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Conduct Root Cause Analysis

There are almost always multiple causes that contribute to an incident.

It is important to consider all the “what”, “why”, and “how” questions to determine the root cause (s) of an incident

HOW TO CONDUCT A ROOT CAUSE ANALYSIS (RCA)

Root Cause Analysis (RCA) is only one step in the overall investigation process. This guideline complements **G22-02 Effective Investigation Guideline** and the two should be read together.

A RCA helps you to determine the core issues that led to the incident. When you know the root cause (s) you can correct them, and prevent similar incidents going forward.

Correcting only the obvious or immediate problem, may eliminate a symptom of a problem—but not the problem itself.

A successful root cause analysis involves the following steps:

1. Nominate the investigation team (this would usually consist of the site supervisor, the worker involved in the incident as a minimum. A safety officer may get involved to help coordinate more complex or larger investigations.
2. Create a ‘problem statement’. If you don’t carefully define the problem, you may cast your net too wide, collect too much data and find yourself unable to determine a root cause.
3. Decide the appropriate root cause technique (some suggestions are provided in the section

PROBLEM STATEMENTS

Without a well defined problem, an investigation lacks focus and can drift off course.

A problem statement should not include possible causes or solutions!

Think about: where did this happen (location), when did it happen (time, place), who was involved (personal, role) what happened (describe event) and lastly why is this important?

Another way to think about it is to ensure the statement defines what went wrong and what was affected.

ROOT CAUSE ANALYSIS TOOLS

There are many different tools and techniques that can be used to conduct an effective root cause analysis. The one that you pick will depend on the complexity of the investigation. You may need to use more than one tool to find all the root causes. Tools include:

- Brainstorming / The 5 Why's
- Checklists
- Sequence Diagrams
- Causal Factor Determination
- Logic / Event Trees

Two checklists are provided on the following pages that may assist you to brainstorm or narrow your focus to the contributing factors (remembering that they will always usually be more than one).

Once you know the contributing factors, you can drill down further to establish the incident root cause.



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QUICK REFERENCE GUIDE— QUESTIONS FOR IDENTIFYING ROOT CAUSE

Asking the questions listed below can assist to identify incident root causes.

1. Did a written or well known procedure exist for employees to follow?
2. Did the procedures or standards identify the potential hazards of the job / task?
3. Did environmental conditions contribute to the incident?
4. Were any actions taken by employees, the supervisor (or both) to eliminate or control the environmental hazards?
5. Were employees trained to
6. Was sufficient space provided to complete the job / task?
7. Was there adequate lighting to perform the job / task?
8. Were all employees involved familiar with the procedures relating to the job / task?
9. Was there any deviation from the established procedures?
10. Were the correct tools / equipment available, and were they being used?
11. Did any physical environmental conditions prevent or inhibit the workers ability to do their job / task safely?
12. Were there any tasks that would be considered unusually difficult or demanding? (e.g. strenuous, or excessive concentration required)
13. Was anything different or unusual from normal operations?
14. Was the proper protective equipment specified for the job / task and were employees wearing it.
15. Was there any misuse of abuse of equipment / materials at the incident site?
16. Were all safety features (alerts and safeguards) operational and functioning properly?
17. Was there a shortage of personnel on site on the day of the incident?
18. Are employee certifications / training records up to date?
19. Did supervisors ensure employees were trained and proficient in the task before assigning them the job?
20. Had the unsafe or hazardous condition been reported previously? (As a hazard, near miss or incident)
21. Were all the resources (tools, materials, equipment) required to perform the job available and in good condition?
22. Do supervisors conduct regular meetings / pre-starts /toolbox talks with workers?
23. Are the topics discusses / raised and actions taken recorded in minutes?
24. Had this issue previously been raised?
25. Has a safety audit been completed at this site within the last 12 months?



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CONTRIBUTING FACTORS CHECKLIST

This checklist suggests varying factors that may have contributed to the incident occurring. Note that this list is not exhaustive. There may be other factors that contributed. The intention is to highlight where improvements could be made to working conditions, systems and processes, training or equipment.

HUMAN FACTORS

- ☐ Conflict within the group (either supervisor / worker or peer to peer)
- ☐ Poor task delegation
- ☐ Absence of supervision or feedback
- ☐ Individual factors (stress, fatigue, rushing, distracted, inexperienced)
- ☐ Not following or deviation from procedures
- ☐ Unfamiliar, difficult or monotonous task
- ☐ PPE not adequate or PPE not worn
- ☐ Drugs / Alcohol

ENVIRONMENTAL / WORK DESIGN FACTORS

- ☐ Workplace layout
- ☐ Equipment or safeguarding failure
- ☐ Weather conditions (sun, heat, rain, cold, wind)
- ☐ Noise, Dust, Vapours or Fumes

ORGANISATIONAL / SYSTEM FACTORS

- ☐ Lack of system or procedures
- ☐ Procedures not adequately capture all hazards / risks or the controls are ineffective
- ☐ No training in procedures or training in work task
- ☐ Maintenance schedule not followed