The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Clean-up Person at Veneer Factory Killed When Cut-off Saw Inadvertently Activated–Virginia

FACE 9420

SUMMARY

On July 30, 1994, a 26-year-old male clean-up person (victim) at a veneer manufacturing plant died as a result of wounds received after being struck by a rotating cut-off saw. The victim and a co-worker were in the process of clearing a jammed log from the sawline while the cut-off saw was rotating. Another co-worker, located in the sawline control room, was notified to stop the saw rotation. He reached for the saw rotation stop switch, located next to the cut-off cycling switch on the control panel, but inadvertently pushed the cut-off cycling switch. The rotating saw cycled through its stroke across the sawline, striking the victim, amputating his right leg and severing the anterior and posterior parts of his chest and abdomen. A co-worker immediately notified the local EMS which responded within 4 minutes. The victim was transported to a local emergency room and pronounced dead on arrival.

NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- **ensure that lockout/tagout procedures are developed and implemented to protect workers from exposure to hazardous energy**
- **ensure that control panels are configured to prevent inadvertent activation of assembly line functions**
- **develop, implement, and enforce a comprehensive safety program which includes, but is not limited to, training of employees in hazards recognition and avoidance, and safe work practices, including task-specific procedures.**

INTRODUCTION

On July 30, 1994, a 26-year-old male clean-up person (victim) at a veneer manufacturing plant died as a result of wounds received after being struck by a rotating cut-off saw. On August 11, 1994, Officials of the Virginia Occupational Safety and Health Administration (VAOSHA) notified the Division of Safety Research (DSR) of the incident and requested technical assistance. On September 27, 1994, a safety engineer and a statistician from DSR met with the VAOSHA compliance officer assigned to the case. The VAOSHA case file and a video recording were reviewed.

The employer in the incident was a hardwood veneer manufacturing company of 174 employees, working two 12-hour shifts per day. The company employed a full-time safety director and had general written safety guidelines. Task-specific procedures were learned on the job. The victim was a temporary employee and had worked for the company at the site for

8 weeks prior to the incident. This was the company's first fatality.

INVESTIGATION

On July 30, 1994, the victim and five co-workers began work at 6 a.m. The workers made up a crew that operated a semi-automatic log processing system known as the sawline. The sawline processes logs to be used in manufacturing veneer. Logs are gathered in a yard outside of the plant building and then run through a debarker. From the debarker, the logs are transported by conveyor belt (in-feed) into the plant building where the ends are trimmed by a pneumatically cycled 60-inch diameter cut-off saw located at a break in the conveyor. Trimmed log ends drop to the floor where they are removed by the clean-up man using shovels and specially made prybars. Trimmed logs are then transported by conveyor (out-feed) to a grading area where they are sorted for further processing.

Shortly before 8:10 a.m., a 41 2-inch by 12 3-inch yellow poplar log, which was being transported on the in-feed conveyor, jammed at the cut-off saw. The victim, while standing on the floor, unsuccessfully attempted to free the log. The sawline operator observed the problem from the control room, shut down the in-feed conveyor, left the control room, and mounted the conveyor from a catwalk over the sawline. While the cut-off saw was still rotating, the sawline operator and the victim attempted to free the log. This was also unsuccessful. The sawline operator dismounted the conveyor and pushed on the log with his feet while sitting on the floor.

At this time, the victim jumped up on the out-feed conveyor frame. The grader operator, located downline from the cut-off saw, observed the victim on the out-feed conveyor near the rotating saw and signalled to the debarker operator in the control room to shut down the saw rotation. The debarker reached for the saw rotation shut-down button located on the sawline control panel. However, he inadvertently pushed the cut-off cycle control and the rotating saw immediately advanced across the sawline, contacting and severely wounding the victim. The victim fell on the sawline operator, who had remained on the floor. The sawline operator left the building and notified the outside man that the victim had been hit by the rotating saw. The grader operator called the local EMS which responded in 4 minutes.

The victim was lifeless when examined by EMS personnel and pronounced dead on arrival to the local emergency room.

CAUSE OF DEATH

The medical examiner's report listed the cause of death as multiple injuries of trunk, including severing of the anterior and posterior parts of the chest and abdomen from the cervical to lumbar level, and amputation of the right leg.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that lockout/tagout procedures are developed and implemented to protect workers from exposure to hazardous energy.

Discussion: An emergency-stop switch capable of shutting down the entire sawline, including both the rotation and cycling of the cut-off saw, was mounted on the sawline control panel. When the victim climbed up onto the conveyor structure to free the jammed log, his safety depended on his ability to stay clear of the rotating saw. When the saw's cut-off cycle was inadvertently activated, this clearance was immediately eliminated. OSHA regulation 29 CFR 1910.147, control of

hazardous energy, stipulates standards to protect workers from the unexpected release of stored energy, such as rotating saws, which could cause injury. These standards include comprehensive procedures addressing machine or equipment isolation and lockout/tagout procedures.

Recommendation #2: Employers should ensure that control panels are configured to prevent inadvertent activation of assembly line functions.

Discussion: The control panel for the sawline was arranged such that the saw rotation push-pull switch was located adjacent to the cut-off cycle toggle switch. Saw rotation is stopped by pushing the rotation switch. Pushing down on the cut-off cycle toggle switch causes the cut-off saw to advance across the sawline, trimming the end of the log. The cut-off stroke is pneumatically actuated and advance of the saw across the sawline occurs quickly. Because a similar hand/arm movement is required to operate both switches, their proximity to each other on the control panel could significantly increase the likelihood of inadvertent activation. Relocating the controls to different locations on the control panel or providing switches requiring different hand/arm movements, could protect against inadvertent activation.

Recommendation #3: Employers should develop, implement, and enforce a comprehensive safety program which includes, but is not limited to, training of employees in hazards recognition and avoidance, and safe work policies including task specific procedures.

Discussion: Although the employer had implemented a general safety policy and training, it appears that the victim and co-workers did not fully understand the hazards posed by the proximity of the rotating cut-off saw. The victim had worked at the site for only 8 weeks prior to the incident. The victim's normal work location, although not exposing him to injury, placed him close enough to the cut-off saw's operation that he may have become desensitized to the hazard. When he climbed up onto the conveyor structure to free the jammed log, he would have been within about 18 inches of the rotating saw. Even if the saw's cut-off cycle had not been activated, safely clearing the jammed log while maintaining his balance on the conveyor structure near the rotating saw was a significant if not insurmountable obstacle. In addition to training in hazard recognition and avoidance during normal production operations, a comprehensive safety program should include safe work practices and procedures for specific tasks such as clearing jammed logs from the sawline using lockout/tagout procedures.

REFERENCE

29 CFR 1910.147, Code of Federal Regulations, Washington D.C.: U.S. Government Printing Office, Office of the Federal Register.

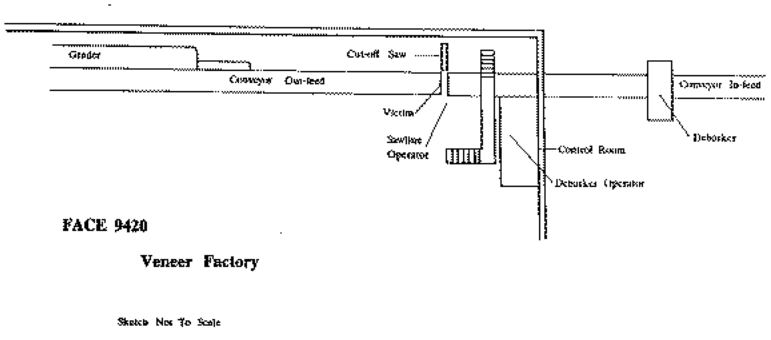

Figure.

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