



Parameters for Selecting an Effective Technology for Gas Hydrate Development

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Abstract

The initial methods for development of gas hydrate deposits were formulated at the same time as their existence was proven (Makogon, 1966). Since 1969 industry has been gathering experience in commercial gas production from hydrate deposits, which started at the Messoyakha field in Russia. Today several dozen large gas hydrate deposits are known in various geologic settings. There is no single best technology for production of gas from hydrates, so each field would need to determine the most effective method for that field.

A key factor in gas hydrate deposit development is the need to transform gas from a solid hydrate into a free gaseous form under reservoir conditions. Gas then may be produced by regular methods. Each technology for production of gas from hydrates must meet the following criteria:

- 1) energy required to develop a deposit may not exceed heating value of produced gas.
- 2) technology must be environmentally sound
- 3) technology must be safe
- 4) technology must be economically viable
- 5) technology must be technically feasible

The effectiveness of a technology to develop a gas hydrate field depends on the properties of the hydrate, its concentration in the rock, geologic and thermodynamic properties of the deposit, and the surrounding rock.

This work will present a classification of gas hydrate deposits and propose principles of development for hydrate deposits in various geologic settings and thermodynamic conditions.

References

Makogon, Y.F., 1966, Specialties of Exploitation of the Natural Gas Hydrate Fields in Permafrost Conditions, VNIIEGAZPROM (Moscow), 12 p.