Prospecting for oil and gas In the transitional and shallow water zones of the south of Ukraine

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SUMMARY

For the transit areas of aquatoriums of Black Sea and Sea of Azov, and also delta of the river Danube is conducted review of them studied seismic prospect, the most prospects areas are set in the relation of oil and gas. Offered chart of project regional researches seismic prospect of PSDM.

INTRODUCTION

A bar of shoal which directly joins to the coastline of marine aquatoriums is a "transitional area", was long time inaccessible for marine and surface geophysical researches. Thus the areas of shoal in relation to the searches of oil and gas present near-term interest, as determination of measure of their prospects does not require distant extrapolation of prognosis estimations. The deposits of shallow areas are most accessible for searching-reconnaissance boring drilling and exploitations of deposits of oil and gas, does not require the prolonged marine pipelines and bulky pile works. The South oil-and-gas bearing district of Ukraine includes the very prolonged transitional areas (fig. 1). Potential resources the Ukrainian sector of Black sea and Sea of Azov make more than 1530 million t. conditional fuel. For today here already openly 14 middle and shallow gas and gas and condensate deposits.

Shelf, transitional and shallow water areas of Black sea and sea of Azov are the unique morphologically expressed structure with general conformities to law of geological development. The structures of shelf are located along the sides of enormous young neogen-antropogen of Black sea depression, on the ways of migration of hydrocarbons from the submerged area them active generation to the areas of the oil and gas accumulation. It is not eliminated, that within the limits of modern shelf and continental slope can be discovered ancient shelves are buried and the lithologic and stratum traps of hydrocarbons are related to them.

Within the limits of the Black sea and sea of Azov offshore and on adjoining territories of dry land with the purpose of study of geological structure and estimation of prospects of territories a considerable volume was executed geologic-geophysical works, gravimetrical and seismic works, boring drillings of searching and self-reactance mining holes, entered in which. Considerable material is accumulated on near Black sea territories of Ukraine, Bulgaria and Romania. However, as a result of specific of lead through of reconnaissance for seismic works a bar is unexplored breadthways an approximately 10 km coast-wise of Black sea and sea of Azov, delta of the river Danube and lake Sivash.

OIL AND GAS OF THE SOUTHERN UKRAINE

Prospects of searches of oil and gas within the limits of transitional areas South Ukraine related to the deposits different age and lithologic composition (fig.2), which, in same queue, change on a region depending on the features of geological structure of his different parts – Western and Northern Prichernomor'ya, Prisivashshya, Northern Priazov'ya, areas of coarticulation of Arabatskaya of pointer, lake Sivash and off-shore part of sea of Azov, and also Kerch peninsula, plain and mountain parts of Crimea (fig.3).

Within the limits of transitional areas of Western Prichernomor'ya it is possible to select three independent areas which are characterized a different geological structure, degrees of studies and by the prospects of oil and gas:

1) area from a mouth and delta of the river Danube and coast of the Black sea to the lake of Sasik. In a tectonic relation located within the limits of the Pridunayska tectonic plate and Tatarbunarsky (Kamensky) of the rift genesis bending, that enter in the complement of Kiliysky-

Snake raising. Basic oil and gas prospective deposits, which contain collectors and overlays, developed in Jurassic and Trias litodynamic complexes. The relatively two-bit of found out structures (9 on land and 3 in an aquatorium) is explained weak study of this territory, both on and at the seaside land.

2) area from the lake of Sasik to the lake of Alibey in a tectonic relation is timed to Bilolisky of block of Foredobrudzha of bending (dry land) and Krilovsky of depression (sea). Studied seismic works very unevenly – relatively well within the limits of dry land, marine part on the liquid network of types, and lakes of Sasik, Alibey and Shagani in general was not studied. The basic prospects of searches of oil and gas are related to the deposits of Paleozoic (Silurian, Devon, Carbon). On the closeness of unexplored supplies this area is most prospective in Western Prichernomor'ya (20-30 t/ km^2).

3) area from the lake of Alibey to the Dnestr estuary is timed to western a sector more South Ukrainian monocline and characterized the monocline blowing up in a northward and absence of anticline structures of prices, with bedding of oil producer layers on insignificant depths (to 1-3 km), that does ii prospects insignificant.

Territory of transitional areas of North Prichernomor'ya belongs to more South Ukrainian monocline and geologic-geophysical studied researches schematically. Seismic researches of PSDM were conducted within the limits of land part only from Tendrivska of scythe to Perekopsky an isthmus, and in marine - on the liquid network of regional types in Karkinitsky to the bay and east part of north-western shelf of the Black sea. The basic oil and gas prospective complexes of transitional areas of North Prichernomor'ya are deposits of Cretaceous, Paleogene, Eocene, and Maykop (fig.4). There are certain prospects of opening of deposits of oil and gas in Paleozoic and Jurassic complexes, and also bark of weathering of crystalline foundation, but basic prospects are related to the traps of anticline and unanticline types in the deposits of mezo-cainozoic.

In a tectonic relation transitional areas of Prisivashshya are within the limits of coarticulation more South Ukrainian monocline (north Prisivashshya) and Karkinitsky-Northern-Crimean of bending (South Prisivashshya). The basic prospects of oil and gas of Prisivashshya are related to the deposits of lower and overhead Cretaceous, Paleocene, Eocene, Oligocene and Neogene. In these deposits the developed overlays and breeds-collectors which are characterized good by a filtration-capacity by properties; openly deposits of oil and gas (Dzhankoyske, Tetyanivske but other), got intensive oil and gas displays. In addition, on these territory prospects of Forecretaceous deposits which contain collectors are obscure. All of it allows attributing Prisivashshya to territory with the high prospects of oil and gas, but with insufficient degrees geologic-geophysical studies.

The transitional areas of North Priazov'ya behave to territory where, seismic researches were executed on the very liquid network of types of PSDM. On a present tense within the limits of transitional areas it is discovered 20 oil and gas prospective objects in the deposits of mezo-cainozoic. The basic prospects of searches of oil and gas are related to the anticline objects in the deposits of lower chalk and Neogene. Certain interest is presented by the deposits of Proterozoy, to Paleocene and Oligocene. This territory has obscure prospects and needs lead through of additional geologic-geophysical researches.

Territory which engulfs Arabatskaya of pointer, lake Sivash and off-shore part of sea of Azov, studied not enough reconnaissance for seismic works of PSDM and deep boring drilling. In a tectonic relation this territory is located within the limits of a few areas: to more South Ukrainian to monocline and east pericline of Karkinitsky-Northern-Crimean of bending (northern Sivashi and north part of Arabatskaya of pointer); Azov billow (central Sivashi); Indolo- Kuban bending (Southern Sivashi and basis of Arabatskaya of pointer). It follows to bind the basic prospects of searches of oil and gas to the anticline objects in the deposits of Neogene, Oligocene, Paleocene and lower chalk (off-shore part of sea of Azov and studied schematically central Sivashi), with the Maykop deposits in half daily Sivash.

The transitional areas of the Kerch peninsula are located within the limits of Kerch-Taman of bending and central graben and South side Indolo-Kuban bending, Mountain Crimea imposed on east immersion. These tectonic elements are characterized a difficult geological structure, different lithologic and facials composition of deposits and prospects of oil and gas. Studies geologic-geophysical by the methods of parts of transitional areas different. North part of peninsula and South part of sea of Azov is most studied. In the transitional areas of north of the Kerch peninsula and Kerch bay breeds-collectors and overlays are developed in the deposits of Neogene and Oligocene (Maykop series). Transitional areas South of the Kerch peninsula located within the limits of South side Indolo-Kuban to bending and Kerch-Taman of bending. Set presence of breeds-collectors and overlays in deposits Jurassic, Cretaceous, Paleocene, Eocene and Oligocene age. On beatings back horizons found out 23 objects and openly 3 deposits. Most objects remain unstudied because of absence of reconnaissance for seismic researches of PSDM in an off-shore area. As a result of drilling results in the transitional areas of Kerch-Taman of bending the set collectors in the bottoms of the Maykop series and in an Eocene. On the whole transitional areas of the Kerch peninsula are one of prospective in relation searches of oil and gas within the limits of the South region of Ukraine.

Within the limits of Flat Crimea it is possible to select 4 areas which are characterized a different tectonic, geological structure and prospects of oil and gas of transitional areas.

1) The prospects of oil and gas of transitional areas of north part of Flat Crimea coincide with the prospects of South Prisivashshya.

2) East part of Flat Crimea has prospects of oil and gas identical the prospects of Central and Southern Sivashi.

3) The transitional areas of north-western part engulf territory of dry land and aquatorium of the Black sea from Perekopsky an isthmus, and Tarkhankut of peninsula to the lake of Donuzlav. Oil and gas of deposits of Jurassic, Cretaceous, Paleocene and Neogene, is well-proven openings of row of deposits of oil and gas in these complexes. On a present tense within the limits of transitional areas found out 2 deposits (Mizhvodnenske and black Sea), 14 oil and gas prospective objects on land and 16 - in the aquatorium of the Black sea. These most objects are not studied reconnaissance for seismic researches, so as structures on land have continuation on land and vice versa.

4) The transitional areas of western part of Flat Crimea in a tectonic plan belong to Kalamitsky-Central-Crimean of rising. Degree of studies of this territory very low and it is potentially prospective with an unknown geological structure.

The transitional areas of Mountain Crimea were not studied reconnaissance for seismic and borings researches, that is why it follows to consider off-shore part and aquatorium of the Black sea and South bank of Crimea territory with the obscure prospects of oil and gas.

CONCLUSIONS

The transitional areas of aquatoriums of Black sea and sea of Azov include for itself different structurally tectonic elements which differ on prospective of oil and gas. The most perspective areas of transitional areas are selected in their limits: a) deposits of Cretaceous and Cainozoic of eastern part of Karkinitsky of bending; b) Oligocene and Miocene deposits Indolo-Kuban to bending; c) Maykop, Cretaceous deposits and Trias and Jurassic oil and gas produced of breed of western part of the Azov billow; d) Maykop and Neogene deposits of northern side of Kerch-Taman of bending; e) sedimentary cover of area of Krilovsky of break a secret is in Western Prichernomor'ya.

With the purpose of the subsequent opening of prospects of oil and gas South of Ukraine necessary lead through of regional researches in a volume 10 types of PSDM (multipleness no less 60) at western part of Crimea by general length a 495 km (first turn) and 10 types of PSDM (multipleness no less 60) in the transit areas of the Kerch peninsula and Prisivashshya by general length a 670 km (second turn). After the lead through of regional works it is needed to define the necessary volume of searching and detailed researches.

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