



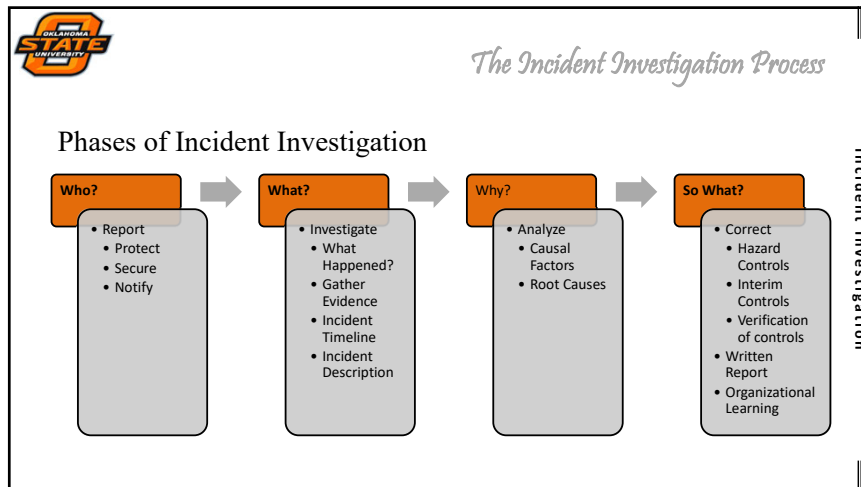
## FPST 3013 – SAFETY MANAGEMENT THE INCIDENT INVESTIGATION PROCESS

Lecture 8  
Corrective Actions  
Cause Determination Practice

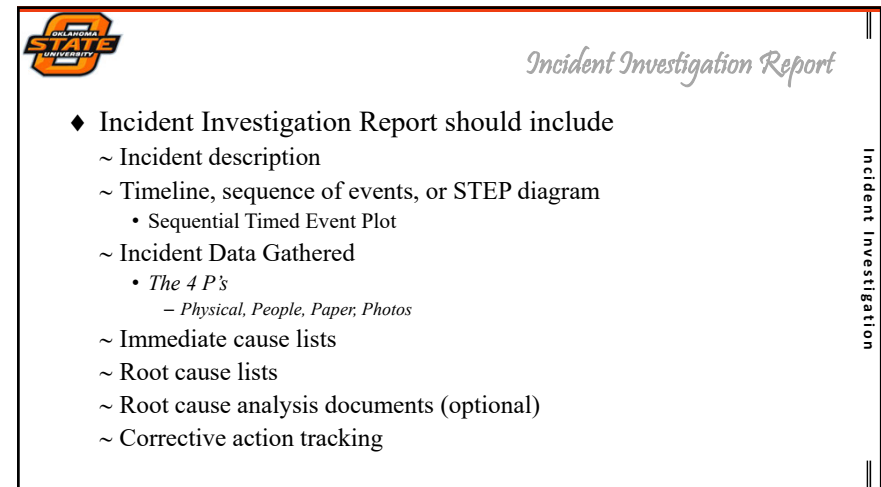
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## INCIDENT INVESTIGATION REPORT

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# Collaborative Bachelor's Degree Program of Fire Protection and Safety Engineering Technology between Southwest Jiaotong University and Oklahoma State University, U.S.A.



## Incident Investigation Written Report

Incident Investigation Report			
Date/Time:		Location:	
Nature of Loss:		Type of Injury:	
Task Performing:			
Incident Description			
Causal Factors			
Corrective Actions			
Investigated by:			Date:

Incident Investigation

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## Writing the Report

- ◆ Avoid using names if possible, use job titles
  - ~ Collect witness statements
    - This can be done with or without the involved employee present
  - ~ Use the checklist method
- ◆ Cause Analysis
  - ~ Methodology used (5 Why, SCAT, Cause map, Fishbone, etc.)
    - Break facts into topic areas (fishbone diagram)
  - ~ List all root causes and points where control was lost

Incident Investigation

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## Writing the Report

- ◆ Description
  - ~ Tell what you have decided actually happened in detail. Don't assume or guess. Prove what you say.
- ◆ Avoid opinion, subjective conclusions or assumptions
- ◆ Avoid language that assigns blame
- ◆ Write in an easy to follow style (3<sup>rd</sup> person POV, active voice)
  - ~ The report was written by the Safety Manager
  - ~ The Safety Manager wrote the report

Incident Investigation

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## Writing the Report

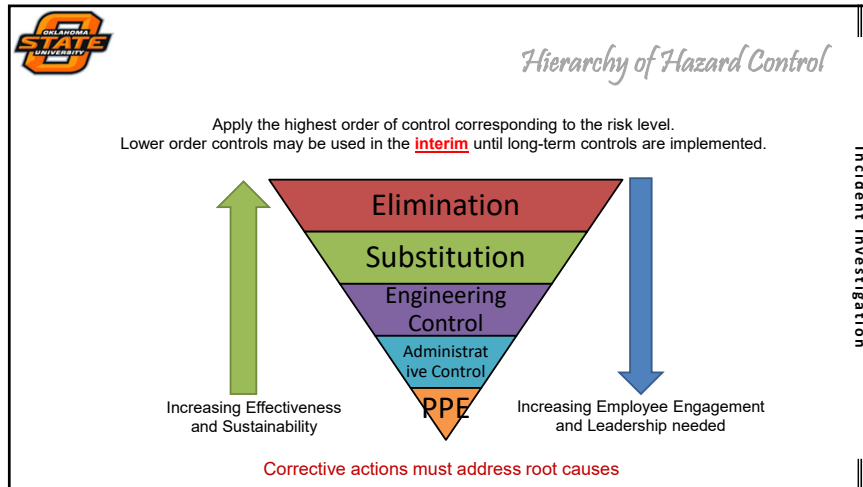
## LEARNING FROM INCIDENTS

"On the occasion of every accident that befalls you, remember to turn to yourself and inquire what power you have for turning it to use."

Epictetus, 0055 – 0135

Incident Investigation

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*Writing the Report*

Corrective action writing tips

- ◆ Use an adequate amount of chemical
- ◆ Use the appropriate PPE
- ◆ Provide a sufficient amount of hearing protection
- ◆ Place the machine in a safe position
- ◆ Use the proper gloves
- ◆ Follow the correct procedure
- ◆ Wear suitable head protection
- ◆ Avoid using subjective words like those above

Incident Investigation

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*Writing the Report*

- ◆ Corrective Action
  - ~ Write a corrective action for each point where control was lost
- ◆ Attach graphs, drawings, photos, diagrams as necessary

Incident Investigation

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*Learning from Incidents*

Organizational Learning

- ◆ Leadership is key to an effective incident investigation system
- ◆ Share incident information across work units
- ◆ Conduct formal reviews of investigation results
- ◆ Look for opportunities to improve the overall safety system
- ◆ Improve the investigative process and report writing skills
- ◆ Analyze data for incident trends over time

Incident Investigation

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### *Document Retention and Protection*

- ◆ Procedure should outline how documentation will be stored and for how long
  - ~ Some regulatory requirements exist, check AHJ
    - OSHA 300 logs of Work Related Injuries – current year +5 years
    - DOT Commercial Vehicle Incident Logs – 3 years
    - PSM Incident Investigations – 5 years
      - Specific to 29 CFR 1910.119

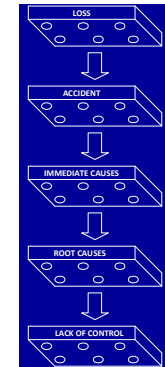
Incident Investigation

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### *SCAT Charts*

- ◆ Vertical version of the Bird & Germain domino theory model



Incident Investigation

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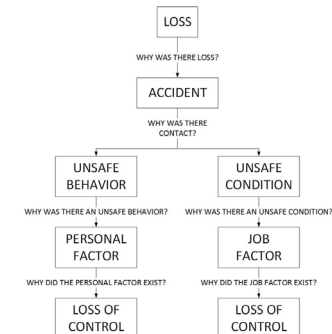


### *Accident Investigation*

Cause Determination Practice

Incident Investigation

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Incident Investigation

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### Investigation Practice

- ~ Interview
  - Write 2 questions you have for this person
- ~ Written description
  - Bullet list
- ~ Causes
- ~ Corrective Actions



Incident Investigation

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### Written Description

- ◆ Employee was grinding on the side of a building on the top of a scaffolding surface 30 feet above the ground. No guardrails were installed around the area where the Employee was working and the Employee was not wearing any fall protection. The Employee was exposed to falling to the ground resulting in serious injury or death.

Incident Investigation

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### Bullet List

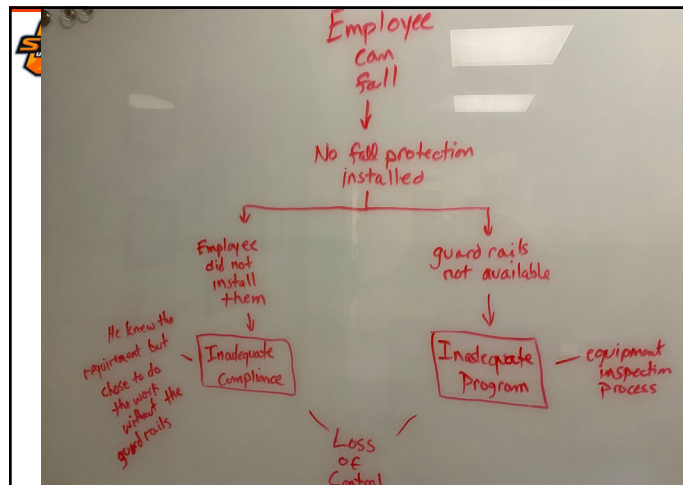
- ◆ Employee grinding on the side of a building
- ◆ Employee is working on the top scaffolding surface 30 feet above the ground and is exposed to falling to the ground
- ◆ No guardrails are installed on the surface the employee is working on
- ◆ Employee is not wearing any fall protection

Incident Investigation

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### Cause Tree



Incident Investigation

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*Example #2*

forklift driver

Incident Investigation

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*Good Description?*

- ◆ Forklift operator was traveling through aisle carrying a stack of wood. It hit a shelf leg causing the shelf to collapse
- ◆ Not a good description

Incident Investigation

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*Good Description?*

- ◆ Forklift hit shelf and shelf collapsed
- ◆ Not a good description

Incident Investigation

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*Use a Bullet List*

- ◆ Forklift operator driving through aisle
- ◆ Carrying 4 x 8 wooden panels.
- ◆ Panels are not straight on forks
- ◆ High rack storage on right, drum storage on left
- ◆ Aisle is narrow
- ◆ Corner of the wood stack hit high rack storage leg
- ◆ High rack storage shelves collapsed
- ◆ No injury

Incident Investigation

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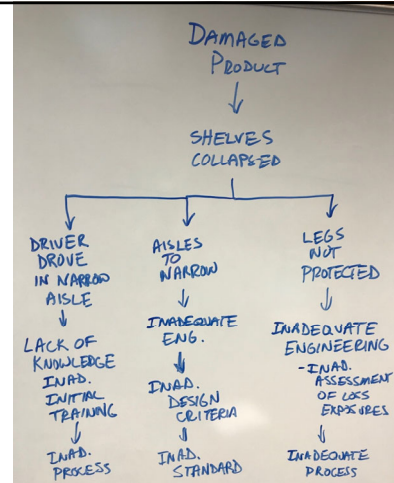


### Good Description?

- ◆ The forklift operator was driving the forklift east through the aisle carrying a stack of 4 x 8 wooden panels. The operator was driving through a narrow area created because there are too many drums being stored too close to the high rack storage. A corner of the wood stack he was carrying hit one of the high rack storage legs because the panels were not straight on his forks. The high rack storage shelves collapsed.
- ◆ Not a good description. Includes causes

Incident Investigation

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Incident Investigation

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### Good Description?

- ◆ The forklift operator was driving the forklift through the aisle carrying a stack of 4 x 8 wooden panels. The panels were not stacked straight on his forks. The operator drove through an area where high rack storage was on his right and drum storage was all his left. He proceeded through a narrow area between the racks and the drums where clearance was very limited. A corner of the wood stack he was carrying hit one of the high rack storage legs and the high rack storage shelves collapsed. The forklift operator quickly exited the vehicle and escaped without injury.
- ◆ Good description

Incident Investigation

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### Example #3

Checking Tanker Truck

Incident Investigation

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### Bullet List

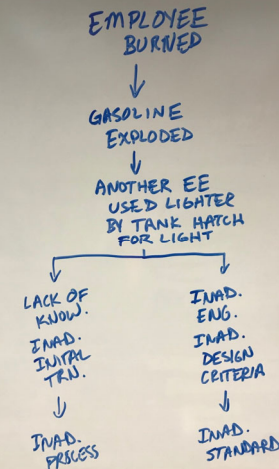
- ◆ Truck driver tries to pull into parking spot
- ◆ Driver Backs up
- ◆ Driver Pulls in next to parking spot
- ◆ Driver Backs up
- ◆ Injured employee tells driver to relocate truck
- ◆ Driver pulls past designated parking spot and parks truck
- ◆ Injured employee climbs up the back of truck
- ◆ Injured employee looks into hatch on top of truck
- ◆ Injured employee reaches into pocket
- ◆ Explosion happens
- ◆ Injured employee falls off of truck and is burning

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Point of fact:  
Employee pulled  
cigarette lighter out  
of pocket



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### Good Description?

- ◆ A truck driver was delivering a tanker of gas to a gas station. When he initially pulled into the loading station he made his turn incorrectly, backed up, and then pulled in. The injured employee instructed him to back up and pull into the designated parking space. After the truck driver did so and parked the truck, the injured employee climbed up the back of the truck and looked into a tank hatch for reasons unknown. With the hatch open, he reached into his left coat pocket and pulled out something and an explosion occurred, caught him on fire and knocked him off of the truck down to the ground. Bystanders immediately came to his assistance.
- ◆ This is a good written description

Incident Investigation

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### Example #4

anyone missing a tire

Incident Investigation

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### Bullet List

- ◆ Injured employee exits the driver seat of car
- ◆ Walks around rear of car
- ◆ Opens gas cap on back right of car
- ◆ Takes gas pump nozzle and inserts into fuel tank
- ◆ Injured employee standing at back of vehicle by gas nozzle fueling car
- ◆ Dually tires roll from across the street and strike employee in the back of the legs resulting in injury
- ◆ Bystander immediately comes to his assistance

Incident Investigation

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Good example of where, even though there is a video of the event, there are too many unknowns to complete a full cause tree

MULTIPLE  
INJURIES  
↓  
HIT BY  
DUALLY TIRE  
↓  
TIRE CAME  
OF PASSING  
VEHICLE  
↓  
INADEQUATE  
PREVENTATIVE  
ADJUST / ASSEMBLY  
↓  
INAD.  
PROCESS

Incident Investigation

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### Good Description?

- ◆ Injured employee had pulled his vehicle into a gas station to refuel. He exited the driver's seat, walked around the rear of his vehicle to the back right and opened his gas cap. He took the fuel nozzle from the pump and inserted it into his car and began refueling. While the car was fueling, he stood at the back right of the vehicle between the vehicle and the gas pump with his back facing the street. A set of dually tires came rolling across the street and struck him in the back of the legs knocking him to the ground and resulted in injury. Bystanders immediately came to his assistance.
- ◆ This is a good written description

Incident Investigation

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### A02 - Incident Investigation

Incident Investigation

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*FPST 3013 - Safety Management*  
*The Incident Investigation Process*

Lecture 8  
Corrective Actions

Incident Investigation