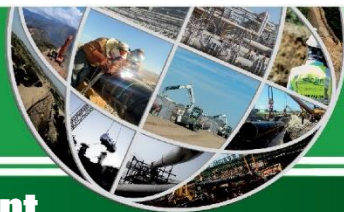


LESSON LEARNT



PREPARED BY: Corporate QHSE Dept.

N° 10/2023 Date: October 2023

OBJECT: PIPELINE TIE-IN USING 14" REMOTE TECNO PLUG, MECHANICAL CLAMP & BISEP

SICIM task was to provide pipeline isolation services. This operation involves an advanced pipeline tie-in procedure and several complex components in a challenging mountainous terrain. Activity was performed using 14" non-intrusive and intrusive double block and bleed isolation plugs (Remote Tecno Plug® & BISEP®) to enable the disconnection of an existing pipeline and the connection of a new 14" line, ensuring minimal downtime.

REMOTE TECNO PLUG & BISEP

Hazards / Risks: The primary risk is the loss of containment of high-pressure pipelines if the isolation is not properly maintained.

Control Measures: The system provides a fail-safe double block and monitor isolation while the line remains live and at operating pressure. It uses self-energisation to maintain isolation independently of the control system, backed up by a hydraulic control system. The dual seal configuration creates a zero-energy zone between the seals, allowing leak testing from the monitored (see picture) zone, continuous monitoring of isolation integrity thus enhancing safety. It's designed to comply with subsea pipeline isolation guidelines.

MECHANICAL CLAMP

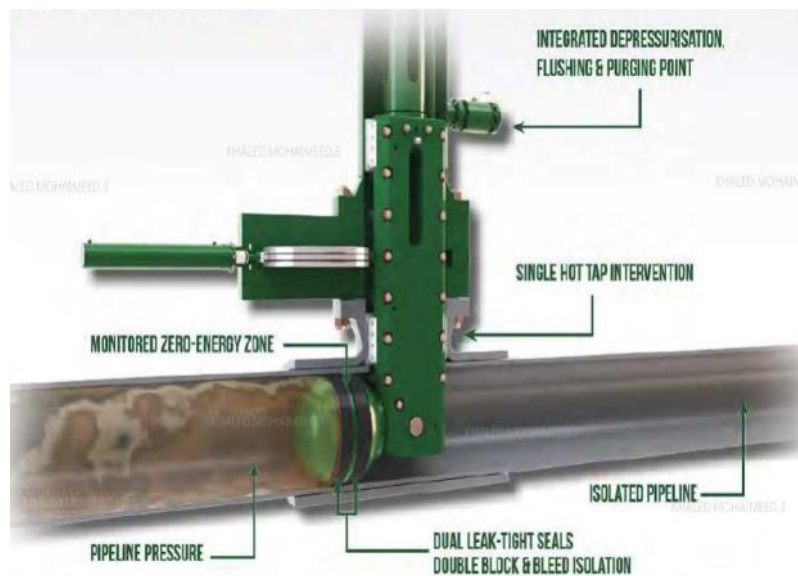
Hazards / Risks: The main hazard with mechanical clamps is ensuring they securely encapsulate pipeline defects or leaks and maintain pressure integrity.

Control Measures: Mechanical clamps are designed to encapsulate defects within the clamp body and regain pressure integrity through mechanical seals. Pressure Containment Clamps and Structural Repair Clamps provide additional support and containment, with features like taper locks to prevent pipeline separation and optional grout sealant for radial support.

PREVENTIVE AND PROTECTIVE MEASURES

It's essential to strictly follow all safety recommendations to ensure the safety of the operation and personnel. Below are listed the main safety measures applied:

1. Develop Specific Risk Assessment and Planning and PTW;
2. Ensure Trained and qualified Personnel (in the use of the new equipment mentioned above);
3. Ensure the Equipment Inspection and Maintenance & continuous Pressure Monitoring;
4. Develop a Specific Emergency Procedures;
5. Ensure the proper Communication;
6. Ensure the use of Personal Protective Equipment (PPE);
7. Carry out a Terrain Assessment & Weather Conditions Monitoring.



The dual seal configuration creates a zero-energy zone between the seals, allowing leak testing from the monitored (see picture) zone, continuous monitoring of isolation integrity thus enhancing safety. It's designed to comply with subsea pipeline isolation guidelines.

RECEPTION BY THE PROJECT

WHICH ACTIONS IDENTIFIED TO BE IMPLEMENTED IN THE PROJECT:

Project Manager:

Signature:

HSE Project Manager:

Signature: