How To Ensure Success In Safety & Operating Reliability

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As American manufacturers strive to become "world class;' business management today is increasingly based on the practice of measurement. Total quality concepts, based to a large degree on statistical process control typically result in the adoption of standards or norms for virtually every aspect of the business. Manufacturing and service organizations alike are engaged in "benchmarking" -comparing how well they are doing in relation to their competitors, which can include other similar operations in their own company. Once these standards are established, it is becoming increasingly common for management to strive for continuous improvement in order to enhance their competitive position.

Measurement and control techniques have been applied to industrial safety with lackluster results. All accidents (which are results) have specific causes, but in many cases managers have little understanding of what these factors are. Additionally, the application of statistical process control techniques to safety can be a dangerous proposition.

If workers in a manufacturing facility average two incidents a month, is this "normal"? Similarly, managers who settle for a 15% reduction in accidents are telling workers that some accidents are okay, as long as they improve this year. Also, it's fairly common for management to pressure supervisors into reducing accidents, without having an understanding as to what specific factors actually cause them.

Various techniques based on behavioral modification are also being used in an effort to reduce accidents. The theory is that since most accidents are caused by unsafe acts (rather than conditions), measuring and reducing the percentage of unsafe acts by workers will result in fewer accidents. This approach can make a difference because employees know that their actions are being observed by superiors or their peers. The problem is that it doesn't address the reasons (causes) why workers act unsafely in the first place. It is not very effective in a "sick" organization (e.g., high stress levels, autocratic supervisors, low morale and high turnover). In addition, the monitoring program must be perma-nently maintained, costing time and dollars.

DIAGNOSTIC SURVEYS.

Since the mid-1980s, The Reliability Group has conducted client studies designed to identify the true causes of industrial accidents and injuries. We know that safety performance and operating reliability result from the complex interaction of factors such as supervisory style, job design, communications, and group norms & expectations (the organizational culture). We also know that employees can deliver incredible results if given the opportunity: one client reduced both accident frequency and severity by over 80% within a three-year period.

Our surveys are comprehensive examinations of factors that have exhibited a strong relationship to the occurrence of accidents in the workplace. The surveys measure organizational variables (such as management's commitment to safety, degree of vertical communication and organizational culture), work group characteristics (such as cooperation! teamwork, cross-job knowledge and the degree of safety emphasis), physical and ambient characteristics of the workplace (such as physical conditions, degree of stress and the quality & appropriateness of equipment), job-level variables (such as job autonomy, task! skill variety and job satisfaction), and safety- related factors (incidence of "near misses" or "close calls," accident investigation procedures and employee recognition). Altogether, 120 variables are measured in a typical survey. Employees are asked to anonymously complete a written questionnaire.

A key component in the analysis is that respondents are asked if they have experienced a job-related accident within the past three years. Approximately 20% of the employees we have surveyed have experienced an accident, and about 80% of those employees actually reported it.

Workers who have accidents generally respond to survey questions differently than those who have not experienced accidents. We have found that the factors relating to accidents change with the industry, the organization surveyed and over time.

However, certain accident- related factors are common to a number of client studies. They include:

- "Near misses" or "close calls" -Workers who report having experienced a "near miss" are almost twice as likely to experience an accident as those who have not reported a near miss. Most clients have very poor information regarding near misses because workers are usually reluctant to report them. About 32% of the workers we have surveyed indicated that they have experienced a near miss.
- When they are reported, workers usually cite physical conditions rather than human error. We recommend
- that clients eliminate the practice of "blaming" workers who report them. It is far more important to gather information regarding trends in near misses than to determine the identity of the workers involved.

- "Job satisfaction" -Workers who report higher levels of job satisfaction are significantly less likely to experience an accident than workers who report lower levels. This factor is measured in part by asking workers if they would recommend a job like their own to a close friend.

- "Cheerfulness of the work place" -There is a significant relationship between job safety and working in an environment that is cheerful and fun. This factor is significant in most of the studies we have conducted to date. It is management's responsibility to raise the excitement level of workers, and the first 15-20 minutes usually sets the tone for the entire day. Apparently, many of the "warmup drills" practiced by foreign and American workers have benefits greater than limbering muscles.

- "Employee selection and placement" -Placing the right person in the right job is typically one of the key factors of a safe operation. We recommend that job candidates be interviewed by multiple people in the organization, including their intended peers or even subordinates. One high-performing client places all new hires on probation. If the candidate's peers feel he/ she doesn't fit in, they don't get the job.

- “Job autonomy” (the extent to which workers have control over how they do their jobs and the amount of freedom they have to make decisions for themselves) -Workers who reported accidents also tended to report significantly lower levels of job autonomy than workers who are injury free.

- "Lack of stress" -Workers who have experienced accidents report significantly higher levels of work place stress than workers who are injury free.

It is interesting to note that the level of safety training is not a key determinant of work place safety in the organizations we have studied. That variable ranks 37th on the list of variables we have identified, yet many organizations increase safety training as a method of reducing accidents.

As mentioned previously, factors that relate to accidents in your own organization are likely to be different from the factors we have described.

A CLIENT EXAMPLE.

We conducted a survey at Potlatch's St. Maries Complex, which consists of a plywood mill (producing about 166 million square feet annually), a chip mill (producing about 60,000 tons annually), and a sawmill (producing about 86 million board feet annually). The complex has been in operation for over 25 years, and employs about 350 workers. During the first study year, 48 lost time cases translated to almost 2000 lost work days due to accidents.

The results of the first survey were fairly positive. The client was doing a good job with accident investigations, employee training and goal emphasis, but the employees reported very low scores for safety recognition, job challenge/involvement and cheerfulness of the work place. Employees also reported that the safety committee was not very effective. Approximately 46% of the workers reported that they had experienced a near miss during the past three years.

Our recommendations to senior management were reprinted in a newsletter sent to all employees by the Division vice president, where he stated: "The survey is an important tool to begin the process of reducing accidents and worker's compensation costs. The consultants offered seven specific actions. We're going to implement them all...".

A Vice President's Safety Recognition Program was quickly developed to recognize individuals who have worked without injury or illness.

Management publicized safety accomplishments in the employees newsletter and held award dinners for individual and group safety accomplishments. Several "close calls" were published in the newsletter, citing how employees had escaped injury by using personal protective gear or eliminating job hazards.

Supervisors attended training programs designed to encourage teamwork and communications, and de velop facilitative skills. Management continued and enhanced programs to concurrently focus on quality, productivity and safety. Workers became much more involved in decision making through total quality management.

Work groups were becoming more "self managing." They were given more job autonomy by allowing them to do things that were previously done by someone else, like accident investigations, safety inspections and problem identification. Rather than listening to presentations given by their supervisors, workers began conducting their own safety meetings. The plant safety committee (a voluntary group comprised of management and hourly workers) became more proactive and helped employees resolve issues that could not be handled at the work group level.

When the St. Maries Complex was re-surveyed a year later, employees reported significantly better scores for many of the survey factors.

The number of near misses was one-half the level reported a year earlier, and the number of accidents had decreased significantly.

The concept of self-managing work teams was continued, and workers increased their confidence in their ability to make a difference. Workers were asking themselves what they could do to affect safety, rather than identifying what someone else should be doing.

Safety tops the list of objectives for all supervisors and managers.

A supervisor's overall rating can be no higher than their rating for safety performance, regardless of how well they do in meeting other goals.

A hiring board made up of two hourly employees, a supervisor and the personnel manager now interviews all prospective employees. New hires start two weeks of on-the-job training. To keep their job, the worker needs the approval of his/her teammates.

Hourly workers are taking an active role in planning for new equipment as well. They attend trade shows, visit other facilities and know that their opinion counts.

At the end of year 2, the number of lost time cases due to accidents decreased *76%* over year 1 levels, and the number of lost work days due to accidents decreased almost *90%* over the same time period.

For the future, the plant manager is aggressively pursuing ways to improve quality, safety and productivity even more. He is working with the state college to develop a management curriculum for supervisory personnel designed to improve their business skills and earn a col1ege degree. He is identifying and plans to visit the top-performing mills in the Northwest to determine how they operate, and use this information to establish targets and strategies for the future.

CONCLUSIONS

As management consultants, we know that there is no such thing as a "safety problem:' Poor safety performance is almost always a symptom of other more basic problems in the organization. Business is a system of human relationships and the long-term success of the enterprise is directly proportional to the quality of its human relationships. There is no single "quick fix," but we know that extraordinary results are possible very quickly if managers can create a lasting intervention based on dignity and human values.

Want to get started? It's true that every organization is different, but there are several hints we can offer to start you in the right direction:

1. The best consultants are a company's own workers. Allow them flexibility to decide how the work gets done.

2. All accidents can be prevented. Don't settle for less than perfect safety results.

3. Do not pressure people into working safely without first knowing the specific causes of accidents in your operation.

4. Encourage first-line supervisors to do everything they can to make the work place more fun and cheerful.

5. Keep things simple. Don't burden workers with a lot of written procedures.

6. Do develop a system for reporting near misses in your work place that doesn't threaten or blame employees.

7. Do not place too much emphasis on incentives like awards or prizes to make your operation safe.

8. Never hire employees, hire partners. All workers should have part of their compensation tied to profitability.

9. Provide a method for workers to give supervisors both positive and negative feedback.

10. Do not be afraid of stepping on the toes of your bosses. Have the courage to change things for the better.

Above all, don't fall into the trap that there is nothing you can do without direction or commitment from senior management. If you decide to wait, you may be waiting for a long time.

Potlatch St. Maries Complex

Safety Performance