



INCIDENT INVESTIGATION ANALYSIS

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AGENDA

- What Is An Incident
- Major Reasons For Conducting Incident Investigations
- Incident Investigation Procedures
 - 5W – 1H → Problem Statement
 - Causal Factors / Fishbone
 - 5 Why
- Example
- Group Exercise

What Is An Incident

Any unplanned, uncontrolled event that could result in personal injury or property damage.

Major Reasons For Conducting



To prevent future occurrences of the same incident, by determining the preventable actions that can be taken



Accidents and occupational illnesses severely limit efficient and productivity



Accidents and injuries cause severe detriment to employee morale



Federal and state occupation safety and health regulations require an employer to provide a safe and healthy work environment free of recognized hazards



Preventing incidents and injuries greatly lowers workers compensation insurance premiums, thereby increasing profits

Incident Investigation Procedures

- Information Gathering and Defining the Problem:
 - “5W1H” is a problem-solving tool to properly describe a problem, by asking the following question

What

When

Where

Who

Which

How

- The questions guide the analysis in order not to miss any aspect of the phenomena description.

Incident Investigation Procedures

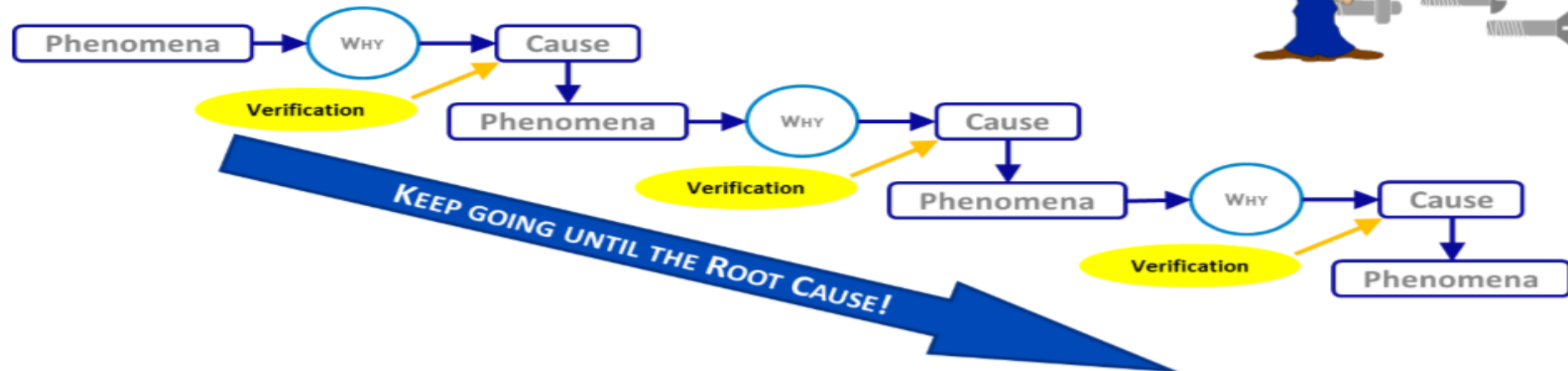
The questions guide the analysis in order not to miss any aspect of the phenomena description.

	Detail	Description	Example
What	What thing or product did you see the problem on?	Any variation due to production materials? Any materials differences? Differences among lots? Any variation due to different part dimensions, shapes?	Material, Product Number, Lot Number, Component Name
When	When did the problem occur?	Any variation related to time or period? Does the problem occur at the start of work? in the middle? During which operations is the problem apt to occur? Is the problem likely to occur after set-up changes?	Start/End Date, Shift, Time, Event (Is this problem happening on one, two or all shifts? After Start Up? Changeover? Etc.)
Where	1. Where did you see the problem? (Line/Machine/Location) 2. Where on the work or material did you see the problem?	Any variation due to equipment, fixtures, components? In what process / what machine elements does the problem occur? Any differences among different equipment, machine types? Any variation associated with different figs, fixtures?	(Line# / Equipment / Component, Location, Process)
Who	Is the problem related to skill? (Skill dependent or independent)	Any variation among people involved in the operation? Any morning/day/night shift difference? Any differences among new operators, floaters, temporary staff?	If the problem occurs for only certain skills levels (i.e. mechanics, operators, temps), shifts and/or experience levels, it is skill dependent. Skill independent - it could happen to anyone.
Which	1. Which trend (pattern) did you see the problem have? 2. Is the trend random or is there a pattern?	Are there any characteristic trends over time? Does it appear at regular or irregular intervals? Do problems increase or decrease? Any changes before or after?	Random: Can happen anytime. Periodic: the problem occurrence is predictable (after start-ups, changeovers, only when it is 100 deg., etc.) Continuous: The problem occurs uninterrupted in time or sequence
How	How is the state different from normal condition?	Any variation in circumstances of occurrence? State as exactly as you can the difference from ideal (e.g. Is the carton crunched, torn, punctured, etc?)	(Describe the abnormality - bent, sheared, crushed, rusted, spilled, lost material, not delivered, etc.)

Incident Investigation Procedures

5 WHYS

- 5Whys is a problem solving tool to identify the root causes of an abnormal phenomenon through a consecutive set of questions (whys) which must be answered (at least 5 times)
- Stopping at the first why's, there is a risk of not finding the real cause of the problem.
- The root cause of a problem is the beginning of a series of events that will result in the final problem



Incident Investigation Procedures

- Causal Factors:

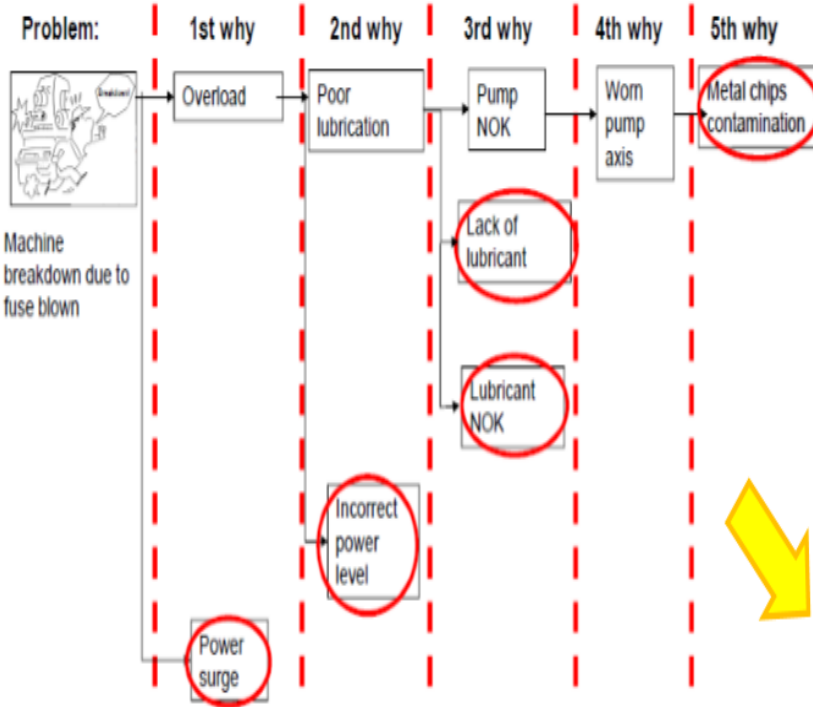
- Based on the "Information Gathering" and "Problem Statement", select the most critical factor, as applicable, for each of the boxes below.



- Please note: All the boxes may not have a factor, but you must have at least ONE factor in order to complete a 5-Why.

Incident Investigation Procedures

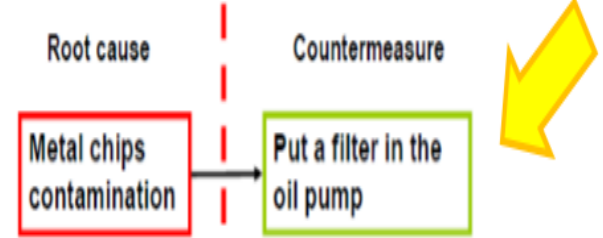
5 WHY EXAMPLE



2

Problem	Check on	Result
Metal chips contamination	Oil pump contamination	NOK
Lack of lubricant	Oil level in tank	OK
Oil non conformity	Oil characteristics	OK
Incorrect power level	Power level	OK
Power surge	Charge flow	OK

3 For the root cause, a proper countermeasure must be taken.



The definitive solution is to provide a filter in the oil pump to prevent contamination. Without a proper 5 WHYS analysis, the solution would have been the fuse change, but it wouldn't have solved the problem.

Incident Investigation Procedures

Based on the "Information Gathering" and "Problem Statement", select the most critical factor, as applicable, for each of the boxes below.

Please note: All the boxes may not have a factor, but you must have at least ONE factor in order to complete a 5-Why.

What **man**, employee, or behavioral factor contributed to this incident?

What **method**, work, task or activity factor contributed to this incident?

What **material**, tool or chemical factor contributed to this incident?

What **machine**, equipment, factor contributed to this incident?

What **management factor** or workplace condition contributed to this incident?

What **environmental factor** or workplace condition contributed to this incident?

Analysis

For each factor above that is validated, perform a 5-Why analysis to determine basic cause.

<p>Man Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>	<p>Method Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>
<p>Material Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>	<p>Machine Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>
<p>Management Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>	<p>Environmental Factor: _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p> <p>Why? _____</p>

Basic Cause(s) of Incident

<ol style="list-style-type: none"> 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 		<p>Use the hierarchy of control to select appropriate corrective actions in the spaces below.</p>
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For each Basic Cause identified, use the space below to select Short-Term and/or Long-Term Corrective Actions.
Please note that all Basic Causes MUST have a Long-Term Corrective Action.

Incident Investigation Group Exercise

- Group Exercises:
 - Powered Industrial Truck Example
 - LOTO / Machine Guarding Example
 - Temporary Employee Example

Works cited

- **Safety Professionals Reference and Study Guide; W. David Yates**
- **ManEx WCM**

?QUESTIONS?

End Of Presentations

?Questions?

