



CASE STUDY

**BREAKTHRU GLASS BARRIER DEVICE**

# Sustaining well integrity with Nine Energy’s Breakthru™ Multi-Cycle Barrier Technology

**CHALLENGE**

Deploying a temporary well barrier for a 3½-in. Nickel alloy upper completion to verify integrity and perform multi-stage testing without intervention.

**SOLUTION**

Install the Multi-Cycle Barrier Device (MCBD) to maintain barrier envelope integrity throughout the completion phase while eliminating the requirement for post-installation intervention.

**RESULTS**

All six MCBD’s were successfully cycled open, resulting in significant cost savings and a measurable reduction in carbon footprint.

## FINDING MULTIPLE ADVANTAGES FOR MULTIPLE OBJECTIVES

**A major onshore and offshore operator in the Middle East region required technology capable of meeting multiple completion and well-integrity objectives.**

The operator needed technology that could help them:

- Deploy a 3½” Nickel alloy (Inconel 925) upper completion with a pre-installed temporary well barrier to verify Tubing Integrity while RIH
- Set the production packer;
- Perform inflow test on subsurface safety valve (SSSV)
- Nipple down the BOP and nipple up the Christmas tree
- Remotely shear the barrier post rig release

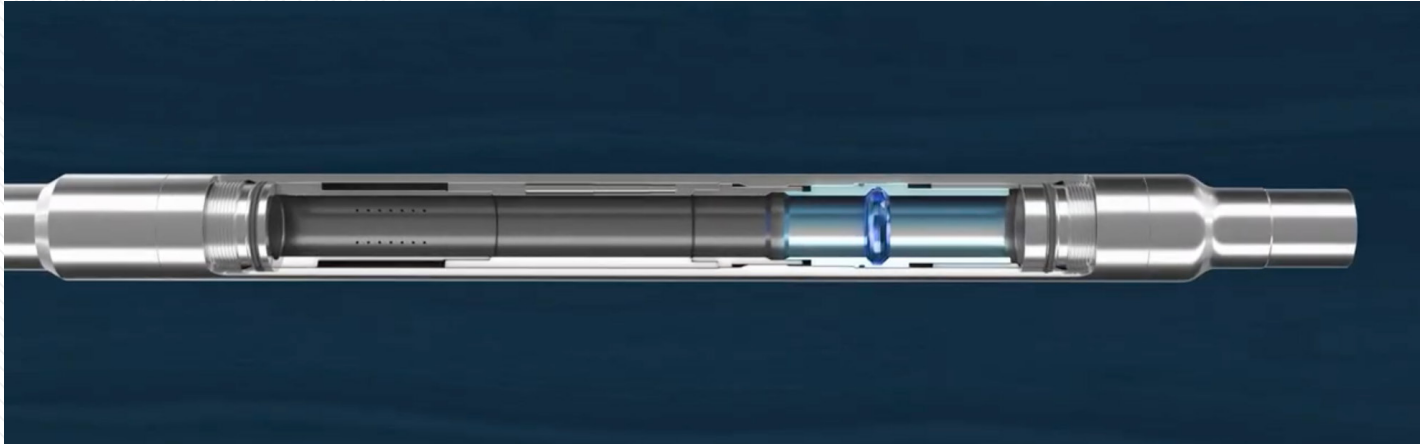
Following an extensive engineering assessment and multi-criteria technology screening, the operator selected Nine Energy’s Breakthru™ Multi-Cycle Barrier Device (MCBD) for deployment across 6 oil producers as part of the wellbore isolation strategy. The solution was chosen to maintain barrier envelope integrity throughout the completion phase while eliminating the need for post-installation intervention.

The MCBD was fully qualified against the client’s barrier-integrity requirements, meeting ISO 14310 V0 / API-11D1, ISO 14998 V0 / API-19AC, and ISO 28781 V1 / API-19V acceptance criteria. This ensured a verified gas-tight barrier envelope during BOP removal and subsequent Christmas Tree installation.

**MCBD HAS THE UPPER HAND IN THE UPPER COMPLETION**

The operator installed the MCBD as part of the upper completion, positioned below the production packer. Each MCBD had 13 remaining operating cycles at the time of running in hole (RIH). Three cycles were utilized during completion operations to perform the following tests:

- Setting the production packer and performing an inflow test of the subsurface safety valve (SSSV)
- Conducting a tubing integrity pressure test
- Pressuring up to shear the tubing-retrievable surface-controlled gas lift valve (TSGLV)



|||||

**The operator realized significant cost savings, as no well intervention was required to retrieve the temporary barriers, thereby eliminating the need for additional offshore mobilization, rig time, and associated service costs.**

Following completion of rig-based activities, the well was secured and the rig was released from location. A subsequent rigless operation displaced the tubing and annulus with diesel, and dummy gas lift valves (GLVs) were installed.

The MCBD's were then cycled and sheared, allowing the wells to be placed on production. All six MCBDs were successfully cycled open. The wells were suspended for extended periods ranging from 27 to 92 days.

### **FINANCIAL AND ENVIRONMENTAL BENEFITS**

The operator realized significant cost savings, as no well intervention was required to retrieve the temporary barriers, thereby eliminating the need for additional offshore mobilization, rig time, and associated service costs. The successful execution and performance

of Nine Energy's Breakthru™ Multi-Cycle Barrier Device led to its selection as the standard barrier solution for all future producer and injector wells in the field.

In addition to financial benefits, the approach delivered a measurable reduction in carbon footprint. By avoiding offshore intervention activities, the operation reduced vessel usage, fuel consumption, and overall offshore logistics, resulting in lower emissions and improved environmental performance aligned with the operator's sustainability objectives.

