

PRACTICAL APPLICATION OF THE CRITICAL INCIDENT RECALL TECHNIQUE

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SUMMARY

This paper traces practical application of the Critical Incident Recall technique at the electrical department of a major open-cut mine over a 6 month period. The author maintains that properly structured processes must be put in place to “surface” critical incidents and that such processes are essential to guide the Occupational Health and Safety management programme

INTRODUCTION

We have all read the writings of safety professionals who propose that there are fixed ratios between safety incidents of various types eg.

1	Fatalities
30	Lost time accidents
100	Minor accidents
600	Near Misses (Critical incidents)

The writer’s personal experience after working in the safety profession in excess of 20 years is that there is a relationship between the incidents of various types but that it is very difficult to come to the conclusion that the ratios are fixed. What is important however is that examination of the circumstances of near misses (critical incidents) can be a predictor of the more damaging types of occurrences.

2. IT IS NO USE DRIVING FAST IF YOU ARE ON THE WRONG ROAD

The management of companies with high profile Occupational Health and Safety programs exert great levels of time, effort and money in their quest for improved levels of safety. It is my contention that unless you are utilising the critical incident recall technique, you may well be travelling very fast, but you are running a significant risk of being on the wrong road.

3. CRITICAL INCIDENT RECALL TECHNIQUE

The critical incident recall technique is based on the idea that in almost every personal damage occurrence, there will have been a number of prior 'near misses'. If we can identify the 'near misses' prior to an accident involving serious injury, and take preventative action, then we are fulfilling more effectively our role as Occupational Health and Safety professionals and we are reducing personal damage in the organisation.

There are two basic elements of the technique:-

- a) Participant-observation of critical incidents.
- b) Critical incident interviewing to identify critical incidents.

a) Participation Observation

This involves selecting certain members of the work group to perform their normal work tasks whilst at the same time, acting as observers of critical incidents. Some training of these personnel is required and it will be found that certain personality types are more suited to this role than others.

a) Critical Incident Interviewing

This technique is quite simple, it involves interviews on a 'one-to-one' basis between the person collecting the critical incident data and employees in the department. All statements must be kept confidential on a 'no-blame' basis, therefore employees must have confidence in the interviewer. During the interview, the employee is requested to recall how many incidents with a potential for serious injury they have been aware of in a designated period (eg. past 12 months). A brief description is taken of each incident (no names) and the frequency of occurrence is noted. The interviews are then collated and the data is analysed to determine appropriate preventative action. This technique can also be used on a routine basis to determine whether preventative action has been successful.

4. WHAT THE TECHNIQUE CAN DO

The collection of data on 'near misses' enables OHS professionals to have a much clearer picture of the potential for injury within their organisation. In terms of risk reduction, the Critical Incident Recall technique is similar to Job Safety Analysis in that it can provide information that can assist in lowering the level of hazard and the probability of occurrence prior to actual injury. Research within a number of large US firms has confirmed the technique as a valid predictor of personal damage propensity. An interesting outcome of the studies was not only the finding of a statistically significant correlation between the results of the interviews and actual personal damage experience, but also the finding that up to three quarters of the incidents reported occurred daily over a two year period.

The greatest advantage of this technique is that personal damage occurrence situations can be examined 'before the fact' instead of 'after the fact'.

5. WHY CRITICAL INCIDENTS ARE NOT REPORTED

Critical incidents are not routinely reported in an organisation, for a number of quite valid reasons. These reasons include:-

- a) Peer pressure not to report these incidents.
- b) Embarrassment at having to admit making what is perceived to be a mistake.
- c) In an organisation that has an active safety program, people may not wish to appear to be ruining the safety record.
- d) The significance and possible outcome of critical incidents may not be realised.
- e) Fear of punishment may be a factor
- f) Complacency or the 'she'll be right' attitude is highly likely to be a factor.

There are several ways to approach the problem of finding the required information. One of the most successful ways is to create an atmosphere of mutual trust between all personnel involved in the process. The level of trust depends on several factors, including the following:-

- Privacy of the interview session.
- Anonymity for the interview.

Length of the interview.
Absence of any blame fixing.
Degree of importance attributed to the information received by the interviewer.
Feedback on corrective actions taken.
Recognition of a contribution to the safety of the plant.

Industrial relations issues are a reality of life in all organisational settings and the potential for industrial disruption is high in the use of this technique. It is only when all parties are genuinely open, sincere and thorough in their commitment to improving safety standards in the organisation that the technique can be successfully used, without industrial relations issues being an impediment.

6. PRACTICAL IMPLEMENTATION OF THE TECHNIQUE

The particular department where the technique was utilised over a period of some 6 months, was an electrical installation and maintenance section of an organisation employing approximately 500 personnel. The particular organisation had a very active safety program and this department in particular took extreme pride in its outlook to efficiency and safety. Unfortunately, prior to the implementation of the technique, a departmental employee received severe electrical burns under conditions that were difficult to understand. As the department concerned considered their safety program was excellent by most standards, the decision was made to try a different approach, as it appeared the traditional approaches were not as effective as they should have been.

The following process was used to implement the critical incident recall technique in the department.

Training

a) All department members attended a training course. The training emphasised that personal damage occurrences were the result of a multitude of complex, inter-related factors and involved PERSON elements, MACHINE elements and ENVIRONMENT elements. De-emphasising the human element was necessary to obtain a factual un-biased understanding of how personal damage occurrences occur.

Selected department members received additional training in critical incident observation and interviewing techniques.

b) Over a period of some two months, a list of in excess of 30 critical incidents was compiled and presented to senior department staff. Examples included the following:-

Connecting a wrong trailing cable to transportable sub-station.
Examples of high voltage isolation being ignored to save time.
Access permit paperwork being completed after job.
Using multi-meters with blown fuses and thinking circuit dead.
Examples of uninformed use of modiworx high voltage tester.
Connecting power whilst offsider still working on circuit.
Drilled through wall into a live 6.6 kv cable.
Changing energised fuses and spanner contacted live contacts.
Only one person placing danger tag, when a number of people were working on the job.

Examples of production pressure, defeating 'tag left on' requirements of isolating procedures.

'Test and prove dead' ignored.

c) The list of critical incidents was evaluated and it was considered that approximately 30% of the incidents could be eliminated due to factors such as misunderstanding and exaggeration of the seriousness of the situation. However a number of the critical incidents accepted as being factual were counter to the basic and accepted methods of approaching electrical tasks. There was considerable concern that these incidents had occurred in the department.

d) It was decided that it was appropriate to devise a questionnaire to be presented to all department staff, in order to gain insight into why these critical incidents were occurring. The questionnaire was based on the assumption that physical health, social health, mental health (knowledge) and motivation are essential elements for safe operation.

The questionnaire focused on the following areas:-

Social aspects of work.

Motivation (safety).

Motivation (job satisfaction).

Ancillary safety aspects.

Knowledge (availability).

Knowledge (special areas).

Knowledge(safety procedures).

Equipment and installations.

Basic details of the questions used are included in Appendix 2.

e) The questionnaire was then presented to, and discussed with department members; the emphasis on the discussions being that the company was taking a 'no blame' approach and was interested in finding out why critical incidents were occurring so that they would not re-occur. Punishment for past actions was definitely not part of the process.

f) The results of the questionnaires were collated and further meetings of department staff were carried out in order to clarify issues. The following is typical of responses obtained, which allowed supervisory personnel to develop priorities for action within the department.

If I was the electrical superintendent, the first thing I would do to improve safety would be:-

Improve toolbox meetings.

Have more education.

Improve vehicle safety.

Improve housekeeping.

Update plans.

More importance on safety and less on production.

Improve communications.

Enforce safety more.

Have more resuscitation training.

The worst feature of safety is:-

- Production pressure.
- Insufficient checking.
- Foremen not recognising dangers.
- Others' bad work habits.
- Condition of vehicles.
- Lack of knowledge of isolating procedures.
- Bad housekeeping in electrical workshop.
- Slow action when safety matters raised.
- Resuscitation training.
- Negative attitudes.
- Changing trailing cables.
- Working by yourself.
- Not wearing personal protective equipment.

g) The critical incident process to date revealed a number of equipment, procedural and personal areas that required increased emphasis. Specifically the following areas were addressed.

1) Training

Routine and non-routine electrical procedures.

Rescue and resuscitation.

2) Isolating Procedures

Normal isolation and high voltage procedures were streamlined.

3) Maintenance

General electrical and vehicle maintenance was improved.

4) Plans/Diagrams

Existing material was updated and requirements for additional information highlighted.

5) High Voltage Testing Equipment

understanding of New equipment was purchased and department obtained a greater capabilities and limitations of existing equipment.

Notwithstanding 1 - 5 above, the biggest benefits were obtained through improved communications throughout all levels of the department. A new spirit of openness between staff and wages was developed; the benefits of this are considerable, but unable to be measured in real terms.

7. CONCLUSION

The critical incident recall process was carried out over a period of some 6 months in this particular department. Prior to this process we were travelling fast, but on the wrong road. Had the technique not been utilised, a number of critical incidents would no doubt have continued to occur in the department. There is no doubt in the author's mind that the regular occurrence of these critical incidents would have eventually led to serious injury.

Reference:

1. Tarrant W - Measurement of Safety Performance

Acknowledgement

The assistance of Geoff McDonald in this process is acknowledged

APPENDIX 1 Questionnaire Details

The majority of questions graded responses between the extremes of 'Strongly Agree - Strongly Disagree' and 'None of the Time - All of the Time.'

Questions that required this graded response were as follows:-

1. The industry places great importance on safety.
2. Working at is a good way to further my career.
3. My rescue and resuscitation training makes me confident I could give effective help to an electrocuted person.
4. The multimeters we use are ideally suited for all the purposes for which we use them.
5. The electrical part of the is very good to work on.
6. Electrical foremen are considerate, give help when needed and look after our interests.
7. The wages people in the electrical department at are a good lot to work with.
8. The modiwark high voltage tester is a sensitive and reliable instrument.
9. The isolation procedures (using danger and out of service tags) are complicated and difficult to apply in some situations.
10. tries hard to be a leading organisation in safety.
11. When working in the area, I am confident of what to do, and how to do it.
12. The electrical superintendent is approachable, fair with his men and looks after our interests.
13. The High Voltage Isolation Procedures (using access permits and switching sheets) are complicated and difficult to apply in some situations.
14. When I need technical information for a job, it is readily available.
15. Identification methods (eg. colour tags, plug numbers) are difficult to apply in some situations.
16. When working in the field, I am confident of what I do and how to do it.
17. When working in the I am confident of what to do and how to do it.
18. My work is organised so that I can have friendly contact with a number of people.
19. The electrical part of the is very good to work on.
20. The Safety Department should play a greater role in enforcing safety standards.
21. My fellow workers are conscientious about safety and ensure their safety and mine.
22. My job does not enable me to develop my skills and knowledge adequately.
23. The electrical part of the is very good to work on.
24. When I ask my boss about electrical problems, he explains it in a way I can understand and remember.
25. Working at gives good opportunity for promotion within the company.
26. The electrical staff are conscientious about safety and ensure their safety and mine.
27. Toolbox talks are a good forum for raising and resolving safety problems.
28. People from other departments are easy to get along with and are helpful.

29. *The following questions were given to Apprentices and Trades Assistants only.*
The tradesmen I work with do a good job of helping me understand what is going on and help me learn what I need to know.
30. I personally am conscientious about safety and ensure other people's safety and mine.
31. I get good satisfaction from the work I do.

32. Toolbox talks are being held because they have to be and are not genuine.

All department members were asked to respond by providing their written comments to the following questions.

33. The best feature of safety in the Electrical Department is

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34. The worst feature of safety in the Electrical Department is

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35. If I was the Electrical Superintendent at the first thing I would do to improve safety would be

36. Other comments I would like to make are

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