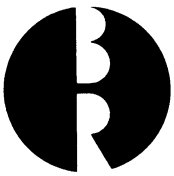


The Business Roundtable

MODEL FOR
AN
OWNER SAFETY PROCESS

AIR PRODUCTS AND CHEMICALS, INC.
(1988 OWNER AWARD RECIPIENT)

CONSTRUCTION INDUSTRY
SAFETY EXCELLENCE
AWARD PROGRAM

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 and Committees 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 Project 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 contractor's performance.

CISE. . .a cooperative effort between owners, contractors, and contractor's associations to improve construction safety awareness with a goal of reducing human suffering and construction costs. **The Construction Industry Safety Excellence Awards program recognizes BRT 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 BRT report A-3 recommendations
- Improve the availability and the quality of safety statistical data
- Enhance the cooperation between the BRT and construction industry associations
- Increase the safety awareness of owners and constructors
- Provide safety models and encourage their uses
- Maximize the impact of BRT 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

AIR PRODUCTS AND CHEMICALS, INC.

Founded in 1940 and headquartered near Allentown, Pennsylvania, Air Products and Chemicals, Inc. is a major international supplier of industrial gases, chemicals, process equipment and related technology. The company's products are used by tens of thousands of customers in virtually every major industry around the world. With annual sales in excess of $2.5 billion, Air Products employs over 12,000 people, and has operations throughout the United States and in 20 other countries.

Over the years, Air Products has aggressively invested time and money to implement the programs and systems necessary to achieve its objective of being the very best in its industry in terms of safety. By applying the recommendations of The Business Roundtable CICE Report A-3, "Improving Construction Safety Performance," to their construction safety program, Air Products achieved OSHA recordable rates of 2.1 and zero lost workdays over the past three years. Their construction environment included over 180 locations and more than 450 open shop and union contractors.

As the first recipient of the The Business Roundtable Construction Industry Safety Excellence (CISE) Owner Award, Air Products feels that it is their obligation and responsibility to share their experience to help other companies achieve the same level of safety awareness. Please contact the Manager of Construction Engineering at (215) 481-4151 or 481-4911 for more information, or write to:

Air Products and Chemicals, Inc.
Allentown, PA 18195
Attention: Manager of Construction Engineering

Air Products application for the Owner Safety Award is reprinted in its entirety as the Model for an Owner Safety Process. Supporting reference forms and data were also submitted for the CICE award application but are not included here.

MODEL FOR AN OWNER SAFETY PROCESS

EXECUTIVE SUMMARY

The success of Air Products' total safety process is based on a persistent managerial commitment, instilling the corporate safety philosophy through line management and into the attitudes of all permanent and contract employees. CICE Report A-3, "Improving Construction Safety Performance," was the catalyst that focused this process toward improving construction safety.

The results of this effort in our construction activities produced a 250 percent improvement in recordable injuries to an OSHA incidence rate of 2.1 and the achievement of zero Lost Workday Cases for the last four consecutive years, involving more than 450 independent constructors, logging over 2.4 million man-hours at more than 180 project locations across the country. These safety results were achieved in a challenging construction environment consisting of union and open shop constructors, fixed-price and cost-reimbursable contracts, demolition, facility expansions, as well as grass roots sites.

The constructors were selected from the same labor pool available to all owners, but through our selection process, education and hands-on managerial approach, superior safety results were achieved. Constructors hired by Air Products have an average EMR of 0.9, which represents the top 50 percent performers and exceeds our selection criteria of EMRs of 1.04 or less. These better than average performers performed even better at Air Products' sites. Air Products' constructor performance typically has been one-sixth the construction industry safety average for recordable injuries.

Using A-3 cost data, Air Products' performance, when compared against the industrial average, resulted in a five-fold reduction in costs, saving the industry over $1.7 million. Similar calculations based on insurance industry premiums reflect a savings of $2.5 million. If all constructors achieved similar safety results, the industry could expect $5 billion in savings per year, or one dollar per man-hour worked.

By applying the same aggressive management of safety that enabled Air Products to reach a leadership position in safety in the chemical industry, our constructors have been able to achieve a high level of safety performance, and close the ten-fold gap that previously existed between our employee performance and our constructor performance. Our results confirm that there is nothing

inherently risky about construction work that is responsible for the high cost of accidents borne by our constructors. Air Products' philosophy that all accidents are preventable takes issue with the industry assumption that "accidents are an inevitable part of construction." Rigorous accident analyses indicate that this expectation of accidents is not an effect, but, indeed, the cause for the accidents in the first place.

By implementing the recommendations of CICE Report A-3 and drawing upon our own experiences in the chemical industry, our construction activities are now as safe as other company operations. This summary outlines Air Products' approach for successfully managing safety at construction worksites.

ELEMENTS OF THE AIR PRODUCTS SAFETY PROCESS

Air Products' management views safety as an ongoing process, not a program with a finite start and end. A continuous process develops and grows to enrich the corporate culture as new problems, concepts, and solutions are identified. Safety is viewed as a resource similar to other corporate resources which must be successfully managed every day to provide economic savings and humanitarian rewards.

Organized to Manage Safety

Air Products' commitment to safety starts with the CEO and continues through the line management down to each employee and constructor. Our safety professionals provide guidance and support to line organizations, but the line managers and employees are responsible for safety performance. Operating Vice Presidents report all accidents and injuries at the weekly Corporate Management Committee Meeting where CEO Baker requires safety performance be the first discussion item on the agenda. Corrective actions and preventative measures are outlined immediately. Management's commitment to safety is reinforced by the corporate goals which are set annually with performance measured against these goals and compared with the best in the industry.

Air Products' proactive safety philosophy assigns accountability for safety performance to management, **Safety is a Line Management Responsibility.** A reciprocal obligation is placed on each individual employee and each constructor's worker, **Safety is a Condition of Employment**. Every manager and subordinate sets specific safety goals and objectives which are part of their personal performance evaluation.

The Construction Safety Subcommittee, chaired by the Manager of Construction, is one of many Management Safety Committees that take an active role in scrutinizing every facet of the company's engineering and construction activities. Line managers chair these committees enjoining our technical experts directly with hazards reviews and problem-solving, intensifying the safety process.

Selecting Safe Constructors

Air Products has implemented the recommendations of A-3 to reduce the number and severity of accidents at its construction sites by selecting constructors who have exemplary safety records. Our experience has proven that the **stellar safety performers are often the most competitive** because they have demonstrated the management skills to control all components of their operating costs.

Current acceptable selection criteria are:

- an EMR of 1.04 or less
- an OSHA recordable rate of less than 11.0
- a lost workday rate of less than 5.0

These hurdle rates allow us to avoid the inadequate and poor performers, and indicate the constructors' potential for meeting Air Products' expectations. An owner acceptance of EMRs of 1.05 and greater reinforces the low safety consciousness of inadequate and poor performers.

Safety guidelines for the selection of constructors are based on A-3 and were further refined by members of the construction, project, design, safety and purchasing departments to set goals and establish limits. Pre-bid Qualification Statement Forms require constructors to report their safety performance based on EMR and OSHA incident rates, internal safety accountability practices, and constructor attitude and practices based on past performances with Air Products. Once constructors are selected to bid on specific projects, the proposed bidders list forwards pertinent safety information to the evaluation team, along with other key qualification criteria. Finally, management approves contract award commitments by signing a Bid Tabulation and Analysis Document which includes the constructor's safety record.

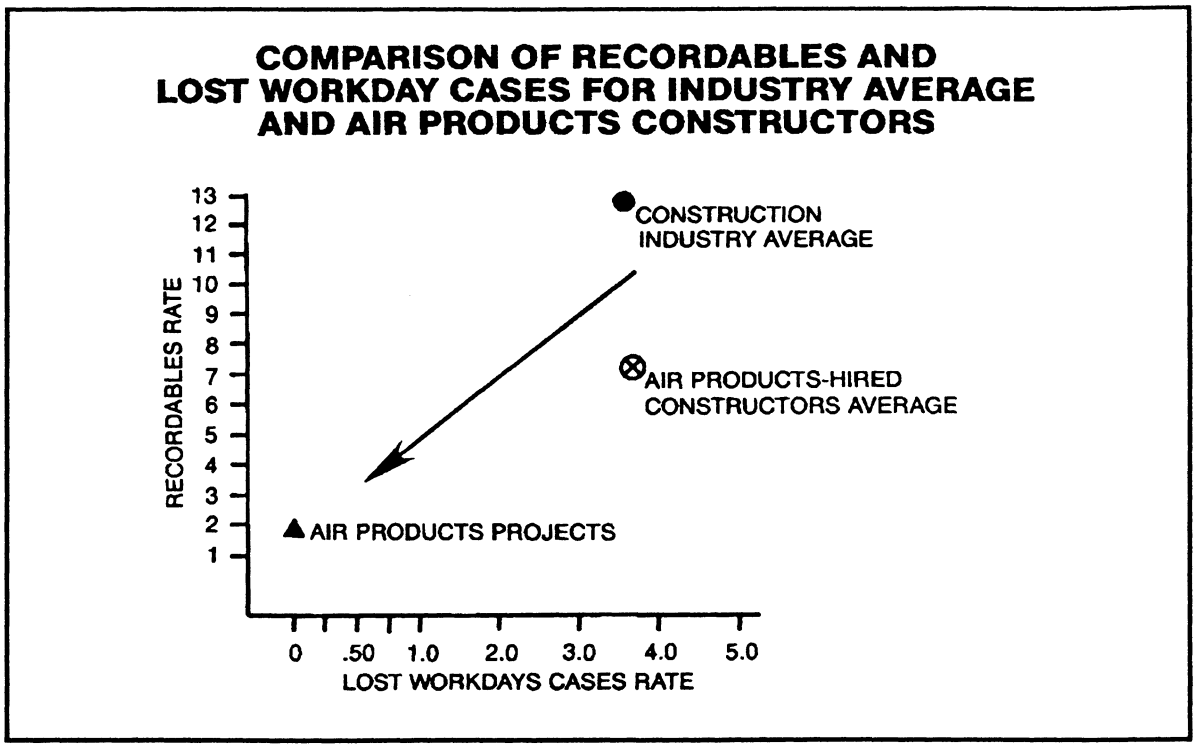
Safety related contract requirements are included in both the General Conditions and in the Construction Safety Specification. The General Conditions safety clause is further reinforced in the Construction Agreement. The Construction Agreement firmly states that **failure to comply with these safety rules and regulations shall be cause for immediate dismissal of the contractor and termination of this agreement**. Air Products has had workers as well as superintendents removed from the site for safety violations; procedures backed by action. Detailed safety procedures and requirements continue in the Construction Safety Specification and include:

- Permits
- Safety Training and Education
- First Aid and Medical Attention
- Housekeeping and Hygiene
- Fire Protection
- Safety Inspection
- Reporting of Injuries
- Commissioning and Start-up

The specification requires that constructors immediately correct all deficiencies or the unsafe conditions will be corrected by Air Products and backcharged to the constructor.

Air Products refuses to subscribe to the theory that a job site can only be safe when the work is paid for on a cost-plus basis. Air Products believes that the fixed-price contract is the greatest incentive the owner can provide to the constructor for improving cost effectiveness and safety. The fixed-price approach requires a comprehensive and serious discipline on the owner's part for a complete specification in terms of the levels of safety and quality expected.

The effectiveness of our purchasing practices is demonstrated by our average constructor EMR of 0.9 versus the 1.04 EMR criteria. The improvement in constructor performance under Air Products' supervision compares favorably to work performed for other clients. In 1986, the industry average OSHA recordable and lost workday rates were 12.8 and 3.6. For Air Products' constructors, the all-client averages were 7.2 and 3.8, and for Air Products' projects, 1.8 and 0.0. These rates are indicative of Air Products' positive influence. Selected constructors' OSHA recordable rates are well below the industry average and have exceeded the established selection goals. **Obviously these constructors are capable of performing to these improved rates when held accountable and challenged by the OWNER to do so.**



Air Products selects constructors with far better than average OSHA statistics and manages their safety performance to even lower rates while working at our sites.

Air Products can make this comparison because it did its homework. Management allocates administrative resources to research and compile a wealth of EMR and OSHA data on constructors, providing reliable data for making the difficult decisions in constructor selection straightforward. Air Products is a member of a task force under the Bureau of Labor Statistics which is working to develop a national model for accident investigation and analysis by OSHA.

At the completion of each contract, a Contractor Evaluation Report is completed by Air Products. The first and highest weighted performance rating is for safety. The results of the evaluation are then forwarded to the constructor's management, highlighting areas of strength and areas for improvement.

Effective safety management carries the added financial onus of discouraging company participation in potentially profitable ventures that fail to pass muster in safety risk management. Air Products will award a contract to the next highest bidder when the low bidder can not achieve construction safety guidelines. This is the ultimate safety veto every owner possesses. Air Products exercises its philosophy that **Nothing is more important than safety . . . not profits, not production, not sales.**

Safety Documents - Management's Communication Tools

Management's commitment and philosophy on safety are put into practice through safety manuals, standards, procedures and policy statements. The company's concern for safety and health was formalized in 1979 by a Statement of Corporate Policy on Safety. This policy provided direction for the establishment and management of safety programs involving all aspects of the company's activities.

The safety policy was supplemented with the Safety and Loss Prevention Manual which is used to update and upgrade the nature of our safety activities and create a basis for the specific construction policies and procedures. Safety considerations relating to the design and fabrication of process equipment are included in the Engineering Design Manuals to assure safe constructability of our facilities.

A Construction Safety Manual is provided as an effective tool for Air Products' and constructors' supervisors to control safety conditions at construction sites. A pocket edition is available as a ready reference for on-the-spot decision making. But manuals alone do not control safety. **Safety and construction procedures are discussed section by section during pre-bid conferences and at contract award to assure field supervisors and their management fully understand the implications on manpower and schedule before the contract is awarded.**

Education and Training

Our safety and construction activities, which heighten constructors' safety awareness, include:

- Safety Training
- Weekly Site Safety Meetings
- Daily Safety Audits
- Absentee and Turnover Audits
- Safety Work Permits
- Checklists
- Safety Awards Programs
- Accident Investigation

Safety Training

The Air Products Safety Training system was developed for our own employees and contract supervisors, and provides resources to constructors for the education of their personnel. All construction field superintendents and supervisors attend a home office three-day safety training seminar annually.

As part of the seminar, the Vice-President of Engineering and the General Manager of Engineering Projects review current goals and future safety objectives. The meetings cover construction safety topics listed above and focus on the review of past accidents and near misses to prevent reoccurrencs. Based on detailed safety statistics from the previous year, topics are identified and specialists from equipment suppliers are invited in to review the proper use and potential misuse of equipment such as cranes, scaffolding, grinders, power and hand tools. These statistics also alert superintendents to those parts of the body that are frequently injured so that appropriate preventive measures can be taken.

Training continues in the field with communication tools such as quarterly construction safety newsletters, supervisory reviews, near miss and accident reports, safety alerts, industrial brochures, pamphlets, and booklets such as "The Safe Foreman." These educational tools, shared with the constructor, sensitize field personnel to current safety issues and accidents that have occurred at our sites and in the industry. The causes of the accidents and the remedies for prevention are detailed to close the continuous feedback loop.

Constructor education is the foundation of field safety. The first step is the repetitive review of the safety specification with the constructor's management and superintendent during the award process. Then on-site, after the review and sign-off of the safety specification, the **Air Products superintendent personally indoctrinates constructor supervisors and receives their personal commitment to uphold the expected standard of safety conduct for the site.** A video edition of the manual is available for bridging communication gaps for non-readers and non-English speaking employees. The craft guidelines are further reviewed in detail for critical work, such as welding, rigging, and excavation.

Orientation continues with the review of personal protective equipment that will be required. In addition to the OSHA requirement of hard hats and safety glasses, Air Products requires each worker to use safety glasses with sideshields, leather work shoes, shirts with long sleeves, and long pants. Other additions to OSHA requirements are safety harnesses, welding helmets with

hard hat, and face shields and long sleeved leather gloves for grinding. Many workers recognize the value of these extra protective measures and take them to the next job site.

On occasion, the Manager of Construction has shared our practices for successful safety management during seminars offered at constructors' offices with their management and superintendents. These seminars are directed at upgrading their level of safety awareness and performance.

Consistent with the distinction drawn between a program and our safety process, safety training is continuous. No one ever graduates from safety training at Air Products.

Implementing Site Safety

Site safety is implemented by the lead superintendent (not a separate safety professional) through daily safety audits, absentee audits, the use of safety work permits, work inspection checklists, and weekly site safety meetings.

The Air Products superintendent has primary responsibility for safety and shares that responsibility with the constructor's site superintendent who must supervise and coordinate all safety activities for his employees, his subcontractors, and their employees. On larger jobs, the Air Products superintendent may be assisted by an on-site safety coordinator to expedite and implement the safety process on behalf of the superintendent. **It is unsatisfactory to assign safety responsibility to the safety coordinator.**

The results of the site safety audits are reported in the daily report to the Manager of Construction. Because of the constantly changing conditions of the construction site, the superintendents take a special site walk twice a day or more until the acceptable level of safety performance is reached. A safety checklist is used to audit conditions on the site. Corrective actions are taken immediately and action plans are developed for future work at the end of each day in an attempt to eliminate accidents before they happen. During these walks, constructor superintendents learn new habits and practices which have enabled many to receive contract awards from other safety conscious owners. Deficiencies identified during audits are corrected immediately and then are reported on a daily basis to both companies' management. Flagrant violations are just cause for immediate dismissal or complete suspension of work as outlined in the contract. High absentee and turnover data indicate poor management practices and are reviewed weekly as an early warning sign for delays and poor safety performance.

Safety work permits are required for work in hazardous areas and confined spaces and for all work performed in operating facilities. Typically, permits are required for high voltage electrical work, pressure testing, elevated work, vessel entry, and heavy lifts. The construction work permit procedure mirrors the operation's permit system allowing a smooth transition as the construction effort moves into start-up. This procedure coordinates all permits through one individual from both the owner and constructor.

The safety manual defines the qualifications for the proper use of tools. Pre-use operational checklists regulate power and hand tools which are removed from site if they do not meet the required standards. Heavy equipment is inspected regularly. Ladders, scaffolds, and all rigging equipment are examined for flaws, damage, and deterioration before and after every use.

The Air Products Construction Safety Awards Program applauds the accomplishments of Air Products Superintendents and its constructors. Yearly awards ceremonies held at the corporate headquarters recognize those superintendents who have achieved zero recordables for the past year. Constructors who have shown significant improvement or have shown exemplary management of safety also receive commendations for their achievements.

Accident Investigation and Reporting

The company's "Standard Practice for Accident/Incident Notification, Investigation and Reporting" establishes the reporting requirements for all injuries, accidents or near miss incidents involving company employees or property, constructor workers or equipment, and visitors. **All injuries are investigated, including first aid cases.** Any action or condition with the potential for injury is defined as a near miss and is fully investigated, reported, documented, and communicated to other sites. The review of the first aid level of injuries and near misses provides the superintendent with a barometer on the effectiveness of the site safety process for accident prevention.

An OSHA recordable injury or near miss incident triggers an immediate telephone report to our Manager of Construction and the constructor's management. An on-site investigation is immediately performed by both superintendents with specialists from the home office when warranted. A preventive action plan is jointly developed to assure the incident is not repeated. Major accidents are reported to operating vice presidents within 24 hours, and Accident Report Forms detailing the incident and preventive plans are presented to corporate management within 48 hours.

As an indication of the comprehensive nature and quality of Air Products' accident investigation system, the National Safety Council is using it as a national model program. Other government agencies and several Fortune 500 companies have chosen to emulate Air Products' procedures and report forms.

Constructor safety statistics are collected and maintained by the Manager of Construction through his administrative staff. This is a more satisfactory situation than having a separate unaccountable administrator which diffuses the safety responsibility away from the line management. First aid cases, near misses, recordable injuries, restricted duty, and lost workday cases are tabulated. Classification of these statistics include unsafe acts, unsafe condition, project location, our superintendent, constructor and their superintendent, affected area of the body, tools involved, accident type, and injury type. The data base is accessible worldwide and on-line review and analysis provides valuable insight in accident investigation and prevention management.

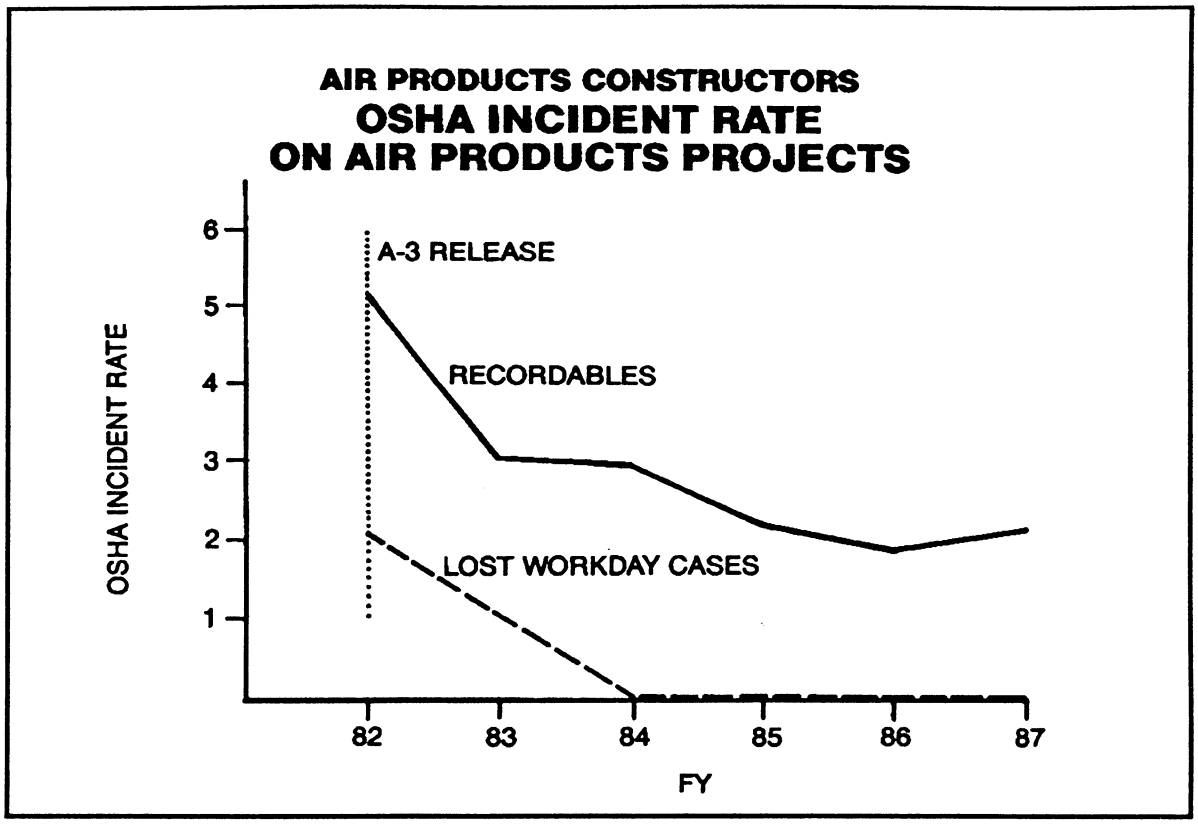
The Manager of Construction provides statistics to senior management on a monthly, quarterly, and annual basis.

Our detailed records indicates that nearly half of all injuries are attributable to the worker's poor level of physical fitness. Consequently Air Products is developing "fitness of duty" standards, standards on drug and alcohol screening, and job qualification testing.

Because of Air Products' diligence in safety management, some constructors refuse to work with us. They know they will fail to meet our expectations on the safety aspects of job execution, not realizing the potential savings of proper safety management. If all owners pulled together with the same aggressive attitude, unsafe constructors would eventually change, permitting the industry to achieve its potential in both productivity and humanitarian concerns.

RESULTS - THE BOTTOM LINE

Air Products' Constructor safety statistics demonstrate a 250% improvement in OSHA Recordable Injury Rates and show zero Lost Workday Cases for the last four years. The Recordable Injury Rates have decreased from 5.2 in 1982 to 2.2 in 1987, averaging 2.1 over the last three years. Air Products performance typically has been one-sixth the industrial average for Recordable Rates, and our goal of zero Lost Workday Cases was achieved for the last four consecutive years from a high of 15 cases in 1982.



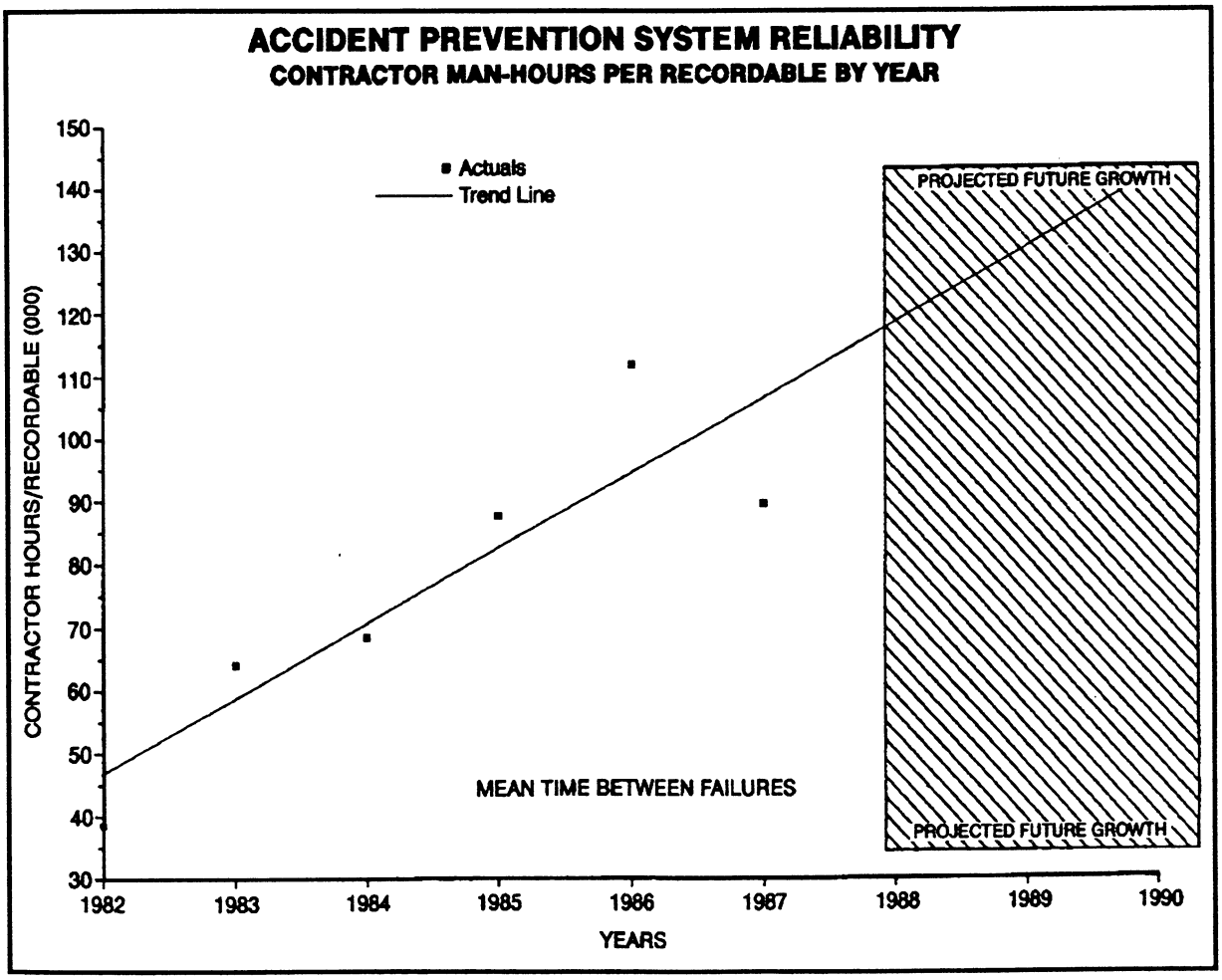
Air Products' statistics show a marked improvement since the release of A-3. Zero lost workday cases for the past four consecutive years is an exceptional accomplishment.

The six years of data shown above reflect statistics for all of the 450 constructors we used at over 180 sites. The results were achieved in a challenging environment comprising 50 percent open shop work, 90 percent fixed-price contracts, major expansions at operating sites and includes demolition work. Numerous constructors were educated and advanced up the safety awareness curve. The comprehensiveness of Air Products safety process underscores the fact that all constructors can be taught to manage safety.

Air Products has projected savings based upon the CICE Report A-3 cost data and current insurance industry information for comparison purposes. Report A-3 data adjusted for inflation indicates that if Air Products had experienced the same injury rate as the industry average, we would have expected to see 328 Recordable Injuries including 107 Lost Workday Cases with an estimated total cost of $2.2 million. However, our actual experience was 76 Recordable Injuries including 17 Lost Workday Cases at a cost of only $0.5 million. The difference between these two figures, $1.7 million, is the savings the company and the construction industry, in general, experienced as a result of Air Products' aggressive safety management. More important are the humanitarian implications of these savings; **252 workers avoided injuries altogether, and 90 Lost Workday Cases were prevented.**

Current insurance industry data on the costs of injuries suggest even larger potential savings resulting from the disproportionate increases in hospital costs, lawyers' fees, and the awards made by the courts. Considering our 2.5 million manhours worked over the last four years, allocated workers' compensation premiums for our constructors would have been $4.9 million. These premiums will be avoided as constructors approach zero Lost Workday Cases. Conservatively, if half of the premiums were eliminated, one dollar per manhour worked could be saved. In a typical year, the industry could expect to save nearly $5.0 billion by this seven percent reduction in the labor burden.

In a final examination of the OSHA statistics, the Accident Prevention System can be looked at from a Reliability Analysis viewpoint in the same manner as equipment reliability. The increasing interval between injuries (measured in contractor man-hours) suggests that the APCI Construction safety process is improving as the time between accidents increases; 38,481 man-hours between injuries in 1982 versus 111,815 man-hours in 1986. The data projects a strong trend line for continued growth of the meantime between failures for the future.



Air Products can point with pride to the fact that many constructors have been positively affected by our safety process. Many of their successes are attributable to their own management's commitment to safety, but they also will readily admit that Air Products aided in motivating that commitment. Air Products has received testimonial letters from constructors which credit our positive influence on their safety performance.

CONCLUSION

The incorporation of CICE Report A-3 recommendations into a vibrant Air Products safety process significantly improved constructor safety performance with a nearly three-fold reduction in injury rate and a five-fold reduction in the cost of injuries. This achievement avoided 252 injuries for an estimated savings of at least $1.7 million. Less conservative estimates indicate savings as high as $2.5 million. However, our influence in helping others to see the wisdom in superior safety performance overshadows any short-term improvement in safety statistics and cost savings. By sharing our accumulated knowledge and expertise with constructors and other owners, the industry will continue to reap dividends of improved safety performance in the future.

These improvements reflect the result of a serious commitment to manage safety in all facets of the company's operations. Air Products holds itself accountable for the safety of all workers on all projects. We refuse to differentiate between employees of independent contractors and our own, nor between cost-reimbursable and lump-sum contracts. Air Products is pioneering the control of safety in the construction environment of the fixed-price contract where others hesitate to tread.

Our contractors' performance demonstrate that an aggressive, hands-on managerial approach is effective in controlling the costs of construction on all projects. By honing the safety component of the constructors' operating costs, we have shown that safety, quality, and productivity go hand-in-hand. Air Products' experience has demonstrated that our safest operations are also our most productive operations, and we are readily proving the same of our constructors. Management commitment and accountability are behind our success. Our aggressive, proactive style of safety management is goal-driven. It anticipates and confronts challenges early to take the inevitability of construction injuries out of the workplace in support of our goal that all accidents are preventable.

Air Products routinely practices such a complete and integrated process of company-wide safety management that it was extremely difficult for us to focus on construction safety as a separate component of our TOTAL SAFETY process. The construction aspects are only so many threads in the tapestry of our safety process. The process has its direct and indirect effects; its dramatic and subtle influences on the work of the constructor. This again speaks convincingly to the pervasiveness, synergism, and total package quality of the TOTAL SAFETY process.

The Air Products corporate philosophy of TOTAL SAFETY builds upon the foundation of safety established in the past, and pushes the envelope of safety consciousness outside of the company to our contractors, our customers, our visitors, and the communities in which we operate as a responsible corporate citizen.

OWNER SAFETY AWARD REQUIREMENTS

The Owner Safety Awards of the Construction Industry Safety Excellence (CISE) Awards Program recognizes 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 accidents 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

Annual safety awards 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 assess 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 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 constructor's safety program

- the owner has taken a constructor's safety performance record in 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 owners **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

Films and audiovisual presentations are also available. For information write The Business Roundtable, ATTN: AUDIOVISUALS.