Complex Technology of Tracing Investigations at the Objects of Oil and Gas Industry

Tagirov K.M., Arutiunov A.E., Variaqov S.A., Beketov S.B., Shamshin V.I.

At present a circle of problems is sharply extended in different spheres of geology including oil-gas geology and hydrogeology, correct decision of such problems is possible at use of modern tracing methods. Tracing experiments as direct methods of investigations, that are conducted in natural conditions, possess big demonstrativeness and in this connection they often man play a role of arbitration methods.

Complex technology of tracing investigations in different surroundings allows to decide the following problems:

- identification of sources-wells of technogenic leaks of gas or oil from the deposits;
- discovery of technogenic pathes of fluids migration;
- establishment and valuation of interstratal flows;
- determination of capacity-filtration parameters of reservoirs;
- determination of flooding zones of underground gas storages and fields;
- identification of gas flows inside a “gas fubble”;
- determination of volume and spreading dynamics of industrial wastes;
- valuation of technical condition of oil and gas wells.

Complex technology of tracing investigations is possessed of high interference - stability accuracy, ecological and sanitary-hygienic safety.

At tracing investigations a principally new type of tracers is used physico-chemical properties (including time of “life” in reservoir and surface conditions), the properties are regulated depending on deciding problems. New tracers may be defined in any fluid and gaseous media. Sensitivity of the method for determination of new tracers is not worse than the method of radioisotopes. Several (3-5) tracers that are distinguished by colour of fluorescence may be used in one experiment. Given method of tracing investigations allows to work at dilutions of starting samples that reached enormous values (on the order of 10^{12} times). Monosemantic identification of the tracer is produced on several basic parameters.

The technology allows effectively to decide the set tasks with minimal expenditures of time and means.