Occupational Safety and Health in Australia

25 Years in Review

By GEORGE ROBOTHAM

As the new millennium begins, I have begun to reflect on my 25 years as an occupational safety and health (OSH) professional. One key question continues to run through my mind: Has the profession in Australia truly progressed during that period? Some background.

BEGINNINGS IN THE PROFESSION

I entered the OSH profession in 1975 as an assistant safety advisor with an open-cut mine. I was 21 years old and new to the world of mining. Three months later, an employee was crushed between the shoe and a step protruding over the shoe of a dragline (massive piece of earthmoving equipment); he suffered a paralyzing spinal injury.

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The investigation revealed that one key factor of the incident was the fixed nature of the protruding step. Three years later at another mine, I saw more draglines being built with the same design feature. I would not be surprised to learn that such draglines continue to be built around the world. Clearly, accident information is not being collected and disseminated very well; consequently, lessons cannot be learned.

In another incident at the mine, an office worker was injured while driving a company car from a nearby town to the mine site. She reportedly was speeding around a curve and not wearing a seatbelt. The car rolled several times, and she was catapulted through the windshield.

As I watched her being carried to the ambulance, I felt a strong sense of loss and failure. She died the next day. This young, friendly, popular person had everything going for her. In my opinion, society and the safety profession failed her. Those who said, "She was speeding and got what she deserved" did not understand the basis of the problem and contributed little toward preventing similar incidents.

BEHAVIOR VS. ENGINEERING APPROACHES

It occurred to me that something was fundamentally wrong with the way safety was being managed, so I began to examine the two major approaches to safety—the behavioral approach and the engineering approach.

Strong arguments have been voiced both for and against each approach. To the behavioral extreme are employers who believe, "If only our employees would do the right things and be more careful, we would have no accidents." They blame the worker without considering the equipment used or the environment in which it is used; they simply ignore how these factors and work systems impact behavior.

I have investigated many incidents and have often found that approaching the investigation with an open mind leads to the discovery of many non-behavioral factors that can be used to positively influence change. In few cases has a person's behavior been the primary contributor to the incident.

National Safety Council's "Safe Behavior Involvement" program is the most well-known behavior-based program in Australia. This approach has merit—and

examples such as the following story convince me of that fact. A foreman who served as an infantry soldier in Vietnam contends that what kept him alive in such a hostile environment was the fact that he was "switched-on" and well-trained. Implementing a well-structured program and creating an expectation of safe behavior can have significant effects (Robotham, "What Makes a Safety Programme Fly").

At the other end of the spectrum are advocates of the engineering approach. The extreme of this position is often voiced by union officials. They blame the employer for all problems and ignore the fact that each employee must take some responsibility for his/her safety and that of co-workers. They expect employers to spend thousands of dollars on safety devices when a bit of employee responsibility would solve the problem. One counter-argument to the engineering approach is that if an employer makes the workplace extremely safe via engineering controls, workers may be encouraged to *not* think about the task at hand.

Based on personal experience, I believe the engineering approach has not been used enough. I could cite many cases where positive engineering changes (e.g., adding a non-slip coating to a smooth steel-troweled concrete walkway) would have had greater impact than exhortations to "be careful." Another positive aspect of engineering controls is that they do not come to work sick or physically unable to perform, nor are they untrained, unmotivated or distracted by personal problems.

Both approaches to safety have their strengths and weaknesses. The wise manager recognizes them and uses the strengths to his/her advantage.

MOVING FORWARD

While I was serving as safety advisor at another mine, an electrician received serious burns after an electrical explosion; he missed work for 18 months. The consensus was that this employee had taken some improper action, which caused the incident. Subsequent investigations supported this opinion, but also revealed some reasons why he took those actions. In my opinion, the electrician was injured due to an inappropriate design feature of the switchboard on which he was working.

After this incident, the mine hired a consultant to conduct a "critical incident recall" process in the electrical department. During this structured process, information about critical incidents or near-misses was gathered and used as a basis for change. Of the many courses, conferences and seminars I have attended, and the myriad videos and books I have watched and read, nothing has impressed me as much as this process. Safety professionals who do not use such a process are missing out on a key tool (Robotham, "Practical Application of the Critical Incident Recall Technique").

Another tragic event occurred during my time at this mine. Following a heavy rain during the union mine picnic, a group of children were diving into stormwater drains and riding through the underground water pipes. One child was too large for the pipe and was trapped underwater and drowned.

Local rescue squads were called to retrieve the child's body and, in the process, an assistant died. I, along with five other people, were standing in one foot of muddy water near the person who died. We were lucky, but two lives were lost due to basic failures in safety.

My next safety position was with an employer organization. I will simply say that it is a pity industrial relations practitioners are involved in OSH decision making because their objectives and OSH goals are often not compatible.

I then moved to a corporate position with a major Australian company. Here, I was fortunate to work with a safety-oriented operations manager. I was impressed how this one senior manager with a strong safety agenda made such a difference.

During this time, 18 internal standards of OSH excellence tailored to the organization's safety needs where introduced. They covered areas such as contractor safety, compliance, use of personal protective equipment, safe working procedures, employee involvement, accident investigation, education/communication and inspections.

A comprehensive auditing document was then produced to facilitate annual "executive safety audits" at each site. This approach was a turning point for safety in this company. Furthermore, the knowledge that each site would be audited placed a strong focus on safety. I continue to recommend such an approach.

The company also introduced a detailed, competency-based approach to training. This had implications on a range of operational, maintenance and supervisory tasks (as safety was an integral component of the training). Such an approach is a vast improvement over traditional safety training methods (and it is supported by sound research into preferred modes of learning by adults).

A comprehensive training needs analysis was performed, leading to a series of self-paced training modules. These modules reflected realistic workplace scenarios and involved problem-solving related to actual tasks.

Another successful training initiative was a four-hour hazard identification and control/risk assessment course. Participants examined a range of hazard types; identified hazards in a typical workplace; learned a simple method of risk assessment using probability, consequence and exposure; practiced the method on typical workplace tasks; and applied a hierarchy of controls to typical risks. Participants also received a laminated, pocket-size card outlining the methods.

Later in my tenure, a packaged safety management system was introduced. In my experience, no organization should believe that such a system is an "all-inclusive" answer to safety problems. If managed properly, such a program has a place, but it should be regarded as an adjunct component to, not a replacement for, a site-specific safety management system. (In Australia, Standard 4804 provides a basic introduction on how to develop such a system.)

In 1994, another mining disaster occurred, killing 11. The Wardens Enquiry into this disaster tells a chilling tale of how individuals "got it wrong" in safety; the report also emphasizes the need for both engineering and behavioral change. This disaster was a turning point for safety in the Australian mining industry. Safety is now a key element on the corporate agenda of most mining companies.

SAFETY EFFORTS MUST IMPROVE

As an OSH consultant to companies in several industries, I have experienced some success and some frustration. For example:

- One major employer did not have copies of safety legislation on site. The cited reason: "We did not know about [the legislation]."
- A training provider conducted an OSH auditor course entirely in a classroom—with no practical component. In my opinion, too much safety education is undertaken without consideration of adult learning principles. Interactive approaches and "learning by doing" are particularly appropriate with adults (Robotham, "Adult Learning Principles and Process").
- One company asked me to develop a safety management plan, then retreated when management realized it would commit the company to actually "do something" about safety.
- Often, managers assert that they "do a great job" on safety. Yet, when the safety program is assessed, a vastly different picture emerges. Written safety policies and procedures stored in a binder do not qualify as "a great job on safety." What matters is what happens where the work is performed.

A recent project that produced benefits involved development of hazard management plans for an underground coal mine. A risk management approach was taken; principal hazards were identified in each discrete business activity performed by the company.

By using a cross-section of the work-

force in group meetings, hazard causes were identified and recorded on fault-trees. Existing and desired controls were then identified for each cause. For principal hazards, it is suggested one should have at least one control in each box of the nine-box model for controls. Developed by A.C.I.R.L., an Australian risk management firm, the model examines equipment, procedures and skills in relation to prevention, monitoring and contingency plans.

With reference to this model, a study of safety management at one company revealed that it had many prevention controls and that contingency controls were well-developed. However, the company did a poor job of monitoring these controls to ensure their effectiveness. Existing controls must be audited to determine whether they work. Those responsible for controls must be identified and their competency to handle those controls assessed.

The company decided it needed 1,600 controls in place and working properly to ensure effective management of principal hazards (which reflects the complex nature of managing safety in a high-risk environment). This process is relatively simple but thorough and can be applied to any high-risk industry (Robotham, "The Hazard Management Process").

In the early 1980s, I attended the Graduate Diploma in Occupational Hazard Management course at Ballarat University and felt it helped me become a better mine-site safety advisor. In 1997, my wife completed a post-graduate OSH qualification. In reviewing her assignments, answering her questions and reading her textbooks, I realized that the coursework had not advanced much beyond my 1980s course. Consequently, I wondered whether post-graduate OSH education in Australia truly equips the graduate to perform well.

Detailed training on how to establish a safety management system seems to be a difficult area for training organizations to address. When I see how well-developed such training is in many other countries, it appears that Australia is lagging behind. Based on my experience in the field, I believe Australia lacks an organized approach to OSH and that our training of managers and safety professionals is partly responsible.

WHAT DOES THE FUTURE HOLD?

So, as 2000 opens, how far has the OSH profession progressed in Australia over the past 25 years?

In a recent incident at a Queensland mine, an employee was trapped in some underground mining equipment; his legs had to be amputated in order to free him. According to the news coverage, the individual was at fault. As a safety professional, it is tempting to explain that an incident is a complex mix of person, machine and environment factors, and that it involves much more than the individual's actions. But this incident reflects a societal problem in my opinion—the safety profession in Australia has made few gains.

According to Worksafe Australia, workplace accidents and disease cost $27 billion per year. Some current problems:

- Safety leadership from government, unions and many companies is lacking. The rhetoric is not always accompanied by action. Too often, safety is a second priority to business imperatives.
- The media emphasizes personal fault and rarely reports on design and system issues that contribute to incidents.
- Australia has no centralized, consistent method of reporting and recording incident and disease statistics. How can we examine the problem and learn from it if we do not record and report it in a consistent manner?
- The standard for safety practitioners is not as high as it could be. For example, in Queensland, to become a qualified workplace health safety officer, a person must complete only two courses that typically last about two weeks. Can someone develop a professional approach to OSH with only two weeks of training (most of which covers state-specific legislation)? To successfully manage safety, a company must receive professional, high-quality advice.

In Australia, the lost-time injury frequency rate (LTIFR) dominates discussions about safety performance. Yet, how can a company be proud of a decrease in its LTIFR from 60 to 10 if two fatalities and one paralyzing injury are among the cases? LTIFR trivializes serious personal damage and is, in my opinion, an inappropriate measure of safety performance.

To assess performance, the mining industry uses positive measures such as how much coal is mined or the amount of coal processed through the washplant. Measuring failure—such as reporting accident statistics—instead of success is counterproductive. Therefore, companies must strive to devise positive measures of what is being done to improve safety.

My grandmother used to say, "Look after the pence and the pounds will look after themselves." Traditional safety supports similar thinking; the overarching philosophy is that preventing minor damage will automatically prevent major damage. The result is an effort to eliminate lost-time injuries in the belief that major incidents will be eliminated in the process.

Certainly, some minor incidents may result in more extensive damage, but personal experience suggests that most such incidents do not. Thus, the concept that preventing minor incidents will automatically prevent major ones is fundamentally flawed. Since resources are typically limited, it would be more efficient to prevent one incident that results in paraplegia than to prevent 20 incidents where people miss two days of work. Somewhere in the push to improve LTIFR, the focus on serious personal damage is lost.

In my opinion, a better method of classifying personal damage is:

CLASS 1: Permanently alters a person's life (e.g., death, amputation).

CLASS 2: Temporarily alters a person's life (e.g., fractured leg, laceration).

CLASS 3: Inconveniences a person.

The 1995 Industry Commission report indicates that safety in Australia is a Class 1 problem (87 percent of occurrences were Class 2 accounting for 18 percent of cost; 13 percent of occurrences were Class 1 accounting for 82 percent of cost) (Industry Commission). This report supports the argument that instead of striving to reduce LTIFR, the focus should be reducing Class 1 damage (McDonald).

In my opinion, occupational safety and health in Australia has made some gains over the last 25 years. However, when one compares these gains with advances in other spheres of industry and to international approaches to safety, OSH in Australia does not compare favorably. ■

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