

COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

COILED TUBING FAILURE DURING PRESSURE TEST

What happened?

While the team was pressure testing the Coiled Tubing (CT) Stripper to 12,500 psi using seawater with 2" Coiled Tubing across the BOP, the pressure suddenly bled off and the CT ejected from the Blowout Preventer (BOP) stack and eventually came to rest hanging over the starboard side of the vessel. The Tubing Guide Roller Assembly (TGRA) was broken off in the ejection process and fell to sea.

The Coiled Tubing was found to have parted in tension at the Connector. No damage or markings from the Injector Head Grippers were found on the exterior of the CT. The CT slid through the locked Injector Head Grippers at a rate fast enough to not register on the depth counter. The Connector impacted the CT Stripper with such force that the CT was pinched, creating a weak point in the CT that instantly lead to the tensile failure right above the Connector.

What went wrong?

The CT ejected from the Injector Head Grippers due to an incorrectly set Linear Beam Pressure on the Injector Head Gripper Blocks. The ejection occurred in part because of a lack of operational procedures for determining and setting appropriate Linear Beam Pressure for the intended operation. A good practice of setting the Connector against the Stripper Ram Blocks when pressure testing (to mechanically prevent slippage of the coil through the stripper) was not implemented and not documented in the procedure for the task.

Why did it happen?

- The test pressure used during this operation was the highest historically used with this type of CT within GOM operations. This was not highlighted as a risk during the planning process and it was also higher than required for the operation to be conducted.
- Slips were not set due to the concern that damage may have resulted on the grade of material being used, but insufficient data was available to either support or reverse this decision.

What areas were identified for improvement?

- Evaluate an engineering control to prevent test/operating pressures being applied which generate forces in excess of gripper pressure setting. Confirm effect of slip setting on coil properties.
- Develop specific contractor operational procedures that include Linear Beam Pressure setting protocols. This would include a calculation of the pressure required for the greatest potential force that may be generated during the operation.
- Document the standards to be used in calculating of pressures to be used during pressure testing.
- Establish a systematic communications system for procedure distribution and verification prior to job start.
- Reinforce procedural adherence to vendor procedures for task-based operations.

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