

## Problems of Engineering Protection of Bovanenkov Gas Condensate Fields Facilities and Territory (Central Yamal)

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### ABSTRACT

It is underlined that until recent time while solving the ecological problems of Russian Gas Industry, insufficient attention was paid to the questions of facilities and territory engineering protection. For example of Bovanenkov gas condensate field (GCF) it is shown the danger of gully and shore erosion development. This paper provides the quantitative parameters. Based on the field observations and mathematical models of the longitudinal gully profile and washing out of the river shores, the operative maps are compiled, reflecting the dynamics of erosion processes change in the period of the field operation technical solutions are shown on how to protect the facilities and territories against the process of water erosion

KEY WORDS: Gully erosion, engineering constructions, flow-bed deformations

### INTRODUCTION

At present the particularity of gas industry development in Russia is the shift of the feed base to the far-off from the consumers northern regions of the arctic shore in the severe climatic and complicated engineering-geological conditions, exploration of these territories, confined to the permafrost rocks development areas, promotes the activation of irreversible erosion and thermo-erosion processes damage to the natural landscape, which in their own turn menace the normal operation of the engineering facilities. Before the exploration, the Yamal peninsula was practically not studied in hydrological terms. The most prospective were wide-scale hydrological investigations, fulfilled in the framework of the Yamal Program of Bovanenkov and Kharasavey gas condensate fields (Fig. 1), the results of these investigations allowed to work out preliminary recommendations on calculating the main characteristics of hydrological mode of rivers and small catchment area.

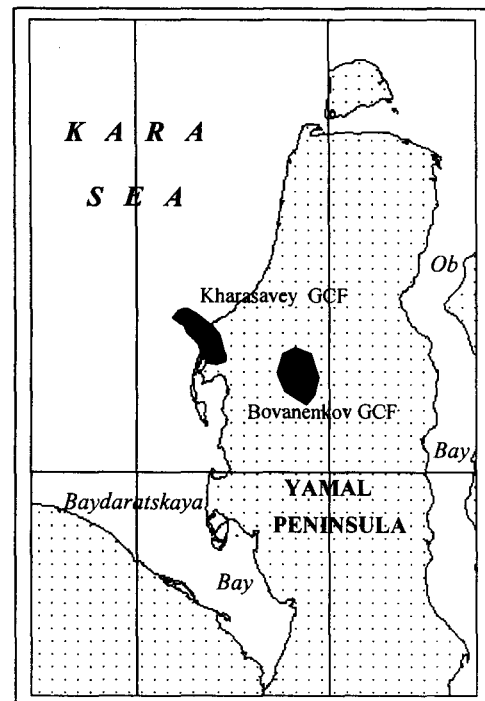


Fig. 1 Location of Bovanenkov and Kharasavey gas condensate fields

### GULLY EROSION

The experience of Bovanenkov gas condensate field construction at the Central Yamal showed that erosion processes intensification (brook, gully, river and other types of erosion) leads to the change of soil-vegetation relief and accidents of engineering constructions and communication.

In the period of 1994-1997 there were carried out the field investigations of the Bovanenkov field slopes.

It is stated that of greatest hazard is the gully erosion. (Baranov, 1996).