

POSSIBLE EXPLORATION DRILLING IN THE ARCTIC SEAS IN CONDITIONS OF ANTIRUSSIAN SANCTIONS

Oleg Sochnev – *Doctor of Science (Technics), Deputy Director R&D and Innovation Department, Oil Company “Rosneft”, Russia. E-mail: o_sochnev@rosneft.ru*

Inga Sochneva – *PhD (Technics), Associate Professor, International Institute of Energy Policy and Diplomacy, MGIMO University, Russia. E-mail: sochnevamgimo@yandex.ru*

Keywords: Arctic, sectoral sanctions, exploration drilling, shelf technical availability, ice conditions.

In 2014, USA, EU and some other countries imposed sanctions on Russia. The sectorial sanctions are their important part providing for a prohibition on the access to critical shelf technologies in the field of deep-water drilling (deeper than 152 m) and the technologies used in the Arctic shelf projects [1].

The sanctions that are limiting the Arctic shelf operations may be considered as the basic ones.

First of all, Russia is currently considered as having the greatest hydrocarbon potential in the Arctic seas among all Arctic countries, which potential is thought to be equal to 34.2 BTOE by natural gas and 4.9 BTOE by oil [2].

Second, the Arctic area is a strategic region for Russia and the country's existence in near future will largely depend on its social and economic development that may be driven by development of the Arctic shelf.

Third, from the point of today's technical and technological situation, the development of the fields located in ice-free seas at the depths of over 150 m cannot pose any significant technical problems, and deep-water projects have been considered for long in the world practice as those having a depth of over 500 m, and the areas having such depth in Russia's continental shelf are not considerable [3].

It is obvious now that the sanctions period will not be a short one. Therefore, it would be proper to assess their possible effect on exploratory drilling in Russia's Arctic seas.

It is not by accident that exploratory drilling is the subject matter of this study. An overwhelming majority of the projects implemented by the basic mineral developers at Russia's continental shelf, PJSC Gazprom and PJSC Rosneft Oil Company, stay and will stay at this phase over the next 15-20 years.

Exploratory drilling in Arctic seas has a more than 40-year long history, and the total number of exploratory wells drilled in the Russian and US/Canada sectors may be considered as comparable [4].

The USA are considered as having reliable technologies for exploration and development of the Arctic hydrocarbon fields at the depths of up to 100 m [2]. It is also stated that the technologies required for operations at the depths of over 100 m are being developed now. It should be noted that Russia also has the required technologies for exploration and development of Arctic fields [2].

Nevertheless, climate trends in the Arctic Regions can affect significantly the exploratory drilling over the next decades.

The most widely discussed manifestation of global warming in the Arctic Regions is the reduction of sea ice area. It was decreasing quickly by the end of summer period over the recent one and a half decade, with the minimum level achieved in September 2012 (ice area was equal to 3.37 million km² against the long-time average annual value exceeding 6 million km²).

Moreover, a reduction of the average thickness of ice is mentioned over the recent decades of the 20th - early 21st century, mostly because of a reduction of the multi-year ice area

and its replacement by first-year ice. The greatest rate of decreasing the average thickness of ice was recorded during the period of 2003-2008.

Barents Sea is the key region in the Arctic climate dynamics. The percentage of Barents Sea and the west part of Kara Sea covered with sea ice in winter is being decreased steadily. Such a reduction was particularly dramatic in 2005. On the whole, the relative ice area decreased from 50-60% characteristic for the winter periods of 1970-1990's to the today's level of 40% or less [5]. As a result, against the background of the overall steady retreat of ice towards the north, situations occur when the duration of summer drill slot in Barents and Kara Seas will grow dramatically.

Therefore, considerable areas in Barents and Kara Seas may be expected to be open in the coming decade for exploratory activities with the use of traditional offshore drilling units of a low ice class or without such classification [5]. Acuteness of the problems connected with drilling in the ice conditions will thus decrease, together with the overall demand for solutions based on the equipment and technologies designed for operations in the extreme Arctic conditions.

Therefore, the sectorial sanctions imposed by some countries and connected with the development of Russia's Arctic shelf are of a mythological nature, as regards equipment and technologies.

A further reduction of thickness and the spread area of sea ice is expected in the coming decades, regardless of significant year-to-year fluctuations. The Arctic Ocean is expected to become fully free of ice in summer by the middle of the century. So the marginal Arctic seas will have no permanent thick multi-year ice in the coming decade already.

According to foreign assessments, an oil and gas project cycle in the Arctic Regions, from the license issuing date to commencement of production, is between 22 and 25 years [2]. Russia should expect periods of a like duration, e.g., the period between the license issuing date and commencement of production at Prirazlomnoye oil field is 22 years.

Therefore, if an intense exploration activities are already commenced and carried out today, the Arctic resources from the newly developed fields will be able to give a significant return not earlier than in mid-30's. They can be further developed to the middle of the century or later. The Arctic resources may thus be considered as a significant factor of maintaining onshore production in rather a long-term outlook.

The entry into market of the new Arctic fields' hydrocarbons in the USA will coincide with a drop in shale oil and gas production expected by mid-30's. Therefore, they would become the basic factor for maintaining the US production and ensuring energy safety of the USA [2].

The last mentioned fact gives ground to assert that the imposition of sanctions upon Russia's exploration and production of hydrocarbons in the Arctic Regions is connected, without limitation, with the wish to delay development of Russia's Arctic projects and to synchronize them with the US ones. Such a synchronization would warrant establishment of an additional competitive environment for the Russian industry and technologies and sales of the Arctic oil.

Not technical, but financial limitations, i.e. closing global debt capital markets for Russia, can become more important in these conditions for development of the Arctic projects [6].

The only noteworthy argument against the development of Arctic projects is a reduction of hydrocarbon prices. Nevertheless, not only profitability of Russian projects should be used as their efficiency indicator at the initial development phase, but also their effect on the social and economic development of the country and overall geopolitical environment in the world.

References

1. Commerce Control List (CCL). §746.5 of the Export Administration Regulations (EAR) in the Commerce August 6, 2014 rule, «Russian Oil Industry Sanctions and Addition of Person to the Entity List» (79 FR 45675). <https://www.bis.doc.gov/index.php/licensing/embassy-faq/faq/189-what-license->

requirements-were-implemented-on-russia-in-744-21-of-the-ear-in-the-september-17-2014-rule-addition-of-persons-to-the-entity-list-and-restrictions-on-certain-military-end-users-and-military-end-users-79-fr-55608#faq_109.

2. *Arctic potential. Realizing the Promise of U.S. Arctic Oil and Gas Resources*. National Petroleum Council. 2015. <http://www.npcarcticpotentialreport.org>.
3. Sochneva I.O. *Sovremennye tekhnologii osvoeniia morskikh neftegazovykh mestorozhdenii*. [Advanced technology development of offshore oil and gas fields] – M.: Gazoilpress, 2016. – p.384.
4. Sochneva I.O., Sochnev O.Ya. *Razvedka uglevodorodov v arkticheskikh vodakh. Poisk tekhnicheskikh reshenij dlya Rossii*. [Exploration of hydrocarbons in the Arctic waters. Technical solutions for Russia].– M. OOO «Taus», 2016. P.264.
5. Semenov V.A. *Svyaz' anomal'no kholodnykh zimnikh rezhimov na territorii Rossii s umen'sheniem ploshchadi morskikh l'dov v Barentsevom more*. [The connection of abnormally cold winter conditions in Russia with a decrease in sea ice in the Barents Sea] *Izvestiya RAN, Fizika atmosfery i okeana*. [Physics of the atmosphere and ocean], 2016, tom 52, № 3, pp. 257-266.
6. Konoplyanik A., Buzovskij V., Popova Yu., Troshina N. *Vozможности i razvilki arkticheskogo shel'fa*. [The possibility of the Arctic shelf]. *Neft' i gaz Rossii*. [Russian Oil and Gas], 2016. №1-2. pp. 12-17. <http://www.konoplyanik.ru/ru/publications/160212-NR-1-2-2016-Konopl-new.pdf>.