



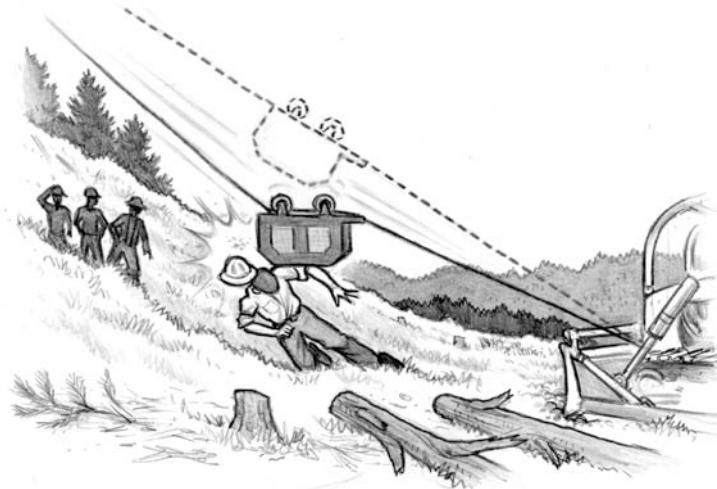
Fatality Investigation Report

OR 2006-24-1

Logger killed under rigging when carriage drops

SUMMARY

A 45-year-old logger, working as a [chokersetter](#) in a skyline [yarding](#) operation, was killed when he was crushed by the [skyline carriage](#). The chokersetter was new to logging, 1 week on the job, and was working under supervision. The carriage returned down the [skyline](#) from the [landing](#), and as soon as the stop whistle sounded, the chokersetter rushed in to grab the [chokers](#) lying in the brush under the carriage. The carriage was 8-10 feet overhead and was still rolling a bit. The [yarder](#) engineer was just in the process of setting the [mainline](#) brake when the line suddenly slackened. The carriage dropped and crushed the chokersetter, killing him instantly. The medical examiner reported the victim's blood alcohol content at .02.



Art by Phil Fehrenbacher, courtesy Oregon OSHA

The chokersetter in this incident approached the chokers under the carriage before the lines had completely stopped.

CAUSE OF DEATH: Traumatic head injuries

RECOMMENDATIONS

- Ensure machine anchors are rigged correctly.
- Remove [rigging](#) hang-ups.
- Stay clear of rigging.
- Closely supervise new workers.
- Be aware of the effects of alcohol even many hours after consumption.

INTRODUCTION

At about 6:40 a.m. on June 14, 2006, a 45-year-old logger, working as a chokersetter, was killed by a falling [skyline](#) carriage. OR-FACE was notified the day of the incident and an investigator was sent to review the fatality. The investigator arrived at the same time as an Oregon OSHA investigator arrived and was denied access to the worksite. The findings in this report are based on the investigation report by Oregon OSHA.

The logging firm had 33 employees at the time of the incident, and 6 at the worksite. There was direct supervision at the site. The employer's safety program used services and resources provided by Associated Oregon Loggers. The employer had good knowledge of Oregon logging codes.

The logging operation was a [standing skyline](#) yarder system. A skyline was spooled off the yarder and attached to a [tailhold anchor](#) at the back-end of the unit. The attachment point in this case was a heavy bulldozer. The carriage riding on the skyline was a motorized skycar with radio-controlled [droplines](#) for the chokers. Carriage outhaul worked by gravity. Inhaul used a mainline attached to the front side of the carriage.

The chokersetter in this incident was Hispanic and new to logging, on the job for only one week. Another chokersetter in the crew was also Hispanic, as was the yarder engineer, and there were no reported difficulties in training or supervision due to a language barrier.

INVESTIGATION

On the day of the incident the crew arrived at 5:30 a.m., and found the skyline was fouled on the drum. The rigging crew pulled in the skyline to straighten the line on the yarder drum, then re-rigged the line at the back-end of the unit. The skyline anchor was a Caterpillar D-7 bulldozer. The use of heavy machinery as equipment anchors are commonly used when there are a limited number of stumps or when the heavy machinery is readily accessible.

The skyline was fairly taut to provide lift on the back-end of the logging road where the crew was working. There was limited clearance above the rigging crew, with the skyline carriage 8-10 feet above the ground.

The rigging crew sent in one [turn](#) on the newly rigged setup. The carriage came back out as normal. Due to the limited [deflection](#) in the skyline, the carriage drifted back to the crew and slowed on its own before the [rigging slinger](#) blew the stop whistle. The chokersetter was on one side of the carriage, and the rigging slinger and a coworker on the other. The instant the rigging slinger blew the stop whistle, the chokersetter rushed underneath to grab a choker as he was taught to do. The yarder engineer was just in the process of setting the mainline brake, when the skyline slackened and the carriage dropped and crushed the chokersetter.

RECOMMENDATIONS/DISCUSSION

Recommendation #1. Ensure machine anchors are rigged correctly.

No definite cause was discovered for the sudden drop in the skyline. The skyline was re-rigged that morning, due to problems with the line spooling on the yarder drum, and the tailhold equipment anchor (bulldozer) was disconnected. The OSHA report does not say how this operation took place. If the bulldozer was moved, it may not have settled completely into the earth berm in front of the blade that blocks its movement; or may have been turned slightly out of lead with the skyline, and later shifted toward the pull. Possibly, slack remained in the attachment strap at the bulldozer, or at the shackle attachment on the yarder drum.

Before yarding begins with a newly rigged setup, the lines should be tightlined to clear any obstructions or slack in the lines. Anchors then need to be rechecked for stability. Equipment anchors are particularly susceptible to movement and must be carefully checked and tested by a qualified person.

Recommendation #2. Remove rigging hang-ups.

A hung-up line is the most common reason for a sudden drop, when the weight of the line breaks the obstruction. All workers on a [rigging crew](#), and especially the rigging slinger as the authorized person responsible for crew safety, must stay alert for hung-up lines or chokers. In this case, the skyline was draped across several small logs on the back-end of the [unit](#). The weight on the skyline as the carriage came to the back-end could have caused one of these logs to collapse. Removing these logs from the path of the skyline would have ensured the stability of the line.

Recommendation #3. Stay clear of rigging.

The rigging crew must not approach the rigging until the carriage is stopped and the chokers are lowered and stop swinging. Even then, never trust suspended rigging and avoid standing directly under it. When grabbing chokers directly under the carriage, get in and get out, particularly when the carriage is low to the ground. While grabbing the chokers, keep an eye on the carriage. This incident occurred in the instant just before the yarder engineer had controlled hazardous energy in the lines and carriage with the mainline brake.

Recommendation #4. Closely supervise new workers.

The chokersetter in this incident approached the rigging a moment too soon. He was not usually so quick, and he surprised his coworkers. Supervisors need to observe new workers closely. For competency-based training, (a) first discuss the ideas and reasons for a task to be done in a particular way, (b) demonstrate the task, (c) have the trainee do the task under supervision, and (d) continue supervision until the task is done appropriately. Recheck all workers regularly and new workers more often.

Recommendation #5. Be aware of the effects of alcohol even many hours after consumption.

The presence of alcohol in the victim's system may have potentially affected their judgment and performance. Considering the early hour, the alcohol may have been present from the night before. Other early morning incidents with workers have occurred with suggestion of intoxication the night before. The effects of a hangover can impair judgment and performance even after blood alcohol content returns to zero. Particularly in hazardous occupations, employers need to warn workers to avoid excess drinking on work nights.

REFERENCES

Oregon OSHA (2010). Yarding and loading handbook. Available online: www.orosha.org/pdf/pubs/1935.pdf

U.S. Department of Labor. Working partners for an alcohol- and drug-free workplace. Online resource: www.dol.gov/workingpartners

GLOSSARY

ANCHOR: Any stump, tree, deadman, earth-anchor, or alternative object used to secure a skyline, guyline, or rigging blocks.

CARRIAGE: A wheeled device that rides on a skyline, used for hauling logs.

CHOKER: Length of wire rope, chain, or synthetic material with attachments for encircling a log to be yarded.

CHOKERSETTER: A member of the rigging crew who sets chokers under the direction of a rigging slinger.

DEFLECTION: The amount of sag in a line measured at midspan, expressed as a percentage of the horizontal length of the span.

DROPLINE: The length of line from the carriage to the hook or end connector that holds the choker.

HAULBACK: A line used to pull the carriage and mainline to the logs to be yarded.

LANDING: Any designated place where logs are laid after being yarded and are awaiting subsequent handling, loading and hauling.

MAINLINE (yarding): The line that moves the turn of logs toward the yarder in any given system.

RIGGING: The cables, blocks, and other equipment used in yarding and loading logs.

RIGGING CREW: Crew and equipment that pulls logs to an area called a deck or landing. From the deck, logs are loaded onto trucks for transport.

RIGGING SLINGER: The rigging slinger supervises the rigging crew – selects the logs for each turn, directs the movement of the rigging using whistles, tells the chokersetters which logs to choke, and makes sure the work area and workers are clear of hazards.

SKYCAR: A motorized carriage that contains a drum of cable (dropline) that can be lowered down to the rigging crew by use of radio controls.

SKYLINE: The line hung between two or more supports on which a carriage or block travels.

STANDING SKYLINE: A standing skyline system uses a skyline, mainline, and sometimes a [haulback](#), with a motorized carriage or skycar with a slack-pulling dropline. Lowering or raising the skyline during the cycle is not necessary.

TAILHOLD: An anchor used for making fast any line or block other than a guyline.

TURN: Any log or group of logs or other material usually attached by chokers, grapples or other means and moved from a point of rest to the landing or landing chute area.

UNIT (logging): A logging site, including the workers that are rigging and yarding.

YARDER: A machine with a series of drums used to yard logs.

YARDING: Movement of logs or trees from the place where they were felled to an area where they can be further processed.

FOR MORE INFORMATION

OR-FACE/CROET L606
Oregon Health & Science University
3181 SW Sam Jackson Park Rd
Portland OR 97239-3098

Phone 503-494-2281
Email: orface@ohsu.edu
Website: www.ohsu.edu/croet/face/

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