

GULF OF MEXICO

## // Subsea Tree Removal, Repair, and Reinstallation Completed 30% Under Budget, Gulf of Mexico

Proprietary intervention system records 99.4% operating uptime and minimizes deferred production for major oil well

**Rapid deployment system and unprecedented close collaboration between various OEMs provided a cost-effective solution for a leaking subsea tree. Major oil-producing well was back online in just 21 days.**

### **Tubing-annulus leak in prolific oil producer necessitated subsea tree removal**

An approaching hurricane had led to a planned shut-in of a major oil well located in about 1,370 ft of water in the Gulf of Mexico. When the operator's team was ready to restore production, they detected a leak that was causing tubing-annulus communication; annular pressure had increased by 3,000 psi.

Diagnostics determined that the leak was most likely at the interface between the subsea tree and the tubing hanger. The solution was to temporarily plug the well and subsequently remove the tree for repairs. Restoring the operator's biggest oil producer was a matter of some urgency, and the company wanted an alternative to the lengthy and expensive conventional process of deploying a drilling rig, 15,000-psi BOP, and marine riser for the job.

### **Proprietary well access system expedited remedial operations**

Subsea Services Alliance proposed its intervention riser system (IRS), which enables entering a well using wireline or coiled tubing while maintaining well control. This system is the only 15,000-psi subsea well access package available for rent that can support the full suite of intervention requirements. Capable of operating at water depths up to 10,000 ft, the IRS can be deployed on any type of vertical or horizontal tree and has a proven track record in the Gulf of Mexico.

The equipment and associated well intervention vessel are mobilized and demobilized much quicker and more cost-effectively than a conventional drilling rig. Moreover, the IRS can be deployed and recovered at 200–250 ft/h, about five times faster than BOP deployment by a rig, further expediting operations.

“Subsea Services Alliance provided an efficient option to onboard a rig quickly with services included. This allowed for the project to be accelerated and the well brought back online much quicker than sourcing a conventional drilling rig.”

**Operating company intervention engineer**



*The proprietary 15,000-psi intervention riser system was mobilized and demobilized much quicker and more cost-effectively than a conventional drilling rig.*

## Collaborative approach and application-specific technology saved significant costs

The operator and Subsea Services Alliance worked with the tubing hanger OEM to design a special stinger assembly to interface between the IRS and the hanger. Close collaboration between all partners through design, manufacturing, and testing—coupled with a firm focus on efficiency—were key to timely completion of the project. The entire process—from first contact to meeting of the participants, interface redesign, solution delivery, and IRS mobilization—took less than 8 weeks, which is highly efficient given the complexity of the deliverables.

Once the IRS was mobilized using the Q4000 semisubmersible well intervention vessel, disconnecting the subsea tree, plugging the well, and then repairing, reinstalling, and testing the tree took only 21 days—30% faster than budgeted. The IRS outperformed expectations with a 99.4% operating uptime.

### For more details

Read technical papers [SPE-204402-MS](#) and [SPE-205831-MS](#).



*The intervention riser system was deployed about five times faster than BOP deployment by a rig.*

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operating uptime

**30%**  
under budget

**21 days**  
subsea tree  
turnaround time