

# **Selected Occupational Fatalities Related to Sawmills as Found in Reports of OSHA Fatality/Catastrophe Investigations**

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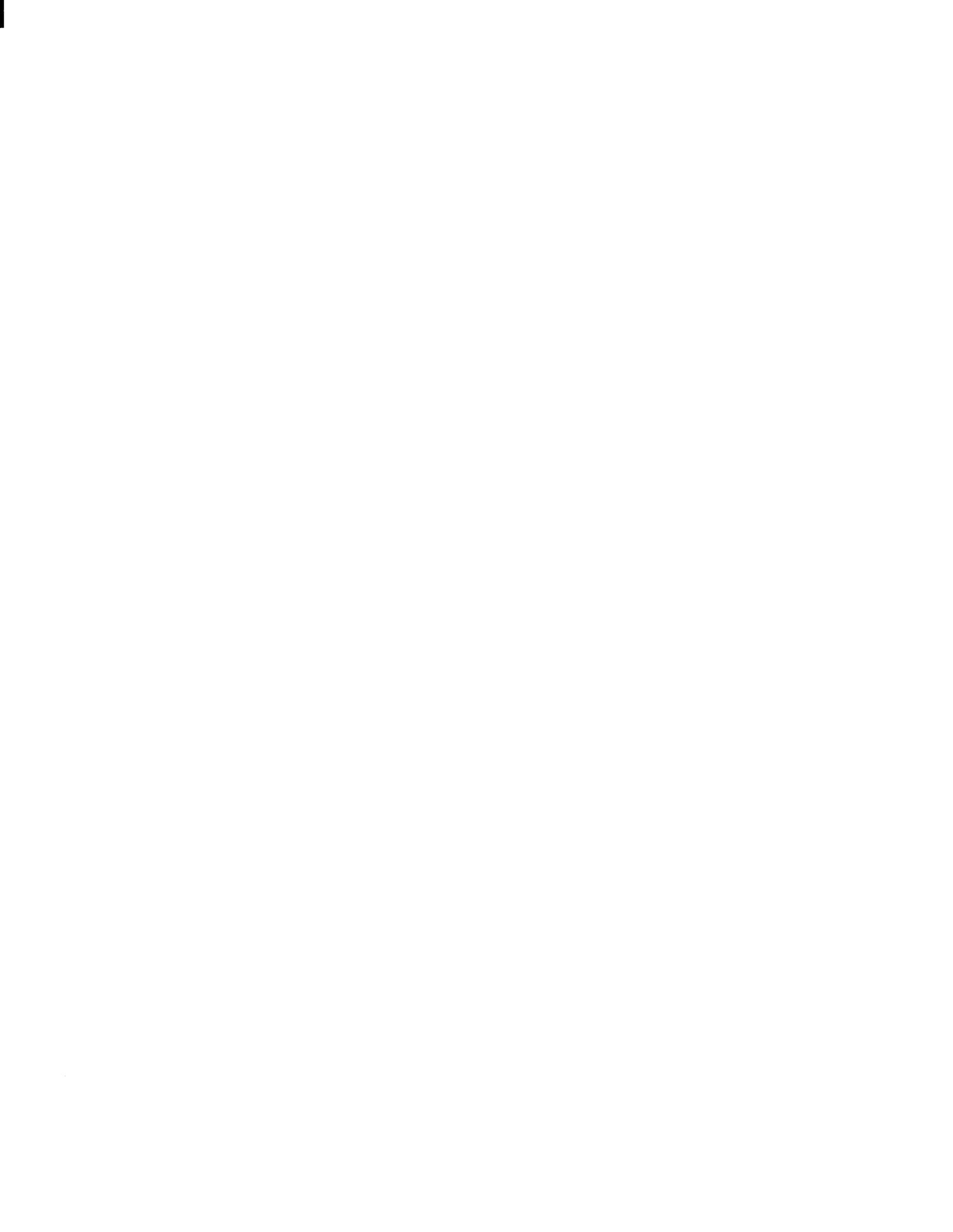




TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION . . . . .	1
II. MATERIALS AND METHODS . . . . .	2
A. Materials . . . . .	2
B. Methods . . . . .	2
III. ANALYSIS . . . . .	5
A. Types of Fatal Incidents . . . . .	6
B. Employee Activity at the Time of Injury . . . . .	9
C. Standards Cited . . . . .	9
IV. CONCLUSION . . . . .	10
A. Problem Areas . . . . .	10
B. Secondary Factors . . . . .	11
C. Preventive Measures . . . . .	11
V. Data Source . . . . .	12
VI. References . . . . .	12
VII. Case Studies . . . . .	13
APPENDICES	
A. Classification of Variables Tables	
I. Type of Incident . . . . .	A-1
II. Type of Accident . . . . .	A-2
III. Work Activity . . . . .	A-3
IV. Work Location . . . . .	A-4
V. Summary of Fatalities by Types of Accidents . . . . .	A-5
VI. Number of Fatalities by Occupation . . . . .	A-6
B. Incident Type	
A. Type of Accident . . . . .	B-1
B. Employee Activity at Time of Incident . . . . .	B-2
C. Work Location at Time of Incident . . . . .	B-3
C. Standards Cited . . . . .	C-1

	<u>Page</u>
D. Definitions . . . . .	D-1
I. Glossary of Sawmill Terms . . . . .	D-1
II. Type of Incident . . . . .	D-5
III. Factors Related to Fatal Incident . . . . .	D-6
E. Forms	
I. Fatality/Catastrophe Report, OSHA Form 36 . . . . .	E-1
II. Investigation Summary, OSHA Form 170 . . . . .	E-2
III. OSHA Codes . . . . .	E-3
F. Abstracts of Fatal Sawmill Incidents from January 1992 through July 1994 . . . . .	F-1
G. Available Studies in the Occupational Fatality Series .	G-1

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I. INTRODUCTION

In response to the need for descriptive data on how fatal workplace incidents occur, the Division of Data Analysis, Office of Statistics of the Occupational Safety and Health Administration (OSHA) has conducted this study of selected occupational fatalities related to the sawmill industry that occurred during the 1978-1984 time period. This information is useful for standards review and development, as an aid in regulatory assessment, in developing training and educational programs, in providing consultation and in targeting compliance efforts. It follows previous studies of occupational fatalities that utilized case reports of OSHA fatality/catastrophe investigations by the compliance officers. As a point of reference, 44 abstracts of more recent fatalities in the sawmill industry (1992-1994) are included as Appendix F.

OSHA regulations require that all workplace fatalities be reported to the nearest Area Office in State and Federal jurisdictions within 48 hours\* of the event. A completed Preliminary Fatality/Catastrophe Event Report Form (OSHA 36) is reviewed by the Area Director to determine if an investigation is warranted. If an investigation is performed, the compliance officer files a report of the incident in the Area Office containing a description of the incident, statements of witnesses, a listing of citations to be issued for violations of standards and other related information. Copies of case files are obtained from the Area Offices under Federal jurisdiction and form the basis for this report and those proceeding it. Case files from State Plan States were not requested for the period covered in this report but are included if a state provided files.\*\*

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\* The reporting time regulation was changed to 8 hours effective May 2, 1994.

\*\* At the time of this report, there were 25 State Plan States and jurisdictions. Those states and territories are:  
Alaska, Arizona, California, Connecticut (for state and local government employees only), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New York, (for state and local government employees only), North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington, and Wyoming.

The information in the case files are used for descriptive information on how fatal incidents may occur. In addition, an analysis of citations for violations of existing standards is made. Short narratives of the incidents are presented.

## II. MATERIALS AND METHODS

### A. Materials

Forty-five selected cases involving fifty-one fatalities are examined in this study. These cases, occurring during the period 1978-1984, were identified by the Standard Industrial Classification\* (SIC) 2421 for sawmills and obtained from the Area Offices. The forty-five cases do not represent all accidents for the time period covered; the fifty-one fatalities represent some fraction of the total number of fatalities. Only cases investigated by Federal OSHA are included.

The case files include, in varying amounts of detail, a description of the incident, a statement of witnesses, other supporting documents, and a listing of issued citations of standards violated. In some cases, the accident information may be partially conjectural as the event may not have been observed at the moment of occurrence. Also, there is no standard accident investigation procedure used, hence, all points important for reconstructing the event may not have been included.

The information in the seven year period (1978-1984) covered in this study, is now ten years old or older. The sawmill industry has made improvements in production methods, safety procedures and related technology since that period. However, the basic steps of producing lumber from timber that involve the positioning of logs to the saw, sawing them into boards, stacking the lumber and removing it for shipment remain essentially the same. Also, many of the sawmills that exist today that are small operations often times located in remote areas, are similar to many of those included in this study. Appendix E provides abstracts of more recent fatal incidents recorded in the OSHA Form 170, Investigation Summary.

### B. Methods

Summaries of accident codes provide little to indicate what led to and caused fatal incidents. The details of an in-depth accident investigation are required. Thus, information from the case files are examined and a sequence of events is determined.

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\* Standard Industrial Classification Manual (1972), Office of Management and Budget

The clustering of similar occurrences are noted and classification schemes devised, keeping in mind future standards modification and development. Citations issued that are relevant to the incident are examined. Finally, all forty-five cases are presented to provide insight into how they occurred. Although cross tabulations of variable classifications are presented, the numbers should be interpreted only as indicators of problem areas.

After reviewing all cases, four classification systems for the data were used. These were based on (1) the type of incident, (2) type of accident, (3) employee activity at the time of the fatal injury, and (4) work location. These classifications are discussed in the following sections.

## 1. Types of Incident Classification

The incident classification is based on the type of activity that seemed to be the precipitating event resulting in death. The behavior of humans, the malfunctioning of equipment, environmental conditions, or other events resulted in the fatal incidents. If these can be identified, preventive measures could be developed and implemented more effectively. Often there are several factors involved. The factor that appears most likely to be the one that precipitated the incident is used to classify the event. These factors tend to cluster as (a) operating procedures, (b) equipment/material/facility related factors, (c) environmental conditions, or (d) other.

### (a) Operating Procedures

These are incidents that resulted from the employee or employer not following designated work and safety procedures, or there were none available. They include safeguarding the work area, the use of appropriate personal protective equipment and all work activities under the control of the worker.

### (b) Equipment/Material/Facility Related Factors

These are incidents that resulted from malfunctioning or failure of equipment, exposure to hazardous material, collapse of structures, etc.

### (c) Environmental Conditions

These are incidents that resulted from unusual weather conditions such as heavy rains, excessive heat or coldness or high winds.



(d) Other

These are incidents that cannot be specifically assigned to operating procedures, are not equipment/material/facility related or do not involve environmental conditions.

2. Types of Accident Classification

Types of accidents included the worker being struck-by thrown or kicked back pieces of lumber, logs, etc., during the sawing operation; struck-by parts of equipment; crushed or struck-by conveyors; cut-by saw; struck-by saw carriage or material in the carriage; accidents involving the chipper and debarker, etc.

Listed below are the main types of accidents observed in the cases.

- (a) Struck by flying pieces of lumber, logs, slabs, equipment, parts of equipment, and other thrown or falling objects.
- (b) Crushed when caught in machinery and equipment such as conveyors, debarkers, etc.
- (c) Cut by saws; the worker was fatally cut by a saw, often when drawn into it. In some cases, the power had been turned off but the saw was still revolving.
- (d) Struck by objects that involved chippers. These accidents occurred when the chipper blew apart during operation and threw particles. Wire ropes flailed about when workers attempted to clean passages with them while the chipper was running.
- (e) Other types of accidents such as vehicle, falls, burns, and electrocutions.

3. Employee Activity at the Time of Injury Classification

Employee activity at the time of the fatal incident is the third classification of these occurrences. While it is recognized that what the worker was doing at the time of the accident may or may not be the direct cause of the accident, this activity was an integral part of the event and intersected with the other three classifications -- incident type, accident type and work location. When the activity of the deceased is known at the moment the accident occurred, this information

is used. Otherwise, the assigned general activity, e.g., sawing lumber, operating debarker, operating chipper, etc., is used.

Listed below are the types of employee activity.

(a) Performing Normal Job

The worker was performing basic tasks, i.e., operating the saw, stacking lumber, etc., or other on the job activities. The employee may have been preparing for the job or cleaning up afterwards. He or she may have been moving from one work area to another or changing work positions in the performance of the job.

(b) Performing Other Than Normal Job

The worker was engaged in an activity that was not related to assigned work tasks. He or she may have been performing a task not usually done by the worker, failed to follow instructions, was in the wrong location, was on break, etc.

(c) Unknown Activity

The activity was not reported or it was not clear what type of work activity was taking place.

4. Work Location at the Time of Injury Classification

This classification describes the location of the worker when the incident occurred. For most cases, the worker was at some location related to sawing lumber.

After the cases were coded by type of incident, type of accident, employee activity and work location, relevant data summaries were made. All forty-five cases (see pages 13-62) are included as case studies in this report and are presented by incident type classification.

III. ANALYSIS. (Appendix D includes a glossary of sawmill terms.)

The analysis involved a review of all sawmill fatal incidents found in the compliance officer's case files and consisted of six parts.

1. Review for incident type classification.

2. Identification of accident types, e.g., cut by saw, crushed by logs, etc.
3. Identification of employee activity at the time of the incident.
4. Identification of work location at the time of the incident.
5. Identification of secondary and other contributing factors mentioned in the case files.
6. Examination of citations of standards violated as a result of, or related to the incidents.

These fatal incidents occurred during sawmill operations. They involved the steps from handling logs in preparation for sawing to the stacking of lumber.

Forty-five cases (pages 13-62) involving fifty-one fatalities are examined. For each incident type, a summary of findings is followed by case studies in each appropriate category. They are as follows:

#### A. Types of Fatal Incidents

##### Operating Procedures

These incidents occurred when workers:

- o Performed improper/risk taking operation of machinery and equipment. (See cases 1 through 4, pages 14-19.)
- o Failed to shut down and secure equipment before clearing blockage of equipment, unclogging ducts, etc. (See cases 5 through 8, pages 20-23.)
- o Failed to lock-out/prevent unintended start up of equipment. (See cases 9 through 11, pages 24-26.)
- o Accidentally struck controls and activated equipment. (See cases 12 through 14, pages 27-29.)
- o Were in unassigned location/dangerous body position. (See cases 15 and 16, pages 30-31.)
- o Had problems with visual/audible communication. (See cases 17 and 18, pages 32-33.)
- o Were careless or lacked caution when feeding stock to machinery. (See cases 19 and 20, pages 34-35.)

- o Were inexperienced and allowed to work alone. (See case 21, pages 36-37.)
- o Failed to perform proper maintenance on equipment. (See case 22, page 38.)
- o Were unprotected from properly enclosed or covered conveyor/auger. (See case 23, page 39.)
- o Failed to take precautions in handling inflammable material. (See case 24, page 40.)
- o Failed to turn head saw off before cleaning around it. (See case 25, page 41.)
- o Allowed saw to run unattended and unguarded. (See case 26, page 42.)
- o Entered areas against instructions not to do so. (See case 27, page 43.)
- o Failed to ground/properly insulate electrical equipment. (See case 28, page 44.)
- o Failed to allow saw blade to come to a complete stop. (See case 29, page 45.)

Equipment/Material/Facility Related

These incidents occurred when:

- o Components of machinery or equipment broke or failed to operate. (See cases 30 through 32, pages 46-48.)
- o Chipper components came apart and were thrown during operation. (See cases 33 and 34, pages 49-50.)
- o Machinery/equipment threw lumber, logs, etc. (See cases 35 and 36, pages 51-52.)
- o Hydraulic leaks/problems caused an equipment malfunction. (See cases 37 and 38, pages 53-54.)
- o Hoist, cables, ropes, etc. broke. (See case 39, p. 55)
- o Controls on equipment/machinery malfunctioned. (See case 40, page 56.)
- o Malfunctioning air compression created fire. (See case 41, pages 57-58.)

### Environmental Conditions

These incidents occurred when:

- o Water created slippery conditions/electrical grounding. (See case 42, page 59.)
- o Slippery surface created by saw dust/residual rain. (See case 43, page 60.)

### Other

These incidents occurred when:

- o Cannot be determined. (See cases 44 and 45, pp 61-62.)

Table I of Appendix A provides a summary of cases by incident classification. Twenty-nine of the 45 incidents (64%) were operating procedural problems in which employees used improper/risky/unsafe work procedures, failed to secure machinery and equipment such as chippers before unclogging/cleaning/working on them, failed to lock-out/prevent unintended start up of machinery and other failures that resulted in fatal incidents. Twelve or 27% were related to equipment/material/facility factors. These include machinery and equipment component failures, malfunctioning hydraulic systems and other events. Two of the 45 incidents (4%) were classified as environmental conditions. The remaining two were classified as other.

The 45 incidents resulted in 51 fatalities. See Table A of Appendix B for a cross tabulation of Type of Accident by Incident Type and a Summary of Fatalities by Types of Accidents (Table V, Appendix A, page A-5).

In 45% of the total number of fatalities (23 of 51), the employee died from the results of being struck by thrown wood pieces (including kickbacks), by equipment or parts of equipment, by swinging wire ropes caught in operating chippers in an attempt to unclog passage ways and by other thrown or falling objects. This was followed by deaths from workers being crushed when caught in machinery such as conveyors/debarkers, pinned in loading equipment, caught under falling lumber and other caught in/under/between type accidents which accounted for 16% of the total (8 of 51). The third classification, in order of occurrence, was cut by saws resulting in 12% of the deaths (6 of 51), burns by fires and hot objects in 10% of the cases (5 of 51), struck by and run over by forklifts, 8% (4 of 51), falls, 6% (3 of 51) and contact with electrical current, 4% (2 of 51).

The three leading types of accidents, struck-by, caught-in, under or between and cut-by accounted for about three-fourths of the fatalities.

## B. Employee Activity at the Time of Injury

Table B of Appendix B indicates that 69% (35 of 51) of the workers were performing normal job activities such as operating a saw, unclogging/unjamming equipment, handling lumber and other activities when fatally injured. Six or 12% of the fatally injured workers were engaged in other than normal work activities. These included workers returning to work stations, performing other than assigned work, in unauthorized area, etc. The activity of the remaining ten fatalities (20%) could not be determined or were not reported. See Table C, Appendix B, for work locations at the time of the incident.

NOTE: Percents may not add up to 100 because of rounding.

## C. Standards Cited

There were no incident related citations of standards violated in 23 of the 45 cases. Section 5(a)(1) of the Occupational Safety and Health Act (OSH Act) was cited four times for a total of 41 citations. See Appendix C, Table I for a listing of standards cited.

Section 5(a)(1) states that "Each employer shall furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." Section 5(a)(1) was cited for the following reasons:

- o The employer did not insure that the hammer hog was shut down and locked out during the unjamming operation performed by employees.
- o A possible procedure and system were not provided to prevent employees from being exposed to saw blades that could be inadvertently turned on.
- o An effective preventive maintenance program was not in effect requiring predetermined replacement of hydraulic lines on a debarker, rather than causal visual inspections of lines for leaks, cracks, or wear.
- o Employees were permitted to work in the immediate area of an unattended 56 inch diameter (142.2 cm) circular head saw while such was operating at 478 r.p.m., thereby exposing these employees to the potential hazards of death and/or amputation.

#### IV. CONCLUSION

##### A. Problem Areas

It is recognized that the period covered in this study is not the most recent and that many production and safety improvements in the operation of sawmills have been made since then. However, the results of this study may serve some historical purposes. Also, it is believed that a great number of sawmills exist today that are very similar to some of those in this study, i.e., small operations scattered throughout remote areas.

The sawmill industry is currently covered in part by standards in 29 CFR Part 1910.265.

Some problem areas that suggest further need for standards development, modification and enforcement are indicated in the following statements:

- o There was a failure to take adequate precautions against workers being struck-by objects (wood products, parts of equipment, etc.) that were thrown such as in kickbacks.  
  
Also included are falling lumber and other material that struck the worker.
- o There were failures to lock-out machines before working on them or cleaning around them.
- o Dangerous risk taking short-cuts were performed by workers around saws.
- o An unusual number of fatalities were caused by attempts to unclog chippers by inserting objects such as wire ropes in outgoing passage ways resulting in the rope being caught in rotating parts and whipped, striking nearby workers.
- o There was a failure to take proper precautions around saws. Workers took unnecessary risks and were drawn in or fell against saws. Guarding of saws may not be adequate in some cases.
- o There was a failure to take care of operating machinery and equipment and maintain them. In two cases, hydraulic systems appeared to be at fault resulting each in an incident.

## B. Secondary Factors

In the narratives of the case reports, factors are mentioned that contribute to the incident and cut across all accidents in the sawmill industry. They can be considered secondary and should be taken into account in any effort to reduce serious accidents. These include:

- o Lack of training, unfamiliar with the operation of the machine. (See cases 2 and 3, pages 15-17.)
- o The use of alcohol. (See cases 21 and 23, pages 36-37 and 39.)
- o The worker ignoring available safety steps before unclogging machine. (See case 5, page 20.)
- o Young worker and new worker to job. (See case 21, pages 36-37.)

## C. Preventive Measures

A review of the types of incidents and secondary factors illustrate that fatal occupational incidents are complex events. Multiple points of attack are needed to address human, machine, and environmental interactions resulting in fatal incidents. These preventive measures include:

- o Establishment and strict enforcement of safety procedures through standards modification and development in the areas of chipper operation, lock-out requirements, safety around saws and equipment maintenance.
- o Increased efforts in training and education for work and safety procedures to reduce worker risk taking in the performance of his/her job.
- o Improved supervision at all levels and particularly for the young worker and the worker new to the job.
- o Provision of more information to employers through the consultation program.

In summary, three categories of accidents (type of accident) accounted for about three-fourths of the 51 sawmill fatalities. These were struck-by wood pieces, parts of equipment, etc. (45%); caught in, between and under equipment material, etc., 16%; and, cut by saws (12%). Incidents involving chippers often resulted in multiple deaths. These occurred in attempts to unclog ducts with pieces of wire rope or other lines which became caught and swung about.



## V. Data Source

The OSHA Compliance Officer's case files resulting from accident investigations provide a more detailed description of how occupational fatalities occur than any other data currently available to OSHA. This data source continues to be useful for studying the occurrence and nature of work fatalities when cases are aggregated by specific topics, e.g., by industry (oil/gas well drilling and services), by work activity (welding), by equipment used (ladders, scaffolds, etc.), by work location (confined work spaces) and so on. The information can then be analyzed further by various classification systems. Since the data are in-house, access is relatively easy. On the other hand, the uniformity, consistency and quality of the case file data used vary from narrative to narrative. The OSHA fatality/catastrophe codes in present use are generally too broad and insufficiently defined to facilitate accurate and efficient compilation of information for purposes of study.

## VI. References

National Institute for Occupational Safety and Health, Health and Safety Guide for Sawmills and Planing Mills, U.S. Department of Health and Human Services, July 1977.

Occupational Safety and Health Administration, General Industry OSHA Safety and Health Standards (29 CFR Part 1910.265), U.S. Department of Labor, March 1983.

**VII. Case Studies**

**CASE NUMBER: 1****OPERATING PROCEDURE****TYPE OF**

**ESTABLISHMENT:** Sawmill; Rough Cut  
Poles, Planks and  
Firewood

**SIC: 2421**

**ACCIDENT TYPE:** Amputation by  
Head Saw

**DATE OF INCIDENT: 8/25/82****WORK LOCATION:** Cutting Area**TIME OF INCIDENT: 3:00 pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Laborer

**DESCRIPTION OF INCIDENT:**

Two laborers were rough cutting logs using a 40 inch (101.6 cm) diameter overhead saw. There was a wooden table located adjacent to the saw blade approximately two feet off the ground. The table extended from the forward edge of the saw blade to approximately 5 - 6 feet (1.5 - 1.8 m) aft of the blade. After being cut, slabs would fall onto the table and would be removed by one of the laborers.

While standing alongside the saw and table, the laborer started the saw. His helper had his back to him. The helper heard a noise, turned and found that the laborer had sustained fatal injuries. The laborer had his right shoulder, arm and head amputated.

The helper turned off the saw motor and went for assistance.

There were no eye witnesses to the incident. There was no guard around the saw blade.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.212 (a)(3)(ii)

A barrier guard was not provided to protect employee(s) from the point of operation on a head saw used for rough cuts in the yard area.

**CASE NUMBER: 2****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Lumber Kiln Drying****SIC: 2421****ACCIDENT TYPE: Run over by Forklift  
Truck****DATE OF INCIDENT: 7/5/79****WORK LOCATION: Lumberyard****TIME OF INCIDENT: 7:20 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	28	Swamper

**DESCRIPTION OF INCIDENT:**

The crew was loading a kiln and the swamper had placed the spacers to receive the third bunk of lumber. He had moved back to the rear of the forklift.

The forklift driver backed away from the bundles of lumber to retrieve his forks. He lowered his forks and made a sharp turn with the steering section of the forklift and started forward. On a sharp turn, the tire and wheel protruded approximately one foot from the machine. The swamper was standing next to the lumber that was stacked and was caught by the protruding tire and wheel and knocked to the ground. The forklift continued forward dragging the swamper until his head and upper part of his body was jammed into the lumber. The swamper sustained severe head injuries.

He was taken to the hospital. He was pronounced dead on arrival. The forklift operator was not an experienced driver.

**STANDARDS CITED RELATED TO THE INCIDENT:**

- 1910.265 (c) (30) (x) Adopting 1910.178 (l): Some new drivers of powered industrial trucks were allowed to operate them alone, without being sufficiently trained in their safe operation.
- 1910.265 (c) (30) (x) Adopting 1910.178 (m): A powered industrial truck was driven toward a swamper who was standing between the truck's path of travel and a bunk of lumber.
- 1910.265 (c) (27) (v) Several stickers protruded more than 2 inches (5.1 cm) beyond the side of the bunk of lumber.

**CASE NUMBER: 2 (cont'd)**

1910.265 (c)(30)(x)

Adopting 1910.178 (n)(6): Driver of powered industrial truck did not look in the direction of and keep a clear view of the path of travel.

1910.265 (c)(30)(ii)

All vehicles were not equipped with audible warning signal.

**CASE NUMBER: 3**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT:** Manufacture Boards                      **SIC: 2421**  
for Pallets, Cross-  
ties for Railroads

**ACCIDENT TYPE:** Struck by Lumber                      **DATE OF INCIDENT: 2/1/82**  
Kicked Back from  
Gang Edger

**WORK LOCATION:** Cutting Area                      **TIME OF INCIDENT: 9:30 am**

**AFFECTED WORKER(S):**                      **NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	26	Edger Operator

**DESCRIPTION OF INCIDENT:**

The edger\* operator possibly raised the pressure roller with the machine running. Or, he was cutting a railroad tie on the left side of the edger causing the pressure rollers to remain at that width while the operator inserted a thinner piece of stock.

The gang blade edger kicked back a piece of lumber which struck the operator on his left side causing fatal injuries.

The operator had worked on this saw for one and a half years and had operated a two blade edger for over nine years.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (e) (5) (ii) (a)      Gear(s) and chain(s) on edger(s) were not fully housed.

1910.265 (e) (5) (iii) (a)      Edger(s) were not provided with safety fingers or other approved methods of preventing kickbacks or guarding against them.

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\*      The edger is basically used to break down cants from the head rig lengthwise into narrower widths during which time edges are removed. There are several types of edgers depending on use and location in the mill.

**CASE NUMBER: 4****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Crushed between Fork-  
lift and Lumber Pile****DATE OF INCIDENT: 2/2/84****WORK LOCATION: Between Stacked Lumber  
and Loaded Forklift****TIME OF INCIDENT: 9:00 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Forklift Operator

**DESCRIPTION OF INCIDENT:**

A forklift operator was working in the yard of a sawmill between a forklift, which was carrying a bundle of lumber, and previously stacked, bundled lumber packages on the ground. The bundle in the forklift was twelve feet long, four feet wide, and four feet deep (3.7 x 1.2 x 1.2 m). The stacked bundles were of similar dimensions. He was standing next to these bundles of two by fours and four by fours lumber, counting them. He had raised the bundle in the forklift twelve inches (30.5 cm) off the ground before dismounting. He did not have the emergency brake of the forklift on. This was observed by a second worker.

Seven to eight minutes later, this same worker found him pinned between the bundle on the forklift and the stacked bundles. Apparently, the forklift had rolled forward crushing the operator. The forklift motor was running, but was in neutral. No one witnessed the incident.

The other worker reached into the forklift cab and put the forklift in reverse and hit its accelerator pedal. The operator fell forward, face down, unconscious, with no vital signs. Cardiopulmonary resuscitation was started and rescue personnel were called. The operator was never revived.

**STANDARDS CITED RELATED TO THE INCIDENT:**

- 1910.178 (1) No training or methods of training had been given to forklift operators involved in moving loads of 1,800 (827.2 kg) pounds or more.
- 1910.178 (m) (5) (iii) A forklift truck operator dismounted his vehicle and was within 25 feet (7.7 m) without having lowered the load fully.

**CASE NUMBER: 4** (cont'd)

1910.178 (c) (7)

No working horn was in place and the emergency brake did not prevent movement of the vehicle when it was engaged.



**CASE NUMBER: 5****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Pine Lumber  
Manufacture**SIC:** 2421**ACCIDENT TYPE:** Crushed by  
Chipping Saw**DATE OF INCIDENT:** 7/8/82**WORK LOCATION:** Vicinity of Compu-  
terized Chipper Saw**TIME OF INCIDENT:** 1:30 pm**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Relief Saw Operator

**DESCRIPTION OF INCIDENT:**

An employee was operating the computer operated chipping saw from the operator's station when a light signaling a problem with the left side of the shifting saw section came on. The operator left his station to inspect the problem area but did not push the "out" button which would prevent the saw from continuing in its preset operation once the problem was corrected. On his way, he passed a group of "lock out" disconnect switches which he did not activate. He then passed a set of push button controls with a key-turn lock out that kills the power to this area which he did not activate. When he arrived at the saw, he noted a piece of wood had lodged in the beam of the photo cell, causing the machine to stop.

The operator went between the guardrail and saw section and entered the open saw mechanism area before lowering a "safety stop" consisting of a 4 inch by 4 inch (10.2 x 10.2 cm) square tubing. He removed the piece of wood and the saw mechanism began to move in its preset function. The operator's lower body was crushed in the mechanism causing him to bleed to death.

The operator had worked on this machine for one year.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 6****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Sawmill**SIC:** 2421**ACCIDENT TYPE:** Struck by Wire  
Rope Twisting  
in Chipper**DATE OF INCIDENT:** 10/25/78**WORK LOCATION:** Vicinity of  
Operating Chipper  
Machine**TIME OF INCIDENT:** Unknown**AFFECTED WORKER(S):****NO. FATALITIES:** 2

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	23	Foreman
F	M	21	Debarker Operator

**DESCRIPTION OF INCIDENT:**

A maintenance foreman and a debarker operator were attempting to unclog a chipper conveyor duct. They inserted long sticks into the duct, but they kept breaking. The debarker operator climbed on an adjacent shed roof and was sweeping off wood chips.

The maintenance foreman took a five-eighth inch (1.6 cm) diameter wire rope cable and inserted it into the cyclone where another employee was located. This employee proceeded to insert the cable into the "out" end of the blower conveyor. The cable became entangled in the rotating (1770 rpm) chipper blades. The cable was pulled into the conveyor and the free end was whipped. It struck the debarker operator on the neck and severed his artery. The foreman was struck on the back severing his vertebrae. Both were transported via ambulance to the hospital where they were pronounced dead on arrival.

Both men had been employed by this company for 2.5 years.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 7**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT:** Plywood Plant  
and Sawmill

**SIC:** 2421

**ACCIDENT TYPE:** Struck by Steel  
Bar while Unjam-  
ming Hammer Hog

**DATE OF INCIDENT:** 10/23/79

**WORK LOCATION:** Standing on "I"  
Beam above a  
Conveyor

**TIME OF INCIDENT:** 7:25 pm

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Unknown

**DESCRIPTION OF INCIDENT:**

An employee was standing on an "I" beam, on the belt side of the hammer hog\*. He was using a steel bar which he put into the hog to attempt to unclog a jammed piece of lumber. The hammer hog was operating with only the conveyor belt shut off.

The employee was struck on the side of the head by the steel bar, when it came in contact with the hammers. The employee was knocked off the "I" beam and struck an angle iron brace for the conveyor as he fell to the floor below. He sustained fatal head injuries.

**STANDARDS CITED RELATED TO THE INCIDENT:**

Section 5 (a) (1)

The employer did not insure that the hammer hog was shut down and locked out during unjamming operation performed by employees.

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\* A machine for cutting or grinding slabs or other course residue from the mill - similar to a chipper.

**CASE NUMBER: 8****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Hardwood  
Sawmill**SIC:** 2421**ACCIDENT TYPE:** Decapitated by  
Wire Rope Whipped  
by Chipper**DATE OF INCIDENT:** 11/21/83**WORK LOCATION:** Vicinity of  
Operating Chipper  
Machine**TIME OF INCIDENT:** 12:45 pm**AFFECTED WORKER(S):****NO. FATALITIES:** 4

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Unknown
F	M	00	Laborer
F	M	00	Laborer
F	M	00	Logging Contractor
H	M	00	Laborer
N	M	00	Laborer

**DESCRIPTION OF INCIDENT:**

Employees had unclogged a jam in the 90 degree turn of the 10 inch (25.4 cm) pipe from the chipper by banging on the outside of the pipe while the chipper was operating. For some reason, one of the employees picked up a 0.75 inch (1.9 cm) wire rope, which was used to clear another line of sawdust, and started to feed the cable into the pipe.

When the cable reached the chipper blades rotating at 900 rpm, it was pulled taut and the 40 - 50 feet (12.2 - 15.2 m) excess cable started whipping and twisting. It hit six people. Four people, three employees and one non-employee (logging contractor), were decapitated. One employee sustained a fractured and severely lacerated leg and required hospitalization. Another employee sustained bruises that did not require hospitalization.

The employee who inserted the cable had been employed by this company sporadically over the past two years.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 9****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Struck and Crushed  
by Saw Carriage****DATE OF INCIDENT: 9/7/82****WORK LOCATION: Cutting Area****TIME OF INCIDENT: 7:56 am****AFFECTED WORKER(S):****NO. FATALITIES: 2**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	24	Sawyer
F	M	32	Millwright

**DESCRIPTION OF INCIDENT:**

A sawyer, a millwright and a filer were in the process of removing a wooden slab that was stuck in front of and making contact with the head saw. The sawyer had turned the saw off and had returned the saw carriage to its loading position ten feet (3.4 m) away. It was decided to charge the saw blade so the sawyer returned to the control booth and lowered the wheel and then returned to the saw. He apparently had not locked out the carriage lever.

As the sawyer and the millwright were in crouching positions and the filer was standing about a foot behind them, the carriage began moving forward at a very rapid rate. The filer was pushed off to the side. The two other employees were crushed under the carriage and the saw. The filer went to the control booth and turned off the power. When the maintenance supervisor attempted to lift the carriage using an hydraulic jack, he discovered that the pump and hydraulic lever controls had not been turned off. The lever, to cause the movement of the carriage, was in the most forward operational mode. The sawyer and millwright were pronounced dead on the scene.

Attempts to cause the accidental movement of the carriage control lever during a re-enactment were successful. The sawyer had operated the saw for eight months and had received training on this saw.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (e) (1) (iv)

Positive means were not engaged on the standard carriage to prevent unintended movement while employees were in the area.

**CASE NUMBER: 10**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT: Hardwood Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Decapitated while  
Inside Shredder that  
was Activated**

**DATE OF INCIDENT: 11/1/79**

**WORK LOCATION: Vicinity of a Bark  
Shredder**

**TIME OF INCIDENT: 1:45 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	44	Back Tender

**DESCRIPTION OF INCIDENT:**

Two millwrights were attempting to dislodge a slab that had lodged between the return side of the conveyor belt and a supporting beam on a bark shredder. They tried to work from the top of the discharge end of the conveyor but were unable to dislodge the jam. One millwright decided he could be more effective if he dropped inside the dust canopy and stood on the shredder, while using an axe and an iron hook. The other millwright was kneeling inside the 18 inch (45.7 cm) deep conveyor trough.

A floorman, who circulated through the plant to insure that all conveyors were operating properly, notice that the in feed conveyor on the shredder was not operating. He did not see anyone in the area so he turned on the shredder. The kneeling millwright heard the motor and told the floorman to turn the equipment off. The other millwright was found decapitated. The equipment had not been locked out

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 11**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Lacerated by Upright  
Arbor Saw**

**DATE OF INCIDENT: 3/24/81**

**WORK LOCATION: Cutting Area**

**TIME OF INCIDENT: 7:30 am**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	26	Millwright Helper

**DESCRIPTION OF INCIDENT:**

All the employees in the area of the vertical single-arbor saw (VSA) came to the saw to assist in removing a jammed log. Tongs were placed on the log; a chain was attached and wrapped around the winch in order to lift the log. The saw blades are 28 inch (71.1 cm) in diameter.

A millwright helper, who was assisting in the operation, either fell or went into the VSA. Unaware of this, the sawyer turned on the saw. The millwright helper sustained multiple fatal lacerations.

The saw was equipped with a unscrambler panel button that automatically turns off and locks out the sawyer's controls. This button was not activated prior to working on the saw. The sawyer receives instructions from any of the workers and stated that he was signalled to activate the saw.

**STANDARDS CITED RELATED TO THE INCIDENT:**

Section 5 (a) (1)

A positive procedure and system were not provided to prevent employees from being exposed to saw blades that could be inadvertently turned on.

**CASE NUMBER: 12****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Amputation and  
Disembowelment  
by Head Band Saw****DATE OF INCIDENT: 10/26/81****WORK LOCATION: Cutting Area****TIME OF INCIDENT: 1:00 pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	56	Sawyer

**DESCRIPTION OF INCIDENT:**

An employee checked the head band saw by operating all of the controls to be sure that they were functioning properly. The carriage control lever was in the neutral unlocked position. Apparently when he looked out of the control cab window, he noticed that the view of the saw blade was partially obstructed due to an accumulation of sawdust on the window. It is surmised that the employee as he left the cab to clear the window, unknowingly hit the carriage control lever causing the carriage to slowly inch forward.

While the employee was cleaning the window, he somehow backed into the moving saw blade. Both of the employee's legs were amputated and he was disemboweled.

There were no witnesses. The employer did provide a positive means of locking the carriage control lever.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None



**CASE NUMBER: 13****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Pinned between  
Bucket Loader  
and the Bucket  
Power Arm****DATE OF INCIDENT: 11/28/81****WORK LOCATION: Behind the  
Sawmill in the  
Vicinity of a  
Payloader/Loaded  
Bucket****TIME OF INCIDENT: 10:00 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	20	Bucket Loader Operator

**DESCRIPTION OF INCIDENT:**

The employee was operating a bucket loader behind a sawmill. He was in the process of loading sawdust into a pickup truck. He was unfamiliar with the operation of the bucket loader. A co-worker asked if he wanted him to man the machine. The bucket loader operator said "yes" and parked the loader with a load in the bucket.

The bucket was in the 'up' position. As the operator was exiting the machine, the inside of his left leg hit the bucket release lever. The operator was crushed between the body and the power arm of the bucket.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 14****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Crushed by  
Infeed Rolls  
of Debarker****DATE OF INCIDENT: 11/7/83****WORK LOCATION: Debarking Area****TIME OF INCIDENT: 11:53 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	35	Electrician

**DESCRIPTION OF INCIDENT:**

An electrician was taking a short cut from the fuel house to the shop through the debarking area. This area is chained off and access is prohibited except for maintenance when the debarker is shut down. The operator's station is located approximately 5 feet (1.5 m) from the debarker.

The electrician proceeded around the operator's booth and across the bark chain trough where a log was protruding approximately 1-1.5 feet (.3 - .5 m) over the conveyor. The operator hit the button to back the log, giving the electrician more room to pass through. The electrician was bumped into the infeed rolls of the debarker. It is surmised that the operator might have hit the wrong button bumping the deceased into the rotating pineapples of debarker. The electrician sustained fatal crushing injuries to his upper torso. He was transported to the hospital where he was declared dead on arrival.

The electrician had worked for this company since 1971; he left in 1976 and then returned. He was in the process of building a new house and it was suggested that he may have been in a hurry to get home during the lunch hour.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 15**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT:** *Hardwood Lumber  
Mill*

**SIC:** 2421

**ACCIDENT TYPE:** *Caught in Conveyor*

**DATE OF INCIDENT:** 7/26/78

**WORK LOCATION:** *Vicinity of an  
Unguarded Conveyor*

**TIME OF INCIDENT:** 5:00 pm

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	19	Laborer

**DESCRIPTION OF INCIDENT:**

A barn cleaner type conveyor, which runs under an edger located in the center of the mill, carries away saw dust. It is located in a pit 24 inches long by 42 inches wide by 12 inches deep (.6 m x 1.1 m x .3 m). Under the edger, a grating 26 inches by 24 inches (66.0 x 61.0 cm) was placed to catch chips and splinters. An opening 14 inches wide by eleven and three fourths inches (35.6 x 29.8 cm) high was cut in the lower side of the edger cabinet to allow employees to reach in and pull out the chips and splinters during clean-up time.

The laborer got the upper portion of his body into the opening for unknown reasons knocking the grating down into the conveyor. The grating apparently caught in the conveyor causing it to flip and catch the deceased in the chest pushing him against the edger. There were no witnesses to the incident.

A lumber inspector and a head sawyer were nearby and soon discovered the body. They extracted the laborer and called the rescue squad. He was taken to the hospital but later died of his injuries.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (c) (3) (i)

A pit floor opening approximately 24 inches long by 42 inches wide by 12 inches deep (.6 m x 1.1 m x .3 m) for barn cleaner type conveyor was not guarded by a cover exposing employees to a falling hazard and/or accidental contact with rotating parts.

**CASE NUMBER: 16****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Thrown against Post  
by Board****DATE OF INCIDENT: 8/27/83****WORK LOCATION: Cutting Area****TIME OF INCIDENT: 3:30 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Sawyer

**DESCRIPTION OF INCIDENT:**

The sawyer was removing boards from the saw table in a sawmill. He was not standing at his normally assigned position.

When the saw made a cut, the board became stuck, perhaps because of a knot. He was at the other end and moved the board. When the sawyer returned the carriage, the end of the carriage caught the end of the board that, in turn, threw the employee against the steel post, fracturing his pelvis.

He was transported to the hospital and after nine days it was discovered that his intestine had been severed. Two operations were performed and he was improved to the stage of walking in the hall. While walking in the hallway, he collapsed and died.

Cause of death on the death certificate was listed as anoxic brain injury, and perforated intestine with sepsis. Hospital records indicate that because of intestinal problems, he developed a heart attack and brain damage thus causing his death.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 17****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Run over by Moving  
Front End Loader****DATE OF INCIDENT: 7/22/81****WORK LOCATION: In the Mill Yard****TIME OF INCIDENT: 1:03 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	36	Sawyer

**DESCRIPTION OF INCIDENT:**

The trim-saw operator was walking through the mill yard as he returned to his work station. A forklift operator operating a front end loader was moving a load of sawdust and slabwood in the front end loader. As the forklift operator backed his machine he saw the saw operator and assumed that he had stopped.

The forklift operator proceeded to move forward. He was traveling at about 3 - 4 miles per hour (4.8 - 5.4 km per hour). His line of vision was blocked by his load. The loader struck and ran over the trim-saw operator. An ambulance was called. The sawyer expired on his way to the hospital. The cause of death was massive head, chest and abdominal injuries.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 18**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Fall into Slab  
Pit and Crushed  
by Equipment**

**DATE OF INCIDENT: 9/9/82**

**WORK LOCATION: Cutting Area**

**TIME OF INCIDENT: 3:40 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	55	Resaw Tailer

**DESCRIPTION OF INCIDENT:**

A resaw tailer was assisting in getting slabs that had become caught on the rollers and frame to fall into the slab pit. The slab table arms were raised by the resaw operator from the resaw cab approximately 60 - 70 feet (18.3 - 21.3 m) from the tailer's position. The resaw housing blocks the operator's view of the tailer.

No one saw the resaw tailer fall into the slab pit. Apparently, the arm of the slab table was raised and the spreader bar was to the right side of the resaw when he fell. He was found with his left upper arm under one of the arms of the slab table and his left forearm pinned between the roller frame and the slide bar of the spreader bar. He was in severe pain and transported to the hospital.

The equipment under which the tailer was crushed is used to move lumber from one conveyor to another.

He was pronounced dead on arrival at the hospital.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (c)(3)(i)	Sawmill was not provided with standard railings to prevent an employee from falling into the slab pit adjacent to the arms of slab table (tipple cant lid).
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**CASE NUMBER: 19**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Struck by Log when  
Kicked Back from Saw**

**DATE OF INCIDENT: 4/19/82**

**WORK LOCATION: Cutting Area**

**TIME OF INCIDENT: 3:30 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Unknown

**DESCRIPTION OF INCIDENT:**

Two men were operating a scrag gang sawmill. One sawyer rolled the tapered 5 - 8 inch (12.7 - 20.3 cm) diameter log from the platform onto the carriage. When the side of the log that was cut fell off, the other employee thought the log was through the mill and stopped the carriage. In fact, a portion of the log was still between the two saw blades.

The sawyer reached across to roll another log onto the carriage. At the same moment, the other employee tried to roll the cut log off the carriage, thus pinching the portion of log between the blades. This caused the log to be propelled back through the mill, hitting the top of other blades and to be further propelled backward. The log then struck the sawyer on the left side. He was transported to the hospital where he expired approximately 1.5 hours after the incident. The cause of death was listed as a fractured rib causing a laceration of the aorta.

The employer installed a kick-back guard on the sawmill.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 20****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Struck by Piece of  
Lumber while Sawing****DATE OF INCIDENT: 9/10/81****WORK LOCATION: Cutting Area****TIME OF INCIDENT: 4:30 pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Sawing

**DESCRIPTION OF INCIDENT:**

The employees were making two inch (5.1 cm) headers 16 inches (40.6 cm) long which are used as mining products. The cutoff saw operator was trimming approximately 0.75 inch (1.9 cm) off a piece of hickory 2 inches (5.1 cm) thick by 58.5 inches (148.6 cm) in length by 11 inches (27.9 cm) on the end to be trimmed. The lumber was triangular in shape. The helper was unable to hold down the portion that was cut because of its small size.

The saw operator began the cut. His left hand was on the saw handle but his right hand, according to witnesses, was not holding down the lumber. After cutting into the lumber approximately 6.5 inches (16.5 cm), the lumber flew up and struck the operator on his right side. He staggered a few steps and collapsed. Co-workers transported him via pick-up truck to the local hospital approximately 15 - 20 minutes away. The operator sustained fatal injuries.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None



**CASE NUMBER: 21****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Sawmill**SIC:** 2421**ACCIDENT TYPE:** Cut by Saw**DATE OF INCIDENT:** 11/1/79**WORK LOCATION:** Sawing/Cutting Area**TIME OF INCIDENT:** 3:00 pm**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	23	Tail Sawyer

**DESCRIPTION OF INCIDENT:**

Four workers were engaged in various tasks around a sawmill, including the operation of a fifty-six inch (142.3 cm) circular head saw. One of the employees, the tail sawyer, had been operating the swing saw. He switched with another worker to operate the head saw, on which he had about three weeks experience. All of the workers had just returned from the lunch break, during which they all had a small amount of beer. The saw itself was unguarded and operates between two conveyors, one which brings logs to the saw, the other conveying boards cut from the log away to the swing saw. The inspector noted many trip hazards in this area. At the time of the incident, the tail sawyer was alone, although the other workers were nearby. The saw was at operational speed at the time.

The tail sawyer came into contact with the saw, rendering a massive wound on his right side and partial amputation of his right arm at the shoulder. The inspector determined that either the sawyer tripped and fell into the saw, was trying to free a board caught in the saw, or was adjusting the saw guides.

The foreman, who was just outside the sawmill, heard the sawyer's call for help and went inside to find the sawyer kneeling down with his right side caught in the saw. The sawyer tried to stand up, and the foreman helped him to lie on the platform in front of the saw. He was hemorrhaging very severely. The foreman cut the head saw off and called for more help and the other workers came to assist. An ambulance was called, and it arrived in ten to fifteen minutes. He was taken to a local hospital but was dead on arrival.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.212 (a) (1)

Employees were exposed to the unguarded 56 inch (142.3 cm) saw blade, at the operators station and at the tail sawyer's work area.

**CASE NUMBER: 21 (cont'd)**

1910.265 (c)(3)(iv)

Operators performed at the 56 inch (142.3 cm) head saw: The log turner operating lever, located in the floor area, which expose employees to slipping and tripping hazards, in proximity to the exposed 56 inch (142.3 cm) head saw.

**CASE NUMBER: 22****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Burned by Fire  
in Debarker Cab****DATE OF INCIDENT: 3/21/80****WORK LOCATION: Cab-Covered  
Debarker****TIME OF INCIDENT: 11:30am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Debarker Operator

**DESCRIPTION OF INCIDENT:**

The debarker operator was operating a cab-covered debarker used in processing incoming logs. An electrical space heater was situated at floor level in the cab or operator's station.

The debarker's hydraulic hose burst, spraying him and the heater with fluid, thereby igniting the operator and the cab of the machine.

The hoses operate under pressure and require predetermined replacement which had not taken place. The debarker operator attempted to extinguish his burning clothing by rolling on the ground after climbing out the back of the control car box. His brother put out the flames in his clothing with a coat. The debarker operator later died.

**STANDARDS CITED RELATED TO THE INCIDENT:**

Section 5 (a) (1) An effective preventive maintenance program was not in effect requiring predetermined replacement of hydraulic lines on a debarker, rather than casual visual inspection of lines for leaks, cracks or wear.

**CASE NUMBER: 23****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Sawmill and Manufacture  
of Wooden Pallets**SIC:** 2421**ACCIDENT TYPE:** Caught in Rotat-  
ing Screw Conveyor**DATE OF INCIDENT:** 11/26/82**WORK LOCATION:** Sawdust Bin**TIME OF INCIDENT:** 4:30 pm**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	61	Scaler*

**DESCRIPTION OF INCIDENT:**

A scaler, performing a collateral duty, entered the 18 by 22 feet (5.5 x 6.7 m) bin where sawdust and shavings, used as fuel for a boiler, were stored. He took a specially configured short handled rake to pull the fuel into a screw conveyor. The 9" by 9" (22.9 x 22.9 cm) auger, rotating at 60 rpm, was enclosed on the sides and bottom and had removable wooden covers.

The scaler's right foot apparently went into the partly open top of the conveyor. He was drawn downward into the conveyor. His right leg was partially severed. Co-workers working in the nearby pallet mill found the scaler and called the ambulance. He was transported to the hospital where he was pronounced dead on arrival. The cause of death was listed as alcohol intoxication, entrapment by the auger and coronary artery disease.

The scaler had worked for this company for 28 years, in various positions.

**STANDARDS CITED RELATED THE INCIDENT:**

- 1910.212 (a) (1) The screw conveyor between the sawdust bin & the boiler was not provided with a cover which adequately enclosed the top of the conveyor for its entire length.
- 1910.145 (f) (1) (i) "Do not start tags" and "lock out" procedures were not used on the screw conveyor between the sawdust bin and the boiler.
- 1910.23 (c) (1) The platform between the boiler and the sawdust bin was provided with a railing which was inadequate in that it was too low and did not have a mid-rail.

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\* One who estimates the amount of sound lumber in logs or standing timber.

**CASE NUMBER: 24**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT:** Sawmill

**SIC:** 2421

**ACCIDENT TYPE:** Burned while  
Lighting a fire  
Using Flammable  
Liquid

**DATE OF INCIDENT:** 12/30/83

**WORK LOCATION:** Unknown

**TIME OF INCIDENT:** 10:00 am

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Sawyer
N	M	47	Sawyer

**DESCRIPTION OF INCIDENT:**

Two sawyers were attempting to burn trash in an open top 55 gallon (143.5 L) steel drum. One sawyer, according to the witness, poured a small amount fuel oil on the trash but it would not light. The second sawyer dipped a rope into the fluid's container (a one-gallon anti-freeze container used for fuel oil) and after lighting the rope, threw it into the drum.

An explosion occurred. One sawyer's clothing became engulf in flames. The other sawyer finding the back of his coveralls on fire removed them and told the engulfed sawyer to roll. Instead the sawyer ran. He was stopped and his clothes removed by the other sawyer. An ambulance was called. Both men were taken to the hospital. One sawyer was treated for burns of the hands and released. The other sawyer was admitted to the hospital where he died seventeen days later.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 25****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Lumber Mill**SIC:** 2421**ACCIDENT TYPE:** Pole Struck Man  
in Chest Crushing  
Right Ventricle**DATE OF INCIDENT:** 3/24/84**WORK LOCATION:** Cutting Area**TIME OF INCIDENT:** Unknown**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	25	Off-Bearer

**DESCRIPTION OF INCIDENT:**

An off-bearer was using a 95 inch (241.3 cm) by 1 inch by 1.5 inch (2.5 x 3.8 cm) oak pole to clear sawdust and debris from the area of a 56 inch (142 cm) head saw blade, and to cause it to fall through an opening around the blade to a pit below the saw rig. The pole was also used to clear the blower pipe if it became obstructed. This removal and clearing operation typically occurred five or six times a day. The blower only operated while the saw was on.

As the off-bearer was clearing around the blade, which spun at 550 rpm, the pole became engaged and it struck the worker in the chest breaking some ribs and crushing the right ventricle. There were no witness to the accident.

**STANDARDS CITED RELATED TO INCIDENT:**

1910.265 (c) (20) (iii)      The exhaust system was not designed, located and adjusted to remove maximum amount of refuse at off-bearer location, and the end of the blower pipe.

**CASE NUMBER: 26****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Cut by Head Saw****DATE OF INCIDENT: 10/6/78****WORK LOCATION: Cutting Area****TIME OF INCIDENT: Unknown****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Unknown

**DESCRIPTION OF INCIDENT:**

No documentation was received on the circumstances surrounding the incident.

It is assumed from the violations cited that the employee was killed by a 56 inch (142.2 cm) diameter, circular head saw, operating at 478 r.p.m. The apparatus was not enclosed by guards and was typically unattended at the time of the incident.

**STANDARDS CITED RELATED TO THE INCIDENT:**

- Section 5(a)(1) Employees were permitted to work in the immediate area of an unattended, 56 inch (142.2 cm) diameter, circular head saw, operating at 478 r.p.m. while such was in operation, thereby exposing those employees to the potential hazard of death and/or amputation.
- 1910.265 (c)(22) The mechanical power transmission apparatus was not constructed, operated or maintained in accordance with the requirements of 29 CFR 1910.219.
- 1910.265 (e)(1)(v) Barriers were not provided to prevent employees from entering the space necessary for travel of log carriage(s). Warning signs were not posted at possible entry points to log carriage areas.

**CASE NUMBER: 27**

**OPERATING PROCEDURE**

**TYPE OF**

**ESTABLISHMENT: Lumber Manufacture**

**SIC: 2421**

**ACCIDENT TYPE: Burned by Hot  
Wood Ash in an  
Automatic Burner**

**DATE OF INCIDENT: 8/11/83**

**WORK LOCATION: Vicinity of  
an Automatic  
Wood Fuel  
Burner**

**TIME OF INCIDENT: 10:45pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Maintenance Man
H	M	00	Maintenance Man

**DESCRIPTION OF INCIDENT:**

A completely automatic wood fuel burner was shut down in order to replace a sight glass in the primary chamber port hole. During the restart, the foreman noted that the carousel that agitates the fuel in the burn chamber was not rotating correctly. The entrance door was unbolted and opened. The far counterweight, approximately 12 feet (3.7 m) into the chamber, was off. Two maintenance men obtained a replacement weight, but were told by the maintenance supervisor to let the day shop crew replace the counter weight.

The foreman left to answer the telephone and the two maintenance men decided to replace the counterweight on their own. The burner was still operating and apparently hot ash fell on them. The ash was approximately 12 inches (30.5 cm) deep and had not been wet down prior to their entry. When the foreman returned, the two men were throwing water and attempting to crawl under a faucet. An ambulance was called and the two men were taken to the hospital and immediately transferred to a burn center. One man died two days later of multiple burns; the other was listed in serious condition due to multiple burns.

Both men had been in the chamber previously and were aware of the safe entry procedures.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None



**CASE NUMBER: 28****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT: Lumber Mill****SIC: 2421****ACCIDENT TYPE: Electrocution****DATE OF INCIDENT: 9/2/83****WORK LOCATION: Cutting Area****TIME OF INCIDENT: 1:00 pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	25	Laborer

**DESCRIPTION OF INCIDENT:**

Two employees were making 5/4" (3.2 cm) hard maple tongue and groove boards. The boards were not aligning properly. To try to correct the misalignment, one employee leaned on the planer while touching the 110 volt outlet box on the pole next to the planer.

An electrical shock went through the employee and out the 110 volt box. The shock caused heart fibrillation resulting in cardiac arrhythmia. He turned around and fell at the foot of the pole where the 110 volt outlet was. He apparently became the path with the least resistance to the ground.

On the previous day an employee was shocked. Other employees had also been shocked on previous occasions.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.303 (b) (1)

Electrical equipment was not free from recognized hazards that are likely to cause death or serious physical harm to employees. The planer was not adequately grounded, thereby exposing employees to electrical shock.

1910.304 (f) (4)

The path to the ground was not continuous, thereby exposing employees to electrical shock.

**CASE NUMBER: 29****OPERATING PROCEDURE****TYPE OF****ESTABLISHMENT:** Sawmill**SIC:** 2621**ACCIDENT TYPE:** Cut by Moving  
Saw Blade**DATE OF INCIDENT:** 6/11/81**WORK LOCATION:** Cutting Area**TIME OF INCIDENT:** 9:00 am**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	25	Saw Tailer

**DESCRIPTION OF INCIDENT:**

The relief sawyer had positioned a short log on the back two knees of the carriage. While watching the short log and moving the carriage toward the saw, he ran the front dogs into the saw blade. This sheared off about 90 percent of the teeth of the saw blade, as well as ruining the dogs.

The saw tailer was told to change the blade. The saw power had been shut off. It takes about 5 - 10 minutes to coast down to a stop. The water gun was still operating. The carriage control was not locked. It is assumed that the saw tailer was standing astride the tracks in front of the saw blade. The saw was still coasting as he was loosening the nut which holds the saw guide. The carriage must have been brought forward and pushed him into the slowly turning saw blade. The water gun probably made the area slippery.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (c) (13)

Means were not provided to block chain, or otherwise secure hydraulic system so as to provide safe maintenance. The power source, hydraulic and electrical, was not secured on the water gun located at the sawmill.

1910.265 (e) (2) (iv)

Positive means, while provided, were not enforced to prevent unintended movement of the carriage located at the sawmill.

**CASE NUMBER: 30**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Struck by Safety  
Bumper Block when  
Carriage Hit It**

**DATE OF INCIDENT: 12/28/81**

**WORK LOCATION: Cutting Area**

**TIME OF INCIDENT: 13:30 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	28	Sawyer

**DESCRIPTION OF INCIDENT:**

The trim saw operator was at his work station with his back to the shotgun cylinder of adjacent saw and the bumper block, consisting of a 47 inch by 11.5 inch (29.2 cm) by 15 inch (38.1 cm) block of hardwood.

As the head sawyer was returning the carriage to the rear, in preparation of making the third slab cut, he was applying maximum air pressure of approximately 100 - 110 psi (689.5 - 758.4 kPa) to stop the carriage. The carriage failed to stop. It continued to the rear and struck the bumper block, secured by an 1 inch (2.54 cm) steel cable and "U" bolt clamps. The bumper block was propelled against the trim saw operator's back and fatally injuring him.

Inspection of the cylinder showed that the piston rod in the cylinder had been cracked for a while with only a 0.5 inch (1.3 cm) section holding and being sheared at the time of the incident.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 31**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT: Manufacture of  
Hardwood Lumber**

**SIC: 2421**

**ACCIDENT TYPE: Struck by  
Piston Rod**

**DATE OF INCIDENT: 12/11/81**

**WORK LOCATION: Unknown**

**TIME OF INCIDENT: 7:30 am**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	21	Unknown

**DESCRIPTION OF INCIDENT:**

An employee was struck by the piston rod, which released weight on the log, when a 0.5 inch (1.3 cm) steel pin broke on the 12 inch (30.5 cm) steam cylinder. The employee died of heart failure and hypotension due to a ruptured liver and spleen while he was undergoing surgery.

The steam boiler pressure graphs showed that the steam supplied to the shotgun feed cylinder was constantly between 145 and 155 psi.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 32**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Crushed by Falling  
Cross Bar on Log  
Forklift**

**DATE OF INCIDENT: 2/4/82**

**WORK LOCATION: Operating a Forklift**

**TIME OF INCIDENT: 1:30 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	31	Owner

**DESCRIPTION OF INCIDENT:**

A partner of a sawmill company was operating a log forklift manufactured in the early 1970's and not equipped with a protective cage.

The braces or struts that hold the hydraulic log lift forks fractured just above the operator's head causing the metal cross bar to hit the operator on the back of the head and forcing the operator's head into the steering wheel. He was fatally injured and was pronounced dead on the scene by the coroner.

There were no witnesses. Examination of the machine showed that there had been previous unrepaired brakes on both forks of the lift. This was indicated by rust marks on the ends of the brakes.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 33**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT:** Manufacturer  
Hardwood Lumber

**SIC:** 2621

**ACCIDENT TYPE:** Struck on Head by  
Flying Metal  
Section of Chipper

**DATE OF INCIDENT:** 9/4/79

**WORK LOCATION:** Vicinity of Operating  
Chipper Machine

**TIME OF INCIDENT:** 9:15 am

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	24	Laborer

**DESCRIPTION OF INCIDENT:**

A laborer, who usually works within the mill, was walking outside in the vicinity of the operating chipper machine. A sawyer and an edger operator working inside heard a loud noise and saw a cloud of dust. One went to the main electrical panel and turned off the current. The other went to the chipper to throw off the control switch.

The laborer was found 15 feet (4.6 m) from the chipper lying on the ground. Apparently the laborer had been struck on the head by a section of the chipper's hood consisting of 5/16 inch (.8 cm) steel, when the chipper came apart for an undetermined reason. First aid was rendered by employee. An ambulance transported the laborer to the hospital where he died four hours later.

There were no witnesses. The laborer had been employed by this company for three months.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 34****EQUIPMENT/MATERIAL/FACILITY RELATED****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Struck on Head by  
Portion of Chipper****DATE OF INCIDENT: 9/14/78****WORK LOCATION: Vicinity of Operating  
Chipper Machine at or  
near a Metal Detector****TIME OF INCIDENT: 10:00pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Laborer

**DESCRIPTION OF INCIDENT:**

A laborer was working at or near the metal detector located approximately 10 - 12 feet (3.0 - 3.7 m) away from the operating chipper. The chipper consisted of a 64 inch (1.6 m) disk, which at full speed, revolves at 550-600 rpm. There are six knife blades, each fastened to the disk by a clamp and four bolts. Maintenance men had changed a blade in the afternoon, and had tightened all the blades. The chipper had a metal hood with two parts, one stationary and a hinged portion.

The chipper blew apart and a portion struck the laborer on the head. He sustained fatal injuries and expired at the scene.

Examination of the chipper disclosed a 8 inch by 6 inch (22.9 x 15.3 cm) piece of the hinged portion of the hood had been cut out and a 4 inch (10.2 cm) tip portion of a new knife blade had been broken off. The metal detector was operating correctly.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 35**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Struck by Piece of  
Lumber Kicked Back  
by Gang Edger**

**DATE OF INCIDENT: 6/18/80**

**WORK LOCATION: Cutting Area**

**TIME OF INCIDENT: 1:45 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	28	Edger Operator

**DESCRIPTION OF INCIDENT:**

An employee was operating a gang edger when a piece of lumber kicked back out of the machine. The operator was struck in the shoulder by the lumber and sustained fatal injuries.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None



**CASE NUMBER: 36**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT:** Sawmill and  
Logging

**SIC:** 2421

**ACCIDENT TYPE:** Struck by "Kick Back"  
Lumber from Gang Saw

**DATE OF INCIDENT:** 4/10/81

**WORK LOCATION:** Cutting Area

**TIME OF INCIDENT:** 9:30 am

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Maintenance Man/Sawyer

**DESCRIPTION OF INCIDENT:**

A maintenance man/sawyer had installed a new gang saw the previous day and was testing it by running some "cants" through the 9 blade self-feeding saw. The employee was standing by the controls, located temporarily, at the right peripheral corner of the in-feeding conveyor.

As a tapered "cant" entered the saw, a piece, measuring 5 inches (12.7 cm) wide by one inch (2.5 cm) thick by 4 - 5 feet (1.2 - 1.5 m) long, was hurled backward. The maintenance man was struck in the abdomen and fell over the 38 inch (96.5 cm) high railing behind him to the floor 14 feet (4.3 m) below. An ambulance was called and he was transported to the hospital where he subsequently died five months later of complications.

The kicked back piece of wood had formed to the right of the outside blade and therefore was to the right of the antikickback fingers. The maintenance man had extensive "practical" experience and had installed at least one other gang saw previously.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 37**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT:** Chipping Operation

**SIC:** 2421

**ACCIDENT TYPE:** Struck on Head by  
Falling Hydraulically  
Raised Chipper Snout

**DATE OF INCIDENT:** 1/11/83

**WORK LOCATION:** Vicinity of Chipper  
Machine

**TIME OF INCIDENT:** 9:15 am

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	Chipper Operator

**DESCRIPTION OF INCIDENT:**

The chipper operator and his helper had just completed changing the blade on the chipper machine. The operator dropped a tool into the chipper.

The operator raised the machine snout hydraulically and reached inside to retrieve the tool. The snout fell and struck him on the head. He sustained fatal injuries.

There were no witnesses.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 38**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT:** Sawmill  
(log storage)

**SIC:** 2421

**ACCIDENT TYPE:** Struck on Head by  
Falling Log Loader  
Boom

**DATE OF INCIDENT:** 8/12/78

**WORK LOCATION:** Underneath the  
Boom Section of  
a Wheel Log Loader

**TIME OF INCIDENT:** 9:00 am

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	24	Loader Operator

**DESCRIPTION OF INCIDENT:**

A scaler and a loader operator were performing maintenance work on a wheeled log loader. Apparently, there had been a hydraulic leak. The boom was extended but was not blocked or secured.

The loader operator was directly under the boom fork section when it fell. He sustained fatal fractures of the head.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (c) (13) Employees were working underneath and near the boom section of a wheeled log loader which was fully extended under hydraulic pressure and was not blocked or otherwise secured from falling.

**CASE NUMBER: 39****EQUIPMENT/MATERIAL/FACILITY RELATED****TYPE OF****ESTABLISHMENT:** Lumber Mill**SIC:** 2421**ACCIDENT TYPE:** Struck by Falling  
Load of Lumber**DATE OF INCIDENT:** 1/5/83**WORK LOCATION:** Landing Area of  
Lumber Stacker/  
Unstacker Apparatus**TIME OF INCIDENT:** 3:45 am**AFFECTED WORKER(S):****NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	53	Utility Man

**DESCRIPTION OF INCIDENT:**

A utility man was transferring loads of 4" by 4" by 8 feet (10.2 cm x 10.2 cm by 2.4 m) lumber on small trucks run on tracks, to the hoist area under an unstacker and removing the empty trucks. The unstacker hoists the load approximately 20 feet (6.1 cm) above the floor and unstacks the lumber onto a conveyor. The unstacker has four hoisting cables, one on each corner.

As the unstacker was removing lumber from the stack, a hoist cable broke causing the load to shift and fall on the utility man located on the side of the unstacker removing empty trucks. He was transported to the hospital where he died 4 weeks later.

The utility man had been employed by this company for 14.5 years and had been instructed not to remain in the hoist area while the load was raised.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.265 (c) (26) (viii)

Lower landing area of stacker and unstacker were not guarded by enclosure(s) that prevented entrance to the area(s) or pit below the hoist platform.

**CASE NUMBER: 40****EQUIPMENT/MATERIAL/FACILITY RELATED****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Crushed between  
Forklift Load and  
Railroad Car Roof****DATE OF INCIDENT: 5/23/80****WORK LOCATION: Top of Bundle of  
Posts that were  
Loaded onto a  
Railroad box car****TIME OF INCIDENT: 12:00pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	20	Not Reported

**DESCRIPTION OF INCIDENT:**

Two employees were loading bundles of cedar posts onto a railroad box car. One employee was on top of the load of posts being raised on the forks of a forklift being operated by the other employee.

When the employee yelled to the operator that the bundle was high enough, the operator attempted to arrest the ascent of the forks but the control lever stuck momentarily. The forks continued to rise and the employee's head was crushed between the cedar post and the roof of the box car. He was transported to the hospital and was pronounced dead on arrival.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.178 (p) (1)	A forklift with a defective control was not withdrawn from service until repaired.
1910.178 (e)	Operators were not trained in the safe operation of powered industrial trucks.

**CASE NUMBER: 41**

**EQUIPMENT/MATERIAL/FACILITY RELATED**

**TYPE OF**

**ESTABLISHMENT: Sawmill**

**SIC: 2421**

**ACCIDENT TYPE: Fire Possibly Started  
by Compressor**

**DATE OF INCIDENT: 2/19/80**

**WORK LOCATION: Vicinity of a Band Saw  
on the Second Floor**

**TIME OF INCIDENT: 9:00 pm**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 2**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	19	Unknown
F	M	25	Edger Operator
N	F	00	Janitor

**DESCRIPTION OF INCIDENT:**

Employees had just resumed working after their evening lunch break when smoke was noted coming up from below the twin band saw located on the second floor. The fire apparently had started in the compressor room located on the first floor. The building was wooden frame/metal beam with metal clad exterior, wooden walls, wooden floors and partitions.

Employees obtained fire extinguisher and attempted to use the 1.5 inch (3.8 cm) fire hoses at various locations on the second floor. The water pressure in the standpipe system was such that after an initial 6 - 8 foot spurt no water emerged. The fire department was called and arrived approximately 12 minutes after the first smoke was seen. The outside fire hydrant had to be uncovered as it was beneath 3 feet (.9 m) of sawdust. Water was pumped from a pond on site. The fire continued to burn for 12 hours. A janitor broke her fourth finger as she was obtaining a fire hose. An edger operator and another employee's body were found fatally burned on the second floor near an exit.

The sprinkler system apparently did not work due to a gasoline motor failure. None of the employees were trained in fire fighting, nor were they instructed to leave the burning building. Inspection of the air compressor did not show electrical defects. The wind speed was between 10 - 35 mph (16.1 - 56.3 km/h) at the time of the incident.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.158 (c) (2)

The minimum supply of water for Class II standpipe service was not sufficient to provide 100 gallons (378.5 L) per minute for a period of at least thirty minutes.

**CASE NUMBER: 41 (cont'd)**

1910.309 (b), Section  
430 132 (n) National  
Electrical Code, NFPA  
70.1971 as adopted by  
1910.309 (b)

*Exposed live part(s) or motor(s) and  
controllers operating at 50 volts or  
more were not guarded against accidental  
contact by installation in a room or  
enclosure which is accessible only to  
qualified persons.*

**CASE NUMBER: 42****ENVIRONMENTAL CONDITIONS****TYPE OF****ESTABLISHMENT: Manufacture  
Cross ties****SIC: 2421****ACCIDENT TYPE: Electrocuted while  
Using Arc Welder****DATE OF INCIDENT: 10/1/81****WORK LOCATION: Wet Area under the  
Mill****TIME OF INCIDENT: 2:00 pm****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	00	President

**DESCRIPTION OF INCIDENT:**

The president of the company was preparing to do some welding on the mill, using a 200 ampere arc welder. The stinger lead was plugged into the 180 ampere lug. The machine was turned on and the president picked up the two leads and started to walk to the welding site under the mill.

It is surmised that the president slipped into a water puddle, and struck himself with the stinger thus completing the circuit through himself and into the work lead held in his other hand. An employee, who discovered the victim, administered CPR until the emergency vehicle arrived. The president never revived.

There were no witnesses. The president was wearing sneakers. Inspection of the arc welding machine failed to disclose any defects.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None



**CASE NUMBER: 43****ENVIRONMENTAL CONDITIONS****TYPE OF****ESTABLISHMENT: Sawmill****SIC: 2421****ACCIDENT TYPE: Entwined on  
Rotating Spiked  
Shaft****DATE OF INCIDENT: 11/20/82****WORK LOCATION: Fuel House Platform  
Adjacent to an Open  
Conveyor System****TIME OF INCIDENT: 4:00 am****AFFECTED WORKER(S):****NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	25	Burner Operator

**DESCRIPTION OF INCIDENT:**

A burner operator, working alone, had gone to inspect the fuel feed system of a burner, using wood chips for fuel, which had become jammed. The operator accessed the platform located adjacent to the open conveyor system, which included a 30 foot (9.1 m) long rotating (90 rpm) shaft with 0.75 inch diameter by 10 inches (1.9 x 25.4 cm) long spikes, used to break down the fuel and distribute it evenly onto the drag conveyor. The platform was covered with sawdust and fuel residue that was wet from the rain that occurred during the night.

The operator had positioned himself between the pendant shaft and the fuel house wall. His right foot apparently slipped into the moving conveyor causing his foot to be dragged away from the unit and causing him to fall against the guard chain held by wire to the pendant. The chain broke and his upper torso fell against the rotating spikes and was dragged around into the bottom of the shaft. He was found by the night security person. The operator was declared dead on the scene due to disembowelment.

The operator had worked with this burner for the previous seven months. There were no witnesses.

**STANDARDS CITED RELATED TO THE INCIDENT:**

1910.212 (a) (2) Machine guard(s) were so installed that they offered accident hazards in themselves.

**CASE NUMBER: 44**

**OTHER**

**TYPE OF**

**ESTABLISHMENT: Sawmill/Lumber  
Yard**

**SIC: 2421**

**ACCIDENT TYPE: Fall from Top  
of Truck**

**DATE OF INCIDENT: 9/23/80**

**WORK LOCATION: On Top of a  
Loaded Truck**

**TIME OF INCIDENT: 10:45 am**

**AFFECTED WORKER(S):**

**NO. FATALITIES: 1**

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	66	Truck Driver

**DESCRIPTION OF INCIDENT:**

A truck driver was covering the top of a truck loaded with wood shavings with sliding plywood covers. The covers were 4 feet by 8 feet (1.2 x 2.4 m) square, the truck bed was 8 feet by 25 feet 4 inches (2.4 x 7.7 m), and the top was over 12 feet (3.7 m) above the ground. The truck was parked heading east on the south side of the "Dust House" from which the wood shavings are loaded. The six cover boards are closed using a long iron rod that has a crook in the end.

While pulling one of these boards toward himself, either the crook slipped or the truck driver lost his grip, and fell over backwards, landing on his face, causing a concussion. He was found on the pavement several minutes later. There were no witnesses to the incident.

Rescue personnel were called, but the driver was declared dead approximately two hours later.

**STANDARDS CITED RELATED TO THE INCIDENT:**

None

**CASE NUMBER: 45**

**OTHER**

**TYPE OF**

**ESTABLISHMENT:** Pine Lumber Sawmill

**SIC:** 2421

**ACCIDENT TYPE:** Fall onto Double Chain Conveyor

**DATE OF INCIDENT:** 7/8/83

**WORK LOCATION:** Crossing Conveyor Area while Returning to Boom Operators Platform

**TIME OF INCIDENT:** 3:40 pm

**AFFECTED WORKER(S):**

**NO. FATALITIES:** 1

<u>Injury</u>	<u>Sex</u>	<u>Age</u>	<u>Job Description</u>
F	M	19	Laborer

**DESCRIPTION OF INCIDENT:**

A laborer, who worked on the clump platform pulling rejected logs off the trash conveyor and throwing them onto an adjacent truck for pulpwood, had just been instructed to return to his work area.

It is uncertain as to what path the laborer took in returning to his station. He either utilized the crossover stairway above the conveyor lines or he climbed over the lower conveyors. The laborer was found unconscious lying in the double chain conveyor. The conveyor was turned off; the laborer was removed and transported to the doctor's office. He was then transported to the hospital where he died of massive head trauma two days later.

There were no witnesses. The laborer had been employed with this company for two months.

**STANDARDS CITED RELATED TO THE INCIDENT:**

- 1910.265 (c) (4) (vi) No handrails were provided adjacent to the trash trough in an area used for access to the crossover stairway and the ladderway to the boom operator's platform.
- 1910.265 (c) (5) (ii) Log yard crossover stairway from south side of yard providing access to conveyor operator's booth had no handrail on one of its open sides.
- 1910.265 (g) No head protection was worn near incoming log deck and outfeed trash conveyor (log yard area).

## **Appendices**



## **Appendix A**

### **Classification of Variables Tables**



Appendix A

TABLE I

SAWMILLS

TYPE OF INCIDENT

Type of Incident	Number of Incidents
<b>** Operating Procedure</b>	
Improper/risk taking operation of machinery/equipment.....	4
Failed to shut down and secure equipment before working on..	4
Failure to lockout/prevent unintended start-up of equipment.	3
Accidentally struck controls and activated equipment.....	3
In unassigned location/dangerous body position.....	2
Failure of visual/audible communication.....	2
Careless/lack of caution in feeding stock to machinery.....	2
Inexperienced employee allowed to work alone.....	1
Failure to perform proper maintenance on equipment.....	1
Failure to properly enclose or cover conveyor/anger.....	1
Careless handling of inflammable material.....	1
Failure to turn head saw off before cleaning around it.....	1
Saw allowed to run unattended and unguarded.....	1
Entered areas against instructions not to.....	1
Failure to ground/properly insulate electrical equipment....	1
Failure to allow saw blade to come to a complete stop.....	1
<b>** Operating Procedure Total **</b>	<b>29</b>
<b>** Equipment/Material/Facility Related</b>	
Components of machinery/equipment broke/failed to operate...	3
Chipper components come apart and thrown during operation...	2
Machinery/equipment threw lumber/logs, etc.....	2
Hydraulic leaks/problems caused equipment malfunctioning....	2
Hoist cables, ropes, etc. broke.....	1
Controls on equipment/machinery malfunctioned.....	1
Malfunctioning air compressor created fire.....	1
<b>** Equipment/Material/Facility Total **</b>	<b>12</b>
<b>** Environmental Conditions</b>	
Water created slippery condition/electrical grounding.....	1
Slippery surface from sawdust/residue and rainfall.....	1
<b>** Environmental Conditions Total **</b>	<b>2</b>
<b>** Other</b>	
Cannot be determined.....	2
<b>** Other Total **</b>	<b>2</b>
<b>*** Total ***</b>	<b>45</b>



Appendix A

TABLE II

SAWMILLS

ACCIDENT TYPE

Accident Type	Number of Fatalities
Cut by saws.....	6
Struck by flying wood pieces (inc. kickbacks) during sawing.	6
Struck by objects involving chippers, eg swinging wire ropes	6
Burned by fire, hot objects.....	5
Struck, run-over or crushed by forklift trucks.....	4
Crushed/struck by saw carriage/material in carriage.....	4
Struck by flying, falling parts or sections of chippers.....	3
Electrocutions.....	2
Falls from elevations.....	2
Crushed, struck by parts of debarker, bark shredder.....	2
Crushed, struck by conveyors/parts of conveyors.....	2
Struck by falling lumber, plyboard.....	1
Struck by a piston rod.....	1
Crushed by a chipping saw mechanism.....	1
Entwined on a rotating spiked shaft.....	1
Pinned between bucket loader and bucket power arm.....	1
Crushed by falling crossbar on log lift forklift.....	1
Struck by a steel bar thrown by hog.....	1
Struck by falling log loader boom.....	1
Fall into slab pit and crushed by equipment.....	1
*** Total ***	51

Appendix A

TABLE III

SAWMILLS

WORK ACTIVITY

Work Activity	Number of Fatalities
<b>** Normal Job Activity</b>	
Operating a saw.....	6
Attempting to unclog/unjam a machine/conveyor/duct/chute etc	5
Handling lumber, boards, posts or related materials.....	4
Making repairs/adjustments/other maintenance of equipment...	3
Cleaning/clearing debris from saw/saw blade/other equipment.	2
Removing a jammed log or piece of wood from a saw.....	2
Sitting or standing at a normal work station.....	2
Operating an edger.....	1
Operating a forklift.....	1
Operating a debarker.....	1
Feeding fuel into a screw conveyor.....	1
Burning trash.....	1
Counting bundles of lumber.....	1
Testing equipment including saws.....	1
Inspecting the fuel feed system of a burner.....	1
Retrieving tool from a chipper machine following maintenance	1
Guiding slabs into slab pit.....	1
Preparing to weld.....	1
<b>** Normal Job Activity Total **</b>	<b>35</b>
<b>** Other Than Normal Job Activity</b>	
Returning to work station.....	2
Performed work not assigned to do.....	2
In unauthorized area, taking shortcut.....	1
Operating machinery not assigned or familiar with.....	1
<b>** Other Than Normal Job Activity Total **</b>	<b>6</b>
<b>** Unknown Activity or Not Clear</b>	
Cannot be determined.....	8
Not reported.....	2
<b>** Unknown Activity or Not Clear Total **</b>	<b>10</b>
<b>*** Total ***</b>	<b>51</b>

Appendix A

TABLE IV

SAWMILLS

WORK LOCATION

Work Location	Number of Incidents
Sawing/cutting area.....	18
Vicinity of chipper machine/chipping saw.....	6
In forklift operating area: mill yard, lumber yard, log yard	3
Vicinity of debarker.....	2
Vicinity of conveyor.....	2
Unknown/not reported.....	2
On "I" beams above a conveyor.....	1
Vicinity of a lumber stacker/unstacker apparatus.....	1
On top of a bundle of posts loaded onto a railway box car...	1
In a sawdust/shavings bin.....	1
Vicinity of a bark shredder.....	1
Under the sawmill in the vicinity of water puddles.....	1
Fuel house platform, adjacent to an open conveyor system....	1
Behind a sawmill near a payloader with a loaded bucket.....	1
Between stacked lumber and loaded forklift.....	1
On top of a loaded truck (loaded with wood shavings).....	1
Vicinity of an automatic wood fuel burner.....	1
Underneath the boom section of a wheeled log loader.....	1
 *** Total ***	 45

Appendix A

TABLE V

SAWMILLS  
SUMMARY OF FATALITIES BY TYPES OF ACCIDENTS

<u>ACCIDENT TYPE</u>	<u>NUMBER OF FATALITIES</u>
<u>Struck-by (45%)</u>	
Struck-by thrown wood pieces (including kickbacks) during sawing	6
Struck-by swinging wire ropes involving chippers (attempts to unclog)	6
Struck-by saw carriage/material on carriage	4
Struck-by failing, thrown parts of chippers	3
Struck-by falling lumber	1
Struck-by thrown piston rod	1
Struck-by steel bar thrown by log	1
Struck-by log loader boom	1
TOTAL	23
<u>Crushed-by (caught in, under or between) (16%)</u>	
Crushed-by conveyors/parts of conveyers	2
Crushed/struck-by parts of debarker bark shredder	2
Pinned between bucket loader m/c and the bucket	1
Crushed-by chipping saw mechanism	1
Crushed-by falling crossbar on log lift	1
Entwined on rotating spiked shaft	1
TOTAL	8
<u>Cut-by (12%)</u>	
Cut-by saws	6
TOTAL	6
<u>Burns (10%)</u>	
Burned-by fires, hot objects	5
TOTAL	5
<u>Vehicle Accidents (8%)</u>	
Struck-by run over by forklifts	4
TOTAL	4
<u>Falls (6%)</u>	
Falls from Elevations	2
Falls into slab pit	1
TOTAL	3
<u>Contact with Electrical Current (4%)</u>	
Electrocutions	2
TOTAL	2
 TOTAL FATALITIES (100%)	 51

Appendix A

TABLE VI

NUMBER OF FATALITIES FROM SELECTED  
OSHA CASE FILES RELATED TO SAWMILLS  
BY OCCUPATION

<u>OCCUPATION</u>	<u>NUMBER OF Fatalities</u>
Laborer	9
Unknown	8
Sawyer	7
Edger Operator	3
Debarker Operator	2
Millwright	2
Forklift Operator	1
Swamper	1
Relief Saw Operator	1
Foreman	1
Millwright Helper	1
Bucket Loader Operator	1
Electrician	1
Resaw Tailer	1
Saw Operator	1
Tail Sawyer	1
Scaler	1
Off-Bearer	1
Maintenance Man	1
Saw Tailer	1
Owner	1
Chipper Operator	1
Loader Operator	1
Utility Man	1
President of Company	1
Burner Operator	1
Truck Operator	1
TOTAL	51

## **Appendix B**

**Tables by Incident Type**



Appendix B

TABLE A

SAWMILLS

TYPE OF ACCIDENT  
BY INCIDENT TYPE

Type of Accident	Operating Procedure	Equipment Material Facility	Environmental Conditions	Other	Number of Fatalities
Cut by saws.....	6	0	0	0	6
Struck by objects involving chippers, eg swinging wire ropes	6	0	0	0	6
Burned by fire, hot objects.....	3	2	0	0	5
Struck by flying wood pieces (inc. kickbacks) during sawing.	3	2	0	0	5
Struck, run-over or crushed by forklift trucks.....	3	1	0	0	4
Crushed/struck by saw carriage/material in carriage.....	3	1	0	0	4
Struck by flying, falling parts or sections of chippers.....	0	3	0	0	3
Crushed, struck by parts of debarker, bark shredder.....	2	0	0	0	2
Crushed, struck by conveyors/parts of conveyors.....	2	0	0	0	2
Struck by falling lumber, plywood.....	1	1	0	0	2
Electrocutions.....	1	0	1	0	2
Falls from elevations.....	0	0	0	2	2
Crushed by a chipping saw mechanism.....	1	0	0	0	1
Pinned between bucket loader and bucket power arm.....	1	0	0	0	1
Struck by a steel bar thrown by hog.....	1	0	0	0	1
Fall into slab pit and crushed by equipment.....	1	0	0	0	1
Struck by a piston rod.....	0	1	0	0	1
Crushed by falling crossbar on log lift forklift.....	0	1	0	0	1
Struck by falling log loader boom.....	0	1	0	0	1
Entwined on a rotating spiked shaft.....	0	0	1	0	1
*** Total ***	34	13	2	2	51



Appendix B

TABLE B

SAWMILLS

EMPLOYEE ACTIVITY AT TIME OF INCIDENT  
BY INCIDENT TYPE

Employee Activity	Operating Procedure	Equipment Material Facility	Environmental Conditions	Other	Number of Fatalities
<b>** Normal Job Activity</b>					
Operating a saw.....	5	1	0	0	6
Attempting to unclog/unjam a machine/conveyor/duct/chute etc	5	0	0	0	5
Handling lumber, boards, posts or related materials.....	1	2	0	1	4
Making repairs/adjustments/other maintenance of equipment...	2	1	0	0	3
Cleaning/clearing debris from saw/saw blade/other equipment.	2	0	0	0	2
Removing a jammed log or piece of wood from a saw.....	2	0	0	0	2
Sitting or standing at a normal work station.....	1	1	0	0	2
Operating an edger.....	1	0	0	0	1
Operating a debarker.....	1	0	0	0	1
Feeding fuel into a screw conveyor.....	1	0	0	0	1
Burning trash.....	1	0	0	0	1
Counting bundles of lumber.....	1	0	0	0	1
Guiding slabs into slab pit.....	1	0	0	0	1
Operating a forklift.....	0	1	0	0	1
Testing equipment including saws.....	0	1	0	0	1
Retrieving tool from a chipper machine following maintenance	0	1	0	0	1
Inspecting the fuel feed system of a burner.....	0	0	1	0	1
Preparing to weld.....	0	0	1	0	1
<b>** Normal Job Activity Total **</b> .....	<b>24</b>	<b>8</b>	<b>2</b>	<b>1</b>	<b>35</b>
<b>** Other Than Normal Job Activity</b>					
Performed work not assigned to do.....	2	0	0	0	2
Returning to work station.....	1	0	0	1	2
In unauthorized area, taking shortcut.....	1	0	0	0	1
Operating machinery not assigned or familiar with.....	1	0	0	0	1
<b>** Other Than Normal Job Activity Total **</b> .....	<b>5</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>
<b>** Unknown Activity or Not Clear</b>					
Cannot be determined.....	4	4	0	0	8
Not reported.....	1	1	0	0	2
<b>** Unknown Total **</b> .....	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>10</b>
<b>*** Total ***</b> .....	<b>34</b>	<b>13</b>	<b>2</b>	<b>2</b>	<b>51</b>

Appendix B

TABLE C

SAWMILLS

WORK LOCATION AT TIME OF INCIDENT  
BY INCIDENT TYPE

Work Location	Operating Procedure	Equipment Material Facility	Environmental Conditions	Other	Number of Incidents
Sawing/cutting area.....	14	4	0	0	18
Vicinity of chipper machine/chipping saw.....	3	3	0	0	6
In forklift operating area -mill yard, lumber yard, log yard	2	1	0	0	3
Vicinity of debarker.....	2	0	0	0	2
Unknown/not reported.....	1	1	0	0	2
Vicinity of conveyor.....	1	0	0	1	2
On "I" beams above a conveyor.....	1	0	0	0	1
In a sawdust/shavings bin.....	1	0	0	0	1
Vicinity of a bark shredder.....	1	0	0	0	1
Behind a sawmill near a payloader with a loaded bucket.....	1	0	0	0	1
Between stacked lumber and loaded forklift.....	1	0	0	0	1
Vicinity of an automatic wood fuel burner.....	1	0	0	0	1
Vicinity of a lumber stacker/unstacker apparatus.....	0	1	0	0	1
On top of a bundle of posts loaded onto a railway box car...	0	1	0	0	1
Underneath the boom section of a wheeled log loader.....	0	1	0	0	1
Under the sawmill in the vicinity of water puddles.....	0	0	1	0	1
Fuel house platform, adjacent to an open conveyor system....	0	0	1	0	1
On top of a loaded truck (loaded with wood shavings).....	0	0	0	1	1
*** Total ***	29	12	2	2	45



## **Appendix C**

### **Standards Cited**



Appendix C

TABLE I

SAWMILLS  
FREQUENCY OF STANDARDS CITED

<u>Standards Cited Related to Incident</u>	<u>Description</u>	<u>Number of Times Cited</u>
1910.23 (c) (1)	Guarding of open sided platform or floor 4 feet or more above adjacent floor or ground.	1
1910.145 (f) (1) (i)	Accident prevention tags to identify hazardous conditions.	1
1910.158 (c) (2)	Location of hose outlets and connections to avoid obstruction and to be accessible to employees.	1
1910.178 (c) (7)	No working horn was in place and the emergency brake did not prevent movement of the vehicle when it was engaged.	1
1910.178 (e)	Provision for overhead guard on industrial trucks.	1
1910.178 (l)	Only trained and authorized operators permitted to operate industrial trucks.	1
1910.178 (m) (5) (iii)	When dismounted operator of industrial truck is within 25', the load shall be fully lowered, controls neutralized and brakes set to prevent movement.	1
1910.178 (p) (1)	Industrial trucks in need of repair, defective, etc. shall be taken out of service until made safe to operate.	1
1910.212 (a) (1)	One or more methods of machine guarding shall be provided to protect employees from ingoing nip points, operating parts, etc.	2

<u>Standards Cited Related to Incident</u>	<u>Description</u>	<u>Number of Times Cited</u>
1910.212 (a) (2)	General requirements for machine guarding.	1
1910.212 (a) (3) (ii)	Point of operation exposing employee to injury of machine shall be guarded.	1
1910.265 (c) (3) (i)	All floor and wall opening shall be protected as prescribed in 1910.23	2
1910.265 (c) (3) (iv)	Exposure of employees to slipping and tripping hazards around machines in the work area.	1
1910.265 (c) (4) (vi)	Where required, walkways and stairways shall be provided with standard handrails in elevated and hazardous locations.	1
1910.265 (c) (5) (ii)	Stairways shall be provided with standard handrails.	1
1915.265 (c) (13)	Means provided to block, chain or otherwise secure hydraulically supported equipment for safe maintenance.	2
1910.265 (c) (20) (iii)	The exhaust system was not designed, located and adjusted to require maximum amount of refuse at the off-bearer location and at the end of the blower pipe.	2
1910.265 (c) (22)	Construction, operation and maintenance of all power transmission apparatus shall be in accordance with 1910.219.	1
1910.265 (c) (26) (viii)	Guarding lower landing area of stackers and unstackers requirements.	1
1910.265 (c) (27) (v)	Requirements for sticker placement and alignment for unit packages of lumber.	1
1910.265 (c) (30) (ii)	All vehicle shall be equipped with audible warning signals.	1

<u>Standards Cited Related to Incident</u>	<u>Description</u>	<u>Number of Times Cited</u>
1910.265 (c) (30) (x)	Lift trucks shall be designed, constructed, maintained and operated in accordance with the requirements of 1910.178.	3
1910.265 (e) (1) (iv)	A positive means shall be provided to prevent unintended movement of the log carriage.	1
1910.265 (e) (1) (v)	Barriers and warning signs to prevent entering into space necessary for travel of the log carriage.	1
1910.265 (e) (2) (iv)	Twin circular head saws: meet specifications for single circular head saws.	1
1910.265 (e) (5) (ii) (a)	Guarding of edgers: top and the openings in end and the side frames.	1
1910.265 (e) (5) (iii) (a)	Edgers shall be provided with gears and chains fully housed safety fingers to prevent or guard against kickbacks.	1
1910.265 (g)	Personal protection equipment requirements; head protection.	1
1910.303 (b) (1)	Examination of electrical equipment and safety requirements to prevent recognized hazards.	1
1910.304 (f) (4)	The path to the ground from circuits, equipment and enclosures shall be permanent and continuous.	1
1910.309 (b)	Adoption of the National Electrical Code. Section 430 132 (n), NFPA 70.1971	1
Section 5 (a) (1)	General Duty Clause, OSH Act	4
TOTAL VIOLATIONS		41

(No relevant standards were cited in 23 of the 45 incidents.)





## **Appendix D**

### **Definitions**



## Appendix D

### DEFINITIONS

#### I. GLOSSARY OF SAWMILL TERMS

The following terms are found in the Occupational Safety and Health Administration, General Industry, OSHA Safety and Health Standards (29 CFR 1910.265), U.S. Department of Labor, March 1983. P.511-513.

A-frame: The term "A-frame" means a structure made of two independent columns fastened together at the top and separated at the bottom for stability.

Annealing: The term "annealing" means heating then cooling to soften and render less brittle.

Binder: The term "binder" means a chain, cable, rope, or other approved material used for binding loads.

Boom: The term "boom" means logs or timbers fastened together end to end and used to contain floating logs. The term includes enclosed logs.

Brow log: The term "brow log" means a log placed parallel to a roadway at a landing or dump to protect vehicles while loading or unloading.

Bunk: The term "bunk" means a cross support for a load.

Cant: The term "cant" means a log slabbed on one or more sides.

Cant hook: Stout wooden lever used for rolling logs; tip is fitted with a curved metal hook.

Carriage (log carriage): The term "carriage" means a framework mounted on wheels which runs on tracks or in grooves in a direction parallel to the face of the saw, and which contains apparatus to hold a log securely and advance it towards the saw.

Carrier: The term "carrier" means an industrial truck so designed and constructed that it straddles the load to be transported with mechanisms to pick up the load and support it during transportation.

Chipper: The term "chipper" means a machine which cuts material into chips.

Chock (bunk block) (cheese block): The terms "chock", "bunk block" and "cheese block" mean a wedge that prevents logs or loads from moving.

Cold deck: The term "cold deck" means a pile of logs stored for future removal.

Crotch lines: The term "crotch lines" means two short lines attached to a hoisting line by a ring or shackle, the lower ends being attached to loading hooks.

Dog (carriage dog): The term "dog" means a steel tooth, one or more of which are attached to each carriage knee to hold log firmly in place on carriage.

Drag saw: The term "drag saw" means a power-driven, reciprocating cross cut saw mounted on a suitable frame and used for bucking logs.

Fitch: A longitudinal section of a log.

Head block: The term "head block" means that part of a carriage which holds the log and upon which it rests. It generally consists of base, knee, taper set, and mechanism.

Head rig: The term "head block" means a combination of head saw and log carriage used for the initial breakdown of logs into timbers, cants and boards.

Hog: The term "hog" means a machine for cutting or grinding slabs and other coarse residue from the mill.

Husk: The term "husk" means a head saw framework on a circular mill.

Industrial truck: The term "industrial truck" means a mobile power-driven truck or tractor.

Kiln tender: The term "kiln tender" means the operator of a kiln.

Lift truck: The term lift truck means an industrial truck used for lateral transportation and equipped with a power-operated lifting device, usually in the form of forks, for piling or unpling lumber units or package.

Live rolls: The term "live rolls" means cylinders of wood or metal mounted on horizontal axes and rotated by power, which are used to convey slabs, lumber, and other wood products.

Loading boom: The term "loading boom" means any structure projecting from a pivot point to guide a log when lifted.

Log deck: The term "log deck" means a platform in the sawmill on which the logs remain until needed for sawing.

Lumber hauling truck: The term "lumber hauling truck" means an industrial truck, other than a lift truck or a carrier, used for the transport of lumber.

Log haul: The term "log haul" means a conveyor for transferring logs to mill.

Package: The term "package" means a unit of lumber.

Peavy: The term "peavy" means a stout wooden handle fitted with a spike and hook and used for rolling logs.

Pike pole: The term "pike pole" means a long pole whose end is shod with a sharp pointed spike.

Pitman rod: The term "pitman rod" means connecting rod.

Resaw: The term "resaw" means band, circular or sash gang saws used to break down slabs, cants or flitches into lumber.

Running line: The term "running line" means any moving rope as distinguished from a stationary rope such as a guyline.

Safety factor: The term "safety factor" means a calculated reduction factor which may be applied to laboratory test values to obtain safe working stresses for wooden beams and other mechanical members; ratio of breaking load to safe load.

Saw guide: The term "saw guide" means a device for steadying a circular or band saw.

Setwork: The term "setwork" means a mechanism on a sawmill carriage which enables an operator to move the log into position for another cut.

Sorting gaps: The term "sorting gaps" means the areas on a log pond enclosed by boom sticks into which logs are sorted.

Spreader wheel: The term "spreader wheel" means a metal wheel that separates the board from the log in the back of circular saws to prevent binding.

Splitter: The term "splitter" means a knife-type, nonrotating spreader.

Sticker: The term "sticker" means a strip of wood or other material used to separate layers of lumber.

Stiff boom: The term "stiff boom" means the anchored, stationary boom sticks which are tied together and on which boom men work.

Swifter: The term "swifter" is a means of tying boom sticks together to prevent them from spreading while being towed.

Telltale: The term "telltale" means a device used to serve as a warning for overhead objects.

Top saw: The term "top saw" means the upper of two circular saws on a head rig, both being on the same husk.

Tramway: The term "tramway" means a way for trams, usually consisting of parallel tracks laid on wooden beams.

Trestle: The term "trestle" means a braced framework of timber, piles or steelwork for carrying a road or railroad over a depression.

## II. TYPE OF INCIDENT

### Operating Procedure

These are incidents that resulted from the employee or employer not following designated work and safety procedures or there were no procedures available. These include safe guarding the work area, the use of appropriate personal protective equipment and all work activities under the control of the worker and supervision.

### Equipment/Material/Facility Related

These are incidents that resulted from malfunctioning of equipment, failure of component parts, collapse of structures, and exposure to hazardous materials being used or produced. In brief, these are interactions of physical conditions in the facility with human and non-human activities.

### Environmental Conditions

Environmental conditions relate to extreme weather conditions which played a primary part in triggering the incident.

### Other

These are incidents that do not meet the proceeding definitions, and cannot be specifically assigned to operating procedures, equipment/material/facility related factors or environmental conditions.



### III. FACTORS RELATED TO FATAL INCIDENT

#### Human Related Factors

These are factors that can be directly associated with what the involved worker, other worker(s) or the employer did or failed to do that caused the incident. For example, improper or dangerous work procedures were used, safety procedures were not followed or personal protective equipment was not worn when required. Included is any work activity or procedure under the direct control of the worker, fellow worker(s) and employer.

#### Equipment/Material/Facility Related Factors

These factors deal with the physical aspects of the workplace and the interaction between these and the worker.

#### Environmental Factors

These factors relate to extreme or unplanned environmental conditions in the workplace which strongly and adversely affect the working conditions. High winds, icy surfaces, the sudden presence of hazardous gases, etc., are examples.

#### Other Factors

These are factors that cannot be assigned to the other three categories.

## **Appendix E**

### **Forms**



Fatality/Catastrophe Report

Fatality/Catastrophe Report

U.S. Department of Labor  
Occupational Safety and Health Administration



MOD	Date	1. Reporting ID	2. Previous Activity? If Yes enter Type Number <input type="checkbox"/> Yes <input type="checkbox"/> No		3. Event Number (Identifies this Report)	360512164	
4. a <input type="checkbox"/> Change? b Establishment Name				5. Employer ID (State's option)			
6. a <input type="checkbox"/> Change? b Site Address (Street City State ZIP)				7. City Code	8. County Code		
9. Event Address (if different) (Street City State ZIP)							
Industry & Ownership	10. Type of Business				11. Primary SIC	12. No. of Employees	
	13. Ownership (Mark X in one box) a <input type="checkbox"/> Private Sector b <input type="checkbox"/> Local Government c <input type="checkbox"/> State Government d <input type="checkbox"/> Federal Agency/Code						
Receipt Information	14. Reported By				15. Date	16. Time AM PM	
	17. Job Title				18. Telephone Number		
Employee Representation	19. Group Name(s)						
Site Contact	20. Name and Location						
	21. Job Title				22. Telephone Number		
Classification	23. (Mark X in one box) a <input type="checkbox"/> Fatality b <input type="checkbox"/> Catastrophe						
Event Description	24. Event Date	25. Event Time AM PM	26. Number of Fatalities	27. Number of Hospitalized Injuries	28. Number of Nonhospitalized Injuries	29. Number Unaccounted for	
	30. Type of Event (e.g. Fall from scaffold)						
	31. Preliminary Description						
Action	32. Inspection Planned? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, Reason			33. Supervisor(s) Assigned a b		34. CSHO(s) Assigned a b	
	35. Optional Information						
Type	ID	Value		Type	ID	Value	
							36. Total Entries
37. Comments							

Fatality/Catastrophe Report

Investigation Summary

U.S. Department of Labor  
Occupational Safety and Health Administration



MOD Date		1. Reporting ID				2. Summary Number (Identifies This Summary) ▶ 14206924		4. Total Entries							
3. Related Inspection Numbers	3.1		3.2		3.3		3.4								
	Type	Number	Type	Number	Type	Number	Type	Number							
5. Injured/Deceased (Name)	6. Inspection Number (3, 1, 3, 2 etc.)	7. Sex	8. Age	9. Injury		10. Nature of Injury	11. Part of Body	12. Source of Injury	13. Event Type	14. Environmental Factor	15. Human Factor	16. Task		17. Substance Code	18. Occupation Code
				a	b							c	d		
				Mark <input type="checkbox"/> a only one box						Mark <input type="checkbox"/> a only one box					
Name Line Number															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
19. Type of Event															
20. Abstract															
Abstract Line Number															
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Case File Page / of

OSHA-170 (1/84)

CASE FILE COPY

## Appendix E

### Investigation Summary Codes

#### III CODES

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

#### INVESTIGATION SUMMARY CODES

##### NATURE OF INJURY CODES

01 Amputation	12 Fracture
02 Asphyxia	13 Freezing Frost/Bite
03 Bruise/Contusion/Abrasion	14 Hearing Loss
04 Burn (Chemical)	15 Heat Exhaustion
05 Burn/Scald (Heat)	16 Hernia
06 Concussion	17 Poisoning (Systemic)
07 Cut/Laceration	18 Puncture
08 Dermatitis	19 Radiation Effects
09 Dislocation	20 Strain/Sprain
10 Electric Shock	21 Other
11 Foreign Body in Eye	22 Cancer

## Appendix E

### Part of Body Codes

#### III CODES (cont'd)

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

#### PART OF BODY CODES

01 Abdomen	17 Lower Arm(s)
02 Arm(s) Multiple	18 Lower Leg(s)
03 Back	19 Multiple
04 Body System	20 Neck
05 Chest	21 Shoulder
06 Ear(s)	22 Upper Arm(s)
07 Elbow(s)	23 Upper Leg(s)
08 Eye(s)	24 Wrist(s)
09 Face	25 Blood
10 Finger(s)	26 Kidney
11 Foot/Feet/Toe(s)Ankle(s)	27 Liver
12 Hand(s)	28 Lung
13 Head	29 Nervous System
14 Hip(s)	30 Reproductive System
15 Knee(s)	31 Other Body System
16 Leg(s)	

## Appendix E

### Source of Injury Codes

#### III CODES (cont'd)

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

#### SOURCE OF INJURY CODES

01 Aircraft	24 Hoisting Apparatus
02 Air Pressure	25 Ladder
03 Animal/Insect/Bird/ Reptile/Fish	26 Machine
04 Boat	27 Materials Handling Equipment
05 Bodily Motion	28 Metal Products
06 Boiler/Pressure	29 Motor Vehicle (Highway)
07 Boxes/Barrels, etc.	30 Motor Vehicle (Industrial)
08 Buildings/Structures	31 Motorcycle
09 Chemical Liquids/Vapors	32 Windstorm/Lighting, etc.
10 Cleaning Compound	33 Firearm
11 Cold (Environmental/ Mechanical)	34 Person
12 Dirt/Sand/Stone	35 Petroleum Products
13 Drugs/Alcohol	36 Pump/Prime Mower
14 Dust/Particles/Chips	37 Radiation
15 Electrical Apparatus/ Wiring	38 Train/Railroad Equipment
16 Fire/Smoke	39 Vegetation
17 Food	40 Waste Products
18 Furniture/Furnishings	41 Water
19 Gases	42 Working Surface
20 Glass	43 Other
21 Hand Tool (Powered)	44 Fume
22 Hand Tool (Manual)	45 Mists
23 Heat (Environmental) Mechanical)	46 Vibration
	47 Noise
	48 Biological Agent



**Appendix E**  
**Event Type Codes**

III CODES (cont'd)

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

EVENT TYPE CODES

- |                          |  |
|--------------------------|--|
| 01 Struck By             | 09 Ingestion                                       |
| 02 Caught In or Between  | 10 Absorption                                      |
| 03 Bite/Sting/Scratch    | 11 Repeated Motion/Pressure                        |
| 04 Fall (Same Level)     | 12 Cardio-Vascular/Respira-<br>tory System Failure |
| 05 Fall (From Elevation) | 13 Shock   |
| 06 Struck Against        | 14 Other   |
| 07 Rubbed/Abraded        |  |
| 08 Inhalation            |  |

Appendix E  
Environmental Factor Codes

III CODES (cont'd)

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

ENVIRONMENTAL FACTOR CODES

- 01 Pinch Point Action
- 02 Catch Point/Puncture Action
- 03 Shear Point Action
- 04 Squeeze Point Action
- 05 Flying Object Action
- 06 Overhead Moving and/or Falling Object Action
- 07 Gas/Vapor/Mist/Fume/Smoke/Dust Condition
- 08 Materials Handling Equipment/Method
- 09 Chemical Action/Reaction Exposure
- 10 Flammable Liquid/Solid Exposure
- 11 Temperature Above or Below Tolerance Level
- 12 Radiation Condition
- 13 Working Surface/Facility Layout Condition
- 14 Illumination
- 15 Overpressure/Underpressure Condition
- 16 Sound Level
- 17 Weather/Earthquake, etc. Condition
- 18 Other

**Appendix E**  
**Human Factor Codes**

III CODES (cont'd)

OSHA Instruction ADM 1-1. 12A  
April 1, 1984  
Office of Management Data Systems

HUMAN FACTOR CODES

- 01 Misjudgement of Hazardous Situation
- 04 Malfunction of Procedure for Securing Operation  
or Warning of Hazardous Situation
- 05 Distracting Actions by Others
- 06 Equipment in Use Not Appropriate for Operation  
or Process
- 07 Malfunction of Neuro-Muscular System
- 08 Malfunction of Perception System with Respect to  
Task Environment
- 09 Safety Devices Removed or Inoperative
- 10 Operational Position Not Appropriate for Task
- 11 Procedure for Handling Materials Not Appropriate  
for Task
- 12 Defective Equipment: Knowingly Used
- 13 Malfunction of Procedure for Lock-Out or Tag-Out
- 14 Other
- 15 Insufficient or Lack of Housekeeping Program
- 16 Insufficient or Lack of Exposure or Biological  
Monitoring
- 17 Insufficient or Lack of Engineering Controls
- 18 Insufficient or Lack of Written Work Practices  
Program
- 19 Insufficient or Lack of Respiratory Protection
- 20 Insufficient or Lack of Protection Work Clothing  
and Equipment

## **Appendix F**

**1992-1994 Case Abstracts**



Appendix F

The following forty four (44) case abstracts are from the sawmill abstract recorded on the OSHA 170 form by the investigating compliance officer. These abstracts are for the time period from January 1992 through July 1994, for all states (Federally covered and State Plan States).

Activity No: 018511139 SIC: 2421 Open Date: 1/13/92 UNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170072102 DATE: 1-11-92

DESCRIP: CAUGHT IN ROTATING SPROCKET

ABSTRACT: WHILE PERFORMING PREVENTIVE MAINTENANCE (OILING MACHINERY/EQUIPMENT) EMPLOYEE WAS KILLED BY BEING CAUGHT IN A ROTATING SPROCKET. THE SPROCKET APPARENTLY CAUGHT THE COAT THE VICTIM WAS WEARING AND PULLED THE BODY INTO THE MACHINERY

VICTIM: 1 AGE: 43 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : ASPHYXIA ENVIR FACTOR: WORK-SURFACE/FACIL-  
LAYOUT COND  
INJ SOURCE : MACHINE HUMAN FACTOR: POSITION INAPROPRIATE  
FOR TASK  
PART-OF-BODY: BODYSYSTEM HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 108290198 SIC: 2421 Open Date: 2/07/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 14209191 DATE: 2-07-92

DESCRIP:HEAD INJURY

ABSTRACT: ON FEBRUARY 7,1992 AT ABOUT 8:30 AM EMPLOYEE #1 RECEIVED FATAL INJURIES WHEN HIS HEAD WAS CAUGHT BETWEEN A BACKHOE BUCKET AND A CONVEYOR HOUSING. EVIDENCE INDICATES THE VICTIM HAD ATTACHED A CHAIN TO A CONVEYOR TAIL SPOOL FOR REMOVAL. AS THE TAIL SPOOL WAS BEING LIFTED BY THE BACKHOE IT HUNG UP. THE VICTIM APPARENTLY SHOOK THE TAIL SPOOL TO FREE IT AT WHICH TIME

IT BROKE LOOSE ALLOWING THE BACKHOE BOOM TO BOUNCE SIDE TO SIDE. THE VICTIM'S HEAD WAS STRUCK BY THE SIDE OF THE BUCKET, KNOCKING HIS HEAD AGAINST THE CORNER OF THE CONVEYOR HOUSING. THE VICTIM WAS WEARING A PLASTIC HARD HAT WHICH WAS SPLIT FROM THE IMPACT.

VICTIM: 001      AGE: 36      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : FRACTURE      ENVIR FACTOR: SQUEEZE POINT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: POSITION INAPROPRIATE  
FOR TASK  
PART-OF-BODY: HEAD      HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 108284944    SIC: 2421    Open Date: 2/11/92    NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY #      793224      DATE: 2-11-92

DESCRIP: CAUGHT BETWEEN STATIONARY BEAM AND MOVING MACHINE PART

ABSTRACT: ON FEBRUARY 11, 1992 AT 9 AM EMPLOYEE 1 SUFFERED FATAL HEAD INJURIES WHEN HE WAS CAUGHT BETWEEN A ROTATING ARM ON THE LUMBER STACKER AND VERTICAL 'I' BEAM. HE WAS THE LUMBER STACKER OPERATOR AND WAS INJURED WHILE IN THE AREA BELOW THE MACHINE. HE HAD STOPPED THE STACKER BECAUSE OF AN INTERRUPTION IN THE FLOW OF LUMBER FROM THE SORTER. HE AND A STICKERMAN HAD LEFT THE STACKER AND GONE TO ASSIST TWO OTHER WORKERS. A SECOND STICKERMAN AND RELIEF STACKER OPERATOR REMAINED AT THE STACKER CONTROLS TO OPERATE THE LUMBER TRANSFER CHAINS. WHEN THE PROBLEM WAS CORRECTED, EMPLOYEE 1 DID NOT RETURN TO HIS OPERATING POSITION AND THE RELIEF OPERATOR/STICKERMAN STARTED THE MACHINE. THE STACKER COMPLETED A PARTIAL CYCLE AND STOPPED AND IN THE COURSE OF INVESTIGATING THIS MALFUNCTION, THE CO-WORKERS DISCOVERED THAT EMPLOYEE 1 WAS CAUGHT IN THE MACHINE.

VICTIM: 001      AGE: 54      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : FRACTURE      ENVIR FACTOR: PINCH POINT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: HEAD      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 109362046 SIC: 2421 Open Date: 2/19/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 14330567 DATE: 2-18-92

DESCRIP:WOOD CHIPPER DESTRUCTED, BLEW APART, STRUCK OPERATOR

ABSTRACT: EMPLOYEE HAD STARTED WOOD CHIPPER, HEARD CLICKING NOISE, OBSERVED CHIPPER (SHORT TIME APPROXIMATELY 30 SECONDS) INTERNAL PROBLEMS CAUSED DAMAGED TO ONE KNIFE AND PADDLES. PADDLES SHEARED THE MOUNTING BOLTS AND BLEW UPPER HOUSING OFF OF THE MACHINE. METAL PARTS STRUCK EMPLOYEE RESULTING IN FATAL HEAD INJURIES. EMPLOYEE (VICTIM) WAS 3' TO 5' FROM THE MORBARK, MODEL 58, CHIPPER.

VICTIM: 001 AGE: 38 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : STRUCK BY  
INJ NATURE : BRUISE/CONTUS/ABRAS ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE : MACHINE HUMAN FACTOR: OTHER  
PART-OF-BODY: HEAD HAZ SUBSTNCE: NO SUBSTANCE

Activity No: 111388419 SIC: 2429 Open Date: 3/04/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170238042 DATE: 3-03-92

DESCRIP:STRUCK BY LOG FALLING OFF OF LOADED LOG TRUCK

ABSTRACT: EMPLOYEE #1 WAS WAITING TO HAVE HIS TRUCK UNLOADED AT THE LUMBER CO. AS HE WAITED FOR THE LOG STACKER, HE RELEASED HIS THIRD BINDER FROM THE LOAD OF LOGS (THE OTHER TWO HAD ALREADY BEEN PULLED) BEFORE THE LOAD WAS SECURED. A LOG ON TOP OF THE LOAD ROLLED FREE. FALLING 6 FEET BEFORE STRIKING HIM, AS HE STOOD ALONG SIDE OF THE LOAD. THE LOG, WHICH WAS 7 INCHES IN DIAMETER, FIRST HIT HIM IN THE HEAD, THEN CAME DOWN ON HIS MID SECTION AND THEN CAME TO REST ON HIS LEG. THE EMPLOYEE WAS NOT WEARING A HARD HAT, NOR SHOULD HE HAVE PULLED HIS BINDERS.

VICTIM: 001 AGE: 48 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : STRUCK BY  
INJ NATURE : FRACTURE ENVIR FACTOR: OVERHEAD MOVING/FALLING OBJ AC  
INJ SOURCE : OTHER HUMAN FACTOR: SAFETY DEVICES REMOVED/INOPER.  
PART-OF-BODY: ABDOMEN HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED



\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170248033 DATE: 3-04-92

DESCRIP: CAUGHT BETWEEN CONVEYOR BELT AND SHEAR PLATE

ABSTRACT: ON 3-4-92 AT 1800 HRS EMPLOYEE 1 WAS TRYING TO CLEAR A LUMBER JAM ON THE ROLL CASE BELOW THE EAST TRANSFER TABLE, EMPLOYEE 1 FELL OR WAS KNOCKED ONTO WEST TRANSFER BELT (CONVEYOR) AND WAS CARRIED UP THE BELT APPROXIMATELY 100' ON HIS BACK HEAD FIRST. EMPLOYEE 1 SAT UP OR RAISED HIS HEAD AT THE SHEAR PLATE AND WAS FATALLY INJURED. THE ROLL CASE WAS NOT SHUT DOWN AND LOCKED OUT.

VICTIM: 001 AGE: 23 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE: ASPHYXIA ENVIR FACTOR: MATERIALS HANDLG  
EQUIP./METHOD  
INJ SOURCE: MATERIALS HANDLG HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: MULTIPLE HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170121214 DATE: 3-11-92

DESCRIP: EMPLOYEE STRUCK IN ABDOMEN BY BLUNT END OF 1" X 6" (2.5 cm x 15.2 cm)

ABSTRACT: EMPLOYEE ONE WAS OPERATING THE BULL EDGER IN A SAW MILL. TWO OTHER EMPLOYEES WERE GRADING AND SEPARATING LUMBER ON THE "GREEN CHAIN". THE MILL WAS SAWING WHITE OAK AT THE TIME OF THE ACCIDENT. AS THE VOLUME OF LUMBER COMING THROUGH THE EDGER INCREASED, THE MEN ON THE GREEN CHAIN COULD NOT KEEP UP AND BECAME FRUSTRATED. ONE OF THE EMPLOYEES WALKED AWAY FROM THE AREA; THE OTHER PICKED UP A 1" X 6" (2.5 cm x 15.2 cm) BOARD AND THREW IT DOWN ACROSS THE TABLE. AT THAT INSTANT A CANT WAS IN THE EDGER BEING SAWED; THE THROWN BOARD ENTERED THE EDGER AT REAR OR EXIT END WITH THE PRESSURE FEED ROLLS IN THE UP POSITION. THE SAWS IN THE EDGER CAUGHT THE BOARD AND PROPELLED IT THROUGH THE EDGER ON TOP OF THE CANT. THE ANTI KICKBACK FINGERS WERE ALSO

WORN, TOO SHORT AND IMPROPERLY SPACED. THE BOARD WAS EJECTED FROM THE EDGER AND HIT EMPLOYEE ONE IN THE ABDOMEN. HE LATER DIED FROM INTERNAL BLEEDING AS A RESULT OF A BLUNT TRAUMA TO THE ABDOMEN.

VICTIM: 001      AGE: 28      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : OTHER      ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: SAFETY DEVICES  
REMOVED/INOPER.  
PART-OF-BODY: ABDOMEN      HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 109694018      SIC: 2421      Open Date: 3/18/92      NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY #      604819      DATE: 3-02-92

DESCRIP: CAUGHT IN CONVEYOR SNUB ROLLER

ABSTRACT: ON MARCH 2, 1992 AT 11:45 AM, EMPLOYEE #1 HAD CRAWLED UNDER THE HEAD SECTION OF A CHIP CONVEYORS TO REMOVE SOME WOOD STRIPS FROM A HOPPER. EMPLOYEE #1 PULLED A STRIP FROM THE HOPPER BUT IT GOT CAUGHT BETWEEN THE BELT AND SNUBROLLER PULLING EMPLOYEE #1 ARMS INTO PINCH POINT. EMPLOYEE #1 DIED ON 3/16/92 FROM MULTIPLE FRACTURES AND LACERATIONS.

VICTIM: 001      AGE: 53      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR  
BETWEEN  
INJ NATURE : BRUISE/CONTUS/ABRAS      ENVIR FACTOR: PINCH POINT  
ACTION  
INJ SOURCE : MATERIALS HANDLG EQ.      HUMAN FACTOR: MISJUDGMENT,  
HAZ. SIT  
PART-OF-BODY: MULTIPLE      HAZ SUBSTNCE: NO SUBSTANCE

Activity No: 115937435      SIC: 2421      Open Date: 3/20/92      NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY #      784413      DATE: 3-19-92

DESCRIP: CUT BY HEADSAW

ABSTRACT: ON 3/19/92 AT 2:30 P.M., THE VICTIM ATTEMPTED TO TAKE A SHORT CUT TO THE OTHER SIDE OF THE HEADSAW BY GOING BETWEEN THE CARRIAGE AND SAW BLADE. THE BLADE WAS ROTATING BUT THE CARRIAGE



Activity No: 017522756 SIC: 2421 Open Date: 4/30/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 937151 DATE: 4-27-92

DESCRIP: STRUCK HEAD AGAINST MACHINE

ABSTRACT: A SAWMILL LABORER WAS CLEANING SAW DUST FROM CHIPPER ROOM IN SAWMILL. HE WAS USING A BROOM TO MOVE SAWDUST OUT SIDE DOOR WHEN HE MISJUDGED HIS LOCATION AND STRUCK HIS HEAD ON THE SHAKER TABLE TO THE CHIPPER (A VIBRATING TABLE TO SIFT CHIPS THAT NEED TO BE RECHIPPED). THE HEAD HIT CAUSED A HEADACHE WHICH EMPLOYEE HAD CHECKED AT LOCAL HOSPITAL ON WEEKEND AND WAS DIAGNOSED AS A CONCUSSION. EMPLOYEE SPENT 3 WKS ON WORKERS' COMP., THEN RETURNED TO WORK FOR 1 WK 1 DAY BEFORE BEING ADMITTED AGAIN TO HOSPITAL. EMPLOYEE DIED 48 HRS. AFTER HOSPITAL ADMISSION. EMPLOYEE WAS NOT WEARING HARDHAT AT TIME OF INITIAL INJURY.

VICTIM: 1 AGE: 30 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : STRUCK AGAINST  
INJ NATURE : OTHER ENVIR FACTOR: WORK-SURFACE/  
FACIL-LAYOUT COND  
INJ SOURCE : BODILY MOTION HUMAN FACTOR: MISJUDGMENT, HAZ.  
SITUATION  
PART-OF-BODY: HEAD HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 111136495 SIC: 2421 Open Date: 5/07/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170063523 DATE: 5-07-92

DESCRIP: CAUGHT IN SQUEEZE POINTS OF HYDRAULIC EQUIPMENT

ABSTRACT: ON THE MORNING OF 5-7-92 AT 8:30 AM. AN EMPLOYEE OF A LUMBER COMPANY, WAS IN THE PROCESS OF ADJUSTING PARTS ON A MORBACK FM.16 DEBARKER. HE HAD CRAWLED UP UNDER THE RAISED TOP YOKE FEED ROLLER TO MAKE AN ADJUSTMENT WHEN THE TOP YOKE FEED ROLLER WHICH WAS LEAKING DOWN CAUGHT HIS HEAD BETWEEN A STOP PIN AND STOP BRACKET. THE STOP PIN PENETRATED HIS NECK AND HEAD. THE EMPLOYEE HAD NOT BLOCKED THE TOP YOKE FEED ROLLER TO PREVENT IT FROM COMING DOWN.





Activity No: 018309757 SIC: 2426 Open Date: 8/03/92 UNION

\*\*\* ACCIDENT DATA \*\*\*

SUMMARY # 593731 DATE: 7-31-92

DESCRIP:STRUCK BY FALLING STACK OF LUMBER

ABSTRACT: EMPLOYEE #1 HAD CAUGHT UP AT STACKER #1 AND MOVED TO STACK OF LUMBER WITH 3 STACKING BLOCKS HE HAD PICKED UP ON THE WAY AND HAD PLACED THEM ON TOP OF SECOND BUNDLE OF OUTER ROW SO MORE BUNDLES COULD BE STACKED ON THEM. THE SECOND ROW AS STACKED LUMBER WAS 5 BUNDLES HIGH AND WAS NOT BLOCKED PROPERLY CAUSING IT TO LEAN OUTWARD. JUST AS EMPLOYEE #1 WAS TURNING TO LEAVE THE STACK OF LUMBER, THE TOP 2 BUNDLES OF THE 5 BUNDLE ROW DISLODGED AND FELL ON EMPLOYEE #1 KNOCKING HIM TO THE BLACK TOP SURFACE WITH THE BUNDLES LAYING ON HIS CHEST AND LEGS. EMPLOYEE #1 SUFFERED SEVERE CHEST AND HEAD INJURIES AND DIED IN TRANSIT TO HOSPITAL. THE ACCIDENT OCCURRED ON JULY 31, 1992 AT 3:15 PM.

VICTIM: 1 AGE: 56 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : STRUCK BY  
INJ NATURE : FRACTURE ENVIR FACTOR: OVERHEAD MOVING/FALLING  
OBJ AC  
INJ SOURCE: BOXES/BARRELS HUMAN FACTOR: MALFUNC IN SECURING/  
WARNING OP  
PART-OF-BODY: HEAD HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 119722056 SIC: 2421 NONUNION

\*\*\* ACCIDENT DATA \*\*\*

SUMMARY # 170718944 DATE: 9-09-92

DESCRIP:THREE OPERATORS FATALLY INJURED IN A DRUM DEBARKER.

ABSTRACT: ON 8 SEPTEMBER 1992, AT ABOUT 11:50 PM., THREE EMPLOYEES OF THE LUMBER COMPANY WERE FATALLY INJURED. THE EMPLOYER RUNS A LOGGING AND SAWMILL OPERATION AND THE ACCIDENT OCCURRED AT THEIR HARDWOOD CHIPPING MILL. THIS MILL WAS INSTALLED ACROSS THE RAILROAD TRACKS FROM THEIR OTHER OPERATIONS AND BEGAN OPERATING JUNE 1989. THE ORIGINAL EMPLOYEES, INCLUDING EMPLOYEE ONE AND EMPLOYEE TWO, WERE TRAINED AS THEY STARTED WORK. AN ON-SITE CONSULTATION WAS DONE BY THE OSHA CONSULTATION UNIT ON 6 DECEMBER 1989, AND HAZARDS IDENTIFIED WERE CORRECTED ACCORDING TO THE COMPANY RECORDS. THE HARDWOOD CHIPPING MILL HAS THREE OPERATORS ON THE 5:00 P.M. TO 1:00 A.M. SHIFT. THEY ROTATE JOBS EVERY TWO HOURS. ONE OPERATES THE FRONT-END LOADER WHICH LOADS LOGS FROM THE LOG DECK ONTO THE INFEED. THE SECOND SITS IN AN

ELEVATED CONTROL ROOM AND CONTROLS THE INFEEED CONVEYORS, THE CIRCULAR DECK SAW THAT IS USED TO CUT LOGS TO LENGTH, AND THE INFEEED 'BARKO' GRAPPLE USED TO PICK UP LOGS.

VICTIM: 1      AGE: 46      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : OTHER      ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: BODYSYSTEM      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

VICTIM: 2      AGE: 45      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : OTHER      ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: BODYSYSTEM      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

VICTIM: 3      AGE: 36      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : OTHER      ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: BODYSYSTEM      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 109006999      SIC: 2421      Open Date: 9/23/92      NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY #      14343669      DATE: 9-21-92

DESCRIP:STRUCK BY FORKLIFT

ABSTRACT: EMPLOYEE WALKED BEHIND A FORKLIFT. THE FORKLIFT BACKED UP RUNNING OVER AND FATALLY INJURING THE EMPLOYEE.

VICTIM: 1      AGE: 24      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : FRACTURE      ENVIR FACTOR: MATERIALS HANDLG  
EQUIP./METHOD  
INJ SOURCE:MOTOR VEHICLE(INDUS)      HUMAN FACTOR:MATER-HANDLG  
PROCED. INAPP  
PART-OF-BODY: BODYSYSTEM      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED



Activity No: 112389085 SIC: 2421 Open Date: 9/29/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 14225908 DATE: 9-28-92

DESCRIP: MACHINE START UP DURING MAINTENANCE

ABSTRACT: AN EDGER HAD BEEN TURNED OFF BUT NOT LOCKED OR TAGGED OUT. THE OPERATOR WAS AT THE REAR OF THE EDGER APPLYING OIL TO THE ROLLERS SHAFT AND SAW BLADES. THE MACHINE WAS ACTIVATED BY ANOTHER EMPLOYEE RESULTING IN FATAL LACERATIONS TO THE OPERATOR'S ARM AND HEAD.

VICTIM: 1 AGE: 24 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : CUT/LACERATION ENVIR FACTOR: CATCH POINT/PUNCTURE  
ACTION  
INJ SOURCE: MACHINE HUMAN FACTOR: LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: HEAD HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 115743445 SIC: 2421 Open Date: 10/06/92 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 14209795 DATE: 10-05-92

DESCRIP: TOSSED AGAINST METAL HALF CAB STRUCTURE

ABSTRACT: ON OCTOBER 5, 1992 AT 9:45 PM A 27 YEAR OLD LUMBER CARRIER OPERATOR RECEIVED FATAL INJURIES WHEN THE LUMBER CARRIER HE WAS OPERATING TURNED OVER. THE OPERATOR WAS SEVERAL HOURS INTO HIS SECOND STRAIGHT WORK SHIFT WHEN A CO-WORKER NOTED THAT ONE OF THE CARRIER TIRES WAS GOING FLAT OR LOW. THE OPERATOR VERIFIED THE LOW TIRE FROM THE OPERATORS CAB AND REPORTEDLY STARTED FOR THE MAINTENANCE AREA TO HAVE THE TIRE REPAIRED. IT APPEARS THE CARRIER TIRE WENT FLAT WHILE NEGOTIATING A TURN AND THE OPERATOR WAS TOSSED AROUND THE INSIDE OF THE HALF CAB OF THE LUMBER CARRIER RECEIVING WHAT APPEARS TO BE MINOR BRUISES, CONTUSIONS AND ABRASIONS. THE VICTIM WAS TRANSPORTED TO THE NEAREST MEDICAL FACILITY WHERE SURGERY WAS PERFORMED FOR LIVER DAMAGE. THE VICTIM EXPIRED AT 5:45 AM THE FOLLOWING MORNING.



VICTIM: 1      AGE: 47      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : OTHER      ENVIR FACTOR: MATERIALS HANDLG  
  EQUIP./METHOD  
INJ SOURCE : MACHINE      HUMAN FACTOR: SAFETY DEVICES  
  REMOVED/INOPER.  
PART-OF-BODY: FACE      HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 123732679    SIC: 2421    Open Date: 11/03/92

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY # 170088819      DATE:11-03-92

DESCRIP:CAUGHT IN CONVEYOR

BSTRACT: EMPLOYEE #1 WAS EMPLOYED AS A CLEANUP PERSON IN THE PLANNING DEPARTMENT. SHE WAS RESPONSIBLE FOR CLEANING WOOD DEBRIS FROM AROUND MILL EQUIPMENT. AFTER NOT BEING OBSERVED FOR A LENGTHY PERIOD, A CO-WORKER WENT LOOKING FOR HER AND FOUND HER TRAPPED IN A CONVEYOR SYSTEM. SHE WAS NOT BREATHING. SHE WAS EXTRICATED AND ATTEMPTS TO REVIVE HER FAILED.

VICTIM: 1      AGE: 43      SEX: F  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : ASPHYXIA      ENVIR FACTOR: SQUEEZE POINT ACTION  
INJ SOURCE: MATERIALS HANDLG    HUMAN FACTOR: MISJUDGMENT, HAZ.  
  SITUATION  
PART-OF-BODY: CHEST      HAZ SUBSTNCE: NO SUBSTANCE  
  IMPLICATED

Activity No: 114491772    SIC: 2421    Open Date: 1/05/93    NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY # 170122816      DATE: 1-05-93

DESCRIP:LUMBER CRUSHED EMPLOYEE

ABSTRACT: EMPLOYEE WAS WORKING IN THE LUMBER YARD ON THE STACKER. THE STACKER BROKE & FELL UP AGAINST EMPLOYEE.



Activity No: 123761587 SIC: 2421 Open Date: 2/18/93 NONUNION

\*\*\* ACCIDENT DATA \*\*\*

SUMMARY # 170132047 DATE: 2-18-93

DESCRIP: "CRUSHING"

ABSTRACT: ON 2-18-93 ABOUT 2:15 AM AT A LUMBER COMPANY AN EMPLOYEE #1 WAS FATALLY INJURED. HE WAS LAST SEEN BY EMPLOYEE #2 ABOUT 11:30 PM ON 2-17-93 AT THE PLANER DECK. EMPLOYEE #1'S JOB WAS A GREASER/OILER. AT THE TIME OF THE ACCIDENT HE WAS OILING CHAIN AND SPROCKETS WHILE STANDING ON THE LUG CHAIN CONVEYOR DECK THAT GUIDES LUMBER INTO TRIM SAWS. AHEAD OF SAID CONVEYOR IS A BOARD DESCRAMBLER WITH A CHAIN CONVEYOR AND BOARD STOPS. THE STOPS HOLD LUMBER BACK FROM GOING ON TO THE LUG CHAIN CONVEYOR, UNTIL RELEASED BY A FOOT PEDDLE. IT APPEARS FOR WHAT EVER REASON, THE STOPS RELEASED THE 2X4 LUMBER CAUSING EMPLOYEE #1 TO TRIP AND FALL. THE LUG CHAIN THEN CARRIED HIM AND LUMBER THROUGH THE TRIM SAWS. THE SAWS WERE NOT ON. HE WAS FOUND DECEASED BY EMPLOYEE #2. THE AUTOPSY CONCLUDED HE DIED FROM A CRUSHING INJURY TO CHEST AND ABDOMEN WITH COMPRESSION ASPHYXIA.

VICTIM: 1	AGE: 32	SEX: M	
DISPOSITION :	FATALITY	EVENT-TYPE :	CAUGHT IN OR BETWEEN
INJ NATURE :	ASPHYXIA	ENVIR FACTOR:	CATCH POINT/PUNCTURE ACTION
INJ SOURCE :	MACHINE	HUMAN FACTOR:	LOCKOUT/TAGOUT PROCED MALFUNC
PART-OF-BODY:	CHEST	HAZ SUBSTNCE:	NO SUBSTANCE IMPLICATED

Activity No: 109541938 SIC: 2421 Open Date: 3/24/93 NONUNION

\*\*\* ACCIDENT DATA \*\*\*

SUMMARY # 525964 DATE: 3-17-93

DESCRIP: FALL ONTO UNGUARDED SAW

ABSTRACT: OWNER/OPERATOR WAS RUNNING LOGS THROUGH A HOMEMADE, UNGUARDED SAW WHEN HE TRIPPED AND FELL ACROSS THE SAW BLADE. HE WAS CUT IN HALF.









VICTIM: 1      AGE: 26      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE : CUT/LACERATION      ENVIR FACTOR: CATCH POINT/PUNCTURE  
ACTION  
INJ SOURCE : MACHINE      HUMAN FACTOR: MISJUDGMENT, HAZ.  
SITUATION  
PART-OF-BODY: CHEST      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 107633273      SIC: 2426      Open Date: 11/09/93      NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY # 170082101      DATE:11-03-93

DESCRIP:IMPALED BY WOODEN POLE

ABSTRACT: THE EMPLOYEE 1 WAS USING A LONG WOODEN POLE (12'X2"X2") (30cm x 5cm x 5cm) TO PUSH SAW DUST INTO A COLLECTION HOPPER BELOW THE BOTTOM DRIVE SHAFT OF A BAND SAW. THE ENERGY TO THE DRIVE SHAFT WAS LOCKED OUT. THE SAWYER WHO WAS ALIGNING THE SAW BLADE ON THE DRIVE SHAFTS CALLED TO EMPLOYEE 1 TO MOVE AWAY AS THEY WERE READY TO ENERGIZE THE SAW. EMPLOYEE 1 DID NOT CLOSE THE INSPECTION DOOR OR REMOVE THE POLE FAR ENOUGH AWAY FROM THE LOWER DRIVE SHAFT. THE POLE WAS CAUGHT IN THE TURNING DRIVE SHAFT, PROPELLED WITH GREAT FORCE AND STRUCK AND IMPALED EMPLOYEE 1 WHO WAS STANDING APPROXIMATELY 12' AWAY. HE DIED INSTANTLY.

VICTIM: 1      AGE: 42      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : PUNCTURE      ENVIR FACTOR: FLYING OBJECT ACTION  
INJ SOURCE: HEAT(ENVIR/MECH)      HUMAN FACTOR:LOCKOUT/TAGOUT PROCED  
MALFUNC  
PART-OF-BODY: CHEST      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 123694044      SIC: 2421      Open Date: 11/30/93      NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY # 953620      DATE:11-29-93

DESCRIP: CUT FROM SAW

ABSTRACT: EMPLOYEE USING SWING SAW WITH 30" (76 cm) BLADE IN SAWMILL TO CUT UP SLABS AND SIZE FINISHED LUMBER. EMPLOYEES'S ARM AND HEAVY CLOTHING CAUGHT BY THE SAW AND DREW HIM INTO THE SAW FATALLY CUTTING HIM.







VICTIM: 1      AGE: 25      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : PUNCTURE      ENVIR FACTOR: PINCH POINT ACTION  
INJ SOURCE: MATERIALS HANDLG HUMAN FACTOR: SAFETY DEVICES  
REMOVED  
PART-OF-BODY: HEAD      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 115432635    SIC: 2421    Open Date: 3/03/94    NONUNION

\*\*\*\*      ACCIDENT DATA      \*\*\*\*

SUMMARY # 170004246      DATE: 3-02-94

DESCRIP:DEATH CAUSED BY FALLING LUMBER

ABSTRACT: ON 3/2/94 AT 3:30 PM THREE EMPLOYEES WERE UNLOADING UNITS OF LUMBER FROM A 45 FOOT VAN, THE VAN HAD BEEN LOADED EARLIER IN THE DAY, HAD LEFT, BUT HAD TO RETURN WHEN IT WAS FOUND TO BE OVER LEGAL WEIGHT. THE PROCESS USED BY THE MILL IN UNLOADING THE VAN IS UTILIZED THROUGHT OUT THE LUMBER INDUSTRY, THE PROCESS INVOLVES ATTACHING A CHAIN (ON EACH SIDE) TO THE 1 1/4" METAL BAND THAT SURROUNDS THE UNIT, THE OPPOSITE END IS ATTACHED TO THE FORKLIFT WHICH BACKS UP PULLING THE UNIT OUT OF THE VAN (APPROX 4 FEET). THE CHAINS ARE TAKEN OFF, THE FORKLIFT MOVES IN SLIDING THE FORKS UNDER THE LOAD, WHEN THE FORKS ARE ALL THE WAY UNDER THE END THE LOAD THERE TILTED BACK, THE FORKLIFT BACKS UP PULLING THE UNIT OF LUMBER UNTIL THERE IS APPROX. 4 FEET LEFT IN THE VAN. ON THE FORKLIFT END OF THE LOAD A CRUTCH (A METAL A-FRAME DEVICE) IS PLACED UNDER THE LOAD, THE LOAD IS SET DOWN AND THE FORKLIFT CAN THAN MOVE AROUND TO THE SIDE OF THE LOAD AND PICK IT UP. ITS AT THIS POINT WHEN THE LOAD WAS PICKED UP THAT THE FORKLIFT DRIVER FELT IT WAS TO TIPSY, HE CALLED THAT HE WAS GOING TO SET IT DOWN AND TO GET AWAY. THE EMPLOYEE AT THE END OF THE LOAD BACKED AWAY, THE EMPLOYEE ON THE BACK SIDE OF THE LOAD WALKED TOWARD THE LOAD, AT THE SAME TIME THE LOAD WAS BEING SET BACK DOWN ON THE CRUTCH. WHEN THE WEIGHT WAS OFF THE FORKS AND ON THE CRUTCH THE LOAD ROLLED OVER PINING THE EMPLOYEE. THE EMPLOYEE SUFFERED SEVERE TRAUMA TO THE HIPS, SHOULDERS AND THE HEAD.

VICTIM: 1      AGE: 39      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : FRACTURE      ENVIR FACTOR: SQUEEZE POINT ACTION  
INJ SOURCE : OTHER      HUMAN FACTOR: MISJUDGMENT, HAZ.  
SITUATION  
PART-OF-BODY: MULTIPLE      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 110354776 SIC: 2421 Open Date: 3/14/94 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 565218 DATE: 3-08-94

DESCRIP: CAUGHT IN HEAD SAW

ABSTRACT: THE SAWYER WAS HAND FILING THE HEAD SAW FROM THE OFF SIDE. THE SAW WAS BELT DRIVEN FROM A 290 CUMMINS ENGINE. AN ENGAGING LEVER WAS DEENERGIZED FROM THE ENGINE BUT THE ENGINE REMAINED IN IDLE. THE SAWYER STRADDLED THE BLADE AND SAT ON A BLOCK WHILE FILING. OTHER EMPLOYEES WERE CLEANING UP WHILE WAITING FOR THE SAWYER. ONE EMPLOYEE SHOVELED SAWDUST INTO A DUST BOX AND AFTER SEVERAL TIMES, HE CONTACTED THE ENGRAVING LEVER WITH THE SHOVEL SUFFICIENTLY TO REENGAGE THE SAW, INFLECTING FATAL INJURIES TO THE SAWYER. A LOCK-OUT PROGRAM OF ANY TYPE WAS NOT IN EXISTENCE.

VICTIM: 1 AGE: 54 SEX: M  
DISPOSITION : FATALITY EVENT-TYPE : CAUGHT IN OR BETWEEN  
INJ NATURE: CUT/LACERATION ENVIR FACTOR: WORK-SURFACE/  
FACIL-LAYOUT COND  
INJ SOURCE: MACHINE HUMAN FACTOR: INSUFF/LACK/WRITN WRK  
PRAC PROG.  
PART-OF-BODY: ABDOMEN HAZ SUBSTNCE: NO SUBSTANCE IMPLICATED

Activity No: 123751109 SIC: 2421 Open Date: 5/12/94 NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170133839 DATE: 5-11-94

DESCRIP: STRUCK BY LOG

ABSTRACT: ON 5/11/94 AT ABOUT 11:45 PM AN APPRENTICE MILLWRIGHT EMPLOYEE WAS SITTING IN THE RING DEBARKER CONTROL ROOM TALKING TO THE OPERATOR. THE OPERATOR STARTED A LOG THROUGH THE DEBARKER, BUT IT JAMMED AND THE TAIL END JUMPED TO THE SIDE OF THE CHAIN CONVEYOR. THE JAMMING OCCURRED BECAUSE OF BARK DUST ACCUMULATION BLOCKING THE LASER BEAM. THIS CAUSED THE OUTFEED HOLD DOWN ROLL TO DROP PREMATURELY AND STOP THE LOG. THE OPERATOR THINKING THAT HE WOULD TAKE CARE OF THE JAMMED LOG LATER BY MECHANICAL MEANS, TURNED TO LOOK AT HIS INCOMING LOG DECK AND STARTED SORTING LOGS. THE MILLWRIGHT LEFT THE CONTROL ROOM, WENT DOWN TO THE DEBARKER AND KICKED THE JAMMED LOG TO ALIGN IT IN THE CHAIN CONVEYOR. IN

VICTIM: 1      AGE: 25      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : PUNCTURE      ENVIR FACTOR: PINCH POINT ACTION  
INJ SOURCE: MATERIALS HANDLG HUMAN FACTOR: SAFETY DEVICES  
REMOVED  
PART-OF-BODY: HEAD      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

Activity No: 115432635    SIC: 2421    Open Date: 3/03/94    NONUNION

\*\*\*\* ACCIDENT DATA \*\*\*\*

SUMMARY # 170004246      DATE: 3-02-94

DESCRIP: DEATH CAUSED BY FALLING LUMBER

ABSTRACT: ON 3/2/94 AT 3:30 PM THREE EMPLOYEES WERE UNLOADING UNITS OF LUMBER FROM A 45 FOOT VAN, THE VAN HAD BEEN LOADED EARLIER IN THE DAY, HAD LEFT, BUT HAD TO RETURN WHEN IT WAS FOUND TO BE OVER LEGAL WEIGHT. THE PROCESS USED BY THE MILL IN UNLOADING THE VAN IS UTILIZED THROUGHT OUT THE LUMBER INDUSTRY, THE PROCESS INVOLVES ATTACHING A CHAIN (ON EACH SIDE) TO THE 1 1/4" METAL BAND THAT SURROUNDS THE UNIT, THE OPPOSITE END IS ATTACHED TO THE FORKLIFT WHICH BACKS UP PULLING THE UNIT OUT OF THE VAN (APPROX 4 FEET). THE CHAINS ARE TAKEN OFF, THE FORKLIFT MOVES IN SLIDING THE FORKS UNDER THE LOAD, WHEN THE FORKS ARE ALL THE WAY UNDER THE END THE LOAD THERE TILTED BACK, THE FORKLIFT BACKS UP PULLING THE UNIT OF LUMBER UNTIL THERE IS APPROX. 4 FEET LEFT IN THE VAN. ON THE FORKLIFT END OF THE LOAD A CRUTCH (A METAL A-FRAME DEVICE) IS PLACED UNDER THE LOAD, THE LOAD IS SET DOWN AND THE FORKLIFT CAN THAN MOVE AROUND TO THE SIDE OF THE LOAD AND PICK IT UP. ITS AT THIS POINT WHEN THE LOAD WAS PICKED UP THAT THE FORKLIFT DRIVER FELT IT WAS TO TIPSY, HE CALLED THAT HE WAS GOING TO SET IT DOWN AND TO GET AWAY. THE EMPLOYEE AT THE END OF THE LOAD BACKED AWAY, THE EMPLOYEE ON THE BACK SIDE OF THE LOAD WALKED TOWARD THE LOAD, AT THE SAME TIME THE LOAD WAS BEING SET BACK DOWN ON THE CRUTCH. WHEN THE WEIGHT WAS OFF THE FORKS AND ON THE CRUTCH THE LOAD ROLLED OVER PINING THE EMPLOYEE. THE EMPLOYEE SUFFERED SEVERE TRAUMA TO THE HIPS, SHOULDERS AND THE HEAD.

VICTIM: 1      AGE: 39      SEX: M  
DISPOSITION : FATALITY      EVENT-TYPE : STRUCK BY  
INJ NATURE : FRACTURE      ENVIR FACTOR: SQUEEZE POINT ACTION  
INJ SOURCE : OTHER      HUMAN FACTOR: MISJUDGMENT, HAZ.  
SITUATION  
PART-OF-BODY: MULTIPLE      HAZ SUBSTNCE: NO SUBSTANCE  
IMPLICATED

## **Appendix G**

**Available Studies in the Occupational Fatality Series**





## Appendix G

### OSHA PUBLICATIONS OF STUDIES OF OCCUPATIONAL FATALITIES

The following publications by the Occupational Safety and Health Administration, U.S. Department of Labor have been placed in the National Technical Information Service (NTIS) and are available. The publications number and cost per copy\* are noted:

Occupational Fatalities Related to Fixed Machinery as Found in Reports of OSHA Fatality/Catastrophe Investigations, May 1978. PB 80-181035, \$13.95

Occupational Fatalities Related to Scaffolds as Found in Reports of OSHA Fatality/Catastrophe Investigations, May 1979. PB 80-182009, \$13.95

Occupational Fatalities Related to Ladders as Found in Reports of OSHA Fatality/Catastrophe Investigations, November 1979. PB 80-153471, \$13.95

Occupational Fatalities Related to Roofs, Ceilings, and Floors as Found in Reports of OSHA Fatality/Catastrophe Investigations, November 1979. PB 80-161136, \$18.95

Selected Occupational Fatalities Related to Oil/Gas Well Drilling Rigs as Found in Reports of OSHA Fatality/Catastrophe Investigations, June 1980. PB 80-226939, \$13.95

Occupational Fatalities Related to Miscellaneous Working Surfaces as Found in Reports of OSHA Fatality/Catastrophe Investigations, April 1982. PB 83-125732, \$18.95

Selected Occupational Fatalities Related to Fire and/or Explosion in Confined Work Spaces as Found in Reports of OSHA Fatality/Catastrophe Investigations, April 1982. PB 82-237314, \$18.95

Selected Occupational Fatalities Related to Lockout/Tagout Problems as Found in Reports of OSHA Fatality/Catastrophe Investigations, August 1982. PB 83-125724, \$18.95

Selected Occupational Fatalities Related to Grain Handling as Found in Reports of OSHA Fatality/Catastrophe Investigation, January 1983. PB 83-170795, \$18.95

Selected Occupational Fatalities Related to Powered, Two-Point Suspension Scaffolds/Powered Platforms as Found in Reports of OSHA Fatality/Catastrophe Investigations, March 1983. PB 83-194050, \$11.95

Selected Occupational Fatalities Related to Oil/Gas Well Drilling and Servicing as Found in Reports of OSHA Fatality/Catastrophe Investigations, December 1983. PB 84-154095, \$30.95 (\$6.50 per microfiche copy)

Selected Occupational Fatalities Related to Toxic and Asphyxiating Atmospheres in Confined Work Spaces as Found in Reports of OSHA Fatality/Catastrophe Investigations, July 1985. PB 86-144920/AS, \$24.95 (\$6.95 per microfiche copy)

Selected Occupational Fatalities Related to Trenching and Excavation as Found in Reports of OSHA Fatality/Catastrophe Investigations, July 1985. PB 86-155041/AS, \$18.95 (\$6.50 per microfiche copy)

Selected Occupational Fatalities Related to Welding and Cutting as Found in Reports of OSHA Fatality/Catastrophe Investigations, August 1988. PB 89-117527/AS, \$28.95 (\$6.95 per microfiche copy)

Selected Occupational Fatalities Related to Logging as Found in Reports of OSHA Fatality/Catastrophe Investigations, December 1988. PB 89-142954/AS, \$21.95 (\$6.95 per microfiche copy)

Selected Occupational Fatalities Related to Ship Building and Repairing as Found in Reports of OSHA Fatality/Catastrophe Investigations, January 1990. PB 90-163205, \$31.00 (\$8.00 per microfiche copy)

Selected Occupational Fatalities Related to Vehicle-Mounted Elevating and Rotating Work Platforms as Found in Reports of OSHA Fatality/Catastrophe Investigations, July 1991. PB 91-231613, \$17.00

Selected Occupational Fatalities Related to Marine Cargo Handling as Found in Reports of OSHA Fatality/Catastrophe Investigations, August 1992. PB 92-220540, \$35.00 (\$17.00 per microfiche copy)

Selected Occupational Fatalities Related to Pulp, Paper and Paperboard Mills as Found in Reports of OSHA Fatality/Catastrophe Investigations, June 1993. PB 93-213502, \$27.00 (\$12.00 per microfiche copy)

Copies of these publications may be obtained from the following address:

National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Road  
Springfield, VA 22161  
Telephone Information: (703) 487-4600  
Telephone Sales Desk: (703) 487-4650

\* Prices subject to change without notice. Please contact NTIS to verify cost.

