

Investigation Report

Worker Fatally Crushed by
Pipe Rolling into Trench

July 16, 2013

Final Report

The contents of this report

This document reports Occupational Health and Safety's investigation of a fatal accident in July 2013. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

Incident summary

The installation of a pipeline was nearing the final phase of construction. The crew foreman was in a trench wrapping a sling around a length of pipe so an excavator could lift the pipe; a welder was then to cut a flange off of the pipe. The excavator operator moved the bucket above the pipeline in order to hook and lift the pipe by the sling. The counter weight of the excavator struck a stationary pipe, which was resting on pipe support cones causing it to roll off and into the trench fatally crushing the crew foreman.

Background information

Shell Canada Limited (Shell) is the owner of the Shell Cecilia Gas Plant north of Hinton, Alberta, where the incident occurred. The pipeline being constructed was adjacent to the gas plant. Alstar Oilfield Contractors Ltd. (Alstar) was contracted by Shell to construct this short pipeline to join to a major pipeline for marketing the natural gas produced at the plant.

Alstar is a privately owned oilfield construction company and has its head office in Hinton. Alstar supplied the fabrication for the pipeline construction.

ClearStream Energy Services Limited Partnership Ltd. (ClearStream) was contracted to supply qualified personnel to fill Shell's liaison role with an on-site representative. ClearStream is a mid-sized oilfield services company that serves conventional oil, gas, and oil sands companies by providing gas plant operators.

Totally Awesome Oilfield Ltd. was contracted by Shell to provide the services of project management, also known as the on-site representative.

The crew foreman (deceased) had been working with Alstar for approximately six years with previous experience of seven years as a labourer. The crew foreman had nine and a half months as foreman for Alstar.

The excavator operator owned and operated his own business. The excavator operator had approximately eight years of experience as an operator and was contracted to Alstar for two years.

Equipment and materials

The hydraulic excavator is manufactured by Hitachi Construction Machinery C. Ltd. Tokyo, Japan. The excavator is a Hitachi ZX270LC-3 (Figure 1).

The pipe used was manufactured by Shaw Gateway Tubulars, Calgary Alberta. The pipe is of the Fuseabond style (meaning they can be joined together) and is 32 metres (m) in length, 324 millimeters (mm) in diameter, and a total weight of 1795 kilograms (kg) (Figure 1).



Figure 1. The image shows the trench where the Foreman was struck. Also shown are the pipes, excavator, and the blue pipe support stands.

A: Foreman's approximate location when struck by the pipe.

The pipe support cones (Figure 2), used to support the above-mentioned pipes, were manufactured by the Paddle Plastics Ltd. Mayerthorpe, Alberta. They are the Proline model and are designed to accommodate 20 to 30 centimetre pipe and have a maximum load of 1580 kg per cone.



Figure 2. A pipe support cone.

Sequence of events

On July 16, 2013 the installation of a pipeline at the Shell Cecilia Gas Plant was nearing the final phase of construction. In the morning, the work crew reviewed and discussed the job activities, hazard assessment and control documentation.

The Alstar below ground crew spent the morning ensuring the pipeline was clear of debris and then prepared for the tie-in process. The tie-in process is how the pipe is connected (welded) to the existing pipeline system.

The excavator operator drove the excavator to the location of the weld tie-in. He got out of the excavator to meet with the crew foreman to discuss the plan of action.

The crew foreman entered the trench to wrap a sling around the end of the pipeline so it could be lifted and the welder could cut off the steel flange for the tie-in process. At approximately the same time, the excavator operator moved the bucket of the excavator above the pipeline to hook and lift the pipe by the sling.

Final Report

A steel pipe had been resting on pipe support cones in preparation to be placed in the trench. At approximately 2:45 p.m., workers in the area heard a crash as a result of the excavator counter weight striking the steel pipe. The strike caused the steel pipe to roll off the pipe support cones and into the trench. The crew foreman was struck by the pipe with enough force to cause fatal injuries.

A welder came to the incident site and activated the emergency response plan. The medic on standby responded and with the help of the crew tried to resuscitate the crew foreman. A STARS Air Ambulance arrived and the crew foreman was pronounced deceased. The crew foreman was taken from the worksite by ground ambulance.

Completion

A review for enforcement action, in cooperation with Alberta Justice, was completed on July 21, 2015. It was determined that prosecution or an administrative penalty were not appropriate based on the circumstances surrounding this incident.

This file was closed on August 12, 2015.

Final Report

Signatures

Original Report Signed

August 14, 2015

Lead Investigator

Date

Original Report Signed

August 14, 2015

Manager

Date

Original Report Signed

August 19, 2015

Director

Date