

Industrial Environmental Monitoring in the Conditions of Unstable Environmental Situation

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Abstract

Solving IEM problems becomes more complicated in unstable environmental conditions, which change under the influence of external (non-related to oil and gas production), natural and anthropogenic factors, such as river discharge, water circulation, navigation and fishery.

Under these conditions, we should clearly separate "inside" (i.e., caused by oil and gas production) and "outside" (specified as external factors) changes of marine environmental status and biota. Otherwise, negative changes of environmental situation caused by the external impacts may be referred to the responsibility of oil and gas production companies.

The ecosystem of the North Caspian is the least stable of all the Caspian Sea ecosystems. Taking this into consideration, the OAO "Lukoil" program of industrial environmental monitoring in the northern part of the Caspian Sea includes the observations at three levels: a) licensed area – 3rd level, b) architecture and deposit – 2nd level, c) SEFDR (selfelevating floating drilling rig) and facilities -1st level.

Barium concentration in seawater and bottom sediments increased at this site as well. Obviously, the increased barium concentration was due to external factors only, their impact spreads across the significant part of the North Caspian area.

The aim of industrial environmental monitoring (IEM) carried out by the enterprises is to disclose and estimate the changes in environmental status caused by the operation activities. Conducting IEM is referred to the responsibility of Russian companies that perform hydrocarbon prospecting, exploring and production in the Caspian Sea.

Keywords: *Environmental Conditions, Industry, North Caspian Sea, IEM, Barium*

1. Introduction

One of the main issues of environment protection in the course of oil and gas production in the water area of Russian seas is the issue of conducting IEM industrial environmental monitoring (Lobkovsky et al., 2005; Matishov et al., 2001). Much attention is paid to this issue due to the drawbacks of normative legal basis that defines the tasks of IEM but doesn't offer any clues for their solution.

The list of controlled characteristics of marine environment and biota, spatial –temporal discreteness of observations, procedure of making up and using information systems, resources and products of IEM: these are not all the problems companies have to solve on their own, taking into account their opportunities and expedience. We should note that the aim of industrial environmental monitoring (IEM) is to disclose and assess the change of environment condition, caused by the influence of oil and gas