



TATAR GEOLOGICAL PROSPECTING DIVISION (TGRU)

ESTABLISHED IN 1938

ABOUT TATAR GEOLOGICAL PROSPECTING DIVISION

TATAR GEOLOGICAL PROSPECTING DIVISION (TGRU) HAS PERFORMED A WIDE SPECTRUM OF GEOLOGICAL EXPLORATIONS SINCE 1938.

TGRU supports efficient operation of TATNEFT group and third-party customers. Performs geological study of the subsoil and mineral reserves replacement on the territory of the Republic of Tatarstan, the Russian Federation and foreign countries.

Develops innovative methods for prospecting and exploring oil fields, deposits of freshwater and solid minerals, develops technologies in the field of traditional prospecting geology and applied tasks.

Areas of TGRU's activities complement each other and ensure successful solution of complex tasks in the field of:

- traditional prospecting and oil prospecting geology
- applied works, geotechnical surveys.

TGRU developments, with application of the latest technologies of field exploration and oil prospecting, reduced the drilling of unproductive wells

BY 25%

GEOGRAPHY OF ACTIVITIES

THE MAIN SITES FOR STUDIES BY TGRU SPECIALISTS ARE THE LICENSED AREAS OF THE REPUBLIC OF TATARSTAN.

TGRU specialists are engaged in geological exploration on the territory of the Russian Federation in the Samara, Orenburg, Ulyanovsk, Arkhangelsk regions, Nenets and Yamalo-Nenets Autonomous Districts, Krasnodar Territory, the Republic of Kalmykia and abroad – in Libya, etc.

Geo-ecological monitoring of the subsoil conditions is carried out at 24 licensed areas of the Republic of Tatarstan, Samara, Orenburg and Ulyanovsk regions.



4 COUNTRIES ARE COVERED BY TGRU EXPLORATION WORK

10 REGIONS OF THE RUSSIAN FEDERATION

HISTORY OF TATAR GEOLOGICAL PROSPECTING DIVISION

TGRU

5

The founder of the TGRU is the Geological Authority of the Tatar ASSR, established in Kazan in 1938.

A year later, the Authority was transformed into the Tatar State Geological Exploration Trust (Tatgeoltrest) – the leader of Tatarstan oil explorers.

Incorporation into TATNEFT Association.

Transformation into the Tatar Geological Prospecting Division (TGRU).

1938
YEAR

1939
YEAR

1951
YEAR

1993
YEAR

HISTORY IN PERSONS



MELNIKOV A.M.



SHPILMAN I.A.



VOITOVITCH E.D.

MELNIKOV ALEXANDER MIKHAILOVICH

Chief Geologist of the "Tatneftegazrazvedka" trust, 1944-1970, Ph. D. in Geological and Mineralogical Sciences. Discoverer of the unique Romashkinskoye field. Author of 80 publications. Compiler of sections and co-author of major monographs: "Geological structure and oil-bearing capacity of the TASSR" (1948); "Volga-Ural oil and gas province" (1957); "Geology of the USSR" (1967); "Geology of oil and gas fields of the Volga-Ural oil and gas province" (1970). He was awarded the Order of the Badge of Honor, two Orders of the Red Banner of Labor. Laureate of the USSR State Prize, Honored Scientist and Technologist of the TASSR, Honorary Oil Industry Worker of the USSR Ministry of Oil and Gas Industry.

SHPILMAN ILYA ABRAMOVITCH

Chief Geologist at the Exploration Drilling Division No.1 of the "Tatneftegazrazvedka" trust, 1950-1958, Ph. D. in Geological and Mineralogical Sciences. Took part in discovery, exploration and estimation of reserves at the Romashkinskoye oil field, for which he was awarded the USSR State Prize for this work. Took an active part in discovery of Novo-Yelkhovskoe, Nurlatskoe, Vishnevopolyanskoe, Cheremshanskoe and other oil fields. Co-author of a new oil prospecting methodology based on a wide coverage of large areas by deep drilling. Author of 76 publications.

VOITOVITCH EVGENY DMITRIEVICH

Chief Geologist of the "Tatneftegazrazvedka" trust, 1970-1986, Ph. D. in Geological and Mineralogical Sciences. He made a significant contribution to the study of geological structure and oil-bearing capacity of Tatarstan. He participated in discovery and exploration of Ulyanovskoe, Sirenevskoe, Yamashinskoe and dozens of other oil fields. He is the author and co-author of more than 120 printed and fund works. Author of books "The history of discoveries and methods of oil prospecting and exploration in Tatarstan" and "Tectonics of Tatarstan". He is awarded the Order of the Red Banner of Labor, medals, the badge "Excellent Worker of the USSR Oil Industry", Honored Oil Industry Worker of the TASSR, Honorary Oil Industry Worker of the Ministry of Oil Industry of the USSR, discoverer of mineral fields, laureate of the State Prize of the Republic of Tatarstan.

HISTORICAL MILESTONES

1936

Decision was made to intensify oil exploration in Tatar ASSR

1938

Geological Authority of the Tatar ASSR was established

1939

Reorganization into the Tatar State Geological Exploration Trust (Tatgeoltrest)

1943

Discovery of the first commercial oil reserves in Tatarstan

1945

Estimation of oil reserves at the Shugurovskoye oil field

1948

Discovery and estimation of reserves at the Romashkinskoye oil field

1951

Joining the Tatneft Association

1993

Reorganization into Tatar Geological Prospecting Division (TGRU)



2014

Beginning of intensive geological exploration of the subsoil at super-viscous oil plays in Tatarstan



2018

100% implementation of the plan to ensure the reproduction of the mineral resource base of PJSC TATNEFT according to the Development Strategy of TATNEFT Group till 2030



2019

Opening of the projects portfolio to calculate oil and gas reserves in accordance with the introduction of a new classification of reserves and forecasted resources of oil and combustible gases

AREAS OF TGRU ACTIVITY

TGRU TYPES OF OPERATIONS:

- documentary support of geological explorations
- appraisal and explorations for hydrocarbon raw materials
- complex of geological explorations at super-viscous oil areas
- innovative methods of mineral prospecting and exploration
- geophysical studies of wells. Defining the quality of cementing the well string without running tools in the wellbore
- appraisal and exploration for solid minerals and groundwaters
- monitoring and geophysical research for propagation of high-temperature vapor chamber of deposits in the development of SVO
- geo-ecological monitoring
- ecological researches
- geotechnical surveys
- laboratory studies
- study of physical and lithological characteristics of rocks, thin petrophysical sections
- estimation of reserves of hydrocarbons, water and solid minerals, registration in the State Register of Mineral Reserves of the Russian Federation
- preparation of technological projects for development of oil fields.

DOCUMENTARY SUPPORT OF GEOLOGICAL EXPLORATION WORKS

>20 PROJECTS ANNUALLY



ADVANTAGES:

In-house development of local data banks and information & reference systems.

25 YEARS OF PROJECT IMPLEMENTATION EXPERIENCE



GEOGRAPHY:

Republic of Tatarstan, Orenburg, Ulyanovsk, Samara regions, Nenets Autonomous Okrug with the possibility of accessing the entire territory of the Russian Federation.

TGRU PROPOSES:

- Preparation of project documentation for geological exploration of hydrocarbon raw materials. Study of non-traditional reservoirs, assessment of oil-bearing capacity in new territories
- Geological study and allocation of priority sites for further geological exploration for the purpose of creating underground CO₂ storage facilities
- Annual preparation of project documentation for geological exploration of hydrocarbon raw materials at the licensed areas, defending projects in the Federal State Budgetary Institution "Rosgeolexpertiza"
- Annual preparation of mining allotment projects and approval of mining allotment documentation in Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor).

TGRU OWNS THE SOFTWARE PACKAGE "BALANCE OF HYDROCARBON RAW MATERIAL RESERVES AND RELATED COMPONENTS": INFORMATIONAL RETRIEVAL SYSTEM (IRS) "REGION", IRS "LITSENZIA", IRS "FONDY".

INNOVATIVE METHODS FOR PROSPECTING AND EXPLORATION OF RHC “NEIROSEISM”

TGRU IS USING:

- Technology of neural computer analysis of 2D and 3D seismic exploration data "Neiroseism"
- Technology of wavelet analysis of 3D seismic exploration data "Wavelet-Selector".

NEIROSEISM TECHNOLOGY

On the basis of Neuroseism technology and neurocomputer analysis of 2D and 3D seismic data TGRU is prospecting for the most promising oil areas in intervals of productive sediments.

WAVELET-SELECTOR TECHNOLOGY

This technology allows to define the filtration-volumetric parameters of rocks according to 3D seismic surveys in order to predict parameters for reservoir properties of productive deposits.

Relative probability of oil-bearing capacity



0 20 40 60 80 100

AVERAGE EFFICIENCY OF NEURAL COMPUTER PREDICTION OF OIL-BEARING CAPACITY BY EACH PLAY: 85% ON THE TERRITORY OF THE REPUBLIC OF TATARSTAN, 93% ON THE SAMARA REGION PLAYS.



PRECISE SPOT-TYPE RECOMMENDATIONS FOR EXPLORATORY DRILLING SIGNIFICANTLY REDUCE THE PROPORTION OF UNPRODUCTIVE DRILLING

MODIFICATIONS:

- 1 "Neiroseism-Foreground" allows to dissect carbonate strata in the intervals of Domanik and Domanik-like deposits.
- 2 "Neiroseism-MG" is designed to work with the data of shallow seismic survey for prospecting and exploration of high-lying deposits of super-viscous oil of the Upper Permian.



GEOGRAPHY:

Republic of Tatarstan, Kalmykia, Komi, Nenets Autonomous Okrug, Samara, Ulyanovsk, Orenburg regions.



ADVANTAGES:

- proprietary development
- high efficiency of seismic data processing
- no need to do in-field work.

UP TO 1 000 LINEAR AND SQUARE KM OF 2D AND 3D SEISMIC SURVEY MATERIALS PER YEAR

25 YEARS OF WORK EXPERIENCE

INNOVATIVE GEOPHYSICAL AND GEOCHEMICAL METHODS AND TECHNOLOGIES OF HYDROCARBONS PROSPECTING AND EXPLORATION

TGRU PERFORMS A COMPLEX OF GEOPHYSICAL AND GEOCHEMICAL RESEARCH METHODS FOR THE SEARCH AND DELINEATION OF HYDROCARBON DEPOSITS.



ADVANTAGES:

Comprehensive analysis of several research methods.

EQUIPMENT:

- pulsed electrical survey equipment AIE-2
- magnetometers POS-1
- drilling rig UKB 12/25.



GEOGRAPHY:

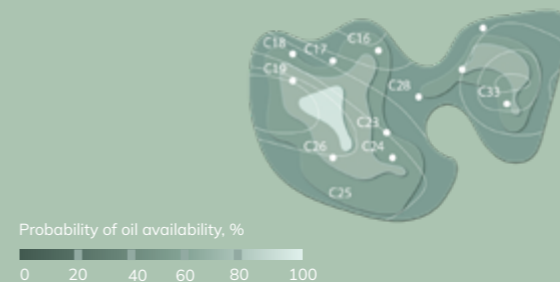
Republic of Tatarstan.

10 YEARS
OF EXPERIENCE

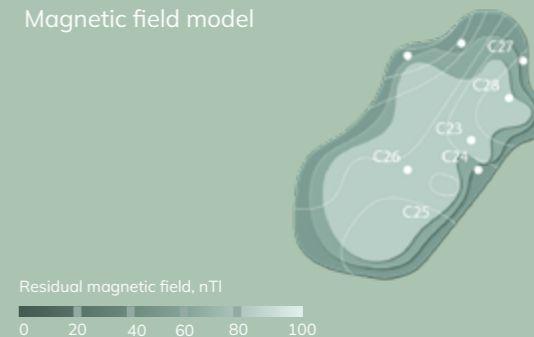
>75% TECHNOLOGIES'
SUCCESS RATE

STAGES OF MODELING

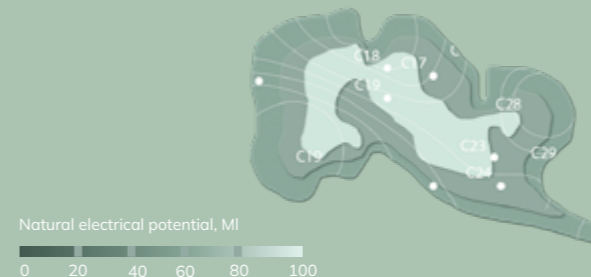
Geochemical field model



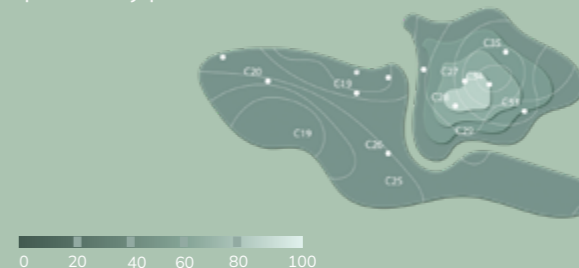
Magnetic field model



Natural electric field model



Resulting model Map of complex probability parameter



RESULT: Defining the locations for drilling of exploration wells based on the results of created models of geophysical and geochemical parameters, probabilistic predicting map of complex probability parameter.

GEOCHEMICAL RESEARCHES BASED ON PASSIVE ADSORPTION

TGRU PERFORMS THE FOLLOWING:

- geochemical researches in order to determine the potential zones of hydrocarbons of new vast areas
- geochemical researches as a local method of predicting the sites prepared by seismic exploration
- installation of adsorbent into the soil according to the observation grid, gas sampling and analysis
- probabilistic comparison of the gas spectrum by reference known oil sites (wells, deposits).



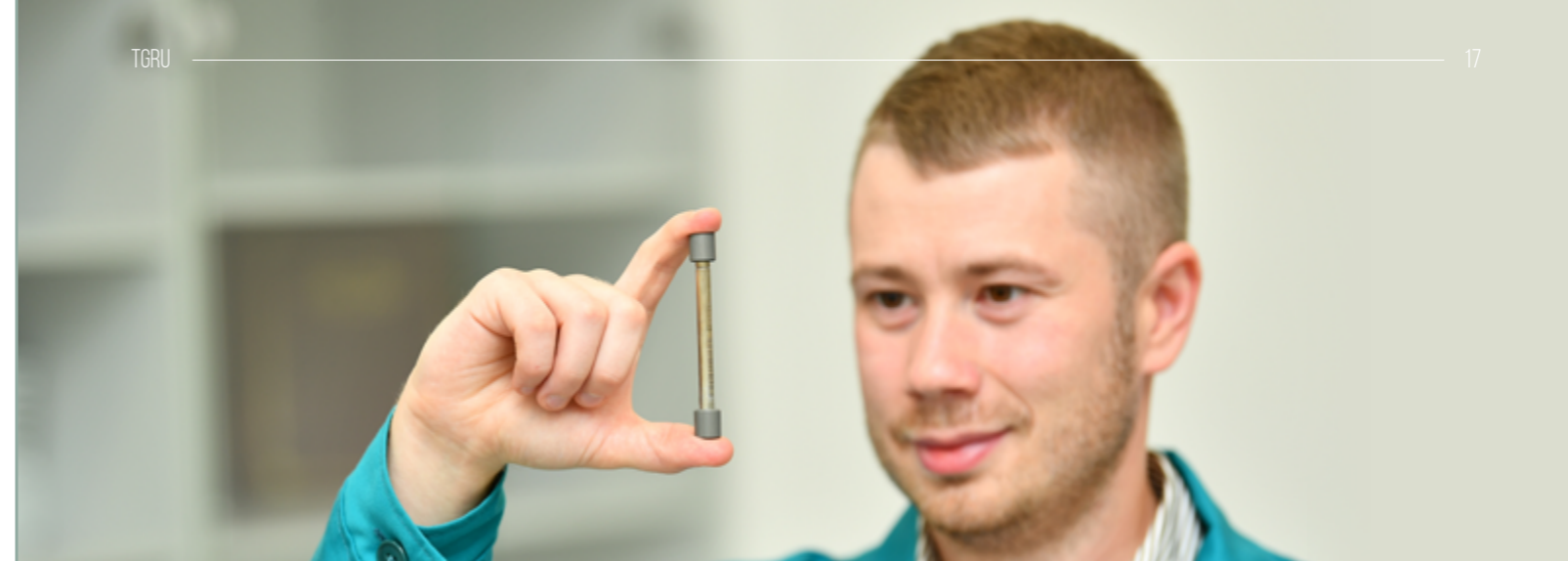
ADVANTAGES:

- researches in areas with low permeability and high humidity
- defining a wide range of hydrocarbons from C₄ to C₂₀ at depths up to 6,000 m at low and high temperatures.



GEOGRAPHY:

Russian Federation, Libya.



RESULT:

- ranking of sites for deep exploratory drilling. Effective identification of sites for further seismic exploration
- reduction of expenses on the preparatory work for the selection of drilling locations and on conducting expensive seismic surveys.

EQUIPMENT:

GCMS-2020 Ultra, Shimadzu gas chromatomass spectrometer, complete with Unity 2 automatic thermal desorber.

78% SUCCESS RATE
OF TECHNOLOGIES USED

~25 YEARS
OF EXPERIENCE

>1000 OBSERVATION
POINTS PER YEAR

SUPER-VISCOUS OIL PROSPECTING AND EXPLORATION



INTERGATED GEOLOGICAL EXPLORATION IN SUPER-VISCOUS OIL RESERVOIRS

AREAS OF TGRU ACTIVITY:

- solving a full range of geological exploration issues and preparing super-viscous oil reservoirs for commercial development
- assessing the possibility of developing the SVO deposits by alternative methods.

RESULTS:

- state expertise of geologic exploration projects
- operations under the state contract
- recommendations for development of boreholes by thermal methods
- discovery of new SVO deposits.



TGRU ADVANTAGES:

- 15 years of experience in studying the geology and oil-bitumen capacity of Permian deposits
- geological support while drilling over 2,800 wells
- 72% success rate on wells post steam-thermal stimulation
- over 20 geological exploration projects have been implemented on 80 SVO areas.



GEOGRAPHY:

Republic of Tatarstan, Samara and Orenburg regions with the opportunity to access the entire territory of the Russian Federation.

15 YEARS
OF EXPERIENCE

PROSPECTING AND EXPLORATION MAPPING OF THE UPPER SEDIMENTARY COVER AND FORECASTING OF SVO DEPOSITS

TGRU PERFORMS THE FOLLOWING:

- georadar studies, study of temporal, velocity, amplitude and other parameters of electromagnetic pulse within the interval of target deposits and overlapping rock massif
- forecasting of SVO deposit using a neural network.

RESULT:

Forecast of the oil content of the sand unit of the Sheshminsky horizon in order to plan further geologic explorations.

EQUIPMENT:

Georadar electromagnetic complex "Loza-V, M, N".



ADVANTAGES:

- delineation of SVO deposits with a minimum number of drilled wells
- recommendations as to where to locate wells on the new areas.



GEOGRAPHY:

South-East of the Republic of Tatarstan.

8 YEARS OF EXPERIENCE
ON IMPLEMENTING
PROJECTS

74% SUCCESS RATE
OF TECHNOLOGIES
USED

UP TO 200 METERS
DEPTH OF
RESEARCHES

GEORADAR MONITORING STUDIES

CARRYING OUT GEORADAR MONITORING OBSERVATIONS OF THE SPREAD OF A HIGH-TEMPERATURE VAPOR CHAMBER OF DEPOSITS DURING SVO DEVELOPMENT. ANNUAL MONITORING OF DEPOSITS IS IMPLEMENTED.

TGRU PERFORMS THE FOLLOWING:

- identification and localization of steam loss and increased water saturation areas that require monitoring or modification of development modes
- comparison of electromagnetic signal attributes in the developed formation before and in the process of SVO deposits development.

RESULT:

Identification of promising areas for reducing the viscosity of bitumen and areas associated with the intensity of steam treatment.

EQUIPMENT:

Georadar electromagnetic complex "Loza-V, M, N".



ADVANTAGES:

Evaluation of the effectiveness of geological and technical activities performed from the daylight surface.



GEOGRAPHY:

Super-viscous oil deposits in the south-east of the Republic of Tatarstan.

>7 YEARS
OF EXPERIENCE

WELL LOGGING

DETERMINING QUALITY OF CEMENT OF WELL DOWNHOLE ELEMENTS (SURFACE CASING) BY VIBROACOUSTIC CEMENT-BOND LOGGING (VAC) WITHOUT RUNNING LOGGING TOOLS IN THE WELLBORE.



ADVANTAGES:

- no need to prepare a well for surveys. The work is implemented on the surface without de-installing the wellhead and pulling out of hole
- surveys using the vibroacoustic cementing technique without running in hole
- time required for the survey 2-3 hours
- result is ready in 1 day
- The technique is approved by the Volga District Division of the State Technical & Mining Inspectorate (Gosgortekhnadzor) of Russia.

TGRU PERFORMS THE FOLLOWING:

- monitoring of the ecological and technical status wells
- providing conclusion reports and recommendations on interval good-quality or poor-quality cement.



GEOGRAPHY:

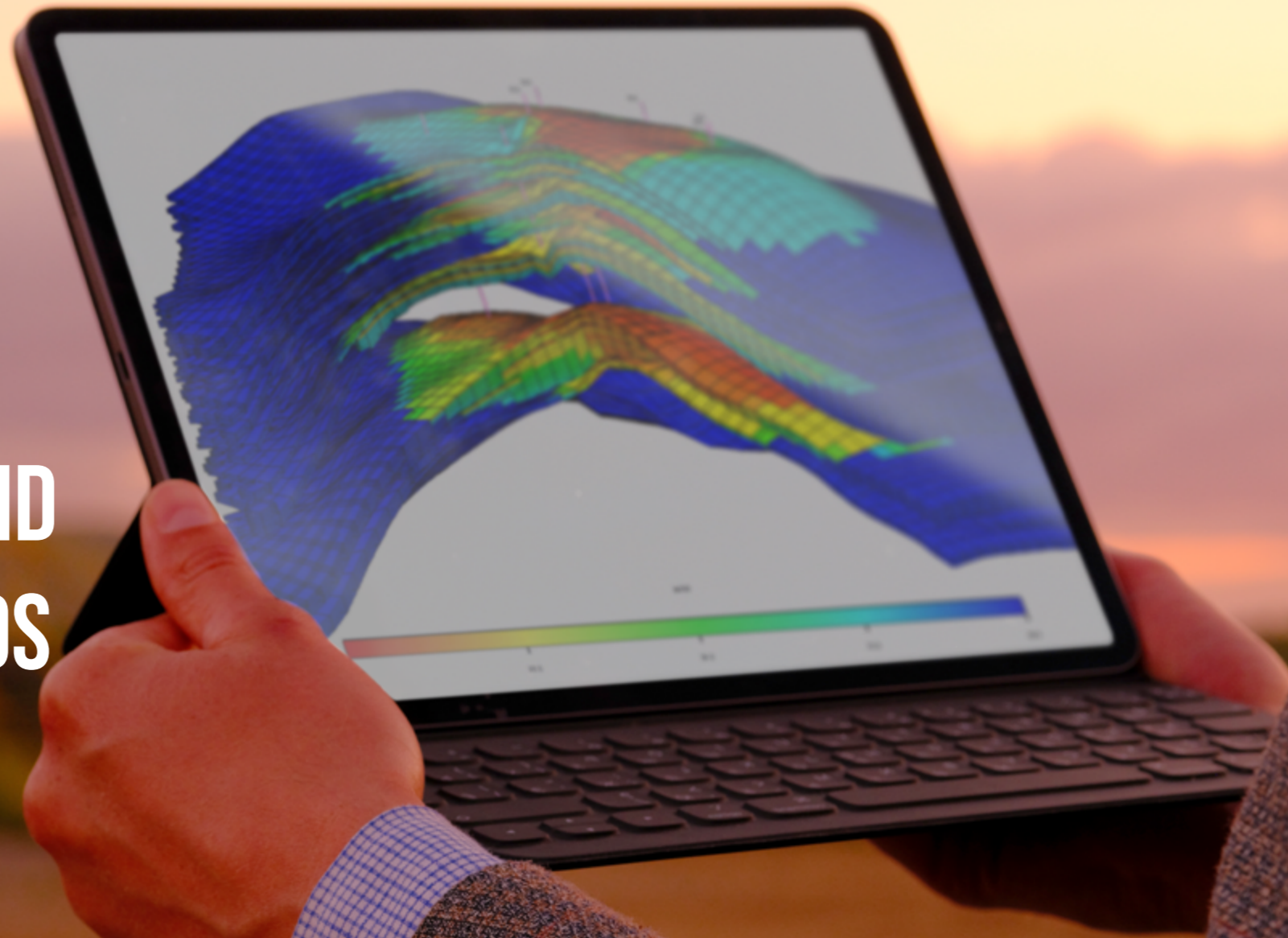
Republic of Tatarstan with opportunity to access the entire territory of the Russian Federation.

100 WELLS
PER YEAR

98% SUCCESS
RATE OF THE
TECHNOLOGY

25 YEARS
OF EXPERIENCE

ESTIMATION OF RAW HYDROCARBON RESERVES AND PROJECT DESIGN OF OIL FIELDS DEVELOPMENT



ESTIMATION OF RAW HYDROCARBONS RESERVES (RHC)

APPROVAL AND REGISTRATION IN THE STATE REGISTER OF MINERAL RESERVES OF THE RUSSIAN FEDERATION.

TGRU PERFORMS THE FOLLOWING:

- estimation of raw hydrocarbon reserves and quick changes to the status of reserves in the fields being developed and explored (conventional oil, dissolved gas, related useful components)
- state expert appraisal by the Federal budgetary institution "State Commission on Mineral Reserves" of the Russian Federation
- estimation of super viscous oil reserves
- estimation of hard-to-recover reserves from Domanik deposits.
- justification of the dynamic viscosity parameter of tax-exempt oil
- building three-dimensional geologic models of fields.

RESULTS:

- 100% positive expertise by FBI "SRC"
- over 40 oilfields discovered since 2000
- implemented and registered with the State Register the UVO reserves of Sheshminsky horizon of over 100 deposits which comprise in 32 oilfields since 2007
- in 2015, for the first time the country the Domanik deposit reserves of Bavlinsky oilfield were registered with the State Register.



ADVANTAGES:

- continuity of experience gained by outstanding geologists the discoverers of oil fields
- experience in defending reports on reserves of super-viscous and hard-to-recover oil.



GEOGRAPHY:

Republic of Tatarstan, Samara, Ulyanovsk, Orenburg regions, Nenets Autonomous Okrug, Libya with opportunity to access the entire territory of the Russian Federation.

>30
REPORTS
PER YEAR

>70
YEARS
OF EXPERIENCE

PHYSICAL AND LITHOLOGICAL CHARACTERISTICS OF ROCKS

TGRU PERFORMS THE FOLLOWING:

- study of physical and lithological characteristics and substantiation of petrophysical conditions of reservoirs and seals of oil fields
- fabrication and optical-microscopic study of petrographic sections using scanning electronic microscopy and X-ray diffractometry methods.



ADVANTAGES:

- ability to determine structural and textural characteristics of rocks and characteristics of the void space
- possibility to substantiate the belonging of sediments to the Domanik type for the purpose of qualifying the reserves as unconventional
- defining the petrophysical model according to the laboratory investigation of the deposits' own core.



GEOGRAPHY:

Republic of Tatarstan, Samara, Ulyanovsk, Orenburg regions, NAO, Libya.

RESULT:

100% positive expert appraisal by the Federal budgetary institution "State Commission on Mineral Reserves".

>70 YEARS
OF EXPERIENCE

PROJECT DESIGN OF OIL FIELDS DEVELOPMENT

TGRU PERFORMS THE FOLLOWING:

- building of three-dimensional dynamic models of fields
- field development history matching
- feasibility study for the field development options
- estimation of forecasted development indicators in the implementation of design and technological documentation
- designing of pilot projects for field trial operation, field development plans and supplements
- substantiation of the oil recovery factor (ORF), design solutions on the amount of planned drilling, oil production forecasts
- preparation of design documentation for additional exploration of fields (for single exploration and prospecting wells).

19 YEARS
OF EXPERIENCE

>150 REPORTS
SUBMITTED

100% POSITIVE EXPERT
APPRAISAL BY
FBI "SRC"*



ADVANTAGES:

Implementation of our work with use of modern software products.



GEOGRAPHY:

Deposits of the Republic of Tatarstan, Samara and Orenburg regions.

* Federal Budgetary Institution "State Reserves Commission"



APPRAISAL AND EXPLORATION FOR GROUND WATERS

INNOVATIVE METHODS TO EXPLORE AQUIFER RESOURCES

STUDY OF AQUIFERS BY NUCLEAR
MAGNETIC RESONANCE (NMR) IMAGING.

TGRU PERFORMS THE FOLLOWING:

- determination of aquifers in the geological cross-section
- researches by NMR-tomographic sounding with obtaining geophysical characteristics of the water-containing medium
- defining the optimal locations for drilling the water source wells.

EQUIPMENT:

NUMIS Plus by the IRIS-Instruments company.



ADVANTAGES:

Discrete assessment of a prospective groundwater geological structure.



GEOGRAPHY:

Republic of Tatarstan with possibility of access to the entire territory of the Russian Federation and neighboring countries.

RESULT:

More than 300 observation points.

15 YEARS
OF EXPERIENCE

UP TO **120** METERS
DEPTH OF RESEARCH

75% SUCCESS RATE

APPRAISAL AND EXPLORATIONS FOR GROUND WATERS

RESULT

> 40 PROJECTS OF
SANITARY
PROTECTION ZONES

GROUND WATER RESERVES ESTIMATED FOR
78 DEPOSITS

> 35
WATER SOURCE PROJECTS

REGISTERED IN THE STATE REGISTER OF MINERAL
RESERVES
111 MLN. M³/DAY OF GROUND
WATER RESERVES

> 25
CONTRACTS OF THE
MINISTRY OF ENVIRONMENT
AND NATURAL RESOURCES
OF THE REPUBLIC OF
TATARSTAN

> 25 UNDERGROUND
WATER DEPOSITS
DISCOVERED FOR
DRINKING WATER SUPPLY TO CITIES AND
REGIONAL CENTERS OF THE REPUBLIC OF
TATARSTAN

6 SITES PREPARED
FOR DISPOSAL
OF WASTE AND
ASSOCIATED WATERS IN
DEEP AQUIFERS

TGRU PERFORMS THE FOLLOWING:

- hydrogeological conclusions, substantiations of the selection of subsoil areas for future water intakes, alternative sources of water supply to populated areas
- disposal of waste and associated waters in deep aquifers
- performs appraisal and exploration work with estimation of groundwater reserves (fresh, industrial, mineral, brines)
- estimation of groundwater reserves
- preparation and coordination of projects for sanitary protection zones
- preparation and approval of projects for development of underground water deposits and projects for pilot industrial disposal of waste and associated waters.

>30 YEARS
OF EXPERIENCE

100% POSITIVE EXPERT APPRAISAL BY
THE STATE AUTHORITIES



ADVANTAGES:

100% positive expert appraisal by the state authorities.



GEOGRAPHY:

Republic of Tatarstan with possibility to access the entire territory of the Russian Federation and neighboring countries.



ECOLOGY

GEO-ECOLOGICAL MONITORING

TGRU PERFORMS THE FOLLOWING:

- preparation of project documents (programs) for conducting geo-ecological monitoring on the territory of hydrocarbon oil fields
- geo-ecological monitoring on the territory of deposits, monitoring observations of the state of environment components
- forecasting any changes in the components of the surrounding (natural) environment in the process of hydrocarbon field development.

RESULT:

- a program for monitoring of groundwater in the process of pumping water into the deep horizons of the TANECO complex
- programs and geo-ecological monitoring certificates for 9 fields of independent oil companies of Tatarstan
- author's support for monitoring of environmental components at the TATNEFT Group subsidiaries.



ADVANTAGES:

Timely informing on the geo-ecological status of license areas to develop managerial decisions on environmental protection.



GEOGRAPHY:

Republic of Tatarstan, Samara, Orenburg and Ulyanovsk regions.

ON **24** LICENSED
AREAS
ANNUALLY

>30 YEARS
OF EXPERIENCE

ECOLOGICAL RESEARCHES

TGRU PERFORMS THE FOLLOWING:

- geophysical survey in solving environmental goals in areas of poor quality of drinking water
- assessment of the pollution sources of groundwaters used for drinking purposes
- delineation of salination spots of fresh groundwater.

RESULT:

Measures taken to eliminate sources of pollution of the upper aquifers.



ADVANTAGES:

The set of studies allows to quickly identify the presence of a hidden, active source of environmental pollution.



GEOGRAPHY:

Republic of Tatarstan with possibility of access to the entire territory of the Russian Federation.

>15 YEARS OF WORK
EXPERIENCE

SOLID COMMERCIAL MINERALS



SOLID COMMERCIAL MINERALS (SCM) APPRAISAL AND EXPLORATION

TGRU PERFORMS THE FOLLOWING:

- appraisal and explorations for solid commercial minerals for the construction industry, agriculture and road construction
- estimation of solid commercial minerals reserves.

RESULT:

- discovery and estimation of reserves at the unique Baymatskoye gypsum field (>240 million tonnes) and Gorodishchenskoye phosphorites field
- the Tatarsko-Shatrashanskoe field of zeolite-containing rocks, unique in its reserves, was explored and prepared for industrial development
- 100% positive expertise and confirmation by the State Commission on Reserves of reports on geotechnical surveys and on solid commercial minerals (SCM).

GEOTECHNICAL SURVEYS, OVER THE LAST 14 YEARS ONLY, COMPLETED THE FOLLOWING:

40 SITES

4 500 WELLS
EXPLORED

7 000 MONOLITHS
SELECTED

>70 YEARS
OF EXPERIENCE

>2 000 SCM DEPOSITS DISCOVERED
AND EXPLORED SINCE
ESTABLISHMENT



ADVANTAGES:

Extensive experience in-field and desk work on the main types of solid commercial minerals used in construction, agriculture and road industries. The SCM party is the legal successor of the Kazan geological party and the "Tatneftegasrazvedka" trust established in the 50-es of the last century.



GEOGRAPHY:

Republic of Tatarstan, Chuvash Republic, Ulyanovsk region with possibility of access to the entire territory of the Russian Federation and neighboring countries.

LABORATORY RESEARCHES



LABORATORY RESEARCHES

THE REGIONAL ANALYTICAL LABORATORY (RAL) HAS THE STATUS OF AN ACCREDITED LABORATORY SINCE 1997.

TGRU PERFORMS THE FOLLOWING:

- chemical analysis of water samples
- researches of oil, associated gas and core samples.

EQUIPMENT:

- atomic emission spectrometer with inductively coupled plasma OPTIMA 2000 DV
- gravimetric capillarimeter "GK-32"
- instrument for determining elastic acoustic waves passage velocity and calculating elastic modules "Ultrazvuk"
- instrument for determining the coefficient of absolute gas permeability of rocks "Darcymeter"
- gas and liquid chromatographs
- core analysis units (UIPK), oil analysis units (UIPN-300), etc.



ADVANTAGES:

- defining 287 parameters using 130 measuring methodologies
- availability of production facilities in the cities of Kazan and Almetyevsk.



GEOGRAPHY:

Deposits of the Republic of Tatarstan.

25 YEARS
OF EXPERIENCE

RESULTS:

WATER ANALYSIS —

UP TO 2 200
SAMPLES PER YEAR

PVT RESEARCHES —

UP TO 450
SAMPLES PER YEAR

CORE ANALYSIS —

UP TO 100
WELLS PER YEAR

OIL ANALYSIS —

UP TO 2 500
SAMPLES PER YEAR

TGRU IS THE WINNER OF THE REPUBLICAN CONTEST "BEST GOODS AND SERVICES OF THE REPUBLIC OF TATARSTAN -2018" IN THE NOMINATION "THE BEST TESTING LABORATORY OF THE REPUBLIC OF TATARSTAN"

GEOCHEMICAL STUDY OF DEEP WELL CORES

METHODS OF THERMAL PYROLYSIS, CHROMATOGRAPHY AND CHROMATOMASS-SPECTROMETRY.

TGRU PERFORMS THE FOLLOWING:

- geochemical researches of organic matter (OM) in order to identify the intervals of pay zones of Domanik type
- substantiation of peculiarities in distribution of organic matter (OM) content and assessment of kerogen type, the nature of its change, degree of maturity of the OM and the type of hydrocarbons generated
- estimation of resources within identified pay zones.



ADVANTAGES:

- application of pyrolysis methods for study of the organic component in micro-parts of core samples within the operating temperature range up to 1,000 °C
- analysis of the component composition in hydrocarbons up to C₄₀.



GEOGRAPHY:

Republic of Tatarstan with possibility of access to the entire territory of the Russian Federation.



2 YEARS
OF EXPERIENCE

~100 CORE SAMPLES
PER YEAR

100% SUCCESS RATE
OF TECHNOLOGIES
USED

EQUIPMENT:

- multi-stage pyrolyzer EGA/PY-3030D Frontier Laboratories
- GCMS-2020 Ultra gas chromatomass-spectrometer, Shimadzu, complete with Unity 2 automatic thermal desorber.



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RECEPTION:

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