

The author disagrees that Mill One is calculative based on the above description. The mill did manage accidents and carry out root cause analysis, but this was only regarding major RIDDORs. There was a lack of procedures, and the procedures in place had significant weaknesses (e.g. risk assessment, permit to work and isolation, COSHH, safe systems of work). There was a distinct lack of trust in management (and this was degenerating over time) and the only safety measure used was that of accident figures and near miss reporting.

The telephone research of Horbury and Wright (2000) found in Table 4.5 is here replicated as Table 8.2 with two extra columns added to add comment to the downsides and positive features proposed in the research:

<b>Positive features</b>	<b>CASE comment</b>	<b>Downsides</b>	<b>CASE comment</b>
<b><i>Behavioural safety schemes can:</i></b>		<b><i>Reported concerns can:</i></b>	
Provide employees with a clear understanding of what comprises safe	No – there was a lack of cascade and clear information to the workforce. This manifested itself in such ways as no statistics for observation were displayed and the web site was never made live	Schemes tend to focus on slip and trip types of risks that are observable and repeated	Yes – although the activity on these was very low
Stimulate workplace discussion of health and safety and provide a practical method (that the workforce can handle) by which the workforce can become engaged in safety	No – the culture was such that the volunteers for the BBS programme was low and the team members were not well thought of by the workforce	If the scheme is implemented at a time when there is a lack of employee-management co-operation and poor safety management arrangements, it may exacerbate conflicts	Yes – this is true when considering the ‘just culture’ model and the history of disciplinary after accident investigations and the continuance of this following the commencement of the BBS programme
Provide a forum for discussion with management about health and safety, and a route by which workforce concerns can be raised	No, the near miss platform was already being used as a vehicle for this	A potentially unsustainable level of management support and backing is required	The BBS team actively discouraged any management input – as such there was very little input from the inception of the programme
Provide a focus on health and safety and motivating internal goal attainment	No – BBS was not a successful vehicle for this	Schemes that rely on external support to administer the scheme can fail once the consultants withdraw, unless site ownership exists	Yes this was true and there was no site ownership
Stimulate management commitment by displaying a performance graph against which they are judged, especially if a baseline score is displayed	No – no baseline and no performance graphs were displayed	Professional staff are less comfortable with the idea of behavioural observation	Yes, although this was not proven – the professional staff were simply not given the opportunity to observe
Provide a vehicle for more effective staff-supervisory interaction – with coaching and feedback on how to work safely	Yes – this was true, however the staff who made up the CASE team did not excel in this area	All schemes are restricted to observable behaviours and hence do not cover lone working	Yes true. The six topics chosen did not cover lone working
Provide a vehicle by which management can demonstrate	Yes – this certainly the case theoretically, this	Schemes originated in America do not always translate well	N/A UK scheme

their concern for safety	did not reflect on the management thinking at Mill One however	into the British culture	
Provide a measure of 'leading indicators' of safety	No – the observations were too few to provide this measure	If supervisors lack safety leadership skills they can fail to provide effective feedback	Yes this was certainly true
		The no blame nature of schemes does not provide a solution to 'persistent' offenders who are resistant to peer pressure	Yes – also the model did not lend itself to a one off incident where an employee was subsequently sacked

Table 8.2: CASE performance versus Horbury and Wright BBS research conclusions

The safety culture and readiness situation at Mill One, it seems, was not mature enough to accept the BBS intervention. The proposed two schools of the commercial BBS company, who suggest that all organisations are ready or senior management support for successful intervention are required, appear to have not been proven at the mill. The next part of this chapter explores the relationship between BBS and the more traditional safety management through the SMS. The Mill Three use of traditional safety management and the subsequent improvements in systems, ownership and culture are discussed at length.

## 8.6 CONDITIONS THAT MAY EXACERBATE INEFFECTIVE BBS PROGRAMMES

This section of the discussion examines the environment that the BBS programme was running within. This chapter has thus far explored the question of organisational readiness, of political climate and the BBS and papermaking fit. In furtherance of these issues, site specific issues are explored to question and discuss the negative impact of these issues on BBS launch and sustainability, and to further the organisational readiness debate.

The issues considered within this element of the discussion are: senior management commitment; middle and lower level management commitment; the importance of trade union support; shop-floor commitment; morale issues; poor communications; BBS team selection and SMS integration (incorporating having a solid foundation).

#### 8.6.1 Senior management commitment

The issue of whether senior management commitment is required to initiate an effective BBS programme is presented within Section 4.7. Geller has argued that, "all organisations are ready" (Marsh, 2002), whilst Marsh does not even believe that this question should be debated. Marsh does not feel that senior commitment is even a point to be debated (i.e. it is not even represented as one of his 6 pillars). Marsh (2004) has stated that all organisations are ready, but his caveat is that senior management support must be present.

The debate of senior commitment could be argued as being semantics – i.e. without the senior commitment, the BBS provider would not be going through a company's gates. This is overly simplistic however, as senior management may request BBS because they have read the BBS provider's claims of high accident reductions in industrial case studies. Within the PLC and The Paper Company several senior managers witnessed presentations where accident reduction figures have been impressive by using BBS. This may lead to senior managers putting pressure on factory managers to achieve a quick reduction in accident figures (without the knowledge of what conditions need to be present to initiate such a programme).

At Mill One the senior manager was committed to the successful introduction of BBS. He initiated the commencement of the programme and on the mill annual plan associated his name with its successful launch. At Mill Two the mill manager was passionate about health and safety and brought from his previous employer a BBS programme. This was initiated at Mill Two with no analysis of readiness. In both examples, the BBS

programmes were unsuccessful. In Mill One the workforce were largely positive about their mill manager and felt that he exerted a positive influence over health and safety (Section 7.4.2).

#### 8.6.2 Middle to lower management commitment

Whilst senior commitment is essential for a safety culture to be positive, the support of the middle management and supervisory levels of staff is essential to sustain its positive features. Whilst senior managers establish the policies of an organisation, it is the middle managers who put them in to practice. In a 24 hour manufacturing process like papermaking it is the shift manager who has day to day management responsibility for all disciplines including health and safety (Section 7.4.2). Previous studies have demonstrated that there is a strong correlation between managers having a production first mentality and their likeliness to accept rule based violations (Rundmo, 1996).

The semi structured interviews revealed widespread belief from the shop-floor that the shift managers and machine day managers had a production first mentality. The work completed by Rundmo (1996 *ibid*) would suggest that the acceptance from managers of rule breaking was highly possible. The questionnaires returned to the author from both the 2004 and 2007 studies, equally demonstrated low opinions of management at the mill (Tables: 7.4; 7.5; 7.10; 7.11).

The questionnaire results (2007) were particularly negative regarding the question, *Safety is less important than productivity* with 60% of the respondents agreeing or agreeing strongly. In the 2007 questionnaire, the agree strongly or agree percentage had risen to 82%. The semi structured interviews added depth to these percentages and explained respondent's views descriptively. Many felt some empathy, for shift managers in particular, who were thought to be in a difficult position as managers, attempting to appease all levels of staff (Section 7.4.2).

Some of the particular statements made from the two sets of interviews are given below to elucidate the employee opinions:

“Breaking the rules is fine on nights, but I suppose it depends which shift manager you have.”

“Certain managers are honourable and have workforce safety at the forefront of how they feel and act. Unfortunately, coal face managers (supervisors) think only of their overtime and the production tonnes.”

“No operator will shut the machine down in the name of safety because the consequences would be too great. (*Asked to give some more detail*) Not the down time – the reaction and relations with the middle managers.”

“All shift managers care about is their bonus. Their bonus isn't linked to safety at all, so why should they care?”

“I have to defeat the guards to keep making product sometimes ... of course I have raised the issue – it never gets beyond shift or machine manager level. I could tell the mill manager who would act, but I have to live with the decision and ultimately I will have to pay a high price for going above my managers head.”

“They (*shift managers*) know we don't follow risk assessments and safe systems of work. When it suits them they turn a blind eye (*asked to give an example*) we sometimes go inside the machines on the run – backs are turned, but if we are caught the shift manager will sit in judgement of us in the disciplinary.”

The balance of opinion regarding the middle managers was very negative and the only redeeming statements were expressing a level of pity for the difficult position the shift managers were in. When conducting the interviews the author's neutrality was challenged by one individual, suggesting a lack of trust in all managers within the company, “You're a manager, why should I trust you, when I can't trust any other manager?”. Another operator stated during the start of the interview, “... being candid has never helped me here in the past – why should I start now?”.

A further selection of key questions are detailed below. Both the 2004 and 2007 results are displayed which further demonstrate the poor opinions of both senior and middle managers.

Question	Agree (either agree strongly or agree)		Neither agree nor disagree		Disagree (either disagree strongly or disagree)	
	2004 (%)	2007	2004 (%)	2007	2004 (%)	2007
Breaking the safety rules is fine as long as you're not caught	40	77	28	18	32	8
On the whole, management makes fair decisions	22	13	32	8	47	79
The management are important in keeping the workplace safe	32	18	20	3	48	74
The management are committed to health and safety	48	26	25	18	27	56
The management have good management skills	22	10	32	5	46	85
Line management make sure we're informed about organisational events	29	10	32	8	40	82

Table 8.3: Selected questionnaire results from both 2004 and 2007

### 8.6.3 Trade union involvement

The most vocal critics of BBS schemes are the trade unions – the United Steelworkers of America and the GPMU have been quoted within Section 4.7.6.1. Hazards, as a trade union sponsored magazine, is one forum for the criticisms which are frequently printed (Hazards, 2003; 2004). The criticisms are very often based on incentive schemes which are popular within America but not so much in the UK. Nevertheless the UK trade union movement have always been critical of BBS observation schemes. The blame the worker accusations (Frederick & Lessin, 2000) are felt to be unfair criticisms of BBS in the UK – the inference being that this criticism is levelled at incentive programmes where attempts are made to buy long accident free periods (Marsh, 2004). As Hopkins states, “if behavioural safety programmes are to have any chance of success, they must strenuously oppose this tendency to blame workers for their unsafe behaviour” (Hopkins, 2006).

The example of the accident which delayed the BBS launch at Mill One (Section 6.7), unfortunately supported what Hopkins (ibid) referred to as, “the fallacy of mono causality” (reference to accidents) in that the individual

was disciplined and his employment terminated. The just culture tree (Figure 5.1) was a key part of the cultural improvement presentations made to the mill by the CASE team. When the aforementioned accident occurred and the decision was made to terminate the individual's employment, the trade union officials cited the just culture tree, suggesting that according to the tree a written warning would be more appropriate. Following a follow up meeting between the mill senior staff and the trade union off site officials (the author was present), the decision to uphold the employment termination decision was held by the senior management. The just culture model was now seen by staff to be unjust – the BBS scheme which was based around the just culture could now not be effective. The following was part of a discussion between the author and an anonymous trade union mill based official:

“How the hell can sacking [Name erased] be a just solution? I understand that no name no blame is nonsense and unworkable and I hoped that the just culture tree would be a good solution to disciplining those that need it. The reality is that the worker is the accident's fall guy as always.”

The shop-floor opinions of their trade union representation were mixed, and the results in the 2007 questionnaire had significantly worsened from the original carried out in 2004. The question, *The Trade Unions play an important role in providing a safe and healthy workplace* saw 50% agreeing or agreeing strongly (Table 7.5) whilst in 2007 the same question saw only 16% agreement. Those disagreeing or disagreeing strongly had risen to 76% (Table 7.11).

The semi structured interviews carried out in 2004 saw a mixed spread of views regarding the elected trade union representatives within the mill. The replies regarding the trade union officials were very negative however in 2007. Several people referred to two individuals as doing safety for the right reasons – namely the safeguarding of their members as opposed to carrying out overtime to purely increase their pay packets.

"The trade union guys are management lackeys ... only meant to be a manager themselves. How do they represent my needs? [*Asked to expand on this point*]. Well for a start both the personnel manager and safety manager are ex FOCs – it's them now disciplining their ex-colleagues."

"The trade union reps [that] come in, do lots of work to bump up their overtime."

"The union are obstructive, unhelpful and selfish. They line their own pockets and don't care about their members. A couple of them – *Name erased* and *Name erased* do it for the right reasons though, but they are the exception."

Krause and Hidley (1993) is the only peer reviewed article that has been cited within the literature review which suggests that, "labor unions also favour the behavior based approach to safety". This is in contrast to the experience of the BBS intervention in Mill One which the GPMU would not support. Mill Two's programme however did have support from the trade union on site, although the author would question whether there actually was a programme running at all because of the lack of observations carried out by the trained mill staff.

The BBS programme at Mill Two was based on observations. These behavioural observations tailed off to very small numbers by late 2004/05 and there was no further evidence of any BBS elements running at the mill. The foundations for good health and safety were not strong – such things as risk assessment, COSHH management, guarding standards, audit and inspection were very weak. The observations from the author and external audit (Section 6.6.2.1) demonstrated a low level of health and safety management and examples of poor behavioural actions from members of staff (Section 6.6.5.5).

It appeared that the Mill Two BBS system was given credibility for the reducing accident rate in the mill, but the mill only employed 103 persons and the reduction of reportable accidents was not statistically significant. The claim to be running a BBS programme was a falsehood because the backbone of the programme – i.e. observations, were not a regular occurrence at the mill. The SMS was weak and the lack of checking

mechanisms such as measurement and audit allowed the deterioration in the numbers of observations.

#### 8.6.4 Shop-floor commitment

The BBS programme was described as a bottom up programme – i.e. not led by management but by the shop-floor (or full behavioural safety incorporating the six pillars - Section 5.6.2).

Table 5.5 illustrates the intended BBS role out, stage three being the, brief the workforce and ask for volunteers, element. The number of volunteers was low (nine) and this thesis has discussed the perceived low calibre of the volunteers (Section 5.7.1). The trade union stance of actively not supporting the BBS programme (including no trade union members becoming volunteers) did have an effect on limiting the numbers of staff volunteering to become a member of CASE despite the negative views the shop-floor expressed about their Trade Union (TU) elected members.

There were several negative statements made by managers at supervisory and shift/machine manager level. The sentiment was largely that the shop-floor offered criticism and very little in the way of solutions, that they were only interested in doing their days work and then going home until the next shift.

“Operators moan that they are not involved, but when they are invited to meetings or forums they either don't turn up or do so with a petty shopping list.”

The above quotation from a middle manager can however be tempered by the following statements made in interview from two shop-floor members of staff. Their frustration was evident during the interview:

“I don't put any near miss forms in any more. They disappear in to the black hole, never to be heard of again.”

“Maybe a third death at the mill will change us for the better.”

#### 8.6.5 BBS and SMS integration (incorporating the requirement for a solid foundation)

The BBS programme was commenced at Mill One in an isolated fashion, on several grounds. The mill management team were encouraged to utilise new blood and also the BBS programme was run in a state of secrecy to the point that its activities and findings were not readily evident or available to any parties outside CASE. The communication issues were evident from the 2007 interviews undertaken by the author:

"Is the behavioural thing still running? We haven't heard anything about that for months."

"I haven't seen any results from the behavioural team apart from when they first started."

"I assumed that the programme had stopped (BBS). Time to move on to the next management initiative instead of really tackling the problems head on."

Cooper, a UK born BBS provider and academic, now resident in America, stresses that BBS is not a "panacea" but something that must be initiated at the correct time for an organisation. In *Improving Safety Culture* (Section 4.7) Cooper talks of SMSs and behavioural safety as being intertwined (Cooper, 1998). Booth (2005) is in agreement with this sentiment – the requirement for a solid base is stressed by both.

Krause and Geller are of the opinion that it is a fallacy that a solid foundation is required prior to the implementation of a BBS. This relates to the SMS, a level of cultural maturity and management ownership to name some key foundation elements that Cooper (1998 *ibid*) and Booth (2005 *ibid*) insist are necessary prior to any BBS intervention. Marsh (2004) is in broad agreement with Geller and Krause but stresses that the implementation process may be "bloodier" if certain requirements are not in place.

## **8.7 BBS PROVIDERS AND THE MORAL v COMMERCIAL CASE**

The author has held face to face talks with two successful commercial providers of BBS regarding this issue. The title of this section however is misleading, because those providers who are of the opinion that any organisation is ready for BBS have no moral dilemma. These providers are selling a product to an organisation that they feel can work successfully, if the organisation follows their instruction on implementation and sustainability.

It must be born in mind that the majority of BBS providers sell one product – this being BBS. These organisations may find it difficult to say no to work even if they feel that an organisation is not suitable to implement BBS - for commercial reasons. Booth (2002) however described an event whereby a Du Pont representative turned down the opportunity of contractual work at British Rail:

"I regret that the culture of violations is so endemic within British Rail we cannot see any way an intervention by us can be of any value."

This thesis does not seek to examine whether BBS providers do refuse to work in certain organisations – this can be explored in further research. What is of interest is the inability of BBS providers to be flexible in providing a fit for purpose safety solution, according to an organisation's cultural maturity and readiness to implement BBS programmes.

## **8.8 SUMMARY**

This chapter examines key issues relevant to the requirements for a BBS programme to have a chance of success. This has evaluated the issue of the readiness of an organisation to host a BBS programme – this debate centres on the organisations cultural maturity. The political climate of both the PLC and The Paper Company are evaluated, as are specific mills. A key debate is also that of whether BBS is suited to process industries, but more particularly the paper industry? The industry has seen its staff numbers

decimated and there is an issue of whether, when there are at risk activities occurring, it is unlikely that there will be an observer available. The tonnage first culture of paper mills exacerbates this issue – observers may feel some guilt at standing back when their co-workers are carrying out difficult physical tasks in hot and difficult machine conditions.

Specific conditions and situations at Mill One are finally discussed which aids evaluating whether they are key factors in being necessary factors for successful BBS.

The aforementioned discussion points all contribute finally to the organisations safety culture. If the ACSNI (1993) definition of safety culture is used – namely:

“Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventative measures.”

It is evident from the discussion elements within this chapter that Mill One had a poor safety culture. The communications were poor and worsening (see Tables 7.6 and 7.12). There was little trust between management and shop-floor and also of the trade union elected members. The production first viewpoint from middle managers, and the perception that this was so from the shop-floor, meant that there was little confidence in the effectiveness of preventative measures.

### 8.8.1 Research Aims and Objectives

Chapter One detailed the thesis aim and objectives. These have been reproduced in the following table. The purpose of this table is to discuss the level to which the aim and objectives were met.

Thesis Aim and Objectives	Degree to which the Aim and Objectives were met
Analyse the current and historical safety position of the paper industry within the UK and compare and contrast with The Paper	Chapters 2 and 3 provide a history of papermaking which includes the papermaking process, the economic

Company data from similar periods	conditions and the health and safety performance of the sector. The Paper Company is statistically compared with the general industry figures for measures such as fatality rates and major injury rates.
Ascertain safety culture within Mill One by studying previous climate surveys. These have been by both The Paper Company and a BBS consultancy	Chapter 5 (methodology) details the means utilised to ascertain levels of safety culture within the mill. Measures were undertaken through semi-structured interview, questionnaire, and participant-observation. The measures were conducted prior to the BBS and then following the BBS to illustrate the effectiveness of the BBS intervention.
Carry out a thorough literature review to build up a rich picture of safety culture research and BBS research	Chapter 4 provides a traditional literature review which builds on the papermaking specific background information contained in the second and third chapters. Chapter 4 defines the organisation, culture and climate and vital sub elements of these such as communication and organisational learning. SMS's are discussed as an essential learning framework for organisations – which is essential for effective and positive safety culture. The final element of the literature review introduces BBS, from its history, its defining features, different methodologies and criticisms. The review is completed by an analysis of BBS within the papermaking industry.
Evaluate the efficacy of the BBS implemented at Mill One	The BBS programme was ineffective when several criteria were studied. The narrative chapter (chapter 6) details some incidents at Mill One which describe events prior to the BBS programme (such as accidents and the trade union relations with management), suggesting that its success would always be in doubt. The results chapter demonstrates the post BBS measures (questionnaire, interview results) which clearly indicate that safety culture has become significantly more negative than the pre BBS intervention measures.
Evaluate the efficacy of Mill One's SMS – measurements taken are 2004 (pre behavioural intervention) and 2007 (post behavioural intervention)	The external audits undertaken demonstrated little improvement from 2005 to 2007. The SMS weaknesses were based around the measurement audit and review elements of the SMS – a lack of learning suggesting a poor safety culture.
Establish whether the SMS can sustain and aid the implementation of a behavioural intervention	The SMS was proven to be too immature for the implementation of a BBS programme and certainly for any programme to be sustained.
Determine whether attempting to change worker behaviours can have an effect on the organisation's safety culture. The paradigm is that safety culture improvement changes worker attitudes, whilst behavioural safety changes worker behaviours	The attempts to alter behaviours certainly provided no positive effect on the organisation's safety culture. In fact the opposite was true – there were signs from observation and interview that morale had been further weakened by the introduction of the BBS programme.
Evaluate the efficacy of the BBS scheme at	The BBS scheme at Mill Two was found to

Mill Two	be weak and its peer reviewing and observational elements (upon which it was based) were found to be sporadic and even completely inactive. The mill claimed BBS success because of zero reportable accidents for a period of time. The use of accidents as a sole measure of BBS success is not statistically significant and there were several examples of dangerous occurrences at the mill.
Examine whether improving the SMS can lead to a better safety culture	Mill Three demonstrated significantly improved safety culture through SMS improvements. The 2004 and 2007 audits demonstrated a significant rise in audit score – measurement, audit and review greatly improved and suggested a learning organisation. The author observation and participation within the mill indicated an improving culture.
To evaluate the implementation of BBS at Mill One (Aim)	Through various measures and techniques the BBS implementation at Mill One has been fully evaluated. The results of this are contained within chapter 7, whilst the methods utilised to evaluate the implementation are contained with the methodology and narrative chapters (6 and 7).

Table 8.4: A summary of whether the aim and objectives were met

## CHAPTER 9 – CONCLUSIONS

This chapter presents the conclusions to the thesis and explores further areas for research. Recommendations to employers and to Behavioural Based Safety (BBS) consultants are given. The conclusions are based on data obtained from the following interventions:

- Mill One – a BBS programme was initiated during the employment of the author;
- Mill Two – a BBS programme was running prior to the employment of the author;
- Mill Three – a systems based intervention approach was undertaken.

Conclusions have also been drawn from the author's involvement in a participant-observer role in most of the events described, as Group Safety Manager for The Paper Company. The recommendations are linked to specific conclusions with appropriate cross-references.

The above interventions were spread over different areas of the business. The conclusions are focused on the findings at Mills One to Three. Mill Two had a BBS programme running prior to the employment of the author. Although this intervention was not author-led, the efficacy of the programme was evaluated. The main intervention was the BBS initiative at Mill One. The conclusions focus on the resultant safety culture and safety ownership of the workforce arising from BBS. In addition, management support at all levels, the role of trade unions, the makeup of the BBS team and BBS inclusion in mill systems have all been evaluated. Finally, at Mill Three a systems approach is evaluated, regarding its impact on safety culture and ownership of safety by all levels of the workforce.

## 9.1 CONCLUSIONS

It can be concluded that the BBS intervention at Mill One was a failure. Moreover the intervention negated some good systems and procedures that were proceeding at the mill. If this is compared with Mill Three, whose low budgets did not allow the purchase of a consultant-led BBS scheme (although BBS had not been recommended at the mill), Mill One's failures become starker. The pursuit of safety improvements for legal compliance at Mill Three (from previously low levels of compliance), had the benefit of creating positive staff attitudes that BBS programmes offer to provide, but ultimately failed to do so at Mill One.

The Mill Two manager instigated an observation based BBS system when he commenced employment with The Paper Company. As already mentioned, the intervention was an established programme when the author joined the company. Whilst this intervention was not author-instigated or the main focus of this thesis, its effectiveness has been analysed in the narrative, results and discussion chapters. Thus this BBS programme has contributed to the recommendations, particularly regarding BBS readiness and management commitment, to a programme's success.

The conclusions of the research are given below:

- a. The BBS programme failed to make any improvements at Mill One on the basis of several criteria – these are as follows:
  - i. There was a failure to improve safety culture; the programme actually had a negative effect on the mill;
  - ii. There was no improvement in ownership of the mill's health and safety systems by the workforce;
  - iii. There was a perception by many mill staff that the programme was either defunct or had not even commenced. This was due to several causes, the main ones being: the lack of high-profile staff involvement in the programme; the lack of visible signs of

- BBS activity such as measurement charts, and the lack of integration with other safety-related activity on site;
- b. The support of the most senior manager on site was not sufficient to give impetus for a BBS programme to embed it into the organisation and make improvements in health and safety performance;
  - c. The implementation of a BBS programme that expounds the virtues of a just culture, is unlikely to succeed in an environment of disciplinary action following accidents and incidents;
  - d. BBS cannot be implemented in an organisation where the safety culture is not mature enough to support a shop-floor led programme;
  - e. Low morale and a chronic lack of trust is not a foundation which can support BBS;
  - f. If a trade union is on site they must be consulted by the management team and kept abreast of the BBS programme. Trade unions may not support a BBS programme but their knowledge of the programme is essential, not least for damage limitation;
  - g. Middle management are crucial in supporting BBS interventions, and where there is a lack of any support for a programme, key messages may not reach the shop-floor or senior management;
  - h. If BBS is initiated in an industrial environment, the choice of shop-floor staff is vital to the programme's success. Individuals who have respect and gravitas are required to be involved to give the programme respectability in the eyes of the workforce;
  - i. If the BBS programme is workforce-led and has no management or supervisory elements within it, it still cannot be separated from management entirely and there must be regular communication channels between parties;
  - j. BBS cannot sit outside everything the mill does. BBS should be integrated in to an organisation's systems and procedures in order that BBS becomes part of the culture and not simply an add on;

- k. A lack of corporate safety leadership is damaging to a company's divisions if the corporate body's instructions to those divisions is not based on competent and expert safety advice;
- l. Commercial providers of BBS are highly motivated to suggest to a company that BBS is the correct direction for that company. This is compounded by the fact that BBS providers in most circumstances only provide behavioural safety;
- m. Ownership, buy in and shop-floor support can be engendered in a systems-led programme. This was the case at Mill Three where a systems based approach was used, based on such things as risk assessment, inspection and audit and ownership of health and safety responsibility from the management team.

## **9.2 RECOMMENDATIONS**

The recommendations made are parallel to several of the conclusions. To indicate the relationship between recommendations and the corresponding conclusions, brackets are inserted after each specific recommendation which indicate the relationship.

### **9.2.1 Specific recommendations**

The recommendations to employers apply at several levels including the PLC, The Paper Company and the host sites where the interventions have been analysed. Further, there are also recommendations made to the BBS safety providers in both Mills One and Two. The BBS advice can also be utilised by companies considering implementing BBS, and other BBS providers who aim to provide a professional service to their clients.

- Mill One should either integrate the BBS system in to their other safety management systems (SMSs) or shelve the programme. There should be a concentration on SMS development to address the weaknesses identified by external audit. Items for inclusion

should include risk assessment, permit to work and isolation and COSHH (ai, aii, aiii, f, j, m);

- Attempts to increase workforce ownership should be implemented by utilising the key managers and supervisory members of staff to manage health and safety as they do other disciplines. The middle managers and supervisors must be schooled to think of health and safety's importance by not just basing their bonus on saleable tonnes, but on other KPIs. This would further highlight manager's perceptions that health and safety management is as important a consideration as tonnes of paper (aii, f, g, m);
- The PLC should seek expert safety advice at the corporate level. This would ensure that uniform, competent and workable health and safety advice is available for all divisions of the company. This could ease the pressure on divisions and particular mills and factories on buying BBS from a consultant because their safety culture has been criticised. When BBS is bought off the shelf and the timing is poor, the BBS system can be too far removed from the way that a business unit manages health and safety. This disjointed approach can damage the systems already in place (j, k);
- Any company considering initiating BBS should analyse properly whether the conditions are correct in their workplace prior to discussing company aims with BBS commercial providers. BBS commercial providers are without options when quoting and tendering for work and their solution of BBS may be the wrong one – i.e. BBS companies simply provide BBS systems. A neutral survey of safety culture would be a better barometer of whether BBS could assist the company in improving their safety performance. This is especially true of workplaces where there are complex machines or processes inherent to the industry – for example a BBS consultant is unlikely to be able to properly analyse a company's permit to work effectiveness, their risk assessment process or their adherence to legislative compliance (b, c, d, e, g, l);

- BBS providers should analyse more carefully the cultural maturity and readiness of potential host organisations. Although it would be more ethical for a separate body to audit readiness, this is commercially unviable for providers. More credibility could be gained by a company which offers a number of health and safety solutions. There would be less danger of mis-selling to organisations in these instances i.e. where that company offers a basket of measures (f, l);
- Where a site is unionised it is advisable that a BBS provider, or that site's management team, do not deliberately exclude the trade union in the behavioural programme. Trade unions must be carefully approached regarding their views on BBS and in the unlikely event where they approve of a programme they must be offered the ability to contribute to the process. There are dangers in proceeding with a programme if not supported by the trade union, but if this is carried out the trade union must, in the very least, be able to contribute to the process. The BBS provider encouraged the site management to not use the trade union safety representatives in the BBS committee and felt the two parties could work better separately (ai, aii, aiii, c, d, e, h, j);
- It is not advisable that BBS, or any significant health and safety programmes, be initiated where an organisation is going through significant change. Mill One was managed by four different mill managers during the period of BBS intervention. This turnover does not allow a senior manager to stamp their own personality on to the intervention (ai, aiii, b, k);
- If BBS or any other intervention is to be initiated at a site, the effective communication of that intervention is vital to its success. For that communication to be successful however the management must believe in the intervention and the membership of the intervention team must be one who the workforce have some faith in regarding its success (aiii, b, g, h, i, j).

### 9.3 FURTHER RESEARCH IDENTIFIED

Through the increased ownership which resulted at Mill Three, achieved through addressing SMS weaknesses, it is apparent that it is possible to implement behavioural improvements through properly addressing the SMS. It is proposed therefore that future research should be carried out to establish if the following are effective:

- To implement a SMS in an organisation, whereby one of the KPIs is a measurement of the safety culture prior to and following the implementation of the SMS;
- To propose that good SMSs include strong behavioural elements within each of its constituent parts from policy to audit and review. This could therefore negate any requirement for separate BBS implementation. A possible extension of this is to design a new SMS based on the process of Plan Do Check Act (i.e. cyclical) whereby each constituent part includes both systems and behavioural elements;
- Analyse examples of BBS programmes across a cross section of industry sectors. Explore the suitability of BBS programmes for the various sectors and indicate reasons for the suitability/lack of suitability of BBS programmes
- Establish whether or not safety maturity can be falsely inflated by safety maturity surveys, according to Schein's three layered approach to organisational culture. Schein's premise is that the deepest organisational values cannot be exposed by questionnaire or interviews. Explore methods of examining the deepest level of Schein's model to accurately state an organisation's safety culture;
- Design a readiness audit which analyses the cultural strengths and weaknesses of an organisation and presents an impartial view of the organisational readiness for BBS implementation.

This would analyse behavioural readiness whilst also auditing the SMS and prioritising actions through gap analysis. Readiness and an organisation's cultural maturity is perhaps the most important element of this research if BBS is to gain credibility from academics and non BBS providers. A future paper would seek to examine what criteria an organisation should have in place prior to BBS implementation. If this were the case it could be possible for more general health and safety providers to offer BBS as and when BBS is a good fit with that organisation. The use of BBS as one of several tools could help ensure that BBS is only used when it is favoured over other options on a more considered and scientific basis. The author has concluded from this research that senior management is essential, but not in its own right enough of a factor to promote successful BBS. It appears that the support and positive safety cultural impacts of those who manage the plant on a 24 hour basis (such as shift managers) are the essential drivers of any safety initiative including BBS. Trade union support may be difficult to engage, but the TU should certainly not be discluded if any BBS programme is being considered. If a plant is strongly unionised and that union actively campaign against BBS (both incentive and observational schemes) it is possible that this may never be the correct safety initiative. It could be argued that all commercial providers would suggest that BBS is the correct option for an organisation – if a more general health and safety provider or an organisation itself wants to ascertain if BBS is the correct option a BBS readiness audit could provide this information.

What is certain is that BBS does not provide a panacea for an organisation. What it may be however, is a viable option for a sufficiently mature company to further safety culture through improved employee behaviours. If one considers the safety cultural maturity of The Paper