The Business Roundtable

The Business Roundtable

Model for an Owner Safety Process

Monsanto Chemical Company

1989 Owner Award Recipient

Construction Industry Safety Excellence Award Program

November 1989

The Business Roundtable

200 Park Avenue
New York, New York 10166
212 682-6370

Model for an Owner Safety Process

Definitions

The Business Roundtable...an association of about 200 chief executive officers of American companies in all fields who examine public issues that affect the economy and develop positions that seek to reflect sound economic and social principles.

CICE...a cooperative long-term campaign of the construction industry, open to all owners, contractors, architects and engineers, labor organizations, regulators, construction professionals, academics and others interested in any aspect of construction. **Its objective: To improve the cost effectiveness of the American construction industry.** It began as the Construction Industry Cost Effectiveness Project of the Construction Committee of The Business Roundtable. It is made up of task forces responsible for continuing to develop and implement recommendations to enhance construction cost effectiveness.

A-3, "Improving Construction Safety Performance"...a guideline developed by the CICE Task Force encouraging owners to develop programs and procedures which would influence contractor safety performance. The A-3 Report outlines potential long-range cost savings to owners by improving contractors' performance.

CISE...a cooperative effort between owners, contractors and contractor associations to improve construction safety awareness with a goal of reducing human suffering and construction costs. **The Construction Industry Safety Excellence Awards program recognizes The Business Roundtable members who have utilized the recommendations of A-3, Improving Construction Safety Performance, and achieved superior safety results.**

Objectives of the CISE Awards Program

- Improve safety management and results
- Enhance the use of CICE Report A-3 Recommendations
- Improve the availability and the quality of safety statistical data
- Enhance the cooperation between The Business Roundtable and construction industry associations
- Increase the safety awareness of owners and constructors
- Provide safety models and encourage their uses
- Maximize the impact of Roundtable efforts to achieve Report A-3 objectives
- Establish credible, unique, prestigious, nationally recognized awards


The Business Roundtable
CONSTRUCTION INDUSTRY SAFETY
EXCELLENCE AWARDS PROGRAM
SAFETY PLAN

Monsanto Chemical Company

Headquartered in St. Louis, Missouri, Monsanto Company is a broad-based international producer of high technology chemical, pharmaceutical, agricultural, food and beverage products with annual sales of over $8 billion. Monsanto Chemical Company is the largest of Monsanto's operating units with annual sales of over $4 billion. It is a world leader in high-performance materials, including detergents and phosphates, man-made fibers, plastics, resin products, rubber chemicals and specialty chemical products. Monsanto Chemical Company operates 37 wholly-owned plants in the U.S. and abroad.

Monsanto considers the safety of its employees, contractors and the communities in which it operates to be its highest priority. Monsanto has traditionally had one of the finest records in the chemical industry both in plant and contractor safety. This commitment has a goal to create an "injury-free" workplace. Integrating the Recommendations of The Business Roundtable CICE Report A-3, "Improving Construction Safety Performance," into their construction safety process, Monsanto Chemical Company has achieved dramatic reductions in contractor OSHA recordable and lost workday rates on its projects. Since 1986, the program has encompassed over 200 union and open shop contractors completing nearly 5 million manhours of construction work. Using industry accepted figures, the direct and indirect costs associated with averted injuries, when compared to industry statistics, saved Monsanto over $22 million.

As the recipient of The Business Roundtable Construction Industry Safety Excellence (CISE) Owner Award Monsanto believes it has the obligation and responsibility of sharing its experience to help other companies achieve the same level of safety awareness, commitment and performance. Please contact the Manager of Construction at (314) 694-6901 for more information, or write to:

Monsanto Chemical Company
MCC Engineering
800 N. Lindbergh Blvd.
St. Louis, Missouri 63167

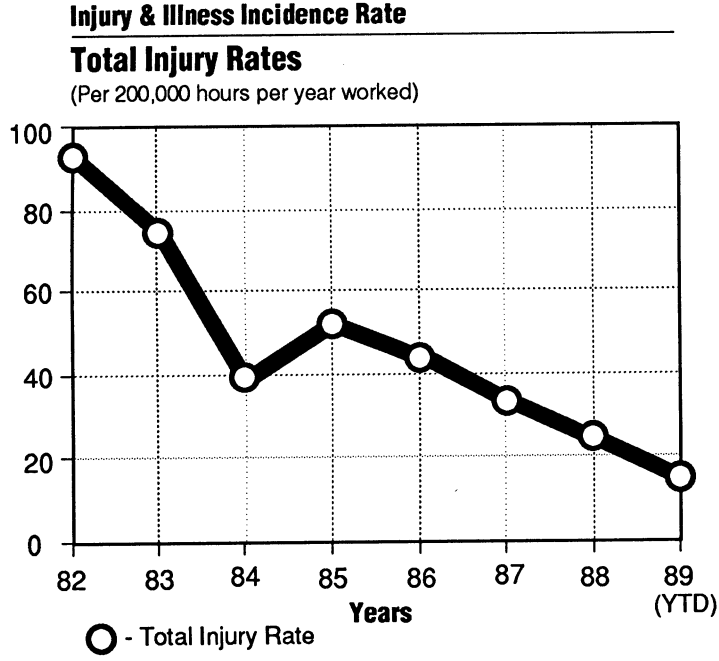
Attn: Manager of Construction - F3WA

Monsanto Chemical Company's application for the Owner Safety Award is reprinted in its entirety as a "Model for an Owner Safety Process." Supporting reference forms and data were also submitted for the CISE Award and are not included herein.

Model for an Owner Safety Process

Executive Summary

Prior to 1978, Monsanto relied on each constructor's ability and efforts to provide an effective safety program for construction employees. But the failure of contractors to manage for improved construction safety and the rising cost of construction accidents motivated Monsanto to establish greater safety management control over all construction that it purchased. Monsanto recognized additional opportunities for enhanced construction safety in The Business Roundtable's Construction Industry Cost Effectiveness (CICE) Report A-3 on "Improving Construction Safety Performance," and adopted the Recommendations as the cornerstone of its Construction Safety Process.



Over the last three years, Monsanto Chemical Company's (MCC) Construction Safety Process has produced rewarding results. It has enabled constructors working on MCC jobs to surpass their own high levels of safety performance. MCC construction safety statistics indicate a 50 percent reduction in total injuries since 1986. Adoption of the CICE Recommendations helped achieve OSHA recordable injury rates averaging 27 percent of the national average for the corresponding period. MCC improved lost

	1985	1986	1987	1988	1989
Incident Rates	55.9	48.0	38.0	28.4	19.9
Recordable Rates	4.0	4.0	4.5	4.0	2.3
Lost Workdays	1.2	1.8	0.8	0.8	0.5

workday cases by 57 percent over the past three years, with 1988 rates at 12 percent of the national average. MCC also realized a 118 percent improvement in the number of manhours worked between lost workday injuries, rising from 110,000 in 1986 to 260,000 in 1988. This safety performance was achieved at more than 15 locations involving 200 constructors completing nearly 5 million manhours.

The effectiveness of MCC's Construction Safety Process was demonstrated under conditions of corporate reorganization and decentralization, coupled with the execution of high risk, highly vulnerable projects.

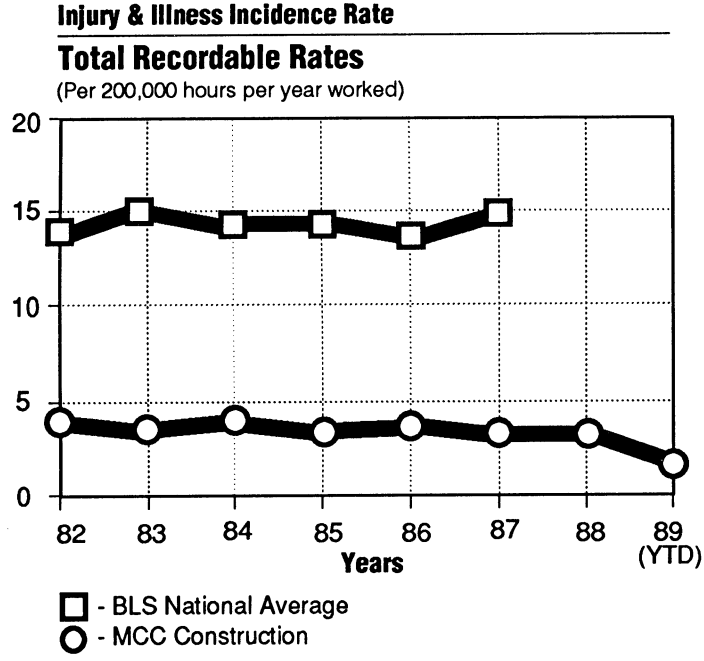
Based on these statistics as compared with national averages, MCC averted 251 construction injuries, including 134 lost workday cases, in 1986, 1987 and 1988 combined. Using industry-accepted figures, the direct and indirect costs associated with these averted injuries saved Monsanto and the industry $22 million.

As a direct result of enhancing the Monsanto Construction Safety Process with Total Quality management beginning in 1988, the OSHA recordable incident rate on Monsanto projects declined further to just 2.3 and the lost workday case rate moved to 0.5 in 1989.

Foundation of MCC's Construction Safety Process

MCC President Robert G. Potter provides vision, leadership and focus for the safety process and performance. MCC's Construction Safety Process is supported further by its Engineering Safety Committee, Construction Safety Quality Improvement Team and various Site Safety Teams. Each of these teams provides safety guidance aimed at asserting management's commitment to achieve an injury-free workplace. Implementation of MCC's Construction Safety Process is decentralized, with safety management responsibility placed squarely upon line managers and individual employees.

At Monsanto, safety management is treated as an ongoing education process requiring constant reinforcement to maintain and improve effectiveness. MCC management firmly believes that safety is a continuous process without beginning or end. As such, it is managed with the same care and attention as all other valued corporate resources. Monsanto's commitment to continuous safety improvement is communicated through its Safety Philosophy and Principles, which pledges corporate commitment, assigns responsibility and provides direction for continuous improvement.



Components of a Safety-Focused Construction Team

Accident Prevention Process. MCC provides a structured method—the Accident Prevention Process—for managing safety and implementing the Recommendations of the A-3 Report. This process serves as the framework for continuous safety improvement and provides a network for sharing critical information for managing safety. It includes the selection of safe constructors, establishes and induces safety communication, provides awareness training, and specifies accident investigation and reporting.

Constructability Review. During the project concept stage, site managers lead MCC project teams through constructability sessions to develop design/construction methods and programs that are fully compatible with MCC's first emphasis on safety. These early planning sessions clearly establish the safety requirements for attaining successful execution of the project—long before any construction workers arrive on the site.

Contractor Selection. The process continues with rigorous prequalification of potential constructors based (1) upon the constructor's demonstrated safety performance and (2) upon the constructor's ability to effectively manage safety programs. Constructors must provide detailed statistical information from their OSHA 200 logs for the most recent three years as well as their Workers' Compensation Insurance Experience Modification Rates (EMRs). They must also describe in detail their safety program, training methods, accident cost accounting, accident investigation and notification procedures, subcontractor safety and annual safety budget information.

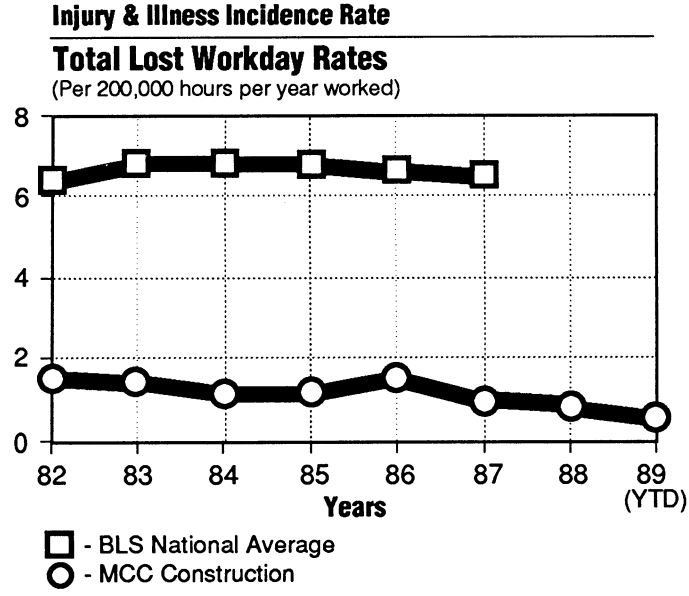
Monsanto's experience has shown that contractors who excel at safety also eclipse their competitors in managing other aspects of their business. As a result, they offer many competitive advantages to construction buyers. Contractors must meet safety performance hurdle rates before becoming eligible to participate in MCC's proposal and bidding process:

- an EMR of 1.0 or less;
- an OSHA Recordable Rate of 12.0 or less; and
- a Lost Workday Rate of 6.0 or less.

Demanding higher and higher levels of safety performance has yielded a Workers' Compensation Insurance EMR average of 0.94 over the last three years—demonstrating that constructors are able to improve safety management and performance if motivated and held accountable by the owner.

Bid Cycle Safety. MCC's Accident Prevention Process continues with the inclusion of safety requirements in its contract language. Contract documents provide the constructor with safety, health and conduct guidelines for MCC facilities and place reciprocal obligations on each constructor to supplement these requirements with work practices and instructions to employees to further decrease the likelihood of injury. MCC's safety-specific contract language explains and reinforces its commitment to

safety excellence. Constructors must immediately correct all deficiencies and, in the rare cases when they fail to do so, MCC corrects the unsafe conditions and back-charges the cost to the constructor. Contract language also enables MCC to dismiss any individual or constructor who fails to comply with safety rules and regulations.



Pre-bid conferences and contract award meetings are used to confirm that on-site and corporate managers for MCC constructors understand MCC safety requirements and their impact on costs and schedules. Agendas for bid review and contract award sessions require a detailed review of each constructor's safety program and safety management style. At each step in the bid review and contract award process, MCC emphasizes adherence to specific contract requirements for safety administration and explores each constructor's commitment to safety. In addition, these sessions serve to develop a constructor/owner safety partnership. This partnership then works to identify specific project safety needs and tailor a site program that minimizes unsafe acts, conditions and exposures. MCC eliminates low-bidding constructors that fail to meet construction safety requirements—exemplification of MCC's policy that safety is a condition of

employment. MCC welcomes only those constructors that share its principles, commitment and practices for an effective safety partnership.

Constructor Safety Evaluation. MCC takes an interactive approach to evaluating its constructors' safety performance in the form of highly specific feedback before, during and after contract execution. This is accomplished formally through three Contractor Evaluation Reports at contract award, mid-project and post-construction milestones. MCC site managers and project teams evaluate each constructor's safety strengths and weaknesses and provide guidance for improvement in personal meetings with each constructor's supervisory and management staff. This partnership for safety has nurtured closer safety relationships and open communication lines between MCC and its constructors. MCC's safety evaluation process also eliminates unsatisfactory performers from future bid lists.

Site Safety. MCC's site managers hold primary responsibility for construction safety in the field, a duty they share with constructor supervisors. At some sites, MCC site managers are assisted in safety management by a full-time safety supervisor. Key tools used by site managers to convey MCC's safety-focused message and improve safety awareness include:

• ON-SITE WORKER ORIENTATION PROGRAMS. Every person entering a Monsanto facility for the first time is required to attend an orientation session, which provides an overview of rules and regulations governing day-to-day on-site construction activities. Specific topics covered include construction work permit requirements, emergency evacuation procedures, special known hazards, site rules and regulations, and personal protective equipment requirements. MCC augments this orientation through the use of videos, handbooks, one-on-one discussions, Material Safety Data Sheets and walk-throughs. MCC sites indicate safety orientation attendance with a hard hat sticker—which is as important to a constructor employee for entry as his identification badge.

• SAFETY TRAINING PROGRAMS. To continuously improve safety management capabilities, MCC construction field personnel attend annual in-house construction conferences, consultant programs and special presentations. MCC also administers safety training to constructor supervisors, technicians and craftspersons—ranging from CPR/First Aid to accident prevention techniques to specialized training for unique job safety requirements.

• SAFETY STANDARDS LEADERSHIP. Monsanto's pro-active approach to construction safety has been demonstrated by its adoption of corporate environmental health and safety standards exceeding federal requirements. Monsanto was among the first companies nationally to implement a Substance Abuse Policy requiring Monsanto job applicants to be screened for substance abuse. MCC's Constructor Substance Abuse Policy extends Monsanto's commitment to a drug-free workplace to its constructors and subcontractors. This policy is fully implemented at MCC's open shop sites and is pursued aggressively at the union sites.

• ON-SITE SAFETY COORDINATORS. MCC requires all constructors to designate an on-site safety coordinator. Constructors must provide additional safety management for major "turnarounds," during which worker, equipment and material congestion combined with long hours demand the highest levels of safety awareness and safety monitoring.

• SAFETY PERMIT SYSTEM. All MCC facility construction requires the use of an extensive safety permit system. Constructors must obtain general permits to enter production and storage areas and special permits for hot work, confined space entry, excavation and line breaks. The construction permit procedure enhances safety by coordinating permit approvals through one knowledgeable person.

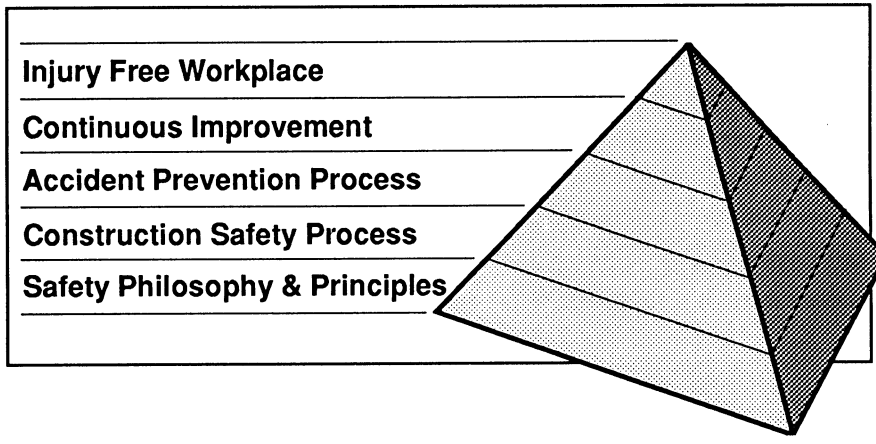
• SAFETY AUDITS. Daily construction audits are conducted with immediate feedback to constructor supervisors for corrective action. Unsafe acts and conditions are corrected immediately, or work is ceased until proper safety precautions are taken. MCC considers every individual to be a safety officer with the right to question unsafe practices and stop work if danger is imminent. MCC requires special safety audits prior to the start of construction activities where special precautions or training is required. This includes work such as critical crane set-up and lifts, asbestos removal, water blasting and sand-blasting.

• WEEKLY SAFETY WALK-THROUGHS & MEETINGS. All site constructors participate in MCC's weekly safety walk-throughs and meetings at which safety performance, the status of corrective action and housekeeping are discussed. Meeting discussion points are published and passed on to construction workers at daily and weekly gangbox meetings. Safety job plans are discussed and managed with the same vigor as schedules and coordination activities.

• TURNOVER & ABSENTEEISM AUDITS. Turnover and absenteeism rates are monitored regularly as a predictor of potentially poor safety awareness with employees of a particular contractor or project.

• SAFETY RECOGNITION & AWARDS PROGRAMS. Another tool for improving construction safety performance is MCC's safety recognition and awards programs. Each site is empowered to establish and administer recognition programs for constructors who have shown significant improvements or have exhibited exemplary safety management. Recognition ranges from distribution of ball caps, key chains and belt buckles for achievement of safety performance milestones to awards' dinners and ceremonies at which MCC and constructor management participate in honoring the accomplishments of project supervisors and employees.

Monsanto Chemical Company
Construction Safety Success Pyramid



• ACCIDENT INVESTIGATION & REPORTING. MCC performs extensive contractor accident investigation to collect, tabulate and analyze data that provides valuable details about near-misses, first aid cases, OSHA recordables and lost workday cases. Constructors are required to notify Monsanto of any personal injury or damage to property immediately, including injury or damage by subcontractors and material suppliers under the constructors' control. MCC constructors provide completed Contractor Accident Reports for all job-related injuries and illnesses, including first aid and near-miss incidents. MCC constructors submit a monthly Injury/Illness

Register, Safety Inspection Report and Accident Summary Report.

MCC site managers submit safety data to the corporate Manager of Construction each month. Near-miss incidents, first aid cases, recordable injuries, restricted duty, lost workday cases and lost workdays are tabulated and cross-classified by unsafe acts, unsafe conditions, incident location, contractor and supervisor, causes of the incident/accident, type of injury, injured part of body, tools and equipment involved, accident type, supervisory responsibility and personal factors.

Monthly reports show safety performance statistics for each site. More detailed quarterly summaries provide statistical results by site, division and project, plus an analysis of incidents and injuries during each period. These performance summaries are circulated to all levels of the organization.

All unsafe incidents with potential for injury are promptly investigated by an MCC representative and constructor supervisor, and communicated to other site managers and constructors. Corrective actions are taken and plans are developed to avoid a repeat incident. All serious incidents and OSHA recordable injuries require immediate notification to MCC's Manager of Construction and the constructor's management. All major incidents are reported to the MCC Engineering Directors, who in turn report information to executive management.

MCC's dedication to effective investigation, reporting and communication of near-miss incidents has been critical to reducing total injuries on MCC projects.

Positioned for Continuous Improvement

The safety procedures outlined in the MCC Engineering Construction Manual establish the framework for development and implementation of each Site Safety Process. Innovation is encouraged—with particular emphasis on safety programs which attain high levels of safety consciousness and address the unique needs of each site. Programs consider the volume of project activities planned, the project scope, the nature of the work, manpower requirements, required craft disciplines and anticipated hazards—including potential chemical exposure. The construction site management staff works with the plant safety and industrial hygiene departments to fashion a safety process that ensures the health and safety

of constructor employees and prevents property loss during construction. In addition, site managers must stay abreast of and properly administer changing national, local, corporate and plant safety regulations and policies.

The changing face of the construction workforce—which will consist of an increasing number of women, minorities and non-English speaking people as workers—demands an intensified, pro-active approach to modern safety education and awareness-building methods. MCC's dedication to continuous safety improvement prompted the formation of a Construction Safety Quality Improvement Team (QIT) in 1988. The team's mission is to improve construction safety performance to the point of zero injuries on MCC construction projects. The team provides guidance for the MCC Construction Safety Process, focuses on constructor safety performance and motivation, sets goals, evaluates performance, and provides feedback and recommendations for improvement. It serves as a resource to all MCC units and plants.

Through application of MCC's Total Quality Process, the Construction Safety QIT has made improvements in the:

- Constructor Selection Process
- Accident Prevention Process
- Construction Safety Education & Awareness
- Safety Communication & Training
- Constructor Safety Information Systems
- Safety-Related Contract Terms & Conditions
- Site Auditing
- Constructor Safety Evaluations
- Safety Networking

The team is currently developing a computerized database system to provide interactive site safety performance reporting. The Construction Safety Information System (CSIS) will reflect MCC constructor EMRs, historical safety statistical performance and safety performance on MCC projects. The CSIS will advance the visibility of constructor safety performance, serve as a tool for managing toward continuous safety improvement and allow accessibility for all MCC locations.

MCC is accelerating its ability to respond to changing safety needs and to provide leadership for improving the construction industry's safety culture

through its team networking activities. Internally, the Construction Safety Team is represented on MCC's Engineering Safety Committee, division safety network teams and various plant safety teams and committees. Externally, MCC networks with constructors, safety consultants and Local User Councils. Membership and participation on The Business Roundtable's Construction Committee and the Construction Industry Institute (CII) demonstrate Monsanto's commitment of resources to improving the entire construction industry. This networking has successfully broadened MCC's "safety disciples" to all corners of the organization, promoting enthusiasm and fervor toward ongoing safety performance improvement.

Results

The effectiveness of MCC's Construction Safety Process—and all its components—proves that constructors can perform their work safely when positively challenged and motivated. This is demonstrated by statistics showing a 50 percent reduction in total injuries since 1986 and OSHA recordable injury rates averaging 27 percent of the national average. Since 1986, lost workday case rates improved 57 percent and the number of manhours worked between lost workday injuries increased steadily, with a 118 percent improvement. Since the institution of MCC's Construction Safety Quality Improvement Team, MCC attained its injury-free workplace goals at three sites in 1988 and reduced its OSHA recordable rate to 2.3 and its lost workday rate to 0.5 in 1989. The vast improvements in MCC injury rate statistics reflect the strength of the Construction Safety Process under conditions of corporate reorganization and decentralization, coupled with the execution of high risk, highly vulnerable projects.

In comparison with national averages for the last three years, MCC could have expected to experience 348 recordable injuries with 159 lost workday cases. Instead, MCC experienced 97 recordable injuries with 25 lost workday cases. The rewards went far beyond the direct and indirect cost savings exceeding $22 million. MCC takes great pride in the moral and social implications of avoiding 251 recordable injuries, including 134 lost workday cases.

Conclusion

MCC's safety culture and commitment directly embraces more than 5,000 outside construction workers plus their managers throughout the country

each year. These individuals have adopted much of MCC's Construction Safety Process and carried their improved safety practices with them to other jobs. MCC has a lifetime—and life-enhancing—effect on those who build its projects.

MCC rejects the concept that construction is inherently dangerous. All accidents are preventable. MCC sets a superior example for what can be achieved through development and implementation of effective contractor qualification systems, safety-focused contract requirements and proactive site safety programs that build and maintain high levels of safety awareness. As MCC continues its Total Quality approach to safety management, MCC's ultimate goal of an injury-free workplace will be attained.

As an employer, MCC seeks to make safety second nature. Job site safety goes beyond teaching to shape and improve individual attitudes for the collective good. MCC and other construction owners are now challenged to show the world, through our actions, that U.S. businesses are truly safe —in the way products are manufactured, in the way the environment is affected and in the way people are treated.

As MCC President Robert Potter says, "There is nothing we do that is more important, nothing that can impinge so directly on so much of our business, as safety."

Owner Safety Award Requirements

The Owner Safety Awards of the Construction Industry Safety Excellence (CISE) Awards Program recognize commendable safety management by a member company of The Business Roundtable who has most effectively implemented the Recommendations of The Business Roundtable CICE Report A-3 on "Improving Construction Safety Performance." The award is bestowed upon the owner/company who can show the most exemplary program of safety management that goes beyond merely adopting a safety program to demonstrate a serious, vigorous, persistent owner's management commitment to make the program work. The strategy underlying the awards process is to recognize stellar performers while increasing implementation of The Business Roundtable CICE Report A-3 industry-wide by soliciting and publicizing model programs which can be emulated by the peers of the outstanding achievers.

The awards are intended to convey The Business Roundtable's full support of hands-on management of safety by owners whose performance indicates recognition of their direct economic stake in the safety performance of their constructors whose accident costs are a business expense to owners and a controllable cost that can be reduced by owners. This can be achieved through establishment of an effective construction safety program executed by constructors and aggressively supported by owners.

Description

An annual safety award is presented to the owner program that most effectively implements the Recommendations of The Business Roundtable CICE Report A-3, either for a particular project or operating facility, or for an entire operating entity, i.e., division, department or major functional group.

Criteria

The Business Roundtable CISE Awards Program for Owners is based upon a panel evaluation of applications submitted by owner companies addressing the following elements:

- executive summary
- statement of problem (or starting conditions)
- elements of program
- results, including supporting statistical data
- conclusions and recommendations

The panel assesses or measures managerial accountability based on:

- the recipients of accident reports and frequency distribution of the reports; to how high a level do they reach.
- the frequency of project safety inspections and the degree to which they include project managers and field superintendents
- the frequency of safety meetings for field supervisors
- the method of compiling accident records and accident costs and their reporting frequency; looking for the most effective system for accountability of results. Greater accountability comes from a more detailed system.

The panel assesses or takes a measure of management's commitment based on evidence of:

- management demonstrating a serious, vigorous, persistent commitment to make the program work
- management commitment that goes beyond talking about good safety performance. Has the owner's commitment been backed up by a willingness to financially support the constructor's efforts to ensure an effective safety program?
- safety management practices and procedures in use that optimize the owner's role. Are the principles of management control commonly applied to other resources equally applied to safety?
- the acceptance of responsibility for safety performance by the line organization. Is safety a line management responsibility?

The panel looks for evidence of advanced elements that indicate:

- the owner has undertaken a supportive role to improve construction safety performance
- the owner pioneered new, innovative approaches that go above and beyond CICE Report A-3 Recommendations
- the owner has placed safety requirements on construction contractors, and to what extent the owner has exercised influence on the constuctors' safety programs
- the owner has taken a constructor's safety performance record into consideration when contracting work with the firm
- the owner takes a vigorous hands-on managerial approach to safety which confronts challenges early, nipping safety problems in the bud, before they become safety statistics.

Finally, the panel reviews the owner's safety statistics over the past three years.

Demonstrated Results are Mandatory

CICE Principles

1. The cost effectiveness of the construction process can be controlled and major savings achieved if top management gives it the same attention and direction applied to production, marketing and other mainstream functions.

2. The owner puts the money in. He has the economic incentive and the means to fix the goals, set the standards and control the process.

3. It takes major changes across the board to improve cost effectiveness.

4. Modern management systems are as important in construction as in other business functions.

5. New technology will reduce costs, improve quality and expedite the construction process.

6. Construction cost effectiveness depends on people—their training, upgrading, supervision, motivation, involvement, commitment...proper use of their skills...and the practices and conditions that control their performance on the job.

7. Projects are most successful when all elements—planning, design, field construction, start-up, operation and maintenance—are integrated from initial concept to completion.

8. Contracts should be written to fit the specific job, fairly and adequately recognizing the legitimate interests of all parties.

9. "Team building" is a practical and productive way to maximize the contribution of the diverse interests, skills, resources and people involved in any project.

10. Local conditions affect a project's cost effectiveness and owners have a legitimate interest in them.

11. An effective safety program benefits employees; enhances motivation, morale and communications; and has a positive cost/benefit ratio.

12. Getting more construction for the money requires the creation and execution of a structured and practical action plan. CICE Recommendations, CII Studies and other sources provide a sound basis for developing one.

CICE Reports

The Findings and Recommendations of The Business Roundtable's Construction Industry Cost Effectiveness Project are included in the Reports listed below. Copies may be obtained at no cost by writing to The Business Roundtable, ATTN: CICE, 200 Park Avenue, New York, NY 10166.

Project Management - Study Area A
A-1 Measuring Productivity in Construction
A-2 Construction Labor Motivation
A-3 Improving Construction Safety Performance
A-4 First and Second Level Supervisory Training
A-5 Management Education and Academic Relations
A-6 Modern Management Systems
A-7 Contractual Arrangements

Construction Technology - Study Area B
B-1 Integrating Construction Resources and Technology into Engineering
B-2 Technological Progress in the Construction Industry
B-3 Construction Technology Needs and Priorities

Labor Effectiveness - Study Area C
C-1 Exclusive Jurisdiction in Construction
C-2 Scheduled Overtime Effect on Construction Projects
C-3 Contractor Supervision in Unionized Construction
C-4 Constraints Imposed by Collective Bargaining Agreements
C-5 Local Labor Practices
C-6 Absenteeism and Turnover
C-7 The Impact of Local Union Politics

Labor Supply and Training - Study Area D
D-1 Subjourneymen in Union Construction
D-2 Government Limitations on Training Innovations
D-3 Construction Training Through Vocational Education
D-4 Training Problems in Open Shop Construction
D-5 Labor Supply Information

Regulations and Codes - Study Area E
E-1 Administration and Enforcement of Building Codes and Regulations

Summary - More Construction for the Money
- CICE: The Next Five Years and Beyond

Audiovisual presentations are also available. For information write The Business Roundtable, ATTN: AUDIOVISUALS.