

NECA Guide to Accident Investigations

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presented by **WESTEX**
by Milliken



What Get's Investigated?



Accident vs. Incident

Accident - An unplanned, unwanted, but controllable event which disrupts the work process and causes injury to people.

Incident - An unplanned and unwanted event which disrupts the work process and has the potential of resulting in injury, harm, or damage to persons or property.



Why investigate?

- Prevent future incidents (leading to accidents).
- Identify and eliminate hazards.
- Expose deficiencies in process and/or equipment.
- Reduce injury and worker compensation costs.
- Maintain worker morale.



What should the results be?



Causes

- **Direct Cause** – unplanned release of energy or hazardous materials
- **Indirect Cause** – unsafe acts and/or unsafe conditions
- **Root Cause** – policies and decisions, personal factors, environmental factors



Identifying Precursors

- Reasonably detectable event, condition, or action that serves as warning sign of an event
- An unmitigated High Risk situation that will eventually result in a serious injury or fatality if allowed to continue



Simplified Root Cause Approach

- **The “five whys”**

My car will not start.

- 1) *Why?* - The battery is dead. (first why)
- 2) *Why?* - The alternator is not functioning. (second why)
- 3) *Why?* - The alternator belt has broken. (third why)
- 4) *Why?* - The alternator belt was well beyond its useful service life and has never been replaced. (fourth why)
- 5) *Why?* - I have not been maintaining my car according to the recommended service schedule. (fifth why/root cause)



Steps of Investigation

- Prepare
- Collect Evidence
- Analyze
- Report
- Take Corrective Action



Prepare

- Develop an Accident Investigation Program
- Prepare Investigation Kit
- Provide first aid and medical care
- Manage the scene (secure the scene, make sure it is safe for investigators to do their job)
- Manage witness (provide support and limit interaction with other witnesses)
- Report the incident



Prepare: Accident Investigation Program

- How and when management is to be notified
- OSHA Notification Procedures
- Who is authorized to notify outside agencies (fire, police, etc.)
- Who will conduct investigations (training?)
- Timetables for investigation and recommendations
- Who will receive investigation recommendations
- Who will be responsible for implementing corrective actions
- Who will ensure effectiveness of corrective actions



Prepare: Who conducts the investigation?

- experienced in incident causation models
- experienced in investigative techniques
- knowledgeable of any legal or organizational requirements
- knowledgeable in occupational health and safety fundamentals
- knowledgeable in work processes and environment for situation
- able to use interview/other person-to-person techniques
- knowledgeable of requirements for records and data collection
- able to analyze data gathered and reach recommendations



Prepare: Notifying OSHA

- All work-related fatalities within 8 hours
- All work-related inpatient hospitalizations within 24 hours
- All amputations within 24 hours
- All losses of an eye within 24 hours



Sample Items Investigators Kit

- Camera
- Charged Batteries (phones, cameras, equipment, etc.)
- Video / Audio recorder
- Measuring devices
- Leveling rod
- Clipboard and writing pad
- Pens, pencils, markers
- Graph paper
- Paint stick (yellow/black)
- Straight-edge ruler (scale reference in photos)
- Incident investigation forms
- Flashlight
- Strings, stakes, warning tape
- Photo marking cones
- PPE
- Magnifying glass
- High visibility plastic tapes to mark off area
- First aid kit
- Latex gloves
- Containers with seals
- Identification tags



Collect Evidence

Evidence framework based on information needed to determine causes

Types of Evidence

- Physical evidence
- Witness Statements



Collect Evidence: Framework

- Who
- What
- When
- Where
- Why
- How



Collect Evidence: Framework

Incident Categories

- Task
- Material
- Work Environment
- Personnel
- Management



Collect Evidence: Framework

- **Task**

- Was a safe work procedure used?
- Had conditions changed to make the normal procedure unsafe?
- Were the appropriate tools and materials available?
- Were they used?
- Were safety devices working properly?
- Was lockout used when necessary?

For most questions, important root cause follow-up "If not, why not?" or "Why?"



Collect Evidence: Framework

- **Material**

- Was there an equipment failure?
- What caused it to fail?
- Was the machinery poorly designed?
- Were hazardous products involved?
- Were they clearly identified?
- Was a less hazardous alternative product possible and available?
- Was the raw material substandard in some way?
- Should personal protective equipment (PPE) have been used?
- Was the PPE used?
- Were users of PPE properly educated and trained?



Collect Evidence: Framework

- **Work Environment**

- What were the weather conditions?
- Was poor housekeeping a problem?
- Was it too hot or too cold?
- Was noise a problem?
- Was there adequate light?
- Were toxic or hazardous gases, dusts, or fumes present?



Collect Evidence: Framework

- **Personnel**

- Did the worker follow the safe operating procedures?
- Were workers experienced in the work being done?
- Had they been adequately educated and trained?
- Can they physically do the work?
- What was the status of their health?
- Were they tired?
- Was fatigue or shiftwork an issue?
- Were they under stress (work or personal)?
- Was there pressure to meet a deadline/by-pass safety procedures



Collect Evidence: Framework

- **Management**

- Were safety rules communicated to and understood by all employees?
- Were written procedures and orientation available?
- Were the safe work procedures being enforced?
- Was there adequate supervision?
- Were workers educated and trained to do the work?
- Had hazards and risks been previously identified and assessed?
- Had procedures been developed to eliminate hazards or control risks?
- Were unsafe conditions corrected?
- Was regular maintenance of equipment carried out?
- Were regular safety inspections carried out?
- Had condition/concern been reported beforehand and action taken?



Collect Evidence: Physical Evidence

- Physical evidence
 - tools/equipment or parts/pieces
 - photos
 - samples
 - design specifications
 - operating logs
 - purchasing records
 - previous reports procedures
 - equipment manuals
 - job safety analysis reports
 - training records



New Rule – Anti-Retaliation

Violations

- Employee reports injury
- Employer's policy requires drug test
- Employee tested
- Employee complains to OSHA employer retaliated by mandating drug test that was not needed



New Rule – Anti-Retaliation

Violations ?

- OSHA “does not ban drug testing”
- Policies should limit post-incident testing to situations in which employee drug use is likely to have contributed to the incident
- “Employers need not specifically suspect drug use before testing, but there should be a reasonable possibility that drug use” was a “contributing factor”
- What is unreasonable?



New Rule – Anti-Retaliation

Compliance

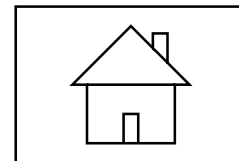
- Substance Abuse Programs should be in writing and contain all of the following:
 - Pre-employment testing
 - Random
 - Reasonable Suspicion and
 - Post-Incident Testing according to policies and procedures clearly communicated to all parties involved and consistently managed



New Rule – Anti-Retaliation

Drug Testing Exemptions:

- Testing to comply with other laws
- Testing for discount on workers' comp rates under state's voluntary drug-free workplace program
- Testing for discount from private workers' comp carrier



Collect Evidence: Physical Evidence

- Photo Tips

- Always make notes about the photos taken
- Start by taking distance shots then move in to take closer photos
- Take photos at different angles
- Take panoramic photos to present entire scene, top-bottom/side-side
- Take notes on each photo
- Identify and document photo
- Place an item of known dimensions in the photo
- Identify the person taking the photo
- Indicate the locations where photos were taken on sketch



Collect Evidence: Physical Evidence

- Sketch the Scene Techniques
 - Make sketches large; at least 8" x 10" and clear, be sure to print legibly
 - Include "Incident Details" (i.e., time, date, injured, location, conditions)
 - Include measurements (distances, etc.) and use permanent points
 - Indicate directions – N= North; E= East; W= West; S= South
 - Make notes on sketch to provide additional information such as the photo location and/or where people were at the time of the incident

The sketch can be used during interviews to help interviewees identify their location before, during or after the incident



Collect Evidence: Witness Statements

Interviewing - DOs...

- conduct interviews as soon as possible
- put the witness, who is probably upset, at ease
- emphasize reason for investigation, determine what happened and why
- make short notes or ask someone else to take them during interview
- ask if it is okay to record the interview, if you are doing so
- let the witness talk, listen
- confirm that you have the statement correct
- try to sense any underlying feelings of the witness
- close on a positive note



Collect Evidence: Witness Statements

Interviewing – DON'Ts...

- intimidate the witness
- interrupt
- prompt
- ask leading questions
- show your own emotions
- jump to conclusions



Collect Evidence: Witness Statements

Interviewing - Ask open-ended not "yes" or "no" questions

- Where were you at the time of the incident?
- What were you doing at the time?
- What did you see, hear?
- What were work environment conditions (weather, light, noise, etc.)?
- What was (were) the injured worker(s) doing at the time?
- In your opinion, what caused the incident?
- How might similar incidents be prevented in the future?



Analysis

- Assemble all information to be able to review at one time
- Look for all pertinent facts
- Review, correlate and pose hypothetical causes
- Keep an open mind to all possibilities
- If gaps in understanding re-interview or look for other data
- Outline potential direct, indirect, contributing and root causes
- Have a second individual conduct an independent review
- Test potential causes - Review again affirm or reject each



Analysis

- Check conclusions to see if:
 - it is supported by evidence
 - the evidence is direct (physical or documentary) or based on eyewitness accounts, or
 - the evidence is based on assumption.



Report

- Provide an accurate narrative of “what happened” include details
- Clear description of causes (direct, indirect and root causes)
- Reasons for your conclusions
- Recommended immediate corrective action
- Recommended long-term corrective action



Corrective Actions

- Respond to recommendations given by explaining what can and cannot be done (and why or why not)
- Develop a timetable for corrective actions
- Monitor that the scheduled actions have been completed
- Check the condition of injured worker(s)
- Educate and train other workers at risk
- Re-orient worker(s) on their return to work
- Review to assure correction is effective



Questions



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