Successful Field Trial Deployment of a New Power Section Manufactured by Hydrobur-service

A new power section manufactured by Hydrobur-service proved high reliability and excellent performance by extended circulation hours and increased ROP.

Overview

In H1’2019 Hydrobur-service upgraded the design and engineering of the power sections for 120-mm Positive Displacement Mud Motors (PMDs). A new series is coded as DShoTR-120.7/8.44.3.

In May 2019 upgraded PDMs were field-tested by the NewTech Services directional drilling crew and proved high reliability and excellent performance.

CHALLENGE

- Field trial of a new power section to prove high performance and reliability

SOLUTION

- A new actuator manufactured by Hydrobur-service
- Directional Drilling Services provided by NewTech Services Crew

RESULTS

Komsomol’skoe Field, Yamal, Russia
- Total Circulation Time - 226,57 hrs
- Total Measured Depth - 1150,18 m
- Average ROP - 12,1 m/hr (vs 9 m/hr planned)

Achimovskoe Field, West Siberia, Russia
- Total Circulation Time - 223,08 hrs
- Total Measured Depth - 1191,32 m
- Average ROP - 21,0 m/hr (vs 10 m/hr planned)
CASE STUDY

DShoTR-120.7/8.44.3 PDM Sieries № 1456
Komsomolskoe Field, Yamal, Russia

- Total circulation time - 226,57 hours
- Total measured depth - 1150,18 meters
- Average ROP - 12,1 m/hr (vs 9 m/hr planned)
- Bit Type - BIT 142,9 BT513TCB

### Drilling Parameters

<table>
<thead>
<tr>
<th>Drilling Mode</th>
<th>Mud Flow Rate, l/s</th>
<th>Load, t</th>
<th>Differential Pressure, atm</th>
<th>TDS RPM</th>
<th>Specific Gravity, g/cm³</th>
<th>Viscosity, sec</th>
<th>Sand, %</th>
<th>Water Loss</th>
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</thead>
<tbody>
<tr>
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<td>10–16</td>
<td>3–8</td>
<td>10–20</td>
<td>50–80</td>
<td>1.08–1.1</td>
<td>46–56</td>
<td>0.3</td>
<td>3.1–5</td>
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</tbody>
</table>

### Well Profile

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DShoTR-120.7/8.44.3 PDM Sieries № № 2396
Achimovskoe Field, West Siberia, Russia

- Total circulation time - 223,08 hours
- Total measured depth - 1191,32 meters
- Average ROP - 21,0 m/hr (vs 10 m/hr planned)
- Bit Type - BIT 146 BT 613 T.10

### Drilling Parameters

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<tr>
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<th>Differential Pressure, atm</th>
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<tbody>
<tr>
<td></td>
<td>14</td>
<td>6–8</td>
<td>20–25</td>
<td>34</td>
<td>1.05</td>
<td>46–50</td>
<td>0.1–0.2</td>
<td>4.5–5.8</td>
</tr>
</tbody>
</table>

### Well Profile