SAFETY OF PRIMARY ARMS ON PAPER MACHINES

The purpose of recent site visits was to examine arrangements of Primary Arm mechanisms fitted to paper machines. Concerns had been expressed by the Industry following the occurrence of a fatal accident at a papermill in the United States.

The automatic turn-up device for feeding paper onto a new reel was inoperable at the time of the incident and the task was being completed manually by the crew from the frontside of the machine.

The injured worker was assisting by blowing the sheet onto the spool with an air hose from the backside of the machine and somehow became caught in the area of the primary arms, secondary arms and the reel rail.

I noted that the machine involved in the incident did not include any guarding to enclose primary and secondary arm mechanisms.

I found that the machines studied at UK Mills included fixed fencing to the area surrounding the sides of the machine, such that primary arms were located behind the fencing.

Fencing extended along the length of the machine, to protect against access to the tram rails etc. from the sides.

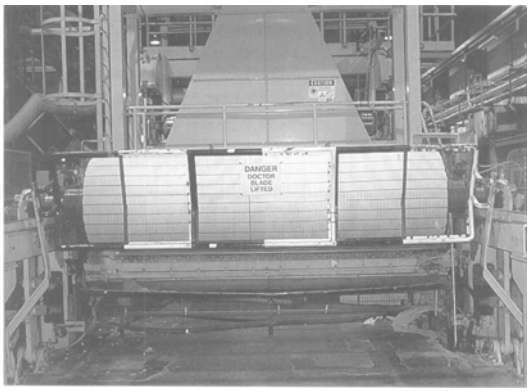
I considered general intervention with the reel-up area of the machine. Tasks included:

- Feeling the profile of the sheet (checking for level, creasing, moisture)
- Blowdown and manual dragging of broke paper into the chest located below operating floor level (Under The Machine Pulper or UTMP).
- Cleaning of paper dust from the tram rails. Dust found to prevent transfer of the finished reels along the tram rails (operator positioned outside of the side guards).
- Dress off waste and attach a quality label to reel. Deflate spool
- Shell starter belt maintenance
- Adjustment of gearing on quadrant – carried out with the machine stationary.

It was noted that there were no physical measures in place to stop someone entering from the front face. Reach access was available to primary and secondary arms at this point.

I recorded that as the fresh reel was building, there remained greatest exposure to inrunning nip.

As reel diameter increased reach access to the drive roll became more difficult i.e. it was remote, as the reel became in the way. I noted that if the reel was not the full width of the machine, some exposure remained from the front sides (this distance would vary depending on the overall width of the finished reel). I also noted access to the floor opening leading to the UTMP was possible.



Access to the front of the reel being wound can be prevented by fitting of a front-faced guard (illustrated in Making Paper Safely Figure 30) that travels with the growing reel during normal operation.

I noted that depending on the width of the machine, such a guard would require significant strengthening, so as to span the full width of machine. Depending on the available space between the finished reel and reel being wound, there may be insufficient space to install a suitable rise-and-fall guard. Use of rise-and-fall guards, UTMP upstands may entangle broke, thus requiring additional intervention in order to release.

CONCLUSIONS

Fixed fencing extended along the length of the tram rails to the machines would prevent contact between the rails and reel journals, or access to the primary/ secondary arms from the sides of the machine.

Use of air lances to remove dust from tram rails, carry out manual turn-up would rely on safeguards such as fixed guarding, hose length and placement of the operator, in order to prohibit the possibility of entanglement from the sides of the machine.

There remained limited visibility between machine frontside and backside. Although fitting of cameras, mirrors, etc. provide an aid to visibility; reliance is placed on the crew leader to be aware of the personnel located at the machine during intervention activities.

There remained potential access from the front-face of the machine to various dangerous parts.

RECOMMENDATIONS

Users are advised to consider a hierarchy of guarding measures to the front-face of the machine to provide a practicable solution:

- Fitting of front face guards to the reeler and remove spool dressing activity to outside the enclosure (MPS figure 30).
- Use of ESPE or scanner, linked to automatic turn-up, primary and secondary arms, to reduce hazards.
- System of work to control production and maintenance intervention i.e. feeding of broke pulper

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