Incident Investigation

Risk Control from Liberty Mutual Insurance

Understanding the contributing factors to harmful events so that they can be acted on is the point of incident investigation. Critical elements and considerations for effective incident investigations is the focus of this reference.

Highlights:

- How incidents happen
- How high performing companies investigate incidents
- Adding value through lessons learned

No system for getting things done is perfect and things don't always happen as they should. Minor glitches are common and have such little effect by themselves that most go unnoticed. The compounding effects of these minor glitches over time produce process failures that occasionally do harm.

When incidents occur, finding a trigger or cause is a natural tendency, as is looking for error or fault of an individual. A critical feature that differentiates incident investigations that add value from those that do not is starting with two foundational principles:

1. **Incidents occur from more than one cause alone.** Just as systems have multiple controls for things getting done as they should, there are multiple contributing factors to things not happening as they should. Productive incident investigation examines interactions between multiple imperfections that lead to incident producing circumstances.
2. **Attributing incident occurrence to error by an individual is counterproductive.** People make judgments on what to do according to the circumstances they face at points in time. Productive incident investigation focuses on how systems failed to influence the right decision on what to do, not on how a person failed to make the right decision when the circumstances didn't support it.

Incident Investigation in High Performing Companies

Incident investigation has one purpose: to identify system imperfections and correct them so that the situation resulting in the incident isn't repeated. As incidents are investigated and factors contributing to them are acted on, systems for getting things done are continuously improved. And through continuous improvement, value is added across the organization.

Management, supervisors, safety staff, and employees each have different roles in terms of incident investigation.

Management

Management is the stakeholder in incident investigation and should commit to communicating the following:

- That no level of harm done by company operations is acceptable
- That reducing risk is integral to how the company does business
- That everyone has a role in risk reduction and incident investigation is essential
- That when incidents occur, initiating their investigation is an urgent priority

Management should also develop expectations, by function/role, for performing incident investigations and educate everyone in the expectations for their role.

Management should demonstrate support for the incident investigation process in the following ways:

- Establishing standards for how it is carried out and what it produces
- Providing role-specific training in the process for meeting the standards
- Managing performance in meeting the standards
- Reviewing and responding to investigations:

  - With the same urgency as expected for initiating the investigation
  - To those involved in the investigation
  - On what will be done (an action plan) based on the findings
  - Including comments on the quality of the findings
  - Resourcing the action plan
  - Following the action plan to completion
  - Communicating process changes resulting from plan completion across the operation
  - Assuring that learnings are transferred and applied between operational functions
- Sustaining the process using trending and analysis of findings, leading frequent discussions on them, and celebrating operational improvements that affect them

Supervisors

Supervisors are responsible for investigating incidents that occur in their areas and are accountable for the following:

- Initiating the investigation process
- Leading the process
- Ensuring process output meets company standards
- Executing action plans

Safety Staff

Safety staff provides resource support to supervisors and are accountable for the following:

- Assisting in selecting and engaging investigation team members
- Assisting the supervisor in process facilitation
- Providing resource support to the investigation team

Product Employees

Production employees are also involved and accountable for the following:

- Immediately reporting incidents to the supervisor of the area in which it occurs
- Providing factual information on circumstances of the incident
- Being engaged as needed in the investigation process

Process Standards

Which Incidents should be Investigated?

There is value in investigating all incidents. Incident investigations provide an opportunity to identify ways to make things work better and reduce risk. Prioritizing certain types of incidents or levels of severity for additional examination and action can be very beneficial.

When should Incidents be Investigated?

Initiate incident investigations as soon as possible after they occur. Investigate while the facts are still clear in people's minds. Prompt investigation shows interest in implementing corrective measures and reflects concern for workers.

Who should participate in the Investigation?

Incident investigation teams, led by the accountable supervisor, should include people with direct knowledge of the work activity in which the incident occurred. Representatives from maintenance, engineering, safety and medical, as well as

witnesses and even outside sources of subject matter expertise can increase the effectiveness of the investigation

What should be included in the Incident Investigation Report?

Effective reports of findings have several common elements:

- **Statement of what happened.** An objective description of the incident event with no suggestion or inference of cause."
  - State the occurrence to be studied in simple, precise, and objective terms.
  - Describe what happened without stating, or implying why it happened.
  - State who/what was injured/damaged.
  - State the source of the injury or damage.
  - *For example; "Associate's right hand was cut by moving, high tensile yarn."*
- **Statement of what else was happening.** An objective description of circumstances prior to the incident.
  - Use multiple precise statements that describe circumstances that may have been relevant when, and/or before the incident occurred.
  - Describe factors or discrepancies that could have contributed to the event being investigated.
  - *For example; "There was a choke (fiber tangles in yarn spinning mechanism) creating defects in yarn. There had been multiple chokes in the 4 hours since start of shift. Production was behind. It was 10 minutes before lunch."*
- **Logic applied to identify contributing factors to the incident.**
  - Describe the process used and how it revealed contributing factors. A "Why-Why Analysis" is an effective process for systematic root cause identification.
- **Root causes identified.** This includes actionable statements of contributing factors judged to be specifically related to the incident. Should not be described as an error, fault, or failing of an individual.
  - *For example; "Why was the machine "choking?"*
  - *"The spinning frame drive belt had missing teeth, causing stuttering of the spinning mechanism." Why?*
  - *"Excessive heat is accelerating deterioration of the belt material." Why?*
  - *"Belts are not designed for current operating heat levels." Why?*
  - *"Higher operating speeds create higher heat." Why?*
  - *"Operating speed has been increased since belts were specified/purchased." Why?*
  - *"High-tensile fiber can be spun at higher speed than cotton. Doing so produces higher quality and output."*
- **Countermeasures for mitigating root causes.** Alternative approaches identified for acting on the incident root causes.
  - *For example; the following approaches could reduce choking of spinning frames and decrease opportunity for operators to be in proximity of moving yarn:*
  - *Install cooling fan at drive gear/belt interface.*
  - *Decrease operating speed of machine.*
  - *Specify/purchase belts designed to withstand current heat level.*
  - *Increase belt inspection/replacement frequency.*
  - *Revise machine start procedure to include belt inspection.*
  - *Train operators in belt deterioration detection.*

- **Action plan recommendation to management.** Identify the strategy judged to be the best option for risk reduction.
  - *For example; Recommended Action Plan for Reducing Risk of Associates Contacting Moving Yarn when Addressing Spinning Frame Choking.*
    - *Specify/purchase belts designed to withstand current heat level.*
    - *Increase belt inspection/replacement frequency.*
    - *Revise machine start procedure to include belt inspection.*
    - *Train operators in belt deterioration detection.*
    - *Prioritize discussion of choke clearing procedures and barriers to completing them during daily huddles in the spinning department.*

Adding Value through Lessons Learned

Little is to be gained from the incident response and investigation process if the information is not reviewed, analyzed, and addressed. If the frequency of incidents is a concern, trending and analysis of multiple incidents may identify a pattern of behaviors or system issues that need to be corrected. Involving employees in the incident review process is an effective way to gain insights about exposures and controls as well as engage their support for changes that may be needed to help reduce risk.

As an organization analyzes its incidents and losses, management, employees, and risk managers can better address the following issues:

- **Process audits and assessments.** Are they being done? How often? Formally or informally? Is training content adjusted accordingly? Are training records kept? Are inspections documented?
- **Policies, procedures, and controls.** Are they adequate to decrease likelihood of an incident? What are industry best practices? Can risk be transferred or limited?
- **Loss trending and analysis.** Where are strengths and weaknesses? What are the opportunities and threats?
- **Proficiency and capability.** Is training adequate? Is training effective? What new skills are needed?
- **Benchmarking.** How do current results compare to previous periods? How do they compare to industry averages?
- **Networking.** What practices done by industry leading companies should be explored for adoption?

As these practices take hold, many companies find that value is added to their business in a variety of ways — things are done better and they learn to do better things. In higher performing companies, improving process is cause for celebration and they do just that. This fuels engagement in the risk reduction process and sustains its effects.

Resources

Visit Liberty Mutual SafetyNet™ for more information on incident investigation and root cause analysis.