Nangkero-1, Raw Data Report.

Hematite Petroleum Proprietary Limited

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Notice of Intention to Drill

OR-0338A

372002

Nang Kero-1
N.F.

D of M | A.O. | CG | CC & M | D.S.M.E.
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DEPT OF MINES
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COMMONWEALTH OF AUSTRALIA

PETROLEUM (SUBMERGED LANDS) ACT 1967 - 8

STATE OF TASMANIA

PETROLEUM (SUBMERGED LANDS) ACT 1967

NOTICE OF INTENTION TO DRILL

The Designated Authority,
Tasmania.

Hematite Petroleum Proprietary Limited, being the holder of Petroleum Exploration Permit No. T/4P hereby notifies its intention to drill a well and requests your permission to carry out the proposed operation.

(i)	WELL	Nangkero-1
	Classification	Wildcat
(ii)	OPERATOR	Hematite Petroleum Pty. Ltd., B.H.P. House, 140 William Street, Melbourne, Victoria, 3000.
	Person in charge	K.E. Mukhtar, 12 Sycamore Avenue, Mentone, Victoria, 3194. Telephone : 93 8944.
		Alternate W.J. Stewart, 6 Hill Court, Doncaster 3108. Telephone : 848 4527
	Geological Supervision	B.R. Brown, Hematite Petroleum Pty. Ltd., G.P.O. Box 86A, Melbourne, Victoria 3001. Telephone : 60 0701 Home Telephone : 787 1979
(iii)	DRILLING CONTRACTOR	Global Marine, P.O. Box 532, Sale, Victoria, 3850.
	Drilling Rig	Glomar Conception.
	Date of Commencement	Mid-April 1974. Exact date to be advised.

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372003

(iv) DETAILS OF OPERATION

Location	Latitude 40°04' 25.01" south Longitude 145°58' 40.67" east
Water Depth	272 feet
Drilling Datum	32 feet above sea level
Casing Programme	20 inch at 400 feet penetration 10¾ inch at 3000 feet penetration
Logging Programme	Run 1 Prior to setting surface casing at approximately 3000 feet. BHCS/GR and IES/SP Run 2 At total depth ISF/S, FDC/CNL/GR/Caliper, HDT, Velocity Survey CST's and FIT's as necessary
Coring Programme	Core all hydrocarbon shows, possibly cut core in Eastern View Coal Measures for stratigraphic control.
Sample Collection	Continuous from the 20 inch casing shoe. Obtain five sets of washed and dried cuttings every ten feet. If drilling conditions warrant, samples will only be taken every 30 feet.
Proposed Total Depth	9,500 feet
Notification Dated	11 March, 1974.

R.P. HARRISON,
Manager Operations.

RPH:MRS.

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Nangkero-1

APPLICATION FOR SUBSIDY

372004

By HEMATITE PETROLEUM PROPRIETARY LIMITED for

NANGKERO NO. 1 WELL

(i)	NAME OF PROJECT	NANGKERO-1
(ii)	APPLICANT	Hematite Petroleum Pty. Ltd., 140 William Street, Melbourne, Victoria, 3000.
(iii)	REGISTERED ADDRESS	Hematite Petroleum Pty. Ltd., P.O. Box 155, Moonah, Tasmania, 7009.
(iv)	NOMINEE AND POSTAL ADDRESS	Manager Operations, R.P. Harrison, Hematite Petroleum Pty. Ltd., G.P.O. Box 86A, Melbourne, Victoria, 3001.
(v)	LOCATION OF WELL	Bass Basin, Tasmania, permit T/4P. Latitude 40° 04' 25.01" South Longitude 145° 58' 40.67" East Seismic Line HB73A-137 Shot Point 14664 AMG co-ordinates N 5563556 E 412852 Water Depth 272 feet (83 metres)

372005

(vi) REGIONAL GEOLOGY

Throughout the Bass Basin, deep seismic mapping below the main coal sequence is difficult and in some places impossible with present technology. The lowest level on which reliable, regional mapping can be attained is the so-called Red horizon within the upper coal measures. In the Nangkero-Poonboon area, this distinctive marker corresponds approximately to the top of the upper M. diversus palynological zone (lower Eocene).

The regional configuration of the Red horizon in the Bass Basin defines a north-west to south-east trending deep basin with Nangkero on its north-eastern side. Pelican occupies a similar structural position on the opposite side of the deep basin. However, the Nangkero area appears to be much less faulted than Pelican and is likely to contain thicker, more porous sands than exist in Pelican. Pelican 1 and 2 intersected about 2000 feet of lower M. diversus age, interbedded sandstone, shale and coal. The individual sand units are relatively thin but gave good gas/condensate shows in the Pelican 1 and 2 wells. It is expected that Nangkero-1 will test correlates of the lower M. diversus sediments which gave the shows in Pelican, although the primary objective is the Red horizon within the main (upper M. diversus) coal sequence. Nangkero-1 will probably drill a stratigraphic succession essentially the same as that penetrated in Poonboon-1 six miles to the south-west. Predicted formation tops are as follows:

	Depth (feet subsea)	(feet K.B.)
Demons Bluff Formation	5575	5607
Eastern View Coal Measures (Yellow horizon)	6170	6202
Red horizon	7340	7372

At total depth of approximately 9500 feet, the well will probably be in sediments of L. balmei age. The abnormal pressure zone, interpreted to occur at about 9300 feet in Poonboon-1 may also exist in Nangkero at about this level.

(vii) PREVIOUS GEOPHYSICAL WORK

Lines B-10 and B-16 of the Bass Basin Seismic Survey (1963) crossed close to the presently mapped crest of the Red horizon at Nangkero. These lines were reprocessed in October 1969 and January 1970 respectively. On the reprocessed lines, the Nangkero structure can be mapped but closure to the west is doubtful and it is therefore understandable that the prospect was not recognized at that time. Further seismic exploration of Nangkero did not occur until 1972 when the B-72A Marine Seismic Survey was run. Lines B-72A-5, 104 and 114A delineated a small closure in T/6P, northeast of the Poonboon-1 well. In 1973 two lines of the Flinders Survey, HB73A-135 and 137 (enclosure 1), updated part of the B-16 and B-16 coverage. They showed that the structure extended well into T/4P with its mapped crest in that permit. Subsequent velocity correction resulted in the present Nangkero maps (enclosures 2 and 3) which differ only slightly from the immediately post survey interpretation. The main change being the closing of the 7600 feet subsea contour which caused a culmination in the north-west to be included in the mapped closure.

The presently mapped closing contour of the Red horizon at Nangkero (7600 feet subsea) extends to within about half a mile of Poonboon-1, the nearest well.

(viii) REASONS FOR DRILLING

Nangkero-1 will be the first test of a large unfaulted upper Eastern View closure in the Bass deep basin. As such, the prospect is interpreted to represent the highly favourable juxtaposition of a large, porous reservoir, good seal as well as excellent source rocks which have been sufficiently buried for organic matter maturation.

Poonboon-1, six miles from Nangkero, encountered sandstone units up to 60 feet thick with porosities in the range 15 to 23 percent and permeabilities up to 100 m.d. For the interval below the Red horizon in Poonboon-1, net sand is about 0.3 and weighted average density log porosity 0.18.

372007

No shows were recorded in this interval in Poonboon-1, probably because that well was off structure at this level. Nangkero-1 should encounter the same excellent reservoir on a large structural culmination, with an areal closure of 43 square miles (111 square kilometres) and 250 feet of vertical closure. It is anticipated that the succession will contain sufficient interbedded shale to provide a good internal seal.

Source potential of the M. diversus and L. balmei sediments in this area is excellent. The gas/condensate shows in Pelican 1 and 2 occurred in lower M. diversus sediments and significant amounts of methane and higher homologues were logged in Dondu-1 and Poonboon-1 in sediments of L. balmei age. It is expected that Nangkero-1 will test these levels but they are considered a secondary objective. However, organic rich L. balmei and lower M. diversus age sediments may have been source rocks for an upper M. diversus (Red horizon) reservoir.

(ix) PROGRAMMED DEPTH

The Red and Yellow horizons at Nangkero are mapped by direct interpretation, via several lines, from Poonboon-1 and the minimal velocity corrections required, indicate a high degree of accuracy for the predicted Yellow and Red horizon intersections.

Proposed total depth of Nangkero-1 is 9500 feet, where it is predicted the well will be in L. balmei age sediments. It is not possible to map Nangkero at this level and drilling of the well below the Red horizon target is considered a secondary objective to test the hydrocarbon potential of the underlying strata which may include correlates of the lower M. diversus and L. balmei age rocks which have given hydrocarbon shows elsewhere in the basin.

372008

(x) PROGRAMME OF DRILLING OPERATIONS

(1)	PROPOSED WELL NAME AND NUMBER	Nangkero-1
(2)	LOCATION	Latitude 40° 04' 25.01" South Longitude 145° 58' 40.67" East Seismic Line HB73A-137 Shot Point 14664 AMG co-ordinates: 5563556 mN 412852 mE Water Depth 272 feet (83 metres)
(3)	PROGRAMMED DEPTH	9500 feet (2895 metres) below sea level.
(4)	GEOLOGICAL OBJECTIVES	Nangkero-1 will test the hydrocarbon potential and assess the stratigraphy of a large unfaulted upper Eastern View (Red horizon) closure in the Bass deep basin.
(5)	ESTIMATED SPUD-IN-DATE	23 April 1974
	DRILLING TIME (DAYS)	24
(6)	ESTIMATED RIGGING-UP TIME (DAYS)	2
	ESTIMATED RIGGING-DOWN TIME (DAYS)	2
(7)	DRILLING CONTRACTOR	Global Marine
(8)	RIG	"Glomar Conception"
(9)	LIST OF SERVICE COMPANIES AND TYPE OF SERVICE TO BE PROVIDED	
	RIG	-Global Marine Drilling Company
	CORING	-Christensen Diamond Products Australia Pty. Ltd.
	CEMENTING	-Halliburton Manufacturing Services Ltd.
	MUD LOGGING	-Baroid Australia Pty. Ltd.
	ELECTRIC LOGGING	-Schlumberger Seaco Inc.
	VELOCITY SURVEY	-Austral United Geophysical Pty. Ltd.

372009

SURVEYING - Offshore Navigation Inc.

DIVING - Broman Divers International Pty. Ltd.

PRESSURE RECORDING - Otis Engineering Corporation

(10) EXPECTED SUBMISSION DATES OF FINAL REPORT - September 1974

372010 Nangkero

ESSO AUSTRALIA LTD.

DRILLING PROGRAM

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REF. No.				

GENERAL:

Well Name: NANGKERO-1

Water Depth: 272'±

Rig: Glomar Conception

Location: Seismic Line: HB73A-137 Shot Point: 14664
Latitude: 40° 04' 25.01" S
Longitude: 145° 58' 40.67" E
AMG Zone: 55 Co-ordinates
X = 412,852 mE
Y = 5,563,556 mN

Total Depth: 9500'

FORMATION EVALUATION:

(a) Electric Logging:

DEPTH	LOGS
@ 3355'	BHCS-GR, IES-SP.
@ T.D.	ISF-SL(K), FDC-CNL-GR, HDT, CST's, velocity survey, FIT's as required.

(b) Mud Logging:

Mud logging will be continuous from the 20" casing shoe. Obtain four sets of washed and dried samples and one sack of unwashed cuttings every ten feet. If drilling conditions warrant, samples need be taken only every 30 feet.

(c) Coring Program:

Core all significant hydrocarbon shows. A core may possibly be required in the Eastern View Coal Measures for statigraphic control.

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372011

CASING PROGRAM:

Type	Size	Hole Size	Setting Depth	Running String	String Components
Pile Joint	24"	26"	26'± penetration	D.P.	Pile Joint assembly consisting of: 16-3/4" CIW casing head housing with 30" external flange, 30' 3" rolled plate - 24" OD (~670 lbs/ft) - with CIW CC connector pin.
Conductor	20"	26"	400'+ penetration	D.P.	Pile Joint. 40±' 20" 129.33 lbs/ft 0.625" WT X-52 LP with CIW CC connector box and CIW JV threaded connector pin. 280±' 20" 94.0 lbs/ft 0.438" WT X-52 LP with CIW JV threaded connector pin and box. Make-up torque is 20,000 ft-lbs. 40±' 20" 129.33 lbs/ft 0.625" WT X-52 LP with welded float shoe and CIW JV threaded connector box.
			Centralizers: 1 centralizer at bottom and top of first joint. Position stop rings for five feet of centralizer movement between collar and stop ring. 1 centralizer at top of 2nd joint with stop ring positioning as above. 1 centralizer free to move on 4th, 6th and 8th joints.		
Surface	13-3/8"	16-1/2"	3000'± penetration (3305'± KB)	D.P.	16-3/4" x 13-3/8" CIW Hanger and Seal Assembly. 2960±' 13-3/8" 54.5 lbs/ft K-55 buttress casing. Make-up torque is 9000 ft-lbs. 13-3/8" Float Collar. 1 joint 13-3/8" 54.5 lbs/ft K-55 buttress casing. 13-3/8" Float Shoe.
			Centralizers: 1 centralizer at bottom and top of first joint. Position stop rings for five feet of centralizer movement. 1 centralizer free to move on 3rd, 5th, 7th, 9th, 11th, 13th, 15th and 17th joints.		

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372012

CEMENTING PROGRAM:

Casing	Cement System
Pile Joint and 20" Conductor	650 sx of Aust. 'N' neat mixed with fresh water (80 barrels). Yield: 1.18 cu.ft./sk Water: 5.2 gal./sk Slurry Weight: 15.6 ppg Slurry Volume: 136 bbl Tail in with 350 sx of Aust. 'N' with 2% $CaCl_2$ mixed with fresh water. (660 lbs $CaCl_2$ and 44 barrels fresh water) Yield: 1.18 cu.ft./sk Water: 5.2 gal./sk Slurry Weight: 15.6 ppg Slurry Volume: 74 bbl This volume allows for twice gauge volume.
13-3/8" Surface	Bring cement top to 1500'± KB with 800 sx Aust. 'N' cement with 752 lbs $CaCl_2$ mixed in 99 barrels fresh water. This assumes gauge hole. Correct volume based on caliper log. Yield: 1.18 cu.ft./sk Water: 5.2 gal./sk 1% $CaCl_2$ Slurry Weight: 15.6 ppg Slurry Volume: 168 bbl Approximate displacement volume is 465 barrels.

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372013

ABANDONMENT PROCEDURE:

The following abandonment plugs should be set. Cement volumes given are calculated assuming gauge hole and should be used only as a guide.

Plug No.	Interval MD-KB	Cement	Remarks
1.	Critical zones as required.		
2.	3405'-3105'	245 sx Aust. 'N' with 2% $CaCl_2$.	Bottom of plug 100±' below surface casing shoe. After WOC, feel for top of plug and displace mud in hole with seawater.
3.	620'-370'	185 sx Aust. 'N' with 2% $CaCl_2$.	After displacing cement, pull up 250' and wash top of plug. Top of plug 65±' below mud line.

Before final abandonment, recover wellhead by cutting casing 50±' below mud line.

OTHER:

(a) Pressure test the 13-3/8" casing to 1500 psi after the cement has set and prior to drilling out. After drilling out, pressure test the formation below the casing as follows:

Casing	Pressure	Mud in Hole	Mud Wt Equiv
20"	0 psi	Seawater (8.54 ppg)	Circ. only
13-3/8"	Leak off (1025 psi max)	8.54 ppg	14.5 ppg

(b) Riser Tension:

Maintain 105 to 110 kips. This is on the high side for normal operating conditions and is satisfactory for non-operating conditions. A corresponding ball joint pressure of 400 psi should be maintained for mud weights up to 12.0 ppg.

(c) Surge Dampener Precharge Pressure:

Hydril -	Opening	100 psi
	Closing	480 psi
Shaffer -	Opening	100 psi
	Closing	650 psi

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372014

OTHER (cont.)

(d) Recommendations for bit selection, drilling parameters and hydraulics while coring Nangkero-1:

Interval	Bit Size & Type	WOB	RPM	SPM	Pressure
5950±'-T.D.	8-15/32" C-20	18-20	50-55	28-30	675± psi

Well data, particularly relating to production horizons, will be held strictly confidential.

* * *

Area Technical Manager

Area Operations Manager

Area Manager

DRILLING PROGRAM - NANGKERO-1

MATERIAL LIST

ITEM	QTY.	DESCRIPTION
Wellhead Equipment:		
1.	1	30" Drilling Template - Alloycraft Part No. 562-48-061.
2.	1	Guide Base, 6 foot radius - CIW Part No. 672408-2.
3.	1	Fabricated Pile Joint consisting of: 30" Conductor Housing - CIW Part No. 680560. 16-3/4" - 5000# Casing Head Housing - CIW Part No. 680891-3. 30' - 3" rolled plate, 24" OD (approximate weight 676 lbs/ft) with CIW CC connector pin.
4.	1	16-3/4" x 13-3/8" Flow Thru Hanger and Seal Assembly - CIW Part No. 685206-21.
Conductors:		
1.	40'	20" 129.33#/ft 0.625" WT X-52 LP with CIW CC connector box and CIW threaded connector pin.
2.	280'	20" 91#/ft 0.438" WT X-52 LP with CIW threaded connector pin and box.
3.	40'	20" 129.33#/ft 0.625" WT X-52 LP with Baker Float Shoe, Part No. 100-01, and CIW threaded connector box.
4.	6	20" Centralizer, latch-on, Baker Model M, Part No. 244-53.
5.	3	20" Clamp, Casing, Stop Ring, Baker Part No. 248-02.

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372016

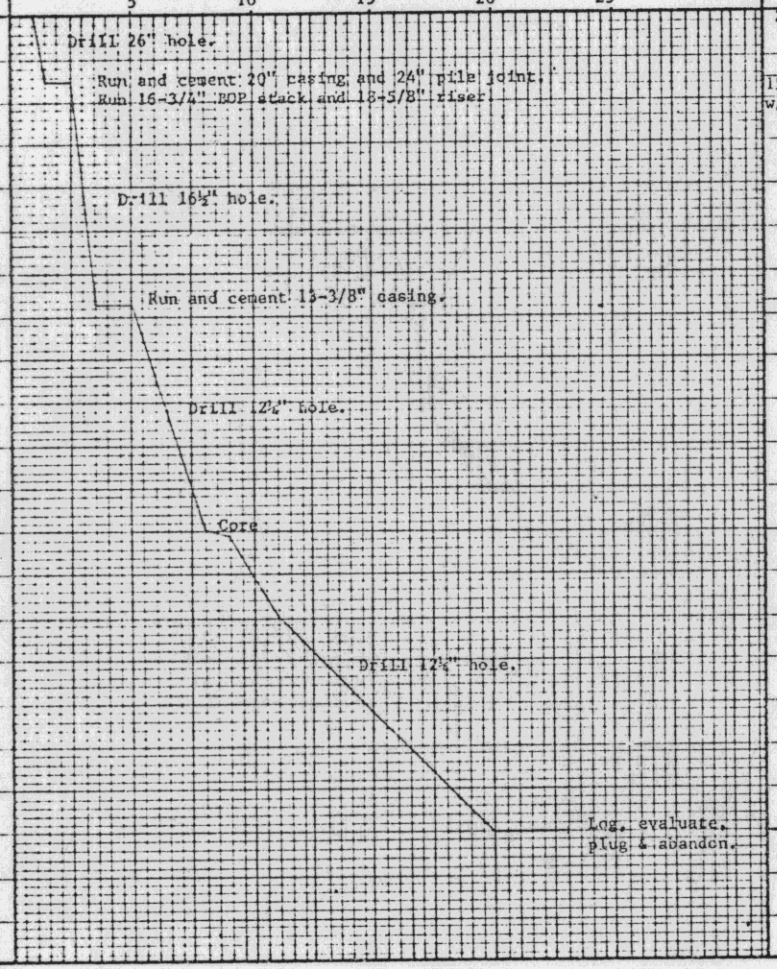
ITEM	QTY.	DESCRIPTION
Surface Casing:		
1.	2960± '	13-3/8" Casing 54.5 lbs/ft K-55 buttress.
2.	1 jt.	13-3/8" Casing 54.5 lbs/ft K-55 buttress with Float Collar, Baker Part No. 101-01, threadlocked on top and Float Shoe, Baker Part No. 100-01, threadlocked on bottom.
3.	10	13-3/8" Centralizer, Latch-on, Baker Model M, Part No. 244-53.
4.	2	13-3/8" Clamp, Casing, Stop Ring, Baker Part No. 248-02.
5.	1	13-3/8" Subsea Cementing Plug - bottom.
6.	1	13-3/8" Subsea Cementing Plug - top.

* * *

ESSO AUSTRALIA LTD.

DRILLING PROGRAM.

FIELD :- NANGKERO WELL NUMBER :- 1 DRILLING SLOT :- PROJECTED T.D. :- 9500' PREPARED BY :- R.W. OLIVER DATE - MARCH 19, 1974



BIT PROGRAM.				HYDRAULIC PROGRAM.					
SIZE & TYPE.	JETS (1/32 IN)	WOB.	RPM.	LINER SIZE & OPERATION.	PRESSURE	S.P.M.	G.P.M.	ANNULAR VELOCITY (F.P.M.)	REMARKS
26" OSC-3A	Reg. bit	20	100/150	6-3/4" 6-3/4"		130	1035	38	Drill 26" hole to 750'.
15" OSC-3AJ w/16½" U.R.	3-18	30	140/160		2000	130	1035	100	Drill 16-1/2" hole to 3350'.
12¼" XDG	2-16 1-18	55/60	180/200		3000	130	1035	200	Hydraulics program calculated assuming 15 x 7-3/4" DC's, 2 x 7-3/4" HEBS, 3 x 6½" DC's.
	1-16 2-18		150			114	910	180	
12¼" J22	2-16 1-18	45	50/60			104	830	163	
12¼" J33	3-16					96	765	150	

N.B.

1) Analyse abnormal pressure indicators below 8000'. Log and FIT as required to adequately monitor the BHP.

2) Test moorings to 250K. If abnormal pressure is encountered, release riser before mooring strains exceed 250K.

5 cm

3201214

DRILLING PROGRAM

FIELD :- NANGKERO WELL NUMBER :- 1 PREPARED BY :- R.W. OLIVER DATE :- MARCH 19, 1974

GEOLOGICAL DATA			PREDICTED OVER-BALANCE PSI	MEASURED DEPTH	DRILLING MUD						
					PROPERTIES						TREATMENT & REMARKS
FORMATION	ESTIMATED BOTTOM HOLE PRESSURE	REMARKS			WT.	VISC	WATER LOSS	PV / YP	SOLIDS	OIL	
Water Depth 272'± Miocene-Oligocene		Sea Floor @ 304'± Marl, calcareous shale and siltstone.			8.5	Natural seawater mud					Spot 60-80 sec. gel mud, from previous well, after wiper trip and before running casing.
					8.5	Natural seawater mud					Drill with natural seawater mud, controlling weight with solids control equipment and by additions of seawater.
				2000							
											Start adding gel prehydrated in fresh water* @ 3150'±.
				4000							Test 13-3/8" casing to 1500 psi. Drill out and test formation to 14.5 ppg equivalent (1025 psi). Drill ahead with natural seawater mud, controlling weight with solids control equipment and by additions of seawater.
					9.2	35-45	N.C.	10-15/3-6	5-7		Convert to fresh water lignosulphonate mud @ 5000'± and have 9.7 ppg mud throughout system by 5500'±.
Eastern View	2650*	Top @ 5980'±	366	6000	9.7	40-45	6-10	10-15/3-6	10		If gas is encountered @ 5980'±, increase mud weight to 10.2 ppg to give 500 psi overbalance.
		Mid Diversus Marker @ 7250'±		8000							
				9500							
	*Assumes 200' gas column below top of Eastern View.										*Add the required amount of gel to 300 bbl of fresh water, in a reserve tank, to give a viscosity of 70 sec. Fill remainder of tank with seawater.

5 cm

372018

Nangkero-1

HEMATITE PETROLEUM PTY. LTD.

372019

WEEKLY DRILLING REPORT

NO. 1

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RECEIVED - 2 MAY 1974 | Registrar
ANSWERED: DEPT OF MINES | E & IL
REF. No.

NANGKERO-1

Operator	Hematite Petroleum Pty. Ltd.
Drilling Unit	Glomar Conception
Location	Latitude : 40° 04' 25.01" S (Well off location Longitude: 145° 58' 40.67" E (by 180 feet on (bearing 165°.
Water Depth	261 feet
Drilling Datum	32 feet
Date of Report	26th April, 1974
Depth	Current 3,300 feet Previous - feet Progress 3,300 feet

Operations

Nangkero-1 was spudded at 0945 hours on 24th April, 1974. Drilled 26 inch hole to 693 feet. Ran and set 20 inch casing at 643 feet. Drilling ahead 16½ inch hole at report date.

Geology

693 - 1910 feet Calcirudite, white to cream, coarse, loose, unconsolidated, with bioclastics fragments.

1910 - 2690 feet Calcirudite, as above, grading to calcarenite and siltstone, cream to light grey, firm to soft, very calcareous, grading to marl, fossiliferous, glauconitic.

2690 - 2930 feet Siltstone, calcirudite and marl, as above.

2930 - 3300 feet Calcarenite, marl and minor calcirudite and siltstone, as above.

Shows: Nil.

IM:MEC
30/4/74

HEMATITE PETROLEUM PTY. LTD.

372020

WEEKLY DRILLING REPORT

NO. 2

NANGKERO-1

Operator	Hematite Petroleum Pty. Ltd.
Drilling Unit	Glomar Conception
Location	Latitude : 40° 04' 25.01" S Longitude: 145° 58' 40.67" E
Water Depth	261 feet
Drilling Datum	32 feet
Date of Report	3rd May, 1974.
Depth	Current 7,101 feet Previous 3,300 feet Progress 3,801 feet
Operations	Ran logs 27th April; ISFS 3256 to 645 feet. Caliper 3245 to 645 feet. Ran $13\frac{3}{8}$ inch casing 28th April and drilled ahead with $12\frac{1}{4}$ inch bit to 7101 feet.

Geology

3300-3860 feet	Marl, medium grey, slightly green, with traces buff-light brown siltstone.
3860-4850 feet	Marl, with increasing shale, medium to dark brown and calcareous, trace siltstone, grey to brown, slightly calcareous.
4850-5402 feet	Marl, with shale, and increasing siltstone, brown, glauconitic and grading to very fine grained sandstone.
5402-5780 feet	Shale, medium to dark brown and calcareous, becoming less calcareous than above interbeds of marl, siltstone, and thin sandstones.
5780-6175 feet	Siltstone, dark brown, minor shale with thin very fine grained sandstone.
6175-6480 feet	Sandstone, buff, very fine grained, with dolomotic cement in top five feet, becoming coarser grained, interbedded with siltstone.

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6480-7101 feet	Coal Measures, comprising coals, sandstones, very fine to very coarse grained, sometimes cemented with dolomite; siltstones.
Shows	Nil.

BRB:MEC
6/5/74.

372022 Nangkero-1

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ANSWERED DEPT OF MINES
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HEMATITE PETROLEUM PTY. LTD.

WEEKLY DRILLING REPORT

NO. 3

NANGKERO-1

Operator	Hematite Petroleum Pty. Ltd.
Drilling Unit	Glomar Conception
Location	Latitude : 40° 04' 25.01" S Longitude: 145° 58' 40.67" E
Water Depth	261 feet
Drilling Datum	32 feet
Date of Report	10th May, 1974
Depth	Current 9,254 feet Previous 7,101 feet Progress 2,153 feet

Operations

Drilled 12¼ inch hole to 7393 feet on 4th May. Cut Core No. 1 7393 to 7423 feet. Recovered 27 feet. Drilled ahead 12¼ inch hole to 9041 feet. Repaired kill line after releasing riser on 9th May. Ran riser and resumed drilling on 10th May. 12¼ inch hole at 9254 feet at report date.

Geology

7101 to 9254 feet

Coal Measures:
Sandstone, white to tan, very fine grained to occasionally coarse grained, silty and variably dolomitic matrix interbedded with Siltstone, buff to dark brown, variably carbonaceous and micaceous. Coal, black throughout, particularly at 7414, 7600, 7705, 7795, 7810, 7820, 7830, 8110, 8155, 8255, 8482, 8585, 8770, 8805, 8880, 8900, 8990 feet.

Shows

Nil. Background readings increase below approximately 7500 feet and peaks are seen opposite coals. Maximum reading is only 2,000 units C_1.

BRB:MEC
13th May, 1974.

372023 Nangkero-1

HEMATITE PETROLEUM PTY. LTD.

WEEKLY DRILLING REPORT

NO. 4

D of M | A.O. | CG | CC & M | D.S.M.E. | Registrar | E & IL
RECEIVED 21 MAY 1974
ANSWERED
DEPT OF MINES
REF. No. 2817/74

NANGKERO-1

Operator	Hematite Petroleum Pty. Ltd.
Drilling Unit	Glomar Conception
Location	Latitude : 40° 04' 25.01" S Longitude: 145° 58' 40.67" E
Water Depth	261 feet
Drilling Datum	32 feet
Date of Report	17th May, 1974.
Depth	Current 9,440 feet Previous 9,254 feet Progress 186 feet

Operation

Drilled to 9440 feet on 12th May. Ran logs, ISFS 9435 to 3224 feet, FDCNL 9448 to 3224 feet. Velocity Survey shot nine stations. HDT 9448 to 5500 feet. FIT-1 at 9304 feet. FIT-2 at 9054 feet; FIT-3 at 7370 feet, mud run; FIT-4 at 7576 feet. Two guns sidewall cores shot 60, recovered 57. Completed logging 1300 hrs 14th May. Set Plug-1 3350 to 3127 feet with 300 sacks cement. Tagged TOC at 3127 feet. Set Plug-2 650 to 350 feet. Moved off location at 1430 hrs 15th May, 1974.

Geology

9254 to 9360 feet	Sandstone, fine to very fine grained, coarse grained 9290 to 9320 feet, interbedded with siltstones, buff, dark brown to dark grey, and thin coals.
9360 to 9440 feet	Siltstones, light grey, buff to dark brown, in part carbonaceous to coaly, interbedded with thin sandstone and rare coals.

Shows

Nil. Maximum gas reading 900 units C_1. Three successful FIT's recovered formation water and explosion gas. FIT-1 and FIT-2 recovered a film of oil; possible contamination.

BRB:MEC
17th May, 1974.

Deutag

372024

Pg 1/2

Daily Report Nautero 1 26/4/74

Mudded 0945 27/4/74.

in 261' water.

Loc is off location by 180' on bearing of 165°.

25/4/74 - Set 20" casing @ 643'

Mudline out of casing to 693.

26/4/74 Drlg 1881' - Mudding ahead

Geology:

693' - 1880' Drilling Rate .220 ft/hr.

100% calcarenite.

white/cream, loose, unconsolidated

bioclastic fragments of pelecypods,

echinoids + rare foraminifera.

no gas.

J Kenny

WANGKEND I

372025

3-5-74 10-40 am.

Depth 6505' prev 5727' prog. 718'
presently on round trip for bit #7

5780-6175' 82'/hr SD.S. dk choc. brown clay rich grading to tan & quartose, soft sticky, minor shale med & lt. grey common fossil fragments. trace S.S. v.f.gr. dirty

6175-6180' 21'/hr S.S. buff v.f. gty dense dolomitic matrix - top of Edston Unit

6180-6200' 100'/hr 60% S.S. white to buff. v.f.gr. silty grade to v. coarse loose sub rounded gty. 40% SD.S.

6200-6380' 334'/hr. mainly SD.S. choc brown sticky grading S.S. v.f.gr. silty.

6380-6480' 82'/hr 40-100% sand c-v. coarse unconsol. minor S.S. tight 0-60% SD.S.

6480-6500 50'/hr 40% coal black to brown blkd. 30% SD.S. 20% sand.

5780-6175' H.W. 5, C1 100-600, C2 0-200
trip gas 5901' H.W. 25.

TARGET OVER WEEKEND

Daily Report. Wangkaro-1. 6/5/74

Last depth 6505'.
Present depth 7752'
Progress 1247'

Present operation - drilling ahead.

Saturday. - 6505 - 7101
Lithology. 10 - 80' Sandstone, very fine
dolomitic carbonaceous.
10 - 80' coal - Sapropelic
appears to be thin bedded

Sunday 7101 - 7423.
Lithology. 7101 - 7335, 0 - 10% coal
0 - 80% Sandstone
v fine grain, carbonaceous,
dolomitic in part.
7335 - 7360 50 - 70% Sand.
coarse & dolomitic matrix
& some mineral fluorescence.
0 - 40% coal
10% Siltstone
7360 - 7393 - Sandstone - coarse to
very coarse - loose -
frags of coal & Silt.
no shows.
Core 1. 7393 - 7423 - mainly coal
& coarse sand - no shows.

Monday. 7423 - 7752.
0 - 80% Sandstone v fine grain
0 - 50% Siltstone.
0 - 100% coal.

372027

Core 1 – porosity & permeability measurements across Rat Hole are very low.

12.9 porosity.

2.8 m/darcy permeability.

Director

372028

PT/2

Daily Report Navigator I. 8 May.

Present Depth 8147.

Present Operation — Drilling Ahead

Lithology.

7758 – 8140

10 – 100% coal
0 – 90% Sand, white/brown
fine to medium ~ Silty
matrix ~ com dolomite.
0 – 60% Siltstone, buff
to dark brown

Background gas. Hot Wire 2–5.
C1 100 – 300.

Gas Peaks offset code D

7795 '
7810 – 7820 ' } c/b to 1700 C1
7840 – 7920 } 200 C2
8110

J. Henry D.

372029

Oweka

Daily Report Nangkeno-1. 8/5/77.

Previous 8140
Present 8550.

Lithology 0 - 100% coal
0 - 90% Sandstone white/tan
v fine grading to fine - tight
silty matrix + cemented.
0 - 70% Silt tan to Brown.

Note. Loose to very coarse sand from:
8180 - 8220
8340 - 8360.

Gas Readings:
Background for interval Returns 3-5.
C1 100.

Peaks about coals.
8155. } 900 - 2000 C1
8255. }
8482. }

Jeffrey O.

Sonata 372030 Pg 1/2

Daily Report. Nangkeno-1 9/5/84

Present depth - 8948
Previous " 8550
Progress 398.

Present operation — Drilling ahead.

Lithology.

8540 — 8940 — 0-100% coal
0-100% Sandstone, very fine to fine grained, rarely coarse - Silty & tight as before.
0-100% Siltstone - tan brown - black.

The interval is thought to be Silty - Shaly bedded

Gas Readings. - Whole Interval.
Hot Wire 2-5
C1 - 200-700.

Peaks of coal @
8585
8770
8805
8880
8900
Hot Wire 10-30
peaks to 2000 C1

J Jones

Director

372031

P8/2

Daily Report. Nanghero-1. 10/8/74

DBK 9041'

progress 95'

Drilling delayed by leak in kelly-cock, packer seal & gear, rotary & rotary gear. Back into hole - coked to commence drilling this afternoon.

Lithology for the interval is the same as previous re. carbonaceous coal, claystone & siltstone.

Background gas - Hot Wire 5

Peaks offscale coal - Hot Wire to 15.

Coked to repair TDC log one weekend probably abandon on Monday.

J Hanny D.

Lasmo

372032

P81

Daily Report — Nangwee-1. — 15/8/74

Expect to abandon at 9440 (Driller's depth)
9462 (Schlumberger ")

9041 - TD -

Lithology - Sandstone, Siltstone + Coal as reported previously. no show, tight rocks.

Ran ISFS - 9435 - 3224
FDC/NL - 9448 - 3224
Velocity Survey @ 9 Stations.

Currently running dipmeter.

- Plan to make hole - 2 runs FITS jointly for pressure information.

FITS - 1 - as low as possible
2 - @ ± 7400'
3 - between 1+2.

Shoot Sidewall cores.

Expect to commence plugging by late tomorrow + off location by Wednesday.

Plugging program as per well plan
i.e. plug 1 at casing shoe = 3224'
plug 2 at surface.

J Henry

Nangkero

372033

NANGKERO - 1

ABANDONMENT PROCEDURE

13-3/8" casing @ 3250' KB

Plug No.	Interval	Cement	Remarks
1.	3350'-3050'	245 sx Aust. 'N' with 2% $CaCl_2$.	Bottom of plug should be 100'± below casing shoe. After WOC tag plug and displace mud in hole with seawater.
2.	610'-360'	185 sx Aust. 'N' with 2% $CaCl_2$.	Top of plug should be 65'± below mud line.

Before final abandonment, recover wellhead by cutting casing 50'± below mud line.

N.B. Calculated cement volumes assume gauge hole.

* * *

Steven J. Kordonaf.
Drilling Engineering

J. E. Dean
Drilling Operations

APPROVED
P. M. Jole
a/g DIRECTOR OF MINES
21/5/74

DEPT OF MINES — TASMANIA
Copy for information of :—
Director,
Bureau of Mineral Resources,
Box 378 P.O.,
CANBERRA CITY. 2601

Sent Date: 21-5-74

372034

TEXT FIGURE 1

Nangkero-1 Location Map 1:2,000,000

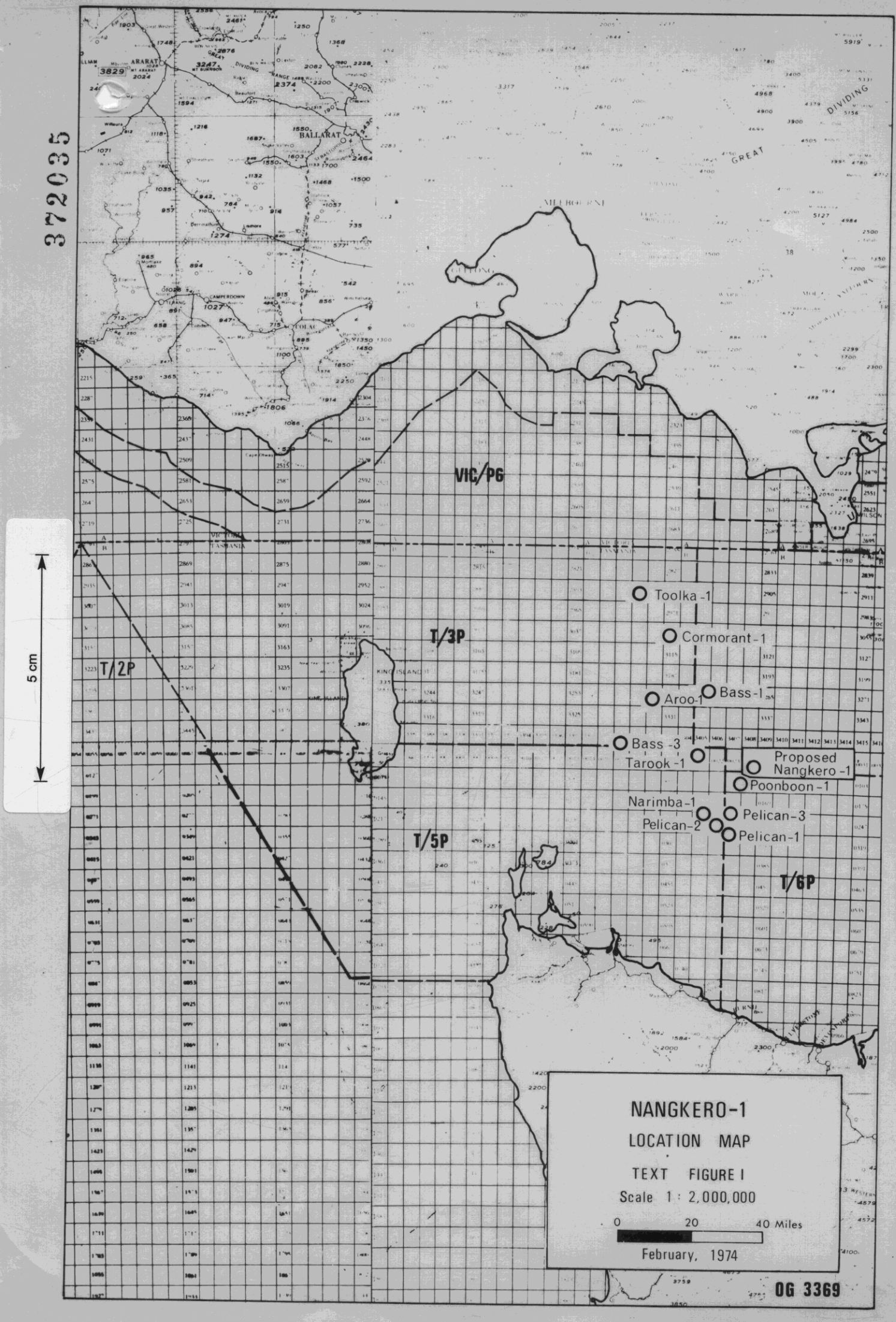
ENCLOSURES

1. Flinders Seismic Survey Line HB73A-137 unmigrated depth section.

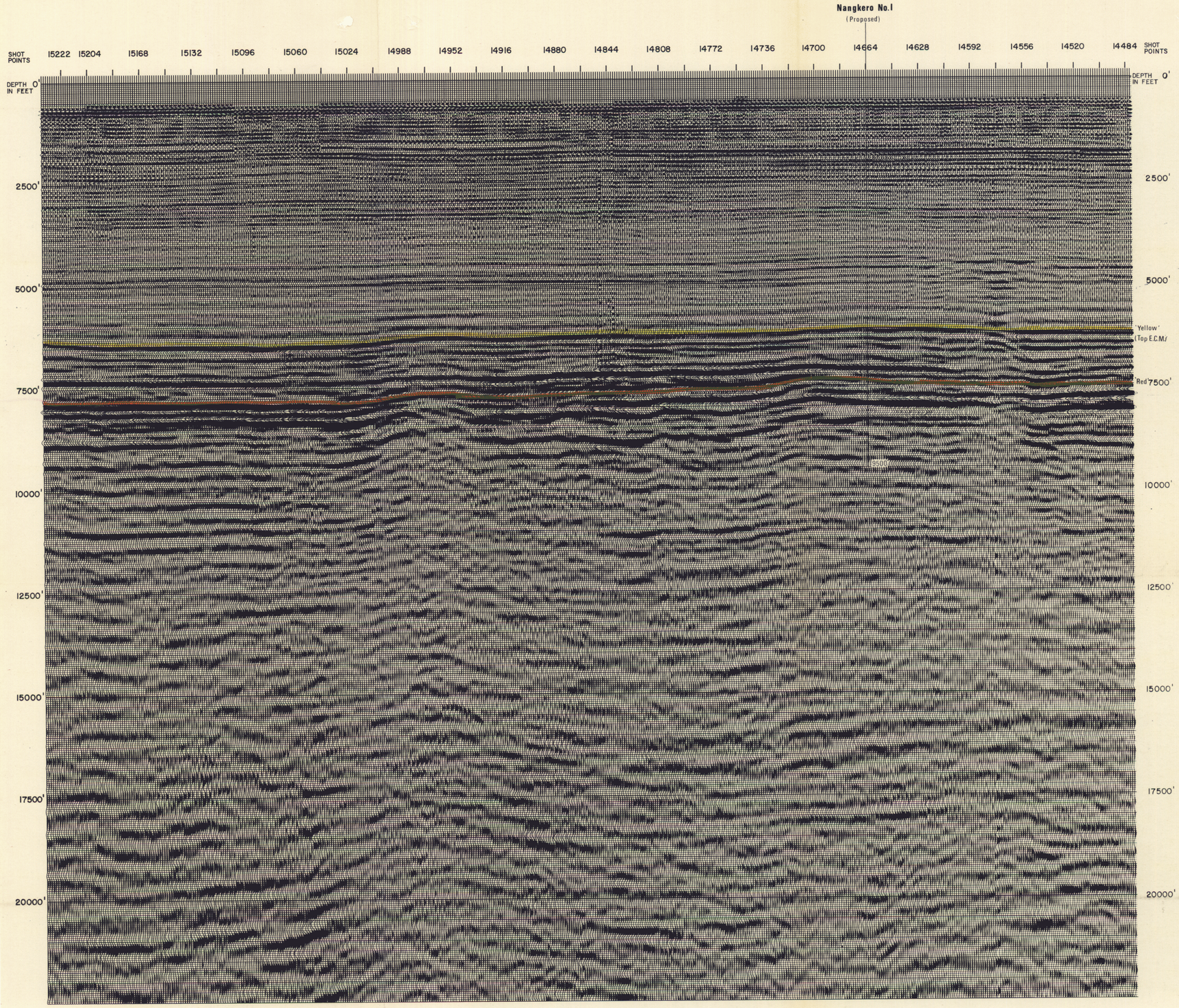
2. Structure contour map of Nangkero prospect on Yellow horizon (top of Eastern View Coal Measures) 1: 50,000

3. Structure contour map of Nangkero prospect on Red horizon. 1: 50,000

372035


VIC/P6
T/3P
T/2P
T/5P
T/6P
Toolka -1
Cormorant -1
Aroo-1
Bass-1
Bass -3
Tarook -1
Proposed Nangkero -1
Poonboon -1
Narimba-1
Pelican-3
Pelican-2
Pelican-1
5 cm
NANGKERO-1
LOCATION MAP
TEXT FIGURE I
Scale 1 : 2,000,000
0 20 40 Miles
February, 1974
OG 3369

372036

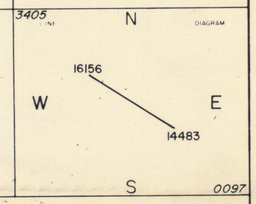


HEMATITE PETROLEUM PTY. LTD.

FLINDERS SEISMIC SURVEY

HB-73A-137

FIELD DATA Shot By GSI Party 931, M.V. McDermott
Recorded 48 Trace DFS III (2 Systems)
Sample Rate 4 msecs. Record Length 5 secs.
Filter HI 62 Hz / 72 db/oct, LO 8 Hz/18 db/oct.
Gain Binary
Energy Source Airgun, 1200 cub in.
Source Depth 30-35 ft. Streamer Depth 55-60 ft
Group Interval 219 ft. Shot Interval 73 ft
Streamer 3200 m, 48 groups, towing group 48
Average Offset to centre of group 48 955 ft.
Date Sept '73

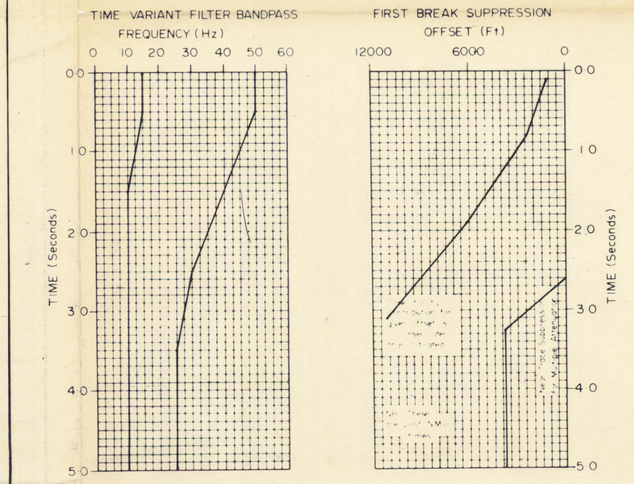


PROCESSING INFORMATION

1 True Amplitude Recovery
2 Vertical Stack (3 on 1)
3 Deconvolution Before Stack 2 Operators/Trace, 64 pts.
Gap = 0 msec
4 24 Fold Common Depthpoint Gather
5 Sealevel Static and Airgun Delay Corrections
6 Preliminary Normal Moveout Corrections
7 Preliminary 24-Fold Stack of Alternate Depthpoints
8 Velocity Analysis Continuous 700 Pkg on Alternate Depthpoints
9 Normal Moveout Corrections
10 24-Fold CDP Stack
11 Deconvolution After Stack, 2 Operators/Trace, 70 pts.
Gap = 0 msecs.
12 Time Variant Filter
13 Cross Record Mix
14 Depth Conversion

5 cm

15 Display Normal Polarity, 10 traces/cm (0.53 miles/inch) Horizontal Scale
$\frac{V}{H} = 2.1$



PROCESSED BY GEOPHYSICAL SERVICE INTERNATIONAL, SYDNEY

DATE Febr. '74

OR-0338A.

Encl. 1 OG 3362

145° 50'
145° 55'
146° 00'
146°05 '
39° 37'30"
39° 57' 30"
40° 00'
40° 05'
40° 10'
410 000m.E.
420 000m.E.
5 570 000 m.N.
5 560 000 m.N.
6000
6250
6450
6500
6750
6350
H
L
T/4P.
T/6P.
Nangkero 1
(Proposed)
Poonboon – 1
Line B – 4
Line B – 10
Line B – 16
HB 73A – 126
HB 73A – 125
HB 73A – 137
HB 73A – 138
HB 73A – 135
B 70A – 29
B 70A – 24
B 70A – 3A
B 70A – 2
B 70A – 4
B 71A – 41
B 71A – 54
B 71A – 44
B 71A – 48
B 71A – 73
B 72A – 32
B 72A – 104
B 72A – 5
B 72A – 73A
B 72A – 144A
B 72A – 4

VICTORIA
TASMANIA
Sheet index
7720
7719
7718
7717 7817
7816 7916 8016 8116 8216 8316 8416 8516
8115 8215
144°
148°
39°
41°

Scale 1: 50,000

MILES
0 1 2 3

KILOMETRES
0 1 2 3 4 5

Compiled by Hematite Petroleum Pty Ltd
Projection UTM Zone 55 CM 147° E.

THE BROKEN HILL PROPRIETARY CO. LTD.
OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

BASS BASIN

NANGKERO PROSPECT

372037

YELLOW HORIZON

Datum Sea level
Contour interval 50 feet
Author M. Mc Nicol
Date February '74
Drawn by B. Hale
Checked by G. Hosking
Contour values are below sea level

5 cm

ENCL. 2.
OR-0338A.
OG. 3357

145° 50'
145° 55'
146° 00'
146°05 '
39° 37'30"
39° 57' 30"
40° 00'
40° 05'
40° 10'
410 000m.E.
420 000m.E.
5 570 000 m.N.
5 560 000 m.N.
T/4P.
T/6P.
7250
7500
7750
H
L
U
D
Line B-4
Line B-10
Line B-16
HB 73A-96
HB 73A-125
HB 73A-137
HB 73A-138
HB 73A-135
B 72A-32
B 72A-5
B 72A-10A
B 72A-54
B 72A-144A
B 70A-24
B 70A-29
B 70A-54
B 70A-21
B 70A-3
B 70A-4
B 71A-41
B 71A-44
B 71A-48
B 71A-73
B 72A-74
Nangkero 1
(Proposed)
Poonboon-1

VICTORIA
TASMANIA
Sheet index
7720
7719
7718
7717 7817
7816 7916 8016 8116 8216 8316 8416 8516
8115 8215
39°
144°
41°
148°

Scale 1: 50,000
MILES
0 1 2 3
0 1 2 3 4 5
KILOMETRES

Compiled by Hematite Petroleum Pty Ltd
Projection UTM Zone 55 CM 147° E.

THE BROKEN HILL PROPRIETARY CO. LTD.
OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD)

BASS BASIN

NANGKERO PROSPECT

RED HORIZON

Datum	Sea level	Date	February 1974
Contour interval	50 feet	Drawn by	A.Baycan
Author	Mc Nicol	Checked by	G.Hosking

372038

Contour values are below sea level.

5 cm

Encl. 3
OR-0338A.
OG 3358