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ANNUAL REPORT YEAR 3
T/22P
BASS BASIN, AUSTRALIA

Amoco Australia Petroleum Company
December 1987

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Attachment 1

The Prospectivity of the Bass Basin - *INCOMPLETE*

INTRODUCTION:

This report documents work performed by Amoco Australia Petroleum Company, as operator for the consortium holding title to Permit T/22P, during the period September 3, 1986, to September 2, 1987. The work program obligation during permit Year 3 was the completion of a detailed petrological/petrophysical study of the Bass Basin.

GEOLOGICAL AND GEOPHYSICAL WORK:

The petrological/petrophysical study was begun and completed during permit Year 3. The study's results and conclusions were presented to the licence's partners, the Tasmania Department of Mines and the Bureau of Mineral Resources in July 1987. All parties were forwarded a copy of the report documenting this study, entitled "The Prospectivity of the Bass Basin, Australia", in October 1987. The conclusions of the study are included in Attachment 1.

EXPENDITURES:

T/22P Expenditure
September 3, 1986, to September 2, 1987

	<u>Australian Dollars</u>
Drilling Equipment	14,643.22 credit
Storehouse Material (Inc. W.I.P.)	346,077.08 credit
Acquisition of Property	-
Exploratory Well Costs	24,137.15
Operating Base & Facilities	33,735.16 credit
Office Furniture & Facilities	14,889.25 credit
Other Direct Operating Expense	1,560.00
Geological & Geophysical Expense	1,243.82
Other Expense	91,835.66
Indirect Operating & Administration Expense	<u>701,208.43</u>
TOTAL	410,640.35

FUTURE WORK

The work program for T/22P Year 4 is the acquisition of 350 kilometers of seismic data. Amoco, as the operator for the consortium holding title to Permit T/22P, has received notice from the designated authority that seismic data acquired in earlier years in excess of the minimum work requirement have been credited against the Year 4 work commitment.

CONCLUSIONS

1. The expansion within the *M. diversus* and *P. asperopolus* palynologic intervals is greater than earlier interpreted.
2. Three major deformational events impact the Tertiary section. These are a late Paleocene event, a Miocene event, and a Recent event.
3. Paleocene volcanic extrusives throughout the basin inhibited oil migration into the younger section.
4. Good quality oil and gas prone source rocks exist within the basin in the *N. asperus* through Otway sections. Present day oil expulsion maturation levels are seen in rocks as young as *M. diversus* age. No evidence exists which demonstrates a firm correlation between Bass Basin oil and their possible source section.
5. The primary facies within the Eastern View Coal Measures are coastal, deltaic, estuarine and lacustrine. There is evidence of marine incursions from *L. balmei* through *N. asperus* time. The shoreface and fluvial sands appear to be the best reservoirs.
6. A single geothermal gradient of 1.75°F/100 feet has been in place since Otway deposition. This geothermal gradient is based on a comparison of theoretical vitrinite values calculated using the Lopatin algorithm to measured vitrinite values of Bass Basin wells.
7. Computer rock zonation analysis establishes that the Eastern View Coal Measures Section consists of interfingering multiple sand and shale types. The analysis supports the interpretation that the section contains individual sandstones and shales developing and terminating erratically which are not individually correlable basinwide. Because of this complex, unresolvable interbedding, this section has been considered, for the purposes of this study, as a single package of interbedded clastic rocks throughout the basin. The computer analysis does not aid basinwide sand correlations. The presence of this package reduces the value of additional seismic stratigraphic study.
8. The maturation history modeling of the Bass Basin suggests that primary oil and gas expulsion of the pre Eocene section occurred before the Miocene deformational event. The present day oil window is within the Pliocene outside of the grabens and within *M. diversus* inside of the grabens. It is thought that as the pre Eocene section went through the oil and gas expulsion stages, the trend of hydrocarbon migration was vertical to the Paleocene volcanic seals and then lateral toward the basin margin. The exception to this migration trend is along the edge of graben faults where vertical migration above the Paleocene volcanics could be accomplished. In these areas the presence of older structures was critical to develop entrapment, e.g., Yolla.

9. Additional exploratory drilling is unwarranted because of the lack of older structures within the three Bass Basin licences, the high probability that these structures or younger structures are gas prone, and that gas reserves are subeconomic and unmarketable.

THE PROSPECTIVITY
OF THE BASS BASIN, AUSTRALIA

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