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Discovery of a new potential hydrocarbon bearing province in the north-west of the Russian arctic, creation of its generalized geological model and cost estimate of mineral resources

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The report presents generalization results of integrated geophysical surveys, including 2D CMP reflection works, above-water gravity measurements and differential hydromagnetic measurements in the volume of 30000 LKM carried out by JSC MAGE under order of the Federal Subsoil Resources Management Agency (Rosnedra) during 2006-2012. As a result of the geophysical data integrated interpretation, one recognized main unconformities and seismic sequences characterizing key aspects in geological history of the sedimentary cover and hydrocarbon potential formation. In conjunction of structural interpretation for each structural and tectonic unit of the region, the most promising hydrocarbon bearing sequences were specified. The created geological model of the northern Barents Sea reflects structure patterns of basement and hydrocarbon bearing sequences of the sedimentary cover and it allows conducting a sound geological oil and gas zonation, cost estimate of mineral resources for government regulation of subsoil management relations as final products of regional geological-geophysical studies. Before beginning targeted regional geological exploration works, the northern Barents hydrocarbon potential was estimated at the level of initial total in place resources, i.e., a quantitative estimate was not made even by category D, and a structure potential was confined by one anticlinal structure with the area of 1000 km². Currently, in the northern Barents Sea, 79 local anticlinal highs have been detected with a total area of 42000 km². Wide areas of non-structural trap development with a total area of 30000 km² have been recognized. The obtained quantitative estimate of the anticipated raw hydrocarbons shows multi ordinal growth of the mineral resources value in the studied region and their attractiveness for subsoil users. Presently, all the northern part of the Barents Sea has been divided into licensed blocks purchased by subsoil users or being at the stage of licensing.

Biography

Aleksy Kuznetsov has graduated from the Kola Branch of the Petrozavodsk State University in 2001 at Applied Physics Department, as a Geophysicist. From 2002 to 2007, he worked as a Geophysicist in the Federal State Unitary Enterprise Arktikmorneftegazrazvedka. He has performed integrated geophysical surveys in the boreholes at the jack up drilling rig Murmanskaya and on Kolguyev Island. Since 2008, he has been working as a Geophysicist in JSC MAGE.

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