

# Accident Investigation

A Cal/OSHA Perspective

# What does Cal/OSHA Investigate?

- Fatality/Catastrophe (Fat/Cat)
- Serious injury
- Pesticide-related poisoning
- Serious exposure

Note: An investigation is an “unprogrammed inspection”.

# Who does Cal/OSHA Investigate

- Employer
- Must establish an employer-employee relationship

# Why Investigate

- To determine cause
- To ensure Safety Orders not violated
- To prevent future occurrences (abatement)
- To report findings (share knowledge)

# How are we Notified

- Employer within 8 hours
  - Emergency responders
  - Physicians
- 
- Failure to notify as required is a citable violation (\$5000)

# Response

- Fatality/Catastrophe
  - Immediately, but not more than 8 hours
  - 72 hours to report to DA or Circuit Prosecutor
  - Expedited report to DA/CP in 90 days
- Non-fatal accident
  - 24-48 hours

# The Cal/OSHA Team

- Cal/OSHA Engineer (Compliance)
- Bureau of Investigation (BOI)
  - Fatality/Catastrophe
- Multiple team members
  - Process Safety Management
  - Pressure Vessel
  - Cranes

# Coordination

- First-responders
  - The initial scene is typically chaos
  - Order to Preserve
  - Order Prohibiting Use
- Employer (or legal representative)
  - Permission to inspect
  - Preserving evidence
  - Providing documents
- Local District Attorney

# Conducting the Investigation

- An investigation should be conducted with the reporting requirements in mind.
- Anticipating the end product helps organize the investigation.
- Ask lots of questions, but know where the answers will go in the report

# Conducting the Investigation

- A good report is like a good news story
  - 5W's and an H
    - Who
    - What
    - When
    - Where
    - Why
    - How

# Conducting the Investigation

- Who
  - Victim (Employee)
  - Employer
  - Witnesses
  - Other knowledgeable people

# Conducting the Investigation

- What

Statement of physical event:

“employee fell in hole”

“employee hand caught in machine”

“employee burned by caustic fluids”

# Conducting the Investigation

- When
  - Time of event
  - Relevance of this time spot (if any)
    - Shift change
    - Weekend
    - Day-night

# Conducting the Investigation

- Where
  - Physical location
  - Relation of victim to location
    - Always
    - Sometimes
    - Infrequently

# Conducting the Investigation

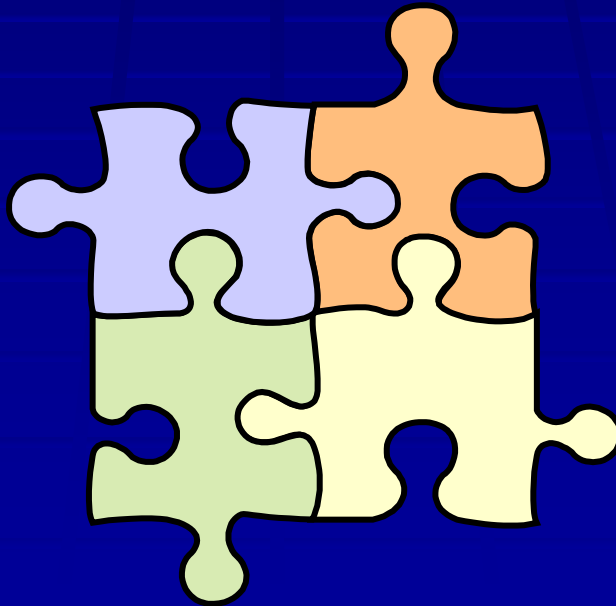
- Why/How
  - Something failed
    - Guard
    - Machine
    - Process
    - Human
      - Awareness
      - Training
  - Every accident we investigate is an exercise to determine what failed.

# Conducting the Investigation

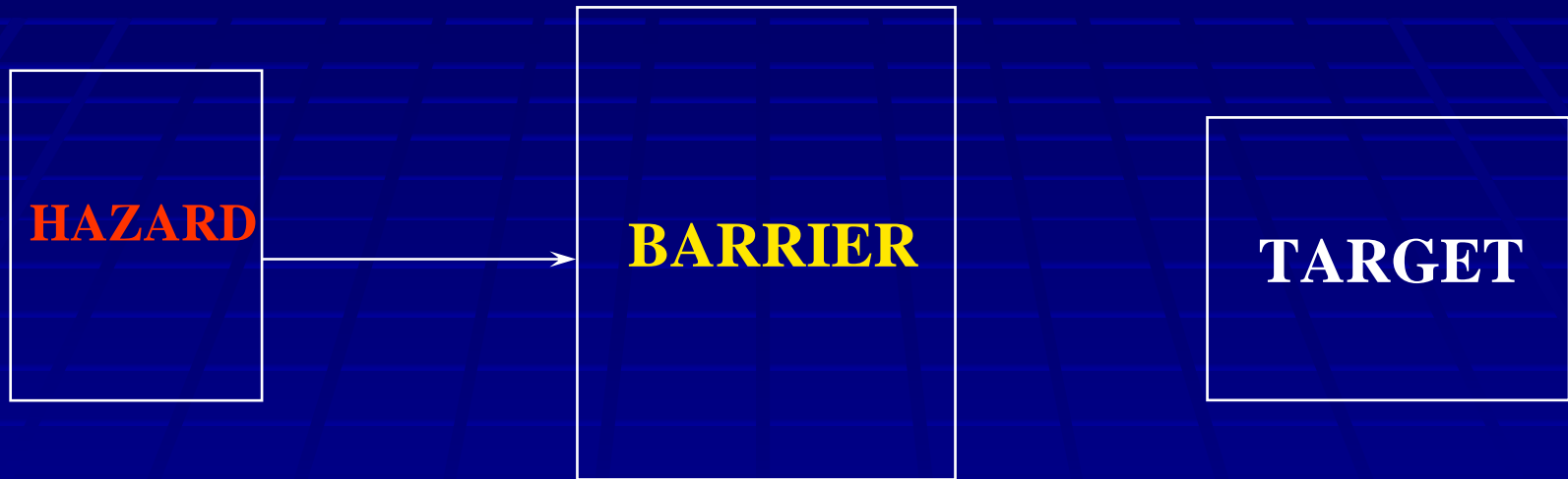
- How do we determine what failed?
- How do we sort the findings to reach a conclusion?

# Accident Models

A structured way to identify the reasons that accidents occur



# Hazard-Barrier-Target Model



## HAZARDS

Heat  
Toxics  
Flammables  
High Energy Impact  
Falls  
Electrical Energy  
Nip Point

## BARRIERS

Distance  
Time  
Insulation  
Mechanical Guard  
PPE  
Training  
Policies/Procedures

## TARGETS

Workers  
Public  
Equipment

# Barrier Analysis

Used to identify administrative, management, and physical barriers that could prevent or minimize the severity and likelihood of an accident.

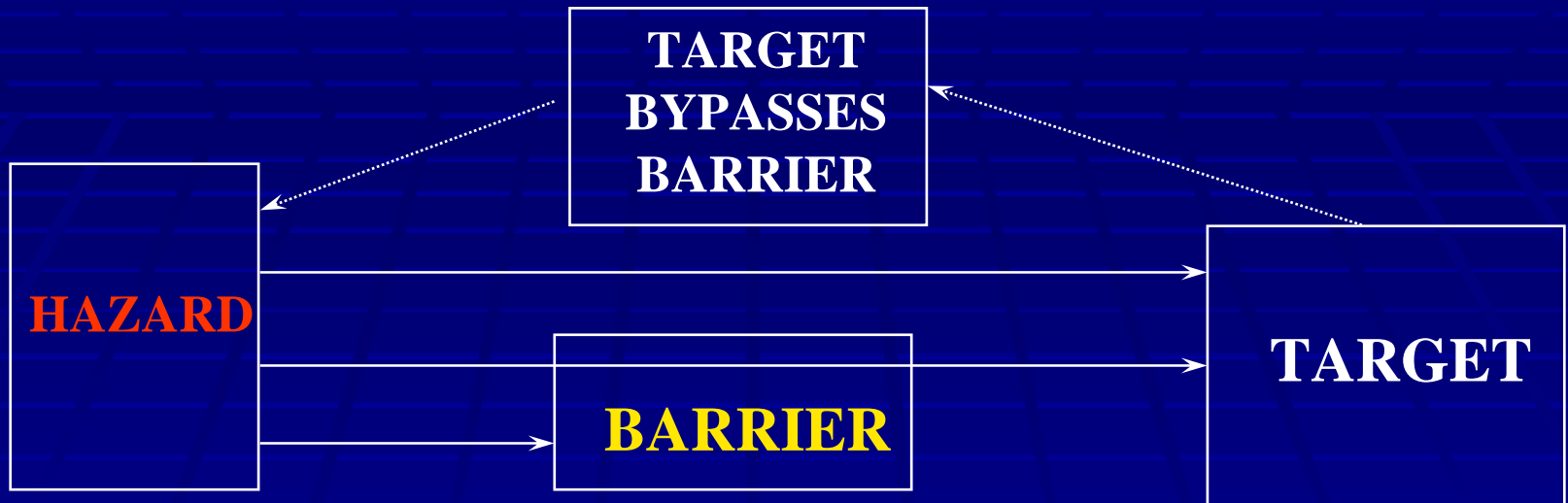
# Barrier Analysis

- Looks for those specific barriers, that either failed or were missing, that could have prevented or mitigated the accident.
  - “What is missing that could have prevented this accident/injury?”

# Barrier Analysis

- After investigation, the model might look more like this:

# Hazard-Barrier-Target Model



## HAZARDS

Heat  
Toxics  
Flammables  
High Energy Impact  
Falls  
Electrical Energy  
Nip Point

## BARRIERS

Distance  
Time  
Insulation  
Mechanical Guard  
PPE  
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Policies/Procedures

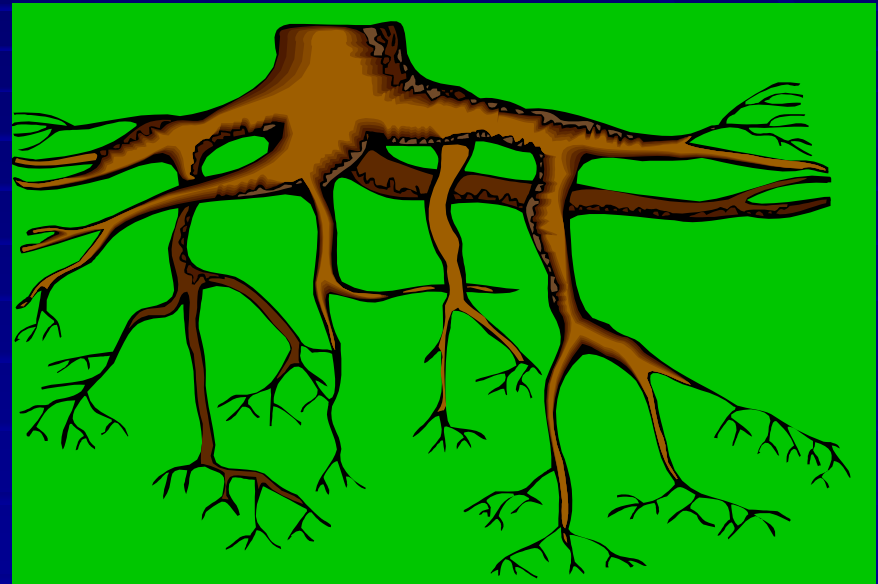
## TARGETS

Workers  
Public  
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# Accident Models

## Root Cause Analysis

- The **root causes** are the *underlying* management system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent *surface causes* of accidents.



# Accident Root Causes

- Root Causes are almost always a result of a failure in a management system
- If the management system doesn't change, the failure will probably occur again (implies that there may be a history of occurrences).

# Cal/OSHA Mandate

- Determine root cause (what failed)
- Evaluate causal factors
- Determine if causal factors were violations of Safety Orders (T8 CCR)
- Issue citations for violations
- Require abatement
- Report findings (C-36, C-170)

# Resources

- [www.dir.ca.gov](http://www.dir.ca.gov)
- [www.dir.ca.gov/DOSH/Pol/P&PC](http://www.dir.ca.gov/DOSH/Pol/P&PC)\_\_\_\_\_
- P&P-36 Accident report
- P&P-170,170A Accident investigation