SeaBRIGHT INSURANCE COMPANY

Supervisors' Safety Update
Ideas and Strategies for Leaders

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"ROOT CAUSE" ACCIDENT ANALYSIS

By SeaBright Insurance Loss Control

In a perfect world there would be no errors and a company's operations would be under complete control at all times. There would be no unplanned, undesirable events. No accidents, incidents or inefficiencies would result in financial loss to the company. Unfortunately, such perfect control does not exist in any company we know of. So where do we look for answers when costly, painful, and sometimes tragic accidents happen?

ROOT CAUSES ARE FAILURES OF THE SYSTEM, NOT OF INDIVIDUALS

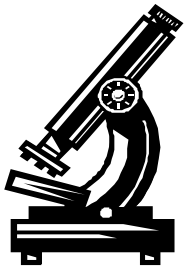
We all know that neither people nor management systems are ever perfect. Organizations nevertheless depend upon supervisors and managers to eliminate or control undesirable events. When these events *do* occur, since they were not prevented by policy or practice, something has failed in the management process. These are root failures of the "system." Studies have shown that approximately 94 percent of errors in an organization are due to these systemic failures. If so, it follows that accidents and injuries are caused by operational errors, not by failures of individuals. It is management's responsibility to identify and correct these errors—not individual workers who have no control over the company's operating policies.

PLACING BLAME FOR ACCIDENTS WILL NOT PREVENT RECURRENCE

This is a significant issue because in most companies, instead of looking for the *cause* of undesirable events, the "system" typically looks for someone to blame. Some of you may have experienced the negative cycle that can be created during an accident investigation. Despite the best of intentions, an incident investigation sometimes turns into a witch hunt. The true objective—to improve performance by fixing the problem—becomes secondary to figuring out who is to blame. This emphasis invariably leads to a downward spiral, involving blame, then punishment, then more blaming and more punishment. As a result, when the next incident happens, no one is willing to talk. Some call this the "Bart Simpson Syndrome." You know you have it when the response to a question is: *" I didn't do it, nobody saw me do it, you can't prove I did it," or "I don't know anything about it."*

Root Cause Analysis is essentially a tool for eliminating or preventing the "Bart Simpson Syndrome." If you don't take time to identify all the contributing factors to an accident, you'll miss critical information about the underlying system. Then the common option is to punish the worker that had the accident and remind everyone else to "be more careful next time."

Keep in mind that if you take this course of action, you have not significantly reduced the potential for similar incidents in the future. Blaming individuals almost always results in defensive behavior, resentment, closed communication, and disciplinary problems. It seldom prevents recurrence of an incident because it changes nothing about the system that caused the incident in the first place.



FOCUS ON HOW THINGS ARE DONE IN THE OPERATION

Assuming for a moment that no one makes a mistake on purpose, it follows that learning *why* the mistake occurred is far more important than deciding who made it. It is more meaningful to focus on the *way* things are done on the job, than on the individuals involved. Corrective action should first be sought through the improvement of systems and processes, not through placing blame.

Careful unbiased analysis is the key to locating and identifying system errors. Unplanned and undesired events stem from acts and decisions--or from *failures* to act or decide--which the management system permits. Once detected and understood, such events can be changed or eliminated in most cases.

ACCIDENTS ARE SYMPTOMS, NOT CAUSES

A recent review of a company's accidents revealed that most of the investigations listed "human error" as the cause of the incident. Unfortunately, this is often where accident analysis ends. A basic failure of most investigations is that they identify and correct only the *immediate* causes, or symptoms, of an accident. The real causes of a disease are not the symptoms that are readily apparent, but some underlying malfunction that must be corrected to eliminate the symptoms. Most of us will agree that, whether it's an accident or an illness, treating a symptom seldom works. Too often we warn someone who was injured to "be more careful next time" instead of identifying and correcting the real cause of the problem. This short term fix is quick and easy, but in the long run serves no useful purpose. New problems are created if we fail to see inadequacies in the operating process that lets accidents happen in the first place.

The identification of root causes is the key to problem solving and continual improvement. The theory of root cause analysis is actually a very simple, effective method for understanding problems in a safety system. The application of this theory and method is the foundation for any constructive accident investigation.

THE TRUE PURPOSE OF INVESTIGATIONS IS TO PREVENT RECURRENCE

It is important that you keep this purpose in mind. Doing so can improve the system instead of just blaming the worker. You must determine what needs to be changed and how. This requires collecting and analyzing all the facts surrounding the incident before presuming what caused it to happen.

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WHO SHOULD BE INVOLVED IN THE ANALYSIS?

The best and most appropriate people should be selected to investigate an accident, both for obtaining accurate facts and for increasing safety awareness. At a minimum, the person who was involved in the accident, an employee who understands the work process involved, and the immediate supervisor should search for facts. For serious accidents or near misses, a team of key personnel including managers and members of the safety committee should jointly conduct a follow-up investigation.

SEARCHING FOR ROOT CAUSES

Root cause analysis is not a difficult concept to learn or understand. An accident occurrence is simply a breakdown somewhere in the system. Any system is a network of interrelated elements of which people are only one part. Through root cause analysis, investigators examine the cause and effect chain of events that led to the accident. The *effect* is the accident. Working backwards in the system, starting from the incident, all possible contributing causes are considered—the environment, training, procedures, equipment, and human behavior. In most cases, you will find that accidents are caused by multiple underlying causes, each of which must be identified and corrected in order to prevent a recurrence.

Once all possible causes are identified, each one is examined by studying the cause and effect chain until the *root* cause is identified. This is accomplished through a simple questioning process. For example, it is not enough to learn that an injury occurred because an employee didn't follow a particular procedure. It is critical to find out *why* he chose not to follow it. Was he a hurry? If so, *why* was he in a hurry? Was there a production push? Was there a shortage of personnel? Was there a communication breakdown with the supervisor? Was the employee properly trained? Was the necessary protective equipment available?

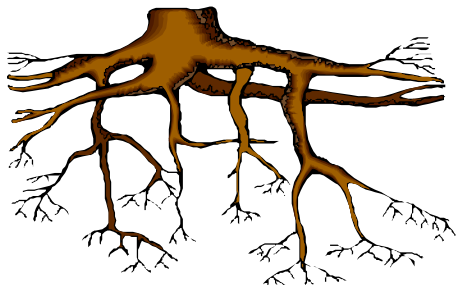
You will get honest answers to these questions only if management has reduced employee fear of repercussion and developed an atmosphere of trust in the company. Employees must know that the goal of accident investigation is prevention, not blame. Through this questioning process, you can discover aspects of the system that, when improved, can accomplish this.

GROUNDWORK FOR ACTION

The root cause or causes are the most basic underlying factors which, if corrected or removed, will prevent recurrence of the situation. It important to know where to look for root causes. In nature, roots are found in the soil. In organizations, the soil is the system that management uses to plan, lead, organize, and control. Usually, these are published as the policies and procedures of the organization. Hopefully, those written policies will be carried out by the entire workforce. If not, a root cause analysis will be appropriate.

DIG DEEP FOR ANSWERS

In your search for the root cause, each answer to the question “Why?” must either lead forward or yield the root cause. No analysis should lead to a dead end. If it does, something must have been missed, or perhaps an alternate path to the answer exists. You have not found a root cause until you have reached a point where you can take root action.
To be successful in root cause analysis, you must ask and answer the question “Why?” at least five times. Each questions should dig deeper for underlying, contributing factors that may be in need of correction. We hope the worksheets that follow in this issue will help you track incidents back through the cause and effect chain of operation until you identify (and ultimately eliminate) all possible causes of personal pain and financial loss.



ROOT CAUSE ANALYSIS OF ACCIDENT / INJURY

Injury: ☐ Near Miss: ☐ Property Damaged: _____

Date of Event _____ Time _____ a.m./p.m. Work Location _____

Person Injured: _____

Extent of Injury: _____

Exact Location of Event: _____

Witness(es): _____

1. Describe What Happened: _____

_____

_____

2. What task did the injured person perform prior to the accident / near miss?

_____

3. Describe any tools, machinery or equipment that were being used? _____

_____

_____

4. Was this person working alone? Yes ☐ No ☐ With? _____

5. Time in this work area: 1 2 3 4 5 6 7 Days ☐ Week s ☐ Years ☐

6. How much experience did the injured person have in performing this task?: _____

_____

Additional Comments: _____

_____

_____

_____

_____

(Use the reverse side for additional notes if necessary)

GETTING TO THE ROOT CAUSE

STEP 1 - CONTRIBUTING FACTORS

- Use this listing as an aid for identifying the factors that contributed to this event.
- Don't be limited by the categories listed--add items as needed. Check all that apply.

PROCEDURES

	v
Not Developed	
Developed - Not Communicated	
Developed - Not Understood	
Developed - Not Followed	
Lack Of Disciplinary Policy	
Other	

COMMUNICATION

	v
Insufficient Planning For Tasks	
Lack of Worker Communication	
Lack of Supervisor Instruction	
Work Team Breakdown	
Confusion After Communication	
Other	

HAZARD(S)

Unidentified	
Known But Not Corrected	
Created By External Factors	
Documented But Not Repaired	
Condition Changes Not Conveyed	
Repaired Deficiently	
Unforeseen Emergency	
Other	

TRAINING

Deficient Orientation Training	
Deficient Job-Specific Training	
Insufficient For New Conditions	
Lack Of Follow-Up Reinforcement	
Lack Of Supervisor Training	
Hazards Overlooked In Training	
Tool(s) Used Incorrectly	
Other	

PRODUCTION FACTORS

Heavy Workload	
Tight Schedule	
Long /Unusual Working Hours	
Falsely Perceived Need to Hurry	
Co-Worker Competition	
Lack of Teamwork	
Changes in Production	
Other	

WORK BEHAVIOR

Shortcuts Taken	
Required PPE Not Used	
PPE Not Used Properly	
Tool/Equipment Used Incorrectly	
Overexertion/Fatigue	
Distraction	
Drug/Alcohol Use/Influence	
Other	

FACILITIES/EQUIPMENT

Poor/Faulty Equipment Design	
Corrosion/wear	
Equipment Not Guarded	
Awkward Workspace Design	
Lack of Preventive Maintenance	
Other	

ENVIRONMENT

Weather, Temperature	
Poor Housekeeping	
Poor Lighting	
Poor Visibility	
Air Quality	
Other	

Getting to the Root Cause - Continued

STEP 2 - MAJOR CAUSE

- From the categories identified, choose the *major* cause of the incident.

☐ **PROCEDURES**	☐ **COMMUNICATION**
☐ **HAZARD**	☐ **TRAINING**
☐ **PRODUCTION FACTORS**	☐ **WORK BEHAVIOR**
☐ **FACILITIES/EQUIPMENT**	☐ **ENVIRONMENT**

STEP 3. ANALYSIS OF MAJOR CAUSE(s):

Why did this happen?*
Why…?
Why…?
Why…?
Why…?
Corrective Steps for Major Cause:
Corrective Steps for Contributory Causes:

* *For each answer to "why?" seek one or more underlying or contributing causes.*

* *To assure elimination of all hazards identified above, it may be necessary to repeat the above five steps several times if a major cause appears in more than one category.*