Imagine the savings you could achieve if separate trips were no longer required to set the sump packer, perforate, and gravel pack; or if pumping a fluid loss control pill after perforating wasn’t necessary. Now you can perforate in one trip and then gravel pack on the same trip. The Single-Trip Perf/Pack-Gun Hanger (STPP™-GH) system allows you to perforate and pack in a single trip with its unique combination of proven technology, while reducing risk and costly rig time. Higher production rates are possible without damage from fluid loss pills and excessive completion fluid loss. The well can be brought on sooner and with less completion fluid to unload and process.

With the STPP-GH system, the sand control packer and screens are detached from the perforating guns and moved to a safe distance from the guns before perforating to eliminate impact loads on the sand control equipment. After perforating, the auto-release gun hanger mechanism allows the expended guns to drop to the bottom of the well. After the well is perforated, the sump packer is lowered and set below the perforations to complete frac-pack operations. The sand control equipment remains in the well after perforating, so excessive loss of expensive fluid (while tripping pipe) is eliminated. The STPP-GH system provides increased safety as well as economic benefits by combining multiple operations in a single pipe trip. The system can minimize completion fluid loss, reduce rig cost, and reduce well control risks.

**Breakthrough Performance Using Proven Technology**

- Comprised of highly successful, industry-proven equipment uniquely configured for more effective completions where rig time, fluid loss, and the risk with unproven components is high
- MPA gravel-pack service tool’s anti-preset feature prevents premature setting of the gravel-pack packer due to the perforating pressure surge
- Sump packer remains set with zero weight down eliminating the need to apply excess weight through the gravel-pack packer, screen, and blank pipe
- Perforate balanced, underbalanced, or overbalanced due to the ability to separate bottomhole assembly from gun assembly before firing guns
- Unique centralizers prevent damage to screens when running through the perforated interval
- High-rate proppant delivery system mates with 10K high-pressure Versa-Trieve® gravel-pack packer assembly
- Requires minimal applied casing pressure during single-trip process
APPLICATIONS
» High-rate water pack
» Frac pack
» Gravel pack

BENEFITS
» Increases safety and reliability - well control and fluid circulation
» Sand control equipment moved safely away from perforating event to eliminate damage
» Reduces rig time and risk
» Maximizes net present value
» Reduction of CAPEX
» Reduces brine loss

STPP™-GH System Well Parameters

<table>
<thead>
<tr>
<th>Casing Sizes (in.)</th>
<th>7.0 through 13 3/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perforated Length (ft)</td>
<td>&lt;= 200</td>
</tr>
<tr>
<td>Zone Depth (ft)</td>
<td>&lt;= 20,000 TVD</td>
</tr>
<tr>
<td>Bottomhole Temperature</td>
<td>400°F (204°C)</td>
</tr>
<tr>
<td>Completion Fluids</td>
<td>8.6 ppg NaCl through 17.5 ppg ZnBr₂</td>
</tr>
<tr>
<td>Gun Sizes OD (in.)</td>
<td>3 3/8 through 7.0</td>
</tr>
<tr>
<td>Maximum Well Deviation</td>
<td>70° at perforations</td>
</tr>
<tr>
<td>Perforation Hydrostatic PSI</td>
<td>300/500 psi over or underbalanced</td>
</tr>
<tr>
<td>Gun Firing System</td>
<td>Dual pressure-actuated firing heads (selectable time delay)</td>
</tr>
<tr>
<td>Well Type</td>
<td>New drill or re-completions</td>
</tr>
</tbody>
</table>

Please contact a Halliburton representative if your completion procedure requirements exceed the specifications provided for approval.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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