Instructor's Notes Sawmill Safety Module 5 –

Shipping and 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.

This Training Module

- Uses adult learning techniques
- Photos and video of actual practices in the timber products industry
- Interviews with experienced timber industry workers
- A short interactive exercise
- New techniques for recognizing hazards

Training Module Worksheet

Hand out the worksheet and pens

- 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.
- A completed worksheet contains most of the key points presented in this module. You will need the worksheet to complete the interactive exercise.
- You may keep the worksheet as a reference.

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 to improve your hazard recognition skills.

"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. It is when we don't have control over the movement of people, equipment, material and energy that injuries and incidents occur.

Incident

An incident is an **unplanned event** that happens after an **unsafe behavior or unsafe condition** or both. Incidents interrupt the normal progress of an activity and may result in injury or damage. So you can see 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. So, 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:

- Burned out lights in a yard area
- Defective parking brake on a forklift
- A blind corner at a forklift intersection

Very often there is a direct relationship between unsafe conditions and unsafe behaviors. For Instance-

While burned out lights in a yard area is an unsafe condition - Failing to turn the headlights on a forklift working in a dark area is an unsafe behavior.

A defective parking brake on a forklift is an unsafe condition but dismounting a forklift and walking in front of it while the engine is running and failing to use a functioning parking brake is an unsafe behavior.

A blind corner at a forklift intersection is an unsafe condition but failing to stop the forklift and sound the horn before entering a blind intersection is an unsafe behavior.

A Sequence That Leads to Incidents

The sequence always begins when there are hazards 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 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

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

Safety Journey

It has been a long journey for this safety module series which has covered the following functions:

Incoming, Decking, Debarking, Primary and Secondary Breakdown, Trim Saws, Grading, Sorting, Stacking and Wrapping. That long journey has taken us to Shipping which is the last function at the mill before your products hit the road.

#1 Potential for Serious Injury

The number one potential for serious injury in terms of severity during the shipping and handling process is being **struck by a forklift.** And that is a fact! 59% of all serious injuries during shipping and handling involve forklifts!

Event Classification - 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 only going to take a look at one of those events and exposures - **Struck By** because it happens the most frequently at sawmills during the shipping and handling process. Remember the key words in the definition of safety – the key word **movement** is demonstrated well in all event classifications but especially in **Struck By**.

What is the movement in a struck by incident. The answer is pretty obvious; something moves to strike a person. Nothing

good can come out of the event of being struck by something and a lot of bad can result. Even more unfortunate is the fact that most of these serious injuries in shipping and handling involve a forklift.

Forklift Facts

Read and discuss

- Every three days someone is killed in a forklift related incident.
- One out of every six occupational fatalities involve a forklift.
- 44% of forklift incidents involve a pedestrian.
-

Forklift – Pedestrian Interface

Read and discuss

- Wherever forklifts and people share the same area, there is **danger**. There are no exceptions.
- In every collision involving a pedestrian and a forklift, the pedestrian loses.

Forklift Strikes Sawmill Worker

At approximately 3:40 p.m. on August 16, 1994, employee #1 was leaving a large sawmill after his shift. He was walking west in a crosswalk on his way to the front office when he was struck by a forklift. He sustained multiple fractures to the head and chest.

Forklift – Pedestrian Interface
One More Time

- Wherever forklifts and people share the same area, there is **danger.** There are no exceptions.

Anyone want to share this pond for a Swim?

Not likely. Why not? Well, most of us recognize that when people and alligators share the same area there is danger. When we spot a gator in a pond, we immediately recognize an unsafe condition. We manage our movement by avoiding the pond. We need to have the same respect for forklift traffic.

Worker Struck By Forklift

At approximately 2:00 p.m. on November 8, 2010, employee #1, a pedestrian, was struck in the chest by a pack of lumber being moved **by a forklift**. The load of lumber was unstable as the forklift approached a blind corner intersection. Stacks of lumber

were stored at the intersection which created the blind corner. A collision with the load of lumber occurred as employee #1 began to round the corner. Employee #1 died ten days later.

Why are so many pedestrians injured by forklifts?

There are four key points that everyone who works at a facility using forklifts need to know. These key points explain why so many pedestrians are injured by forklifts. We will cover each point in some detail so each of you will be better able to manage your movement in a forklift environment.

Point #1

- The forklift operator has limited visibility because of the mast, lift cylinders, chains and hydraulic hoses at the front of the truck.

Driver Seat View

The photo on the left is what the driver of a CR-V sees from the driver's seat. It is a wide field of vision that is unobstructed. The photo on the right is what the driver of a CR-V would see if the CR-V was a forklift. The field of vision is much narrower and the obstructions create for blind spots.

If cars only had as much vision as a forklift, no one would be able to afford car insurance and there would be fewer dogs and cats in your neighborhood.

Point #2

- Forklift operators have limited visibility when traveling in reverse because their seats face forward and they must turn their heads and look over their shoulder.

I would like everyone to face forward in your seat and look over your right shoulder like you were backing a vehicle and hold that position. (Instructor – walk over to one of the trainees –tell him to continue holding and release all the others - hold several fingers up to his blind side and ask him how many fingers do I have up?) He didn't see anything on the left side and that is what every forklift operator sees when he backs up looking over his right shoulder.

Think about it. Theoretically, every forklift in America could operate in reverse half the time and the operator would only be able to see half of what is behind him.

Limited Field of Vision

The operator has a load on the forks of the forklift. His front vision is blocked so he is moving in reverse. He is doing exactly what he should be doing. He is looking in the direction of travel over his left shoulder. However, his vision is limited and it is impossible for him to see the pedestrian on the right. The rear wheels of the forklift indicate a rear end swing to the right and toward the pedestrian. The pedestrian has his head down.

There is a shared responsibility for safety between the forklift operator and the pedestrian. In this instance, who has the best opportunity to avoid a collision between the forklift and the pedestrian?

What are the hazards in this example?

Unsafe condition – limited vision for the operator

Unsafe behavior – head down walking toward a moving forklift

What movement is involved with this example?

A pedestrian moving toward the forklift and forklift moving toward the pedestrian.

A sequence of events leads to incidents

Let's take some of the things that we learned today and put them into practice. Here is the sequence of events that could lead to an incident. What can the pedestrian do to better manage his movement? What about the forklift operator, what can he do to better manage his movement? Assume that the forklift and pedestrian had a collision. Was it preventable?

Limited Vision

Again this operator is doing exactly what he should be doing. He is looking over his right shoulder while he backs away from

a stack with his load. But he has no vision to his left. Once again, a pedestrian to the left of the forklift must be aware of the visual limitations and take appropriate action to manage his own safety.

Temporary Blind Corner

Blind corners are very hazardous. In Shipping and Handling they occur because materials and product must be stacked and stored prior to leaving the facility. Sometimes, blind corners are temporary and appear out of nowhere. An area that was clear minutes before may become a blind corner.

Blind Corner

Other times blind corners are nearly permanent and exist by design because of space limitations. Forklift operators and pedestrians must be alert for the potential of blind corners. We have established that forklifts have limited visibility to begin with and the presence of blind corners only makes the matter worse. In the photo, notice the tire tracks and how close they are to the stacks. The potential for collision is obviously there and there could be no time to react.

Small Group Exercise

At approximately 11:55 p.m. on October 16, 2007, Employee #1 wearing a dark color hooded jacket entered the sawmill through the walk area designated for pedestrian traffic. This area passes through an area where there is forklift traffic. As Employee #1 was crossing the cross walk, a forklift was travelling through the area to get one last load of lumber from inside the sawmill before the end of the shift. The area is lighted, but it was raining very hard. The forklift operator did not see Employee #1 and struck him. Employee #1 was transported to the hospital where he was admitted for treatment.

Point #3

- Forklifts steer with their rear wheels so any turning will cause the rear end of the forklift to go in the opposite direction.

Steering Differences

As you can see in the photos Cars steer with their front wheels and forklifts steer with their rear wheels. Many people have been injured after being struck by the rear wheel of a forklift. In many of those instances, a coworker on foot stopped a forklift operator to talk and when the conversation was finished the forklift began to move away but the rear wheel ran over the coworker's foot.

Rear End Swing

In this illustration, you can see how such an incident could happen. Suppose the coworker approached the forklift on the right side. Given the position of the forklift, a left turn in the aisle way would be a required move. However, the right rear of the forklift would go directly at the coworker. The rear end swing in this illustration is not exaggerated. This is exactly what can happen.

The Rear End Swing Can Take You Out

In this photo, the forklift operator has picked a load and is backing away from the stack. After he has cleared the stack, he will initiate a turn that will cause the rear end of the forklift to swing in the opposite direction.

Point #4

- Forklifts do not stop quickly.

Vehicle Speed 10 MPH

Forklifts do not stop very quickly. In this example, a car and a forklift are both travelling at 10 miles per hour. The car is able to come to a complete stop in 17 feet while the forklift takes 38.7 feet to come to a complete stop.

How Close Would You Go?

This is a 12’ American Alligator living in a series of canals and ponds in Fort Myers Florida. The photo was taken in the back yard of a residential area. How much of a risk are you willing to take to get a good look? Keep in mind, Alligators are quick – they can reach speeds of up to 20 MPH for short distances. The average human can reach 11 MPH. The Olympic 100 meter champion can hit 28 MPH, that is unless he slips or trips.

Here is another point to consider, unless he is sunning himself like this old guy is doing, the gator has a huge advantage if you enter his environment. Do you know what that is? It is simple but it is huge - he will know you are there before you know he is there and he will want to take you. In an environment shared by pedestrians and forklifts, the situation is reversed. The forklift operator doesn’t want to hurt you, but he may not know you are there.

Why are so many pedestrians injured by forklifts?

- Forward visibility is limited on forklifts
- Rear visibility is limited on forklifts
- Forklifts steer with their rear wheels
- Forklifts do not stop quickly

Sound Advice 1

Click

Experience and Wisdom Have Spoken (1)

Click and wait

Pedestrian

Click and wait 2 sec and click again

Sound Advice 2

Click

Experience and Wisdom Have Spoken (2)

Click and wait

Forklift Operator

Click and wait 2 sec and click again

Sound Advice 3

Click

Experience and Wisdom Have Spoken (3)

Click and wait

Pedestrians and Forklift Operators

Click and wait 2 sec and click again

Small group exercise #2

Use the information on the handout and identify three things that can be done at your facility to reduce or eliminate the potential for forklift related incidents. After the three things have been identified, select the best one and provide the additional information.

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