

Investigation Report

Worker fatally injured after being pinned in the equipment

May 11, 2018

Report No-F-OHS-144318-DD9DB

July 2019

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The contents of this report

This document reports Occupational Health and Safety's investigation of a fatal accident in May 2018. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

Incident summary

On May 11, 2018, at approximately 6:30 p.m., three workers were in the process of re-stringing the lines on the travelling block of a rig. During this process, one of the workers was fatally pinned between the two sections of a rig mast.

Background information

Precision Drilling Corporation (Precision Drilling) is the largest drilling rig contractor in Canada with its head office located in Calgary, Alberta and with a satellite office located in Clairmont, Alberta. Operations expanded from three drilling rigs in 1984 to over 240 drilling rigs and worldwide operations to date. Precision Drilling is governed by a board of directors and managed by an executive management team.

The floorhand (deceased worker) was hired by Precision Drilling in February of 2014. After completing training, the floorhand was assigned to Rig 407 in June 2014 and had worked on Rig 407 since that date. The floorhand had completed numerous training courses, including rigging and slinging training on March 20, 2018.

The driller was hired in January of 2000 by Precision Drilling and had received extensive training since their start date. The driller took the rigging and slinging training course on June 27, 2017.

The rig manager (loader operator) was hired in 1983 by Precision Drilling and had worked for them since that date. The loader operator was operating the loader on the day and time of the incident and supervising the work being done. The loader operator had extensive training since their start date and took the rigging and slinging training course on April 10, 2018.

Equipment and materials

Rig 407

Rig 407 (Figure 1) was built in July of 2005 by Hodgson, model No. M136-13.5-500, and was a super triple with a 1000 horsepower motor with a rated drilling depth of 4500 metres. On March 21, 2018, representatives of Nelsen Technologies completed a Level 4 1000 Operating Days inspection and certification on Precision Drilling Rig 407 mast (Company No. 345), riser (Company No. 2015), and substruction (Company No. 345) at their shop location in Nisku, Alberta. They found all components to be in good condition and safe to operate within the rated capacities when used in accordance with the manufacturer's specifications and/or industry standards.



Figure 1. Rig 407 in the lay down position at the time of the incident.

Travelling block

The travelling block (Figure 2), model No. TB-300, was manufactured by Gardner Denver and measured 152 x 107 x 3.8 centimetres (cm). In the spring of 2018, the block assembly was transported to the Precision Drilling Support Center (DSC) in Nisku, Alberta for a Level 4 1000 Operating Days inspection and re-certification. The final non-destructive testing (NDT) inspection report revealed no defects.



Figure 2. Travelling block on Rig 407 was hung from the travelling block attachment points in the bottom section of the mast.

Wire rope drill line

The wire rope drill line (Figure 3) measured 3.8 cm in diameter and was a multi-thread, twisted wire rope as the drill line on Rig 407.



Figure 3. The wire rope drill line that was being threaded or reeved through the travelling block and crown at the time of the incident.

A. Wire rope drill line.

Snake and pulling rope

The snake was a steel chain measuring 30 cm x 3 cm. The pulling rope, a nylon material, measured 61 cm x 3 cm (Figure 4).



Figure 4. The snake and the pulling rope were attached to the wire rope drill line and were being pulled through the travelling block when the incident occurred. The snake and pulling rope were used to install new cable by using old existing cable to pull the line.

- A. *The snake*
- B. *The pulling rope*

Sequence of events

The mast of the rig had been placed in the lay down position, in two sections, on metal stands located in the employer's equipment yard.

May 11, 2018, between 6:30 a.m. and 7:00 a.m., the three workers (loader operator, driller, and floorhand) arrived for their shift at the Precision Drilling Clairmont yard.

Between 7:00 a.m. and 7:15 a.m., the three workers held a safety meeting prior to starting work. The task description listed on the Precision Group of Companies' Daily Safety Training Meeting Report for May 11, 2018, included installing crown sheave, fast line sheaves, hang blocks, string blocks with loaders and pull rope, and good signals. Hazards included: watch out for pinch points, stop work if something didn't look right, stop and fix the problem, and work together and help each other out.

Between 7:15 a.m. and 12:00 p.m., the workers gathered the required tools and equipment and began the process of installing crown cluster and the wire rope drill line sheaves.

From 12:00 p.m. to 12:45 p.m., the workers stopped for lunch.

Between 12:45 p.m. and 6:30 p.m., the workers continued installing the crown cluster & wire rope drill line sheave. The workers installed both boom poles and strung the wire rope drill line through the boom pole sheaves. The workers positioned and hung the travelling blocks in the lower section of the derrick. The workers then prepared the required tools and equipment and began the process of re-stringing the drill line through the reeving system.

The floorhand was positioned on the west side of the mast, adjacent to the gap in the two masts, and near where the travelling block was hung on the bottom section of the one mast. The floorhand was to watch the wire rope drill line (wire rope) as it was being pulled through the travelling block sheaves.

The driller (designated signal person for the loader operator) was positioned on the east side (off driller side) of the mast, by the crown. The driller was to watch for problems with the wire rope as it was being pulled through the crown sheaves.

The loader operator was pulling the wire rope drill line, which was attached to the loader, through the reeving system when the incident occurred.

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At approximately 6:30 p.m., the driller attempted to verbally communicate with the floorhand, but there was no response. The driller then went to the west side of the mast where the floorhand had been positioned. The driller found the floorhand pinched and unresponsive between the two sections of the mast. The driller began performing cardiopulmonary resuscitation (CPR) while the loader operator called 911.

Completion

A review for enforcement action was completed on February 2, 2019, and it was determined that prosecution or an administrative penalty were not appropriate based on the circumstances surrounding this incident.

This investigation was closed on July 8, 2019.

Final Report

Signatures

ORIGINAL REPORT SIGNED

July 17, 2019

Lead Investigator

Date

ORIGINAL REPORT SIGNED

July 23, 2019

Manager

Date

ORIGINAL REPORT SIGNED

Aug 1, 2019

Director

Date