Single-Trip Gravel Pack and Treat System

The Halliburton Single-Trip Gravel Pack and Treat System (STGP&T™) provides the ability to gravel pack, and then treat, a formation. The ability to treat a gravel-packed completion previously required a second workstring trip in the well with a treating string. This meant additional rig time as well as the risk of formation damage due to increased exposure time. The new multiple-function STGP&T system combines these two separate functions into a single workstring trip. The single-trip system uses a unique combination of proven technology to reduce risk and costly rig time.

Features

- **Advanced Washdown Capabilities** – includes setting port isolation, internal flow path, isolated crossover ports, tapered ball seat, actuated reverse ball check and washing assembly.

- **Pressure Maintenance System** – During packer running, setting and subsequent tool operations, the positive hydrostatic pressure is maintained on the formation.

- **Weight-Down Positioning** – Halliburton's patented weight-down service tools help ensure accurate tool location during placement operations.

- **Completion Treatment after Gravel Packing in a Single Trip** – Halliburton's multiple function gravel pack service tool provides the capability to gravel pack then acid (or other treating fluid) wash the completed interval.

Applications

- Openhole gravel packs where the option to flow back / well test is not available.

- Openhole gravel packs where the need to maximize filter cake removal through stimulation exists.

Benefits

- Promotes reliable sand control through use of the sacrificial screen and plug system

- Reduced rig time by eliminating one workstring round trip for acidizing

- Helps prevent costly fluid loss by maintaining positive hydrostatic pressure against the filter cake during all phases of the gravel pack installation via the pressure maintenance system

- Longer intervals with higher placement rates with utilization of the upstream/downstream differential (UDD) valves

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*STGP&T™ Single-Trip Gravel Pack and Treat System*
The gravel pack assembly including screen and accessories is run in the hole. Then, the packer setting ball is dropped and allowed to gravitate to the hydraulic setting tool isolation sleeve ball seat. Pressure is applied to expose hydraulic setting ports. The packer setting ball expends through the C-ring on the ball seat to the lower packer setting ball seat. Pressure is applied to set the packer. Bypass is opened providing hydrostatic pressure support on formation.

The gravel pack service tool is then released and the service tool is in a position to test the packer seal integrity on the casing annulus. Tools are then positioned in the weight-down circulate (gravel pack) position and the gravel pack treatment is pumped. After pack placement, the toolstring is raised up to the reverse position and excess sand is reverse circulated from the workstring.

The service tool is then raised and the reverse ball check is deactivated by applying annulus pressure. The acid wash ball is dropped and allowed to gravitate to the circulation port isolation sleeve ball seat. Pressure is applied to shear the sleeve opening the service tool flow bypass. This opens the acid wash path.

The wash cup assembly is positioned across lower second and third screen joint to lubricate acid on depth. The acid wash commences as normal by pumping down the workstring.

At the end of the acid wash stage, the cups are placed across blank pipe for fluid reverse out. Then the tools are pulled out of hole allowing the fluid loss device to close to isolate the formation.

Options

- **Sacrificial Screen** – The screen at the toe of the assembly can be isolated with a plug system. The plug is located in its receptacle at the top of the sacrificial screen when the washpipe is pulled above the sacrificial screen. This is done before the treatment portion of the job.

- **Upstream/Downstream Differential (UDD) Valves** – reduce circulation pressure during Beta Wave placement. The UDD valve operates on flowing friction pressure differential across the valve. Hydrostatic pressure does not affect operation and there are no seals on the valves or washpipe. The valve design utilizes a check valve to stop fluid pressure from escaping from tubing to annulus thereby making it compatible for the acid wash placement. The UDD valve is adjustable to accommodate well fluid and treatment design parameters.

For more information on Halliburton’s Single-Trip Gravel Pack and Treat System, contact your Halliburton representative or email us at sandcontrol@halliburton.com.