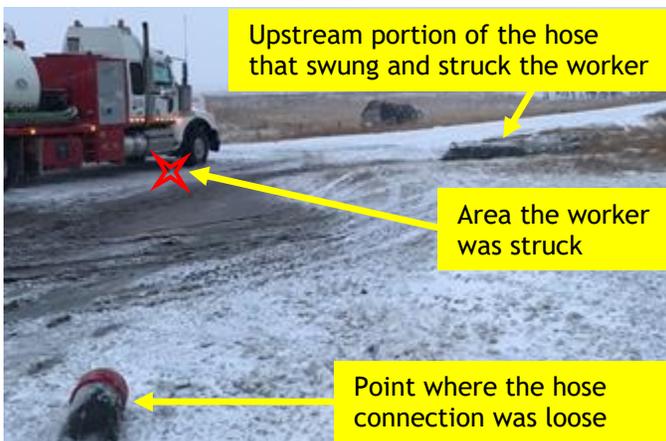


Worker Seriously Injured During Water Transfer Pigging Operation

Description:

During pigging operations on a temporary water transfer line, a pig became stuck due to an ice blockage and pressure was trapped upstream of the pig. When it was freed, the pig and trapped pressure behind it traveled down the line causing a loose clamp to unfasten. The pressure release caused the disconnected hose to swing and strike a worker on the leg, causing serious injury.



View of the disconnected hose

What Went Wrong:

- Proper heating operations were not in place. This resulted in ice/slush build-up in the line, which caused the pig to become stuck.
- A loose connection downstream of the stuck pig failed when the pig was freed, and pressure traveled downstream.
- Connection points in the water transfer line were not additionally secured with restraint devices (whip checks) to prevent movement in the event of a connection failure.

Life Saving Rule | Work Authorization

This alert relates to the following excerpts from the rule:



- I have confirmed that hazards are controlled and it is safe to start.
- I stop and reassess if conditions change.



[Watch the video](#)

Life Saving Rule | Line of Fire

This alert relates to the following excerpts from the rule:



- I position myself to avoid pressure releases.
- I establish and obey barriers and exclusion zones.



[Watch the video](#)

Actions Taken/Recommendations:

- Use heaters for all water transfer operations when there is potential for freezing conditions.
- Install restraint devices on all water transfer line connection points.
- Ensure pigging procedures adequately address and control line of fire hazards and are reviewed and understood by the entire crew.
- Ensure a supervisor is present and observing safety-critical tasks.
- A letter publicly acknowledging the incident and the actions taken is enclosed.

Energy Safety Canada Resources:

- [Life Saving Rules](#)
- [Surface Water Transfer Video Series](#)
- [Are You in the “Line of Fire?” Program](#)
- [Building Capacity to Manage Pressure Program](#)

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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Vesta Energy Corp. (“Vesta”) is an oil and gas company with operations in central Alberta. In November 2017, an incident resulting in a serious injury occurred on a Vesta water transfer worksite west of the Town of Blackfalds. The water transfer operation to a well completion operation had been completed and the fresh water was being removed from several kilometers of lay-flat hose with a technique called ‘pigging’ in which compressed air is used to push a foam ball, the ‘pig’, through the hose to clear it of fluid. During pigging operations, the ‘pig’ became stuck in a section of line due to ice build-up.

Workers were taking steps to remove the ice when the blockage broke loose and sent trapped pressure downstream on the line. The pressure resulted in the parting of a metal connection point that had been loosened and caused the parted hose to swing uncontrollably as pressure was released. A steam truck driver that was working in the area was struck two times by the swinging hose connection and suffered injuries to his lower left leg.

As a result of this incident, Vesta conducted a review of its various health and safety procedures designed and created to protect the health and safety of the workers on the worksite. Specifically, Vesta completed a review of the water transfer pigging operations as well as the overall corporate Occupational Health and Safety Management System (“OHSMS”). As a result of its review, Vesta has implemented the following improvements to its water transfer operation:

- revision of Vesta’s Safe Work Permit process to include additional detail and information for the hazard identification and control process, as well as training for water transfer supervisors and workers;
- installation of whip checks on all lay-flat hose connection points to restrain line movement in the event of a release; and
- the requirement to use heaters for all water transfer operations that could have the potential for freezing conditions.

In addition to the improvements referenced above, Vesta has also taken steps to implement the following:

- changes to corporate senior leadership team members including adding a safety focused position to that team to increase the focus and effort on top-down health and safety performance;
- incorporation of health and safety targets into corporate performance scorecards;
- implementation of regular scheduled safety meetings that require senior leadership engagement and support;
- a complete review and overhaul of Vesta’s OHSMS with a major focus on improvement of the hazard assessment and control processes;
- initiation of the Certificate of Recognition (COR) application and audit process which includes a third party audit review of Vesta’s OHSMS, resulting in a COR being issued to Vesta in November 2021; and
- implementation of a Contractor Management System that includes the confirmation of a safety program and training for all on-site vendors.

Vesta has committed to learning and improving from this incident and fully embracing continual safety improvement. As a result of the changes and improvements put in place, and with the increased safety focus across the organization, safety performance has improved markedly across all of Vesta's operational groups. Beyond this, other significant benefits have been realized such as improved relationships with service providers and their employees, dramatically improved regulatory performance, and higher employee engagement and well-being. We encourage all other employers to recognize that a strong safety culture has many lasting effects such as improving overall business performance on top of the most important thing which is keeping workers safe.

A handwritten signature in blue ink, appearing to read "Mark Lansing".

Mark Lansing
VP HSE & Sustainability
Vesta Energy Ltd.

On July 28, 2020, Vesta Energy Corp. pled guilty to charges under the Alberta OHS Code Section 215.5(2) – failing to ensure that there were no workers at the end of the pipe or in the immediate vicinity of the pigcatcher if the pipe or pigcatcher is under pressure during the operation. The resulting sentence to Vesta Energy Corp. was a fine of \$75,000 and 24 months Corporate Probation.