EAST MEREENIE NO. 12

P.L. 5, NORTHERN TERRITORY

WELL COMPLETION REPORT

Oilmin N.L.,
27 Turbot St.,
Brisbane.

June, 1984.

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Sect.

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SUMMARY

SUMMARY

East Mereenie No. 12 is the tenth well of the 20 well Mereenie oilfield appraisal programme. It was drilled to test the production potential of the middle and lower P3 sub-unit reservoirs, and to confirm seismic reinterpretation which had eliminated a previously mapped north trending fault and a postulated minor gas pool between East Mereenie Nos. 4 and 11. The well is located at shot point 1117, along seismic line M82-7 and is equidistant from East Mereenie Nos. 4 and 11.

The well was spudded on the 6th December 1983 using the OIME SL 750 Mereenie Rig No. 1 and reached a total depth of 4770 feet in the Pacoota P4 Sandstone on the 19th January 1984. The well was drilled with air and air foam in 13-1/2" hole to the 10-3/4" casing shoe at 2188 feet. Drilling continued with air in 9-7/8" hole to 3592 feet where minor (TSTM) gas flows from the Lower Stairway necessitated a changeover to oil based mud. The well was killed with a 10.7 ppg oil based mud and drilling continued in 9-7/8" hole to 4513 feet. Under reaming from 9-7/8" to 13" hole was attempted from beneath the 10-3/4" casing shoe at 2188 feet, but abandoned due to poor penetration rates at 2367 feet. The well was continued in 7-7/8" hole from 4513 feet to TD at 4770 feet using oil based mud.

Three drill stem tests completed in the Pacoota P3 sub-unit confirmed the good reservoir characteristics of the middle and lower sandstone intervals. Drill stem test No. 1 (4524 to 4654 feet) recovered 773 BOPD, and recorded gas at 796 mcfd. Drill stem test No. 2 (4610 to 4654 feet), flowed oil and gas to surface at 558 BOPD and 370 mcfd from mainly the P3-120/130 sands and drill stem test No. 3(4654 to 4693 feet) flowed 679 BOPD and 608 mcfd from the P3-240/250 sands. Four cores were cut over the combined corrected interval of 4652 to 4691 feet which included the P3-240/250 sands and the top seven feet of the Pacoota P4 sub-unit. Good correlation between core analysis porosity and log density porosity was achieved.

The gas/oil contact was not determined in East Mereenie No. 12, but based on adjacent well information the established contact of-2130 feet MSL has been accepted. Based on the results of drill stem test No. 4 (4726 to 4770 feet), which recovered 2.9 bbls of slightly water cut mud, the P4-40 sand at -2400 feet MSL appears to be in a transition zone near the previously established field average oil/water contact of -2450 feet MSL.

After logging with Gearhart, 5-1/2" casing was run to 4767 feet and the following Pacoota P3 sub-unit intervals perforated with 4 shots per foot; 4525 to 4561, 4579 to 4588, 4595 to 4603, 4614 to 4639, 4650 to 4670, 4676 to 4682 feet. Tubing 2-3/8" was run and the packer set at 4467 feet KB. After flowing for 1-1/2 hours to clean, the well was flowed for 2-1/2 hours through a separator recording 28.62 bbls of oil per hour in the stocktank or 687 BOPD with 656 mcfd of gas.

East Mereenie No. 12 was completed as an oil producer and the rig released at 2200 hours on 29th January, 1984.

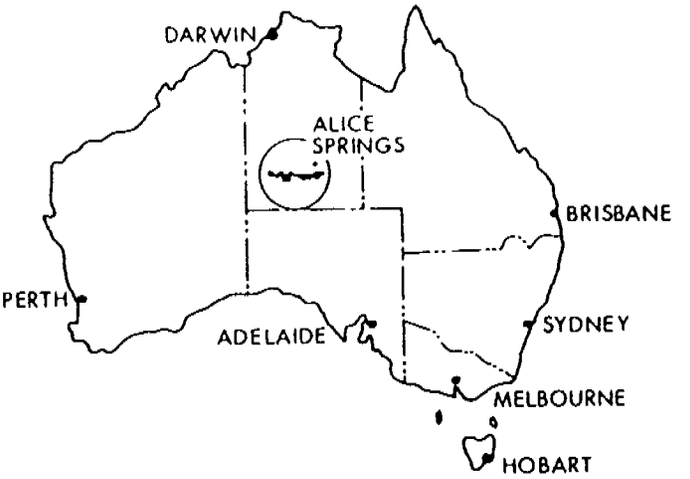
1. GENERAL DATA

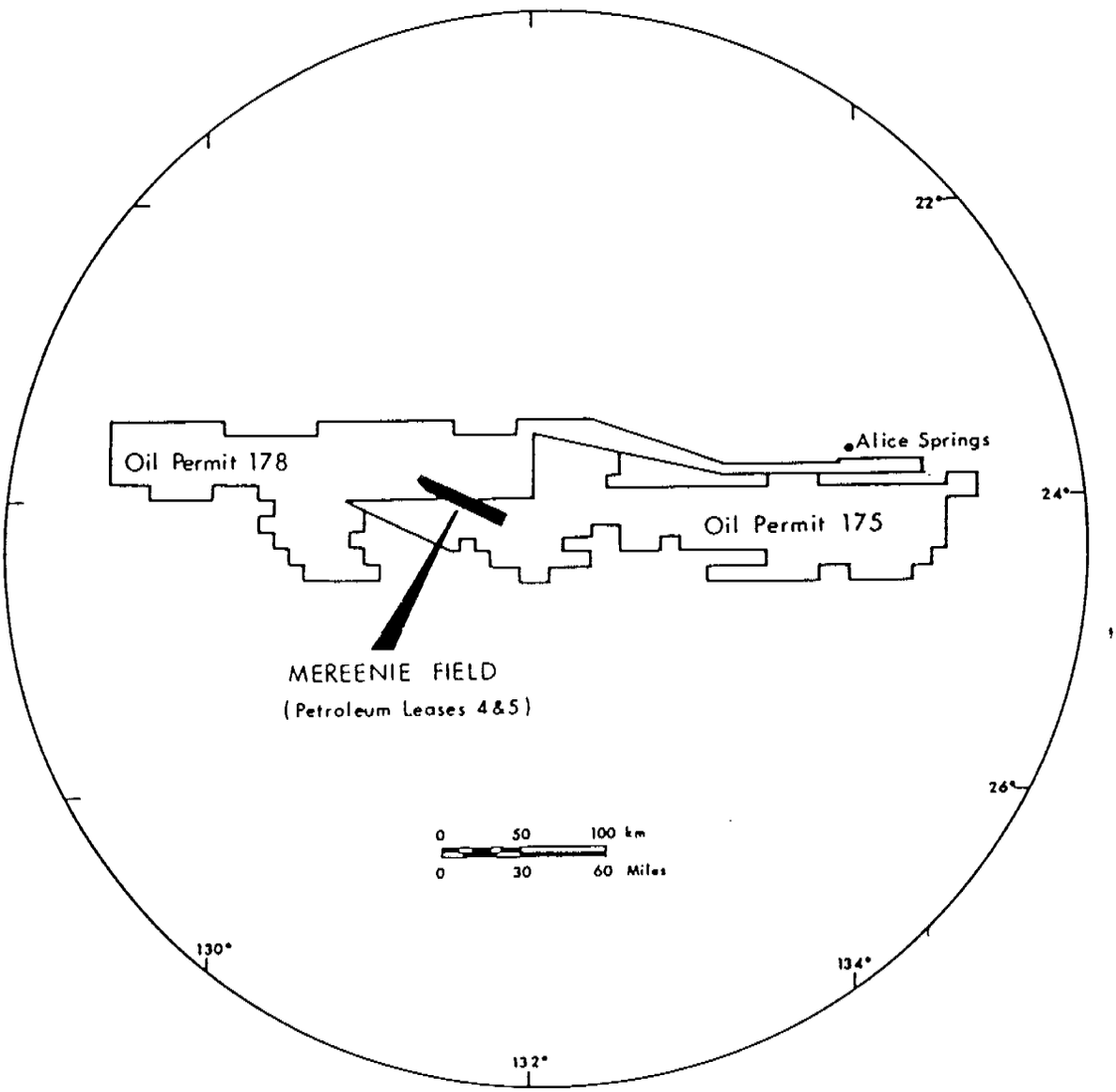
1. GENERAL DATA:

Well name and number:	*East Mereenie No. 12*
Operator:	*Oilmin N.L.*
Beneficial interest holders:	*Oilmin N.L.* *Canso Resources Limited* *Flinders Petroleum N.L.* *The Moonie Oil Company Limited* *Magellan Petroleum Australia Ltd* *Petromin No Liability* *Transoil No Liability*
Petroleum title:	*Petroleum Lease No. 5*
District:	*Alice Springs, Northern Territory*
Location:	*Latitude: 24°01'54"S* *Longitude: 131°38'15"E* *(not surveyed)*
Elevation:	*Ground level: 2312 feet MSL* *Kelly bushing: 2332 feet MSL* *(datum for all measurements not surveyed)*
Total depth:	*4765 feet (Driller)* *4770 feet (Logger)*
Spudded:	*6th December, 1983 (2230 hrs)*
Total depth reached:	*19th January, 1984 (2200 hrs)*
Rig released:	*29th January, 1984 (2200 hrs)*
Well status:	*Completed for oil production from the middle and lower P3 reservoirs.*

Geological formation tops:

Parke Siltstone	*Surface*
Mereenie Sandstone	*54 feet*
Carmichael Sandstone	*1664 feet*
Stokes Siltstone	*1860 feet*
Stairway Sandstone	*2845 feet*
Horn Valley Siltstone	*3637 feet*
Pacoota Sandstone	*3851 feet*



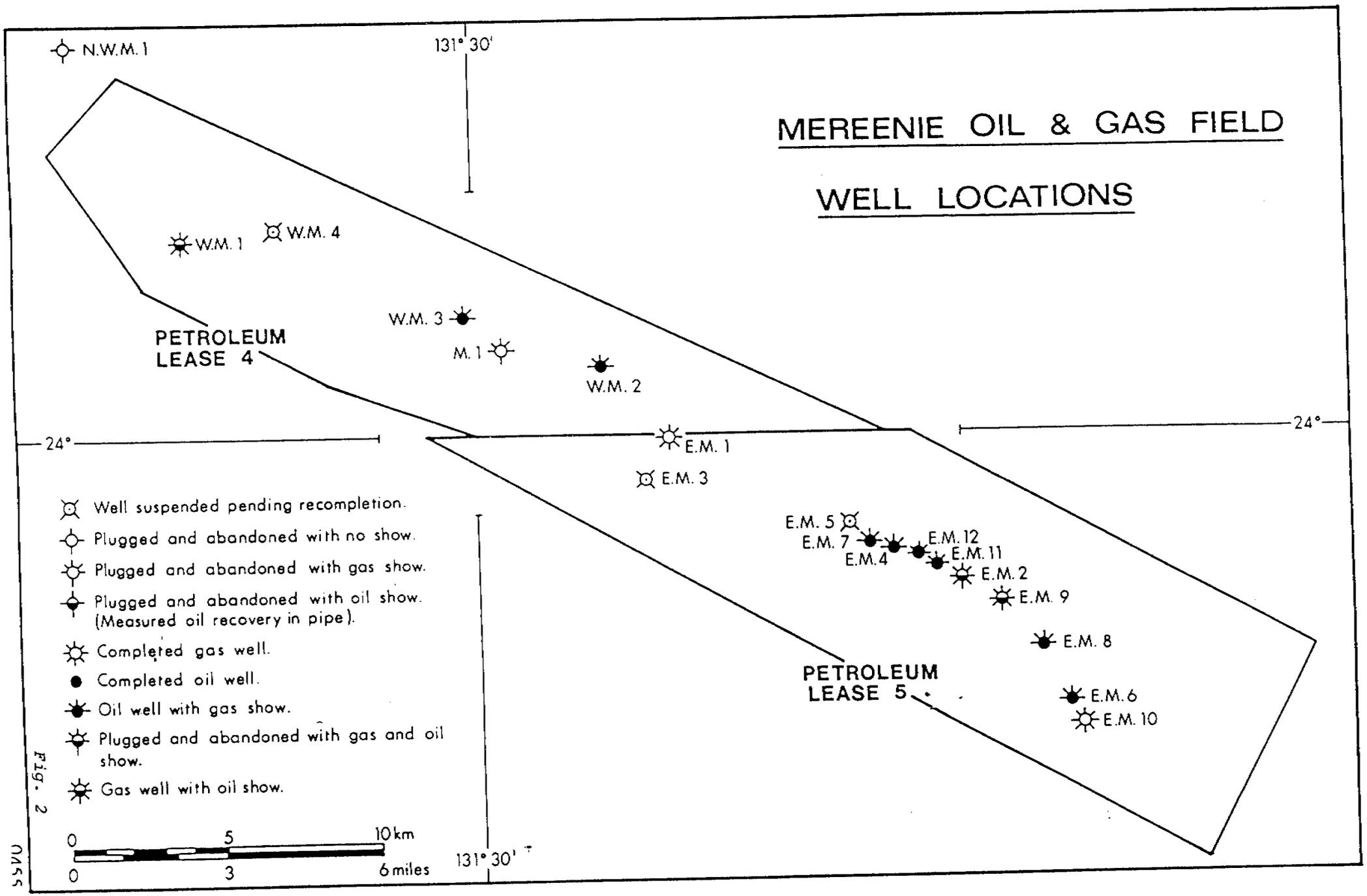


LOCATION MAP

RLH JUNE, 1983

FIGURE 1

0444


MEREENIE OIL & GAS FIELD
WELL LOCATIONS
N.W.M. 1
131° 30'
W.M. 1
W.M. 4
W.M. 3
M. 1
W.M. 2
PETROLEUM LEASE 4
24°
E.M. 1
E.M. 3
E.M. 5
E.M. 7
E.M. 4
E.M. 12
E.M. 11
E.M. 2
E.M. 9
E.M. 8
PETROLEUM LEASE 5
E.M. 6
E.M. 10
Well suspended pending recompletion.
Plugged and abandoned with no show.
Plugged and abandoned with gas show.
Plugged and abandoned with oil show. (Measured oil recovery in pipe).
Completed gas well.
Completed oil well.
Oil well with gas show.
Plugged and abandoned with gas and oil show.
Gas well with oil show.
0 5 10 km
0 3 6 miles
131° 30'
Fig. 2
5540

2. *ENGINEERING DATA*

2. ENGINEERING DATA:

2.1 Rig Data

Drilling Contractor:	Mereenie Joint Venture Partners		
Drilling plant:	Make:	OIME	
	Type:	Model SL-5 (SL-750)	
	Rated Capacity:	12,500 ft. with 4-1/2" OD drill pipe.	
	Motors:	3 - Caterpillar D-3408 (compounded) 385 BHP each.	
Mast:	Make:	Parco Model P-131	
	Type:	Cantilever	
	Rated Capacity:	550,000 lbs (10 lines)	
Pumps:	Make:	2 - Continental Emsco Triplex	
	Type:	F-800 - V-belt driven from compound	
	Size:	6-3/4" x 9"	
Rotary table:	Make:	IDECO LR-275 (27-1/2")	
	Capacity:	570 tons dead load	
Blowout preventors:	Make:	Cameron	Cameron
	Model:	"U" Double Gate	"D" Annular
	Size:	13-5/8"	13-5/8"
	Rating (PSI):	5000	5000
Choke manifold:	Make:	McEvoy	
	Size & Type:	3" - 5000 PSI W.P. choke and kill with one positive and one adjustable choke and Cameron 3" - 5000 HCR flanged valve.	
Mud tanks:	Size & Capacity:	3 tank system - returns, settling and suction. Total capacity: 777 barrels.	

2.1 Rig Data (contd.)

Shale Shaker:	Make:	Brandt
	Type:	Single dual screen.
Mud mixers:	Make:	4-Brandt heavy duty
	Type:	32" blade - electrically driven
Desander:	Make:	DEMCO
	Model:	84, comprising 4 X 8" cones.
	Capacity:	540 to 700 GPM electrically driven.
Desilter:	Make:	DEMCO
	Model:	412-H, comprising 12 X 4" cones.
	Capacity:	960 to 1080 GPM electrically driven.
Drill pipe:	4-1/2" OD 16.6 lbs/ft. API Grade "E" - EUE. Seamless range 2 - 18° taper, internally coated with 6-1/4" OD by 3-1/2" tool joints, hardbanded, 4-1/2" X H connections.	
Drill collars:	6 X 8" OD 2-13/16" ID x 31 ft. 6-5/8" reg. connections.	
	12 x 7" OD 2-13/16" ID x 31 ft. 4" IF connections.	
	27 X 6-1/2" OD 2-1/4" ID x 31 ft. 4" IF connections.	
	3 x 4-1/8" OD 2" ID x 31 ft. 3-1/2" reg. connections.	
Air drilling equipment:		
Air compressors:	Make:	3 only Sullair units.
	Model:	900/250 D.U.
	Capacity:	900 CFM at 250 PSI each.
Air compressor booster:	Make:	Knight Industries.
		KOA Model 2.
	Capacity:	245 PSI inlet and 1400 PSI discharge at 1500 CFM.

2.1 Rig Data (contd.)

Diverter:	Make:	Shaffer
	Model:	Type 79 rotating BOP.
	Rating:	3000 psi
Injection pumps:	Make:	2 only Aldrich
	Model:	not specified
	Capacity:	8 GPM at 1600 psi each powered by SCR variable speed electric motors.

2.2 Drilling Record

Well: East Mereenie No. 12 Field: Mereenie

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results
6.12.83	38	Moved in and rigged up Mereenie OIME SL-750 Rig No. 1. Spudded at 22.30 hrs. Air drilled 17-1/2" hole to 38 feet.
7.12.83	63	Drill 17-1/2" hole to 63 feet with air foam.
8.12.83	129	Drill 17-1/2" hole to 129 feet with air foam.
9.12.83	152	Drill 17-1/2" hole to 152 feet with air foam. Ran and cemented 15" conductor pipe.
10.12.83	345	Drill out cement. Drilled 13-1/2" hole to 345 feet with air.
11.12.83	569	Drill 13-1/2" hole to 569 feet. Foam injection commenced at 6 BPH.
12.12.83	781	Drill 13-1/2" hole to 781 feet with air foam. Injection rate increased to 8 BPH.
13.12.83	1021	Drill 13-1/2" hole to 1021 feet with air foam. Hole making 430 BPH water.
14.12.83	1168	Drill 13-1/2" hole to 1168 feet with air foam. Injection rate increased to 10.4 BPH.
15.12.83	1316	Drill 13-1/2" hole to 1316 feet with air foam. Hole making 500 BPH water.
16.12.83	1463	Drill 13-1/2" hole to 1463 feet with air foam.
17.12.83	1605	Drill 13-1/2" hole to 1605 feet with air foam. Hole making 600 BPH.
18.12.83	1707	Drill 13-1/2" hole to 1707 feet with air foam.
19.12.83	2058	Drill 13-1/2" hole to 2058 feet with air foam. Injection rate increased to 12 BPH.

Well: East Mereenie No. 12 ..... Field: Mereenie .....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
20.12.83	2188	Drill 13-1/2" hole to 2188 feet with air foam. Injection rate increased to 20 BPH. Strap out of hole, lay out collars. Run 10-3/4" casing, 55 joints, 40.5 lb/ft, H40 to 2183.5 ft.
21.12.83	2188	Cement casing with 388 sacks of Class A cement, with 0.2% HR4 retarder slurry weight 15.5 lb/gal; displace with 214 bbls water; cement basket run at 315 ft and cement to surface. Back out landing joint, make-up casing bowl, nipple-up and pressure test BOP, and choke & flare line manifold. Run in hole.
22.12.83	2522	Test pipe rams & hydril to 1000 psi, drilled out cement and shoe. Pull out 12 stands; run in and unload hole. Air drilled 9-7/8" hole to 2522 feet.
23.12.83	2910	Drill 9-7/8" hole to 2910 feet with air.
24.12.83	3054	Drill 9-7/8" hole to 2951 feet with air. POH for new bit No. 10. Drill 9-7/8" hole to 3054 feet.
25.12.83	3400	Drill 9-7/8" hole to 3400 feet with air.
26.12.83	3592	Drill 9-7/8" hole to 3592 feet. Gas from lower Stairway Sandstone TSTM. Flow slowly decreasing. Mix mud, build volume.
27.12.83	3592	Displace hole with oil based mud. POH to change bit. Nipple up flow line and lay out rotating head. RIH with bit No. 11. Ream 104 feet. Circulate gas cut mud through degasser. Drill 9-7/8" hole with 10.7 ppg oil based mud.
28.12.83	3711	Drill 9-7/8" hole to 3711 feet with 10.6 ppg oil based mud.
29.12.83	3801	Drill 9-7/8" hole to 3801 feet with 10.5 ppg oil based mud. POH bit No. 11, and RIH bit No. 12. Ream 3565 to 3767 feet.
30.12.83	3945	Drill 9-7/8" hole to 3945 feet with 10.5 ppg oil based mud.
31.12.83	4021	Drill 9-7/8" hole to 4021 feet with 10.6 ppg oil based mud. POH bit No. 12 and RIH bit No. 13. Ream 3924 to 3969 feet.

Well: East Mereenie No. 12 Field: Mereenie

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
1.1.84	4123	Drill 9-7/8" hole to 4123 feet with 10.7 ppg oil based mud.
2.1.84	4196	Drill 9-7/8" hole to 4196 feet with 10.7 ppg oil based mud. POH bit No. 13 and RIH bit No. 14. Ream 4077 to 4123 feet.
3.1.84	4281	Drill 9-7/8" hole to 4281 feet with 10.5 ppg oil base mud.
4.1.84	4345	Drill 9-7/8" hole to 4395 feet with 10.5 ppg oil base mud. POH Bit No. 14, RIH Bit No. 15.
5.1.84	4424	Drill 9-7/8" hole to 4424 feet with 10.5 ppg oil base mud.
6.1.84	4475	Drill 9-7/8" hole to 4433 feet. Survey at 4395 = 1°. POH Bit no. 15. RIH Bit No. 16. Drill 9-7/8" hole to 4475 feet, mud weight 10.6, Viscosity 53.
7.1.84	4513 (2195)	Drill 9-7/8" hole to 4513 feet. POH Bit No. 16. RIH with Under Reamer. Under Ream 2188 to 2195 feet, 9-7/8" to 12". Mud weight 10.7. Viscosity 57.
8.1.84	(2266)	Under ream 9-7/8" hole to 12" from 2195 to 2266 feet. Change cutters at 2218 feet. Mud weight 10.6. Viscosity 62.
9.1.84	(2351)	Under ream 9-7/8" hole to 12" from 2266 to 2351 feet. Change cutters at 2333 feet. Mud weight 10.5. Viscosity 59.
10.1.84	(2367)	Under ream 9-7/8" hole to 12" from 2351 to 2367 feet. POH. RIH. Circulate and condition mud. POH. RIH fish for cutter arm. POH. Recover fish. Mud weight 10.6 Viscosity 59.
11.1.84	4548	Lay down 7" collars. Pick up 6-1/2" collars Make up BHA and RIH with 7-7/8" Bit No. 17. Drill 7-7/8" hole from 4513 to 4548 feet. Mud weight 10.6. Viscosity 76.
12.1.84	4622	Drill 7-7/8" hole to 4622 feet. Mud weight 10.7. Viscosity 62.
13.1.84	4654	Drill 7-7/8" hole to 4631 feet. POH Bit No. 17. Change stabilizer rubber. RIH Bit No. 18, drill 7-7/8" hole to 4654 feet. Circulate and condition mud. Mud weight 10.5. Viscosity 65.

Well: ..*EAST MEREENIE NO. 12*..... Field: ....*MEREENIE*.....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
14/1/84	*4654*	*Run DST No. 1, 4524 to 4654 ft. Open tool 26 mins, and close in for 52 minutes. Re-open for 90 minutes, close in 180 minutes. Oil to surface 26 minutes. Gas flow 796 mcfd. Oil flow 773 BOPD. Field chart readings, DST No. 1 :* *IHP IFP ISIP FFP FSIP FHP BHT* *2619 333 1806 1129 1806 2552 140°F* *Reverse circulate. Chain out of hole. Layout test tools. Make up BHA. RIH. Mud weight 10.6. Viscosity 61.*
15/1/84	*4654*	*Run DST No. 2, 4610 to 4654 ft. Open tool 23 minutes and close in for 46 minutes. Re-open for 120 minutes, close in for 240 minutes. Oil to surface 41 minutes. Gas flow 370 mcfd. Oil flow 558 BOPD. Field chart readings DST No. 2 :* *IHP IFP ISIP FFP FSIP FHP BHT* *2619 267 1779 626 1779 2552 140°F* *Reverse circulate. Chain out of hole. Layout Test Tools.*
16/1/84	*4675*	*RIH to cut 7-27/32" Core No. 1 from 4654 to 4669 ft. POH Core No. 1. RIH to cut 7-27/32", Core No. 2 from 4669 to 4675 ft. POH.*
17/1/84	*4686*	*RIH Bit RR 18 to ream rat hole 4654 to 4675 ft. POH Bit RR 18. RIH to cut 7-27/32" Core No. 3 from 4676 to 4686 ft. POH Core No. 3. RIH to cut 7-27/32", Cut Core No. 4.*
18/1/84	*4693*	*RIH for DST No. 3, 4654 to 4693 ft. Open tool 20 minutes and close in for 40 minutes. Re-open for 98 minutes, close in 196 minutes. Oil to surface 29 minutes. Gas flow 608 mcfd. Oil flow 679 BOPD. Field chart readings DST No. 3 :* *IHP IFP ISIP FFP FSIP FHP BHT* *2659 267 1819 904 1833 2646 140°F*
19/1/84	*4765*	*Layout Test Tools. RIH Bit RR 18. Ream rat hole 4676 to 4693 ft. Drill 7-7/8" hole to TD at 4765 ft. at 2200 hrs.*

Well: *EAST MEREENIE NO. 12* Field: *MEREENIE*

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
20/1/84	*4765*	*Make up and RIH for DST No. 4, 4726 to 4770 ft. Open tool 20 minutes and close in for 40 minutes. Re-open for 90 minutes, close in for 180 minutes. NGTS or fluids. Recover 2.9 bbls of slight water cut mud on reverse circulation. Field chart readings DST No. 4 :* *IHP IFP ISIP FFP FSIP FHP BHT* *2673 53 1354 133 1540 2632 145°F* *Reverse circulate, chain out of hole.*
21/1/84	*4770*	*Layout test tools. RIH Bit RR18. Circulate and condition mud to log. POH. Rig up Gearhart to log. RIH. Logging tool stuck in hole. Log depth established at 4770.5 ft.*
22/1/84	*4770*	*Work stuck logging tool. Cut wireline and thread overshot and BHA. RIH to top of fish. Latch onto fish, resplice line, pull fish free, spool up line. POH with fish. Layout Gearhart tools.*
23/1/84	*4770*	*Check logging tools. Make up bit and RIH. Circulate and condition hole. POH to log. Rig up Gearhart and RIH to log. Complete logging and rig down Gearhart. RIH to condition mud. POH to lay down drillpipe.*
24/1/84	*4770*	*Lay down drillpipe and collars, change BOPs to 5-1/2", rig up to run 121 joints, 5-1/2" JAP K55, 14 bl/ft. buttress casing to 4768 feet. Circulate, rig up to run cement, cement casing with 653 sacks of Class G oilwell cement after flushing hole with 50 bbls of EZ spot and 10 bbls water. Slurry weight was 15.2 lbs/gal with 0.5% CFR-2 and 0.75% Hallad 22-A additives. Displace plug, lift BOPs, set slips and cut casing.*
25/1/84	*4770*	*Nipple up BOPs to 2-3/8". Pressure test to 1000 psi. Pick up tubing. Make up bit and scraper. RIH and tag plug at 4724.23 ft. Circulate hole. POH and laydown collars.*

Well: EAST MEREENIE NO. 12 Field: MEREENIE

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
26/1/84	4770	Rig up Gearhart to log and perforate. Perforate seven intervals (104 ft.) with 4 shots per foot.
27/1/84	4770	Complete perforation programme. RIH with 5-1/2" RH Packer (Packer assembly length 5.97 ft.). One 2-3/8" tubing joint, sliding sleeve, collar and 141 joints of 2-3/8" tubing. Middle of packer set at 4467 ft. Land DO-NUT. Nipple down BOPs and install Christmas tree. Displace oil base mud with KCl and inhibitor brine. Displace 2-3/8" tubing with 17.25 bbls of 6.6 lb/gal crude. Drop ball, set packer, shear ball and seat assembly at 1700 psi. Observe well. Rig up Gearhart to swab hole.
28/1/84	4770	Swab well with Gearhart. Swab cups and jars unscrewed and stuck inside 2-3/8" tubing. Fish for tools with overshot.
29/1/84	4770	Latch onto fish and recover. Swab well in. Rig down Gearhart. Well flowed oil to surface. Flow to clean for 1-1/2 hrs. Flow oil and gas through separator and measure oil and gas flow. Gas 656 mcfd. Oil 687 BOPD. Rig released 2200 hrs.

2.3 Hole Sizes and Depths

17-1/2" to 152 feet

13-1/2" to 2188 feet

9-7/8" to 4513 feet

7-7/8" to 4770 feet

2.4 Casing and Cementing Record

15" conductor:	Weight:	1/4" Wall
	Grade/Connections:	Welded
	Shoe depth:	152 feet
	Cement used:	120 sacks Class 'A'
	Additives:	0.2% $CaCl_2$
	Slurry weight:	15.6 lbs/gal
10-3/4" casing:	Weight:	40.5 lb/ft
	Grade/Connections:	H40
	No. of Joints:	55
	Shoe depth:	2183.5 feet
	Cement used:	50 sacks Class 'A'
	Additives:	0.2% HR4
	Slurry weight:	15.5 lbs/gal
5-1/2" casing:	Weight:	14.0 lb/ft
	Grade/Connections:	K55/Buttress
	No. of Joints:	120
	Shoe depth:	4768
	Cement used:	653 sacks Class G oil well
	Additives:	0.5% CFR-2 0.75% HALLAD 22-A
	Slurry weight:	15.2 lbs/gal

50 bbls of EZ - SPOT and 10 bbls of water were pumped ahead of the cement, to clear the hole and provide a good cement bond.

2.5 Drilling Fluids

A summary of the drilling fluid properties is shown below -

WELL : EAST MEREENIE NO. 12 Drilling Fluids TABLE 1

DATE	DEPTH (feet)	WEIGHT (ppg)	VISC (sec)	W.L. (c.c)	PH	SALT (ppm)	OIL (%)	SOLIDS (%)	SAND (%)	REMARKS
6/12/83	38									AIR/STIFF FOAM
7/12/83	63									"
8/12/83	129		INJECTION RATE 8 BBLS/HR							"
9/12/83	152		CEMENT 15" CONDUCTOR							"
10/12/83	345									AIR
11/12/83	569	INJECTION RATE 6 BPH WATER INTERSECTED AT 470 FT.								AIR/FOAM
12/12/83	781	"	"	6 BPH						AIR/MIST
13/12/83	1021	"	"	8 - 9BPH						"
14/12/83	1168	"	"	9 - 10 BPH	WATER INFLOW @ 350 BPH					"
15/12/83	1316	"	"	10 - 11 BPH	" "	@ 500 BPH				"
16/12/83	1463	"	"	12 BPH	" "	@ 600 BPH				"
17/12/83	1605	"	"	10 - 11 BPH	" "	"	"			"
18/12/83	1707	"	"	10 - 11 BPH	" "	"	"			"
19/12/83	2058	"	"	13 BPH	" "	"	"			"
20/12/83	2188	"	"	14 BPH	" "	"	"			"
21/12/83	2188	RUN & CEMENT 10-3/4" CASING								WATER
22/12/83	2522									AIR DUSTING
23/12/83	2911									"
24/12/83	3054									"
25/12/83	3400									"
26/12/83	3592	GAS INTERSECTED IN LOWER STAIRWAY AT 3500 FEET								"
27/12/83	3611	10.7	71	CHANGE TO OIL BASED MUD						OIL BASED MUD
28/12/83	3711	10.6	61				67		1.50	" " "
29/12/83	3801	10.6	60				67	23	1.50	" " "
30/12/83	3945	10.6	60				70	26	1.25	" " "
31/12/83	4021	10.6	60				72	22	1.00	" " "
1/1/84	4123	10.6	57				74	22	0.75	" " "
2/1/84	4196	10.7	57				76	25	1.00	" " "
3/1/84	4281	10.5	60				78	24	1.50	" " "
4/1/84	4345	10.5	57				69	32	1.25	" " "
5/1/84	4424	10.5	57				72	28	1.25	" " "
6/1/84	4475	10.6	56				76	22	1.75	" " "
7/1/84	4513	10.7	59				75	24	1.50	" " "
8/1/84	2266	10.7	58	UNDER-REAMING			66	30	1.25	" " "
9/1/84	2351	10.6	59	"	"		73	24	1.00	" " "
10/1/84	4513	10.6	59	"	"		77	26	1.25	" " "
11/1/84	4548	10.6	59				77	-	-	" " "
11/1/84	4622	10.6	60				70	26	1.25	" " "
13/1/84	4654	10.8	61				72	24	1.25	" " "
14/1/84	4654	10.6	64				74	24	1.00	CONDITION MUD AFTER DST NO.1

2.5 Drilling Fluids (contd.)

WELL : EAST MEREENIE NO. 12 ..... Drilling Fluids TABLE 1 (CONTD.)

DATE	DEPTH (feet)	WEIGHT (ppg)	VISC (sec)	W.L. (c.c)	PH	SALT (ppm)	OIL (%)	SOLIDS (%)	SAND (%)	REMARKS
15/1/84	4654	10.6	64				74	32	0.75	CONDITION MUD AFTER DST NO.2
16/1/84	4675	10.8	66				74	32	1.25	
17/1/84	4686	10.8	64				76	30	0.50	
18/1/84	4693	10.9	64				77	30	1.00	
19/1/84	4765	10.4	53				75	36	1.00	CONDITION MUD AFTER DST NO.3
20/1/84	4770	10.4	57				79	27	0.50	
21/1/84	4770	10.7	60				64	43	1.00	RAN DST NO. 4 INCREASE IN WATER & SOLIDS CONTENT.
22/1/84	4770	10.5	55				75	31	1.00	
23/1/84	4770	10.7	59				79	32	1.00	
24/1/84	4770	RAN 50 BBLS EZ & SPOT 10 BBLS WATER AHEAD OF CEMENT								CEMENT 5-1/2" CASING
25/1/84	4770									PERFORATE WITH GEARHART
26/1/84	4770	9.0								
27/1/84	4770	6.6	(DISPLACE OIL BASED MUD WITH KCl AND INHIBITOR BRINE)							DISPLACE TUBING WITH 6.6 PPG CRUDE.
28/1/84	4770									
29/1/84	4770									
		RIG RELEASED 2200 HRS - 29TH JANUARY 1984								

See Table 2 below -

BIT RECORD

WELL N°	FIELD	PETROLEUM LEASE	STATE	LOCATION
12	MEREENIE	NO. 5	N.T.	LATITUDE: 24°01'54"S LONGITUDE: 131°38'15"E

OPERATOR	CONTRACTOR	RIG	RIG SUPERVISOR	COMPILED BY	SPUD	REACHED T.D.
OILMIN N.L.	MEREENIE PARTNERS	1	E. SIMS/T. WELCH	D. CATHERALL	6.12.83	19TH JANUARY, 1984

PUMPS	TYPE	LINER	PUMP POWER	AIR COMPRESSORS	CAPACITY	AIR BOOSTER	CAPACITY	DRILLING FLUID
CONT. EMSCO F-800 6"x9"	F-800	6" x 9"	COMPOUND	3 SULLAIR UNITS	3 X 900 @ 250 PSI	KOA NO. 2	245 1400 PSI @ 1500 CFM	GAS MIST/OIL BASE MUD

DRILL PIPE	TYPE	THREAD	TOOL JOINTS	DRILL COLLARS O.D. I.D. CONNECTIONS	DRAWWORKS POWER
6¼" 16.6 E	E 18° TAPER	4½ X H	4½" XH 6¼"	N° 6/12/27/3: 8"/7"/6¾"/4-1/8": 2-13/16"2-13/16"/2¼"/2": 6-5/8"R/4½"IF/4"IF/3½"R	3 x 3408 CATS

NO.	SIZE	MAKE	TYPE	JET 32ND IN	SERIAL	DEPTH OUT	FEET	HOURS	FT/HR	ACCUM. DRLG. HRS.	WT. 1000 LBS.	R P M	VERT DEV.	PUMP PRESS	PUMP OPER-ATION	S P M 1	S P M 2	MUD WT.	MUD VIS.	MUD W.L.	DULL. COND. T	DULL. COND. B	DULL. COND. G	DULL. COND. OTHER	FORMATION REMARKS
1 RR	17-1/2	HTC	OSCIGJ	OPEN	684SR	44	44	11½	3.8	11½	3	55		100				Stiff Foam			5	8	IN		Mereenie
2 RR	17-1/2	HTC	OSCIGJ	OPEN	674SR	93	49	29	1.6	40½	4/5	55	0°	100				Stiff Foam			6	4	IN		Mereenie
3	17-1/2	HTC	OSCIGJ	OPEN	867TR	152	59	12¾	4.7	53½	10/15	45	½°	100				Stiff Foam			4	6	IN		Mereenie
4	13-1/2	HTC	X33	OPEN	BC710	677	525	47	11.1	100½	10	60	½	100	1	5		Air Mist			4	2	IN		Mereenie
5	13-1/2	HTC	X33	OPEN	BC754	1151	474	45¾	10.3	146	10/12	60	½	150	1	12		Air Mist			4	2	1/8		Mereenie
6	13-1/2	HTC	X33	OPEN	BC769	1463	351	46½	7.5	192½	25	60	½	150	1	12		Air Mist			7	8	1/8		Mereenie
7	13-1/2	HTC	X33	OPEN	ZS762	1630	167	27½	6.1	219¾	25	55/60	½	150/300				Air Mist			8	2	½		Mereenie
8	13-1/2	HTC	X33	OPEN	BC709	2188	553	38½	14.4	258	30	60	1/8	500				Air Mist			4	7	1/8		Carm. Stokes
9	9-7/8	HTC	J22	OPEN	ZB700	2912	724	35½	20.5	293½	10/15	60/70	¾					Air Dust			3	2	IN		Stoke & U. Stoke
10	9-7/8	HTC	J22	OPEN	ZB703	3592	680	58½	11.6	351½	10/15	80	1	Air				Air Dust			6	4	½		M. & L. Stairway
11	9-7/8	HTC	J22	3x16	ZC485	3767	175	40½	4.3	391 ½	35	60	¾	1000		112		10.5	61		6	3	3/8		Change to oil base mud
12	9-7/8	HTC	J33	3x16	XC393	3969	202	35	5.7	426 ¾	35	60	1	1025		112	112	10.5	60		6	3	1/8		Horn Valley P-1
13	9-7/8	HTC	J33	3x16	XD490	4123	154	36½	4.25	463	35	60	1	1025	Sgl	109		10.7	59		6	3	1/8		P-1
14	9-7/8	HTC	J44	3x16	AT682	4281	158	39	4	502	40	60	¾	1050	Sgl	110		10.5	58		3	1	IN		P-2
15	9-7/8	HTC	J44	3x16	AT691	4433	152	47½	3.2	549½	40	60	1	1075	Sgl	110		10.7	55		4	2	IN		P-2, P-3
16	9-7/8	HTC	J44	3x16	AT688	4513	80	29½	2.7	518 ¾	40	60	MR	1075	Sgl	110		10.7	60		3	1	IN		P-3
RR 16	9-7/8	HTC	J44	3x16	AT688	2367	(174)	(56)	Under Ream 9-7/8" Hole to 12" Hole												3	1	IN		P-3
17	7-7/8	HTC	J44	3x16	VZ573	4631	118	40	2.95	618 ¾	40	60		1375	Sgl	110		10.6	60		3	2	IN		P-3
18	7-7/8	HTC	J44	3x16	VZ888	4654	23	8¾	2.6	627½	40/45	60		1375	Sgl	110		10.6	61		3	1	IN		P-3
RR 18	7-7/8	HTC	J44	3x16	VZ888	4654			Circ. & Cond. Mud					1600	Sgl	120		10.6	64		3	1	IN		P-3
C1	7-27/32	ACC	E.H. STAR		22189	4669	15	5¾	2.6	633½	15	70		1050	Sgl	60		10.6	70		5% Worn				100% Rec.
RR C1	7-27/32	ACC	E.H. STAR		22189	4675	6	5½	1.1	638½	15	70		1000	Sgl	60		11	70		10% Worn				95% Rec.

TABLE 2 Bit Record

BIT RECORD

WELL N°	FIELD	PETROLEUM LEASE	STATE	LOCATION
12	MEREENIE	NO. 5	N.T.	LATITUDE: 24°01'54"S LONGITUDE: 131°38'15"E

OPERATOR	CONTRACTOR	RIG	RIG SUPERVISOR	COMPILED BY	SPUD	REACHED T.D.
OILMIN N.L.	MEREENIE PARTNERS	1	E. SIMS/T. WELCH	D. CATHERALL	6.12.83	19TH JANUARY, 1984

PUMPS	TYPE	LINER	PUMP POWER	AIR COMPRESSORS	CAPACITY	AIR BOOSTER	CAPACITY	DRILLING FLUID
CONT. EMSCO F-800 6"x9"	F-800	6" x 9"	COMPOUND	3 SULLAIR UNITS	3 X 900 @ 250 PSI	KOA No. 2	245 1400 PSI @ 1500 CFM	GAS MIST/OIL BASE MUD

DRILL PIPE	TYPE	THREAD	TOOL JOINTS	DRILL COLLARS (No. / O.D. / I.D. / CONNECTIONS)	DRAWWORKS POWER
6¼" 16.6 E	E 18° TAPER	4½ X H	4½" XH 6¼"	6/12/27/3: 8"/7"/6¼"/4-1/8": 2-13/16"/2-13/16"/2¼"/2": 6-5/8"R/4½"IF/4"IF/3½"R	3 x 3508 CATS

NO.	SIZE	MAKE	TYPE	JET 32ND IN	SERIAL	DEPTH OUT	FEET	HOURS	FT/HR	ACCUM. DRLG. HRS.	WT. 1000 LBS.	R P M	VERT DEV.	PUMP PRESS	PUMP OPER-ATION	S P M 1	S P M 2	MUD WT.	MUD VIS.	MUD W.L.	DULL. COND. T	DULL. COND. B	DULL. COND. G	DULL. COND. OTHER	FORMATION REMARKS
RR 1A	7-7/8	HTC	J44	3x16	VZ888	4676	22	2½	2.25	640¾	5	75		1400	Sgl		110	11	7.0		1	1	IN	Ream	Rathole
RR C1	27 7-32	ACC	E.H. STAR		22189	4686	10	4½	2.2	645½	15	70		1050	Sgl		60	10.6	6.4		10%			Worn	60% Rec.
RR C1	27 7-32	ACC	E.H. Star		22189	4693	7	8½	.82	653¾	15	70		1050	Sgl		60	10.9	6.4		20%			Worn	157% Rec.
RR 1B	7-7/8	HTC	J44	3x16	VZ888	4765	72	15½	4.7	669	40	60		1375	Sgl		110	10.5	5.5		6	2	IN		P-4

TABLE 2 (CONTD.) Bit Record

2.7 Deviation Record

Deviation surveys are listed below -

TABLE 3

DEVIATION RECORD

DEPTH (ft.)	DEVIATION (deg.)	DEPTH (ft.)	DEVIATION (deg.)
75	0°	2820	3/4°
100	1/4°	2912	3/4°
150	1/2°	3000	1/2°
190	1/4°	3167	1-1/2°
250	1°	3254	1-1/4°
278	1/2°	3381	1°
310	1/4°	3484	1°
430	1/2°	3570	1°
490	1/2°	3642	3/4°
571	1/2°	3740	3/4°
666	1-1/2°	3960	7/8°
1119	1/2°	4123	MISRUN
1215	1/2°	4269	3/4°
1305	0°	4395	1°
1400	1/4°	4740	3/4°
1560	1/2°		
1685	1/4°		
1880	1/2°		
1970	1/16°		
2155	1/8°		
2250	1/2°		
2315	1/4°		
2503	3/4°		
2622	1/2°		

2.8 Formation Testing

Four Drill Stem Tests were run during the drilling of the well. Summary results are given below and full details are included as Appendix 2. An analysis of the gas sample taken during the first Drill Stem Test is included as Appendix 3.

Drill Stem Test No. 1 (4524 to 4654 ft.)

Date:	*14th January, 1984*
Tester:	*Halliburton Services*
Formation:	*Pacoota Sandstone P3-120/130 sands to 210/240 sands.*
Type of Test:	*Bottom hole conventional dual packers*
Water cushion:	*Nil*
Times:	*First flow: 26 mins* *First shut-in: 52 mins* *Second flow: 90 mins* *Second shut-in: 180 mins*

Bottom Borden Recorder Pressures (Field Results)

Initial hydrostatic	*- 2619 psi*
First flow	*- 333 psi*
Initial shut-in:	*- 1806 psi*
Second flow:	*- 1129 psi*
Second shut-in:	*- 1806 psi*
Final hydrostatic	*- 2552 psi*

Results: *Tool opened with a moderate blow, increasing to strong after 3 minutes, steadily decreasing to weak after 25 minutes, which preceeded a rapid pressure build-up after 26 minutes when oil with minor oil cut mud flowed to surface. During the second flow period, oil and gas were flowed through the separator for 75 minutes recovering 40.25 bbls of oil in the stocktank. Gas was measured through a 2" flow prover using a 3/4" orifice.*

2.8 Formation Testing (contd.)

Drill Stem Test No. 1 (contd.)

Oil rate = 773 BOPD
Gas rate = 796 MCFD
GOR = 1030 cu ft./bbl

Oil is light green brown, 48 API at 60°F

Conclusions: Formation contains oil and has good permeability.

Drill Stem Test No. 2 (4610 to 4654 ft.)

Date: 15th January, 1984

Tester: Halliburton Services

Formation: Pacoota Sandstone P3-210/240 sands

Type of test: Bottom hole conventional dual packers

Water cushion: Nil

Times:

First flow:	23 mins
First shut-in:	46 mins
Second flow:	120 mins
Second shut-in:	240 mins

Bottom Border Recorder Pressures (Field Results)

Initial hydrostatic:	2619 psi
First flow:	267 psi
Initial shut-in:	1779 psi
Second flow:	626 psi
Second shut-in:	1779 psi
Final hydrostatic:	2552 psi

Results: Tool opened with an immediate moderate blow, building to strong after 2 minutes, reaching a peak of 40 psi through a 1/2" choke after 8 minutes, gas to surface after 10 minutes then steadily decreasing to 10 psi at the first shut-in after 23 minutes. During the second flow period, oil cut mud flowed to surface after 35 minutes with oil to surface after 41 minutes. Oil and gas were flowed through the separator for one hour, recovering 23.27 bbls of oil in the stock tank. Gas was measured through a 1/2" orifice on the 2" flow prover. Flow rate details are listed overleaf -

2.8 *Formation Testing (Contd.)*

Drill Stem Test No. 2 (contd.)

Oil rate = 558 BOPD
Gas rate = 370 MCFD
GOR = 662 cu. ft/bbl

Oil is light green brown, 48 API at 60°F

Conclusions: *Formation contains oil and has good permeability.*

Drill Stem Test No. 3 (4654 to 4693 ft.)

Date: *18th January, 1984*

Tester: *Halliburton Services*

Formation: *Pacoota Sandstone P3-240/250 sands*

Type of test: *Bottom hole conventional dual packers*

Water cushion: *Nil*

Times:

First flow:	*20 mins*
First shut-in:	*40 mins*
Second flow:	*98 mins*
Second shut-in:	*196 mins*

Bottom Borden Recorder Pressures (Field Results)

Initial hydrostatic:	*2659 psi*
First flow:	*267 psi*
Initial shut-in:	*1819 psi*
Second flow:	*904 psi*
Second shut-in:	*1833 psi*
Final hydrostatic:	*2646 psi*

Results: *Tool opened with an immediate moderate blow, increasing rapidly to strong, reaching 27 psi after 6 minutes through a 1/2" choke thereafter pressure steadily decreased and at the end of the first flow period was moderate to weak at 12 psi. During the second flow period, gas cut mud flowed to surface after 23 minutes with oil to surface after 29 minutes. Oil and gas were flowed through the separator for one hour, recovering 28.3 bbls of oil in the stock tank. Gas was measured through a 3/4" orifice on the 2" flow prover.*

2.8 *Formation Testing (contd.)*

Drill Stem Test No. 3 (contd.)

Oil rate = 679 BOPD
Gas rate = 608 MCFD
GOR = 895 cu ft./bbl

Oil is light green brown, 48 API at 60°F

Conclusions: *Formation contains oil and has good permeability.*

Drill Stem Test No. 4 (4726 to 4770 ft.)

Date: *20th January, 1984*

Tester: *Halliburton Services*

Formation: *Pacoota Sandstone P4-40 sand*

Type of test: *Bottom hole conventional dual packers*

Water cushion: *Nil*

Times:

First flow:	*20 mins*
First shut-in:	*40 mins*
Second flow:	*90 mins*
Second shut-in:	*180 mins*

Bottom Borden Recorder Pressures (Field Results)

Initial hydrostatic:	*2673 psi*
First flow:	*53 psi*
Initial shut-in:	*1354 psi*
Second flow:	*133 psi*
Second shut-in:	*1540 psi*
Final hydrostatic:	*2632 psi*

Results: *Tool opened with a very weak bubble, building slowly to moderately weak at the end of the first flow period. During the second flow period, the bubble decreased steadily to zero at the second shut-in period. On reverse circulation 2.9 bbls of slightly water cut mud was recovered. The water cut mud sample collected from the test tool between the DCIP and hydrospring gave a retort oil/water ratio of 63:37, Oil/water ratios prior to the test were 76:24.*

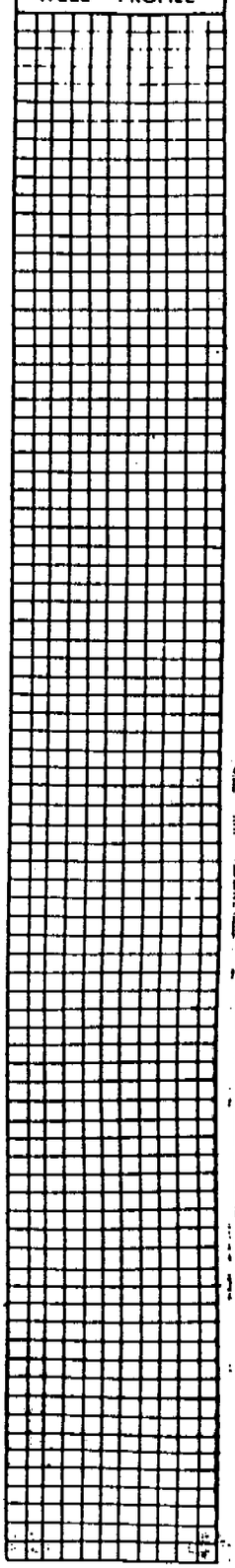
Conclusions: *Formation appears to be in the transition zone near the oil/water contact and has fair porosity, but low permeability.*

2.9 Completion Data

See Table 4 below -

Completion Data TABLE 4

WELL PROFILE



WELL NAME East Mereenie No. 12

WELL LOCATION Lat 24°01'54"S Long 131°38'15"E

K.B. ELEVATION 2332 ft. K.B TO CASING FLGE 18.20 K.B. TO TUBING FLGE 17.00

	SIZE (O.D.)	WEIGHT	SET AT	TOP	DRILL DEPTH
CASING	10-3/4"	40.5/J55	2183'		2188'
CASING	5-1/2"	14.0/K55	4767'		4767'
CASING					
LINER	NOT	RUN	THIS	WELL	

PERFS/OPEN HOLE

DIAMETER OPEN HOLE 9-7/8" & 7-7/8"

TUBING: SIZE 2-3/8" O.D. WEIGHT 4.7 lbs/ft GRADE J55

No. OF JOINTS PERMANENTLY IN WELL 142 TALLIED LENGTH 4517.83

DESCRIPTION	LENGTH (ft)		SET AT TOP	REMARKS
Wireline Re-Entry		41		
Ball Seat & Sub		34		
No-Go Nipple (KN)		85		
2-3/8" EUE Collar		40		
5-1/2" RH Packer (OTIS)	3	97		
1 joint 2-3/8" tubing	30	64		
Sliding Sleeve	2	45		
2-3/8" EUE Collar		40		
2-3/8" tubing	4487	19		
Tubing Hanger (Donut)		64		
*Set packer 42.65 feet				
above perf.				
TOTAL STRING LENGTH	4527	29		
K.B. TO TUBING HANGER FLANGE(PLUS)	17	00		
SETTING DEPTH K.B.	4482	35		

SUPERVISOR

WEIGHT OF TUBING STRING 25,000 WEIGHT ON PACKER 0 WEIGHT ON HANGER 25,000

WELLHEAD..... W.P. 3,000 MAKE McEvoy FLANGED

MASTER VALVE.. W.P. Gate MAKE " W.P. 3,000 SIZE 2" Flanged

CASING VALVES.. TYPE Gate MAKE " W.P. 3,000 SIZE 2" Screwed

CHOKE.... Adj. TYPE McEvoy MAKE 2-1/16" - 5000

REMARKS (Note additional equipment) Casing Bowl Screw 2000
Tubing Head 3000

2.9 Completion Data (contd.)

The 5-1/2" casing was run to 4767 feet. Using a standard 4" Gearhart casing gun the following intervals were perforated with a shot density of four shots per foot -

Depth	Shots
4525 to 4561	144
4579 to 4588	36
4595 to 4603	32
4614 to 4639	100
4650 to 4670	80
4676 to 4682	24

TOTAL FOOTAGE PERFORATED = 104 FEET

The 2-3/8" tubing and packer assembly were run to a setting depth of 4467 feet (see table 4 for details) and the well swabbed in with Gearhart. After flowing the well to clean for 1-1/2 hours, the flow was run through a separator for 2-1/2 hours, to establish a flow rate, through a 1/2" wellhead choke, of 28.62 bbls of oil per hour, or 687 BOPD, with 656 mcfd of gas. The well was closed in and the rig released at 2200 hours on 29th January, 1984.

2.10 Time Analysis

A time/depth curve is included as Figure 3 and an account, in hours of the time spent on the well is given as follows in Table 5.

Time Analysis TABLE 5

OPERATION	TIME (HRS)	TIME (%)
Drilling	669.00	49.0
Trips	165.75	12.1
Casing	51.50	3.8
Under-reaming	56.75	4.2
Conditioning	71.50	5.2
Casing	17.50	1.3
Cementing - WOC	28.00	2.1
Rig Service/repairs	18.75	1.4
Nipple up/down/test BOPs	20.75	1.5
Testing	34.50	2.5
Logging and Perforating	63.50	4.6
Fishing	28.00	2.1
Deviation Surveys	11.00	0.8
Wait on orders/equipment	16.00	1.2
Completion/abandonment	43.00	3.1
Rig move	70.50	5.1
TOTAL TIME	1366.00	100

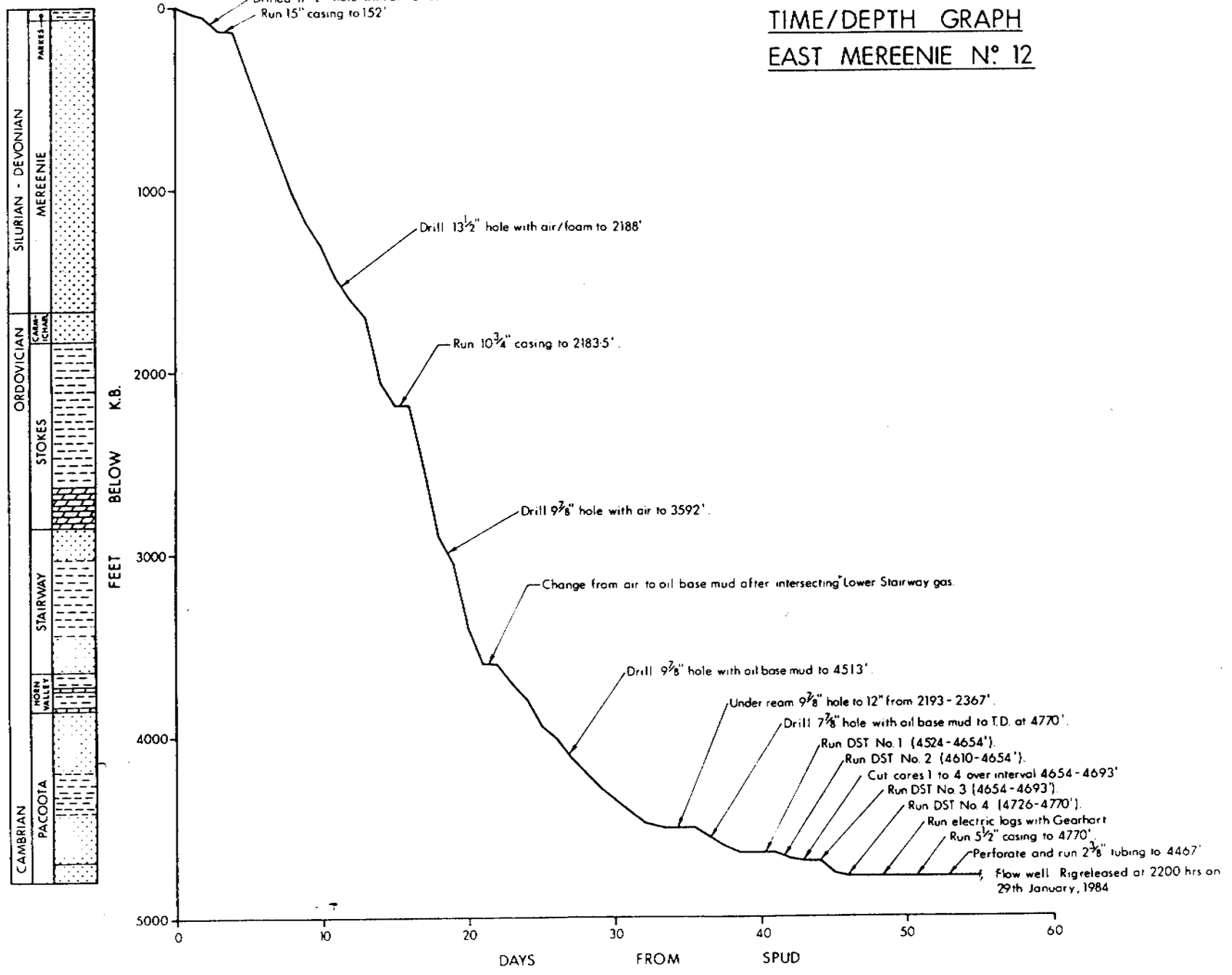

TIME/DEPTH GRAPH
EAST MEREENIE N° 12
Spudded 6th December, 1983 at 2230 hrs
Drilled 17½" hole with air to 152'
Run 15" casing to 152'
Drill 13½" hole with air/foam to 2188'
Run 10¾" casing to 2183·5'.
Drill 9⅞" hole with air to 3592'.
Change from air to oil base mud after intersecting Lower Stairway gas.
Drill 9⅞" hole with oil base mud to 4513'.
Under ream 9⅞" hole to 12" from 2193 - 2367'.
Drill 7⅞" hole with oil base mud to T.D. at 4770'.
Run DST No. 1 (4524 - 4654').
Run DST No. 2 (4610 - 4654').
Cut cores 1 to 4 over interval 4654 - 4693'
Run DST No. 3 (4654 - 4693').
Run DST No. 4 (4726 - 4770').
Run electric logs with Gearhart
Run 5½" casing to 4770'.
Perforate and run 2⅞" tubing to 4467'
Flow well Rigreleased at 2200 hrs on 29th January, 1984
0
1000
2000
3000
4000
5000
FEET BELOW K.B.
0
10
20
30
40
50
60
DAYS FROM SPUD
CAMBRIAN
PACOOTA
HORN VALLEY
STAIRWAY
STOKES
CARM-ICHAR.
ORDOVICIAN
MEREENIE
PARKES
SILURIAN - DEVONIAN

Fig. 3

3. *GEOLOGICAL DATA*

3. GEOLOGICAL DATA:

3.1 Reasons for Drilling

East Mereenie No. 12 is located between East Mereenie No. 4 and East Mereenie No. 11 and as the tenth appraisal well it is designed to be completed as an oil producer from the middle and lower P3 reservoir horizons, which flowed oil in both East Mereenie No. 4 and East Mereenie No. 11.

The well tested the validity of recent seismic data which had eliminated a previously mapped north-south fault and a postulated small gas pool between East Mereenie No. 4 and East Mereenie No. 11.

In order to resolve conflicting results obtained from drill stem tests in East Mereenie No. 7 and East Mereenie No. 11, the P3-250 sands would be cored and tested.

3.2 Stratigraphy

The stratigraphic sequence intersected in East Mereenie No. 12 is comparable with East Mereenie No. 11 and shows very few variations from that recorded in the surrounding wells. One minor change occurs in the Upper Stokes Siltstone which is 27 foot thinner in East Mereenie No. 12 compared with East Mereenie No. 4.

The intervals of anomalously high radioactivity that occur in the Pacoota P3 sandstone are at a comparable stratigraphic position to that reported in East Mereenie No. 11 i.e., approximately 110 feet and 210 feet below the Pacoota P3 top.

The contact between the Pacoota P3 and Pacoota P4 Sandstone was cored and recovered in Core No. 4. The contact is marked by a three foot arenaceous siltstone band, containing thin laminae of fine grained silty sandstone, with streaks of ferruginous and chloritic material.

TABLE 6

EAST MEREENIE NO. 12 STRATIGRAPHIC TABLE

AGE	FORMATION	DEPTH (feet) KB (ft.)	DEPTH (feet) MSL (ft.)	THICKNESS (ft.)
DEVONIAN	PARKE SILTSTONE	Surface	2312	Estimated 34+
UPPER SILURIAN	MEREENIE SANDSTONE	Estimated 54	2278	1610
UPPER ORDOVICIAN	CARMICHAEL SANDSTONE	1664	668	196
MIDDLE ORDOVICIAN	STOKES SILTSTONE	1860	472	985
	Upper Stokes Siltstone	1860	472	752
	Lower Stokes Siltstone	2612	- 280	233
	STAIRWAY SANDSTONE	2845	- 513	792
	Upper Stairway Sandstone	2845	- 513	166
	Middle Stairway Sandstone	3011	- 679	423
	Lower Stairway Sandstone	3434	- 1102	203
LOWER ORDOVICIAN	HORN VALLEY SILTSTONE	3637	- 1305	214
	PACOOTA SANDSTONE	3851	- 1519	907+
	P1 unit	3851	- 1519	337
	P2 unit	4188	- 1856	222+
	P3 unit	4410	- 2078	274
	P4 unit	4684	- 2352	86+
UPPER CAMBRIAN	GOYDER FORMATION	NR	-	-
	TOTAL DEPTH Drillers Depth	4765	- 2433	
	TOTAL DEPTH Loggers Depth	4770	- 2438	

3.3 Formation Sampling

(i) Ditch cuttings -

Samples were taken at intervals of 30 feet from 1100 ft. to 3570 ft. in the Lower Stairway Sandstone. From this depth samples were taken at intervals of 10 ft. to total depth at 4765 ft. When drilling with mud two splits of the sample were bagged and untreated and three splits then made of the washed and dried samples. Where air or mist drilling provided only cuttings powder this was split five ways. The samples were distributed as follows -

Oilmin:	1 set washed and dried 1 set untreated	) mud drilling)
	2 sets of powder - air/mist drilling	
Magellan:	1 set washed and dried - mud drilling 1 set powder - air/mist drilling	
N.T. Dept. of Mines:	1 set washed and dried 1 set untreated	) mud drilling)
	2 sets of powder - air/mist drilling	

Samples descriptions are given in Appendix 1.

(ii) Coring -

A total of 38 feet of core was cut in four coring runs with an average recovery of 97%.

All core depths have been corrected to the corresponding electric log depths. Descriptions are given in Appendix 6.

Core No.	Interval Driller (ft.)	Interval Corrected (ft.)	Cut (ft.)	Rec. (ft.)	Rec. (%)	Bit Type (Size 7-27/32")
1	4654 - 4669	4652 - 4667	15	15	100%	Acc EH Star
2	4669 - 4675	4667 - 4673	6	4.8	80%	"
3	4676 - 4686	4674 - 4684	10	6	60%	"
4	4686 - 4693	4684 - 4691	7	11	157%	"
	TOTALS		38	36.8	97%	

(iii) Sidewall Sampling -

No sidewall samples were taken.

3.4 Logging and surveys

(i) Electric logging -

The following logs were run using a Gearhart DDL logging unit -

Log	Run	Interval	Date
CDL/CNS/GR/CAL	1	2800' - 4769' (GR to surface)	23/1/84
DIL/GR	1	2184' - 4763'	23/1/84
CBL	1	2500' - 4722'	26/1/84
CCL	1	4492' - 4716'	26/1/84

A copy of all electric logs is included in Enclosure 3.

(ii) Velocity Survey -

No velocity was run.

(iii) Penetration rate and gas logs -

The penetration rate was recorded continuously from spud to total depth. The mud gas was monitored continuously on a conventional hotwire detector during the mud drilling phase.

A mud log showing penetration rate, gas, lithological and other pertinent data was prepared at the wellsite on a daily basis and is included as Enclosure 2.

A composite log is also included as Enclosure 1.

3.5 Petroleum Geology

As is previously described Mereenie Wells, only the Upper and Lower Stairway Sandstones and the Pacoota Sandstone contain hydrocarbons that have a reservoir potential.

Upper Stairway Sandstone

This sub-unit is predominantly fine grained, arenaceous with 71% of the sands having a GR API count between 40 and 80. The sandstones have generally poor porosities and permeabilities, with the exception of a basal ten foot sand from 2994 to 3004 feet, having a log density porosity averaging 12%.

No evidence of hydrocarbons was noted whilst drilling with air through this section.

3.5 *Petroleum Geology (contd.)*

Lower Stairway Sandstone

Within the Lower Stairway Sandstone, there are two distinct arenaceous zones. The upper arenaceous zone from 3434 to 3508 feet has a GR API count less than 80, for 59% of the interval and includes three sands having a combined thickness of 14 feet and a log density porosity greater than 12%. Gas TSTM was recorded at 3500 feet whilst drilling with air. The lower arenaceous zone from 3566 to 3637 feet has a GR API count less than 80 for 83% of the interval. However all of the sands indicated low porosities with a maximum log density porosity of 5%. Gas TSTM was recorded at 3592 feet and the hole was displaced with 10.7 ppg oil based mud at this depth.

Pacoota Sandstone (P1 Sub-unit)

The Pacoota P1 subunit has a total net sand thickness of 35 feet (log density porosity $>$ 6%) and a total gross sand thickness of 125 feet (GR API $>$80). The net sand intervals are listed below -

3923 - 3931 feet (8 feet)	Average	log	porosity	8%	P1- 80 sand
3960 - 3964 feet (4 feet)	"	"	"	7%	P1-110 "
4098 - 4100 feet (2 feet)	"	"	"	8%	P1-250 "
4123 - 4126 feet (3 feet)	"	"	"	9%	P1-280 "
4142 - 4146 feet (4 feet)	"	"	"	7%	P1-310 "
4153 - 4156 feet (3 feet)	"	"	"	8%	P1-310 "
4178 - 4189 feet (11 feet)	"	"	"	10%	P1-350 "

The Pacoota P1 sub-unit shows a significant improvement in log density porosity compared to East Mereenie No. 11 which recorded a net sand thickness of 12 feet, of which 10 feet occurred in the P1-80 sand. The main improvement being in the basal P1-350 sand.

No tests or cores were taken in the P1, but from adjacent well information the P1 sub-unit is assummed to be within the gas column.

Pacoota Sandstone (P3 Sub-unit)

The Pacoota P3 sub-unit has a total net sand thickness of 111 feet and a gross sand thickness of 173 feet. The net sand intervals are listed below -

4428-4440 ft. (12 ft.)	Average	log	porosity	8%	P3-10 sand
4442-4444 ft. (2 ft.)	"	"	"	6.5%	P3-10 "
4451-4454 ft. (3 ft.)	"	"	"	10%	P3-10 "
4505-4507 ft. (2 ft.)	"	"	"	8%	P3-90 "
4526-4549 ft. (23 ft.)	"	"	"	11%	P3-120/130 sand
4550-4554 ft. (4 ft.)	"	"	"	8%	P3-120/130 sand

Pacoota Sandstone (p3 Sub-unit contd.)

4556-4561 ft. (5 ft.) Average Log Porosity 8% P3-120/130
4579-4588 ft. (9 ft.) Average Log Porosity 7% P3-170 sand
4600-4602 ft. (2 ft.) Average Log Porosity 7.5% P3-190 sand
4614-4634 ft. (20 ft.) Average Log Porosity 11% P3-210/230 sand
4636-4639 ft. (3 ft.) Average Log Porosity 9.5% P3-120/230 sand
4650-4658 ft. (8 ft.) Average Log Porosity 8.0% P3-240/250 sand
4659-4671 ft. (12 ft.) Average Log Porosity 10.5%P3-240/250 sand
4676-4682 ft. (6 ft.) Average Log Porosity 9.0% P3-240/250 sand

Three drill stem tests were completed in the P3, with oil flows to surface in all tests.

Drill Stem Test No. 1 (4524 - 4654 feet) tested a large interval that included the P3-120/130 sand and the P3-210/240 sand. Oil recovery was measured at 773 BOPD and gas recorded at 796 mcfd.

Drill Stem Test No. 2 (4610 - 4654 feet) tested the P3-210 sand and the top four feet of the P3-240 sand. Oil recovery was 558 BOPD and gas at 370 mcfd.

Drill Stem Test No. 3 (4654 - 4693 feet) tested the P3-240/250 sands, recovering 679 BOPD and gas at 608 mcfd. All three tests indicate that the middle and lower P3 sands are within the oil column and have moderate to good porosities and permeabilities.

Four cores were cut over the interval of 4652 to 4691 feet. The cored interval included the P3-240/250 sand, and seven feet of the top of the Pacoota P4 sub-unit. Seventeen cores were sent for core analysis, of these, eight were from the P3-240 sand and five from the P3-250 sand. Average porosity based on helium injection was 10.16% for the P3-240 cores and 8.76% for the P3-250 cores, which correlated closely to log density porosity averages of 10% and 9% for comparable intervals. Permeability values averaged 14.98 md and 13.22 md for the respective P3-240 and P3-250 samples tested. Details of the routine core analyses undertaken by Corelab are included as Appendix No. 4.

One core, No. 12 taken from the corrected interval 4675 (4-1/2" -10") feet was sent for special core analysis. Representing a P3-250 sand sample, the core was tested for permeability to brine under a differential pressure of 200 psi and recorded 17 md, compared to 25 md for the routine core analysis using air. On reversing the flow direction 17 md was again recorded, with no indication of moveable fines evident. Details of the Special Core Analysis are included as Appendix No. 5.

Pacoota Sandstone (P4 Sub-unit)

The well had penetrated 86 feet of the P4 sub-unit at TD 4770 feet. The Upper P4 sandstones were found to have similar characteristics to those encountered in adjacent wells. A zone of improved visual porosity from 4733 to 4741 feet, subsequently found to have a log density porosity of 7-1/2% over 8 feet, was tested in drill stem test No. 4 (4726 - 4770 feet), recovering 2.9 bbls of slightly water cut mud on reverse circulation. This result confirmed the moderate porosity, but poor permeability of the interval tested, which is considered to be in the oil/water transition zone.

3.6 *Relevance to Appraisal Programme*

(a) *The three drill stem tests completed in the Pacoota (P3) Sandstone in East Mereenie No. 12 confirmed the good reservoir characteristics of the middle and lower sandstone intervals.*

(b) *An improvement in total net sand thickness and log porosity has occurred between East Mereenie No. 12 and East Mereenie No. 11 within the Pacoota (P3) Sandstone unit as follows -*

EM 11 Net Sand Total = 70 ft. Average log porosity = 8.3%
EM 12 Net Sand Total = 121 ft. Average log porosity = 9.6%

(c) *Drill Stem Tests Nos. 2 and 3 indicated that the lower P3 sandstones have greater permeability in East Mereenie No. 12 when compared to similar intervals in East Mereenie No. 11. The results are tabulated below:-*

Well	*Test*	*Interval*	*Sands*	*Recovery*
EM 11	*DST #2*	*4655-4727*	*170, 210/230*	*12 bbls oil on reverse circulation Gas TSTM.*
EM 12	*DST #2*	*4610-4654*	*210/230*	*558 BOPD. Gas @ 370 mcfd.*
EM 11	*DST #3*	*4727-4786*	*240/250*	*4 bbls GCM on reverse circulation. Gas TSTM.*
EM 12	*DST #3*	*4654-4693*	*240/250*	*679 BOPD. Gas @ 608 mcfd.*

3.6 Relevance to Appraisal Programme (contd.)

(d) The P3-120/130 sands were tested together with the P3-210/240 sands in drill stem test No. 1 and therefore the results (773 BOPD) cannot be compared with the P3-120/130 sands recovery of 735 BOPD obtained from East Mereenie No. 11 in drill stem test No. 1. However, based on log porosity, penetration rates and visual assessment of the cuttings, the P3-120/130 sands have similar good reservoir characteristics.

(e) The gas/oil contact was not determined in East Mereenie No. 12 and the established contact of -2130 ft. MSL has been accepted. The oil/water transition zone of -2400 ft. MSL was established for the Pacoota (P4) Sandstone, based on the results of drill stem test No. 4 (4726-4770 ft.) which recovered 2.9 bbls of slightly water cut mud from P4-40 sand.

(f) The high gamma sands encountered in the Pacoota P3 Sandstone in East Mereenie No. 11 occur as three narrow zones at approximately the same stratigraphic depth in East Mereenie No. 12.