



Express-technology of "direct" searching and prospecting for hydrocarbon deposits by geoelectric methods

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Introduction. The State enterprise "Management and marketing Center in the field of Earth sciences research of the Institute of Geological Sciences of Ukrainian NAS (**MMC IGS NASU**), the Institute of Applied Problems of Ecology, Geophysics and Geochemistry (**IAPEGG**) and "Geoprom" Research-and-production organization (**RPO "Geoprom"**) (**Kiev, Ukraine**) have designed the innovative **express-technology** for operative solving problems of ecology, engineering geology and geological-geophysical studies, which is based on geoelectric, seismic-acoustic and GPR methods of investigation. The original geoelectric methods (**know-how**) form also the base of efficient and economical technology of **"direct" searching and prospecting** for hydrocarbon deposits [1-3].

Technology components and equipment. The express-technology includes the method of forming of short-pulsed electromagnetic field (**FSPEF**), flux-meter survey, method of vertical electric-resonance sounding (**VERS**), as well as compact and computerized equipment for field observations, GPS-receiver, software for measurement data registrations, processing and interpretation, methods of field observations conducting. Complex use of these methods within the technology framework gives a chance to find and map on the area the **"deposit" type anomalies (DTA)**, to value the total thickness of **anomalous polarized layer (APL)** of the "oil layer", "gas layer", "water-saturated layer" type and etc and to define their bedding depths. The realized

possibility of conducting the areal surveys from moving car allows to examine a vast territory during short time periods.

Application. During 2000-2005 the technology had broad approbation on hydrocarbon deposits and perspective area on the territory of **Ukraine, Western Kazakhstan, Bulgaria and Russia.**

Application statistics. Geoelectric investigations with the express-technology used were conducted on **40 oil and gas fields.** The "deposit" type anomalies are fixed by FSPEF survey **on all (40!) oil and gas fields.** APL of "oil-and-gas layer" type was chosen by VERS sounding in cross-sections of all this oilfields. Geoelectric "deposit" type anomalies were also mapped by FSPEF method within **48** perspective for oil and gas **structures and separate areas** from 60 investigated.

Application perspectives. The practical application results of express-technologies of "direct" searching for the hydrocarbon accumulation by geoelectric methods show that this technology is enough operative, efficient, economical, and, consequently, perspective.

1. Levashov S.P., Yakymchuk N.A., Korchagin I.N., Taskynbaev K.M. Geoelectric investigations in Kenbye oilfield in Western Kazakhstan // Extended abstracts book. Volume 2. 65nd EAGE Conference and Technical Exhibition. Stavanger, Norway, 2 – 5 June 2003. Poster presentations. Absr. P154, 4 pages. CD-ROM volume.
2. Levashov S.P., Yakymchuk M.A. Korchagin I.N., Pyschaniy Ju.M., Yakymchuk Ju.M. Electric-resonance sounding method and its application for the ecological, geological-geophysical and engineering-geological investigations. 66nd EAGE Conference and Technical Exhibition. Paris, France, 7 – 10 June 2003. CD-ROM
3. Levashov S.P., Yakymchuk N.A., Korchagin I.N., Taskynbaev K.M. Reconnaissance geoelectric investigations for oil within exploratory block R-9 in Western Kazakhstan. 66nd EAGE Conference and Technical Exhibition. Paris, France, 7 – 10 June 2003. CD-ROM volume.