Impact Factor:					
	ISRA (India) = **6.317**	**SIS** (USA) = **0.912**	**ICV** (Poland) = **6.630**
	ISI (Dubai, UAE) = **1.582**	**РИНЦ** (Russia) = **3.939**	**PIF** (India) = **1.940**
	GIF (Australia) = **0.564**	**ESJI** (KZ) = **8.771**	**IBI** (India) = **4.260**
	JIF = **1.500**	**SJIF** (Morocco) = **7.184**	**OAJI** (USA) = **0.350**

SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2023 **Issue:** 07 **Volume:** 123

Published: 02.07.2023 **http://T-Science.org**

Issue **Article**

Annaguly Rejepovich Deryaev
Scientific Research Institute of Natural Gas of the State Concern „Turkmengas”
Doctor of Technical Sciences, Senior Researcher
Corresponding Member of International Academy of Theoretical and Applied Sciences,
Ashgabat, Turkmenistan
annagulyderyayew@gmail.com

GENERAL RECOMMENDATIONS AND MEASURES TO PREVENT COMPLICATIONS AND ACCIDENTS DURING DRILLING

Abstract: *The article discusses general recommendations and measures to prevent complications and accidents in the process of drilling a directional production and development well for the purpose of successful trouble-free drilling of well No. 707 of the Western Cheleken field in the coastal zones of the coastal waters of the Caspian Sea.*

To make recommendations and measures to prevent complications and accidents during drilling, materials from previously drilled wells and safety rules in the oil and gas industry were used.

This work will be useful for the successful fulfillment of the tasks set for the purpose of trouble-free wiring of the construction of directional wells, in extremely difficult mining and geological conditions at abnormally high reservoir pressures.

Key words: *absorption, tightening, seizure, bending, curvature, channeling, circulation loss, repression, oil production, gasoline, paraffin, bit insert.*

Language: *English*

Citation: Deryaev, A. R. (2023). General recommendations and measures to prevent complications and accidents during drilling. *ISJ Theoretical & Applied Science, 07 (123),* 1-8.

Soi: http://s-o-i.org/1.1/TAS-07-123-1 ***Doi***: https://dx.doi.org/10.15863/TAS.2023.07.123.1

Scopus ASCC: *2209.*

Introduction

During the construction of the directional operational evaluation well No. 707 at the Western Cheleken field, possible types of complications and accidents (absorption of drilling mud, oil and gas occurrence, seizure of drilling tools and troughs, channeling and curvature of the hole) are shown in Tables 1-4.

Table 1. Absorption of drilling mud

Interval, m		Maximum absorption intensity, m^3/h	Distance from the wellhead to the static level at its maximum decrease, m	Is there a loss of circulation (Yes, No)	Absorption pressure gradient, kgf/cm^2 m		Conditions of occurrence
from (top)	to (bottom)				drilling in	after insulation work	
0	2650	to 15	-	yes	0,16	0,16	Creating repression above the permissible

Table 2. Oil and gas occurrences

Interval, m		Type of fluid being developed (water, oil, condensate)	The length of the gas column during the elimination of the gas phenomenon, m	The density of the mixture during the manifestation for the calculation of excess pressures, g / cm^3		Conditions of occurrence	The nature of the manifestation (in the form of oil films, gas bubbles, water overflow, increased water output, etc.)
from (top)	to (bottom)			inside	outer		
0	2650	Oil, gas, water	to 15	0,65	0,65	Creating repression below acceptable	In the form of oil films, gas bubbles, water overflow

If the hydrostatic pressure in the borehole exceeds the reservoir pressure in the opened formation, the drilling fluid may be absorbed during the drilling process. And, conversely, if the reservoir pressure exceeds the pressure of the drilling fluid column, oil, water and gas will penetrate from the formation into the well, which can lead to blow-out control.

The absorption of drilling mud, accompanied by a decrease in hydrostatic pressure on the walls of the well and the exposure of the upper part of the hole, creates favorable conditions for gas-oil and water blow-out control, as well as violations of the borehole zone of the well. This violation leads to tightening and grabbing of the drill string; gas, oil and water blow-out control also contribute to the violation of the borehole zone of the well, etc. Therefore, in order to prevent absorption, it is necessary to adjust the parameters of the drilling mud, if possible, reduce the density of the drilling mud and increase its viscosity.

One of the main requirements for drilling mud when drilling with possible gas-oil manifestations is its sufficient density to prevent ejection and blowing [1].

Violation of the borehole zone of the well during drilling is very dangerous, and often leads to accidents and costs huge amounts of money and time to eliminate it.

Table 3. Seizure -hazardous areas

Interval, m		Type of seizure (from pressure drop, jamming, oil seal formation, etc.)	The solution, during the application of which the seizure occurred				Condition of occurrence
from (top)	to (bottom)		type	density, g/cm^3	water output, cm^3/30 min	lubricating additives (name)	
0	2650	from pressure drop	clay	-	-	oil, graphite	violation of drilling regime

In order to prevent complications and accidents associated with channeling, bending and curvature of the hole is necessary:

- take measures to reduce the vibration of the drill pipe string, using over-the-top shock absorbers for this purpose or making changes to the bottom-hole assembly (BHA) and the operating mode of the rock-breaking tool;
- carefully work out the open hole during the first chiseling with the modified BHA with taking precautions against jamming the drill pipe column and drilling a new hole;
- to carry out changes in the drilling method after careful preparation of the borehole, drill pipe string, rock-breaking tools, equipment and instrumentation;
- to determine the moment of lifting the bit according to the indicators of mechanical logging and instrumentation;
- to make the bottom of the column of drill collar of different diameters for a smooth reduction of the

stiffness of the BHA;

- determine the length of the drill collar with the installed load on the bit based on the calculation of the transfer of 75% of the weight [2, 3].

Table 4. Other possible complications

Interval, m		Type (name) complications: grooving, hole bending, curvature, griffin formation	Characteristics (parameters) complications and conditions of occurrence
from (top)	to (bottom)		
0	2650	Channeling	The presence of powerful clay layers in the cut

A timely increase in the density of the drilling mud and a decrease in the filtration rate to the required size contribute to the prevention of this complication.

The main preventive means of preventing snags in the form of sticking of pipes to the filtration crust is drilling with flushing of the borehole with a high-quality drilling fluid that forms a dense, but thin and non-sticky filtration crust. To reduce the stickiness of the filtration crust, special lubricating additives must be introduced into drilling fluids.

To prevent drilling (and casing) pipes from sticking due to the formation of oil seals, sludge deposition and weighting, it is necessary to drill on a stabilized structured drilling fluid with a small filtration rate. It is advisable to maintain viscosity and static shear stress, possibly minimal [4, 5].

Tool grabs and landings caused by the narrowing of the borehole and not related to the properties of the drilling mud are easily prevented by timely elaboration of the bottom-hole zone with a new bit. The narrowing of the hole caused by the swelling of clays depends on the quality of the drilling mud. Such tacks can be prevented by improving the quality of the drilling mud.

To eliminate the seizure, it is necessary first of all to pace the column with cranking. If at the same time it is not possible to eliminate the tack, more complex methods of elimination are used: installation of various types of baths, depending on the nature of the tack; shaking the drill tool in front of the tack zone and other methods.

To prevent complications and accidents with the drill string, it is necessary to regularly press drill pipes after 300 hours of operation. The value of the pressure of the crimping should be at least 25 MPa for all sizes of drilling tools; at a drilling depth of more than 4000 m, the value of the pressure of the crimping should be increased to 30 MPa.

After every 400 hours of operation of weighted drill pipes, it is necessary to re-cut the threaded connections of pipes when drilling with ball bits and after 600 hours - when drilling with diamond bits.

The leading pipes must be changed after 1200 hours of work when drilling wells to a depth of 3000 m, after 1000 hours - to a depth of 3500 m and 800 hours - at a depth of over 3500 m.

To prevent accidents with bits, it is impossible to allow overexposure of the bit at the bottom of the well. A sharp decrease in the mechanical speed (by 1.5-2 times within 10-15 minutes) with an increase in the braking of the downhole engine indicates the operation of the drill bit [6].

In order to prevent the absorption of drilling mud, it is necessary to limit the speed of descent of the drilling tool. The maximum speed of descent of the drilling tool is determined by the formula (1)

$$u\max = \frac{\left(P_{hydr.} - P_{res.}\right)\left(D^2_{bit} - d^2_{d.p.}\right)}{3300L\eta} \qquad (1)$$

where P_{hydr} is the hydrostatic pressure of the drilling mud column, MPa;

P_{res} - reservoir pressure, MPa;

D_b - bit diameter, mm;

$d_{d.p}$ - diameter of drill pipes, mm;

L is the depth of the absorbing horizon, m;

η is the dynamic viscosity of the drilling mud, N-s/m^2.

The velocity of the upward flow of the drilling fluid should ensure the complete removal of the drilled rock and crumbling particles to the surface. When drilling with downhole motors, it should be 1.1-1.2 m/s, with rotary 0.9-1.0 m/s [7, 8, 9].

A significant increase in the upstream velocity causes turbulent movement of the drilling fluid, which leads to cavern formation.

Below is the required flow rate of drilling mud, which provides the required upstream velocity (Table 5).

Table 5.

Diameter, mm		The area of the ring space	Drilling mud flow rate (dm^3/s), providing the upstream velocity, m/s					
bits	drill pipes		0.8	0,9	1.0	1.1	1,2	1.3
215,9	127	0,0239	19,12	21,51	23,9	26,29	28,68	31,07
	129	0,0235	18,8	21,15	23,5	25,85	28,20	30,55
	140	0,0212	16,96	19,08	21,2	23,32	25,44	27,56
295,3	140	0,0531	42,48	47,79	53,1	58,41	63,72	69,03
	147	0,0515	41,20	46,35	51,5	56,65	61,80	66,95
393,7	147	0,1047	83,76	94,23	104,7	115,17	125,64	136,11
	168	0,0995	79,60	89,55	99,5	109,45	119,40	129,35

If the borehole is prone to narrowing and there is no experience of drilling wells in the area, then the density of the drilling mud can be determined as follows.

The drill string without a bit is lowered into the shoe of the last casing string and when the well is filled with drilling fluid, the preventer is closed [10]. At the end of the day, it counts the pressure at the wellhead. The density of the drilling mud is determined by the formula (2).

$$\rho = 100(0{,}01\rho_{init.}H + \rho_{exc.})/H \qquad (2)$$

where ρ_{init} is the initial density of drilling mud before the opening of plastic rocks, g/cm^3;

H - the depth of the roof of plastic rocks, m;

ρ_{exc} - excess pressure at the wellhead, MPa.

In order to prevent manifestations, it is necessary that the density of the drilling mud provides a double value of the minimum reserve, determined depending on the gap between the pipes and the well and the dynamic shear stress [11, 12, 13]. The value of the minimum reserve of drilling mud density, determined by the formula (3), is given in Table 6.

$$\rho_{reser.} = \frac{535\ \theta}{D-d}, \qquad (3)$$

where θ is the dynamic shear stress, N/cm^2;

D - well diameter, cm;

d is the diameter of the drill pipes, see

Table 6.

Well diameter, mm	Diameter of drill pipes. mm	Minimum margin of drilling mud density (g/cm^3) at dynamic shear stress $H/см^2$.							
		0,0001	0,0002	0,0003	0,0004	0,0005	0,00075	0,001	0,0015
393,7	147	0,002	0,004	0,0065	0,009	0,011	0,016	0,022	0,033
	140	0,002	0,004	0,0063	0,0084	0,011	0,016	0,021	0,032
295,3	147	0,004	0,007	0,011	0,014	0,018	0,027	0,036	0,054
	140	0,003	0,007	0,010	0,014	0,017	0,026	0,034	0,051
215,9	127	0,006	0,012	0,018	0,025	0,031	0,046	0,062	0,093

In addition, when lifting drill pipes into the well, it is necessary to top up the drilling fluid to the mouth. The amount of drilling fluid to be topped up during the lifting of the drilling tool must correspond to the amount of the displaced volume of the solution from the well during the descent of the drilling tool (Table 7).

The wellhead must be equipped with appropriate preventers.

Table 7.

Standard size of drill pipes, mm	Weight of 1 m of pipes, kg	Displaced volume of drilling mud, m^3			
		on 1 m of pipes	for 1 candle (25 m)	for 5 candles (125 m)	for 10 candles (250 m)
Drill colar (DC) -108	63,0	0,0080	0,2000	1,0000	2,000
DC-146	97,0	0,0124	0,3100	1,5500	3,100
DC -178	156,0	0,0200	0,5000	2,5000	5,000
DC C-133	84,0	0,0107	0,2675	1,3375	-
DC -203	192,0	0,0246	0,6150	3,0750	-
DC -229	273,0	0,0350	0,8750	4,3750	-
DC -254	336,0	0,0431	1,0775	5,3875	-

During the descent of the casing strings, drilling fluid absorption, tack, crumpling, casing breaks and other complications and accidents may occur.

Absorption of drilling mud is possible if the wellbore is insufficiently prepared for the descent of the column, due to a violation of the mode (speed) of descent, if the parameters of the solution deviate from those specified in the geological and technological order (increased density and viscosity of the solution). To prevent takeovers, the causes causing them are eliminated [14].

Oil and gas occurrences occur when the pressure in the well decreases and becomes lower than the reservoir pressure, as well as when the well remains for a long time without flushing and bundles of gas (carbonated oil) are formed in the wellbore due to diffusion.

A decrease in pressure in the well may occur due to a decrease in the density of the drilling fluid, its absorption in the upper intervals of the section, when the casing is pacing.

To prevent the occurrence of reservoir fluids during the descent of the column, it is necessary to maintain the necessary back pressure on the productive layers and to carry out intermediate flushing of the wellbore. The wellhead must be equipped with anti-blowout equipment.

Grabbing of the casing string when it is lowered into the well is possible in the event of scree and rock collapses, due to the sticking of the column to the wall of the well, jamming in the gutters, places of curvature of the borehole, foreign objects.

As preventive measures to prevent casing tack, it can be proposed - thorough preparation of the borehole (elaboration, templating, fixing the walls of the well), the introduction of lubricating additives into the drilling fluid, the use of column centering elements, not allowing the column to remain in the well for a long time, the implementation of intermediate flushing.

Casing breaks during the descent into the well can occur both along the body of the pipes and at their junctions (thread failure, destruction of the weld). The causes of breakages may be factory defects, errors in strength calculations, violation of the column descent mode.

To prevent casing breaks, the casing pipes and their connections on the surface should be prepared and checked, the tensile calculations of the columns should be carried out with the necessary margin of safety, the descent of the column should be carried out in accordance with the planned speed of movement.

To prevent and combat complications during fountain and gas lift operation of wells, the following measures must be taken.

1. Measures to prevent and combat complications during fountain operation of wells

When choosing the blowing mode (the diameter of the fitting), it is necessary that the well has an optimal flow rate with a small gas factor, gives less water and sand, gushes calmly, without large pulsations. Only when these conditions are met, it is possible to ensure the most rational use of reservoir energy and long-term, uninterrupted blowing of the well.

When choosing the mode of operation of a fountain well, reservoir conditions are also taken into account - the proximity of contour water, the possibility of a plug in the well, the mode of the field itself, etc.

The main reasons for the disruption of the normal operation of fountain wells are the paraffinization of fountain pipes, the formation of a sand plug, corroding of the fitting, clogging of the fitting or ejection of paraffin complications, etc.

Measures to restore the operation mode of wells are carried out depending on the reason that caused its violation.

When a sand plug is formed in the fountain pipes, which caused the buffer pressure to drop to zero and the supply is stopped, a liquid (oil) pump is flushed into the annular space to restore circulation and eliminate the plug.

A significant decrease in pressure in the annular space indicates the formation of a plug at the bottom and the appearance of water, the latter is detected by taking a sample from the jet. When water appears, it is necessary to increase the pressure on the face by reducing the diameter of the fitting. To eliminate the downhole plug, the well is allowed to work without a fitting or oil is pumped into the annular space.

The pressure drop on the buffer while increasing the flow rate of the well indicates that the nozzle is corroded by sand, in this case it is necessary to transfer the fountain jet to another outlet and immediately change the nozzle.

If these methods fail to eliminate sand jams in the lifting pipes or at the bottom, then the well is stopped for repair work, after which it is put into normal operation [15].

Dewaxing of the elevator is the main way to ensure the normal operation of fountain wells. The largest amount of paraffin is deposited in the upper part of the lifting pipes, at a length of 400 - 1000 m from the wellhead and in the field oil collection system, in which paraffin deposition increases during the cold season. Several methods are used against waxing of lifting pipes. First of all, these are regime measures: reduction of pulsation and frequency of blowing, regulation of the gas factor in order to reduce it as much as possible.

If these measures do not give results, it is necessary to clean the lifting pipes from paraffin.

There are 3 types of cleaning from paraffin: mechanical, thermal, chemical.

Mechanical cleaning of pipes from paraffin is carried out during the operation of wells without stopping them with scrapers of various designs.

When exposed to heat, the lifting pipes are heated with steam, hot oil pumped into the annulus of the well without stopping it. The melted paraffin is carried out by a jet of oil to the surface, while the paraffin melts in the switch line. The thermal method does not prevent the deposition of paraffin in pipes, it is used sporadically, under favorable conditions and when for some reason it is not possible to use other more effective methods.

As a solvent for paraffin, it is envisaged to use condensate (gasoline), which is extracted in sufficient quantities at the Korpedje field.

2. Measures to combat complications during gas lift operation of wells.

The most characteristic complications in gas lift mining are the appearance of sand and cork formation, the deposition of paraffin in lifting pipes and discharge lines.

Measures against sand entering the well are of a regime nature and are reduced to limiting depression, i.e. limiting fluid intake. The amount of liquid extraction from gas lift wells is regulated by changing the amount of injected working agent, the depth of immersion of lifting pipes or their diameter. To prevent the settling of sand during the periods of its greatest inflow from the reservoir, without interrupting operation, oil is pumped into the annulus in small portions by a mobile pump.

Sometimes the pressure of the gas injected into the well increases sharply when the liquid supply is stopped at the same time. This may occur due to the formation of a so-called cartridge sand plug in the lifting pipes, which blocks the section of the lifting pipes, preventing the mixture of oil and injected gas from reaching the surface. To destroy such a plug, gas is pumped not into the annular space, but into lifting pipes. If in this way it is not possible to push the plug from the pipes to the bottom of the well, then it is necessary to remove the pipes.

When wells are equipped with a single-row lift, it is finished with a shank of a smaller diameter than the main tubing string. The descent of the lifting pipes with a shank to the filter facilitates the conditions for the removal of sand by the liquid to the surface and prevents the formation of sand jams.

Measures to prevent paraffin deposits in lifting pipes during gas lift operation of wells, and methods for cleaning pipes from paraffin are similar to those used in fountain operation.

Drilling companies together with design organizations should develop measures to prevent accidents and complications.

Before opening a reservoir or several layers with possible fluid manifestations, it is necessary to:

a) train members of the drilling crew in practical actions to eliminate gas and oil water manifestations and open fountains according to the standard Instructions for the action of members of the drilling watch during gas and oil water manifestations;

b) a drill alarm (the further frequency of drill alarms is set by the drilling company in agreement with the counter-fountain service).

To work on wells with possible gas and oil-producing manifestations, engineering and technical workers who have not passed within 5 years of retraining in specialized training and course complexes on the course "Well management with gas and oil-producing manifestations" are not allowed.

If gas oil and water occurrences are detected, the drilling watch is obliged to seal the wellhead and the channel of drill pipes, inform the management of the drilling company, the anti-spontaneous service and act in accordance with the Instructions for the elimination of the manifestation.

When carrying out repair and insulation works,

perforation of casing strings is prohibited in the interval of possible rupture of formations by pressure of gas, oil (after the inflow is called), as well as against permeable unproductive formations.

Work on the liquidation of an open fountain should be carried out according to a special plan developed by the headquarters established in accordance with the established procedure.

The Headquarters is fully responsible for the implementation of the developed measures.

Work at the mouth of a blowing well should be carried out by the forces of the anti-spontaneous service, and auxiliary work - by members of the drilling crew who have passed special instruction.

Equipment, special devices, tools, materials, workwear, insurance and personal protective equipment necessary for the elimination of gas and oil water occurrences and open fountains should always be in full readiness in the emergency stock warehouses of drilling companies and emergency services.

The location of warehouses and the list of their equipment are determined by the Regulations on Emergency Stock Warehouses.

The list of types of catch-all tools that should be on the drilling rig is determined by the "Report card of equipment of drilling facilities and development of catch-all tools".

It is allowed to start lifting the drill string from the well in which the drilling fluid has been absorbed in the presence of a gas and oil phenomenon only after filling the well to the mouth and in the absence of overflow [16].

The volume of the drilling fluid to be topped up should be monitored especially carefully, comparing it with the volume of the pipe metal being lifted.

Pipe lifting should be stopped immediately if less than 0.5 m^3 of drilling fluid from the reference value is added to fill the well to the mouth.

The descent of the drill pipe column is carried out with continuous monitoring of the volume of the displaced drilling fluid.

It is strictly forbidden to top up the well in which the absorption of the solution occurred. The level at the mouth should be restored by topping up the process water and monitoring the well during the period of technological exposure. According to the volume of water poured into the well, it is necessary to calculate the required density of drilling mud, which excludes the occurrence of both absorption and manifestation [17].

Drilling of wells with partial or complete absorption of drilling fluid (water) and possible fluid occurrence is carried out according to a special plan agreed with the designer, the customer and the counter-spontaneous service.

When installing baths (oil, water, acid), the hydrostatic pressure of the drilling mud column and the bath liquid must exceed the reservoir pressure. If it is likely or necessary to reduce the hydrostatic pressure below the reservoir, work on pacing the drill string should be carried out with a sealed paddock space and a ball valve installed in the drill pipes, as well as with the development and implementation of special safety measures [18].

When sinking rocks prone to fluidity with a diamond bit, it is necessary: periodically (at least after 2 days) to carry out preventive lifting of the bit above the roof of these deposits

In case of prolonged stoppages or downtime of wells with exposed rocks prone to fluidity, the drilling tool should be lifted into the casing shoe; periodically, the open hole should be worked out before the face. The frequency is determined by the technological service of the drilling company.

Work on the release of the seized drilling tool with the use of explosive devices (torpedoes, detonating cords, etc.) should be carried out according to a special plan agreed by the geophysical enterprise.

Before the emergency tool is lowered into the well, a layout sketch must be prepared indicating the need for dimensions.

For drilling the internal parts of the couplings of step cementing, docking devices and cement cups in casing columns, it is necessary to use bits without side reinforcement with solid pin inserts or with cut peripheral teeth; if necessary, the interval of installation of the coupling of step cementing or the docking device can be additionally worked out by a full-dimensional flat-bottomed milling cutter without side reinforcement.

References:

1. Deryaev, A.R., Gulatarov, H., Esedulaev, R., & Amanov, M. (2020). *Tekhnologiya burenie naklonno-napravlennyh i gorizontal'nyh skvazhin i raschety proektirovaniya: Nauchnaya monografiya*. (p.608) – Ashgabat: Ylym.
2. Deryaev, A.R. (2022). *Napravlennoe burenie mnogoplastovyh mestorozhdeniya i odnovremennaya razdel'naya ekspluataciya: monografiya*. (p.294) - Ashgabat: Ylym.

3. Deryaev, A.R., & Geldimyradov, A.G. (2022). *Tekhnologiya bureniya skvazhin i vybor komponovku niza buril'nyh kolonny: monografiya*. (p.293) - Ashgabat: Ylym.
4. Deryaev, A.R., Gulatarov, H., & Hallyev, E. (2011). *Problemy bureniya sverhglubokih skvazhin v Turkmenistane ekstremal'no slozhnyh gorno-geologicheskih usloviyah.* Sbornik stat'ej instituta "Nebitgazylymytaslama". (pp.10-22). Ashgabat: Turkmenskaya Gosudarstvennaya sluzhba pechati.
5. Deryaev, A.R. (2012). Burenie i zakanichivanie skvazhin v Gosudarstvennom koncerne "Turkmenneft'" s primeneniem peredovyh tekhnologii. *Sbornik stat'ej instituta "Nebitgazylymytaslama"*. Vypusk 2 (29) - Ashgabat: Turkmenskaya Gosudarstvennaya sluzhba pechati, pp. 262–266.
6. Deryaev, A.R., Orazmyradow, U., & Jamiýew, M. Ý. (2012). Guýulary berkitmekde uglewodorod esasly buraw erginlerini gysyp çykarmak üçin UBSS uglewodorod bufer suwuklygynyň sistemasy. *"Nebitgazylmytaslama". Institutynyň makalalar ýygyndysynyň* 2-nji (29) goýberilişi. – Ashgabat: Türkmen döwlet neşirýat gullugy, pp. 304–309.
7. Deryaev, A.R., Gulatarow, H.G., Mantrowa, S.M., & Jamiýew, M.Ý. (2012). Çylşyrymly geologik şertlerde guýulary gazmakda buraw erginleri üçin KAIR kompleksli ingibirlenen goşundy. "Nebitgazylmytaslama". *Institutynyň makalalar ýygyndysynyň* 2-nji (29) goýberilişi. – Ashgabat: Türkmen döwlet neşirýat gullugy, pp. 315–319.
8. Deryaev, A.R., Gulatarov, H., & Mantrova, S.V. (2014). Rekomendacii po burovym rastvoram dlya odnovremenno-razdel'noj ekspluataciej neskol'kih produktivnyh gorizontov na mestorozhdenii Severnyj Goturdepe. *Sbornik instituta Nefti i gaza*, vypusk 8 - Ashgabat: Turkmenskaya Gosudarstvennaya sluzhba pechati, pp. 262–266.
9. Deryaev, A.R. (2013). Razrabotka konstrukciya skvazhin dlya odnovremennoj ekspluatacii neskol'kih neftyanyh plastov. *Türkmenistanda ylym we tehnika*. № 6 - Ashgabat: Ylym, pp. 71–78.
10. Deryaev, A.R. (2014). Günorta-Günbatar Türkmenistanyň demirgazyk Goturdepe käninde ýapgyt ugrukdyrylyp gazylan ilkinji agtaryş guýusynyň burawlanyşy. *"Nebitgazylmytaslama". Institutynyň makalalar ýygyndysynyň* 3-nji (30) goýberilişi - Ashgabat: Türkmen döwlet neşirýat gullugy, pp. 187–195.
11. Deryaev, A.R., Hallyýew, E. H., & Džamiýew, M. (2014). Regulirovanie svojstvo utyazhelennyh tamponazhnyh rastvorov s reagentom Glenium-51 v processe burenie. *Sbornik stat'ej instituta "Nebitgazylymytaslama".* Vypusk 3 (30) - Ashgabat: Gosudarstvennaya sluzhba pechati, pp. 248–257.
12. Deryaev, A.R., Mamedov, B., & Amanov, M. (2021). *Vnedrenie receptur burovyh rastvorov dlya burenie naklonno-napravlennyh i vertikal'nyh skvazhin.* Mezhdunarodnaya nauchno-prakticheskaya konferenciya studentov, magistrov, aspirantov i doktorantov "Rynok i effektivnost' proizvodstva-18", posvyashchennaya 30-letiyu Nezavisimosti Respubliki Kazahstan. Sbornik trudov. (pp. 258–261). Kokshetau.
13. Deryaev, A.R. (2021). Rekomendacii po ispol'zovaniyu burovyh rastvorov dlya uspeshnogo vedeniya burovyh rabot na mestorozhdenii Severnyj Goturdepe. *Aktual'nye issledovaniya*. №51 (78) – Belgorod: Izdatel'stvo "Agentstvo perspektivnyh nauchnyh issledovanij", pp.14–22.
14. Gulatarov, H., Deryaev, A.R., & Esedulaev, R.E. (2019). *Osobennosti tekhnologii bureniya gorizontal'nyh skvazhin sposobom elektrobureniya: monografiya.* (p.227). – Ashgabat: Nauka.
15. Deryaev, A.R. (2012). Burenie naklonno napravlennyh skvazhin na mestorozhdeniyah Zapadnogo Turkmenistana. *"Nebitgazylmytaslama".* Vypusk 2 (29) - Ashgabat: Turkmeniskaya Gosudarstvennaya sluzhba pechati, pp. 267-276.
16. Deryaev, A.R. (2012). Opyt bureniya skvazhin s gorizontal'nym okonchanie stvola Zapadnom Turkmenistane. *Sbornik stat'ej instituta "Nebitgazylmytaslama"*. Vypusk 2 (29) - Ashgabat: Turkmeniskaya Gosudarstvennaya sluzhba pechati, pp. 277-285.
17. Deryaev, A.R. (2023). Horizontal well drilling technology. *International Scientific Journal "Theoretical & Applied Science"* №02 (118) – USA - Philadelphia: Publishing: "Theoretical & Applied Science", pp. 445 - 449.
18. Deryaev, A.R. (2022). Features of drilling technology for dual completion, joint operation of several horizons in a multi-layer field. *"COGNITIO RERUM" Scientific journal*. №5 – Moskva: Academic publishing: "Scientific artel", pp. 12-21.