



Worker pinned between forklift load and pile of veneer

At a veneer and lumber manufacturing plant a spareman was working in an area alone during the night shift. The spareman parked and exited a forklift loaded with four stacks of veneer. He entered the area in front of the machine. The mobile equipment rolled forward and pinned the spareman between the load carried on the forklift and two stacks of veneer he had previously positioned on the ground. A supervisor found the spareman, deceased, about one and a half hours after he had last seen him.



Purpose of this report

The purpose of this online incident investigation report is to identify the causes and contributing factors of this incident to help prevent similar incidents and to support preventive actions by industry and WorkSafeBC. This online version is not the official WorkSafeBC report. It has been edited to remove personal identifying information and to focus on the main causes and underlying factors contributing to this incident.

Notice of Incident information

Number: 2005116110061

Outcome: Fatal

Core activity: Veneer manufacture

Location: Northern BC

Date of incident: March 2005

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1 Factual Information

1.1 Employer information

The employer is a locally owned company that operates a veneer and lumber manufacturing plant and some related forestry operations. The number of persons employed fluctuates with market conditions. At the time of the incident, about 80–100 people worked for the firm.

The manufacturing plant has existed on this site for many years. The employer purchased the operation from the previous owner several years ago. Many of the hourly employees and supervisors employed at the site also worked for the previous owner. The company hired some new management personnel after the change in ownership. The mill manager, for example, came to work at the veneer plant less than 18 months prior to the incident. His previous employment was in much larger veneer and plywood manufacturing operations.

The company sells the veneer produced to plywood manufacturers in distant locations. During the winter preceding the fatal incident, there was a shortage of railway cars available to ship veneer from the plant. This resulted in a larger than normal inventory of veneer stored on the premises. The storage area near the planer was nearly full (see Photo 1).



Photo 1: Area of stored veneer near planer

1.2 Night shift duties and schedule

The spareman's job description was versatile and included the duties of spareman, assistant foreman, and relief charge hand. The term "spareman" refers to a position that involves providing coverage in various jobs and entails a wide range of functions. Typically, workers who possess experience in the different jobs performed are assigned to the spareman job positions. The supervisor said that it was typical for the spareman, on his own initiative, to get involved in whatever tasks needed to be done in many different areas on the site.

For most workers on the night shift, the scheduled rest periods included a coffee break from 0100 to 0115 hours, a lunch break from 0300 to 0330, and a last coffee break at 0530. Supervisors, maintenance personnel, some equipment operators, and those in the spareman positions typically worked during the scheduled break times. They took their rest periods after the mill crew resumed work. The spareman sometimes would go off-site for lunch.

1.3 The incident

1.3.1 The spareman's duties prior to the incident

The spareman began his shift at 2300 hours with his regular duties, such as checking on the hoses on the steam bins. At 0100 hours, the spareman worked on the log deck and lathe area to relieve the lathe attendant and the lathe assistant during the first coffee break of the shift.

At approximately 0140 hours, the supervisor met with the spareman. They discussed the need to move stockpiled veneer from the planer area into a long-term storage area in the yard. They went to the yard and selected an area for the spareman to place the veneer with the forklift (see Diagram 1). The supervisor stated that some 4 inch x 4 inch lumber had to be moved first and restacked to clear the selected location and make room for the veneer. After this discussion, the supervisor then left the spareman to perform the discussed duties and went to a different area to do his own assigned work.

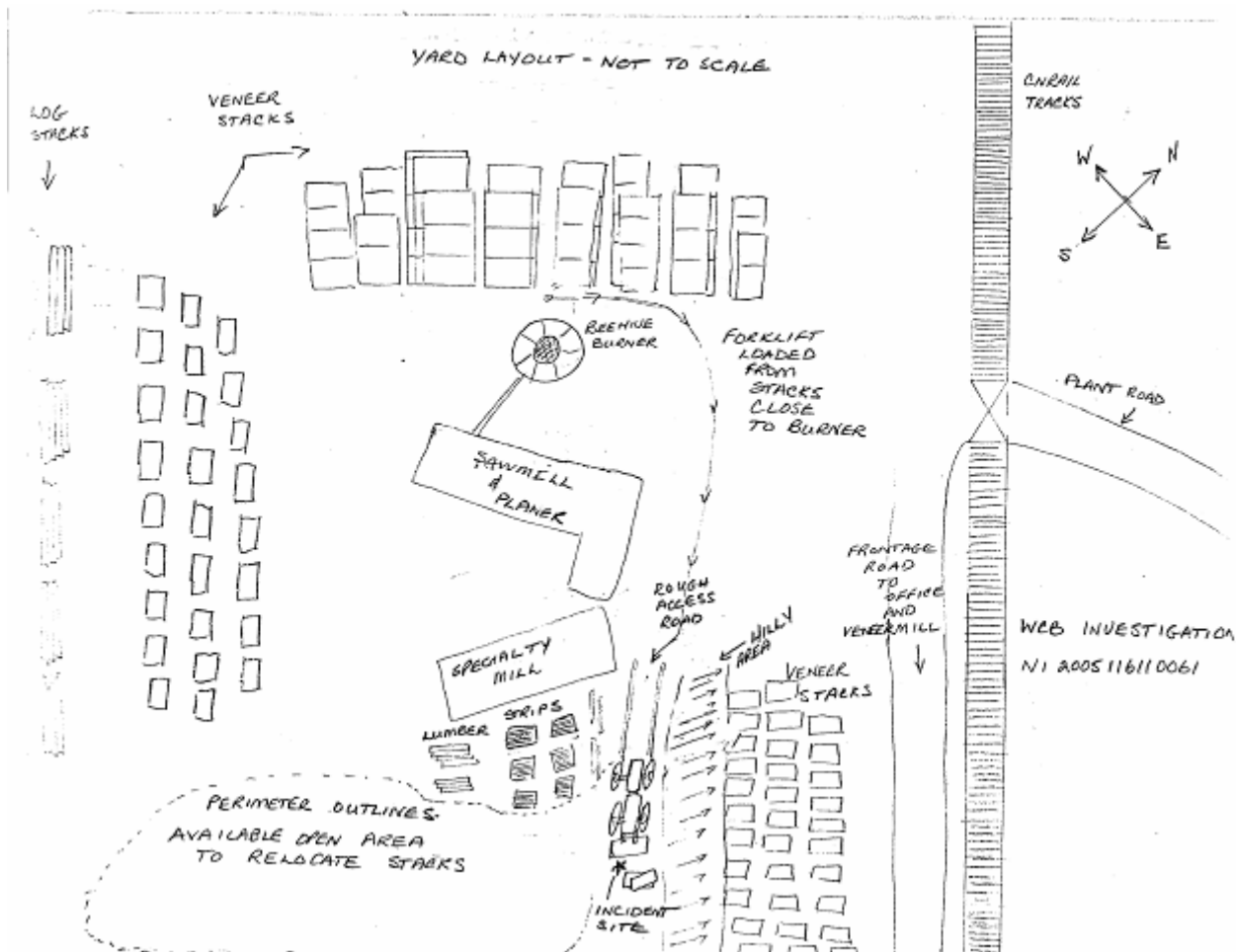


Diagram 1: Investigating officer's sketch of the yard and incident location, not to scale.

1.3.2 The fatal incident

It is not possible to know exactly what the spareman was doing after the supervisor left him at 0140 hours. He was working alone. For some reason, the spareman decided to move the stacks of veneer to a slightly hilly area beside the location discussed earlier with the supervisor.

Using the forklift, he began to move stacks from the stockpile near the planer to this new storage area. He probably moved two bundles on his first trip. On his next trip, he loaded up the forklift with four stacks of veneer. At the new storage area, he parked the forklift and exited the machine with the forks raised. He went in front of the loaded forklift, positioning himself between the forklift and the two stacks of veneer on the ground, possibly to place dunnage on the ground.

The forklift moved forward down the slope and pinned the spareman between the four stacks of veneer on the forks and the two stacks on the ground. He was facing the forklift.

1.3.3 The search for the spareman

The lunch hour for the crew was at 0300. The spareman was expected to relieve the workers at the log infeed deck during the half-hour lunch break. Around 0320, the loader operator called the supervisor on the radio and asked him who was working on the log infeed deck. The foreman said that the spareman was supposed to be there. The lathe attendant then told the supervisor on the radio that nobody was working on the log infeed deck. There was no means of communication with the spareman such as a portable radio or cell phone.

The supervisor went to the log infeed deck and lathe area and verified that no one was there. He thought that perhaps the spareman was loading a truck with veneer. On his way to the parking lot area where the trucks were usually loaded, the supervisor saw the forklift parked with the lights on near the area previously selected for the new veneer stacks. He went over to the machine. It was approximately 0330.

The supervisor saw that the loaded forklift had the forks elevated about 24–30 inches above the ground. He found the spareman in front of the machine, pinned between the load of veneer on the forks and two stacks of veneer that were on the ground. The spareman was facing toward the four stacks of veneer on the forks in an upright position. He was slumped somewhat sideways to his left side. The supervisor determined the spareman was unresponsive and did not have a pulse at the wrist. The Supervisor then used his cell phone to call 911.

1.3.4 Rescue attempts

The supervisor returned to the plant to summon assistance and first aid to the scene. He quickly returned to the incident scene accompanied by the first aid attendant and Forklift Operator 1. Forklift Operator 1 entered the idling machine and found the emergency brake applied and the transmission in neutral. He disengaged the emergency brake and placed the transmission in reverse. He had to tilt the forks back slightly in order to move the machine a few feet backward. He then lowered the forks, reapplied the emergency brake and exited the machine to help assist the supervisor and first aid attendant.

Forklift Operator 1 and the supervisor placed the spareman on the ground. The first aid attendant began to perform his assessment. The supervisor obtained the needed equipment and brought the first aid assistant. The first aid attendant and assistant performed CPR efforts for a few minutes prior to the arrival of the BC Ambulance Service and the RCMP officer.

The ambulance service transported the spareman to the nearby hospital. Upon arrival, it was determined that death had occurred, and efforts to resuscitate were suspended.

1.4 The stacks of veneer

At the time of the incident, the forklift held four stacks of banded veneer. The banding was broken on the bottom stack. The individual stacks of veneer were about 30 inches in height. With the forks lowered to the ground after the incident, the four stacks of veneer were approximately 10 feet in height (see Photo 2).



Photo 2: Overview of incident scene

There were two stacks of veneer on the ground in front of the forklift. After the incident, to assist in the rescue attempts, Forklift Operator 1 had moved the forklift a few feet back from where the spareman had been pinned, which is the position of the forklift shown in Photo 2. The top bundle of the two stacks of veneer was dislodged on one corner about 18 inches from alignment with the lower stack (see Photo 3). A small amount of blood was present on the lower stack. It was evident that the forklift had come forward at an oblique angle and contacted the upper bundle of the two stacks of veneer.



Photo 3: The arrow indicates the position of the spareman

There was one piece of dunnage on the ground in front of the two stacks of veneer. Another piece of dunnage had also been in this location, but this lumber was moved aside during the first aid efforts.

The forklift and loads of veneer were weighed on the mill weigh scales. The machine weighed 30,000 pounds when unloaded. The weight of the four stacks of veneer was approximately 14,600 pounds. The total weight of both the machine and the veneer was about 44,600 pounds.

1.5 Equipment information

The mobile equipment was a 1991 wheel loader that was new when purchased by the previous mill owner. According to mobile equipment suppliers, during that time period, many such machines were converted from bucket loader use and retrofitted for forklift applications. The four-wheel drive, articulating machine equipped with mast, carriage, and forks weighed about 30,000 pounds when unloaded.

1.5.1 Emergency brake

The machine has both a service braking system and an emergency brake. The emergency brake is the driveshaft disc brake type (see Photo 4). When applied through a control lever within the cab, a wire from the lever moves the parking brake calipers. The calipers move plates that hold the two disc brakes and cause both discs to enclose around the driveshaft at the transmission output coupling. This halts the energy transfer from the transmission to the driveshaft.



Photo 4: Transmission output coupling and driveshaft disc brake

This form of emergency brake system does not, by its design, disable wheel motion. The front axle of the four-wheel drive machine has a crown and pinion gear in mid-axle, and therefore does not have a locking gear differential function upon the wheels. This design allows free wheel motion of either wheel independent of the other wheel. For example, if one wheel has limited traction or no traction, the other wheel could still rotate.

The forklift involved in the incident had a functional emergency brake. Although the brake worked, it was evident that the brake linkage wire to the hand lever was in need of adjustment. The lever had to be pulled to the maximum upright position to engage the brake. When the emergency brake linkage wire tension is properly adjusted, the brake should engage when pulled upward a few inches from the disengaged position.

There had been previous reports of emergency brake malfunction, and repairs to the emergency brake components of the machine occurred approximately 15 months prior to the incident. During the time before the repairs were done, there had been reports from operators that forklifts had rolled backward even though the emergency brake was applied.

1.5.2 Mechanical condition of forklift

Various aspects of the forklift's function were checked at the scene before the equipment was moved from the area. The firm's mechanic and machinist/millwright assisted with these assessments. The hydraulic fluid reservoir level, assessed prior to moving the machine, was satisfactory. The mechanic started the machine easily. The mechanic had difficulty elevating the load of four stacks of veneer on the forks without first tilting the forks rearward. The rear wheels were unweighted and came off the ground a few inches unless the forks and load were kept tilted to the rearward direction. In fact, it was not possible to keep the rear wheels on the ground and get the machine to move at all unless the rearward tilt was maintained.

Once the load was elevated and all wheels were in contact with the ground the performance of the emergency brake was assessed. The machine did not move when the emergency brake was applied, transmission placed in gear and throttle applied.

The ground surface was semi-thawed during these assessments and the temperature was significantly warmer than when the incident occurred.

1.6 Environmental factors

1.6.1 Illumination

The unwitnessed incident occurred between 0140 and 0320 during the hours of darkness. There was some illumination in the area from the supplemental lights mounted on the roof of the machine and the headlights. However, the load of veneer was elevated 24–30 inches and the elevated load partially blocked headlight illumination of the area immediately ahead of the forks.

1.6.2 Temperature

Weather records indicate an overnight low temperature of -2° Celsius. The ground was frozen at the time the incident scene was discovered. Photographs taken by investigators who were on scene right after the incident showed the grass in the area was tall and appeared to have a frost upon it. By the mid-morning, the ground had thawed near the surface with the warmer daytime temperatures.

1.6.3 Ground conditions

There were no tracks from the forklift visible on the ground, as, at the time of the incident, the ground had been frozen. There was some rutted ground in the immediate area where the machine wheels had travelled. The mill yard areas are unpaved.

The ground in the area had a compound slope (both a downward slope and sideways slope). WorkSafeBC officers and mill personnel assessed the terrain slope together. The slope in the direction of the forklift's forward path of travel was found to be approximately -5% . Side slope of the ground was greater and was found to be -7% (see Photo 5).



Photo 5: Compound slope of the terrain where incident occurred. The black arrow shows a -5% downhill slope. The white arrow indicates a -7% side slope.

1.6.4 Noise

The forklift had been idling and engine noise was present when it rolled forward. The spareman was using hearing protection.

1.7 Cause of death

The pathologist determined the cause of death was crush asphyxia.

1.8 Spareman's work history

The spareman was hired part-time at the veneer plant as lumber piler while a young worker. He had been working full-time in the spareman position for 3–4 years. He had also been designated as a relief supervisor for several months.

1.9 Forklift instruction, training, and operating practices

Workers assigned to forklifts or permitted to operate them, including the spareman, had not received any formal or detailed instruction in safe forklift operations. The employer had not ensured that they had training that met the required CSA forklift operator training standard (*CSA Standard B335-94, Industrial Lift Truck Operator Training*). In general, operating skill was gained through on-the-job experience.

The operators did not have access to the manufacturer's operation and maintenance manual that contains important safety and mechanical information. The employer had a system in place to have operators inspect mobile equipment at shift start-up and record items of maintenance needed.

The work procedures for forklift operations generally provided minimal information and no detail about how the machines function. The procedures did not contain information about lowering loads before exiting a cab or any information about the safe placement of dunnage. The work procedures did not address the hazards of overloading equipment or inadvertent machine movement.

The employer had not established a firm guideline to inform operators with respect to how many stacks of veneer could be transported with the different types of forklift equipment used. The employer had not determined the load rating capacity of the forklift involved in the incident. The employer left this matter up to operator discretion.

1.10 Working alone and supervision

The employer did not have a policy that addressed the safety issues of persons working alone or in isolation from others. The firm did not have an established system in place to check on their well-being.

The supervisor had found a suitable alternative location to place the veneer stacks. He was not aware that the spareman had in fact started to place the stacks in an adjacent area that was on a significant slope. The spareman had not moved the 4 inch by 4 inch lumber from the area selected for the stacks and started the stacks there, as previously discussed with the supervisor.

1.11 Employer safety program

The safety program in place at the workplace at the time of the incident was in a developmental state with improving trends. The mill manager was working hard to address compliance deficiencies and improve safety performance. In the past, WorkSafeBC inspections had identified areas needing immediate and ongoing attention. Worksite inspections and safety meetings were being held.

The safety culture is changing at this workplace, and efforts and resources are being expended to improve matters. The employer had created and filled a safety co-ordinator position a very short time prior to the incident. The firm has committed to ensuring written work procedures are created and/or revised as needed and formally communicated to workers. Professional management personnel with knowledge and experience of safety issues have been recruited and have been making efforts to improve compliance.

2 Analysis

The analysis looks at factors to explain why the forklift rolled forward, why the forklift operators generally did not lower the forks on equipment, why the spareman might have chosen a different storage location for the veneer, and whether the spareman was aware of the amount of slope. The analysis will also consider how substandard mobile equipment operations became an accepted practice in this workplace.

2.1 Equipment and load factors

Research was conducted on the forklift history and specifications through contact with the dealership now selling that brand of equipment and also through contact with a firm that had purchased the original supplier of the machine. Efforts were made to definitively determine the rated load capacity of the forklift when equipped with the mast, carriage, and forks that were in use. However, due to the age of the forklift and to the dissolution of the firm that sold the forklift to the previous mill owner, the original supplier records could not be obtained.

However, general weight capacity information that was available indicated the forklift was most likely overloaded by about 1500–2000 pounds. Notwithstanding the lack of information about the exact rated capacity, it was clearly evident that the machine was overloaded from observation of the unweighting of both of the rear wheels whenever the loaded forks were elevated without rearward tilt.

The dealer provided written information from the operation and maintenance manual and service manual for the machine based on the identification numbers. The dealer's maintenance department personnel advised that the emergency brake function can be compromised significantly when traction or friction is uneven to the wheels. Given the sloping terrain resulting in uneven load distribution, and the fact that the rear wheels were not in contact with the ground, it is possible that there was insufficient traction and the front wheels began to move even if the emergency brake was applied. If there was some ground resistance, such as a frozen rut or rock present to impede the left wheel motion, the right wheel would still roll and cause the machine to travel forward in an angled direction of travel.

Two WorkSafeBC professional engineers, both familiar with mobile equipment, also concurred with the mechanical information and the possible causes of why the forklift moved. They also pointed out that there may have been other factors that could have reduced traction or surface friction, such as an icy patch below a wheel or the effects of frozen grass thawing and becoming slippery under a warm tire. It is also possible that one of the machine wheels was parked on a frozen rut edge and due to vibration from the machine, the wheel slipped from the surface, thus starting a weight shift and the momentum to move forward. The WorkSafeBC engineers also advised that due to the side slope of the terrain, the right front wheel might have been bearing less weight than the left front wheel; this would have caused less traction on the right wheel and made it more prone to be set in motion.

The manufacturer's instruction manual clearly emphasizes that when parking on a slope and the emergency brake is applied, the operator needs to lower the work equipment (bucket or forks) to ensure the equipment does not move.

2.2 Forklift operating practices and operator knowledge

From discussion with forklift operators and observations made of forklift operators working on the site, it became apparent that not all forklift operators were routinely lowering the equipment forks to the ground prior to exiting machines. From discussions held, it became apparent that not all forklift operators understood the limitations of an emergency brake system that uses a driveline disc brake. They did not have knowledge of how or why wheel motion could still occur when the emergency brake was applied. They did not have a clear understanding of how the effects of weight carried can shift overall weighting on the wheels and the centre of gravity of the machine. The operators and other mill management personnel did not possess enough knowledge of how this can adversely affect the traction on other weighted wheels even when the equipment was parked with the emergency brake applied.

Earlier reports from operators showed that forklifts had rolled backward even though the emergency brake was applied. There could be several causes for this, such as operating on icy terrain, overloading, or poor brake performance. It does strongly indicate that operators were not landing the load or the machine forks at the time.

One exception to this lack of knowledge was Forklift Operator 1, who moved the machine after the incident. He had previously operated skidders, equipment that has the same type of emergency brake system. He clearly understood the need to lower any attachments as a failsafe measure to ensure the machine did not move before exiting the cab.

The supervisor had knowledge of the requirement for operators to lower forks and attachments and of the requirement to never work in front of an elevated load. However, he admitted that he himself had sometimes failed to lower the load when exiting the forklifts. He stated that on other occasions, he had observed other operators on the site leave the cabs without first lowering the loads. The supervisor stated he felt that complacency with safety requirements caused this operator behaviour.

The veneer was typically placed three to five stacks high in the usual storage yard. The employer theorized that the operator may have initially placed four stacks of veneer on the forks by tilting the stacks off of a five level stack. The operator would have known the load was quite heavy as he conveyed

it for some distance. He may have been reluctant to lower the load due to the difficulty he might have in re-elevating it.

From the position of the forklift at the scene, it was evident that the spareman drove the machine in forward gear with a tall load. This operating method significantly obscures a driver's visibility ahead of the equipment and is a source of safety concern in and of itself.

The spareman may not have been aware of safer ways to place dunnage (from either or both sides) without entering the hazardous area. There were no documents or records provided that indicate the spareman was thoroughly aware of safe forklift practices or how to eliminate or reduce risks and hazards associated with operations.

2.3 Visibility

Darkness reduces the accuracy of human depth perception. It is possible that the spareman did not perceive how much ground slope was present in the area where he elected to start the veneer stacks. With the forks elevated 24–30 inches, illumination from the headlights would have been somewhat obscured. Illumination ahead of the machine from the lights mounted on the cab roof would have been greatly obscured as the top of the load was about 12 feet to 12 feet 6 inches high. The operators were asked why they did not routinely lower the forks. One of the reasons the operators mentioned was when the load is lower, the headlights are blocked and this reduces their visibility of the area when they placed the dunnage.

There was evidence that the spareman had placed dunnage in the area in front of the forklift. This task involves bending over. While doing this task, the spareman may not have been aware that the machine was coming toward him, or he may have become aware after it was too late to exit the area.

2.4 Personal factors

The spareman was known for his work ethic and ambition. He was progressing quite rapidly in the company for a person of his age and experience level.

As is often found with younger workers, it is possible that the spareman tried very hard to do his assigned tasks quickly without asking for much direction. He may have decided to get the stack relocation job started without the delay of moving and hand-stacking the 4 inch by 4 inch lumber first. This may be why he started the stacks where he did. He may have felt that he might need to expand beyond the area that the supervisor and he chose, due to the amount of veneer that needed to be relocated.

2.5 Health and safety program and safety culture

The previous owner did not have a very active health and safety program. Many aspects had fallen out of date and were not in compliance with the requirements. To an extent, the employer inherited some negative safety issues when the ownership of the firm changed. Since being hired by the company, the mill manager has made concerted efforts to overcome the effects of many years of less than optimal

levels of inspection, instruction, training, and supervision with respect to safety matters. It has not been an easy matter to address. Creating attitudinal change throughout the workforce and management team to support all aspects of workplace safety has been a challenge.

Perhaps because there are so many facets of the health and safety program that need attention, and numerous areas where performance was remiss, there has been an ongoing deficiency in proactive safety compliance. The firm has demonstrated a tendency to reactively respond to safety issues once corrective orders are issued.

This attitude, although changing in this workplace, may contribute to unsafe work conditions and behaviours being ignored and uncorrected until a regulatory authority raises the issue. The newly hired safety coordinator may have a helpful role in improving the safety culture.

The safety issues of persons working alone or in isolation from others were not addressed. There was no formal system in place to check on their well-being, although the supervisor in this case made effort to do so once he was aware the spareman was not where he was expected to be.

The supervisor stated that sometimes the spareman would go home for lunch. He also said that it was typical for the spareman, on his own initiative, to get involved in whatever tasks needed to be done in many different areas on the site. These circumstances are examples of situations that could make accounting for a missing or overdue worker more problematic. Workers employed in the spareman position were not equipped with cell phones or portable VHF radios.

It cannot be determined after the fact whether the spareman in this case could have used a means of communication to summon help. It may or may not have been possible to do so. But, given the incident circumstances that are now understood, it is clear that workers assigned to work alone at various locations in higher risk jobs need to be checked on regularly. VHF radio communications are effective tools and conducive to the task.

The information contained in the forklift safe work procedures did not provide supervisors and mill management personnel with clear and sufficient directives on safety requirements related to mobile equipment operation. This is a strong contributing factor as to why forklifts were operated in the manner that they were.

3 Conclusions

3.1 Findings as to causes

3.1.1 *Spareman crushed when forklift moved forward*

Prior to exiting the cab and leaving the controls of the equipment, the spareman did not lower the load to ensure the forklift would not move. He was positioned in the area between the front of the loaded forklift and two stacks of veneer on the ground. The machine moved forward and his upper body was pinned and crushed by the load on the forks against the upper stack of veneer on the ground.

3.2 Findings as to underlying factors

3.2.1 *Overloading of the equipment*

The forklift had an excessive load placed on the forks that affected the machine's stability and centre of gravity. It is very likely that at the time the machine moved forward, the rear wheels were unweighted and not in contact with the ground.

3.2.2 *Uneven weight distribution*

Sloping ground below the front wheels further resulted in an uneven weight distribution of the 44,600 pound load of the equipment and veneer borne upon the two wheels. The right front wheel on the uphill side had less weight due to the ground slope and thus had less surface traction. It was therefore more prone to be set in motion. The position of the partially displaced veneer is evidence that the right front wheel of the machine rolled forward, causing the load to strike the two stacks of veneer at an oblique angle.

3.2.3 *Wheels able to move with emergency brake on*

Even though the power from the transmission was disengaged and the emergency brake was on, the wheels were able to move because of the design of the four-wheel drive forklift and the type of driveshaft disc emergency brake.

3.2.4 *Working alone*

Another possible underlying factor is working alone. The spareman was out of view of others, he had no means of communication, and no person-checks were done at regular intervals. However, it cannot be determined whether the spareman would have been able to raise an alarm through radio use or if he would have had enough time to do so prior to becoming incapacitated.

3.2.5 *Insufficient information, instruction, training, and supervision*

Informative manuals and materials to explain mobile equipment operations and the specific functions and features of the equipment in use were not available to operators.

There were indications that workers were not sufficiently knowledgeable about the basic mechanical functions of the mobile equipment operated and about safe mobile equipment operating practices.

The written work procedures in place for forklift use did not convey sufficient information to instruct and supervise workers adequately in the critical aspects of equipment operations and safe practices.

The employer did not have a training program for forklift operators that met regulatory requirements. Workers learned by experience and were taught by other co-workers and supervisors. Those persons who provided the on-the-job training were not formally trained themselves to the required standard.

There were indications that supervision of forklift operators was not effectively ensuring safe and compliant forklift operations. It was known that operators did not lower the loads prior to exiting the cabs of forklifts but this unsafe practice was not corrected.

4 Orders Issued after the Investigation

WorkSafeBC issued one order after the investigation. An order requires an employer to take steps to comply with the *Workers Compensation Act* or Occupational Health and Safety Regulation, to take measures to protect worker health and safety, or to fix a hazardous condition. An order is not intended to identify fault on the part of the employer but to ensure that unsafe conditions are identified and corrected and that the employer complies with the Act and the Regulation. An employer may ask the Review Division to review an order; the Review Division may confirm, vary, or cancel an order.

In addition to issuing orders, WorkSafeBC may recommend proceeding with an administrative penalty against an employer. In order to protect the privacy of individuals, this report does not give details of any penalty proceeding arising from this incident as that would identify the employer. Penalties are fines for health and safety violations of the *Workers Compensation Act* and/or the Occupational Health and Safety Regulation. For information on when penalties are considered and how the amount of the penalty is calculated, see the [penalty FAQs](#) on WorkSafeBC.com. [Companies that have been penalized](#) are also listed on the web site.

4.1 Order to the employer

This section summarizes an order to the employer, the company that operates the veneer and lumber manufacturing plant. The investigation found that this employer was in contravention of the *Workers Compensation Act*, [section 115](#)(1)(a)(i), which states that an employer ensure the health and safety of all workers working for the employer.

The employer was ordered to ensure the health and safety of its workers, including but not limited to ensuring the following:

- Mobile equipment used for hoisting and lifting contains the required written information in permanently affixed and legible form, and the information is communicated to operators.
- Each tool, machine, and piece of equipment used in the workplace is selected, used, and operated in accordance with the manufacturer's recommendations and instructions.
- Operators do not leave unattended any elevated load, part, extension, or machine unless it has been immobilized and secured against inadvertent movement.
- Appropriate written instructions for forklift operations are developed and made available to workers.
- All workers who use forklifts receive training that meets the required standard: *CSA Standard B335-94, Industrial Lift Truck Operator Training*.
- A person-check procedure that meets requirements is developed and implemented as is required to ensure the well-being of workers assigned to work alone or in isolation.
- Adequate supervision that ensures the health and safety of the employer's workers is provided.

5 Health and Safety Action Taken

In addition to the specific actions below, employers, workers, or others in industry may have taken measures to prevent a recurrence of this type of incident. Employers are expected to comply with any orders issued. At WorkSafeBC, the Lessons Learned committee examines recommendations from incident investigations to see what can be done to prevent similar incidents.

5.1 The employer

Employer's representatives and workers' representatives and the joint health and safety committee conducted an investigation that included several recommendations to prevent reoccurrence. The employer advised WorkSafeBC officers that, since the incident, the following actions had been taken:

- The employer instructed all operators to lower the forks to the ground and ensure the emergency brake is set when getting out of the machines.
- The employer instructed all operators to never enter the "crush zone" and always to work from the side when placing dunnage.
- The employer reviewed with the workforce the operator's right to refuse unsafe work and the responsibility to communicate hazards.
- The safe work procedures and job safety breakdown were redesigned.

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