

Investigation Report
Worker Struck by Pipe and Fatally Injured
October 17, 2013

The contents of this report

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

Incident summary

A worker was struck by a pipe on a conveyor system causing fatal injuries.

Background information

TMK IPSCO Canada, Ltd. (TMK) is a producer of tubular products for the oil and gas industry. TMK operates at 30 sites globally. The plant involved in this incident is located in Sherwood Park, Alberta with 33,000 square feet of space. The plant opened in March of 2012 (Figure 1).

The production operator (fatally injured worker) had worked at TMK for one year at the time of the incident. The production operator's duties were to work the conveyor, the HEM saw, and the stress reliever. The production operator had training on the use of the conveyor operation, the HEM saw use, and had a safety orientation.

The CNC operator had worked for TMK for 14 months at the time of the incident. The CNC operator had training on CNC lathe operation.



Figure 1 shows the outside of TMK (Picture from TMK website).

Equipment and materials

The Brandt pipe conveyor system, model J12007 (pipe conveyor system), was used to move pipe from outside the building into the building to be cut, rethreaded, and tested as per customer specifications. Once inside the building, the pipe conveyor system consisted of multiple conveyor sections, skid tables, and a pipe stand. The pipe could be transferred and moved using a programmable logic controller (PLC). The PLC feature allowed for reduced manual handling of the pipe.

The pipe conveyor system could be operated in an automatic or manual mode. When in manual sequence, the operator had complete control over the pipe movement process. When in automatic sequence, the internal software controlled the movement of pipe (Figure 2).

The pipe conveyor system was designed to handle pipe sizes from 10.16 to 33.97 centimetres (cm) (4 to 13 3/8 inches) wide and from 7.32 to 14.63 metres (m) (24 to 48 feet) long. The pipe conveyor system was divided into conveyor sections denoted C1, C2, C3, C4, et cetera (etc.). Sections C1 and C2 were involved in the incident (Figure 3/Figure 4).

The HEM saw (bandsaw), model H105LM, was manufactured by HEM Inc. The bandsaw was placed between C1 and C2 of the conveyor system and was used to cut pipe that was brought in from outside to be rethreaded. The controls for the bandsaw were separate from the conveyor controls. The bandsaw used air pressure to move the arm of the bandsaw up and down during the cutting process. The bandsaw could be operated in “saw” mode or “bypass” mode. When operated in “saw” mode, the pipe coming in using the C1 conveyor would stop at the bandsaw to be cut. When operated in “bypass” mode, the pipe would continue past the saw onto the C2 conveyor (Figure 3/Figure 5).

The pipe involved in this incident was 33.97 cm wide x 13.41 m long with an estimated weight of 1067 kilograms (kg). This pipe was on conveyor C1 at the time of the incident (Figure 4).

A piece of scrap pipe, which had recently been cut by the bandsaw, was being held up by the production operator at the time of the incident. The piece of pipe being held was 33.97 cm wide x 59.69 cm long and weighed an estimated 69.39 kg (Figure 6).



Figure 2 shows the controls for the pipe conveyor system. A-shows the conveyor set to “auto” mode.



Figure 3 shows the overview of the incident scene involving the C1 conveyor and C2 conveyor.

A-Shows the start of the 33.97 cm wide x 13.41 m long pipe as it entered the building from outside.

B-Shows C1 conveyor that was continued from outside of the TMK facility and moved the pipe that was involved in this incident.

C-Shows the end piece of pipe 33.97 cm wide x 59.69 cm long that was cut by the bandsaw and was being held up by the production worker at the time of the incident.

D-Shows the bandsaw in the “down” position after cutting a pipe.

E-Shows the start of C2 conveyor that moved pipe after it had been cut by the bandsaw.

F-Shows the controls for the bandsaw.



*Figure 4 shows C1 conveyor that had a pipe that had been kicked onto the conveyor and brought into the building through the hole in the wall by the controls that were in “auto.”
A-Shows the opening used to move pipes into the building using conveyor C1.
B-Shows the pipe that was involved in the incident.
C-Shows C1 conveyor that had the pipe that was kicked onto conveyor C1 from the pipe stand while in “auto” mode.*



Figure 5 shows a close up of the bandsaw in the “down” position with the cut pipe removed.



Figure 6 shows the cut piece of pipe that was removed from the bandsaw that the production worker was holding up

Sequence of events

On October 17, 2013, at approximately 10:10 a.m., the production operator had brought in a pipe using the C1 conveyor and transferred to the C2 conveyor to be cut using the bandsaw.

The production operator had completed a cut on the pipe. The bandsaw arm did not return to the “up” position. The production operator entered the area between C1 conveyor and C2 conveyor to prevent the cut piece of pipe (33.97 cm wide x 59.69 cm long) from falling to the ground.

The CNC operator, who was operating a forklift to remove scrap pipe, saw the production operator holding the scrap pipe and asked if help was needed. The production operator directed the CNC operator to turn a knob on the controls to the bandsaw so that the arm would return to the “up” position. The CNC operator turned the knob on the bandsaw controls, and the arm did not rise.

The production operator (who remained between C1 conveyor and C2 conveyor holding the scrap pipe) asked the CNC operator to move the pipe that was just cut from the C2 conveyor so that the scrap piece of pipe being held could be pushed onto the other side of the bandsaw.

The production operator and the CNC operator discussed whether to use the manual or automatic mode for the pipe conveyor system to move the pipe that was on the C2 conveyor. After the discussion, the CNC operator started the conveyor system in “auto.” This moved the cut pipe that was on C2 conveyor to a pipe stand while causing a pipe 33.97 cm in diameter x 13.13 m long and weighing 1067.3 kg to be “kicked” onto C1 conveyor.

At approximately 10:30 a.m., the pipe that was on the C1 conveyor came from outside and struck the production operator in the upper back while the production operator was facing the bandsaw with the production operator’s back to C1 conveyor. The CNC operator saw the pipe come in from outside and attempted to stop the pipe by pressing the emergency stop button. The CNC operator provided aid to the production operator.

The production operator was laid on the ground and workers came to assist. The CNC operator called 911.

Emergency Medical Services (EMS) arrived within 10 minutes of the incident. They transported the production operator to the hospital where the production operator was pronounced dead as a result of the injuries suffered when the production operator was struck by the pipe.

Completion

It was determined that the file should be referred to Alberta Justice for review. The entire file was sent to Alberta Justice.

Charges were laid on August 10, 2015, and on April 28, 2016, TMK IPSCO Canada, Ltd. pled guilty to count 5, section 310(2)(h) of the Occupational Health and Safety Code. All other counts were withdrawn.

At the sentencing, TMK was fined \$300,000. The fine was to be paid on or before June 15, 2016. TMK had established a scholarship fund for the deceased worker’s two daughters in the amount of \$100,000.00 to provide each daughter with up to \$50,000.00 to pursue post-secondary education. The scholarship fund was a proactive action conducted by the company in early 2014. This action was not a result of the charges.

Final Report

Signatures

ORIGINAL REPORT SIGNED

November 22, 2016

Lead Investigator

Date

ORIGINAL REPORT SIGNED

November 22, 2016

Manager

Date

ORIGINAL REPORT SIGNED

December 2, 2016

Director

Date