

A MODEL FOR SAFETY SYSTEM SUCCESS

Michael Resetar, Director of Safety and Health
Morton Salt Company

Introduction

Development and progress in safety and health performance requires a sound theoretical framework for training and plenty of practice and feedback. The success of Morton/Canadian Salt Group in safety performance reflects concentrated, strategic and operational emphases on strict regulatory rules compliance and a well developed conceptual framework for gaining employee acceptance/involvement in safety and health as unconditional elements of successful employment.

This presentation will focus on three key pieces of a program aimed at achieving those goals. First, it will offer the basic theoretical grounds for our safety approach. Second, it will describe some of the salient features of training and on-the-job applications and procedures that stemmed from the principles. And finally, it will offer several recommendations for other organizations as they strive to achieve excellence in safety and health performance.

The Theoretical Content

As with many safety improvement efforts our program is firmly grounded in Dan Peterson's conceptual and utilitarian views of safety. His work, *Techniques of safety management: A systems approach*¹, indicates that programs should focus on measurable, realistic social service and management approaches that demand verifiable, quantitative results from any program to improve safety. Peterson's work in quality improvement techniques/tools as related to safety became vital parts of every training and on-the-job application

aspect of our effort. This included the use of employee opinion questionnaires to foster progress in employee acceptance.

A further dimension of the theoretical framework for the program to improve safety/health performance was the notion that quality and acceptance are equal concerns. Quality concerns the consistent application of laws, rules and procedures related to all levels of safety and health. Acceptance relates to the willing, informed commitment of employees to those and all other efforts (decisions) aimed at improving safety.

Starting in 1999, we increased the Salt Group's focus on strict compliance with all laws and regulations relating to organizational safety and health Occupational Safety and Health Administration/Mine Safety and Health Administration (OSHA/MSHA) requirements and guidelines published in the Code of Federal Regulations (CFR) and other state, provincial and local formats were to be applied strictly in all our operations. This was the baseline, minimum acceptable level of performance. Audits and continuous monitoring of compliance activities were and still are routine administrative activities of the health and safety office.

Second, a framework for development of genuine commitment to and active involvement in the improvement and sustainability of our safety and health performance was developed and applied.

This basis for this theoretical framework was Norman Maier's work in problem-solving and decision-making². Maier's formulation of

¹ Peterson, D. (2003). *Techniques of safety management: A systems approach*. New York: Safety Management Association, Ed. 3.

² Maier, N. (1960). *Problem-solving discussions and conferences: Leadership*.

an effective decision (ED) equated acceptance (A) of the decision by those affected by it with the quality (Q) of the decision in terms of its accuracy and appropriateness or technical efficiency. $ED = Q \times A$ is the equation that Maier put forth. It indicates that a high quality, or technically appropriate/correct decision must be well accepted or implementation will be minimal. Hence, a high quality decision that is not accepted – meaning implemented as a personal, individual, free choice – will fail to achieve its potential.

Our initial focus was on assuring the “Q” aspect of safety. All safety managers were directed to implement federal, state, local, and corporate regulations/requirements. Compliance was assured through periodic thorough audits and inspections. In conjunction with that, a corporate Salt Group credo was developed stating the company president’s position that in the Salt Group nothing was more important than the safety and health of all employees; not sales, not production, not profit. (See Supplement #1.)

These initial steps set the stage for a wide-scale move toward the “A” or acceptance portion of Maier’s equation. To advance the development of a true safety culture, we followed an innovation adoption model as espoused in *The Communication of innovations*.³ The author, Everett Rogers, formulated the adoption of innovations as a communications process designed to move a target population of potential innovation adopters to accept and apply any perceived innovative technology or process.

Specifically, Rogers posited that every adoption proceeds through five phases over time: awareness, interest, evaluation, trial, and adoption. We designed supervisory training programs that aimed at achieving awareness of safety/health performance as a requirement of successful supervision and generated in those classes the interest in safety performance improvement that would be needed to move the Salt Group as a whole toward un-coerced, informed free choice of individual employees to perform jobs safely.

methods and skills, New York; McGraw-Hill.

³ Rogers, E (1968). *The Communication of innovations*, New York: McGraw-Hill.

In this regard we adopted a safety innovation concept called the Safety Journey. It stipulated three stages of development of a safety culture each characterized by specific qualities. First, the dependent stage of employee acceptance of safety occurs as the focus on quality of a decision is characterized as “Dependent.” In this stage compliance is a focus of safety supervision; safety is a condition of employment; rules are propagated and discipline assure compliance; the process is controlled/administered by management/supervisors; and the quality of safety is valued for its impact on efficiency and profit.

Next the concept of safety development moves to the “Independent” stage where safety is more than just compliance and management encourages safe behavior more than it disciplines employees for unsafe behaviors. There is more focus on preventing accidents than on endless review of accidents and intense management activity in a crisis made after an injury; management seeks employee ideas on how to improve safety; and finally, safety is put forth as shown in the credo as the priority for management actions.

Finally the last stage of the process of safety innovation is called the “Interdependent stage.” At this stage of development, safety focuses on team and individual commitment to safety performance; employees and supervisors are the source of moral and task praise for achievements rather than external rewards or recognitions of company sponsored incentives and praise. Mutual learning and performance feedback among peers is the norm and safety is a value outcome of all systems working well together. (See Supplement #2.)

This concept of moving from a high level focus on safety quality using compliance as the standard succeeded in preparing the Salt Group for the more elaborate complexity of team work and individual, internal commitment. The guiding principle in this phase of development of a safety culture involved the use of Chris Argyris’ Model II Learning Paradigm.⁴ It basically formulated that three chief values should guide action:

⁴ Argyris, C. (1983), *Reasoning, learning, and action: Individual and organizational*. San Francisco: Jossey-Bass

Valid information; internal commitment; and free, informed choice. Classes for managers and supervisors provided case studies as problems of communication that arise in serious or personally threatening situations. These problems often had safety or health themes that supervisors would typically deal with daily.

In guided practices in the classroom, supervisors would conduct role-plays in which they attempted to realize the chief values of Model II learning. By providing group and instructor feedback and evaluations of how problem situations were handled, the class instructors helped supervisors learn new ways of managing-leading that were appropriate for the interdependent stage of the safety journey.

These classes also taught team synergistics and ways that team leaders could assume a facilitative role for other groups of employees. The concept of the facilitative leader as developed by Roger M. Schwarz⁵ notes that "... organizations are increasingly finding that they face problems that cannot be resolved through unilateral control and compliance-based leadership. Instead, organizations are learning that by developing partnerships with their suppliers, distributors, customers, and the communities in which they do business, they can synergistically increase effectiveness and that of their partners. As employees have more choice about how to do their work, then work becomes more motivating, and commitment to their work is likely to increase. Similarly, by becoming a learning organization and engaging in partnerships, organizations can better identify the root causes of their problems and increase their effectiveness."

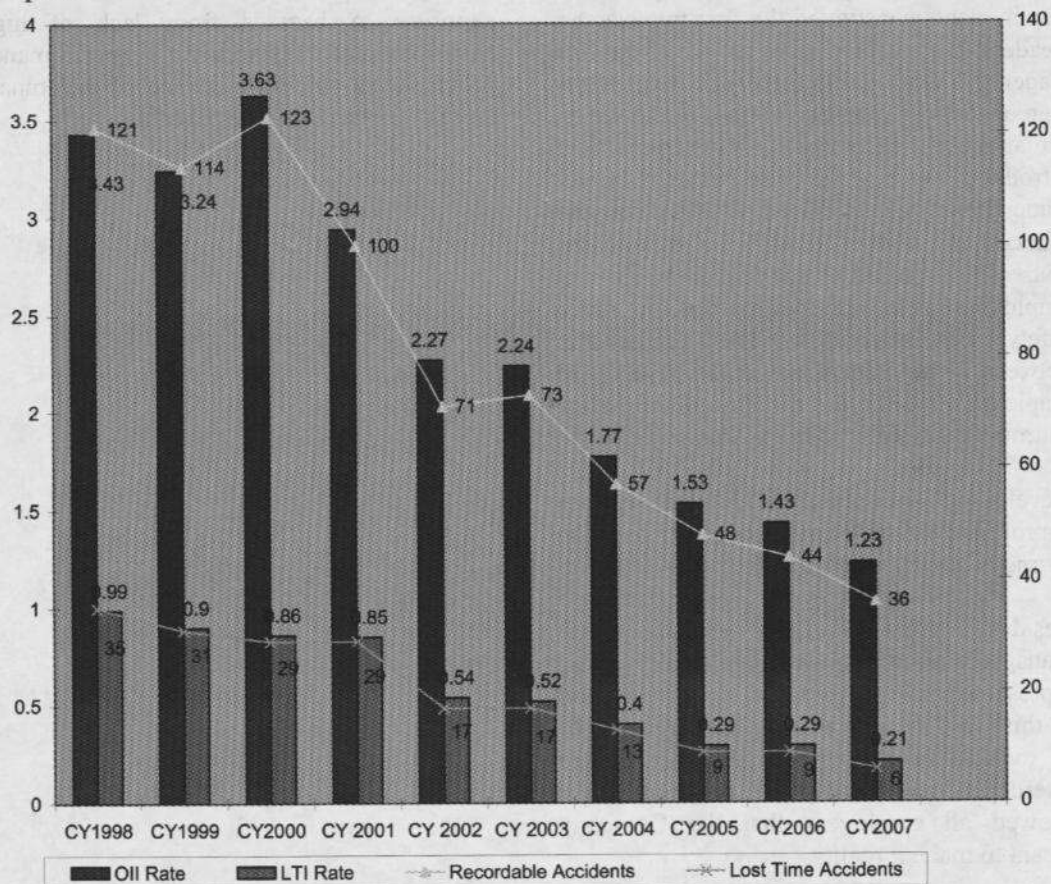
This is where the Salt Group is headed with its focus on safety as a value outcome of everything working perfectly together. (See Supplement #3.) When production, environment quality, reliability, and safety work together with internal and all external partners to achieve continuous improvement, the safety performance of all improves.

This is especially true for the Salt Group's

safety performance as illustrated by the steady improvement shown in Occupation Illness and Injury (OII) and Loss Time Incidents (LTI) rates below:

⁵ Schwarz, R. (1994). The skilled facilitator: Practical wisdom for developing effective groups. San Francisco: Jossey-Bass.

Graph #1



Some Salient Program Features

Given this framework, a series of four two-day two and a half day meetings was designed. The first meeting introduced the quality and acceptance dimensions of the improvement effort. Quality or compliance with the relevant governmental and organizational laws, rules, policies, and procedures was a major focus of these first programs.

Learners were uniformly informed about safety/health requirements. Basic instruction in electrical, guarding, housekeeping, etc. was offered so that each supervisor knew the rules or knew how to find out what they were.

A pre-test over government rules/regulations and corporate policies-rules was given and scored individually. Then the class met in small three to five member teams to answer the questions. The group was asked to predict which would provide better test results, the individual or the team answers.

In this way the concept of synergistics was introduced. It proved the value of teamwork since in most cases, of course, the team answers were much better.

Results of almost all pre-tests showed not greater than 75-80% individual competency while team results approached 90%. The group at this point was introduced to more in-depth examination of the intricacies and values of teamwork. They were challenged to be more effective leaders since 75-80% effectiveness, especially in safety, is rather poor.

Using Human Synergistics problem simulations, the class tested their assertion that teams would come up with better, more accurate decisions than those of the individuals in the teams. The concept of synergy and how to help teams achieve it were developed at length. In addition, the increasing use of work teams in industry was explored.

All of this focus on the acceptance part of the

equation and the necessity of having nearly complete knowledge of safety and health requirements constituted the first two classes. Leadership and the role of the front-line leader as a work group facilitator became key elements of the next two classes in the series. Situational Leadership⁶ concepts were introduced using the self assessment of leadership styles developed by Blanchard and others in the "SBAIL" questionnaire. Classes discussed the development of employees as a requirement for improved safety performance. The relationship between the developmental levels of employees and the three stages of the Safety Journey were explored in depth.

Developing people and using styles appropriate for the interdependent stage of the journey were elaborated.

Besides offering the classes to management/professional employees, union represented groups were also invited to attend. In this way, the move along the three phases of the Safety Journey from Dependent to Interdependent not only told the story but it showed all employees that the Company meant to make it reality.

In the last class the focus was on applying many of the knowledge and skill areas developed earlier. Leaders, whether management or hourly, were coached on ways to communicate effectively in tough, threatening situations. Unlike routine day-to-day talk, the tough situations involved communicating corrections or criticisms that can easily escalate to serious misunderstandings.

Another key part of the last class in the series was the introduction of the concept of sustainable development. The roles of quality assurance, environmental, reliability, and safety within the framework of productivity were the focus. Here, the need for all of these areas to function together seamlessly for safety to work was emphasized. The incidence rate of unscheduled versus planned maintenance is illustrated in Table 1 below. Quality standards with fewer returns or rework were achieved, as demonstrated by statistics showing increased

injuries/costs in plants where reliability and quality management were less efficient. The exposure to hazards from lack of high environmental standards performance provided convincing evidence of the impact these areas have on safety/health.

⁶ Situational leadership II: The article, (2001).
The Ken Blanchard Companies.

Table 1

Safety & Reliability Together

Employee Groups	OII
Salt Group	1.27
Top 5 Reactive	2.30
Remaining Salt Group	0.70

This table compares the OII rate of five operations that have lower planned maintenance (Top 5 Reactive) experience with those that more often stay on schedule. The .70 rate is the performance of the Salt Group with the top 5 reactive operations not figured into the total rate.

Finally, based on a survey at the start of the fourth class, the class was divided into three or four teams each of which chose one area to examine in detail during a plant/operation tour. The teams selected priorities for an observation, assessment of a given operational area, i.e., environmental, safety, production, reliability, or quality. Their assignment was to conduct an assessment of the host plant's performance in the area chosen. Then back in class, the group was asked to report on their findings and to make specific recommendations to upper management for improvement.

This proved to be a realistic, powerful element of application of the skills/knowledge areas covered in the class. The management team attended the last session to hear and to respond to the recommendations.

Finally, a key feature of this series of programs was the involvement of upper management. Each class was attended by a top executive from the home office. The company president, when not personally present, telephoned in and emphasized the corporation's commitment to safety and health.

Throughout the courses, the participants were taught the vital importance of knowing safety and health laws, rules, regulations and policies and of viewing the development of others' skill/knowledge as an on-going learning experience. They were taught to view every interaction from the point of view of "what can I learn from this?" rather than "how can I get my point accepted and acted

upon?"

Recommendations for Safety Training Development

When developing programs aimed primarily at improving safety performance, organizations should take a comprehensive approach. That is, safety should be considered as an important element of organizational identity, not as a peculiar function requiring special attention.

In keeping with that notion, the following actions or concepts can be useful in designing a training program in support of improved safety performance.

1. Identify safety performance as a key value supported and sponsored by top leadership.
2. Focus on both the quality and acceptance elements of content; don't have training that gets things technically correct but so detailed and rules oriented as to make safety/health a matter of only strict legal compliance.
3. Avoid "selling" safety as a value or job requirement. In classes, focus on knowledge/skill whose value is inherently worthy. Don't have instructors use personal relationships techniques to influence the group's decision to apply what is learned.
4. Make safety performance numbers easy to understand; for example when explaining what the OII or LTI rates mean, instead of using the normalization formula, say that a rate of 1.23 means that for every 100 employees, 1.23 will have a reportable incident or lost-time injury. Then indicate how many groups of 100 your organization employs. So, in an organization of 3,000 that would mean that $1.23 \times 30 = 30.69$ employees each year will experience an occupational injury or illness.
5. Make safety data such as the above and other numbers that measure

performance widely available and accessible. Expect leaders to know these data as well as they know production, quality, reliability or environmental measures.

6. Always seek feedback from the group about the values/problems with the course. Use "plus"/"minus" columns at the end of each day to gather the information. Do not entice or coerce responses; if the class says nothing, thank them and close.

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Nothing is more important in the Salt Group than health and safety... not production, not sales, not profit."

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A handwritten signature in black ink on a light gray background. The signature is written in a cursive style and reads "Wes Clark". The first name "Wes" is written with a large, sweeping "W" and a small "es". The last name "Clark" is written with a large "C" and a stylized "l".

