

Subsurface Geologic Study of the Area from the Taipei Basin to the Kuanyin Shelf, Taoyuan, Taiwan

STANLEY S. L. CHANG

Chinese Petroleum Corporation

ABSTRACT

In the area under study, the Taipei basin is situated in the northeastern part, with the Linkou tableland to its west, and the Kuanyin shelf to the southwest.

There are three dominant surface anticlines in the region, namely the Shantzechiao, the Hukou, and the Pingchen. There are 13 wildcats drilled in this area, one in the Taipei basin, one on the Kuanyin shelf, three on the Shantzechiao anticline, six on the Hukou, and two on the Pingchen.

The gravity and seismic interpretations have proved the existence of the Hsinchuang anticline. The gravity map shows a gravity high in good closure concordant with the surface structural feature of the Shantzechiao anticline. On the Taoyuan alluvial plain, the Hukou and Pingchen anticlines were mapped by geological investigation, gravity survey, and seismic survey. The seismic profile from the Hukou anticline to the Kuanyin coast is coordinated to a marked thinning of the sedimentary section toward the northwestern shelf area.

The Hsinchuang and Shantzechiao structures are overturned anticlines with their northwestern flanks cut by the Hsinchuang thrust fault, this character of the regional geologic structure near the Taipei basin originating from the northwestward compression. On the Taoyuan coastal plain, the Hukou and Pingchen anticlines are structures on the slope of the western sedimentary basin. The regional structure in the area studied should be the product of the late Pleistocene Penglai orogeny common for Taiwan.

A 4000-4500 m depth test well should be drilled on the Kuanyin coast. Data so obtained with respect to stratigraphic sequence and subsurface structure will be very important for petroleum exploration offshore.

INTRODUCTION

The area under study covering about 1000 sq km, is bounded on the west and north by the north-western coast of Taiwan, on the northeast by the Tanshui¹ River, on the southeast by the Taipei fault, and on the southwest by the Fengshan-chi². The Taipei basin is situated at the north-eastern part of this region. The Linkou³ tableland west of the Taipei basin and the Taoyuan coastal plain over the Kuanyin⁴ shelf to the southwest are covered mostly by Pleistocene lateritic gravel. There are three dominant surface anticlines in the region, namely the Shantzechiao⁵, the Pingchen⁶, and the Hukou⁷. There are 13 wildcats drilled in this area, one in the Taipei basin, one on the Kuanyin shelf, three on the Shantzechiao anticline, two on the Pingchen, and six on the Hukou. The subsurface drilling information has shown the stratigraphic distributions and structural features of the area. Based on such information in coordination with surface

1. 淡水 2. 鳳山溪 3. 林口 4. 觀音 5. 山子脚 6. 平鎮 7. 湖口