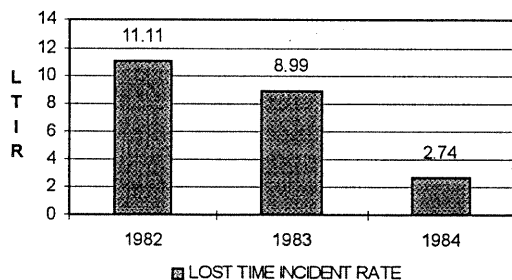


# SAFETY AWARENESS THROUGH COMMUNICATIONS

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## INTRODUCTION

West Elk Coal Company's Mt. Gunnison No.1 mine located in Somerset, Colorado, began construction in 1980 and first production was in January 1982. This paper tracks the Safety Program development and Lost Time Incident Rate to demonstrate the impact that a comprehensive Safety Program can have on mine safety. Initially, the LTIR record (Graph 1.1) reflects a new work force, operating under new conditions and a Safety Program in the early stages of development.



As the mine matured, the Safety Program development, employee training and increased experience over a three year period focused attention to safety and combined for a very positive impact. During the period from 1982 to 1984, LTIR was reduced from 11.11 to 2.74, a 75% reduction in the Lost Time Incident Rate. However, it is also clear that the Safety Programs did not maintain the safety awareness of the employees nor did the Programs respond to changing conditions and the needs of the mine and

consequently, the LTIR for 1985 rebounded sharply. An increase of 242% to 9.37 in 1985 was experienced. At the beginning of 1985 there were essentially no Safety Programs which exceeded the minimum requirements of the law and by mid 1985 accident trends indicated a need for a more comprehensive program.

Once again a reinforcement of safety activities, similar to those in 1983, was undertaken. However, in addition to this, a broader scope and longer term approach was also taken. Training and program development focused not only on safety but also on inter-personal skills and communication. The Programs pursued in late 1985 and early 1986 included; "Working With People" (BCOA), Supervisory Safety Training, Standard Section Management, Safe Job Procedures Training, An Expanded Annual Refresher. These programs were successful in reducing incident rates and pinpointed the integral part played by communication, teamwork and participation by the entire mine work force in the development of a successful Safety Program. Participation in the development, implementation and training of individuals extended into all areas of the mining operation and included the entire mine work force. Once again this safety activity resulted in significant reduction in the LTIR. The 1986 Incident Rate dropped to 2.84, a 70% reduction from 1985. Further, it appeared that the safety issues had been completely addressed and resolved.

History, will repeat itself if allowed to and this was likely to happen since no continued development of additional Safety Programs extended into 1987. Again a sharp up turn in Total Case Incident Rate indicated that a strong rebound in LTIR could be expected. Fortunately, safety monitoring programs were in place and sensitive to the safety statistics preceding an upturn in the LTIR and a recognition of the causes of the cyclical successes which had been achieved in previous years existed.

At this point, building on the foundations which had already been laid, and focusing on the importance of participation and communication to the success of any program, a series of programs which were both ongoing, proactive and continually changing to meet the mines safety needs was sought.

### **SAFETY AWARENESS PROGRAM DEVELOPMENT**

The pattern of medical reportable and first aid incidents by mid 1987, indicated strongly that the Lost Time Incident Rate was due to rebound. Since this cyclical safety success had been observed before, the immediate remedy was obvious. A Safety Program designed to raise awareness had to begin immediately. The Safety Awareness Week Program (S.A.W.) was created at this time to fill the immediate need but was also developed as a Program which would be conducted regularly, changed to meet the current safety needs of the mine, proactive in its approach to safety and serve to maintain a high level of safety awareness. The ground rules for the Program were simple. The S.A.W. would be;

- 1) conducted once per quarter,
- 2) consist of a formal safety meeting held in the training centre,
- 3) conducted at the start of each shift on each day of the S.A.W. Program week,

- 4) no time limit would be placed on the presentation length and
- 5) topics would be centered on current safety needs.

The S.A.W. Program allowed a specific time frame which occurred regularly and provided frequent opportunities for communication, education, training and increasing awareness.

The open communication format of the S.A.W. Program brought forth feedback which showed the need for a tool which would audit the effectiveness of all safety related activities. In order to address this, the Quarterly Inspection Program, in use at our sister Mine, Beaver Creek Coal Company, was adopted. The quarterly Inspection Program is conducted jointly by six employees, three representing each of the operations. Training is provided at the beginning of each inspection to educate the team on inspection objectives and inspection techniques. The teams spend one week at each operation, inspecting the operation and generating a report which details their observations. The findings of the team are communicated to all employees, and mine management is held accountable to correct deficiencies. This Program has been very effective at pinpointing and correcting unsafe acts, unsafe conditions and deficiencies in all safety related activities. Of equal importance though, is the education, training and increased awareness of the employees that participate in the Quarterly Inspection Program. To date about 30% of the employees have participated as a team member and eventually, everyone will have the opportunity to participate.

Feed back received from the Inspection Teams, during the communication of team findings to the work force and in subsequent S.A.W. Programs, highlighted areas of recurring problems which needed to be addressed on an ongoing basis.

The Quarterly Inspection Teams had observed the use of a Bi-weekly inspection at Beaver Creek Coal Company and recommended that the Program be implemented at West Elk, using inspection checklists developed by the Quarterly Inspection Teams. The Bi-weekly Inspection Program consists of an inspection, utilizing the checklist which is completed by each employee in his work area. Deficiencies are recorded and corrected at the time of the inspection. The participation and communications of the entire mine work force was now driving the development of the Safety Programs.

### **SAFETY BRIEFS**

Communications from the work force, through the supervisors and during the S.A.W. Programs, highlighted the fact that concerns brought out during weekly safety meetings were not being adequately addressed. The recommendation was made to create an avenue which would provide open communication between crews so that concerns could be shared and action plans formulated. Once again the entire work force was driving the development of the Safety Programs which responded to their needs.

The Safety Briefs Program consists of a weekly review of each crews safety meeting minutes. This review is conducted by the department heads during a weekly staff meeting. At this time, safety meeting minutes are condensed and action plans are formulated and written up. Safety meeting minutes from all crews and corresponding action plans are typed and distributed to all supervisors for review during the next safety meeting. This format provides weekly communication among the entire work force and holds the Mine Management accountable to the entire work force for dealing with the issues brought forth.

The S.A.W., Quarterly Inspection, Bi-weekly Inspection and Safety Brief Programs were developed in the order presented over a 15 month period beginning in July of 1987. The ongoing nature of the Programs, increased communication and training, coupled with the aggressive participation of all employees, yielded a heightened safety awareness and a dramatic drop in Total Case Incident Rate. In fact, TCIR dropped so low that there was no statistical data to give direction to accident prevention.

### **NEAR MISS REPORTING**

Statistical information is required to give focus and direction to Safety Programs and enable these programs to maintain a proactive approach to accident prevention. The need for statistical information to give focus and direction to the Safety Programs was communicated during a S.A.W. Program in the second quarter of 1989 and the Near Miss Reporting Program was begun. Near Miss Reporting forms were redesigned to be small enough to carry in a shirt pocket and filled out quickly, while the information is still fresh and accurate. This allows the data to be sorted to establish trends in order to give focus and direction to Safety Programs.

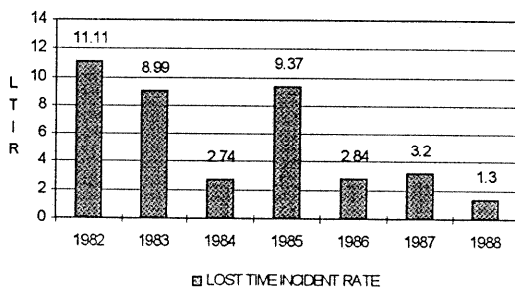
### **MSHA INVOLVEMENT**

The key to the development of the Safety Programs discussed was the S.A.W. Program. This program was discussed with and actively supported by the local Mine Safety and Health Administration Field Office. The format of the Program offered an excellent opportunity for MSHA to have contact with the work force outside of the normal inspection and enforcement routine. This concept was presented to the Field Office Supervisor as an opportunity to approach the work force as fellow miners and to share knowledge and experiences which would educate the work force.

In keeping with the format of the Program, MSHA's sessions were on topics that fit in with the current needs of the operation. Topics presented to date are; analysis of Safety Statistics (4th Quarter 1987), Analysis of a Methane Explosion (1st Quarter 1988), Analysis of a Mine Fire (3rd Quarter 1988), Roof Control Techniques (3rd Quarter 1988) and an Industry Overview (4th Quarter 1988). Each topic was given buy a presenter that demonstrably possessed first hand experience on the subject matter. The technical presentations contained overwhelming statistical and factual data, and the detailed, sometimes gruesome accounts, of accident investigations drove home the awareness that a catastrophe can be only an unsafe act away.

### CONCLUSION

The Programs developed are somewhat costly and require significant amounts of participation, time and effort to implement. Therefore, quantifying the results achieved is critical in determining the value of the Programs. The reduction in pain and suffering to the employees (Graph 1.2) and the corresponding reduction in Workman's Compensation cost (Table 1.3) alone, make the Programs worth the investment.

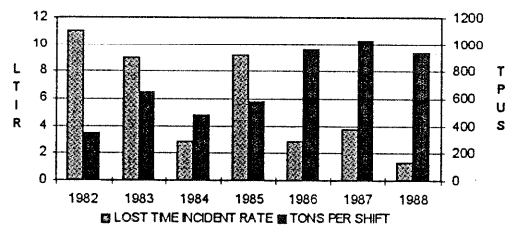


Graph 1.2 LTIR 1982 - 1988

Table 1.3 Workman's Compensation

1982	\$ 575.00
1983	\$ 17,241.00
1984	\$ 13,056.00
1985	\$ 716,290.00
1986	\$ 3,101.00
1987	\$ 3,792.00
1988	\$ 1,645.00

But, when you consider the fact that production averaged about 550 tons per unit shift for the first four years of operation and has increased by over 70% to 950 tons per unit shift (Graph 1.4) shows that a successful Safety Program yields enormous gains and proves the old adage that "a safe mine is a productive mine".



Graph 1.4 LTIR & TPUS 1982 - 1988

The key is, given the opportunity to participate in the development and direction of Safety Programs, the work force will take the lead in SAFETY.