Instructor's Notes Sawmill Safety Module 2 – Debarking: Primary and Secondary Breakdown

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 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:

- Noise
- Damaged machine guard
- Mechanical motion
- Sharp edges

There can be a direct relationship between unsafe conditions and unsafe behaviors. For Instance-
While Noise is an unsafe condition - Failing to wear hearing protection in noisy areas is an unsafe behavior.

A damaged machine guard is an unsafe condition but Operating equipment with a damaged guard is an unsafe behavior.

Mechanical motion may be an unsafe condition but Climbing on or over a conveyor is an unsafe behavior.

Sharp edges are an unsafe condition but Handling saw blades without gloves is an unsafe behavior.

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

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.

What is the Best Way to Protect Yourself?

Read and discuss

PPE

Read and discuss

Sawmill Flow Chart

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

Presenting – " A Sawmill Symphony" *

We put music to the video because when a sawmill is running properly, it isn't much different than a symphony. Every piece of equipment, every log or cant, every person and all forms of energy are moving exactly as intended. Everything is operating with the same rhythm. Incidentally, the definition of symphony is "a musical composition which typically has four movements". As you can see there is a lot of movement in debarking and primary and secondary breakdown at a sawmill. The four movements that we talked about in the definition of safety "the movement of people, equipment, material and energy" apply and there is a lot of it.

With respect to the sawmill process, managing the movement, flawless team work, being alert for each other and maintaining respect for the power of the equipment and process are all critical to the safety of everyone at the mill.

#1 Potential for injury in the Sawmill

The number one potential for injury in a sawmill in terms of severity is being caught in on or between the mechanical movement of equipment.

Hazardous Mechanical Motions

There are four major types of mechanical motion and they are demonstrated on this slide. Reciprocating is up and down, back and forth or side to side. Rotation may be in the form of revolving high speed shafts. In running nip points are very common in the industry and if left unguarded may produce very serious injuries. Transverse motion is continuous or in a straight line.

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

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 7 of those events and exposures that occur most frequently at sawmills during debarking and primary and secondary breakdown. 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 Caught In On or Between incident?

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 is very great. 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 In, On, or Between *

This video will show some examples of hazardous mechanical motion and potential for getting caught in, on or between.

What you can do to avoid being caught between

This is not an all inclusive list of things to do or not do to avoid being caught in on or between. It is a list of repetitive conditions and behaviors that frequently are identified in serious injury or fatality reports published by OSHA.

Do not climb over guard rails.

Do not wear loose fitting clothing.

Do not operate equipment that is not properly guarded.

Don’t climb on or over conveyors.

Stay out of restricted areas

Follow specific procedures when clearing jams.

Small Group Exercise

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

Review and discuss the results

Small Group Exercise (duplicate)

Discuss the highlighted red words

#2 Potential for Serious Injury in the Sawmill

- The number two potential for serious injury in a sawmill in terms of severity is being **struck by.**

Event Classification – Contact with Objects and Equipment – STRUCK BY

Read and discuss.

Damaged Sheet Metal Wall

Take a look at the wall behind the cutoff saw. The dents and dings are evidence of projectiles generated during the cutoff process. High speed projectiles can result when the saw blade comes in contact with knots or foreign objects in the log or bark.

Foreign Object Collection

Here is a sampling of objects that arrived onsite embedded in logs or bark.

Flying Debris – Testimonial *

Follow The Rules

What you see in the photo is a notice to alert the Cutoff Operator before entering the area. The arrow points to an electric eye that will alert the Cutoff Operator if someone approaches the door. Both the notice and the electric eye are there to prevent a struck by incident. Well, that is what the photo shows. What the photo doesn't show is the blue sheet metal wall with all the dents on the other side of the door.

Chain Mail Guard

Make sure guards are in place before operating the equipment.

Cracked Barrier Window

Stay behind barriers and avoid the line of fire. Windows can be replaced and they are designed to withstand an impact.

Employee Struck By Piece of Log

On July 25, 2007, an employee was observing the operation of two unloader arms of a chop saw while standing on a catwalk located about 15 feet away from the saw. A piece of log was picked up by the saw and rotated around the forward side of the saw, throwing it back toward the employee. He was struck in the face and chest and sustained serious injuries. He died two days later.

What you can do to avoid being struck by

- Wear the required PPE
- Follow the rules
- Stay behind barriers
- Stay out of the line of fire
- Make sure guards are in place before operating equipment

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. Nothing 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.

Stariways, Platforms and Floor Opinings

In this photo, examples of stairways, platforms and floor openings are shown. The stairways provide engineered access to various levels of the operation. The platforms provide secure walking working surfaces. The floor openings are well guarded and protected with toe plates.

So What's The Problem?

On October 8, 2004, Employee #1. a sawmill laborer, was working as a Bin Chaser on a lumber sorting machine. He left the walkway and climbed into the bin sorter area to **un-jam** a

board. He fell approximately 12 feet to the floor and fractured bones in his back.

The problem is when you leave an engineered platform or walkway to gain access to anything by climbing without using fall protection equipment.

What you can do to avoid falling to a lower level

Read and discuss

- Stay on engineered stairs, walkways and platforms.
- Do not climb over guard rails.
- Wear fall protection equipment when it is required.

Three Strikes and Maybe His Back Will go Out Too!

In this photo, the person left the platform, climbed onto the midrail of the guard rail, is not wearing fall protection, is bent at the waist leaning out over an opening and pulling on an object. His personal movement has set the stage for personal disaster.

One Additional Point*

Every time stairs are used, there is potential for falling to a lower level. Keep the stairways clear of material and tools. Watch your step and use the handrails.

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.

Strike Against Sharp Objects #1

Strike Against Sharp Objects #2

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

Strike Against Stairway Obstructions

What you can do to avoid striking against something

- **Look** in the direction of travel
- **Return** tools and equipment to their proper storage area
- Be alert to **changing** conditions

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 #1

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 ladder or stairway. A tool, chunk of log or hard clump of debris could be enough to turn your ankle and cause you to fall to the ground when you are stepping down.

What you can do to avoid falling at the same level #2

Return pike poles and other tools to their proper storage areas.

Event Classification - Exposure to harmful substances or environments - <u>Laser Radiation</u>

Read and discuss

LASERS

- LASER stands for Light Amplification by Stimulated Emission of Radiation
- Class IIIB LASERS are used in sawmills
- These LASERS have moderate power but could be harmful to your eyes

Laser Exposure *

There are lots of applications for LASERS in our industry and they all relate to resource optimization. Looking directly at the source of the a LASER light beam could result in permanent damage to your eye.

Event Classification - Exposure to harmful substances or environments – Noise

It is really plain and simple – noise causes hearing loss. And you don't get used to it – you get deaf unless you wear hearing protection.

Noise Level 110+ decibels *

Noise and Time

Read and discuss

Exposure Protection

Read and discuss

Summary #1

- What is the #1 potential for sawmill injury during debarking, primary and secondary breakdown?
- Managing your own movement is key to personal safety.
    - Do not climb over guard rails.
    - Do not wear loose fitting clothing.

- Do not operate equipment that is not properly guarded.
- Don’t climb on or over conveyors.
- Stay out of restricted areas.
- Follow specific procedures when clearing jams.

Summary #2

- The event classification “Struck By” produces the second highest number of serious injuries. Protect yourself by managing your movement.
  - Wear the required PPE
  - Follow the rules
  - Stay behind barriers
  - Stay out of the line of fire
  - Make sure guards are in place before operating equipment

Flying Debris *

Imagine not staying behind the barrier, not staying out of the line of fire and not wearing the proper PPE.

Show video clip

Obviously, the results could be devastating.

Forty Year Old Problem Solved in One Hour*

It is time to solve more problems like this. I am confident your employer is as anxious to solve these problems as you are. If they were not interested, you wouldn't be here today. Now let's go out there and manage our movement.

Review completed worksheets with the group

Quiz

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