Examples of effective workforce involvement in health and safety in the chemical industry

Prepared by Entec UK Ltd for the Health and Safety Executive
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In recent years there has been a shift away from "top down" approaches to safety management due to the business and safety benefits of greater workforce involvement. It is recognised that workforce ownership and participation in health and safety is essential for safety management to be effective. Also, in latter day downsized and delayered organisations, firms rely much more on the workforce to operate the business.

There are some common features and principles of workforce involvement. However, the exact form of involvement depends on the specific circumstances of a firm, such as its size. Therefore this report identifies and profiles examples of best practice drawn from small and large firms, contractors and clients, manufacturers, storage and haulage operations in the chemical sector. The approach to designing and implementing, reviewing and improving arrangements is outlined and illustrated with case study material. This may be used for benchmarking and for planning how to improve workforce involvement. This report along with its supporting documents, can also be used by the HSE and Chemical Industries Forum to publicise and illustrate the form and benefits of workforce involvement. All surveyed firms (large and small) and interviewees (managers and operators) believe the benefits of workforce involvement are great. Their plans to extend arrangements are testament to this belief.

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Executive Summary

Introduction
Latter day approaches to health and safety argue that it is critical to gain ownership of health and safety arrangements amongst line management and staff, to secure acceptance and hence compliance with such arrangements.

Co-operation is one of the key elements in organising for health and safety, as described in the Health and Safety Executive’s guide to Successful Health and Safety Management, HS (G) 65. Participation has the role of ensuring health and safety becomes “everybody’s business” and the guide expresses the view that participation is essential for risk control to be effective.

Against this background the HSE and Chemical Industries Forum aim to identify the key features of effective workforce involvement and develop a series of case studies drawn from the chemical industry. Accordingly this study’s objectives are to:

- Identify the key features of effective workforce involvement in health and safety in the chemical industry in Great Britain.
- Illustrate these features with a set of case studies involving a range of premises, processes and hazards.

The stages in carrying out this study were: definition of site selection criteria; identification, screening and selection of sites; surveying the sites; and compiling and interpreting findings.

Findings

Why do leading firms introduce workforce involvement?
The introduction of employee involvement is rarely driven by regulatory demands but is seen by organisations that already have mature safety management systems as the preferred way of improving safety performance. Moreover, it is difficult to maintain safety standards in downsized organisations without the support and active involvement of employees. Similarly, proactive employee involvement in health and safety is necessary for new ways of working, such as self-managed teams.

What are the reported benefits of workforce involvement?
Firms that have implemented employee involvement report tangible and intangible benefits in terms of both health and safety performance and general business performance, such as lowered reportable accident rates or maintenance of safety standards despite reductions in the workforce. Firms report a reduction in “adversarial” management-employee relations, an improved image in the eyes of industrial clients and the general public and improved morale, which are attributed directly to employee involvement by surveyed firms. There is a consensus amongst best practice firms that the benefits of employee involvement far outweigh the costs incurred.

How do best practice firms plan and devise arrangements?
There are two essential elements to deciding how to secure greater employee involvement in health and safety, namely:

- develop a sound understanding of what comprises “effective workforce involvement”; and
- involve employees in the decision making process, as it helps ensure that they will “own and accept” subsequent arrangements and secures a valuable source of ideas.

In addition, piloting is recommended to identify and resolve unforeseen problems before the arrangements are rolled out across the organisation.
How do organisations go about initiating more employee involvement?
There are three essential aspects to the implementation of arrangements:

- re-alignment of existing managerial and staff arrangements to facilitate the new approach;
- ensure that all members of the organisation have the necessary skills and knowledge to carry out their new roles and are provided with the appropriate tools and aids;
- undertake a two-way communication process to elicit any concerns.

What does employee involvement look like?
The extent of involvement can vary from management informing the workforce through to the workforce reviewing policy and performance. Within certain cost and/or expertise limits, the more extensive forms of involvement are generally regarded to solicit the best reaction from the workforce. In “best practice” examples employees participate in identifying issues and agreeing the solution. Workforce involvement is not restricted to providing feedback on management proposals or the simple provision of information.

It is imperative there is management commitment to respond positively to employee proposals for improvements in order to maintain employee faith in the process. This should comprise an active and open two-way dialogue on the value and practicality of proposals.

How do firms manage the ongoing review and improvement of employee involvement?
Most firms report that the main changes can be achieved within 2 to 3 years. Employee involvement should not be treated as a one-off exercise. Rather, it is a process of continual improvement, driven by constant monitoring of performance and consultation with employees. The effectiveness of arrangements are monitored through a combination of formal and informal methods including attitude surveys, feedback via committees and local staff meetings, and day-to-day contact with employees. In addition, accident rates are monitored to check the level of improvement in safety performance.

What lessons have been learnt by best practice firms?
The key message from best practice firms is that it is important to maintain momentum. For employee involvement to succeed all parties must have faith in the process and its outcome. This faith depends on the continual commitment, openness and active participation of both management and employees, which in turn relies on the perceived benefits of changes.

A recommended approach to workforce involvement
Examples of good practice have been integrated, in this report, to provide an overview of how to develop effective arrangements for workforce involvement. Also, a set of questions are provided for use in assessing the extent to which there is workforce involvement in health and safety, and the extent to which the workforce exhibit the attitudes and behaviours associated with effective participation.

Conclusions
Workforce involvement in health and safety is regarded by all surveyed firms to be highly beneficial. Indeed, best practice firms cannot contemplate managing health and safety without the support and involvement of employees. This view is shared by small and large firms, and by employees and management alike. The exact form of involvement varies according to the type, size and structure of organisations. In all cases though, a joint management/workforce effort can devise and implement arrangements, with a moderate degree of support from specialists, that achieve demonstrable results. The fact that all of the surveyed firms intend to extend their arrangements and apply them to other sites is a testament to their perceived benefits.
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1. INTRODUCTION

1.1 BACKGROUND

Workforce involvement in health and safety is a legal requirement as per the 1996 Health and Safety (Consultation with Employees) Regulations. In addition, the 1977 Safety Representatives and Safety Committees Regulations stipulate arrangements for appointment and consultation with trade union safety representatives. However, it is also reasonable to claim that workforce involvement is viewed to be a key part of modern day health and safety management. The traditional “top-down” approach to health and safety can be characterised as involving a centralised health and safety department identifying issues, devising solutions in the form of procedures, training and engineering etc. which they then implement. It is also common, with the traditional approach to management, that staff are viewed to be part of the problem, failing to follow rules and procedures, lacking competence and requiring high levels of compliance based auditing and supervision. However, recent research and experience has demonstrated that the “compliance” type of problems observed in traditional management systems are partly a product of the “top down” approach to management. For example, research (such as Entec’s research into business process re-engineering and health and safety management, Entec 1996) has found that the traditional top down approach to health and safety management can lead to a number of dysfunctional phenomena, such as:

- when incidents and accidents occur, additional rules and procedures are produced with the aim of preventing their recurrence. This leads, over time, to the production and dissemination of an excessive number of rules and procedures that become ever harder to comply with.

- the central department fails to understand the operational constraints on working practices, with the result that rules and procedures are viewed as impractical creating the syndrome of people believing they must “break the rules to get the job done”;

- staff fail to “own safety procedures” as they are developed and imposed by a remote central department. The logic and reasons for procedures are neither communicated to nor understood by staff, creating a position where staff fail to accept the need for such procedures.

In contrast, latter day approaches to health and safety argue that it is critical to gain ownership of health and safety arrangements amongst line management and staff, to secure acceptance and hence compliance with such arrangements. Indeed, the Health and Safety Executive guide to Successful Health and Safety Management, HS (G) 65, states that:

“It (the safety management system) should be designed to maximise the contribution of individuals and groups through participation at all levels” (p10).

Co-operation is a part of HS (G) 65, which describes the role of participation in ensuring that health and safety becomes “everybody’s business” and expresses the view that participation is essential for risk control to be effective. This is supported by empirical research that found lower accident rates in firms that had effective consultation mechanisms with the workforce (Reilly et al 1993).

This can best be achieved by involving staff in the development and implementation of health and safety systems, such as involving them in writing procedures, hazard spotting, workplace
risk assessments etc. Previous research suggests that such involvement may entail devolution of roles and responsibility from safety departments to staff and line management, and a revision in the role of the safety department from one of developing arrangements and enforcing compliance to one of leadership and facilitation.

The downside of centralised safety management - a Finnish example

Seppala provides a review of the traditional approach to safety management in Finland. This comprised appointment of specialist safety staff and safety delegates. She reports that experience showed that this approach frequently failed to identify hazards or the need for changes and failed to ensure changes were carried through. Specialist staff were required to monitor safety-related hazards and conditions at work, and for organising co-operation of employer and employees on safety. These arrangements had the following difficulties:

- Specialist safety staff had difficulty developing knowledge of the technical properties of all complex production systems,

- The level of information was so great they had difficulty developing knowledge of the technical properties of all complex production systems.

- They were removed from “real” shop floor practices.

Similarly, the central safety committee was even further removed from practice. Meeting only four times a year it could not keep up with fast changing production demands. Consequently, committee meetings could not pro-actively participate in decision-making.

Also, supervisors came to think that safety is the responsibility of safety managers and delegates. Accordingly, safety was not prioritised by supervisors or middle management, with a partial or complete dis-engagement of those directly involved in production from the safety effects of that production.

Also, many safety problems occur during abnormal phases of work, such as during production disturbances. Because these unscheduled events rarely occur during normal safety inspections, they did not commonly come to the attention of safety personnel, again further distancing specialists from real shop floor problems and practices.

The apparent dis-engagement of supervisors and management from safety, due to the requirement for specialist safety staff, stood in contrast with their legal responsibility for ensuring daily safety conditions at work. As specialist safety staff took the leading role in analysing hazards, setting targets and developing remedies, supervisors had little experience in discharging safety responsibilities. Consequently, it was perhaps unsurprising that supervisors often lacked the knowledge to carry out safety procedures, with many prosecutions of supervisors arising from their failure to monitor safety and methods of work.

Seppala concludes that central safety staff are too far removed from daily work practices to act as the key drivers of safety adaptations and changes. The participation of supervisors and workers is required to identify and resolve problems.

Whilst previous research is sparse, the research that has been completed indicates that workforce participation has a wide range of benefits. For example, it is thought that staff will have a good understanding of the hazards associated with their work due to their full time involvement in these tasks, unlike the occasional involvement of specialist safety staff. Also,
staff have a good understanding of operational constraints, thereby allowing them to develop practical and realistic safety procedures - further improving the acceptability of health and safety procedures. Finally, it is staff who are in the best position to manage day-to-day hazards, such as slippery surfaces caused by (say) wet floors, as they are most likely to discover such hazards. By involving staff in safety, gaining their ownership of safety management and empowering them to act on hazards without referral to management, hazards should be removed faster and more effectively.

In this context, the benefits of workforce involvement are thought to include:

- improved health and safety performance, including: better identification of hazards and greater acceptance of procedures and rules - by securing ownership of procedures and improving their usability/practicality;
- improved health and safety culture;
- improved communication/relations between management and staff in the area of health and safety, and;
- reduced onus of professional safety staff to manage day-to-day health and safety problems.

In overview, workforce involvement is a key part of a positive proactive health and safety culture that continuously seeks out and controls hazards, with all parties accepting health and safety as a positive part of their roles and responsibility. Indeed, Entec's research into Business Process Re-engineering and health and safety management found that the "success" stories had endeavoured to involve staff and line management in health and safety through a process of empowerment, re-training and devolution, and that this was viewed to be an essential element of achieving better health and safety performance.

Finally, it can also be noted that the benefits and principles of workforce involvement are thought to apply equally to general business performance and form central tenets of latter day business management thinking. Indeed, employee participation in health and safety has many parallels with established forms of employee involvement in quality, such as "quality circles", Total Quality Management and Self-Directed Work teams. Therefore, it is also reasonable to argue that workforce involvement in health and safety management is a logical extension of latter day "good" business practice, as well as being required to ensure synergy between the styles of health and safety management and general business management - a synergy which is required to ensure consistent and effective management in an organisation.

1.2 AIMS AND OBJECTIVES

Against this background the Health and Safety Executive (HSE) and Chemical Industries Forum (CIF) are aiming to identify the key features of effective workforce involvement and develop a series of case studies drawn from the chemical industry. The case studies focus on examples of particular relevance to the chemical industry, although some of the examples are generic and therefore applicable to other sectors. Accordingly this study serves the following purposes:

- it assists industry in complying with workforce involvement regulations, by providing examples on which firms can base their own schemes;
- it encourages compliance with workforce involvement regulations, by demonstrating the benefits of workforce involvement, and;
• it assists the HSE in securing compliance with workforce involvement regulations and in promoting the benefits to be gained from workforce involvement.

The scope and objectives of the research are:

a) To identify the key features of effective workforce involvement in health and safety in the chemical industry in Great Britain.

b) To illustrate these features with a set of case studies involving a range of premises, processes and hazards.

At a more detailed level, the objectives are:

a) To locate a range of premises in the chemicals sector which have or claim to have effective arrangements for workforce involvement in health and safety;

b) To make a representative selection of these premises for further study, based on (not exclusively) the nature of the hazards, company size and the type of arrangements for workforce involvement.

c) To identify at those premises examples of good workforce involvement and their key features.

d) To provide evidence of how particular methods and initiatives produced positive improvements in health and safety (and other spin-offs).

e) To formulate a series of case studies, in a form suitable for publication, illustrating key features.

The case studies should provide an understanding of the "what, why and how" particular methods of workforce involvement succeeded.

1.3 WHAT IS WORKFORCE INVOLVEMENT?

Consideration of previous research into workforce involvement indicates that it varies in form, extent and scope. Involvement may be direct or mediated via representatives. It may include consultation on proposals developed by management or entail employees reviewing problems and developing recommendations. It may cover one or two aspects of health and safety, such as risk assessment, or it may cover the full range of health and safety arrangements. However, for employees to be said to be involved, there should be:

• involvement in identifying and defining "problems" and issues,

• participation in decisions and their implementation,

• direct involvement, not exclusively via formal representatives,

• an ongoing process, not just one-off exercises.

It is not just using employees as a source of information or a process of information provision to employees, even if staff have the opportunity to give a view on proposals/decisions. Examples of workforce involvement are given below to demonstrate the potential breadth of involvement.
An example from Finland

At the beginning of the 1990's some Finnish enterprises sought to engage line management and staff in safety. Seppala (1999) cites one example of the formation of departmental safety teams, that included employees and foreman. The teams carried out inspections, investigated accidents and near misses and completed risk assessment. These tasks allowed them to identify and analyse hazards at their own place of work, and thereafter participate in the planning of production, developing job instructions and implementing preventive measures. The involvement of supervisors also improved their commitment. This is reported to be reflected in their behaviour in terms of how they rewarded new "safe" staff behaviour and "punished" old unsafe behaviour, consequently influencing staff behaviour as they recognised a shift in expectations.

The creation of safety teams did not lead to disbandment of specialised health and safety groups who remained to handle and advise on specific issues. Thus, the role of the specialist safety staff became more global, setting safety goals, auditing safety and evaluating the functions of the safety teams.

Despite some implementation problems, such as inadequate team training, the safety teams are reported to have led to fewer and less serious accidents as well as a better safety culture and climate. Seppala concludes that safety teams re-engage staff directly concerned with production and provide a better means of anticipating and responding to the constant adaptation and change in work.

A UK example of organisation change

Blackmore (1997) describes an example of self-managed teams at Dista Products, a medium sized UK process manufacturer. The company previously had a traditional structure, of a general manager, directors, managers, section heads and supervisors. In some cases units had seven levels of reporting, with the supervisor responsible for safety alongside a health and safety group. The site, after making two hundred staff redundant, was reorganised into thirteen self-directing teams (five support and eight manufacturing teams) with multi-skilled staff, each with a Team Leader. Team Leaders ultimately became responsible for a number of activities previously carried out by the health and safety group, such as risk assessments. However, teams appointed an EHS co-ordinator to co-ordinate each team's risk assessment and other safety activities. The site safety committee was reorganised to include team leaders, some EHS co-ordinators and union representatives – as opposed to managers and directors. In addition, team level EHS committees were formed. The EHS group worked with team leaders to identify key activities and providing technical advice.

This approach coincided with a 50% reduction in the accident rate.
2. METHOD

2.1 OVERVIEW OF APPROACH

The study comprised four main stages of work as described below:

Step 1: Defining site selection criteria. This focussed on defining criteria regarding the quality of workforce involvement, the range of site types needed and the availability of information on these arrangements, including "proof" of their success.

Step 2: Identifying, screening and selecting sites. This comprised first identifying candidate sites and then screening sites using a proforma to ensure only examples of best practice with adequate supporting information were selected.

Step 3: Surveying sites. All sites were surveyed using a standard proforma. In each case a vertical slice was taken through the organisation, interviewing managers, supervisors and members of the workforce. Also, supporting documentation and statistics were sought. A detailed report was prepared on each site. The report was issued to the site representative for validation before finalisation.

Step 4: Compiling and interpreting findings. An overview of arrangements was drawn out of the ten site surveys to produce this main report. The ten site surveys were supplied to the HSE/CIF for their use as reference documents when producing other reports and publicity.

2.2 STEP 1: SITE SELECTION CRITERIA

Three criteria have been applied to the selection of sites. The first relates to whether the workforce involvement arrangements match a definition of "effective" arrangements. The second relate to how these arrangements may vary between sites due to organisational and process factors, such as company size and type of operation. The third relates to the availability of evidence of the benefits of workforce involvement, i.e. is there substantive evidence?

Criteria 1: Does the site provide valid examples of employee involvement?

This criteria was applied in two stages. First, it was necessary for a site to have arrangements that matched the definition of what constitutes workforce involvement. Secondly, having developed a short list of sites, these were further screened to acquire as broad a range of examples of different forms of involvement as possible.

Parameters defining what constitutes employee involvement have been developed by reference to HSE publications, previous research as described in section 1.3 of this report and guidance, such as "Play your part - How offshore workers can help improve health and safety".

The criteria require that employees are actively involved in one or more of the following:

- problem identification and objectives setting;
- reviewing and developing health and safety rules and procedures;
- mechanisms for gaining workforce views on adequacy of health and safety systems, such as committees, task forces;
- hazard spotting and risk assessment;
- management of hazards, including (say) redesign of equipment, mopping up spilt water on floors;
- accident investigation;
- self-auditing.

On each, the point of “demarcation” between workforce and management responsibilities has been used as an indicator of the extent of workforce involvement. For employees to be accepted as being “involved” it is necessary for employees to play an active role in reviewing, agreeing, developing and/or implementing health and safety arrangements. A one-way process of “consultation” in which information is provided to employees or where employees are used solely as a source of information is not regarded to comprise "involvement".

In addition, the style of management should be consistent with the “ethos” of facilitating participation, as follows:

- the commitment of staff is secured by communicating the objectives of workforce involvement and addressing in a non-critical way employee fears and concerns about their involvement;
- the principles and objectives underlying the approach adopted to workforce involvement should be appropriate, such as securing employee ownership of health and safety and securing their input into developing practical and effective systems.

**Criteria 2: Representative range of types of sites**

The sample of sites has been designed to include as far as possible the full range of types of sites in the chemical industry. This comprised seeking examples of:

- large, medium and small sized enterprises;
- manufacturers, distributors and storage operations;
- chemical and oil and gas operations;
- employee and contractor involvement in health and safety.

**Criteria 3: Evidence of benefits and effectiveness of arrangements**

Finally, ideally, a case study should be able to provide evidence of the effectiveness of workforce involvement arrangements, such as safety performance measures and/or employee attitude surveys. Preference was awarded to sites that could provide evidence of the benefits of workforce involvement.

### 2.3 STEP 2: IDENTIFYING, SCREENING AND SELECTING SITES

**Identifying list of candidate sites**

A list of 59 candidate sites was developed by:

- consultation with the HSE and CIF members;
- consultation with representatives of various trade associations, such as the British Coatings Federation and Paint Research Association;
- consultation with chemical industry bodies, including the Safety and Loss Prevention Group of the Institute of Chemical Engineers, and;
• review of organisations with whom the consultants had prior knowledge.

In each case, examples were sought of sites that had arrangements that matched the definition of workforce involvement.

**Screening candidate sites**

To ensure that the final sample of sites in the survey include “best practice” sites Entec screened the list of candidate sites. The screening entailed telephone interviews with site safety managers and application of the site selection criteria noted above. A standard form, shown in Appendix A has been used for this purpose. The final 10 sites included:

• five large manufacturers (Shell, DuPont, Sun Chemicals, Ciba and Montell);
• one small manufacturer (Pentagon);
• one small storage site (Simon Storage);
• one distributor (Hoyer);
• one site with extensive contractors (Huntsman Tioxide);
• one contractor (Kvaerner).

**2.4 STEP 3: SURVEYING SITES**

The survey was designed with two objectives in mind, namely;

a) to acquire information on the what, why and how of workforce involvement, and;

b) to acquire evidence of the benefits of workforce involvement.

Information on workforce involvement arrangements has been secured by:

• discussion (interviews) with site management and workforce representatives, and;
• review of documentation describing arrangements.

A number of managers and workforce representatives have been interviewed at each site/firm to allow a crosscheck of views/information to be made.

A survey proforma has been produced, to ensure a consistent and comprehensive survey of each site. The questions from the proforma are given in Appendix B. The proforma covers:

• the reasons for introduction of workforce involvement;
• the rationale behind the specific arrangements adopted;
• how the arrangements were introduced;
• pre-requisites for securing workforce involvement, such as change in safety policy or safety management systems;
• a profile of the arrangements for workforce involvement (covering what the workforce are involved in and the systems for involvement);
• costs of developing and implementing workforce involvement;
• time required to develop and implement workforce involvement schemes.
- examples of workforce involvement, such as examples of hazard spotting and involvement in developing procedures, and,
- how the effectiveness of arrangements are monitored.

The proforma has been designed to allow up to three examples of workforce involvement to be profiled in three different parts of each site, i.e. a maximum of nine examples per site.

As part of the survey all available statistical and qualitative evidence of the benefits of workforce involvement was sought from each site (and/or firm), including:

- statistical health and safety performance data, such as Lost Time Injury rates, all accident rates, absence rates etc;
- specific examples of where workforce involvement has led to tangible benefits, such as how a workforce team identified, risk assessed and resolved a particular safety problem;
- feedback on (say) changes in workforce and management attitudes towards health and safety, such as greater ownership and acceptance of health and safety, reduction in safety conflicts etc.;
- any attitude survey results from surveys already completed by or on behalf of the firm, and;
- feedback or data on spin-off benefits, such as better industrial relations, reduced health and safety costs, reduced cost of accidents etc.

The above points were included in the aforementioned survey proforma.

### 2.5 STEP 4: COMPILING AND INTERPRETING FINDINGS

A stand alone summary of each site has been produced and reported separately. An overview of arrangements has been drawn from these reports to give a description of:

- the common features of effective workforce involvement;
- examples of how workforce involvement varies;
- the range in types of workforce arrangements and how their suitability varies according to the type of organisation/process entailed;
- types of benefits associated with workforce involvement, including % reduction in injuries etc., and examples of such benefits, and;
- how firms developed, implemented, reviewed and improved arrangements for workforce involvement.
3. EMPLOYEE INVOLVEMENT IN BEST PRACTICE FIRMS

3.1 SUMMARY

Why do leading firms introduce workforce involvement?
Employee involvement in health and safety is recognised to be an essential element of effective health and safety management. The introduction of employee involvement is rarely driven by regulatory demands. Rather “best practice” firms seek to secure employee involvement to achieve higher standards of safety and associated business benefits. Indeed, increasing the contribution of employees to health and safety is the preferred way of improving safety performance in organisations that already have mature safety management systems.

Moreover, it is difficult to maintain safety standards in layered and downsized organisations without the support and active involvement of employees. Involving employees in health and safety after a period of downsizing also helps to raise morale and re-establish trust in the company. Similarly, proactive employee involvement in health and safety is necessary for new ways of working, such as self-managed teams, to operate safely and effectively.

More generally employee involvement is seen as good management practice that should apply in all areas of business management, whether that is business management or health and safety management.

Introduction of employee consultation regulations was not cited by anyone as the main prompt; all surveyed firms were already operating employee consultation schemes.

Finally, workforce involvement is said to be of equal benefit to large and small firms. Indeed, smaller firms with fewer managers look to workforce involvement as a means of maintaining safety standards without increasing management costs.

What are the reported benefits of workforce involvement?
Firms that have implemented employee involvement report both tangible and intangible benefits in terms of both health and safety performance and general business performance. In some cases reportable accidents rates have fallen by 50% or more. In other cases safety standards have been maintained despite very large reductions in the workforce and major reorganisations. These improvements can be attributed directly to employee involvement. Best practice firms cite specific examples of health and safety problems resolved by employees, much improved employee competence and a turn-around in employees’ attitudes towards health and safety, particularly a greater propensity to identify issues and acceptance of health and safety requirements. In addition, the involvement of employees in handling common health and safety issues “frees up” specialist staff to handle the more strategic and complex issues.

As regards business benefits, best practice firms report a reduction in “adversarial” management-employee relations, an improved image in the eyes of industrial clients and general public and a general improvement in morale.

There is a consensus amongst surveyed firms that the benefits of employee involvement far outweigh the costs incurred.

How do best practice firms plan and devise arrangements?
There are two essential elements to deciding if and how to secure greater employee involvement in health and safety. Firstly, it is imperative to develop a sound understanding of what
comprises "effective workforce involvement". This is commonly achieved by a combination of benchmarking against examples of best practice and provision of advice from specialists. Secondly, it is equally imperative to involve employees in the decision making process. Ideally employees are involved in identifying the need for a new approach and scoping out what that approach may entail. Involving employees in the decision process helps ensure that they will "own and accept" subsequent arrangements and secures a valuable source of ideas on what is the most effective composition of such arrangements. Even where the initial decision to increase employee involvement is taken by senior management or health and safety managers, the involvement of employees at the next earliest moment is imperative. Such involvement at this stage typically entails consultation in the form of conferences, committee meetings, joint management-employee teams, newsletters, department briefings etc.

In addition, piloting of arrangements is recommended to identify and resolve any unforeseen problems before the arrangements are rolled out across the organisation.

**How do firms go about implementing greater employee involvement?**

There are two essential aspects to the implementation of arrangements. First, it is important to re-align existing managerial and staff arrangements to facilitate the new approach. It is particularly important to ensure that management and employee roles specify their respective remits in identifying and resolving safety issues as well as in implementing safety arrangements. It is equally important to ensure that all members of the organisation have the necessary skills and knowledge to carry out their new roles and are provided with the appropriate tools and aids. This commonly involves a training programme, covering team working as well as health and safety skills, and provision of new risk assessment tools etc. Secondly, it is equally important to undertake a two way communication process to elicit any concerns held by management and employees regarding the new arrangements. Employee involvement will not succeed if either party fails to accept the arrangements. Such communication typically entails a battery of methods such as briefings, newsletters, safety days, conferences etc- all designed to first outline the new approach, the reasons for it, what it hopes to achieve, and then to secure and respond to feedback. For this communication process to succeed, it is important to accept that the initial proposals for employee involvement may change in light of subsequent consultation.

Such consultation again typically entails a battery of methods. The use of local meetings and committees is particularly useful as it gives employees a greater chance of contributing to discussions.

**What does employee involvement look like?**

Employees can be involved in health and safety in many ways. However, in all cases employees participate in identifying issues and agreeing the solution. Their involvement is not restricted to providing feedback on management proposals or the simple provision of information. The most effective forms of involvement cited by best practice firms include:

- the creation of local employee teams to identify and/or resolve health and safety problems;

- employee participation in cross-functional groups, teams or committees to, for example, review procedures, investigate accidents, site safety tours, assess new PPE, complete process safety risk assessments etc;

- employee driven systems of observing unsafe conditions and/or unsafe behaviours (on part of other employees), identifying the causes of these and subsequently resolving these in consultation with management, and;
• off-line safety days and /or meetings to discuss safety issues and improvements.

In all cases, it is imperative that there is a commitment on the part of the organisation to respond positively to employee proposals for changes and improvements, especially where these include changes in managerial and operational arrangements and equipment, in order to maintain employee faith in the process. This should comprise an active and open two-way dialogue on the value and practicality of proposals. Finally, as part of the process of maintaining employee support of the process many firms explicitly recognise improved performance. This takes many forms, including employee driven initiatives to gain external safety awards (e.g. ROSPA Gold awards), setting and reporting success in meeting safety improvement targets (such as reduction in unsafe acts) and awarding prizes for achievements.

How do firms manage the ongoing review and improvement of employee involvement?
Most firms report that the main changes can be achieved within 6 months to 3 years, with tangible benefits apparent within this period. However, as with all other areas of business management, the arrangements for employee involvement should be the subject of continued improvement. The effectiveness of arrangements are monitored through a combination of formal and informal methods including attitude surveys, feedback via committees and local staff meetings, and day-to-day contact with employees. In addition, accident rates are monitored to check the level of improvement in safety performance, although it must be recognised that it can take a few years for measurable improvements to come through. However performance is monitored, it is essential that the effectiveness of arrangements are constantly reviewed with the aim of further improving arrangements as and when necessary. Employee involvement should not be treated as a one-off exercise. Rather, it is a process of continual improvement, driven by constant monitoring of performance and consultation with employees.

What lessons have been learnt by best practice firms?
The key message from best practice firms is that it important to maintain momentum throughout the entire process, from the initial stage of identifying the need to increase employee involvement through the design and implementation of initial changes to their review and ongoing development. For employee involvement to succeed all parties must have faith in the process and its outcome. This faith depends on the continual commitment, openness and active participation of both management and employees, which in turn relies on the perceived benefits of changes. Therefore, it is important to highlight the material benefits of changes whenever possible. Successfully resolving a few safety problems and/or successfully piloting new arrangements helps secure commitment to the process of change, even when it is recognised that many more changes are needed.

In conclusion, best practice firms regard the introduction of employee involvement to be an essential aspect of good management and one which shows clear benefits. Indeed, best practice firms cannot contemplate managing safety without the support and involvement of employees. All ten surveyed firms have plans for extending and improving current arrangements.

3.2 Reasons for introducing employee involvement
As noted in the summary there are four main reasons for seeking to increase the level of workforce participation, in approximate order of frequency:

a) It is an essential part of safety improvement process.
b) It is part of modern day good management.
c) It is an inevitable consequence of downsizing, delayering and new ways of working as it is only possible to manage safety with the support of the workforce after downsizing. Similarly, employee participation allows business to expand without a proportionate increase in management.

d) Business drivers: contractors and suppliers are required to adopt management arrangements, including workforce participation, of their customers. Otherwise it is part of the drive to optimise operational efficiency and profitability, where health and safety is part of an integrated approach to improving quality and efficiency across all aspects of business.

These reasons are not mutually exclusive. Indeed, most firms are prompted by a combination of these reasons.

The quoted statements of interviewed directors and managers below illustrate the reasons for introducing workforce involvement.

**Gaining ownership and proactive employee involvement in safety**

"To help the workforce to understand that health and safety is the key to the way that they work and is not a bolt on extra to slow them down."

"When operators have input it helps to make them interested and create ownership of the issue."

"The company culture needed to be changed and this would not be possible through high level management meetings. Workforce commitment to the success of the company needed to be improved."

"Involving people in making decisions also helps to get the message down to the shop floor level."

"The company believes that there are clear benefits in the progression of safety improvements from a technical, procedural and people perspective."

"We wished to bring the ethos of the DuPont system here which makes all employees responsible for themselves and others. We will know that we have been successful when operators start to tell contractors to wear the appropriate PPE. Every man should act as his own safety officer."

"The site already had a good safety record, but could not get a reduction in slips, trips, twisted ankles, things in eyes. The workforce had to be more involved to get further improvement."

**Harnessing an untapped source of knowledge**

"As the workforce are closest to the hazards on the site they are in the best position to conduct risk assessments and decide on the most appropriate control measures to introduce."

"They (the workforce) are the people who can best identify where the slips, trips and other hazards are."

"The people who carry out the jobs are the experts."

"To tap into the detailed knowledge held by site staff."

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Achieving safety amongst lone workers and small teams

"It is important to ensure maintenance workers are competent and confident to carry out work, including health and safety requirements, as they often work in small teams. The work is very varied and may be carried out on live plant."

"Workforce involvement is particularly important in the haulage industry where drivers work unsupervised away from base for large periods of time, and the management need to be confident that the drivers are able to cope with abnormal situations which arise."

Facilitating "flat" management structure and new ways of working

"The style of management at Simon Storage is suited to a flat organisation structure. The managers do not believe that they have answers to all problems, and rely on the workforce to play their part in ensuring all runs smoothly and where possible highlighting areas where improvements can be made."

"The objective is to develop self-managed teams through developing skills and competence and using workforce participation."

"Since 1985 the multi-skilling of the workforce has brought a wider remit to lower levels of workers. This has brought individual ownership of their own responsibilities and a better understanding of what is needed from both an organisational and a systems perspective."

Improving workforce safety awareness, confidence and competence

"Through introducing workforce involvement it was hoped to improve peoples’ awareness of health and safety issues and their confidence to be proactive in the H&S area."

"Many people have received training in risk assessments but lack the confidence to carry them out. If people become more involved they will start to recognise that risk assessment should be an ongoing activity."

Responding to customer demands

"The workforce involvement initiative was customer driven. Workforce participation is a culture which Tioxide requires from all its resident contractors, and hence Kvaerner has developed this approach. Often personnel carrying out contract work are seen as less important than company employees and this can create bad feeling and divisions between the two companies. Through integrating Kvaerner and Tioxide personnel systems it was hoped that the two workforces would work closely together and become interdependent, and there would be synergistic effects."

Maintaining profits

"The improvements to health and safety are part of good business practice and seen to have a direct impact on the company’s profitability. If a job is not done correctly it will cost money in:

- Loss of customer satisfaction
- Management time
- Credibility
- Insurance premiums will rise
Facilitating company expansion

"Hoyer UK has experienced substantial growth within the last 2-3 years. This expansion is likely to lead to some realignment of the organisational roles, but this has not yet taken place. Demands on the health and safety side of Hoyer work are likely to grow in the future, particularly in support of new contracts. The level of input from line managers and the workforce will increase to cover this, and Hoyer is currently working to support this increased empowerment."

Securing workforce commitment to the company

"The level of motivation within the workforce was quite poor. It was hoped that if employees could be involved in making decisions and that the management were seen to be listening and acting upon their ideas with good results, motivation levels would improve."

"The company culture is one of a partnership between the management and the workforce rather than being run by management decisions. This helps to improve motivation of the workforce and encourages ownership of the company's activities." (Simon Storage)

"Hoyer wants to obtain clear and open feedback from the workforce including their recommendations on improvements that could be made, and feedback on the company's proposals. Safety is an area of common ground for all employees and can be used as a vehicle to improve communications."

"To reduce the 'them and us' philosophy."

Enabling effective management in downsized businesses

"Huntsman Tioxide was under considerable financial pressure during the recent recession and forced to make efficiency savings including downsizing the workforce. To make full use of the resources remaining it was thought necessary to increase the level of workforce involvement in all aspects of company activities. Increasing the level of competence of employees and empowering them to make a wider range of decisions was hoped to reduce the pressure on managers and supervisors for day-to-day decisions."

"There has been a considerable reduction in the number of personnel on the Nylon plant since the DuPont take over. This has been made possible by the increased awareness, motivation and competence of site personnel."

3.3 THE BENEFITS OF EMPLOYEE INVOLVEMENT

3.3.1 The Managers' Perspective

The veracity of the reasons for seeking workforce involvement is reflected by the apparent benefits reported by surveyed firms. The main benefits are reported to be:

a) Improved health and safety performance and more effective management of health and safety.

Surveyed firms report that health and safety management is more effective in a number of respects, namely:
employee involvement is an essential element of effective health and safety management, especially in layered organisations;

employee involvement allows specialist health and safety resources to be "freed up" for dealing with more strategic and difficult issues;

employees’ individual competence and propensity to manage safety is enhanced;

safety is no longer used as a means of airing industrial relations grievances.

The quantitative benefits include a 50% reduction in reportable accidents at one firm. Surveyed firms report numerous examples of specific health and safety problems being resolved by employees, removing sources of risk and/or identifying means of reducing/mitigating risks.

b) Improved staff morale and trust.

In demonstrating company commitment to employee health and safety and by involving staff in decision-making, their perception of the company improves. This is particularly important in the aftermath of downsizing.

c) Satisfaction of customer demands and maintenance of a positive company image.

This is particularly important amongst contractors and amongst large chemical firms with a high profile in the public eye.

d) It helps to facilitate introduction of new ways of working, such as self-managed teams.

There is also thought to be a link to other intangible commercial benefits, such as a reduced risk of accidents and hence avoidance of accident related costs. In all cases, surveyed firms believe the benefits of workforce involvement fully justify the costs.

These benefits are illustrated below by use of management quotes.

Management quotations

"Empowerment of employees in the area of health and safety lessens the pressure on the manager to respond to everyday situations, and allows him to be more proactive and look to future issues. This will improve the company's responsiveness to changing external pressures such as legislative and commercial pressures." (Sun Chemicals)

"The costs are minimal compared to the benefits of improved awareness and understanding leading to safer actions and conditions." (Sun Chemicals)

"The level of motivation was very low whilst ICI went through recession. The culture change brought about through workforce involvement has helped to improve the safety culture and improve motivation and the productivity of the company." (Tioxide).

"It is vital to have a workforce which considers health and safety as part of daily work activities. Accidents will lead to a loss of reputation, and may lead to a loss of certain customers." (Simon Storage)

"Despite a massive reduction in workforce since 1994 the safety performance has improved." (Ciba)

"The health and safety system won't work without workforce involvement." (DuPont)

"The principal benefit of workforce involvement is that it gets buy-in from the driver, and that improves the safety performance." (Hoyer)
“The principal benefit is the harmonisation of work between contractors and Tioxide employees such that they work together as a team with mutual respect and understanding.” (Kvaerner)

“It is not possible to develop an effective safety culture without workforce participation.” (Shell)

3.3.2 Employees’ Reactions

The perceived improvement in workforce safety attitudes and commitment of the firm is evidenced by the feedback from members of the workforce interviewed by the researchers, as summarised below. It is pertinent to note that the workforce share management view of the benefits of their involvement. Employees consistently cite positive benefits of involvement in health and safety for both themselves and the company. Even where employees had always believed they were concerned for their own safety, increased involvement prompted them to extend this concern to others.

Greater concern for safety of self and others, more proactive approach to their own and others’ safety

“Previously everyone saw it (health and safety) as the company’s responsibility but a big effort has been made to let people know it’s everyone’s responsibility.” (Pentagon Laboratory Technician)

“Now if I was unsure of something I would be much more likely to speak up.” (Pentagon)

“I would give advice to my mates if they asked a question or if I saw them doing something wrong.” (Pentagon)

Greater faith in company’s commitment to health and safety

“The managers’ commitment to health and safety is now more visible.” (Pentagon operator)

“The management here are good at listening and they provide information, help and money to solve issues.” (Tioxide operator)

“It is good to be involved and safety is here to stay.” (Tioxide process operator)

Improved awareness of health and safety

“Since the company has put more emphasis on health and safety I started to work more safely and have done this at home, for example, always looking at labels when buying paint cleaners.”

“Everyone acts as their own personal safety officer.” (Simon Storage)

“I now do SUSA (safe unsafe act) type audits all the time in my head. The risk assessment approach helps with the planning of jobs.” (Tioxide operator)

More efficient operations

“If operators are involved in developing procedures and systems of work, then they can make the job quicker and easier, and will have more time for other things.” (Pentagon)

“It is easier to work with systems that you have helped to develop.” (Simon Storage operator)
Greater concern for the job and commitment to the company

"When you are involved in something it makes you feel more like part of the team." (Pentagon)

Job security

"If the factory doesn't run then jobs will be lost, so it's up to everyone to make the company successful." (Tioxide operator)

Better safety

"Standards have improved considerably."

"A manager is just one person, whereas the workforce is 50-60 with good ideas." (Tioxide operator)

"Management in the offices do walk around but the workforce are there all the time and so have the best access to information." (Tioxide operator)

3.4 DEVELOPING ARRANGEMENTS

Key aspects of planning and devising arrangements as illustrated in Figure 1 include:

- Benchmarking against other firms and/or sites - usually identifying "best practice" sites and comparing arrangements and performance standards.

- Piloting - "The pilot in the styrocel plant commenced in January 1997. The effectiveness was checked and fed back to the Central Management Group, which decided to roll out the programme from 1998. It took six months to complete all the courses." (Montell)

- Consultation with the workforce through one or more methods, such as committees, safety days, conferences or project teams. This consultation covers identifying issues and agreeing on the general way forward, i.e. whether or not employee involvement is required.

- Support from specialists, either internal or external health and safety and/or behavioural specialists.

- Examination of customer expectations.

- Management needs, such as the requirement to downsize.
Developing Arrangements

As part of this there may be training exercises to inform management and staff on the types of issues and methods concerned. Some organisations also apply one or another business planning process to the question of what is required, such as the Investors in People approach or the Business Excellence Model.

The design of arrangements is typically an iterative process of investigation, consultation, some piloting, review and further consultation. The involvement of employees is considered essential if their ownership and acceptance (and hence positive participation) of the subsequent arrangement is to be secured. Even where the decision to seek greater involvement of the workforce is initially taken solely by management or a specialist health and safety function, this decision is usually then subject to consultation and refinement.

Some examples of how organisations develop their arrangements are given below:

**DuPont**
DuPont bought the Nylon business at Wilton in 1993. Since then they have introduced the DuPont safety culture there and have developed many programmes which have come to be regarded as best practice within the company. Representatives from all areas and levels in the organisation visit Wilton to learn more about these programmes.

**Hoyer**
The decision to increase workforce participation was taken by Hoyer corporate due to increased customer demands. However, Hoyer has been using workforce involvement for many years. Therefore, when clients outsource haulage activities to Hoyer, which often includes some of the client’s personnel, Hoyer will introduce many of its own systems onto this site. Accordingly, the “development” process on new sites is usually “management driven”, including:

- Setting up a suitable organisational structure on the new site;
- Conducting team briefs;
• Putting a Hoyer contract manager in place on the client’s site to develop Hoyer systems. The team sets up the systems over a 6 month to one-year period and then pulls away to leave the new management and drivers to run the business.

The general principle is the same for all Hoyer sites, but it may be different in practice. The Hoyer implementation team will listen to site personnel and there may be some consultation on how best to achieve these aims locally.

More generally, Hoyer reviews practices on Hoyer sites and at customer sites as well as learning about practices through membership of the Road Transport Association and the British Safety Council monthly profiles.

**Kvaerner**

The general principle is to ensure Kvaerner’s participation arrangements are in line with the policy requirements of both the contract company and the customer. Other considerations include the requirements of the client’s safety case and safe working procedures. In this way, Kvaerner has integrated with systems developed by its client. This decision was taken by Kvaerner management.

Whilst Kvaerner “simply” integrated with its client’s system, the Tioxide site is visited by other Kvaerner organisations as an example of best practice.

**Shell**

Shell carries out benchmarking for health and safety on several levels:

• Internally within the Shell group;

• With other oil companies;

• Via CONCAWE – the oil companies’ European organisation for environmental and health protection;

• Other industry sectors which it considers has better safety performance, including DuPont.

The characteristics of companies with better safety performance are identified and a gap analysis is carried out to work towards implementing these improvements. Workforce involvement would come within this general scheme.

**Simon Storage**

The initial ideas on workforce involvement were developed by the site safety officer and the terminal manager on the basis of:

• An evaluation of another Simon Storage site that had a similar scheme running, and;

• The knowledge of the safety officer who had previously been employed by another organisation which operated with high levels of workforce involvement.

Ideas for site improvements and how the workforce could be involved were discussed with the workforce during training sessions and meetings, where they made suggestions.

**Sun Chemicals**

The arrangements for workforce involvement were developed by the operations director and the HSE manager, with input from the health and safety committee. The HSE Manager developed
arrangements with ideas from presentations, IOSH and associations such as the British Coatings Federation.

**Tioxide**

Whilst the decision to increase workforce involvement was taken by senior management, the arrangements were developed through the safety committees, including the site committee, engineering committee and resident contractors committee. There was a big two-way communication exercise to listen to concerns and elicit workforce ideas. In addition, the site had previously operated TQM style Quality Circles which were considered effective. DNV provided training on the ISRS system. Also, there some benchmarking and networking with other ICI companies, with good aspects borrowed from other sites.

### 3.6 IMPLEMENTING ARRANGEMENTS

#### 3.5.1 Overview

There are three key aspects to the implementation of employee involvement arrangements that tend to be carried out simultaneously, as shown in Figure 2. Firstly, there is a series of preparatory and/or supporting actions. These are required to “enable” management and workers to take on board further workforce involvement in health and safety. Secondly, a communication process is undertaken to elicit and address the concerns of staff as well as to disseminate the changes across the organisation. Thirdly, ongoing support is given to workers and management alike to help facilitate the introduction of new arrangements.

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<thead>
<tr>
<th>Enablers</th>
<th>Support</th>
<th>Convincing &amp; iterating</th>
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<tr>
<td>Re-aligning organisational structure, management arrangements and management style</td>
<td>Communicating &amp; consulting</td>
<td>Demonstrating success &amp; learning lessons</td>
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<tr>
<td>Upgrading line management and workforce competence in health and safety and team work</td>
<td>Supporting &amp; aiding</td>
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**Figure 2**

Implementing arrangements

However, an integral part of the implementation process comprises the demonstration of benefits. This is a necessary part of securing faith in the process. Accordingly, the initial phase
of workforce involvement often focuses on issues that can be resolved in the near-term, thereby reinforcing commitment.

3.5.2 Preparatory Actions.
Many firms re-align the organisation’s structures and management arrangements to better support and facilitate employee involvement. In terms of HS (G) 65 this entails re-aligning the Control, Co-operation and Communications arrangements. This typically entails:

- redefining the roles of specialist health and safety staff, to place more emphasis on their support role and less emphasis on their day to day enforcement or implementation roles;
- redefining roles of staff and line management to reflect greater role in health and safety;
- delayering, especially of supervisory roles and introduction of team leadership roles;
- creating points of contact: For example, Pentagon developed the role of the shift manager as the key link between management and the workforce;
- replacing supervisors and managers who cannot or will not accept new styles of management – workforce co-operation.
- Changing the role of health and safety committees. Three types of changes are pursued. Firstly the remit of the committee is changed so as to reduce involvement in day-to-day issues – these are passed to local teams. Secondly, the climate of the committees changes from a confrontational one to a more co-operative one focusing on more strategic issues. Thirdly, redefining the role of central committees to focus on more strategic issues, with more routine problem solving issues delegated to local teams and/or committees.

Some examples are quoted below:

"The organisational structure changed to become less hierarchical. DuPont is moving away from a supervisory approach to managing safety, and towards high performance work systems..." (DuPont)

"The shift system was altered (at Montell) to accommodate time out for training with two weeks on days, followed by 7/8 weeks around the shifts."

"At Simon Storage, the agenda for the health and safety committee was changed to cover more strategic issues, such as trends in accidents and near misses. The committee used to be a forum for listing faults, of which many were trivial, such as running out of protective gloves."

3.5.3 Upgrading Employees’ And Management Skills
In terms of HS (G) 65 this means ensuring staff competencies are aligned with their roles. This typically entails:

- Giving employees and management the health and safety skills they need to take on a greater role, such as training in health and safety, COSHH, risk assessment etc.
- Development of team working and problem solving skills. This may include development of the concept of internal customers. The aim here is to give management and employees the skills they need to participate effectively in group-based problem solving and decision making exercises.
Examples include:

- **Operators attending a week long recruitment exercise where they participate every evening in team building exercise and leadership development;**

- A two day course on problem solving techniques for Continuous Improvement Team personnel;

- Some technicians were out of line for six months for training and education at Montell;

- At one site shift managers and other managers attended a two day DuPont H&S management course, supervisors attended a two day British Safety Council Supervisors course. Everyone attended two courses on team building, internal customers and problem solving techniques, and general health and safety courses were run on risk assessment, manual handling etc.

- **A skills mapping exercise was carried out to identify shortfalls.**

- At Ciba everyone on site was taken through the one day IOSH course “Working Safely on Site” and 60 site managers were also taken through the 4 day IOSH safety programme. Also, mandatory (two day) safety days were introduced, during which plant is shutdown, for safety awareness training covering issues such as PPE, noise, bio monitoring, manual handling, hazard spotting etc.

### 3.5.4 Communicating Changes

This communication process needs to be designed to:

- elicit and resolve any fears and concerns held by management and employees;

- overcome any reluctance on the part of general management to commit time and resources of themselves and employees to the initiative.

Accordingly, communication is a two-way dialogue that recognises validity of concerns and the need to address these.

The possibility of concerns is illustrated below:

> "Yes there were fears .... The workforce could not accept colleagues grassing on them. The unions were particularly against this activity and saw the HSE team as the police ......This fear was overcome by training and the fact that it was seen to work...” (Ciba)

This example also demonstrates the value of allowing for changes in initial proposals. In this case, the process was changed such that observers (workers) could report back to HSE meetings rather than correct colleagues at the time of observing unsafe behaviours.

Concerns may also be of a more practical nature. For example, at Sun Chemicals concerns were raised at all levels about lack of staff confidence to deal with the formal aspects of health and safety management, such as risk assessments. This was addressed through additional training.

An integral part of the communication process entails highlighting the “demonstrable” benefits.

> "Initially the unionised part of the workforce thought there was an ulterior motive behind the workforce involvement, and first line managers have been sceptical, but all members of the workforce have welcomed it. Any concerns have been removed through the evidence of management commitment to the empowerment process and the tangible benefits to all.” (Tioxide).
This latter example also highlights the point that the communication process is ongoing. As "judgement" may be "suspended" until new arrangements have been implemented, it is important to maintain a two-way dialogue.

As increased workforce involvement is often part of a wider or ongoing initiative, it is common to use existing "standard" forms of communication. Special one-off communication exercises are run where there are bigger one-off changes.

Accordingly, common forms of communication include:

a) Newsletters
b) Team/department briefings
c) Conferences
d) Safety days
e) One to one briefings
f) Briefings via central and local committees
g) Briefings via safety representatives.

In each case the aim is to "cascade" information on proposed or forthcoming arrangements throughout the pertinent part of the organisation, solicit concerns and resolve these.

For example, at Pentagon the arrangements were communicated to department heads at a management meeting and during training courses. The first teambuilding course was run for managers only such that these issues could be discussed in detail. Further joint management-operator courses were run thereafter. In addition, the workforce was given a handout which discussed what Investors in People (IIP) was and why the company was trying to implement it.

At Simon Storage, as this is a small company, arrangements were communicated mainly through face to face contacts, along with a bulletin. Similarly, Sun Chemicals communicated changes at team briefings from the operations director.

### 3.5.5 Specialist Support

It is common for organisations to seek specialist support during the implementation process on the following types of issues:

- development of management and staff competence in health and safety;
- development of team working skills;
- development of tools and aids for use by management and employees, such as risk assessment proformas.

### 3.5.6 Timescales

Whilst workforce involvement is a continuous process, initial changes are completed within a discrete time. For example;

- Pentagon took six months to introduce the arrangements for increasing workforce involvement, including getting people trained and restructuring the health and safety system.
• Sun Chemicals has taken five years to date.

It is common to implement major changes within about two years.

3.6 MAIN FORMS OF WORKFORCE INVOLVEMENT

The forms of workforce involvement vary from one company to the next in both their scope and method. However, they tend to have a common set of goals, namely:

• to improve workforce concern for their own safety and the safety of others;
• to raise the level of workforce competence in health and safety and general awareness/knowledge of hazards;
• to secure their ownership and acceptance of safety arrangements;
• to secure their proactive involvement in spotting problems and resolving them;
• to create a climate in which individuals feel ready and willing to advise colleagues and/or forewarn/intervene if they are acting unsafely;
• to secure workforce input into decisions, thereby improving quality of safety arrangements;
• to improve communications between management and workforce such that management are trusted and employees are ready and willing to report problems and offer suggestions.

The types of arrangements introduced to achieve these aims include:

• involvement of employees in risk assessment, either as part of joint workforce/management teams or as employee-only teams;
• creating local teams to identify and resolve health and safety problems (analogous to 'quality circles');
• formal involvement of employees in developing procedures, training packages, designing equipment, producing safety reports etc as part of employee – management (or engineering teams);
• introduction of self-assessment against a profile of safe and unsafe acts.
• participation in safety tours and local safety audits;
• safety days, conferences and briefings;
• participation in accident investigation.

These are described in more detail in section 4 of this report.

As summarised in Table 1 the workforce are commonly involved in most areas of health and safety. The areas of least involvement comprise production of COMAH/CIMAH safety reports and development of safety management systems. The workforce are most commonly involved in identifying health and safety problems within their workplace, whether they are equipment or behaviour related problems, and helping to resolve these.

The types of issues covered by workforce involvement include:

• safety of colleagues’ behaviours;
• process safety, HAZOPS etc;
• safety of chemical transport operations;
• standards of safety achieved by contractors;
• PPE design;
• Plant & process design;
• Chemical safety issues, e.g. exothermic reactions;
• Process operation, e.g. reactor operations;
• COSHH;
• Chemical tanker loading/off loading operations;
• Operations and maintenance procedures;
• Emissions control e.g., VOC emissions;
• Materials handling arrangements, e.g. handling of solid chemicals.

Thus, the workforce can be involved in the full spectrum of hazards, ranging from “daily” occupational health and safety hazards to major accident hazards.

As illustrated in Figure 3, the extent of involvement can vary from identifying issues and offering suggestions through the development of solutions, such as new designs and procedures, to implementation such as disseminating new safety standards to colleagues and advising colleagues on what constitutes “safe” behaviour. Generally, the more extensive or unsupervised forms of involvement are possible where the cost of changes do not require approval of senior management and/or require validation by health and safety or engineering specialists. Within these limits though, the more extensive forms of involvement are generally regarded to solicit the best reaction from the workforce. However, this tends to require a higher level of competence on their part, and hence higher levels of health and safety training.

<table>
<thead>
<tr>
<th>Identifying issues</th>
<th>Offering suggestions</th>
<th>Devising solutions</th>
<th>Implementing solutions</th>
<th>Reviewing policy &amp; performance</th>
</tr>
</thead>
</table>

**Figure 3**

Extent of workforce involvement
<table>
<thead>
<tr>
<th>Area of involvement</th>
<th>Number of companies reporting workforce involvement (out of 10)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producing COMAH/CIMAH reports</td>
<td>2 out of 7 (not applicable to 3 sites)</td>
<td>Workforce participate in hazard spotting, process hazard analysis and data collection.</td>
</tr>
<tr>
<td>Identify &amp; resolving H&amp;S problems</td>
<td>10</td>
<td>Ranges from formal committees through improvement teams to unsafe act observation schemes to unsafe condition reporting schemes to “part of normal work activities”.</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>8 (planned in one other)</td>
<td>Ranges from “mental risk assessment” by operators as part of routine working, through joint operator/chemist COSHH teams to workplace risk assessment and permit to work (PTW) risk assessments.</td>
</tr>
<tr>
<td>Developing accident investigation</td>
<td>7</td>
<td>Workforce sometimes confined to minor incidents. Otherwise can form part of investigation team.</td>
</tr>
<tr>
<td>Developing safety rules and procedures</td>
<td>9</td>
<td>Ranges from a committee review role, workforce consultation to involvement in writing operating procedures. Workforce often able to comment on any procedure. Amendments usually approved by manager/engineer.</td>
</tr>
<tr>
<td>H&amp;S site tours</td>
<td>4</td>
<td>Usually joint manager-workforce tours.</td>
</tr>
<tr>
<td>Developing safety management systems</td>
<td>2</td>
<td>Usually developed by managers/HSE specialists. Involvement an offshoot of general suggestion scheme.</td>
</tr>
<tr>
<td>H&amp;S audit</td>
<td>8</td>
<td>Usually manager driven accompanied by operator. Also, employee driven safe/unsafe act “auditing”.</td>
</tr>
<tr>
<td>Hazard spotting</td>
<td>10</td>
<td>Often seen as part of normal work activities or part of a more general reporting system or team based assessment exercise.</td>
</tr>
<tr>
<td>Equipment design</td>
<td>7</td>
<td>Ranges from a review role to active participation in developing designs.</td>
</tr>
<tr>
<td>Purchasing e.g. PPE</td>
<td>7</td>
<td>May be limited to suggestions for new kit arising from unsafe act observations, suggestion schemes or improvement teams. Sometimes formal trials. Usually limited to PPE and equipment used by workforce.</td>
</tr>
<tr>
<td>Other</td>
<td>Performance review and policy</td>
<td>HSE committees help review site performance and identify new safety goals.</td>
</tr>
</tbody>
</table>

### 3.7 ONGOING REVIEW AND IMPROVEMENT

The importance of an ongoing commitment on the part of management is evidenced by workforce feedback. Their belief in management commitment is based on the consistency of management support over many years—judgements of management commitment are suspended until there is evidence of a sustained management effort. As one firm (DuPont) stated:
"It is considered that there is a drastic improvement within the safety culture within two years but that it takes 10 years of sustained effort to get the complete improvements."

To sustain employee faith it is necessary to maintain a reasonably fast response to employees' suggestions for health and safety improvements and supporting continued improvement of employee health and safety skills. Also, as time passes employee involvement may need to be widened, as they become more aware of issues and tasks upon which they believe they may make a useful contribution. This highlights the importance of having an effective process of monitoring and reviewing the perceived 'quality' of workforce involvement, and a process for further developing these arrangements. The review methods accordingly serve a number of purposes, as illustrated in Figure 4, including:

- Soliciting qualitative feedback on workforce attitudes and perceptions, such as their faith in management commitment, is the initiative perceived to be a success? etc.;
- Soliciting suggestions for improving the process of workforce involvement;
- Providing statistical "proof" of performance;
- Comparing performance against others.

Statistical information on, for example, accident rates performs the role of informing (mainly) managers on the success of the programme and motivates them to progress it.

It is also important to note that many firms use an external point of reference when reviewing the adequacy of arrangements - thereby ensuring their own arrangements remain "competitive".

<table>
<thead>
<tr>
<th>Points of Review</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soliciting feedback on arrangements</td>
<td>Refining current forms of involvement</td>
</tr>
<tr>
<td>Soliciting suggestions for improvement</td>
<td>Expanding scope of involvement</td>
</tr>
<tr>
<td>Getting statistical &quot;proof&quot; of success</td>
<td>Maintaining management and workforce commitment</td>
</tr>
<tr>
<td>Continuous external benchmarking</td>
<td>Keeping up with best practice</td>
</tr>
</tbody>
</table>

**Figure 4**

Ongoing review and improvement
The means of review are often integrated into the wider general health and safety management audit and review process. However, the issue of workforce involvement is specifically and explicitly addressed within this process. In addition, the forums set up as part of workforce involvement are often also used as a route for feedback on workforce perceptions and suggestions.

The methods and channels for reviewing arrangements are summarised below:

"Standard" health and safety management review methods
These include:

- Health and safety audits and tours. These audits can take the form of local unit audits by first line management, site-wide audits by health and safety managers and cross-site audits. Often line management and supervisors are involved partly to provide an "operational" input into the audits and partly to develop their own knowledge.

- Meetings and committees. This entails prompting discussion of workforce involvement and requesting feedback during "routine" meetings and committees. These include team briefings, departmental meetings, health and safety committee meetings etc. The type of feedback is usually informal and qualitative, such as expressed enthusiasm for health and safety.

- Appraisal and training needs analysis. The ability of managers and employees to participate in health and safety and their further development needs are identified as appropriate.

- Incident and accident statistics. “Conventional” statistics such as lost time injury rates are used to track safety performance before, during and after the improvement of arrangements. Where possible, statistics on particular types of incidents and injuries that have been directly addressed by employee driven changes are monitored. For example, “cut” injuries are recorded to monitor success of their “hand safety (knife)” initiative.

**Benchmarking**
This takes the form of comparing arrangements, attitudes and statistics;

- Between sites operated by one company;
- Between sites operated in different countries by one company;
- Benchmarking via the Chemical Industry Association;
- Between companies owned by a single parent organisation.

**Surveys and interviews**
One or more “formal” methods are used to gain feedback, including:

- Confidential attitude surveys asking after employee perceptions, such as “management respond promptly to our concerns”.

- One to one interviews.

A number of organisations operated interview schemes as part of a wider Investor In People Scheme, focussing specifically on health and safety.
To ensure that the review process is being managed appropriately, it is common to task the site health and safety committee with periodically considering whether the initiative is progressing as intended. This tends to involve management and employee representatives collating and considering information received from the aforementioned routes or directly from their own observations and contact with the workforce.

3.8 LESSONS LEARNT

The responses given by surveyed firms are noted below:

The key lessons learnt are:

- Pilot in one area to iron out bugs;
- Do not underestimate the effort or length of time required;
- Ensure management commitment is sustained;
- Maintain a high level of two way communication;
- Avoid any hidden agenda - openness is vital;
- Integrate workforce involvement into the normal way of doing business;
- Start small, score success and publicise it.

A summary is given below of the advice surveyed firms have for anyone else who may be contemplating introducing workforce involvement.

Ciba

Communicate properly.

Don't just put the work onto the people - get them involved and support them.

Anything key must be documented so the workforce can be uniformly trained and the process and requirements of the programme well understood and maintained.

Pilot in one area to iron out any bugs/learn from mistakes, then launch gradually by department, so that commitment builds and mistakes are less drastic than if the programme is done all at once across a site.

Throughout the process let the people see the results and the management commitment. The workforce must see changes being made in response to suggestions.

DuPont

Don't underestimate the amount of effort involved to develop successful workforce participation. The work is never finished. Workforce involvement is critical, but it won't happen without management commitment and support.

Hoyer

Workforce participation brings an improvement in safety performance and so should be carried out at all sites. It needs strong management commitment. Companies should not expect improved results overnight as this is a continual process that will never be fully finished.
Kvaerner
The initial communication on the company's objectives for workforce participation needs to be very clear. It is important that both the client and the contractor organisations understand that the arrangements are to improve co-operation between the two companies, and it is not about contractors taking over jobs from the client workforce with the resulting fears around job insecurity.

Montell
Needs total commitment from the start. Extensive planning and consultation are required to enable staff training programmes, shift realignment, etc. with workforce at the ground level.

Problems to avoid -
- Don't let the hit list of projects grow
- Don't let it stagnate - keep the scheme moving all the time and continually support it
- Don't dither - keep a consistent approach
- Lack of management response - management must respond to problems which arise and give feedback as to why they don't execute against all ideas. Prioritise and apply common sense to any activity
- Avoid alienation - get consensus to prevent gripes. Use groups embracing all functions to do risk assessments and implement changes - involve 'suggestors' as well as implementers and meet people at least halfway.

Pentagon
One of the biggest problems with introducing workforce involvement is the level of cynicism which it is necessary to overcome. This can only be achieved through being open with people. The company must not have a hidden agenda and should not hide problems from the workforce as they will see through this and it will discredit what you are trying to achieve.

Shell
Workforce participation should be part of the normal way of doing business. Developing further involvement of employees will not work unless the company considers it to be normal behaviour and of equal importance to productivity and cost. The involvement should be for all aspects of business and not just health and safety.

Simon Storage
To encourage workforce participation it is vital to be a good listener, and act on what people tell you.

Sun Chemicals
To successfully introduce workforce participation, sites should start with small issues and small numbers of people rather than saying "you all will...". The issues and site should be carefully selected and the ideas should be piloted. The project should be given the maximum support. If it is a success you have a flag to wave and can build other projects onto this. If the project is a failure then it will give an indication of the resources required to make a success for when you try again. Companies have to be patient as it takes a long time to improve the culture of an organisation. The company should monitor key indicators such that they can demonstrate
successes. Unfortunately, with H&S, the successes are not as obvious and instantaneous as in other areas, such as winning a new sales order.

_Tioxide_
Strong management commitment is essential. It will cost money.

3.9 WHAT NEXT?
Given the success of their experiences to date, all ten of the surveyed firms intend to either extend current arrangements to other sites and/or further improve existing arrangements as described below.

_Ciba_
Now with the Paisley site they are together working on looking at the best and worst performances to get the benefit of experience.

_DuPont_
DuPont intends to develop the system which it has in place towards the goal of zero accidents.

_Hoyer_
One of Hoyer’s client sites in Essex is one of the better sites within the Hoyer group for levels of workforce participation and it is hoped to bring other sites up to this standard.

_Kvaerner_
It is intended to take the close contractor/client partnership relationship as a best practical model onto other sites where Kvaerner work including BASF and ICI acrylics. This will include workforce participation to the extent requested by the client organisation.

_Montell_
There is a Way Ahead strategy aimed at continuous improvement for the whole organisation, leadership improvement and other specific issues such as emergency management training for management and some technicians.

_Pentagon_
Plans for the future include:

- Conduct a workforce survey;
- Introduction of the Business Excellence Model;
- Undertake a ‘Policy Deployment’ approach to setting and implementing the business plan. In this the targets for the company are broken down into departmental targets and then into individual targets for everyone in the company. Everyone will be able to input into how achievable their targets are, and how they can best be met. This information is then fed back up through the hierarchy and into the overall business plan. Everyone from senior management to operator level is involved in setting and reviewing objectives. An example in respect of health and safety is the need to improve levels of housekeeping in order to reduce the level of risk.
Shell
Shell intend to roll out their Procedures and Competence Development Methodology across other departments on the site.

Simon Storage
In the future we intend to use the workforce in carrying out risk assessments of the workplace.

A second objective is that all operational staff should be trained to NVQ level.

Sun Chemicals
Sun Chemicals aims to reproduce the success it has had in promoting workforce involvement on the Watford site on its other sites.

Tioxide
Tioxide are trying to develop a safety culture such that the proactive approach developed through the CIT teams moves out of the classroom and onto the plant as part of day-to-day activities. To develop this the structure of the CIT teams is changing from big (7 people) multifunctional teams to small (4 people) multifunctional teams and then to small teams of people from the same area.
4. EXAMPLES OF BEST PRACTICE

4.1 INTRODUCTION

The examples have been chosen to demonstrate the range of health and safety issues that employees have been involved with and the different ways in which employees are involved. Emphasis has been awarded to examples of employee involvement in issues that are unique to or of particular relevance to the chemical industry, as opposed to examples of hazards common to wider industry. We have also highlighted examples involving contractors and transport operations to illustrate how employees within these groups can be involved in health and safety.

In each case we have outlined:

- what prompted employee involvement in this area;
- what were the problems addressed by employees;
- how were employees involved in resolving them;
- what were the benefits.

Information provided by both local management and employees is given, including feedback from employees on their view of the success of their involvement.

4.2 CONTINUOUS IMPROVEMENT TEAMS

Background

Tioxide introduced CITs as part of its initiative to increase workforce competency, empowerment and ownership of safety. After completing a benchmarking exercise on other sites, CITs were set up, drawing on experience at other ICI sites. CITs are multifunctional teams made up of technicians, supervisors, resident contractors, and possibly managers,- currently seven persons per team. A CIT project champion (a manager) "watches over" CITs, keeping a schedule of a CITs' progress, benefits and issues. Each team focuses on a specific issue, holding regular meetings and feeding back to managers.

Team members are paid overtime to overcome any potential production schedule conflicts. CIT proposals are subject to manager approval, in line with management responsibility for plant safety. Each team has a leader who maintains a CIT portfolio, such as progress reports, news letters and designs etc. All CIT team personnel had 2-day training covering information on the role of CITs and problem solving techniques such as brainstorming. To date 232 out of 300 employees and 16 contractors have taken part in a CIT team.

Many of the issues addressed by CITs came out of workshops held as part of a Total Operation Performance programme. This itself comprises management—workforce workshops tasked with eliciting employee ideas on how to improve efficiency. The proposed CIT arrangements were cascaded via manager, line managers and team leaders, as well as via newsletters.

The teams had good demonstrable results and proved the concept worked and secured acceptance of the process.

A CIT example— the problem

There was a high failure rate on a Tioxide designed pump due to a design fault. This had led to a loss of containment and the frequent need for intrusive maintenance—increasing the risk of accidents.
What did the workforce do?

Three teams evaluated the problem:

- Operations team – reviewed the procedures for the isolation, overhaul, start up and installation of the pump. This group included shift maintenance, plant operators and people from the workshops in a cross-functional team.

- Technical team – comprising core skilled craft people, a machine engineer and representatives from the seal manufacturer Bergman. They redesigned the shaft and the seal to engineer out problems.

- Reliability group – comprising reliability engineers, looked at the maintenance requirements including identification of all the parts and tolerances.

The teams reviewed all failures and identified the root cause.

The teams worked on this full time for six weeks and then once a week for six weeks and now meet every two months.

Also a CIT newsletter (as shown below) outlined progress and initiated suggestions from the rest of the workforce. The ‘O’ rings and the bellow seals were the wrong specification. Also, the pumps were not secured to the plinth and hence held only by the electrics, and the suction lines were affected by vibration. They found basic problems with the pump design and poor inspection routines (the pumps were being run to destruction).

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**MK VI BROTHERS**

**NEWSLETTER**

**ISSUE NO 2**

**HELLO!**

**25 FEBRUARY 99**

**WHAT’S BEEN HAPPENING?**

- SINCE OUR LAST NEWS LETTER THE TEAM HAS: WRITTEN THE TEST RUN AND CHECKLIST PROCEDURE FOR THE WORKSHOPS AND THE START UP PROCEDURES FOR THE PLANT.

- WE HAVE LOOKED AT USING SECURING CLAMPS FOR THE NITROGEN BOTTLES ON ALL PUMPS OPERATING WITHIN BUNDED AREAS.

- WE WILL BE WORKING WITH ALAN (BERTIE) BASSETT TO DESIGN SOME EXPANDED DIAGRAM POSTERS, TO BE PUT UP IN THE WORK SHOP & ON PLANT.

- SOME POINT TIME LIFTING BEAMS FOR THE 14 & 21 PUMPS ARE STILL BEING LOOKED INTO AS SOME PUMPS MAY NEED TO BE MOVED

---

**ARE THE PIECES FINALLY COMING TOGETHER?**

**ANY IDEAS? THEN CONTACT ANY MEMBER OF THE TEAM, EXCEPT FOR SLACKY**

---

**LIFTING BEAMS**

**PUMPS**

**POSTERS FOR MK IX PUMP**

**N2 BOTTLE SECURING**

---

**THE BACK JACKING BOLTS ON THE 14 PUMPS WILL BE REMOVED IN THE NEAR FUTURE, MAKING THE SITTING OF THESE PUMPS MUCH EASIER.**
What role did management, supervisors and/or safety staff play in this?
Managers ensured that the project happened and supervisors assisted in implementation. CITs provided progress reports as well as providing some management of the project as part of this.

What changes were made as a result of this?
The pump was redesigned and procedures improved – costing about £1M and one man-year of technical resource.

What were the benefits?
Procedures for pump isolation and maintenance have been improved and a difficult safety problem has been resolved – there is less intrusive maintenance and hence a lower risk of accidents. Financial savings will recoup project costs within a few years.

Employees’ view
Employees involved in the pump CIT remarked:

“The amount of discussions between teams is very good, and there is a lot of communication with everyone in the company. A CIT will circulate a copy of their suggestions to get input from the maximum number of people in case anything is missed.... They are good. The workforce should get involved with how things are done as they can often see the problems and faults.”

In respect of the pumps it was noted that:

“If you do maintenance work on the plant then there is a risk, hence if you don’t have to do the job then the risk has diminished, so it is safer now.”

Progress with CITs
Tioxide is aiming to build on the success of CITs by introducing smaller teams of about 4 persons more widely across the site – thereby making CITs an integral part of normal operations.

4.3 EMPLOYEE INVOLVEMENT IN PROCESS HAZARD ANALYSIS

Background
The structure for continual improvement within DuPont is known as Process Safety and Risk Management (PSRM). PSRM is made up of 15 different elements as illustrated in figure 5.
Figure 5
The Process Safety and Risk Management System (‘The PSRM Wheel’)

Reproduced by kind permission of DuPont (UK) Limited
Process Hazard Analysis (PHA) is one such initiative. The employees are involved in conducting Process Hazard Analysis (PHA) across the plant. A team of operators is selected comprising experience of the plant and the PHA process. The superintendent of the area produces a charter as formal communication that describes the objectives and scope of the PHA for the team.

The charter is structured under the following headings:

- Purpose of the PHA
- Desired outcomes
- Clients (individuals or groups who will receive the outcomes)
- Stakeholders (individuals or groups whose input is needed or if affected by the process)
- Decision making
- Roles and responsibilities of the PHA team
- Key issues / pitfalls (e.g. experience of team, conflicts of interest)

A PHA leader is appointed and he/she follows the charter and carries out the PHA accordingly, issuing a number of outcomes to the superintendent for acceptance.

These processes are communicated through the committee structure and at the weekly team briefing at which safety is the first agenda item.

**An example of employee involvement in PHA**

*What did the workforce do?*
A facility was reviewed by a team comprising a process engineer, an instrumentation technician, a process operator, a training supervisor, a production specialist and a technical safety specialist, four of which are plant operators. The team undertook a field tour and discussed these at the PHA meeting.

*What role did management, supervisors and/or safety staff play in this?*
Management identified the operators to be involved in the PHA and reviewed the outcome.

*What changes were made as a result of this?*
Six recommendations were made for the area's significant risks. In addition 31 improvement opportunities were recommended. For example, one recommendation was to put the sprinkler system for fire protection on routine test.

*What were the benefits?*
The superintendent allocated someone to conduct the routine test of the sprinkler system. At the first test two burst water pipes were found and fixed.

*Employers' view*
Managers involved in the process remarked:

"Workplace involvement in PHA enables people that run and maintain the plant to learn more about the plant at the early stages and contribute to its design and operability"

"A lot of 'what if' questions are asked during the process and these tend to generate more discussion than a formal HAZOP, which would be the dominating method if lead by a technical department"
Employees’ view
Employees involved in the process remarked:

“It is very interesting to be involved in the design stages of the process. It helps the operators to understand about how the plant works and this leads to better operation of the plant. This can increase the plant efficiencies and the quality and consistency of the product, and lead to better decisions in abnormal or emergency situations.”

Progress
It is intended that the findings be put onto an audit database to allow analysis of trends.

4.4 DEVELOPMENT OF TRAINING PACKAGES

“The training material is developed by us, for us”

Background
New projects often result in new training needs. The workforce are involved at DuPont in developing training courses, using their knowledge of the plant, including environmental requirements and standard operating procedures. They have responsibility for updating these.

Operators have developed a series of training packages in conjunction with training consultants, who provide advice on the most appropriate format for the training to make it interesting and understandable. Initially the training needs at Wilton Nylon were being driven by the large number of new projects, but now a fully integrated plan for all the sites’ training is being developed.

The workforce do the necessary research, write the manuals, conduct a technical review and provide training for operators. Resources such as graphic designers are available to assist.

It is necessary to develop a creative and fun environment which is mutually supportive, an environment where there is no liability and risk of failure, but only opportunity. The aim is to use informal communication methods. Consequently, to encourage employees to take an interest in developing training packages the company set up workshops in which they provided refreshments.

A number of training packages have been developed and have proved very successful.

Examples of packages that have been developed are a DCS training package and Process Safety Risk Management Training package.

DCS training package

What did the workforce do?
Twenty Five operators were involved in developing Distribution Control Systems training which shows how to operate the computer system that controls the plant. In conjunction with the graphic designers, they designed the screens and provided input on what trips and alarms were required.

What role did management, supervisors and / or safety staff play in this?
Support was provided regarding graphic designers and training consultants to assist the operators.

What changes were made as a result of this?
It was identified that a simulator was required and this was developed for training purposes.
What were the benefits?
A new training package was developed as well as two operational guides and consequently people have a good understanding of how the process operates.

Process Safety and Risk Management Training (PSRM)

What did the workforce do?
Despite Process Safety Risk Management being part of the company philosophy, it was not easily accessible or not understood. An operator who had been working in the company for ten years brought together the fundamental ideas and turned this into an interactive computer based training (CBT) package.

What role did management, supervisors and/or safety staff play in this?
Managers made sure that sufficient support was available for development of the course.

What changes were made as a result of this?
Initially it was anticipated that about 175 people would take the course, but there has been a big campaign to promote CBT and all personnel (525) and many contractors have completed it.

What were the benefits?
Everyone, including senior management and visitors to the site have completed the training and this has reinforced the company philosophy. In addition, using CBT has enabled those employees who do not regularly use computers to develop new skills.

Employer’s view
A manager remarked that:

“The people who work on the plant are the ones who have expertise in how it functions in normal and abnormal conditions. We wish to capitalise on this.”

Employees’ view
Employees involved in developing training remarked that:

“The workforce are more knowledgeable about how the plant runs and it is important to make use of this expertise when making changes to the plant and designing training courses. This ensures that procedures and training reflect what happens in practice rather than what managers think takes place.”

Progress
It is planned to put the manuals on the intranet once the personnel become more confident with the use of computers. In addition specific courses will be rolled out across all sites.

4.5 RISK ASSESSMENT

Background
The employee involvement initiative at Kvaerner was customer driven as it is a requirement of their client’s contracting process. The client understands that it has responsibilities for the health and safety of its contractors and therefore imposes standards of practice that the contractors must meet. If health and safety performance is poor the client enforces penalties on the contracting company. Through integration of the Safety System procedures between the client and the contractor it is hoped that the two will work closely together.
The workforce are involved in conducting risk assessments and preparing a method statement prior to starting work on the client’s site, in order to identify any hazards involved in the activity. These are reviewed and approved by management before the work starts, giving the operators the opportunity to discuss any concerns.

The arrangements for workforce participation are discussed at the contractors’ safety committee.

**What did the workforce do?**
The workforce are involved in conducting risk assessments, for example, for removal of fixed assets. A risk assessment was conducted for removal of a cyclone scrubber which had been redundant for many years and was full of chemicals.

**What role did management, supervisors or safety staff play in this?**
Managers review the risks identified and controls that are recommended.

**What were the benefits?**
The principal benefit is the harmonisation of work between contractors and the client’s workforce. There is better acceptance of the method statement if the operators are involved in developing it.

**Employer’s view**
Managers of this contract company made the following remarks:

> “The contractor operators were very enthusiastic about the increased participation. They see the site as their workplace and are keen to feel part of it.”

> “There used to be a perception that the company was out to exploit the workforce, and in turn that if the workforce identified health and safety risks they would exploit it to demonstrate that the company was poorly managed. Due to improved communication through workplace participation this perception has totally changed. The workforce participate proactively in making health and safety decisions, and managers listen and act upon their advice if it is appropriate.”

**Employees’ view**
Employees of the contracting company made the following remarks:

> “The level of knowledge and enthusiasm by the workforce has increased following the risk assessment training.”

### 4.6 HAZARD SPOTTING

**Background**
In the haulage business potential accidents and incidents can take place at the customer’s site. The drivers work unsupervised and can be faced with unsafe circumstances in which to operate.

Workplace participation was introduced by Hoyer in response to customer demands and to enhance safety standards. There are agreed safety performance indicators in the contract between the haulage company and the client. The haulage company introduced a formal hazard spotting system adopted from their client. The system is used for spotting hazards on customer sites to which they are making a delivery. The delivery may be suspended if the hazard cannot be immediately rectified. If the hazard cannot be eliminated the driver completes a Unsatisfactory Delivery Condition Report (UDCR) form, see below. This form is checked by the haulage company transport manager and passed to the client. As the delivery contract is between the client and the customer it is these companies who have responsibility for corrective action. The client will then inform the haulage company once the corrective action has been taken by the customer and the delivery is made.
Policy decisions are discussed with drivers at the monthly safety meeting and through informal discussions. In addition, there is a monthly safety newsletter.

The company operates an incentive scheme that is dependent on the number of accidents or incidents including spills, personal injury and road vehicle accidents.

The programme has resulted in improved safety performance.

**The hazard spotting process**

Examples of hazards spotted include:

- Uncertainty about the contents of the storage tank in which the load is to be discharged;
- Uncertainty about the volume of material in the tanker and likelihood of overspill;
- Site staff show a lack of knowledge about hazardous substances;
- Poor or inadequate access to the discharge area.

**What did the workforce do?**

On arrival at a site, the driver makes an informal, mental risk assessment of the conditions on the site, including the potential for spillage or accident. As a result he/she decides whether it is safe to deliver. In the event of a decision not to continue he/she will discuss this with the company manager and the management of the delivery site.

**What role did management, supervisors and/or safety staff play in this?**

Managers review the UDCR forms and support drivers in the decisions they make. Managers need to be confident that their drivers have made the right decisions and this is achieved by increasing competence among drivers through training, experience and effective supervision.

**What changes were made as a result of this?**

Improvements resulting from the UDCR scheme include:

- Sending more appropriate equipment to delivery sites;
- Customers have had tanks remarked or gauged;
- Training needs have been highlighted and met at the customer's site;
- Tank conditions have improved.

**What are the benefits?**

The main benefit is the increased commitment from all drivers which has resulted in improved safety performance.

**Employer's view**

Managers remarked:

"Some drivers thought that being responsible for assessing the site to evaluate delivery risks involved extra work, but they now see this as carrying out the same job in a more responsible manner."

"Driver commitment to health and safety increases when they see the commitment from us and our client. These additional responsibilities help to make drivers think about various aspects of their work and this leads to job enrichment."
Employees’ view
Drivers involved in this process remarked:

“As it is the driver’s safety that is at risk if there is an accident it is good that he is able to take this level of responsibility. The drivers all take pride in doing the job well.”

“The company is committed to health and safety and always supports the drivers if they decide that they are unable to make a delivery due to unsafe conditions. A health and safety bulletin is enclosed in our payhips, so that all employees know of incidents and can learn from them. The bulletin puts a very positive perspective on health and safety.”

“If a driver takes action rather than ignoring an unsafe act or condition then it will make the job safer for the next driver.”

Progress
Drivers are asked in what areas they require training, and there is still some training outstanding.

### UNSATISFACTORY DELIVERY CONDITION REPORT

**TO BE COMPLETED BY DRIVERS/SUPERVISOR**

<table>
<thead>
<tr>
<th>TERMINAL/BULK PLANT:</th>
<th>UDCR NO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMER NO:</td>
<td>CONTRACTOR:</td>
</tr>
<tr>
<td>CUSTOMER NAME/ADDRESS:</td>
<td></td>
</tr>
<tr>
<td>DELIVERY DATE:</td>
<td></td>
</tr>
<tr>
<td>FUEL OIL PLUS UNLEADED</td>
<td>AUTHORIZED GASOL KEROSENE OTHER - (please specify)</td>
</tr>
<tr>
<td>PRODUCT GRADE(S)</td>
<td></td>
</tr>
</tbody>
</table>

**NATURE OF REPORT**

Categorise the problem on the following scale

1 = Can continue deliveries but attention needed  2 = Cannot deliver until problem rectified

<table>
<thead>
<tr>
<th>Difficulty in obtaining customer compliance with Petroleum Spirit Conveyance Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay in discharging or obtaining signature for load</td>
</tr>
<tr>
<td>Tank gauge(s) - not working/maccurate/missing</td>
</tr>
<tr>
<td>Dipsticks - damaged/missing</td>
</tr>
<tr>
<td>Grade tags/labels - missing/incorrect</td>
</tr>
<tr>
<td>Access to site - restricted/hazardous</td>
</tr>
<tr>
<td>Access to the tank - restricted/hazardous</td>
</tr>
<tr>
<td>Badly sited, inadequate or blocked vents</td>
</tr>
</tbody>
</table>

Indicate 1 or 2
4.7 EMPLOYEE DRIVEN SAFETY PERFORMANCE IMPROVEMENT

**Background**

The Montell site has always had a good safety record and a drive towards continual improvement. The behavioural programme was introduced because the Health, Safety and Environmental (HSE) performance had reached a plateau and a different approach was needed to lower the level of accidents and incidents. The company introduced an onsite behavioural safety programme known as COBRA (Changes Of Behaviour Reduces Accidents). All employees are encouraged to be involved in safety performance improvements.

The programme is technician driven but involves everyone, and anyone can bring ideas on improvements, either to procedures, processes or equipment changes to facilitate safer operations. In the case where something is obviously unsafe due to breakage or wear and tear the situation will be immediately remedied. Other types of improvement are reviewed by the HSE committees and if necessary risk assessment teams are set up to look in detail into an issue. Major improvements require budgeting and so may take longer to fix. Management approves all reasonable improvements and provides the budget for them to be implemented. Sometimes short-term fixes are carried out, pending a review of the best way to make/fund a permanent fix.

Employees are involved in different performance improvement initiatives including:
• Generating ideas and assisting in conducting HAZOPS to assess feasibility;
• Initiating plant changes, with ideas/input from the operator perspective;
• Recommendations on PPE - via the HSE committees;
• Near miss reporting;
• Observations and hazard spotting during normal activities, operations or maintenance, etc.

Additional training was provided for observers.

The arrangements were communicated through the HSE committees network and cascaded through the line management. In addition, information about the programme was presented in the Safe Wise site safety magazine.

The Problem
A near miss was reported at the blenders in the plant. Access for sampling was via a vertical ladder on each of the four blenders. The sample bag had to be carried up the vertical ladders and the final product (polypropylene) sample carried back down. This is a high frequency event carried out on every shift, posing a risk of slips and falls. Management could not automate this sampling procedure due to the age of the equipment.

Solution
What did the workforce do?
The operators suggested that a staircase would make access easier. The idea was brought to the HSE committee for review and then presented to the management. The remedy was actioned by the maintenance group.

What role did management, supervisors and / or safety staff play in this?
Management's role in this programme is to support it/be committed to it by allowing resources to be made available for its effective execution.

What changes were made as a result of this?
New sampling access staircases were installed in each area.

What were the benefits?
Observations of the activity clearly highlighted the risk of fall or spillage. A hazard was eliminated.

Employer's view
Managers remarked:

"The company believes that there are clear benefits in involving the people in the decision making process, particularly through involvement in HSE committee work and suggestions for new practices and operational improvements. But also in the progression of safety improvements from a technical, procedural and people perspective. This has brought individual ownership of their own responsibilities and a better understanding of what is needed, from both an organisational and a systems perspective."

Employees' view
Employees involved in the process remarked:

"COBRA is a lever to get things done."
"The changes were implemented quickly and the speed of reaction reinforced our perceptions regarding management’s commitment to the safety of their workforce."

**Progress**
The strategy for the future is aimed at:

- Continuous improvement for the whole organisation - not just HSE,
- Increased time/involvement of technicians;
- Leadership improvement (production and HSE).

Plans for the forthcoming year include:

- Technicians to be trained to fire station standards- 5 day course;
- Current emergency exercises to be expanded;
- Emergency training - emergency management training for management and some technicians - scenario role play and emergency control room redesign.

### 4.8 EMPLOYEE SUGGESTION SCHEMES

**Background**
Pentagon Chemicals Ltd had a poor accident record and wanted to raise health and safety standards throughout the site. They wanted to change the culture by adopting a similar approach to the “DuPont system” in which every person is responsible for themselves and others.

The company introduced a suggestion scheme known as the “Why don’t we?” scheme. If an employee has an idea he/she can complete a form (obtained from the canteen) and submit it to the training officer. This suggestion is then submitted to the head of the department to which it concerns. Consequently, if the suggestion is accepted, a Continuous Improvement Team or Corrective Action Team may be established to determine how the suggestion can be implemented. Feedback is given to the employee and the training officer produces a monthly statement report, which is displayed in the Canteen. Good suggestions are rewarded with a T-shirt.

This initiative was communicated through notice boards, the works magazine and the monthly shift meetings. Progress regarding the scheme is updated regularly on noticeboards.

A number of suggestions have been taken forward resulting in improvements in operating procedures and safer working practices.

**The problem**
An example of a specific problem that was resolved through the suggestion scheme concerned the offloading of trimethylamine tankers. After offloading it is difficult to see whether or not the tanker is completely empty. When the pipes are removed there may be hazardous residue left inside to which the operator may be exposed.

**The solution**
*What did the workforce do?*
It was suggested by an operator, through the ‘why don’t we’ scheme, that the tankers be drained on a slope to ensure that they are empty.
What role did management, supervisors and/or safety staff play in this?
The idea was discussed and agreed by the Business Excellence Development team. Feedback was
given to the individual who raised the idea and it was displayed on the notice board in the canteen.

What changes were made as a result of this?
New equipment was bought. There have been some modifications as the tanker needed to be parked
in a different area, which was bunded according to the IPPC licence to contain any spillage. The ramp
was placed inside the bund.

What were the benefits?
The hazards from residue in this operation have been reduced.

Employer’s view
Managers involved in the process remarked:

“This example presents how employee involvement can improve health and safety management
and gives positive feedback on the effectiveness of the scheme to members of the organisation.”

Employees’ view
Employees involved in the process remarked:

“The amount of participation by the workforce in health and safety issues has improved. The
level of awareness has increased with the number of notice boards and the suggestion scheme
makes people think about their jobs and how it could be done better.”
TO (LINE MANAGER) | NUMBER
FROM | DATE

**A. Why don’t we?**

- Your idea - be specific

**B. What currently happens?**

- What is the current practice/situation?
- Collect Data

  Be as specific as possible, e.g. what, when, where, who, why

**C. What should happen?**

**D. Benefits**

- Consider:
  - Less hassle
  - Customer service
  - More sales
  - Lower cost
  - Less waste
  - Better way of workings

  Be specific - spell out the desired state

**How could it be implemented?**

- Who should do it?
- How long?
- How much?

  Try to quantify the benefits, make the idea worthwhile

**Recommended action**

- Go ahead now
- Go ahead later
- Defer for more information
- Allocate to team
- Recommend to your manager/executive team
- Reject and reasons

**Results**

- Monitor?
- What happened?
- Did it work?
- Standardised?

  Think through what’s going to be needed to implement the improvement
4.9 OPERATOR REVIEW OF OPERATING PROCEDURES

4.9.1 Pentagon Chemicals Ltd

Background
The company wanted to change the ‘them and us’ culture and to help the workforce understand that health and safety is an integral part of the way that the company operates and not a bolt on extra that slows things down.

Many aspects of the operating procedures were no longer relevant to current working practices. An employee participation initiative was set up to involve operators in the review and amendment of these operating procedures.

Operators reviewed the procedures during the manufacturing process and incorporated any changes to working practices. These were then reviewed by the shift manager and new procedures issued.

These changes were communicated to the workforce through briefings, the newsletter and direct consultation with the shift manager.

New procedures are now in place and this has led to a greater awareness of the correct operating procedures. There is a greater commitment to health and safety from everyone as a result of this initiative as people are more likely to point out unsafe practices and incorrect procedures.

The problem
Many aspects of the operating procedures on site were no longer relevant to the current working practices due to changes in equipment, plant, processes, process control systems and safety controls etc. Examples include:

- The operating procedures stated that the correct PPE to use for chemical handling was goggles and a helmet when in fact a helmet and visor are now used;
- The procedures stated that the reactor is charged and then heated when in fact it is now charged and reheated at the same time;
- Operators also recorded an estimated batch time for each process.

The solution
What did the workforce do?
The operators were divided into teams of two. During manufacturing they had two copies of the current operating procedures and amended one copy in line with what they actually do. They also recorded batch times for the process; information that was not currently recorded.

What role did management, supervisors and / or safety staff play in this?
The shift manager allocated operators to review specific procedures. The shift manager then reviewed the amendments before approving them.

What changes were made as a result of this?
New procedures were put in place.

What were the benefits?
Everyone is now much more aware of the correct procedures and in a position to highlight when incorrect procedures are being adopted. In addition, the company can now more accurately calculate the time taken to manufacture a batch, which has aided scheduling and costing.
**Employer's view**
Managers involved in the process remarked:

"Awareness of the correct manufacturing process is now much higher. This means that everyone is now working in the same way. Operators are also more aware of how procedures can be changed if they have ideas for improvements."

**Employees' view**
Employees involved in the review procedure remarked:

"If the operators are involved in developing procedures and systems of work they can make the job quicker and easier and will have more time for other things."

"Increased involvement leads to greater care about the job."

"If I see an unsafe act or condition I do something about it, for example, if someone is using safety glasses instead of a visor whilst premixing I will ask them to change."

**Progress**
It is hoped that procedures will be reviewed more quickly in future in response to changes in the process and plant.

### 4.9.2 Shell

<table>
<thead>
<tr>
<th>What is the PCDM?</th>
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</thead>
<tbody>
<tr>
<td>PCDM is a systematic process for developing procedures based on agreed standardised practices which control the hazards associated with a task and reflect the preferred working methods of operators.</td>
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</tbody>
</table>

**Background**
There was a perception that relatively high levels of reportable accidents and incidents were caused by poor operating procedures. The company is reviewing its procedures and operating systems through a technique known as Procedures and Competence Development Methodology (PCDM). PCDM is a method of distilling the mass of procedures held on site into key messages, ensuring that everyone understands these fully. The operators are involved in agreeing the optimal system of work and writing this in an easily accessible format. This increases the competence of the operators.

More than 50% of the high level task procedures have been reviewed.

**The problem**
Procedures were extremely detailed, long and hence difficult to use, resulting in problems with interpretation and consistency of operation.

**The solution**
A high level task inventory developed for each operating area. The most critical tasks were analysed and best practice established.

**What did the workforce do?**
Each area has a PCDM facilitator and there are operator focal points on each shift. To date 60% of operators have been trained in PCDM techniques.
What role did management supervisors and/or safety staff play in this?
Managers review the revised procedures.

What changes were made as a result of this?
Over half of the procedures have been written.

What are the benefits?
The procedures are much more user friendly and therefore are used. This has resulted in greater consistency in the use of best practice during operation. As the workforce have developed them they are more practical and realistic.

Employer's view
Managers remarked:

"The aim of PCDM is to improve safety and reliability through identifying agreed best practices and thus improve consistency. Procedures are now written by these people who carry out the task, and so are practical."

Employees' view
Employees involved in reviewing the procedures remarked:

"Our involvement in writing procedures means they are more in line with what is actually done. Errors in operation can be identified if the correct procedure is clearly documented."}

Progress
The remaining procedures are planned for review.

4.10 MANAGING CONTRACTORS

<table>
<thead>
<tr>
<th>Tool box talks</th>
</tr>
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<tbody>
<tr>
<td>A Tool Box Talk (TBT) is an informal, recorded safety training event, which is used to communicate the learning points highlighted from specific safety incidents to relevant personnel on site, both Shell and contractors, whilst at the same time giving participants the opportunity to discuss the applicability of the learning points to their own job task(s) or workplace(s).</td>
</tr>
</tbody>
</table>

Background
Whilst contractors working for Shell had achieved levels of safety performance significantly better than in the contracting sector, there were still opportunities for further improvements. In order to reduce contractor turnover and build levels of competence and awareness of the company's safety standards, the company has set up a partnership agreement and reduced its tender list to include only those that meet their defined safety standards.

The company provides contractors with the following to encourage involvement:

- contractor guide book – detailing the three “what’s” risk assessment method;
- Safety inspection visits;
- Contractor safety workshops;
- Toolbox talks;
Contractor safety forum.

Three of these are described below.

**Example 1: Toolbox Talks**
The contractor holds weekly toolbox talks.

*What did the contract operator do?*
An example of a toolbox talk led by a contractor operator followed him breaking his leg as a result of unsafe practices at work. He presented the scenario to the group with a view to learning from the incident.

*What did the management, supervisors or safety staff do?*
Management supported the use of the scenario.

*What were the benefits?*
All personnel are now more aware of the importance of conducting risk assessments prior to starting an activity / operation.

**Example 2: Safety visits**
Safety visits are inspections of the workplace to identify and rectify unsafe practices.

*What did the workforce do?*
Operators conduct inspections on themselves, other contractors and company personnel.

*What role did the management, supervisors and safety staff play in this?*
Additional training is provided to enable personnel to conduct these effectively. Managers ensure that actions from visits to their department are implemented.

*What were the benefits?*
Unsafe systems and acts are identified and resolved.

**Progress**
Number of people involved in safety visits and their competence is always increasing.

**Example 3: Safety workshops**
Accident analysis showed that hand injuries represented half of all injuries on site. A series of workshops targeted contractors. Half day sessions were run over a 12 week period for 300 contractors. This covered:

- defence handling;
- risk assessment;
- PPE;
- Knowledge tested through questionnaire.

*What did the workforce do?*
The workforce helped to develop this workshop.

*What were the benefits?*
There has been an increase in awareness of hand safety and protective techniques and consequently there has been a decrease in hand injuries from 60 per year to 8.
Progress
As the response is positive a series of workshops for contractors are now planned. For example, on eye safety.

Contractor’s view
“Workforce involvement was introduced to help develop a more efficient workplace. With more involvement, job satisfaction increases and the operators take more care in what they do and efficiency increases. It enables the operators to feel part of the company, which is sometimes difficult when working on a client’s site.”

Contract Operator View
“The level of involvement of contractors is high and they benefit by adopting the client’s safety systems. There is a safety forum which allows contractors to benefit from each others’ experience and share best practice.”

4.11 EQUIPMENT REVIEW AND DESIGN

Background
Simon Storage has introduced workforce participation to improve the design of new equipment and the plant in order to make them safer and/or more efficient. Operators have helped in operability design of new plants and modification of existing plants. This is achieved by asking operators to comment on design proposals or initiate discussions regarding hazards that have been identified or improvements that can be made. Training takes place on a regular basis covering a range of issues (often suggested by operators). These courses are interactive and encourage discussion about work methods and ideas for improvement.

As this is a small company these arrangements are communicated informally.

The involvement of operators in the design and development stage enables potential problems to be identified and these can then be designed out of the process or suitable control measures put in place.

A specific example of employee involvement in equipment review and design
An example of operator involvement in equipment review and design can be seen in the consultation on the design of a hose pit.

What did the workforce do?
Operators met in the conference room to review the design plans and discussed the operability implications of the design. They made a number of suggestions including moving the header back so that it is easier to reach and changing the height of the valves to reduce ergonomic problems.

What role did management, supervisors and/or safety staff play in this?
Managers reviewed the ideas and ensured they were implemented.

What changes were made as a result of this?
Management accepted the recommendations and many potential manual handling hazards were designed out.

What were the benefits?
Health and safety standards have improved in recent years. Part of this is due to operator involvement in the development stages of projects. For example the involvement in the design of the hose pit has meant the area is easier and safer to work in.
**Employer's view**
Managers involved in this process remarked:

“If operators are involved with the initiation or development of a project they will feel more ownership for it. Their involvement helps to get things right first time, and hence reduces costs.”

**Employees' view**
Employees involved in this process remarked:

“It is easier to work with systems that you have helped to develop. The person who does the job is often the best person to say how an activity should be carried out.”

“Management listen to our comments and often act on them to make improvements which are worthwhile.”

**Progress**
The method of communicating these ideas and improvements used to be formal. This has been changed and the new informal approach hopes to break down barriers and encourage two way communication on an ongoing basis. There is a training review every year and this gives the opportunity for increased competence, which will lead to greater participation in health and safety activities, including identification of improvements.
4.12 EQUIPMENT REVIEW AND DESIGN

Background
In order to reduce risks at Sun Chemicals Ltd, the workforce have been involved in a review and design of equipment for the plant. A team including operators is set up to review a particular issue. This may be initiated by identification of particular risks or high levels of accidents/sickness absence. In some instances, a solution to a problem is generated from scratch. In other instances, a system implemented at another site may be identified as a potential solution to the new problem. In the latter case a review of this existing equipment is conducted and an assessment made of the operability of this system in the new context.

Operators are involved in internal discussions as well as negotiation with suppliers of equipment, where modification are required. Performance is measured through accident statistics and the number of issues raised at the health and safety meeting.

A number of equipment modifications/installations have been introduced and the associated risks reduced considerably.

Example One: Solvents emissions

The problem
Equipment initially used at the site was a free standing machine fitted to a pan with poor connections. This resulted in emissions of solvents into the workplace including: ethyl acetate, propanol and industrial methylated spirits. Risk assessments showed exposure to solvents were below the OES limits given in EH40, but had not been reduced to as low as is reasonably practicable as required by the COSHH Regulations.

The solution
A similar piece of equipment had been replaced at another plant. A team of five operators, the solvents supervisor and an engineer visited the other site to evaluate the new equipment and consider
operability of the design for their own plant as there were some significant differences in the operation between the two plants. The new equipment is such that a rigid extraction system can be moved around the pan using an air activated system. This extraction system is interlocked with the mixing activities. The system exhausts via two vents which have variable shutters. A prototype was installed and trialled.

What did the workforce do?
The team evaluated the existing design and considered the implications of the design for their process. They discussed the issues with two suppliers before deciding on the most appropriate.

What role did management, supervisors and/or safety staff play in this?
Support for the process was provided by the health and safety manager and management.

What changes were made as a result of this?
Five further machines were installed with the same system and new training has been provided.

What were the benefits?
Solvent emissions into the work environment have considerably reduced the health risks to employees and the risk of fire and explosion.

Example two: Manual handling

The problem
The company calculated that their accidents over a four year period cost them £71,000. Manual handling is the biggest cause of accidents within the company and it has focused on this aspect of health and safety. Operators loaded mixers with 25kg bags of pigment. This takes approximately one and half hours resulting in back strain and exposure to dust. Risk assessments and accident statistics showed this to be a major cause of both acute accidents and longer term health problems. The principal risks were from manual handling and chemical and dust exposure.

The solution
The Operations Director suggested that big bags handled by fork lift trucks might be a possible replacement system.

What did the workforce do?
A team was set up to evaluate the issues surrounding the use of big bags.

What role did management, supervisors and/or safety staff play in this?
Negotiations took place with the suppliers.

What changes were made as a result of this?
The big bags have been commissioned which has resulted in amendments to procedures and training.

What were the benefits?
- The manual handling risks have been reduced and this has had moral and legal implications.
- Reduced waste as a result of less packaging and residual material left inside the bag.
- Increased productivity and reduced overtime costs as a result of more efficient mixer loading
- Reduced material costs as a result of buying in bulk.

Employer’s view
A manager at the company remarked:
"The improvements in health and safety arising from these initiatives are evident, the workforce has accepted that the initiatives are positive and are proactive in their contribution."

**Employees' view**

Employees involved in these initiatives remarked:

"The level of emissions has been reduced considerably following this project, and this has improved the work environment and should have positive health implications for the workforce."

"The introduction of the big bags system has meant that time off through back strain has virtually disappeared."

"As more people are involved in health and safety different ideas are generated and this has provided solutions to many health and safety issues."

**Progress**

The principles underlying the big bag system have been adopted in other areas. Pressure has been put on suppliers to consider alternative packaging for materials.

The company aims to submit the improvements made to reduce solvent emissions for a Solvent Stewardship Award.

4.13 MONITORING

**Background**

The Ciba site already had a good safety record but had reached a plateau and was finding it difficult to reduce minor injuries such as slips, trips and falls. The company introduced a behavioural safety system called 'Be Safe' in which everyone has the opportunity to get involved. The aim was to change the culture in the organisation and eliminate bad practices that had become habitual over time.

Be Safe was trialled in one area initially and all the workforce in this area were involved. A number of initiatives have been put in place as part of the Be Safe programme including:

- Shop floor representatives on all project teams;
- Safety days;
- Monitoring.

These arrangements were communicated via the departmental and Health Safety and Environment (HSE) committee meetings, and the in-house magazine.

The workforce involvement has helped reduce minor injuries. A 30% reduction in accidents was achieved in the first 8 months of the programme.

**Specific example – Monitoring**

During a safety workshop, the workforce was encouraged to identify what issues should be targeted in the programme. It was agreed that there should be an 'auditing' (monitoring) system. Volunteers were trained to conduct an 'audit' and given a checklist to complete. There is a monthly meeting in which issues observed can be discussed. Different people involved in the process are asked to present at this meeting.
What did the workforce do?
PPE, housekeeping, manual handling, use of equipment, forklift truck safety, permits to work and environmental issues are covered. There are two observers ('auditors') at any time. Volunteers audit the work area using a checklist.

What role did management, supervisors and/or safety staff play in this?
Managers oversee the process and ensure support in implementation of ideas.

What changes were made as a result of this?
Employees were trained before conducting the 'audit'.

What were the benefits?
The company realises that good health and safety is important in preventing lost production. There have been improvements in safety performance e.g. reduced number of forklift truck accidents.

Employer's view
A manager involved in the process remarked:

"A large number of issues are raised through Be Safe as this provides a forum for discussion. In addition employees are more aware of the risks as a result of health and safety training."

Employees' view
An employee involved in the process remarked:

"The workforce is more conscious of health and safety. If a spot check reveals an error colleagues can be informed."

Progress
Different sites are sharing their experiences in order to increase the lessons that are learnt.
4.14 HEALTH AND SAFETY COMMITTEES

Background
Sun Chemicals Ltd wanted to change the culture and make health and safety a high priority. The first actions for change aimed to restructure the health and safety committee so that it was no longer a political forum where people aired their grievances. There is still a central health and safety committee but the emphasis is much more proactive and centred around policy development and implementation. A network system was set up and there are small departmental committees.

The workforce is involved in making improvements throughout the site via these local work group safety committees. The work group safety committees are chaired by the work group manager, and meet approximately every month. The minutes are passed to the regular site health and safety committee and are displayed on the safety notice board.

Performance is monitored through formal methods such as accident statistics and the number of issues raised, as well as informal methods such as enthusiasm in face to face meetings. If these show that
performance is decreasing then actions are taken to understand why, amend the systems and start new initiatives.

These changes were communicated through the work group managers, the health and safety committee and the safety representatives.

The solution

What did the workforce do?
All members of the workforce attend the committee meetings. In addition they attend the site health and safety committee on a rotational basis.

What role did management, supervisors and / or safety staff play in this?
The work group manager chairs the meetings. The Production Director suggests a number of issues for discussion and employees are encouraged to raise issues they have identified.

What were the benefits?
There was a drive to increase reporting of accidents and incidents and this saw an initial increase in accident statistics. The improved communication has enabled the company to reduce the true accident rate.

Employer’s view
“Risk management is everyone’s responsibility and the company wants to make the best use of all the resources to improve risk management.”

“The management have listened to ideas from the workforce and demonstrated commitment to health and safety by implementing many of their suggestions.”

“The health and safety meetings have proved to be a very effective method of communication to all members of the workforce.”

Employees’ view
“The local committee allows us to discuss relevant issues in more detail. It is good to be consulted on health and safety issues.”
5. RECOMMENDED APPROACH

5.1 INTRODUCTION
Each of the companies included in the survey offers a number of examples of good practice. In this section of the report these examples of good practice have been integrated to provide an overview of the constituents of a comprehensive approach to developing effective arrangements for workforce involvement.

Next, a set of questions is provided for use in assessing the extent to which there is workforce involvement in health and safety, and the extent to which the workforce exhibit the attitudes and behaviours associated with effective participation.

5.2 OVERVIEW
The development and implementation of workforce involvement entails five phases of activity, as shown in Figure 6. These phases are presented as a continuous loop to express the point that, as with all other aspects of management, arrangements for workforce involvement should be continuously reviewed and improved. Indeed, it is imperative to recognise that as employees become more involved in health and safety they will become more aware of how and where they can contribute. If their commitment and faith in the validity of the process is to be maintained, it is important to support an ever widening scope and/or depth of involvement by the workforce. In addition, continued active and visible management commitment is required to maintain workforce confidence in the process and management intentions.

However, it is equally important to maximise workforce participation throughout the decision process, commencing at the earliest opportunity. Effective workforce involvement relies on their ownership and acceptance of the manner of their involvement. This is best secured by actively involving the workforce from the outset in researching, agreeing, devising and implementing arrangements.

Finally, the overview in Figure 6 has an inner loop entitled piloting. This expresses the often important role of testing proposed arrangements at one or more departments or sites before rolling them out across the organisation. Piloting helps identify potential problems and allows them to be resolved before general implementation.

Clearly, the figure presents an “idealised” approach. In practice, the phases often overlap and may not form discrete activities. Nonetheless, the figure does provide a framework within which organisations can operate.

The issues to be addressed at each phase, and the methods that can be used, are summarised below and illustrated in Figure 7. Figure 8 highlights some of the problems that may occur at each stage. These problems are addressed in the following sections.
Figure 6

Overview of process of developing and implementing workforce involvement arrangements
### Figure 7

Overview of assessment, planning and implementation methods applied at each stage

<table>
<thead>
<tr>
<th>Stage 1: Deciding</th>
<th>Stage 2: Devising</th>
<th>Stage 3: Communicating</th>
<th>Stage 4: Facilitating implementation</th>
<th>Stage 5: Review &amp; improve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce consultation</td>
<td>Review of client demands</td>
<td>Staff briefings</td>
<td>Team building exercises</td>
<td>Accident rates</td>
</tr>
<tr>
<td>Consultation with stakeholders (customers, regulators etc)</td>
<td>Consultation with management and employees</td>
<td>Newsletters</td>
<td>Redefine staff &amp; management roles</td>
<td>Informal staff feedback</td>
</tr>
<tr>
<td>High level health and safety review by specialists</td>
<td>Committee review</td>
<td>Cascade via site and local committees</td>
<td>Training in H&amp;S</td>
<td>Attitude surveys</td>
</tr>
<tr>
<td>Attitude surveys</td>
<td>Project teams</td>
<td>One to one briefings</td>
<td>Create project teams</td>
<td>Team talks</td>
</tr>
<tr>
<td></td>
<td>Management/employee conferences</td>
<td></td>
<td>Expert assistance on developing new H&amp;S procedures and systems</td>
<td>Ongoing consultation via committees etc</td>
</tr>
<tr>
<td></td>
<td>Expert advice on best practice</td>
<td></td>
<td>Coaching &amp; facilitation by specialists</td>
<td>Ongoing benchmarking</td>
</tr>
<tr>
<td></td>
<td>Skill mapping</td>
<td></td>
<td>Redefine role of committees</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Training needs analysis</td>
<td></td>
<td>Ongoing consultation by conferences, committees, team talks etc</td>
<td></td>
</tr>
</tbody>
</table>

---

**Benchmarks:**
- Business planning
- Piloting
- Benchmarking
### Figure 8

**Typical process issues**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Stage 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial review</td>
<td>Planning</td>
<td>Communicating</td>
<td>Facilitate implementation</td>
<td>Ongoing review and development</td>
</tr>
<tr>
<td>Staff &amp; management disagree on underlying causes.</td>
<td>Goals fail to satisfy internal and external stakeholders.</td>
<td>Staff believe programme presumes they are &quot;the problem&quot;.</td>
<td>Insufficient resources for ambitious programme.</td>
<td>Fail to recognize stakeholder demands have changed or increased.</td>
</tr>
<tr>
<td>Incomplete understanding of causes of unsatisfactory performance.</td>
<td>Mis-match between way forward and underlying causes of unsatisfactory performance.</td>
<td>Management resist changes.</td>
<td>Insufficient participation by staff &amp; management.</td>
<td>Fail to recognize need to move on to next set of changes.</td>
</tr>
<tr>
<td>Failure to recognize key factors.</td>
<td>Lack of executive management buy-in.</td>
<td>Mis-match between goals and plan of changes.</td>
<td>New systems not integrated into organisation's own arrangements.</td>
<td></td>
</tr>
<tr>
<td>Fail to properly benchmark performance.</td>
<td>Over/under ambitious goals.</td>
<td>Fail to produce practical definitions of desired behaviours;</td>
<td>Mismatch between role expectations and individual competence.</td>
<td></td>
</tr>
<tr>
<td>Focus on lesser health and safety risks.</td>
<td>No link between goals and way forward.</td>
<td>Omit management behaviour from programme;</td>
<td>Management actions contradict expressed visions;</td>
<td></td>
</tr>
<tr>
<td>Fail to recognize potential business impacts.</td>
<td></td>
<td></td>
<td>One way communication;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blind eye turned to inappropriate behaviour</td>
<td></td>
</tr>
</tbody>
</table>
5.3 PHASE 1: DECIDING TO INTRODUCE AND/OR INCREASE WORKFORCE INVOLVEMENT

At the outset it is important for:

- Senior management to recognise the role of workforce involvement in helping to fulfil wider business and safety management needs and therefore commit themselves to the improvement of workforce involvement;
- Senior management to form a full and valid understanding of what comprises effective workforce involvement;
- Senior management to understand, in broad terms, how their organisation compares against "good" or "best" practice.

However, whilst management commitment and understanding is imperative, given the absolute requirement for workforce acceptance of and support for the manner of their involvement, the workforce should be involved in the decision process at the earliest opportunity. This may comprise involving the workforce in a preceding review of safety management during which the need for greater involvement is identified. Otherwise, if the initial decision is taken by management, the workforce should be consulted on this "proposal" at the next earliest opportunity, with acceptance of the possibility that initial proposals are subject to review and amendment.

These goals are best met by pursuing the following activities.

**Benchmarking**

To form a full understanding of what comprises effective workforce involvement it is essential to gain independent and impartial opinion.

This can be achieved by benchmarking between sites and/or between companies, thereby securing an external reference point for comparison. Benchmarking may take the form of "fact-finding" visits and/or third party reviews, usually by health and safety management specialists.

Given the ultimate goal of engaging the workforce, ideally employee representatives should participate in this benchmarking exercise alongside management. This can take the form of a joint employee—management team or committee.

Benchmarking should be designed to address issues such as:

- What is meant by workforce involvement?
- What are the key features of effective workforce involvement?
- What sort of organisational structure and management style is needed to best support workforce involvement?
- What are the goals and benefits of workforce involvement?

**Policy/business review**

A review should be undertaken of current and future business and organisational threats and opportunities, with the aim of discerning how greater workforce involvement may be of benefit. For example, has downsizing and delayering increased reliance on employees to maintain safety standards? Would greater employee involvement support business expansion without a proportionate increase in management resources? Such a review may take the form of a business review conducted by senior management. However, it can form part of a wider business performance/quality improvement process conducted jointly by management and the workforce.
For example, joint management and employee teams or conferences may be conducted under the umbrella of Total Quality Management, Business Excellence or other similar initiatives. The latter approach offers the potential advantage of gaining workforce ownership of the proposal through their proactive participation in the decision process.

Notwithstanding the value of employee driven decisions, there may be a need to facilitate this process, especially if there is little tradition of workforce involvement in the organisation. This may take the form of providing information on the concept and key features of workforce involvement and addressing any fears about changes in job expectations.

5.4 PHASE 2: SCOPE AND DESIGN INITIAL ARRANGEMENTS

As with all other aspects of business management, the design and implementation of arrangements for workforce involvement needs to be carefully planned. Key issues that should be addressed include:

1. What does the organisation need to do to support the implementation of or increase in workforce involvement?

2. Which particular configuration of arrangements best matches the needs and capabilities of the organisation?

3. What are the goals and how will success be measured?

On the first point, consideration should be awarded to:

- Is there a need to redefine roles and responsibilities and/or modify the organisational structure, such as change from a “command” style of supervision to a “coaching” style of team leadership?

- Is there a need to widen or deepen line management, supervisors’ and/or workforce health and safety skills to allow them to take on a greater role?

- Does the role, remit and composition of the health and safety committee(s) support or hinder workforce involvement?

- Is health and safety being used as a channel for wider (non-safety) industrial relations disputes?

- What level of expert support is required to help design and implement arrangements?

- What level of resource is needed to oversee and/or champion the process?

- What needs to be done to secure acceptance and commitment of wider management and workforce to proposals?

On the second point, the goal is to ensure that the proposed arrangements can be managed practically by the organisation and are effective. To judge what may be effective it is first necessary to define the initiative objectives. Having done so, the alternative forms of workforce involvement should be explicitly mapped against these, thereby identifying an appropriate match. Table 2 provides a listing of common objectives and corresponding forms of workforce involvement.
<table>
<thead>
<tr>
<th>Safety and related goals</th>
<th>Corresponding forms of involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gainng ownership &amp; proactive involvement in health and safety</td>
<td>• Continuous improvement teams</td>
</tr>
<tr>
<td></td>
<td>• Participation in safety tours, audits, investigations, equipment and PPE design and/or review, process hazard reviews etc.</td>
</tr>
<tr>
<td>Harnessing untapped source of knowledge</td>
<td>As above plus:</td>
</tr>
<tr>
<td></td>
<td>• Suggestion schemes</td>
</tr>
<tr>
<td></td>
<td>• Safety conferences</td>
</tr>
<tr>
<td>Involving staff in policy setting</td>
<td>• Refining the role(s) of the health and safety committee</td>
</tr>
<tr>
<td></td>
<td>• Safety days/conferences</td>
</tr>
<tr>
<td>Facilitating flat management and new ways of working including self managed teams</td>
<td>As above plus:</td>
</tr>
<tr>
<td></td>
<td>• Self assessment</td>
</tr>
<tr>
<td></td>
<td>• Devolving day to day safety management to workforce</td>
</tr>
<tr>
<td>Supporting lone working</td>
<td>Developing self administered hazard spotting, reporting and management schemes</td>
</tr>
<tr>
<td>Reinforcing safe behaviour and raising safety awareness</td>
<td>As above plus:</td>
</tr>
<tr>
<td></td>
<td>• Peer review</td>
</tr>
<tr>
<td></td>
<td>• Employee applied safe/unsafe act observation</td>
</tr>
<tr>
<td>Facilitating open communication and hazard spotting</td>
<td>As above plus:</td>
</tr>
<tr>
<td></td>
<td>• Near miss reporting schemes</td>
</tr>
<tr>
<td>Demonstrating management commitment</td>
<td>Implementing all of above and having arrangements to respond positively and swiftly to workforce suggestions</td>
</tr>
</tbody>
</table>

As part of this process, it is common practice to pilot proposed arrangements before finalising them and rolling them out company wide. The scale of a pilot may vary from one department or unit on a site to an entire site. Similarly, a pilot may test the full set of arrangements or a sub-set of them. The scale and scope of piloting depends on:

- The resources available,
- The level of confidence in the proposals, usually determined by whether they have been successfully applied in another similar organisation before.

On the third point, it is important to define observable and/or measurable indicators of success. These may take the form of:

- Accident and injury rates,
- Observable behaviours,
- Expressed attitudes, and;
- Examples of specific problems being resolved.
As before, these indicators should be linked to the goals of the initiative. Ideally, some measure would be taken of these before the initiative is progressed significantly to allow a “before and after” comparison to be made. However, as discussed later on, it is possible to define meaningful post-hoc indicators.

**Planned timescales**

Whilst the improvement of workforce involvement is a continuous process, it is reasonable and necessary to achieve success within certain time periods. Visible success and benefits are an integral part of securing and maintaining commitment to the process. Therefore, it is recommended that the process is planned so as to secure some examples of visible benefits within the near-term, ideally in the first 6 or so months of the initiative. Beyond this, it is reasonable to introduce new arrangements and have them operating within 1 to 2 years, although this time scale may be extended to 3 to 4 years in larger organisations and/or for broader change programmes.

### 5.5 PHASE 3: COMMUNICATING GOALS AND SECURING BUY-IN

As highlighted in earlier phases, workforce “buy-in” is best achieved by engaging them as active participants throughout the process. Notwithstanding this, it is probable that workforce involvement during the initial phases would be via employee representatives, especially in activities such as benchmarking, committee meetings and planning. Accordingly, it is necessary to communicate plans and proposals to the wider workforce. However, as ever this should not be viewed as a one way communication exercise. To secure “buy-in” a two-way dialogue is required during which concerns, suggestions and queries can be raised and addressed in a constructive and open manner. It is only by airing and resolving concerns that plans and proposals will be accepted.

The methods and channels of communication are varied but can include:

- Conferences;
- Departmental and/or team briefings;
- Communications via committees, sub-committees, safety representatives and team leaders etc;
- Newsletters.

Given that the introduction of workforce involvement often entails a corresponding change in the style of management and management roles, it is equally important to communicate with general management.

To ensure management commitment is visible, it is recommended that this communication is led by senior management and “championed” by a named manager. Likewise, to demonstrate the employee driven nature of workforce involvement, it is recommended that safety representatives participate in the conduct of the communication exercise.

### 5.6 PHASE 4: IMPLEMENTATION

As discussed in section 3.5, there are two key activities during implementation, namely;

- Re-aligning the organisation, and;
- Giving workforce and management the skills they need to take on a greater role.

To assure effective implementation, it is recommended that those actions needed to “enable” new arrangements are identified and scheduled to precede their implementation. Thus, for example, training in risk assessment, brainstorming and team working should precede the
formation of continuous improvement teams. Similarly, where management and supervisor roles are to change, it is recommended that the willingness and ability of line management to adopt a more “coaching” style is secured.

Secondly, it is recommended that at least one member of management is tasked with championing the initiative, to ensure management commitment is maintained throughout. Ideally, a joint management-workforce team or committee would be tasked with monitoring the implementation of arrangements.

As noted under phase 2, it is recommended that the implementation process is designed to focus on some issues that can be resolved in the near-term, to secure commitment and create momentum. This may entail focusing on examples of equipment, areas of operation and/or staff behaviour that are known to cause concern and which can be readily remedied.

5.7 PHASE 5: ONGOING REVIEW AND IMPROVEMENT

The aims here include:

- Determining whether the goals of the initiative are being met;
- Identifying ways of improving the quality, depth and span of workforce involvement;
- Checking whether the goals and methods of workforce involvement still satisfy business needs and comprise best practice.

Accordingly, ongoing review should include:

- Monitoring progress against targets (namely those goals and performance indicators earlier defined);
- Reviewing causes of any problems,
- Continued benchmarking against other organisations;
- Continued consultation with customers, workforce, regulators, management etc, regarding their needs and expectations in this area.

Continuous external benchmarking and consultation with key stakeholders is essential. This is because it is only by maintaining an external point of reference that it can be assured that safety performance standards are improving sufficiently. It should also be recognised that expectations are dynamic, especially where the increased competence and awareness of employees alerts them to new areas that they can contribute to and/or areas that they are concerned with. Therefore the continued review and improvement is essential to maintain workforce commitment. This necessarily entails a continued readiness on the part of management to consider further changes to workforce involvement arrangements.

5.8 ASSESSMENT QUESTIONS

Table 3 below provides a list of questions that can be used in exploring the extent of workforce involvement in health and safety along with examples of good practice for use in judging responses. Table 4 provides examples of performance indicators that may be used in judging whether the workforce exhibit the positive attitudes and standards of performance associated with successful workforce involvement (i.e. performance indicators). These indicators comprise questions that may be asked of the workforce and management.
<table>
<thead>
<tr>
<th>Question</th>
<th>Examples of good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent is the workforce involved in identifying health and safety problems?</td>
<td>Joint teams identify workplace and process safety hazards through risk assessment, brainstorming, safety tours or unsafe act monitoring.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in identifying solutions to health and safety problems?</td>
<td>Teams &amp;/or individuals are given opportunities to offer suggestions on how to resolve a safety issue, such as suggesting a change to procedures.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in implementing solutions to health and safety problems?</td>
<td>Operators, engineers, fitters etc assist in redesigning equipment etc, preparing briefings, conducting talks etc.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in reviewing health and safety policy/performance and agreeing strategy?</td>
<td>Safety conferences facilitate open discussion of safety strategy. Also, committees review site safety performance &amp; trends in causes of incidents, &amp; thereafter suggest changes in safety policy/strategy.</td>
</tr>
<tr>
<td>To what extent do employees have routes for reporting health and safety problems, near misses and concerns?</td>
<td>Anonymous reporting schemes. Employee operated safe-unsafe act observation schemes, suggestion schemes etc.</td>
</tr>
<tr>
<td>To what extent can employees comment on and assist with the safety performance of colleagues and peers?</td>
<td>Employee operated safe-unsafe act observation schemes. Team building to promote openness.</td>
</tr>
<tr>
<td>Are there appropriate management arrangements for responding to workforce suggestions and requests for improvements and changes?</td>
<td>Management procedure for receiving, reviewing and sanctioning suggestions and proposals from employees, tied into normal budgeting process. Specification of financial allowances for engineers etc.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in implementation of safety management systems, such as:</td>
<td>Examples include:</td>
</tr>
<tr>
<td>* designing &amp; evaluating equipment;</td>
<td>Employees form part of design-engineering team - assisting in identifying hazards and providing process/operational information and suggestions.</td>
</tr>
<tr>
<td>* process safety reviews (e.g. HAZOP);</td>
<td>Employees form part of process safety review team - assisting in identifying hazards and providing process/operational information and suggestions.</td>
</tr>
<tr>
<td>* designing and reviewing procedures, PTW systems etc;</td>
<td>Employees undertake or participate in production &amp; review of procedures. Also, systems for ongoing reporting of problems with procedures, e.g. out of date, impractical etc.</td>
</tr>
<tr>
<td>* developing &amp; reviewing training;</td>
<td>Employees undertake or participate in production of training.</td>
</tr>
<tr>
<td>* safety audits;</td>
<td>Employees or safety representatives form part of audit team.</td>
</tr>
<tr>
<td>* incident/accident investigation &amp; remediation.</td>
<td>Employees or safety representatives form part of investigation team.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in identifying &amp; resolving health and safety issues associated with new ways of working &amp; organisational change?</td>
<td>Employees or employee representatives are involved in reviewing proposed changes prior to their confirmation with remit to assist identifying potential problems and advise on their resolution. Could form part of joint employee-management team.</td>
</tr>
<tr>
<td>Are there means of recognising workforce health and safety achievements?</td>
<td>Awards, medals, prizes given for good performance. Improvements in safety performance, such as fewer accidents, are publicised.</td>
</tr>
<tr>
<td>To what extent is the workforce involved in the communication of changes in safety management arrangements?</td>
<td>Employees and/or safety representatives assist in safety briefings &amp; consultation with workforce.</td>
</tr>
<tr>
<td>Facet of performance</td>
<td>Performance indicator</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ownership of safety</td>
<td>The extent to which employees express ownership of health and safety.</td>
</tr>
<tr>
<td>Awareness of safety</td>
<td>Expressed concern for personal safety and knowledge of health and safety hazards.</td>
</tr>
<tr>
<td>Readiness to intervene when colleague acts unsafely</td>
<td>Expressed readiness to alert colleague to their error or unsafe behaviour.</td>
</tr>
<tr>
<td>Concern for safety of one's peers, colleagues and other persons.</td>
<td>Expressed readiness to report or act on unsafe conditions.</td>
</tr>
<tr>
<td>Trust in management commitment to safety</td>
<td>Expressed belief in management readiness to act on safety problems &amp; issues identified by the workforce.</td>
</tr>
<tr>
<td>Management response to workforce proposals.</td>
<td>Proportion of safety (implemented) improvements that were originally prompted by the workforce.</td>
</tr>
<tr>
<td>Accident rate</td>
<td>Frequency of reportable accidents attributable to workforce behaviour &amp;/or competence.</td>
</tr>
</tbody>
</table>
6. CONCLUSIONS

Workforce involvement in health and safety is regarded by all surveyed firms to be highly beneficial. This view is shared by small and large firms, and by employees and management alike. It is regarded to be an essential element of effective safety management without which adequate standards cannot be achieved. In addition, workforce involvement is ever more important in latter day “leaner” organisations in which a smaller management team must make best use of the skills and knowledge of the workforce. The exact form of involvement and the manner of implementation varies according to the type, size and structure of the organisation. In all cases, though, a joint management/workforce effort can devise and implement arrangements, with a moderate degree of support from health and safety specialists, that achieves demonstrable results in six months to two/three years. The fact that all of the surveyed firms intend to extend their arrangements and/or apply them to other sites is a testament to their perceived benefits.
7. REFERENCES


2. THE HEALTH AND SAFETY (CONSULTATION WITH EMPLOYEES) REGULATIONS. SI 1996/1513

3. THE SAFETY REPRESENTATIVES AND SAFETY COMMITTEES REGULATIONS. SI 1997/500


APPENDIX A

PROFORMA FOR SCREENING SITES
Hello, I am calling in connection with your offer to participate in the HSE study of workforce involvement in health and safety. Firstly, may I thank you for offering to participate in our study of workforce involvement in health and safety. At this stage we are phoning around the companies who have offered to participate to identify which sites we need to visit to get a representative sample of large and small firms, and a range of examples of different ways in which staff are involved in health and safety. So I would be grateful if we you would spare a few minutes now to give me a brief overview of the areas of health and safety that the workforce at your site are involved in.

We will subsequently identify a short list of companies that provide the best range of examples. At which point we will contact you again to arrange a site visit.

Can you please describe the ways in which the workforce is involved in health and safety at your site(s)?

For each of the chosen sites we aim to first develop an overview of the arrangements across the site for workforce involvement, the reasons for introducing these arrangements, how this was achieved and the general benefits of workforce involvement. Then we aim to produce up to 3 specific examples of workforce involvement at each site. Each example would concern a single form of involvement, such as being involved in accident investigation, in one or more parts of the site.

The following time and information needs are anticipated:

- A 1 or 2 hour interview with the site safety manager;
- 30 to 60 minute interviews with one or more persons able to describe arrangements for workforce involvement for the specific examples profiled at the site;
- A 30 to 45 minute discussion with a sample of staff involved in the example(s) profiled—such as 3 or 4 staff involved in developing maintenance safety procedure development.

These sessions need to be scheduled over 1 day or 2 consecutive days.

In addition, we seek any available documentary information describing the arrangements, such as safety manuals, and information on the benefits of workforce involvement such as any results of staff attitude surveys, safety performance data, etc. Finally, we would welcome the opportunity to take photographs of the site and/or personnel for possible use in case studies—although photographs are not essential and we do not expect everyone will have statistical information on accident rates etc.

All interviews and discussions will be guided by an interview proforma. All companies will be given the opportunity to review our site report before we forward it to the HSE. Will you be able to meet these interview and information needs?

Do you have any queries?

Thank you very much. You will be contacted again shortly once we have decided which sites to take forward.
<table>
<thead>
<tr>
<th>Areas of workforce involvement</th>
<th>Tick if yes and meets definition of involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>health and safety problem identification and objectives setting</td>
<td></td>
</tr>
<tr>
<td>reviewing and developing health and safety rules and procedures</td>
<td></td>
</tr>
<tr>
<td>equipment, workplace and process design</td>
<td></td>
</tr>
<tr>
<td>reorganisation of health and safety</td>
<td></td>
</tr>
<tr>
<td>management of hazards, including (say)</td>
<td></td>
</tr>
<tr>
<td>redesign of equipment, mopping up split water on floors</td>
<td></td>
</tr>
<tr>
<td>hazard spotting and risk assessment</td>
<td></td>
</tr>
<tr>
<td>accident investigation</td>
<td></td>
</tr>
<tr>
<td>health and safety auditing</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
</tr>
</tbody>
</table>

Can you identify specific examples of where the workforce has been involved and what the benefits of this involvement were?

We will need to talk with the site safety or general manager to get an overview of your arrangements, then hold discussions with someone who can cite specific examples of workforce involvement and their benefits. We also wish to get feedback from the workforce on their views of these arrangements. Would you be able to meet these needs?

General comments and observations:

Involvement requires active participation in making decisions, or applying health and safety systems such as completing a risk assessment, identifying improvements, carrying out accident investigation etc. Management consultation on proposals developed solely by management does not necessarily comprise “involvement”. Similarly, formal safety committees involving workforce representatives does not satisfy the criteria—although safety teams involving the workforce or workforce representatives would.
Foreword

This Appendix provides the text from the proforma report for site surveys. It provides the information provided to and the questions asked of interviewees during site surveys.

Introduction

The Health and Safety Executive and the Chemical Industries Forum are aiming to identify the key features of effective workforce involvement in health and safety and develop a series of case studies for publication. The material for these case studies is to be acquired through a series of site surveys. The site visits should provide an understanding of the “what, why and how” particular methods of workforce involvement succeeded.

The visit should include an interview with the site safety or general manager, and discussions with one or more unit supervisor/manager and workforce representatives who were actually involved in developing or applying the arrangements. Where possible we also require copies of documents describing the working arrangements and photographs of the site to illustrate the publicity – although the photographs are not essential.

The interview with the safety/general manager should last for approximately one to two hours, whilst each discussion with the workforce/unit supervisor should last no more than an hour.

All the interviews and discussions will be carried out using a discussion proforma. All the findings will be summarised in a detailed report that the company will have a chance to check before it is incorporated in the report. We fully guarantee the anonymity of the company’s participation in this project but we welcome the offers of named case studies.

The proforma is split into four sections:

- Overview of the site’s arrangements for workforce involvement
- First specific example.
- Second specific example.
- Third specific example.

The first section aims to acquire an overview of why, what and how workforce involvement was introduced to the site. Subsequent sections aim to acquire information on specific examples of workforce involvement, examples of their operation and workforce views on these arrangements.

Overview of site and workforce involvement arrangements

Preamble

Thank you for agreeing to participate in this study and for agreeing to spare the time for this interview. I expect this interview to take about 1 to 2 hours – is that OK?

Before we start it is probably worthwhile reiterating the aims of the study. The HSE and the Chemical Industries Forum wish to identify the key features of effective workforce involvement in health and safety and develop a series of case studies – for use in promoting workforce involvement across the industry. Consultation with the workforce is a statutory duty. One aim of
this work is to demonstrate how such consultation may be most effectively pursued. However, it is thought that workforce participation in the development, implementation and review of health and safety arrangements offers a wide range of commercial and health and safety benefits. Therefore, this study aims to demonstrate best practice in workforce participation and the benefits of achieving such standards.

By "workforce" we mean those persons, such as operators, craftsmen, HGV drivers, technicians and engineers who are under the direction of managers, supervisors and directors. This can include contractors working on your site. The case studies should provide an understanding of the "what, why and how" particular methods of workforce involvement succeeded. By "involvement" we mean where the workforce are actively involved in making decisions about the design of health and safety arrangements, and/or their application, such as helping to agree safety rules, applying risk assessments, identifying safety improvements, leading accident investigations, etc. We are visiting a range of large and small companies operating in different parts of the industry to get a range of examples.

The aim of this visit is to acquire material for these case studies. We will produce a detailed summary of our visit. This summary will be used as a source of material to be drawn on in HSE and Chemical Industries Forum publications and publicity.

All the interviews and discussions will be carried out in accordance with a discussion proforma. The findings will be summarised in a detailed report that you will have a chance to check before it is incorporated in our report to the HSE. We fully guarantee the anonymity of the company's participation in this project but we welcome the offers of named case studies.

- Would you be happy for your company name to be mentioned by the HSE in their publicity?

This interview with you should include an overview of the site, as background to the case study, an explanation of why and how the arrangements for workforce involvement were developed, and an overview of what these arrangements are and what benefits they have delivered. Wherever possible we welcome documents describing the working arrangements and statistics on site health and safety performance before and after workforce involvement was introduced.

After this interview we hope to speak next with the manager(s) and/or supervisor(s) responsible for up to 3 specific examples of workforce involvement on this site. An example may cover (say) workforce completion of risk assessments, involvement in developing safety procedures and application of safety audits. These examples may be drawn from one or more units. Each of these discussions should cover any particular reasons why workforce involvement was introduced in these particular areas, detailed explanation of what these arrangements are, specific examples of their execution and examples of problems they have resolved.

Finally, we aim to talk with either members of the workforce or workforce representatives about their views of their involvement in health and safety. This will cover issues such as whether the arrangements are adequate and whether their perception of the company's commitment to health and safety has changed as a result of this involvement.

Finally, we would like to take a few photographs around the site to provide some context for the case studies, especially of members of the workforce and management at work. The photographs will not be published in the report but may be used by the HSE in generating ideas for sketches illustrating case studies.

- Would this be possible?
- Before we commence with the interview do you have any queries?
Site overview

How many employees and contractors work on this site?

- Employees:
- Contractors:

Can you give an overview of the activities on the site? E.g. the range of products being produced, the number of production units, presence of on-site engineering workshops, storage, etc.

Please describe the organisational structure on the site. For example, is the organisation split into production units or technical departments? How many levels of management are there? What are the staff grades?

- Can you supply an organogram?
- Tick if supplied

Is there an on-site health and safety department or officer? How would you describe the role of the health and safety department/ officer?

Are staff represented by a trade union? If so, what is it and what proportion of staff are represented by the union?

- What are the arrangements for consultation with the trade union?

Reasons for introducing workforce involvement

Why did you decide to introduce workforce involvement in health and safety?

- Was there something in particular that prompted you to introduce workforce involvement?
- Were there any particular problems that you thought workforce involvement would help resolve?
- What were you hoping to achieve from introducing workforce involvement in health and safety?
- What is your current policy regarding workforce involvement in health and safety?
- To what extent did the publication of the Health and Safety (Consultation with Employees) Regulations 1996 influence your decision to pursue workforce participation?

Was the introduction of workforce involvement part of a wider health and safety initiative? If so, what were the aims of the wider initiative and what did it entail?

Was the introduction of workforce involvement part of a business reorganisation or prompted, perhaps only partly, by organisational changes, such as downsizing and delayering, or empowerment or Investors in People?

- If so, in what way did these wider business changes prompt the introduction of workforce involvement?
Planning and development of workforce involvement arrangements

How did you approach the planning and development of the arrangements for workforce involvement?

Who was involved in developing and agreeing the arrangements?

- *In what way was the workforce involved in deciding what the arrangements would comprise?*

- *Did you seek consultancy support or advice? If so, how did they assist you?*

- *Who developed the formal aspects of the arrangements, such as risk assessment pro formas to be used by staff?*

Did you survey how other organisations had introduced workforce involvement?

- *What conclusions did you draw?*

How did you approach organising and implementing the arrangements?

Did you make changes to your existing management structure/working arrangements to facilitate or support the introduction of the workforce involvement? If so, what were these changes?

- *E.g. have the roles of safety staff, line management and supervisors been altered, (new remit for site safety committee, increased role of team leaders in discussing safety matters etc).*

How did you communicate the arrangements to the workforce and management?

What level and type of management and workforce training was carried out?

Did any staff or management raise concerns or fears about workforce involvement? If so, what were these concerns and how were they addressed/resolved?

How long did it take to develop and implement the arrangements?

What were the costs for developing and implementing the workforce involvement schemes and the time required?

- *Staff time:*

- *Tangible costs:*

Do you have any documentation describing how you developed your workforce involvement arrangements? If so can we have a copy?

Description of arrangements for workforce involvement

In what aspects of health and safety are the workforce involved?

- *Please list these – prompt with list in table if required.*
Producing COMAH/CIMAH safety reports
Identifying and resolving health and safety problems
Risk assessment
Accident investigation
Development of safety rules and procedures
Development of safety management systems
Health and safety training
Health and safety site tours
Health and safety audits
Hazard spotting
Equipment design
Purchasing activities, e.g. PPE

Can you please describe what arrangements you have in place for workforce involvement in up to four or five examples?

- e.g. What is the scope of staff input, what discretion do they have in making and implementing decisions, when and how do managers/supervisors review or authorise workforce recommendations, is this a regular or ad hoc involvement, which members of the workforce are involved—all or a select team—what are the mechanisms of involvement such as brainstorming meetings vs. documented risk assessments?

- get copies of forms, manuals, proformas etc used by workforce – if possible.

Example 1:
Example 2:
Example 3:
Example 4:

**Ongoing maintenance and review**

How do you maintain staff and management commitment to workforce involvement?

How do you approach the ongoing review and improvement of workforce participation arrangements? E.g. workforce feedback, attitude surveys, audits, benchmarking etc.

**Benefits of workforce involvement**

In your opinion, what are the main benefits of the workforce involvement?

- Prompt with table if required.
Better health and safety performance  
Improved staff commitment  
Improved staff ownership of health and safety  
Improved industrial relations  
Fewer accidents and injuries  
Staff morale  
Improved productivity  
Reduced management costs, e.g. fewer health and safety staff  
Allows delayering/downsizing

Can you cite some specific examples of problems that workforce involvement helped to resolve, such as secured adherence to safety rules, eliminated a hazard, helped redesign awkward equipment etc?

- (get photographs of equipment or area of plant concerned, copies of risk assessments or manuals produced etc – if possible)

Do you have any health and safety data, such as Lost Time Injury rates, for the period before and after workforce involvement was introduced? If so can we have a copy? If not, what is the Lost Time Injury rate now?

Have you completed any surveys of workforce attitudes towards health and safety before and after the introduction of workforce involvement, and/or workforce involvement in particular? If so, what were the results and can we have a copy?

Do you think the benefits outweigh the costs and effort involved in introducing workforce involvement?

Lessons learnt

Do you have any plans for the future, such as wider scale implementation of workforce participation or changes to existing arrangements?

What advice would you have for anyone else who may be contemplating introducing workforce involvement? What problems do you think can be avoided? What advice do you think people need?

First specific example of workforce involvement

Management view

Preamble

We have been asked by the Health and Safety Executive and the Chemical Industries Forum to produce a series of examples of workforce involvement in health and safety. The aim is to use these examples in publicity promoting workforce involvement in the chemical industry. Your site (safety/general) manager has given us an overview of arrangements. The aim of this meeting is to get some further details on the design of these arrangements and specific examples of their operation and benefits. As agreed with your company, this discussion will be reported
on an anonymous basis unless your company agrees to be named, and your company will be
issued with a summary of our meeting before we issue our report to the HSE.

I understand that the workforce are involved in (refer back to previous meeting) aspects of
health and safety in this unit. We would like to focus on this aspect of involvement in this
meeting. But before we discuss the form of involvement, we would like some background
information on the unit, to provide some context for the example.

- Do you have any questions before we proceed?

Can you please describe the activities, number of employees and organisation of this
unit?

Why was workforce involvement in health and safety sought in this particular area?

How did you approach developing and agreeing the particular forms of participation?

- (People involved, methods of consultation, trials/piloting, etc)

How were these arrangements communicated to the workforce?

What aspects of the local organisation, if any, had to be changed to support the
implementation of workforce participation?

Did the workforce or local management have any concerns about these arrangements?
if so what were they and how were they resolved?

What aspects of health and safety are the workforce involved in?

To what extent do the workforce have authority to implement decisions? What are the
limits on the authority of the workforce to make changes to procedures, equipment etc?

How do you approach reviewing and improving the effectiveness of arrangements for
workforce participation in your area of responsibility?

Please describe up to 3 specific examples of workforce involvement. Such as an
example of a risk assessment they completed, or an accident investigation, or a set of
recommendations for safety improvements they developed?

Example 1:

- Background to the example (including description of activity, number of staff
  working in this area, types of chemicals and hazards involved, description of
  equipment etc).

- What did the workforce do?

- Do you have any documentation showing what workforce did? E.g. a copy of the
  risk assessment.

- What were the findings of, say, the risk assessment?

- What role did management, supervisors and/or safety staff play in this?

- What changes were made as result of this? Such as new equipment, new procedures,
  additional training etc.

- Can you cite some specific benefits of this involvement, such as eliminated a hazard,
  increased staff acceptance of safety rules, made procedures more workable,
  resolved a difficult safety problem etc.?

- In what way, if any, have you changed or improved these arrangements since they
  were first introduced?
Example 2:
- Repeat questions as for example 1.

Example 3:
- Repeat questions as for example 1.

What advice would you have for anyone else contemplating introducing workforce involvement? Such as problems that could be avoided, how to do it better? What worked particularly well?

**Workforce view**

Preamble

We have been asked by the Health and Safety Executive and the Chemical Industries Forum to produce a series of examples of workforce involvement in health and safety. The aim is to use these examples in publicity promoting workforce involvement in the chemical industry. Your site (safety/general) manager has given us an overview of how you are involved in health and safety. The aim of this meeting is to get your view of the adequacy of these arrangements and feedback on whether your attitude towards health and safety management has changed as a result of this involvement. As agreed with your company, this discussion will be reported on an anonymous basis. We may name your company if your company agrees this, but individuals will not be named. Also, your company will be issued with a summary of our meeting before we issue our report to the HSE – to provide an opportunity for factual errors to be corrected.

I understand that you are involved in (refer back to previous meeting) aspects of health and safety in this unit. We would like to focus on this in this meeting.

- *Do you have any questions before we proceed?*

How do you feel about the arrangements for workforce involvement in health and safety?

What is the extent of your participation? Do you feel it is sufficient?

From your point of view, what do you think the benefits are of your involvement in health and safety?

Do you feel the benefits of your participation were worthwhile?

In what way, if any, has your view of the company’s commitment to health and safety changed as a result of your involvement in health and safety?

In what way, if any, has your view of the standard of health and safety at this site changed as a result of your involvement in health and safety?

In what way, if any, has your view of your personal safety changed as a result of your involvement in health and safety?

Do you have any suggestions for how your involvement in health and safety could be improved?

For the second and third specific examples of workforce involvement, follow the format above for the first specific example.
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