

Study of fractured reservoirs during geological exploration

in the north-eastern part of the Sakhalin Island

Yuri V. Kostrov¹, yvkostrov@snipi.rosneft.ru

Vladislav A. Degtyarev^{1,2}, <https://orcid.org/0000-0001-8922-3654>, degtyarevvladislav96@yandex

Anton V. Marinin³, <https://orcid.org/0000-0002-1099-6492>, marinin@yandex.ru

Eduard K. Khmarin¹, ekkhmarin@snipi.rosneft.ru

Pavel A. Kamenev², <https://orcid.org/0000-0002-9934-5855>, p.kamenev@imgg.ru

¹LLC “RN-SakhalinNIPImorneft”, Yuzhno-Sakhalinsk, Russia

²Institute of Marine Geology and Geophysics, FEB RAS, Yuzhno-Sakhalinsk, Russia

³Schmidt Institute of Physics of the Earth, RAS, Moscow, Russia

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Abstract. During a geological fieldworks in the northeast of Sakhalin Island in order to study the siliceous deposits of the Pilskaya formation and to develop a technique for locating oil deposits in unconventional fractured reservoirs, natural outcrops of Cenozoic deposits on the Schmidt Peninsula and in the Pogranichny depression were studied. Samples were taken for analytical studies (geomechanical, geochemical, lithological, etc.), structural forms (folds, minor faults, slickensides, tension gashes, joints, shear fractures), which are indicators of tectonic deformations of the rock massive, were studied. It is shown that the intensity of fracturing strongly depends on the lithology, the position of the observation point relative to disjunctive and/or plicative structures. The direction of the joints varies depending on the position relative to the elements of the local folds and on the position of the block (with a small-block structure). According to the results of field observations it is shown, that the zone of intense dislocations has an extremely insignificant thickness usually the first tens of meters. An extremely nonuniformity of the stress field in the vicinity of the Pogranichny depression is noted, which is reflected in the nature of the dipping planes, structural patterns and parageneses. In the northern part of the syncline, numerous flowing oil shows associated with open fracturing are identified, which obviously indicates the extension regime that continues up to this day.

Keywords:

unconventional reservoirs, siliceous deposits, tectonic stress, deformations, slickensides, fracturing, geological fieldwork, Sakhalin Island

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