

Instructor's Notes Sawmill Safety Module 1 – Log handling

Timber Products Safety

- There is a high incidence of serious and fatal injuries in our industry.
- The Timber Products Manufacturers Association along with your employer recognizes the need for improved safety training for the industry.
- With a grant from OSHA, TPMA has developed the following training module to contribute toward the need for improved safety training and hazard recognition skills for those employed in America's timber industry.

Introduction

Video

This Training Module

- Uses adult learning techniques
- Photos and video of actual practices at a sawmill
- Interviews with experienced timber industry workers
- Short interactive exercises
- New techniques for recognizing hazards

Training Module Worksheet

Hand out the worksheet

- Since adults learn the most by doing, a worksheet has been prepared to help you retain the most important information.
- You will complete the worksheet as we move through the material. This means that you will fill in the blanks or complete lists.
- You keep the worksheet as a reference to the key points presented in this module.

Safety

(Whenever you see the words highlighted in red and black like these words, it means it is time to fill in the worksheet)

Let's get started with a functional definition of safety. It is called a functional definition because it is easy to remember; it is fundamental to incident prevention and it is something that you can use. "Safety is a process for reducing risk and preventing incidents by effectively managing the movement of people, equipment, material and energy". There are some key words in this definition. The first one is **movement**. No injury or incident has ever occurred without some form of movement. The other key words are **people, equipment, material and energy**. They are key because they are the only four things that can move. Think about it, if we were able to effectively control

the movement of people, equipment, material and energy in our process, we would have no injuries or incidents.

Incident

An incident is an **unplanned event** that happens after an **unsafe behavior or unsafe condition** or both that interrupts the normal progress of an activity and may result in injury or damage.

Three bad things can happen when incidents occur. Someone may be injured, equipment may be damaged or the process may be interrupted. All three are unnecessary, expensive and in one way or another painful. The most important thing to remember is that before every incident there is an unsafe behavior or unsafe condition or a combination of the two. If you wanted to be proactive and prevent incidents, What would you do? I think we can all agree that we would focus on the elimination of unsafe behaviors and unsafe conditions because they always happen before an incident

Hazard.

A hazard may be defined as – **any source of danger**. There are two major types of hazard. The first type is an **unsafe condition**. The second type is an **unsafe behavior**. It should be pointed out that the term behavior is used in the scientific sense. That is, behavior is defined as an observable action. Therefore, by itself behavior is neither good nor bad – it is merely an observable action. On the other hand, an unsafe behavior, by definition, is an observable action that is a source of danger.

Here are several examples of unsafe conditions:

- Worn brake linings
- Unstable stack of logs
- Bent rung on equipment access ladder
- A blind corner or intersection

The unsafe behaviors that could put you are risk of the unsafe conditions listed above include:

- Failing to check the brakes of a log handler before using it
- Walking close to the unstable stack
- Using the ladder with the bent rung
- Failing to slow down and sound your horn when approaching a blind corner

A Sequence That Leads to Incidents

Hazards must first occur in the work place. Either unsafe conditions or unsafe behaviors or a combination of unsafe conditions and behaviors must be allowed to occur and remain uncontrolled. If this happens, sooner or later there will be an event involving the movement of people, equipment, material or energy that will lead an incident. All incidents result from an event that was generated by hazards. Events will happen whenever hazards are allowed to exist. This is why hazard control or hazard elimination is so important.

What is the Best Way to Prevent Incidents?

First of all recognize the hazards. Once the hazards are recognized there is an opportunity to manage the movement of people, equipment, material and energy. The objective is to separate people from the hazards in an organized and controlled manner.

Manage the Movement (Video)

Remember that all incidents begin with some form of movement. Either the person moves to the hazard or the hazard moves to the person in an uncontrolled or disorganized environment.

Terminology 1

Read and discuss

Terminology 2

Read and discuss

PPE

Read and discuss

Log Yard Movement

As you can see there is a lot of movement in the yard. All the vehicles have a purpose and function. Team work and being alert for each other is critical to the safety of everyone at the yard.

Log Flow Chart

This chart represents the typical flow of logs coming into a sawmill.

The Flow of Logs (Video)

#1 Potential for injury in the Log Yard (Video)

The number one potential for injury in a log yard in terms of severity is being struck by equipment or material. Log yard mobile equipment is a source of danger for smaller equipment and people on foot. One other thing, logs are unfriendly and will remain such. They are the most unfriendly when they are with other logs. They are very unfriendly when they are being moved and can be unfriendly when they are stacked.

Event Classification – Contact with Objects and Equipment – STRUCK BY

The American National standard for Information Management for Occupational Safety and Health provides a classification structure for 46 different events and exposures. We are going to take a look at five of those events and exposures that occur most frequently at sawmills from the arrival of logs to decking.

Remember the key words in the definition of safety – well the key word movement is demonstrated well in each event classification that we will discuss. As a matter of fact, I want you to begin thinking of every event classification as some form of movement. What is the movement with a struck by event?

(Something moves into the person) Obviously, the energy of being struck by something has the potential to be much greater than the energy involved in the event Struck Against.

Consequently, the severity of injuries in Struck By events may be much greater. Struck by events produce injuries such as fractures, punctures, foreign bodies in the eye, amputations, etc.

One Would Think

One would think that the operators of large log handling equipment would have excellent visibility from their cabs located high off the ground. Well that is not the case at all. Actually their visibility is very limited.

Why the Equipment Operator Can't See You

Let's take a look at the Letourneau log handler. The cab is positioned high up on the equipment. However, the mast structure is positioned directly in front of the cab and limits the visibility of the operator. This is very similar to every forklift used in industry except the equipment is much larger. The positioning mechanism attached to the mast is located to the right of the operator's cab and limits visibility to the right. The size of the log stacker and the height of the cab limit the visibility at the base of the equipment. Although the left window in the cab is unobstructed, line of sight is only available some distance outside running lines of the equipment. For instance, anyone near the tires is totally invisible to the operator. All of that describes the visibility to the operator stopped in the

yard with an empty and idling piece of equipment. Now add a load of logs, and the visibility is even reduced further. In this example we used a Letourneau but a similar case may be made for any piece of equipment used in a log yard. Keep in mind that the visibility described in this example involved a perfect day. Unfortunately, there are not very many perfect days in the Northwest.

Other Visibility Hazards

Weather such as rain, snow, sleet, hale, dark clouds and dust can also be factors that limit visibility. The picture becomes very clear why being struck by equipment or material at a sawmill represents the number one potential for serious or fatal injury. Never assume that they can see you because they can't. The smart thing to do is assume that they don't see you.

What you can do to avoid being struck by equipment

Knowing and understanding the traffic patterns at a sawmill log yard are important to your safety. Avoid the traffic areas used by the large log handling vehicles if at all possible. If not possible, make sure the vehicle operator sees you. Making eye contact with the operator is the only way to know for sure that you have been seen. Never approach an attended vehicle, even if it is parked, without making sure the operator sees you.

Mobile equipment used at log yards is very large. The size of the equipment limits the visibility from the operators' perspective. Therefore, equipment operators must be alert for pedestrians and smaller vehicles. On the other hand, pedestrians and operators of small vehicles must be alert for movement of

the large log handling vehicles. Always make eye contact with equipment operators before approaching. Make sure they see you and it is safe to approach (for instance, attachment down). Be alert for blind corners and intersections. Some of them may be permanent installations but others may occur from day to day because of new storage piles or placement of equipment. What was clearly visible yesterday may not be today – so stay alert. This applies to both vehicle operators and pedestrians.

Always obey the traffic signs and safety procedures established at this site to protect yourself and others.

Small Group Exercise

Hand out the assignment and discuss – should be completed within 12 minutes

Review and discuss the results

Event Classification – Contact with Objects and Equipment – CAUGHT IN – ON – OR BETWEEN

The next event in the classification Contact with objects and equipment is CAUGHT IN, ON OR BETWEEN. What is the movement with a Caught in, on or between event? (The person moves into the line of fire of some mechanical motion)

Obviously, the energy of being caught in, on or between some mechanical motion has the potential to be much greater than the energy involved in the events Struck Against or Struck By.

Consequently, the severity of injuries in Caught in, on or

between events is usually severe. Caught in, on or between events produce injuries such as amputations, fractures, crushing injuries, etc.

Caught Between

The event that has the second most potential for injury in a log yard in terms of severity is being caught in – on or between. Being struck by a log is very serious but being caught between a log and a fixed object or the ground may be even more serious. Stackers and sorters sometimes lose their grip on a bundle of logs. Snow, ice and moisture will reduce the friction between logs in a bundle as will the loss of bark. Logs do slide out while they are being handled or transported. It is best to keep your distance during any handling or transporting operation.

What you can do to avoid being caught between

Standing clear of a log handling process means to be far enough away that you will not be struck and pinned by a log that gets away. How far can a 40 foot log go when it is out of control? People that have been in the business for more than 40 years say that an out of control 40 foot log can go 40 feet. They know what they are talking about so learn from their knowledge and experience.

All Logs and Some Dogs Are Unfriendly

Logs are unfriendly and so is Jake. Jake has a forty foot chain. How close do you want to get? If you have faith in the chain,

about 41 feet seems like a good answer. Every log is a Jake. The difference is logs don't sound a warning. Jake and logs will always be unfriendly and either of them will take you if given the chance.

40 Foot Chain

Richard Knows (Video)

Event Classification - *Falls* - Fall lower level

What is the movement in a fall to a lower level. The answer is pretty obvious, it is you. Not much good can come out of the event of falling to a lower level and a lot of bad can result. The higher the fall, the more energy upon impact.

What you can do to avoid falling to a lower level

Read and discuss

Sorter (Video)

Event Classification – Contact with Objects and Equipment – STRUCK AGAINST

The next event classification that we will discuss is STRUCK AGAINST. What movement is involved in this event classification? (The person moves into an object). Generally, the energy involved in struck against events is limited to what the person can generate in movement. Struck Against events produce injuries such as cuts, bruises, fractures and punctures.

Struck Against

Here are some examples of where it is possible to strike against something in a log yard.

What you can do to avoid striking against something

Read and discuss

Event Classification - *Falls* - Fall same level

Falling to the same level is also an event classification. What movement is involved in this event classification? (The person falls to the ground) Obviously, the energy involved in a fall to the same level is much less than the energy involved in falling to a lower level. However, the consequences may be serious.

What you can do to avoid falling at the same level

Doing the same thing as you would to avoid striking against something will help prevent falling to the same level. Be aware of your surroundings, select secure walking working surfaces and remember conditions change. Always look before you step when making the final dismount from a piece of equipment. A rock, chunk of log or hard clump of dirt could be enough to turn your ankle and cause you to fall to the ground when you are stepping down.

Summary 1

Read and discuss

Summary 2

Read and discuss

One Last Thought

Video

Review completed worksheets with the group

Quiz

This material was produced under grant number SH-22245-11 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.