

Arm Trapped in Conveyor

WHAT HAPPENED

Two contract material handling operatives were working to clear a spillage on a conveyor belt, which had caused the belt to trip out on overload. The belt was isolated electrically as per procedure.

Whilst one operative was working at the rear of the tail drum moving material with a shovel, the other was using a shovel to clear the material from the top of the belt and around the belt sides. The operative at the rear of the belt used his hand to remove some of the smaller lumps that remained around the tail drum of the belt. As he reached to clear the material, the belt moved forwards approximately 8 inches trapping his right arm between the belt and the underside of the tail drum roller.

The shift supervisor and craftsman immediately attended the scene, and following an assessment of the situation, cut through the belt and freed the IP's arm. The IP felt some pain and discomfort however, following assessment at a local A&E he was released with no further issues.

Factors

Below is a step by step explanation of how an event such as this can happen:

1. The conveyor trips on overload due to an obstruction between the bottom belt and the return end drum
2. Extreme tension is caused in the top side of the belt which in turn causes the underside of the belt to go slack, (the conveyor may appear to be under tension on one side and slack on the other).
3. The obstruction between the bottom belt and the return end drum is released
4. The uncontrolled release of tension in the top of the belt rapidly pulls the bottom of the belt around the tail drum with a sudden surge of extreme force

LEARNING POINTS / ACTIONS TAKEN

IF YOU HAVE CONVEYORS ON YOUR SITE WHICH:

- Are inclined and fitted with an anti-run back device

And

- Have the potential for the return side drum/s to become obstructed by spillage or foreign objects causing the drive to trip on overload

And

- Run at a considerable speed - the faster the belt speed the more energy likely to be stored

THEN YOU MUST:

- Investigate the potential to install a tension release backstop Below is a link to a video clip which demonstrates how tension release backstops can prevent fatal accidents when conveyor belt jams are removed. (Safequarry editors note: This a promotional video that demonstrates the phenomenon, but is not necessarily an MPA recommendation.)

<https://www.youtube.com/watch?v=uL71muVpQcM>

OR

- Use manual "block out" techniques such as a belt clamp, prior to carrying out maintenance or cleaning activities.

Site managers and supervisors should use this alert to ensure that this message is clearly communicated and understood by everyone in their team.

LOCATION: CEMENT PLANT
ACTIVITY: MAINTENANCE & HOUSEKEEPING
SUB ACTIVITY: N/A

ALERT STATUS: Normal
DATE ISSUED: 13/07/2017 12:36:09
INCIDENT No: 01460