## CONTENTS

The memory of the prominent oilman M.T. Gusmana

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**DRILLING TECHNIQUE AND TECHNOLOGY**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serikov D.Yu., Yasashin V.A., Panin N.M.</td>
<td>Updating calibrators design structures</td>
<td>19</td>
</tr>
<tr>
<td>Yumachikov R.S., Mulyavin S.L., Bastrikov S.N., Ivanov A.A.</td>
<td>Down-hole self-cleaning filter is an innovational solution of increasing operational period of oil producing wells</td>
<td>22</td>
</tr>
<tr>
<td>Myslyuk M.A., Dolyk R.N.</td>
<td>Analysis of the non-steerable bottom-hole assemblies when drilling wells on Yablunovsky gas-condensate field</td>
<td>26</td>
</tr>
<tr>
<td>Bykov I.Yu., Zaikin S.F., Perminov V.B.</td>
<td>Determination of resistance moment surge on the drill casing string in optimum operational areas of drilling parameters</td>
<td>33</td>
</tr>
<tr>
<td>Tomareva I.A., Karagodov N.A.</td>
<td>Application of horizontal directional method while drilling coastal part of underwater pipeline</td>
<td>40</td>
</tr>
<tr>
<td>Antipova K.A., Kulakova O.A.</td>
<td>Hazards mitigation in carbonate super-reservoir drilling intervals</td>
<td>43</td>
</tr>
<tr>
<td>Gabova V.V., Perfilov V.A., Oreshkin D.V.</td>
<td>Design of offshore oil and gas facilities applying CAD systems</td>
<td>47</td>
</tr>
</tbody>
</table>

---

**MEMORABLE DATES**

<table>
<thead>
<tr>
<th>Names</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yunin Evgeniy Konstantinovich</td>
<td>50</td>
</tr>
<tr>
<td>Ashrafyan Mikosha Ogostinovich</td>
<td>52</td>
</tr>
</tbody>
</table>

Abstracts of articles ............................................................................... 53
Abstracts of articles

URGENT PROBLEMS OF WELL DRILLING TECHNOLOGIES APPLIED AT FIELDS OF JSC «GAZPROM». PART 2 (p. 7)
Alexander Ivanovich Gritsenko¹, Andrey Vitalievich Kuligin¹, Roman Alexandrovich Ivanikin¹, Vladimir Georgievich Griguletsky⁴
«Gazprom-Promgaz, Ltd.»¹; JSC «Gazprom»²; CJSC NPC «Neftemash-Nauka»³; I. Gubkin Russian State University of Oil and Gas⁴
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Some specific features of well drilling technology in conditions permafrost spreading are described.

Key words: drilling; casing strings cementing; drilling fluid; complications; accidents; permafrost.

UPDATING CALIBRATORS DESIGN STRUCTURES (p. 19)
Dmitry Yurievich Serikov, Vitaly Anatolievich Yasashin, Nikolay Mitrofanovich Panin
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65, Leninsky prosp., 119991, Moscow, Russian Federation.

The analysis of main defects of the existing structures is performed and the main trends of their updating are determined. New options of structures for two types of calibrators are developed. They allow essential raise of operational efficiency of this type of drilling equipment due to increase of efficiency coefficient, usage of power of the washing liquid, that is being pumped through, with simultaneous prevention of wells walls cicient, usage of power of the washing liquid, that is being pumped through, with simultaneous prevention of wells walls

Key words: drilling devices; calibrator; abrasive material; de Lara nozzle.

DOWN-HOLE SELF-CLEANING FILTER IS AN INNOVATIONAL SOLUTION OF INCREASING OPERATIONAL PERIOD OF OIL PRODUCING WELLS (p. 22)
Rashit Salimovich Yumachikov¹, Semen Fedorovich Mulayavin¹, Sergey Nikolaevich Bastrikov¹, Alexander Alexandrovich Ivanov²
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Presence of mechanical solids in a formation fluid is the main factor affecting the failure intervals decrease of down-hole equipment. It is also proved that the work of electrically-driven down-hole pumping equipment (DHPE) with untreated borehole fluid activates salt crystallization.

The well-known methods of down-hole pumps protect are not sufficiently effective and reliable.

Some new technical device – «FSSYu» filter and pump arrangement to prolong the time before failure of wells operation are developed.

Key words: time before failures (MTBF); down-hole pumping equipment (DHPE) solids removal; down-hole self-cleaning filter; gas-sand separator; asphalt-resin-paraffin sediments (ARPS); formation bottom-hole zone (FBHZ); often-repaired fund (ORF); methods, providing mechanical impurities removal; sand occurrence in producing wells; protection of down-hole pump; salts packages with asphalt-resin-paraffin sediments (ARPS); installing of electrical centrifugal pump (ESP).

ANALYSIS OF THE NON-STEERABLE BOTTOM-HOLE ASSEMBLIES WHEN DRILLING WELLS ON YABLUNOVSKY GAS-CONDENSATE FIELD (p. 26)
Mikhail Andreievich Myslyuk, Ruslan Nikolaevich Dolyk
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Static and dynamic characteristics of the non-steerable bottom-hole assemblies when drilling wells on the Yablunovsky gas-condensate field have been studied. Regression models for predicting the analyzed well intervals trajectories have been built.

Key words: dynamic characteristics; deviation intensity; selection criterion; static characteristics; system of restrictions.

DETERMINATION OF RESISTANCE MOMENT SURGE ON THE DRILL CASING STRING IN OPTIMUM OPERATIONAL AREAS OF DRILLING PARAMETERS (p. 33)
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To provide control of drilling casing string during well drilling by torque moment surge there obtained some analytical dependencies of resistance moment surge on torque frequency surge and the length of the drilling casing string; the limits of zones of locking, torque vibrations, uniform vibration-free rotation for a one-dimensional and two-dimensional drilling casing string are identified. Some empirical data obtained while measuring torque moment surge by means of dynamic method application from well No 7 of Vozeysky field are presented.

Key words: optimal operational zones of drilling parameters; torque moment surge.

APPLICATION OF HORIZONTAL DIRECTIONAL METHOD WHILE DRILLING COASTAL PART OF UNDERWATER PIPELINE (p. 40)

Inessa Alexandrovna Tomareva,
Nikolay Alexandrovich Karagodov
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The paper deals with provision of technological and environmental safety in coastal areas of subsea pipelines by applying the method of horizontal-directional drilling.

Key words: safety; underwater pipeline; horizontal-directional drilling.

HAZARDS MITIGATION IN CARBONATE SUPER-RESERVOIR DRILLING INTERVALS (p. 43)

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During the research it has been found that a considerable number of drilling hazards and complications with drill bit failures and mud losses is associated with abnormal reservoir layers.

Regularities emerged from location of abnormal layers, their relationship with catagenetic processes was established, and a method was developed for forecasting possible complication zones based on core data on one well. To eliminate hazards in well drilling, we suggest using a model forecasting real depth of occurrence of hazardous layers. This can help to implement deep and ultra-deep well drilling program, incorporating technical solutions aimed at prevention of complications.

Key words: super-reservoir; ancient oil-water contact; ancient gas-fluid contact; multiphase fluid; unconsolidated area; cementation area.

DESIGN OF OFFSHORE OIL AND GAS FACILITIES APPLYING CAD SYSTEMS (p. 47)

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Dmitry Vladimirovich Oreshkin²
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The article is focused on the problem of the use of the automated design systems of offshore oil and gas facilities (OFFSHORE). An example of using CAD programs by the students of «Oil and Gas Facilities» Chair of Volgograd State University of Architecture and Construction is given.

Key words: offshore oil and gas facilities; sea stationary platform (SSP); computer-aided design (CAD) systems; «Lira» software package; finite element model.