A customer with a deepwater well in the Gulf of Mexico with an approximate depth of 26,500 ft (7925 m) employed Baker Hughes to complete several operations before running the completions equipment. These operations, which were performed with minimal time and cost, included deburring a two-zone perforation, removing debris on top of the sump packer, verifying the cleanliness of the sump packer, and pressure-testing the sump packer to 4500 psi (310 bar).

To successfully accomplish these tasks, Baker Hughes deployed the VACS™ (vectored annular cleaning system) FLO technology. The VACS FLO system was configured with one engine module and two consecutive debris-retaining modules. The system also included a sliding piston to allow the tool to shift from providing reverse circulation to conventional circulation.

During run-in, a string mill was used to deburr the upper and lower perforations at a depth of 25,900 ft (7894 m) to 26,340 ft (8028 m). The VACS FLO system was engaged to clean any residual debris on top of the sump packer. Upon verification of the cleanliness of the sump packer, a 1.50-in. ball was dropped to convert to conventional circulation for pressure testing beneath the sump packer. The seal and locator assembly were then stabbed into the sump packer with 20,000 lb (11 339.8 kg) of set-down weight and pressure was increased to 4,500 psi. The pressure was successfully held for a period of 10 minutes, as the customer required.

Upon moving the bottomhole assembly (BHA) above the sump packer, a 1.875-in. ball was dropped to open the full function valve (FFV) and circulate bottoms-up before pulling out of hole. While pulling out of hole, the FFV was used to clean the blowout preventer (BOP) stack. Once on surface, the VACS FLO debris retainer modules were emptied by using a specialized containment box to eliminate any health, safety, and environmental (HSE) concerns. No debris was collected from the upper retainer module, but approximately 1 gallon (3.78 l litre) of debris consisting of small metallic, sand, and cement particles was seen in the lower module.

Baker Hughes not only met but also exceeded all customer objectives, saving the customer significant rig time by combining multiple runs into a single trip. In this trip, the VACS FLO system, combined with other Baker Hughes tools, successfully deburred two perforation zones, cleaned the sump packer, verified its cleanliness, and pressure-tested the back side of the sump packer and shoe all in one trip.