

# HOW A CHANGE IN CULTURE HAS LED TO HEALTH AND SAFETY IMPROVEMENTS

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## **SUMMARY**

This paper describes the changes that took place in Health and Safety practice at a number of UK coal mines during the early 1990's and outlines the authors experience of how those changes were introduced at one particular mine. In the past, improvements in Health and Safety had come mainly through engineering solutions. The principle behind this new approach was to develop a climate where the workforce had trust in management and would work safely because they wanted to.

In the paper it will be shown that the changes needed to generate a positive safety culture were driven from the top of the organisation. Line Management were made responsible and accountable for Health and Safety, and effective lines of communication were set up to cascade the new approach to all employees.

The initiatives that were introduced to enable this culture change to take place are discussed. A common theme throughout is that Management and Supervisors must demonstrate their visible commitment to safety and build a positive relationship with the workforce. The experience at Asfordby Mine has shown that through this culture change, not only have accident rates dramatically improved, but the trust that has developed between Management and the rest of the Workforce has enabled many other issues to be resolved without conflict.

## **INTRODUCTION**

The coal industry of the United Kingdom has traditionally been proud of its record on improving health and safety. The number of fatal accidents that occurred annually in the industry reduced substantially from over 200 being killed each year in the early 1960's to less than 10 each year in the early 1990's. Much of this improvement had been brought about by mechanization that led to a vast reduction in the numbers of people employed in the industry and improved working conditions.

In 1990 however, it was recognised that existing health and safety policies were failing to bring further improvements in accident rates, and at the same time the cost of accidents was increasing

dramatically. That cost was shown from investigation to be on average over £10,000 for every 'workday lost' accident. This failure to continue to improve accident rates, coupled with the escalating costs of accidents on the run up to privatisation, led one group of mines within the British Coal Corporation to look to outside industry for help. At that time Du Pont, an American based multi-national manufacturing company, was considered a world leader in the field of industrial safety.

Du Pont were commissioned by the then Nottinghamshire Group of British Coal to make an in-depth study of two mines and make recommendations on how further health and safety improvements could be made. Their first action was to obtain the psychological profile of a cross section of all employees, from Senior Directors, Mine Management and Supervisors, right through to the Underground Workman. Du Pont believed that concentrating on people and their actions was the route to excellence in Health and Safety. This was backed up by research they had undertaken, indicating that the actions of people accounted for over 95 percent of all the accidents they had investigated.

Following months of examination, Du Pont concluded their study of British Coal with praise for workplace standards and working practices, but criticism of the overall way Health and Safety was being managed. They were critical of the attitude of mine management, who were found to accept that accidents were an unavoidable part of mining, and treated safety as if it were the responsibility of the 'Mine Safety Department'. Du Pont recommended that safety should become a priority objective of the business and of equal importance to production, cost and quality. Health and Safety, they insisted, must become the responsibility of Line Management.

Asfordby Mine, prior to the privatisation of the coal industry in December 1994, was a new mine under development and part of the Nottinghamshire Group of British Coal. It was one of the first large underground UK coal mines to experience the Du Pont initiative. Asfordby Mine came into production in 1995, it is today owned by RJB Mining (UK) Ltd and employs over 500 people.

## **THE ASFORDBY MINE SAFETY INITIATIVE**

An important part of the Du Pont philosophy was

that safety must be driven from the very top of the organisation and all levels within the organisation must be fully committed to it. When this initiative was introduced at Asfordby, a series of seminars were given by British Coal Directors to the mine Management team. This not only demonstrated the Corporation's commitment to the new philosophy but ensured mine Management would take the initiative on board.

Following a period of training, the responsibility for the organisation of Health and Safety was put in the hands of Line Managers, who formed a 'Safety Management Committee'. The mine Safety Engineer's role became that of an advisor, giving Line Managers guidance on best Health and Safety practice as well as keeping them up to date with changes in legislation. Over a 12 month period the Du Pont philosophy was cascaded through all levels at the mine. Every employee was made aware that the objective was to '*manage Health and Safety through our people*'.

Because of the success of the initiative, it is still the core of the Health and Safety drive at Asfordby Mine today. The mine has developed a 'Safety Policy' that it applies to all employees and the operations they undertake. The principles of that policy can be summarised as follows: -

- Develop a Culture Committed to Health and Safety.
- Safety Audit all Employees.
- Investigate every Accident and Near Miss.
- Risk Assess all Hazards.
- Wear Personal Protective Equipment.

#### **Developing a Culture Committed to Safety**

Du Pont considered that the prevailing safety culture at a mine was a function of how the Workforce perceive the commitment of Management to Health and Safety issues. This culture will be based on the experiences of the workforce, derived from the attitude and behaviour of Management.

In the drive to continue to develop a positive safety culture at Asfordby Mine, Line Managers are held directly accountable for preventing injuries and illness, and have well defined Health and Safety responsibilities relating to their areas of work. They are required to make regular visits to observe work practices, and are encouraged to put aside time to support the Health and Safety efforts of their subordinates. Each Supervisor in turn, is expected to consistently show his own commitment to Health and Safety and is accountable for it on a daily basis.

It is expected that safety should be the first topic of every conversation, during telephone conversations, informal or formal meetings, and also in training

sessions. Safety is first on all meeting agendas to reinforce its importance and to ensure there is sufficient time to talk about the Health and Safety issues that are relevant to the subject in hand. All too often in the past, safety would be discussed last in meetings and only then if there was sufficient time left and those present had not lost interest in the proceedings.

By Management and Supervisors together showing an uncompromising attitude to Health and Safety we have seen a positive safety culture being developed amongst the workforce. This safety culture produces an environment in which an employee is reluctant break rules or undertake unsafe acts. It is these unsafe acts that account for the vast majority of accidents happening today. The aim is to eliminate these by providing a climate in which the workforce will work safely because they want to.

#### **Safety Audits**

Safety Auditing is a term taken from the Du Pont initiative to describe a systematic on-site inspection of working practices by a suitably trained Supervisor. The audit is carried out, in a spirit of amnesty, on small groups of Workers engaged in their normal operations. It comprises of two stages: first a period of observation, followed afterwards by an open discussion with the Workmen. The objective of the audit is not to investigate physical matters but rather the understanding that the Workforce have of safe working practices, their perception of dangers in the working environment and their overall attitude to safety. An important aspect of the audit is for the Supervisor to listen to the workman and then come to an agreement with that person on his future behaviour.

At Asfordby the Safety Audit is seen as a key tool in enabling Management and Supervisors to demonstrate their visible commitment to safety. It is used to communicate important safety messages and is also a useful means of monitoring the Health and Safety climate at the mine. Each audit is recorded on a set proforma and filed for follow up purposes. While it is not normal practice to record the names of the men audited, the audit report should as a minimum record the time, place and activity that was occurring, as well as any relevant safety observations made by the audit team.

Audits are carefully planned to systematically cover, over a given period, all working practices and employees. They have enabled a reliable and structured communication path to be forged between Management, Supervisors and the Workforce. This initiative has contributed the most to breaking down many of the traditional barriers of mistrust that existed between Management and the Workforce.

### Accident and Near Miss Investigation

Another initiative is that of Accident and Near Miss Investigation. In the past only serious accidents would have been investigated, and that investigation would have been carried out by the Safety Department. Today all accidents requiring medical treatment, no matter how trivial, are investigated by a senior member of Line Management. Recommendations are made in a similar manner to those that would have been made in the past for very serious injuries.

As the number of accidents reduces it has been possible to focus on the investigation of near-misses. A near-miss is usually any abnormal event that could have led to an injury. By encouraging the reporting of near misses it has been possible to prevent a number of incidents from happening that would have most certainly led in the past to a serious injury.

Much effort has been put into getting the workforce to understand that the objective of accident investigations is to prevent accidents re-occurring, and not the practice of the past of using the investigation purely to apportion blame. These investigations very rarely highlight the need for engineering improvements. In most cases, the root cause of the accident will be found to be one of the following:- inadequate training, lack of supervision or failure to comply with rules and procedures. It is common for an accident investigation to raise management failings; these must be taken seriously and acted upon if the workforce are to believe that all management are totally committed to safety.

### Risk Assessment

In 1992 legislation was introduced in the UK that charged every employer with a duty to assess the risk to his employees and any other person who might be affected by his undertakings. Risk Assessment was introduced at Asfordby Mine to compliment Safety Auditing. The Risk Assessment differs from the Safety Audit in that it is a structured approach to determining the hazards of a job, and the measures that have to be applied following such an assessment usually involve the provisioning of equipment or the phasing of operations. The Risk assessment generally deals with 'hardware', the Safety Audit deals with 'people'.

The work undertaken in deep mining exposes the employee to a wide range of hazards. The purpose of the Risk Assessment is to calculate the risk that is associated with these hazards and put measures in place that will reduce the risk to an acceptable level.

The Risk Assessment is a three stage process:-

1. Look at each activity and identify all of the Hazards and their effect.
2. Evaluate the Risk.
3. Take Steps to Control the risk.

Where the '**Hazard**' is defined as any event with the potential to cause harm, and '**Risk**' is the likelihood of something happening. The steps that have to be taken in order to reduce the risk to an acceptable level will form the basis of a written procedure for the job.

The whole workforce at Asfordby Mine have now undergone some form of basic Risk Assessment training. The objective is to have all employees doing a conscious Risk Assessment before they undertake any activity.

### Personal Protective Equipment

The wearing of Personal Protective Equipment has a two fold purpose. It firstly acts as the last line of defence against injury if other accident prevention measures have failed, and secondly it demonstrates the level of the wearer's commitment to safety. In addition to the industry standard requirement that mine workers wear, hard hats with ear protection and heavy duty footwear, at Asfordby Mine the wearing of high visibility clothing, eye and hand protection is compulsory. The wearing of leg protection is highly recommended.

These additional items of Personal Protective Equipment (PPE) were selected following detailed Risk Assessment into the wide range of activities undertaken at the mine and research into the parts of the body that are most likely to suffer injury should an accident occur. For example: the number of eye injuries had in the past been on the increase, this type of accident is one of the more serious to occur underground, and once an eye is damaged it is usually permanent. Injuries to hands tend to be less serious than those to eyes, but accident statistics have shown that the hand is the most common part of the body to suffer injury.

It was found necessary to make PPE compulsory because some employees were reluctant to voluntarily wear certain items that were uncomfortable until they had been got used to, and some considered it not the 'macho' thing to do.

The wearing of PPE is now rigidly enforced at Asfordby Mine. Management and Supervisors are expected to lead by example and disciplinary action is taken against any employee found not to be wearing the correct PPE. This uncompromising stand has been accepted by the workforce as further proof of the Management's commitment to Health and Safety and has the full support of the Trade Unions.

## **THE HEALTH AND SAFETY COMMITTEE**

All of the above mentioned safety initiatives are continually reviewed by the Health and Safety Management Committee, set up specifically for the purpose of managing Health and Safety. This committee is drawn from the key senior personnel at the mine and includes: Mine Manager, Undermanager, Mechanical Engineer, Electrical Engineer and Personnel Manager. The committee meets on a regular basis to discuss the effective implementation of the above initiatives and to take advice from the Mine Safety Engineer who collates the information obtained from Safety Audits, Risk Assessments and Accident/Near Miss Investigations.

Health and Safety targets and objectives are set by the committee and individual Line Managers are held accountable to ensure those targets are met. The committee also examines accident statistics, the results of Safety Audits, and other factors that can be used to monitor the state of the safety climate at the mine.

The Health and Safety Committee is responsible for ensuring that the Health and Safety message is communicated to all levels of the workforce, that effective safety training is planned and organised, and that any other resources required to meet the safety plan are made available.

## **COMMUNICATION**

Communication channels have been dramatically improved over recent years, enabling the safety message to be transmitted very quickly to all sections of the workforce. A key part of the Du Pont theme was that without effective communication you cannot motivate the workforce to improve the Health and Safety climate at the mine.

The Safety Audit is an important tool for communication. A theme or objective for the month can be set by the Safety Management Committee and this message can be communicated to all groups of workers as part of the Safety Audit procedure. The advantage of using this method is that it allows two way communication, ideas from the workforce can be fed back to management via the audit report.

The mine now produces its own weekly Safety Bulletin. This bulletin reports on any accident or near miss that has occurred and includes the recommendations that follow from the incident. It will also include a report on accidents at other mines as well as any relevant safety message. The bulletin is made available to the whole Workforce, and Supervisors are expected to at least once every

week take the men under their control through it in detail.

In addition to going through the Safety Bulletin, Supervisors are encouraged to hold 'Tool Box Talks' with the workforce on a regular basis. The normal practice is for the Supervisor to get his team of men together in their normal work place during shift time and talk to them on a safety related theme. This is not only a very important means of communication but further reinforces the Supervisors commitment to safety in the eyes of the Workforce.

Major issues of policy change are on occasions communicated directly to employees at open meetings where a member of senior Management will address the whole Workforce. This ensures that where important issues are concerned all employees get the same message and see that senior Management are driving it.

Effective communication systems are a vital part of this new safety culture. If Management do not tell the Workforce what is happening then misleading messages will be spread through the grapevine and the trust that had been developed will start to erode.

## **RESULTS**

There can be little doubt that this change in culture has led to a dramatic improvement in accident rates. In the first full year following the Du Pont initiative the overall accident rate of those mines involved with the initiative reduced by nearly 35 percent. It has been a similar story at Asfordby, where over a three year period the overall accident rate reduced by 70 percent.

One vital lesson from this whole experience is that the drive to change culture must be maintained at all times, otherwise any improvements made will be quickly lost. Any signal sent by management to the workforce that safety is no longer a priority will have an adverse effect on safety. It has been seen at Asfordby, on the occasions where this has happened it is not long after before accident rates start to increase.

An important aspect of this change in culture has been the change in relationship between Management and the Workforce. A great deal of trust has built up between all levels of employees through safety initiatives. This has transformed the whole pattern of labour relations at Asfordby Mine and has enabled significant changes in working practices to take place without conflict.

The culture change has been brought about with the full support of the Trade Unions at the mine who have been involved with every stage of its introduction. Privatisation of the UK coal industry, coupled with changes in employment legislation have radically diminished the role of the Trade

Union official in the UK mining industry; at some UK mines today Unions are not recognised. At Asfordby Mine however, the Trade Unions have gained a great deal of support from being seen to be an integral part of the drive for this new safety culture. They work hand in hand with management and are therefore in a very strong position to protect the interests of all employees.

## **CONCLUSIONS**

The need to continually improve safety is important in all the mining industries of the developed world.

The cost of accidents is escalating year on year; in the UK it is not uncommon for settlements of up to £500,000 to be awarded in the case of the most serious injuries. Some UK commentators also state that it is no longer socially acceptable to kill men for the sake of mining coal, especially when that product is readily available on the world market.

The improvements in accident rates of the past were made predominantly through engineering solutions.

It is unlikely that these solutions will bring any further significant improvements. The experience from a number of UK mines clearly demonstrates that there is still the opportunity to make a dramatic improvement in safety through addressing the 'people' issue. This is clearly the case when it can be shown that in the majority of all accidents, it is the actions of people that are responsible; either through lack of training, lack of supervision, or failure to follow rules and procedures.

The people issue can only be addressed through developing a positive safety culture. Health and Safety concerns must be at the forefront of the organisation and driven from the most senior Corporate level. Line Management must also at all times demonstrate their visible commitment to Health and Safety. Safety must become a priority of the business and managed with the same importance that production and costs are.

There must be a clear policy set for the management of safety with clear targets and objectives set that management can be held responsible and accountable for. Good lines of communication are essential to enable these objectives to be cascaded quickly through to all employees.

A number of initiatives have been developed from the experience at Asfordby Mine, they include:- Safety Auditing, Risk Assessment, Accident and Near Miss Investigation, and the compulsory wearing of Personal Protective Equipment. These initiatives not only prevent accidents, but demonstrate to the workforce that the Company and

its Management are fully committed to the Health and Safety of the workforce.

This experience demonstrates that the rewards for generating a positive safety culture go much further than just improving accident statistics. Asfordby Mine now enjoys a new industrial relations climate built on trust in which Management, Supervisors, Workmen and Trade Unions work hand in hand. This has enabled new working practices to be introduced that have improved safety and put the mine in a very strong position to meet the challenges that are occurring in today's market.

## **BIBLIOGRAPHY**

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