

WELL COMPLETION REPORT

EAST MEREENIE NO.5.

NORTHERN TERRITORY
GEOLOGICAL SURVEY

Oilmin N.L.,
27-35 Turbot Street,
BRISBANE, QLD. 4000

October, 1982

DEPT. OF MINES & ENERGY

DO NOT WRITE

[REDACTED]

FORM 50

R22/82 B

C O N T E N T S

	<u>Page No.</u>	<u>Sect.</u>
1. SUMMARY	1	1
2. WELL HISTORY	2	1
2.1 GENERAL DATA	2	1
2.2 RIG DATA	3	2
2.3 DRILLING DATA	5	2
2.3.1 DRILLING RECORD	5	2
2.3.2 HOLE SIZES AND DEPTHS	11	2
2.3.3 CASING AND CEMENTING DETAILS	11	2
2.3.4 BIT RECORD AND DEVIATION SURVEYS	12	2
2.3.5 DRILLING FLUID	13	2
2.3.6 FORMATION SAMPLING	15	3
2.3.7 LOGGING AND SURVEYS	17 16	4
2.3.8 FORMATION TESTING	19 17	5
2.3.9 WELL COMPLETION DATA	20	6
3. GEOLOGY	21	
3.1 PREVIOUS WORK	21	7
3.2 STRATIGRAPHY	21	8
3.3 PETROLEUM GEOLOGY	27	9
3.4 RELEVANCE TO APPRAISAL PROGRAMME.	29	10

F I G U R E S .

	Sect.
FIGURE 1 - LOCATION MAP	1
FIGURE 2 - MEREENIE FIELD WELL LOCATIONS	1
FIGURE 3 - TIME/DEPTH CURVE	1

T A B L E S

TABLE 1 - STRATIGRAPHIC TABLE	8
-------------------------------	---

A P P E N D I C E S

APPENDIX 1 - CUTTINGS SAMPLE DESCRIPTIONS	11-12
APPENDIX 2 - CORE DESCRIPTIONS	13-14
APPENDIX 3 - CORE ANALYSES	15
APPENDIX 4 - DRILL STEM TEST RESULTS	16
APPENDIX 5 - VELOCITY SURVEY	17-20

E N C L O S U R E S

ENCLOSURE 1 - COMPOSITE WELL LOG	21
ENCLOSURE 2 - MUDLOG	22
ENCLOSURE 3 - ELECTRIC LOGS.	23-30

1. SUMMARY

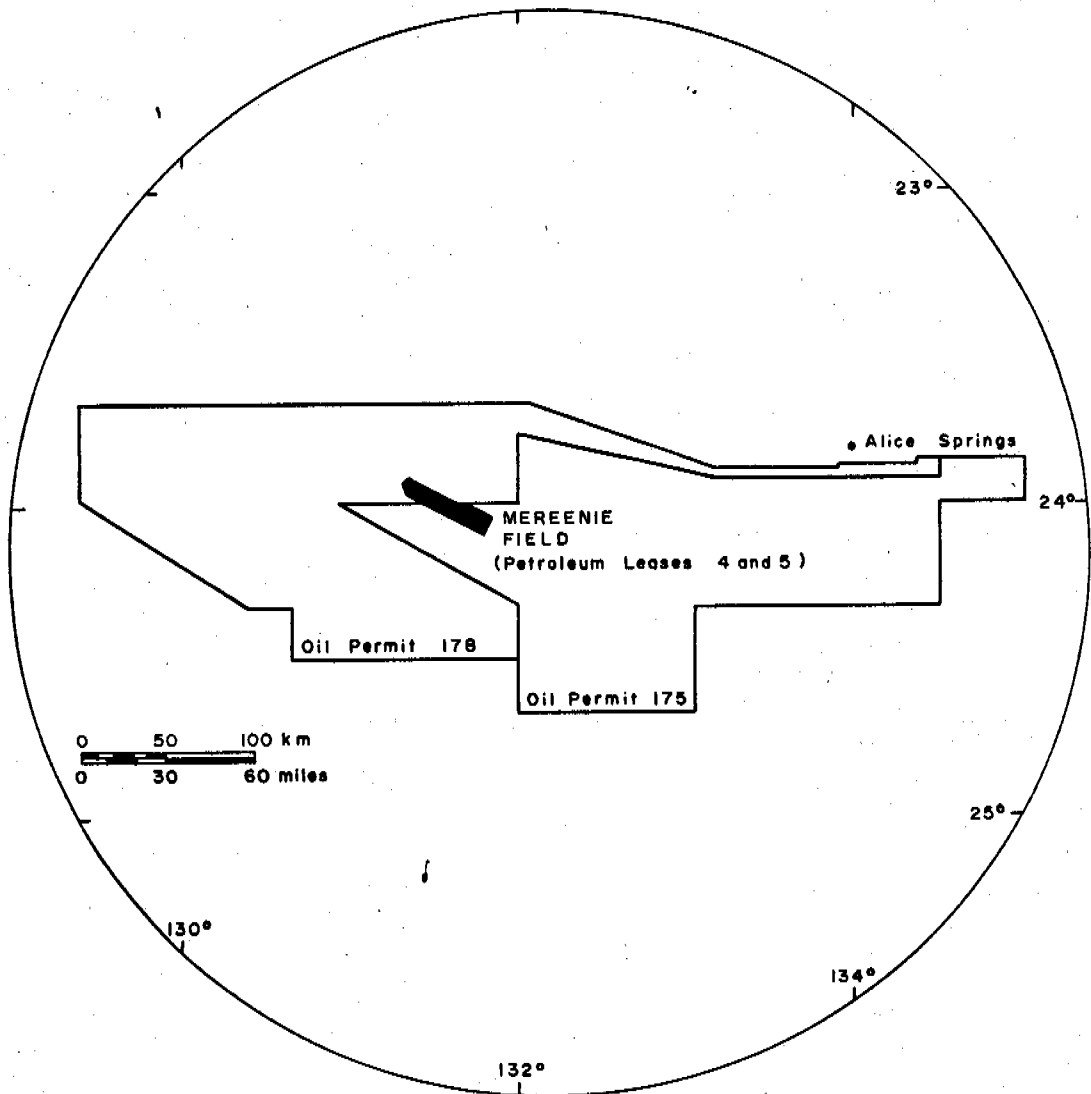
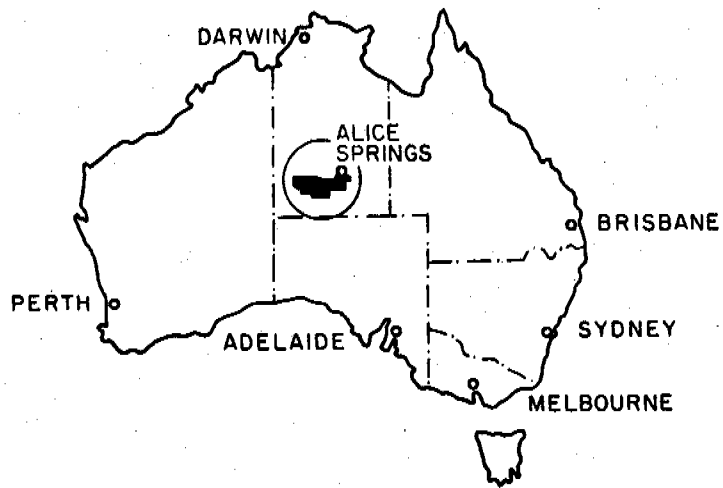
1. SUMMARY:

East Mereenie No.5 was the first of a 20 well programme to delineate and develop the Mereenie Oilfield and was drilled specially to test the oil production potential of the Pacoota Sandstone P3 unit. It was located 1.0 miles (1.6 kms) west of East Mereenie No.4 and approximately 140 feet updip at the level of the target horizon (Figures 1 and 2).

The well was spudded on 10th January, 1982 (1730 hours) using the OIME 750 Mereenie Rig 1 and reached a total depth of 5020 feet in Cambrian Goyder Formation sediments on 6th March, 1982, (1300 hours).

Seven cores were cut in the P1 and P3 units of the Pacoota Sandstone and two drill stem tests were carried out. Drill stem test No.1, over the interval 4620 to 4710 feet, proved sandstones within the upper part of the Pacoota Sandstone P3 unit to be moderately permeable with oil and gas flows to surface. Drill stem test No.2, over the interval 4710 to 4781 feet of the P3 unit, indicated only poor to fair permeability with 11.3 barrels of oil recovered in the pipe. Although the gas/oil contact was not definitively established, it is indicated from interpretation of log and test data to be at approximately 4623 feet KB (-2130 feet MSL). There were no indications from either logs or test data of an oil/water contact in this well.

At total depth 5-1/2" production casing was set at 5018 feet and, after running 2-3/8" tubing and perforating selected intervals between 4656 to 4838 feet in the P3 unit, the rig was released on 11th March, 1982 (1430 hours).



LOCATION MAP

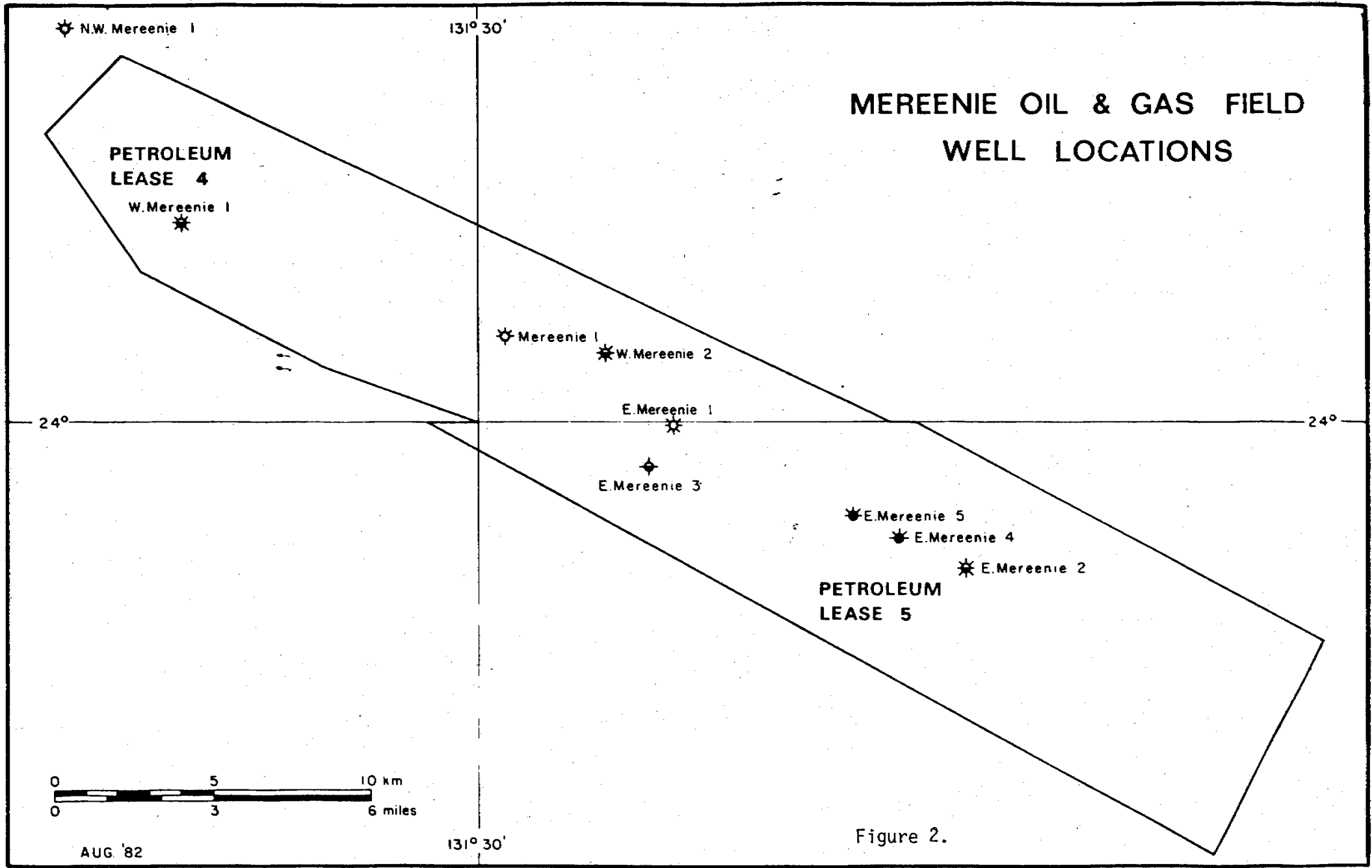


Figure 2.

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2. WELL HISTORY

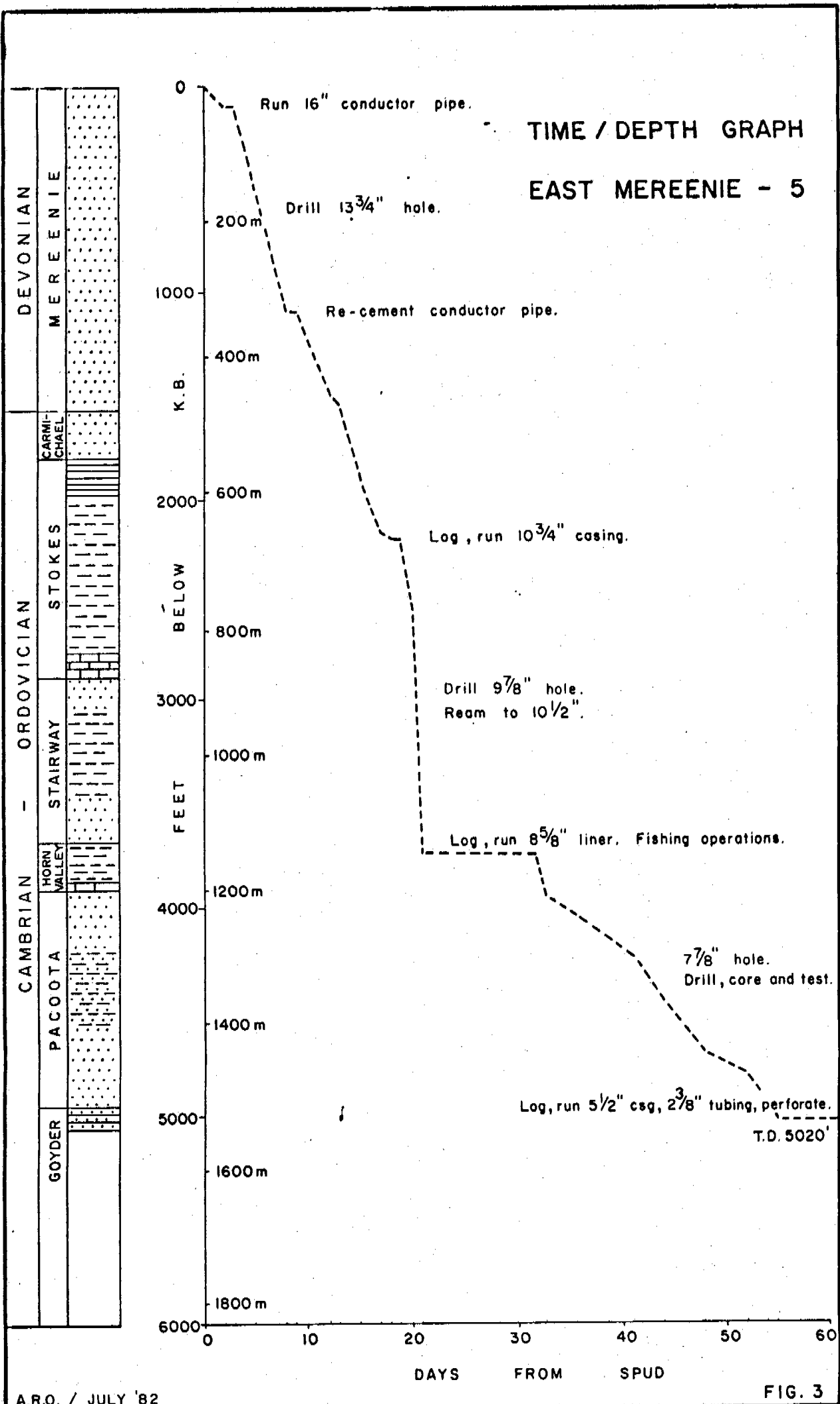
2. WELL HISTORY.

Details of depth, time and main operations are shown on the time/depth curve (Figure 3).

2.1 General Data.

Well name and number: East Mereenie No.5
Operator: Oilmin N.L.
Beneficial interest holders: Magellan Petroleum Australia Ltd.
Canso Resources Limited
Oilmin N.L.
Trasoil N.L.
Petromin N.L.
Flinders Petroleum N.L.
Moonie Oil Proprietary Ltd.
Petroleum title: Petroleum Lease No.5
District: Alice Springs, Northern Territory.
Location: Latitude: 24° 01' 22" S
Longitude: 131° 36' 59" E
Elevation: Ground level: +2473 feet MSL.
Kelly bushing: +2493 feet MSL (datum for all measurements).
Total depth: 5020 feet (driller)
5019 feet (logger)
Spudded: 10th January, 1982 (1730 hours).
Rig released: 11th March, 1982 (1430 hours).
Well status: Cased for oil production from the Pacoota Sandstone (P3 unit).
Perforations over selected intervals between 4656 and 4838 feet.

Geological formation tops:	Mereenie Sandstone	Surface
	Carmichael Sandstone	1630'
	Stokes Siltstone	1848'
	Stairway Sandstone	2882'
	Horn Valley Siltstone	3708'
	Pacoota Sandstone	3931'
	Goyder Formation	4992'
	Total depth	5020'



2.2 Rig Data.

Drilling contractor: Mereenie Joint Venture Partners.

Drilling plant: Make: O.I.M.E.
Type: Model SL-5 (SL-750)
Rated capacity: 12,500 ft. with 4-1/2" O.D. drill pipe.
Motors: 3 - Caterpillar D-3408 (compounded) 385 B.H.P. 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 H.C.R. flanged valve.

Mud tanks - Size & capacity: 3 tank system - returns, settling and suction - Total capacity: 777 barrels.

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-II, comprising 12 x 4" cones.
 Capacity: 960 to 1080 GPM.
 electrically driven.

Drill pipe - 4-1/2" O.D. 16.6 lbs/ft. API Grade "E" -
 EUE. Seamless range 2 - 18° taper,
 internally coated with 6-1/4" O.D. by
 3-1/2" tool joints, hardbanded, 4-1/2"
 x H connections.

Drill collars - 6 x 8" O.D. 2-13/16" I.D. x 31 ft. 6-5/8"
 reg.connections.
 12 x 7" O.D. 2-13/16" I.D. x 31 ft. 4"
 I.F. connections.
 27 x 6-1/2" O.D. 2-1/4" I.D. x 31 ft.
 4" I.F. connections.
 3 x 4-1/8" O.D. 2" I.D. 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 Make: Knight Industries
booster - Model: K.O.A. Model 2.
 Capacity: 245 PSI inlet and 1400 PSI
 discharge at 1500 CFM.

Diverter - Make: Shaffer
 Model: Type 79 rotating BOP.
 Size: 13-5/8"
 Rating: 3000 PSI.

Injection pumps - Make: 2 only "LATO"
 Model: LATO L421D
 Capacity: 6 GPM at 2135 PSI each.
 Powered by Lombardini diesel
 engines.

2.3 Drilling Data.

2.3.1 Drilling Record.

WELL: ...East Mereenie No.5

FIELD: ...Mereenie.....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
1982 Jan. 10	48	Moved-in and rigged-up Mereenie's OIME SL-750 Rig No.1. Spudded at 1730 hrs. 10/1/82. Drilled 17-1/2" hole to 48 ft.
Jan. 11	91	Drilled 17-1/2" hole to 91 ft. Attempted to run conductor pipe - could not. Reamed hole.
Jan. 12	91	Drilled bridge at 60 ft. Cleaned hole to 91 ft. Ran and cemented 16" conductor pipe at 50 ft.
Jan. 13	230	Drilled 13-3/4" hole to 230 ft.
Jan. 14	489	Drilled 13-3/4" hole to 489 ft.
Jan. 15	645	Drilled 13-3/4" hole to 645 ft. Changed from air drilling to gas drilling at 610 ft.
Jan. 16	858	Drilled 13-3/4" hole to 858 ft.
Jan. 17	1,102	Drilled 13-3/4" hole to 1,102 ft. First significant aquifer at 950 ft. Freshwater influx estimated at 300 barrels per hour.
Jan. 18	1,127	Drilled 13-3/4" hole to 1,127 ft. Pulled-out of hole. Recemented conductor pipe. Waited on cement for 4 hrs. Drilled out cement plug.
Jan. 19	1,231	Repaired blooey line. Drilled 13-3/4" hole to 1,231 ft.
Jan. 20	1,352	Drilled 13-3/4" hole to 1,352 ft. Water influx about 400 B.P.H.
Jan. 21	1,481	Drilled 13-3/4" hole to 1,481 ft.
Jan. 22	1,553	Drilled 13-3/4" hole to 1,553 ft.
Jan. 23	1,732	Drilled 13-3/4" hole to 1,732 ft.
Jan. 24	1,911	Drilled 13-3/4" hole to 1,911 ft.
Jan. 25	2,051	Drilled 13-3/4" hole to 2,051 ft.
Jan. 26	2,170	Drilled 13-3/4" hole to 2,170 ft. Water influx approximately 400 B.P.H.

WELL: . East Mereenie No.5 ..

FIELD: ... Mereenie

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.																
Jan. 27	2,206	<p>Drilled 13-3/4" hole to 2,206 ft. Gearhart ran Gamma Ray-Sonic-Caliper log. Ran and cemented 56 joints of 10-3/4", 40.5 #/ft. U-55, R3, new casing at 2,199 ft. Cemented with 580 sacks Class A construction cement at average slurry weight of 15.4 ppg. Bumped plug to 750 psi and held pressure OK. Plug down at 0310 hrs. 28/1/82. Waited on cement.</p> <p style="text-align: center;"><u>10-3/4" CASING DETAILS</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black;">2,206.00'</td> <td style="width: 50%;">T.D. of 13-3/4" hole</td> </tr> <tr> <td style="border-bottom: 1px solid black;">7.25'</td> <td>Off bottom</td> </tr> <tr> <td style="border-bottom: 1px solid black;">2,198.75'</td> <td>Hanging depth</td> </tr> <tr> <td style="border-bottom: 1px solid black;">3.18'</td> <td>Guide Shoe and Float Collar</td> </tr> <tr> <td style="border-bottom: 1px solid black;">2,177.97'</td> <td>56 joints of 10-3/4" Casing</td> </tr> <tr> <td style="border-bottom: 1px solid black;">17.60'</td> <td></td> </tr> <tr> <td style="border-bottom: 1px solid black;">17.60'</td> <td>Landing Joint</td> </tr> <tr> <td style="border-bottom: 1px solid black;">0.00'</td> <td>K.B.</td> </tr> </table>	2,206.00'	T.D. of 13-3/4" hole	7.25'	Off bottom	2,198.75'	Hanging depth	3.18'	Guide Shoe and Float Collar	2,177.97'	56 joints of 10-3/4" Casing	17.60'		17.60'	Landing Joint	0.00'	K.B.
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Jan. 28	2,206	Backed-off landing joint. Nippled-up BOPs. Pressure tested blind rams and choke manifold to 1,000 psi, all held OK.																
Jan. 29	2,535	Ran-in hole and tagged cement at 2,150 ft. Pressure tested pipe rams to 1,000 psi, Hydrill to 750 psi and shoe to 1,000 psi. All held OK. Drilled out float collar and plug to 2,206 ft. Drilled 9-7/8" hole to 2,535 ft. (Gas drilling with no water influx).																
Jan. 30	3,084	Drilled 9-7/8" hole to 3,084 ft.																
Jan. 31	3,760	Drilled 9-7/8" hole to 3,760 ft. Weak gas blow TSTM from Lower Stairway Sandstone.																
Feb. 1	3,760	Displace hole with mud. Gearhart ran Gamma Ray - Sonic Log. Reamed hole to 10-1/2" to 3,535 ft.																
Feb. 2	3,760	Reamed 10-1/2" hole to 3,760 ft. Ran-in hole with 8-5/8" casing liner. Tagged bridge at 3,627 ft. Tried to work casing through bridge - could not. Started to pull casing out of hole.																
Feb. 3	3,760	Finished pulling casing out of hole. Run in hole with under reamer. Ream hole to 3,760 ft. Circulate. Run-in hole with 8-5/8" casing.																

WELL: East Mereenie No.5

FIELD: Mereenie

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.														
Feb. 4	3,760	Could not run casing to bottom. Pull-out of hole. Run-in hole with under reamer. Ream 10-1/2" hole. Circulate to condition hole.														
Feb. 5	3,760	<p>Drill out of hole. Ran 8-5/8" casing to 3,758 ft. Circulate. Set Liner Hanger at 2,119 ft. Cemented with 300 sacks of Class A construction cement at average slurry weight of 15.4 ppg. Displaced with 117 bbls. of water. Bumped plug with 1500 psi at 2am. 6/2/82. While waiting cement, pull-out of hole drill pipe and lay out Hanging Tool.</p> <p style="text-align: right;"><u>8-5/8" CASING DETAILS</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; border-bottom: 1px solid black;">3,760.00'</td> <td>T.D. of 10-1/2" hole</td> </tr> <tr> <td style="border-bottom: 1px solid black;">2.00'</td> <td>Off bottom</td> </tr> <tr> <td style="border-bottom: 1px solid black;">3,758.00'</td> <td>Hanging depth</td> </tr> <tr> <td style="border-bottom: 1px solid black;">3.28'</td> <td>Guide Shoe and Float Collar</td> </tr> <tr> <td style="border-bottom: 1px solid black;">1,623.88'</td> <td>43 joints of 8-5/8" 32 #/ft. J55 Casing</td> </tr> <tr> <td style="border-bottom: 1px solid black;">13.45'</td> <td>Casing Hanger</td> </tr> <tr> <td style="border-bottom: 1px solid black;"><u>2,117.39'</u></td> <td>Depth of Liner Hanger</td> </tr> </table>	3,760.00'	T.D. of 10-1/2" hole	2.00'	Off bottom	3,758.00'	Hanging depth	3.28'	Guide Shoe and Float Collar	1,623.88'	43 joints of 8-5/8" 32 #/ft. J55 Casing	13.45'	Casing Hanger	<u>2,117.39'</u>	Depth of Liner Hanger
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13.45'	Casing Hanger															
<u>2,117.39'</u>	Depth of Liner Hanger															
Feb. 6	3,760	Ran in hole to top of plug. Tested pipe rams to 1,000 psi - OK. Drilled cement plug.														
Feb. 7	3,760	Drilled-out guide shoe. Pull-out of hole to 1,200 ft. Circulated. Ran-in hole to 2,117. Obstruction in hole, Hex Drive Bushing from rotating BOP. Bit could not go down. Pulled-out of hole. Changed bit. Ran-in hole. Could not penetrate past obstruction. Ran-in hole with magnet. Tripped with magnet.														
Feb. 8	3,760	Ran-in hole with taper tap. Pulled-out of hole. Ran in hole with magnet. Pulled-out of hole. Ran-in hole with fishing tool. Fished.														
Feb. 9	3,760	Tripped three times fishing. Knocked fish to bottom. Ran-in hole to 3,250 ft. Circulated. Ran-in hole with magnet. Pulled-out of hole. Tripped with fishing tool. Ran-in hole with magnet.														

WELL: East Mereenie No.5...

FIELD:Mereenie.....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
Feb. 10	3,760	Pulled-out of hole. Ran-in hole with bit and drilled on iron. Pulled-out of hole.
Feb. 11	3,769	Ran-in hole with mill. Milled on iron. Pulled-out of hole. Ran-in hole with bit. Drilled on iron to 3,768 ft.
Feb. 12	3,950	Drilled on iron to 3,887 ft. Pulled out of hole. Cleaned-out junk sub. Ran-in hole with new bit. Drilled 7-7/8" hole to 3,950 feet.
Feb. 13	3,995	Drilled 7-7/8" hole to 3,995 ft.
Feb. 14	4,014	Cut Core No.1 from 3,995 to 4,014 ft. Cut 19 ft. Recovered 19 ft.
Feb. 15	4,036	Cut Core No.2 from 4,014 to 4,028 ft. Cut 14 ft. Recovered 14 ft. Drilled 7-7/8" hole to 4,036 ft.
Feb. 16	4,114	Drilled 7-7/8" hole to 4,114 ft.
Feb. 17	4,150	Cored from 4,114 to 4,150 ft. (Core No.3)
Feb. 18	4,170	Cored from 4,150 to 4,166 ft. Cut 52 ft. Recovered 52 ft. (Core No.3). Drilled 7-7/8" hole to 4,170 ft.
Feb. 19	4,234	Drilled 7-7/8" hole to 4,218 ft. Cored from 4,218 to 4,234 ft. (Core No.4)
Feb. 20	4,258	Cored from 4,234 to 4,240.5' (Core No.4) Cut 22.5 feet. Recovered 22.5 feet. Drilled 7-7/8" hole to 4,258 feet.
Feb. 21	4,325	Drilled 7-7/8" hole to 4,325 feet.
Feb. 22	4,440	Drilled 7-7/8" hole to 4,440 feet.
Feb. 23	4,545	Drilled 7-7/8" hole to 4,545 feet.
Feb. 24	4,624	Reamed under gauge hole from 4,430 to 4,545 feet. Drilled 7-7/8" hole to 4,624 feet.
Feb. 25	4,662	Reamed hole from 4,580 to 4,624 feet. Cut Core No.5 from 4,624 to 4,662 feet. Cut 38 feet. Recovered 38 feet.
Feb. 26	4,710	Drill 7-7/8" hole to 4,710 ft. Circulate and condition mud.

WELL: ..East Mereenie No.5..

FIELD:Mereenie.....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.														
Feb. 27	4,713	<p>Made open hole formation test (D.S.T. No.1) over interval 4,620 to 4,710 ft. (90 ft.). Open tool for 10 mins. with weak flow increasing to strong. Gas to surface at 9.5 mins. Shut-in tool for 31 mins. then opened tool for 60 mins. Oil to surface 6 mins. after start of second flow period. Stabilized surface pressure was 340 psi. Estimated flow rate of 100-150 BOPD with 2 MMCF of gas per day. Shut-in tool for 120 mins. Reverse circulated fluid in pipe to surface. Recovered oil and mud from bottom joint above hydrospring. Gravity of oil measured at 47.5 API at 70°F. Cored from 4,710 to 4,713 ft. (Core No.6)</p> <p style="text-align: center;"><u>FIELD CHART READINGS D.S.T. NO.1.</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th><u>IHP</u></th> <th><u>IFP</u></th> <th><u>ISIP</u></th> <th><u>FFP</u></th> <th><u>FSIP</u></th> <th><u>FHP</u></th> <th><u>BHT</u></th> </tr> </thead> <tbody> <tr> <td>2214</td> <td>270</td> <td>1728</td> <td>649</td> <td>1728</td> <td>2214</td> <td>140°F</td> </tr> </tbody> </table>	<u>IHP</u>	<u>IFP</u>	<u>ISIP</u>	<u>FFP</u>	<u>FSIP</u>	<u>FHP</u>	<u>BHT</u>	2214	270	1728	649	1728	2214	140°F
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2214	270	1728	649	1728	2214	140°F										
Feb. 28	4,748	<p>Cored to 4,743 ft (Core No.6). Cut 33 ft. Recovered 33 ft. Drilled 7-7/8" hole to 4,748 ft.</p>														
Mar. 1	4,781	<p>Cored to 4,781 ft. (Core No.7). Cut 33 ft. Recovered 33 ft. Run-in hole for D.S.T. No.2.</p>														
Mar. 2	4,810	<p>Made open hole formation test (D.S.T. No.2) over interval 4,710 to 4,781 ft. Open tool for 11 mins. then closed-in for 30 mins. Reopened tool for 120 mins. then closed-in for 210 mins. Reverse circulated fluid in pipe to surface. Recovered 11.5 bbls. of oil; 50° API. Reamed from 4,718 to 4,781 ft. Drilled 7-7/8" hole to 4,810 ft.</p> <p style="text-align: center;"><u>FIELD CHART READINGS D.S.T. NO.2</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th><u>IHP</u></th> <th><u>IFP</u></th> <th><u>ISIP</u></th> <th><u>FFP</u></th> <th><u>FSIP</u></th> <th><u>FHP</u></th> <th><u>BHT</u></th> </tr> </thead> <tbody> <tr> <td>2214</td> <td>108</td> <td>1701</td> <td>135</td> <td>1701</td> <td>2187</td> <td>145°F</td> </tr> </tbody> </table>	<u>IHP</u>	<u>IFP</u>	<u>ISIP</u>	<u>FFP</u>	<u>FSIP</u>	<u>FHP</u>	<u>BHT</u>	2214	108	1701	135	1701	2187	145°F
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2214	108	1701	135	1701	2187	145°F										
Mar. 3	4,911	<p>Drilled 7-7/8" hole to 4,911 ft.</p>														
Mar. 4	4,973	<p>Drilled 7-7/8" hole to 4,973 ft.</p>														
Mar. 5	5,003	<p>Drilled 7-7/8" hole to 5,003 ft.</p>														

WELL: .. East Mereenie No.5.

FIELD: Mereenie.....

Date	E.T.D. (ft.)	Details of Operations, Descriptions and Results.
Mar. 6	5,020	Drilled 7-7/8" hole to 5,020 feet. Rig-up Gearhart. Ran Gamma-Dual Induction-Sonic-Caliper log. Ran Gamma-Density-Neutron-Caliper log.
Mar. 7	5,020	Circulated and conditioned hole. Ran 5-1/2" casing.
Mar. 8	4,973	Ran 127 joints of 5-1/2" J55, 14 #/ft. ST&C, R3 casing. Ran float shoe to 5,018 ft. with float collar at 4,973 ft. Pumped 10 bbls. of diesel, then 5 bbls. of water ahead of the cement. Mixed and pumped 150 sacks of cement in a 13 ppg slurry followed by 150 sacks of cement in a 15.5 ppg slurry. Displaced with 122 bbls. of mud. Maximum displacement pressure was 650 psi. Bumped plug with 1,000 psi checked float - held OK. Displacement completed at 1407 hrs. 8/3/82. Wait on cement 6 hrs. Laid down BOPs, set casing in slips, cut and levelled casing. Installed tubing hanger and casing seal.
Mar. 9	4,973	Ran tubing with casing scraper to 4,975 ft. Pulled-out of hole. Rigged-up Gearhart. Ran CBL-GR-CCL log. Gearhart set packer at 4,581 ft. (mid point).
Mar. 10	4,975	Ran-in hole with seal assembly and tubing. Rigged-up gas line and displaced mud from tubing. Landed tubing in packer and wellhead. Pressure tested wellhead, tubing, packer and seals to 1,000 psi - OK. Rigged-up Gearhart and perforated 4,656 to 4,838 ft. with through tubing gun (see Section 2.3.9 for details). Nippled-up wellhead to flowline.
Mar. 11	4,975	Attempted to flow well. Did not flow. Rig released at 1430 hrs. 11/3/82.

2.3.2 Hole Sizes and Depth.

17-1/2" to 91 feet

13-3/4" to 2,196 feet.

9-7/8" (reamed to 10-1/4") to 3,760 feet.

7-7/8" to 5,020 feet (total depth).

2.3.3 Casing and Cementing Details.

16" casing:	Weight:	not specified
	Grade:	welded
	Shoe depth:	50 feet
	Cement used:	50 sacks

10-3/4" casing:	Weight:	40 lbs/ft.
	Grade:	H40
	Shoe depth:	2,176 feet
	Cement used:	580 sacks

8-5/8" casing:	Weight:	32 lbs./ft.
	Grade:	J55
	Shoe depth:	3,758 feet
	Top of liner hanger:	2,117 feet
	Cement used:	300 sacks

5-1/2" casing (production string):		
	Weight:	14 lbs/ft.
	Grade:	J55
	Shoe depth:	5,018 feet
	Cement used:	300 sacks.

2.3.4 BIT AND DEVIATION RECORD

WELL ... East Mereenie No. 5
 FIELD ... Mereenie
 LOCATION Lat. ... 24° 01' 22" S.
 Long. ... 131° 36' 59" E

SPUD DATE ... 10/1/82 COMP. DATE ... 11/3/82
 CONTRACTOR ... Mereenie J/V RIG No. 1
 TYPE UNIT ... O.I.M.E. SL-750
 DRILL PIPE DESCRIPTION ... 4 1/2" 16.6 #/ft. Grade E

T.D. ... 5020 feet T.V.D.
 DEVIATION (B.H.L.)

ELEVATIONS GROUND ... 2473 feet.
 CASING HEAD
 TUBING HEAD
 ROTARY DRIVE BUSHING ... 2493 feet

DATE IN	DEPTH OUT ft	BIT RECORD							WEIGHT 000lb	R.P.M.	DEPTH & DEVIATION	
		BIT No	SIZE	MAKE	TYPE	JET SIZE	FEET	HOURS			VERTICAL	DIRECTIONAL
Jan 10	91	1	17 1/2	SEC	H74		91	29	3	45		
13	549	2	13-3/4	Smith	Q9JS		458	38-3/4	5/25	45		155' - 1° 292'-3/4°
15	1127	3	13-3/4	Smith	Q9JS		578	57	30/35	45		510' - 1/2°
19	1510	4	13-3/4	Smith	Q9JS		383	70 1/2	40/45	60/65		820' - 0°
22	1952	5	13-3/4	Smith	Q9JS		442	56 1/2	30/45	60		1166' - 1°
25	2092	6	13-3/4	SEC	H7UG		140	19 1/2	40/45	40/60		1617' - 2° 1924'-2 1/2°
26	2206	RR5	13-3/4	Smith	Q9JS		114	13 1/2	35/40	55		
29	3760	7	9-7/8	HTC	J22		1554	51-3/4	25/35	60		2317' - 1/2° 2815'-1/2°
												3384' - 2° 3760'-2 1/2°
Feb 6	3760	8	7-7/8	HTC	J3	Drill	on plug and fish					
7	3760	9	7-7/8	HTC	J3	Drill	on fish					
10	3768	10	7-7/8	Reed	C2G	Drill	on fish					
12	3887	RR8	7-7/8	HTC	J3		119	7	30	60		
12	3995	11	7-7/8	HTC	J22		108	7	30	60		3988' - 3°
14	4028	12	7-27/32	Chris	C20		33	20-3/4	10/20	50/70		
15	4114	13	7-7/8	Reed	C2G		86	27-3/4	35	60		
17	4164	RR12	7-27/32	Chris	C20		50	28 1/2	20	60		
19	4218	14	7-7/8	HTC	J22		54	8 1/2	25/30	60		4178' - 2°
19	4240	RR12	7-27/32	Chris	C20		22	14	20	60		
20	4267	15	7-7/8	Reed	C2G		27	16-3/4	35	60		
21	4545	16	7-7/8	HTC	J44		278	54-3/4	35	60		4500' - 2°
24	4624	17	7-7/8	HTC	J33		79	15 1/2	30	60		
25	4662	RR12	7-27/32	Chris	C20		38	8-3/4	20	75		
26	4710	18	7-7/8	HTC	J33		48	7-3/4	35	65		
28	4743	RR12	7-27/32	Chris	C20		33	13-3/4	20	75		
Mar 1	4748	19	7-7/8	Reed	C2G		5	1 1/2	35	60		
1	4781	RR12	7-27/32	Chris	C20		33	7	20	75		
2	4973	20	7-7/8	HTC	J55		192	50 1/2	35/45	50/55		
5	5020	21	7-7/8	HTC	J55		47	15	35/40	55		

2.3.5 Drilling Fluid.

The 17-1/2" hole was air drilled to 91 feet at which depth the 16" casing was run.

The 13-3/4" hole was air drilled from the 16" casing shoe to 610 feet at which depth water influx necessitated the addition of foaming agent and drilling was continued with gas mist to 2,196 feet. From this depth 9-7/8" hole was drilled using gas to the 8-5/8" casing point at 3,760 feet at which depth the well was killed using a 12.1 ppg freshwater gel mud.

This section was then reamed to 10-1/4" and, after running the 8-5/8" liner, the system was converted to an invert oil emulsion mud to prevent possible damage to the Pacoota Sandstone target horizon. The well was then drilled ahead in 7-7/8" hole to total depth.

Water was pumped from a water well three miles to the east through a 2" line. This supply was augmented during gas/water drilling by recirculation of formation water. Gas was tapped from the East Mereenie No.2 well two miles to the southeast through a 2" line. The supply was controlled by a 3/4" choke at each end of the line. The choke at the East Mereenie No.2 well was kept fully open whilst the rig choke was adjusted to maintain the required circulating pressure.

The daily mud properties are as follows :-

2.3.6 Formation Sampling.

(i) Ditch cuttings -

Samples were taken at intervals of 30 ft. from below the 16" casing shoe at 50 ft. to the 8-5/8" casing depth at 3,760ft. From this depth samples were taken at intervals of 10 ft. to total depth of 5,020 ft. When drilling with mud two splits of sample were bagged untreated and three splits then made of the washed and dried samples. Where air/gas or mist drilling provided only cuttings powder this was split five ways. The samples were distributed as follows -

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

Samples descriptions are given in Appendix 1.

(ii) Coring -

A total of 212.9 ft. of core was cut in seven coring runs with 100% recovery.

<u>Core No.</u>	<u>Interval (driller) (ft.)</u>	<u>Interval (corrected) (ft.)</u>	<u>Rec. (ft.)</u>	<u>Rec. (%)</u>	<u>Bit Type</u>
1	3995 -4014.6	same	19.6	100	C20 (7-27/32)
2	4014.7-4028	same	13.3	100	C20 (7-27/32)
3	4114 -4166	same	52	100	C20 (7-27/32)
4	4218 -4240.5	same	22.5	100	C20 (7-27/32)
5	4624 -4662	same	39	100	C20 (7-27/32)
6	4710 -4743.5	same	33.5	100	C20 (7-27/32)
7	4748 -4781	same	33	100	C9 (7-27/32)

Full descriptions of the cores are included in Appendix 2.

(iii) Sidewall sampling -

No sidewall samples were taken.

2.3.7 Logging and Surveys.

(i) Electric logging -

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

<u>Log</u>	<u>Run</u>	<u>Interval</u> (ft.)	<u>Date</u>
BCS-GR-Cal	1	1222 to 2182 (GR to surface)	27/1/82
BCS-GR-Cal	2	2196 to 3748	1/2/82
BCS-GR-Cal	3	3756 to 4986	6/3/82
CDL-CNS-GR	1	3756 to 5018	6/3/82
DIL	1	3756 to 5018	6/3/82
Computer processed interpretation (Laserlog)		4060 to 5010	6/3/82
CBL	1	3800 to 4971	10/3/82

Prints of all wireline logs and the computer processed interpretation are included as Enclosure 3.

A Velocity Shoot was run on 7th March by Velocity Data Pty. Ltd. Details are given in Appendix 5.

(ii) 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 details was prepared at the well-site on a daily basis and is included as Enclosure 2.

(iii) Deviation surveys -

Deviation surveys are shown in 2.3.4 (Bit and deviation records).

(iv) Temperature surveys -

Temperature surveys were not carried out, however, the following temperatures were recorded :-

140°F at 5020 feet (Gearhart)

140°F at 4710 feet (Halliburton)

145°F at 4781 feet (Halliburton)

2.3.8 Formation testing.

Drill stem testing -

D.S.T. 1 Interval: 4620 to 4710 feet
Method: Conventional dual bottom hole.
Tester: Halliburton
Results: Gas at 2 MMcfd;
oil flow estimated at
100 to 150 BPD.

D.S.T. 2 Interval: 4710 to 4781 feet
Method: Conventional dual bottom hole.
Tester: Halliburton
Results: Gas at RTSTM;
recovered 11.3 bbls of
oil (48° API).

Full details of these tests are included as Appendix 4. No sample analyses were carried out.

2.3.9 Well Completion Data.

Perforating -

Original perforations were made by Gearhart on the 10th and 11th March, 1982, with a 1-11/16" strip jet tubing gun.

Perforated zones:

<u>Interval (ft.)</u>	<u>No. of shots</u>
4656 - 4665	36
4674 - 4678	16
4683 - 4693	40
4700 - 4710	40
4720 - 4728	32
4740 - 4749	36
4754 - 4762	32
4828 - 4838	40

A second set of perforations was run on the 26th March, 1982 with a similar strip jet tubing gun.

Perforated zones:

<u>Interval (ft.)</u>	<u>No. of shots</u>
4721 - 4729	16
4685 - 4695	20

A third set of perforations was run by Gearhart on the 23rd and 24th May, 1982 with a 1-11/16" Tornado Magnum Formed Wire Jet tubing gun.

Perforated zones:

<u>Interval (ft.)</u>	<u>No. of shots</u>
4750 - 4760	20
4738 - 4746	16
4698 - 4707	18
4655 - 4664	18
4672 - 4677	10

3. GEOLOGY

3. GEOLOGY

3.1 Previous Work

Previous drilling on the Mereenie Anticline consisted of eight exploration wells, four in OP. 178, drilled between 1963 and 1967 by a consortium formed by Exoil (N.T.) Pty. Ltd., Magellan (N.T.) Pty. Ltd. and United Canso Oil and Gas Co. (N.T.) Pty. Ltd. Five of these wells were completed as gas condensate wells, one as an oil well and two were plugged and abandoned.

This drilling has defined the Pacoota Sandstone as a hydrocarbon reservoir with a gas column approximately 1070 feet (326 m) thick overlying an oil leg extending 320 feet (98 m) below this. The maximum mapped structural closure of 700 feet (213 m) is much less than the thickness of the total hydrocarbon column indicating that the trap is a combination of structure and stratigraphy.

Within the Pacoota Sandstone there are four major divisions informally named the P1, P2, P3, P4 units from the top of the formation downwards. The best reservoir potential occurs in the P1 and P3 units. These hydrocarbon reservoirs of the Mereenie field appear to have common, essentially horizontal, gas/oil and oil/water contacts.

From the data available to date it appears that the best reservoir potential in the Pacoota Sandstone occurs in the eastern end of the field towards the crest of the anticline, in the Pacoota P1 and P3 units.

3.2 Stratigraphy

East Mereenie No. 5 reached a total depth of 5020 feet and penetrated a sedimentary sequence ranging in age from Devonian to Cambrian (Table 1).

A detailed description of the lithology is appended (Appendices 1 and 2) and is summarized on the Composite Well Log and Mudlog (Enclosures 1 and 2).

The following is a brief discussion of the stratigraphic section penetrated in the well :-

Mereenie Sandstone

Depth: Surface to 1630 feet

Thickness: 1610+ feet.

Age: Upper Silurian to Middle Devonian

Lithology:

Surface to 692 ft (Mereenie Sandstone)

Multicoloured red, white and sometimes brown, quartzose sandstone. Grain size is fine to coarse and many of the grains show frosting by

TABLE 1

EAST MEREENIE NO.5 STRATIGRAPHIC TABLE

AGE	FORMATION	DEPTH (ft.)		THICKNESS (ft.)
		KB (ft.)	MSL (ft.)	
DEVONIAN	MEREENIE SANDSTONE	20	+2473	1610+
UPPER SILURIAN				
UPPER ORDOVICIAN	CARMICHAEL SANDSTONE	1630	+ 863	218
MIDDLE ORDOVICIAN	STOKES SILTSTONE	1848	+ 645	1034
	Upper Stokes Siltstone	1848	+ 645	782
	Lower Stokes Siltstone	2630	- 137	252
	STAIRWAY SANDSTONE	2882	- 389	826
	Upper Stairway Sandstone	2882	- 389	193
	Middle Stairway Sandstone	3075	- 582	425
	Lower Stairway Sandstone	3500	-1007	208
	HORN VALLEY STILSTONE	3708	-1215	223
LOWER ORDOVICIAN	PACOOTA SANDSTONE	3931	-1438	1061
	P1 unit	3931	-1438	347
	P2 unit	4278	-1785	225
	P3 unit	4503	-2010	274
	P4 unit	4777	-2284	215
UPPER CAMBRIAN	GOYDER FORMATION	4992	-2499	28+
TOTAL DEPTH		5020	-2527	

Surface to 692 ft (Mereenie Sandstone) (Contd.)

silica cement. Sandstone is the dominant lithology but there are minor beds of red and brown shale.

692 to 1125 ft (Mereenie Sandstone)

Multicoloured red, white, yellow and clear quartzose sandstone with minor thin interbeds of pink-brown and light brown mottled shales. The sandstones are medium to coarse grained, with some fine grained aggregates with rounded to sub-rounded, sometimes frosted, quartz grains. The framework is impermeable with interstices filled with a white to buff clay matrix. Iron-staining is common with many black iron-rich layers. This section contains a number of aquifers which are not readily apparent from the penetration rate or gamma log. A significant increase in the water influx was noted at approximately 950 feet, 1050 feet and 1125 feet. Water was produced at approximately 250 to 300 gallons per minute by 1125 feet.

1125 to 1488 ft (Mereenie Sandstone)

White, very hard, homogeneous, fine and medium grained quartzose sandstone. Streaks of red-brown, fine grained quartzose sandstone are sporadic throughout the section. The sandstones are generally impermeable with a white and sometimes brown, argillaceous matrix. Slivers of white, argillaceous material appear to indicate fracturing. Porosity is very poor throughout this section.

1488 to 1630 ft (Mereenie Sandstone)

White and red, fine grained sandstone interbedded with red, micaceous siltstone and shale with minor horizons of green, siliceous siltstone. The sandstones have poor porosity owing to a white, sometimes red, argillaceous matrix.

Carmichael Sandstone (Larapinta Group)

Depth: 1630 to 1848 feet.

Thickness: 218 feet

Age: Upper Ordovician

Lithology:

Dominantly brick red and brown, quartzose, fine to medium grained sandstone and red-brown, sometimes purple, argillaceous and slightly micaceous siltstones. Thin interbeds of red to brown and

Carmichael Sandstone (Larapinta Group) (Contd.)

purple, subfissile shales occur throughout but are more common towards the base of the formation. The sandstones are generally impermeable, however, thin horizons with argillaceous matrix have moderate to poor porosity. The interval from 1720 to 1750 feet shows evidence of fracturing.

Stokes Siltstone (Larapinta Group)

Depth: 1848 to 2882 feet

Thickness: 1034 feet

Age: Middle Ordovician

Lithology:

The Stokes Siltstone can be divided into three lithostratigraphic units. The formation is dominantly argillaceous, but shows a gradation from marine limestones and shales, dominantly green in colour at the base, through red and green siltstones and shales, to dominantly red sandstones and siltstones at the top of the formation.

1848 to 2000 ft (Upper Stokes Siltstone)

Dominantly brown, mottled green, argillaceous, slightly micaceous and slightly calcareous siltstone grading into shales of similar mineralogy and colour. Interbeds of white, sometimes red, fine to medium grained, poorly sorted, quartzose sandstone with a white to brown, argillaceous matrix and poor porosity are common.

2000 to 2630 ft (Upper Stokes Siltstone)

This unit grades from dominantly siltstone above 2300 ft into shales and minor siltstone and then shales below 2540 feet. There are two distinct suites of rock, both being thinly interbedded and with gradational boundaries. The first consists of very hard, green and white, micaceous and siliceous siltstones and shales, occasionally sandy. The second is a softer red-brown, clayey and slightly micaceous suite of siltstone and shales. These rock types are thinly interbedded.

2630 to 2882 ft (Lower Stokes Siltstone)

There is a rapid change from the above lithologies where red colouration is dominant to an overall grey-green colouration with less mica present. Grey-green, slightly calcareous shales are interbedded with dolomitic limestone and calcareous shales.

Stairway Sandstone (Larapinta Group)

Depth: 2882 to 3708 feet.

Thickness: 826 feet.

Age: Middle Ordovician

Lithology:

The Stairway Sandstone can be divided into three lithostratigraphic units. Minor flows of gas (at rates too small to measure) were evident at the end of the blooey line from 3330 feet down through the Middle and Lower Stairway Sandstone.

2882 to 3075 ft (Upper Stairway Sandstone)

Predominantly white, fine grained, moderately to well sorted, hard, quartzose sandstone with a white, argillaceous matrix. The sandstones are occasionally slightly calcareous and pyritic, with rare thin coarse grained layers. Porosity is very poor. Minor thin beds of grey-green, micaceous siltstone occur sporadically throughout the section.

3075 to 3500 ft (Middle Stairway Sandstone)

Dark grey to black, micaceous thinly bedded shales and siltstones with minor white, slightly calcareous sandstones with rare brown phosphatic nodules.

3500 to 3708 ft (Lower Stairway Sandstone)

This unit comprises dominantly white, fine to coarse grained, quartzose sandstone with minor grey-brown, micaceous and slightly calcareous siltstones and shales. Many of the coarser quartz grains have frosted and pitted surfaces. Sporadic developments of fair porosity occur throughout.

Horn Valley Siltstone (Larapinta Group)

Depth: 3708 to 3931 feet.

Thickness: 223 feet.

Age: Lower Ordovician

Lithology:

Thinly bedded, grey, dark grey and brown, micaceous shales, occasionally silty, are the dominant lithology. Minor limestone stringers occur between 3840 feet and 3870 feet.

Pacoota Sandstone (Larapinta Group)

Depth: 3931 to 4992 feet.

Thickness: 1061 feet.

Age: Upper Cambrian to Lower Ordovician.

Lithology:

3931 to 4278 ft (P1 Unit)

The top of this unit is marked by a 5 ft band of arenaceous limestone which grades into a sequence of very calcareous sandstones and siltstones overlying the uppermost sandstone of the section at 3992 feet. This upper 61 feet is glauconitic throughout and can readily be correlated with the P1 glauconitic zone in other wells on the Mereenie Anticline.

Below 3992 feet the section is distinctly more arenaceous. Clean sandstones up to a maximum 15 feet thick are interbedded with churned, bioturbated sandstone and shales and minor shale intervals. Biological activity is indicated by horizontal, sub-horizontal and vertical burrowing, and churning is evident in all four cores taken in the P1 unit.

The major sandstone beds show a good correlation with East Mereenie No. 4 with minor variations in thickness. As in the surrounding wells the P1 sandstones are dominantly fine to medium grained, subrounded and moderately to well sorted with a silica cement and minor lithic fragments. The shales are dark grey and black, fissile and organic-rich. The churned lithologies are a mixture of the above two lithologies.

4278 to 4503 ft (P2 Unit)

Although the P2 unit is more argillaceous than the P1 and contains few clean sands the unit is dominantly arenaceous with few true shale horizons. The electric log motifs show similarities to the mixed, churned lithologies of the P1 unit.

Lithologically mixed cutting samples also indicate a thinly bedded, possibly churned, dominantly arenaceous section. The lowermost 60 feet of the P2 from 4440 to 4500 feet is glauconitic. This is the second Pacoota glauconite zone and can be recognised in all surrounding wells.

4503 to 4777 ft (P3 Unit)

The P3 unit in this well is dominantly arenaceous with only minor thin shale bands present. Sandstones occur in two types. The first comprises fine to medium grained, quartzose and clean sandstones in two main horizons 40 feet and 35 feet thick. Silica cement is common and the sands are generally structureless except for minor planar cross-stratification. The second type comprises very fine to fine grained sandstones, generally thinly bedded, argillaceous and micaceous with festooned cross-stratification common. The shales are subfissile and micaceous.

The overall colour of the section changes below 4600 feet from a grey-brown colour to a pink and red colouration with minor lenses and blebs of green and reddish-brown. Fine grained sandstones at the base of the unit are distinctly micaceous and from logs and analyses are shown to be radioactive.

4777 to 4992 ft (P4 Unit)

The P4 unit is a homogeneous 201 ft thick body of quartzite. The overall colour is white, speckled with red iron carbonate. The quartzite is fine to medium grained with minor coarse horizons. Silica cement is abundant throughout. Red-brown and green shales are rare and are thinly bedded.

Goyder Formation (Pertaoorrta Group)

Depth: 4992 to 5020 feet.

Thickness: 28 feet.

Age: Upper Cambrian

Lithology:

The top of the Goyder Formation is transitional with the P4 unit and is picked by a distinctive break in the sonic log. This is coincident with the white and pink-red mottled and spotted quartzite becoming significantly calcareous. This is the only change in lithology from the overlying P4 quartzite.

3.3 Petroleum Geology

The data available to date show that the Mereenie Anti-cline contains significant hydrocarbons in three separate reservoir intervals. These are -

Upper Stairway Sandstone

Gas is present in this reservoir at normal pressures, but deliverability is poor.

Lower Stairway Sandstone

This unit contains low volume overpressured gas reservoirs with generally poor deliverability.

Pacoota Sandstone

This formation contains gas and oil at normal pressure. The main reservoir units are the P1 and P3 as these have fair to moderate porosity and permeability. Sporadic thin zones, possibly capable of limited production are present in the P2 and P4 units. Gas/oil and oil/water contacts are indicated to be essentially horizontal. The maximum gas column is approximately 1100 feet at the top of the anticline, whilst the underlying oil column is approximately 300 feet thick.

The following is a summary of the petroleum geology of these zones in East Mereenie No. 5 :-

Upper Stairway Sandstone (2882 to 3075 feet)

Porosity and permeability are very poor with no evidence of the presence of any hydrocarbons. Any primary inter-granular porosity has been almost completely filled with siliceous and calcareous cement. This is consistent with information from previous wells.

Lower Stairway Sandstone (3500 to 3708 feet)

As in the Upper Stairway Sandstone, diagenesis has destroyed most primary porosity, however, minor zones of poor porosity are evident. Gas is present but flow rates were too small to measure.

Pacoota Sandstone (P1 unit, 3931 to 4278 feet)

Core analysis and electric log interpretation showed that the sandstones of the P1 unit have variable but generally poor permeability and porosity due to diagenetic silica and calcite cementation. Fluid summation tests made on the better reservoir horizons show up to 23.3% residual oil saturation. Only minor gas shows were recorded whilst drilling. No drill stem tests were run over this interval, however, the presence of hydrocarbons was readily apparent in the

Pacoota Sandstone (P1 unit, 3931 to 4278 feet) (Contd.)

cored samples. Many of the core samples had a distinct hydrocarbon odour especially when freshly broken but had rare fluorescence and cut. The data indicate the P1 unit is within the gas column.

Pacoota Sandstone (P2 unit, 4278 to 4503 feet)

There were no significant reservoirs nor hydrocarbon indications in this unit.

Pacoota Sandstone (P3 unit, 4503 to 4777 feet)

Both electric logs and core analyses showed generally poor porosity and permeability with minor zones of moderate reservoir quality. As in the overlying units the primary intergranular porosity has been partly filled with diagenetic silica and carbonate cements. However, Core No. 5 showed limited development of fracture porosity over the interval 4648 to 4651.5 feet. (Enclosure 4)

All cores in the P3 interval showed strong evidence of liquid hydrocarbons. Many sections of the core visibly sweated a light red-brown coloured oil and many more sections gave off a distinctive hydrocarbon odour when freshly broken.

The section tested by D.S.T. 1 (4620 to 4710 feet) flowed oil with considerable gas indicating the proximity of the gas-oil contact. The test indicated good production characteristics, partly, if not completely due to the presence of unfilled fractures.

D.S.T. 2 (4710 to 4781 feet) confirmed the presence of the oil column to at least the base of the P3 unit but showed the lower sands to have a much lower production potential than those tested in D.S.T. 1.

The P3 unit in East Mereenie No. 5 shows the same general characteristics of reservoir and hydrocarbon content as the P3 unit in East Mereenie No. 4, 1 mile to the southeast. However, two significant differences are -

- (i) The observed presence of fracture porosity in the upper P3 unit over the interval 4648 to 4651.5 feet.
- (ii) The sandstone at the base of the P3 unit is considerably less porous and permeable than the equivalent sandstone at East Mereenie No. 4. It should be noted that the gamma ray response is not entirely indicative of shale content. It has been established that sandstones in this interval are anomalously radio-active, probably due to the presence of mica.

Pacoota Sandstone (P4 unit, 4777 to 4992 feet)

This unit showed no evidence of significant porosity development and no hydrocarbon shows were encountered. From previous data the oil/water contact is indicated to be within this unit but in East Mereenie No.5 there was no evidence to support this.

3.4 Relevance to Appraisal Programme.

East Mereenie No.5 was drilled to test the oil production potential of the P3 unit and provide a well location for an interference testing programme.

The well achieved these objectives and confirmed many of the results and conclusions drawn from the previous wells in the vicinity.

The following points are of relevance to the ongoing appraisal programme :-

- (1) Fracture porosity was confirmed in the Pacoota P3 unit in particular.
- (2) There is rapid facies change evident in the lower P3 unit sandstones between East Mereenie No.4 and 5.
- (3) Anomalously radioactive sandstones occur at the base of the P3 unit.
- (4) The gas/oil contact is within the uppermost part of the P3 unit at approximately 4623 feet KB (-2130 M.S.L.).
- (5) The oil/water contact is below the base of the P3 unit but the actual depth could not be defined in this well.