The Art of Intervention

Reduce the duration, associated cost and risk of complex multilateral installations with the world’s first one-trip, TAML Level 4 multilateral system.

OneTrip StarBurst™ TAML Level 4 Multilateral System
Maximizing efficiency of TAML Level 4 installations

We employ the innovative design features of the OneTrip StarBurst™ system to save you rig time.

Weatherford’s OneTrip StarBurst system, the first of its kind, minimizes the duration, associated cost and risk of complex, Technology Advancement for Multilaterals (TAML) Level 4 installations—defined by the use of cemented junctures between their mother and lateral wellbores. The award-winning OneTrip StarBurst system reduces the number of trips typically required in multilateral installations, translating to a rig-time savings of at least two days.

The shallow-angle QuickCut™ (SAQC) casing-exit technology is one of the system’s key features. It can orient, anchor and mill a window, and drill a rathole in a single trip, an industry first. Another element is a unique hollow whipstock, designed to remain in place during the milling, drilling and production phases—eliminating the time-consuming, whipstock retrieval and replacement process.

Use the advanced OneTrip StarBurst system to

▪ optimize any operation requiring the mechanical support of a TAML Level 4 juncture;
▪ recover slots on offshore platforms;
▪ develop additional downhole reservoirs;
▪ create multilateral gas- or water-injection systems to stimulate production.
Producing real results

The OneTrip StarBurst™ system reduces well costs on complex drilling operation.

Åsgard field, North Sea, Norway

Operational detail. Using our OneTrip StarBurst system, the operators created a cemented junction at 13,314 ft (4,058 m). They milled a 19.7-ft (6-m) window in Super 13 Cr casing and a 19.7-ft (6-m) rathole in Garn 4 hard impermeable sandstone in just 5.5 hours—a procedure that would have taken much longer using conventional tools. They proceeded to drill a 5,863-ft (1,787-m) lateral wellbore into the target formation, install a 5-1/2 in. (140 mm) sand screen and a 7 in. (178 mm) liner in the lateral well, and cement the liner in place. After perforating the hollow whipstock to regain access to the main bore, the operators began injecting 194 MMcf (5.5 MMm³) of gas per day into the injector well system, ultimately leading to increased production in the adjacent wells.

Background. In its debut operation, Weatherford’s OneTrip StarBurst multilateral system helped StatoilHydro reduce rig time during a complex multilateral drilling operation. The client’s primary objective was to increase oil production from adjacent wells by drilling lateral subsea gas injection wells into two formations. High rig rates made the operation particularly time-sensitive.

Results. The OneTrip StarBurst system saved a minimum of two days in rig time. The operation marked the world’s first one-trip installation of a TAML Level 4 multilateral and substantiated the viability of using a multilateral well system for gas injection. Its success is a testament to the planning skills and expertise of the joint operating team and the operational and installation simplicity of the OneTrip StarBurst multilateral system.

For more OneTrip StarBurst system Real Results, please visit weatherford.com/realresults.
Complementing innovative technology with expertise

Our extensive experience and tailored training can add substantial expertise to your multilateral installations.

**Well intervention experience.** Backed by a global team of fishing and milling specialists, we have completed more than 10,000 casing exits (Levels 1 through 4) and 400 multilateral systems worldwide.

**Training.** Leveraging our global network of training facilities, we provide our well intervention specialists with highly specialized classroom training before deploying them on live operations. Their training continues in the field, where they are paired with experienced well intervention specialists to develop further their skills and ensure the highest caliber of safety and performance in all aspects of multilateral planning and installation.
Providing a more cost-effective alternative

Our OneTrip StarBurst™ system offers numerous benefits compared to conventional multilateral systems:

**Cost effective**

The OneTrip StarBurst system saves costs because it saves rig time and eliminates junction hardware.

**Efficient**

With its one-trip, low-risk TAML Level 4 capability, the system expands the range of depleted wells suited for slot-recovery operations on offshore platforms—an advantage to regions with costly rig rates.

**Established**

The OneTrip StarBurst system features Weatherford’s shallow-angle QuickCut™ (SAQC) milling system, which enables it to be run, set, and the window and rathole milled in one trip.

**Low risk**

The system installs easily and eliminates potential orientation and re-entry difficulties by keeping the original whipstock in the wellbore.

**Proven**

The system increases production from the main bore and begins production from both laterals.

**Time savings**

With the SAQC, the system saves two days of rig time. Another day is saved by removing the need to retrieve and replace the whipstock—reducing cost and accelerating production.
Combining innovative technologies

Our shallow-angle QuickCut™ (SAQC) casing-exit system is built for maximum speed and durability. Designed for quick and safe makeup on the rig floor, it can orient, anchor, and pull an entire window and step repeat in a single trip, permitting the cost-effective use of rotary-assembly technology to drill extensive, step-out laterals. Its lead-in geometry significantly improvesconexion ratios. The system’s robust chassis is tested to 15,000 psi (103,470 kPa) of torque in 9 5/8-in. casing and 20,500 lbs. (36,840 kg) in 13 3/8-in. casing.

Our OneTrip StarBurst™ TAML Level 4 multilateral system incorporates several advanced technologies, including Weatherford’s SAQC single-trip, milling system and a unique, single-trip hollow whipstock.

Our state-of-the-art, single-trip whipstock reduces the duration, associated cost and risk of multilateral operations.

After milling, conventional solid whipstocks are replaced with hollow ones that allow oil and gas to flow through the main wellbore, while permitting access to the lateral bore. Alternatively, the original whipstock is removed, and bent- joint assemblies are used to achieve lateral access.

However, the OneTrip StarBurst whipstock remains in the wellbore, providing permanent, reliable lateral access access to the lateral bore. It is retrieved using a rotary-assembly technology to drill extensive, step-out laterals. Its lead-in geometry significantly improves connection ratios.

The estimated time is provided. All steps except milling can be adjusted based on drilling objectives.

The packer enables the use of heavier drilling muds without damaging the reservoir. Used to seal off and isolate the main bore during lateral drilling, the packer is retrievable, which expedites remediation and reentry for the lateral bore. It is designed to allow charges to penetrate the liner, cement and wellbore during lateral drilling.

Hollow mandrels facilitate accurate depth correlation during the perforating procedures. The resulting bore below the junction, using a zero-phase perforating gun with Cobalt 60 RA tags enable precise positioning of the perforating gun. The tags are used to position the packer’s perforating zone, ensuring reliable and complete production access to the main and lateral wells.

OneTrip StarBurst system simplifies TAML Level 4 multilateral operations

We developed a simple, seven-step process to maximize the technological advantages of our OneTrip StarBurst TAML Level 4 multilateral system. The estimated time is provided.

1. Run gauge to remove debris in the wellbore and work string, ensuring that the packer and whipstock assembly aligns the wellbore to setting depth.

2. Run whipstock and packer at the milling assembly. Once they reach setting depth, orient and pull the assembly, driven by the whipstock, out of the hole.

3. Mill window and rathole, using our single-trip SAQC milling system. On completion of milling, turn the window to a desired inclination angle. Run whipstock and packer within the window and pull the milling assembly out of the hole.

4. Install lateral liner running it in the main bore above the window. With conventional liner hanger systems, perforated lateral canals are cut into the lateral liner and conduct any necessary valving or cementation procedures. The resulting overpumping causes casing casing damage, combined with the cement, which can cause a wellbore-packer system to fall short of the lateral.

5. Perforate whipstock to maintain production from the main bore below the junction, using a perforation tool designed with charges specifically designed to provide maximum flow area through the lateral conduit. Perforating operations can occur immediately after milling. latitude joints can be used to support the whipstock in place until the perforating process is complete.

6. Complete well and commissary production from the primary and/or lateral wells. A variety of completion systems, including intelligent completion systems, can be used to enhance reservoir performance and maximize production. Our one-trip whipstock system can be used to implant or perforate the lateral bore, allowing for production from both the primary and lateral wells.

7. System Options

- High-pressure/high-temperature options are available.
- Running-string is available for extended-reach wells, where assembly must be pushed to setting depth.

OneTrip StarBurst Completion Examples

The OneTrip StarBurst multilateral system provides a wide range of completion options. You can choose independent or commingled production of the wellbore with various downhole or remotely operated flow-control options. With lateral full-bore access, you can use conventional and coiled-tubed completions, open and controlled production completions. Follow these examples of completion systems that are possible with the OneTrip StarBurst system.

Product Specifications

OneTrip StarBurst™ TAML Level 4 Multilateral System

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