

HEAL SYSTEM™ INITIAL START-UP

For Progressive Cavity Pumps

SCOPE This procedure assumes production annulus pressure is zero or the well is on vacuum.

BEFORE YOU BEGIN To initiate the HEAL System™ the fluid level **must** be above the pump.
 If practical, shoot a fluid level to ensure fluid level is above the pump.
 Starting a pump before the fluid level is above the pump risks pump damage.

<p>STEP 1</p>	<p>START UP</p> <p>Start the pump at half the expected production rate.</p> <p>Pressure test the tubing with the bottomhole pump to ensure pump is functioning.</p> <p>If the pump is not functioning, see troubleshooting below.</p>	<p>STEP 2</p>	<p>OBSERVE PRESSURES</p> <p>Observe for positive pressure on the production annulus. Positive pressure indicates the well is flowing up the sized regulating string.</p> <p>Apply back pressure on the tubing greater than the production annulus pressure to reduce severity of gas interference and stabilize flow up the tubing. Some gas flow up tubing is common.</p> <p>Proceed to Step 3.</p>
<p>STEP 3</p>	<p>INCREASE PUMP RATE</p> <p>Avoid over-pumping by gradually increasing pump rate. If available, observe pump-fillage and efficiency.</p> <p>A slow, steady increase avoids excessive drawdown and shocking the wellbore.</p> <p>With a steady pump rate and stabilized pressures, proceed to Step 4.</p>	<p>STEP 4</p>	<p>OPTIMIZE</p> <p>Optimize HEAL System™ performance with fluid shots or a pump-off controller. Monitor pump volumetric efficiency.</p> <p>Avoid over-pumping and adjust pump rate to maintain fluid level above the pump and avoid excessive gas interference in the pump.</p> <p>Minimize production annulus pressure as much as possible.</p>

TROUBLESHOOTING

Bottomhole pump not functioning...
 ...may indicate a lack of inflow, excessive gas interference, or fluid level below the pump.

Shoot a fluid level.

If the fluid level is above the pump, refer to pump manufacturer's maintenance and troubleshooting guide.

If fluid is below the pump, wait for the fluid level to reach the pump, or immediately contact Production Plus for the Gas-assist Start-up procedure.

The time it takes for fluid level to reach the pump is dependent upon the characteristics of the well and can vary.

Periodically shoot fluid level until the level is above the pump. Once the level is above the pump, return to Step 1.

