

# INTEGRATING THE CONCEPTS OF TOTAL QUALITY ENVIRONMENTAL MANAGEMENT IN THE COAL MINING INDUSTRY<sup>1</sup>

by

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**Abstract.** Coal companies which manage their regulatory affairs in a reactive fashion will have to change their attitude towards environmental protection if they wish to remain competitive in the 1990's. Integrating the concepts of total quality environmental management (TQEM) into the mining and reclamation operation is a way to cost-effectively manage environmental protection activities. TQEM is a management philosophy that focuses on anticipating and addressing potential problems in a proactive rather than a reactive manner. Reactive is responding to problems after they have developed, while proactive means taking steps to identify problems, or the potential for problems, and initiating corrective action before the problem intensifies. This paper describes six specific activities that will help coal companies minimize environmental problems while enhancing the quality of reclaimed resources. The six activities are: 1) prepare for the impact of future regulations, 2) comply with existing regulations, 3) provide environmental training for employees, 4) evaluate compliance management systems, 5) recognize and reward employees' outstanding achievements, and 6) form partnerships. The benefits of implementing these activities include: a higher level of employee morale, a more profitable coal operation, and the coal industry remaining a viable supplier of low cost fuel for the production of electricity.

Additional Key Words: Audits, communication, preventive management.

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## **Introduction**

American industry currently views quality management with widespread interest. In its attempt to remain competitive, industry has embraced the common sense, customer-oriented principles of the quality movement. Many companies are reaping the benefits of a quality

management program such as increased profits, fewer production problems and a more motivated work force. The concepts of quality management can also be applied to environmental protection fields including coal mining and reclamation activities.

Mining costs continue to rise in response to compliance with the increasing number of complex environmental regulations. To survive in the extremely competitive market in the 1990's, coal companies need to shift their environmental protection attitudes away from regulatory driven, reactive behavior towards more proactive and innovative conduct which is based on the principles of quality management.

This paper discusses a simple environmental management philosophy that will allow companies

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to better manage environmental protection activities and comply with environmental regulations more efficiently. This philosophy is called total quality environmental management (TQEM).

This paper is divided into three parts. The first part defines the philosophy of TQEM. The second part discusses six specific activities a coal company can implement to support the philosophy of TQEM. The final section addresses the benefits of implementing the TQEM philosophy.

### **TQEM**

TQEM is not a program per se for a company to implement but rather it is a philosophy. Programs by design are short-lived (Zagarow 1991). They are created, deployed and executed until they are replaced by another program. Programs are specific activities that come and go with the ever changing managers within an organization. In contrast, a philosophy is a deep fundamental belief which is continuous, adopted as a way of life, and is utilized to develop programs.

The intent of TQEM is to identify potential environmental problems, ideally before they appear in the process, and to take corrective action. Being a practitioner of the TQEM philosophy is simply a matter of one's actions being proactive and not reactive.

Reactive can be defined as one's behavior in responding to problems after they have developed. When in a reactive mode, a person's time and effort are managed by the circumstance or issues surrounding the problem. Reactive behavior can lead a person to feel that he is victimized and not in control of the particular circumstances (Covey 1989).

Examples of reactive behavior include abating a notice of violation, addressing deficiencies of a permit application, responding to a hazardous spill, and handling a citizen's complaint.

Conversely, proactive behavior is preventive management - taking the initiative to identify problems, or the potential for problems, and to take corrective action before the problem intensifies. This style of behavior has a definite psychological advantage of feeling in control over circumstances. This is due to the basic core of proactivism - individuals taking the initiative and being

responsible for the input as well as the output.

The proactive philosophy of TQEM can be executed in many different ways. However, the following is a list of six specific activities which will greatly benefit a coal company: 1) prepare for the impact of future regulations, 2) comply with existing regulations, 3) provide environmental training for employees, 4) evaluate environmental compliance management systems, 5) recognize and reward employees' outstanding achievements, and 6) form partnerships.

Implementing these activities will help a coal company minimize the number of environmental compliance problems, minimize damage to the environmental resources and enhance the quality of the reclaimed resources.

### **Six Proactive Activities**

#### **Prepare for the Impact of Future Regulations**

For a mining company with long term business goals, it is important to have the capacity to evaluate the impacts of proposed laws and regulations and participate in the political rule-making process. Coal companies that help develop proposed regulations and prepare operational compliance plans will be better prepared to cope with the regulations when they are finalized. "A business that merely responds to changes in the business environment will be at a competitive disadvantage to the business that anticipates those changes and is already positioned proactively" (Monty 1991).

The first step in this proactive process is to evaluate how the proposed law or regulation will impact operations. If environmental issues and/or legislative initiatives are identified that are too expensive or too disruptive to operations, then a company should propose alternatives to the regulators. "By working at the front end of the political process, we can avoid always having to fight at the back end" (Gertsch 1991).

During the rule-making process, the company should also be developing operational plans to comply with the proposed requirements. The operational plan should identify all the necessary implementation steps and schedules to meet the requirements of the proposed regulations.

There are many available sources for locating information on proposed regulations. Some of these sources include: national, state and local lobbying groups; the Environmental Protection Agency's (EPA) semi-annual regulatory agenda; the Federal Register; state registers; regulators; consultants; and subscription services, such as the Environmental Reporter published by the Bureau of National Affairs. These entities may provide position papers and policy guidelines, in addition to identifying and summarizing proposed regulations.

### Comply With Existing Regulations

A coal mining company will not remain competitive in the long term if it refuses to comply with existing regulations. Violating a provision of the Surface Mining Control & Reclamation Act (SMCRA) can lead to penalty points, fines, expensive abatement measures and expensive legal fees if the violation is appealed. Repeated violations of SMCRA could lead to the regulatory authority issuing a show cause order, a cessation order or revoking the permit. This action in turn is recorded on the Office of Surface Mining's Applicant Violator System which jeopardizes the approval of permit actions in other locations.

Violating particular regulations of the EPA, either knowingly or unknowingly, can lead to criminal indictments. The EPA and the Federal Bureau of Investigation have teamed together to investigate environmental cases. The Department of Justice has amassed an impressive 98% conviction rate for environmental cases. In 1990, the average jail time served for an environmental crime was one year (Air & Waste Management Association 1991).

To remain in the coal mining business, compliance with existing rules and regulations is a must. "Without a solid base of compliance, true proactivity is not possible. Regulatory agencies may admire proactivity but they require compliance" (Monty 1991).

### Provide Environmental Training for Employees

As was discussed above, complying with existing laws and regulations is necessary to reduce the number of short and long-term liabilities that could affect a company's profitability. This can only be accomplished if workers are aware of environmental resource protection requirements, and are adequately trained to perform their duties in

an environmentally responsible manner.

In many instances, an employee is trained in the "what" and the "how" to do a job but the "why" is lacking. To minimize making mistakes, it is important for an employee to know why he is doing a task. This will allow the employee to better learn and understand the "what" and the "how" aspects of the job.

All workers should be trained about the environmental protection requirements that are associated with their jobs. Training will reduce the level of environmental ignorance in the work force and minimize the number of operational / reclamation mistakes that could lead to compliance problems and/or lower quality reclamation.

Employees should receive training that includes topics such as ecological processes, environmental regulations and the rationale for utilizing specific environmental work ethics. These topics could be communicated to the work force via "toolbox talks", communication meetings, written notices or in conjunction with other training activities. A few examples of topics include: protecting soil resources; sediment ponds and water quality; conserving fish & wildlife values and controlling oil pollution.

### Evaluate Environmental Compliance Management Systems

To proactively manage a mining operation, the environmental / reclamation programs and practices should be periodically evaluated to ensure that the objectives of the programs and practices are being met. This can be accomplished by conducting an environmental review or audit.

The purposes of an environmental review are to make a company aware of: its compliance status, the type of problems or potential problems which exist, and the magnitude of the existing problems. If any existing or potential environmental or reclamation problems are identified during the review, the company should decide on the best approach to resolve the problems before they escalate into bigger problems that are more difficult and costly to resolve.

Having this type of environmental check and balance system is especially critical if company managers and executives want to protect themselves from the EPA's criminal prosecution for

environmentally related noncompliance.

Ideally, environmental reviews should be conducted independently by two groups of reviewers. The first review group should be employees of the facility. These reviews can be formal or informal and conducted on a frequent basis such as monthly or quarterly.

The second group of reviewers should be people who are not directly associated with the facility. They may be from the company's headquarters, the parent company or contracted consultants.

The more people who are involved with an environmental review, the greater the chances of uncovering existing and potential problems. The results of the review, as well as the corrective action plan, should be treated as company confidential information.

Environmental review strategies may include interviewing employees, reviewing regulatory requirements, reviewing plans and permits, and observing field practices. Mine personnel should be made aware of the review findings. If a compliance problem is observed, the root cause should be determined and appropriate action taken to resolve the problem.

#### Recognize and Reward Employees' Outstanding Achievements

To promote and maintain an ongoing, proactive and cost-effective reclamation and environmental compliance program, it is crucial that employees' exceptional work efforts be acknowledged by the organization. This includes recognizing and possibly rewarding employees who find creative and cost-effective methods of enhancing the reclaimed resources or correcting operational problems before they become compliance problems.

Recognition shouldn't be optional or a "nice thing" to do. Recognition is essential for maintaining a motivated, enthused and productive work force. Employees are motivated to excel when their good work is acknowledged by their peers or superiors. Recognition confirms achievement and reinforces employee commitment. It will be difficult to achieve a high level of quality reclamation and environmental protection unless the work force is enthusiastic and motivated to do so.

Rewarding an employee may be optional, but giving some type of award will reinforce the importance and sincerity of the recognition. Examples of awards include: certificates of achievement, plaques, lunches, special privileges, merchandise and cash. However, what matters most is the recognition; awards are just a tangible way to say, "Thanks for a job well done".

The following are some guidelines to consider when implementing a formal recognition & award (R&A) program.

- R&A should be administered as a recognition process, not as an incentive program. Recognition and awards should be given after the fact for specific achievements and not be offered before the fact, as an inducement to perform.
- Recognition should be immediate, specific and personal. Good performance should be reinforced as soon as possible. Presentations should be made in person.
- Awards should be given for specific events, not sustained performance. The intent is to differentiate an R&A program from compensation. An organization's compensation practice is designed to attract and retain a quality work force and to reward sustained performance. R&A should be designed to recognize and reward unique achievements or performance beyond that which is expected.
- Recognition should be publicized. Publicity draws attention to unique employee accomplishments. R&A recipients become role models for others.
- Employees should be involved in designing, implementing and administering the R&A program. Involvement begets understanding, support and commitment. Employees will be more committed to programs they help create and administer.

#### Form Partnerships

Partnerships are defined as mutually beneficial relationships which are formed between people or groups. Potential partnerships may include entities such as neighboring residents, community leaders, "green" groups, the media, regulators, legislators and any other group or individual that impacts a

coal company.

The objective of a partnership is to develop a foundation of mutual understanding and trust which supports a bridge of rapport. If a relationship doesn't support rapport, there can be no trust or understanding. Without trust and understanding, the parties will be on the defensive and communication is likely to fail. Without communication, results which depend upon interpersonal cooperation will not be achieved.

Establishing and maintaining effective lines of communication require empathic listening as well as effective speaking. Empathic listening means understanding your partner's message by using your ears, eyes and heart. Communication experts estimate that only 10% of our communication is represented by the words we say. Another 30% is represented by our sounds and a whopping 60% by our body language (Covey 1989). If you use only your ears to "listen" to people, you may not receive their entire message.

Forming partnerships means fully "listening" and understanding the values, attitudes and emotions of the partners. Once this level of empathic understanding is gained, it will be much easier to resolve problems that eventually will develop. Why? Because each party will have established a level of trust which allows for a rational exchange of dialogue as opposed to emotional, defensive outbursts which only serve to alienate one another. The pay-back for partnerships is that when problems do develop between partners, and problems will invariably arise, it is much easier to rationally communicate and develop win-win solutions.

Therefore, it is advantageous that partnerships be formed before problems arise. It is much more difficult to establish trust and understanding when in the middle of a dispute with another person or group.

For example, businesses that accepted the communication challenges of the Community Right to Know regulations, and worked to establish rapport with their communities, experienced positive returns (Monty 1991). These businesses learned that during periods of environmental controversy, previously established bases of understanding could be used as foundations to communicate new or more difficult issues, with fewer misconceptions as a result. Reactive

businesses that attempted to avoid such communications were forced into defensive, often untenable postures. Such defensive situations erode credibility and trust with the community, and rob a company of its time and resources, essentially reducing the reactive businesses' ability to compete.

By contrast, a proactive business builds its relationships with the public and the media through a continuous, honest, and open stream of communication. Companies that incorporate effective public communications programs in their long-term plans will not only gain an enhanced ability to credibly and effectively manage issues, but will actually decrease public obstacles to their business objectives (Monty 1991).

Partnerships with the media have a tremendous potential for benefits. The media has the capability to transmit either a good or bad image of coal mining to its audience. It is definitely advantageous for a mine to utilize any and all opportunities to foster a positive public perception of coal mining.

The media works under very tight deadlines and relatively little time may be spent on research, writing, editing and reporting a story. Consequently, the media usually appreciates credible and accurate information that can be used in a story. Reclamation successes and environmental protection programs are good stories for the media to cover.

Ideally, if an adequate level of trust is formed, the media may rely on industry's environmental personnel as their experts for future environmental related stories. Imagine having the capability to review media stories for accuracy before they are transmitted to the public! It can't happen unless a partnership is formed.

The following are some key items to consider when forming partnerships:

- Identify key individuals or groups that could have the most positive impacts on your operation. However, there may be individuals or groups that simply refuse the premise of partnerships.
- Develop a tailored approach for each partnership which ensures a win-win relationship. Each partner will have a different set of values and beliefs and, as such, each partner should

be approached in a specific manner. The methodology utilized for approaching the media will probably be different than the approach used to contact an elderly neighbor.

- Continuously seek informal contacts. Once a partnership is formed, don't let it wither from infrequent communications. Continue to make informal contacts whether it is at work, school, play or church.
- Look for ways to assist your partners either professionally or personally. The intent of partnerships is to develop a win-win relationship. Trust is formed quickly when a partnership is mutually beneficial to each partner.

### Benefits of Practicing the Philosophy of TOEM

The benefits of TQEM will be discussed from three perspectives: 1) the benefits a coal mining employee can gain from behaving in a proactive manner, 2) how a coal company will benefit by its employees behaving in a proactive manner, and 3) the benefits to the coal mining industry as a whole and why proactive environmental behavior will be necessary if our industry is going to survive this decade.

#### An Employee's Perspective

When an employee reacts to a problem, there exists a feeling of not having control over the situation or circumstances. Multiply this feeling by several problems and the perception of not having control can be very frustrating and may cause reduced self esteem, low morale and decreased motivation to excel. Left unchecked, this could lead to less productive employee output and ultimately more environmental problems.

However, by behaving in a proactive manner, employees feel in control of the circumstances because it's their initiative that is driving their actions. An employee who controls his or her own actions is responsible for not only the input but also the output. This sense of having control contributes to more enthusiasm for work and greater job satisfaction.

Another benefit of an employee working proactively is in reducing the severity and the

number of environmental problems that need to be addressed. The intent of TQEM is to identify existing or potential environmental problems before they appear in the process and to take corrective action. This proactive stance means utilizing preventive management. Over time, the greater the number of employees who are proactive in environmental and reclamation activities, the fewer the number of problems. In addition, the relative magnitude of those problems can be reduced. By reacting to fewer problems, employees have more time for other proactive tasks.

#### A Company's Perspective

Every time an environmental or reclamation problem develops at a mine, manpower, equipment and money have to be allocated to resolve the problem. Problems cost companies money.

A company's financial success can be measured by its profits - revenues minus costs. In the environmental compliance and reclamation field, there is virtually no way to positively impact a coal company's revenue potential. Revenue is more a direct function of the mining aspect of the business. However, reclamation and environmental compliance activities directly add to the costs of a coal operation. The lower the environmental and reclamation costs, the greater the potential for profit.

As stated earlier, proactive environmental protection activities can help to minimize or altogether avoid environmental problems. This means an environmentally proactive company will save on costs and potentially be more profitable.

There will be some costs associated with starting up and maintaining a proactive environmental and reclamation program. However, these costs will be minimal when compared to the costs associated with correcting problems after they have intensified because of passive and ineffective practices due to ignorance, inactivity, or neglect.

Coal mining companies that are proactive in their environmental compliance and reclamation activities will have a definite financial advantage over their competitors who choose to wait for problems to develop and then spend money reacting to them. It is fiscally sensible for a business to manage its environmental problems rather than letting environmental problems manage the business.

## The Coal Mining Industry Perspective

The continued existence of the coal mining industry depends on mining employees being much more proactive in their environmental and reclamation endeavors. If the industry doesn't take the initiative to become more proactive in environmental protection, coal may not remain an economical fuel choice.

During the last several years, an increasing number of complex environmental regulations have developed. If this trend continues unchecked, the coal mining industry may be regulated to death.

What force is driving this trend of ever more stringent environmental regulations? Is it Congress? Is it "green" groups? Is it regulators? Is it industry? All of these entities impact the situation to varying degrees, but these groups are not the main reason for the regulations we have today. The main driving force for increasingly more stringent environmental protection regulations is the American public.

Why is this? It's because the public doesn't trust industry, the coal mining industry included. The American public perceives industry as polluting and disrupting a fragile ecosystem which in turn jeopardizes their health and their families' health. They also perceive that the way to correct this pollution is by demanding that American lawmakers impose more stringent environmental protection regulations on industry. The President and Congress are more than happy to oblige the public even if the public's perception of industrial pollution is not supported by facts. The image minded Congress and President appear more motivated by politics than by scientific evidence (Ray and Guzzo 1990).

Environmental protection regulations equate to increased costs for the coal producer. Whenever possible, these costs will be passed on to the coal consumers, which are mostly electric utilities. At some point, coal will no longer be a cost-effective fuel source for the generation of electricity. Lower cost foreign coal, natural gas and/or nuclear fuels could be the likely substitutes for American coal.

Unless the American public's perception of the coal mining industry changes, we in the industry are in for ever more stringent environmental protection regulations. With each passing regulation, a mine's compliance cost will go up.

Over time it will become much more difficult to find coal markets that are willing to absorb the higher cost associated with environmental protection regulations.

## Summary

It will take a great deal of effort on the part of industry to slow down or stop the trend of more stringent environmental protection regulations. If the coal mining industry fails to take a greater initiative in environmental protection, sooner or later the regulators will.

What should be done? The noted French biologist, Dr. Rene Dubos answers this with his famous quotation, "Think globally, but act locally" (Dubos 1981). This proactive attitude of having a view of the overall objective, but acting as individuals on a local level, spawned the environmental movement. This attitude also can be used to help the coal mining industry become environmentally proactive.

Part of the coal mining industry's "global" TQEM objectives should be to minimize environmental problems and increase the level of environmental resource protection. A coal operation must be managed so that its commitment to protecting environmental resources can't be seriously questioned. This will ensure that the quality of the reclaimed resources remains at a high level. This lofty goal can be accomplished by coal companies "acting locally" through proactive activities, such as: participating in the rule-making process and preparing for future environmental regulations; complying with existing regulations; providing environmental training for employees; conducting environmental reviews; and recognizing and publicizing outstanding environmental compliance achievements.

The remainder of the industry's "global" objective should be to recapture America's trust. This can be accomplished through the formation of partnerships and advertising the successes of coal mining reclamation and environmental protection. As the public regains its trust in the industry, its demand for stringent environmental protection regulations will decrease. This won't happen unless industry takes the initiative and responsibility of being more proactive in environmental protection.

Implementing these six proactive activities will lead to benefits. Employees will feel more enthusiastic about their jobs and will have fewer environmental problems to react to. Coal companies will reduce the number of environmental problems that diminish profits and they will reclaim the environmental resources to higher standards. Finally, the coal mining industry will survive, prosper and continue to serve as America's premier fuel for the production of electricity.

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