



29 Nov 07

## **Canfor Tackama Safety Investigation # 071126-1**

### **Accident Event Summary** (based on witness written submissions):

At approximately 12:00 pm, 26 Nov 07, a Tackama employee responded to yelling heard on the mill floor to find a worker with his left arm pinched by the infeed rolls of the #2 dryer.

The dryer feeder rolls were shut off from the operator platform, followed by shutting off the disconnects. Physical support was provided by the first-on-scene by placing his knee under the injured to support his body weight. The injured worker was conscious but pinned by the rollers. Attempts to open the rolls with a prybar and 4x4s failed despite cutting off the air supply to the cylinder. First Aid arrived and took over from the Tackama employee while millwrights attached a comealong chain around the upper roller and lifted the roll to free the injured arm.

The injured worker was carried in a stretcher basket to the veneer plant doorway waiting a few minutes for the ambulance to arrive, where he was then transported to the local hospital to be stabilized before being flown to Edmonton Hospital.

### **Incident Discovery:**

Location: Dryer #2, Tackama Plywood mill

Equipment Involved: dryer infeed rolls

# of individuals involved: one

Eye Witnesses of Incident: none

First on the Scene: Employee Name Deleted

Time of accident: ~ approx 12:00 pm

Time of discovery: ~ approx .30 seconds to 3 minutes later

Time of seeking professional help: Immediately upon discovery

Time of arrival of professional help: within minutes of request

### **Background of the Injured:**

Age: 19

Previous experience: 6 months in the scaffolding industry prior to being hired at Tackama

Indoctrination Date: 24/25 Oct 07

First Day on the Floor: 29 Oct 07

Training: performance was evaluated daily with satisfactory progress noted.

Lock-out experience: 3 lock-outs performed prior to incident

Time on the job: incident occurred during his 21<sup>st</sup> shift

With no eye witnesses and no statement from the injured available at this time, “events leading up to the incident” cannot be detailed.

**Incident Report Statements** were solicited from all employees on shift. Fourteen were received during the afternoon of the same day. Three additional statements were submitted by the following morning. Additional statements have now been received for a current total of 22 statements at this time. No statement has been received from the injured at the time of investigation.

The Divisional Manager, formed an Incident Investigation Team early afternoon, 26 Nov 07. A portion of the Investigation Team met that afternoon to review Incident Report Statements and determine the preliminary Immediate / Direct Causes and to effect immediate preventative actions if required.

Incident Report Statements received from Tackama Employees:

| <b>Report #</b> | <b>Witness Name</b> | <b>Position</b>           |
|-----------------|---------------------|---------------------------|
| 1.              | Name Removed        | Dryer Supervisor          |
| 2.              | Name Removed        | Dryer #2 Operator         |
| 3.              | Name Removed        | First Aid Attendant       |
| 4.              | Name Removed        | Dryer #1 Operator         |
| 5.              | Name Removed        | Dryer #3 Operator         |
| 6.              | Name Removed        | Dryer Forklift            |
| 7.              | Name Removed        | Plywood Supt              |
| 8.              | Name Removed        | First Aid Attendant       |
| 9.              | Name Removed        | Plywood Mtnc Supervisor   |
| 10.             | Name Removed        | Millwright on Shift       |
| 11.             | Name Removed        | Finishing Supervisor      |
| 12.             | Name Removed        | Mtnc Supt                 |
| 13.             | Name Removed        | First Aid Attendant       |
| 14.             | Name Removed        | Mtnc Coordinator          |
| 15.             | Name Removed        | Dryer #2 Trainer for Evan |
| 16.             | Name Removed        | Human Resources Manager   |
| 17.             | Name Removed        | Millwright                |
| 18.             | Name Removed        | Dryer Operator            |

*The following statements were collected after the initial investigation was completed.*

|     |              |   |
|-----|--------------|---|
| 19. | Name Removed | Dryer #2 that morning                     |
| 20. | Name Removed | Employee working in and around area of    |
| 21. | Name Removed | Notes from conversation with Dallas Blais |
| 22. | Name Removed | Injured Employee                          |

**Investigation Team:**

- Name Removed – H&S Coordinator
- Name Removed – Veneer Coordinator
- Name Removed – Maintenance Coordinator
- Name Removed – Human Resource Manager
- Name Removed – Safety Captain
- Name Removed – Safety Captain
- Name Removed – Safety Captain
- Name Removed - Facilitator

**The mandate of the Investigation Team is:**

To identify the causes, report the findings, develop recommendations and action plans (what, who, when) for corrective action, prioritize and implement the action plans, evaluate the effectiveness of the corrective action and make changes for continuous improvement.

**The goal by 30 Nov 07 is to:**

- a) Implement immediate interim measures to minimize risk of near-term re-occurrence
- b) Report on recommendations and actions to be implemented (what, who, when) to prevent future re-occurrence.
- c) Document the process of a New Hire from orientation through to review training of competent operators.

**Diagnostic Tool used to determine basic/root causes:**

DNV Systematic Cause Analysis Technique chart

**Incident Cause Findings of the Investigation Team:**

**DNV# TYPE OF EVENT**

- 5 Caught in (Pinch and Nip Points)

**DNV# IMMEDIATE / DIRECT CAUSES**

- 11 Improper position for task
- 16 Failure to Follow Procedure/Policy/Practice
- 17 Failure to Identify Hazard/Risk
- 21 Inadequate Guards or Barriers
- 34 Inadequate Instructions / Procedures
  - *employee should not have placed himself in that position while the machine was running*
  - *employee was given the information that you always LOCKOUT before entering moving machinery; also shown on-site regarding lockout. Employee did conduct 3 lockouts on Dryer #2*
  - *employee put himself in harm's way thinking he was safe to do so*
  - *limited guards or barriers restricting access were in place*
  - *inadequate/limited documentation of competency on file*

**DNV # BASIC / ROOT CAUSES**

**Personal Factors**

- 5 Lack of Knowledge
  - 5.1 *Lack of Experience*
  - 5.4 *Inadequate Update Training*
  - 5.5
  - 5.6 *Lack of Situational Awareness*
- 6 Lack of Skill
  - 6.2 *Inadequate practice*
  - 6.4 *Lack of Coaching*
  - 6.5 *Inadequate review instruction*
    - new, young worker with limited industrial experience
    - no documentation supporting review upon returning to dryer #2 infeed
    - put himself into the bite
    - inadequate documentation to support that employee was given enough training time on job
    - documentation shows that 40 hours of training was completed on job
    - no formal review instruction process based on observed competency

**Job/System Factors**

- 9 Inadequate leadership and / or Supervision
  - 9.1 *Unclear or conflicting reporting relationships*
  - 9.4 *Given inadequate policy, procedure, practices or guideline*
  - 9.8 *Providing inadequate reference documents, directives and guidance publications*
  - 9.11 *Inadequate matching of individual qualifications and job/task requirements*
  - 9.12 *Inadequate performance management and evaluation*
  - 9.13 *Inadequate or incorrect performance feedback - no formal performance feedback system*
    - do have SWP in place but room for improvement around determining competency
    - not updated regularly; too lengthy; no pictures; may be difficult for some to comprehend; may not be given out to keep
    - employee verbally confirmed qualifications to supervisor, no documentation to validate against
    - no formal performance measurement, evaluation, or feedback system in place
- 10 Inadequate Engineering
  - 10.1 *Inadequate assessment of loss exposures*
    - inadequate barrier restricting access to pinch point
- 14 Inadequate Work Standards
  - 14.2.4 *Training*
  - 14.3.2 *Updating*
  - 14.3.3 *Monitoring use of procedures/practices/rules*
  - 14.4 *Inadequate monitoring of compliance*
    - there is no system to prove / disprove competency
    - no system/timeframe in place to review and update JSA and to have workers review the change
    - no follow through confirming procedures/practices/rules are being utilized

## Recommendations to Prevent Re-occurrence

### Recommendations

- 1 Develop clear Safe Work Procedures (SWP) for all tasks in the mill with priority on the 4 New Worker positions - Dryer infeed, Hog Feeder, #1 Veneer Greenchain Offbearer, and Utility
- 2 Identify a trainer for each of the different job tasks - based on worker competency, style, and ability to engage others
- 3 Refine the New Hire Indoctrination program - give only 1 JSA to study, test, practice on floor with mentor; once they pass, then re-start new area JSA
- 4 Develop a formal competency-based training process to be taken by New Hires and those changing job tasks.

### Training Standards to include:

- a Competency testing following initial indoctrination
  - b Issuing JSAs for the New Hire to keep and learning only one (1) at a time as to not overload the initial learning process
  - c Specific guidelines for knowing who & when to call for help
  - d Lock-out training and competency testing
  - e Mentorship training (buddy system) for New Hires with appropriate SWPs followed by competency testing; worker not to be left alone until deemed "competent"
  - f Performance Feedback - assessment of progress documented in a daily training book recording areas of competence vs. training needs for specific tasks
  - g Specific minimum hours required performing a task prior to competency testing; worker must be deemed competent at the task PRIOR to moving forward in the training progression.
  - h Specific timeframes for review of New Hire task competency
- 5 Require new job / area inductions for all employees (requires a new indoctrination by the Supervisor) with priority on New Hire positions.
  - 6 Complete a written guarding assessment and submit to WCB with installation of the top 2 guarding priorities before re-starting Dryer #2.
  - 7 Develop a policy defining timeframes for JSA content review and record date of latest review in footer; communicate changes in JSA, SWP, and SOP to those that use them.
  - 8 Clearly define JSA, SWP, and SOP so all workers understand the individual document purpose and can use them as a safety tool.
  - 9 Establish a follow-up system with timeframes to ensure Supervisors / Supts are completing necessary worker training and competency testing.

**Action Plans**

Action Plans are required to prioritize the implementation of each Incident Investigation Recommendation, to establish timeframes and to identify the individual(s) responsible for overseeing the work completion. The Human Resources Manager is responsible overall to monitor implementation and conduct effectiveness post-implementation.

**Actions have been tabled in 2 priorities:**

- 1) Immediate Interim Actions – those requiring implementation immediately to prevent near-term re-occurrence, and
- 2) Incident Investigation Recommendation Action Plans – those steps to address the basic / root causes.

**Immediate Interim Actions**

| When?                          | What?   | Who?            |
|--------------------------------|---|-----------------|
| Start: 28 Nov 07<br>Completed: | Conduct a Guarding Assessment on Dryer #2, install the 5 top guarding priorities and file the assessment for WCB audit purposes.  | Name<br>Removed |
| Start: 28 Nov 07<br>Completed: | New Hire Competency Assessment – hold individual discussions with each employee with less than 2 months at Tackama to determine their level of competency in their current task. Immediately address any shortfalls identified. | Name<br>Removed |
| Start: 28 Nov 07<br>Completed: | Establish Safe Work Procedures (SWP) for Dryer #2 Infeed – using current Task List, JSA, and SOP to form 1 set of clear, understandable Safe Work Procedures for the tasks involved with operating Dryer #2 infeed.             | Name<br>Removed |
| Start: 29 Nov 07<br>Completed: | Keep New Hires in current positions until competency testing is in place – memo to Supervisors.   | Name<br>Removed |

## Incident Investigation Recommendation Action Plans

| When?   | What?   | Who?                  |
|---|---|-----------------------|
| <b>New Worker Indoctrination Process Revision</b> |   |                       |
| 28 Nov 07<br>DONE                                 | Identify New Hires on the floor < 2 months.   | Name<br>Removed       |
| 28 Nov 07<br>DONE                                 | Develop a list of questions to ask of New Hires.  | Investigation<br>Team |
| Start: 28 Nov 07<br>Completed:                    | Interview New Hires – start a discussion to determine strengths and weaknesses of the Indoctrination process.   | Name<br>Removed       |
| Finish by:<br>20 Dec 07                           | Review Indoctrination program for strengths & weaknesses with the feedback from New Hires and provide revision recommendations.   | Name<br>Removed       |
| 30 Nov 07   | Give a copy of the position task SWP to the New Hire for the position assigned. Ensure it is kept in readable condition and used by the New Hire for the training term. | Name<br>Removed       |
| Finish by:<br>31 Jan 08                           | Revise Indoctrination process to incorporate the Canfor Corporation Lock-out standards and WHMIS.   | Name<br>Removed       |
| <b>Guarding Assessment</b>                        |   |                       |
| 28 Nov 07   | Assess Dryer guarding risk (to CSA standards) for Dryer #2 infeed.  | Name<br>Removed       |
| 28 Nov 07   | Develop a list of guarding requirements for Dryer #2 infeed and prioritize.   | Name<br>Removed       |
| 29 Nov 07   | Review proposed guarding plan with JOSH Committee.  | Name<br>Removed       |
| Start: 30 Nov 07                                  | Implement the guarding installation.  | Name<br>Removed       |
| 10 Dec 07   | File guarding risk rating assessment and photographs of new guarding for future WCB audits.   | Name<br>Removed       |
| 31 Dec 07   | Build a continuous guarding audit component into the Safety Tour program.   | Name<br>Removed       |
| <b>Establish Safe Work Procedures (SWP)</b>       |   |                       |
| Start: 28 Nov 07                                  | Establish SWP for Dryer #2 Infeed. Allow for photographs or drawings. Develop this SWP as a template to be used for others.   | Name<br>Removed       |
| Finish: Dec 31                                    | Establish SWP for Infeeds of Dryers #1, #3, and #4  | Name<br>Removed       |
| Finish: Dec 31                                    | Establish SWP for Hog Feeder  | Name<br>Removed       |
| Finish: Dec 31                                    | Establish SWP for #1 Greenchain Clipper Stacker   | Name<br>Removed       |
| Finish: Dec 31                                    | Establish SWP for Utility tasks   | Name<br>Removed       |

|   |   |                |
|---|---|----------------|
| Finish: Dec 31  | Develop SWPs for the natural progression of the above 4 New Hires positions.  | Name Removed   |
| Finish: Jan 31  | Identify all additional position tasks requiring SWPs, prioritize, and assign responsibility for development and timeframes   | Name Removed   |
| <b>Identify Trainers to become Mentors</b>                                |   |                |
| Finish by:<br>10 Dec 07   | For each position task, identify individuals willing and capable to become mentors – those that understand the risks, hazards and operational steps of a task. The individual needs to be able to work easily with others, communicate clearly, engage New Hires and assess competency. | Name Removed y |
| <b>Develop a formal Competency-based Training program for New Workers</b> |   |                |
| Finish by:<br>31 Jan 08   | Establish competency testing following initial indoctrination and at appropriate stages of training.  | Name Removed   |
| Finish by:<br>31 Jan 08   | Provide mentorship training to ensure New Hires are not left alone until their performance is tests “competent”.  | Name Removed   |
| Finish by:<br>31 Jan 08   | Establish minimum timeframe required on-task for New Hires prior to competency testing.   | Name Removed   |
| Finish by:<br>31 Jan 08   | Establish review timeframes for competency of all New Hires.  | Name Removed   |
| Finish by:<br>31 Jan 08   | Require New Worker inductions by the Supervisor / Operator when employees move to a new area/job/task, including competency testing.  | Name Removed   |
| <b>JSA Content Review</b>   |   |                |
| Finish by:<br>21 Dec 07   | Develop a policy outlining timeframes for required review of JSAs, SWPs, and SOPs – assign responsibility for review & updating and timeframes.   | Name Removed   |
| Finish by:<br>21 Dec 07   | Changes in policy, process, equipment, material or risk are to immediately update the JSA, SWP, SOP and changes communicated to those affected.   | Name Removed   |
| Finish by:<br>21 Dec 07   | Record date of revision in footer of document   | Name Removed   |
| <b>Define JSA, SWP, SOP</b>   |   |                |
| Finish by:<br>30 Nov 07   | Clearly and concisely define the terms, purpose, objectives and hierarchy of JSA, SWP and SOP documents.  | Name Removed   |
| Finish by:<br>30 Nov 07   | Communicate how they work together, how they can benefit the employee and how they are to be used as a tool for their job and for their safety.   | Name Removed   |
| Finish by:<br>21 Dec 07   | Communicate where the documents can be accessed.  | Name Removed   |

| <b>Follow up Audits on Training Competency Testing</b> |  |                 |
|--|--|-----------------|
| Finish by:<br>31 Jan 08                                | Establish an audit system (random or systematic) with timeframes and intensity to ensure competency testing is being conducted in a timely and responsible manner. | Name<br>Removed |
| <b>Supervisor Identification</b>                       |  |                 |
| Finish by:<br>2 Jan 08                                 | Have front line Production Supervisors identified with a different coloured hard hat from other employees.   | Name<br>Removed |