12.5	9.0	8.4	↑
1448	765	31.3	4.1	5.4	117	35.5	1488	748	9.0	9.0	950	952	19.9	26.1	19.1	232	50619	521	6.7	64.07	40.51	.79	1.00	.77	4.1	9.0	8.4	
1452	768	53.1	3.1	5.3	116	36.0	1582	749	8.9	8.9	950	926	20.0	26.2	19.2	239	51122	523	6.8	46.35	40.62	.80	.92	.79	5.7	9.0	8.4	
1456	770	42.3	3.7	5.1	120	34.7	1663	751	8.9	8.9	950	971	20.1	26.3	19.3	238	51505	526	6.8	48.29	40.66	.80	.93	.77	5.4	9.0	8.4	
1458	772	50.2	3.9	4.5	121	32.0	1657	752	9.1	8.9	950	950	20.1	26.4	19.3	247	51840	528	6.9	39.59	40.68	.81	.88	.77	6.8	9.0	8.4	
1509	775	72.6	3.3	4.6	80	34.3	1600	757	9.1	8.9	950	941	20.3	26.7	19.3	249	52224	531	6.9	29.85	40.66	.81	.74	.75	11.2	8.9	8.4	↑
1512	777	33.3	3.6	6.5	116	35.7	1690	758	9.0	9.0	950	907	20.5	26.6	19.3	258	52596	533	7.0	59.70	40.70	.82	.98	.72	4.3	9.0	8.4	
1519	780	23.1	4.2	4.9	116	39.0	1637	763	9.2	9.0	950	919	20.9	26.6	19.3	259	53385	536	7.1	95.65	40.96	.83	1.04	.75	3.3	8.9	8.4	
1520	782	81.1	5.6	5.7	118	47.7	1652	763	9.1	9.0	950	894	20.9	26.7	19.3	276	53592	538	7.1	24.65	40.91	.83	.78	.73	10.4	9.0	8.4	
1526	785	26.0	4.0	5.7	117	39.6	1673	763	9.1	8.9	950	860	21.1	26.7	19.4	289	54256	541	7.2	82.65	41.10	.84	1.07	.73	2.8	9.0	8.4	
1545	787	9.6	2.8	5.6	101	21.9	1529	774	8.8	9.3	950	1003	21.5	26.8	17.4	321	55678	543	7.4	208.3	41.70	.86	1.02	.80	3.0	9.1	8.4	
1554	790	20.5	3.0	4.2	126	36.9	1613	777	8.9	9.2	950	1011	21.5	27.1	19.3	333	56675	546	7.6	97.63	42.06	.88	.96	.78	3.9	9.1	8.4	
1601	792	19.9	3.6	4.2	120	36.0	1553	781	9.0	9.2	950	976	21.8	27.2	19.7	347	57553	548	7.7	104.3	42.33	.89	1.04	.80	2.9	9.2	8.4	
1606	795	29.5	3.7	4.2	122	35.0	1577	784	8.9	9.2	950	917	21.8	27.2	19.6	356	58181	551	7.8	69.48	42.49	.90	.95	.80	4.5	9.2	8.4	
1614	797	18.3	3.3	4.8	122	35.2	1609	788	8.9	9.2	950	901	22.1	27.1	20.1	379	59144	553	7.9	121.4	42.80	.92	1.07	.81	2.4	9.2	8.4	
1621	800	22.0	3.7	4.3	123	36.9	1523	789	8.7	9.1	950	816	22.1	27.1	20.2	390	60014	556	8.0	94.51	43.06	.93	1.01	.83	3.3	9.2	8.4	
1646	803	22.9	3.4	4.1	113	30.4	1450	793	8.6	9.1	950	847	22.5	27.6	21.0	431	61779	559	8.2	86.85	43.65	.95	.91	.86	5.1	9.1	8.4	↑
1656	805	14.2	1.7	3.8	109	9.5	1487	798	8.8	9.0	950	963	22.5	27.4	21.2	444	62982	561	8.4	150.1	44.13	.97	1.03	.84	2.9	9.0	8.4	
1706	808	17.1	3.3	4.0	123	30.6	1473	801	8.8	8.9	950	885	22.9	27.5	21.4	457	64188	564	8.6	116.9	44.53	.98	1.00	.88	3.2	9.0	8.4	
1716	810	14.6	3.1	3.7	126	28.4	1581	803	8.9	8.9	950	928	22.9	27.3	21.6	464	65456	566	8.7	139.9	44.92	1.00	1.05	.88	2.4	8.9	8.4	
1733	813	22.4	2.5	4.2	104	24.4	1532	805	8.8	8.9	950	975	22.9	27.4	21.9	476	66678	569	8.8	90.51	45.10	1.01	.87	.90	5.9	8.9	8.4	↑
1737	815	24.4	3.5	4.1	118	35.1	1582	805	8.9	8.9	950	907	23.4	27.1	22.0	483	67173	571	8.9	81.87	45.23	1.02	.92	.85	5.0	8.9	8.4	
1744	817	24.1	2.8	3.8	118	33.5	1609	807	8.9	8.9	950	972	23.4	27.6	22.0	488	67999	573	9.0	86.99	45.46	1.03	.94	.84	4.3	8.9	8.4	
1754	820	15.9	2.9	4.0	117	32.0	1601	810	8.8	8.9	950	911	23.9	27.6	22.0	495	69130	576	9.2	135.0	45.84	1.04	.97	.80	3.5	8.9	8.4	
1804	822	17.3	2.9	3.7	118	35.1	1648	812	8.9	8.9	950	982	23.9	27.7	22.3	502	70296	579	9.4	116.7	46.23	1.06	1.03	.86	2.7	8.9	8.4	
1812	825	25.3	3.2	4.0	118	35.7	1631	814	8.7	8.9	950	793	24.2	27.6	22.4	502	71202	581	9.5	81.03	46.49	1.07	.98	.97	3.8	8.9	8.4	

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:07 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	ΔP	ECD	NXMW
1826	826	41.0	3.5	4.2	116	36.3	1536	817	8.9	8.9	950	917	24.6	27.7	22.6	526	72111	583	9.6	50.94	46.65	1.08	.88	.83	6.1	9.0	8.4
1834	830	10.1	1.5	5.0	117	22.3	1596	820	8.9	8.8	950	884	24.6	27.6	22.8	543	73071	586	9.7	123.9	46.94	1.09	.89	.74	5.0	9.0	8.4
1844	832	19.1	3.2	4.1	118	30.1	1540	822	8.9	8.9	950	906	24.9	27.8	22.8	552	74236	588	9.9	104.8	47.34	1.10	.95	.84	4.1	9.0	8.4
1850	835	24.3	3.1	4.1	120	32.6	1593	824	8.9	9.0	950	847	24.9	27.8	23.0	567	74981	591	10.0	83.00	47.52	1.11	.97	.83	3.7	9.0	8.4
1858	837	21.2	3.4	3.7	114	36.3	1524	826	8.9	9.0	950	949	24.9	27.8	23.3	586	75946	593	10.1	96.67	47.79	1.13	.95	.83	3.9	9.0	8.4
1917	840	14.9	3.5	3.9	113	34.2	1659	831	8.9	9.1	950	937	25.2	27.8	23.8	502	77085	596	10.3	134.8	48.11	1.14	.96	.82	3.6	9.0	8.4 ↑
1924	842	22.6	3.4	4.1	117	34.5	1649	832	8.8	9.2	950	928	25.2	27.8	23.8	464	77892	598	10.4	90.56	48.33	1.15	.98	.80	3.5	9.0	8.4
1933	845	14.5	2.4	3.9	116	24.8	1668	835	8.9	9.3	950	993	25.5	28.1	24.2	418	78993	601	10.5	141.1	48.66	1.16	.98	.89	3.2	9.1	8.4
1955	847	14.2	3.0	4.9	117	34.7	1654	839	9.0	9.3	950	978	25.9	27.7	24.5	253	80312	603	10.7	142.2	49.06	1.17	1.07	.81	2.0	9.1	8.4
2007	850	11.2	2.1	4.5	114	20.5	1369	841	9.0	9.4	950	998	26.5	27.7	24.7	270	81784	606	10.9	180.3	49.59	1.19	1.00	.76	2.8	9.0	8.4
2027	853	13.3	3.7	4.3	60	45.9	1671	846	9.0	9.4	950	929	27.2	27.7	24.8	324	83326	609	11.1	89.36	50.06	1.21	.92	.85	4.7	9.0	8.4 ↑
2037	855	14.3	4.6	4.9	118	34.7	1793	848	9.0	9.4	950	895	27.3	27.7	25.0	344	84444	611	11.3	158.1	50.44	1.22	1.28	.82	.7	9.0	8.4
2039	857	10.1	4.0	5.2	121	35.8	1827	848	9.0	9.4	950	940	27.3	27.5	25.1	343	84728	613	11.3	26.29	50.39	1.23	.85	.81	7.0	9.0	8.4
2050	860	19.7	3.3	4.9	120	34.1	1791	851	9.0	9.4	950	839	27.5	27.8	25.1	370	86051	616	11.5	104.5	50.82	1.25	1.16	.81	1.2	9.1	8.4
2057	862	20.9	4.1	4.8	120	35.9	1808	852	9.0	9.4	950	850	27.4	27.5	25.3	388	86777	618	11.6	96.42	50.96	1.26	1.15	.83	1.3	9.1	8.4
2107	865	11.9	3.2	5.0	118	32.1	1814	854	9.0	9.4	950	846	27.5	27.7	25.7	415	88055	621	11.8	178.1	51.37	1.27	1.26	.85	.6	9.1	8.4
2119	867	49.3	4.9	5.2	115	38.4	1819	855	9.0	9.4	950	803	27.2	27.7	25.7	448	88727	623	11.9	68.31	51.50	1.28	1.05	.86	2.4	9.1	8.4
2128	870	16.9	4.3	5.2	117	36.4	1846	858	9.0	9.4	950	602	27.4	27.9	26.2	470	89721	626	12.0	122.8	51.77	1.29	1.21	.87	.9	9.1	8.4
2136	872	17.5	4.7	5.0	117	36.4	1620	861	9.1	9.3	950	612	27.5	27.8	26.7	484	90673	628	12.2	115.7	52.03	1.31	1.20	.89	.9	9.1	8.4
2145	875	17.6	4.0	4.8	120	38.0	1833	864	8.9	9.3	950	891	27.5	27.8	27.0	507	91735	631	12.3	116.3	52.33	1.32	1.19	.91	1.0	9.1	8.4
2154	877	10.4	3.3	4.6	117	31.7	1835	866	8.9	9.4	950	876	27.7	27.9	27.2	529	92764	633	12.5	125.7	52.61	1.33	1.19	.93	.9	9.1	8.4
2200	879	10.7	1.6	3.9	116	18.5	1819	867	8.9	9.3	950	811	27.7	27.9	27.2	546	93449	634	12.6	185.6	52.85	1.34	1.16	.84	1.1	9.1	8.4

RUN E-LOGS TO 878M, ISF/SONIC , FDC/GR — RUN AND CEMENT 13 3/8" CASING AT 867M.
[illegible] 12.25" 18,18,18 — START DEPTH 878M

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	ΔP	ECD	NXMW
150	880	20.3	3.4	4.2	109	27.8	2495	879	9.1	5.7	949	1011	18.9	14.4	27.3	604	4950	1	.0	106.6	4889	.01	1.15	.90	1.5	9.1	5.6
204	882	38.0	2.6	4.6	117	9.9	2499	880	9.1	5.4	964	976	18.8	13.3	27.3	504	5635	4	.1	52.50	1863	.02	.04	.03	32.9	253.6	159.5 ↑
208	885	30.1	3.2	4.4	121	29.2	2521	880	9.0	7.4	952	992	18.8	14.2	27.4	604	6091	6	.2	55.40	1145	.03	.03	.03	32.9	276.6	176.2
210	887	68.8	3.0	5.0	123	32.7	2553	880	9.1	8.1	953	1008	18.9	14.1	27.5	604	6354	9	.2	30.33	837.7	.04	.02	.01	33.0	512.2	339.8
213	890	61.9	2.7	4.6	120	28.3	2497	881	9.0	8.6	940	873	18.8	14.3	18.9	604	6688	11	.3	41.42	667.4	.05	.13	.10	31.8	71.0	49.7
216	893	55.7	3.8	4.5	120	42.4	2533	882	9.0	8.9	939	863	18.9	14.0	18.9	604	7016	14	.3	35.52	540.6	.07	.13	.10	31.9	69.9	48.6
407	895	31.5	5.3	7.7	79	32.6	1919	886	9.1	9.2	792	761	18.6	14.3	18.9	436	7718	16	.4	67.76	473.6	.08	.18	.14	30.8	52.4	35.6 ↑
412	898	37.7	6.2	7.6	102	54.1	1789	888	9.0	9.3	760	733	18.5	14.4	18.6	378	8110	19	.4	53.05	412.6	.09	.72	.57	10.6	12.7	8.7
416	900	30.0	4.4	6.8	107	22.8	1760	889	8.9	9.3	772	743	18.5	14.3	18.6	337	8500	21	.5	55.82	377.1	.10	.76	.58	9.2	12.5	8.6
421	903	30.5	4.7	6.1	109	28.5	1704	891	9.1	9.3	778	776	18.5	14.7	18.6	302	6999	24	.6	66.30	345.4	.11	.78	.62	8.0	12.0	8.0
428	905	20.2	4.7	6.1	108	41.5	2292	894	8.8	9.3	981	913	18.6	20.0	18.6	251	9776	27	.7	71.43	317.7	.13	.84	.69	6.2	10.9	7.1 ↑
442	908	39.6	3.0	6.6	118	25.4	2445	901	9.0	9.3	925	929	19.2	20.2	18.5	301	10337	29	.7	49.41	295.7	.14	.97	.79	3.9	9.5	6.2 ↑
448	910	48.5	4.6	5.3	72	27.6	662	903	9.0	9.3	433	462	19.5	20.9	18.5	311	10795	31	.8	41.24	276.4	.15	.91	.80	5.3	9.4	6.2 ↑
450	912	64.1	4.6	5.6	71	45.6	773	903	9.0	9.3	472	486	19.4	20.6	18.5	313	10954	34	.8	31.91	258.6	.15	.81	.75	8.6	9.4	6.5
500	915	43.4	2.8	5.1	118	20.3	2534	906	9.0	9.3	956	912	19.8	22.0	18.5	308	11695	36	.9	45.74	247.8	.17	.99	.77	3.7	9.3	6.3
502	917	178	4.8	5.1	115	49.1	2488	906	9.0	9.3	938	924	19.9	22.1	18.5	305	11881	39	1.0	11.21	233.6	.17	.67	.76	14.5	9.3	6.4
504	920	61.0	4.3	5.9	118	44.8	2508	906	9.0	9.3	944	914	20.1	22.3	18.6	298	12120	41	1.0	33.15	221.7	.18	1.05	.72	3.1	9.3	6.7
516	922	72.0	4.6	5.4	117	45.6	2505	911	9.0	9.3	931	910	21.0	22.2	19.0	303	12757	44	1.1	28.10	212.8	.20	.98	.74	4.5	9.3	6.6 ↑
518	925	25.9	4.6	5.1	117	45.5	2495	912	9.0	9.3	932	910	21.2	21.9	19.1	316	12993	46	1.1	23.24	202.8	.21	.94	.74	5.5	9.3	6.6
520	928	107	4.6	5.5	117	49.6	2439	912	9.0	9.3	929	905	21.2	21.9	19.1	289	13153	49	1.1	18.52	193.9	.22	.89	.71	7.2	9.3	6.9
522	930	49.3	4.7	5.3	118	51.3	2490	913	9.0	9.3	930	902	20.9	22.2	19.3	317	13486	51	1.2	40.53	186.4	.23	1.10	.73	2.1	9.3	6.7
526	932	37.2	4.9	5.0	118	47.0	2496	918	9.0	9.3	917	942	20.7	22.5	19.5	330	13904	54	1.2	55.19	180.4	.25	1.19	.75	1.3	9.3	6.4
548	935	30.2	3.5	4.8	109	29.6	2259	926	9.0	9.1	866	897	20.8	22.8	20.3	123	14761	56	1.3	56.33	175.7	.26	1.06	.80	2.2	9.3	6.0
553	938	17.0	3.2	4.3	108	16.6	2343	930	9.0	9.1	882	918	20.8	23.2	20.8	118	15259	59	1.4	53.87	170.0	.28	.98	.80	3.5	9.3	6.0 ↑
555	940	10.0	4.4	4.7	109	46.3	2336	932	9.0	9.1	877	931	20.8	23.3	20.8	115	15600	61	1.4	52.67	165.9	.29	.99	.81	3.4	9.3	6.0 ↑
601	943	19.5	4.4	4.4	108	45.7	2353	933	9.0	9.1	902	902	20.8	23.4	20.8	105	16090	64	1.5	52.84	160.4	.30	.98	.80	3.5	9.3	6.0 ↑

ESSO AUSTRALIA FORTESCUE NO.3
UNIT 101 7:18 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
616	947	39.7	4.2	4.7	104	42.3	2368	936	9.0	9.1	897	881	21.0	23.4	14.8	116	17040	69	1.6	52.12	153.2	.32	1.05	.80	2.6	9.3	6.0↑
619	950	67.8	4.2	4.6	120	48.8	2575	938	9.0	9.1	930	916	21.0	23.4	16.0	123	17344	71	1.6	30.79	149.5	.32	.94	.79	5.0	9.3	6.1
621	952	63.1	3.9	4.5	120	40.1	2552	940	9.0	9.1	945	901	21.0	23.9	17.2	134	17638	74	1.7	31.87	145.6	.33	.96	.76	4.3	9.3	6.3
624	955	57.0	3.6	4.5	120	28.1	2676	942	9.0	9.1	961	937	21.0	24.2	18.9	163	17931	76	1.7	34.97	142.2	.34	.99	.76	3.6	9.3	6.3
627	957	44.8	2.3	4.4	120	18.2	2617	944	9.0	9.0	961	948	21.0	24.4	19.4	173	18299	79	1.8	44.97	139.1	.36	1.00	.76	3.3	9.3	6.3
638	960	59.3	4.2	4.5	107	46.5	2577	946	9.0	9.0	936	903	21.0	24.3	20.5	275	18760	81	1.8	33.71	136.1	.35	.94	.76	4.2	9.3	6.2↑
640	962	70.7	3.7	4.7	123	42.1	2567	948	9.0	9.0	962	871	21.0	24.0	20.6	297	19044	84	1.8	28.27	133.1	.37	.95	.75	4.3	9.3	6.3
642	965	63.1	3.4	4.6	122	23.0	2661	950	9.0	9.0	961	856	21.0	24.5	20.7	304	19335	86	1.9	32.26	130.4	.38	.98	.75	3.8	9.3	6.3
645	967	67.4	4.3	4.7	123	47.2	2618	953	9.0	9.0	955	851	21.0	24.8	20.8	335	19623	89	1.9	29.78	127.9	.39	.95	.75	4.4	9.3	6.3
647	970	67.6	4.3	4.8	123	43.3	2618	955	9.0	9.0	961	861	21.1	24.9	20.8	342	19895	91	2.0	30.22	125.3	.40	.98	.74	3.9	9.3	6.3
703	973	32.8	4.2	5.0	101	45.4	2585	960	9.0	9.0	940	1035	21.1	24.9	20.9	445	20514	94	2.0	60.63	123.2	.42	1.09	.78	1.8	9.3	6.0↑
708	975	27.7	3.7	5.0	121	37.4	728	964	9.0	9.0	477	650	21.1	25.3	20.9	469	21042	96	2.1	73.97	121.9	.43	1.12	.79	1.4	9.3	5.9↑
711	977	46.4	3.8	4.7	124	47.6	752	965	9.0	9.0	477	506	21.1	25.3	20.9	474	21412	99	2.1	43.36	119.9	.44	1.05	.81	2.4	9.3	5.8
722	980	20.9	4.4	4.4	116	52.2	2651	972	9.0	9.0	948	804	21.1	25.2	20.9	455	22465	101	2.3	98.27	120.0	.48	1.35	.80	.3	9.3	5.8↑
730	982	29.4	3.8	4.6	122	35.7	2650	973	9.0	9.1	952	898	21.1	25.7	21.0	472	23418	104	2.4	68.91	119.8	.51	1.24	.80	.7	9.3	5.8
733	985	55.5	3.5	4.6	124	34.8	2640	974	9.0	9.1	938	932	21.1	26.1	21.0	476	23756	106	2.5	37.01	118.0	.52	1.02	.82	3.0	9.3	5.7
746	987	59.8	4.2	4.7	117	47.7	2570	980	9.0	9.1	947	952	21.1	26.2	21.0	476	24247	109	2.5	34.49	116.3	.53	.98	.82	3.5	9.3	5.7↑
748	990	48.8	4.3	4.7	118	53.9	2596	980	9.0	9.1	942	959	21.3	26.3	21.0	474	24552	111	2.6	40.96	114.6	.54	1.10	.80	1.9	9.3	5.8
752	992	39.3	4.5	4.6	109	49.7	2534	981	9.0	9.1	923	934	21.3	26.8	21.0	484	24982	114	2.6	52.00	113.4	.56	1.13	.82	1.4	9.3	5.6
755	995	52.5	4.1	4.6	117	43.1	2524	983	9.0	9.1	912	936	21.3	26.9	21.0	483	25312	116	2.7	38.48	112.0	.57	1.05	.82	2.4	9.3	5.6
758	997	63.7	4.0	4.5	117	44.6	2518	985	9.0	9.1	899	938	21.5	27.0	21.0	493	25602	119	2.7	30.60	110.4	.57	1.00	.82	3.3	9.3	5.6
808	1000	45.0	3.9	4.6	113	43.3	2521	986	9.0	9.1	465	904	21.5	26.8	21.0	488	26073	121	2.8	45.32	109.2	.59	1.11	.81	1.7	9.3	5.7↑
811	1002	47.5	3.8	4.4	114	48.7	2568	986	9.0	9.1	461	916	21.5	26.6	21.0	488	26420	124	2.8	42.44	107.9	.60	1.12	.82	1.6	9.3	5.6
816	1005	23.5	4.2	4.7	117	44.7	2552	989	9.0	9.1	460	946	21.5	27.2	21.0	490	27008	126	2.9	86.06	107.2	.62	1.30	.84	.4	9.3	5.5
819	1007	57.2	4.1	4.5	116	44.9	2591	990	9.0	9.1	469	953	21.5	27.5	21.0	493	27375	129	3.0	37.99	106.1	.63	1.07	.85	2.5	9.3	5.4
822	1010	59.3	4.0	4.5	112	52.1	2557	991	9.0	9.1	462	952	21.5	27.7	21.0	496	27668	131	3.0	33.75	104.9	.64	1.01	.83	2.8	9.3	5.5
832	1013	50.4	4.3	4.6	96	47.2	2590	993	9.0	9.1	441	828	21.5	27.7	21.0	500	28166	134	3.1	39.70	103.6	.65	1.02	.82	2.7	9.3	5.5↑
834	1015	68.1	4.4	4.6	115	52.2	2558	994	9.0	9.1	469	933	21.5	27.7	21.0	494	28387	136	3.1	31.17	102.6	.65	1.00	.80	3.2	9.3	5.7
836	1017	61.4	3.9	4.6	117	46.0	2571	995	9.0	9.1	470	939	21.5	27.6	21.0	496	28671	139	3.1	32.29	101.4	.66	1.03	.79	2.6	9.4	5.8
839	1020	72.5	4.1	4.6	118	48.4	2535	996	9.0	9.1	462	950	21.5	27.9	21.1	493	28955	141	3.2	27.86	100.3	.67	.99	.79	3.4	9.4	5.8
843	1022	45.7	4.1	4.6	117	47.8	2528	998	9.0	9.1	461	953	21.7	28.2	21.1	493	29398	144	3.2	45.86	99.53	.69	1.13	.81	1.3	9.4	5.6
845	1025	60.4	4.3	4.7	123	47.6	2580	999	9.0	9.1	950	955	21.7	28.3	21.2	498	29666	146	3.3	33.58	98.47	.69	1.05	.80	2.3	9.4	5.7
857	1025	33.3	4.2	4.6	119	46.2	2667	1004	9.0	9.1	950	946	21.7	28.3	21.4	498	30141	146	3.3	59.05	99.06	.70	1.17	.81	.9	9.4	5.6↑
857	1025	35.1	4.4	4.4	123	51.3	2684	1004	9.0	9.1	950	950	21.7	28.3	21.4	498	30154	146	3.3	57.12	99.00	.70	1.17	.81	1.0	9.4	5.6
859	1028	59.0	4.1	4.6	120	49.9	2635	1008	9.0	9.1	950	943	21.7	28.0	21.4	496	30448	149	3.3	34.93	97.99	.71	1.05	.81	2.2	9.3	5.6
902	1030	52.5	4.0	4.6	118	39.9	2649	1011	9.0	9.1	950	925	21.7	28.1	21.4	503	30750	151	3.4	38.12	97.01	.72	1.07	.80	2.0	9.3	5.6
905	1032	48.9	2.7	4.4	120	36.5	2668	1015	9.0	9.1	950	941	21.7	28.6	21.4	505	31101	154	3.4	42.92	96.17	.73	1.04	.80	2.4	9.3	5.6
907	1035	66.0	4.3	4.5	119	49.9	2621	1019	9.0	9.1	950	934	21.7	28.9	21.4	505	31334	156	3.5	23.70	95.16	.74	.94	.79	4.6	9.3	5.7
908	1037	86.6	5.1	5.1	120	55.1	2636	1022	9.0	9.1	950	923	21.7	29.0	21.4	510	31526	159	3.5	22.79	94.10	.74	.94	.76	4.3	9.3	5.9
916	1040	56.8	4.4	5.0	126	52.6	2627	1025	9.0	9.1	905	917	21.7	28.8	21.4	508	32040	161	3.6	35.24	93.76	.76	1.06	.77	1.9	9.3	5.8↑
918	1042	78.1	4.3	4.6	126	51.5	2642	1025	9.0	9.1	933	935	21.7	28.9	21.4	510	32318	164	3.6	26.21	92.90	.77	.98	.78	3.6	9.3	5.7
921	1045	69.5	4.5	4.6	126	53.7	2650	1026	9.0	9.1	921	928	21.7	29.1	21.5	508	32602	166	3.7	30.95	92.08	.78	1.04	.77	2.5	9.3	5.8
922	1047	74.8	4.1	4.6	126	48.9	2682	1028	9.0	9.1	922	934	21.7	29.2	21.6	498	32827	169	3.7	27.18	91.15	.78	1.00	.75	3.2	9.3	5.9
924	1050	78.7	4.3	4.6	126	50.3	2572	1030	9.0	9.1	936	940	21.7	29.4	21.6	500	33074	171	3.7	24.74	90.29	.79	.97	.75	3.5	9.4	5.9
935	1052	35.4	3.9	4.7	117	46.4	2516	1038	9.0	9.1	893	930	21.7	29.7	21.6	500	33670	174	3.8	63.44	89.85	.81	1.20	.77	.7	9.3	5.7↑
937	1055	69.2	4.0	4.7	117	49.2	2610	1038	9.0	9.1	904	929	22.0	29.4	21.6	498	33900	176	3.8	29.54	89.08	.81	1.00	.76	3.1	9.3	5.8
941	1058	37.0	4.1	5.4	117	47.0	2687	1041	9.0	9.1	931	953	22.0	29.7	21.6	503	34387	179	3.9	54.95	88.66	.83	1.21	.76	.7	9.3	5.8
945	1060	46.3	4.4	4.6	120	50.0	2615	1045	9.0	9.1	922	954	22.0	30.0	21.5	510	34792	181	3.9	45.02	88.15	.84	1.15	.79	1.1	9.3	5.5
948	1062	48.5	4.1	4.6	118	50.2	2684	1049	9.0	9.1	907	944	22.2	30.2	21.6	505	35192	184	4.0	42.52	87.66	.85	1.13	.81	1.2	9.3	5.4
1001	1065	37.7	4.1	4.7	123	44.9	2515	1052	9.0	9.1	881	912	22.2	30.3	21.6	512	35752	185	4.1	53.75	87.24	.86	1.12	.84	1.1	9.3	5.2↑

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:22 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW	
1003	1067	65.3	4.2	4.5	124	47.5	2492	1054	9.0	9.1	877	911	22.2	30.4	21.6	522	36004	189	4.1	30.80	86.54	.87	1.02	.81	2.5	9.3	5.4	
1006	1070	62.2	4.1	4.8	123	43.5	2517	1056	9.0	9.1	906	913	22.2	29.9	21.6	522	36305	191	4.1	35.55	85.96	.88	1.08	.80	1.7	9.3	5.4	
1008	1072	79.5	4.2	5.1	123	48.7	2647	1057	9.0	9.1	921	937	22.2	30.3	21.6	520	36554	194	4.2	24.96	85.22	.89	.98	.79	3.1	9.3	5.6	
1011	1075	48.2	4.4	5.0	126	50.3	2656	1059	9.0	9.1	930	934	22.2	30.6	21.6	524	36948	196	4.2	41.98	84.75	.90	1.14	.79	1.1	9.3	5.5	
1027	1077	20.2	4.0	4.8	123	45.2	2549	1065	9.0	9.1	913	916	22.2	30.9	21.9	510	37967	199	4.3	103.8	85.08	.93	1.36	.83	.1	9.3	5.3	↑
1029	1080	66.2	4.0	4.6	126	45.4	2525	1066	9.0	9.1	916	924	22.2	30.9	21.9	510	38230	201	4.4	31.31	84.44	.93	1.04	.82	2.2	9.3	5.3	
1032	1082	50.0	4.4	4.7	124	50.5	2622	1069	9.0	9.1	889	916	22.2	30.6	22.0	507	38579	204	4.4	40.67	83.93	.94	1.12	.81	1.2	9.3	5.3	
1035	1085	43.3	4.3	5.4	126	49.0	2557	1073	9.0	9.2	891	942	22.2	31.1	22.1	508	38978	206	4.5	47.72	83.53	.96	1.18	.82	.8	9.3	5.3	
1037	1088	82.2	4.3	4.7	125	49.0	2595	1075	9.0	9.2	912	946	22.2	31.3	22.1	510	39245	209	4.5	24.82	82.93	.97	.99	.82	3.1	9.3	5.3	
1041	1090	40.0	4.1	5.3	125	51.0	2572	1077	9.0	9.2	914	925	22.3	31.4	22.1	510	39651	211	4.6	52.71	82.54	.98	1.22	.81	.5	9.3	5.3	
1051	1092	74.8	4.1	5.0	123	52.1	2550	1078	9.0	9.2	884	926	22.3	31.9	22.1	519	40260	214	4.6	26.32	82.29	.99	1.00	.81	2.7	9.3	5.3	↑
1056	1095	30.4	4.3	5.1	123	50.9	2588	1081	9.0	9.2	894	898	22.3	31.5	22.1	517	40826	216	4.7	56.00	82.13	1.01	1.30	.83	.3	9.3	5.2	
1060	1097	31.8	4.2	4.7	124	51.7	2566	1085	9.0	9.2	908	914	22.3	31.9	22.1	515	41304	219	4.8	63.05	81.86	1.02	1.27	.85	.3	9.3	5.0	
1104	1100	33.7	4.1	5.0	125	49.3	2541	1089	9.0	9.2	892	892	22.3	32.0	22.1	519	41825	221	4.8	59.09	81.62	1.04	1.26	.87	.4	9.3	4.9	
1107	1102	40.1	4.0	5.1	123	49.8	2582	1091	9.0	9.2	909	902	22.3	32.2	22.1	524	42255	224	4.9	52.01	81.31	1.05	1.24	.89	.5	9.3	4.8	
1120	1105	43.7	4.6	5.0	121	47.8	2449	1095	9.0	9.2	887	902	22.5	32.8	22.1	524	43079	226	5.0	50.00	81.39	1.07	1.19	.91	.6	9.3	4.7	↑
1125	1107	32.4	4.2	5.4	123	49.0	2594	1098	9.0	9.2	907	923	22.5	32.2	22.2	529	43620	229	5.1	61.66	81.19	1.09	1.27	.91	.3	9.3	4.7	
1128	1110	42.3	4.2	5.2	125	48.6	2603	1100	9.0	9.2	910	904	22.5	32.5	22.2	517	44025	231	5.1	47.56	80.85	1.10	1.19	.90	.6	9.3	4.7	
1131	1112	45.6	4.1	4.9	125	50.5	2639	1102	9.0	9.2	906	901	22.5	32.7	22.2	529	44403	234	5.2	47.83	80.53	1.11	1.19	.91	.6	9.3	4.7	
1135	1115	33.6	4.3	5.1	124	54.2	2575	1104	9.0	9.2	918	891	22.5	32.9	22.2	531	44918	236	5.3	60.15	80.30	1.12	1.25	.91	.3	9.3	4.7	
1148	1117	25.1	3.9	4.7	92	47.8	2562	1106	9.0	9.2	905	884	22.5	33.3	22.2	538	45681	239	5.4	80.64	80.41	1.14	1.26	.92	.3	9.3	4.6	
1152	1120	27.3	4.3	4.8	120	49.6	2599	1109	9.0	9.2	908	866	22.5	32.8	22.2	541	46144	241	5.4	73.66	80.22	1.15	1.30	.92	.2	9.3	4.6	
1157	1122	25.1	4.3	5.3	121	52.4	2584	1113	9.0	9.2	899	876	22.5	33.1	22.3	546	46788	244	5.5	83.40	80.19	1.17	1.34	.94	.1	9.3	4.5	
1202	1125	28.9	4.2	4.6	120	49.8	2602	1116	9.0	9.2	893	895	22.5	33.6	22.4	534	47394	246	5.6	69.29	30.12	1.19	1.26	.94	.2	9.3	4.5	
1205	1127	53.2	4.3	4.7	120	47.9	2569	1117	9.0	9.2	901	901	22.5	33.6	22.4	539	47668	249	5.6	39.00	79.70	1.19	1.11	.92	1.2	9.3	4.5	
1217	1130	24.2	4.5	5.3	116	47.0	2582	1120	9.0	9.2	896	880	22.5	33.9	22.4	546	49481	251	5.8	82.57	79.84	1.21	1.29	.92	.2	9.3	4.6	↑
1220	1132	41.0	4.4	4.7	117	47.7	2643	1122	9.0	9.2	900	880	22.5	33.7	22.4	546	48912	254	5.8	50.95	79.63	1.23	1.17	.92	.6	9.3	4.5	
1224	1135	35.5	3.8	4.7	117	43.7	2657	1124	9.0	9.2	913	890	22.8	33.9	22.4	543	49382	256	5.9	56.42	79.43	1.24	1.20	.92	.5	9.3	4.5	
1227	1138	63.2	4.3	4.8	118	47.3	2641	1125	9.0	9.2	917	918	22.8	34.0	22.4	548	49663	259	5.9	31.82	79.05	1.25	1.04	.90	1.9	9.3	4.6	
1230	1140	60.0	4.1	5.0	117	46.1	2643	1127	9.0	9.2	900	925	22.8	34.3	22.4	548	50041	261	6.0	32.77	78.74	1.25	1.05	.88	1.7	9.3	4.7	
1233	1142	41.6	4.3	5.4	119	45.8	2635	1130	9.0	9.2	893	912	22.8	34.5	22.4	555	50384	264	6.0	47.30	78.43	1.26	1.16	.85	.7	9.3	4.9	
1245	1145	39.4	4.2	4.9	125	48.7	2654	1133	9.0	9.2	909	907	23.2	34.3	22.4	546	51213	266	6.1	50.56	78.56	1.28	1.18	.87	10.7	9.3	9.1	↑
1248	1147	47.3	4.3	4.9	126	46.6	2672	1134	9.0	9.2	907	919	23.2	34.6	22.4	551	51534	269	6.2	42.07	78.22	1.29	1.14	.86	12.0	9.3	9.2	
1252	1150	30.7	4.4	4.8	126	50.8	2643	1137	9.2	9.3	917	917	23.5	34.5	22.4	558	52059	271	6.2	65.94	78.10	1.30	1.27	.87	8.8	9.3	9.1	
1255	1152	42.1	4.2	4.8	126	48.7	2640	1140	9.2	9.3	917	913	23.8	35.1	22.4	557	52453	274	6.3	47.47	77.81	1.31	1.17	.88	11.3	9.3	9.0	
1258	1155	53.1	4.2	4.7	127	50.6	2665	1142	9.1	9.4	919	920	23.8	34.8	22.4	562	52821	276	6.3	37.63	77.51	1.32	1.11	.87	13.2	9.3	9.2	
1310	1157	33.7	4.3	4.8	116	49.6	2444	1145	9.1	9.1	868	909	24.1	35.3	22.5	567	53579	279	6.4	59.66	77.47	1.34	1.19	.89	10.6	9.3	9.0	↑
1315	1160	24.7	4.2	4.6	116	46.2	2674	1148	9.1	9.3	922	910	24.5	35.1	22.7	572	54113	281	6.5	80.68	77.40	1.35	1.29	.87	8.4	9.3	9.1	
1320	1163	61.9	4.3	4.6	116	46.3	2632	1152	9.1	9.3	913	917	24.8	35.3	22.7	569	54712	284	6.6	33.00	77.36	1.37	1.03	.88	15.3	9.4	9.0	
1325	1165	27.2	4.2	5.1	118	46.9	2648	1155	9.1	9.4	915	880	24.8	35.7	22.9	574	55278	286	6.7	74.28	77.32	1.38	1.27	.88	8.9	9.4	9.1	
1332	1167	19.5	4.5	5.4	117	50.0	2649	1157	9.1	9.3	896	913	25.1	35.9	23.2	582	56143	289	6.8	102.4	77.56	1.40	1.35	.90	7.2	9.4	8.9	
1345	1170	21.0	4.1	5.0	117	41.5	2559	1162	9.1	9.2	905	896	25.4	36.6	23.7	572	57096	291	6.9	95.38	77.81	1.42	1.29	.92	8.2	9.4	8.7	
1350	1172	25.5	4.3	5.5	118	43.7	2596	1165	9.2	9.3	902	890	25.9	36.1	23.9	576	57661	294	7.0	78.45	77.74	1.43	1.28	.93	8.5	9.4	8.7	
1355	1175	25.9	4.5	5.2	117	49.9	2565	1167	9.2	9.4	892	894	25.9	36.5	24.2	577	58293	295	7.1	77.65	77.74	1.44	1.28	.95	8.9	9.4	8.5	
1401	1178	23.7	4.3	5.3	117	42.6	2604	1169	9.1	9.4	903	901	26.2	36.8	24.5	584	58992	299	7.2	84.92	77.81	1.46	1.29	.95	8.6	9.4	8.5	
1405	1180	45.9	4.1	5.4	120	43.3	2580	1170	9.0	9.3	890	893	26.2	36.5	24.6	581	59399	301	7.2	43.55	77.60	1.47	1.12	.94	13.0	9.4	8.6	
1410	1183	32.9	4.4	4.8	119	45.7	2602	1171	9.0	6.5	892	882	26.2	36.9	24.8	498	59980	304	7.3	60.79	77.56	1.48	1.20	.94	10.4	9.4	8.7	
1420	1185	46.6	4.2	5.3	119	44.6	2569	1175	9.0	6.5	900	909	26.5	37.3	25.0	488	60666	306	7.4	43.00	77.58	1.50	1.10	.94	13.9	9.4	8.7	↑
1425	1188	25.2	4.4	5.4	120	46.4	2566	1177	9.0	9.1	903	919	26.9	36.9	25.1	491	61208	309	7.5	80.30	77.51	1.51	1.28	.91	9.2	9.4	9.0	
1428	1190	39.6	4.2	5.2	120	40.4	2532	1178	8.9	9.2	903	911	27.3	37.1	25.3	491	61625	311	7.6	51.21	77.32	1.52	1.15	.91	12.4	9.4	9.0	

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:27 12/20/78

TIME	DEPTH	ROP M/h	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1432	1192	46.9	4.7	5.4	120	46.9	2566	1180	9.1	9.3	892	907	27.7	37.1	25.5	495	62047	314	7.6	42.99	77.11	1.53	1.10	.89	14.2	9.4	9.2
1435	1195	33.7	4.2	5.3	120	43.5	2590	1182	9.1	9.2	900	910	28.1	37.1	25.7	498	62472	316	7.7	60.24	76.94	1.54	1.21	.87	11.2	9.4	9.4
1453	1197	41.7	4.4	5.7	118	43.8	2592	1187	9.0	9.2	884	888	29.0	36.6	26.1	496	63274	319	7.8	47.75	77.12	1.55	1.13	.91	13.3	9.4	9.1
1460	1200	20.6	4.4	5.6	117	49.2	2553	1191	9.1	9.2	889	906	29.0	37.0	26.1	500	64067	321	7.9	97.05	77.26	1.57	1.33	.91	8.4	9.3	9.0
1505	1202	25.6	4.2	5.5	117	43.4	2561	1195	9.1	9.2	891	910	29.4	37.1	26.3	508	64731	324	8.0	81.71	77.30	1.58	1.29	.93	9.3	9.3	8.9
1509	1205	33.7	4.0	5.4	118	41.1	2549	1197	9.0	9.1	888	894	29.4	37.4	26.4	510	65220	326	8.1	61.64	77.19	1.59	1.21	.93	11.6	9.3	9.0
1513	1207	36.3	4.7	5.3	118	52.5	2587	1197	9.1	9.2	883	904	29.4	37.5	26.8	515	65675	329	8.1	57.26	77.04	1.60	1.18	.92	12.5	9.4	9.1
1526	1210	20.5	4.9	5.8	120	51.3	988	1200	8.9	9.2	512	754	29.8	37.8	27.6	534	66590	331	8.3	99.31	77.25	1.62	1.31	.95	8.9	9.3	8.8
FLUSHING RISER WITH NO.2 PUMP																											
1534	1213	18.6	3.6	5.4	118	35.4	963	1203	9.1	9.2	948	932	30.4	34.1	28.2	522	67475	334	8.4	108.6	77.47	1.63	1.28	.93	9.3	9.4	9.0
1541	1215	22.0	4.4	5.2	117	50.5	968	1207	9.1	9.2	949	924	30.7	35.8	28.6	521	68280	336	8.5	95.45	77.64	1.65	1.26	.95	10.0	9.4	8.9
STOPPED FLUSHING RISER .																											
1549	1217	39.2	5.0	5.3	124	55.0	2686	1210	9.2	9.0	899	905	31.1	36.5	28.9	520	68987	339	8.6	51.25	77.61	1.66	1.19	.96	12.5	9.4	8.7 ↑
1555	1220	31.7	4.3	4.9	123	53.4	2665	1211	8.9	9.1	908	896	31.6	37.8	29.2	527	69614	341	8.7	63.04	77.59	1.67	1.25	.95	11.0	9.4	8.8
1612	1223	20.6	4.5	5.1	115	42.9	2602	1216	9.0	9.1	888	894	32.4	36.6	29.6	539	70605	344	8.8	95.50	77.80	1.69	1.19	.98	11.5	9.3	8.6 ↑
1614	1225	101	4.6	4.8	114	48.5	2573	1216	9.1	9.1	900	909	32.8	37.1	29.7	541	70849	346	8.8	20.07	77.55	1.70	.86	.95	22.2	9.4	8.9
1618	1227	35.1	4.5	5.5	118	48.8	2609	1217	9.2	9.2	895	901	33.1	37.0	29.9	527	71310	349	8.9	60.58	77.42	1.71	1.22	.92	11.7	9.4	9.2
1623	1230	34.3	4.5	5.6	118	45.4	2568	1220	9.0	9.2	893	897	33.1	37.3	30.2	532	71887	351	9.0	58.92	77.37	1.72	1.21	.94	12.0	9.4	9.0
1627	1232	30.3	4.6	5.7	117	46.1	2599	1222	9.1	9.3	891	905	33.5	37.4	30.2	539	72392	354	9.1	68.45	77.29	1.73	1.25	.93	11.0	9.4	9.1
1633	1235	21.1	4.4	5.8	116	48.3	2611	1223	9.2	8.9	904	890	33.8	37.2	30.5	551	73086	356	9.2	94.61	77.34	1.75	1.35	.93	8.8	9.4	9,1
1651	1237	25.9	4.3	5.8	109	45.7	2610	1229	8.9	9.3	884	899	34.1	38.0	31.3	556	73969	359	9.3	82.12	77.60	1.76	1.29	.95	10.5	9.4	9.0
1654	1240	39.6	4.2	5.8	111	45.0	2610	1232	9.0	9.4	896	879	34.5	37.4	31.5	566	74400	361	9.3	50.15	77.46	1.77	1.16	.94	13.7	9.4	9.1
1659	1242	43.9	4.5	5.1	117	51.2	2603	1234	8.9	9.4	896	893	34.9	37.1	32.1	570	74915	364	9.4	48.05	77.37	1.78	1.14	.93	14.6	9.4	9.2
1704	1245	32.8	4.5	5.9	120	44.6	2547	1236	9.0	9.0	898	897	34.9	37.7	32.6	580	75563	367	9.5	60.56	77.34	1.79	1.22	.93	12.2	9.4	9.2
1713	1247	39.7	4.4	5.0	116	43.2	2634	1236	9.0	8.7	905	783	34.9	37.2	32.9	571	76130	369	9.6	54.44	77.34	1.80	1.15	.92	13.9	9.3	9.3 ↑
1725	1250	19.7	4.1	6.1	115	46.1	2543	1240	9.0	9.2	889	769	35.3	37.8	33.4	569	76900	371	9.7	105.9	77.48	1.81	1.35	.90	9.1	9.3	9.5
1731	1252	19.4	4.3	5.6	114	45.0	2522	1244	8.9	9.2	883	800	36.1	37.6	33.7	569	77599	374	9.8	108.7	77.54	1.83	1.36	.92	9.0	9.3	9.4
1740	1255	13.6	4.3	5.4	116	41.5	2604	1247	8.9	9.2	898	801	36.1	38.0	34.0	589	78624	376	10.0	147.6	77.85	1.85	1.46	.95	7.0	9.3	9.1
1745	1257	28.6	4.3	5.2	116	47.4	2579	1250	9.0	9.2	891	779	36.1	37.7	34.2	562	79139	379	10.0	75.89	77.78	1.86	1.27	.95	11.1	9.3	9.1
1752	1260	17.2	4.4	4.9	116	45.1	2592	1252	8.8	9.2	894	811	36.1	38.0	34.7	555	79992	381	10.2	115.4	77.95	1.87	1.38	.94	8.6	9.3	9.3
1812	1263	12.8	3.5	5.5	114	23.0	2551	1256	9.0	9.2	902	811	36.1	38.9	35.1	567	81257	384	10.3	157.5	78.43	1.89	1.29	.97	10.0	9.2	9.0
1818	1265	37.9	5.6	5.7	120	44.2	2543	1259	8.9	9.2	916	812	36.1	38.1	35.4	578	81894	386	10.4	56.98	78.45	1.90	1.13	.99	15.3	9.2	8.8
1820	1267	49.2	5.1	6.1	124	47.8	2571	1260	8.9	9.2	895	805	36.1	37.9	35.6	584	82202	389	10.5	40.67	78.22	1.91	1.07	.93	16.8	9.2	9.4
1825	1269	20.0	5.6	5.9	79	48.2	2586	1262	8.9	9.2	915	794	36.4	38.1	35.8	589	82753	391	10.6	99.47	78.30	1.92	1.29	.88	10.9	9.2	10.0 *
TIGHT HOLE ON TRIP OUT FOR BIT #4																											
NO.4 HTC X3A 18,18,18 START DEPTH 1271M																											
42	1271	11.9	3.8	4.5	62	39.0	2745	1265	9.1	9.2	904	939	36.4	31.9	36.0	495	607	0	.0	167.9	62227	1.92	1.38	.96	.0	9.1	3.9
49	1272	11.7	3.8	4.5	76	45.8	2700	1270	9.2	9.2	902	889	19.4	32.5	36.0	507	1157	2	.1	173.9	6507	.02	1.27	1.05	.0	9.1	3.6
100	1275	15.6	3.7	4.3	75	41.9	2693	1270	9.2	9.2	897	757	19.5	32.3	36.0	501	1941	4	.3	131.0	2487	.07	1.28	1.04	1.5	9.1	5.8
120	1277	25.4	4.0	5.1	116	46.5	2584	1271	9.1	9.1	882	932	19.4	32.9	36.2	446	2867	7	.5	84.35	1605	.12	1.27	1.09	1.7	9.2	5.5 ↑
125	1280	23.1	4.2	4.6	114	49.4	2590	1273	9.1	9.1	890	894	19.4	33.2	36.3	453	3491	9	.6	86.85	1173	.18	1.35	1.07	1.1	9.2	5.6
130	1282	26.7	3.9	4.6	116	47.6	2587	1274	9.1	9.1	887	909	19.5	33.4	36.3	458	4085	12	.6	75.01	935.7	.24	1.30	1.08	1.5	9.3	5.6
136	1285	25.9	3.8	4.4	116	48.3	2522	1275	9.1	9.4	891	894	19.4	33.6	36.3	461	4794	14	.7	77.27	735.1	.30	1.29	1.09	1.4	9.3	5.5
145	1287	15.8	3.7	4.4	117	51.4	2602	1276	9.1	9.4	886	874	19.4	33.5	24.6	456	5752	17	.9	126.7	583.2	.38	1.44	1.11	.7	9.4	5.4
204	1290	21.0	4.0	4.5	114	45.4	2509	1283	9.1	9.4	879	917	19.5	33.3	19.6	474	7231	19	1.1	99.05	613.3	.47	1.35	1.14	1.1	9.3	5.2 ↑
210	1292	24.5	3.5	4.6	115	47.6	2571	1286	9.1	9.4	881	917	19.5	33.5	19.4	482	8008	22	1.2	81.54	553.7	.53	1.30	1.14	1.5	9.3	5.2
216	1295	24.9	3.8	4.5	123	52.9	2622	1287	9.1	9.4	906	878	19.5	33.6	19.4	444	8660	24	1.3	80.55	504.4	.58	1.33	1.15	1.4	9.3	5.2
225	1298	15.7	3.9	4.6	121	49.9	2724	1289	9.1	9.4	908	914	19.5	33.7	19.4	429	9770	27	1.4	128.7	468.7	.66	1.47	1.16	.6	9.3	5.2
230	1300	36.2	3.7	4.1	122	50.0	2729	1290	9.1	9.4	922	921	19.4	33.5	19.4	437	10433	29	1.5	57.39	435.7	.71	1.24	1.17	2.4	9.3	5.1
235	1302	26.8	3.5	4.2	121	50.4	2711	1292	9.1	9.4	928	916	19.5	33.5	19.4	437	11029	32	1.6	76.61	403.9	.76	1.32	1.14	1.6	9.3	5.3

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:45 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
250	1305	37.0	3.8	4.4	120	52.5	2576	1296	9.1	9.4	897	851	19.5	33.3	19.4	455	11996	34	1.7	53.98	384.8	.81	1.21	1.14	2.6	9.3	5.3
258	1307	23.0	3.8	4.5	123	49.2	2682	1298	9.1	9.4	916	886	19.4	33.5	19.4	465	12921	37	1.8	89.28	365.9	.88	1.36	1.15	1.2	9.3	5.2
307	1310	16.6	3.5	4.6	121	48.3	2686	1302	9.1	9.4	903	890	19.4	24.1	19.4	355	13997	39	2.0	127.1	350.4	.95	1.44	1.15	.8	9.3	5.2
315	1312	14.9	3.9	4.7	120	49.2	2688	1304	9.1	9.4	917	904	19.5	33.6	19.4	274	15003	42	2.1	133.9	336.2	1.01	1.48	1.19	.7	9.3	5.1
322	1315	22.5	3.5	4.0	123	49.9	2684	1306	9.1	9.4	918	896	19.4	33.5	19.4	269	15792	44	2.2	88.78	322.9	1.06	1.36	1.18	1.2	9.3	5.1
338	1317	36.0	3.9	4.3	120	49.2	2702	1310	9.1	9.2	918	905	19.4	33.4	19.4	281	16848	47	2.4	55.53	311.6	1.11	1.20	1.19	2.5	9.3	5.1
345	1320	17.0	4.0	4.8	123	49.3	2674	1311	9.1	9.2	919	914	19.4	33.6	19.4	283	17647	49	2.5	120.2	300.8	1.16	1.46	1.17	.8	9.3	5.2
350	1322	24.6	3.7	4.1	123	49.2	2710	1313	9.1	9.2	917	912	19.4	33.8	19.4	288	18246	52	2.6	81.96	289.4	1.19	1.34	1.16	1.5	9.3	5.2
354	1325	33.5	3.9	4.7	121	54.7	2700	1315	9.1	9.2	911	913	19.4	33.9	19.4	295	18741	54	2.6	59.41	278.5	1.23	1.28	1.13	2.1	9.3	5.3
401	1327	21.0	3.6	4.8	122	47.9	2693	1315	9.1	9.2	890	908	19.3	33.8	19.4	299	19617	57	2.8	96.38	270.9	1.28	1.41	1.14	1.1	9.3	5.3
418	1330	15.7	4.0	4.6	120	50.6	2712	1321	9.1	9.2	910	864	19.5	33.7	19.4	310	20818	59	2.9	132.4	265.4	1.33	1.44	1.17	.9	9.3	5.2 ↑
425	1332	19.2	4.3	4.6	120	51.8	2696	1324	9.1	9.2	887	969	19.4	33.8	19.4	309	21576	62	3.0	106.2	257.9	1.37	1.41	1.16	1.1	9.3	5.2
433	1335	20.2	3.6	4.7	122	49.9	2660	1327	9.1	9.2	894	939	19.4	34.1	19.4	297	22566	64	3.1	99.26	252.2	1.42	1.40	1.16	1.2	9.3	5.2
440	1337	20.7	3.9	4.7	123	48.7	2647	1328	9.1	9.2	921	889	19.4	34.2	19.4	292	23447	66	3.3	96.56	246.8	1.47	1.39	1.17	1.3	9.3	5.2
448	1340	20.0	3.8	4.7	121	44.3	2660	1331	9.1	9.2	913	906	19.3	34.1	19.4	287	24469	69	3.4	110.3	242.1	1.52	1.42	1.19	1.3	9.3	5.1
506	1343	15.4	3.6	4.1	113	45.0	2487	1335	9.1	9.2	853	877	19.5	34.2	19.4	287	25901	72	3.6	130.2	238.3	1.58	1.41	1.18	1.1	9.3	5.1 ↑
517	1345	13.3	3.2	4.1	92	31.9	1030	1338	9.1	9.2	496	553	19.5	34.1	19.4	314	26799	74	3.7	151.0	234.7	1.61	1.30	1.15	1.9	9.3	5.3
530	1347	16.5	3.0	4.0	104	35.3	897	1339	9.1	9.2	469	510	19.3	33.9	19.3	333	27779	77	3.9	131.9	231.5	1.63	1.29	1.13	1.9	9.3	5.4
542	1350	9.2	3.3	5.4	102	40.1	911	1341	9.1	9.2	480	505	19.4	33.6	19.3	344	29060	79	4.1	221.2	229.4	1.67	1.45	1.12	.8	9.3	5.4
552	1352	15.9	3.2	4.2	104	37.4	894	1342	9.1	9.2	473	504	19.4	33.3	19.3	322	30082	82	4.3	125.9	226.5	1.70	1.30	1.13	2.0	9.3	5.4
602	1355	15.1	3.7	4.8	104	45.1	906	1343	9.1	9.2	481	500	19.5	32.9	19.3	308	31106	84	4.4	135.3	224.0	1.74	1.41	1.15	1.2	9.3	5.3
629	1357	9.0	3.1	4.6	103	35.9	921	1348	9.1	9.1	495	514	23.8	32.3	19.3	260	33043	87	4.7	231.0	225.0	1.79	1.45	1.15	7.3	9.3	8.1
649	1360	7.3	3.4	4.0	102	35.9	961	1353	9.1	9.1	495	535	30.1	32.0	19.3	277	35126	89	5.1	276.1	226.4	1.85	1.49	1.18	6.4	9.3	7.9
701	1362	12.6	2.4	3.6	104	23.7	926	1355	9.1	9.1	486	489	27.8	31.7	19.3	286	36410	92	5.3	161.4	225.0	1.88	1.31	1.17	9.9	9.3	8.0
711	1365	16.2	3.7	4.0	120	43.9	2560	1356	9.1	9.1	873	633	16.5	31.7	19.3	243	37406	94	5.4	127.3	222.6	1.91	1.30	1.17	10.0	9.3	8.0 ↑
723	1367	19.6	3.2	4.4	97	31.1	915	1358	9.1	9.1	491	476	16.3	31.4	19.3	260	38334	97	5.6	101.8	219.7	1.94	1.22	1.12	11.9	9.3	8.3
752	1370	8.2	3.3	3.8	105	39.4	904	1362	9.1	9.2	492	460	15.5	31.0	19.5	231	40499	99	5.9	256.1	221.4	1.98	1.37	1.12	8.5	9.3	8.3
810	1373	8.3	2.9	3.7	106	31.7	933	1365	9.1	9.2	496	468	15.2	30.7	24.4	262	42403	102	6.2	241.6	222.0	2.03	1.42	1.15	7.7	9.3	8.2
822	1375	13.5	3.2	3.7	106	31.2	946	1368	9.1	9.2	489	444	15.4	30.6	28.0	212	43728	104	6.4	150.7	220.8	2.07	1.31	1.15	10.0	9.3	8.1
838	1377	11.0	3.3	3.7	106	34.3	950	1369	9.1	9.2	439	459	15.3	30.3	27.9	236	45385	107	6.7	188.0	220.7	2.11	1.37	1.16	8.9	9.3	8.1
849	1380	11.6	3.4	3.7	108	35.6	918	1371	9.1	9.2	498	454	15.4	30.1	22.8	250	46603	109	6.9	175.2	219.2	2.14	1.35	1.15	9.0	9.3	8.2
924	1382	6.6	3.3	4.5	106	38.5	907	1375	9.1	9.2	499	460	15.9	29.7	15.6	286	49414	112	7.3	233.1	221.6	2.20	1.42	1.13	7.8	9.3	8.3 ↑
939	1385	11.4	3.0	4.0	106	35.3	894	1377	9.1	9.2	500	490	16.2	29.6	15.3	222	50967	114	7.5	176.0	221.2	2.24	1.35	1.15	9.1	9.3	8.1
952	1387	9.9	3.3	3.7	109	37.0	894	1381	9.1	9.2	499	483	16.4	29.4	15.2	236	52423	117	7.7	202.1	220.5	2.28	1.39	1.16	8.2	9.3	8.1
1005	1390	11.7	2.9	3.8	109	36.0	924	1381	9.1	9.1	490	488	16.6	29.2	15.2	253	53759	119	8.0	175.3	219.4	2.31	1.36	1.15	9.3	9.3	8.1
1021	1392	9.2	3.1	4.0	108	37.3	936	1383	9.1	9.1	492	491	16.7	29.1	15.3	276	55516	122	8.2	218.1	219.5	2.35	1.41	1.15	8.0	9.3	8.1
1046	1395	9.6	2.9	3.8	107	33.4	905	1387	9.1	9.1	492	438	17.0	28.7	15.7	248	57589	124	8.5	210.1	220.2	2.40	1.40	1.16	8.5	9.3	8.1 ↑
1057	1398	11.2	3.1	3.5	106	36.2	928	1389	9.1	9.1	491	458	17.1	28.9	15.8	221	58809	127	8.7	181.0	219.0	2.43	1.36	1.16	9.2	9.3	8.1
1122	1400	4.7	3.0	3.6	109	36.8	949	1393	9.1	9.1	500	472	17.3	28.6	16.0	246	61456	129	9.1	450.5	221.2	2.49	1.61	1.17	5.0	9.3	8.0
1130	1402	12.4	3.1	4.0	109	37.0	878	1394	9.1	9.1	501	473	17.3	28.5	16.2	257	62378	132	9.3	162.2	219.2	2.52	1.35	1.16	9.5	9.3	8.1
1152	1405	9.2	3.2	3.9	118	36.5	947	1397	9.1	9.1	512	463	15.9	28.4	16.5	366	64406	134	9.6	219.1	219.7	2.56	1.46	1.18	7.6	9.3	8.0
1212	1407	13.8	3.5	4.2	99	39.7	946	1399	9.1	9.1	503	468	15.7	28.1	16.6	442	66123	137	9.8	156.9	219.4	2.61	1.38	1.17	9.4	9.3	8.0 ↑
1236	1410	24.4	3.2	4.4	118	47.5	690	1402	9.1	9.1	499	454	15.6	28.0	16.9	426	68184	139	10.1	81.97	219.7	2.65	1.22	1.19	12.5	9.3	7.9
1251	1412	10.0	2.9	4.9	116	37.4	691	1405	9.1	9.1	498	450	15.8	27.8	17.1	443	69998	141	10.4	235.5	219.3	2.70	1.51	1.16	7.3	9.3	8.1
1305	1415	9.0	3.1	4.3	117	34.6	945	1407	9.1	9.1	491	458	16.5	27.7	17.3	463	71711	144	10.6	224.3	219.2	2.74	1.47	1.19	7.4	9.3	7.9
1321	1417	6.3	3.1	4.7	117	36.6	949	1408	9.1	9.1	500	450	16.7	27.7	16.4	524	73527	147	10.9	261.5	219.3	2.79	1.51	1.19	6.9	9.3	7.9
1333	1420	12.3	2.7	4.3	118	35.5	921	1410	9.1	9.1	2	451	16.9	27.7	15.7	527	74927	149	11.1	166.6	218.2	2.82	1.41	1.20	8.6	9.3	7.8
1354	1423	9.3	2.9	4.2	117	36.4	924	1412	9.1	9.1	505	453	17.3	27.4	15.9	539	75810	152	11.3	220.5	219.3	2.85	1.45	1.20	7.8	9.3	7.8
1403	1425	9.5	3.1	4.4	119	33.6	919	1415	9.1	9.1	496	449	17.7	27.5	15.3	552	78489	154	11.6	219.6	218.1	2.91	1.47	1.20	7.6	9.3	7.9
1425	1427	6.5	2.8	4.5	117	36.3	913	1417	9.1	9.1	505	480	17.9	27.6	15.7	551	80430	156	11.8	252.3	219.3	2.95	1.49	1.18	7.2	9.3	8.0

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 7:50 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1440	1430	6.9	3.1	5.7	117	35.5	892	1421	9.1	9.1	497	468	18.2	27.6	15.7	556	82202	159	12.1	233.8	218.0	2.99	1.49	1.20	7.4	9.3	7.8
1455	1432	10.5	3.4	4.3	118	35.5	908	1424	9.1	9.1	496	480	18.1	28.0	16.3	560	84029	162	12.3	195.3	217.9	3.04	1.47	1.24	7.8	9.3	7.6
1522	1435	10.1	3.7	4.2	109	40.5	950	1427	9.1	9.1	488	488	18.3	25.5	16.6	580	86388	164	12.7	201.7	218.8	3.09	1.39	1.21	9.2	9.3	7.8 ↑
1537	1437	10.2	3.3	4.9	109	34.1	951	1429	9.1	9.1	490	507	18.5	28.1	17.1	537	87938	167	12.9	198.8	218.4	3.12	1.43	1.21	8.5	9.3	7.7
1552	1440	9.2	3.0	4.6	107	44.8	960	1432	9.1	9.1	487	496	18.6	28.0	17.5	546	89547	169	13.2	231.2	218.3	3.16	1.44	1.21	8.3	9.3	7.8
1605	1442	11.1	3.3	4.2	109	33.0	956	1433	9.1	9.1	498	507	18.8	28.0	17.7	558	91014	172	13.4	182.6	217.7	3.19	1.40	1.18	9.0	9.3	8.0
1625	1445	6.7	2.9	4.0	110	31.1	908	1436	9.1	9.1	497	507	19.1	28.1	18.2	556	93109	174	13.7	299.9	218.4	3.23	1.49	1.19	7.3	9.3	7.9
1639	1447	9.4	3.0	4.1	118	33.8	927	1439	9.1	9.1	489	508	19.2	28.1	18.2	562	94781	177	14.0	221.0	218.3	3.26	1.44	1.20	8.2	9.3	7.9
1658	1450	11.1	3.6	5.2	95	49.9	958	1441	9.1	9.1	501	504	19.3	28.4	18.1	535	96176	179	14.2	180.9	217.7	3.29	1.38	1.22	9.5	9.3	7.7
1717	1452	9.0	3.2	4.7	97	38.4	966	1444	9.1	9.1	491	514	19.2	28.2	18.3	536	98029	182	14.5	232.5	218.3	3.32	1.44	1.20	8.3	9.3	7.9
1737	1455	9.4	3.1	4.2	98	37.9	932	1447	9.1	9.1	492	494	19.4	28.2	18.6	532	99948	184	14.8	220.6	219.1	3.35	1.40	1.18	9.3	9.3	8.0
1757	1458	10.0	3.3	4.5	97	32.2	978	1450	9.1	9.1	491	498	19.4	28.3	18.9	529	101902	187	15.2	202.3	219.8	3.39	1.38	1.17	9.5	9.3	8.1
1815	1460	8.3	3.5	4.3	97	45.5	949	1452	9.1	9.1	490	497	19.3	28.3	19.0	527	103618	189	15.5	245.0	220.1	3.41	1.45	1.20	8.2	9.3	7.9
1840	1462	12.7	3.2	4.4	126	33.7	926	1455	9.1	9.1	494	516	19.4	28.2	19.3	522	105491	192	15.8	157.2	220.4	3.45	1.36	1.18	9.7	9.3	8.0
DUMPING MUD																											
1852	1465	13.8	3.3	4.5	129	36.2	964	1456	9.1	9.1	486	515	19.2	27.9	19.3	417	107000	194	16.0	152.4	219.7	3.48	1.37	1.15	10.0	9.3	8.2
1906	1467	9.2	3.3	4.2	128	43.2	892	1458	9.1	9.1	495	513	19.3	27.8	19.3	392	108829	196	16.2	228.2	219.5	3.52	1.47	1.17	7.9	9.3	8.1
1921	1470	11.1	3.6	4.4	126	52.1	909	1460	9.1	9.1	492	494	19.4	27.7	19.3	383	110725	199	16.4	183.7	219.3	3.56	1.46	1.21	8.4	9.3	7.8
1936	1472	9.9	3.0	4.4	127	34.3	888	1462	9.1	9.1	492	496	19.3	27.7	19.3	385	112611	202	16.7	201.8	219.1	3.60	1.46	1.16	8.0	9.3	8.1
2001	1475	9.6	3.6	4.3	128	42.7	946	1466	9.1	9.1	483	504	19.4	27.4	19.3	372	114958	204	17.0	224.7	219.5	3.65	1.46	1.24	8.1	9.3	7.6
2015	1477	11.2	3.6	4.6	129	41.8	934	1468	9.1	9.1	489	501	19.3	27.5	19.3	374	116775	207	17.2	179.3	219.2	3.69	1.43	1.20	9.0	9.3	7.9
BACK TO USING TWO PUMPS																											
2033	1480	14.1	3.8	5.0	126	47.1	1467	1471	9.1	9.2	617	600	19.4	27.6	19.3	369	118547	209	17.5	144.8	219.0	3.73	1.46	1.21	8.6	9.3	7.8
2046	1482	11.2	3.5	5.0	129	44.5	2687	1473	9.1	9.2	862	660	19.4	27.9	19.3	364	120099	212	17.7	180.2	218.4	3.77	1.54	1.18	7.4	9.3	8.0
2053	1485	17.9	4.1	5.5	127	60.1	2647	1475	9.1	9.2	877	658	19.4	28.6	19.3	355	121087	214	17.8	112.6	217.1	3.80	1.41	1.21	9.9	9.3	7.8
2114	1488	12.4	3.6	4.7	127	62.9	2680	1480	9.1	9.2	878	669	19.4	28.8	19.3	359	122961	217	18.1	161.5	216.5	3.85	1.40	1.19	9.6	9.3	8.0 ↑
2122	1490	19.0	4.1	5.5	128	50.9	2651	1482	9.1	9.2	867	875	19.4	29.4	19.3	369	124031	219	18.2	105.0	215.8	3.88	1.46	1.21	9.2	9.3	7.8
2136	1492	10.9	3.5	5.2	118	53.4	2646	1486	9.1	9.2	874	879	19.4	30.1	19.3	361	125530	222	18.4	192.8	215.5	3.91	1.54	1.19	7.5	9.3	7.9
2147	1495	14.2	3.4	5.4	136	40.5	2604	1487	9.1	9.2	876	878	19.3	30.3	19.3	367	127020	224	18.6	148.4	214.9	3.95	1.49	1.21	8.6	9.3	7.8
2205	1497	9.7	3.4	4.3	134	42.3	2581	1491	9.1	9.2	872	869	19.3	30.8	19.3	364	129355	227	18.9	207.0	215.1	4.00	1.57	1.22	6.8	9.3	7.8
2213	1500	18.2	3.4	3.9	134	40.3	2597	1493	9.1	9.2	866	874	19.3	31.1	19.3	364	130529	229	19.0	110.1	214.1	4.03	1.40	1.21	10.2	9.3	7.8
2232	1502	13.0	3.4	4.5	130	43.6	2673	1495	9.1	9.2	872	872	19.4	31.4	19.3	359	132099	232	19.2	155.8	213.5	4.06	1.47	1.18	8.8	9.3	8.0
2243	1505	13.0	3.6	4.7	122	43.9	2699	1498	9.1	9.2	868	902	19.4	31.8	19.3	357	133519	234	19.4	163.1	212.9	4.10	1.47	1.17	9.0	9.3	8.1
2253	1507	18.5	3.7	4.2	123	45.5	2739	1500	9.1	9.2	883	891	19.3	32.1	19.3	362	134715	237	19.6	120.6	212.1	4.12	1.39	1.18	10.5	9.3	8.0
TIGHT HOLE ON TRIP,MADE WIPER									HOLE NOT TAKING MUD																		
NO.5 HTC X3A 12.25" 18,18,18.									START DEPTH 1508M																		
947	1510	15.0	4.6	5.5	106	42.4	2572	1507	9.1	9.2	847	704	28.3	29.0	19.3	290	794	2	.1	142.1	6956	.03	1.31	1.20	9.1	9.2	7.9
952	1512	26.0	4.5	5.3	102	37.6	2570	1507	9.1	9.2	835	846	28.4	28.9	19.3	275	1269	4	.2	76.01	2813	.07	1.19	1.15	11.5	9.2	8.2
1010	1515	12.8	4.7	5.3	98	43.3	2731	1507	9.1	9.2	835	777	30.0	31.7	19.3	283	2446	7	.4	155.8	1728	.15	1.31	1.16	8.9	9.2	8.2 ↑
1019	1517	10.5	4.7	6.1	98	42.9	2815	1507	9.1	9.2	874	844	31.9	31.2	19.3	285	3511	9	.5	193.3	1336	.23	1.47	1.13	6.3	9.3	8.4
1027	1520	21.3	3.3	4.8	120	12.8	2801	1510	9.1	9.2	885	804	32.2	30.9	19.3	287	4373	12	.7	94.77	1068	.29	1.24	1.14	10.7	9.3	8.3
1033	1522	23.0	4.5	4.8	120	38.9	2749	1512	9.2	9.2	875	872	32.0	30.9	19.3	299	5071	14	.8	87.09	993.8	.33	1.26	1.13	10.2	9.3	8.4
1041	1525	18.4	4.4	5.1	117	35.0	2754	1514	9.2	9.1	870	875	32.1	31.0	19.3	302	6004	17	.9	108.6	775.1	.39	1.29	1.12	9.6	9.3	8.5
1047	1527	24.9	3.7	5.1	110	39.5	2650	1515	9.2	9.1	849	869	32.3	31.2	19.3	314	6734	19	1.0	82.24	685.9	.44	1.23	1.12	11.0	9.3	8.4
1106	1530	18.1	3.6	6.8	115	42.0	2804	1520	9.2	9.1	886	755	31.9	31.2	27.9	338	7941	22	1.2	116.1	622.2	.51	1.39	1.17	8.2	9.3	8.1
1119	1532	12.1	3.5	5.1	115	42.8	2785	1524	9.2	9.1	888	941	32.4	31.5	29.8	349	9402	24	1.4	164.9	576.9	.60	1.45	1.14	6.7	9.3	8.3
1137	1535	17.6	3.6	4.9	125	40.1	2750	1528	9.2	9.1	882	918	32.2	31.1	31.8	357	10964	27	1.6	117.1	539.5	.70	1.37	1.16	8.5	9.3	8.2 ↑

2000+ UNITS OF GAS FROM 1526 METRES.
CIRCULATED RETURNS AT 1535.73 METRES.
2000+UNITS OF GAS FROM 1526 METRES . CIRCULATED RETURNS AT 1535 METRES.

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 8:48 12/20/78

TIME	DEPTH	ROP M/h	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
158	1540	1.7	2.0	3.2	82	38.8	1455	1537	9.5	9.9	285	281	29.6	29.5	31.5	290	11610	4	2.5	1241	5961	0.00	2.01	1.24	5.9	9.6	8.7
317	1543	1.8	2.2	3.1	79	37.0	1412	1539	9.4	9.6	285	269	29.6	28.8	30.4	349	17897	6	3.8	1223	4047	0.00	1.99	1.13	6.1	9.6	8.9
432	1545	1.6	1.9	3.1	80	34.3	1368	1542	9.4	9.4	276	265	29.5	28.3	29.5	402	23957	9	5.1	1389	3203	0.00	2.03	1.77	5.5	9.6	8.2
558	1547	1.3	2.3	5.4	79	34.5	1441	1545	9.4	9.5	283	250	29.4	28.6	29.5	462	30852	11	6.5	1692	2758	0.00	2.07	1.48	5.3	9.6	8.8
2200	1555	18.5	4.6	4.7	98	46.7	2520	1547	9.5	9.5	816	673	30.8	29.8	29.5	407	7446	7	.3	107.6	1612	.31	1.26	1.22	11.5	9.6	8.4
2201	1555	17.2	4.0	5.1	98	50.4	2577	1547	9.4	9.5	817	670	30.9	29.7	29.4	397	7522	8	.4	121.8	1609	.31	1.31	1.04	13.3	9.6	8.5
2202	1556	35.5	4.2	5.0	97	51.4	2523	1547	9.5	9.5	814	662	31.0	29.7	29.4	389	7603	9	.4	65.38	1412	.31	1.13	1.32	11.5	9.6	8.4
2205	1557	28.6	4.4	5.7	98	54.2	2554	1547	9.3	9.5	827	676	30.9	29.9	29.4	401	7853	10	.4	69.93	1278	.32	1.19	1.08	12.0	9.6	8.4
2208	1558	17.7	4.3	5.8	130	50.5	2724	1547	9.4	9.5	850	670	30.8	30.0	29.4	387	8177	11	.5	112.9	1165	.34	1.42	1.03	12.0	9.6	8.4
2211	1559	18.9	4.3	5.4	132	49.8	2697	1551	9.4	9.5	851	667	30.9	30.1	29.4	394	8603	12	.5	106.1	1074	.35	1.45	1.01	12.6	9.6	8.4
2215	1560	16.0	4.3	4.8	130	51.3	2709	1552	9.4	9.5	859	657	31.0	30.2	29.4	395	9090	13	.6	127.0	1000	.37	1.53	1.16	13.9	9.6	8.4
NB#6 HTC X3A 12.25" WITH 18,18,18 JETS. START DEPTH 1547.5M.																											
2217	1561	18.9	4.6	4.8	131	52.0	2723	1553	9.4	9.5	856	651	31.0	30.3	29.4	394	9476	14	.6	106.1	931.5	.39	1.48	1.19	12.1	9.6	8.4
2220	1562	25.4	4.5	4.9	131	55.4	2720	1554	9.4	9.5	845	654	31.1	30.4	29.3	387	9797	15	.7	80.71	873.1	.40	1.39	1.59	12.6	9.6	8.4
2222	1563	24.9	4.1	4.9	130	50.9	2687	1555	9.5	9.5	850	639	31.2	30.4	29.3	390	10093	16	.7	82.46	823.5	.41	1.40	1.04	12.9	9.6	8.4
2225	1564	22.7	4.4	5.0	131	51.6	2676	1556	9.4	9.5	835	652	31.2	30.5	29.5	392	10417	17	.7	88.49	777.4	.43	1.42	1.28	13.7	9.6	8.4
2226	1565	29.9	4.5	4.6	130	56.3	2738	1557	9.4	9.5	845	648	31.4	30.5	29.6	396	10608	18	.8	66.89	737.3	.43	1.34	1.82	15.4	9.6	8.4
2229	1566	26.7	4.3	5.6	130	49.7	2727	1558	9.5	9.5	852	657	31.5	30.6	29.7	396	10924	19	.8	75.51	702.3	.45	1.37	1.05	15.2	9.6	8.4
2248	1567	11.9	4.8	5.9	116	50.1	2688	1560	9.4	9.5	848	646	31.4	30.4	30.6	376	12539	20	1.0	170.7	683.3	.51	1.57	1.39	10.3	9.6	8.4 ↑
2251	1568	12.4	5.0	5.8	96	44.1	2689	1560	9.4	9.5	834	637	31.5	30.6	30.7	363	12816	21	1.1	166.3	658.3	.53	1.60	1.37	10.1	9.6	8.4
2253	1569	20.7	4.5	5.5	130	66.0	2641	1561	9.4	9.5	834	646	31.6	30.7	30.7	367	13132	22	1.1	102.2	634.5	.54	1.47	1.36	12.9	9.6	8.5
2257	1570	21.0	4.3	6.2	131	52.0	2666	1562	9.5	9.5	832	656	31.7	30.9	30.7	368	13555	23	1.2	98.21	609.6	.56	1.48	1.37	13.1	9.6	8.4
2259	1571	22.8	5.0	5.3	133	62.4	2673	1563	9.4	9.5	837	651	31.7	30.9	30.8	360	13797	23	1.2	97.73	588.7	.57	1.52	1.34	12.3	9.6	8.4
2303	1572	18.6	4.6	6.5	132	47.8	2645	1554	9.5	9.5	834	621	31.7	30.9	31.6	363	14307	25	1.3	116.7	569.3	.59	1.43	1.22	13.7	9.6	8.4
2305	1573	31.0	4.5	5.1	123	50.2	2508	1564	9.4	9.5	815	637	31.9	31.0	31.6	365	14575	26	1.3	66.64	550.6	.60	1.27	1.20	17.3	9.6	8.4
2309	1574	17.9	4.4	5.1	131	54.1	2623	1565	9.4	9.5	378	628	32.0	31.1	31.6	361	15030	27	1.4	112.3	533.9	.62	1.42	1.18	13.4	9.6	8.4
2311	1575	19.9	4.5	4.9	130	54.1	2767	1566	9.4	9.5	873	657	32.1	31.1	31.6	351	15268	28	1.4	110.4	520.3	.63	1.42	1.17	13.5	9.6	8.4
2313	1576	23.1	4.3	5.4	132	48.9	2782	1566	9.4	9.5	867	666	32.1	31.1	31.6	353	15596	29	1.4	87.03	502.5	.64	1.36	1.14	15.0	9.6	8.5
2316	1577	22.2	4.4	5.2	124	51.9	2793	1567	9.4	9.5	850	667	32.1	31.1	31.6	346	15922	30	1.5	93.56	488.4	.65	1.38	1.13	14.5	9.6	8.4
2331	1578	14.9	4.5	5.7	126	51.3	2668	1569	9.5	9.5	837	671	31.9	30.2	31.6	342	17024	30	1.6	137.6	479.8	.70	1.39	1.12	13.7	9.6	8.5 ↑
2332	1581	15.3	4.7	5.4	125	48.7	2669	1569	9.3	9.5	850	668	31.9	30.2	31.6	347	17172	34	1.6	134.1	474.6	.70	1.43	1.11	13.3	9.6	8.4
2335	1582	19.2	4.4	5.5	126	50.8	2678	1569	9.6	9.5	849	662	31.9	30.6	31.6	346	17496	35	1.6	115.4	428.3	.72	1.41	1.10	13.7	9.6	8.4
2337	1583	22.9	4.6	4.8	124	52.0	2678	1570	9.5	9.5	847	645	31.8	30.9	31.6	354	17790	36	1.7	91.36	419.3	.73	1.34	1.08	15.4	9.6	8.4
2343	1585	23.6	4.3	5.3	125	51.0	2672	1571	9.4	9.5	839	650	32.4	31.1	31.6	343	18460	38	1.8	85.85	400.9	.76	1.32	1.04	15.9	9.6	8.4
2343	1585	24.5	4.0	4.4	125	47.0	2686	1571	9.4	9.5	839	652	32.2	31.1	31.6	337	18465	38	1.8	82.35	400.7	.76	1.31	1.04	16.2	9.6	8.4
2347	1586	16.7	4.1	5.0	121	49.1	2712	1573	9.4	9.5	844	642	32.1	31.2	31.6	329	18992	39	1.9	120.0	394.8	.78	1.40	1.01	13.6	9.6	8.4
2350	1587	14.9	4.3	5.1	111	46.7	2568	1574	9.5	9.5	840	658	31.9	31.4	31.7	336	19343	39	1.9	140.0	387.7	.79	1.44	1.02	13.1	9.6	8.4
2356	1588	11.7	3.9	5.8	123	50.1	2728	1576	9.5	9.5	840	669	32.2	31.4	31.8	325	20023	41	2.0	174.3	383.5	.82	1.47	1.02	12.0	9.6	3.4
2360	1589	19.2	4.5	5.0	118	54.5	2724	1577	9.4	9.5	855	645	32.7	31.6	31.9	325	20430	42	2.1	105.1	376.7	.84	1.35	1.02	15.2	9.6	8.4
2	1590	21.0	4.5	5.4	101	45.5	2730	1577	9.4	9.5	847	662	32.6	31.6	31.9	325	20670	43	2.1	96.23	369.7	.85	1.30	1.00	16.1	9.6	8.4
5	1591	20.3	4.2	5.4	122	52.1	2747	1578	9.5	9.5	841	649	32.5	31.5	32.1	330	21025	44	2.1	98.50	363.7	.86	1.31	.99	16.0	9.6	8.4
9	1592	16.4	3.6	6.0	122	45.6	2739	1579	9.4	9.5	853	672	32.8	31.6	32.1	328	21456	45	2.2	122.3	358.8	.88	1.39	.97	13.9	9.6	8.4
32	1593	8.7	4.8	5.0	121	51.5	2753	1584	9.5	9.5	850	678	32.6	31.4	32.1	337	23095	46	2.4	233.1	357.7	.95	1.58	.98	9.7	9.6	8.4 ↑
33	1594	9.7	4.8	5.1	125	56.1	2793	1584	9.5	9.5	860	667	32.6	31.6	32.1	327	23236	47	2.5	210.5	354.0	.95	1.57	.99	10.0	9.6	8.4
36	1595	20.6	4.0	5.2	119	55.0	2711	1585	9.5	9.5	828	646	32.3	31.7	32.0	349	23589	48	2.5	112.8	349.2	.97	1.41	1.00	13.9	9.6	8.4
39	1596	21.5	4.2	4.9	118	51.2	2698	1586	9.4	9.5	837	681	32.6	31.8	32.0	346	23957	49	2.6	93.16	343.8	.98	1.37	1.01	8.5	9.6	8.4
42	1598	21.0	4.1	4.8	120	51.5	2605	1589	9.5	9.5	867	703	32.6	31.8	32.0	348	24339	52	2.6	116.6	320.1	1.00	1.41	.99	8.2	9.6	8.4 ↑
45	1599	19.5	4.1	5.1	119	52.1	2825	1589	9.4	9.5	864	687	32.7	31.8	32.0	342	24392	52	2.6	116.6	320.6	1.00	1.41	.99	8.2	9.6	8.5
48	1600	21.0	4.0	5.1	121	50.0	2605	1589	9.5	9.5	772	655	32.8	31.8	32.0	346	24412	52	2.6	116.5	320.0	1.00	1.40	.99	8.2	9.6	8.4

POOH AT 1600 METRES DUE TO DEFECT IN BOP'S. PULL TO SHOE AND CIRCULATE. CONDUCT WIPER TRIPS AND CIRCULATE. HANG OFF AND WAIT ON WEATHER.

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 8:54 12/20/78

JUMP DIVERS, REPAIR STACK, TEST OK.
NB#7, HTC X3A 12.25" WITH 18,18,20 JETS. START DEPTH 1600 METRES.

7 52.4 2732| 1593 9.6 9.3 839 868 24.9 31.2 35.8 396| 1163 1 .1 123.8 12037 .02| 1.30 .74 9.2 9.7 9.0|

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
510	1602	16.1	4.2	4.9	120	49.3	2668	1593	9.6	9.1	850	842	26.9	32.4	35.8	389	1566	2	.1	125.7	5810	.05	1.40	.73	7.6	9.7	8.7
513	1603	20.5	4.3	4.7	123	51.6	2728	1593	9.6	8.9	865	870	27.9	33.1	35.9	398	1896	3	.2	106.3	4005	.08	1.38	.74	8.0	9.7	8.3
516	1604	20.6	4.6	4.7	124	52.6	2717	1593	9.6	8.8	843	882	29.2	33.0	35.9	401	2256	4	.2	99.79	3022	.11	1.36	.74	8.4	9.7	8.9
519	1605	21.9	4.3	4.7	123	51.0	2739	1593	9.7	8.7	862	846	30.9	31.0	35.9	399	2637	5	.3	93.61	2421	.14	1.34	.73	8.7	9.7	9.1
523	1606	18.9	4.2	4.6	126	52.5	2720	1593	9.7	8.3	861	802	31.1	30.2	35.9	398	3076	6	.3	108.3	2028	.18	1.38	.73	8.1	9.8	8.3
526	1607	19.5	4.1	4.6	126	49.8	2717	1593	9.6	8.9	870	730	31.6	29.4	35.9	381	3461	7	.4	104.0	1755	.21	1.37	.74	8.2	9.8	8.3
548	1607	13.9	4.3	5.0	117	53.4	2708	1594	9.6	9.7	865	809	31.1	28.8	36.0	374	5030	7	.6	143.0	1855	.31	1.35	.75	8.5	9.8	8.5
548	1607	14.8	4.2	4.6	118	54.1	2754	1594	9.6	9.7	865	807	30.8	28.8	36.0	386	5057	7	.6	144.3	1848	.32	1.37	.76	8.1	9.8	8.1
550	1608	22.8	4.6	4.7	138	53.3	2901	1595	9.6	9.7	884	829	31.1	28.9	36.0	382	5277	8	.6	90.62	1597	.33	1.33	.74	9.3	9.8	8.5
553	1609	23.4	4.5	4.9	138	56.4	2883	1596	9.6	9.7	898	844	30.7	29.2	32.3	384	5683	9	.6	88.95	1441	.36	1.35	.73	8.7	9.8	9.0
555	1610	25.2	4.3	5.0	139	51.6	2849	1596	9.6	9.7	897	860	31.2	29.3	27.7	374	5971	10	.7	82.42	1300	.39	1.34	.73	9.1	9.8	8.9
557	1611	22.0	4.4	4.8	139	52.4	2879	1597	9.6	9.8	898	840	30.9	29.5	26.2	384	6343	11	.7	90.53	1194	.41	1.36	.73	8.7	9.8	8.8
559	1612	27.3	4.6	4.8	139	62.4	2870	1598	9.6	9.8	899	862	31.2	29.6	26.2	382	6549	12	.8	76.05	1101	.43	1.31	.74	9.6	9.8	9.1
602	1613	22.7	4.3	5.4	139	55.0	2840	1599	9.6	9.8	888	878	31.5	29.8	26.0	389	6969	13	.8	88.15	1022	.46	1.36	.74	8.8	9.9	8.5
604	1614	20.2	4.5	5.1	138	51.0	2801	1600	9.6	9.7	869	838	31.4	29.9	26.6	389	7316	14	.8	98.91	953.0	.50	1.38	.74	8.3	9.9	8.8
607	1615	21.2	4.3	4.6	139	50.9	2811	1600	9.6	9.6	887	858	31.6	30.1	27.4	379	7648	15	.9	96.93	897.0	.52	1.38	.75	8.3	9.8	8.3
610	1616	22.3	4.1	5.1	139	58.3	2761	1601	9.6	9.5	877	853	31.5	30.2	28.5	375	8055	16	.9	89.83	849.0	.55	1.37	.75	8.1	9.9	8.8
624	1619	11.7	4.2	5.3	129	48.6	2709	1601	9.6	9.4	871	851	31.9	29.9	31.0	379	9111	17	1.1	173.3	811.8	.62	1.51	.76	6.2	9.8	8.2
627	1619	19.3	4.1	4.8	132	47.5	2720	1602	9.6	9.4	862	849	31.9	29.9	31.0	384	9421	18	1.1	105.6	771.3	.64	1.37	.75	8.5	9.8	8.1
629	1619	22.9	4.1	4.7	134	47.2	2715	1603	9.6	9.4	859	857	32.2	30.1	31.1	375	9680	19	1.1	88.85	742.6	.65	1.33	.75	9.4	9.8	9.1
629	1620	25.0	4.3	4.7	136	50.9	2752	1603	9.6	9.4	889	835	31.8	30.2	31.1	386	9782	20	1.2	78.49	709.2	.66	1.29	.75	10.1	9.8	8.8
631	1621	26.1	4.1	4.7	135	53.4	2811	1604	9.6	9.4	886	820	32.1	30.2	31.1	379	9985	21	1.2	76.70	669.0	.67	1.29	.76	10.3	9.8	8.8
633	1622	23.9	4.2	4.7	132	47.4	2685	1605	9.6	9.4	857	872	31.8	30.3	31.0	382	10233	22	1.2	83.75	638.1	.69	1.31	.76	9.9	9.8	8.8
638	1623	32.1	4.7	4.7	136	67.4	2764	1607	9.6	9.4	886	826	32.1	30.6	31.0	381	10962	23	1.3	62.28	622.5	.73	1.03	.64	12.7	11.9	8.5
638	1623	32.6	4.7	5.1	136	55.7	2725	1607	9.6	9.4	875	823	32.0	30.6	31.0	378	10973	23	1.3	61.42	621.1	.73	1.24	.64	15.9	9.8	8.1
640	1624	23.3	4.5	4.8	135	51.4	2765	1607	9.6	9.4	877	839	32.1	30.6	30.9	382	11200	24	1.3	85.21	603.8	.75	1.32	.77	9.6	9.8	8.7
641	1625	21.3	4.1	4.6	136	49.4	2745	1608	9.6	9.4	883	833	32.6	30.7	30.9	391	11419	25	1.4	92.24	577.5	.76	1.34	.77	9.2	9.8	8.2
643	1626	16.4	4.2	4.5	136	49.5	2806	1609	9.6	9.4	880	832	32.4	30.7	30.9	375	11669	26	1.4	121.9	559.9	.77	1.42	.77	7.7	9.8	9.1
645	1627	18.1	4.3	4.6	136	52.6	2765	1609	9.6	9.4	888	837	32.2	30.7	30.9	379	11889	27	1.4	113.3	541.2	.79	1.41	.77	8.1	9.8	8.9
646	1628	24.5	4.5	4.6	135	55.0	2753	1610	9.6	9.4	874	824	32.4	30.8	30.9	382	12074	28	1.4	81.52	522.6	.80	1.31	.78	8.7	9.8	8.5
648	1629	27.3	4.3	4.6	136	52.4	2779	1610	9.6	9.4	884	853	32.5	30.8	31.0	391	12272	29	1.5	74.16	506.8	.81	1.29	.78	10.3	9.8	8.6
650	1630	22.9	4.1	4.6	136	49.0	2733	1610	9.6	9.4	857	821	32.6	30.9	31.0	379	12539	30	1.5	87.13	491.8	.83	1.33	.78	9.5	9.8	8.2
651	1631	26.5	4.3	4.7	136	50.5	2806	1610	9.6	9.4	869	821	32.8	30.9	31.1	382	12694	31	1.5	76.31	477.7	.83	1.30	.79	10.2	9.8	8.7
653	1632	27.5	4.7	5.3	138	61.1	2752	1610	9.5	9.4	874	813	32.9	31.0	31.1	393	13023	32	1.6	75.35	465.9	.85	1.31	.79	10.1	9.9	8.2
707	1633	10.5	4.2	5.6	133	60.4	2742	1614	9.5	9.4	872	585	32.9	30.6	31.6	389	14211	33	1.7	193.2	461.1	.92	1.56	.79	5.6	9.8	8.0

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:05 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
713	1634	12.5	4.1	5.2	137	50.7	2726	1616	9.5	9.4	868	625	33.1	31.1	31.9	386	14864	34	1.8	166.0	452.3	.95	1.50	.80	6.6	9.8	9.0
716	1635	16.8	4.3	5.1	114	53.4	2742	1618	9.5	9.4	876	728	33.2	31.2	31.9	389	15307	35	1.8	122.6	442.9	.97	1.40	.79	8.4	9.8	8.1
721	1636	14.4	4.4	4.6	135	55.3	2758	1619	9.5	9.4	872	862	33.2	31.4	31.9	386	15920	36	1.9	143.8	436.0	1.01	1.47	.80	7.0	9.8	8.7
722	1637	42.4	4.4	4.6	136	53.4	2771	1620	9.5	9.4	887	880	33.4	31.4	31.9	393	16113	37	1.9	49.48	425.3	1.02	1.18	.81	13.0	9.8	9.1
723	1638	41.0	4.3	4.6	133	54.3	2760	1620	9.5	9.4	876	871	33.4	31.4	31.9	388	16235	38	2.0	51.74	418.9	1.02	1.19	.81	13.2	9.8	9.1
724	1638	31.0	4.1	4.6	134	52.3	2703	1620	9.5	9.4	874	883	33.2	31.4	32.0	393	16344	38	2.0	64.47	417.7	1.03	1.25	.81	11.4	9.8	8.4
727	1640	32.2	4.6	5.4	136	57.2	2746	1622	9.5	9.4	880	854	33.3	31.5	32.0	389	16798	40	2.0	63.76	399.7	1.05	1.27	.83	11.0	9.8	8.7
733	1642	25.8	4.1	5.0	160	51.5	2743	1623	9.5	9.4	866	866	33.4	31.6	32.2	392	17689	42	2.1	77.41	385.3	1.10	1.35	.84	9.1	9.8	8.8
747	1645	11.9	4.2	4.9	158	48.4	2688	1625	9.5	9.4	859	859	33.5	31.7	32.6	393	19013	44	2.3	167.0	370.4	1.17	1.46	.75	7.2	9.7	8.3↑
749	1646	46.2	4.5	4.7	159	48.3	2678	1625	9.5	9.4	868	866	33.3	31.3	32.7	396	19269	46	2.3	52.11	358.8	1.19	1.21	.85	13.8	9.7	8.0
751	1648	35.2	4.1	5.4	159	48.7	2711	1626	9.5	9.4	872	820	33.5	31.3	32.8	408	19687	48	2.3	55.32	348.7	1.21	1.28	.87	11.2	9.7	8.0
753	1650	26.1	4.3	4.7	159	48.1	2661	1626	9.5	9.4	875	860	33.5	31.6	32.8	413	20037	50	2.4	76.71	333.3	1.23	1.34	.87	9.7	9.8	8.9
756	1652	25.9	4.1	4.8	159	49.8	2709	1627	9.5	9.4	865	854	33.6	31.6	32.9	412	20370	52	2.4	76.91	323.5	1.25	1.35	.87	9.6	9.8	8.9
800	1654	25.1	4.3	5.3	160	49.4	2685	1629	9.5	9.4	867	809	33.5	31.7	32.9	413	21099	54	2.5	79.70	312.8	1.29	1.37	.88	9.2	9.8	8.3
809	1656	14.6	4.3	5.3	160	50.4	2693	1633	9.5	9.3	860	874	33.7	32.0	32.9	410	22529	56	2.6	139.4	307.4	1.37	1.51	.76	6.7	9.8	8.9
811	1658	46.1	4.7	4.9	160	57.2	2680	1634	9.5	9.3	859	897	33.5	32.1	33.0	413	22915	58	2.7	44.78	298.1	1.38	1.20	.77	13.1	9.8	8.4
826	1660	14.2	4.4	5.6	153	55.8	2658	1636	9.5	9.3	860	829	33.7	31.6	33.3	422	24296	60	2.8	140.5	292.9	1.45	1.49	.77	6.8	9.8	8.3↑
831	1662	22.3	4.1	6.0	160	53.3	2733	1639	9.5	9.3	880	818	33.4	31.9	33.3	422	25182	62	2.9	89.72	286.6	1.50	1.40	.77	8.4	9.8	8.7
835	1664	26.9	5.4	5.6	159	62.0	2683	1641	9.5	9.3	882	835	33.5	31.9	33.4	425	25772	64	3.0	76.44	279.9	1.53	1.37	.79	2.2	9.8	8.8
840	1666	28.8	4.2	5.6	158	47.1	2710	1642	9.5	9.3	868	858	33.8	31.9	33.5	430	26540	66	3.1	70.49	273.8	1.57	1.34	.68	2.5	9.8	8.0
846	1668	20.4	4.4	5.1	159	52.0	2773	1644	9.5	9.3	882	842	33.7	31.9	33.4	422	27427	68	3.2	99.89	268.6	1.61	1.41	.68	1.7	9.9	8.7
849	1670	27.9	4.7	5.5	160	53.4	2743	1646	9.5	9.3	864	873	33.5	32.0	33.5	442	28025	70	3.2	72.31	262.7	1.64	1.33	.68	2.6	9.9	8.4
853	1671	16.3	4.3	5.4	163	50.8	2804	1649	9.5	9.3	894	856	33.7	32.0	33.5	441	28644	71	3.3	121.5	261.5	1.67	1.46	.67	1.3	9.8	8.8
904	1674	28.9	4.5	5.5	163	52.9	2689	1653	9.5	9.3	868	855	33.3	31.1	33.5	437	29452	74	3.4	68.63	254.4	1.71	1.31	.70	2.8	9.8	9.1↑
911	1677	22.7	4.3	5.9	134	53.8	2565	1658	9.5	9.3	834	864	33.7	31.9	33.5	455	30435	77	3.5	89.18	248.3	1.75	1.33	.70	2.4	9.8	8.9
918	1680	19.9	4.5	5.6	134	61.0	2630	1663	9.5	9.3	843	861	33.6	32.0	33.5	451	31407	80	3.6	102.1	243.1	1.79	1.35	.71	2.3	9.8	8.9
922	1681	21.0	4.7	6.4	122	49.4	2686	1665	9.5	9.3	855	825	33.5	32.1	33.5	456	31902	81	3.7	94.02	240.2	1.81	1.35	.72	2.3	9.8	8.8
926	1682	20.6	5.1	5.5	148	64.5	2748	1668	9.5	9.3	868	826	33.8	32.2	33.5	461	32256	82	3.7	97.11	238.9	1.82	1.37	.73	2.1	9.8	8.7
933	1685	22.2	5.3	5.4	149	67.1	2752	1670	9.5	9.2	885	838	33.8	32.2	33.5	454	33288	84	3.8	94.44	234.8	1.86	1.40	.72	1.8	9.8	8.6
948	1687	51.6	4.5	5.2	151	49.8	2562	1675	9.5	9.1	836	804	33.5	32.0	33.5	461	34745	87	4.0	44.66	232.2	1.92	1.13	.73	5.7	9.8	8.6
953	1690	22.1	4.7	6.1	152	49.6	2761	1677	9.5	9.1	876	830	33.7	32.0	33.4	470	35478	90	4.1	90.26	227.4	1.95	1.36	.74	2.2	9.8	8.5
959	1692	27.7	4.3	5.0	153	48.8	2784	1679	9.5	9.2	885	851	33.8	32.1	33.4	454	36389	92	4.2	72.57	223.9	1.98	1.29	.75	3.0	9.8	8.5
1007	1695	18.5	4.4	5.9	108	44.8	2763	1681	9.5	9.3	862	899	34.0	32.2	33.5	460	37524	95	4.3	110.7	220.7	2.02	1.36	.75	2.3	9.8	8.9
1013	1697	25.0	4.6	5.6	142	57.4	2638	1683	9.5	9.3	857	813	34.1	32.2	33.6	474	38249	97	4.4	81.81	217.1	2.04	1.31	.77	2.8	9.8	8.8
1025	1700	56.9	5.1	5.7	143	53.0	2559	1684	9.5	9.3	854	714	34.5	31.7	33.8	453	39174	100	4.5	35.17	214.1	2.07	1.02	.78	6.6	9.8	9.1↑
1034	1702	17.9	4.3	5.9	162	48.7	2763	1689	9.5	9.3	866	897	34.0	32.1	33.8	453	40562	102	4.7	116.8	211.8	2.13	1.43	.79	1.6	9.8	8.7
1037	1705	77.2	4.8	5.1	154	47.9	2615	1690	9.5	9.3	852	854	34.4	32.1	33.7	465	41005	105	4.7	27.57	207.9	2.15	1.04	.81	8.1	9.8	8.5
1044	1707	23.5	4.8	6.3	155	44.6	2683	1692	9.5	9.3	846	771	34.4	32.3	33.7	468	41907	107	4.8	88.34	205.4	2.18	1.33	.82	2.6	9.8	9.0
1052	1709	33.5	4.4	6.0	147	52.8	2703	1695	9.5	9.3	863	874	34.4	32.3	33.9	470	43174	109	5.0	97.41	203.5	2.22	1.35	.83	2.3	9.8	8.0
1110	1712	26.4	4.8	5.0	159	52.0	2656	1699	9.6	9.2	857	725	34.7	31.2	34.2	470	44169	112	5.1	76.71	200.9	2.25	1.25	.85	3.5	9.8	8.9↑
LUMPING MUD.																											
1119	1715	15.7	4.3	5.7	153	43.8	999	1702	9.6	6.1	453	546	34.6	32.4	34.2	309	45467	115	5.2	139.2	199.1	2.29	1.41	.84	3.1	9.8	8.4
1123	1717	29.6	4.6	5.8	154	57.1	1838	1703	9.6	9.3	661	511	34.3	32.4	34.2	298	45984	117	5.3	56.66	195.9	2.31	1.26	.84	5.2	9.9	8.3
1128	1720	26.4	4.6	5.6	153	57.4	2125	1705	9.6	9.4	760	777	34.5	32.0	34.1	295	46803	120	5.4	77.26	193.5	2.34	1.32	.87	4.3	9.9	8.6
1135	1722	18.4	4.8	5.4	154	66.4	2789	1706	9.6	9.4	872	822	34.4	32.4	34.2	293	47896	122	5.5	109.4	191.6	2.38	1.46	.89	2.5	9.9	8.1
1204	1725	14.9	4.7	5.9	161	51.3	2746	1713	9.6	9.5	862	845	34.6	32.5	34.5	302	50384	125	5.8	135.6	192.4	2.47	1.44	.88	2.6	9.9	8.5
1212	1727	20.8	4.2	4.9	157	54.5	2733	1718	9.6	9.5	850	880	34.9	32.9	34.4	298	51607	127	5.9	98.70	190.7	2.51	1.34	.90	3.9	9.9	8.4
1219	1730	13.7	4.2	5.6	159	52.2	2724	1720	9.6	9.5	871	916	35.4	33.1	34.4	291	52707	130	6.0	110.2	189.1	2.55	1.41	.93	2.9	9.9	8.3
1232	1732	17.2	4.1	5.9	164	49.5	2702	1723	9.7	9.5	849	646	35.4	33.3	34.4	295	54251	132	6.2	118.1	188.1	2.59	1.43	.95	2.5	9.9	8.0
1241	1734	18.5	4.5	6.1	167	53.2	2751	1723	9.7	9.4	844	865	35.8	33.4	34.7	302	55546	134	6.3	108.3	185.9	2.64	1.41	.96	2.8	9.9	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:16 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1251	1737	15.0	4.9	5.6	169	49.8	2745	1726	9.7	9.4	859	877	36.2	33.6	34.5	304	57312	137	6.5	135.6	186.2	2.69	1.42	.99	2.6	9.9	8.6
1307	1740	56.3	4.6	5.1	168	52.4	2722	1729	9.6	9.4	859	828	36.0	34.0	35.0	312	58603	140	6.6	35.59	184.7	2.72	1.09	.98	8.8	9.9	8.3
1316	1742	16.8	4.4	6.2	168	51.2	2712	1732	9.5	9.5	859	827	36.5	34.1	35.3	307	60071	142	6.8	125.7	183.7	2.77	1.43	.99	2.5	10.0	9.1
1323	1745	32.3	4.6	5.3	169	52.5	2704	1734	9.5	9.5	859	882	36.8	34.3	35.4	307	61282	145	6.9	64.98	182.3	2.81	1.27	1.00	4.8	9.9	8.4
1330	1747	20.1	3.9	5.2	169	43.5	2676	1735	9.4	9.4	844	857	36.6	34.5	35.7	316	62503	147	7.0	101.2	181.0	2.85	1.34	1.02	3.7	9.9	8.1
1335	1750	35.5	4.5	5.2	167	52.4	2686	1736	9.4	9.4	844	624	36.6	34.5	35.9	319	63308	149	7.1	59.47	179.2	2.88	1.23	1.02	5.5	9.9	8.4
1354	1752	16.2	4.8	5.5	167	51.3	2803	1739	9.5	9.4	8510	842	36.9	35.1	35.9	317	64533	152	7.2	123.6	178.0	2.91	1.37	1.02	3.0	9.8	8.2
1359	1755	27.3	5.0	5.1	170	55.1	2770	1739	9.5	9.4	8514	920	37.1	34.7	35.9	329	65389	155	7.3	74.79	176.3	2.94	1.33	1.03	3.9	9.8	8.1
1405	1757	19.1	4.3	5.1	168	33.2	2786	1739	9.5	9.4	8494	906	37.4	34.8	35.9	324	66303	157	7.4	104.7	174.8	2.97	1.33	1.01	3.6	9.8	8.4
1408	1759	42.1	5.0	5.1	167	54.5	2727	1740	9.5	9.4	8527	832	37.5	34.8	35.9	324	66881	160	7.5	55.67	172.9	2.99	1.24	1.02	5.4	9.8	8.5
1411	1762	40.0	4.9	5.2	168	54.7	2789	1740	9.5	9.4	8473	903	37.2	34.8	35.9	338	67352	162	7.5	50.33	170.8	3.00	1.22	.99	5.8	9.8	8.2
1436	1764	16.0	4.7	5.3	104	54.2	2867	1747	9.5	9.4	8487	853	37.8	35.7	36.4	350	68857	164	7.7	125.9	170.7	3.04	1.33	1.00	3.5	9.8	8.5
1439	1767	41.1	4.9	5.8	104	65.3	2872	1749	9.5	9.4	8491	899	38.1	35.4	36.4	345	69159	167	7.8	48.72	168.8	3.04	1.08	.99	9.3	9.8	9.0
CIRCULATE BOTTOMS DUE TO LARGE VOLUME OF CAVINGS.																											
MUD VISCOSITY 55.																											
1534	1769	31.4	4.5	6.0	152	51.7	2746	1766	9.5	9.8	8504	962	40.7	37.3	38.0	367	71569	169	8.0	80.53	169.9	3.10	1.28	1.00	5.5	9.8	8.3
1541	1772	25.1	3.9	5.2	151	44.8	2910	1766	9.6	9.8	8488	962	40.7	36.9	38.1	376	72526	172	8.1	87.24	168.8	3.12	1.25	.95	4.7	9.8	8.3
1545	1775	24.3	5.3	5.3	153	54.0	2892	1756	9.6	9.7	8500	804	40.0	36.7	38.2	369	73246	174	8.2	82.31	167.3	3.15	1.32	1.01	3.8	9.8	8.3
1549	1777	59.5	5.3	5.4	154	51.8	2884	1766	9.5	9.7	8522	797	40.2	36.7	38.4	376	73867	177	8.3	35.49	165.8	3.16	1.08	.99	8.7	9.8	9.0
1608	1780	27.0	4.6	5.3	142	53.8	2911	1766	9.6	9.8	8489	830	39.8	36.7	39.5	383	75230	179	8.5	79.25	165.5	3.19	1.28	.99	4.3	9.9	8.9
1614	1782	17.9	4.4	5.3	145	41.8	2882	1768	9.6	10.0	8493	861	40.1	36.7	40.0	392	76063	182	8.6	112.1	164.4	3.22	1.35	.96	3.1	9.9	9.0
1618	1784	44.0	4.8	5.2	145	57.1	2685	1770	9.6	10.3	8519	857	39.8	36.9	40.4	391	76713	185	8.6	50.93	163.1	3.24	1.16	.99	6.6	9.9	8.5
1625	1787	17.2	5.1	5.3	142	51.8	2882	1773	9.6	10.2	8527	904	40.1	37.0	40.7	395	77629	187	8.7	117.5	162.1	3.26	1.32	1.00	3.4	9.9	9.0
1631	1790	22.9	4.6	5.5	152	53.5	2915	1775	9.6	10.1	8505	876	40.1	37.0	40.7	390	78614	189	8.9	87.32	161.2	3.29	1.27	1.00	4.1	9.9	9.0
1648	1792	44.3	4.7	5.3	145	52.4	2852	1778	9.5	9.6	8481	892	39.9	37.6	40.0	396	79670	192	9.0	45.18	160.5	3.31	1.11	1.00	5.0	9.9	8.3
1653	1795	22.9	5.0	5.4	152	56.1	2871	1780	9.5	9.6	8509	898	40.0	37.3	39.9	403	80413	195	9.1	68.38	159.5	3.33	1.32	.98	3.6	9.9	9.0
1659	1797	21.9	4.3	5.3	151	44.5	2818	1784	9.5	9.6	8497	874	39.9	37.3	39.9	405	81335	197	9.2	94.34	158.5	3.36	1.28	.95	4.1	9.9	8.1
1705	1800	21.8	5.0	5.6	151	53.6	2649	1786	9.5	9.6	8516	908	40.0	37.4	39.8	410	82212	199	9.3	91.69	157.5	3.38	1.20	1.02	5.1	9.9	8.5
TRANSFER MUD.																											
1711	1802	21.1	4.5	5.2	151	49.8	2853	1788	9.5	9.7	8501	856	40.3	37.3	39.8	369	83114	202	9.4	95.17	156.6	3.40	1.30	.97	3.7	9.9	9.0
1724	1805	45.5	4.9	5.8	153	54.7	2797	1769	9.5	9.5	8491	410	39.9	37.3	39.8	360	83627	205	9.4	43.96	155.5	3.42	1.06	.98	9.3	9.9	8.6
1729	1807	31.3	5.2	5.7	153	52.8	2865	1789	9.5	9.5	8482	868	39.9	37.1	39.8	376	84394	207	9.5	64.59	154.5	3.44	1.26	.94	4.5	9.9	8.0
1733	1810	33.5	5.2	5.8	153	54.2	2848	1791	9.5	9.6	8488	891	40.1	37.2	39.8	369	84984	209	9.6	59.61	153.3	3.46	1.24	.95	4.6	9.9	8.4
1745	1812	13.0	4.8	5.7	153	53.1	2890	1797	9.5	9.6	8490	853	40.5	37.8	39.8	376	86321	212	9.8	161.5	153.6	3.49	1.41	1.00	2.1	9.8	8.2
1758	1815	31.4	5.0	5.6	152	50.8	2830	1801	9.5	9.5	8485	897	40.4	37.9	39.9	364	87480	214	9.9	69.25	153.1	3.51	1.23	.99	4.9	9.8	8.2
1817	1817	14.7	4.6	5.3	152	50.3	2870	1809	9.5	93.0	8474	981	40.5	38.4	40.2	364	88918	217	10.1	138.8	152.9	3.54	1.31	.92	3.2	9.8	9.0
1821	1819	38.0	4.9	5.5	152	53.6	2859	1809	9.5	97.2	8496	981	40.9	37.9	40.1	362	89496	219	10.1	52.58	151.8	3.56	1.18	.99	5.7	9.8	8.4
1828	1822	20.8	4.8	5.4	150	44.8	2871	1610	9.5	91.5	8497	981	40.7	38.0	40.1	360	90541	222	10.3	75.60	151.2	3.59	1.25	1.00	4.2	9.8	8.4
1834	1825	25.2	4.3	5.3	150	44.4	2885	1811	9.5	88.8	8512	981	41.3	38.1	40.1	362	91490	225	10.4	82.13	150.5	3.61	1.27	.99	3.9	9.8	8.7
1840	1827	24.8	5.0	5.2	153	50.6	2862	1813	9.5	93.0	8522	981	40.9	38.2	40.2	371	92322	227	10.5	80.75	149.7	3.63	1.28	.99	3.8	9.8	8.3
1848	1830	20.2	4.4	5.2	150	46.1	2866	1815	9.5	91.4	8506	981	41.3	38.2	40.3	372	93507	229	10.6	99.24	149.4	3.66	1.30	1.26	7.2	9.8	8.6
1903	1832	24.3	4.6	5.4	150	51.6	2871	1818	9.5	89.5	8515	981	41.3	38.2	40.6	367	94583	232	10.7	82.82	148.9	3.68	1.25	1.05	8.3	9.8	9.1
1909	1835	22.6	4.4	5.4	151	53.3	2654	1820	9.5	91.6	8483	981	41.2	38.3	40.7	367	95474	234	10.8	87.76	148.3	3.71	1.28	1.02	7.7	9.8	9.0
1915	1837	25.3	4.6	5.1	149	51.1	2794	1823	9.5	96.9	8507	981	41.1	38.6	40.8	378	96337	237	10.9	78.98	147.6	3.73	1.27	1.02	8.0	9.8	8.5
1922	1839	24.6	4.3	5.1	150	54.0	2868	1826	9.5	95.6	8484	981	41.5	38.7	40.9	381	97419	239	11.0	87.92	147.1	3.76	1.27	1.03	7.8	9.8	8.7
1929	1842	26.2	4.4	5.3	147	47.6	2828	1828	9.5	90.8	8481	981	41.3	38.6	40.9	383	98364	242	11.1	76.28	146.5	3.78	1.25	1.01	8.3	9.8	8.3
2004	1845	19.0	4.7	5.3	122	52.4	2879	1836	9.5	92.2	8474	981	42.3	39.3	41.1	325	100021	244	11.4	113.6	147.5	3.81	1.23	1.01	8.6	9.8	8.9
2014	1847	12.3	4.1	5.4	101	48.3	2399	1840	9.5	89.5	8480	981	42.3	39.8	41.3	334	101150	247	11.5	156.4	147.5	3.82	1.27	1.00	7.1	9.8	8.8
2025	1850	14.9	4.0	5.6	104	44.8	2895	1841	9.5	90.6	8506	981	42.2	39.6	41.4	339	102179	250	11.8	134.6	147.5	3.84	1.26	1.02	7.4	9.8	8.6
2034	1852	15.1	3.9	5.7	101	47.4	2601	1841	9.5	89.5	8500	981	42.2	39.5	41.5	346	103127	252	11.9	137.5	147.3	3.86	1.24	.99	8.0	9.8	8.8

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:21 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	$P	ECD	NXMW
2043	1854	16.1	4.5	5.4	104	52.2	2858	1843	9.6	89.5	8504	981	42.2	39.5	41.4	351	104089	254	12.1	148.9	147.3	3.87	1.27	1.00	7.6	9.8	8.2
2115	1854	14.0	4.7	5.3	100	52.4	2832	1850	9.5	92.9	8488	981	42.6	40.8	42.2	361	105254	254	12.3	142.4	148.9	3.89	1.20	1.00	8.5	9.8	8.6 ↑
2116	1854	13.6	4.6	4.6	101	53.7	2821	1850	9.5	92.1	8481	981	42.6	40.4	42.2	363	105353	254	12.3	148.6	148.9	3.89	1.24	1.03	7.8	9.8	8.1
2127	1857	14.2	4.1	5.4	102	37.3	2845	1853	9.5	89.2	8508	981	43.4	40.1	42.2	376	106498	257	12.5	140.4	149.0	3.91	1.25	1.01	7.3	9.8	8.6
2138	1859	13.5	3.5	5.3	101	42.9	2868	1854	9.5	91.4	8485	981	43.3	39.9	42.2	382	107653	259	12.7	156.2	149.1	3.92	1.18	.95	8.7	9.8	9.1
2147	1862	16.2	4.3	5.5	104	47.6	2796	1854	9.5	92.1	8523	981	43.3	39.9	42.2	386	108493	262	12.8	125.2	148.8	3.94	1.23	.99	7.9	9.8	8.4
2156	1865	16.0	4.2	5.9	104	54.0	2861	1855	9.5	91.3	8487	981	43.2	40.0	42.5	397	109417	264	13.0	143.9	148.6	3.95	1.25	.97	7.9	9.8	8.3
2206	1867	15.5	4.6	5.4	101	50.2	2831	1857	9.5	93.3	8500	981	43.6	40.1	42.5	387	110422	267	13.1	131.3	148.5	3.97	1.21	.98	8.2	9.8	8.3
2233	1869	30.8	4.3	5.2	153	48.5	2845	1864	9.5	96.8	8492	981	44.1	40.0	43.3	389	111735	269	13.3	68.41	148.6	3.99	1.20	1.00	9.0	9.8	8.0
2238	1872	26.3	4.8	5.4	154	54.1	2842	1865	9.5	90.4	8525	981	43.8	40.3	43.3	384	112524	272	13.4	75.71	147.9	4.01	1.23	.98	8.3	9.8	8.4
2244	1875	29.5	4.3	5.4	152	47.7	2881	1866	9.5	95.8	8487	981	44.2	40.3	43.3	386	113367	274	13.5	67.15	147.3	4.03	1.19	.97	9.1	9.8	9.0
2250	1877	24.0	4.3	5.3	152	38.3	2819	1867	9.5	96.0	8523	981	43.8	40.0	43.3	391	114223	277	13.6	86.61	146.8	4.04	1.22	.97	8.3	9.8	8.3
2255	1880	25.9	4.5	5.4	152	45.6	2863	1868	9.6	95.4	8491	981	43.9	40.1	43.3	394	115008	279	13.7	77.29	146.1	4.06	1.22	.95	8.2	9.8	8.2
2313	1882	22.9	4.2	5.3	150	51.4	2868	1869	9.5	91.5	8485	981	43.7	39.8	43.4	396	116293	282	13.9	98.08	146.0	4.09	1.20	.95	8.4	9.8	8.1
2320	1885	20.4	4.2	5.3	151	49.6	2843	1872	9.5	95.1	8504	981	43.7	40.4	43.3	396	117274	284	14.0	99.28	145.5	4.11	1.22	.94	7.9	9.8	9.0
2326	1887	21.9	4.2	5.2	152	48.3	2795	1875	9.5	91.6	8516	981	43.9	40.5	43.3	394	118237	287	14.1	91.27	145.0	4.13	1.20	.94	8.2	9.8	8.9
CONTINUOUS LARGE VOLUME OF CALCAREOUS MUDSTONE CAVINGS, FROM 1750 METRES.																											
2335	1890	21.8	4.6	5.5	151	52.8	2857	1879	9.5	95.2	8503	981	43.8	40.6	43.9	401	119517	289	14.2	95.83	144.8	4.15	1.24	.96	7.4	9.8	8.4
2341	1892	23.6	5.1	5.1	151	58.5	2844	1881	9.5	89.4	8508	981	43.8	40.7	43.9	392	120451	292	14.3	87.16	144.3	4.17	1.23	.95	7.7	9.8	9.0
29	1895	26.3	4.8	5.8	136	59.6	2779	1888	9.5	9.2	860	883	45.3	42.6	43.9	406	122082	295	14.6	76.16	144.7	4.19	1.17	.96	9.5	9.8	8.0 ↑
34	1897	25.5	4.7	5.3	151	56.7	2776	1889	9.5	9.2	861	863	45.4	41.8	43.8	401	122794	297	14.7	97.48	144.5	4.21	1.33	.96	6.4	9.8	8.4
40	1899	22.3	5.1	5.7	134	65.3	2775	1891	9.5	9.2	837	919	45.1	41.8	43.6	401	123550	299	14.8	91.18	144.0	4.23	1.31	.95	6.4	9.8	8.4
45	1902	33.5	5.7	5.9	134	56.0	2861	1893	9.5	9.1	844	907	44.9	41.7	43.6	408	124233	302	14.9	70.38	143.3	4.24	1.24	.96	9.0	9.8	8.0
50	1905	25.0	4.8	5.9	132	51.6	2832	1894	9.5	9.1	861	827	45.2	41.6	43.8	411	124944	304	14.9	79.97	142.8	4.26	1.27	.95	6.3	9.8	8.2
57	1907	32.3	5.0	5.3	150	46.8	2797	1894	9.5	9.2	857	833	45.3	41.6	43.8	404	125919	307	15.1	61.83	142.5	4.27	1.20	.96	8.6	9.8	8.3
114	1910	20.4	3.2	5.9	141	17.4	2819	1896	9.5	9.2	847	842	44.7	41.2	43.8	404	127341	309	15.2	100.4	142.5	4.30	1.24	.89	7.4	9.8	8.2
119	1912	26.2	4.6	5.4	143	46.0	2815	1898	9.5	9.4	839	841	44.7	41.8	43.8	406	128030	312	15.3	77.78	142.0	4.31	1.27	.96	7.0	9.8	9.1
125	1914	25.4	5.2	5.6	142	53.0	2823	1901	9.5	9.5	854	826	45.2	42.2	43.8	404	128823	314	15.4	92.52	141.6	4.32	1.29	.94	7.3	9.8	8.4
132	1917	21.8	4.6	5.7	134	49.9	2859	1904	9.5	9.4	857	839	45.3	42.2	44.0	415	129672	317	15.5	98.65	141.2	4.34	1.27	.92	6.6	9.8	8.9
137	1920	21.8	5.6	6.1	107	43.6	2869	1905	9.5	9.4	858	810	45.2	42.3	44.8	409	130362	319	15.6	91.74	140.6	4.35	1.29	.94	6.1	9.8	8.7
156	1922	10.4	5.3	5.7	154	54.0	2721	1909	9.5	9.0	822	774	45.2	42.8	45.2	423	131364	322	15.8	192.7	140.7	4.36	1.15	1.06	8.3	9.8	8.1
203	1925	16.2	4.2	6.4	153	44.8	2793	1912	9.5	9.2	859	871	45.7	42.5	45.1	407	132468	325	15.9	128.2	140.5	4.39	1.39	.94	10.7	9.8	8.3
207	1927	31.5	5.0	5.4	154	52.8	2845	1914	9.5	9.3	851	878	45.6	42.5	45.0	415	133120	327	16.0	66.86	139.9	4.40	1.29	.96	13.5	9.8	8.6
214	1929	26.9	4.8	6.0	85	54.9	2893	1916	9.5	9.3	843	795	45.4	42.9	44.9	415	133789	329	16.1	83.44	139.5	4.41	1.24	.96	14.4	9.8	8.7
228	1932	15.0	4.6	5.8	103	46.2	1190	1920	9.5	9.5	486	543	45.5	42.3	44.8	434	134794	332	16.3	138.7	139.8	4.43	1.31	.95	12.5	9.8	8.8
USING ONLY ONE PUMP ON THE HOLE.																											
251	1935	7.9	4.8	5.7	104	45.2	1222	1921	9.5	9.2	485	499	44.9	42.4	44.9	439	136665	334	16.6	257.7	140.5	4.45	1.38	.98	10.5	9.8	9.1
257	1937	16.7	3.8	6.0	104	41.6	1229	1923	9.6	9.2	487	490	45.3	42.2	45.0	447	137336	337	16.7	120.0	140.1	4.46	1.28	.95	13.2	9.8	8.8
315	1939	12.3	4.6	5.5	106	48.3	1292	1927	9.5	9.2	500	516	44.7	42.2	45.1	430	139122	339	17.0	171.0	140.9	4.48	1.32	.97	12.3	9.8	9.1
329	1942	12.7	3.9	5.2	104	29.7	1321	1930	9.5	9.3	503	507	44.3	42.0	45.3	440	140615	342	17.2	156.9	141.3	4.49	1.25	.97	13.6	9.8	8.4
346	1945	11.8	4.0	5.0	106	33.1	1308	1934	9.5	9.8	508	493	43.9	41.8	45.4	447	142399	344	17.5	172.3	141.9	4.51	1.28	1.00	13.3	9.8	8.2
402	1947	9.2	3.4	5.5	104	38.8	1301	1936	9.5	9.6	509	484	44.0	41.7	45.4	456	144036	347	17.8	220.5	142.5	4.53	1.30	.99	12.8	9.8	8.9
425	1949	15.7	5.1	6.1	135	52.7	2505	1939	9.5	9.6	800	645	43.2	41.2	45.3	454	145378	349	18.0	128.3	142.7	4.54	1.31	1.07	13.3	9.8	8.6
BACK TO USING TWO PUMPS ON THE HOLE.																											
429	1952	26.4	5.3	5.9	143	52.0	2862	1940	9.5	9.4	846	835	43.2	38.8	45.2	458	146069	352	18.1	77.20	142.1	4.56	1.31	.99	14.0	9.8	8.2
436	1954	28.0	5.1	5.6	143	52.2	2853	1942	9.5	9.3	848	805	43.6	41.6	45.1	462	146994	354	18.2	74.32	141.8	4.58	1.26	.99	15.2	9.8	9.0
440	1957	37.3	5.1	5.5	144	53.5	2771	1943	9.5	9.3	842	800	43.3	41.5	45.1	463	147640	357	18.2	54.56	141.2	4.59	1.21	.98	16.6	9.8	8.1
446	1959	25.1	5.3	5.7	146	56.9	2847	1945	9.5	9.2	851	875	43.4	41.5	44.8	468	148395	359	18.3	79.65	140.8	4.61	1.32	.97	13.3	9.8	8.3
459	1962	48.0	5.0	5.7	117	56.9	2814	1947	9.5	9.2	824	972	43.5	41.5	44.7	473	149295	362	18.4	48.13	140.5	4.62	1.10	.99	19.5	9.8	8.8
508	1964	17.4	4.6	6.3	116	46.5	2797	1948	9.5	9.3	844	942	43.8	41.4	44.4	475	150279	364	18.6	115.1	140.4	4.64	1.30	.97	14.4	9.8	9.0

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
514	1967	21.7	5.2	5.9	115	50.9	2835	1952	9.5	9.0	842	920	43.3	41.8	44.0	478	151033	367	18.7	94.17	140.1	4.65	1.26	.97	15.5	9.8	9.1
522	1969	22.0	4.7	5.9	117	51.7	2780	1955	9.5	9.3	845	971	43.7	41.8	43.8	489	151864	369	18.8	90.78	139.9	4.67	1.26	.97	15.8	9.8	8.0
530	1972	16.2	4.9	6.3	120	46.5	2777	1959	9.5	9.3	828	981	43.6	42.0	43.7	499	152674	372	19.0	123.7	139.7	4.68	1.32	.97	14.4	9.8	8.3
546	1974	16.2	5.7	5.9	139	54.4	2730	1962	9.5	5.3	800	993	43.9	41.9	43.3	445	153683	374	19.1	125.1	139.6	4.69	1.20	.99	16.9	9.8	8.1
549	1977	49.0	5.7	5.8	155	57.9	2820	1964	9.5	7.6	826	994	43.8	41.6	43.3	426	154216	377	19.2	43.06	139.1	4.70	1.19	.95	18.4	9.8	8.9
553	1979	37.9	5.6	6.0	156	55.6	2844	1964	9.5	9.3	647	1008	43.9	41.5	43.4	430	154724	379	19.2	59.47	138.6	4.72	1.29	.91	16.2	9.8	8.7
601	1982	25.9	5.9	6.3	111	58.0	2842	1967	9.5	10.0	825	1001	44.8	41.8	43.5	430	155878	382	19.4	92.72	138.3	4.74	1.32	.93	15.1	9.8	8.3
607	1985	20.5	5.1	7.1	118	56.2	2825	1970	9.5	10.3	831	1033	44.5	40.6	43.5	420	156642	384	19.5	97.55	138.0	4.76	1.35	.95	14.6	9.8	8.4
613	1987	30.8	4.8	6.6	161	56.2	2871	1972	9.6	10.2	840	1023	44.2	40.7	43.5	416	157477	387	19.6	73.56	137.7	4.77	1.34	.95	15.1	9.8	8.0
628	1989	60.7	5.6	5.8	156	61.9	2807	1974	9.6	8.2	830	996	43.7	40.1	43.5	435	158208	389	19.7	38.21	137.3	4.79	1.14	.96	20.6	9.9	8.0
633	1992	37.0	5.1	5.9	156	56.1	2785	1974	9.5	9.2	822	896	43.2	41.2	43.5	449	158889	392	19.7	54.72	136.8	4.80	1.26	.94	17.3	9.9	8.0
639	1994	29.5	5.3	5.9	154	59.6	2775	1978	9.5	9.8	823	901	43.5	41.4	43.5	449	159889	394	19.8	72.16	136.6	4.83	1.25	.92	17.7	9.9	8.6
644	1997	31.5	5.5	5.7	157	51.5	2772	1980	9.5	9.4	823	817	43.5	41.4	43.5	454	160575	397	19.9	63.49	136.1	4.84	1.29	.95	16.8	9.9	9.0
649	1999	39.2	5.7	6.3	157	55.1	2763	1931	9.5	9.4	836	893	44.0	41.2	43.5	461	161303	399	20.0	53.61	135.8	4.86	1.25	.96	18.1	9.9	8.0
709	2002	31.6	4.5	6.1	135	56.7	2809	1986	9.5	9.5	835	765	43.5	40.5	43.6	473	162564	402	20.2	62.64	135.7	4.88	1.21	.96	18.5	9.9	9.1
714	2004	26.8	5.1	5.9	108	58.4	2797	1987	9.6	9.4	815	855	43.7	41.1	43.7	450	163325	404	20.2	76.15	135.4	4.90	1.27	.95	17.5	9.9	8.7
719	2007	33.1	4.8	5.7	156	57.3	2789	1988	9.5	9.4	838	718	43.5	41.2	43.9	425	164016	407	20.3	61.74	134.9	4.91	1.28	.95	17.5	9.9	9.1
722	2010	39.0	5.1	6.5	156	56.3	2763	1991	9.6	6.2	837	655	43.5	33.1	44.1	363	164507	409	20.4	51.24	134.4	4.92	1.18	.95	19.8	9.9	8.6
DUMPING MUD																											
727	2012	23.7	6.1	6.4	105	60.4	2816	1993	9.6	9.4	833	732	43.4	41.2	44.3	310	165190	412	20.5	87.13	134.1	4.94	1.35	.92	16.1	9.9	8.5
744	2014	20.2	5.6	6.5	134	53.9	2739	1998	9.5	9.4	802	833	43.5	41.1	43.9	332	166309	414	20.6	101.0	134.0	4.96	1.36	.95	15.9	9.9	8.3
751	2017	89.9	5.4	6.1	154	57.8	2843	2000	9.5	9.4	831	660	43.7	41.6	43.8	334	166837	417	20.7	21.59	133.6	4.97	.95	.93	25.2	9.9	8.5
759	2019	18.0	5.1	6.8	158	54.1	2834	2003	9.6	9.4	825	636	44.0	41.7	43.5	344	167773	419	20.8	117.5	133.4	4.99	1.39	.95	15.4	9.9	8.5
805	2022	46.2	5.0	6.2	102	54.0	2807	2006	9.6	9.4	836	594	44.5	41.7	43.5	346	168490	422	20.9	44.34	133.1	5.00	1.12	.93	21.9	9.9	8.9
814	2024	13.1	4.7	6.6	106	47.7	2807	2011	9.6	9.5	824	611	44.3	41.6	43.7	358	169709	424	21.0	154.1	133.0	5.02	1.40	.94	15.1	9.8	8.7
836	2027	16.7	4.6	6.0	156	43.1	2921	2015	9.6	9.4	645	789	43.9	41.6	43.6	365	171164	427	21.2	121.0	133.2	5.04	1.35	1.07	16.3	9.8	8.9
841	2029	36.0	5.1	5.7	156	57.7	2891	2016	9.6	9.5	837	702	43.8	41.3	43.5	370	171915	429	21.3	58.11	132.8	5.05	1.22	.95	19.9	9.9	8.7
847	2032	36.0	5.3	5.6	154	53.4	2839	2018	9.6	9.5	850	738	43.9	41.5	43.3	384	172756	432	21.4	60.35	132.5	5.07	1.24	.95	19.3	9.9	8.5
854	2035	23.5	4.3	5.6	156	41.5	2889	2021	9.6	9.6	827	898	44.3	41.8	43.2	389	173773	434	21.5	92.84	132.3	5.09	1.31	.95	17.8	9.9	8.4
859	2037	28.1	5.1	5.6	156	46.9	2850	2024	9.6	9.6	853	854	44.5	42.0	43.2	387	174576	437	21.6	75.82	132.0	5.10	1.30	.95	18.2	9.9	8.4
FLOW CHECK																											
924	2040	6.7	4.0	5.8	117	40.2	2827	2027	9.6	9.5	718	645	44.6	42.6	43.7	413	176167	440	21.8	228.9	132.3	5.12	1.16	.96	20.2	9.9	9.0
930	2042	22.1	5.8	6.1	94	46.1	2813	2028	9.6	9.5	828	900	44.6	42.0	44.0	401	176813	442	21.9	93.45	132.1	5.13	1.27	.95	18.9	9.9	8.9
940	2044	18.0	4.1	6.3	94	47.1	2841	2032	9.6	9.3	838	944	44.7	42.3	44.0	427	177909	444	22.1	113.0	132.1	5.15	1.29	.96	18.3	9.9	8.5
954	2047	17.8	4.7	6.5	106	41.9	2877	2037	9.6	8.3	836	936	44.5	42.5	44.0	428	179002	447	22.2	113.3	132.0	5.16	1.32	.97	17.9	9.9	8.6
1001	2049	20.3	4.7	6.3	139	53.8	2917	2039	9.6	9.1	837	948	45.3	42.5	44.0	434	179779	449	22.4	101.0	131.9	5.17	1.29	.98	18.9	9.9	8.2
1006	2052	20.2	5.5	6.2	145	51.9	2859	2039	9.6	9.3	845	917	45.0	42.7	43.9	432	180569	452	22.5	102.7	131.6	5.18	1.35	.98	17.8	9.9	8.2
POOH AT 2052 METRES WITH BIT #7																											
RUN BACK IN WITH BIT #8, HTC X3A 12.25" WITH 20,20,20 JETS																											
TRIP GAS 100 UNITS.																											
34	2053	27.0	5.5	6.3	78	49.5	2763	2052	9.7	9.5	560	610	35.5	35.1	35.0	188	1679	1	.0	80.75	25144	.05	1.09	1.04	13.8	9.7	8.5
36	2054	33.0	6.1	6.4	93	45.1	2812	2052	9.6	9.5	560	610	35.4	35.4	35.0	200	1799	2	.1	60.53	8567	.05	1.09	1.08	14.2	9.7	8.5
37	2055	39.2	6.3	6.4	68	62.3	2770	2052	9.6	9.5	560	610	35.8	34.9	35.0	209	1932	3	.1	53.79	5601	.05	1.12	1.05	13.7	9.7	8.6
41	2056	21.2	5.6	7.0	93	55.0	2661	2052	9.6	9.5	560	610	36.0	35.8	35.0	200	2266	4	.1	94.24	4016	.06	1.30	1.01	8.9	9.7	8.5
45	2057	12.5	5.8	6.3	117	59.2	2019	2052	9.7	9.5	865	610	36.6	37.7	35.0	193	2705	5	.2	160.1	3230	.07	1.47	1.04	5.7	9.7	8.5
50	2058	15.4	5.1	6.6	116	55.8	2555	2052	9.7	9.5	865	610	37.9	38.3	35.0	210	3228	6	.3	130.2	2652	.09	1.42	1.04	6.0	9.7	8.5
54	2059	15.3	4.7	5.9	115	49.0	2860	2052	9.8	9.5	650	610	38.8	38.2	35.0	197	3707	7	.4	135.1	2266	.10	1.42	1.03	6.8	9.7	8.5
59	2060	12.6	4.9	5.8	118	50.1	2647	2052	9.7	9.5	650	610	39.2	35.7	35.0	215	4210	8	.4	157.2	2000	.12	1.48	1.07	5.6	9.7	8.6
103	2061	12.4	4.8	5.6	97	44.6	2871	2052	9.6	9.5	650	656	39.0	36.9	35.0	195	4730	9	.5	174.3	1794	.13	1.50	1.07	5.2	9.7	8.4
107	2062	13.6	5.0	5.4	119	55.0	2860	2052	9.6	9.5	650	655	38.7	36.3	35.0	195	5162	10	.6	150.1	1632	.14	1.46	1.08	5.9	9.7	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:39 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
111	2064	31.9	5.3	6.1	150	53.6	2763	2054	9.5	9.5	850	856	39.1	37.2	35.0	203	5723	12	.6	57.26	1353	.16	1.33	1.11	8.6	9.7	8.5
113	2065	28.8	5.0	6.2	151	56.0	2808	2055	9.5	9.5	850	856	38.7	37.7	35.0	197	6040	13	.7	69.16	1249	.17	1.40	1.09	7.5	9.7	8.5
135	2066	11.1	4.8	6.3	140	49.4	2749	2057	9.5	9.5	851	856	39.4	37.7	35.8	189	7427	14	.8	183.1	1188	.20	1.54	1.09	4.8	9.7	8.5 ↑
139	2067	10.0	4.4	5.6	138	48.0	2727	2058	9.5	9.5	867	849	39.1	37.7	35.8	189	7996	15	.9	201.7	1117	.22	1.55	1.09	4.6	9.7	8.5
140	2068	29.0	4.8	5.3	136	48.9	2847	2059	9.5	9.7	868	855	39.0	37.8	35.8	198	8148	16	.9	71.12	1044	.22	1.29	1.10	9.5	9.7	8.5
141	2069	57.6	4.6	5.3	133	52.8	2789	2059	9.5	9.7	680	856	39.1	37.9	36.2	171	8310	17	1.0	35.95	987.6	.23	1.08	1.06	14.9	9.9	8.5
144	2070	29.9	4.8	5.7	95	46.7	2720	2060	9.6	9.7	855	857	39.2	38.2	36.7	207	8584	18	1.0	68.58	934.9	.23	1.21	1.04	11.3	9.9	8.5
149	2071	15.2	5.3	6.7	101	53.4	2677	2060	9.6	9.7	848	857	39.7	38.5	37.3	183	9166	19	1.1	132.5	892.1	.25	1.41	1.04	7.0	9.9	8.4
153	2072	14.8	5.3	5.6	134	58.0	2610	2061	9.6	9.7	838	843	40.1	38.9	37.9	200	9548	20	1.1	155.2	860.5	.26	1.42	1.01	7.0	9.9	8.5 ↑
155	2073	21.0	5.5	5.9	137	56.8	2707	2061	9.6	9.7	866	849	40.2	39.0	38.4	183	9814	21	1.2	109.9	817.4	.27	1.44	1.09	6.6	9.9	8.5
157	2074	22.2	5.1	6.3	134	58.6	2855	2062	9.6	9.7	883	857	40.1	39.0	38.7	171	10174	22	1.2	90.60	782.1	.28	1.36	1.07	8.1	9.8	8.5
201	2075	17.3	5.4	6.1	133	56.2	2666	2065	9.6	9.7	894	857	40.6	39.1	38.7	178	10574	23	1.3	118.4	755.6	.29	1.41	1.08	7.1	9.8	8.5
206	2076	12.4	5.7	5.9	105	57.0	2894	2066	9.6	9.7	885	856	40.8	39.1	38.8	169	11323	24	1.4	162.8	729.3	.31	1.49	1.08	5.7	9.8	8.5
208	2077	17.0	5.4	6.0	107	59.7	2872	2066	9.6	9.7	884	857	40.8	39.2	38.8	175	11489	25	1.4	118.7	702.0	.31	1.41	1.09	7.2	9.8	8.6
210	2078	28.5	6.0	6.5	135	64.1	2905	2066	9.6	9.7	885	854	40.8	39.1	38.9	173	11817	26	1.4	71.63	678.9	.32	1.36	1.11	8.5	9.9	8.5
227	2079	12.2	5.1	6.2	133	53.9	2858	2067	9.6	9.7	879	807	40.2	39.0	38.9	195	12817	27	1.6	171.9	664.2	.35	1.45	1.02	6.4	9.9	8.5 ↑
228	2080	17.9	4.9	5.5	134	55.8	2864	2068	9.6	9.7	883	850	40.6	39.0	38.9	188	13001	28	1.6	139.4	642.6	.36	1.44	1.09	6.6	9.9	8.5
230	2081	30.2	5.3	6.5	134	59.0	2904	2069	9.6	9.7	881	856	40.6	38.9	39.0	197	13296	29	1.6	68.88	622.4	.35	1.28	1.09	10.3	9.9	8.5
234	2082	18.4	5.2	6.3	108	49.4	2788	2071	9.6	9.6	891	857	40.8	38.5	39.1	192	13780	30	1.7	110.1	605.2	.38	1.39	1.08	7.7	9.9	8.5
237	2083	14.9	5.1	5.7	134	49.3	2796	2071	9.6	9.6	864	857	40.5	38.8	39.2	197	14240	31	1.7	134.6	588.9	.39	1.44	1.09	6.5	9.9	8.5
241	2084	18.6	5.4	5.5	134	60.5	2803	2073	9.5	9.6	879	857	40.8	38.9	39.2	205	14639	32	1.8	110.1	574.4	.40	1.39	1.10	7.6	9.9	8.5
244	2085	18.2	5.7	6.6	114	70.1	2771	2074	9.5	9.6	889	857	40.9	39.1	39.3	199	15048	33	1.8	110.1	560.8	.41	1.36	1.07	8.2	9.9	8.5
249	2086	13.0	5.3	6.6	90	56.5	2872	2075	9.5	9.6	899	857	41.2	39.5	39.7	200	15505	34	1.9	156.3	548.5	.42	1.44	1.10	6.7	9.9	8.6
256	2087	9.7	4.6	6.3	112	54.4	2905	2078	9.5	9.6	903	858	41.7	39.4	40.0	178	16299	35	2.0	220.0	540.6	.45	1.53	1.07	5.1	9.9	8.6
258	2088	14.1	5.2	5.8	106	51.8	2888	2078	9.5	9.6	904	858	41.5	39.4	40.2	184	16470	36	2.1	149.9	527.1	.45	1.43	1.12	6.9	9.9	8.4
301	2089	21.5	5.2	6.5	94	60.2	2927	2079	9.5	9.6	907	858	42.1	39.5	40.4	183	16838	37	2.1	92.96	515.4	.46	1.31	1.10	9.4	9.9	8.5
303	2090	20.4	6.1	6.7	93	72.5	2947	2079	9.5	9.6	910	858	42.2	39.6	40.4	190	17044	38	2.2	103.4	504.0	.47	1.40	1.13	8.0	9.9	8.5
309	2091	13.4	5.2	6.8	134	55.1	2899	2081	9.6	9.6	906	859	42.4	40.3	40.7	191	17729	39	2.3	150.7	496.0	.48	1.48	1.10	6.0	9.8	8.6
328	2093	11.3	5.2	5.9	134	42.6	2858	2084	9.6	9.6	877	823	41.6	40.0	40.5	190	19020	41	2.4	202.9	482.0	.52	1.37	1.11	8.2	9.8	8.5 ↑
328	2093	12.4	4.8	4.7	133	44.3	2864	2034	9.6	9.6	881	824	41.6	39.9	40.5	200	19028	41	2.4	171.2	479.9	.52	1.34	1.09	8.1	9.8	8.5
330	2094	46.9	5.2	5.6	153	53.5	2863	2084	9.6	9.6	897	853	41.4	39.7	40.5	205	19262	42	2.5	44.14	470.5	.53	1.10	1.10	14.5	9.8	8.5
333	2095	22.8	5.1	6.2	151	49.9	2860	2085	9.5	9.6	888	858	41.7	39.7	40.5	203	19798	43	2.5	89.70	461.5	.54	1.36	1.09	8.3	9.8	8.5
336	2096	18.2	5.0	5.8	155	41.7	2823	2086	9.5	9.6	888	858	41.2	39.8	40.5	193	20176	44	2.6	113.8	453.1	.55	1.41	1.10	7.5	9.8	8.5
338	2097	23.9	5.3	5.7	154	48.3	2792	2086	9.5	9.6	901	858	41.2	40.0	40.6	202	20464	45	2.6	91.25	446.0	.56	1.37	1.09	8.3	9.8	8.5
341	2098	27.2	5.1	6.6	153	52.3	2855	2087	9.5	9.6	897	858	42.0	39.8	40.6	212	20883	46	2.6	73.68	437.2	.57	1.33	1.07	9.3	9.8	8.5
343	2099	20.8	5.7	6.4	104	54.2	2872	2087	9.5	9.6	909	858	41.8	39.8	40.6	202	21232	47	2.7	100.1	429.9	.58	1.37	1.07	8.3	9.8	8.5
346	2100	23.7	5.3	6.1	143	49.5	2878	2088	9.5	9.6	912	858	41.8	40.2	40.7	207	21544	48	2.7	88.08	422.5	.59	1.27	1.07	10.7	9.8	8.5
348	2101	27.9	5.1	6.1	153	55.2	2883	2089	9.5	9.6	901	858	41.5	40.2	40.9	205	21885	49	2.8	76.89	415.9	.60	1.32	1.07	9.4	9.8	8.5
350	2102	27.8	5.5	5.6	154	48.8	2921	2089	9.5	9.6	912	858	42.0	40.0	40.9	205	22165	50	2.8	76.06	409.4	.61	1.32	1.05	9.5	9.9	8.5
352	2103	31.3	5.3	6.0	154	52.1	2841	2090	9.5	9.6	883	858	42.1	40.3	41.1	203	22455	51	2.8	63.90	402.2	.61	1.28	1.05	10.0	9.9	8.5
354	2104	32.2	6.0	6.4	155	67.7	2840	2090	9.5	9.6	902	858	42.3	40.4	41.4	200	22746	52	2.9	64.37	395.7	.62	1.30	1.04	10.2	9.9	8.5
403	2105	13.0	2.7	6.4	11	33.8	491	2092	9.5	9.6	416	779	42.3	40.7	41.8	238	23618	53	3.0	152.8	395.9	.65	1.40	1.02	5.6	9.9	8.5 ↑
408	2105	13.3	5.1	6.2	153	57.7	2760	2092	9.5	9.6	869	817	41.6	41.0	41.8	200	23751	53	3.0	149.4	387.1	.65	1.65	1.22	2.1	9.9	8.5 ↑
410	2106	13.6	5.2	5.6	152	61.9	2754	2092	9.5	9.6	889	856	41.6	39.9	42.0	209	24035	54	3.0	147.1	385.5	.66	1.81	1.25	1.2	9.9	8.5
411	2107	43.0	5.4	5.7	154	58.3	2781	2092	9.5	9.6	876	857	41.9	39.8	42.0	198	24110	54	3.0	47.65	383.9	.66	1.44	1.22	4.9	9.9	8.4
413	2107	36.2	5.1	6.0	154	68.1	2743	2092	9.5	9.6	883	859	42.1	40.2	42.1	217	24433	55	3.0	55.13	377.3	.67	1.52	1.22	3.7	9.9	8.5
414	2108	32.5	6.2	6.5	155	74.5	2758	2093	9.5	9.6	877	859	41.7	40.3	42.1	206	24672	56	3.1	63.47	374.0	.67	1.62	1.24	2.7	9.8	8.5
415	2109	26.2	5.3	6.0	153	63.8	2802	2094	9.5	9.6	878	859	41.5	40.3	42.1	205	24787	57	3.1	74.77	374.0	.68	1.56	1.23	2.3	9.9	8.5
415	2109	30.5	5.9	5.9	148	63.9	2788	2094	9.5	9.5	885	859	41.9	40.3	42.1	202	24811	57	3.1	55.45	369.1	.68	1.41	1.08	6.0	9.8	8.5
419	2110	18.8	4.6	5.9	147	61.1	2854	2095	9.5	9.6	897	858	42.3	40.7	42.0	216	25319	58	3.2	106.5	365.0	.69	1.49	1.09	4.7	9.9	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:43 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
421	2111	26.8	5.4	5.8	153	71.6	2887	2096	9.5	9.6	893	858	42.1	40.8	41.8	207	25624	59	3.2	87.89	360.8	.70	1.46	1.10	5.3	9.8	8.5
422	2112	30.1	5.5	6.2	109	77.0	2880	2097	9.5	9.6	878	859	42.5	40.7	41.6	207	25860	60	3.2	68.12	356.1	.71	1.40	1.11	6.4	9.8	8.5
426	2113	26.4	5.3	6.2	154	62.5	2910	2098	9.5	9.6	900	859	42.3	40.6	41.6	212	26336	61	3.3	79.34	351.2	.72	1,39	1.10	6.3	9.8	8.5
428	2114	24.1	5.4	6.1	153	60.3	2908	2099	9.6	9.6	893	859	42.1	40.7	41.5	215	26753	62	3.3	91.65	347.7	.73	1.43	1.10	5.9	9.8	8.5
430	2115	24.5	5.1	5.5	153	65.8	2900	2100	9.5	9.6	889	859	42.1	40.8	41.5	212	27018	63	3.3	83.33	343.1	.74	1.40	1.12	6.3	9.8	8.5
432	2116	32.4	5.7	6.3	153	74.0	2865	2101	9.5	9.5	909	856	42.7	40.8	41.5	224	27360	64	3.4	68.63	338.6	.75	1.38	1.12	6.7	9.8	8.5
435	2117	22.3	5.1	6.2	155	52.0	2863	2102	9.5	9.5	910	857	42.6	40.7	41.5	207	27763	65	3.4	91.52	334.5	.76	1.48	1.13	5.2	9.8	8.4
502	2119	7.1	5.9	7.1	131	56.7	2551	2110	9.5	9.5	837	848	43.2	41.9	41.9	217	29648	66	3.7	279.1	338.2	.81	1.44	1.10	5.1	9.8	8.4 ↑
504	2119	9.8	4.9	5.8	139	54.2	2439	2110	9.5	9.5	825	854	43.4	41.7	41.8	214	29870	67	3.8	225.3	335.2	.82	1.58	1.14	3.7	9.8	8.5
505	2120	40.2	4.9	5.6	138	45.5	2452	2111	9.5	9.5	836	856	43.4	41.6	41.8	200	30047	68	3.8	49.76	330.7	.82	1.19	1.13	10.5	9.8	8.5
507	2121	32.2	5.3	5.5	138	47.5	2526	2112	9.5	9.5	838	856	43.7	41.6	41.9	207	30343	69	3.8	61.95	327.0	.83	1.26	1.13	9.1	9.8	8.5
511	2122	21.9	5.1	5.9	112	56.8	2576	2113	9.5	9.5	848	856	43.6	41.5	41.9	218	30776	70	3.9	93.28	324.1	.84	1.38	1.13	6.7	9.8	8.4
514	2123	20.8	4.7	5.6	143	53.4	2530	2114	9.5	9.5	837	858	43.6	41.4	41.9	228	31227	71	3.9	96.29	321.2	.85	1.39	1.13	6.4	9.8	8.5
518	2124	17.3	4.8	6.4	145	47.4	2528	2116	9.5	9.5	844	859	43.6	41.4	41.9	222	31766	72	4.0	116.4	318.4	.87	1.45	1.14	5.6	9.8	8.5
522	2125	17.4	5.3	5.5	123	57.2	2582	2117	9.5	9.5	851	859	43.4	41.3	42.1	219	32304	73	4.1	117.1	315.9	.88	1.45	1.14	5.7	9.8	8.5
532	2126	10.6	4.6	6.4	143	46.6	2511	2118	9.5	9.5	825	859	43.8	41.9	42.3	229	33646	74	4.2	189.1	316.5	.92	1.49	1.12	4.6	9.8	8.6
534	2127	12.5	4.9	5.3	145	51.1	2521	2118	9.5	9.5	849	859	43.8	41.9	42.3	224	33873	75	4.3	165.5	313.3	.93	1.53	1.17	4.4	9.8	8.5
536	2128	19.0	5.0	5.4	145	54.3	2828	2118	9.5	9.5	883	859	43.4	41.9	42.3	213	34153	76	4.3	105.4	310.0	.93	1.43	1.18	5.3	9.8	8.5
539	2129	27.3	5.0	5.7	140	54.1	2805	2118	9.5	9.5	899	859	43.8	41.8	42.3	230	34546	77	4.3	73.26	307.0	.94	1.32	1.16	8.0	9.8	8.5
541	2130	25.8	5.3	6.1	121	52.4	2917	2118	9.5	9.5	891	859	43.8	41.8	42.3	234	34816	78	4.4	79.76	304.4	.95	1.30	1.16	8.5	9.8	8.5
544	2131	21.2	4.3	6.0	155	46.1	1400	2119	9.5	9.5	603	858	43.5	41.7	42.4	233	35267	79	4.4	96.77	302.1	.96	1.39	1.15	6.8	9.8	8.5
614	2132	17.3	5.0	6.1	123	45.9	1152	2123	9.5	9.5	516	503	42.2	41.2	43.0	258	35661	80	4.5	115.7	301.0	.97	1.26	1.14	8.8	9.8	8.6 ↑
617	2133	15.8	5.2	6.0	126	46.1	1149	2124	9.5	9.5	516	517	42.2	41.3	43.1	260	36131	81	4.6	126.6	298.8	.99	1.37	1.11	6.8	9.8	8.6
620	2134	18.2	5.5	6.2	124	56.4	1137	2124	9.5	9.5	517	502	41.6	41.3	43.1	260	36484	82	4.7	114.3	296.5	1.00	1.37	1.13	7.0	9.8	8.5
624	2135	18.8	5.2	6.0	126	52.3	1131	2125	9.5	9.5	518	501	41.6	41.3	43.2	267	36905	83	4.7	106.4	294.1	1.01	1.35	1.14	7.4	9.8	8.6
628	2136	17.7	4.7	6.1	127	41.9	1128	2125	9.5	9.5	518	509	41.7	41.3	43.2	263	37409	84	4.8	113.1	292.3	1.02	1.34	1.13	7.5	9.8	8.5
633	2137	14.9	5.3	5.8	118	44.4	1138	2126	9.5	9.5	517	514	41.7	41.3	43.4	271	38038	85	4.9	134.2	290.7	1.04	1.37	1.11	6.8	9.8	8.5
637	2138	13.6	4.8	5.4	126	41.9	1132	2126	9.5	9.5	518	508	41.4	41.3	43.4	277	38565	86	4.9	147.2	289.2	1.05	1.40	1.13	6.4	9.8	8.5
640	2139	14.7	4.9	5.2	125	53.0	1189	2126	9.5	9.5	507	519	41.1	41.3	43.4	294	38916	87	5.0	136.4	287.0	1.06	1.40	1.15	6.4	9.8	8.5
644	2140	15.7	5.3	6.0	128	58.0	1163	2126	9.5	9.5	516	517	41.1	41.3	43.4	279	39399	88	5.0	128.0	285.3	1.08	1.43	1.16	6.1	9.8	8.5
ONLY ONE PUMP ON THE HOLE FROM 2130 METRES.																											
648	2141	15.9	5.4	6.4	125	45.9	1169	2127	9.5	9.5	516	502	41.5	41.3	43.4	282	39876	89	5.1	125.7	283.7	1.09	1.37	1.15	7.0	9.8	8.5
651	2142	17.1	5.5	5.7	127	57.5	1177	2128	9.5	9.5	514	505	41.5	41.3	43.4	289	40228	90	5.2	118.0	281.7	1.10	1.39	1.17	6.9	9.8	8.6
654	2143	16.4	5.3	6.2	127	60.6	1177	2129	9.5	9.5	507	511	41.1	41.3	43.5	294	40648	91	5.2	126.7	280.2	1.11	1.40	1.16	6.8	9.8	8.4
659	2144	16.6	4.5	6.1	125	44.7	1167	2130	9.5	9.5	517	515	41.1	41.3	43.5	298	41242	92	5.3	120.5	278.6	1.13	1.35	1.15	7.4	9.8	8.6
740	2145	12.9	4.8	5.6	108	47.7	1186	2136	9.6	9.5	515	591	42.1	41.5	43.2	305	42423	93	5.5	161.5	280.6	1.16	1.35	1.21	7.5	9.8	8.4
742	2146	14.6	6.1	6.0	108	62.8	1198	2137	9.6	9.5	505	590	42.0	41.5	42.7	313	42595	94	5.5	141.4	278.2	1.16	1.36	1.16	7.3	9.8	8.6
744	2147	24.2	5.4	6.9	98	58.2	1205	2137	9.6	9.5	514	577	41.9	36.8	42.7	306	42831	95	5.6	82.62	275.9	1.17	1.28	1.17	8.1	9.8	8.5
750	2148	17.8	4.8	7.1	134	49.5	1207	2139	9.6	9.5	514	581	41.6	39.7	42.2	268	43534	96	5.7	113.4	275.1	1.19	1.35	1.12	7.7	9.8	8.5
752	2149	17.9	5.1	6.7	134	44.2	1181	2139	9.6	9.5	516	577	41.3	39.6	42.2	270	43822	97	5.7	112.0	273.1	1.20	1.39	1.13	7.0	9.8	8.5
756	2150	16.1	4.5	5.3	134	47.9	1211	2140	9.5	9.5	506	569	41.0	39.5	41.9	261	44374	98	5.8	125.3	271.8	1.21	1.36	1.12	7.3	9.8	8.6
759	2151	16.9	4.9	5.7	133	49.9	1200	2141	9.5	9.5	516	568	41.2	39.4	41.9	267	44817	99	5.8	120.4	270.4	1.22	1.37	1.13	7.3	9.8	8.5
802	2152	19.8	5.2	5.6	134	49.3	1206	2142	9.5	9.4	514	563	40.9	39.4	41.7	273	45159	100	5.9	105.4	268.5	1.23	1.37	1.15	7.4	9.8	8.6
805	2154	17.9	4.7	6.0	133	47.8	1207	2143	9.6	9.4	507	566	40.8	39.4	41.7	280	45646	101	5.9	113.4	267.0	1.25	1.35	1.13	7.7	9.8	8.5
808	2155	20.0	5.6	5.8	135	56.1	1197	2144	9.6	9.4	515	568	41.2	39.4	41.6	280	46014	102	6.0	102.1	265.3	1.26	1.38	1.15	7.4	9.8	8.5
811	2156	20.8	5.2	6.8	135	59.3	1205	2144	9.5	9.4	505	563	40.9	39.1	41.6	282	46347	103	6.0	96.06	263.6	1.27	1.41	1.15	6.8	9.8	8.5
815	2157	20.1	4.6	6.0	134	46.3	1224	2145	9.6	9.4	506	567	40.6	39.0	41.4	287	46912	104	6.1	99.76	262.4	1.28	1.34	1.13	8.0	9.8	8.5
817	2158	19.3	5.5	6.2	134	51.1	1203	2145	9.6	9.4	507	562	40.9	38.9	41.3	289	47253	105	6.1	105.5	261.0	1.29	1.40	1.14	7.1	9.8	8.4
833	2159	12.9	5.1	5.9	135	50.7	1199	2145	9.6	9.4	492	524	40.3	38.9	41.2	299	48375	106	6.3	156.0	261.2	1.32	1.44	1.13	6.1	9.9	8.5
834	2160	14.7	5.0	5.5	134	47.3	1172	2145	9.6	9.4	498	523	40.3	38.9	41.2	302	48595	107	6.3	137.1	259.3	1.33	1.41	1.13	6.8	9.9	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:53 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
834	2160	14.7	5.0	5.5	134	47.3	1172	2145	9.6	9.4	498	523	40.3	38.9	41.2	302	48595	107	6.3	137.1	259.3	1.33	1.41	1.13	6.8	9.9	8.5
836	2160	19.3	5.0	5.6	134	48.7	1152	2145	9.6	9.4	499	524	40.5	38.9	41.2	295	48844	108	6.3	116.0	257.8	1.33	1.39	1.15	7.4	9.9	8.6
840	2162	23.2	5.4	6.3	135	55.7	1158	2145	9.6	9.4	498	523	40.4	38.9	41.2	311	49327	109	6.4	87.93	256.4	1.35	1.36	1.15	8.0	9.9	8.5
843	2163	21.5	5.6	6.6	134	52.3	1179	2145	9.6	9.4	498	520	40.0	38.8	41.2	306	49722	110	6.5	93.15	255.1	1.36	1.35	1.14	8.1	9.9	8.5
847	2164	18.1	5.3	5.9	122	53.9	1178	2145	9.6	9.4	501	519	39.8	38.8	41.0	318	50215	111	6.5	115.2	254.1	1.37	1.36	1.12	7.7	9.9	8.4
848	2165	20.8	5.1	5.8	135	62.1	1201	2145	9.6	9.4	493	512	40.2	38.8	41.0	313	50425	112	6.5	97.21	252.2	1.38	1.33	1.14	8.4	9.9	8.4
851	2166	21.1	5.8	6.3	135	62.8	1161	2145	9.6	9.4	498	518	40.0	38.8	41.2	318	50850	113	6.6	97.15	251.0	1.39	1.38	1.14	7.6	9.9	8.5
855	2167	20.4	5.3	6.1	134	49.1	1192	2146	9.6	9.4	499	514	39.6	38.8	41.2	311	51274	114	6.7	100.3	249.9	1.40	1.38	1.11	7.6	9.9	8.5
858	2168	18.7	4.8	5.7	135	43.9	1191	2147	9.6	9.4	498	514	39.5	38.8	41.1	309	51753	115	6.7	109.1	248.7	1.41	1.36	1.12	7.9	9.9	8.6
901	2168	18.9	5.5	5.7	136	55.2	1171	2148	9.6	9.4	499	515	39.6	38.8	41.1	317	52150	116	6.8	107.0	247.4	1.43	1.36	1.12	7.8	9.9	8.5
904	2170	19.9	5.2	5.9	134	46.7	1154	2149	9.6	9.4	498	510	39.6	38.8	41.4	318	52527	117	6.8	102.6	246.2	1.44	1.32	1.13	8.6	9.9	8.5
908	2171	18.7	4.8	5.5	133	52.4	1199	2150	9.6	9.4	492	506	39.5	38.8	41.4	316	53002	118	6.9	107.1	245.2	1.45	1.35	1.12	7.9	9.9	8.6
946	2173	13.2	5.1	5.5	126	48.3	1138	2158	9.6	9.4	498	507	39.1	37.3	41.0	330	56916	130	7.0	150.9	246.1	1.56	1.41	1.09	6.8	9.9	8.4 ↑
953	2185	5.9	4.4	6.6	60	37.7	619	2160	9.6	9.4	285	352	39.0	37.1	40.9	328	57676	132	7.1	337.9	222.6	1.58	1.56	1.03	4.3	10.0	8.5 ↑
1011	2190	19.8	-5.0	6.3	145	51.7	2894	2167	9.6	9.4	872	645	39.8	38.0	40.6	294	59030	134	7.3	105.0	225.5	1.61	1.39	1.14	6.9	9.9	8.5
1041	2195	17.1	3.8	6.8	148	35.0	2666	2171	9.6	9.4	842	644	41.5	39.2	39.2	270	63176	146	7.8	131.2	229.7	1.73	1.30	1.07	8.0	9.9	8.5
1102	2206	30.8	5.4	7.0	153	50.6	2877	2171	9.6	9.4	867	646	41.4	39.6	38.8	263	65207	154	8.0	64.34	204.7	1.78	1.30	1.05	9.9	10.0	8.5 ↑
1103	2207	33.6	5.4	5.6	153	61.6	2832	2171	9.6	9.4	866	647	41.2	39.6	38.8	270	65291	155	8.0	60.02	204.2	1.78	1.27	1.05	10.7	10.0	8.5
1104	2208	36.0	5.9	6.6	107	50.3	2786	2171	9.6	9.4	861	644	41.2	39.5	38.8	282	65509	156	8.1	56.86	203.3	1.79	1.21	1.02	12.0	10.0	8.4
1106	2209	34.7	4.8	6.5	152	49.5	2801	2171	9.6	9.4	861	642	41.8	39.5	38.9	287	65822	157	8.1	59.18	202.5	1.80	1.23	1.03	11.4	10.0	8.4
1111	2210	21.1	4.8	6.0	152	55.4	2825	2171	9.6	9.4	865	646	41.8	39.5	39.2	290	66544	158	8.2	95.85	202.3	1.82	1.32	1.03	9.1	10.0	8.5
1113	2211	20.7	5.0	5.7	151	52.2	2806	2171	9.6	9.4	850	646	41.6	39.6	39.4	282	66802	159	8.2	97.63	201.4	1.83	1.36	1.04	8.6	10.1	8.5
1125	2212	18.3	5.6	5.9	151	58.9	2802	2171	9.7	9.4	828	566	41.5	39.4	39.8	296	67427	160	8.3	112.1	201.2	1.84	1.23	1.03	10.9	10.1	8.5 ↑
1126	2213	27.8	5.5	5.7	152	54.7	2809	2171	9.6	9.4	864	622	41.6	39.3	39.8	297	67559	161	8.3	72.52	200.2	1.85	1.23	1.03	11.4	10.1	8.5
1127	2214	32.0	5.5	5.9	153	53.4	2819	2171	9.6	9.4	859	636	41.3	39.3	39.8	302	67710	162	8.3	62.54	199.1	1.85	1.23	1.02	11.1	10.1	8.5
1131	2215	27.4	4.8	6.0	43	57.6	2808	2171	9.7	9.4	853	632	41.3	39.9	40.3	306	68023	163	8.4	72.73	198.9	1.86	.95	.71	18.3	10.1	8.4
REPAIR ROTARY TABLE.																											
1345	2216	22.3	5.4	6.9	145	49.7	2840	1041	9.6	9.7	858	641	42.4	42.3	42.3	395	68501	164	8.5	90.92	198.7	1.87	.85	.76	19.6	15.4	8.5 ↑
1348	2217	16.9	5.6	6.2	146	57.1	2830	1158	9.7	10.3	878	643	42.8	42.3	42.3	400	69007	165	8.5	118.8	198.2	1.89	.95	.67	16.9	14.9	8.4
1351	2218	19.1	4.7	5.6	146	50.1	2345	2215	9.7	8.9	764	643	42.2	42.3	42.4	412	69368	166	8.6	109.8	197.6	1.90	1.40	1.07	8.1	9.9	8.5
1352	2219	25.2	4.8	5.4	147	49.7	1771	2215	9.7	8.2	669	634	42.0	42.3	42.4	412	69536	167	8.6	79.35	196.6	1.90	1.30	1.07	9.6	9.9	8.5
1353	2220	34.1	5.1	6.4	145	55.0	2806	2215	9.7	8.3	838	626	42.1	42.3	42.4	419	69764	168	8.6	58.64	195.7	1.91	1.23	1.07	11.4	9.9	8.5
1355	2221	39.0	5.1	5.9	146	52.9	2887	2216	9.7	8.9	876	643	41.9	42.3	42.4	407	70056	169	8.6	51.28	195.0	1.91	1.21	1.05	12.3	9.9	8.5
1357	2222	32.5	5.2	5.7	146	49.9	2833	2216	9.7	9.1	871	640	42.3	42.3	42.4	412	70354	170	8.7	61.79	194.3	1.92	1.25	1.04	11.3	9.9	8.4
1359	2223	32.7	5.5	5.8	148	49.3	2841	2216	9.7	8.3	877	643	42.2	42.3	42.4	404	70574	171	8.7	61.96	193.5	1.93	1.26	1.03	11.1	10.0	8.5
1401	2224	32.5	5.4	6.2	147	66.8	2843	2216	9.8	8.5	861	645	42.2	42.3	42.4	426	70825	172	8.7	61.65	192.7	1.94	1.24	1.03	11.6	10.0	8.5
1415	2225	26.2	4.8	6.0	145	52.8	2803	2216	9.7	9.1	869	625	41.9	40.9	42.4	409	71555	173	8.8	76.98	192.9	1.96	1.28	1.02	10.6	10.0	8.4 ↑
1416	2226	26.0	4.7	5.6	145	52.9	2832	2216	9.6	8.9	861	643	41.9	39.1	42.4	425	71799	174	8.9	77.80	192.1	1.96	1.30	1.02	10.1	10.0	8.4
1417	2227	29.1	4.8	5.5	146	59.5	2845	2216	9.7	9.2	855	643	42.0	39.0	42.4	423	71933	175	8.9	78.46	191.5	1.97	1.31	1.02	10.3	10.0	8.5
1420	2228	31.4	5.3	6.5	147	55.6	2855	2217	9.7	9.0	879	642	42.1	39.2	42.4	426	72373	176	8.9	63.44	190.7	1.98	1.25	1.02	11.3	10.0	8.4
1422	2229	32.6	5.6	5.6	148	60.1	2818	2217	9.8	9.1	881	641	41.8	39.3	42.4	428	72618	177	9.0	65.42	190.1	1.98	1.26	1.01	11.2	10.0	8.4
1424	2230	27.9	5.4	6.3	148	60.1	2802	2217	9.6	9.2	872	633	41.9	39.4	42.4	412	72878	178	9.0	72.16	189.3	1.99	1.28	1.01	10.7	10.0	8.5
1426	2231	29.6	5.2	6.0	147	57.8	2817	2217	9.6	9.3	879	643	41.9	39.0	42.4	416	73215	179	9.0	67.48	188.7	2.00	1.28	1.01	10.6	10.0	8.5
1429	2232	25.1	5.1	6.1	148	54.1	2825	2217	9.5	9.1	858	627	42.0	39.1	42.4	421	73626	180	9.1	79.66	188.2	2.01	1.30	1.01	10.1	10.0	8.5
1431	2233	28.3	4.9	5.5	145	55.5	2839	2217	9.5	9.1	864	642	42.0	39.3	42.4	423	73854	181	9.1	71.19	187.5	2.02	1.28	1.01	10.7	10.0	8.6
1435	2234	21.5	4.7	6.1	147	56.5	2808	2217	9.4	9.4	877	644	41.7	39.5	42.4	426	74449	182	9.2	93.03	187.3	2.03	1.34	1.01	9.2	10.0	8.4
1437	2235	21.2	4.9	5.6	146	57.3	2844	2217	9.5	9.7	867	647	41.8	39.6	42.4	407	74827	183	9.2	94.31	186.8	2.04	1.35	1.01	9.0	10.0	8.5
1439	2236	22.6	5.1	5.7	148	51.4	2830	2218	9.5	9.7	863	616	41.9	39.6	42.4	378	74991	184	9.2	90.61	186.0	2.05	1.34	1.02	9.4	10.0	8.4
1440	2237	35.2	5.1	5.6	146	59.5	2844	2219	9.4	9.7	860	639	41.8	39.7	42.4	368	75162	185	9.3	66.77	185.4	2.05	1.26	1.02	12.1	10.0	8.4
1456	2238	30.8	5.7	5.8	149	59.0	2851	2224	9.5	10.0	883	632	42.1	39.7	42.2	371	75923	186	9.3	64.87	185.3	2.07	1.24	.99	11.2	9.9	8.6 ↑

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 9:58 12/20/78

TIME	DEPTH	ROP M/H	TORQUE DIST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1458	2239	27.9	5.5	5.8	149	55.4	2851	2224	9.5	10.1	877	616	42.3	39.4	42.2	373	76203	187	9.4	71.85	184.6	2.08	1.28	1.02	10.8	9.9	8.5
1459	2240	29.7	5.5	5.7	150	58.4	2812	2224	9.6	10.2	866	628	42.0	39.3	42.2	380	76330	188	9.4	70.61	184.0	2.09	1.28	1.01	10.8	9.9	8.5
1459	2241	58.8	5.8	6.2	150	61.3	2838	2224	9.4	10.2	879	636	42.1	39.4	42.1	375	76405	189	9.4	40.27	182.9	2.09	1.14	1.01	14.5	9.9	8.5
1501	2242	46.4	5.3	6.1	149	56.0	2824	2224	9.5	10.2	866	642	42.3	40.1	42.1	376	76757	190	9.4	45.06	182.5	2.10	1.16	.99	14.3	9.9	8.5
1503	2243	39.8	4.9	6.0	150	53.6	2833	2224	9.5	10.0	861	643	42.3	40.3	42.1	378	77006	191	9.5	49.85	181.8	2.10	1.19	.98	13.2	9.9	8.5
1506	2244	26.3	5.1	5.9	150	48.7	2840	2225	9.4	9.9	867	642	42.6	40.4	42.1	371	77393	192	9.5	76.10	181.4	2.12	1.29	.95	10.6	9.9	8.5
1508	2245	28.9	5.1	6.1	148	61.7	2854	2226	9.5	9.8	879	634	42.5	40.4	42.1	368	77678	193	9.5	70.95	180.8	2.12	1.32	1.00	10.2	9.9	8.5
1511	2246	24.1	5.4	5.7	148	59.8	2830	2228	9.5	10.0	867	642	42.6	40.5	42.2	361	78093	194	9.6	85.48	180.5	2.13	1.35	.99	9.5	9.9	8.5
1514	2247	21.4	4.5	6.2	150	49.7	2839	2229	9.4	9.8	876	644	42.7	40.5	42.0	368	78550	195	9.7	95.15	180.1	2.15	1.36	1.00	9.2	9.9	8.5
1517	2248	18.3	4.6	6.4	148	52.8	2817	2231	9.5	10.0	871	620	42.9	40.4	42.0	364	79020	196	9.7	109.9	179.7	2.16	1.42	1.01	8.0	9.8	8.5
1520	2249	24.0	5.3	6.1	149	56.7	2849	2232	9.5	9.8	872	637	43.1	40.4	41.9	366	79326	197	9.7	89.72	179.3	2.17	1.36	1.01	9.2	9.8	8.5
1525	2250	18.1	5.4	6.8	150	58.1	2846	2234	9.5	10.0	846	640	42.9	40.4	41.9	363	80007	198	9.8	110.2	179.3	2.19	1.39	1.03	8.4	9.8	8.5
1540	2251	14.4	5.4	5.7	147	53.0	2834	2237	9.5	10.0	834	609	43.2	41.1	41.9	366	80983	199	10.0	139.6	179.6	2.21	1.41	1.06	8.1	9.8	8.6
1542	2252	15.0	5.3	5.6	147	56.9	2806	2237	9.5	10.0	851	638	43.5	40.6	41.9	361	81234	200	10.0	139.1	179.1	2.22	1.47	1.05	7.2	9.8	8.4
1542	2253	20.8	5.4	5.6	148	57.9	2843	2238	9.6	10.0	853	640	43.4	40.6	41.9	361	81340	201	10.0	101.3	178.4	2.22	1.39	1.05	8.6	9.8	8.4
1544	2254	39.7	5.8	6.4	148	63.3	2843	2238	9.5	9.9	866	621	43.6	40.5	41.9	368	81561	202	10.0	56.66	177.7	2.23	1.27	1.07	11.8	9.8	8.6
1548	2255	30.4	5.0	6.4	149	55.8	2823	2241	9.6	9.7	868	641	43.5	41.1	41.9	361	82064	203	10.1	65.58	177.5	2.24	1.27	1.04	11.4	9.8	8.5
1551	2256	21.3	5.5	6.0	147	60.7	2827	2243	9.5	9.6	857	645	43.5	41.2	42.0	374	82525	204	10.1	94.93	177.2	2.26	1.37	1.04	9.2	9.8	8.5
1553	2257	22.0	4.8	5.8	148	55.0	2770	2243	9.6	9.6	855	614	43.6	41.2	42.0	380	82790	205	10.2	100.8	176.8	2.26	1.40	1.04	8.5	9.8	8.6
1555	2258	27.6	5.6	5.8	150	64.2	2829	2244	9.4	9.7	844	636	43.8	41.2	42.1	373	83084	206	10.2	80.87	176.2	2.27	1.35	1.05	9.9	9.8	8.5
1557	2259	31.7	5.5	6.3	150	59.8	2833	2245	9.6	9.8	860	644	43.5	41.3	42.1	365	83375	207	10.2	63.02	175.6	2.28	1.29	1.05	11.1	9.8	8.6
1600	2260	26.7	4.9	6.1	148	55.3	2805	2246	9.5	9.8	871	635	43.9	41.5	42.1	361	83827	208	10.3	77.76	175.3	2.29	1.33	1.03	10.1	9.8	8.6
1603	2261	20.7	5.0	6.0	124	57.6	2787	2247	9.5	9.7	855	641	43.8	41.6	42.2	378	84333	209	10.3	96.98	175.0	2.30	1.35	1.02	9.6	9.8	8.5
1605	2262	25.0	5.7	5.9	150	68.3	2797	2247	9.5	9.6	855	641	44.2	41.8	42.3	366	84507	210	10.4	84.12	174.4	2.31	1.34	1.04	10.0	9.8	8.5
1606	2263	26.4	4.7	6.4	136	48.7	2804	2248	9.5	9.8	846	641	44.2	41.5	42.3	363	84781	211	10.4	76.71	173.9	2.32	1.35	1.04	9.9	9.8	8.5
1621	2264	17.2	5.2	6.1	148	52.6	2811	2251	9.5	10.0	856	592	44.2	42.2	42.8	366	85907	212	10.5	116.7	174.3	2.35	1.38	.99	8.9	9.8	8.5 ↑
1622	2265	17.4	5.5	5.6	149	59.3	2826	2251	9.6	10.4	857	635	44.2	41.8	42.9	356	86118	213	10.6	117.8	174.1	2.35	1.37	1.03	9.0	9.8	8.5
1623	2266	20.2	5.1	5.6	147	53.6	2872	2251	9.4	10.4	840	638	44.6	41.6	42.9	354	86254	214	10.6	104.3	173.3	2.36	1.38	1.04	9.2	9.8	8.5
1624	2267	44.7	5.9	5.9	148	78.5	2860	2251	9.5	10.6	862	639	44.5	41.6	42.9	352	86402	215	10.6	57.54	172.8	2.36	1.23	1.04	13.3	9.8	8.5
1631	2268	21.0	4.4	7.1	148	56.3	2857	2253	9.5	9.8	860	640	44.5	41.9	43.0	352	87417	216	10.7	96.79	173.0	2.39	1.34	1.03	9.9	9.8	8.4
1633	2269	19.0	5.5	5.5	149	59.5	2829	2254	9.5	9.9	844	639	44.4	42.0	43.1	353	87672	217	10.7	107.3	172.5	2.40	1.40	1.04	8.7	9.8	8.5
1635	2270	19.6	4.7	5.6	149	54.4	2834	2255	9.4	9.8	860	640	44.2	42.1	43.1	352	87974	218	10.8	103.7	171.9	2.40	1.40	1.05	8.7	9.8	8.4
1637	2271	32.7	5.4	5.7	151	55.0	2808	2255	9.4	9.8	849	640	44.1	42.0	43.1	347	88227	219	10.8	61.19	171.5	2.41	1.26	1.04	11.7	9.8	8.5
1638	2272	33.3	5.0	5.5	151	49.8	2834	2256	9.5	9.9	869	640	44.4	42.0	43.1	356	88484	220	10.8	60.76	170.9	2.42	1.25	1.03	12.2	9.8	8.5
1639	2273	42.8	4.7	5.5	148	50.6	2809	2256	9.4	10.0	869	640	44.5	41.9	43.2	356	88634	221	10.8	51.60	170.4	2.42	1.21	1.02	13.3	9.8	8.5
1641	2274	44.9	5.4	6.2	153	58.1	2838	2257	9.5	10.2	870	638	44.0	41.9	43.2	356	88857	222	10.9	44.95	169.8	2.43	1.19	1.02	13.9	9.8	8.5
1643	2275	34.3	5.3	6.5	151	57.1	2839	2258	9.5	10.3	868	636	44.1	42.1	43.2	352	89256	223	10.9	58.23	169.5	2.44	1.25	.98	12.3	9.8	8.6
1645	2276	28.9	5.2	5.8	149	53.4	2820	2259	9.5	10.1	858	640	44.4	42.3	43.2	349	89555	224	11.0	69.11	169.1	2.45	1.29	.98	11.4	9.8	8.5
1651	2277	17.3	4.9	6.2	146	53.3	2813	2261	9.5	9.8	870	632	44.3	42.4	43.4	361	90379	225	11.0	115.9	169.2	2.47	1.38	1.00	9.1	9.8	8.5
1701	2278	17.7	5.3	5.8	150	49.2	2802	2264	9.4	9.9	861	632	44.4	42.5	43.6	352	90816	226	11.1	112.7	169.0	2.48	1.33	1.00	9.8	9.8	8.5 ↑
1701	2279	30.5	5.2	5.6	150	59.8	2805	2264	9.5	9.9	851	633	44.5	42.4	43.6	352	90856	227	11.1	90.96	168.3	2.48	1.28	1.00	13.5	9.8	8.4
1704	2280	35.6	5.5	6.7	142	51.0	2793	2264	9.6	10.1	849	633	44.6	42.0	43.8	361	91232	228	11.1	56.23	167.9	2.49	1.17	1.00	13.7	9.8	8.5
1707	2281	30.7	5.2	6.1	150	51.3	2757	2264	9.6	9.8	850	623	44.5	42.4	43.8	354	91676	229	11.2	66.33	167.6	2.51	1.20	.97	13.4	9.8	8.4
1708	2282	28.7	5.3	5.8	151	51.1	2788	2264	9.5	9.8	861	623	44.4	42.3	43.9	351	91825	230	11.2	72.78	167.1	2.51	1.23	.97	12.9	9.8	8.5
1709	2283	35.6	5.7	6.6	153	62.8	2795	2265	9.6	9.7	858	633	44.5	42.4	43.9	349	91984	231	11.2	60.58	166.6	2.51	1.20	.97	13.5	9.8	8.6
1712	2284	36.3	5.2	6.5	150	56.6	2778	2266	9.6	9.6	833	624	44.3	42.6	44.0	344	92361	232	11.3	55.69	166.2	2.52	1.18	.94	13.9	9.8	8.5
1716	2285	23.5	5.3	6.3	152	43.0	2802	2267	9.5	9.5	856	629	44.7	42.8	44.2	351	92949	233	11.3	84.94	166.1	2.54	1.23	.88	12.4	9.8	8.5
1716	2286	24.5	6.0	5.9	152	63.5	2799	2267	9.5	9.4	848	623	44.3	43.0	44.2	354	93059	234	11.4	81.63	165.5	2.54	1.24	.95	12.6	9.8	8.5
1722	2287	17.3	5.1	6.6	106	50.7	2801	2269	9.5	9.3	860	627	44.5	43.4	44.2	359	93644	235	11.4	116.1	165.6	2.56	1.27	.94	11.4	9.8	8.4
1723	2288	24.7	5.5	5.8	151	49.1	2773	2270	9.6	9.4	857	630	45.0	43.3	44.3	354	93809	236	11.5	81.93	165.1	2.56	1.25	.97	12.2	9.8	8.6

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:03 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1725	2289	23.2	5.5	5.9	150	48.1	2767	2271	9.5	9.5	859	628	45.0	43.1	44.3	347	94118	237	11.5	86.24	164.7	2.57	1.28	.95	11.4	9.8	8.5
1727	2290	33.9	5.4	6.1	150	43.9	2798	2272	9.5	9.6	832	625	45.0	43.0	44.3	345	94373	238	11.5	60.81	164.3	2.58	1.17	.94	14.1	9.8	8.5
1739	2291	27.4	5.1	5.9	150	44.8	2799	2276	9.5	9.2	831	625	44.7	42.7	44.3	347	95157	239	11.6	74.10	164.3	2.60	1.20	.95	13.3	9.8	8.5↑
1740	2292	32.1	5.4	6.0	153	50.5	2827	2276	9.5	9.6	854	623	44.5	42.4	44.2	354	95342	240	11.6	67.55	163.9	2.61	1.19	.94	13.5	9.8	8.5
1741	2293	53.9	6.0	6.7	153	51.0	2792	2276	9.6	9.6	843	618	44.6	42.5	44.2	347	95427	241	11.6	45.55	163.2	2.61	1.10	.94	16.3	9.8	8.6
1743	2294	47.1	5.0	7.0	102	46.1	2794	2277	9.5	9.6	843	616	44.7	42.8	44.2	352	95673	242	11.7	43.25	162.9	2.61	1.11	.92	16.2	9.8	8.6
1746	2295	32.2	5.2	6.8	152	46.7	2776	2277	9.5	9.6	460	619	44.4	43.1	44.2	371	96078	243	11.7	62.29	162.7	2.63	1.17	.89	14.2	9.8	8.4
1747	2296	30.6	6.0	6.5	154	53.2	2763	2277	9.5	9.7	403	620	44.6	43.2	44.2	359	96226	244	11.7	65.40	162.1	2.63	1.24	.91	12.7	9.8	8.5
1750	2297	25.9	5.3	6.9	131	45.6	2797	2277	9.6	9.7	393	621	44.7	43.0	44.2	366	96614	245	11.8	77.86	161.9	2.64	1.24	.86	12.7	9.8	8.5
1751	2298	34.6	5.3	6.2	153	43.4	2801	2277	9.6	9.8	401	622	44.7	43.0	44.2	359	96773	246	11.8	61.85	161.5	2.64	1.21	.91	13.5	9.8	8.5
USING ONE PUMP ON THE HOLE FROMM 2295 METRES.																											
1753	2299	28.9	5.1	6.7	153	40.3	2804	2278	9.5	9.6	402	620	44.8	42.9	44.2	356	97099	247	11.8	69.96	161.1	2.65	1.20	.93	13.5	9.8	8.6
1756	2300	28.6	4.9	6.3	123	45.2	2781	2279	9.5	9.6	393	615	45.0	43.0	44.2	367	97400	248	11.9	71.67	160.8	2.66	1.16	.92	14.4	9.8	8.5
1758	2301	27.2	6.1	6.2	152	41.5	2781	2279	9.6	9.7	402	613	44.9	43.2	44.2	352	97606	249	11.9	73.61	160.5	2.67	1.19	.91	13.6	9.8	8.5
1759	2302	30.5	5.3	6.5	153	33.9	2782	2280	9.5	9.6	394	615	44.8	43.3	44.2	347	97831	250	11.9	68.84	160.0	2.67	1.24	.91	12.7	9.9	8.5
1803	2303	27.7	5.5	6.4	104	44.1	2767	2280	9.6	10.0	402	616	44.7	43.0	44.2	363	98266	251	12.0	73.61	159.9	2.69	1.14	.79	15.0	9.9	8.5
1816	2304	20.5	5.2	6.0	152	36.0	2797	2283	9.5	9.4	403	627	45.4	43.4	44.3	364	99143	252	12.1	99.78	160.0	2.71	1.24	.91	12.2	9.8	8.5↑
1817	2305	22.3	5.5	5.9	153	39.7	2769	2283	9.5	9.5	392	637	45.2	43.1	44.4	364	99228	253	12.1	90.34	159.5	2.71	1.24	.91	12.3	9.9	8.5
1818	2306	38.2	5.4	6.0	153	42.6	2763	2283	9.6	9.7	394	631	45.2	43.0	44.4	361	99420	254	12.1	59.32	159.0	2.72	1.14	.90	15.1	9.9	8.5
1820	2307	45.0	5.3	5.9	152	42.4	2785	2284	9.5	9.6	403	621	45.4	43.4	44.4	361	99750	255	12.2	44.68	158.7	2.73	1.07	.89	17.0	9.9	8.6
1826	2308	20.5	4.3	6.5	158	35.7	2810	2285	9.5	9.6	415	622	45.4	43.6	44.5	359	100500	256	12.3	98.55	158.9	2.75	1.19	.89	13.2	9.9	8.4
1829	2309	17.0	5.2	5.7	154	33.6	2782	2286	9.5	9.4	753	627	45.2	43.5	44.5	361	100964	257	12.3	117.3	158.6	2.76	1.31	.89	10.7	9.9	8.5
1830	2310	18.6	5.4	5.8	155	39.7	2805	2286	9.5	9.4	627	627	45.3	43.7	44.5	354	101164	258	12.3	107.6	158.2	2.76	1.31	.91	10.8	9.9	8.5
1831	2311	35.8	5.1	5.7	156	41.3	2777	2286	9.5	9.3	419	628	45.4	43.6	44.5	361	101317	259	12.3	67.19	157.8	2.77	1.19	.91	14.2	9.9	8.5
1832	2312	52.0	5.2	5.7	155	44.9	2804	2286	9.6	9.4	403	630	45.4	43.4	44.5	354	101454	260	12.4	42.16	157.4	2.77	1.07	.90	17.5	9.9	8.4
1834	2313	40.2	5.1	6.3	156	41.3	2783	2286	9.5	9.5	404	621	45.5	43.6	44.5	352	101843	261	12.4	50.41	157.1	2.78	1.11	.88	16.0	9.9	8.5
1837	2314	28.0	4.9	5.7	155	36.4	2746	2287	9.5	9.4	787	620	45.8	43.2	44.5	352	102297	262	12.5	71.38	156.8	2.80	1.20	.88	13.6	9.9	8.6
1840	2315	22.9	5.1	5.7	154	44.6	2807	2288	9.6	9.2	626	617	45.6	43.7	44.4	373	102723	263	12.5	87.33	156.6	2.81	1.25	.89	12.3	9.9	8.5
1843	2316	20.6	4.8	5.8	155	33.3	2730	2289	9.4	9.6	852	624	45.6	43.5	44.4	361	103210	264	12.6	98.93	156.4	2.82	1.29	.90	11.4	9.9	8.6
USING TWO PUMPS.																											
1900	2317	17.3	4.9	5.8	153	35.1	2764	2292	9.5	9.4	842	625	45.5	42.9	44.7	361	104342	265	12.7	117.1	156.6	2.85	1.32	.92	10.8	9.9	8.5↑
1901	2318	20.7	5.8	5.8	153	41.8	2759	2293	9.5	9.5	862	625	45.6	43.1	44.7	356	104487	266	12.7	100.3	156.2	2.86	1.27	.91	11.7	9.9	8.4
1901	2319	28.4	5.5	5.7	152	44.2	2764	2294	9.5	9.4	862	625	45.6	43.3	44.7	366	104585	267	12.7	72.02	155.7	2.86	1.20	.92	13.7	9.9	8.5
1904	2320	38.5	5.2	6.5	154	37.4	2767	2295	9.5	9.4	863	617	45.3	43.4	44.8	356	104985	268	12.7	52.67	155.5	2.87	1.13	.89	15.7	9.9	8.5
1906	2321	37.6	5.8	6.3	153	54.4	2778	2295	9.5	9.4	849	616	45.3	43.3	44.8	361	105216	269	12.7	55.35	155.2	2.88	1.16	.90	15.2	9.9	8.5
1907	2322	30.5	6.5	6.9	155	55.1	2754	2297	9.5	9.3	852	612	45.3	43.2	44.8	361	105485	270	12.8	65.87	154.8	2.88	1.23	.90	13.3	9.9	8.5
1911	2323	25.1	5.6	6.5	154	43.2	2777	2301	9.6	9.1	863	603	45.5	43.6	44.6	371	106049	271	12.8	79.80	154.6	2.90	1.24	.90	12.6	9.8	8.5
1913	2324	24.9	5.6	6.3	155	45.8	2772	2303	9.4	9.2	865	609	45.1	43.4	44.6	371	106357	272	12.9	80.34	154.3	2.91	1.27	.91	12.2	9.8	8.4
1916	2326	22.2	5.3	6.5	125	39.1	2751	2303	9.5	9.3	864	602	45.0	43.5	44.5	364	106778	273	12.9	91.53	154.2	2.92	1.29	.91	11.8	9.8	8.5
1918	2327	26.5	6.5	7.0	157	64.5	2780	2304	9.5	9.4	853	615	45.3	43.6	44.5	378	107035	274	12.9	77.05	153.8	2.93	1.29	.95	11.9	9.8	8.6
1921	2327	23.1	5.3	7.1	102	46.3	2794	2308	9.5	9.2	863	619	45.2	43.8	44.7	368	107448	275	13.0	88.67	153.7	2.94	1.22	.86	13.4	9.8	8.4
1924	2328	23.0	5.6	6.9	121	38.0	2754	2309	9.5	9.0	852	620	45.3	44.1	44.7	383	107822	276	13.1	87.82	153.5	2.95	1.27	.94	12.1	9.8	8.4
1927	2329	20.5	5.6	6.8	156	49.0	2777	2312	9.5	9.1	849	619	45.6	44.0	44.7	390	108152	277	13.1	99.65	153.3	2.96	1.31	.95	11.4	9.8	8.6
1943	2331	21.2	6.4	7.0	152	46.9	2832	2317	9.4	9.4	867	616	46.1	44.7	45.4	370	109016	279	13.2	103.3	153.2	2.98	1.26	.94	12.9	9.8	8.5↑
1945	2332	20.6	5.0	6.4	155	37.4	2820	2317	9.4	9.4	873	625	46.0	44.4	45.4	382	109242	279	13.2	100.2	153.1	2.99	1.32	.97	11.0	9.8	8.5
1947	2333	21.3	5.3	7.2	155	42.0	2826	2317	9.5	9.4	872	640	46.1	43.5	45.5	370	109614	280	13.3	95.62	152.8	3.00	1.35	.96	10.8	9.8	8.5
1950	2334	26.9	5.1	6.7	153	38.4	2779	2318	9.4	9.3	857	639	46.3	43.7	45.5	378	110025	281	13.3	74.96	152.6	3.01	1.26	.93	12.6	9.8	8.6
1952	2334	26.1	5.6	6.8	154	46.6	2801	2320	9.5	9.2	870	643	46.5	43.7	45.5	387	110294	282	13.3	80.57	152.4	3.01	1.29	.96	12.3	9.8	8.5
1955	2336	21.9	5.3	7.2	104	48.7	2788	2322	9.6	9.4	856	641	46.1	44.0	45.5	373	110707	283	13.4	91.62	152.3	3.03	1.22	.93	13.5	9.8	8.6
1959	2337	17.8	5.5	7.3	105	34.3	2829	2323	9.5	10.0	855	643	46.7	44.4	45.5	380	111138	284	13.5	113.2	152.2	3.04	1.26	.92	12.4	9.8	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:08 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	ΔP	ECD	NXMW
2003	2338	16.1	5.3	7.1	104	35.3	2793	2325	9.5	9.7	853	636	46.7	44.3	45.5	380	111533	285	13.5	124.9	152.2	3.05	1.32	.94	11.2	9.8	8.5
2008	2339	14.4	5.9	6.8	103	42.7	2856	2327	9.6	9.5	855	641	47.1	44.2	45.4	356	112042	286	13.6	139.8	152.2	3.06	1.31	.90	11.1	9.8	8.5
2011	2340	15.9	6.3	6.5	106	42.8	2828	2328	9.5	9.6	850	643	47.1	44.1	45.4	359	112400	287	13.7	128.6	152.1	3.07	1.30	.98	11.4	9.8	8.5
2015	2340	15.6	5.4	7.0	133	52.6	2825	2329	9.5	9.5	865	636	47.3	44.3	45.3	366	112794	288	13.7	135.8	152.0	3.08	1.33	.97	11.1	9.8	8.5
2019	2342	14.9	4.8	7.2	107	34.1	2861	2330	9.5	10.0	853	633	47.4	44.5	45.3	363	113307	289	13.8	135.9	152.0	3.10	1.36	.99	10.2	9.8	8.5
2022	2343	17.0	5.4	5.9	156	41.1	2798	2330	9.6	9.6	852	630	47.5	44.4	45.2	361	113655	290	13.8	120.7	151.8	3.11	1.33	.98	10.8	9.8	8.5
2038	2344	16.7	5.3	6.4	154	40.5	2791	2333	9.6	9.3	847	628	47.0	44.2	45.5	368	114929	292	14.0	125.3	151.9	3.14	1.23	.98	12.6	9.8	8.4 ↑
2039	2345	17.6	4.9	6.7	139	37.6	2806	2333	9.4	9.3	857	628	46.6	44.4	45.5	361	114958	292	14.0	114.2	151.7	3.14	1.26	1.00	12.4	9.8	8.5
2042	2346	17.8	5.9	7.0	157	37.8	2804	2334	9.5	9.2	855	632	47.0	44.4	45.7	358	115334	293	14.0	114.8	151.6	3.15	1.32	1.04	11.2	9.8	8.5
2044	2347	27.6	6.1	6.6	157	52.0	2799	2335	9.6	9.3	844	629	47.0	44.6	45.7	368	115723	294	14.1	72.58	151.4	3.16	1.30	.99	12.2	9.8	8.5
2047	2347	21.3	5.1	7.3	104	40.0	2782	2336	9.5	9.3	843	622	46.8	44.5	45.9	361	116062	295	14.1	94.10	151.3	3.17	1.25	.94	12.5	9.8	8.5
2050	2349	22.2	6.3	7.1	71	49.3	2808	2336	9.6	9.2	859	620	46.8	44.8	45.9	368	116325	296	14.2	90.61	151.1	3.18	1.27	.99	13.0	9.8	8.5
2054	2350	18.2	6.2	7.1	103	47.2	2821	2338	9.5	9.3	856	614	47.1	44.6	46.2	373	116738	297	14.2	112.1	151.1	3.19	1.27	.94	12.5	9.8	8.5
2058	2351	18.2	6.3	7.1	104	49.2	2801	2338	9.5	9.2	844	617	47.3	44.9	46.2	368	117105	298	14.3	112.3	150.9	3.20	1.28	.96	12.1	9.8	8.5
2105	2352	13.3	5.5	7.2	116	30.2	2820	2340	9.5	9.3	856	621	47.3	45.2	46.4	373	117839	299	14.4	150.7	151.2	3.22	1.29	.95	11.4	9.8	8.5
2108	2353	12.8	5.5	6.3	107	38.5	2816	2341	9.6	9.5	831	620	47.8	45.0	46.7	373	118220	300	14.5	155.8	151.2	3.23	1.31	.97	11.1	9.8	8.6
2109	2354	16.8	6.4	6.4	101	42.6	2835	2341	9.6	9.5	835	624	47.7	45.3	46.7	377	118281	301	14.5	118.8	150.7	3.23	1.25	.97	12.5	9.8	8.5
2112	2355	25.0	5.7	7.2	103	47.9	2834	2342	9.6	9.6	855	623	48.0	45.5	46.9	373	118638	302	14.5	87.83	150.6	3.24	1.22	.97	13.9	9.8	8.5
2115	2356	28.0	7.0	7.1	101	50.5	2806	2343	9.6	9.7	854	618	47.8	45.7	47.1	375	118912	303	14.6	71.46	150.4	3.25	1.17	.94	15.4	9.8	8.5
2129	2357	16.4	5.7	7.6	157	39.7	2834	2345	9.6	9.5	837	628	48.0	45.1	47.2	356	119848	305	14.7	121.9	150.5	3.28	1.28	.95	11.9	9.8	8.5 ↑
2130	2358	19.0	5.2	6.1	154	37.3	2815	2345	9.6	9.5	840	627	47.6	45.3	47.2	344	119965	305	14.7	109.7	150.3	3.28	1.28	.95	12.1	9.8	8.6
2132	2359	21.3	5.9	6.5	155	33.2	2750	2346	9.5	9.4	850	619	47.6	44.6	47.2	344	120282	306	14.7	101.0	150.0	3.29	1.30	.96	11.9	9.8	8.5
2134	2360	35.1	6.5	7.2	157	46.3	2774	2346	9.4	9.4	854	617	47.2	44.8	47.1	351	120602	307	14.8	61.10	149.8	3.30	1.21	.97	14.4	9.8	8.5
2137	2361	25.2	5.0	6.7	158	40.8	2801	2347	9.6	9.0	845	617	47.2	45.3	47.1	359	121008	308	14.8	79.25	149.6	3.31	1.22	.95	13.8	9.8	8.5
2139	2362	26.1	5.7	7.0	158	34.4	2772	2348	9.5	9.1	860	613	47.6	45.3	47.1	356	121267	309	14.9	78.91	149.4	3.31	1.26	.96	13.0	9.8	8.6
2143	2363	20.6	6.2	7.1	101	52.0	2840	2349	9.5	9.1	856	607	47.4	44.9	47.0	373	121667	310	14.9	98.58	149.3	3.33	1.25	.92	13.4	9.8	8.5
2146	2364	21.7	5.5	7.2	101	55.5	2802	2350	9.4	9.0	851	609	47.5	45.4	46.9	370	121953	311	15.0	96.70	149.2	3.33	1.22	.93	13.9	9.8	8.4
2150	2365	16.7	5.8	7.2	91	55.9	2830	2351	9.5	8.9	862	613	47.4	45.5	46.8	380	122366	312	15.0	120.1	149.2	3.34	1.28	.92	12.5	9.8	8.6
2154	2366	16.0	6.0	7.2	103	44.6	2791	2351	9.5	8.9	852	622	47.9	45.6	46.9	380	122746	313	15.1	126.7	149.1	3.35	1.30	.95	11.9	9.9	8.5
2156	2367	17.1	6.6	7.1	106	44.5	2795	2352	9.5	9.0	851	619	47.8	45.6	46.9	381	122990	314	15.1	118.0	148.9	3.36	1.28	.95	12.4	9.9	8.5
2201	2368	17.2	6.2	7.1	102	41.1	2796	2354	9.4	9.2	861	623	47.4	45.5	47.0	382	123434	315	15.2	121.1	148.9	3.37	1.28	.95	12.6	9.8	8.4
2205	2369	16.6	5.8	7.2	95	35.6	2790	2355	9.4	8.4	844	619	48.0	45.5	47.2	375	123841	317	15.3	121.8	148.9	3.38	1.27	.96	12.5	9.8	8.5
CIRCULATE FOR 15 MINS PRIOR TO CONTROLLED DRILLING																											
2237	2370	11.4	5.8	7.4	157	31.1	2797	2364	9.5	9.3	836	625	49.4	46.6	47.7	380	125190	318	15.4	176.7	149.3	3.42	1.31	.97	11.3	9.8	8.5 ↑
2238	2371	13.1	6.2	6.6	158	35.9	2793	2364	9.7	9.3	860	627	49.2	46.5	47.7	373	125322	319	15.5	157.9	149.1	3.42	1.34	.98	10.7	9.8	8.5
2241	2372	14.1	7.0	7.5	102	43.4	2782	2365	9.5	9.2	866	613	49.0	46.2	47.5	385	125684	320	15.5	145.3	149.0	3.43	1.31	.98	11.6	9.8	8.5
2248	2373	14.9	5.8	7.4	98	26.8	2774	2367	9.5	9.1	857	611	49.0	46.5	47.4	391	126415	320	15.6	133.8	149.3	3.45	1.20	.96	13.7	9.7	8.5
2251	2374	13.7	5.9	7.6	94	46.9	2786	2367	9.4	9.0	856	603	49.2	46.9	47.4	397	126684	322	15.7	148.4	149.1	3.46	1.25	.96	12.8	9.8	8.5
2256	2375	13.7	6.7	7.4	101	41.5	2815	2369	9.5	9.0	861	615	49.9	46.4	47.4	394	127090	323	15.8	146.9	149.1	3.47	1.34	.97	11.1	9.7	8.5
2300	2376	14.9	5.3	7.5	101	37.7	2786	2369	9.5	9.4	854	617	49.6	46.2	47.5	401	127500	324	15.8	136.2	149.2	3.48	1.31	.98	12.0	9.7	8.5
2304	2377	14.6	5.8	7.6	89	46.7	2844	2369	9.6	9.4	859	616	49.5	45.2	47.6	402	127868	325	15.9	141.1	149.1	3.49	1.31	.98	11.8	9.7	8.5
2308	2378	14.5	7.3	7.3	97	44.2	2830	2369	9.5	9.1	858	607	49.3	46.1	47.6	406	128246	326	16.0	138.0	149.1	3.50	1.30	.97	12.0	9.7	8.5
2312	2379	14.8	7.0	7.5	101	50.7	2838	2369	9.6	8.0	845	615	49.6	45.7	47.7	411	128647	327	16.0	139.6	149.1	3.52	1.29	.97	12.2	9.8	8.4
2316	2380	15.0	6.7	7.4	82	38.8	2829	2369	9.6	9.1	847	622	49.6	46.6	48.2	406	129023	328	16.1	135.7	149.1	3.53	1.29	.97	12.3	9.8	8.4
2320	2381	14.4	6.8	7.3	104	39.6	2808	2369	9.6	8.0	847	625	49.8	47.0	48.7	394	129455	329	16.2	144.1	149.1	3.54	1.28	.97	12.4	9.8	8.6
2325	2382	14.1	7.1	7.3	78	42.5	1134	2369	9.5	8.8	480	426	49.5	46.6	49.0	418	129888	330	16.2	146.6	149.1	3.55	1.28	.98	12.4	9.8	8.5
ONE PUMP ONLY.																											
2346	2383	8.3	5.4	7.5	80	16.0	1075	2372	9.6	10.2	445	377	49.3	46.0	49.7	408	131388	331	16.5	240.3	149.7	3.59	1.24	.96	12.4	9.8	8.5 ↑
2348	2384	8.7	6.0	6.8	108	32.6	1180	2373	9.6	9.0	463	390	48.7	46.2	49.7	402	131605	332	16.5	229.0	149.8	3.60	1.22	.97	12.9	9.8	8.5
2356	2385	9.7	6.8	7.6	101	45.0	1203	2374	9.5	9.7	495	404	48.8	46.1	49.7	409	132312	333	16.6	207.1	150.1	3.62	1.32	.98	11.2	9.8	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:12 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	ΔP	ECD	NXMW
7	2386	6.2	6.2	7.7	101	41.5	2839	2376	9.5	9.7	853	602	48.5	46.0	49.2	387	133294	334	16.8	322.2	150.8	3.64	1.47	.98	8.0	9.8	8.5
26	2387	6.6	6.3	7.4	99	20.6	2879	2380	9.6	8.9	871	624	49.7	45.8	49.6	370	135097	335	17.1	314.9	152.1	3.69	1.37	1.00	9.6	9.8	8.5
29	2388	9.3	6.5	7.0	170	32.7	2842	2381	9.5	9.3	862	639	49.5	45.8	49.5	356	135502	336	17.1	215.2	151.9	3.70	1.30	.99	11.3	9.8	8.5
33	2389	11.5	6.9	7.4	110	26.5	2865	2382	9.5	9.2	870	642	49.6	46.2	49.5	370	135968	337	17.2	178.8	151.9	3.72	1.25	.98	12.7	9.8	8.5
38	2390	13.6	5.7	7.3	138	27.9	2866	2382.	9.5	9.4	857	638	49.7	46.2	49.5	363	136565	338	17.3	153.4	152.0	3.73	1.22	.96	13.6	9.8	8.4
RUNNING TWO PUMPS																											
44	2391	12.4	6.2	7.1	98	37.8	2856	2384	9.6	9.0	840	633	49.9	46.2	49.5	370	137204	339	17.4	163.5	152.1	3.75	1.24	.98	13.1	9.8	8.5
48	2392	11.7	6.1	7.2	93	38.9	2866	2385	9.5	9.1	866	633	50.0	46.6	49.7	366	137577	340	17.5	171.9	152.0	3.76	1.26	.98	12.6	9.8	8.5
52	2393	13.5	7.1	7.6	90	35.3	2874	2385	9.5	9.1	852	663	49.5	46.6	49.5	363	137960	341	17.5	147.7	152.0	3.77	1.22	.99	13.4	9.8	8.5
55	2394	16.1	6.5	7.4	90	35.3	2838	2386	9.5	9.1	863	680	49.3	47.0	49.3	368	138300	342	17.6	123.9	151.9	3.78	1.19	.96	14.5	9.8	8.5
59	2395	16.5	5.4	7.4	105	33.4	2872	2386	9.5	8.7	853	677	50.0	46.8	49.1	370	138664	343	17.6	122.9	151.8	3.79	1.18	.96	14.8	9.8	8.6
113	2396	10.7	5.8	7.5	102	28.7	2809	2387	9.5	9.4	850	698	49.9	47.0	48.9	373	139631	344	17.8	187.4	152.2	3.82	1.20	.95	13.8	9.8	8.5
116	2397	11.8	6.0	7.4	101	31.7	2773	2387	9.5	8.6	859	884	49.6	46.1	48.7	370	139936	345	17.8	173.1	152.1	3.82	1.24	.95	13.2	9.8	8.6
121	2398	11.7	5.4	7.7	44	37.4	2793	2388	9.6	9.2	860	904	49.4	46.8	48.7	369	140350	346	17.9	173.6	152.1	3.84	1.24	.95	13.3	9.8	8.4
126	2399	13.2	7.1	7.8	83	25.8	2822	2389	9.5	9.5	874	863	49.6	47.4	48.8	382	140803	347	18.0	152.5	152.3	3.85	1.21	.95	14.0	9.8	8.5
131	2400	11.9	6.0	7.7	86	45.6	2833	2390	9.5	9.2	854	867	49.7	47.3	49.0	378	141227	348	18.1	172.6	152.3	3.86	1.27	.95	12.7	9.8	8.5
136	2401	12.2	6.4	7.4	90	49.2	2853	2391	9.5	9.4	881	861	49.5	46.9	49.2	383	141599	349	18.2	167.1	152.3	3.87	1.26	.95	13.0	9.8	8.5
141	2402	12.1	5.7	7.5	92	31.1	2842	2392	9.4	9.5	872	871	49.6	47.1	49.4	380	142085	350	18.3	166.4	152.4	3.88	1.24	.94	13.2	9.8	8.5
147	2403	11.9	7.1	7.6	85	33.6	2835	2394	9.5	9.7	880	871	49.7	46.8	49.5	378	142524	351	18.3	167.5	152.5	3.89	1.24	.93	13.4	9.8	8.4
153	2404	11.2	7.4	7.6	86	33.8	2780	2395	9.5	9.7	881	870	50.1	46.5	49.7	390	143077	352	18.4	184.3	152.7	3.91	1.26	.94	12.7	9.8	8.5
157	2405	11.6	5.9	7.5	84	39.1	2782	2395	9.5	9.6	877	872	50.3	46.9	49.7	396	143455	353	18.5	173.9	152.6	3.92	1.27	.95	12.7	9.8	8.5
202	2406	11.7	6.1	7.5	66	31.1	2794	2396	9.7	9.5	865	871	49.9	47.4	49.5	397	143839	354	18.6	174.4	152.7	3.93	1.24	.93	13.4	9.8	8.5
209	2407	10.4	6.9	7.6	57	40.0	2838	2398	9.7	9.4	868	864	49.9	47.4	49.6	409	144329	355	18.7	192.3	153.0	3.94	1.29	.96	11.9	9.8	8.5
217	2408	8.2	6.9	7.3	91	34.1	2865	2399	9.6	10.0	874	861	49.9	47.4	49.9	418	145002	356	18.8	260.2	153.3	3.96	1.35	.96	10.7	9.8	8.6
235	2409	6.3	10.7	10.7	119	49.4	2913	2402	9.5	10.1	755	798	49.8	47.1	49.5	416	146366	357	19.1	315.3	154.1	4.00	1.58	1.01	6.7	9.8	8.6
CORE #2, CHRIS C20, SIZE: 8 15/32" START DEPTH 2409.5 METRES.																											
213	2410	3.7	3.0	3.8	41	10.2	1566	2406	9.6	9.5	296	66	40.8	38.2	49.7	394	2341	1	.0	542.3	37906	.00	1.45	.53	13.7	9.8	8.5
232	2410	2.8	2.7	4.1	43	16.8	1672	2407	9.6	9.4	546	540	39.1	34.5	49.9	390	3138	1	.3	745.2	14353	.00	1.28	.54	15.6	9.9	8.6
PUMP NO 2 ON RISER ONLY																											
306	2411	2.9	2.6	3.9	88	16.0	1530	2408	9.6	9.4	293	538	36.2	33.5	50.0	399	5837	2	.9	713.6	9032	.00	1.53	.54	12.1	9.9	8.5

RETRIEVE CORE #2 AT 2410.5 METRES DUE TO JAMMED CORE BARREL.
CUT 1 METRE, RECOVERED 40 CM.

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:19 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
CB#3 CHRIS C20 8 15/32", START DEPTH 2410.5 METERS, CIRCULATE BOTTOMS UP PRIOR TO CORING.																											
1538	2411	1.5	3.5	4.3	60	13.7	1515	2411	9.6	9.5	306	221	41.2	38.1	41.8	404	7318	0	1.5	1476	73611	0.00	1.51	.93	11.2	9.9	8.6
1555	2412	3.4	3.2	4.2	81	19.5	1606	2411	9.6	9.5	294	230	40.3	36.8	41.8	412	8658	1	1.8	586.5	20045	0.00	1.41	1.11	14.7	10.0	8.4
1635	2413	1.6	3.1	4.4	82	19.2	1449	2411	9.7	9.5	297	185	38.4	35.3	41.8	419	11954	2	2.5	1204	11529	.00	1.60	1.09	10.4	9.9	8.6
LOSE 200 PSI PUMP PRESSURE.																											
1706	2414	3.7	3.1	3.8	52	26.4	1822	2411	9.7	9.5	294	180	37.7	35.5	41.8	359	13422	3	2.9	533.7	8774	0.00	1.44	1.18	13.9	9.9	8.4
REGAIN NORMAL PUMP PRESSURE.																											
1815	2414	1.0	3.4	4.2	84	18.8	1470	2413	9.7	9.5	299	268	37.6	36.1	41.4	378	17371	4	4.1	2521	7342	.00	1.86	.90	6.0	9.9	8.6
1910	2415	1.8	3.2	4.2	82	26.2	1797	2414	9.7	9.5	299	382	37.1	35.4	38.3	375	21983	5	5.0	1744	6382	.00	1.81	1.01	7.5	9.9	8.7
USING PUMP #1 TO FLUSH RISER, MONITOR PUMP #2 ONLY																											
2022	2416	1.5	3.8	3.9	84	30.2	1672	2415	9.6	9.5	291	217	34.3	31.1	37.3	338	28042	6	6.2	1493	5662	.01	1.83	1.06	7.0	9.9	8.8
POOH WITH CORE NO 3 AT 2416 METERS DUE TO SEVERE SEA CONDITIONS, CORED 5.5 METERS, RECOVERED 1.5 METERS, 27%.																											
RIH WITH CORE NO 4 BUT WOULD NOT DRILL, POOH AND CHANGE BHA, RIH FOR CORE NO 5.																											
CB#5 CHRIS C20 8 15/32", START DEPTH 2416 METERS, CIRCULATE BOTTOMS UP PRIOR TO CORING.																											
2121	2416	1.5	3.7	5.1	60	36.3	1539	2415	9.7	9.5	282	191	40.2	38.3	36.9	300	2763	8	6.8	1491	4739	.00	1.85	1.02	6.5	10.0	9.1
LOSE 300 PSI PUMP PRESSURE.																											
2210	2417	1.1	2.9	4.1	38	34.9	1194	2416	9.7	9.5	292	313	38.7	38.3	35.4	296	4965	9	7.4	2019	4357	.00	1.83	1.03	6.2	10.0	9.1
POOH AT 2417 METERS, CORE BIT JAMMED. CORED 1 METER, RECOVERED 0.1 METER 10%.																											
NB#9 HTC XDG 12.25" WITH 15,15,14 JETS START DEPTH 2417 METERS.																											
956	2420	3.0	4.4	5.8	106	46.2	2658	2417	9.8	9.5	597	1154	34.8	35.7	34.8	402	5184	3	.1	721.6	6739	.18	1.80	1.05	8.9	10.0	8.9
958	2421	20.6	5.4	7.6	111	52.8	2611	2417	9.8	9.5	611	1188	35.2	35.9	34.8	405	5413	4	.1	97.69	4984	.27	1.29	1.04	22.6	10.0	9.0
1023	2423	10.1	5.5	8.1	112	38.7	2601	2418	9.8	9.5	597	795	36.7	36.0	40.4	407	6569	5	.3	197.8	3665	.58	1.30	1.02	20.5	10.0	9.2
1025	2423	11.1	7.5	7.5	114	46.5	2663	2418	9.8	9.5	617	751	36.6	36.3	39.8	395	6736	6	.3	205.5	3461	.63	1.42	1.03	18.5	10.1	9.1
1028	2424	17.6	5.4	8.2	111	49.7	2632	2418	9.9	9.5	603	543	36.9	36.8	39.3	390	7161	7	.3	113.8	2903	.75	1.29	1.01	22.4	10.1	9.3
1032	2425	12.9	7.2	8.2	115	46.1	2691	2419	9.8	9.5	607	611	37.2	36.8	39.3	393	7577	8	.4	157.9	2571	.87	1.37	.99	20.3	10.1	9.5
1036	2426	20.3	5.3	7.8	110	47.6	2639	2419	10.7	9.5	611	669	37.3	36.8	39.0	395	7977	9	.5	100.1	2287	.97	1.24	.97	23.8	10.1	9.7
1039	2427	15.4	6.0	7.7	112	46.5	2648	2419	10.1	9.5	610	623	37.7	36.9	38.8	397	8380	10	.5	131.8	2068	1.06	1.32	.96	21.8	10.1	9.8
1043	2428	16.7	4.8	7.8	109	44.4	2655	2419	9.7	9.5	605	629	37.9	37.0	38.8	383	8791	11	.6	121.1	1890	1.17	1.29	.95	22.6	10.1	9.9
1049	2429	11.6	6.3	7.7	111	49.7	2637	2419	9.4	9.5	600	709	37.9	37.0	38.3	386	9431	12	.7	176.8	1748	1.31	1.41	.93	19.9	10.2	10.1
1057	2430	8.1	6.2	8.2	112	52.9	2996	2419	9.4	9.5	662	888	38.5	37.1	38.2	388	10320	13	.8	249.1	1633	1.51	1.51	.92	17.3	10.2	10.3
1101	2431	11.4	4.8	7.9	112	49.1	2975	2419	9.4	9.5	659	634	38.3	37.1	38.2	395	10777	14	.9	183.7	1519	1.61	1.42	.90	20.0	10.2	10.5
1106	2432	13.9	4.8	7.7	112	43.9	2998	2420	9.4	9.5	660	646	38.4	37.4	38.0	395	11296	15	1.0	143.9	1434	1.72	1.36	.88	21.5	10.2	10.6
1112	2433	8.5	5.0	7.9	114	57.5	3018	2422	9.4	9.5	652	691	38.6	37.5	37.9	405	12056	16	1.1	235.4	1358	1.87	1.49	.86	18.0	10.2	11.0
1118	2434	9.3	5.4	8.1	113	51.5	2944	2422	9.4	9.5	661	665	38.8	37.8	35.7	412	12729	17	1.2	215.6	1292	2.00	1.49	.86	18.5	10.1	10.9
1123	2435	11.1	5.0	8.0	109	53.9	2939	2422	9.4	9.5	671	695	39.1	37.7	35.6	412	13257	18	1.3	184.4	1229	2.11	1.44	.84	20.0	10.1	11.2
1223	2436	3.8	4.8	8.0	109	37.6	2896	2434	9.3	9.5	640	691	40.5	42.3	38.3	441	16716	19	1.6	633.2	1204	2.40	1.66	1.01	13.0	9.7	9.4
1230	2437	10.4	4.8	8.2	115	44.1	2927	2435	9.3	9.5	652	725	41.1	41.9	38.5	444	17586	20	1.7	191.6	1149	2.54	1.48	.86	19.6	9.6	10.9
1237	2438	7.5	5.1	7.7	116	28.3	2910	2435	9.3	9.5	657	673	41.2	42.3	38.7	450	18334	21	1.8	267.1	1105	2.65	1.52	.87	17.6	9.6	10.8
1239	2439	13.6	5.0	6.7	114	30.0	2900	2435	9.3	9.5	660	666	41.3	42.3	38.7	446	18571	22	1.8	150.6	1059	2.68	1.31	.85	23.0	9.6	11.1
1241	2440	28.5	5.6	6.5	112	40.4	2894	2435	9.3	9.5	659	714	41.2	42.3	38.8	455	18790	23	1.9	72.30	1015	2.71	1.12	.86	28.0	9.6	10.9
CIRCULATE RETURNS AT 2440 METRES AFTER 2 METRE DRILL BREAK.																											
POOH AT 2440 METERS WITH BIT NO 9, LATROBE FORMATION FOUND AT 2437.7 METERS.																											
CB#6 CHRIS C22 8 15/32", START DEPTH 2440 METERS, CIRCULATE BOTTOMS UP PRIOR TO CORING.																											
622	2441	9.5	6.9	7.2	86	21.4	1114	2440	9.5	9.9	257	90	44.8	44.3	41.3	498	839	1	.1	211.4	27512	.00	1.35	.98	18.8	9.6	8.6
630	2442	8.3	5.2	5.8	87	19.4	1272	2440	9.5	10.0	259	85	44.7	43.6	41.5	486	1393	2	.2	239.7	13009	.00	1.40	.95	17.4	9.7	8.7
637	2443	7.3	5.9	6.5	76	18.4	1169	2440	9.5	10.1	257	221	44.1	43.0	41.8	484	2028	3	.4	287.9	8762	.00	1.43	.92	16.5	9.7	8.5
642	2444	16.7	4.6	6.0	73	23.9	1422	2440	9.5	9.8	256	177	44.2	42.5	41.8	453	2398	4	.5	125.5	6460	.00	1.13	.92	24.0	9.7	8.5
648	2445	10.5	5.5	6.6	74	21.2	1254	2440	9.5	10.0	257	212	43.7	42.1	41.8	427	2890	5	.6	197.7	5172	.00	1.23	.91	20.7	9.7	8.6
655	2446	10.9	5.0	7.0	71	21.0	936	2440	9.5	10.0	252	276	43.4	41.9	42.2	431	3367	6	.7	193.5	4325	.00	1.24	.87	20.7	9.7	8.7
705	2447	5.2	4.7	7.5	85	23.1	1331	2440	9.5	9.9	251	119	42.9	41.7	42.5	420	4178	7	.8	388.3	3761	.00	1.40	.86	16.0	9.7	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:24 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
717	2448	4.1	3.2	5.5	85	24.7	1473	2440	9.4	9.9	284	319	42.4	41.3	42.7	410	5170	8	1.0	499.2	3319	.00	1.48	.87	14.4	9.8	8.7
728	2449	5.3	3.5	5.1	82	18.1	1594	2440	9.4	10.0	284	135	42.1	40.8	43.0	403	6109	9	1.2	389.0	2986	.00	1.44	.86	15.5	9.8	8.7
741	2450	4.2	3.5	5.0	84	25.0	1555	2440	9.4	9.6	283	261	41.8	40.9	43.2	410	7187	10	1.4	517.8	2727	.00	1.54	.86	13.3	9.8	8.6
803	2451	2.4	4.8	6.0	66	25.9	1474	2440	9.6	9.8	295	228	41.1	40.5	43.8	396	9057	11	1.8	962.6	2554	.00	1.57	.81	11.9	9.8	8.4
816	2452	5.6	4.1	6.9	85	25.6	1528	2440	9.5	10.0	291	331	41.0	40.6	44.1	389	10025	12	2.0	354.4	2373	.00	1.38	.88	16.1	9.8	8.6
850	2453	1.1	3.9	7.1	85	29.2	1490	2441	9.5	9.9	295	184	40.6	40.6	44.6	382	12752	13	2.6	1853	2266	.00	1.80	.88	7.5	9.9	8.5
913	2454	2.8	3.7	5.5	87	28.2	1511	2445	9.5	10.5	284	237	40.1	40.3	45.3	377	14701	14	3.0	771.7	2168	.00	1.57	.86	12.0	9.8	8.4
937	2455	2.6	3.0	5.0	86	27.6	1505	2448	9.4	10.7	292	265	40.0	40.5	44.4	387	16688	15	3.4	835.4	2075	.01	1.57	.86	11.8	9.8	8.5
POOH AT 2456 METERS, CORED 16 METERS, RECOVERED 11.4 METERS 71%.																											
CB#7 CHRIS C22, START DEPTH 2456 METERS CIRCULATE BOTTOMS UP PRIOR TO CORING.																											
1948	2457	3.4	3.4	5.3	101	21.8	1596	2450	9.6	9.5	279	753	44.6	39.7	42.7	434	19450	17	3.9	640.1	1888	.01	1.58	.90	12.4	9.8	8.6
1957	2458	11.6	3.4	5.1	99	21.7	1648	2450	9.7	9.5	283	731	42.4	40.4	42.3	436	20406	18	4.0	345.5	1809	.01	1.37	.78	21.8	9.8	8.7
2004	2459	5.3	3.6	7.0	100	20.5	1723	2451	9.7	9.5	282	753	41.4	40.7	42.3	434	21128	19	4.1	373.4	1717	.01	1.42	.82	16.2	9.8	8.7
2016	2460	4.0	3.6	5.6	98	24.2	1653	2452	9.7	9.4	283	469	40.9	40.2	41.9	458	22261	20	4.3	513.2	1655	.01	1.46	.86	14.8	9.8	8.4
2026	2461	6.1	3.8	5.3	104	19.1	1510	2452	9.6	9.5	284	497	40.1	39.1	41.6	458	23365	21	4.5	395.7	1595	.01	1.43	.83	16.2	9.8	8.5
2035	2462	8.1	4.1	5.8	102	24.0	1667	2453	9.7	9.7	283	471	39.8	40.9	41.3	458	24225	22	4.6	256.2	1533	.01	1.33	.89	18.7	9.8	8.6
2050	2463	4.9	3.4	6.9	101	16.1	1617	2453	9.5	9.6	283	459	39.6	40.6	41.1	461	25693	23	4.9	421.4	1486	.01	1.49	.85	14.8	9.9	8.7
2101	2464	5.9	3.4	4.9	103	25.0	1514	2453	9.7	9.9	284	490	39.4	40.2	40.9	472	26910	24	5.1	339.5	1440	.01	1.40	.86	16.5	9.9	8.7
2116	2465	4.1	3.4	4.5	101	19.8	1486	2454	9.7	9.7	264	421	39.3	39.7	40.9	477	28445	25	5.3	493.2	1402	.01	1.46	.86	14.6	9.9	8.6
2129	2466	5.6	3.6	4.7	103	20.9	1529	2454	9.6	9.5	255	753	38.9	37.4	40.7	436	29809	26	5.6	356.7	1365	.01	1.41	.89	16.2	9.9	8.5
2141	2467	7.7	4.0	5.9	103	22.2	1605	2455	9.7	9.4	276	775	37.8	37.2	40.4	439	31015	27	5.7	302.9	1329	.01	1.32	.86	19.3	9.9	8.5
2150	2468	7.6	3.4	4.7	102	13.1	1512	2455	9.5	9.3	280	457	37.4	37.0	40.1	451	31883	28	5.9	296.7	1293	.01	1.31	.86	18.6	9.9	8.4
2157	2469	9.8	3.3	6.0	104	26.6	1344	2455	9.7	9.5	271	438	37.1	36.4	40.0	453	32691	29	6.0	216.6	1256	.01	1.23	.83	21.2	9.9	8.4
2204	2470	10.6	4.8	6.0	89	21.0	1152	2455	9.7	9.8	241	405	36.8	38.3	40.0	438	33395	30	6.1	189.1	1223	.01	1.17	.83	21.6	9.9	8.4
POOH AT 2470 METERS, CORED 14 METERS, RECOVERED 9 METERS 64%.																											
CB#8 CHRIS C22, START DEPTH 2470 METERS, CIRCULATE BOTTOMS UP PRIOR TO CORING.																											
748	2470	3.7	6.3	6.4	38	19.0	1456	2470	9.7	9.5	147	181	45.4	44.7	45.4	446	33555	30	6.1	6610	1213	.15	1.30	1.07	2.5	9.9	8.9
805	2471	4.1	4.1	8.6	68	15.3	994	2470	9.7	9.5	147	156	44.7	43.2	45.4	441	34625	33	6.4	4365	1228	.15	1.29	.96	5.4	9.9	9.9 ↑
806	2473	3.4	4.8	4.8	71	17.3	1020	2470	9.7	9.5	147	53	44.8	43.2	45.4	441	34652	33	6.4	2440	1128	.15	1.31	.96	6.8	9.9	9.9
815	2474	6.4	4.3	7.1	63	23.2	1243	2470	9.7	9.5	210	171	43.9	42.7	45.4	448	35264	34	6.6	314.4	1104	.15	1.26	1.13	18.5	10.0	8.4
820	2474	4.0	3.7	5.2	63	21.7	1197	2470	9.7	9.6	208	92	43.6	42.4	45.4	450	35603	34	6.6	498.9	1112	.15	1.37	1.10	16.3	10.0	8.6
822	2475	3.7	3.4	3.8	62	17.7	1356	2470	9.7	9.7	208	455	43.7	42.3	45.4	455	35721	34	6.7	535.3	1112	.15	1.40	1.12	15.2	10.0	8.5
837	2475	4.1	3.3	5.0	61	23.4	1712	2470	9.7	9.8	285	322	42.9	41.9	45.4	458	36620	35	6.9	510.3	1094	.15	1.36	1.09	16.2	10.0	8.7
854	2476	3.5	2.9	4.8	60	16.4	1537	2470	9.8	9.8	285	515	42.2	41.9	45.4	460	37633	36	7.2	569.7	1079	.16	1.40	1.07	14.9	10.0	8.8
913	2477	2.9	2.7	3.7	60	21.5	1701	2470	9.7	9.8	285	814	41.8	41.8	45.4	441	38824	37	7.5	722.2	1067	.16	1.47	1.08	13.7	10.0	8.8
932	2478	2.6	3.0	3.8	104	25.3	1845	2470	9.7	9.4	272	595	40.2	38.6	45.4	450	40629	38	7.8	820.7	1056	.16	1.63	1.08	11.7	10.0	8.8
940	2479	8.6	3.5	4.7	103	20.1	1603	2470	9.8	9.4	-1	659	39.5	38.1	45.4	460	41396	39	8.0	247.2	1036	.16	1.34	1.07	18.8	10.0	8.9
959	2480	2.0	3.0	4.6	104	19.1	1601	2470	9.7	9.4	281	482	38.7	37.3	45.4	460	43344	40	8.3	1078	1026	.16	1.71	1.06	9.6	10.0	9.0
POOH AT 2480 METERS WITH CORE NO 8, CORED 10 METERS RECOVERED 0 METER.																											
RR BIT NO 9 HTC XDG 12.25", REAM OUT RAT HOLE,																											
START DEPTH 2480 METERS.																											
240	2480	5.1	6.5	7.1	109	40.5	2819	2473	9.8	9.4	624	448	41.2	42.2	44.7	467	17640	2	.0	386.6	12453	.01	1.47	1.16	6.8	10.1	8.6
240	2481	5.3	6.7	6.6	109	38.5	2838	2473	9.8	9.4	633	451	41.2	42.2	44.7	471	17646	2	.0	377.2	12455	.01	1.47	1.17	6.8	10.1	8.6
240	2482	6.6	5.7	7.1	109	45.0	2796	2473	9.8	9.4	627	444	41.2	42.2	44.7	467	17678	2	.0	301.7	11057	.01	1.44	1.18	6.7	10.1	8.5
249	2483	9.0	6.0	7.6	124	23.4	2782	2474	9.8	9.4	620	437	41.1	42.0	43.1	474	18468	3	.2	221.9	7240	.09	1.24	1.11	11.1	10.1	8.6
DRILL TO 248[illegible] METERS, CIRCULATE BOTTOMS UP.																											
418	2484	8.9	6.4	6.8	114	35.7	2781	2481	9.8	9.2	630	425	44.1	44.4	41.2	467	20813	4	.2	239.4	5553	.13	1.19	1.11	12.2	10.1	8.5
420	2485	32.3	6.9	7.3	114	32.6	2806	2481	9.8	9.2	632	427	44.1	44.0	41.5	459	21026	5	.3	63.25	4361	.16	1.03	1.11	16.9	10.1	8.5
425	2486	16.8	6.2	7.5	111	36.0	2802	2481	9.8	9.2	648	429	44.2	43.5	41.9	462	21439	6	.3	119.8	3703	.19	1.10	1.09	14.8	10.2	8.5
427	2487	27.6	6.6	7.1	107	33.4	2839	2481	9.8	9.2	638	426	43.9	43.3	41.9	459	21677	7	.4	99.32	3157	.22	1.12	1.10	15.1	10.2	8.6

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:29 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
430	2488	22.9	6.4	7.2	104	37.7	2792	2481	9.7	9.2	641	443	43.7	43.2	42.3	455	21974	8	.4	87.21	2747	.24	1.03	1.05	16.5	10.2	8.6
433	2489	23.2	6.8	7.3	112	33.6	2793	2481	9.7	9.2	645	505	43.7	43.4	42.3	452	22221	9	.5	87.47	2465	.26	1.07	1.05	15.6	10.2	8.5
434	2490	37.7	6.7	7.4	112	32.9	2794	2481	9.8	9.2	632	520	43.8	43.4	42.8	454	22392	10	.5	56.72	2206	.28	1.01	1.04	18.1	10.2	8.6
437	2491	27.1	6.4	7.5	112	34.4	2811	2481	9.7	9.4	631	536	43.7	43.2	42.8	448	22687	11	.5	73.72	2018	.31	1.04	1.02	16.5	10.2	8.6
439	2492	21.8	6.2	7.4	109	39.2	2828	2481	9.7	9.5	647	517	43.5	42.9	43.2	462	22935	12	.6	93.27	1874	.33	1.10	.98	15.1	10.2	8.5
443	2493	19.1	5.6	7.3	110	27.5	2807	2481	9.7	9.6	642	529	43.2	42.8	43.2	462	23290	13	.6	104.8	1720	.37	1.12	1.00	14.5	10.2	8.6
455	2494	17.7	6.0	7.4	110	31.9	2769	2481	9.8	9.7	636	534	43.0	42.2	43.8	450	23822	14	.7	122.5	1615	.39	1.12	1.01	14.6	10.2	8.5
457	2495	22.9	6.2	7.2	113	23.9	2760	2481	9.8	9.7	635	528	42.7	42.0	43.8	455	24090	15	.7	88.24	1505	.42	1.10	.97	15.1	10.2	8.6
460	2496	27.1	6.2	7.3	111	28.9	2805	2481	9.8	9.7	631	534	42.7	41.9	44.0	441	24331	16	.8	78.58	1412	.44	1.07	.95	15.9	10.2	8.6
501	2497	31.9	6.4	7.4	111	39.6	2828	2481	9.8	9.7	642	516	42.6	42.2	44.0	443	24531	17	.8	67.65	1340	.46	1.02	.95	17.8	10.2	8.5
504	2498	35.7	6.6	7.5	115	44.1	2815	2481	9.8	9.7	637	508	42.4	42.4	44.1	469	24786	18	.8	55.61	1250	.48	1.01	.93	17.7	10.2	8.5
505	2499	29.9	6.9	7.4	112	34.6	2792	2481	9.8	9.7	644	589	42.7	42.4	44.1	465	24958	19	.9	67.97	1201	.50	1.04	.92	16.8	10.2	8.6
507	2500	38.9	6.7	7.4	124	36.3	2831	2481	9.8	9.7	639	576	42.3	42.4	44.1	455	25127	20	.9	51.44	1143	.51	1.00	.92	18.3	10.2	8.6
508	2501	33.4	6.7	7.5	115	37.9	2808	2481	9.8	9.7	636	613	42.2	42.3	44.3	451	25333	21	.9	59.84	1096	.53	.98	.90	18.5	10.2	8.6
510	2502	47.7	6.6	7.4	115	36.1	2778	2481	9.8	9.7	633	568	42.4	42.2	44.3	450	25491	22	.9	41.97	1045	.54	.93	.89	19.0	10.2	8.5
511	2503	42.1	6.7	7.3	116	33.2	2762	2481	9.8	9.7	640	564	42.3	42.1	44.3	448	25663	23	1.0	48.54	1003	.56	.98	.87	18.7	10.2	8.5
513	2504	33.8	6.8	7.5	117	29.2	2814	2481	9.8	9.7	635	569	42.1	42.1	44.3	448	25890	24	1.0	60.89	962.8	.58	1.03	.86	17.2	10.2	8.5
515	2505	28.8	6.7	7.4	115	37.9	2829	2481	9.8	9.7	641	577	42.2	42.2	44.4	452	26136	25	1.0	69.47	927.3	.60	1.07	.86	16.1	10.2	8.6
517	2506	30.9	7.2	7.5	116	41.5	2809	2481	9.7	9.8	643	568	42.4	42.2	44.4	441	26341	26	1.1	67.85	893.9	.62	1.07	.86	16.6	10.2	8.5
528	2507	30.1	6.9	7.5	112	36.8	2847	2481	9.8	9.8	633	561	42.1	42.0	44.4	441	26767	27	1.1	66.75	862.6	.64	1.02	.86	17.5	10.2	8.6
529	2508	40.2	6.4	7.6	114	32.1	2838	2481	9.8	9.8	648	560	41.8	41.6	44.4	448	26946	28	1.1	55.39	838.2	.65	1.00	.85	18.2	10.2	8.5
531	2509	30.0	7.0	7.2	116	36.4	2844	2482	9.8	9.8	642	581	41.8	41.9	44.4	446	27209	29	1.2	61.91	807.7	.68	1.02	.85	17.3	10.2	8.6
532	2510	68.6	6.5	7.3	116	33.7	2788	2482	9.8	9.8	633	558	41.9	41.8	44.4	443	27289	30	1.2	36.00	784.7	.68	.90	.84	22.4	10.2	8.5
534	2511	35.6	6.6	7.4	115	34.8	2849	2482	9.8	9.8	644	592	41.9	41.8	44.4	455	27540	31	1.2	55.73	759.5	.70	1.01	.83	18.0	10.2	8.5
539	2512	15.7	6.5	7.3	112	35.5	2842	2484	9.8	9.8	637	559	41.6	41.8	44.3	448	28100	32	1.3	130.2	741.1	.75	1.17	.80	13.9	10.2	8.5
541	2513	16.4	6.6	7.2	113	37.4	2850	2485	9.8	9.8	629	576	41.7	41.7	44.3	441	28327	33	1.3	129.8	721.4	.77	1.19	.85	13.2	10.2	8.5
543	2514	30.9	6.5	7.3	115	39.7	2777	2485	9.8	9.8	637	621	41.7	41.7	44.2	448	28520	34	1.3	64.81	702.7	.78	1.03	.85	17.0	10.2	8.6
546	2515	26.4	6.6	7.4	110	41.2	2775	2487	9.8	9.8	645	581	41.7	41.8	44.2	455	28813	35	1.4	77.59	684.6	.81	1.08	.84	16.3	10.2	8.5
548	2516	21.4	6.3	7.4	114	32.6	2777	2488	9.8	9.8	645	565	41.7	41.7	44.2	465	29114	36	1.4	93.29	668.2	.83	1.12	.85	15.1	10.2	8.6
550	2517	29.8	6.7	7.3	114	36.7	2828	2488	9.8	9.8	653	568	41.4	42.0	44.2	443	29311	37	1.5	69.97	652.2	.84	1.06	.85	16.7	10.2	8.6
553	2518	26.5	6.9	7.5	113	42.3	2849	2489	9.8	9.8	652	568	41.8	42.0	44.2	443	29606	38	1.5	75.45	637.6	.87	1.09	.85	16.1	10.2	8.6
556	2519	20.0	6.1	7.0	112	28.9	2859	2490	9.8	9.8	649	584	41.6	41.6	44.0	452	29993	39	1.6	99.86	623.8	.89	1.06	.85	16.3	10.2	8.6
608	2520	27.7	6.1	7.3	112	42.4	2874	2492	9.8	9.8	644	647	41.4	41.9	43.7	441	30393	40	1.6	71.55	607.2	.91	.93	.84	19.7	10.2	8.6 ↑
609	2521	47.3	6.6	7.2	112	40.4	2831	2492	9.8	9.8	634	603	41.5	41.7	43.7	441	30575	41	1.6	42.29	596.5	.92	.90	.84	19.5	10.2	8.5
612	2522	27.0	6.4	7.1	111	41.4	2866	2493	9.8	9.8	648	618	41.6	41.8	43.5	438	30842	42	1.7	77.78	585.1	.94	1.06	.83	16.7	10.2	8.6
613	2523	27.3	6.8	7.1	112	41.4	2879	2494	9.8	9.8	641	592	41.5	41.6	43.5	436	31048	43	1.7	73.23	572.6	.96	1.06	.84	16.2	10.2	8.6
616	2524	28.3	6.0	7.2	110	30.4	2831	2495	9.8	9.8	629	604	41.3	41.2	43.5	423	31302	44	1.7	76.17	561.8	.97	1.05	.82	17.6	10.2	8.5
618	2525	31.3	6.6	7.1	112	37.2	2815	2496	9.8	9.8	639	591	41.6	41.9	43.2	420	31518	45	1.8	67.16	550.5	.99	1.03	.83	17.5	10.2	8.6
620	2526	27.6	6.9	7.2	112	40.5	2846	2498	9.8	9.8	652	608	41.3	41.9	43.2	429	31750	46	1.8	72.35	540.1	1.00	1.06	.83	16.8	10.2	8.6
622	2527	28.0	7.0	7.4	112	37.1	2803	2499	9.8	9.8	635	603	41.4	41.9	43.0	434	31998	47	1.8	73.57	530.6	1.02	1.07	.83	16.7	10.2	8.5
624	2528	30.9	6.6	7.2	113	33.3	2859	2500	9.8	9.8	641	611	41.5	41.8	43.0	428	32200	48	1.9	67.62	521.0	1.04	1.04	.83	17.6	10.2	8.6
625	2529	36.5	6.8	7.3	112	35.5	2861	2501	9.8	9.8	642	608	41.8	41.9	43.0	431	32377	49	1.9	56.38	511.5	1.05	1.00	.82	18.8	10.2	8.5
627	2530	32.0	6.6	7.2	113	36.2	2831	2502	9.8	9.8	645	636	41.9	42.0	42.7	438	32583	50	1.9	63.23	502.3	1.06	1.01	.82	18.3	10.2	8.5
629	2531	35.7	6.5	7.2	113	34.3	2821	2503	9.8	9.8	643	591	41.7	41.9	42.7	422	32778	51	2.0	56.00	494.0	1.08	.99	.81	18.4	10.2	8.6
631	2532	27.3	6.7	7.2	114	38.5	2839	2503	9.8	9.8	640	638	41.9	41.8	42.7	434	33038	52	2.0	77.53	487.2	1.09	1.07	.81	16.8	10.2	8.6
655	2533	19.6	5.0	7.2	90	31.3	2803	2509	9.8	9.8	632	627	41.7	42.0	42.3	434	33785	53	2.1	102.3	476.1	1.12	.93	.82	19.8	10.2	8.5 ↑
655	2534	33.0	4.6	5.7	107	38.7	2858	2509	9.8	9.8	639	625	42.0	41.4	42.3	441	33837	54	2.1	77.44	472.1	1.12	.94	.80	19.6	10.2	8.5
701	2535	16.5	4.9	8.3	107	37.2	2841	2511	9.8	9.8	632	631	41.9	41.7	42.1	438	34386	55	2.1	122.8	466.0	1.16	1.12	.77	15.2	10.2	8.6
706	2536	9.5	4.9	6.3	109	34.9	2864	2513	9.9	9.8	652	594	41.9	42.3	42.0	426	34938	56	2.2	210.6	460.5	1.19	1.26	.82	11.8	10.2	8.5
714	2537	8.1	5.1	8.4	110	32.1	2856	2516	9.9	9.8	636	609	42.3	42.3	41.7	434	35903	57	2.4	265.8	458.2	1.25	1.35	.77	10.4	10.2	8.6

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:33 12/20/78

TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP(C) IN	TEMP(C) OUT	TEMP(C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	ΔP	ECD	NXMW
717	2538	10.8	4.8	5.9	111	37.3	2863	2517	10.0	9.8	627	601	42.2	42.3	41.6	426	36180	58	2.4	193.0	451.6	1.27	1.27	.81	11.7	10.2	8.5
726	2539	8.7	7.0	8.2	110	41.3	2827	2519	9.9	9.8	635	619	42.6	42.2	41.6	435	37160	59	2.6	230.4	448.9	1.33	1.35	.81	10.1	10.2	8.6
733	2540	9.2	4.7	8.4	110	37.9	2817	2523	9.9	9.8	644	573	42.7	42.4	41.5	438	37921	60	2.7	232.2	445.4	1.38	1.32	.79	10.8	10.2	8.6
737	2541	8.9	5.7	8.2	110	37.9	2806	2524	9.9	9.8	628	589	42.6	42.5	41.5	427	38366	61	2.8	225.6	440.6	1.41	1.34	.81	10.5	10.2	8.5
744	2542	10.3	5.5	8.3	115	42.0	2844	2528	9.9	9.8	643	559	42.5	42.7	41.4	436	39136	62	2.9	196.4	437.1	1.45	1.32	.82	10.9	10.2	8.5
747	2543	10.5	5.5	8.3	109	41.9	2831	2529	9.9	9.8	627	530	42.4	42.6	41.4	450	39501	63	2.9	194.0	432.3	1.48	1.31	.82	11.2	10.2	8.6
753	2544	12.8	7.3	8.4	112	40.3	2820	2530	9.9	9.8	643	565	42.5	42.6	41.4	441	40088	64	3.0	155.7	428.2	1.51	1.27	.83	12.2	10.2	8.6
755	2545	17.9	5.5	8.3	110	40.6	2826	2530	9.9	9.8	634	603	42.8	42.7	41.5	433	40403	65	3.1	115.7	423.2	1.53	1.19	.84	14.1	10.2	8.6
820	2546	7.0	6.1	8.4	111	37.9	2945	2534	9.9	9.7	655	573	43.6	44.5	41.8	418	41972	66	3.3	284.8	422.0	1.62	1.35	.84	10.1	10.3	8.6
823	2547	8.5	5.5	6.9	111	34.4	2930	2534	9.9	9.8	656	588	43.5	44.5	41.8	428	42297	67	3.3	243.2	418.6	1.63	1.31	.83	11.2	10.3	8.6
824	2548	26.4	6.1	7.4	112	40.7	2932	2534	9.9	9.8	645	559	43.4	44.4	41.8	421	42405	68	3.3	82.77	413.9	1.64	1.08	.85	17.0	10.3	8.5
830	2549	13.0	6.1	8.5	112	41.9	2882	2536	9.9	9.8	650	553	43.5	44.5	41.8	419	43143	69	3.4	154.6	410.2	1.68	1.27	.85	12.4	10.3	8.6
833	2550	13.3	5.6	7.1	112	38.1	2853	2536	9.9	9.8	649	579	43.5	44.3	41.8	419	43473	70	3.5	163.1	406.4	1.70	1.26	.85	12.4	10.3	8.5
835	2551	28.9	6.0	6.3	114	38.2	2864	2536	9.9	9.8	642	545	43.7	44.1	41.9	424	43634	71	3.5	69.26	400.9	1.71	1.05	.86	17.5	10.3	8.6
839	2552	17.2	5.7	6.6	112	41.6	2833	2537	9.9	9.8	642	565	43.9	44.6	42.1	402	44147	72	3.6	116.5	397.6	1.74	1.17	.85	14.5	10.3	8.5
841	2553	21.7	8.2	8.1	114	40.9	2841	2537	9.9	9.8	639	548	43.9	44.3	42.1	407	44362	73	3.6	92.19	393.1	1.75	1.14	.86	14.7	10.3	8.6
843	2554	30.9	5.6	8.2	112	42.8	2907	2537	9.9	9.8	648	531	44.0	44.5	42.1	421	44551	74	3.7	66.46	388.8	1.77	1.06	.85	18.0	10.3	8.5
844	2555	37.8	7.8	7.8	112	41.4	2901	2538	9.9	9.8	648	551	43.8	44.6	42.3	420	44709	75	3.7	52.92	384.3	1.77	1.00	.85	19.0	10.3	8.5
847	2556	25.8	7.0	8.3	113	40.6	2835	2538	9.9	9.8	653	568	44.1	44.5	42.3	421	45025	76	3.7	78.58	380.7	1.79	1.11	.83	16.5	10.3	8.5
851	2557	15.4	5.6	8.2	110	33.9	2818	2539	9.9	9.8	643	560	43.9	44.4	42.4	412	45465	77	3.8	129.5	377.4	1.82	1.22	.84	13.7	10.3	8.5
853	2558	21.2	5.9	6.6	112	41.7	2886	2540	9.9	9.8	652	555	43.9	44.3	42.4	412	45687	78	3.8	94.50	373.4	1.83	1.13	.85	15.9	10.3	8.5
909	2559	13.0	5.8	6.7	111	34.4	2822	2542	9.9	9.8	634	536	44.1	44.7	42.5	397	46587	79	3.9	157.5	371.8	1.87	1.21	.82	13.7	10.3	8.6
913	2560	9.7	6.1	8.1	112	38.5	2837	2543	9.9	9.8	630	544	44.2	45.2	42.5	424	47086	80	4.0	206.2	369.2	1.89	1.25	.86	12.6	10.3	8.6
916	2561	15.8	7.4	7.9	112	40.6	2824	2543	9.9	9.8	630	542	44.2	44.9	42.5	419	47376	81	4.1	126.4	365.7	1.91	1.20	.88	14.1	10.3	8.5
918	2562	28.7	5.6	8.4	110	46.2	2848	2543	9.9	9.8	636	537	44.0	44.9	42.5	421	47547	82	4.1	77.77	362.0	1.92	1.07	.86	17.5	10.3	8.6
926	2563	9.4	4.2	8.2	108	41.8	2885	2543	9.9	9.8	636	542	44.5	44.7	42.6	412	48508	83	4.2	211.5	361.1	1.97	1.32	.86	11.4	10.3	8.6
939	2564	5.0	5.0	8.2	106	41.7	2854	2546	9.9	9.8	639	552	44.4	45.1	42.9	424	49872	84	4.4	409.1	361.9	2.04	1.48	.88	8.2	10.3	8.5
942	2565	9.0	7.3	8.0	109	45.5	2883	2547	9.9	9.8	645	532	44.7	45.1	43.2	426	50217	85	4.5	229.8	358.9	2.06	1.36	.87	10.6	10.3	8.5
948	2566	13.9	6.4	8.1	112	46.2	2867	2549	9.9	9.8	637	547	44.3	44.9	43.3	417	50859	86	4.6	149.6	357.3	2.10	1.28	.88	12.8	10.3	8.5
957	2567	8.0	4.8	8.1	109	42.4	2875	2553	9.9	9.9	649	528	44.5	45.1	43.6	431	51857	87	4.7	260.0	356.5	2.15	1.41	.89	9.8	10.2	8.5
1001	2568	11.9	4.6	8.1	109	47.7	2895	2554	9.9	9.9	646	533	44.4	45.5	43.6	420	52280	88	4.8	183.0	354.5	2.17	1.31	.90	12.2	10.2	8.6
1005	2569	16.2	5.0	7.8	110	42.3	2851	2556	9.9	9.9	643	535	44.3	44.8	43.7	423	52746	89	4.9	124.5	351.7	2.20	1.26	.91	13.2	10.2	8.5
1009	2570	19.0	4.9	8.1	112	41.4	2825	2556	9.9	9.9	638	538	44.2	45.3	43.7	426	53159	90	4.9	105.6	349.2	2.22	1.23	.92	14.2	10.2	8.5
1014	2571	11.9	5.1	6.2	109	48.3	2846	2557	9.9	9.9	638	510	44.2	45.2	43.8	424	53786	91	5.0	170.2	347.7	2.25	1.35	.93	11.3	10.2	8.5
1021	2572	9.7	4.6	7.6	109	46.2	2814	2558	9.9	9.9	639	533	44.3	45.2	43.9	426	54499	92	5.1	209.9	346.3	2.29	1.41	.93	10.1	10.2	8.6
1042	2573	10.8	5.6	7.9	109	40.1	2953	2561	9.9	9.8	644	548	44.2	45.2	43.9	409	55616	93	5.3	184.4	346.0	2.33	1.32	.95	11.7	10.2	8.5
1053	2574	6.9	6.7	8.0	112	38.9	2893	2562	9.9	9.9	644	539	44.2	45.2	44.1	424	56818	94	5.5	290.3	346.3	2.39	1.45	.94	9.2	10.2	8.6
1056	2575	14.4	7.0	7.9	112	42.1	2841	2563	9.9	9.9	648	538	44.2	45.1	44.2	419	57209	95	5.5	162.4	343.9	2.41	1.29	.95	12.6	10.2	8.6
1105	2576	8.3	4.9	7.7	112	39.1	2883	2564	9.9	9.9	640	561	44.4	45.0	44.3	410	58198	96	5.7	241.4	343.7	2.45	1.40	.95	10.2	10.2	8.5
1111	2577	8.7	4.5	7.2	109	44.0	2863	2565	9.9	10.0	630	566	44.3	45.5	44.4	407	58853	97	5.8	239.3	342.1	2.49	1.46	.98	9.5	10.2	8.5
1118	2578	8.6	5.2	6.9	110	45.2	2893	2566	9.9	9.9	644	524	44.5	45.3	44.4	426	59563	98	5.9	245.5	341.1	2.52	1.45	.96	9.5	10.2	8.5
1121	2579	12.7	5.8	6.4	112	44.7	2871	2567	9.9	10.0	643	466	44.8	45.4	44.4	407	59941	99	5.9	172.7	339.0	2.54	1.37	.99	11.2	10.2	8.5
1127	2580	11.3	4.7	7.6	109	46.8	2873	2568	9.9	10.0	639	487	44.7	45.6	44.3	412	60584	100	6.0	183.7	337.5	2.57	1.36	.99	11.3	10.2	8.6
1133	2581	9.4	4.2	7.8	109	39.0	2873	2569	9.9	10.0	624	476	44.8	45.5	44.3	417	61264	101	6.2	218.7	336.3	2.61	1.38	.99	10.8	10.2	8.6
1154	2582	2.8	4.2	7.9	110	36.4	2907	2571	9.9	9.8	651	464	45.1	45.3	44.2	421	63536	102	6.5	770.5	339.7	2.70	1.68	.99	5.7	10.2	8.6
1159	2583	5.7	5.4	5.6	110	37.8	2853	2571	9.9	9.8	630	368	44.9	45.5	44.2	414	64089	103	6.6	367.8	338.2	2.73	1.43	.98	9.4	10.2	8.5
1203	2584	13.6	5.4	5.6	112	43.9	2811	2572	9.9	9.8	637	385	45.0	45.5	44.2	426	64515	104	6.6	147.3	336.2	2.74	1.20	1.00	14.3	10.2	8.5
1205	2585	18.2	4.6	6.6	109	35.7	2843	2573	9.9	9.8	643	364	45.0	45.6	44.2	412	64785	105	6.7	111.2	333.9	2.75	1.18	.99	15.6	10.2	8.6
1218	2586	17.0	5.5	7.0	106	35.9	2737	2574	9.9	9.7	620	372	44.7	46.0	44.3	417	65400	106	6.8	119.0	332.0	2.77	1.07	.97	17.7	10.2	8.6
1218	2587	53.3	5.3	6.0	108	38.2	2818	2574	9.9	9.7	618	413	45.0	46.1	44.3	421	65446	107	6.8	51.82	329.5	2.77	.91	.96	23.1	10.2	8.5

ESSO AUSTRALIA FORTESCUE NO.3
UNIT #101 10:38 12/20/78

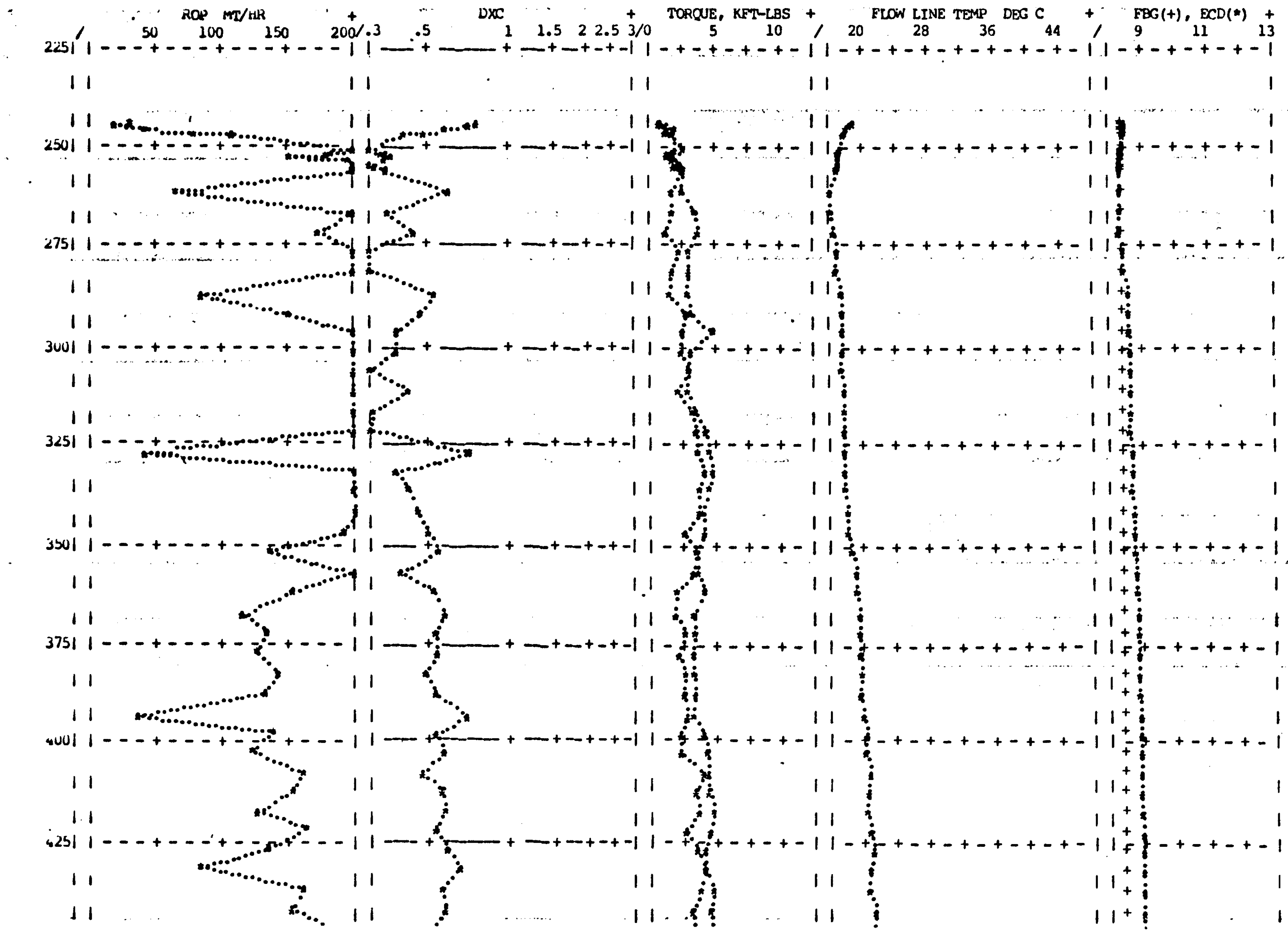
TIME	DEPTH	ROP M/H	TORQUE INST	TORQUE MAX	RPM	BIT WT	PUMP PSI	RTNS DEPTH	LB/GAL IN	LB/GAL OUT	GAL/MIN IN	GAL/MIN OUT	TEMP (C) IN	TEMP (C) OUT	TEMP (C) LAG	PVT	REVS	MT	THIS BIT HRS	THIS BIT CPMI	THIS BIT CPMB	EST TW	DXC	NXB	%P	ECD	NXMW
1220	2588	49.0	5.6	6.3	108	36.7	2746	2574	9.9	9.7	625	465	44.9	45.9	44.3	423	65625	108	6.8	41.58	326.8	2.78	.92	.96	22.6	10.2	8.5
1222	2589	25.5	5.3	5.9	109	33.4	2800	2574	9.9	9.8	624	406	44.7	45.4	44.2	412	65878	109	6.8	79.42	324.6	2.79	1.06	.94	18.6	10.2	8.6
1225	2590	23.0	4.3	5.9	107	36.7	2808	2575	9.9	9.8	629	310	44.7	45.5	44.2	421	66250	110	6.9	88.11	322.7	2.80	1.12	.94	17.1	10.3	8.5
1238	2591	6.8	5.8	7.6	111	37.0	2895	2577	9.9	9.8	640	394	44.8	45.6	44.3	417	67645	111	7.1	298.0	323.6	2.86	1.43	.93	9.9	10.3	8.5
1243	2592	12.6	4.3	6.8	109	34.8	2860	2578	9.9	9.8	635	571	44.9	45.6	44.4	408	68130	112	7.2	163.8	322.2	2.88	1.27	.95	13.7	10.3	8.6
1253	2593	7.3	5.6	7.8	109	38.9	2872	2579	9.8	9.8	644	523	44.8	45.5	44.5	405	69232	113	7.3	276.9	322.3	2.92	1.40	.95	10.5	10.3	8.5
1259	2594	9.1	4.7	6.3	108	39.1	2879	2579	9.8	9.8	623	485	45.1	45.9	44.7	420	69943	114	7.4	254.7	321.4	2.95	1.37	.96	12.0	10.3	8.6
1302	2595	17.8	4.6	5.2	109	37.1	2824	2579	9.8	9.8	633	526	45.1	45.8	44.7	407	70229	115	7.5	112.1	319.5	2.96	1.15	.95	15.9	10.3	8.6
1307	2596	13.3	5.1	7.9	109	38.5	2864	2580	9.8	9.8	631	503	45.2	45.6	44.8	409	70820	116	7.6	150.2	318.4	2.98	1.24	.94	14.1	10.3	8.5
1311	2597	11.7	4.9	5.7	109	34.1	2866	2580	9.9	9.8	634	470	44.8	45.6	44.8	395	71238	117	7.6	171.6	316.8	3.00	1.26	.95	13.6	10.3	8.6
1317	2598	12.2	5.3	5.8	107	39.1	2904	2582	9.9	9.9	633	376	45.2	46.1	44.9	402	71839	118	7.7	163.4	315.8	3.02	1.24	.95	13.9	10.3	8.5
1335	2599	14.2	5.3	5.8	106	38.7	2867	2586	9.9	9.9	631	493	45.4	45.8	45.1	405	72502	119	7.8	160.5	314.4	3.04	1.19	.95	15.3	10.2	8.5
1335	2600	48.2	5.0	5.7	110	35.6	2857	2586	9.9	9.9	613	490	45.2	45.8	45.1	402	72567	120	7.8	73.92	312.5	3.04	1.02	.94	20.0	10.2	8.6
1339	2601	24.7	5.5	5.9	110	36.2	2810	2587	9.9	9.8	632	469	45.1	45.1	45.0	405	72946	121	7.9	81.38	310.3	3.05	1.08	.93	18.3	10.2	8.5
1344	2602	13.9	4.5	5.8	109	41.4	2865	2587	9.9	9.9	634	463	45.2	46.1	45.0	412	73473	122	8.0	145.5	309.2	3.07	1.24	.92	14.4	10.2	8.5
1348	2603	12.4	4.8	5.9	109	34.0	2839	2588	9.9	9.9	626	466	45.2	46.2	45.0	393	73888	123	8.0	161.8	307.8	3.09	1.26	.92	13.7	10.2	8.5
1354	2604	10.8	5.8	7.0	111	40.8	2821	2589	9.9	9.8	624	331	45.2	46.3	44.9	402	74569	124	8.1	189.8	307.1	3.11	1.29	.93	13.1	10.2	8.5
1359	2605	10.1	6.0	6.4	111	39.4	2832	2590	9.9	9.8	622	508	45.2	46.4	44.8	409	75159	125	8.2	197.6	306.1	3.14	1.31	.94	12.1	10.2	8.5
1406	2606	10.3	4.8	6.3	110	36.1	2869	2590	9.9	9.8	618	484	45.2	45.8	44.8	404	75878	126	8.3	195.7	305.4	3.16	1.29	.94	13.1	10.2	8.6
1409	2607	15.2	4.9	5.4	110	35.3	2844	2591	9.9	9.8	627	561	45.2	45.8	44.8	396	76288	127	8.4	134.3	304.0	3.18	1.20	.94	15.3	10.2	8.6
1413	2608	16.9	4.6	5.2	109	32.9	2801	2591	9.9	9.8	635	574	45.0	43.1	44.8	389	76659	128	8.4	124.5	302.7	3.19	1.17	.94	16.5	10.2	8.6
1419	2609	11.5	4.9	5.3	109	39.0	2798	2593	9.9	9.9	618	446	44.6	45.8	44.9	408	77309	129	8.5	176.5	301.8	3.21	1.28	.94	13.5	10.2	8.6
1431	2610	5.8	4.6	5.9	107	37.6	2789	2595	9.9	9.9	637	274	44.8	46.2	44.9	398	78599	130	8.7	358.4	302.6	3.26	1.46	.93	9.6	10.2	8.5
1438	2611	6.7	4.5	6.0	107	39.4	2775	2596	9.9	9.9	623	370	45.0	45.8	44.9	401	79421	131	8.9	306.1	302.3	3.29	1.41	.94	10.5	10.2	8.6
1508	2612	5.6	3.9	5.4	104	37.9	2831	2601	9.8	9.9	635	353	45.0	45.8	45.1	382	80998	132	9.1	354.8	303.6	3.34	1.46	1.01	9.3	10.2	8.6
1530	2613	2.7	4.2	6.3	110	37.9	2849	2606	9.9	9.9	646	534	44.8	45.9	45.2	388	83417	133	9.5	807.4	307.0	3.43	1.60	.96	6.9	10.2	8.6
1538	2614	6.1	4.3	5.0	110	35.3	2818	2607	9.9	9.9	635	493	44.9	45.9	45.3	375	84258	134	9.6	330.1	306.7	3.46	1.41	.96	10.5	10.2	8.5
1541	2615	14.4	3.8	4.8	109	36.5	2850	2607	9.9	9.8	626	515	44.9	46.1	45.3	383	84641	135	9.6	152.1	305.4	3.47	1.22	.97	15.1	10.2	8.5
1546	2616	16.8	3.9	4.4	109	40.6	2892	2607	9.9	9.8	633	472	44.7	45.8	45.2	372	85098	136	9.7	122.2	304.2	3.49	1.21	.97	15.6	10.2	8.6
1557	2617	6.2	5.1	5.7	110	45.2	2842	2609	9.9	9.7	637	473	44.8	45.8	44.6	368	86397	137	9.9	337.7	305.0	3.53	1.43	.97	10.3	10.2	8.5
1605	2618	9.4	4.2	5.4	109	38.7	2844	2609	9.8	9.7	646	279	45.0	45.6	44.7	381	87208	138	10.0	227.3	304.6	3.56	1.32	.97	13.0	10.2	8.5
1619	2619	4.0	4.0	4.4	109	41.1	2853	2610	9.8	9.7	642	516	44.5	45.7	44.9	391	88772	139	10.3	511.1	305.8	3.61	1.53	.98	8.5	10.2	8.6
1631	2620	4.8	4.1	4.5	110	40.9	2867	2610	9.8	9.6	636	370	44.9	45.9	44.9	389	90033	140	10.5	434.8	306.5	3.66	1.52	.99	8.7	10.2	8.6
1646	2621	3.9	3.8	5.2	108	41.6	2811	2612	9.9	9.7	641	396	44.6	45.5	44.9	408	91739	141	10.7	628.9	308.2	3.72	1.60	.97	7.2	10.2	8.6
1701	2622	3.9	3.8	4.9	101	36.4	2845	2614	9.9	9.7	640	421	44.6	45.4	44.9	401	93332	142	11.0	523.6	309.4	3.77	1.56	.98	8.1	10.2	8.6
1709	2623	6.0	3.7	7.0	101	37.4	2872	2615	9.9	9.7	640	432	44.5	45.6	44.9	398	94167	143	11.1	359.6	309.3	3.80	1.41	1.00	10.9	10.2	8.6
1721	2624	5.8	4.1	4.5	102	42.2	2827	2616	9.9	9.7	627	354	44.6	45.7	44.9	415	95393	144	11.3	342.0	310.0	3.83	1.43	1.01	10.3	10.2	8.6

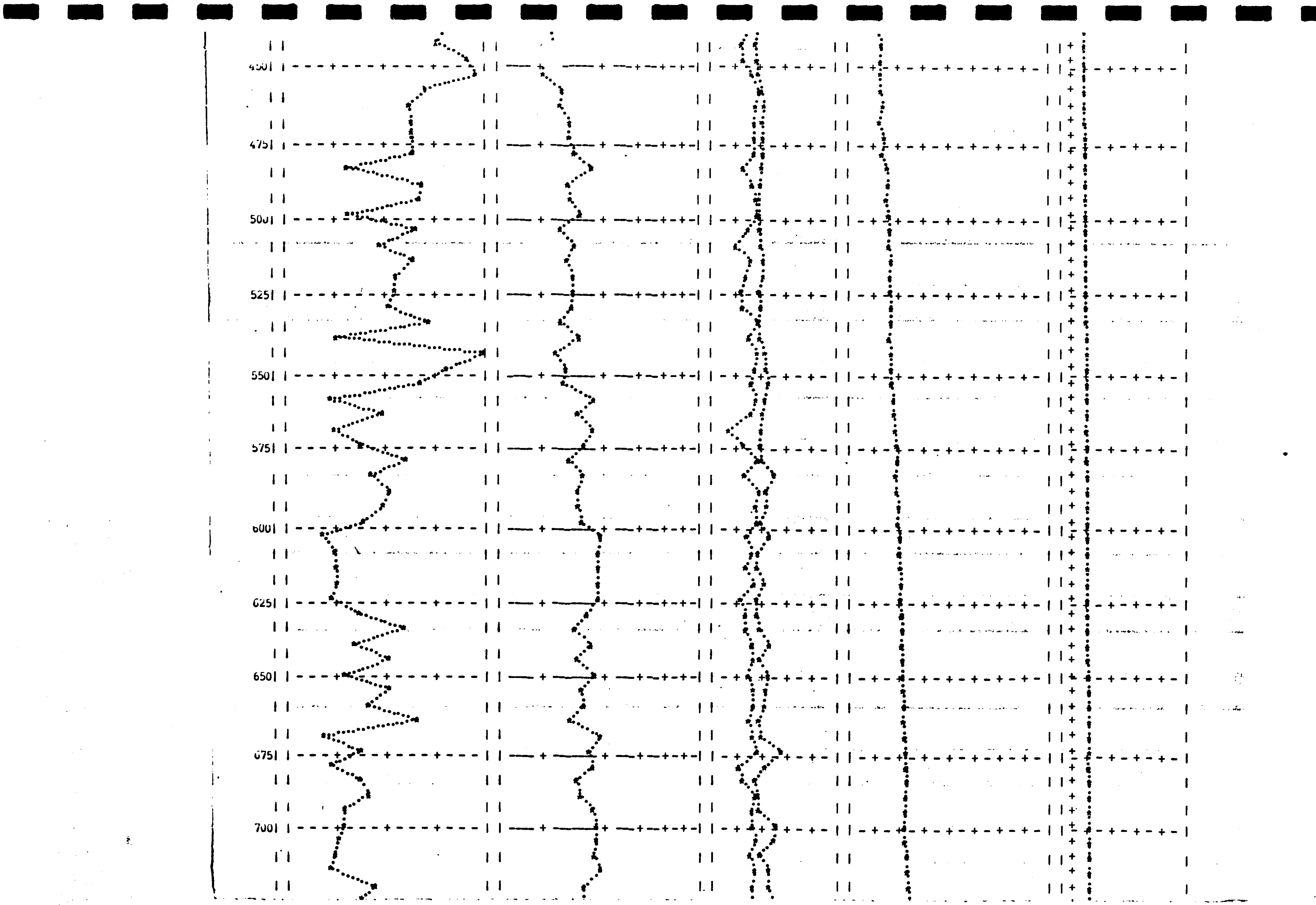
TOTAL DEPTH : 2625 METERS, MAKE WIPER TRIP AND POOH TO RUN WIRELINE LOGS.

(ii) DRILLING DATA PLOT 1:1000

(b) ROP, Dxc, Torque, Flowline Temp,
Pore Pressure, ECD

OFFLINE PLOT: SCALE OF 1 TO 1000

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475
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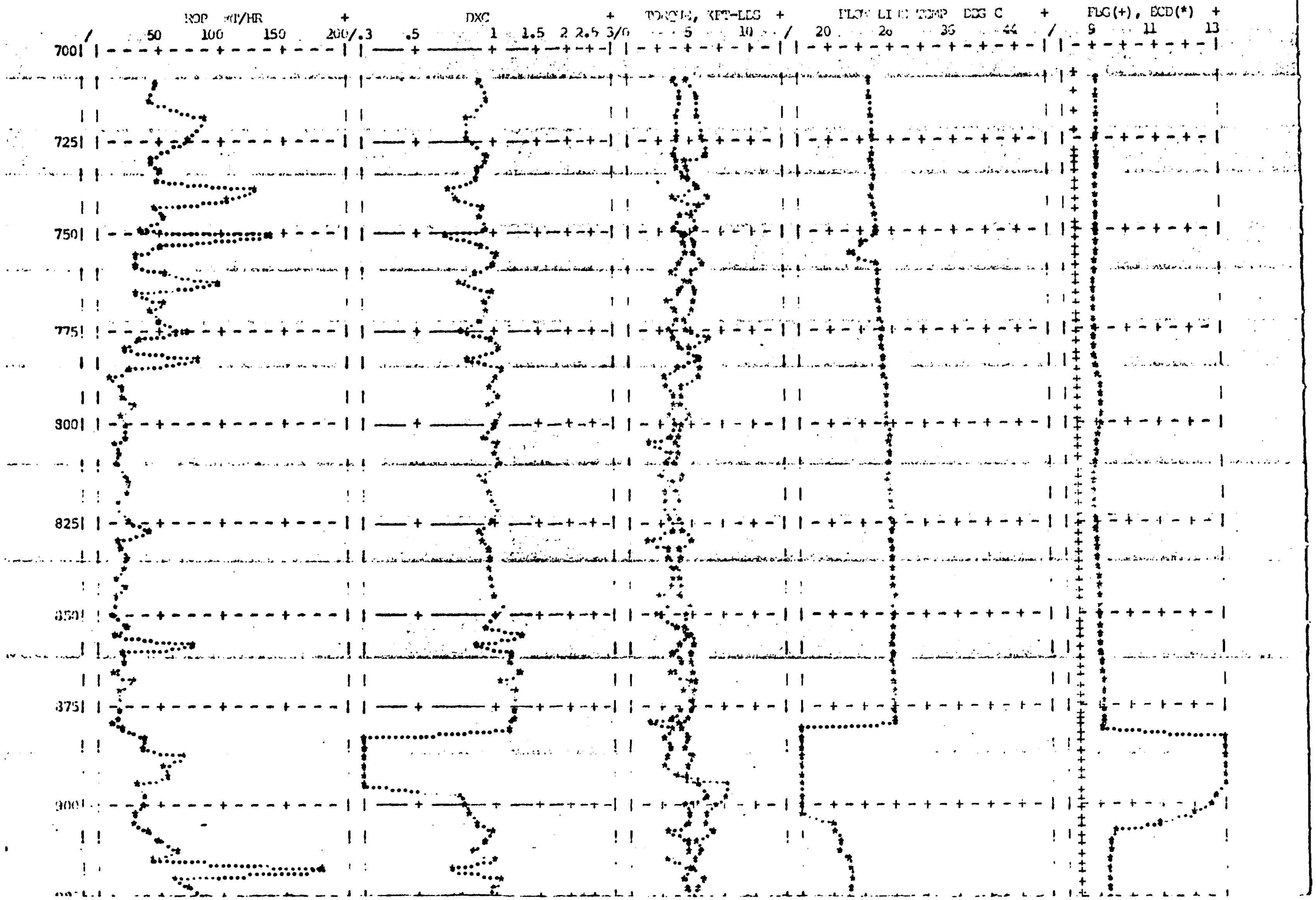
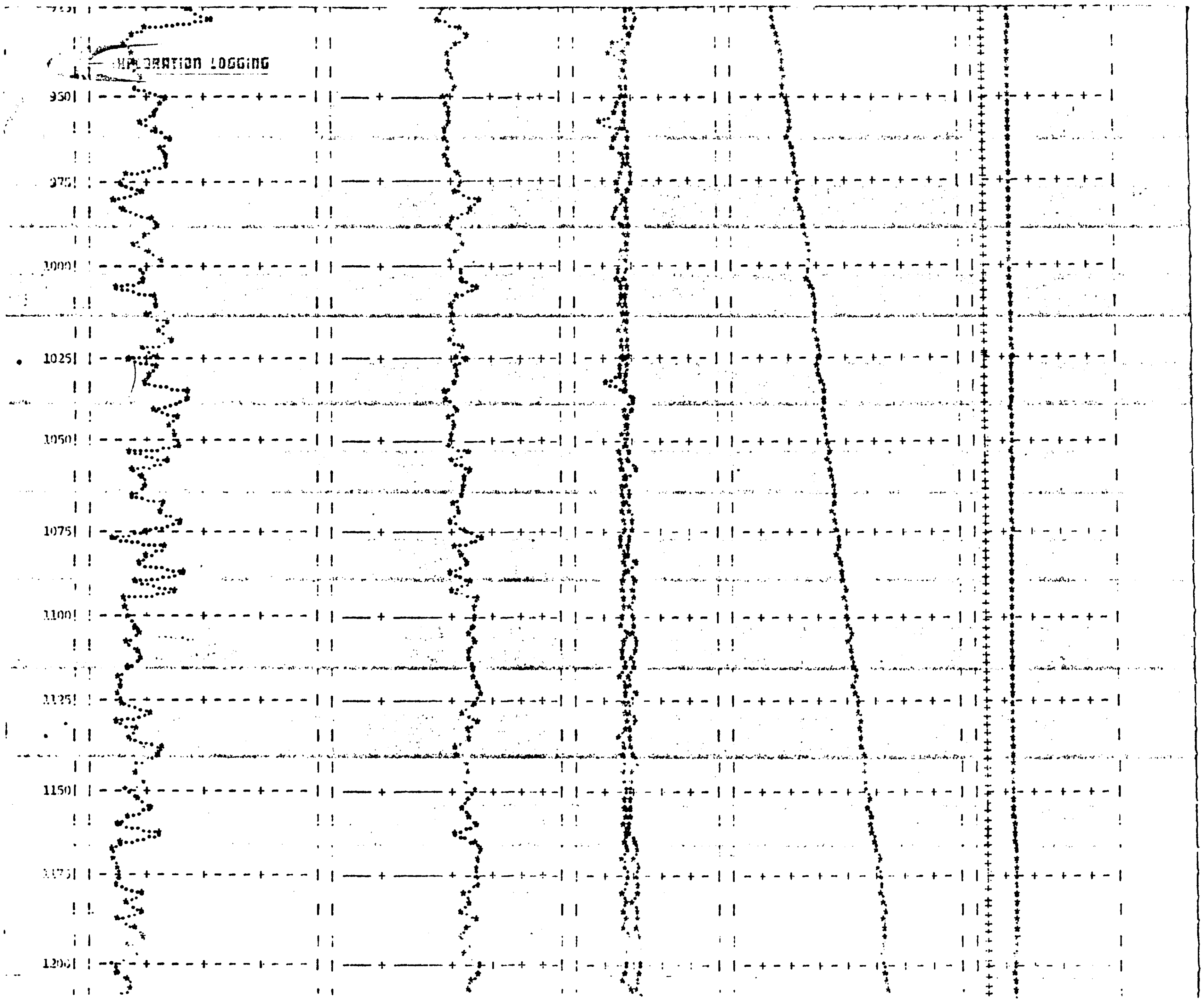
525
550
575
600
625
650
675
700

EXPLORATION LOGGING

OFFLINE PLOT: SCALE OF 1 TO 1000




LOGGING
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975
1000
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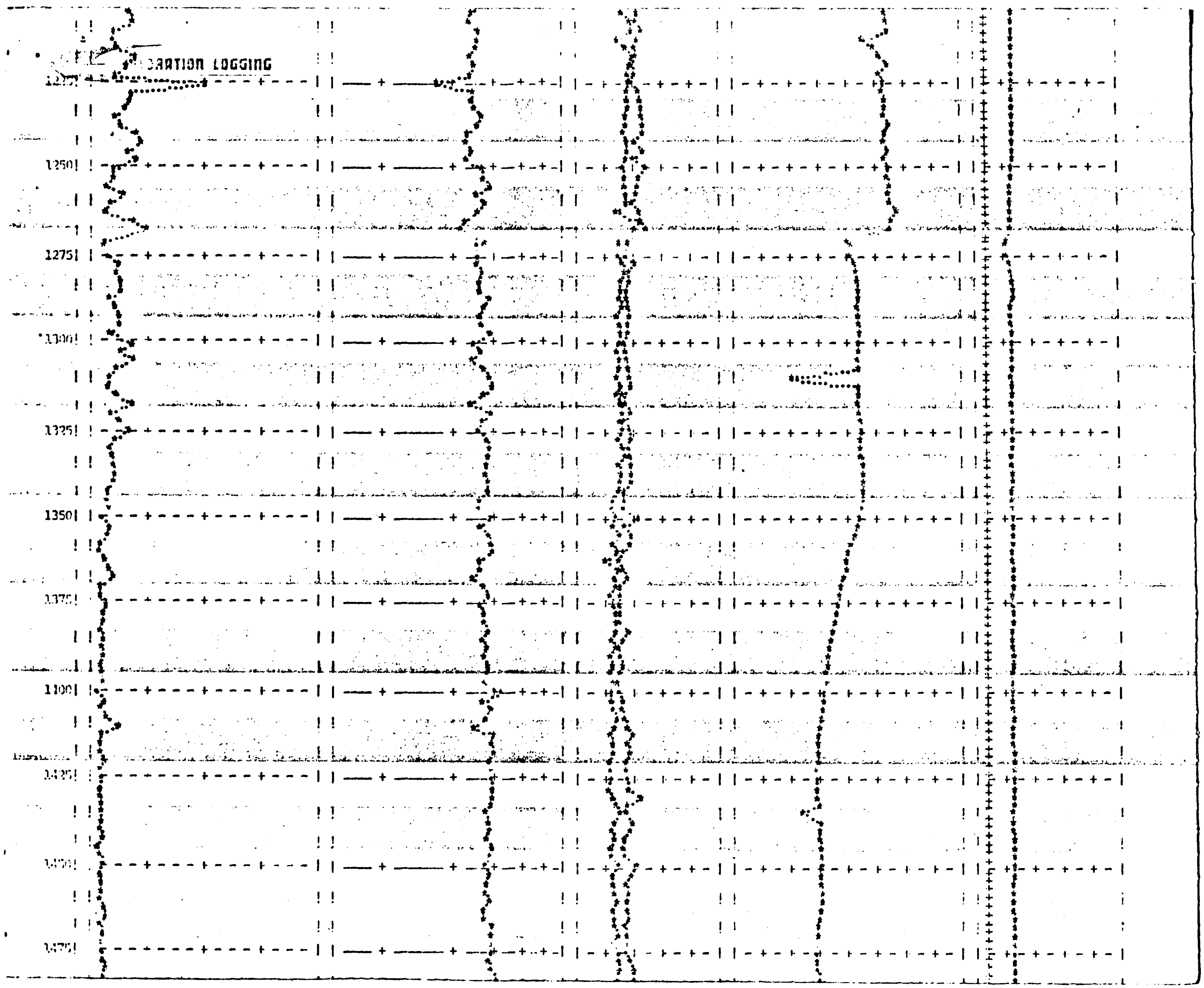
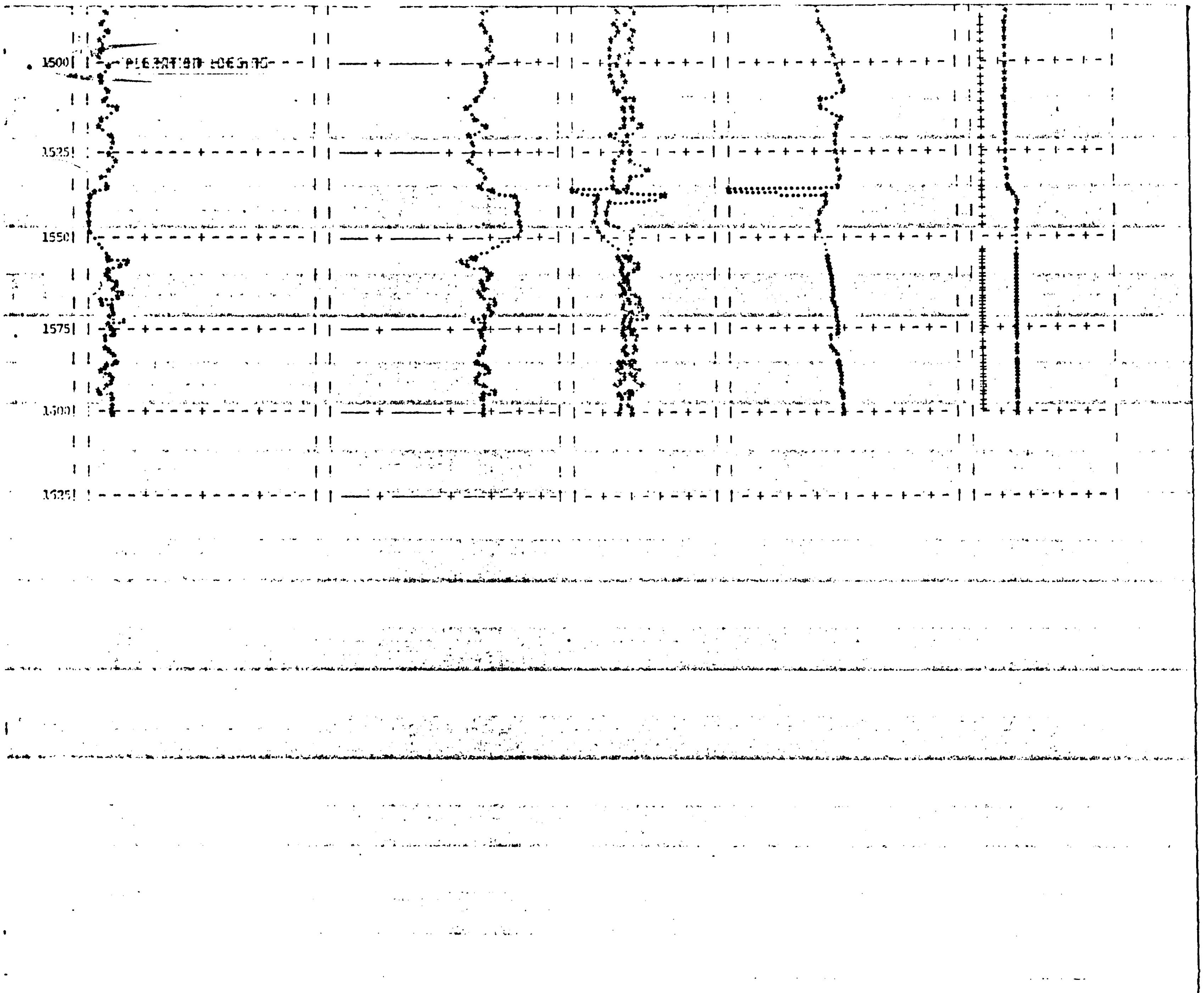
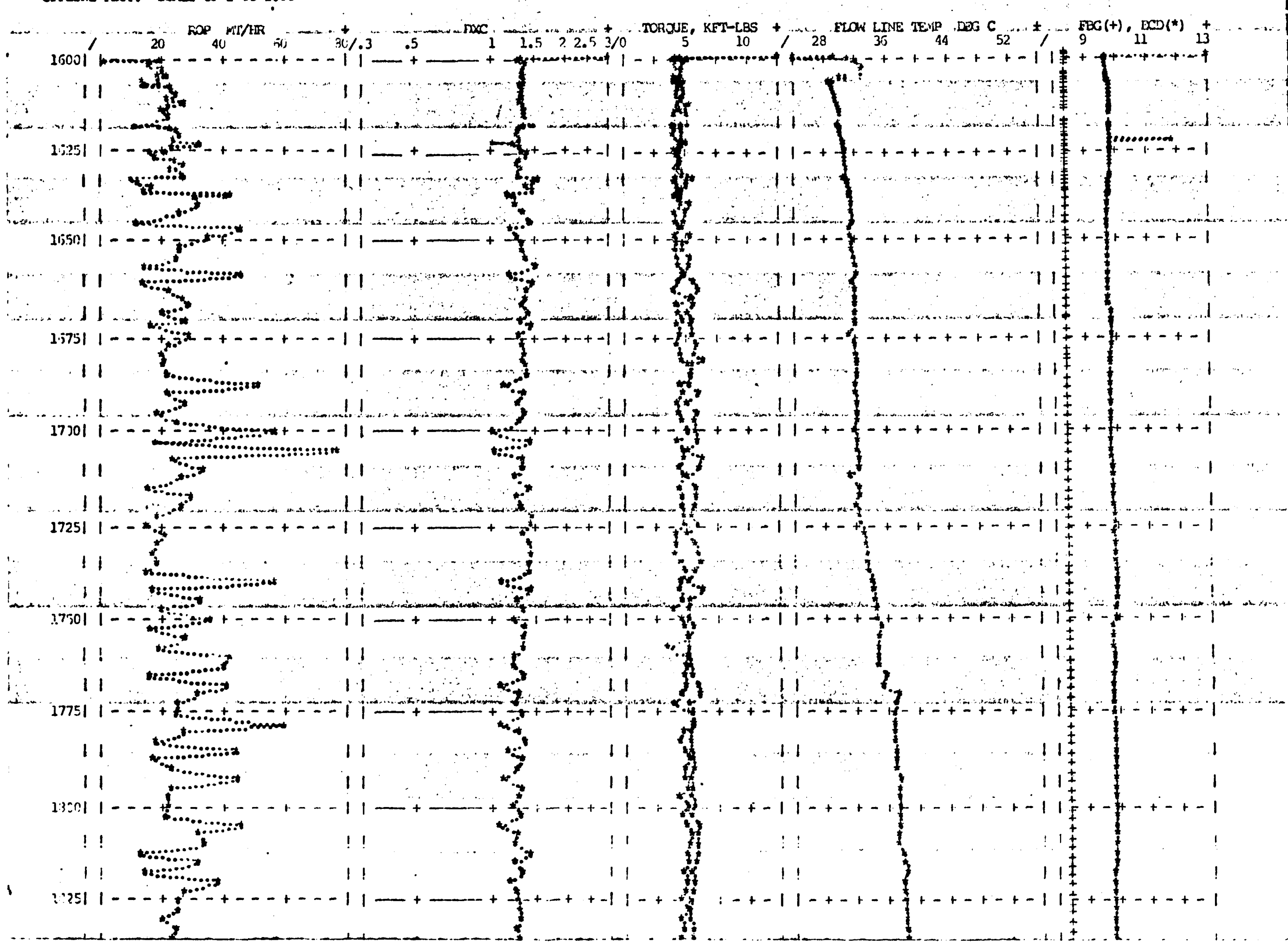
1050
1075
1100
1150

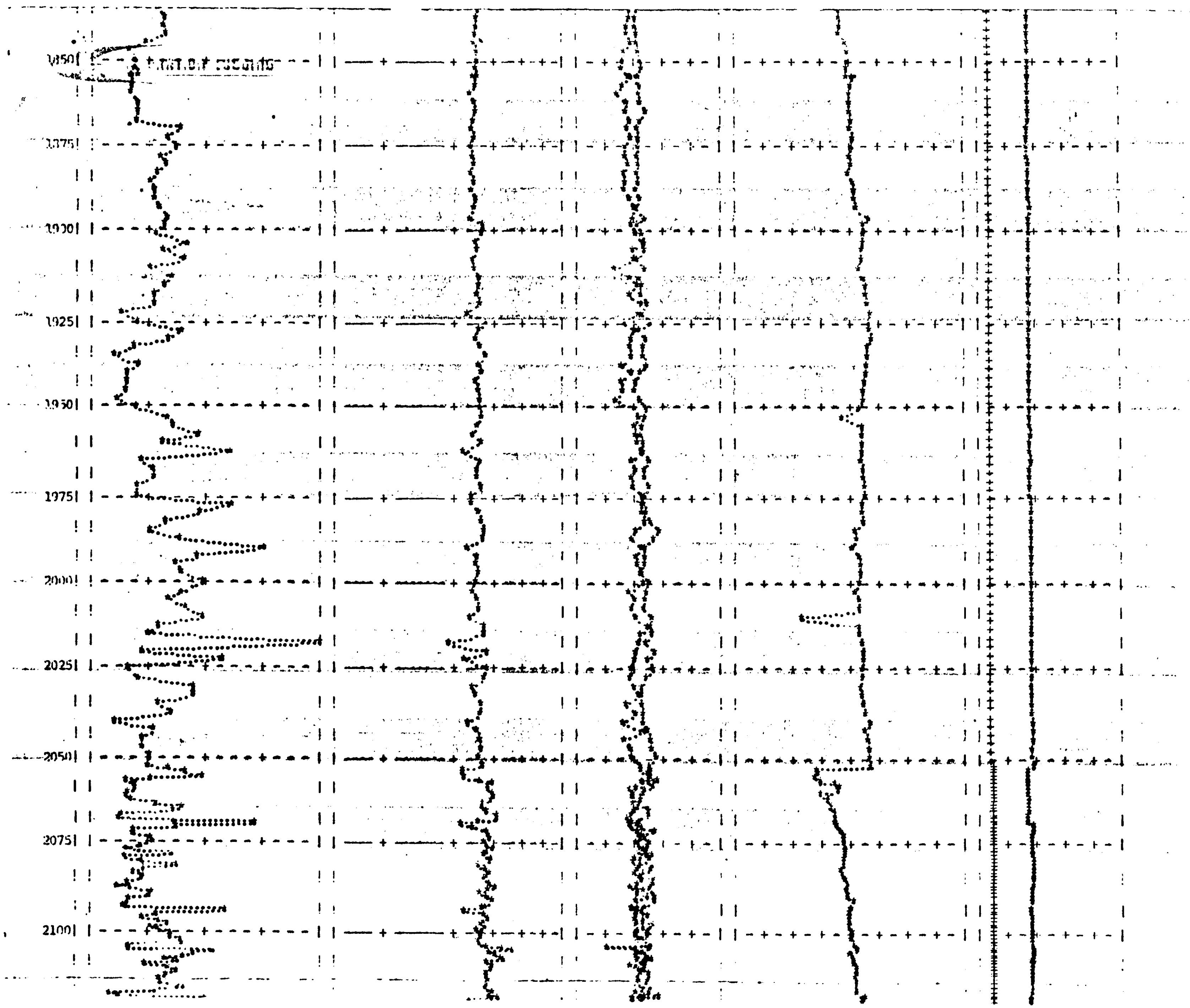

RATION LOGGING
1250
1275
1350


1500
1525
1550
1575

EXPLORATION LOGGING

OFFLINE PLOT: SCALE OF 1 TO 1000




1850
1875
1900
1925
1950
1975
2000
2025
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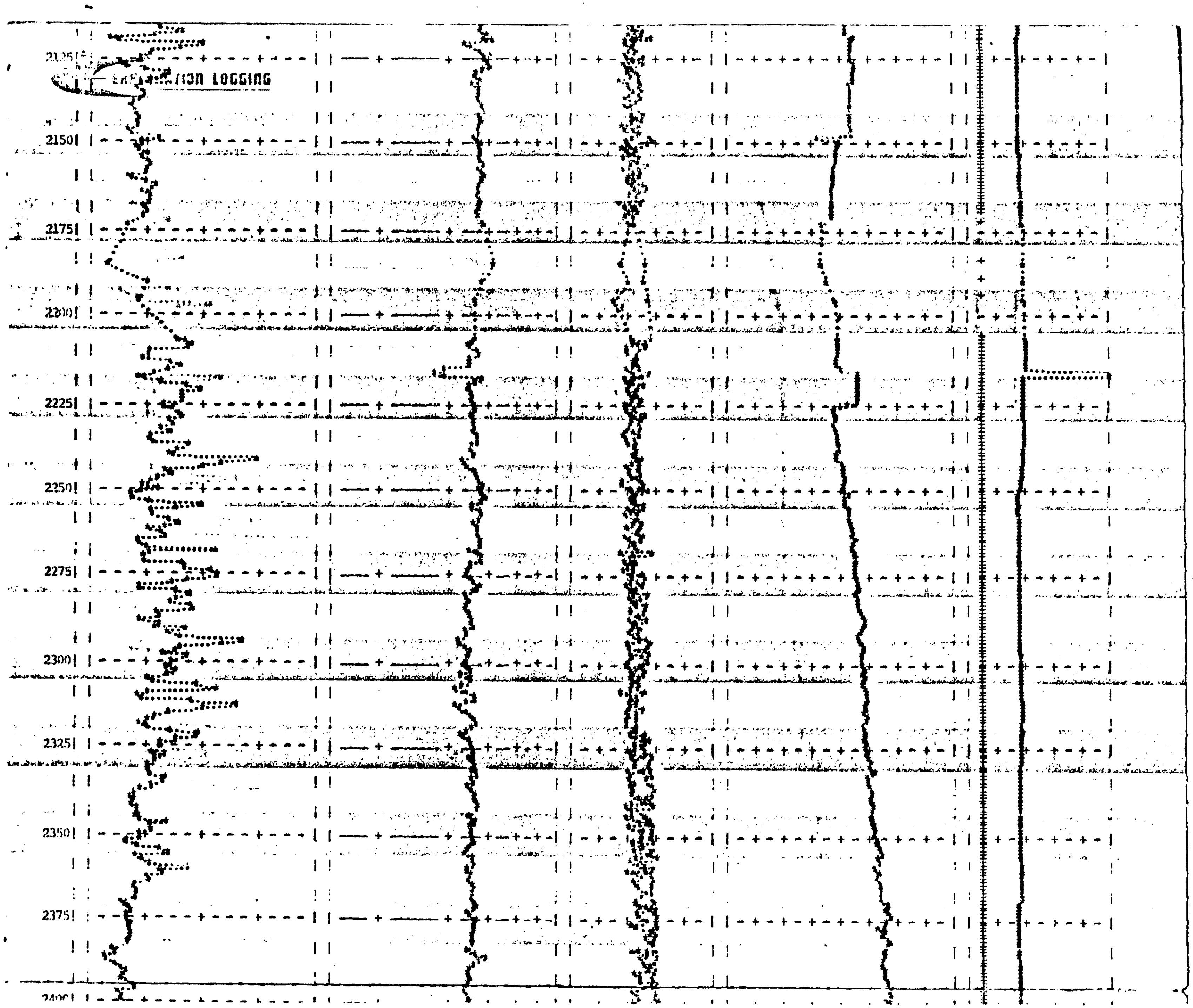
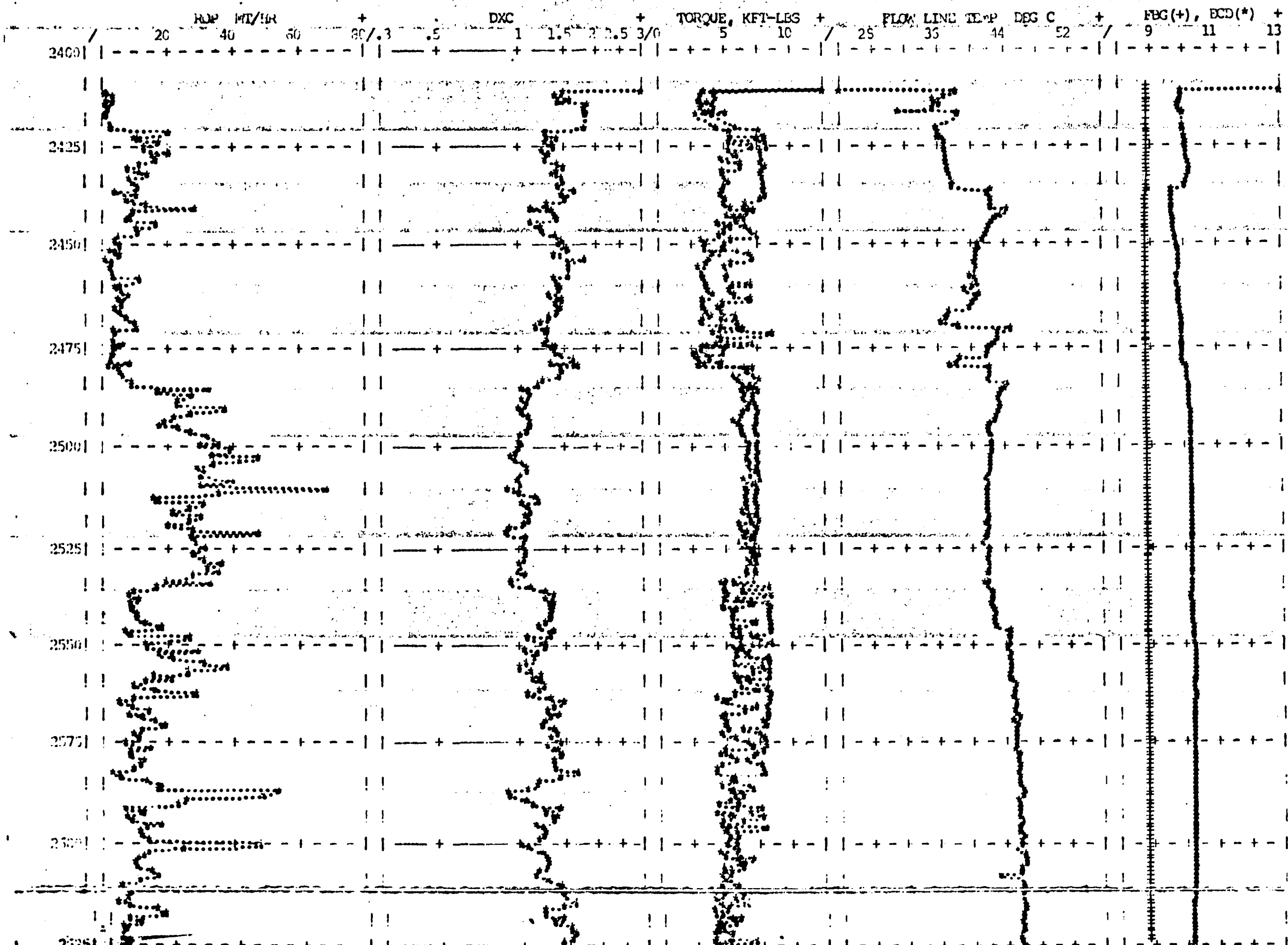
2075
2100



LOGGING
2125
2150
2175
2200
2225
2250
2275
2300
2325
2350
2375
2400

EXPLORATION LOGGING

OFFLINE PLOT: SCALE OF 1 TO 1000



EXPLORATION LOGGING

A P P E N D I X E

MORNING AND WEEKLY REPORTS

EXPLORATION LOGGING

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY ESSO AUSTRALIA

WELL NAME FORTESCUE No. 3

DATE 28 NOV. 78.   TIME 0530 HRS.

DEPTH 392 M   LAST REPORT DEPTH —

DRILL RATE	60-400 M/HR
CORRECTED D EXPONENT	·4
FLOWLINE TEMPERATURE	20°C
SHALE DENSITY	—
SHALE FACTOR	–
MAX. FORMATION GAS	0
BACKGROUND GAS	0
CONNECTION GAS	0
TRIP GAS	0
LITHOLOGY:	Calcarenite

SPM	100.
GPM	890
DP AN VEL	64.0 FT/M
DC AN VEL	88.6 "
CRITICAL VEL	
PRESS (TOTAL)	1250
PRESS (BIT)	766
PRESS (SYSTEM)	484
BIT NOZ VEL	310 FT/SEC
HOLE VOL	452 BBLS
AN. VOL	401 BBLS
PIPE VOL	17.8 BBLS
PIPE DISPL.	33.5 BBLS
BIT TYPE	HTC OSC 3A
JETS	20 20 20

MUD WT. IN	8.9	PV/YP	—
MUD WT. OUT	9.0	CL-	—
ECD	8.9 +	% SOLIDS	—

AV. WOB	25
AV. RPM	80
AV. TORQUE	3.5 kft
TIGHT HOLE	—
FILL	—
Δ LAG	—
EST. % CAVINGS	—

ESTIMATED PORE PRESS	8.4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4
ESTIMATED FRACTURE PRESS	9.0
MIN. EST. FRAC. PRESS. IN OPEN HOLE	9.0

COMMENTS:

EXPLORATION LOGGING
A subsidiary of BAKER INTERNATIONAL

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA LTD

WELL NAME: FORTESCUE No.3

DATE: 29 NOV. 78 TIME: 0530 HRS.

DEPTH: 878 M LAST REPORT DEPTH: 392 m

DRILL RATE	10 – 200 M/HR
CORRECTED D EXPONENT	·7 – 1·25
FLOWLINE TEMPERATURE	29·0°
SHALE DENSITY	2·25
SHALE FACTOR	–
MAX. FORMATION GAS	24 units
BACKGROUND GAS	10 units
CONNECTION GAS	–
TRIP GAS	–
LITHOLOGY:	Calcisiltite

SPM	110
GPM	950
DP AN VEL	83 FT/MIN
DC AN VEL	95 FT/MIN
CRITICAL VEL	~~[illegible]~~ /MIN
PRESS (TOTAL)	1800
PRESS (BIT)	883
PRESS (SYSTEM)	917
BIT NOZ VEL	331 FT/SEC
HOLE VOL	927 BBLS
AN. VOL	838 BBLS
PIPE VOL	45·7 BBLS
PIPE DISPL.	44·9 BBLS
BIT TYPE	HTC OSC 3AJ
JETS	20 20 20
AV. WOB	30
AV. RPM	120
AV. TORQUE	5·0 K Ft lbs
TIGHT HOLE	–
FILL	–
Δ LAG	–
EST. % CAVINGS	5 %

MUD WT. IN	8·9
MUD WT. OUT	9·3
ECD	9·1
PV/YP	4/9
Cl⁻	18000
% SOLIDS	6

ESTIMATED PORE PRESS: 8·4

MAX. ESTIMATED PORE PRESS IN OPEN HOLE: 8·4

ESTIMATED FRACTURE PRESS: 14·0

MIN. EST. FRAC. PRESS. IN OPEN HOLE: 10·0

COMMENTS: POOH TO LOG AND RUN 13⅜" CASING.

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA LTD

WELL NAME: FORTESCUE No.3

DATE: 30TH NOV 78. TIME: 0530 HRS

DEPTH: 878 M. LAST REPORT DEPTH: 878 M.

DRILL RATE		SPM	
CORRECTED D EXPONENT		GPM	
FLOWLINE TEMPERATURE		DP AN VEL	
SHALE DENSITY		DC AN VEL	
SHALE FACTOR		CRITICAL VEL	
MAX. FORMATION GAS		PRESS (TOTAL)	
BACKGROUND GAS		PRESS (BIT)	
CONNECTION GAS		PRESS (SYSTEM)	
TRIP GAS	7 units.	BIT NOZ VEL	
LITHOLOGY:		HOLE VOL	
		AN. VOL	
		PIPE VOL	
		PIPE DISPL.	
		BIT TYPE	
		JETS	

MUD WT. IN		PV/YP		AV. WOB	
MUD WT. OUT		CL-		AV. RPM	
ECD		% SOLIDS		AV. TORQUE	

ESTIMATED PORE PRESS	8.4	TIGHT HOLE	DRAG ON TRIP
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4	FILL	
ESTIMATED FRACTURE PRESS	14.0	Δ LAG	
MIN. EST. FRAC. PRESS. IN OPEN HOLE	10.0	EST. % CAVINGS	

COMMENTS: RUN E-LOGS AND 13 3/8" CASING
SHOE AT 867 M

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA LTD

WELL NAME: FORTESCUE No.3

DATE: 1ST DEC 1978. TIME: 0530 HRS

DEPTH: 932 LAST REPORT DEPTH: 878 M

DRILL RATE	20-30 m/hr	SPM	110
CORRECTED D EXPONENT	1.15	GPM	950
FLOWLINE TEMPERATURE	30°C	DP AN VEL	180 FT/MIN
SHALE DENSITY	—	DC AN VEL	247 FT/MIN
SHALE FACTOR	—	CRITICAL VEL	
MAX. FORMATION GAS	10	PRESS (TOTAL)	2500
BACKGROUND GAS	5	PRESS (BIT)	1361
CONNECTION GAS	0	PRESS (SYSTEM)	1139
TRIP GAS	0 units	BIT NOZ VEL	409 FT/SEC
LITHOLOGY:	CALCISILTITE	HOLE VOL	533 BBLS
		AN. VOL	441 BBLS
		PIPE VOL	46.5 BBLS
		PIPE DISPL.	49 BBLS
		BIT TYPE	HTC X1G
		JETS	18, 18, 18.

MUD WT. IN	9.1	PV/YP	9/16	AV. WOB	30
MUD WT. OUT	9.3	CL-	12000	AV. RPM	120
ECD		% SOLIDS	7.2	AV. TORQUE	5 KFt lbs

ESTIMATED PORE PRESS	8.4	TIGHT HOLE	—
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4	FILL	—
ESTIMATED FRACTURE PRESS	14.0	Δ LAG	—
MIN. EST. FRAC. PRESS. IN OPEN HOLE	~~[illegible]~~ 14.0	EST. % CAVINGS	10%

COMMENTS: DRILL OUT 13 3/8" CASING AND RUN PRESSURE INTEGRITY TEST ~~AT~~ 893 M. TO

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PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA LTD

WELL NAME: FORTESCUE NO.3

DATE: 2ND DEC 1978 TIME: 0530 HRS

DEPTH: 1347M LAST REPORT DEPTH: 932M

DRILL RATE	25 m/HR
CORRECTED D EXPONENT	1.25
FLOWLINE TEMPERATURE	33.8
SHALE DENSITY	–
SHALE FACTOR	–
MAX. FORMATION GAS	19 units
BACKGROUND GAS	10 units
CONNECTION GAS	–
TRIP GAS	100 units
LITHOLOGY:	CALCISILTITE AND MARL

SPM	108
GPM	900
DP AN VEL	176 FT/MIN
DC AN VEL	245 FT/MIN
CRITICAL VEL	
PRESS (TOTAL)	2700
PRESS (BIT)	1221
PRESS (SYSTEM)	1479
BIT NOZ VEL	387 FT/SEC
HOLE VOL	761 BBLS
AN. VOL	630 BBLS
PIPE VOL	73 BBLS
PIPE DISPL.	60 BBLS
BIT TYPE	HTC X3A
JETS	18 18 18.

MUD WT. IN	9.1	PV/YP	8/15.
MUD WT. OUT	9.24	CL-	9000
ECD	9.3	% SOLIDS	9%

ESTIMATED PORE PRESS	8.4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4
ESTIMATED FRACTURE PRESS	14.0
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

AV. WOB	50
AV. RPM	120
AV. TORQUE	5. K ft lbs
TIGHT HOLE	1111 M
FILL	–
Δ LAG	–
EST. % CAVINGS	5%

COMMENTS: POOH TO CHANGE B.T. TIGHT HOLE AT 1111 M APPROX

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA LTD.

WELL NAME: FORTESCUE NO.3

DATE: 3RD DEC 1978. TIME: 0530 HRS.

DEPTH: 1508M. LAST REPORT DEPTH: 1347M.

DRILL RATE	10 m/HR	SPM	900
CORRECTED D EXPONENT	1.45	GPM	105
FLOWLINE TEMPERATURE	33.3.	DP AN VEL	176 FT/MIN
SHALE DENSITY	–	DC AN VEL	245 FT/MIN
SHALE FACTOR	–	CRITICAL VEL	
MAX. FORMATION GAS	8 units	PRESS (TOTAL)	2700
BACKGROUND GAS	5 units	PRESS (BIT)	1221
CONNECTION GAS		PRESS (SYSTEM)	1479
TRIP GAS	42 units AT 1508M	BIT NOZ VEL	387 FT/SEC
LITHOLOGY:	CALCAREOUS MUDSTONE	HOLE VOL	826 BBLS
		AN. VOL	685 BBLS
		PIPE VOL	81.5 BBLS
		PIPE DISPL.	63.4 BBLS
		BIT TYPE	HTC X3A
		JETS	18, 18, 18.

MUD WT. IN	9.1	PV/YP	10/13
MUD WT. OUT	9.2	CL-	5000
ECD	9.3	% SOLIDS	10%

ESTIMATED PORE PRESS	8.4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4
ESTIMATED FRACTURE PRESS	14.5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

AV. WOB	45
AV. RPM	120
AV. TORQUE	5.0 k ft lbs
TIGHT HOLE	1508 – 1050
FILL	–
Δ LAG	–
EST. % CAVINGS	–

COMMENTS: POOH AT 1508M. TIGHT HOLE TO 1050 M HOLE NOT TAKING MUD. RUN BACK TO BOTTOM AND CIRCULATE HIGH VISCOUS MUD THROUGH SYSTEM P.O.O.H.

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY ESSO AUSTRALIA LTD

WELL NAME FORTESCUE NO.3

DATE 4TH DEC. 1978. TIME 0530 HRS

DEPTH 1547 M LAST REPORT DEPTH 1508 M.

DRILL RATE	1-2 M/HR	SPM	35
CORRECTED D EXPONENT	1.95	GPM	285
FLOWLINE TEMPERATURE	29°C	DP AN VEL	56 FT/MIN
SHALE DENSITY	–	DC AN VEL	77 FT/MIN
SHALE FACTOR	–	CRITICAL VEL	
MAX. FORMATION GAS	2000+ units	PRESS (TOTAL)	1400
BACKGROUND GAS	8 units	PRESS (BIT)	13
CONNECTION GAS	–	PRESS (SYSTEM)	1387
TRIP GAS	2 units	BIT NOZ VEL	39 FT/SEC
LITHOLOGY:	CALCAREOUS MUDSTONE	HOLE VOL	848 BBLS
		AN. VOL	710 BBLS
		PIPE VOL	85 BBLS.
		PIPE DISPL.	57 BBLS
		BIT TYPE	CHRIS C20
		JETS	–

MUD WT. IN	9.6	PV/YP	15/13	AV. WOB	35
MUD WT. OUT	9.7	CL-	3800	AV. RPM	80
ECD	9.7	% SOLIDS	3%	AV. TORQUE	3 kft lbs

ESTIMATED PORE PRESS	8.4	TIGHT HOLE	–
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.4	FILL	–
ESTIMATED FRACTURE PRESS	14.5	Δ LAG	–
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0	EST. % CAVINGS	–

COMMENTS: DRILL FROM 1508 – 1536 m. ENCOUNTER HIGH GAS SHOW FROM 1526 M. RUN CORE BARREL &

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PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: Esso Australia

WELL NAME: Fortescue No. 3

DATE: Dec. 5th 1978. TIME: 0600

DEPTH: 1600m LAST REPORT DEPTH: 1547m

Drill Rate	15m/HR ave.
Corrected "D" Exponent	1.47
Flowline Temperature	31.8°C
Shale Density	-
Shale Factor	-
Maximum Formation Gas	8 units
Background Gas	5 to 6 units
Connection Gas	nil
Trip Gas	18 units from 1547.5m
Lithology	Calcareous Mudstone

SPM	98
GPM	850
DP An. Vel.	166.6
DC An. Vel.	222.1
Critical Vel.	273.1
Press. (total)	2706
Press. (bit)	2620
Press. (system)	2680
Bit Noz. Vel.	366
Hole Vol.	870
An. Vol.	724
Tub. Vol.	85
Displ. Vol.	61
Bit Type	HTC X3A
Jets	3 x 18

Mud Weight IN	PV/YP	12/12
Mud Weight OUT	Cl⁻	3800
Effective Circulating Density (ECD)	% Solids	12

Av. WOB	51000
Av. RPM	120
Av. Torque	5500

Estimated Pore Pressure	8.4 to 8.5 lb/gal
Maximum Estimated Pore Pressure in Open Hole	8.5 lb/gal
Estimated Fracture Pressure at T.D.	14.5 lb/gal
Minimum Estimated Fracture Pressure in Open Hole	14.0 lb/gal

Tight Hole	-
Fill	-
Δ Lag	+ 100 STKS
Est. % Cavings	-

Comments: Stopped drilling at 1600m. Waiting for repairs to BOP's

EXPLORATION LOGGING

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY Esso Australia

WELL NAME Fortescue #3

DATE 9 Dec. 1978 TIME 0600

DEPTH 1610 m LAST REPORT DEPTH 1600 m

Drill Rate	22
Corrected "D" Exponent	1.34
Flowline Temperature	30.2
Shale Density	–
Shale Factor	
Maximum Formation Gas	3 units
Background Gas	2-3 units
Connection Gas	nil
Trip Gas	180 units
Lithology	Calcareous Mudstone

SPM	104
GPM	900
DP An. Vel.	176.4 ft/min
DC An. Vel.	235.2 ft/min
Critical Vel.	307.9 ft/min
Press. (total)	2850 psi
Press. (bit)	2677 psi
Press. (system)	2854 psi
Bit Noz. Vel.	359 feet/sec
Hole Vol.	874 bbls
An. Vol.	728 bbls
Tub. Vol.	86 bbls
Displ. Vol.	61 bbls.
Bit Type	HTC X3A
Jets	18, 18, 20
Av. WOB	51,000
Av. RPM	120
Av. Torque	500
Tight Hole	–
Fill	–
Δ Lag	–
Est. % Cavings	–

Mud Weight IN	9.6	PV/YP	10/16
Mud Weight OUT	9.4	Cl⁻	3300
Effective Circulating Density (ECD)	9.7	% Solids	10

Estimated Pore Pressure	8.4
Maximum Estimated Pore Pressure in Open Hole	8.5
Estimated Fracture Pressure at T.D.	14.5
Minimum Estimated Fracture Pressure in Open Hole	14.0

Comments:

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA
WELL NAME: FORTESCUE No 3.
DATE: 10th Dec. 1978 TIME: 0600
DEPTH: 1975M LAST REPORT DEPTH: 1610m

DRILL RATE	15 to 22 m/Hr.	SPM	97
CORRECTED D EXPONENT	1.40	GPM	840
FLOWLINE TEMPERATURE	41.6°C	DP AN VEL	264.6 ft/min
SHALE DENSITY	–	DC AN VEL	219.5 ft/min
SHALE FACTOR	–	CRITICAL VEL	309.5 ft/min
MAX. FORMATION GAS	9 units	PRESS (TOTAL)	2905 PSI
BACKGROUND GAS	4 to 5 units	PRESS (BIT)	3252 PSI
CONNECTION GAS	nil	PRESS (SYSTEM)	2790 PSI
TRIP GAS	nil no Trips	BIT NOZ VEL	335 ft/sec
LITHOLOGY:		HOLE VOL	1049 bbl
	Marl.	AN. VOL	874 bbl
		PIPE VOL	104 bbl
		PIPE DISPL.	71 bbl.
		BIT TYPE	HTC X3A
		JETS	18, 18, 20

MUD WT. IN	9.5 lb/gal	PV/YP	10/16
MUD WT. OUT	9.3 lb/gal	CL-	3800
ECD	9.8 lb/gal	% SOLIDS	10

AV. WOB	49,000 lb.
AV. RPM	150
AV. TORQUE	5800 ft lbs.
TIGHT HOLE	–
FILL	–
Δ LAG	+ 100 strokes
EST. % CAVINGS	–

ESTIMATED PORE PRESS: 8.4 lb/gal
MAX. ESTIMATED PORE PRESS IN OPEN HOLE: 8.5
ESTIMATED FRACTURE PRESS: 14.5 lb gal
MIN. EST. FRAC. PRESS. IN OPEN HOLE: 14.0

COMMENTS:

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PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: *Esso Australia*

WELL NAME: *Fortescue No 3.*

DATE: *11 Dec. 1978* TIME: *0600*

DEPTH: *2131* LAST REPORT DEPTH: *1975*

DRILL RATE	20
CORRECTED D EXPONENT	1·42 @ 2125m
FLOWLINE TEMPERATURE	41·8°c
SHALE DENSITY	–
SHALE FACTOR	–
MAX. FORMATION GAS	9 units @ 2050m
BACKGROUND GAS	3 to 4
CONNECTION GAS	nil
TRIP GAS	100 units
LITHOLOGY:	Marl & Calcareous - Mudst.

SPM	104
GPM	900
DP AN VEL	176·4 ft/min
DC AN VEL	235·2 ft/min
CRITICAL VEL	268·6 ft/min
PRESS (TOTAL)	2875 psi
PRESS (BIT)	3529 psi
PRESS (SYSTEM)	2805 psi
BIT NOZ VEL	314 ft/sec
HOLE VOL	1134 bbls.
AN. VOL	936 bbls
PIPE VOL	118 bbls
PIPE DISPL.	79 bbls
BIT TYPE	HTC X3A
JETS	3×20

MUD WT. IN	9·5 lb/gal	PV/YP	10/12
MUD WT. OUT	9·5 lb/gal	Cl -	3700
ECD	9·8 lb/gal	% SOLIDS	14

AV. WOB	48
AV. RPM	152
AV. TORQUE	5900

ESTIMATED PORE PRESS	8·4 lb/gal
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8·5
ESTIMATED FRAC PRESS	14·5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14·0

TIGHT HOLE	–
FILL	–
Δ GAS	–
EST. % CAVINGS	–
	–

COMMENTS:

EXPLORATION LOGGING
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PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA

WELL NAME: FORTESCUE No 3

DATE: 12 DEC 78 TIME: 06 00

DEPTH: 2409 m LAST REPORT DEPTH: 2131 m

DRILL RATE	18 m/hr average
CORRECTED D EXPONENT	1·30 at 2380m
FLOWLINE TEMPERATURE	47.0 °C
SHALE DENSITY	–
SHALE FACTOR	–
MAX. FORMATION GAS	9 units at 2260 m
BACKGROUND GAS	2 – 4 units
CONNECTION GAS	–
TRIP GAS	–
LITHOLOGY:	MARL + CALCAREOUS MUDSTONE

SPM	98
GPM	850
DP AN VEL	166
DC AN VEL	222
CRITICAL VEL	330
PRESS (TOTAL)	2800
PRESS (BIT)	746
PRESS (SYSTEM)	2054
BIT NOZ VEL	296
HOLE VOL	1255
AN. VOL	1037
PIPE VOL	133
PIPE DISPL.	85
BIT TYPE	NB 8 HTC X3A
JETS	3 x 20
AV. WOB	40
AV. RPM	125
AV. TORQUE	5 - 6,000
TIGHT HOLE	–
FILL	–
Δ LAG	– 200 strokes
% CAVINGS	–

MUD WT. IN	9·5
MUD WT. OUT	9.5
ECD	9.8
PV/YP	12/18
CL	3700
% SOLIDS	10
ESTIMATED PORE PRESS.	8·4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8·5
ESTIMATED FRAC. PRESS.	16.5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

COMMENTS: Drill from 2131 m to 2409 m.
High torque at 2409 m.
Circulate Returns – blocked flowline

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY ESSO. AUSTRALIA.

WELL NAME FORTESCUE No 3

DATE 13 DEC 78 **TIME** 06⁰⁰ hrs

DEPTH 2412 m **LAST REPORT DEPTH** 2409 m

DRILL RATE	CORING Av. 2.5 m/hr
CORRECTED D EXPONENT	Av 1.45
FLOWLINE TEMPERATURE	38°C
SHALE DENSITY	—
SHALE FACTOR	—
MAX. FORMATION GAS	1 unit
BACKGROUND GAS	1 unit
CONNECTION GAS	—
TRIP GAS	13 units at 2409
LITHOLOGY:	MARL + MUDSTONE

SPM	35
GPM	300
DP AN VEL	64 ft/min
DC AN VEL	77 ft/min
CRITICAL VEL	—
PRESS(TOTAL)	1560
PRESS(BIT)	—
PRESS(SYSTEM)	—
BIT NOZ VEL	—
HOLE VOL	1256
AN. VOL	1038
PIPE VOL	133
PIPE DISPL.	85

MUD WT. IN	9.6
MUD WT. OUT	9.5
ECD	9.8
PV/YP	10/21
CL-	2700
% SOLIDS	12

BIT TYPE	CORING CHRIS C20 8 15/32
JETS	
AV. WOB	20,000 lbs
AV. RPM	85
AV. TORQUE	3500 ft lbs
TIGHT HOLE	—
FILL	—
Δ LAG	—
EST. % CAVINGS	—

ESTIMATED PORE PRESS	8.4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5
ESTIMATED FRACTURE PRESS	16.5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

COMMENTS: CORING FROM 2409.5 m
CORE BARREL JAMMED.
POOH TO RETRIEVE CORE. No 2.

NOTES ON UNIT SAFETY FEATURES :-
(1) AGITATOR MOTOR IS EXPLOSION PROOF FOR GASES WITH FLASH POINT > 280°C.
(2) OUTSIDE LINES CONNECTED TO POWER SUPPLY VIA SHUNT DIODE SAFETY BARRIERS

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA

WELL NAME: FORTESCUE No 3

DATE: 14 DEC 78 TIME: 0600 HRS

DEPTH: 2416 m LAST REPORT DEPTH: 2410.5 m

DRILL RATE	average 1.2 m/hr	SPM	33 - 34
CORRECTED D EXPONENT	average 1.60	GPM	290
FLOWLINE TEMPERATURE	36.0 °C	DP AN VEL	59 ft/min
SHALE DENSITY	—	DC AN VEL	76 ft/min
SHALE FACTOR	—	CRITICAL VEL	—
MAX. FORMATION GAS	6 units.	PRESS (TOTAL)	1600
BACKGROUND GAS	3 units	PRESS (BIT)	—
CONNECTION GAS	—	PRESS (SYSTEM)	—
TRIP GAS	4 units at 2410.5m	BIT NOZ VEL	—
LITHOLOGY:		HOLE VOL	1257 bbl
	CALCAREOUS MUDSTONE	AN. VOL	1039 bbl
		PIPE CAP:	135 bbl.
		PIPE DISPL.	83 bbl
		BIT TYPE	C#3 CHRIS C20
		JETS	coring

MUD WT. IN	9.6	PV/YP	19/22	AV. WOB	20,000 lbs
MUD WT. OUT	9.6	CL-	2200	AV. RPM	80
ECD	9.9	% SOLIDS	14	AV. TORQUE	4,000 ft/lbs

ESTIMATED PORE PRESS	8.4	TIGHT HOLE	—
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5	FILL	—
ESTIMATED FRACTURE PRESS	16.5	Δ LAG	—
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0	EST. % CAVINGS	—

COMMENTS: RIH, CORE FROM 2410.5 TO 2416m (5.5m)
Lost 200 psi pump PRESSURE AT 2413m.
POOH at 2416m DUE TO WEATHER CONDITIONS.
RETRIEVE CORE No 3 (1.5m, 27%)

TRIP AT 2410.5m: Trip out, calc displacement 83 bbl, Actual 87 bbl
Trip in, calc displacement 83 bbl, Actual 109 bbl

TRIP AT 2416.0m: Trip out, calc displacement 83 bbl, Actual 90 bbl.

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY ESSO AUSTRALIA

WELL NAME FORTESCUE No 3

DATE 15 DEC 78 TIME 06⁰⁰ HRS

DEPTH 2417 m LAST REPORT DEPTH 2416 m

DRILL RATE	Average 1.0 m/hr	SPM	34
CORRECTED D EXPONENT	Average 1.80	GPM	290
FLOWLINE TEMPERATURE	39.0°C	DP AN VEL	59
SHALE DENSITY	–	DC AN VEL	76
SHALE FACTOR	–	CRITICAL VEL	–
MAX. FORMATION GAS	2 units	PRESS (TOTAL)	1550
BACKGROUND GAS	2 units	PRESS (BIT)	–
CONNECTION GAS		PRESS (SYSTEM)	–
TRIP GAS	4 units on core 4, 2 units on core 5	BIT NOZ VEL	–
LITHOLOGY:		HOLE VOL	1257 bbl
	CALCAREOUS MUDSTONE	AN. VOL	1039 "
		PIPE VOL	135 " capacity
		PIPE DISPL.	83
		BIT TYPE	CHRIS C20 coring
		JETS	

MUD WT. IN	9.6	PV/YP 14/20		AV. WOB	25-30,000 lbs
MUD WT. OUT	9.6	CL- 2600		AV. RPM	50
ECD	9.9	% SOLIDS 13		AV. TORQUE	3,000 ft lbs
ESTIMATED PORE PRESS	8.4			TIGHT HOLE	–
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5			FILL	–
ESTIMATED FRACTURE PRESS	16.5			Δ LAG	–
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0			EST. % CAVINGS	–

COMMENTS: RIH with core No 4, would not drill, POOH, change BHA
RIH with core no 5, Core 2416 - 2417m (core 1m, rec 0.1m 10
RIH with Bit no 9 HTC XDG with 15/15/14 jets.

TRIP AT 2416 m Trip IN with core 4 Calc disp 83 bbl Actual 70 bbl
TRIP AT 2416 m Trip OUT with core 4 Calc disp 83 Actual 73 } Overall
Trip IN with core 5 Calc disp 83 Actual 68 } 5bbl loss
TRIP AT 2417 m Trip OUT with core 5 Calc disp 83 Actual 120
Trip IN with Bit 9 Calc disp 83 IN PROGRESS.

[redacted]

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY Esso Australia

WELL NAME Fortescue No 3

DATE 16 DEC 78 TIME 0500

DEPTH 2440 m LAST REPORT DEPTH 2417 m

DRILL RATE	12 m/hr
CORRECTED D EXPONENT	1·12 – 1·66
FLOWLINE TEMPERATURE	42.3°C
SHALE DENSITY	—
SHALE FACTOR	—
MAX. FORMATION GAS	30 units at 2440
BACKGROUND GAS	2 units
CONNECTION GAS	—
TRIP GAS	16 units
LITHOLOGY:	calcareous mudstone + siltstone

SPM	76
GPM	660
DP AN VEL	180 ft/min
DC AN VEL	129 ft/min
CRITICAL VEL	350 ft/min
PRESS (TOTAL)	3000
PRESS (BIT)	1577
PRESS (SYSTEM)	1423
BIT NOZ VEL	427 ft/se
HOLE VOL	1267 bbl
AN. VOL	1045 bbl
PIPE VOL	136 bbl ca
PIPE DISPL.	86 bbl
BIT TYPE	BN 9 HTC XDG
JETS	15 15 14

MUD WT. IN	9.6	PV/YP	15/20
MUD WT. OUT	9.6	CL-	3600
ECD		% SOLIDS	13

AV. WOB	47,000 l
AV. RPM	112
AV. TORQUE	7,000 A

ESTIMATED PORE PRESS	8.4
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5
ESTIMATED FRACTURE PRESS	16.5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

TIGHT HOLE	—
FILL	—
Δ LAG	—
EST. % CAVINGS	—

COMMENTS: Bit No 9, Drill 2417 to 2440 m, POOH to core. RIH w/ core #6, Circ BU prior to coring.

TRIP AT 2440m

Trip out w/ Bit 9	Calc	86 bbl	Actual	100 bbl
Trip in w/ core 6	Calc	83 bbl	Actual	85 bbl

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA

WELL NAME: FORTESCUE No 3

DATE: 17 DEC 78 TIME: 06⁰⁰ HRS

DEPTH: 2470 m LAST REPORT DEPTH: 2440 m

DRILL RATE	5.0 m/hr average	SPM	32
CORRECTED D EXPONENT	1·17 – 1·68	GPM	280
FLOWLINE TEMPERATURE	44.8°C	DP AN VEL	54
SHALE DENSITY	—	DC AN VEL	76
SHALE FACTOR	—	CRITICAL VEL	—
MAX. FORMATION GAS	1 unit	PRESS (TOTAL)	1550
BACKGROUND GAS	1 unit	PRESS (BIT)	—
CONNECTION GAS	—	PRESS (SYSTEM)	—
TRIP GAS	12 units at 2440	BIT NOZ VEL	—
LITHOLOGY:	2 units at 2456	HOLE VOL	1277 bbl
		AN. VOL	1059 bbl
	SANDSTONE w/ SHALE	PIPE VOL	138 bbl
		PIPE DISPL.	80 bbl
		BIT TYPE	CHRIS C22 — coring
		JETS	

MUD WT. IN	9.6	PV/YP	16/20	AV. WOB	22 – 24,000
MUD WT. OUT	9.6	CL-	3900	AV. RPM	85 – 100
ECD	9·8 – 9.9	% SOLIDS	13	AV. TORQUE	4 – 6,000 Ft

ESTIMATED PORE PRESS	8.4	TIGHT HOLE	—
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5	FILL	—
ESTIMATED FRACTURE PRESS	16.5	Δ LAG	—
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0	EST. % CAVINGS	—

COMMENTS:

CORE No 6 2440 – 2456 Rec 11.4 m 71%

CORE No 7 2456 – 2470 Rec 9.0 m 64%

RIH w CB # 8

TRIP AT 2456 m { POOH w/ core No 6 Calc 80 bbl Actual 81 bbl
RIH w/ core No 7 Calc 80 bbl Actual 70 bbl }

TRIP AT 2470 m { POOH w/ core No 7 Calc 80 bbl Actual 80 bbl
RIH w/ core No 8 Calc 80 bbl Actual 84 bbl }

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA

WELL NAME: FORTESCUE No 3

DATE: 18 DEC 78 TIME: 06⁰⁰

DEPTH: 2519 LAST REPORT DEPTH: 2470 m

DRILL RATE	10-15 m/hr (25) m/h
CORRECTED D EXPONENT	1.0-1.1
FLOWLINE TEMPERATURE	42 °C
SHALE DENSITY	—
SHALE FACTOR	—
MAX. FORMATION GAS	3 units 2483
BACKGROUND GAS	2 units.
CONNECTION GAS	5 units at 2470 m (coring)
TRIP GAS	15 units at 2470 m (reaming)
LITHOLOGY:	SANDSTONE w/ SHALE

SPM	74
GPM	640
DP AN VEL	125
DC AN VEL	174
CRITICAL VEL	351
PRESS (TOTAL)	2800
PRESS (BIT)	1475
PRESS (SYSTEM)	1325
BIT NOZ VEL	414 ft/sec
HOLE VOL	1304 bbl
AN. VOL	1077 bbl
PIPE VOL	141 cap bbl
PIPE DISPL.	86 bbl
BIT TYPE	HTC XDG
JETS	15 15 14

MUD WT. IN	9.7	PV/YP	15/20
MUD WT. OUT	9.8	Cl-	4200
ECD	10.0	% SOLIDS	13

AV. WOB	35,000 lbs
AV. RPM	100
AV. TORQUE	7,000 Ft lbs
TIGHT HOLE	—
FILL	—
Δ LAG	—
EST. % CAVINGS	—

ESTIMATED PORE PRESS	8.5
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5
ESTIMATED FRACTURE PRESS	16.5
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

COMMENTS:
CORE No 8 2470-2480 m Rec: 0 m.
RIH w/ RR#9 HTC XDG. Ream out rat hole.
Drill 2480 m - 2483 m Circ B.U. max gas 3 units
Drilling 2483 to 2519 m

TRIP AT 2480 m
TRIP out w/ core 8 Calc: 81 bbl Actual 85 bbl
TRIP IN w/ Bit RR9 Calc: 86 bbl Actual 66 bbl

[redacted]

PETROLEUM ENGINEERING SUMMARY REPORT

COMPANY: ESSO AUSTRALIA

WELL NAME: FORTESCUE No 3

DATE: 19 DEC 78 TIME: 06[00] HRS

DEPTH: 2625 m LAST REPORT DEPTH: 2519 m.

DRILL RATE	Av 12.5 m/hr
CORRECTED D EXPONENT	0.93 - 1.53
FLOWLINE TEMPERATURE	46°C
SHALE DENSITY	–
SHALE FACTOR	–
MAX. FORMATION GAS	3 units
BACKGROUND GAS	2 units
CONNECTION GAS	–
TRIP GAS	10 units on wiper trip
LITHOLOGY:	SANDSTONE /COAL/ SH.

SPM	74
GPM	640
DP AN VEL	125 ft/min
DC AN VEL	174 ft/min
CRITICAL VEL	356 ft/min
PRESS(TOTAL)	2860
PRESS(BIT)	1521
PRESS(SYSTEM)	1339
BIT NOZ VEL	414 ft/sec
HOLE VOL	1355 bbl
AN. VOL	1119 bbl
PIPE VOL	147 bbl
PIPE DISPL.	89 bbl
BIT TYPE	RR 9 HTC XD
JETS	15, 15, 14
AV. WOB	35,000 lbs
AV. RPM	110
AV. TORQUE	5,000 lbs
TIGHT HOLE	–
FILL	–
Δ LAT	+ 500 st
EST. SCAVINGS	–

MUD WT. IN	9.9	PV/YP	17/21
MUD WT. OUT	9.8	CL-	4600
ECD	10.1	% SOLIDS	12

ESTIMATED PORE PRESS	8.5
MAX. ESTIMATED PORE PRESS IN OPEN HOLE	8.5
ESTIMATED FRACTURE PRESS	17.0
MIN. EST. FRAC. PRESS. IN OPEN HOLE	14.0

COMMENTS: Drill 2519 m – 2625 m.
Wiper trip then POOH directional survey
Running wireline logs.

TRIP AT 2625m Trip out w/ Bit 9. Calc: 89 bbl
Actual 115 bbl

EXPLORATION LOGGING INTERNATIONAL INC.
A Geological-Engineering Service
APARTADO 850, PANAMA, REPUBLIC OF PANAMA
2006, ORCHARD TOWERS, 400, ORCHARD ROAD, SINGAPORE 9.
TELEPHONE: 2354544 (4 LINES) TELEX RS 21084

ESSO AUSTRALIA LTD., FORTESCUE NO.3

EXPLORATION LOGGING, UNIT 101, OCEAN DIGGER.

WEEKLY REPORT NO.1 : 0 - 893 METRES

DRILLING SUMMARY

THE RIG MOVED ON LOCATION ON THE 26/11/78 AND RAN ANCHORS. THE WELL SPUDDED THE SAME DAY, DRILLING WITH NO RETURNS WITH A 17½"BIT AND 26"HOLE OPENER. AT 244 METRES THE BIT WAS PULLED AND 20" CASING RUN AND CEMENTED WITH THE SHOE AT 225 METRES. A SURVEY AT T.D. SHOWED HOLE ANGLE TO BE 1°.

THE 20" SHOE WAS DRILLED OUT WITH A 17½"OSC 3AJ BIT USING SEAWATER TO 260 METRES WHERE THE CHANGEOVER TO 8.9PPG MUD WAS MADE. T.D FOR THE 17½"HOLE WAS AT 878 METRES AND THE BIT WAS PULLED TO RUN LOGS AND CASING.

A WIPER TRIP WAS MADE AND SCHLUMBERGER ISF/SONIC AND FDC/GR LOGS WERE RUN TO T.D. FOLLOWING CONDITIONING OF THE MUD TO REDUCE WATER LOSS, 13⅜"CASING WAS RUN TO 867 M WHERE THE SHOE WAS CEMENTED.

DRILLING CONTINUED WITH A 12¼" X1G BIT AND AT 893M A PRESSURE INTEGRITY TEST WAS CARRIED OUT TO 13.7 PPG EMW DRILLING CONTINUES.

DRILLING PARAMETERS

LITHOLOGY: FIRST SAMPLES TO SURFACE WERE CALCARENITE WITH ABUNDANT SHELL FRAGMENTS AND MICROFOSSILS. AROUND 550 METRES A MORE ARGILLACEOUS MATERIAL APPEARED, MARL OR CALCILUTITE. THE CALCARENITE BECAME A FINER CALCISILTITE AND THIS WAS QUITE UNIFORM DOWN TO CASING POINT.

DRILL RATES: DRILL RATES OF 300-400 M/HR WERE RECORDED IN THE TOPMOST SECTION OF THE HOLE DROPPING TO AN AVERAGE OF 100 M/HR FOR THE FIRST 300 METRES. THE RATE SLOWED THEN TO 60 M/HR IN THE CLAYEY SECTION AROUND 550 METRES AND PICKED UP SLIGHTLY IN THE CALCISILTITE. DRILL RATES DROPPED OFF TOWARDS THE CASING POINT WITH AVERAGES AROUND 20 M/HR. THIS WAS SLOWER THAN IN THE FORTESCUE NO.2 WELL.

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DRILLING EXPONENT : A GOOD TREND WAS ESTABLISHED AS DRILL RATES BEHAVED IN ACCORDANCE WITH THE COMPACTION TREND OF THE LITHOLOGIES .NORMAL GRADIENT OF 8.4 PPG E.M.W. IS TAKEN FOR THIS AREA.

GAS : GAS READINGS WERE NEGLIGIBLE DOWN TO 400 METRES WHERE A BACKGROUND OF 5-6 UNITS APPEARED.HIGHEST READINGS WERE 24 UNITS AGAINST A GENERAL BACKGROUND OF 10 UNITS.METHANE AND SLIGHT TRACES OF ETHANE WERE DETECTED.

TEMPERATURE : A VERY STEADY AND SLOW INCREASE IN FLOWLINE TEMPERATURE WAS RECORDED WITH NO APPARENT ANOMALIES. HIGHEST TEMPERATURE RECORDED WAS 28°C AT 878 METRES.

HOLE CONDITION: ON THE FINAL TRIP FOR THE LOGGING SOME OVERPULL WAS EXPERIENCED.THE CALIPER LOG SHOWED VERY LITTLE WASHOUT OF THE HOLE AND NO PROBLEMS WERE EXPERIENCED WITH RUNNING OF THE LOGGING TOOLS TO BOTTOM.CARBIDES RUN IN THIS SECTION INDICATED GOOD HOLE CONDITION.

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WEEKLY REPORT #2: DEC. 1ST TO DEC. 8TH 1978
ESSO AUSTRALIA LIMITED. FORTESCUE NO.3
EXPLORATION LOGGING UNIT 101 , THE OCEAN DIGGER.
DEPTH INTERVAL: 893 TO 1600 METRES.

DRILLING SUMMARY

NB#3 A HTC X3A WAS USED TO DRILL OUT THE 13 3/8" CASING SHOE AND 12¼" HOLE TO 1271 METRES. THE BIT WAS THEN REPLACED WITH NB#4 ALSO A HTC X3A AND THIS BIT DRILLED TO 1343 METRES. DURING THIS BIT RUN PUMP NUMBER 2 BROKE DOWN SO DOWN TO 1481 METRES ONLY ONE PUMP WAS USED ON THE HOLE. AT 1481 METRES THE PUMP WAS REPAIRED AND BOTH PUMPS WERE USED ON THE HOLE. AT 1508 METRES IT WAS DECIDED TO PULL THE BIT. ON THE TRIP OUT TIGHT HOLE WAS EXPERIENCED UP TO 1050 METRES AND IT WAS FOUND THAT THE HOLE WAS NOT TAKING ANY MUD ON FILL UP. RAN BACK TO BOTTOM AND CIRCULATED WITH HIGH VISCOSITY MUD. PULLED OUT OF THE HOLE WITH NO FURTHER PROBLEMS AND RAN BACK WITH NB#5 ANOTHER HTC X3A. A GAS SHOW OF 2000 UNITS OCCURED AT 1526 METRES. DRILLING WAS STOPPED AND RETURNS CIRCULATED AT 1536 METRES. CHROMATAGRAPH ANALYSIS INDICATED THAT THE GAS WAS MAINLY METHANE WITH MINOR TRACES OF HEAVIER HYDROCARBONS THROUH TO C4. THE MUD WEIGHT WAS RAISED TO 9.6 LB/GAL AND THE MUD CONDITIONED PRIOR TO COMING OUT OF THE HOLE FOR THE CORE BARREL. CORE #1 WAS THEN CUT, FROM 1536 TO 1548.6 METRES, USING A CHRIS C20 CORE BIT. RECOVERY WAS 100% AND NO HYDROCARBON SHOWS WERE DISCOVERED IN THE CORE WHICH CONSISTED OF MARL. NB#6 ANOTHER HTC X3A WAS RUN BACK IN THE HOLE AND THIS DRILLED TO 1600 METRES BEFORE PROBLEMS WITH THE STACK CAUSED DRILLING OPERATIONS TO BE STOPPED. AT PRESENT WE ARE OUT OF THE HOLE AND WAITING ON THE DIVERS TO COMPLETE REPAIRS TO THE STACK.

DRILLING PARAMETERS

LITHOLOGY: THIS HAS CONSISTED OF A SEQUENCE OF CALCISILTITES, CALCAREOUS MUDSTONES AND MARL. OVER THE INTERVAL DRILL RATES VARIED FROM 100 TO 8 METRES PER HOUR. THE FASTER RATES OCCURING BETWEEN 893 AND 1350 METRES. BELOW 1350 METRES DRILL RATE DROPPED OFF TO AN AVERAGE OF 12 METRES PER HOUR.

GAS: BACK GROUND GAS VARIED FROM 4 TO 20 UNITS WITH A SHOW OF 2000 UNITS AT 1526 METRES. A DRILLING BREAK FROM 13 METRES PER HOUR TO 21 METRES PER HOUR COINCIDES WITH THE GAS SHOW. UNFORTUNATELY EXAMINATION OF OF CUTTINGS FROM THE INTERVAL DID NOT SHOW ANY REASON FOR THE HIGH

GAS READINGS, NOR WERE ANY OTHER ANOMOLOUS READINGS RECORDED WHILIST CUTTING CORE #1. THE POSSIBILITY THAT THE SHOW WAS CAUSED BY HERETO UNKOWN SURFACE ACTIVITIES CANNOT BE DISCOUNTED ON PRESENT EVIDENCE.

PRESSURE INDICATORS:

DRILLING EXPONENT: THE PLOT OF THE DXC DOES NOT SHOW ANY ANOMOLOUS TRENDS. HOWEVER A NORMAL COMPACTION TREND IS READILY APPARENT. UNFORTUNATELY THE ABSEBENCE OF CLEAN SHALES PRECLUDES ANY QUANTITATIVE ANALYSIS.

GAS: NO CONNECTION GASES OR ABNORMALY HIGH TRIP GASES HAVE OCCURED. A READING OF 2000 UNITS WAS OBTAINED FROM 1526 METRES BUT IT IS SUSPECTED THAT THIS MAY HAVE BEEN CAUSED BY SURFACE ACTIVITY.

TEMPERATURE: THIS SHOWS A NORMAL TREND TO 1270 METRES. FROM 1270 TO 1475 METRES THERE IS AN APPARENT REVERSAL IN TREND. THIS IS BELIEVED TO HAVE BEEN CAUSED BY THE ADDITION OF WATER AND CHEMICALS TO THE MUD SYSTEM. BELOW 1475 METRES A NORMAL TREND AGAIN BECOMES ESTABLISHED.

HOLE CONDITION: TIGHT HOLE WAS EXPERIENCED ON THE TRIP OUT AT 1508 ME[TRES]. APART FROM THIS THE HOLE IS BELIEVED TO BE IN GOOD CONDITION AND CARBIDES HAVE GIVEN A LAG NOT EXCEEDING THE TEORETICAL LAG BY MORE THAN 100 STROKE[S]. UNFORTUNATELY WE HAVE NOW BEEN OUT OF THE HOLE FOR 3 DAYS AND IT REMAINS TO BE SEEN WHETHER OR NOT THE HOLE CONDITION WILL HAVE DETERIORATE DURING THIS TIME.

PORE PRESSURE: IT IS BELIEVED THAT PORE PRESSURE IS 8.4 TO 8.5 LB/GAL HOWEVER THE AS YET UNEXPLAINED GAS SHOW AT 1526 METRES INDICATES THAT CAUTION BE EXERCISED.

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WEEKLY REPORT # 3 DEC 8 TO DEC 15 1978
ESSO AUSTRALIA LTD, FORTESCUE #3
EXPLORATION LOGGING, UNIT 101 OCEAN DIGGER
DEPTH INTERVAL: 1600M TO 2417M

DRILLING SUMMARY

DRILLING RESUMED ON 9 DEC AFTER REPAIRS TO THE BOP'S WERE SUCCESSFUL. BIT #7, AN HTC X3A 12¼" WITH 18,18,20 JETS DRILLED FROM 1600M TO 2052M AT AN AVERAGE PENETRATION RATE OF 17M/HR, USING AN AVERAGE BIT WEIGHT OF 50.000 LBS AND AN RPM OF 120. ANOTHER X3A DRILLED TO 2409.5M AND WAS PULLED DUE TO A SIEZED CONE. THIS BIT AVERAGED 19M/HR. TRIP GAS AT 1600M WAS 180 UNITS, AND 100UNITS AT 2052M. MUD WEIGHTS USED THROUGHOUT THE WHOLE INTERVAL AVERAGED 9.3 TO 9.6 PPG. CORE #2 WAS CUT WITH AN 8 15/32" CHRIS C20 BIT FROM 2409.5M TO 2410.5M. THE CORE WAS PULLED AFTER ONE METRE DUE TO THE JAMMING OF THE BIT. 40CM WAS RECOVERED. AVERAGE RATE OF PENETRATION WAS 2.5 M/HR, USING 20,000 LBS WEIGHT AND 85 RPM. TRIP GAS AT 2409.5 M WAS 4 UNITS. CORE #3 WAS CUT FROM 2410.5M TO 2416M. 200 PSI PUMP PRESSURE WAS LOST AT 2413M. THE CORE WAS PULLED AT 2416M DUE TO DETERIORATING WEATHER CONDITIONS. 1.5 M WAS RECOVERED, 27%. CORE #4 WAS RUN IN TO BOTTOM, BUT THE BIT JAMMED BEFORE ANY CORE WAS CUT, TRIP GAS WAS 4 UNITS. THE CORE BARREL WAS PULLED OUT AND RUN BACK AFTER CHANGING THE BHA; TRIP GAS WAS 2 UNITS. CORE #5 WAS CUT FROM 2416M TO 2417M AND WAS PULLED DUE TO THE BIT AGAIN JAMMING. 10 CM OF CALCAREOUS MUDSTONE WAS RECOVERED. THE CURRENT OPERATION IS DRILLING WITH BIT #9, AN HTC XDG 12¼" BIT WITH 15,15,14 JETS.

LITHOLOGY

THE SECTION FROM 1600M TO 2417M CONSISTS OF TYPICAL LAKES ENTRANCE FORMATION: CALCAREOUS MUDSTONES WITH SPORADIC INTERBEDS OF CALCISILTITE BELOW 2300M CALCAREOUS SHALES PREDOMINATED. AT 1730M TO 1750M A CRYSTALLINE LIMESTONE WAS DRILLED: THIS PROBABLY REPRESENTED THE 'HIGH VELOCITY CHANNEL'. FROM 1759M TO 1762M AND FROM 1766M TO 1767 M A VERY SOFT HYGROTURCID CLAY WAS DRILLED, WHICH PRODUCED A VOLUME OF CAVINGS AND MUD VISCOSITY PROBLEMS TO APPROX 2100M.

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DRILLING EXPONENT

THE DXC PLOT IS REPRESENTATIVE OF A NORMAL COMPACTION TREND IN THIS INTERVAL. IF MINOR VARIATIONS DUE TO SLIGHT LITHOLOGICAL CHANGES ARE CORRECTLY INTERPRETED, THEN IT CAN BE SEEN THAT THE TREND IS REFLECTIVE OF A NORMAL PORE PRESSURE GRADIENT OF APPROX 8.5 PPG.

GAS

AVERAGE BACKGROUND GAS THROUGHOUT THE INTERVAL AVERAGED 4 UNITS AND NEVER ROSE ABOVE 10 UNITS. NO CONNECTION GASSES WERE DETECTED. THE LARGE TRIP GAS AT 1600M WAS DUE TO THE LENGTH OF TIME SPENT OUT OF THE HOLE WHILE REPAIRING THE STACK AND WAITING ON WEATHER.

TEMPERATURE

AFTER INTERPRETATION DUE TO SURFACE ACTIVITIES IT APPEARS THAT THE ESTABLISHED REGIONAL TREND OF 1.12°C IS CONTINUING, THE MAXIMUM TEMPERATURE RECORDED WAS 47.5C AT 2400M.

HOLE CONDITION

CARBIDE LAG TIMES INDICATE THAT THE AVERAGE OPEN HOLE GUAGE IS VERY CLOSE TO 12¼". ALL TRIPS RAN SMOOTHLY WITH AN ABSENCE OF ANY INDICATION OF SIGNIFICANT DRAG.

PORE PRESSURE

ESTIMATED TO CONTINUE AT A NORMAL 8.5 PPG EQUIVALENT MUD WEIGHT.

DAINES/NOLAN

Plans