

## CULTURE CHANGE

# BREAKING THE SAFETY BARRIER: Implementing Culture Change

**N**ot long ago, a revolution took place at the General Electric (GE) Navy and Small Engine facility in Fitchburg, MA—a safety revolution.

Organized into grassroots and leadership teams, trained in new skills and empowered through voluntary participation, employees transformed the way safety was practiced at this pre-Civil War manufacturing facility.

Once thought to be the exclusive responsibility of environmental, health and safety (EHS) professionals, safety became the responsibility of every employee. At Fitchburg, everyone was involved: workers manned safety teams; EHS professionals provided technical guidance; management supplied resources; and union leaders offered enthusiastic support.

This was, by no means, a quiet revolution. At any one time, more than 50 people were active members of the four teams that met every two weeks. Safety was discussed during every start-up meeting; a safety newsletter was published; safety-related videos were shown on the shop floor each week; safety issues became "hot topics" plantwide; and safety awards and recognition became common. Best of all, the plant's safety record improved dramatically. The recordable injury rate dropped 77 percent, while the lost-workday case rate decreased 76 percent in the four years following the initiative.

It was not always this way, however. Revolution often arises from the need for change—when traditional methods and structures are no longer effective. This was the case at Fitchburg.

### BACKGROUND

Fitchburg is the quintessential old New England mill town. The GE site occupied the site and some buildings of one of the city's largest historic mills. The plant's 625 employees manufactured small steam tur-

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bines used as compressor systems in the petrochemical industry. The site housed three major manufacturing areas. The workforce was skilled, experienced and stable—on average, the employees had worked at the plant for more than 15 years. Prior to 1995, the plant had one safety committee comprised of management representatives and EHS professionals, and a separate union safety committee.

The facility had an unenviable safety record. Some shop areas had OSHA incident rates in the 40s; the plant average was nearly 14. Despite efforts to improve safety, these figures had remained essentially flat for several years. Since no effort in any one area seemed to alter the overall rate, management decided it was time for a new strategy.

### CHANGING OF THE GUARD

In late 1994, the plant manager hired a new EHS officer whose mandate was to "break through the invisible safety barrier" and improve the plant's accident statistics. A preliminary plan to effect culture change was then formulated.

As with any new intervention, management support is crucial. This is particularly true with respect to culture change. A signature and resources are not enough. To break down barriers and eliminate mistrust, managers must be involved with the safety teams and lead by example. It is not enough to say safety is the top priority; one must show it.

Fortunately, safety was not a "hard sell" at GE. For example, since 1994, the firm's lost-time injury rates have improved 50 percent; 38 GE sites participate in OSHA's Voluntary Protection Program (VPP). Corporate support cascades from the highest levels. It is widely recognized that "safety is good for business"—that it returns money to the bottom line, reduces

direct costs (in terms of workers' compensation), prevents production stoppages and maintains morale.

Consequently, presenting the culture change model so it would be embraced by new management—and employees—was not a difficult proposition; in fact, it only required a single, one-day seminar.

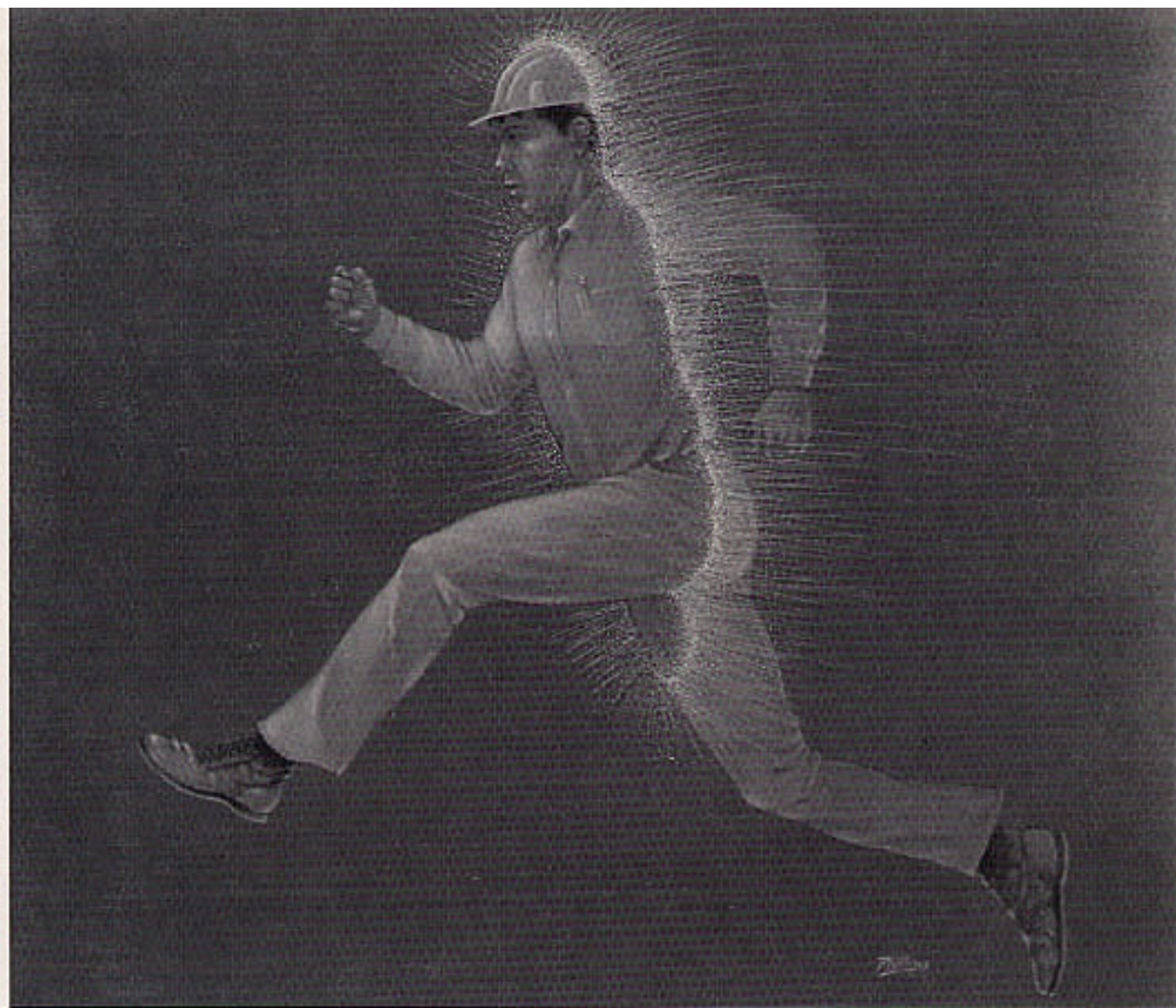
### INTRODUCING CULTURE CHANGE

Based on past success, it was believed the culture change model could be adapted to this old New England mill. The key was gaining the support of plant employees, who would eventually take control of the initiative. This meant including nearly everyone because culture change requires an integrated approach with participation by all levels of the organization.

A one-day seminar was developed to introduce safety culture change using the Simon Open System (S.O.S.) Culture Change Model (Figure 1). The 35 attendees represented a cross-section of plant employees—management, union leaders, supervisors and line employees. For nearly everyone, it was the first contact with safety culture change.

A pluralistic approach was used. Participants were invited to examine what safety program options were available. The seminar started with an overview of the field, OSHA and the evolution of accident prevention. Various approaches were described, and "brainstorming" ideas about ways to improve the site's lackluster safety record were shared.

It was noted that traditional reliance on safety engineering and identification of human error had reached the limits of its effectiveness at the plant. It was time for something new. Based on experience at other facilities, the move to culture-based safety was recommended. Rather than modify a few behaviors, procedures and regulations, through this strategy, the plant would seek to change people's fundamental perceptions of reality.



Such a tactic was necessary because 90 percent of culture—the norms, values and assumptions—lies below the surface. The cultural approach helps people realize that individual actions spring not only from individual traits, but also from group norms. Often, one wears (or does not wear) safety gear based on the words and actions of others in the group rather than on any objective set of facts.

At Fitchburg, talk of change and changing perceptions was met with a typical amount of skepticism. The recording secretary of the local union (and a self-described “professional skeptic”) recalls that union leaders had doubts, yet could find no downside to attempting the new initiative. “We thought it might turn out to be another ‘flavor of the month,’ but we couldn’t see how it could hurt us,” he explains. “The truth is, we were ready to try anything that promised to help protect our people and send them home in one piece.”

The union voted to participate in the process. Management also decided to commit significant resources—\$50,000 was budgeted the first year—to support the initiative. It was determined that par-

ticipation on safety teams (by employees) would require four to five hours per month. Some managers would be directly involved as well. The two “sides” shook hands across the table, marking the beginning of a genuine collaboration.

#### THE PERCEPTION SURVEY

The initial survey—designed to provide a view of employee perceptions about safety culture—indicated that the site had much work ahead. The survey (the S.O.S. Safety Culture Perception Survey), a research-based, validated survey instrument, was administered to many of the plant’s 625 employees (from all levels).

Focus groups were then used to verify and expand upon data gathered. Management did not participate in these informal groups, and employees were encouraged to speak freely. Participants discussed issues openly, clearly excited by the opportunity to speak their minds. More than once, EHS representatives were asked to participate.

Participant remarks and survey results revealed a large trust gap between labor and management. Workers questioned

management’s commitment to safety, and management suspected sabotage of various safety innovations and questioned the validity of employees’ injury claims.

However, results also indicated reason for hope. For starters, management and labor agreed (to an unprecedented degree) about conditions at the plant. Both groups assessed the conditions honestly and critically, scoring closely on most categories and survey questions. Apparently, no one was hiding his/her head in the sand.

In 11 of 12 safety culture scales, management perceived the plant almost exactly as labor did (Figure 3). Clearly, managers were realistic and understood the challenges that awaited them. The only major difference appeared on the rewards scale; management believed that the reward/recognition system was more effective than did labor.

Strength was indicated by the fact that 74 percent of management and 74 percent of labor believed that “accidents were preventable.” Another hopeful sign: 64 percent of labor and 87 percent of management believed that “safety goals were achievable.” Since plant labor and man-

agers had the same viewpoint, a solid foundation was in place for achieving the desired outcome.

On the downside, the plant had very low ratings. While few perception gaps existed between management and labor, the low scores warned of a high potential for future increases in accident/incident rates. Interestingly, management gave itself lower ratings than did labor. For example, only 41 percent of labor and 42 percent of management felt it was clear that "bosses put safety concerns first"; only 24 percent of management (and 46 percent of labor) believed that "work was assigned with safety in mind."

Even lower results were noted in more-demonstrable categories. For example, only 14 percent of labor and 8 percent of management felt that "managers provided frequent feedback on safety performance, both positive and corrective." Only 5 percent of both labor and management believed the plant had a "consistent system of rewards for safe behavior."

Follow-up focus groups questioned management's concern for safety—and extended that sentiment to include the new safety initiative. "This survey is just for show," many said. "Nothing will come of it." Some interviewees said multiple programs had begun and ended, with very few (known) results.

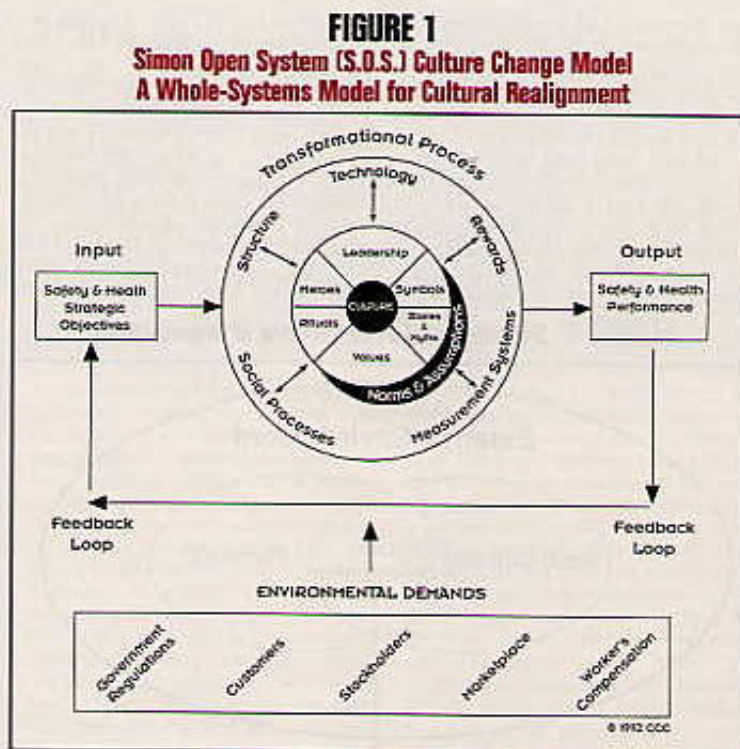
Results of the survey and focus groups were detailed in a 32-page report that was made available to all employees. It was obvious to everyone—on both sides of the table—that much work remained. Fortunately, both sides agreed on the type of work that was required.

#### THE TEAM APPROACH

As a result of the report, a proposal was made to eliminate the old safety committee and replace it with a two-tiered set of teams that would have much broader participation. This would include three "grassroots teams" (empowered safety teams), one for each manufacturing area; one ergonomics team that included all areas of engineering; and a leadership team, a rankless committee comprised of union leaders, stewards, supervisors and select plant managers. This team was facilitated by EHS staff.

Despite earlier skepticism, the plan received tremendous buy-in. Consequently, it was difficult to keep teams small. An ideal size is eight to 10 members; this gives everyone the chance to participate. At Fitchburg, some grassroots teams had 15 to 20 members; the leadership team had 20 members. In total, about 10 percent of factory personnel were part of the teams. In addition, the union maintained its own (separate) safety committee.

To develop the full potential of grassroots teams, members received training on how to conduct meetings and improve



communications. They were also trained on relevant safety regulations. Team members were encouraged to use company resources. A supervisor was assigned to support each team—to intercede, as necessary, with management. After that, teams were "free" to pursue their agendas. Each team wrote its own mission statement and actually defined itself.

A key team function is to represent shopfloor employees and act as a conduit for their ideas. People who feel uncomfortable talking to supervisors or EHS staff often communicate easily with co-workers. The grassroots teams take up co-worker's suggestions, as well as their own concerns, and "run with them." Often, they research issues and expedite matters.

For example, at Fitchburg, the site experienced some delay in obtaining locking portable stairs. One team member researched various products and prices, and obtained approval to order the stairs—in a matter of days, not weeks.

Another employee worked to find a better air nozzle for compressor hoses. Although those being used were safe, they were not suitable to the work being performed, tempting employees to defeat the relief-valve feature. The worker found a nozzle that was both safe and suitable, promoted it among co-workers, then sold it to the leadership team. Had management selected the nozzle and imposed it on workers, problems may well have

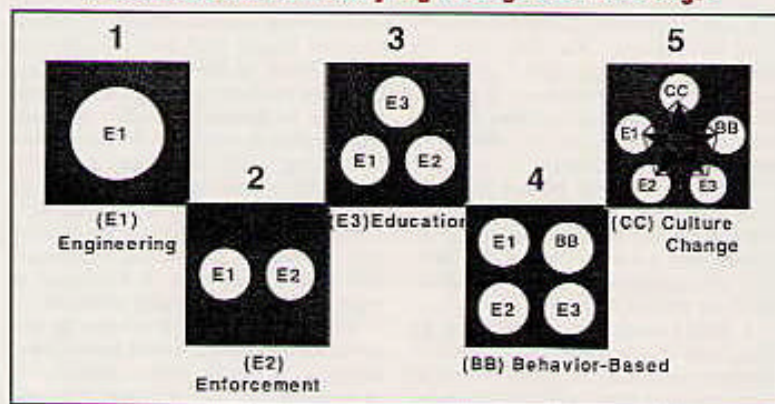
ensued. The simple truth: Empowered employees are likely to find the right solution and give it their full support.

When workers wanted to show training videos on the shopfloor, they first talked to vendors, reviewed products and selected a series of five-minute safety videos (some job-specific, others related to off-the-job safety). The plan was to show one video each week during toolbox meetings. Management purchased the entire series, which sent a powerful message: "We care about your welfare and the welfare of your family, no matter where you are."

Management responded favorably to most grassroots initiatives, funding most of them. The survey had revealed labor's perception that management was not willing to "put its money where its mouth was" and fund safety programs. The grassroots program encouraged workers to request resources, and the positive response dramatically altered this employee perception.

In addition, management allowed team members the time to participate and the resources to purchase products and services. Whenever a problem arose, team representatives could attend the bi-weekly leadership team meeting. Such face-to-face communication not only facilitated the process, it eliminated misunderstandings. Even if a request was denied (a rarity), the explanation was reasonable—and could be debated.

**FIGURE 2**  
A Historical Path from Safety Engineering to Culture Change



**PEOPLE MAKE THE PROGRAM**

What did employees have to say about the program? Sylvia, a forklift driver who had worked at the site for 20 years, got involved right away. She became interested upon discovering that "union and management were not that far apart. They saw the same problems."

Sylvia was also inspired because the plant manager was an active participant. "If she was so gung-ho, I wanted to be part of it," she says. From there, plant conditions changed dramatically. "Before, there were many accidents, but people weren't aware of what was happening. After, if something did happen, if there was an accident, we knew everything about it, right away. What happened, how and what was being done about it."

Team members were trained in skills necessary to execute their new jobs, as were front-line safety representatives. Training began with a two-day seminar. Team members received nearly 40 hours of OSHA training, as well as training in communication skills. Some team members attended a VPP meeting. After three years, team members became well-versed in the culture change process in particular, and health and safety in general.

Each week, a safety audit was conducted by two team members, a foreman and a steward. "When I walked through the building, I knew what I was looking at," Sylvia explains. "This could be almost anything that needed to be fixed. Then we issued maintenance requests. The following week, the auditors checked to see whether these had been completed. After two years, most major problems had been caught and corrected."

The biggest change, however, was a change of attitude. Case in point: Use of safety glasses. "Previously," Sylvia says, "people had them but wouldn't use them. Then, everyone got wise to the dangers and started using them. And, there was plenty of peer pressure. People were not

shy about speaking up. Before, people might make fun of you for doing things safely, then it turned all the way around."

Teams also kept members actively engaged, assigning them to follow up on various issues. As one team member remarks, "The quickest way to get things done was to do it yourself as the grassroots team. Any time you involved anybody else, it took longer. A grassroots team could accomplish something in a week that might take management three months. If you take control and act, you can make a difference."

Prior to culture change, the site did not have a strong safety program—at least not one that labor was aware of. "There was a safety committee of management and union leaders," another employee explains, "people who met all the time anyway. Nobody on the floor knew what was going on. With culture change, safety was everywhere—in meetings, on signs, in publications and especially on the floor."

Another significant change was the end of finger pointing. "It used to be that an accident was always the fault of those on the floor. Later, everyone became interested in finding the root cause and fixing it, rather than assigning blame."

Despite the emphasis on reporting all accidents and near misses, the change in injury and illness rates supports the argument that culture change promotes safety. In 1994, before culture change was inaugurated, the plant's recordable rate was 13.6. By 1997, it had dropped 48 percent to 7.1 (12.7 in 1995; 7.8 in 1996).

During the fourth year, following a plant-closing announcement, accident rates plunged 55 percent to 3.2. This result defies industry norms and common-sense expectations. With the uncertainty, anger and disaffection that often accompany downsizing, one would expect an upward trend of accidents and accident reports. Apparently, the safety culture was ingrained enough to withstand the turmoil.

In addition, the lost-workday case rate showed a typical culture change progression, starting slowly and gaining momentum. In 1994, the plant had a lost-time rate of 6.4. This rate rose to 8.0 in 1995, then steadily decreased to 4.8 in 1996, 3.4 in 1997 and 1.53 in 1998—a four-year decline of 76 percent.

One union official insists the union ceded no rights. "We still maintain the union safety committee. We still file grievances if we see something that's not right," he explains. "It's just with the grassroots teams, that's a rare occurrence. They take care of most problems and we rarely have to get involved."

GE also has a Six Sigma program for quality improvement. According to employees involved in both efforts, the two programs are compatible—effective quality and safety efforts both focus on employee involvement and require similar skills.

Through Six Sigma, employees learn how to apply statistical methods to performance improvement. "When the change in accident rates is analyzed from a Six Sigma perspective, the reduction in total recordable and lost-time injuries since inception of the culture change was statistically significant at greater than 0.01 level of confidence," a Six Sigma member says. "That means there is less than one chance in 100 that our improvement occurred by happenstance."

Adds one union official, "There was no going back. Safety became part of the culture. We were no longer willing to accept any practice or tool that was less-than-safe. The culture would simply not allow things to be done wrong."

**COMMUNICATION IS THE KEY**

Prior to the culture change initiative, the Fitchburg site had experienced some safety successes, but these accomplishments had never been adequately communicated. As part of the culture change process, a new set of communication forums devoted to safety were developed. In addition, safety was often a subject of start-up and toolbox meetings.

A safety communications center was created. It housed everything from copies of relevant regulations and safety manuals to minutes of team meetings; from safety-related posters to charts on accident rates. The center was located on the shop floor, so anyone could stop by and learn about regulations and team activities.

A myriad of communication tools emerged from this program. Many expected that most requests would involve new equipment; instead, the predominant desire was better communication, discussion and dialogue.

Many problems were fixed in the process at Fitchburg. New safety equipment was purchased (including rails, stairs and anti-fatigue mats), and the ventilation sys-

## WHAT IS THE SAFETY CULTURE CHANGE MODEL AND WHAT ISN'T IT?

Culture change is both evolutionary and revolutionary. In the history of the safety profession, it is evolutionary, following a progression from the three Es—engineering, enforcement and education—beyond behavior-based programs to a whole-systems intervention (Figure 2).

At any one plant, in its implementation, culture change can be revolutionary, completely transforming the way safety is perceived and practiced. At its best, this change is controlled by grassroots safety teams, comprised primarily of shopfloor workers invested with primary responsibility for their own well-being. Management leads by example and inspiration, rather than fiat.

As one manager said, "Culture change involves nothing less than changing the basic assumptions about the way people look at the world." Ambitious, but essential, since so many actions and decisions made at work are influenced by hidden group norms and expectations.

After an initial seminar, one manager said, "I like this culture change stuff, I want it in by Monday." Oh, that it were so easy. Unfortunately, culture change is not something one buys; rather, it is something created. Packaged programs often help with short-term needs—but they cannot provide the fundamental, long-term transformation that is the goal of a culture change approach to safety.

One popular misconception is that culture change is at odds with technological programs. Nothing could be further

from the truth. At its best and most effective, safety culture change is a socio-technical development that combines the changes in perception and expectation with technical improvements. It is not a substitute for sound engineering controls and management accountability; it increases their utilization.

After investing \$5 million in fixing plant equipment, one manager with an engineering background disagreed vehemently with a survey finding that labor believed management did not care about safety. He missed the point.

It is not enough for management to fix equipment; management must also communicate what it is doing and involve as many people as possible in identifying and fixing technical problems, and making sure new equipment is used properly. That manager received some technical benefits, but no social benefits, from his pro-safety behavior. His actions and company's investment did nothing to change the values and perceptions of the workforce. Labor did not believe in the company's commitment or the potential for progress.

Culture and technology actually go hand in hand. One must address both the hard side and the soft side. Technical defect and operator error are less likely in a safe culture, which seeks to identify and correct problems. At this point in the safety evolution, however, more potential payoff exists on the culture side since technical changes have been implemented to a much greater degree.

The area of optimum safety performance is where social and technical systems function equally well and support each other (Figure 4). The greater the overlap, the more productive an organization will be. The implication for safety management within this model is that the task of improving safety performance can no longer focus on a dichotomized view of fixing either technology or the behavioral aspects of the firm. A new point of view that gives equal importance to technical and social factors is needed in order to reach the next level of safety performance.

The impetus for culture change can come from several different sources: top down from management; bottom up from concerned workers; from a hybrid of the two; from experienced EHS professionals; or as the result of some significant emotional event, such as a major accident. Hopefully, an organization can pre-empt the last form and, ideally, channel safety concerns of interested parties at all levels. To be most effective, this must be a joint effort that eventually involves everyone.

Whereas it used to be that "the safety guy did safety," leaving management free to achieve other goals, in safety culture change, management's support and participation is essential. In fact, safety culture change process is antithetical to management abdication. This does not mean it must be all-consuming or even very consuming. But it does call for leadership. Leaders establish values, encour-

tem was overhauled. Without employee buy-in, however, these actions would have meant less. Improving technology only goes so far. To advance, the organizational culture must change.

### RECOGNITION

One major discrepancy concerned the recognition of employee contributions to safety. Management aggressively addressed this issue, initiating several well-publicized recognition programs. For example, the company offered dinner-for-two spot awards for employees who made significant contributions. Success stories, accompanied by photos of the participants, appeared on bulletin boards and in the EHS newsletter.

### PROGRESS REPORT

Safety culture change truly works. At Fitchburg, accident statistics improved dramatically, and perceptions became more positive. Labor began to see that management did, in fact, care about safety.

A follow-up survey supported these observations. Administered two years after the initial survey, the sequel revealed

that earlier areas of strength (i.e., accident preventability) had gained more support.

In addition, new areas of strength appeared, particularly in the area of communication. A clear majority of both management and labor agreed that "safety information is kept up-to-date" and "information needed to operate safely is made available to employees." People were now "encouraged to remind each other to work safely." And, the company "has symbols

known to everyone to communicate how safety is important to the organization."

Although some responses showed marked improvement from the first survey, they also revealed, ironically, a widening perception gap. In these cases, both labor and management noted improvement, but labor lagged behind management in its positive response. For example, while 72 percent of management agreed that "safety procedures and policies are clear and available," only 56 percent of labor agreed (up from 46 percent two years earlier).

In another case, 53 percent of labor previously agreed that they were "not asked to perform unsafe operations"; that number increased to 60 percent in the second survey. Labor's approval of senior management's efforts to focus attention on safety programs increased 50 percent (from 30 percent to 44 percent); but management's approval of its own performance in this area increased 300 percent during the same period—from 23 percent to 73 percent.

These results indicate that, despite positive improvements noted across the

### FIGURE 3

#### The Safety Culture Survey Scales

- LEADERSHIP
- RITUALS
- VALUES
- SYMBOLS
- HEROES/HEROINES
- NORMS/BELIEFS
- TECHNOLOGY
- MEASUREMENTS
- REWARDS
- STRUCTURE
- SOCIAL PROCESSES
- ENVIRONMENT

age innovation and inspire others. One genuine benefit of the organizational culture change process is that it gives the plant manager an important, clearly defined and appropriate role as a leader in the plant's safety process.

A leader must send clear signals to workers: safety is more important than speed; the worker has the authority to refuse to perform a job that is unsafe. The leader also embeds assumptions in the culture. S/he sets an example through personal involvement, and by

reacting to critical events, aligning people, influencing creation of teams and making the case for change.

But where is the payoff? The direct result of the culture change process is a more-positive safety culture. People believe that tasks are being performed more safely, that problems are being solved, that management cares. But this does not pay the rent. It is in the indirect results—the so-called by-products of improved culture—that a firm appreciates its gains: lower injury rates, lower medical and

workers' compensation costs, and improved production.

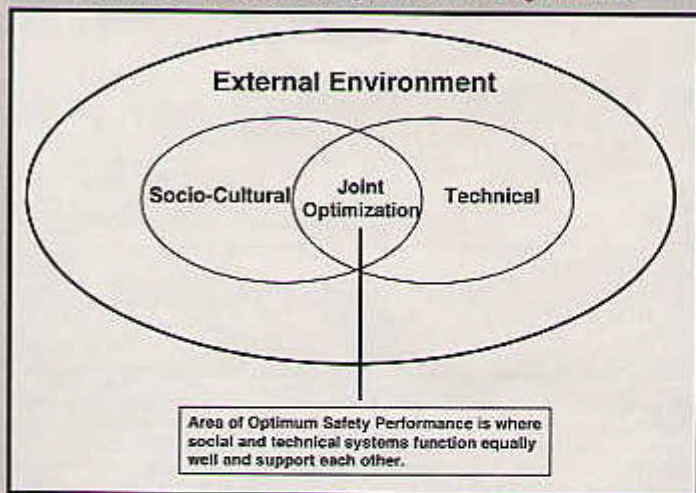
It is widely recognized that safety culture change and quality movements are compatible and support each other. Such efforts often demand many of the same skills and principles. Safety can also be a good place to start on the road to quality, since it is "apple pie and motherhood." The bottom line is that most companies recognize they cannot be truly world class unless and until they are world class in safety.

Some results of culture change may be slow in arriving. In the beginning, however, people should be excited and enthused; they should begin to talk and think about safety, and join teams. Then, accident numbers, typically a lagging indicator, should follow.

Then, the process begins to support itself. Down the road, as the payoff becomes apparent and the kudos begin, management makes further capital improvements, based on cultural success. It is only natural that one must truly believe in something before one can invest heavily in it.

How do you know when culture is changing? Perception surveys and injury statistics tell only part of the story. A firm knows the process is working when safety has become part of the fabric of the workplace, when folk art begins to replace official banners and posters, when symbols of the folk culture—charts, graphs, calendars and mascots—begin to appear on factory walls and bulletin boards.

**FIGURE 4 Sociotechnical Systems View of Organizations**



board, management was willing to declare victory in some areas where labor felt additional work was needed.

#### CONCLUSION

Changing safety culture is like growing an apple tree. It is a long-term process. Typically, it takes three to five years to develop deep roots and yield fruit. At that point, the tree (culture) can stand on its own. Yet, it is not sturdy enough to resist the vagaries of nature.

As the Fitchburg experience shows, culture change efforts may yield positive, measurable gains, even in the early, immature stage. Only when a positive safety culture is a permanent part of the environment—independent of its creators and oblivious to changes in personnel, products and fortunes—can it be said to have succeeded. ■

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