

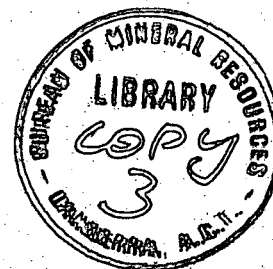
DEPARTMENT OF  
MINERALS AND ENERGY



BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS

008352

RECORD 1974/177



PETROLEUM EXPLORATION BRANCH

SUMMARY OF ACTIVITIES

(1.11.73 TO 31.10.74)

**BMR**  
**Record**  
**1974/177**  
**c.3**

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## SEDIMENTARY BASINS STUDY SECTION

The Canning Basin study, updating and revision of the basin stocktake, and preparation of annual summaries of oil search activities continued to be the major activities.

Extensions to the Core and Cuttings Laboratory were completed and three compactus units were installed on the west side.

### Sydney Basin

The Sydney Basin bulletin was published.

### Canning Basin

Interval boundaries were finalized on all onshore seismic sections, and Mesozoic and Cainozoic interval boundaries were finalized on the offshore seismic sections. Draft isochron, structure contour, and isopach maps were prepared for the offshore Mesozoic and Cainozoic intervals. Interval boundaries on onshore seismic sections are being measured in time and converted to depth, preparatory to the production of structure contour and isopach maps.

Data from two subsidized petroleum exploration wells offshore and from recent BMR/GSWA mapping and stratigraphic drilling have necessitated revising the stratigraphic analysis and seismic interpretation. The new data together with older data have been reviewed and recorded on cards. Lithofacies calculations are almost complete for the Mesozoic and Cainozoic intervals.

The gravity and magnetic data are under review. Bouguer anomaly contours have been compiled ready for drafting.

### Browse, Bonaparte Gulf, and Money Shoal Basins

A base map covering the three basins was prepared at 1:2 500 000 scale and a base map of the Browse Basin was prepared at 1:1 000 000 scale. Locality cards were prepared for the geological control points.

### Australia and Papua New Guinea

A draft summary of current knowledge of sedimentary basins was completed.

A set of maps showing past and current drilling operations was maintained, together with an index based on 1:250 000 Sheet areas. Subsidized and unsubsidized wells are distinguished, and the current status of each well is indicated.

Card indexing of drilling and geophysical operations continued. Card index systems containing recent references on sedimentary basins and references with special relevance to basin study work were maintained.

The summary of oil search activities for 1972 was issued as a Record and the summary for 1973 is in progress. A summary and a history of oil search activities to 1967 have been approved for issue as restricted Records.

### Core and Cuttings Laboratory

BMR personnel made 205 visits to the laboratory. The facilities in the laboratory were used for a total of 1224 man days.

Packing, transporting, and documentation material were forwarded to seven BMR field parties. A total of 51 200 cutting bags were supplied on request for subsidized and offshore drilling operations.

15 158 core samples, 43 120 cutting samples and 28 samples from drill stem tests and formation interval tests were received from 207 drilling operations.

69 908 samples were fully registered. The store now contains 906 209 fully registered samples.

The extensions to the laboratory have been completed and three compactus units have been installed on the west side and are in use. The first row of compactus units on the east side is being installed.

280 thin sections were prepared and 14 648 cuttings samples were washed.

### Publications

Mayne, S.J., Nicholas, E., Bigg-Wither, A.L., Rasidi, J.S., and Raine, M.J.,  
1974 - Geology of the Sydney Basin - a review. Bur. Miner.  
Resour. Aust. Bull. 149.

### Record (issued)

Nicholas, Evelyn, 1973 - Summary of oil search activities in Australia and Papua New Guinea during 1972. Bur. Miner. Resour. Aust. Rec.  
1973/216.

Records (in prep.)

Sedimentary Basins Study Section - Summary of sedimentary basins of Australia and adjacent regions 1974. Bur. Miner. Resour. Aust. Rec.

Nicholas, Evelyn - Summary of oil search activities in Australia and Papua New Guinea during 1973. Bur. Miner. Resour. Aust. Rec.

Marchant, S., 1974 - Summary of oil search activities in Australia to 1967. Bur. Miner. Resour. Aust. Rec. 1974/151 (restricted).

Marchant, S., 1967 - History of petroleum exploration in Australia and the Territory of Papua and New Guinea to 1967. Bur. Miner. Resour. Aust. Rec. 1967/84 (restricted).

Unpublished report (for internal distribution only)

Kraitsovits, I.K. - Semantic data processing.

## SUBSIDY SECTION

### Petroleum Search Subsidy Act

The processing of applications and the examination and assessment of final reports and cost statements on subsidized operations continued.

Applications. During the year 1 November 1973 to 31 October 1974, the Subsidy Section received 42 applications for approval of operations under the Petroleum Search Subsidy Act 1959-1973. These consisted of 18 for exploration drilling operations, 21 for seismic surveys (including 2 for seismic and gravity surveys and 1 for a seismic and magnetic survey), 1 for a gravity and magnetic survey, and 2 for aeromagnetic surveys.

Sixteen applications were also received for approval of extensions to operations: 5 were for extensions to the target depths of wells, 1 was for production testing, and 10 were for extensions to the programs of seismic and gravity surveys.

Approvals. Thirty-eight applications were approved under the Petroleum Search Subsidy Act 1959-1973 during the year ended 31 October 1974. Fourteen of these were for exploration drilling operations (including 5 offshore) and 24 were for geophysical surveys (see Plates 1 and 2). Four applications for approval of drilling operations were refused, and the Minister approved the non-payment of subsidy for Hilda No. 1 well (approved 19.3.74) as the operation was not completed by 30 June 1974. In addition, 16 extensions to programs were approved: 6 to drilling operations (including 2 for production testing), and 10 to geophysical surveys. One application for approval of an extension to a drilling operation was refused. As a result of these approvals, the amount of \$4 321 469 was committed by way of subsidies under the Petroleum Search Subsidy Act during the 12 months ended 31 October 1974.

The approved geophysical operations consisted of 21 seismic surveys (including 2 seismic and gravity surveys and 1 seismic and magnetic marine survey), 1 gravity and magnetic survey, and 2 aeromagnetic surveys.

Expenditure. In the 12 months to 31 October 1974, a total of \$8 087 883 was paid by the Commonwealth in subsidies to petroleum exploration companies under the Petroleum Search Subsidy Act 1959-1973. A breakdown of this expenditure by States and type of operation is given in Table I.

The expenditure under the Petroleum Search Subsidy Act during the financial year 1973-74 was \$9 999 592. Of this amount, \$7 443 577 was paid for onshore operations and \$2 556 015 for offshore operations.

At 31 October 1974, the total expenditure by the Commonwealth in petroleum search subsidies was \$135 568 522, and the total commitment was \$138 935 257 on 654 drilling operations and 978 geophysical surveys.

Table I

Expenditure under the Petroleum Search Subsidy Act 1959-1973  
(1 November 1973 - 31 October 1974)

	Drilling Operations		Geophysical Operations		Total (\$)
	Onshore (\$)	Offshore (\$)	Onshore (\$)	Offshore (\$)	
Queensland	691 253		352 858		1 044 111
New South Wales	53 086		71 145		124 231
Victoria	342 720	138 857	2 251	76 406	560 234
Tasmania		420 324		108 518	528 842
South Australia	87 557		194 134		281 691
Western Australia	825 178	1 223 374	937 624	100 961	3 087 137
Northern Territory		75 291	429 168	22 739	527 198
Papua New Guinea	439 851	92 279	1 391 134	11 175	1 934 439
TOTAL	2 439 645	1 950 125	3 378 314	319 799	8 087 883

Visits to subsidized operations. During the year ended 31 October 1974, officers of the Subsidy Section inspected 8 drilling operations, including 2 offshore wells, and 4 geophysical operations.

Features of subsidized exploration. Five of the 14 approved drilling operations were in Queensland, 4 in Western Australia, 2 each in Victoria and Tasmania, and 1 in the Northern Territory. Offshore drilling operations were in waters adjacent to Western Australia (2), Tasmania (2), and the Northern Territory (1).

The average depth of subsidized wells started and completed during the period 1.11.73 - 31.10.74 was 9174 feet (2796 m). Five of these wells reached depths greater than 10 000 feet (Depuch No. 1, offshore Western Australia, 14 108 ft; Aroo No. 1, offshore Tasmania, 12 112 ft; Ross Creek No. 1, Victoria, 12 005 ft; Coomaloo No. 1, Western Australia, 11 549 ft; and Grey Range No. 1, Queensland, 11 455 ft). North Hibernia No. 1, Northern Territory, was spudded on 10.10.73 and reached a total depth of 13 123 feet on 27. 1. 74.

Significant shows of hydrocarbons were recorded from only one subsidized well drilled during the year ended 31 October 1974. Silver Springs No. 1, drilled by Bridge Oil NL in the Surat Basin, Queensland, flowed gas, accompanied by condensate, at a rate of 8 MMcf/d during an open hole drillstem test of the Middle Triassic Showgrounds Sandstone.



Several subsidized wells, both onshore and offshore, provided significant stratigraphic information.

Only 1 of the 21 seismic surveys approved during the year ended 31.10.74 was a marine operation. This was Hematite's Bedout North seismic and magnetic survey located in the offshore Canning Basin, Western Australia. The Bamu gravity and magnetic survey in the Papuan Basin was the only gravity survey approved during the period under review. Two aeromagnetic surveys were also approved for subsidy during the year; both were in onshore areas: one in the Northern New Guinea Basin, the other in the northeastern part of the Cooper Basin, Queensland. A total of 4779 line miles were flown during these two operations.

The petroleum search subsidy scheme, introduced in 1957, was terminated on 30 June 1974.

#### Petroleum (Submerged Lands) Act

The examination, indexing, and storage of data and reports received under the Act continued during the year. Applications to carry out operations under the Act were also examined and comments prepared. On behalf of the Department of the Northern Territory, officers of the Section inspected three drilling operations in offshore areas of the Northern Territory.

In addition to the 3 subsidized offshore wells started and completed during the twelve months ended 31 October 1974, 25 other wells, including Hilda Nos 1 and 1A, were drilled offshore during the period under review (see Plate 3). They were located in waters adjacent to Western Australia (11), the Northern Territory (6), Victoria (5), South Australia (2), and Tasmania (1). The average depth of these wells was 8819 feet (2688 m). Seven reached depths greater than 10 000 feet (Heywood No. 1, Western Australia, 15 000 ft; Dillon Shoals No. 1, Northern Territory, 13 026 ft; Lambert No. 1, Western Australia, 12 140 ft; Lowendal No. 1, Western Australia, 11 949 ft; Hilda No. 1A, Western Australia, 11 371 ft; Troubadour No. 1, Northern Territory, 11 348 ft; and Kinmore No. 1, Northern Territory, 10 663 ft).

Significant shows of hydrocarbons were reported from six of these offshore wells. Lambert No. 1, drilled by BOC in the Dampier Sub-basin, flowed 51° API gravity oil at an average rate of 382 bbl/day and gas at a rate of 91 Mcfd during a drillstem test of the interval 10 174-10 190 feet. Puffin No. 2, drilled by Arco in the Bonaparte Gulf Basin, flowed 48° API gravity oil at a rate of 2700 bbl/day during a drillstem test of the interval 6655-6678 feet. In the Gippsland Basin, Esso reported oil/gas/condensate shows from Sunfish No. 1, and four zones totalling 189 feet of net gas and condensate-bearing sands from Turrum No. 2. Troubadour No. 1, drilled by BOC in the Bonaparte Gulf Basin, was suspended as a gas/condensate producer; DST 3 recovered gas at a rate of 1.466 MMcf/d accompanied by condensate and water at average rates of 13.1 and 17.3 bbl/day respectively. Oil and gas shows were also reported from Wapet's Hilda

No. 1A well drilled in the Barrow Sub-basin. BOC reported minor gas shows from Hampton No. 1 located in the Dampier Sub-basin.

During the year ended 31 October 1974, 18 marine seismic surveys (including 2 subsidized seismic and magnetic surveys) were carried out in waters adjacent to Queensland (1 - scientific survey); Victoria (1); South Australia (1); Western Australia (14); and the Northern Territory (1). The total coverage of these marine surveys was 11 663 miles (18 769 km). One offshore aeromagnetic survey was also flown over Western Australian waters.

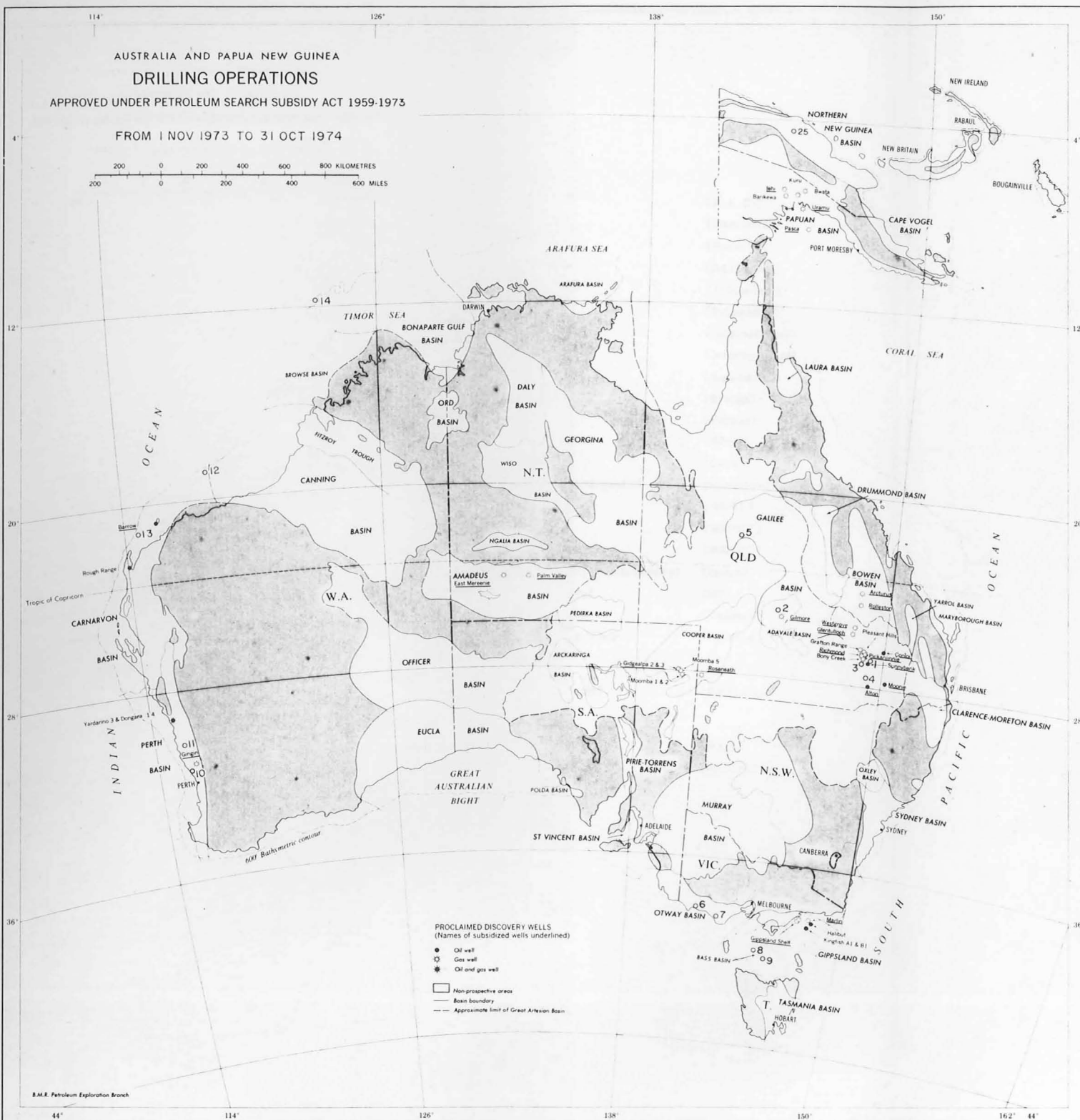
#### Assessments

The Section continues to receive requests from the Department of Minerals & Energy and from the Petroleum and Minerals Authority for advice on the petroleum potential of both onshore and offshore areas and prospects, farm-in proposals, and the significance of new discoveries. The Section has also continued with the assessments of applications for variation of work programs and expenditure requirements of offshore permits. Since February, assessments have been made of the petroleum potential of offshore title areas.

AUSTRALIA AND PAPUA NEW GUINEA  
**DRILLING OPERATIONS**  
 APPROVED UNDER PETROLEUM SEARCH SUBSIDY ACT 1959-1973

FROM 1 NOV 1973 TO 31 OCT 1974

200 0 200 400 600 KILOMETRES  
 200 0 200 400 600 MILES



**EXPLORATION WELLS**

Unless otherwise stated, well location refers to No. 1 Well

- |    |                        |            |
|----|------------------------|------------|
| 1  | (Apple Tree, Qld)      | (A.A.R.)   |
|    | (Silver Valley, Qld)   |            |
| 2  | Grey Range, Qld        | (Hartogen) |
| 3  | Monclova, Qld          | (Hartogen) |
| 4  | Silver Springs, Qld    | (Bridge)   |
| 5  | Weston, Qld            | (Hematite) |
| 6  | North Eumeralla, Vic.  | (Shell)    |
| 7  | Ross Creek, Vic.       | (Shell)    |
| 8  | * Aroo, Tas.           | (Hematite) |
| 9  | * Nangkero, Tas.       | (Hematite) |
| 10 | Barragoon, W.A.        | (WAPET)    |
| 11 | Coomallo, W.A.         | (WAPET)    |
| 12 | * Depuch, W.A.         | (B.O.C.)   |
| 13 | * Hilda, W.A.          | (WAPET)    |
| 14 | * North Hibernia, N.T. | (B.O.C.)   |

\* Offshore operation

To accompany Record No. 1974/177

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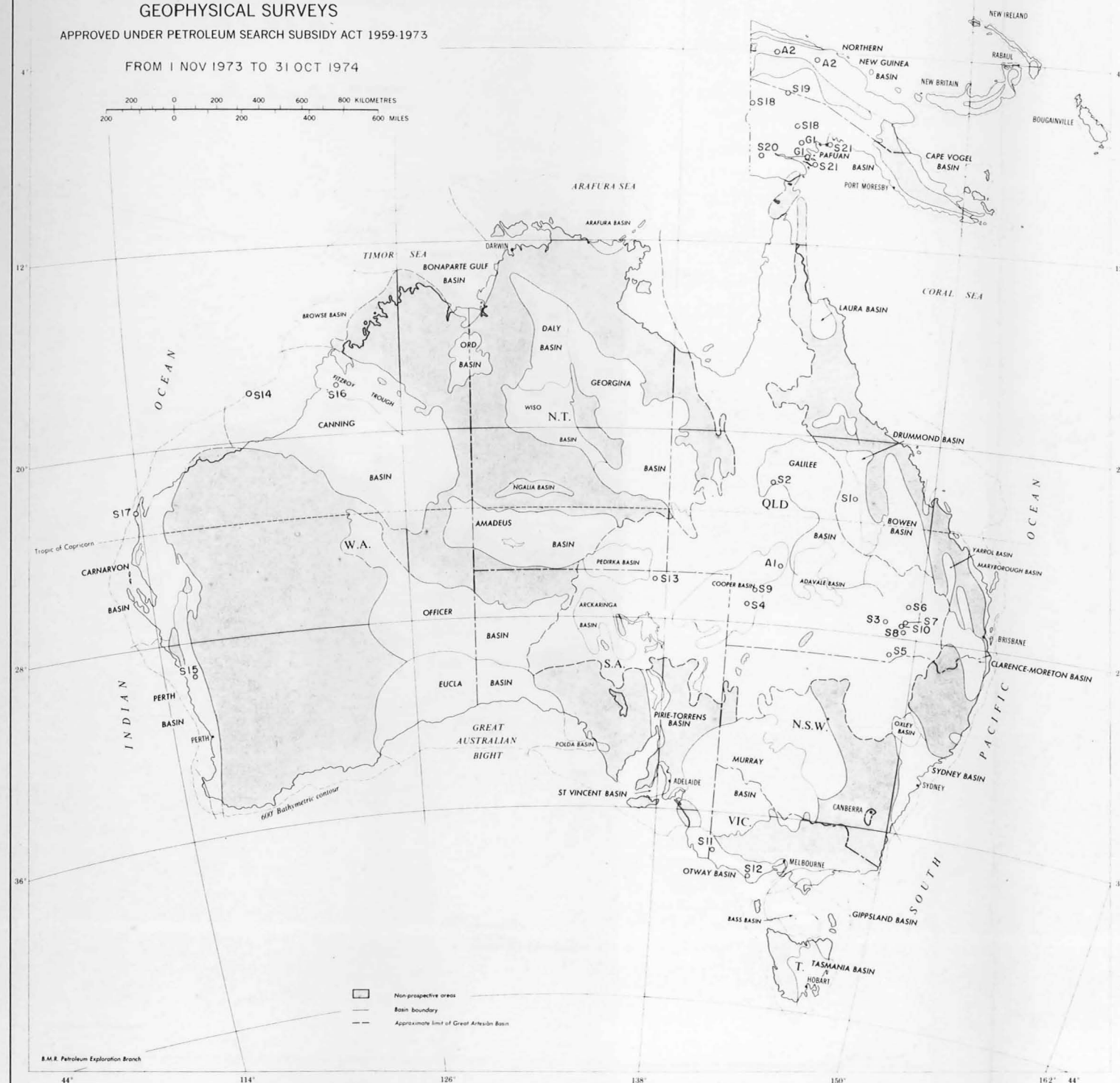
## AUSTRALIA AND PAPUA NEW GUINEA

## GEOPHYSICAL SURVEYS

APPROVED UNDER PETROLEUM SEARCH SUBSIDY ACT 1959-1973

FROM 1 NOV 1973 TO 31 OCT 1974

200 0 200 400 600 KILOMETRES  
200 0 200 400 600 MILES



## SEISMIC SURVEYS

S1	Albro, Qld	(A. A. E.)
S2	Ayrshire, Qld	(Hematite)
S3	Gowrie, Qld	(Pecos)
S4	Karmona, Qld	(Aquitaine)
S5	Niminbah, Qld	(Tricentrol)
S6	Rocky Creek, Qld	(Tricentrol)
S7	Telgazli Creek, Qld	(International)
S8	Waggamba, Qld	(International)
S9	Windula, Qld	(Aquitaine)
S10	Wunger, Qld	(Bridge)
S11	Lake Mundi, Vic.	(Planet)
S12	Ross Creek, Vic.	(Shell)
S13	Beal Hill, S. A.	(Delhi)
S14 *	Bedout North, W. A. (& Magnetic)	(Hematite)
S15	Erregulla 3, W. A.	(WAPET)
S16	Liveringa 2, W. A.	(WAPET)
S17	Norwegian 2, W. A.	(WAPET)
S18	Aworra River - Ok Tedi, PNG (& Gravity)	(Union)
S19	Lavani, PNG (& Gravity)	(BP)
S20	Weam, PNG	(Texaco)
S21	Western Gulf of Papua, PNG	(Phillips)

## GRAVITY SURVEYS

G1	Bamu, PNG (& Magnetic)	(Endeavour)
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## AEROMAGNETIC SURVEYS

A1	East Windorah, Qld	(XLX)
A2	Nopan, PNG	(Aquitaine)

\* Offshore operation

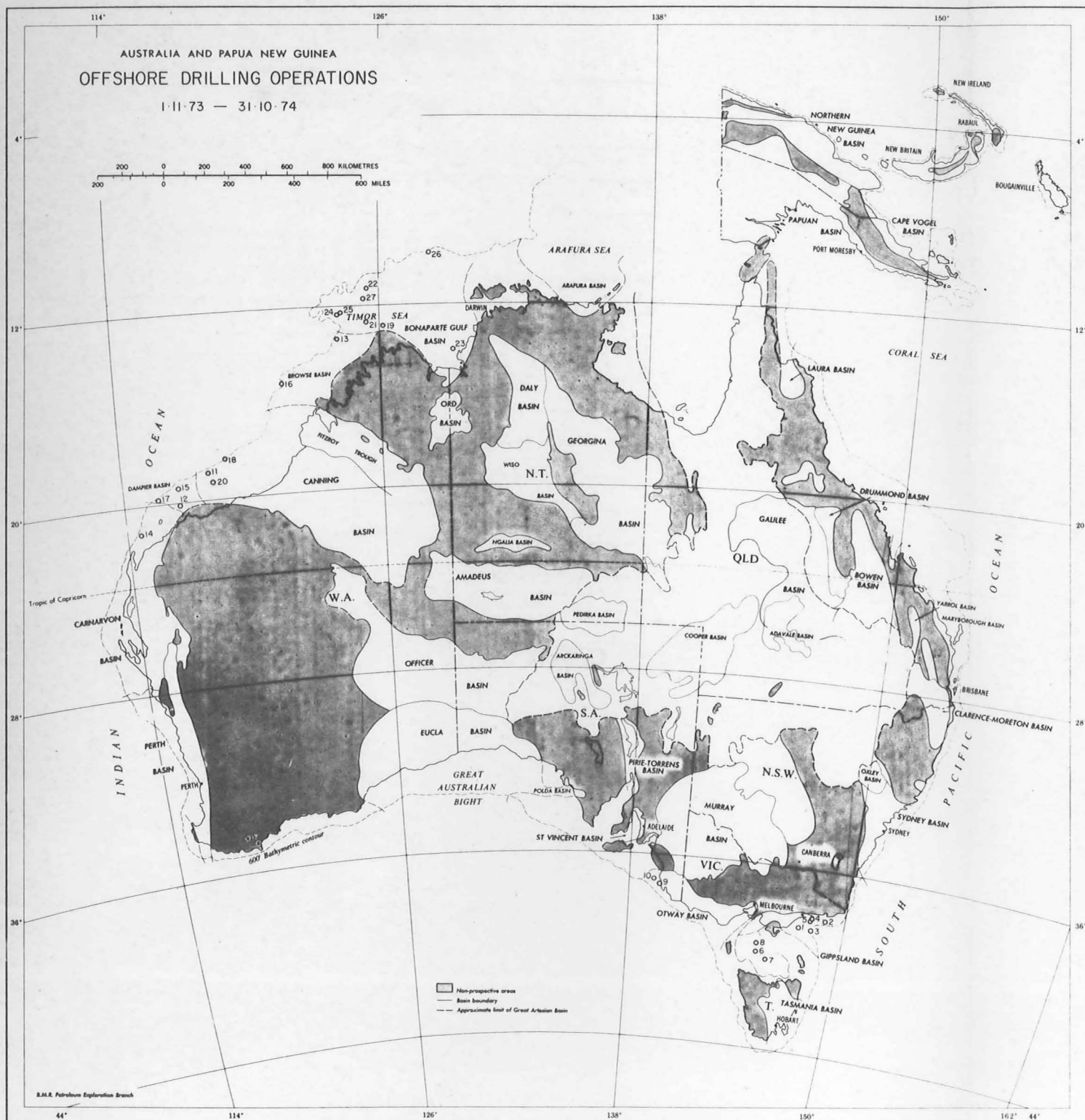
To accompany Record No. 1974/177

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# AUSTRALIA AND PAPUA NEW GUINEA OFFSHORE DRILLING OPERATIONS

1-11-73 — 31-10-74

200 0 200 400 600 800 KILOMETRES  
200 0 200 400 600 MILES



Note: Unless otherwise stated, well location refers to No 1 well

- 1 Bullseye, Vic.
- 2 Dart, Vic.
- 3 Kingfish-5, Vic.
- 4 Sunfish, Vic.
- 5 Turrum-2, Vic.
- 6 Aroa, Tas.
- 7 Nangkero, Tas.
- 8 Toolka-1A, Tas.
- 9 Neptune, S.A.
- 10 Trumpet, S.A.
- 11 Depuch, W.A.
- 12 Hampton, W.A.
- 13 Heywood, W.A.
- 14 Hilda-1 and 1A, W.A.
- 15 Lambert, W.A.
- 16 Lombardina, W.A.
- 17 Lowendal, W.A.
- 18 Minita, W.A.
- 19 Plover-2, W.A.
- 20 Poissonier, W.A.
- 21 Whimbrel, W.A.
- 22 Dillon Shoals, N.T.
- 23 Kinmore, N.T.
- 24 Prion, N.T.
- 25 Puffin-2, N.T.
- 26 Troubadour, N.T.
- 27 Turnstone, N.T.

To accompany Record No. 1974/177

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