

Michigan Municipal Workers' Compensation Fund

Safety and Health Resource Manual

PROBLEM SOLVING TECHNIQUES

Accidents represent problems that must be solved through investigations. Several formal procedures solve problems of any degree of complexity. This section discusses two of the most common procedures: Change Analysis and Job Safety Analysis.

Change Analysis

As its name implies, this technique emphasizes change. To solve a problem, an investigator must look for deviations from the norm. Consider all problems to result from some unanticipated change. Make an analysis of the change to determine its causes. Use the following steps in this method:

1. Define the problem (What happened?).
2. Establish the norm (What should have happened?).
3. Identify, locate, and describe the change (What, where, when, to what extent).
4. Specify what was and what was not affected.
5. Identify the distinctive features of the change.
6. List the possible causes.
7. Select the most likely causes.

Job Safety Analysis

Job safety analysis (JSA) is part of many existing accident prevention programs. In general, JSA breaks a job into basic steps, and identifies the hazards associated with each step. The JSA also prescribes controls for each hazard. A JSA is a chart listing these steps, hazards, and controls. Review the JSA during the investigation if a JSA has been conducted for the job involved in an accident. Perform a JSA if one is not available. Perform a JSA as a part of the investigation to determine the events and conditions that led to the accident.

REPORT OF INVESTIGATION

As noted earlier, an accident investigation is not complete until a report is prepared and submitted to proper authorities. Special report forms are available in many cases. Other instances may require a more extended report. Such reports are often very elaborate and may include a cover page, a title page, an abstract, a table of contents, a commentary or narrative portion, a discussion of probable causes, and a section on conclusions and recommendations.

The following outline has been found especially useful in developing the information to be included in the formal report:

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1. Background Information:
 - a. Where and when the accident occurred
 - b. Who and what were involved
 - c. Operating personnel and other witnesses
2. Account of the Accident (What happened?):
 - a. Sequence of events
 - b. Extent of damage
 - c. Accident type
 - d. Agency or source (of energy or hazardous material)
3. Discussion (Analysis of the Accident - **HOW; WHY**):
 - a. Direct causes (energy sources; hazardous materials)
 - b. Indirect causes (unsafe acts and conditions)
 - c. Basic causes (management policies; personal or environmental factors)
4. Recommendations (to prevent a recurrence) for immediate and long-range action to remedy:
 - a. Basic causes
 - b. Indirect causes
 - c. Direct causes (such as reduced quantities or protective equipment or structures)

SUMMARY

Thousands of accidents occur daily throughout the United States. These result from a failure of people, equipment, supplies, or surroundings to behave as expected. A successful accident investigation determines not only what happened, but also finds how and why the accident occurred. Investigations are an effort to prevent a similar or perhaps more disastrous sequence of events.

Most accident investigations follow formal procedures. This discussion covered two of the most common procedures: Change Analysis and Job Safety Analysis. An investigation is not complete however, until completion of a final report. Responsible officials can then use the resulting information and recommendations to prevent future accidents.