Oil-Gas Productivity of the Sochi Region

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The problem of oil and gas exploration in the Sochi region has been raised repeatedly. In pre-war time it received the attention of the oil geologists A. V. Ul'yanov, B. M. Keller, A. L. Kozlov, and others. A very complete description of the geology of the region was given in the technical report of the Sochi Balneological Expedition, where the problems of oil-productivity were examined (1936–38).

In the post-war period the Krymneftegazrazvedka Trust carried out a special geological study of the region and also deep prospecting drilling. The basis for the gas exploration were gas shows in railroad tunnels and in the area of the Lenin state farm. During digging a well in 1900 at the latter point a flow of 200 m$^3$ per day was obtained. This is still being used for lighting.

In the area of this well the “Geoliogasrazvedka” carried out geological exploration in 1932 with shallow drilling. This demonstrated the complex make-up of the area. In 1948–53 in the Sochi region 15 core and 4 rotary wells were drilled to 2,000 m. These operations were terminated with negative results for gas exploration.

In 1953–55 three wells were drilled at Matsesta and two at Khoste for thermal medicinal waters. This task, devised by V. M. Kukanovyy, was accomplished. At both points highly saline hot waters were found, on the basis of which balneological health resorts were established.

During drilling for water abundant shows and even small yields of oil were obtained.

In 1954–56 VNIGNI made a special study of the oil-gas productivity of the Sochi-Matsesta region, as a result of which proposals have been made for its further study.

In more recent time V. M. Kukanov has continued the oil and gas exploration in addition to the search for mineral waters. This same problem is related to neotectonic movements in a dissertation by D. S. Vasil’ev. Several of the connections mentioned by him of neotectonics and abrasion with oil-gas shows are considered by us to be fortuitous.

As is well known, oil shows and even gas discharges are distributed widely in the Sochi-Matsesta region and in the adjacent territory of Abkhaz. Most of these are related to Mesozoic sediments in the zone of occurrence of the Abkhaz facies. Thus, in the section along the Bzyb River from the mouth of the Gegi River the Jurassic and Lower Cretaceous limestones, which are largely dolomitized, are impregnated with asphalt, and oxidized oil occurs along fractures. Bituminous limestones compose both flanks of the Gagr anticline and the south flank of the Dzykhra-Katsirkh anticline to the north. Very clear oil shows (liquid oil) were observed along fractures to the north of Lake Golub. The same type of oil manifestation is known in other sections of the Garg region (Zhovekvar River and others).

Yet more abundant shows of oil were noted during drilling of prospecting wells for medicinal waters in the Sochi-Matseste region. The presence of a thick film of oil with a specific gravity of 0.944 was noted in well 18 at Staroy Matsesta during drilling of Upper Cretaceous limestones. According to the data of V. M. Kukanov, in the Novoy Matsesta area in well 2-T-600 at a depth of 430–460 m strongly cavernous Lower Cretaceous limestones were found which are saturated by liquid oil. In other wells in this area after a three month stand, oil with a specific gravity of 0.95 was observed on the water. There are indications that this oil comes from fractured and karsted Upper Jurassic limestones at a depth of 1660–1820 m.

Signs of oil were also observed in almost all other wells of this and of the Khostin region, where they are distinctive of the Tition limestones.

It should be emphasized, however, that all oil shows are accompanied by flows of hydrogen sulphide waters, which indicates earlier existing large oil fields that were subsequently destroyed by erosion.

Are commercial oil and gas pools preserved in the Sochi-Matsesta region? Strongly eroded anticlines composed of fractured limestones could hardly preserve gas pools. However, and oil pool could occur at the crest of the Bytkhin fold, which is the most closed of the structures. The favorable evaluation of the oil productivity of this fold is in agreement with all the investigations of the Sochi-Matsesta region. P. I. Komizuri, I. M. Melikova, and earlier, D. S. Vasil’ev recommended drilling a profile of three wells of depths up to 2500 m for elucidating the entire section to the porphyrite unit of the Bajocian. Such an evaluation of this unit was