

Expro Excellence iCAM® System achieves flawless accuracy in connection disposition

Well Construction |
Tubular Running Services (TRS)



Objectives and background

- The iCAM® (Intelligent Connection Analyzed Makeup) system is an application that works in conjunction with the standard DATA TREK® computer system to evaluate CAM graphs for pass/fail criteria once the make-up or break-out is complete. Traditional methods of evaluating CAM graphs rely solely on training and operator experience. The iCAM® application is designed to remove human subjectivity by giving the operator a suggested connection disposition (i.e., Accept/Reject) along with diagnosis and prescription of remedy if an anomaly occurs. It incorporates rules, statistics, and machine learning to perform the evaluation and identify potential anomalies. The rules are comprised of connection specific parameters (e.g., minimum, optimum, and maximum torque) published by the connection manufacturers and behaviors derived from historical data. Anomalies that are not subject to hard rules are detected through machine learning and statistical analysis of the historical data associated with a specific connection type

Expro Excellence

- Expro deployed its DATA TREK® system with the iCAM® software on two projects in the Caspian Sea for a major operator. The system was deployed to a semi-submersible drilling rig and a production platform. The trials consisted of over 2500 make-up attempts with various connections and sizes, run with various equipment such as Expro's tongs and backups and CRTs with wireless torque subs

Value to the client

- In all field trials, the iCAM® system correctly identified and rejected all connections that required a backout. Additional analysis of overall accuracy is provided in the confusion matrix shown on the right
- This correlates to two calculated accuracies broken down by Accept and Reject. Using published acceptance criteria only (i.e., not including the unpublished deviations allowed by the thread representative on the job), the iCAM® system performed at 99.9% for Accepts, and 100% for Rejects
- Overall, the application exceeded performance expectations and was congruent with bench testing. Expro is engaged in ongoing improvements to the iCAM® system which will further improve the accuracy, overall acceptance rate, and well integrity
- Integrates readily with new and existing packages for both land and offshore operations
- Available now, everywhere
- Provides opportunities to reduce personnel on board
- Increases well integrity and safety
- Improves accuracy, consistency and reliability in connection integrity assessment
- Has the potential to increase efficiencies through faster graph disposition
- Data-driven recommendations result in fewer rejects and increase connection integrity

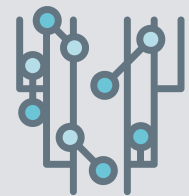
Safety



Operational efficiency



Well integrity



		<u>Actual</u>	
		Accept	Reject
<u>Predicted</u>	Accept	2420	0
	Reject	2	90