

SAFETY ALERT - #02 - 2010

SLIPS CATCH ON SERVICE RIG FLOOR INJURING WORKER

Function: Well Completions and Servicing	Release date: February 18, 2010
Incident Type: Hazard Alert	Country and Region: Western Canada

Summary:

A service rig floorhand broke his clavicle and a rib, when the slips caught on the rig floor launching the worker into the tongs.

Description of Incident:

A service rig crew was pulling 114.3 mm (4 ½ inches) tubing from a well. The operator was running in fourth gear when the clutch was disengaged. The tubing was moving upwards on its own momentum as the brakes had not been applied yet. At this point in the operations, the tubing collar snagged the **square** shoulder of the stripper plate on the bottom of the slips. This caused the slips to flip up and the control arm of the slips to bind under the edge of the rig floor.

This impact resulted in the rig floor lifting by approximately 0.2 meters (8 inches) where the control arm was binding. The back of the rig floor was heaved up by over 0.5 meter launching the floorhand into the tongs. The worker sustained a fractured clavicle, when the tongs struck his left shoulder area. He also broke a rib, when he fell onto the back floor railing.



Photo 1: Position of Slips Under Service Rig Floor

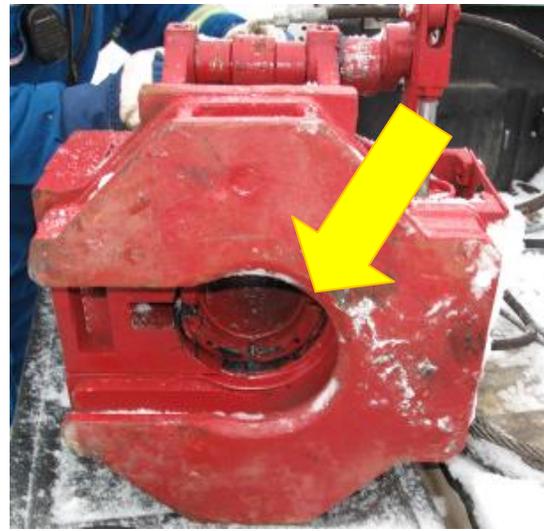


Photo 2: Beveled Edge on Stripper Plate



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We Can Prevent Future Incidents:

To reduce or eliminate a reoccurrence, the following preventive measures are advised:

1. Ensure the slips are installed above the height of the rig floor.

Comment: There are times when it is not possible to position the slips above the rig floor. In these cases, it is advised that a more detailed hazard assessment be conducted and the appropriate control measures implemented.

2. Ensure the stripper plate has the same design as the bottom of the slips.

Comment: The original equipment manufacturers (OEM) design is to bevel off the bottom of the slips to prevent snagging. Using the same design for the stripper plate installed on the slips would mirror the manufacturer's design.

3. Inspect for and report equipment damage.

Comment: The slips were a rental unit and showed signs of previous impacts the tubing collars on the bottom indicating previous contacts. Whenever equipment design and operating problems are identified, it would be advised to suspend the use of the equipment. It is important to provide feedback to the owners of the rental equipment, so that any problems can be corrected.

Contact:

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DISCLAIMER:

This Safety Alert is designed to prevent similar incidents by communicating the information at the earliest possible opportunity. Accordingly, the information may change over time. It may be necessary to obtain updates from the source before relying upon the accuracy of the information contained herein. This material is presented for information purposes only. Managers and supervisors should evaluate this information to determine if it can be applied to their own situations and practices.



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UPDATE: MARCH 15, 2010

Function: Well Completions and Servicing	Original Release Date: February 18, 2010
Incident Type: Hazard Alert	Country and Region: Western Canada

Summary of Original Alert:

A service rig floor hand broke his clavicle and a rib when the slips caught on the rig floor launching the worker into the tongs.

Preventing Future Incidents - Industry Comments and Feedback:

The nature of these safety alerts does not allow for all the information obtained during an incident investigation and causal analysis to be presented in full detail. With this in mind, it is important to share some of the reader comments submitted to Enform regarding this alert and the responses from the originator. As stated by the originator:

"We owe it to our employees to do everything we can to reduce risk to the lowest possible factor and that involved all of the recommendations, not just the obvious. Just changing the design of the stripper plate alone would not prevent another such occurrence. This is not the first time for this type of incident nor is it the first injury. We should not be too quick to just blame equipment but look at the overall work process and implement both engineering and administrative controls."

Comment 1:

I question the recommendation: "Ensure the slips are installed above the floor". In a case such as this, the slips would likely have continued upwards, impacted the tongs and pulled them sideways as the backup arm total length was reached. This could result in the equipment being pulled towards the floor hand running the tongs as the pipe started to bind or bend. Either way the workers on the floor are exposed to a serious hazard.

Response 1:

*For normal operations, there is no reason for the slips to be placed below the rig floor. It is true that if the slips are above the rig floor, they can impact the bottom of the tongs and cause damage. It is therefore important to focus on both stripper plate design **and** their placement.*

In this case, the design flaw on the bottom of the stripper plate with square edges allowed the tubing collar to catch and resulted in the slips being lifted up. With the slips in such close proximity to the rig floor, if they catch, the incident occurs before the driller has time to react and the rig floor is lifted violently thus propelling the workers into equipment as occurred in our incident. It is worth noting that there was a fatality and a serious injury in the U.S. when the slips caught on the rig floor.



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With the placement change, if for some reason the slips are lifted in spite of the design change, the risk to workers is dramatically reduced. It is important to note that this can also occur with a new stripper rubber, as the weight of the slips may not be sufficient to hold them down while the collar slips through as was witnessed during our investigation.

Comment 2:

With the slips above the floor, extra height is maintained at the 'stump' where the stabbing valve would be inserted. Particularly with slip type elevators, this may become an issue for efficient well control. I believe the slips should in fact be placed below the floor in most cases, as this allows for the stick-up stump to be at the floor hand waist instead of at face level or possibly above his head. This can make all the difference in the world when it comes to handling a stabbing valve when a shut-in is required for kick control.

Response 2:

There are times when the slips must be below the rig floor for testing purposes. However the added equipment does work to keep the tubing centered more than when not installed, this again reduces the risk to our workers. It is our company policy to complete a variance at the rig and have approved when the slips are not placed above the rig floor. In addition, standardized floor opening designs have been developed, as there is a wide range of floor openings. Some rigs may be no problem while for others this poses a significant risk. When combining all of the control measures, we believe that the overall risk is reduced for our workers.

Closing Thoughts:

These comments reinforce that there is no 'one size fits all' solution for every situation. Different circumstances will require an equipment-specific hazard review to identify what control measures are appropriate for that operation. If this alert results in you reviewing an operation to confirm your safety controls, or improve the know-how of your workers or supervisors, then these alerts are meeting their goal!

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