

# **Our Company**

MAGNA LLC cable plant is based in Velikie Luki, Russia, where we also have production facilities for high pressure thermoplastic pipes, metal fittings and building materials

To perform the tasks, the company has three mill coarse wire drawing for copper, two mill gross drawing piece of aluminium and two mill middle drawing, 10 torsional machines of various type of twisting that allows to receive a conducting core from the first to the fifth class.

Highly qualified personnel and modern production equipment, equipped with means of automation and control, ensures the production of high- quality production.

In the process of production of cable and wire products the whole chain of technological operations is carried out at the enterprise.

The quality control system conforming to requirements of GOST R ISO 9001:2001 standards developed and operating at the enterprise allows to turn out qualitative production conforming to standards.

# Content



## Cable product:

- Power cables for non-stationary laying	3
- Control cables KVVGE	5
- Control cables KVEBbWb	11
- Umbilicals	17
Contact information	18

# quality integrity innovation

## Power cables



for non-stationary laying

Power cables are flexible with copper multi-wire cores with insulation and in a sheath of thermoplastic elastomer (KGTP).



#### Design

- **1. CONDUCTIVE CORE** copper, multi-wire, round shape, class 5 according to GOST 22483.
- **2. DIVIDING LAYER** synthetic tape, imposition of isolation is assumed without tape in the absence of sticking of thermoplastic elastomer.
- **3. INSULATION** made of thermoplastic elastomer. The isolated tendons have the continuous distinctive coloring or in the form of longitudinal stripes. The insulation of the zero core is blue; if there is no zero core, the blue color is used for the coloring of any core except the grounding one. The grounding conductor has a yellow-green color. The coloring of single-core and double-core cables is not standardized.
- **4. STRANDING** insulated cores are twisted together with a pitch of not more than 16 diameters on twisting.
- **5. RAZDELITEL LAYER** over the stranded conductors of synthetic film, or talcum powder, or another similar material. Can be manufactured without the film under the condition of separating cores from the shell.
- **6. SHELL** is made of thermoplastic hose. In single-core cables of the KGTP brand, it is allowed to replace the insulation and the shell with an insulating and protective shell.

## Power cables



for non-stationary laying

## **Application**

Are intended for connection of mobile mechanisms to electric networks at alternating voltage 660 V frequency up to 400 Hz or a constant voltage of 1000V, with bends with a radius of at least 8 cable diameters at an acceptable temperature of heating conductor up to 75C.

Type of climatic performance of cables UHL placement categories 1,2,3 T according to GOST 15150-69			
Cables are resistant to changes in ambient temperature:			
KGTP	from -40 °C to +50 °C		
In the cold-resistant version	from -60 °C to +50 °C		
in the tropical version	from -10 °C to +55 °C		
Construction cable length:			
With a nominal cross section of main conductors up to 35 mm2	not less than 150 m		
With a nominal cross section of main conductors 55 mm2 and over	not less than 125 m		
(in coordination with the consumer delivery of cables of any lengths is allowed)			
Working life	4 years from the date of manufacture		
Guarantee service life	6 months from the date of commissioning		

Cable				Sec	tion			
KGTP	1x0.75	1x120	2x16	3x2.5	3x150	4x50	5x4	3x2.5+1x1.5
KGTP	1x1	1x150	2x25	3x4	3x185	4x70	5x6	3x4+1x2.5
KGTP	1x1.5	1x185	2x35	3x6	3x240	4x95	5x10	3x6+1x4
KGTP	1x2.5	1x240	2x50	3x10	4x0.75	4x120	5x16	3x10+1x6
KGTP	1x4	2x0.75	2x70	3x16	4x1	4x150	5x25	3x16+1x6
KGTP	1x6	2x1	2x95	3x25	4x1.5	4x185	5x35	3x25+1x10
KGTP	1x10	2x1,5	2x120	3x35	4x2.5	4x240	5x50	3x35+1x10
KGTP	1x16	2x2,5	2x150	3x50	4x4	5x0.75	5x70	3x50+1x16
KGTP	1x25	2x4	2x185	3x70	4x6	5x1	5x95	3x70+1x25
KGTP	1x35	2x6	2x240	3x95	4x10	5x1.5	5x120	3x95+1x35
KGTP	1x50	2x10	3x0.75	3x120	4x16	5x2.5	5x150	3x2.5+1x1.5
KGTP	1x70	1x120	3x1	3x2.5	4x25	4x50	5x185	3x4+1x2.5
KGTP	1x95	1x150	3x1.5	3x4	4x35	4x70	5x240	3x6+1x4



**KVVGE** 





#### Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- 2. ISOLATION from polyvinylchloride plastic compound (PVC).
- **3. STRANDING** insulated cores of cables are stranded in each layer there is a marker pair, insulated cores of which in color differ from each other and from the others lived.
- **4. SCREEN** -for cables of the KVVGE brand is imposed in the form of a winding from a copper foil with overlapping.
- **5. SHELL** superimposed on top of twisted insulated cores made of PVC plastic.

#### **Application**

Cables are intended for fixed connection to electric devices, devices, assemblies of clips of electric switchgears with rated AC voltage up to 0.66 kV frequency up to 100 Hz or DC voltage up to 1 kV, for installation in rooms, channels, tunnels, in an aggressive environment and the need to protect electrical circuits from the influence of external electric fields in the absence of mechanical effects on the cable. It is allowed to lay cables in the ground (trenches) while ensuring the protection of cables in the places of exit to the surface. Cables brand KVVGE can be laid outdoors.



not less than 150 m

at least 25 years

3 years from the date of commissioning

## **KVVGE**

Construction cable length

Guarantee service life

Working life

Type of climatic performance of UHL cables category placement 1 to 5, T (cables a tropical version) of 2-5 categories of accommodation according to GOST 15150-69		
Operating ambient temperature	from -50 °C to +50 °C	
Relative humidity at temperatures up to +35 °C	up to 98%	
Nominal thickness of insulation for cross-section cores:		
from 0.75 to 2.5 mm2	0.6 mm	
from 4 to 6 mm2	0.7 mm	
up to 10 mm2	0.9 mm	
Protractedly possible temperature of heating of tendons during operation	+70 °C	
Cables are resistant to installation bends		
The bending radius of unarmored cables when laying at an ambient temperature of not less than	0°C is:	
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters	
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters	
Electrical insulation resistance of conductors at 20 ° C cross-section:		
from 0.75 to 1.5 mm2, not less	10 Mom*km	
from 2.5 to 4 mm2, not less	9 Mom*km	
from 6 to 10 mm2, not less	6 Mom*km	
The bending radius of unarmored cable laying and assembling without preheating when the ambient temperature is not lower than 15C	not less than 6 cable diameters	

Section		
4x1	10x1	
4x1.5	10x1.5	
4x2.5	10x2.5	
4x4	10x4	
5x1	14x1	
5x1.5	14x1.5	
5x2.5	14x2.5	
5x4	14x4	
7x1	19x1	
7x1.5	19x1.5	
7x2.5	19x2.5	
7x4	19x4	
	4x1  4x1.5  4x2.5  4x4  5x1  5x1.5  5x2.5  5x4  7x1  7x1.5  7x2.5	



KVVGE ng (A)





#### Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- 2. ISOLATION from polyvinylchloride plastic compound (PVC).
- **3. STRANDING** insulated cores of cables are stranded in each layer there is a marker pair, insulated cores of which in color differ from each other and from the others lived.
- **4. SCREEN** -for cables of the KVVGE brand is imposed in the form of a winding from a copper foil with overlapping.
- **5. SHELL** superimposed on top of twisted insulated cores made of PVC plastic low inflammability.

#### **Application**

Cables are intended for fixed connection to electric devices, devices, assemblies of clips of electric switchgears with rated AC voltage up to 0.66 kV frequency up to 100 Hz or DC voltage up to 1 kV, for installation in rooms, channels, tunnels, in an aggressive environment and the need to protect electrical circuits from the influence of external electric fields in the absence of mechanical effects on the cable. It is allowed to lay cables in the ground (trenches) while ensuring the protection of cables in the places of exit to the surface. Cables brand KVVGE can be laid outdoors.

KVVGE ng (A) cables are applied to laying in cable constructions and rooms for ensuring fire safety of cable chains at laying in beams.



KVVGE ng (A)

Type of climatic performance of UHL cables category placement 1 to 5, T (cables a tropical version) of 2-5 categories of accommodation according to GOST 15150-69		
Operating ambient temperature	from -50 °C to +50 °C	
Relative humidity at temperatures up to +35 °C	up to 98%	
Nominal thickness of insulation for cross-section cores:		
from 0.75 to 2.5 mm2	0.6 mm	
from 4 to 6 mm2	0.7 mm	
up to 10 mm2	0.9 mm	
Protractedly possible temperature of heating of tendons during operation	+70 °C	
Cables are resistant to installation bends		
The bending radius of unarmored cables when laying at an ambient temperature of not less than 0°C is:		
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters	
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters	
Electrical insulation resistance of conductors at 20 ° C cross-section:		
from 0.75 to 1.5 mm2, not less	10 Mom*km	
from 2.5 to 4 mm2, not less	9 Mom*km	
from 6 to 10 mm2, not less	6 Mom*km	
The bending radius of unarmored cable laying and assembling without preheating when the ambient temperature is not lower than 15C	not less than 6 cable diameters	
Construction cable length	not less than 150 m	
Working life	at least 25 years	
Guarantee service life	3 years from the date of commissioning	

Cable	Section		
KVVGE ng (A)	4x1	10x1	
KVVGE ng (A)	4x1.5	10x1.5	
KVVGE ng (A)	4x2.5	10x2.5	
KVVGE ng (A)	4x4	10x4	
KVVGE ng (A)	5x1	14x1	
KVVGE ng (A)	5x1.5	14x1.5	
KVVGE ng (A)	5x2.5	14x2.5	
KVVGE ng (A)	5x4	14x4	
KVVGE ng (A)	7x1	19x1	
KVVGE ng (A)	7x1.5	19x1.5	
KVVGE ng (A)	7x2.5	19x2.5	
KVVGE ng (A)	7x4	19x4	



KVVGE ng (A) LS





## Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- **2. ISOLATION** from polyvinylchloride plastic compound (PVC) reduced fire hazard.
- **3. STRANDING** insulated cores of cables are stranded. The cables are digitally or color-coded for all insulated conductors, enabling identification of each core during installation. When digitally marked, the color of the digits differs from the color of the conductor insulation. Color-coded solid or in the form of longitudinal strips of a width not less than 1 mm. allowed core identification using counting pairs in each layer, the isolated tendons of which in color differ from each other and from other cores.
- **4. SCREEN** -for cables of the KVVGE brand is imposed in the form of a winding from a copper foil with overlapping.
- **5. SHELL** superimposed on top of twisted insulated cores made of PVC composition of reduced fire hazard.

#### **Application**

Cables are intended for fixed connection to electric devices, devices, assemblies of clips of electric switchgears with rated AC voltage up to 0.66 kV frequency up to 100 Hz or DC voltage up to 1 kV, for installation in rooms, channels, tunnels, in an aggressive environment and the need to protect electrical circuits from the influence of external electric fields in the absence of mechanical effects on the cable. It is allowed to lay cables in the ground (trenches) while ensuring the protection of cables in the places of exit to the surface. Cables brand KVVGE can be laid outdoors.

KVVGE ng (A) cables are applied to laying in cable constructions and rooms for ensuring fire safety of cable chains at laying in beams.



6 Mom\*km

not less than 6 cable diameters

not less than 150 m

at least 30 years

5 years from the date of commissioning

KVVGE ng (A) LS

## **Technical parameters**

from 6 to 10 mm2, not less

Construction cable length

Guarantee service life

Working life

ambient temperature is not lower than 15C

accommodation according to GOST 15150-69	
Operating ambient temperature	from -50 °C to +50 °C
Relative humidity at temperatures up to +35 °C	up to 98%
Nominal thickness of insulation for cross-section cores:	
from 0.75 to 2.5 mm2	0.6 mm
from 4 to 6 mm2	0.7 mm
up to 10 mm2	0.9 mm
Protractedly possible temperature of heating of tendons during operation	+70 °C
Cables are resistant to installation bends	•
The bending radius of unarmored cables when laying at an ambient temperature of not less than	n 0°C is:
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters
Electrical insulation resistance of conductors at 20 ° C cross-section:	
from 0.75 to 1.5 mm2, not less	10 Mom*km
from 2.5 to 4 mm2 not less	9 Mom*km

Type of climatic performance of UHL cables category placement f 1 to 5, f T (cables a tropical version) of 2-5 categories of

Cable	Section	
KVVGE ng (A) LS	4x1	10x1
KVVGE ng (A) LS	4x1.5	10x1.5
KVVGE ng (A) LS	4x2.5	10x2.5
KVVGE ng (A) LS	4x4	10x4
KVVGE ng (A) LS	5x1	14x1
KVVGE ng (A) LS	5x1.5	14x1.5
KVVGE ng (A) LS	5x2.5	14x2.5
KVVGE ng (A) LS	5x4	14x4
KVVGE ng (A) LS	7x1	19x1
KVVGE ng (A) LS	7x1.5	19x1.5
KVVGE ng (A) LS	7x2.5	19x2.5
KVVGE ng (A) LS	7x4	19x4

The bending radius of unarmored cable laying and assembling without preheating when the



#### **KVEBbWb**





#### Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- 2. ISOLATION from polyvinylchloride plastic compound (PVC).
- **3. STRANDING** insulated cores of cables are stranded. In each layer there is a marker pair, insulated cores of which in color differ from each other and from other cores.
- **4. BELT INSULATION** is pressed out of PVC plastic, or insulation material, or other equivalent material.
- **5. SCREEN** established in the form of lapping of copper foil with an overlap.
- **6. BELT INSULATION** in cables with a protective cover such as BSV is pressed out of PVC plastic, or insulation material, or other equivalent material.
- **7. PROTECTIVE COVER** armor of two steel bands, superimposed so that the tape covered the gaps between the turns of the lower tape.
- 8. Protective hose, extruded from PVC plastic.

#### **Application**

Cables are intended for transmission and distribution of electric energy in stationary installations on nominal alternating voltage with frequency of 50 Hz for the Cables are used for single laying on horizontal and inclined mine workings without limiting the level difference, on the surface of mines, as well as for laying in the ground in the presence of danger of mechanical damage during operation, if the cable is not subjected to significant tensile forces.



## **KVEBbWb**

Type of climatic performance of UHL cables category placement 1 to 5, T (cables a tro accommodation according to GOST 15150-69	opical version) of 2-5 categories of		
Operating ambient temperature	from -50 °C to +50 °C		
Relative humidity at temperatures up to +35 °C	up to 98%		
Nominal thickness of insulation for cross-section cores:			
from 0.75 to 2.5 mm2	0.6 mm		
from 4 to 6 mm2	0.7 mm		
up to 10 mm2	0.9 mm		
Protractedly possible temperature of heating of tendons during operation	+70 °C		
Cables are resistant to installation bends			
The bending radius of unarmored cables when laying at an ambient temperature of not less than 0°C is:			
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters		
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters		
Electrical insulation resistance of conductors at 20 ° C cross-section:			
from 0.75 to 1.5 mm2, not less	10 Mom*km		
from 2.5 to 4 mm2, not less	9 Mom*km		
from 6 to 10 mm2, not less	6 Mom*km		
The bending radius of unarmored cable laying and assembling without preheating when the ambient temperature is not lower than 15C	not less than 6 cable diameters		
Construction cable length	not less than 150 m		
Working life	at least 15 years for laying in premises, ducts, tunnels: at least 25 years		
Guarantee service life	3 years from the date of commissioning		

Cable	Section		
KVEBbWb	4x1	10x1	
KVEBbWb	4x1.5	10x1.5	
KVEBbWb	4x2.5	10x2.5	
KVEBbWb	4x4	10x4	
KVEBbWb	5x1	14x1	
KVEBbWb	5x1.5	14x1.5	
KVEBbWb	5x2.5	14x2.5	
KVEBbWb	5x4	14x4	
KVEBbWb	7x1	19x1	
KVEBbWb	7x1.5	19x1.5	
KVEBbWb	7x2.5	19x2.5	
KVEBbWb	7x4	19x4	
	•	•	



KVEBbWb ng (A)





#### Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- **2. ISOLATION** from polyvinylchloride plastic compound (PVC) reduced flammability.
- **3. STRANDING** insulated cores of cables are stranded. In each layer there is a marker pair, insulated cores of which in color differ from each other and from other cores.
- **4. BELT INSULATION** is pressed out of PVC plastic reduced flammability, or insulation material, or other equivalent material.
- **5. SCREEN** established in the form of lapping of copper foil with an overlap.
- **6. BELT INSULATION** in cables with a protective cover such as BSV is pressed out of PVC plastic reduced flammability, or insulation material, or other equivalent material.
- **7. PROTECTIVE COVER** armor of two steel bands, superimposed so that the tape covered the gaps between the turns of the lower tape.
- **8**. Protective hose, extruded from PVC plastic reduced flammability.

#### **Application**

Cables are intended for transmission and distribution of electric energy in stationary installations on nominal alternating voltage with frequency of 50 Hz for the Cables are used for single laying on horizontal and inclined mine workings without limiting the level difference, on the surface of mines, as well as for laying in the ground in the presence of danger of mechanical damage during operation, if the cable is not subjected to significant tensile forces.



KVEBbWb ng (A)

Type of climatic performance of UHL cables category placement 1 to 5, T (cables a tropical version) of 2-5 categories of accommodation according to GOST 15150-69			
Operating ambient temperature	from -50 °C to +50 °C		
Relative humidity at temperatures up to +35 °C	up to 98%		
Nominal thickness of insulation for cross-section cores:			
from 0.75 to 2.5 mm2	0.6 mm		
from 4 to 6 mm2	0.7 mm		
up to 10 mm2	0.9 mm		
Protractedly possible temperature of heating of tendons during operation	+70 °C		
Cables are resistant to installation bends			
The bending radius of unarmored cables when laying at an ambient temperature of not less than	n 0°C is:		
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters		
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters		
Electrical insulation resistance of conductors at 20 ° C cross-section:			
from 0.75 to 1.5 mm2, not less	10 Mom*km		
from 2.5 to 4 mm2, not less	9 Mom*km		
from 6 to 10 mm2, not less	6 Mom*km		
The bending radius of unarmored cable laying and assembling without preheating when the ambient temperature is not lower than 15C	not less than 6 cable diameters		
Construction cable length	not less than 150 m		
Working life	at least 15 years for laying in premises, ducts, tunnels: at least 25 years		
Guarantee service life	3 years from the date of commissioning		

Cable	Section	
KVEBbWb ng (A)	4x1	10x1
KVEBbWb ng (A)	4x1.5	10x1.5
KVEBbWb ng (A)	4x2.5	10x2.5
KVEBbWb ng (A)	4x4	10x4
KVEBbWb ng (A)	5x1	14x1
KVEBbWb ng (A)	5x1.5	14x1.5
KVEBbWb ng (A)	5x2.5	14x2.5
KVEBbWb ng (A)	5x4	14x4
KVEBbWb ng (A)	7x1	19x1
KVEBbWb ng (A)	7x1.5	19x1.5
KVEBbWb ng (A)	7x2.5	19x2.5
KVEBbWb ng (A)	7x4	19x4
		•



KVEBbWb ng (A) LS





#### Design

- **1. CONDUCTIVE CORE** copper, single-wire, 1 class according to GOST 22483.
- **2. ISOLATION** from polyvinylchloride plastic compound (PVC) of the lowered fire hazard.
- **3. STRANDING** insulated cores of cables are stranded. In each layer there is a marker pair, insulated cores of which in color differ from each other and from other cores.
- **4. BELT INSULATION** is pressed out of PVC plastic of the lowered fire hazard, or insulation material, or other equivalent material.
- **5. SCREEN** established in the form of lapping of copper foil with an overlap.
- **6. BELT INSULATION** in cables with a protective cover such as BSV is pressed out of PVC plastic of the lowered fire hazard, or insulation material, or other equivalent material.
- **7. PROTECTIVE COVER** armor of two steel bands, superimposed so that the tape covered the gaps between the turns of the lower tape.
- **8.** Protective hose, extruded from PVC plastic of the lowered fire hazard.

#### **Application**

Cables are intended for transmission and distribution of electric energy in stationary installations on nominal alternating voltage with frequency of 50 Hz for the Cables are used for single laying on horizontal and inclined mine workings without limiting the level difference, on the surface of mines, as well as for laying in the ground in the presence of danger of mechanical damage during operation, if the cable is not subjected to significant tensile forces.



not less than 150 m
at least 15 years for laying in premises,

ducts, tunnels: at least 25 years

3 years from the date of commissioning

## KVEBbWb ng (A) LS

## **Technical parameters**

Construction cable length

Guarantee service life

Working life

Type of climatic performance of UHL cables category placement 1 to 5, T (cables a tropical version) of 2-5 categories of accommodation according to GOST 15150-69		
Operating ambient temperature	from -50 °C to +50 °C	
Relative humidity at temperatures up to +35 °C	up to 98%	
Nominal thickness of insulation for cross-section cores:		
from 0.75 to 2.5 mm2	0.6 mm	
from 4 to 6 mm2	0.7 mm	
up to 10 mm2	0.9 mm	
Protractedly possible temperature of heating of tendons during operation	+70 °C	
Cables are resistant to installation bends	•	
The bending radius of unarmored cables when laying at an ambient temperature of not less than	n 0°C is:	
for cables with outer diameter up to 10 mm inclusive	at least 3 cable diameters	
for cables with outer diameter from 10 to 25 mm inclusive	at least 4 cable diameters	
Electrical insulation resistance of conductors at 20 ° C cross-section:		
from 0.75 to 1.5 mm2, not less	10 Mom*km	
from 2.5 to 4 mm2, not less	9 Mom*km	
from 6 to 10 mm2, not less	6 Mom*km	
The bending radius of unarmored cable laying and assembling without preheating when the ambient temperature is not lower than 15C	not less than 6 cable diameters	

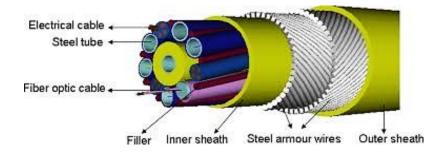
Cable	Section	
KVEBbWb ng (A) LS	4x1	10x1
KVEBbWb ng (A) LS	4x1.5	10x1.5
KVEBbWb ng (A) LS	4x2.5	10x2.5
KVEBbWb ng (A) LS	4x4	10x4
KVEBbWb ng (A) LS	5x1	14x1
KVEBbWb ng (A) LS	5x1.5	14x1.5
KVEBbWb ng (A) LS	5x2.5	14x2.5
KVEBbWb ng (A) LS	5x4	14x4
KVEBbWb ng (A) LS	7x1	19x1
KVEBbWb ng (A) LS	7x1.5	19x1.5
KVEBbWb ng (A) LS	7x2.5	19x2.5
KVEBbWb ng (A) LS	7x4	19x4

## **Umbilicals**



Quite often there is a need for simultaneous supply of liquid and current. In these cases, use a umbilical. Structurally, it is a combination of cable and high-pressure pipeline. The number of conductors of different cross-sections may vary according to needs. We can develop and produce ad-hos umbilicals for offshore oil and gas applications in accordance with Customer requirements .

#### Design



#### **Application**

Umbilical can be used for geophysical studies of oil and gas wells.

Use umbilical technology allows operations that are currently using more costly and cumbersome coiled tubing units: flushing of bottom; acid treatment of bottom hole zone; call inflow by nitrogen purge; elimination of paraffin, hydrate or sand plugs; feed into the well of chemicals (corrosion inhibitors, solvents, paraffin, etc.), technology stimulation with the use of liquid compositions horaceagreeley; drilling of cement and sand plugs, etc.







