Based on what we understand from the text, several risks and issues might have contributed to the occurrence of this accident:

It's indicated that several problems arose from the mechanism of the rollers. If these risky mechanisms are not necessary in the system, they should be removed from the system. If they are necessary, the system should be replaced with a safer one. If this isn't possible, efforts should be made to reduce the likelihood of risky situations occurring, including maintenance and routine checks, and all employees should receive relevant training.

Scenarios where the victim either jumped or reached upwards may indicate a lack of training for the victim. Additionally, employers responsible for providing this training should be monitored. High participation rates in these training sessions should be maintained, and their follow-up should be ensured.

The victim performs various tasks using their hands according to the job description. Moreover, it is crucial for occupational health and safety that protective personal equipment is used. The absence of these items on the victim after an accident might suggest two potential scenarios: if the victim has removed the necessary equipment that should be present on them at the workplace, it could indicate inadequate training or participation in training by the victim. Additionally, this situation should be monitored by supervisors and colleagues, and necessary actions should be taken. If the employer has not provided the required equipment to the employees, the employer is primarily responsible for this situation and is obliged to provide these equipment to their employees.

The continuous operation of the conveyor belt was also a significant factor in the occurrence of this accident. If possible, the conveyor belt should allow loading of waste materials at specific intervals. Such a setup, if applied in subsequent operations, could prevent similar accidents from occurring.

It's mentioned that the victim had been observed in risky areas in the past and had received written warnings. In this case, it appears that the victim was not sufficiently aware. Moreover, apart from these written warnings, different punitive measures can or should be applied by the employer or supervisor.

The incident where the victim inserted their hand between the rollers while walking beneath the belt could be associated with the victim's level of awareness regarding occupational health and safety. Alternatively, it could be due to a momentary lapse or another factor. This kind of problem signals a 'coming problem'. The solution is straightforward. The lower part of the roller system is a highly risky area. Access to this area can be restricted. It's possible to temporarily restrict access by using a barrier or design a fully enclosed system.

For Victim:

Before the Accident:

Active Participation in Training: Regularly participating in occupational health and safety training sessions to recognize risky situations and learn necessary precautions to avoid them. Training provides essential support and prevent many cases.

Use and Maintenance of Protective Equipment: Using required personal protective equipment for occupational health and safety purposes and ensuring regular maintenance.

Adhering to Warnings: Taking previous warnings seriously and avoiding risky behaviors.

After the Accident:

Incident Reporting: Promptly reporting the incident to the employer or authorities and making emergency calls when necessary.

Investigation and Training: Understanding the causes of the incident and receiving training regarding measures to prevent similar occurrences.

Personal Responsibility: Taking necessary precautions for personal safety and avoiding risky behaviors.

For Employer:

Before the Accident:

Risk Assessment and Preventive Measures: Reviewing risky mechanisms and taking measures to replace risky mechanisms in the system with safer alternatives or minimize risks if necessary. Many risk assessment control measures are elimination, substitution, engineering controls, administrative controls and personal protective clothing [1].

Training and Monitoring: Providing employees with occupational health and safety training and monitoring participation in these training sessions. Training is one of the essential solution to prevent accidents.[2]

After the Accident:

Incident Investigation and Improvement Suggestions: Conducting a detailed investigation of the incident, analyzing its causes, and providing suggestions to enhance occupational health and safety standards. This process can include recommend corrective and preventive actions,document and communicate findings and follow-up[3].

Provision and Maintenance of Equipment: Providing necessary protective equipment and ensuring regular maintenance. In this way, avoid expensive repairs due to negligence and reduces energy consumption and hence saves money [4].

For co-worker:

Before the Accident:

Paying Attention to Warnings: Observing risky behaviors and informing colleagues or superiors when necessary.

After the Accident:

Collaboration and Support: Collaborating after the incident, sharing responsibilities, and providing information or assistance if needed.

For supervisor:

Before the Accident:

Training and Supervision: Ensuring that employees receive proper training and regularly supervising workplace risks.

After the Accident:

Incident Investigation and Guidance: Conducting a detailed investigation of the incident, providing guidance to employees if necessary, and offering improvement suggestions.

It's evident from the comprehensive analysis that various factors contributed to the occurrence of the accident. The identified risks include problematic mechanisms, insufficient training, lack of personal protective equipment, continuous operation without intervals, inadequate awareness, and a lack of restrictive measures in hazardous areas.

Lessons Learned from the Incident:

Importance of Mechanism Evaluation: Assessing and upgrading or substituting risky mechanisms is crucial. Maintenance checks and relevant training for employees handling these mechanisms are imperative.

Training and Continuous Monitoring: Consistent and comprehensive training sessions must be provided to employees. Employers should ensure high participation rates and regularly monitor training effectiveness.

Mandatory Personal Protective Equipment (PPE): Employers must guarantee the provision and proper use of PPE. Regular checks and training sessions should emphasize its importance.

Operational Modifications: Machinery should allow safe loading intervals. Implementing such modifications in subsequent operations can avert similar accidents.

Risk Awareness and Enforcement of Warnings: Enhancing employee awareness of risks and imposing necessary measures beyond written warnings is crucial. Employers should consider additional punitive measures to reinforce safety protocols.

Restricted Access and Engineering Controls: Restricting access to hazardous areas or introducing engineering controls, like barriers or enclosed systems, can prevent similar incidents.

Legal Aspects and Opinions:

Legally, this incident highlights the employer's responsibility to ensure a safe working environment, including adequate training, provision of necessary equipment, and hazard assessments. Negligence in providing these safeguards might lead to legal liabilities and compensation claims.

Opinion-wise, it's evident that a multifaceted approach is essential to prevent such accidents. Training, risk assessment, equipment provision, continuous monitoring, and implementing engineering controls are paramount. Additionally, legal compliance and adherence to occupational health and safety standards are non-negotiable.

In conclusion, this incident underscores the need for a proactive approach towards workplace safety. Addressing identified risks, enhancing training effectiveness, ensuring equipment availability and maintenance, as well as implementing stricter measures in hazardous areas, are critical. Legal compliance is vital to avoid liabilities, and fostering a safety-conscious culture is pivotal in preventing future incidents.

REFERANCES

1. <https://www.haspod.com/blog/paperwork/5-best-risk-assessment-control-measures>
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1470479/>
3. <https://www.coastalflix.com/incident-investigation-recommendations-communication-and-follow-8211-up/INV004/>
4. <https://www.sentinelsafety.co.uk/proper-equipment-maintenance/>