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The study of deformation characteristics of thawing soils of Vankor oilfield

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Development of Vankor oilfield territory is due to technological thawing of soils within the active layer and permafrost thickness, which is accompanied by thaw and consolidation settlement. The area of Vankor oilfield in geocryological key terms is poorly understood. In the literature there are no regional data on the mechanical properties of frozen soils. Therefore, to choose the optimal principle of use of soils as construction foundations and determination of bearing capacity of ground the forecast of thaw settlement is required. The calculation of thawing rate and settlement requires reliable data on the basic deformation characteristics of thawing soils.

On the basis of these studies we obtained the regional values of the deformation characteristics of the basic genetic complexes of frozen soils, which are in collaboration with the engineering basement. In addition, researches were carried out to study the influence of heat flux (one-site or all-site) on the deformation characteristics of soils of different cryogenic structure(layered and massivcryostructure). It was established that thawing conditions affect the deformation characteristics of soils with both massive and layered cryostructure. And the most differences are typical for loam. For all soils, we found that settlement over the period of thaw is over 80%. Based on the investigations, recommendations were made about the limits of applicability of different techniques of thawing and their impact on forecasts of thaw settlement.