

II.

INTRODUCTION

Nangkero No. 1 was drilled in T/4P (see Fig. 1) by the permit holder, Hematite Petroleum Pty. Ltd. It was the fifth well in the permit and the seventeenth in the Bass Basin. The costs of the operation were subsidised by the Commonwealth Government under the Petroleum Search Subsidy Act 1959-1969.

The well was the first test of a large unfaulted upper Eastern View closure in the Bass deep basin. The prospect was enhanced by what was interpreted to be the highly favourable juxtaposition of a large, porous reservoir, good seal as well as excellent source rocks. Poonboon-1, six miles to the south west, encountered good reservoir rocks, without shows, in the interval considered prospective in Nangkero-1 but at that level (Red horizon), Poonboon-1 was mapped as being off structure whereas Nangkero-1 was on the Red horizon structural crest. Post drilling seismic interpretation confirms that Poonboon-1 is approximately 175 feet lower than Nangkero-1 and critical closure of the structure to the north probably does exist. In addition reasonably good reservoir sands, comparable to those in Poonboon-1, occurred in Nangkero-1 and interbedded shales should have adequately sealed any hydrocarbon accumulations. However the well was dry. Possibly the net sand ratio is too low and the sand, siltstone, shale, coal sequence so thinly interbedded that long distance migration is restricted or prevented. It is also conceivable that maturation of the organic rich M. diversus and L. balmei sediments in the Nangkero area was insufficient for petroleum generation, or that hydrocarbons accumulated at Nangkero but were destroyed during times of high heat flow. The present geothermal gradient in Nangkero-1 is only about 1.5° F per 100 feet but the poor preservation of palynomorphs in the well suggests it may have been higher, that is if the state of preservation reflects thermal rather than penecontemporaneous biological degradation.

Geophysical data and interpretation in this report were contributed by J.I. Denham and E.G. Urschel. Other authors are listed in the relevant appendices.