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JUSTIFICATION OF THE STRUCTURE OBSERVATION NETWORK ENVIRONMENT OF THE OIL AND GAS SECTOR

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In this paper justification of the structure designed observation network environment of the oil and gas sector. On oil and gas facilities necessary to carry out both public and industrial control. At the organization of state control, the observation period is once a year in the field. At the organization of production control main task is the selection of specific sources, subject to a systematic control on the premises. Emission monitoring is carried out sanitary or organizations involved on a contractual basis.

Key words: oil and gas, environmental monitoring, environmental aspects of drilling, air pollution.

ОБОСНОВАНИЕ СТРУКТУРЫ СЕТИ НАБЛЮДЕНИЙ ОКРУЖАЮЩЕЙ СРЕДЫ РАЙОНА НЕФТЕГАЗОВОГО КОМПЛЕКСА

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В работе разработаны обоснование структуры сети наблюдений окружающей среды района нефтегазового комплекса. На объектах нефтегазового комплекса необходимо осуществлять как государственный, так и производственный контроль. При организации государственного контроля, период наблюдения составляет один раз в год на месторождении. При организации производственного контроля основной задачей является выбор конкретных источников, подлежащих систематическому контролю на территории предприятия. Контроль выбросов осуществляется санитарной лабораторией, либо организацией, привлекаемой на договорных началах.

Ключевые слова: нефтегазовый комплекс, наблюдение природной среды, экологические аспекты бурения, загрязнения воздуха.

Monitoring of compliance with emission limits shall be carried out at the border of sanitary protection zone and in a residential area. Sources to be monitored are divided into two categories. The first category includes sources for which the inequalities:

Cmax / MCL> 0.5; M / (MCL * H)> 0.01.

Routine measurements of the sources of the first category must be carried out periodically during the year (every three months). Schedule control in the field of compliance with emission limits on emission sources compiled environmental services company. Process for the stationary time continuous monitoring of emitted substances should not be less than one hour. To study the region monitoring the natural environment, taking into account the environmental aspects of drilling and mining these types of observations (Fig. 1.1), as seen in the types of observations of the natural environment include geophysical, geochemical and biological monitoring.

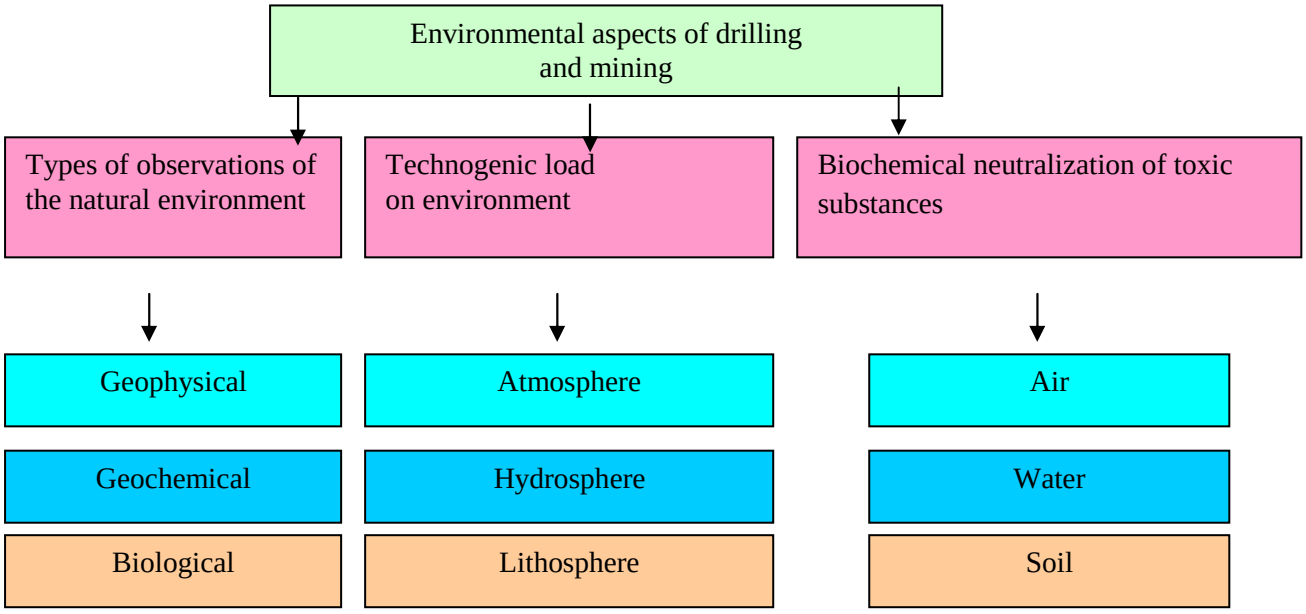

Figure 1.1 Structure of observations technological impacts on the environment.

Geochemical and geophysical observations have an important meaning, which are widely used in geological exploration practice. They are directly linked to the nature of the alleged man-made pressures on the environment and are based on modern methods of investigation.

Therefore, with respect to the region to study the production of exploration work is necessary to determine the background values of a set of indicators that characterize the initial state of the environment and mineral resources. In addition to studying the geological structure of the subsoil it is important information about the geographic and climatic conditions in the province. This will allow sufficient reliability to set the following human-induced changes in the environment and

natural resources, as well as to predict a set of measures to reduce environmental pressures on the environment.

In turn, the biological monitoring study provides different types of ecosystems, the productivity of the biosphere and contamination of biota.

In the process of exploration importance belongs to biological control, which includes a system of monitoring, evaluation and prognosis of any changes in biota due to the facts of human origin. Data analysis in recent years biologists have accumulated a vast amount of information on the functioning of the various living systems under the influence of anthropogenic changes. The main objective is to observe and assess the abiotic component of the biosphere, the levels of environmental pollution and ecosystem responses to anthropogenic changes. Currently reliable methods and biological methods for evaluating environmental organisms are developed by various monitors. They are based on the response of the body, the appearance of toxic substances in the system.

It is known that the network density of the observation of a parameter of the environment (e.g., air T) is determined on the one hand the spatial variability feature, and the other - the required accuracy of the spatial representation of the results of such measurements. Accordingly, the discrete measurements is determined by temporal variability observed parameter /15/.

This problem is well designed for meteorological parameters, where there are no local sources and sinks, such as heat. With regard to the problem of measuring the concentrations of harmful substances, for example, in the same atmosphere as the source of most local emissions and its coordinates are known. Local sources, in turn, leads to a large spatial inhomogeneity of the field of concentration of harmful substances, and the impermanence of meteorological parameters - to a large temporal variability of the concentration of harmful substances at a constant rate of emissions. Ground and elevated sources have different effects on the surface concentrations. As a result, to control the first is necessary to organize observation of emissions in a place of, and for the second wire-flare-up.

On the test fishery has 840 stationary sources of emissions, of which 710-fugitive located on a fairly large area, of which up to half of the surface, and the other raised. Furthermore, there is transportation. Obviously, the results of measurements of the control system must reflect the emissions from all sources. On the other hand Establish monitoring systems should be as cheap.

Variability is high concentrations of harmful substances, pollutants often are not gaseous substances, and the oil itself and its components, the processes of destruction and degrades factors.

Soil pollution associated with oil production as a whole has a local character, although the oil-polluted area can be measured by hundreds of hectares. In the study region is effective survey area

to determine the size, extent and specificity of contamination with development on this basis recommendations for corrective /15/.

Search for the best optimum reliability between fields of the concentration of hazardous substances or other ingredients in the components of the environment on the one hand and the smallest possible value of the data and the other side is solved scientific problem of contact.

The solution to this problem is carried out taking into account the above brief features of each of the components of environmental pollution by harmful substances, as well as problems for the control of hazardous substances in the workplace and economic feasibility of decisions.

Figures 1.2 and 1.3 present a comprehensive study of the structure of the network dirt deposits.

Systematic observations of atmospheric air were carried out both in the SPZ, and in the residential area of settlements were made on the route observations observation post number 1, 2, 3, 4, located at the office field and undertorch supervision.

In undertorch supervision of emission sources were adopted tubes with heights of 100 and 210 m. In this kind of work, observations were carried out in accordance with regulatory requirements at a distance of 1, 2, 4, 8 km from the emission source and the analyzes were performed on an abbreviated program, i.e. 3 times at day 7, 13, 19 hours local time.

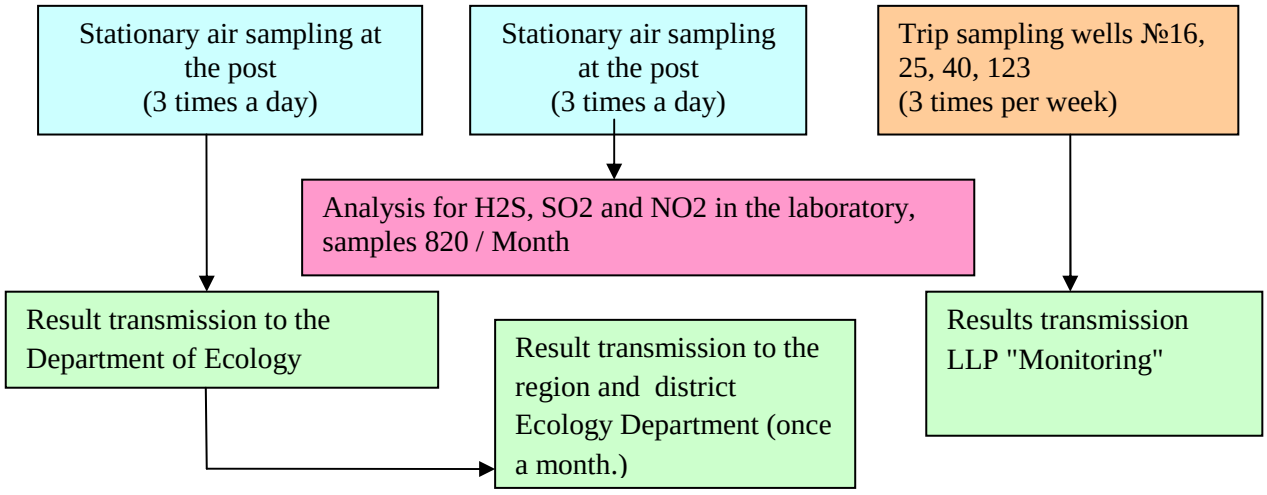

Figure 1.2 Structure of the air pollution control field

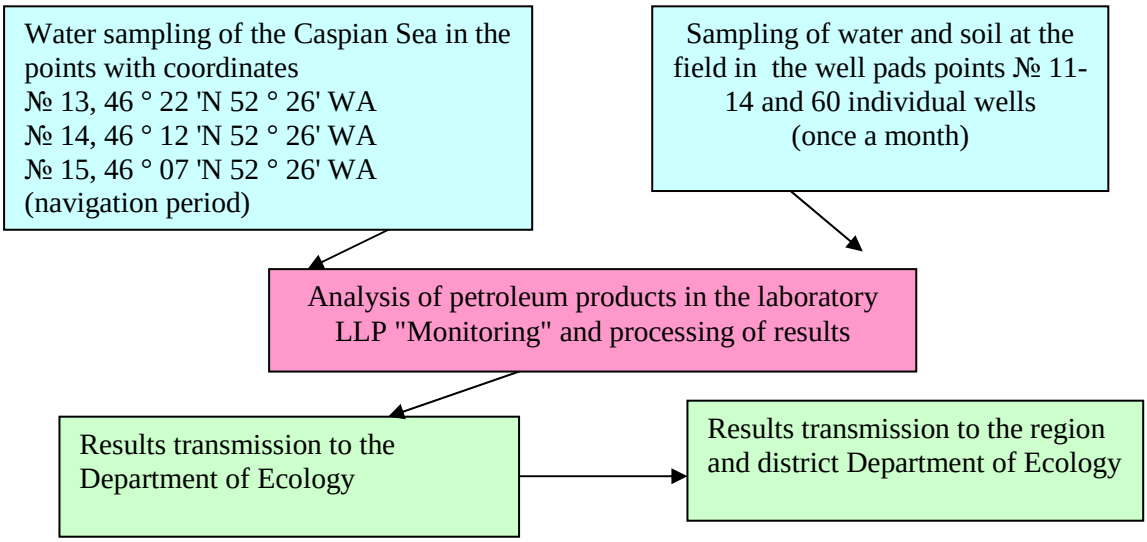

Figure 1.3 The structure of the integrated monitoring of pollution of the Caspian Sea coastal area, groundwater and soil deposits

Program we considered as abbreviated to Kazhydromet in control of environmental pollution in all of Kazakhstan is the base. All of its units considered in this work, are sampling it in these terms.

Thus, we have proved the structure of a network monitoring and testing of emissions and discharges of oil field, which consists of three subsystems:

- Subsystem monitoring of air pollution;
- Subsystem monitoring marine pollution and surface water;
- Subsystem monitoring soil pollution.

The most advanced is the subsystem control the atmosphere, since it carried out major releases.

Subsystem observations of surface waters can also be considered satisfactory. We propose that the principles underlying the observations of soil contamination, and recommend you go to the survey area.

Conclusions:

The structure of observation network environment is justified of the oil and gas industry and the diagram of a comprehensive study of air pollution is given and examined the status of soil and water.

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