

Safety Alert

Issue # 04-2025

ENERGY
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CANADA

ST-80 Cylinder Failure Causes Lower Leg Fracture

What Happened?

The crew was in the process of pushing liner to bottom. After completing the first connection of heavy weight drill pipe, the Floor Hand was moving the ST-80 (iron roughneck) back to its parked position.

While maneuvering the ST-80, the extend/retract hydraulic duplex cylinder suddenly failed. This caused the unit to fall outward and downward, and the control panel struck the Floor Hand's lower leg with significant force.

After receiving initial medical care and stabilization, the Floor Hand was transported to the nearest healthcare facility.



Why Did it Happen?

The ST-80 extend/ retract hydraulic duplex cylinder has a threaded end that connects to a yoke underneath the unit. If the hydraulic duplex cylinder, the threaded connection or the yoke fails, the unit can fall forward and down to the rig floor.



Safety Stops



Yoke - Cylinder

What Did They Learn?

- During routine pre-use checks, the hydraulic duplex cylinder and its threaded connection to the yoke are difficult to inspect properly due to their location.
- The Floor Hand was in a line of fire situation while operating the ST-80 using the control panel. When the failure occurred there wasn't a safe exit path.
- The yoke had been installed incorrectly during refurbishment.
- There were no fail-safe mechanisms to prevent the unit from falling forward in the event of a hydraulic cylinder or yoke failure. Safety stops have since been installed fleet-wide on all ST-80 units.

Similar incidents have occurred previously. See [IADC Safety Alert](#) for more information.

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Ask Yourself and Your Crew:

- How could a similar incident occur at your location?
- Are your pre-use equipment inspections thorough and focused on the most critical components?
- Where in your operations could a single component failure lead to a catastrophic event?
- Are you or your crew ever in the line of fire during routine tasks?

Industry Resources

Life Saving Rule | Line of Fire



- Position yourself to avoid moving objects, vehicles, pressure releases and dropped objects.
- Establish and obey barriers and exclusion zones.
- Take action to secure loose objects and report potential dropped objects.

Submit Your Safety Alert

Help industry by sharing lessons learned from an incident. [Submit your Safety Alert](#).

Share and Collaborate

Energy Safety Canada (ESC) works collaboratively with industry to share information aimed at helping companies of all sizes improve safe work performance.

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