



## CASE STUDY

OISD/CS/2026-27/E&P/ 01

Date: 06.05.2026

### INTRODUCTION

**Title:** Blowout after well perforation.  
**Location:** Onshore workover rig.  
**Loss/ Outcome:** Blowout.

### BRIEF OF INCIDENT

A gas blowout occurred during workover operation being carried out for a zone transfer job. The gas leakage was observed from the well after conventional perforation job. The gas leak ignited after an interval of approximately 50 minutes, leading to a fire at the well site. There were no injuries or casualties reported due to the incident.

### OBSERVATIONS/ SHORTCOMINGS

- Critical formation pressure data from the well completion report was not considered and was not mapped in the current workover plan. The actual mud weight used was insufficient to balance already known formation pressure, leading to loss of primary well control barrier after perforation.
- The perforation interval was a known gas-bearing zone as per the completion report and current workover plan. The BOP stack did not include a Blind Shear Ram (BSR) as mandated under OISD-STD-174 Clause 6.3.1(B)(III) for gas wells; only a blind Ram was installed.
- Formation pressure of the perforated zone exceeded 6000 psi, as per the well completion report. 10M BOP stack should have been used during the workover operations, but only a 5M BOP stack was deployed during the workover.
- Only five out of twelve studs were found fitted to flange between changeover adapter spool and BOP. After perforation job, leakage was observed at the flange joint between 5M BOP and spool, confirming pressure containment failure at this flange joint.
- Blind RAM was closed on the braided line used along with perforation gun.
- Based on the interactions and document verification, it seems that the Job Safety Analysis (JSA) was not conducted for the non-routine perforation job. No Work Permit was issued for the perforation activity, which is categorized as a “high-risk hot work job”.

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- The well was under a Production Enhancement Contract (PEC) between operator & contractor. However, no bridging document was prepared.
- As per the PEC contract, the Manager appointed by contractor was responsible for safety and environmental protection. During interactions, the Manager informed that he looks after material handling. It was also observed that he had no formal training related to HSE. This reflected a lapse in contractual compliance and lack of safety oversight.
- No Installation Manager was designated for the Workover Rig. Absence of a designated Installation Manager resulted in a critical gap in statutory responsibility and operational oversight.
- During the interaction with key rig personnel, the knowledge regarding the well control seemed to be inadequate.

### **ROOT CAUSES OF INCIDENT**

- Inadequate Well Planning regarding selection of Primary Barrier.
- Selection of 5M BOP stack instead of 10M BOP.
- Absence of Shear Ram in BOP Stack for a Gas Well
- Lack of Competency of Manpower Engaged in Workover Operations

### **RECOMMENDATIONS**

- All historical well data, including completion reports and formation pressure records, shall be mandatorily incorporated into the workover program. The workover plan shall be reviewed and approved only after confirming the adequacy of the primary barrier. The mud weight shall be maintained sufficient to control the formation pressure and prevent formation fluids from entering the wellbore, in accordance with Clause 7.4.4 of OISD-RP-238.
- Ensure installation of a BOP stack configuration compliant with Clause 6.3.1(B)(III) of OISD-STD-174 for gas wells, mandating at least one Blind Shear Ram (BSR).
- BOP stack rating shall be selected based on maximum anticipated surface pressure (MASP) derived from documented formation pressure data wherever verified and usable.
- All flange joints must be assembled with full complement of fasteners and gaskets as per requirements of the underlying standards. Pre-job inspection shall verify the integrity of all flanges of well control equipment.
- Provide mandatory training such as Well Control to the Rig in charge, driller & assistant drillers as per clause 8.2 of OISD-STD-174. Maintain proper training records and ensure refresher courses are conducted before the expiry of training validity. The company should assure the genuineness and quality of training.
- Under PEC contract, contractor-appointed managers must meet competency standards defined under contract and as per statutory requirements. The rig owner shall

implement a competency verification and approval mechanism prior to deployment. Non-compliance should trigger contractual penalties.

- A formal Bridging Document defining roles, responsibilities, and HSE interface between Operator and Contractor shall be prepared and approved prior to commencement of operations, in line with OISD-GDN-206.
- Job Safety Analysis (JSA) shall be conducted for all non-routine & high-risk jobs. Supervisors should be trained in the preparation of Job Safety Analysis (JSA) and in effectively communicating identified hazards to all personnel involved prior to the execution of non-routine jobs. Work permits shall be issued by the installation manager in line with OISD-STD-105.
- An Installation Manager shall be formally designated in writing for every drilling/workover installation as per statutory requirements. Roles and statutory responsibilities must be clearly defined.



**Pictures post incident**

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