Investigating Accidents

How to find out what really happened.

Course Objectives

- Recognize the need for an investigation
- Investigate the scene of the accident
- Interview victims & witnesses
- Distinguish fact from fiction
- Determine root causes
- Compile data and prepare reports
- Make recommendations

THE ACCIDENT

WHAT IS AN ACCIDENT?

THE ACCIDENT

AN UNPLANNED, UNEXPECTED EVENT THAT INTERFERES WITH OR INTERRUPTS NORMAL ACTIVITY & POTENTIALLY LEADS TO PERSONAL INJURY OR DOLLAR LOSS (EQUIPMENT DAMAGE).

THE ACCIDENT

BASIC TYPES OF ACCIDENTS

THE ACCIDENT

MINOR ACCIDENTS:

- Such as paper cuts to fingers or dropping a box of materials.

THE ACCIDENT

- More serious accidents that cause injury or damage to equipment or property:

- Such as a forklift dropping a load or someone falling off a ladder

THE ACCIDENT

- Accidents that occur over an extended time frame:
  - Such as hearing loss or an illness resulting from exposure to chemicals

THE ACCIDENT
NEAR-MISS

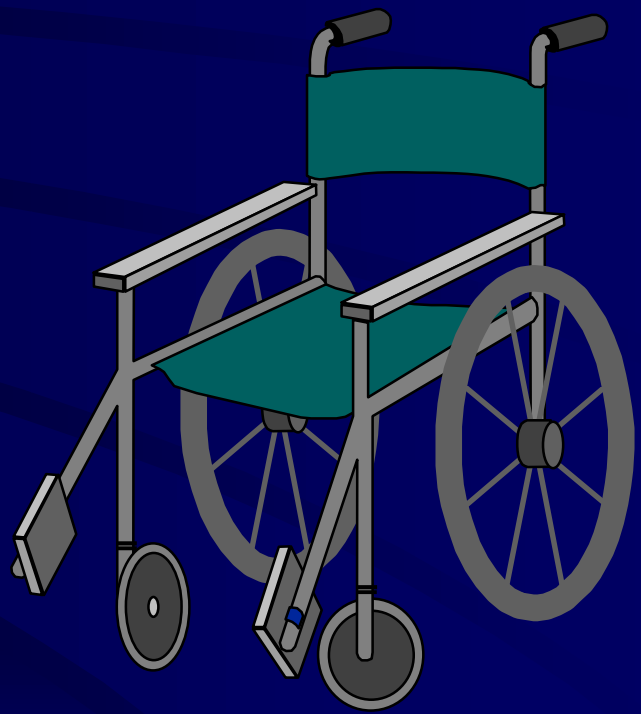
- Also know as a “Near Hit”
- An accident that does not quite result in injury or damage (but could have).
- Remember, a near-miss is just as serious as an accident!

THE ACCIDENT

ACCIDENTS HAVE TWO THINGS IN COMMON

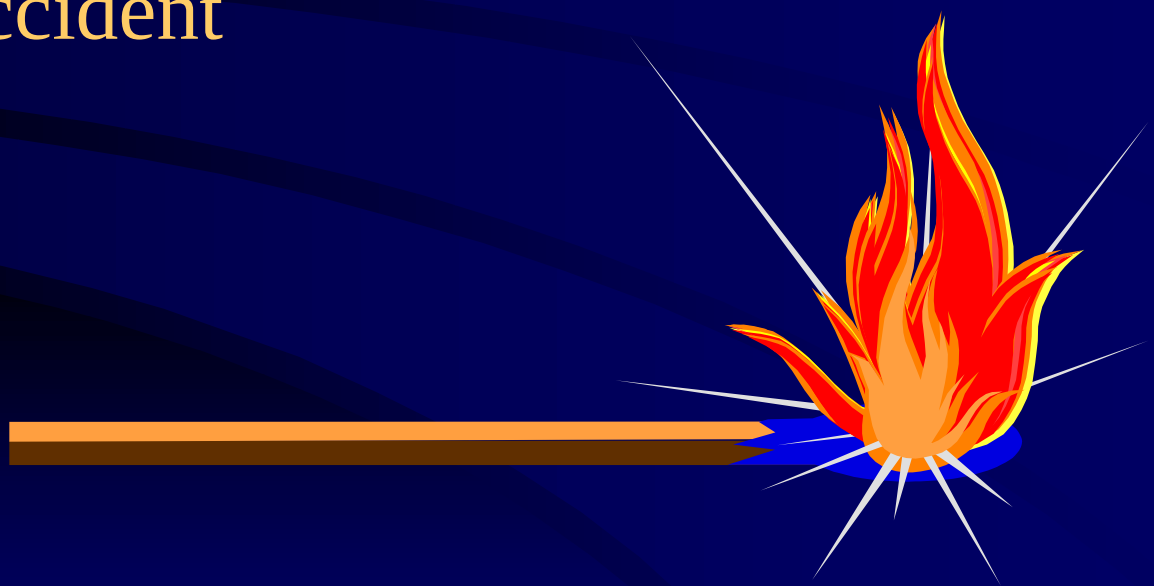
THE ACCIDENT

They all have outcomes from the accident



THE ACCIDENT

They all have contributory factors that cause the accident

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OUTCOMES OF ACCIDENTS

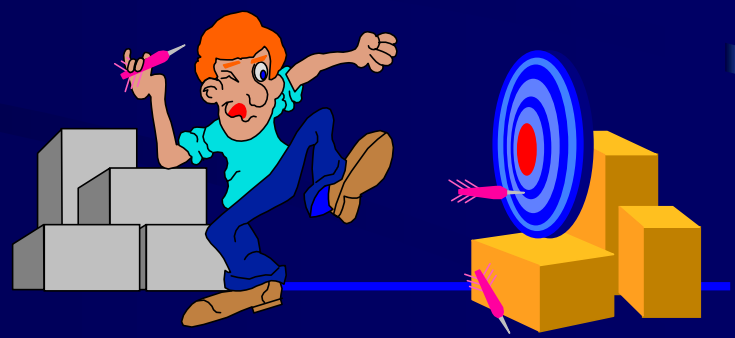
- NEGATIVE ASPECTS
  - Injury & possible death
  - Disease
  - Damage to equipment & property
  - Litigation costs, possible citations
  - Lost productivity
  - Morale

OUTCOMES OF ACCIDENTS

- POSITIVE ASPECTS
  - Accident investigation
  - Prevent recurrence
  - Change to safety programs
  - Change to procedures
  - Change to equipment design

The Aim of the Investigation

- The key result should be to prevent a recurrence of the same accident.
- Fact finding:
  - What happened?
  - What was the root cause?
  - What should be done to prevent recurrence?



The Aim of the Investigation **IS NOT TO:**

- Exonerate individuals or management.
- Satisfy insurance requirements.
- Defend a position for legal argument.
- Or, to assign blame.

Tabletop exercise

- Review incident provided
- Determine contributing factors
- Determine root causes
- Instructor will answer questions

Types of Accidents

- FALL TO
  - same level
  - lower level
- CAUGHT
  - in
  - on
  - between
- CONTACT WITH
  - chemicals
  - electricity
  - heat/cold
  - radiation
- BODILY REACTION FROM
  - voluntary motion
  - involuntary motion

Types of Accidents (continued)

- STRUCK
  - Against
    - stationary or moving object
    - protruding object
    - sharp or jagged edge
  - By
    - moving or flying object
    - falling object
- RUBBED OR ABRADED BY
  - friction
  - pressure
  - vibration

The Investigation

A step-by-step process (almost)

Investigation Strategy

- Gather information
- Search for & establish facts
- Isolate essential contributing factors
- Find root causes
- Determine corrective actions
- Implement corrective actions

Secure the Scene

- Eliminate the hazards:
  - Control chemicals
  - De-energize
  - De-pressurize
  - Light it up
  - Shore it up
  - Ventilate

Provide Care to the Injured

- Ensure that medical care is provided to the injured people before proceeding with the investigation.

Isolate the Scene

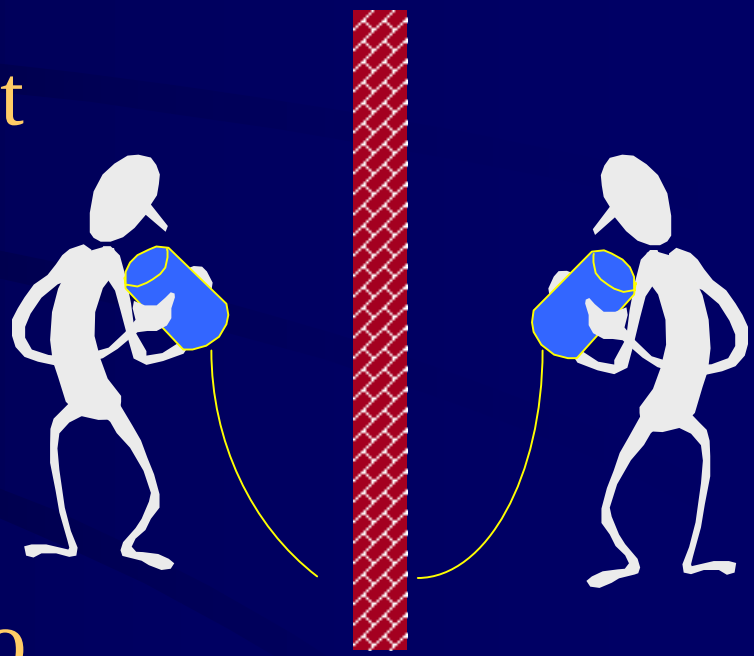
- Barricade the area of the accident, and keep everyone out!
- The only persons allowed inside the barricade should be Rescue/EMS, law enforcement, and investigators
- Protect the evidence until investigation is complete

Ask “What Happened”

- Get a brief overview of the situation from witnesses and victims.
- Not a detailed report yet, just enough to understand the basics of what happened.

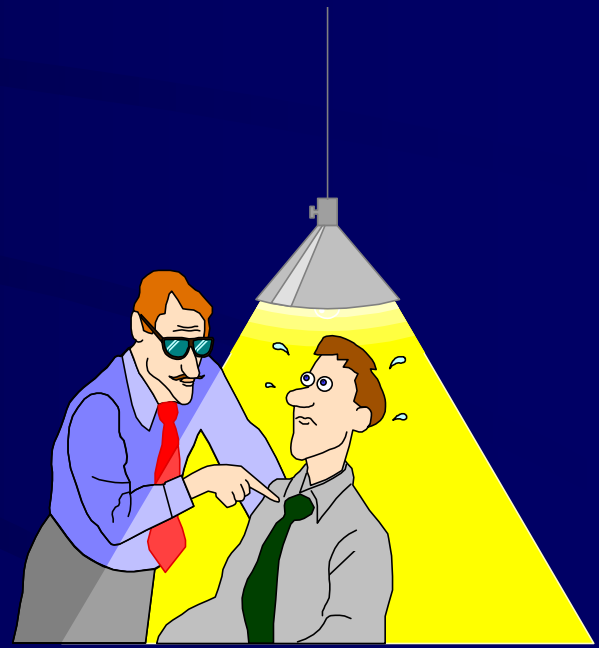
Interview Victims & Witnesses

- Interview as soon as possible after the incident
  - Do not interrupt medical care to interview
- Interview each person separately
- Do not allow witnesses to confer prior to interview



The Interview

- Put the person at ease.
  - People may be reluctant to discuss the incident, particularly if they think someone will get in trouble
- Reassure them that this is a fact-finding process only.
  - Remind them that these facts will be used to prevent a recurrence of the incident



The Interview

- Take Notes!
- Ask open-ended questions
  - "What did you see?"
  - "What happened?"
- Do not make suggestions
  - If the person is stumbling over a word or concept, do not help them out

The Interview

- Use closed-ended questions later to gain more detail.
  - After the person has provided their explanation, these type of questions can be used to clarify
  - “Where were you standing?”
  - “What time did it happen?”

The Interview

- Don’t ask leading questions
  - Bad: “Why was the forklift operator driving recklessly?”
  - Good: “How was the forklift operator driving?”
- If the witness begins to offer reasons, excuses, or explanations, politely decline that knowledge and remind them to stick with the facts

The Interview

- Summarize what you have been told.
  - Correct misunderstandings of the events between you and the witness
- Ask the witness/victim for recommendations to prevent recurrence
  - These people will often have the best solutions to the problem

The Interview

- Get a written, signed statement from the witness
  - It is best if the witness writes their own statement; interview notes signed by the witness may be used if the witness refuses to write a statement

Interview Exercise

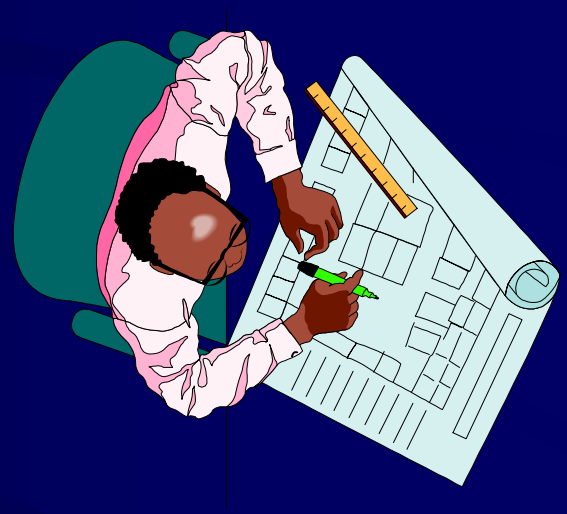
- Read the scenario handout
- Team up in pairs
- One person plays the investigator
- One person plays the witness

Gather Evidence

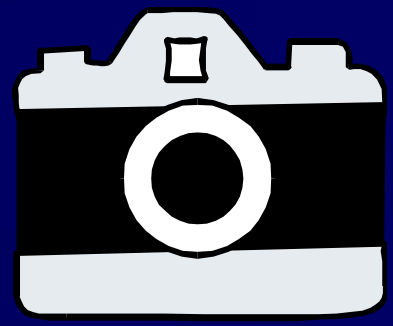
- Examine the accident scene. Look for things that will help you understand what happened:
  - Dents, cracks, scrapes, splits, etc. in equipment
  - Tire tracks, footprints, etc.
  - Spills or leaks
  - Scattered or broken parts
  - Etc.

Gather Evidence

- Diagram the scene
  - Use blank paper or graph paper. Mark the location of all pertinent items; equipment, parts, spills, persons, etc.
  - Note distances and sizes, pressures and temperatures
  - Note direction (mark north on the map)



Gather Evidence



- Take photographs
  - Photograph any items or scenes which may provide an understanding of what happened to anyone who was not there.
  - Photograph any items which will not remain, or which will be cleaned up (spills, tire tracks, footprints, etc.)
  - 35mm cameras, Polaroids, and video cameras are all acceptable.
    - Digital cameras are not recommended - digital images can be easily altered

Review Records

- Check training records
  - Was appropriate training provided?
  - When was training provided?
- Check equipment maintenance records
  - Is regular PM or service provided?
  - Is there a recurring type of failure?
- Check accident records
  - Have there been similar incidents or injuries involving other employees?

ISOLATE FACT FROM FICTION

- Use NORMS-based analysis of information
  - **N**ot an interpretation
  - **O**bservable
  - **R**eliable
  - **M**easurable
  - **S**pecific
- If an item meets all five of above, it is a fact.

NORMS OF OBJECTIVITY

Objective	Subjective
Not an Interpretation – Based on a factual description.	**Interpretations** – based on personal interpretations/biases.
Observable – based on what is seen or heard.	**Non-observable** – based on events not directly observed.
Reliable – Two or more people independently agree on what they observed.	**Unreliable** – Two or more people don't agree on what they observed.
Measurable – a number is used to describe behavior or situation.	**Non-measurable** – a number isn't used.
Specific – based on detailed definitions of what happened.	**General** – based on non-detailed descriptions.

INVESTIGATION TRAPS

- Put your emotions aside!
  - Don’t let your feelings interfere - stick to the facts! (The Eyes Glazed Over)
- Do not pre-judge.
  - Find out the what really happened.
  - Do not let your beliefs cloud the facts.
- Never assume anything.
- Do not make any judgements.

CONTRIBUTING FACTORS

- **ENVIRONMENTAL**
- **DESIGN**
- **SYSTEMS & PROCEDURES**
- **HUMAN BEHAVIOR**

CONTRIBUTING FACTORS

- **HUMAN BEHAVIOR**
  - **Common to all accidents**
  - **Not limited to the person involved in the accident**

CONTRIBUTING FACTORS

- ENVIRONMENTAL
  - Noise
  - Vapors, fumes, dust
  - Light
  - Heat
  - Critters

CONTRIBUTING FACTORS

- DESIGN
  - Workplace layout
  - Design of tools & equipment
  - Maintenance

CONTRIBUTING FACTORS

- SYSTEMS & PROCEDURES
  - Lack of systems & procedures
  - Inappropriate systems & procedures
  - Training in procedures
  - Housekeeping

CONTRIBUTING FACTORS INVESTIGATION STRATEGY

- ISOLATE ESSENTIAL CONTRIBUTORY FACTORS
  - INVESTIGATION TEAM
    - EVALUATES ALL FACTORS CONCERNED

CONTRIBUTING FACTORS INVESTIGATION STRATEGY

- ISOLATE ESSENTIAL CONTRIBUTORY FACTORS
  - INVESTIGATION TEAM
    - ISOLATES THE KEY FACTOR(S) BY ASKING THE FOLLOWING QUESTION....

CONTRIBUTING FACTORS INVESTIGATION STRATEGY

WOULD THE ACCIDENT HAVE HAPPENED IF THIS PARTICULAR FACTOR WAS NOT PRESENT?

DETERMINE CAUSES

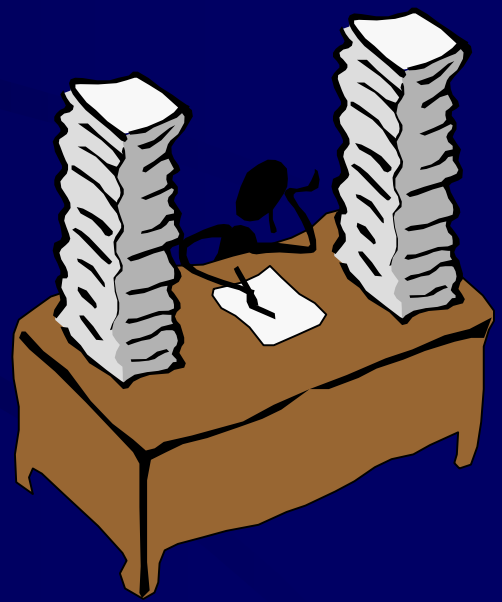
- Employee actions
  - Safe behavior, at-risk behavior
- Environmental conditions
  - Lighting, heat/cold, moisture/humidity, dust, vapors, etc.
- Equipment condition
  - Defective/operational, guards, leaks, broken parts, etc.
- Procedures
  - Existing (or not), followed (or not), appropriate (or not)
- Training
  - Was employee trained - when, by whom, documentation

FIND ROOT CAUSES

- When you have determined the contributing factors, dig deeper!
  - If employee error, what caused that behavior?
  - If defective machine, why wasn't it fixed?
  - If poor lighting, why not corrected?
  - If no training, why not?

PREPARE A REPORT

- Accident Reports should contain the following:
  - Description of incident and injuries
  - Sequence of events
  - Pertinent facts discovered during investigation
  - Conclusions of the investigator(s)
  - Recommendations for correcting problems



PREPARE A REPORT, CONT.

- Be objective!
  - State facts.
  - Assign cause(s), not blame.
  - If referring to an individuals actions, don't use names in the recommendation.
    - Good: All employees should…….
    - Bad: George should……..

MAKE RECOMMENDATIONS

- DETERMINE CORRECTIVE ACTIONS
  - INVESTIGATION TEAM
    - INTERPRETS & DRAWS CONCLUSION
    - DISTINCTION BETWEEN INTERMEDIATE & UNDERLYING CAUSES

MAKE RECOMMENDATIONS

- DETERMINE CORRECTIVE ACTIONS
  - INVESTIGATION TEAM
    - Recommendations based on key contributory factors and underlying/root causes

MAKE RECOMMENDATIONS

- IMPLEMENT CORRECTIVE ACTIONS
  - INVESTIGATION TEAM
    - Recommendation(s) must be communicated clearly and **objectively.**
    - Strict time table established
    - Follow up conducted

COMPANY ACCIDENT FORMS

- Must be filled out completely by the employee and employee's immediate supervisor (this includes foremen).
- Must be turned in to Safety within 24 hours of incident.

BENEFITS OF ACCIDENT INVESTIGATION

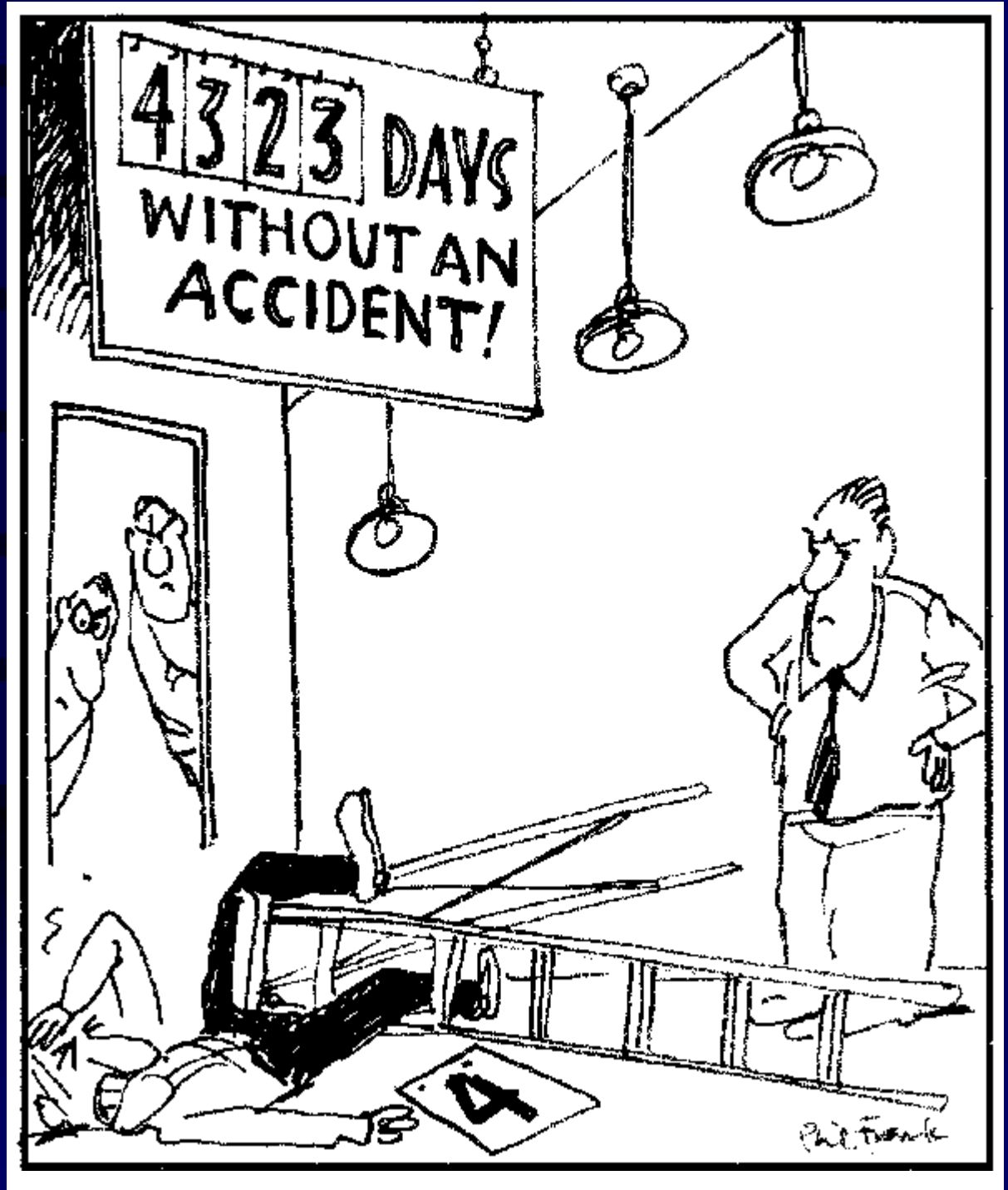
- PREVENTING RECURRENCE
- IDENTIFYING OUT-MODED PROCEDURES
- IMPROVEMENTS TO WORK ENVIRONMENT

BENEFITS OF ACCIDENT INVESTIGATION

- INCREASED PRODUCTIVITY
- IMPROVEMENT OF OPERATIONAL & SAFETY PROCEDURES
- RAISES SAFETY AWARENESS LEVEL

BENEFITS OF ACCIDENT INVESTIGATION

WHEN AN ORGANIZATION REACTS SWIFTLY AND POSITIVELY TO ACCIDENTS AND INJURIES, ITS ACTIONS REAFFIRM ITS COMMITMENT TO THE SAFETY AND WELL-BEING OF ITS EMPLOYEES


4323 DAYS
WITHOUT AN
ACCIDENT!
4

THANK YOU!

- Remember, always dig deep for the answers.
- Don’t suffer from TEGO!

WHAT HAVE YOU LEARNED?

- Final Exercise!
- Review incident provided
- Determine contributing factors
- Determine root causes
- Present report