Chubb Construction Risk Engineering

Loss Analysis

CHUBB®

Loss Analysis

Overview

Fatal Injuries

According to the 2014 Bureau of Labor Statistics (BLS) report, Construction accounted for 899[1] fatalities as compared to 2006 where 1,226 fatal work injuries occurred. Although this is a decrease of 26.7% in fatalities since 2006, efforts cannot let up as noted by the 899 fatalities for construction in 2014 which represents an increase of 7.9 percent over the 2013 total of 828[2].

Fatalities among specialty trade contractors deceased 21.8 percent from 721 in 2006 to 564 in 2014. Falls remained the leading cause of deaths in construction accounting for 359 out of 899 total deaths in construction in CY 2014 (39.9%)[3].

[3]Out of 4,386 worker fatalities in private industry in calendar year 2014, 899 or 20.5% were in construction-that is, one in five worker deaths were in construction. The leading causes of worker deaths on construction sites were falls, followed by electrocution, struck by object, and caught-in/between.

Non-Fatal Injuries

"Contact with objects" was responsible for just over one-third of nonfatal injuries and illnesses with days away from work, with more than half involved being struck by an object. Falls were the second most-common cause of nonfatal injuries and nearly one-fifth were caused by overexertion.

Laborers experienced the highest nonfatal rate. Although the nonfatal rate for roofers decreased, it remained high. Nonfatal rates generally were slightly higher for plumbers and carpenters than those for all construction.

Introduction

Effective loss analysis helps you to quickly and easily focus on the critical few issues driving losses in order to start identifying the root cause. Losses are indications that there are opportunities to improve workplace safety.

The purpose of loss analysis is to determine the cause of the accident so that action can be taken to prevent it from occurring again. Simply put, a loss analysis is the answer to the question "why."

In performing loss analysis, you may need to use two types of analysis:

- a trend analysis and
- a causal analysis.

Both use frequency (the number of losses) and severity (the cost of losses) factors to determine areas of priority to further evaluate. An essential follow-up to trend and causal analysis is corrective action. The only reason for performing loss analysis is to find out what went wrong in order to fix it and prevent that loss from ever happening again.

Trend Analysis

Before a causal analysis can be done, loss trending needs to be performed to determine which areas have the greatest impact on profitability.

How to Begin

To complete loss analysis, you need sources of information. This can be either your own first report of injury reports, Occupational Safety Health Administration (OSHA) logs, accident investigation reports, or a loss run provided by your insurance company. A good loss run will include:

- Description of loss and injuries
- Date and time of loss
- Location of loss
- Activity being performed
- Supervisor name
- Claimant name
- Length of employment
- Amount paid for medical, indemnity and expenses
- Amount reserved for medical, indemnity and expenses
- Total incurred for medical, indemnity and expenses
- Total number of losses

The accuracy of the loss information used has a direct impact on the usefulness of its results. If accident and investigation reports are not completed diligently, it's unlikely you'll be able to come to reliable conclusions and corrective actions.

About Trend Analysis

A trend analysis is a grouping of losses by common factors. The trend is generally completed first as it helps determine what areas to evaluate further. The trend also provides support and rationale for concentrating on a certain type of loss or activity. The trend analysis factors may include such things as:

- Type of loss (e.g., lift-truck accidents, slip and falls, manual material handling losses);
- Type of Work - Occupations, Job Tasks, Activities
- Project
- Stage of Construction
- Project Manager
- Time and/or shift;
- Month of year;
- Type of injury (e.g., laceration, sprain);
- Body part injury (e.g. eyes, hands, feet);
- Experience of injured employees; and
- Age
- Other factors which allow a grouping of losses by similarities

Type of injury and type of loss are the most frequently used factors for trend analysis, since these are usually present in available loss information. The usefulness of trend analysis is that it permits efficient arrangement of a large number of losses.

Keep in mind that trend analysis never answers why the losses occur and therefore must be followed by a causal analysis.

Completing Trend Analysis
The Trend Analysis Form can be used for trend analysis. Many times a trend analysis can be done off-site with available loss information.

- Enter the types of injuries (e.g., eye, back, feet, etc.) in the "type of loss or description of accident" column;
- The blank columns may have whatever heading(s) are determined as trend factors useful for analysis. For example, a listing of departments. The boxes under these headings can be used to record the number and cost of the types of losses or injuries being analyzed.
- The total numbers (frequency) of each type of loss or injury and their cost (severity) can be recorded in the "total" columns.

After completing the analysis, totalling the frequency and severity will help to identify the priority group(s) of losses needing a causal analysis. Losses not targeted for further analysis are set aside and may be used later as priorities change.

Casual Analysis

Losses are generally due to needed improvements in management policies and procedures (e.g., maintenance, housekeeping, inspection, purchasing). Causal analysis requires a deeper investigation into the circumstances of the losses to accurately identify the factors contributing to the accident.

ESIS, Inc. - Global Risk Control Services
Trend Loss Analysis Worksheet *(For internal Use Only)*

Company:							**Totals**	
Division								
Site:								
Analysis Period:								
Type of loss or description of accident							**Number**	**Cost**

It is not uncommon for premature conclusions to be drawn, which often turn out to be incorrect due to lack of adequate information. In general, these are the rules of causes of loss:

1. Never assume it's the employee's fault. Always look for what could have been done by the company to prevent the accident.
2. Never settle on a single cause. In most cases, there is more than one reason that the loss occurred.
3. Think of causal analysis as an opportunity to seek out and institute improvements rather than finding fault and assigning blame.
4. Upon reaching a potential cause, ask how it was created. If you can trace it back further, you haven't yet reached the cause.

Causal Analysis Format
- Enter:
  - the dates of each loss
  - the name of the injured employee or vehicle driver
  - the department in which the employee works
  - a description of the loss and
  - either the cost of the loss or the number of lost work days.

The description of the loss should be as brief, but include all pertinent data.

- Necessary Management Controls: Indicate the management controls potentially deficient and contributed to the loss. Where a deficient management control is not apparent, additional investigation should be made. As indicated above, management controls are exercised over the four operating factors, each of which is described below.

Remember: Management policies and procedures are interrelated and that a loss is usually the result of deficiencies in more than one control.

People – including Drivers
People (drivers) refer to:
- employees

To properly control this operating factor, the following areas must be addressed:

Placement: This includes the selection of employees whose skill and capability meet job requirements and their placement or replacement into the job where their abilities can be best utilized. Some of the tools which may be used to control placement include:

- Applications
- Reference Checks
- Physical Examinations
- Road Tests
- Skill Tests
- Interview
- Motor Vehicle Records
- Verification of Licenses, Certificates

Training: This involves orientation, job instruction, remedial training, etc. and is a means for ensuring the employee can perform a task properly.

Enforcement: Rules (including safety rules and operating procedures) are established to protect the employee and ensure efficient operation. These must be enforced to be effective. The Enforcement category also includes the lack of rules and regulations when they are required.

Equipment - including Vehicles

Equipment refers to:
- machinery and tools to produce a product or provide a service and personal protective equipment for use by employees in operating machinery or using tools.

Controls necessary for this operating factor include:

Design and Arrangement: Proper equipment design and arrangement is essential for efficient operation and loss control. It involves ensuring that all equipment is designed for efficient operation, equipped with appropriate guards and controls, and physically arranged so that hazards and material handling are minimized.

D&A includes selection of proper personal protective equipment, fitting the equipment to the employee, and purchase in adequate quantities. Where PPE is used instead of engineering controls, the lack of these controls would be the causal factor, not a deficiency in PPE.

Purchasing: Purchasing controls include selecting the most efficient and hazard-free equipment and vehicles. Factors include quality of design and workmanship, simplicity of operation, ergonomic, reliability, and ease of maintenance.

Maintenance: This involves inspections, preventive maintenance, and repair of equipment including prompt correction of deficiencies

Materials – including Cargo
This includes:

- raw materials
- sub-assemblies
- component parts
- other items such as fuel and chemicals
- cargo transported by vehicles
- fuel, oil and anti-freeze handled by employees

The following controls can be applied to materials:

Design and Arrangement: This category covers storage facilities including material containers, storage of hazardous materials and the arrangement of materials in relation to each other and to equipment, exits, machinery, and processes, to achieve the maximum degree of hazard control and material flow. It also includes warning signs and placards for hazardous material, loading and securing of cargo, and special handling procedures.

Purchasing: Purchasing controls include selecting the least hazardous and most effective materials considering flammability, toxicity, reactivity and stability. Also included are inventory controls and the acquisition of MSDS for chemicals.

Environment
The physical surroundings include the:

- buildings
- yards
- atmosphere
- water

Environment is usually associated with such items as lighting, noise levels, and pollution. The following controls can be applied to environment.

Design and Arrangement: This covers buildings, structures and vehicles to include: ventilation, exhaust systems, filtration/purification systems for air and water, noise/vibration control, lighting, adequacy of exits, alarm and detection systems, and plant layout.

Purchasing: Purchasing controls include selecting the most efficient and hazard-free tools and equipment to optimize the environment – e.g. air quality, vehicles and accessories providing the most healthful and comfortable environment inside.

Housekeeping: Controls include regularly scheduled cleaning of buildings, equipment, and vehicles. This serves to remove contaminants before they accumulate to the degree that they interfere with lighting, exhaust or ventilation systems, and filtration/ purification systems

Maintenance: Preventive maintenance and prompt repair of building equipment, environmental control systems and vehicles.

Example
It can be seen that the management controls described above are interrelated and that a loss may be the result of deficiencies in more than one control. The following loss is given as an example: *Loss Description: Employee's eye was injured by a chip of metal thrown by a grinding wheel.*

The immediate cause of the loss was the lack of effective eye protective equipment. Investigation revealed that proper PPE was available but was not being worn for the following reasons:

- The eye protection available had scratched lenses and a broken frame. (Equipment, Maintenance is one deficient management control for this accident.)
- An enforcement program for the use of PPE had not been implemented. (People, Enforcement are a second deficient management control for the loss.)

Evaluating Results
At the bottom, total the number of deficiencies checked in each Necessary Management Control column. Also total the number of losses and the cost or number of lost work days.

The Loss Analysis is designed to identify the potentially major deficiencies in management controls and this should be based on the number of times each control was checked and the severity of the losses that were caused by each deficient control.

If one control was identified 10 times, but none of the losses related to it resulted in lost work days, this deficient control

ESIS, Inc. - Global Risk Control Services
Casual Loss Analysis Worksheet

Company:		Date:	
Type of Analsis:	☐ Occupational Safety ☐ Property ☐ Fleet ☐ Other: ☐ Liability	Sites:	
Completed by:		Analysis Period:	

Loss Data					Necessary Management Control											
					People			Equipment			Material		Environment			
Date	**Injured** *(If applicable)*	**Dept**	**Description of Loss**	**Cost** ($, LWD)	Placement	Training	Endorcement	Design & Arrangement	Purchasing	Maintenance	Design & Arrangement	Maintenance	Design & Arrangement	Purchasing	House Keeping	Maintenance
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

would be less serious than another control which was identified 8 times, but with losses related to it that resulted in 25 lost work days. Using the totals of Necessary Management Controls and the cost or lost work days, identify the major controls potentially deficient. Next, verify the existing controls or lack of controls of the area in question.

The results of the problem identification should be discussed with management personnel and specific solutions developed for the identified problem(s). Remember, the reason for conducting loss analysis is to determine the corrective actions to take in order to prevent that loss from occurring again.

Benchmarking

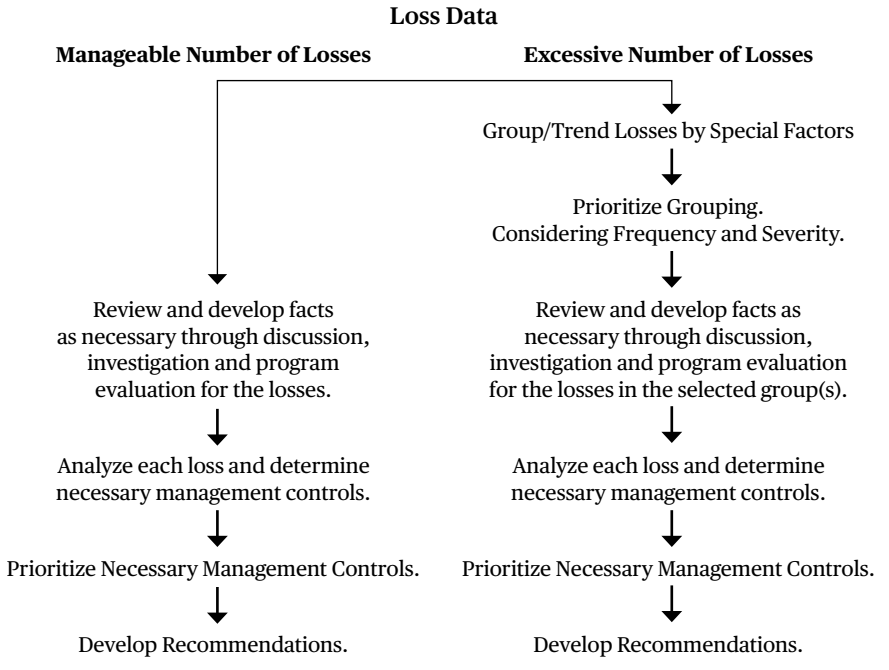
Benchmarking is a way to compare how your company ranks against similar types of companies in your industry from a loss frequency and severity standpoint. The Bureau of Labor Statistics (BLS) compiles a database sorted by Standard Industrial Code (SIC) for industries in the U.S. The two most commonly used rates are the Incident Rate and Severity Rate which establish the number of incidents or lost work days per 100 full-time employees for a given year.

Below is an example of each formula:

$$\frac{200{,}000 \times \text{Number of OSHA Recordable Incidents}}{\text{Total Man Hours}} = \textbf{Incident Rate}$$

$$\frac{200{,}000 \times \text{Number of OSHA Recordable Incidents}}{\text{Total Man Hours}} = \textbf{Severity Rate}$$

Identifying Necessary Management Controls



The 200,000 hours in the formula represents the equivalent of 100 employees working 40 hours per week, 50 weeks per year, and provides the standard base for the incident and severity rate.

Cost Per Hour

It is important to determine the exposure base (such as, the cost per man-hour). This is calculated by taking the total number of hours worked and dividing it by the total incurred.

For example, a Project Manager is trying to determine which of his two projects are costing him more from a workers' compensation standpoint. One of his projects has worked 500,000 man hours with a total incurred of $180,000. The second project has worked 350,000 man hours with a total incurred of $120,000.

- 500,000 divided by $180,000 = 2.777
- 350,000 divided by $120,000 = 2.916

So while one project costs more in actual dollars, the other presents a higher risk since there is a higher cost per man hour worked than the first.

Key Points

Used properly, Trend and Causal Loss Analysis is a valuable tool to identify what losses are occurring and why. This information can be used to prevent future losses due to the same causes.

Loss analysis allows you to focus your efforts in areas where you can make the most impact.

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