

Beneficiaries SE82

AUSTRALIAN AQUITAINE PETROLEUM PTY. LTD.

INCORPORATED IN A.C.T.

11 JUN 1981

BOX 725 P.O., NORTH SYDNEY N.S.W. 2060 AUSTRALIA

Our ref: 5261

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Your ref:

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	SE			LN	

NOT TAKEN BY ...
FILE 418

030328

10th June 1981

EXPLORATION LIBRARY

Alliance Petroleum International Ltd,
10th Floor,
30 Collins Street,
MELBOURNE VIC 3000

Attention: Mr M. Cadart

Vamgas Limited,
25th Floor,
459 Collins Street,
MELBOURNE VIC 3000

Attention: Mr D. Armstrong

ONSHORE

Dear Sir,

Re: OP 186 - Interpretation and proposed programme

Following the reprocessing of several lines from Border Creek and Oakes Creek surveys in Permit OP 186, NT, the results of the interpretation have been altered since our meeting last February. We hereby enclose copies of the provisional interpretation maps which are being drafted from the final report.

1. BASIC STRUCTURAL FEATURES

From West to East, the basic structural pattern (Pl.1) now consists of two parallel NNE - SSW units, the Pincombe High plunging northeasterly into the basin and the Burt Range Syncline, followed by a WNW - ESE high axis which eventually ties to the Precambrian basement outcrops on the eastern margin. The flanks of the Pincombe High are marked by faults or flexures. The northeastern part of the basin is less known due to the lack of seismic, but the residual gravity anomalies pattern supports the concept of a margin cut into blocks by NS and WNW - ESE faults. This structural pattern is consistent with last year's interpretation.

The Pincombe High and Burt Range Syncline are cut by left lateral wrench faults, each of which displaces the structural axis and generally creates a step, the downthrown compartment being the northern one. They often correspond to broad no-result zones on the seismic sections.

.../2

PR82178E

Plate 2 is a tentative structural time map of the top of Pre-Ningbing formations, either Cockatoo Formation, Cambrian or Pre-Cambrian basement. A local map was also produced for horizon C₁ (possibly related to the Septimus Limestone) over the Pincombe High axis (Pl. 3).

2. POSSIBLE PROSPECTIVE AREAS

- Pincombe High Axis

The association of a plunging structural high axis with transverse faulting certainly has a potential for creating traps on the down-thrown side of the fault, as illustrated on Plate 3. The fact that Keep River No. 1 was drilled downdip on the same structural axis is encouraging. The lens-shaped bodies previously depicted on lines OC8, 3 and 11 now appear to be mainly due to diffractions, artificially enhanced by the Digistack processing. The clastic play (within the black shales or the top part of the Devonian formations) seems to be the more attractive although the occurrence of reefal buildups along the high axis should not be ruled out.

On line OC8, approximate depths to horizon C₁ and basement are 9800 and 3400 m respectively.

- "H₁" structure - (near BNT 80-204 and 207 lines crossing)

There are indications on lines BNT 80 - 204, 207 and BR 12 of a possible structure on a local platform, probably created by faulting on the eastern flank of the Burt Range Syncline. The formations above the basement are affected also due to folding or draping. At present, the definition of that possible structure is quite poor, (especially the eastern closure). Depth to basement would be around 1500 km.

- Western flank of the Pincombe Range

A seismic marker could locally be picked in the area defined by lines BNT 80 - 202, 204, 201 and 203, and is mapped on Plate 4. It apparently onlaps the basement (on lines BC4 and BC6 especially) and shows a culmination following line BC1. Lines BNT 80 - 204/BWA 80 - 107 do not provide any information due to poor seismic quality.

From the correlation with the magnetic data acquired between the Weaber Range and Sorby Hills, there is some possibility for this feature to be associated with Antrim Plateau Volcanics emitted along a major NNE - SSW fault. The occurrence of such a pre-Devonian barrier along the Pincombe High would certainly be favourable to reefal development. However, the seismic lines presently available do not show reefal features, and the southern part of that structural unit cannot be explored due to the Weaber Range.

- North-Western Margin

Most of the seismic markers which onlap the basement along line BNT 80 - 200 are likely to be within black shales. Lateral facies changes are likely to occur from shales into more detritic and porous material along the slope.

Unfortunately, a better seismic quality would be needed to investigate such sedimentary traps.

3. PROGRAMME

Considering these results, the area previously proposed for a detailed programme still appears to be the most prospective. Immediate drilling could even be considered on the structural high axis as close as possible to the main fault. However, it may be objected that the definitions of the axis and the faults are still poor, as well as the identification of seismic markers. For this reason, and to be consistent with the decision made at our February meeting, we propose to shoot a 75.5 km detail programme as shown on Plate 3, to improve our understanding of the area and help to select a drilling location.

Another 34.5 km would be advisable to check the existence and attractiveness of the H₁ structure.

As the critical point of the West Pincombe "structure" is the southern closure, we also suggest to slightly alter the programme in EP 126. This would result in an additional 2 km in EP 126 and 5 km in OP 186.

The proposed total seismic programme in OP 186 amounts to 115 km.

To achieve the goal of maturing a drilling location, it will be essential that the quality of data be a substantial improvement on that of previous surveys. A more detailed test and experiments programme is needed. A corresponding increase in costs would be partly compensated by the kilometre reduction in this proposed programme (150 km reduced to 117 km).

As line clearing in OP 186 is due to start early July, we would like to know your reaction to this new programme as soon as possible so that a meeting could be organised if necessary. Please direct any suggestions or comments to Frank Brophy, Aquitaine.

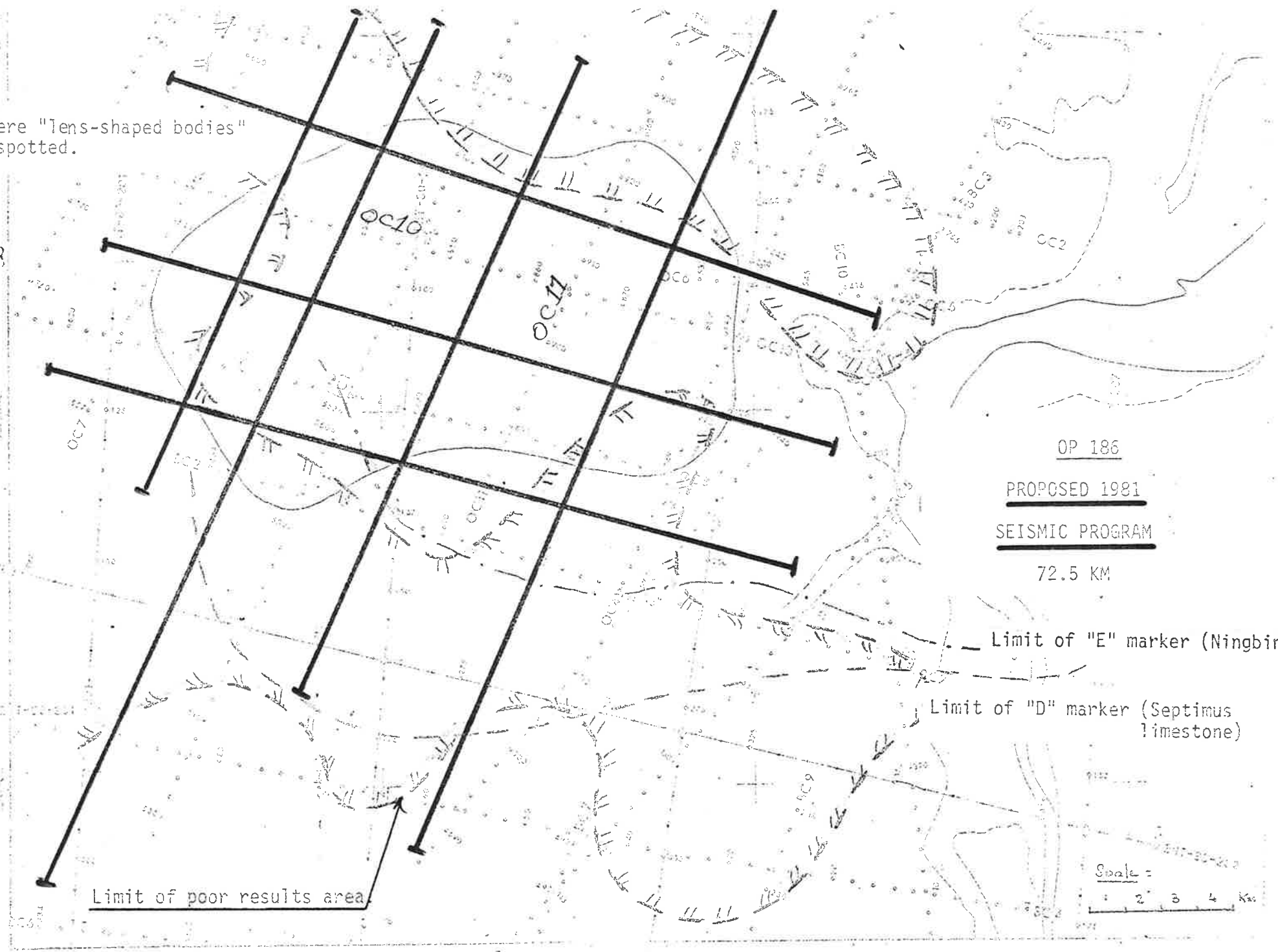
Yours faithfully,
AUSTRALIAN AQUITAINE PETROLEUM PTY LTD



FRANK BROPHY
 Chief Geologist, Operations

Area where "lens-shaped bodies"
can be spotted.

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OP 186

PROPOSED 1981

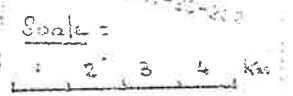
SEISMIC PROGRAM

72.5 KM

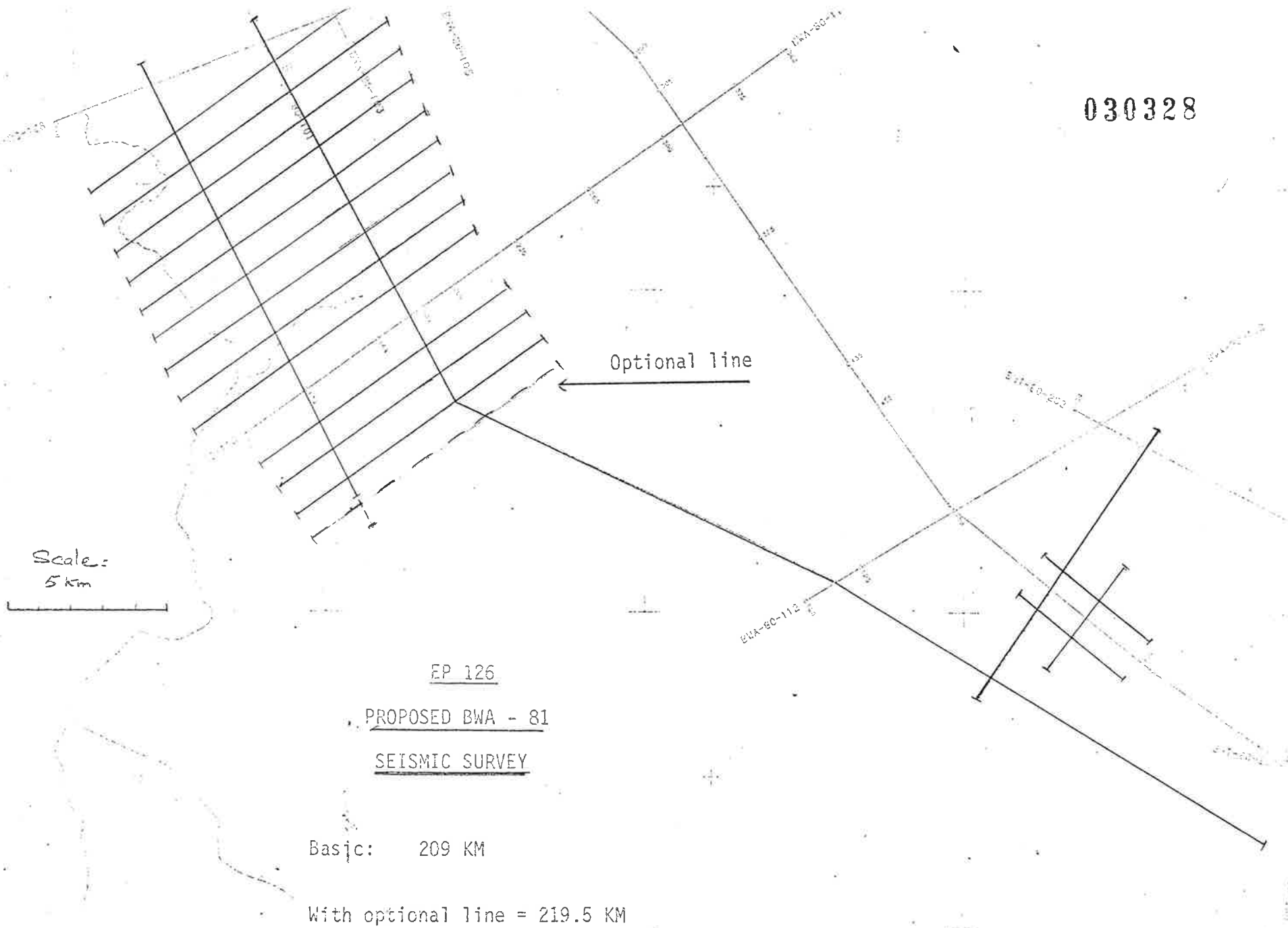
Limit of "E" marker (Ningbing)

Limit of "D" marker (Septimus limestone)

Limit of poor results area



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Scale:
5 km

Optional line

EP 126

PROPOSED BWA - 81

SEISMIC SURVEY

Basic: 209 KM

With optional line = 219.5 KM

Box 42

AUSTRALIAN AQUITAINE PETROLEUM PTY. LTD.

INCORPORATED IN A.C.T.

BOX 725 P.O., NORTH SYDNEY N.S.W. 2060 AUSTRALIA

12 MAY 1981

Our ref: 5402:33

GM:bf

May 8, 1981.

Your ref:

The Exploration Manager,
Alliance Petroleum International Ltd.,
10th Floor - 30 Collins Street,
MELBOURNE. VIC. 3000.

Attention: Mr. M. Cadart.

The Exploration Manager,
Vangas Limited,
25th Floor - 459 Collins Street,
MELBOURNE. VIC. 3000.

Attention: Mr. D. Armstrong.

Dear Sirs,

Re: BNT-81 Exploration Programme.

Enclosed please find copies of lines OC 3, 8 and 11 just reprocessed by Digicon. These are preliminary sections; some details are still to be improved but a close check on the velocity functions proved that the migration was conducted properly and the final version should not differ much. FSTK refers to the final stack, and MIG FSTK to the same stack after time domain migration. We would like to have your comments on these results.

As you are already aware, they cast doubt on the reliability of the lens-shaped anomalies previously described as possible clastic deposits or reefs. The "Digistack" step included in the previous re-processing (1972) was apparently responsible for creating some of those features from discontinuous reflections and diffractions, and was not used for producing the present set of sections. After migration, faults become quite visible especially on the N-S lines (OC 3 and OC 11).

That particular area has therefore to be reinterpreted. However, we still think it remains prospective due to its structural and depositional position. It represents the edge of the Upper Devonian and Lower Carboniferous against either the Precambrian Basement or the Cockatoo Formation and faulting could create traps provided porosity has developed. Furthermore, its downthrown position could be favourable to the deposition of clastics from the Pincombe High or the Upper Burt Range Basin during the Early Carboniferous.

Also, some seismic events are still unexplained (e.g. the apparent reverse dip at the northern end of line BC-1). We therefore recommend to maintain a 70 to 80 km programme in that area even if some of the lines require relocation as a result of interpretation currently being carried out.

As it cannot be guaranteed that a drillable prospect can be found after that additional seismic programme it will still be necessary to explore other areas. These could include :-

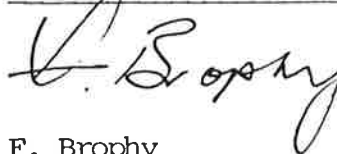
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FI		MC	
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Handwritten notes:
- beautiful as features can be seen only on stocks sheet "digistack"

- 1: The eastern margin, which is largely unexplored. The additional gravity information acquired during the last two years did not indicate any prominent structure, and an extensive seismic coverage would be required to define prospects.
- 2: The interest in the southern Burt Range Basin (north of Spirit Hill well) is linked with a reinterpretation of the Burt Range survey lines - the reprocessing of which has just begun. Results may be expected within two months, and may define areas worthy of further investigation.

For these reasons, the budget, which will be presented to yourselves soon, includes a basic 80 kilometre programme, plus an additional 70 kilometres, as agreed to at our previous meeting. This should be regarded as a minimum programme and the possibilities of further extension will be discussed on the completion of the final interpretation.

Yours faithfully,
AUSTRALIAN AQUITAINE PETROLEUM PTY. LTD.



F. Brophy
pp: R. Laws.
Exploration Manager.

*Enclosure.

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